

High-function General-purpose Inverters

RX Series V1 type

Versatile for a Wide Range of Applications

- Double rating VT 120%/1 min and CT 150% /1 min.
- Drive Programming
- Fieldbus communications with optional unit
EtherCAT, CompoNet™ and DeviceNet™
- Built-in EMC filter



Performance Specifications

Inverter 3G3RX-V1

3-phase 200-V Class

CT: Heavy load rating VT: Light load rating

Item	Model name (3G3RX-)	3-phase 200-V class															
		A2004-V1	A2007-V1	A2015-V1	A2022-V1	A2037-V1	A2055-V1	A2075-V1	A2110-V1	A2150-V1	A2185-V1	A2220-V1	A2300-V1	A2370-V1	A2450-V1	A2550-V1	
Maximum applicable motor capacity (kW)	CT	0.4	0.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	
	VT	0.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	75	
Rated output capacity (kVA)	200V	CT	1.0	1.7	2.5	3.6	5.7	8.3	11.0	15.9	22.1	26.3	32.9	41.9	50.2	63.0	76.2
		VT	1.2	2.1	3.2	4.1	6.7	10.3	15.2	20.0	25.2	29.4	39.1	48.4	58.5	72.7	93.5
	240V	CT	1.2	2.0	3.1	4.3	6.8	9.9	13.3	19.1	26.6	31.5	39.4	50.2	60.2	75.6	91.4
		VT	1.5	2.6	3.9	4.9	8.1	12.4	18.2	24.1	30.3	35.5	46.9	58.1	70.2	87.2	112.2
Rated input voltage		3-phase 200 V -15% to 240 V +10%, 50/60 Hz ±5%															
Rated input current (A)	CT	3.3	5.5	8.3	12	18	26	35	51	70	84	105	133	160	200	242	
	VT	3.9	7.2	10.8	13.9	23	37	48	64	80	94	120	150	186	240	280	
Rated output voltage		3-phase 200 to 240 V (Cannot exceed that of incoming voltage)															
Rated output current (A)	CT	3.0	5.0	7.5	10.5	16.5	24	32	46	64	76	95	121	145	182	220	
	VT	3.7	6.3	9.4	12	19.6	30	44	58	73	85	113	140	169	210	270	
EMC Noise Filter		Built-in (EMC Directive EN61800-3 Category C3)															
Weight (kg)		3.5	3.5	3.5	3.5	3.5	6	6	6	14	14	14	22	30	30	43	
Braking Resistor circuit	Regenerative braking	Built-in Braking Resistor circuit (separate Discharge Resistor)											Separate Regenerative Braking Unit				
	Min. connectable resistance (Ω)	50	50	35	35	35	16	10	10	7.5	7.5	5	---				
Maximum leakage current (mA)	EMC filter enabled	2.5					48			23							
	EMC filter disabled	0.1															

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3-phase 400-V Class

CT: Heavy load rating VT: Light load rating

Item		Model name (3G3RX-)		3-phase 400-V class									
				A4004-V1	A4007-V1	A4015-V1	A4022-V1	A4037-V1	A4055-V1	A4075-V1	A4110-V1	A4150-V1	A4185-V1
Maximum applicable motor capacity (kW)	CT	0.4	0.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	
	VT	0.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	
Rated output capacity (kVA)	400V	CT	1.0	1.7	2.6	3.6	6.2	9.6	13.1	17.3	22.1	26.3	33.2
		VT	1.3	2.1	3.3	4.6	7.6	11.0	15.2	20.0	25.6	29.7	39.4
	480V	CT	1.2	2.0	3.1	4.4	7.4	11.6	15.7	20.7	26.6	31.5	39.9
		VT	1.5	2.5	3.9	5.5	9.2	13.3	18.2	24.1	30.7	35.7	47.3
Rated input voltage		3-phase 380 V -15% to 480 V +10%, 50/60 Hz ±5%											
Rated input current (A)	CT	1.8	2.8	4.2	5.8	9.8	15	21	28	35	42	53	
	VT	2.1	4.3	5.9	8.1	13.3	20	24	32	41	47	63	
Rated output voltage		3-phase 380 to 480 V (Cannot exceed that of incoming voltage)											
Rated output current (A)	CT	1.5	2.5	3.8	5.3	9.0	14	19	25	32	38	48	
	VT	1.9	3.1	4.8	6.7	11.1	16	22	29	37	43	57	
EMC Noise Filter		Built-in (EMC Directive EN61800-3 Category C3)											
Weight (kg)		3.5	3.5	3.5	3.5	3.5	6	6	6	14	14	14	
Braking Resistor circuit	Regenerative braking	Built-in Braking Resistor circuit (separate Discharge Resistor)											
	Min. connectable resistance (Ω)	100	100	100	100	70	70	35	35	24	24	20	
Maximum leakage current (mA)	EMC filter enabled	5					95			56			
	EMC filter disabled	0.2											

