OMRON

Powerful, Compact Inverters with Complete Functionality and FA Network Compatibility

Multi-function, Compact Inverters

SYSDRIVE 3G3MV Series

Note: Do not use this document to operate the Unit.

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Suitable for Applications Requiring High Torque at Low Speeds Connects to FA Networks for Easier Distributed Control

There has been a great demand for inverters with more advanced functions and easier motor control than conventional i nverters. OMRON's powerful, compact 3G3MV Series with versat ile functions meets the demand.
The 3G3MV Inverters are easy to use and deliver high-t orque control at low speeds. Furthermore, the 3G3MV Inverters also connect to FA networks for a variety of applications.

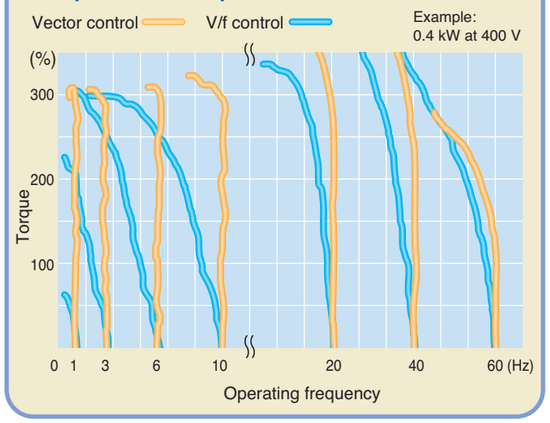
Contents

This catalog provides information for the selection of models, but does not provide operational precautions. For information on the operation of the 3G3MV Inverters and operational precautions, be sure to read the operation manual.

Sensor-free Vector Control

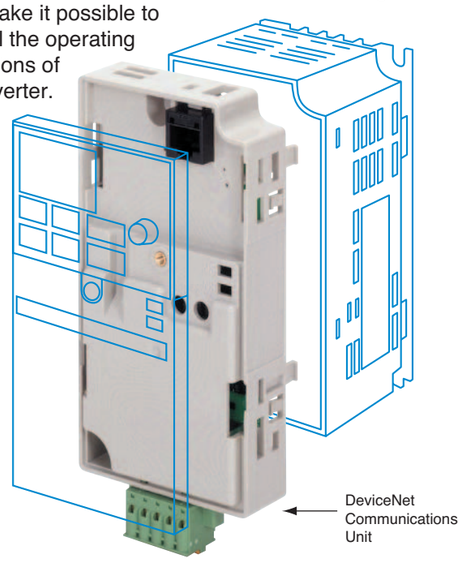
The 3G3MV Inverters support sensor-free vector control, ensuring high-torque operation at low motor speeds. The 3G3MV delivers 150% torque at 1 Hz.

Comparison of Torque Characteristics



Full Network Compatibility

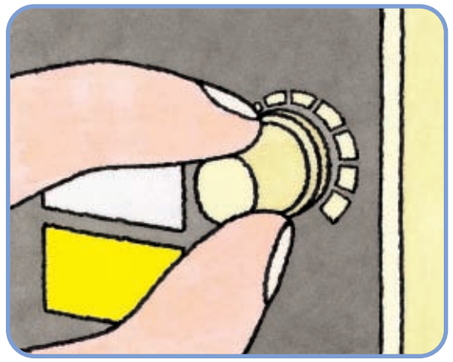
The 3G3MV Inverters are compatible with FA networks. The 3G3MV Inverters support RS-422 and RS-485 communications and allow the mounting of the DeviceNet Communications Unit to save wiring effort and make it possible to control the operating conditions of the Inverter.



Note The 5.5-kW and 7.5-kW Inverters are not compatible with Communications Units manufactured in December 1999 or earlier. For these Inverters, use Communications Units manufactured in January 2000 or later.

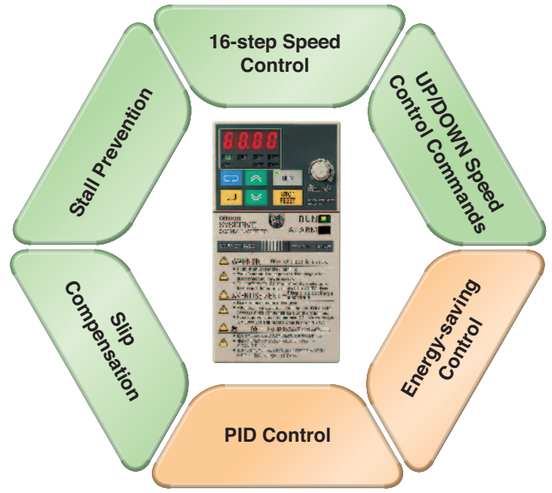
Versatile Control and Easier Application

The frequency adjuster on the Digital Operator provides easy speed control. The Digital Operator also makes it possible to copy and control parameters.



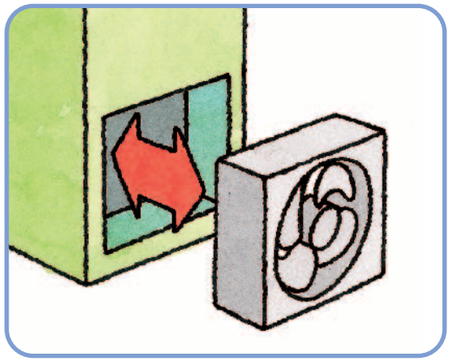
Protective Functions

The standard models provide energy-saving and PID control functions for the effective control of pumps and fans. The 3G3MV Inverters incorporate a high-speed current limit function that suppresses overcurrent tripping and ensures the smooth operation of the motor. Furthermore, the 3G3MV Inverter incorporates an inrush current preventive circuit for better protection of the system.



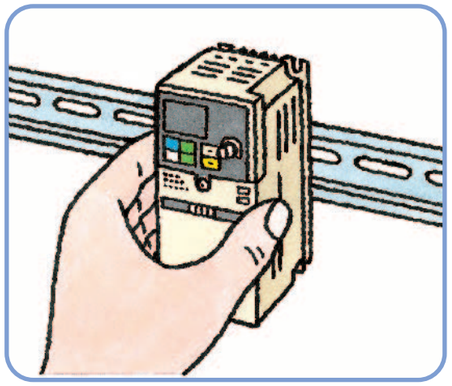
Easier Maintenance

The 3G3MV Inverters have easy-to-use cooling fans that can be easily mounted or dismounted.



Compact Size to Save Space

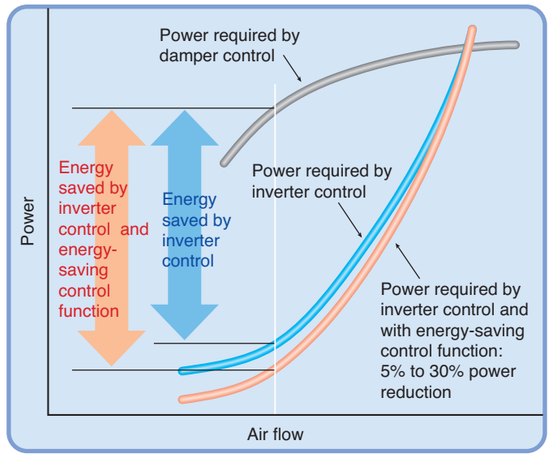
The 3G3MV Inverters are of a compact and light construction to save space. The DIN Track Mounting Bracket makes it possible to easily mount a 3G3MV Inverter to a DIN track.Furthermore, the main and control circuits are easily wired with screw terminals.



Energy-saving Operation

Energy-saving Control

A three-phase induction motor will slow down with a decrease in supply voltage if the load is light. Using these characteristics, the 3G3MV is designed to estimate the load by detecting supply current to the motor and decrease supply voltage to the motor automatically to optimize the energy efficiency of the 3G3MV Inverter. Consequently, the 3G3MV Inverter consumes less power and saves energy.



Supports a Variety of I/O

The 3G3MV Inverter supports analog inputs between 0 and 10 V, 4 to 20 mA, or 0 to 20 mA or pulse train inputs between 0.1 kHz and 33.0 kHz (set in a parameter). Furthermore, multi-function signals and pulse train signals for monitoring purposes are output from the 3G3MV Inverters.

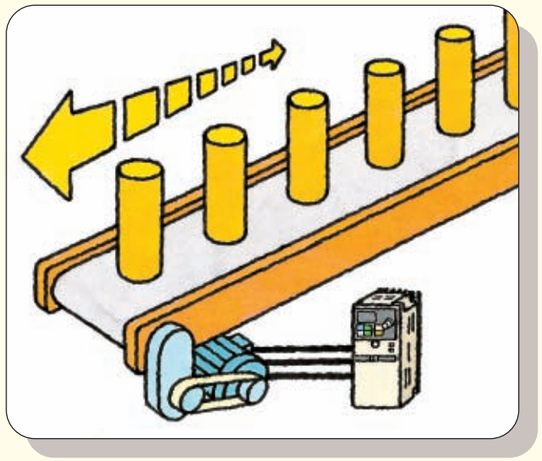
International Standards

Standard models meet CE and UL/cUL standards. The 3G3MV Series includes three-phase and single-phase 200-V models and three-phase 400-V models that are compatible with a wide variety of power supplies around the world.

Versatile Functions Ideal for a Wide Variety of Applications

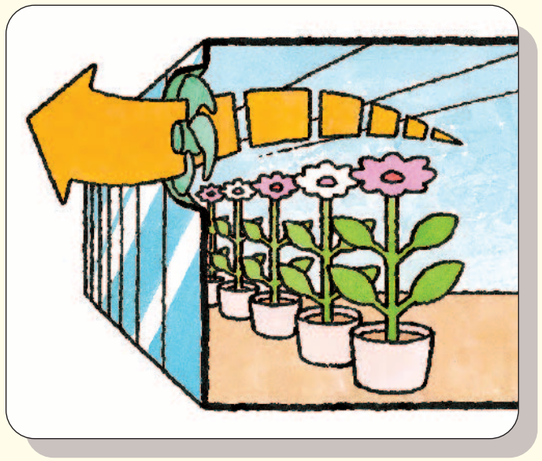
Control of Conveyor Speed

A 3G3MV Inverter performs flexible speed control of the conveyor according to the line speed and quantity of workpieces transferred.A 3G3MV Inverter incorporates soft-start and soft-stop functions to prevent loads from shifting.



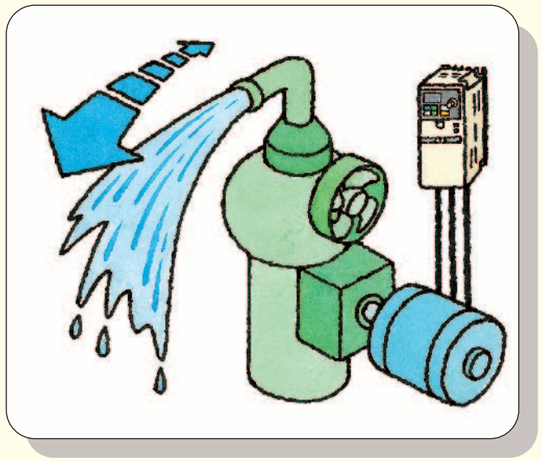
Control of Fan Speed

A 3G3MV Inverter provides a PID function that ideally controls a variety of fans for air-conditioning equipment, indoor ventilation, and greenhouses while saving energy.



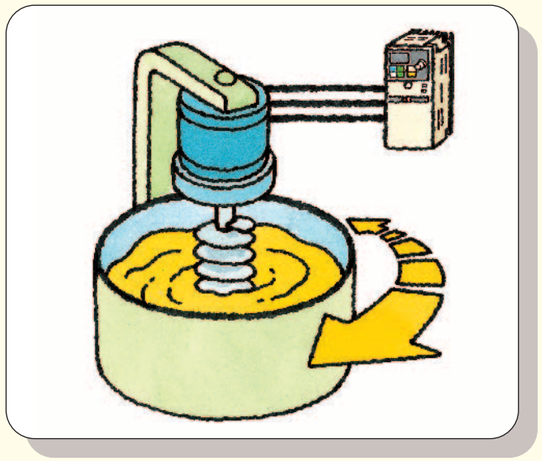
Control of Liquid-handling Machine Speed

A 3G3MV Inverter can smoothly alter motor speed according to the need, thus operating the motor at optimum speed to save energy.



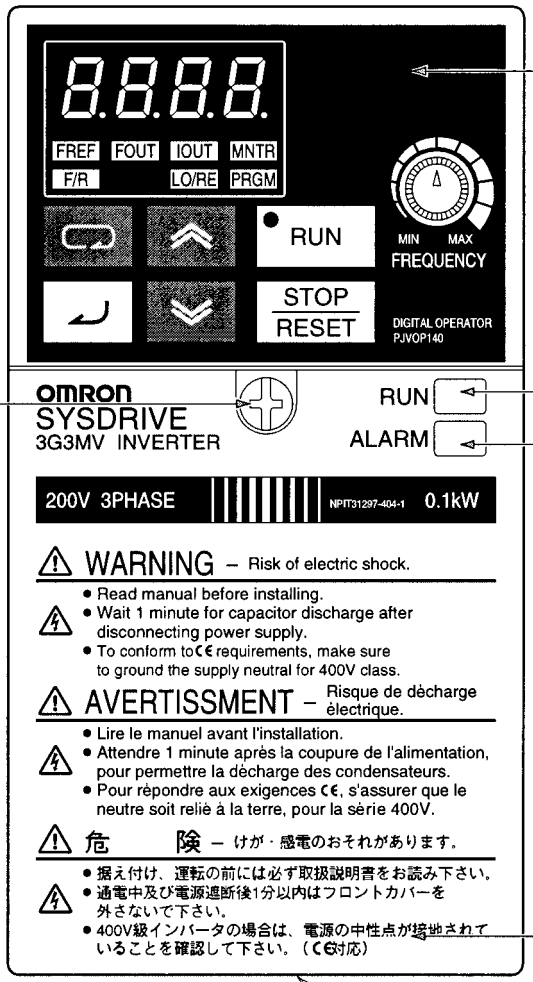
Control of Agitator or Separator Speed

A 3G3MV Inverter performs flexible speed control of a compact agitator or separator.



Nomenclature

■ Panel



Digital Operator:

Used to set parameters, perform various monitoring, and start and stop the Inverter.

Front cover mounting screw:

A screw for fixing the front cover.

RUN indicator

ALARM indicator:

Displays the operating status of the Inverter.

RUN (green): Flashes when no RUN command is input during normal status. Lights when a RUN command is input during normal status.

Alarm (Red): Lights when an error occurs. Flashes when a warning occurs.

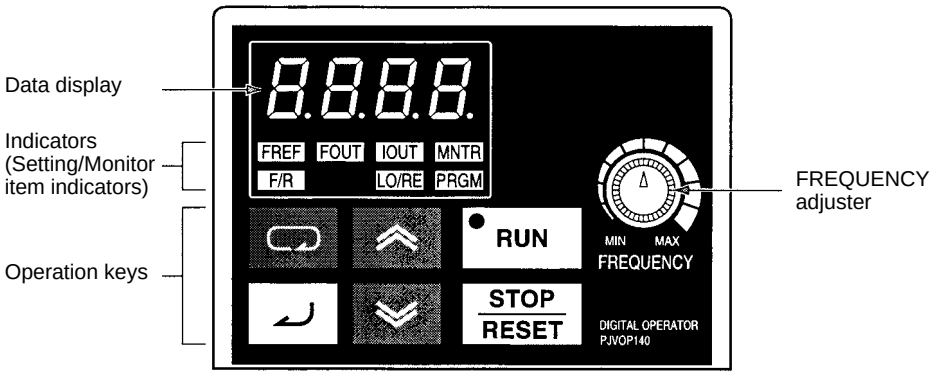
Front cover:

Remove this cover when wiring the terminal block or setting the input method selection switches.

Bottom cover:

Remove this cover when wiring the terminal block.

■ Digital Operator



Appearanc	Name	Function
8.8.8.8.	Data display	Displays relevant data items, such as frequency reference, output frequency, and parameter set values.
MIN MAX FREQUENCY	Frequency adjuster	Sets the frequency reference within a range between 0 Hz and the maximum frequency.
FREF	Frequency reference indicator	The frequency reference can be monitored or set while this indicator is lit.
FOUT	Output frequency indicator	The output frequency of the Inverter can be monitored while this indicator is lit.
IOUT	Output current indicator	The output current of the Inverter can be monitored while this indicator is lit.
MNTR	Multi-function monitor indicator	The values set in U01 through U10 are monitored while this indicator is lit.
F/R	Forward/Reverse selection indicator	The direction of rotation can be selected while this indicator is lit when operating the Inverter with the RUN Key.
LO/RE	Local/Remote selection indicator	The operation of the Inverter through the Digital Operator or according to the set parameters is selectable while this indicator is lit. (See note 1.)
PRGM	Parameter setting indicator	The parameters in n001 through n179 can be set or monitored while this indicator is lit. (See note 2.)
	Mode Key	Switches the simplified-LED (setting and monitor) item indicators in sequence. Parameter being set will be canceled if this key is pressed before entering the setting.
	Increment Key	Increases multi-function monitor numbers, parameter numbers, and parameter set values.
	Decrement Key	Decreases multi-function monitor numbers, parameter numbers, and parameter set values.
	Enter Key	Enters multi-function monitor numbers, parameter numbers, and internal data values after they are set or changed.
RUN	RUN Key	Starts the Inverter running when the 3G3MV is in operation with the Digital Operator.
STOP RESET	STOP/RESET Key	Stops the Inverter unless parameter n007 is set to disable the STOP Key. Used to reset the Inverter when an error occurs. (See note 3.)

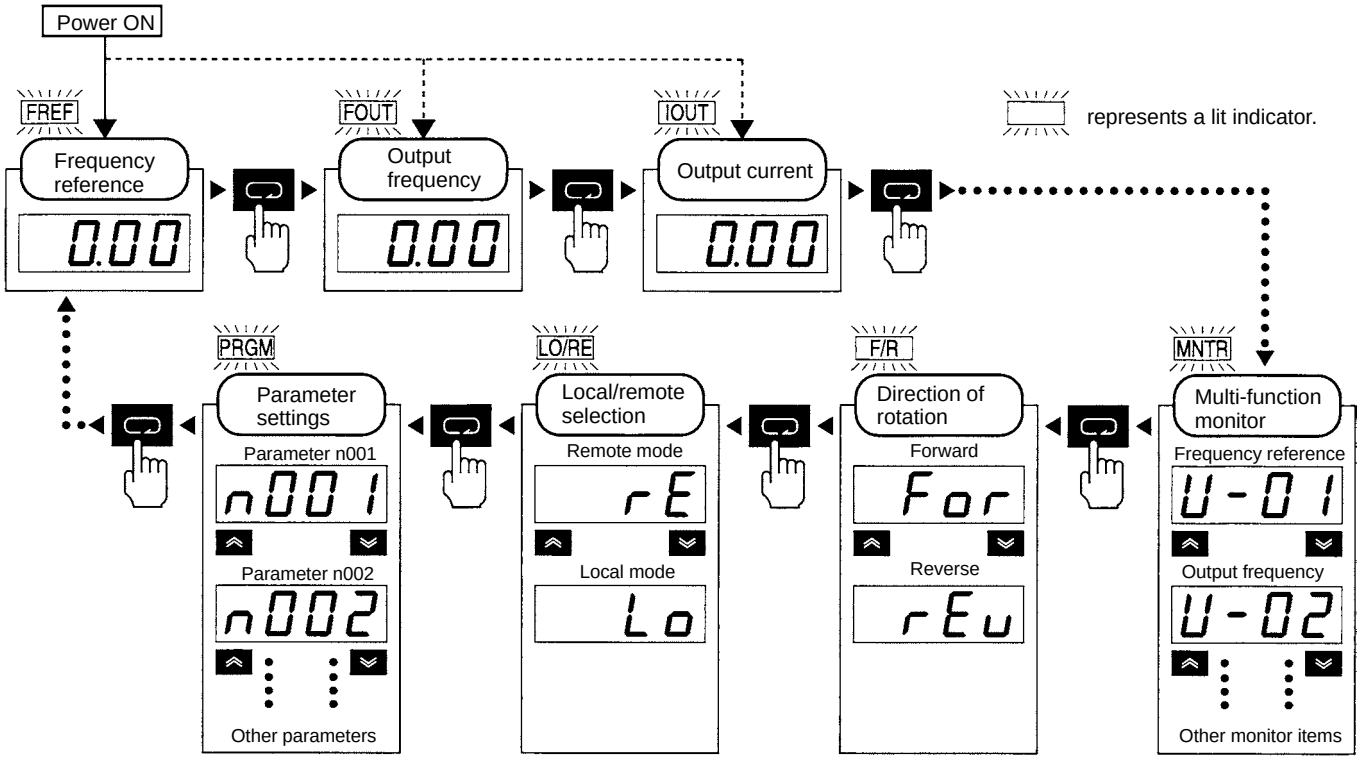
Note: 1. The status of the local/remote selection indicator can be only monitored while the Inverter is in operation. Any RUN command input is ignored while this indicator is lit.

2. While the Inverter is in operation, the parameters can be only monitored and only some parameters can be changed. Any RUN command input is ignored while the parameter setting indicator is lit.

3. For safety reasons, the reset function cannot be used while an operation instruction (forward/reverse) is being input. Turn the operation instruction OFF before using this function.

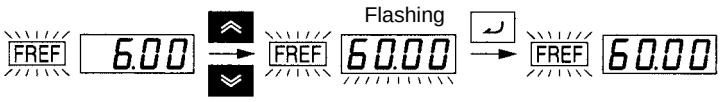
Using Digital Operator

■ Selecting Indicators



Note: If the power is turned OFF with the FOUT or IOUT indicator lit, the same indicator will light when the power is turned ON again. In other cases, the FREF indicator will light when the power is turned ON.

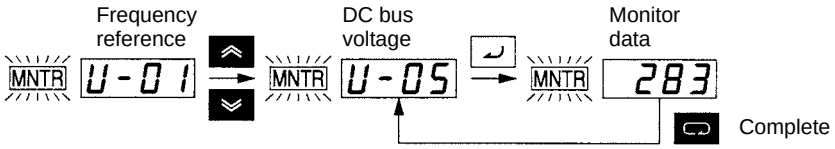
■ Example of Frequency Reference Settings



Key sequence	Indicator	Display example	Explanation
	FREF	6.00	Power ON **Note** If the FREF indicator has not been lit, press the Mode Key repeatedly until the FREF indicator is lit.
▲ ▼	FREF	60.00	Use the Increment or Decrement Key to set the frequency reference. The data display will flash while the frequency reference is set. (see note)
↵	FREF	60.00	Press the Enter Key so that the set value will be entered and the data display will be lit. (see note)

Note: The Enter Key need not be pressed when performing the setting for n08. The frequency reference will change when the set value is changed with the Increment or Decrement Key while the data display is continuously lit.

■ Example of Multi-function Display

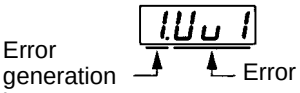
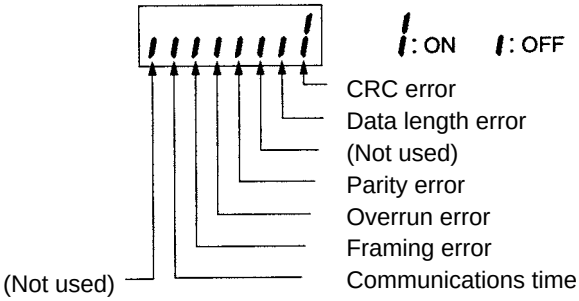


Key sequence	Indicator	Display	Explanation
	FREF	6.00	Power ON
	MNTR	U-01	Press the Mode Key repeatedly until the MNTR indicator is lit. U01 will be displayed.
	MNTR	U-05	Use the Increment or Decrement Key to select the monitor item to be displayed.
	MNTR	283	Press the Enter Key so that the data of the selected monitor item will be displayed.
	MNTR	U-05	The monitor number display will appear again by pressing the Mode Key.

Status Monitor

Item	Display	Display unit	Function
U-01	Frequency reference	Hz (see note 1)	Monitors the frequency reference. (Same as FREF)
U-02	Output frequency	Hz (see note 1)	Monitors the output frequency. (Same as FOUT)
U-03	Output current	A	Monitors the output current. (Same as IOUT)
U-04	Output voltage	V	Monitors the internal output voltage reference value of the Inverter.
U-05	DC bus voltage	V	Monitors the DC voltage of the internal main circuit of the Inverter.
U-06	Input terminal status	---	Shows the ON/OFF status of inputs. : ON : OFF Terminal S1: Multi-function input 1 Terminal S2: Multi-function input 2 Terminal S3: Multi-function input 3 Terminal S4: Multi-function input 4 Terminal S5: Multi-function input 5 Terminal S6: Multi-function input 6 Terminal S7: Multi-function input 7 Not used
U-07	Output terminal status	---	Shows the ON/OFF status of outputs. : ON : OFF Terminal MA: Multi-function contact output Terminal P1: Multi-function photo-coupler output 1 Terminal P2: Multi-function photo-coupler output 2 Not used
U-08	Torque monitor	%	Displays the torque being currently output as a percentage of the rated motor torque. This display can only be made in vector control mode.

