

OMRON

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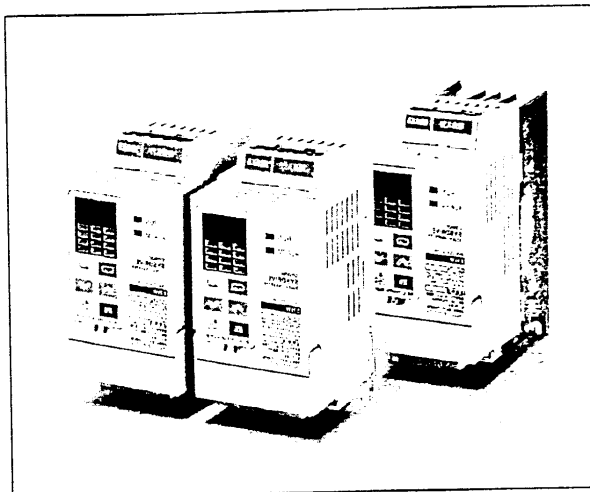
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SYSDRIVE 3G3EV Inverter Series

3G3EV

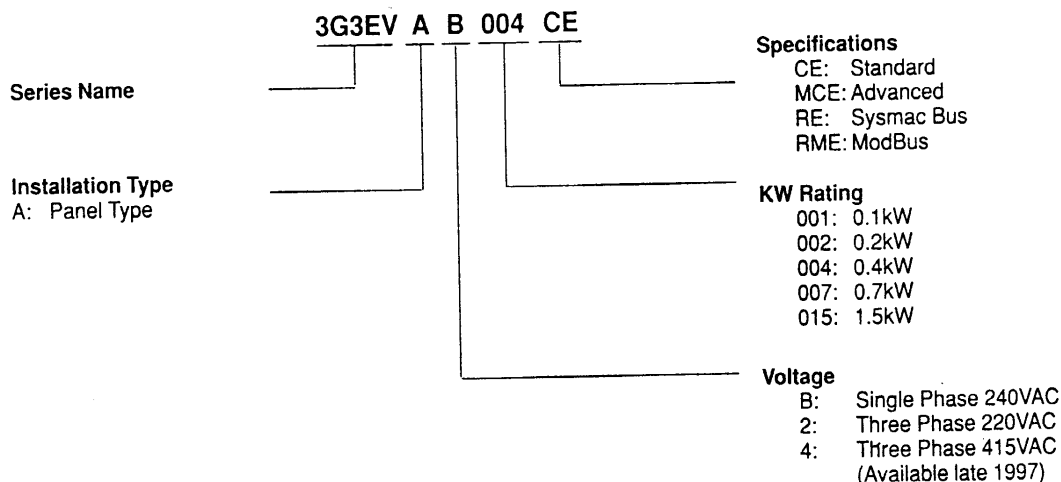
A compact, easy to use inverter series designed for a wide range of applications

- 0.1 to 1.5kW models.
- In-built operator.
- Footprint RFI filters available.
- Four models to choose from – Standard, Advanced, Sysmac Bus and ModBus.



Ordering Information

■ Part Numbers



■ Explanation of the Four Models

- CE** Standard model for simple speed control applications with one multi-function input, relay output, analogue input and operator.
- MCE** Advanced version to enable greater interface via more advanced parameter set, three multi-function inputs, relay output and multi-function output, analogue output and operator.
- RE** Sysmac Bus unit allows simple two wire control of up to 16 inverters with a transmission distance of 200m and transmission speed of 187.5 kBaud via an Omron Sysmac Bus Master module on either a C200H or CV PLC system.
- RME** ModBus version allows up to 31 inverters to be controlled using ModBus RTU protocol. RS232, 422 or 485 can be used, dependent upon the system. Baud rate up to 19.2kBaud available. Omron has developed a simple to use ModBus Master using an ASCII card for the C200H range of PLCs.

For full details on all of the above, please refer to the technical manuals as listed below:

Standard Model	I11
Advanced Model	I13
Sysmac Bus	I12
ModBus	Sysmac ModBus Software Operation Manual

Specifications

■ Rating

3G3EV model	Three-phase input	A2001	A2002	A2004	A2007	A2015
	Single/Three-phase input	AB001	AB002	AB004	AB007	---
Maximum applicable motor capacity (kW)		0.1	0.2	0.4	0.75	1.5
Rated output	Rated output capacity (kVA)	0.3	0.6	1.1	1.9	2.6
	Rated output current (A)	0.8	1.5	3.0	5.0	7.0
	Rated output voltage (V)	Three-phase 200 to 230 V (depending on input voltage)				
	Maximum frequency (Hz)	400 Hz (set in constant No. 24)				
Power supply	Rated voltage and frequency	3G3EV-A2□□□ (three-phase input): Three-phase, 200 to 230 VAC, 50/60 Hz 3G3EV-AB□□□ (three-phase input): Three-phase, 200 to 230 VAC, 50/60 Hz 3G3EV-AB□□□ (single-phase input): Single-phase, 200 to 240 VAC, 50/60 Hz				
	Allowable voltage fluctuation	-15% to +10%				
	Allowable frequency fluctuation	±5%				
Cooling method		Self-cooling				

■ Control Characteristics

Control method	Sine-wave PWM method (automatic torque boost)
Frequency control range	1.5 to 400 Hz
Frequency accuracy (temperature fluctuation)	Digital command: ±0.01% (-10°C to 50°C) Analogue command: ±1% (25 ± 10°C)
Frequency setting resolution	Digital command: 0.1 Hz (less than 100 Hz), 1 Hz (100 Hz or more) Analogue command: 0.06 Hz (60 Hz)
Frequency output resolution	0.1 Hz (operation resolution)
Overload resistance	1 minute or less when 150% of rated output current is received
Frequency setting signal	0 to 10 VDC (20 kΩ) or 4 to 20 mA (250 Ω) Note This setting can be switched using the internal DIP switch.
Acceleration/Deceleration time	0.0 to 999 seconds (acceleration and deceleration times are set separately)
Braking torque (continuous regenerative braking)	Approximately 20% Note 125% to 220% when braking resistor is externally installed.
Voltage/Frequency characteristics	Simple V/f pattern setting

■ General Specifications

Installation type	Panel mounting
Installation site	Indoor (free from corrosive gases and dust)
Ambient temperature for operation	-10° to 50°C
Humidity	90% or less (no-condensing)
Ambient temperature for storage	-20° to 60°C
Altitude	1,000 m max.
Vibration resistance	Less than 20 Hz: 1G {9.8 m/s ² } or less 20 to 50 Hz: 0.2G {1.96 m/s ² } or less
Cable length between inverter and motor	100 m max.

■ Protection Functions

Motor protection	Electronic thermal protection
Instantaneous overcurrent protection	When 250% of the rated output amperage is exceeded
Overload protection	When 150% of the rated output amperage is exceeded for one minute
Overvoltage protection	Stops the system when DC voltage of the main circuit exceeds approximately 410 V

Voltage drop protection	3G3EV-A2□□□: Stops the system when voltage drops below approximately 200 V 3G3EV-AB□□□: Stops the system when voltage drops below approximately 160 V
Protection from instantaneous power interruption	Stops the system when a power interruption lasts for 15 ms or more. Operation can be continued by setting constant No. 36 as follows: Operation is continued if a power interruption only lasts for approximately 0.5 second or less. Operation is continued unconditionally.
Radiation fin overheat protection	Detects a fin temperature of $110 \pm 10^\circ\text{C}$
Ground protection	Overcurrent level protection

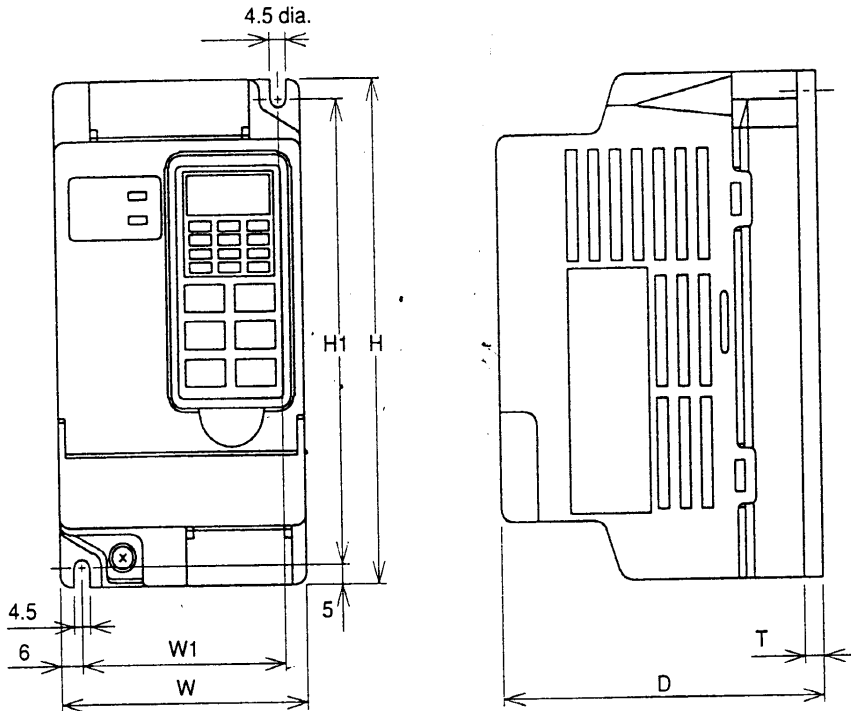
Dimensions

Outside/Mounting Dimensions

All dimensions are in millimetres.