Item		Model name (3G3RX-)		3-phase 400-V class							
				A4300-V1	A4370-V1	A4450-V1	A4550-V1	B4750-V1	B4900-V1	B411K-V1	B413K-V1
Applicable motor capacity (kW)	CT	30	37	45	55	75	90	110	132		
	VT	37	45	55	75	90	110	132	160		
Rated output capacity (kVA)	400V	CT	40.1	51.9	63.0	77.5	103.2	121.9	150.3	180.1	
		VT	48.4	58.8	72.7	93.5	110.8	135	159.3	200.9	
	480V	CT	48.2	62.3	75.6	93.1	123.8	146.3	180.4	216.1	
		VT	58.1	70.6	87.2	112.2	133	162.1	191.2	241.1	
Rated input voltage		3-phase 380 V -15% to 480 V +10%, 50/60 Hz ±5%									
Rated input current (A)	CT	64	83	100	121	164	194	239	286		
	VT	77	94	116	149	176	199	253	300		
Rated output voltage		3-phase 380 to 480 V (according to the input voltage)									
Rated output current (A)	CT	58	75	91	112	149	176	217	260		
	VT	70	85	105	135	160	195	230	290		
EMC Noise Filter		Built-in (EMC Directive EN61800-3 Category C3)									
Weight (kg)		22	30	30	30	55	55	70	70		
Braking Resistor circuit	Regenerative braking	Separate Regenerative Braking Unit									
	Min. connectable resistance (Ω)	---									
Maximum leakage current (mA)	EMC filter enabled	56				0.2 (No enabled/disabled setting available)					
	EMC filter disabled	0.2									

