

**SYSMAC**

# **Smart Active Parts**

# **REFERENCE MANUAL**

**OMRON**

***How to use***  
***Smart Active Parts***

# Notice

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OMRON products are manufactured for use according to proper procedures by a qualified operator and only for the purposes described in this manual.

The following conventions are used to indicate and classify precautions in this manual. Always heed the information provided with them. Failure to heed precautions can result in injury to people or damage to property.

## OMRON Product References

All OMRON products are capitalized in this manual. The word "Unit" is also capitalized when it refers to an OMRON product, regardless of whether or not it appears in the proper name of the product.

The abbreviation "Ch," which appears in some displays and on some OMRON products, often means "word" and is abbreviated "Wd" in documentation in this sense.

The abbreviation "PLC" means Programmable Controller.

The abbreviation "host" means a controller, such as an IBM PC/AT or compatible computer, that controls a PT (Programmable Terminal).

## Visual Aids

The following headings appear in the left column of the manual to help you locate different types of information.

|                      |  |
|----------------------|--|
| <b>Note</b>          | Indicates information of particular interest for efficient and convenient operation of the product.  |
| <b>Reference</b>     | Indicates supplementary information on related topics that may be of interest to the user.   |
| <b>1, 2, 3...</b>    | 1. Indicates lists of one sort or another, such as procedures, checklists, etc.  |
| <b>CS1G-CPU@@-VI</b> | Boxes in model numbers indicate variable characters. For example, "CS1G-CPU@@-EV1" indicates the following models: CS1G-CPU42-EV1, CS1G-CPU43-EV1, CS1G-CPU44-EV1, and CS1G-CPU45-EV1. |

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No patent liability is assumed with respect to the use of the information contained herein. Moreover, because OMRON is constantly striving to improve its high-quality products, the information contained in this manual is subject to change without notice. Every precaution has been taken in the preparation of this manual. Nevertheless, OMRON assumes no responsibility for errors or omissions. Neither is any liability assumed for damages resulting from the use of the information contained in this publication.

# Introduction

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## ● Intended Audience



This manual is intended for the following personnel, who must also have knowledge of electrical systems (an electrical engineer or the equivalent).

- Personnel in charge of introducing FA systems into production facilities.
- Personnel in charge of designing FA systems.
- Personnel in charge of installing and connecting FA systems.
- Personnel in charge of managing FA systems and facilities.

## ● General Precautions

- The user must operate the product according to the performance specifications described in the operation manuals.
- Do not use the PT touch switch input functions for applications where danger to human life or serious property damage is possible, or for emergency switch applications.
- Before using the product under conditions which are not described in the manual or applying the product to nuclear control systems, railroad systems, aviation systems, vehicles, combustion systems, medical equipment, amusement machines, safety equipment, and other systems, machines and equipment that may have a serious influence on lives and property if used improperly, consult your OMRON representative.
- Make sure that the ratings and performance characteristics of the product are sufficient for the systems, machines, and equipment, and be sure to provide the systems, machines, and equipment with double safety mechanisms.
- This manual provides information for connecting and setting up an NS-series PT. Be sure to read this manual before attempting to use the PT and keep this manual close at hand for reference during installation and operation.

## ● Safety Precautions

|   |   |
|---|---|
|  <b>WARNING</b>  |   |
| <p>Do not attempt to take the Unit apart and do not touch any internal parts while the power is being supplied. Doing either of these may result in electrical shock.</p> |  |

## ● Operating Environment Precautions

1. Do not install the Unit in the following places:
  - Locations subject to direct sunlight
  - Locations subject to temperatures or humidity outside the range specified in the specifications
  - Locations subject to condensation as the result of severe changes in temperature
  - Locations subject to corrosive or flammable gases
  - Locations subject to dust (especially iron dust) or salts
  - Locations subject to exposure to water, oil, or chemicals
  - Locations subject to shock or vibration
2. Take appropriate and sufficient countermeasures when installing systems in the following locations:
  - Locations subject to static electricity or other forms of noise
  - Locations subject to strong electromagnetic fields
  - Locations subject to possible exposure to radioactivity
  - Locations close to power supplies

## ● Application Precautions

1. When unpacking the Units, check carefully for any external scratches or other damage. Also, shake the Units gently and check for any abnormal sound.
2. The mounting panel must be between 1.6 and 4.8 mm thick. Tighten the Mounting Brackets evenly to a torque of between 0.5 and 0.6 N·m to maintain water and dust resistance. Make sure the panel is not dirty or warped and that it is strong enough to hold the Units.
3. Do not let metal particles enter the Units when preparing the panel.
4. If conformance to EC Directives (Low Voltage Directive) is required, use reinforced insulation for the power supplies.
5. Do not connect an AC power supply to the power terminals.
6. Use a DC power supply with minimal fluctuation voltage.  
Rated power supply voltage: 24 VDC  
(Allowable range: 20.4 to 27.6 VDC)  
Capacity: 25 W min. (NS5: 15 W min.)
7. Do not perform a dielectric voltage test.
8. Use a twisted-pair cable with a cross-sectional area of at least 2 mm<sup>2</sup> to connect to the power terminals and always use M3.5 crimp terminals. Tighten the terminal screws to a torque of 0.8 N·m. Make sure the screws are properly tightened.
9. Ground the Unit correctly to prevent operational errors caused by noise.
10. Do not touch the surface of the circuit board or the components mounted on it with your bare hands. Discharge any static electricity from your body before handling the board.
11. Confirm that the current capacity of the connected device is 250 mA or less before using the 5-V power supply from pin 6 of the serial port A, B connectors. The 5-V output of the PT is 250 mA max. at 5 V ±5%.
12. Turn OFF the power supply before connecting or disconnecting cables.
13. Always tighten the connector screws after connecting communications cables.
14. The maximum tensile load for cables is 30 N. Do not apply loads greater than this.
15. Confirm the safety of the system before turning ON or OFF the power supply or before pressing the reset button.
16. The whole system may stop depending on how the power supply is turned ON or OFF. Turn ON or OFF the power supply according to the specified procedure.
17. Start actual system application only after sufficiently checking screen data, macros, and the operation of the program in the PC (host).
18. Always reset the power supply after changing switch settings.
19. After changing the settings of the DIP switch, always turn the power supply OFF and ON or reset the PT.
20. Do not perform the following operations while the Memory Card is being accessed:
  - Turning OFF the power supply to the PT
  - Pressing the PT's reset switch
  - Removing the Memory Card
  - Always following the specified procedure when removing the Memory Card.

21. Do not press the touch switch with a force greater than 30 N.
22. Confirm the safety of the system before pressing touch switches.
23. Do not accidentally press touch switches when the backlight is not lit or when the display does not appear.
24. Signals from the touch switches may not be input if the switches are pressed consecutively at high speed. Confirm each input before proceeding to the next one.
25. Before initializing screen data, confirm that existing data is backed up at the NS-Designer.
26. When changing the password with the system menu, do not reset or turn OFF the power supply until writing is finished (i.e., until the Write Button returns to its original condition). It may become impossible to manipulate screens if the password is not set correctly.
27. When using the device monitor, confirm the safety of the system before performing the following operations.
  - Changing monitor data
  - Changing operation modes
  - Forced setting or resetting
  - Changing present values or set values
28. Do not use benzene, paint thinner, or other volatile solvents, and do not use chemically treated cloths.
29. Dispose of any battery that has been dropped on the floor or otherwise subjected to excessive shock.
30. Do not attempt to disassemble, repair, or modify the Unit in any way.
31. Dispose of the Units and batteries according to local ordinances as they apply.
32. To ensure system safety, incorporate a program that periodically calls PT operation bits from the host side to check that the PT is properly operating.
33. Do not connect an USB connector to any device that is not applicable.
34. Before connecting an USB connector to a device, make sure that the device is free of damage.
35. When mounting the Battery, be sure to use the correct Battery and mount it correctly.

# Contents

## Section 1 Overview

1-1 What are Smart Active Parts?

## Section 2 Procedure for Reusing Smart Active Parts

2-1 The following smart active parts are provided

2-2 How to Use Smart Active Parts

2-3 Operation Environment

2-4 Precautions for use of Smart Active Parts

## Section 3 Precautions for Editing Smart Active Parts

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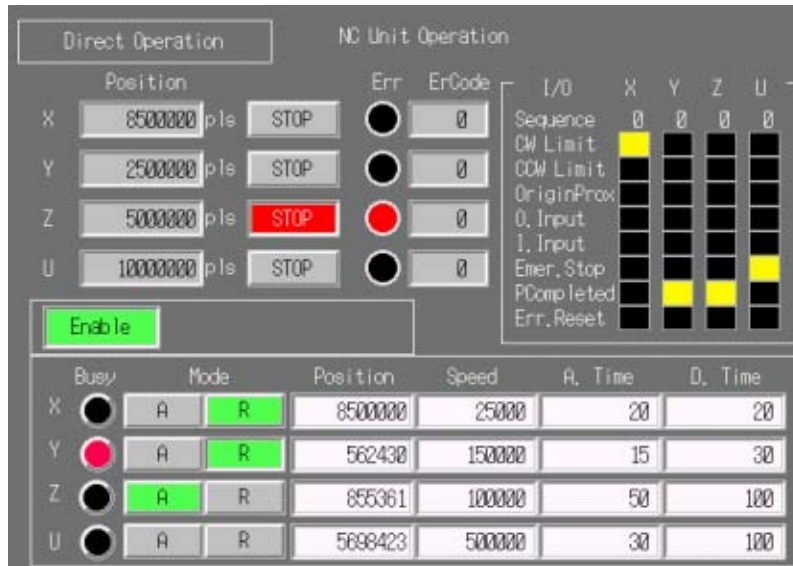
## Description of Smart Active Parts

- ◆ PLC
- ◆ Communication Unit
- ◆ Motion Control
- ◆ Inverter
- ◆ Servo Driver
- ◆ Temperature Controller (E5ZN)  
(E5□R)  
(E5□N)  
(from Ver5 or earlier)
- ◆ DRT2
- ◆ Process Controller

# Section 1 Overview

## 1-1 What are Smart Active Parts?

Smart Active Parts are generic name of OMRON unique libraries contained setting/monitor screens (E.g. NC Units and Temperature Controllers). Users can make setting/monitor screens simply reusing Smart Active Parts which should have created according to Units for PLC before. Since Smart Active Parts are the sophisticated libraries which include communication settings, refer to Section 3 precautions for use of Smart Active Parts.



### ■ Features

Smart Active Parts has the following features.

- Smart Active Parts have communication functions so that no communication programs are required (Programless communication) to communicate with units (Temperature Controller, NC Unit, DRT2 etc...).
- Smart Active Parts can be reused from the Use Library under Tools in the NS-Designer. All communication addresses for setting/monitor screens are automatically set just specifying Match No. or Unit No. of destination when reusing it. It is not necessary to check those using manuals as ever.
- Setting/monitor screens for NC and DRT2 can be created simply combining device libraries so that they work like the dedicated tools, such as CX-Position and Configurator, with PT.



## Section 2 Procedure for Reusing Smart Active Parts

### 2-1 The following smart active parts are provided

#### New Smart Active Parts added in Ver6.0.

##### 1. CS/CJ and CS1D CPU Unit

Error Log Monitor, CS1D Online exchange button, Online Battery change button.

##### 2. Serial Communication board/Unit

Communication Status Display (Error Monitor), Port Settings etc.

##### 3. Ethernet Unit/CLK Unit

Network Status (Error Monitor, Network node status) etc.

##### 4. MC/MCH Unit

JOG Running, Search Zero position, Program running, Error Display, I/O Status Monitor, PV Monitor etc.

##### 5. NC /NCF Unit

JOG Running, Direct Running, Memory Running, (Only NC), Error Display, I/O Status Monitor, PV Monitor etc.

##### 6. Servo (R88D-WT, R7D-AP)- using new SCU/SCB board.

PV Monitor, Parameter settings, Error Display, Driver info Display, I/O Status Monitor etc.

##### 7. Device Net (DRT2-xx)

Models integrated in one SMART Active Parts. DRT2 maintenance/Status info, IN/OUT Info. Etc.

##### 8. Temperature Controller (E5[R, E5ZN, E5[N])- Direct Connection with NS.

Run Monitor, PID Settings, SP settings, Alarm Settings, Input correction settings etc.

##### 9. Inverter

Rotation Speed/Monitoring Output Frequency, Other Parameter Settings. etc.

Also includes the previous Smart Active Parts which are in Ver5.0 or earlier.

##### 1. CJ1M

Functions for Built-in Input Setting, Origin Search and Origin Return

##### 2. DRT2

ID16/ID16S/ID08/ID08C/HD16C/OD16/OD08/OD08C

##### 3. DeviceNet, E5ZN

PID Setting, Commands, SP Setting, Setting Area 0, and Front Panel

#### Network Monitor

##### 4. CLK Network Status Monitor and DeviceNet Status Monitor

##### 5. NC Unit

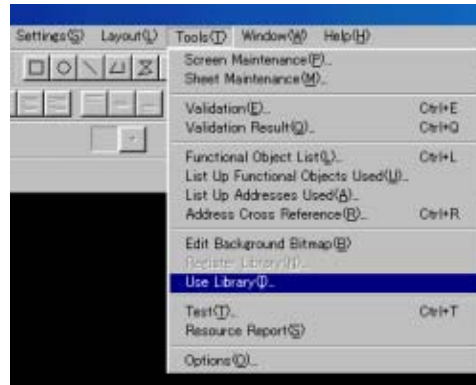
Direct Operation, JOG Operation, Origin Search, Origin Return, Teach, Changing Present Value, and Input Data Screens

## 2-2 How to Use Smart Active Parts

To use Smart Active Parts, select **Use** in the Use Library dialog box under **Tools** and paste the selected Smart Active Parts on the screen.

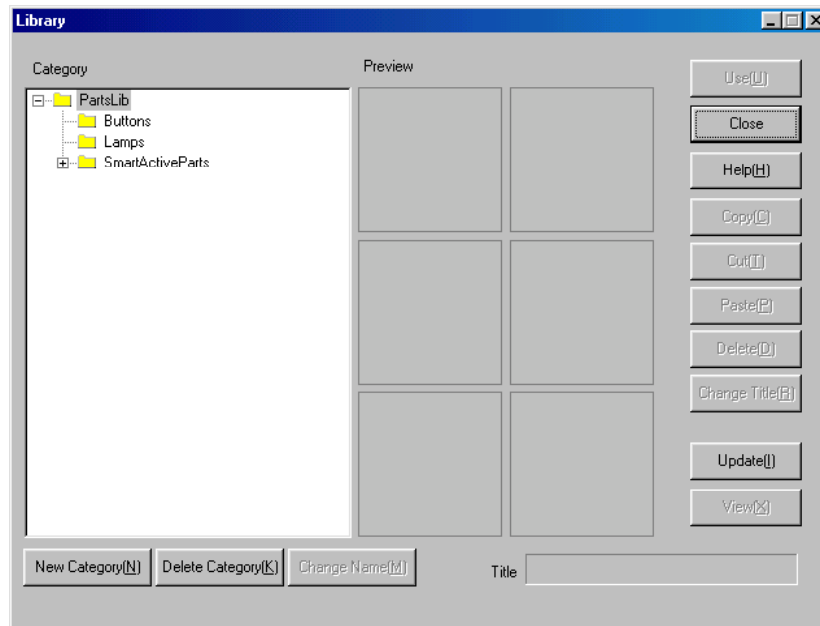
The procedure for pasting Smart Active Parts is as follows.

1. Select Tools-Use Library on the tool bar.

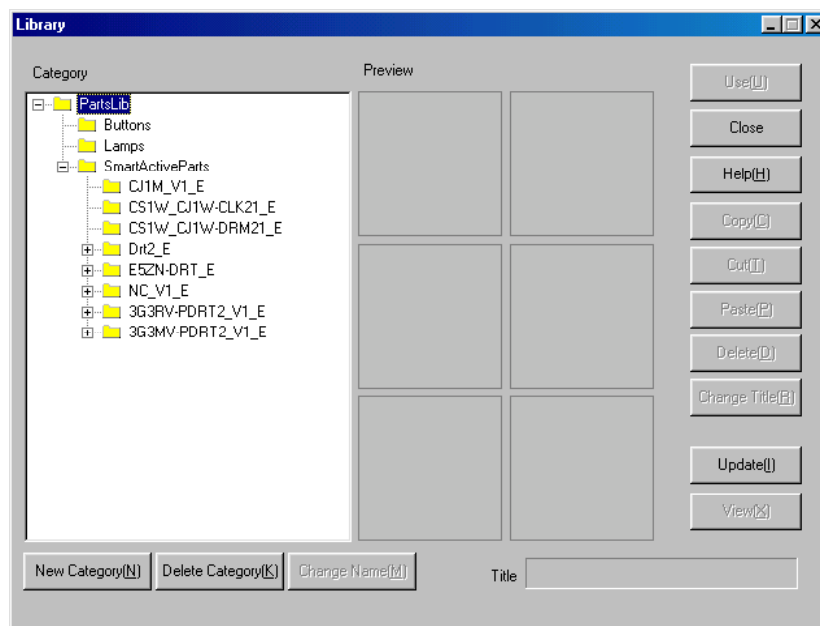


## 2. Select the desired Smart Active Parts

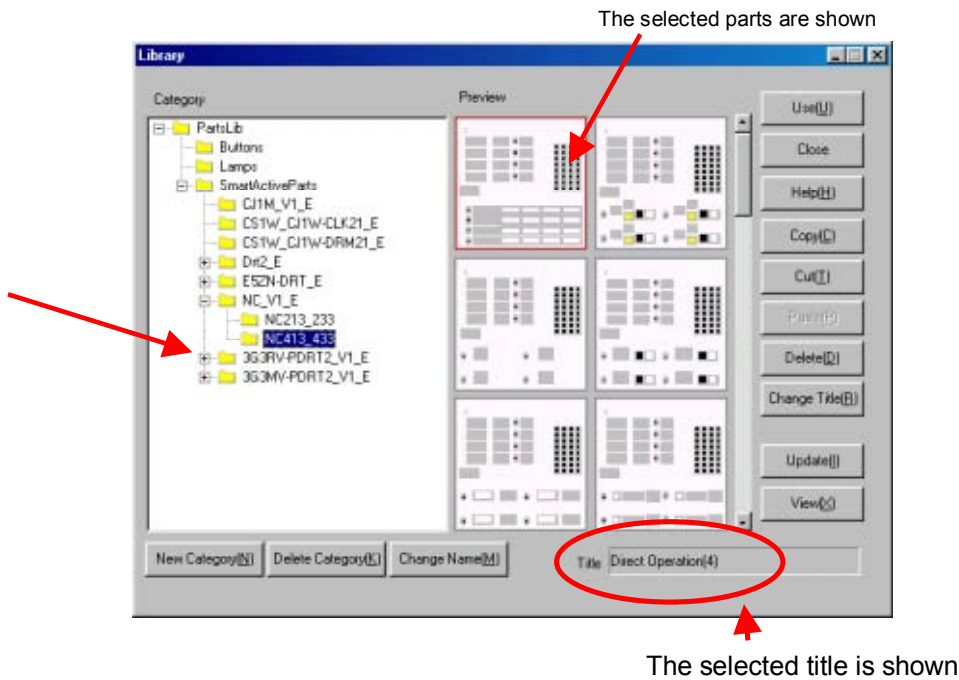
When selecting Use Library, the following Library dialog box appears.



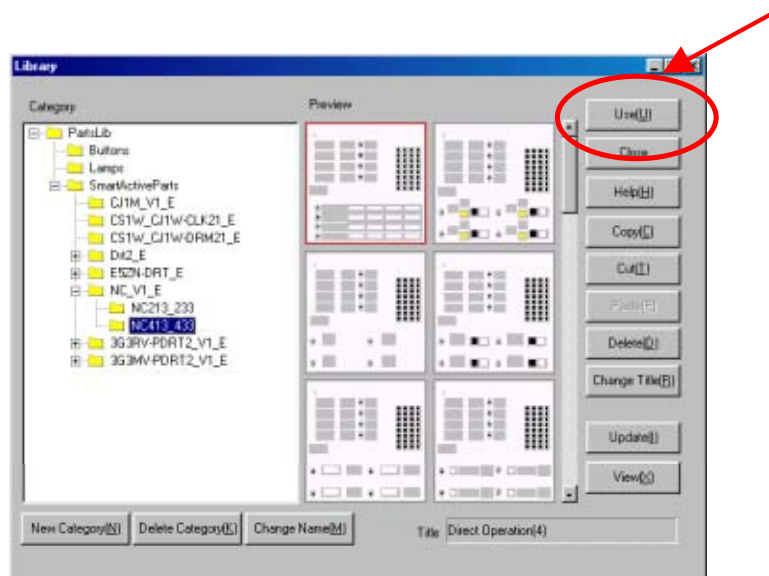
When double clicking on the SmartActiveParts folder in the list box of Category, the installed device libraries will appear.



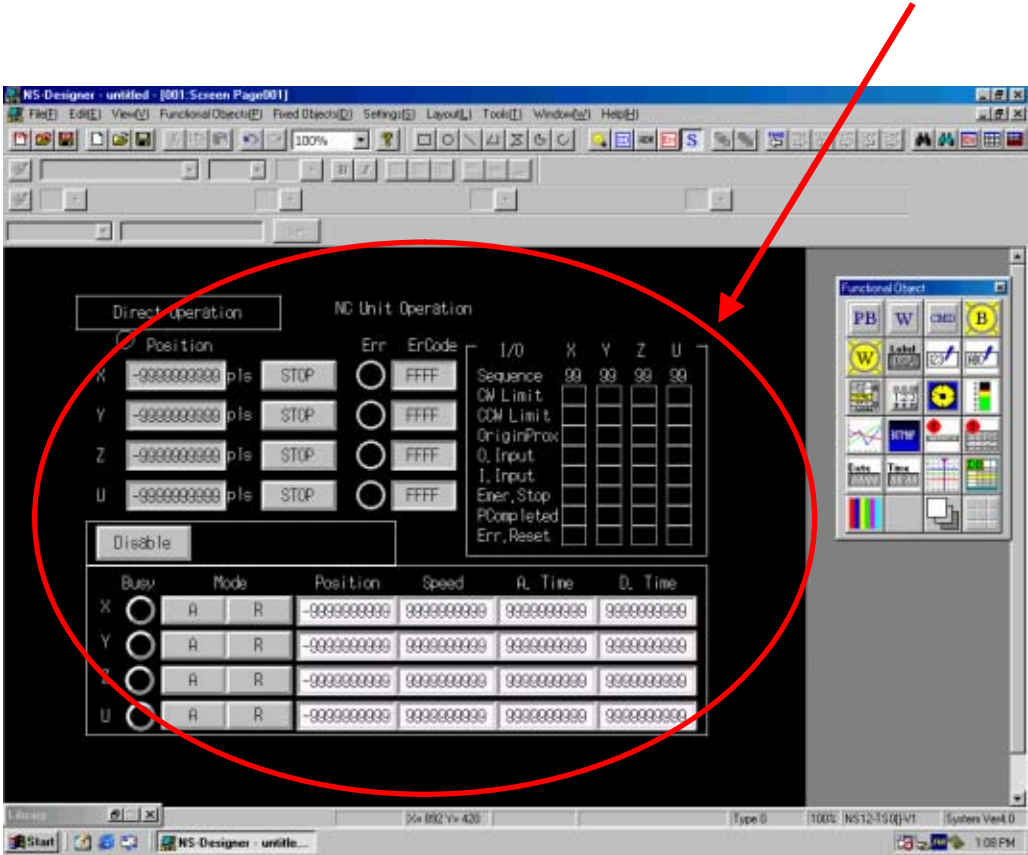
Select the desired device folder under the SmartActiveParts, and then libraries relating to the selected device will be displayed in thumbnail-size images. Click the thumbnail-size image to show the desired Smart Active Parts. The title of the selected Smart Active Parts will be shown in the title field at the bottom of the dialog.



3. Select the desired library in the preview box and click the Use button at the top right of the dialog box.



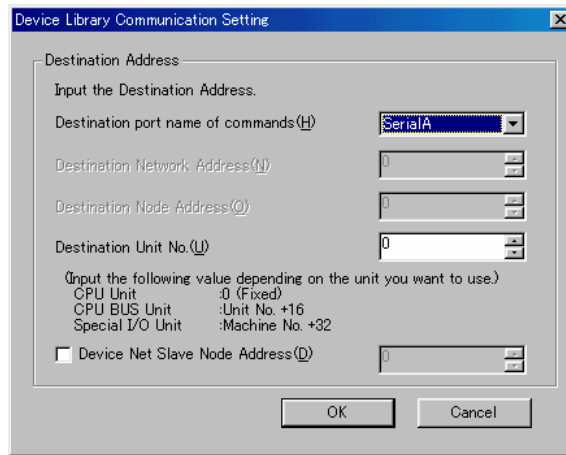
4. When clicking the Use button, the selected Smart Active Parts will be pasted on the top left of top left of the screen.



5. Communication settings

Click the Smart Active Parts after pasting it on the screen. Smart Active Parts Communication Setting dialog box appears. Make the settings for the following items.

| No. | Item                              | Details  |
|-----|-----------------------------------|--|
| 1   | Destination port name of commands | Selects the port name of PT connected to the PLC   |
| 2   | Destination Unit No.              | Sets Unit No. or Match No., such as NC Unit<br>* Make sure that the number must be 16 or higher for CPU Bus unit and 32 or higher for Special I/O unit.  |
| 3   | DeviceNet/Serial/ Slave Address   | e.g.) Check if the selected Smart Active Parts is DeviceNet Slave and then set the address. (In case the Smart Active Parts needs to use the serial Communication Board/Unit the "Device Net Slave address" will be for Serial Communication Board/Unit. |



In a series of sharing Smart Active Parts have been completed.  
Refer to Section 3 precautions for use of Smart Active Parts.

## Precautions for Use of Smart Active Parts

Please note that the following precautions when using Smart Active Parts.

### 2-3 Operation Environment

1. NS-Designer Ver.6.0 is required.
2. Project data version 5.0 or later (version shown beside the System Version in the Project Property dialog under Settings in the NS-Designer) is required for operating project (screen data).
3. When connecting the PLC and PT by a Serial network (1:N NT Links), set **NT/PC Link Max** on the **Settings-Host Link Port** tab Page in the CX-Programmer to a value greater than 1.

### 2-4 Precautions for use of Smart Active Parts

Smart Active Parts have the following restrictions unlike other functional objects, such as buttons and lamps.

1. Smart Active Parts cannot be copied, pasted, or cut.  
To place the same Smart Active Parts more than one, select **Tools-Use Library** and click the desired sample.
2. Screens contained Smart Active Parts cannot be duplicated or deleted in the Screen Maintenance.  
Delete the Smart Active Parts first and then perform screen maintenance.
3. For some types of Smart Active Parts, there are limits of which version to use. For example, 'Use NS system Version 5.0 or later'. In this example, the library uses functions supported from NS system Version 5.0 and will not work with former version. Refer to the manual of each Smart Active Part for more details.

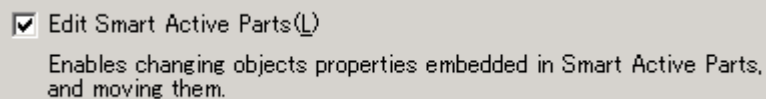
#### Remarks

When using this Smart Active Parts, be sure to select **Setting-System Setting** in the menu bar, press the **System Memory List** on the Initial Tab Page, and select **Basic Operation** for \$SB.

## Section 3 Precautions for Editing Smart Active Parts

Please note that the following precautions when using Smart Active Parts.

To edit Smart Active Parts, check the Edit Smart Active Parts in the Edit/Disp tab of Options dialog box under the Tools.



Smart Active Parts cannot be edited without checking it.

To edit objects grouped as Smart Active Parts, double click on the desired object. The appropriate property dialog box now can be displayed and you can edit it.

Color and text attribute set for Smart Active Parts cannot be copied.

1. Size, position, color and text attribute for objects grouped as Smart Active Parts can be edited.
2. The Expansion Tab in the Property Edit for the Smart Active Parts cannot be displayed.

PLC

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1.1. CPU

1.1.1 Error Log

|   |   |                          |   |              |           |
|---|---|--------------------------|---|--------------|-----------|
| <b>Unit type</b>  | CS/CJ                                   | <b>Storage directory</b> | SmartActiveParts_EPL<br>C\CS_CJ\CS_CJComm<br>on   | <b>Title</b> | Error Log |
| <b>Function</b>   | Displays the error log of the CPU Unit. |                          |   |              |           |
| <b>Display and Operation Details</b>  |   |                          |   |              |           |
|   |   |                          |   |              |           |
| <b>No.</b>  | <b>Item</b>                             | <b>Setting/display</b>   | <b>Description</b>  |              |           |
| 1   | Error Log                               | Display                  | Displays the five latest errors in descending chronological order. By scrolling the page, 20 errors in total will be displayed.<br>Present errors: Present errors are displayed with red indicators.<br>Date occurred: The date and time of each error that occurred are displayed.<br>Error: Descriptions of errors are displayed.<br>Code: Error codes are displayed.<br>Detailed code: Detailed error codes are displayed. |              |           |
| 2   | Previous                                | Setting                  | Displays the previous page (for newer errors). If the present page displays the latest error, this button will be disabled.   |              |           |
| 3   | Next                                    | Setting                  | Displays the next page (for older errors). If the present page displays the oldest error, this button will be disabled.   |              |           |
| 4   | Read                                    | Setting                  | Reads and displays the error log in descending chronological order.   |              |           |
| 5   | Error Canc1                             | Setting                  | Deletes the error log.  |              |           |
| <b>Remarks</b>  |   |                          |   |              |           |
| * When using this SMART Active Part, be sure to select <b>Setting - System Setting</b> in the menu bar, press the <b>System Memory List</b> on the Initial Tab Page, and select <b>Basic Operation</b> for \$SB.<br>* Do not use the above display for the start screen.<br>* Use this display in system version 5 or higher version.<br>* This cannot be used with CSID (Redundant checkup error message cannot be displayed.) |   |                          |   |              |           |


1.1.2 Time Data

| <b>Unit type</b>   | CS/CJ                                 | <b>Storage directory</b>    | SmartActiveParts_EPL<br>C\CS_CJ\CS_CJComm<br>on   | <b>Title</b> | Time data |                         |  |  |      |   |       |           |          |   |                |             |          |   |                     |             |          |   |                      |           |          |   |                        |           |          |
|--|---------------------------------------|-----------------------------|---|--------------|-----------|-------------------------|--|--|------|---|-------|-----------|----------|---|----------------|-------------|----------|---|---------------------|-------------|----------|---|----------------------|-----------|----------|---|------------------------|-----------|----------|
| <b>Function</b>  | Displays time data from the CPU Unit. |                             |   |              |           |                         |  |  |      |   |       |           |          |   |                |             |          |   |                     |             |          |   |                      |           |          |   |                        |           |          |
| <b>Display and Operation Details</b>   |                                       |                             |   |              |           |                         |  |  |      |   |       |           |          |   |                |             |          |   |                     |             |          |   |                      |           |          |   |                        |           |          |
| <table border="1"> <thead> <tr> <th colspan="3">CPU Unit Status Display</th> <th>Date</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Time:</td> <td>04.02.12.</td> <td>11:04:40</td> </tr> <tr> <td>2</td> <td>Start-up Time:</td> <td>--. --. 12.</td> <td>09:00:13</td> </tr> <tr> <td>3</td> <td>Power Interruption:</td> <td>--. --. 12.</td> <td>21:13:03</td> </tr> <tr> <td>4</td> <td>Program overwritten:</td> <td>04.01.06.</td> <td>17:33:26</td> </tr> <tr> <td>5</td> <td>Parameter overwritten:</td> <td>04.01.07.</td> <td>18:40:01</td> </tr> </tbody> </table> |                                       |                             |   |              |           | CPU Unit Status Display |  |  | Date | 1 | Time: | 04.02.12. | 11:04:40 | 2 | Start-up Time: | --. --. 12. | 09:00:13 | 3 | Power Interruption: | --. --. 12. | 21:13:03 | 4 | Program overwritten: | 04.01.06. | 17:33:26 | 5 | Parameter overwritten: | 04.01.07. | 18:40:01 |
| CPU Unit Status Display  |                                       |                             | Date  |              |           |                         |  |  |      |   |       |           |          |   |                |             |          |   |                     |             |          |   |                      |           |          |   |                        |           |          |
| 1  | Time:                                 | 04.02.12.                   | 11:04:40  |              |           |                         |  |  |      |   |       |           |          |   |                |             |          |   |                     |             |          |   |                      |           |          |   |                        |           |          |
| 2  | Start-up Time:                        | --. --. 12.                 | 09:00:13  |              |           |                         |  |  |      |   |       |           |          |   |                |             |          |   |                     |             |          |   |                      |           |          |   |                        |           |          |
| 3  | Power Interruption:                   | --. --. 12.                 | 21:13:03  |              |           |                         |  |  |      |   |       |           |          |   |                |             |          |   |                     |             |          |   |                      |           |          |   |                        |           |          |
| 4  | Program overwritten:                  | 04.01.06.                   | 17:33:26  |              |           |                         |  |  |      |   |       |           |          |   |                |             |          |   |                     |             |          |   |                      |           |          |   |                        |           |          |
| 5  | Parameter overwritten:                | 04.01.07.                   | 18:40:01  |              |           |                         |  |  |      |   |       |           |          |   |                |             |          |   |                     |             |          |   |                      |           |          |   |                        |           |          |
| <b>No.</b>   | <b>Item</b>                           | <b>Setting/<br/>display</b> | <b>Description</b>  |              |           |                         |  |  |      |   |       |           |          |   |                |             |          |   |                     |             |          |   |                      |           |          |   |                        |           |          |
| 1  | Time                                  | Display                     | Displays the present time.  |              |           |                         |  |  |      |   |       |           |          |   |                |             |          |   |                     |             |          |   |                      |           |          |   |                        |           |          |
| 2  | Start-up Time                         | Display                     | Displays the startup time.<br>The year and month are always "- -."                      |              |           |                         |  |  |      |   |       |           |          |   |                |             |          |   |                     |             |          |   |                      |           |          |   |                        |           |          |
| 3  | Power Interruption                    | Display                     | Displays the time of the previous interruption.<br>The year and month are always "- -." |              |           |                         |  |  |      |   |       |           |          |   |                |             |          |   |                     |             |          |   |                      |           |          |   |                        |           |          |
| 4  | Program overwritten                   | Display                     | Displays the date and time that the program was overwritten.<br>The CS1-V1 always 0.    |              |           |                         |  |  |      |   |       |           |          |   |                |             |          |   |                     |             |          |   |                      |           |          |   |                        |           |          |
| 5  | Parameter overwritten                 | Display                     | Displays the date and time that the parameter was overwritten.<br>The CS1-V1 always 0.  |              |           |                         |  |  |      |   |       |           |          |   |                |             |          |   |                     |             |          |   |                      |           |          |   |                        |           |          |
| <b>Remarks</b>   |                                       |                             |   |              |           |                         |  |  |      |   |       |           |          |   |                |             |          |   |                     |             |          |   |                      |           |          |   |                        |           |          |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Setting</b> in the menu bar, press the <b>System Memory List</b> on the Initial Tab Page, and select <b>Basic Operation</b> for \$SB.</li> <li>* Do not use the above display for the start screen.</li> <li>* Use this display in system version 5.</li> </ul>  |                                       |                             |   |              |           |                         |  |  |      |   |       |           |          |   |                |             |          |   |                     |             |          |   |                      |           |          |   |                        |           |          |

1.1.3 Cycle Time Data


|                                      |                                      |                             |  |              |                 |
|--------------------------------------|--------------------------------------|-----------------------------|--|--------------|-----------------|
| <b>Unit type</b>                     | CS/CJ                                | <b>Storage directory</b>    | SmartActiveParts_EXPL<br>C\CS_CJ\CS_CJComm<br>on | <b>Title</b> | Cycle time data |
| <b>Function</b>                      | Displays the cycle time of CPU Unit. |                             |  |              |                 |
| <b>Display and Operation Details</b> |                                      |                             |  |              |                 |
|                                      |                                      |                             |  |              |                 |
| <b>No.</b>                           | <b>Item</b>                          | <b>Setting/<br/>display</b> | <b>Description</b>                               |              |                 |
| 1                                    | Present Cycle Time                   | Display                     | Displays the present cycle time.                 |              |                 |
| 2                                    | Maximum Cycle Time                   | Display                     | Displays the maximum cycle time.                 |              |                 |
| <b>Remarks</b>                       |                                      |                             |  |              |                 |

### 1.1.4 Battery Replacement

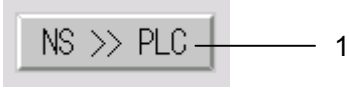
|  |   |                             |   |              |                            |
|--|---|-----------------------------|---|--------------|----------------------------|
| <b>Unit type</b>   | CS/CJ   | <b>Storage directory</b>    | SmartActiveParts_EPL<br>C\CS_CJ\CS_CJComm<br>on   | <b>Title</b> | Battery replacement switch |
| <b>Function</b>  | Makes battery check and replacement settings. |                             |   |              |                            |
| <b>Display and Operation Details</b>   |   |                             |   |              |                            |
|   |   |                             |   |              |                            |
| <b>No.</b>   | <b>Item</b>                                   | <b>Setting/<br/>display</b> | <b>Description</b>  |              |                            |
| 1  | Checking battery                              | <b>Setting/<br/>display</b> | Makes battery check and replacement settings.<br>Battery check in progress: Checks the battery. The button is displayed in gray.<br>Battery replacement in progress: The battery is not checked. The button is lit in yellow. |              |                            |
| <b>Remarks</b>   |   |                             |   |              |                            |
| * When using this SMART Active Part, be sure to select <b>Setting - System Setting</b> in the menu bar, press the <b>System Memory List</b> on the Initial Tab Page, and select <b>Basic Operation</b> for \$SB.<br>* Do not use the above display for the start screen. |   |                             |   |              |                            |

**CJ1M (from Ver5 or Earlier)**

**1.1.5 Settime PLC→NS**

| Model   | CJ1M   | Location            | SmartActiveParts_E\PLC\<br>Ver5orEarlier  | Title | Settime PLC→NS |
|---|--|---------------------|---|-------|----------------|
| Function  | Sets time and date information (year, month, date, time, minute, and second) in the PLC to the internal clock of PT. |                     |   |       |                |
| [Image]   |  |                     |   |       |                |
|  |  |                     |   |       |                |
| No.   | Item   | Setting/<br>Display | Details   |       |                |
| 1   | PLC >> NS  | Setting             | Sets time and date information (year, month, date, time, minute, and second) in the PLC to the internal clock of PT. A day of the week is calculated by date information in the PT. If a day of the week and date set in the PLC are not matched, a day of the week calculated by date will be reflected to the PT so date information for PLC and PT may vary according to preset data in the PLC. |       |                |
| [Note]<br>CS/CJ Series PLCs are supported.  |  |                     |   |       |                |

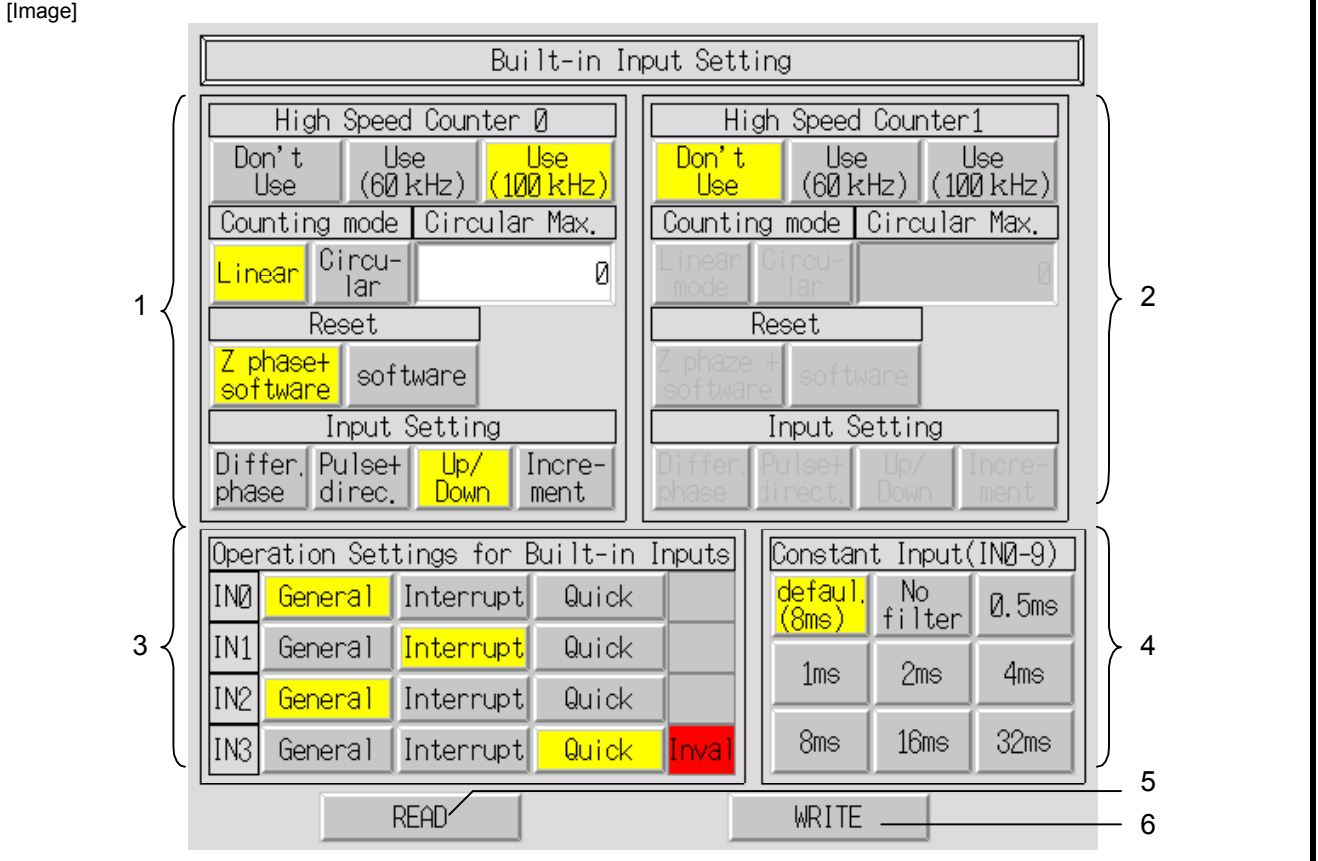
**1.1.6 Settime PLC→NS**

| Model   | CJ1M   | Location            | SmartActiveParts_E\PLC\<br>Ver5orEarlier   | Title | Settime PLC→NS |
|---|--|---------------------|--|-------|----------------|
| Function  | Sets time and date information (year, month, date, time, minute, and second) in the PT to the internal clock of PLC. |                     |  |       |                |
| <p>[Image]</p> <div style="text-align: center;">  </div> |  |                     |  |       |                |
| No.   | Item   | Setting/<br>Display | Details  |       |                |
| 1   | NS >> PLC  | Setting             | Sets time and date information (year, month, date, time, minute, and second) in the PT to the internal clock of PLC. |       |                |
| <p>[Note]<br/>CS/CJ Series PLCs are supported.</p>  |  |                     |  |       |                |

1.1.7 Built-in Input Setting

PLC

|          |   |          |                                      |       |                        |
|----------|---|----------|--------------------------------------|-------|------------------------|
| Model    | CJ1M  | Location | SmartActiveParts_E\PLC\Ver5orEarlier | Title | Built-in Input Setting |
| Function | Allocate General Input, Interrupt Input, Quick, or High Speed Counter to bits (from 00 to 09 bits of 2960 words) for CPU Unit Built-in Input. |          |                                      |       |                        |



| No. | Item   | Setting/Display | Details   |
|-----|--|-----------------|---|
| 1   | High Speed Counter 0                         | Setting         | Makes the settings for High Speed Counter 0.                  |
| 2   | High Speed Counter 1                         | Setting         | Makes the settings for High Speed Counter 1.                  |
| 3   | Input Operation Settings for Built-in Inputs | Setting         | Makes the settings for Built-in Inputs IN 0 to 3.             |
| 4   | Constant Input                               | Setting         | Sets constant when performing general input                   |
| 5   | Read   | Setting         | Reads information set in the PLC and display it on the screen |
| 6   | Write  | Setting         | Writes settings in the screen to the PLC                      |

[Note]  
 When Z phase and software reset are selected in the Input Setting for High Speed Counter 0, Z phase (reset input) will be allocated to IN3.  
 When Z phase and software reset are selected in the Input Setting for High Speed Counter 1, Z phase (reset input) will be allocated IN2.

1.1.8 Define Origin 1, Define Origin 2

|       |      |          |                                      |       |                                  |
|-------|------|----------|--------------------------------------|-------|----------------------------------|
| Model | CJ1M | Location | SmartActiveParts_E\PLC\Ver5orEarlier | Title | Define Origin 1, Define Origin 2 |
|-------|------|----------|--------------------------------------|-------|----------------------------------|

Function Makes settings for Origin Search function and Origin Return function.

[Image]

| No. | Item                         | Setting/Display | Details   |
|-----|------------------------------|-----------------|---|
| 1   | Origin Search                | Setting         | Sets whether the Pulse Output 0/1 Origin Search is used or not. |
| 2   | Parameters for Origin Search | Setting         | Sets parameters used for Origin Search.                         |
| 3   | Parameters for Origin Return | Setting         | Sets parameters used for Origin Return.                         |
| 4   | Read                         | Setting         | Reads information set in the PLC and display it on the screen   |
| 5   | Write                        | Setting         | Writes settings in the screen to the PLC                        |

[Note]  
 When selecting ON for Pulse Output 0 Origin Search, interrupt input 0 and 1, PMW output o cannot be used. However, those can be used for High Speed Counter 0 and 1.  
 When selecting ON for Pulse Output 1 Origin Search, it occupies IN2, IN3, and OUT5 besides pulse output so it cannot be used for other functions.



# Communication Unit

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# Communication Unit

## 1.1 Serial Communications

### 1.1.1 Serial Port Settings (Board)

|                                      |   |                        |   |              |                              |
|--------------------------------------|---|------------------------|---|--------------|------------------------------|
| <b>Unit type</b>                     | CS1W-SCB21-V1<br>CS1W-SCB41-V1  | Storage directory      | SmartActiveParts_E\CommUnit\SERIAL\SCB  | <b>Title</b> | Serial Port Settings (Board) |
| <b>Function</b>                      | Makes serial port settings for the Serial Communications Board (SCB). |                        |   |              |                              |
| <b>Display and Operation Details</b> |   |                        |   |              |                              |
|                                      |   |                        |   |              |                              |
| <b>No.</b>                           | <b>Item</b>   | <b>Setting/display</b> | <b>Description</b>  |              |                              |
| 1                                    | Port  | Setting                | Selects the port. The initial screen displays port 1, and the mode, communications settings, and detailed settings of port 1 are read.  |              |                              |
| 2                                    | Read  | Setting                | Reads the mode, communications settings, and detailed settings of the selected port.  |              |                              |
| 3                                    | Mode  | Setting/display        | Selects the mode. Displayed communications and detailed setting items vary with the selected mode.  |              |                              |
| 4                                    | Communications settings   | Setting/display        | Makes communications settings. The details of communications settings vary with the mode.<br>Baud rate: Protocol macro mode: 1,200 to 38,400 bps<br>NT Link: Standard NT Link or high-speed NT Link<br>Others: 1,200 to 115,200 bps<br>In the NT Link, only the baud rate can be set.   |              |                              |
| 5                                    | Detailed settings   | Setting/display        | Makes detailed settings. Detailed setting items vary with the mode.<br>Host Link: Send delay time, CST control, and Host Link Unit No.<br>Specify Frame format and Protocol for 1:1/1:N<br>Protocol macro: Communications system and max. number of send data bytes, Receive Buffer clear setting, Data switching timing, Send delay time, CTS control, response timeout and Send start timeout time.<br>NT Link: Max. 1:N NT Link Unit No.<br>Serial Gateway: Send delay time, CST control, and response timeout time<br>No protocol: Send delay time, CST control, start code, and end code<br>Makes detailed settings. Detailed setting items vary with the Mode.<br>Host Link: Send delay time, CST control, and Host Link Unit No.<br>Protocol macro: Communications system and max. number of send data bytes<br>NT Link: Max. 1:N NT Link Unit No.<br>Serial Gateway: Send delay time, CST control, and response timeout time<br>No protocol: Send delay time, CST control, start code, and end code |              |                              |

## Remarks

- \* When using this Smart Active Part, be sure to select **Setting - System Setting** in the menu bar, press the **System Memory List** on the Initial Tab Page, and select **Basic Operation** for \$SB. Smart Active Parts cannot be used on the pop-up screen.
- \* Use this display in system version 5.
- \* Do not use the above display for the start screen.
- \* To restart the port, use the Smart Active Part explained in *5.2.3 Board Port Restart*.
- \* When the Smart Active Part is reused, no unit number designation will be required.
- \* Number of frame: 2.

# Communication Unit

## 1.1.2 Serial Port Settings (Unit)

| Unit type   | CS1W-SCU21-V1<br>CJ1W-SCU21-V1<br>CJ1W-SCU41-V1                      | Storage directory | SmartActiveParts_E\Co<br>mmUnit\SERIAL\SCU  | Title | Serial Port Unit Settings |
|---|--|-------------------|---|-------|---------------------------|
| Function  | Makes serial port settings for the Serial Communications Unit (SCU). |                   |   |       |                           |
| Display and Operation Details   |  |                   |   |       |                           |
|   |  |                   |   |       |                           |
| No.   | Item   | Setting/display   | Description   |       |                           |
| 1   | Port   | Setting           | Selects the port. The initial screen displays port 1, and the mode, communications settings, and detailed settings of port 1 are read.  |       |                           |
| 2   | Read   | Setting           | Reads the mode, communications settings, and detailed settings of the selected port.  |       |                           |
| 3   | Mode   | Setting/display   | Selects the mode. Displayed communications and detailed setting items vary with the selected mode.  |       |                           |
| 4   | Communications settings  | Setting/display   | Makes communications settings. The details of communications settings vary with the mode.<br>Baud rate: Protocol macro mode: 1,200 to 38,400 bps<br>NT Link: Standard NT Link or high-speed NT Link<br>Others: 1,200 to 115,200 bps<br>In the NT Link, only the baud rate can be set.   |       |                           |
| 5   | Detailed settings  | Setting/display   | Makes detailed settings. Detailed setting items vary with the mode.<br>Host Link: Send delay time, CST control, and Host Link Unit No.<br>Specify Frame format and Protocol for 1:1/1:N<br>Protocol macro: Communications system and max. number of send data bytes<br>Buffer clear setting, Data switching timing, Send delay time, CTS control,<br>Response timeout, and Send start timeout time.<br>NT Link: Max. 1:N NT Link Unit No.<br>Serial Gateway: Send delay time, CST control, and response timeout time<br>No protocol: Send delay time, CST control, start code, and end code |       |                           |
| 6   | Transfer   | Setting/display   | Transfers the settings to the CPU Unit. After the settings are transferred, the result will be displayed (transfer OK or transfer failed). If the transfer was OK, a message box will appear to prompt the user to restart the port. To restart the port, use the SMART Active Parts provided for this purpose separately.  |       |                           |
| 7   | Default settings   | Setting           | Makes default settings for the selected mode.   |       |                           |
| Remarks   |  |                   |   |       |                           |
| <ul style="list-style-type: none"> <li>* When using this Smart Active Part, be sure to select <b>Setting - System Setting</b> in the menu bar, press the <b>System Memory List</b> on the Initial Tab Page, and select <b>Basic Operation</b> for \$SB. Smart Active Parts cannot be used on the popup screen.</li> <li>* Use this display in system version 5.</li> <li>* Do not use the above display for the start screen.</li> <li>* To restart the port, use the Smart Active Parts explained in 5.2.3 <i>Unit Port Restart</i>.</li> <li>* When the Smart Active Parts is reused, the unit number designation will be required.</li> <li>* Number of frame: 2.</li> </ul> |  |                   |   |       |                           |


1.1.3 Port Restart (Board)

|  |   |                          |   |              |                      |
|--|---|--------------------------|---|--------------|----------------------|
| <b>Unit type</b>   | CS1W-SCB21-V1<br>CS1W-SCB41-V1                          | <b>Storage directory</b> | SmartActiveParts_E\CommUnit\SERIAL\SCB  | <b>Title</b> | Port restart (Board) |
| <b>Function</b>  | Restarts a port on a Serial Communications Board (SCB). |                          |   |              |                      |
| <b>Display and Operation Details</b>   |   |                          |   |              |                      |
| <p>The screenshot shows a menu with the following items: 'Port No.' followed by a box containing '1', a 'V' key, 'Port Reset', and 'Exit'. Arrow 1 points to the '1' in the 'Port No.' box. Arrow 2 points to the 'Port Reset' option. Arrow 3 points to the 'Exit' option.</p>  |   |                          |   |              |                      |
| <b>No.</b>   | <b>Item</b>   | <b>Setting/display</b>   | <b>Description</b>  |              |                      |
| 1  | Port No.  | Setting                  | Selects the port number.  |              |                      |
| 2  | Port Reset  | Setting                  | Restarts the selected port.   |              |                      |
| 3  | Exit  | Display                  | The display will light in green when the selected port has been restarted normally. |              |                      |
| <b>Remarks</b>   |   |                          |   |              |                      |
| <ul style="list-style-type: none"> <li>* When using this Smart Active Parts, be sure to select <b>Setting - System Setting</b> in the menu bar, press the <b>System Memory List</b> on the Initial Tab Page, and select <b>Basic Operation</b> and <b>Date and Time for \$SW</b>. Smart Active Parts cannot be used on the popup screen.</li> <li>* Do not use the above display for the start screen.</li> <li>* When the Smart Active Parts is reused, no unit number designation will be required.</li> </ul> |   |                          |   |              |                      |

## 1.1.4 Port Restart (Unit)

|  |  |                             |  |              |                     |
|--|--|-----------------------------|--|--------------|---------------------|
| <b>Unit type</b>   | CS1W-SCU21-V1<br>CJ1W-SCU21-V1<br>CJ1W-SCU41-V1        | <b>Storage directory</b>    | SmartActiveParts_E\Co<br>mmUnit\SERIAL\SCU                                 | <b>Title</b> | Port restart (unit) |
| <b>Function</b>  | Restarts a port on a Serial Communications Unit (SCU). |                             |  |              |                     |
| <b>Display and Operation Details</b>   |  |                             |  |              |                     |
| <p>The screenshot shows a graphical user interface for port restart. It consists of four main sections: 'Unit No.' with a numeric input field (arrow 1), 'Port No.' with a numeric input field containing '1' (arrow 2), 'Port Reset' (arrow 3), and 'Exit' (arrow 4). Each input field has a 'V' icon to its right.</p>   |  |                             |  |              |                     |
| <b>No.</b>   | <b>Item</b>  | <b>Setting/<br/>display</b> | <b>Description</b>   |              |                     |
| 1  | Unit No.   | Setting                     | Selects the unit number of the Serial Communications Unit.                 |              |                     |
| 2  | Port No.   | Setting                     | Select the port number.  |              |                     |
| 3  | Port Rest  | Setting                     | Restarts the selected port.  |              |                     |
| 4  | Exit   | Display                     | The display will light in green when the port has been restarted normally. |              |                     |
| <b>Remarks</b>   |  |                             |  |              |                     |
| <ul style="list-style-type: none"> <li>* When using this Smart Active Parts, be sure to select <b>Setting - System Setting</b> in the menu bar, press the <b>System Memory List</b> on the Initial Tab Page, and select <b>Basic Operation</b> and <b>Date and Time for \$SW</b>. Smart Active Parts cannot be used on the popup screen.</li> <li>* Do not use the above display for the start screen.</li> <li>* When the Smart Active Parts is reused, no unit number designation will be required.</li> </ul> |  |                             |  |              |                     |

1.1.5 Protocol Transfer Enable (Board)

|   |  |                          |   |              |                                  |
|---|--|--------------------------|---|--------------|----------------------------------|
| <b>Unit type</b>  | CS1W-SCB21-V1<br>CS1W-SCB41-V1   | <b>Storage directory</b> | SmartActiveParts_E\CommUnit\SERIAL\SCB  | <b>Title</b> | Protocol transfer enable (board) |
| <b>Function</b>   | Enables or disables protocol transfer for the Serial Communications Board (SCB). |                          |   |              |                                  |
| <b>Display and Operation Details</b>  |  |                          |   |              |                                  |
|  <p>1 → Port No. 1 V</p> <p>2 → Transfer Disable</p>  |  |                          |   |              |                                  |
| <b>No.</b>  | <b>Item</b>  | <b>Setting/display</b>   | <b>Description</b>  |              |                                  |
| 1   | Port No.   | Setting                  | Selects the port number.  |              |                                  |
| 2   | Transfer   | Setting                  | Enables or disables protocol transfer. The display will be lit in yellow if transfer is enabled. Setting changes will be possible only if the port mode is set to serial gateway. An error message will be displayed for all other modes. |              |                                  |
| <b>Remarks</b>  |  |                          |   |              |                                  |
| <ul style="list-style-type: none"> <li>* When using this Smart Active Parts, be sure to select <b>Setting - System Setting</b> in the menu bar, press the <b>System Memory List</b> on the Initial Tab Page, and select <b>Basic Operation</b> and <b>Date and Time for \$SW</b>. Smart Active Parts cannot be used on the popup screen.</li> <li>* Do not use the above display for the start screen.</li> <li>* When the Smart Active Part is reused, no unit number designation will be required.</li> </ul> |  |                          |   |              |                                  |

## 1.1.6 Protocol Transfer Enable (Unit)

|   |   |                             |   |              |                                 |
|---|---|-----------------------------|---|--------------|---------------------------------|
| <b>Unit type</b>  | CS1W-SCU21-V1<br>CJ1W-SCU21-V1<br>CJ1W-SCU41-V1                                 | <b>Storage directory</b>    | SmartActiveParts_E\Co<br>mmUnit\SERIAL\SCU  | <b>Title</b> | Protocol transfer enable (unit) |
| <b>Function</b>   | Enables or disables protocol transfer for the Serial Communications Unit (SCU). |                             |   |              |                                 |
| <b>Display and Operation Details</b>  |   |                             |   |              |                                 |
|   |   |                             |   |              |                                 |
| <b>No.</b>  | <b>Item</b>   | <b>Setting/<br/>display</b> | <b>Description</b>  |              |                                 |
| 1   | Port No.  | Setting                     | Selects the port number.  |              |                                 |
| 2   | Transfer  | Setting                     | Enables or disables protocol transfer. The display will be lit in yellow if the transfer is enabled. Setting changes will be possible only if the port mode is set to serial gateway. An error message will be displayed for all other modes. |              |                                 |
| <b>Remarks</b>  |   |                             |   |              |                                 |
| <ul style="list-style-type: none"> <li>* When using this Smart Active Parts, be sure to select <b>Setting - System Setting</b> in the menu bar, press the <b>System Memory List</b> on the Initial Tab Page, and select <b>Basic Operation</b> and <b>Date and Time for \$SW</b>. Smart Active Parts cannot be used on the popup screen.</li> <li>* Do not use the above display for the start screen.</li> <li>* When the Smart Active Parts is reused, the unit number designation will be required.</li> </ul> |   |                             |   |              |                                 |



1.1.7 Status Read (Board)

|   |   |                          |   |              |                     |
|---|---|--------------------------|---|--------------|---------------------|
| <b>Unit type</b>  | CS1W-SCB21-V1<br>CS1W-SCB41-V1  | <b>Storage directory</b> | SmartActiveParts_E\ComUnit\SERIAL\SCB   | <b>Title</b> | Status read (board) |
| <b>Function</b>   | Displays the network operating status of a Serial Communications Board (SCB). |                          |   |              |                     |
| <b>Display and Operation Details</b>  |   |                          |   |              |                     |
|   |   |                          |   |              |                     |
| <b>No.</b>  | <b>Item</b>   | <b>Setting/display</b>   | <b>Description</b>  |              |                     |
| 1   | Port  | Setting                  | Selects the port.   |              |                     |
| 2   | Mode  | Display                  | Displays the mode of the selected port.   |              |                     |
| 3   | Common status   | Display                  | Displays error log data, protocol data, port settings, communications status, and the status of the transfer control signal.  |              |                     |
| 4   | Transmission Error  | Display                  | Displays the status of transmission errors. The displayed contents vary with the mode.<br>Host Link: Only send errors, overrun errors, framing errors, and parity errors are displayed. No other items are displayed (-).<br>Protocol macro: All items are displayed.<br>NT Link: No display (-)<br>Serial gateway: All items are displayed.<br>No protocol: All items are displayed. |              |                     |
| 5   | Protocol status   | Display                  | Displays the protocol status. The displayed contents vary with the mode.<br>Host Link: No display (-)<br>Protocol macro: Displays the protocol macro status.<br>NT Link: No display (-)<br>Serial gateway: No display (-)<br>No protocol: Displays the status of no protocol.   |              |                     |
| 6   | Read indicator  | Display                  | Data other than ON/OFF data is read every second. This indicator lights yellow when data is read.   |              |                     |
| <b>Remarks</b>  |   |                          |   |              |                     |
| * When using this Smart Active Parts, be sure to select <b>Setting - System Setting</b> in the menu bar, press the <b>System Memory List</b> on the Initial Tab Page, and select <b>Basic Operation</b> and <b>Date and Time for \$SW</b> . Smart Active Parts cannot be used on the popup screen.<br>*<br>* Do not use the above display for the start screen.<br>* Use this display in system version 5.<br>* When the Smart Active Parts is reused, no unit number designation will be required. |   |                          |   |              |                     |

# Communication Unit

## 1.1.8 Status Read (Unit)

| Unit type  | CS1W-SCU21-V1<br>CJ1W-SCU21-V1<br>CJ1W-SCU41-V1                              | Storage directory   | SmartActiveParts_E\Co<br>mmUnit\SERIAL\SCU  | Title | Status read (unit) |
|--|--|---------------------|---|-------|--------------------|
| Function   | Displays the network operating status of a Serial Communications Unit (SCU). |                     |   |       |                    |
| Display and Operation Details  |  |                     |   |       |                    |
|  |  |                     |   |       |                    |
| No.  | Item   | Setting/<br>display | Description   |       |                    |
| 1  | Port   | Setting             | Selects the port.   |       |                    |
| 2  | Mode   | Display             | Displays the mode of the selected port.   |       |                    |
| 3  | Common status  | Display             | Displays the error log data, protocol data, port settings, communications status, and the status of the transfer control signal.  |       |                    |
| 4  | Transmission Error   | Display             | Displays the status of transmission errors. The displayed contents vary with the mode.<br>Host Link: Only send errors, overrun errors, framing errors, and parity errors are displayed. No other items are displayed (-).<br>Protocol macro: All items are displayed.<br>NT Link: No display (-)<br>Serial gateway: All items are displayed.<br>No protocol: All items are displayed. |       |                    |
| 5  | Protocol status  | Display             | Displays the protocol status. The displayed contents vary with the mode.<br>Host Link: No display (-)<br>Protocol macro: Displays the protocol macro status.<br>NT Link: No display (-)<br>Serial gateway: No display (-)<br>No protocol: Displays the status of no protocol.   |       |                    |
| 6  | Read indicator   | Display             | Data is read every second. This indicator lights yellow when data is read.  |       |                    |
| Remarks  |  |                     |   |       |                    |
| * When using this Smart Active Parts, be sure to select <b>Setting - System Setting</b> in the menu bar, press the <b>System Memory List</b> on the Initial Tab Page, and select <b>Basic Operation</b> and <b>Date</b> and <b>Time for \$SW</b> . Smart Active Parts cannot be used on the popup screen.<br>* Do not use the above display for the start screen.<br>* Use this display in system version 5.<br>* When the Smart Active Part is reused, the unit number designation will be required.<br>* Number of frame: 2. |  |                     |   |       |                    |

## 1.2 Ethernet

### 1.2.1 Error Status Display

|  |   |                          |   |              |                      |
|--|---|--------------------------|---|--------------|----------------------|
| <b>Unit type</b>   | CS1W-ETN21<br>CJ1W-ETN21                        | <b>Storage directory</b> | SmartActiveParts_E\CommUnit\ETHERNET  | <b>Title</b> | Error status display |
| <b>Function</b>  | Displays the error status of the Ethernet Unit. |                          |   |              |                      |
| <b>Display and Operation Details</b>   |   |                          |   |              |                      |
|  |   |                          |   |              |                      |
| <b>No.</b>   | <b>Item</b>                                     | <b>Setting/display</b>   | <b>Description</b>  |              |                      |
| 1  | Network ad                                      | Setting                  | Sets the network address of the Ethernet Unit.                                    |              |                      |
| 2  | Node ad   | Setting                  | Sets the node address of the Ethernet Unit.                                       |              |                      |
| 3  | Read  | Setting                  | Reads and displays the status.  |              |                      |
| 4  | Status  | Display                  | Displays status.<br>Normal: The display is in gray.<br>Error: The display is red. |              |                      |
| <b>Remarks</b>   |   |                          |   |              |                      |
| <ul style="list-style-type: none"> <li>* When using this Smart Active Parts, be sure to select <b>Setting - System Setting</b> in the menu bar, press the <b>System Memory List</b> on the Initial Tab Page, and select <b>Basic Operation</b> for \$SB. Smart Active Parts cannot be used on the popup screen.</li> <li>* Do not use the above display for the start screen.</li> <li>* When the Smart Active Parts is reused, set the unit number to 254.</li> </ul> |   |                          |   |              |                      |

## 1.2.2 Network Status Monitor

|   |   |                          |   |              |                        |
|---|---|--------------------------|---|--------------|------------------------|
| <b>Unit type</b>  | CS1D-ETN21D                                       | <b>Storage directory</b> | SmartActiveParts_E\Co mmUnit\ETHERNET   | <b>Title</b> | Network status monitor |
| <b>Function</b>   | Displays the network status of the Ethernet Unit. |                          |   |              |                        |
| <b>Display and Operation Details</b>  |   |                          |   |              |                        |
| <p>The screenshot shows the 'Ethernet Duplex CPU System Network Status Monitor' interface. It features three status indicators at the top: 'Mode' set to 'Duplex Mode', 'System' set to 'Primary unit', and 'Status' set to 'Participating'. Below these is a grid of node numbers from 1 to 64. Nodes 1 and 2 are highlighted in green, and node 24 is highlighted in orange. All other nodes are in gray. Arrows 1, 2, and 3 point to the Mode, System, and Status indicators respectively. Arrow 4 points to the node grid.</p>  |   |                          |   |              |                        |
| <b>No.</b>  | <b>Item</b>                                       | <b>Setting/display</b>   | <b>Description</b>  |              |                        |
| 1   | Mode  | Display                  | Displays the mode of the local node.<br>Duplex Mode: Displayed in green when the Unit is in Duplex Mode.<br>Simplex Mode: Displayed in orange when the Unit is in Simplex Mode.   |              |                        |
| 2   | System  | Display                  | Displays the system of the local node only when the system is in duplex mode.<br>Primary Unit: Displayed in green when the Unit is set as the Primary Unit.<br>Secondary Unit: Displayed in orange when the Unit is set as the Secondary Unit.                        |              |                        |
| 3   | Status  | Display                  | Displays the network status of the local node only when the system is in duplex mode.<br>Participating: Displayed in green when the Unit is participating in the network.<br>Not participating: Displayed in red when the Unit is separated from the network.         |              |                        |
| 4   | Participation status                              | Display                  | Displays the network status of nodes 1 to 254 only when the status is participating.<br>Participating: Numbers of nodes participating in the network are displayed in green.<br>Not participating: Numbers of nodes separated from the network are displayed in gray. |              |                        |
| <b>Remarks</b>  |   |                          |   |              |                        |
| <ul style="list-style-type: none"> <li>* Items are refreshed every second.</li> <li>* When using this Smart Active Parts, be sure to select <b>Setting - System Setting</b> in the menu bar, press the <b>System Memory List</b> on the Initial Tab Page, and select <b>Basic Operation</b> for \$SB. Smart Active Parts cannot be used on the popup screen.</li> <li>* Do not use the above display for the start screen.</li> <li>* Use this display in system version 5.</li> <li>* When the Smart Active Part is reused, the unit number must be specified.</li> <li>* Number of frame: 1.</li> </ul> |   |                          |   |              |                        |

1.2.3 Duplex Error Status Display

|  |   |                          |   |              |                             |
|--|---|--------------------------|---|--------------|-----------------------------|
| <b>Unit type</b>   | CS1D-ETN21D   | <b>Storage directory</b> | SmartActiveParts_E\CommUnit\ETHERNET  | <b>Title</b> | Duplex error status display |
| <b>Function</b>  | Displays the error status of the Ethernet Duplex Unit |                          |   |              |                             |
| <b>Display and Operation Details</b>   |   |                          |   |              |                             |
|  |   |                          |   |              |                             |
| <b>No.</b>   | <b>Item</b>   | <b>Setting/display</b>   | <b>Description</b>  |              |                             |
| 1  | Network ad  | Setting                  | Sets the network address for the Ethernet Unit.                                   |              |                             |
| 2  | Node ad   | Setting                  | Sets node address for the Ethernet Unit.  |              |                             |
| 3  | Read  | Setting                  | Reads and displays the status.  |              |                             |
| 4  | Status  | Display                  | Displays status.<br>Normal: The display is in gray.<br>Error: The display is red. |              |                             |
| <b>Remarks</b>   |   |                          |   |              |                             |
| <ul style="list-style-type: none"> <li>* When using this Smart Active Parts, be sure to select <b>Setting - System Setting</b> in the menu bar, press the <b>System Memory List</b> on the Initial Tab Page, and select <b>Basic Operation</b> for \$SB. Smart Active Parts cannot be used on the popup screen.</li> <li>* Do not use the above display for the start screen.</li> <li>* When the Smart Active Parts is reused, set the unit number to 254.</li> </ul> |   |                          |   |              |                             |

## 1.3 Controller Link

### 1.3.1 Controller Link Network Status Monitor (for 32 Nodes)

|   |   |                          |   |              |  |
|---|---|--------------------------|---|--------------|--|
| <b>Unit type</b>  | CS1W-CLK21<br>CJ1W-CLK21<br>CS1W-CLK21-V1<br>CJ1W-CLK21-V1                    | <b>Storage directory</b> | SmartActiveParts_E\CommUnit\CLK   | <b>Title</b> | Controller Link network status monitor |
| <b>Function</b>   | Monitors the communications status of a Controller Link network for 32 nodes. |                          |   |              |  |
| <b>Display and Operation Details</b>  |   |                          |   |              |  |
|   |   |                          |   |              |  |
| <b>No.</b>  | <b>Item</b>   | <b>Setting/display</b>   | <b>Description</b>  |              |  |
| 1   | Polling Node  | Display                  | Displays the Controller Link network polling node number.   |              |  |
| 2   | Startup Node  | Display                  | Displays the Controller Link network startup node number.   |              |  |
| 3   | Local Settin  | Display                  | No default items are displayed in particular. Define network settings for the application when creating the screen.                                   |              |  |
| 4   | Local Data Link Participat  | Display                  | Displays the status of data link participation of the local node.   |              |  |
| 5   | Network Participation   | Display                  | Displays the status of network participation of each node. The indicator for the node will be lit in green if it is participating in the network.     |              |  |
| 6   | Data link Participation   | Display                  | Displays the status of data link participation of each node. The indicator for the node will be lit in green if it is participating in the data link. |              |  |
| 7   | Communications Error  | Display                  | Displays the communications error of each node. The indicator for the node will be lit in red if there is a communications error.                     |              |  |
| <b>Remarks</b>  |   |                          |   |              |  |
| * When the Smart Active Parts is reused, the unit number must be specified. |   |                          |   |              |  |

1.3.2 Controller Link Network Station Monitor (for 62 Nodes)

|  |   |                          |   |              |  |
|--|---|--------------------------|---|--------------|--|
| <b>Unit type</b>   | CS1W-CLK21-V1<br>CJ1W-CLK21-V1  | <b>Storage directory</b> | SmartActiveParts_E\Co<br>mmUnit\CLK   | <b>Title</b> | Controller Link network status monitor |
| <b>Function</b>  | Monitors the communications status of a Controller Link network for 62 nodes. |                          |   |              |  |
| <b>Display and Operation Details</b>                                       |   |                          |   |              |  |
|  |   |                          |   |              |  |
| <b>No.</b>   | <b>Item</b>   | <b>Setting/display</b>   | <b>Description</b>  |              |  |
| 1  | Polling Node  | Display                  | Displays the Controller Link network polling node number.   |              |  |
| 2  | Startup Node  | Display                  | Displays the Controller Link network startup node number.   |              |  |
| 3  | Local Settin  | Display                  | No default items are displayed in particular.<br>Define network settings for the application when creating the screen.                                |              |  |
| 4  | Local Data Link Participation   | Display                  | Displays the status of data link participation of the local node.   |              |  |
| 5  | Network Participation   | Display                  | Displays the status of network participation of each node. The indicator for the node will be lit in green if it is participating in the network.     |              |  |
| 6  | Data Link Participation   | Display                  | Displays the status of data link participation of each node. The indicator for the node will be lit in green if it is participating in the data link. |              |  |
| 7  | Communications Error  | Display                  | Displays the communications error of each node. The indicator for the node will be lit in red if there is a communications error.                     |              |  |
| <b>Remarks</b>   |   |                          |   |              |  |
| * When the Smart Active Part is reused, the unit number must be specified. |   |                          |   |              |  |

# Communication Unit

## 1.4 Communication Unit (Ver5orEarlier)

### 1.4.1 CS1W-CLK

|          |   |                 |  |       |                        |
|----------|---|-----------------|--|-------|------------------------|
| Model    | CS1W-CLK21<br>CJ1W-CLK21  | Location        | SmartActiveParts_E\Com<br>mUnit\Ver5orEarlier\CS1<br>W_CJ1W-CLK21_V1                         | Title | Network Status Monitor |
| Function | Monitors CLK networking status.   |                 |  |       |                        |
| [Image]  | <div style="text-align: center;"> <span style="margin-right: 100px;">1</span> <span>2</span> </div> |                 |  |       |                        |
| No.      | Item  | Setting/Display | Details  |       |                        |
| 1        | Polling Node No.  | Display         | Displays polling node No. for CLK network.   |       |                        |
| 2        | Startup Node No.  | Display         | Displays startup node No. for CLK network.   |       |                        |
| 3        | Local Setting   | Display         | No item is displayed.<br>User can make original settings when creating a screen.             |       |                        |
| 4        | Local Data Link Participation   | Display         | Displays data link participation status either participate (part.) or not participate (Not). |       |                        |
| 5        | Network Participation   | Display         | Displays network participation status by node.   |       |                        |
| 6        | Data Link Participation   | Display         | Displays data link participation status by node.   |       |                        |
| 7        | Communications Error  | Display         | Displays whether an error is being occurred by node.   |       |                        |
| [Note]   |   |                 |  |       |                        |



1.4.2 CS1W-DRM

| Model              | CS1W-DRM21<br>CJ1W-DRM21  | Location        | SmartActiveParts_E\Com<br>mUnit\Ver5orEarlier\CS1W<br>_CJ1W-DRM21_V1   | Title | Network Status Monitor |                   |    |    |    |    |    |    |    |    |    |    |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|--------------------|---|-----------------|--|-------|------------------------|-------------------|----|----|----|----|----|----|----|----|----|----|--|--|--|--|--|--------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|--------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|----------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Function           | Monitors Device network communication status when using CS1W-DRM/CJ1W-DRM21 as a master.  |                 |  |       |                        |                   |    |    |    |    |    |    |    |    |    |    |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| [Image]            | <table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th colspan="16">Device Net Status</th> </tr> <tr> <th>Node Address</th> <th>00</th><th>01</th><th>02</th><th>03</th><th>04</th><th>05</th><th>06</th><th>07</th><th>08</th><th>09</th><th>10</th><th>11</th><th>12</th><th>13</th><th>14</th><th>15</th> </tr> </thead> <tbody> <tr> <td>1 Registered Slave</td> <td></td><td></td><td></td><td></td><td style="background-color: green;"></td><td></td><td></td><td></td><td style="background-color: green;"></td><td style="background-color: green;"></td><td style="background-color: green;"></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>2 Normal Slave</td> <td></td><td></td><td></td><td></td><td style="background-color: green;"></td><td></td><td></td><td></td><td style="background-color: green;"></td><td></td><td style="background-color: green;"></td><td style="background-color: green;"></td><td></td><td></td><td></td><td></td> </tr> <tr> <th>Node Address</th> <th>16</th><th>17</th><th>18</th><th>19</th><th>20</th><th>21</th><th>22</th><th>23</th><th>24</th><th>25</th><th>26</th><th>27</th><th>28</th><th>29</th><th>30</th><th>31</th> </tr> <tr> <td>Registered Slave</td> <td style="background-color: green;"></td><td></td><td style="background-color: green;"></td><td style="background-color: green;"></td><td style="background-color: green;"></td><td></td><td></td><td></td><td></td><td></td><td style="background-color: green;"></td><td style="background-color: green;"></td><td style="background-color: green;"></td><td></td><td></td><td></td> </tr> <tr> <td>Normal Slave</td> <td></td><td></td><td style="background-color: green;"></td><td style="background-color: green;"></td><td style="background-color: green;"></td><td style="background-color: green;"></td><td></td><td></td><td></td><td></td><td style="background-color: green;"></td><td style="background-color: green;"></td><td style="background-color: green;"></td><td></td><td></td><td></td> </tr> <tr> <th>Node Address</th> <th>32</th><th>33</th><th>34</th><th>35</th><th>36</th><th>37</th><th>38</th><th>39</th><th>40</th><th>41</th><th>42</th><th>43</th><th>44</th><th>45</th><th>46</th><th>47</th> </tr> <tr> <td>Registered Slave</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>Normal Slave</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <th>Node Address</th> <th>48</th><th>49</th><th>50</th><th>51</th><th>52</th><th>53</th><th>54</th><th>55</th><th>56</th><th>57</th><th>58</th><th>59</th><th>60</th><th>61</th><th>62</th><th>63</th> </tr> <tr> <td>Registered Slave</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>Normal Slave</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </tbody> </table> |                 |  |       |                        | Device Net Status |    |    |    |    |    |    |    |    |    |    |  |  |  |  |  | Node Address | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 1 Registered Slave |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 2 Normal Slave |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Node Address | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | Registered Slave |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Normal Slave |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Node Address | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | Registered Slave |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Normal Slave |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Node Address | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | Registered Slave |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Normal Slave |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Device Net Status  |   |                 |  |       |                        |                   |    |    |    |    |    |    |    |    |    |    |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Node Address       | 00  | 01              | 02   | 03    | 04                     | 05                | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1 Registered Slave |   |                 |  |       |                        |                   |    |    |    |    |    |    |    |    |    |    |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2 Normal Slave     |   |                 |  |       |                        |                   |    |    |    |    |    |    |    |    |    |    |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Node Address       | 16  | 17              | 18   | 19    | 20                     | 21                | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Registered Slave   |   |                 |  |       |                        |                   |    |    |    |    |    |    |    |    |    |    |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Normal Slave       |   |                 |  |       |                        |                   |    |    |    |    |    |    |    |    |    |    |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Node Address       | 32  | 33              | 34   | 35    | 36                     | 37                | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Registered Slave   |   |                 |  |       |                        |                   |    |    |    |    |    |    |    |    |    |    |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Normal Slave       |   |                 |  |       |                        |                   |    |    |    |    |    |    |    |    |    |    |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Node Address       | 48  | 49              | 50   | 51    | 52                     | 53                | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Registered Slave   |   |                 |  |       |                        |                   |    |    |    |    |    |    |    |    |    |    |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Normal Slave       |   |                 |  |       |                        |                   |    |    |    |    |    |    |    |    |    |    |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| No.                | Item  | Setting/Display | Details  |       |                        |                   |    |    |    |    |    |    |    |    |    |    |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1                  | Registered Slave  | Display         | Displays slave node address registered in the scan list of the master. |       |                        |                   |    |    |    |    |    |    |    |    |    |    |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2                  | Normal Slave  | Display         | Displays slave node No. which is being communicated normally.          |       |                        |                   |    |    |    |    |    |    |    |    |    |    |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| [Note]             |   |                 |  |       |                        |                   |    |    |    |    |    |    |    |    |    |    |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

# Motion Control

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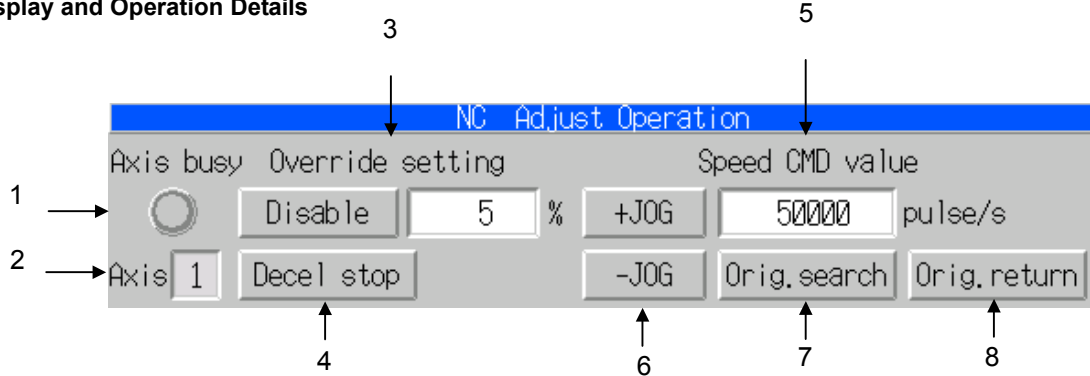
# Motion Control

## 1.1 Standard Position Control Units

### 1.1.1 Adjust Operation

|                  |  |                          |  |              |                  |
|------------------|--|--------------------------|--|--------------|------------------|
| <b>Unit type</b> | CS1W-NC113/133/213/233/413/433<br>CJ1W-NC113/133/213/233/413/433 | <b>Storage directory</b> | SmartActiveParts_EV<br>Motion\NC\NC[]3 | <b>Title</b> | Adjust Operation |
| <b>Function</b>  | Performs jogging, origin searches, and origin returns.           |                          |  |              |                  |

#### Display and Operation Details



| No. | Item                | Setting/display | Description  |
|-----|---------------------|-----------------|--|
| 1   | Axis busy           | Display         | Lights yellow when processing is being performed for the axis.   |
| 2   | Axis                | Setting         | Sets the axis number. The setting ranges are as follows:<br>NC1[]3: Always 1, NC2[]3: 1 to 2, NC4[]3: 1 to 4<br>Note: Axis 1: X Axis, Axis 2: Y Axis, Axis 3: Z Axis, Axis 4: U axis |
| 3   | Override setting    | Setting         | Sets an override value and enables and disables the override. (Setting range: 1 to 999)  |
| 4   | Deceleration stop   | Setting         | When pressed, lights yellow and decelerates the motor to a stop. Jogging, origin searches, and origin returns cannot be performed during a deceleration stop.                        |
| 5   | Speed command value | Setting         | Sets the speed. (Setting range: 1 to 500,000 pulse/s)  |
| 6   | JOG operation       | Setting         | When held down, operates the motor in the specified direction. When released, stops motor operation.   |
| 7   | Origin search       | Setting         | When pressed, starts an origin search operation.   |
| 8   | Origin return       | Setting         | When pressed, starts an origin return operation.   |

#### Remarks

There are six different version of this SMART Active Part depending on the following area aIStorage directories.

