

# High-function General-purpose Inverters

# RX Series V1 type

## Versatile for a Wide Range of Applications

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



## Performance Specifications

### Inverter 3G3RX-V1

#### 3-phase 200-V Class

CT: Heavy load rating VT: Light load rating

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

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

## 3-phase 400-V Class

CT: Heavy load rating VT: Light load rating

| Item                                   |                                 |    | 3-phase 400-V class                                             |          |          |          |          |          |          |          |          |          |          |
|----------------------------------------|---------------------------------|----|-----------------------------------------------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Model name (3G3RX-)                    |                                 |    | A4004-V1                                                        | A4007-V1 | A4015-V1 | A4022-V1 | A4037-V1 | A4055-V1 | A4075-V1 | A4110-V1 | A4150-V1 | A4185-V1 | A4220-V1 |
| Maximum applicable motor capacity (kW) |                                 | CT | 0.4                                                             | 0.75     | 1.5      | 2.2      | 3.7      | 5.5      | 7.5      | 11       | 15       | 18.5     | 22       |
|                                        |                                 | VT | 0.75                                                            | 1.5      | 2.2      | 3.7      | 5.5      | 7.5      | 11       | 15       | 18.5     | 22       | 30       |
| Rated output capacity (kVA)            | 400V                            | CT | 1.0                                                             | 1.7      | 2.6      | 3.6      | 6.2      | 9.6      | 13.1     | 17.3     | 22.1     | 26.3     | 33.2     |
|                                        |                                 | VT | 1.3                                                             | 2.1      | 3.3      | 4.6      | 7.6      | 11.0     | 15.2     | 20.0     | 25.6     | 29.7     | 39.4     |
|                                        | 480V                            | CT | 1.2                                                             | 2.0      | 3.1      | 4.4      | 7.4      | 11.6     | 15.7     | 20.7     | 26.6     | 31.5     | 39.9     |
|                                        |                                 | VT | 1.5                                                             | 2.5      | 3.9      | 5.5      | 9.2      | 13.3     | 18.2     | 24.1     | 30.7     | 35.7     | 47.3     |
| Rated input voltage                    |                                 |    | 3-phase 380 V -15% to 480 V +10%, 50/60 Hz ±5%                  |          |          |          |          |          |          |          |          |          |          |
| Rated input current (A)                |                                 | CT | 1.8                                                             | 2.8      | 4.2      | 5.8      | 9.8      | 15       | 21       | 28       | 35       | 42       | 53       |
|                                        |                                 | VT | 2.1                                                             | 4.3      | 5.9      | 8.1      | 13.3     | 20       | 24       | 32       | 41       | 47       | 63       |
| Rated output voltage                   |                                 |    | 3-phase 380 to 480 V (Cannot exceed that of incoming voltage)   |          |          |          |          |          |          |          |          |          |          |
| Rated output current (A)               |                                 | CT | 1.5                                                             | 2.5      | 3.8      | 5.3      | 9.0      | 14       | 19       | 25       | 32       | 38       | 48       |
|                                        |                                 | VT | 1.9                                                             | 3.1      | 4.8      | 6.7      | 11.1     | 16       | 22       | 29       | 37       | 43       | 57       |
| EMC Noise Filter                       |                                 |    | Built-in (EMC Directive EN61800-3 Category C3)                  |          |          |          |          |          |          |          |          |          |          |
| Weight (kg)                            |                                 |    | 3.5                                                             | 3.5      | 3.5      | 3.5      | 3.5      | 6        | 6        | 6        | 14       | 14       | 14       |
| Braking Resistor circuit               | Regenerative braking            |    | Built-in Braking Resistor circuit (separate Discharge Resistor) |          |          |          |          |          |          |          |          |          |          |
|                                        | Min. connectable resistance (Ω) |    | 100                                                             | 100      | 100      | 100      | 70       | 70       | 35       | 35       | 24       | 24       | 20       |
| Maximum leakage current (mA)           | EMC filter enabled              |    | 5                                                               |          |          |          |          | 95       |          |          | 56       |          |          |
|                                        | EMC filter disabled             |    | 0.2                                                             |          |          |          |          |          |          |          |          |          |          |

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

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

## Function Specifications

### Inverter 3G3RX-V1

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

\*1 Applicable in the sensorless vector control

\*2 Applicable in the 0-Hz sensorless vector control

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

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

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

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

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

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

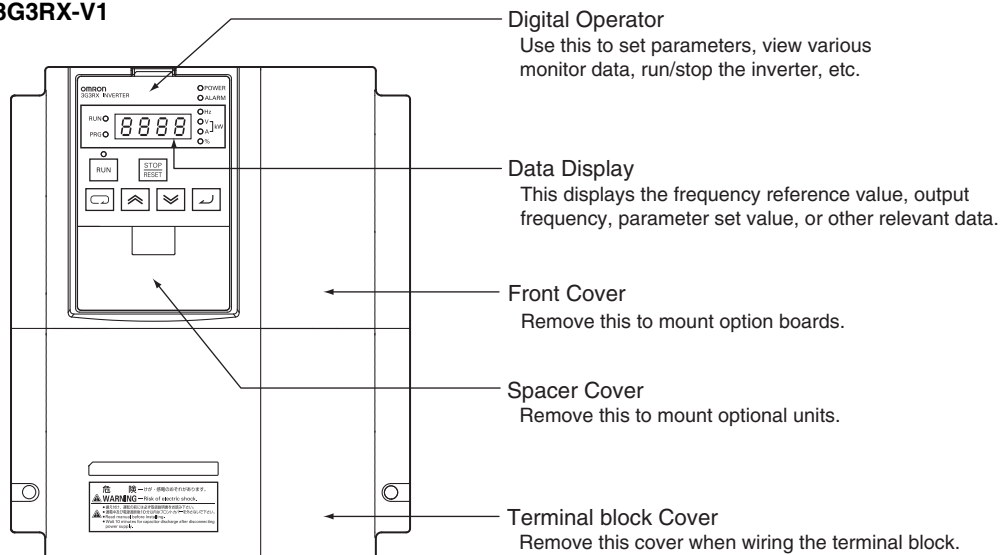
\*7 Complies with the test method specified in JIS C60068-2-6: 2010 (IEC 60068-2-6: 2007).

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

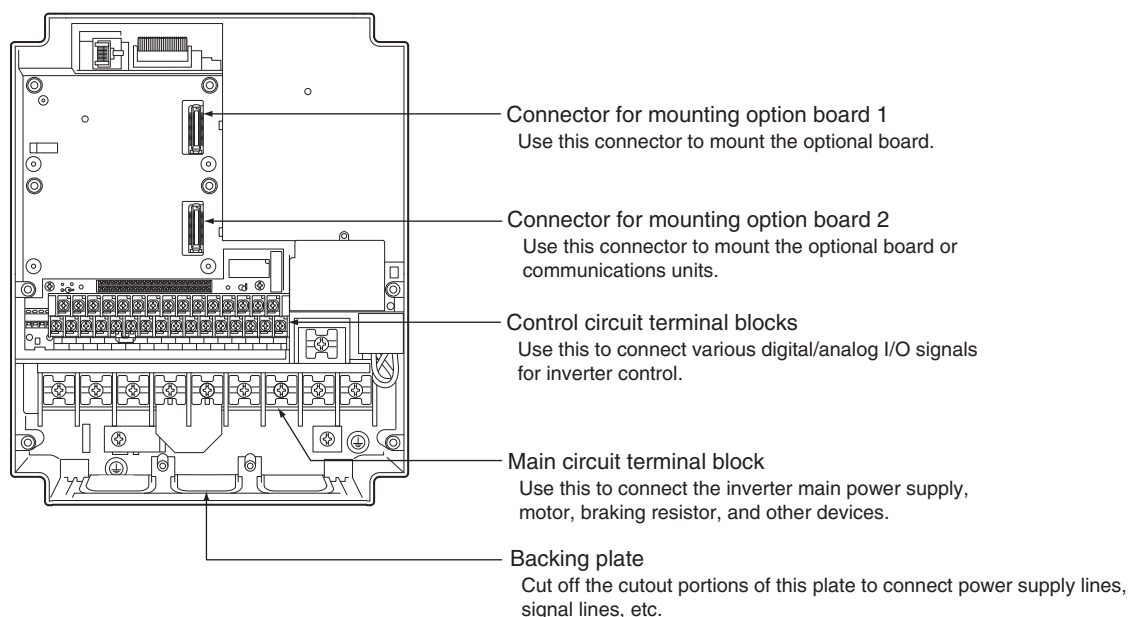
## Components and Functions

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

### Inverter 3G3RX-V1

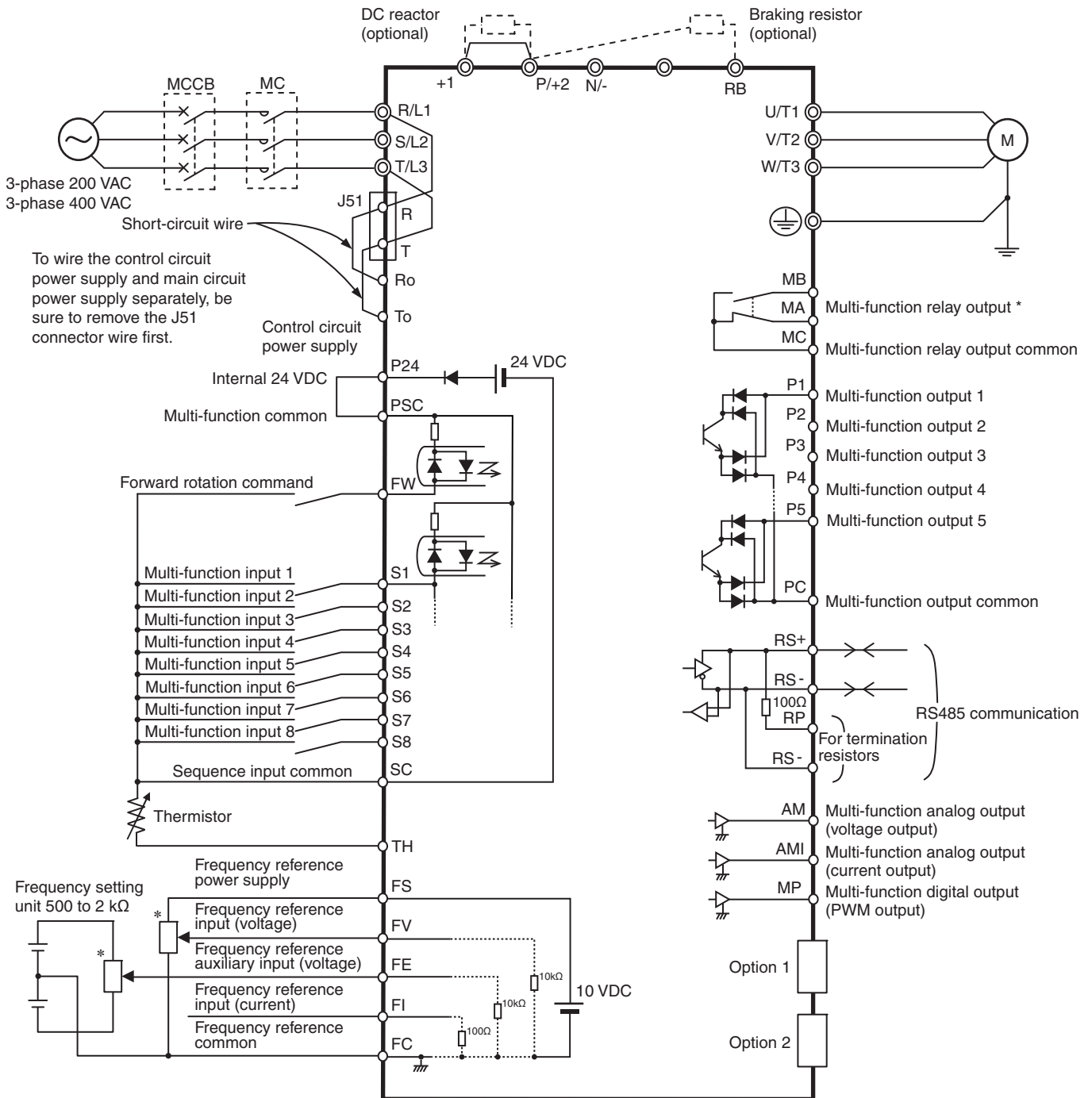


Open the terminal block cover to wire the main circuit terminal block and the control circuit terminal block. Moreover, you can open the front cover to mount option boards.



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

## Connection Diagram



\* Variable volume adjuster (2 k $\Omega$  1/4 W or larger recommended)

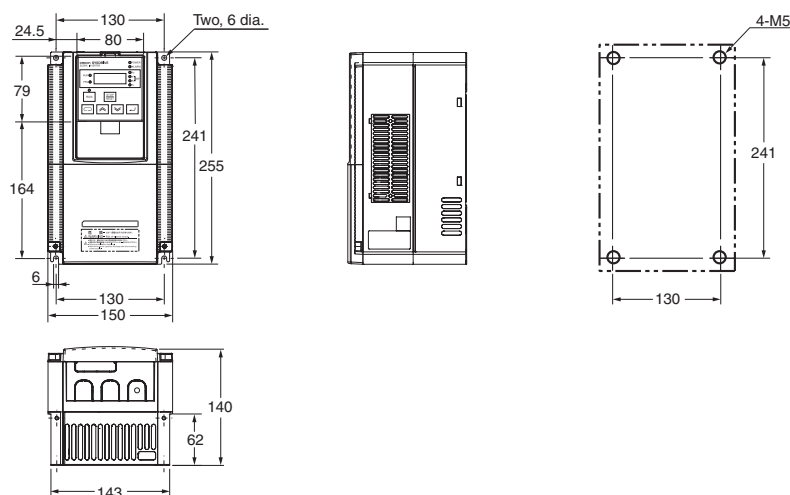
# High-function General-purpose Inverters RX-Series V1 type

## Dimensions

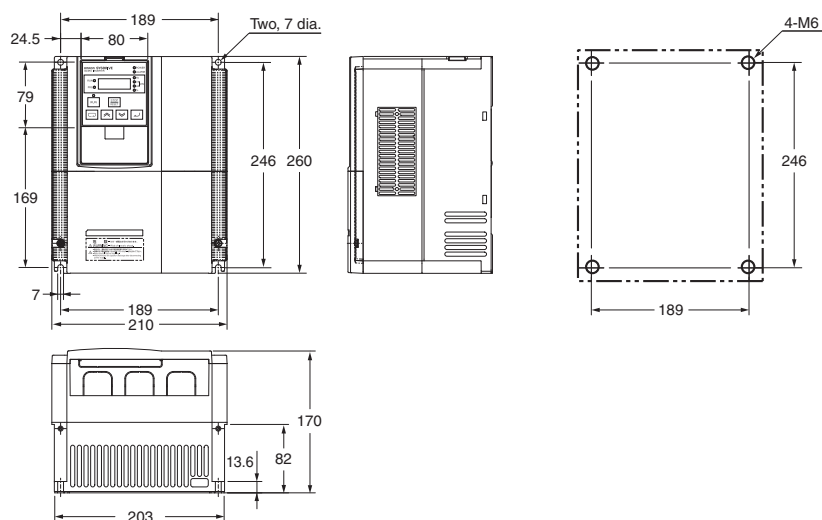
(Unit: mm)

### Inverter 3G3RX-V1

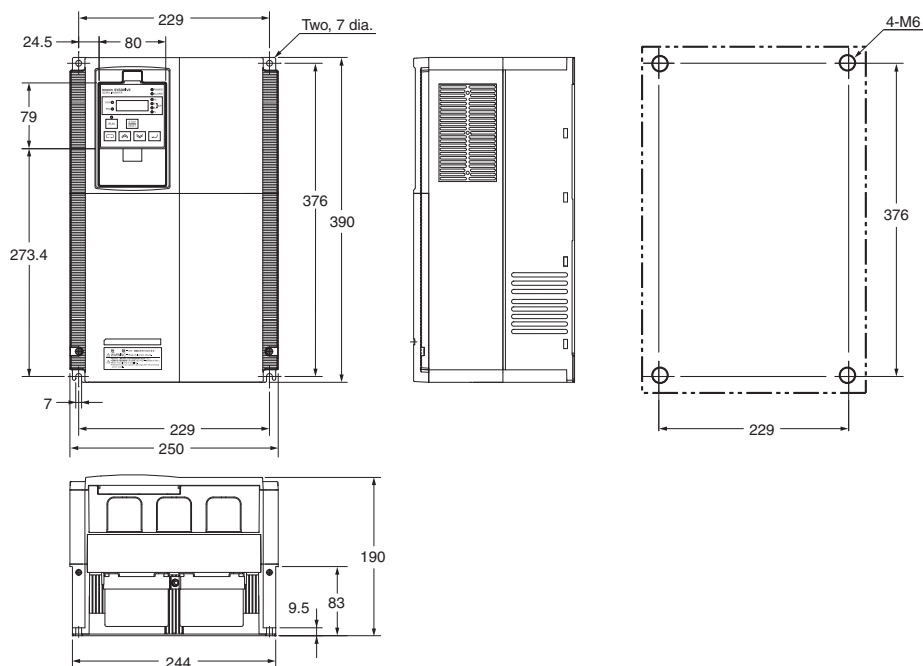
3G3RX-A2004-V1  
3G3RX-A2007-V1  
3G3RX-A2015-V1  
3G3RX-A2022-V1  
3G3RX-A2037-V1  
3G3RX-A4004-V1  
3G3RX-A4007-V1  
3G3RX-A4015-V1  
3G3RX-A4022-V1  
3G3RX-A4037-V1