High-function General-purpose Inverters RX-Series V1 type

Function Specifications

Inverter 3G3RX-V1

Function name		Specifications	
Enclosure ratings		IP20 (0.4 to 55 kW) IP00 (75 to 132 kW)	
Control method		Phase-to-phase sinusoidal modulation PWM	
Output frequency range		0.1 to 400 Hz	
Frequency precision		Digital command: $\pm 0.01\%$ of the maximum frequency, Analog command: $\pm 0.2\%$ of the maximum frequency ($25 \pm 10^\circ\text{C}$)	
Frequency resolution		Digital setting: 0.01 Hz Analog setting: maximum frequency/4000 (Terminal FV: 12 bits/0 to +10 V), (Terminal FE: 12 bits/-10 to 10 V), (Terminal FI: 12 bits/0 to 20 mA)	
Voltage/Frequency characteristics		Heavy load rating (CT): V/f characteristics (constant torque, reduced torque, free V/f setting), sensorless vector control, 0-Hz sensorless vector control, sensor vector control Light load rating (VT) : V/f characteristics (constant torque, reduced torque, free V/f setting), sensorless vector control	
Overload current rating		Heavy load rating (CT): 150%/60 s, 200%/3 s (180%/3 s for 75 kW or more) Light load rating (VT): 120%/60 s, 150%/5 s	
Instantaneous overcurrent protection		200% of the value of heavy load rating (CT)	
Acceleration/Deceleration time		0.01 to 3600 s (linear/curve selection)	
Speed fluctuation		Heavy load rating (CT): $\pm 0.5\%$ *1, *2 Light load rating (VT): $\pm 0.5\%$ *1	
Carrier frequency adjustment range		(For 0.4 to 55kW) Heavy load rating (CT): 0.5 to 15 kHz Light load rating (VT): 0.5 to 12 kHz (For 75 to 132kW) Heavy load rating (CT): 0.5 to 10 kHz Light load rating (VT): 0.5 to 8 kHz	
Starting torque	Sensor less vector control	(For 0.4 to 55kW) Heavy load rating (CT): 200%/0.3 Hz *1 Light load rating (VT): 150%/0.5 Hz *1 (For 75 to 132kW) Heavy load rating (CT): 180%/0.3 Hz *1 Light load rating (VT): 120%/0.5 Hz *1	
	0-Hz sensorless vector control	(For 0.4 to 55kW) Heavy load rating (CT): 150%/Torque at 0 Hz *3 Light load rating (VT): No function available (For 75 to 132kW) Heavy load rating (CT): 130%/Torque at 0 Hz *3 Light load rating (VT): No function available	
External DC injection braking		Operates when the starting frequency is lower than that in deceleration via the STOP command, when the frequency reference is lower than the operation frequency, or via an external input (braking power, time, and frequency are variable)	
Protective functions		Overcurrent protection, Overvoltage protection, Undervoltage protection, Electronic thermal protection, Temperature error protection, Momentary power interruption/Power interruption protection, Input phase loss protection, Braking resistor overload protection, Ground-fault current detection at power-on, USP error, External trip, Emergency shutoff trip, CT error, Communication error, Option error, etc.	
Input signal	Frequency settings	Standard Digital Operator	Setting via keys
		External signal *4	0 to 10 VDC, -10 to 10 VDC (Input impedance: 10 k Ω), 4 to 20 mA (Input impedance: 100 Ω)
		External port	Setting through RS-485 communications
	Forward or Reverse operation/Stop	Standard Digital Operator	RUN/STOP (Forward/reverse switched via parameter settings)
		External signal	Forward/Stop (Reverse/Stop available at the time of multi-functional input terminal allocation), 3-wire input available (at the time of control circuit terminal block allocation)
		External port	Setting through RS-485 communications
Multi-function input *5	8 terminals, NO/NC switchable, sink/source logic switchable Heavy load (CT): 8 functions can be selected from among 72 Light load (VT): 8 functions can be selected from among 57		
Thermistor input terminal	1 terminal (Positive/Negative temperature coefficient of resistance element switchable)		
Output signal	Multi-function output *5	5 open collector output terminals: NO/NC switchable, sink/source logic switchable 1 relay (SPDT contact) output terminal: NO/NC switchable Heavy load (CT): 6 functions can be selected from among 55 Light load (VT): 6 functions can be selected from among 51	
	Multi-function monitor output terminal	Analog voltage output (0 to 10 V) *6, Analog current output (0 to 20 mA) *6, Pulse train output (maximum frequency 3.6 kHz)	
Display monitor		Output frequency, Output current, Output torque, Frequency conversion value, Trip record, I/O terminal status, Electric power, etc.	
Other functions		<ul style="list-style-type: none"> Heavy load rating (CT) V/f free setting (7), Upper/lower frequency limit, Frequency jump, Curve acceleration/deceleration, Manual torque boost level/break, Energy-saving operation, Analog meter adjustment, Starting frequency, Carrier frequency adjustment, Electronic thermal function (free setting available), External start/end (frequency/rate), Analog input selection, Trip retry, Restart during momentary power interruption, Various signal outputs, Reduced voltage startup, Overload limit, Initialization value setting, Automatic deceleration at power-off, AVR function, Automatic acceleration/deceleration, Auto tuning (Online/Offline) Light load rating (VT) V/f free setting (7), Upper/lower frequency limit, Frequency jump, Curve acceleration/deceleration, Manual torque boost level/break, Energy-saving operation, Analog meter adjustment, Starting frequency, Carrier frequency adjustment, Electronic thermal function (free setting available), External start/end (frequency/rate), Analog input selection, Trip retry, Restart during momentary power interruption, Various signal outputs, Reduced voltage startup, Overload limit, Initialization value setting, Automatic deceleration at power-off, AVR function, Auto tuning (Online/Offline) 	

*1 Applicable in the sensorless vector control

*2 Applicable in the 0-Hz sensorless vector control

*3 Applicable in the 0 Hz sensorless vector control when using a motor one size smaller in capacity than the inverter

*4 The maximum frequency is set to 9.8 V for a voltage input of 0 to 10 VDC and to 19.8 mA for an current input of 4 to 20 mA, respectively. If this causes any inconvenience, change the default data.