■ 3G3EV-A2001 to 3G3EV-A2004 (0.1 to 0.4 kW): Three-phase 200-VAC Input

■ 3G3EV-AB001 to 3G3EV-AB002 (0.1 to 0.2 kW): Single/Three-phase 200-VAC Input



Note 1: For the 3G3EV-A2001, 3G3EV-A2002, and 3G3EV-AB001, a U-shaped notch (4.5 mm wide) is provided instead of the upper mounting hole (4.5 mm in diameter).

Note 2: Install the Inverter with two M4 bolts.

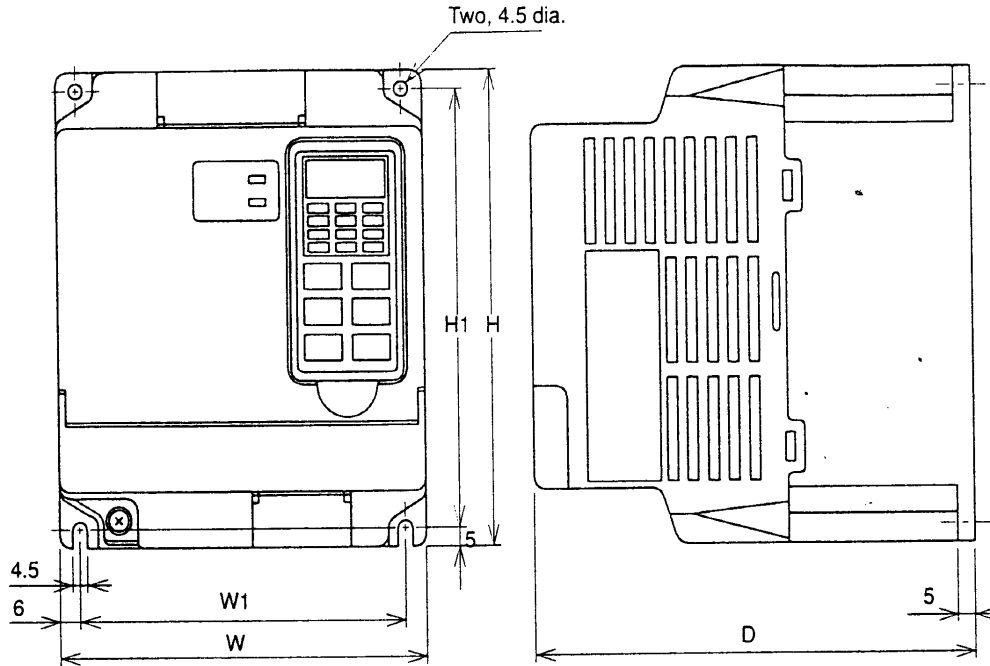
● Three-phase 200-VAC Input Model

3G3EV model	Output	W	H	D	W1	H1	T	Weight (kg)
A2001	0.1 kW	68	128	75	56	118	3	Approx. 0.5
A2002	0.2 kW			88			3	Approx. 0.6
A2004	0.4 kW			110			5	Approx. 0.9

● Single/Three-phase 200-VAC Input Model

3G3EV model	Output	W	H	D	W1	H1	T	Weight (kg)
AB001	0.1 kW	68	128	75	56	118	3	Approx. 0.6
AB002	0.2 kW			108			5	Approx. 0.9

- 3G3EV-A2007 to 3G3EV-A2015 (0.75 to 1.5 kW):
Three-phase 200-VAC Input
- 3G3EV-AB004 to 3G3EV-AB007 (0.4 to 0.75 kW):
Single/Three-phase 200-VAC Input



Note: Install the Inverter with four M4 bolts.

● Three-phase 200-VAC Input Model

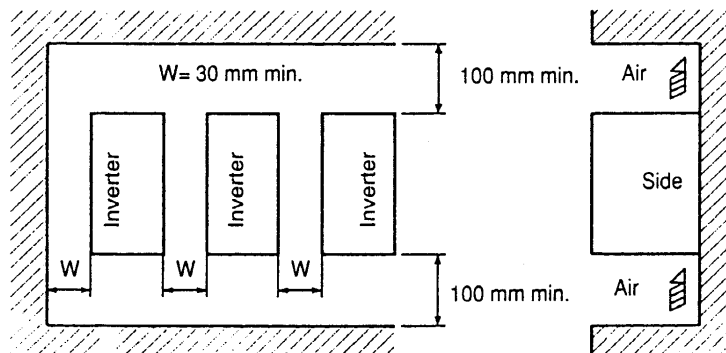
3G3EV model	Output	W	H	D	W1	H1	Weight (kg)
A2007	0.75 kW	108	128	130	96	118	Approx. 1.3
A2015	1.5 kW			155			Approx. 1.5

● Single/Three-phase 200-VAC Input Model

3G3EV model	Output	W	H	D	W1	H1	Weight (kg)
AB004	0.4 kW	108	128	130	96	118	Approx. 1.3
AB007	0.75 kW						Approx. 1.3

■ Installation Space

- When installing the Inverter, always provide the following installation space to allow normal heat dissipation from the Inverter:



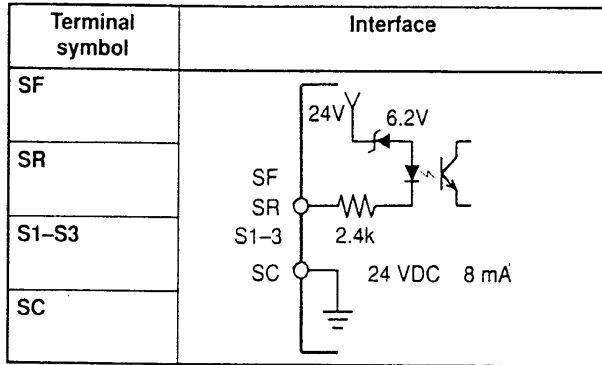
■ Ambient Temperature Control

- To enhance operation reliability, the Inverter should be installed in an environment free from extreme temperature rises.
- If the Inverter is installed in an enclosed environment such as a box, use a cooling fan or air conditioner to maintain the internal air temperature below 50°C.
- The surface temperature of the Inverter may reach 30°C higher than the ambient temperature. Therefore, keep all thermally susceptible devices and wires away from the Inverter.

■ Control Circuit Connections

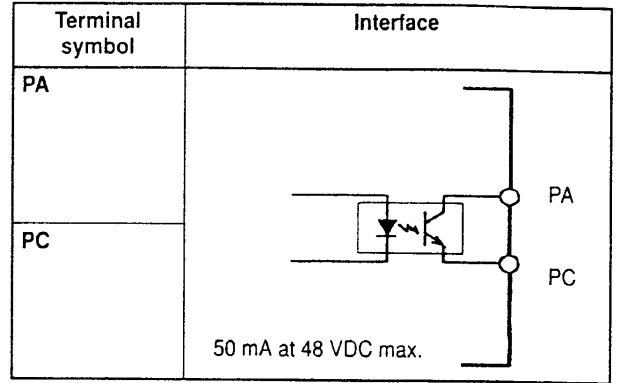
Please refer to individual technical manuals if in doubt.

