High-function General-purpose Inverters
RX2 Series

Save energy and maximize performance with versatile inverter

- Triple rating: Normal Duty (ND), Low Duty (LD), and Very Low Duty (VLD)
- PM motor control helps save energy
- Safety function IEC 61800-5-2 "Safe Torque Off (STO)" Conform machinery directive with ISO13849-1 (Category 4/PLe)
- DriveProgramming allows simple sequence control without a PLC

Performance Specifications

Inverter 3G3RX2

3-phase 200-V Class

Very Low Duty (VLD)/Low Duty (LD)/Normal Duty (ND)

3G3RX2-A2□□□□□				A2004	A2007	A2015	A2022	A2037	A2055	A2075	A2110	A2150	A2185	A2220	A2300	A2370	A2450	A2550
Applicable motor (4-pole) capacity (kW)			VLD	0.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	75
			LD	0.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	75
			ND	0.4	0.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55
Output	Rated output current (A)		VLD	4.4	8.0	10.4	15.6	22.8	33.0	46.0	60.0	80.0	93.0	124	153	185	229	295
			LD	3.7	6.3	9.4	12.0	19.6	30.0	40.0	56.0	73.0	85.0	113	140	169	210	270
			ND	3.2	5.0	8.0	11.0	17.5	25.0	32.0	46.0	64.0	76.0	95.0	122	146	182	220
	Overload current rating		VLD	110% 60 sec / 120% 3 sec														
			LD	120% 60 sec / 150% 3 sec														
			ND	150% 60 sec / 200% 3 sec														
	Rated output voltage			3-phase (3-wire) 200 to 240 V (depending on receiving voltage)														
	Rated capacity (kVA)	200 V	VLD	1.5	2.8	3.6	5.4	7.9	11.4	15.9	20.8	27.7	32.2	43.0	53.0	64.1	79.3	102.2
			LD	1.3	2.2	3.3	4.2	6.8	10.4	13.9	19.4	25.3	29.4	39.1	48.5	58.5	72.7	93.5
			ND	1.1	1.7	2.8	3.8	6.1	8.7	11.1	15.9	22.2	26.3	32.9	42.3	50.6	63.0	76.2
		240 V	VLD	1.8	3.3	4.3	6.5	9.5	13.7	19.1	24.9	33.3	38.7	51.5	63.6	76.9	95.2	122.6
			LD	1.5	2.6	3.9	5.0	8.1	12.5	16.6	23.3	30.3	35.3	47.0	58.2	70.3	87.3	112.2
			ND	1.3	2.1	3.3	4.6	7.3	10.4	13.3	19.1	26.6	31.6	39.5	50.7	60.7	75.7	91.5
Input	Rated input current (A) ✻1		VLD	5.2	9.5	12.4	18.6	27.1	39.3	54.8	71.4	95.2	110.7	147.6	182.1	220.2	272.6	351.2
			LD	4.4	7.5	11.2	14.3	23.3	35.7	47.6	66.7	86.9	101.2	134.5	166.7	201.2	250.0	321.4
			ND	3.8	6.0	9.5	13.1	20.8	29.8	38.1	54.8	76.2	90.5	113.1	145.2	173.8	216.7	261.9
	Rated input AC voltage			Control power supply: Power supply single phase 200 to 240 V/allowable variation range 170 to 264 V, 50 Hz (allowable variation range: 47.5 to 52.5 Hz)/60 Hz (allowable variation range: 57 to 63 Hz)														
				Main circuit power supply: 3-phase (3-wire) 200 to 240 V/allowable variation range 170 to 264 V, 50 Hz (allowable variation range: 47.5 to 52.5 Hz)/60 Hz (allowable variation range: 57 to 63 Hz)														
	Power supply equipment capacity (kVA) ✻2		VLD	2.0	3.6	4.7	7.1	10.3	15.0	20.9	27.2	36.3	42.2	56.3	69.4	83.9	103.9	133.8
			LD	1.7	2.9	4.3	5.4	8.9	13.6	18.1	25.4	33.1	38.6	51.3	63.5	76.7	95.3	122.5
			ND	1.5	2.3	3.6	5.0	7.9	11.3	14.5	20.9	29.0	34.5	43.1	55.3	66.2	82.6	99.8
Carrier frequency operating range ✻3			VLD	0.5 to 10.0 kHz														
			LD	0.5 to 12.0 kHz														
			ND	0.5 to 16.0 kHz														
Motor start torque ✻4				200%/0.3 Hz														
Braking	Regenerative braking			Equipped with BRD circuit (with a discharging resistor separately installed)											Regenerative braking unit separately installed			
	Minimum resistance that can be connected (Ω)			50	50	35	35	35	16	10	10	7.5	7.5	5	---	---	---	---
Dimension	Height (mm)			255	255	255	255	255	260	260	260	390	390	390	540	550	550	700
	Width (mm)			150	150	150	150	150	210	210	210	245	245	245	300	390	390	480
	Depth (mm)			140	140	140	140	140	170	170	170	190	190	190	195	250	250	250
Protective construction				IP20 ✻5 / UL open type														
Approximate mass (kg)				3	3	3	3	3	6	6	6	10	10	10	22	33	33	47

✻1. The rated input currents shown in the table are the values when the rated current is output. The values vary depending on impedance on the power supply (wiring, breaker, input reactor option, etc.)
✻2. The power supply equipment capacities shown in the table are the values when 220 V rated current is output. The values vary depending on impedance on the power supply (wiring, breaker, input reactor option, etc.)
✻3. The setting of rated values for carrier frequencies [bb101]/[bb201] are internally limited in accordance with the description. Also, it is recommended to set values equivalent to or above (maximum output frequency for driving ×10) Hz for the setting of carrier frequencies [bb101]/[bb201]. Also, in the case of induction motor (IM) control, for items other than those subject to V/f control, it is recommended to set carrier frequency at 2 kHz or more. In the case of synchronous motor (SM)/permanent magnet motor (PMM) control, it is recommended to set carrier frequency at 8 kHz or more.
✻4. The value of the sensor-less vector control applied to the ND rating in the Standard motor. Torque characteristics may vary depending on the control method and the motor used.
✻5. Based on self declaration.

3-phase 400-V Class

Very Low Duty (VLD)/Low Duty (LD)/Normal Duty (ND)

3G3RX2-□□□□□				A4007	A4015	A4022	A4037	A4055	A4075	A4110	A4150	A4185	A4220	A4300	A4370	A4450	A4550	B4750	B4900	B411K	B413K
Applicable motor (4-pole) capacity (kW)			VLD	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110	132	160
			LD	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110	132	160
			ND	0.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110	132
Output	Rated output current (A)		VLD	4.1	5.4	8.3	12.6	17.5	25.0	31.0	40.0	47.0	62.0	77.0	93.0	116	147	176	213	252	316
			LD	3.1	4.8	6.7	11.1	16.0	22.0	29.0	37.0	43.0	57.0	70.0	85.0	105	135	160	195	230	290
			ND	2.5	4.0	5.5	9.2	14.8	19.0	25.0	32.0	39.0	48.0	61.0	75.0	91.0	112	150	180	217	260
	Overload current rating		VLD	110% 60 sec / 120% 3 sec																	
			LD	120% 60 sec / 150% 3 sec																	
			ND	150% 60 sec / 200% 3 sec																	
	Rated output voltage			3-phase (3-wire) 380 to 500 V (depending on receiving voltage)																	
	Rated capacity (kVA)	400 V	VLD	2.8	3.7	5.8	8.7	12.1	17.3	21.5	27.7	32.6	43.0	53.3	64.4	80.4	101.8	121.9	147.6	174.6	218.9
			LD	2.1	3.3	4.6	7.7	11.1	15.2	20.1	25.6	29.8	39.5	48.5	58.9	72.7	93.5	110.9	135.1	159.3	200.9
			ND	1.7	2.8	3.8	6.4	10.3	13.2	17.3	22.2	27.0	33.3	42.3	52.0	63.0	77.6	103.9	124.7	150.3	180.1
		500 V	VLD	3.6	4.7	7.2	10.9	15.2	21.7	26.8	34.6	40.7	53.7	66.7	80.5	100.5	127.3	152.4	184.5	218.2	273.7
			LD	2.7	4.2	5.8	9.6	13.9	19.1	25.1	32.0	37.2	49.4	60.6	73.6	90.9	116.9	138.6	168.9	199.2	251.1
			ND	2.2	3.5	4.8	8.0	12.8	16.5	21.7	27.7	33.8	41.6	52.8	65.0	78.8	97.0	129.9	155.9	187.9	225.2
Input	Rated input current (A) ✻1		VLD	4.9	6.4	9.9	15.0	20.8	29.8	36.9	47.6	56.0	73.8	91.7	110.7	138.1	175.0	209.5	253.6	300.0	376.2
			LD	3.7	5.7	8.0	13.2	19.0	26.2	34.5	44.0	51.2	67.9	83.3	101.2	125.0	160.7	190.5	232.1	273.8	345.2
			ND	3.0	4.8	6.5	11.0	17.6	22.6	29.8	38.1	46.4	57.1	72.6	89.3	108.3	133.3	178.6	214.3	258.3	309.5
	Rated input AC voltage			Control power supply: Power supply single phase 380 to 500 V (allowable variation range 323 to 550 V), 50 Hz (allowable variation range: 47.5 to 52.5 Hz)/60 Hz (allowable variation range: 57 to 63 Hz)																	
				Main circuit power supply: 3-phase (3-wire) 380 to 500 V (allowable variation range) 323 to 550 V, 50 Hz (allowable variation range: 47.5 to 52.5 Hz)/60 Hz (allowable variation range: 57 to 63 Hz)																	
	Power supply equipment capacity (kVA) ✻2		VLD	3.7	4.9	7.5	11.4	15.9	22.7	28.1	36.3	42.6	56.3	69.9	84.4	105.2	133.4	159.7	193.2	228.6	286.7
			LD	2.8	4.4	6.1	10.1	14.5	20.0	26.3	33.6	39.0	51.7	63.5	77.1	95.3	122.5	145.2	176.9	208.7	263.1
			ND	2.3	3.6	5.0	8.3	13.4	17.2	22.7	29.0	35.4	43.5	55.3	68.0	82.6	101.6	136.1	163.3	196.9	235.9
Carrier frequency range ✻3			VLD	0.5 to 10.0 kHz														0.5 to 8.0 kHz			
			LD	0.5 to 12.0 kHz														0.5 to 8.0 kHz			
			ND	0.5 to 16.0 kHz														0.5 to 10.0 kHz			
Motor start torque ✻4				200%/0.3 Hz														180%/0.3 Hz			
Braking	Regenerative braking			Equipped with braking resistance circuit (with a discharging resistor separately installed)												Regenerative braking unit separately installed					
	Minimum resistance that can be connected (Ω)			100	100	100	70	70	35	35	24	24	20	15	15	10	10	---	---	---	---
Dimension	Height (mm)			255	255	255	255	260	260	260	390	390	390	540	550	550	550	700	700	740	740
	Width (mm)			150	150	150	150	210	210	210	245	245	245	300	390	390	390	390	390	480	480
	Depth (mm)			140	140	140	140	170	170	170	190	190	190	195	250	250	250	270	270	270	270
Protective construction				IP20 ✻5 / UL open type														IP00 / UL open type			
Approximate mass (kg)				3	3	3	3	6	6	6	8.5	8.5	8.5	22	31	31	31	41	41	53	53

✻1. The rated input currents shown in the table are the values when the rated current is output. The values vary depending on impedance on the power supply (wiring, breaker, input reactor option, etc.)
✻2. The power supply equipment capacities shown in the table are the values when 220 V rated current is output. The values vary depending on impedance on the power supply (wiring, breaker, input reactor option, etc.)
✻3. The setting of rated values for carrier frequencies [bb101]/[bb201] are internally limited in accordance with the description. Also, it is recommended to set values equivalent to or above (maximum output frequency for driving ×10) Hz for the setting of carrier frequencies [bb101]/[bb201]. Also, in the case of induction motor (IM) control, for items other than those subject to V/f control, it is recommended to set carrier frequency at 2 kHz or more. In the case of synchronous motor (SM)/permanent magnet motor (PMM) control, it is recommended to set carrier frequency at 8 kHz or more.
✻4. The value of the sensor-less vector control applied to the ND rating in the Standard motor. Torque characteristics may vary depending on the control method and the motor used.
✻5. Based on self declaration.

Function Specifications

Inverter 3G3RX2

Item			Specifications	
Control mode (output to the motor)			Sine wave PWM control voltage output (line sine wave modulation)	
Output frequency range ✻1			0.00 to 590.00 Hz	
Frequency accuracy			Digital command ±0.01% and analog command ±0.2% (25°C±10°C) against the maximum frequency	
Frequency resolution			Digital setting: 0.01 Hz Analog setting: maximum frequency/4000 (Ai1 terminal/Ai2 terminal: 12 bit/0 to +10 V or 0 to +20 mA, Ai3 terminal 12 bit/-10 to +10 V)	
Control mode (frequency/voltage calculation) ✻2			IM	V/f control (fixed torque/reduced torque/free), automatic boost control, cascade model sensorless vector control, 0 Hz range sensorless vector control, vector control with sensor.
			SM/PMM	Synchronous starting sensorless vector control, IVMS starting smart sensorless vector control
Speed fluctuation ✻3			±0.5% (during sensorless vector control)	
Acceleration or deceleration time			0.00 to 3600.00 sec (linear, S-shaped, U-shaped, reverse U-shaped, EL-S shaped)	
Display monitor			Output frequency, output current, output torque, trip history, I/O terminal status, I/O power ✻4, P-N voltage.	
Starting functions			Start after DC braking, frequency collection start, frequency entrainment start, reduced voltage start, retry start	
Stopping functions			Free-run stop, DC braking after deceleration stop or terminal DC braking (braking power, operating speed adjustment)	
Stall prevention function			Overload restraining function, overcurrent suppression function, overvoltage suppression function	
Protective function ✻5			Overcurrent error, Motor overload error, Braking resister Overload error, Overvoltage error, Memory error, Undervoltage error, Current detector error, CPU error, External trip error, USP error, Ground fault error, Incoming over voltage error, Instantaneous power failure error, Temperature detector error, Cooling fan rotation speed reduction temperature error, Temperature error, Input open-phase error, IGBT error, Output open-phase error, Thermistor error, Brake error, Low-speed range overload error, Controller overload error, RS485 communication error, Operator keypad disconnection error.	
Other functions			V/f free settings (7 points), Upper/lower limit frequency limiter, Frequency jump, Curve acceleration/deceleration, Manual torque boost, Energy-saving operation, Analog output adjustment function, Minimum frequency, Carrier frequency adjustment, Motor electronic thermal function (free setting is also possible), Inverter electronic thermal function, External start/end (volume/ratio), Frequency input selection, Trip retry, Restart after instantaneous stop, Output of signals, Initialization settings, PID control, Automatic deceleration at power shut-off, Brake control function, and Auto-tuning for commercial switching function (online/offline).	
Input	**Frequency setting**	**Standard operator keypad**	Parameter setting using arrow keys	
		External signals ✻6	Ai1/Ai2 terminal (when changing voltage)	Setting through input of 0 to 10 VDC voltage (input impedance: 10 kΩ)
			Ai1/Ai2 terminal (when changing current)	Setting through input of 0 to 20 mA current (input impedance: 100 Ω)
			Ai3 terminal	Setting through input of -10 to +10 V voltage (input impedance: 10 kΩ)
			Multistage speed terminal (use of input terminal function)	15 speed
			Pulse string input (A/B terminal, use of input terminal function)	32 kHz × 2 at maximum
		External port	Setting via RS485 serial communication (protocol: Modbus-RTU)	
	Normal rotation/ reverse rotation Run/stop	**Standard operator keypad**	Execution with the RUN /STOP key (normal rotation/reverse rotation can be switched by setting parameters)	
		External signals	Normal rotation operation (FW)/reverse rotation (RV) (when an input terminal function is assigned) 3-wire input available (when an input terminal function is assigned)	
		External port	Setting via RS485 serial communication (protocol: Modbus-RTU (maximum: 115.2 kbps)	
	Input terminal function		11 terminals (input of pulse string is available on terminal A and B)	
			FW (Normal rotation)/RV (Reverse rotation), CF1-4 (Multistage speed 1-4), SF1-7 (Multistage speed bit 1-7), ADD (Addition of frequency), SCHG (Switching of frequency command), STA (3-wire start)/STP (3-wire stop)/F_R (3-wire normal/reverse), AHD (Retention of analog command), FUP (Increase of speed via remote operation/FDN (Deceleration via remote operation), UDC (Deletion of data via remote operation), F-OP (Forced command switching), SET (Second control), RS (Reset), JG (Jogging), DB (External current braking), 2CH (2-stage acceleration/deceleration), FRS (Free-run stop), EXT (External abnormality), USP (Prevention of restart after restoration of power), CS (Commercial switching), SFT (Soft-lock), BOK (Brake check), OLR (Overload restriction switching), KHC (Clearance of integrated input power), OKHC (Clearance of integrated output power), PID (PID1 disabled), PIDC (PID1 integration reset), PID2 (PID2 disabled), PIDC2 (PID2 integration reset), SVC1-4 (PID1 multistage target values 1-4), PRO (PID gain switching), PIO (PID output switching), SLEP (SLEEP condition satisfied)/WAKE (WAKE condition satisfied), TL (Torque restriction enabled), TRQ1, 2 (Switching of torque limit 1, 2), PPI (Switching of P/PI control), CAS (Switching of control gain), FOC (Preparatory excitation), ATR (Torque control enabled), TBS (Torque bias enabled), LAC (Cancellation of acceleration/deceleration), Mi1-11 (General-purpose input 1-11), PCC (Clearance of pulse counter), ECOM (Start of EzCOM), PRG (Program run), HLD (Acceleration/ deceleration stop), REN (Operation permission signal), PLA (Pulse string input A), and PLB (Pulse string input B)	
	Backup power supply terminal		P+/P-: DC24V input (allowable input voltage: 24 V±10%)	
	STO input terminal		2 terminals (simultaneous input)	
	Thermistor input terminal		1 terminal (possible to switch between positive temperature coefficient/negative temperature coefficient resistance element)	

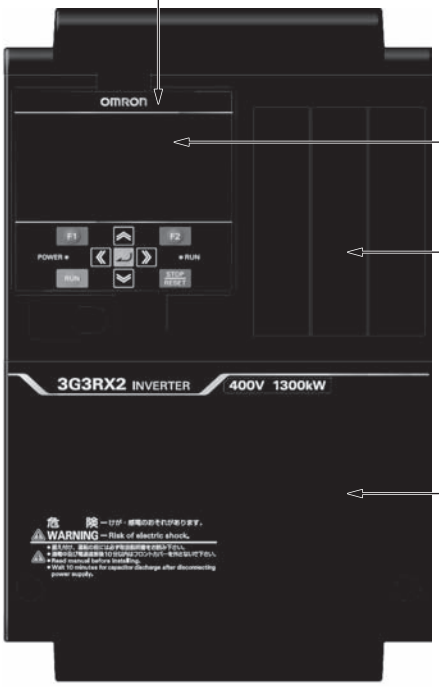
Item		Specifications	
Output	Output terminal function	Transistor output 5 terminal, 1a contact relay 1 point, 1c contact relay 1 point	
	Relay and alarm relay (16, AL)	RUN (During operation), FA1-5 (Reached signal), IRDY (Operation ready completion), FWR (During normal rotation operation), RVR (During reverse rotation operation), FREF (Frequency command operator keypad), REF (Operation command operator keypad), SETM (Second control under selection), AL (Alarm signal), MJA (Severe failure signal), OTQ (Over torque) ✻7, IP (During instantaneous power failure), UV (Under insufficient voltage), TRQ (During torque limitation), IPS (During power failure deceleration), RNT (RUN time over), ONT (Power on time over), THM (Electronic thermal warning), THC (Electronic thermal warning), WAC (Capacitor life advance notice), WAF (Fan life advance notice), FR (Operation command signal), OHF (Cooling fin heating advance notice), LOC/LOC2 (Low-current signal), OL/OL2 (Overload advance notice), BRK (Brake release), BER (Brake abnormality), ZS (Zero-speed detection signal), OD/OD2 (PID deviation excessive), FBV/FBV2 (PID feedback comparison), NDc (Communication disconnection), Ai1Dc/Ai2Dc/Ai3Dc (Analog disconnection Ai1/Ai2/Ai3), WCAi1/WCAi2/WCAi3 (Window comparator Ai1/Ai2/Ai3), LOG1-7 (Logical operation result 1-7), MO1-7 (General output 1-7), and OVS (Receiving overvoltage).	
	EDM output terminal	Output for STO diagnosis	
	Monitor output terminal ✻8	Possible to output through selection from monitor data of parameters	
EMC filter switching ✻9		Possible to enable the EMC noise filter (switching method is different depending on the model)	
External access to PC		USB Micro-B	
Use environment	Ambient temperature ✻10	ND (normal duty)	-10 to 50°C
		LD (low duty)	-10 to 45°C
		VLD (very low duty)	-10 to 40°C
	Storage temperature ✻11	-20 to 65°C	
	Humidity	20-90%RH (location free of condensation)	
	Vibration ✻12	5.9 m/s^2 (0.6 G) 10 to 55 Hz: 3G3RX2-A2004 to A2220 / 3G3RX2-A4007 to A4220 2.94 m/s^2 (0.3 G) 10 to 55 Hz: 3G3RX2-A2300 to A2550 / 3G3RX2-A4300 to A413K	
	Use location ✻13	1000 m altitude or lower (location free from corrosive gas, oil mist, and dust)	
Expected Life time		Smoothing capacitor 10 years	
		Designed life of cooling fan 10 years (models equipped with a cooling fan) free from dust	
		Memory element on the control circuit board	
Applicable standards ✻14		Compliance with UL/cUL/CE standards, RCM, Functional Safety SIL3/PLe	
Painting color		Black	
Operating, display		LCD Operator ✻15	
Number of option slots		3 ports	
Other options		Braking resistor, AC reactor, DC reactor, noise filter	

✻1. The output frequency range depend on the control and motor used. When running the inverter exceeding 60 Hz, check the maximum allowable frequency with the manufacturer of the motor.
✻2. When the control mode is changed, unless the motor constant is appropriately configured, you cannot obtain the desired starting torque or the inverter may trip.
✻3. The variable range of motor speed may vary depending on your system or the environment where the motor is used. Please contact us for details.
✻4. Both the input power and output power are reference values, which are not appropriate for use in calculation of efficiency values, etc. To obtain an accurate value, use an external device.
✻5. The IGBT error [E030] is generated by the protective function not only for short circuit protection but also when IGBT is damaged. Depending on the operating conditions of the inverter, the overcurrent error [E001] may occur, instead of the IGBT error.
✻6. At the factory default setting, when voltage and current on Ai1/Ai2 terminal is changed using a switch, with input of voltage at 9.8 V and current at 19.8 mA, the maximum frequency is commanded. To change characteristics, make adjustments using the analog start/end function.
✻7. The threshold for signal output varies depending on the motor to be combined with the inverter, parameter adjustment, etc.
✻8. The output data of analog voltage monitor and analog current monitor are reference values for connecting an analog meter. Due to the meter to be connected and variation in analog output circuit, the maximum output value may slightly vary from 10 V or 20 mA. To change characteristics, make adjustments using the Ao1 adjustment and Ao2 adjustment functions. Some monitor data cannot be output.
✻9. To enable the EMC filter, connect with a power supply grounded at a neutral point. Otherwise, the leakage current may increase.
✻10. Use the 400 V class inverter at an input voltage of 500 VAC or below. If input voltage exceeds 500 VAC due to fluctuation of power, use the inverter at 40°C or lower ambient temperature.
✻11. The storage temperature is the temperature during transport.
✻12. To be in accordance with the testing method specified in JIS C 60068-2-6: 2010 (IEC 60068-2-6:2007)
✻13. When the inverter is used in a location at 1000 m or higher altitude, air pressure reduces approximately 1% every 100 m elevation. Perform 1% current der- ating and conduct evaluation for every 100 m elevation.
✻14. For insulation distance, comply with UL and CE standards
✻15. When a clock function is used, the optional battery (CR2032, 3 V) is required. When you purchase, this LCD operator does not come with the battery.