NC1[]3: For DM Area aIStorage directories in words for Special I/O Units and for user-set DM Area aIStorage directories  
 NC2[]3: For DM Area aIStorage directories in words for Special I/O Units and for user-set DM Area aIStorage directories  
 NC4[]3: For DM Area aIStorage directories in words for Special I/O Units and for user-set DM Area aIStorage directories

- \* When using this SMART Active Part for the NC2[]3 or NC4[]3, be sure to select **Setting - System Settings** in the menu bar, press the **System Memory List** Button on the **Initial Tab** Page, and select **Basics** for the \$SB. This SMART Active Part cannot be used on pop-up screens.
- \* When using this SMART Active Part with user-set DM Area aIStorage directories, be sure to select **Setting - System Settings** in the menu bar, press the **System Memory List** Button on the **Initial Tab** Page, and select **Address Index** for the \$SW.
- \* When using this SMART Active Part for the NC2[]3 or NC4[]3, do not use it on the initial screen.
- \* When using this SMART Active Part for the NC2[]3 or NC4[]3, use system version 5 or higher.
- \* When reusing SMART Active Parts, be sure to set the unit number.
- \* Number of frames: NC2[]3 Part: 1 frame, NC4[]3 Part: 1 frame
- \* The storage directories are as follows: Parts for DM Area aIStorage directories in words for Special I/O Units:  
 NC\NC1[]3\SIOU\_DM\_AreaAIStorage directories  
 UserSetDM\_AreaAIStorage directories: NC\NC1[]3\UserSetDM\_AreaAIStorage directories  
 NC2[]3: Parts for DM Area aIStorage directories in words for Special I/O Units: NC\NC2[]3\SIOU\_DM\_AreaAIStorage directories  
 UserSetDM\_AreaAIStorage directories: NC\NC2[]3\UserSetDM\_AreaAIStorage directories  
 NC4[]3: Parts for DM Area aIStorage directories in words for Special I/O Units: NC\NC4[]3\SIOU\_DM\_AreaAIStorage directories  
 UserSetDM\_AreaAIStorage directories: NC\NC3x3\UserSetDM\_AreaAIStorage directories

1.1.2 Direct Operation

|                                      |   |                          |  |              |                  |
|--------------------------------------|---|--------------------------|--|--------------|------------------|
| <b>Unit type</b>                     | CS1W-NC113/133/213/233/<br>413/433<br>CJ1W-NC113/133/213/233/<br>413/433  | <b>Storage directory</b> | SmartActiveParts_E\<br>Motion\NC\NC[]3   | <b>Title</b> | Direct Operation |
| <b>Function</b>                      | Performs direct operation using an absolute or relative movement command. |                          |  |              |                  |
| <b>Display and Operation Details</b> |   |                          |  |              |                  |
|                                      |   |                          |  |              |                  |
| <b>No.</b>                           | <b>Item</b>   | <b>Setting/display</b>   | <b>Description</b>   |              |                  |
| 1                                    | Axis busy   | Display                  | Lights yellow when processing is being performed for the axis.   |              |                  |
| 2                                    | Axis  | Setting                  | Sets the axis number. The setting ranges are as follows:<br>NC1[]3: Always 1, NC2[]3: 1 to 2, NC4[]3: 1 to 4<br>Note: Axis 1: Axis X, Axis 2: Axis Y, Axis 3: Axis Z, Axis 4: Axis U |              |                  |
| 3                                    | Override setting  | Setting                  | Sets an override value and enables and disables the override. (Setting range: 1% to 999%)  |              |                  |
| 4                                    | Deceleration stop   | Setting                  | When pressed, lights yellow and decelerates the motor to a stop. Absolute and relative movement commands cannot be used during a deceleration stop                                   |              |                  |
| 5                                    | ABS/INC   | Setting                  | Switches the between an absolute movement command (ABS) and a relative movement command (INC).   |              |                  |
| 6                                    | Start   | Setting                  | Starts operation for the movement command specified for <i>ABS/INC</i> (5).  |              |                  |
| 7                                    | Speed command value   | Setting                  | Sets the speed. (Setting range: 1 to 500,000 pulse/s)  |              |                  |
| 8                                    | Position command value  | Setting                  | Sets the position. (Setting range: -1,073,741,823 to 1,073,741,823 pulses)   |              |                  |
| 9                                    | Acceleration time   | Setting                  | Sets the acceleration time. (Setting range: 0 to 250,000 ms)   |              |                  |
| 10                                   | Deceleration time   | Setting                  | Sets the deceleration time. (Setting range: 0 to 250,000 ms)   |              |                  |

## Remarks

- \* There are six different version of this SMART Active Part depending on the following area alStorage directories.  
NC1[]3: For DM Area alStorage directories in words for Special I/O Units and for user-set DM Area alStorage directories  
NC2[]3: For DM Area alStorage directories in words for Special I/O Units and for user-set DM Area alStorage directories  
NC4[]3: For DM Area alStorage directories in words for Special I/O Units and for user-set DM Area alStorage directories
- \* When using this SMART Active Part for the NC2[]3 or NC4[]3, be sure to select **Setting - System Settings** in the menu bar, press the **System Memory List** Button on the **Initial Tab** Page, and select **Basics** for the \$SB. This SMART Active Part cannot be used on pop-up screens.
- \* When using this SMART Active Part with user-set DM Area alStorage directories, be sure to select **Setting - System Settings** in the menu bar, press the **System Memory List** Button on the **Initial Tab** Page, and select **Address Index** for the \$SW.
- \* When using this SMART Active Part for the NC2[]3 or NC4[]3, do not use it on the initial screen.
- \* When using this SMART Active Part for the NC2[]3 or NC4[]3, use system version 5 or higher.
- \* When reusing SMART Active Parts, be sure to set the unit number.
- \* Number of frames: NC2[]3 Part: 2 frame, NC4[]3 Part: 2 frame
- \* The storage directories are as follows: Parts for DM Area alStorage directories in words for Special I/O Units:  
NC\NC1[]3\SIOU\_DM\_AreaAlStorage directories  
UserSetDM\_AreaAlStorage directories: NC\NC1[]3\UserSetDM\_AreaAlStorage directories  
NC2[]3: Parts for DM Area alStorage directories in words for Special I/O Units: NC\NC2[]3\SIOU\_DM\_AreaAlStorage directories  
UserSetDM\_AreaAlStorage directories: NC\NC2[]3\UserSetDM\_AreaAlStorage directories  
NC4[]3: Parts for DM Area alStorage directories in words for Special I/O Units: NC\NC4[]3\SIOU\_DM\_AreaAlStorage directories  
UserSetDM\_AreaAlStorage directories: NC\NC3x3\UserSetDM\_AreaAlStorage directories

### 1.1.3 Program Operation

|                                      |  |                             |  |              |                   |
|--------------------------------------|--|-----------------------------|--|--------------|-------------------|
| <b>Unit type</b>                     | CS1W-NC113/133/213/233/<br>413/433<br>CJ1W-NC113/133/213/233/<br>413/433 | <b>Storage directory</b>    | SmartActiveParts_E\<br>Motion\NC\NC[]3   | <b>Title</b> | Program Operation |
| <b>Function</b>                      | Executes memory (program) operation.                                     |                             |  |              |                   |
| <b>Display and Operation Details</b> |  |                             |  |              |                   |
|                                      |  |                             |  |              |                   |
| <b>No.</b>                           | <b>Item</b>  | <b>Setting/<br/>display</b> | <b>Description</b>   |              |                   |
| 1                                    | Axis busy  | Display                     | Lights yellow when processing is being performed for the axis.   |              |                   |
| 2                                    | Axis   | Setting                     | Sets the axis number. The setting ranges are as follows:<br>NC1[]3: Always 1, NC2[]3: 1 to 2, NC4[]3: 1 to 4<br>Note: Axis 1: Axis X, Axis 2: Axis Y, Axis 3: Axis Z, Axis 4: Axis U |              |                   |
| 3                                    | Override setting   | Setting                     | Sets an override value and enables and disables the override. (Setting range: 1 to 999%)   |              |                   |
| 4                                    | Deceleration stop  | Setting                     | When pressed, lights yellow and decelerates the motor to a stop. Memory operation cannot be executed.  |              |                   |
| 5                                    | Sequence No.   | Setting                     | Sets the sequence number to execute. (Setting range: 0 to 99)  |              |                   |
| 6                                    | Specified sequence position data   | Display                     | Displays the position data for the specified sequence number.  |              |                   |
| 7                                    | Start  | Setting                     | Executes memory operation.   |              |                   |

## Remarks

- \* There are six different version of this SMART Active Part depending on the following area alStorage directories.  
NC1[]3: For DM Area alStorage directories in words for Special I/O Units and for user-set DM Area alStorage directories  
NC2[]3: For DM Area alStorage directories in words for Special I/O Units and for user-set DM Area alStorage directories  
NC4[]3: For DM Area alStorage directories in words for Special I/O Units and for user-set DM Area alStorage directories
- \* When using this SMART Active Part, be sure to select **Setting - System Settings** in the menu bar, press the **System Memory List** Button on the **Initial Tab** Page, and select **Basics** and **Data/Time** for the \$SB. This SMART Active Part cannot be used on pop-up screens.
- \* When using this SMART Active Part with user-set DM Area alStorage directories, be sure to select **Setting - System Settings** in the menu bar, press the **System Memory List** Button on the **Initial Tab** Page, and select **Address Index** for the \$SW.
- \* Do not use this SMART Active Part on the initial screen.
- \* Use system version 5 or higher.
- \* When reusing SMART Active Parts, be sure to set the unit number.
- \* Number of frames: NC2[]3 Part: 1 frame, NC4[]3 Part: 1 frame
- \* The storage directories are as follows: Parts for DM Area alStorage directories in words for Special I/O Units:  
NC\NC1[]3\SIOU\_DM\_AreaAlStorage directories  
UserSetDM\_AreaAlStorage directories: NC\NC1[]3\UserSetDM\_AreaAlStorage directories  
NC2[]3: Parts for DM Area alStorage directories in words for Special I/O Units: NC\NC2[]3\SIOU\_DM\_AreaAlStorage directories  
UserSetDM\_AreaAlStorage directories: NC\NC2[]3\UserSetDM\_AreaAlStorage directories  
NC4[]3: Parts for DM Area alStorage directories in words for Special I/O Units: NC\NC4[]3\SIOU\_DM\_AreaAlStorage directories  
UserSetDM\_AreaAlStorage directories: NC\NC3x3\UserSetDM\_AreaAlStorage directories

1.1.4 Setting

|   |  |                          |  |              |         |
|---|--|--------------------------|--|--------------|---------|
| <b>Unit type</b>  | CS1W-NC113/133/213/233/413/433<br>CJ1W-NC113/133/213/233/413/433 | <b>Storage directory</b> | SmartActiveParts_EMotion\NC\NCxx3  | <b>Title</b> | Setting |
| <b>Function</b>   | Executes a present position preset.                              |                          |  |              |         |
| <b>Display and Operation Details</b>  |  |                          |  |              |         |
|   |  |                          |  |              |         |
| <b>No.</b>  | <b>Item</b>  | <b>Setting/display</b>   | <b>Description</b>   |              |         |
| 1   | Axis busy  | Display                  | Lights yellow when processing is being performed for the axis.   |              |         |
| 2   | Axis   | Setting                  | Sets the axis number. The setting ranges are as follows:<br>NC1[]3: Always 1, NC2[]3: 1 to 2, NC4[]3: 1 to 4<br>Note: Axis 1: Axis X, Axis 2: Axis Y, Axis 3: Axis Z, Axis 4: Axis U |              |         |
| 3   | Preset   | Setting                  | Executes the preset.   |              |         |
| 4   | Position command value   | Setting                  | Sets the position. (Setting range: 1,073,741,823 to 1,073,741,823 pulses)  |              |         |
| <b>Remarks</b>  |  |                          |  |              |         |
| <ul style="list-style-type: none"> <li>* There are six different version of this SMART Active Part depending on the following area alStorage directories.<br/>NC1[]3: For DM Area alStorage directories in words for Special I/O Units and for user-set DM Area alStorage directories<br/>NC2[]3: For DM Area alStorage directories in words for Special I/O Units and for user-set DM Area alStorage directories<br/>NC4[]3: For DM Area alStorage directories in words for Special I/O Units and for user-set DM Area alStorage directories</li> <li>* When using this SMART Active Part for the NC2[]3 or NC4[]3, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB. This SMART Active Part cannot be used on pop-up screens.</li> <li>* When using this SMART Active Part with user-set DM Area alStorage directories, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Address Index</b> for the \$SW.</li> <li>* When using this SMART Active Part for the NC2[]3 or NC4[]3, do not use it on the initial screen.</li> <li>* When using this SMART Active Part for the NC2[]3 or NC4[]3, use system version 5 or higher.</li> <li>* When reusing SMART Active Parts, be sure to set the unit number.</li> <li>* Number of frames: NC2[]3 Part: 1 frame, NC4[]3 Part: 1 frame</li> <li>* The storage directories are as follows: Parts for DM Area alStorage directories in words for Special I/O Units:<br/>NC\NC1[]3\SIOU_DM_AreaAlStorage directories<br/>UserSetDM_AreaAlStorage directories: NC\NC1[]3\UserSetDM_AreaAlStorage directories<br/>NC2[]3: Parts for DM Area alStorage directories in words for Special I/O Units: NC\NC2[]3\SIOU_DM_AreaAlStorage directories<br/>UserSetDM_AreaAlStorage directories: NC\NC2[]3\UserSetDM_AreaAlStorage directories<br/>NC4[]3: Parts for DM Area alStorage directories in words for Special I/O Units: NC\NC4[]3\SIOU_DM_AreaAlStorage directories<br/>UserSetDM_AreaAlStorage directories: NC\NC3x3\UserSetDM_AreaAlStorage directories</li> </ul> |  |                          |  |              |         |



## 1.1.5 Teaching

|  |  |                          |  |              |          |
|--|--|--------------------------|--|--------------|----------|
| <b>Unit type</b>   | CS1W-NC113/133/213/233/413/433<br>CJ1W-NC113/133/213/233/413/433 | <b>Storage directory</b> | SmartActiveParts_EMotion\NC\NCxx3  | <b>Title</b> | Teaching |
| <b>Function</b>  | Performs teaching for the specified sequence.                    |                          |  |              |          |
| <b>Display and Operation Details</b>   |  |                          |  |              |          |
|  |  |                          |  |              |          |
| <b>No.</b>   | <b>Item</b>  | <b>Setting/display</b>   | <b>Description</b>   |              |          |
| 1  | Axis busy  | Display                  | Lights yellow when processing is being performed for the axis.   |              |          |
| 2  | Axis   | Setting                  | Sets the axis number. The setting ranges are as follows:<br>NC1[]3: Always 1, NC2[]3: 1 to 2, NC4[]3: 1 to 4<br>Note: Axis 1: Axis X, Axis 2: Axis Y, Axis 3: Axis Z, Axis 4: Axis U |              |          |
| 3  | Sequence No.   | Setting                  | Sets the sequence number. (Setting range: 0 to 99)   |              |          |
| 4  | Specified sequence position data                                 | Display                  | Displays the present position.   |              |          |
| 5  | Teaching execution   | Setting                  | Executes teaching.   |              |          |
| <b>Remarks</b>   |  |                          |  |              |          |
| <ul style="list-style-type: none"> <li>* There are six different version of this SMART Active Part depending on the following area alStorage directories.<br/>                     NC1[]3: For DM Area alStorage directories in words for Special I/O Units and for user-set DM Area alStorage directories<br/>                     NC2[]3: For DM Area alStorage directories in words for Special I/O Units and for user-set DM Area alStorage directories<br/>                     NC4[]3: For DM Area alStorage directories in words for Special I/O Units and for user-set DM Area alStorage directories</li> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> and <b>Data/Time</b> for the \$SB. This SMART Active Part cannot be used on pop-up screens.</li> <li>* When using this SMART Active Part with user-set DM Area alStorage directories, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Address Index</b> for the \$SW.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use system version 5 or higher.</li> <li>* When reusing SMART Active Parts, be sure to set the unit number.</li> <li>* Number of frames: NC2[]3 Part: 1 frame, NC4[]3 Part: 1 frame</li> <li>* The storage directories are as follows: Parts for DM Area alStorage directories in words for Special I/O Units:<br/>                     NC\NC1[]3\SIOU_DM_AreaAlStorage directories<br/>                     UserSetDM_AreaAlStorage directories: NC\NC1[]3\UserSetDM_AreaAlStorage directories<br/>                     NC2[]3: Parts for DM Area alStorage directories in words for Special I/O Units: NC\NC2[]3\SIOU_DM_AreaAlStorage directories<br/>                     UserSetDM_AreaAlStorage directories: NC\NC2[]3\UserSetDM_AreaAlStorage directories<br/>                     NC4[]3: Parts for DM Area alStorage directories in words for Special I/O Units: NC\NC4[]3\SIOU_DM_AreaAlStorage directories<br/>                     UserSetDM_AreaAlStorage directories: NC\NC3x3\UserSetDM_AreaAlStorage directories</li> </ul> |  |                          |  |              |          |

### 1.1.6 Present Value Monitor

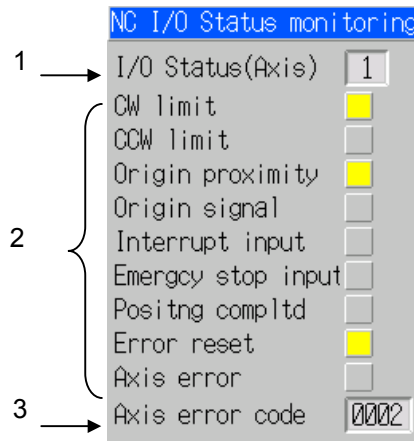
|   |  |                          |  |              |                       |
|---|--|--------------------------|--|--------------|-----------------------|
| <b>Unit type</b>  | CS1W-NC113/133/213/233/413/433<br>CJ1W-NC113/133/213/233/413/433 | <b>Storage directory</b> | SmartActiveParts_EMotion\NC\NCxx3  | <b>Title</b> | Present Value Monitor |
| <b>Function</b>   | Displays the present value.                                      |                          |  |              |                       |
| <b>Display and Operation Details</b>  |  |                          |  |              |                       |
|   |  |                          |  |              |                       |
| <b>No.</b>  | <b>Item</b>  | <b>Setting/display</b>   | <b>Description</b>   |              |                       |
| 1   | Axis   | Setting                  | Sets the axis number. The setting ranges are as follows:<br>NC1[]3: Always 1, NC2[]3: 1 to 2, NC4[]3: 1 to 4<br>Note: Axis 1: Axis X, Axis 2: Axis Y, Axis 3: Axis Z, Axis 4: Axis U |              |                       |
| 2   | Monitor type   | Setting                  | Displays the type of present value being monitored.  |              |                       |
| 3   | Present value  | Display                  | Displays the present value.  |              |                       |
| 4   | Unit   | Display                  | Displays the unit.   |              |                       |
| <b>Remarks</b>  |  |                          |  |              |                       |
| <ul style="list-style-type: none"> <li>* There are six different version of this SMART Active Part depending on the following area alStorage directories.<br/>NC1[]3: For DM Area alStorage directories in words for Special I/O Units and for user-set DM Area alStorage directories<br/>NC2[]3: For DM Area alStorage directories in words for Special I/O Units and for user-set DM Area alStorage directories<br/>NC4[]3: For DM Area alStorage directories in words for Special I/O Units and for user-set DM Area alStorage directories</li> <li>* When using this SMART Active Part for the NC2[]3 or NC4[]3, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB. This SMART Active Part cannot be used on pop-up screens.</li> <li>* When using this SMART Active Part with user-set DM Area alStorage directories, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Address Index</b> for the \$SW.</li> <li>* When using this SMART Active Part for the NC2[]3 or NC4[]3, do not use it on the initial screen.</li> <li>* When using this SMART Active Part for the NC2[]3 or NC4[]3, use system version 5 or higher.</li> <li>* When reusing SMART Active Parts, be sure to set the unit number.</li> <li>* Number of frames: NC2[]3 Part: 1 frame, NC4[]3 Part: 1 frame</li> <li>* The storage directories are as follows: Parts for DM Area alStorage directories in words for Special I/O Units:<br/>NC\NC1[]3\SIOU_DM_AreaAlStorage directories<br/>UserSetDM_AreaAlStorage directories: NC\NC1[]3\UserSetDM_AreaAlStorage directories<br/>NC2[]3: Parts for DM Area alStorage directories in words for Special I/O Units: NC\NC2[]3\SIOU_DM_AreaAlStorage directories<br/>UserSetDM_AreaAlStorage directories: NC\NC2[]3\UserSetDM_AreaAlStorage directories<br/>NC4[]3: Parts for DM Area alStorage directories in words for Special I/O Units: NC\NC4[]3\SIOU_DM_AreaAlStorage directories<br/>UserSetDM_AreaAlStorage directories: NC\NC3x3\UserSetDM_AreaAlStorage directories</li> </ul> |  |                          |  |              |                       |

## 1.1.7 I/O Status Monitoring

|                  |  |                          |                                   |              |                    |
|------------------|--|--------------------------|-----------------------------------|--------------|--------------------|
| <b>Unit type</b> | CS1W-NC113/133/213/233/413/433<br>CJ1W-NC113/133/213/233/413/433 | <b>Storage directory</b> | SmartActiveParts_EMotion\NC\NCxx3 | <b>Title</b> | I/O Status Monitor |
|------------------|--|--------------------------|-----------------------------------|--------------|--------------------|

**Function** Displays the I/O status and error codes for each axis.

### Display and Operation Details



| No. | Item       | Setting/display | Description  |
|-----|------------|-----------------|--|
| 1   | Axis       | Setting         | Sets the axis number. The setting ranges are as follows:<br>NC1[]3: Always 1, NC2[]3: 1 to 2, NC4[]3: 1 to 4<br>Note: Axis 1: Axis X, Axis 2: Axis Y, Axis 3: Axis Z, Axis 4: Axis U |
| 2   | I/O Status | Display         | Displays the I/O status. The display will be lit yellow for any status signals that are ON.  |
| 3   | Error code | Display         | Displays any error codes that have been generated.   |

### Remarks

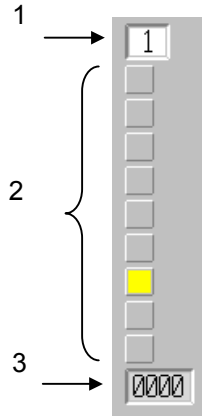
- \* There are three different version of this SMART Active Part depending on the model as follows:  
One for the NC1[]3, one for the NC2[]3, and one for the NC4[]3
- \* When using this SMART Active Part for the NC2[]3 or NC4[]3, be sure to select **Setting - System Settings** in the menu bar, press the **System Memory List** Button on the **Initial Tab** Page, and select **Basics** for the \$SB. This SMART Active Part cannot be used on pop-up screens.
- \* When using this SMART Active Part for the NC2[]3 or NC4[]3, do not use it on the initial screen.
- \* When using this SMART Active Part for the NC2[]3 or NC4[]3, use system version 5 or higher.
- \* When reusing SMART Active Parts, be sure to set the unit number.
- \* Number of frames: NC2[]3 Part: 1 frame, NC4[]3 Part: 1 frame
- \* The storage directories are as follows: Parts for DM Area aIStorage directories in words for Special I/O Units:  
NC\NC1[]3\SIOU\_DM\_AreaAIStorage directories  
UserSetDM\_AreaAIStorage directories: NC\NC1[]3\UserSetDM\_AreaAIStorage directories  
NC2[]3: Parts for DM Area aIStorage directories in words for Special I/O Units: NC\NC2[]3\SIOU\_DM\_AreaAIStorage directories  
UserSetDM\_AreaAIStorage directories: NC\NC2[]3\UserSetDM\_AreaAIStorage directories  
NC4[]3: Parts for DM Area aIStorage directories in words for Special I/O Units: NC\NC4[]3\SIOU\_DM\_AreaAIStorage directories  
UserSetDM\_AreaAIStorage directories: NC\NC3x3\UserSetDM\_AreaAIStorage directories

1.1.8 I/O Status Monitoring (No Name)

|                  |  |                          |                                    |              |                              |
|------------------|--|--------------------------|------------------------------------|--------------|------------------------------|
| <b>Unit type</b> | CS1W-NC113/133/213/233/413/433<br>CJ1W-NC113/133/213/233/413/433 | <b>Storage directory</b> | SmartActiveParts_E\Motion\NC\NCxx3 | <b>Title</b> | I/O Status Monitor (No Name) |
|------------------|--|--------------------------|------------------------------------|--------------|------------------------------|

|                 |  |
|-----------------|--|
| <b>Function</b> | Displays the I/O status and error codes for each axis. |
|-----------------|--|

Display and Operation Details



| No. | Item       | Setting/display | Description  |
|-----|------------|-----------------|--|
| 1   | Axis       | Setting         | Sets the axis number. The setting ranges are as follows:<br>NC1[]3: Always 1, NC2[]3: 1 to 2, NC4[]3: 1 to 4<br>Note: Axis 1: Axis X, Axis 2: Axis Y, Axis 3: Axis Z, Axis 4: Axis U |
| 2   | I/O Status | Display         | Displays the I/O status. The display will be lit yellow for any status signals that are ON.<br>The order of the status is the same as that for 2.7.7 I/O Status.                     |
| 3   | Error code | Display         | Displays any error codes that have been generated.   |

Remarks

- \* There are three different version of this SMART Active Part depending on the following area alStorage directories. One for the NC1[]3, one for the NC2[]3, and one for the NC4[]3
- \* When using this SMART Active Part for the NC2[]3 or NC4[]3, be sure to select **Setting - System Settings** in the menu bar, press the **System Memory List** Button on the **Initial Tab** Page, and select **Basics** for the \$SB. This SMART Active Part cannot be used on pop-up screens.
- \* When using this SMART Active Part for the NC2[]3 or NC4[]3, do not use it on the initial screen.
- \* When using this SMART Active Part for the NC2[]3 or NC4[]3, use system version 5 or higher.
- \* When reusing SMART Active Parts, be sure to set the unit number.
- \* Number of frames: NC2[]3 Part: 1 frame, NC4[]3 Part: 1 frame
- \* The storage directories are as follows: Parts for DM Area alStorage directories in words for Special I/O Units:  
NC\NC1[]3\SIOU\_DM\_AreaAlStorage directories  
UserSetDM\_AreaAlStorage directories: NC\NC1[]3\UserSetDM\_AreaAlStorage directories  
NC2[]3: Parts for DM Area alStorage directories in words for Special I/O Units: NC\NC2[]3\SIOU\_DM\_AreaAlStorage directories  
UserSetDM\_AreaAlStorage directories: NC\NC2[]3\UserSetDM\_AreaAlStorage directories  
NC4[]3: Parts for DM Area alStorage directories in words for Special I/O Units: NC\NC4[]3\SIOU\_DM\_AreaAlStorage directories  
UserSetDM\_AreaAlStorage directories: NC\NC3x3\UserSetDM\_AreaAlStorage directories

## 1.1.9 Axis Error

|   |  |                          |  |              |            |
|---|--|--------------------------|--|--------------|------------|
| <b>Unit type</b>  | CS1W-NC113/133/213/233/413/433<br>CJ1W-NC113/133/213/233/413/433 | <b>Storage directory</b> | SmartActiveParts_EMotion\NC\NCxx3  | <b>Title</b> | Axis Error |
| <b>Function</b>   | Displays and resets axis errors.                                 |                          |  |              |            |
| <b>Display and Operation Details</b>  |  |                          |  |              |            |
|   |  |                          |  |              |            |
| <b>No.</b>  | <b>Item</b>  | <b>Setting/display</b>   | <b>Description</b>   |              |            |
| 1   | Busy   | Display                  | Lights yellow when processing is being performed for the axis.   |              |            |
| 2   | Axis   | Setting                  | Sets the axis number. The setting ranges are as follows:<br>NC1[]3: Always 1, NC2[]3: 1 to 2, NC4[]3: 1 to 4<br>Note: Axis 1: Axis X, Axis 2: Axis Y, Axis 3: Axis Z, Axis 4: Axis U |              |            |
| 3   | Axis error   | Display                  | Lights yellow when an axis error has occurred.   |              |            |
| 4   | Error code   | Display                  | Displays any error codes that have been generated.   |              |            |
| 5   | Error reset  | Setting                  | Resets the error.  |              |            |
| <b>Remarks</b>  |  |                          |  |              |            |
| <ul style="list-style-type: none"> <li>* There are three different version of this SMART Active Part depending on the following area alStorage directories. One for the NC1[]3, one for the NC2[]3, and one for the NC4[]3</li> <li>* When using this SMART Active Part for the NC2[]3 or NC4[]3, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB. This SMART Active Part cannot be used on pop-up screens.</li> <li>* When using this SMART Active Part for the NC2[]3 or NC4[]3, do not use it on the initial screen.</li> <li>* When using this SMART Active Part for the NC2[]3 or NC4[]3, use system version 5 or higher.</li> <li>* When reusing SMART Active Parts, be sure to set the unit number.</li> <li>* Number of frames: NC2[]3 Part: 1 frame, NC4[]3 Part: 1 frame</li> <li>* The storage directories are as follows: Parts for DM Area alStorage directories in words for Special I/O Units:<br/> NC\NC1[]3\SIOU_DM_AreaAlStorage directories<br/> UserSetDM_AreaAlStorage directories: NC\NC1[]3\UserSetDM_AreaAlStorage directories<br/> NC2[]3: Parts for DM Area alStorage directories in words for Special I/O Units: NC\NC2[]3\SIOU_DM_AreaAlStorage directories<br/> UserSetDM_AreaAlStorage directories: NC\NC2[]3\UserSetDM_AreaAlStorage directories<br/> NC4[]3: Parts for DM Area alStorage directories in words for Special I/O Units: NC\NC4[]3\SIOU_DM_AreaAlStorage directories<br/> UserSetDM_AreaAlStorage directories: NC\NC3x3\UserSetDM_AreaAlStorage directories</li> </ul> |  |                          |  |              |            |

## 1.2 MECHATROLINK-compatible Position Control Units

### 1.2.1 Common Control

|  |   |                          |  |              |                |
|--|---|--------------------------|--|--------------|----------------|
| <b>Unit type</b>   | CJ1W-NCF71  | <b>Storage directory</b> | SmartActiveParts_E\<br>Motion\ NCF   | <b>Title</b> | Common Control |
| <b>Function</b>  | Establishes a connection and displays the connection status and axis communications status. |                          |  |              |                |
| <b>Display and Operation Details</b>   |   |                          |  |              |                |
|  |   |                          |  |              |                |
| <b>No.</b>   | <b>Item</b>   | <b>Setting/display</b>   | <b>Description</b>   |              |                |
| 1  | Connection status   | Display                  | Displays the connection status. If the Unit is ready to start MECHATROLINK communications, the status indicator will be lit in yellow.             |              |                |
| 2  | Axis communication status   | Display                  | Displays the communications status between the Unit and the MECHATROLINK device. The status indicator will be lit in yellow during communications. |              |                |
| 3  | Establish connection  | Setting                  | Establishes a connection. If a button lit in yellow is pressed, communications will be disconnected and the button will turn gray.                 |              |                |
| <b>Remarks</b>   |   |                          |  |              |                |
| <ul style="list-style-type: none"> <li>* When reusing SMART Active Parts, be sure to set the unit number.</li> <li>* Data is saved in the following areas:<br/>                     Operating output memory area in CIO Area and Operating input memory area in CIO Area: OutCIO_InCIO<br/>                     Operating output memory area in CIO Area and Operating input memory area in DM Area: OutCIO_InDM<br/>                     Operating output memory area in DM Area and Operating input memory area in CIO Area: OutDM_InCIO<br/>                     Operating output memory area in DM Area and Operating input memory area in DM Area: OutDM_InDM                 </li> </ul> |   |                          |  |              |                |

## 1.2.2 Adjust Operation

|                  |            |                          |                                |              |                  |
|------------------|------------|--------------------------|--------------------------------|--------------|------------------|
| <b>Unit type</b> | CJ1W-NCF71 | <b>Storage directory</b> | SmartActiveParts_ElMotion\ NCF | <b>Title</b> | Adjust Operation |
|------------------|------------|--------------------------|--------------------------------|--------------|------------------|

**Function** Performs jogging, origin searches, and origin returns.

**Display and Operation Details**

| No. | Item                | Setting/display | Description   |
|-----|---------------------|-----------------|---|
| 1   | Axis busy           | Display         | Lights yellow when processing is being performed for the axis.  |
| 2   | Axis                | Setting         | Sets the axis number. (Setting range: 1 to 16)  |
| 3   | Override setting    | Setting         | Sets an override value and enables and disables the override. (Setting range: 0.01% to 327.67%)   |
| 4   | Deceleration stop   | Setting         | When pressed, lights yellow and decelerates the motor to a stop. Jogging, origin searches, and origin returns cannot be performed during a deceleration stop.   |
| 5   | Servo Lock          | Setting         | Switches between servo lock and servo unlock status.  |
| 6   | Speed command value | Setting         | Sets the speed. The position of the decimal point can be set. The settings for the position of the decimal point are as follows: No decimal point, 0.1, 0.01, 0.001 (Setting range: 0 to 2,147,483,647 command units/s) |
| 7   | Unit                | Setting         | Sets the unit. The settings for the unit are as follows: mm/s, inches/s, degrees/s, or pulses/s   |
| 8   | JOG operation       | Setting         | When held down, operates the motor in the specified direction. When released, stops motor operation.  |
| 9   | Origin search       | Setting         | When pressed, starts an origin search operation.  |
| 10  | Origin return       | Setting         | When pressed, starts an origin return operation.  |

**Remarks**

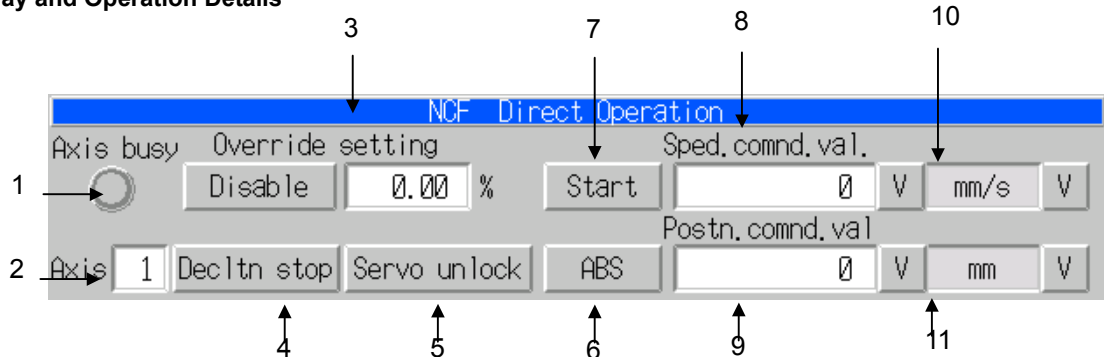
- \* There are four different version of this SMART Active Part depending on the following area alStorage directories.
  - Operating output memory area in CIO Area and Operating input memory area in CIO Area
  - Operating output memory area in CIO Area and Operating input memory area in DM Area
  - Operating output memory area in DM Area and Operating input memory area in CIO Area
  - Operating output memory area in DM Area and Operating input memory area in DM Area
- \* When using this SMART Active Part, be sure to select **Setting - System Settings** in the menu bar, press the **System Memory List** Button on the **Initial Tab** Page, and select **Basics, Data/Time, and Address Index** for the \$SW. This SMART Active Part cannot be used on pop-up screens.
- \* Do not use this SMART Active Part on the initial screen.
- \* Use system version 5 or higher.
- \* When reusing SMART Active Parts, be sure to set the unit number. Also, the position of the decimal point can be set. The settings for the position of the decimal point are as follows:
  - \* No decimal point, 0.1, 0.01, 0.001
  - \* Number of frames: 1 frame
- \* Data is saved in the following areas:
  - \* Operating output memory area in CIO Area and Operating input memory area in CIO Area: OutCIO\_InCIO
  - \* Operating output memory area in CIO Area and Operating input memory area in DM Area: OutCIO\_InDM
  - \* Operating output memory area in DM Area and Operating input memory area in CIO Area: OutDM\_InCIO
  - \* Operating output memory area in DM Area and Operating input memory area in DM Area: OutDM\_InDM

1.2.3 Direct Operation

|                  |            |                          |                                |              |                  |
|------------------|------------|--------------------------|--------------------------------|--------------|------------------|
| <b>Unit type</b> | CJ1W-NCF71 | <b>Storage directory</b> | SmartActiveParts_E\Motion\ NCF | <b>Title</b> | Direct Operation |
|------------------|------------|--------------------------|--------------------------------|--------------|------------------|

**Function** Performs direct operation using an absolute or relative movement command.

**Display and Operation Details**



| No. | Item                        | Setting/display | Description  |
|-----|-----------------------------|-----------------|--|
| 1   | Axis busy                   | Display         | Lights yellow when processing is being performed for the axis.   |
| 2   | Axis                        | Setting         | Sets the axis number. (Setting range: 1 to 16)   |
| 3   | Override setting            | Setting         | Sets an override value and enables and disables the override. (Setting range: 0.01% to 327.67%)  |
| 4   | Deceleration stop           | Setting         | When pressed, lights yellow and decelerates the motor to a stop. Absolute and relative movement commands cannot be used during a deceleration stop   |
| 5   | Servo Lock                  | Setting         | Switches between servo lock and servo unlock status.   |
| 6   | ABS/INC                     | Setting         | Switches the between an absolute movement command (ABS) and a relative movement command (INC).   |
| 7   | Start                       | Setting         | Starts operation for the movement command specified for <i>ABS/INC</i> (6).  |
| 8   | Speed command value         | Setting         | Sets the speed. (Setting range: 0 to 2,147,483,647 command units/s)<br>The position of the decimal point can be set. The settings for the position of the decimal point are as follows:<br>No decimal point, 0.1, 0.01, 0.001              |
| 9   | Position command value      | Setting         | Sets the position. (Setting range: 2,147,483,648 to 2,147,483,647 command units)<br>The position of the decimal point can be set. The settings for the position of the decimal point are as follows:<br>No decimal point, 0.1, 0.01, 0.001 |
| 10  | Speed command value unit    | Setting         | Sets the unit for the speed command. The settings for the unit are as follows:<br>mm/s, inches/s, degrees/s, or pulses/s   |
| 11  | Position command value unit | Setting         | Sets the unit for the position command. The settings for the unit are as follows:<br>mm, inch, deg, pulse  |

**Remarks**

- \* There are four different version of this SMART Active Part depending on the following area alStorage directories.  
Operating output memory area in CIO Area and Operating input memory area in CIO Area  
Operating output memory area in CIO Area and Operating input memory area in DM Area  
Operating output memory area in DM Area and Operating input memory area in CIO Area  
Operating output memory area in DM Area and Operating input memory area in DM Area
- \* When using this SMART Active Part, be sure to select **Setting - System Settings** in the menu bar, press the **System Memory List** Button on the **Initial Tab** Page, and select **Basics, Data/Time, and Address Index** for the \$SW. This SMART Active Part cannot be used on pop-up screens.
- \* Do not use this SMART Active Part on the initial screen.
- \* Use system version 5 or higher.
- \* When reusing SMART Active Parts, be sure to set the unit number.
- \* Number of frames: 1
- \* Data is saved in the following areas:  
Operating output memory area in CIO Area and Operating input memory area in CIO Area: OutCIO\_InCIO  
Operating output memory area in CIO Area and Operating input memory area in DM Area: OutCIO\_InDM  
Operating output memory area in DM Area and Operating input memory area in CIO Area: OutDM\_InCIO  
Operating output memory area in DM Area and Operating input memory area in DM Area: OutDM\_InDM



## 1.2.4 Setting

|   |                                     |                          |  |              |         |
|---|-------------------------------------|--------------------------|--|--------------|---------|
| <b>Unit type</b>  | CJ1W-NCF71                          | <b>Storage directory</b> | SmartActiveParts_E\ Motion\ NCF  | <b>Title</b> | Setting |
| <b>Function</b>   | Executes a present position preset. |                          |  |              |         |
| <b>Display and Operation Details</b>  |                                     |                          |  |              |         |
|   |                                     |                          |  |              |         |
| <b>No.</b>  | <b>Item</b>                         | <b>Setting/display</b>   | <b>Description</b>   |              |         |
| 1   | Axis busy                           | Display                  | Lights yellow when processing is being performed for the axis.                   |              |         |
| 2   | Axis                                | Setting                  | Sets the axis number. (Setting range: 1 to 16)                                   |              |         |
| 3   | Preset                              | Setting                  | Executes the present position preset.  |              |         |
| 4   | Position command value              | Setting                  | Sets the position. (Setting range: 2,147,483,648 to 2,147,483,647 command units) |              |         |
| 5   | Unit                                | Setting                  | Sets the unit. The settings for the unit are as follows:<br>mm, inch, deg, pulse |              |         |
| <b>Remarks</b>  |                                     |                          |  |              |         |
| <ul style="list-style-type: none"> <li>* There are four different version of this SMART Active Part depending on the following area alStorage directories.<br/>                     Operating output memory area in CIO Area and Operating input memory area in CIO Area<br/>                     Operating output memory area in DM Area and Operating input memory area in DM Area<br/>                     Operating output memory area in DM Area and Operating input memory area in DM Area<br/>                     Operating output memory area in DM Area and Operating input memory area in DM Area</li> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics, Data/Time,</b> and <b>Address Index</b> for the \$SW. This SMART Active Part cannot be used on pop-up screens.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use system version 5 or higher.</li> <li>* When reusing SMART Active Parts, be sure to set the unit number.</li> <li>* Number of frames: 2</li> <li>* Data is saved in the following areas:<br/>                     Operating output memory area in CIO Area and Operating input memory area in CIO Area: OutCIO_InCIO<br/>                     Operating output memory area in DM Area and Operating input memory area in DM Area: OutCIO_InDM<br/>                     Operating output memory area in DM Area and Operating input memory area in CIO Area: OutDM_InCIO<br/>                     Operating output memory area in DM Area and Operating input memory area in DM Area: OutDM_InDM</li> </ul> |                                     |                          |  |              |         |

### 1.2.5 Present Value Monitoring

|   |   |                          |  |              |                       |
|---|---|--------------------------|--|--------------|-----------------------|
| <b>Unit type</b>  | CJ1W-NCF71  | <b>Storage directory</b> | SmartActiveParts_E\Motion\ NCF   | <b>Title</b> | Present Value Monitor |
| <b>Function</b>   | Displays the present value of the specified monitor item. |                          |  |              |                       |
| <b>Display and Operation Details</b>  |   |                          |  |              |                       |
|   |   |                          |  |              |                       |
| <b>No.</b>  | <b>Item</b>   | <b>Setting/display</b>   | <b>Description</b>   |              |                       |
| 1   | Axis  | Setting                  | Sets the axis number. (Setting range: 1 to 16)   |              |                       |
| 2   | Monitor   | Setting                  | Sets the area to be monitored. (Setting range: 1 to 2)   |              |                       |
| 3   | Monitor type  | Setting                  | Sets the type of present value to monitor. The settings for the type of present value to monitor are as follows:<br>FB present position, Command present position, FB speed, Command speed, Position error, Torque command value |              |                       |
| 4   | Present value   | Display                  | Displays the present value of the specified monitor item.  |              |                       |
| 5   | Unit  | Display                  | Sets the unit. The settings for the unit are as follows:<br>Present position and position error: mm, inch, deg, pulse<br>Speed: mm/s, inches/s, degrees/s, or pulses/s<br>Torque command value: %                                |              |                       |
| <b>Remarks</b>  |   |                          |  |              |                       |
| <ul style="list-style-type: none"> <li>* There are four different version of this SMART Active Part depending on the following area alStorage directories.<br/>Operating output memory area in CIO Area and Operating input memory area in CIO Area<br/>Operating output memory area in CIO Area and Operating input memory area in DM Area<br/>Operating output memory area in DM Area and Operating input memory area in CIO Area<br/>Operating output memory area in DM Area and Operating input memory area in DM Area</li> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics, Data/Time, and Address Index</b> for the \$SW. This SMART Active Part cannot be used on pop-up screens.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use system version 5 or higher.</li> <li>* When reusing SMART Active Parts, be sure to set the unit number.</li> <li>* Number of frames: 4</li> <li>* Data is saved in the following areas:<br/>Operating output memory area in CIO Area and Operating input memory area in CIO Area: OutCIO_InCIO<br/>Operating output memory area in CIO Area and Operating input memory area in DM Area: OutCIO_InDM<br/>Operating output memory area in DM Area and Operating input memory area in CIO Area: OutDM_InCIO<br/>Operating output memory area in DM Area and Operating input memory area in DM Area: OutDM_InDM</li> </ul> |   |                          |  |              |                       |

## 1.2.6 I/O Status Monitoring

|  |  |                             |   |              |                    |
|--|--|-----------------------------|---|--------------|--------------------|
| <b>Unit type</b>   | CJ1W-NCF71   | <b>Storage directory</b>    | SmartActiveParts_EMotio<br>n\ NCF   | <b>Title</b> | I/O Status Monitor |
| <b>Function</b>  | Displays the I/O status and error codes for each axis. |                             |   |              |                    |
| <b>Display and Operation Details</b>   |  |                             |   |              |                    |
|  |  |                             |   |              |                    |
| <b>No.</b>   | <b>Item</b>  | <b>Setting/<br/>display</b> | <b>Description</b>  |              |                    |
| 1  | Axis   | Setting                     | Sets the axis number. (Setting range: 1 to 16)  |              |                    |
| 2  | I/O status   | Display                     | Displays the I/O status. The display will be lit yellow for any status signals that are ON. |              |                    |
| 3  | Error code   | Display                     | Displays any error codes that have been generated.  |              |                    |
| <b>Remarks</b>   |  |                             |   |              |                    |
| <ul style="list-style-type: none"> <li>* There are two different version of this SMART Active Part depending on the following area alStorage directories. One for operating input memory area in CIO Area and one for operating input memory area in DM Area</li> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics, Data/Time, and Address Index</b> for the \$SW. This SMART Active Part cannot be used on pop-up screens.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use system version 5 or higher.</li> <li>* When reusing SMART Active Parts, be sure to set the unit number.</li> <li>* Number of frames: 1</li> <li>* Data is saved in the following areas:<br/>                     Operating output memory area in CIO Area and Operating input memory area in CIO Area: OutCIO_InCIO<br/>                     Operating output memory area in CIO Area and Operating input memory area in DM Area: OutCIO_InDM<br/>                     Operating output memory area in DM Area and Operating input memory area in CIO Area: OutDM_InCIO<br/>                     Operating output memory area in DM Area and Operating input memory area in DM Area: OutDM_InDM                 </li> </ul> |  |                             |   |              |                    |

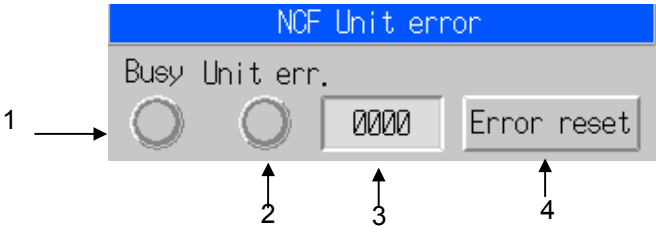
1.2.7 I/O Status Monitoring (No name)

|   |  |                          |  |              |                              |
|---|--|--------------------------|--|--------------|------------------------------|
| <b>Unit type</b>  | CJ1W-NCF71   | <b>Storage directory</b> | SmartActiveParts_E\Motion\ NCF   | <b>Title</b> | I/O Status Monitor (No Name) |
| <b>Function</b>   | Displays the I/O status and error codes for each axis. |                          |  |              |                              |
| <b>Display and Operation Details</b>  |  |                          |  |              |                              |
|   |  |                          |  |              |                              |
| <b>No.</b>  | <b>Item</b>  | <b>Setting/display</b>   | <b>Description</b>   |              |                              |
| 1   | Axis   | Setting                  | Sets the axis number. (Setting range: 1 to 16)   |              |                              |
| 2   | I/O Status   | Display                  | Displays the I/O status. The display will be lit yellow for any status signals that are ON.<br>The order of the status is the same as that for 2.8.6 I/O Status. |              |                              |
| 3   | Error code   | Display                  | Displays any error codes that have been generated.   |              |                              |
| <b>Remarks</b>  |  |                          |  |              |                              |
| <ul style="list-style-type: none"> <li>* There are two different version of this SMART Active Part depending on the following area aIStorage directories. One for operating input memory area in CIO Area and one for operating input memory area in DM Area<br/>When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics, Data/Time, and Address Index</b> for the \$SW. This SMART Active Part cannot be used on pop-up screens.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use system version 5 or higher.</li> <li>* When reusing SMART Active Parts, be sure to set the unit number.</li> <li>* Number of frames: 1</li> <li>* Data is saved in the following areas:<br/>                     Operating output memory area in CIO Area and Operating input memory area in CIO Area: OutCIO_InCIO<br/>                     Operating output memory area in CIO Area and Operating input memory area in DM Area: OutCIO_InDM<br/>                     Operating output memory area in DM Area and Operating input memory area in CIO Area: OutDM_InCIO<br/>                     Operating output memory area in DM Area and Operating input memory area in DM Area: OutDM_InDM                 </li> </ul> |  |                          |  |              |                              |

## 1.2.8 Axis Error

|   |                                  |                          |  |              |            |
|---|----------------------------------|--------------------------|--|--------------|------------|
| <b>Unit type</b>  | CJ1W-NCF71                       | <b>Storage directory</b> | SmartActiveParts_E\<br>Motion\ NCF                             | <b>Title</b> | Axis Error |
| <b>Function</b>   | Displays and resets axis errors. |                          |  |              |            |
| <b>Display and Operation Details</b>  |                                  |                          |  |              |            |
|   |                                  |                          |  |              |            |
| <b>No.</b>  | <b>Item</b>                      | <b>Setting/display</b>   | <b>Description</b>   |              |            |
| 1   | Busy                             | Display                  | Lights yellow when processing is being performed for the axis. |              |            |
| 2   | Axis                             | Setting                  | Sets the axis number. (Setting range: 1 to 16)                 |              |            |
| 3   | Axis error                       | Display                  | Lights yellow when an axis error has occurred.                 |              |            |
| 4   | Error code                       | Display                  | Displays any error codes that have been generated.             |              |            |
| 5   | Error reset                      | Setting                  | Resets the axis error.   |              |            |
| <b>Remarks</b>  |                                  |                          |  |              |            |
| <ul style="list-style-type: none"> <li>* There are four different version of this SMART Active Part depending on the following area alStorage directories.<br/>                     Operating output memory area in CIO Area and Operating input memory area in CIO Area<br/>                     Operating output memory area in CIO Area and Operating input memory area in DM Area<br/>                     Operating output memory area in DM Area and Operating input memory area in CIO Area<br/>                     Operating output memory area in DM Area and Operating input memory area in DM Area</li> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics, Data/Time, and Address Index</b> for the \$SW. This SMART Active Part cannot be used on pop-up screens.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use system version 5 or higher.</li> <li>* When reusing SMART Active Parts, be sure to set the unit number.</li> <li>* Number of frames: 1</li> <li>* Data is saved in the following areas:<br/>                     Operating output memory area in CIO Area and Operating input memory area in CIO Area: OutCIO_InCIO<br/>                     Operating output memory area in CIO Area and Operating input memory area in DM Area: OutCIO_InDM<br/>                     Operating output memory area in DM Area and Operating input memory area in CIO Area: OutDM_InCIO<br/>                     Operating output memory area in DM Area and Operating input memory area in DM Area: OutDM_InDM</li> </ul> |                                  |                          |  |              |            |

1.2.9 Unit Error

|  |                                  |                          |   |              |            |
|--|----------------------------------|--------------------------|---|--------------|------------|
| <b>Unit type</b>   | CJ1W-NCF71                       | <b>Storage directory</b> | SmartActiveParts_E\Motion\ NCF                          | <b>Title</b> | Unit Error |
| <b>Function</b>  | Displays and resets Unit errors. |                          |   |              |            |
| <b>Display and Operation Details</b>   |                                  |                          |   |              |            |
|    |                                  |                          |   |              |            |
| <b>No.</b>   | <b>Item</b>                      | <b>Setting/display</b>   | <b>Description</b>                                      |              |            |
| 1  | Busy                             | Display                  | Lights yellow during Unit processing.                   |              |            |
| 2  | Unit error                       | Display                  | Lights yellow when a Unit error has occurred.           |              |            |
| 3  | Error code                       | Display                  | Displays any Unit error codes that have been generated. |              |            |
| 4  | Error reset                      | Setting                  | Resets the Unit error.                                  |              |            |
| <b>Remarks</b>   |                                  |                          |   |              |            |
| <ul style="list-style-type: none"> <li>* When reusing SMART Active Parts, be sure to set the unit number.</li> <li>* Data is saved in the following areas:<br/>                     Operating output memory area in CIO Area and Operating input memory area in CIO Area: OutCIO_InCIO<br/>                     Operating output memory area in CIO Area and Operating input memory area in DM Area: OutCIO_InDM<br/>                     Operating output memory area in DM Area and Operating input memory area in CIO Area: OutDM_InCIO<br/>                     Operating output memory area in DM Area and Operating input memory area in DM Area: OutDM_InDMM</li> </ul> |                                  |                          |   |              |            |

## 1.2.10 Servo Parameter Setting

|                  |            |                          |                               |              |                         |
|------------------|------------|--------------------------|-------------------------------|--------------|-------------------------|
| <b>Unit type</b> | CJ1W-NCF71 | <b>Storage directory</b> | SmartActiveParts_E\Motion\NCF | <b>Title</b> | Servo Parameter Setting |
|------------------|------------|--------------------------|-------------------------------|--------------|-------------------------|

**Function** Sets and displays servo parameters.

**Display and Operation Details**

| No. | Item           | Setting/display | Description  |
|-----|----------------|-----------------|--|
| 1   | Axis           | Setting         | Sets the axis number. (Setting range: 1 to 16)   |
| 2   | Transferring   | Display         | Lights yellow when servo parameters are being transferred.                                     |
| 3   | Parameter No.  | Setting         | Sets the parameter number.   |
| 4   | Setting value  | Setting/display | Specify the data to write to the servo drive.  |
| 5   | Parameter size | Setting         | Sets the parameter size. Set the size as a hexadecimal value. Be sure to set the correct size. |
| 6   | Write          | Setting         | Writes the setting to control memory in the servo drive.                                       |
| 7   | Read           | Setting         | Reads the servo parameter.   |
| 8   | Save           | Setting         | Saves the servo parameter to nonvolatile memory in the servo drive.                            |

**Remarks**

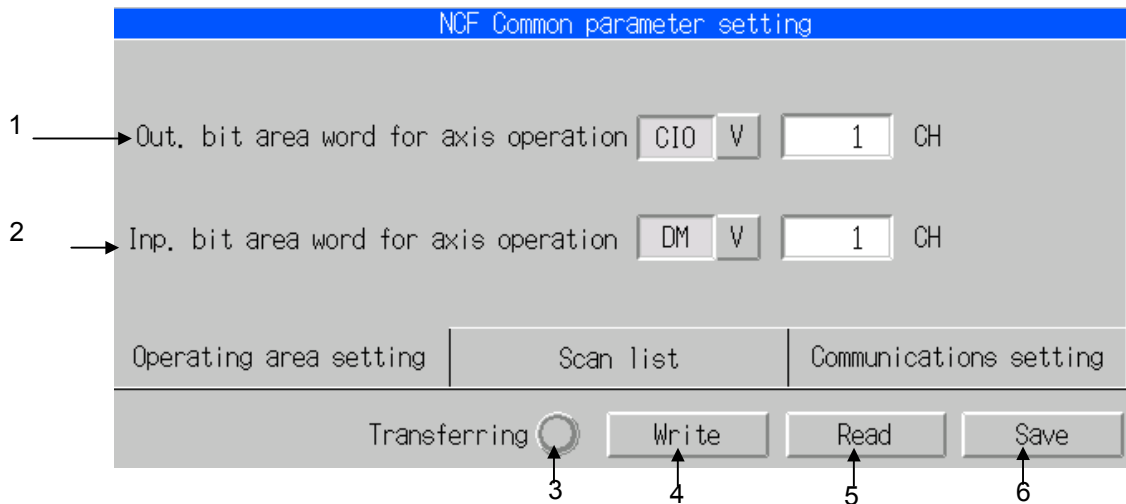
- \* There are four different version of this SMART Active Part depending on the following area alStorage directories.  
 Operating output memory area in CIO Area and Operating input memory area in CIO Area  
 Operating output memory area in CIO Area and Operating input memory area in DM Area  
 Operating output memory area in DM Area and Operating input memory area in CIO Area  
 Operating output memory area in DM Area and Operating input memory area in DM Area
- \* When using this SMART Active Part, be sure to select **Setting - System Settings** in the menu bar, press the **System Memory List** Button on the **Initial Tab** Page, and select **Basics, Data/Time, and Address Index** for the \$SW. This SMART Active Part cannot be used on pop-up screens.
- \* Do not use this SMART Active Part on the initial screen.
- \* Use system version 5 or higher.
- \* When reusing SMART Active Parts, be sure to set the unit number.
- \* Number of frames: 1
- \* Data is saved in the following areas:  
 Operating output memory area in CIO Area and Operating input memory area in CIO Area: OutCIO\_InCIO  
 Operating output memory area in CIO Area and Operating input memory area in DM Area: OutCIO\_InDM  
 Operating output memory area in DM Area and Operating input memory area in CIO Area: OutDM\_InCIO  
 Operating output memory area in DM Area and Operating input memory area in DM Area: OutDM\_InDM

1.2.11 Area Setting

|                  |            |                          |                                 |              |   |
|------------------|------------|--------------------------|---------------------------------|--------------|---|
| <b>Unit type</b> | CJ1W-NCF71 | <b>Storage directory</b> | SmartActiveParts_E\ Motion\ NCF | <b>Title</b> | Area Setting (Common Parameter Setting) |
|------------------|------------|--------------------------|---------------------------------|--------------|---|

**Function** Sets and displays the operating output and input areas.

**Display and Operation Details**



| No. | Item                                    | Setting/display | Description  |
|-----|---|-----------------|--|
| 1   | Output bit area word for axis operation | Setting         | Sets the operating output area. The settings are as follows:<br>Area: CIO or DM addresses: 0 to 9200 |
| 2   | Input bit area word for axis operation  | Setting         | Sets the operating input area. The settings are as follows:<br>Area: CIO or DM addresses: 0 to 9200  |
| 3   | Transferring                            | Display         | Lights yellow when data is being transferred.  |
| 4   | Write                                   | Setting         | Writes data from the CPU Unit to the Position Control Unit.  |
| 5   | Read                                    | Setting         | Writes data from the Position Control Unit to the CPU Unit.  |
| 6   | Save                                    | Setting         | Saves the contents of internal memory in the Position Control Unit to built-in flash memory.         |

**Remarks**

- \* When using this SMART Active Part, be sure to select **Setting - System Settings** in the menu bar, press the **System Memory List** Button on the **Initial Tab** Page, and select **Basics** for the \$SB. This SMART Active Part cannot be used on pop-up screens.
- \* Do not use this SMART Active Part on the initial screen.
- \* Use system version 5 or higher.
- \* When reusing SMART Active Parts, be sure to set the unit number.
- \* Number of frames: 1 frame (total for operating area settings, scan list, and communications settings)
- \* Data is saved in the following areas:  
 Operating output memory area in CIO Area and Operating input memory area in CIO Area: OutCIO\_InCIO  
 Operating output memory area in CIO Area and Operating input memory area in DM Area: OutCIO\_InDM  
 Operating output memory area in DM Area and Operating input memory area in CIO Area: OutDM\_InCIO  
 Operating output memory area in DM Area and Operating input memory area in DM Area: OutDM\_InDM



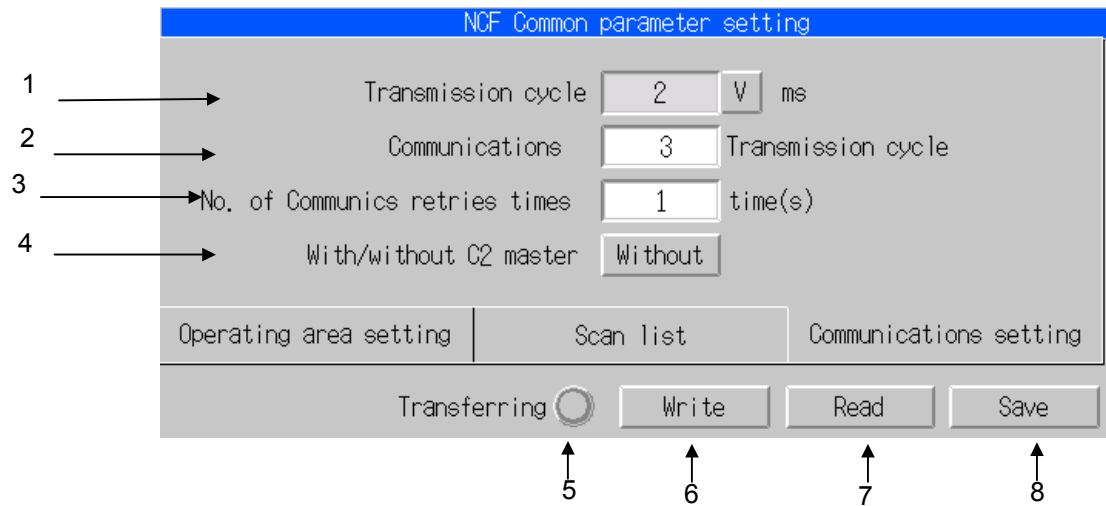
## 1.2.12 Scan List (Common Parameter Setting)

|   |   |                          |   |              |                                      |
|---|---|--------------------------|---|--------------|--------------------------------------|
| <b>Unit type</b>  | CJ1W-NCF71  | <b>Storage directory</b> | SmartActiveParts_E\Motion\NCF   | <b>Title</b> | Scan List (Common Parameter Setting) |
| <b>Function</b>   | Sets and displays the scan list for the MECHATROLINK devices connected to the Unit. |                          |   |              |                                      |
| <b>Display and Operation Details</b>  |   |                          |   |              |                                      |
|   |   |                          |   |              |                                      |
| <b>No.</b>  | <b>Item</b>   | <b>Setting/display</b>   | <b>Description</b>  |              |                                      |
| 1   | Scan List   | Setting                  | Switches the alStorage directories for MECHATROLINK devices connected to the Unit between servo alStorage directories and no alStorage directories. |              |                                      |
| 2   | Transferring  | Display                  | Lights yellow when data is being transferred.   |              |                                      |
| 3   | Write   | Setting                  | Writes data from the CPU Unit to the Position Control Unit.   |              |                                      |
| 4   | Read  | Setting                  | Writes data from the Position Control Unit to the CPU Unit.   |              |                                      |
| 5   | Save  | Setting                  | Saves the contents of internal memory in the Position Control Unit to built-in flash memory.  |              |                                      |
| <b>Remarks</b>  |   |                          |   |              |                                      |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB. This SMART Active Part cannot be used on pop-up screens.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use system version 5 or higher.</li> <li>* When reusing SMART Active Parts, be sure to set the unit number.</li> <li>* Number of frames: 1 frame (total for operating area settings, scan list, and communications settings)</li> <li>* Data is saved in the following areas:<br/>                     Operating output memory area in CIO Area and Operating input memory area in CIO Area: OutCIO_InCIO<br/>                     Operating output memory area in CIO Area and Operating input memory area in DM Area: OutCIO_InDM<br/>                     Operating output memory area in DM Area and Operating input memory area in CIO Area: OutDM_InCIO<br/>                     Operating output memory area in DM Area and Operating input memory area in DM Area: OutDM_InDM                 </li> </ul> |   |                          |   |              |                                      |

1.2.13 Communications Setting (Common Parameter Setting)

|                  |  |                          |                                 |              |   |
|------------------|--|--------------------------|---------------------------------|--------------|---|
| <b>Unit type</b> | CJ1W-NCF71   | <b>Storage directory</b> | SmartActiveParts_E\ Motion\ NCF | <b>Title</b> | Communications Setting (Common Parameter Setting) |
| <b>Function</b>  | Sets and displays the transmission cycle, communications cycle, number of communications retries, and C2 master setting. |                          |                                 |              |   |

Display and Operation Details



| No. | Item                          | Setting/display | Description   |
|-----|-------------------------------|-----------------|---|
| 1   | Transmission cycle            | Setting         | Specifies the cycle for data transfers in MECHATROLINK communications. The settings are as follows:<br>1, 2, 3, 4, 5, 6, 7, 9, 0.25, or 0.5 ms                  |
| 2   | Communications cycle          | Setting         | Sets the data update cycle between the Unit and MECHATROLINK devices. (Setting range: 0 to 32 ms)   |
| 3   | No. of communications retries | Setting         | Sets the maximum number of stations for which to retry communications when transferring data between the Unit and MECHATROLINK devices. (Setting range: 0 to 7) |
| 4   | With/without C2 master        | Setting         | Switches between using a communications master and not using a communications master connected for MECHATROLINK system support.                                 |
| 5   | Transferring                  | Display         | Lights yellow when data is being transferred.   |
| 6   | Write                         | Setting         | Writes data from the CPU Unit to the Position Control Unit.   |
| 7   | Read                          | Setting         | Writes data from the Position Control Unit to the CPU Unit.   |
| 8   | Save                          | Setting         | Saves the contents of internal memory in the Position Control Unit to built-in flash memory.  |

Remarks

- \* When using this SMART Active Part, be sure to select **Setting - System Settings** in the menu bar, press the **System Memory List** Button on the **Initial Tab** Page, and select **Basics** for the \$SB. This SMART Active Part cannot be used on pop-up screens.
- \* Do not use this SMART Active Part on the initial screen.
- \* Use system version 5 or higher.
- \* When reusing SMART Active Parts, be sure to set the unit number.
- \* Number of frames: 1 frame (total for operating area settings, scan list, and communications settings)
- \* Data is saved in the following areas:  
 Operating output memory area in CIO Area and Operating input memory area in CIO Area: OutCIO\_InCIO  
 Operating output memory area in CIO Area and Operating input memory area in DM Area: OutCIO\_InDM  
 Operating output memory area in DM Area and Operating input memory area in CIO Area: OutDM\_InCIO  
 Operating output memory area in DM Area and Operating input memory area in DM Area: OutDM\_InDM

## 1.2.14 Input Signal Setting (Axis Parameter Setting)

|                  |  |                          |                                 |              |   |
|------------------|--|--------------------------|---------------------------------|--------------|---|
| <b>Unit type</b> | CJ1W-NCF71   | <b>Storage directory</b> | SmartActiveParts_E\ Motion\ NCF | <b>Title</b> | Input Signal Setting (Axis Parameter Setting) |
| <b>Function</b>  | Sets and displays the input signals for each axis. |                          |                                 |              |   |

### Display and Operation Details

| No. | Item            | Setting/display | Description  |
|-----|-----------------|-----------------|--|
| 1   | Origin input    | Setting         | Specifies the origin input signal to used in origin searches. The settings are as follows:<br>Phase Z, latch 1, latch 2, latch 3       |
|     | Interrupt input | Setting         | Specifies the interrupt input signal to used for interrupt feeding. The settings are as follows:<br>Phase Z, latch 1, latch 2, latch 3 |
| 2   | Transferring    | Display         | Lights yellow when data is being transferred.  |
| 3   | Write           | Setting         | Writes data from the CPU Unit to the Position Control Unit.  |
| 4   | Read            | Setting         | Writes data from the Position Control Unit to the CPU Unit.  |
| 5   | Save            | Setting         | Saves the contents of internal memory in the Position Control Unit to built-in flash memory.   |

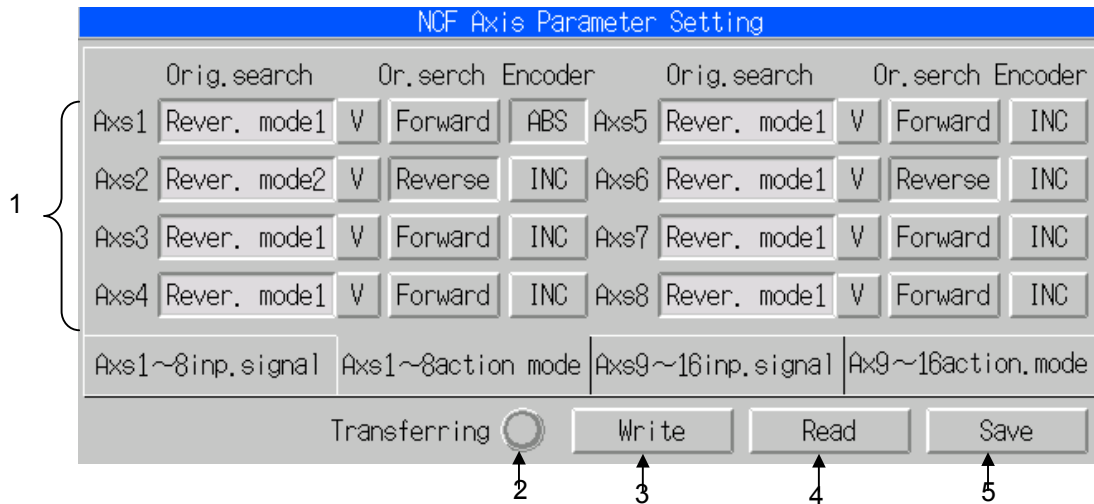
### Remarks

- \* When using this SMART Active Part, be sure to select **Setting - System Settings** in the menu bar, press the **System Memory List** Button on the **Initial Tab** Page, and select **Basics** for the \$SB. This SMART Active Part cannot be used on pop-up screens.
- \* Do not use this SMART Active Part on the initial screen.
- \* Use system version 5 or higher.
- \* When reusing SMART Active Parts, be sure to set the unit number.
- \* Number of frames: 1 frame (total for input signals and operation mode)
- \* Data is saved in the following areas:  
 Operating output memory area in CIO Area and Operating input memory area in CIO Area: OutCIO\_InCIO  
 Operating output memory area in CIO Area and Operating input memory area in DM Area: OutCIO\_InDM  
 Operating output memory area in DM Area and Operating input memory area in CIO Area: OutDM\_InCIO  
 Operating output memory area in DM Area and Operating input memory area in DM Area: OutDM\_InDM

### 1.2.15 Operating Mode Setting (Axis Parameter Setting)

|                  |   |                          |                                 |              |   |
|------------------|---|--------------------------|---------------------------------|--------------|---|
| <b>Unit type</b> | CJ1W-NCF71  | <b>Storage directory</b> | SmartActiveParts_E\ Motion\ NCF | <b>Title</b> | Operating Mode Setting (Axis Parameter Setting) |
| <b>Function</b>  | Sets and displays the operating mode for each axis. |                          |                                 |              |   |

**Display and Operation Details**



| No. | Item                    | Setting/display | Description  |
|-----|-------------------------|-----------------|--|
| 1   | Origin search operation | Setting         | Specifies the operation pattern to use in origin searches. The settings are as follows:<br>Reversal mode 1, Reversal mode 2, Single-direction mode |
|     | Search direction        | Setting         | Specifies the origin search direction. The settings are as follows:<br>Forward or reverse  |
|     | Encoder                 | Setting         | Switches the servomotor encoder type between an incremental encoder (INC) and an absolute encoder (ABS).   |
| 2   | Transferring            | Display         | Lights yellow when data is being transferred.  |
| 3   | Write                   | Setting         | Writes data from the CPU Unit to the Position Control Unit.  |
| 4   | Read                    | Setting         | Writes data from the Position Control Unit to the CPU Unit.  |
| 5   | Save                    | Setting         | Saves the contents of internal memory in the Position Control Unit to built-in flash memory.   |

**Remarks**

- \* When using this SMART Active Part, be sure to select **Setting - System Settings** in the menu bar, press the **System Memory List** Button on the **Initial Tab** Page, and select **Basics** for the \$SB. This SMART Active Part cannot be used on pop-up screens.
- \* Do not use this SMART Active Part on the initial screen.
- \* Use system version 5 or higher.
- \* When reusing SMART Active Parts, be sure to set the unit number.
- \* Number of frames: 1 frame (total for input signals and operation mode)
- \* Data is saved in the following areas:  
 Operating output memory area in CIO Area and Operating input memory area in CIO Area: OutCIO\_InCIO  
 Operating output memory area in CIO Area and Operating input memory area in DM Area: OutCIO\_InDM  
 Operating output memory area in DM Area and Operating input memory area in CIO Area: OutDM\_InCIO  
 Operating output memory area in DM Area and Operating input memory area in DM Area: OutDM\_InDM

# Motion Control

## 1.3 Standard Motion Control Units

### 1.3.1 Adjust operation

|  |  |                          |   |              |                  |
|--|--|--------------------------|---|--------------|------------------|
| <b>Unit type</b>   | CS1W-MC221<br>CS1W-MC421                               | <b>Storage directory</b> | SmartActiveParts_E\Motion\MC  | <b>Title</b> | Adjust Operation |
| <b>Function</b>  | Performs jogging, origin searches, and origin returns. |                          |   |              |                  |
| <b>Display and Operation Details</b>   |  |                          |   |              |                  |
|  |  |                          |   |              |                  |
| <b>No.</b>   | <b>Item</b>  | <b>Setting/display</b>   | <b>Description</b>  |              |                  |
| 1  | Axis busy  | Display                  | Lights yellow when processing is being performed for the axis.  |              |                  |
| 2  | Axis   | Setting                  | Sets the axis number. The setting ranges are as follows:<br>MC221: 1 to 2 MC421: 1 to 4<br>Note: Axis 1: Axis X, Axis 2: Axis Y, Axis 3: Axis Z, Axis 4: Axis U |              |                  |
| 3  | Override setting                                       | Setting                  | Sets an override value and enables and disables the override. (Setting range: 0.0 to 199.9)   |              |                  |
| 4  | Deceleration stop                                      | Setting                  | When pressed, lights yellow and decelerates the motor to a stop. Jogging, origin searches, and origin returns cannot be performed during a deceleration stop.   |              |                  |
| 5  | Servo Lock   | Setting                  | Switches between servo lock and servo unlock status.  |              |                  |
| 6  | JOG operation  | Setting                  | When held down, operates the motor in the specified direction. When released, stops motor operation.  |              |                  |
| 7  | Origin search  | Setting                  | When pressed, starts an origin search operation.  |              |                  |
| 8  | Origin return  | Setting                  | When pressed, starts an origin return operation.  |              |                  |
| <b>Remarks</b>   |  |                          |   |              |                  |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> and <b>Data/Time</b> for the \$SB. This SMART Active Part cannot be used on pop-up screens.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use system version 5 or higher.</li> <li>* There are two versions of this SMART Active Part, one for the MC221 and one for the MC421.</li> <li>* When reusing SMART Active Parts, be sure to set the unit number.</li> <li>* Number of frames: 1</li> </ul> |  |                          |   |              |                  |

1.3.2 Program Operation

|  |                                      |                          |   |              |                   |
|--|--------------------------------------|--------------------------|---|--------------|-------------------|
| <b>Unit type</b>   | CS1W-MC221<br>CS1W-MC421             | <b>Storage directory</b> | SmartActiveParts_EMotion\ MC  | <b>Title</b> | Program Operation |
| <b>Function</b>  | Executes memory (program) operation. |                          |   |              |                   |
| <b>Display and Operation Details</b>   |                                      |                          |   |              |                   |
| <p>The screenshot shows the 'MC Program Operation' screen. At the top, there's a blue header with 'MC Program Operation'. Below it, there are several sections: 'Busy' (with a yellow indicator), 'Override setting' (with a 'Disable' button and a percentage field), 'Program No.' (with a 'Prog. No. read' button and a field), 'Sing. block ON' (with a button), and 'Prog. start' (with a button). Below these are 'Task' (with a 'Manual' button and a task number field), 'Running Program No.' (with a display field), 'Block No.' (with a display field), 'Pause' (with a button), and 'Block stop' (with a button). At the bottom, there are 'Decel stop' (with a button) and 'Servo unlock' (with a button). Numbered callouts 1-14 point to these specific elements.</p> |                                      |                          |   |              |                   |
| <b>No.</b>   | <b>Item</b>                          | <b>Setting/display</b>   | <b>Description</b>  |              |                   |
| 1  | Busy                                 | Display                  | Lights yellow during task processing.   |              |                   |
| 2  | Task                                 | Setting                  | Sets the task number. The setting ranges are as follows:<br>MC221: 1 to 2 MC421: 1 to 4<br>Note: Axis 1: Axis X, Axis 2: Axis Y, Axis 3: Axis Z, Axis 4: Axis U |              |                   |
| 3  | Override setting                     | Setting                  | Sets an override value for the axes used in the task and enables and disables the override.<br>(Setting range: 0.0% to 199.9%)                                  |              |                   |
| 4  | Deceleration stop                    | Setting                  | When pressed in manual mode, lights yellow and decelerates the motor to a stop. This button is not displayed in automatic mode.                                 |              |                   |
| 5  | Automatic/Manual                     | Setting                  | Switches between automatic and manual modes. Lights yellow in automatic mode. The Unit must be in automatic mode for a program to be started.                   |              |                   |
| 6  | Servo Lock                           | Setting                  | Switches the axes used by the task between servo lock and servo unlock status.  |              |                   |
| 7  | Program No.                          | Setting                  | Sets the program number to execute in automatic mode. (Setting range: 0 to 999)   |              |                   |
| 8  | Program No. read                     | Setting                  | Sets the program number to execute.   |              |                   |
| 9  | Single block ON                      | Setting                  | Switches to single block mode. (Single block mode executes one block of the program each time <i>Program Start</i> is turned ON and OFF.                        |              |                   |
| 10   | Program start                        | Setting                  | Executes the program.   |              |                   |
| 11   | Running program No.                  | Display                  | Displays the number of the program being executed.  |              |                   |
| 12   | Block No.                            | Display                  | Displays the number of the block being executed.  |              |                   |
| 13   | Pause                                | Setting                  | Pauses execution of the program.  |              |                   |
| 14   | Block stop                           | Setting                  | Cancels execution of the program.   |              |                   |
| <b>Remarks</b>   |                                      |                          |   |              |                   |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> and <b>Data/Time</b> for the \$SB. This SMART Active Part cannot be used on pop-up screens.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use system version 5 or higher.</li> <li>* There are two versions of this SMART Active Part, one for the MC221 and one for the MC421.</li> <li>* When reusing SMART Active Parts, be sure to set the unit number.</li> <li>* Number of frames: 1</li> </ul>   |                                      |                          |   |              |                   |

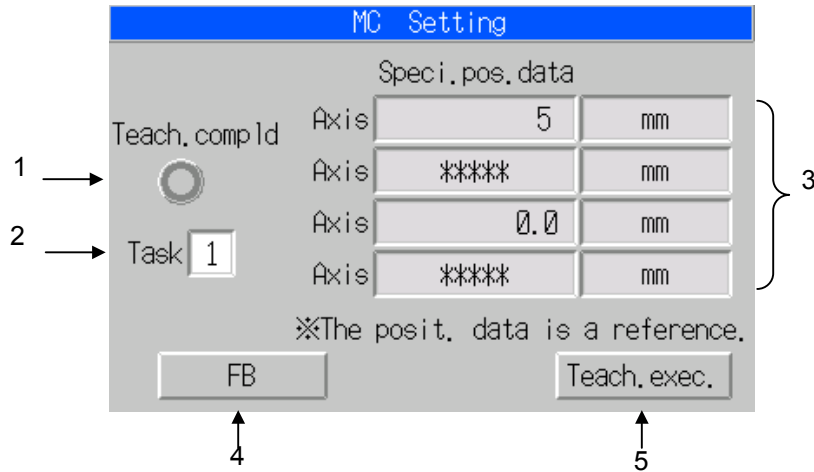
## 1.3.3 Setting

|   |   |                          |   |              |         |
|---|---|--------------------------|---|--------------|---------|
| <b>Unit type</b>  | CS1W-MC221<br>CS1W-MC421                        | <b>Storage directory</b> | SmartActiveParts_E\Motion\MC  | <b>Title</b> | Setting |
| <b>Function</b>   | Sets the forced origin and the absolute origin. |                          |   |              |         |
| <b>Display and Operation Details</b>  |   |                          |   |              |         |
|   |   |                          |   |              |         |
| <b>No.</b>  | <b>Item</b>                                     | <b>Setting/display</b>   | <b>Description</b>  |              |         |
| 1   | Axis busy                                       | Display                  | Lights yellow when processing is being performed for the axis.  |              |         |
| 2   | Axis  | Setting                  | Sets the axis number. The setting ranges are as follows:<br>MC221: 1 to 2 MC421: 1 to 4<br>Note: Axis 1: Axis X, Axis 2: Axis Y, Axis 3: Axis Z, Axis 4: Axis U |              |         |
| 3   | Forced origin                                   | Setting                  | Sets the position where the motor is stopped as the origin (i.e., as a position of 0).  |              |         |
| 4   | ABS Forced origin                               | Setting                  | Records the position where the motor is stopped in the Motion Control Unit as the absolute origin. (For Absolute Encoder only)                                  |              |         |
| 5   | Present position                                | Display                  | Displays the present position.  |              |         |
| <b>Remarks</b>  |   |                          |   |              |         |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> and <b>Data/Time</b> for the \$SB. This SMART Active Part cannot be used on pop-up screens.</li> <li>* When using this SMART Active Part, be sure to select <b>Setting - Unit/Scale Setting</b> in the menu bar and set the scale for number 1000 to 0.0001.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use system version 5 or higher.</li> <li>* There are two versions of this SMART Active Part, one for the MC221 and one for the MC421.</li> <li>* When reusing SMART Active Parts, be sure to set the unit number.</li> <li>* Number of frames: 2</li> </ul> |   |                          |   |              |         |

1.3.4 Teaching

|                  |                          |                          |                               |              |          |
|------------------|--------------------------|--------------------------|-------------------------------|--------------|----------|
| <b>Unit type</b> | CS1W-MC221<br>CS1W-MC421 | <b>Storage directory</b> | SmartActiveParts_E\Moti on\MC | <b>Title</b> | Teaching |
| <b>Function</b>  | Executes teaching.       |                          |                               |              |          |

Display and Operation Details



| No. | Item                    | Setting/display | Description   |
|-----|-------------------------|-----------------|---|
| 1   | Teaching completed      | Display         | Displays the status of teaching.<br>Lit green: Normal end<br>Lit yellow: Teaching address error<br>Lit red: Teaching error  |
| 2   | Task                    | Setting         | Sets the task number. The setting ranges are as follows:<br>MC221: 1 to 2 MC421: 1 to 4<br>Note: Axis 1: Axis X, Axis 2: Axis Y, Axis 3: Axis Z, Axis 4: Axis U       |
| 3   | Specified position data | Display         | Sets the position data for axes used by the task. Unused axes are displayed as ****.<br>Note: Only two axes are displayed for the MC221. (There are no axes 3 and 4.) |
| 4   | FB                      | Setting         | Sets the teaching type. The button lights yellow when the present position feedback value is set. The button will be gray when the target position is set.            |
| 5   | Teaching execution      | Setting         | Executes teaching.  |

Remarks

- \* When using this SMART Active Part, be sure to select **Setting - System Settings** in the menu bar, press the **System Memory List** Button on the **Initial Tab** Page, and select **Basics** and **Data/Time** for the \$SB. This SMART Active Part cannot be used on pop-up screens.
- \* When using this SMART Active Part, be sure to select **Setting - Unit/Scale Setting** in the menu bar and set the scale for number 1000 to 0.0001.
- \* Do not use this SMART Active Part on the initial screen.
- \* Use system version 5 or higher.
- \* There are two versions of this SMART Active Part, one for the MC221 and one for the MC421.
- \* When reusing SMART Active Parts, be sure to set the unit number.
- \* Number of frames: 1 frame for the MC221 and 1 frame for the MC421



## 1.3.5 Present Value Monitoring

|   |   |                          |   |              |                       |
|---|---|--------------------------|---|--------------|-----------------------|
| <b>Unit type</b>  | CS1W-MC221<br>CS1W-MC421                                  | <b>Storage directory</b> | SmartActiveParts_E\Motion\MC  | <b>Title</b> | Present Value Monitor |
| <b>Function</b>   | Displays the present value of the specified monitor item. |                          |   |              |                       |
| <b>Display and Operation Details</b>  |   |                          |   |              |                       |
|   |   |                          |   |              |                       |
| <b>No.</b>  | <b>Item</b>   | <b>Setting/display</b>   | <b>Description</b>  |              |                       |
| 1   | Axis  | Setting                  | Sets the axis number. The setting ranges are as follows:<br>MC221: 1 to 2 MC421: 1 to 4<br>Note: Axis 1: Axis X, Axis 2: Axis Y, Axis 3: Axis Z, Axis 4: Axis U   |              |                       |
| 2   | Monitor type  | Setting                  | Sets the type of present value to monitor. The settings are as follows:<br>Present position in workpiece coordinate system, present position in reference coordinate system, present position in reference coordinate system in pulses, position error, workpiece origin shift value, number of multi-turns |              |                       |
| 3   | Present value   | Display                  | Displays the present value of the specified monitor item.   |              |                       |
| 4   | Unit  | Display                  | Displays the unit.  |              |                       |
| <b>Remarks</b>  |   |                          |   |              |                       |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> and <b>Data/Time</b> for the \$SB. This SMART Active Part cannot be used on pop-up screens.</li> <li>* When using this SMART Active Part, be sure to select <b>Setting - Unit/Scale Setting</b> in the menu bar and set the scale for number 1000 to 0.0001.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use system version 5 or higher.</li> <li>* There are two versions of this SMART Active Part, one for the MC221 and one for the MC421.</li> <li>* When reusing SMART Active Parts, be sure to set the unit number.</li> <li>* Number of frames: 2</li> </ul> |   |                          |   |              |                       |

1.3.6 I/O Status Monitoring

|  |  |                          |   |              |                    |
|--|--|--------------------------|---|--------------|--------------------|
| <b>Unit type</b>   | CS1W-MC221<br>CS1W-MC421                               | <b>Storage directory</b> | SmartActiveParts_E\Motion\MC  | <b>Title</b> | I/O Status Monitor |
| <b>Function</b>  | Displays the I/O status and error codes for each axis. |                          |   |              |                    |
| <b>Display and Operation Details</b>   |  |                          |   |              |                    |
|  |  |                          |   |              |                    |
| <b>No.</b>   | <b>Item</b>  | <b>Setting/display</b>   | <b>Description</b>  |              |                    |
| 1  | Axis   | Setting                  | Sets the axis number. The setting ranges are as follows:<br>MC221: 1 to 2 MC421: 1 to 4<br>Note: Axis 1: Axis X, Axis 2: Axis Y, Axis 3: Axis Z, Axis 4: Axis U |              |                    |
| 2  | I/O status   | Display                  | Displays the I/O status. The display will be lit yellow for any status signals that are ON.   |              |                    |
| 3  | Error code   | Display                  | Displays any error codes that have been generated.  |              |                    |
| <b>Remarks</b>   |  |                          |   |              |                    |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> and <b>Data/Time</b> for the \$SB. This SMART Active Part cannot be used on pop-up screens.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use system version 5 or higher.</li> <li>* There are two versions of this SMART Active Part, one for the MC221 and one for the MC421.</li> <li>* When reusing SMART Active Parts, be sure to set the unit number.</li> <li>* Number of frames: 1</li> </ul> |  |                          |   |              |                    |

## 1.3.7 I/O Status Monitoring (No name)

|  |  |                          |  |              |                              |
|--|--|--------------------------|--|--------------|------------------------------|
| <b>Unit type</b>   | CS1W-MC221<br>CS1W-MC421                               | <b>Storage directory</b> | SmartActiveParts_E\Motion\MC   | <b>Title</b> | I/O Status Monitor (No Name) |
| <b>Function</b>  | Displays the I/O status and error codes for each axis. |                          |  |              |                              |
| <b>Display and Operation Details</b>   |  |                          |  |              |                              |
|  |  |                          |  |              |                              |
| <b>No.</b>   | <b>Item</b>  | <b>Setting/display</b>   | <b>Description</b>   |              |                              |
| 1  | Axis   | Setting                  | Sets the axis number. The setting ranges are as follows:<br>MC221: 1 to 2 MC421: 1 to 4<br>Note: Axis 1: Axis X, Axis 2: Axis Y, Axis 3: Axis Z, Axis 4: Axis U  |              |                              |
| 2  | I/O status   | Display                  | Displays the I/O status. The display will be lit yellow for any status signals that are ON.<br>The order of the status is the same as that for 2.9.6 I/O Status. |              |                              |
| 3  | Error code   | Display                  | Displays any error codes that have been generated.   |              |                              |
| <b>Remarks</b>   |  |                          |  |              |                              |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> and <b>Data/Time</b> for the \$SB. This SMART Active Part cannot be used on pop-up screens.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use system version 5 or higher.</li> <li>* There are two versions of this SMART Active Part, one for the MC221 and one for the MC421.</li> <li>* When reusing SMART Active Parts, be sure to set the unit number.</li> <li>* Number of frames: 1</li> </ul> |  |                          |  |              |                              |

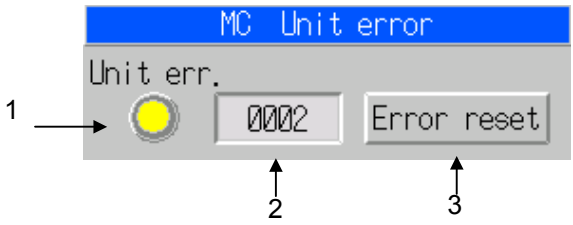
### 1.3.8 Axis Error

|  |                                  |                          |   |              |            |
|--|----------------------------------|--------------------------|---|--------------|------------|
| <b>Unit type</b>   | CS1W-MC221<br>CS1W-MC421         | <b>Storage directory</b> | SmartActiveParts_E\Motion\MC  | <b>Title</b> | Axis Error |
| <b>Function</b>  | Displays and resets axis errors. |                          |   |              |            |
| <b>Display and Operation Details</b>   |                                  |                          |   |              |            |
|  |                                  |                          |   |              |            |
| <b>No.</b>   | <b>Item</b>                      | <b>Setting/display</b>   | <b>Description</b>  |              |            |
| 1  | Axis                             | Setting                  | Sets the axis number. The setting ranges are as follows:<br>MC221: 1 to 2 MC421: 1 to 4<br>Note: Axis 1: Axis X, Axis 2: Axis Y, Axis 3: Axis Z, Axis 4: Axis U |              |            |
| 2  | Axis error                       | Display                  | Lights yellow when an axis error has occurred.  |              |            |
| 3  | Error code                       | Display                  | Displays any error codes that have been generated.  |              |            |
| 4  | Error reset                      | Setting                  | Resets the error.<br>Note: When an error is reset, task errors and Unit errors are also reset.  |              |            |
| <b>Remarks</b>   |                                  |                          |   |              |            |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> and <b>Data/Time</b> for the \$SB. This SMART Active Part cannot be used on pop-up screens.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* There are two versions of this SMART Active Part, one for the MC221 and one for the MC421.</li> <li>* When reusing SMART Active Parts, be sure to set the unit number.</li> </ul> |                                  |                          |   |              |            |

## 1.3.9 Task Error

|  |                                  |                          |   |              |            |
|--|----------------------------------|--------------------------|---|--------------|------------|
| <b>Unit type</b>   | CS1W-MC221<br>CS1W-MC421         | <b>Storage directory</b> | SmartActiveParts_E\Motion\MC  | <b>Title</b> | Task Error |
| <b>Function</b>  | Displays and resets task errors. |                          |   |              |            |
| <b>Display and Operation Details</b>   |                                  |                          |   |              |            |
|  |                                  |                          |   |              |            |
| <b>No.</b>   | <b>Item</b>                      | <b>Setting / display</b> | <b>Description</b>  |              |            |
| 1  | Task                             | Setting                  | Sets the task number. The setting ranges are as follows:<br>MC221: 1 to 2 MC421: 1 to 4<br>Note: Axis 1: Axis X, Axis 2: Axis Y, Axis 3: Axis Z, Axis 4: Axis U |              |            |
| 2  | Task error                       | Display                  | Lights yellow when a task error has occurred.   |              |            |
| 3  | Error code                       | Display                  | Displays any task error codes that have been generated.   |              |            |
| 4  | Error reset                      | Setting                  | Resets the error.<br>Note: When an error is reset, axis errors and Unit errors are also reset.  |              |            |
| <b>Remarks</b>   |                                  |                          |   |              |            |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> and <b>Data/Time</b> for the \$SB. This SMART Active Part cannot be used on pop-up screens.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* There are two versions of this SMART Active Part, one for the MC221 and one for the MC421.</li> <li>* When reusing SMART Active Parts, be sure to set the unit number.</li> </ul> |                                  |                          |   |              |            |

1.3.10 Unit Error

|   |                                  |                          |  |              |            |
|---|----------------------------------|--------------------------|--|--------------|------------|
| <b>Unit type</b>  | CS1W-MC221<br>CS1W-MC421         | <b>Storage directory</b> | SmartActiveParts_EMotion\MC  | <b>Title</b> | Unit Error |
| <b>Function</b>   | Displays and resets Unit errors. |                          |  |              |            |
| <b>Display and Operation Details</b>  |                                  |                          |  |              |            |
|   |                                  |                          |  |              |            |
| <b>No.</b>  | <b>Item</b>                      | <b>Setting / display</b> | <b>Description</b>   |              |            |
| 1   | Unit error                       | Display                  | Lights yellow when a Unit error has occurred.  |              |            |
| 2   | Error code                       | Display                  | Displays any Unit error codes that have been generated.  |              |            |
| 3   | Error reset                      | Setting                  | Resets the error.<br>Note: When an error is reset, axis errors and task errors are also reset. |              |            |
| <b>Remarks</b>  |                                  |                          |  |              |            |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Data/Time</b> for the \$SB.</li> <li>* There are two versions of this SMART Active Part, one for the MC221 and one for the MC421.</li> <li>* When reusing SMART Active Parts, be sure to set the unit number.</li> </ul> |                                  |                          |  |              |            |

# Motion Control

## 1.4 MECHATROLINK-compatible Motion Control Units

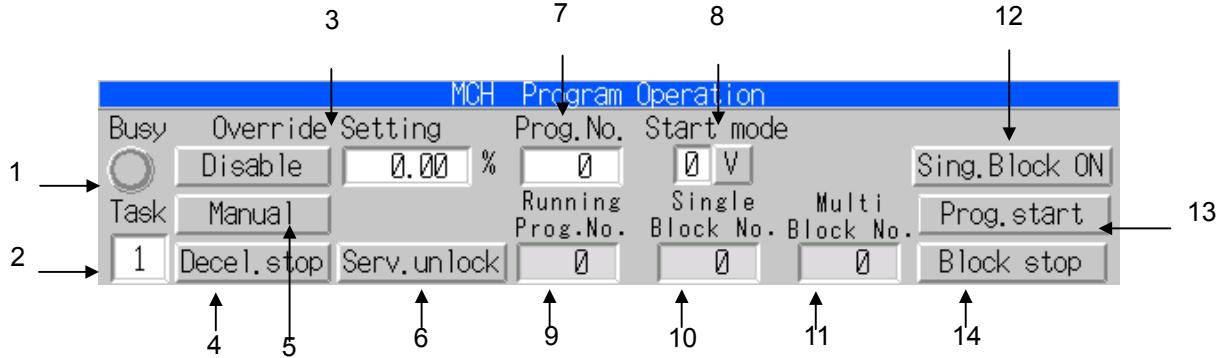
### 1.4.1 Adjust Operation

|  |  |                          |   |              |                  |
|--|--|--------------------------|---|--------------|------------------|
| <b>Unit type</b>   | CS1W-MCH71   | <b>Storage directory</b> | SmartActiveParts_E\Motion\MCH   | <b>Title</b> | Adjust Operation |
| <b>Function</b>  | Performs jogging, stepping, origin searches, and origin returns. |                          |   |              |                  |
| <b>Display and Operation Details</b>   |  |                          |   |              |                  |
|  |  |                          |   |              |                  |
| <b>No.</b>   | <b>Item</b>  | <b>Setting / display</b> | <b>Description</b>  |              |                  |
| 1  | Axis busy  | Display                  | Lights yellow when processing is being performed for the axis.  |              |                  |
| 2  | Axis   | Setting                  | Sets the axis number. (Setting range: 1 to 32)  |              |                  |
| 3  | Override setting   | Setting                  | Sets an override value and enables and disables the override. (Setting range: 0.00 to 327.67)   |              |                  |
| 4  | Deceleration stop  | Setting                  | When pressed, lights yellow and decelerates the motor to a stop. Jogging, stepping, origin searches, and origin returns cannot be performed during a deceleration stop. |              |                  |
| 5  | Servo Lock   | Setting                  | Switches between servo lock and servo unlock status.  |              |                  |
| 6  | JOG operation  | Setting                  | When held down, operates the motor in the specified direction. When released, stops motor operation.  |              |                  |
| 7  | Origin rearch  | Setting                  | When pressed, starts an origin search operation.  |              |                  |
| 8  | Origin return  | Setting                  | When pressed, starts an origin return operation.  |              |                  |
| 9  | STEP operation   | Setting                  | When pressed, starts a step operation.  |              |                  |
| <b>Remarks</b>   |  |                          |   |              |                  |
| <ul style="list-style-type: none"> <li>* There are four different version of this SMART Active Part depending on the following user-set area alStorage directories.<br/>             User-set memory area in CIO area and user-set data area in DM Area<br/>             User-set memory area in CIO area and user-set data area in EM0 Area<br/>             User-set memory area in Work area and user-set data area in DM Area<br/>             User-set memory area in Work area and user-set data area in EM0 Area</li> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics, Data/Time, and Address Index for the \$SW</b>. This SMART Active Part cannot be used on pop-up screens.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use system version 5 or higher.</li> <li>* When reusing SMART Active Parts, be sure to set the unit number.</li> <li>* Number of frames: 1</li> <li>* Data is saved in the following areas:<br/>             User-set memory area in CIO Area and User-set data area in DM Area: MemoryCIO_DataDM<br/>             User-set memory area in CIO Area and User-set data area in EM0 Area: MemoryCIO_DataEM0<br/>             User-set memory area in Work Area and User-set data area in DM Area: MemoryWR_DataDM<br/>             User-set memory area in Work Area and User-set data area in EM0 Area: MemoryWR_DataEM0</li> </ul> |  |                          |   |              |                  |

1.4.2 Program Operation

|                  |                                      |                          |                              |              |                   |
|------------------|--------------------------------------|--------------------------|------------------------------|--------------|-------------------|
| <b>Unit type</b> | CS1W-MCH71                           | <b>Storage directory</b> | SmartActiveParts_EIMotion\MC | <b>Title</b> | Program Operation |
| <b>Function</b>  | Executes memory (program) operation. |                          |                              |              |                   |

Display and Operation Details



| No. | Item                | Setting/display | Description  |
|-----|---------------------|-----------------|--|
| 1   | Busy                | Display         | Lights yellow during task processing.  |
| 2   | Task                | Setting         | Sets the task number. (Setting range: 1 to 8)  |
| 3   | Override setting    | Setting         | Sets an override value for the task and enables and disables the override. (Setting range: 0.00% to 327.67%)   |
| 4   | Deceleration stop   | Setting         | When pressed, lights yellow and decelerates the motors used in the task to a stop. Memory (program) operation cannot be executed during a deceleration stop.           |
| 5   | Automatic/Manual    | Setting         | Switches the axes used by the task between automatic and manual mode. Lights yellow in automatic mode. The Unit must be in automatic mode for a program to be started. |
| 6   | Servo Lock          | Setting         | Switches the axes used by the task between servo lock and servo unlock status.   |
| 7   | Program No.         | Setting         | Sets the program number to execute in automatic mode. (Setting range: 0 to 499)  |
| 8   | Start mode          | Setting         | Specifies the program start position. The settings are as follows: Execute from beginning of program, Execute from current block, Execute from next block              |
| 9   | Running program No. | Display         | Displays the number of the program being executed.   |
| 10  | Single block No.    | Display         | Displays the block number of the single block execution command being executed.  |
| 11  | Multi block No.     | Display         | Displays the block number of the multi-block execution command being executed.   |
| 12  | Single block ON     | Setting         | Switches to single block mode. (Single block mode executes one block of the program each time <i>Program Start</i> is turned ON and OFF.)                              |
| 13  | Program start       | Setting         | Executes the program.  |
| 14  | Block stop          | Setting         | Stops program execution at the end of the current block.   |

Remarks

- \* There are two different version of this SMART Active Part, one for a CIO Area user-set memory area and one for a Work Area user-set memory area.
- \* When using this SMART Active Part, be sure to select **Setting - System Settings** in the menu bar, press the **System Memory List** Button on the **Initial Tab** Page, and select **Basics, Data/Time, and Address Index** for the \$SW. This SMART Active Part cannot be used on pop-up screens.
- \* Do not use this SMART Active Part on the initial screen.
- \* Use system version 5 or higher.
- \* When reusing SMART Active Parts, be sure to set the unit number.
- \* Number of frames:
- \* Data is saved in the following areas:  
 User-set memory area in CIO Area and User-set data area in DM Area: MemoryCIO\_DataDM  
 User-set memory area in CIO Area and User-set data area in EM0 Area: MemoryCIO\_DataEM0  
 User-set memory area in Work Area and User-set data area in DM Area: MemoryWR\_DataDM  
 User-set memory area in Work Area and User-set data area in EM0 Area: MemoryWR\_DataEM0



## 1.4.3 Setting

|   |   |                          |  |              |         |
|---|---|--------------------------|--|--------------|---------|
| <b>Unit type</b>  | CS1W-MCH71                                      | <b>Storage directory</b> | SmartActiveParts_E\Motion\MCH  | <b>Title</b> | Setting |
| <b>Function</b>   | Sets the forced origin and the absolute origin. |                          |  |              |         |
| <b>Display and Operation Details</b>  |   |                          |  |              |         |
|   |   |                          |  |              |         |
| <b>No.</b>  | <b>Item</b>                                     | <b>Setting/display</b>   | <b>Description</b>   |              |         |
| 1   | Axis busy                                       | Display                  | Lights yellow when processing is being performed for the axis.   |              |         |
| 2   | Axis  | Setting                  | Sets the axis number. (Setting range: 1 to 32)   |              |         |
| 3   | Forced Origin                                   | Setting                  | Sets the position where the motor is stopped as the origin (i.e., as a position of 0).   |              |         |
| 4   | ABS Origin Setting                              | Setting                  | Records the position where the motor is stopped in the Motion Control Unit as the absolute origin. (For Absolute Encoder only) |              |         |
| 5   | Present Position                                | Display                  | Displays the present position.   |              |         |
| <b>Remarks</b>  |   |                          |  |              |         |
| <ul style="list-style-type: none"> <li>* There are two different version of this SMART Active Part, one for a CIO Area user-set memory area and one for a Work Area user-set memory area.</li> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics, Data/Time, and Address Index</b> for the \$SW. This SMART Active Part cannot be used on pop-up screens.</li> <li>* When using this SMART Active Part, be sure to select <b>Setting - Unit/Scale Setting</b> in the menu bar and set the scale for number 1000 to 0.0001.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use system version 5 or higher.</li> <li>* When reusing SMART Active Parts, be sure to set the unit number.</li> <li>* Number of frames: 2</li> <li>* Data is saved in the following areas:<br/>             User-set memory area in CIO Area and User-set data area in DM Area: MemoryCIO_DataDM<br/>             User-set memory area in CIO Area and User-set data area in EM0 Area: MemoryCIO_DataEM0<br/>             User-set memory area in Work Area and User-set data area in DM Area: MemoryWR_DataDM<br/>             User-set memory area in Work Area and User-set data area in EM0 Area: MemoryWR_DataEM0</li> </ul> |   |                          |  |              |         |

1.4.4 Teaching

| <b>Unit type</b>   | CS1W-MCH71              | <b>Storage directory</b> | SmartActiveParts_EIMotion\MCH  | <b>Title</b> | Teaching |
|--|-------------------------|--------------------------|--|--------------|----------|
| <b>Function</b>  | Executes teaching.      |                          |  |              |          |
| <b>Display and Operation Details</b>   |                         |                          |  |              |          |
|  |                         |                          |  |              |          |
| No.  | Item                    | Setting/display          | Description  |              |          |
| 1  | Teaching completed      | Display                  | Displays the status of teaching.<br>Lit green: Teaching completed<br>Lit yellow: Setting conditions completed<br>Lit red: Warning                          |              |          |
| 2  | Axis                    | Setting                  | Sets the axis number. (Setting range: 1 to 32)   |              |          |
| 3  | FB                      | Setting                  | Sets the teaching type. The button lights yellow when the present position feedback value is set. The button will be gray when the target position is set. |              |          |
| 4  | Address                 | Setting                  | Sets the teaching address.   |              |          |
| 5  | Specified position data | Display                  | Displays the specified position data.  |              |          |
| 6  | Condition setting       | Setting                  | Sets the teaching axis and reads the teaching axis address.  |              |          |
| 7  | Teaching execution      | Setting                  | Executes teaching.   |              |          |
| <b>Remarks</b>   |                         |                          |  |              |          |
| <p>* There are four different version of this SMART Active Part depending on the following user-set area alStorage directories.<br/>                     User-set memory area in CIO area and user-set data area in DM Area<br/>                     User-set memory area in CIO area and user-set data area in EM0 Area<br/>                     User-set memory area in Work area and user-set data area in DM Area<br/>                     User-set memory area in Work area and user-set data area in EM0 Area</p> <p>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics, Data/Time, and Address Index</b> for the \$SW. This SMART Active Part cannot be used on pop-up screens.</p> <p>* When using this SMART Active Part, be sure to select <b>Setting - Unit/Scale Setting</b> in the menu bar and set the scale for number 1000 to 0.0001.</p> <p>* Do not use this SMART Active Part on the initial screen.</p> <p>* Use system version 5 or higher.</p> <p>* When reusing SMART Active Parts, be sure to set the unit number.</p> <p>* Number of frames: 2</p> <p>* Data is saved in the following areas:<br/>                     User-set memory area in CIO Area and User-set data area in DM Area: MemoryCIO_DataDM<br/>                     User-set memory area in CIO Area and User-set data area in EM0 Area: MemoryCIO_DataEM0<br/>                     User-set memory area in Work Area and User-set data area in DM Area: MemoryWR_DataDM<br/>                     User-set memory area in Work Area and User-set data area in EM0 Area: MemoryWR_DataEM0</p> |                         |                          |  |              |          |

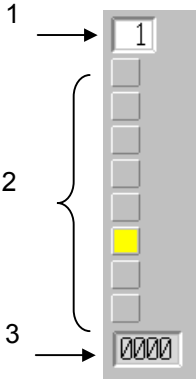
## 1.4.5 Present Value Monitoring

|  |   |                          |   |              |                       |
|--|---|--------------------------|---|--------------|-----------------------|
| <b>Unit type</b>   | CS1W-MCH71  | <b>Storage directory</b> | SmartActiveParts_EMotion\MCH  | <b>Title</b> | Present Value Monitor |
| <b>Function</b>  | Displays the present value of the specified monitor item. |                          |   |              |                       |
| <b>Display and Operation Details</b>   |   |                          |   |              |                       |
|  |   |                          |   |              |                       |
| <b>No.</b>   | <b>Item</b>   | <b>Setting/display</b>   | <b>Description</b>  |              |                       |
| 1  | Axis  | Setting                  | Sets the axis number. (Setting range: 1 to 32)  |              |                       |
| 2  | Monitor type  | Setting                  | Sets the type of present value to monitor. The settings are as follows: Present coordinate system FB present position, Present coordinate system command present position, Machine coordinate system FB present position, Machine coordinate system command present position, counter latch position, FB speed, Command speed, Position error, Torque command value, Workpiece origin shift value, Origin margin, Number of multi-turns (absolute), Initial increment (absolute), Unit cycle, or Communications cycle |              |                       |
| 3  | Present value   | Display                  | Displays the present value of the specified monitor item.   |              |                       |
| 4  | Unit  | Display                  | Displays the unit.  |              |                       |
| <b>Remarks</b>   |   |                          |   |              |                       |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> and <b>Data/Time</b> for the \$SB. This SMART Active Part cannot be used on pop-up screens.</li> <li>* When using this SMART Active Part, be sure to select <b>Setting - Unit/Scale Setting</b> in the menu bar and set the scale for number 1000 to 0.0001.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use system version 5 or higher.</li> <li>* When reusing SMART Active Parts, be sure to set the unit number.</li> <li>* Number of frames: 2</li> <li>* Data is saved in the following areas:<br/>             User-set memory area in CIO Area and User-set data area in DM Area: MemoryCIO_DataDM<br/>             User-set memory area in CIO Area and User-set data area in EM0 Area: MemoryCIO_DataEM0<br/>             User-set memory area in Work Area and User-set data area in DM Area: MemoryWR_DataDM<br/>             User-set memory area in Work Area and User-set data area in EM0 Area: MemoryWR_DataEM0</li> </ul> |   |                          |   |              |                       |