● Input Terminal



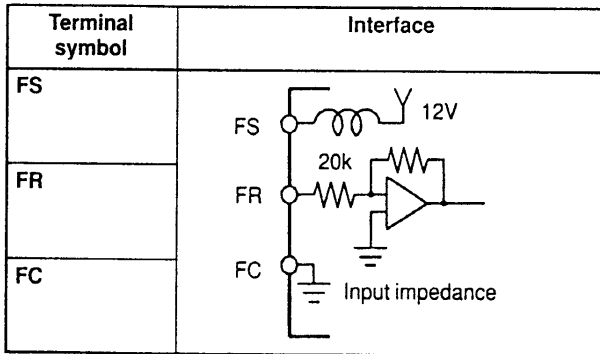
Note: S2 and S3 are only available on the advanced model

● Output Terminals

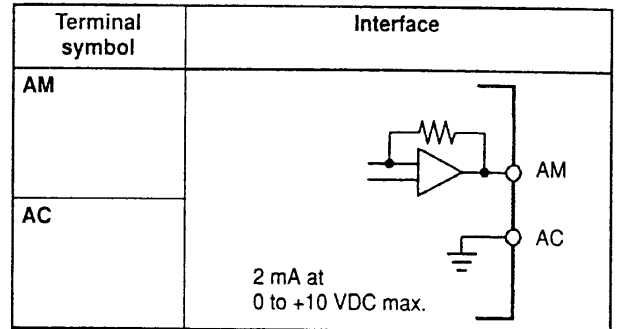


Note: (only available on the advanced model)

● Analogue Input

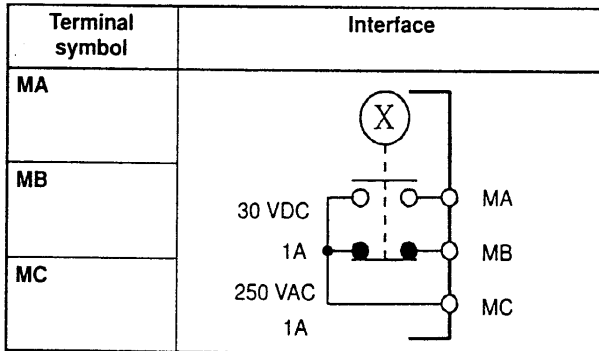


● Analogue Output



Note: (only available on the advanced model)

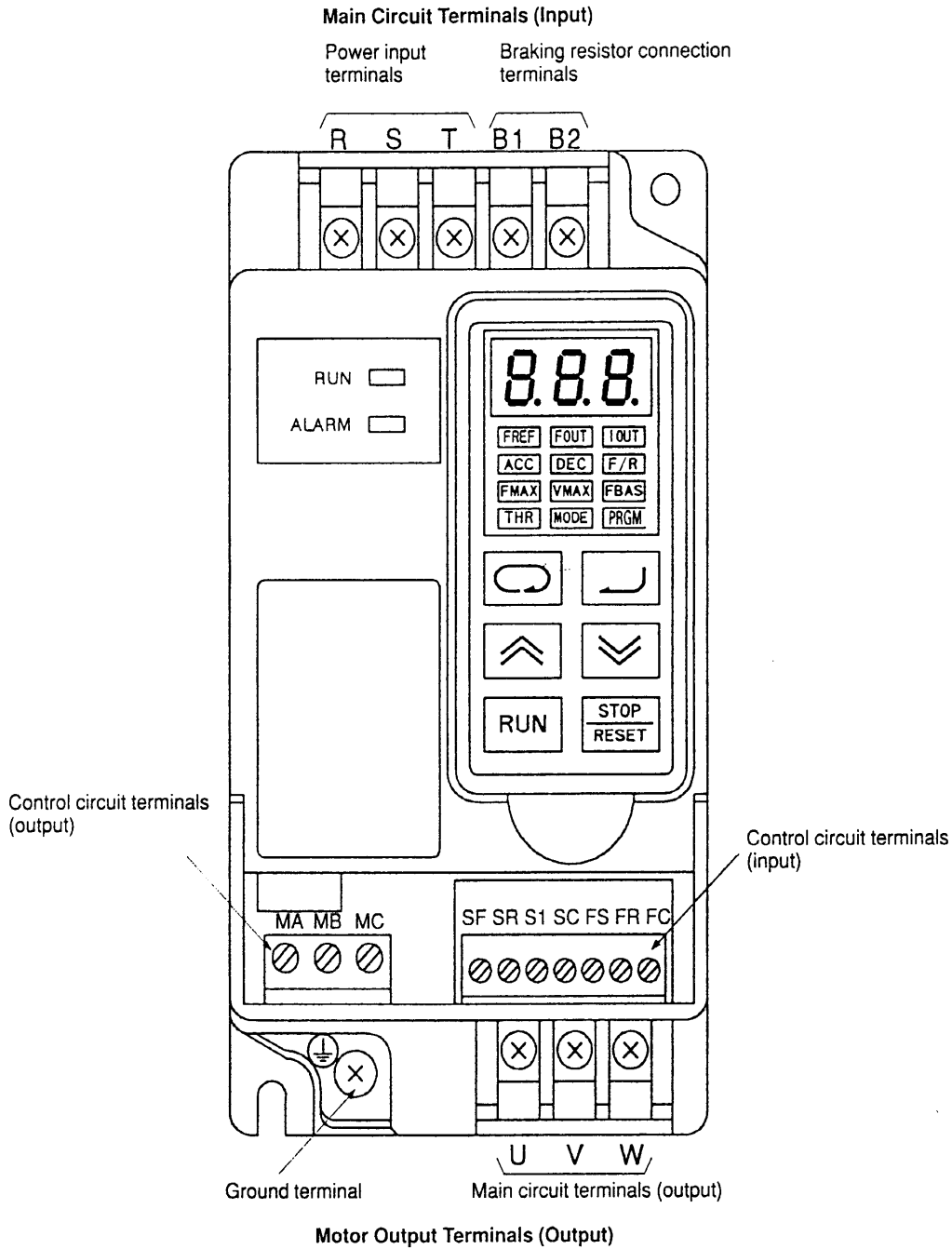
● Output Terminals



■ Terminal Block Layout Configuration

Typical layout – Example shows Standard model.

● Name of Each Terminal Block

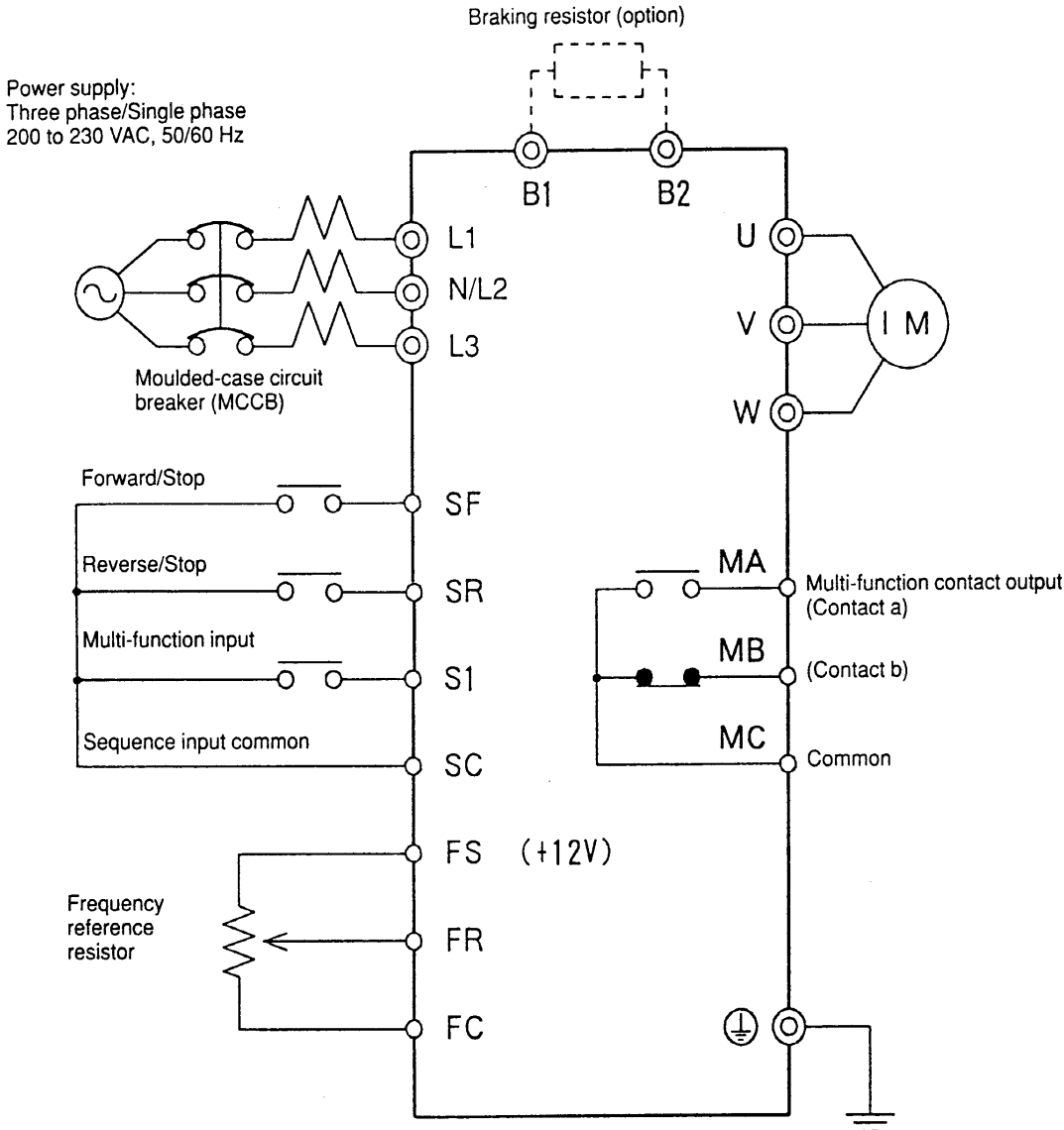


Note: This diagram shows an Inverter with all terminal block covers removed.