Components and Functions

Note: Example of the 3G3RX2-A2055/A2075/A2110/A4055/A4075/A4110

Inverter 3G3RX2



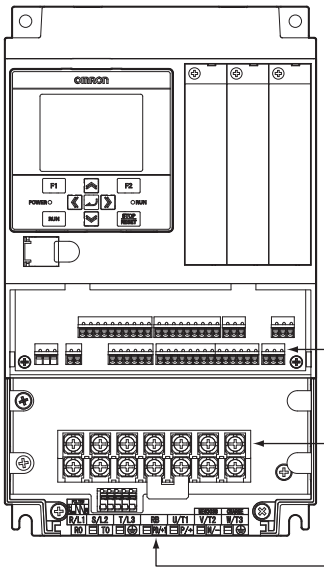
LCD operator
Use this to set parameters, view various monitor data, run/stop the inverter, etc.

Data display
This displays the frequency reference value, output frequency, parameter set value, or other relevant data.

Option Unit Connection Cover
Remove this to mount option boards.

Terminal Block Cover
Remove this when connecting cables to each terminal block.

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



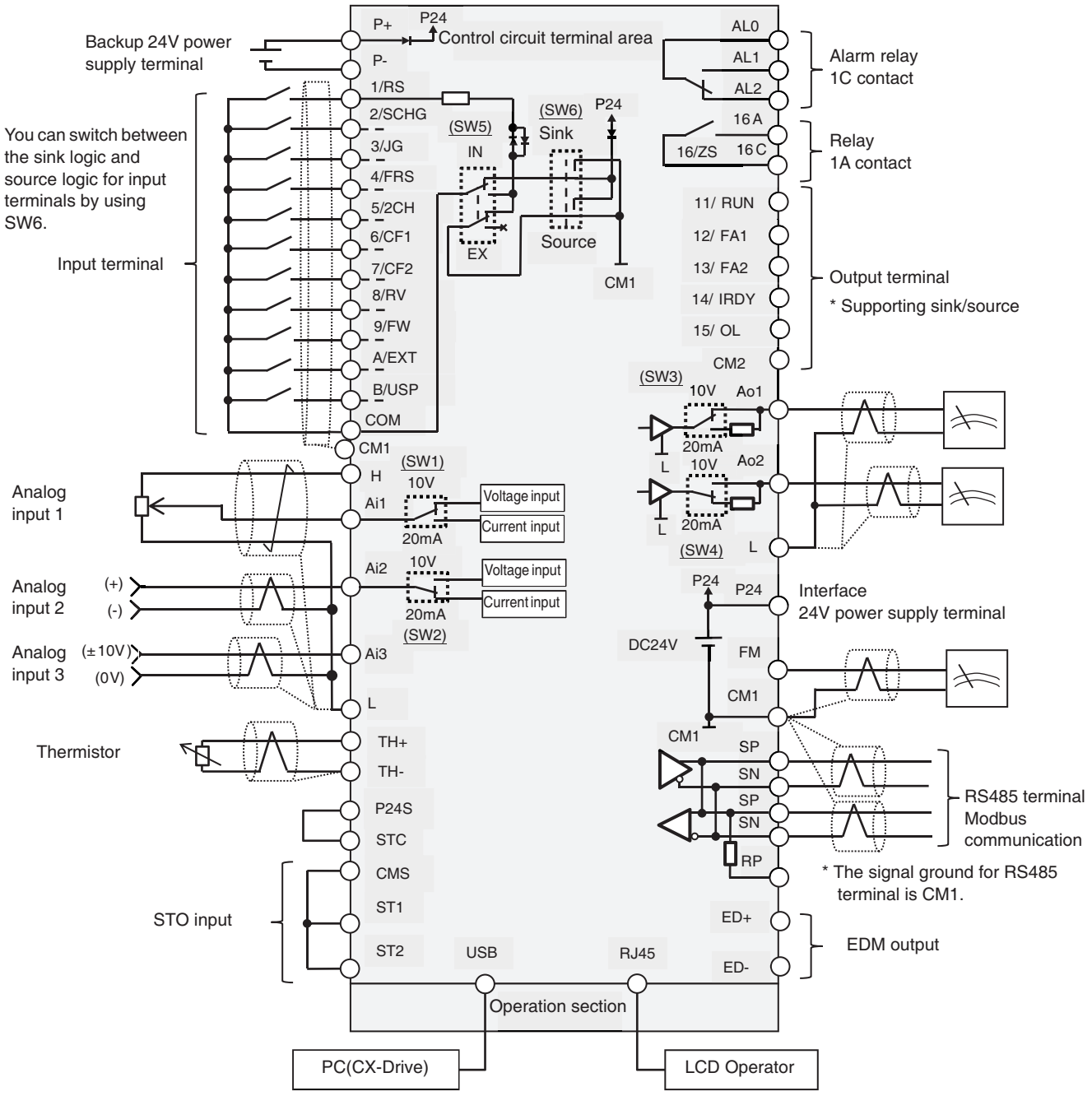
Control Circuit Terminal Block
Use this to connect various digital/analog I/O signals for inverter control.

Main circuit terminal block
Use this to connect the inverter main power supply, motor, braking resistor, and other devices.

Backing plate
Cut off the cutout portions of this plate to connect power supply lines, signal lines, etc.

Connection Diagram

Outline of control circuit

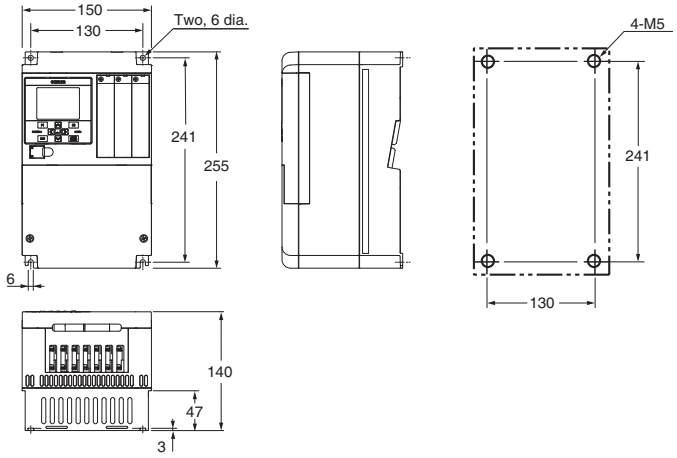


Dimensions

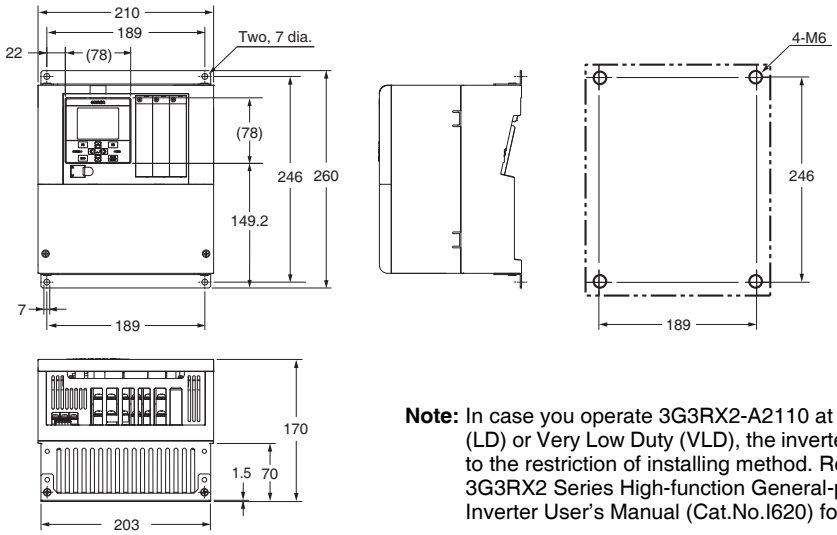
(unit: mm)

Inverter 3G3RX2

3G3RX2-A2004
3G3RX2-A2007
3G3RX2-A2015
3G3RX2-A2022
3G3RX2-A2037
3G3RX2-A4007
3G3RX2-A4015
3G3RX2-A4022
3G3RX2-A4037

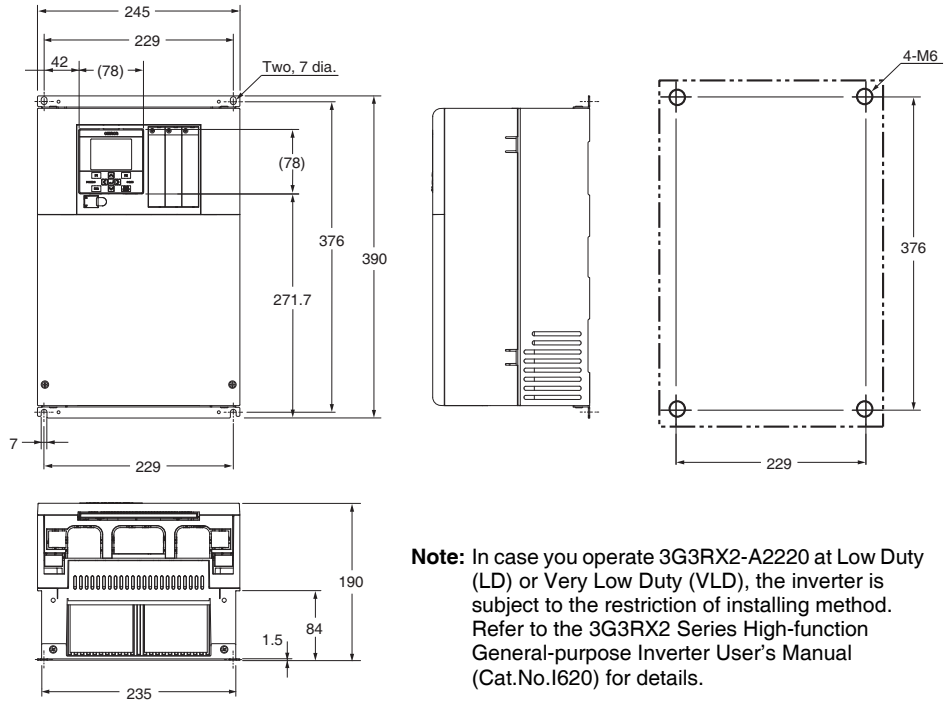


3G3RX2-A2055
3G3RX2-A2075
3G3RX2-A2110
3G3RX2-A4055
3G3RX2-A4075
3G3RX2-A4110



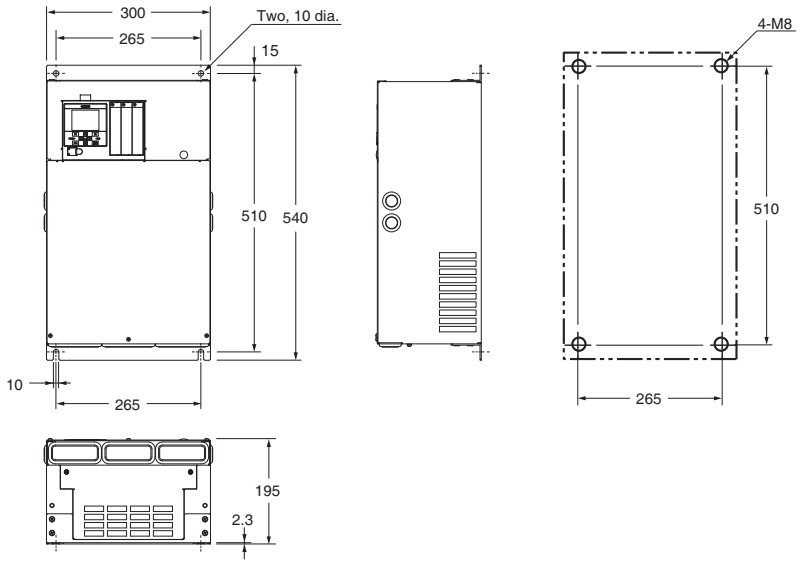
Note: In case you operate 3G3RX2-A2110 at Low Duty (LD) or Very Low Duty (VLD), the inverter is subject to the restriction of installing method. Refer to the 3G3RX2 Series High-function General-purpose Inverter User's Manual (Cat.No.I620) for details.

3G3RX2-A2150
3G3RX2-A2185
3G3RX2-A2220
3G3RX2-A4150
3G3RX2-A4185
3G3RX2-A4220

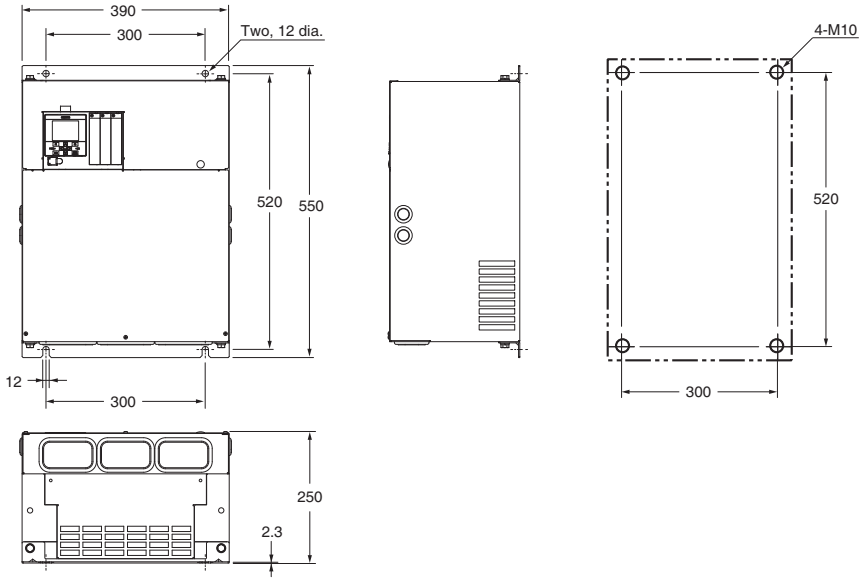


Note: In case you operate 3G3RX2-A2220 at Low Duty (LD) or Very Low Duty (VLD), the inverter is subject to the restriction of installing method. Refer to the 3G3RX2 Series High-function General-purpose Inverter User's Manual (Cat.No.I620) for details.

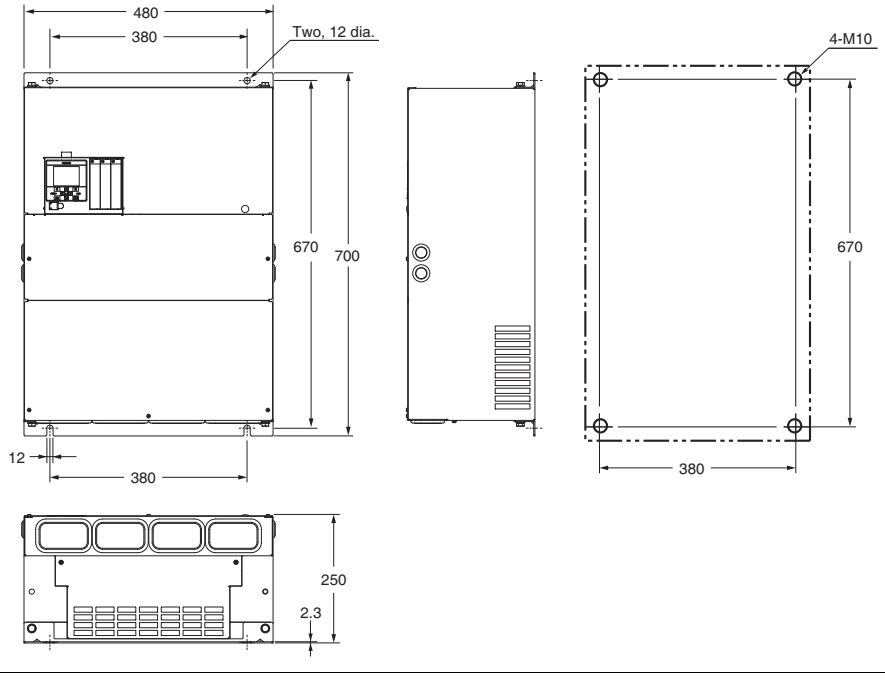
3G3RX2-A2300
3G3RX2-A4300



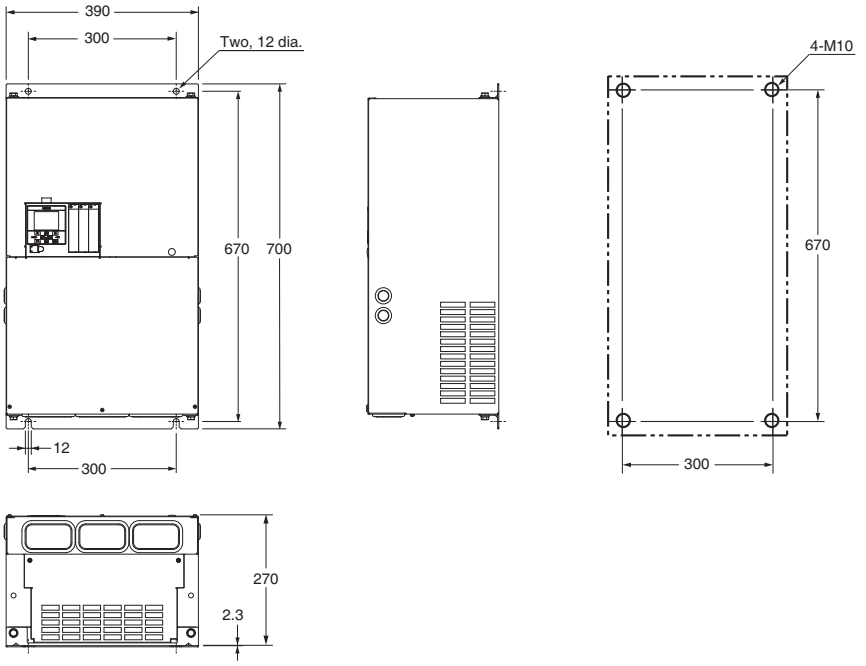
3G3RX2-A2370
3G3RX2-A2450
3G3RX2-A4370
3G3RX2-A4450
3G3RX2-A4550



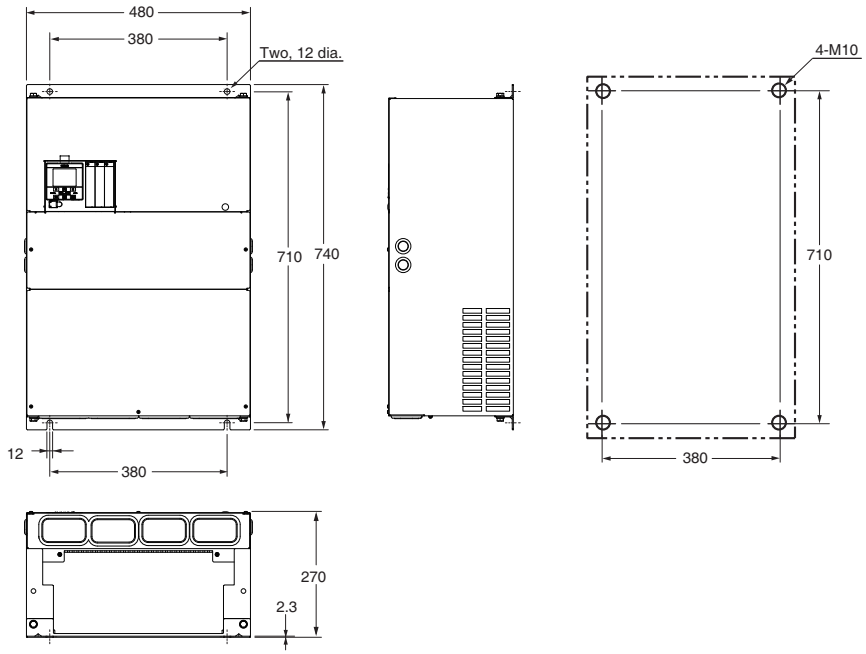
3G3RX2-A2550



3G3RX2-B4750
3G3RX2-B4900



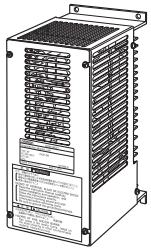
3G3RX2-B411K
3G3RX2-B413K



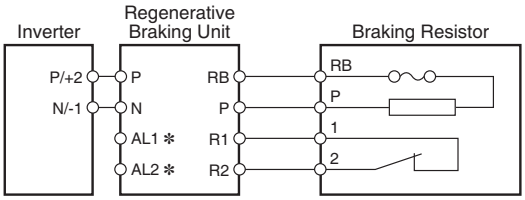
Options

Regenerative Braking Unit 3G3AX-RBU□□

Used with a Braking Resistor when the deceleration time of the motor is needed to be reduced in the 3G3RX2.



Connection Example



✻ The alarm output terminals for the Regenerative Braking Unit. Provide a circuit to turn off the primary power supply for the Inverter when the temperature relay of the built-in resistor or optional Braking Resistor is activated.

Note: The Braking Resistor (RBA, RBB, RBC) has a built-in thermal fuse. This thermal fuse may blow due to rising temperature after the thermal relay between terminal 1 and terminal 2 issued an alarm. When the fuse blows, replace the resistor and correctly wire the alarm output terminals. If an temperature error is detected, stop the inverter and cool down well before restart.

Specifications

Built-in Resistance Type (3G3AX-RBU21/-RBU22/-RBU41)

Class		3-phase 200-V class		3-phase 400-V class
Model name (3G3AX-)		RBU21	RBU22	RBU41 ✻1
Connection resistance		17 Ω min.	17 Ω min.	34 Ω min.
Operating voltage ON/OFF		ON: 362.5 ± 5 V, OFF: 355 ± 5 V (–5% or –10% setting available)		ON: 725 ± 5 V, OFF: 710 ± 5 V (–5% or –10% setting available)
Operation indication		LED ON (Lit)		
Parallel interlocking operation function ✻2		5 units max.		
Built-in resistor	Internal resistance	120 W, 180 Ω	120 W, 20 Ω	120 W, 180 Ω × 2 in series
	Allowable consecutive ON time	10 s max.	0.5 s max.	10 s max.
	Allowable operation cycle	Cycle 1/10 (ON for 10 s, OFF for 90 s)	Cycle 1/80 (ON for 0.5 s, OFF for 40 s)	Cycle 1/10 (ON for 10 s, OFF for 90 s)
	Power consumption	Instantaneous 0.73 kW Short-time rating 120 W	Instantaneous 6.6 kW Short-time rating 120 W	Instantaneous 1.46 kW Short-time rating 240 W
Protective function	Built-in resistor overheat protection	• Cooling fin temperature Relay operates at approximately 200°C or higher. Recovers at approximately 170°C or lower. • Built-in temperature fuse (recovery impossible) ✻3 • Rating of contact 250 V AC 200 mA (R load), 12 V DC 500 mA (R load), 42 V DC 200 mA (R load) • Minimum load 1 mA (R load)		
Operating environment	Ambient temperature	–10 to 50°C		
	Ambient storage temperature	–20 to 65°C		
	Ambient operating humidity	20% to 90% (with no condensation)		
	Vibration	5.9 m/s^2 (0.6G) 10 to 55 Hz		
	Location	At a maximum altitude of 1,000 m (without corrosive gases or dust)		
Paint color		Munselle 5Y7/1 (cooling fan: aluminum ground color)		

✻1. To use the braking resistor (Model: 3G3AX-RAB/RBB/RBC) for the 400-V class regenerative braking unit, be sure to remove the built-in resistor and connect two resistors of the same model in series. Using a 400-V class regenerative braking unit with only a single braking resistor connected may cause damage to the braking resistor.

✻2. Use DIP switches to set the number of connected units.

✻3. The built-in resistor has a thermal fuse. If the alarm terminals are not connected, the fuse may blow out in order to prevent the resistor from burning due to overheating. If the fuse blows out, the built-in resistor must be replaced.