3G3RX-A2055-V1  
3G3RX-A2075-V1  
3G3RX-A2110-V1  
3G3RX-A4055-V1  
3G3RX-A4075-V1  
3G3RX-A4110-V1

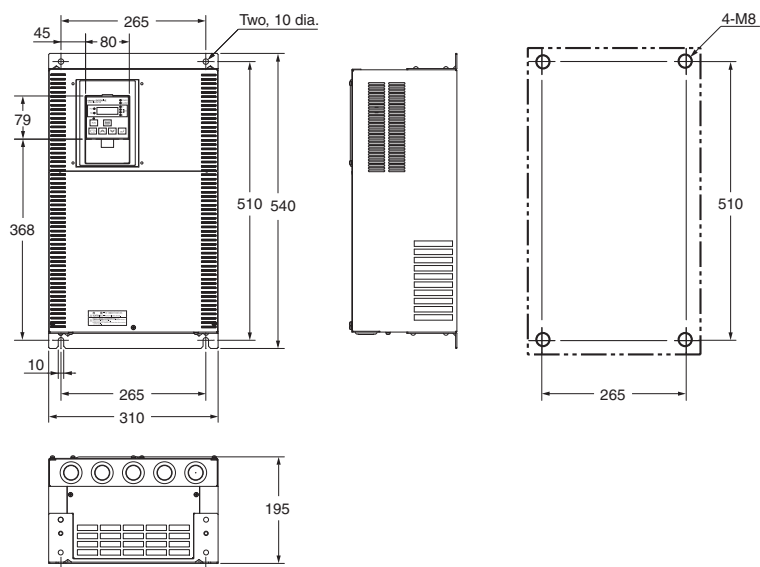


3G3RX-A2150-V1  
3G3RX-A2185-V1  
3G3RX-A2220-V1  
3G3RX-A4150-V1  
3G3RX-A4185-V1  
3G3RX-A4220-V1

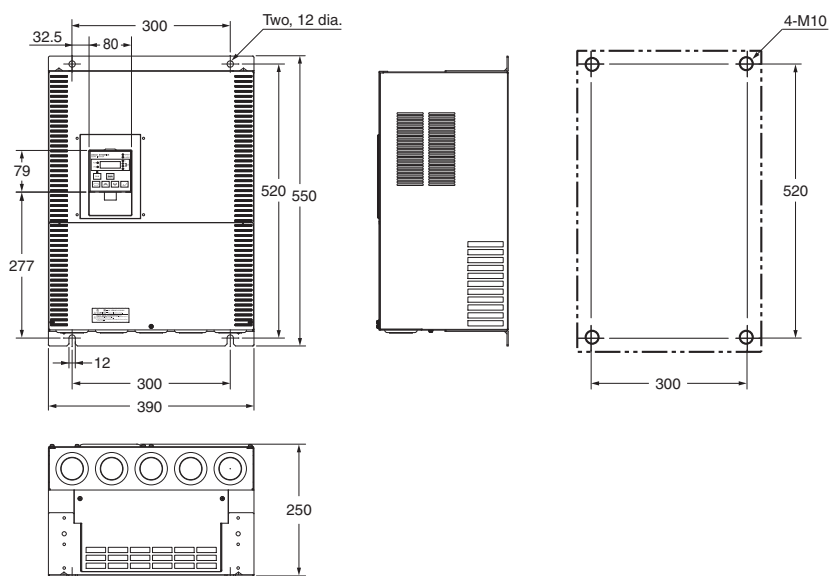


# High-function General-purpose Inverters RX-Series V1 type

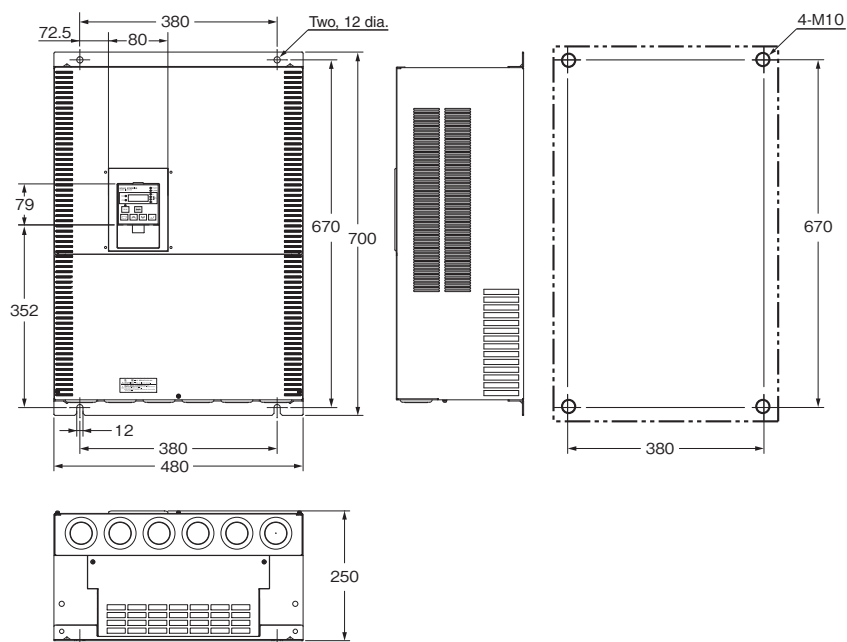
**3G3RX-A2300-V1**  
**3G3RX-A4300-V1**



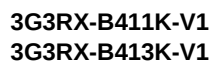
**3G3RX-A2370-V1**  
**3G3RX-A2450-V1**  
**3G3RX-A4370-V1**  
**3G3RX-A4450-V1**  
**3G3RX-A4550-V1**



**3G3RX-A2550-V1**



3G3RX-B4750-V1  
3G3RX-B4900-V1



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

## Communication Unit

### RX-Series V1 type EtherCAT Communication Unit 3G3AX-RX-ECT

This is the communication unit to connect the High-function General-purpose Inverters RX-series V1 type to EtherCAT network.

This communication unit passed the conformance test of EtherCAT.

**Note:** 1. It is not possible to use a EtherCAT Communication Unit 3G3AX-RX-ECT with a RX-series (Model without "-V1").

2. Sysmac Studio can be used when using with NJ/NX-series Controller.

To connect the NJ Controller, Sysmac Studio version 1.03 or higher is required.

To connect the NX Controller, Sysmac Studio version 1.13 or higher is required.

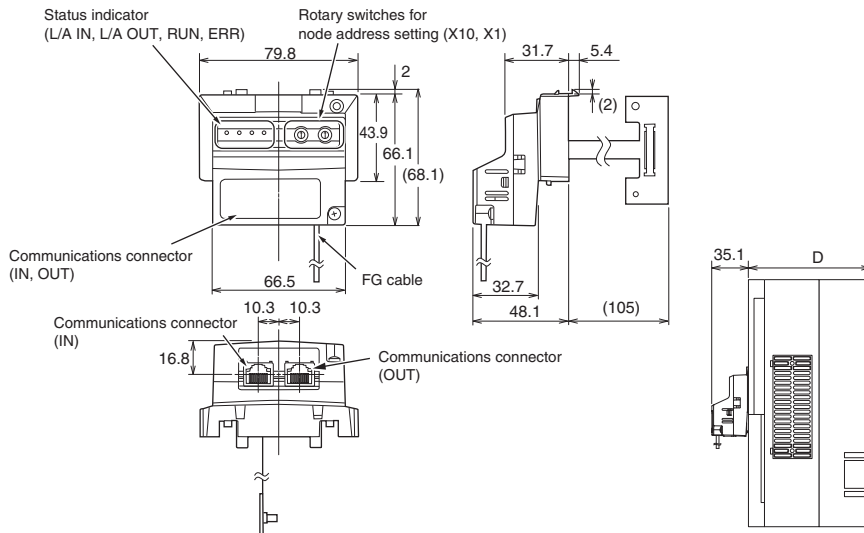
### Common Specifications

| Item                          |               | Specifications                                                     |
|-------------------------------|---------------|--------------------------------------------------------------------|
| Power supply                  |               | Supplied from the inverter                                         |
| Protective structure          |               | Open type (IP20)                                                   |
| 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 resistance          |               | 5.9 m/s <sup>2</sup> (0.6 G), 10 to 55 Hz                          |
| Application environment       |               | At a maximum altitude of 1,000 m (without corrosive gases or dust) |
| Weight                        |               | 100 g max. (Shipping weight: approx. 200 g)                        |
| International standard        | UL/cUL        | UL508C                                                             |
|                               | EC Directives | EMC Directive : EN61800-3<br>Low Voltage Directive : EN61800-5-1   |

### EtherCAT Communications Specifications

| Item                    |  | Specifications                                                                                |
|-------------------------|--|-----------------------------------------------------------------------------------------------|
| Communications standard |  | IEC 61158 Type12, IEC 61800-7 CiA 402 drive profile                                           |
| Physical layer          |  | 100BASE-TX (IEEE802.3)                                                                        |
| Connector               |  | RJ45 x 2 (shielded type)<br>ECAT IN : EtherCAT input<br>ECAT OUT : EtherCAT output            |
| Communications media    |  | Category 5 or higher (cable with double, aluminum tape and braided shielding) is recommended. |
| Communications distance |  | Distance between nodes: 100 m max.                                                            |
| Process data            |  | Fixed PDO mapping<br>PDO mapping                                                              |
| Mailbox (CoE)           |  | Emergency messages, SDO requests, SDO responses, and SDO information                          |
| Distributed clock       |  | FreeRun mode (asynchronous)                                                                   |
| LED display             |  | L/A IN (Link/Activity IN) x 1<br>L/A OUT (Link/Activity OUT) x 1<br>RUN x 1<br>ERR x 1        |
| CiA402 drive profile    |  | Velocity mode                                                                                 |

### Dimensions (mm)



**Note:** After the EtherCAT Communication Unit is installed, dimension D of the inverter increases by 35.1 mm.  
(Dimension D of the inverter varies depending on the capacity. Refer to the RX-series V1 type USER'S MANUAL (Cat.No.I578))

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

## RX-Series V1 type CompoNet™ Communication Unit 3G3AX-RX-CRT-E

This is the communication unit to connect the High-function General-purpose Inverters RX-series V1 type to CompoNet™ network.

**Note:** It is not possible to use a CompoNet™ Communication Unit 3G3AX-RX-CRT-E with a RX-series (Model without "-V1").

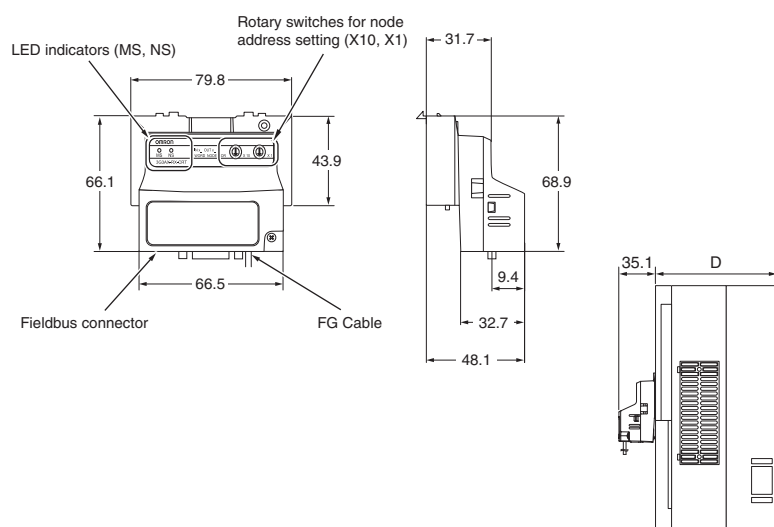
### Common Specifications

| Item                          |               | Specifications                                                                                         |
|-------------------------------|---------------|--------------------------------------------------------------------------------------------------------|
| Power supply                  |               | Supplied from the inverter                                                                             |
| Protective structure          |               | IP20                                                                                                   |
| 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 resistance          |               | 5.9 m/s <sup>2</sup> (0.6 G), 10 to 55 Hz                                                              |
| Application environment       |               | At a maximum altitude of 1,000 m (without corrosive gases or dust)                                     |
| Insulation resistance         |               | 500VAC (between isolated circuits)                                                                     |
| Weight                        |               | 100 g max. (Shipping weight: approx. 170 g)                                                            |
| International standard        | UL/cUL        | UL508                                                                                                  |
|                               | EC Directives | EN61800-3 : 2004 (2004/108/EC) Second environment, Category C3<br>EN61800-5-1 : 2007 (2006/95/EC) SELV |

### CompoNet™ Communications Specifications

| Item                       |  | Specifications                                                                                                                                                                                                                                                                                                                                       |
|----------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Slave type                 |  | Word Slave Unit (Mixed)                                                                                                                                                                                                                                                                                                                              |
| Certification              |  | CompoNet™ Conformance Tested                                                                                                                                                                                                                                                                                                                         |
| CompoNet™ Profile          |  | AC Drive (0x02)                                                                                                                                                                                                                                                                                                                                      |
| Communication power supply |  | --- (External power not required)                                                                                                                                                                                                                                                                                                                    |
| Node Address               |  | 0 to 63, set with inverter parameter P190 or the rotary switches.                                                                                                                                                                                                                                                                                    |
| Baud rates supported       |  | 4 Mbps, 3 Mbps, 1.5 Mbps, 93.75 kbps.<br>Automatically detecting baud rate of Master Unit                                                                                                                                                                                                                                                            |
| Default Connection path    |  | Supported, set with inverter parameter P046                                                                                                                                                                                                                                                                                                          |
| Supported Assemblies       |  | Basic Remote IO (Output assembly 20, Input assembly 70)<br>Extended Speed IO (21, 71)<br>Extended Speed and Torque Control (123, 173)<br>Special IO (100, 150)<br>Extended Control IO (101, 151)<br>Extended Control IO and Multi function IO monitor (101, 153)<br>Flexible Format (139, 159)<br>Extended Speed and Acceleration Control (110, 111) |
| EDS file                   |  | Depending on the RX-series V1 type inverter model                                                                                                                                                                                                                                                                                                    |

### Dimensions (mm)



**Note:** After the CompoNet™ Communication Unit is installed, dimension D of the inverter increases by 35.1 mm. (Dimension D of the inverter varies depending on the capacity. Refer to the RX-series V1 type USER'S MANUAL (Cat.No.I578))

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

## RX-Series V1 type DeviceNet™ Communication Unit 3G3AX-RX-DRT-E

This is the communication unit to connect the High-function General-purpose Inverters RX-series V1 type to DeviceNet™ network.

**Note:** It is not possible to use a DeviceNet™ Communication Unit 3G3AX-RX-DRT-E with a RX-series (Model without "-V1").

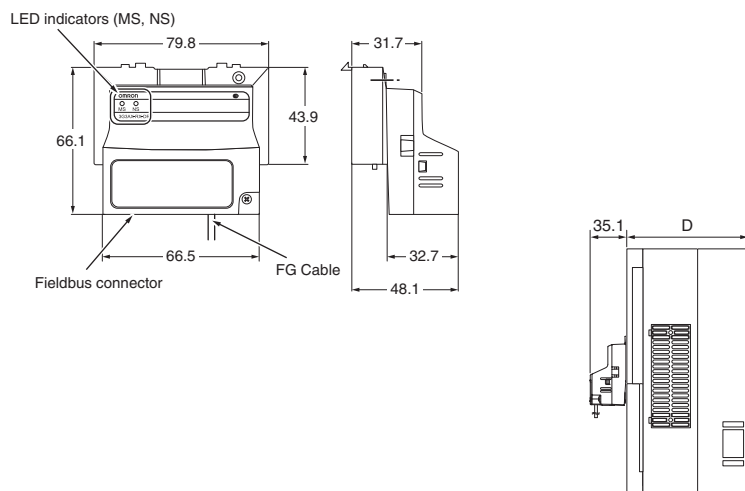
### Common Specification

| Item                          |               | Specifications                                                                                         |
|-------------------------------|---------------|--------------------------------------------------------------------------------------------------------|
| Power supply                  |               | Supplied from the inverter                                                                             |
| Protective structure          |               | IP20                                                                                                   |
| 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 resistance          |               | 5.9 m/s <sup>2</sup> (0.6 G), 10 to 55 Hz                                                              |
| Application environment       |               | At a maximum altitude of 1,000 m (without corrosive gases or dust)                                     |
| Insulation resistance         |               | 500 VAC (between isolated circuits)                                                                    |
| Weight                        |               | 100 g max. (Shipping weight: approx. 170 g)                                                            |
| International standard        | UL/cUL        | UL508                                                                                                  |
|                               | EC Directives | EN61800-3 : 2004 (2004/108/EC) Second environment, Category C3<br>EN61800-5-1 : 2007 (2006/95/EC) SELV |

### DeviceNet™ Communications Specifications

| Item                       |  | Specifications                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|----------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Certification              |  | DeviceNet™ Conformance Tested                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| DeviceNet™ Profile         |  | AC Drive (0x02)                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Supported connections      |  | Remote I/O: Master-Slave connection<br>Poll<br>Bit-Strobe<br>COS<br>Cyclic<br>Explicit Messages<br>Conform to DeviceNet™ specifications                                                                                                                                                                                                                                                                                                                                    |
| Communication power supply |  | 11 to 25VDC (MAX 50 mA, type 20 mA)                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Unit device address range  |  | MAC ID 0 to 63, set with inverter parameter P192                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Baud rates supported       |  | 125, 250, or 500 kbps.<br>Automatically detects baud rate of Master Unit.                                                                                                                                                                                                                                                                                                                                                                                                  |
| Default Connection path    |  | Supported, set with inverter parameter P046                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Supported Assemblies       |  | Basic Remote IO (Output assembly 20, Input assembly 70)<br>Extended Speed IO (21, 71)<br>Extended Speed and Torque Control (123, 173)<br>Special IO (100, 150)<br>Extended Control IO (101, 151)<br>Extended Control IO and Multi function IO monitor (101, 153)<br>Flexible Format (139, 159)<br>Extended Speed and Acceleration Control (110, 111)<br>In case the DeviceNet™ master is configured using user allocation, only the input /output pairs can be configured. |
| EDS file                   |  | Depending on the RX-series V1 type inverter model                                                                                                                                                                                                                                                                                                                                                                                                                          |

### Dimensions (mm)



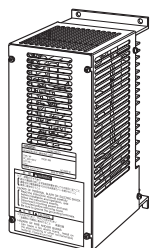
**Note:** After the DeviceNet™ Communication Unit is installed, dimension D of the inverter increases by 35.1 mm. (Dimension D of the inverter varies depending on the capacity. Refer to the RX-series V1 type USER'S MANUAL (Cat.No.I578))

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

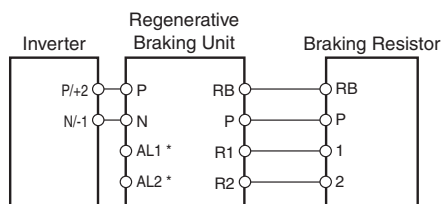
## Options

### Regenerative Braking Unit 3G3AX-RBU□□

Used with a Braking Resistor when the deceleration time of the motor is needed to be reduced in the 3G3RX.