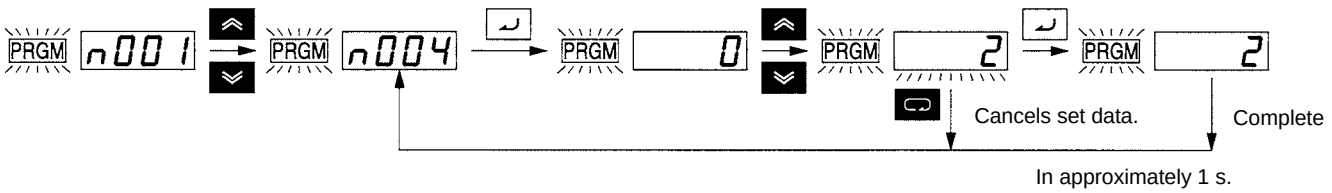
Note: 1. The units used for frequency reference (U-01) and output frequency (U-02) are determined by the setting of n035 (frequency reference setting/display unit selection; factory set to Hz).

Item	Display	Display unit	Function
U-09	Error log (most recent one)	---	The four most recent errors can be checked.  **Note** "1" means that the latest error is displayed. Press the Increment Key to display the second latest error. A maximum of four errors can be displayed.
U-10	Software No.	---	OMRON use only.
U-11	Output power	W	Monitors the output power of the Inverter (see note 1)
U-13	Accumulated operating time	×10H	Monitors the accumulated operating time in 10-hour units (see note 2)
U-15	Communications error	---	Displays the contents (same as register number 003D Hex) of general-purpose serial communications (RS422/485) errors 
U-16	PID feedback	%	Monitors the PID control feedback (Max. frequency: 100%)
U-17	PID input	%	Monitors the PID control input (Max. frequency: 100%)
U-18	PID output	%	Monitors the PID output (Max. frequency: 100%)

Note: 1. Monitoring is not possible in vector control mode. "----" will be displayed.

2. The accumulated operating time monitoring function is available only with 200-V-class, 5.5/7.5-kW Inverters and 400-V-class, 5.5/7.5-kW Inverters.

■ Example of Parameter Settings



Key sequence	Indicator	Display example	Explanation
	FREF	0.00	Power ON
	PRGM	n001	Press the Mode Key repeatedly until the PRGM indicator is lit.
	PRGM	n004	Use the Increment or Decrement Key to set the parameter number.
	PRGM	0	Press the Enter Key. The data of the selected parameter number will be displayed.
	PRGM	2	Use the Increment or Decrement Key to set the data. At that time the display will flash.
	PRGM	2	Press the Enter Key so that the set value will be entered and the data display will be lit. (see note 1)
In approximately 1 s.	PRGM	n004	The parameter number will be displayed.

Note: 1. To cancel the set value, press the Mode Key instead. The parameter number will be displayed.

2. There are parameters that cannot be changed while the Inverter is in operation. Refer to the list of parameters. When attempting to change such parameters, the data display will not change by pressing the Increment or Decrement Key.

List of Parameters

■ List of Parameters

Function Group 1 (n001 through n049)

Parameter No.	Name	Description	Setting range	Unit of setting (see note 3)	Default setting	Changes during operation	Reference page
n001	Parameter write-prohibit selection/parameter initialization	Used to prohibit parameters to be written, sets parameters, or change the monitor range of parameters. Used to initialize parameters to default values.	0 to 9	1	1	No	20
n002	Control mode selection	Used to select the control mode of the Inverter. **Note** The set value in n002 is not initialized when parameter initialization is performed using n001. **Note** Some parameters will be initialized if n002 is changed. For details refer to the reference page.	0, 1	1	0	No	20
n003	Operation mode selection	Used to select the input method for the RUN and STOP commands in remote mode.	0 to 3	1	0	No	20
n004	Frequency reference selection	Used to set the input method for the frequency reference in remote mode.	0 to 9	1	0	No	20
n005	Interruption mode selection	Used to set the stopping method for use when the STOP command is input.	0, 1	1	0	No	20
n006	Reverse rotation-prohibit selection	Used to select the operation with the reverse command input.	0, 1	1	0	No	20
n007	STOP/RESET Key function selection	Used to select the stop method in remote mode with n003 for operation mode selection set to 0.	0, 1	1	0	No	20
n008	Frequency selection in local mode	Used to set the input method for the frequency reference in local mode.	0, 1	1	0	No	20
n009	Key sequential frequency setting	Used to enable the Enter Key for setting the frequency reference with the Increment and Decrement Keys.	0, 1	1	0	No	21
n010	Operation selection at Digital Operator interruption	Used to select whether or not to detect the OPR error (Digital Operator connection error).	0, 1	1	0	No	21
n011	Maximum frequency (FMAX)	Used to set the V/f pattern as the basic characteristic of the Inverter. V/f control mode: Set output voltage per frequency Vector control mode: Set for torque adjustment	50.0 to 400.0	0.1 Hz	60.0	No	21
n012	Maximum voltage (VMAX)		0.1 to 255.0 (0.1 to 510.0)	0.1 V	200.0 (400.0)	No	21
n013	Maximum voltage frequency (FA)		0.2 to 400.0	0.1 Hz	60.0	No	21
n014	Middle output frequency (FB)		0.1 to 399.9	0.1 Hz	1.5	No	21
n015	Middle output frequency voltage (VC)		0.1 to 255.0 (0.1 to 510.0)	0.1 V	12.0 (24.0) (see note 2)	No	21
n016	Minimum output frequency (FMIN)		0.1 to 10.0	0.1 Hz	1.5	No	21
n017	Minimum output frequency voltage (VMIN)		0.1 to 50.0 (0.1 to 100.0)	0.1 V	12.0 (24.0) (see note 2)	No	21
n018	Acceleration/Deceleration time setting Unit (n018)	Used to select the unit of acceleration or deceleration time of the Inverter.	0, 1	1	0	No	21
n019	Acceleration time 1	Acceleration time: The time required to go from 0% to 100% of the maximum frequency. Deceleration time: The time required to go from 100% to 0% of the maximum frequency. **Note** The actual acceleration or deceleration time is obtained from the following formula. Acceleration/Deceleration time = (Acceleration/Deceleration time set value) × (Frequency reference value) ÷ (Max. frequency)	0.0 to 6000	0.1 s (change in n018)	10.0	Yes	21
n020	Deceleration time 1				10.0	Yes	21
n021	Acceleration time 2				10.0	Yes	21
n022	Deceleration time 2				10.0	Yes	21

Note: 1. The values in brackets are those for 400-V-class Inverters.

2. The default settings for middle output frequency voltage (n015) and the minimum output frequency voltage (n017) are 10.0 V for 200-V-class, 5.5/7.5-kW Inverters and 20.0 V for 400-V-class, 5.5/7.5-kW Inverters.

3. Values longer than 4 digits are rounded up to the next unit multiple.

Parameter No.	Name	Description	Setting range	Unit of setting (see note)	Default setting	Changes during operation	Reference page
n023	S-shape acceleration/deceleration characteristic	Used to set S-shape acceleration/deceleration characteristics.	0 to 3	1	0	No	21
n024	Frequency reference 1	Used to set internal frequency references. **Note** Frequency reference 1 is enabled in remote mode with n004 for frequency reference selection set to 1. **Note** These frequency references are selected with multi-step speed references (multi-function input). See the reference pages for the relationship between multi-step speed references and frequency references.	0.0 to max. frequency	0.1 Hz (change in n035)	6.0	Yes	22
n025	Frequency reference 2				0.0	Yes	22
n026	Frequency reference 3				0.0	Yes	22
n027	Frequency reference 4				0.0	Yes	22
n028	Frequency reference 5				0.0	Yes	22
n029	Frequency reference 6				0.0	Yes	22
n030	Frequency reference 7				0.0	Yes	22
n031	Frequency reference 8				0.0	Yes	22
n032	Inching frequency command	Used to set the inching frequency command.			6.0	Yes	22
n033	Frequency reference upper limit	Used to set the upper and lower frequency reference limits in percentage based on the maximum frequency as 100%.	0 to 110	1%	100	No	22
n034	Frequency reference lower limit		0 to 110	1%	0	No	22
n035	Frequency reference setting/display unit selection	Used to set the unit of frequency reference and frequency-related values to be set or monitored through the Digital Operator.	0 to 3999	1	0	No	22
n036	Rated motor current	Used to set the rated motor current for motor overload detection (OL1) based on the rated motor current. **Note** Motor overload detection (OL1) is disabled by setting the parameter to 0.0.	0.0 to 150% of rated output current of the Inverter	0.1 A	Varies with the capacity.	No	22
n037	Motor protection characteristics	Used to set the motor overload detection (OL1) for the electronic thermal characteristics of the motor.	0 to 2	1	0	No	23
n038	Motor protective time setting	Used to set the electric thermal characteristics of the motor to be connected in 1-minute increments.	1 to 60	1 min	8	No	23
n039	Cooling fan operation function	Used to operate the Cooling Fan of the Inverter while the Inverter is turned on or only while the Inverter is in operation.	0, 1	1	0	No	23
n040 to n049	Not used	---	---	---	---	---	---

Note: Values longer than 4 digits are rounded up to the next unit multiple.

Function Group 2 (n050 through n079)

Parameter No.	Name	Description	Setting range	Unit of setting	Default setting	Changes during operation	Reference page
n050	Multi-function input 1 (Input terminal S1)	Used to select the functions of multi-function input terminals S1 through S7.	1 to 25	1	1	No	23
n051	Multi-function input 2 (Input terminal S2)		1 to 25	1	2	No	23
n052	Multi-function input 3 (Input terminal S3)		0 to 25	1	3	No	23
n053	Multi-function input 4 (Input terminal S4)		1 to 25	1	5	No	23
n054	Multi-function input 5 (Input terminal S5)		1 to 25	1	6	No	23
n055	Multi-function input 6 (Input terminal S6)		1 to 25	1	7	No	23
n056	Multi-function input 7 (Input terminal S7)		1 to 25, 34, 35	1	10	No	23

List of Parameters

Parameter No.	Name	Description	Setting range	Unit of setting	Default setting	Changes during operation	Reference page
n057	Multi-function output (MA/MB and MC output terminals)	Used to select the functions of multi-function output terminals.	0 to 7, 10 to 19	1	0	No	24
n058	Multi-function output 2 (P1-PC output terminals)		0 to 7, 10 to 19	1	1	No	24
n059	Multi-function output 3 (P2-PC output terminals)		0 to 7, 10 to 19	1	2	No	24
n060	Frequency reference gain	Used to the input characteristics of analog frequency references.	0 to 255	1%	100	Yes	25
n061	Frequency reference bias		–100 to 100	1%	0	Yes	25
n062	Analog frequency reference filter time	Used to set the digital filter with a first-order lag for analog frequency references to be input.	0.00 to 2.00	0.01 s	0.10	No	25
n063	Not used	---	---	---	---	---	---
n064	Frequency reference loss processing selection (see note)	Used to specify the processing that is performed when frequency references from control circuit terminals suddenly drop. 0: Disabled (operates in compliance with frequency reference) 1: Enabled (continues to operate at 80% of the frequency reference before loss) (“Frequency reference loss” is defined to be a drop of more than 90% in the frequency reference within 400 ms.)	0, 1	1	0	No	---
n065	Multi-function analog output type selection	Used to select the multi-function analog output type.	0, 1	1	0	No	25
n066	Multi-function analog output	Used to select the monitor item with n065 set to 0.	0 to 5	1	0	No	25
n067	Multi-function analog output gain	Used to set the output characteristics of multi-function analog output.	0.00 to 2.00	0.01	1.00	Yes	25
n068	Multi-function analog voltage input gain	Used to set the input characteristics of multi-function analog voltage input.	–255 to 255	1%	100	Yes	25
n069	Multi-function analog voltage input bias		–100 to 100	1%	0	Yes	25
n070	Multi-function analog voltage input filter time constant	Used to set a primary delay digital filter for multi-function analog voltage input.	0.00 to 2.00	0.01 s	0.10	Yes	25
n071	Multi-function analog current input gain	Used to set the input characteristics of multi-function analog current input.	–255 to 255	1%	100	Yes	25
n072	Multi-function analog current input bias		–100 to 100	1%	0	Yes	25
n073	Multi-function analog current input filter time constant	Used to set a primary delay digital filter for multi-function analog current input.	0.00 to 2.00	0.01 s	0.10	Yes	26
n074	Pulse train frequency reference gain	Used to set the input characteristics of pulse train input.	–255 to 255	1%	100	Yes	26
n075	Pulse train frequency reference bias		–100 to 100	1%	0	Yes	26
n076	Pulse train frequency reference filter time constant	Used to set a primary delay digital filter for pulse train frequency references to be input.	0.00 to 2.00	0.01 s	0.10	Yes	---
n077	Multi-function analog input function selection	Used to select the function for allocation to the Digital Operator’s multi-function analog input terminals.	0 to 4	1	0	No	---
n078	Multi-function analog input terminal selection	Used to set voltage input or current input for multi-function analog input terminals.	0, 1	1	0	No	---
n079	Multi-function analog input frequency bias	Used to set the standard bias value when the multi-function analog input function selection (n077) is set to frequency bias (set value: 3).	0 to 50	1%	10	No	---

Note: The frequency reference loss processing selection setting is available only with 5.5/7.5-kW Inverters.

Function Group 3 (n080 through n0119)

Parameter No.	Name	Description	Setting range	Unit of setting (see note 2)	Default setting	Changes during operation	Reference page
n080	Carrier frequency selection	Used to set the carrier frequency.	1 to 4, 7 to 9	1	Varies with the capacity.	No	26
n081	Momentary power interruption compensation	Used to specify the processing that is performed when a momentary power interruption occurs.	0 to 2	1	0	No	26
n082	Number of fault retries	Used set the number of times that reset and restart are automatically attempted for the Inverter when the Inverter has an overvoltage fault or overcurrent fault.	0 to 10	1	0	No	26
n083	Jump frequency 1	Used to set the frequency jump function. **Note** Set n083 to n085 to satisfy the following condition. n083 ≧ n084 ≧ n085	0.00 to 400.0	0.01 Hz	0.00	No	27
n084	Jump frequency 2		0.00 to 400.0	0.01 Hz	0.00	No	27
n085	Jump frequency 3		0.00 to 400.0	0.01 Hz	0.00	No	27
n086	Jump width		0.00 to 25.50	0.01 Hz	0.00	No	27
n087	Accumulated operating time function selection (see note 1)	Used to select the function that displays the accumulated operating time (U-13).	0, 1	1	0	No	---
n088	Accumulated operating time (see note 1)	Used to set the default value for accumulated operating time in time units. **Note** The operating time is accumulated from the set values. **Note** Set n088 to 0 to clear the value.	0 to 6550	1=10H	0	No	---
n089	DC injection braking current	Used to impose DC on the induction motor for braking control.	0 to 100	1%	50	No	27
n090	DC injection braking-to-stop time		0.0 to 25.5	0.1 s	0.5	No	27
n091	Startup DC injection braking time		0.0 to 25.5	0.1 s	0.0	No	27
n092	Stall prevention during deceleration	Used to select a function to change the deceleration time of the motor automatically so that there will be no overvoltage imposed on the motor during deceleration.	0, 1	1	0	No	27
n093	Stall prevention level during acceleration	Used to select a function to stop the acceleration of the motor automatically for stall prevention during acceleration.	30 to 200	1%	170	No	27
n094	Stall prevention level during operation	Used to select a function to reduce the output frequency of the Inverter automatically for stall prevention during operation.	30 to 200	1%	160	No	28
n095	Frequency detection level	Used to set the frequency to be detected.	0.00 to 400.0	0.01 Hz	0.00	No	28
n096	Overtorque detection function selection 1	Used to enable or disable overtorque detection and select the processing method after overtorque detection.	0 to 4	1	0	No	28
n097	Overtorque detection function selection 2	Used to select the item to detect overtorque.	0, 1	1	0	No	28
n098	Overtorque detection level	Used to set overtorque detection level.	30 to 200	1%	160	No	28
n099	Overtorque detection time	Used to set the detection time of overtorque.	0.1 to 10.0	0.1 s	0.1	No	28
n100	UP/DOWN frequency memory	Used to store the adjusted frequency reference with the UP/DOWN function.	0, 1	1	0	No	29
n101	High-speed search deceleration time (see note 1)	Used to set the output frequency deceleration time during execution of high-speed search in second units. **Note** Set the time to be taken in going from the maximum frequency to 0 Hz.	0.0 to 10.0	0.1 s	2.0 s	No	---
n102	High-speed search operating level (see note 1)	Used to set the operating level for high-speed search.	0 to 200	1%	150	No	---

Note: 1. Settings marked with an asterisk are available only with 5.5/7.5-kW Inverters.

2. Values longer than 4 digits are rounded up to the next unit multiple.

List of Parameters

Parameter No.	Name	Description	Setting range	Unit of setting (see note)	Default setting	Changes during operation	Reference page
n103	Torque compensation gain	Used to set the gain of the torque compensation function.	0.0 to 2.5	0.1	1.0	Yes	---
n104	Torque compensation primary delay time constant	Used to set the response speed of the torque compensation function.	0.0 to 25.5	0.1 s	0.3	No	---
n105	Torque compensation core loss	Used to set the core loss of the motor in use. **Note** This parameter is enabled in V/f control mode only.	0.0 to 6,550	0.1 W	Varies with the capacity.	No	---
n106	Rated motor slip	Used to set the rated slip value of the motor in use.	0.0 to 20.0	0.1 Hz	Varies with the capacity.	Yes	---
n107	Motor phase-to-neutral resistance	Used to set this parameter to 1/2 of the phase-to-phase resistance or phase-to-neutral resistance of the motor.	0.000 to 65.50	0.001 Ω	Varies with the capacity	No	---
n108	Motor leakage inductance	Used to set the leakage inductance of the motor in use.	0.00 to 655.0	0.01 mH	Varies with the capacity.	No	---
n109	Torque compensation limit	Used to set a limit on the torque compensation function in vector control mode.	0 to 250	1%	150	No	---
n110	Motor no-load current	Used to set the no-load current of the motor in use based on the rated motor current as 100%.	0 to 99	1%	Varies with the capacity	No	---
n111	Slip compensation gain	Used to set the gain of the slip compensation function. **Note** The default is set to 1.0 in vector control mode. **Note** The slip compensation function is disabled with n111 set to 0.0.	0.0 to 2.5	0.1	0.0	Yes	---
n112	Slip compensation primary delay time	Used for the response speed of the slip compensation function. **Note** The default is set to 0.2 in vector control mode.	0.0 to 25.5	0.1 s	2.0	No	---
n113	Slip compensation during regeneration	Used to select the slip compensation function in regenerative operation. **Note** This parameter is valid only in vector control mode.	0, 1	1	0	No	---
n114	Not used	---	---	---	---	---	---
n115	Stall prevention level automatic suppression selection	Used to select whether or not to automatically decrease the level for stall prevention during operation if the frequency lies in a constant output range exceeding the frequency set in n013 for max. voltage frequency (a range greater than the rated motor frequency).	0, 1	1	0	No	---
n116	Stall prevention acceleration/deceleration time setting	Used to set the acceleration/deceleration time for the stall prevention function during operation.	0, 1	1	0	No	---
n117 to n119	Not used	---	---	---	---	---	---

Note: Values longer than 4 digits are rounded up to the next unit multiple.

Function Group 4 (n120 through n179)

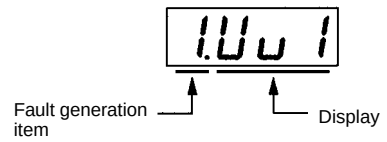
Parameter No.	Name	Description	Setting range	Unit of setting (see note)	Default setting	Changes during operation	Reference page
n120	Frequency reference 9	Used to set the internal frequency references. **Note** These frequency references are selected with multi-step speed references (multi-function inputs). See the reference pages for the relationship between multi-step frequency references and frequency references.	0.00 Hz to max.	0.01 Hz (Changeable with n035 settings)	0.00	Yes	22
n121	Frequency reference 10				0.00	Yes	22
n122	Frequency reference 11				0.00	Yes	22
n123	Frequency reference 12				0.00	Yes	22
n124	Frequency reference 13				0.00	Yes	22
n125	Frequency reference 14				0.00	Yes	22
n126	Frequency reference 15				0.00	Yes	22
n127	Frequency reference 16				0.00	Yes	22
n128	PID control selection	Used to select the PID control method.	0 to 8	1	0	No	---
n129	Feedback value adjustment gain	Used to set the value by which the feedback value is multiplied.	0.00 to 10.00	0.01	1.00	Yes	---
n130	Proportional (P) gain	Used to set the proportional (P) gain for PID control. **Note** PID control is disabled with this parameter set to 0.0.	0.0 to 25.0	0.1	1.0	Yes	---
n131	Integral (I) time	Used to set the integral (I) time for PID control. **Note** Integral control is disabled with this parameter set to 0.0.	0.0 to 360.0	0.1 s	1.0	Yes	---
n132	Derivative (D) time	Used to set the derivative (D) time for PID control. **Note** Derivative control is disabled with this parameter set to 0.0.	0.00 to 2.50	0.01 s	0.00	Yes	---
n133	PID offset adjustment	This parameter is for the offset adjustment of all PID control.	–100 to 100	1%	0	Yes	---
n134	Integral (I) upper limit	Used to set the upper limit value of integral control output.	0 to 100	1%	100	Yes	---
n135	PID primary delay time	Used to set the primary delay time constant for the frequency reference after PID control.	0.0 to 10.0	0.1 s	0.0	Yes	---
n136	Feedback loss detection selection	Used to set the detection method of feedback loss in PID control.	0 to 2	1	0	No	---
n137	Feedback loss detection level	Used to set the detection level of feedback loss.	0 to 100	1%	0	No	---
n138	Feedback loss detection time	Used to set the detection time of feedback loss.	0.0 to 25.5	0.1 s	1.0	No	---
n139	Energy-saving control selection	Used to select the energy-saving control function. **Note** This parameter is enabled in V/f control mode only.	0, 1	1	0	No	---
n140	Energy-saving control coefficient K2	Used to set the coefficient for the primary level of energy-saving control.	0.0 to 6,550	0.1	Varies with the capacity	No	---
n141	Energy-saving voltage lower limit at 60-Hz output	These parameters prevent the output voltage of the Inverter from dropping excessively so that the motor will not stall or come to a stop at the primary level of energy-saving control.	0 to 120	1%	50	No	---
n142	Energy-saving voltage lower limit at 6-Hz output		0 to 25	1%	12	No	---
n143	Power averaging time	Used to set the time required to calculate the average of power used in energy-saving control. Power averaging time (ms) = Set value x 24 (ms)	1 to 200	1 (24 ms)	1	No	---
n144	Probe operation voltage limit	Used to set the range of voltage control for the secondary level of energy-saving control. **Note** No probe operation is available with the parameter set to 0.	0 to 100	1%	0	No	---

Note: Values longer than 4 digits are rounded up to the next unit multiple.

List of Parameters

Parameter No.	Name	Description	Setting range	Unit of setting (see note)	Default setting	Changes during operation	Reference page
n145	Probe operation control voltage step at 100%	Used to set the range of probe operation voltage in percentage based on the rated motor voltage as 100%.	0.1 to 10.0	0.1%	0.5	No	---
n146	Probe operation control voltage step at 5%		0.1 to 10.0	0.1%	0.2	No	---
n147	Not used	---	---	---	---	---	---
n148							
n149	Pulse train input scale	Used to set this parameter to the pulse train input scale so that frequency references can be executed by pulse train input.	100 to 3,300	1 (10 Hz)	2,500	No	26
n150	Multi-function analog output, pulse train frequency selection.	Used to select the relationship between the pulse train output frequency and output frequency.	0, 1, 6, 12, 24, 36	1	0	No	---
n151	RS-422/485 communications time-over detection selection	The set value in the parameter determines whether communications time-over detection will be performed with “CE” displayed if there is an interval of more than 2 s between normal communications and how the detected communications time-over will be processed.	0 to 4	1	0	No	---
n152	RS-422/485 communications frequency reference/display unit selection	Used to set the unit of frequency reference and frequency-related values to be set or monitored through communications.	0 to 3	1	0	No	---
n153	RS-422/485 communications Slave address	Used to set the Slave address (Slave unit number) for communications.	00 to 32	1	00	No	---
n154	RS-422/485 baud rate selection	Used to select the communications baud rate.	0 to 3	1	2	No	---
n155	RS-422/485 parity selection	Used to select the parity check function for communications data.	0 to 2	1	0	No	---
n156	RS-422/485 send wait time	Used to set the time to wait for a response after the DSR (data-send-request) message is received from the Master.	10 to 65	1 ms	10	No	---
n157	RS-422/485 RTS control selection	Used to select whether or not to enable the RTS (request-to-send) communications control function.	0, 1	1	0	No	---
n158	Motor code	Used to set the code to automatically set the constants for energy-saving control.	0 to 70	1	Varies with the capacity.	No	---
n159	Energy-saving voltage upper limit at 60-Hz output	These parameters prevent the motor from over excitation due to voltage changes during energy-saving control.	0 to 120	1%	120	No	---
n160	Energy-saving upper limit voltage at 6-Hz output		0 to 25	1%	16	No	---
n161	Power detection width for probe operation switching	Used to set the detection width of power that sets the Inverter into probe operation. Set the width in percentage based on the power to be detected as 100%. **Note** Normally, the default setting does not need to be changed.	0 to 100	1%	10	No	---
n162	Power detection filter constant	Used to set the filter time constant of the power detection block of the Inverter operating in probe operation. Filter time constant (ms) = Set value in n162 x 4 (ms) **Note** The Inverter will operate with a time constant of 20 ms if the value is set to 0.	0 to 255	1 (4 ms)	5	No	---
n163	PID output gain	Used to set the rate by which PID control value is multiplied for PID control.	0.0 to 25.0	0.1	1.0	No	---
n164	PID feedback input block selection	Used to set the feedback input block for PID control detection.	0 to 5	1	0	No	---
n165	Not used	---	---	---	---	---	---

Note: Values longer than 4 digits are rounded up to the next unit multiple.