1.4.6 I/O Status Monitoring

|  |  |                          |   |              |                    |
|--|--|--------------------------|---|--------------|--------------------|
| <b>Unit type</b>   | CS1W-MCH71   | <b>Storage directory</b> | SmartActiveParts_E\Motion\MCH   | <b>Title</b> | I/O Status Monitor |
| <b>Function</b>  | Displays the I/O status and error codes for each axis. |                          |   |              |                    |
| <b>Display and Operation Details</b>   |  |                          |   |              |                    |
|  |  |                          |   |              |                    |
| <b>No.</b>   | <b>Item</b>  | <b>Setting/display</b>   | <b>Description</b>  |              |                    |
| 1  | Axis   | Setting                  | Sets the axis number. (Setting range: 1 to 32)  |              |                    |
| 2  | I/O Status   | Display                  | Displays the I/O status. The display will be lit yellow for any status signals that are ON. |              |                    |
| 3  | Error code   | Display                  | Displays any error codes that have been generated.  |              |                    |
| <b>Remarks</b>   |  |                          |   |              |                    |
| <p>* There are four different version of this SMART Active Part depending on the following user-set area aIStorage directorys.<br/>         User-set memory area in CIO area and user-set data area in DM Area<br/>         User-set memory area in CIO area and user-set data area in EM0 Area<br/>         User-set memory area in Work area and user-set data area in DM Area<br/>         User-set memory area in Work area and user-set data area in EM0 Area</p> <p>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics, Data/Time, and Address Index</b> for the \$SW. This SMART Active Part cannot be used on pop-up screens.</p> <p>* Do not use this SMART Active Part on the initial screen.</p> <p>* Use system version 5 or higher.</p> <p>* When reusing SMART Active Parts, be sure to set the unit number.</p> <p>* Number of frames: 1</p> <p>* Data is saved in the following areas:<br/>         User-set memory area in CIO Area and User-set data area in DM Area: MemoryCIO_DataDM<br/>         User-set memory area in CIO Area and User-set data area in EM0 Area: MemoryCIO_DataEM0<br/>         User-set memory area in Work Area and User-set data area in DM Area: MemoryWR_DataDM<br/>         User-set memory area in Work Area and User-set data area in EM0 Area: MemoryWR_DataEM0</p> |  |                          |   |              |                    |

## 1.4.7 I/O Status Monitoring (No name)

|  |  |                          |   |              |                              |
|--|--|--------------------------|---|--------------|------------------------------|
| <b>Unit type</b>   | CS1W-MCH71   | <b>Storage directory</b> | SmartActiveParts_EIMotion\MCH   | <b>Title</b> | I/O Status Monitor (No Name) |
| <b>Function</b>  | Displays the I/O status and error codes for each axis. |                          |   |              |                              |
| <b>Display and Operation Details</b>   |  |                          |   |              |                              |
|   |  |                          |   |              |                              |
| <b>No.</b>   | <b>Item</b>  | <b>Setting/display</b>   | <b>Description</b>  |              |                              |
| 1  | Axis   | Setting                  | Sets the axis number. (Setting range: 1 to 32)  |              |                              |
| 2  | I/O Status   | Display                  | Displays the I/O status. The display will be lit yellow for any status signals that are ON.<br>The order of the status is the same as that for 2.10.6 I/O Status. |              |                              |
| 3  | Error code   | Display                  | Displays any error codes that have been generated.  |              |                              |
| <b>Remarks</b>   |  |                          |   |              |                              |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics, Data/Time, and Address Index</b> for the \$SW. This SMART Active Part cannot be used on pop-up screens.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use system version 5 or higher.</li> <li>* There are four different version of this SMART Active Part depending on the following user-set area alStorage directories.<br/>User-set memory area in CIO area and user-set data area in DM Area<br/>User-set memory area in CIO area and user-set data area in EM0 Area<br/>User-set memory area in Work area and user-set data area in DM Area<br/>User-set memory area in Work area and user-set data area in EM0 Area</li> <li>* When reusing SMART Active Parts, be sure to set the unit number.</li> <li>* Number of frames: 1</li> <li>* Data is saved in the following areas:<br/>User-set memory area in CIO Area and User-set data area in DM Area: MemoryCIO_DataDM<br/>User-set memory area in CIO Area and User-set data area in EM0 Area: MemoryCIO_DataEM0<br/>User-set memory area in Work Area and User-set data area in DM Area: MemoryWR_DataDM<br/>User-set memory area in Work Area and User-set data area in EM0 Area: MemoryWR_DataEM0</li> </ul> |  |                          |   |              |                              |

1.4.8 Axis Error

|  |                                  |                          |  |              |            |
|--|----------------------------------|--------------------------|--|--------------|------------|
| <b>Unit type</b>   | CS1W-MCH71                       | <b>Storage directory</b> | SmartActiveParts_EMotion\MCH                       | <b>Title</b> | Axis Error |
| <b>Function</b>  | Displays and resets axis errors. |                          |  |              |            |
| <b>Display and Operation Details</b>   |                                  |                          |  |              |            |
|  |                                  |                          |  |              |            |
| <b>No.</b>   | <b>Item</b>                      | <b>Setting/display</b>   | <b>Description</b>                                 |              |            |
| 1  | Axis                             | Setting                  | Sets the axis number. (Setting range: 1 to 32)     |              |            |
| 2  | Axis error                       | Display                  | Lights yellow when an axis error has occurred.     |              |            |
| 3  | Error code                       | Display                  | Displays any error codes that have been generated. |              |            |
| 4  | Error reset                      | Setting                  | Resets the axis error.                             |              |            |
| <b>Remarks</b>   |                                  |                          |  |              |            |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics, Data/Time, and Address Index</b> for the \$SW. This SMART Active Part cannot be used on pop-up screens.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* There are four different version of this SMART Active Part depending on the following user-set area aIStorage directories.<br/>                     User-set memory area in CIO area and user-set data area in DM Area<br/>                     User-set memory area in CIO area and user-set data area in EM0 Area<br/>                     User-set memory area in Work area and user-set data area in DM Area<br/>                     User-set memory area in Work area and user-set data area in EM0 Area</li> <li>* When reusing SMART Active Parts, be sure to set the unit number.</li> <li>* Data is saved in the following areas:<br/>                     User-set memory area in CIO Area and User-set data area in DM Area: MemoryCIO_DataDM<br/>                     User-set memory area in CIO Area and User-set data area in EM0 Area: MemoryCIO_DataEM0<br/>                     User-set memory area in Work Area and User-set data area in DM Area: MemoryWR_DataDM<br/>                     User-set memory area in Work Area and User-set data area in EM0 Area: MemoryWR_DataEM0</li> </ul> |                                  |                          |  |              |            |

## 1.4.9 Task Error

|  |                                  |                          |   |              |            |
|--|----------------------------------|--------------------------|---|--------------|------------|
| <b>Unit type</b>   | CS1W-MCH71                       | <b>Storage directory</b> | SmartActiveParts_EMotion\MCH                            | <b>Title</b> | Task Error |
| <b>Function</b>  | Displays and resets task errors. |                          |   |              |            |
| <b>Display and Operation Details</b>   |                                  |                          |   |              |            |
|  |                                  |                          |   |              |            |
| <b>No.</b>   | <b>Item</b>                      | <b>Setting/display</b>   | <b>Description</b>                                      |              |            |
| 1  | Task                             | Setting                  | Sets the task number. (Setting range: 1 to 8)           |              |            |
| 2  | Task error                       | Display                  | Lights yellow when a task error has occurred.           |              |            |
| 3  | Error code                       | Display                  | Displays any task error codes that have been generated. |              |            |
| 4  | Error rset                       | Setting                  | Resets the error.                                       |              |            |
| <b>Remarks</b>   |                                  |                          |   |              |            |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB. This SMART Active Part cannot be used on pop-up screens.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use system version 5 or higher.</li> <li>* When reusing SMART Active Parts, be sure to set the unit number.</li> <li>* Number of frames: 1</li> <li>* Data is saved in the following areas:<br/>             User-set memory area in CIO Area and User-set data area in DM Area: MemoryCIO_DataDM<br/>             User-set memory area in CIO Area and User-set data area in EM0 Area: MemoryCIO_DataEM0<br/>             User-set memory area in Work Area and User-set data area in DM Area: MemoryWR_DataDM<br/>             User-set memory area in Work Area and User-set data area in EM0 Area: MemoryWR_DataEM0</li> </ul> |                                  |                          |   |              |            |

1.4.10 Unit Error

|  |                                  |                          |   |              |            |
|--|----------------------------------|--------------------------|---|--------------|------------|
| <b>Unit type</b>   | CS1W-MCH71                       | <b>Storage directory</b> | SmartActiveParts_EMotion\MCH                            | <b>Title</b> | Unit Error |
| <b>Function</b>  | Displays and resets Unit errors. |                          |   |              |            |
| <b>Display and Operation Details</b>   |                                  |                          |   |              |            |
|  |                                  |                          |   |              |            |
| <b>No.</b>   | <b>Item</b>                      | <b>Setting/display</b>   | <b>Description</b>                                      |              |            |
| 1  | Unit error                       | Display                  | Lights yellow when a Unit error has occurred.           |              |            |
| 2  | Error code                       | Display                  | Displays any Unit error codes that have been generated. |              |            |
| 3  | Error reset                      | Setting                  | Resets the error.                                       |              |            |
| <b>Remarks</b>   |                                  |                          |   |              |            |
| <ul style="list-style-type: none"> <li>* When reusing SMART Active Parts, be sure to set the unit number.</li> <li>* Data is saved in the following areas:<br/>                     User-set memory area in CIO Area and User-set data area in DM Area: MemoryCIO_DataDM<br/>                     User-set memory area in CIO Area and User-set data area in EM0 Area: MemoryCIO_DataEM0<br/>                     User-set memory area in Work Area and User-set data area in DM Area: MemoryWR_DataDM<br/>                     User-set memory area in Work Area and User-set data area in EM0 Area: MemoryWR_DataEM0                 </li> </ul> |                                  |                          |   |              |            |



## 1.4.11 Servo Parameter Setting

|                  |            |                          |                               |              |                         |
|------------------|------------|--------------------------|-------------------------------|--------------|-------------------------|
| <b>Unit type</b> | CS1W-MCH71 | <b>Storage directory</b> | SmartActiveParts_E\Motion\MCH | <b>Title</b> | Servo Parameter Setting |
|------------------|------------|--------------------------|-------------------------------|--------------|-------------------------|

**Function** Sets and displays servo parameters.

**Display and Operation Details**

| No. | Item           | Setting/display | Description   |
|-----|----------------|-----------------|---|
| 1   | Axis           | Setting         | Sets the axis number. The setting ranges are as follows: (Setting range: 1 to 32) |
| 2   | Transferring   | Display         | Lights yellow when servo parameters are being transferred.                        |
| 3   | Parameter No.  | Setting         | Sets the parameter number.  |
| 4   | Setting value  | Setting/display | Specify the data to write to the servo drive.                                     |
| 5   | Parameter size | Setting         | Sets the parameter size. 2 or 4   |
| 6   | Write          | Setting         | Writes the setting to control memory in the servo drive.                          |
| 7   | Read           | Setting         | Reads the servo parameter.  |
| 8   | Save           | Setting         | Saves the servo parameter to nonvolatile memory in the servo drive.               |

**Remarks**

- \* When using this SMART Active Part, be sure to select **Setting - System Settings** in the menu bar, press the **System Memory List** Button on the **Initial Tab** Page, and select **Basics** and **Data/Time** for the \$SB. This SMART Active Part cannot be used on pop-up screens.
- \* Do not use this SMART Active Part on the initial screen.
- \* Use system version 5 or higher.
- \* When reusing SMART Active Parts, be sure to set the unit number.
- \* Data is saved in the following areas:  
 User-set memory area in CIO Area and User-set data area in DM Area: MemoryCIO\_DataDM  
 User-set memory area in CIO Area and User-set data area in EM0 Area: MemoryCIO\_DataEM0  
 User-set memory area in Work Area and User-set data area in DM Area: MemoryWR\_DataDM  
 User-set memory area in Work Area and User-set data area in EM0 Area: MemoryWR\_DataEM0

1.4.12 Program Operation Status

|   |   |                          |   |              |                          |
|---|---|--------------------------|---|--------------|--------------------------|
| <b>Unit type</b>  | CS1W-MCH71                                    | <b>Storage directory</b> | SmartActiveParts_E\Motion\MCH               | <b>Title</b> | Program Operation Status |
| <b>Function</b>   | Displays motion task status during operation. |                          |   |              |                          |
| <b>Display and Operation Details</b>  |   |                          |   |              |                          |
|   |   |                          |   |              |                          |
| <b>No.</b>  | <b>Item</b>                                   | <b>Setting/display</b>   | <b>Description</b>                          |              |                          |
| 1   | Motion task                                   | Display                  | Lights yellow during motion task operation. |              |                          |
| <b>Remarks</b>  |   |                          |   |              |                          |
| <ul style="list-style-type: none"> <li>* When reusing SMART Active Parts, be sure to set the unit number.</li> <li>* Data is saved in the following areas:<br/>                     User-set memory area in CIO Area and User-set data area in DM Area: MemoryCIO_DataDM<br/>                     User-set memory area in CIO Area and User-set data area in EM0 Area: MemoryCIO_DataEM0<br/>                     User-set memory area in Work Area and User-set data area in DM Area: MemoryWR_DataDM<br/>                     User-set memory area in Work Area and User-set data area in EM0 Area: MemoryWR_DataEM0</li> </ul> |   |                          |   |              |                          |

## 1.4.13 Automatic Mode Status

|  |   |                          |   |              |                       |
|--|---|--------------------------|---|--------------|-----------------------|
| <b>Unit type</b>   | CS1W-MCH71  | <b>Storage directory</b> | SmartActiveParts_E\Motion\MCH                   | <b>Title</b> | Automatic Mode Status |
| <b>Function</b>  | Displays the operating mode for each axis, automatic or manual. |                          |   |              |                       |
| <b>Display and Operation Details</b>   |   |                          |   |              |                       |
|  |   |                          |   |              |                       |
| <b>No.</b>   | <b>Item</b>   | <b>Setting/display</b>   | <b>Description</b>                              |              |                       |
| 1  | Axis  | Display                  | Lights yellow if the axis is in automatic mode. |              |                       |
| <b>Remarks</b>   |   |                          |   |              |                       |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics, Data/Time, and Address Index</b> for the \$SW. This SMART Active Part cannot be used on pop-up screens.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* There are two different version of this SMART Active Part, one for a CIO Area user-set memory area and one for a Work Area user-set memory area.</li> <li>* When reusing SMART Active Parts, be sure to set the unit number.</li> <li>* Data is saved in the following areas:<br/>             User-set memory area in CIO Area and User-set data area in DM Area: MemoryAreaCIO_DataAreaDM<br/>             User-set memory area in CIO Area and User-set data area in EM0 Area: MemoryAreaCIO_DataAreaEM0<br/>             User-set memory area in Work Area and User-set data area in DM Area: MemoryAreaWR_DataAreaDM<br/>             User-set memory area in Work Area and User-set data area in EM0 Area: MemoryAreaWR_DataAreaEM0</li> </ul> |   |                          |   |              |                       |

## 1.5 CS1W/CJ1W-NC413/433/213/233 (from Ver5 or Earlier)

### Smart Active Parts described in this section

---

Smart Active Parts described in this section can be used only when beginning word of the operating data area destination is determined (fixed) by the unit number.

E.g. Case that the unit number is two.  
The operating data area is fixed from  $m + 116$  to  $m + 187$ .  
Set 0000 for operating data area (m) to fix the beginning word.  
 $m = D2000 + 100 \times \text{unit number}$

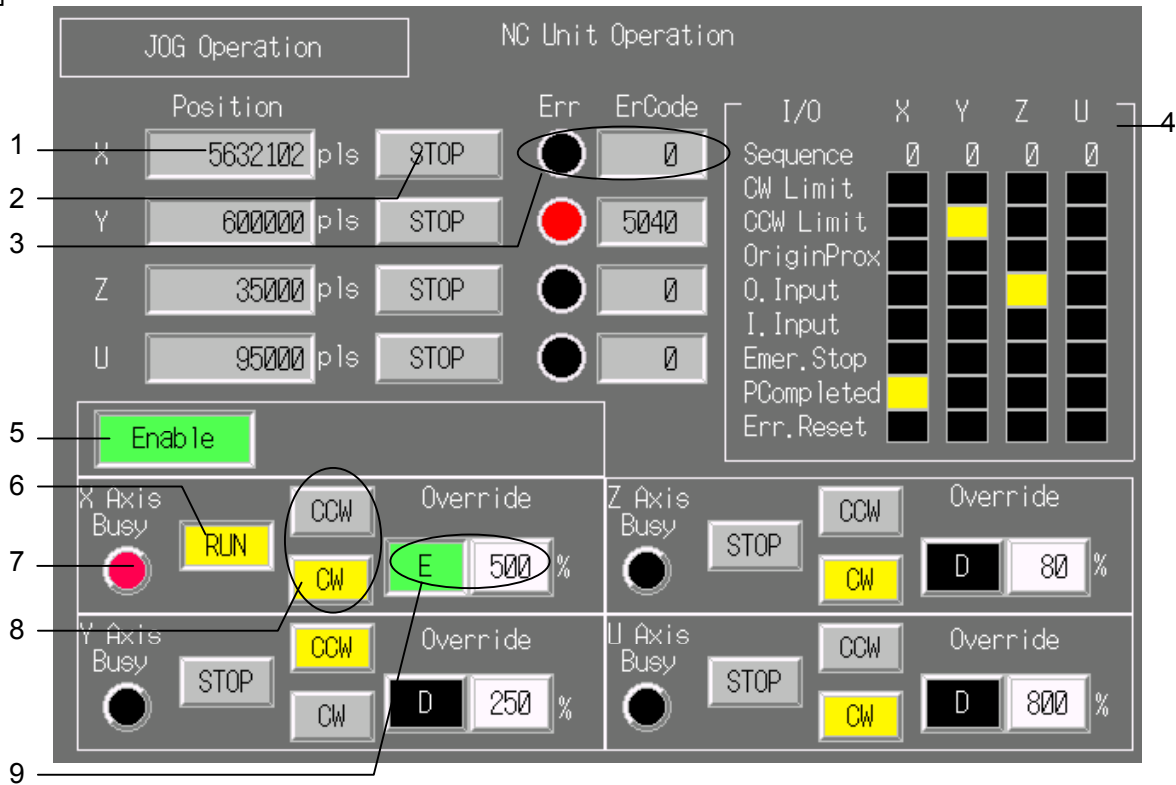
# Motion Control

## 1.5.1 NC4[]3 (Smart Active Parts Ver 5 or Earlier )

|              |                                  |                          |   |              |                   |
|--------------|----------------------------------|--------------------------|---|--------------|-------------------|
| <b>Model</b> | CS1W-NC413/433<br>CJ1W-NC413/433 | <b>Storage directory</b> | SmartActiveParts_EMotion\Ver5orEarlier\NC_1\NC413,433 | <b>Title</b> | JOG Operation (4) |
|--------------|----------------------------------|--------------------------|---|--------------|-------------------|

**Function** Displays I/O status, present position, error code for each axis. Also switches between RUN and STOP, CW and CCW and sets override when the control flag (Enable button) is ON

[Image]



| No. | Item                        | Setting/Display | Details  |
|-----|-----------------------------|-----------------|--|
| 1   | Present Position (Position) | Display         | Displays present position for each axis to be controlled by NC unit. (-2,147,483,647 to 2,147,483,647)   |
| 2   | STOP                        | Setting         | Stops axis in a set time.  |
| 3   | Error (Err)                 | Display         | Lights lamps when an error has been occurred and displays error codes.                                   |
| 4   | I/O Status (I/O)            | Display         | Displays I/O status.   |
| 5   | Enable                      | Setting         | Controls inputs, such as operation, read, override, and position numbers.                                |
| 6   | RUN/STOP                    | Setting         | Switches between RUN and STOP (0: STOP, 1: RUN).   |
| 7   | Busy                        | Display         | Display whether NC unit processes operations or not. Also lights lamp for X axis when initializing unit. |
| 8   | CW/CCW                      | Setting         | Specifies rotative direction (0: CW, 1: CCW).  |
| 9   | Override                    | Setting         | Sets values for override and switches between enable and disable.  |

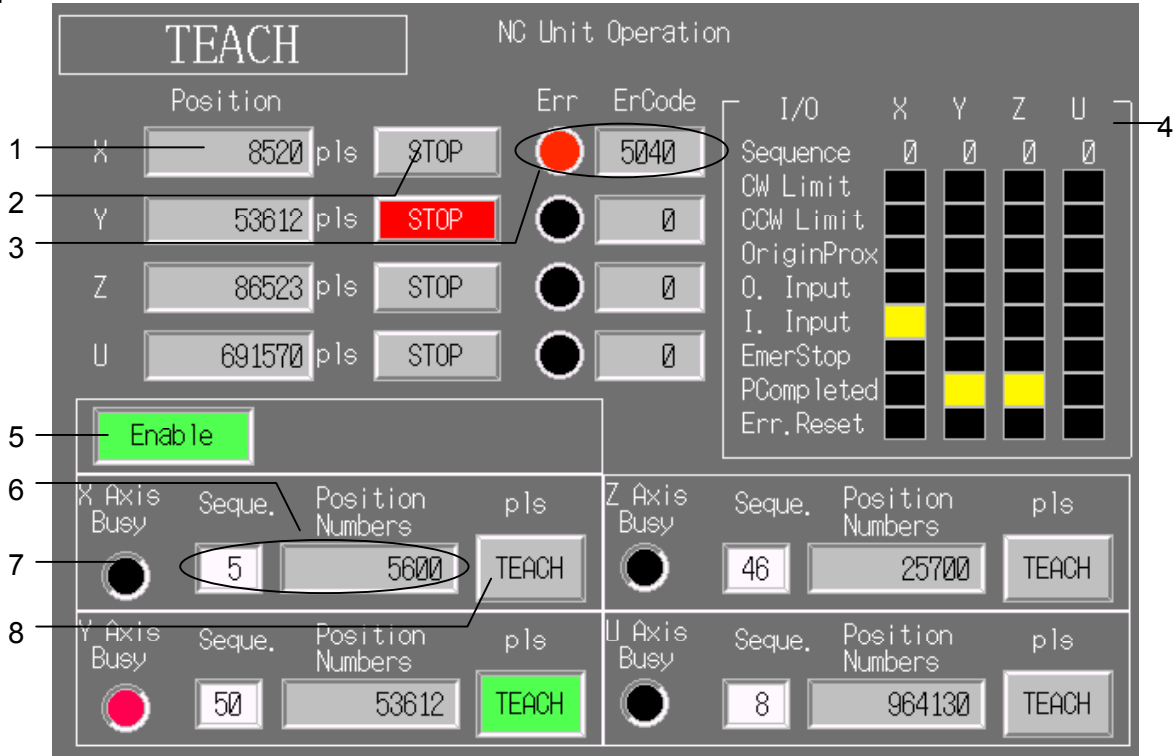
[Note]

Those parts can be used for 4 axes unit only. They cannot be used for 1 axis or 2 axes.

1.5.2 Teaching

|                 |  |                          |   |              |           |
|-----------------|--|--------------------------|---|--------------|-----------|
| <b>Model</b>    | CS1W-NC413/433<br>CJ1W-NC413/433   | <b>Storage directory</b> | SmartActiveParts_EMotion\Ver5orEarlier\NC_1\NC413,433 | <b>Title</b> | Teach (4) |
| <b>Function</b> | Displays I/O status, present position, error code for each axis. Also sets sequence No. and performs teaching when the control flag(Enable button) is ON |                          |   |              |           |

[Image]



| No. | Item                        | Setting/Display | Details  |
|-----|-----------------------------|-----------------|--|
| 1   | Present Position (Position) | Display         | Displays present position for each axis to be controlled by NC unit. (-2,147,483,647 to 2,147,483,647)   |
| 2   | STOP                        | Setting         | Stops axis in a set time.  |
| 3   | Error (Err)                 | Display         | Lights lamps when an error has been occurred and displays error codes.                                   |
| 4   | I/O Status (I/O)            | Display         | Displays I/O status.   |
| 5   | Enable                      | Setting         | Controls inputs, such as operation, read, override, and position numbers.                                |
| 6   | Position Numbers            | Setting         | Sets position numbers and displays position of sequence No.  |
| 7   | Busy                        | Display         | Display whether NC unit processes operations or not. Also lights lamp for X axis when initializing unit. |
| 8   | TEACH                       | Setting         | Sets present position for position numbers.  |

[Note]

Select **Settings-System Setting-Initial** tab page in the NS-Designer, click System Memory List button, and check the Basics for the \$SB before using this library.

Do NOT use as an initial screen.

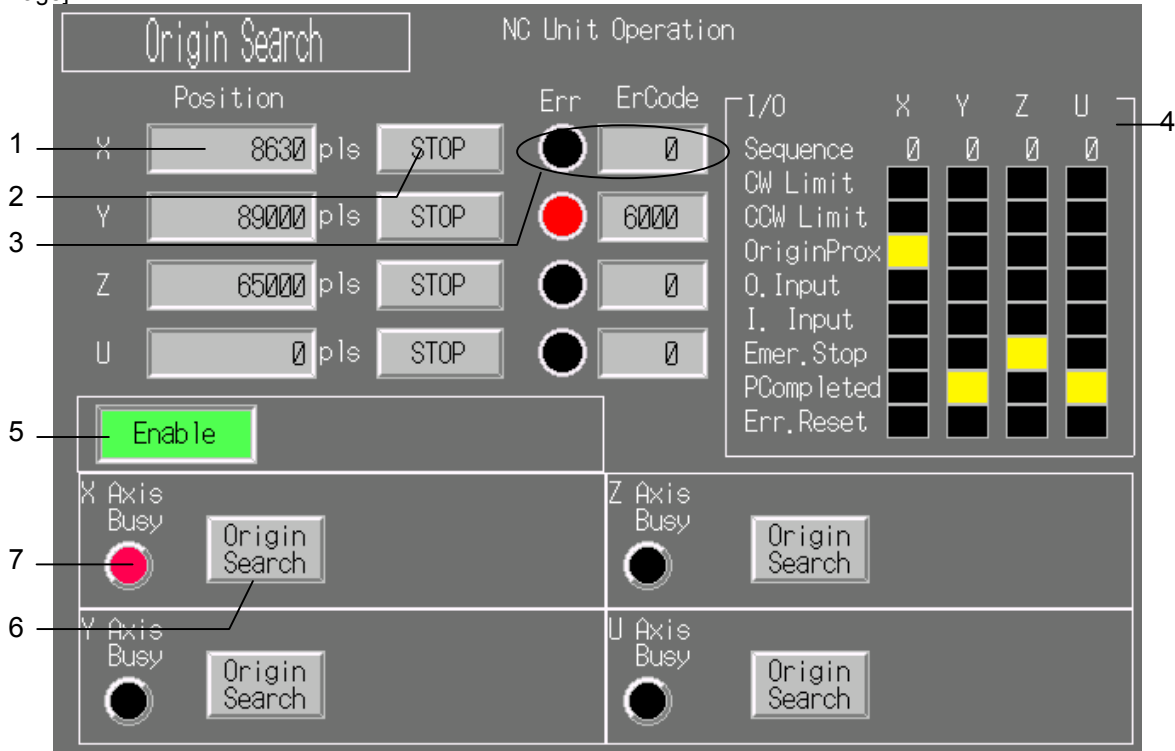
Those parts can be used for 4 axes unit only. They cannot be used for 1 axis or 2 axes.

# Motion Control

## 1.5.3 Origin Search

|                 |  |                          |   |              |               |
|-----------------|--|--------------------------|---|--------------|---------------|
| <b>Model</b>    | CS1W-NC413/433<br>CJ1W-NC413/433   | <b>Storage directory</b> | SmartActiveParts_EMotion\Ver5orEarlier\NC_1\NC413,433 | <b>Title</b> | Origin Search |
| <b>Function</b> | Displays I/O status, present position, error code for each axis. Also enables origin search operation when the control flag(Enable button) is ON |                          |   |              |               |

[Image]



| No. | Item                        | Setting/Display | Details  |
|-----|-----------------------------|-----------------|--|
| 1   | Present Position (Position) | Display         | Displays present position for each axis to be controlled by NC unit. (-2,147,483,647 to 2,147,483,647)   |
| 2   | STOP                        | Setting         | Stops axis in a set time.  |
| 3   | Error (Err)                 | Display         | Lights lamps when an error has been occurred and displays error codes.                                   |
| 4   | I/O Status (I/O)            | Display         | Displays I/O status.   |
| 5   | Enable                      | Setting         | Controls inputs, such as operation, read, override, and position numbers.                                |
| 6   | Origin Search               | Setting         | Starts origin search operation when it is pressed.   |
| 7   | Busy                        | Display         | Display whether NC unit processes operations or not. Also lights lamp for X axis when initializing unit. |

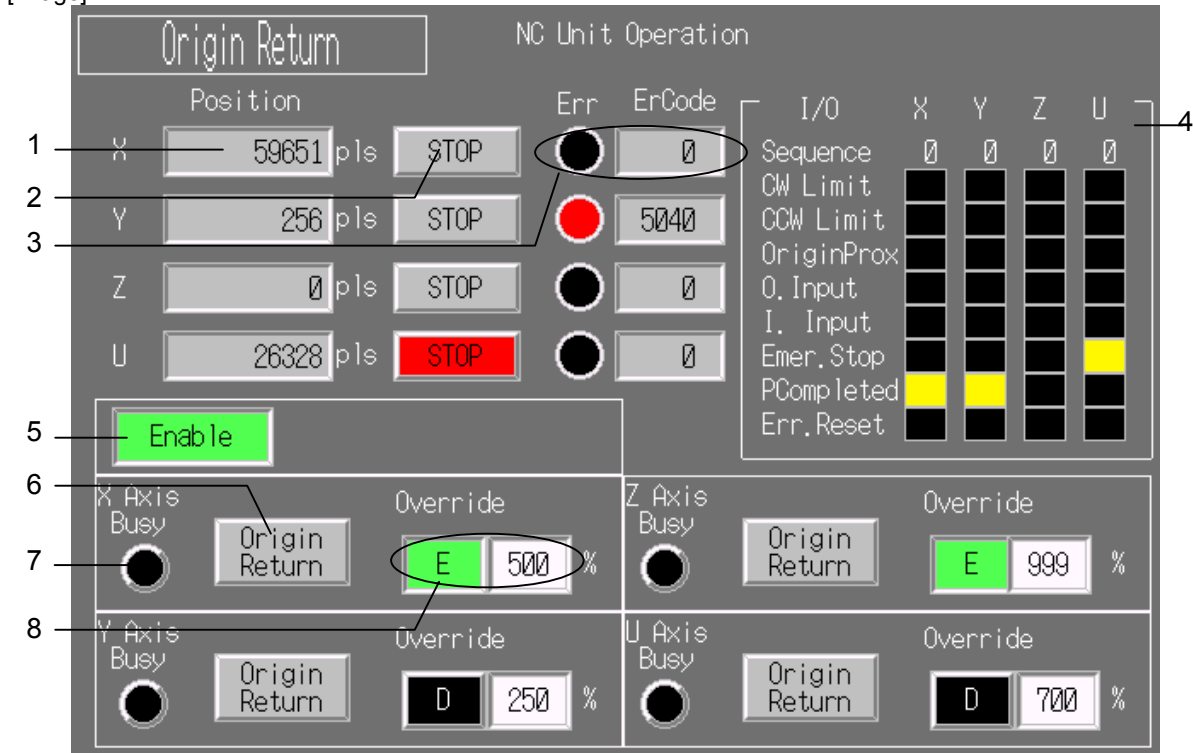
[Note]

Those parts can be used for 4 axes unit only. They cannot be used for 1 axis or 2 axes.

1.5.4 Origin Return

|                 |  |                          |   |              |                   |
|-----------------|--|--------------------------|---|--------------|-------------------|
| <b>Model</b>    | CS1W-NC413/433<br>CJ1W-NC413/433   | <b>Storage directory</b> | SmartActiveParts_EMotion\Ver5orEarlier\NC_1\NC413,433 | <b>Title</b> | Origin Return (4) |
| <b>Function</b> | Displays I/O status, present position, error code for each axis. Also enables origin search operation and sets override when the control flag (Enable button) is ON. |                          |   |              |                   |

[Image]



| No. | Item                        | Setting/Display | Details  |
|-----|-----------------------------|-----------------|--|
| 1   | Present Position (Position) | Display         | Displays present position for each axis to be controlled by NC unit. (-2,147,483,647 to 2,147,483,647)   |
| 2   | STOP                        | Setting         | Stops axis in a set time.  |
| 3   | Error (Err)                 | Display         | Lights lamps when an error has been occurred and displays error codes.                                   |
| 4   | I/O Status (I/O)            | Display         | Displays I/O status.   |
| 5   | Enable                      | Setting         | Controls inputs, such as operation, read, override, and position numbers.                                |
| 6   | Origin Return               | Setting         | Axis returns from any position to the origin.  |
| 7   | Busy                        | Display         | Display whether NC unit processes operations or not. Also lights lamp for X axis when initializing unit. |
| 8   | Override                    | Setting         | Sets values for override and switches between enable and disable.  |

[Note]

Those parts can be used for 4 axes unit only. They cannot be used for 1 axis or 2 axes.



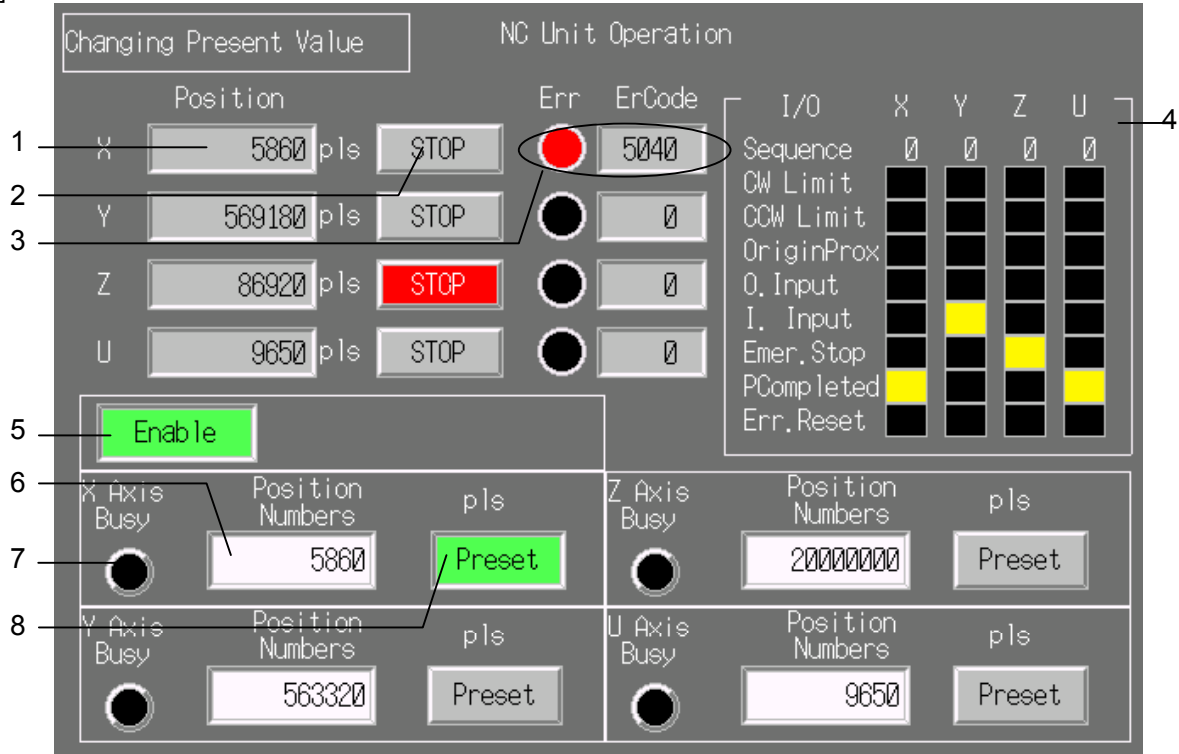
# Motion Control

## 1.5.5 Changing Preset Value

|              |                                  |                          |                        |              |                            |
|--------------|----------------------------------|--------------------------|------------------------|--------------|----------------------------|
| <b>Model</b> | CS1W-NC413/433<br>CJ1W-NC413/433 | <b>Storage directory</b> | DV\NC_V1\<br>NC413,433 | <b>Title</b> | Changing Present Value (4) |
|--------------|----------------------------------|--------------------------|------------------------|--------------|----------------------------|

**Function** Displays I/O status, present position, error code for each axis. Also presets position numbers when the control flag (Enable button) is ON.

[Image]



| No. | Item                        | Setting/Display | Details  |
|-----|-----------------------------|-----------------|--|
| 1   | Present Position (Position) | Display         | Displays present position for each axis to be controlled by NC unit. (-2,147,483,647 to 2,147,483,647)   |
| 2   | STOP                        | Setting         | Stops axis in a set time.  |
| 3   | Error (Err)                 | Display         | Lights lamps when an error has been occurred and displays error codes.                                   |
| 4   | I/O Status (I/O)            | Display         | Displays I/O status.   |
| 5   | Enable                      | Setting         | Controls inputs, such as operation, read, override, and position numbers.                                |
| 6   | Position Numbers            | Setting         | Sets position numbers to preset.   |
| 7   | Busy                        | Display         | Display whether NC unit processes operations or not. Also lights lamp for X axis when initializing unit. |
| 8   | Preset                      | Setting         | Changes position form present position to position numbers forcibly.                                     |

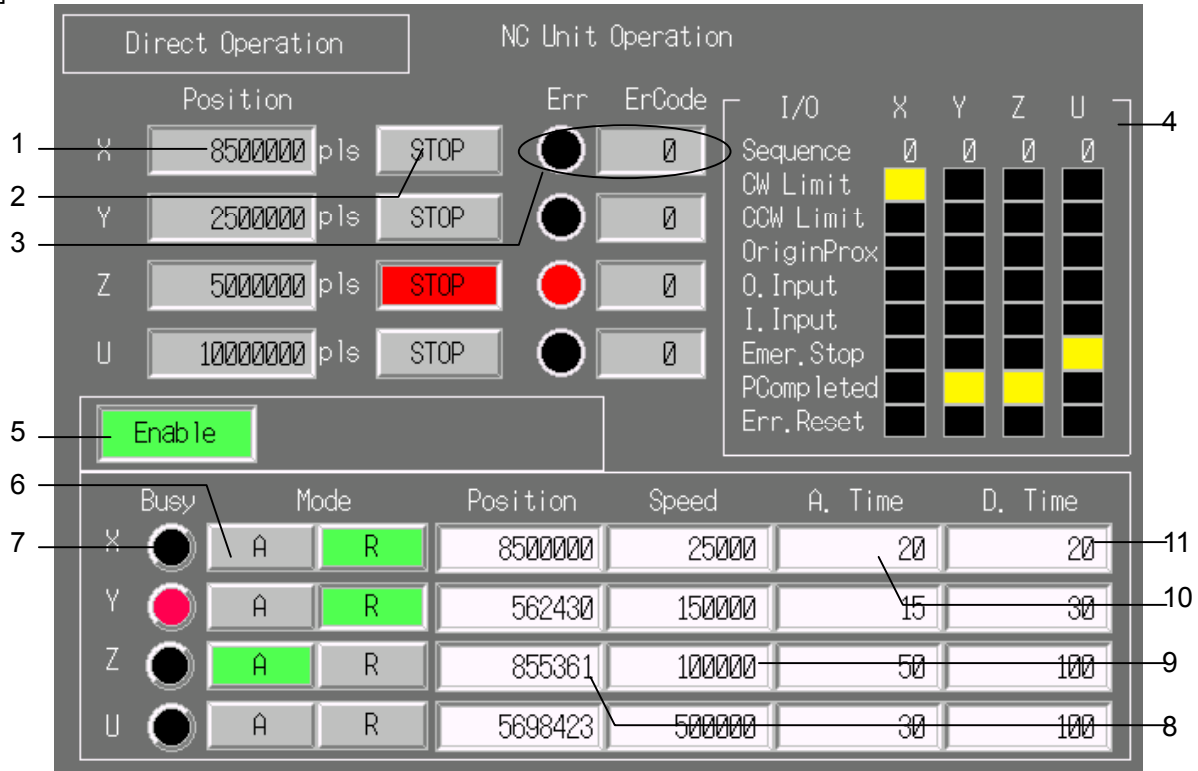
[Note]

Those parts can be used for 4 axes unit only. They cannot be used for 1 axis or 2 axes.

1.5.6 Direct Operation

|                 |   |                          |                        |              |                      |
|-----------------|---|--------------------------|------------------------|--------------|----------------------|
| <b>Model</b>    | CS1W-NC413/433<br>CJ1W-NC413/433  | <b>Storage directory</b> | DV\NC_V1\<br>NC413,433 | <b>Title</b> | Direct Operation (4) |
| <b>Function</b> | Displays I/O status, present position, error code for each axis. Also sets operation mode and other data when the control flag (Enable button) is ON. |                          |                        |              |                      |

[Image]



| No. | Item                        | Setting/Display | Details  |
|-----|-----------------------------|-----------------|--|
| 1   | Present Position (Position) | Display         | Displays present position for each axis to be controlled by NC unit. (-2,147,483,647 to 2,147,483,647)   |
| 2   | STOP                        | Setting         | Stops axis in a set time.  |
| 3   | Error (Err)                 | Display         | Lights lamps when an error has been occurred and displays error codes.                                   |
| 4   | I/O Status (I/O)            | Display         | Displays I/O status.   |
| 5   | Enable                      | Setting         | Controls inputs, such as operation, read, override, and position numbers.                                |
| 6   | Operation Mode (Mode)       | Setting         | Switches movement for operation data area between Absolute (A) and Relative (R).                         |
| 7   | Busy                        | Display         | Display whether NC unit processes operations or not. Also lights lamp for X axis when initializing unit. |
| 8   | Position                    | Setting         | Sets target position for each axis.  |
| 9   | Speed                       | Setting         | Sets target speed for each axis.   |
| 10  | Acceleration Time (A. Time) | Setting         | Sets acceleration time for each axis.  |
| 11  | Deceleration Time (D.Time)  | Setting         | Sets deceleration time for each axis.  |

[Note]

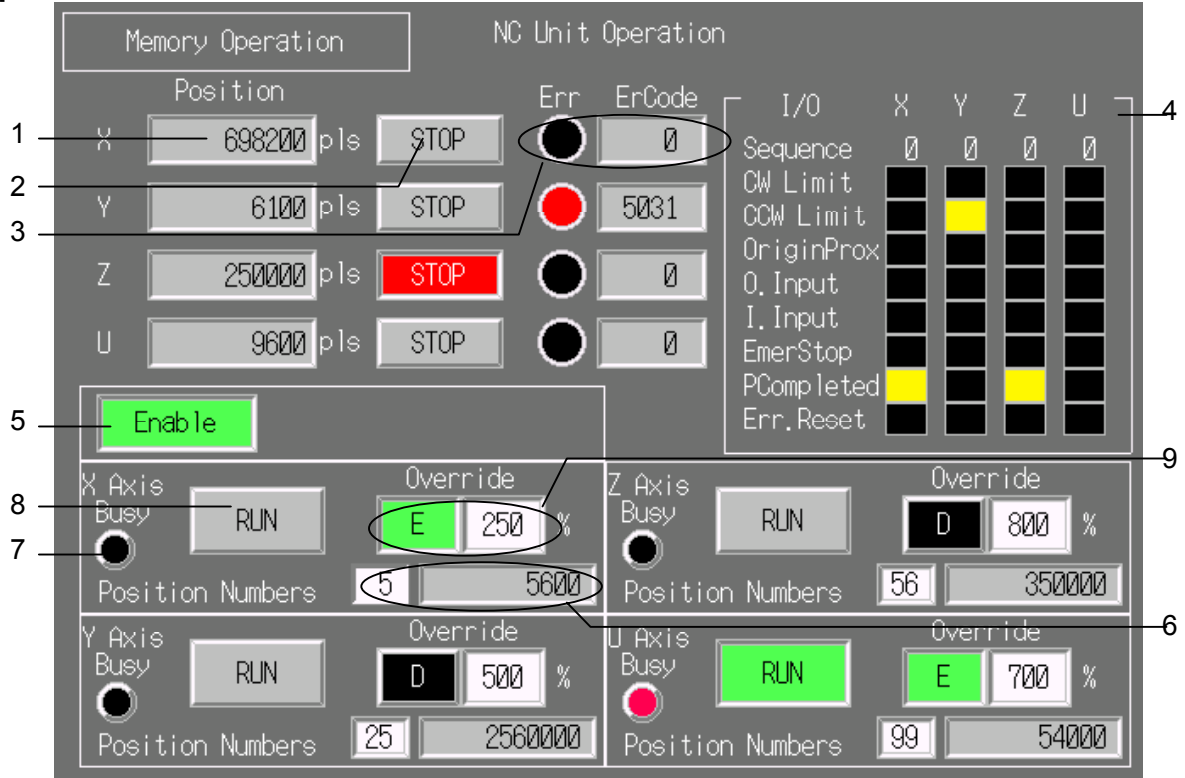
Those parts can be used for 4 axes unit only. They cannot be used for 1 axis or 2 axes.

# Motion Control

## 1.5.7 Memory Operation(4)

|                 |   |                          |                        |              |                      |
|-----------------|---|--------------------------|------------------------|--------------|----------------------|
| <b>Model</b>    | CS1W-NC413/433<br>CJ1W-NC413/433  | <b>Storage directory</b> | DV\NC_V1\<br>NC413,433 | <b>Title</b> | Memory Operation (4) |
| <b>Function</b> | Displays I/O status, present position, error code for each axis. Also sets override and sequence No. and starts operation with the set conditions by pressing RUN button when the control flag (Enable button) is ON. |                          |                        |              |                      |

[Image]



| No. | Item                        | Setting/Display | Details  |
|-----|-----------------------------|-----------------|--|
| 1   | Present Position (Position) | Display         | Displays present position for each axis to be controlled by NC unit. (-2,147,483,647 to 2,147,483,647)   |
| 2   | STOP                        | Setting         | Stops axis in a set time.  |
| 3   | Error (Err)                 | Display         | Lights lamps when an error has been occurred and displays error codes.                                   |
| 4   | I/O Status (I/O)            | Display         | Displays I/O status.   |
| 5   | Enable                      | Setting         | Controls inputs, such as operation, read, override, and position numbers.                                |
| 6   | Position Numbers            | Setting         |  |
| 7   | Busy                        | Display         | Display whether NC unit processes operations or not. Also lights lamp for X axis when initializing unit. |
| 8   | RUN                         | Setting         | Starts memory operation when it is pressed.  |
| 9   | Override                    | Setting         | Sets values for override and switches between enable and disable.  |

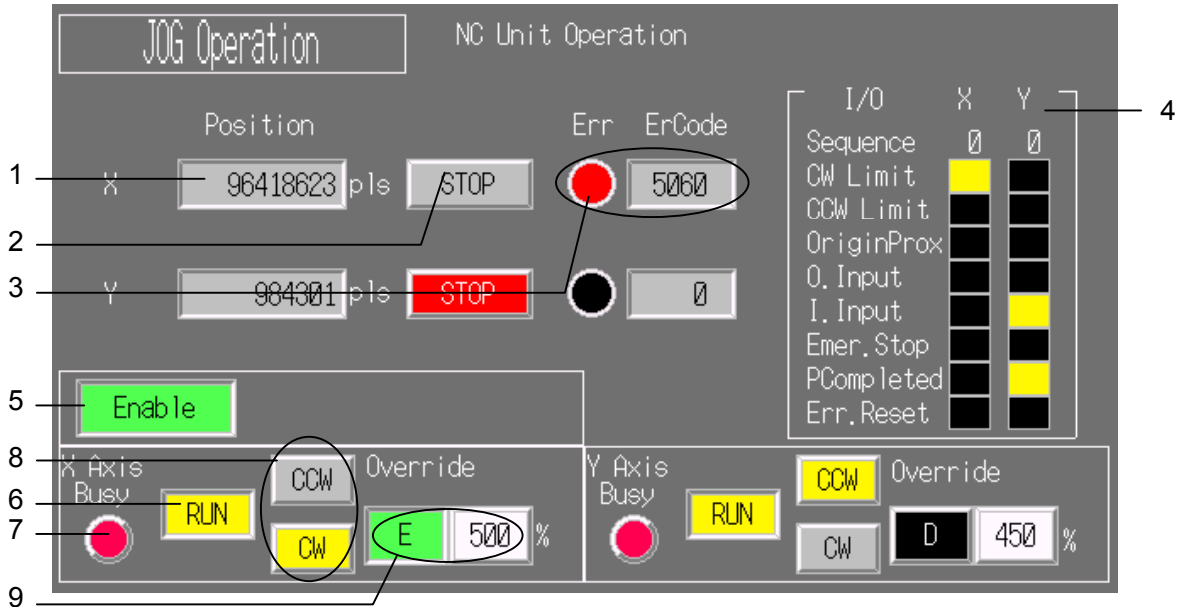
[Note]

1. Select **Settings-System Setting-Initial** tab page in the NS-Designer, click **System Memory List** button, and check the **Basics** for the \$SB before using this library.
2. Do NOT use as an initial screen.
3. Those parts can be used for 4 axes unit only. They cannot be used for 1 axis or 2 axes.

1.5.8 JOG Operation(2)

|                 |  |                          |                        |              |                   |
|-----------------|--|--------------------------|------------------------|--------------|-------------------|
| <b>Model</b>    | CS1W-NC213/233<br>CJ1W-NC213/233   | <b>Storage directory</b> | DV\NC_V1\<br>NC213,233 | <b>Title</b> | JOG Operation (2) |
| <b>Function</b> | Displays I/O status, present position, error code for each axis. Also switches between RUN and STOP, CW and CCW and sets override when the control flag(Enable button) is ON |                          |                        |              |                   |

[Image]



| No. | Item                        | Setting/Display | Details  |
|-----|-----------------------------|-----------------|--|
| 1   | Present Position (Position) | Display         | Displays present position for each axis to be controlled by NC unit. (-2,147,483,647 to 2,147,483,647)   |
| 2   | STOP                        | Setting         | Stops axis in a set time.  |
| 3   | Error (Err)                 | Display         | Lights lamps when an error has been occurred and displays error codes.                                   |
| 4   | I/O Status (I/O)            | Display         | Displays I/O status.   |
| 5   | Enable                      | Setting         | Controls inputs, such as operation, read, override, and position numbers.                                |
| 6   | RUN/STOP                    | Setting         | Switches between RUN and STOP (0: STOP, 1: RUN).   |
| 7   | Busy                        | Display         | Display whether NC unit processes operations or not. Also lights lamp for X axis when initializing unit. |
| 8   | CW/CCW                      | Setting         | Specifies rotative direction (0: CW, 1: CCW).  |

[Note]

Those parts can be used for 2 axes unit only. They cannot be used for 1 axis or 4 axes.

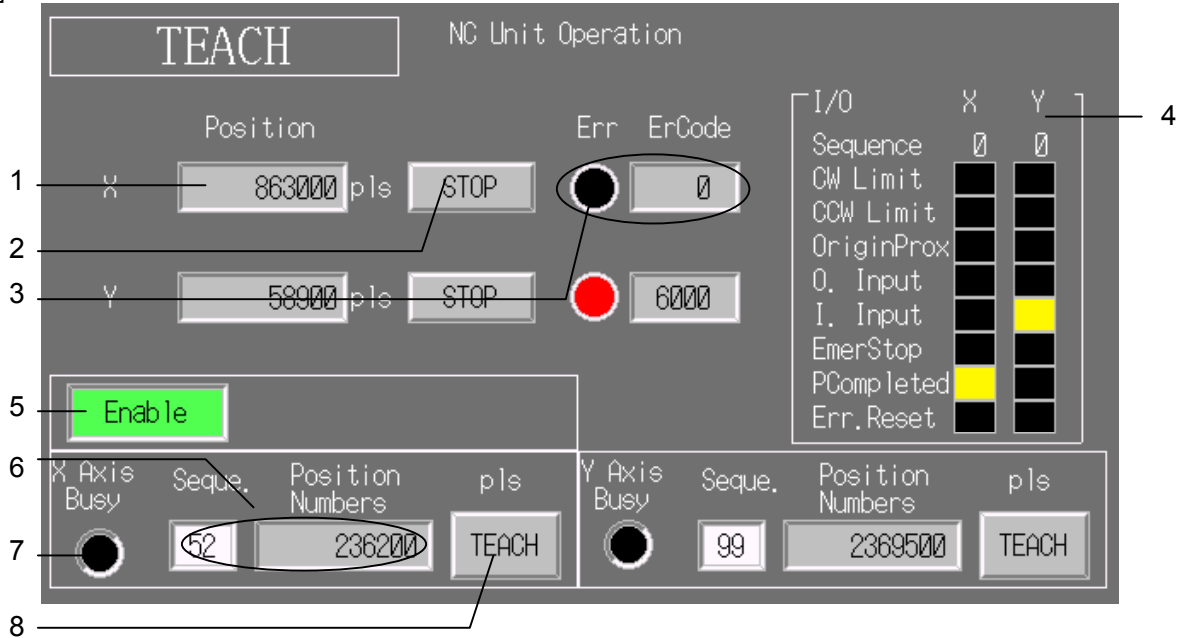
# Motion Control

## 1.5.9 Teach

|              |                                  |                          |                        |              |           |
|--------------|----------------------------------|--------------------------|------------------------|--------------|-----------|
| <b>Model</b> | CS1W-NC213/233<br>CJ1W-NC213/233 | <b>Storage directory</b> | DV\NC_V1\<br>NC213,233 | <b>Title</b> | Teach (2) |
|--------------|----------------------------------|--------------------------|------------------------|--------------|-----------|

**Function** Displays I/O status, present position, error code for each axis. Also sets sequence No. and performs teaching when the control flag(Enable button) is ON

[Image]



| No. | Item                        | Setting/Display | Details  |
|-----|-----------------------------|-----------------|--|
| 1   | Present Position (Position) | Display         | Displays present position for each axis to be controlled by NC unit. (-2,147,483,647 to 2,147,483,647)   |
| 2   | STOP                        | Setting         | Stops axis in a set time.  |
| 3   | Error (Err)                 | Display         | Lights lamps when an error has been occurred and displays error codes.                                   |
| 4   | I/O Status (I/O)            | Display         | Displays I/O status.   |
| 5   | Enable                      | Setting         | Controls inputs, such as operation, read, override, and position numbers.                                |
| 6   | Position Numbers            | Setting         |  |
| 7   | Busy                        | Display         | Display whether NC unit processes operations or not. Also lights lamp for X axis when initializing unit. |
| 8   | TEACH                       | Setting         | Sets present position for position numbers.  |

[Note]

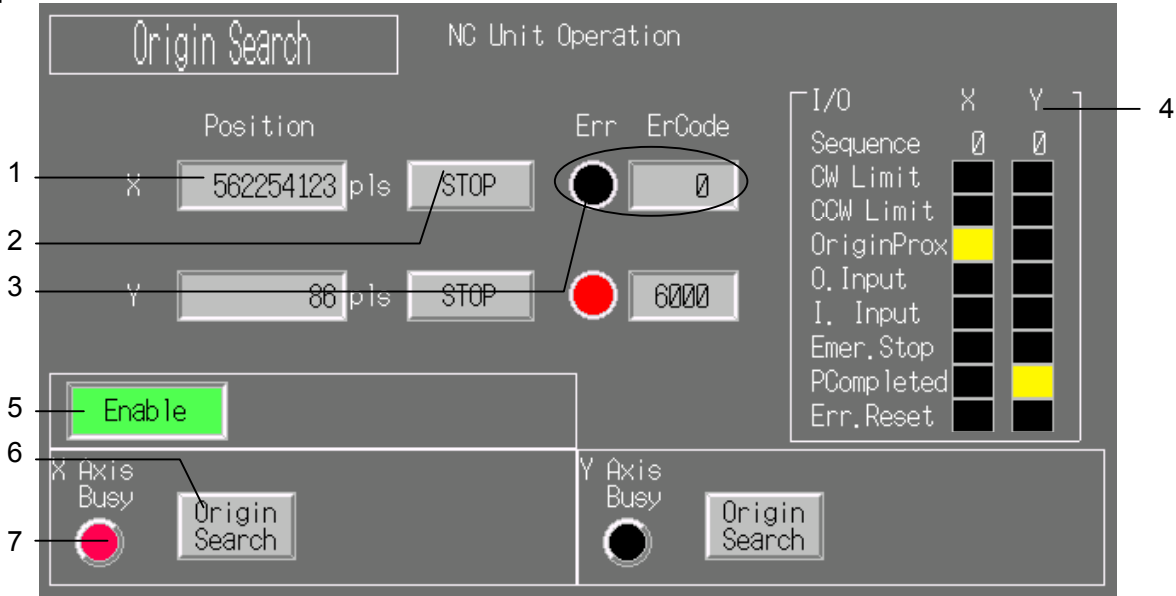
1. Select **Settings-System Setting-Initial** tab page in the NS-Designer, click **System Memory List** button, and check the **Basics** for the \$SB before using this library.
2. Do NOT use as an initial screen.
3. Those parts can be used for 2 axes unit only. They cannot be used for 1 axis or 4 axes.

1.5.10 Origin Search

|              |                                  |                          |                        |              |                   |
|--------------|----------------------------------|--------------------------|------------------------|--------------|-------------------|
| <b>Model</b> | CS1W-NC213/233<br>CJ1W-NC213/233 | <b>Storage directory</b> | DV\NC_V1\<br>NC213,233 | <b>Title</b> | Origin Search (2) |
|--------------|----------------------------------|--------------------------|------------------------|--------------|-------------------|

**Function** Displays I/O status, present position, error code for each axis. Also enables origin search operation when the control flag (Enable button) is ON

[Image]



| No. | Item                        | Setting/Display | Details  |
|-----|-----------------------------|-----------------|--|
| 1   | Present Position (Position) | Display         | Displays present position for each axis to be controlled by NC unit. (-2,147,483,647 to 2,147,483,647)   |
| 2   | STOP                        | Setting         | Stops axis in a set time.  |
| 3   | Error (Err)                 | Display         | Lights lamps when an error has been occurred and displays error codes.                                   |
| 4   | I/O Status (I/O)            | Display         | Displays I/O status.   |
| 5   | Enable                      | Setting         | Controls inputs, such as operation, read, override, and position numbers.                                |
| 6   | Origin Search               | Setting         | Starts origin search operation when it is pressed.   |
| 7   | Busy                        | Display         | Display whether NC unit processes operations or not. Also lights lamp for X axis when initializing unit. |

[Note]

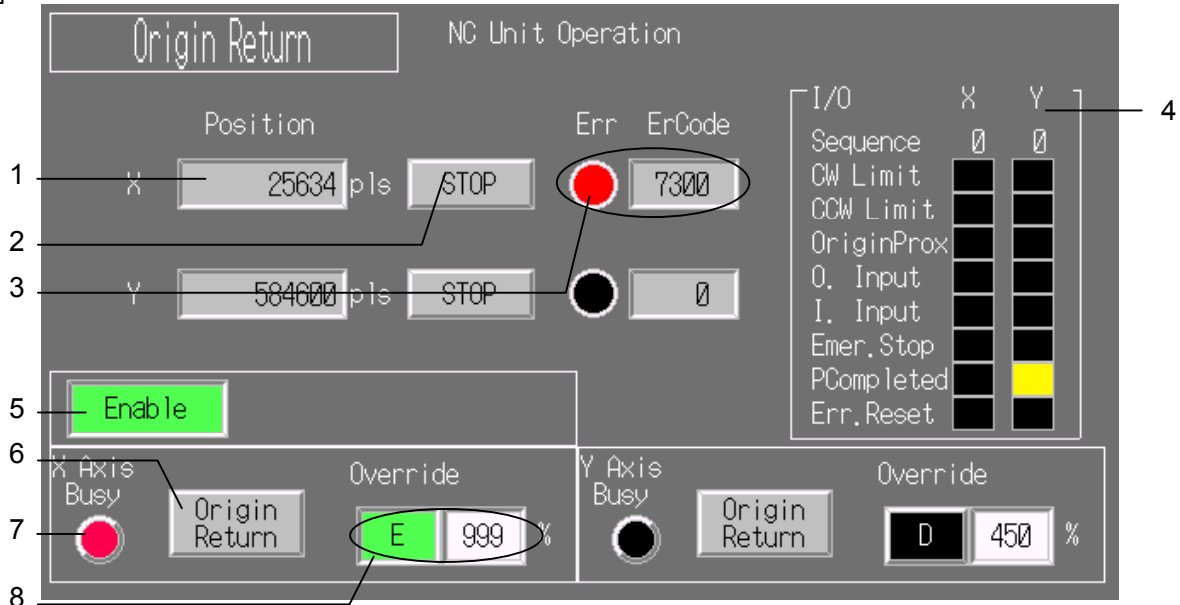
Those parts can be used for 2 axes unit only. They cannot be used for 1 axis or 4 axes.

# Motion Control

## 1.5.11 Origin Return(2)

|                 |  |                          |                        |              |                   |
|-----------------|--|--------------------------|------------------------|--------------|-------------------|
| <b>Model</b>    | CS1W-NC213/233<br>CJ1W-NC213/233   | <b>Storage directory</b> | DV\NC_V1\<br>NC213,233 | <b>Title</b> | Origin Return (2) |
| <b>Function</b> | Displays I/O status, present position, error code for each axis. Also enables origin search operation and sets override when the control flag (Enable button) is ON. |                          |                        |              |                   |

[Image]



| No. | Item                        | Setting/Display | Details  |
|-----|-----------------------------|-----------------|--|
| 1   | Present Position (Position) | Display         | Displays present position for each axis to be controlled by NC unit. (-2,147,483,647 to 2,147,483,647)   |
| 2   | STOP                        | Setting         | Stops axis in a set time.  |
| 3   | Error (Err)                 | Display         | Lights lamps when an error has been occurred and displays error codes.                                   |
| 4   | I/O Status (I/O)            | Display         | Displays I/O status.   |
| 5   | Enable                      | Setting         | Controls inputs, such as operation, read, override, and position numbers.                                |
| 6   | Origin Return               | Setting         | Axis returns from any position to the origin.  |
| 7   | Busy                        | Display         | Display whether NC unit processes operations or not. Also lights lamp for X axis when initializing unit. |
| 8   | Override                    | Setting         | Sets values for override and switches between enable and disable.  |

[Note]

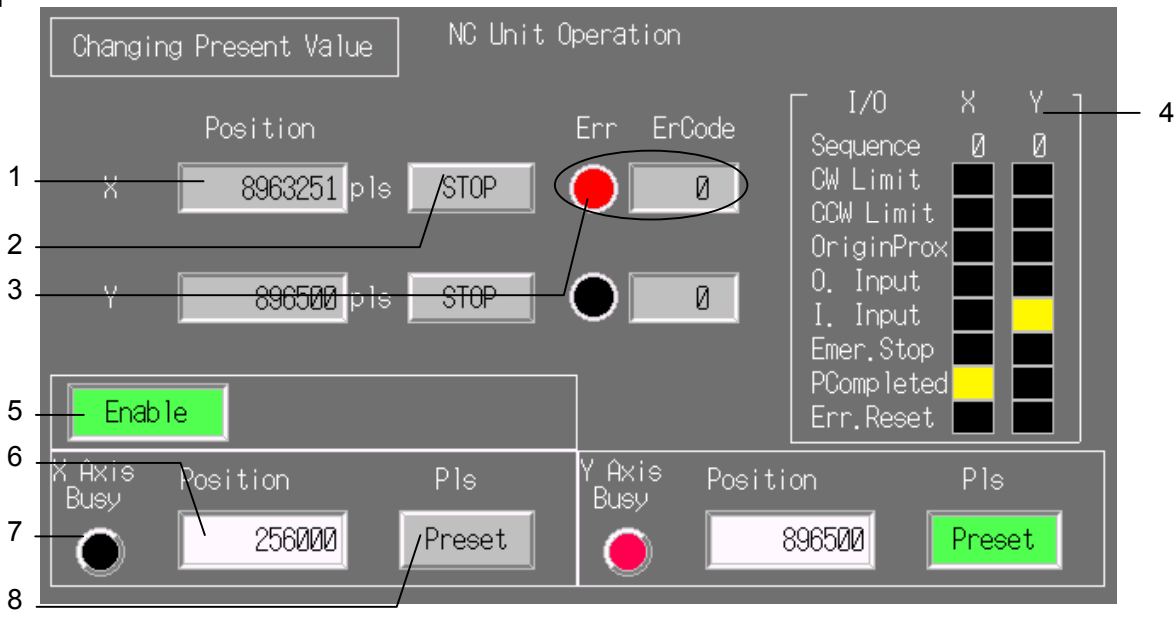
Those parts can be used for 2 axes unit only. They cannot be used for 1 axis or 4 axes.

1.5.12 Changing Present Value

|              |                                  |                          |                        |              |                            |
|--------------|----------------------------------|--------------------------|------------------------|--------------|----------------------------|
| <b>Model</b> | CS1W-NC213/233<br>CJ1W-NC213/233 | <b>Storage directory</b> | DV\NC_V1\<br>NC213,233 | <b>Title</b> | Changing Present Value (2) |
|--------------|----------------------------------|--------------------------|------------------------|--------------|----------------------------|

**Function** Displays I/O status, present position, error code for each axis. Also presets position numbers when the control flag (Enable button) is ON.

[Image]



| No. | Item                        | Setting/Display | Details  |
|-----|-----------------------------|-----------------|--|
| 1   | Present Position (Position) | Display         | Displays present position for each axis to be controlled by NC unit. (-2,147,483,647 to 2,147,483,647)   |
| 2   | STOP                        | Setting         | Stops axis in a set time.  |
| 3   | Error (Err)                 | Display         | Lights lamps when an error has been occurred and displays error codes.                                   |
| 4   | I/O Status (I/O)            | Display         | Displays I/O status.   |
| 5   | Enable                      | Setting         | Controls inputs, such as operation, read, override, and position numbers.                                |
| 6   | Position Numbers            | Setting         | Sets position numbers to preset.   |
| 7   | Busy                        | Display         | Display whether NC unit processes operations or not. Also lights lamp for X axis when initializing unit. |
| 8   | Preset                      | Setting         | Changes position form present position to position numbers forcibly.                                     |

[Note]

Those parts can be used for 2 axes unit only. They cannot be used for 1 axis or 4 axes.



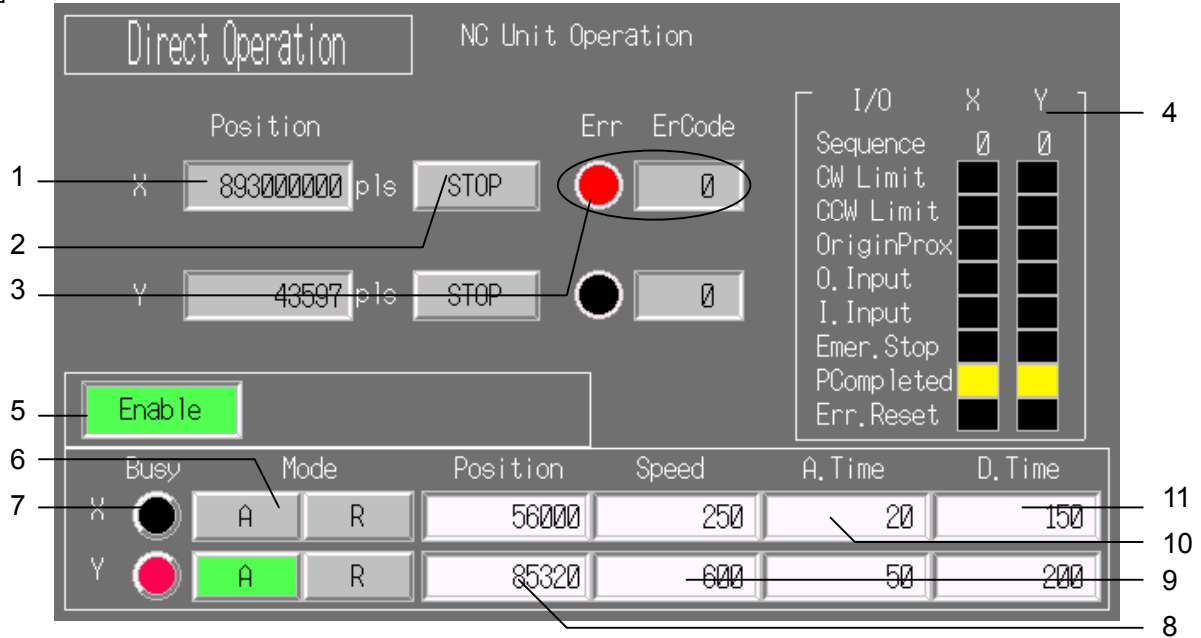
# Motion Control

## 1.5.13 Direct Operation

|              |                                  |                          |                        |              |                      |
|--------------|----------------------------------|--------------------------|------------------------|--------------|----------------------|
| <b>Model</b> | CS1W-NC213/233<br>CJ1W-NC213/233 | <b>Storage directory</b> | DV\NC_V1\<br>NC213,233 | <b>Title</b> | Direct Operation (2) |
|--------------|----------------------------------|--------------------------|------------------------|--------------|----------------------|

**Function** Displays I/O status, present position, error code for each axis. Also sets operation mode and other data when the control flag (Enable button) is ON.

[Image]



| No. | Item                        | Setting/Display | Details  |
|-----|-----------------------------|-----------------|--|
| 1   | Present Position (Position) | Display         | Displays present position for each axis to be controlled by NC unit. (-2,147,483,647 to 2,147,483,647)   |
| 2   | STOP                        | Setting         | Stops axis in a set time.  |
| 3   | Error (Err)                 | Display         | Lights lamps when an error has been occurred and displays error codes.                                   |
| 4   | I/O Status (I/O)            | Display         | Displays I/O status.   |
| 5   | Enable                      | Setting         | Controls inputs, such as operation, read, override, and position numbers.                                |
| 6   | Operation Mode (Mode)       | Setting         | Switches movement for operation data area between Absolute (A) and Relative (R).                         |
| 7   | Busy                        | Display         | Display whether NC unit processes operations or not. Also lights lamp for X axis when initializing unit. |
| 8   | Position                    | Setting         | Sets target position for each axis.  |
| 9   | Speed                       | Setting         | Sets target speed for each axis.   |
| 10  | Acceleration Time (A. Time) | Setting         | Sets acceleration time for each axis.  |
| 11  | Deceleration Time (D. Time) | Setting         | Sets deceleration time for each axis.  |

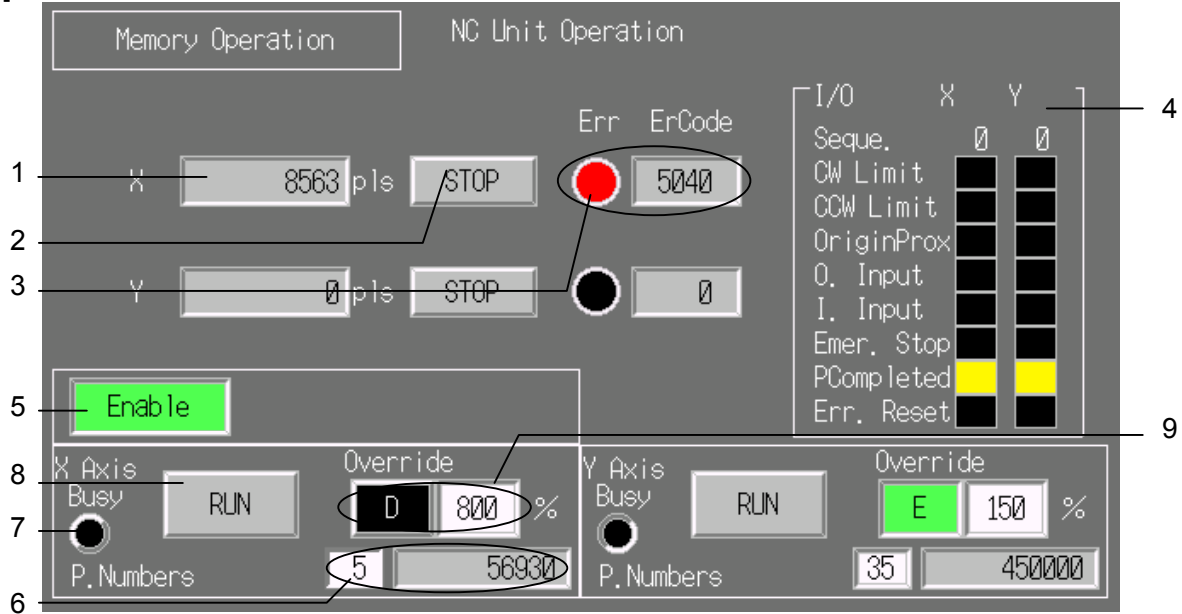
[Note]

1. Select **Settings-System Setting-Initial** tab page in the NS-Designer, click **System Memory List** button, and check the **Basics** for the \$SB before using this library.
2. Do NOT use as an initial screen.
3. Those parts can be used for 2 axes unit only. They cannot be used for 1 axis or 4 axes.

1.5.14 Memory Operation(2)

|                 |   |                          |                        |              |                      |
|-----------------|---|--------------------------|------------------------|--------------|----------------------|
| <b>Model</b>    | CS1W-NC213/233<br>CJ1W-NC213/233  | <b>Storage directory</b> | DV\NC_V1\<br>NC213,233 | <b>Title</b> | Memory Operation (2) |
| <b>Function</b> | Displays I/O status, present position, error code for each axis. Also sets override and sequence No. and starts operation with the set conditions by pressing RUN button when the control flag (Enable button) is ON. |                          |                        |              |                      |

[Image]



| No. | Item                        | Setting/Display | Details  |
|-----|-----------------------------|-----------------|--|
| 1   | Present Position (Position) | Display         | Displays present position for each axis to be controlled by NC unit. (-2,147,483,647 to 2,147,483,647)   |
| 2   | STOP                        | Setting         | Stops axis in a set time.  |
| 3   | Error (Err)                 | Display         | Lights lamps when an error has been occurred and displays error codes.                                   |
| 4   | I/O Status (I/O)            | Display         | Displays I/O status.   |
| 5   | Enable                      | Setting         | Controls inputs, such as operation, read, override, and position numbers.                                |
| 6   | Position Numbers            | Setting         | Sets position numbers and displays position of sequence No.  |
| 7   | Busy                        | Display         | Display whether NC unit processes operations or not. Also lights lamp for X axis when initializing unit. |
| 8   | RUN                         | Setting         | Starts memory operation when it is pressed.  |
| 9   | Override                    | Setting         | Sets values for override and switches between enable and disable.  |

[Note]

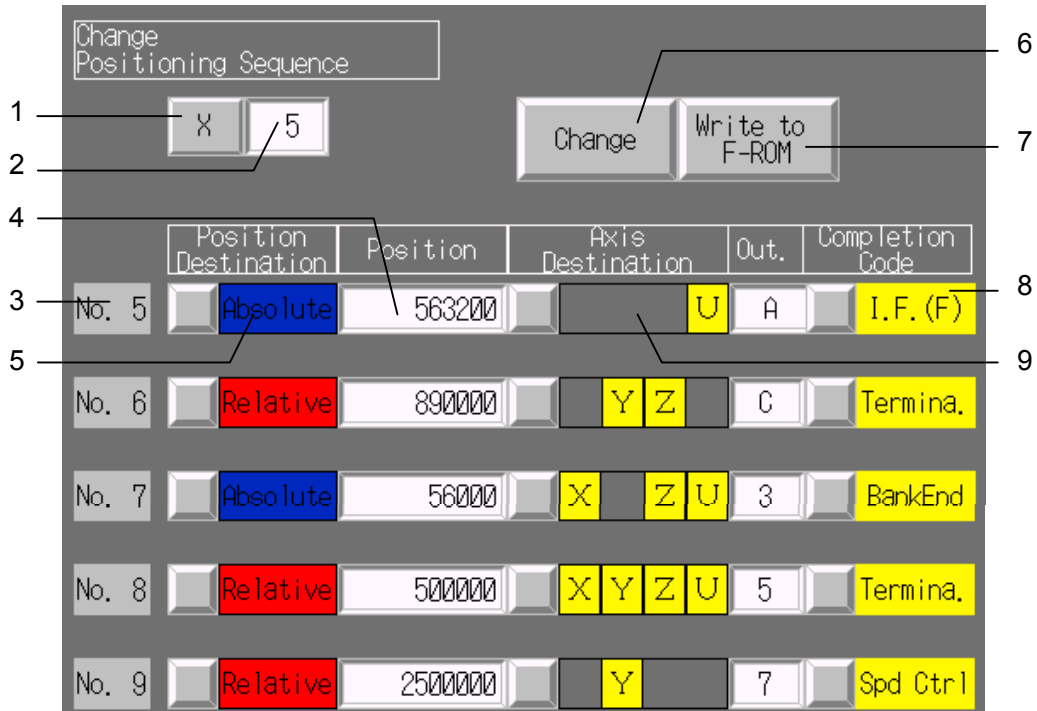
1. Select **Settings-System Setting-Initial** tab page in the NS-Designer, click **System Memory List** button, and check the **Basics** for the \$SB before using this library.
2. Do NOT use as an initial screen.
3. Those parts can be used for 2 axes unit only. They cannot be used for 1 axis or 4 axes.

# Motion Control

## 1.5.15 Change Positioning Sequence(4)

|                 |   |                          |                        |              |                                 |
|-----------------|---|--------------------------|------------------------|--------------|---------------------------------|
| <b>Model</b>    | CS1W-NC413/433<br>CJ1W-NC413/433  | <b>Storage directory</b> | DV\NC_V1\<br>NC413,433 | <b>Title</b> | Change Positioning Sequence (4) |
| <b>Function</b> | Sets sequence data, such as position destination, axis destination, output (Out.), and completion code, and position. |                          |                        |              |                                 |

[Image]



| No. | Item                 | Setting/Display | Details  |
|-----|----------------------|-----------------|--|
| 1   | Axis                 | Display         | Displays axis which settings should be made.   |
| 2   | Sequence No.         | Setting         | Input the desired sequence No.   |
| 3   | Sequence No.         | Display         | Displays sequence No. to be set.   |
| 4   | Position             | Setting         | Sets the position for the selected axis.   |
| 5   | Position Destination | Setting         | Sets whether the position is absolute or relative.   |
| 6   | Change               | Setting         | Writes the displayed data to parameter area in the NC Unit.  |
| 7   | Write to F-ROM       | Display         | Saves data written to the parameter area to F-ROM. Make sure to perform this before turning OFF the power. |
| 8   | Completion Code      | Setting         | Sets completion codes.   |
| 9   | Axis Destination     | Setting         | Specifies axis to be started up.   |

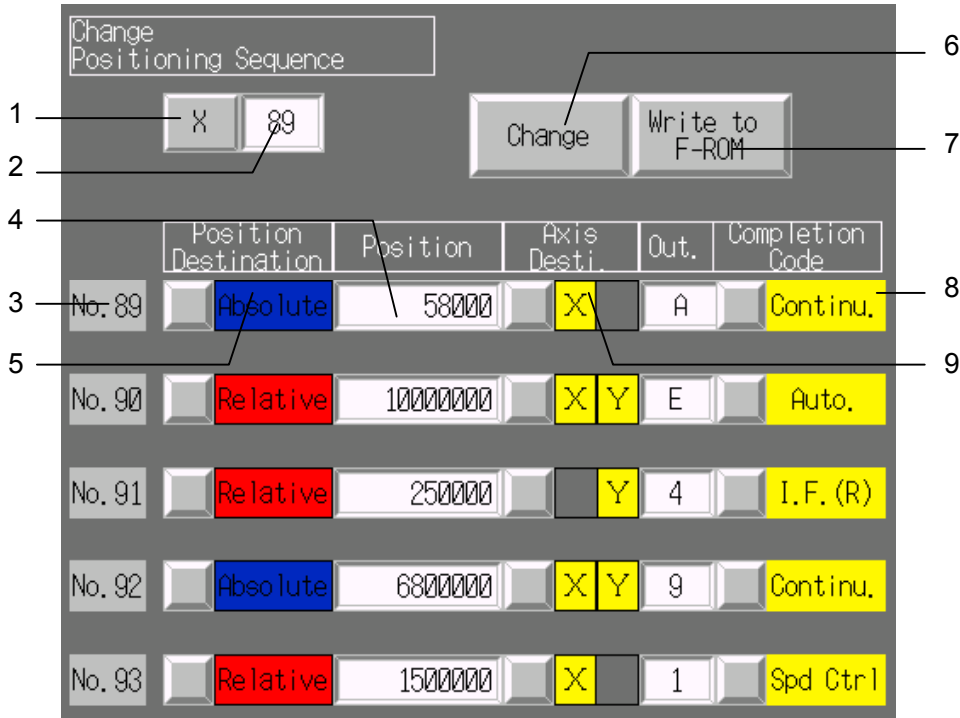
[Note]

1. Select **Settings-System Setting-Initial** tab page in the NS-Designer, click **System Memory List** button, and check the **Basics** for the \$SB before using this library.
2. When changing sequence No., press **Change** button and write it to parameter area. Unless the sequence No. is written to the parameter area, data will NOT be saved.
3. Unless F-ROM button is pressed, data will be deleted before turning OFF the power. Data to be saved in the NC Unit by pressing the Write to F-ROM button is data saved in the parameter area of PLC, NOT displaying on the screen.
4. Do NOT use as an initial screen.
5. Those parts can be used for 4 axes unit only. They cannot be used for 1 axis or 2 axes.

1.5.16 Change Positioning Sequence(2)

|                 |  |                          |                        |              |                                 |
|-----------------|--|--------------------------|------------------------|--------------|---------------------------------|
| <b>Model</b>    | CS1W-NC213/233<br>CJ1W-NC213/233   | <b>Storage directory</b> | DV\NC_V1\<br>NC213,233 | <b>Title</b> | Change Positioning Sequence (2) |
| <b>Function</b> | Sets sequence data, such as position destination, axis destination, output, and completion code, and position. |                          |                        |              |                                 |

[Image]



| No. | Item                 | Setting/Display | Details   |
|-----|----------------------|-----------------|---|
| 1   | Axis                 | Display         | Displays axis which settings should be made.  |
| 2   | Sequence No.         | Setting         | Input the desired sequence No.  |
| 3   | Sequence No.         | Display         | Displays sequence No. to be set.  |
| 4   | Position             | Setting         | Sets the position for the selected axis.  |
| 5   | Position Destination | Setting         | Sets whether the position is absolute or relative.  |
| 6   | Change               | Setting         | Writes the displayed data to parameter area in the PLC.   |
| 7   | Write to F-ROM       | Display         | Saves data written to the parameter area to F-ROM in the NC Unit. (Make sure to perform this before turning OFF the power.) |
| 8   | Completion Code      | Setting         | Sets completion codes.  |
| 9   | Axis Destination     | Setting         | Specifies axis to be started up.  |

[Note]

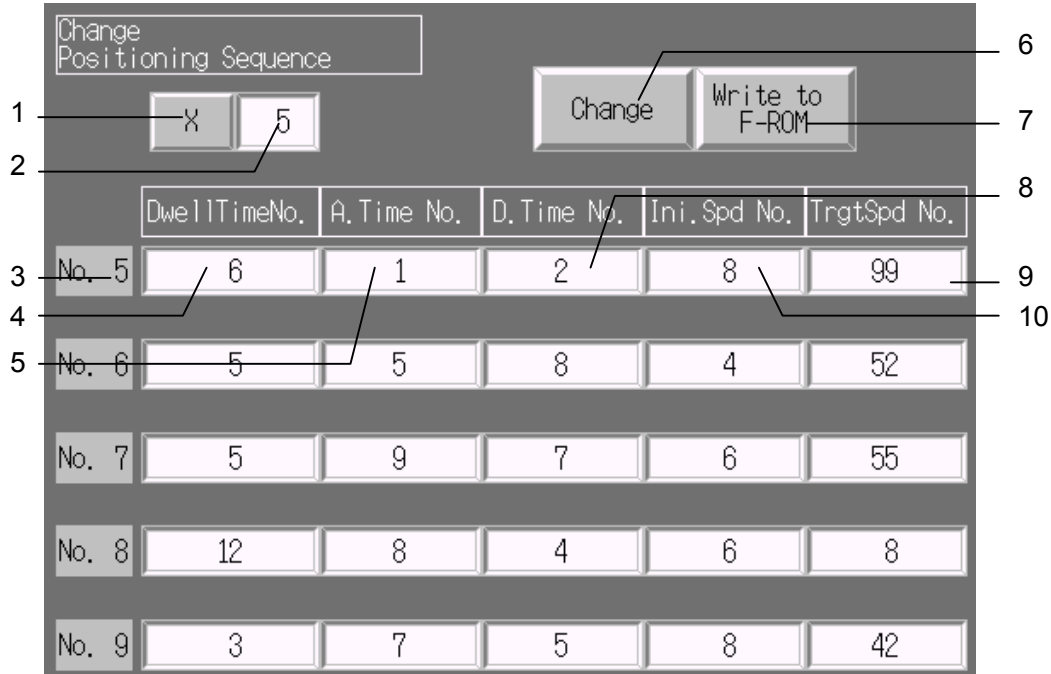
1. Select **Settings-System Setting-Initial** tab page in the NS-Designer, click **System Memory List** button, and check the **Basics** for the \$SB before using this library.
2. When changing sequence No., press **Change** button and write it to parameter area. Unless the sequence No. is written to the parameter area, data will NOT be saved.
3. Unless F-ROM button is pressed, data will be deleted before turning OFF the power. Data to be saved in the NC Unit by pressing the Write to F-ROM button is data saved in the parameter area of PLC NOT displaying on the screen.
4. Do NOT use as an initial screen.
5. Those parts can be used for 2 axes unit only. They cannot be used for 1 axis or 4 axes.

# Motion Control

## 1.5.17 Change Positioning Sequence(2axes,4axes)

|                 |   |                          |                                  |              |  |
|-----------------|---|--------------------------|----------------------------------|--------------|--|
| <b>Model</b>    | CS1W-NC413/433/213/233<br>CJ1W-NC413/433/213/233  | <b>Storage directory</b> | DV\NC_V1\<br>NC413,433/NC213,233 | <b>Title</b> | Change Positioning Sequence (2axes, 4axes) |
| <b>Function</b> | Sets sequence data, such as dwell time number, acceleration time number, deceleration time number, initial speed number, and target speed number. |                          |                                  |              |  |

[Image]



| No. | Item                                  | Setting/Display | Details   |
|-----|---------------------------------------|-----------------|---|
| 1   | Axis                                  | Display         | Displays axis which settings should be made.  |
| 2   | Sequence Number                       | Setting         | Input the desired sequence No.  |
| 3   | Sequence Number                       | Display         | Displays sequence No. to be set.  |
| 4   | Dwell Time Number (Dwell Time No.)    | Setting         | Sets dwell time number to be selected.  |
| 5   | Acceleration Time Number (A.Time No.) | Setting         | Sets acceleration time number to be selected.   |
| 6   | Change                                | Setting         | Writes the displayed data to parameter area in the PLC.   |
| 7   | Write to F-ROM                        | Setting         | Saves data written to the parameter area to F-ROM in the NC Unit. (Make sure to perform this before turning OFF the power.) |
| 8   | Deceleration Time Number (D.Time No.) | Setting         | Sets deceleration time number to be selected.   |
| 9   | Target Speed Number (Trgt Spd No.)    | Setting         | Sets target speed number to be selected.  |
| 10  | Initial Speed Number (Ini.Spd No.)    | Setting         | Sets initial speed number to be selected.   |

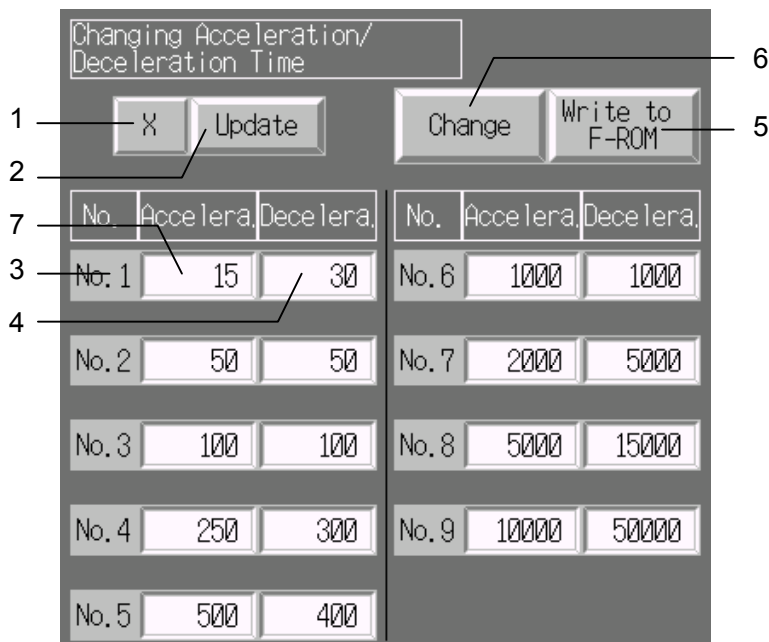
[Note]

1. Select **Settings-System Setting-Initial** tab page in the NS-Designer, click **System Memory List** button, and check the **Basics** for the \$SB before using this library.
2. When changing sequence No., press **Change** button and write it to parameter area. Unless the sequence No. is written to the parameter area, data will NOT be saved.
3. Unless F-ROM button is pressed, data will be deleted before turning OFF the power. Data to be saved in the NC Unit by pressing the Write to F-ROM button is data saved in the parameter area of PLC NOT displaying on the screen.
4. Do NOT use as an initial screen.

1.5.18 Changing Acceleration

|                 |   |                          |                                  |              |   |
|-----------------|---|--------------------------|----------------------------------|--------------|---|
| <b>Model</b>    | CS1W-NC413/433/213/233<br>CJ1W-NC413/433/213/233                      | <b>Storage directory</b> | DV\NC_V1\<br>NC413,433/NC213,233 | <b>Title</b> | Changing Acceleration / Deceleration Time |
| <b>Function</b> | Sets acceleration time and deceleration time for x, Y, Z, and U axis. |                          |                                  |              |   |

[Image]



| No. | Item                          | Setting/Display | Details   |
|-----|-------------------------------|-----------------|---|
| 1   | Axis                          | Display         | Displays axis which settings should be made.  |
| 2   | Sequence Number               | Setting         | Input the desired sequence No.  |
| 3   | Sequence Number               | Display         | Displays sequence No. to be set.  |
| 4   | Deceleration Time (Decelera.) | Setting         | Sets deceleration time.   |
| 5   | Change                        | Setting         | Writes the displayed data to parameter area in the PLC.   |
| 6   | Write to F-ROM                | Setting         | Saves data written to the parameter area to F-ROM in the NC Unit. (Make sure to perform this before turning OFF the power.) |
| 7   | Acceleration Time (Accelera.) | Setting         | Sets acceleration time.   |

[Note]

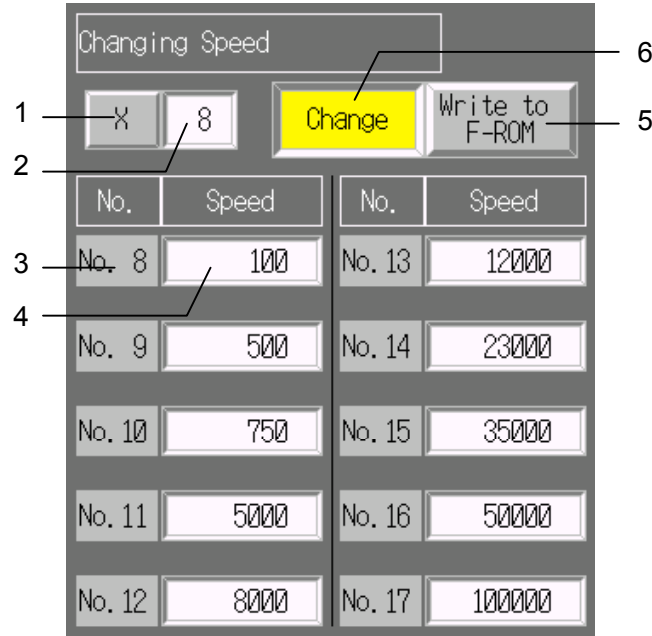
1. Select **Settings-System Setting-Initial** tab page in the NS-Designer, click **System Memory List** button, and check the **Basics** for the \$SB before using this library.
2. When changing sequence No., press **Change** button and write it to parameter area. Unless the sequence No. is written to the parameter area, data will NOT be saved.
3. Unless F-ROM button is pressed, data will be deleted before turning OFF the power. Data to be saved in the NC Unit by pressing the Write to F-ROM button is data saved in the parameter area of PLC NOT displaying on the screen.
4. Do NOT use as an initial screen.

# Motion Control

## 1.5.19 Changing Speed

|                 |  |                          |                                  |              |                                   |
|-----------------|--|--------------------------|----------------------------------|--------------|-----------------------------------|
| <b>Model</b>    | CS1W-NC413/433/213/233<br>CJ1W-NC413/433/213/233 | <b>Storage directory</b> | DV\NC_V1\<br>NC413,433/NC213,233 | <b>Title</b> | Changing Speed<br>(2 axes, 4axes) |
| <b>Function</b> | Sets speed for each axis(X, Y, Z, and U).        |                          |                                  |              |                                   |

[Image]



| No. | Item            | Setting/Display | Details   |
|-----|-----------------|-----------------|---|
| 1   | Axis            | Display         | Displays axis which settings should be made.  |
| 2   | Sequence Number | Setting         | Input the desired sequence No.  |
| 3   | Sequence Number | Display         | Displays sequence No. to be set.  |
| 4   | Speed           | Setting         | Sets the desired speed.   |
| 5   | Write to F-ROM  | Setting         | Saves data written to the parameter area to F-ROM in the NC Unit. (Make sure to perform this before turning OFF the power.) |
| 6   | Change          | Setting         | Writes the displayed data to parameter area in the PLC.   |

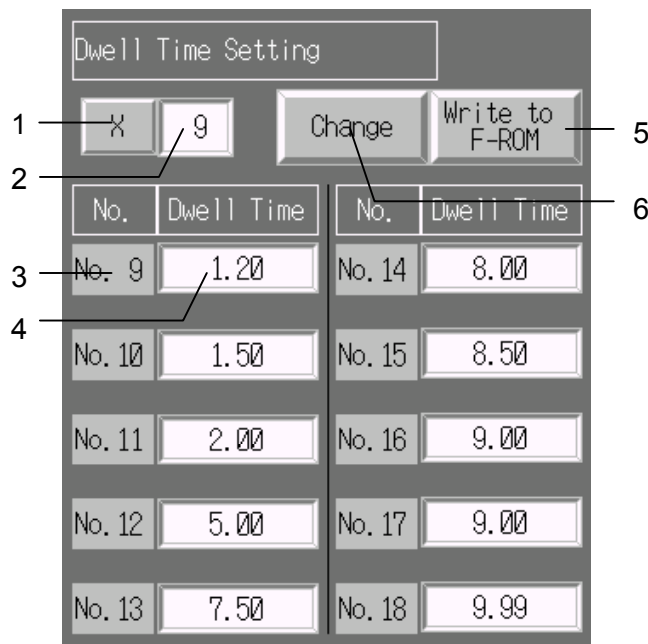
[Note]

1. Select **Settings-System Setting-Initial** tab page in the NS-Designer, click **System Memory List** button, and check the **Basics** for the \$SB before using this library.
2. When changing sequence No., press **Change** button and write it to parameter area. Unless the sequence No. is written to the parameter area, data will NOT be saved.
3. Unless F-ROM button is pressed, data will be deleted before turning OFF the power. Data to be saved in the NC Unit by pressing the Write to F-ROM button is data saved in the parameter area of PLC NOT displaying on the screen.
4. Do NOT use as an initial screen.