#### 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.

## 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<br>OFF: 355 ± 5 V<br>(-5% or -10% setting available)                                                                                                                                                                                                                                                                                                       |                                                 | ON : 725 ± 5 V<br>OFF: 710 ± 5 V<br>(-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<br>(ON for 10 s, OFF for 90 s)                                                                                                                                                                                                                                                                                                                                   | Cycle 1/80<br>(ON for 0.5 s, OFF for 40 s)      | Cycle 1/10<br>(ON for 10 s, OFF for 90 s)                           |
|                                            | Power consumption                     | Instantaneous 0.73 kW<br>Short-time rating 120 W                                                                                                                                                                                                                                                                                                                            | Instantaneous 6.6 kW<br>Short-time rating 120 W | Instantaneous 1.46 kW<br>Short-time rating 240 W                    |
| Protective function                        | Built-in resistor overheat protection | <ul style="list-style-type: none"> <li>Cooling fin temperature Relay operates at approximately 200°C or higher. Recovers at approximately 170°C or lower.</li> <li>Built-in temperature fuse (recovery impossible)*3</li> <li>Rating of contact 250 V AC 200mA (R load)<br/>12 V DC 500mA (R load)<br/>42 V DC 200mA (R load)</li> <li>Minimum load 1mA (R load)</li> </ul> |                                                 |                                                                     |
|                                            |                                       |                                                                                                                                                                                                                                                                                                                                                                             |                                                 |                                                                     |
| 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 <sup>2</sup> (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                            | 4 Ω min.                                                                                                                                                                                                                              | 2 Ω min.     | 10 Ω min.                                                          | 6 Ω min.     |
|                                                 | Allowable operation cycle/<br>Continuous ON time | 1/5<br>2 min                                                                                                                                                                                                                          | 1/5<br>2 min | 1/10<br>10 s                                                       | 1/5<br>2 min |
| Operating voltage ON/OFF                        |                                                  | ON: 362.5 ± 5 V<br>OFF: 355 ± 5 V<br>(−5% or −10% setting available)                                                                                                                                                                  |              | ON: 725 ± 5 V<br>OFF: 710 ± 5 V<br>(−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<br>Cooling fin temperature    Relay operates at approximately 100°C or higher.<br>• Rating of contact   : 240 V AC 3 A (R load)<br>36 V DC 2 A (R load)<br>• 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/s² (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)                                                                                                                                                                                   |              |                                                                    |              |

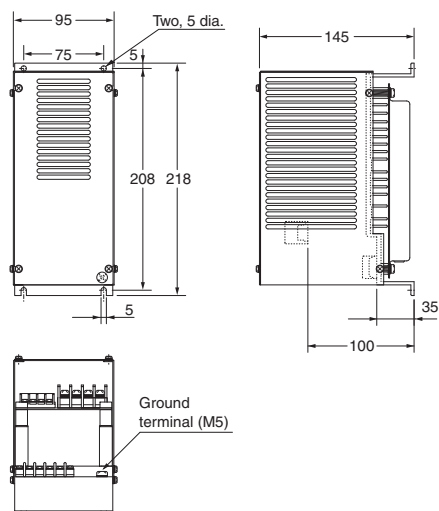
\*1 To use the braking resistor (3G3AX-RAB/RBB/RBC) for the 400-V class regenerative braking unit, be sure to remove the built-in resistor and connect two resistors of the same model in series. Using a 400-V class regenerative braking unit with only a single braking resistor connected may cause damage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

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

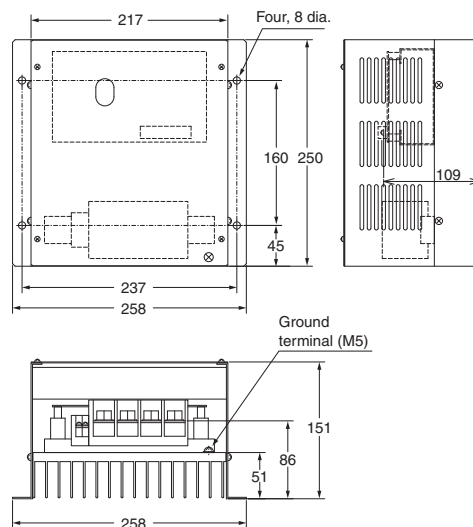
# High-function General-purpose Inverters RX-Series V1 type

## Dimensions (Unit: mm)

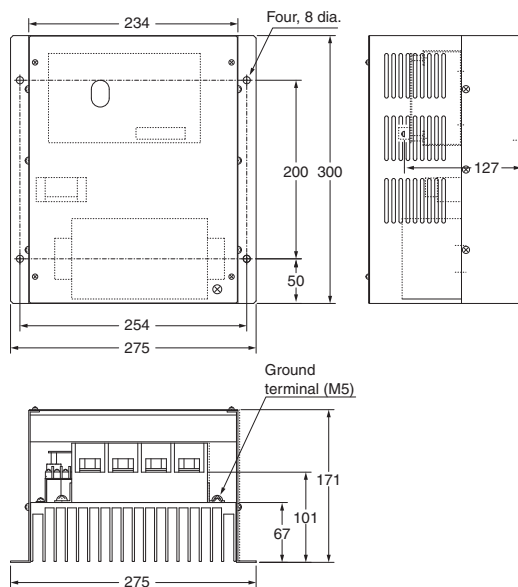
3G3AX-RBU21/-RBU22/-RBU41



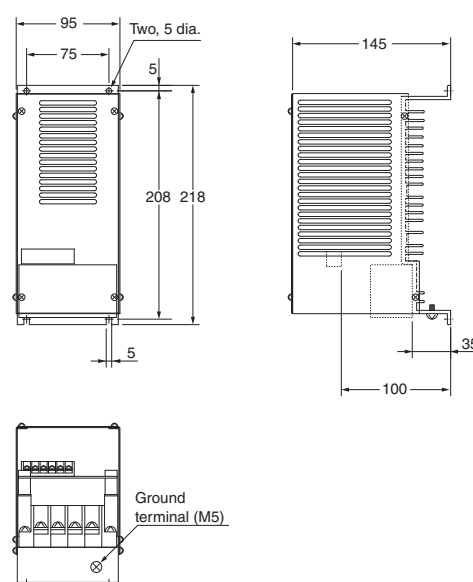
3G3AX-RBU23



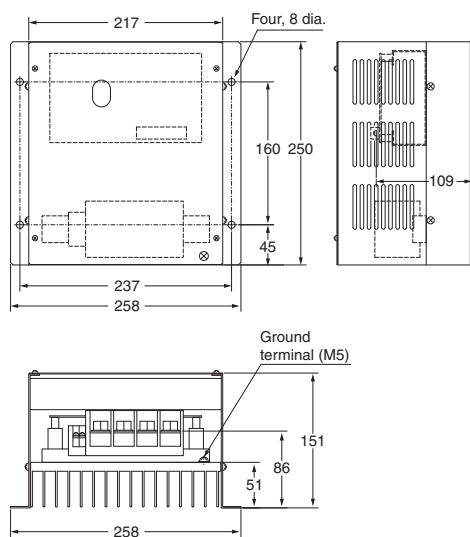
3G3AX-RBU24



3G3AX-RBU42



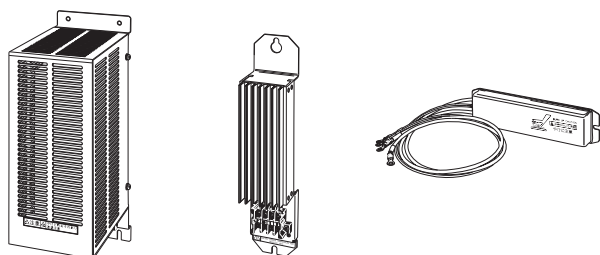
3G3AX-RBU43



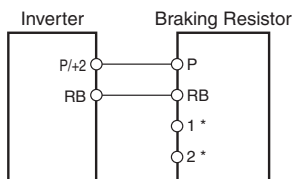
# High-function General-purpose Inverters RX-Series V1 type

## 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

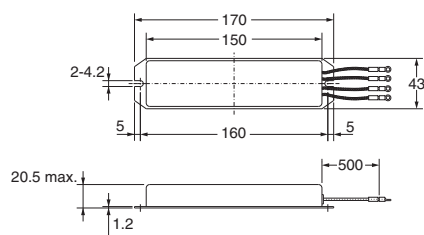
| Model                                |                               | Compact type<br>(3G3AX-RBA□□□□)                                                                                                                                 |      |      |      | Standard type<br>(3G3AX-RBB□□□□) |      |       |                                                                                                                                            | Medium capacity type<br>(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.)<br>Minimum current: 5 mA,<br>Normally ON (NC contact)<br>Built-in temperature fuse (recovery impossible) |      |      |      |                                  |      |       | Built-in temperature relay,<br>Normally ON (NC contact)<br>Contact capacity:240 V AC 3 A (R load),<br>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.

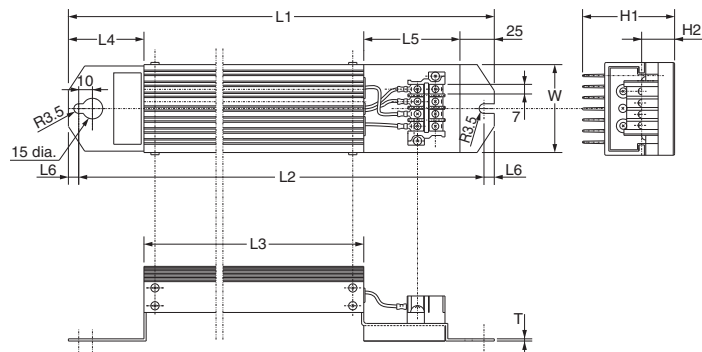
# High-function General-purpose Inverters RX-Series V1 type

## Dimensions (Unit: mm)

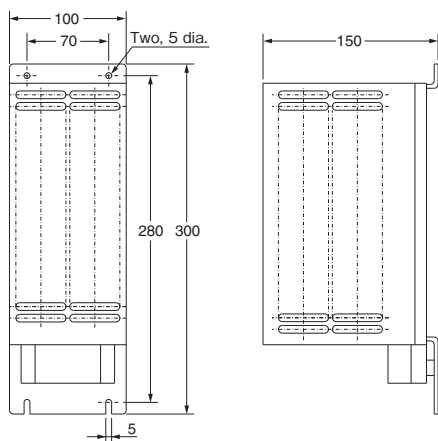
3G3AX-RBA



3G3AX-RBB



3G3AX-RBC4001

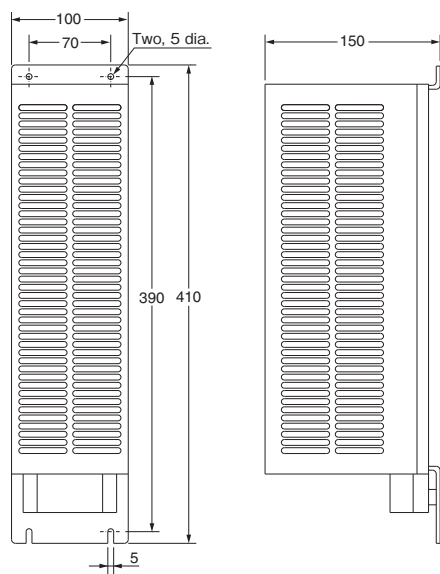


| Model         | Dimensions (mm) |     |     |    |    |     |
|---------------|-----------------|-----|-----|----|----|-----|
|               | L1              | L2  | L3  | L4 | L5 | L6  |
| 3G3AX-RBB2001 | 310             | 295 | 160 | 55 | 70 | 7.5 |
| 3G3AX-RBB2002 | 310             | 295 | 160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

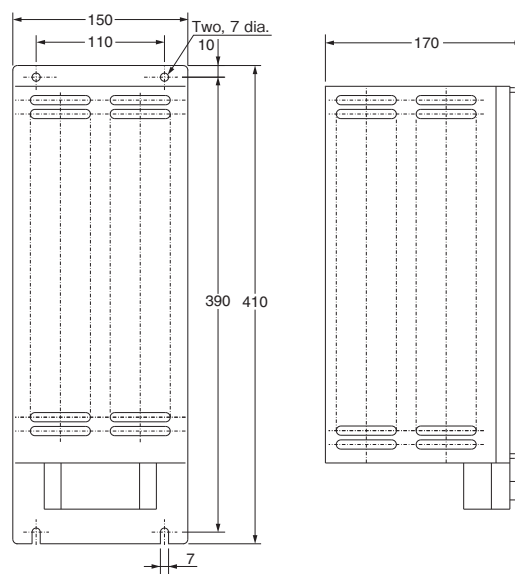
  

| Model         | Dimensions (mm) |    |    |     | Weight (kg) | Screw size |
|---------------|-----------------|----|----|-----|-------------|------------|
|               | H1              | H2 | W  | T   |             |            |
| 3G3AX-RBB2001 | 67              | 12 | 64 | 1.6 | 0.97        | 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-RBC6001



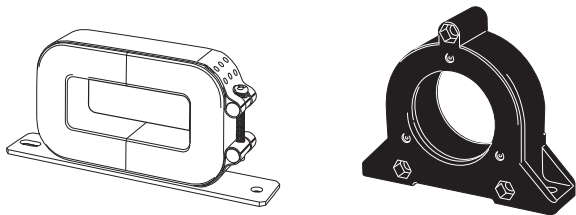
3G3AX-RBC12001



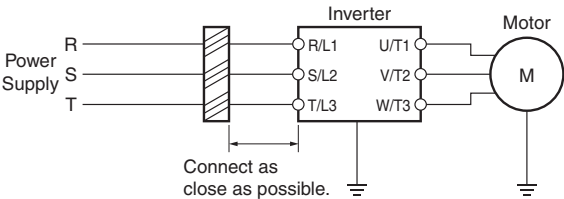
# High-function General-purpose Inverters RX-Series V1 type

## 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<br>Inverter<br>capacity<br>(kW) | 200 V class   |                 |               |                 | 400 V class   |                 |               |                 |
|--------------------------------------------|---------------|-----------------|---------------|-----------------|---------------|-----------------|---------------|-----------------|
|                                            | Input         |                 | output        |                 | Input         |                 | output        |                 |
|                                            | Quan-<br>tity | No. of<br>turns | Quan-<br>tity | No. of<br>turns | Quan-<br>tity | No. of<br>turns | Quan-<br>tity | No. of<br>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               |

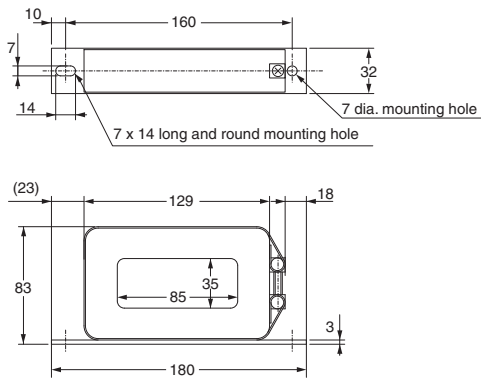
**Note:** Select options by the maximum applicable motor capacity of heavy and light load rating.

### Specifications 3G3AX-ZCL2

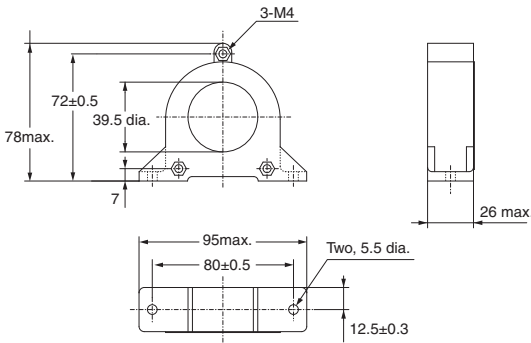
| Applicable<br>Inverter<br>capacity<br>(kW) | 200 V class   |                 |               |                 | 400 V class   |                 |               |                 |
|--------------------------------------------|---------------|-----------------|---------------|-----------------|---------------|-----------------|---------------|-----------------|
|                                            | Input         |                 | output        |                 | Input         |                 | output        |                 |
|                                            | Quan-<br>tity | No. of<br>turns | Quan-<br>tity | No. of<br>turns | Quan-<br>tity | No. of<br>turns | Quan-<br>tity | No. of<br>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               |

### Dimensions (Unit: mm)

#### 3G3AX-ZCL1



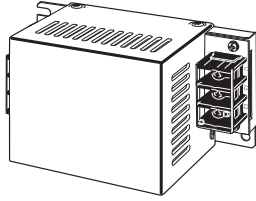
#### 3G3AX-ZCL2



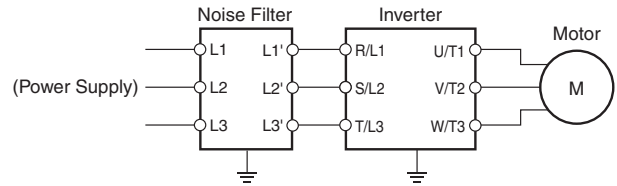
# High-function General-purpose Inverters RX-Series V1 type