Terminal Layout and Parameters List

- Standard model: 3G3EV A ___ CE

Terminal Layout



Note: If a 3G3EV-AB□□□ is used in single-phase input mode, single-phase 200 to 240 VAC power with a frequency of 50/60 Hz must be input between terminals L1 and L2.

Parameter Listing

Constant no.	Dedicated indicator	Description	Setting range	Factory setting
n01		Constant write-inhibit selection/constant initialization	0, 1, 8, 9	1
n02	MODE	Operation mode selection	0 to 5	0
n04	F/R	Forward/reverse rotation selection	For, rEv	For
n06		Multi-function input selection	0 to 4	1
n09		Multi-function output selection	0, 1, 2	1
n11	FREF	Frequency reference 1	0.0 to 400	6.0 (Hz)
n12	FREF	Frequency reference 2	0.0 to 400	0.0 (Hz)
n20	ACC	Acceleration time	0.0 to 999	10.0 (seconds)
n21	DEC	Deceleration time	0.0 to 999	10.0 (seconds)
n24	FMAX	Maximum frequency	50.0 to 400	60.0 (Hz)

Constant no.	Dedicated indicator	Description	Setting range	Factory setting
n25	VMAX	Maximum voltage	1 to 255	200 (V)
n26	FBAS	Maximum voltage frequency	1.6 to 400	60.0 (Hz)
n31	THR	Electronic thermal reference current	0.0 to see note 1	See note 1
n33		Stall prevention during deceleration	0, 1	0
n36		Operation after recovery from power interruption	0, 1, 2	0
n37		Carrier frequency	1, 2, 3, 4	4
n39		Frequency reference gain	0.10 to 2.00	1.00
n40		Frequency reference bias	-99 to 99	0 (%)
n68		Error history	(Display only)	

Note 1: The setting range and factory setting for n31 (electronic thermal reference current) depend on the Inverter model. For details, refer to User's Manual.

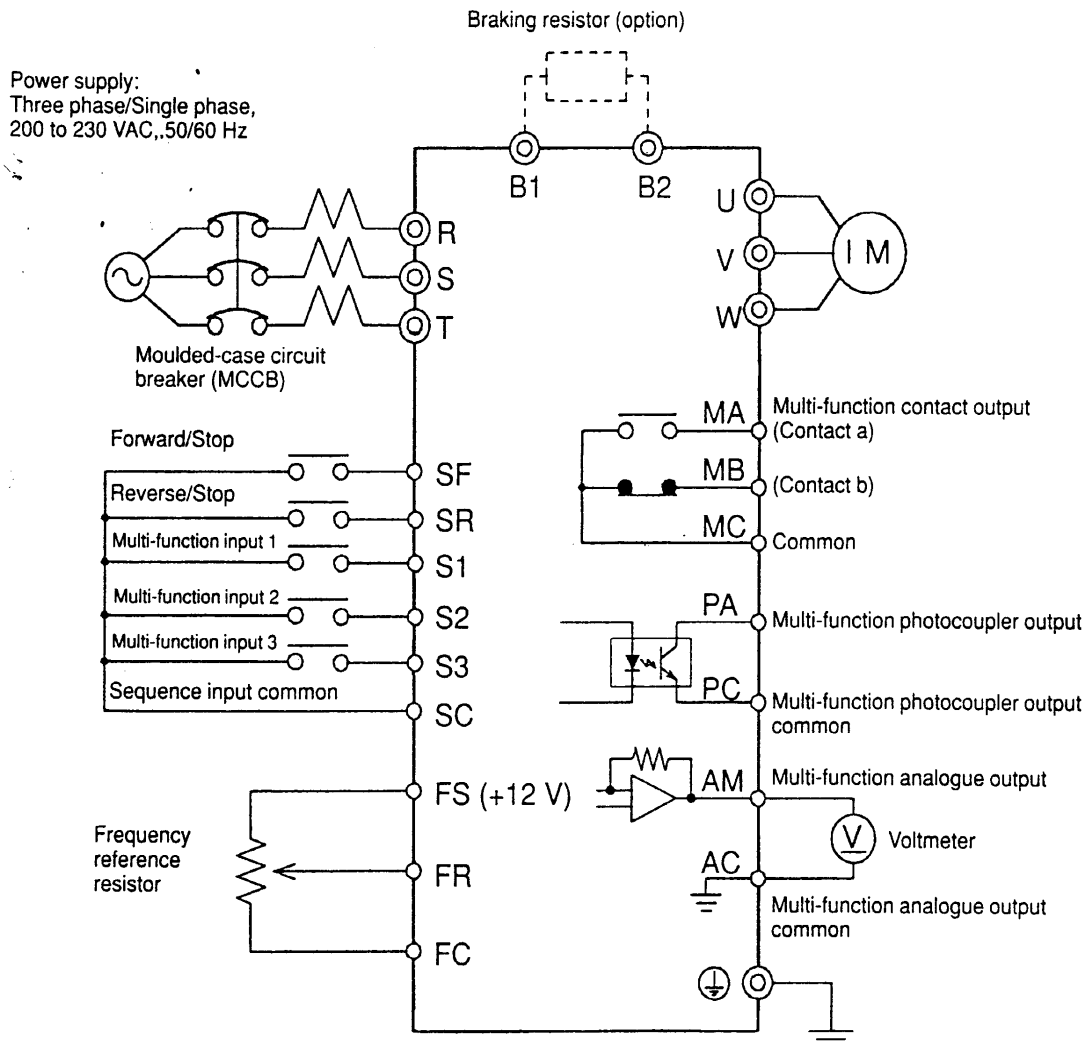
Normally, set the rated motor amperage in n31.

Note 2: Displaying the constant no. corresponding to an indicator in the "Dedicated indicator" column lights the indicator.

Note 3: Constant no. 02 (n02) and subsequent constants can be set only when constant no. 01 (n01) is set to 1.

• **Advanced Model: 3G3EV A ___ MCE**

Terminal Layout



Note: If a 3G3EV-AB□□□M is used in single-phase input mode, single-phase 200 to 240 VAC power with a frequency of 50/60 Hz must be input between terminals R and S.

Parameter Listing

Constant no.	Dedicated indicator	Description	Setting range	Factory setting
n01		Constant write-inhibit selection/constant initialization	0, 1, 8, 9	1
n02	MODE	Operation mode selection	0 to 5	0
n03		Interruption mode selection	0, 1	0
n04	F/R	Forward/reverse rotation selection	For, Rev	For
n05		Reverse rotation-inhibit selection	0, 1	0
n06		Multi-function input selection 1 (S1)	0 to 14	1
n07		Multi-function input selection 2 (S2)	1 to 14	2
n08		Multi-function input selection 3 (S3)	1 to 15	4
n09		Multi-function output selection 1 (MA and MB)	0 to 10	1
n10		Multi-function output selection 2 (PA)	0 to 10	0
n11	FREF	Frequency reference 1	0.0 to 400	6.0 (Hz)
n12	FREF	Frequency reference 2	0.0 to 400	0.0 (Hz)
n13	FREF	Frequency reference 3	0.0 to 400	0.0 (Hz)
n14	FREF	Frequency reference 4	0.0 to 400	0.0 (Hz)
n15	FREF	Frequency reference 5	0.0 to 400	0.0 (Hz)
n16	FREF	Frequency reference 6	0.0 to 400	0.0 (Hz)
n17	FREF	Frequency reference 7	0.0 to 400	0.0 (Hz)
n18	FREF	Frequency reference 8	0.0 to 400	0.0 (Hz)
n19		Inching frequency command	0.0 to 400	6.0 (Hz)
n20	ACC	Acceleration time 1	0.0 to 999	10.0 (seconds)
n21	DEC	Deceleration time 1	0.0 to 999	10.0 (seconds)
n22	ACC	Acceleration time 2	0.0 to 999	10.0 (seconds)
n23	DEC	Deceleration time 2	0.0 to 999	10.0 (seconds)
n24	FMAX	Maximum frequency	50.0 to 400	60.0 (Hz)
n25	VMAX	Maximum voltage	1 to 255	200 (V)
n26	FBAS	Maximum voltage frequency	0.6 to 400	60.0 (Hz)
n27		Intermediate output frequency	0.5 to 399	1.5 (Hz)
n28		Intermediate output frequency voltage	1 to 255	12 (V)
n29		Minimum output frequency	0.5 to 10.0	1.5 (Hz)
n30		Minimum output frequency voltage	1 to 50	12 (V)
n31	THR	Electronic thermal reference current	0.0 to see note 1	See note 1
n32		Electronic thermal protection	0 to 4	0
n33		Stall prevention during deceleration	0, 1	0
n34		Stall prevention level during acceleration	30 to 200	170 (%)
n35		Stall prevention level during operation	30 to 200	160 (%)
n36		Operation after recovery from instantaneous power interruption	0, 1, 2	0
n37		Carrier frequency	1, 2, 3, 4	4
n38		Automatic torque boost gain	0.0 to 3.0	1.0
n39		Frequency reference gain	0.10 to 2.00	1.00 (times)
n40		Frequency reference bias	-99 to 99	0 (%)
n41		Frequency reference upper limit	0 to 110	100 (%)