1.5.20 Dwell Time Setting

|                 |  |                          |                                  |              |                                      |
|-----------------|--|--------------------------|----------------------------------|--------------|--------------------------------------|
| <b>Model</b>    | CS1W-NC413/433/213/233<br>CJ1W-NC413/433/213/233 | <b>Storage directory</b> | DV\NC_V1\<br>NC413,433/NC213,233 | <b>Title</b> | Dwell Time Setting<br>(2axes, 4axes) |
| <b>Function</b> | Sets well time for each axis(X, Y, Z, and U).    |                          |                                  |              |                                      |

[Image]



| No. | Item            | Setting/Display | Details   |
|-----|-----------------|-----------------|---|
| 1   | Axis            | Display         | Displays axis which settings should be made.  |
| 2   | Sequence Number | Setting         | Input the desired sequence No.  |
| 3   | Sequence Number | Display         | Displays sequence No. to be set.  |
| 4   | Dwell Time      | Setting         | Sets the desired dwell time.  |
| 5   | Write to F-ROM  | Setting         | Saves data written to the parameter area to F-ROM in the NC Unit. (Make sure to perform this before turning OFF the power.) |
| 6   | Change          | Setting         | Writes the displayed data to parameter area in the PLC.   |

[Note]

1. Select **Settings-System Setting-Initial** tab page in the NS-Designer, click **System Memory List** button, and check the **Basics** for the \$SB before using this library.
2. When changing sequence No., press **Change** button and write it to parameter area. Unless the sequence No. is written to the parameter area, data will NOT be saved.
3. Unless F-ROM button is pressed, data will be deleted before turning OFF the power. Data to be saved in the NC Unit by pressing the Write to F-ROM button is data saved in the parameter area of PLC NOT displaying on the screen.
4. Do NOT use as an initial screen.



# Inverter

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## 1.1 3G3MV

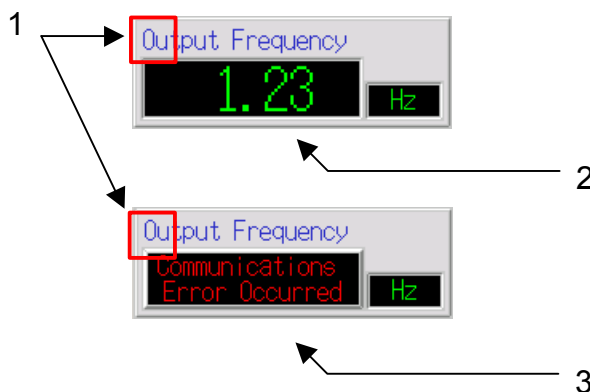
### 1.1.1 Speed Monitor

|  |  |                          |   |              |               |
|--|--|--------------------------|---|--------------|---------------|
| <b>Unit type</b>   | 3G3MV(-PDRT2)  | <b>Storage directory</b> | SmartActiveParts_E\Inverter\3G3MV\DeviceNet\Monitor   | <b>Title</b> | Speed monitor |
| <b>Function</b>  | Monitors the speed of the SYSDRIVE 3G3MV-series Multi-function Compact Inverter in serial connection or connected through the 3G3MV-PDRT2 DeviceNet Communications Unit. The monitoring cycle is adjustable in combination with the PLC program. |                          |   |              |               |
| <b>Display and Operation Details</b>   |  |                          |   |              |               |
|  |  |                          |   |              |               |
| <b>No.</b>   | <b>Item</b>  | <b>Setting/display</b>   | <b>Description</b>  |              |               |
| 1  | Hidden indicator for trigger use   | Display                  | A trigger indicator used to read the speed from the 3G3MV. This indicator is not displayed on the screen. The value can be read on a regular basis by turning ON and OFF the allocated address from the program in the PLC. The monitor cycle is determined by the program in the PLC. Adjust the cycle according to the communications load. |              |               |
| 2  | Rotational Speed   | Display                  | Displays the speed read from the 3G3MV.   |              |               |
| 3  | Communications error display   | Setting/display          | Displays the status of an error if a communications error occurs between the Unit and the 3G3MV. Reading is not performed while this item is displayed. If the recovery of communications is expected, press the displayed part so that reading will be restarted.  |              |               |
| <b>Remarks</b>   |  |                          |   |              |               |
| <p>* When using this Smart Active Part, select the r/min unit with <b>Parameter n035 (Frequency Reference Settings/Reference Unit Selection)</b> on the 3G3MV. Specifically, set n035 to 2 through 39 (number of motor poles).<br/>         The following diagram shows a programming example on the PLC to monitor the value on a regular basis. The 0.1-second clock pulse is allocated to the specified address (Serial A: WR00511.15 ).</p>  |  |                          |   |              |               |
|  |  |                          |   |              |               |
| nntp callout: 0.1-s clock pulse  |  |                          |   |              |               |
| <p>* The actual monitor refreshing cycle varies with the number of Smart Active Parts monitored on the screen and the operating conditions of other Smart Active Parts. The refreshing cycle will be increased if the number of Smart Active Parts increases.</p> <p>* If the other Smart Active Parts on the screen are in operation, refreshing the monitor will stop. When the operation of the Smart Active Parts stops, refreshing the monitor will restart.</p> <p>* Open the property sheet of this Smart Active Parts in the NS-Designer to set the Communication Setting.</p> |  |                          |   |              |               |

### 1.1.2 Output Frequency Monitor

|                  |   |                          |  |              |                          |
|------------------|---|--------------------------|--|--------------|--------------------------|
| <b>Unit type</b> | 3G3MV(-PDRT2)   | <b>Storage directory</b> | SmartActiveParts_E\Inverter\3G3MV\Serial(Device Net)\Monitor | <b>Title</b> | Output frequency monitor |
| <b>Function</b>  | Monitors the output frequency of the SYSDRIVE 3G3MV-series Multi-function Compact Inverter in serial connection or connected through the 3G3MV-PDRT2 DeviceNet Communications Unit. The monitoring cycle is adjustable in combination with the PLC program. |                          |  |              |                          |

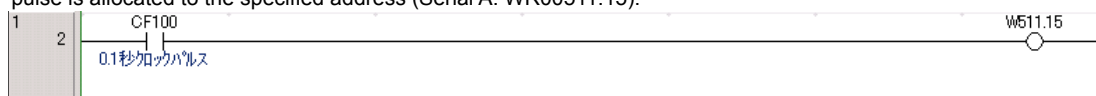
#### Display and Operation Details



| No. | Item                             | Setting/display | Description  |
|-----|----------------------------------|-----------------|--|
| 1   | Hidden indicator for trigger use | Display         | A trigger indicator used to read the output frequency from the 3G3MV. This indicator is not displayed on the screen. The value can be read on a regular basis by turning ON and OFF the allocated address from the program in the PLC. The monitor cycle is determined by the program in the PLC. Adjust the cycle according to the communications load. |
| 2   | Output Frequency                 | Display         | Displays the output frequency read from the 3G3MV.   |
| 3   | Communications error display     | Setting/display | Displays the status of an error if a communications error occurs in the 3G3MV. Reading is not performed while this item is displayed. If the recovery of communications is expected, press the displayed part so that reading will be restarted.   |

#### Remarks

- \* When using this Smart Active Part, be sure to select **Setting - Unit/Scale Setting** in the menu bar and set the scale for number 999 to 0.1.
- \* When using this Smart Active Part, select the 0.01 Hz unit (default) with **Parameter n035 (Frequency Reference Settings/Reference Unit Selection)** on the 3G3MV. Specifically, set n035 to 0.
- \* The following diagram shows a programming example on the PLC to monitor the value on a regular basis. The 0.1-second clock pulse is allocated to the specified address (Serial A: WR00511.15).



ntl callout: 0.1-s clock pulse

- \* The actual monitor refreshing cycle varies with the number of Smart Active Parts monitored on the screen and the operating conditions of other Smart Active Parts. The refreshing cycle will increase if the number of Smart Active Parts increases.
- \* If the other Smart Active Parts on the screen are in operation, refreshing the monitor will stop. When the operation of the Smart Active Parts stops, refreshing the monitor will restart.
- \* Open the property sheet of this Smart Active Parts in the NS-Designer to set the Communication Setting.

## 1.1.3 Output Current Monitor

|   |   |                          |  |              |                        |
|---|---|--------------------------|--|--------------|------------------------|
| <b>Unit type</b>  | 3G3MV(-PDRT2)   | <b>Storage directory</b> | SmartActiveParts_E\Inverter\3G3MV\Serial(Device Net)\Monitor   | <b>Title</b> | Output current monitor |
| <b>Function</b>   | Monitors the output current of the SYSDRIVE 3G3MV-series Multi-function Compact Inverter in serial connection or connected through the 3G3MV-PDRT2 DeviceNet Communications Unit. The monitoring cycle is adjustable in combination with the PLC program. |                          |  |              |                        |
| <b>Display and Operation Details</b>  |   |                          |  |              |                        |
|   |   |                          |  |              |                        |
| <b>No.</b>  | <b>Item</b>   | <b>Setting/display</b>   | <b>Description</b>   |              |                        |
| 1   | Hidden indicator for trigger use  | Display                  | A trigger indicator used to read the output current from the 3G3MV. This indicator is not displayed on the screen. The value can be read on a regular basis by turning ON and OFF the allocated address from the program in the PLC. The monitor cycle is determined by the program in the PLC. Adjust the cycle according to the communications load. |              |                        |
| 2   | Output Current  | Display                  | Displays the output current read from the 3G3MV.   |              |                        |
| 3   | Communications error display  | Setting/display          | Displays the status of an error if a communications error occurs between the Unit and the 3G3MV. Reading is not performed while this item is displayed. If the recovery of communications is expected, press the displayed part so that reading will be restarted.   |              |                        |
| <b>Remarks</b>  |   |                          |  |              |                        |
| <ul style="list-style-type: none"> <li>* When using this Smart Active Part, be sure to select <b>Setting - Unit/Scale Setting</b> in the menu bar and set the scale for number 1000 to 0.1.</li> <li>* The following diagram shows a programming example on the PLC to monitor the value on a regular basis. The 0.1-second clock pulse is allocated to the specified address (Serial A: WR00511.15).</li> </ul>  |   |                          |  |              |                        |
|   |   |                          |  |              |                        |
| ntlp callout: 0.1-s clock pulse   |   |                          |  |              |                        |
| <ul style="list-style-type: none"> <li>* The actual monitor refreshing cycle varies with the number of Smart Active Parts monitored on the screen and the operating conditions of other Smart Active Parts. The refreshing cycle will increase if the number of Smart Active Parts increases.</li> <li>* If the other Smart Active Parts on the screen are in operation, refreshing the monitor will stop. When the operation of the Smart Active Parts stops, refreshing the monitor will restart.</li> <li>* Open the property sheet of this Smart Active Parts in the NS-Designer to set the Communication Setting.</li> </ul> |   |                          |  |              |                        |

### 1.1.4 Parameter No. 1 to 12 (Unit: r/min)

|                  |  |                          |   |              |                                     |
|------------------|--|--------------------------|---|--------------|-------------------------------------|
| <b>Unit type</b> | 3G3MV(-PDRT2)  | <b>Storage directory</b> | SmartActiveParts_E\Inverter\3G3MV\Serial(Device Net)\Parameters | <b>Title</b> | Parameter No. 1 to 12 (unit: r/min) |
| <b>Function</b>  | Adjusts the parameters of the SYSDRIVE 3G3MV-series Multi-function Compact Inverter in serial connection or connected through the 3G3MV-PDRT2 DeviceNet Communications Unit. Only the main parameters are extracted from all the parameters. |                          |   |              |                                     |

#### Display and Operation Details

| No.   | Constant | Name                        | Default | Set Val. | Unit  |
|-------|----------|-----------------------------|---------|----------|-------|
| No.1  | n003     | Run Command Selection       | 0       | 2        | -     |
| No.2  | n004     | Freq.Reference Selection    | 0       | 2        | -     |
| No.3  | n019     | Acceleration Time 1         | 10.0    | 0.2      | s     |
| No.4  | n020     | Deceleration Time 1         | 10.0    | 0.2      | s     |
| No.5  | n024     | Rotational Speed 1          | 0       | 1        | r/min |
| No.6  | n025     | Rotational Speed 2          | 0       | 1        | r/min |
| No.7  | n026     | Rotational Speed 3          | 0       | 1        | r/min |
| No.8  | n034     | Lower Freq. Reference Limit | 0       | 2        | %     |
| No.9  | n017     | Min. Output Freq. Valtage   |         | 0.2      | V     |
| No.10 | n095     | Frequency Detection Level   | 0.00    | 0.02     | Hz    |
| No.11 | n103     | Torque Compensation Gain    | 1.0     | 0.2      | -     |
| No.12 | n111     | Slip Compensation Gain      | 0.0     | 0.2      | -     |

Buttons: Read Value, Write

| No. | Item       | Setting/display | Description  |
|-----|------------|-----------------|--|
| 1   | No.        | Display         | Displays the item numbers from the parameter table.  |
| 2   | Constant   | Display         | Displays the constant numbers where the parameters are saved in the 3G3MV.   |
| 3   | Name       | Display         | Displays descriptions of parameters.   |
| 4   | Default    | Display         | Displays the default value of each parameter (i.e., the default in the 3G3MV).   |
| 5   | Set Val.   | Setting/display | Displays the set value of each parameter. By pressing the setting, the set value can be overwritten. Each set item will be saved when the data is written. |
| 6   | Read Value | Setting         | Reads the present value set for each parameter.  |
| 7   | Write      | Setting         | Writes the settings to the EEPROM in the Unit.   |

#### Remarks

- \* When using this Smart Active Part, be sure to select **Setting - Unit/Scale Setting** in the menu bar and set the scale for number 1000 to 0.1 and the scale for number 999 to 0.01.
- \* When using this Smart Active Part, select the r/min unit with **Parameter n035 (Frequency Reference Settings/Reference Unit Selection)** on the 3G3MV. Specifically, set n035 to 2 through 39 (number of motor poles). If a unit other than r/min is selected, values for parameters n024 to n026 will not be displayed normally.
- \* Execute EEPROM Write to save the settings so that they will be stored after the Unit is turned OFF. The settings will be lost if the 3G3MV is turned OFF without writing the settings to EEPROM. EEPROM can be written up to 100,000 times.
- \* For details on the parameters, refer to the *3G3MV Operation Manual*.
- \* Open the property sheet of this Smart Active Parts in the NS-Designer to set the Communication Setting.

## 1.1.5 Parameter No.13 to 24

|                  |  |                          |   |              |                       |
|------------------|--|--------------------------|---|--------------|-----------------------|
| <b>Unit type</b> | 3G3MV(-PDRT2)  | <b>Storage directory</b> | SmartActiveParts_E\Inverter\3G3MV\Serial(Device Net)\Parameters | <b>Title</b> | Parameter No.13 to 24 |
| <b>Function</b>  | Adjusts the parameters of the SYSDRIVE 3G3MV-series Multi-function Compact Inverter in serial connection or connected through the 3G3MV-PDRT2 DeviceNet Communications Unit. Only the main parameters are extracted from all the parameters. |                          |   |              |                       |

### Display and Operation Details

| No.13 to No.24 ( <span style="background-color: pink; color: red; padding: 2px;"> </span> cannot be set during operation) |          |                            |         |          |      |
|---|----------|----------------------------|---------|----------|------|
| No.   | Constant | Name                       | Default | Set Val. | Unit |
| No.13   | n128     | PID Control Selection      | 0       | 2        | -    |
| No.14   | n130     | Proportional Gain          | 1.0     | 0.2      | -    |
| No.15   | n131     | Integral Time              | 1.0     | 0.2      | s    |
| No.16   | n132     | Derivative Time            | 0.00    | 0.02     | s    |
| No.17   | n133     | PID Offset Adjustment      | 0       | 2        | %    |
| No.18   | n134     | Integral (I) Upper Limit   | 100     | 2        | %    |
| No.19   | n135     | PID Primary Delay Time     | 0.0     | 0.2      | s    |
| No.20   | n163     | PID Output Gain            | 1.0     | 0.2      | -    |
| No.21   | n129     | F.b. Value Adjustment Gain | 1.00    | 0.02     | -    |
| No.22   | n139     | E. S. Control Selection    | 0       | 1        | -    |
| No.23   | n140     | E. S. Coefficient          |         | 0.2      | -    |
| No.24   |          |                            |         | 0        | -    |

Read Value
Write

| No. | Item       | Setting/display | Description   |
|-----|------------|-----------------|---|
| 1   | No.        | Display         | Displays the item numbers from the parameter table.   |
| 2   | Constant   | Display         | Displays constant numbers where the parameters are saved in the 3G3MV.  |
| 3   | Name       | Display         | Displays descriptions of parameters.  |
| 4   | Default    | Display         | Displays the default value of each parameter (i.e., the default in the 3G3MV).  |
| 5   | Set Val.   | Setting/display | Displays the set value of each parameter. By pressing the button, the set value can be overwritten. Each set item will be saved when the data is written. |
| 6   | Read Value | Setting         | Reads the present value set for each parameter.   |
| 7   | Write      | Setting         | Writes the settings to the EEPROM in the Unit.  |

### Remarks

- \* When using this Smart Active Part, be sure to select **Setting - Unit/Scale Setting** in the menu bar and set the scale for number 1000 to 0.1 and the scale for 999 to 0.01
- \* Execute EEPROM Write to save the settings so that they will be stored after the Unit is turned OFF. The settings will be lost if the 3G3MV is turned OFF without writing the settings to EEPROM. EEPROM can be written up to 100,000 times.
- \* For details on the parameters, refer to the *3G3MV Operation Manual*.
- \* Open the property sheet of this Smart Active Parts in the NS-Designer to set the Communication Setting.

### 1.1.6 Conveyor Basic Adjustment (Unit: r/min)

|                  |   |                          |   |              |   |
|------------------|---|--------------------------|---|--------------|---|
| <b>Unit type</b> | 3G3MV(-PDRT2)   | <b>Storage directory</b> | SmartActiveParts_E\Inverter\3G3MV\Serial(Device Net)\Parameters | <b>Title</b> | Conveyor basic adjustment (unit: r/min) |
| <b>Function</b>  | Adjusts the parameters of the SYSDRIVE 3G3MV-series Multi-function Compact Inverter in serial connection or connected through the 3G3MV-PDRT2 DeviceNet Communications Unit. Only the basic parameters used for conveyor control are extracted. |                          |   |              |   |

**Display and Operation Details**

| No.  | Constant | Name                     | Default | Set Val. | Unit  |
|------|----------|--------------------------|---------|----------|-------|
| No.1 | n003     | Run Command Selection    | 0       | 2        | -     |
| No.2 | n004     | Freq.Reference Selection | 0       | 2        | -     |
| No.3 | n019     | Acceleration Time 1      | 10.0    | 0.2      | s     |
| No.4 | n020     | Deceleration Time 1      | 10.0    | 0.2      | s     |
| No.5 | n024     | Rotational Speed 1       | 0       | 1        | r/min |
| No.6 | n025     | Rotational Speed 2       | 0       | 1        | r/min |
| No.7 | n026     | Rotational Speed 3       | 0       | 1        | r/min |
| No.8 | n103     | Torque Compensation Gain | 1.0     | 0.2      | -     |
| No.9 | n111     | Slip Compensation Gain   | 0.0     | 0.2      | -     |

Buttons: Read Value (6), Write (7)

| No. | Item       | Setting/display | Description   |
|-----|------------|-----------------|---|
| 1   | No.        | Display         | Displays the item numbers from the parameter table.   |
| 2   | Constant   | Display         | Displays constant numbers where the parameters are saved in the 3G3MV.  |
| 3   | Name       | Display         | Displays descriptions of parameters.  |
| 4   | Default    | Display         | Displays the default value of each parameter (i.e., the default in the 3G3MV).  |
| 5   | Set Val.   | Setting/display | Displays the set value of each parameter. By pressing the button, the set value can be overwritten. Each set item will be saved when the data is written. |
| 6   | Read Value | Setting         | Reads the present value set for each parameter.   |
| 7   | Write      | Setting         | Writes the settings to the EEPROM in the Unit.  |

**Remarks**

- \* When using this Smart Active Part, be sure to select **Setting - Unit/Scale Setting** in the menu bar and set the scale for number 1000 to 0.1.
- \* When using this SmartActive Part, select the r/min unit with **Parameter n035 (Frequency Reference Settings/Reference Unit Selection)** on the 3G3MV. Specifically, set n035 to 2 through 39 (number of motor poles). If a unit other than r/min is selected, values for parameters n024 to n026 will not be displayed normally.
- \* Execute EEPROM Write to save the settings so that they will be stored after the Unit is turned OFF. The settings will be lost if the 3G3MV is turned OFF without writing the settings to EEPROM. EEPROM can be written up to 100,000 times.
- \* For details on the parameters, refer to the *3G3MV Operation Manual*.
- \* Open the property sheet of this Smart Active Parts in the NS-Designer to set the Communication Setting.

## 1.1.7 Fan/Pump Basic Adjustment (Unit: r/min unit)

| <b>Unit type</b>   | 3G3MV(-PDRT2)   | <b>Storage directory</b>    | SmartActiveParts_E\Inverter\3G3MV\Serial(Device Net)\Parameters   | <b>Title</b> | Fan/Pump basic adjustment (Unit: r/min) |     |          |      |         |          |      |      |      |                       |   |   |   |      |      |                          |   |   |   |      |      |                     |      |     |   |      |      |                     |      |     |   |      |      |                    |   |    |       |      |      |                    |   |    |       |      |      |                    |   |    |       |      |      |                             |   |    |   |
|--|---|-----------------------------|---|--------------|---|-----|----------|------|---------|----------|------|------|------|-----------------------|---|---|---|------|------|--------------------------|---|---|---|------|------|---------------------|------|-----|---|------|------|---------------------|------|-----|---|------|------|--------------------|---|----|-------|------|------|--------------------|---|----|-------|------|------|--------------------|---|----|-------|------|------|-----------------------------|---|----|---|
| <b>Function</b>  | Adjusts the parameters of the SYSDRIVE 3G3MV-series Multi-function Compact Inverter in serial connection or connected through the 3G3MV-PDRT2 DeviceNet Communications Unit. Only the basic parameters used for fan/pump control are extracted. |                             |   |              |   |     |          |      |         |          |      |      |      |                       |   |   |   |      |      |                          |   |   |   |      |      |                     |      |     |   |      |      |                     |      |     |   |      |      |                    |   |    |       |      |      |                    |   |    |       |      |      |                    |   |    |       |      |      |                             |   |    |   |
| <b>Display and Operation Details</b>   |   |                             |   |              |   |     |          |      |         |          |      |      |      |                       |   |   |   |      |      |                          |   |   |   |      |      |                     |      |     |   |      |      |                     |      |     |   |      |      |                    |   |    |       |      |      |                    |   |    |       |      |      |                    |   |    |       |      |      |                             |   |    |   |
| <div style="display: flex; justify-content: space-around; margin-bottom: 10px;"> <span>1</span><span>2</span><span>3</span><span>4</span><span>5</span> </div> <div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center; margin: 0;">Parameters for Controlling Fan/Pump ( cannot be set during operation)</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr style="background-color: #90EE90;"> <th>No.</th> <th>Constant</th> <th>Name</th> <th>Default</th> <th>Set Val.</th> <th>Unit</th> </tr> </thead> <tbody> <tr> <td>No.1</td> <td>n003</td> <td>Run Command Selection</td> <td>0</td> <td style="background-color: #FFB6C1;">3</td> <td>-</td> </tr> <tr> <td>No.2</td> <td>n004</td> <td>Freq.Reference Selection</td> <td>0</td> <td style="background-color: #FFB6C1;">2</td> <td>-</td> </tr> <tr> <td>No.3</td> <td>n019</td> <td>Acceleration Time 1</td> <td>10.0</td> <td style="background-color: #FFFF00;">1.2</td> <td>s</td> </tr> <tr> <td>No.4</td> <td>n020</td> <td>Deceleration Time 1</td> <td>10.0</td> <td style="background-color: #FFFF00;">1.2</td> <td>s</td> </tr> <tr> <td>No.5</td> <td>n024</td> <td>Rotational Speed 1</td> <td>0</td> <td style="background-color: #FFFF00;">12</td> <td>r/min</td> </tr> <tr> <td>No.6</td> <td>n025</td> <td>Rotational Speed 2</td> <td>0</td> <td style="background-color: #FFFF00;">12</td> <td>r/min</td> </tr> <tr> <td>No.7</td> <td>n026</td> <td>Rotational Speed 3</td> <td>0</td> <td style="background-color: #FFFF00;">12</td> <td>r/min</td> </tr> <tr> <td>No.8</td> <td>n034</td> <td>Lower Freq. Reference Limit</td> <td>0</td> <td style="background-color: #FFB6C1;">12</td> <td>%</td> </tr> </tbody> </table> <div style="display: flex; justify-content: flex-end; margin-top: 5px;"> <div style="border: 1px solid gray; padding: 2px 10px; margin-right: 10px;">Read Value</div> <div style="border: 1px solid gray; padding: 2px 10px;">Write</div> </div> </div> <div style="margin-top: 10px; text-align: center;"> <span style="font-size: 2em;">6</span> </div> <div style="margin-top: 10px; text-align: right;"> <span style="font-size: 2em;">7</span> </div> |   |                             |   |              |   | No. | Constant | Name | Default | Set Val. | Unit | No.1 | n003 | Run Command Selection | 0 | 3 | - | No.2 | n004 | Freq.Reference Selection | 0 | 2 | - | No.3 | n019 | Acceleration Time 1 | 10.0 | 1.2 | s | No.4 | n020 | Deceleration Time 1 | 10.0 | 1.2 | s | No.5 | n024 | Rotational Speed 1 | 0 | 12 | r/min | No.6 | n025 | Rotational Speed 2 | 0 | 12 | r/min | No.7 | n026 | Rotational Speed 3 | 0 | 12 | r/min | No.8 | n034 | Lower Freq. Reference Limit | 0 | 12 | % |
| No.  | Constant  | Name                        | Default   | Set Val.     | Unit                                    |     |          |      |         |          |      |      |      |                       |   |   |   |      |      |                          |   |   |   |      |      |                     |      |     |   |      |      |                     |      |     |   |      |      |                    |   |    |       |      |      |                    |   |    |       |      |      |                    |   |    |       |      |      |                             |   |    |   |
| No.1   | n003  | Run Command Selection       | 0   | 3            | -                                       |     |          |      |         |          |      |      |      |                       |   |   |   |      |      |                          |   |   |   |      |      |                     |      |     |   |      |      |                     |      |     |   |      |      |                    |   |    |       |      |      |                    |   |    |       |      |      |                    |   |    |       |      |      |                             |   |    |   |
| No.2   | n004  | Freq.Reference Selection    | 0   | 2            | -                                       |     |          |      |         |          |      |      |      |                       |   |   |   |      |      |                          |   |   |   |      |      |                     |      |     |   |      |      |                     |      |     |   |      |      |                    |   |    |       |      |      |                    |   |    |       |      |      |                    |   |    |       |      |      |                             |   |    |   |
| No.3   | n019  | Acceleration Time 1         | 10.0  | 1.2          | s                                       |     |          |      |         |          |      |      |      |                       |   |   |   |      |      |                          |   |   |   |      |      |                     |      |     |   |      |      |                     |      |     |   |      |      |                    |   |    |       |      |      |                    |   |    |       |      |      |                    |   |    |       |      |      |                             |   |    |   |
| No.4   | n020  | Deceleration Time 1         | 10.0  | 1.2          | s                                       |     |          |      |         |          |      |      |      |                       |   |   |   |      |      |                          |   |   |   |      |      |                     |      |     |   |      |      |                     |      |     |   |      |      |                    |   |    |       |      |      |                    |   |    |       |      |      |                    |   |    |       |      |      |                             |   |    |   |
| No.5   | n024  | Rotational Speed 1          | 0   | 12           | r/min                                   |     |          |      |         |          |      |      |      |                       |   |   |   |      |      |                          |   |   |   |      |      |                     |      |     |   |      |      |                     |      |     |   |      |      |                    |   |    |       |      |      |                    |   |    |       |      |      |                    |   |    |       |      |      |                             |   |    |   |
| No.6   | n025  | Rotational Speed 2          | 0   | 12           | r/min                                   |     |          |      |         |          |      |      |      |                       |   |   |   |      |      |                          |   |   |   |      |      |                     |      |     |   |      |      |                     |      |     |   |      |      |                    |   |    |       |      |      |                    |   |    |       |      |      |                    |   |    |       |      |      |                             |   |    |   |
| No.7   | n026  | Rotational Speed 3          | 0   | 12           | r/min                                   |     |          |      |         |          |      |      |      |                       |   |   |   |      |      |                          |   |   |   |      |      |                     |      |     |   |      |      |                     |      |     |   |      |      |                    |   |    |       |      |      |                    |   |    |       |      |      |                    |   |    |       |      |      |                             |   |    |   |
| No.8   | n034  | Lower Freq. Reference Limit | 0   | 12           | %                                       |     |          |      |         |          |      |      |      |                       |   |   |   |      |      |                          |   |   |   |      |      |                     |      |     |   |      |      |                     |      |     |   |      |      |                    |   |    |       |      |      |                    |   |    |       |      |      |                    |   |    |       |      |      |                             |   |    |   |
| <b>No.</b>   | <b>Item</b>   | <b>Setting/display</b>      | <b>Description</b>  |              |   |     |          |      |         |          |      |      |      |                       |   |   |   |      |      |                          |   |   |   |      |      |                     |      |     |   |      |      |                     |      |     |   |      |      |                    |   |    |       |      |      |                    |   |    |       |      |      |                    |   |    |       |      |      |                             |   |    |   |
| 1  | No.   | Display                     | Displays the item numbers from the parameter table.   |              |   |     |          |      |         |          |      |      |      |                       |   |   |   |      |      |                          |   |   |   |      |      |                     |      |     |   |      |      |                     |      |     |   |      |      |                    |   |    |       |      |      |                    |   |    |       |      |      |                    |   |    |       |      |      |                             |   |    |   |
| 2  | Constant  | Display                     | Displays constant numbers where the parameters are saved in the 3G3MV.  |              |   |     |          |      |         |          |      |      |      |                       |   |   |   |      |      |                          |   |   |   |      |      |                     |      |     |   |      |      |                     |      |     |   |      |      |                    |   |    |       |      |      |                    |   |    |       |      |      |                    |   |    |       |      |      |                             |   |    |   |
| 3  | Name  | Display                     | Displays descriptions of parameters.  |              |   |     |          |      |         |          |      |      |      |                       |   |   |   |      |      |                          |   |   |   |      |      |                     |      |     |   |      |      |                     |      |     |   |      |      |                    |   |    |       |      |      |                    |   |    |       |      |      |                    |   |    |       |      |      |                             |   |    |   |
| 4  | Default   | Display                     | Displays the default value of each parameter (i.e., the default in the 3G3MV).  |              |   |     |          |      |         |          |      |      |      |                       |   |   |   |      |      |                          |   |   |   |      |      |                     |      |     |   |      |      |                     |      |     |   |      |      |                    |   |    |       |      |      |                    |   |    |       |      |      |                    |   |    |       |      |      |                             |   |    |   |
| 5  | Set Val.  | Setting/display             | Displays the set value of each parameter. By pressing the button, the set value can be overwritten. Each set item will be saved when the data is written. |              |   |     |          |      |         |          |      |      |      |                       |   |   |   |      |      |                          |   |   |   |      |      |                     |      |     |   |      |      |                     |      |     |   |      |      |                    |   |    |       |      |      |                    |   |    |       |      |      |                    |   |    |       |      |      |                             |   |    |   |
| 6  | Read Value  | Setting                     | Reads the present value set for each parameter.   |              |   |     |          |      |         |          |      |      |      |                       |   |   |   |      |      |                          |   |   |   |      |      |                     |      |     |   |      |      |                     |      |     |   |      |      |                    |   |    |       |      |      |                    |   |    |       |      |      |                    |   |    |       |      |      |                             |   |    |   |
| 7  | Write   | Setting                     | Writes the settings to the EEPROM in the Unit.  |              |   |     |          |      |         |          |      |      |      |                       |   |   |   |      |      |                          |   |   |   |      |      |                     |      |     |   |      |      |                     |      |     |   |      |      |                    |   |    |       |      |      |                    |   |    |       |      |      |                    |   |    |       |      |      |                             |   |    |   |
| <b>Remarks</b>   |   |                             |   |              |   |     |          |      |         |          |      |      |      |                       |   |   |   |      |      |                          |   |   |   |      |      |                     |      |     |   |      |      |                     |      |     |   |      |      |                    |   |    |       |      |      |                    |   |    |       |      |      |                    |   |    |       |      |      |                             |   |    |   |
| <ul style="list-style-type: none"> <li>* When using this Smart Active Part, be sure to select <b>Setting - Unit/Scale Setting</b> in the menu bar and set the scale for number 1000 to 0.1.</li> <li>* When using this Smart Active Part, select the r/min unit with <b>Parameter n035 (Frequency Reference Settings/Reference Unit Selection)</b> on the 3G3MV. Specifically, set n035 to 2 through 39 (number of motor poles). If a unit other than r/min is selected, values for parameters n024 to n026 will not be displayed normally.</li> <li>* Execute EEPROM Write to save the settings so that they will be stored after the Unit is turned OFF. The settings will be lost if the 3G3MV is turned OFF without writing the settings to EEPROM. EEPROM can be written up to 100,000 times.</li> <li>* For details on the parameters, refer to the <i>3G3MV Operation Manual</i>.</li> <li>* Open the property sheet of this Smart Active Parts in the NS-Designer to set the Communication Setting.</li> </ul>   |   |                             |   |              |   |     |          |      |         |          |      |      |      |                       |   |   |   |      |      |                          |   |   |   |      |      |                     |      |     |   |      |      |                     |      |     |   |      |      |                    |   |    |       |      |      |                    |   |    |       |      |      |                    |   |    |       |      |      |                             |   |    |   |



### 1.1.8 Fan/Pump Basic + Energy-saving Adjustment (Unit: r/min unit)

|                  |   |                          |   |              |  |
|------------------|---|--------------------------|---|--------------|--|
| <b>Unit type</b> | 3G3MV(-PDRT2)   | <b>Storage directory</b> | SmartActiveParts_E\Inverter\3G3MV\Serial(Device Net)\Parameters | <b>Title</b> | Fan/Pump basic + Energy-saving adjustment (Unit: r/min unit) |
| <b>Function</b>  | Adjusts the parameters of the SYSDRIVE 3G3MV-series Multi-function Compact Inverter in serial connection or connected through the 3G3MV-PDRT2 DeviceNet Communications Unit. Only the basic parameters used for fan and pump control and energy-saving control are extracted. |                          |   |              |  |

#### Display and Operation Details

| No.   | Constant | Name                        | Default | Set Val. | Unit  |
|-------|----------|-----------------------------|---------|----------|-------|
| No.1  | n003     | Run Command Selection       | 0       | 3        | -     |
| No.2  | n004     | Freq. Reference Selection   | 0       | 2        | -     |
| No.3  | n019     | Acceleration Time 1         | 10.0    | 1.2      | s     |
| No.4  | n020     | Deceleration Time 1         | 10.0    | 1.2      | s     |
| No.5  | n024     | Rotational Speed 1          | 0       | 12       | r/min |
| No.6  | n025     | Rotational Speed 2          | 0       | 12       | r/min |
| No.7  | n026     | Rotational Speed 3          | 0       | 12       | r/min |
| No.8  | n034     | Lower Freq. Reference Limit | 0       | 12       | %     |
| No.9  | n139     | E. S. Control Selection     | 0       | 1        | -     |
| No.10 | n140     | E. S. Coefficient           |         | 1.2      | -     |

Read Value      Write

| No. | Item       | Setting/display | Description   |
|-----|------------|-----------------|---|
| 1   | No.        | Display         | Displays the item numbers from the parameter table.   |
| 2   | Constant   | Display         | Displays constant numbers where the parameters are saved in the 3G3MV.  |
| 3   | Name       | Display         | Displays descriptions of parameters.  |
| 4   | Default    | Display         | Displays the default value of each parameter (i.e., the default in the 3G3MV).  |
| 5   | Set Val.   | Setting/display | Displays the set value of each parameter. By pressing the button, the set value can be overwritten. Each set item will be saved when the data is written. |
| 6   | Read Value | Setting         | Reads the present value set for each parameter.   |
| 7   | Write      | Setting         | Writes the settings to the EEPROM in the Unit.  |

#### Remarks

- \* When using this Smart Active Part, be sure to select **Setting - Unit/Scale Setting** in the menu bar and set the scale for number 1000 to 0.1.
- \* When using this Smart Active Part, select the r/min unit with **Parameter n035 (Frequency Reference Settings/Reference Unit Selection)** on the 3G3MV. Specifically, set n035 to 2 through 39 (number of motor poles). If a unit other than r/min is selected, values for parameters n024 to n026 will not be displayed normally.
- \* Execute EEPROM Write to save the settings so that they will be stored after the Unit is turned OFF. The settings will be lost if the 3G3MV is turned OFF without writing the settings to EEPROM. EEPROM can be written up to 100,000 times.
- \* For details on the parameters, refer to the *3G3MV Operation Manual*.
- \* Open the property sheet of this Smart Active Parts in the NS-Designer to set the Communication Setting.

## 1.1.9 PID Control Adjustment

|                  |  |                          |   |              |                        |
|------------------|--|--------------------------|---|--------------|------------------------|
| <b>Unit type</b> | 3G3MV(-PDRT2)  | <b>Storage directory</b> | SmartActiveParts_E\Inverter\3G3MV\Serial(Device Net)\Parameters | <b>Title</b> | PID control adjustment |
| <b>Function</b>  | Adjusts the parameters of the SYSDRIVE 3G3MV-series Multi-function Compact Inverter in serial connection or connected through the 3G3MV-PDRT2 DeviceNet Communications Unit. Only parameters used for PID control are extracted. |                          |   |              |                        |

### Display and Operation Details

PID Control Selection (cannot be set during operation)

| No.  | Constant | Name                        | Default | Set Val. | Unit |
|------|----------|-----------------------------|---------|----------|------|
| No.1 | n128     | PID Control Selection       | 0       | 8        | -    |
| No.2 | n130     | Proportional Gain           | 1.0     | 1.2      | -    |
| No.3 | n131     | Integral Time               | 1.0     | 1.2      | s    |
| No.4 | n132     | Derivative Time             | 0.00    | 0.12     | s    |
| No.5 | n133     | PID Offset Adjustment       | 0       | 12       | %    |
| No.6 | n134     | Integral (I) Upper Limit    | 100     | 12       | %    |
| No.7 | n135     | PID Primary Delay Time      | 0.0     | 1.2      | s    |
| No.8 | n163     | PID Output Gain             | 1.0     | 1.2      | -    |
| No.9 | n129     | F. b. Value Adjustment Gain | 1.00    | 0.12     | -    |

Read Value Write

| No. | Item       | Setting/display | Description   |
|-----|------------|-----------------|---|
| 1   | No.        | Display         | Displays the item numbers from the parameter table.   |
| 2   | Constant   | Display         | Displays constant numbers where the parameters are saved in the 3G3MV.  |
| 3   | Name       | Display         | Displays descriptions of parameters.  |
| 4   | Default    | Display         | Displays the default value of each parameter (i.e., the default in the 3G3MV).  |
| 5   | Set Val.   | Setting/display | Displays the set value of each parameter. By pressing the button, the set value can be overwritten. Each set item will be saved when the data is written. |
| 6   | Read Value | Setting         | Reads the present value set for each parameter.   |
| 7   | Write      | Setting         | Writes the settings to the EEPROM in the Unit.  |

### Remarks

- \* When using this Smart Active Part, be sure to select **Setting - Unit/Scale Setting** in the menu bar and set the scale for number 1000 to 0.1 and the scale for 999 to 0.01
- \* Execute EEPROM Write to save the settings so that they will be stored after the Unit is turned OFF. The settings will be lost if the 3G3MV is turned OFF without writing the settings to EEPROM. EEPROM can be written up to 100,000 times.
- \* For details on the parameters, refer to the *3G3MV Operation Manual*.
- \* Open the property sheet of this Smart Active Parts in the NS-Designer to set the Communication Setting.

### 1.1.10 Elevator Basic Adjustment (Unit: r/min unit)

|                  |   |                          |   |              |  |
|------------------|---|--------------------------|---|--------------|--|
| <b>Unit type</b> | 3G3MV(-PDRT2)   | <b>Storage directory</b> | SmartActiveParts_E\Inverter\3G3MV\Serial(Device Net)\Parameters | <b>Title</b> | Elevator basic adjustment (Unit: r/min unit) |
| <b>Function</b>  | Adjusts the parameters of the SYSDRIVE 3G3MV-series Multi-function Compact Inverter in serial connection or connected through the 3G3MV-PDRT2 DeviceNet Communications Unit. Only basic parameters used for elevator control are extracted. |                          |   |              |  |

**Display and Operation Details**

Parameters for Controlling Elevator (cannot be set during operation)

| No.   | Constant | Name                      | Default | Set Val. | Unit  |
|-------|----------|---------------------------|---------|----------|-------|
| No.1  | n003     | Run Command Selection     | 0       | 3        | -     |
| No.2  | n004     | Freq.Reference Selection  | 0       | 2        | -     |
| No.3  | n019     | Acceleration Time 1       | 10.0    | 1.2      | s     |
| No.4  | n020     | Deceleration Time 1       | 10.0    | 1.2      | s     |
| No.5  | n024     | Rotational Speed 1        | 0       | 12       | r/min |
| No.6  | n025     | Rotational Speed 2        | 0       | 12       | r/min |
| No.7  | n026     | Rotational Speed 3        | 0       | 12       | r/min |
| No.8  | n017     | Min. Output Freq. Valtage |         | 1.2      | V     |
| No.9  | n095     | Frequency Detection Level | 0.00    | 0.12     | Hz    |
| No.10 | n103     | Torque Compensation Gain  | 1.0     | 1.2      | -     |
| No.11 | n111     | Slip Compensation Gain    | 0.0     | 1.2      | -     |

| No. | Item       | Setting/display | Description   |
|-----|------------|-----------------|---|
| 1   | No.        | Display         | Displays the item numbers from the parameter table.   |
| 2   | Constant   | Display         | Displays constant numbers where the parameters are saved in the 3G3MV.  |
| 3   | Name       | Display         | Displays descriptions of parameters.  |
| 4   | Default    | Display         | Displays the default value of each parameter (i.e., the default in the 3G3MV).  |
| 5   | Set Val.   | Setting/display | Displays the set value of each parameter. By pressing the button, the set value can be overwritten. Each set item will be saved when the data is written. |
| 6   | Read Value | Setting         | Reads the present value set for each parameter.   |
| 7   | Write      | Setting         | Writes the settings to the EEPROM in the Unit.  |

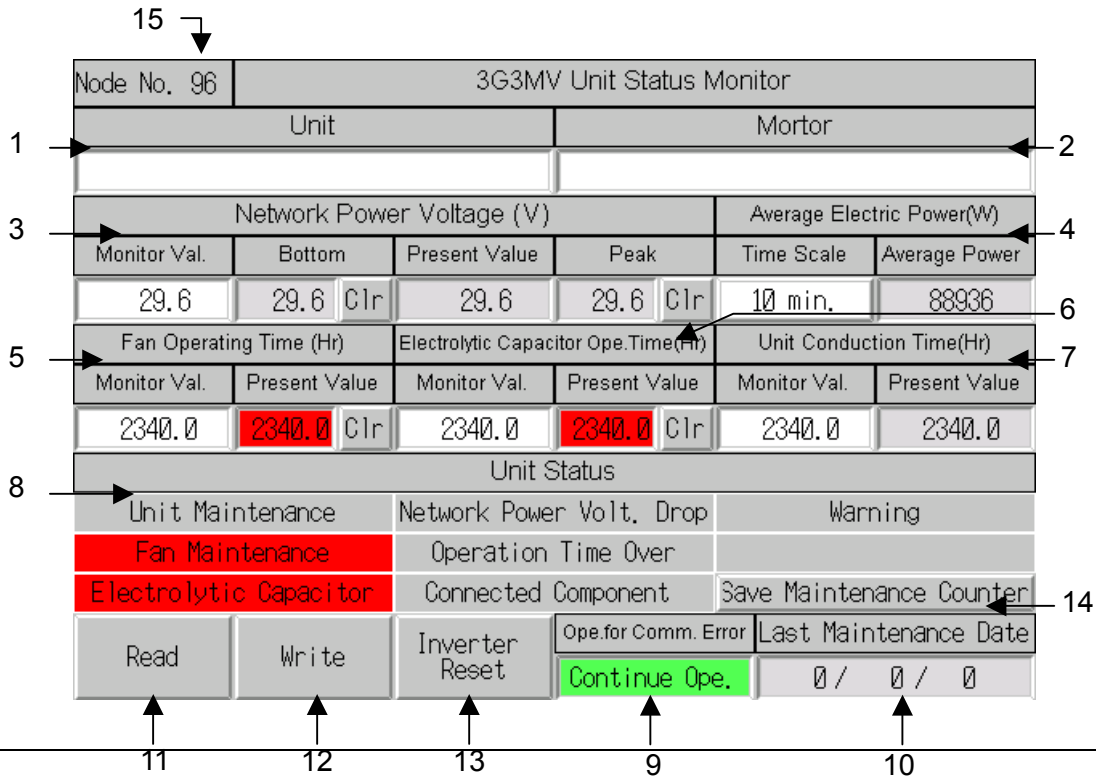
**Remarks**

- \* When using this Smart Active Part, be sure to select **Setting - Unit/Scale Setting** in the menu bar and set the scale for number 1000 to 0.1 and the scale for 999 to 0.01.
- \* When using this Smart Active Part, select the r/min unit with **Parameter n035 (Frequency Reference Settings/Reference Unit Selection)** on the 3G3MV. Specifically, set n035 to 2 through 39 (number of motor poles). If a unit other than r/min is selected, values for parameters n024 to n026 will not be displayed normally.
- \* Execute EEPROM Write to save the settings so that they will be stored after the Unit is turned OFF. The settings will be lost if the 3G3MV is turned OFF without writing the settings to EEPROM. EEPROM can be written up to 100,000 times.
- \* For details on the parameters, refer to the *3G3MV Operation Manual*.
- \* Open the property sheet of this Smart Active Parts in the NS-Designer to set the Communication Setting.

## 1.1.11 Unit Status Monitor

|                  |   |                          |   |              |                     |
|------------------|---|--------------------------|---|--------------|---------------------|
| <b>Unit type</b> | 3G3MV-PDRT2   | <b>Storage directory</b> | SmartActiveParts_E\Invert or\3G3MV\DeviceNet\DRT 2_Func | <b>Title</b> | Unit Status Monitor |
| <b>Function</b>  | Monitors Unit status and sets parameters for the 3G3MV-PDRT2 DeviceNet Communications Unit. |                          |   |              |                     |

### Display and Operation Details



| No. | Item                             | Setting/display | Description  |
|-----|----------------------------------|-----------------|--|
| 1   | Unit                             | Setting/display | Displays the unit name set for the Unit. Can also be used to change the unit name.   |
| 2   | Motor                            | Setting/display | Displays the motor name set for the Unit. Can also be used to change the motor name.   |
| 3   | Network Power Voltage            | Setting/display | Displays the monitor value, minimum value (bottom), present value, and maximum value (peak) of the network power supply voltage. Can also be used to set the monitor value. The minimum and maximum values can be reset to zero by pressing the Clr Buttons. If the present value is less than the monitor value, the present value display field will flash in red and <i>Network Power Volt. Drop</i> in the <i>Unit Status</i> area will be lit in red. |
| 4   | Average Electric Power           | Setting/display | Displays the measurement period set value (Time Scale) and the calculated value of the average power. Can also be used to set the measurement period to 10 min, 30 min, or 1 h.  |
| 5   | Fan Operating Time               | Setting/display | Displays the monitor value and present value of the fan operating time. Can also be used to set the monitor value. The Clr Button can be pressed to reset the present value to zero. Can also be used to set the present value. If the present value is greater than the monitor value, the present value display field will flash in red and <i>Fan Maintenance</i> in the <i>Unit Status</i> area will be lit in red.                                    |
| 6   | Electrolytic Capacitor Ope. Time | Setting/display | Displays the monitor value and present value of the electrolytic capacitor operating time. Can also be used to set the monitor value. The Clr Button can be pressed to reset the present value to zero. Can also be used to set the present value. If the present value is greater than the monitor value, the present value display field will flash in red and <i>Electrolytic Capacitor</i> in the <i>Unit Status</i> area will be lit in red.          |
| 7   | Unit Conduction Time             | Setting/display | Displays the monitor value and present value of the Unit conduction time. Can also be used to set the monitor value. The present value cannot be set. If the present value is greater than the monitor value, the present value display field will flash in red and <i>Unit Maintenance</i> in the <i>Unit Status</i> area will be lit in red.   |
| 8   | Unit Status                      | Display         | Displays the Unit status flags. Status flags will be lit red when there is an error. Refer to the <i>User's Manual</i> for the Unit (I539) for details on each item.   |

|    |                          |                     |  |
|----|--------------------------|---------------------|--|
| 9  | Ope. for Comm. Error     | Setting/<br>display | Displays whether motor operation is continued or stopped when a DeviceNet communications error occurs. If the button is pressed, stopping or continuing operation can be selected.   |
| 10 | Last Maintenance Date    | Display             | Displays the last maintenance date registered in the Unit.<br>The value cannot be changed.   |
| 11 | Read                     | Setting             | Pressed to read all of the Unit status from 1 through 10.  |
| 12 | Write                    | Setting             | Writes the Unit name, motor name, network power voltage monitor value, average electric power measurement period, Unit conduction time monitor value, fan operating time monitor value/present value, electrolytic capacitor operating time monitor value/present value, and operation for communications error setting. |
| 13 | Inverter Reset           | Setting             | Always press this button after changing the measurement period for the average electric power. Pressing this button is not necessary after changing other settings. (Executes a software reset for the Inverter.)  |
| 14 | Save Maintenance Counter | Setting             | Writes the maintenance counter information (i.e., the Unit conduction time, fan operating time, electrolytic capacitor operating time, and I/O terminal maintenance counter values) to EEPROM in the DeviceNet Communications Unit.  |
| 15 | Node No.                 | Display             | Displays the node number set for the Unit.   |

**Remarks**

- \* When using this Smart Active Part, be sure to select **Setting - Unit/Scale Setting** in the menu bar and set the scale for number 1000 to 0.1.
- \* Always press the Read Button to read the current settings from the Unit before changing the Unit name, motor name, network power voltage monitor value, average electric power measurement period, Unit conduction time monitor value, fan operating time monitor value/present value, electrolytic capacitor operating time monitor value/present value, and operation for communications error setting. For example, if there is a Configurator on the DeviceNet communications network and settings are changed from the Configurator, the settings displayed at the PT may not agree with those stored in the Unit. This may result in incorrect settings being written from the PT.
- \* Maintenance counter information is written to EEPROM in the DeviceNet Communications Unit approximately every 6 minutes. Depending on the timing of when the power supply is turned OFF, up to 6 minutes worth of data may be lost. For more accurate management, press the Save Maintenance Counter Button just before turning OFF the power supply.
- \* Open the property sheet of this Smart Active Parts in the NS-Designer to set the Communication Setting.

## 1.1.12 Input Status Monitor: 00 to 03

| <b>Unit type</b>   | 3G3MV-PDRT2  | <b>Storage directory</b> | SmartActiveParts_E\Invert or\3G3MV\DeviceNet\DRT_2_Func   | <b>Title</b> | Input Status Monitor: 00 to 03 |             |                                  |  |  |  |  |     |              |      |       |       |  |   |  |   |           |           |   |   |  |   |           |           |     |   |  |   |           |           |   |   |  |   |           |           |  |
|--|--|--------------------------|---|--------------|--------------------------------|-------------|----------------------------------|--|--|--|--|-----|--------------|------|-------|-------|--|---|--|---|-----------|-----------|---|---|--|---|-----------|-----------|-----|---|--|---|-----------|-----------|---|---|--|---|-----------|-----------|--|
| <b>Function</b>  | Displays and sets the status of input terminals 00 to 03 (terminals S1 to S4). |                          |   |              |                                |             |                                  |  |  |  |  |     |              |      |       |       |  |   |  |   |           |           |   |   |  |   |           |           |     |   |  |   |           |           |   |   |  |   |           |           |  |
| <b>Display and Operation Details</b>   |  |                          |   |              |                                |             |                                  |  |  |  |  |     |              |      |       |       |  |   |  |   |           |           |   |   |  |   |           |           |     |   |  |   |           |           |   |   |  |   |           |           |  |
| <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">9<br/>↙</div> <table border="1" style="border-collapse: collapse; text-align: center;"> <tr> <td style="width: 10%;">Node No. 96</td> <td colspan="5">3G3MV Input Status Monitor (T/F)</td> </tr> <tr> <th style="width: 5%;">No.</th> <th style="width: 45%;">I/O Comments</th> <th style="width: 10%;">Mode</th> <th style="width: 15%;">M. V.</th> <th style="width: 15%;">P. V.</th> <th style="width: 10%;"></th> </tr> <tr> <td style="background-color: yellow;">0</td> <td></td> <td style="background-color: lightgreen;">F</td> <td>268435752</td> <td style="background-color: red;">268435752</td> <td>R</td> </tr> <tr> <td style="background-color: yellow;">1</td> <td></td> <td>T</td> <td>268435752</td> <td style="background-color: red;">268435752</td> <td>Clr</td> </tr> <tr> <td style="background-color: yellow;">2</td> <td></td> <td>T</td> <td>268435752</td> <td style="background-color: red;">268435752</td> <td>W</td> </tr> <tr> <td style="background-color: yellow;">3</td> <td></td> <td style="background-color: lightgreen;">F</td> <td>268435752</td> <td style="background-color: red;">268435752</td> <td></td> </tr> </table> <div style="text-align: right;"> <div style="margin-bottom: 5px;">6 ←</div> <div style="margin-bottom: 5px;">7 ←</div> <div style="margin-bottom: 5px;">8 ←</div> </div> </div> |  |                          |   |              |                                | Node No. 96 | 3G3MV Input Status Monitor (T/F) |  |  |  |  | No. | I/O Comments | Mode | M. V. | P. V. |  | 0 |  | F | 268435752 | 268435752 | R | 1 |  | T | 268435752 | 268435752 | Clr | 2 |  | T | 268435752 | 268435752 | W | 3 |  | F | 268435752 | 268435752 |  |
| Node No. 96  | 3G3MV Input Status Monitor (T/F)   |                          |   |              |                                |             |                                  |  |  |  |  |     |              |      |       |       |  |   |  |   |           |           |   |   |  |   |           |           |     |   |  |   |           |           |   |   |  |   |           |           |  |
| No.  | I/O Comments   | Mode                     | M. V.   | P. V.        |                                |             |                                  |  |  |  |  |     |              |      |       |       |  |   |  |   |           |           |   |   |  |   |           |           |     |   |  |   |           |           |   |   |  |   |           |           |  |
| 0  |  | F                        | 268435752   | 268435752    | R                              |             |                                  |  |  |  |  |     |              |      |       |       |  |   |  |   |           |           |   |   |  |   |           |           |     |   |  |   |           |           |   |   |  |   |           |           |  |
| 1  |  | T                        | 268435752   | 268435752    | Clr                            |             |                                  |  |  |  |  |     |              |      |       |       |  |   |  |   |           |           |   |   |  |   |           |           |     |   |  |   |           |           |   |   |  |   |           |           |  |
| 2  |  | T                        | 268435752   | 268435752    | W                              |             |                                  |  |  |  |  |     |              |      |       |       |  |   |  |   |           |           |   |   |  |   |           |           |     |   |  |   |           |           |   |   |  |   |           |           |  |
| 3  |  | F                        | 268435752   | 268435752    |                                |             |                                  |  |  |  |  |     |              |      |       |       |  |   |  |   |           |           |   |   |  |   |           |           |     |   |  |   |           |           |   |   |  |   |           |           |  |
| <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <span>1 ↑</span> <span>2 ↑</span> <span>3 ↑</span> <span>4 ↑</span> <span>5 ↑</span> </div>  |  |                          |   |              |                                |             |                                  |  |  |  |  |     |              |      |       |       |  |   |  |   |           |           |   |   |  |   |           |           |     |   |  |   |           |           |   |   |  |   |           |           |  |
| <b>No.</b>   | <b>Item</b>  | <b>Setting/ display</b>  | <b>Description</b>  |              |                                |             |                                  |  |  |  |  |     |              |      |       |       |  |   |  |   |           |           |   |   |  |   |           |           |     |   |  |   |           |           |   |   |  |   |           |           |  |
| 1  | No.  | Setting/ display         | Displays the number and the ON/OFF status of the input terminal (i.e., bottom half functions as a status indicator). The top half functions as an indicator to display the input terminals for which to reset the maintenance counter present value to zero. Press the number of an input to change the selection status. |              |                                |             |                                  |  |  |  |  |     |              |      |       |       |  |   |  |   |           |           |   |   |  |   |           |           |     |   |  |   |           |           |   |   |  |   |           |           |  |
| 2  | I/O Comments   | Setting/ display         | Displays the I/O comments set for the input terminal. Setting is also possible.   |              |                                |             |                                  |  |  |  |  |     |              |      |       |       |  |   |  |   |           |           |   |   |  |   |           |           |     |   |  |   |           |           |   |   |  |   |           |           |  |
| 3  | Mode   | Setting/ display         | Displays the maintenance mode (time/frequency) set for the input terminal. Can also be used to set the mode.  |              |                                |             |                                  |  |  |  |  |     |              |      |       |       |  |   |  |   |           |           |   |   |  |   |           |           |     |   |  |   |           |           |   |   |  |   |           |           |  |
| 4  | M.V.   | Setting/ display         | Displays the maintenance monitor value. Setting is also possible.   |              |                                |             |                                  |  |  |  |  |     |              |      |       |       |  |   |  |   |           |           |   |   |  |   |           |           |     |   |  |   |           |           |   |   |  |   |           |           |  |
| 5  | P.V.   | Setting/ display         | Displays the present value of the maintenance counter. Setting is also possible. If the present value is larger than the monitor value, the display field will be lit red.  |              |                                |             |                                  |  |  |  |  |     |              |      |       |       |  |   |  |   |           |           |   |   |  |   |           |           |     |   |  |   |           |           |   |   |  |   |           |           |  |
| 6  | R  | Setting                  | Reads the ON/OFF status, I/O comments, maintenance mode, maintenance counter monitor value, and present value for all of the input terminals.   |              |                                |             |                                  |  |  |  |  |     |              |      |       |       |  |   |  |   |           |           |   |   |  |   |           |           |     |   |  |   |           |           |   |   |  |   |           |           |  |
| 7  | Clr  | Setting                  | Resets the maintenance counter present values for items for which the top half of the No. display is lit.   |              |                                |             |                                  |  |  |  |  |     |              |      |       |       |  |   |  |   |           |           |   |   |  |   |           |           |     |   |  |   |           |           |   |   |  |   |           |           |  |
| 8  | W  | Setting                  | Writes the I/O comments, maintenance mode, maintenance counter monitor value, and present value for all of the input terminals.   |              |                                |             |                                  |  |  |  |  |     |              |      |       |       |  |   |  |   |           |           |   |   |  |   |           |           |     |   |  |   |           |           |   |   |  |   |           |           |  |
| 9  | Node No.   | Display                  | Displays the node number set for the Unit.  |              |                                |             |                                  |  |  |  |  |     |              |      |       |       |  |   |  |   |           |           |   |   |  |   |           |           |     |   |  |   |           |           |   |   |  |   |           |           |  |
| <b>Remarks</b>   |  |                          |   |              |                                |             |                                  |  |  |  |  |     |              |      |       |       |  |   |  |   |           |           |   |   |  |   |           |           |     |   |  |   |           |           |   |   |  |   |           |           |  |
| <ul style="list-style-type: none"> <li>* Always press the Read Button to read the current settings from the Unit before changing the I/O comments, maintenance mode, maintenance counter monitor value, and present value. For example, if there is a Configurator on the DeviceNet communications network and settings are changed from the Configurator, the settings displayed at the PT may not agree with those stored in the Unit. This may result in incorrect settings being written from the PT.</li> <li>* Maintenance counter values (number of contact operations and total ON time) are written to EEPROM in the DeviceNet Communications Unit approximately every 6 minutes. Depending on the timing of when the power supply is turned OFF, up to 6 minutes worth of data may be lost. For more accurate management, press the Save Maintenance Counter Button in the Unit Status Monitor Smart Active Part just before turning OFF the power supply.</li> <li>* Open the property sheet of this Smart Active Parts in the NS-Designer to set the Communication Setting.</li> </ul>   |  |                          |   |              |                                |             |                                  |  |  |  |  |     |              |      |       |       |  |   |  |   |           |           |   |   |  |   |           |           |     |   |  |   |           |           |   |   |  |   |           |           |  |

1.1.13 put Status Monitor: 04 to 06

|  |  |                          |   |  |              |                                |
|--|--|--------------------------|---|--|--------------|--------------------------------|
| <b>Unit type</b>   | 3G3MV-PDRT2  | <b>Storage directory</b> | SmartActiveParts_E\Invert or\3G3MV\DeviceNet\DRT 2_Func   |  | <b>Title</b> | Input Status Monitor: 04 to 06 |
| <b>Function</b>  | Displays and sets the status of input terminals 04 to 06 (terminals S5 to S7). |                          |   |  |              |                                |
| <b>Display and Operation Details</b>   |  |                          |   |  |              |                                |
|  |  |                          |   |  |              |                                |
| <b>No.</b>   | <b>Item</b>  | <b>Setting/display</b>   | <b>Description</b>  |  |              |                                |
| 1  | No.  | Setting/display          | Displays the number and the ON/OFF status of the input terminal (i.e., bottom half functions as a status indicator). The top half functions as an indicator to display the input terminals for which to reset the maintenance counter present value to zero. Press the number of an input to change the selection status. |  |              |                                |
| 2  | I/O Comments   | Setting/display          | Displays the I/O comments set for the input terminal. Setting is also possible.   |  |              |                                |
| 3  | Mode   | Setting/display          | Displays the maintenance mode (time/frequency) set for the input terminal. Can also be used to set the mode.  |  |              |                                |
| 4  | M.V.   | Setting/display          | Displays the maintenance monitor value. Setting is also possible.   |  |              |                                |
| 5  | P.V.   | Setting/display          | Displays the present value of the maintenance counter. Setting is also possible. If the present value is larger than the monitor value, the display field will be lit red.  |  |              |                                |
| 6  | R  | Setting                  | Reads the ON/OFF status, I/O comments, maintenance mode, maintenance counter monitor value, and present value for all of the input terminals.   |  |              |                                |
| 7  | Clr  | Setting                  | Resets the maintenance counter present values for items for which the top half of the No. display is lit.   |  |              |                                |
| 8  | W  | Setting                  | Writes the I/O comments, maintenance mode, maintenance counter monitor value, and present value for all of the input terminals.   |  |              |                                |
| 9  | Node No.   | Display                  | Displays the node number set for the Unit.  |  |              |                                |
| <b>Remarks</b>   |  |                          |   |  |              |                                |
| <ul style="list-style-type: none"> <li>* Always press the Read Button to read the current settings from the Unit before changing the I/O comments, maintenance mode, maintenance counter monitor value, and present value. For example, if there is a Configurator on the DeviceNet communications network and settings are changed from the Configurator, the settings displayed at the PT may not agree with those stored in the Unit. This may result in incorrect settings being written from the PT.</li> <li>* Maintenance counter values (number of contact operations and total ON time) are written to EEPROM in the DeviceNet Communications Unit approximately every 6 minutes. Depending on the timing of when the power supply is turned OFF, up to 6 minutes worth of data may be lost. For more accurate management, press the Save Maintenance Counter Button in the Unit Status Monitor Smart Active Part just before turning OFF the power supply.</li> <li>* Open the property sheet of this Smart Active Parts in the NS-Designer to set the Communication Setting.</li> </ul> |  |                          |   |  |              |                                |

## 1.1.14 Output Status Monitor

|   |   |                          |  |  |              |                       |
|---|---|--------------------------|--|--|--------------|-----------------------|
| <b>Unit type</b>  | 3G3MV-PDRT2   | <b>Storage directory</b> | SmartActiveParts_E\Invert or\3G3MV\DeviceNet\DRT_2_Func  |  | <b>Title</b> | Output Status Monitor |
| <b>Function</b>   | Displays and sets the status of output terminals 00 to 02 (terminals MA, MB, P1, and P2). |                          |  |  |              |                       |
| <b>Display and Operation Details</b>  |   |                          |  |  |              |                       |
|   |   |                          |  |  |              |                       |
| <b>No.</b>  | <b>Item</b>   | <b>Setting/display</b>   | <b>Description</b>   |  |              |                       |
| 1   | No.   | Setting/display          | Displays the number and the ON/OFF status of the output terminal (i.e., bottom half functions as a status indicator). The top half functions as an indicator to display the input terminals for which to reset the maintenance counter present value to zero. Press the number of an input to change the selection status. |  |              |                       |
| 2   | I/O Comments  | Setting/display          | Displays the I/O comments set for the output terminal. Setting is also possible.   |  |              |                       |
| 3   | Mode  | Setting/display          | Displays the maintenance mode (time/frequency) set for the output terminal. Can also be used to set the mode.  |  |              |                       |
| 4   | M.V.  | Setting/display          | Displays the maintenance monitor value. Setting is also possible.  |  |              |                       |
| 5   | P.V.  | Setting/display          | Displays the present value of the maintenance counter. Setting is also possible. If the present value is larger than the monitor value, the display field will be lit red.   |  |              |                       |
| 6   | Fault Action  | Setting/display          | Displays whether the output terminal status is held or cleared when a DeviceNet communications error occurs. If the button is pressed, holding or clearing operation can be selected.  |  |              |                       |
| 7   | Read  | Setting                  | Reads all of the data.   |  |              |                       |
| 8   | Write   | Setting                  | Writes the I/O comments, maintenance mode, maintenance counter monitor value, present value, and fault action for all of the output terminals.   |  |              |                       |
| 9   | Clear P.V.  | Setting                  | Resets the maintenance counter present values for items for which the top half of the No. display is lit.  |  |              |                       |
| 10  | Node No.  | Display                  | Displays the node number set for the Unit.   |  |              |                       |
| <b>Remarks</b>  |   |                          |  |  |              |                       |
| <ul style="list-style-type: none"> <li>* When using this Smart Active Part, set the connection path for the Slave's remote I/O function to control I/O remote I/O. If any other setting is used for the remote I/O function, output status cannot be set or monitored.</li> <li>* Always press the Read Button to read the current settings from the Unit before changing the I/O comments, maintenance mode, maintenance counter monitor value, present value, and fault action. For example, if there is a Configurator on the DeviceNet communications network and settings are changed from the Configurator, the settings displayed at the PT may not agree with those stored in the Unit. This may result in incorrect settings being written from the PT.</li> <li>* Maintenance counter values (number of contact operations and total ON time) are written to EEPROM in the DeviceNet Communications Unit approximately every 6 minutes. Depending on the timing of when the power supply is turned OFF, up to 6 minutes worth of data may be lost. For more accurate management, press the Save Maintenance Counter Button in the Unit Status Monitor Smart Active Part just before turning OFF the power supply.</li> <li>* Open the property sheet of this Smart Active Parts in the NS-Designer to set the Communication Setting.</li> </ul> |   |                          |  |  |              |                       |



### 1.1.15 Operation Time Monitor

|   |   |                          |   |              |                        |
|---|---|--------------------------|---|--------------|------------------------|
| <b>Unit type</b>  | 3G3MV-PDRT2   | <b>Storage directory</b> | SmartActiveParts_E\Invert or\3G3MV\DeviceNet\DRT 2_Func   | <b>Title</b> | Operation Time Monitor |
| <b>Function</b>   | Displays and sets the operating time for motors or peripheral devices connected to the 3G3MV. |                          |   |              |                        |
| <b>Display and Operation Details</b>  |   |                          |   |              |                        |
|   |   |                          |   |              |                        |
| <b>No.</b>  | <b>Item</b>   | <b>Setting/display</b>   | <b>Description</b>  |              |                        |
| 1   | No.   | Setting/display          | Displays the number and lights as an indicator if the operating time monitor error and peak value are to be cleared. Press the number of an input to change the selection status.                   |              |                        |
| 2   | Equipment Name  | Setting/display          | Displays the comments set for the equipment being monitored. Setting is also possible.  |              |                        |
| 3   | Mon.Val.  | Setting/display          | Displays the operating time monitor value. Setting is also possible.  |              |                        |
| 4   | Ope. Time   | Display                  | Displays the operating time. If the operating time is larger than the monitor value, the display field will be lit red.   |              |                        |
| 5   | Peak  | Display                  | Displays the peak value of the operating time.  |              |                        |
| 6   | Status Hold   | Setting/display          | Displays whether the status is to be held or cleared (updated) each time when an operating time monitoring error is detected. If the button is pressed, holding or clearing status can be selected. |              |                        |
| 7   | Read  | Setting                  | Reads the equipment name, operating time monitor value, operating time, peak value, and status hold setting for No. 00 to 05.   |              |                        |
| 8   | Write   | Setting                  | Writes the equipment name, operating time monitor value, and status hold setting for No. 00 to 05.  |              |                        |
| 9   | Clear Error   | Setting                  | Clears operating time monitoring errors for items for which the No. display is lit.   |              |                        |
| 10  | Clear Peak  | Setting                  | Resets to zero the items for which the No. display is lit.  |              |                        |
| 11  | Node No.  | Display                  | Displays the node number set for the Unit.  |              |                        |
| <b>Remarks</b>  |   |                          |   |              |                        |
| <ul style="list-style-type: none"> <li>* Always press the Read Button to read the current settings from the Unit before changing the equipment name, operating time monitor value, and status hold setting for No. 00 to 05. For example, if there is a Configurator on the DeviceNet communications network and settings are changed from the Configurator, the settings displayed at the PT may not agree with those stored in the Unit. This may result in incorrect settings being written from the PT.</li> <li>* The setting range for the monitor values is 0 to 65,535 (ms).</li> <li>* Operating time monitoring for No. 00 (terminal MA to terminal S5) and No. 11 (terminal P1 to terminal S6) is valid only if the Slave's remote I/O function is set to control I/O remote I/O. If any other setting is used for the remote I/O function, monitoring will not be possible.</li> <li>* Open the property sheet of this Smart Active Parts in the NS-Designer to set the Communication Setting.</li> </ul> |   |                          |   |              |                        |

1.1.16 Warning Torque Monitor

|   |   |                          |   |              |                        |
|---|---|--------------------------|---|--------------|------------------------|
| <b>Unit type</b>  | 3G3MV-PDRT2   | <b>Storage directory</b> | SmartActiveParts_E\Invert or\3G3MV\DeviceNet\DRT 2_Func   | <b>Title</b> | Warning Torque Monitor |
| <b>Function</b>   | Sets the monitor value and displays the peak current for monitoring error status of the load using the Inverter's current (torque). |                          |   |              |                        |
| <b>Display and Operation Details</b>  |   |                          |   |              |                        |
|   |   |                          |   |              |                        |
| <b>No.</b>  | <b>Item</b>   | <b>Setting/display</b>   | <b>Description</b>  |              |                        |
| 1   | No.   | Display                  | Displays the number of the value to be monitored.   |              |                        |
| 2   | Equipment Name  | Display                  | Displays the name of the value to be monitored.   |              |                        |
| 3   | Mon.Val.  | Setting/display          | Displays the output current monitor value for the output current during acceleration/deceleration and output current monitor value for frequency agreements (constant-speed operation). Setting is also possible.   |              |                        |
| 4   | Peak  | Display                  | Displays the peak current during acceleration/deceleration and peak current during frequency agreement. If the current is larger than the monitor value, a warning torque monitoring error will be detected and the display field will be lit red.        |              |                        |
| 5   | Status Hold   | Setting/display          | Displays whether the status is to be held or cleared (updated) each time when a warning torque monitoring error is detected. If the button is pressed, holding or clearing status can be selected.  |              |                        |
| 6   | Detection Filter  | Setting/display          | Displays the setting of the detection sensitivity used to prevent detection when the monitor value is exceeded only temporarily. Press the button to select the detection sensitivity from level 1 (lowest sensitivity) to level 5 (highest sensitivity). |              |                        |
| 7   | Read  | Setting                  | Reads the warning torque current monitor value, peak value, status hold setting, and detection filter setting for No. 00 to 01.   |              |                        |
| 8   | Write   | Setting                  | Writes the warning torque current monitor value, status hold setting, and detection filter setting for No. 00 to 01.  |              |                        |
| 9   | Clear Error   | Setting                  | Clears warning torque monitoring errors for items for which the peak display field is lit red. (The red displays will go out when the errors are cleared.)  |              |                        |
| 10  | Clear Peak  | Setting                  | Resets the peak values to zero.   |              |                        |
| 11  | Node No.  | Display                  | Displays the node number set for the Unit.  |              |                        |
| <b>Remarks</b>  |   |                          |   |              |                        |
| <ul style="list-style-type: none"> <li>* When using this Smart Active Part, be sure to select <b>Setting - Unit/Scale Setting</b> in the menu bar and set the scale for number 999 to 0.01.</li> <li>* Always press the Read Button to read the current settings from the Unit before changing the warning torque current monitor value, status hold setting, and detection filter setting for No. 00 to 01. For example, if there is a Configurator on the DeviceNet communications network and settings are changed from the Configurator, the settings displayed at the PT may not agree with those stored in the Unit. This may result in incorrect settings being written from the PT.</li> <li>* The setting range for the monitor values is 0.00 to 655.35 (A).</li> <li>* Warning torques will not be detected if the monitor value is set to 0.00 (A).</li> <li>* A detection sensitivity level of 5 (highest sensitivity) does not use a filter. A detection sensitivity level of 1 (lowest sensitivity) detects errors using a moving average of five current value samples.</li> <li>* Open the property sheet of this Smart Active Parts in the NS-Designer to set the Communication Setting.</li> </ul> |   |                          |   |              |                        |

## 1.2 3G3RV

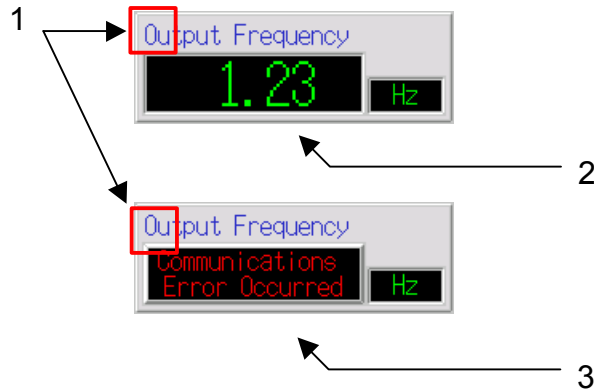
### 1.2.1 Speed Monitoring

|   |   |                          |   |              |                  |
|---|---|--------------------------|---|--------------|------------------|
| <b>Unit type</b>  | 3G3RV   | <b>Storage directory</b> | SmartActiveParts_E\Inverter\3G3RV\Serial(Device Net)\Monitor  | <b>Title</b> | Speed Monitoring |
| <b>Function</b>   | Monitors the speed of the SYSDRIVE 3G3RV-series High-function Compact Inverter in serial connection or connected through the 3G3RV-PDRT2 DeviceNet Communications Unit. The monitoring cycle is adjustable in combination with a PLC program. |                          |   |              |                  |
| <b>Display and Operation Details</b>  |   |                          |   |              |                  |
|   |   |                          |   |              |                  |
| <b>No.</b>  | <b>Item</b>   | <b>Setting/display</b>   | <b>Description</b>  |              |                  |
| 1   | Hidden indicator for trigger use  | Display                  | A trigger indicator used to read the output current from the 3G3RV. This indicator is not displayed on the screen. The value can be read on a regular basis by turning ON and OFF the allocated address from the program in the PLC. The monitor cycle is determined by the program in the PLC. Adjust the cycle according to the communications load. The default address is (Serial A: WR00511.15). Change the address if required. |              |                  |
| 2   | Rotational Speed  | Display                  | Displays the speed read from the 3G3RV.   |              |                  |
| 3   | Communications error display  | Setting/display          | Displays the status of an error if a communications error occurs between the Unit and the 3G3RV. Reading is not performed while this item is displayed. If the recovery of communications is expected, press the displayed part so that reading will be restarted.  |              |                  |
| <b>Remarks</b>  |   |                          |   |              |                  |
| <ul style="list-style-type: none"> <li>* When using this Smart Active Part, select the r/min unit with <b>Parameter o1-03(Frequency Reference Settings/Reference Unit Selection)</b> on the 3G3RV. Specifically, set o1-03 to 2 through 39 (number of motor poles).</li> <li>* The following diagram shows a programming example on the PLC to monitor the value on a regular basis. The 0.1-second clock pulse is allocated to the specified address (Serial A: WR00511.15).</li> </ul>  |   |                          |   |              |                  |
|   |   |                          |   |              |                  |
| ntlp callout: 0.1-s clock pulse   |   |                          |   |              |                  |
| <ul style="list-style-type: none"> <li>* The actual monitor refreshing cycle varies with the number of Smart Active Parts monitored on the screen and the operating conditions of other Smart Active Parts. The refreshing cycle will increase if the number of Smart Active Parts increases.</li> <li>* If the other Smart Active Parts on the screen are in operation, refreshing the monitor will stop. When the operation of the Smart Active Parts stops, refreshing the monitor will restart.</li> <li>* Open the property sheet of this Smart Active Parts in the NS-Designer to set the Communication Setting.</li> </ul> |   |                          |   |              |                  |

## 1.2.2 Output Frequency Monitor

|                  |  |                          |  |              |                          |
|------------------|--|--------------------------|--|--------------|--------------------------|
| <b>Unit type</b> | 3G3RV  | <b>Storage directory</b> | SmartActiveParts_E\Inverter\3G3RV\Serial(Device Net)\Monitor | <b>Title</b> | Output frequency monitor |
| <b>Function</b>  | Monitors the output frequency of the SYSDRIVE 3G3RV-series High-function Compact Inverter in serial connection or connected through the 3G3RV-PDRT2 DeviceNet Communications Unit. The monitoring cycle is adjustable in combination with the PLC program. |                          |  |              |                          |

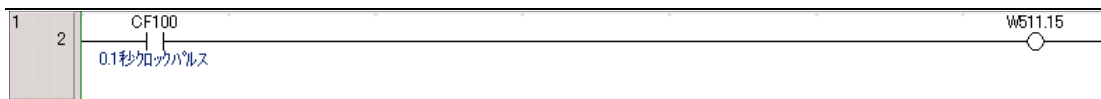
### Display and Operation Details



| No. | Item                             | Setting/display | Description   |
|-----|----------------------------------|-----------------|---|
| 1   | Hidden indicator for trigger use | Display         | A trigger indicator used to read the output frequency from the 3G3RV. This indicator is not displayed on the screen. The value can be read on a regular basis by turning ON and OFF the allocated address from the program in the PLC. The monitor cycle is determined by the program in the PLC. Adjust the cycle according to the communications load. The default address is (Serial A: WR00511.15). Change the address if required. |
| 2   | Output Frequency                 | Display         | Displays the output frequency read from the 3G3RV.  |
| 3   | Communications error display     | Setting/display | Displays the status of an error if a communications error occurs on the 3G3RV. Reading is not performed while this item is displayed. If the recovery of communications is expected, press the displayed part so that reading will be restarted.  |

### Remarks

- \* When using this Smart Active Part, be sure to select **Setting - Unit/Scale Setting** in the menu bar and set the scale for number 999 to 0.1.
- \* When using this Smart Active Part, select the 0.01 Hz unit (default) with **Parameter n035 (Frequency Reference Settings/Reference Unit Selection)** on the 3G3RV. Specifically, set o1-03 to 0.
- \* The following diagram shows a programming example on the PLC to monitor the value on a regular basis. The 0.1-second clock pulse is allocated to the specified address (Serial A: WR00511.15).



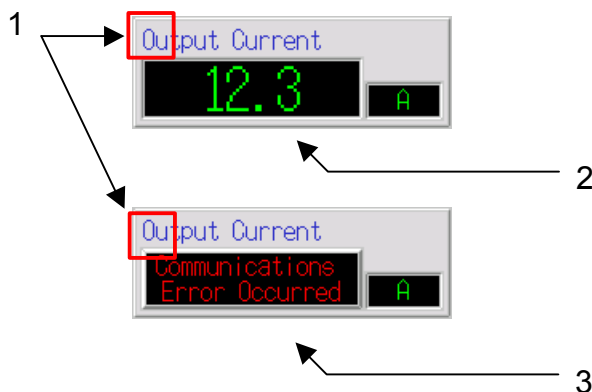
ntlp callout: 0.1-s clock pulse

- \* The actual monitor refreshing cycle varies with the number of Smart Active Parts monitored on the screen and the operating conditions of other Smart Active Parts. The refreshing cycle will increase if the number of Smart Active Parts increases.
- \* If the other Smart Active Parts on the screen are in operation, refreshing the monitor will stop. When the operation of the Smart Active Parts stops, refreshing the monitor will restart.
- \* Open the property sheet of this Smart Active Parts in the NS-Designer to set the Communication Setting.

### 1.2.3 Output Current Monitor

|                  |  |                          |  |              |                        |
|------------------|--|--------------------------|--|--------------|------------------------|
| <b>Unit type</b> | 3G3RV  | <b>Storage directory</b> | SmartActiveParts_E\Inverter\3G3RV\Serial(Device Net)\Monitor | <b>Title</b> | Output current monitor |
| <b>Function</b>  | Monitors the output current of the SYSDRIVE 3G3RV-series High-function Compact Inverter in serial connection or connected through the 3G3RV-PDRT2 DeviceNet Communications Unit. The monitoring cycle is adjustable in combination with the PLC program. |                          |  |              |                        |

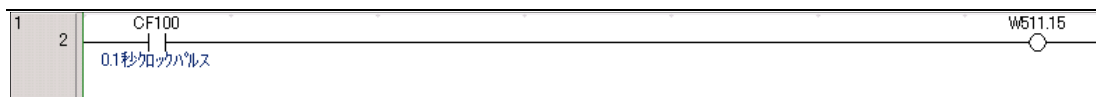
#### Display and Operation Details



| No. | Item                             | Setting/display | Description  |
|-----|----------------------------------|-----------------|--|
| 1   | Hidden indicator for trigger use | Display         | A trigger indicator used to read the output current from the 3G3RV. This indicator is not displayed on the screen. The value can be read on a regular basis by turning the program in the PLC ON and OFF. The monitor cycle is determined by the program in the PLC. Adjust the cycle according to the communications load. The default address is (Serial A: WR00511.15). Change the address if required. |
| 2   | Output Current                   | Display         | Displays the output current read from the 3G3RV.   |
| 3   | Communications error display     | Setting/display | Displays the status of an error if a communications error occurs between the Unit and the 3G3RV. Reading is not performed while this item is displayed. If the recovery of communications is expected, press the displayed part so that reading will be restarted.   |

#### Remarks

- \* When using this Smart Active Part, be sure to select **Setting - Unit/Scale Setting** in the menu bar and set the scale for number 1000 to 0.1.
- \* The following diagram shows a programming example on the PLC to monitor the value on a regular basis. The 0.1-second clock pulse is allocated to the specified address (Serial A: WR00511.15).



nTlp callout: 0.1-s clock pulse

- \* The actual monitor refreshing cycle varies with the number of Smart Active Parts monitored on the screen and the operating conditions of other Smart Active Parts. The refreshing cycle will increase if the number of Smart Active Parts increases.
- \* If the other Smart Active Parts on the screen are in operation, refreshing the monitor will stop. When the operation of the Smart Active Parts stops, refreshing the monitor will restart.
- \* Open the property sheet of this Smart Active Parts in the NS-Designer to set the Communication Setting.

## 1.2.4 Parameter No. 1 to 12 (Unit: Hz)

|                  |   |                          |  |              |                                  |
|------------------|---|--------------------------|--|--------------|----------------------------------|
| <b>Unit type</b> | 3G3RV   | <b>Storage directory</b> | SmartActiveParts_E\Inver for\3G3RV\Serial(Device Net)\Pameters | <b>Title</b> | Parameter No. 1 to 12 (unit: Hz) |
| <b>Function</b>  | Adjusts the parameters of the SYSDRIVE 3G3RV-series High-function Compact Inverter in serial connection or connected through the 3G3RV-PDRT2 DeviceNet Communications Unit. Only the main parameters are extracted from all the parameters. |                          |  |              |                                  |

### Display and Operation Details

| No.   | Constant | Name                        | Default | Set Val. | Unit |
|-------|----------|-----------------------------|---------|----------|------|
| No.1  | b1-02    | Run Command Selection       | 0       | 2        | -    |
| No.2  | b1-01    | Freq.Reference Selection    | 0       | 2        | -    |
| No.3  | C1-01    | Acceleration Time 1         | 10.0    | 0.2      | s    |
| No.4  | C1-02    | Deceleration Time 1         | 10.0    | 0.2      | s    |
| No.5  | d1-01    | Frequency Reference 1       | 0.00    | 0.02     | Hz   |
| No.6  | d1-02    | Frequency Reference 2       | 0.00    | 0.02     | Hz   |
| No.7  | d1-03    | Frequency Reference 3       | 0.00    | 0.02     | Hz   |
| No.8  | d2-02    | Lower Freq. Reference Limit | 0.0     | 0.2      | %    |
| No.9  | E1-10    | Min. Output Freq. Valtage   |         | 0.2      | V    |
| No.10 | L4-01    | Frequency Detection Level   | 0.0     | 0.2      | Hz   |
| No.11 | C4-01    | Torque Compensation Gain    | 1.00    | 0.02     | -    |
| No.12 | C3-01    | Slip Compensation Gain      | 0.0     | 0.2      | -    |

↑ 6
↑ 7
↑ 8

| No. | Item        | Setting/display | Description   |
|-----|-------------|-----------------|---|
| 1   | No.         | Display         | Displays the item numbers from the parameter table.   |
| 2   | Constant    | Display         | Displays constant numbers where the parameters are saved in the 3G3RV.                              |
| 3   | Name        | Display         | Displays descriptions of parameters.  |
| 4   | Default     | Display         | Displays the default value of each parameter (i.e., the default in the 3G3RV).                      |
| 5   | Set Val.    | Setting/display | Displays the set value of each parameter. By pressing the button, the set value can be overwritten. |
| 6   | Read Value  | Setting         | Reads the present value set for each parameter.   |
| 7   | Enable Val. | Setting         | Reflects set descriptions in the operation of the Unit without writing them to the EEPROM.          |
| 8   | Write       | Setting         | Writes set descriptions to the EEPROM and reflects them in the operation of the Unit.               |

### Remarks

- \* When using this Smart Active Part, be sure to select **Setting - Unit/Scale Setting** in the menu bar and set the scale for number 1000 to 0.1 and the scale for number 999 to 0.01.
- \* When using this Smart Active Part, select the 0.01-Hz unit with **Parameter o1-03(Frequency Reference Settings/Reference Unit Selection)** on the 3G3RV. Specifically, set o1-03 to 0. If a unit other than 0.01 Hz is selected, values for parameters d1-01 to d1-03 will not be displayed normally.
- \* After writing the settings, press the Enable Val. button and reflect the setting in the operation of the Unit.
- \* Execute EEPROM Write to save the settings so that they will be stored after the Unit is turned OFF. The settings will be lost if the 3G3RV is turned OFF without writing the settings to EEPROM. EEPROM can be written up to 100,000 times.
- \* For details on the parameters, refer to the *3G3RV Operation Manual*.
- \* Open the property sheet of this Smart Active Parts in the NS-Designer to set the Communication Setting.

### 1.2.5 Parameter No.13 to 24

|                  |   |                          |   |              |                       |
|------------------|---|--------------------------|---|--------------|-----------------------|
| <b>Unit type</b> | 3G3RV   | <b>Storage directory</b> | SmartActiveParts_E\Inverter\3G3RV\Serial(Device Net)\Pameters | <b>Title</b> | Parameter No.13 to 24 |
| <b>Function</b>  | Adjusts the parameters of the SYSDRIVE 3G3RV-series High-function Compact Inverter in serial connection or connected through the 3G3RV-PDRT2 DeviceNet Communications Unit. Only the main parameters are extracted from all the parameters. |                          |   |              |                       |

#### Display and Operation Details

| No.   | Constant | Name                     | Default | Set Val. | Unit |
|-------|----------|--------------------------|---------|----------|------|
| No.13 | b5-01    | PID Control Selection    | 0       | 2        | -    |
| No.14 | b5-02    | Propotional Gain         | 1.00    | 0.02     | -    |
| No.15 | b5-03    | Integral Time            | 1.0     | 0.2      | s    |
| No.16 | b5-05    | Derivative Time          | 0.00    | 0.02     | s    |
| No.17 | b5-07    | PID Offset Adjustment    | 0.0     | 0.2      | %    |
| No.18 | b5-04    | Integral (I) Upper Limit | 100.0   | 0.2      | %    |
| No.19 | b5-08    | PID Primary Delay Time   | 0.00    | 0.02     | s    |
| No.20 | b5-10    | PID Output Gain          | 1.0     | 0.2      | -    |
| No.21 | b8-01    | E. S. Control Selection  | 0       | 1        | -    |
| No.22 | b8-04    | E. S. Coefficient        |         | 0.02     | -    |
| No.23 |          |                          |         | 0        | -    |
| No.24 |          |                          |         | 0        | -    |

Buttons: Read Value, Enable Val., Write

| No. | Item        | Setting/display | Description   |
|-----|-------------|-----------------|---|
| 1   | No.         | Display         | Displays the item numbers from the parameter table.   |
| 2   | Constant    | Display         | Displays constant numbers where the parameters are saved in the 3G3RV.                              |
| 3   | Name        | Display         | Displays descriptions of parameters.  |
| 4   | Default     | Display         | Displays the default value of each parameter (i.e., the default in the 3G3RV).                      |
| 5   | Set Val.    | Setting/display | Displays the set value of each parameter. By pressing the button, the set value can be overwritten. |
| 6   | Read Value  | Setting         | Reads the present value set for each parameter.   |
| 7   | Enable Val. | Setting         | Reflects set descriptions in the operation of the Unit without writing them to the EEPROM.          |
| 8   | Write       | Setting         | Writes set descriptions to the EEPROM and reflects them in the operation of the Unit.               |

#### Remarks

- \* When using this Smart Active Part, be sure to select **Setting - Unit/Scale Setting** in the menu bar and set the scale for number 1000 to 0.1 and the scale for 999 to 0.01.
- \* After writing the settings, press the Enable Val. button and reflect the setting in the operation of the Unit.
- \* Execute EEPROM Write to save the settings so that they will be stored after the Unit is turned OFF. The settings will be lost if the 3G3RV is turned OFF without writing the settings to EEPROM. EEPROM can be written up to 100,000 times.
- \* For details on the parameters, refer to the *3G3RV Operation Manual*.
- \* Open the property sheet of this Smart Active Parts in the NS-Designer to set the Communication Setting.

## 1.2.6 Fan/Pump Basic Adjustment (Unit: Hz)

|                  |  |                          |   |              |                                      |
|------------------|--|--------------------------|---|--------------|--------------------------------------|
| <b>Unit type</b> | 3G3RV  | <b>Storage directory</b> | SmartActiveParts_E\Inverter\3G3RV\Serial(Device Net)\Pameters | <b>Title</b> | Fan/Pump Basic Adjustment (Unit: Hz) |
| <b>Function</b>  | Adjusts the parameters of the SYSDRIVE 3G3RV-series High-function Compact Inverter in serial connection or connected through the 3G3RV-PDRT2 DeviceNet Communications Unit. Only basic parameters used for fan and pump control are extracted. |                          |   |              |                                      |

### Display and Operation Details

| No.  | Constant | Name                        | Default | Set Val. | Unit |
|------|----------|-----------------------------|---------|----------|------|
| No.1 | b1-02    | Run Command Selection       | 0       | 2        | -    |
| No.2 | b1-01    | Freq. Reference Selection   | 0       | 2        | -    |
| No.3 | C1-01    | Acceleration Time 1         | 10.0    | 0.2      | s    |
| No.4 | C1-02    | Deceleration Time 1         | 10.0    | 0.2      | s    |
| No.5 | d1-01    | Frequency Reference 1       | 0.00    | 0.02     | Hz   |
| No.6 | d1-02    | Frequency Reference 2       | 0.00    | 0.02     | Hz   |
| No.7 | d1-03    | Frequency Reference 3       | 0.00    | 0.02     | Hz   |
| No.8 | d2-02    | Lower Freq. Reference Limit | 0.0     | 0.2      | %    |

6
7
8

| No. | Item        | Setting/display | Description   |
|-----|-------------|-----------------|---|
| 1   | No.         | Display         | Displays the item numbers from the parameter table.   |
| 2   | Constant    | Display         | Displays constant numbers where the parameters are saved in the 3G3RV.                              |
| 3   | Name        | Display         | Displays descriptions of parameters.  |
| 4   | Default     | Display         | Displays the default value of each parameter (i.e., the default in the 3G3RV).                      |
| 5   | Set Val.    | Setting/display | Displays the set value of each parameter. By pressing the button, the set value can be overwritten. |
| 6   | Read value  | Setting         | Reads the present value set for each parameter.   |
| 7   | Enable Val. | Setting         | Reflects set descriptions in the operation of the Unit without writing them to the EEPROM.          |
| 8   | Write       | Setting         | Writes set descriptions to the EEPROM and reflects them in the operation of the Unit.               |

### Remarks

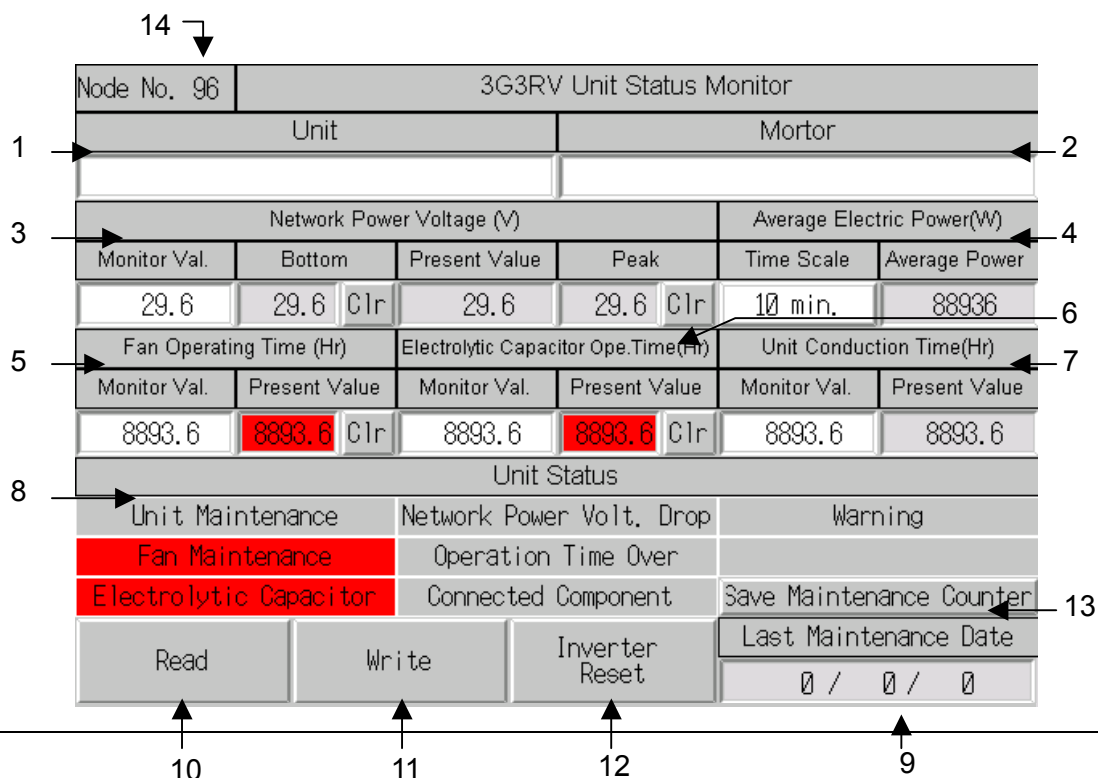
- \* When using this Smart Active Part, be sure to select **Setting - Unit/Scale Setting** in the menu bar and set the scale for number 1000 to 0.1 and the scale for 999 to 0.01.
- \* When using this Smart Active Part, select the 0.01-Hz unit with **Parameter o1-03(Frequency Reference Settings/Reference Unit Selection)** on the 3G3RV. Specifically, set o1-03 to 0. If a unit other than 0.01 Hz is selected, values for parameters d1-01 to d1-03 will not be displayed normally.
- \* After writing the settings, press the Enable Val. button and reflect the setting in the operation of the Unit.
- \* Execute EEPROM Write to save the settings so that they will be stored after the Unit is turned OFF. The settings will be lost if the 3G3RV is turned OFF without writing the settings to EEPROM. EEPROM can be written up to 100,000 times.
- \* For details on the parameters, refer to the *3G3RV Operation Manual*.
- \* Open the property sheet of this Smart Active Parts in the NS-Designer to set the Communication Setting.