Parameter No.	Name	Description	Setting range	Unit of setting (see note 1)	Default setting	Changes during operation	Reference page
n166	Input open-phase detection level (see note 3)	Used to set the open-phase detection level (voltage fluctuation) for input power supply voltage. 400 V/100% (200-V class) 800 V/100% (400-V class) **Note** Nothing detected if set to 0. **Note** Recommended setting: 7%.	0 to 100	1%	0	No	---
n167	Input open-phase detection time (see note 3)	Used to set the open-phase detection time for input power supply voltage. **Note** Recommended setting: 10 s.	0 to 255	1 s	0	No	---
n168	Output open-phase detection level (see note 3)	Used to set the open-phase detection level for Inverter output current. **Note** Nothing detected if set to 0. **Note** Set a lower value if the capacity of the applicable motor is small compared to the capacity of the Inverter. **Note** Recommended setting: 5%.	0 to 100	1%	0	No	---
n169	Output open-phase detection time (see note 3)	Used to set the open-phase detection time for Inverter output current. **Note** Nothing detected if set to 0.0 **Note** Recommended setting: 0.2 s.	0.0 to 2.0	0.1 s	0.0	No	---
n170 to n174	Not used	---	---	---	---	---	---
n175	Low carrier frequency at low speed	This function automatically reduces the carrier frequency to 2.5 kHz if the output frequency is 5 kHz or less, and the output current is 110% or greater than the rated Inverter current. Normally this setting is not necessary. This function improves the overload capacity at low frequencies.	0, 1	1	0 (see note 2)	No	---
n176	Parameter copy and verify function selection	Used to select the function to read, copy, and verify the parameter between the memory of the Inverter and that of the Digital Operator.	rdy to Sno	---	rdy	No	---
n177	Parameter read prohibit selection	Used to select the copy-prohibit function. Set this parameter to store the data in the EEPROM of the Digital Operator.	0, 1	1	0	No	---
n178	Fault log	Used to display the four most recent faults recorded.  **Note** The most recent fault is indicated by “1.” **Note** This parameter is monitored only.	---	---	---	---	---
n179	Software number	Used to display the software number of the Inverter for OMRON’s control reference use. **Note** This parameter is monitored only.	---	---	---	---	---

Note: 1. Values longer than 4 digits are rounded up to the next unit multiple.

2. The default setting for 5.5/7.5-kW Inverters is “1.”

3. Functions marked with an asterisk are available only with 5.5/7.5-kW Inverters.

Function of Each Parameter

Note: The shaded values indicate default settings.

Parameter Write-prohibit Selection/Parameter Initialization (n001)

This parameter makes it possible to write-prohibit parameters, change the parameter set or displayed range, or initialize all parameters to default values.

Value	Description
0	Displays and sets n001. Parameters from n002 to n179 can be displayed only.
1	Sets or monitors parameters n001 through n049 (i.e., function group 1 settings).
2	Sets or monitors parameters n001 through n079 (i.e., function groups 1 and 2 settings).
3	Sets or monitors parameters n001 through n119 (i.e., function groups 1 through 3 settings).
4	Sets or monitors parameters n001 through n179 (i.e., function groups 1 through 4 settings).
6	Clears the error log.
8	Initializes parameters to default settings in 2-wire sequence.
9	Initializes parameters in 3-wire sequence.
10	For the USA, initializes parameter in 2-wire sequence
11	For the USA, initializes parameter in 3-wire sequence

Control Mode Selection (n002)

The 3G3MV Inverter operates in vector or V/f control mode to be selected according to the application.

Value	Description
0	V/f control mode
1	Vector control mode (open loop)

Note: 1. This parameter is not initialized when parameter initialization is performed using n001 (parameter write-prohibit selection/ parameter initialization).

2. The following parameters are initialized when n002 is changed. The default values vary with the control mode.

n014: Middle output frequency
n015: Middle output frequency voltage
n016: Minimum output frequency
n017: Minimum output frequency voltage
n104: Torque compensation primary-delay time constant
n111: Slip compensation gain
n112: Slip compensation primary-delay time constant

Operation Mode Selection (n003)

Select the method of operation mode input to start or stop the Inverter in remote mode.

Value	Description
0	The RUN and STOP/RESET Keys of the Digital Operator are enabled.
1	Multi-function input in 2- or 3-wire sequence through the control circuit terminals is enabled.
2	RS-422/485 communications are enabled.
3	Input from option (DeviceNet Communications Unit) is enabled.

Note: In local mode, RUN commands can be entered using the Digital Operator only.

Frequency Reference Selection (n004) (Remote Mode)

Select the method for inputting the frequency reference to the Inverter in remote mode.

Value	Description
0	The FREQ adjuster of the Digital Operator is enabled.
1	Frequency reference 1 (n024) is enabled.
2	The frequency reference control terminal (for 0- to 10-V input) is enabled.
3	The frequency reference control terminal (for 4- to 20-mA current input) is enabled.
4	The frequency reference control terminal (for 0- to 20-mA current input) is enabled.
5	The pulse train command control input is enabled.
6	Frequency reference (0002 Hex) through RS-422/485 communications is enabled.
7	Multi-function analog voltage input (0 to 10 V) is enabled.
8	Multi-function analog current input (4 to 20 mA) is enabled.
9	Frequency reference input from option (DeviceNet Communications Unit) is enabled.

Interruption Mode Selection (n005)

Select the stopping method to be used when the STOP command is input.

Value	Description
0	Frequency deceleration stop (Decelerates to stop in preset time.)
1	Free running (Output shut OFF by STOP command.)

Reverse Rotation-prohibit Selection (n006)

Select the operation to be performed when the reverse rotation command is input.

Value	Description
0	Reverse rotation possible (command accepted)
1	Reverse rotation prohibited (command not accepted)

STOP/RESET Key Function Selection (n007)

When parameter n003 is not set to 0, set whether or not to use the STOP/RESET Key of the Digital Operator to stop the Inverter in remote mode. The STOP/RESET Key is always enabled in local mode regardless of the setting in n007.

Value	Description
0	The STOP/RESET Key of the Digital Operator is enabled.
1	The STOP/RESET Key of the Digital Operator is disabled.

Frequency Reference Selection (n008) (Local Mode)

Select the input method of frequency references in local mode.

Value	Description
0	The FREQ adjuster of the Digital Operator is enabled.
1	Key sequences on the Digital Operator are enabled. (Set in n024.)

Key Sequential Frequency Setting (n009)

Select whether to enable the Enter Key when setting the frequency reference with the Increment and Decrement Keys on the Digital Operator.

Value	Description
0	The Enter Key is enabled. (The setting is made valid by pressing the Enter Key.)
1	The Enter Key is disabled. (The setting is directly treated as a frequency reference without the Enter Key being pressed.)

Operation Selection at Digital Operator Interruption (n010)

Select whether or not to detect Digital Operator connection errors.

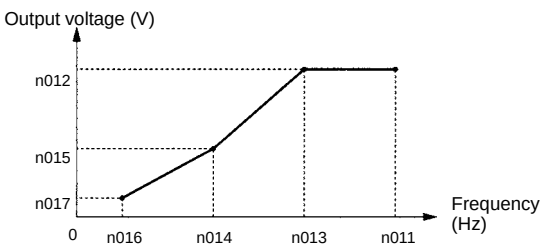
Value	Description
0	The Digital Operator connection error is not detected (Nonfatal error)
1	The Digital Operator connection error is detected (Error output and the Inverter coasts to a stop)

V/f Pattern Settings (n011 to n017)

Used to set the V/f pattern as the basic characteristic of the Inverter.
V/f control mode: set output voltage per frequency
Vector control mode: set for torque adjustment

Value	Name	Setting range	Unit of setting	Default settings
n011	Maximum Frequency (FMAX)	50.0 to 400	0.1 Hz	60.0
n012	Maximum Voltage (VMAX)	0.1 to 255.0 (0.1 to 510.0)	0.1 V	200.0 (400.0)
n013	Maximum Voltage Frequency (FA)	0.2 to 400.0	0.1 Hz	60.0
n014	Middle Output Frequency (FB)	0.1 to 399.9	0.1 Hz	1.5
n015	Middle Output Frequency Voltage (VC)	0.1 to 255.0 (0.1 to 510.0)	0.1 V	12.0 (24.0) (see note 2)
n016	Minimum Output Frequency (FMIN)	0.1 to 10.0	0.1 Hz	1.5
n017	Minimum Output Frequency Voltage (VMIN)	0.1 to 50.0	0.1 V	12.0 (24.0) (see note 2)

Note: 1. () values indicate those for 400-V-class Inverters.
2. The default settings of n015 and n017 are 10.0 V for 200-V-class, 5.5/7.5 Inverters and 20.0 V for 400-V-class, 5.5/7.5 Inverters.



Note: 1. Set the parameters so that the following condition will be satisfied.
$n016 \leqq n014 < n013 \leqq n011$
2. The value set in n015 will be ignored if parameters n014 and n016 are the same in value.

Acceleration/Deceleration Time Setting Unit (n018)

Select the acceleration or deceleration time unit of the Inverter.

Value	Description
0	Less than 1,000 s: 0.1-s increments 1,000 s or over: 1-s increments
1	Less than 100 s: 0.01-s increments 100 s or over: 0.1-s increments

Acceleration/Deceleration Time Settings (n019 to n022)

The acceleration time is the time required to go from 0% to 100% of the maximum frequency and the deceleration time is the time required to go from 100% to 0% of the maximum frequency. The actual acceleration or deceleration time is obtained from the following formula.

Acceleration/Deceleration time =
(Acceleration/Deceleration time set value) × (Frequency reference value) ÷ (Max. frequency)

Value	Name	Setting range	Unit of setting	Default settings
n019	Acceleration time 1	0.0 to 6000	0.1 s (Change in n018.)	10.0
n020	Deceleration Time 1			10.0
n021	Acceleration time 2			10.0
n022	Deceleration Time 2			10.0

S-shape Acceleration/Deceleration Characteristic Selection (n023)

Any one of three S-shape acceleration/deceleration times (0.2, 0.5, and 1.0 s) is selectable.

Value	Description
0	No S-shape acceleration/deceleration characteristic (Trapezoidal acceleration/deceleration)
1	S-shape acceleration/deceleration characteristic time is 0.2 s
2	S-shape acceleration/deceleration characteristic time is 0.5 s
3	S-shape acceleration/deceleration characteristic time is 1.0 s

Note: When the S-shape acceleration/deceleration characteristic time is set, the acceleration and deceleration times will be lengthened according to the S-shape at the beginning and end of acceleration/deceleration.

Function of Each Parameter

Frequency References 1 to 16 and Inching Frequency Command Settings (n024 to n031, n120 to n127 and n032)

Set internal frequency references.

Value	Name	Setting range	Unit of setting	Default settings
n024	Frequency reference 1	0.00 to max. frequency	0.01 Hz (Change in n035.)	6.00
n025	Frequency reference 2			0.00
n026	Frequency reference 3			0.00
n027	Frequency reference 4			0.00
n028	Frequency reference 5			0.00
n029	Frequency reference 6			0.00
n030	Frequency reference 7			0.00
n031	Frequency reference 8			0.00
n120	Frequency reference 9			0.00
n121	Frequency reference 10			0.00
n122	Frequency reference 11			0.00
n123	Frequency reference 12			0.00
n124	Frequency reference 13			0.00
n125	Frequency reference 14			0.00
n126	Frequency reference 15			0.00
n127	Frequency reference 16			0.00
n032	Inching frequency command			6.00

Note: 1. Frequency reference 1 is enabled with n004 for frequency reference selection set to 1. (Remote mode)

2. Frequency references 1 to 16 are enabled by setting multi-step speed references 1, 2, and 3 in n36 to n39 for multi-function input. Refer to the following table for the relationship between multi-step speed references 1 to 3 and frequency references 1 to 8.

Frequency reference	Multi-step speed reference 1	Multi-step speed reference 2	Multi-step speed reference 3	Multi-step speed reference 4
Frequency reference 1	OFF	OFF	OFF	OFF
Frequency reference 2	ON	OFF	OFF	OFF
Frequency reference 3	OFF	ON	OFF	OFF
Frequency reference 4	ON	ON	OFF	OFF
Frequency reference 5	OFF	OFF	ON	OFF
Frequency reference 6	ON	OFF	ON	OFF
Frequency reference 7	OFF	ON	ON	OFF
Frequency reference 8	ON	ON	ON	OFF
Frequency reference 9	OFF	OFF	OFF	ON
Frequency reference 10	ON	OFF	OFF	ON
Frequency reference 11	OFF	ON	OFF	ON
Frequency reference 12	ON	ON	OFF	ON
Frequency reference 13	OFF	OFF	ON	ON
Frequency reference 14	ON	OFF	ON	ON
Frequency reference 15	OFF	ON	ON	ON
Frequency reference 16	ON	ON	ON	ON

Note: 1. "ON" and "OFF" represent "input ON" and "input OFF," respectively.

2. Inching frequency commands take precedence over multi-step speed references.

Frequency Reference Upper and Lower Limit Settings (n033 and n034)

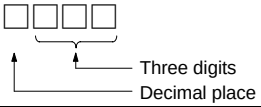
Set the upper and lower frequency reference limits in percentage based on the maximum frequency as 100%.

Value	Name	Setting range	Unit of setting	Default settings
n33	Frequency Reference Upper Limit	0 to 110	1%	100
n34	Frequency Reference Lower Limit	0 to 110	1%	0

Note: If n034 is set to a value less than the minimum output frequency (FMIN) (n016), the Inverter will have no output when a frequency reference less than the minimum output frequency input is ON.

Frequency Reference Setting/Display Unit Selection (n035)

Set the unit of frequency reference and frequency-related values to be set or monitored in n035 through the Digital Operator.

Value	Description
0	0.01 Hz increments
1	0.1% increments
2 to 39	1-rpm increments
40 to 3,999	Unit setting: The value to be set or monitored at max. frequency 

Note: The unit of setting of each parameter and monitor item below varies with the decimal place.

Parameters: n024 to n032, n120 to n127
Monitor Items: U-01, U-02

Rated Motor Current Setting (n036)

Set the rated motor current as the reference value for motor overload detection (OL1).

Note: 1. In vector control mode, this parameter is used as a constant for vector control operation.

2. Setting 0.0 disables the motor overload detection (OL1) function.

3. The rated motor current value is factory-set for each Inverter according to the maximum applicable motor capacity.

Value	Name	Setting range	Unit of setting	Default settings
n036	Rated Motor Current	0.0% to 150% (A) of rated output current of Inverter	0.1 A	Varies with the capacity.

Motor Protection Characteristic Selection (n037)

Set the motor overload detection (OL1) for the electronic thermal characteristics of the motor.

Value	Description
0	Protection characteristics for general-purpose induction motors
1	Protection characteristics for Inverter-dedicated motors
2	No protection

Note: When connecting multiple motors to one Inverter, set 2 (equivalent to n036 = 0.0). In addition, take overload prevention measures by mounting a thermal relay in each motor, for example.

Motor Protective Time Setting (n038)

Set the electronic thermal characteristics of the motor to be connected in 1-minute increments.

Value	Name	Setting range	Unit of setting	Default settings
n038	Motor Protective Time Setting	1 to 60	1 min	8

Note:
1. The default setting does not need any changes in normal operation.
2. To set the parameter according to the characteristics of the motor, confirm the thermal time constant with the motor manufacturer and set the parameter with some margin. In other words, set the value a little shorter than the thermal time constant.
3. To detect motor overloading more quickly, reduce the set value, provided that it does not cause any application problems.

Cooling Fan Operation Function Selection (n039)

This parameter is used to operate the cooling fan of the Inverter while the Inverter is turned on or only while the Inverter is in operation.

Value	Description
0	The fan rotates only while the RUN command is input and for 1 minute after the Inverter stops operating.
1	The fan rotates while the Inverter is turned ON.

Note:
1. This parameter is available only if the Inverter incorporates a cooling fan.
2. If the operation frequency of the Inverter is low, the life of the fan can be prolonged by setting the parameter to 0.

Multi-function Input Selection (n050 to n056)

Select the functions of multi-function input terminals S1 to S7.

Value	Name	Setting range	Unit of setting	Default settings
n050	Multi-function Input 1 (S1)	1 to 26	1	1
n051	Multi-function Input 2 (S2)	1 to 26	1	2
n052	Multi-function Input 3 (S3)	0 to 26	1	3
n053	Multi-function Input 4 (S4)	1 to 26	1	5
n054	Multi-function Input 5 (S5)	1 to 26	1	6
n055	Multi-function Input 6 (S6)	1 to 26	1	7
n056	Multi-function Input 7 (S7)	1 to 26, 34, 35	1	10

Value	Function	Description
0	Forward/Reverse rotation command	3-wire sequence (to be set in n052 only) This setting overrides the settings in n050 and n051. S1: RUN input (RUN when ON) S2: STOP input (STOP when OFF) S3: Forward/Reverse rotation command (ON: Reverse)
1	Forward/Stop	Forward rotation command in 2-wire sequence
2	Reverse/Stop	Reverse rotation command (2-wire sequence) (ON: Reverse)
3	External fault (NO)	ON: External fault
4	External fault (NC)	OFF: External fault
5	Fault reset	ON: Fault reset
6	Multi-step speed reference 1	Signals to select frequency references 2 to 16.
7	Multi-step speed reference 2	
8	Multi-step speed reference 3	
9	Multi-step speed reference 4	
10	Inching frequency command	ON: Inching frequency command
11	Acceleration/ Deceleration time selection	ON: Acceleration/deceleration time 2
12	External base block command (NO)	ON: Output shut OFF
13	External base block command (NC)	OFF: Output shut OFF
14	Search command (Searching starts from maximum frequency)	ON: Speed search (Searching starts from n09)
15	Search command (Searching starts from preset frequency)	ON: Speed search (Searching starts from the frequency specified by n03.)
16	Acceleration/ Deceleration-prohibit command	ON: Acceleration/Deceleration is on hold
17	Local or remote selection	ON: Local mode (operated with the Digital Operator)
18	Communications/Remote selection	ON: Communications input is enabled.

19	Emergency stop fault (NO)	The Inverter stops according to the setting in n005 for interruption mode selection when the emergency stop input turns ON. **Note** NO: Emergency stop with the contact closed. NC: Emergency stop with the contact opened. **Note** Fault: Fault output is ON and reset with RESET input. Alarm output is ON (no reset required). **Note** "STP" is displayed (lit with fault input ON and flashes with alarm input ON)
20	Emergency stop alarm (NO)	
21	Emergency stop fault (NC)	
22	Emergency stop alarm (NC)	
23	PID control cancel	ON: PID control is disabled.
24	PID control integral reset	ON: Integral value is reset (cleared).
25	PID control integral hold	ON: Integral value is kept on hold (fixed).
26 (see note)	Inverter overheating warning OH3	ON: "OH3" displayed at the Digital Operator and Inverter overheating warning output turns ON (multi-function output). **Note** Operation is continued during input. When the input is turned OFF, the message is displayed and the output unlocked. **Note** Used, for example, when displaying the input status of an external thermal relay.
34	Up or down command	Up or down command (set in n056 only) This setting overrides the n055 setting. S6: Up command S7: Down command
35	Self-diagnostic test	ON: RS-422/485 communications self-diagnostic test (set in n056 only)

Note: The inverter overheating warning is available only with 5.5/7.5-kW Inverters.

Multi-function Output Selection (n057 to n059)

Select the functions of multi-function output terminals.

Value	Name	Setting range	Unit of setting	Default settings
n057	Multi-function Output 1 (MA/MB and MC)	0 to 7, 10 to 21	1	0
n058	Multi-function Output 2 (P1-PC)	0 to 7, 10 to 21	1	1
n059	Multi-function Output 3 (P2-PC)	0 to 7, 10 to 21	1	2

Value	Function	Description
0	Fault output	ON: Fault output
1	Operation in progress	ON: Operation in progress
2	Frequency detection	ON: Frequency detection
3	Idling	ON: Idling
4	Frequency detection 1	ON: Output frequency ≧ frequency detection level (n095)
5	Frequency detection 2	ON: Output frequency ≦ frequency detection level (n095)
6	Overtorque being monitored (NO-contact output)	Output if any of the following parameter conditions is satisfied. • Overtorque detection function selection 1 (n096) • Overtorque detection function selection 2 (n097) • Overtorque detection level (n098) • Overtorque detection time (n099) **Note** NO contact: ON with overtorque being detected; NC contact: OFF with overtorque being detected
7	Overtorque being monitored (NC-contact output)	
10	Alarm output	ON: Alarm being detected (Nonfatal error)
11	Base block in progress	ON: Base block in progress
12	RUN mode	ON: Local mode
13	Inverter ready	ON: Inverter ready to operate
14	Fault retry	ON: Fault retry
15	UV in progress	ON: Undervoltage being monitored (main circuit undervoltage UV or UV1 detected)
16	Rotating in reverse direction	ON: Rotating in reverse direction
17	Speed search in progress	ON: Speed search in progress
18	Communications output	Turns communications output 1 ON.
19	PID feedback loss	ON: PID feedback being lost
20 (see note 2)	Frequency reference loss	ON: Frequency reference being lost (Used when frequency reference loss processing selection (n064) is enabled and analog input or pulse train input is set with frequency reference selection (n004).)
21 (see note 2)	Inverter overheating warning OH3	ON: Inverter overheating warning (ON while the multi-function input Inverter overheating warning signal is input (OH3 flashes).)

Note: 1. Use the operation in progress setting (set value: 1) or the idling setting (set value: 3) to control the timing at which the motor is dampened by its brake. To set the stop timing with precision, set the frequency detection 1 or 2 setting (set values: 4 or 5), and use the frequency detection level (n095).

2. Frequency reference loss and Inverter overheating warning OH3 settings are available only with 5.5/7.5-kW Inverters.

Gain and Bias Settings (n060 and n061)

Set the input characteristics of analog frequency references in n41 (for the frequency reference gain) and n42 (for the frequency reference bias).

Set the frequency of maximum analog input (10 V or 20 mA) in n41 as percentage based on the maximum frequency as 100%.

Set the frequency of minimum analog input (0 V, 0 mA, or 4 mA) in n42 as percentage based on the maximum frequency as 100%.

Value	Name	Setting range	Unit of setting	Default settings
n060	Frequency Reference Gain	0 to 255	1%	100
n061	Frequency Reference Bias	–99 to 99	1%	0

Analog Frequency Reference Filter Time Setting (n062)

The digital filter with a first-order lag can be set for analog frequency references to be input.

Value	Name	Setting range	Unit of setting	Default settings
n062	Analog Frequency Reference Filter Time	0.00 to 2.00	0.01 s	0.10

Multi-function Analog Output Type Selection (n065)

Select the multi-function analog output type.

Value	Description
0	Analog voltage output (functions set in n066)
1	Pulse train output (functions set in n150)

Multi-function Analog Output Selection (n066)

Select the monitor item with n065 set to 0.

Value	Description
0	Output frequency (with 10-V output at max. frequency)
1	Output current (with 10-V output with Inverter rated output current) (see note 3)
2	Main-circuit DC voltage (with 10-V output at 400 [800] V DC)
3	Vector operation torque monitor (Reference: 10-V output at rated motor torque)
4	Output power (with 10-V output at power equivalent to max. applicable motor capacity)
5	Output voltage (with 10-V output at 200 [400] V AC)

Note: 1. Values in ( ) apply with n067 set to 1.00.
2. Values in [ ] are for 400-V models.
3. Output current is not available in vector control mode.

Multi-function Analog Output Gain Setting (n067)

Set the output characteristics of multi-function analog output.

Value	Name	Setting range	Unit of setting	Default settings
n067	Multi-function Analog Output Gain	0.00 to 2.00	0.01	1.00

Gain and Bias Settings of Multi-function Analog Voltage Input (n068 and n069)

Set the input characteristics of multi-function analog voltage input.

Gain: Set the frequency of maximum analog input (10 V) in percentage based on the maximum frequency as 100%.

Bias: Set the frequency of minimum analog input (0 V) in percentage based on the maximum frequency as 100%.

Value	Name	Setting range	Unit of setting	Default settings
n068	Multi-function Analog Voltage Input Gain	–255 to 255	1%	100
n069	Multi-function Analog Voltage Input Bias	–100 to 100	1%	0

Filter Time Constant Settings of Multi-function Analog Voltage Input (n070)

Use this parameter to set a primary-delay digital filter for multi-function analog voltage input.

Value	Name	Setting range	Unit of setting	Default settings
n070	Multi-function Analog Voltage Input Filter Time Constant	0.00 to 2.00	0.01 s	0.10

Gain and Bias Settings of Multi-function Analog Current Input (n071 and n072)

Set the input characteristics of multi-function analog current input.

Gain: Set the frequency of maximum analog input (20 mA) in percentage based on the maximum frequency as 100%.