## 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



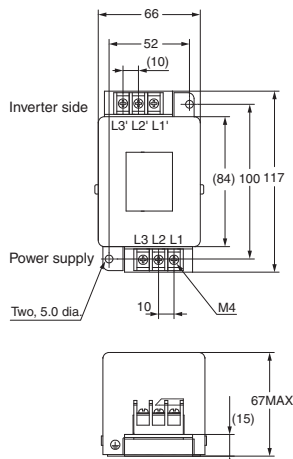
## Specifications

| Voltage class | Max. applicable motor capacity (kw) | Model       | Max. input voltage | Rated input current (at 50°C) | Heat generation (W) | Leakage current at 60 Hz | Case enclosure rating | Terminal size | Wire diameter                                                | Weight (kg) |
|---------------|-------------------------------------|-------------|--------------------|-------------------------------|---------------------|--------------------------|-----------------------|---------------|--------------------------------------------------------------|-------------|
| 200 V class   | 0.4, 0.75                           | 3G3AX-NFI21 | 250V AC +10%       | 6A                            | 3                   | 1.5mA MAX (250V AC)      | Plastic, IP00         | M4            | 1.25 mm <sup>2</sup>                                         | 0.5         |
|               | 1.5                                 | 3G3AX-NFI22 |                    | 10A                           | 4                   |                          | Plastic, IP00         | M4            | 2 mm <sup>2</sup>                                            | 0.6         |
|               | 2.2, 3.7                            | 3G3AX-NFI23 |                    | 20A                           | 6                   |                          | Plastic, IP00         | M4            | 2 mm <sup>2</sup> , 3.5 mm <sup>2</sup>                      | 0.7         |
|               | 5.5                                 | 3G3AX-NFI24 |                    | 30A                           | 9                   |                          | Plastic, IP00         | M4            | 5.5 mm <sup>2</sup>                                          | 0.8         |
|               | 7.5                                 | 3G3AX-NFI25 |                    | 40A                           | 12                  |                          | Plastic, IP00         | M5            | 8 mm <sup>2</sup>                                            | 1.4         |
|               | 11                                  | 3G3AX-NFI26 |                    | 60A                           | 17                  |                          | Plastic, IP00         | M5            | 14 mm <sup>2</sup>                                           | 1.8         |
|               | 15                                  | 3G3AX-NFI27 |                    | 80A                           | 21                  |                          | Metal, IP00           | M6            | 22 mm <sup>2</sup>                                           | 3.6         |
|               | 18.5                                | 3G3AX-NFI28 |                    | 100A                          | 23                  |                          | Metal, IP00           | M8            | 30 mm <sup>2</sup>                                           | 4.6         |
|               | 22, 30                              | 3G3AX-NFI29 |                    | 150A                          | 45                  |                          | Metal, IP00           | M8            | 38 mm <sup>2</sup> , 60 mm <sup>2</sup>                      | 9.0         |
|               | 37                                  | 3G3AX-NFI2A |                    | 200A                          | 50                  |                          | Metal, IP00           | M10           | 100 mm <sup>2</sup> or 38 mm <sup>2</sup> , 2 wires parallel | 16          |
|               | 45                                  | 3G3AX-NFI2B |                    | 250A                          | 68                  |                          | Metal, IP00           | M10           | 100 mm <sup>2</sup> or 38 mm <sup>2</sup> , 2 wires parallel | 16          |
|               | 55                                  | 3G3AX-NFI2C |                    | 300A                          | 56                  |                          | Metal, IP00           | M10           | 150 mm <sup>2</sup> or 60 mm <sup>2</sup> , 2 wires parallel | 23          |
| 400 V class   | 0.4 to 2.2                          | 3G3AX-NFI41 | 480V AC +10%       | 7A                            | 2                   | 7.5mA MAX (480V AC)      | Plastic, IP00         | M4            | 1.25 mm <sup>2</sup> , 2 mm <sup>2</sup>                     | 0.7         |
|               | 3.7                                 | 3G3AX-NFI42 |                    | 10A                           | 4                   |                          | Plastic, IP00         | M4            | 2 mm <sup>2</sup>                                            | 0.7         |
|               | 5.5, 7.5                            | 3G3AX-NFI43 |                    | 20A                           | 6                   |                          | Plastic, IP00         | M4            | 2 mm <sup>2</sup> , 3.5 mm <sup>2</sup>                      | 0.7         |
|               | 11                                  | 3G3AX-NFI44 |                    | 30A                           | 9                   |                          | Plastic, IP00         | M4            | 5.5 mm <sup>2</sup>                                          | 0.8         |
|               | 15                                  | 3G3AX-NFI45 |                    | 40A                           | 12                  |                          | Plastic, IP00         | M5            | 8 mm <sup>2</sup>                                            | 1.4         |
|               | 18.5                                | 3G3AX-NFI46 |                    | 50A                           | 15                  |                          | Plastic, IP00         | M5            | 14 mm <sup>2</sup>                                           | 1.6         |
|               | 22                                  | 3G3AX-NFI47 |                    | 60A                           | 17                  |                          | Plastic, IP00         | M5            | 14 mm <sup>2</sup>                                           | 1.8         |
|               | 30                                  | 3G3AX-NFI48 |                    | 80A                           | 21                  |                          | Metal, IP00           | M6            | 22 mm <sup>2</sup>                                           | 3.6         |
|               | 37                                  | 3G3AX-NFI49 |                    | 100A                          | 23                  |                          | Metal, IP00           | M8            | 38 mm <sup>2</sup>                                           | 4.6         |
|               | 45, 55                              | 3G3AX-NFI4A |                    | 150A                          | 45                  |                          | Metal, IP00           | M8            | 38 mm <sup>2</sup> , 60 mm <sup>2</sup>                      | 9.0         |

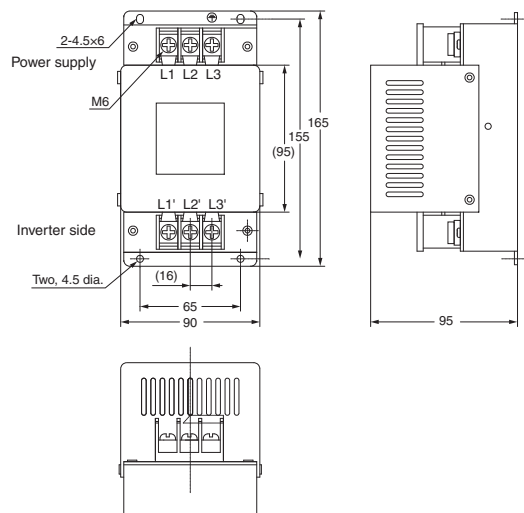
**Note:** Select options by the maximum applicable motor capacity of heavy and light load rating.

## Dimensions (Unit: mm)

3G3AX-NFI21  
3G3AX-NFI22

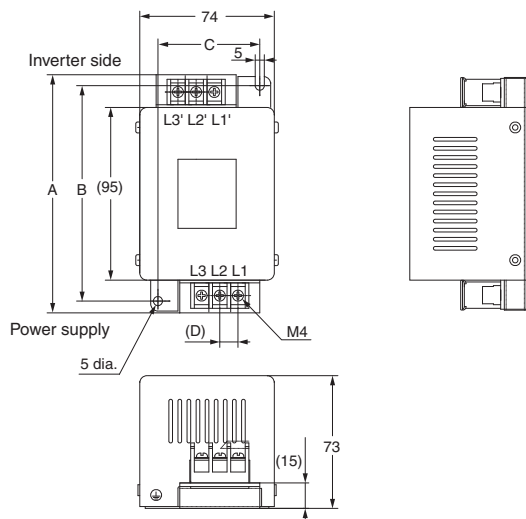


3G3AX-NFI25/3G3AX-NFI26  
3G3AX-NFI45/3G3AX-NFI46  
3G3AX-NFI47



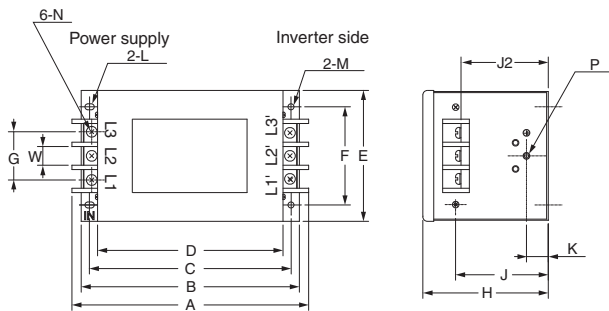
# High-function General-purpose Inverters RX-Series V1 type

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



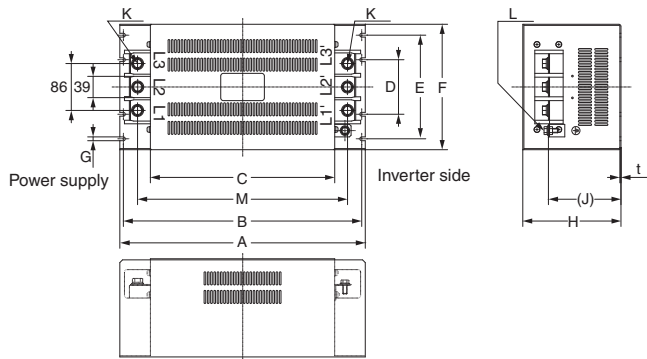
| Model       | Dimensions (mm) |     |    |    |
|-------------|-----------------|-----|----|----|
|             | A               | B   | C  | D  |
| 3G3AX-NFI23 | 128             | 118 | 56 | 10 |
| 3G3AX-NFI24 | 144             | 130 | 56 | 11 |
| 3G3AX-NFI41 | 144             | 130 | 56 | 11 |
| 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 | 82 | 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



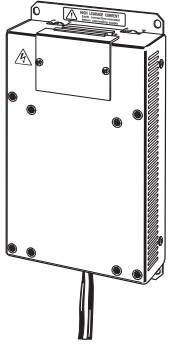
| Model       | Dimensions (mm) |     |     |     |     |     |    |     |       |     |    |     |     |
|-------------|-----------------|-----|-----|-----|-----|-----|----|-----|-------|-----|----|-----|-----|
|             | A               | B   | C   | D   | E   | F   | G  | H   | J     | K   |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

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

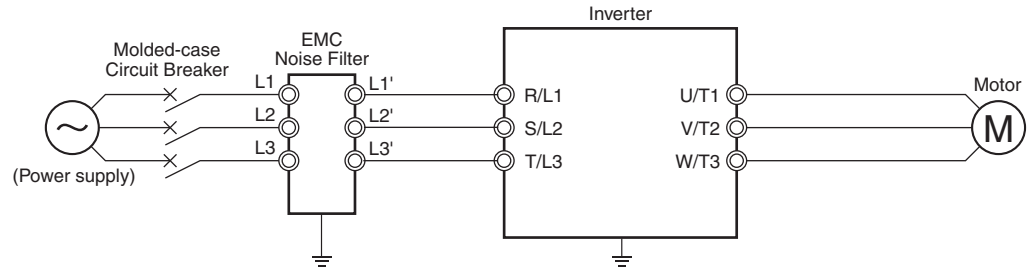
## EMC Noise Filter 3G3AX-EFI□□□

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 RX, it may be necessary to provide another EMC Noise Filter when the cable between the Motor and the Inverter is long.



### Connection Example



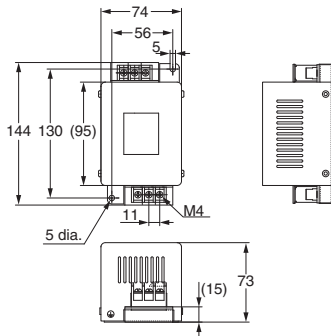
## Specifications

| Voltage class               | Max. applicable motor capacity (kw) |             | Model       | Input current In (A) | Heat generation (W) | Leakage current (480V AC) at 60 Hz | Class | Case enclosure rating | Terminal size | Wire dia.                                                    | Weight (kg) |
|-----------------------------|-------------------------------------|-------------|-------------|----------------------|---------------------|------------------------------------|-------|-----------------------|---------------|--------------------------------------------------------------|-------------|
|                             | 200 V class                         | 400 V class |             |                      |                     |                                    |       |                       |               |                                                              |             |
| 200 V class/<br>400 V class | 0.4, 0.75                           | 0.4 to 2.2  | 3G3AX-EFI41 | 7                    | 4                   | 150mA MAX                          | A     | Plastic, IP00         | M4            | 1.25 mm <sup>2</sup> , 2 mm <sup>2</sup>                     | 0.7         |
|                             | 1.5                                 | 3.7         | 3G3AX-EFI42 | 10                   | 4                   | 150mA MAX                          |       |                       |               | 2 mm <sup>2</sup>                                            | 0.7         |
|                             | 2.2, 3.7                            | 5.5, 7.5    | 3G3AX-EFI43 | 20                   | 8                   | 170mA MAX                          |       |                       | M5            | 2 mm <sup>2</sup> , 3.5 mm <sup>2</sup>                      | 1.0         |
|                             | 5.5                                 | 11          | 3G3AX-EFI44 | 30                   | 9                   | 170mA MAX                          |       |                       |               | 5.5 mm <sup>2</sup>                                          | 1.3         |
|                             | 7.5                                 | 15          | 3G3AX-EFI45 | 40                   | 15                  | 170mA MAX                          |       |                       |               | 8 mm <sup>2</sup>                                            | 1.4         |
|                             | -                                   | 18.5        | 3G3AX-EFI46 | 50                   | 15                  | 250mA MAX                          |       |                       |               | 14 mm <sup>2</sup>                                           | 2.9         |
|                             | 11                                  | 22          | 3G3AX-EFI47 | 60                   | 15                  | 250mA MAX                          |       | Metal, IP00           | M6            | 14 mm <sup>2</sup>                                           | 3.0         |
|                             | 15                                  | 30          | 3G3AX-EFI48 | 80                   | 21                  | 250mA MAX                          |       |                       |               | 22 mm <sup>2</sup>                                           | 3.6         |
|                             | 18.5                                | 37          | 3G3AX-EFI49 | 100                  | 23                  | 250mA MAX                          |       |                       |               | 30 mm <sup>2</sup> , 38 mm <sup>2</sup>                      | 5.0         |
|                             | 22, 30                              | 45, 55      | 3G3AX-EFI4A | 150                  | 45                  | 250mA MAX                          |       |                       | M8            | 38 mm <sup>2</sup> , 60 mm <sup>2</sup>                      | 9.0         |
|                             | 37                                  | 75, 90      | 3G3AX-EFI4B | 200                  | 50                  | 250mA MAX                          |       |                       |               | 100 mm <sup>2</sup> or 38 mm <sup>2</sup> , 2 wires parallel | 16.0        |
|                             |                                     |             |             |                      |                     |                                    |       |                       | M10           |                                                              |             |

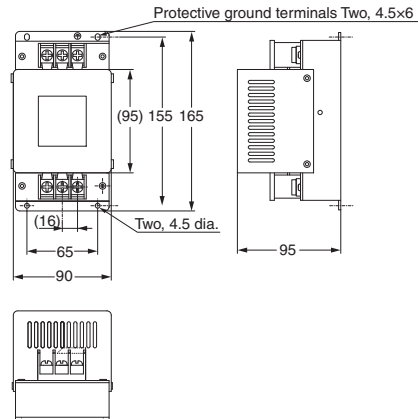
**Note:** Select options by the maximum applicable motor capacity of heavy and light load rating.

## Dimensions (Unit: mm)

3G3AX-EFI41  
3G3AX-EFI42

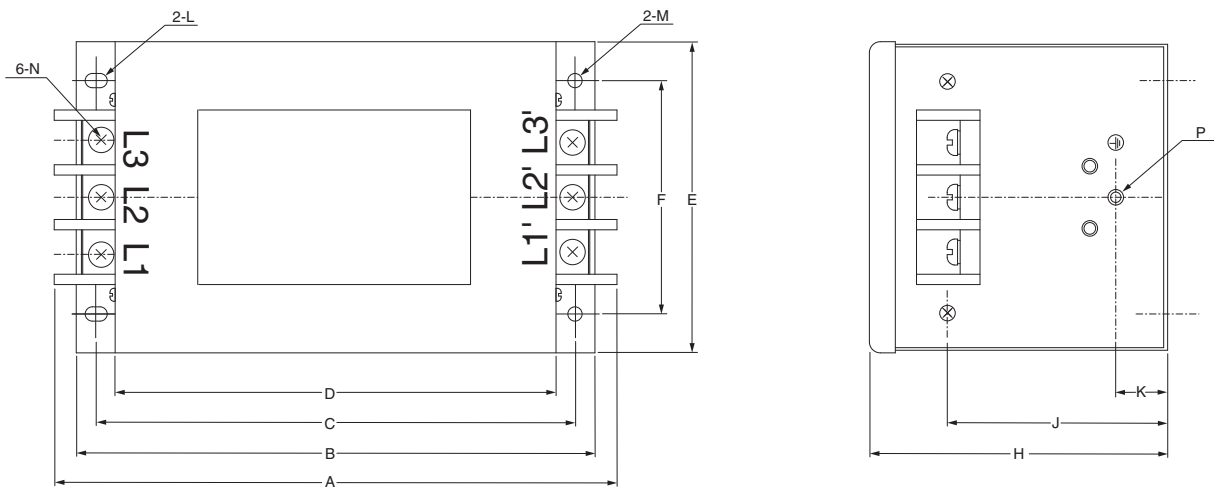


3G3AX-EFI43/3G3AX-EFI44  
3G3AX-EFI45



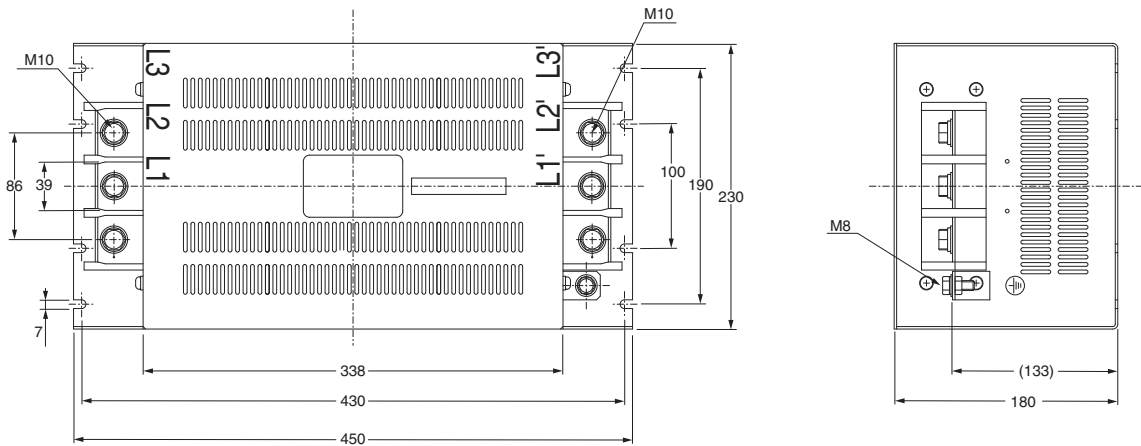
# High-function General-purpose Inverters RX-Series V1 type