Specifications

External resistor type (3G3AX-RBU23/-RBU24/-RBU42/-RBU43)

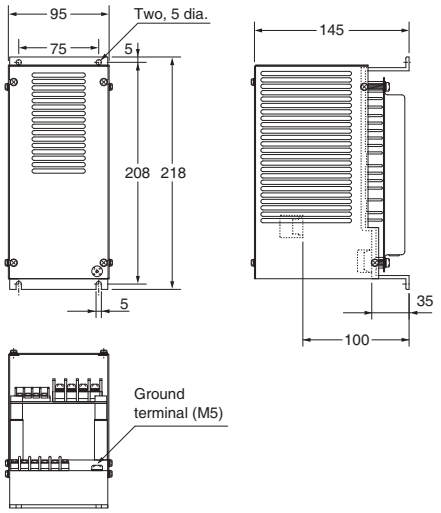
Class		3-phase 200-V class		3-phase 400-V class	
Model name (3G3AX-)		RBU23	RBU24	RBU42 ✻1	RBU43 ✻1
Discharge resistance	Continuous operation	6 Ω min.	4 Ω min.	24 Ω min.	12 Ω min.
	Short-time/ operation Allowable operation cycle/ Continuous ON time	4 Ω min. 1/5 2 min	2 Ω min. 1/5 2 min	10 Ω min. 1/10 10 s	6 Ω min. 1/5 2 min
Operating voltage ON/OFF		ON: 362.5 ± 5 V, OFF: 355 ± 5 V (–5% or –10% setting available)		ON: 725 ± 5 V, OFF: 710 ± 5 V (–5% or –10% setting available)	
Operation indication		LED ON (Lit)			
Maximum number of units operating in parallel ✻2		2 units max.			
Protective functions	Internal power module overheat protection	Built-in relay specifications • Cooling fin temperature Relay operates at approximately 100°C or higher. • Rating of contact 240 V AC 3 A (R load), 36 V DC 2 A (R load) • Minimum load 5 V DC 50 mA (R load)			
Operating environment	Ambient temperature	–10 to 50°C			
	Ambient storage temperature	–20 to 65°C			
	Ambient operating humidity	20% to 90% (with no condensation)			
	Vibration	4.9 m/s^2 (0.5G) 10 to 55 Hz			
	Location	At a maximum altitude of 1,000 m (without corrosive gases or dust)			
Paint color		Munselle 5Y7/1 (cooling fan: aluminum ground color)			

✻1. To use the braking resistor (3G3AX-RAB/RBB/RBC) for the 400-V class regenerative braking unit, be sure to remove the built-in resistor and connect two resistors of the same model in series. Using a 400-V class regenerative braking unit with only a single braking resistor connected may cause damage to the braking resistor.

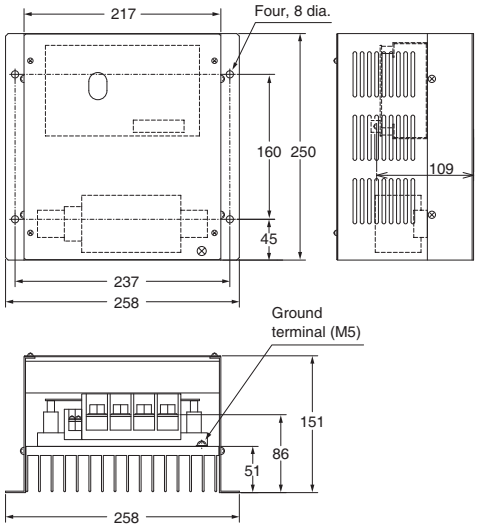
✻2. Use DIP switches to set the number of connected units.

Dimensions (Unit: mm)

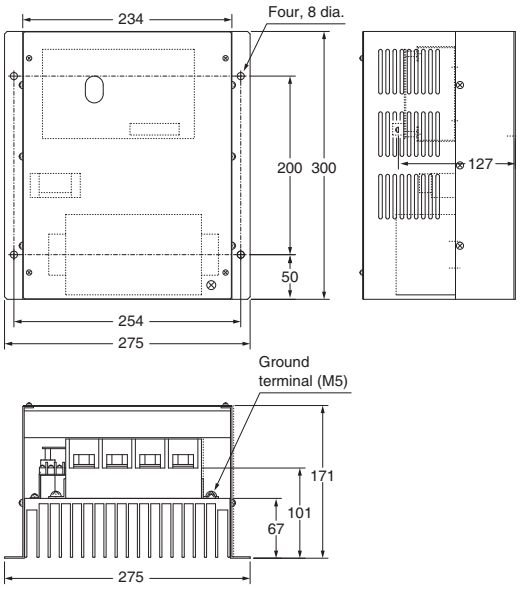
3G3AX-RBU21/-RBU22/-RBU41



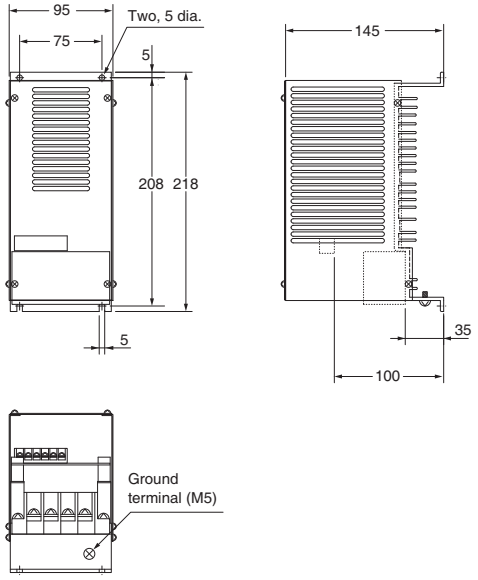
3G3AX-RBU23



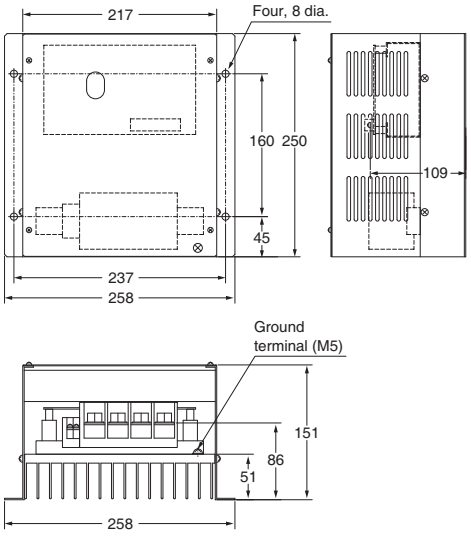
3G3AX-RBU24



3G3AX-RBU42

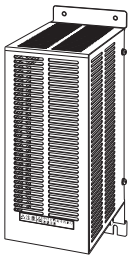


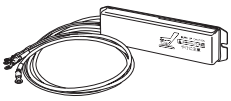
3G3AX-RBU43



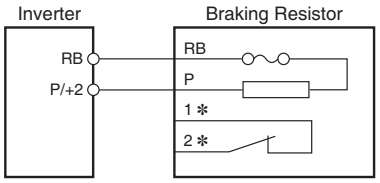
Braking Resistor 3G3AX-RBA/-RBB/-RBC□□□□

Consumes the regenerative motor energy with a resistor to reduce deceleration time.





Connection Example



✻ The alarm output terminals for the Braking Resistor. Provide a circuit to turn off the primary power supply for the Inverter when the temperature relay of the Braking Resistor is activated.

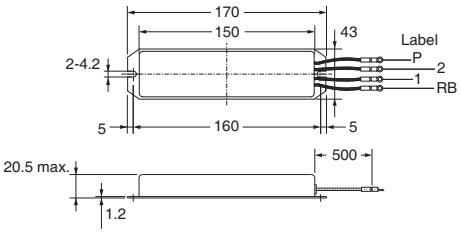
Specifications

Model		Compact type (3G3AX-RBA□□□□)				Standard type (3G3AX-RBB□□□□)				Medium capacity type (3G3AX-RBC□□□□)		
		1201	1202	1203	1204	2001	2002	3001	4001	4001	6001	12001
Resistance	Capacity	120 W				200 W		300 W	400 W	400 W	600 W	1200 W
	Resistance (Ω)	180	100	50	35	180	100	50	35	50	35	17
Allowable brakingfrequency (%)		5	2.5	1.5	1.0	10	7.5	7.5	7.5	10		
Allowable continuousbraking time (s)		20	12	5	3	30			20	10		
Weight (kg)		0.27				0.97		1.68	2.85	2.5	3.6	6.5
Fault detection function		Built-in thermal (Contact capacity: 240 V AC 2 A max.) Minimum current: 5 mA, Normally ON (NC contact) Built-in temperature fuse (recovery impossible) ✻								Built-in temperature relay, Normally ON (NC contact) Contact capacity:240 V AC 3 A (R load), 0.2 A (L load), 36 V DC 2 A (R load)		
General specifications	Ambient operating temperature	−10 to 50°C										
	Ambient storage temperature	−20 to 65°C										
	Ambient operating humidity	20% to 90% (RH) with no condensation										
	Vibration	5.9 m/s (0.6 G) 10 to 55 Hz Complies with JISC0911										
	Location	At a maximum altitude of 1,000 m (without corrosive gases or dust)										
	Cooling method	Self-cooling										

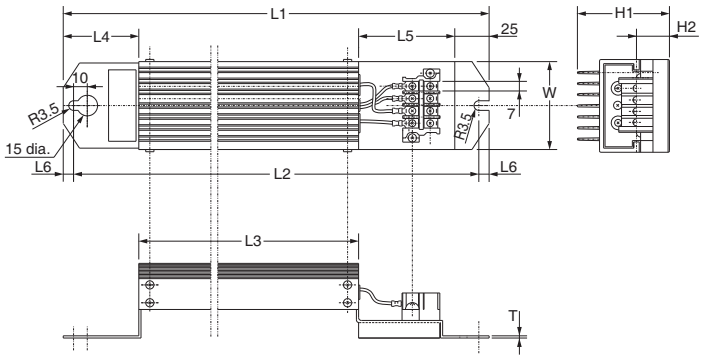
✻ Built-in resistors are equipped with thermal fuses. If the alarm is not connected, the fuse may blow to prevent burnout due to overheating. If the fuse blows, the built-in resistor will need to be replaced.

Dimensions (Unit: mm)

3G3AX-RBA



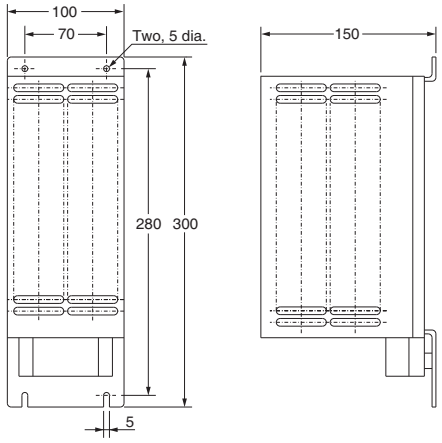
3G3AX-RBB



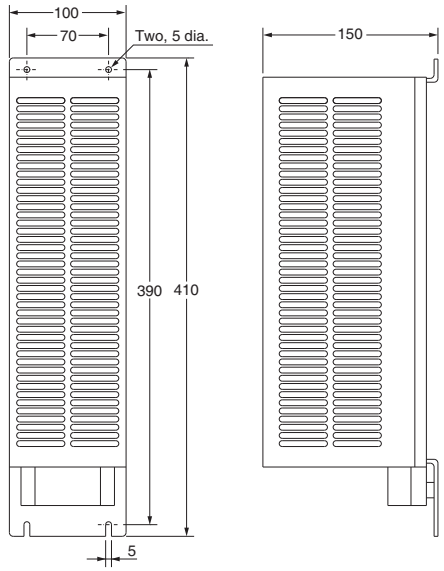
Model	Dimensions (mm)					
	L1	L2	L3	L4	L5	L6
3G3AX-RBB2001	310	295	160	55	70	7.5
3G3AX-RBB2002	310	295	160	55	70	7.5
3G3AX-RBB3001	470	455	320	55	70	7.5
3G3AX-RBB4001	435	422	300	50	60	6.5

Model	Dimensions (mm)				Weight [kg]	Terminal screws
	H1	H2	W	T		
3G3AX-RBB2001	67	12	64	1.6	0.97	M3.5
3G3AX-RBB2002	67	12	64	1.6	0.97	
3G3AX-RBB3001	67	12	64	1.6	1.68	
3G3AX-RBB4001	94	15	76	2	2.85	

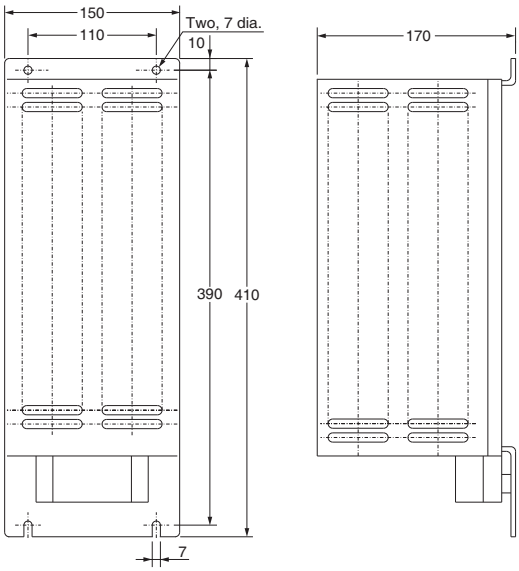
3G3AX-RBC4001



3G3AX-RBC6001

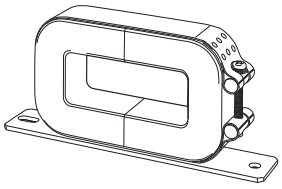


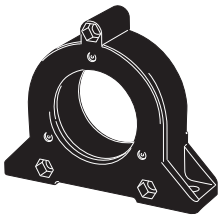
3G3AX-RBC12001



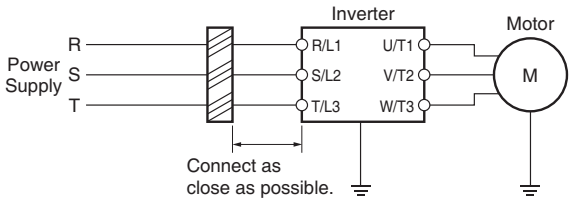
Radio Noise Filter 3G3AX-ZCL□

Connected to the inverter input/output cables to reduce noise coming into the inverter from the power supply line and noise flowing from the inverter into the power supply line.





Connection Example



Note 1: Wind each of three phase wires in the same direction.
2: Can be used on both the input and output sides of the Inverter.

Specifications
3G3AX-ZCL1

Applicable Inverter capacity (kW)	200 V class				400 V class			
	Input		output		Input		output	
	Quantity	No. of turns	Quantity	No. of turns	Quantity	No. of turns	Quantity	No. of turns
0.2	1	4	1	4	1	4	1	4
0.4	1	4	1	4	1	4	1	4
0.75	1	4	1	4	1	4	1	4
1.5	1	4	1	4	1	4	1	4
2.2	1	4	1	4	1	4	1	4
3.0	1	4	1	4	1	4	1	4
3.7	1	4	1	4	1	4	1	4
4.0	1	4	1	4	1	4	1	4
5.5	1	4	1	4	1	4	1	4
7.5	1	4	1	4	1	4	1	4
11	1	4	1	4	1	4	1	4
15	1	4	1	4	1	4	1	4

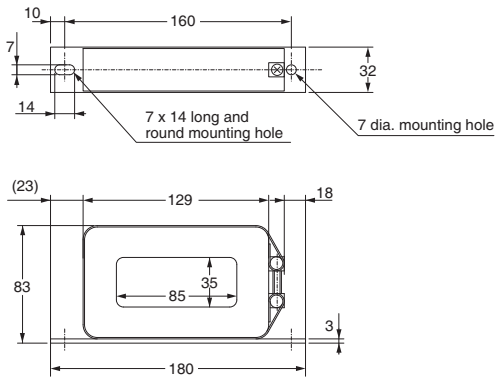
Specifications
3G3AX-ZCL2

Applicable Inverter capacity (kW)	200 V class				400 V class			
	Input		output		Input		output	
	Quantity	No. of turns	Quantity	No. of turns	Quantity	No. of turns	Quantity	No. of turns
0.1	1	4	1	4	1	4	1	4
0.2	1	4	1	4	1	4	1	4
0.4	1	4	1	4	1	4	1	4
0.75	1	4	1	4	1	4	1	4
1.5	1	4	1	4	1	4	1	4
2.2	1	4	1	4	1	4	1	4
3.0	1	4	1	4	1	4	1	4
3.7	1	4	1	4	1	4	1	4
4.0	1	4	1	4	1	4	1	4
5.5	1	4	1	4	1	4	1	4
7.5	1	4	1	4	1	4	1	4

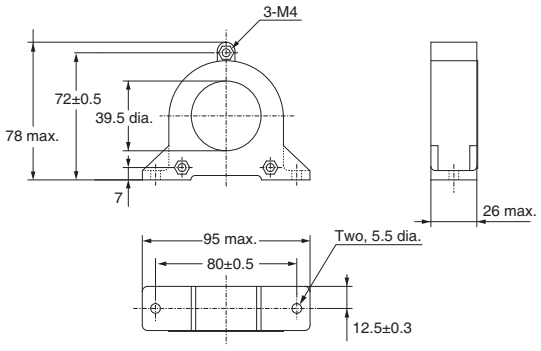
Note: When the inverter is used in the LD or VLD mode, select a radio noise filter according to the capacity of the used motor that is more than one size larger than in the ND mode.

Dimensions (Unit: mm)

3G3AX-ZCL1

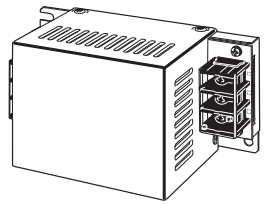


3G3AX-ZCL2

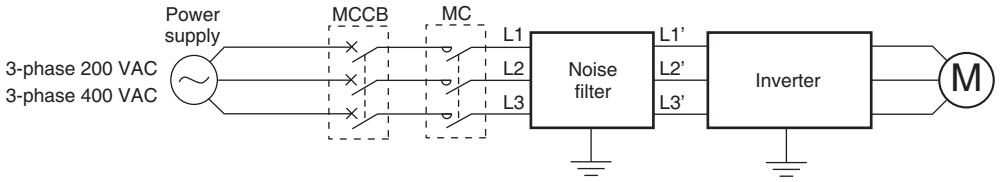


Input Noise Filter 3G3AX-NFI□□

Reduces noise coming into the inverter from the power supply line and noise flowing from the inverter into the power supply line. Connect as close to the Inverter as possible.



Connection Example



Specifications

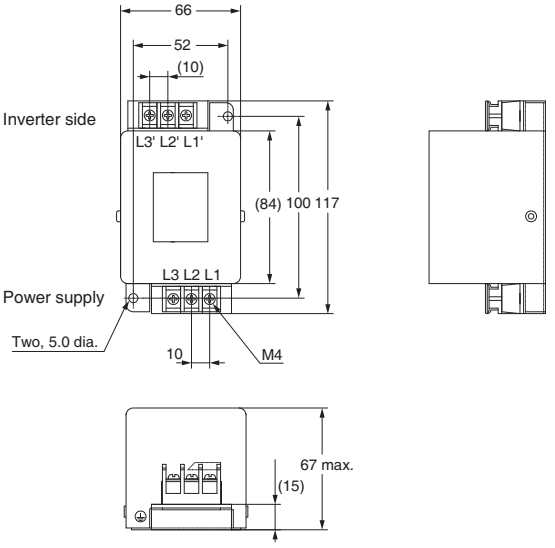
Inverter						Input noise filter specifications				
Voltage class	Max. applicable motor capacity [kW]	Model	Load specification selection	Max. applicable motor capacity [kW]	Rated input current [A]	Model	Max. input voltage	Rated input current (at 50°C) [A]	Heat generation [W]	Leakage current (at 60 Hz)
200-V class	0.4	3G3RX2-A2004	ND	0.4	3.3	3G3AX-NFI21	250 VAC +10%	6	3	1.5 mA max. (250 VAC)
			LD	0.75	3.9					
			VLD	0.75	3.9					
	0.75	3G3RX2-A2007	ND	0.75	5.5					
			LD	1.5	7.2	3G3AX-NFI22		10	4	
			VLD	1.5	7.2					
	1.5	3G3RX2-A2015	ND	1.5	8.3					
			LD	2.2	10.8	3G3AX-NFI23		20	6	
			VLD	2.2	10.8					
	2.2	3G3RX2-A2022	ND	2.2	12					
			LD	3.7	13.9					
			VLD	3.7	13.9					
	3.7	3G3RX2-A2037	ND	3.7	18					
			LD	5.5	23	3G3AX-NFI24		30	9	
			VLD	5.5	23					
	5.5	3G3RX2-A2055	ND	5.5	26					
			LD	7.5	37	3G3AX-NFI25		40	12	
			VLD	7.5	37					
	7.5	3G3RX2-A2075	ND	7.5	35					
			LD	11	48	3G3AX-NFI26		60	17	
			VLD	11	48					
	11	3G3RX2-A2110	ND	11	51					
			LD	15	64	3G3AX-NFI27		80	21	
			VLD	15	64					
	15	3G3RX2-A2150	ND	15	70					
			LD	18.5	80	3G3AX-NFI28		100	23	
			VLD	18.5	80					
	18.5	3G3RX2-A2185	ND	18.5	84					
			LD	22	94	3G3AX-NFI29		150	45	
			VLD	22	94					
	22	3G3RX2-A2220	ND	22	105					
			LD	30	120					
			VLD	30	120					
	30	3G3RX2-A2300	ND	30	133					
			LD	37	150	3G3AX-NFI2A		200	50	
			VLD	37	150					
	37	3G3RX2-A2370	ND	37	160					
			LD	45	186	3G3AX-NFI2B		250	68	
			VLD	45	186					
	45	3G3RX2-A2450	ND	45	200					
			LD	55	240	3G3AX-NFI2C		300	56	
			VLD	55	240					
	55	3G3RX2-A2550	ND	55	242					
			LD	75	280	---	---	---	---	---
			VLD	75	280					

Inverter						Input noise filter specifications				
Voltage class	Max. applicable motor capacity [kW]	Model	Load specification selection	Max. applicable motor capacity [kW]	Rated input current [A]	Model	Max. input voltage	Rated input current (at 50°C) [A]	Heat generation [W]	Leakage current (at 60 Hz)
400-V class	0.75	3G3RX2-A4007	ND	0.75	2.8	3G3AX-NFI41	480 VAC +10%	7	2	7.5 mA max. (480 VAC)
			LD	1.5	4.3					
			VLD	1.5	4.3					
	1.5	3G3RX2-A4015	ND	1.5	4.2					
			LD	2.2	5.9					
			VLD	2.2	5.9					
	2.2	3G3RX2-A4022	ND	2.2	5.8					
			LD	3.7	8.1	3G3AX-NFI42		10	4	
			VLD	3.7	8.1					
	3.7	3G3RX2-A4037	ND	3.7	9.8					
			LD	5.5	13.3	3G3AX-NFI43		20	6	
			VLD	5.5	13.3					
	5.5	3G3RX2-A4055	ND	5.5	15					
			LD	7.5	20					
			VLD	7.5	20					
	7.5	3G3RX2-A4075	ND	7.5	21					
			LD	11	24	3G3AX-NFI44		30	9	
			VLD	11	24					
	11	3G3RX2-A4110	ND	11	28					
			LD	15	32	3G3AX-NFI45		40	12	
			VLD	15	32					
	15	3G3RX2-A4150	ND	15	35					
			LD	18.5	41	3G3AX-NFI46		50	15	
			VLD	18.5	41					
	18.5	3G3RX2-A4185	ND	18.5	42					
			LD	22	47	3G3AX-NFI47		60	17	
			VLD	22	47					
	22	3G3RX2-A4220	ND	22	53					
			LD	30	63	3G3AX-NFI48		80	21	
			VLD	30	63					
	30	3G3RX2-A4300	ND	30	64					
			LD	37	77	3G3AX-NFI49		100	23	
			VLD	37	77					
	37	3G3RX2-A4370	ND	37	83					
			LD	45	94	3G3AX-NFI4A		150	45	
			VLD	45	94					
	45	3G3RX2-A4450	ND	45	100					
			LD	55	116					
			VLD	55	116					
	55	3G3RX2-A4550	ND	55	121					
			LD	75	149	---	---	---	---	---
			VLD	75	149					