Bias: Set the frequency of minimum analog input (0 V) in percentage based on the maximum frequency as 100%.

Value	Name	Setting range	Unit of setting	Default settings
n071	Multi-function Analog Current Input Gain	–255 to 255	1%	100
n072	Multi-function Analog Current Input Bias	–100 to 100	1%	0

Function of Each Parameter

Filter Time Constant Settings of Multi-function Analog Current Input (n073)

Use this parameter to set a primary-delay digital filter for multi-function analog current input.

Value	Name	Setting range	Unit of setting	Default settings
n073	Multi-function Analog Current Input Filter Time Constant	0.00 to 2.00	0.01 s	0.10

Frequency Reference Settings by Pulse Train Input (n074, n075 and n149)

Set the input characteristics of pulse train input.

Gain: Set the gain in percentage based on the maximum frequency of the pulse train input scale in n149 as 100%.

Bias: Set the bias in percentage for frequency reference input at 0-Hz pulse train input based on the maximum frequency as 100%.

Value	Name	Setting range	Unit of setting	Default settings
n074	Pulse Train Frequency Reference Gain	–255 to 255	1%	100
n075	Pulse Train Frequency Reference Bias	–100 to 100	1%	0
n149	Pulse Train Input Scale	100 to 3300	1 (10 Hz)	2500

Note: These settings are enabled when n004 (frequency reference selection) is set to 5 (pulse train command control input enabled).

Carrier Frequency Selection (n080)

Set the carrier frequency.

Value	Description
1	2.5 kHz
2	5.0 kHz
3	7.5 kHz
4	10.0 kHz
7	2.5 kHz (12×): 12 times as high as output frequency (between 1.0 and 2.5 kHz)
8	2.5 kHz (24×): 24 times as high as output frequency (between 1.0 and 2.5 kHz)
9	2.5 kHz (36×): 36 times as high as output frequency (between 1.0 and 2.5 kHz)

Note: Normally, the factory setting need not be changed.

Momentary Power Interruption Compensation Setting (n081)

The parameter specifies the processing that will be performed when a momentary power interruption occurs.

Value	Description
0	Disabled.
1	The Inverter will continue operating if power is restored within 0.5 s.
2	The Inverter will restart when power is restored.

Fault Retry Setting (n082)

Set the number of times the Inverter is to be automatically reset and restarted when the Inverter has an overvoltage fault, overcurrent fault, or ground fault.

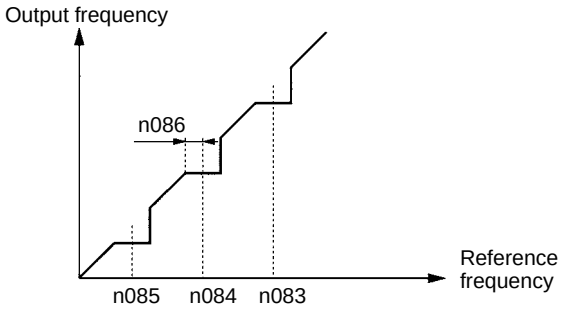
Value	Name	Setting range	Unit of setting	Default settings
n082	Fault Retry	0 to 10	1	0

Frequency Jump Function Setting (n083 to n086)

Set the frequency jump function.

Value	Name	Setting range	Unit of setting	Default settings
n083	Jump Frequency 1	0.0 to 400	0.1 Hz	0.0
n084	Jump Frequency 2	0.0 to 400	0.1 Hz	0.0
n085	Jump Frequency 3	0.0 to 400	0.1 Hz	0.0
n086	Jump Width	0.0 to 25.5	0.1 Hz	0.0

Note: These values must satisfy the following condition.
n083 ≧ n084 ≧ n085

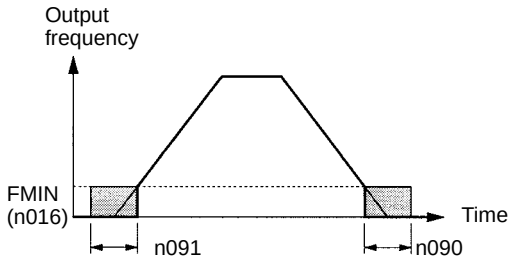


DC Control Function Setting (n089 to n091)

Used to impose DC on the induction motor for braking control.

Value	Name	Setting range	Unit of setting	Default settings
n089	DC Control Current	0 to 100	1%	50
n090	Interruption DC Control Time	0.0 to 25.5	0.1 s	0.5
n091	Startup DC Control Time	0.0 to 25.5	0.1 s	0.0

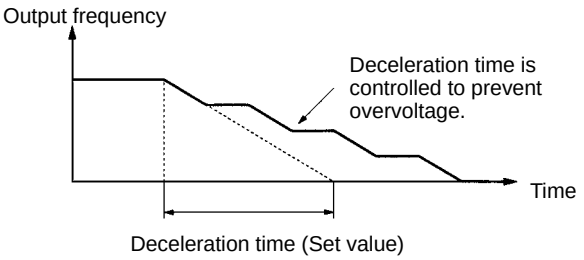
DC Control Current:
Set this value in percentage based on the rated output current of the Inverter as 100%.



Stall Prevention Selection during Deceleration (n092)

Select a function to change the deceleration time of the motor automatically so that there will be no overvoltage imposed on the motor during deceleration.

Value	Description
0	Stall prevention during deceleration
1	No stall prevention during deceleration



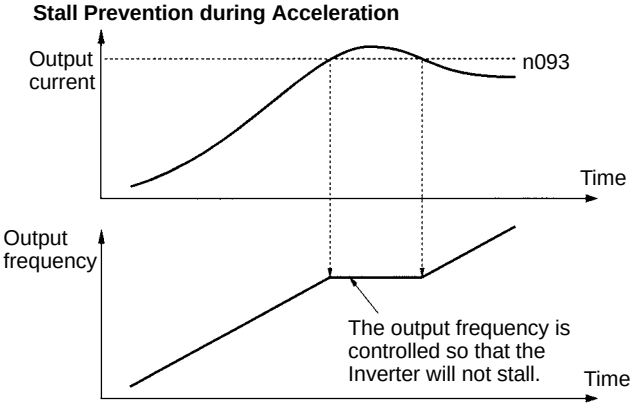
Note: Be sure to set the parameter to 1 when the Braking Resistor Unit or a braking resistor is used as an option.

Stall Prevention Level Setting during Acceleration (n093)

Set the operation level of a function to stop the acceleration of the motor automatically for stall prevention during acceleration. Set this value in percentage based on the rated output current of the Inverter as 100%.

Value	Name	Setting range	Unit of setting	Default settings
n093	Stall Prevention Level during Acceleration	30 to 200	1%	170

Stall Prevention during Acceleration



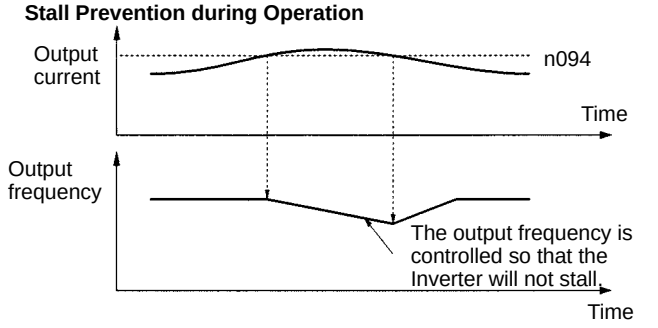
Function of Each Parameter

Stall Prevention Level Setting during Operation (n094)

Set the operation level of a function to reduce the output frequency of the Inverter automatically for stall prevention during operation. Set this value in percentage based on the rated output current of the Inverter as 100%.

Value	Name	Setting range	Unit of setting	Default settings
n094	Stall Prevention Level during Operation	30 to 200	1%	160

Stall Prevention during Operation



Frequency Detection Level Setting (n095)

Set the frequency to be detected.

Note: When frequency detection 1 and 2 are to be output, n40 (multi-function output) must be set.

Value	Name	Setting range	Unit of setting	Default settings
n095	Frequency Detection Level	0.00 to 400	0.01 Hz	0.00

Overtorque Detection Function Selection (n096 to n099)

Set n096 to enable or disable overtorque detection and select the processing to be performed after overtorque detection.

Value	Description
0	Inverter does not monitor overtorque.
1	Inverter monitors overtorque only when speed is matched. It continues operation (issues warning) even after overtorque is detected.
2	Inverter monitors overtorque only when speed is matched. It discontinues operation (through protective function) when overtorque is detected.
3	Inverter always monitors overtorque during operation. It continues operation (issues warning) even after overtorque is detected.
4	Inverter always monitors overtorque during operation. It discontinues operation (through protective function) when overtorque is detected.

Select the item to detect overtorque in n097.

Value	Description
0	Detects overtorque from output torque.
1	Detects overtorque from output current.

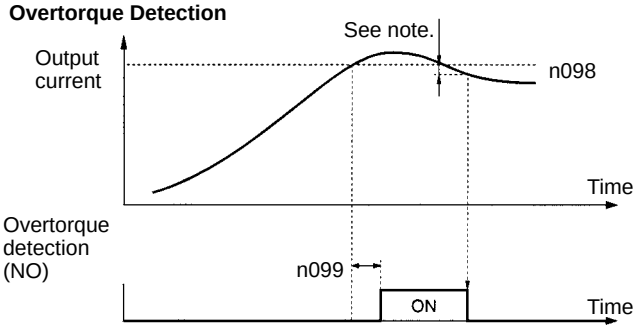
Set the overtorque detection level in n098 and the overtorque detection time in n099.

Value	Name	Setting range	Unit of setting	Default settings
n098	Overtorque Detection Level	30 to 200	1%	160
n099	Overtorque Detection Time	0.1 to 10.0	0.1 s	0.1

Note: 1. In n098, set the detection level for overtorque detection in the following way:
Detection from output torque: Set in percentage based on the rated motor torque as 100%.
Detection from output current: Set in percentage based on the rated Inverter output current as 100%.

2. In n099, set the overtorque detection time in seconds.

Overtorque Detection



Note: Overtorque detection will be canceled if the output current decreases from the detection level by approximately 5% of the Inverter rated current.

UP/DOWN Command Frequency Memory Selection (n100)

Select whether to store the frequency reference adjusted with the UP/DOWN function.

Value	Description
0	The frequency on hold is not retained.
1	The frequency on hold for 5 s or more is retained.

The UP/DOWN function uses UP and DOWN commands to change frequency references.

When using the UP/DOWN function, set multi-function input 7 (n056) to 34 (UP or DOWN command). The terminals for multi-function input 6 (S6) and multi-function input 7 (S7) will be set to function in the following way:

Multiple-function input 6 (S6): UP command
Multiple-function input 7 (S7): DOWN command

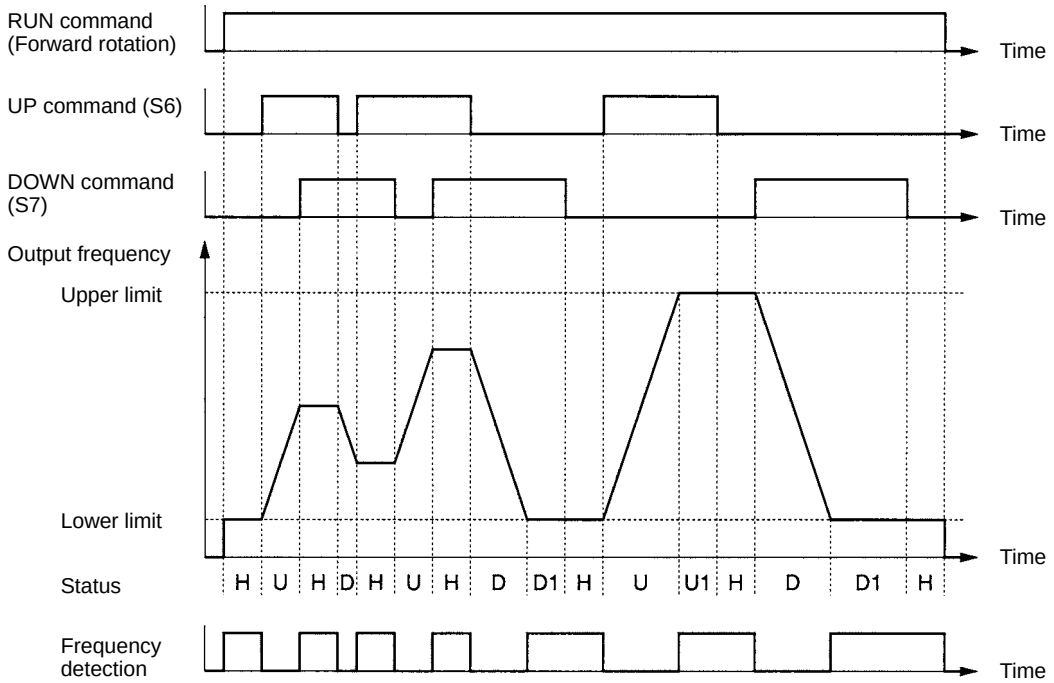
Use n100 (UP/DOWN command frequency memory) to set whether the frequency reference on hold is stored or not when an UP or DOWN command is sent to the multi-function input terminals.

If n100 is set to 1, the output frequency held by the UP/DOWN function for 5 s or more will be stored in the memory. This value will be stored in memory even if power is interrupted. When a RESET command is input, operation will start with this value as the frequency.

If n100 is set to 0, the frequency will be cleared. If parameter initialization is performed (i.e.: n01 is set to 8 or 9), the stored frequency will be initialized.

Note: If the UP/DOWN function is used in remote mode, frequency references can only be given with UP/DOWN commands and inching commands. Multi-step speed references will be invalid.

Operation of UP/DOWN Function



Note: Status
U: UP (acceleration)
D: DOWN (deceleration)
H: Hold
U1: Frequency acceleration restricted by upper limit.
D1: Frequency deceleration restricted by lower limit.

■ Specifications

200-V-class Inverters

3-phase 200-V AC models	Model 3G3MV-		A2001	A2002	A2004	A2007	A2015	A2022	A2037	A2055	A2075
	Power supply	Rated voltage and frequency	3-phase 200 to 230 V AC at 50/60 Hz								
		Allowable voltage fluctuation	–15% to 10%								
		Allowable frequency fluctuation	±5%								
		Power supply capacity (kVA) (see note 1)	0.4	0.9	1.6	2.7	4.3	5.9	9.3	13.3	17.6
	Heat radiation (W) (see note 2)		13.0	18.0	28.1	45.1	72.8	94.8	149.1	249.8	318.1
	Weight (kg)		0.6	0.6	0.9	1.1	1.4	1.5	2.1	4.6	4.8
	Cooling method		Natural cooling			Cooling fan					

Single-phase 200-V AC models	Model 3G3MV-		AB001	AB002	AB004	AB007	AB015	AB022	AB037	---	---
	Power supply	Rated voltage and frequency	Single-phase 200 to 240 V AC at 50/60 Hz								
		Allowable voltage fluctuation	–15% to 10%								
		Allowable frequency fluctuation	±5%								
		Power supply capacity (kVA) (see note 1)	0.5	0.9	1.6	2.7	4.3	5.9	9.3	---	---
	Heat radiation (W) (see note 2)		14.1	20.0	31.9	51.4	82.8	113.6	176.4	---	---
	Weight (kg)		0.6	0.7	1.0	1.5	1.5	2.2	2.9	---	---
	Cooling method		Natural cooling				Cooling fan				

Note: 1. The power supply capacity, is the capacity when the Inverter is operating at its rated output. The value will vary with the impedance at the input power supply side. (Because the power factor of the input power supply changes, the power factor will improve if an AC reactor is inserted.) The ratio with the rated current of the motor used and the rated output current of the Inverter will vary.

2. The “heat radiation” is the power consumed in the Inverter when it is operating at its rated output.

Max. applicable motor capacity (kW)		0.1	0.2	0.4	0.75	1.5	2.2	3.7	5.5	7.5
Output specifications	Rated output capacity (kVA)	0.3	0.6	1.1	1.9	3.0	4.2	6.7	9.5	13.0
	Rated output current (A)	0.8	1.6	3.0	5.0	8.0	11.0	17.5	25.0	33.0
	Rated output voltage (V)	3-phase 200 to 240 V AC (according to the input voltage)								
	Max. output frequency	400 Hz parameter setting								
Control characteristics	Harmonic-current countermeasures	DC reactor (option) connection possible								
	Control method	Sine wave PWM (V/f control or vector control)								
	Carrier frequency	2.5 to 10.0 kHz (in vector control)								
	Frequency control range	0.1 to 400 Hz								
	Frequency precision (temperature characteristics)	Digital commands: ±0.01% (–10°C to 50°C) Analog commands: ±0.5% (25°C ± 10°C)								
	Frequency setting resolution	Digital commands: 0.01 Hz (less than 100 Hz) and 0.1 Hz (100 Hz or over) Analog commands: 0.06 Hz/60 Hz (equivalent to 1/1000)								
	Output frequency resolution	0.01 Hz								
	Overload capacity	150% of rated output current for 1 min								
	External frequency set signal	Selectable with FREQ adjuster: 0 to 10 V DC (20 kΩ), 4 to 20 mA (250 Ω), and 0 to 20 mA (250 Ω)								
	Acceleration/deceleration time	0.0 to 6,000 s (Independent acceleration and deceleration time settings: 2 types)								
	Braking torque	Approx. 20% (125 to 150% possible with braking resistor)								
	Voltage/frequency characteristics	Set voltage vector control/user V/f pattern								
Protective functions	Motor protection	Protection by electronic thermal								
	Instantaneous overcurrent protection	Stops at approx. 250% of rated output current								
	Overload protection	Stops in 1 min at approximately 150% of rated output current								
	Overvoltage protection	Stops when main-circuit DC voltage is approximately 410 V								
	Undervoltage protection	Stops when main-circuit DC voltage is approximately 200 V (160 V for single-phase 200-V AC model)								
	Momentary power interruption compensation (selection)	Stops for 15 ms or more. By setting the Inverter to momentary power interruption mode, operation can be continued if power is restored within approximately 0.5 s.								
	Cooling fin overheating	Detects at 110°C ± 10°C								
	Grounding protection	Protection at rated output current level								
	Charge indicator (RUN indicator)	Lit when the main circuit DC voltage is approximately 50 V or less.								

Environment	**Location**	Indoors (with no corrosive gas, oil spray, or metallic dust)	
	Ambient temperature	Operating: –10°C to 50°C	Closed wall-mounting type: –10 to +40°C Panel-mounting type: –10 to +50°C
	Ambient humidity	Operating: 95% max. (with no condensation)	
	Ambient temperature	–20°C to 60°C	
	Altitude	1,000 m max.	
	Insulation resistance	5 MΩ min. (Do not carry out any insulation resistance or withstand voltage tests)	
	Vibration resistance	9.8 m/s^2 max. between 10 to 20 Hz 2.0 m/s^2 max. between 20 and 50 Hz	
Degree of protection		Panel-mounting models: Conforms to IP20	Closed wall-mounting type: NEMA1 (IP20) Panel-mounting type: (IP00) (see note)

Note: The 5.5/7.5-kW Inverters are closed wall-mounting with NEMA1 degree of protection (equivalent to IP20). Remove the upper and lower covers to use as a panel-mounting type (degree of protection: IP00).

Specifications

400-V-class Inverters

3-phase 400-V AC models	**Model 3G3MV-**		**A4002**	**A4004**	**A4007**	**A4015**	**A4022**	**A4037**	**A4055**	**A4075**
	Power supply	**Rated voltage and frequency**	3-phase 380 to 460 V AC at 50/60 Hz							
		Allowable voltage fluctuation	–15% to 10%							
		Allowable frequency fluctuation	±5%							
		Power supply capacity (see note 1)	1.3	1.9	3.6	5.1	5.9	9.1	15.8	19.2
	Heat radiation (W) (see note 2)		23.1	30.1	54.9	75.3	83.0	117.9	256.5	308.9
	Weight (kg)		1.0	1.1	1.5	1.5	1.5	2.1	4.8	4.8
	Cooling method		Natural cooling			Cooling fan				

Note: 1. The power supply capacity, is the capacity when the Inverter is operating at its rated output. The value will vary with the impedance at the input power supply side. (Because the power factor of the input power supply changes, the power factor will improve if an AC reactor is inserted.) The ratio with the rated current of the motor used and the rated output current of the Inverter will vary.

2. The “heat radiation” is the power consumed in the Inverter when it is operating at its rated output.

Max. applicable motor capacity (kW)		0.2	0.4	0.75	1.5	2.2	3.7	5.5	7.5
Output specifications	**Rated output capacity (kVA)**	0.9	1.4	2.6	3.7	4.2	6.6	11.0	14.0
	Rated output current (A)	1.2	1.8	3.4	4.8	5.5	8.6	14.8	18.0
	Rated output voltage (V)	3-phase 380 to 460 V AC (according to the input voltage)							
	Max. output frequency	400 Hz parameter setting							
Control characteristics	**Harmonic-current countermeasures**	DC reactor (option) connection possible							
	Control method	Sine wave PWM (V/f control or vector control)							
	Carrier frequency	2.5 to 10.0 kHz (step switching)							
	Frequency control range	0.1 to 400 Hz							
	Frequency precision (temperature characteristics)	Digital commands: ±0.01% (–10°C to 50°C) Analog commands: ±0.5% (25°C ± 10°C)							
	Frequency setting resolution	Digital commands: 0.01 Hz (less than 100 Hz) and 0.1 Hz (100 Hz or over) Analog commands: 0.06 Hz/60 Hz (equivalent to 1/1000)							
	Output frequency resolution	0.01 Hz							
	Overload capacity	150% of rated output current for 1 min							
	External frequency set signal	Selectable with FREQ adjuster: 0 to 10 V DC (20 kΩ), 4 to 20 mA (250 Ω), and 0 to 20 mA (250 Ω)							
	Acceleration/deceleration time	0.01 to 6,000 s (Independent acceleration and deceleration time settings)							
	Braking torque	Approx. 20% (125 to 150% possible with braking resistor: 2 types)							
	Voltage/frequency characteristics	Set voltage vector control/user V/f pattern							
Protective functions	**Motor protection**	Protection by electronic thermal							
	Instantaneous overcurrent protection	Stops at approx. 250% of rated output current							
	Overload protection	Stops in 1 min at approximately 150% of rated output current							
	Overvoltage protection	Stops when main-circuit DC voltage is approximately 820 V							
	Undervoltage protection	Stops when main-circuit DC voltage is approximately 400 V							
	Momentary power interruption compensation (selection)	Stops for 15 ms or more. By setting the Inverter to momentary power interruption mode, operation can be continued if power is restored within approximately 0.5 s.							
	Cooling fin overheating	Detects at 110°C ± 10°C							
	Grounding protection	Protection at overcurrent detection level							
	Charge indicator (RUN indicator)	Lit until the main circuit DC voltage drops to 50 V or less.							

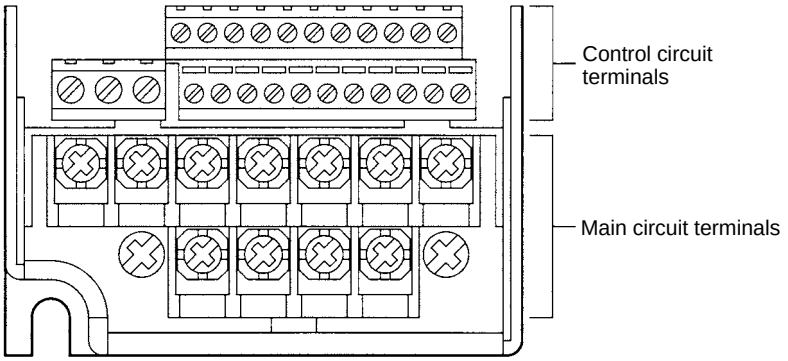
Environment	**Location**	Indoors (with no corrosive gas, oil spray, or metallic dust)	
	Ambient temperature	Operating: –10°C to 50°C	Closed wall-mounting type: –10 to +40°C Panel-mounting type: –10 to +50°C
	Ambient humidity	Operating: 95% max. (with no condensation)	
	Ambient temperature	–20°C to 60°C	
	Altitude	1,000 m max.	
	Insulation resistance	5 MΩ min. (Do not carry out any insulation resistance or withstand voltage tests)	
	Vibration resistance	9.8 m/s^2 max. between 10 to 20 Hz 2.0 m/s^2 max. between 20 and 50 Hz	
Degree of protection		Panel-mounting models: Conforms to IP20	Closed wall-mounting type: NEMA1 (IP20) Panel-mounting type: (IP00) (see note)

Note: The 5.5/7.5-kW Inverters are closed wall-mounting with NEMA1 degree of protection of (equivalent to IP20). Remove the upper and lower covers to use as a panel-mounting type (degree of protection: IP00).

