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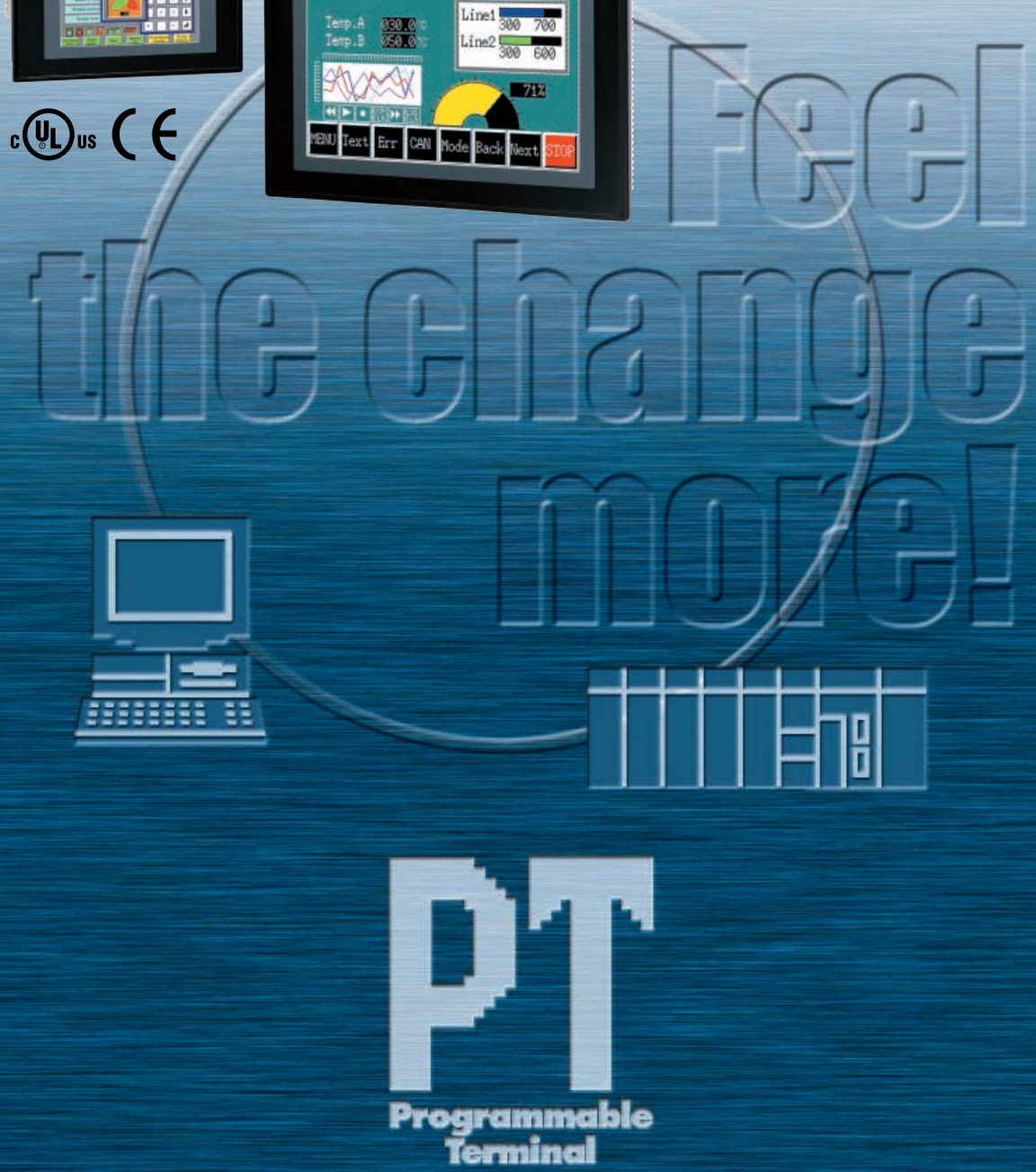
OMRON

Better SYSMAC Compatibility and Easier-to-use Support Software

NT631/NT31 Version 2

Series



Providing What's Needed in Programmable Terminals

Feel the change more!

NT-series Support Software Version 4

SYSMAC PLCs

NT631 Version 2

NT31 Version 2

Improved Functionality Based on Complete Research in Designing, Development, and Production Site Needs

To keep in pace with the progress of information technology on production sites, more advanced and more diversified functions are continuously required from operator interfaces. OMRON continuously researches the use of operator interfaces at all stages of application. OMRON scrutinizes system compatibility, design efficiency, and maintenance, and has now achieved new versions of the NT631/NT31 Programmable Terminals with the functionality required by users. Experience the remarkable progress of new NT631/NT31.

PT Programmable Terminal

A Lineup of Models with Versatile Display Features and Easy Operation

Select the most suitable PT according to the display device from two large and two medium-size models. The functions and operability of all models are unified, making replacement with another model easy. Screen data can be used not only from other models, but also from previous models.

			NT631C-ST152(B)-EV2	NT631-ST211(B)-EV2		NT31C-ST142(B)-EV2	NT31-ST122(B)-EV2
Model							
Display			TFT color display	High-contrast EL		STN color display	STN monochrome display
Effective display area			211 x 158 mm			118 x 89 mm	
No. of dots (resolution)			640 x 480 dots			320 x 240 dots	
Max. number of touch switches			32 x 24 switches			16 x 12 switches	
External interface			RS-232C, RS-422A, RS-485, and printer port				
International standards			cULus standards, EC Directives, and C-Tick				
Connectable hosts	From OMRON (See note 1.)	1-to-1 NT Link	C200HX(-Z), C200HG(-Z), C200HE(-Z), C200HS-CPU2□, and C200HS-CPU3□			CQM1-CPU4□, CPM1A, CPM2A/C, SRM1, CVM1, CV Series (EV1 or EV2), and C200HX/HG/HE Communications Boards	
		1-to-N NT Link	CJ1, CS1H, CS1G, C200HX(-Z), C200HG(-Z), C200HE(-Z), and SRM1-EV2			CS1 Communications Unit and CQM1H Communications Board	
		High-speed NT Link				CJ1, CS1H and CS1G	
		Host Link	CJ1□(-H), CS1H□(-H), CS1G, C200HX(-Z), C200HG(-Z), C200HE(-Z), C200HS-CPU2□, C200HS-CPU3□ and CS1Communications Units			CQM1-CPU4□, CQM1-CPU2□, CPM1A, CPM2A, CPM1C, SRM1, CVM1, CV series (EV1 or EV2), C-series/CV-series/CVM1 Host Link Unit	
		Memory Link				Personal Computer, SBC, and Programmable Controller	
	From Mitsubishi	Mitsubishi FX Series				MELSEC FX1, FX2, FX2C, FXO, and FXON	
		Mitsubishi A-Series (Computer Link Unit)				AOJ2-C214S1, A1SJ71UC24-R2, A1SJ71UC24-R4, and AJ71UC24	
	Allen Bradley (DE1)					SLC 5/02, 03, 04, and 05 (see notes 2 and 3.)	
	GE-Fanuc (SNP-X)					90-20 and 90-30 Series (see notes 2 and 3.)	
	Siemens (Via HMI Adapter)					S7-300 and S7-400 Series (see notes 2 and 3.)	
	Schneider (Modbus)					TSX Micro, Preview, and Quantum Series	
Language	Japanese						
	English						

Note 1: There are some limitations on hosts that can be connected. Refer to the PT manual for details.
2: The English version of the NT Support Tool must be used.
3: Connection possible with "-EV1" function only.