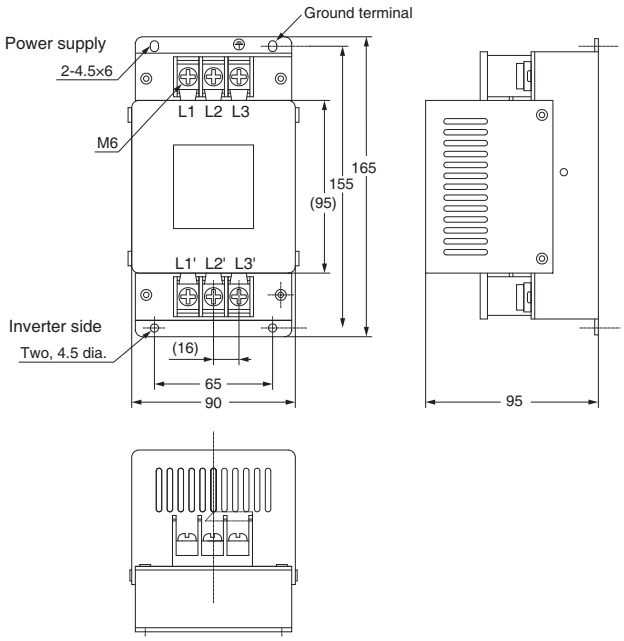
Dimensions (Unit: mm)

Model	Case, enclosure rating	Terminal size	Wire diameter	Weight [kg]
3G3AX-NFI21	Plastic, IP00	M4	1.25 mm^2	0.5
3G3AX-NFI22	Plastic, IP00	M4	2 mm^2	0.6
3G3AX-NFI23	Plastic, IP00	M4	2 mm^2, 3.5 mm^2	0.7
3G3AX-NFI24	Plastic, IP00	M4	5.5 mm^2	0.8
3G3AX-NFI25	Plastic, IP00	M5	8 mm^2	1.4
3G3AX-NFI26	Plastic, IP00	M5	14 mm^2	1.8
3G3AX-NFI27	Metal, IP00	M6	22 mm^2	3.6
3G3AX-NFI28	Metal, IP00	M8	30 mm^2	4.6
3G3AX-NFI29	Metal, IP00	M8	38 mm^2, 60 mm^2	9.0
3G3AX-NFI2A	Metal, IP00	M10	100 mm^2 or 38 mm^2, 2 wires parallel	16
3G3AX-NFI2B	Metal, IP00	M10	100 mm^2 or 38 mm^2, 2 wires parallel	16
3G3AX-NFI2C	Metal, IP00	M10	150 mm^2 or 60 mm^2, 2 wires parallel	23
3G3AX-NFI41	Plastic, IP00	M4	1.25 mm^2, 2 mm^2	0.7
3G3AX-NFI42	Plastic, IP00	M4	2 mm^2	0.7
3G3AX-NFI43	Plastic, IP00	M4	2 mm^2, 3.5 mm^2	0.7
3G3AX-NFI44	Plastic, IP00	M4	5.5 mm^2	0.8
3G3AX-NFI45	Plastic, IP00	M5	8 mm^2	1.4
3G3AX-NFI46	Plastic, IP00	M5	14 mm^2	1.6
3G3AX-NFI47	Plastic, IP00	M5	14 mm^2	1.8
3G3AX-NFI48	Metal, IP00	M6	22 mm^2	3.6
3G3AX-NFI49	Metal, IP00	M8	38 mm^2	4.6
3G3AX-NFI4A	Metal, IP00	M8	38 mm^2, 60 mm^2	9.0

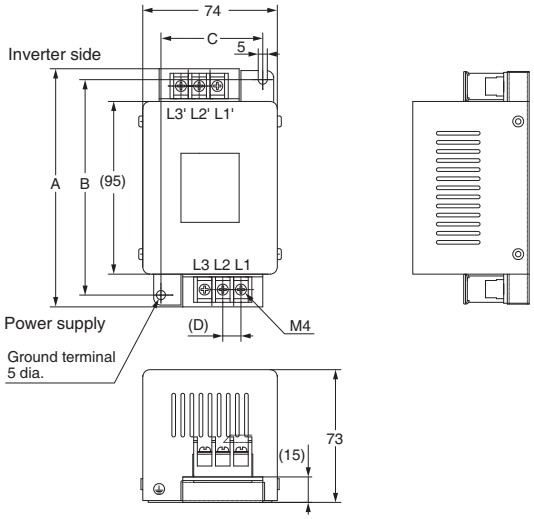
3G3AX-NFI21
3G3AX-NFI22



3G3AX-NFI25/3G3AX-NFI26
3G3AX-NFI45/3G3AX-NFI46
3G3AX-NFI47

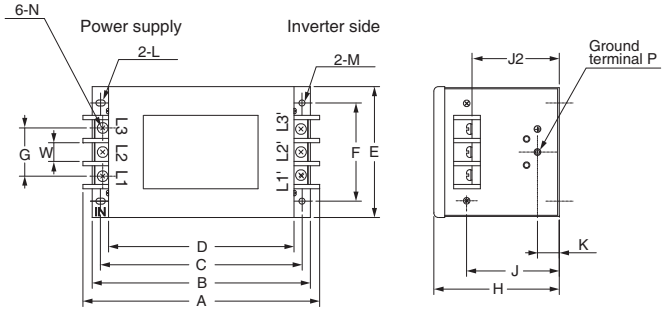


3G3AX-NFI23/3G3AX-NFI24
3G3AX-NFI41/3G3AX-NFI42
3G3AX-NFI43/3G3AX-NFI44



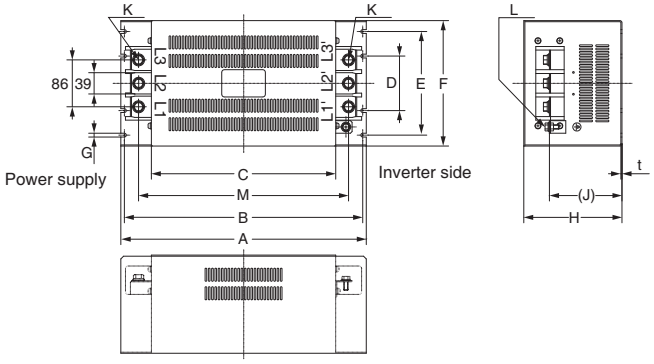
Model	Dimensions (mm)			
	A	B	C	D
3G3AX-NFI23	128	118	56	10
3G3AX-NFI24	144	130	56	11
3G3AX-NFI41	144	130	56	11
3G3AX-NFI42	144	130	56	11
3G3AX-NFI43	144	130	56	11
3G3AX-NFI44	144	130	56	11

3G3AX-NFI27/3G3AX-NFI28
3G3AX-NFI29/3G3AX-NFI48
3G3AX-NFI49/3G3AX-NFI4A



Model	Dimensions (mm)															
	A	B	C	D	E	F	G	H	J	J2	K	L	M	N	P	W
3G3AX-NFI27	217	200	185	170	120	90	44	115	85	82	20	R2.75, Length 7	5.5 dia.	M6	M4	17
3G3AX-NFI28	254	230	215	200	150	120	57	115	80	75	30	R3.75, Length 8	6.5 dia.	M8	M6	23
3G3AX-NFI29	314	300	280	260	200	170	57	130	90	85	35	R3.75, Length 8	6.5 dia.	M8	M6	23
3G3AX-NFI48	217	200	185	170	120	90	44	115	85	85	20	R2.75, Length 7	5.5 dia.	M6	M4	17
3G3AX-NFI49	254	230	215	200	150	120	57	115	80	75	30	R3.75, Length 8	6.5 dia.	M8	M6	23
3G3AX-NFI4A	314	300	280	260	200	170	57	130	90	85	35	R3.75, Length 8	6.5 dia.	M8	M6	23

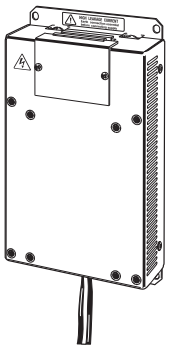
3G3AX-NFI2A/3G3AX-NFI2B
3G3AX-NFI2C



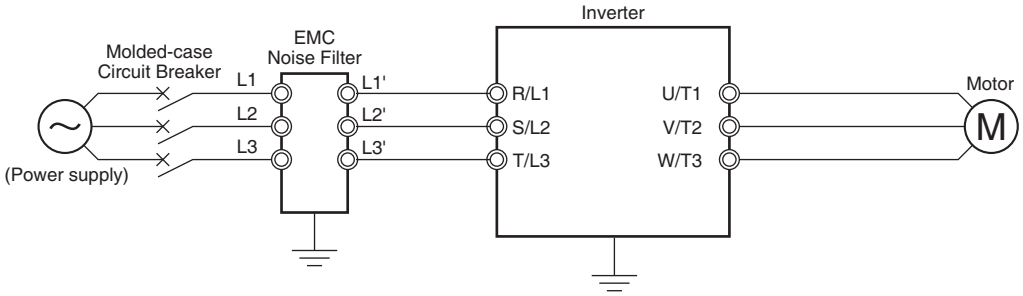
Model	Dimensions (mm)												
	A	B	C	D	E	F	G	H	J	K	L	M	N
3G3AX-NFI2A	450	430	338	100	190	230	7	180	(133)	M10	M8	385	1.0
3G3AX-NFI2B													
3G3AX-NFI2C	500	475	400	---	160	200	12	180	(133)	M10	M8	445	1.2

EMC Noise Filter 3G3AX-EFI□□□

Separately installed option used to comply with the EC's EMC Directives. Select a filter appropriate for the Inverter model.
Although an EMC Noise Filter is built into the RX2, it may be necessary to provide another EMC Noise Filter when the cable between the Motor and the Inverter is long.



Connection Example



Specifications

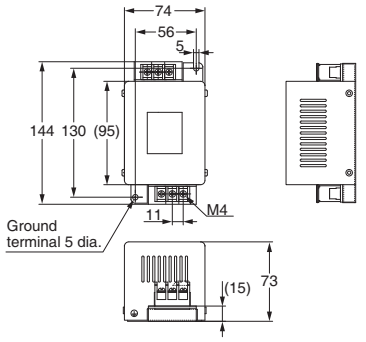
Inverter						EMC noise filter specifications					
Voltage class	Max. applicable motor capacity [kW]	Model	Load specification selection	Max. applicable motor capacity [kW]	Rated input current [A]	Model	Max. input voltage	Rated input current [A]	Heat generation [W]	Leakage current (at 480 VAC 60 Hz)	Class
200-V class	0.4	3G3RX2-A2004	ND	0.4	3.3	3G3AX-EFI41	480 VAC +10%	7	4	150 mA max.	A
			LD	0.75	3.9						
			VLD	0.75	3.9						
	0.75	3G3RX2-A2007	ND	0.75	5.5						
			LD	1.5	7.2	3G3AX-EFI42		10	4	150 mA max.	
			VLD	1.5	7.2						
	1.5	3G3RX2-A2015	ND	1.5	8.3						
			LD	2.2	10.8	3G3AX-EFI43		20	8	170 mA max.	
			VLD	2.2	10.8						
	2.2	3G3RX2-A2022	ND	2.2	12						
			LD	3.7	13.9						
			VLD	3.7	13.9						
	3.7	3G3RX2-A2037	ND	3.7	18						
			LD	5.5	23	3G3AX-EFI44		30	9	170 mA max.	
			VLD	5.5	23						
	5.5	3G3RX2-A2055	ND	5.5	26						
			LD	7.5	37	3G3AX-EFI45		40	15	170 mA max.	
			VLD	7.5	37						
	7.5	3G3RX2-A2075	ND	7.5	35						
			LD	11	48	3G3AX-EFI47		60	15	250 mA max.	
			VLD	11	48						
	11	3G3RX2-A2110	ND	11	51						
			LD	15	64	3G3AX-EFI48		80	21	250 mA max.	
			VLD	15	64						
	15	3G3RX2-A2150	ND	15	70						
			LD	18.5	80	3G3AX-EFI49		100	23	250 mA max.	
			VLD	18.5	80						
	18.5	3G3RX2-A2185	ND	18.5	84						
			LD	22	94	3G3AX-EFI4A		150	45	250 mA max.	
			VLD	22	94						
	22	3G3RX2-A2220	ND	22	105						
			LD	30	120						
			VLD	30	120						
	30	3G3RX2-A2300	ND	30	133						
			LD	37	150	3G3AX-EFI4B		200	50	250 mA max.	
			VLD	37	150						
	37	3G3RX2-A2370	ND	37	160						
			LD	45	186	---	---	---	---	---	---
			VLD	45	186						

Inverter						EMC noise filter specifications					
Voltage class	Max. applicable motor capacity [kW]	Model	Load specification selection	Max. applicable motor capacity [kW]	Rated input current [A]	Model	Max. input voltage	Rated input current [A]	Heat generation [W]	Leakage current (at 480 VAC 60 Hz)	Class
400-V class	0.75	3G3RX2-A4007	ND	0.75	2.8	3G3AX-EFI41	480 VAC +10%	7	4	150 mA max.	A
			LD	1.5	4.3						
			VLD	1.5	4.3						
	1.5	3G3RX2-A4015	ND	1.5	4.2						
			LD	2.2	5.9						
			VLD	2.2	5.9						
	2.2	3G3RX2-A4022	ND	2.2	5.8						
			LD	3.7	8.1	3G3AX-EFI42		10	4	150 mA max.	
			VLD	3.7	8.1						
	3.7	3G3RX2-A4037	ND	3.7	9.8						
			LD	5.5	13.3	3G3AX-EFI43		20	8	170 mA max.	
			VLD	5.5	13.3						
	5.5	3G3RX2-A4055	ND	5.5	15						
			LD	7.5	20						
			VLD	7.5	20						
	7.5	3G3RX2-A4075	ND	7.5	21						
			LD	11	24	3G3AX-EFI44		30	9	170 mA max.	
			VLD	11	24						
	11	3G3RX2-A4110	ND	11	28						
			LD	15	32	3G3AX-EFI45		40	15	170 mA max.	
			VLD	15	32						
	15	3G3RX2-A4150	ND	15	35						
			LD	18.5	41	3G3AX-EFI46		50	15	250 mA max.	
			VLD	18.5	41						
	18.5	3G3RX2-A4185	ND	18.5	42						
			LD	22	47	3G3AX-EFI47		60	15	250 mA max.	
			VLD	22	47						
	22	3G3RX2-A4220	ND	22	53						
			LD	30	63	3G3AX-EFI48		80	21	250 mA max.	
			VLD	30	63						
	30	3G3RX2-A4300	ND	30	64						
			LD	37	77	3G3AX-EFI49		100	23	250 mA max.	
			VLD	37	77						
	37	3G3RX2-A4370	ND	37	83						
			LD	45	94	3G3AX-EFI4A		150	45	250 mA max.	
			VLD	45	94						
	45	3G3RX2-A4450	ND	45	100						
			LD	55	116						
			VLD	55	116						
	55	3G3RX2-A4550	ND	55	121						
			LD	75	149	3G3AX-EFI4B		200	50	250 mA max.	
			VLD	75	149						
	75	3G3RX2-B4750	ND	75	164						
			LD	90	176						
			VLD	90	176						
	90	3G3RX2-B4900	ND	90	194						
			LD	110	199	---	---	---	---	---	---
			VLD	110	199						

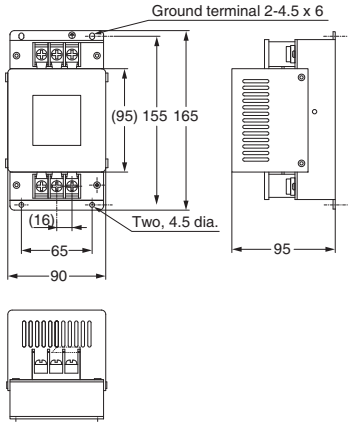
Dimensions (Unit: mm)

Model	Case, enclosure rating	Screw size	Wire size	Weight [kg]
3G3AX-EFI41	Plastic, IP00	M4	1.25 mm², 2 mm²	0.7
3G3AX-EFI42			2 mm²	0.7
3G3AX-EFI43		M5	2 mm², 3.5 mm²	1.0
3G3AX-EFI44			5.5 mm²	1.3
3G3AX-EFI45			8 mm²	1.4
3G3AX-EFI46	Metal, IP00	M6	14 mm²	2.9
3G3AX-EFI47			14 mm²	3.0
3G3AX-EFI48			22 mm²	3.6
3G3AX-EFI49		M8	30 mm², 38 mm²	4.3
3G3AX-EFI4A			38 mm², 60 mm²	9.0
3G3AX-EFI4B		M10	100 mm² or 38 mm², 2 wires parallel	16.0

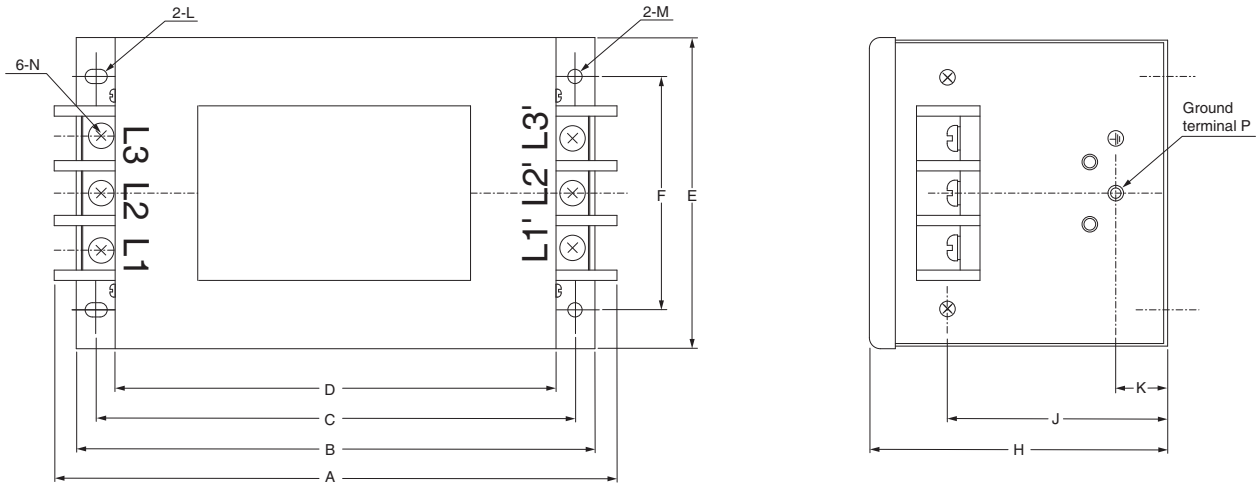
3G3AX-EFI41
3G3AX-EFI42



3G3AX-EFI43/3G3AX-EFI44
3G3AX-EFI45

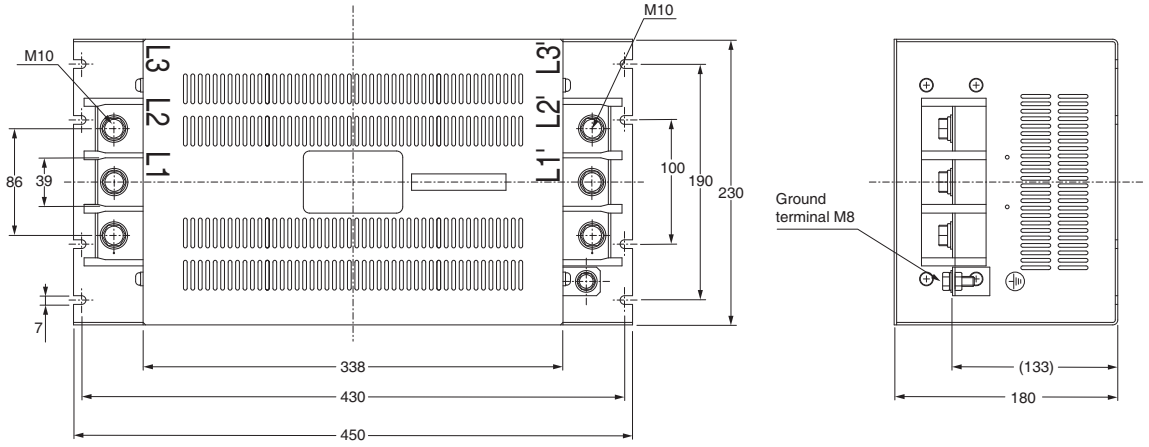


3G3AX-EFI46/3G3AX-EFI47/3G3AX-EFI48
3G3AX-EFI49/3G3AX-EFI4A



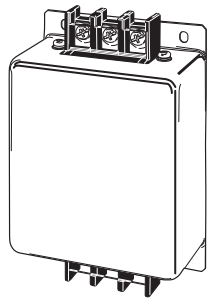
Model	Dimensions [mm]												
	A	B	C	D	E	F	H	J	K	L	M	N	P
3G3AX-EF146	217	220	185	170	120	90	115	85	20	R2.75, Length 7	5.5 dia.	M6	M4
3G3AX-EF147													
3G3AX-EF148													
3G3AX-EF149	254	230	215	200	150	120	115	80	30	R3.25, Length 8	6.5 dia.	M8	M6
3G3AX-EF14A	314	300	280	260	200	170	130	90	35	R3.25, Length 8	6.5 dia.	M8	M6

3G3AX-EFI4B

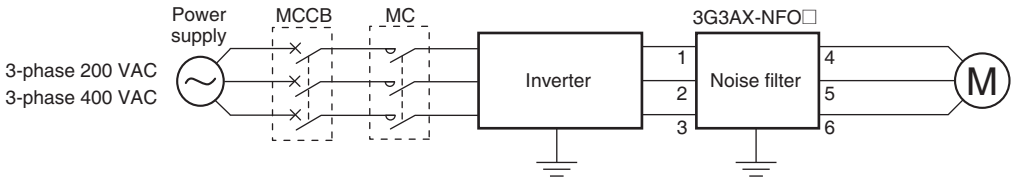


Output Noise Filter 3G3AX-NFO□□

Reduces noise generated by the Inverter. Connect as close to the Inverter as possible.