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-EFI46 | 217             | 220 | 185 | 170 | 120 | 90  | 115 | 85 | 20 | R2.75<br>Length 7 | 5.5 dia. | M6 | M4 |
| 3G3AX-EFI47 |                 |     |     |     |     |     |     |    |    |                   |          |    |    |
| 3G3AX-EFI48 |                 |     |     |     |     |     |     |    |    |                   |          |    |    |
| 3G3AX-EFI49 | 254             | 230 | 215 | 200 | 150 | 120 | 115 | 80 | 30 | R3.25<br>Length 8 | 6.5 dia. | M8 | M6 |
| 3G3AX-EFI4A | 314             | 300 | 280 | 260 | 200 | 170 | 130 | 90 | 35 | R3.25<br>Length 8 | 6.5 dia. | M8 | M6 |

3G3AX-EFI4B

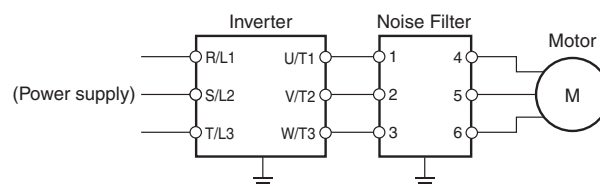
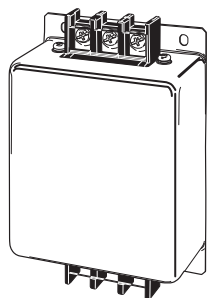


# High-function General-purpose Inverters RX-Series V1 type

## Output Noise Filter 3G3AX-NFO□□

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

### Connection Example

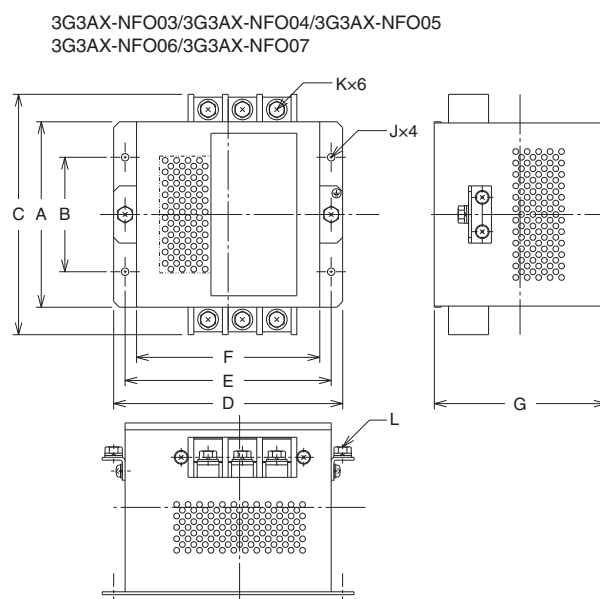
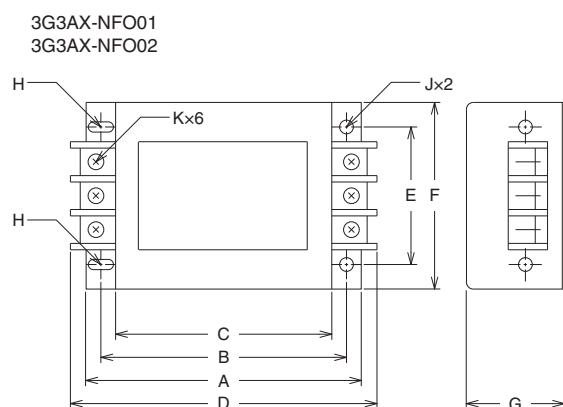


## Specifications

| Max. applicable motor capacity (kW) |             | Model       | Rated voltage | Rated input current (A) | Weight (kg) |
|-------------------------------------|-------------|-------------|---------------|-------------------------|-------------|
| 200 V class                         | 400 V class |             |               |                         |             |
| 0.4, 0.75                           | 0.4 to 2.2  | 3G3AX-NFO01 | 500V AC       | 6                       | 0.7         |
| 1.5, 2.2                            | 3.7         | 3G3AX-NFO02 |               | 12                      | 0.9         |
| 3.7, 5.5                            | 5.5 to 11   | 3G3AX-NFO03 |               | 25                      | 2.1         |
| 7.5, 11                             | 15 to 22    | 3G3AX-NFO04 |               | 50                      | 3.7         |
| 15                                  | 30, 37      | 3G3AX-NFO05 |               | 75                      | 5.7         |
| 18.5, 22                            | 45          | 3G3AX-NFO06 |               | 100                     | 8.4         |
| 30, 37                              | 55, 75      | 3G3AX-NFO07 |               | 150                     | 9           |

**Note:** Select options by the maximum applicable motor capacity of heavy and light load rating.

## Dimensions (Unit: mm)



| Model       | A   | B   | C   | D   | E   | F   | G   | H                        | J           | K  | L  |
|-------------|-----|-----|-----|-----|-----|-----|-----|--------------------------|-------------|----|----|
| 3G3AX-NFO01 | 140 | 125 | 110 | 156 | 70  | 95  | 50  | R: 2.25mm<br>Length: 6mm | 4.5 mm dia. | M4 | -  |
| 3G3AX-NFO02 | 160 | 145 | 130 | 176 | 80  | 110 | 70  | R: 2.75mm<br>Length: 7mm | 5.5 mm dia. | M4 | -  |
| 3G3AX-NFO03 | 112 | 80  | 154 | 160 | 145 | 130 | 120 | -                        | 6.5 mm dia. | M4 | -  |
| 3G3AX-NFO04 | 162 | 100 | 210 | 200 | 180 | 160 | 150 | -                        | 6.5 mm dia. | M5 | M5 |
| 3G3AX-NFO05 | 182 | 100 | 230 | 220 | 200 | 180 | 170 | -                        | 6.5 mm dia. | M6 | M6 |
| 3G3AX-NFO06 | 182 | 100 | 237 | 220 | 200 | 180 | 170 | -                        | 6.5 mm dia. | M8 | M8 |
| 3G3AX-NFO07 | 202 | 150 | 257 | 240 | 220 | 200 | 170 | -                        | 6.5 mm dia. | M8 | M8 |

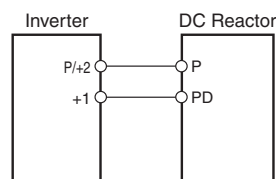
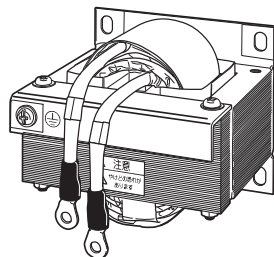
# High-function General-purpose Inverters RX-Series V1 type

## 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

| Voltage class | Model        | Figure No. | Max. applicable motor capacity (kW) | Dimensions (mm) |     |     |     |     |     |     |         |     | Weight (kg) | Standard applicable wire    |
|---------------|--------------|------------|-------------------------------------|-----------------|-----|-----|-----|-----|-----|-----|---------|-----|-------------|-----------------------------|
|               |              |            |                                     | W               | D   | H   | A   | B   | X   | Y   | C       | K   |             |                             |
| 200-V class   | 3G3AX-DL2004 | 1          | 0.4                                 | 66              | 90  | 98  | -   | 95  | 56  | 72  | 5.2 x 8 | M4  | 1.0         | 1.25 mm <sup>2</sup> min.   |
|               | 3G3AX-DL2007 |            | 0.75                                | 66              | 90  | 98  | -   | 105 | 56  | 72  | 5.2 x 8 | M4  | 1.3         | 1.25 mm <sup>2</sup> min.   |
|               | 3G3AX-DL2015 |            | 1.5                                 | 66              | 90  | 98  | -   | 115 | 56  | 72  | 5.2 x 8 | M4  | 1.6         | 2 mm <sup>2</sup> min.      |
|               | 3G3AX-DL2022 |            | 2.2                                 | 86              | 100 | 116 | -   | 105 | 71  | 80  | 6 x 9   | M4  | 2.1         | 2 mm <sup>2</sup> min.      |
|               | 3G3AX-DL2037 |            | 3.7                                 | 86              | 100 | 118 | -   | 120 | 71  | 80  | 6 x 9   | M4  | 2.6         | 3.5 mm <sup>2</sup> min.    |
|               | 3G3AX-DL2055 | 2          | 5.5                                 | 111             | 100 | 210 | -   | 110 | 95  | 80  | 7 x 11  | M5  | 3.6         | 8 mm <sup>2</sup> min.      |
|               | 3G3AX-DL2075 |            | 7.5                                 | 111             | 100 | 212 | -   | 120 | 95  | 80  | 7 x 11  | M6  | 3.9         | 14 mm <sup>2</sup> min.     |
|               | 3G3AX-DL2110 |            | 11                                  | 146             | 120 | 252 | -   | 110 | 124 | 96  | 7 x 11  | M6  | 6.5         | 22 mm <sup>2</sup> min.     |
|               | 3G3AX-DL2150 |            | 15                                  | 146             | 120 | 256 | -   | 120 | 124 | 96  | 7 x 11  | M8  | 7.0         | 38 mm <sup>2</sup> min.     |
|               | 3G3AX-DL2220 | 3          | 18.5, 22                            | 120             | 175 | 356 | 140 | 145 | 98  | 151 | 7 x 11  | M8  | 9.0         | 60 mm <sup>2</sup> min.     |
|               | 3G3AX-DL2300 |            | 30                                  | 120             | 175 | 386 | 155 | 150 | 98  | 151 | 7 x 11  | M8  | 13.0        | 38 mm <sup>2</sup> x 2 min. |
|               | 3G3AX-DL2370 |            | 37                                  | 120             | 175 | 390 | 155 | 150 | 98  | 151 | 7 x 11  | M10 | 13.5        | 38 mm <sup>2</sup> x 2 min. |
|               | 3G3AX-DL2450 |            | 45                                  | 160             | 190 | 420 | 180 | 150 | 120 | 168 | 7 x 11  | M10 | 19.0        | 60 mm <sup>2</sup> x 2 min. |
|               | 3G3AX-DL2550 |            | 55                                  | 160             | 190 | 424 | 180 | 180 | 120 | 168 | 7 x 11  | M12 | 24.0        | 80 mm <sup>2</sup> x 2 min. |
| 400-V class   | 3G3AX-DL4004 | 1          | 0.4                                 | 66              | 90  | 98  | -   | 85  | 56  | 72  | 5.2 x 8 | M4  | 0.8         | 1.25 mm <sup>2</sup> min.   |
|               | 3G3AX-DL4007 |            | 0.75                                | 66              | 90  | 98  | -   | 95  | 56  | 72  | 5.2 x 8 | M4  | 1.1         | 1.25 mm <sup>2</sup> min.   |
|               | 3G3AX-DL4015 |            | 1.5                                 | 66              | 90  | 98  | -   | 115 | 56  | 72  | 5.2 x 8 | M4  | 1.6         | 2 mm <sup>2</sup> min.      |
|               | 3G3AX-DL4022 |            | 2.2                                 | 86              | 100 | 116 | -   | 105 | 71  | 80  | 6 x 9   | M4  | 2.1         | 2 mm <sup>2</sup> min.      |
|               | 3G3AX-DL4037 |            | 3.7                                 | 86              | 100 | 116 | -   | 120 | 71  | 80  | 6 x 9   | M4  | 2.6         | 2 mm <sup>2</sup> min.      |
|               | 3G3AX-DL4055 |            | 5.5                                 | 111             | 100 | 138 | -   | 110 | 95  | 80  | 7 x 11  | M4  | 3.6         | 3.5 mm <sup>2</sup> min.    |
|               | 3G3AX-DL4075 | 2          | 7.5                                 | 111             | 100 | 138 | -   | 115 | 95  | 80  | 7 x 11  | M4  | 3.9         | 3.5 mm <sup>2</sup> min.    |
|               | 3G3AX-DL4110 |            | 11                                  | 146             | 120 | 250 | -   | 105 | 124 | 96  | 7 x 11  | M5  | 5.2         | 5.5 mm <sup>2</sup> min.    |
|               | 3G3AX-DL4150 |            | 15                                  | 146             | 120 | 252 | -   | 120 | 124 | 96  | 7 x 11  | M6  | 7.0         | 14 mm <sup>2</sup> min.     |
|               | 3G3AX-DL4220 | 3          | 18.5, 22                            | 120             | 175 | 352 | 140 | 145 | 98  | 151 | 7 x 11  | M6  | 9.5         | 22 mm <sup>2</sup> min.     |
|               | 3G3AX-DL4300 |            | 30                                  | 120             | 175 | 356 | 140 | 145 | 98  | 151 | 7 x 11  | M8  | 9.5         | 30 mm <sup>2</sup> min.     |
|               | 3G3AX-DL4370 |            | 37                                  | 120             | 175 | 386 | 155 | 150 | 98  | 151 | 7 x 11  | M8  | 13.5        | 38 mm <sup>2</sup> min.     |
|               | 3G3AX-DL4450 |            | 45                                  | 160             | 190 | 416 | 180 | 145 | 120 | 168 | 7 x 11  | M8  | 16.5        | 60 mm <sup>2</sup> min.     |
|               | 3G3AX-DL4550 |            | 55                                  | 160             | 190 | 416 | 190 | 170 | 120 | 168 | 7 x 11  | M8  | 23.0        | 38 mm <sup>2</sup> x 2 min. |

**Note:** Select options by the maximum applicable motor capacity of heavy and light load rating.

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

## Dimensions (Unit: mm)

Fig. 1

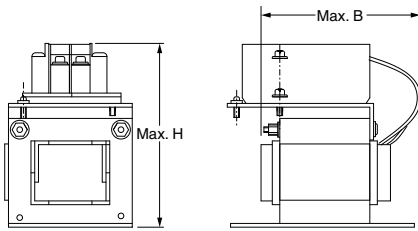
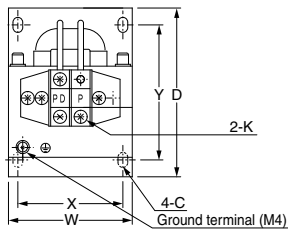


Fig. 2

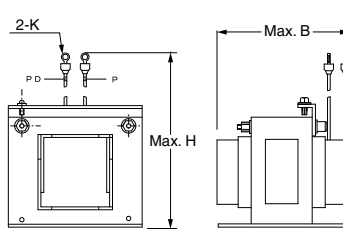
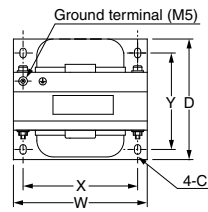
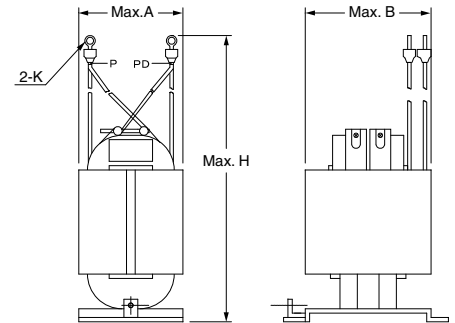
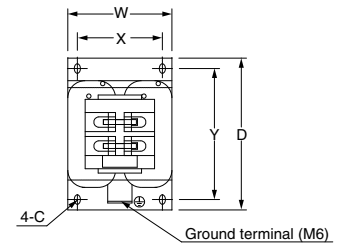


Fig. 3

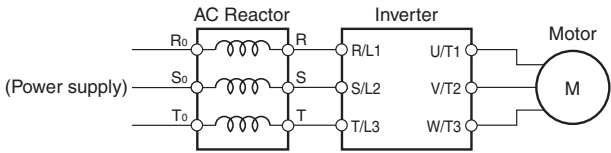
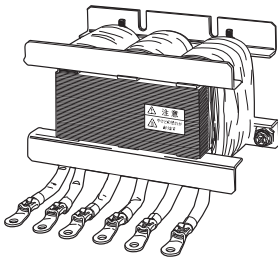


# High-function General-purpose Inverters RX-Series V1 type

## 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



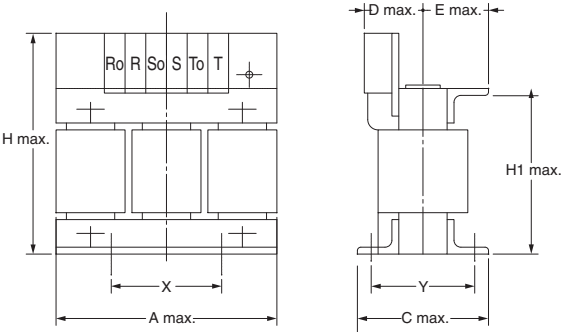
### Specifications

| Voltage class | Model        | Max. applicable motor capacity (kw) | Dimensions (mm) |     |     |    |     |     |     |     | Weight (kg) |
|---------------|--------------|-------------------------------------|-----------------|-----|-----|----|-----|-----|-----|-----|-------------|
|               |              |                                     | A               | C   | D   | E  | H   | H1  | X   | Y   |             |
| 200-V class   | 3G3AX-AL2025 | 0.4 to 1.5                          | 120             | 82  | 60  | 40 | 150 | 94  | 50  | 67  | 2.8         |
|               | 3G3AX-AL2055 | 2.2, 3.7                            | 120             | 98  | 60  | 40 | 150 | 94  | 50  | 75  | 4.0         |
|               | 3G3AX-AL2110 | 5.5, 7.5                            | 150             | 103 | 70  | 55 | 170 | 108 | 60  | 80  | 5.0         |
|               | 3G3AX-AL2220 | 11, 15                              | 180             | 113 | 75  | 55 | 190 | 140 | 90  | 90  | 10.0        |
|               | 3G3AX-AL2330 | 18.5, 22                            | 180             | 113 | 85  | 60 | 230 | 140 | 125 | 90  | 11.0        |
|               | 3G3AX-AL2500 | 30, 37                              | 260             | 113 | 85  | 60 | 290 | 202 | 100 | 90  | 19.0        |
| 400-V class   | 3G3AX-AL2750 | 45, 55                              | 260             | 144 | 110 | 80 | 290 | 207 | 125 | 112 | 25.0        |
|               | 3G3AX-AL4025 | 0.4 to 1.5                          | 130             | 82  | 60  | 40 | 150 | 94  | 50  | 67  | 2.7         |
|               | 3G3AX-AL4055 | 2.2, 3.7                            | 130             | 98  | 60  | 40 | 150 | 94  | 50  | 75  | 4.0         |
|               | 3G3AX-AL4110 | 5.5, 7.5                            | 150             | 116 | 75  | 55 | 170 | 106 | 60  | 98  | 6.0         |
|               | 3G3AX-AL4220 | 11, 15                              | 180             | 103 | 75  | 55 | 190 | 140 | 100 | 80  | 10.0        |
|               | 3G3AX-AL4330 | 18.5, 22                            | 180             | 123 | 85  | 60 | 230 | 140 | 100 | 100 | 11.5        |
|               | 3G3AX-AL4500 | 30, 37                              | 260             | 113 | 85  | 60 | 290 | 202 | 100 | 90  | 19.0        |
|               | 3G3AX-AL4750 | 45, 55                              | 260             | 146 | 110 | 80 | 290 | 207 | 125 | 112 | 25.0        |

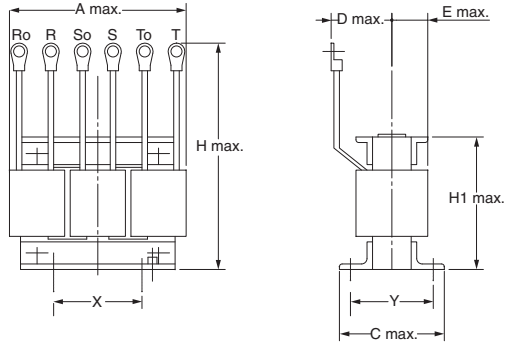
Note: Select options by the maximum applicable motor capacity of heavy and light load rating.