### 1.2.7 Unit Status Monitor

|                  |   |                          |   |              |                     |
|------------------|---|--------------------------|---|--------------|---------------------|
| <b>Unit type</b> | 3G3RV-PDRT2   | <b>Storage directory</b> | SmartActiveParts_E\Invert or\3G3RV\DeviceNet\DRT 2_Func | <b>Title</b> | Unit Status Monitor |
| <b>Function</b>  | Monitors Unit status and sets parameters for the 3G3RV-PDRT2 DeviceNet Communications Unit. |                          |   |              |                     |

#### Display and Operation Details



| No. | Item                             | Setting/display | Description  |
|-----|----------------------------------|-----------------|--|
| 1   | Unit                             | Setting/display | Displays the unit name set for the Unit. Can also be used to change the unit name.   |
| 2   | Motor                            | Setting/display | Displays the motor name set for the Unit. Can also be used to change the motor name.   |
| 3   | Network Power Voltage            | Setting/display | Displays the monitor value, minimum value (bottom), present value, and maximum value (peak) of the network power supply voltage. Can also be used to set the monitor value. The minimum and maximum values can be reset to zero by pressing the Clr Buttons. If the present value is less than the monitor value, the present value display field will flash in red and <i>Network Power Volt. Drop</i> in the <i>Unit Status</i> area will be lit in red. |
| 4   | Average Electric Power           | Setting/display | Displays the measurement period set value (Time Scale) and the calculated value of the average power. Can also be used to set the measurement period to 10 min, 30 min, or 1 h.  |
| 5   | Fan Operating Time               | Setting/display | Displays the monitor value and present value of the fan operating time. Can also be used to set the monitor value. The Clr Button can be pressed to reset the present value to zero. Can also be used to set the present value. If the present value is greater than the monitor value, the present value display field will flash in red and <i>Fan Maintenance</i> in the <i>Unit Status</i> area will be lit in red.                                    |
| 6   | Electrolytic Capacitor Ope. Time | Setting/display | Displays the monitor value and present value of the electrolytic capacitor operating time. Can also be used to set the monitor value. The Clr Button can be pressed to reset the present value to zero. Can also be used to set the present value. If the present value is greater than the monitor value, the present value display field will flash in red and <i>Electrolytic Capacitor</i> in the <i>Unit Status</i> area will be lit in red.          |
| 7   | Unit Conduction Time             | Setting/display | Displays the monitor value and present value of the Unit conduction time. Can also be used to set the monitor value. The present value cannot be set. If the present value is greater than the monitor value, the present value display field will flash in red and <i>Unit Maintenance</i> in the <i>Unit Status</i> area will be lit in red.   |
| 8   | Unit Status                      | Display         | Displays the Unit status flags. Status flags will be lit red when there is an error. Refer to the <i>User's Manual</i> for the Unit (I539) for details on each item.   |
| 9   | Last Maintenance Date            | Display         | Displays the last maintenance date registered in the Unit. The value cannot be changed.  |
| 10  | Read                             | Setting         | Pressed to read all of the Unit status from 1 through 10.  |

## Inverter

|    |                          |         |  |
|----|--------------------------|---------|--|
| 11 | Write                    | Setting | Writes the Unit name, motor name, network power voltage monitor value, average electric power measurement period, Unit conduction time monitor value, fan operating time monitor value/present value, electrolytic capacitor operating time monitor value/present value, and operation for communications error setting. |
| 12 | Inverter Reset           | Setting | Always press this button after changing the measurement period for the average electric power. Pressing this button is not necessary after changing other settings. (Executes a software reset for the Inverter.)  |
| 13 | Save Maintenance Counter | Setting | Writes the maintenance counter information (i.e., the Unit conduction time, fan operating time, electrolytic capacitor operating time, and I/O terminal maintenance counter values) to EEPROM in the DeviceNet Communications Unit.  |
| 14 | Node No.                 | Display | Displays the node number set for the Unit.   |

### Remarks

- \* When using this Smart Active Part, be sure to select **Setting - Unit/Scale Setting** in the menu bar and set the scale for number 1000 to 0.1.
- \* Always press the Read Button to read the current settings from the Unit before changing the Unit name, motor name, network power voltage monitor value, average electric power measurement period, Unit conduction time monitor value, fan operating time monitor value/present value, electrolytic capacitor operating time monitor value/present value, and operation for communications error setting. For example, if there is a Configurator on the DeviceNet communications network and settings are changed from the Configurator, the settings displayed at the PT may not agree with those stored in the Unit. This may result in incorrect settings being written from the PT.
- \* Maintenance counter information is written to EEPROM in the DeviceNet Communications Unit approximately every 6 minutes. Depending on the timing of when the power supply is turned OFF, up to 6 minutes worth of data may be lost. For more accurate management, press the Save Maintenance Counter Button just before turning OFF the power supply.
- \* Open the property sheet of this Smart Active Parts in the NS-Designer to set the Communication Setting.

### 1.2.8 Input Status Monitor: 00 to 03

|  |  |                          |   |              |                                |
|--|--|--------------------------|---|--------------|--------------------------------|
| <b>Unit type</b>   | 3G3RV-PDRT2  | <b>Storage directory</b> | SmartActiveParts_E\Invert or\3G3RV\DeviceNet\DRT 2_Func   | <b>Title</b> | Input Status Monitor: 00 to 03 |
| <b>Function</b>  | Displays and sets the status of input terminals 00 to 03 (terminals S1 to S4). |                          |   |              |                                |
| <b>Display and Operation Details</b>   |  |                          |   |              |                                |
|  |  |                          |   |              |                                |
| <b>No.</b>   | <b>Item</b>  | <b>Setting/display</b>   | <b>Description</b>  |              |                                |
| 1  | No.  | Setting/display          | Displays the number and the ON/OFF status of the input terminal (i.e., bottom half functions as a status indicator). The top half functions as an indicator to display the input terminals for which to reset the maintenance counter present value to zero. Press the number of an input to change the selection status. |              |                                |
| 2  | I/O Comments   | Setting/display          | Displays the I/O comments set for the input terminal. Setting is also possible.   |              |                                |
| 3  | Mode   | Setting/display          | Displays the maintenance mode (time/frequency) set for the input terminal. Can also be used to set the mode.  |              |                                |
| 4  | M.V.   | Setting/display          | Displays the maintenance monitor value. Setting is also possible.   |              |                                |
| 5  | P.V.   | Setting/display          | Displays the present value of the maintenance counter. Setting is also possible. If the present value is larger than the monitor value, the display field will be lit red.  |              |                                |
| 6  | R  | Setting                  | Reads the ON/OFF status, I/O comments, maintenance mode, maintenance counter monitor value, and present value for all of the input terminals.   |              |                                |
| 7  | Clr  | Setting                  | Resets the maintenance counter present values for items for which the top half of the No. display is lit.   |              |                                |
| 8  | W  | Setting                  | Writes the I/O comments, maintenance mode, maintenance counter monitor value, and present value for all of the input terminals.   |              |                                |
| 9  | Node No.   | Display                  | Displays the node number set for the Unit.  |              |                                |
| <b>Remarks</b>   |  |                          |   |              |                                |
| <ul style="list-style-type: none"> <li>* Always press the Read Button to read the current settings from the Unit before changing the I/O comments, maintenance counter monitor value, and present value. For example, if there is a Configurator on the DeviceNet communications network and settings are changed from the Configurator, the settings displayed at the PT may not agree with those stored in the Unit. This may result in incorrect settings being written from the PT.</li> <li>* Maintenance counter values (number of contact operations and total ON time) are written to EEPROM in the DeviceNet Communications Unit approximately every 6 minutes. Depending on the timing of when the power supply is turned OFF, up to 6 minutes worth of data may be lost. For more accurate management, press the Save Maintenance Counter Button in the Unit Status Monitor Smart Active Part just before turning OFF the power supply.</li> <li>* Open the property sheet of this Smart Active Parts in the NS-Designer to set the Communication Setting.</li> </ul> |  |                          |   |              |                                |

## 1.2.9 Input Status Monitor: 04 to 06

|  |  |                          |   |              |                                |
|--|--|--------------------------|---|--------------|--------------------------------|
| <b>Unit type</b>   | 3G3RV-PDRT2  | <b>Storage directory</b> | SmartActiveParts_E\Invert or\3G3RV\DeviceNet\DRT 2_Func   | <b>Title</b> | Input Status Monitor: 04 to 06 |
| <b>Function</b>  | Displays and sets the status of input terminals 04 to 06 (terminals S5 to S7). |                          |   |              |                                |
| <b>Display and Operation Details</b>   |  |                          |   |              |                                |
|  |  |                          |   |              |                                |
| <b>No.</b>   | <b>Item</b>  | <b>Setting/display</b>   | <b>Description</b>  |              |                                |
| 1  | No.  | Setting/display          | Displays the number and the ON/OFF status of the input terminal (i.e., bottom half functions as a status indicator). The top half functions as an indicator to display the input terminals for which to reset the maintenance counter present value to zero. Press the number of an input to change the selection status. |              |                                |
| 2  | I/O Comments   | Setting/display          | Displays the I/O comments set for the input terminal. Setting is also possible.   |              |                                |
| 3  | Mode   | Setting/display          | Displays the maintenance mode (time/frequency) set for the input terminal. Can also be used to set the mode.  |              |                                |
| 4  | M.V.   | Setting/display          | Displays the maintenance monitor value. Setting is also possible.   |              |                                |
| 5  | P.V.   | Setting/display          | Displays the present value of the maintenance counter. Setting is also possible. If the present value is larger than the monitor value, the display field will be lit red.  |              |                                |
| 6  | Read   | Setting                  | Reads the ON/OFF status, I/O comments, maintenance mode, maintenance counter monitor value, and present value for all of the input terminals.   |              |                                |
| 7  | Clr  | Setting                  | Resets the maintenance counter present values for items for which the top half of the No. display is lit.   |              |                                |
| 8  | Write  | Setting                  | Writes the I/O comments, maintenance mode, maintenance counter monitor value, and present value for all of the input terminals.   |              |                                |
| 9  | Node No.   | Display                  | Displays the node number set for the Unit.  |              |                                |
| <b>Remarks</b>   |  |                          |   |              |                                |
| <ul style="list-style-type: none"> <li>* Always press the Read Button to read the current settings from the Unit before changing the I/O comments, maintenance mode, maintenance counter monitor value, and present value. For example, if there is a Configurator on the DeviceNet communications network and settings are changed from the Configurator, the settings displayed at the PT may not agree with those stored in the Unit. This may result in incorrect settings being written from the PT.</li> <li>* Maintenance counter values (number of contact operations and total ON time) are written to EEPROM in the DeviceNet Communications Unit approximately every 6 minutes. Depending on the timing of when the power supply is turned OFF, up to 6 minutes worth of data may be lost. For more accurate management, press the Save Maintenance Counter Button in the Unit Status Monitor Smart Active Part just before turning OFF the power supply.</li> <li>* Open the property sheet of this Smart Active Parts in the NS-Designer to set the Communication Setting.</li> </ul> |  |                          |   |              |                                |

### 1.2.10 Output Status Monitor

|   |   |                          |  |              |                       |
|---|---|--------------------------|--|--------------|-----------------------|
| <b>Unit type</b>  | 3G3RV-PDRT2   | <b>Storage directory</b> | SmartActiveParts_E\Invert or\3G3RV\DeviceNet\DRT 2_Func  | <b>Title</b> | Output Status Monitor |
| <b>Function</b>   | Displays and sets the status of output terminals 00 to 02 (terminals M1, M2, P1, and P2). |                          |  |              |                       |
| <b>Display and Operation Details</b>  |   |                          |  |              |                       |
|   |   |                          |  |              |                       |
| <b>No.</b>  | <b>Item</b>   | <b>Setting/display</b>   | <b>Description</b>   |              |                       |
| 1   | No.   | Setting/display          | Displays the number and the ON/OFF status of the output terminal (i.e., bottom half functions as a status indicator). The top half functions as an indicator to display the input terminals for which to reset the maintenance counter present value to zero. Press the number of an input to change the selection status. |              |                       |
| 2   | I/O Comments  | Setting/display          | Displays the I/O comments set for the output terminal. Setting is also possible.   |              |                       |
| 3   | Mode  | Setting/display          | Displays the maintenance mode (time/frequency) set for the output terminal. Can also be used to set the mode.  |              |                       |
| 4   | M.V.  | Setting/display          | Displays the maintenance monitor value. Setting is also possible.  |              |                       |
| 5   | P.V.  | Setting/display          | Displays the present value of the maintenance counter. Setting is also possible. If the present value is larger than the monitor value, the display field will be lit red.   |              |                       |
| 6   | Fault Action  | Setting/display          | Displays whether the output terminal status is held or cleared when a DeviceNet communications error occurs. If the button is pressed, holding or clearing operation can be selected.  |              |                       |
| 7   | Read  | Setting                  | Reads all of the data.   |              |                       |
| 8   | Write   | Setting                  | Writes the I/O comments, maintenance mode, maintenance counter monitor value, present value, and fault action for all of the output terminals.   |              |                       |
| 9   | Clear P.V.  | Setting                  | Resets the maintenance counter present values for items for which the top half of the No. display is lit.  |              |                       |
| 10  | Node No.  | Display                  | Displays the node number set for the Unit.   |              |                       |
| <b>Remarks</b>  |   |                          |  |              |                       |
| <ul style="list-style-type: none"> <li>* When using this Smart Active Part, set the connection path for the Slave's remote I/O function to control I/O remote I/O. If any other setting is used for the remote I/O function, output status cannot be set or monitored.</li> <li>* Always press the Read Button to read the current settings from the Unit before changing the I/O comments, maintenance mode, maintenance counter monitor value, present value, and fault action. For example, if there is a Configurator on the DeviceNet communications network and settings are changed from the Configurator, the settings displayed at the PT may not agree with those stored in the Unit. This may result in incorrect settings being written from the PT.</li> <li>* Maintenance counter values (number of contact operations and total ON time) are written to EEPROM in the DeviceNet Communications Unit approximately every 6 minutes. Depending on the timing of when the power supply is turned OFF, up to 6 minutes worth of data may be lost. For more accurate management, press the Save Maintenance Counter Button in the Unit Status Monitor Smart Active Part just before turning OFF the power supply.</li> <li>* Open the property sheet of this Smart Active Parts in the NS-Designer to set the Communication Setting.</li> </ul> |   |                          |  |              |                       |

1.2.11 Operation Time Monitor

|   |   |                          |   |              |                        |
|---|---|--------------------------|---|--------------|------------------------|
| <b>Unit type</b>  | 3G3RV-PDRT2   | <b>Storage directory</b> | SmartActiveParts_E\Invert or\3G3RV\DeviceNet\DRT 2_Func   | <b>Title</b> | Operation Time Monitor |
| <b>Function</b>   | Displays and sets the operating time for motors or peripheral devices connected to the 3G3RV. |                          |   |              |                        |
| <b>Display and Operation Details</b>  |   |                          |   |              |                        |
|   |   |                          |   |              |                        |
| <b>No.</b>  | <b>Item</b>   | <b>Setting/display</b>   | <b>Description</b>  |              |                        |
| 1   | No.   | Setting/display          | Displays the number and lights as an indicator if the operating time monitor error and peak value are to be cleared. Press the number of an input to change the selection status.                   |              |                        |
| 2   | Equipment Name  | Setting/display          | Displays the comments set for the equipment being monitored. Setting is also possible.  |              |                        |
| 3   | Mon.Val.  | Setting/display          | Displays the operating time monitor value. Setting is also possible.  |              |                        |
| 4   | Ope. Time   | Display                  | Displays the operating time. If the operating time is larger than the monitor value, the display field will be lit red.   |              |                        |
| 5   | Peak  | Display                  | Displays the peak value of the operating time.  |              |                        |
| 6   | Status Hold   | Setting/display          | Displays whether the status is to be held or cleared (updated) each time when an operating time monitoring error is detected. If the button is pressed, holding or clearing status can be selected. |              |                        |
| 7   | Read  | Setting                  | Reads the equipment name, operating time monitor value, operating time, peak value, and status hold setting for No. 00 to 05.   |              |                        |
| 8   | Write   | Setting                  | Writes the equipment name, operating time monitor value, and status hold setting for No. 00 to 05.  |              |                        |
| 9   | Clear Error   | Setting                  | Clears operating time monitoring errors for items for which the No. display is lit.   |              |                        |
| 10  | Clear Peak  | Setting                  | Resets to zero the items for which the No. display is lit.  |              |                        |
| 11  | Node No.  | Display                  | Displays the node number set for the Unit.  |              |                        |
| <b>Remarks</b>  |   |                          |   |              |                        |
| <ul style="list-style-type: none"> <li>* Always press the Read Button to read the current settings from the Unit before changing the equipment name, operating time monitor value, and status hold setting for No. 00 to 05. For example, if there is a Configurator on the DeviceNet communications network and settings are changed from the Configurator, the settings displayed at the PT may not agree with those stored in the Unit. This may result in incorrect settings being written from the PT.</li> <li>* The setting range for the monitor values is 0 to 65,535 (ms).</li> <li>* Operating time monitoring for No. 00 (terminal M1 to terminal S5) and No. 11 (terminal P1 to terminal S6) is valid only if the Slave's remote I/O function is set to control I/O remote I/O. If any other setting is used for the remote I/O function, monitoring will not be possible.</li> <li>* Open the property sheet of this Smart Active Parts in the NS-Designer to set the Communication Setting.</li> </ul> |   |                          |   |              |                        |

### 1.2.12 Warning Torque Monitor

|   |   |                          |   |              |                        |
|---|---|--------------------------|---|--------------|------------------------|
| <b>Unit type</b>  | 3G3RV-PDRT2   | <b>Storage directory</b> | SmartActiveParts_E\Invert or\3G3RV\DeviceNet\DRT 2_Func   | <b>Title</b> | Warning Torque Monitor |
| <b>Function</b>   | Sets the monitor value and displays the peak current for monitoring error status of the load using the Inverter's current (torque). |                          |   |              |                        |
| <b>Display and Operation Details</b>  |   |                          |   |              |                        |
|   |   |                          |   |              |                        |
| <b>No.</b>  | <b>Item</b>   | <b>Setting/ display</b>  | <b>Description</b>  |              |                        |
| 1   | No.   | Display                  | Displays the number of the value to be monitored.   |              |                        |
| 2   | Equipment Name  | Display                  | Displays the name of the value to be monitored.   |              |                        |
| 3   | Mon.Val.  | Setting/ display         | Displays the output current monitor value for the output current during acceleration/deceleration and output current monitor value for frequency agreements (constant-speed operation). Setting is also possible.   |              |                        |
| 4   | Peak  | Display                  | Displays the peak current during acceleration/deceleration and peak current during frequency agreement. If the current is larger than the monitor value, a warning torque monitoring error will be detected and the display field will be lit red.        |              |                        |
| 5   | Status Hold   | Setting/ display         | Displays whether the status is to be held or cleared (updated) each time when a warning torque monitoring error is detected. If the button is pressed, holding or clearing status can be selected.  |              |                        |
| 6   | Detection Filter  | Setting/ display         | Displays the setting of the detection sensitivity used to prevent detection when the monitor value is exceeded only temporarily. Press the button to select the detection sensitivity from level 1 (lowest sensitivity) to level 5 (highest sensitivity). |              |                        |
| 7   | Read  | Setting                  | Reads the warning torque current monitor value, peak value, status hold setting, and detection filter setting for No. 00 to 01.   |              |                        |
| 8   | Write   | Setting                  | Writes the warning torque current monitor value, status hold setting, and detection filter setting for No. 00 to 01.  |              |                        |
| 9   | Clear Error   | Setting                  | Clears warning torque monitoring errors for items for which the peak display field is lit red. (The red displays will go out when the errors are cleared.)  |              |                        |
| 10  | Clear Peak  | Setting                  | Resets the peak values to zero.   |              |                        |
| 11  | Node No.  | Display                  | Displays the node number set for the Unit.  |              |                        |
| <b>Remarks</b>  |   |                          |   |              |                        |
| <ul style="list-style-type: none"> <li>* When using this Smart Active Part, be sure to select <b>Setting - Unit/Scale Setting</b> in the menu bar and set the scale for number 999 to 0.01.</li> <li>* Always press the Read Button to read the current settings from the Unit before changing the warning torque current monitor value, status hold setting, and detection filter setting for No. 00 to 01. For example, if there is a Configurator on the DeviceNet communications network and settings are changed from the Configurator, the settings displayed at the PT may not agree with those stored in the Unit. This may result in incorrect settings being written from the PT.</li> <li>* The setting range for the monitor values is 0.00 to 655.35 (A).</li> <li>* Warning torques will not be detected if the monitor value is set to 0.00 (A).</li> <li>* A detection sensitivity level of 5 (highest sensitivity) does not use a filter. A detection sensitivity level of 1 (lowest sensitivity) detects errors using a moving average of five current value samples.</li> <li>* Open the property sheet of this Smart Active Parts in the NS-Designer to set the Communication Setting.</li> </ul> |   |                          |   |              |                        |

# Servo Driver

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## 1.1 R88D-WT/R7D-AP

### 1.1.1 Present Value Monitor

|   |   |                          |   |              |                       |
|---|---|--------------------------|---|--------------|-----------------------|
| <b>Unit Type</b>  | R88D-WT<br>R7D-AP   | <b>Storage directory</b> | SmartActiveParts_E\ServoDriver  | <b>Title</b> | Present value monitor |
| <b>Function</b>   | The present value of up to 16 servo drivers (W series, and Smart step) connected in a serial connection can be read by setting the node no. and selecting the data type. If the servo driver is not connected or has a communication error, the data will not be read or set. |                          |   |              |                       |
| <b>Display and Operation Details</b>  |   |                          |   |              |                       |
|   |   |                          |   |              |                       |
| <b>No.</b>  | <b>Item</b>   | <b>Setting/display</b>   | <b>Description</b>  |              |                       |
| 1   | Hidden indicator for trigger use  | Display                  | A trigger indicator used to refresh the present value. The indicator is not displayed on the NS hardware. The data can be periodically refreshed by turning ON and OFF the allocated address from the program in the PLC. The program in the PLC determines the monitor cycle, so please adjust it according to the communications load. The set address is [SerialA:WR00511.15]. Change the address if required. Data refreshment will start only after the unit communicates normally with the set node no. Switching a screen can also refresh the data. |              |                       |
| 2   | Node No.  | Setting                  | Sets the node no. to be displayed.  |              |                       |
| 3   | Present value   | Display                  | Sets the present value.   |              |                       |
| 4   | Data type   | Setting                  | Selects a data type to display the type and the unit. (The Unit is displayed to the right of the present value.)  |              |                       |
| <b>Remarks</b>  |   |                          |   |              |                       |
| * When using this Smart Active Parts, be sure to select <b>Setting - System Setting</b> in the menu bar, press the <b>System Memory List</b> on the Initial Tab Page, and select <b>Basic Operation</b> for \$SB. The Smart Active Parts cannot be used on the pop-up screen. |   |                          |   |              |                       |

## 1.1.2 Parameter Setting

|   |  |                          |   |              |                   |
|---|--|--------------------------|---|--------------|-------------------|
| <b>Unit type</b>  | R88D-WT<br>R7D-AP  | <b>Storage directory</b> | SmartActiveParts_E\ServoDriver  | <b>Title</b> | Parameter setting |
| <b>Function</b>   | Details of the parameter of up to 16 Servo drivers (W series, and Smart step) connected in a serial connection can be read and set by specifying the node no. If the Servo driver is not connected or has a communication error, the data will not be read or set. |                          |   |              |                   |
| <b>Display and Operation Details</b>  |  |                          |   |              |                   |
|   |  |                          |   |              |                   |
| <b>No.</b>  | <b>Item</b>  | <b>Setting/display</b>   | <b>Description</b>  |              |                   |
| 1   | Node No.   | Setting                  | Sets the Node no.   |              |                   |
| 2   | Parameter No.  | Setting                  | Set the parameter no.   |              |                   |
| 3   | Set value  | Setting/Display          | Displays the set value read from the servo driver parameter. The value can be overwritten.  |              |                   |
| 4   | Parameter Size   | Display                  | Displays parameter size (fixed to 2).   |              |                   |
| 5   | Transferring   | Display                  | It will flash when the communication is in progress.  |              |                   |
| 6   | Write  | Setting                  | Writes the settings to the RAM in the servo driver parameter no. Writes the set value in the last three digits of the parameter address.  |              |                   |
| 7   | Read   | Setting                  | Reads the details of servo driver parameter number either from RAM or EEPROM and displays to the set value.<br>Parameter No.: 0xxx(when the high order digit is 0) reads from the RAM area.<br>1xxx(when the high order digit is 1) reads from the EEPROM |              |                   |
| 8   | Save   | Setting                  | Writes the set value to the EEPROM of servo driver parameter no.<br>Writes the set value in the last three digits of the parameter address.   |              |                   |
| <b>Remarks</b>  |  |                          |   |              |                   |
| * If the gain setting rotary switch on the smart step is not set to 0, a certain parameter cannot be written to EEPROM. |  |                          |   |              |                   |
| * Refer to the <i>Unit Manual</i> for details on Parameter.   |  |                          |   |              |                   |

## 1.1.3 Servo Driver Adjustment

|  |   |                          |  |              |                         |
|--|---|--------------------------|--|--------------|-------------------------|
| <b>Unit type</b>   | R88D-WT<br>R7D-AP   | <b>Storage directory</b> | SmartActiveParts_E\ServoDriver   | <b>Title</b> | Servo driver adjustment |
| <b>Function</b>  | Details of up to 16 servo drivers (W series, and Smart step) connected in a serial connection can be read and set by setting the node number and selecting the parameter name. If the servo driver is not connected or has a communication error, the data will not be read or set. |                          |  |              |                         |
| <b>Display and Operation Details</b>   |   |                          |  |              |                         |
|  |   |                          |  |              |                         |
| <b>No.</b>   | <b>Item</b>   | <b>Setting/display</b>   | <b>Description</b>   |              |                         |
| 1  | Node No.  | Setting                  | Sets the node no.  |              |                         |
| 2  | Set value   | Setting/display          | Displays the set value read from the servo driver parameter. The value can be overwritten.                       |              |                         |
| 3  | Parameter name  | Setting                  | Selects the parameter name to be displayed and the unit. (Unit is displayed outside of the setting value frame.) |              |                         |
| 4  | +   | Setting                  | Increases the setting value.   |              |                         |
| 5  | -   | Setting                  | Decreases the setting value.   |              |                         |
| 6  | Transferring  | Display                  | It will flash when the communication is in progress.   |              |                         |
| 7  | Write   | Setting                  | Writes the setting value to the RAM of a servo driver parameter name.  |              |                         |
| 8  | Read  | Setting                  | Reads the RAM of a servo driver parameter name and displays it in the setting value                              |              |                         |
| 9  | Save  | Setting                  | Writes the setting value to EEPROM of the servo driver name.   |              |                         |
| <b>Remarks</b>   |   |                          |  |              |                         |
| * If the gain setting rotary switch on the smart step is not 0, a certain parameter cannot be written to EEPROM. |   |                          |  |              |                         |
| * Refer to the Unit Manual for details on Parameter.   |   |                          |  |              |                         |

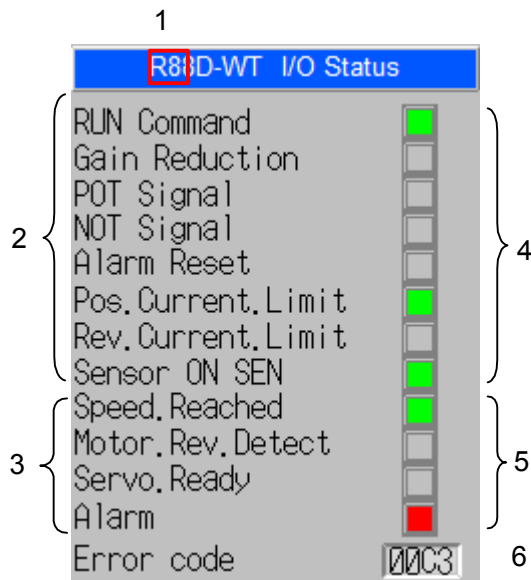
1.1.4 Error Display

|  |   |                          |  |              |               |
|--|---|--------------------------|--|--------------|---------------|
| <b>Unit type</b>   | R88D-WT<br>R7D-AP   | <b>Storage directory</b> | SmartActiveParts_E\ServoDriver   | <b>Title</b> | Error display |
| <b>Function</b>  | By setting the node no, reads error details of the parameter of up to 16 servo drivers (W series, and Smart step) connected in a serial connection. If the servo driver is not connected or has a communication error, the data will not be read. |                          |  |              |               |
| <b>Display and Operation Details</b>   |   |                          |  |              |               |
|  |   |                          |  |              |               |
| <b>No.</b>   | <b>Item</b>   | <b>Setting/display</b>   | <b>Description</b>   |              |               |
| 1  | Hidden indicator for trigger use  | Display                  | A trigger indicator used to refresh the error lamp and the error code. The indicator is not displayed on the NS hardware. The value can be periodically refreshed by turning ON and OFF the allocated address from the program in the PLC. The program in the PLC determines the monitor cycle, so please adjust it according to the communications load. The set address is [SerialA:WR00511.15]. Change the address if required. Data refreshment will start only after the unit communicates normally with the set node no. Switching a screen can also refresh the data. |              |               |
| 2  | Node No.  | Setting                  | Sets the node no. to be displayed.   |              |               |
| 3  | Error   | Display                  | It will flash when an error occurs.  |              |               |
| 4  | Error code  | Display                  | Shows the error code when an error occurs. (0000 is displayed when it operates normally.)  |              |               |
| 5  | Error reset   | Setting                  | Resets the developing error for the servo driver.  |              |               |
| <b>Remarks</b>   |   |                          |  |              |               |
| * When using this Smart Active Parts, be sure to select <b>Setting - System Setting</b> in the menu bar, press the <b>System Memory List</b> on the Initial Tab Page, and select <b>Basic Operation</b> for \$SB. The Smart Active Part cannot be used on the pop-up screen. |   |                          |  |              |               |

## 1.1.5 I/O Status Monitor 1 (NS Hardware)

|                  |   |                          |                                |              |                                    |
|------------------|---|--------------------------|--------------------------------|--------------|------------------------------------|
| <b>Unit type</b> | R88D-WT   | <b>Storage directory</b> | SmartActiveParts_E\ServoDriver | <b>Title</b> | I/O Status monitor 1 (NS Hardware) |
| <b>Function</b>  | Monitors the I/O status of up to 16 servo drivers (W series) connected in a serial connection. If the servo driver is not connected or has a communication error, the data will not be monitored. |                          |                                |              |                                    |

### Display and Operation Details



| No. | Item                             | Setting/display                            | Description  |     |            |              |   |        |  |   |        |               |   |        |               |   |        |               |   |        |               |   |        |               |   |        |               |   |       |              |
|-----|----------------------------------|--|--|-----|------------|--------------|---|--------|--|---|--------|---------------|---|--------|---------------|---|--------|---------------|---|--------|---------------|---|--------|---------------|---|--------|---------------|---|-------|--------------|
| 1   | Hidden indicator for trigger use | Display                                    | A trigger indicator used to refresh the I/O status monitor. The indicator is not displayed on the NS hardware. The value can be periodically refreshed by turning ON and OFF the allocated address from the program in the PLC. The program in the PLC determines the monitor cycle, so please adjust it according to the communications load. The set address [SerialA:WR00511.15]. Change the address if required.<br>Data refreshment will start only after the unit communicates normally with the set node no.<br>Switching a screen can also refresh the data.   |     |            |              |   |        |  |   |        |               |   |        |               |   |        |               |   |        |               |   |        |               |   |        |               |   |       |              |
| 2   | Input signal I/O status name     | Display                                    | Displays the input signal I/O status name.   |     |            |              |   |        |  |   |        |               |   |        |               |   |        |               |   |        |               |   |        |               |   |        |               |   |       |              |
| 3   | Output signal I/O status name    | Display                                    | Displays the output signal I/O status name.  |     |            |              |   |        |  |   |        |               |   |        |               |   |        |               |   |        |               |   |        |               |   |        |               |   |       |              |
| 4   | Input signal I/O lamp            | Display                                    | It will flash when the input signal is ON.<br>Lamps are allocated in the following order.<br>Please refer to the allocation below. <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>No.</th> <th>Pin for CN</th> <th>Name display</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>CN1-40</td> <td>Allocated between Pn50A to Pn50D and Pn513</td> </tr> <tr> <td>2</td> <td>CN1-41</td> <td>Same as above</td> </tr> <tr> <td>3</td> <td>CN1-42</td> <td>Same as above</td> </tr> <tr> <td>4</td> <td>CN1-43</td> <td>Same as above</td> </tr> <tr> <td>5</td> <td>CN1-44</td> <td>Same as above</td> </tr> <tr> <td>6</td> <td>CN1-45</td> <td>Same as above</td> </tr> <tr> <td>7</td> <td>CN1-46</td> <td>Same as above</td> </tr> <tr> <td>8</td> <td>CN1-4</td> <td>Fixed to SEN</td> </tr> </tbody> </table> | No. | Pin for CN | Name display | 1 | CN1-40 | Allocated between Pn50A to Pn50D and Pn513 | 2 | CN1-41 | Same as above | 3 | CN1-42 | Same as above | 4 | CN1-43 | Same as above | 5 | CN1-44 | Same as above | 6 | CN1-45 | Same as above | 7 | CN1-46 | Same as above | 8 | CN1-4 | Fixed to SEN |
| No. | Pin for CN                       | Name display                               |  |     |            |              |   |        |  |   |        |               |   |        |               |   |        |               |   |        |               |   |        |               |   |        |               |   |       |              |
| 1   | CN1-40                           | Allocated between Pn50A to Pn50D and Pn513 |  |     |            |              |   |        |  |   |        |               |   |        |               |   |        |               |   |        |               |   |        |               |   |        |               |   |       |              |
| 2   | CN1-41                           | Same as above                              |  |     |            |              |   |        |  |   |        |               |   |        |               |   |        |               |   |        |               |   |        |               |   |        |               |   |       |              |
| 3   | CN1-42                           | Same as above                              |  |     |            |              |   |        |  |   |        |               |   |        |               |   |        |               |   |        |               |   |        |               |   |        |               |   |       |              |
| 4   | CN1-43                           | Same as above                              |  |     |            |              |   |        |  |   |        |               |   |        |               |   |        |               |   |        |               |   |        |               |   |        |               |   |       |              |
| 5   | CN1-44                           | Same as above                              |  |     |            |              |   |        |  |   |        |               |   |        |               |   |        |               |   |        |               |   |        |               |   |        |               |   |       |              |
| 6   | CN1-45                           | Same as above                              |  |     |            |              |   |        |  |   |        |               |   |        |               |   |        |               |   |        |               |   |        |               |   |        |               |   |       |              |
| 7   | CN1-46                           | Same as above                              |  |     |            |              |   |        |  |   |        |               |   |        |               |   |        |               |   |        |               |   |        |               |   |        |               |   |       |              |
| 8   | CN1-4                            | Fixed to SEN                               |  |     |            |              |   |        |  |   |        |               |   |        |               |   |        |               |   |        |               |   |        |               |   |        |               |   |       |              |

| 5   | Output signal I/O status lamp | Display                          | <p>It will flash when the output signal is ON.<br/>Lamps are allocated in the following order.<br/>Please refer to the allocation below.</p> <table border="1"> <thead> <tr> <th>No.</th> <th>Pin for CN</th> <th>Name Display</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>CN1-25</td> <td>Allocated between Pn50E to Pn510</td> </tr> <tr> <td>2</td> <td>CN1-27</td> <td>Same as above</td> </tr> <tr> <td>3</td> <td>CN1-29</td> <td>Same as above</td> </tr> <tr> <td>4</td> <td>CN11-31</td> <td>Fixed to ALARM</td> </tr> </tbody> </table> | No. | Pin for CN | Name Display | 1 | CN1-25 | Allocated between Pn50E to Pn510 | 2 | CN1-27 | Same as above | 3 | CN1-29 | Same as above | 4 | CN11-31 | Fixed to ALARM |
|---|-------------------------------|----------------------------------|---|-----|------------|--------------|---|--------|----------------------------------|---|--------|---------------|---|--------|---------------|---|---------|----------------|
| No.   | Pin for CN                    | Name Display                     |   |     |            |              |   |        |                                  |   |        |               |   |        |               |   |         |                |
| 1   | CN1-25                        | Allocated between Pn50E to Pn510 |   |     |            |              |   |        |                                  |   |        |               |   |        |               |   |         |                |
| 2   | CN1-27                        | Same as above                    |   |     |            |              |   |        |                                  |   |        |               |   |        |               |   |         |                |
| 3   | CN1-29                        | Same as above                    |   |     |            |              |   |        |                                  |   |        |               |   |        |               |   |         |                |
| 4   | CN11-31                       | Fixed to ALARM                   |   |     |            |              |   |        |                                  |   |        |               |   |        |               |   |         |                |
| 6   | Error code                    | Display                          | Shows the error code when an error occurs. (0000 is displayed when it operates normally.)   |     |            |              |   |        |                                  |   |        |               |   |        |               |   |         |                |
| <p><b>Remarks</b></p> <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Setting</b> in the menu bar, press the <b>System Memory List</b> on the Initial Tab Page, and select <b>Basic Operation</b> for \$SB. The Smart Active Part cannot be used on the pop-up screen.</li> <li>* Input output signal I/O status name varies with the servo driver parameter. Please set the parameter to be displayed in advance. However, SEN for the censer on and ALM for the alarm are fixed.</li> <li>* Refer to the <i>Unit Manual</i> for details on Parameter.</li> <li>* When using this device library, be sure to set both the unit no. direction for the communication setting dialog screen and the servo driver node address.</li> </ul> |                               |                                  |   |     |            |              |   |        |                                  |   |        |               |   |        |               |   |         |                |

## 1.1.6 I/O Status 1 (No name)

| Unit type  | R88D-WT   | Storage directory | SmartActiveParts_E\ServoDriver  | Title | I/O Status monitor 1 (No name) |
|--|---|-------------------|---|-------|--------------------------------|
| Function   | Monitors the I/O status of up to 16 servo drivers (W series) connected in a serial connection. If the servo driver is not connected or has a communication error, the data will not be monitored. |                   |   |       |                                |
|  |   |                   |   |       |                                |
| No.  | Item  | Setting/display   | Description   |       |                                |
| 1  | Hidden indicator for trigger use  | Display           | A trigger indicator used to refresh the I/O status monitor. The indicator is not displayed on the NS hardware. The value can be periodically refreshed by turning ON and OFF the allocated address from the program in the PLC. The program in the PLC determines the monitor cycle, so please adjust it according to the communications load. The set address is [SerialA:WR00511.15]. Change the address if required. Data refreshment will start only after the unit communicates normally with the set node no. Switching a screen can also refresh the data. |       |                                |
| 2  | Input signal I/O status lamp  | Display           | It will flash when the input signal is ON.  |       |                                |
| 3  | Output signal I/O status lamp   | Display           | It will flash when the output signal is ON.   |       |                                |
| 4  | Error code  | Display           | Shows the error code when an error occurs. (0000 is displayed when it operates normally.)   |       |                                |
| Remarks  |   |                   |   |       |                                |
| <ul style="list-style-type: none"> <li>* When using this Smart Active Parts, be sure to select <b>Setting - System Setting</b> in the menu bar, press the <b>System Memory List</b> on the Initial Tab Page, and select <b>Basic Operation</b> for \$SB. The Smart Active Parts cannot be used on the pop-up screen.</li> <li>* Set the parameter the same as the one for the I/O status monitor 1(NS hardware), even though the name will not be shown on this screen.</li> <li>* Refer to the <i>Unit Manual</i> for details on Parameter.</li> <li>* When using this device library, be sure to set both the unit no. direction for the communication setting dialog screen and the servo driver node address.</li> </ul> |   |                   |   |       |                                |

1.1.7 I/O Status Monitor 2 (NS Hardware)

|   |   |                          |  |              |                                    |
|---|---|--------------------------|--|--------------|------------------------------------|
| <b>Unit type</b>  | R7D-AP  | <b>Storage directory</b> | SmartActiveParts_E\ServoDriver   | <b>Title</b> | I/O Status Monitor 2 (NS Hardware) |
| <b>Function</b>   | Monitors the I/O status of up to 16 servo drivers (Smart step) connected in a serial connection. If the servo driver is not connected or has a communication error, the data will not be monitored. |                          |  |              |                                    |
| <b>Display and Operation Details</b>  |   |                          |  |              |                                    |
|   |   |                          |  |              |                                    |
| <b>No.</b>  | <b>Item</b>   | <b>Setting/display</b>   | <b>Description</b>   |              |                                    |
| 1   | Hidden indicator for trigger use  | Display                  | A trigger indicator used to refresh the I/O status monitor. The indicator is not displayed on the screen. The value can be periodically refreshed by turning ON and OFF the allocated address from the program in the PLC. The program in the PLC determines the monitor cycle, so please adjust it according to the communications load. The set address is [SerialA:WR00511.15]. Change the address if required. Data refreshment will start only after the unit communicates normally with the set node no. Switching a screen can also refresh the data. |              |                                    |
| 2   | Input signal I/O status lamp  | Display                  | It will flash when the input signal is ON.   |              |                                    |
| 3   | Output signal I/O status lamp   | Display                  | It will flash when the output signal is ON.  |              |                                    |
| 4   | Error code  | Display                  | Shows the error code when an error occurs. (0000 is displayed when it operates normally.)  |              |                                    |
| <b>Remarks</b>  |   |                          |  |              |                                    |
| * When using this SMART Active Part, be sure to select <b>Setting - System Setting</b> in the menu bar, press the <b>System Memory List</b> on the Initial Tab Page, and select <b>Basic Operation</b> for \$SB. The Smart Active Part cannot be used on the pop-up screen. |   |                          |  |              |                                    |
| * When using this device library, be sure to set both the unit no. direction for the communication setting dialog screen and the servo driver node address.   |   |                          |  |              |                                    |



## 1.1.8 I/O Status Monitor 2 (No name)

|   |   |                          |   |              |                                 |
|---|---|--------------------------|---|--------------|---------------------------------|
| <b>Unit type</b>  | R7D-AP  | <b>Storage directory</b> | SmartActiveParts_E\ServoDriver  | <b>Title</b> | I/OS Status Monitor 2 (No name) |
| <b>Function</b>   | Monitors the I/O status of up to 16 servo drivers (Smart step) connected in a serial connection. If the servo driver is not connected or has a communication error, the data will not be monitored. |                          |   |              |                                 |
| <b>Display and Operation Details</b>  |   |                          |   |              |                                 |
|   |   |                          |   |              |                                 |
| <b>No.</b>  | <b>Item</b>   | <b>Setting/display</b>   | <b>Description</b>  |              |                                 |
| 1   | Hidden indicator for trigger use  | Display                  | Triggers to refresh the monitor for I/O status. The value is not displayed on the NS hardware screen. Data can be periodically refreshed by On and OFF of the address allocated to the unit on the PLC. The program in the PLC determines the monitor cycle, so please adjust it according to the communications load. The set address is [SerialA:WR00511.15]. Change the address if required. Data refreshment will start only after the unit communicates normally with the set node no. Switching a screen can also refresh the data. |              |                                 |
| 2   | Input signal I/O status lamp  | Display                  | It will flash when the input signal is ON.  |              |                                 |
| 3   | Output signal I/O status lamp   | Display                  | It will flash when the output signal is ON.   |              |                                 |
| 4   | Error code  | Display                  | Shows the error code when an error occurs. (0000 is displayed when it operates normally.)   |              |                                 |
| <b>Remarks</b>  |   |                          |   |              |                                 |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Setting</b> in the menu bar, press the <b>System Memory List</b> on the Initial Tab Page, and select <b>Basic Operation</b> for \$SB. The Smart Active Part cannot be used on the pop-up screen.</li> <li>* Set a parameter the same as the one for the I/O Status monitor 2(NS hardware), even though its name will not be shown on this screen.</li> <li>* When using this device library, be sure to set both the unit no. direction for the communication setting dialog screen and the servo driver node address.</li> </ul> |   |                          |   |              |                                 |

## Temperature Controller (E5ZN)

# Temperature Controller (E5ZN)

The following table lists the Smart Active Parts for the E5ZN Temperature Controller.

| Setting level  | Temperature Controller type  | Channel  | Smart Active Part name                             |
|--|--|--|--|
| Operation level  | Temperature Controllers with Thermocouples                                     | CH1  | Operation Monitor for Standard Control             |
|  |  |  | Operation Monitor for Heating/Cooling Control      |
|  |  |  | SP and Alarm Settings                              |
|  |  |  | PV Hold Value                                      |
|  |  | CH2  | SP Setting   |
|  |  |  | Operation Monitor for Standard Control             |
|  | Temperature Controllers with Platinum-resistance Thermometers                  | CH1  | Operation Monitor for Heating/Cooling Control      |
|  |  |  | Operation Monitor for Standard Control             |
|  |  |  | SP and Alarm Settings                              |
|  |  |  | PV Hold Value                                      |
|  |  | CH2  | SP Setting   |
|  |  |  | Operation Monitor for Standard Control             |
| Adjustment level   | Temperature Controllers with Thermocouples                                     | CH1  | Manual MV Settings                                 |
|  |  |  | Multi-SP Settings                                  |
|  |  | CH2  | Manual MV Settings                                 |
|  |  |  | Multi-SP Settings                                  |
|  | Temperature Controllers with Platinum-resistance Thermometers                  | CH1  | Manual MV Settings                                 |
|  |  |  | Multi-SP Settings                                  |
|  |  | CH2  | Manual MV Settings                                 |
|  |  |  | Multi-SP Settings                                  |
|  | Temperature Controllers with Thermocouples or Platinum-resistance Thermometers | CH1  | Heater Burnout Detection                           |
|  |  |  | PID Settings                                       |
|  |  |  | Input Shift Values                                 |
|  |  |  | Manual Reset Value                                 |
|  |  |  | Cooling Coefficient, Dead Band, and Control Period |
|  |  | CH2  | Dead Band and Hysteresis                           |
|  |  |  | Heater Burnout Detection                           |
|  |  |  | PID Settings                                       |
|  |  |  | Input Shift Values                                 |
|  |  |  | Manual Reset Value                                 |
| Temperature Controllers with Analog Outputs and Thermocouple Inputs                    | CH1  | Cooling Coefficient, Dead Band, and Control Period |  |
|  |  | Dead Band and Hysteresis                           |  |
|  | CH2  | Manual MV Settings                                 |  |
|  |  | Manual MV Settings                                 |  |
| Temperature Controllers with Analog Outputs and Platinum-resistance Thermometer Inputs | CH1  | Manual MV Settings                                 |  |
|  | CH2  | Manual MV Settings                                 |  |

# Temperature Controller (E5ZN)

| Setting level  | Temperature Controller type   | Channel  | Smart Active Part name  |                             |
|--|---|--|---|-----------------------------|
| Initial setting level                                | Temperature Controllers with Thermocouples  | CH1  | Input 1 Type, Temperature Unit, Scaling, and Decimal Point<br>SP Limits     |                             |
|  |   | CH2  | Input 1 Type, Temperature Unit, Scaling, and Decimal Point<br>SP Limits     |                             |
|  |   | Common   | Transfer Output Upper and Lower Limits                                      |                             |
|  | Temperature Controllers with Platinum-resistance Thermometers                       | CH1  | SP Limits   |                             |
|  |   | CH2  | SP Limits   |                             |
|  |   | Common   | Input 1 Type and Temperature Unit<br>Transfer Output Upper and Lower Limits |                             |
|  | Temperature Controllers with Thermocouple or Platinum-resistance Thermometer Inputs | CH1  | PID or ON/OFF Control   |                             |
|  |   |  | Direct/Reverse Operation  |                             |
|  |   |  | Alarm 1 Type, Open/Close in Alarm, Latch, Hysteresis                        |                             |
|  |   |  | Alarm 2 Type, Open/Close in Alarm, Latch, Hysteresis                        |                             |
|  |   |  | Alarm 3 Type, Open/Close in Alarm, Latch, Hysteresis                        |                             |
|  |   |  | CH2   | PID or ON/OFF Control       |
|  |   | Direct/Reverse Operation                             |   |                             |
|  |   | Alarm 1 Type, Open/Close in Alarm, Latch, Hysteresis |   |                             |
|  |   | Alarm 2 Type, Open/Close in Alarm, Latch, Hysteresis |   |                             |
| Alarm 3 Type, Open/Close in Alarm, Latch, Hysteresis |   |  |   |                             |
| Common   |   | Control Output 1 and 2 Allocations                   |   |                             |
|  |   | Auxiliary Output 1 and 2 Allocations                 |   |                             |
|  | Auxiliary Output 3 and 4 Allocations  |  |   |                             |
|  | Current/Voltage Output  |  |   |                             |
|  | Sensor Error Indicator Used and Input Error Output                                  |  |   |                             |
|  | Operation after Power ON  |  |   |                             |
| Advanced function setting level                      | Temperature Controllers with Thermocouples  | CH1  | SP Ramp   |                             |
|  |   | CH2  | SP Ramp   |                             |
|  | Temperature Controllers with Platinum-resistance Thermometers                       | CH1  | SP Ramp   |                             |
|  |   | CH2  | SP Ramp   |                             |
|  | Temperature Controllers with Thermocouple or Platinum-resistance Thermometer Inputs | CH1  | HBA Used, Latch, Hysteresis   |                             |
|  |   |  | MV Upper/Lower Limits and Input Digital Filter                              |                             |
|  | Temperature Controllers with Thermocouples or Platinum-resistance Thermometers      |  | MV Upper/Lower Limits and Input Digital Filter (Models with Analog Outputs) |                             |
|  |   |  | CH2   | HBA Used, Latch, Hysteresis |
|  |   |  | MV Upper/Lower Limits and Input Digital Filter                              |                             |
|  |   |  | MV Upper/Lower Limits and Input Digital Filter (Models with Analog Outputs) |                             |
|  |   | Common   | Input Shift Type  |                             |
|  |   |  | Number of Multi-SP Uses, Event Input Allocation, Use Multi-SP               |                             |
| Standby Sequence Restart                             |   |  |   |                             |
| $\alpha$   |   |  |   |                             |
| Communications setting level                         |   | Common   | Communications Settings   |                             |

# Temperature Controller (E5ZN)

## 1.1 E5ZN

### 1.1.1 Operation Level

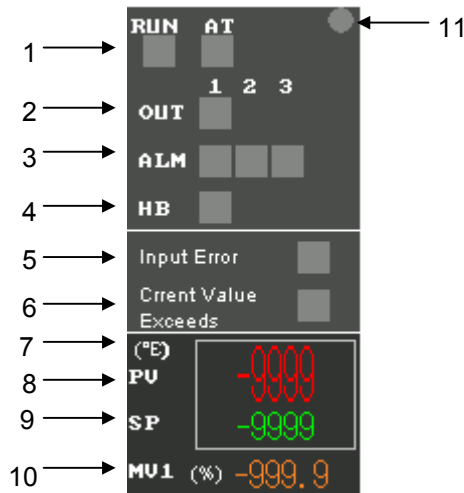
#### (1) Operation Monitor for Standard Control

| Setting level   | Input type                      | Channel | Part |
|-----------------|---------------------------------|---------|------|
| Operation level | Thermocouple input              | CH1     | Yes  |
|                 |                                 | CH2     | Yes  |
|                 |                                 | All CH  | No   |
|                 | Platinum-resistance thermometer | CH1     | Yes  |
|                 |                                 | CH2     | Yes  |
|                 |                                 | All CH  | No   |

|                  |      |                          |  |              |  |
|------------------|------|--------------------------|--|--------------|--|
| <b>Unit type</b> | E5ZN | <b>Storage directory</b> | SmartActiveParts_E\TemperatureController\E5ZN\OperationLevel | <b>Title</b> | Operation Monitor for Standard Control |
|------------------|------|--------------------------|--|--------------|--|

**Function** Continuously monitors operating status on a face plate.

#### Display and Operation Details



| No. | Item                     | Setting/display | Description  |
|-----|--------------------------|-----------------|--|
| 1   | RUN<br>AUTO<br>AT        | Display         | Displays the run/stop, auto/manual, and autotuning status. |
| 2   | OUT                      | Display         | Displays the output status of control outputs 1 and 2.     |
| 3   | ALM                      | Display         | Displays the output status of alarm outputs 1, 2, and 3.   |
| 4   | HB                       | Display         | Displays the heater burnout output status.                 |
| 5   | Input Error              | Display         | Displays the input error status.                           |
| 6   | Current Value Exceeds    | Display         | Displays the status of a current value exceeded error.     |
| 7   | (°C) / (°F)              | Display         | Displays the temperature unit.                             |
| 8   | PV                       | Display         | Displays the process value.                                |
| 9   | SP                       | Display         | Displays the set point.                                    |
| 10  | MV1                      | Display         | Displays the manipulated variable.                         |
| 11  | Display Update Indicator | Display         | Flashes each time the display is updated.                  |

#### Remarks

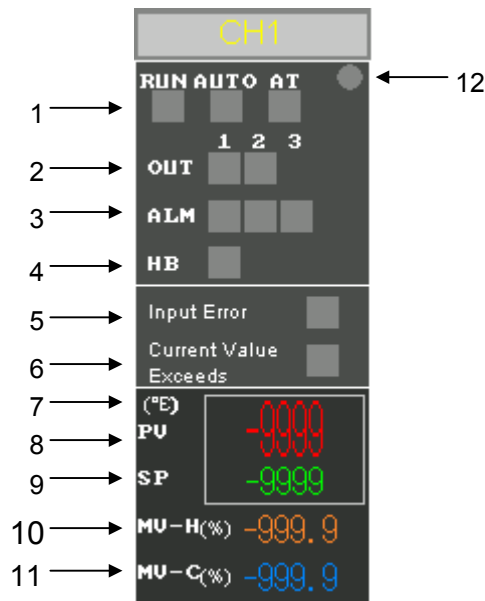
- \* When using this SMART Active Part, be sure to select **Setting - System Settings** in the menu bar, press the **System Memory List** Button on the **Initial Tab** Page, and select **Basics** for the \$SB.
- \* Do not use this SMART Active Part on the initial screen.
- \* Use System version 5 or higher version.

## (2) Operation Monitor for Heating/Cooling Control

| Setting level   | Input type                      | Channel | Part |
|-----------------|---------------------------------|---------|------|
| Operation level | Thermocouple input              | CH1     | Yes  |
|                 |                                 | CH2     | Yes  |
|                 |                                 | All CH  | No   |
|                 | Platinum-resistance thermometer | CH1     | Yes  |
|                 |                                 | CH2     | Yes  |
|                 |                                 | All CH  | No   |

|                  |   |                          |   |              |   |
|------------------|---|--------------------------|---|--------------|---|
| <b>Unit type</b> | E5ZN  | <b>Storage directory</b> | SmartActiveParts_E\<br>TemperatureControl<br>er\E5ZN\OperationLe<br>vel | <b>Title</b> | Operation Monitor for Heating/Cooling Control |
| <b>Function</b>  | Continuously monitors operating status on a face plate. |                          |   |              |   |

### Display and Operation Details



| No. | Item                     | Setting/display | Description  |
|-----|--------------------------|-----------------|--|
| 1   | RUN<br>AUTO<br>AT        | Display         | Displays the run/stop, auto/manual, and autotuning status. |
| 2   | OUT                      | Display         | Displays the output status of control outputs 1 and 2.     |
| 3   | ALM                      | Display         | Displays the output status of alarm outputs 1, 2, and 3.   |
| 4   | HB                       | Display         | Displays the heater burnout output status.                 |
| 5   | Input Error              | Display         | Displays the input error status.                           |
| 6   | Current Value Exceeds    | Display         | Displays the status of a current value exceeded error.     |
| 7   | (°C) / (°F)              | Display         | Displays the temperature unit.                             |
| 8   | PV                       | Display         | Displays the process value.                                |
| 9   | SP                       | Display         | Displays the set point.                                    |
| 10  | MV-H                     | Display         | Displays the manipulated variable for heating.             |
| 11  | MV-C                     | Display         | Displays the manipulated variable for cooling.             |
| 12  | Display Update Indicator | Display         | Flashes each time the display is updated.                  |

### Remarks

- \* When using this SMART Active Part, be sure to select **Setting - System Settings** in the menu bar, press the **System Memory List** Button on the **Initial Tab** Page, and select **Basics** for the \$SB.
- \* Do not use this SMART Active Part on the initial screen.
- \* Use System version 5 or higher version.

# Temperature Controller (E5ZN)

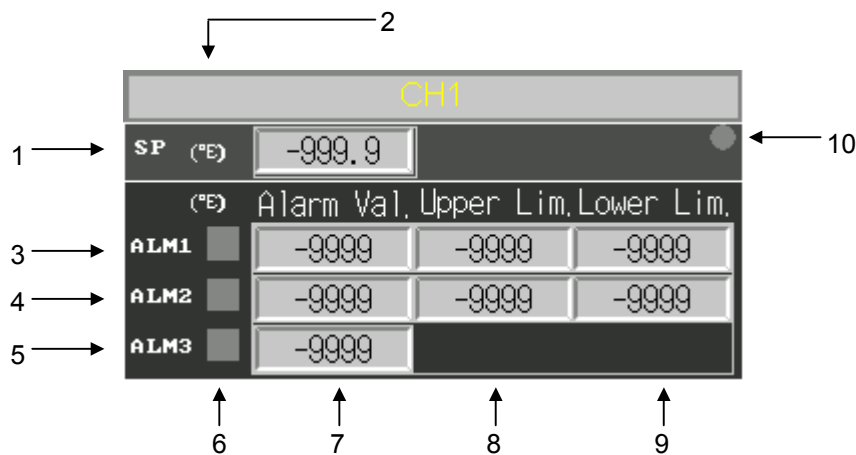
## (3) SP and Alarm Settings

| Setting level   | Input type                      | Channel | Part |
|-----------------|---------------------------------|---------|------|
| Operation level | Thermocouple input              | CH1     | Yes  |
|                 |                                 | CH2     | Yes  |
|                 |                                 | All CH  | No   |
|                 | Platinum-resistance thermometer | CH1     | Yes  |
|                 |                                 | CH2     | Yes  |
|                 |                                 | All CH  | No   |

|                  |      |                          |  |              |                       |
|------------------|------|--------------------------|--|--------------|-----------------------|
| <b>Unit type</b> | E5ZN | <b>Storage directory</b> | SmartActiveParts_E\<br>TemperatureControl<br>ler\E5ZN\OperationLe<br>vel | <b>Title</b> | SP and Alarm Settings |
|------------------|------|--------------------------|--|--------------|-----------------------|

**Function** Sets the set point and the alarm values for outputting alarms.

### Display and Operation Details



| No. | Item                     | Setting/<br>display | Description   |
|-----|--------------------------|---------------------|---|
| 1   | SP                       | Setting             | Sets the set point.   |
| 2   | (°C) / (°F)              | Display             | Displays the temperature unit.  |
| 3   | ALM1                     | -                   | The ALM1 row contains the alarm 1 settings: alarm value, upper limit, and lower limit.  |
| 4   | ALM2                     | -                   | The ALM2 row contains the alarm 2 settings: alarm value, upper limit, and lower limit.  |
| 5   | ALM3                     | -                   | The ALM3 row contains the alarm 3 setting: alarm value.   |
| 6   | Alarm Indicators         | Display             | Displays the output status of alarm outputs 1, 2, and 3.  |
| 7   | Alarm Val.               | Setting             | Sets the alarm value. The alarm value is displayed and can be set when the alarm type is set to anything other than an upper/lower limit alarm. |
| 8   | Upper Lim.               | Setting             | Sets the alarm upper limit. The alarm upper limit is displayed and can be set when the alarm type is set to an upper/lower limit alarm.         |
| 9   | Lower Lim.               | Setting             | Sets the alarm lower limit. The alarm lower limit is displayed and can be set when the alarm type is set to an upper/lower limit alarm.         |
| 10  | Display Update Indicator | Display             | The alarm display indicators are continuously displayed and updated. This indicator flashes each time the data is updated.                      |

### Remarks

- \* When using this SMART Active Part, be sure to select **Setting - System Settings** in the menu bar, press the **System Memory List** Button on the **Initial Tab** Page, and select **Basics** for the \$SB.
- \* Do not use this SMART Active Part on the initial screen.
- \* Use System version 5 or higher version.

## (4) PV Hold Value

| Setting level   | Input type                      | Channel | Part |
|-----------------|---------------------------------|---------|------|
| Operation level | Thermocouple input              | CH1     | Yes  |
|                 |                                 | CH2     | Yes  |
|                 |                                 | All CH  | No   |
|                 | Platinum-resistance thermometer | CH1     | Yes  |
|                 |                                 | CH2     | Yes  |
|                 |                                 | All CH  | No   |

|   |  |                          |  |              |               |
|---|--|--------------------------|--|--------------|---------------|
| <b>Unit type</b>  | E5ZN                                     | <b>Storage directory</b> | SmartActiveParts_E\<br>TemperatureController\E5ZN\OperationLevel   | <b>Title</b> | PV Hold Value |
| <b>Function</b>   | Continuously monitors the PV hold value. |                          |  |              |               |
| <b>Display and Operation Details</b>  |  |                          |  |              |               |
|   |  |                          |  |              |               |
| <b>No.</b>  | <b>Item</b>                              | <b>Setting/display</b>   | <b>Description</b>   |              |               |
| 1   | PV Hold Value                            | Display                  | Displays the PV hold value.  |              |               |
| 2   | °C / °F                                  | Display                  | Displays the temperature unit.   |              |               |
| 3   | Display Update Indicator                 | Display                  | The PV hold value is continuously displayed and updated. This indicator flashes each time the data is updated. |              |               |
| <b>Remarks</b>  |  |                          |  |              |               |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |  |                          |  |              |               |



# Temperature Controller (E5ZN)

## (5) SP Setting

| Setting level   | Input type                      | Channel | Part |
|-----------------|---------------------------------|---------|------|
| Operation level | Thermocouple input              | CH1     | Yes  |
|                 |                                 | CH2     | Yes  |
|                 |                                 | All CH  | No   |
|                 | Platinum-resistance thermometer | CH1     | Yes  |
|                 |                                 | CH2     | Yes  |
|                 |                                 | All CH  | No   |

|   |                     |                             |  |              |            |
|---|---------------------|-----------------------------|--|--------------|------------|
| <b>Unit type</b>  | E5ZN                | <b>Storage directory</b>    | SmartActiveParts_E\<br>TemperatureControl<br>ler\E5ZN\OperationLe<br>vel | <b>Title</b> | SP Setting |
| <b>Function</b>   | Sets the set point. |                             |  |              |            |
| <b>Display and Operation Details</b>  |                     |                             |  |              |            |
|   |                     |                             |  |              |            |
| <b>No.</b>  | <b>Item</b>         | <b>Setting/<br/>display</b> | <b>Description</b>   |              |            |
| 1   | SP                  | Setting                     | Sets the set point.  |              |            |
| 2   | (°C) / (°F)         | Display                     | Displays the temperature unit.   |              |            |
| <b>Remarks</b>  |                     |                             |  |              |            |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |                     |                             |  |              |            |

## 1.1.2 Adjustment Level

### (6) Manual MV Settings

There are different the SMART Active Parts for each channel and for Temperature Controllers with Pulse Outputs and Temperature Controllers with Analog Outputs. Be sure to use the correct SMART Active Part.

| Setting level    | Input type                      | Channel | Part |
|------------------|---------------------------------|---------|------|
| Adjustment level | Thermocouple input              | CH1     | Yes  |
|                  |                                 | CH2     | Yes  |
|                  |                                 | All CH  | No   |
|                  | Platinum-resistance thermometer | CH1     | Yes  |
|                  |                                 | CH2     | Yes  |
|                  |                                 | All CH  | No   |

|  |                                       |                          |   |              |                    |
|--|---------------------------------------|--------------------------|---|--------------|--------------------|
| <b>Unit type</b>   | E5ZN                                  | <b>Storage directory</b> | SmartActiveParts_E\TemperatureController\E5ZN\AdjustmentLevel       | <b>Title</b> | Manual MV Settings |
| <b>Function</b>  | Sets the manual manipulated variable. |                          |   |              |                    |
| <b>Display and Operation Details</b>   |                                       |                          |   |              |                    |
|  |                                       |                          |   |              |                    |
| <b>No.</b>   | <b>Item</b>                           | <b>Setting/display</b>   | <b>Description</b>  |              |                    |
| 1  | PV                                    | Display                  | Displays the process value. The display is updated continuously.    |              |                    |
| 2  | (°C) / (°F)                           | Display                  | Displays the temperature unit.                                      |              |                    |
| 3  | Display Update Indicator              | Display                  | Flashes each time the PV display is updated.                        |              |                    |
| 4  | MV                                    | Setting                  | Sets the manual manipulated variable.                               |              |                    |
| 5  | ▲                                     | Setting                  | Increments the manual manipulated variable by one engineering unit. |              |                    |
| 6  | ▼                                     | Setting                  | Decrements the manual manipulated variable by one engineering unit. |              |                    |
| <b>Remarks</b>   |                                       |                          |   |              |                    |
| * When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB. |                                       |                          |   |              |                    |
| * Do not use this SMART Active Part on the initial screen.   |                                       |                          |   |              |                    |
| * Use System version 5 or higher version.  |                                       |                          |   |              |                    |

# Temperature Controller (E5ZN)

## (7) Multi-SP Settings

| Setting level    | Input type                      | Channel | Part |
|------------------|---------------------------------|---------|------|
| Adjustment level | Thermocouple input              | CH1     | Yes  |
|                  |                                 | CH2     | Yes  |
|                  |                                 | All CH  | No   |
|                  | Platinum-resistance thermometer | CH1     | Yes  |
|                  |                                 | CH2     | Yes  |
|                  |                                 | All CH  | No   |

|  |                          |                          |   |              |                   |
|--|--------------------------|--------------------------|---|--------------|-------------------|
| <b>Unit type</b>   | E5ZN                     | <b>Storage directory</b> | SmartActiveParts_E\<br>TemperatureController\E5ZN\AdjustmentLevel | <b>Title</b> | Multi-SP Settings |
| <b>Function</b>  | Sets set points 0 and 1. |                          |   |              |                   |
| <b>Display and Operation Details</b>   |                          |                          |   |              |                   |
|  |                          |                          |   |              |                   |
| <b>No.</b>   | <b>Item</b>              | <b>Setting/display</b>   | <b>Description</b>  |              |                   |
| 1  | SP0                      | Setting                  | Sets set point 0.   |              |                   |
| 2  | SP1                      | Setting                  | Sets set point 1.   |              |                   |
| 3  | (°C) / (°F)              | Display                  | Displays the temperature unit.                                    |              |                   |
| <b>Remarks</b>   |                          |                          |   |              |                   |
| * When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB. |                          |                          |   |              |                   |
| * Do not use this SMART Active Part on the initial screen.   |                          |                          |   |              |                   |
| * Use System version 5 or higher version.  |                          |                          |   |              |                   |

## (8) Heater Burnout Detection

| Setting level    | Input type                      | Channel | Part |
|------------------|---------------------------------|---------|------|
| Adjustment level | Thermocouple input              | CH1     | Yes  |
|                  | Platinum-resistance thermometer | CH2     | Yes  |
|                  | Common (Common)                 | All CH  | No   |

| Unit type   | E5ZN   | Storage directory   | SmartActiveParts_E\<br>TemperatureControl<br>ler\E5ZN\AdjustmentL<br>evel                   | Title | Heater Burnout Detection |
|---|--|---------------------|---|-------|--------------------------|
| Function  | Monitors the heater burnout current and sets the heater burnout detection value. This SMART Active Part is used for Temperature Controllers with Pulse Outputs.<br>Heater burnout detection will function when the HBA Used parameter is set to ON.<br>The setting is made with a SMART Active Part in the advanced setting level. |                     |   |       |                          |
| Display and Operation Details   |  |                     |   |       |                          |
|   |  |                     |   |       |                          |
| No.   | Item   | Setting/<br>display | Description   |       |                          |
| 1   | Heater Current Val   | Display             | Continuously displays the heater current.   |       |                          |
| 2   | HB   | Display             | Continuously displays the output status for heater burnout detection.                       |       |                          |
| 3   | Heater Burnout Detection   | Setting             | Sets the heater burnout detection value.  |       |                          |
| 4   | HBA Used   | Display             | Displays the setting status (advanced function setting level) for heater burnout detection. |       |                          |
| 5   | Display Update Indicator   | Display             | Flashes each time the heater current or HB display is updated.                              |       |                          |
| Remarks   |  |                     |   |       |                          |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |  |                     |   |       |                          |

# Temperature Controller (E5ZN)

## (9) PID Settings

| Setting level    | Input type                      | Channel | Part |
|------------------|---------------------------------|---------|------|
| Adjustment level | Thermocouple input              | CH1     | Yes  |
|                  | Platinum-resistance thermometer | CH2     | Yes  |
|                  | Common(Common)                  | All CH  | No   |

|   |                         |                             |  |              |              |
|---|-------------------------|-----------------------------|--|--------------|--------------|
| <b>Unit type</b>  | E5ZN                    | <b>Storage directory</b>    | SmartActiveParts_E\<br>TemperatureControl<br>er\E5ZN\AdjustmentL<br>evel | <b>Title</b> | PID Settings |
| <b>Function</b>   | Sets the PID constants. |                             |  |              |              |
| <b>Display and Operation Details</b>  |                         |                             |  |              |              |
|   |                         |                             |  |              |              |
| <b>No.</b>  | <b>Item</b>             | <b>Setting/<br/>display</b> | <b>Description</b>   |              |              |
| 1   | P Value                 | Setting                     | Sets the proportional band.  |              |              |
| 2   | (°C) / (°F)             | Display                     | Displays the temperature unit.   |              |              |
| 3   | I Value                 | Setting                     | Sets the integral time.  |              |              |
| 4   | D Value                 | Setting                     | Sets the derivative time.  |              |              |
| <b>Remarks</b>  |                         |                             |  |              |              |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |                         |                             |  |              |              |

## (10) Input Shift Values

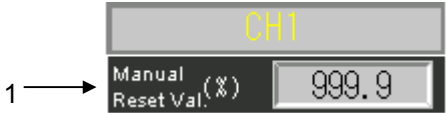
| Setting level    | Input type                      | Channel | Part |
|------------------|---------------------------------|---------|------|
| Adjustment level | Thermocouple input              | CH1     | Yes  |
|                  | Platinum-resistance thermometer | CH2     | Yes  |
|                  | Common(Common)                  | All CH  | No   |

|   |   |                             |  |              |                    |
|---|---|-----------------------------|--|--------------|--------------------|
| <b>Unit type</b>  | E5ZN  | <b>Storage directory</b>    | SmartActiveParts_E\<br>TemperatureControl<br>er\E5ZN\AdjustmentL<br>evel                         | <b>Title</b> | Input Shift Values |
| <b>Function</b>   | Sets the input shift values for the sensor measurement range. |                             |  |              |                    |
| <b>Display and Operation Details</b>  |   |                             |  |              |                    |
|   |   |                             |  |              |                    |
| <b>No.</b>  | <b>Item</b>   | <b>Setting/<br/>display</b> | <b>Description</b>   |              |                    |
| 1   | 1-point shift<br>Input Shift Value                            | Setting                     | Sets the input shift value for a 1-point shift.  |              |                    |
| 2   | 2-point shift<br>Input Shift Value                            | Setting                     | Sets the input shift values for the upper limit and lower limit of the sensor measurement range. |              |                    |
| 3   | (°C) / (°F)   | Display                     | Displays the temperature unit.   |              |                    |
| <b>Remarks</b>  |   |                             |  |              |                    |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |   |                             |  |              |                    |

# Temperature Controller (E5ZN)

## (11) Manual Reset Value

| Setting level    | Input type                      | Channel | Part |
|------------------|---------------------------------|---------|------|
| Adjustment level | Thermocouple input              | CH1     | Yes  |
|                  | Platinum-resistance thermometer | CH2     | Yes  |
|                  | Common(Common)                  | All CH  | No   |

|   |                              |                             |   |              |                    |
|---|------------------------------|-----------------------------|---|--------------|--------------------|
| <b>Unit type</b>  | E5ZN                         | <b>Storage directory</b>    | SmartActiveParts_E\<br>TemperatureControl<br>ler\E5ZN\AdjustmentL<br>evel | <b>Title</b> | Manual Reset Value |
| <b>Function</b>   | Sets the manual reset value. |                             |   |              |                    |
| <b>Display and Operation Details</b>  |                              |                             |   |              |                    |
|   |                              |                             |   |              |                    |
| <b>No.</b>  | <b>Item</b>                  | <b>Setting/<br/>display</b> | <b>Description</b>  |              |                    |
| 1   | Manual Reset Value           | Setting                     | Sets the manual reset value.  |              |                    |
| <b>Remarks</b>  |                              |                             |   |              |                    |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |                              |                             |   |              |                    |

## (12) Cooling Coefficient, Dead Band, and Control Period

| Setting level    | Input type                      | Channel | Part |
|------------------|---------------------------------|---------|------|
| Adjustment level | Thermocouple input              | CH1     | Yes  |
|                  | Platinum-resistance thermometer | CH2     | Yes  |
|                  | Common(Common)                  | All CH  | No   |

|   |  |                          |  |              |  |
|---|--|--------------------------|--|--------------|--|
| <b>Unit type</b>  | E5ZN   | <b>Storage directory</b> | SmartActiveParts_E\<br>TemperatureControl<br>ler\E5ZN\AdjustmentL<br>evel  | <b>Title</b> | Cooling Coefficient, Dead Band, and Control Period |
| <b>Function</b>   | Sets the cooling coefficient, dead band, and control period. |                          |  |              |  |
| <b>Display and Operation Details</b>  |  |                          |  |              |  |
| <p>The screenshot shows a menu titled 'CH1' with the following items and values:</p> <ul style="list-style-type: none"> <li>1 → Cooling Coefficient: 99.99</li> <li>2 → Dead Band: -999.9</li> <li>3 → (°C) / (°F)</li> <li>4 → Control Period Heating (sec): 99</li> <li>5 → Control Period Cooling (sec): 99</li> </ul>   |  |                          |  |              |  |
| <b>No.</b>  | <b>Item</b>  | <b>Setting/display</b>   | <b>Description</b>   |              |  |
| 1   | Cooling Coefficient  | Setting                  | Sets the cooling coefficient for heating/cooling control.  |              |  |
| 2   | Dead Band  | Setting                  | Sets the dead band for heating/cooling control.  |              |  |
| 3   | (°C) / (°F)  | Display                  | Displays the temperature unit.   |              |  |
| 4   | Control Period Heating                                       | Setting                  | Sets the control period for the heating output for heating/cooling control.<br>Sets the control period for standard control. |              |  |
| 5   | Control Period Cooling                                       | Setting                  | Sets the control period for the cooling output for heating/cooling control.  |              |  |
| <b>Remarks</b>  |  |                          |  |              |  |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |  |                          |  |              |  |



# Temperature Controller (E5ZN)

## (13) Dead Band and Hysteresis

| Setting level    | Input type                      | Channel | Part |
|------------------|---------------------------------|---------|------|
| Adjustment level | Thermocouple input              | CH1     | Yes  |
|                  | Platinum-resistance thermometer | CH2     | Yes  |
|                  | Common(Common)                  | All CH  | No   |

|   |   |                          |  |              |                          |
|---|---|--------------------------|--|--------------|--------------------------|
| <b>Unit type</b>  | E5ZN  | <b>Storage directory</b> | SmartActiveParts_E\<br>TemperatureControl<br>ler\E5ZN\AdjustmentL<br>evel  | <b>Title</b> | Dead Band and Hysteresis |
| <b>Function</b>   | Sets the dead band and hysteresis for ON/OFF control. |                          |  |              |                          |
| <b>Display and Operation Details</b>  |   |                          |  |              |                          |
| <p>The screenshot shows a control panel for channel CH1. It has three rows of settings: 'Dead Band' with a value of -999.9, 'Hysteresis Heating' with a value of 999.9, and 'Hysteresis Cooling' with a value of 999.9. Below these is a temperature unit display showing '(°C) / (°F)'. Arrows labeled 1, 2, 3, and 4 point to the Dead Band, Hysteresis Heating, Hysteresis Cooling, and the temperature unit display respectively.</p> |   |                          |  |              |                          |
| <b>No.</b>  | <b>Item</b>   | <b>Setting/display</b>   | <b>Description</b>   |              |                          |
| 1   | Dead Band   | Setting                  | Sets the dead band.  |              |                          |
| 2   | Hysteresis Heating                                    | Setting                  | Sets the hysteresis for the heating output for heating/cooling control.<br>Sets the hysteresis for standard control. |              |                          |
| 3   | Hysteresis Cooling                                    | Setting                  | Sets the hysteresis for the cooling output for heating/cooling control.  |              |                          |
| 4   | (°C) / (°F)   | Display                  | Displays the temperature unit.   |              |                          |
| <b>Remarks</b>  |   |                          |  |              |                          |
| * When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.  |   |                          |  |              |                          |
| * Do not use this SMART Active Part on the initial screen.  |   |                          |  |              |                          |
| * Use System version 5 or higher version.   |   |                          |  |              |                          |

## 1.1.3 Initial Setting Level

### (14) Input 1 Type, Temperature Unit, Scaling, and Decimal Point for Thermocouple Input

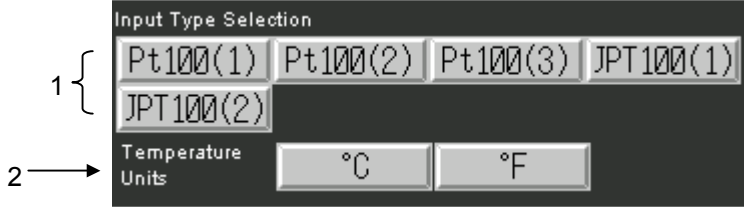
| Setting level         | Input type                      | Channel | Part |
|-----------------------|---------------------------------|---------|------|
| Initial setting level | Thermocouple input              | CH1     | Yes  |
|                       |                                 | CH2     | Yes  |
|                       |                                 | All CH  | No   |
|                       | Platinum-resistance thermometer | CH1     | No   |
|                       |                                 | CH2     | No   |
|                       |                                 | All CH  | No   |

|  |   |                          |   |              |  |
|--|---|--------------------------|---|--------------|--|
| <b>Unit type</b>   | E5ZN  | <b>Storage directory</b> | SmartActiveParts_E\TemperatureController\E5ZN\InitialSettingLevel   | <b>Title</b> | Input 1 Type, Temperature Unit, Scaling, and Decimal Point |
| <b>Function</b>  | Sets the input type and temperature unit for a Temperature Controller with a Thermocouple Input. When an analog input is selected, sets the scaling and decimal point position. |                          |   |              |  |
| <b>Display and Operation Details</b>   |   |                          |   |              |  |
|  |   |                          |   |              |  |
| <b>No.</b>   | <b>Item</b>   | <b>Setting/display</b>   | <b>Description</b>  |              |  |
| 1  | Input Type Selection  | Setting                  | Sets the thermocouple input type. The same input type applies to both channels 1 and 2.   |              |  |
| 2  | Temperature Units   | Setting                  | Sets the temperature unit. The same temperature unit applies to both channels 1 and 2.  |              |  |
| 3  | Scaling<br>Upper Lim.<br>Lower Lim.   | Setting                  | When the input type is set to an analog input (0 to 50 mV), sets the upper and lower limits for scaling. The scaling upper/lower limit settings are made separately for channels 1 and 2. |              |  |
| 4  | Decimal Point Position  | Setting                  | When the input type is set to an analog input (0 to 50 mV), sets the number of places below the decimal point. The decimal point setting is made separately for channels 1 and 2.         |              |  |
| <b>Remarks</b>   |   |                          |   |              |  |
| * When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB. |   |                          |   |              |  |
| * Do not use this SMART Active Part on the initial screen.   |   |                          |   |              |  |
| * Use System version 5 or higher version.  |   |                          |   |              |  |

# Temperature Controller (E5ZN)

## (15) Input 1 Type and Temperature Unit (Platinum-resistance Thermometer)

| Setting level         | Input type                      | Channel | Part |
|-----------------------|---------------------------------|---------|------|
| Initial setting level | Thermocouple input              | CH1     | No   |
|                       |                                 | CH2     | No   |
|                       |                                 | All CH  | No   |
|                       | Platinum-resistance thermometer | CH1     | No   |
|                       |                                 | CH2     | No   |
|                       |                                 | All CH  | Yes  |

|   |   |                          |  |              |                                   |
|---|---|--------------------------|--|--------------|-----------------------------------|
| <b>Unit type</b>  | E5ZN  | <b>Storage directory</b> | SmartActiveParts_E\<br>TemperatureControl<br>ler\E5ZN\InitialSetting<br>Level                  | <b>Title</b> | Input 1 Type and Temperature Unit |
| <b>Function</b>   | Sets the input type and temperature unit for a Temperature Controller with a Platinum-resistance Thermometer Input. |                          |  |              |                                   |
| <b>Display and Operation Details</b>  |   |                          |  |              |                                   |
|   |   |                          |  |              |                                   |
| <b>No.</b>  | <b>Item</b>   | <b>Setting/display</b>   | <b>Description</b>   |              |                                   |
| 1   | Input Type Selection  | Setting                  | Sets the input type for a Temperature Controller with a Platinum-resistance Thermometer Input. |              |                                   |
| 2   | Temperature Units   | Setting                  | Sets the temperature unit.   |              |                                   |
| <b>Remarks</b>  |   |                          |  |              |                                   |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |   |                          |  |              |                                   |

## (16) SP Limits

| Setting level         | Input type                      | Channel | Part |
|-----------------------|---------------------------------|---------|------|
| Initial setting level | Thermocouple input              | CH1     | Yes  |
|                       |                                 | CH2     | Yes  |
|                       |                                 | All CH  | No   |
|                       | Platinum-resistance thermometer | CH1     | Yes  |
|                       |                                 | CH2     | Yes  |
|                       |                                 | All CH  | No   |

|   |  |                             |   |              |           |
|---|--|-----------------------------|---|--------------|-----------|
| <b>Unit type</b>  | E5ZN   | <b>Storage directory</b>    | SmartActiveParts_E\<br>TemperatureControl<br>ler\E5ZN\InitialSetting<br>Level   | <b>Title</b> | SP Limits |
| <b>Function</b>   | Sets the upper and lower limits for the set point. |                             |   |              |           |
| <b>Display and Operation Details</b>  |  |                             |   |              |           |
|   |  |                             |   |              |           |
| <b>No.</b>  | <b>Item</b>  | <b>Setting/<br/>display</b> | <b>Description</b>  |              |           |
| 1   | SP Limit<br>Upper Limit<br>Lower Limit             | Setting                     | Sets the upper and lower limits for the set point.<br>Can be set anywhere within the input temperature setting range. |              |           |
| 2   | (°C) / (°F)  | Display                     | Displays the temperature unit.  |              |           |
| <b>Remarks</b>  |  |                             |   |              |           |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |  |                             |   |              |           |

# Temperature Controller (E5ZN)


## (17) Transfer Output Upper and Lower Limits

| Setting level         | Input type                      | Channel | Part |
|-----------------------|---------------------------------|---------|------|
| Initial setting level | Thermocouple input              | CH1     | No   |
|                       |                                 | CH2     | No   |
|                       |                                 | All CH  | Yes  |
|                       | Platinum-resistance thermometer | CH1     | No   |
|                       |                                 | CH2     | No   |
|                       |                                 | All CH  | Yes  |

| Unit type   | E5ZN  | Storage directory | SmartActiveParts_E\<br>TemperatureControl<br>ler\E5ZN\InitialSetting<br>Level                            | Title | Transfer Output Upper and Lower Limits |
|---|---|-------------------|--|-------|--|
| Function  | This setting is for a Temperature Controller with an Analog Output.<br>This SMART Active Part sets the upper and lower limits of transfer outputs when transfer outputs are set for the control outputs or auxiliary outputs. |                   |  |       |  |
| Display and Operation Details   |   |                   |  |       |  |
|   |   |                   |  |       |  |
| No.   | Item  | Setting/display   | Description  |       |  |
| 1   | OUT1 Transfer Output<br>Upper Limit<br>Lower Limit  | Setting           | Sets the upper and lower limits for scaling when a transfer output is set for control output 1 (OUT1).   |       |  |
| 2   | OUT2 Transfer Output<br>Upper Limit<br>Lower Limit  | Setting           | Sets the upper and lower limits for scaling when a transfer output is set for control output 2 (OUT2).   |       |  |
| 3   | SUB3 Transfer Output<br>Upper Limit<br>Lower Limit  | Setting           | Sets the upper and lower limits for scaling when a transfer output is set for auxiliary output 3 (SUB3). |       |  |
| 4   | SUB4 Transfer Output<br>Upper Limit<br>Lower Limit  | Setting           | Sets the upper and lower limits for scaling when a transfer output is set for auxiliary output 4 (SUB4). |       |  |
| Remarks   |   |                   |  |       |  |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |   |                   |  |       |  |

## (18) PID or ON/OFF Control


| Setting level         | Input type                      | Channel | Part |
|-----------------------|---------------------------------|---------|------|
| Initial setting level | Thermocouple input              | CH1     | Yes  |
|                       | Platinum-resistance thermometer | CH2     | Yes  |
|                       | Common(Common)                  | All CH  | No   |

|   |                                    |                             |  |              |                       |
|---|------------------------------------|-----------------------------|--|--------------|-----------------------|
| <b>Unit type</b>  | E5ZN                               | <b>Storage directory</b>    | SmartActiveParts_E\<br>TemperatureControl<br>er\E5ZN\InitialSetting<br>Level | <b>Title</b> | PID or ON/OFF Control |
| <b>Function</b>   | Sets either PID or ON/OFF control. |                             |  |              |                       |
| <b>Display and Operation Details</b>  |                                    |                             |  |              |                       |
|   |                                    |                             |  |              |                       |
| <b>No.</b>  | <b>Item</b>                        | <b>Setting/<br/>display</b> | <b>Description</b>   |              |                       |
| 1   | Control System                     | Setting                     | Sets either PID or ON/OFF control.   |              |                       |
| <b>Remarks</b>  |                                    |                             |  |              |                       |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |                                    |                             |  |              |                       |

# Temperature Controller (E5ZN)

## (19) Direct/Reverse Operation

| Setting level         | Input type                      | Channel | Part |
|-----------------------|---------------------------------|---------|------|
| Initial setting level | Thermocouple input              | CH1     | Yes  |
|                       | Platinum-resistance thermometer | CH2     | Yes  |
|                       | Common(Common)                  | All CH  | No   |

|   |  |                             |  |              |                          |
|---|--|-----------------------------|--|--------------|--------------------------|
| <b>Unit type</b>  | E5ZN   | <b>Storage directory</b>    | SmartActiveParts_E\<br>TemperatureControl<br>ler\E5ZN\InitialSetting<br>Level                          | <b>Title</b> | Direct/Reverse Operation |
| <b>Function</b>   | Sets either direction operation or reverse operation for increases and decreases in the process value. |                             |  |              |                          |
| <b>Display and Operation Details</b>  |  |                             |  |              |                          |
|   |  |                             |  |              |                          |
| <b>No.</b>  | <b>Item</b>  | <b>Setting/<br/>display</b> | <b>Description</b>   |              |                          |
| 1   | Operation  | Setting                     | Sets either direction operation or reverse operation for increases and decreases in the process value. |              |                          |
| <b>Remarks</b>  |  |                             |  |              |                          |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |  |                             |  |              |                          |

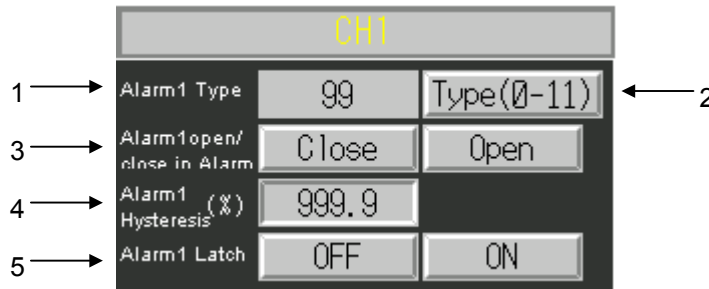
## (20) Alarm 1 Type, Alarm 1 Open/Close in Alarm, Alarm 1 Hysteresis, Alarm 1 Latch

| Setting level         | Input type                      | Channel | Part |
|-----------------------|---------------------------------|---------|------|
| Initial setting level | Thermocouple input              | CH1     | Yes  |
|                       | Platinum-resistance thermometer | CH2     | Yes  |
|                       | Common(Common)                  | All CH  | No   |

|                  |      |                          |   |              |  |
|------------------|------|--------------------------|---|--------------|--|
| <b>Unit type</b> | E5ZN | <b>Storage directory</b> | SmartActiveParts_E\TemperatureController\E5ZN\InitialSettingLevel | <b>Title</b> | Alarm 1 Type, Open/Close in Alarm, Hysteresis, Latch |
|------------------|------|--------------------------|---|--------------|--|

**Function** Sets the alarm type, open/close in alarm operation, latch, and hysteresis for alarm 1.

**Display and Operation Details**



| No. | Item                        | Setting/display | Description  |
|-----|-----------------------------|-----------------|--|
| 1   | Alarm 1 Type                | Display         | Displays the alarm type that is set.   |
| 2   | Alarm 1 Type Setting Button | Setting         | When pressed, displays the alarm type setting menu. Select the alarm type from the menu. |
| 3   | Alarm 1 open/close in Alarm | Setting         | Sets open in alarm or close in alarm for the alarm output.                               |
| 4   | Alarm 1 Hysteresis          | Setting Display | Sets ON/OFF hysteresis for the alarm output.   |
| 5   | Alarm 1 Latch               | Setting         | Sets whether to latch the alarm output status.   |

**Remarks**

- \* When using this SMART Active Part, be sure to select **Setting - System Settings** in the menu bar, press the **System Memory List** Button on the **Initial Tab** Page, and select **Basics** for the \$SB.
- \* Do not use this SMART Active Part on the initial screen.
- \* Use System version 5 or higher version.