Providing What's Needed in Programmable Terminals

Improved SYSMAC Compatibilit y for Easier System Construction

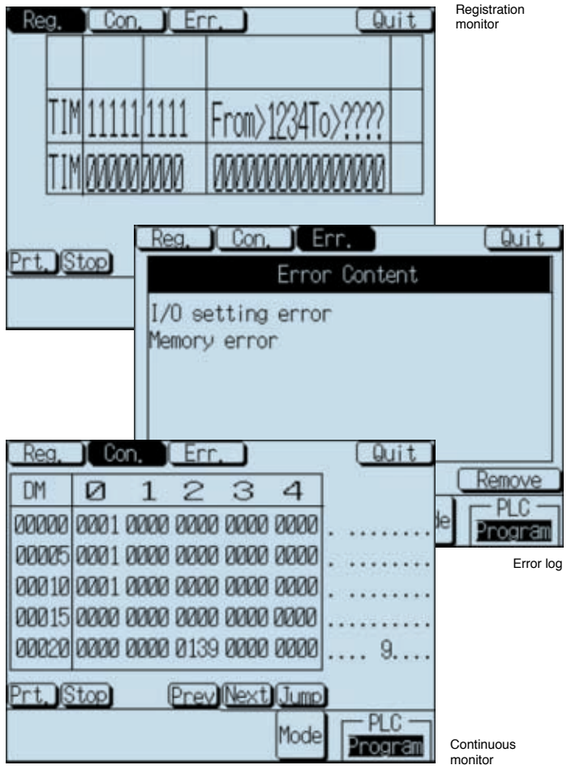
Ver2
Applicable with V2 PTs.

Device Monitor Function

The device monitor function makes it possible to read and write I/O memory data and display consecutive sections of PLC data areas. This function greatly improves the efficiency of PLC setup work, including set value input into the Special I/O Units and checks on the settings. Data can be read from I/O memory from a user-created screen to enable application on maintenance screens for monitoring.

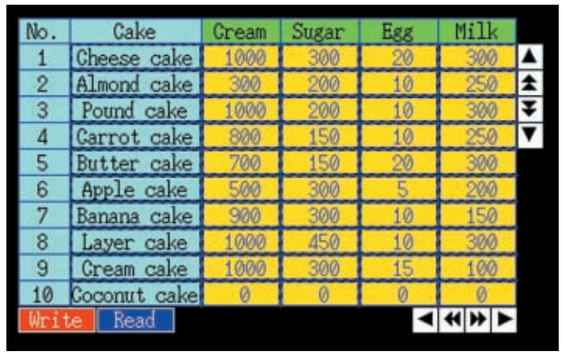
Programming Console Functions

Ladder Programs written in mnemonics can be written and read through the NT631/NT31 screens for easy on-site system maintenance.



Recipe Function

Using this function, data can be written to and read from the host (PC memory or PT memory) in table format, enabling multiple settings to be transferred between the PT and the host in a single operation.



No.	Cake	Cream	Sugar	Egg	Milk
1	Cheese cake	1000	300	20	300
2	Almond cake	300	200	10	250
3	Pound cake	1000	200	10	300
4	Carrot cake	800	150	10	250
5	Butter cake	700	150	20	300
6	Apple cake	500	300	5	200
7	Banana cake	900	300	10	150
8	Layer cake	1000	450	10	300
9	Cream cake	1000	300	15	100
10	Coconut cake	0	0	0	0

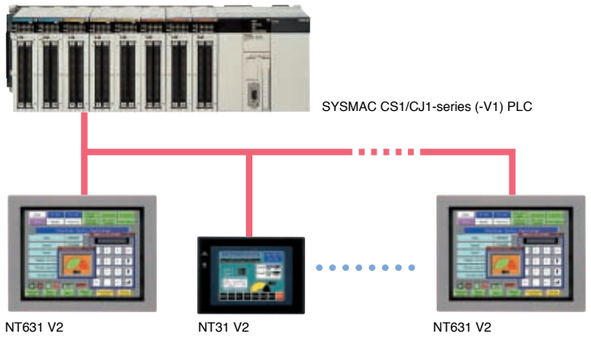
Write Read

Ver2
Applicable with V2 PTs.

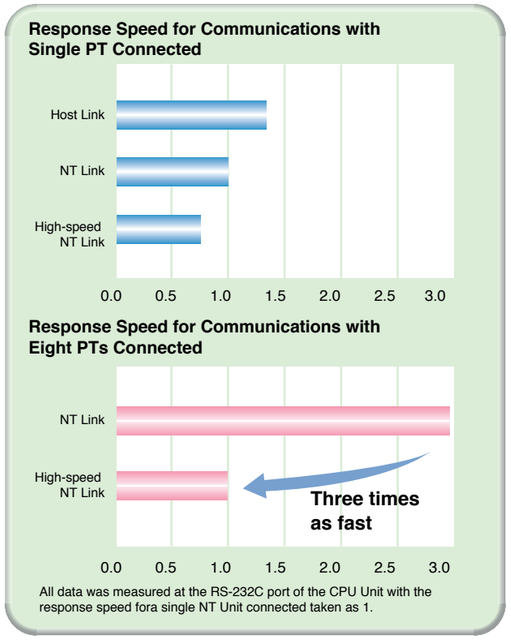
Full-area Access to SYSMAC CS1/CJ1-series PLCs over High-speed NT Link

Connect to SYSMAC CS1/CJ1-series PLC over High-speed NT Link

- The industry's highest serial communications speed.
- Up to eight NT631/NT31 Units can be connected to a single port.
- Extends to a maximum of 500 m.
- Essentially the same performance is achieved for NT Links with eight PTs as for an NT Link with a single PT (for refreshing numeric displays).



OMRON Data Comparison



All data was measured at the RS-232C port of the CPU Unit with the response speed fora single NT Unit connected taken as 1.