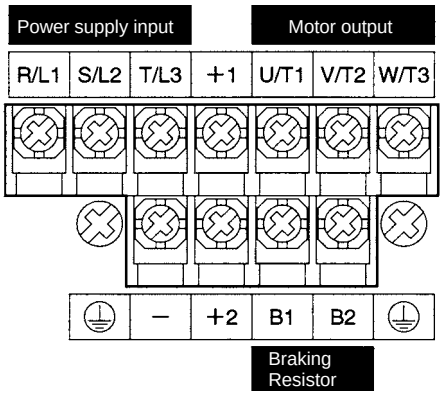
Specifications

■ Terminal Block

Position of Terminal Block



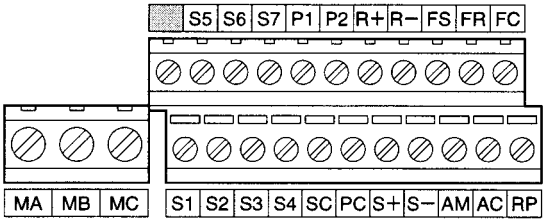
Arrangement of Main Circuit Terminals

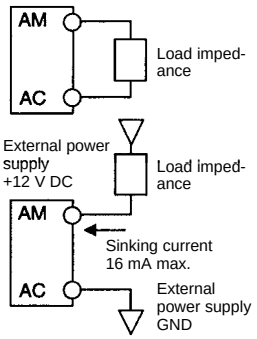


Symbol	Name	Description
R/L1 S/L2 T/L3	Power supply input terminals	3G3MV-A2□: 3-phase 200 to 230 V AC 3G3MV-AB□: Single-phase 200 to 240 V AC (see note 1) 3G3MV-A4□: 3-phase 380 to 460 V AC
U/T1 V/T2 W/T3	Motor output terminals	3-phase power supply output for driving motors. (see note 2) 3G3MV-A2□: 3-phase 200 to 230 V AC 3G3MV-AB□: 3-phase 200 to 240 V AC 3G3MV-A4□: 3-phase 380 to 460 V AC
B1 B2	Braking Resistor connection terminals	Terminals for attaching an external Braking Resistor or a Braking Resistor Unit. (Connect to detect overvoltage during braking.)
+1 +2 –	Connection terminals +1 and +2: DC reactor connection terminals +1 and –: DC power supply input terminals	Connect the DC reactor for suppressing harmonics to terminals +1 and +2. When driving the Inverter with DC power, input the DC power to terminals +1 and –. (Terminal +1 is a positive terminal.)
⏚	Ground terminal	Be sure to ground the terminal under the following conditions. 3G3MV-A2□: Ground at a resistance of 100 Ω or less. 3G3MV-AB□: Ground at a resistance of 100 Ω or less. 3G3MV-A4□: Ground at a resistance of 10 Ω or less. To conform to EC Directives, connect to the neutral point of the power supply. **Note** Be sure to connect the ground terminal directly to the motor frame ground.

Note: 1. Connect single-phase input to both the R/L1 terminal and the S/L2 terminal.
2. The maximum voltage at the output side corresponds to the power supply voltage for Inverter input.

Arrangement of Control Circuit Terminals



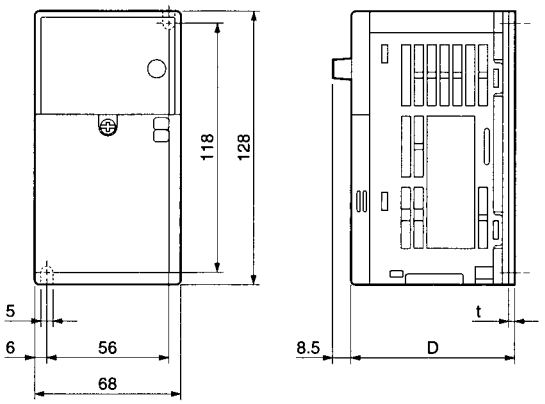
Symbol		Name	Specification
Input	S1	Multi-function input 1 (Forward/Stop)	Photocoupler 8 mA at 24 V DC (see note)
	S2	Multi-function input 2 (Reverse/Stop)	
	S3	Multi-function input 3 (External fault: Normally open)	
	S4	Multi-function input 4 (Fault reset)	
	S5	Multi-function input 5 (Multi-step speed reference 1)	
	S6	Multi-function input 6 (Multi-step speed reference 2)	
	S7	Multi-function input 7 (Inching frequency command)	
	SC	Sequence input common	
	FS	Frequency reference power supply output	20 mA at 12 V DC
	FR	Frequency reference input	0 to 10 V DC (Input impedance: 20 kΩ)
	FC	Frequency reference common	
	RP	Pulse train input	Response frequency: 0 to 33 kHz (30% to 70% ED) H: 3.5 to 13.2 V L: 0.8 V max. (Input impedance: 2.24 kΩ) **Note:** If 3G3MV-series multi-function analog output is used for pulse train output, it can be connected directly to pulse train input.
Output	MA	Multi-function contact output (Normally open: Fault)	Relay output 1 A max. at 30 V DC 1 A max. at 250 V AC
	MB	Multi-function contact output (Normally closed: Fault)	
	MC	Multi-function contact output common	
	P1	Multi-function photocoupler output 1 (During operation)	Open collector output 50 mA max. at 48 V DC
	P2	Multi-function photocoupler output 2 (Frequency detection)	
	PC	Multi-function photocoupler output common	
	AM	Multi-function analog output	**Analog output:** 2 mA max. at 0 to 10 V DC **Pulse train output:** • **Voltage Output** Output voltage (insulated type) / Load impedance +5 V / 1.5 kΩ min. +10 V / 10 kΩ min. • **External Power Supply** External power supply (V) / +12 V DC (±5%) Sinking current / 16 mA max. 
	AC	Multi-function analog output common	**Note:** Do not use a power supply of +5 V DC or +24 V DC. Doing so will damage the internal circuits or cause the circuits to malfunction.
Communications	R+	Receiver side	Conforming to RS-422/485
	R–		
	S+	Sender side	
	S–		

Note: Various functions can be selected for multi-function inputs 1 to 7, multi-function contact outputs, and multi-function photocoupler outputs by changing the parameter settings. The functions indicated in the parentheses are the default function settings.

■ Dimensions

3G3MV-A2001 to 3G3MV-A2007 (0.1 to 0.75 kW)
3-phase 200-V AC Input

3G3MV-AB001 to 3G3MV-AB004 (0.1 to 0.4 kW)
Single-phase 200-V AC Input

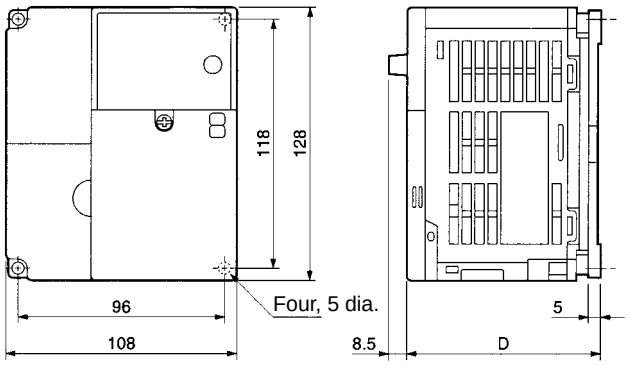


Rated voltage	Model 3G3MV-	Dimensions (mm)		Weight (kg)
		D	t	
3-phase 200 V AC	A2001	76	3	Approx. 0.6
	A2002	76	3	Approx. 0.6
	A2004	108	5	Approx. 0.9
	A2007	128	5	Approx. 1.1
Single-phase 200 V AC	AB001	76	3	Approx. 0.6
	AB002	76	3	Approx. 0.7
	AB004	131	5	Approx. 1.0

3G3MV-A2015 to 3G3MV-A2022 (1.5 to 2.2 kW)
3-phase 200-V AC Input

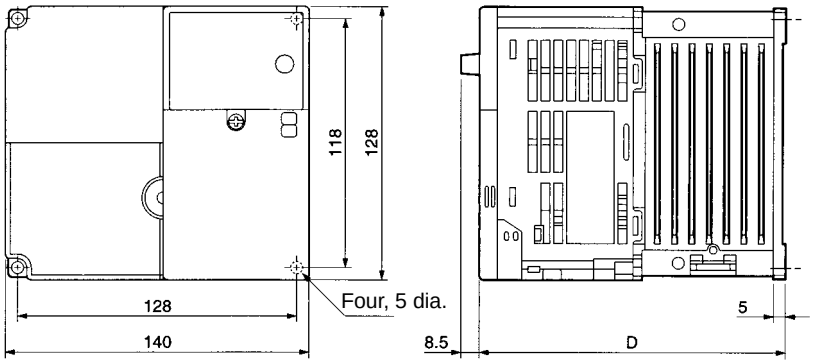
3G3MV-AB007 to 3G3MV-AB015 (0.75 to 1.5 kW)
Single-phase 200-V AC Input

3G3MV-A4002 to 3G3MV-A4022 (0.2 to 2.2 kW)
3-phase 400-V AC Input



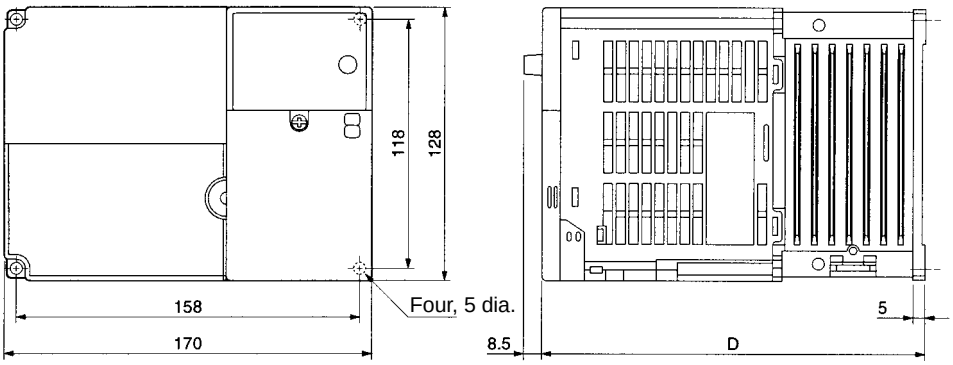
Rated voltage	Model 3G3MV-	Dimensions (mm)	Weight (kg)
		D	
3-phase 200 V AC	A2015	131	Approx. 1.4
	A2022	140	Approx. 1.5
Single-phase 200 V AC	AB007	140	Approx. 1.5
	AB015	156	Approx. 1.5
3-phase 400 V AC	A4002	92	Approx. 1.0
	A4004	110	Approx. 1.1
	A4007	140	Approx. 1.5
	A4015	156	Approx. 1.5
	A4022	156	Approx. 1.5

3G3MV-A2037 (3.7 kW) 3-phase 200-V AC Input
3G3MV-AB022 (2.2 kW) Single-phase 200-V AC Input
3G3MV-A4037 (3.7 kW) 3-phase 400-V AC Input



Rated voltage	Model 3G3MV-	Dimensions (mm)	Weight (kg)
		D	
3-phase 200 V AC	A2037	143	Approx. 2.1
Single-phase 200 V AC	AB022	163	Approx. 2.2
3-phase 400 V AC	A4037	143	Approx. 2.1

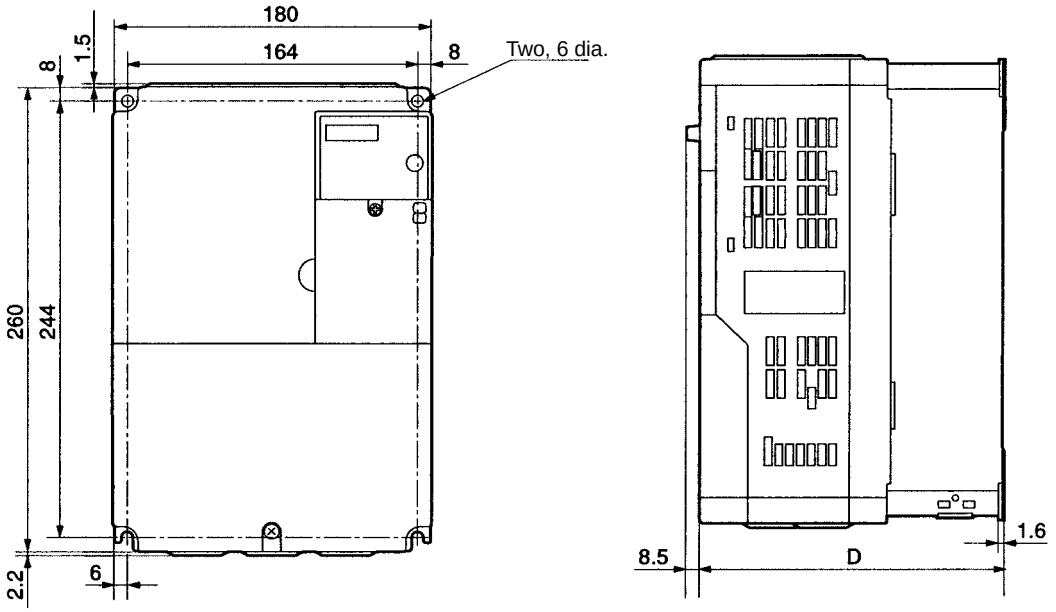
3G3MV-AB037 (3.7 kW) Single-phase 200-V AC Input



Rated voltage	Model 3G3MV-	Dimensions (mm)	Weight (kg)
		D	
Single-phase 200 V AC	AB037	180	Approx. 2.9

Dimensions

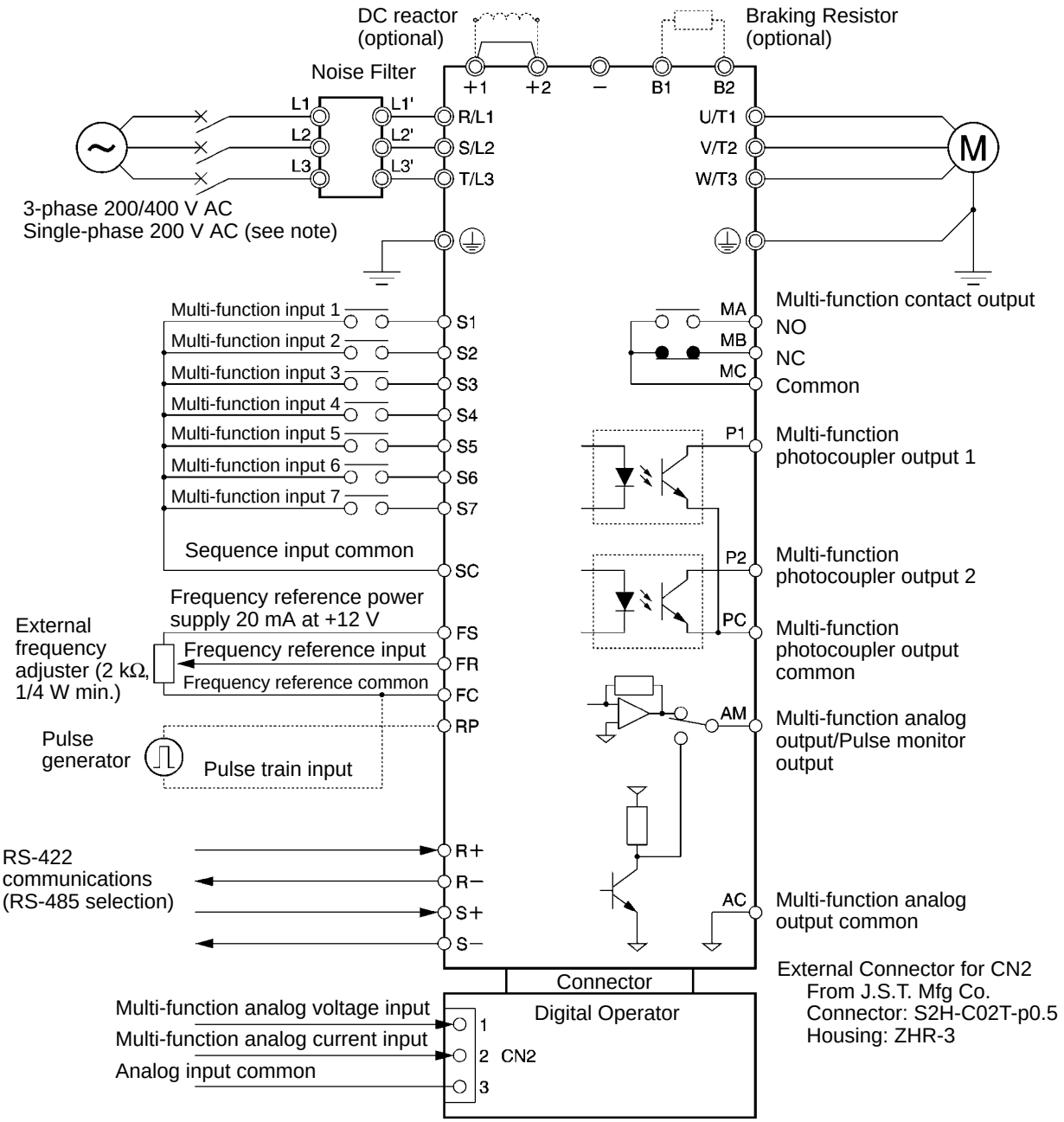
3G3MV-A2055 to A2075 (5.5 to 7.5 kW) 3-phase 200 V AC Input
3G3MV-A4055 to A4075 (5.5 to 7.5 kW) 3-phase 400 V AC Input



Rated voltage	Model 3G3MV-	Dimensions (mm)	Weight (kg)
		D	
3-phase 200 V AC	A2055	170	Approx. 4.6
	A2075	170	Approx. 4.8
3-phase 400 V AC	A4055	170	Approx. 4.8
	A4075	170	Approx. 4.8

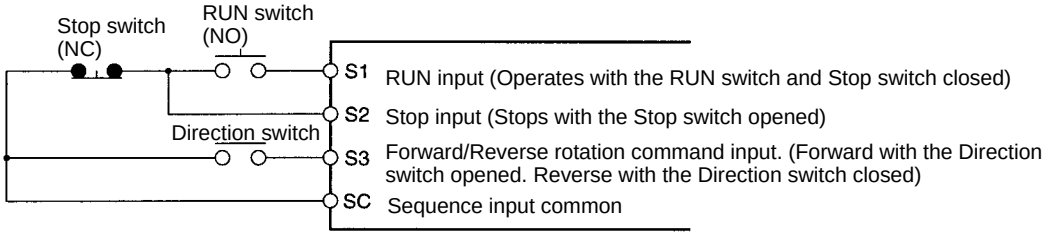
Standard Connections

■ Standard Connections



Note: Connect single-phase 200 V AC to terminals R/L1 and S/L2 of the 3G3MV-AB□.

Three-wire Sequence Wiring Example

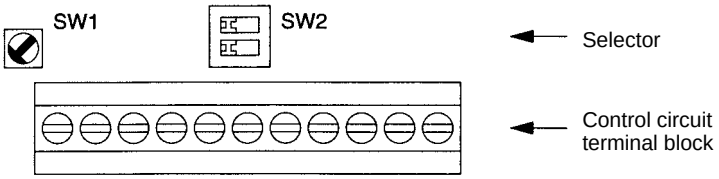


Note: Set parameter 052 to forward/reverse rotation command 0 for 3-wire sequence input.

Standard Connections

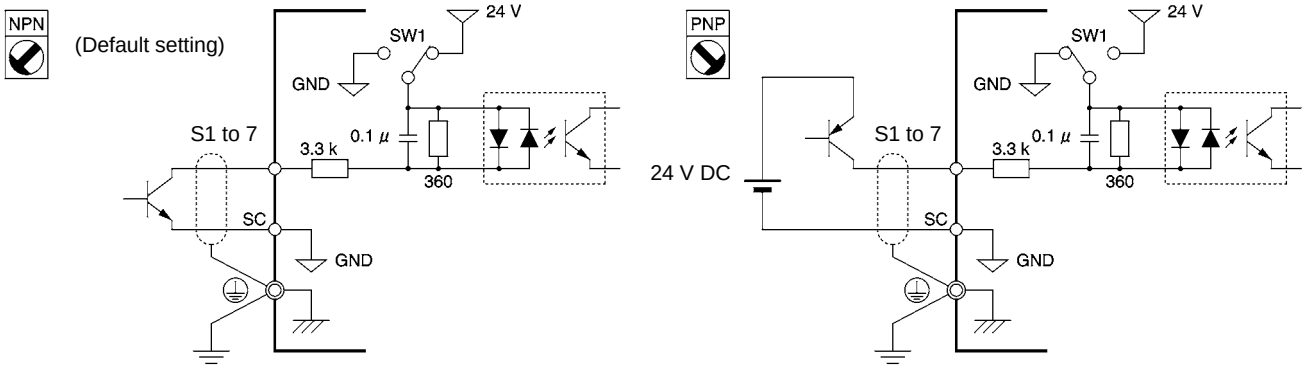
Selecting Input Method

Switches SW1 and SW2, both of which are located above the control circuit terminals, are used for input method selection.



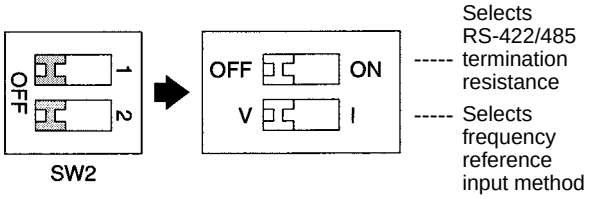
Selecting Sequence Input Method

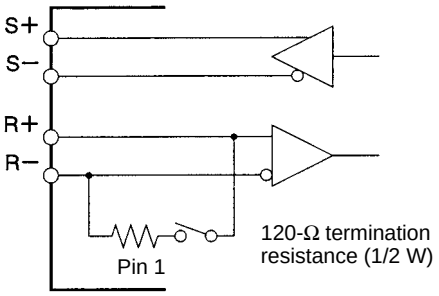
By using SW1, NPN or PNP input can be selected as shown below.



Selecting RS-422/485 Termination Resistance

Termination resistance can be selected by setting pin 1 of the SW2 to ON. The default setting for the pin is OFF.





Communications method	Pin 1 setting
RS-422	Set to ON
RS-485	Set to ON only if the Unit is the end Slave.

Selecting Frequency Reference Input Method

By using pin 2 of SW2, voltage input or current input can be selected as the input method for frequency reference. The default setting is for voltage input.

Parameter settings are required together with the selection of the frequency reference input method.

Frequency reference input method	Pin 2 setting	Frequency reference selection (parameter n004)
Voltage input	V (OFF)	Set value 2
Current input	I (ON)	Set value 3 or 4

Note: Do not set pin 2 to ON for current input while voltage is being input, otherwise the resistor in the input circuit may burn out.

Protective and Diagnostic Functions

■ Protective and Diagnostic Functions

Fault Detection (Fatal Errors)

The Inverter will detect the following faults if the Inverter or motor burns or the internal circuitry of the Inverter malfunctions. When the Inverter detects a fault, the fault code will be displayed on the Digital Operator, the fault contact output will operate, and the Inverter output will be shut off causing the motor to coast to a stop. The stopping method can be selected for some faults, and the selected stopping method will be used with these faults. If a fault has occurred, refer to the following table to identify and correct the cause of the fault. Use one of the following methods to reset the fault after restarting the Inverter. If the operation command is being input, however, the reset signal will be ignored. Therefore, be sure to reset the fault with the operation command turned OFF.

- Turn ON the fault reset signal. A multi-function input (n36 to n39) must be set to 5 (Fault Reset).
- Press the STOP/RESET Key on the Digital Operator.
- Turn the main circuit power supply OFF and then ON again.

Fault Displays and Processing

Fault display	Fault name and meaning	Probable cause and remedy
oC	**Overcurrent (OC)** The Inverter output current is as high as or higher than 200% of the rated output current.	• A short-circuit or ground fault has occurred and at the Inverter output. → Check and correct the motor power cable. • The V/f setting is incorrect. → Reduce the V/f set voltage. • The motor capacity is too large for the Inverter. → Reduce the motor capacity to the maximum applicable motor capacity. • The magnetic contactor on the output side of the Inverter has been opened and closed. → Rearrange the sequence so that the magnetic contactor will not open or close while the Inverter has current output. • The output circuit of the Inverter is damaged. → Replace the Inverter.
ou	**Overvoltage (OV)** The main circuit DC voltage has reached the overvoltage detection level (410 V DC for 200-V Inverters, 820 V DC for 400-V Inverters)	• The deceleration time is too short. → Increase the deceleration time. • The power supply voltage is too high. → Decrease the voltage so it will be within specifications. • There is excessive regenerative energy due to overshooting at the time of acceleration. → Suppress the overshooting as much as possible.
Uu1	**Main circuit undervoltage (UV1)** The main circuit DC voltage has reached the undervoltage detection level (200 V DC for the 3G3MV-A2□, 160 V DC for the 3G3MV-AB□, and 400 V DC for the 3G3MV-A4□).	• Power supply to the Inverter has phase loss, power input terminal screws are loose, or the power cable is disconnected. → Check the above and take necessary countermeasures. • Incorrect power supply voltage → Make sure that the power supply voltage is within specifications. • Momentary power interruption has occurred. → Use the momentary power interruption compensation (Set n47 so that the Inverter restarts after power is restored) → Improve the power supply. • The internal circuitry of the Inverter is damaged. → Change the Inverter.