Connection Example



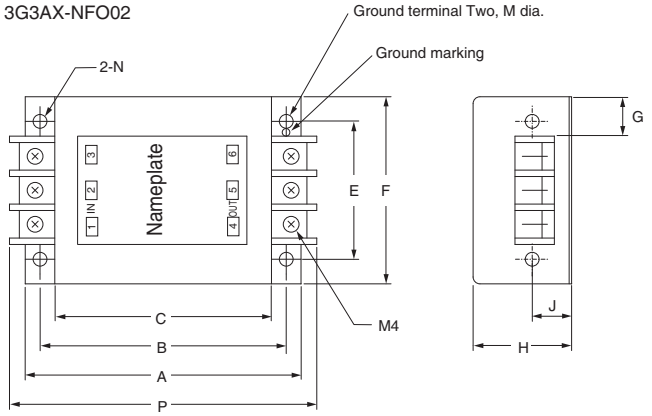
Specifications

Inverter						Output noise filter specifications			
Voltage class	Max. applicable motor capacity [kW]	Model	Load specification selection	Max. applicable motor capacity [kW]	Rated input current [A]	Model	Rated voltage	Rated input current [A]	Weight [kg]
200-V class	0.4	3G3RX2-A2004	ND	0.4	3.0	3G3AX-NFO01	500 VAC	6	0.7
			LD	0.75	3.7				
			VLD	0.75	3.7				
	0.75	3G3RX2-A2007	ND	0.75	5.0				
			LD	1.5	6.3	3G3AX-NFO02		12	0.9
			VLD	1.5	6.3				
	1.5	3G3RX2-A2015	ND	1.5	7.5				
			LD	2.2	9.4				
			VLD	2.2	9.4				
	2.2	3G3RX2-A2022	ND	2.2	10.5				
			LD	3.7	12	3G3AX-NFO03		25	2.1
			VLD	3.7	12				
	3.7	3G3RX2-A2037	ND	3.7	16.5				
			LD	5.5	19.6				
			VLD	5.5	19.6				
	5.5	3G3RX2-A2055	ND	5.5	24				
			LD	7.5	30	3G3AX-NFO04		50	3.7
			VLD	7.5	30				
	7.5	3G3RX2-A2075	ND	7.5	32				
			LD	11	44				
			VLD	11	44				
	11	3G3RX2-A2110	ND	11	46				
			LD	15	58	3G3AX-NFO05		75	5.7
			VLD	15	58				
	15	3G3RX2-A2150	ND	15	64				
			LD	18.5	73	3G3AX-NFO06		100	8.4
			VLD	18.5	73				
	18.5	3G3RX2-A2185	ND	18.5	76				
			LD	22	85				
			VLD	22	85				
	22	3G3RX2-A2220	ND	22	95				
			LD	30	113	3G3AX-NFO07		150	9.0
			VLD	30	113				
	30	3G3RX2-A2300	ND	30	121				
			LD	37	140				
			VLD	37	140				
	37	3G3RX2-A2370	ND	37	145				
			LD	45	169	---	---	---	---
			VLD	45	169				

Inverter						Output noise filter specifications			
Voltage class	Max. applicable motor capacity [kW]	Model	Load specification selection	Max. applicable motor capacity [kW]	Rated input current [A]	Model	Rated voltage	Rated input current [A]	Weight [kg]
400-V class	0.75	3G3RX2-A4007	ND	0.75	2.5	3G3AX-NFO01	500 VAC	6	0.7
			LD	1.5	3.1				
			VLD	1.5	3.1				
	1.5	3G3RX2-A4015	ND	1.5	3.8				
			LD	2.2	4.8				
			VLD	2.2	4.8				
	2.2	3G3RX2-A4022	ND	2.2	5.3				
			LD	3.7	6.7	3G3AX-NFO02		12	0.9
			VLD	3.7	6.7				
	3.7	3G3RX2-A4037	ND	3.7	9.0				
			LD	5.5	11.1	3G3AX-NFO03		25	2.1
			VLD	5.5	11.1				
	5.5	3G3RX2-A4055	ND	5.5	14				
			LD	7.5	16				
			VLD	7.5	16				
	7.5	3G3RX2-A4075	ND	7.5	19				
			LD	11	22				
			VLD	11	22				
	11	3G3RX2-A4110	ND	11	25				
			LD	15	29	3G3AX-NFO04		50	3.7
			VLD	15	29				
	15	3G3RX2-A4150	ND	15	32				
			LD	18.5	37				
			VLD	18.5	37				
	18.5	3G3RX2-A4185	ND	18.5	38				
			LD	22	43				
			VLD	22	43				
	22	3G3RX2-A4220	ND	22	48				
			LD	30	57	3G3AX-NFO05		75	5.7
			VLD	30	57				
	30	3G3RX2-A4300	ND	30	58				
			LD	37	70				
			VLD	37	70				
	37	3G3RX2-A4370	ND	37	75				
			LD	45	85	3G3AX-NFO06		100	8.4
			VLD	45	85				
	45	3G3RX2-A4450	ND	45	91				
			LD	55	105	3G3AX-NFO07		150	9.0
			VLD	55	105				
	55	3G3RX2-A4550	ND	55	112				
			LD	75	135				
			VLD	75	135				
	75	3G3RX2-B4750	ND	75	149				
			LD	90	160	---	---	---	---
			VLD	90	160				

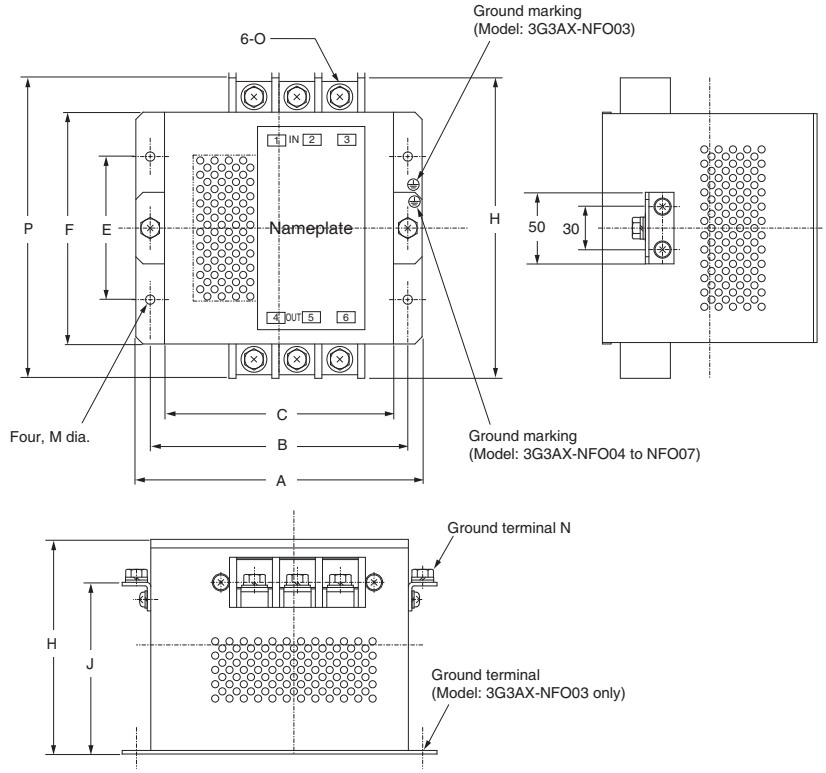
Dimensions (Unit: mm)

3G3AX-NFO01
3G3AX-NFO02



Model	Dimensions [mm]										
	A	B	C	E	F	G	H	J	M	P	N
3G3AX-NFO01	140	125	110	70	95	22	50	20	4.5	156	2-R2.25 Length 6
3G3AX-NFO02	160	145	130	80	110	30	70	25	5.5	176	2-R2.75 Length 7

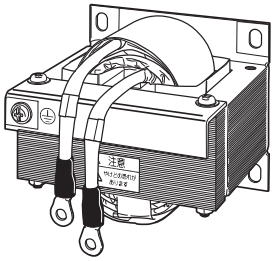
3G3AX-NFO03/3G3AX-NFO04/3G3AX-NFO05
3G3AX-NFO06/3G3AX-NFO07



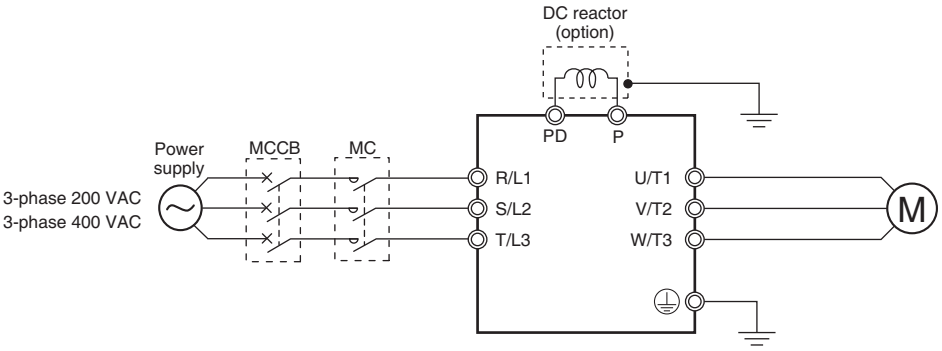
Model	Dimensions [mm]										
	A	B	C	E	F	H	J	M	N	O	P
3G3AX-NFO03	160	145	130	80	112	120	---	6.5 dia.	---	M4	154
3G3AX-NFO04	200	180	160	100	162	150	120	6.5 dia.	M5	M5	210
3G3AX-NFO05	220	200	180	100	182	170	140	6.5 dia.	M6	M6	230
3G3AX-NFO06	220	200	180	100	182	170	140	6.5 dia.	M8	M8	237
3G3AX-NFO07	240	220	200	150	202	170	140	6.5 dia.	M8	M8	257

DC Reactor 3G3AX-DL□□□□

Used to suppress harmonic current generated from the Inverter.
Suppresses harmonic current better than the AC Reactor and can be used with the AC Reactor.



Connection Example



Specifications

Inverter						DC reactor specifications				
Voltage class	Max. applicable motor capacity [kW]	Model	Load specification selection	Max. applicable motor capacity [kW]	Rated input current [A]	Model	Inductance [mH]	Heat generation [W]	Operating ambient temperature /humidity	Location
200-V class	0.4	3G3RX2-A2004	ND	0.4	3.3	3G3AX-DL2004	10.7	8	-10 to 50°C 20% to 90%	At an altitude of 1,000 m max.; indoors (without corrosive gases or dust)
			LD	0.75	3.9	3G3AX-DL2007	6.75	15		
			VLD	0.75	3.9					
	0.75	3G3RX2-A2007	ND	0.75	5.5					
			LD	1.5	7.2	3G3AX-DL2015	3.51	25		
			VLD	1.5	7.2					
	1.5	3G3RX2-A2015	ND	1.5	8.3					
			LD	2.2	10.8	3G3AX-DL2022	2.51	35		
			VLD	2.2	10.8					
	2.2	3G3RX2-A2022	ND	2.2	12					
			LD	3.7	13.9	3G3AX-DL2037	1.60	45		
			VLD	3.7	13.9					
	3.7	3G3RX2-A2037	ND	3.7	18					
			LD	5.5	23	3G3AX-DL2055	1.11	55		
			VLD	5.5	23					
	5.5	3G3RX2-A2055	ND	5.5	26					
			LD	7.5	37	3G3AX-DL2075	0.84	95		
			VLD	7.5	37					
	7.5	3G3RX2-A2075	ND	7.5	35					
			LD	11	48	3G3AX-DL2110	0.59	80		
			VLD	11	48					
	11	3G3RX2-A2110	ND	11	51					
			LD	15	64	3G3AX-DL2150	0.44	135		
			VLD	15	64					
	15	3G3RX2-A2150	ND	15	70					
			LD	18.5	80	3G3AX-DL2220	0.30	200		
			VLD	18.5	80					
	18.5	3G3RX2-A2185	ND	18.5	84					
			LD	22	94					
			VLD	22	94					
	22	3G3RX2-A2220	ND	22	105					
			LD	30	120	3G3AX-DL2300	0.23	220		
			VLD	30	120					
	30	3G3RX2-A2300	ND	30	133					
			LD	37	150	3G3AX-DL2370	0.19	275		
			VLD	37	150					
	37	3G3RX2-A2370	ND	37	160					
			LD	45	186	3G3AX-DL2450	0.16	335		
			VLD	45	186					
	45	3G3RX2-A2450	ND	45	200					
			LD	55	240	3G3AX-DL2550	0.13	360		
			VLD	55	240					
	55	3G3RX2-A2550	ND	55	242					
			LD	75	280	---	---	---	---	---
			VLD	75	280					

Inverter						DC reactor specifications				
Voltage class	Max. applicable motor capacity [kW]	Model	Load specification selection	Max. applicable motor capacity [kW]	Rated input current [A]	Model	Inductance [mH]	Heat generation [W]	Operating ambient temperature /humidity	Location
400-V class	0.75	3G3RX2-A4007	ND	0.75	2.8	3G3AX-DL4007	27.0	15	-10 to 50°C 20% to 90%	At an altitude of 1,000 m max.; indoors (without corrosive gases or dust)
			LD	1.5	4.3	3G3AX-DL4015	14.0	25		
			VLD	1.5	4.3					
	1.5	3G3RX2-A4015	ND	1.5	4.2					
			LD	2.2	5.9	3G3AX-DL4022	10.1	35		
			VLD	2.2	5.9					
	2.2	3G3RX2-A4022	ND	2.2	5.8					
			LD	3.7	8.1	3G3AX-DL4037	6.4	45		
			VLD	3.7	8.1					
	3.7	3G3RX2-A4037	ND	3.7	9.8					
			LD	5.5	13.3	3G3AX-DL4055	4.41	55		
			VLD	5.5	13.3					
	5.5	3G3RX2-A4055	ND	5.5	15					
			LD	7.5	20	3G3AX-DL4075	3.35	95		
			VLD	7.5	20					
	7.5	3G3RX2-A4075	ND	7.5	21					
			LD	11	24	3G3AX-DL4110	2.33	80		
			VLD	11	24					
	11	3G3RX2-A4110	ND	11	28					
			LD	15	32	3G3AX-DL4150	1.75	135		
			VLD	15	32					
	15	3G3RX2-A4150	ND	15	35					
			LD	18.5	41	3G3AX-DL4220	1.20	200		
			VLD	18.5	41					
	18.5	3G3RX2-A4185	ND	18.5	42					
			LD	22	47					
			VLD	22	47					
	22	3G3RX2-A4220	ND	22	53					
			LD	30	63	3G3AX-DL4300	0.92	230		
			VLD	30	63					
	30	3G3RX2-A4300	ND	30	64					
			LD	37	77	3G3AX-DL4370	0.74	275		
			VLD	37	77					
	37	3G3RX2-A4370	ND	37	83					
			LD	45	94	3G3AX-DL4450	0.61	340		
			VLD	45	94					
	45	3G3RX2-A4450	ND	45	100					
			LD	55	116	3G3AX-DL4550	0.5	400		
			VLD	55	116					
	55	3G3RX2-A4550	ND	55	121					
			LD	75	149	---	---	---	---	---
			VLD	75	149					

Dimensions (Unit: mm)

Inverter input power supply	Model	Fig. No.	Applicable motor capacity [kW]	Dimensions [mm]									Weight [kg]	Standard applicable wire
				W	D	H	A	B	X	Y	C	K		
3/1-phase 200 VAC	3G3AX-DL2002	Fig. 1	0.2	66	90	98	---	85	56	72	5.2×8	M4	0.8	1.25 mm² min.
	3G3AX-DL2004		0.4	66	90	98	---	95	56	72	5.2×8	M4	1.0	1.25 mm² min.
	3G3AX-DL2007		0.75	66	90	98	---	105	56	72	5.2×8	M4	1.3	2 mm² min.
	3G3AX-DL2015		1.5	66	90	98	---	115	56	72	5.2×8	M4	1.6	2 mm² min.
	3G3AX-DL2022		2.2	86	100	116	---	105	71	80	6×9	M4	2.1	2 mm² min.
	3G3AX-DL2037		3.7	86	100	118	---	120	71	80	6×9	M4	2.6	3.5 mm² min.
	3G3AX-DL2055	Fig. 2	5.5	111	100	210	---	110	95	80	7×11	M5	3.6	8 mm² min.
	3G3AX-DL2075		7.5	111	100	212	---	120	95	80	7×11	M6	3.9	14 mm² min.
	3G3AX-DL2110		11	146	120	252	---	110	124	96	7×11	M6	6.5	22 mm² min.
	3G3AX-DL2150		15	146	120	256	---	120	124	96	7×11	M8	7.0	38 mm² min.
	3G3AX-DL2220	Fig. 3	18.5, 22	120	175	356	140	145	98	151	7×11	M8	9.0	60 mm² min.
	3G3AX-DL2300		30	120	175	386	155	150	98	151	7×11	M8	13.0	38 mm² x 2 min.
	3G3AX-DL2370		37	120	175	390	155	150	98	151	7×11	M10	13.5	38 mm² x 2 min.
	3G3AX-DL2450		45	160	190	420	180	150	120	168	7×11	M10	19.0	60 mm² x 2 min.
	3G3AX-DL2550		55	160	190	424	180	180	120	168	7×11	M12	24.0	80 mm² x 2 min.
3-phase 400 VAC	3G3AX-DL4007	Fig. 1	0.75	66	90	98	---	95	56	72	5.2×8	M4	1.1	1.25 mm² min.
	3G3AX-DL4015		1.5	66	90	98	---	115	56	72	5.2×8	M4	1.6	2 mm² min.
	3G3AX-DL4022		2.2	86	100	116	---	105	71	80	6×9	M4	2.1	2 mm² min.
	3G3AX-DL4037		3.7	86	100	116	---	120	71	80	6×9	M4	2.6	2 mm² min.
	3G3AX-DL4055		5.5	111	100	138	---	110	95	80	7×11	M4	3.6	3.5 mm² min.
	3G3AX-DL4075		7.5	111	100	138	---	115	95	80	7×11	M4	3.9	3.5 mm² min.
	3G3AX-DL4110	Fig. 2	11	146	120	250	---	105	124	96	7×11	M5	5.2	5.5 mm² min.
	3G3AX-DL4150		15	146	120	252	---	120	124	96	7×11	M6	7.0	14 mm² min.
3-phase 400 VAC	3G3AX-DL4220	Fig. 3	18.5, 22	120	175	352	140	145	98	151	7×11	M6	9.5	22 mm² min.
	3G3AX-DL4300		30	120	175	356	140	145	98	151	7×11	M8	9.5	30 mm² min.
	3G3AX-DL4370		37	120	175	386	155	150	98	151	7×11	M8	13.5	38 mm² min.
	3G3AX-DL4450		45	160	190	416	180	145	120	168	7×11	M8	16.5	60 mm² min.
	3G3AX-DL4550		55	160	190	416	190	170	120	168	7×11	M8	23.0	38 mm² x 2 min.

Fig. 1

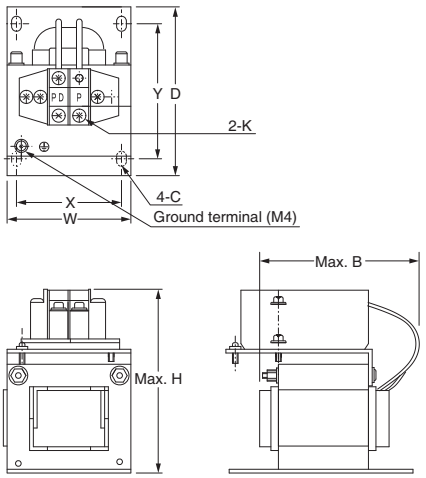


Fig. 2

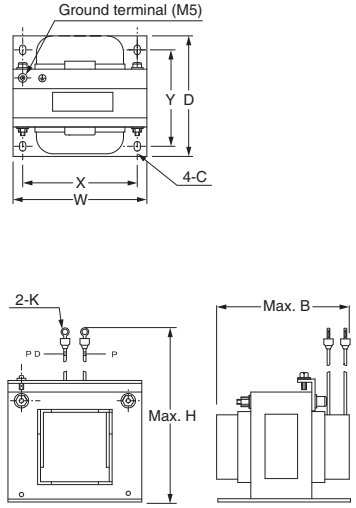
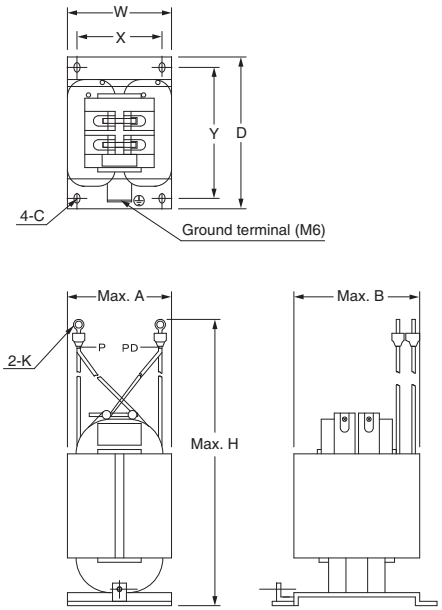
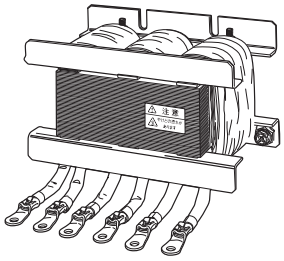


Fig. 3

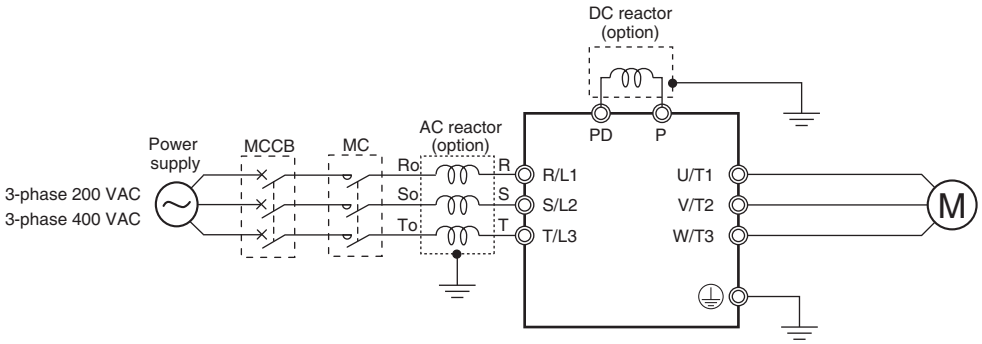


AC Reactor 3G3AX-AL□□□□

Connect the AC Reactor if the capacity of the power supply is much larger than that of the Inverter or the power factor is required to be improved.