Constant no.	Dedicated indicator	Description	Setting range	Factory setting
n43		Frequency reference input terminal	0, 1	0
n44		Multi-function analogue output	0, 1	0
n45		Multi-function analogue output gain	0.00 to 2.00	0.30
n46		DC control current	0 to 100	50 (%)
n47		Interruption DC control time	0.0 to 5.0	0.5 (seconds)
n48		Startup DC control time	0.0 to 5.0	0.0 (seconds)
n49		S-shape acceleration and deceleration characteristic	0 to 3	0
n50		Over-torque detection	0 to 4	0
n51		Over-torque detection level	30 to 200	160 (%)
n52		Over-torque detection time	0.1 to 10.0	0.1 (seconds)
n53		Frequency detection level	0.0 to 400	0.0 (Hz)
n54		Slip compensation gain	0.0 to 9.9	0.0 (%)
n55		Motor current with no load	0 to 99	40 (%)
n56		Jump frequency 1	0.0 to 400	0.0 (Hz)
n57		Jump frequency 2	0.0 to 400	0.0 (Hz)
n58		Jump frequency 3	0.0 to 400	0.0 (Hz)
n59		Jump width	0.0 to 25.5	1.0 (Hz)
n60		Number of fault retries	0 to 10	0 (times)
n68		Error history	(Display only)	
n69		PROM number (for manufacturer's reference)	(Display only)	

Note 1 The setting range and factory setting for n31 (electronic thermal reference current) depend on the Inverter model. For details, refer to User's Manual.

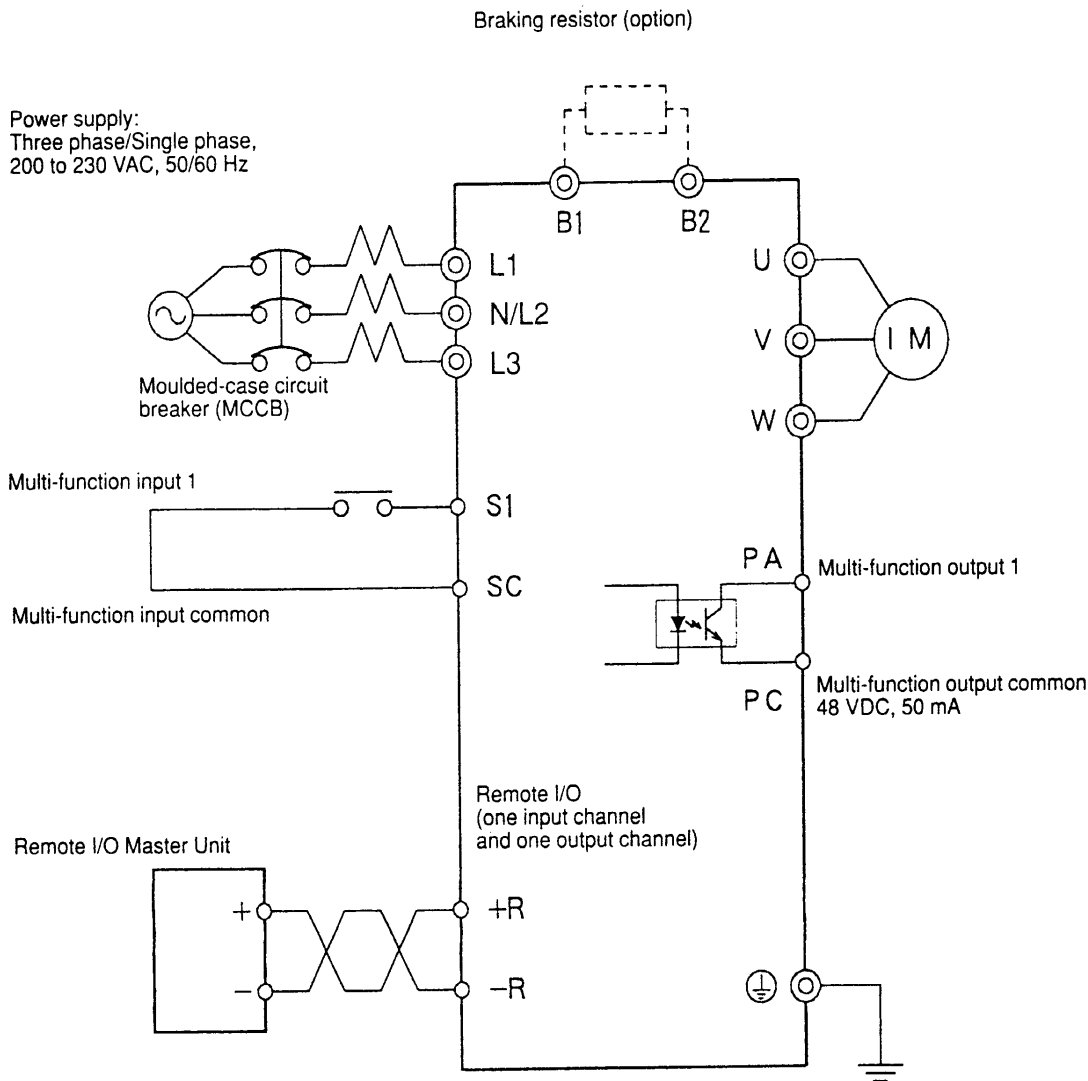
Normally, set the rated motor amperage in n31.

Note 2 Displaying the constant no. corresponding to an indicator in the "Dedicated indicator" column lights the indicator.

Note 3 Constant no. 02 (n02) and subsequent constants can be set only when constant no. 01 (n01) is set to 1.

• Sysmac Bus Model: 3G3EV A ___ RE

Terminal Layout



Note 1: If a 3G3EV-AB□□□□R is used in single-phase input mode, 200 to 240 VAC power with a frequency of 50/60 Hz must be input between terminals L1 and L2.

Note 2: Use cabtine cables (VCTF 0.75 x 2C) to connect to the Remote I/O Master Unit.

Parameter Listing

Constant no.	Dedicated indicator	Description	Setting range	Factory setting
n01		Constant write-inhibit selection/constant initialization	0, 1, 8	1
n02	MODE	Operation mode selection	0, 1	1
n03		Stop mode selection	0, 1	0
n04	F/R	Forward/Reverse rotation selection	For, Rev	For
n06		Multi-function input selection 1	0 to 14	1
n07		Multi-function input selection 2	1 to 14	2
n08		Multi-function input selection 3	1 to 15	4
n09		Multi-function output selection 1	0 to 11	1
n10		Multi-function output selection 2	0 to 11	2
n11	FREF	Frequency reference 1	0.0 to 400	6.0 (Hz)
n12	FREF	Frequency reference 2	0.0 to 400	0.0 (Hz)
n13	FREF	Frequency reference 3	0.0 to 400	0.0 (Hz)
n14	FREF	Frequency reference 4	0.0 to 400	0.0 (Hz)

Constant no.	Dedicated indicator	Description	Setting range	Factory setting
n15	FREF	Frequency reference 5	0.0 to 400	0.0 (Hz)
n16	FREF	Frequency reference 6	0.0 to 400	0.0 (Hz)
n17	FREF	Frequency reference 7	0.0 to 400	0.0 (Hz)
n18	FREF	Frequency reference 8	0.0 to 400	40.0 (Hz)
n20	ACC	Acceleration time 1	0.0 to 999	10.0 (seconds)
n21	DEC	Deceleration time 1	0.0 to 999	10.0 (seconds)
n22	ACC	Acceleration time 2	0.0 to 999	10.0 (seconds)
n23	DEC	Deceleration time 2	0.0 to 999	10.0 (seconds)
n24	FMAX	Maximum frequency	50.0 to 400	60.0 (Hz)
n25	VMAX	Maximum voltage	1 to 255	200 (V)
n26	FBAS	Maximum voltage frequency	1.6 to 400	60.0 (Hz)
n31	THR	Electronic thermal reference current	0.0 or more (see note 1)	See note 1
n33		Stall prevention during deceleration	0, 1	0
n36		Operation after recovery from power interruption	0, 1, 2	0
n37		Carrier frequency	1, 2, 3, 4	4
n50		Over-torque detection function selection	0 to 4	0
n51		Over-torque detection level	30 to 200	160 (%)
n52		Over-torque detection time	0.1 to 10.0	0.1 (seconds)
n53		Frequency detection level	0.0 to 400	0.0 (Hz)
n67		Unit no. (see note 4)	0 to 15	0
n68		Error history	(Display only)	

Note 1: The setting range and factory setting for n31 (electronic thermal reference current) depend on the Inverter model. For details, refer to User's Manual
Normally, set the rated motor amperage in n31.