Fault display	Fault name and meaning	Probable cause and remedy
oH	**Radiation fin overheated (OH)** The temperature of the radiation fins of the Inverter has reached 110°C ± 10°C.	• The ambient temperature is too high. → Ventilate the Inverter or install a cooling unit. • The load is excessive. → Reduce the load. → Change the inverter to one with a higher capacity. • The V/f setting is incorrect. → Reduce the V/f set voltage. • The acceleration/deceleration time is too short. → Increase the acceleration/deceleration time. • The ventilation is obstructed. → Change the location of the Inverter to meet the installation conditions. • The cooling fan of the Inverter does not work. → Replace the cooling fan.
oL1	**Motor overload (OL1)** The electric thermal relay actuated the motor overload protective function.	• The load is excessive. → Reduce the load. → Increase the motor capacity. • The V/f setting is incorrect. → Reduce the V/f set voltage. • The value in n11 for maximum voltage frequency is low. → Check the motor nameplate and set n11 to the rated frequency. • The acceleration/deceleration time is too short. → Increase the acceleration/deceleration time. • The value in n32 for rated motor current is incorrect. → Check the motor nameplate and set n32 to the rated current. • The Inverter is driving more than one motor. → Disable the motor overload protective function and install an electronic thermal relay for each of the motors. The motor overload protective function is disabled by setting n32 to 0.0 or n33 to 2. • The motor protective time setting in n34 is short. → Set n34 to 8 (the default value).
oL2	**Inverter overload (OL2)** The electronic thermal relay has actuated the Inverter overload protective function.	• The load is excessive. → Reduce the load. • The V/f setting is incorrect. → Reduce the V/f set voltage. • The acceleration/deceleration time is too short. → Increase the acceleration/deceleration time. • The Inverter capacity is insufficient. → Use an Inverter model with a higher capacity.
oL3	**Overtorque detection (OL3)** There has been a current or torque the same as or greater than the setting in n60 for overtorque detection level and that in n61 for overtorque detection time. A fault has been detected with n59 for overtorque detection function selection set to 2 or 4.	• The mechanical system is locked or has a failure. → Check the mechanical system and correct the cause of overtorque. • The parameter settings were incorrect. → Adjust the n60 and n61 parameters according to the mechanical system. Increase the set values in n60 and n61.

Fault display	Fault name and meaning	Probable cause and remedy
GF	**Ground fault (GF)** The ground current at the Inverter has exceeded the Inverter's rated current.	• Ground fault occurred on an Inverter output. → Check for any damage or abnormalities in the wiring between the Inverter and motor. If damaged or abnormal, correct the wiring.
EF□	**External fault □ (EF□)** An external fault has been input from a multi-function input. A multi-function input 1 to 4 set to 3 or 4 has operated. The EF number indicates the number of the corresponding input (S2 to S5).	• An external fault was input from a multi-function input. → Remove the cause of the external fault. • The sequence is incorrect. → Check and change the external fault input sequence including the input timing and NO or NC contact.
F00	**Digital Operator transmission fault 1 (F00)** An initial memory error has been detected.	• The internal circuitry of the Digital Operator has a fault. → Turn the Digital Operator OFF and ON. → Replace the Digital Operator if the same fault occurs again.
F01	**Digital Operator transmission fault 2 (F01)** A ROM error has been detected.	• The internal circuitry of the Digital Operator has a fault. → Turn the Digital Operator OFF and ON. → Replace the Digital Operator if the same fault occurs again.
F04	**Initial memory fault (F04)** An error in the built-in EEPROM of the Inverter has been detected.	• The internal circuitry of the Inverter has a fault. → Initialize the Inverter with n01 set to 8, 9, 10, or 11 and turn the Inverter OFF and ON. → Replace the Inverter if the same fault occurs again.
F05	**Analog-to-digital converter fault (F05)** An analog-to-digital converter fault has been detected.	• The internal circuitry of the Inverter has a fault. → Turn the Inverter OFF and ON. → Replace the Inverter if the same fault occurs again.
F07	**Digital Operator fault (F07)** An error in the built-in control circuit of the Digital Operator has been detected.	• The internal circuitry of the Digital Operator has a fault. → Turn the Digital Operator OFF and ON. → Replace the Digital Operator if the same fault occurs again.
CE	**Communications time-over (CE)** Normal RS-422/485 communications were not established within 2 s. The Inverter will detect this error if n68 for RS-422/485 communications time over detection selection is set to 0, 1, or 2.	• A short-circuit, ground fault, or disconnection has occurred on the communications line. → Check and correct the line. • The termination resistance setting is incorrect. → Turn ON the termination resistance SW only at the Inverter located at each end of the network. • Noise influence. → Do not wire the communications line along with power lines in the same conduit. → Use the twisted-pair shielded wire for the communications line, and ground it at the Master. • Master's program error. → Check and correct the program so that communications will be performed more than once every 2-s period. • Communications circuit damage. → If the same error is detected as a result of a self-diagnostic test, change the Inverter.

Fault display	Fault name and meaning	Probable cause and remedy
StP	**Emergency stop (STP)** An emergency stop alarm is input to a multi-function input. (A multi-function input from 1 to 4 that was set to 19 or 21 has operated.)	• An emergency stop alarm is input. → Remove the cause of the fault. • The sequence is incorrect. → Check and change the external fault input sequence including the input timing and NO or NC contact.
OFF	**Power supply error** Power supply voltage is insufficient. Problem with control power supply. Hardware is faulty.	• No power supply is provided. → Check and correct the power supply wiring and voltage. • Terminal screws are loose. → Check and tighten the terminal screws. • The Inverter is damaged. → Replace the Inverter.

Warning Detection (Nonfatal Errors)

The warning detection is a type of Inverter protective function that does not operate the fault contact output and returns the Inverter to its original status once the cause of the error has been removed. The Digital Operator flashes and display the detail of the error. If a warning occurs, take appropriate countermeasures according to the table below.

Note: Some warnings or some cases stop the operation of the Inverter as described in the table.

Warning Displays and Processing

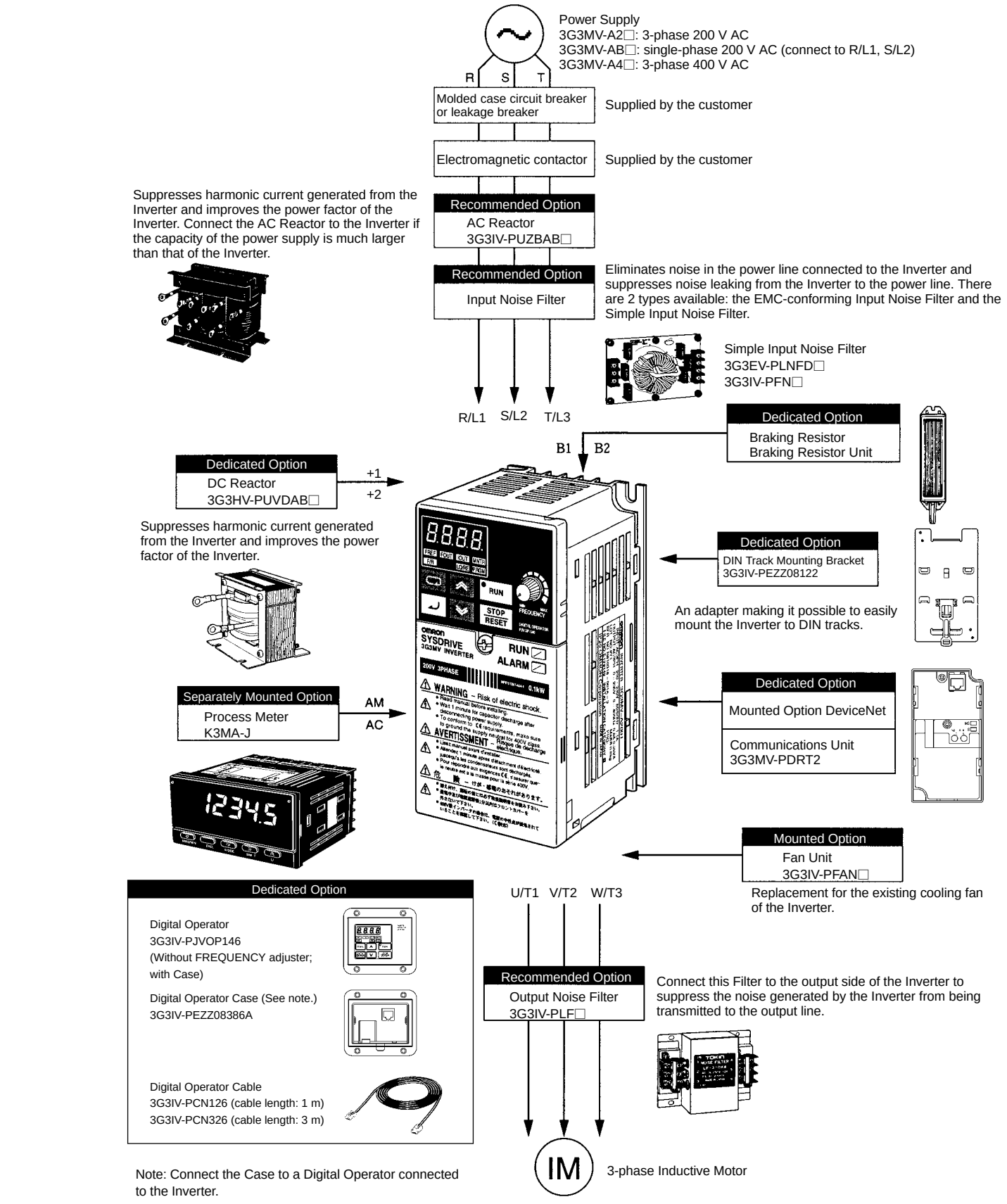
Fault display	Warning name and meaning	Probable cause and remedy
Uv (flashing)	**Main circuit undervoltage (UV)** The main circuit DC voltage has reached the undervoltage detection level (200 V DC for the 3G3MV-A2□, 160 V DC for the 3G3MV-AB□, and 400 V DC for the 3G3MV-A4□).	• Power supply to the Inverter has phase loss, power input terminal screws are loose, or the power line is disconnected. → Check the above and take necessary countermeasures. • Incorrect power supply voltage → Make sure that the power supply voltage is within specifications.
ov (flashing)	**Main circuit overvoltage** The main circuit DC voltage has reached the overvoltage detection level (410 V DC for 200-V Inverters, 820 V DC for 400-V Inverters).	• The power supply voltage is too high. → Decrease the voltage so it will be within specifications.
oH (flashing)	**Radiation fin overheated (OH)** The temperature of the radiation fins of the Inverter has reached 110°C ± 10°C.	• The ambient temperature is too high. → Ventilate the Inverter or install a cooling unit.
CAL (flashing)	**Communications standby (CAL)** No normal DSR message has been received during RS-422/4895 communications. The Inverter detects this warning only when RUN command selection (n02) is set to 2 or frequency reference selection (n03) is set to 6. Until the warning is reset, no input other than communications input will be ignored.	• A short-circuit, ground fault, or disconnection has occurred on the communications line. → Check and correct the line. • The termination resistance setting is incorrect. → Turn ON the termination resistance SW only at the Inverter located at each end of the network. • Master's program error. → Check the start of communications and correct the program. • Communications circuit damage. → If the same error is detected as a result of a self-diagnostic test, change the Inverter.

Fault display	Warning name and meaning	Probable cause and remedy
oL3 (flashing)	**Overtorque detection (OL3)** There has been a current or torque the same as or greater than the setting in n60 for overtorque detection level and that in n61 for overtorque detection time. A fault has been detected with n59 for overtorque detection function selection set to 1 or 3.	• The mechanical system is locked or has a failure. → Check the mechanical system and correct the cause of overtorque. • The parameter settings were incorrect. → Adjust the n60 and n61 parameters according to the mechanical system. Increase the set values in n60 and n61.
SEr (flashing)	**Sequence error (SER)** A sequence change has been input while the Inverter is in operation. Local or remote selection is input while the Inverter is in operation. **Note** The Inverter coasts to a stop.	• A sequence error has occurred. → Check and correct the local or remote selection (multi-function input) sequence.
bb (flashing)	**External base block (bb)** The external base block command has been input. **Note** The Inverter coasts to a stop.	• The external base block command (multi-function input) has been input. → Remove the cause of external base block input. • The sequence is incorrect. → Check and change the external fault input sequence including the input timing and NO or NC contact.
EF (flashing)	**Forward- and reverse-rotation input (EF)** The forward and reverse commands are input to the control circuit terminals simultaneously for 0.5 s or more. **Note** The Inverter stops according to the method set in n04.	• A sequence error has occurred. → Check and adjust the local or remote selection sequence.
STP (flashing)	**Emergency stop (STP)** The Digital Operator stops operating. The STOP/RESET Key on the Digital Operator is pressed while the Inverter is operating according to the forward or reverse command through the control circuit terminals. **Note** The Inverter stops according to the method set in n04.	• The parameter setting was incorrect. → Turn OFF the forward or reverse command and check that the n06 parameter setting for STOP/RESET Key function selection is correct.
	The emergency stop alarm signal is input as multi-function input. A multi-function input 1 to 4 set to 20 or 22 has been used. **Note** The Inverter stops according to the method set in n04.	• An emergency stop warning is input to a multi-function input. → Remove the cause of the fault. • There is a problem with the sequence. → Check the external error input sequence and remove the cause of the problem, such as incorrect input timing or incorrect use of normally open or normally closed contacts.

Protective and Diagnostic Functions

Fault display	Warning name and meaning	Probable cause and remedy
FAn (flashing)	**Cooling fan fault (FAN)** The cooling fan has been locked.	• The cooling fan wiring has a fault. → Turn OFF the Inverter, dismount the fan, and check and repair the wiring. • The cooling fan in not in good condition. → Check and remove the foreign material or dust on the fan. • The cooling fan is beyond repair. → Replace the fan.
CE (flashing)	**Communications time over (CE)** RS-422 or RS-485 communications were not properly carried out within 2 s. (Detected when n68 is set to “3.”)	• A short-circuit, ground fault, or disconnection has occurred on the communications line. → Check and correct the line. • The termination resistance setting is incorrect. → Turn ON the termination resistance SW only at the Inverter located at each end of the network. • Noise influence. → Do not wire the communications line along with power lines in the same conduit. → Use the twisted-pair shielded wire for the communications line, and ground it at the Master. • Master’s program error. → Check and correct the program so that communications will be performed more than once every 2-s period. • Communications circuit damage. → If the same error is detected as a result of a self-diagnostic test, change the Inverter.
oP1 (flashing)	**Operation error (OP□)** (Parameter setting error)	• The values in n36 through n39 for multi-function inputs 1 through 4 have been duplicated. → Check and correct the values.
oP2 (flashing)		• The V/f pattern settings do not satisfy the following condition. n14 ≦ n12 < n11 ≦ n09 → Check and correct the set value.
oP3 (flashing)		• The rated motor current set in n32 exceeds 150% of the rated output current of the Inverter. → Check and correct the set value.
oP4 (flashing)		• The frequency reference upper limit set in n30 and the frequency reference lower limit set in n31 do not satisfy the following condition. n30 ≧ n31 → Check and correct the set values.
oP5 (flashing)		• The jump frequencies set in n49 to n50 do not satisfy the following condition. n49 ≧ n50 → Check and correct the set values.

■ Overview of Options



Note: Connect the Case to a Digital Operator connected to the Inverter.

Options

Mounted Options

Name	Model	Description	Reference page
DeviceNet Communications Unit	3G3MV-PDRT2	Required when controlling the Inverter from DeviceNet. Remote I/O functions and message functions can be used to suit the application.	49
Fan Unit	3G3IV-PFAN□	Replacement for the existing cooling fan of the Inverter. Replace the cooling fan if it has reached the end of its service life or a warning of cooling fan failure (FAN) is indicated.	49

Separately Mounted Option

Name	Model	Description	Reference page
Process Meter	K3MA-J	Connected to the multi-function analog output of the Inverter. Displays the rpm or speed of the machine or line in actual units.	50

Dedicated Options

Name	Model	Description	Reference page
Digital Operator (with FREQUENCY adjuster)	3G3IV-PJVOP140	This is the Digital Operator for the 3G3JV/3G3MV Series. It is the same as the Operator provided as standard equipment for the 3G3MV Series. It has a built-in EEPROM and can store Inverter parameter set values. Use this as a set with the Digital Operator Case (3G3IV-PEZZ0836A). It cannot be wired separately with a Digital Operator Cable.	51
Digital Operator (without FREQUENCY adjuster)	3G3IV-PJVOP146	This is the 3G3JV/3G3MV-series Digital Operator for remote Inverter operation. It has a built-in EEPROM and can store Inverter parameter set values.	51
Digital Operator Case (for the 3G3IV-PJVOP140)	3G3IV-PEZZ08386A	This is the Case for the 3G3IV-PJVOP140 Digital Operator. When the 3G3IV-PJVOP140 is mounted in this Case, it can be used for remote operation and can be mounted to a control panel.	52
Digital Operator Cable	3G3IV-PCN□26	This cable is required when using a Digital Operator with the 3G3JV Series. The cable length is either 1 m (3G3IV-PCN126) or 3 m (3G3IV-PCN326).	53
Braking Resistor	3G3IV-PERF□	Uses a resistor to absorb regenerative energy of the motor to reduce deceleration time. (Usage rate: 3% ED.)	54
Braking Resistor Unit	3G3IV-PLKEB□	Uses a resistor to absorb regenerative energy of the motor to reduce deceleration time. (Usage rate: 10% ED.)	55
DC Reactor	3G3HV-PUZDAB□	Suppresses harmonic current generated from the Inverter and improves the power factor of the Inverter.	56
DIN Track Mounting Bracket	3G3IV-PEZZ08122□	A bracket that makes it possible to easily mount the Inverter to DIN track.	57

Recommended Options

Name	Model	Description	Reference page
AC Reactor (Yaskawa Electric)	3G3IV-PUZBAB□	Suppresses harmonic current generated from the Inverter and improves the power factor of the Inverter. Connect the AC Reactor to the Inverter if the capacity of the power supply is much larger than that of the Inverter.	58
EMC-conforming Input Noise Filter (Rasmi)	3G3MV-PRS□	A Noise Filter on the input side meeting the EC Directive's EMC requirements.	59
Simple Input Noise Filter (Yaskawa Electric)	3G3EV-PLNFD□	Each of these Filters connected to the power input side eliminates noise in the power line connected to the Inverter and suppresses noise leaking from the Inverter to the power line.	62
Input Noise Filter (Schaffner)	3G3IV-PFN□		
Output Noise Filter (Tokin)	3G3IV-PLF□	Connect this Filter to the output side of the Inverter to suppress the noise generated by the Inverter from being transmitted to the output line.	64

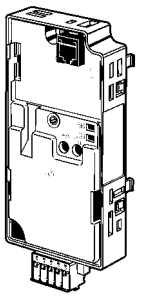
■ DeviceNet Communications Unit

3G3MV-PDRT2

The following functions are added when a DeviceNet Communications Unit is used with the Inverter.

- Warning torque detection
- Current tracing
- Operating time monitoring
- Total ON time monitoring
- Contact operation count monitoring

These functions reduce wiring requirements, enable advanced diagnosis, and help prevent equipment failure. Average power monitoring is also supported for enhanced energy efficiency. (These functions can be monitored from a PT or a Configurator.)



■ Fan Unit

3G3IV-PFAN□

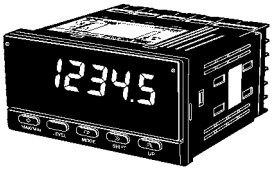
The Fan Unit is a replacement for the presently installed cooling fan of the Inverter. Replace the cooling fan if it has reached the end of its service life or a warning of cooling fan failure (FAN) is indicated.

Inverter		Fan Unit
3-phase 200 V AC	3G3MV-A2007	3G3IV-PFAN2007
	3G3MV-A2015	3G3IV-PFAN2015M
	3G3MV-A2022	3G3IV-PFAN2022
	3G3MV-A2037	3G3IV-PFAN2037
	3G3MV-A2055	3G3IV-PFAN2037 (2 parts)
	3G3MV-A2075	3G3IV-PFAN2037 (2 parts)
Single-phase 200 V AC	3G3MV-AB015	3G3IV-PFAN2015M
	3G3MV-AB022	3G3IV-PFAN2037
	3G3MV-AB037	3G3IV-PFAN2037 (2 parts)
3-phase 400 V AC	3G3MV-A4015/-A4022	3G3IV-PFAN2015M
	3G3MV-A4037	3G3IV-PFAN2037
	3G3MV-A4055	3G3IV-PFAN2037 (2 parts)
	3G3MV-A4075	3G3IV-PFAN2037 (2 parts)

Options

■ Process Meter

K3MA-J



The Process Meter is connected to the analog monitor output of the Inverter to display the rpm and speed values of machines and lines in actual units.

Models and Applications

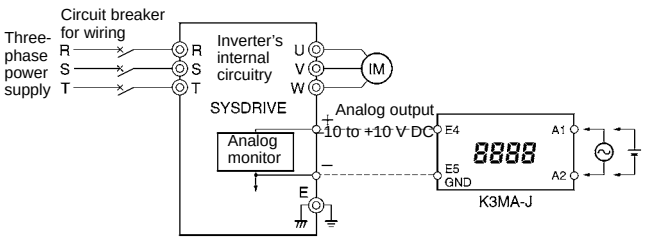
Input type	Output type	Power supply voltage	
		100 to 240 V AC (50/60 Hz)	24 V AC (50/60 Hz), 24 V DC
DC voltage/ current inputs	None	K3MA-J: 100 to 240 V AC	K3MA-J: 24 V AC/DC
	Relay: 2SPST-NO	K3MA-J-A2, 100 to 240 V AC	K3MA-J-A2, 24 V AC/DC

Standard Specifications

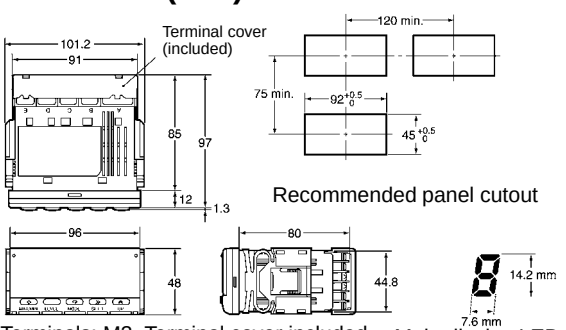
Input signals	DC voltage/current (0 to 20 mA, 4 to 20 mA, 0 to 5 V, 1 to 5 V, ±10 V)
A/D conversion	Double integral method
Input impedance	Current input: 45 Ω max; voltage input: 1 MΩ min.
Sampling period	250 ms
Display refresh period	Sampling period (with average value processing: Sample period x No. of averages)
Max. displayed digits	5 (–19,999 to 99,999)
Display type	7-segment digital display
Sign display	Minus sign (–) displayed automatically for negative input signals.
Zero suppression (leftmost digits)	Supported
Scaling	Programmed (The displayed range corresponds to the maximum number of displayed digits.) The decimal point position can be set as required.

Hold functions	Maximum value hold, minimum value hold
Comparative output hysteresis	Programmed with front-panel keys (0001 to 9999)
Other functions	Forced–zero by front-panel keys, zero reset, scaling teaching, display color switching (green [red], green, red [green], red), comparative output switching (upper limit, lower limit, upper/lower limits), average value processing (simple averaging: OFF, 2, 4, or 8 times)
Output form	Relay: DPST-NO
Comparative output response time	750 ms max.
Enclosure ratings	Front panel: NEMA4X for indoor use (equivalent to IP66), Rear case: IP20 Terminals: IP00 + finger protection (VDE0106/100)
Memory protection	Nonvolatile memory (100,000 overwrites)

Wiring Example



Dimensions (mm)



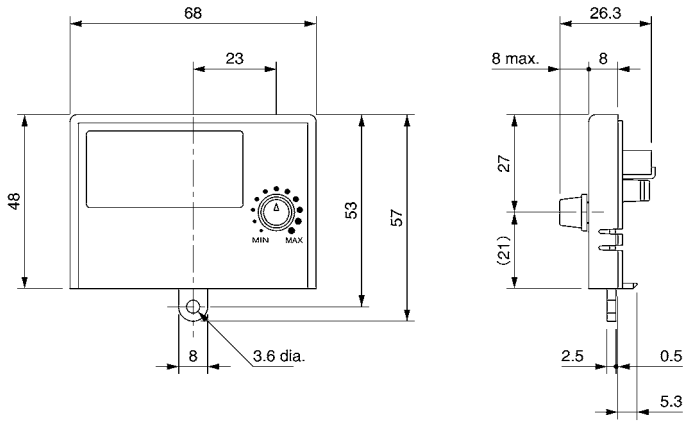
■ Digital Operator

3G3IV-PJVOP14□

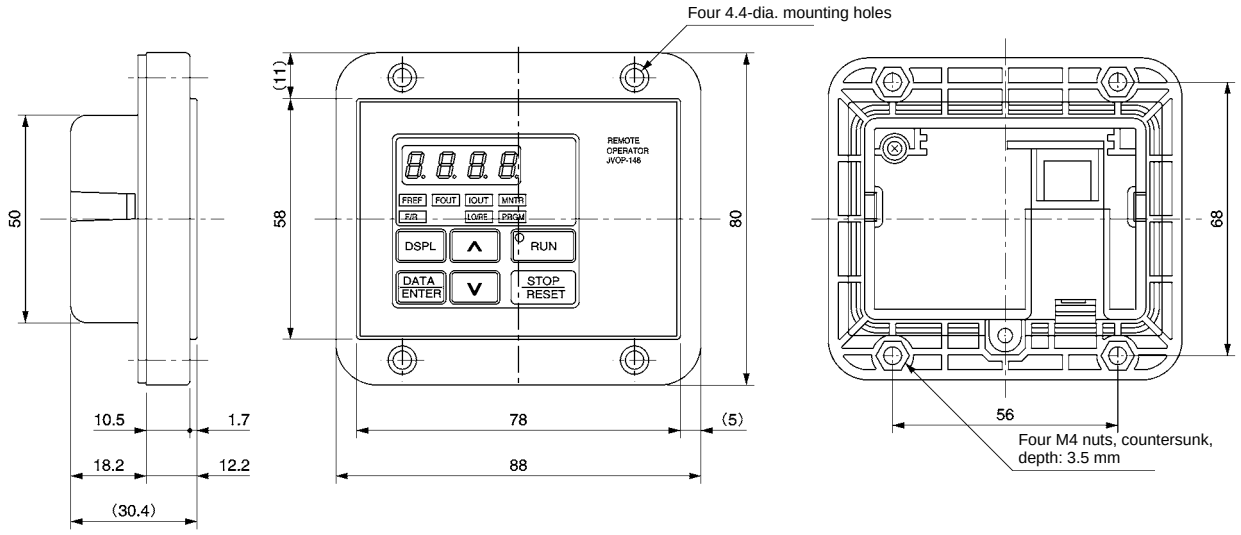
This is a Digital Operator for remote Inverter operation. There are two models available: the 3G3IV-PJVOP140 (with a FREQUENCY adjuster) and the 3G3IV-PJVOP146 (without a FREQUENCY adjuster).
Use the 3G3IV-PJVOP140 as a set with the 3G3IV-PEZZ08386A Digital Operator Case. The Digital Operator Cable cannot be wired to the Digital Operator alone without the Case. Using the Digital Operator together with the Case also allows it to be mounted to a control panel.
When a Digital Operator is connected, the functions of the Operator on the Inverter are disabled. (Only the display operates.)
The 3G3IV-PJVOP140 is included as standard equipment with the 3G3MV.