Connection Example



Specifications

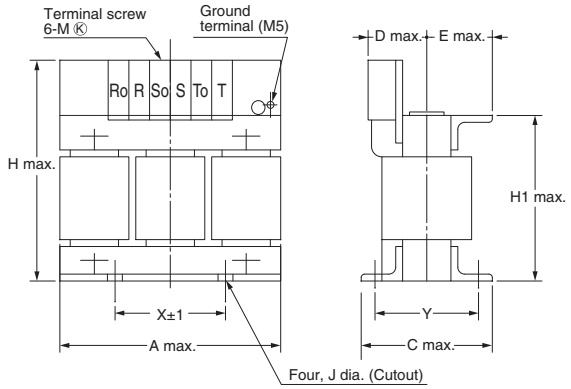
Inverter						AC reactor specifications				
Voltage class	Max. applicable motor capacity [kW]	Model	Load specification selection	Max. applicable motor capacity [kW]	Rated input current [A]	Model	Inductance [mH]	Heat generation [W]	Operating ambient temperature/ humidity	Location
200-V class	0.4	3G3RX2-A2004	ND	0.4	3.3	3G3AX-AL2025	2.8	12	-10 to 50°C 20% to 90%	At an altitude of 1,000 m max.; indoors (without corrosive gases or dust)
			LD	0.75	3.9					
			VLD	0.75	3.9					
	0.75	3G3RX2-A2007	ND	0.75	5.5					
			LD	1.5	7.2					
			VLD	1.5	7.2					
	1.5	3G3RX2-A2015	ND	1.5	8.3					
			LD	2.2	10.8	3G3AX-AL2055	0.88	25		
			VLD	2.2	10.8					
	2.2	3G3RX2-A2022	ND	2.2	12					
			LD	3.7	13.9					
			VLD	3.7	13.9					
	3.7	3G3RX2-A2037	ND	3.7	18					
			LD	5.5	23	3G3AX-AL2110	0.35	50		
			VLD	5.5	23					
	5.5	3G3RX2-A2055	ND	5.5	26					
			LD	7.5	37					
			VLD	7.5	37					
	7.5	3G3RX2-A2075	ND	7.5	35					
			LD	11	48	3G3AX-AL2220	0.18	50		
			VLD	11	48					
	11	3G3RX2-A2110	ND	11	51					
			LD	15	64					
			VLD	15	64					
	15	3G3RX2-A2150	ND	15	70					
			LD	18.5	80	3G3AX-AL2330	0.09	85		
			VLD	18.5	80					
	18.5	3G3RX2-A2185	ND	18.5	84					
			LD	22	94					
			VLD	22	94					
	22	3G3RX2-A2220	ND	22	105					
			LD	30	120	3G3AX-AL2500	0.071	95		
			VLD	30	120					
	30	3G3RX2-A2300	ND	30	133					
			LD	37	150					
			VLD	37	150					
	37	3G3RX2-A2370	ND	37	160					
			LD	45	186	3G3AX-AL2750	0.046	100		
			VLD	45	186					
	45	3G3RX2-A2450	ND	45	200					
			LD	55	240					
			VLD	55	240					
	55	3G3RX2-A2550	ND	55	242					
			LD	75	280	---	---	---	---	---
			VLD	75	280					

Inverter						AC reactor specifications				
Voltage class	Max. applicable motor capacity [kW]	Model	Load specification selection	Max. applicable motor capacity [kW]	Rated input current [A]	Model	Inductance [mH]	Heat generation [W]	Operating ambient temperature/ humidity	Location
400-V class	0.75	3G3RX2-A4007	ND	0.75	2.8	3G3AX-AL4025	7.7	12	-10 to 50°C 20% to 90%	At an altitude of 1,000 m max.; indoors (without corrosive gases or dust)
			LD	1.5	4.3					
			VLD	1.5	4.3					
	1.5	3G3RX2-A4015	ND	1.5	4.2					
			LD	2.2	5.9	3G3AX-AL4055	3.5	25		
			VLD	2.2	5.9					
	2.2	3G3RX2-A4022	ND	2.2	5.8					
			LD	3.7	8.1					
			VLD	3.7	8.1					
	3.7	3G3RX2-A4037	ND	3.7	9.8					
			LD	5.5	13.3	3G3AX-AL4110	1.3	50		
			VLD	5.5	13.3					
	5.5	3G3RX2-A4055	ND	5.5	15					
			LD	7.5	20					
			VLD	7.5	20					
	7.5	3G3RX2-A4075	ND	7.5	21					
			LD	11	24	3G3AX-AL4220	0.74	60		
			VLD	11	24					
	11	3G3RX2-A4110	ND	11	28					
			LD	15	32					
			VLD	15	32					
	15	3G3RX2-A4150	ND	15	35					
			LD	18.5	41	3G3AX-AL4330	0.36	90		
			VLD	18.5	41					
	18.5	3G3RX2-A4185	ND	18.5	42					
			LD	22	47					
			VLD	22	47					
	22	3G3RX2-A4220	ND	22	53					
			LD	30	63	3G3AX-AL4500	0.29	95		
			VLD	30	63					
	30	3G3RX2-A4300	ND	30	64					
			LD	37	77					
			VLD	37	77					
	37	3G3RX2-A4370	ND	37	83					
			LD	45	94	3G3AX-AL4750	0.19	100		
			VLD	45	94					
	45	3G3RX2-A4450	ND	45	100					
			LD	55	116					
			VLD	55	116					
	55	3G3RX2-A4550	ND	55	121					
			LD	75	149	---	---	---	---	---
			VLD	75	149					

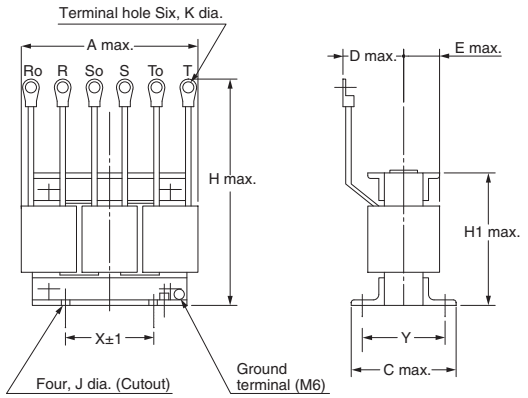
Dimensions (Unit: mm)

Inverter input power supply	Model	Applicable motor capacity [kW]	Dimensions [mm]											Weight [kg]
			A	C	D	E	H	H1	X	Y	J	K	W	
3-phase 200 VAC	3G3AX-AL2025	0.2 to 1.5	120	82	60	40	150	94	50	67	6	4.0	9.5	2.8
	3G3AX-AL2055	2.2, 3.7	120	98	60	40	150	94	50	75	6	4.0	9.5	4.0
	3G3AX-AL2110	5.5, 7.5	150	103	70	55	170	108	60	80	6	5.3	12.0	5.0
	3G3AX-AL2220	11, 15	180	113	75	55	190	140	90	90	6	8.4	16.5	10.0
	3G3AX-AL2330	18.5, 22	180	113	85	60	230	140	125	90	6	8.4	22.0	11.0
	3G3AX-AL2500	30, 37	260	113	85	60	290	202	100	90	7	8.4	27.0	19.0
	3G3AX-AL2750	45, 55	260	144	110	80	290	207	125	112	7	8.4	28.5	25.0
3-phase 400 VAC	3G3AX-AL4025	0.4 to 1.5	130	82	60	40	150	94	50	67	6	4	9.5	2.7
	3G3AX-AL4055	2.2, 3.7	130	98	60	40	150	94	50	75	6	5	12.5	4.0
	3G3AX-AL4110	5.5, 7.5	150	116	75	55	170	106	60	98	6	5	12.5	6.0
	3G3AX-AL4220	11, 15	180	103	75	55	190	140	100	80	6	5.3	12.0	10.0
	3G3AX-AL4330	18.5, 22	180	123	85	60	230	140	100	100	6	6.4	16.5	11.5
	3G3AX-AL4500	30, 37	260	113	85	60	290	202	100	90	7	8.4	22.0	19.0
	3G3AX-AL4750	45, 55	260	146	110	80	290	207	125	112	7	8.4	22.0	25.0

3G3AX-AL2025/3G3AX-AL2055/
3G3AX-AL4025/3G3AX-AL4055/3G3AX-AL4110



3G3AX-AL2110/3G3AX-AL2220/3G3AX-AL2330
3G3AX-AL2500/3G3AX-AL2750/3G3AX-AL4220
3G3AX-AL4330/3G3AX-AL4500/3G3AX-AL4750



PG Option Unit 3G3AX-RX2-PG01

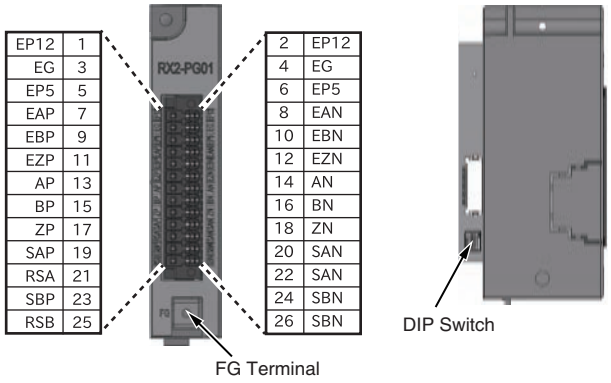
The PG Option Unit is an optional unit for the 3G3RX2 Series Inverter. With this unit, you can realize highly accurate system operation with minimum speed fluctuation, and position control via pulse train position command input by detecting the rotation speed of the motor with an encoder and using the data for feedback.

Specifications

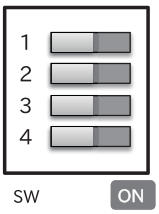
Item		Specifications	
Model		3G3AX-RX2-PG01	
Dimensions (width × height × depth)		20.5 × 98.0 × 70.0 mm	
Weight		170 g	
Environment	**Ambient operating temperature**	-10 to 50°C	With no icing or condensation
	Ambient operating humidity	20 to 90% RH	
	Storage temperature ✻	-20 to 65°C	
	Vibration resistance	5.9 m/s^2 (0.6G), 10 to 55 Hz	
	Protective structure	IP00	
Encoder feedback		• Standard encoder pulse number: 1024 pulse/r • Max. input pulse number : 200k pulse/s	
Position command		• Max. input pulse number : 200k pulse/s	
Protection function		• Encoder cable disconnection Error • PG Option Unit Connection Error	

✻ The storage temperature is the temperature during transportation.

Terminal Arrangement and DIP Switch Setting



Setting the DIP Switch



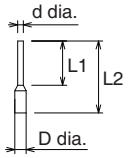
Slide to the left to turn the switch OFF, and slide to the right to turn the switch ON.

Switch No.	Settings	
1	ON	Encoder phase A / B, disconnection detection enabled
	OFF	Encoder phase A / B, disconnection detection disabled
2	ON	Encoder phase Z, disconnection detection enabled
	OFF	Encoder phase Z, disconnection detection disabled
3	ON	Do not change
	OFF	
4	ON	Do not change
	OFF	

Note: All switches are set to OFF as the default setting.

Wire size and recommended rod terminal shape

Wire size mm² (AWG)	L1 [mm]	L2 [mm]	d dia. [mm]	D dia. [mm]
0.25 (24)	10.0	14.5	0.8	2.0
0.34 (22)	10.0	14.5	0.8	2.0
0.5 (20)	10.0	16.0	1.1	2.5
0.75 (18)	10.0	16.0	1.3	3.4

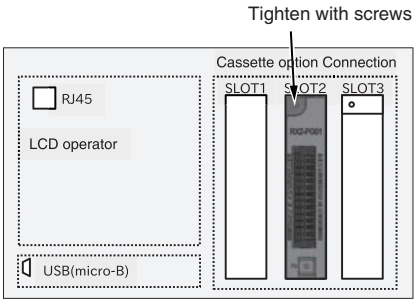


Terminal Functions

Terminal name		Terminal symbol	Functions	Common terminal	Electric specifications
Input terminal	Pulse train position command input	SAP SAN SBP SBN RSA RSB	• Pulse train input procedure MD0: 90° phase difference pulse MD1: Forward/Reverse signal, pulse train MD2: Forward pulse/Reverse pulse Mode settings is made in the pulse train mode selection (ob-11). • RSA: Termination resistor ON/OFF terminal between SAP and SAN • RSB: Termination resistor ON/OFF terminal between SBP and SBN • Termination resistor settings Built-in termination resistor: 150 Ω, switch between enabled and disabled with the wiring RSA, RSB terminals released: Built-in termination resistor disabled RSA-SAN short-circuit, RSB-SBN short-circuit: Built-in termination resistor enabled		5V DC receiver input (RS-422 compliance)
	Encoder signal input	EAP EAN EBP EBN EZP EZN	A, B, Z: Rotary encoder signal input		Photo coupler input (Corresponds to the 5V DC line driver output type rotary encoder)
Output terminal	Encoder signal output	AP AN BP BN ZP ZN	Output the encoder signal input. (Pulse ratio 1 : 1)		5V DC line driver output (RS-422 compliance)
	Power supply for encoder	EP5	+5V DC power supply	EG	Total supply capacity of EP5 and EP12 (250 mA max.)
		EP12	+12V DC power supply		
Functional Grounding terminal		FG	Connect to the Functional Grounding connection. (Screw size: M3)		

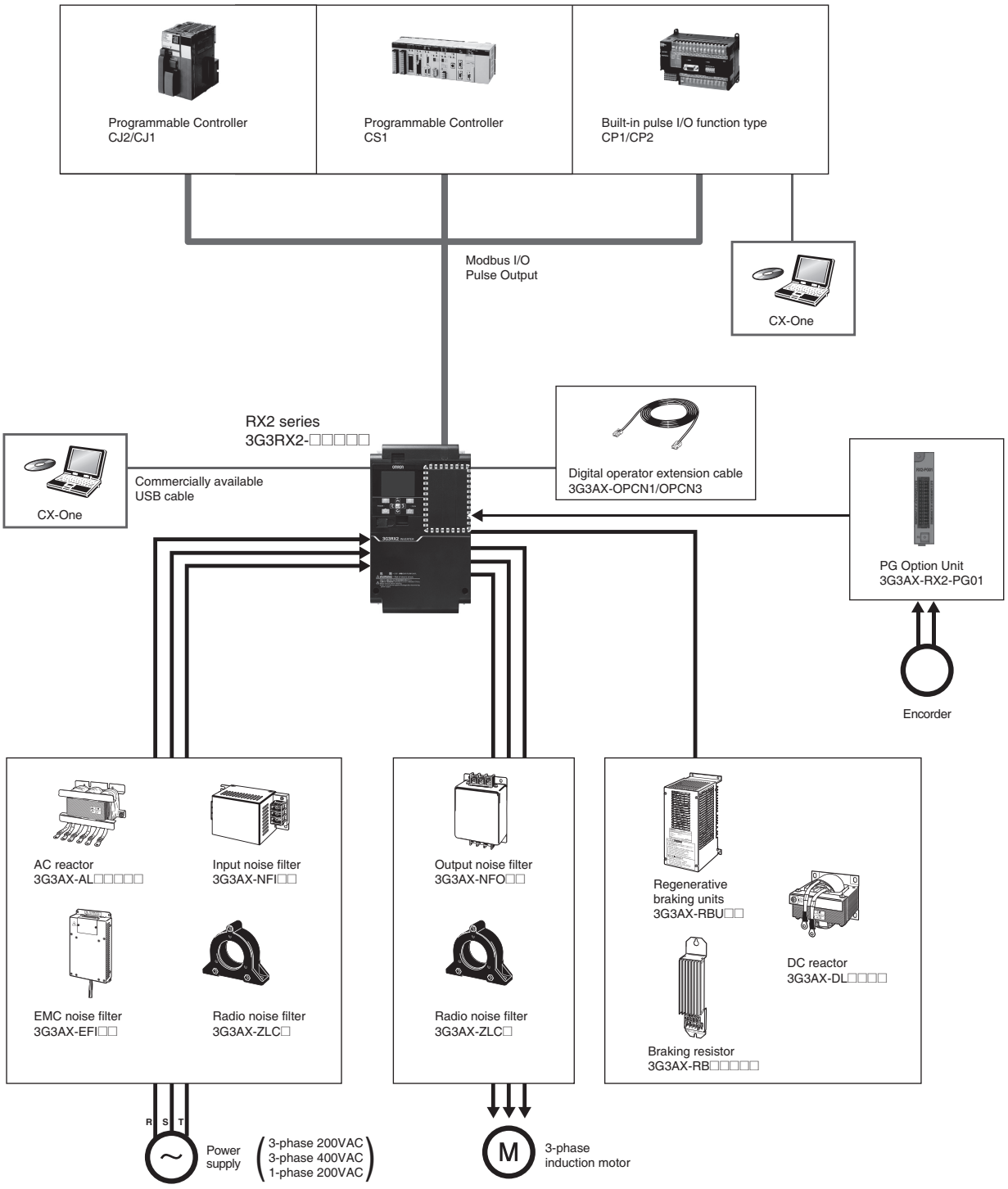
Installation

Install the unit in SLOT2 and tighten with screws.



Ordering Information

System Configuration



Interpreting Model Numbers

3G3RX2-A2055

Max. Applicable Motor Capacity Standard Rating (ND)

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
110	11 kW
150	15 kW
185	18.5 kW
220	22 kW
300	30 kW
370	37 kW
450	45 kW
550	55 kW
750	75 kW
900	90 kW
11K	110 kW
13K	132 kW

Voltage class

2	3-phase 200 VAC (200-V class)
4	3-phase 400 VAC (400-V class)

Enclosure rating

A	IP20/UL open type
B	IP00/UL open type

Ordering Information

RX2 series Inverter Models

Rated voltage	Enclosure ratings	Max. applicable motor capacity		Model
		Normal Duty (ND)	Low Duty (LD)/ Very Low Duty (VLD)	
3-phase 200 VAC	IP20	0.4 kW	0.75 kW	**3G3RX2-A2004**
		0.75 kW	1.5 kW	**3G3RX2-A2007**
		1.5 kW	2.2 kW	**3G3RX2-A2015**
		2.2 kW	3.7 kW	**3G3RX2-A2022**
		3.7 kW	5.5 kW	**3G3RX2-A2037**
		5.5 kW	7.5 kW	**3G3RX2-A2055**
		7.5 kW	11 kW	**3G3RX2-A2075**
		11 kW	15 kW	**3G3RX2-A2110**
		15 kW	18.5 kW	**3G3RX2-A2150**
		18.5 kW	22 kW	**3G3RX2-A2185**
		22 kW	30 kW	**3G3RX2-A2220**
		30 kW	37 kW	**3G3RX2-A2300**
		37 kW	45 kW	**3G3RX2-A2370**
		45 kW	55 kW	**3G3RX2-A2450**
		55 kW	75 kW	**3G3RX2-A2550**
3-phase 400 VAC	IP20	0.75 kW	1.5 kW	**3G3RX2-A4007**
		1.5 kW	2.2 kW	**3G3RX2-A4015**
		2.2 kW	3.7 kW	**3G3RX2-A4022**
		3.7 kW	5.5 kW	**3G3RX2-A4037**
		5.5 kW	7.5 kW	**3G3RX2-A4055**
		7.5 kW	11 kW	**3G3RX2-A4075**
		11 kW	15 kW	**3G3RX2-A4110**
		15 kW	18.5 kW	**3G3RX2-A4150**
		18.5 kW	22 kW	**3G3RX2-A4185**
		22 kW	30 kW	**3G3RX2-A4220**
		30 kW	37 kW	**3G3RX2-A4300**
		37 kW	45 kW	**3G3RX2-A4370**
		45 kW	55 kW	**3G3RX2-A4450**
		55 kW	75 kW	**3G3RX2-A4550**
	IP00	75 kW	90 kW	**3G3RX2-B4750**
		90 kW	110 kW	**3G3RX2-B4900**
		110 kW	132 kW	**3G3RX2-B411K**
		132 kW	160 kW	**3G3RX2-B413K**

Related Options

Name	Specifications		Model
Regenerative Braking Units	3-phase 200 VAC	General purpose with Braking resistor	**3G3AX-RBU21**
		High Regeneration purpose with Braking resistor	**3G3AX-RBU22**
		General purpose for 30 kW ✻	**3G3AX-RBU23**
		General purpose for 55 kW ✻	**3G3AX-RBU24**
	3-phase 400 VAC	General purpose with Braking resistor	**3G3AX-RBU41**
		General purpose for 30 kW ✻	**3G3AX-RBU42**
		General purpose for 55 kW ✻	**3G3AX-RBU43**
Braking Resistor	Compact type	Resistor 120 W, 180 Ω	**3G3AX-RBA1201**
		Resistor 120 W, 100 Ω	**3G3AX-RBA1202**
		Resistor 120 W, 50 Ω	**3G3AX-RBA1203**
		Resistor 120 W, 35 Ω	**3G3AX-RBA1204**
	Standard type	Resistor 200 W, 180 Ω	**3G3AX-RBB2001**
		Resistor 200 W, 100 Ω	**3G3AX-RBB2002**
		Resistor 300 W, 50 Ω	**3G3AX-RBB3001**
		Resistor 400 W, 35 Ω	**3G3AX-RBB4001**
	Medium capacity type	Resistor 400 W, 50 Ω	**3G3AX-RBC4001**
		Resistor 600 W, 35 Ω	**3G3AX-RBC6001**
		Resistor 1200 W, 17 Ω	**3G3AX-RBC12001**

✻ The braking resistor is optionally required.

Regenerative Braking Unit and Braking Resistor Combination

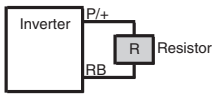
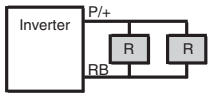
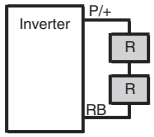
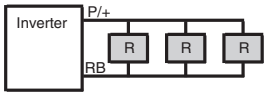
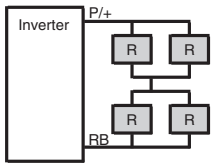
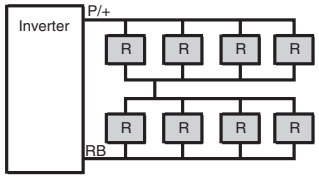
Select the combination of the regenerative braking unit(s) and the braking resistor(s) as follows, according to your inverter. If the usage rate exceeds 10% ED, or if you need a torque larger than the approximate braking torque, you need to follow the instruction provided in Braking Resistor Selection.

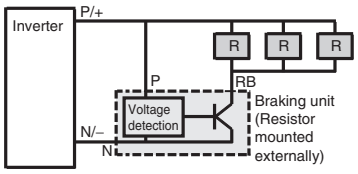
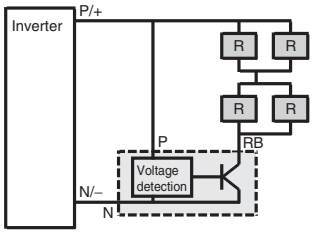
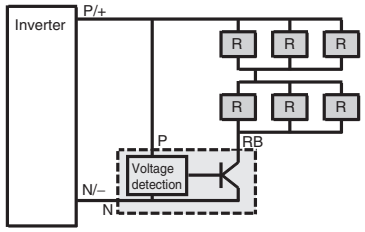
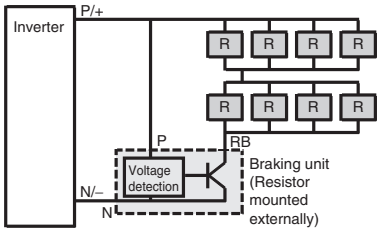
- Inverter: Select the model of your inverter. The table below assumes that your inverter is used in the heavy load mode and connected to a single motor with the same capacity. Make sure that the approximate braking torque in the table shows the assumed value per a motor with the same capacity at ND mode. When using this inverter at LD or VLD mode, you need to calculate the torque value by dividing VLD by ND.
- Operating conditions: Show the torque during deceleration and the deceleration time (in % ED) calculated as a percentage of the cycle time for 1 cycle of operation including the stop time.
- Braking unit/Breaking resistor: Show the required the model and number of units.
- Connection form: Show the configuration of the regenerative braking unit(s) and braking resistor(s) illustrated in the connection form table below.
- Restrictions: Show the maximum deceleration time allowable for the combination shown here and the minimum resistance that can be connected to the inverter's built-in regenerative braking circuit or external regenerative braking unit(s).