# Temperature Controller (E5ZN)

## (21) Alarm 2 Type, Alarm 2 Open/Close in Alarm, Alarm 2 Hysteresis, Alarm 2 Latch

| Setting level         | Input type                      | Channel | Part |
|-----------------------|---------------------------------|---------|------|
| Initial setting level | Thermocouple input              | CH1     | Yes  |
|                       | Platinum-resistance thermometer | CH2     | Yes  |
|                       | Common(Common)                  | All CH  | No   |

|   |  |                          |  |              |  |
|---|--|--------------------------|--|--------------|--|
| <b>Unit type</b>  | E5ZN   | <b>Storage directory</b> | SmartActiveParts_E\TemperatureController\E5ZN\InitialSettingLevel                        | <b>Title</b> | Alarm 2 Type, Open/Close in Alarm, Hysteresis, Latch |
| <b>Function</b>   | Sets the alarm type, open/close in alarm operation, latch, and hysteresis for alarm 2. |                          |  |              |  |
| <b>Display and Operation Details</b>  |  |                          |  |              |  |
|   |  |                          |  |              |  |
| <b>No.</b>  | <b>Item</b>  | <b>Setting/display</b>   | <b>Description</b>   |              |  |
| 1   | Alarm 2 Type   | Display                  | Displays the alarm type that is set.   |              |  |
| 2   | Alarm 2 Type Setting Button  | Setting                  | When pressed, displays the alarm type setting menu. Select the alarm type from the menu. |              |  |
| 3   | Alarm 2 open/close in Alarm  | Setting                  | Sets open in alarm or close in alarm for the alarm output.                               |              |  |
| 4   | Alarm 2 Hysteresis   | Setting<br>Display       | Sets ON/OFF hysteresis for the alarm output.<br>Displays the temperature unit.           |              |  |
| 5   | Alarm 2 Latch  | Setting                  | Sets whether to latch the alarm output status.   |              |  |
| <b>Remarks</b>  |  |                          |  |              |  |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |  |                          |  |              |  |

## (22) Alarm 3 Type, Alarm 3 Open/Close in Alarm, Alarm 3 Hysteresis, Alarm 3 Latch

| Setting level         | Input type                      | Channel | Part |
|-----------------------|---------------------------------|---------|------|
| Initial setting level | Thermocouple input              | CH1     | Yes  |
|                       | Platinum-resistance thermometer | CH2     | Yes  |
|                       | Common(Common)                  | All CH  | No   |

|  |  |                          |  |              |   |
|--|--|--------------------------|--|--------------|---|
| <b>Unit type</b>   | E5ZN   | <b>Storage directory</b> | SmartActiveParts_E\<br>TemperatureControl<br>ler\E5ZN\InitialSetting<br>Level            | <b>Title</b> | Alarm 3 Type, Open/Close in Alarm,<br>Hysteresis, Latch |
| <b>Function</b>  | Sets the alarm type, open/close in alarm operation, latch, and hysteresis for alarm 3. |                          |  |              |   |
| <b>Display and Operation Details</b>   |  |                          |  |              |   |
|  |  |                          |  |              |   |
| <b>No.</b>   | <b>Item</b>  | <b>Setting/display</b>   | <b>Description</b>   |              |   |
| 1  | Alarm 3 Type   | Display                  | Displays the alarm type that is set.   |              |   |
| 2  | Alarm 3 Type Setting Button  | Setting                  | When pressed, displays the alarm type setting menu. Select the alarm type from the menu. |              |   |
| 3  | Alarm 3 open/close in Alarm  | Setting                  | Sets open in alarm or close in alarm for the alarm output.                               |              |   |
| 4  | Alarm 3 Hysteresis   | Setting<br>Display       | Sets ON/OFF hysteresis for the alarm output.<br>Displays the temperature unit.           |              |   |
| 5  | Alarm 3 Latch  | Setting                  | Sets whether to latch the alarm output status.   |              |   |
| <b>Remarks</b>   |  |                          |  |              |   |
| * When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB. |  |                          |  |              |   |
| * Do not use this SMART Active Part on the initial screen.   |  |                          |  |              |   |
| * Use System version 5 or higher version.  |  |                          |  |              |   |

# Temperature Controller (E5ZN)

## (23) Control Output 1 and 2 Allocations

| Setting level         | Input type                      | Channel | Part |
|-----------------------|---------------------------------|---------|------|
| Initial setting level | Thermocouple input              | CH1     | No   |
|                       | Platinum-resistance thermometer | CH2     | No   |
|                       | Common(Common)                  | All CH  | Yes  |

| Unit type   | E5ZN  | Storage directory   | SmartActiveParts_E\<br>TemperatureControl<br>ler\E5ZN\InitialSetting<br>Level  | Title | Control Output 1 and 2 Allocations |
|---|---|---------------------|--|-------|------------------------------------|
| Function  | Allocates items to control outputs 1 and 2. |                     |  |       |                                    |
| Display and Operation Details   |   |                     |  |       |                                    |
|   |   |                     |  |       |                                    |
| No.   | Item  | Setting/<br>display | Description  |       |                                    |
| 1   | Control Output 1 Assignment Buttons         | Setting             | When pressed, displays the item setting menu. Select an item to allocate from the menu.<br>The CH1(0-4) and CH2(5-9) are used to set control outputs and alarm outputs. They can be used for a Temperature Control Unit with a Pulse Output or Analog Output.<br>The CH1(10-14) and CH2(15-19) are used to set transfer outputs. They can be used for Temperature Controllers with Analog Outputs. |       |                                    |
| 2   | Control Output 1 Assignment Display         | Display             | Displays the number of the item that is set.   |       |                                    |
| 3   | Control Output 2 Assignment Buttons         | Setting             | When pressed, displays the item setting menu. Select an item to allocate from the menu.<br>The CH1(0-4) and CH2(5-9) are used to set control outputs and alarm outputs. They can be used for a Temperature Control Unit with a Pulse Output or Analog Output.<br>The CH1(10-14) and CH2(15-19) are used to set transfer outputs. They can be used for Temperature Controllers with Analog Outputs. |       |                                    |
| 4   | Control Output 2 Assignment Display         | Display             | Displays the number of the item that is set.   |       |                                    |
| Remarks   |   |                     |  |       |                                    |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |   |                     |  |       |                                    |

## (24) Auxiliary Output 1 and 2 Allocations

| Setting level         | Input type                      | Channel | Part |
|-----------------------|---------------------------------|---------|------|
| Initial setting level | Thermocouple input              | CH1     | No   |
|                       | Platinum-resistance thermometer | CH2     | No   |
|                       | Common(Common)                  | All CH  | Yes  |

|   |  |                             |  |              |                                      |
|---|--|-----------------------------|--|--------------|--------------------------------------|
| <b>Unit type</b>  | E5ZN   | <b>Storage directory</b>    | SmartActiveParts_E\<br>TemperatureControl<br>ler\E5ZN\InitialSetting<br>Level  | <b>Title</b> | Auxiliary Output 1 and 2 Allocations |
| <b>Function</b>   | It allocates items to auxiliary outputs 1 and 2. |                             |  |              |                                      |
| <b>Display and Operation Details</b>  |  |                             |  |              |                                      |
|   |  |                             |  |              |                                      |
| <b>No.</b>  | <b>Item</b>                                      | <b>Setting/<br/>display</b> | <b>Description</b>   |              |                                      |
| 1   | Auxiliary Output 1 Assignment Buttons            | Setting                     | When pressed, displays the item setting menu. Select an item to allocate from the menu. The CH1(0-4) and CH2(5-9) are used to set control outputs and alarm outputs. They can be used for a Temperature Control Unit with a Pulse Output or Analog Output. |              |                                      |
| 2   | Auxiliary Output 1 Assignment Display            | Display                     | Displays the number of the item that is set.   |              |                                      |
| 3   | Auxiliary Output 2 Assignment Buttons            | Setting                     | When pressed, displays the item setting menu. Select an item to allocate from the menu. The CH1(0-4) and CH2(5-9) are used to set control outputs and alarm outputs. They can be used for a Temperature Control Unit with a Pulse Output or Analog Output. |              |                                      |
| 4   | Auxiliary Output 2 Assignment Display            | Display                     | Displays the number of the item that is set.   |              |                                      |
| <b>Remarks</b>  |  |                             |  |              |                                      |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |  |                             |  |              |                                      |

# Temperature Controller (E5ZN)

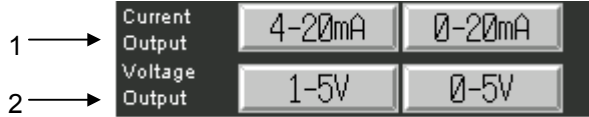
## (25) Auxiliary Output 3 and 4 Allocations

| Setting level         | Input type  | Channel | Part |
|-----------------------|---|---------|------|
| Initial setting level | Thermocouple input<br>Platinum-resistance thermometer<br>Common(Common) | CH1     | No   |
|                       |   | CH2     | No   |
|                       |   | All CH  | Yes  |

| Unit type   | E5ZN   | Storage directory | SmartActiveParts_E\<br>TemperatureControll<br>er\E5ZN\InitialSetting<br>Level  | Title | Auxiliary Output 3 and 4 Allocations |
|---|--|-------------------|--|-------|--------------------------------------|
| Function  | This SMART Active Part is for a Temperature Controller with an Analog Output. It allocates items to auxiliary outputs 3 and 4. |                   |  |       |                                      |
| Display and Operation Details   |  |                   |  |       |                                      |
|   |  |                   |  |       |                                      |
| No.   | Item   | Setting/display   | Description  |       |                                      |
| 1   | Auxiliary Output 3 Assignment Buttons  | Setting           | When pressed, displays the item setting menu. Select an item to allocate from the menu.<br>The CH1(0-4) and CH2(5-9) are used to set control outputs and alarm outputs. They can be used for a Temperature Control Unit with a Pulse Output or Analog Output.<br>The CH1(10-14) and CH2(15-19) are used to set transfer outputs. They can be used for Temperature Controllers with Analog Outputs. |       |                                      |
| 2   | Auxiliary Output 3 Assignment Display  | Display           | Displays the number of the item that is set.   |       |                                      |
| 3   | Auxiliary Output 4 Assignment Buttons  | Setting           | When pressed, displays the item setting menu. Select an item to allocate from the menu.<br>The CH1(0-4) and CH2(5-9) are used to set control outputs and alarm outputs. They can be used for a Temperature Control Unit with a Pulse Output or Analog Output.<br>The CH1(10-14) and CH2(15-19) are used to set transfer outputs. They can be used for Temperature Controllers with Analog Outputs. |       |                                      |
| 4   | Auxiliary Output 4 Assignment Display  | Display           | Displays the number of the item that is set.   |       |                                      |
| Remarks   |  |                   |  |       |                                      |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |  |                   |  |       |                                      |

## (26) Current/Voltage Output

| Setting level         | Input type                      | Channel | Part |
|-----------------------|---------------------------------|---------|------|
| Initial setting level | Thermocouple input              | CH1     | No   |
|                       | Platinum-resistance thermometer | CH2     | No   |
|                       | Common(Common)                  | All CH  | Yes  |

|   |  |                          |   |              |                        |
|---|--|--------------------------|---|--------------|------------------------|
| <b>Unit type</b>  | E5ZN   | <b>Storage directory</b> | SmartActiveParts_E\TemperatureController\E5ZN\InitialSettingLevel | <b>Title</b> | Current/Voltage Output |
| <b>Function</b>   | Sets the current output type for control outputs 1 and 2 and the voltage output type for auxiliary outputs 3 and 4.<br>This SMART Active Part is for a Temperature Controller with an Analog Output. |                          |   |              |                        |
| <b>Display and Operation Details</b>  |  |                          |   |              |                        |
|   |  |                          |   |              |                        |
| <b>No.</b>  | <b>Item</b>  | <b>Setting/display</b>   | <b>Description</b>  |              |                        |
| 1   | Current Output   | Setting                  | Sets the current output type for control outputs 1 and 2.         |              |                        |
| 2   | Voltage Output   | Setting                  | Sets the voltage output type for auxiliary outputs 3 and 4.       |              |                        |
| <b>Remarks</b>  |  |                          |   |              |                        |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |  |                          |   |              |                        |

# Temperature Controller (E5ZN)

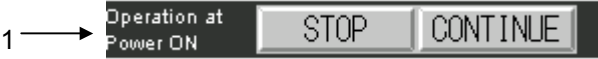
## (27) Sensor Error Indicator Used and Input Error Output

| Setting level         | Input type                      | Channel | Part |
|-----------------------|---------------------------------|---------|------|
| Initial setting level | Thermocouple input              | CH1     | No   |
|                       | Platinum-resistance thermometer | CH2     | No   |
|                       | Common(Common)                  | All CH  | Yes  |

|  |   |                          |   |              |  |
|--|---|--------------------------|---|--------------|--|
| <b>Unit type</b>   | E5ZN  | <b>Storage directory</b> | SmartActiveParts_E\<br>TemperatureControl<br>er\E5ZN\InitialSetting<br>Level                      | <b>Title</b> | Sensor Error Indicator Used and Input Error Output |
| <b>Function</b>  | Sets whether to light the indicator on the front of the E5ZN when a Sensor error occurs.<br>Sets whether to output an alarm when a sensor error occurs. |                          |   |              |  |
| <b>Display and Operation Details</b>   |   |                          |   |              |  |
|  |   |                          |   |              |  |
| <b>No.</b>   | <b>Item</b>   | <b>Setting/display</b>   | <b>Description</b>  |              |  |
| 1  | Sensor Error Indicator Used Button  | Setting                  | When pressed, displays the item setting menu. Select an item from the menu.                       |              |  |
| 2  | Sensor Error Indicator Used Type Display  | Display                  | Displays the number of the item that is set.  |              |  |
| 3  | Input Error Output  | Setting                  | Sets whether to enable outputting an alarm on the alarm 1 output when a sensor error is detected. |              |  |
| <b>Remarks</b>   |   |                          |   |              |  |
| * When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB. |   |                          |   |              |  |
| * Do not use this SMART Active Part on the initial screen.   |   |                          |   |              |  |
| * Use System version 5 or higher version.  |   |                          |   |              |  |

## (28) Operation after Power ON

| Setting level         | Input type                      | Channel | Part |
|-----------------------|---------------------------------|---------|------|
| Initial setting level | Thermocouple input              | CH1     | No   |
|                       | Platinum-resistance thermometer | CH2     | No   |
|                       | Common(Common)                  | All CH  | Yes  |

|   |  |                             |   |              |                          |
|---|--|-----------------------------|---|--------------|--------------------------|
| <b>Unit type</b>  | E5ZN   | <b>Storage directory</b>    | SmartActiveParts_E\<br>TemperatureControl<br>ler\E5ZN\InitialSetting<br>Level   | <b>Title</b> | Operation after Power ON |
| <b>Function</b>   | Sets the operating status to used after the power supply is turned ON. |                             |   |              |                          |
| <b>Display and Operation Details</b>  |  |                             |   |              |                          |
|   |  |                             |   |              |                          |
| <b>No.</b>  | <b>Item</b>  | <b>Setting/<br/>display</b> | <b>Description</b>  |              |                          |
| 1   | Operation at Power ON  | Setting                     | Set STOP to stop the control operation after the power supply is turned ON.<br>Set CONTINUE to continue the operating status that existed when the power supply was turned OFF. |              |                          |
| <b>Remarks</b>  |  |                             |   |              |                          |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |  |                             |   |              |                          |

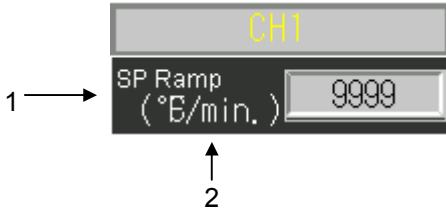


# Temperature Controller (E5ZN)

## 1.1.4 Advanced Function Setting Level

### (29) SP Ramp

| Setting level                   | Input type                      | Channel | Part |
|---------------------------------|---------------------------------|---------|------|
| Advanced function setting level | Thermocouple input              | CH1     | No   |
|                                 | Platinum-resistance thermometer | CH2     | No   |
|                                 | Common(Common)                  | All CH  | Yes  |

|   |  |                          |  |              |         |
|---|--|--------------------------|--|--------------|---------|
| <b>Unit type</b>  | E5ZN                                     | <b>Storage directory</b> | SmartActiveParts_E\TemperatureController\E5ZN\Advanced_Level                       | <b>Title</b> | SP Ramp |
| <b>Function</b>   | Sets the rate of change for the SP ramp. |                          |  |              |         |
| <b>Display and Operation Details</b>  |  |                          |  |              |         |
|   |  |                          |  |              |         |
| <b>No.</b>  | <b>Item</b>                              | <b>Setting/display</b>   | <b>Description</b>   |              |         |
| 1   | SP Ramp                                  | Setting                  | Sets the maximum allowed change per minute. Set 0 to disable the SP ramp function. |              |         |
| 2   | (°C /min)/(°F/min)                       | Display                  | Displays the temperature unit.   |              |         |
| <b>Remarks</b>  |  |                          |  |              |         |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |  |                          |  |              |         |

## (30) HBA Used, Heater Burnout Latch, Heater Burnout Hysteresis

| Setting level                   | Input type                      | Channel | Part |
|---------------------------------|---------------------------------|---------|------|
| Advanced function setting level | Thermocouple input              | CH1     | No   |
|                                 | Platinum-resistance thermometer | CH2     | No   |
|                                 | Common(Common)                  | All CH  | Yes  |

|   |   |                          |  |              |                             |
|---|---|--------------------------|--|--------------|-----------------------------|
| <b>Unit type</b>  | E5ZN  | <b>Storage directory</b> | SmartActiveParts_E\<br>TemperatureControl<br>ler\E5ZN\Advanced_L<br>evel | <b>Title</b> | HBA Used, Latch, Hysteresis |
| <b>Function</b>   | Turns the heater burnout detection ON/OFF, turns the latch ON/OFF, and sets the hysteresis. |                          |  |              |                             |
| <b>Display and Operation Details</b>  |   |                          |  |              |                             |
|   |   |                          |  |              |                             |
| <b>No.</b>  | <b>Item</b>   | <b>Setting/display</b>   | <b>Description</b>   |              |                             |
| 1   | Use Heater Burnout  | Setting                  | Sets whether to use the heater burnout detection function.               |              |                             |
| 2   | Heater Burnout Latch  | Setting                  | Sets whether to latch the heater burnout alarm.                          |              |                             |
| 3   | Heater Burnout Hysteresis   | Setting                  | Sets the hysteresis for heater burnout detection.                        |              |                             |
| <b>Remarks</b>  |   |                          |  |              |                             |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |   |                          |  |              |                             |

# Temperature Controller (E5ZN)


## (31) MV Upper/Lower Limits and Input Digital Filter

| Setting level                   | Input type                      | Channel | Part |
|---------------------------------|---------------------------------|---------|------|
| Advanced function setting level | Thermocouple input              | CH1     | No   |
|                                 | Platinum-resistance thermometer | CH2     | No   |
|                                 | Common(Common)                  | All CH  | Yes  |

|   |   |                          |  |              |  |
|---|---|--------------------------|--|--------------|--|
| <b>Unit type</b>  | E5ZN  | <b>Storage directory</b> | SmartActiveParts_E\<br>TemperatureControl<br>er\E5ZN\Advanced_L<br>evel  | <b>Title</b> | MV Upper/Lower Limits and Input Digital Filter |
| <b>Function</b>   | Sets the upper and lower limits for the manipulated variable.<br>Sets the time constant for the input digital filter. |                          |  |              |  |
| <b>Display and Operation Details</b>  |   |                          |  |              |  |
| <p>The screenshot shows a control panel for channel CH1. It has three rows of settings:</p> <ul style="list-style-type: none"> <li>1 → MV Upper Limit (%) with a value of -999.9</li> <li>2 → MV Lower Limit (%) with a value of -999.9</li> <li>3 → Input Digital Filter (sec) with a value of 999.9</li> </ul>  |   |                          |  |              |  |
| <b>No.</b>  | <b>Item</b>   | <b>Setting/display</b>   | <b>Description</b>   |              |  |
| 1   | MV Upper Limit  | Setting                  | Sets the upper limit of the manipulated variable.<br>If the calculated manipulated variable exceeds the upper limit, it will be restricted to the upper limit.     |              |  |
| 2   | MV Lower Limit  | Setting                  | Sets the lower limit of the manipulated variable.<br>If the calculated manipulated variable falls below the lower limit, it will be restricted to the lower limit. |              |  |
| 3   | Input Digital Filter  | Setting                  | Sets the time constant for the input digital filter.   |              |  |
| <b>Remarks</b>  |   |                          |  |              |  |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |   |                          |  |              |  |

## (32) Input Shift Type

| Setting level                   | Input type                      | Channel | Part |
|---------------------------------|---------------------------------|---------|------|
| Advanced function setting level | Thermocouple input              | CH1     | No   |
|                                 | Platinum-resistance thermometer | CH2     | No   |
|                                 | Common(Common)                  | All CH  | Yes  |

|   |   |                          |   |              |                  |
|---|---|--------------------------|---|--------------|------------------|
| <b>Unit type</b>  | E5ZN  | <b>Storage directory</b> | SmartActiveParts_E\<br>TemperatureController\E5ZN\Advanced_Level    | <b>Title</b> | Input Shift Type |
| <b>Function</b>   | Sets the input shift type to a 1-point shift or to a 2-point shift. |                          |   |              |                  |
| <b>Display and Operation Details</b>  |   |                          |   |              |                  |
|   |   |                          |   |              |                  |
| <b>No.</b>  | <b>Item</b>   | <b>Setting/display</b>   | <b>Description</b>  |              |                  |
| 1   | Input Shift Type  | Setting                  | Sets the input shift type to a 1-point shift or to a 2-point shift. |              |                  |
| <b>Remarks</b>  |   |                          |   |              |                  |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |   |                          |   |              |                  |

# Temperature Controller (E5ZN)

## (33) Number of Multi-SP Uses, Event Input Allocation, Use Multi-SP

| Setting level                   | Input type                      | Channel | Part |
|---------------------------------|---------------------------------|---------|------|
| Advanced function setting level | Thermocouple input              | CH1     | No   |
|                                 | Platinum-resistance thermometer | CH2     | No   |
|                                 | Common(Common)                  | All CH  | Yes  |

|   |   |                          |  |              |   |
|---|---|--------------------------|--|--------------|---|
| <b>Unit type</b>  | E5ZN  | <b>Storage directory</b> | SmartActiveParts_E\<br>TemperatureControl<br>ler\E5ZN\Advanced_L<br>evel | <b>Title</b> | Number of Multi-SP Uses, Event Input Allocation, Use Multi-SP |
| <b>Function</b>   | Sets the number of Multi-SP uses, event input allocation, and multi-SP usage. |                          |  |              |   |
| <b>Display and Operation Details</b>  |   |                          |  |              |   |
| <p>The screenshot shows a control panel with three rows of settings. Row 1: 'No. of Multi-SP Uses' with a value of 'No Multi-SP' and a 'Switch between SP0/1' button. Row 2: 'Event Input Function' with a value of 'Non' and a 'RUN/STOP' button. Row 3: 'Use Multi-SP' with a value of 'OFF' and an 'ON' button. Arrows on the left point to each row.</p>  |   |                          |  |              |   |
| <b>No.</b>  | <b>Item</b>   | <b>Setting/display</b>   | <b>Description</b>   |              |   |
| 1   | No. of Multi-SP Uses  | Setting                  | Sets the number of multi-SP set point to use for the event inputs.       |              |   |
| 2   | Event Input Function  | Setting                  | Sets whether to switch between RUN and STOP for the event input.         |              |   |
| 3   | Use Multi-SP  | Setting                  | Turned ON to enable switching between SP0 and SP1.                       |              |   |
| <b>Remarks</b>  |   |                          |  |              |   |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |   |                          |  |              |   |

## (34) Standby Sequence Restart


| Setting level                   | Input type                      | Channel | Part |
|---------------------------------|---------------------------------|---------|------|
| Advanced function setting level | Thermocouple input              | CH1     | No   |
|                                 | Platinum-resistance thermometer | CH2     | No   |
|                                 | Common(Common)                  | All CH  | Yes  |

|   |  |                             |  |              |                          |
|---|--|-----------------------------|--|--------------|--------------------------|
| <b>Unit type</b>  | E5ZN   | <b>Storage directory</b>    | SmartActiveParts_E\<br>TemperatureControl<br>ler\E5ZN\Advanced_L<br>evel | <b>Title</b> | Standby Sequence Restart |
| <b>Function</b>   | Sets the condition for restarting after clearing the alarm standby sequence. |                             |  |              |                          |
| <b>Display and Operation Details</b>  |  |                             |  |              |                          |
|   |  |                             |  |              |                          |
| <b>No.</b>  | <b>Item</b>  | <b>Setting/<br/>display</b> | <b>Description</b>   |              |                          |
| 1   | Standby Sequer<br>Reset  | Setting                     | Select Condition A or Condition B.                                       |              |                          |
| <b>Remarks</b>  |  |                             |  |              |                          |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |  |                             |  |              |                          |

# Temperature Controller (E5ZN)


(35)  $\alpha$

| Setting level                   | Input type                      | Channel | Part |
|---------------------------------|---------------------------------|---------|------|
| Advanced function setting level | Thermocouple input              | CH1     | No   |
|                                 | Platinum-resistance thermometer | CH2     | No   |
|                                 | Common(Common)                  | All CH  | Yes  |

|   |  |                             |  |              |       |
|---|--|-----------------------------|--|--------------|-------|
| <b>Unit type</b>  | E5ZN   | <b>Storage directory</b>    | SmartActiveParts_E\<br>TemperatureControl<br>ler\E5ZN\Advanced_L<br>evel | <b>Title</b> | Alpha |
| <b>Function</b>   | Sets the $\alpha$ constant for advanced PID control. |                             |  |              |       |
| <b>Display and Operation Details</b>  |  |                             |  |              |       |
|   |  |                             |  |              |       |
| <b>No.</b>  | <b>Item</b>  | <b>Setting/<br/>display</b> | <b>Description</b>   |              |       |
| 1   | $\alpha$   | Setting                     | Sets alpha set value.  |              |       |
| <b>Remarks</b>  |  |                             |  |              |       |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |  |                             |  |              |       |

## (36) Cold Junction Compensation Method

| Setting level                   | Input type                      | Channel | Part |
|---------------------------------|---------------------------------|---------|------|
| Advanced function setting level | Thermocouple input              | CH1     | No   |
|                                 | Platinum-resistance thermometer | CH2     | No   |
|                                 | Common(Common)                  | All CH  | Yes  |

|   |   |                          |  |              |                                   |
|---|---|--------------------------|--|--------------|-----------------------------------|
| <b>Unit type</b>  | E5ZN  | <b>Storage directory</b> | SmartActiveParts_EV\TemperatureController\E5ZN\Advanced_Level                                      | <b>Title</b> | Cold Junction Compensation Method |
| <b>Function</b>   | Sets the cold junction compensation method. |                          |  |              |                                   |
| <b>Display and Operation Details</b>  |   |                          |  |              |                                   |
|   |   |                          |  |              |                                   |
| <b>No.</b>  | <b>Item</b>                                 | <b>Setting/display</b>   | <b>Description</b>   |              |                                   |
| 1   | Cold Junction Compensation                  | Setting                  | Set whether to perform cold junction compensation inside the Temperature Controller or externally. |              |                                   |
| <b>Remarks</b>  |   |                          |  |              |                                   |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |   |                          |  |              |                                   |



# Temperature Controller (E5ZN)

## 1.1.5 Communications Setting Level

### (37) Communications Settings

| Setting level                | Input type                      | Channel | Part |
|------------------------------|---------------------------------|---------|------|
| Communications setting level | Thermocouple input              | CH1     | No   |
|                              | Platinum-resistance thermometer | CH2     | No   |
|                              | Common(Common)                  | All CH  | Yes  |

|  |   |                          |  |              |                         |
|--|---|--------------------------|--|--------------|-------------------------|
| <b>Unit type</b>   | E5ZN  | <b>Storage directory</b> | SmartActiveParts_E\TemperatureController\E5ZN\Comm_Set_Level   | <b>Title</b> | Communications Settings |
| <b>Function</b>  | Sets the communications settings.<br>The following settings are used when connecting an NS-series PT to the Temperature Controller: Data length: 7 bits, Stop bits: 2 bits, Parity: even.<br>The PT and the Temperature Controller will not be able to communicate with any other settings. |                          |  |              |                         |
| <b>Display and Operation Details</b>   |   |                          |  |              |                         |
| <p>The screenshot shows a menu with four rows of settings, each with a number and an arrow pointing to the label:</p> <ul style="list-style-type: none"> <li>1 → Data Bit: 7bit, 8bit</li> <li>2 → Stop Bit: 1bit, 2bit</li> <li>3 → Parity: NONE, EVEN, ODD</li> <li>4 → Transmission Wait Time(ms): 9999</li> </ul>  |   |                          |  |              |                         |
| <b>No.</b>   | <b>Item</b>   | <b>Setting/display</b>   | <b>Description</b>   |              |                         |
| 1  | Data Bit  | Setting                  | Sets the communications data length. A data length of 7 bits is used to connect an NS-series PT to the Temperature Controller. |              |                         |
| 2  | Stop Bit  | Setting                  | Sets the number of communications stop bits. Two stop bits are used to connect an NS-series PT to the Temperature Controller.  |              |                         |
| 3  | Parity  | Setting                  | Sets the communications parity. Even parity is used to connect an NS-series PT to the Temperature Controller.                  |              |                         |
| 4  | Transmission Wait Time  | Setting                  | Sets the communications response wait time.  |              |                         |
| <b>Remarks</b>   |   |                          |  |              |                         |
| <ul style="list-style-type: none"> <li>* The communications unit number and communications baud rate are set on the rotary switches on the front panel of the Temperature Controller.</li> <li>* The PT and the Temperature Controller will not be able to communicate unless the following settings are used: Data length: 7 bits, Stop bits: 2 bits, Parity: even.</li> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |   |                          |  |              |                         |

## Temperature Controller (E5□R)

# Temperature Controller (E5□R)

The following table lists the SMART Active Parts for the E5AR/E5ER Temperature Controllers.

|                    |  |  |  |
|--------------------|--|--|--|
| Operation controls | CH1  | Bank Selection   |  |
|                    | CH2  | Bank Selection   |  |
|                    | CH3  | Bank Selection   |  |
|                    | CH4  | Bank Selection   |  |
| Operation level    | CH1  | Operation Monitor for Standard Control   |  |
|                    |  | Operation Monitor for Heating/Cooling Control  |  |
|                    |  | Operation Monitor for Position Proportional Control  |  |
|                    |  | SP Setting   |  |
|                    |  | Manual MV Setting  |  |
|                    |  |  | Manual MV Settings for Position Proportional Control |
|                    | CH2  | Operation Monitor for Standard Control   |  |
|                    |  | Operation Monitor for Heating/Cooling Control  |  |
|                    |  | SP Setting   |  |
|                    |  |  | MV Manual Settings                                   |
|                    | CH3  | Operation Monitor for Standard Control   |  |
|                    |  | SP Setting   |  |
|                    |  |  | MV Manual Settings                                   |
| CH4                | Operation Monitor for Standard Control             |  |  |
|                    | SP Setting   |  |  |
|                    |  | MV Manual Settings   |  |
| Adjustment level   | CH1  | Input Shift Values   |  |
|                    |  | SP Ramp  |  |
|                    |  | Manual Reset Value   |  |
|                    |  | MV Change Rate Limits  |  |
|                    |  | Dead Band and Hysteresis   |  |
|                    |  | MV at Stop and MV at PV Error  |  |
|                    |  | Cooling Coefficient, Dead Band, and Control Period   |  |
|                    |  | Disturbance Settings   |  |
|                    | CH2  | Input Shift Values   |  |
|                    |  | SP Ramp  |  |
|                    |  | Manual Reset Value   |  |
|                    |  | MV Change Rate Limits  |  |
|                    |  | Dead Band and Hysteresis   |  |
|                    |  | MV at Stop and MV at PV Error  |  |
|                    |  | Cooling Coefficient, Dead Band, and Control Period   |  |
|                    |  | Disturbance Settings   |  |
|                    | CH3  | Input Shift Values   |  |
|                    |  | SP Ramp  |  |
|                    |  | Manual Reset Value   |  |
|                    |  | MV Change Rate Limits  |  |
|                    |  | Dead Band and Hysteresis   |  |
|                    |  | MV at Stop and MV at PV Error  |  |
|                    |  | Cooling Coefficient, Dead Band, and Control Period   |  |
|                    |  | Disturbance Settings   |  |
| CH4                | Input Shift Values                                 |  |  |
|                    | SP Ramp  |  |  |
|                    | Manual Reset Value                                 |  |  |
|                    | MV Change Rate Limits                              |  |  |
|                    | Dead Band and Hysteresis                           |  |  |
|                    | MV at Stop and MV at PV Error                      |  |  |
|                    | Cooling Coefficient, Dead Band, and Control Period |  |  |
|                    | Disturbance Settings                               |  |  |
| Adjustment 2 level | Common   | First Order Lag Operation, Move Average, and Extraction of Square Root Low-cut Point for 4 Point |  |
|                    |  | First Order Lag Operation, Move Average, and Extraction of Square Root Low-cut Point for 2 Point |  |
|                    |  | First Order Lag Operation, Move Average, and Extraction of Square Root Low-cut Point for 1 Point |  |
|                    |  | Position Proportional Control Adjustment   |  |
|                    |  | Analog Parameter Control Rate  |  |

## Temperature Controller (E5□R)

|                             |              |  |
|-----------------------------|--------------|--|
| Bank setting level          | CH1          | LSP and Alarm Settings   |
|                             |              | LSP Setting  |
|                             | CH2          | LSP and Alarm Settings   |
|                             |              | LSP Setting  |
|                             | CH3          | LSP and Alarm Settings   |
|                             |              | LSP Setting  |
|                             | CH4          | LSP and Alarm Settings   |
|                             |              | LSP Setting  |
| PID setting level           | CH1          | PID Settings, MV Upper/Lower Limits, Automatic Selection Range Upper/Lower Limits                                    |
|                             | CH2          | PID Settings, MV Upper/Lower Limits, Automatic Selection Range Upper/Lower Limits                                    |
|                             | CH3          | PID Settings, MV Upper/Lower Limits, Automatic Selection Range Upper/Lower Limits                                    |
|                             | CH4          | PID Settings, MV Upper/Lower Limits, Automatic Selection Range Upper/Lower Limits                                    |
| Approx_setting              | All channels | Straight-line Approximation  |
|                             |              | Broken-line Approximation (1 to 10)  |
|                             |              | Broken-line Approximation (11 to 20)   |
| Input initial setting level | CH1          | Remote SP Upper/Lower Limits   |
|                             | CH2          | Remote SP Upper/Lower Limits   |
|                             | CH3          | Remote SP Upper/Lower Limits   |
|                             | CH4          | Remote SP Upper/Lower Limits   |
|                             | All channels | Input 1 Type, Temperature Unit, Scaling, and Decimal Point   |
|                             |              | Input 2 Type, Temperature Unit, Scaling, and Decimal Point   |
|                             |              | Input 3 Type, Temperature Unit, Scaling, and Decimal Point   |
|                             |              | Input 4 Type, Temperature Unit, Scaling, and Decimal Point   |
| Control initial setting     | CH1          | Forward/Reverse Operation  |
|                             |              | SP Limits  |
|                             | CH2          | Forward/Reverse Operation  |
|                             |              | SP Limits  |
|                             | CH3          | Forward/Reverse Operation  |
|                             |              | SP Limits  |
|                             | CH4          | Forward/Reverse Operation  |
|                             |              | SP Limits  |
|                             | All channels | Output Types   |
|                             |              | Control Mode   |
|                             |              | Position Proportional Control Initial Settings and Extended Settings   |
| Initial setting 2 level     | All channels | Control/Transfer Output 1 and 2 Allocations  |
|                             |              | Control/Transfer Output 3 and 4 Allocations  |
|                             |              | Event Input 1 Allocation   |
|                             |              | Event Input 2 Allocation   |
|                             |              | Event Input 3 Allocation   |
|                             |              | Event Input 4 Allocation   |
|                             |              | Event Input 5 Allocation   |
|                             |              | Event Input 6 Allocation   |
|                             |              | Auxiliary Output 1 Allocation  |
|                             |              | Auxiliary Output 2 Allocation  |
|                             |              | Auxiliary Output 3 Allocation  |
|                             |              | Auxiliary Output 4 Allocation  |
|                             |              | Transfer Output 1 Upper/Lower Limits   |
|                             |              | Transfer Output 2 Upper/Lower Limits   |
|                             |              | Transfer Output 3 Upper/Lower Limits   |
|                             |              | Transfer Output 4 Upper/Lower Limits   |
|                             |              | Enable Settings for First Order Lag Operation, Move Average, and Extraction of Square Root Low-cut Point for 4 Point |
|                             |              | Enable Settings for First Order Lag Operation, Move Average, and Extraction of Square Root Low-cut Point for 2 Point |
|                             |              | Enable Settings for First Order Lag Operation, Move Average, and Extraction of Square Root Low-cut Point for 1 Point |
|                             |              | Enable Settings for Straight-line and Broken-line Approximation  |

# Temperature Controller (E5□R)


|                                 |              |  |
|---------------------------------|--------------|--|
| Alarm setting level             | CH1          | Alarm 1 Type, Latch, and Hysteresis  |
|                                 |              | Alarm 2 Type, Latch, and Hysteresis  |
|                                 |              | Alarm 3 Type, Latch, and Hysteresis  |
|                                 |              | Alarm 4 Type, Latch, and Hysteresis  |
|                                 |              | Standby Sequence Restart   |
|                                 | CH2          | Alarm 1 Type, Latch, and Hysteresis  |
|                                 |              | Alarm 2 Type, Latch, and Hysteresis  |
|                                 |              | Alarm 3 Type, Latch, and Hysteresis  |
|                                 |              | Alarm 4 Type, Latch, and Hysteresis  |
|                                 |              | Standby Sequence Restart   |
|                                 | CH3          | Alarm 1 Type, Latch, and Hysteresis  |
|                                 |              | Alarm 2 Type, Latch, and Hysteresis  |
|                                 |              | Alarm 3 Type, Latch, and Hysteresis  |
|                                 |              | Alarm 4 Type, Latch, and Hysteresis  |
|                                 |              | Standby Sequence Restart   |
|                                 | CH4          | Alarm 1 Type, Latch, and Hysteresis  |
|                                 |              | Alarm 2 Type, Latch, and Hysteresis  |
|                                 |              | Alarm 3 Type, Latch, and Hysteresis  |
|                                 |              | Alarm 4 Type, Latch, and Hysteresis  |
|                                 |              | Standby Sequence Restart   |
| Communications setting level    | All channels | Communications Settings  |
| Advanced function setting level | All channels | Number of Enabled Channels   |
| Extended control setting level  | CH1          | $\alpha$ , AT Calculated Gain, AT Hysteresis, Tentative AT Execute Judgment Deviation<br>Operation at Power ON, PID Automatic Selection, Manual Output Method, and MV Change Rate Limit Mode |
|                                 |              | Enable Settings for Tracking, Bumpless at Run, Operation at Potentiometer Input Error, and Disturbance Overshoot Adjustment Function   |
|                                 |              |  |
|                                 | CH2          | $\alpha$ , AT Calculated Gain, AT Hysteresis, Tentative AT Execute Judgment Deviation<br>Operation at Power ON, PID Automatic Selection, Manual Output Method, and MV Change Rate Limit Mode |
|                                 |              | PV Tracking, Bumpless at Run, Operation at Potentiometer Input Error, and Disturbance Overshoot Adjustment Function  |
|                                 |              |  |
|                                 | CH3          | $\alpha$ , AT Calculated Gain, AT Hysteresis, Tentative AT Execute Judgment Deviation<br>Operation at Power ON, PID Automatic Selection, Manual Output Method, and MV Change Rate Limit Mode |
|                                 |              | PV Tracking, Bumpless at Run, Operation at Potentiometer Input Error, and Disturbance Overshoot Adjustment Function  |
|                                 |              |  |
|                                 | CH4          | $\alpha$ , AT Calculated Gain, AT Hysteresis, Tentative AT Execute Judgment Deviation<br>Operation at Power ON, PID Automatic Selection, Manual Output Method, and MV Change Rate Limit Mode |
|                                 |              | PV Tracking, Bumpless at Run, Operation at Potentiometer Input Error, and Disturbance Overshoot Adjustment Function  |
|                                 |              |  |
|                                 | All channels |  |

## 1. E5AR/E5ER

### 1.1 Operation Controls

#### (1) Bank Selection

| Setting level   | Channel | Part |
|-----------------|---------|------|
| Operation level | CH1     | Yes  |
|                 | CH2     | Yes  |
|                 | CH3     | Yes  |
|                 | CH4     | Yes  |
|                 | All CH  | No   |

| Unit type   | E5AR/E5ER                 | Storage directory | SmartActiveParts_E\<br>TemperatureController\E5□R\     | Title | Bank Selection |
|---|---------------------------|-------------------|--|-------|----------------|
| Function  | Switches the bank number. |                   |  |       |                |
| Display and Operation Details   |                           |                   |  |       |                |
|    |                           |                   |  |       |                |
| No.   | Item                      | Setting/display   | Description  |       |                |
| 1   | Bank Selection            | Setting           | Switches the bank when the desired bank number is set. |       |                |
| Remarks   |                           |                   |  |       |                |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |                           |                   |  |       |                |

# Temperature Controller (E5□R)

## 1.2 Operation Level

### (2) Operation Monitor for Standard Control

| Setting level   | Channel | Part |
|-----------------|---------|------|
| Operation Level | CH1     | Yes  |
|                 | CH2     | Yes  |
|                 | CH3     | Yes  |
|                 | CH4     | Yes  |
|                 | All CH  | No   |

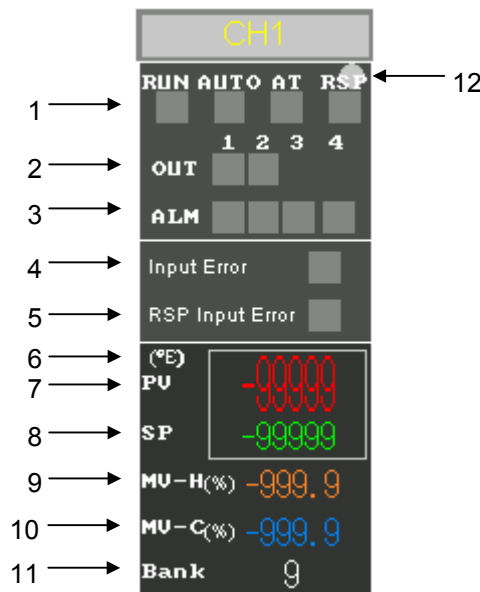
| Unit type   | E5AR/E5ER   | Storage directory | SmartActiveParts_E\<br>TemperatureControl<br>er\E5□R\       | Title | Operation Monitor for Standard Control |
|---|---|-------------------|---|-------|--|
| Function  | Continuously monitors operating status on a face plate. |                   |   |       |  |
| Display and Operation Details   |   |                   |   |       |  |
|   |   |                   |   |       |  |
| No.   | Item  | Setting/display   | Description   |       |  |
| 1   | RUN<br>AUTO<br>AT                                       | Display           | Displays the run/stop, auto/manual, and autotuning status.  |       |  |
| 2   | OUT   | Display           | Displays the output status of control outputs 1 and 2.      |       |  |
| 3   | ALM   | Display           | Displays the output status of alarm outputs 1, 2, 3, and 4. |       |  |
| 4   | Input Error   | Display           | Displays the input error status.                            |       |  |
| 5   | (°C) / (°F)   | Display           | Displays the temperature unit.                              |       |  |
| 6   | PV  | Display           | Displays the process value.                                 |       |  |
| 7   | SP  | Display           | Displays the set point.                                     |       |  |
| 8   | MV  | Display           | Displays the manipulated variable.                          |       |  |
| 9   | Bank  | Display           | Displays the bank number.                                   |       |  |
| 10  | Display Update Indicator                                | Display           | Flashes each time the display is updated.                   |       |  |
| Remarks   |   |                   |   |       |  |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |   |                   |   |       |  |

## (3) Operation Monitor for Heating/Cooling Control

| Setting level   | Channel | Part |
|-----------------|---------|------|
| Operation Level | CH1     | Yes  |
|                 | CH2     | Yes  |
|                 | CH3     | No   |
|                 | CH4     | No   |
|                 | All CH  | No   |

|                  |   |                          |  |              |   |
|------------------|---|--------------------------|--|--------------|---|
| <b>Unit type</b> | E5AR/E5ER   | <b>Storage directory</b> | SmartActiveParts_E\<br>TemperatureControll<br>er\E5□R\ | <b>Title</b> | Operation Monitor for Heating/Cooling Control |
| <b>Function</b>  | Continuously monitors operating status on a face plate. |                          |  |              |   |

### Display and Operation Details



| No. | Item                     | Setting/display | Description   |
|-----|--------------------------|-----------------|---|
| 1   | RUN<br>AUTO<br>AT<br>RSP | Display         | Displays the run/stop, auto/manual, autotuning, and remote SP status. |
| 2   | OUT                      | Display         | Displays the output status of control outputs 1 and 2.                |
| 3   | ALM                      | Display         | Displays the output status of alarm outputs 1, 2, 3, and 4.           |
| 4   | Input Error              | Display         | Displays the input error status.                                      |
| 5   | RSP Input Error          | Display         | Displays the RSP input error status.                                  |
| 6   | (°C) / (°F)              | Display         | Displays the temperature unit.  |
| 7   | PV                       | Display         | Displays the process value.   |
| 8   | SP                       | Display         | Displays the set point.   |
| 9   | MV-H                     | Display         | Displays the manipulated variable for heating.                        |
| 10  | MV-C                     | Display         | Displays the manipulated variable for cooling.                        |
| 11  | Bank                     | Display         | Displays the bank number.   |
| 12  | Display Update Indicator | Display         | Flashes each time the display is updated.                             |

### Remarks

- \* When using this SMART Active Part, be sure to select **Setting - System Settings** in the menu bar, press the **System Memory List** Button on the **Initial Tab** Page, and select **Basics** for the \$SB.
- \* Do not use this SMART Active Part on the initial screen.
- \* Use System version 5 or higher version.



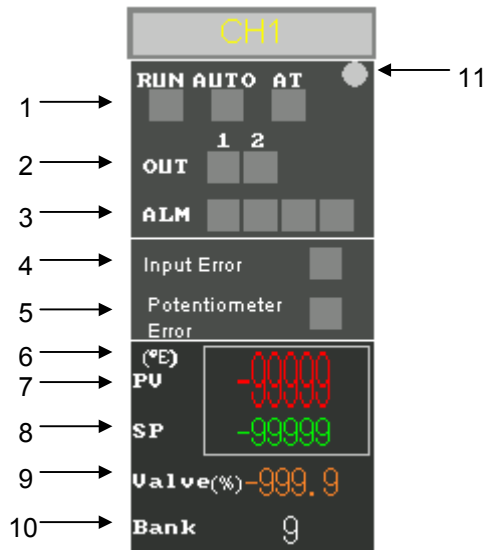
# Temperature Controller (E5□R)

## (4) Operation Monitor for Position Proportional Control

| Setting level   | Channel | Part |
|-----------------|---------|------|
| Operation Level | CH1     | Yes  |
|                 | CH2     | No   |
|                 | CH3     | No   |
|                 | CH4     | No   |
|                 | All CH  | No   |

|                  |  |                          |  |              |   |
|------------------|--|--------------------------|--|--------------|---|
| <b>Unit type</b> | E5AR/E5ER  | <b>Storage directory</b> | SmartActiveParts_E\<br>TemperatureControl<br>e\E5□R\ | <b>Title</b> | Operation Monitor for Position Proportional Control |
| <b>Function</b>  | Continuously monitors operating status on a face plate. The face plate is for position proportional control. |                          |  |              |   |

### Display and Operation Details



| No. | Item                        | Setting/display | Description  |
|-----|-----------------------------|-----------------|--|
| 1   | RUN<br>AUTO<br>AT           | Display         | Displays the run/stop, auto/manual, and autotuning status. |
| 2   | OUT                         | Display         | Displays the output status of control outputs 1 and 2.     |
| 3   | ALM                         | Display         | Displays the output status of alarm outputs 1, 2, and 3.   |
| 4   | Input Error                 | Display         | Displays the input error status.                           |
| 5   | Potentiometer<br>Error      | Display         | Displays the potentiometer error status.                   |
| 6   | (°C) / (°F)                 | Display         | Displays the temperature unit.                             |
| 7   | PV                          | Display         | Displays the process value.                                |
| 8   | SP                          | Display         | Displays the set point.                                    |
| 9   | Valve                       | Display         | Displays the percentage the valve is open.                 |
| 10  | Bank                        | Display         | Displays the bank number.                                  |
| 11  | Display Update<br>Indicator | Display         | Flashes each time the display is updated.                  |

### Remarks

- \* When using this SMART Active Part, be sure to select **Setting - System Settings** in the menu bar, press the **System Memory List** Button on the **Initial Tab** Page, and select **Basics** for the \$SB.
- \* Do not use this SMART Active Part on the initial screen.
- \* Use System version 5 or higher version.

## (5) SP Setting

| Setting level   | Channel | Part |
|-----------------|---------|------|
| Operation Level | CH1     | Yes  |
|                 | CH2     | Yes  |
|                 | CH3     | Yes  |
|                 | CH4     | Yes  |
|                 | All CH  | No   |

|  |                     |                             |   |              |            |
|--|---------------------|-----------------------------|---|--------------|------------|
| <b>Unit type</b>   | E5AR/E5ER           | <b>Storage directory</b>    | SmartActiveParts_E\<br>TemperatureControl<br>er\E5□R\ | <b>Title</b> | SP Setting |
| <b>Function</b>  | Sets the set point. |                             |   |              |            |
| <b>Display and Operation Details</b>   |                     |                             |   |              |            |
|  |                     |                             |   |              |            |
| <b>No.</b>   | <b>Item</b>         | <b>Setting/<br/>display</b> | <b>Description</b>                                    |              |            |
| 1  | SP                  | Setting                     | Sets the set point.                                   |              |            |
| 2  | (°C) / (°F)         | Display                     | Displays the temperature unit.                        |              |            |
| <b>Remarks</b>   |                     |                             |   |              |            |
| * When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB. |                     |                             |   |              |            |
| * Do not use this SMART Active Part on the initial screen.   |                     |                             |   |              |            |
| * Use System version 5 or higher version.  |                     |                             |   |              |            |

# Temperature Controller (E5□R)

## (6) Manual MV Setting for Standard or Heating/Cooling Control

| Setting level   | Channel | Part |
|-----------------|---------|------|
| Operation Level | CH1     | Yes  |
|                 | CH2     | Yes  |
|                 | CH3     | Yes  |
|                 | CH4     | Yes  |
|                 | All CH  | No   |

| Unit type  | E5AR/E5ER                             | Storage directory | SmartActiveParts_E\<br>TemperatureControl<br>er\E5□R\               | Title | MV Manual Setting |
|--|---------------------------------------|-------------------|---|-------|-------------------|
| Function   | Sets the manual manipulated variable. |                   |   |       |                   |
| Display and Operation Details  |                                       |                   |   |       |                   |
|  |                                       |                   |   |       |                   |
| No.  | Item                                  | Setting/display   | Description   |       |                   |
| 1  | PV                                    | Setting           | Displays the process value. The display is updated continuously.    |       |                   |
| 2  | (°C) / (°F)                           | Display           | Displays the temperature unit.                                      |       |                   |
| 3  | Display Update Indicator              | Setting           | Flashes each time the PV display is updated.                        |       |                   |
| 4  | MV                                    | Setting           | Sets the manual manipulated variable.                               |       |                   |
| 5  | ▲                                     | Setting           | Increments the manual manipulated variable by one engineering unit. |       |                   |
| 6  | ▼                                     | Setting           | Decrements the manual manipulated variable by one engineering unit. |       |                   |
| Remarks  |                                       |                   |   |       |                   |
| * When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB. |                                       |                   |   |       |                   |
| * Do not use this SMART Active Part on the initial screen.   |                                       |                   |   |       |                   |
| * Use System version 5 or higher version.  |                                       |                   |   |       |                   |

## (7) Manual MV Setting for Position Proportional Control

| Setting level   | Channel | Part |
|-----------------|---------|------|
| Operation Level | CH1     | Yes  |
|                 | CH2     | No   |
|                 | CH3     | No   |
|                 | CH4     | No   |
|                 | All CH  | No   |

| Unit type  | E5AR/E5ER                             | Storage directory | SmartActiveParts_E\<br>TemperatureControl<br>e\E5□R\                | Title | Manual MV Setting for Position Proportional Control |
|--|---------------------------------------|-------------------|---|-------|---|
| Function   | Sets the manual manipulated variable. |                   |   |       |   |
| Display and Operation Details  |                                       |                   |   |       |   |
|  |                                       |                   |   |       |   |
| No.  | Item                                  | Setting/display   | Description   |       |   |
| 1  | PV                                    | Setting           | Displays the process value. The display is updated continuously.    |       |   |
| 2  | (°C) / (°F)                           | Display           | Displays the temperature unit.                                      |       |   |
| 3  | Display Update Indicator              | Setting           | Flashes each time the PV display is updated.                        |       |   |
| 4  | MV                                    | Setting           | Sets the manual manipulated variable.                               |       |   |
| 5  | ▲                                     | Setting           | Increments the manual manipulated variable by one engineering unit. |       |   |
| 6  | ▼                                     | Setting           | Decrements the manual manipulated variable by one engineering unit. |       |   |
| Remarks  |                                       |                   |   |       |   |
| * When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB. |                                       |                   |   |       |   |
| * Do not use this SMART Active Part on the initial screen.   |                                       |                   |   |       |   |
| * Use System version 5 or higher version.  |                                       |                   |   |       |   |

# Temperature Controller (E5□R)

## 1.1.2 Adjustment Level

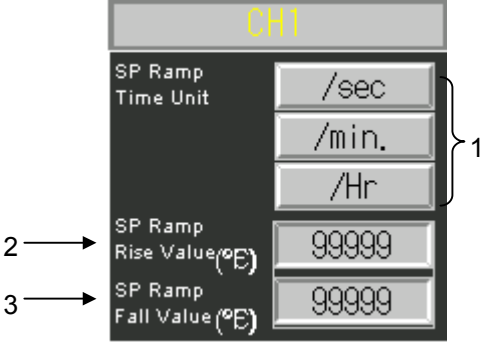
### (8) Input Shift Values

| Setting level    | Channel | Part |
|------------------|---------|------|
| Adjustment level | CH1     | Yes  |
|                  | CH2     | Yes  |
|                  | CH3     | Yes  |
|                  | CH4     | Yes  |
|                  | All CH  | No   |

|   |   |                          |  |              |                    |
|---|---|--------------------------|--|--------------|--------------------|
| <b>Unit type</b>  | E5AR/E5ER                                     | <b>Storage directory</b> | SmartActiveParts_E\TemperatureController\E5□R\AdjustmentLevel                      | <b>Title</b> | Input Shift Values |
| <b>Function</b>   | Shifts the input by setting two points.       |                          |  |              |                    |
| <b>Display and Operation Details</b>  |   |                          |  |              |                    |
|   |   |                          |  |              |                    |
| <b>No.</b>  | <b>Item</b>                                   | <b>Setting/display</b>   | <b>Description</b>   |              |                    |
| 1   | Input Data 1<br>Input value<br>Adjustment Val | Setting                  | Sets the input value for input data 1.<br>Sets the shifted value for input data 1. |              |                    |
| 2   | Input Data 2<br>Input value<br>Adjustment Val | Setting                  | Sets the input value for input data 2.<br>Sets the shifted value for input data 2. |              |                    |
| 3   | (°C) / (°F)                                   | Setting                  | Displays the temperature unit.   |              |                    |
| <b>Remarks</b>  |   |                          |  |              |                    |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |   |                          |  |              |                    |

## (9) SP Ramp Time Unit, SP Ramp Rise Value, and SP Ramp Fall Value

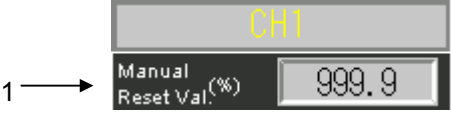
| Setting level    | Channel | Part |
|------------------|---------|------|
| Adjustment level | CH1     | Yes  |
|                  | CH2     | Yes  |
|                  | CH3     | Yes  |
|                  | CH4     | Yes  |
|                  | All CH  | No   |

| Unit type   | E5AR/E5ER   | Storage directory | SmartActiveParts_E\TemperatureController\E5□R\AdjustmentLevel | Title | SP Ramp |
|---|---|-------------------|---|-------|---------|
| Function  | Sets the SP ramp time unit, SP ramp rise value, and SP ramp fall value. |                   |   |       |         |
| Display and Operation Details   |   |                   |   |       |         |
|    |   |                   |   |       |         |
| No.   | Item  | Setting/display   | Description   |       |         |
| 1   | SP Ramp Time Unit   | Setting           | Sets the time unit for the SP ramp settings.                  |       |         |
| 2   | SP Ramp Rise Value  | Setting           | Sets the SP ramp rise value.<br>Set 0 disable the setting.    |       |         |
| 3   | SP Ramp Fall Value  | Setting           | Sets the SP ramp fall value.<br>Set 0 disable the setting.    |       |         |
| Remarks   |   |                   |   |       |         |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |   |                   |   |       |         |

# Temperature Controller (E5□R)

## (10) Manual Reset Value

| Setting level    | Channel | Part |
|------------------|---------|------|
| Adjustment level | CH1     | Yes  |
|                  | CH2     | Yes  |
|                  | CH3     | Yes  |
|                  | CH4     | Yes  |
|                  | All CH  | No   |

|   |                              |                          |   |              |                    |
|---|------------------------------|--------------------------|---|--------------|--------------------|
| <b>Unit type</b>  | E5AR/E5ER                    | <b>Storage directory</b> | SmartActiveParts_E\<br>TemperatureController\E5□R\AdjustmentLevel | <b>Title</b> | Manual Reset Value |
| <b>Function</b>   | Sets the manual reset value. |                          |   |              |                    |
| <b>Display and Operation Details</b>  |                              |                          |   |              |                    |
|   |                              |                          |   |              |                    |
| <b>No.</b>  | <b>Item</b>                  | <b>Setting/display</b>   | <b>Description</b>  |              |                    |
| 1   | Manual Reset Val.            | Setting                  | Sets the manual reset value.                                      |              |                    |
| <b>Remarks</b>  |                              |                          |   |              |                    |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |                              |                          |   |              |                    |

## (11) MV Change Rate Limits

| Setting level    | Channel | Part |
|------------------|---------|------|
| Adjustment level | CH1     | Yes  |
|                  | CH2     | Yes  |
|                  | CH3     | Yes  |
|                  | CH4     | Yes  |
|                  | All CH  | No   |

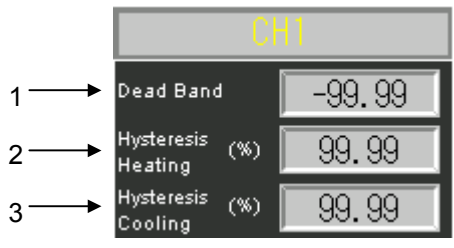
|   |   |                             |  |              |                       |
|---|---|-----------------------------|--|--------------|-----------------------|
| <b>Unit type</b>  | E5AR/E5ER   | <b>Storage directory</b>    | SmartActiveParts_E\<br>TemperatureControl<br>ler\E5□R\AdjustmentL<br>evel  | <b>Title</b> | MV Change Rate Limits |
| <b>Function</b>   | Sets the maximum allowed change widths in the manipulated variables per second. |                             |  |              |                       |
| <b>Display and Operation Details</b>  |   |                             |  |              |                       |
|   |   |                             |  |              |                       |
| <b>No.</b>  | <b>Item</b>   | <b>Setting/<br/>display</b> | <b>Description</b>   |              |                       |
| 1   | MV Change Rate Limit Heating  | Setting                     | Sets the maximum allowed change width in the heating manipulated variables per second for heating/cooling control.<br>Sets the maximum allowed change width in the manipulated variables per second for standard control.<br>Set 0.0 to disable this function. |              |                       |
| 2   | MV Change Rate Limit Cooling  | Setting                     | Sets the maximum allowed change width in the cooling manipulated variables per second for heating/cooling control.<br>Set 0.0 to disable this function.  |              |                       |
| <b>Remarks</b>  |   |                             |  |              |                       |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |   |                             |  |              |                       |



# Temperature Controller (E5□R)

## (12) Dead Band and Hysteresis

| Setting level    | Channel | Part |
|------------------|---------|------|
| Adjustment level | CH1     | Yes  |
|                  | CH2     | Yes  |
|                  | CH3     | Yes  |
|                  | CH4     | Yes  |
|                  | All CH  | No   |

|   |   |                          |  |              |                          |
|---|---|--------------------------|--|--------------|--------------------------|
| <b>Unit type</b>  | E5AR/E5ER   | <b>Storage directory</b> | SmartActiveParts_E\<br>TemperatureController\E5□R\AdjustmentLevel  | <b>Title</b> | Dead Band and Hysteresis |
| <b>Function</b>   | Sets the dead band and hysteresis for ON/OFF control. |                          |  |              |                          |
| <b>Display and Operation Details</b>  |   |                          |  |              |                          |
|  <p>The screenshot shows the CH1 settings screen with three items highlighted by arrows:</p> <ul style="list-style-type: none"> <li>1 → Dead Band: -99.99</li> <li>2 → Hysteresis Heating (%): 99.99</li> <li>3 → Hysteresis Cooling (%): 99.99</li> </ul>  |   |                          |  |              |                          |
| <b>No.</b>  | <b>Item</b>   | <b>Setting/display</b>   | <b>Description</b>   |              |                          |
| 1   | Dead Band   | Setting                  | Sets the dead band.  |              |                          |
| 2   | Hysteresis Heating                                    | Setting                  | Sets the hysteresis for the heating output for heating/cooling control.<br>Sets the hysteresis for standard control. |              |                          |
| 3   | Hysteresis Cooling                                    | Setting                  | Sets the hysteresis for the cooling output for heating/cooling control.  |              |                          |
| <b>Remarks</b>  |   |                          |  |              |                          |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |   |                          |  |              |                          |

## (13) MV at Stop and MV at PV Error

| Setting level    | Channel | Part |
|------------------|---------|------|
| Adjustment level | CH1     | Yes  |
|                  | CH2     | Yes  |
|                  | CH3     | Yes  |
|                  | CH4     | Yes  |
|                  | All CH  | No   |

|   |   |                             |   |              |                               |
|---|---|-----------------------------|---|--------------|-------------------------------|
| <b>Unit type</b>  | E5AR/E5ER   | <b>Storage directory</b>    | SmartActiveParts_E\<br>TemperatureControl<br>ler\E5□R\AdjustmentL<br>evel | <b>Title</b> | MV at Stop and MV at PV Error |
| <b>Function</b>   | Sets the MV for when the control operation is stopped and the MV for when a PV or remote SP input error occurs. |                             |   |              |                               |
| <b>Display and Operation Details</b>  |   |                             |   |              |                               |
|   |   |                             |   |              |                               |
| <b>No.</b>  | <b>Item</b>   | <b>Setting/<br/>display</b> | <b>Description</b>  |              |                               |
| 1   | MV at Stop  | Setting                     | Sets the manipulated variable when the control operation stops.           |              |                               |
| 2   | MV at PV Error  | Setting                     | Sets the MV for when a PV or remote SP input error occurs.                |              |                               |
| <b>Remarks</b>  |   |                             |   |              |                               |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |   |                             |   |              |                               |

# Temperature Controller (E5□R)

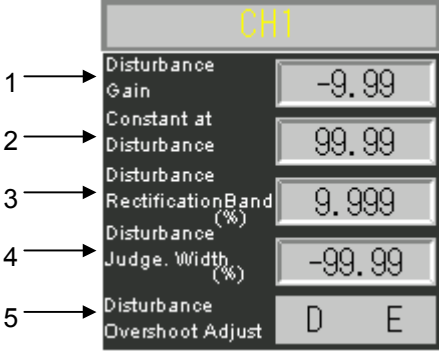
## (14) Cooling Coefficient, Dead Band, and Control Period

| Setting level    | Channel | Part |
|------------------|---------|------|
| Adjustment level | CH1     | Yes  |
|                  | CH2     | Yes  |
|                  | CH3     | Yes  |
|                  | CH4     | Yes  |
|                  | All CH  | No   |

| Unit type   | E5AR/E5ER  | Storage directory | SmartActiveParts_E\<br>TemperatureController\E5□R\AdjustmentLevel  | Title | Cooling Coefficient, Dead Band, and Control Period |
|---|--|-------------------|--|-------|--|
| Function  | Sets the cooling coefficient, dead band, and control period. |                   |  |       |  |
| Display and Operation Details   |  |                   |  |       |  |
|   |  |                   |  |       |  |
| No.   | Item   | Setting/display   | Description  |       |  |
| 1   | Cooling Coefficient  | Setting           | Sets the cooling coefficient for heating/cooling control.  |       |  |
| 2   | Dead Band  | Setting           | Sets the dead band for heating/cooling control.  |       |  |
| 3   | Control Period Heating                                       | Setting           | Sets the control period for the heating output for heating/cooling control.<br>Sets the control period for standard control. |       |  |
| 4   | Control Period Cooling                                       | Setting           | Sets the control period for the cooling output for heating/cooling control.  |       |  |
| Remarks   |  |                   |  |       |  |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |  |                   |  |       |  |

## (15) Disturbance Gain, Constant at Disturbance, Disturbance Rectification Band, Disturbance Judgment Width, and Disturbance Overshoot Adjustment

| Setting level    | Channel | Part |
|------------------|---------|------|
| Adjustment level | CH1     | Yes  |
|                  | CH2     | Yes  |
|                  | CH3     | Yes  |
|                  | CH4     | Yes  |
|                  | All CH  | No   |

| Unit type   | E5AR/E5ER   | Storage directory | SmartActiveParts_E\<br>TemperatureController\E5□R\AdjustmentLevel  | Title | Disturbance Settings |
|---|---|-------------------|--|-------|----------------------|
| Function  | Sets adjustments for disturbance.<br>These settings are valid when the disturbance overshoot adjustment function has been enabled.<br>The disturbance overshoot adjustment function is enabled in the Extended control setting level. |                   |  |       |                      |
| Display and Operation Details   |   |                   |  |       |                      |
|    |   |                   |  |       |                      |
| No.   | Item  | Setting/display   | Description  |       |                      |
| 1   | Disturbance Gain  | Setting           | Sets the disturbance gain.   |       |                      |
| 2   | Constant at Disturbance   | Setting           | Sets the time constant for disturbance.  |       |                      |
| 3   | Disturbance Rectification Band  | Setting           | Sets the disturbance rectification band.   |       |                      |
| 4   | Disturbance Judge. Width  | Setting           | Sets the judgment width for disturbance.   |       |                      |
| 5   | Disturbance Overshoot Adjust  | Display           | Displays whether the disturbance overshoot adjustment function is enabled. Use a SMART Active Part in the Extended control setting level to make this setting. |       |                      |
| Remarks   |   |                   |  |       |                      |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |   |                   |  |       |                      |

# Temperature Controller (E5□R)

## 1.1.3 Adjustment 2 Level

### (16) First Order Lag Operation, Move Average, and Extraction of Square Root Low-cut Point

There are SMART Active Parts for 1 point, 2 points, and 4 points.

| Setting level    | Channel | Part |
|------------------|---------|------|
| Adjustment level | CH1     | No   |
|                  | CH2     | No   |
|                  | CH3     | No   |
|                  | CH4     | No   |
|                  | All CH  | Yes  |

| Unit type | E5AR/E5ER   | Storage directory | SmartActiveParts_E\TemperatureController\E5□R\AdjustmentLevel | Title | First Order Lag Operation, Move Average, and Extraction of Square Root Low-cut Point for 4 Points |
|-----------|---|-------------------|---|-------|---|
| Function  | Sets the first order lag operation, move average, and extraction of square root low-cut point for inputs 1, 2, 3, and 4. This SMART Active Part will function when the first order lag operation, move averages, and extraction of square root low-cut points have been enabled. The settings to enable these functions are made with a SMART Active Part in the control initial setting level 2. |                   |   |       |   |

#### Display and Operation Details

|     |         | First Order Lag Operation | Move Average Count | Low-cut Point |
|-----|---------|---------------------------|--------------------|---------------|
| 1 → | Input 1 | 999.9                     | 99                 | 9.999         |
| 2 → |         | D E                       | D E                | D E           |
| 1 → | Input 2 | 999.9                     | 99                 | 9.999         |
| 2 → |         | D E                       | D E                | D E           |
| 1 → | Input 3 | 999.9                     | 99                 | 9.999         |
| 2 → |         | D E                       | D E                | D E           |
| 1 → | Input 4 | 999.9                     | 99                 | 9.999         |
| 2 → |         | D E                       | D E                | D E           |

| No. | Item   | Setting/display | Description   |
|-----|--|-----------------|---|
| 1   | First Order Lag Operation, Move Average Counts, and Low-cut Points for Input 1, Input 2, Input 3, and Input 4                          | Setting         | Sets the first order lag operation, move average count, and extraction of square root low-cut points for each input.  |
| 2   | First Order Lag Operation, Move Average Counts, and Low-cut Points for Input 1, Input 2, Input 3, and Input 4 Enabled/Disabled Display | Display         | Displays whether the first order lag operation, move average count, and extraction of square root low-cut point is enabled or disabled for each input. The settings to enable these functions are made with a SMART Active Part in the control initial setting level 2. |

#### Remarks

- \* When using this SMART Active Part, be sure to select **Setting - System Settings** in the menu bar, press the **System Memory List** Button on the **Initial Tab** Page, and select **Basics** for the \$SB.
- \* Do not use this SMART Active Part on the initial screen.
- \* Use System version 5 or higher version.

## (17) Dead Band, Open/Close Hysteresis, MV at Stop, and MV at PV Error for Position Proportional Control

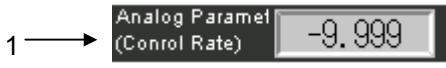
| Setting level    | Channel | Part |
|------------------|---------|------|
| Adjustment level | CH1     | No   |
|                  | CH2     | No   |
|                  | CH3     | No   |
|                  | CH4     | No   |
|                  | All CH  | Yes  |

| Unit type   | E5AR/E5ER  | Storage directory   | SmartActiveParts_E\<br>TemperatureControl<br>er\E5□R\AdjustmentL<br>evel     | Title | Position Proportional Control<br>Adjustment |
|---|--|---------------------|--|-------|---|
| Function  | Sets the dead band, open/close hysteresis, MV at stop, and MV at PV error for position proportional control. |                     |  |       |   |
| Display and Operation Details   |  |                     |  |       |   |
|   |  |                     |  |       |   |
| No.   | Item   | Setting/<br>display | Description  |       |   |
| 1   | Position Propor.<br>Dead Band  | Setting             | Sets the dead band for holding the output for position proportional control. |       |   |
| 2   | Open/Close<br>Hysteresis   | Setting             | Sets the open/close hysteresis for position proportional control.            |       |   |
| 3   | MV at Stop   | Setting             | Sets the MV to open, hold, or close for when operation stops.                |       |   |
| 4   | MV at PV Error   | Setting             | Sets the MV to open, hold, or close for when an error occurs.                |       |   |
| Remarks   |  |                     |  |       |   |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |  |                     |  |       |   |

# Temperature Controller (E5□R)

## (18) Analog Parameter Control Rate

| Setting level    | Channel | Part |
|------------------|---------|------|
| Adjustment level | CH1     | No   |
|                  | CH2     | No   |
|                  | CH3     | No   |
|                  | CH4     | No   |
|                  | All CH  | Yes  |

|   |  |                             |  |              |                               |
|---|--|-----------------------------|--|--------------|-------------------------------|
| <b>Unit type</b>  | E5AR/E5ER                                      | <b>Storage directory</b>    | SmartActiveParts_E\<br>TemperatureControl<br>er\E5□R\AdjustmentL<br>evel | <b>Title</b> | Analog Parameter Control Rate |
| <b>Function</b>   | Sets the rate to use for proportional control. |                             |  |              |                               |
| <b>Display and Operation Details</b>  |  |                             |  |              |                               |
|   |  |                             |  |              |                               |
| <b>No.</b>  | <b>Item</b>                                    | <b>Setting/<br/>display</b> | <b>Description</b>   |              |                               |
| 1   | Analog Paramet<br>(Control Rate)               | Setting                     | Sets the rate to use for proportional control.                           |              |                               |
| <b>Remarks</b>  |  |                             |  |              |                               |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |  |                             |  |              |                               |

## 1.1.4 Bank Setting Level

### (19) LSP and Alarm Settings

| Setting level      | Channel | Part |
|--------------------|---------|------|
| Bank setting level | CH1     | Yes  |
|                    | CH2     | Yes  |
|                    | CH3     | Yes  |
|                    | CH4     | Yes  |
|                    | All CH  | No   |

| Unit type                     | E5AR/E5ER   | Storage directory   | SmartActiveParts_E\<br>TemperatureController\E5□R\BankSetting<br>Level   | Title | LSP and Alarm Settings |
|-------------------------------|---|---------------------|--|-------|------------------------|
| Function                      | Sets the local set point and the alarm values for the displayed bank.<br>When the bank number is changed, the display will be automatically updated to data for the specified bank. |                     |  |       |                        |
| Display and Operation Details |   |                     |  |       |                        |
|                               |   |                     |  |       |                        |
| No.                           | Item  | Setting/<br>display | Description  |       |                        |
| 1                             | LSP   | Setting             | Sets the set point for the displayed bank.   |       |                        |
| 2                             | Bank  | Display             | Displays the bank number that is currently selected. The bank number display is continuously updated. When the bank number is changed, all displayed data will be updated. |       |                        |
| 3                             | (°C) / (°F)   | Display             | Displays the temperature unit.   |       |                        |
| 4                             | ALM1  | -                   | The ALM1 row contains the alarm 1 settings: alarm value, upper limit, and lower limit.   |       |                        |
| 5                             | ALM2  | -                   | The ALM2 row contains the alarm 2 settings: alarm value, upper limit, and lower limit.   |       |                        |
| 6                             | ALM3  | -                   | The ALM3 row contains the alarm 3 settings: alarm value, upper limit, and lower limit.   |       |                        |
| 7                             | ALM4  | -                   | The ALM4 row contains the alarm 4 settings: alarm value, upper limit, and lower limit.   |       |                        |
| 8                             | ALM Indicators  | Setting             | Displays the output status of alarm outputs 1, 2, 3, and 4. The display is continuously updated.   |       |                        |
| 9                             | Alarm Val.  | Setting             | Sets the alarm value for the displayed bank. The alarm value is displayed and can be set when the alarm type is set to anything other than an upper/lower limit alarm.     |       |                        |
| 10                            | Upper Lim.  | Setting             | Sets the alarm upper limit for the displayed bank. The alarm upper limit is displayed and can be set when the alarm type is set to an upper/lower limit alarm.             |       |                        |
| 11                            | Lower Lim.  | Setting             | Sets the alarm lower limit for the displayed bank. The alarm lower limit is displayed and can be set when the alarm type is set to an upper/lower limit alarm.             |       |                        |
| 12                            | Display Update Indicator  | Display             | The alarm display indicators and bank number display are continuously updated.   |       |                        |



# Temperature Controller (E5□R)

## Remarks

- \* When using this SMART Active Part, be sure to select **Setting - System Settings** in the menu bar, press the **System Memory List** Button on the **Initial Tab** Page, and select **Basics** for the \$SB.
- \* Do not use this SMART Active Part on the initial screen.
- \* Use System version 5 or higher version.

## (20) SP Setting

| Setting level      | Channel | Part |
|--------------------|---------|------|
| Bank setting level | CH1     | Yes  |
|                    | CH2     | Yes  |
|                    | CH3     | Yes  |
|                    | CH4     | Yes  |
|                    | All CH  | No   |

| Unit type   | E5AR/E5ER  | Storage directory | SmartActiveParts_E\<br>TemperatureController\E5[R\BankSetting<br>Level         | Title | LSP Setting |
|---|--|-------------------|--|-------|-------------|
| Function  | Sets the local set point for the displayed bank.<br>When the bank number is changed, the LSP display will be automatically updated to data for the specified bank. |                   |  |       |             |
| Display and Operation Details   |  |                   |  |       |             |
|   |  |                   |  |       |             |
| No.   | Item   | Setting/display   | Description  |       |             |
| 1   | Bank Selection   | Display           | Displays the bank number that is currently selected.                           |       |             |
| 2   | LSP  | Setting           | Sets the local set point for the displayed bank.                               |       |             |
| 3   | (°C) / (°F)  | Display           | Displays the temperature unit.   |       |             |
| 4   | Display Update Indicator   | Display           | Flashes each time the display is updated. The display is periodically updated. |       |             |
| Remarks   |  |                   |  |       |             |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |  |                   |  |       |             |

## 1.1.5 PID Setting Level

### (21) PID Settings, MV Limits, Automatic Selection Range

| Setting level     | Channel | Part |
|-------------------|---------|------|
| PID setting level | CH1     | Yes  |
|                   | CH2     | Yes  |
|                   | CH3     | Yes  |
|                   | CH4     | Yes  |
|                   | All CH  | No   |

| Unit type  | E5AR/E5ER   | Storage directory | SmartActiveParts_E\TemperatureController\E5□R\PIDSettingLevel   | Title | PID Settings, MV Limits, Automatic Selection Range |
|--|---|-------------------|---|-------|--|
| Function   | Sets parameters for PID control.<br>When the PID set monitor number is changed, all displayed data will be updated. |                   |   |       |  |
| Display and Operation Details  |   |                   |   |       |  |
|  |   |                   |   |       |  |
| No.  | Item  | Setting/display   | Description   |       |  |
| 1  | PID Set Monitor   | Setting           | Displays the PID set that has been selected.  |       |  |
| 2  | P Value<br>I Value<br>D Value   | Setting           | Sets the proportional band, integral time, and derivative time for the displayed PID set.                             |       |  |
| 3  | MV Upper Limit  | Setting           | Sets the upper limit of the manipulated variable for the displayed PID set.   |       |  |
| 4  | MV Lower Limit  | Setting           | Sets the lower limit of the manipulated variable for the displayed PID set.   |       |  |
| 5  | Automatic Selection Range Upper Limit PV  | Setting           | Sets the upper limit of the selected by the displayed PID set.  |       |  |
| 6  | Automatic Selection Range Upper Limit DV  | Setting           | Sets the upper limit of the selected by the displayed PID set.  |       |  |
| 7  | (°C) / (°F)   | Display           | Displays the temperature unit.  |       |  |
| 8  | Display Update Indicator  | Display           | Flashes each time the PID set display is updated.<br>When the PID set is changed, all displayed data will be updated. |       |  |
| Remarks  |   |                   |   |       |  |
| * When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB. |   |                   |   |       |  |
| * Do not use this SMART Active Part on the initial screen.   |   |                   |   |       |  |
| * Use System version 5 or higher version.  |   |                   |   |       |  |

# Temperature Controller (E5□R)

## 1.1.6 Approx\_setting

### (22) Straight-line Approximation

| Setting level  | Channel | Part |
|----------------|---------|------|
| Approx_setting | CH1     | No   |
|                | CH2     | No   |
|                | CH3     | No   |
|                | CH4     | No   |
|                | All CH  | Yes  |

| Unit type   | E5AR/E5ER   | Storage directory | SmartActiveParts_E\TemperatureController\E5□R\Approx_setting  | Title | Straight-line Approximation |
|---|---|-------------------|---|-------|-----------------------------|
| Function  | Sets the characteristics for straight-line approximation. This SMART Active Part will function when the data is enabled. The settings to enable these functions are made with a SMART Active Part in the control initial setting level 2. |                   |   |       |                             |
| Display and Operation Details   |   |                   |   |       |                             |
|   |   |                   |   |       |                             |
| No.   | Item  | Setting/display   | Description   |       |                             |
| 1   | Straight-line Approx. 1 Data 1 Input Data 1 Output  | Setting           | Sets the input and output values for data 1 for straight-line approximation 1.  |       |                             |
| 2   | Straight-line Approx. 1 Data 2 Input Data 2 Output  | Setting           | Sets the input and output values for data 2 for straight-line approximation 1.  |       |                             |
| 3   | Straight-line Approx. 1 Enable/Disable Display  | Display           | Displays whether straight-line approximation 1 is enabled. The setting to enable this function is made with a SMART Active Part in the control initial setting level 2. |       |                             |
| 4   | Straight-line Approx. 2 Data 1 Input Data 1 Output  | Setting           | Sets the input and output values for data 1 for straight-line approximation 2.  |       |                             |
| 5   | Straight-line Approx. 2 Data 2 Input Data 2 Output  | Setting           | Sets the input and output values for data 2 for straight-line approximation 2.  |       |                             |
| 6   | Straight-line Approx. 2 Enable/Disable Display  | Display           | Displays whether straight-line approximation 2 is enabled. The setting to enable this function is made with a SMART Active Part in the control initial setting level 2. |       |                             |
| Remarks   |   |                   |   |       |                             |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |   |                   |   |       |                             |

(23) Broken-line Approximation (1 to 10)

| Setting level  | Channel | Part |
|----------------|---------|------|
| Approx_setting | CH1     | No   |
|                | CH2     | No   |
|                | CH3     | No   |
|                | CH4     | No   |
|                | All CH  | Yes  |

|                  |           |                          |  |              |                                     |
|------------------|-----------|--------------------------|--|--------------|-------------------------------------|
| <b>Unit type</b> | E5AR/E5ER | <b>Storage directory</b> | SmartActiveParts_E\TemperatureController\E5□R\Approx_setting | <b>Title</b> | Broken-line Approximation (1 to 10) |
|------------------|-----------|--------------------------|--|--------------|-------------------------------------|

**Function** Sets the characteristics for broken-line approximation. Up to 20 points can be set. Points 11 to 20 are set with a separate SMART Active Part. This SMART Active Part will function when the data is enabled.

**Display and Operation Details**

| No. | Item   | Setting/display | Description   |
|-----|--|-----------------|---|
| 1   | Broken-line Approximation Data 1<br>Broken-line Approximation Data 2<br>Broken-line Approximation Data 3<br>Broken-line Approximation Data 4<br>Broken-line Approximation Data 5<br>Broken-line Approximation Data 6<br>Broken-line Approximation Data 7<br>Broken-line Approximation Data 8<br>Broken-line Approximation Data 9<br>Broken-line Approximation Data 10<br>Input<br>Output | Setting         | Set the input and output values for broken-line approximation data 1 to 10.   |
| 2   | Broken-line Approximation Enable/Disable Display   | Display         | Displays whether broken-line approximation is enabled. The setting to enable this function is made with a SMART Active Part in the control initial setting level 2. |

**Remarks**

- \* When using this SMART Active Part, be sure to select **Setting - System Settings** in the menu bar, press the **System Memory List** Button on the **Initial Tab** Page, and select **Basics** for the \$SB.
- \* Do not use this SMART Active Part on the initial screen.
- \* Use System version 5 or higher version.

# Temperature Controller (E5□R)

## (24) Broken-line Approximation (11 to 20)

| Setting level  | Channel | Part |
|----------------|---------|------|
| Approx_setting | CH1     | No   |
|                | CH2     | No   |
|                | CH3     | No   |
|                | CH4     | No   |
|                | All CH  | Yes  |

|                  |           |                          |  |              |                                      |
|------------------|-----------|--------------------------|--|--------------|--------------------------------------|
| <b>Unit type</b> | E5AR/E5ER | <b>Storage directory</b> | SmartActiveParts_E\TemperatureController\E5□R\Approx_setting | <b>Title</b> | Broken-line Approximation (11 to 20) |
|------------------|-----------|--------------------------|--|--------------|--------------------------------------|

**Function** Sets the characteristics for broken-line approximation. Up to 20 points can be set. Points 1 to 10 are set with a separate SMART Active Part. This SMART Active Part will function when the data is enabled.

**Display and Operation Details**

The screenshot shows a grid of 20 data points for broken-line approximation. Each point consists of a 'Data' column (numbered 11-20), an 'Input' column, and an 'Output' column. All input and output values are currently set to -9.999. Below the grid are two buttons: 'Disable' and 'Enable'. Arrows on the left (1-11) point to the 'Data' column, and arrows on the right (6-10) point to the 'Output' column.

| No. | Item  | Setting/display | Description   |
|-----|---|-----------------|---|
| 1   | Broken-line Approximation Data 11<br>Broken-line Approximation Data 12<br>Broken-line Approximation Data 13<br>Broken-line Approximation Data 14<br>Broken-line Approximation Data 15<br>Broken-line Approximation Data 16<br>Broken-line Approximation Data 17<br>Broken-line Approximation Data 18<br>Broken-line Approximation Data 19<br>Broken-line Approximation Data 20<br>Input<br>Output | Setting         | Set the input and output values for broken-line approximation data 11 to 20.  |
| 2   | Broken Line Approximation Enable/Disable Display  | Setting         | Displays whether broken-line approximation is enabled. The setting to enable this function is made with a SMART Active Part in the control initial setting level 2. |

**Remarks**

- \* When using this SMART Active Part, be sure to select **Setting - System Settings** in the menu bar, press the **System Memory List** Button on the **Initial Tab** Page, and select **Basics** for the \$SB.
- \* Do not use this SMART Active Part on the initial screen.
- \* Use System version 5 or higher version.

## 1.1.7 Input Initial Setting Level

### (25) Remote SP Upper/Lower Limits

| Setting level               | Channel | Part |
|-----------------------------|---------|------|
| Input initial setting level | CH1     | Yes  |
|                             | CH2     | Yes  |
|                             | CH3     | Yes  |
|                             | CH4     | Yes  |
|                             | All CH  | No   |

|   |   |                          |  |              |                              |
|---|---|--------------------------|--|--------------|------------------------------|
| <b>Unit type</b>  | E5AR/E5ER   | <b>Storage directory</b> | SmartActiveParts_E\TemperatureController\E5□R\InputInitialSettingLevel | <b>Title</b> | Remote SP Upper/Lower Limits |
| <b>Function</b>   | Sets the upper and lower limits of the remote SP. |                          |  |              |                              |
| <b>Display and Operation Details</b>  |   |                          |  |              |                              |
|   |   |                          |  |              |                              |
| <b>No.</b>  | <b>Item</b>                                       | <b>Setting/display</b>   | <b>Description</b>   |              |                              |
| 1   | RSPH  | Setting                  | Sets the upper limit of the input range for input 2.                   |              |                              |
| 2   | RSPL  | Setting                  | Sets the lower limit of the input range for input 2.                   |              |                              |
| <b>Remarks</b>  |   |                          |  |              |                              |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |   |                          |  |              |                              |

# Temperature Controller (E5□R)

## (26) Input 1 Type, Temperature Unit, Scaling, and Decimal Point

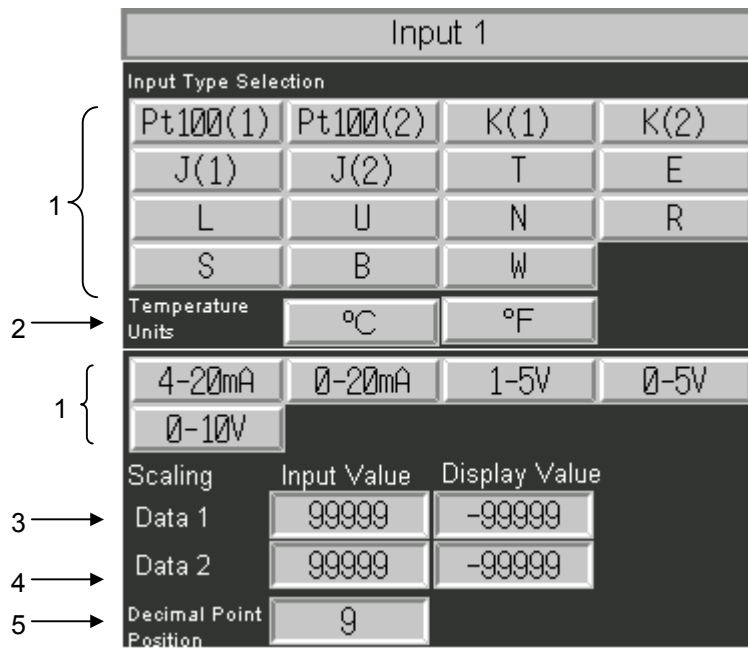
There are four different SMART Active Parts, one each for input 1, input 2, input 3, and input 4.

| Setting level               | Channel | Part |
|-----------------------------|---------|------|
| Input initial setting level | CH1     | No   |
|                             | CH2     | No   |
|                             | CH3     | No   |
|                             | CH4     | No   |
|                             | All CH  | Yes  |

|                  |           |                          |  |              |  |
|------------------|-----------|--------------------------|--|--------------|--|
| <b>Unit type</b> | E5AR/E5ER | <b>Storage directory</b> | SmartActiveParts_E\TemperatureController\E5□R\InputInitialSettingLevel | <b>Title</b> | Input 1 Type, Temperature Unit, Scaling, and Decimal Point |
|------------------|-----------|--------------------------|--|--------------|--|

**Function** Sets the input type and the temperature unit.  
When an analog input is selected, sets the scaling and decimal point position.

### Display and Operation Details



| No. | Item   | Setting/display | Description   |
|-----|--|-----------------|---|
| 1   | Input Type Selection                           | Setting         | Sets the input type.  |
| 2   | Temperature Units                              | Setting         | Sets the temperature unit.  |
| 3   | Scaling Data 1<br>Input Value<br>Display Value | Setting         | Sets the input value and the display value for scaling data 1 when one of the following analog inputs is selected as the input type: 4 to 20 mA, 0 to 20 mA, 1 to 5 V, 0 to 5 V, or 0 to 10 V.<br>Scaling data for the Input 1 SMART Active Part is set for channel 1.<br>Scaling data for the Input 2, Input 3, and Input 5 SMART Active Part is set for channels 2, 3, and 4. |
| 4   | Scaling Data 2<br>Input Value<br>Display Value | Setting         | Sets the input value and the display value for scaling data 2 when one of the following analog inputs is selected as the input type: 4 to 20 mA, 0 to 20 mA, 1 to 5 V, 0 to 5 V, or 0 to 10 V.<br>Scaling data for the Input 1 SMART Active Part is set for channel 1.<br>Scaling data for the Input 2, Input 3, and Input 5 SMART Active Part is set for channels 2, 3, and 4. |
| 5   | Decimal Point Position                         | Setting         | Sets the number of digits below the decimal point when one of the following analog inputs is selected as the input type: 4 to 20 mA, 0 to 20 mA, 1 to 5 V, 0 to 5 V, or 0 to 10 V.<br>Scaling data for the Input 1 SMART Active Part is set for channel 1.<br>Scaling data for the Input 2, Input 3, and Input 5 SMART Active Part is set for channels 2, 3, and 4.             |

### Remarks


- \* When using this SMART Active Part, be sure to select **Setting - System Settings** in the menu bar, press the **System Memory List** Button on the **Initial Tab** Page, and select **Basics** for the \$SB.
- \* Do not use this SMART Active Part on the initial screen.
- \* Use System version 5 or higher version.



# Temperature Controller (E5□R)

## (27) Sensor Induction Noise Reduction


| Setting level               | Channel | Part |
|-----------------------------|---------|------|
| Input initial setting level | CH1     | No   |
|                             | CH2     | No   |
|                             | CH3     | No   |
|                             | CH4     | No   |
|                             | All CH  | Yes  |

|   |   |                             |  |              |                                  |
|---|---|-----------------------------|--|--------------|----------------------------------|
| <b>Unit type</b>  | E5AR/E5ER   | <b>Storage directory</b>    | SmartActiveParts_E\<br>TemperatureControl<br>ler\E5□R\InputInitialS<br>ettingLevel | <b>Title</b> | Sensor Induction Noise Reduction |
| <b>Function</b>   | Sets noise reduction of inductive noise from the power supply impressed on the input. |                             |  |              |                                  |
| <b>Display and Operation Details</b>  |   |                             |  |              |                                  |
| <div style="text-align: center;">  </div>   |   |                             |  |              |                                  |
| <b>No.</b>  | <b>Item</b>   | <b>Setting/<br/>display</b> | <b>Description</b>   |              |                                  |
| 1   | Sensor<br>Induction Noise<br>Reduction  | Setting                     | Sets 50 or 60 Hz.  |              |                                  |
| <b>Remarks</b>  |   |                             |  |              |                                  |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |   |                             |  |              |                                  |

## 1.1.8 Control Initial Setting Level

### (28) Direct/Reverse Operation

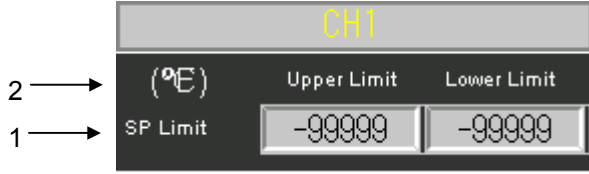
| Setting level                 | Channel | Part |
|-------------------------------|---------|------|
| Control initial setting level | CH1     | Yes  |
|                               | CH2     | Yes  |
|                               | CH3     | Yes  |
|                               | CH4     | Yes  |
|                               | All CH  | No   |

|  |  |                          |  |              |                          |
|--|--|--------------------------|--|--------------|--------------------------|
| <b>Unit type</b>   | E5AR/E5ER  | <b>Storage directory</b> | SmartActiveParts_E\<br>TemperatureController\E5□R\ControlInitialSettingLevel                           | <b>Title</b> | Direct/Reverse Operation |
| <b>Function</b>  | Sets either direction operation or reverse operation for increases and decreases in the process value. |                          |  |              |                          |
| <b>Display and Operation Details</b>   |  |                          |  |              |                          |
|  <p>The screenshot shows a control interface for channel CH1. A yellow label 'CH1' is at the top. Below it, a dark grey bar contains the word 'Operation' in white. To the right of 'Operation' are two buttons: 'Reverse' and 'Direct', both in a lighter grey color. An arrow labeled '1' points to the 'Operation' bar.</p> |  |                          |  |              |                          |
| <b>No.</b>   | <b>Item</b>  | <b>Setting/display</b>   | <b>Description</b>   |              |                          |
| 1  | Operation  | Setting                  | Sets either direction operation or reverse operation for increases and decreases in the process value. |              |                          |
| <b>Remarks</b>   |  |                          |  |              |                          |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul>              |  |                          |  |              |                          |

# Temperature Controller (E5□R)

## (29) SP Limits

| Setting level                 | Channel | Part |
|-------------------------------|---------|------|
| Control initial setting level | CH1     | Yes  |
|                               | CH2     | Yes  |
|                               | CH3     | Yes  |
|                               | CH4     | Yes  |
|                               | All CH  | No   |

|   |  |                          |   |              |           |
|---|--|--------------------------|---|--------------|-----------|
| <b>Unit type</b>  | E5AR/E5ER  | <b>Storage directory</b> | SmartActiveParts_E\<br>TemperatureController\E5□R\ControlInitialSettingLevel  | <b>Title</b> | SP Limits |
| <b>Function</b>   | Sets the upper and lower limits for the set point. |                          |   |              |           |
| <b>Display and Operation Details</b>  |  |                          |   |              |           |
|  <p>The screenshot shows a digital display for 'CH1'. At the top, it says '(°E)'. Below that, there are two columns: 'Upper Limit' and 'Lower Limit', both showing '-99999'. To the left, there is a label 'SP Limit' with an arrow pointing to the '-99999' values. On the far left, there are two arrows labeled '2' and '1' pointing to the 'Upper Limit' and 'Lower Limit' labels respectively.</p> |  |                          |   |              |           |
| <b>No.</b>  | <b>Item</b>  | <b>Setting/display</b>   | <b>Description</b>  |              |           |
| 1   | SP Limits<br>Upper Limit<br>Lower Limit            | Setting                  | Sets the upper and lower limits for the set point.<br>Can be set anywhere within the input temperature setting range. |              |           |
| 2   | (°C) / (°F)  | Display                  | Displays the temperature unit.  |              |           |
| <b>Remarks</b>  |  |                          |   |              |           |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul>   |  |                          |   |              |           |

## (30) Closed/Floating, Travel Time, PV Dead Band, Operation at Potentiometer Input Error for Position Proportional Control

| Setting level                 | Channel | Part |
|-------------------------------|---------|------|
| Control initial setting level | CH1     | No   |
|                               | CH2     | No   |
|                               | CH3     | No   |
|                               | CH4     | No   |
|                               | All CH  | Yes  |

| Unit type  | E5AR/E5ER   | Storage directory | SmartActiveParts_E\TemperatureController\E5□R\ControlInitialSettingLevel  | Title | Position Proportional Control Initial Settings and Extended Settings |
|--|---|-------------------|---|-------|--|
| Function   | Sets the control method and control parameters for position proportional control. |                   |   |       |  |
| Display and Operation Details  |   |                   |   |       |  |
| <p>The screenshot shows a control panel with the following elements:</p> <ul style="list-style-type: none"> <li>1 → Closed/Floating: Two buttons labeled 'FLOAT' and 'CLOSE'.</li> <li>2 → TRavel Time(sec): A numeric input field showing '999'.</li> <li>3 → PV Dead Band (°E): A numeric input field showing '99999'.</li> <li>4 → Operation at potentiometer input error: A label with a temperature unit symbol (°E).</li> <li>5 → Operation at potentiometer input error: Two buttons labeled 'Disable' and 'Enable'.</li> </ul> |   |                   |   |       |  |
| No.  | Item  | Setting/display   | Description   |       |  |
| 1  | Closed/Floating   | Setting           | Sets the control method for position proportional control.  |       |  |
| 2  | Travel Time   | Setting           | Sets the time from a completely open valve to a completely closed valve.  |       |  |
| 3  | PV Dead Band  | Setting           | Sets the process value dead band.   |       |  |
| 4  | (°C) / (°F)   | Display           | Displays the temperature unit.  |       |  |
| 5  | Operation at potentiometer input error  | Setting           | Sets the operation for when there is an input error for the potentiometer.<br>Disable: Operation stopped.<br>Enable: Operation continues. |       |  |
| Remarks  |   |                   |   |       |  |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul>  |   |                   |   |       |  |

# Temperature Controller (E5□R)


## (31) Output Types

| Setting level                 | Channel | Part |
|-------------------------------|---------|------|
| Control initial setting level | CH1     | No   |
|                               | CH2     | No   |
|                               | CH3     | No   |
|                               | CH4     | No   |
|                               | All CH  | Yes  |

| Unit type   | E5AR/E5ER   | Storage directory | SmartActiveParts_E\<br>TemperatureController\E5□R\ControlInitialSettingLevel          | Title | Output Types |
|---|---|-------------------|---|-------|--------------|
| Function  | Sets the output types for multi-output operation. |                   |   |       |              |
| Display and Operation Details   |   |                   |   |       |              |
|   |   |                   |   |       |              |
| No.   | Item  | Setting/display   | Description   |       |              |
| 1   | OUT1 and OUT2                                     | Setting           | Sets the output type for outputs 1 and 2 to a pulse or linear output.                 |       |              |
| 2   | OUT3 and OUT4                                     | Setting           | Sets the output type for outputs 3 and 4 to a pulse or linear output.                 |       |              |
| 3   | OUT1 Current                                      | Setting           | Displayed when a linear current output has been set. Select 0 to 20 mA or 4 to 20 mA. |       |              |
| 4   | OUT2 Current                                      | Setting           | Displayed when a linear current output has been set. Select 0 to 20 mA or 4 to 20 mA. |       |              |
| 5   | OUT3 Current                                      | Setting           | Displayed when a linear current output has been set. Select 0 to 20 mA or 4 to 20 mA. |       |              |
| 6   | OUT4 Current                                      | Setting           | Displayed when a linear current output has been set. Select 0 to 20 mA or 4 to 20 mA. |       |              |
| Remarks   |   |                   |   |       |              |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |   |                   |   |       |              |

(32) Control Mode

| Setting level                 | Channel | Part |
|-------------------------------|---------|------|
| Control initial setting level | CH1     | No   |
|                               | CH2     | No   |
|                               | CH3     | No   |
|                               | CH4     | No   |
|                               | All CH  | Yes  |

|   |  |                          |  |              |              |
|---|--|--------------------------|--|--------------|--------------|
| <b>Unit type</b>  | E5AR/E5ER  | <b>Storage directory</b> | SmartActiveParts_E\<br>TemperatureController\E5□R\ControlInitialSettingLevel | <b>Title</b> | Control Mode |
| <b>Function</b>   | Sets the control method.<br>Set standard or heating/cooling control for a Temperature Controller with 1 Input.<br>Set standard, heating/cooling, remote SP standard, remote SP heating/cooling, proportional, cascade standard, or cascade heating/cooling control for a Temperature Controller with 2 Inputs. |                          |  |              |              |
| <b>Display and Operation Details</b>  |  |                          |  |              |              |
|   |  |                          |  |              |              |
| <b>No.</b>  | <b>Item</b>  | <b>Setting/display</b>   | <b>Description</b>   |              |              |
| 1   | Control Mode   | Setting                  | Sets the mode when a button is pressed.                                      |              |              |
| <b>Remarks</b>  |  |                          |  |              |              |
| * When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.<br>* Do not use this SMART Active Part on the initial screen.<br>* Use System version 5 or higher version. |  |                          |  |              |              |

# Temperature Controller (E5□R)

## 1.1.9 Initial Setting 2 Level

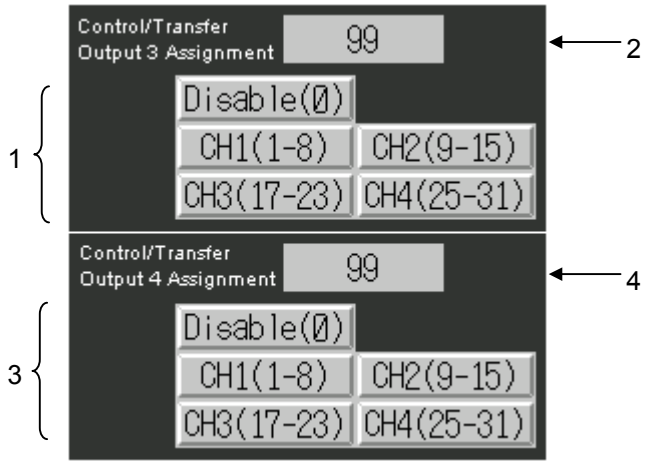
### (33) Control/Transfer Output 1 and 2 Allocations

| Setting level                   | Channel | Part |
|---------------------------------|---------|------|
| Control initial setting 2 level | CH1     | No   |
|                                 | CH2     | No   |
|                                 | CH3     | No   |
|                                 | CH4     | No   |
|                                 | All CH  | Yes  |

| Unit type   | E5AR/E5ER  | Storage directory | SmartActiveParts_E\TemperatureController\E5□R\ControlInitialSetting2Level   | Title | Control/Transfer Output 1 and 2 Allocations |
|---|--|-------------------|---|-------|---|
| Function  | Allocates items to control/transfer outputs 1 and 2. |                   |   |       |   |
| Display and Operation Details   |  |                   |   |       |   |
|   |  |                   |   |       |   |
| No.   | Item   | Setting/display   | Description   |       |   |
| 1   | Control/Transfer Output 1 Assignment Buttons         | Setting           | Sets an item for channel 1 (1 to 8), channel 2 (9 to 15), channel 3 (17 to 23), and channel 4 (25 to 31). When pressed, displays the item setting menu. Select an item to allocate from the menu. |       |   |
| 2   | Control/Transfer Output 1 Assignment Display         | Display           | Displays the number of the item that is set.  |       |   |
| 3   | Control/Transfer Output 2 Assignment Buttons         | Setting           | Sets an item for channel 1 (1 to 8), channel 2 (9 to 15), channel 3 (17 to 23), and channel 4 (25 to 31). When pressed, displays the item setting menu. Select an item to allocate from the menu. |       |   |
| 4   | Control/Transfer Output 2 Assignment Display         | Display           | Displays the number of the item that is set.  |       |   |
| Remarks   |  |                   |   |       |   |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |  |                   |   |       |   |

(34) Control/Transfer Output 3 and 4 Allocations

| Setting level                   | Channel | Part |
|---------------------------------|---------|------|
| Control initial setting 2 level | CH1     | No   |
|                                 | CH2     | No   |
|                                 | CH3     | No   |
|                                 | CH4     | No   |
|                                 | All CH  | Yes  |

| Unit type   | E5AR/E5ER  | Storage directory | SmartActiveParts_E\TemperatureController\E5□R\ControlInitialSetting2Level   | Title | Control/Transfer Output 3 and 4 Allocations |
|---|--|-------------------|---|-------|---|
| Function  | Allocates items to control/transfer outputs 3 and 4. |                   |   |       |   |
| Display and Operation Details   |  |                   |   |       |   |
|    |  |                   |   |       |   |
| No.   | Item   | Setting/display   | Description   |       |   |
| 1   | Control/Transfer Output 3 Assignment Buttons         | Setting           | Sets an item for channel 1 (1 to 8), channel 2 (9 to 15), channel 3 (17 to 23), and channel 4 (25 to 31). When pressed, displays the item setting menu. Select an item to allocate from the menu. |       |   |
| 2   | Control/Transfer Output 3 Assignment Display         | Display           | Displays the number of the item that is set.  |       |   |
| 3   | Control/Transfer Output 4 Assignment Buttons         | Setting           | Sets an item for channel 1 (1 to 8), channel 2 (9 to 15), channel 3 (17 to 23), and channel 4 (25 to 31). When pressed, displays the item setting menu. Select an item to allocate from the menu. |       |   |
| 4   | Control/Transfer Output 4 Assignment Display         | Display           | Displays the number of the item that is set.  |       |   |
| Remarks   |  |                   |   |       |   |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |  |                   |   |       |   |



# Temperature Controller (E5□R)

## (35) Event Input 1 Allocation

There are six different SMART Active Parts, one each for event input 1, event input 2, event input 3, event input 4, event input 5, and event input 6.