Greater Area Access

■Addresses Accessible in SYSMAC CS1/CJ1-series PLCs

For 1-to-N NT Links

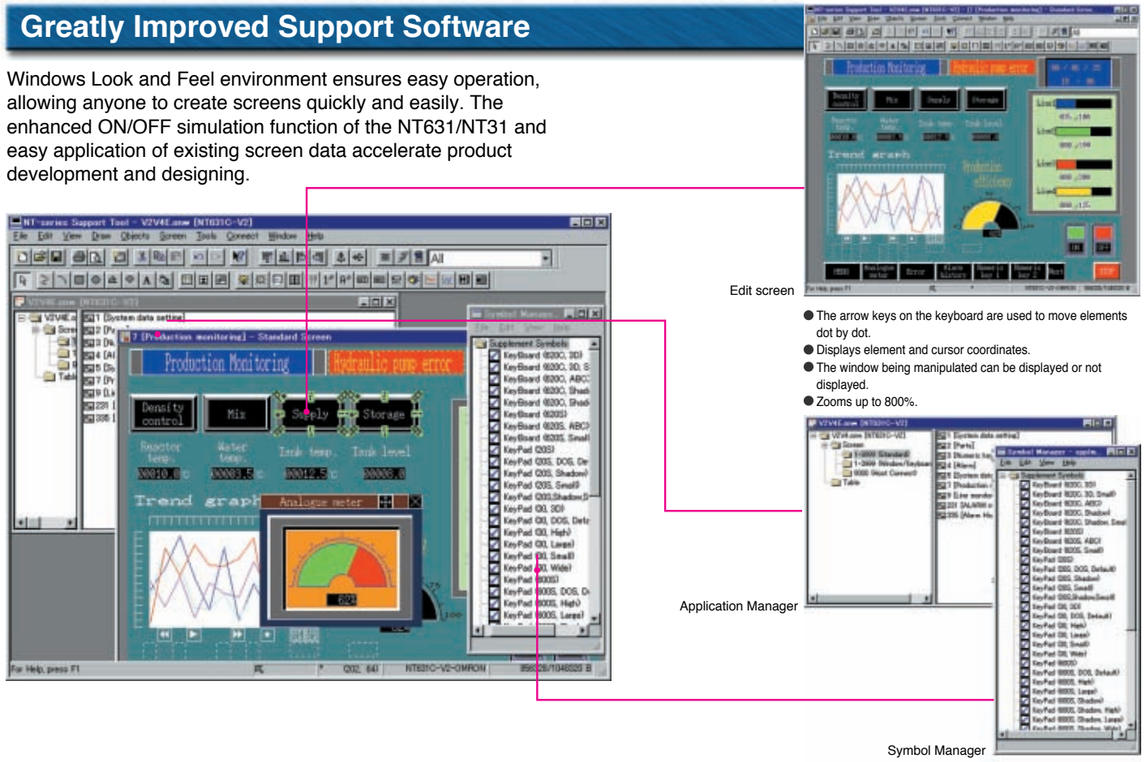
PLC	CIO Area	HR Area	AR Area	Timer/ Counter PVs	DM Area	EM Area (EM, EM0 to EMC)	WR Area	Task Flag (TK) Area	Timer Completion Flags (TU)	Counter Completion Flags (CU)
CJ1□(-H) CS1□(-H)	00000 to 06143	00000 to 00511	00448 to 00959	00000 to 04095	00000 to 32767	00000 to 32767	00000 to 00511	00000 to 00031	00000 to 04095	00000 to 04095

Providing What's Needed in Programmable Terminals

Enhanced Screen Creation and Better Design Efficiency with Improved Support Software

Greatly Improved Support Software

Windows Look and Feel environment ensures easy operation, allowing anyone to create screens quickly and easily. The enhanced ON/OFF simulation function of the NT631/NT31 and easy application of existing screen data accelerate product development and designing.



- The arrow keys on the keyboard are used to move elements dot by dot.
- Displays element and cursor coordinates.
- The window being manipulated can be displayed or not displayed.
- Zooms up to 800%.

NTST-V4

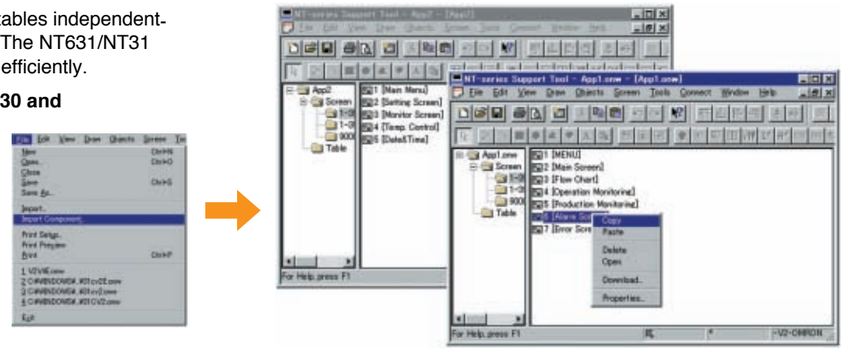
Applicable with V4 Support Software.

Easier Application of Existing Screen Data

It is possible to load screens and tables independently from different screen data files. The NT631/NT31 can now use existing screen data efficiently.

Improved Compatibility with NT30 and NT620 Series

- Image and library data coding.
- Image and library data insertion into character strings.
- The word configuration and functions for the NT631/NT31 status control area and notification area.



NTST-V4

Applicable with V4 Support Software.

System Requirements

- CPU: Pentium 100 MHz min.
- RAM: 32 MB min.
- Hard disk
  Software capacity: 17 MB
  Installer: 3 MB
  Sample elements: 32 MB
- OS: Windows 95, 98, 2000, NT 4.0, Me, or XP
- Media: CD-ROM

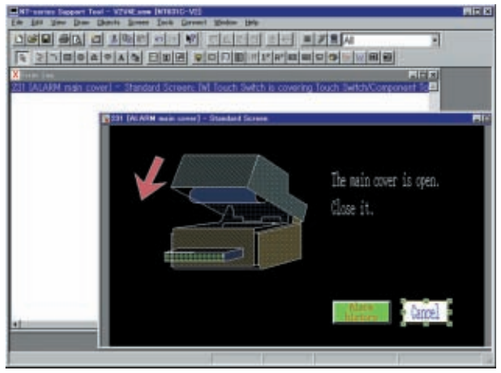
Providing What's Needed in Programmable Terminals

Windows Look and Feel Environment for Easier Operation and Image Creation

Complete Functions in NT Support Software

Error Log Viewer

Double-click the error message to track down the error on the screen.



Filter

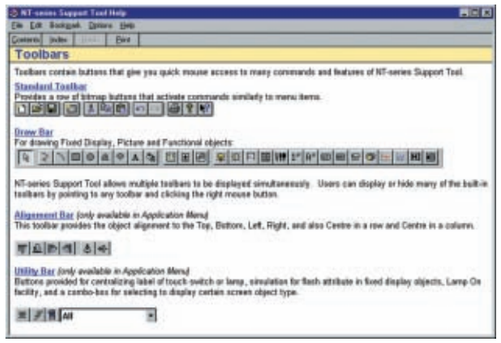
NTST-V4

Applicable with V4 Support Software.

The filter function makes editing easier by displying only the elements you select for modification.

Online Help

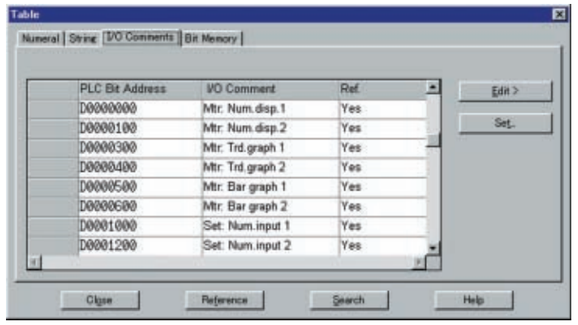
Click the Help icon whenever you are not sure how to proceed. The information you need will appear by touching the elements on the screen.



Help

I/O Comment Table

All PLC addresses and I/O comments can be managed together. Addresses that have been allocated are automatically registered in the I/O comment table.