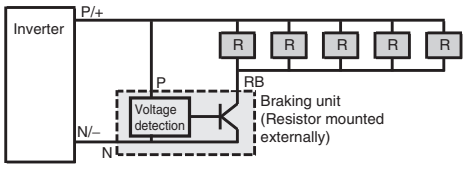
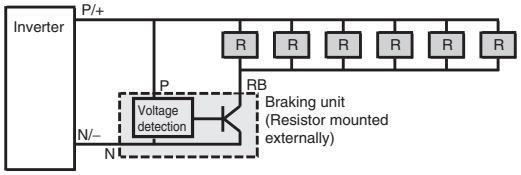
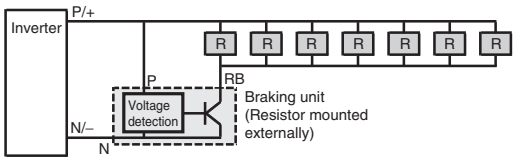
Inverter			Operating conditions		Braking unit		Braking resistor			Restrictions	
Voltage class	Max. applicable motor capacity (kW)	Model	%ED (%)	Approximate braking torque (%)	Model	Number of units	Model	Number of units	Connection form	Allowable continuous braking time(s)	Min. connectable resistance (Ω)
200-V Class	0.4	3G3RX2-A2004	3.0%	220%	Built-in Inverter	---	3G3AX-RBA1201	1	1	20	50
			10.0%	220%		---	3G3AX-RBB2001	1	1	30	50
	0.75	3G3RX2-A2007	3.0%	120%	Built-in Inverter	---	3G3AX-RBA1201	1	1	20	50
			10.0%	120%		---	3G3AX-RBB2001	1	1	30	50
	1.5	3G3RX2-A2015	2.5%	110%	Built-in Inverter	---	3G3AX-RBA1202	1	1	12	35
			10.0%	215%		---	3G3AX-RBC4001	1	1	10	35
	2.2	3G3RX2-A2022	3.0%	150%	Built-in Inverter	---	3G3AX-RBB3001	1	1	30	35
			10.0%	150%		---	3G3AX-RBC4001	1	1	10	35
	3.7	3G3RX2-A2037	3.0%	125%	Built-in Inverter	---	3G3AX-RBB4001	1	1	20	35
			10.0%	125%		---	3G3AX-RBC6001	1	1	10	35
	5.5	3G3RX2-A2055	3.0%	120%	Built-in Inverter	---	3G3AX-RBB3001	2	2	30	16
			10.0%	120%		---	3G3AX-RBC4001	2	2	10	16
	7.5	3G3RX2-A2075	3.0%	125%	Built-in Inverter	---	3G3AX-RBB4001	2	2	20	10
			10.0%	125%		---	3G3AX-RBC6001	2	2	10	10
	11	3G3RX2-A2110	3.0%	125%	Built-in Inverter	---	3G3AX-RBB4001	3	4	20	10
			10.0%	125%		---	3G3AX-RBC6001	3	4	10	10
	15	3G3RX2-A2150	3.0%	130%	Built-in Inverter	---	3G3AX-RBC12001	2	2	10	7.5
			10.0%	130%		---	3G3AX-RBC12001	2	2	10	7.5
	18.5	3G3RX2-A2185	3.0%	105%	Built-in Inverter	---	3G3AX-RBC12001	2	2	10	7.5
			10.0%	105%		---	3G3AX-RBC12001	2	2	10	7.5
	22	3G3RX2-A2220	3.0%	130%	Built-in Inverter	---	3G3AX-RBC12001	3	4	10	5
			10.0%	130%		---	3G3AX-RBC12001	3	4	10	5
	30	3G3RX2-A2300	3.0%	160%	3G3AX-RBU24	1	3G3AX-RBC12001	5	11	10	2
			10.0%	160%	3G3AX-RBU24	1	3G3AX-RBC12001	5	11	10	2
	37	3G3RX2-A2370	3.0%	130%	3G3AX-RBU24	1	3G3AX-RBC12001	5	11	10	2
			10.0%	130%	3G3AX-RBU24	1	3G3AX-RBC12001	5	11	10	2
	45	3G3RX2-A2450	3.0%	130%	3G3AX-RBU24	1	3G3AX-RBC12001	6	12	10	2
			10.0%	130%	3G3AX-RBU24	1	3G3AX-RBC12001	6	12	10	2
	55	3G3RX2-A2550	3.0%	120%	3G3AX-RBU24	1	3G3AX-RBC12001	7	13	10	2
			10.0%	120%	3G3AX-RBU24	1	3G3AX-RBC12001	7	13	10	2

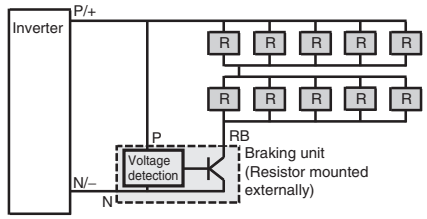
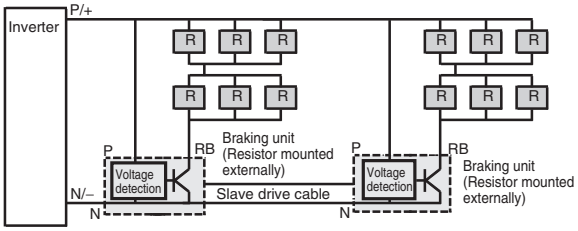
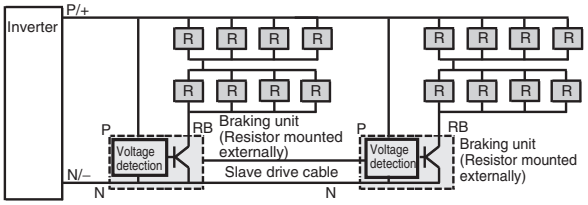
Inverter			Operating conditions		Braking unit		Braking resistor		Connection form	Restrictions	
Voltage class	Max. applicable motor capacity (kW)	Model	%ED (%)	Approximate braking torque (%)	Model	Number of units	Model	Number of units		Allowable continuous braking time(s)	Min. connectable resistance (Ω)
400-V Class	0.75	3G3RX2-A4007	3.0%	220%	Built-in Inverter	---	3G3AX-RBA1201	2	3	20	100
			10.0%	220%		---	3G3AX-RBB2001	2	3	30	100
	1.5	3G3RX2-A4015	3.0%	120%	Built-in Inverter	---	3G3AX-RBA1201	2	3	20	100
			10.0%	120%		---	3G3AX-RBB2001	2	3	30	100
	2.2	3G3RX2-A4022	2.5%	150%	Built-in Inverter	---	3G3AX-RBA1202	2	3	12	100
			10.0%	220%		---	3G3AX-RBC4001	2	3	10	100
	3.7	3G3RX2-A4037	3.0%	175%	Built-in Inverter	---	3G3AX-RBB3001	2	3	30	70
			10.0%	175%		---	3G3AX-RBC4001	2	3	10	70
	5.5	3G3RX2-A4055	3.0%	120%	Built-in Inverter	---	3G3AX-RBB3001	2	3	30	70
			10.0%	120%		---	3G3AX-RBC4001	2	3	10	70
	7.5	3G3RX2-A4075	3.0%	125%	Built-in Inverter	---	3G3AX-RBB4001	2	3	20	35
			10.0%	125%		---	3G3AX-RBC6001	2	3	10	35
	11	3G3RX2-A4110	3.0%	120%	Built-in Inverter	---	3G3AX-RBB3001	4	5	30	35
			10.0%	120%		---	3G3AX-RBC4001	4	5	10	35
	15	3G3RX2-A4150	3.0%	125%	Built-in Inverter	---	3G3AX-RBB4001	4	5	20	24
			10.0%	125%		---	3G3AX-RBC6001	4	5	10	24
	18.5	3G3RX2-A4185	3.0%	140%	Built-in Inverter	---	3G3AX-RBB3001	8	6	30	24
			10.0%	140%		---	3G3AX-RBC4001	8	6	10	24
	22	3G3RX2-A4220	3.0%	120%	Built-in Inverter	---	3G3AX-RBB3001	8	6	30	20
			10.0%	120%		---	3G3AX-RBC4001	8	6	10	20
	30	3G3RX2-A4300	10.0%	100%	Built-in Inverter	---	3G3AX-RBC12001	4	5	10	15
			10.0%	150%	3G3AX-RBU42	1	3G3AX-RBC12001	6	9	10	10
	37	3G3RX2-A4370	3.0%	100%	Built-in Inverter	---	3G3AX-RBC12001	4	5	10	15
			10.0%	155%	3G3AX-RBU43	1	3G3AX-RBC12001	6	9	10	6
	45	3G3RX2-A4450	3.0%	130%	3G3AX-RBU43	1	3G3AX-RBC12001	6	9	10	6
			10.0%	130%	3G3AX-RBU43	1	3G3AX-RBC12001	6	9	10	6
	55	3G3RX2-A4550	3.0%	140%	3G3AX-RBU43	1	3G3AX-RBC12001	8	10	10	6
			10.0%	140%	3G3AX-RBU43	1	3G3AX-RBC12001	8	10	10	6
	75	3G3RX2-B4750	3.0%	130%	3G3AX-RBU43	1	3G3AX-RBC12001	10	14	10	6
			10.0%	130%	3G3AX-RBU43	1	3G3AX-RBC12001	10	14	10	6
	90	3G3RX2-B4900	3.0%	105%	3G3AX-RBU43	1	3G3AX-RBC12001	10	14	10	6
			10.0%	105%	3G3AX-RBU43	1	3G3AX-RBC12001	10	14	10	6
	110	3G3RX2-B411K	3.0%	105%	3G3AX-RBU43	2	3G3AX-RBC12001	12	15	10	6
			10.0%	105%	3G3AX-RBU43	2	3G3AX-RBC12001	12	15	10	6
	132	3G3RX2-B413K	3.0%	115%	3G3AX-RBU43	2	3G3AX-RBC12001	16	16	10	6
			10.0%	115%	3G3AX-RBU43	2	3G3AX-RBC12001	16	16	10	6

Connection configuration

TYPE		
1	1 resistor unit	
2	2 resistor units connected in parallel	
3	2 resistor units connected in series	
4	3 resistor units connected in parallel	
5	2 groups of 2 parallel resistor units are connected in series	
6	2 groups of 4 parallel resistor units are connected in series	

TYPE		
7	1 breaking unit and 3 resistor units connected in parallel	
8	1 breaking unit and 2 groups of 2 parallel resistor units are connected in series	
9	1 breaking unit and 2 groups of 3 parallel resistor units are connected in series	
10	1 breaking unit and 2 groups of 4 parallel resistor units connected are connected in series	

11	1 breaking unit and 5 resistor units connected in parallel	
12	1 breaking unit and 6 resistor units connected in parallel	
13	1 breaking unit and 7 resistor unitsconnected in parallel	

14	**1 breaking unit and 2 groups of 5 parallel resistor units are connected in series**	
15	**2 breaking units and 2 groups of 3 parallel resistor units are each connected in series**	
16	**2 breaking units and 2 groups of 4 parallel resistor units are each connected in series**	

Name	Model
Radio Noise Filter	**3G3AX-ZCL2**
	3G3AX-ZCL1

Name	Inverter						Model
	Voltage class	Max. applicable motor capacity [kW]	Model	Load specification selection	Max. applicable motor capacity [kW]	Rated input current [A]	
Input Noise Filter	200-V class	0.4	3G3RX2-A2004	ND	0.4	3.3	3G3AX-NFI21
				LD	0.75	3.9	
				VLD	0.75	3.9	
		0.75	3G3RX2-A2007	ND	0.75	5.5	
				LD	1.5	7.2	3G3AX-NFI22
				VLD	1.5	7.2	
		1.5	3G3RX2-A2015	ND	1.5	8.3	
				LD	2.2	10.8	3G3AX-NFI23
				VLD	2.2	10.8	
		2.2	3G3RX2-A2022	ND	2.2	12	
				LD	3.7	13.9	
				VLD	3.7	13.9	
		3.7	3G3RX2-A2037	ND	3.7	18	
				LD	5.5	23	3G3AX-NFI24
				VLD	5.5	23	
		5.5	3G3RX2-A2055	ND	5.5	26	
				LD	7.5	37	3G3AX-NFI25
				VLD	7.5	37	
		7.5	3G3RX2-A2075	ND	7.5	35	
				LD	11	48	3G3AX-NFI26
				VLD	11	48	
		11	3G3RX2-A2110	ND	11	51	
				LD	15	64	3G3AX-NFI27
				VLD	15	64	
		15	3G3RX2-A2150	ND	15	70	
				LD	18.5	80	3G3AX-NFI28
				VLD	18.5	80	
		18.5	3G3RX2-A2185	ND	18.5	84	
				LD	22	94	3G3AX-NFI29
				VLD	22	94	
		22	3G3RX2-A2220	ND	22	105	
				LD	30	120	
				VLD	30	120	
		30	3G3RX2-A2300	ND	30	133	
				LD	37	150	3G3AX-NFI2A
				VLD	37	150	
		37	3G3RX2-A2370	ND	37	160	
				LD	45	186	3G3AX-NFI2B
				VLD	45	186	
		45	3G3RX2-A2450	ND	45	200	
				LD	55	240	3G3AX-NFI2C
				VLD	55	240	
		55	3G3RX2-A2550	ND	55	242	
				LD	75	280	---
				VLD	75	280	

Name	Inverter						Model
	Voltage class	Max. applicable motor capacity [kW]	Model	Load specification selection	Max. applicable motor capacity [kW]	Rated input current [A]	
Input Noise Filter	400-V class	0.75	3G3RX2-A4007	ND	0.75	2.8	**3G3AX-NFI41**
				LD	1.5	4.3	
				VLD	1.5	4.3	
		1.5	3G3RX2-A4015	ND	1.5	4.2	
				LD	2.2	5.9	
				VLD	2.2	5.9	
		2.2	3G3RX2-A4022	ND	2.2	5.8	
				LD	3.7	8.1	**3G3AX-NFI42**
				VLD	3.7	8.1	
		3.7	3G3RX2-A4037	ND	3.7	9.8	
				LD	5.5	13.3	**3G3AX-NFI43**
				VLD	5.5	13.3	
		5.5	3G3RX2-A4055	ND	5.5	15	
				LD	7.5	20	
				VLD	7.5	20	
		7.5	3G3RX2-A4075	ND	7.5	21	
				LD	11	24	**3G3AX-NFI44**
				VLD	11	24	
		11	3G3RX2-A4110	ND	11	28	
				LD	15	32	**3G3AX-NFI45**
				VLD	15	32	
		15	3G3RX2-A4150	ND	15	35	
				LD	18.5	41	**3G3AX-NFI46**
				VLD	18.5	41	
		18.5	3G3RX2-A4185	ND	18.5	42	
				LD	22	47	**3G3AX-NFI47**
				VLD	22	47	
		22	3G3RX2-A4220	ND	22	53	
				LD	30	63	**3G3AX-NFI48**
				VLD	30	63	
		30	3G3RX2-A4300	ND	30	64	
				LD	37	77	**3G3AX-NFI49**
				VLD	37	77	
		37	3G3RX2-A4370	ND	37	83	
				LD	45	94	**3G3AX-NFI4A**
				VLD	45	94	
		45	3G3RX2-A4450	ND	45	100	
				LD	55	116	
				VLD	55	116	
		55	3G3RX2-A4550	ND	55	121	
				LD	75	149	---
				VLD	75	149	

Name	Inverter						Model
	Voltage class	Max. applicable motor capacity [kW]	Model	Load specification selection	Max. applicable motor capacity [kW]	Rated input current [A]	
EMC Noise Filter ✻	200-V class	0.4	3G3RX2-A2004	ND	0.4	3.3	3G3AX-EFI41
				LD	0.75	3.9	
				VLD	0.75	3.9	
		0.75	3G3RX2-A2007	ND	0.75	5.5	
				LD	1.5	7.2	3G3AX-EFI42
				VLD	1.5	7.2	
		1.5	3G3RX2-A2015	ND	1.5	8.3	
				LD	2.2	10.8	3G3AX-EFI43
				VLD	2.2	10.8	
		2.2	3G3RX2-A2022	ND	2.2	12	
				LD	3.7	13.9	
				VLD	3.7	13.9	
		3.7	3G3RX2-A2037	ND	3.7	18	
				LD	5.5	23	3G3AX-EFI44
				VLD	5.5	23	
		5.5	3G3RX2-A2055	ND	5.5	26	
				LD	7.5	37	3G3AX-EFI45
				VLD	7.5	37	
		7.5	3G3RX2-A2075	ND	7.5	35	
				LD	11	48	3G3AX-EFI47
				VLD	11	48	
		11	3G3RX2-A2110	ND	11	51	
				LD	15	64	3G3AX-EFI48
				VLD	15	64	
		15	3G3RX2-A2150	ND	15	70	
				LD	18.5	80	3G3AX-EFI49
				VLD	18.5	80	
		18.5	3G3RX2-A2185	ND	18.5	84	
				LD	22	94	3G3AX-EFI4A
				VLD	22	94	
		22	3G3RX2-A2220	ND	22	105	
				LD	30	120	
				VLD	30	120	
		30	3G3RX2-A2300	ND	30	133	
				LD	37	150	3G3AX-EFI4B
				VLD	37	150	
		37	3G3RX2-A2370	ND	37	160	
				LD	45	186	---
				VLD	45	186	

✻ Although an EMC Noise Filter is built into the RX2, it may be necessary to provide another EMC Noise Filter when the cable between the Motor and the Inverter is long.

Name	Inverter						Model
	Voltage class	Max. applicable motor capacity [kW]	Model	Load specification selection	Max. applicable motor capacity [kW]	Rated input current [A]	
EMC Noise Filter ✻	400-V class	0.75	3G3RX2-A4007	ND	0.75	2.8	3G3AX-EFI41
				LD	1.5	4.3	
				VLD	1.5	4.3	
		1.5	3G3RX2-A4015	ND	1.5	4.2	
				LD	2.2	5.9	
				VLD	2.2	5.9	
		2.2	3G3RX2-A4022	ND	2.2	5.8	
				LD	3.7	8.1	3G3AX-EFI42
				VLD	3.7	8.1	
		3.7	3G3RX2-A4037	ND	3.7	9.8	
				LD	5.5	13.3	3G3AX-EFI43
				VLD	5.5	13.3	
		5.5	3G3RX2-A4055	ND	5.5	15	
				LD	7.5	20	
				VLD	7.5	20	
		7.5	3G3RX2-A4075	ND	7.5	21	
				LD	11	24	3G3AX-EFI44
				VLD	11	24	
		11	3G3RX2-A4110	ND	11	28	
				LD	15	32	3G3AX-EFI45
				VLD	15	32	
		15	3G3RX2-A4150	ND	15	35	
				LD	18.5	41	3G3AX-EFI46
				VLD	18.5	41	
		18.5	3G3RX2-A4185	ND	18.5	42	
				LD	22	47	3G3AX-EFI47
				VLD	22	47	
		22	3G3RX2-A4220	ND	22	53	
				LD	30	63	3G3AX-EFI48
				VLD	30	63	
		30	3G3RX2-A4300	ND	30	64	
				LD	37	77	3G3AX-EFI49
				VLD	37	77	
		37	3G3RX2-A4370	ND	37	83	
				LD	45	94	3G3AX-EFI4A
				VLD	45	94	
		45	3G3RX2-A4450	ND	45	100	
				LD	55	116	
				VLD	55	116	
		55	3G3RX2-A4550	ND	55	121	
				LD	75	149	3G3AX-EFI4B
				VLD	75	149	
		75	3G3RX2-B4750	ND	75	164	
				LD	90	176	
				VLD	90	176	
		90	3G3RX2-B4900	ND	90	194	
				LD	110	199	---
				VLD	110	199	

✻ Although an EMC Noise Filter is built into the RX2, it may be necessary to provide another EMC Noise Filter when the cable between the Motor and the Inverter is long.

Name	Inverter						Model
	Voltage class	Max. applicable motor capacity [kW]	Model	Load specification selection	Max. applicable motor capacity [kW]	Rated input current [A]	
Output Noise Filter	200-V class	0.4	3G3RX2-A2004	ND	0.4	3	3G3AX-NFO01
				LD	0.75	3.7	
				VLD	0.75	3.7	
		0.75	3G3RX2-A2007	ND	0.75	5	
				LD	1.5	6.3	3G3AX-NFO02
				VLD	1.5	6.3	
		1.5	3G3RX2-A2015	ND	1.5	7.5	
				LD	2.2	9.4	
				VLD	2.2	9.4	
		2.2	3G3RX2-A2022	ND	2.2	10.5	
				LD	3.7	12	3G3AX-NFO03
				VLD	3.7	12	
		3.7	3G3RX2-A2037	ND	3.7	16.5	
				LD	5.5	19.6	
				VLD	5.5	19.6	
		5.5	3G3RX2-A2055	ND	5.5	24	
				LD	7.5	30	3G3AX-NFO04
				VLD	7.5	30	
		7.5	3G3RX2-A2075	ND	7.5	32	
				LD	11	44	
				VLD	11	44	
		11	3G3RX2-A2110	ND	11	46	
				LD	15	58	3G3AX-NFO05
				VLD	15	58	
		15	3G3RX2-A2150	ND	15	64	
				LD	18.5	73	3G3AX-NFO06
				VLD	18.5	73	
		18.5	3G3RX2-A2185	ND	18.5	76	
				LD	22	85	
				VLD	22	85	
		22	3G3RX2-A2220	ND	22	95	
				LD	30	113	3G3AX-NFO07
				VLD	30	113	
		30	3G3RX2-A2300	ND	30	121	
				LD	37	140	
				VLD	37	140	
		37	3G3RX2-A2370	ND	37	145	
				LD	45	169	---
				VLD	45	169	

Name	Inverter						Model
	Voltage class	Max. applicable motor capacity [kW]	Model	Load specification selection	Max. applicable motor capacity [kW]	Rated input current [A]	
Output Noise Filter	400-V class	0.75	3G3RX2-A4007	ND	0.75	2.5	3G3AX-NFO01
				LD	1.5	3.1	
				VLD	1.5	3.1	
		1.5	3G3RX2-A4015	ND	1.5	3.8	
				LD	2.2	4.8	
				VLD	2.2	4.8	
		2.2	3G3RX2-A4022	ND	2.2	5.3	
				LD	3.7	6.7	3G3AX-NFO02
				VLD	3.7	6.7	
		3.7	3G3RX2-A4037	ND	3.7	9	
				LD	5.5	11.1	3G3AX-NFO03
				VLD	5.5	11.1	
		5.5	3G3RX2-A4055	ND	5.5	14	
				LD	7.5	16	
				VLD	7.5	16	
		7.5	3G3RX2-A4075	ND	7.5	19	
				LD	11	22	
				VLD	11	22	
		11	3G3RX2-A4110	ND	11	25	
				LD	15	29	3G3AX-NFO04
				VLD	15	29	
		15	3G3RX2-A4150	ND	15	32	
				LD	18.5	37	
				VLD	18.5	37	
		18.5	3G3RX2-A4185	ND	18.5	38	
				LD	22	43	
				VLD	22	43	
		22	3G3RX2-A4220	ND	22	48	
				LD	30	57	3G3AX-NFO05
				VLD	30	57	
		30	3G3RX2-A4300	ND	30	58	
				LD	37	70	
				VLD	37	70	
		37	3G3RX2-A4370	ND	37	75	
				LD	45	85	3G3AX-NFO06
				VLD	45	85	
		45	3G3RX2-A4450	ND	45	91	
				LD	55	105	3G3AX-NFO07
				VLD	55	105	
		55	3G3RX2-A4550	ND	55	112	
				LD	75	135	
				VLD	75	135	
		75	3G3RX2-B4750	ND	75	149	
				LD	90	160	---
				VLD	90	160	

Name	Inverter						Model
	Voltage class	Max. applicable motor capacity [kW]	Model	Load specification selection	Max. applicable motor capacity [kW]	Rated input current [A]	
DC Reactor	200-V class	0.4	3G3RX2-A2004	ND	0.4	3.3	3G3AX-DL2004
				LD	0.75	3.9	3G3AX-DL2007
				VLD	0.75	3.9	
		0.75	3G3RX2-A2007	ND	0.75	5.5	
				LD	1.5	7.2	3G3AX-DL2015
				VLD	1.5	7.2	
		1.5	3G3RX2-A2015	ND	1.5	8.3	
				LD	2.2	10.8	3G3AX-DL2022
				VLD	2.2	10.8	
		2.2	3G3RX2-A2022	ND	2.2	12	
				LD	3.7	13.9	3G3AX-DL2037
				VLD	3.7	13.9	
		3.7	3G3RX2-A2037	ND	3.7	18	
				LD	5.5	23	3G3AX-DL2055
				VLD	5.5	23	
		5.5	3G3RX2-A2055	ND	5.5	26	
				LD	7.5	37	3G3AX-DL2075
				VLD	7.5	37	
		7.5	3G3RX2-A2075	ND	7.5	35	
				LD	11	48	3G3AX-DL2110
				VLD	11	48	
		11	3G3RX2-A2110	ND	11	51	
				LD	15	64	3G3AX-DL2150
				VLD	15	64	
		15	3G3RX2-A2150	ND	15	70	
				LD	18.5	80	3G3AX-DL2220
				VLD	18.5	80	
		18.5	3G3RX2-A2185	ND	18.5	84	
				LD	22	94	
				VLD	22	94	
		22	3G3RX2-A2220	ND	22	105	
				LD	30	120	3G3AX-DL2300
				VLD	30	120	
		30	3G3RX2-A2300	ND	30	133	
				LD	37	150	3G3AX-DL2370
				VLD	37	150	
		37	3G3RX2-A2370	ND	37	160	
				LD	45	186	3G3AX-DL2450
				VLD	45	186	
		45	3G3RX2-A2450	ND	45	200	
				LD	55	240	3G3AX-DL2550
				VLD	55	240	
		55	3G3RX2-A2550	ND	55	242	
				LD	75	280	---
				VLD	75	280	