*5 In the VT mode, the available functions are limited compared with the CT mode. The default setting and setting range of some functions also differ.

*6 The analog voltage and current values for the multi-function monitor output terminals show values that can only be used as a guide for analog meter connection. The maximum output value may differ slightly from 10 V or 20 mA due to the variability of the analog output circuit. If this causes any inconvenience, refer to the RX series V1 type User's Manual. (Man.No.I578) to adjust the default settings.

High-function General-purpose Inverters RX-Series V1 type

Function name		Specifications	
Operating environment	Ambient operating temperature	Heavy load rating (CT): -10 to 50°C Light load rating (VT): -10 to 40°C	
	Ambient storage temperature	-20 to 65°C	
	Ambient operating humidity	20% to 90% (with no condensation)	
	Vibration resistance *7	5.9m/s ² (0.6G), 10 to 55Hz / 0.4 to 22kW 2.94m/s ² (0.3G), 10 to 55Hz / 30 to 132kW	
	Application environment	At a maximum altitude of 1,000 m (without corrosive gases or dust) *8	
Options	PG Board	Sensor vector control 3G3AX-PG01	
	EtherCAT Communication Unit	3G3AX-RX-ECT	
	CompoNet™ Communication Unit	3G3AX-RX-CRT-E	
	DeviceNet™ Communication Unit	3G3AX-RX-DRT-E	
Other options		Braking Resistor, AC reactor, DC reactor, Digital Operator, Digital Operator cables, Noise filter, Regenerative braking unit, etc.	
International standard	EC Directive	EMC Directive	EN61800-3: 2004
		Low Voltage Directive	EN61800-5-1: 2003
	UL/cUL		UL508C

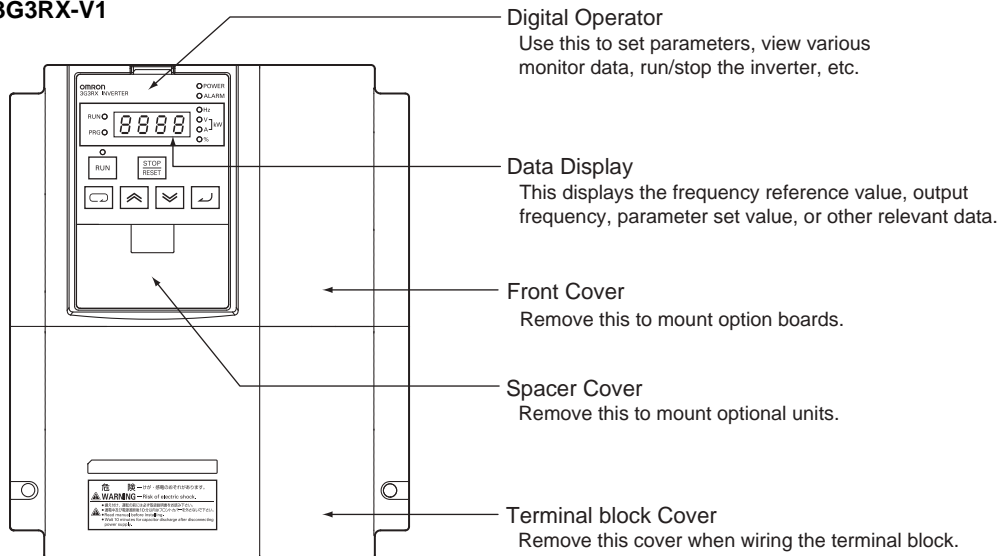
*7 Complies with the test method specified in JIS C60068-2-6: 2010 (IEC 60068-2-6: 2007).

*8 If the altitude is higher than 1,000 m, reduce the amount of heat generation because air density decreases by 1% with the increasing altitude by 100 m. For switching devices such as IGBTs, the amount of heat generation is proportional to the current flowing in the device and the applied voltage. Therefore, reduce the value of the rated current by 1% with the increasing altitude by 100 m to use a standard inverter. However, this is applicable to an altitude of 2,500 m or lower.

Components and Functions

Note: Example of the 3G3RX-A2055-V1/A2075-V1/A2110-V1/A4055-V1/A4075-V1/A4110-V1

Inverter 3G3RX-V1



Open the terminal block cover to wire the main circuit terminal block and the control circuit terminal block. Moreover, you can open the front cover to mount option boards.