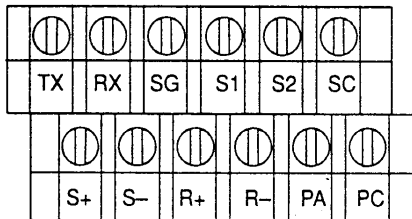
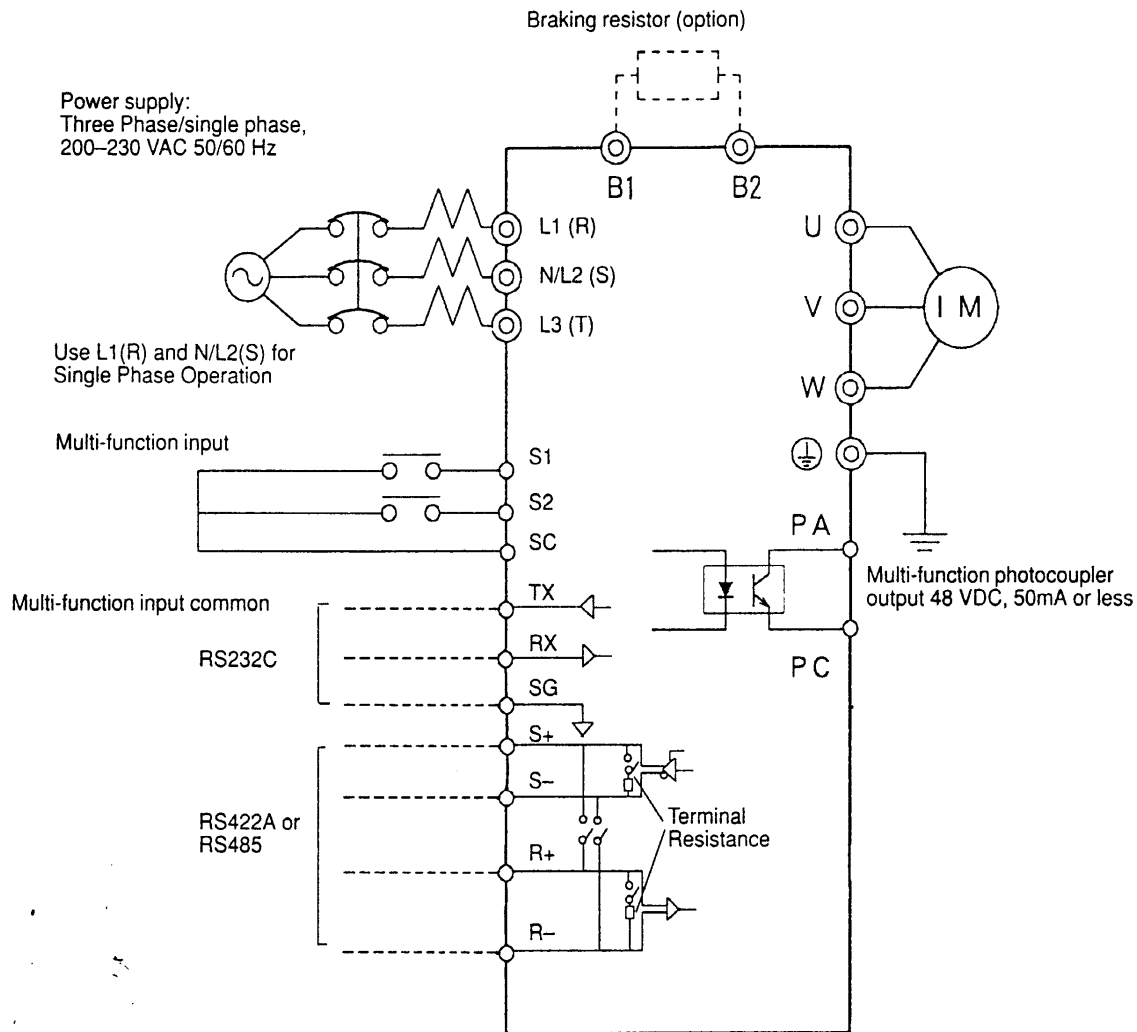
Note 2: Displaying the constant no. corresponding to an indicator in the "Dedicated indicator" column lights the indicator.

Note 3: Constant no. 02 (n02) and subsequent constants can be set only when constant no. 01 (n01) is set to 1.

Note 4: After setting the Unit no. in n67, turn the power off (make sure that all LEDs go off), then turn the power on.
This makes the setting valid.

• ModBus Model: 3G3EV A ___ RME

Terminal Layout



Parameter Listing

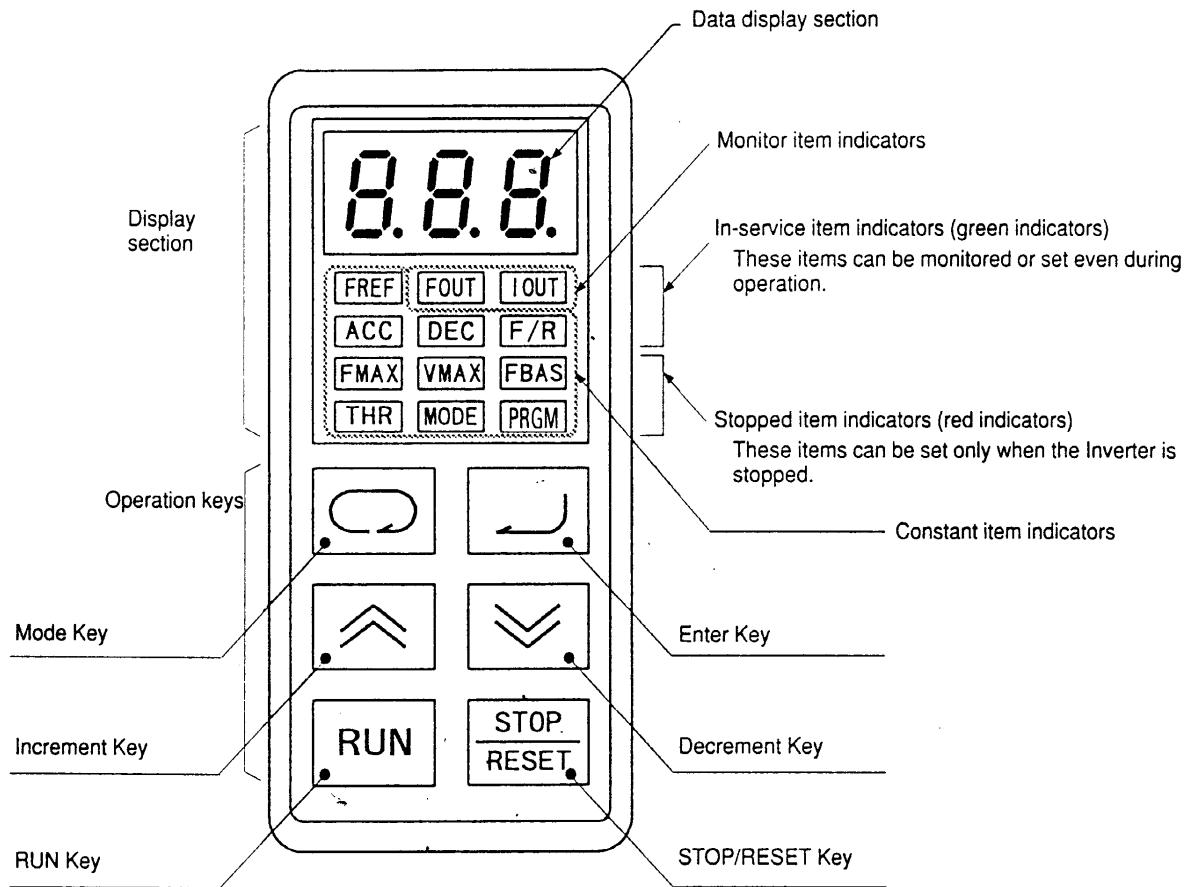
The ModBus version has all of the parameters of the Advanced model except nos. 39, 40, 43, 44 and 45. In addition, the following parameters need to be set for correct operation.