Name	Inverter						Model
	Voltage class	Max. applicable motor capacity [kW]	Model	Load specification selection	Max. applicable motor capacity [kW]	Rated input current [A]	
DC Reactor	400-V class	0.75	3G3RX2-A4007	ND	0.75	2.8	**3G3AX-DL4007**
				LD	1.5	4.3	**3G3AX-DL4015**
				VLD	1.5	4.3	
		1.5	3G3RX2-A4015	ND	1.5	4.2	
				LD	2.2	5.9	**3G3AX-DL4022**
				VLD	2.2	5.9	
		2.2	3G3RX2-A4022	ND	2.2	5.8	
				LD	3.7	8.1	**3G3AX-DL4037**
				VLD	3.7	8.1	
		3.7	3G3RX2-A4037	ND	3.7	9.8	
				LD	5.5	13.3	**3G3AX-DL4055**
				VLD	5.5	13.3	
		5.5	3G3RX2-A4055	ND	5.5	15	
				LD	7.5	20	**3G3AX-DL4075**
				VLD	7.5	20	
		7.5	3G3RX2-A4075	ND	7.5	21	
				LD	11	24	**3G3AX-DL4110**
				VLD	11	24	
		11	3G3RX2-A4110	ND	11	28	
				LD	15	32	**3G3AX-DL4150**
				VLD	15	32	
		15	3G3RX2-A4150	ND	15	35	
				LD	18.5	41	**3G3AX-DL4220**
				VLD	18.5	41	
		18.5	3G3RX2-A4185	ND	18.5	42	
				LD	22	47	
				VLD	22	47	
		22	3G3RX2-A4220	ND	22	53	
				LD	30	63	**3G3AX-DL4300**
				VLD	30	63	
		30	3G3RX2-A4300	ND	30	64	
				LD	37	77	**3G3AX-DL4370**
				VLD	37	77	
		37	3G3RX2-A4370	ND	37	83	
				LD	45	94	**3G3AX-DL4450**
				VLD	45	94	
		45	3G3RX2-A4450	ND	45	100	
				LD	55	116	**3G3AX-DL4550**
				VLD	55	116	
		55	3G3RX2-A4550	ND	55	121	
				LD	75	149	---
				VLD	75	149	

Name	Inverter						Model
	Voltage class	Max. applicable motor capacity [kW]	Model	Load specification selection	Max. applicable motor capacity [kW]	Rated input current [A]	
AC Reactor	200-V class	0.4	3G3RX2-A2004	ND	0.4	3.3	3G3AX-AL2025
				LD	0.75	3.9	
				VLD	0.75	3.9	
		0.75	3G3RX2-A2007	ND	0.75	5.5	
				LD	1.5	7.2	
				VLD	1.5	7.2	
		1.5	3G3RX2-A2015	ND	1.5	8.3	
				LD	2.2	10.8	3G3AX-AL2055
				VLD	2.2	10.8	
		2.2	3G3RX2-A2022	ND	2.2	12	
				LD	3.7	13.9	
				VLD	3.7	13.9	
		3.7	3G3RX2-A2037	ND	3.7	18	
				LD	5.5	23	3G3AX-AL2110
				VLD	5.5	23	
		5.5	3G3RX2-A2055	ND	5.5	26	
				LD	7.5	37	
				VLD	7.5	37	
		7.5	3G3RX2-A2075	ND	7.5	35	
				LD	11	48	3G3AX-AL2220
				VLD	11	48	
		11	3G3RX2-A2110	ND	11	51	
				LD	15	64	
				VLD	15	64	
		15	3G3RX2-A2150	ND	15	70	
				LD	18.5	80	3G3AX-AL2330
				VLD	18.5	80	
		18.5	3G3RX2-A2185	ND	18.5	84	
				LD	22	94	
				VLD	22	94	
		22	3G3RX2-A2220	ND	22	105	
				LD	30	120	3G3AX-AL2500
				VLD	30	120	
		30	3G3RX2-A2300	ND	30	133	
				LD	37	150	
				VLD	37	150	
		37	3G3RX2-A2370	ND	37	160	
				LD	45	186	3G3AX-AL2750
				VLD	45	186	
		45	3G3RX2-A2450	ND	45	200	
				LD	55	240	
				VLD	55	240	
		55	3G3RX2-A2550	ND	55	242	
				LD	75	280	---
				VLD	75	280	

Name	Inverter						Model
	Voltage class	Max. applicable motor capacity [kW]	Model	Load specification selection	Max. applicable motor capacity [kW]	Rated input current [A]	
AC Reactor	400-V class	0.75	3G3RX2-A4007	ND	0.75	2.8	3G3AX-AL4025
				LD	1.5	4.3	
				VLD	1.5	4.3	
		1.5	3G3RX2-A4015	ND	1.5	4.2	
				LD	2.2	5.9	3G3AX-AL4055
				VLD	2.2	5.9	
		2.2	3G3RX2-A4022	ND	2.2	5.8	
				LD	3.7	8.1	
				VLD	3.7	8.1	
		3.7	3G3RX2-A4037	ND	3.7	9.8	
				LD	5.5	13.3	3G3AX-AL4110
				VLD	5.5	13.3	
		5.5	3G3RX2-A4055	ND	5.5	15	
				LD	7.5	20	
				VLD	7.5	20	
		7.5	3G3RX2-A4075	ND	7.5	21	
				LD	11	24	3G3AX-AL4220
				VLD	11	24	
		11	3G3RX2-A4110	ND	11	28	
				LD	15	32	
				VLD	15	32	
		15	3G3RX2-A4150	ND	15	35	
				LD	18.5	41	3G3AX-AL4330
				VLD	18.5	41	
		18.5	3G3RX2-A4185	ND	18.5	42	
				LD	22	47	
				VLD	22	47	
		22	3G3RX2-A4220	ND	22	53	
				LD	30	63	3G3AX-AL4500
				VLD	30	63	
		30	3G3RX2-A4300	ND	30	64	
				LD	37	77	
				VLD	37	77	
		37	3G3RX2-A4370	ND	37	83	
				LD	45	94	3G3AX-AL4750
				VLD	45	94	
		45	3G3RX2-A4450	ND	45	100	
				LD	55	116	
				VLD	55	116	
		55	3G3RX2-A4550	ND	55	121	
				LD	75	149	---
				VLD	75	149	

Name	Specifications	Model
PG Option Unit	For Position or Frequency Control	**3G3AX-RX2-PG01**
Digital Operator Connecting Cable	RJ45 connector, EIA568-compliant cable (UTP category 5), Cable Length 1 m	**3G3AX-OPCN1**
	RJ45 connector, EIA568-compliant cable (UTP category 5), Cable Length 3 m	**3G3AX-OPCN3**

Software

FA Integrated Tool Package CX-One

Product name	Specifications			Model
		Number of licenses	Media	
FA Integrated Tool Package CX-One Ver.4.□	The CX-One is a comprehensive software package that integrates Support Software for OMRON PLCs and components. CX-One runs on the following OS. Windows 7 (32-bit/64-bit version)/ Windows 8 (32-bit/64-bit version) / Windows 8.1 (32-bit/64-bit version)/ Windows 10 (32-bit/64-bit version) CX-One Version 4.□ includes CX-Drive Ver.3.□. For details, refer to the CX-One catalog (Cat. No. R134)	1 license ✻	DVD	**CXONE-AL01D-V4**

✻ Multi licenses (3, 10, 30, or 50 licenses) and DVD media without licenses are also available for the CX-One.
Note: The RX2 Series is supported by CX-Drive version 3.0 or higher.

Overview of Inverter Selection

For detail of Inverter selection, refer to the RX2 series User's Manual. (Man.No.I620).

Motor Capacity Selection

Before selecting an invertor, first the motor should be chosen.In selecting the motor, first calculate the load inertia for the applications, and then calculate the required capacity and torque.

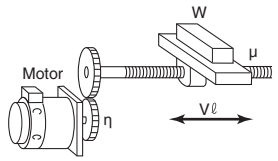
Make a simple selection (use Formulas for the required output power)

This method of calculation helps select a motor by calculating the output (W) required by the motor to maintain its regular rotations. It does not include calculation of the effect of acceleration/deceleration. Therefore, make allowance for the calculated value to select a motor. This calculation method can be applied to applications that operate constantly such as fans, conveyers, agitators etc.

This calculation method must not be applied to the following applications:

- Those requiring instant start-up.
- Those that frequently repeat operation and stop.
- Those that have a large inertia at the power transfer part.
- Those that have an inefficient power transfer part.

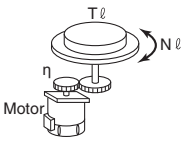
For Straight-Line Operation: Normal Power PO (kW)



$$P_o = \frac{\mu \cdot W \cdot V\ell}{6120 \cdot \eta}$$

μ: Friction Coefficient
W: Mass of Straight-Line travelling part (kg)
Vℓ: Speed of Straight-Line Travelling part (m/min)
η: Decelerator (Transfer part) Efficiency

For Rotating Operation: Normal Power PO (kW)



$$P_o\ (kW) = \frac{2\pi \cdot T\ell \cdot N\ell}{60 \cdot \eta} \times 10^{-3}$$

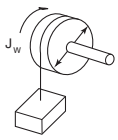
Tℓ: Load Torque (Load Shaft) (N·m)
Nℓ: Load Shaft Rotation Speed (r/min)
η: Transfer part (η≤1)

Detailed Selection Method (R.M.S Algorithm)

This method helps to select a motor by calculating the effective torque and maximum torque required to achieve a certain pattern of operation for the application. It selects a motor that is optimal for a particular operation pattern.

Calculate the inertia with a Motor Shaft Conversion Value

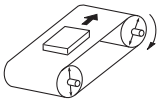
Calculate inertias of all the components with the formula for inertia calculation shown below to convert them to a motor conversion value.



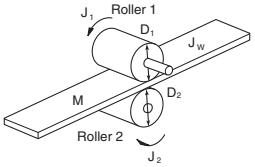
$$J_W = J_1 + J_2 = \left(\frac{M_1 \cdot D^2}{8} + \frac{M_2 \cdot D^2}{4}\right) \times 10^{-6}(kg \cdot m^2)$$

J_W: Inertia ($kg \cdot m^2$)
J_1: Cylinder Inertia ($kg \cdot m^2$)
J_2: Inertia from Object ($kg \cdot m^2$)
D: Diameter (mm)
M_1: Mass of Cylinder (kg)
M_2: Mass of Object (kg)

$$J_W = J_1 + J_2 + J_3 + J_4 = \left(\frac{M_1 \cdot D_1^2}{8} + \frac{M_2 \cdot D_2^2}{8} \cdot \frac{D_1^2}{D_2^2} + \frac{M_3 \cdot D_1^2}{4} + \frac{M_4 \cdot D_1^2}{4}\right) \times 10^{-6}(kg \cdot m^2)$$

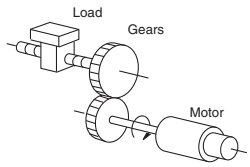


J_W: Inertia ($kg \cdot m^2$)
J_1: Cylinder 1 Inertia ($kg \cdot m^2$)
J_2: Inertia from Cylinder 2 ($kg \cdot m^2$)
J_3: Inertia from Object ($kg \cdot m^2$)
J_4: Inertia from Belt ($kg \cdot m^2$)
D_1: Cylinder 1 Diameter (mm)
D_2: Cylinder 2 Diameter (mm)
M_1: Mass of Cylinder 1 (kg)
M_2: Mass of Cylinder 2 (kg)
M_3: Mass of Object (kg)
M_4: Mass of Belt (kg)



$$J_W = J_1 + \left(\frac{D_1}{D_2}\right)^2 J_2 + \frac{M \cdot D_1^2}{4} \times 10^{-6}(kg \cdot m^2)$$

J_W: System Inertia ($kg \cdot m^2$)
J_1: Roller 1 Inertia ($kg \cdot m^2$)
J_2: Roller 2 Inertia ($kg \cdot m^2$)
D_1: Roller 1 Diameter (mm)
D_2: Roller 2 Diameter (mm)
M : Work Equivalent Mass (kg)



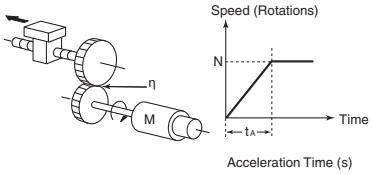
$$J_L = J_1 + G^2(J_2 + J_W)\ (kg \cdot m^2)$$

J_L: Load Inertia of Motor Shaft Conversion ($kg \cdot m^2$)
J_W: Load Inertia ($kg \cdot m^2$)
J_1: Gear Inertia on Motor Side ($kg \cdot m^2$)
J_2: Gear Inertia on Load Side ($kg \cdot m^2$)
Z_1: Number of Gear Teeth on Motor Side
Z_2: Number of Gear Teeth on Load Side
Gear Ratio $G = Z_1/Z_2$

Calculate Motor Shaft Conversion Torque and Effective Torque

Calculate the acceleration torque from the load torque calculated from both the motor shaft conversion value and the motor rotor inertia. Then Combine this acceleration torque and the Load torque calculated from the friction force and the external force that are applied to the load. Now you get the required torque to operate a motor.

Acceleration Torque

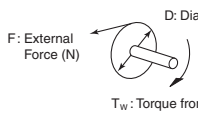


Acceleration Torque (T_A)

$$T_A = \frac{2\pi N}{60 t_A}\left(J_M + \frac{J_L}{\eta}\right)(N \cdot m)$$

T_A : Acceleration/Deceleration Torque (N·m)
J_L : Motor Shaft Conversion Load Inertia ($kg \cdot m^2$)
J_M : Inertial of Motor Itself ($kg \cdot m^2$)
η : Gear Transmission Efficiency
N : Motor Rotation Speed (r/min)

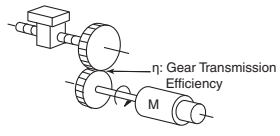
Motor Shaft Conversion Load Torque (External Force/ Friction)



$$T_W = F \cdot \frac{D}{2} \times 10^{-3}\ (N \cdot m)$$

(Friction is generally,
F = μW μ: Friction Coefficient
W: Mass of Moving Part)

T_W: Torque from External Force (N·m)



$$T_L = T_W \cdot \frac{G}{\eta}\ (N \cdot m)$$

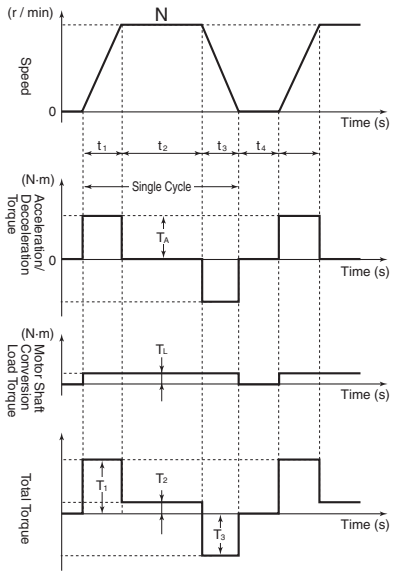
T_1 : Motor Shaft Conversion Load Torque (N·m)
T_W: Load Torque (N·m)
Z_1: Number of Gear Teeth on Motor Side
Z_2: Number of Gear Teeth on Load Side
Gear (Deceleration) Ratio $G = Z_1/Z_2$

Calculation of Total Torque and Effective Torque

Effective Torque: T_{RMS} (N·m)

$$= \sqrt{\frac{\Sigma (T_i)^2 \cdot t_i}{\Sigma t_i}} = \sqrt{\frac{T_1^2 \cdot t_1 + T_2^2 \cdot t_2 + T_3^2 t_3 + T_4^2 t_4}{t_1 + t_2 + t_3 + t_4}}$$

Maximum Torque: $T_{MAX} = T_1 = T_A + T_L$



Note: Please make use of the Servo Motor selection software, which can calculate the motor shaft conversion inertia and effective/ maximum torque, as above.

Motor Selection

Use the formula below to calculate the motor capacity from the effective torque and the maximum torque that were obtained above. Select the larger of the two generated values as the motor capacity. Select a motor the capacity of which is larger than the calculated value and makes allowance for an error.

Motor Capacity corresponding to Effective Torque

Motor Capacity (kW) = $1.048 \cdot N \cdot T_{RMS} \cdot 10^{-4}$

N: Maximum Rotations (r/min)

Motor Capacity capable of Providing Maximum Torque

Motor Capacity (kW) = $1.048 \cdot N \cdot T_{MAX} \cdot 10^{-4} / 1.5$

N: Maximum Rotations (r/min)

Inverter Capacity Selection

Select an inverter that can be used for the selected motor in the process of "Motor Selection".
Generally, select an inverter which fits the maximum applicable motor capacity of the selected motor.
After selecting an inverter, check if it meets with all of the following conditions. If it does not, select an inverter that has a one class larger capacity and check the feasibility again.

Motor Rated Current ≤ Inverter Rated Output Current
Maximum Time of Continuous Torque Output Time in an Application ≤ 1 minute

Note: 1. Where the inverter overload capacity is "120% of Rated Output Current for 1 minute", check it for 0.8 minute.

2. Where a 0 Hz sensor-less vector control is being used, or where torque must be maintained for 0 (r/min) rotation speed and where 150% of the rated torque is frequently required, use an invertor which is one rank larger than the one selected by the above method.

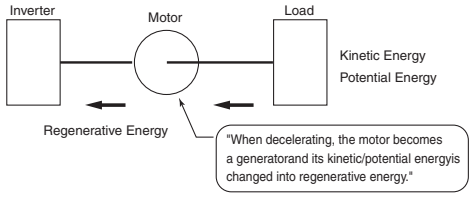
Outline of Braking Resistor Selection

Importance of Braking Resistor

If the regenerative energy generated in deceleration or descent in an application is too great, the main circuit of an inverter may have an increased voltage and it may be damaged.
Because the inverter usually contains the overvoltage LAD stop function, it is not actually damaged. However, the motor stops detecting an error, making a stable and continuous operation disabled. Therefore, you must discharge the regenerative energy outside of the inverter.

What is Regenerative Energy?

A load connected to a motor has kinetic energy when rotating, and potential energy when it is located in a high position. When the motor decelerates, or when the load descends, the energy is returned to an inverter. It is known as regeneration, and the energy generated by the phenomenon is known as regenerative energy.



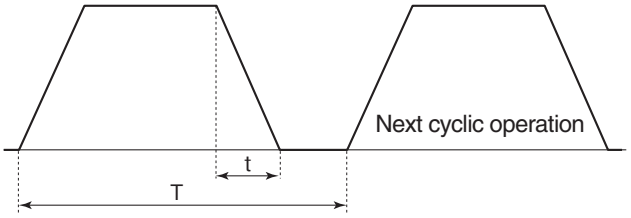
Preventing Breaking Resistence

The following are methods to prevent the connection of braking resistance.
These methods will make the deceleration time increase, so check if it will not cause problems.

- Enable the deceleration stall prevention (enabled in factory settings) (It will automatically increase deceleration time not to cause an overvoltage to stop the motor).
- Set a longer deceleration time. (Cause the regenerative energy to decrease per unit of time.)
- Disable Free-Run. (Prevent the regenerative energy from returning to an inverter.)

Make a Simple Selection for Braking Resistors

It can be a simple selecting method by using the ratio of time in which regenerative energy is produced in a normal operating pattern. Calculate the usage ratio from the following operating pattern.



Usage Rate = t/T × 100 (% ED)

t : Deceleration Time (Regenerative Time)
T : Single Cycle Operation Time

%ED is the unit used for a usage rate.
The usage rate is used as the ratio of deceleration time (regenerative operation time) to simplify the selection of the braking options.

For Models with a Built-in Braking Circuit (3G3RX2 200 V with a capacity of 22 kW or lower, 3G3RX2 400 V with a capacity of 37 kW or lower)

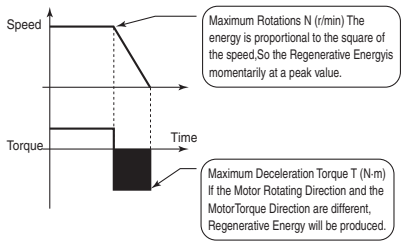
Select the braking resistor based on the usage rate calculated from the operation patterns.
Refer to the braking resistor list described in the User's manual and catalog, and connect it according to your Inverter.

For Models without a Built-in Braking Circuit (3G3RX2 200 V with a capacity of 30 kW or higher, 3G3RX2 400 V with a capacity of 45 kW or higher)

Select the regenerative braking unit and the braking resistor.
Refer to the regenerative braking unit and braking resistor lists described in the User's manual and catalog, and connect them according to your Inverter.

When the usage ratio for the braking resistor selected on the previous page exceeds 10% ED, or when an extremely large braking torque is required, use the method below to calculate a regenerative energy and make your selection.

Calculation of Required Braking Resistor



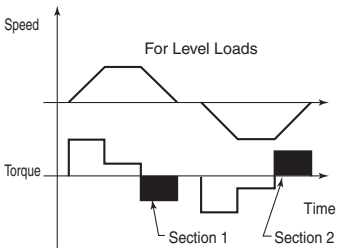
$$\text{Breaking Resistance Resister: } R \leq \frac{V^2}{1.048 \times (T - 0.2 \times Tm) \times N \times 10^{-1}}$$

V: 200V class inverter 385 (V)
400V class inverter 760 (V)
T: Maximum Braking Torque (N·m)
Tm: Motor Rated Torque (N·m)
N: Maximum Rotation Speed (r/min)

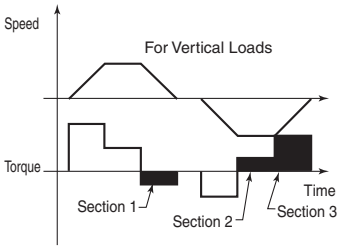
Note: Calculate a braking torque using the above "Motor Capacity Selection".

Calculation of Average Regenerative Energy

Regenerative Energy is produced when the motor rotation direction and the torque direction are opposite.
Use the following formula to calculate a regenerative energy per cycle interval.



$P_i = N \times T \times t \times 1.048 \times 10^{-1}$
P_i : Sectional i Regenerative Energy (J)
N: Motor Rotation Speed (r/min)
When the number of Rotations changes
Take an average value
e.g. For Straight-Line Deceleration
(N max + N min)/2
T: Deceleration Torque (N/m)
t: Deceleration Time (s)



· Sum all of the Regenerative Energy in a cycle interval and divide it by the cycle time to calculate the time average, shown as below.

$$\text{Average Regenerative Energy (W)} = \frac{(P1 + P2 + \cdots + Pi)\ (J)}{\text{Single Cycle Time (s)}}$$

Note: 1. Forward rotation direction is forward for the speed, and the torque in the forward rotation direction is forward for the torque.
2. Calculate a braking torque using the above "Motor Capacity Selection".

Braking Resistor Selection

Select a Braking Resistor from the required braking resistance and average regenerative energy on the left.

- Required Braking Resistence ≥ Resistence of Braking Resistor ≥ Minimum Connection Resistence of Invertor or Regenerative Braking Unit
- Average Regenerative Energy ≤ Permissible Power for Braking Resister

Note: 1. If a resistance that has a less then the minimum connectable value is connected on an inverter or regenerative braking resistor unit, the internal breaking transistor can be damaged. When the required braking resistance is less than the minimum connectable resistance, change the inverter or regenerative energy braking to the one having a larger capacity and a minimum connection resistance less than the required braking resistance.
2. Two or more regenerative braking units can be operated in parallel. Refer to the following formula to know the braking resistance value in such a case.
Braking Resistence (Ω) = (Required Braking Resistance as calculated above) × (No. of Units in use)
3. Do not use the above formula to select a generative braking resistance value. 150 W does not reflect a permissible power capacity, but the maximum rated power per unit of resistance. The actual permissible power varies according to a resistance.

Related Manuals

Man. No.	Model	Manual
I620	3G3RX2-□□□□□	3G3RX2 Series High-function General-purpose Inverter User's Manual
I622	3G3RX2-□□□□□ CXONE-AL□□D-V□	Inverter RX2 Series DriveProgramming User's Manual
W463	CXONE-AL□□D-V□	CX-One FA Integrated Tool Package SETUP MANUAL
W453	CXONE-AL□□D-V□ WS02-DRVC01	CX-Drive OPERATION MANUAL

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

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