### Dimensions (Unit: mm)

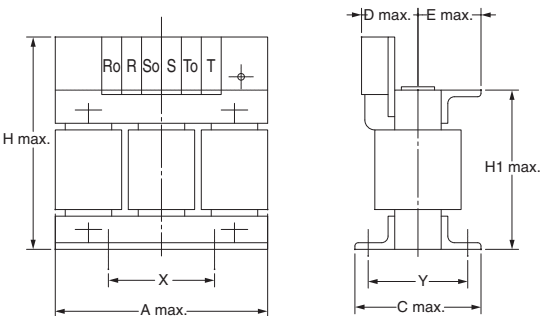
3G3AX-AL2025  
3G3AX-AL2055



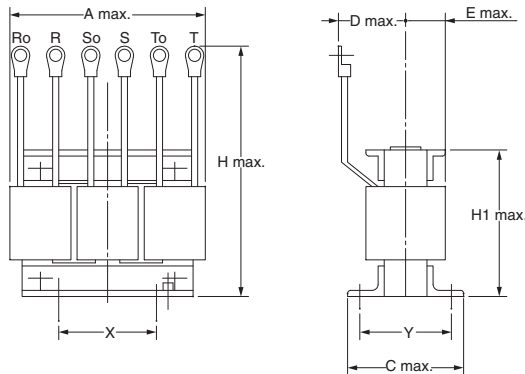
3G3AX-AL2110/3G3AX-AL2220  
3G3AX-AL2330/3G3AX-AL2500/3G3AX-AL2750



3G3AX-AL4025/3G3AX-AL4055  
3G3AX-AL4110



3G3AX-AL4220/3G3AX-AL4330  
3G3AX-AL4500/3G3AX-AL4750

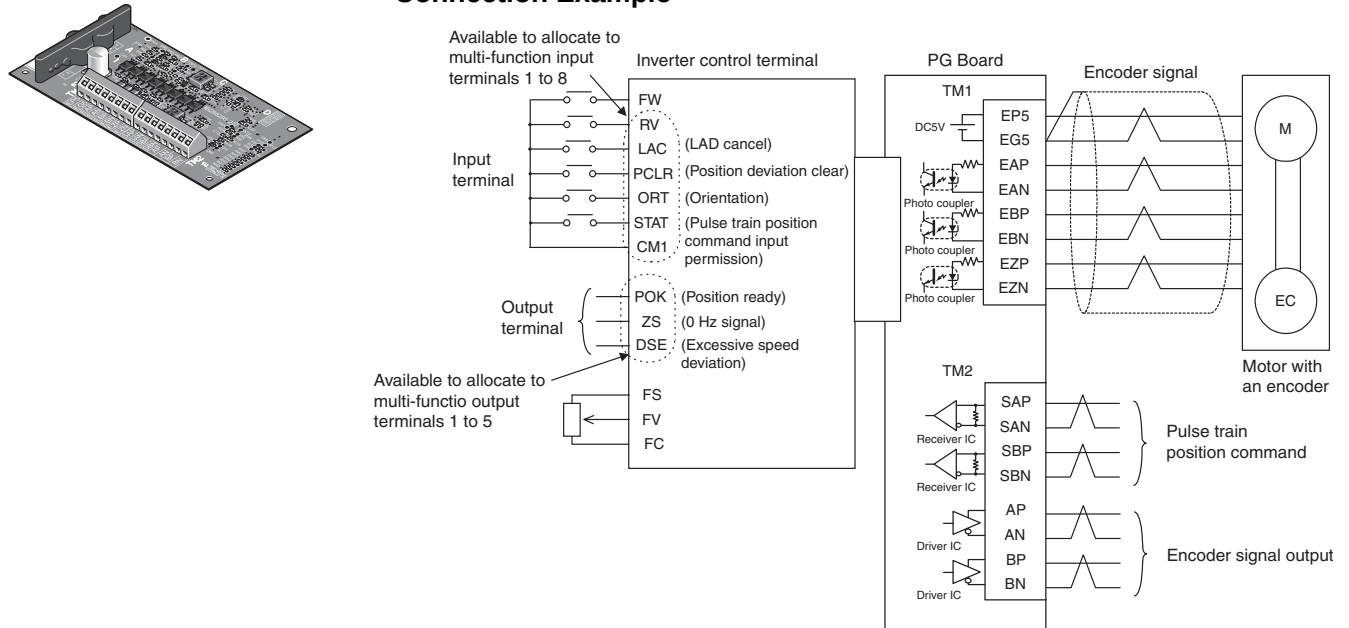


# High-function General-purpose Inverters RX-Series V1 type

## PG Board 3G3AX-PG01

The PG Board (3G3AX-PG01) is an optional board for the 3G3RX Series Inverter. With this board, 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.

### Connection Example



**Note:** For the terminal connection on the Inverter, refer to the Inverter RX series V1 type User's Manual (Man.No. I578).

## Specifications

| Item                 |                      | Specifications                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|----------------------|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Speed control        | Encoder feedback     | Standard number of encoder pulses: 1024 pulses/r<br>Maximum input number of pulses: 100k pulses/s                                                                                                                                                                                                                                                                                                                                                                                                        |
|                      | Speed control system | Proportional integral (PI)/ Proportional (P) control                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Position control     | Position command     | <ul style="list-style-type: none"> <li>The pulse train can be input in three modes.                             <ul style="list-style-type: none"> <li>Mode 0: Pulse train with 90° phase difference</li> <li>Mode 1: Forward/Reverse command + Pulse train</li> <li>Mode 2: Forward pulse train + Reverse pulse train</li> </ul>                             The input mode depends on the Inverter setting.                         </li> <li>Maximum input number of pulses: 100k pulses/s</li> </ul> |
|                      | Electronic gear      | <ul style="list-style-type: none"> <li>Pulse ratio A/B (A, B: 1 to 9999 can be set)</li> <li>Available setting range: <math>1/50 \leq A/B \leq 20</math></li> </ul>                                                                                                                                                                                                                                                                                                                                      |
| Orientation          | Stop position        | • 4096 divisions per one motor rotation *                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|                      | Speed                | • Orientation speed and rotation direction settings available                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Protective functions |                      | <ul style="list-style-type: none"> <li>Encoder cable disconnection protection</li> <li>Overspeed protection (Overspeed error detection level (P026))</li> <li>Positioning error</li> <li>3G3AX-PG connection error</li> </ul>                                                                                                                                                                                                                                                                            |

\* The inverter setting or external input is available.

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

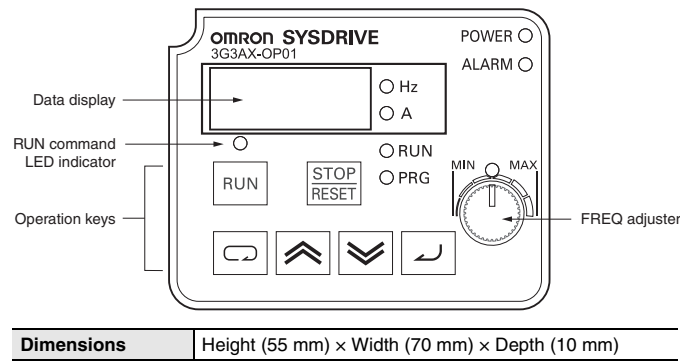
## Digital Operator

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

### 3G3AX-OP01

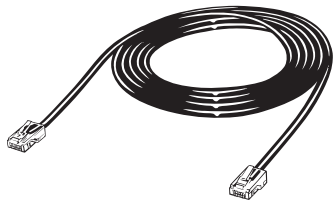


### Dimensions



## Digital operator extension cable 3G3AX-OPCN□

Used to install the Digital Operator away from the Inverter.



3G3AX-OPCN1 (Cable length: 1 m)  
3G3AX-OPCN3 (Cable length: 3 m)

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# Ordering Information

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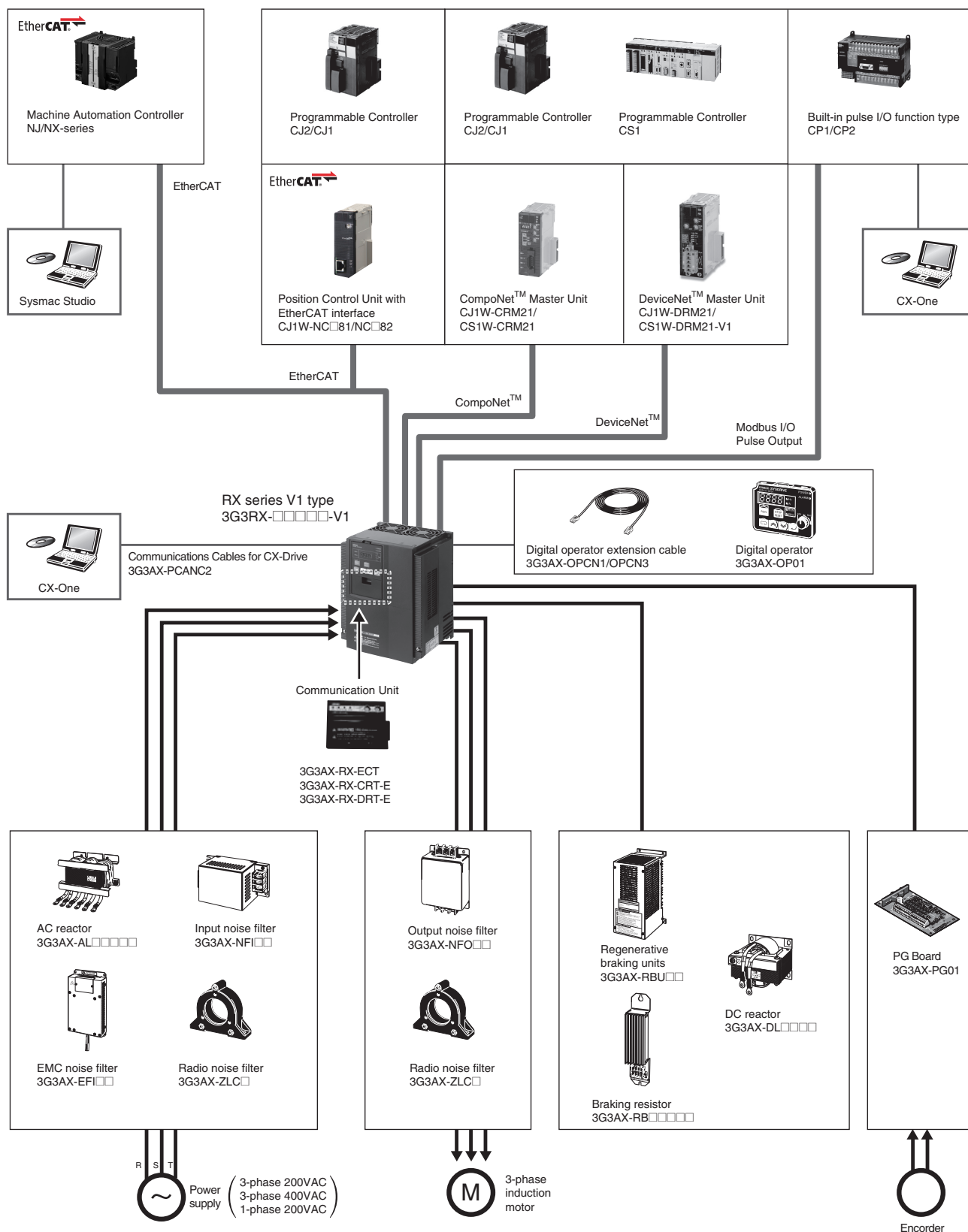
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# High-function General-purpose Inverters RX-Series V1 type

## System Configuration





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

## Communication Unit

| Name                          | Model          |
|-------------------------------|----------------|
| EtherCAT Communication Unit   | 3G3AX-RX-ECT   |
| CompoNet™ Communication Unit  | 3G3AX-RX-CRT-E |
| DeviceNet™ Communication Unit | 3G3AX-RX-DRT-E |

## 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.

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

## 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. However, the table below assumes that your inverter is used in the heavy load mode and connected to a single motor with the same capacity. Therefore, in the light load mode, a motor with the same capacity means a motor that is one size larger in capacity than the inverter and the converted braking torque decreases accordingly.
- 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/Braking 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 |                    | Conne-<br>ction<br>form | Restrictions                                  |                                          |
|------------------|-------------------------------------------------|----------------|----------------------|-----------------------------------------|-------------------|--------------------|------------------|--------------------|-------------------------|-----------------------------------------------|------------------------------------------|
| Voltage<br>class | Max.<br>applicable<br>motor<br>capacity<br>(kW) | Model          | %ED<br>(%)           | Approximate<br>braking<br>torque<br>(%) | Model             | Number<br>of units | Model            | Number<br>of units |                         | Allowable<br>continuous<br>braking<br>time(s) | Min.<br>connectable<br>resistance<br>(Ω) |
| 200-V<br>Class   | 0.4                                             | 3G3RX-A2004-V1 | 3.0%                 | 220%                                    | Built-in Inverter | ---                | 3G3AX-RBA1201    | 1                  | 1                       | 20                                            | 50                                       |
|                  |                                                 |                | 10.0%                | 220%                                    |                   | ---                | 3G3AX-RBB2001    | 1                  | 1                       | 30                                            | 50                                       |
|                  | 0.75                                            | 3G3RX-A2007-V1 | 3.0%                 | 120%                                    | Built-in Inverter | ---                | 3G3AX-RBA1201    | 1                  | 1                       | 20                                            | 50                                       |
|                  |                                                 |                | 10.0%                | 120%                                    |                   | ---                | 3G3AX-RBB2001    | 1                  | 1                       | 30                                            | 50                                       |
|                  | 1.5                                             | 3G3RX-A2015-V1 | 2.5%                 | 110%                                    | Built-in Inverter | ---                | 3G3AX-RBA1202    | 1                  | 1                       | 12                                            | 35                                       |
|                  |                                                 |                | 10.0%                | 215%                                    |                   | ---                | 3G3AX-RBC4001    | 1                  | 1                       | 10                                            | 35                                       |
|                  | 2.2                                             | 3G3RX-A2022-V1 | 3.0%                 | 150%                                    | Built-in Inverter | ---                | 3G3AX-RBB3001    | 1                  | 1                       | 30                                            | 35                                       |
|                  |                                                 |                | 10.0%                | 150%                                    |                   | ---                | 3G3AX-RBC4001    | 1                  | 1                       | 10                                            | 35                                       |
|                  | 3.7                                             | 3G3RX-A2037-V1 | 3.0%                 | 125%                                    | Built-in Inverter | ---                | 3G3AX-RBB4001    | 1                  | 1                       | 20                                            | 35                                       |
|                  |                                                 |                | 10.0%                | 125%                                    |                   | ---                | 3G3AX-RBC6001    | 1                  | 1                       | 10                                            | 35                                       |
|                  | 5.5                                             | 3G3RX-A2055-V1 | 3.0%                 | 120%                                    | Built-in Inverter | ---                | 3G3AX-RBB3001    | 2                  | 2                       | 30                                            | 16                                       |
|                  |                                                 |                | 10.0%                | 120%                                    |                   | ---                | 3G3AX-RBC4001    | 2                  | 2                       | 10                                            | 16                                       |
|                  | 7.5                                             | 3G3RX-A2075-V1 | 3.0%                 | 125%                                    | Built-in Inverter | ---                | 3G3AX-RBB4001    | 2                  | 2                       | 20                                            | 10                                       |
|                  |                                                 |                | 10.0%                | 125%                                    |                   | ---                | 3G3AX-RBC6001    | 2                  | 2                       | 10                                            | 10                                       |
|                  | 11                                              | 3G3RX-A2110-V1 | 3.0%                 | 125%                                    | Built-in Inverter | ---                | 3G3AX-RBB4001    | 3                  | 4                       | 20                                            | 10                                       |
|                  |                                                 |                | 10.0%                | 125%                                    |                   | ---                | 3G3AX-RBC6001    | 3                  | 4                       | 10                                            | 10                                       |
|                  | 15                                              | 3G3RX-A2150-V1 | 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                                            | 3G3RX-A2185-V1 | 3.0%                 | 105%                                    | Built-in Inverter | ---                | 3G3AX-RBC12001   | 2                  | 2                       | 10                                            | 7.5                                      |
|                  |                                                 |                | 10.0%                | 105%                                    |                   | ---                | 3G3AX-RBC12001   | 2                  | 2                       | 10                                            | 7.5                                      |
|                  | 22                                              | 3G3RX-A2220-V1 | 3.0%                 | 130%                                    | Built-in Inverter | ---                | 3G3AX-RBC12001   | 3                  | 4                       | 10                                            | 5                                        |
|                  |                                                 |                | 10.0%                | 130%                                    |                   | ---                | 3G3AX-RBC12001   | 3                  | 4                       | 10                                            | 5                                        |
|                  | 30                                              | 3G3RX-A2300-V1 | 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                                              | 3G3RX-A2370-V1 | 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                                              | 3G3RX-A2450-V1 | 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                                              | 3G3RX-A2550-V1 | 3.0%                 | 120%                                    | 3G3AX-RBU24       | 1                  | 3G3AX-RBC12001   | 7                  | 13                      | 10                                            | 2                                        |
|                  |                                                 |                | 10.0%                | 120%                                    | 3G3AX-RBU24       | 1                  | 3G3AX-RBC12001   | 7                  | 13                      | 10                                            | 2                                        |