Constant no.	Description	Function	Default Factory setting
n39	Units for Frequency Reference	0=0.1Hz 1=0.01Hz 2=30000/100% 3=0.01%	1
n40	Ceased Communications Detection	0=Provided (Safety critical) 1=Not Provided (Non-safety critical)	1
n63	Baud Rate	0=2400 1=4800 2=9600 3=19200	2
n64	Parity Selection	0=Odd 1=Even 2=None	2
n67	Slave Address	1-31	1

Using the Digital Operator

Name and Function of Each Component

■ Name of Each Component



■ Function of Each Component

● Display Sections

Data display section	Reference frequency values, output frequency values, output current values, constant settings, and error codes are displayed.
Monitor item indicators	<p>FOUT When this indicator is lit, an output frequency value (Hz) is displayed in the data display section.</p> <p>IOUT When this indicator is lit, an output current value (effective current: A) is displayed in the data display section.</p>
Constant item indicators	The value set in the constant corresponding to the lit indicator is displayed in the data display section. A new value can be set.

Note: In-service item indicators (green indicators):

These items can be monitored or the constant for each item can be set even during operation.


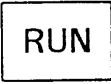
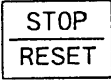
Stopped item indicators (red indicators):

Constants for these items can be set only when the Inverter is stopped.

In this display, the direction of motor rotation is displayed during operation.

● Operation Keys

Key operation	Indicator	Explanation
	Mode Key	Press this key to switch between monitor item indicators and constant item indicators.
	Enter Key	Press this key to register the value set in a constant.
	Increment Key	Press this key to increase a constant no. or the value of a constant.




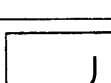
Key operation	Indicator	Explanation
	Decrement Key	Press this key to decrease a constant no. or the value of a constant.
	RUN Key	Press this key to start the Inverter. (This key is valid only when Digital Operator run mode is selected and all indicators in the stopped item indicators are not lit.)
	STOP/RESET Key	Press this key to stop the Inverter. (This key is valid only when Digital Operator run mode is selected.) Also, press this key to reset the Inverter when an error has occurred.

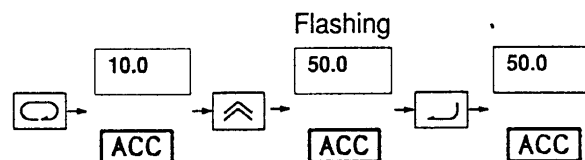
■ Setting Constants

● Setting Constants Using a Dedicated Indicator

Example:

Changing acceleration time from 10 seconds to 50 seconds.

Key operation	Indicator	Example of data display	Explanation
	ACC	10.0	Press the Mode Key until the ACC indicator lights up.
	ACC	Flashing 10.1	Press the Increment Key. The data display section flashes (indicating that the data is yet to be registered).
	ACC	Flashing 50.0	Press the Increment Key until "50.0" appears in the data display section. Holding down the key changes data quickly.
	ACC	50.0	Press the Enter Key to complete the setting procedure.



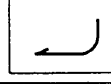



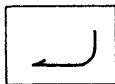
Note: If the new data is not to be registered, press the Mode Key instead of the Enter Key. The new data becomes invalid and the next item is displayed.

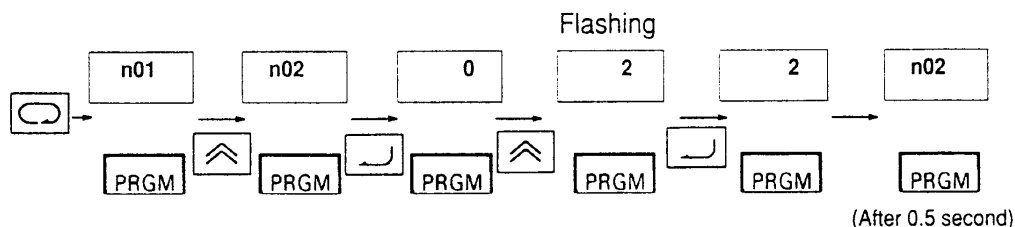
● Setting Constants Using the PRGM Indicator

Example:

Changing the value of constant no. 02 (operation mode selection) to "2."

Key operation	Indicator	Example of data display	Explanation
	PRGM	n01	Press the Mode Key until the PRGM indicator lights up.
	PRGM	n02	Press the Increment Key. "n02" appears in the data display section.
	PRGM	0	Press the Enter Key. The value of constant no. 02 is displayed.
	PRGM	Flashing 2	Change the value to "2" by pressing the Increment Key. The data display section flashes (indicating that the value is yet to be registered).

Key operation	Indicator	Example of data display	Explanation
	PRGM	2	Press the Enter Key. The data display section stops flashing.
	PRGM	n02	After approximately 0.5 second, the data display section returns to the constant no. display ("n02").



Note 1: If the new data is not to be registered, press the Mode Key instead of the Enter Key. The new data becomes invalid and the constant no. display ("n02") is returned.

Note 2: Holding down the Increment Key or Decrement Key changes data quickly.

Protective and Diagnostic Functions

The 3G3EV has excellent protective and diagnostic functions. The RUN and ALARM indicators on the front panel indicate the current Inverter status, and the data display section also displays information about an error that has occurred. These functions therefore enable the user to take the appropriate actions to correct most errors.

List of Error Codes

Inverter status	Indicator		Data display	Description
	RUN	ALARM		
Normal	Flashes	Not lit	---	Ready to run
	Lit	Not lit	---	Normal operation in progress
Warning	Flashes	Flashes	EF	Simultaneous input of forward and reverse rotation commands
	Lit	Flashes	Uu	Main circuit undervoltage (UV)
			ou	Main circuit overvoltage (OV)
			oH	Radiation fin overheated (OH)
		Stp	Digital Operator stopped (STP)	
Protective mechanism actuated	Not lit	Lit	oC	Overcurrent (OC)
			ou	Main circuit overvoltage (OV)
			Uu1	Main circuit undervoltage (UV1)
			Uu2	Control power supply fault (UV2)
			oH	Radiation fin overheated (OH)
			oL1	Motor overload (OL1)
			oL2	Inverter overload (OL2)
Inverter error	Not lit	Lit	F00	Initial memory error
			F01	ROM error
			F04	Constant error
			F05	A/D converter error
			F06	Option error
	Not lit	Not lit	(Not lit)	Control circuit error

■ Data Display and Action to be Taken when Warning Status Arises

The ALARM indicator flashes when warning status arises. The data display section also flashes.

When warning status arises, no error code is output.




Eliminating the cause recovers the system automatically.

Data display	Description	Action
EF flashing	Simultaneous input of forward and reverse rotation commands Forward and reverse rotation commands were simultaneously input for 0.5 second or more. The Inverter decelerates and stops the motor.	Review the sequence.
Uu flashing	Main circuit undervoltage (UV) The DC voltage of the main circuit dropped below the low-voltage detection level when the Inverter was stopped.	Check the power voltage. Check the power input line for disconnection. Check the terminal block screws for looseness.
ou flashing	Main circuit overvoltage (OV) The DC voltage of the main circuit exceeded the overvoltage detection level when the Inverter was stopped.	Check the power voltage.
oH flashing	Radiation fin overheated (OH) The radiation fin overheated when the Inverter was stopped.	Check the ambient temperature. Install a cooling fan or air conditioner.
Stp flashing	Digital Operator stopped (STP) The STOP/RESET Key on the Digital Operator was pressed while the Inverter was being operated using control circuit terminals SF and SR. The Inverter decelerates and stops the motor.	Open both SF and SR.

■ Data Display and Action to be Taken when Protective Mechanism is Actuated

The ALARM indicator lights up when the protective mechanism is actuated. In this event, Inverter output is shut off, and the motor coasts to a stop.

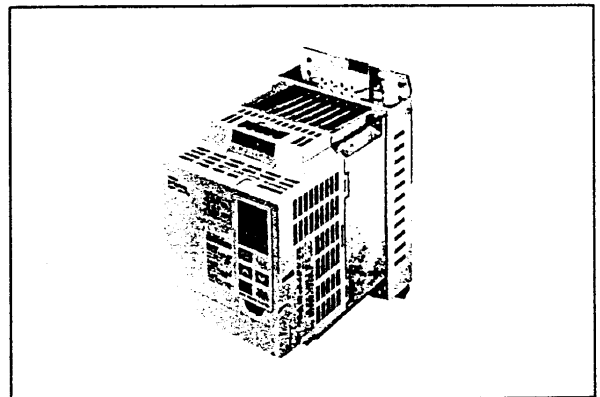
Check the cause of the error, take the necessary action, and perform fault reset or turn the power off, then on.

Data display	Description	Cause and action
oC	Overcurrent (OC) The Inverter output current instantaneously exceeded 250% of the rated amperage.	The output side of the Inverter is shorted or grounded. Load inertia is excessive. The acceleration and deceleration time settings are too short. A special motor is used. The motor was started during free running. The magnetic contactor on the output side of the Inverter was opened and closed.  Determine the cause of the error, take the necessary action, and reset the system.
ou	Main circuit overvoltage (OV) Because regenerative energy from the motor was excessive, the DC voltage of the main circuit exceeded approximately 410 V.	The deceleration time setting is too short.  Increase the deceleration time. Connect a braking resistor (or braking resistor unit).
Uu1	Main circuit undervoltage (UV1) The DC voltage of the main circuit dropped below the specified level. 3G3EV-A2□□□□: Approximately 200 V or less 3G3EV-AB□□□□: Approximately 160 V or less	The input power voltage dropped. Open-phase occurred. An instantaneous power interruption occurred.  Check the power voltage. Check the power input line for disconnection. Check the terminal block screws for looseness.
Uu2	Control power supply fault (UV2)	Turn the power off, then on.