Dimensions (mm)

3G3IV-PJVOP140 (with FREQUENCY Adjuster)



3G3IV-PJVOP146 (without FREQUENCY Adjuster)



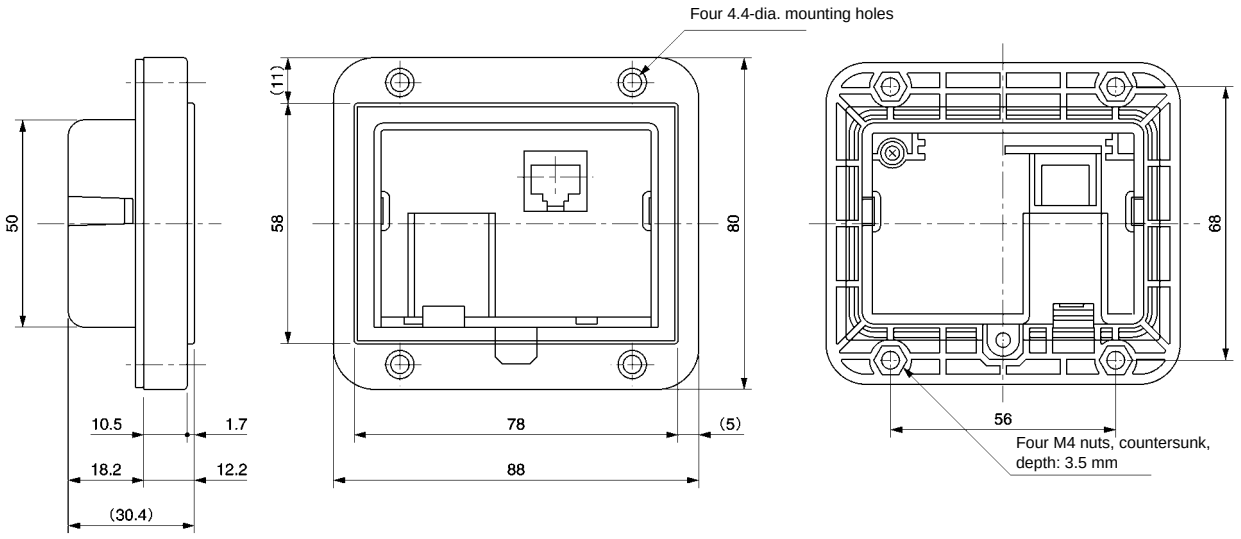
Options

■ Digital Operating Case

3G3IV-PEZZ08386A

This is the Case for the 3G3IV-PJVOP140 Digital Operator.
The Digital Operator Cable cannot be wired to the Digital Operator alone without this Case, so the Digital Operating and the Case must be used together as a set. When the 3G3IV-PJVOP140 is mounted in the Case, it can be used for remote operation and can be mounted to a control panel.

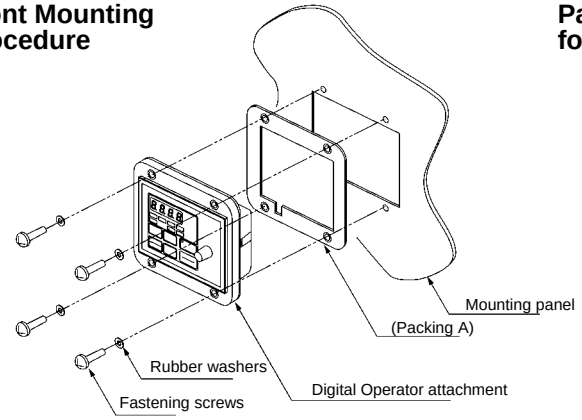
Dimensions (mm)



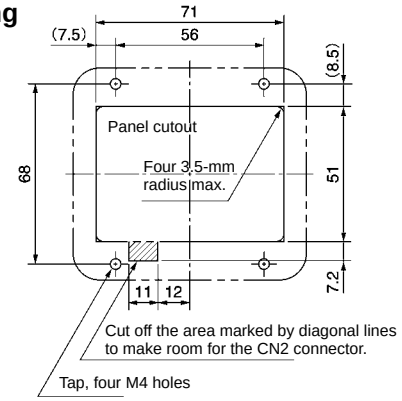
Mounting to a Control Panel

The 3G3IV-PJVOP140 Digital Operator in a 3G3IV-PEZZ08386A Case can be mounted to either the front or the back of a control panel.

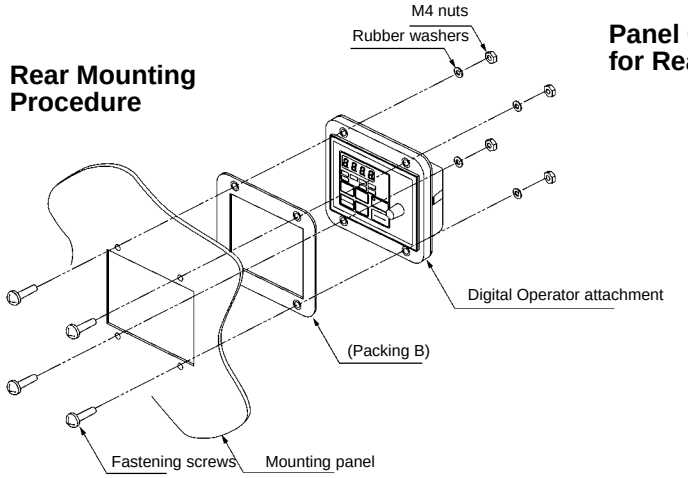
Front Mounting Procedure



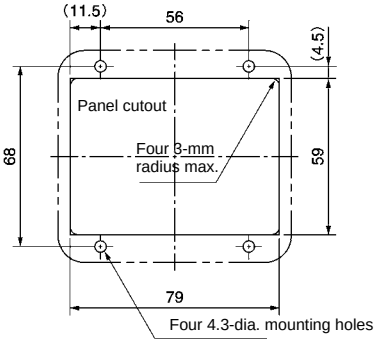
Panel Cutout Dimensions for Front Mounting



Rear Mounting Procedure



Panel Cutout Dimensions for Rear Mounting



■ Digital Operator Cable

3G3IV–PCN□26

This cable is required when a Digital Operator is used with the 3G3MV Series.

Models and Specifications

Model	Cable length
3G3IV-PCN126	1 m
3G3IV-PCN326	3 m

Options

■ Braking Resistor

3G3IV-PERF□

Uses a resistor to absorb regenerative energy of the motor to reduce deceleration time.
(Usage rate: 3% ED.)

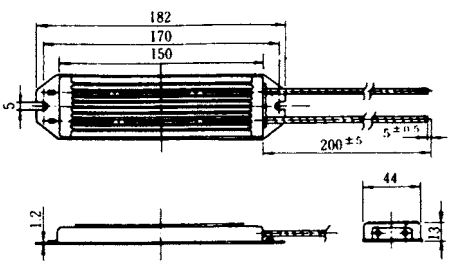
Applicable Models

Inverter		Braking Resistor			Approx. braking torque (3% ED) (%)
Voltage class	Max. applicable motor capacity (kW)	Model 3G3IV-	Resistor specifications	Number of parts	
200 V	0.1	PERF150WJ401	150 W, 400 Ω	1	220
	0.2			1	220
	0.4	PERF150WJ201	150 W, 200 Ω	1	220
	0.75			1	125
	1.5	PERF150WJ101	150 W, 100 Ω	1	125
	2.2	PERF150WJ700	150 W, 70 Ω	1	120
	3.7	PERF150WJ620	150 W, 62 Ω	1	100
	5.5	---	---	---	---
	7.5	---	---	---	---
400 V	0.2	PERF150WJ751	150 W, 750 Ω	1	230
	0.4			1	230
	0.75			1	130
	1.5	PERF150WJ401	150 W, 400 Ω	1	125
	2.2	PERF150WJ301	150 W, 300 Ω	1	115
	3.7	PERF150WJ401	150 W, 400 Ω	2	115 (see note 1)
	5.5	---	---	---	---
	7.5	---	---	---	---

Note: 1. The usage rate for the 3G3IV-PERF150WJ401 is 2% ED.

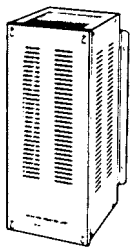
2. A usage rate of “3% ED” means that 3% of the operating time of one cycle is used for deceleration.

External Dimensions (mm)



■ Braking Resistor Unit

3G3IV-PLKEB□



Uses a resistor to absorb regenerative energy of the motor to reduce deceleration time.
(Usage rate: 10% ED.)

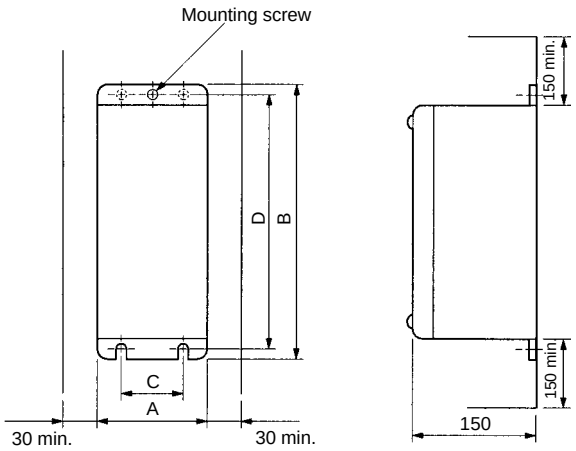
Applicable Models

Inverter		Braking Resistor Unit				Approx. braking toque (10% ED) (%)
Voltage class	Max. applicable motor capacity (kW)	Model 3G3IV-	Resistor specifications	Unit		
				Number of parts	Max. number per Inverter (see note)	
200 V	0.1	---	---	---	---	---
	0.2			---	---	---
	0.4	PLKEB20P7	70 W, 200 Ω	1	1	220
	0.75			1	1	125
	1.5	PLKEB21P5	260 W, 100 Ω	1	1	125
	2.2	PLKEB22P2	260 W, 70 Ω	1	1	120
	3.7	PLKEB23P7	390 W, 40 Ω	1	1	125
	5.5	PLKEB25P5	520 W, 30 Ω	1	1	115
	7.5	PLKEB27P5	780 W, 20 Ω	1	1	125
400 V	0.2	PLKEB40P7	70 W, 750 Ω	1	1	230
	0.4			1	1	230
	0.75			1	1	130
	1.5	PLKEB41P5	260 W, 400 Ω	1	1	125
	2.2	PLKEB42P2	260 W, 250 Ω	1	1	135
	3.7	PLKEB43P7	390 W, 150 Ω	1	1	135
	5.5	PLKEB45P5	520 W, 100 Ω	1	1	135
	7.5	PLKEB47P5	780 W, 75 Ω	1	1	130

Note: 1. The “max. number per Inverter” column indicates the maximum number of Braking Resistor Units that can be connected to one Inverter.

2. A usage rate of “10% ED” means that 10% of the operating time of one cycle is used for deceleration.

External Dimensions (mm)

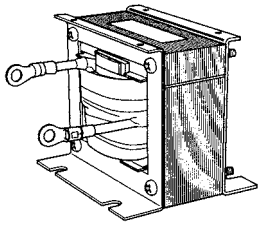


Voltage class	Braking Resistor Unit model 3G3IV-PLKEB□	Dimensions (mm)					Weight (kg)
		A	B	C	D	Mounting screw	
200 V	20P7	105	275	50	260	M5×3	3.0
	21P5	130	350	75	335	M5×4	4.5
	22P2	130	350	75	335	M5×4	4.5
	23P7	130	350	75	335	M5×4	5.0
	25P5	250	350	200	335	M6×4	7.5
	27P5	250	350	200	335	M6×4	8.5
400 V	40P7	105	275	50	260	M5×3	3.0
	41P5	130	350	75	335	M5×4	4.5
	42P2	130	350	75	335	M5×4	4.5
	43P7	130	350	75	335	M5×4	5.0
	45P5	250	350	200	335	M6×4	7.5
	47P5	250	350	200	335	M6×4	8.5

Options

■ DC Reactor

3G3HV-PUZDAB□



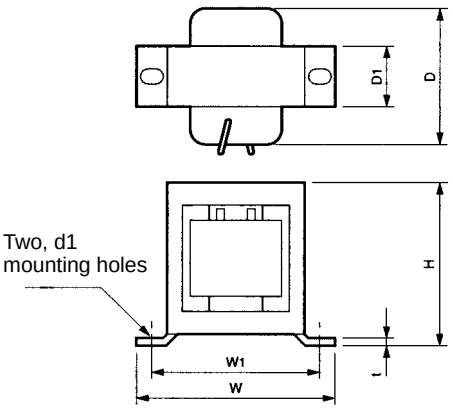
The DC Reactor suppresses harmonic current generated from the Inverter and improves the power factor of the Inverter. The DC Reactor suppresses harmonic current more effectively than the AC Reactor. Furthermore, the DC Reactor can be used in combination with the AC Reactor.
Used with either 3-phase or single-phase 200-V AC Inverters.

Applicable Models

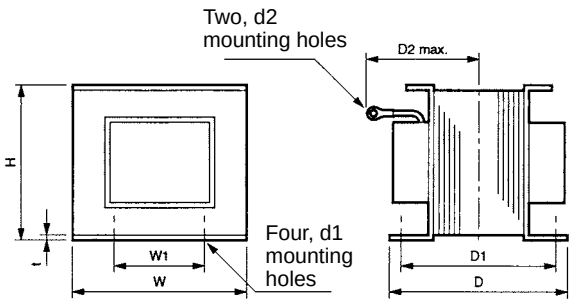
Inverter		DC Reactor				
Voltage class	**Max. applicable motor capacity (kW)**	**Model**	**Rated voltage (V)**	**Rated current (A)**	**Inductance (mH)**	**Loss (W)**
200 V	0.1 to 0.75	3G3HV-PUZDAB5.4A8MH	800 V DC	5.4	8	8
	1.5 to 3.7	3G3HV-PUZDAB18A3MH		18	3	18
	5.5 to 7.5	3G3HV-PUZDAB36A1MH		36	1	22
400 V	0.2 to 0.75	3G3HV-PUZDAB3.2A28MH	800 V DC	3.2	28	9
	1.5 to 2.2	3G3HV-PUZDAB5.7A11MH		5.7	11	11
	3.7	3G3HV-PUZDAB12A6.3MH		12	6.3	16
	5.5 to 7.5	3G3HV-PUZDAB23A3.6MH		23	3.6	27

External Dimensions (mm)

External Dimensions 1



External Dimensions 2



Model 3G3HV-PUZDAB□	External dimensions	Dimension (mm)									Weight (kg)
		H	W	W1	D	D1	D2	t	d1	d2	
5.4A8MH	1	53	85	74	60	32	---	0.8	M4	---	0.8
18A3MH	2	76	86	60	72	55	80	1.2	M4	M5	2.0
36A1MH	2	93	105	64	92	80	90	1.6	M6	M6	3.2
3.2A28MH	1	53	85	74	60	32	---	0.8	M4	---	0.8
5.7A11MH	1	60	90	80	60	32	---	0.8	M4	---	1.0
12A6.3MH	2	76	86	60	72	55	80	1.2	M4	M5	2.0
23A3.6MH	2	93	105	64	92	80	90	1.6	M6	M5	3.2

■ DIN Track Mounting Bracket

3G3IV-PEZZ08122□

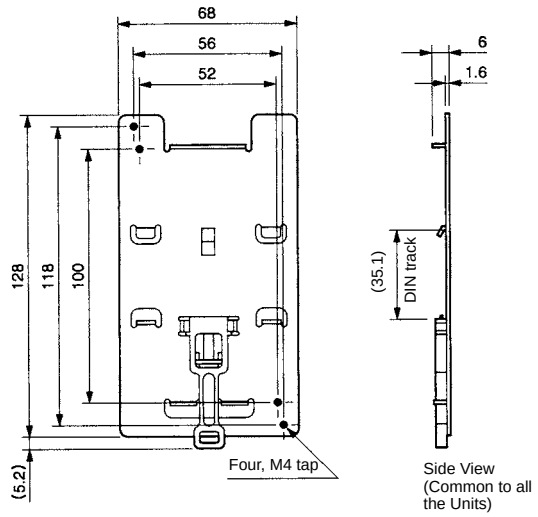
An adapter making it possible to easily mount the Inverter to DIN tracks.

Applicable Models

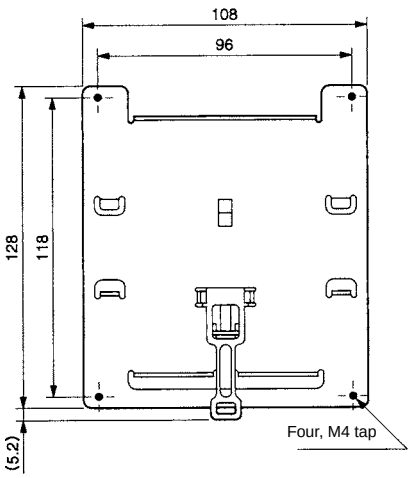
Inverter		DIN Track Mounting Bracket
3-phase 200 V AC	3G3MV-A2001/-A2002/-A2004/-A2007	3G3IV-PEZZ08122A
	3G3MV-A2015/-A2022	3G3IV-PEZZ08122B
	3G3MV-A2037	3G3IV-PEZZ08122C
Single-phase 200 V AC	3G3MV-AB001/-AB002/-AB004	3G3IV-PEZZ08122A
	3G3MV-AB007/-AB015	3G3IV-PEZZ08122B
	3G3MV-AB022	3G3IV-PEZZ08122C
	3G3MV-AB037	3G3IV-PEZZ08122D
3-phase 400 V AC	3G3MV-A4002/-A4004/-A4007/-A4015/-A4022	3G3IV-PEZZ08122B
	3G3MV-A4037	3G3IV-PEZZ08122C

External Dimensions (mm)

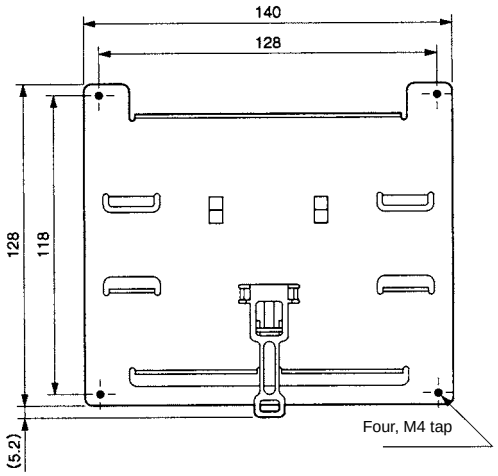
3G3IV-PEZZ08122A



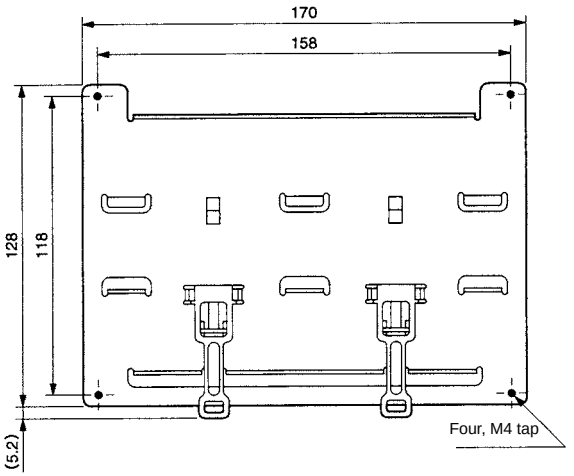
3G3IV-PEZZ08122B



3G3IV-PEZZ08122C



3G3IV-PEZZ08122D



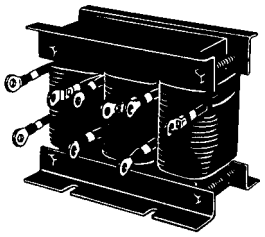
Options

■ AC Reactor

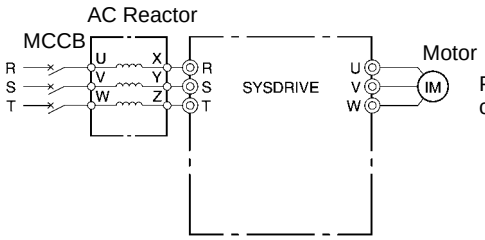
3G3IV-PUZBAB□ (Yaskawa Electric)

The AC Reactor suppresses harmonic current generated from the Inverter and improves the power factor of the Inverter. Connect the AC Reactor to the Inverter if the capacity of the power supply is much larger than that of the Inverter. Select the AC Reactor model from the following table according to the motor capacity.

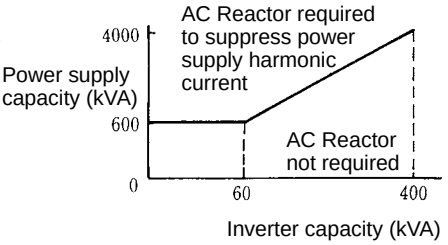
Note: The AC Reactor can be used with either 3-phase or single-phase 200-V AC Inverters.