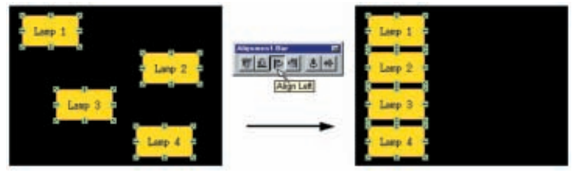
I/O Comment Table

Element Alignment

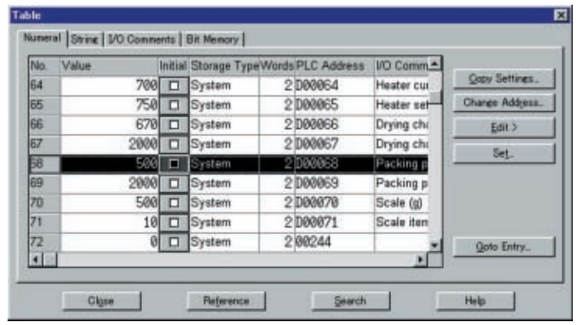
NTST-V4

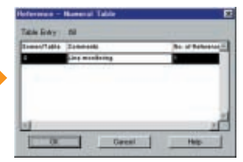
Applicable with V4 Support Software.

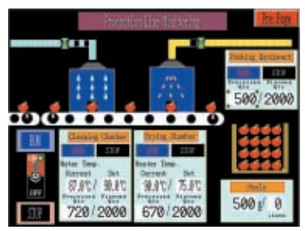
Elements can be top-, bottom-, left-, right-, or center-aligned automatically.



Search Function







It is possible to jump from an I/O comment table address to the screen where the element is located.

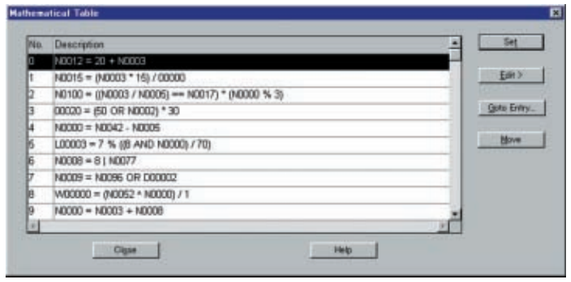
Providing What's Needed in Programmable Terminals

New User-friendly Functions for Greater Display Versatility

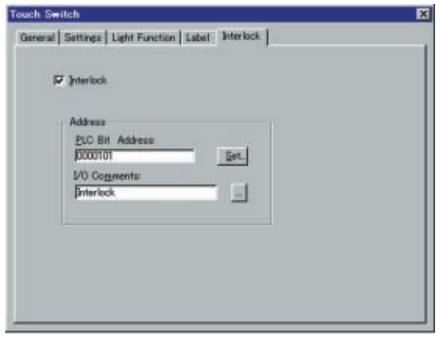
Ver2
Applicable with V2 PTs.

Mathematical/Interlock Function

The mathematical/interlock function can be used to create screens, greatly eliminating the size of ladder programs and enabling easier program modifications. This function allows up to five arithmetic operations (i.e., addition, subtraction, multiplication, and division) or boolean operations (e.g., AND and OR) to be used on the NT631/NT31.

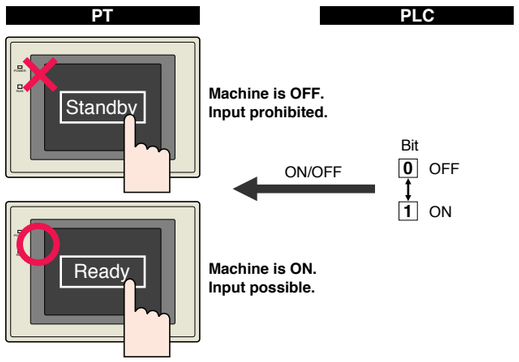


Mathematical table



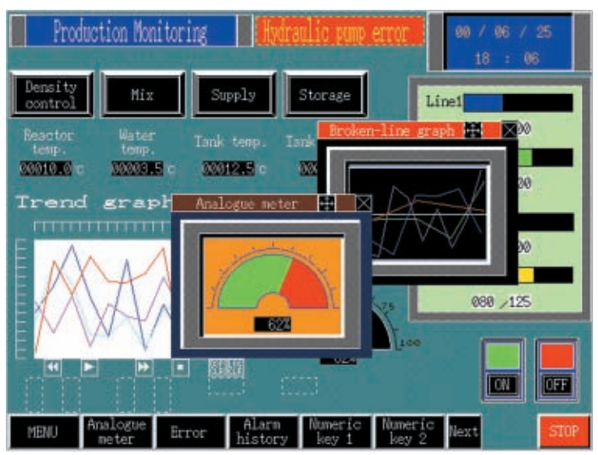
Interlock

Example: While the machine is not ready to operate, "Standby" will appear on the tough switch prohibiting the operation of the machine. When the machine is ready to operate, "Ready" will appear on the touch switch permitting command inputs.



Multi-window Display Allows Optimum Screen Application

Up to three windows can be displayed simultaneously. A window can be moved with the touch of a finger. Furthermore, windows can be opened and closed from the PLC using operations in the Window Control Area.



Providing What's Needed in Programmable Terminals

Easier On-site Maintenance

NEW

Increased Backlight Life for Maintenance-free Operation (NT631C-ST152(B)-V2, NT31-ST122(B)-V2, and NT31C-ST142(B)-V2 Only)

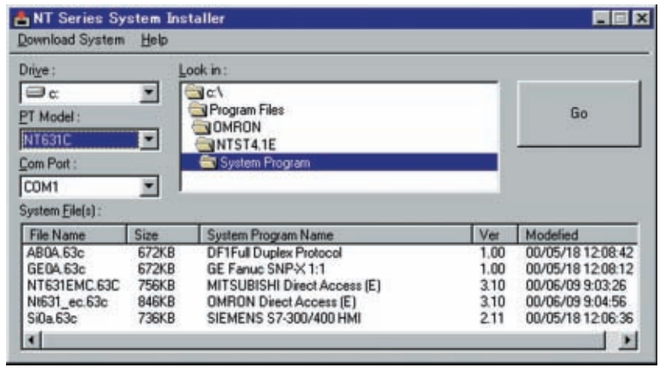
The Backlight Module has been redesigned to eliminate the need to replace the Backlight and enable maintenance-free operation for up to 50,000 hours. (Not applicable to the NT631-ST211).
All hardware and software are completely compatible with the previous models (NT631C-ST151(B)-V□, NT31-ST121(B)-V□, and NT31C-ST141(B)-V□).

System Program Transfer

By transferring a new system program, functions and performance can be updated without changing hardware.