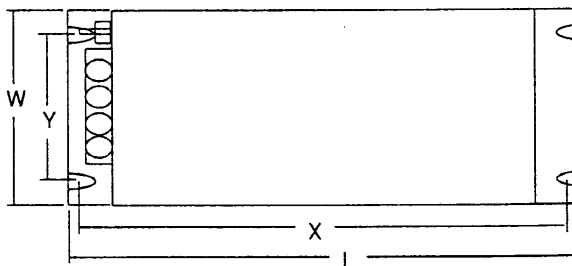
oH	Radiation fin overheated (OH) The radiation fin overheated because of ambient temperature rise or Inverter temperature rise due to overload.	Load is excessive. ⇒ Reduce the load. The V/f characteristics are inappropriate. ⇒ Reset constant Nos. 24 to 26. The acceleration/deceleration time or cycle time is too short. ⇒ Increase the acceleration/deceleration time or cycle time. The ambient temperature is too high. ⇒ Install a cooling fan or air conditioner.
oL1	Motor overload (OL1) The electronic thermal relay actuated the motor overload protection function.	Review the load size, V/f characteristics, acceleration/deceleration time, and cycle time. Set the rated motor amperage in constant No. 31 (electronic thermal reference current).
oL2	Inverter overload (OL2) The electronic thermal relay actuated the Inverter overload protection function.	Review the load size, V/f characteristics, acceleration/deceleration time, and cycle time. Review the Inverter capacity.
oL3	Over-torque (OL3) The flow of current exceeded the value determined with the constant set in n51 for more than the specified period determined with the constant set in n52.	Make sure that the n51 and n52 settings are appropriate. Check the operating status of the mechanical system and remove the cause of the error.
EF1	External fault (EF1) The Inverter received abnormal input from external circuits.	Review the external circuits. Review the external sequence. Check the signal line of multi-function contact input for disconnection.

RFI Filters and Installation

- A range of two slimline footprint type RFI filters.
- Specifically designed for the 3G3EV Inverter Drive.
- Ensures cabinet size is reduced to a minimum.



■ Part Numbers and Dimensions



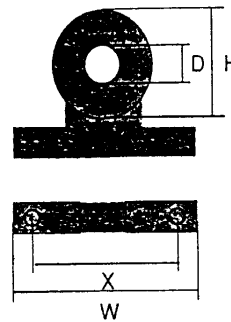
3G3EV – PFI – EMC FILTERS

Filter Part No.	Sysdrive Model	Current Rating	Width (W)	Length (L)	Height (H)	Mounting Dimensions	
						(Y)	(X)
3G3EV-PFI 1010-E	3G3EV-AB001 3G3EV-AB002	10A	70mm	165mm	35mm	51mm	150mm
3G3EV-PFI 1015-E	3G3EV-AB004	15A	112mm	165mm	35mm	91mm	150mm

In view of Omron's installation guidelines given below, the following output ferrite choke should be used:

■ Output Cable Filter Choke

This choke is simply threaded over the three motor output conductors as they exit the inverter (not the earth or screen leads) and contributes significantly to the reduction of radiated and conducted RFI caused by long output cables.



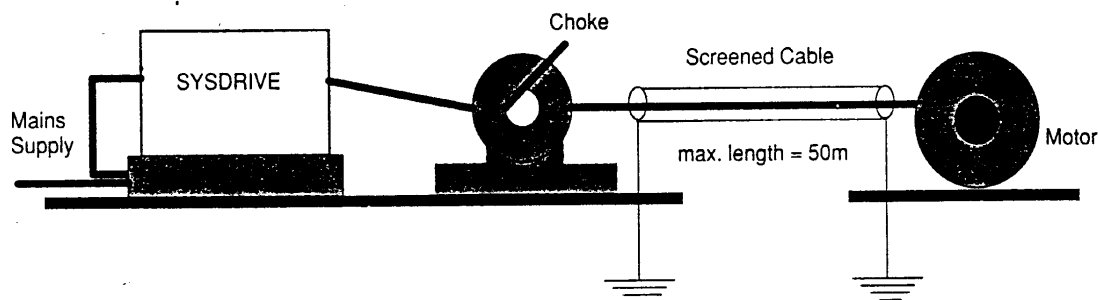
Filter Part No.	Centre Hole Dia (D)	Width (W)	Height (H)	Mounting Dimensions (X)	Mounting Holes Dia.
3G3IV-PF0 OC/1	21mm	85mm	46mm	70mm	5mm

■ Installation Guidelines

The following guidelines are intended to give the user the necessary information to allow the installation to comply to the relevant EMC regulations.

Please consult your Omron representative if any queries exist.

- The back panel of the wiring cabinet should be prepared as per the mounting dimensions of the filter as given in the table overleaf.
- The filter should be securely mounted in position, terminals uppermost and the Sysdrive mounted to the front of the filter with the screws provided.
- Connect the filter terminals marked "INVERTER" to the mains input of the Sysdrive using short lengths of appropriate gauge wire. Connect the incoming mains supply to the filter terminals marked "MAINS" and any earth cables to the earth stud provided.
- Connect the motor and fit the Output Cable Filter Choke as close to the Sysdrive as possible. Armoured or screened cable should be used with the three phase conductors only passing twice through the centre of the choke. The earth conductor plus screen should be securely earthed at both inverter and motor ends.
- Connect any control cables as instructed in the Sysdrive instruction book.



■ Option Units

● RS232 Adapter

The operator from the 3G3EV inverter can be removed and the adapter used for 1:1 control from either a PC, PLC, Copy Unit or dedicated software.

Part Number: 3G3EV PJVOP122

● Copy Unit

A simple to use handheld unit to allow up to 3 separate sets of drive information to be held and used to download to other drives, greatly simplifying and speeding up multiple drive setup.

Part Number: 3G3EV PJVOP125

● Braking Resistors

All Omron Sysdrive 3G3EV inverter drives are complete with the internal braking card necessary to cope with regeneration sometimes caused by overhauling loads and rapid deceleration of a load.

The resistors are fitted to dissipate this energy and prevent the tripping of the inverter on Overvoltage.

Part Number	Specification	Applicable Inverter
3G3IV PERF150WJ101	100Ω 150W	1.5kW
3G3IV PERF150WJ201	200Ω 150W	0.75kW and below

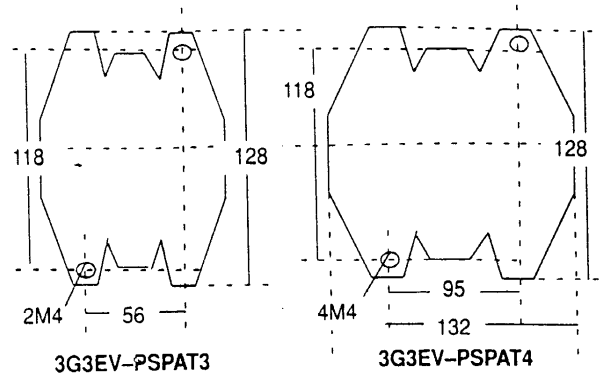
The resistors are fitted to terminals B1 and B2 of the inverter.

• DIN Rail Plates

These plates can be used to allow DIN Rail mounting of the 3G3EV inverter.

Note: These plates cannot be used with the footprint style RFI Filters.

Part Number	Applicable Inverters
3G3EV PSPAT-3	0.1 and 0.2 kW models (and A2004 model)
3G3EV PSPAT-4	0.4 and 0.7 kW models (and A2007 to A2015)



• Moulded Case Circuit Breakers

These devices should be installed in the Mains Input side of the 3G3EV inverter, recommended values are given below.

Model	Terminal symbol	Terminal screw	Wire size (mm ²)	Molded-case circuit breaker capacity (A)
3G3EV-A2001 3G3EV-AB001	R S T B1 B2	M3.5	0.75 to 2	5
	U V W			
3G3EV-A2002 3G3EV-AB002	R S T B1 B2	M3.5	0.75 to 2	5
	U V W			
3G3EV-A2004 3G3EV-AB004	R S T B1 B2	M3.5	0.75 to 2	5
	U V W			
3G3EV-A2007 3G3EV-AB007	R S T B1 B2	M3.5	0.75 to 2	10
	U V W			
3G3EV-A2015	R S T B1 B2	M3.5	0.75 to 2	10
	U V W			