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

| 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   | 0.4                                 | 3G3RX-A4004-V1 | 3.0%                 | 220%                           | Built-in Inverter | ---             | 3G3AX-RBA1201    | 2               | 3               | 20                                   | 100                             |
|               |                                     |                | 10.0%                | 220%                           |                   | ---             | 3G3AX-RBB2001    | 2               | 3               | 30                                   | 100                             |
|               | 0.75                                | 3G3RX-A4007-V1 | 3.0%                 | 220%                           | Built-in Inverter | ---             | 3G3AX-RBA1201    | 2               | 3               | 20                                   | 100                             |
|               |                                     |                | 10.0%                | 220%                           |                   | ---             | 3G3AX-RBB2001    | 2               | 3               | 30                                   | 100                             |
|               | 1.5                                 | 3G3RX-A4015-V1 | 3.0%                 | 120%                           | Built-in Inverter | ---             | 3G3AX-RBA1201    | 2               | 3               | 20                                   | 100                             |
|               |                                     |                | 10.0%                | 120%                           |                   | ---             | 3G3AX-RBB2001    | 2               | 3               | 30                                   | 100                             |
|               | 2.2                                 | 3G3RX-A4022-V1 | 2.5%                 | 150%                           | Built-in Inverter | ---             | 3G3AX-RBA1202    | 2               | 3               | 12                                   | 100                             |
|               |                                     |                | 10.0%                | 220%                           |                   | ---             | 3G3AX-RBC4001    | 2               | 3               | 10                                   | 100                             |
|               | 3.7                                 | 3G3RX-A4037-V1 | 3.0%                 | 175%                           | Built-in Inverter | ---             | 3G3AX-RBB3001    | 2               | 3               | 30                                   | 70                              |
|               |                                     |                | 10.0%                | 175%                           |                   | ---             | 3G3AX-RBC4001    | 2               | 3               | 10                                   | 70                              |
|               | 5.5                                 | 3G3RX-A4055-V1 | 3.0%                 | 120%                           | Built-in Inverter | ---             | 3G3AX-RBB3001    | 2               | 3               | 30                                   | 70                              |
|               |                                     |                | 10.0%                | 120%                           |                   | ---             | 3G3AX-RBC4001    | 2               | 3               | 10                                   | 70                              |
|               | 7.5                                 | 3G3RX-A4075-V1 | 3.0%                 | 125%                           | Built-in Inverter | ---             | 3G3AX-RBB4001    | 2               | 3               | 20                                   | 35                              |
|               |                                     |                | 10.0%                | 125%                           |                   | ---             | 3G3AX-RBC6001    | 2               | 3               | 10                                   | 35                              |
|               | 11                                  | 3G3RX-A4110-V1 | 3.0%                 | 120%                           | Built-in Inverter | ---             | 3G3AX-RBB3001    | 4               | 5               | 30                                   | 35                              |
|               |                                     |                | 10.0%                | 120%                           |                   | ---             | 3G3AX-RBC4001    | 4               | 5               | 10                                   | 35                              |
|               | 15                                  | 3G3RX-A4150-V1 | 3.0%                 | 125%                           | Built-in Inverter | ---             | 3G3AX-RBB4001    | 4               | 5               | 20                                   | 24                              |
|               |                                     |                | 10.0%                | 125%                           |                   | ---             | 3G3AX-RBC6001    | 4               | 5               | 10                                   | 24                              |
|               | 18.5                                | 3G3RX-A4185-V1 | 3.0%                 | 140%                           | Built-in Inverter | ---             | 3G3AX-RBB3001    | 8               | 6               | 30                                   | 24                              |
|               |                                     |                | 10.0%                | 140%                           |                   | ---             | 3G3AX-RBC4001    | 8               | 6               | 10                                   | 24                              |
|               | 22                                  | 3G3RX-A4220-V1 | 3.0%                 | 120%                           | Built-in Inverter | ---             | 3G3AX-RBB3001    | 8               | 6               | 30                                   | 20                              |
|               |                                     |                | 10.0%                | 120%                           |                   | ---             | 3G3AX-RBC4001    | 8               | 6               | 10                                   | 20                              |
|               | 30                                  | 3G3RX-A4300-V1 | 3.0%                 | 130%                           | 3G3AX-RBU42       | 1               | 3G3AX-RBC12001   | 4               | 8               | 10                                   | 10                              |
|               |                                     |                | 10.0%                | 130%                           |                   | 1               | 3G3AX-RBC12001   | 4               | 8               | 10                                   | 10                              |
|               | 37                                  | 3G3RX-A4370-V1 | 3.0%                 | 155%                           | 3G3AX-RBU43       | 1               | 3G3AX-RBC12001   | 6               | 9               | 10                                   | 6                               |
|               |                                     |                | 10.0%                | 155%                           |                   | 1               | 3G3AX-RBC12001   | 6               | 9               | 10                                   | 6                               |
|               | 45                                  | 3G3RX-A4450-V1 | 3.0%                 | 130%                           | 3G3AX-RBU43       | 1               | 3G3AX-RBC12001   | 6               | 9               | 10                                   | 6                               |
|               |                                     |                | 10.0%                | 130%                           |                   | 1               | 3G3AX-RBC12001   | 6               | 9               | 10                                   | 6                               |
|               | 55                                  | 3G3RX-A4550-V1 | 3.0%                 | 140%                           | 3G3AX-RBU43       | 1               | 3G3AX-RBC12001   | 8               | 10              | 10                                   | 6                               |
|               |                                     |                | 10.0%                | 140%                           |                   | 1               | 3G3AX-RBC12001   | 8               | 10              | 10                                   | 6                               |
|               | 75                                  | 3G3RX-A4750-V1 | 3.0%                 | 130%                           | 3G3AX-RBU43       | 1               | 3G3AX-RBC12001   | 10              | 14              | 10                                   | 6                               |
|               |                                     |                | 10.0%                | 130%                           |                   | 1               | 3G3AX-RBC12001   | 10              | 14              | 10                                   | 6                               |
|               | 90                                  | 3G3RX-A4900-V1 | 3.0%                 | 105%                           | 3G3AX-RBU43       | 1               | 3G3AX-RBC12001   | 10              | 14              | 10                                   | 6                               |
|               |                                     |                | 10.0%                | 105%                           |                   | 1               | 3G3AX-RBC12001   | 10              | 14              | 10                                   | 6                               |
|               | 110                                 | 3G3RX-A411K-V1 | 3.0%                 | 105%                           | 3G3AX-RBU43       | 2               | 3G3AX-RBC12001   | 12              | 15              | 10                                   | 6                               |
|               |                                     |                | 10.0%                | 105%                           |                   | 2               | 3G3AX-RBC12001   | 12              | 15              | 10                                   | 6                               |
|               | 132                                 | 3G3RX-A413K-V1 | 3.0%                 | 115%                           | 3G3AX-RBU43       | 2               | 3G3AX-RBC12001   | 16              | 16              | 10                                   | 6                               |
|               |                                     |                | 10.0%                | 115%                           |                   | 2               | 3G3AX-RBC12001   | 16              | 16              | 10                                   | 6                               |

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

## 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 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 units connected in parallel |  |

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

|    |                                                                                         |  |
|----|-----------------------------------------------------------------------------------------|--|
| 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 |

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

| Name               | Specifications of Inverter |                     |                     | Model       |
|--------------------|----------------------------|---------------------|---------------------|-------------|
|                    | Voltage class              | CT: Heavy load (kW) | VT: Light load (kW) |             |
| Input Noise Filter | 3-phase 200 VAC            | 0.4 to 0.75         | 0.75                | 3G3AX-NFI21 |
|                    |                            | 1.5                 | 1.5                 | 3G3AX-NFI22 |
|                    |                            | 2.2, 3.7            | 2.2, 3.7            | 3G3AX-NFI23 |
|                    |                            | 5.5                 | 5.5                 | 3G3AX-NFI24 |
|                    |                            | 7.5                 | 7.5                 | 3G3AX-NFI25 |
|                    |                            | 11                  | 11                  | 3G3AX-NFI26 |
|                    |                            | 15                  | 15                  | 3G3AX-NFI27 |
|                    |                            | 18.5                | 18.5                | 3G3AX-NFI28 |
|                    |                            | 22, 30              | 22, 30              | 3G3AX-NFI29 |
|                    |                            | 37                  | 37                  | 3G3AX-NFI2A |
|                    |                            | 45                  | 45                  | 3G3AX-NFI2B |
|                    |                            | 55                  | 55                  | 3G3AX-NFI2C |
|                    | 3-phase 400 VAC            | 0.4 to 2.2          | 0.75 to 2.2         | 3G3AX-NFI41 |
|                    |                            | 3.7                 | 3.7                 | 3G3AX-NFI42 |
|                    |                            | 5.5, 7.5            | 5.5, 7.5            | 3G3AX-NFI43 |
|                    |                            | 11                  | 11                  | 3G3AX-NFI44 |
|                    |                            | 15                  | 15                  | 3G3AX-NFI45 |
|                    |                            | 18.5                | 18.5                | 3G3AX-NFI46 |
|                    |                            | 22                  | 22                  | 3G3AX-NFI47 |
|                    |                            | 30                  | 30                  | 3G3AX-NFI48 |
|                    |                            | 37                  | 37                  | 3G3AX-NFI49 |
|                    |                            | 45, 55              | 45, 55              | 3G3AX-NFI4A |
| EMC Noise Filter * | 3-phase 200 VAC            | 0.4 to 7.5          | 0.75                | 3G3AX-EFI41 |
|                    |                            | 1.5                 | 1.5                 | 3G3AX-EFI42 |
|                    |                            | 2.2, 3.7            | 2.2, 3.7            | 3G3AX-EFI43 |
|                    |                            | 5.5                 | 5.5                 | 3G3AX-EFI44 |
|                    |                            | 7.5                 | 7.5                 | 3G3AX-EFI45 |
|                    |                            | 11                  | 11                  | 3G3AX-EFI47 |
|                    |                            | 15                  | 15                  | 3G3AX-EFI48 |
|                    |                            | 18.5                | 18.5                | 3G3AX-EFI49 |
|                    |                            | 22, 30              | 22, 30              | 3G3AX-EFI4A |
|                    |                            | 37                  | 37                  | 3G3AX-EFI4B |
|                    | 3-phase 400 VAC            | 0.4 to 22           | 0.75 to 2.2         | 3G3AX-EFI41 |
|                    |                            | 3.7                 | 3.7                 | 3G3AX-EFI42 |
|                    |                            | 5.5, 7.5            | 5.5, 7.5            | 3G3AX-EFI43 |
|                    |                            | 11                  | 11                  | 3G3AX-EFI44 |
|                    |                            | 15                  | 15                  | 3G3AX-EFI45 |
|                    |                            | 18.5                | 18.5                | 3G3AX-EFI46 |
|                    |                            | 22                  | 22                  | 3G3AX-EFI47 |
|                    |                            | 30                  | 30                  | 3G3AX-EFI48 |
|                    |                            | 37                  | 37                  | 3G3AX-EFI49 |
|                    |                            | 45, 55              | 45, 55              | 3G3AX-EFI4A |
|                    |                            | 75, 90              | 75, 90              | 3G3AX-EFI4B |

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

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

| Name                | Specifications of Inverter          |                                                                         |                                                                     | Model        |
|---------------------|-------------------------------------|-------------------------------------------------------------------------|---------------------------------------------------------------------|--------------|
|                     | Voltage class                       | CT: Heavy load (kW)                                                     | VT: Light load (kW)                                                 |              |
| Output Noise Filter | 3-phase 200 VAC/<br>3-phase 400 VAC | Applicable motor<br>200 V class: 0.4 to 0.75<br>400 V class: 0.4 to 2.2 | Applicable motor<br>200 V class: 0.75<br>400 V class: 0.75 to 2.2   | 3G3AX-NFO01  |
|                     |                                     | Applicable motor<br>200 V class: 1.5, 2.2<br>400 V class: 3.7           | Applicable motor<br>200 V class: 1.5, 2.2<br>400 V class: 3.7       | 3G3AX-NFO02  |
|                     |                                     | Applicable motor<br>200 V class: 3.7, 5.5<br>400 V class: 5.5 to 11     | Applicable motor<br>200 V class: 3.7, 5.5<br>400 V class: 5.5 to 11 | 3G3AX-NFO03  |
|                     |                                     | Applicable motor<br>200 V class: 7.5, 11<br>400 V class: 15 to 22       | Applicable motor<br>200 V class: 7.5, 11<br>400 V class: 15 to 22   | 3G3AX-NFO04  |
|                     |                                     | Applicable motor<br>200 V class: 15<br>400 V class: 30, 37              | Applicable motor<br>200 V class: 15<br>400 V class: 30, 37          | 3G3AX-NFO05  |
|                     |                                     | Applicable motor<br>200 V class: 18.5, 22<br>400 V class: 45            | Applicable motor<br>200 V class: 18.5, 22<br>400 V class: 45        | 3G3AX-NFO06  |
|                     |                                     | Applicable motor<br>200 V class: 30, 37<br>400 V class: 55, 75          | Applicable motor<br>200 V class: 30, 37<br>400 V class: 55, 75      | 3G3AX-NFO07  |
| DC Reactor          | 3-phase 200 VAC                     | 0.4                                                                     | ---                                                                 | 3G3AX-DL2004 |
|                     |                                     | 0.75                                                                    | 0.75                                                                | 3G3AX-DL2007 |
|                     |                                     | 1.5                                                                     | 1.5                                                                 | 3G3AX-DL2015 |
|                     |                                     | 2.2                                                                     | 2.2                                                                 | 3G3AX-DL2022 |
|                     |                                     | 3.7                                                                     | 3.7                                                                 | 3G3AX-DL2037 |
|                     |                                     | 5.5                                                                     | 5.5                                                                 | 3G3AX-DL2055 |
|                     |                                     | 7.5                                                                     | 7.5                                                                 | 3G3AX-DL2075 |
|                     |                                     | 11                                                                      | 11                                                                  | 3G3AX-DL2110 |
|                     |                                     | 15                                                                      | 15                                                                  | 3G3AX-DL2150 |
|                     |                                     | 18.5, 22                                                                | 18.5, 22                                                            | 3G3AX-DL2220 |
|                     |                                     | 30                                                                      | 30                                                                  | 3G3AX-DL2300 |
|                     |                                     | 37                                                                      | 37                                                                  | 3G3AX-DL2370 |
|                     |                                     | 45                                                                      | 45                                                                  | 3G3AX-DL2450 |
|                     |                                     | 55                                                                      | 55                                                                  | 3G3AX-DL2550 |
|                     | 3-phase 400 VAC                     | 0.4                                                                     | ---                                                                 | 3G3AX-DL4004 |
|                     |                                     | 0.75                                                                    | 0.75                                                                | 3G3AX-DL4007 |
|                     |                                     | 1.5                                                                     | 1.5                                                                 | 3G3AX-DL4015 |
|                     |                                     | 2.2                                                                     | 2.2                                                                 | 3G3AX-DL4022 |
|                     |                                     | 3.7                                                                     | 3.7                                                                 | 3G3AX-DL4037 |
|                     |                                     | 5.5                                                                     | 5.5                                                                 | 3G3AX-DL4055 |
|                     |                                     | 7.5                                                                     | 7.5                                                                 | 3G3AX-DL4075 |
|                     |                                     | 11                                                                      | 11                                                                  | 3G3AX-DL4110 |
|                     |                                     | 15                                                                      | 15                                                                  | 3G3AX-DL4150 |
|                     |                                     | 18.5, 22                                                                | 18.5, 22                                                            | 3G3AX-DL4220 |
|                     |                                     | 30                                                                      | 30                                                                  | 3G3AX-DL4300 |
|                     |                                     | 37                                                                      | 37                                                                  | 3G3AX-DL4370 |
|                     |                                     | 45                                                                      | 45                                                                  | 3G3AX-DL4450 |
|                     |                                     | 55                                                                      | 55                                                                  | 3G3AX-DL4550 |
| AC Reactor          | 3-phase 200 VAC                     | 0.4 to 1.5                                                              | 0.75 to 1.5                                                         | 3G3AX-AL2025 |
|                     |                                     | 2.2, 3.7                                                                | 2.2, 3.7                                                            | 3G3AX-AL2055 |
|                     |                                     | 5.5, 7.5                                                                | 5.5, 7.5                                                            | 3G3AX-AL2110 |
|                     |                                     | 11, 15                                                                  | 11, 15                                                              | 3G3AX-AL2220 |
|                     |                                     | 18.5, 22                                                                | 18.5, 22                                                            | 3G3AX-AL2330 |
|                     |                                     | 30, 37                                                                  | 30, 37                                                              | 3G3AX-AL2500 |
|                     |                                     | 45, 55                                                                  | 45, 55                                                              | 3G3AX-AL2750 |
|                     | 3-phase 400 VAC                     | 0.4 to 1.5                                                              | 0.75 to 1.5                                                         | 3G3AX-AL4025 |
|                     |                                     | 2.2, 3.7                                                                | 2.2, 3.7                                                            | 3G3AX-AL4055 |
|                     |                                     | 5.5, 7.5                                                                | 5.5, 7.5                                                            | 3G3AX-AL4110 |
|                     |                                     | 11, 15                                                                  | 11, 15                                                              | 3G3AX-AL4220 |
|                     |                                     | 18.5, 22                                                                | 18.5, 22                                                            | 3G3AX-AL4330 |
|                     |                                     | 30, 37                                                                  | 30, 37                                                              | 3G3AX-AL4500 |
|                     |                                     | 45, 55                                                                  | 45, 55                                                              | 3G3AX-AL4750 |

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

| Name                              | Specifications                    | Model       |
|-----------------------------------|-----------------------------------|-------------|
| PG Board                          | For Position or Frequency Control | 3G3AX-PG01  |
| Digital Operator                  | ---                               | 3G3AX-OP01  |
| Digital Operator Connecting Cable | Cable Length 1 m                  | 3G3AX-OPCN1 |
|                                   | Cable Length 3 m                  | 3G3AX-OPCN3 |

## Recommended EtherCAT Communications Cables

Use Straight STP (shielded twisted-pair) cable of category 5 or higher with double shielding (braiding and aluminum foil tape) for EtherCAT.