System Programs Provided

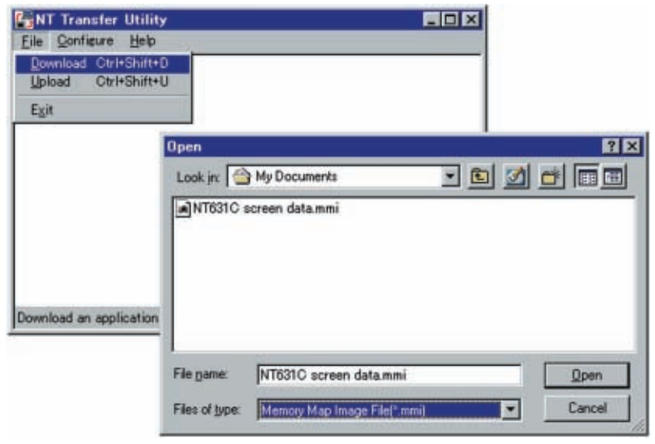
- For NT31/NT631: OMRON version (Memory Link) and Mitsubishi version
- For NT30/NT620: OMRON version, Mitsubishi version, and Memory Link version
- For NT11S



System installer

Special Utility to Transfer Screen Data

It is possible to transfer screens by using a special software application instead of the NT Support Software. The software application can be set up separately.



English, European, and Asian Language Support

Both European and English languages are supported by -EV1 models.
Furthermore, models supporting Chinese (Simplified and Traditional) and Korean are available.
The NT Support Software also supports all of these languages.
Contact your OMRON representative for details.

Note 1: Simplified Chinese: Chinese with partially simplified characters, mostly used in Mainland China.
2: Traditional Chinese: Chinese with traditional characters, mostly used in Hong Kong and Taiwan.

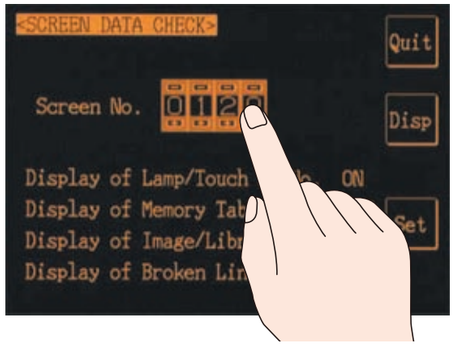
Improved Communications Interface

Memory Unit Provides Easy and Immediate Screen Data Transfer

Simply attaching the Memory Unit to the back of the NT631/NT31 allows easy transfer of screens. Up to two banks can be registered and it is possible to transfer both system programs and screen data.

Screen Data Checked without Programmable Controller Connected

The NT631/NT31 displays screens, such as lamps, touch switches, and memory table numbers, without the PLC connected, to enable efficient debugging.

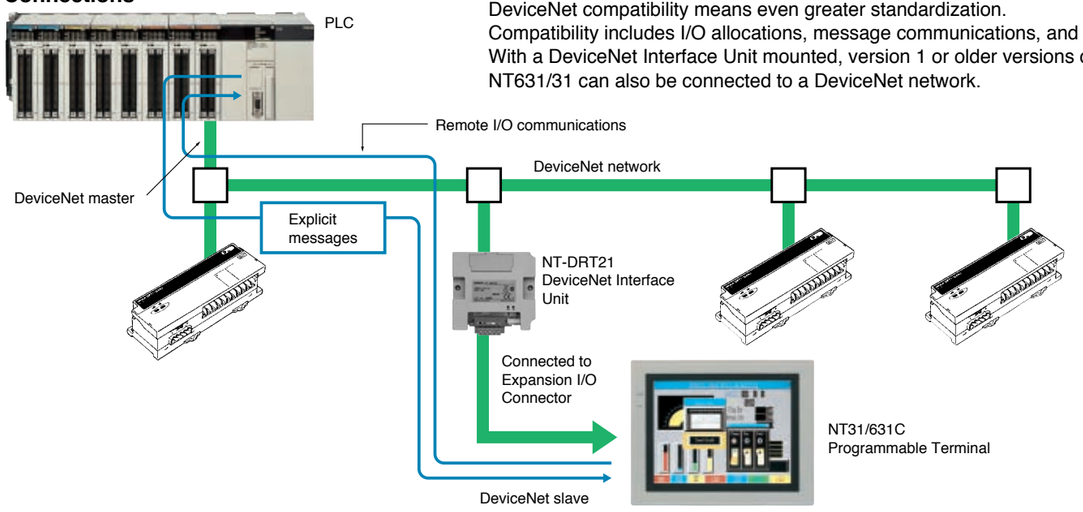


Connect as a DeviceNet Slave

Connections

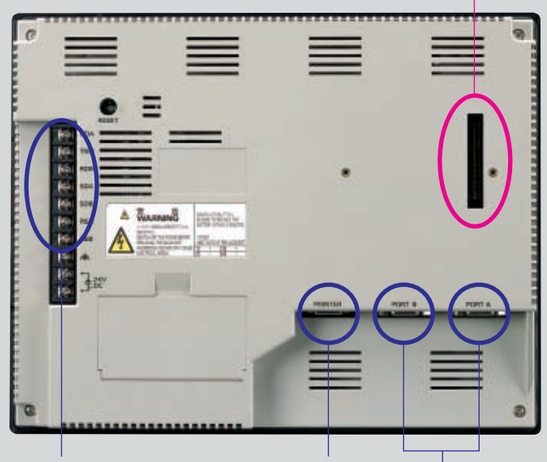
NT-DRT21 *DeviceNet* Interface Unit

DeviceNet compatibility means even greater standardization. Compatibility includes I/O allocations, message communications, and more. With a DeviceNet Interface Unit mounted, version 1 or older versions of the NT631/31 can also be connected to a DeviceNet network.



Three Types of Built-in Communications Ports Enable Easy External Interfaces

NT631 Series

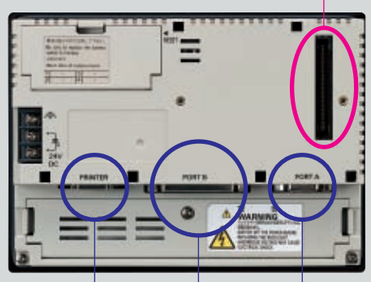


RS-422A Port
Ensures 1-to-N RS-422A or RS-485 communications, as well as long-distance communications.

Printer Port

RS-232C Port
The NT631 has two RS-232C ports that can be connected directly to bar-code readers for POP system construction. These two ports can be used simultaneously for the Support Software and host, to greatly improve debugging and maintenance efficiency. The NT31 has one RS-232C/RS-422A port.

NT31 Series



Printer Port

RS-232C Port

RS-232C/RS-422A Port

Flat, Thin-profile Model Only 54 mm Thick

All models have flat, smooth surfaces and are only 54 mm thick, which is ideal for space-saving designs built into equipment.

Conformance to IP65F Ensures a High Degree of Resistance to the Environment

The NT631/NT31 has a flush-surface construction and is highly resistive to severe operating environments. The front panel conforms to IP65F.

IP: International Protection
6 : Resistant to dust (protected from solid objects)
5 : Resistant to water spray from any direction (protected from water immersion)
F : Resistant to oil drops or sprayed oil

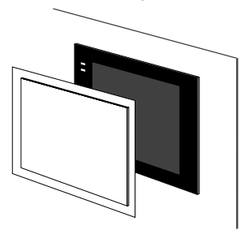
The NT631/NT31 cannot be used in locations where it will be subjected to oil spray over a long period of time.

Conformity to International Standards Ensures Suitability for Exports

The NT631/NT31 conforms to UL/CSA standards and EC Directives.

c UL us CE C-Tick

Protective Cover (Sold Separately)



Material	Polyester film
Mounting method	Double-sided tape
Model numbers	NT31C-KBA05 NT631C-KBA05

The Protective Cover protects the surface of the NT631/NT31 from oil, dust, or fingerprints.