Connection Example



Applicable Range



Applicable Models and External Dimensions

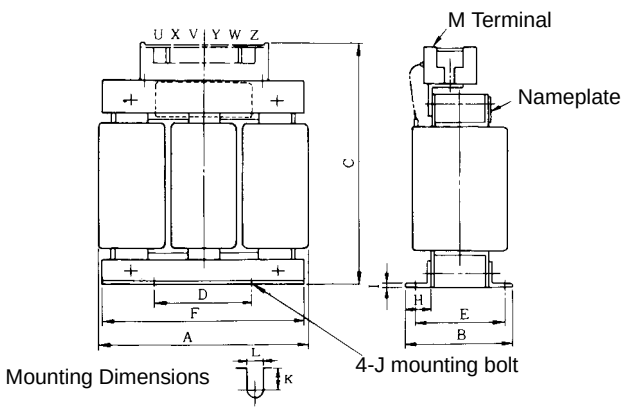
200-V Class

Max. applicable motor capacity (kW)	Model 3G3IV-PUZBAB□	Current (A)	Inductance (mH)	Loss (W)	Weight (kg)	External dimensions	Dimension (mm)											
							A	B	B1	C	D	E	F	H	J	K	L	M
0.1 to 0.2	2A7.0MH	2	7.0	8	2.5	1	120	71	---	115	40	50	105	20	M6	10.5	7	M4
0.4	2.5A4.2MH	2.5	4.2	15	2.5		120	71	---	120	40	50	105	20	M6	10.5	7	M4
0.75	5A2.1MH	5	2.1	15	2.5		120	71	---	120	40	50	105	20	M6	10.5	7	M4
1.5	10A1.1MH	10	1.1	25	3		130	88	---	130	50	65	130	22	M6	11.5	7	M4
2.2	15A0.71MH	15	0.71	30	3		130	88	---	130	50	65	130	22	M6	11.5	7	M4
3.7	20A0.53MH	20	0.53	35	3	2	130	88	114	105	50	65	130	22	M6	11.5	7	M5
5.5	30A0.35MH	30	0.35	45	3	2	130	88	119	105	50	70	130	22	M6	9	7	M5
7.5	40A0.265MH	40	0.265	50	4	2	130	98	139	105	50	75	130	22	M6	11.5	7	M6

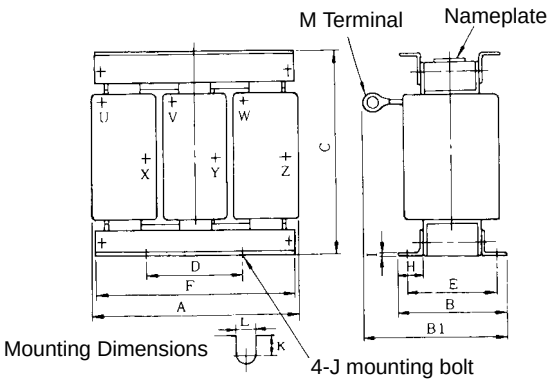
400-V Class

Max. applicable motor capacity (kW)	Model 3G3IV-PUZBAB□	Current (A)	Inductance (mH)	Loss (W)	Weight (kg)	External dimensions	Dimension (mm)											
							A	B	B1	C	D	E	F	H	J	K	L	M
0.2 to 0.4	1.3A18.0MH	1.3	18.0	15	2.5	1	120	71	---	120	40	50	105	20	M6	10.5	7	M4
0.75	2.5A8.4MH	2.5	8.4	15	2.5		120	71	---	120	40	50	105	20	M6	10.5	7	M4
1.5	5A4.2MH	5	4.2	25	3		130	88	---	130	50	70	130	22	M6	9	7	M4
2.2	7.5A3.6MH	7.5	3.6	35	3		130	88	---	130	50	70	130	22	M6	9	7	M4
3.7	10A2.2MH	10	2.2	43	3		130	88	---	130	50	65	130	22	M6	11.5	7	M4
5.5	15A1.42MH	15	1.42	50	4		130	98	---	130	50	75	130	22	M6	11.5	7	M4
7.5	20A1.06MH	20	1.06	50	5	2	160	90	115	130	75	70	160	25	M6	10	7	M5

External Dimensions 1



External Dimensions 2

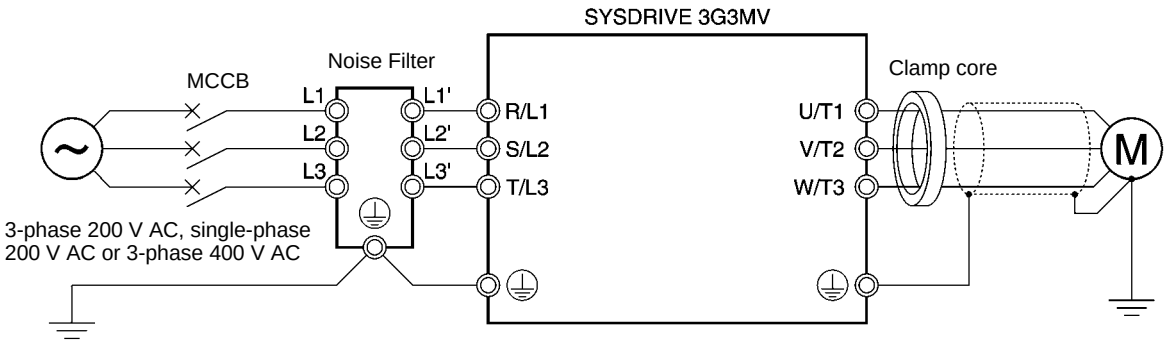


■ EMC-conforming Input Noise Filter

3G3MV-PRS□ (Rasmi)

The Input Noise Filter is connected between the power supply input terminals (R/L1, S/L2, T/L3) of the Inverter and the power supply in order to meet the EC Directive's EMC requirements.

Connection Example



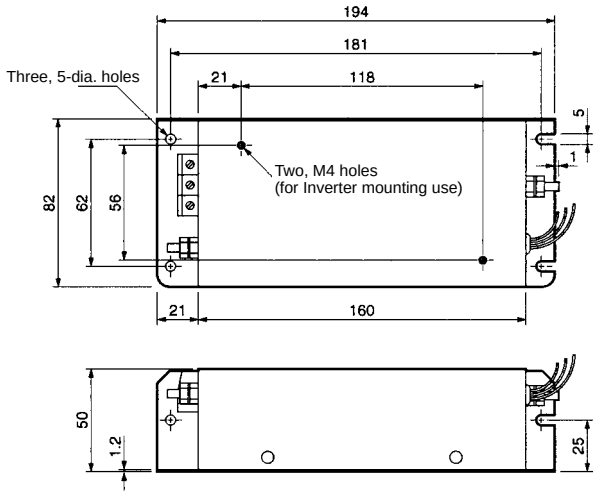
Applicable Models

Inverter		EMC-compatible Noise Filter		
Voltage	**Model 3G3MV-**	**Model 3G3MV-**	**Rated current (A)**	**Weight (kg)**
3-phase 200 V AC	A2001/A2002/A2004/ A2007	PRS2010V	10	0.8
	A2015/A2022	PRS2020V	16	1.0
	A2037	PRS2030V	26	1.1
	A2055/A2075	PRS2050V	50	2.3
Single-phase 200 V AC	AB001/AB002/AB004	PRS1010V	10	0.6
	AB007/AB015	PRS1020V	20	1.0
	AB022	PRS1030V	30	1.1
	AB037	PRS1040V	40	1.2
3-phase 400 V AC	A4002/A4004	PRS3005V	5	1.0
	A4007/A4015/A4022	PRS3010V	10	1.0
	A4037	PRS3020V	15	1.1
	A4055/A4075	PRS3030V	30	2.3

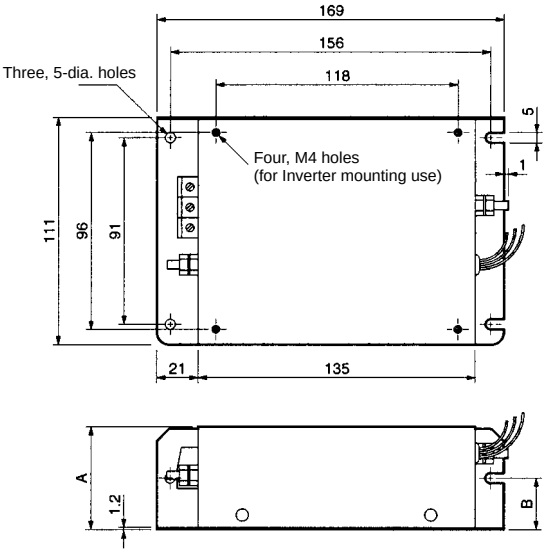
Options

External Dimensions

3G3MV-PRS2010V

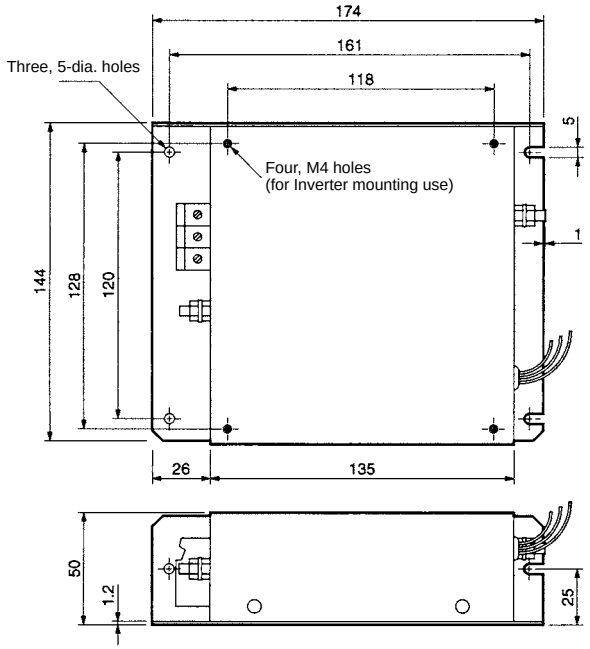


3G3MV-PRS2020V/-PRS3005V/PRS3010V

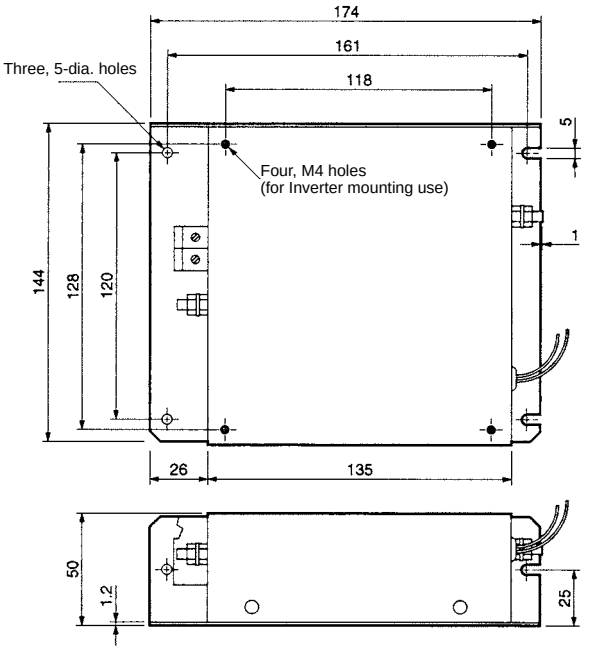


Voltage	Model 3G3MV-	Dimension (mm)	
		A	B
3-phase 200 V	PRS2020V	50	25
3-phase 400 V	PRS3005V	45	22
	PRS3010V	45	22

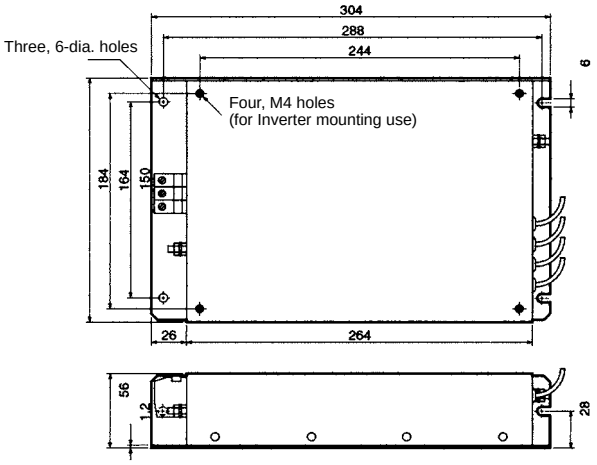
3G3MV-PRS2030V/-PRS3020V



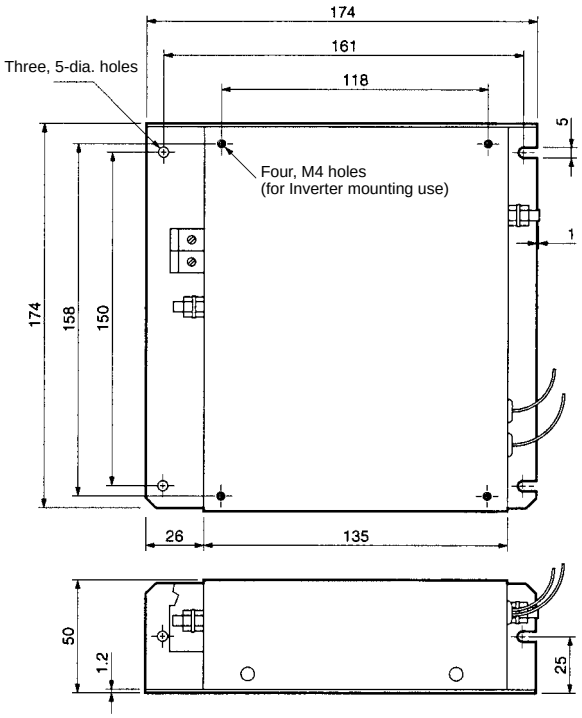
3G3MV-PRS1030V



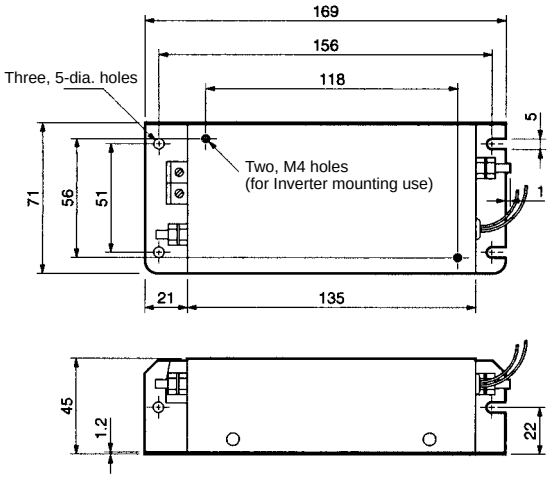
3G3MV-PRS2050V



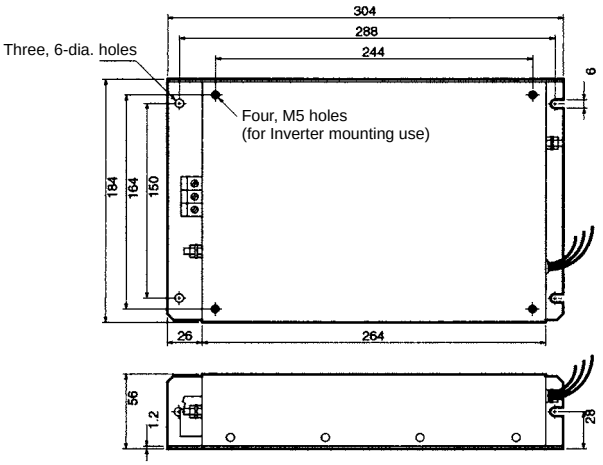
3G3MV-PRS1040V



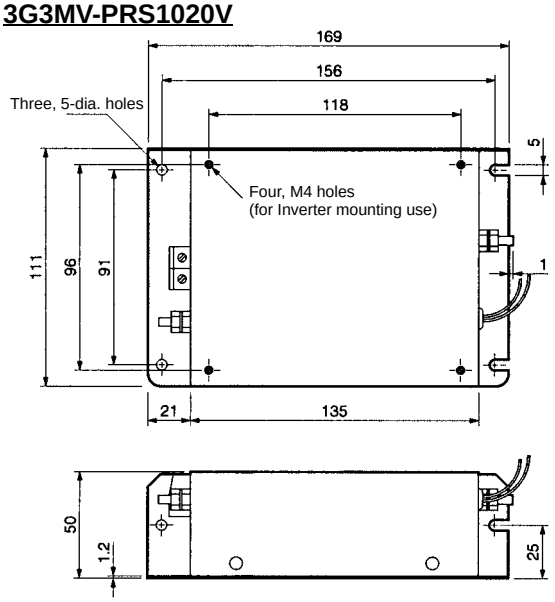
3G3MV-PRS1010V



3G3MV-PRS3030V



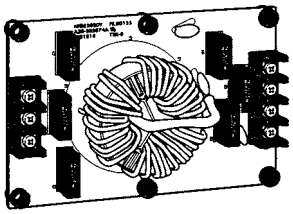
3G3MV-PRS1020V



Options

■ Simple Input Noise Filter/Input Noise Filter

3G3EV-PLNFD□ (Yaskawa Electric)/3G3IV-PFN□ (Schaffner)



Simple Input Noise Filter

Input Noise Filter

The Simple Input Noise Filter or Input Noise Filter is connected to the power input side to eliminate the noise in the power line connected to the Inverter and suppress noise leaking from the Inverter to the power line.

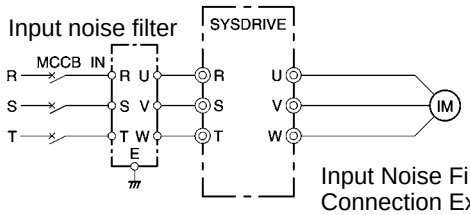
Applicable Models

Inverter		Simple Input Noise Filter		
Voltage	**Model 3G3MV-**	**Model**	**Rated current (A)**	**Weight (kg)**
3-phase 200 V AC	A2001/A2002/A2004/A2007	3G3EV-PLNFD2103DY	10	0.2
	A2015	3G3EV-PLNFD2153DY	15	0.2
	A2022	3G3EV-PLNFD2203DY	20	0.4
	A2037	3G3EV-PLNFD2303DY	30	0.5
	A2055	3G3IV-PFN258L4207	42	2.8
	A2075	3G3IV-PFN258L5507	55	3.1
Single-phase 200 V AC	AB001/AB002	3G3EV-PLNFB2102DY	10	0.1
	AB004	3G3EV-PLNFB2152DY	15	0.2
	AB007	3G3EV-PLNFB2202DY	20	0.2
	AB015	3G3EV-PLNFB2302DY	30	0.3
	AB022	3G3EV-PLNFB2202DY	20 × 2P	0.2
	AB037	3G3EV-PLNFB2302DY	30 × 2P	0.3
3-phase 400 V AC	A4002/A4004/A4007	3G3EV-PLNFD4053DY	5	0.3
	A4015/A4022	3G3EV-PLNFD4103DY	10	0.4
	A4037	3G3EV-PLNFD4153DY	15	0.4
	A4055	3G3EV-PLNFD4203DY	20	0.5
	A4075	3G3EV-PLNFD4303DY	30	0.6

Note: The “2P” in the rated current column indicates parallel connection.

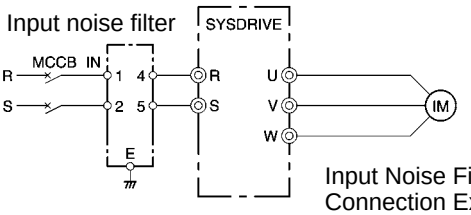
Connection Example

3-phase input



Input Noise Filter Connection Example

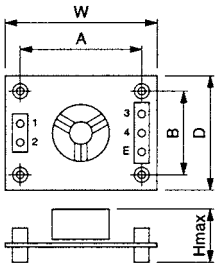
Single-phase input



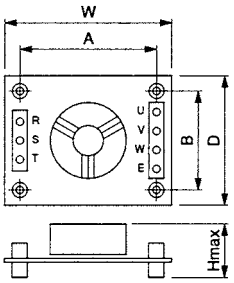
Input Noise Filter Connection Example

External Dimensions

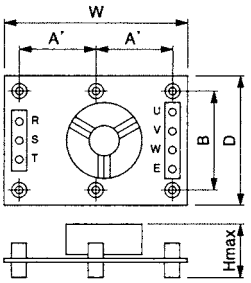
External Dimensions 1
(Single-phase Input)



External Dimensions 2
(Three-phase Input)

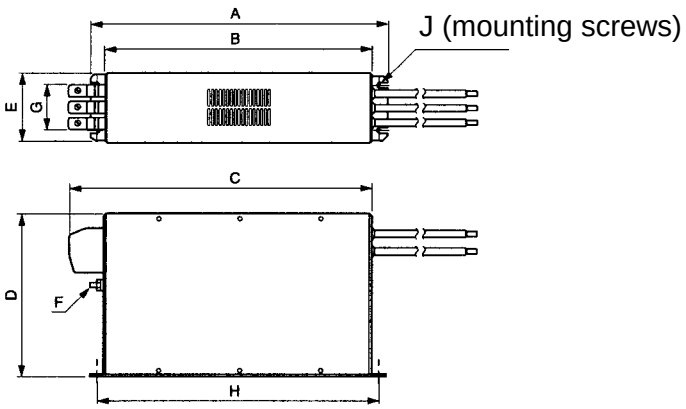


External Dimensions 3
(Three-phase Input)



Model 3G3EV-	External dimensions	Dimension (mm)						
		W	D	H max.	A	A'	B	Mounting screw
PLNFD2103DY	2	120	80	55	108	---	68	M4 × 4, 20 mm
PLNFD2153DY		120	80	55	108	---	68	M4 × 4, 20 mm
PLNFD2203DY		170	90	70	158	---	78	M4 × 4, 20 mm
PLNFD2303DY	3	170	110	70	---	79	98	M4 × 6, 20 mm
PLNFB2102DY	1	120	80	50	108	---	68	M4 × 4, 20 mm
PLNFB2152DY		120	80	50	108	---	68	M4 × 4, 20 mm
PLNFB2202DY		120	80	50	108	---	68	M4 × 4, 20 mm
PLNFB2302DY		130	90	65	118	---	78	M4 × 4, 20 mm
PLNFD4053DY	3	170	130	75	---	79	118	M4 × 6, 30 mm
PLNFD4103DY		170	130	95	---	79	118	M4 × 6, 30 mm
PLNFD4153DY		170	130	95	---	79	118	M4 × 6, 30 mm
PLNFD4203DY		200	145	100	---	94	133	M4 × 6, 30 mm
PLNFD4303DY		200	145	100	---	94	133	M4 × 6, 30 mm

External Dimensions 4
(3-phase Input)

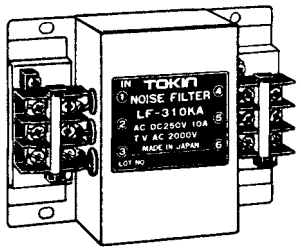


Model 3G3IV-	External dimensions	Dimension (mm)								
		A	B	C	D	E	F	G	I	J
PEN258L4207	4	329	300	325	185	70	M6	45	314	4-M5
PEN258L5507		329	300	353	185	80	M6	55	314	4-M5

Options

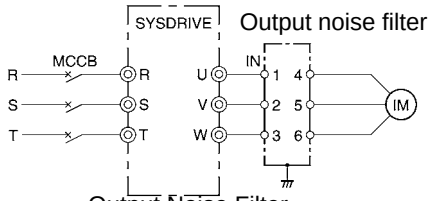
■ Output Noise Filter

3G3IV-PLF□ (Tokin)



The Output Noise Filter suppresses the generated noise of the Inverter from being transmitted to the output line. Connect the Output Noise Filter to the output side of the Inverter.

Connection Example

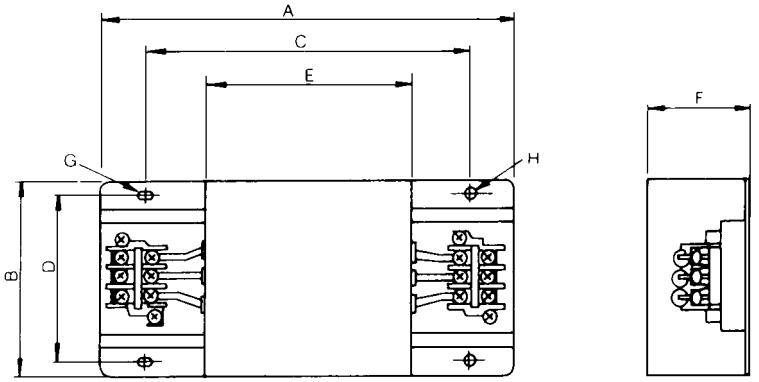


Output Noise Filter
Connection Example

Applicable Models

Inverter			Output Noise Filter	
Voltage class	Max. applicable motor capacity (kW)	Inverter capacity (kVA)	Model 3G3IV-	Rated current (A)
200-V class	0.1	0.3	PLF310KA	10
	0.2	0.6		
	0.4	1.1		
	0.75	1.9		
	1.5	3.0		
	2.2	4.2	PLF320KA	20
	3.7	6.7		
	5.5	9.5	PLF350KA	50
	7.5	13.0		
400-V class	0.2	0.9	PLF310KB	10
	0.4	1.4		
	0.75	2.6		
	1.5	3.7		
	2.2	4.2		
	3.7	6.6		
	5.5	11.0	PLF320KB	20
	7.5	14.0		

External Dimensions



Model 3G3IV-	Dimension (mm)									Weight (kg)
	Terminal board	A	B	C	D	E	F	G	H	
PLF310KA	TE-K5.5 M4	140	100	100	90	70	45	7 × 4.5 dia.	4.5 dia.	0.5
PLF320KA										0.6
PLF350KA	TE-K22 M6	260	180	180	160	120	65	7 × 4.5 dia.		2.0
PLF310KB	TE-K5.5 M4	140	100	100	90	70	45	7 × 4.5 dia.		0.5
PLF320KB										0.6

Inverter Models

■ Inverter Models

Rated voltage	Degree of protection	Max. applicable motor capacity	Model
3-phase 200 V AC	Panel-mounting type (equivalent to IP20)	0.1 kW	3G3MV-A2001
		0.2 kW	3G3MV-A2002
		0.4 kW	3G3MV-A2004
		0.75 kW	3G3MV-A2007
		1.5 kW	3G3MV-A2015
		2.2 kW	3G3MV-A2022
		3.7 kW	3G3MV-A2037
	Closed wall-mounting type (equivalent to IP20/NEMA1)	5.5 kW	3G3MV-A2055
		7.5 kW	3G3MV-A2075
Single-phase 200 V AC	Panel-mounting type (equivalent to IP20)	0.1 kW	3G3MV-AB001
		0.2 kW	3G3MV-AB002
		0.4 kW	3G3MV-AB004
		0.75 kW	3G3MV-AB007
		1.5 kW	3G3MV-AB015
		2.2 kW	3G3MV-AB022
		3.7 kW	3G3MV-AB037
3-phase 400 V AC	Panel-mounting type (equivalent to IP20)	0.2 kW	3G3MV-A4002
		0.4 kW	3G3MV-A4004
		0.75 kW	3G3MV-A4007
		1.5 kW	3G3MV-A4015
		2.2 kW	3G3MV-A4022
		3.7 kW	3G3MV-A4037
	Closed wall-mounting type (equivalent to IP20/NEMA1)	5.5 kW	3G3MV-A4055
		7.5 kW	3G3MV-A4075

■ Explanation of Product Code

3G3MV-A2007

Series name:
3G3MV Series

Max. applicable motor capacity

001	0.1 kW
002	0.2 kW
004	0.4 kW
007	0.75 kW
015	1.5 kW
022	2.2 kW
037	3.7 kW
055	5.5 kW
075	7.5 kW

Voltage class

2	3-phase 200 V AC (200-V class)
B	Single-phase 200 V AC (200-V class)
4	3-phase 400 V AC (400-V class)

Degree of protection

A	Panel-mounting type (IP10 or higher)/closed wall-mounting type

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