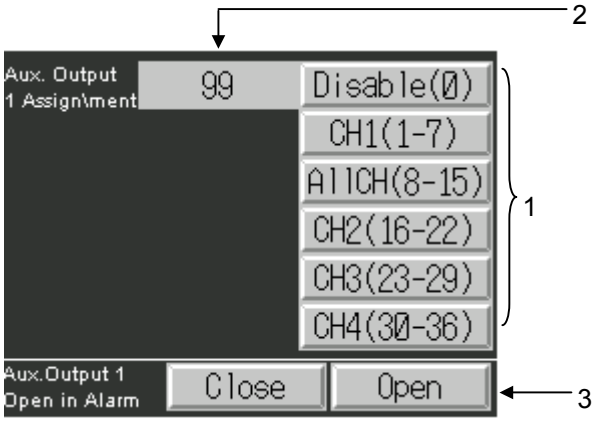
| Setting level           | Channel | Part |
|-------------------------|---------|------|
| Initial setting 2 level | CH1     | No   |
|                         | CH2     | No   |
|                         | CH3     | No   |
|                         | CH4     | No   |
|                         | All CH  | Yes  |

| Unit type   | E5AR/E5ER                                | Storage directory   | SmartActiveParts_E\<br>TemperatureControl<br>ler\E5□R\ControlInitial<br>Setting2Level   | Title | Event Input 1 Allocation |
|---|--|---------------------|---|-------|--------------------------|
| Function  | Allocates a function to the event input. |                     |   |       |                          |
| Display and Operation Details   |  |                     |   |       |                          |
|   |  |                     |   |       |                          |
| No.   | Item                                     | Setting/<br>display | Description   |       |                          |
| 1   | Event Input 1 Assignment Buttons         | Setting             | Sets an item for channel 1 (1 to 7), channel 2 (8 to 12), channel 3 (14 to 18), and channel 4 (20 to 24). When pressed, displays the item setting menu. Select an item to allocate from the menu. |       |                          |
| 2   | Event Input 1 Assignment Display         | Display             | Displays the number of the item that is set.  |       |                          |
| Remarks   |  |                     |   |       |                          |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |  |                     |   |       |                          |

## (36) Auxiliary Output 1 Allocation and Auxiliary Output 1 Open/Close Setting

There are four different SMART Active Parts, one each for auxiliary output 1, auxiliary output 2, auxiliary output 3, and auxiliary output 4.

| Setting level                   | Channel | Part |
|---------------------------------|---------|------|
| Control initial setting 2 level | CH1     | No   |
|                                 | CH2     | No   |
|                                 | CH3     | No   |
|                                 | CH4     | No   |
|                                 | All CH  | Yes  |

| Unit type   | E5AR/E5ER  | Storage directory | SmartActiveParts_E\<br>TemperatureController\E5□R\ControlInitialSetting2Level   | Title | Auxiliary Output 1 Allocation |
|---|--|-------------------|---|-------|-------------------------------|
| Function  | Allocates an item to the auxiliary output.<br>Sets open in alarm or close in alarm for the auxiliary output. |                   |   |       |                               |
| Display and Operation Details   |  |                   |   |       |                               |
|    |  |                   |   |       |                               |
| No.   | Item   | Setting/display   | Description   |       |                               |
| 1   | Aux. Output 1 Assignment Buttons   | Setting           | Sets an item for channel 1 (1 to 7), all channel (8 to 15), channel 2 (16 to 22), channel 3 (23 to 29), and channel 4 (30 to 36). When pressed, displays the item setting menu. Select an item to allocate from the menu. |       |                               |
| 2   | Aux Output 1 Assignment Display  | Display           | Displays the number of the item that is set.  |       |                               |
| 3   | Aux. Output 1 Open in Alarm  | Setting           | Sets open in alarm or close in alarm for the auxiliary output.  |       |                               |
| Remarks   |  |                   |   |       |                               |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |  |                   |   |       |                               |

# Temperature Controller (E5□R)

## (37) Transfer Output 1 Upper/Lower Limits

There are four different SMART Active Parts, one each for the upper/lower limits for transfer output 1, transfer output 2, transfer output 3, and transfer output 4.

| Setting level                   | Channel | Part |
|---------------------------------|---------|------|
| Control initial setting 2 level | CH1     | No   |
|                                 | CH2     | No   |
|                                 | CH3     | No   |
|                                 | CH4     | No   |
|                                 | All CH  | Yes  |

| Unit type   | E5AR/E5ER   | Storage directory | SmartActiveParts_E\<br>TemperatureControl<br>ler\E5□R\ControlInitial<br>Setting2Level  | Title | Transfer Output 1 Upper/Lower Limits |
|---|---|-------------------|--|-------|--------------------------------------|
| Function  | Sets the upper and lower limits for the transfer output and a transfer output has been allocated to an output.<br>The transfer output upper/lower limits will function when the enable indicator is lit.<br>The enable indicator will light when control/transfer output 1 is allocated to a transfer output. |                   |  |       |                                      |
| Display and Operation Details   |   |                   |  |       |                                      |
|   |   |                   |  |       |                                      |
| No.   | Item  | Setting/display   | Description  |       |                                      |
| 1   | Transfer Output 1<br>Upper Limit<br>Lower Limit   | Setting           | Sets the upper limit and lower limit of the transfer output.<br>Setting the upper and lower limits also enables scaling the transfer output.<br>The upper/lower limit settings can be input only when a transfer output has been enabled. They cannot be input when the transfer output is disabled. |       |                                      |
| 2   | Transfer Output 1<br>Enable/Disable<br>Display  | Display           | Enable: The enable indicator will light when control/transfer output 1 is allocated to a transfer output.<br>Disable: The disable indicator will light when control/transfer output 1 is allocated to a transfer output.   |       |                                      |
| 3   | (°C) / (°F)   | Display           | Displays the temperature unit.   |       |                                      |
| Remarks   |   |                   |  |       |                                      |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |   |                   |  |       |                                      |

(38) Enable Settings for First Order Lag Operation, Move Average, and Extraction of Square Root Low-cut Point

| Setting level                   | Channel | Part |
|---------------------------------|---------|------|
| Control initial setting 2 level | CH1     | No   |
|                                 | CH2     | No   |
|                                 | CH3     | No   |
|                                 | CH4     | No   |
|                                 | All CH  | Yes  |

|   |  |                          |   |              |   |
|---|--|--------------------------|---|--------------|---|
| <b>Unit type</b>  | E5AR/E5ER  | <b>Storage directory</b> | SmartActiveParts_E\TemperatureController\E5□R\ControlInitialSetting2Level   | <b>Title</b> | Enable Settings for First Order Lag Operation, Move Average, and Extraction of Square Root Low-cut Point for 4 Points |
| <b>Function</b>   | Enables/disables the first order lag operation, move average count, and extraction of square root low-cut point for inputs 1, 2, 3, and 4. |                          |   |              |   |
| <b>Display and Operation Details</b>  |  |                          |   |              |   |
|   |  |                          |   |              |   |
| <b>No.</b>  | <b>Item</b>  | <b>Setting/display</b>   | <b>Description</b>  |              |   |
| 1   | Input 1<br>First Order Lag Operation<br>Move Ave. Count<br>Low-cut Point<br>Enable/Disable Buttons   | Setting                  | Enables or disables the first order lag operation, move average count, and extraction of square root low-cut point for input 1. |              |   |
| 2   | Input 2<br>First Order Lag Operation<br>Move Ave. Count<br>Low-cut Point<br>Enable/Disable Buttons   | Setting                  | Enables or disables the first order lag operation, move average count, and extraction of square root low-cut point for input 2. |              |   |
| 3   | Input 3<br>First Order Lag Operation<br>Move Ave. Count<br>Low-cut Point<br>Enable/Disable Buttons   | Setting                  | Enables or disables the first order lag operation, move average count, and extraction of square root low-cut point for input 3. |              |   |
| 4   | Input 4<br>First Order Lag Operation<br>Move Ave. Count<br>Low-cut Point<br>Enable/Disable Buttons   | Setting                  | Enables or disables the first order lag operation, move average count, and extraction of square root low-cut point for input 4. |              |   |
| <b>Remarks</b>  |  |                          |   |              |   |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |  |                          |   |              |   |

# Temperature Controller (E5□R)

## (39) Enable Settings for Straight-line and Broken-line Approximation

| Setting level                   | Channel | Part |
|---------------------------------|---------|------|
| Control initial setting 2 level | CH1     | No   |
|                                 | CH2     | No   |
|                                 | CH3     | No   |
|                                 | CH4     | No   |
|                                 | All CH  | Yes  |

| Unit type   | E5AR/E5ER   | Storage directory | SmartActiveParts_E\<br>TemperatureControl<br>er\E5□R\ControlInitial<br>Setting2Level | Title | Enable Settings for Straight-line and Broken-line Approximation |
|---|---|-------------------|--|-------|---|
| Function  | Enables/disables straight-line approximation and broken-line approximation. |                   |  |       |   |
| Display and Operation Details   |   |                   |  |       |   |
|   |   |                   |  |       |   |
| No.   | Item  | Setting/display   | Description  |       |   |
| 1   | Straight-line Approx. 1 Enable/Disable                                      | Setting           | Enables/disables straight-line approximation 1.                                      |       |   |
| 2   | Straight-line Approx. 2 Enable/Disable                                      | Setting           | Enables/disables straight-line approximation 2.                                      |       |   |
| 3   | Broken-line Approx. Enable/Disable  | Setting           | Enables/disables broken-line approximation.  |       |   |
| Remarks   |   |                   |  |       |   |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |   |                   |  |       |   |

## 1.1.10 Alarm Setting Level

### (40) Alarm 1 Type, Alarm 1 Latch, and Alarm 1 Hysteresis

There are four different SMART Active Parts, one each for alarm 1, alarm 2, alarm 3, and alarm 4.


| Setting level      | Channel | Part |
|--------------------|---------|------|
| Alarm settinglevel | CH1     | Yes  |
|                    | CH2     | Yes  |
|                    | CH3     | Yes  |
|                    | CH4     | Yes  |
|                    | All CH  | No   |

|  |   |                          |  |              |                                     |
|--|---|--------------------------|--|--------------|-------------------------------------|
| <b>Unit type</b>   | E5AR/E5ER   | <b>Storage directory</b> | SmartActiveParts_E\TemperatureControl\er\E5□R\AlarmSettingLevel                          | <b>Title</b> | Alarm 1 Type, Latch, and Hysteresis |
| <b>Function</b>  | Sets the alarm type, latch, and hysteresis for alarm 1. |                          |  |              |                                     |
| <b>Display and Operation Details</b>   |   |                          |  |              |                                     |
|  |   |                          |  |              |                                     |
| <b>No.</b>   | <b>Item</b>   | <b>Setting/display</b>   | <b>Description</b>   |              |                                     |
| 1  | Alarm 1 Type  | Display                  | Displays the alarm type that is set.   |              |                                     |
| 2  | Alarm 1 Type Buttons                                    | Setting                  | When pressed, displays the alarm type setting menu. Select the alarm type from the menu. |              |                                     |
| 3  | Alarm 1 Latch   | Setting                  | Sets whether to latch the alarm output status.   |              |                                     |
| 4  | Alarm 1 Hysteresis                                      | Display                  | Sets ON/OFF hysteresis for the alarm output.   |              |                                     |
| <b>Remarks</b>   |   |                          |  |              |                                     |
| * When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB. |   |                          |  |              |                                     |
| * Do not use this SMART Active Part on the initial screen.   |   |                          |  |              |                                     |
| * Use System version 5 or higher version.  |   |                          |  |              |                                     |

# Temperature Controller (E5□R)

## (41) Standby Sequence Restart

| Setting level       | Channel | Part |
|---------------------|---------|------|
| Alarm setting level | CH1     | Yes  |
|                     | CH2     | Yes  |
|                     | CH3     | Yes  |
|                     | CH4     | Yes  |
|                     | All CH  | No   |

|   |  |                             |   |              |                          |
|---|--|-----------------------------|---|--------------|--------------------------|
| <b>Unit type</b>  | E5AR/E5ER  | <b>Storage directory</b>    | SmartActiveParts_E\<br>TemperatureControl<br>ler\E5□R\AlarmSettin<br>gLevel | <b>Title</b> | Standby Sequence Restart |
| <b>Function</b>   | Sets the condition for restarting after clearing the alarm standby sequence. |                             |   |              |                          |
| <b>Display and Operation Details</b>  |  |                             |   |              |                          |
|   |  |                             |   |              |                          |
| <b>No.</b>  | <b>Item</b>  | <b>Setting/<br/>display</b> | <b>Description</b>  |              |                          |
| 1   | Standby Sequence Reset   | Setting                     | Select Condition A or Condition B.  |              |                          |
| <b>Remarks</b>  |  |                             |   |              |                          |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |  |                             |   |              |                          |

## 1.1.11 Communications Setting Level

### (42) Communications Settings

| Setting level                | Channel | Part |
|------------------------------|---------|------|
| Communications setting level | CH1     | No   |
|                              | CH2     | No   |
|                              | CH3     | No   |
|                              | CH4     | No   |
|                              | All CH  | Yes  |

| Unit type  | E5AR/E5ER  | Storage directory | SmartActiveParts_E\TemperatureController\E5□R\CommunicationsSettingLevel  | Title | Communications Settings |
|--|--|-------------------|---|-------|-------------------------|
| Function   | Sets the communications unit number and communications settings.<br>The following settings are used when connecting an NS-series PT to the Temperature Controller: Data length: 7 bits, Stop bits: 2 bits, Parity: even.<br>The PT and the Temperature Controller will not be able to communicate with any other settings. |                   |   |       |                         |
| Display and Operation Details  |  |                   |   |       |                         |
|  |  |                   |   |       |                         |
| No.  | Item   | Setting/display   | Description   |       |                         |
| 1  | Comms. Unit No.  | Setting           | Sets the communications unit number. Set a different unit number for each Temperature Controller.                                 |       |                         |
| 2  | Comms. Speed   | Setting           | Sets the baud rate.<br>Set the NS-series PT and all connected Temperature Controllers to the same setting.                        |       |                         |
| 3  | Data Length  | Setting           | Sets the communications data length.<br>A data length of 7 bits is used to connect an NS-series PT to the Temperature Controller. |       |                         |
| 4  | Stop Bit   | Setting           | Sets the number of communications stop bits.<br>Two stop bits are used to connect an NS-series PT to the Temperature Controller.  |       |                         |
| 5  | Parity   | Setting           | Sets the communications parity.<br>Even parity is used to connect an NS-series PT to the Temperature Controller.                  |       |                         |
| 6  | Wait Time  | Setting           | Sets the transmission wait time.  |       |                         |
| Remarks  |  |                   |   |       |                         |
| <ul style="list-style-type: none"> <li>* The PT and the Temperature Controller will not be able to communicate unless the following settings are used: Data length: 7 bits, Stop bits: 2 bits, Parity: even.</li> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |  |                   |   |       |                         |




# Temperature Controller (E5□R)

## 1.1.12 Advanced Function Setting Level

### (43) Number of Enabled Channels

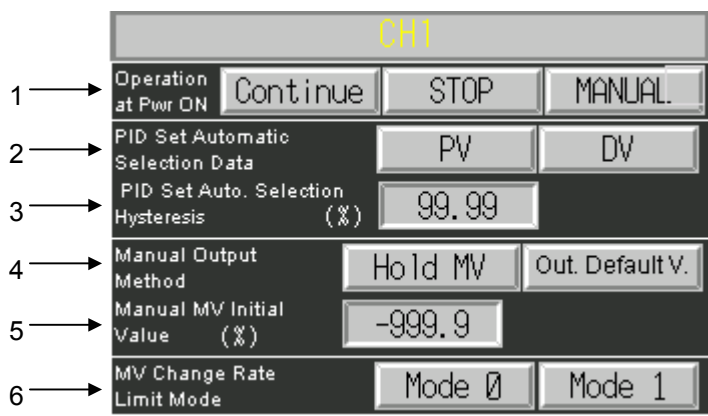
| Setting level                   | Channel | Part |
|---------------------------------|---------|------|
| Advanced function setting level | CH1     | No   |
|                                 | CH2     | No   |
|                                 | CH3     | No   |
|                                 | CH4     | No   |
|                                 | All CH  | Yes  |

|   |  |                          |   |              |                            |
|---|--|--------------------------|---|--------------|----------------------------|
| <b>Unit type</b>  | E5AR/E5ER  | <b>Storage directory</b> | SmartActiveParts_E\TemperatureController\E5□R\AdvancedFunctionSettingLevel  | <b>Title</b> | Number of Enabled Channels |
| <b>Function</b>   | Sets the number of channels to enable for a Temperature Controller with more than one input. |                          |   |              |                            |
| <b>Display and Operation Details</b>  |  |                          |   |              |                            |
|   |  |                          |   |              |                            |
| <b>No.</b>  | <b>Item</b>  | <b>Setting/display</b>   | <b>Description</b>  |              |                            |
| 1   | Enabled No. of Chan.   | Setting                  | Sets the number of channels to enable.<br>Temperature Controllers with Two Inputs: Set 1 for proportional, remote SP standard, or remote SP heating/cooling control.<br>Set 1 or 2 for all other types of control.<br>Temperature Controllers with Four Inputs: Set 1 to 4. |              |                            |
| <b>Remarks</b>  |  |                          |   |              |                            |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |  |                          |   |              |                            |

## 1.1.13 Extended Control Setting Level

### (44) Operation at Power ON, PID Automatic Selection, PID Automatic Selection Hysteresis, Manual Output Method, and MV Change Rate Limit Mode

| Setting level                  | Channel | Part |
|--------------------------------|---------|------|
| Extended control setting level | CH1     | Yes  |
|                                | CH2     | Yes  |
|                                | CH3     | Yes  |
|                                | CH4     | Yes  |
|                                | All CH  | No   |

| Unit type   | E5AR/E5ER   | Storage directory | SmartActiveParts_E\TemperatureController\E5□R\ExtendedSettingLevel  | Title | Operation at Power ON, PID Automatic Selection, Manual Output, and MV Change Rate |
|---|---|-------------------|---|-------|---|
| Function  | Sets the operation at power ON, PID automatic selection, PID automatic selection hysteresis, manual output method, and MV change rate limit mode. |                   |   |       |   |
| Display and Operation Details   |   |                   |   |       |   |
|    |   |                   |   |       |   |
| No.   | Item  | Setting/display   | Description   |       |   |
| 1   | Operation at Power ON   | Setting           | Sets the operation to use when the power supply is turned ON. Set CONTINUE to continue the operating status that existed when the power supply was turned OFF. Set STOP to stop the control operation after the power supply is turned ON. Set MANUAL to enter manual mode. |       |   |
| 2   | PID Set Automatic Selection Data  | Setting           | Sets whether to use the process value or deviation for the PID automatic selection.   |       |   |
| 3   | PID Set Automatic Selection Hysteresis  | Setting           | Sets the hysteresis for switching the PID set.  |       |   |
| 4   | Manual Output Method  | Setting           | Sets the MV output method when switching from automatic to manual.  |       |   |
| 5   | Manual MV Initial Value   | Setting           | Sets the initial value of the MV when outputting the initial value is set.  |       |   |
| 6   | MV Change Rate Limit Mode   | Setting           | Sets whether to use mode 0 or mode 1 for the MV change rate limit.  |       |   |
| Remarks   |   |                   |   |       |   |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |   |                   |   |       |   |

# Temperature Controller (E5□R)

## (45) Enable Settings for SP Tracking, PV Tracking, Bumpless at Run, Operation at Potentiometer Input Error, and Disturbance Overshoot Adjustment

| Setting level                  | Channel | Part |
|--------------------------------|---------|------|
| Extended control setting level | CH1     | Yes  |
|                                | CH2     | Yes  |
|                                | CH3     | Yes  |
|                                | CH4     | Yes  |
|                                | All CH  | No   |

| Unit type   | E5AR/E5ER   | Storage directory | SmartActiveParts_E\TemperatureController\E5□R\ExtendedSettingLevel   | Title | Enable Settings for Tracking, Bumpless at Run, Operation at Potentiometer Input Error, and Disturbance Overshoot Adjustment |
|---|---|-------------------|--|-------|---|
| Function  | Enables/Disables SP tracking, PV tracking, bumpless at run operation, operation at potentiometer input error, and disturbance overshoot adjustment. |                   |  |       |   |
| Display and Operation Details   |   |                   |  |       |   |
|   |   |                   |  |       |   |
| No.   | Item  | Setting/display   | Description  |       |   |
| 1   | SP Tracking ON/OFF  | Setting           | Sets the operation when switching from remote SP mode to local SP mode.<br>OFF: Local SP not affected by remote SP.<br>ON: Remote SP used initially for local SP.                                      |       |   |
| 2   | PV Tracking ON/OFF  | Setting           | Sets whether the local SP is to follow the PV during manual mode.<br>OFF: Local SP does not follow PV.<br>ON: Local SP follows PV.   |       |   |
| 3   | Bumpless at Run Enable/Disable  | Setting           | Sets whether to use bumpless operation when switching from stop to run status.<br>Disable: Do not use bumpless operation.<br>Enable: Use bumpless operation.   |       |   |
| 4   | Ope. at Potentiometer Input Error Enable/Disable  | Setting           | Sets whether to stop or continue operation when an input error occurs for the potentiometer.<br>Disable: Stop control operation.<br>Enable: Switch to floating control and continue control operation. |       |   |
| 5   | Disturbance Overshoot Adjustment Enable/Disable   | Setting           | Disable: Disable disturbance overshoot adjustment.<br>Enable: Enable disturbance overshoot adjustment.   |       |   |
| Remarks   |   |                   |  |       |   |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |   |                   |  |       |   |

## (46) $\alpha$ , AT Calculated Gain, AT Hysteresis, and Tentative AT Execute Judgment Deviation


| Setting level                  | Channel | Part |
|--------------------------------|---------|------|
| Extended control setting level | CH1     | Yes  |
|                                | CH2     | Yes  |
|                                | CH3     | Yes  |
|                                | CH4     | Yes  |
|                                | All CH  | No   |

|   |   |                          |   |              |   |
|---|---|--------------------------|---|--------------|---|
| <b>Unit type</b>  | E5AR/E5ER   | <b>Storage directory</b> | SmartActiveParts_E\TemperatureController\E5□R\ExtendedSettingLevel      | <b>Title</b> | $\alpha$ , AT Calculated Gain, AT Hysteresis, and Tentative AT Execute Judgment Deviation |
| <b>Function</b>   | Sets the $\alpha$ , AT calculated gain, AT hysteresis, and tentative AT execute judgment deviation. |                          |   |              |   |
| <b>Display and Operation Details</b>  |   |                          |   |              |   |
|   |   |                          |   |              |   |
| <b>No.</b>  | <b>Item</b>   | <b>Setting/display</b>   | <b>Description</b>  |              |   |
| 1   | $\alpha$  | Setting                  | Sets the $\alpha$ constant for advanced PID control.                    |              |   |
| 2   | AT Calculated Gain  | Setting                  | Sets the gain when calculating PID constants using autotuning.          |              |   |
| 3   | AT Hysteresis   | Setting                  | Sets the hysteresis for the limit cycle operation during autotuning.    |              |   |
| 4   | Limit Cycle MV Amplitude  | Setting                  | Sets the amplitude of the limit cycle operation during autotuning.      |              |   |
| 5   | Temp. A.T. Execution Judgement Deviation  | Setting                  | Sets the judgment deviation for executing tentative AT when autotuning. |              |   |
| <b>Remarks</b>  |   |                          |   |              |   |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |   |                          |   |              |   |

# Temperature Controller (E5□R)

## (47) Cold Junction Compensation Method

| Setting level                  | Channel | Part |
|--------------------------------|---------|------|
| Extended control setting level | CH1     | No   |
|                                | CH2     | No   |
|                                | CH3     | No   |
|                                | CH4     | No   |
|                                | All CH  | Yes  |

| Unit type   | E5AR/E5ER  | Storage directory | SmartActiveParts_E\<br>TemperatureController\<br>E5□R\ExtendedSettingLevel                                     | Title | Cold Junction Compensation Method |
|---|--|-------------------|--|-------|-----------------------------------|
| Function  | Sets the cold junction compensation method for input 1, input 2, input 3, and input 4. |                   |  |       |                                   |
| Display and Operation Details   |  |                   |  |       |                                   |
|   |  |                   |  |       |                                   |
| No.   | Item   | Setting/display   | Description  |       |                                   |
| 1   | Input 1<br>Cold Junction Compensation  | Setting           | Set whether to perform cold junction compensation inside the Temperature Controller or externally for input 1. |       |                                   |
| 2   | Input 2<br>Cold Junction Compensation  | Setting           | Set whether to perform cold junction compensation inside the Temperature Controller or externally for input 2. |       |                                   |
| 3   | Input 3<br>Cold Junction Compensation  | Setting           | Set whether to perform cold junction compensation inside the Temperature Controller or externally for input 3. |       |                                   |
| 4   | Input 4<br>Cold Junction Compensation  | Setting           | Set whether to perform cold junction compensation inside the Temperature Controller or externally for input 4. |       |                                   |
| Remarks   |  |                   |  |       |                                   |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |  |                   |  |       |                                   |

## Temperature Controller (E5□N)

# Temperature Controller (E5□N)

## 1.1 E5AN, E5EN, E5DN, and E5GN

The following table lists the SMART Active Parts for the E5AN, E5EN, E5DN, and E5GN Temperature Controllers.

|  |  |  |  |  |
|--|--|--|--|--|
| Operation level  | Temperature Controllers with Thermocouples                                     | E5AN/E5EN  | Operation Monitor for Standard Control                                 |  |
|  |  | E5AN/E5EN  | Operation Monitor for Heating/Cooling Control<br>SP and Alarm Settings |  |
|  |  | E5CN   | Operation Monitor for Standard Control                                 |  |
|  |  | E5CN   | Operation Monitor for Heating/Cooling Control<br>SP and Alarm Settings |  |
|  | Temperature Controllers with Platinum-resistance Thermometers                  | E5AN/E5EN  | E5AN/E5EN  | Operation Monitor for Standard Control                                 |
|  |  |  | E5AN/E5EN  | Operation Monitor for Heating/Cooling Control<br>SP and Alarm Settings |
|  |  | E5CN   | E5CN   | Operation Monitor for Standard Control                                 |
|  |  |  | E5CN   | Operation Monitor for Heating/Cooling Control<br>SP and Alarm Settings |
|  |  | E5GN   | E5GN   | Operation Monitor for Standard Control                                 |
|  |  |  | E5GN   | SP and Alarm Settings  |
|  |  | ALL E5□N   | SP Setting   |  |
|  |  | Adjustment level                                     | Temperature Controllers with Thermocouples                             | ALL E5□N   |
| Temperature Controllers with Platinum-resistance Thermometers                  | ALL E5□N   |  | Multi-SP Settings  |  |
| Temperature Controllers with Thermocouples or Platinum-resistance Thermometers | ALL E5□N   |  | Heater Burnout Detection   |  |
|  |  |  | PID Settings   |  |
|  |  | Input Shift Values                                   |  |  |
|  |  | Manual Reset Value                                   |  |  |
| Cooling Coefficient, Dead Band, and Control Period                             | ALL E5□N   | Cooling Coefficient, Dead Band, and Control Period   |  |  |
|  |  | Dead Band and Hysteresis                             |  |  |
|  |  | Initial setting level                                | Temperature Controllers with Thermocouples                             | ALL E5□N   |
| Temperature Controllers with Platinum-resistance Thermometers                  | ALL E5□N   | SP Limits  |  |  |
|  |  | Input Type and Temperature Unit                      |  |  |
| Temperature Controllers with Thermocouples or Platinum-resistance Thermometers | ALL E5□N   | SP Limits  |  |  |
|  |  | PID or ON/OFF Control                                |  |  |
|  |  | Direct/Reverse Operation                             |  |  |
|  |  | Control Mode   |  |  |
|  |  | ST and ST Stable Range                               |  |  |
|  |  | Alarm 1 Type, Open/Close in Alarm, Latch, Hysteresis |  |  |
|  |  | Alarm 2 Type, Open/Close in Alarm, Latch, Hysteresis |  |  |
| Alarm 3 Type, Open/Close in Alarm, Latch, Hysteresis                           |  |  |  |  |
| Advanced function setting level  | Temperature Controllers with Thermocouples                                     | ALL E5□N   | SP Ramp  |  |
|  | Temperature Controllers with Platinum-resistance Thermometers                  | ALL E5□N   | SP Ramp  |  |
|  | Temperature Controllers with Thermocouples or Platinum-resistance Thermometers | ALL E5□N   | Multi-SP ON/OFF  |  |
|  |  |  | HBA Used, Latch, Hysteresis  |  |
|  |  |  | MV Upper/Lower Limits and Input Digital Filter                         |  |
|  |  |  | Standby Sequence Restart   |  |
| α  | ALL E5□N   | Input Error Output                                   |  |  |
| Cold Junction Compensation Method  | ALL E5□N   | Communications Settings                              |  |  |
| Communications setting level   | ALL E5□N   | ALL E5□N   | Communications Settings  |  |

## 1.1.1 Operation Level

### (1) Operation Monitor for E5AN/E5EN Standard Control

| Setting level   | Input type                      | Part |
|-----------------|---------------------------------|------|
| Operation level | Thermocouple input              | Yes  |
|                 | Platinum-resistance thermometer | Yes  |
|                 | Common(Common)                  | No   |

| Unit type   | E5AN, E5EN  | Storage directory | SmartActiveParts_E\TemperatureController\E5□N\OperationLevel | Title | Operation Monitor for Standard Control |
|---|---|-------------------|--|-------|--|
| Function  | Continuously monitors operating status on a face plate. |                   |  |       |  |
| Display and Operation Details   |   |                   |  |       |  |
|   |   |                   |  |       |  |
| No.   | Item  | Setting/display   | Description  |       |  |
| 1   | RUN<br>AUTO   | Display           | Displays the run/stop and autotuning status.                 |       |  |
| 2   | OUT   | Display           | Displays the output status of control output 1.              |       |  |
| 3   | ALM   | Display           | Displays the output status of alarm outputs 1, 2, and 3.     |       |  |
| 4   | HB  | Display           | Displays the heater burnout output status.                   |       |  |
| 5   | Input Error   | Display           | Displays the input error status.                             |       |  |
| 6   | Current Value Exceeds                                   | Display           | Displays the status of a current value exceeded error.       |       |  |
| 7   | (°C) / (°F)   | Display           | Displays the temperature unit.                               |       |  |
| 8   | PV  | Display           | Displays the process value.                                  |       |  |
| 9   | SP  | Display           | Displays the set point.                                      |       |  |
| 10  | MV1   | Display           | Displays the manipulated variable of output 1.               |       |  |
| 11  | Display Update Indicator                                | Display           | Flashes each time the display is updated.                    |       |  |
| Remarks   |   |                   |  |       |  |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |   |                   |  |       |  |



# Temperature Controller (E5□N)

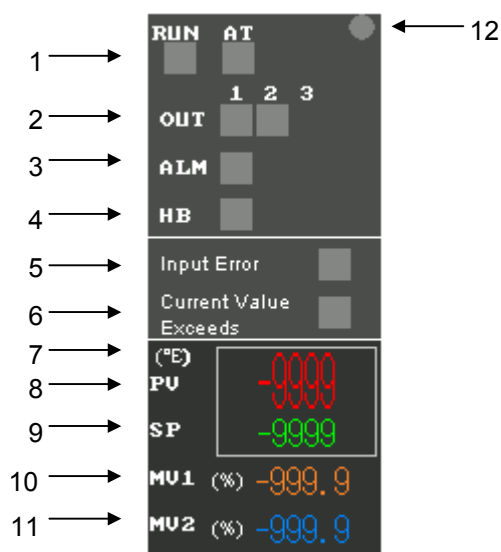
## (2) Operation Monitor for E5AN/D5EN Heating/Cooling Control

| Setting level   | Input type                      | Part |
|-----------------|---------------------------------|------|
| Operation level | Thermocouple input              | Yes  |
|                 | Platinum-resistance thermometer | Yes  |
|                 | Common(Common)                  | No   |

|                  |            |                          |  |              |   |
|------------------|------------|--------------------------|--|--------------|---|
| <b>Unit type</b> | E5AN, E5EN | <b>Storage directory</b> | SmartActiveParts_E\<br>TemperatureController\E5□N\OperationLevel | <b>Title</b> | Operation Monitor for Heating/Cooling Control |
|------------------|------------|--------------------------|--|--------------|---|

**Function** Continuously monitors operating status on a face plate.

**Display and Operation Details**



| No. | Item                     | Setting/display | Description  |
|-----|--------------------------|-----------------|--|
| 1   | RUN<br>AUTO<br>AT        | Display         | Displays the run/stop and autotuning status.             |
| 2   | OUT                      | Display         | Displays the output status of control outputs 1 and 2.   |
| 3   | ALM                      | Display         | Displays the output status of alarm outputs 1, 2, and 3. |
| 4   | HB                       | Display         | Displays the heater burnout output status.               |
| 5   | Input Error              | Display         | Displays the input error status.                         |
| 6   | Current Value Exceeds    | Display         | Displays the status of a current value exceeded error.   |
| 7   | (°C) / (°F)              | Display         | Displays the temperature unit.                           |
| 8   | PV                       | Display         | Displays the process value.                              |
| 9   | SP                       | Display         | Displays the set point.                                  |
| 10  | MV1                      | Display         | Displays the manipulated variable of output 1.           |
| 11  | MV2                      | Display         | Displays the manipulated variable of output 2.           |
| 12  | Display Update Indicator | Display         | Flashes each time the display is updated.                |

**Remarks**

- \* When using this SMART Active Part, be sure to select **Setting - System Settings** in the menu bar, press the **System Memory List** Button on the **Initial Tab** Page, and select **Basics** for the \$SB.
- \* Do not use this SMART Active Part on the initial screen.
- \* Use System version 5 or higher version.

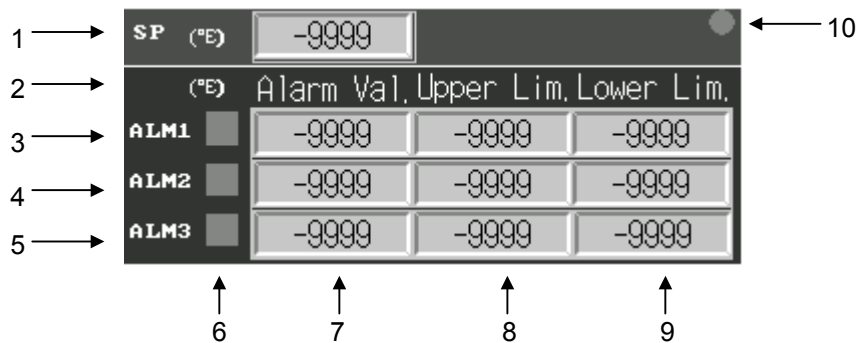
## (3) SP and Alarm Settings for E5AN/E5EN

| Setting level   | Input type                      | Part |
|-----------------|---------------------------------|------|
| Operation level | Thermocouple input              | Yes  |
|                 | Platinum-resistance thermometer | Yes  |
|                 | Common(Common)                  | No   |

|                  |            |                          |  |              |                       |
|------------------|------------|--------------------------|--|--------------|-----------------------|
| <b>Unit type</b> | E5AN, E5EN | <b>Storage directory</b> | SmartActiveParts_E\TemperatureController\E5□N\OperationLevel | <b>Title</b> | SP and Alarm Settings |
|------------------|------------|--------------------------|--|--------------|-----------------------|

**Function** Sets the set point and the alarm values for outputting alarms. Alarm output status is continuously updated.

**Display and Operation Details**



| No. | Item                     | Setting/display | Description   |
|-----|--------------------------|-----------------|---|
| 1   | SP                       | Setting         | Sets the set point.   |
| 2   | (°C) / (°F)              | Display         | Displays the temperature unit.  |
| 3   | ALM1                     | -               | The ALM1 row contains the alarm 1 settings: alarm value, upper limit, and lower limit.  |
| 4   | ALM2                     | -               | The ALM2 row contains the alarm 2 settings: alarm value, upper limit, and lower limit.  |
| 5   | ALM3                     | -               | The ALM3 row contains the alarm 3 settings: alarm value, upper limit, and lower limit.  |
| 6   | Alarm Indicators         | Display         | Displays the output status of alarm outputs 1, 2, and 3. The display is continuously updated.   |
| 7   | Alarm Val.               | Setting         | Sets the alarm value. The alarm value is displayed and can be set when the alarm type is set to anything other than an upper/lower limit alarm. |
| 8   | Upper Lim.               | Setting         | Sets the alarm upper limit. The alarm upper limit is displayed and can be set when the alarm type is set to an upper/lower limit alarm.         |
| 9   | Lower Lim.               | Setting         | Sets the alarm lower limit. The alarm lower limit is displayed and can be set when the alarm type is set to an upper/lower limit alarm.         |
| 10  | Display Update Indicator | Display         | The alarm indicator display is continuously updated. This indicator flashes each time the data is updated.                                      |

**Remarks**

- \* When using this SMART Active Part, be sure to select **Setting - System Settings** in the menu bar, press the **System Memory List** Button on the **Initial Tab** Page, and select **Basics** for the \$SB.
- \* Do not use this SMART Active Part on the initial screen.
- \* Use System version 5 or higher version.

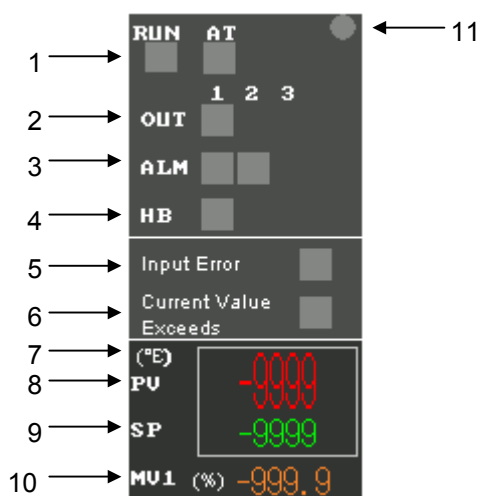
# Temperature Controller (E5□N)

## (4) Operation Monitor for E5CN Standard Control

| Setting level   | Input type                      | Part |
|-----------------|---------------------------------|------|
| Operation level | Thermocouple input              | Yes  |
|                 | Platinum-resistance thermometer | Yes  |
|                 | Common(Common)                  | No   |

|                  |   |                          |   |              |  |
|------------------|---|--------------------------|---|--------------|--|
| <b>Unit type</b> | E5CN  | <b>Storage directory</b> | SmartActiveParts_E\<br>TemperatureControl<br>er\E5□N\OperationLe<br>vel | <b>Title</b> | Operation Monitor for Standard Control |
| <b>Function</b>  | Continuously monitors operating status on a face plate. |                          |   |              |  |

### Display and Operation Details



| No. | Item                        | Setting/display | Description  |
|-----|-----------------------------|-----------------|--|
| 1   | RUN<br>AT                   | Display         | Displays the run/stop and autotuning status.           |
| 2   | OUT                         | Display         | Displays the output status of control output 1.        |
| 3   | ALM                         | Display         | Displays the output status of alarm outputs 1 and 2.   |
| 4   | HB                          | Display         | Displays the heater burnout output status.             |
| 5   | Input Error                 | Display         | Displays the input error status.                       |
| 6   | Current Value<br>Exceeds    | Display         | Displays the status of a current value exceeded error. |
| 7   | (°C) / (°F)                 | Display         | Displays the temperature unit.                         |
| 8   | PV                          | Display         | Displays the process value.                            |
| 9   | SP                          | Display         | Displays the set point.                                |
| 10  | MV                          | Display         | Displays the manipulated variable of output 1.         |
| 11  | Display Update<br>Indicator | Display         | Flashes each time the display is updated.              |

### Remarks

- \* When using this SMART Active Part, be sure to select **Setting - System Settings** in the menu bar, press the **System Memory List** Button on the **Initial Tab** Page, and select **Basics** for the \$SB.
- \* Do not use this SMART Active Part on the initial screen.
- \* Use System version 5 or higher version.

## (5) Operation Monitor for E5CN Heating/Cooling Control

| Setting level   | Input type                      | Part |
|-----------------|---------------------------------|------|
| Operation level | Thermocouple input              | Yes  |
|                 | Platinum-resistance thermometer | Yes  |
|                 | Common(Common)                  | No   |

| Unit type   | E5CN  | Storage directory | SmartActiveParts_E\TemperatureController\E5□N\OperationLevel | Title | Operation Monitor for Heating/Cooling Control |
|---|---|-------------------|--|-------|---|
| Function  | Continuously monitors operating status on a face plate. |                   |  |       |   |
| Display and Operation Details   |   |                   |  |       |   |
| <p>The screenshot shows a digital display with the following elements:</p> <ul style="list-style-type: none"> <li>1: RUN and AT status indicators.</li> <li>2: OUT status indicators for outputs 1 and 2.</li> <li>3: ALM status indicator for alarm output 1.</li> <li>4: HB status indicator for heater burnout.</li> <li>5: Input Error status indicator.</li> <li>6: Current Value Exceeds status indicator.</li> <li>7: Temperature unit indicator (°C) / (°F).</li> <li>8: PV (Process Value) display showing -999.9.</li> <li>9: SP (Set Point) display showing -999.9.</li> <li>10: MV1 (Manipulated Variable 1) display showing -999.9.</li> <li>11: MV2 (Manipulated Variable 2) display showing -999.9.</li> <li>12: A small circular indicator that flashes when the display is updated.</li> </ul> |   |                   |  |       |   |
| No.   | Item  | Setting/display   | Description  |       |   |
| 1   | RUN<br>AT   | Display           | Displays the run/stop and autotuning status.                 |       |   |
| 2   | OUT   | Display           | Displays the output status of control outputs 1 and 2.       |       |   |
| 3   | ALM   | Display           | Displays the output status of alarm output 1.                |       |   |
| 4   | HB  | Display           | Displays the heater burnout output status.                   |       |   |
| 5   | Input Error   | Display           | Displays the input error status.                             |       |   |
| 6   | Current Value Exceeds                                   | Display           | Displays the status of a current value exceeded error.       |       |   |
| 7   | (°C) / (°F)   | Display           | Displays the temperature unit.                               |       |   |
| 8   | PV  | Display           | Displays the process value.                                  |       |   |
| 9   | SP  | Display           | Displays the set point.                                      |       |   |
| 10  | MV1   | Display           | Displays the manipulated variable of output 1.               |       |   |
| 11  | MV2   | Display           | Displays the manipulated variable of output 2.               |       |   |
| 12  | Display Update Indicator                                | Display           | Flashes each time the display is updated.                    |       |   |
| Remarks   |   |                   |  |       |   |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul>   |   |                   |  |       |   |

# Temperature Controller (E5□N)

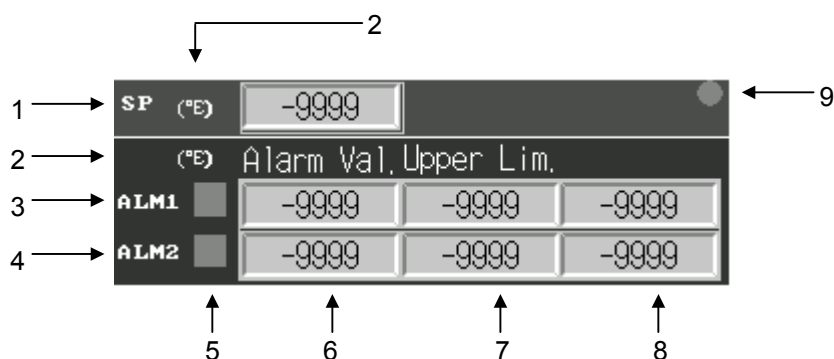
## (6) SP and Alarm Settings for E5CN

| Setting level   | Input type                      | Part |
|-----------------|---------------------------------|------|
| Operation level | Thermocouple input              | Yes  |
|                 | Platinum-resistance thermometer | Yes  |
|                 | Common(Common)                  | No   |

|                  |      |                          |  |              |                       |
|------------------|------|--------------------------|--|--------------|-----------------------|
| <b>Unit type</b> | E5CN | <b>Storage directory</b> | SmartActiveParts_E\<br>TemperatureController\E5□N\OperationLevel | <b>Title</b> | SP and Alarm Settings |
|------------------|------|--------------------------|--|--------------|-----------------------|

**Function** Sets the set point and the alarm values for outputting alarms.

### Display and Operation Details



| No. | Item                     | Setting/display | Description   |
|-----|--------------------------|-----------------|---|
| 1   | SP                       | Setting         | Sets the set point.   |
| 2   | (°C) / (°F)              | Display         | Displays the temperature unit.  |
| 3   | ALM1                     | -               | The ALM1 row contains the alarm 1 settings: alarm value, upper limit, and lower limit.  |
| 4   | ALM2                     | -               | The ALM2 row contains the alarm 2 settings: alarm value, upper limit, and lower limit.  |
| 5   | Alarm Indicators         | Display         | Displays the output status of alarm outputs 1 and 2. The display is continuously updated.   |
| 6   | Alarm Val.               | Setting         | Sets the alarm value. The alarm value is displayed and can be set when the alarm type is set to anything other than an upper/lower limit alarm. |
| 7   | Upper Lim.               | Setting         | Sets the alarm upper limit. The alarm upper limit is displayed and can be set when the alarm type is set to an upper/lower limit alarm.         |
| 8   | Lower Lim.               | Setting         | Sets the alarm lower limit. The alarm lower limit is displayed and can be set when the alarm type is set to an upper/lower limit alarm.         |
| 9   | Display Update Indicator | Display         | The alarm indicator display is continuously updated. This indicator flashes each time the data is updated.                                      |

### Remarks

- \* When using this SMART Active Part, be sure to select **Setting - System Settings** in the menu bar, press the **System Memory List** Button on the **Initial Tab** Page, and select **Basics** for the \$SB.
- \* Do not use this SMART Active Part on the initial screen.
- \* Use System version 5 or higher version.

## (7) Operation Monitor for E5GN Standard Control

| Setting level   | Input type                      | Part |
|-----------------|---------------------------------|------|
| Operation level | Thermocouple input              | Yes  |
|                 | Platinum-resistance thermometer | Yes  |
|                 | Common(Common)                  | No   |

| <b>Unit type</b>   | E5GN  | <b>Storage directory</b> | SmartActiveParts_E\TemperatureController\E5□N\OperationLevel | <b>Title</b> | Operation Monitor for Standard Control |
|--|---|--------------------------|--|--------------|--|
| <b>Function</b>  | Continuously monitors operating status on a face plate. |                          |  |              |  |
| <b>Display and Operation Details</b>   |   |                          |  |              |  |
|  |   |                          |  |              |  |
| No.  | Item  | Setting/display          | Description  |              |  |
| 1  | RUN<br>AT   | Display                  | Displays the run/stop and autotuning status.                 |              |  |
| 2  | OUT   | Display                  | Displays the output status of control output 1.              |              |  |
| 3  | ALM   | Display                  | Displays the output status of alarm output 1.                |              |  |
| 4  | Input Error   | Display                  | Displays the input error status.                             |              |  |
| 5  | (°C) / (°F)   | Display                  | Displays the temperature unit.                               |              |  |
| 6  | PV  | Display                  | Displays the process value.                                  |              |  |
| 7  | SP  | Display                  | Displays the set point.                                      |              |  |
| 8  | MV1   | Display                  | Displays the manipulated variable.                           |              |  |
| 9  | Display Update Indicator                                | Display                  | Flashes each time the display is updated.                    |              |  |
| <b>Remarks</b>   |   |                          |  |              |  |
| * When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB. |   |                          |  |              |  |
| * Do not use this SMART Active Part on the initial screen.   |   |                          |  |              |  |
| * Use System version 5 or higher version.  |   |                          |  |              |  |

# Temperature Controller (E5□N)

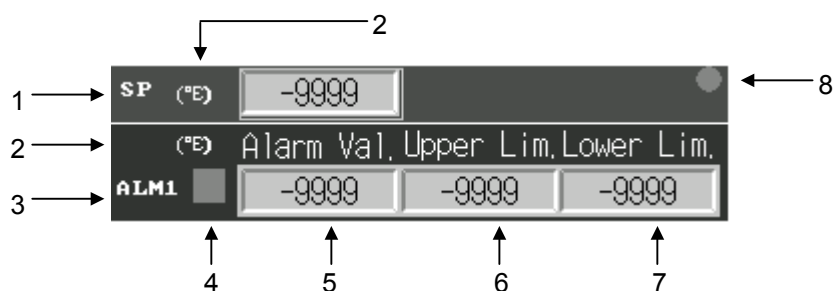
## (8) SP and Alarm Settings for E5GN

| Setting level   | Input type                      | Part |
|-----------------|---------------------------------|------|
| Operation level | Thermocouple input              | Yes  |
|                 | Platinum-resistance thermometer | Yes  |
|                 | Common(Common)                  | No   |

|                  |      |                          |  |              |                       |
|------------------|------|--------------------------|--|--------------|-----------------------|
| <b>Unit type</b> | E5GN | <b>Storage directory</b> | SmartActiveParts_E\<br>TemperatureControl<br>ler\E5□N\OperationLe<br>vel | <b>Title</b> | SP and Alarm Settings |
|------------------|------|--------------------------|--|--------------|-----------------------|

**Function** Sets the set point and the alarm values for outputting alarms.

### Display and Operation Details



| No. | Item                     | Setting/<br>display | Description   |
|-----|--------------------------|---------------------|---|
| 1   | SP                       | Setting             | Sets the set point.   |
| 2   | (°C) / (°F)              |                     | Displays the temperature unit.  |
| 3   | ALM1                     | -                   | The ALM1 row contains the alarm 1 settings: alarm value, upper limit, and lower limit.  |
| 4   | Alarm Indicators         | Display             | Displays the output status of alarm output 1. The display is continuously updated.  |
| 5   | Alarm Val.               | Setting             | Sets the alarm value. The alarm value is displayed and can be set when the alarm type is set to anything other than an upper/lower limit alarm. |
| 6   | Upper Lim.               | Setting             | Sets the alarm upper limit. The alarm upper limit is displayed and can be set when the alarm type is set to an upper/lower limit alarm.         |
| 7   | Lower Lim.               | Setting             | Sets the alarm lower limit. The alarm lower limit is displayed and can be set when the alarm type is set to an upper/lower limit alarm.         |
| 8   | Display Update Indicator | Setting             | The alarm indicator display is continuously updated. This indicator flashes each time the data is updated.                                      |

### Remarks

- \* When using this SMART Active Part, be sure to select **Setting - System Settings** in the menu bar, press the **System Memory List** Button on the **Initial Tab** Page, and select **Basics** for the \$SB.
- \* Do not use this SMART Active Part on the initial screen.
- \* Use System version 5 or higher version.

(9) SP Setting

| Setting level   | Input type                      | Part |
|-----------------|---------------------------------|------|
| Operation level | Thermocouple input              | Yes  |
|                 | Platinum-resistance thermometer | Yes  |
|                 | Common(Common)                  | No   |

|   |                        |                          |  |              |            |
|---|------------------------|--------------------------|--|--------------|------------|
| <b>Unit type</b>  | E5AN, E5EN, E5CN, E5GN | <b>Storage directory</b> | SmartActiveParts_E\TemperatureController\E5□N\OperationLevel | <b>Title</b> | SP Setting |
| <b>Function</b>   | Sets the set point.    |                          |  |              |            |
| <b>Display and Operation Details</b>  |                        |                          |  |              |            |
| <p>The screenshot shows a digital display with 'SP (°F)' on the left and '-9999' on the right. Callout '1' points to the 'SP (°F)' text, and callout '2' points to the '-9999' value.</p>   |                        |                          |  |              |            |
| <b>No.</b>  | <b>Item</b>            | <b>Setting/display</b>   | <b>Description</b>   |              |            |
| 1   | SP                     | Setting                  | Sets the set point.  |              |            |
| 2   | (°C) / (°F)            | Display                  | Displays the temperature unit.                               |              |            |
| <b>Remarks</b>  |                        |                          |  |              |            |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |                        |                          |  |              |            |



# Temperature Controller (E5□N)

## 1.1.2 Adjustment Level

### (10) Multi-SP Settings

| Setting level    | Input type                      | Part |
|------------------|---------------------------------|------|
| Adjustment level | Thermocouple input              | Yes  |
|                  | Platinum-resistance thermometer | Yes  |
|                  | Common(Common)                  | No   |

| Unit type   | E5AN, E5EN, E5CN, E5GN                      | Storage directory | SmartActiveParts_E\TemperatureController\E5□N\AdjustmentLevel | Title | Multi-SP Settings |
|---|---|-------------------|---|-------|-------------------|
| Function  | Sets the set points for multi-SP operation. |                   |   |       |                   |
| Display and Operation Details   |   |                   |   |       |                   |
| <p>1 → SP0 (°E) -9999<br/>                 2 → SP1 (°E) -9999<br/>                 3 → SP2 (°E) -9999<br/>                 4 → SP3 (°E) -9999<br/>                 ↑<br/>                 5</p>   |   |                   |   |       |                   |
| No.   | Item  | Setting/display   | Description   |       |                   |
| 1   | SP0   | Setting           | Sets set point 0.   |       |                   |
| 2   | SP1   | Setting           | Sets set point 1.   |       |                   |
| 3   | SP2   | Setting           | Sets set point 2.   |       |                   |
| 4   | SP3   | Setting           | Sets set point 3.   |       |                   |
| 5   | (°C) / (°F)                                 | Display           | Displays the temperature unit.                                |       |                   |
| Remarks   |   |                   |   |       |                   |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |   |                   |   |       |                   |

## (11) Heater Burnout Detection

| Setting level    | Input type                      | Part |
|------------------|---------------------------------|------|
| Adjustment level | Thermocouple input              | No   |
|                  | Platinum-resistance thermometer | No   |
|                  | Common(Common)                  | Yes  |

| Unit type  | E5AN, E5EN, E5CN  | Storage directory | SmartActiveParts_E\TemperatureController\E5□N\AdjustmentLevel                               | Title | Heater Burnout Detection |
|--|---|-------------------|---|-------|--------------------------|
| Function   | Monitors the heater burnout current and sets the heater burnout detection value. This SMART Active Part will function when heater burnout detection is enabled. The setting is made with a SMART Active Part in the advanced setting level. |                   |   |       |                          |
| Display and Operation Details  |   |                   |   |       |                          |
|  |   |                   |   |       |                          |
| No.  | Item  | Setting/display   | Description   |       |                          |
| 1  | Heater Current Val  | Display           | Continuously displays the heater current.   |       |                          |
| 2  | HB  | Display           | Continuously displays the output status for heater burnout detection.                       |       |                          |
| 3  | Heater Burnout Detection  | Setting           | Sets the heater burnout detection value.  |       |                          |
| 4  | HBA Used  | Display           | Displays the setting status (advanced function setting level) for heater burnout detection. |       |                          |
| 5  | Display Update Indicator  | Display           | Flashes each time the heater current or HB display is updated.                              |       |                          |
| Remarks  |   |                   |   |       |                          |
| * When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB. |   |                   |   |       |                          |
| * Do not use this SMART Active Part on the initial screen.   |   |                   |   |       |                          |
| * Use System version 5 or higher version.  |   |                   |   |       |                          |

# Temperature Controller (E5□N)

## (12) PID Settings

| Setting level    | Input type                      | Part |
|------------------|---------------------------------|------|
| Adjustment level | Thermocouple input              | No   |
|                  | Platinum-resistance thermometer | No   |
|                  | Common(Common)                  | Yes  |

|   |                         |                          |   |              |              |
|---|-------------------------|--------------------------|---|--------------|--------------|
| <b>Unit type</b>  | E5AN, E5EN, E5CN, E5GN  | <b>Storage directory</b> | SmartActiveParts_E\TemperatureController\E5□N\AdjustmentLevel | <b>Title</b> | PID Settings |
| <b>Function</b>   | Sets the PID constants. |                          |   |              |              |
| <b>Display and Operation Details</b>  |                         |                          |   |              |              |
|   |                         |                          |   |              |              |
| <b>No.</b>  | <b>Item</b>             | <b>Setting/display</b>   | <b>Description</b>  |              |              |
| 1   | P Value                 | Setting                  | Sets the proportional band.                                   |              |              |
| 2   | (°C) / (°F)             | Display                  | Displays the temperature unit.                                |              |              |
| 3   | I Value                 | Setting                  | Sets the integral time.                                       |              |              |
| 4   | D Value                 | Setting                  | Sets the derivative time.                                     |              |              |
| <b>Remarks</b>  |                         |                          |   |              |              |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |                         |                          |   |              |              |

(13) Input Shift Values

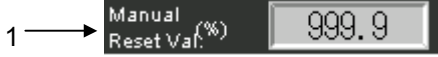
| Setting level    | Input type                      | Part |
|------------------|---------------------------------|------|
| Adjustment level | Thermocouple input              | No   |
|                  | Platinum-resistance thermometer | No   |
|                  | Common(Common)                  | Yes  |

| Unit type   | E5AN, E5EN, E5CN, E5GN   | Storage directory | SmartActiveParts_E\TemperatureController\E5□N\AdjustmentLevel                                    | Title | Input Shift Values |
|---|--|-------------------|--|-------|--------------------|
| Function  | Sets the input shift values for the sensor measurement range.                                  |                   |  |       |                    |
| Display and Operation Details   |  |                   |  |       |                    |
|   |  |                   |  |       |                    |
| No.   | Item   | Setting/display   | Description  |       |                    |
| 1   | 1-point shift<br>Input Shift Value   | Setting           | Sets the input shift value for a 1-point shift.  |       |                    |
| 2   | 2-point shift<br>Input Shift Value<br>Upper Limit<br>Temperature<br>Lower Limit<br>Temperature | Setting           | Sets the input shift values for the upper limit and lower limit of the sensor measurement range. |       |                    |
| 3   | (°C) / (°F)  | Display           | Displays the temperature unit.   |       |                    |
| Remarks   |  |                   |  |       |                    |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |  |                   |  |       |                    |

# Temperature Controller (E5□N)

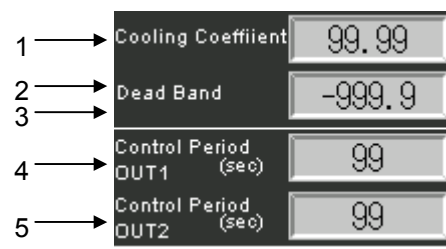
## (14) Manual Reset Value

| Setting level    | Input type                      | Part |
|------------------|---------------------------------|------|
| Adjustment level | Thermocouple input              | No   |
|                  | Platinum-resistance thermometer | No   |
|                  | Common(Common)                  | Yes  |

|   |                              |                          |   |              |                    |
|---|------------------------------|--------------------------|---|--------------|--------------------|
| <b>Unit type</b>  | E5AN, E5EN, E5CN, E5GN       | <b>Storage directory</b> | SmartActiveParts_E\TemperatureController\E5□N\AdjustmentLevel | <b>Title</b> | Manual Reset Value |
| <b>Function</b>   | Sets the manual reset value. |                          |   |              |                    |
| <b>Display and Operation Details</b>  |                              |                          |   |              |                    |
|  <p>1 → Manual Reset Val. (%) 999.9</p>   |                              |                          |   |              |                    |
| <b>No.</b>  | <b>Item</b>                  | <b>Setting/display</b>   | <b>Description</b>  |              |                    |
| 1   | Manual Reset Val.            | Setting                  | Sets the manual reset value.                                  |              |                    |
| <b>Remarks</b>  |                              |                          |   |              |                    |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |                              |                          |   |              |                    |

## (15) Cooling Coefficient, Dead Band, and Control Period

| Setting level    | Input type                      | Part |
|------------------|---------------------------------|------|
| Adjustment level | Thermocouple input              | No   |
|                  | Platinum-resistance thermometer | No   |
|                  | Common(Common)                  | Yes  |

| Unit type   | E5AN, E5EN, E5CN, E5GN                                       | Storage directory | SmartActiveParts_E\TemperatureController\E5[]N\AdjustmentLevel   | Title | Cooling Coefficient, Dead Band, and Control Period |
|---|--|-------------------|--|-------|--|
| Function  | Sets the cooling coefficient, dead band, and control period. |                   |  |       |  |
| Display and Operation Details   |  |                   |  |       |  |
|   |  |                   |  |       |  |
| No.   | Item   | Setting/display   | Description  |       |  |
| 1   | Cooling Coefficient  | Setting           | Sets the cooling coefficient for heating/cooling control.  |       |  |
| 2   | Dead Band  | Setting           | Sets the dead band for heating/cooling control.  |       |  |
| 3   | (°C) / (°F)  | Display           | Displays the temperature unit.   |       |  |
| 4   | Control Period OUT1  | Setting           | Sets the control period for the control output OUT1 for heating/cooling control. Sets the control period for the control output OUT1 for standard control. |       |  |
| 5   | Control Period OUT2  | Setting           | Sets the control period for the control output OUT2 for heating/cooling control. The control period for OUT2 is used only for heating/cooling control.     |       |  |
| Remarks   |  |                   |  |       |  |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |  |                   |  |       |  |

# Temperature Controller (E5□N)

## (16) Dead Band and Hysteresis

| Setting level    | Input type                      | Part |
|------------------|---------------------------------|------|
| Adjustment level | Thermocouple input              | No   |
|                  | Platinum-resistance thermometer | No   |
|                  | Common(Common)                  | Yes  |

|   |   |                          |   |              |                          |
|---|---|--------------------------|---|--------------|--------------------------|
| <b>Unit type</b>  | E5AN, E5EN, E5CN, E5GN                                | <b>Storage directory</b> | SmartActiveParts_E\TemperatureController\E5□N\AdjustmentLevel   | <b>Title</b> | Dead Band and Hysteresis |
| <b>Function</b>   | Sets the dead band and hysteresis for ON/OFF control. |                          |   |              |                          |
| <b>Display and Operation Details</b>  |   |                          |   |              |                          |
| <p>The screenshot shows a dark background with three rows of settings. The first row is 'Dead Band' with a value of '-999.9'. The second row is 'Hysteresis OUT1' with a value of '999.9'. The third row is 'Hysteresis OUT2' with a value of '999.9'. Below these is a temperature unit display showing '999.9'. Arrows labeled 1, 2, and 3 point to the setting fields, and arrow 4 points to the temperature unit display.</p> |   |                          |   |              |                          |
| <b>No.</b>  | <b>Item</b>   | <b>Setting/display</b>   | <b>Description</b>  |              |                          |
| 1   | Dead Band   | Setting                  | Sets the dead band.   |              |                          |
| 2   | Hysteresis OUT1                                       | Setting                  | Sets the hysteresis for the control output OUT1 for heating/cooling control.<br>Sets the hysteresis for the control output OUT1 for standard control. |              |                          |
| 3   | Hysteresis OUT2                                       | Setting                  | Sets the hysteresis for the control output OUT2 for heating/cooling control.  |              |                          |
| 4   | (°C) / (°F)   | Display                  | Displays the temperature unit.  |              |                          |
| <b>Remarks</b>  |   |                          |   |              |                          |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul>                               |   |                          |   |              |                          |

## 1.1.3 Initial Setting Level

### (17) Input Type, Temperature Unit, Scaling, and Decimal Point for Thermocouple Inputs

| Setting level         | Input type                      | Part |
|-----------------------|---------------------------------|------|
| Initial setting level | Thermocouple input              | Yes  |
|                       | Platinum-resistance thermometer | No   |
|                       | Common(Common)                  | No   |

| Unit type   | E5AN, E5EN, E5CN, E5GN  | Storage directory | SmartActiveParts_E\TemperatureController\E5□N\InitialSettingLevel  | Title | Input Type, Temperature Unit, Scaling, and Decimal Point |
|---|---|-------------------|--|-------|--|
| Function  | Sets the input type and temperature unit for a Temperature Controller with a Thermocouple Input. When an analog input is selected, sets the scaling and decimal point position. |                   |  |       |  |
| Display and Operation Details   |   |                   |  |       |  |
|   |   |                   |  |       |  |
| No.   | Item  | Setting/display   | Description  |       |  |
| 1   | Input Type  | Setting           | Sets the thermocouple input type. The same input type applies to both channels 1 and 2.                        |       |  |
| 2   | Temperature Units   | Setting           | Sets the temperature unit.   |       |  |
| 3   | Scaling<br>Input Value<br>Display Value.  | Setting           | When the input type is set to an analog input (0 to 50 mV), sets the upper and lower limits for scaling.       |       |  |
| 4   | Decimal point position  | Setting           | When the input type is set to an analog input (0 to 50 mV), sets the number of places below the decimal point. |       |  |
| Remarks   |   |                   |  |       |  |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |   |                   |  |       |  |



# Temperature Controller (E5□N)

## (18) Input 1 Type and Temperature Unit for Platinum-resistance Thermometer Input

| Setting level         | Input type                      | Part |
|-----------------------|---------------------------------|------|
| Initial setting level | Thermocouple input              | No   |
|                       | Platinum-resistance thermometer | Yes  |
|                       | Common(Common)                  | No   |

| Unit type   | E5AN, E5EN, E5CN, E5GN  | Storage directory | SmartActiveParts_E\TemperatureController\E5□N\InitialSettingLevel                              | Title | Input Type and Temperature Unit |
|---|---|-------------------|--|-------|---------------------------------|
| Function  | Sets the input type and temperature unit for a Temperature Controller with a Platinum-resistance Thermometer Input. |                   |  |       |                                 |
| Display and Operation Details   |   |                   |  |       |                                 |
|   |   |                   |  |       |                                 |
| No.   | Item  | Setting/display   | Description  |       |                                 |
| 1   | Input Type  | Setting           | Sets the input type for a Temperature Controller with a Platinum-resistance Thermometer Input. |       |                                 |
| 2   | Temperature Units   | Setting           | Sets the temperature unit.   |       |                                 |
| Remarks   |   |                   |  |       |                                 |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |   |                   |  |       |                                 |

## (19) SP Limits


| Setting level         | Input type                      | Part |
|-----------------------|---------------------------------|------|
| Initial setting level | Thermocouple input              | Yes  |
|                       | Platinum-resistance thermometer | Yes  |
|                       | Common(Common)                  | No   |

| Unit type   | E5AN, E5EN, E5CN, E5GN                             | Storage directory | SmartActiveParts_E\TemperatureController\E5□N\InitialSettingLevel   | Title | SP Limits |
|---|--|-------------------|---|-------|-----------|
| Function  | Sets the upper and lower limits for the set point. |                   |   |       |           |
| Display and Operation Details   |  |                   |   |       |           |
|   |  |                   |   |       |           |
| No.   | Item   | Setting/display   | Description   |       |           |
| 1   | SP Limit<br>Upper Limit<br>Lower Limit             | Setting           | Sets the upper and lower limits for the set point.<br>Can be set anywhere within the input temperature setting range. |       |           |
| 2   | (°C) / (°F)  | Display           | Displays the temperature unit.  |       |           |
| Remarks   |  |                   |   |       |           |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |  |                   |   |       |           |

# Temperature Controller (E5□N)


## (20) PID or ON/OFF Control

| Setting level         | Input type                      | Part |
|-----------------------|---------------------------------|------|
| Initial setting level | Thermocouple input              | No   |
|                       | Platinum-resistance thermometer | No   |
|                       | Common(Common)                  | Yes  |

|   |                                    |                          |   |              |                       |
|---|------------------------------------|--------------------------|---|--------------|-----------------------|
| <b>Unit type</b>  | E5AN, E5EN, E5CN, E5GN             | <b>Storage directory</b> | SmartActiveParts_E\TemperatureController\E5□N\InitialSettingLevel | <b>Title</b> | PID or ON/OFF Control |
| <b>Function</b>   | Sets either PID or ON/OFF control. |                          |   |              |                       |
| <b>Display and Operation Details</b>  |                                    |                          |   |              |                       |
|   |                                    |                          |   |              |                       |
| <b>No.</b>  | <b>Item</b>                        | <b>Setting/display</b>   | <b>Description</b>  |              |                       |
| 1   | Control System                     | Setting                  | Sets either PID or ON/OFF control.                                |              |                       |
| <b>Remarks</b>  |                                    |                          |   |              |                       |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |                                    |                          |   |              |                       |

(21) Direct/Reverse Operation


| Setting level         | Input type                      | Part |
|-----------------------|---------------------------------|------|
| Initial setting level | Thermocouple input              | No   |
|                       | Platinum-resistance thermometer | No   |
|                       | Common(Common)                  | Yes  |

|   |  |                          |  |              |                          |
|---|--|--------------------------|--|--------------|--------------------------|
| <b>Unit type</b>  | E5AN, E5EN, E5CN, E5GN   | <b>Storage directory</b> | SmartActiveParts_E\TemperatureController\E5□N\InitialSettingLevel                                      | <b>Title</b> | Direct/Reverse Operation |
| <b>Function</b>   | Sets either direction operation or reverse operation for increases and decreases in the process value. |                          |  |              |                          |
| <b>Display and Operation Details</b>  |  |                          |  |              |                          |
|   |  |                          |  |              |                          |
| <b>No.</b>  | <b>Item</b>  | <b>Setting/display</b>   | <b>Description</b>   |              |                          |
| 1   | Operation  | Setting                  | Sets either direction operation or reverse operation for increases and decreases in the process value. |              |                          |
| <b>Remarks</b>  |  |                          |  |              |                          |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |  |                          |  |              |                          |

# Temperature Controller (E5□N)

## (22) Control Mode

| Setting level         | Input type                      | Part |
|-----------------------|---------------------------------|------|
| Initial setting level | Thermocouple input              | No   |
|                       | Platinum-resistance thermometer | No   |
|                       | Common(Common)                  | Yes  |

|   |   |                          |   |              |              |
|---|---|--------------------------|---|--------------|--------------|
| <b>Unit type</b>  | E5AN, E5EN, E5CN, E5GN                            | <b>Storage directory</b> | SmartActiveParts_E\TemperatureController\E5□N\InitialSettingLevel | <b>Title</b> | Control Mode |
| <b>Function</b>   | Sets standard control or heating/cooling control. |                          |   |              |              |
| <b>Display and Operation Details</b>  |   |                          |   |              |              |
|  <p>The screenshot shows a menu titled 'Control Mode' with two options: 'Standard' and 'Heat Cool'. An arrow points to the 'Control Mode' title.</p>  |   |                          |   |              |              |
| <b>No.</b>  | <b>Item</b>                                       | <b>Setting/display</b>   | <b>Description</b>  |              |              |
| 1   | Control Mode                                      | Setting                  | Sets standard control or heating/cooling control.                 |              |              |
| <b>Remarks</b>  |   |                          |   |              |              |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |   |                          |   |              |              |

## (23) ST ON/OFF and ST Stable Range

| Setting level         | Input type                      | Part |
|-----------------------|---------------------------------|------|
| Initial setting level | Thermocouple input              | No   |
|                       | Platinum-resistance thermometer | No   |
|                       | Common(Common)                  | Yes  |

| Unit type   | E5AN, E5EN, E5CN, E5GN  | Storage directory | SmartActiveParts_E\TemperatureController\E5□N\InitialSettingLevel | Title | ST ON/OFF and ST Stable Range |
|---|---|-------------------|---|-------|-------------------------------|
| Function  | Turns the ST function ON and OFF, and sets the ST stable range. |                   |   |       |                               |
| Display and Operation Details   |   |                   |   |       |                               |
|   |   |                   |   |       |                               |
| No.   | Item  | Setting/display   | Description   |       |                               |
| 1   | ST ON/OFF   | Setting           | Turns the ST function ON and OFF.                                 |       |                               |
| 2   | ST Stable Range   | Setting           | Sets the ST stable range.   |       |                               |
| 3   | (°C) / (°F)   | Display           | Displays the temperature unit.                                    |       |                               |
| Remarks   |   |                   |   |       |                               |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |   |                   |   |       |                               |

# Temperature Controller (E5□N)

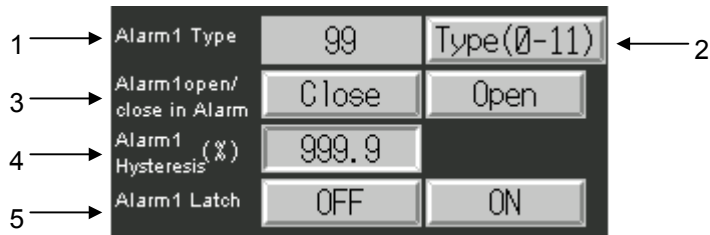
## (24) Alarm 1 Type, Alarm 1 Open/Close in Alarm, Alarm 1 Hysteresis, Alarm 1 Latch

| Setting level         | Input type                      | Part |
|-----------------------|---------------------------------|------|
| Initial setting level | Thermocouple input              | No   |
|                       | Platinum-resistance thermometer | No   |
|                       | Common(Common)                  | Yes  |

|                  |                        |                          |   |              |  |
|------------------|------------------------|--------------------------|---|--------------|--|
| <b>Unit type</b> | E5AN, E5EN, E5CN, E5GN | <b>Storage directory</b> | SmartActiveParts_E\TemperatureController\E5□N\InitialSettingLevel | <b>Title</b> | Alarm 1 Type, Open/Close in Alarm, Hysteresis, Latch |
|------------------|------------------------|--------------------------|---|--------------|--|

**Function** Sets the alarm type, open/close in alarm operation, latch, and hysteresis for alarm 1.

**Display and Operation Details**



| No. | Item                           | Setting/display | Description  |
|-----|--------------------------------|-----------------|--|
| 1   | Alarm 1 Type                   | Display         | Displays the alarm type that is set.   |
| 2   | Alarm 1 Type Setting Button    | Setting         | When pressed, displays the alarm type setting menu. Select the alarm type from the menu. |
| 3   | Alarm 1 open/close in Alarm    | Setting         | Sets open in alarm or close in alarm for the alarm output.                               |
| 4   | Alarm 1 Hysteresis (°C) / (°F) | Setting Display | Sets ON/OFF hysteresis for the alarm output. Displays the temperature unit.              |
| 5   | Alarm 1 Latch                  | Setting         | Sets whether to latch the alarm output status.   |

**Remarks**

- \* When using this SMART Active Part, be sure to select **Setting - System Settings** in the menu bar, press the **System Memory List** Button on the **Initial Tab** Page, and select **Basics** for the \$SB.
- \* Do not use this SMART Active Part on the initial screen.
- \* Use System version 5 or higher version.

## (25) Alarm 2 Type, Alarm 2 Open/Close in Alarm, Alarm 2 Hysteresis, Alarm 2 Latch

| Setting level         | Input type                      | Part |
|-----------------------|---------------------------------|------|
| Initial setting level | Thermocouple input              | No   |
|                       | Platinum-resistance thermometer | No   |
|                       | Common(Common)                  | Yes  |

| Unit type   | E5AN, E5EN, E5CN   | Storage directory | SmartActiveParts_E\TemperatureController\E5□N\InitialSettingLevel                        | Title | Alarm 2 Type, Open/Close in Alarm, Latch, Hysteresis |
|---|--|-------------------|--|-------|--|
| Function  | Sets the alarm type, open/close in alarm operation, latch, and hysteresis for alarm 2. |                   |  |       |  |
| Display and Operation Details   |  |                   |  |       |  |
|   |  |                   |  |       |  |
| No.   | Item   | Setting/display   | Description  |       |  |
| 1   | Alarm 2 Type   | Display           | Displays the alarm type that is set.   |       |  |
| 2   | Alarm 2 Type Setting Button  | Setting           | When pressed, displays the alarm type setting menu. Select the alarm type from the menu. |       |  |
| 3   | Alarm 2 open/close in Alarm  | Setting           | Sets open in alarm or close in alarm for the alarm output.                               |       |  |
| 4   | Alarm 2 Hysteresis (°C) / (°F)   | Setting Display   | Sets ON/OFF hysteresis for the alarm output. Displays the temperature unit.              |       |  |
| 5   | Alarm 2 Latch  | Setting           | Sets whether to latch the alarm output status.   |       |  |
| Remarks   |  |                   |  |       |  |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |  |                   |  |       |  |



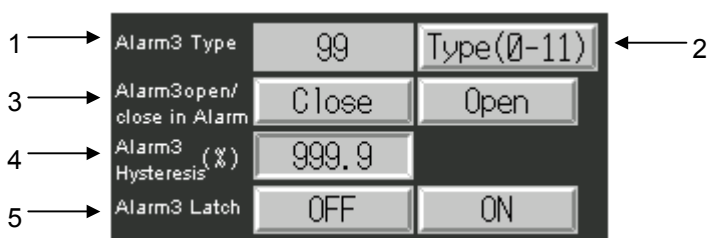
# Temperature Controller (E5□N)

## (26) Alarm 3 Type, Alarm 3 Open/Close in Alarm, Alarm 3 Hysteresis, Alarm 3 Latch

| Setting level         | Input type                      | Part |
|-----------------------|---------------------------------|------|
| Initial setting level | Thermocouple input              | No   |
|                       | Platinum-resistance thermometer | No   |
|                       | Common(Common)                  | Yes  |

|                  |  |                          |   |              |  |
|------------------|--|--------------------------|---|--------------|--|
| <b>Unit type</b> | E5AN, E5EN,  | <b>Storage directory</b> | SmartActiveParts_E\TemperatureController\E5□N\InitialSettingLevel | <b>Title</b> | Alarm 3 Type, Open/Close in Alarm, Hysteresis, Latch |
| <b>Function</b>  | Sets the alarm type, open/close in alarm operation, latch, and hysteresis for alarm 3. |                          |   |              |  |

**Display and Operation Details**



| No. | Item                           | Setting/display | Description  |
|-----|--------------------------------|-----------------|--|
| 1   | Alarm 3 Type                   | Display         | Displays the alarm type that is set.   |
| 2   | Alarm 3 Type Setting Button    | Setting         | When pressed, displays the alarm type setting menu. Select the alarm type from the menu. |
| 3   | Alarm 3 open/close in Alarm    | Setting         | Sets open in alarm or close in alarm for the alarm output.                               |
| 4   | Alarm 3 Hysteresis (°C) / (°F) | Setting Display | Sets ON/OFF hysteresis for the alarm output. Displays the temperature unit.              |
| 5   | Alarm 3 Latch                  | Setting         | Sets whether to latch the alarm output status.   |

**Remarks**

- \* When using this SMART Active Part, be sure to select **Setting - System Settings** in the menu bar, press the **System Memory List** Button on the **Initial Tab** Page, and select **Basics** for the \$SB.
- \* Do not use this SMART Active Part on the initial screen.
- \* Use System version 5 or higher version.

1.1.4 Advanced Function Setting Level

(27) SP Ramp

| Setting level               | Input type                      | Part |
|-----------------------------|---------------------------------|------|
| CPU Bus Units Setting level | Thermocouple input              | Yes  |
|                             | Platinum-resistance thermometer | Yes  |
|                             | Common(Common)                  | No   |

|   |  |                          |  |              |         |
|---|--|--------------------------|--|--------------|---------|
| <b>Unit type</b>  | E5AN, E5EN, E5CN, E5GN                   | <b>Storage directory</b> | SmartActiveParts_E\TemperatureController\E5□N\AdvancedFunctionSettingLevel         | <b>Title</b> | SP Ramp |
| <b>Function</b>   | Sets the rate of change for the SP ramp. |                          |  |              |         |
| <b>Display and Operation Details</b>  |  |                          |  |              |         |
|   |  |                          |  |              |         |
| <b>No.</b>  | <b>Item</b>                              | <b>Setting/display</b>   | <b>Description</b>   |              |         |
| 1   | SP Ramp                                  | Setting                  | Sets the maximum allowed change per minute. Set 0 to disable the SP ramp function. |              |         |
| 2   | (°C/min)/(°F/min)                        | Display                  | Displays the temperature unit.   |              |         |
| <b>Remarks</b>  |  |                          |  |              |         |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |  |                          |  |              |         |

# Temperature Controller (E5□N)

## (28) Multi-SP ON/OFF

| Setting level                   | Input type                      | Part |
|---------------------------------|---------------------------------|------|
| Advanced function setting level | Thermocouple input              | No   |
|                                 | Platinum-resistance thermometer | No   |
|                                 | Common(Common)                  | Yes  |

|   |   |                          |   |              |                 |
|---|---|--------------------------|---|--------------|-----------------|
| <b>Unit type</b>  | E5AN, E5EN, E5CN, E5GN                      | <b>Storage directory</b> | SmartActiveParts_E\TemperatureController\E5□N\AdvancedFunctionSettingLevel                                  | <b>Title</b> | Multi-SP ON/OFF |
| <b>Function</b>   | Sets whether the set point can be switched. |                          |   |              |                 |
| <b>Display and Operation Details</b>  |   |                          |   |              |                 |
|   |   |                          |   |              |                 |
| <b>No.</b>  | <b>Item</b>                                 | <b>Setting/display</b>   | <b>Description</b>  |              |                 |
| 1   | Multi-SP                                    | Setting                  | Sets whether the set point can be switched.<br>Set ON to enable switching.<br>Set OFF to disable switching. |              |                 |
| <b>Remarks</b>  |   |                          |   |              |                 |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |   |                          |   |              |                 |

(29) HBA Used, Heater Burnout Latch, Heater Burnout Hysteresis

| Setting level                   | Input type                      | Part |
|---------------------------------|---------------------------------|------|
| Advanced function setting level | Thermocouple input              | No   |
|                                 | Platinum-resistance thermometer | No   |
|                                 | Common(Common)                  | Yes  |

|   |   |                          |  |              |                             |
|---|---|--------------------------|--|--------------|-----------------------------|
| <b>Unit type</b>  | E5AN, E5EN, E5CN  | <b>Storage directory</b> | SmartActiveParts_E\TemperatureController\E5□N\AdvancedFunctionSettingLevel | <b>Title</b> | HBA Used, Latch, Hysteresis |
| <b>Function</b>   | Turns the heater burnout detection ON/OFF, turns the latch ON/OFF, and sets the hysteresis. |                          |  |              |                             |
| <b>Display and Operation Details</b>  |   |                          |  |              |                             |
| <p>The screenshot shows a control panel with three rows of settings:</p> <ul style="list-style-type: none"> <li>Row 1: 'HBA Used' with 'OFF' and 'ON' buttons. An arrow labeled '1' points to this row.</li> <li>Row 2: 'Heater Burnout Latch' with 'Disable' and 'Enable' buttons. An arrow labeled '2' points to this row.</li> <li>Row 3: 'Heater Burnout Hysteresis' with a numeric display showing '99.9'. An arrow labeled '3' points to this row.</li> </ul> |   |                          |  |              |                             |
| <b>No.</b>  | <b>Item</b>   | <b>Setting/display</b>   | <b>Description</b>   |              |                             |
| 1   | HBA Used  | Setting                  | Sets whether to use the heater burnout detection function.                 |              |                             |
| 2   | Heater Burnout Latch  | Setting                  | Sets whether to latch the heater burnout alarm.                            |              |                             |
| 3   | Heater Burnout Hysteresis   | Setting                  | Sets the hysteresis for heater burnout detection.                          |              |                             |
| <b>Remarks</b>  |   |                          |  |              |                             |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul>   |   |                          |  |              |                             |

# Temperature Controller (E5□N)


## (30) MV Upper/Lower Limits and Input Digital Filter

| Setting level                   | Input type                      | Part |
|---------------------------------|---------------------------------|------|
| Advanced function setting level | Thermocouple input              | No   |
|                                 | Platinum-resistance thermometer | No   |
|                                 | Common(Common)                  | Yes  |

| Unit type   | E5AN, E5EN, E5CN, E5GN  | Storage directory | SmartActiveParts_E\TemperatureController\E5□N\AdvancedFunctionSettingLevel  | Title | MV Upper/Lower Limits and Input Digital Filter |
|---|---|-------------------|---|-------|--|
| Function  | Sets the upper and lower limits for the manipulated variable.<br>Sets the time constant for the input digital filter. |                   |   |       |  |
| Display and Operation Details   |   |                   |   |       |  |
|   |   |                   |   |       |  |
| No.   | Item  | Setting/display   | Description   |       |  |
| 1   | MV Upper Limit  | Setting           | Sets the upper limit of the manipulated variable. If the calculated manipulated variable is greater than the upper limit, it will be restricted to the upper limit. |       |  |
| 2   | MV Lower Limit  | Setting           | Sets the lower limit of the manipulated variable. If the calculated manipulated variable falls below the lower limit, it will be restricted to the lower limit.     |       |  |
| 3   | Input Digital Filter  | Setting           | Sets the time constant for the input digital filter.  |       |  |
| Remarks   |   |                   |   |       |  |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |   |                   |   |       |  |

(31) Standby Sequence Restart


| Setting level                   | Input type                      | Part |
|---------------------------------|---------------------------------|------|
| Advanced function setting level | Thermocouple input              | No   |
|                                 | Platinum-resistance thermometer | No   |
|                                 | Common(Common)                  | Yes  |

|   |  |                          |  |              |                          |
|---|--|--------------------------|--|--------------|--------------------------|
| <b>Unit type</b>  | E5AN, E5EN, E5CN, E5GN   | <b>Storage directory</b> | SmartActiveParts_E\TemperatureController\E5□N\AdvancedFunctionSettingLevel | <b>Title</b> | Standby Sequence Restart |
| <b>Function</b>   | Sets the condition for restarting after clearing the alarm standby sequence. |                          |  |              |                          |
| <b>Display and Operation Details</b>  |  |                          |  |              |                          |
|  <p>1 → Standby Sequence Reset [Condi. A] [Condi. B]</p>  |  |                          |  |              |                          |
| <b>No.</b>  | <b>Item</b>  | <b>Setting/display</b>   | <b>Description</b>   |              |                          |
| 1   | Standby Sequence Reset   | Setting                  | Select Condition A or Condition B.   |              |                          |
| <b>Remarks</b>  |  |                          |  |              |                          |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |  |                          |  |              |                          |

# Temperature Controller (E5□N)

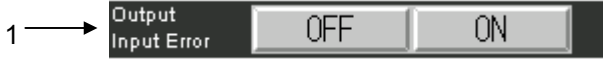
(32)  $\alpha$

| Setting level                   | Input type                      | Part |
|---------------------------------|---------------------------------|------|
| Advanced function setting level | Thermocouple input              | No   |
|                                 | Platinum-resistance thermometer | No   |
|                                 | Common(Common)                  | Yes  |

|   |  |                          |  |              |          |
|---|--|--------------------------|--|--------------|----------|
| <b>Unit type</b>  | E5AN, E5EN, E5CN, E5GN                               | <b>Storage directory</b> | SmartActiveParts_E\TemperatureController\E5□N\AdvancedFunctionSettingLevel | <b>Title</b> | $\alpha$ |
| <b>Function</b>   | Sets the $\alpha$ constant for advanced PID control. |                          |  |              |          |
| <b>Display and Operation Details</b>  |  |                          |  |              |          |
|   |  |                          |  |              |          |
| <b>No.</b>  | <b>Item</b>  | <b>Setting/display</b>   | <b>Description</b>   |              |          |
| 1   | $\alpha$   | Setting                  | Sets $\alpha$ set value.   |              |          |
| <b>Remarks</b>  |  |                          |  |              |          |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |  |                          |  |              |          |

(33) Input Error Output

| Setting level                   | Input type                      | Part |
|---------------------------------|---------------------------------|------|
| Advanced function setting level | Thermocouple input              | No   |
|                                 | Platinum-resistance thermometer | No   |
|                                 | Common(Common)                  | Yes  |


|   |   |                          |  |              |                    |
|---|---|--------------------------|--|--------------|--------------------|
| <b>Unit type</b>  | E5AN, E5EN, E5CN, E5GN  | <b>Storage directory</b> | SmartActiveParts_E\TemperatureController\E5□N\AdvancedFunctionSettingLevel   | <b>Title</b> | Input Error Output |
| <b>Function</b>   | Sets whether to output an alarm when a sensor input error occurs. |                          |  |              |                    |
| <b>Display and Operation Details</b>  |   |                          |  |              |                    |
|   |   |                          |  |              |                    |
| <b>No.</b>  | <b>Item</b>   | <b>Setting/display</b>   | <b>Description</b>   |              |                    |
| 1   | Output Input Error  | Setting                  | Sets whether to enable outputting an alarm on the alarm 1 output when a sensor error is detected. Set ON to enable output and OFF to disable output. |              |                    |
| <b>Remarks</b>  |   |                          |  |              |                    |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |   |                          |  |              |                    |



# Temperature Controller (E5□N)

## (34) Cold Junction Compensation Method

| Setting level                   | Input type                      | Part |
|---------------------------------|---------------------------------|------|
| Advanced function setting level | Thermocouple input              | No   |
|                                 | Platinum-resistance thermometer | No   |
|                                 | Common(Common)                  | Yes  |

|   |   |                          |  |              |                                   |
|---|---|--------------------------|--|--------------|-----------------------------------|
| <b>Unit type</b>  | E5AN, E5EN, E5CN, E5GN                      | <b>Storage directory</b> | SmartActiveParts_E\TemperatureController\E5□N\AdvancedFunctionSettingLevel                         | <b>Title</b> | Cold Junction Compensation Method |
| <b>Function</b>   | Sets the cold junction compensation method. |                          |  |              |                                   |
| <b>Display and Operation Details</b>  |   |                          |  |              |                                   |
|   |   |                          |  |              |                                   |
| <b>No.</b>  | <b>Item</b>                                 | <b>Setting/display</b>   | <b>Description</b>   |              |                                   |
| 1   | Cold Junction Compensation Method           | Setting                  | Set whether to perform cold junction compensation inside the Temperature Controller or externally. |              |                                   |
| <b>Remarks</b>  |   |                          |  |              |                                   |
| <ul style="list-style-type: none"> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |   |                          |  |              |                                   |

## 1.1.5 Communications Setting Level

### (35) Communications Settings

| Setting level                 | Input type                      | Part |
|-------------------------------|---------------------------------|------|
| Communications Settings level | Thermocouple input              | No   |
|                               | Platinum-resistance thermometer | No   |
|                               | Common(Common)                  | Yes  |

| Unit type  | E5AN, E5EN, E5CN, E5GN   | Storage directory | SmartActiveParts_E\TemperatureController\E5□N\CommunicationsSettingLevel   | Title | Communications Settings |
|--|--|-------------------|--|-------|-------------------------|
| Function   | Sets the communications unit number and communications settings.<br>The following settings are used when connecting an NS-series PT to the Temperature Controller: Data length: 7 bits, Stop bits: 2 bits, Parity: even.<br>The PT and the Temperature Controller will not be able to communicate with any other settings. |                   |  |       |                         |
| Display and Operation Details  |  |                   |  |       |                         |
|  |  |                   |  |       |                         |
| No.  | Item   | Setting/display   | Description  |       |                         |
| 1  | Comms. Unit No.  | Setting           | Sets the communications unit number. Set a different unit number for each Temperature Controller.                              |       |                         |
| 2  | Baud Rate  | Setting           | Sets the baud rate. Set the NS-series PT and all connected Temperature Controllers to the same setting.                        |       |                         |
| 3  | Data Bit   | Setting           | Sets the communications data length. A data length of 7 bits is used to connect an NS-series PT to the Temperature Controller. |       |                         |
| 4  | Stop Bit   | Setting           | Sets the number of communications stop bits. Two stop bits are used to connect an NS-series PT to the Temperature Controller.  |       |                         |
| 5  | Parity   | Setting           | Sets the communications parity. Even parity is used to connect an NS-series PT to the Temperature Controller.                  |       |                         |
| Remarks  |  |                   |  |       |                         |
| <ul style="list-style-type: none"> <li>* The PT and the Temperature Controller will not be able to communicate unless the following settings are used: Data length: 7 bits, Stop bits: 2 bits, Parity: even.</li> <li>* When using this SMART Active Part, be sure to select <b>Setting - System Settings</b> in the menu bar, press the <b>System Memory List</b> Button on the <b>Initial Tab</b> Page, and select <b>Basics</b> for the \$SB.</li> <li>* Do not use this SMART Active Part on the initial screen.</li> <li>* Use System version 5 or higher version.</li> </ul> |  |                   |  |       |                         |

# Temperature Controller

(from Ver5 or earlier)

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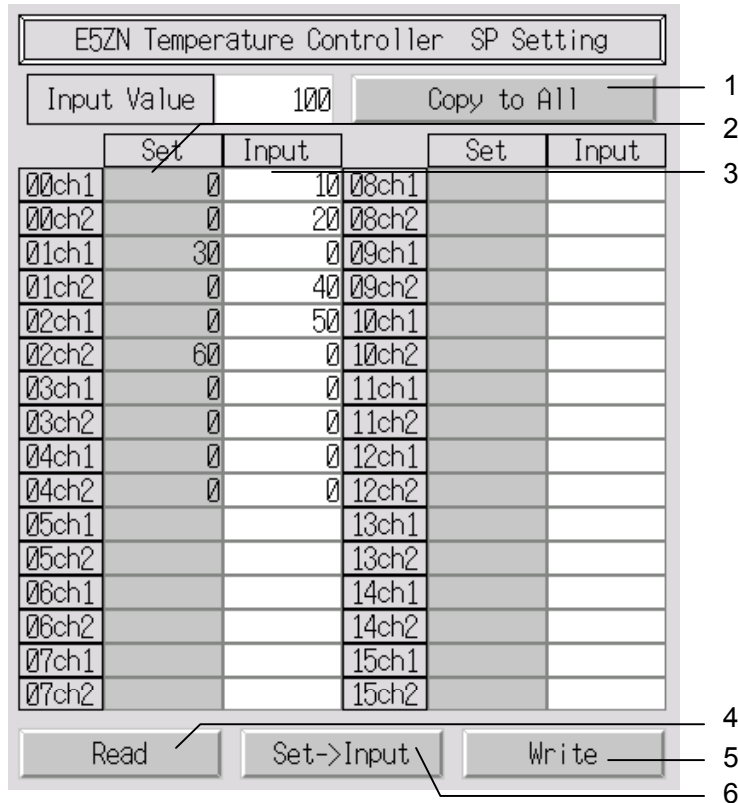
# Temperature Controller (from Ver5 or earlier)

## 1.1 Smart Active Parts (from Ver5 or Earlier)

### 1.1.1 SP Setting 00 to 15

|          |  |          |   |       |                     |
|----------|--|----------|---|-------|---------------------|
| Model    | E5ZN-DRT   | Location | SmartActiveParts_E\TemperatureController\E5ZN\Ver5toearlier | Title | SP Setting 00 to 15 |
| Function | Performs reading and writing from and to SP for the maximum 16 temperature controllers connected to the E5ZN-DRT by pressing buttons. Reading and writing from and to E5ZN temperature controller cannot be performed when it is not connected to the E5ZN-DRT or a communication error has been occurred. |          |   |       |                     |

[Image]



| No. | Item                             | Setting/Display | Details   |
|-----|----------------------------------|-----------------|---|
| 1   | Copy to All Device (Copy to All) | Setting         | Sets the input values on top to the input value for each Ch.  |
| 2   | Set Value (Set)                  | Display         | Displays SP which is read from E5ZN temperature controller. The value will be updated when reading or writing values. |
| 3   | Input Value (Input)              | Setting         | Sets SP to be written to the E5ZN temperature controller.   |
| 4   | Read                             | Setting         | Reads SP to the set value display area.   |
| 5   | Write                            | Setting         | Write input values to the SP. After writing the values, those will be read to the columns under Set.                  |
| 6   | Set -> Input                     | Setting         | Sets values under Set to the Input.   |

[Note]

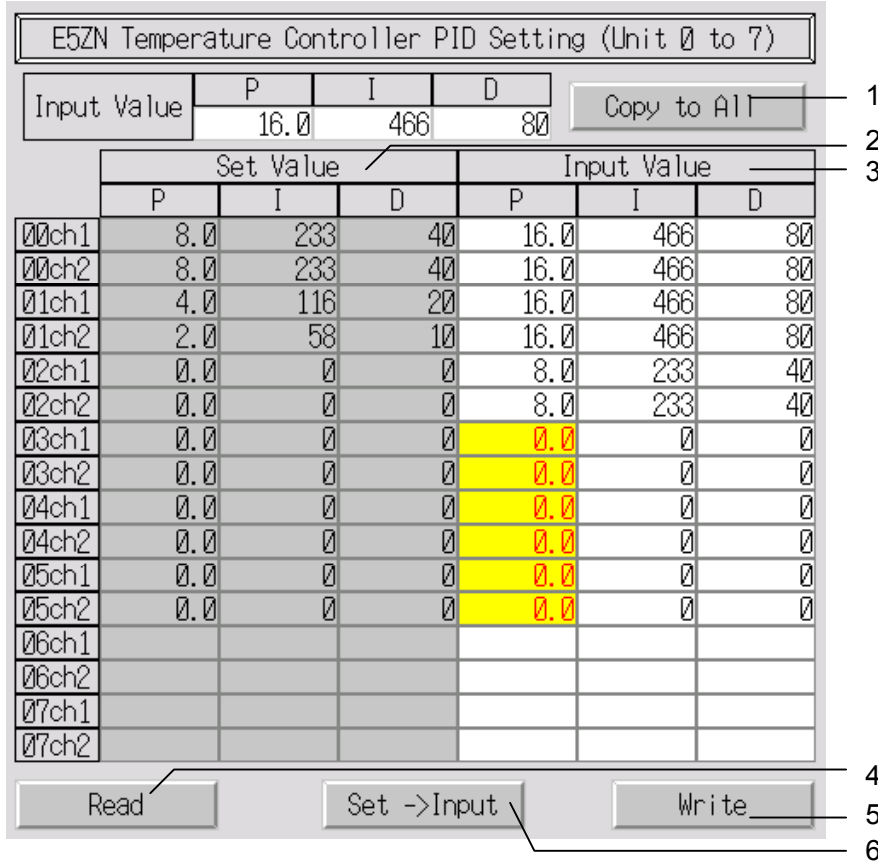
Set 6 seconds or more for **Comm.Time-Out** in the PT when using those Smart Active Parts.