Specifications

NT631C/NT631

■ General Specifications

Item			NT631C-ST152(B)-EV2	NT631-ST211(B)-EV2
Rated power supply voltage			24 V(DC)	
Allowable power supply voltage range			20.4 to 26.4 V(DC) (24 V(DC) −15%/+10%)	
Power consumption			18 W max.	30 W max.
Ambient operating temperature			0° to 50°C	
Ambient storage temperature			−20° to 60°C	
Ambient operating humidity			35 to 85 % RH (with no condensation)	
Ambient operating environment			No corrosive gases	
Noise resistance			Conforms to IEC61000-4-4 at 2 kV (power supply line)	
Vibration resistance (when operating)			10 to 57 Hz, amplitude of 0.075 mm 57 to 150 Hz, 9.8 m/s² Acceleration in X, Y, and Z directions for 30 min.	10 to 54.8 Hz, amplitude of 0.075 mm Acceleration in X,Y, and Z directions for 30 min.
Shock resistance (when operating)			147 m/s², 3 times each in X, Y, and Z directions	
Weight			2.5 kg max.	
Degree of protection (front panel)			Equivalent to IP65F, NEMA 4 (see note)	
Applicable EC Directives or Standards	EC Directives		EMC Directives: 89/336/EEC, 92/31/EEC Low Voltage Directives: 73/23/EEC	
	Standards	EMI	EN50081-2: 1993	
		EMS	EN61131-2: 1995	
		Electrical Safety	EN61131-2: 1995	

Note: The equipment cannot be used for long periods of time in locations which expose the panel to spills of oil.

■Display/Panel Specifications

Item			NT631C-ST152(B)-EV2	NT631-ST211(B)-EV2
Display	Display		Color TFT LCD	High-contrast EL
	Number of dots (resolution)		640 dots (horizontal)X480 dots (vertical)	
	Effective display area		211X158 mm (10.4 inches)	
	View angle		Up: 40° Left: 55° Down: 55° Right: 55°	No restrictions
	Display color		8 colors (intermediate colors can be displayed in tiling patterns)	Black/White (2 colors)
	Life expectancy		50,000 hours (until contrast is reduced by 50%)	30,000 hours (until brightness is reduced by 30%)
Backlight (cold cathode tube)	Life expectancy (when brightness is set to high)		50,000 hours min. (see note)	---
LED	Automatic turn-OFF		1 to 255 minutes/None	
	POWER	Green	Lit while power is being supplied	
	RUN	Green	Lit in green : Running normally, Memory unit automatic transmission done Flash in green : Memory unit automatic transmission being executed, memory unit automatic transmission error	
		Orange	Lit in orange : Low battery voltage (during operation)	
		Red	Flash in red : Low battery voltage (when NT631/NT631C is stopped)	

Note: The time until brightness is reduced by half, under normal temperature and normal humidity.

■Operation Specifications

Item		NT631C-ST152(B)-EV2/NT631-ST211(B)-EV2
Touch panel	Number of switches	768 (32X24)
	Input	Pressure sensitive
	Operating force	1 N min.
	Life expectancy	1,000,000 operations min.

■External I/F Specifications

Item		NT631C-ST152(B)-EV2/NT631-ST211(B)-EV2
Serial communications	Serial port A	Conforms to EIA RS-232C D-sub 9-pin connector (female) +5 V (250 mA max.) output at pin No. 6
	Serial port B	EIA RS-232C, (RS-422A/485 selectable by memory switch setting) D-sub 9-pin connector (female)
		EIA RS-422A/485, (RS-232C selectable by memory switch setting) Terminal block
Parallel I/F		Conforms to Centronics specifications, 20-pin half-pitch connector
Expansion I/F		Dedicated connector

■ Display Capacity

	Item	NT631C-ST152(B)-EV2/NT631-ST211(B)-EV2
Display elements	Character displays (fixed display)	Fixed character data (character strings registered for each screen) Maximum combined total with other fixed display elements of 65,535 per screen (maximum of 524,280 for an overlapping screen)
	Character string displays	Up to 256 per screen (1,024 for an overlapping screen) (40 bytes per string)
	Numeral displays	Up to 256 per screen (1,024 for an overlapping screen), max. 10-digit display
	Bar graph displays	Up to 50 per screen (400 for an overlapping screen*1), percentage display and sign display are possible
	Mark displays (fixed display)	Up to 65,535 per screen (52,480 for an overlapping screen*1)
	Analogue meter	Up to 50 per screen (400 for an overlapping screen*1), percentage display and sign display are possible.
	Trend graphs	One frame per screen (max. of 8 frames on an overlapping screen) Without the data logging function: 50 graphs per screen data file With the data logging function: 8 graphs per screen data file
	Broken line graphs	One frame per screen (max. of 8 frames on an overlapping screen), 256 graphs per frame, 512 points per graph
	Graphic displays (fixed display)	Can be displayed wherever required. Maximum combined total with other fixed display elements of 65,535 per screen (maximum of 524,280 for an overlapping screen)
	Lamps	Up to 256 per screen (1,024 for an overlapping screen)
	Touch switches	Up to 256 per screen
	Image data	Combined total, with library data, of 256 per screen (1,024 for an overlapping screen)
	Library data	Combined total, with image data, of 256 per screen (256 for an overlapping screen also)
	Numeral inputs	Combined total, with thumbwheel switches, of 256 per screen (Can only be registered on one child screen of an overlapping screen.)
	Character string inputs	Up to 256 per screen (Can only be registered on one child screen of an overlapping screen.)
	Alarm lists	Up to 4 groups per screen (32 groups for an overlapping screen)
	Alarm histories	(For alarm histories, 1 group each in occurance order and frequency order on normal screens/child screens)*2
	Clock display	Time display of the built-in clock using the numeral display function
	Recipes	1 per screen
Screen types	Normal screen	The normal screen display
	Overlapping screens	A maximum of 8 registered screens can be displayed overlapped with each other.
	Window screens	Up to 3 screens (2 local windows and 1 global window) can be displayed at the same time. All objects other thumwheel type numeric input can be registered.
	Display history screens	Order of occurrence (max. 1,024 screens), order of frequency (max. 255 times)
Screen attributes		Buzzer, display history, background color (NT631C only), backlight, keyboard screen number
Number of screens	Max. number of registered screens	3,999 screens
	Screen No.	0: No display 1 to 3999: User-registered screens 9000: "Initializing system" screen 9001: Display history (occurance order) screen 9002: Display history (frequency order) screen 9020: Programming Console function screen 9030: Brightness and contrast adjustment screen (NT631C-ST141(B) only) 9999: Return to the previous screen
Screen registration method		By transmitting screen data created using the Support Tool to the NT631/NT631C
Screen saving method (screen data memory)		By transmitting screen data stored in a memory unit to the NT631/NT631C (automatic/manual) Flash memory (screen data memory in the PT)

*1 Limits on numbers of elements on a window is same as on a standard screen. Therefore, when 3 windows are displayed, the maximum number is increased by 3 screens.
*2 When displaying image/library date, the restrictions on image and library data must be observed.

■Display Element Specifications

Item	NT631C-ST152(B)-EV2	NT631-ST211(B)-EV2
Display characters	Half-size characters (8X8 dots): Alphanumerics and symbols Normal-size characters (8X16 dots, 16X32 dots*): Alphanumerics and symbols Mark data (16X16 dots): User defined picture characters	
Enlargement function	Normal size, double width, double height, and magnifications of 4X, 9X, 16X, 64X	
Smoothing processing	Available for enlarged characters with magnification of 4X or greater (excluding mark data)	
Character display attribute	Normal, flashing, reverse flashing, transparent	
Image data	Variable-size pictograph Size: Min. 8X8 dots, Max. 640X480 dots The size can be set in 8-dot units. It is not possible to set enlarged display, smoothing processing, or display attributes such as reverse/flashing.	
Library data	Combination of any characters and graphics Size: Min. 1X1 dots, Max. 640X480 dots Any size can be set. Enlarged display, smoothing processing, and display attributes such as reverse/flashing are displayed according to the setting registered.	
Graphics	Polyline, circle, arc, fan, square, polygon	
Line type	4 types only for polyline (solid line, broken line, alternate long and short dash, long and two short dashes)	
Tiling	10 types	
Graphic display attribute	Normal, flashing, reverse, reverse flashing	
Display colors	8 colors (black/blue/red/purple/green/light blue/yellow/white)	2 colors (black/white)
Color specification	Foreground color, background color, boundary color (line color)	

*Usable only when "ISO8859-1" font type is selected at the Support Tool

■ Number of Display Items

Item / Model	NT631C-ST152(B)-EV2/NT631-ST211(B)-EV2
Screen data capacity	1 MB
Numeric memory table	2 words x up to 2,000 (1,000 tables can be backed up with battery)
Character string memory table	40 normal-size characters x up to 2,000 (Data can be written to and read from 500 tables)
Bit memory table	1 bit x 1,000
Mathematical table	256
Recipe table	40 KB
Mark data	224 (16-by-16-dot basis)
Image data	4,095 items
Library data	12,288 items

Specifications

NT31C/NT31

■General Specifications

Item			NT31C-ST142(B)-EV2/NT31-ST122(B)-EV2
Rated power supply voltage			24 V(DC)
Allowable power supply voltage range			20.4 to 26.4 V(DC) (24 V(DC) −15%/+10%)
Power consumption			15 W max.
Ambient operating temperature			0° to 50°C
Ambient storage temperature			−20° to 60°C
Ambient operating humidity			35 to 85 % RH (with no condensation)
Ambient operating environment			No corrosive gases
Noise resistance			Conforms to IEC61000-4-4 at 2 kV (power supply line)
Vibration resistance (when operating)			10 to 57 Hz, amplitude of 0.075 mm 57 to 150 Hz, 9.8 m/s² Acceleration in X, Y, and Z directions for 60 min.
Shock resistance (when operating)			147 m/s², 3 times each in X, Y, and Z directions
Weight			1 kg max.
Degree of protection (front panel)			Equivalent to IP65F, NEMA 4 (see note)
Applicable EC Directives or Standards	EC Directives		EMC Directives: 89/336/EEC, 92/31/EEC Low Voltage Directives: 73/23/EEC
	Standards	EMI	EN 50081-2: 1993
		EMS	EN 61131-2: 1995
		Electrical Safety	EN 61131-2: 1995

Note: The equipment cannot be used for long periods of time in locations that expose the panel to spills of oil.

■Display/Panel Specifications

Item			NT31C-ST142(B)-EV2	NT31-ST122(B)-EV2
Display	Display		Color STN LCD (with backlight)	Monochrome STN LCD (with backlight)
	Number of dots (resolution)		320 dots (horizontal)X240 dots (vertical)	
	Effective display area		118.2X89.4 mm (5.7 inches)	
	View angle		Up: 30° Down: 50° Left/Right: ±50°	Up: 20° Down: 40° Left/Right: ±45°
	Display color		8 colors (intermediate colors can be displayed in tiling patterns)	Black/White (2 colors)
	Life expectancy		50,000 hours (until contrast is reduced by 50%)	
	Contrast adjustment		100 levels of adjustment possible using the front touch panel	
Backlight (cold cathode tube)	Life expectancy (when brightness is set to high)		At low or medium brightness: 50,000 hours minimum	
	Brightness adjustment		3 levels of adjustment possible using the front touch panel	
LED	Automatic turn-OFF		1 to 255 minutes/None	
	POWER	Green	Lit while power is being supplied	
	RUN	Green	Lit during operation	
		Orange	Lit when the battery voltage is low (when operating)	
		Red	Lit when the battery voltage is low (when stopped)	

■Operation Specifications

Item		NT31C-ST142(B)-EV2/NT31-ST122(B)-EV2
Touch panel	Number of switches	192 (16X12)
	Input	Pressure sensitive
	Operating force	1 N min.
	Life expectancy	1,000,000 operations min.

■External I/F Specifications

Item		NT31C-ST142(B)-EV2/NT31-ST122(B)-EV2
Serial communications	Serial port A	Conforms to EIA RS-232C D-sub 9-pin connector (female) +5 V (250 mA max.) output at pin No. 6
	Serial port B	EIA RS-232C (RS-422A/485 selectable by memory switch setting) D-sub 25-pin connector (female)
Parallel I/F		Conforms to Centronics specifications, 20-pin half-pitch connector
Expansion I/F		Dedicated connector

■Display Capacity

Item		NT31C-ST142(B)-EV2/NT31-ST122(B)-EV2
Display elements	Character displays (fixed display)	Fixed character data (character strings registered for each screen) Maximum combined total with other fixed display elements of 65,535 per screen (maximum of 524,280 for an overlapping screen)
	Character string displays	Up to 256 per screen (1,024 for an overlapping screen) (40 bytes per string)
	Numeral displays	Up to 256 per screen (1,024 for an overlapping screen), max. 10-digit display
	Bar graph displays	Up to 50 per screen (400 for an overlapping screen*1), percentage display and sign display are possible
	Mark displays (fixed display)	Up to 65,535 per screen (52,480 for an overlapping screen*1)
	Analogue meter	Up to 50 per screen (400 for an overlapping screen*1), percentage display and sign display are possible.
	Trend graphs	One frame per screen (max. of 8 frames on an overlapping screen) Without the data logging function: 50 graphs per screen data file With the data logging function: 8 graphs per screen data file
	Broken line graphs	One frame per screen (max. of 8 frames on an overlapping screen), 256 graphs per frame, 320 points per graph
	Graphic displays (fixed display)	Can be displayed wherever required. Maximum combined total with other fixed display elements of 65,535 per screen (maximum of 524,280 for an overlapping screen)
	Lamps	Up to 256 per screen (1,024 for an overlapping screen)
	Touch switches	Up to 256 per screen (same restriction applies to overlapping screens)
	Image data	Combined total, with library data, of 256 per screen (1,024 for an overlapping screen)
	Library data	Combined total, with image data, of 256 per screen (same restriction applies to overlapping screens)
	Numeral inputs	Numeric key type: Up to 256 per screen (Can only be registered on one child screen of an overlapping screen.) Thumbwheel type: Up to 64 per screen (Can only be registered on one child screen of an overlapping screen.)
	Character string inputs	Up to 256 per screen (Can only be registered on one child screen of an overlapping screen.)
	Alarm lists	Up to 4 groups per screen (32 groups for an overlapping screen) (For alarm histories, 1 group each in occurance order and frequency order on normal screens/child screens)
	Alarm histories	
	Clock display	Time display of the built-in clock using the numeral display function
	Recipes	1 per screen
Screen types	Normal screen	The normal screen display
	Overlapping screens	A maximum of 8 registered screens can be displayed overlapped with each other.
	Window screens	Up to 3 screens (2 local windows and 1 global window) can be displayed at the same time. All objects other thumwheel type numeric input can be registered.
	Display history screens	Order of occurrence (max. 1,024 screens), order of frequency (max. 255 times)
Screen attributes		Buzzer, display history, background color (NT31C only), backlight, keyboard screen number
Number of screens	Max. number of registered screens	3,999 screens
	Screen No.	0: No display 1 to 3999: User-registered screens 9000: "Initializing system" screen 9001: Display history (occurance order) screen 9002: Display history (frequency order) screen 9030: Brightness and contrast adjustment screen 9020: Programming Console function screen 9999: Return to the previous screen
Screen registration method		By transmitting screen data created using the Support Tool to the NT31/NT31C
		By transmitting screen data stored in a memory unit to the NT31/NT31C (automatic/manual)
Screen saving method (screen data memory)		Flash memory (screen data memory in the PT)