# Temperature Controller (from Ver5 or earlier)

## 1.1.2 PID Setting (Unit 0 to 7)

|          |  |          |   |       |                           |
|----------|--|----------|---|-------|---------------------------|
| Model    | E5ZN-DRT   | Location | SmartActiveParts_E\TemperatureController\E5ZN\Ver5toearlier | Title | PID Setting (Unit 0 to 7) |
| Function | Performs reading and writing from and to PID of E5ZN unit 00 to 07 connected to E5ZN-DRT by pressing buttons. Reading and writing from and to E5ZN temperature controller cannot be performed when it is not connected to the E5ZN-DRT or a communication error has been occurred. |          |   |       |                           |

[Image]



| No. | Item         | Setting/Display | Details   |
|-----|--------------|-----------------|---|
| 1   | Copy to All  | Setting         | The set input values on top to the input values for each Ch.  |
| 2   | Set Value    | Display         | Displays the read values in the PID from E5ZN temperature controller. The value will be updated when reading or writing values.           |
| 3   | Input Value  | Setting         | Set PID to be written to the E5ZN temperature controller. Text and background color will be changed if a value out of range has been set. |
| 4   | Read         | Setting         | Reads values set for PID to the columns under Set Value.  |
| 5   | Write        | Setting         | Writes input values to PID in the E5ZN temperature controller. Those will be read to columns under Set Value after writing values.        |
| 6   | Set -> Input | Setting         | Sets set values to input values.  |

[Note]

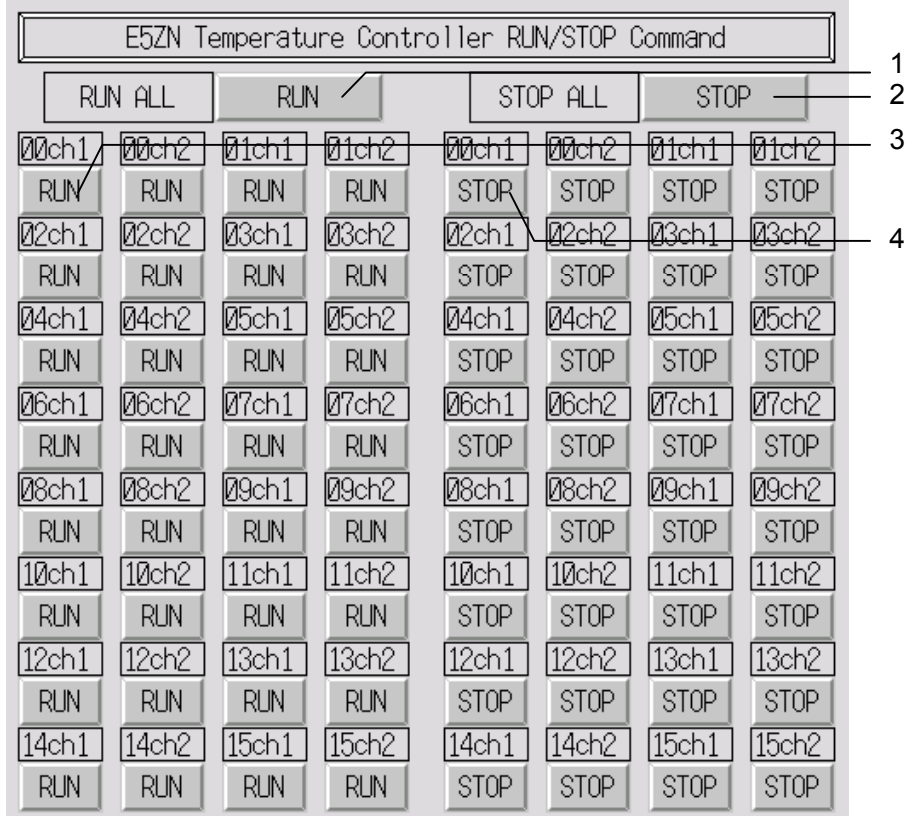
- Set 6 seconds or more for Comm.Time-Out in the PT when using those Smart Active Parts. Also, select **Settings-Unit & Scale** Setting and set 0.1 for the scale at the unit No. 1000 when using those parts library.
- Please use E5ZN Temperature Controller PID Setting (Unit 08 to 15) for Temperature Controller unit 08 to 15.

# Temperature Controller (from Ver5 or earlier)

## 1.1.3 RUN/STOP Command

|          |  |          |   |       |          |
|----------|--|----------|---|-------|----------|
| Model    | E5ZN-DRT   | Location | SmartActiveParts_E\TemperatureController\E5ZN\Ver5toearlier | Title | RUN/STOP |
| Function | Executes control start (RUN) and control stop (STOP) commands for the maximum 16 temperature controllers connected to the E5ZN-DRT. Control start (RUN) and control stop (STOP) commands can be executed for all temperature controllers at once and for each unit by word (Ch) individually. These commands cannot be executed for E5ZN temperature controller which is not connected or a communication error is occurred. |          |   |       |          |

[Image]



| No. | Item     | Setting/Display | Details   |
|-----|----------|-----------------|---|
| 1   | RUN ALL  | Setting         | Executes start control command (RUN) for all temperature controllers connected to E5ZN-DRT. |
| 2   | ALL STOP | Setting         | Executes stop control command (STOP) for all temperature controllers connected to E5ZN-DRT. |
| 3   | RUN      | Setting         | Executes start control (RUN) for word in an appropriate Unit No.                            |
| 4   | STOP     | Setting         | Executes stop control (STOP) for word in an appropriate Unit No.                            |

[Note]

Set 6 seconds or more for **Comm. Time-Out** in the PT when using those Smart Active Parts.

# Temperature Controller (from Ver5 or earlier)

## 1.1.4 AT Execute/Stop

|  |  |                 |   |       |       |                 |             |         |          |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |
|--|--|-----------------|---|-------|-------|-----------------|-------------|---------|----------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|------|------|
| Model  | E5ZN-DRT   | Location        | SmartActiveParts_ETemperatureController\E5ZN\Ver5toearlier  |       | Title | AT Execute/Stop |             |         |          |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |
| Function   | Executes AT Execute/Stop commands for the maximum 16 temperature controllers connected to the E5ZN-DRT. AT execute/Stop commands can be executed for all temperature controllers at once and for each unit by word (Ch) individually. These commands cannot be executed for E5ZN temperature controller which is not connected or a communication error is occurred.   |                 |   |       |       |                 |             |         |          |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |
| [Image]  | <div style="border: 1px solid black; padding: 10px; text-align: center;"> <p>E5ZN Temperature Controller AT Execute/Stop Command</p> <table style="width: 100%; border-collapse: collapse; margin-bottom: 5px;"> <tr> <td style="border: 1px solid gray; padding: 2px;">Execute All</td> <td style="border: 1px solid gray; padding: 2px;">Execute</td> <td style="border: 1px solid gray; padding: 2px;">Stop All</td> <td style="border: 1px solid gray; padding: 2px;">Stop</td> </tr> </table> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border: 1px solid gray; padding: 2px;">00ch1</td><td style="border: 1px solid gray; padding: 2px;">00ch2</td><td style="border: 1px solid gray; padding: 2px;">01ch1</td><td style="border: 1px solid gray; padding: 2px;">01ch2</td><td style="border: 1px solid gray; padding: 2px;">02ch1</td><td style="border: 1px solid gray; padding: 2px;">02ch2</td><td style="border: 1px solid gray; padding: 2px;">03ch1</td><td style="border: 1px solid gray; 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| Execute All  | Execute  | Stop All        | Stop  |       |       |                 |             |         |          |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |
| 00ch1  | 00ch2  | 01ch1           | 01ch2   | 02ch1 | 02ch2 | 03ch1           | 03ch2       |         |          |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |
| Exec.  | Exec.  | Exec.           | Exec.   | Stop  | Stop  | Stop            | Stop        |         |          |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |
| 02ch1  | 02ch2  | 03ch1           | 03ch2   | 04ch1 | 04ch2 | 05ch1           | 05ch2       |         |          |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |
| Exec.  | Exec.  | Exec.           | Exec.   | Stop  | Stop  | Stop            | Stop        |         |          |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |
| 04ch1  | 04ch2  | 05ch1           | 05ch2   | 06ch1 | 06ch2 | 07ch1           | 07ch2       |         |          |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |
| Exec.  | Exec.  | Exec.           | Exec.   | Stop  | Stop  | Stop            | Stop        |         |          |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |
| 06ch1  | 06ch2  | 07ch1           | 07ch2   | 08ch1 | 08ch2 | 09ch1           | 09ch2       |         |          |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |
| Exec.  | Exec.  | Exec.           | Exec.   | Stop  | Stop  | Stop            | Stop        |         |          |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |
| 08ch1  | 08ch2  | 09ch1           | 09ch2   | 10ch1 | 10ch2 | 11ch1           | 11ch2       |         |          |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |
| Exec.  | Exec.  | Exec.           | Exec.   | Stop  | Stop  | Stop            | Stop        |         |          |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |
| 10ch1  | 10ch2  | 11ch1           | 11ch2   | 12ch1 | 12ch2 | 13ch1           | 13ch2       |         |          |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |
| Exec.  | Exec.  | Exec.           | Exec.   | Stop  | Stop  | Stop            | Stop        |         |          |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |
| 12ch1  | 12ch2  | 13ch1           | 13ch2   | 14ch1 | 14ch2 | 15ch1           | 15ch2       |         |          |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |
| Exec.  | Exec.  | Exec.           | Exec.   | Stop  | Stop  | Stop            | Stop        |         |          |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |
| 14ch1  | 14ch2  | 15ch1           | 15ch2   | 14ch1 | 14ch2 | 15ch1           | 15ch2       |         |          |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |
| Exec.  | Exec.  | Exec.           | Exec.   | Stop  | Stop  | Stop            | Stop        |         |          |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |
| No.  | Item   | Setting/Display | Details   |       |       |                 |             |         |          |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |
| 1  | Execute All  | Setting         | Executes AT execute command for the maximum 16 temperature controllers connected to the E5ZN-DRT. |       |       |                 |             |         |          |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |
| 2  | Stop All   | Setting         | Executes AT stop command for the maximum 16 temperature controllers connected to the E5ZN-DRT.    |       |       |                 |             |         |          |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |
| 3  | Execute  | Setting         | Executes AT execute command for word in an appropriate Unit No.                                   |       |       |                 |             |         |          |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |
| 4  | Stop   | Setting         | Executes AT stop command for word in an appropriate Unit No.                                      |       |       |                 |             |         |          |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |
| [Note]   |  |                 |   |       |       |                 |             |         |          |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |
| Set 6 seconds or more for <b>Comm. Time-Out</b> in the PT when using those Smart Active Parts. |  |                 |   |       |       |                 |             |         |          |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |

# Temperature Controller (from Ver5 or earlier)

## 1.1.5 Auto/Manual

|  |  |                 |  |       |             |
|--|--|-----------------|--|-------|-------------|
| Model  | E5ZN-DRT   | Location        | SmartActiveParts_ETemperatureController\E5ZN\Ver5toearlier   | Title | Auto/Manual |
| Function   | Executes Auto/Manual commands for the maximum 16 temperature controllers connected to the E5ZN-DRT. Auto/Manual commands can be executed for all temperature controllers at once and for each unit by word (Ch) individually. These commands cannot be executed for E5ZN temperature controller which is not connected or a communication error is occurred. |                 |  |       |             |
| [Image]  |  |                 |  |       |             |
| No.  | Item   | Setting/Display | Details  |       |             |
| 1  | Auto All   | Setting         | Executes automatic operation command for the maximum 16 temperature controllers connected to the E5ZN-DRT. |       |             |
| 2  | Manual All   | Setting         | Executes manual operation command for the maximum 16 temperature controllers connected to the E5ZN-DRT.    |       |             |
| 3  | Auto   | Setting         | Executes automatic operation command for word in an appropriate Unit No.                                   |       |             |
| 4  | Manual   | Setting         | Executes manual operation command for word in an appropriate Unit No.                                      |       |             |
| [Note]<br>Set 6 seconds or more for <b>Comm. Time-Out</b> in the PT when using those Smart Active Parts. |  |                 |  |       |             |



# Temperature Controller (from Ver5 or earlier)

## 1.1.6 Setting Area 0 for Unit 0

|       |          |          |  |       |                           |
|-------|----------|----------|--|-------|---------------------------|
| Model | E5ZN-DRT | Location | SmartActiveParts_ETemperatureController\E5ZN\Ver5toearlier | Title | Setting Area 0 for Unit 0 |
|-------|----------|----------|--|-------|---------------------------|

**Function** Performs reading and writing from and to setting area 0 for temperature controller connected to E5ZN-DRT by pressing buttons. Reading and writing from and to E5ZN temperature controller cannot be performed when it is not connected to the E5ZN-DRT or a communication error has been occurred. Provided this library for each unit.

[Image]

| E5ZN Temperature Controller Setting Area 0 for Unit 0 |     |       |     |       |                    |      |       |      |       |
|---|-----|-------|-----|-------|--------------------|------|-------|------|-------|
|   | CH1 |       | CH2 |       |                    | CH1  |       | CH2  |       |
|   | Set | Input | Set | Input |                    | Set  | Input | Set  | Input |
| SP  | 90  | 100   | 0   | 200   | Temperature        | 0.0  | 0.0   | 0.0  | 0.0   |
| Alarm Value1  | 0   | 80    | 0   | 0     | Input Offset       | 0.0  | 0.0   | 0.0  | 0.0   |
| Upper Limit1  | 0   | 90    | 0   | 0     | Upper Limit        | 0.0  | 0.0   | 0.0  | 0.0   |
| Lower Limit1  | 0   | 70    | 0   | 0     | Tem. Offset        | 0.0  | 0.0   | 0.0  | 0.0   |
| Alarm Value2  | 0   | 0     | 0   | 0     | Lower Limit        | 0.0  | 0.0   | 0.0  | 0.0   |
| Upper Limit2  | 0   | 0     | 0   | 0     | Tem. Offset        | 0.0  | 0.0   | 0.0  | 0.0   |
| Lower Limit2  | 0   | 0     | 0   | 0     | ProportionalB      | 4.0  | 8.0   | 8.0  | 16.0  |
| Alarm Value3  | 0   | 0     | 0   | 0     | IntegralTime       | 116  | 233   | 233  | 466   |
| ManualMani.V  | 0.0 | 0.0   | 0.0 | 0.0   | Derivative T       | 20   | 40    | 40   | 80    |
| Heater Burn.  | 0.0 | 0.0   | 0.0 | 0.0   | Cooling Coe.       | 5.00 | 10.00 | 0.10 | 20.00 |
| SP0   | 0   | 0     | 0   | 0     | Dead Band          | 0.0  | 0.0   | 0.0  | 0.0   |
| SP1   | 0   | 0     | 0   | 0     | ManualRstVal       | 0.0  | 0.0   | 0.0  | 0.0   |
|   |     |       |     |       | Heating Hysteresis | 5.0  | 10.0  | 10.0 | 20.0  |
|   |     |       |     |       | Cooling Hysteresis | 5.0  | 10.0  | 10.0 | 20.0  |

|            |            |            |
|------------|------------|------------|
| CH1/CH2    | CH1        | CH2        |
| Read       | Set->Input | Write      |
| Set->Input | Write      | Set->Input |
| Write      | Set->Input | Write      |

| No. | Item             | Setting/Display | Details   |
|-----|------------------|-----------------|---|
| 1   | CH1 Set          | Display         | Displays value for setting area 0 read from CH1. The value will be updated when reading/writing.                            |
| 2   | CH1 Input        | Setting         | Sets value for setting area 0 to the CH1. T Text and background color will be changed if a value out of range has been set. |
| 3   | CH2 Set          | Display         | Displays value for setting area 0 read from CH2. The value will be updated when reading/writing.                            |
| 4   | CH2 Input        | Setting         | Sets value for setting area 0 to the CH1. T Text and background color will be changed if a value out of range has been set. |
| 5   | CH1/CH2 Read     | Setting         | Reads setting area 0 settings in the CH1/2 and displays them in the columns under Set.                                      |
| 6   | CH1 Set -> Input | Setting         | Set values displayed in the columns under Set to appropriate columns under Input.   |
| 7   | CH1 Write        | Setting         | Writes input values for CH1 to setting area 0. The values will be read columns under Set after writing those.               |
| 8   | CH2 Set-> Input  | Setting         | Set values displayed in the columns under Set to appropriate columns under Input.   |
| 9   | CH2 Write        | Setting         | Writes input values for CH2 to setting area 0. The values will be read columns under Set after writing those.               |

[Note]

Set 6 seconds or more for **Comm. Time-Out** in the PT when using those Smart Active Parts.  
 Select **Settings-Unit & Scale** Setting and set 0.1 for the scale at the unit No. 1000 when using those parts.

# Temperature Controller (from Ver5 or earlier)

## 1.1.7 Setting Area 0 (Unit 0 to 15)

|          |  |          |  |       |                               |
|----------|--|----------|--|-------|-------------------------------|
| Model    | E5ZN-DRT   | Location | SmartActiveParts_ETemperatureController\E5ZN\Ver5toearlier | Title | Setting Area 0 (Unit 0 to 15) |
| Function | Performs reading and writing from and to setting area 0 for temperature controller connected to E5ZN-DRT by pressing buttons. Reading and writing from and to E5ZN temperature controller cannot be performed when it is not connected to the E5ZN-DRT or a communication error has been occurred. |          |  |       |                               |

[Image]

| No. | CH1   |       | CH2   |       | Details |
|-----|---|-------|-------|-------|---------|
|     | Set   | Input | Set   | Input |         |
| 1   | E5ZN Temperature Controller Setting Area 0 (Unit 0 to 15) |       |       |       |         |
| 2   | SP  | 0     | 0     | 15    | 15      |
| 3   | Alarm Value1  | 0     | 0     | 15    | 15      |
| 4   | Upper Limit1  | 0     | 0     | 20    | 20      |
| 5   | Lower Limit1  | 0     | 0     | 10    | 10      |
|     | Alarm Value2  | 0     | 0     | 0     | 0       |
|     | Upper Limit2  | 0     | 0     | 0     | 0       |
|     | Lower Limit2  | 0     | 0     | 0     | 0       |
|     | Alarm Value3  | 0     | 0     | 0     | 0       |
|     | ManualMani.V  | 0.0   | 0.0   | 0.0   | 0.0     |
|     | Heater Burn.  | 0.0   | 0.0   | 0.0   | 0.0     |
|     | SP 0  | 0     | 0     | 0     | 0       |
|     | SP 1  | 0     | 0     | 0     | 0       |
|     | Temperature Input Offset                                  | 0.0   | 0.0   | 0.0   | 0.0     |
|     | Upper Limit Tem. Offset                                   | 0.0   | 0.0   | 0.0   | 0.0     |
|     | Lower Limit Tem. Offset                                   | 0.0   | 0.0   | 0.0   | 0.0     |
|     | ProportionalB   | 0.0   | 8.0   | 0.0   | 8.0     |
|     | IntegralTime  | 0     | 233   | 0     | 233     |
|     | DerivativeT.  | 0     | 40    | 0     | 40      |
|     | Cooling Coe.  | 0.00  | 10.00 | 0.00  | 10.00   |
|     | Dead band   | 0.0   | 0.0   | 0.0   | 0.0     |
|     | ManualRstVal  | 0.0   | 0.0   | 0.0   | 0.0     |
|     | Heating Hysteresis  | 0.0   | 10.0  | 0.0   | 10.0    |
|     | Cooling Hysteresis  | 0.0   | 10.0  | 0.0   | 10.0    |

Buttons: CH1/CH2 Read, CH1 Set->Input, CH1 Write, CH2 Set->Input, CH2 Write

| No. | Item             | Setting/Display | Details   |
|-----|------------------|-----------------|---|
| 1   | Unit No.         | Setting         | Input unit No. to be displayed/set.   |
| 2   | CH1 Set          | Display         | Displays value for setting area 0 read from CH1. The value will be updated when reading/writing.                            |
| 3   | CH1 Input        | Setting         | Sets value for setting area 0 to the CH1. T Text and background color will be changed if a value out of range has been set. |
| 4   | CH2 Set          | Display         | Displays value for setting area 0 read from CH2. The value will be updated when reading/writing.                            |
| 5   | CH2 Input        | Setting         | Sets value for setting area 0 to the CH1. T Text and background color will be changed if a value out of range has been set. |
| 6   | CH1/CH2 Read     | Setting         | Reads setting area 0 settings in the CH1/2 and displays them in the columns under Set.                                      |
| 7   | CH1 Set -> Input | Setting         | Set values displayed in the columns under Set to appropriate columns under Input.   |
| 8   | CH1 Write        | Setting         | Writes input values for CH1 to setting area 0. The values will be read columns under Set after writing those.               |
| 9   | CH2 Set-> Input  | Setting         | Set values displayed in the columns under Set to appropriate columns under Input.   |
| 10  | CH2 Write        | Setting         | Writes input values for CH2 to setting area 0. The values will be read columns under Set after writing those.               |

[Note]

Set 6 seconds or more for **Comm.Time-Out** in the PT when using those Smart Active Parts.  
Select **Settings-Unit & Scale Setting** and set 0.1 for the scale at the unit No. 1000 when using those parts.

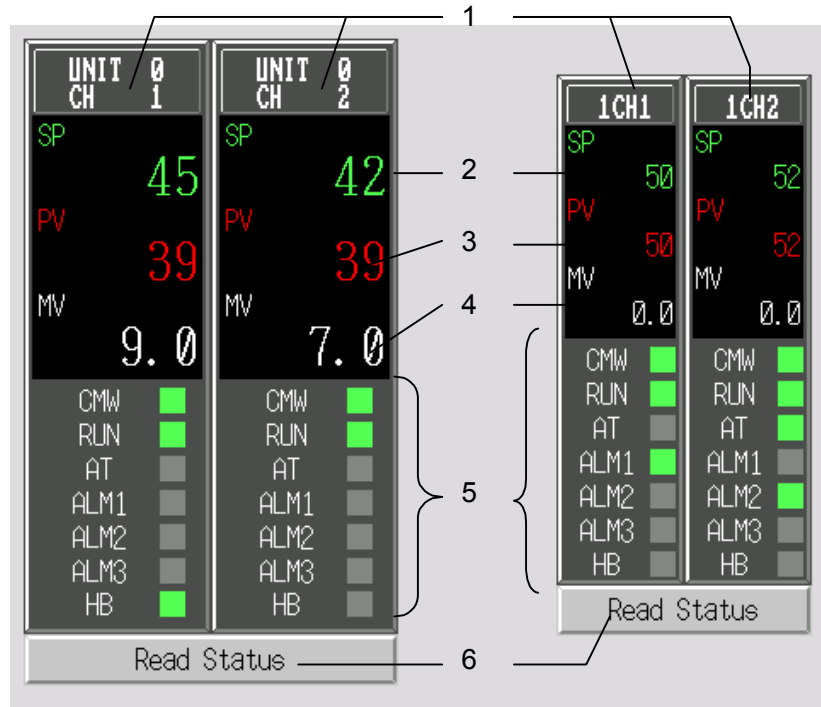
# Temperature Controller (from Ver5 or earlier)

## 1.1.8 FrontPanel(L) Unit 0 / FrontPanel(S) Unit 0

|       |          |          |   |       |   |
|-------|----------|----------|---|-------|---|
| Model | E5ZN-DRT | Location | SmartActiveParts_E\TemperatureController\E5ZN\Ver5toearlier\FrontPanel(L) FrontPanel(S) | Title | FrontPanel(L) Unit 0 / FrontPanel(S) Unit 0 |
|-------|----------|----------|---|-------|---|

Function: Displays status of the E5ZN temperature controller connected to the E5ZN-DRT. The status cannot be read when it is not connected to the E5ZN or a communication error had been occurred.

[Image]



| No. | Item                      | Setting/Display | Details  |
|-----|---------------------------|-----------------|--|
| 1   | Unit No./CH type          | Display         | Displays unit No. and CH type which is being monitored.  |
| 2   | SP                        | Display         | Sets SP read from CH1/CH2 of the E5ZN temperature controller. The value will be updated when performing read status.                   |
| 3   | PV (Present Value)        | Display         | Sets the present value read from CH1/CH2 of the E5ZN temperature controller. The value will be updated when performing read status.    |
| 4   | MV (Manipulated Variable) | Display         | Sets manipulated variable read from CH1/CH2 of the E5ZN temperature controller. The value will be updated when performing read status. |
| 5   | Status                    | Display         | Sets status read from CH1/CH2 in the E5ZN temperature controller. The value will be updated when performing read status.               |
| 6   | Read Status               | Setting         | Read SP, present value, manual manipulated variable, and status from CH1/CH2 in the E5ZN temperature controller.                       |

[Note]

Set 6 seconds or more for **Comm. Time-Out** in the PT when using those Smart Active Parts.  
 Select **Settings-Unit & Scale Setting** and set 0.1 for the scale at the unit No. 1000 when using those parts.

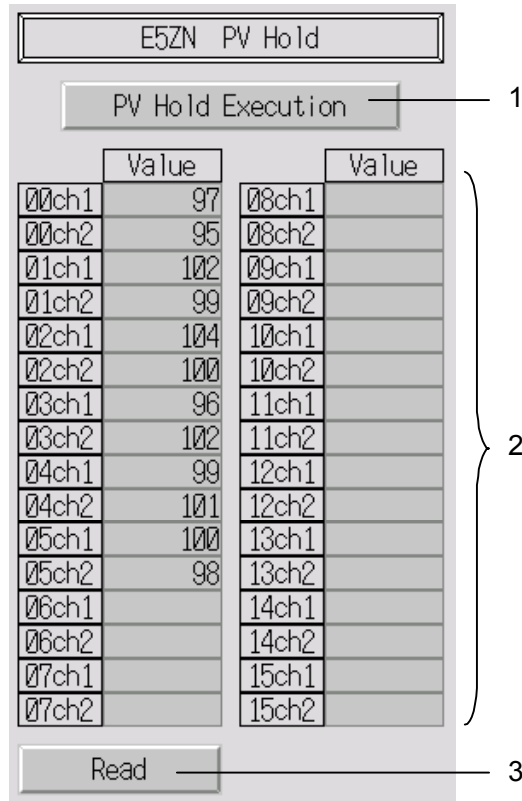
# Temperature Controller (from Ver5 or earlier)

## 1.1.9 PV Hold

|       |          |          |  |       |         |
|-------|----------|----------|--|-------|---------|
| Model | E5ZN-DRT | Location | SmartActiveParts_E\TemperatureController\E5ZN\Ver5toearlier/PVHold | Title | PV Hold |
|-------|----------|----------|--|-------|---------|

Function Executes PV hold command, reads PV for each unit and displays them. This command cannot be executed for E5ZN temperature controller which is not connected or a communication error is occurred.

[Image]



| No. | Item                  | Setting/Display | Details  |
|-----|-----------------------|-----------------|--|
| 1   | PV Hold Execution     | Setting         | Executes PV hold command for all E5ZN temperature controllers connected to the E5ZN-DRT. |
| 2   | PV Hold Value (Value) | Display         | Displays PV hold value read from the E5ZN temperature controller.                        |
| 3   | Read                  | Setting         | Reads PV hold value saved in an E5ZN temperature controller.                             |

[Note]

Set 6 seconds or more for **Comm.Time-Out** in the PT when using those Smart Active Parts.

**DRT2**

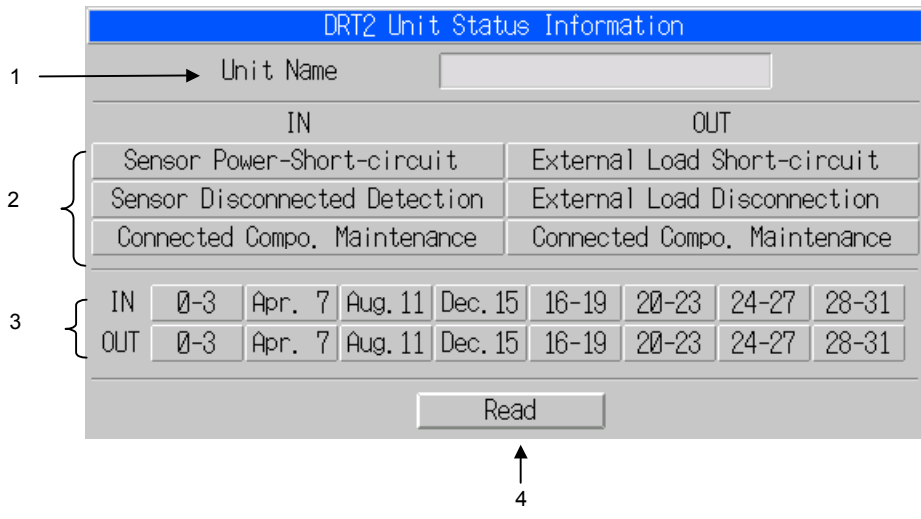
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## 1.1. DRT2

### 1.1.1 Unit Maintenance Information

|  |  |                             |   |              |                                   |
|--|--|-----------------------------|---|--------------|-----------------------------------|
| <b>Unit type</b>   | DRT2   | <b>Storage directory</b>    | SmartActiveParts_EIDR<br>T2\Unit  | <b>Title</b> | DRT2 Unit maintenance information |
| <b>Function</b>  | Monitors DRT2 Smart Slave Unit maintenance information and makes parameter settings. |                             |   |              |                                   |
| <b>Display and Operation Details</b>   |  |                             |   |              |                                   |
|  |  |                             |   |              |                                   |
| <b>No.</b>   | <b>Item</b>  | <b>Setting/<br/>display</b> | <b>Description</b>  |              |                                   |
| 1  | Unit Name  | Display                     | Displays the model number of the Unit. The model number of the Expansion Unit is not displayed.   |              |                                   |
| 2  | Comment  | Display                     | Displays the comment set for the Unit.  |              |                                   |
| 3  | Last Maintenance Date  | Setting/<br>display         | Displays the last maintenance date of the Unit. The last maintenance date can be overwritten.   |              |                                   |
| 4  | Unit Conduction Time   | Setting/<br>display         | Displays the conduction time set in the Unit along with the present value. The conduction time can be overwritten.  |              |                                   |
| 5  | Network Power Voltage  | Setting/<br>display         | Displays the set value, present value, minimum value, and maximum value of power supply voltage for the network. The set value can be overwritten. If the present value exceeds the set threshold value, the displayed color of the present value will change.<br>Unit conduction time (present value): Orange<br>Network power supply voltage (present value): Red |              |                                   |
| 6  | Error status   | Display                     | The displayed color varies with the error status.<br>Unit Maintenance Flag: Orange<br>Network Power Voltage Drops: Red<br>I/O Power Supply Error: Red   |              |                                   |
| 7  | Maintenance Counter Save   | Setting                     | Saves the maintenance counter.  |              |                                   |
| 8  | Read   | Setting                     | Reads items 1 to 6.   |              |                                   |
| 9  | Write  | Setting                     | Writes items 3 to 5 and then reads items 1 to 6.  |              |                                   |
| <b>Remarks</b>   |  |                             |   |              |                                   |
| * When the Smart Active Parts is reused, the unit number must be specified. If there is more than one slave unit in the DeviceNet, specify the slave unit numbers. |  |                             |   |              |                                   |
| * Use this display in system version 5.  |  |                             |   |              |                                   |

### 1.1.2 Unit Status Information

|   |   |                          |   |              |                              |
|---|---|--------------------------|---|--------------|------------------------------|
| <b>Unit type</b>  | DRT2  | <b>Storage directory</b> | SmartActiveParts_E\DR T2\Unit   | <b>Title</b> | DRT2 Unit status information |
| <b>Function</b>   | Monitors the Unit status of a DRT2 Smart Slave. |                          |   |              |                              |
| <b>Display and Operation Details</b>  |   |                          |   |              |                              |
|    |   |                          |   |              |                              |
| <b>No.</b>  | <b>Item</b>                                     | <b>Setting/display</b>   | <b>Description</b>  |              |                              |
| 1   | Unit Name                                       | Display                  | Displays the model number of the Unit. The model number of the Expansion Unit is not displayed.   |              |                              |
| 2   | Status summary                                  | Display                  | The corresponding item will change color if the Unit has an error. The status summary displayed varies with the Unit. If the Unit monitored has no status, the status summary will not be displayed.<br>IN Sensor Power-Short-circuit: Red<br>IN Sensor Disconnected Detection: Red<br>IN Connected Compo. Maintenance: Orange<br>OUT External Load Short-circuit: Red<br>OUT External Load Disconnection: Red<br>OUT Connected Compo. Maintenance: Orange  |              |                              |
| 3   | Bit summary                                     | Display                  | Displays the errors four bits at a time. The corresponding item will change in color if the Unit has an error. The status summary displayed varies with the Unit. If the Unit monitored does not support the status bits, the status summary will not be displayed.<br>IN Sensor Power-Short-circuit: Red<br>IN Sensor Disconnected Detection: Red<br>IN Connected Compo. Maintenance: Orange<br>OUT External Load Short-circuit: Red<br>OUT External Load Disconnection: Red<br>OUT Connected Compo. Maintenance: Orange<br>Errors other than Connected Compo. Maintenance error will be displayed in red when they occur. |              |                              |
| 4   | Read  | Setting                  | Reads items 1 to 3. When reading the items starts, a progress dialog will be displayed, which will automatically close when the items are read.   |              |                              |
| <b>Remarks</b>  |   |                          |   |              |                              |
| * When using this Smart Active Parts, be sure to select Setting - <b>System Setting</b> in the menu bar, press the <b>System Memory List</b> on the Initial Tab Page, and select <b>Basic Operation</b> for \$SB. Smart Active Parts cannot be used on the popup screen.<br>* Do not use the above display for the start screen.<br>* When the Smart Active Parts is reused, the unit number must be specified. If there is more than one slave unit in the DeviceNet, specify the slave unit number. |   |                          |   |              |                              |



1.1.3 Input Information Monitor

|   |  |                          |   |              |                                |
|---|--|--------------------------|---|--------------|--------------------------------|
| <b>Unit type</b>  | DRT2   | <b>Storage directory</b> | SmartActiveParts_EIDR T2\IN   | <b>Title</b> | DRT2 input information monitor |
| <b>Function</b>   | Displays and sets 4 bits of input information. |                          |   |              |                                |
| <b>Display and Operation Details</b>  |  |                          |   |              |                                |
|   |  |                          |   |              |                                |
| <b>No.</b>  | <b>Item</b>                                    | <b>Setting/display</b>   | <b>Description</b>  |              |                                |
| 1   | Unit Name                                      | Display                  | Displays the model number of the Unit. The model number of the Expansion Unit is not displayed.   |              |                                |
| 2   | Bit  | Display                  | Displays the bits along with the ON/OFF status of the bits. A bit that is ON will be displayed in yellow.   |              |                                |
| 3   | I/O Comments                                   | Display                  | Displays the I/O comments set for the bits.   |              |                                |
| 4   | Set Value                                      | Setting/display          | Displays maintenance monitor set values. The values can be overwritten.   |              |                                |
| 5   | P.V.   | Setting/display          | Displays the present maintenance values of the maintenance counter. The values can be overwritten. If the present value exceeds the set threshold value, the displayed color of the present value will change to orange.  |              |                                |
| 6   | Unit   | Display                  | Displays the maintenance unit (in seconds/times) set for each bit.  |              |                                |
| 7   | S  | Display                  | Displays the status of sensor power short-circuiting. The indicator display varies with the Unit. If the Unit does not support sensor power short-circuit detection, the indicator will not turn ON. The indicator will change to red if a short-circuit has been detected. |              |                                |
| 8   | Dis  | Display                  | The indicator displays the status of sensor disconnection. The indicator display varies with the Unit. If the Unit does not support sensor disconnection detection, the indicator will not turn ON. The indicator will flash in red if the sensor is not connected.         |              |                                |
| 9   | Read   | Setting                  | Reads items 1 to 8. When reading the items starts, a progress dialog will be displayed, which will automatically close when the items are read.   |              |                                |
| 10  | Write  | Setting                  | Writes items 4 to 5 and then reads items 1 to 8.  |              |                                |
| <b>Remarks</b>  |  |                          |   |              |                                |
| * When using this Smart Active Parts, be sure to select <b>Setting - System Setting</b> in the menu bar, press the <b>System Memory List</b> on the Initial Tab Page, and select <b>Date</b> and <b>Time for \$SW</b> .                                 |  |                          |   |              |                                |
| * Monitors are available for bits 0 to 3, 4 to 7, 8 to 11, 12 to 15, 16 to 19, 20 to 23, 24 to 27, or 28 to 31. Select the Smart Active Parts appropriate for the conditions (e.g., environment resistance, inputs, and outputs) of the Unit connected. |  |                          |   |              |                                |

### 1.1.4 Output Information Monitor

|   |   |                          |   |              |                                 |
|---|---|--------------------------|---|--------------|---------------------------------|
| <b>Unit type</b>  | DRT2  | <b>Storage directory</b> | SmartActiveParts_EIDR T2\OUT  | <b>Title</b> | DRT2 output information monitor |
| <b>Function</b>   | Displays and sets 4 bits of output information. |                          |   |              |                                 |
| <b>Display and Operation Details</b>  |   |                          |   |              |                                 |
|   |   |                          |   |              |                                 |
| <b>No.</b>  | <b>Item</b>                                     | <b>Setting/display</b>   | <b>Description</b>  |              |                                 |
| 1   | Unit Name                                       | Display                  | Displays the model number of the Unit. The model number of the Expansion Unit is not displayed.   |              |                                 |
| 2   | Bit   | Display                  | Displays the bits along with the ON/OFF status of the bits. A bit that is ON will be displayed in yellow.   |              |                                 |
| 3   | I/O Comments                                    | Display                  | Displays the I/O comments set for the bits.   |              |                                 |
| 4   | Set Value                                       | Setting/display          | Displays maintenance monitor set values. The values can be overwritten.   |              |                                 |
| 5   | P.V.  | Setting/display          | Displays the present maintenance values of the maintenance counter. The values can be overwritten. If the present value exceeds the set threshold value, the displayed color of the present value will change to orange.  |              |                                 |
| 6   | Unit  | Display                  | Displays the maintenance units (seconds/times) set for each bit.  |              |                                 |
| 7   | S   | Display                  | Displays the status of sensor power short-circuiting. The indicator display varies with the Unit. If the Unit does not support sensor power short-circuit detection, the indicator will not turn ON. The indicator will change to red if a short-circuit has been detected. |              |                                 |
| 8   | Dis   | Display                  | The indicator displays the status of sensor disconnection. The indicator display varies with the Unit. If the Unit does not support sensor disconnection detection, the indicator will not turn ON. The indicator will flash in red if the sensor is not connected.         |              |                                 |
| 9   | Read  | Setting                  | Reads items 1 to 8. When reading the items starts, a progress dialog will be displayed, which will automatically close when the items are read.   |              |                                 |
| 10  | Write   | Setting                  | Writes items 4 to 5 and then reads items 1 to 8.  |              |                                 |
| <b>Remarks</b>  |   |                          |   |              |                                 |
| * When using this Smart Active Parts, be sure to select <b>Setting - System Setting</b> in the menu bar, press the <b>System Memory List</b> on the Initial Tab Page, and select <b>Date</b> and <b>Time for \$\$W</b> .                                |   |                          |   |              |                                 |
| * Monitors are available for bits 0 to 3, 4 to 7, 8 to 11, 12 to 15, 16 to 19, 20 to 23, 24 to 27, or 28 to 31. Select the Smart Active Parts appropriate for the conditions (e.g., environment resistance, inputs, and outputs) of the Unit connected. |   |                          |   |              |                                 |

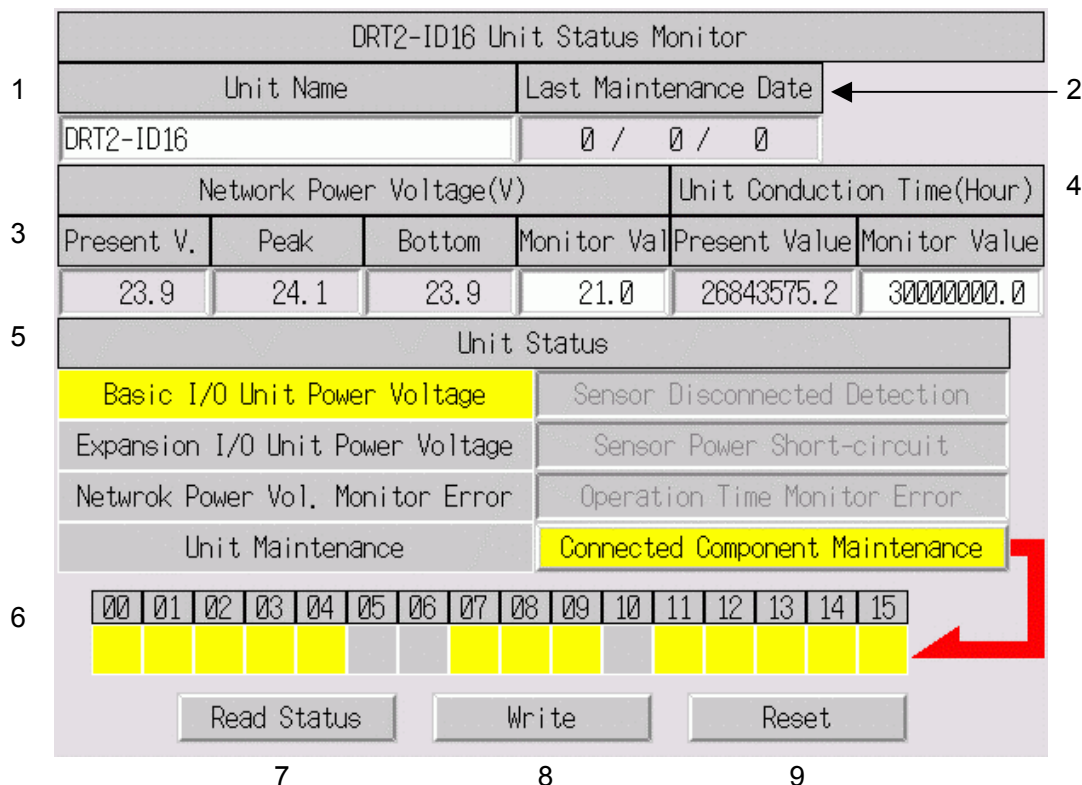
**1.1.5 Monitor Time Information**

|   |  |                          |   |              |                               |
|---|--|--------------------------|---|--------------|-------------------------------|
| <b>Unit type</b>  | DRT2   | <b>Storage directory</b> | SmartActiveParts_EIDR T2\MONITOR  | <b>Title</b> | DRT2 monitor time information |
| <b>Function</b>   | Displays and sets 4 bits of ON timing information for output to input. |                          |   |              |                               |
| <b>Display and Operation Details</b>  |  |                          |   |              |                               |
|   |  |                          |   |              |                               |
| <b>No.</b>  | <b>Item</b>  | <b>Setting/display</b>   | <b>Description</b>  |              |                               |
| 1   | Unit Name  | Display                  | Displays the model number of the Unit. The model number of the Expansion Unit is not displayed.   |              |                               |
| 2   | Bit  | Display                  | Displays the bits.  |              |                               |
| 3   | I/O Comments   | Display                  | Displays the I/O comments set for the bits.   |              |                               |
| 4   | Set Value  | Setting/display          | Displays set values. The values can be overwritten.   |              |                               |
| 5   | P.V.   | Setting/display          | Displays the present values. The values can be overwritten. If the present value exceeds the set threshold value, the displayed color of the present value will change to orange. |              |                               |
| 6   | Unit   | Display                  | Displays the units.   |              |                               |
| 7   | Read   | Setting                  | Reads items 1 and 3 to 5. When reading the items starts, a progress dialog will be displayed, which will automatically close when the items are read.                             |              |                               |
| 8   | Write  | Setting                  | Writes item 4 and then reads items 1 and 3 to 5.  |              |                               |
| <b>Remarks</b>  |  |                          |   |              |                               |
| * Monitors are available for bits 0 to 3 or 4 to 7. Select the Smart Active Parts appropriate for the conditions (e.g., environment resistance, inputs, and outputs) of the Unit connected. |  |                          |   |              |                               |

1.1.6 Smart Slave

|          |  |          |   |       |                     |
|----------|--|----------|---|-------|---------------------|
| Model    | DRT2   | Location | SmartActiveParts_E\DRT2\Ver5toEarlier\DRT2_V1_1 | Title | Unit Status Monitor |
| Function | Makes settings for unit status monitor and parameters. |          |   |       |                     |

[Image]



| No. | Item                  | Setting/Display | Details  |
|-----|-----------------------|-----------------|--|
| 1   | Unit Name             | S / D           | Displays unit name set in the unit. The unit name can be changed.  |
| 2   | Last Maintenance Date | Display         | Displays the date which maintenance was last performed to be written to the Unit. The date cannot be changed.  |
| 3   | Network Power Voltage | S / D           | Displays present value (Present V.), peak, bottom, monitor value (Monitor Val.) for the Network Power Voltage. The monitor value can be set.   |
| 4   | Unit Conduction Time  | S / D           | Displays present value and monitor value for the Unit Conduction Time. Monitor value can be set.   |
| 5   | Unit Status           | S / D           | Displays unit status. For details, refer to the Manual of each unit.   |
| 6   | I/O Status (00 to 15) | Display         | Disconnection detected, short-circuit, operation time monitor error, and connected component maintenance under unit status flag are touch switches. When they are pressed, start reading each I/O status and display. (Applicable items vary from units.) The red arrow indicates the contents of I/O status which is being displayed. |
| 7   | Read Status           | Setting         | Reads unit status from 1 to 5 above mentioned at once when it is pressed.  |
| 8   | Write                 | Setting         | Writes unit name, network power voltage, and monitor value for the unit conduction time.   |
| 9   | Reset                 | Setting         | Resets peak and bottom for network power voltage and present value for unit conduction time.   |

[Note]

Select **Settings-Unit & Scale** Setting and set 0.1 for the scale at the unit No. 1000 when using those parts. The contents of unit status flag differ from units. For details, refer to DRT2 series manuals.

|          |   |          |   |       |                    |
|----------|---|----------|---|-------|--------------------|
| Model    | DRT2  | Location | SmartActiveParts_EVDRT<br>2\Ver5toEarlier\DRT2_V1<br>_1 | Title | I/O Status Monitor |
| Function | Displays and makes settings for I/O status by 4 bits. |          |   |       |                    |

[Image]

| DRT2-ID08C I/O Status Monitor |              |      |          |              |    |    |     |         |
|-------------------------------|--------------|------|----------|--------------|----|----|-----|---------|
| Bit                           | I/O Comments | Mode | Set Val. | Present Val. | S  | D  | De  |         |
| 4                             | I/O_1        | F    | 56       | 56           |    | ON |     | R — 9   |
| 5                             |              | F    | 52       | 268435752    | ON |    |     | Rs — 10 |
| 6                             |              | T    | 4465     | 12           |    |    | OFF | W — 11  |
| 7                             |              | F    | 7789     | 268435752    | ON |    |     |         |
| 1                             | 2            | 3    | 4        | 5            | 6  | 7  | 8   |         |

| No. | Item                          | Setting/Display | Details   |
|-----|-------------------------------|-----------------|---|
| 1   | Bit                           | Display         | Displays an appropriate bit and ON/OFF status with lamp.  |
| 2   | I/O comments                  | S / D           | Displays I/O comments set for bits. This can be changed.  |
| 3   | Mode                          | S / D           | Displays maintenance mode either Time (T) or Frequency (F).   |
| 4   | Set value (Set V.)            | S / D           | Displays the monitor value for maintenance. The value can be changed.   |
| 5   | Present Value (Present Val)   | S / D           | Displays the present value in the maintenance counter. The value can be changed.  |
| 6   | Short-circuit (S)             | Display         | Displays short-circuit detection flag for environment-resistive units. When using IN unit, it detects sensor power sort-circuit. When using OUT unit, it detects external load short-circuit. |
| 7   | Disconnected (D)              | Display         | Displays the detected sensor disconnected flag for IN unit.   |
| 8   | Disconnection Detected (D.D.) | Display         | Displays whether the sensor disconnected detection flag for IN unit has been set or not. This setting can be changed  |
| 9   | Read                          | Setting         | Reads an appropriate 4-bit data at once.  |
| 10  | Reset                         | Setting         | Resets present value in the maintenance counter.  |
| 11  | Write                         | Setting         | Writes information, such as I/O comments, maintenance mode, set value/present value in the maintenance counter, for an appropriate 4-bit data at once.  |

[Note]

Please use an appropriate Smart Active Parts in accordance with units to be connected (environment-resistive unit, IN unit, and OUT unit etc...).  
This is not supported for an expansion unit.

## 1.2. Analog

### 1.2.1 Analog Unit Maintenance Details

| Unit Type   | DRT2-AD04  | Storage directory | SmartActiveParts_E\DRT2\Analog (AD) \AnalogInputUnit  | Title | DRT2 Analog Input Unit: Maintenance details |
|---|--|-------------------|---|-------|---|
| <b>Function</b>   | Sets the monitor and the parameter for the Unit maintenance of Analog input unit (DRT2). |                   |   |       |   |
| <b>Display and Operation Details</b>  |  |                   |   |       |   |
|   |  |                   |   |       |   |
| No.   | Item   | Setting/ display  | Description   |       |   |
| 1   | Style  | Display           | Displays the unit style.  |       |   |
| 2   | Details  | Display           | Displays the details set on the unit.   |       |   |
| 3   | Last maintenance day   | Setting/ display  | Displays the last maintenance day recorded on the unit. It can be overwritten.  |       |   |
| 4   | Unit energizing time   | Setting/ display  | Displays the set value and the present value of the unit energizing time. The set value can be overwritten.   |       |   |
| 5   | Network power supply voltage   | Setting/ display  | Displays the set value, present value, minimum value, and maximum value of the network power supply voltage. The set value can be overwritten. When the value exceeds the set threshold, the present value will be displayed in one of the following colors.<br>Unit energizing time (present value): orange<br>Network power supply voltage (present value): red |       |   |
| 6   | Error  | Display           | The display color changes when an error occurs.<br>Unit error: red  |       |   |
| 7   | Read   | Setting           | Reads the item 1 to 6.  |       |   |
| 8   | Write  | Setting           | After writing the item 3 to 5, reads the item 1 to 6.   |       |   |
| <b>Remarks</b>  |  |                   |   |       |   |
| * When the Smart Active Part is reused, the unit number must be specified. If there is more than one slave unit in the DeviceNet, specify the slave unit numbers. |  |                   |   |       |   |
| * Use this display in system version 5 or later.  |  |                   |   |       |   |

### 1.2.2 Analog Input Unit: Maintenance Details for each Input CH

|   |  |                          |  |              |   |
|---|--|--------------------------|--|--------------|---|
| <b>Unit Type</b>  | DRT2-AD04  | <b>Storage directory</b> | SmartActiveParts_EIDRT2\Analog (AD) \AnalogInputUnit   | <b>Title</b> | DRT2 Analog Input Unit: Maintenance details for each input CH |
| <b>Function</b>   | Sets the monitor and the parameter of the maintenance for each input CH of analog input unit (DRT2). |                          |  |              |   |
| <b>Display and Operation Details</b>  |  |                          |  |              |   |
|   |  |                          |  |              |   |
| <b>No.</b>  | <b>Item</b>  | <b>Setting/display</b>   | <b>Description</b>   |              |   |
| 1   | Style  | Display                  | Displays the unit style.   |              |   |
| 2   | CH No.   | Setting                  | Sets the input CH number.  |              |   |
| 3   | Details  | Display                  | Displays the details set on the CH number.   |              |   |
| 4   | Last maintenance day   | Setting/display          | Displays the last maintenance day of the connected devices. The date can be overwritten.   |              |   |
| 5   | Integral counter   | Setting/display          | Displays the set value and the present value of the integral counter. The set value can be overwritten. When the value exceeds the set threshold, the present value will be displayed in orange. |              |   |
| 6   | Reset  | Setting                  | Resets the present value of the integral counter.  |              |   |
| 7   | Rate   | Display                  | Displays the rate.   |              |   |
| 8   | Error  | Display                  | The displayed color varies with the error status..<br>Integral value over: orange<br>Integral value overflow: orange<br>Integral value underflow: orange<br>Disconnected: red                    |              |   |
| 9   | Write  | Setting                  | Reads the item 1 to 8.   |              |   |
| 10  | Read   | Setting                  | After writing the item 4 to 5, reads the item 1 to 8.  |              |   |
| <b>Remarks</b>  |  |                          |  |              |   |
| * When the Smart Active Part is reused, the unit number must be specified. If there is more than one slave unit in the DeviceNet, specify the slave unit numbers. |  |                          |  |              |   |
| * Use this display in system version 5 or later.  |  |                          |  |              |   |

### 1.2.3 Analog Output Unit Maintenance Details

|                  |           |                          |  |              |  |
|------------------|-----------|--------------------------|--|--------------|--|
| <b>Unit Type</b> | DRT2-DA02 | <b>Storage directory</b> | SmartActiveParts_EVDRT2\Analog (AD) \AnalogInputUnit | <b>Title</b> | DRT2 Analog Output Unit: Maintenance Details |
|------------------|-----------|--------------------------|--|--------------|--|

**Function** Sets the monitor and the parameter of the unit maintenance for the analog output unit (DRT2).

**Display and Operation Details**

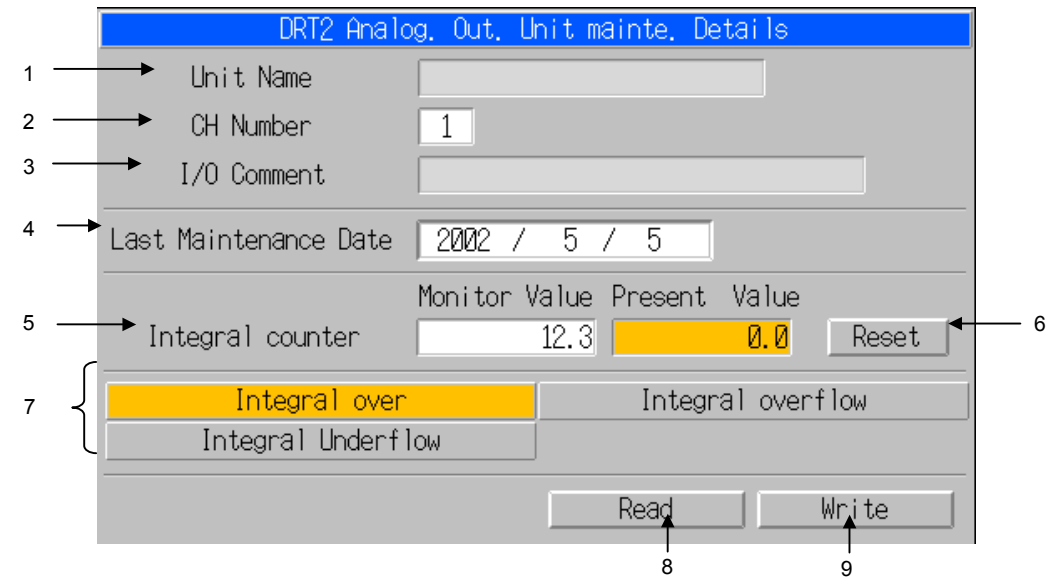
| No. | Item                      | Setting/display | Description  |
|-----|---------------------------|-----------------|--|
| 1   | Style                     | Display         | Displays the unit style.   |
| 2   | Details                   | Display         | Displays the details set on the unit.  |
| 3   | Last maintenance day      | Setting/display | Displays the last maintenance day recorded on the unit. The date can be overwritten.   |
| 4   | Unit power supply voltage | Setting/display | Displays the set value and the present value of the unit energizing time. The set value can be overwritten.  |
| 5   | Network power supply      | Setting/display | Displays the set value, present value, minimum value, and maximum value for the network power supply voltage. The set value can be overwritten. When the value exceeds the set threshold, the displayed color for the present value will change to one of the following colors.<br>Unit energizing time (present value): orange<br>Network power supply voltage (present value): red |
| 6   | Error                     | Display         | The display color changes when an error occurs.<br>Unit error: red   |
| 7   | Read                      | Setting         | Reads the item 1 to 6.   |
| 8   | Write                     | Setting         | After writing the item 3 to 5, reads the item 1 to 6.  |

**Remarks**

- \* When the Smart Active Part is reused, the unit number must be specified. If there is more than one slave unit in the DeviceNet, specify the slave unit numbers.
- \* Use this display in system version 5 or later.



### 1.2.4 Analog Output Unit: Maintenance Details for each Output

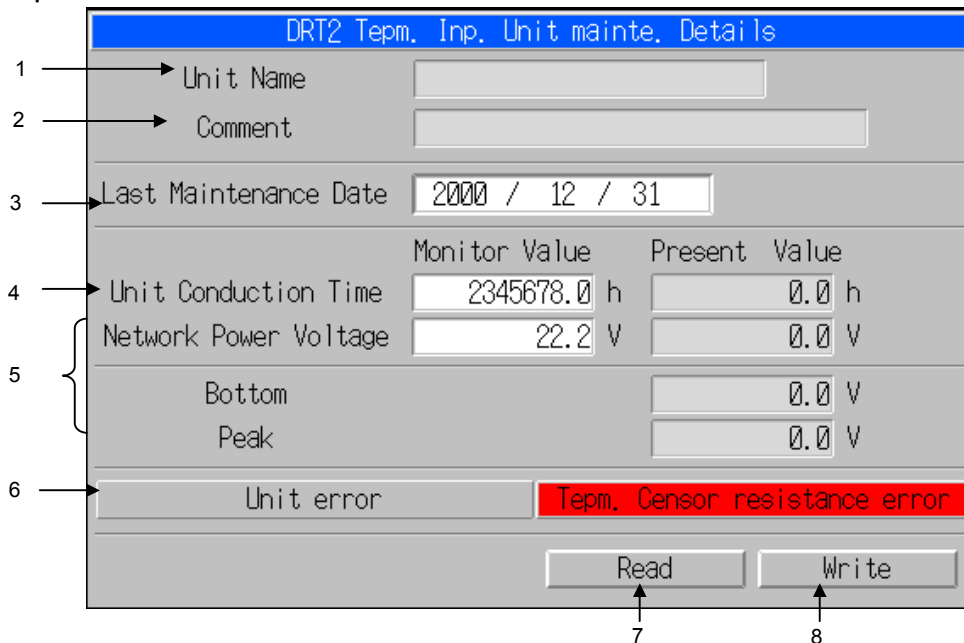
|   |  |                          |   |              |  |
|---|--|--------------------------|---|--------------|--|
| <b>Unit Type</b>  | DRT2-DA02  | <b>Storage directory</b> | SmartActiveParts_E\DRT2\Analog (AD) \AnalogInoutUnit  | <b>Title</b> | DRT2 Analog Output Unit: Maintenance Details for each output |
| <b>Function</b>   | Sets the monitor and the parameter of the maintenance for each output CH of analog output unit (DRT2). |                          |   |              |  |
| <b>Display and Operation Details</b>  |  |                          |   |              |  |
|    |  |                          |   |              |  |
| <b>No.</b>  | <b>Item</b>  | <b>Setting/display</b>   | <b>Description</b>  |              |  |
| 1   | Style  | Display                  | Displays the unit style. Extension unit style will not be shown.  |              |  |
| 2   | CH No.   | Setting                  | Sets the output CH number.  |              |  |
| 3   | Details  | Display                  | Displays the details set on the unit.   |              |  |
| 4   | Last Maintenance day   | Setting/display          | Displays the last maintenance day for the connected devices. The date can be overwritten.   |              |  |
| 5   | Integral counter   | Setting/display          | Displays the set value and the present value for the integral counter. The set value can be overwritten. When the value exceeds the set threshold, the present value will be displayed in orange. |              |  |
| 6   | Reset  | Setting                  | Resets the present value for the integral counter.  |              |  |
| 7   | Error  | Display                  | The displayed color varies with the error status.<br>Integral value over: orange<br>Integral value overflow: orange<br>Integral value underflow: orange   |              |  |
| 8   | Read   | Setting                  | Reads the item 1 to 8.  |              |  |
| 9   | Write  | Setting                  | After writing the item 4 and 5, reads the item 1 to 8.  |              |  |
| <b>Remarks</b>  |  |                          |   |              |  |
| * When the Smart Active Part is reused, the unit number must be specified. If there is more than one slave unit in the DeviceNet, specify the slave unit numbers. |  |                          |   |              |  |
| * Use this display in system version 5 or later.  |  |                          |   |              |  |

### 1.2.5 Temperature Input Unit: Maintenance Details

|                  |                          |                          |   |              |  |
|------------------|--------------------------|--------------------------|---|--------------|--|
| <b>Unit Type</b> | DRT2-TS04T<br>DRT2-TS04P | <b>Storage directory</b> | SmartActiveParts_E\DRT2\Analog (AD)<br>\TempInputUnit | <b>Title</b> | DRT2 Temperature<br>Input Unit: Maintenance<br>Details |
|------------------|--------------------------|--------------------------|---|--------------|--|

**Function** Sets the monitor and the parameter for the unit maintenance of the temperature input unit (DRT2).

**Display and Operation Details**



| No. | Item                         | Setting/<br>display | Description  |
|-----|------------------------------|---------------------|--|
| 1   | Style                        | Display             | Displays the unit style.   |
| 2   | Details                      | Display             | Displays the details set on the unit.  |
| 3   | Last maintenance day         | Setting/<br>display | Displays the last maintenance day recorded on the unit. The date can be overwritten.   |
| 4   | Unit power distribution time | Setting/<br>display | Displays the set value and the present value of the unit energizing time. The set value can be overwritten.  |
| 5   | Network power supply voltage | Setting/<br>display | Displays the set value, the present value, the minimum value, and the maximum value for the network power supply voltage. The set value can be overwritten. When the value exceeds the set threshold, the displayed color for the present value will change to one of the following colors.<br>Unit energizing time (present value): orange<br>Network power supply voltage (present value): red |
| 6   | Error                        | Display             | A display color changes depending on the error that has occurred.<br>Unit error: red<br>Temperature censor resistance error: red   |
| 7   | Read                         | Setting             | Reads the item 1 to 6.   |
| 8   | Write                        | Setting             | After writing the item 3 to 5, reads the item 1 to 6.  |

**Remarks**

- \* When the Smart Active Part is reused, the unit number must be specified. If there is more than one slave unit in the DeviceNet, specify the slave unit numbers.
- \* Use this display in system version 5 or later.

**1.2.6 Temperature Input Unit: Maintenance Details for each Input**

|                  |   |                          |  |              |  |
|------------------|---|--------------------------|--|--------------|--|
| <b>Unit Type</b> | DRT2-TS04T<br>DRT2-TS04P  | <b>Storage directory</b> | SmartActiveParts_E\DRT2\Analog(AD)\TempInputUnit | <b>Title</b> | DRT2 Temperature Input Unit: Maintenance details on each input |
| <b>Function</b>  | Sets the monitor and the parameter of the maintenance for each CH in the temperature input unit (DRT2). |                          |  |              |  |

**Display and Operation Details**

| No. | Item                             | Setting/display | Description   |
|-----|----------------------------------|-----------------|---|
| 1   | Style                            | Display         | Displays the unit style.  |
| 2   | CH No.                           | Setting         | Sets the input CH number.   |
| 3   | Details                          | Display         | Displays the details set on the CH number.  |
| 4   | Last maintenance day             | Setting/display | Displays the last maintenance day for the connected devices. The date can be overwritten.   |
| 5   | Integral counter                 | Setting/display | Displays the set value and the present value for the integral counter. The set value can be overwritten. When the value exceeds the set threshold, the present value will be displayed in orange.   |
| 6   | Reset                            | Setting         | Resets the present value for the integral counter.  |
| 7   | Rate                             | Display         | Displays the rate.  |
| 8   | Set temperature range Total time | Setting/display | Displays the set value and the present values for the temperature range total time. The set value can be overwritten. When the value beyond the set threshold, the present value will be displayed in red.  |
| 9   | Reset                            | Setting         | Resets the preset value for the set temperature range total time.   |
| 10  | Top valley count time            | Setting/display | Displays the set value and the present value for the top valley count time. The set value can be overwritten. When the value exceeds the set threshold, the displayed color of the present value will change to red.  |
| 11  | Reset                            | Setting         | Resets the present value for the top valley count time.   |
| 12  | Error                            | Display         | The displayed color varies with the error.<br>Integral value over: orange<br>Integral value overflow: orange<br>Integral value underflow: orange<br>Disconnected: red<br>Set temperature range total time over: orange<br>Set number for top valley over: red |
| 13  | Read                             | Setting         | Reads the item 1 to 12.   |
| 14  | Write                            | Setting         | After writing the item 4 to 10, reads the item 1 to 8.  |

**Remarks**

- \* When the Smart Active Part is reused, the unit number must be specified. If there is more than one slave unit in the DeviceNet, specify the slave unit numbers.
- \* Use this display in system version 5 or later. B

# Process Controller

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# Process Controller

## 1.1 Loop Controller Unit

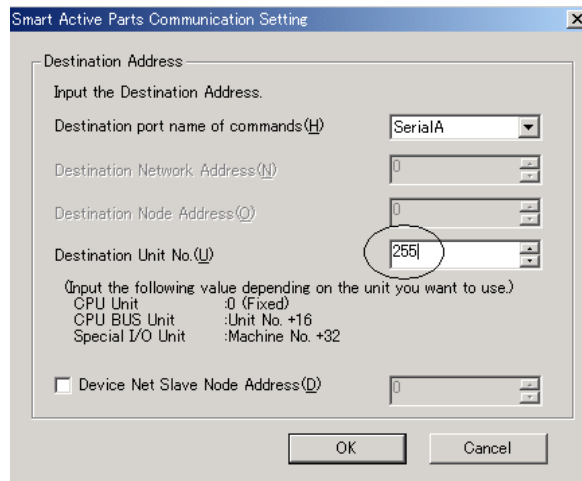
### 1.1.1 Segment Program 2 Time Width/Output Value

|   |  |                          |  |              |   |
|---|--|--------------------------|--|--------------|---|
| <b>Unit type</b>  | LC001/LCB01<br>LCB05/LCB05D  | <b>Storage directory</b> | SmartActiveParts_EV<br>ProcessController\LCB<br>\Time_Function_Program   | <b>Title</b> | Segment Program 2:<br>Time width/output value setting |
| <b>Function</b>   | Sets the time width and the output value of each step for the loop controller segment program 2 block. |                          |  |              |   |
| <b>Display and Operation Details</b>  |  |                          |  |              |   |
| <p>The screenshot displays a configuration window for Segment Program 2. At the top, there are six tabs: Default, Read, Write, Backup, Scale 1, and Scale 2. Below these tabs is a table with 30 rows (steps) and 10 columns. The columns are grouped into six sections: Default (S, Output value, Time width, Unit), Read (S, Output value, Time width, Unit), Write (S, Output value, Time width, Unit), Backup (S, Output value, Time width, Unit), Scale 1 (S, Output value, Time width, Unit), and Scale 2 (S, Output value, Time width, Unit). The table shows values for each step, with the output value increasing from 10.00 to 100.00 and then decreasing. Below the table is a graph area with a yellow line showing a sawtooth pattern. The x-axis is labeled with steps S1, S5, S10, S15, S20, S25, and S30. The y-axis ranges from 0.00 to 100.00. Arrows 7, 8, and 9 point to rows 1, 2, and 3 of the table, respectively. Arrow 10 points to the graph area.</p> |  |                          |  |              |   |
| <b>No.</b>  | <b>Item</b>  | <b>Setting/display</b>   | <b>Description</b>   |              |   |
| 1   | Default  | Setting/display          | Sets and displays the default (step 0).  |              |   |
| 2   | Read   | Setting                  | Reads all the target data (output value, time width and time unit) from the target block.  |              |   |
| 3   | Write  | Setting                  | Writes all the target data (output value, time width and time unit) to the target block.   |              |   |
| 4   | Backup   | Setting                  | Backups the written data to FROM in the loop controller.<br>This function is only available for LCB01/05 of the system version 1.5 or later, and LCB05D.   |              |   |
| 5   | Scale 1  | Setting                  | Sets the vertical axis for the output value to be displayed in the graph in the range of -15% and 115%.  |              |   |
| 6   | Scale 2  | Setting                  | Sets the vertical axis for the output value to be displayed in the graph in the range of ± 320%.   |              |   |
| 7   | Output Value (1 to 30 step)  | Setting/display          | Sets the output value for each step in the range of ± 320.00%.   |              |   |
| 8   | Time Width (1 to 30 step)  | Setting/display          | Sets the output time width for each step in the range of 0 to 3200.0. The unit will be set in the item 9.  |              |   |
| 9   | Time Unit (1 to 30 step)   | Setting/display          | Sets the output time unit for each step to hour, minute or second.   |              |   |
| 10  | Graph area   | Display                  | Displays the output values for the target segment program 2 as a continuous graph for each step. Please be advised that the time width will not be applied to the horizontal axis. The step will be displayed in red when the scale 1 is set and the output value is out of the range between -15% and 115%. |              |   |

## Remarks

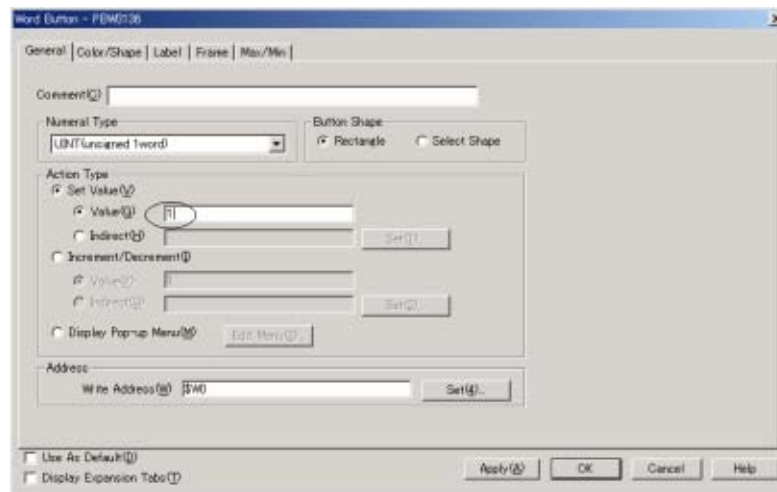
\* When using the Smart Active Parts, please follow the settings below.

1. Setting the unit number: double click the Smart Active Parts pasted on the project to display the following screen. (This screen shows when deselecting the *Edit SAP Library* in the option.)



Set the intelligent CPU unit number +16 in the transfer direction number of the LC001 and 225 for LCB01/05/05D.

2. Setting the target Function block address: double click the *Read* button of the Smart Active Parts pasted on the project to display the following screen. (This screen shows when deselecting the *Edit SAP Library* in the option.)



Specify the block address in the setting value for the loop controller of the Function block. Please check the address for the Function block on the CX-Process Tool.

- \* When using this Smart Active Parts, be sure to select **Setting – Unit/Scale Setting** in the menu bar and set the scale for number 1000 to 0.1 and for number 999 to 0.01
- \* The above item 1, 7, 8, and 9 set on the NS will be applied to the loop controller only after writing these settings to the loop controller. After editing the item, write it to the loop controller with the Write button. Please be advised that the edited item will be lost if you go to another screen without writing it with the Write button.

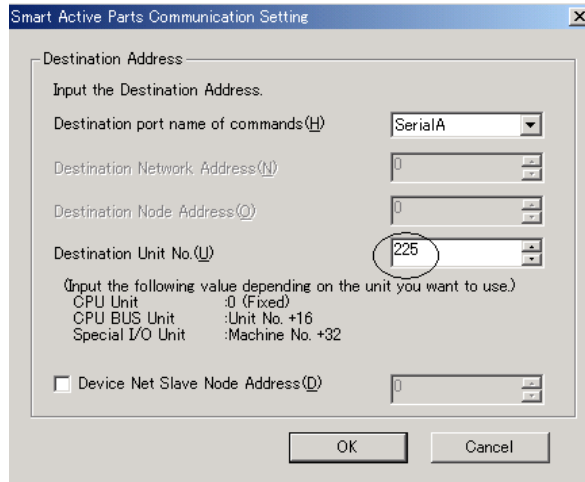
# Process Controller

## 1.1.2 Segment Program 2 Wait Setting

|                                      |  |                          |  |  |  |              |                                 |  |  |
|--------------------------------------|--|--------------------------|--|--|--|--------------|---------------------------------|--|--|
| <b>Unit type</b>                     | LC001/LCB01<br>LCB05/LCB05D  | <b>Storage directory</b> | SmartActiveParts_E\ProcessController\LCB\Time_Function_Program   |  |  | <b>Title</b> | Segment program 2: Wait setting |  |  |
| <b>Function</b>                      | Sets the wait width and the wait time of each step for the segment program 2 block in the Loop Controller. |                          |  |  |  |              |                                 |  |  |
| <b>Display and Operation Details</b> |  |                          |  |  |  |              |                                 |  |  |
|                                      |  |                          |  |  |  |              |                                 |  |  |
| <b>No.</b>                           | <b>Item</b>  | <b>Setting/display</b>   | <b>Description</b>   |  |  |              |                                 |  |  |
| 1                                    | Read   | Setting                  | Reads all the target data (output value, time width and time unit) from the target block.  |  |  |              |                                 |  |  |
| 2                                    | Write  | Setting                  | Writes all the target data (output value, time width and time unit) to the target block.   |  |  |              |                                 |  |  |
| 3                                    | Backup   | Setting                  | Backups the written data to FROM in the loop controller.<br>This function is only available for LCB01/05 of the system version 1.5 or later, and LCB05D. |  |  |              |                                 |  |  |
| 4                                    | Wait width   | Setting/display          | Sets the wait width for each step in the range of 0 to 320.00%.  |  |  |              |                                 |  |  |
| 5                                    | Wait time  | Setting/display          | Sets the wait time for each step in the range between 0 and 3200.00%. Time units are determined by those are set to the output time for each step.       |  |  |              |                                 |  |  |

**Remarks**

- \* When using this Smart Active Parts, please follow the settings below.
- 3. Setting the unit number: double click the Smart Active Parts pasted on the project to display the following screen. (This screen shows when deselecting the *Edit SAP Library* in the option.)



Set the intelligent CPU unit number +16 in the transfer direction number of the LC001 and 225 for LCB01/05/05D.

- 4. Setting the target Function block address: double click the *Read* button of the Smart Active Parts pasted on the project to display the following screen. (This screen shows when selecting the *Edit SAP Library* in the option.)



Specify the block address in the setting value for the loop controller of the Function block. Please check the address for the Function block on the CX-Process Tool.

- \* When using this Smart Active Parts, be sure to select **Setting – Unit/Scale Setting** in the menu bar and set the scale for number 1000 to 0.1 and for number 999 to 0.01
- \* The above item 4 and 5 set on the NS will be applied to the loop controller only after writing these settings to the loop controller. After editing the item, write it to the loop controller with the Write button. Please be advised that the edited item will be lost if you go to another screen without writing it with the Write button.

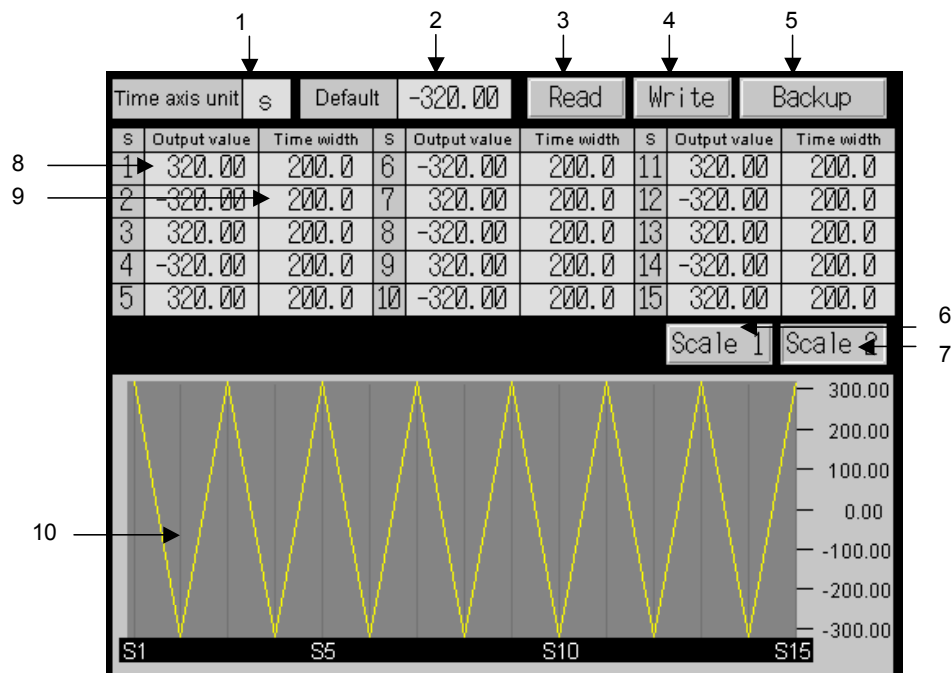


# Process Controller

## 1.1.3 Segment Program Time Width/Output Setting

|                  |   |                          |   |              |   |
|------------------|---|--------------------------|---|--------------|---|
| <b>Unit type</b> | LC001/LCB01<br>LCB05/LCB05D   | <b>Storage directory</b> | SmartActiveParts_E\ProcessControllerLCB\Time_Function_Program | <b>Title</b> | Segment Program:<br>Time Width/Output Setting |
| <b>Function</b>  | Sets the time width and output setting for each step of the segment program in the loop controller. |                          |   |              |   |

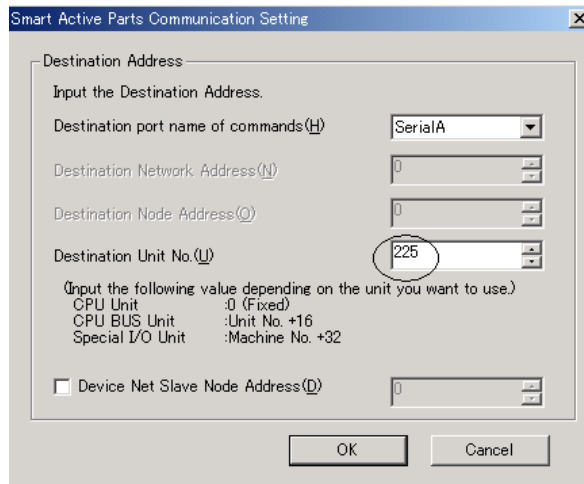
### Display and Operation Details



| No. | Item                                | Setting/display | Description  |
|-----|-------------------------------------|-----------------|--|
| 1   | Time Unit<br>(Applied to each step) | Setting/display | Sets the time width unit for each step to hour, minute or second.  |
| 2   | Default                             | Setting/display | Sets and displays the default (step 0).  |
| 3   | Read                                | Setting         | Reads all the target data (output value, time width and time unit) from the block.   |
| 4   | Write                               | Setting         | Writes all the target data (output value, time width and time unit) to the block.  |
| 5   | Backup                              | Setting         | Backups the written data to FROM in the loop controller.<br>This function is only available for LCB01/05 of the system version 1.5 or later, and LCB05D.   |
| 6   | Scale 1                             | Setting         | Sets the vertical axis for the output value to be displayed in the graph in the range of -15% and 115%.  |
| 7   | Scale 2                             | Setting         | Sets the vertical axis for the output value to be displayed in the graph in the range of $\pm 320\%$ .   |
| 8   | Output value<br>(1 to 15 steps)     | Setting/display | Sets the output value for each step in the range of $\pm 320.00\%$ .   |
| 9   | Time width<br>(1 to 15 step)        | Setting/display | Sets the output time width for each step in the range of 0 to 3200.0. The unit is set in item 1.   |
| 10  | Graph area                          | Display         | Displays the output values for the target segment program as a continuous graph for each step. Please be advised that the time width will not be applied to the horizontal axis. The step will be displayed in red when the scale 1 is set and the output value is out of range between -15% and 115%. |

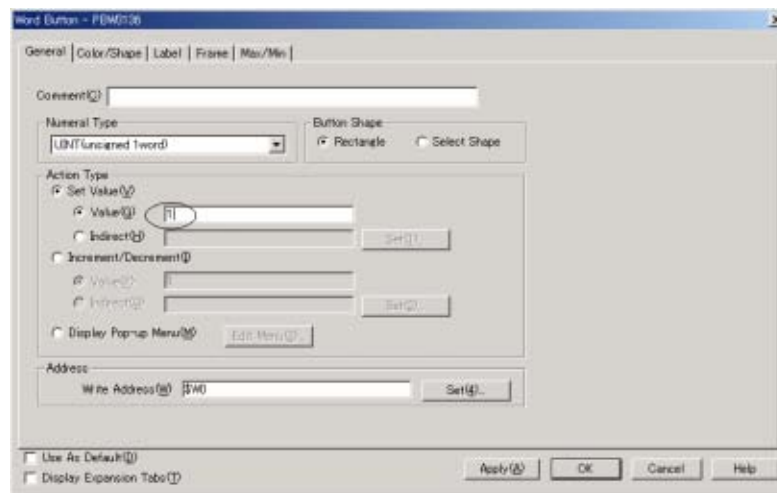
**Remarks**

- \* When using this Smart Active Parts, please follow the settings below.
- 5. Setting the unit number: double click the Smart Active Parts pasted on the project to display the following screen. (This screen shows when deselecting the *Edit SAP Library* in the option.)



Set the intelligent CPU unit number +16 in the transfer direction number of the LC001 and 225 for LCB01/05/05D.

- 6. Setting the target Function block address: double click the *Read* button of the Smart Active Parts pasted on the project to display the following screen. (This screen shows when selecting the *Edit SAP Library* in the option.)



Specify the block address in the setting value for the loop controller of the Function block. Please check the address for the Function block on the CX-Process Tool.

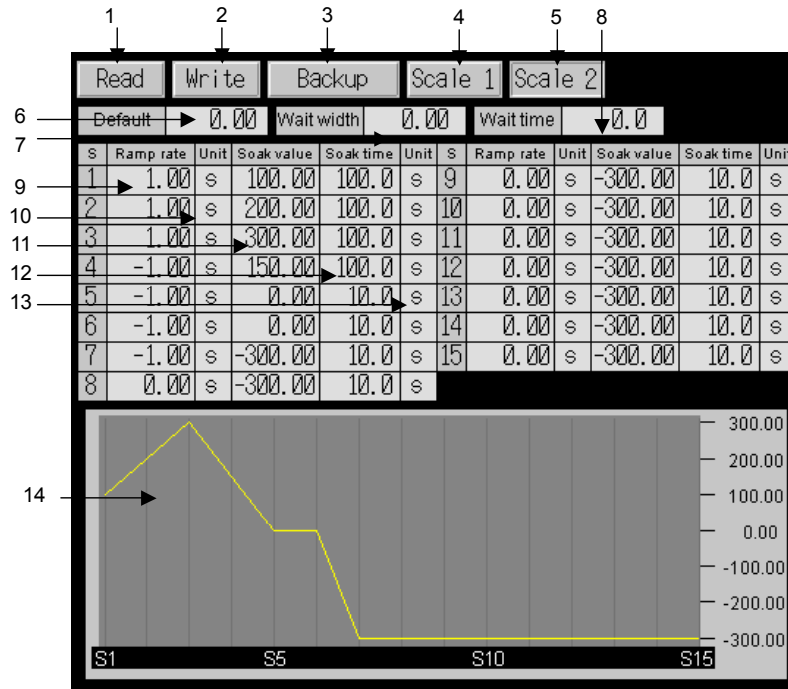
- \* When using this Smart Active Parts, be sure to select **Setting – Unit/Scale Setting** in the menu bar and set the scale for number 1000 to 0.1 and for number 999 to 0.01
- \* The above item 1, 2, 8, and 9 set on the NS will be applied to the loop controller only after writing these settings to the loop controller. After editing the item, write it to the loop controller with the Write button. Please be advised that the edited item will be lost if you go to another screen without writing it with the Write button.

# Process Controller

## 1.1.4 Ramp Program Parameter Setting

|                  |   |                          |  |              |                                     |
|------------------|---|--------------------------|--|--------------|-------------------------------------|
| <b>Unit type</b> | LC001/LCB01<br>LCB05/LCB05D   | <b>Storage directory</b> | SmartActiveParts_E\ProcessController\LCB\Time_Function_Program | <b>Title</b> | Segment paramater: Paramter setting |
| <b>Function</b>  | Sets the ramp rate and the soak value for each step on the ramp program in the loop controller. |                          |  |              |                                     |

### Display and Operation Details



| No. | Item                                   | Setting/display | Description   |
|-----|--|-----------------|---|
| 1   | Read                                   | Setting         | Reads all the target data (output value, time width and time unit) from the target block.   |
| 2   | Write                                  | Setting         | Writes all the target data (output value, time width and time unit) to the target block.  |
| 3   | Backup                                 | Setting         | Backups the written data to FROM in the loop controller. This function is only available for LCB01/05 of the system version 1.5 or later, and LCB05D.                         |
| 4   | Scale 1                                | Setting         | Sets the vertical axis for the output value to be displayed in the graph in the range of -15% and 115%.   |
| 5   | Scale 2                                | Setting         | Sets the vertical axis for the output value to be displayed in the graph in the range of $\pm 320\%$ .  |
| 6   | Default                                | Setting/display | Sets and displays the default (step 0).   |
| 7   | Wait Width<br>(Applied all each step)  | Setting/display | Sets the wait width for each step in the range of 0 to 320.00%.   |
| 8   | Wait Time<br>(Applied to each step)    | Setting/display | Sets the wait time width for each step in the range of 0 to 3200.0. The set value is applied for each step, and the time unit will be set for each step ramp rate in item 10. |
| 9   | Ramp rate<br>(1 to 15 steps)           | Setting/display | Inputs the ramp rate for each step as a rate per time unit. Sets in the range of $\pm 115.00\%$ . The unit time will be set in item 10.                                       |
| 10  | Ramp rate unit time<br>(1 to 15 Steps) | Setting/display | Sets the ramp rate for each step to hour, minute or second.   |
| 11  | Soak value<br>(1 to 15 Steps)          | Setting/display | Sets the soak value for each step, which is obtained after the ramp rate has completed, in the range of $\pm 320.00\%$ .  |
| 12  | Soak time<br>(1 to 15 Steps)           | Setting/display | Sets the soak time for each step in the range of 0~3200.0. The time unit will be set in item 13.  |
| 13  | Soak time unit<br>(1 to 15 Steps)      | Setting/display | Sets the soak time unit for each step to hour, minute or second.  |

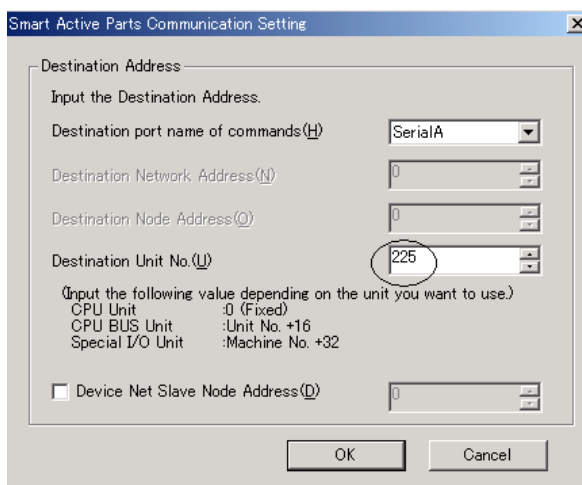
|    |            |         |  |
|----|------------|---------|--|
| 14 | Graph area | Display | Displays the output values for the ramp program as a continuous graph for each step. Please be advised that the soak time and its time will not be applied to the horizontal axis. The step will be displayed in red when the scale 1 is set and the output value is out of range between -15% and 115%. |
|----|------------|---------|--|

# Process Controller

## Remarks

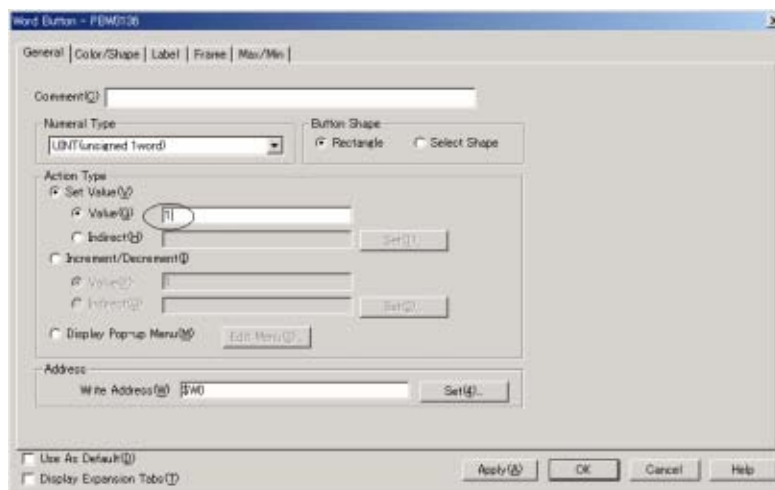
\* When using the Smart Active Parts, please follow the settings below.

7. Setting the unit number: double click the Smart Active Parts pasted on the project to display the following screen. (This screen shows when deselecting the *Edit SAP Library* in the option.)



Set the intelligent CPU unit number +16 in the transfer direction number of the LC001 and 225 for LCB01/05/05D.

8. Setting the target Function block address: double click the *Read* button of the Smart Active Parts pasted on the project to display the following screen. (This screen shows when selecting the *Edit SAP Library* in the option.)



Specify the block address in the setting value for the loop controller of the Function block. Please check the address for the Function block on the CX-Process Tool.

- \* When using this Smart Active Parts, be sure to select **Setting – Unit/Scale Setting** in the menu bar and set the scale for number 1000 to 0.1 and for number 999 to 0.01
- \* The above item 6 to 13 set on the NS will be applied to the loop controller only after writing these settings to the loop controller. After editing the item, write it to the loop controller with the Write button. Please be advised that the edited item will be lost if you go to another screen without writing it with the Write button.

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