*1 Limits on numbers of elements on a window is same as on a standard screen. Therefore, when 3 windows are displayed, the maximum number is increased by 3 screens.

■Display Element Specifications

Item	NT31C-ST142(B)-EV2	NT31-ST122(B)-EV2
Display characters	Half-size characters (8X8 dots): Alphanumerics and symbols Normal-size characters (8X16 dots*, 16X32 dots*): Alphanumerics and symbols Mark data (16X16 dots): User defined picture characters	
Enlargement function	Normal size, double width, double height, and magnifications of 4X, 9X, 16X, 64X	
Smoothing processing	Available for enlarged characters with magnification of 4X or greater	
Character display attribute	Normal, reverse, flashing, reverse and flashing, transparent	
Image data	Variable-size pictograph Size: Min. 8X8 dots, Max. 320X240 dots The size can be set in 8-dot units. It is not possible to set enlarged display, smoothing processing, or display attributes such as reverse/flashing.	
Library data	Combination of any characters and graphics Size: Min. 1X1 dots, Max. 320X240 dots Any size can be set. Enlarged display, smoothing processing, and display attributes such as reverse/flashing are displayed according to the setting registered.	
Graphics	Polyline, circle, arc, fan, square, polygon	
Line type	4 types only for polyline (solid line, broken line, alternate long and short dash, long and two short dashes)	
Tiling	10 types	
Graphic display attribute	Normal, flashing, reverse, reverse flashing	
Display colors	8 colors (black/blue/red/purple/green/light blue/yellow/white)	
Color specification	Foreground color, background color, boundary color (line color)	2 colors (black/white)

*Usable only when "ISO8859-1" font type is selected at the Support Tool

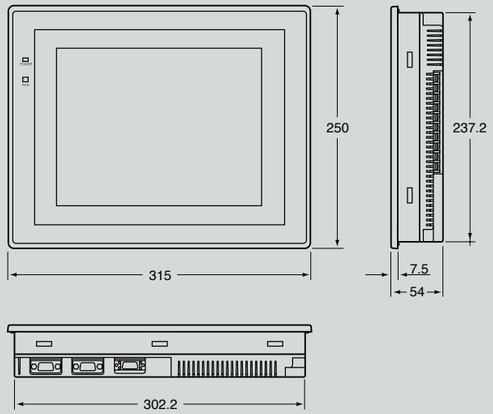
■Number of Display Items

Item / Model	NT31C-ST142(B)-EV2/NT31-ST122(B)-EV2
Screen data capacity	1 MB
Numeric memory table	2 words x up to 2,000 (1,000 tables can be backed up with battery)
Character string memory table	40 normal-size characters x up to 2,000 (Data can be written to and read from 500 tables)
Bit memory table	1 bit x 1,000
Mathematical table	256
Recipe table	40 KB
Mark data	224 (16-by-16-dot basis)
Image data	4,095 items
Library data	12,288 items

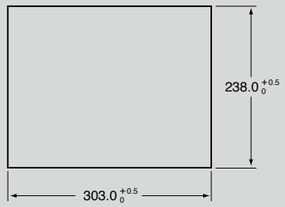
Dimensions

NT631C/NT631

■ **Dimensions** (Unit: mm)

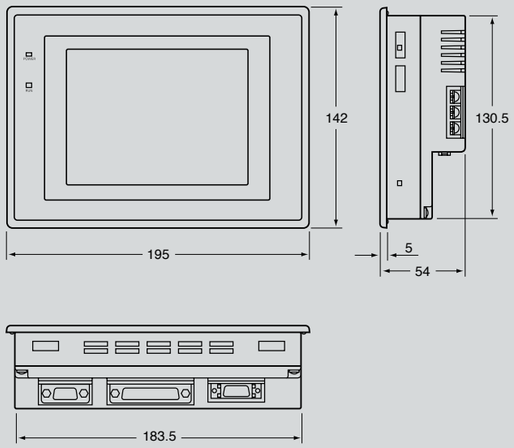


Recommended Panel Cutout Dimensions

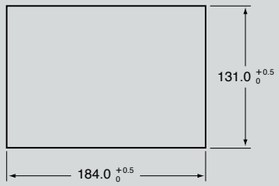


NT31C/NT31

■ **Dimensions** (Unit: mm)



Recommended Panel Cutout Dimensions



Ordering Information

■ **NT631/NT31 Standard Models**

Item	Specification		Model
NT631	TFT color	Frame color: beige	NT631C-ST152-EV2
		Frame color: black	NT631C-ST152B-EV2
	EL	Frame color: beige	NT631-ST211-EV2
		Frame color: black	NT631-ST211B-EV2
NT31	STN color	Frame color: beige	NT31C-ST142-EV2
		Frame color: black	NT31C-ST142B-EV2
	STN monochrome	Frame color: beige	NT31-ST122-EV2
		Frame color: black	NT31-ST122B-EV2
Support Software	English	Windows 95, 98, NT, 2000, Me, or XP	NT-ZJCAT1-EV4
Cable	Printer	For hardcopies of screens	NT-CNT121
Option	DeviceNet Interface Unit		NT-DRT21
	Connector Kit	——	XM2S-0911-S003
	Battery	——	C500-BAT08
	Mounting Fitting	——	NT20S-ATT01
	Protective sheet	Display section only NT631C/631 (5 sheets)	NT610C-KBA04
		Display section only NT31C/31 (5 sheets)	NT30-KBA04
	Protective Cover	NT631C/NT631 (set of 5 covers)	NT631C-KBA05
		NT31C/NT31 (set of 5 covers)	NT31C-KBA05
	Chemical resistant cover	Silicon cover for NT631C/NT631	NT625-KBA01
		Silicon cover for NT31C/NT31	NT30-KBA01
	Memory Unit	NT631□/NT31□(common)	NT-MF261

Read and Understand this Catalog

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