### Cable with Connectors

| Item                                                                                                                                                                                                                                  | Appearance                                                                          | Recommended manufacturer | Cable length (m) | Model                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------|------------------|----------------------|
| Cable with Connectors on Both Ends (RJ45/RJ45)<br>Standard RJ45 plugs type *1<br>Wire Gauge and Number of Pairs: AWG26, 4-pair cable<br>Cable Sheath material: LSZH *2<br>Cable color: Yellow *3                                      |    | OMRON                    | 0.3              | XS6W-6LSZH8SS30CM-Y  |
|                                                                                                                                                                                                                                       |                                                                                     |                          | 0.5              | XS6W-6LSZH8SS50CM-Y  |
|                                                                                                                                                                                                                                       |                                                                                     |                          | 1                | XS6W-6LSZH8SS100CM-Y |
|                                                                                                                                                                                                                                       |                                                                                     |                          | 2                | XS6W-6LSZH8SS200CM-Y |
|                                                                                                                                                                                                                                       |                                                                                     |                          | 3                | XS6W-6LSZH8SS300CM-Y |
|                                                                                                                                                                                                                                       |                                                                                     |                          | 5                | XS6W-6LSZH8SS500CM-Y |
| Cable with Connectors on Both Ends (RJ45/RJ45)<br>Rugged RJ45 plugs type *1<br>Wire Gauge and Number of Pairs: AWG22, 2-pair cable<br>Cable color: Light blue                                                                         |    | OMRON                    | 0.3              | XS5W-T421-AMD-K      |
|                                                                                                                                                                                                                                       |                                                                                     |                          | 0.5              | XS5W-T421-BMD-K      |
|                                                                                                                                                                                                                                       |                                                                                     |                          | 1                | XS5W-T421-CMD-K      |
|                                                                                                                                                                                                                                       |                                                                                     |                          | 2                | XS5W-T421-DMD-K      |
|                                                                                                                                                                                                                                       |                                                                                     |                          | 5                | XS5W-T421-GMD-K      |
|                                                                                                                                                                                                                                       |                                                                                     |                          | 10               | XS5W-T421-JMD-K      |
| Cable with Connectors on Both Ends (M12 Straight/RJ45)<br>Shield Strengthening Connector cable *4<br>M12/Smartclick Connectors<br>Rugged RJ45 plugs type<br>Wire Gauge and Number of Pairs: AWG22, 2-pair cable<br>Cable color: Black |  | OMRON                    | 0.5              | XS5W-T421-BMC-SS     |
|                                                                                                                                                                                                                                       |                                                                                     |                          | 1                | XS5W-T421-CMC-SS     |
|                                                                                                                                                                                                                                       |                                                                                     |                          | 2                | XS5W-T421-DMC-SS     |
|                                                                                                                                                                                                                                       |                                                                                     |                          | 3                | XS5W-T421-EMC-SS     |
|                                                                                                                                                                                                                                       |                                                                                     |                          | 5                | XS5W-T421-GMC-SS     |
|                                                                                                                                                                                                                                       |                                                                                     |                          | 10               | XS5W-T421-JMC-SS     |

\*1 Standard type cables length 0.2, 0.3, 0.5, 1, 1.5, 2, 3, 5, 7.5, 10, 15 and 20 m are available.

Rugged type cables length 0.3, 0.5, 1, 2, 3, 5, 10 and 15 m are available.

For details, refer to Cat.No.G019.

\*2 The lineup features Low Smoke Zero Halogen cables for in-cabinet use and PUR cables for out-of-cabinet use. Although the LSZH cable is single shielded, its communications and noise characteristics meet the standards.

\*3 Cables colors are available in blue, yellow, or Green.

\*4 For details, contact your OMRON representative.

### Cables / Connectors

#### Wire Gauge and Number of Pairs: AWG24, 4-pair Cable

| Item            | Appearance | Recommended manufacturer | Model                         |
|-----------------|------------|--------------------------|-------------------------------|
| Cables          | ---        | Hitachi Metals, Ltd.     | NETSTAR-C5E SAB 0.5 x 4P CP * |
|                 | ---        | Kuramo Electric Co.      | KETH-SB *                     |
| RJ45 Connectors | ---        | Panduit Corporation      | MPS588-C *                    |

\* We recommend you to use above cable and connector together.

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

## Wire Gauge and Number of Pairs: AWG22, 2-pair Cable

| Item                    | Appearance                                                                        | Recommended manufacturer | Model          |
|-------------------------|-----------------------------------------------------------------------------------|--------------------------|----------------|
| Cables                  | ---                                                                               | Kuramo Electric Co.      | KETH-PSB-OMR * |
|                         | ---                                                                               | JMACS Japan Co., Ltd.    | PNET/B *       |
| RJ45 Assembly Connector |  | OMRON                    | XS6G-T421-1 *  |

\* We recommend you to use above cable and connector together.

## Software

### How to Select Required Support Software for Your Controller

The required Support Software depends on the Controller to connect. Please check the following table when purchasing the Support Software.

| Item       | Omron PLC System                                                                                                                                            | Omron Machine Automation Controller System                  |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|
| Controller | CS, CJ, CP, and other series                                                                                                                                | NJ/NX-series                                                |
| Inverter   | Inverter RX-series V1 type<br>Inverter RX-series V1 type with CompoNet™ Communication Unit<br>Inverter RX-series V1 type with DeviceNet™ Communication Unit | Inverter RX-series V1 type with EtherCAT Communication Unit |
| Software   | FA Integrated Tool Package CX-One (CX-Drive: Version 2.72 or higher)                                                                                        | Automation Software Sysmac Studio (Version 1.03 or higher)  |

### FA Integrated Tool Package CX-One

| Product name                                     | Specifications                                                                                                                                                                                                                                                                                                                                                                                                              | Number of licenses | Media | Model                 |
|--------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-------|-----------------------|
| <b>FA Integrated Tool Package CX-One Ver.4.□</b> | The CX-One is a comprehensive software package that integrates Support Software for OMRON PLCs and components.<br><br>CX-One runs on the following OS.<br>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)<br><br>CX-One Version 4.□ includes CX-Drive Ver.2.□.<br>For details, refer to the CX-One catalog (Cat. No. R134) | 1 license *        | DVD   | <b>CXONE-AL01D-V4</b> |

\* Multi licenses (3, 10, 30, or 50 licenses) and DVD media without licenses are also available for the CX-One.

### Automation Software Sysmac Studio

Please purchase a DVD and required number of licenses the first time you purchase the Sysmac Studio. DVDs and licenses are available individually. Each model of licenses does not include any DVD.

| Product name                                   | Specifications                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Number of licenses | Media                      | Model                   |
|------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------------------------|-------------------------|
| <b>Sysmac Studio Standard Edition Ver.1.□□</b> | The Sysmac Studio is the software that provides an integrated environment for setting, programming, debugging and maintenance of machine automation controllers including the NJ/NX-series CPU Units, NY-series Industrial PC, EtherCAT Slave, and the HMI.<br><br>Sysmac Studio runs on the following OS. *1<br>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)/ Windows 11 (64-bit version)<br><br>The Sysmac Studio Standard Edition DVD includes Support Software to set up Ether-Net/IP Units, DeviceNet™ slaves, Serial Communications Units, and Support Software for creating screens on HMIs (CX-Designer).<br>For details, refer to your OMRON website. | - (Media only)     | Sysmac Studio (32 bit) DVD | <b>SYSMAC-SE200D</b>    |
|                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | - (Media only)     | Sysmac Studio (64 bit) DVD | <b>SYSMAC-SE200D-64</b> |
|                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1 license *2       | ---                        | <b>SYSMAC-SE201L</b>    |

\*1 Model "SYSMAC-SE200D-64" runs on Windows 10 (64 bit) or higher.

\*2 Multi licenses are available for the Sysmac Studio (3, 10, 30, or 50 licenses).

## Communications Cable

| Name                              | Specifications                      | Model        |
|-----------------------------------|-------------------------------------|--------------|
| Communications cable for CX-Drive | USB Cable for JX and RX series (2m) | 3G3AX-PCACN2 |

## Overview of Inverter Selection

For detail of Inverter selection, refer to the RX series V1 type User's Manual. (Man.No.I578).

### Motor Capacity Selection

Before selecting an inverter, 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.

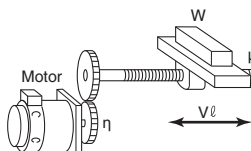
### Make a simple selection (use Formulas for the required output power)

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.

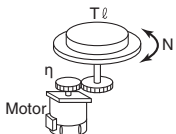
### ●For Straight-Line Operation: Normal Power PO (kW)



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

$\mu$ : Friction Coefficient  
 $W$ : Mass of Straight-Line travelling part (kg)  
 $V \cdot l$ : Speed of Straight-Line Travelling part (m/min)  
 $\eta$ : Decelerator (Transfer part) Efficiency

### ●For Rotating Operation: Normal Power PO (kW)



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

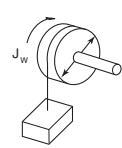
$T_l$ : Load Torque (Load Shaft) (N·m)  
 $N \cdot \eta$ : Load Shaft Rotation Speed (r/min)  
 $\eta$ : Transfer part ( $\eta \leq 1$ )

### 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.

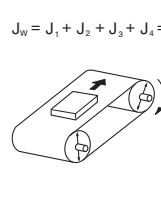
### ●Calculate the inertia with a Motor Shaft Conversion Value

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



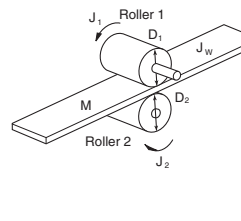
$$J_w = J_1 + J_2 = \left( \frac{M_1 \cdot D_1^2}{8} + \frac{M_2 \cdot D_2^2}{4} \right) \times 10^{-6} \text{ (kg·m}^2\text{)}$$

$J_w$ : Inertia (kg·m<sup>2</sup>)  
 $J_1$ : Cylinder Inertia (kg·m<sup>2</sup>)  
 $J_2$ : Inertia from Object (kg·m<sup>2</sup>)  
 $D$ : Diameter (mm)  
 $M_1$ : Mass of Cylinder (kg)  
 $M_2$ : Mass of Object (kg)



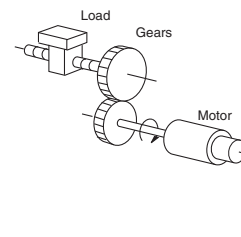
$$J_w = J_1 + J_2 + J_3 + J_4 = \left( \frac{M_1 \cdot D_1^2}{8} + \frac{M_2 \cdot D_2^2}{8} \cdot \frac{D_1^2}{D_2^2} + \frac{M_3 \cdot D_1^2}{4} + \frac{M_4 \cdot D_1^2}{4} \right) \times 10^{-6} \text{ (kg·m}^2\text{)}$$

$J_w$ : Inertia (kg·m<sup>2</sup>)  
 $J_1$ : Cylinder 1 Inertia (kg·m<sup>2</sup>)  
 $J_2$ : Inertia from Cylinder 2 (kg·m<sup>2</sup>)  
 $J_3$ : Inertia from Object (kg·m<sup>2</sup>)  
 $J_4$ : Inertia from Belt (kg·m<sup>2</sup>)  
 $D_1$ : 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)



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

$J_w$ : System Inertia (kg·m<sup>2</sup>)  
 $J_1$ : Roller 1 Inertia (kg·m<sup>2</sup>)  
 $J_2$ : Roller 2 Inertia (kg·m<sup>2</sup>)  
 $D_1$ : Roller 1 Diameter (mm)  
 $D_2$ : Roller 2 Diameter (mm)  
 $M$ : Work Equivalent Mass (kg)



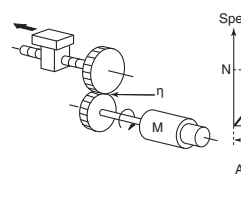
$$J_L = J_1 + G^2 (J_2 + J_w) \text{ (kg·m}^2\text{)}$$

$J_L$ : Load Inertia of Motor Shaft Conversion (kg·m<sup>2</sup>)  
 $J_w$ : Load Inertia (kg·m<sup>2</sup>)  
 $J_1$ : Gear Inertia on Motor Side (kg·m<sup>2</sup>)  
 $J_2$ : Gear Inertia on Load Side (kg·m<sup>2</sup>)  
 $Z_1$ : 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



Speed (Rotations)

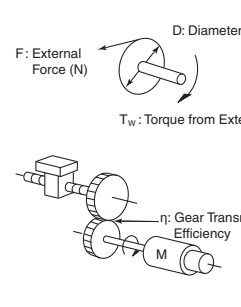
Acceleration Time (s)

Acceleration Torque ( $T_A$ )

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

$T_A$ : Acceleration/Deceleration Torque (N·m)  
 $J_L$ : Motor Shaft Conversion Load Inertia (kg·m<sup>2</sup>)  
 $J_M$ : Inertia of Motor Itself (kg·m<sup>2</sup>)  
 $\eta$ : Gear Transmission Efficiency  
 $N$ : Motor Rotation Speed (r/min)

#### Motor Shaft Conversion Load Torque (External Force/Friction)



$D$ : Diameter (mm)

$F$ : External Force (N)

$T_w$ : Torque from External Force (N·m)

$T_L = T_w \cdot \frac{G}{\eta} \text{ (N·m)}$

$T_1$ : 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  $G = Z_1/Z_2$

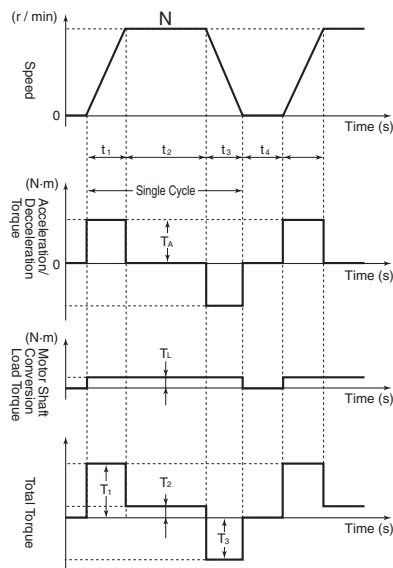
(Friction is generally,  
 $F = \mu W$   $\mu$ : Friction Coefficient  
 $W$ : Mass of Moving Part)

## • Calculation of Total Torque and Effective Torque

Effective Torque:  $T_{RMS}$  (N·m)

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

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

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

N: Maximum Rotations (r/min)

### • Motor Capacity capable of Providing Maximum Torque

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

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 inverter which is one rank larger than the one selected by the above method.

## Outline of Braking Resistor Selection

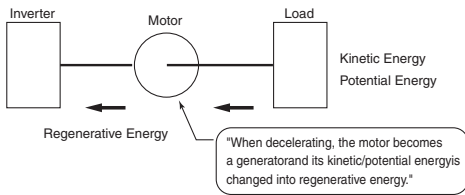
### Importance of Braking Resistor

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 Resistance

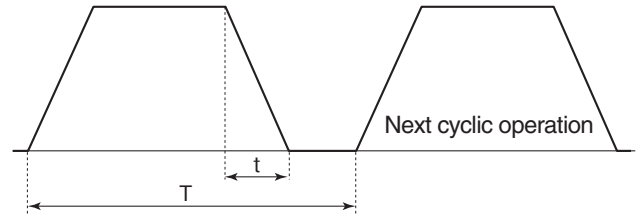
The following are methods to prevent the connection of braking resistance.

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.



$$\text{Usage Rate} = t/T \times 100 (\% \text{ ED})$$

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

(3G3RX Max. 22 kW)

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

(3G3RX Min. 30 kW)

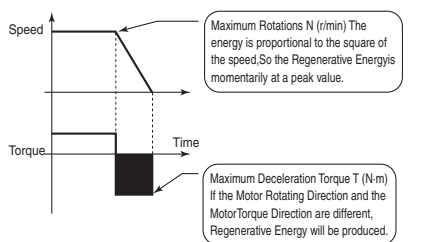
Select the regenerative braking unit and the braking resistor.

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.

# High-function General-purpose Inverters RX-Series

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



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

V: 200V class inverter 385 (V)

400V class inverter 760 (V)

T: Maximum Braking Torque (N·m)

T<sub>m</sub>: Motor Rated Torque (N·m)

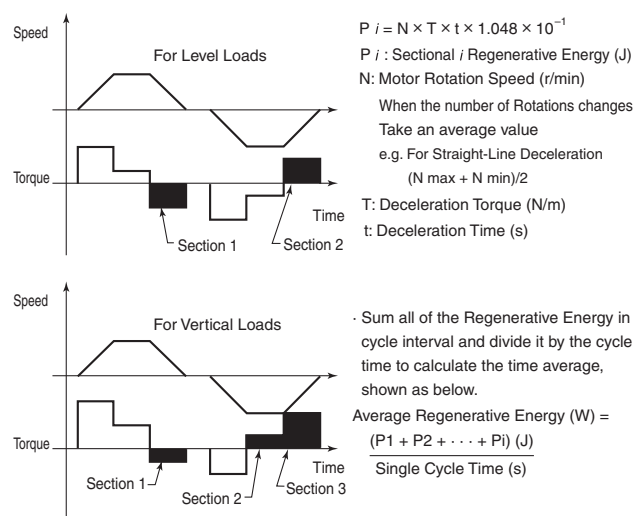
N: Maximum Rotation Speed (r/min)

**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.



**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 Resistance  $\geq$  Resistance of Braking Resistor  $\geq$  Minimum Connection Resistance of Inverter or Regenerative Braking Unit
- Average Regenerative Energy  $\leq$  Permissible Power for Braking Resistor

- Note:** 1. If a resistance that has a less than 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 Resistance( $\Omega$ ) = (Required Braking Resistance as calculated above)  $\times$  (No. of Units in use)
3. Do not use the above formula to select a generative braking resistance value. 150W 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.

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

## Related Manuals

| Man.No. | Model                             | Manual                                                                   |
|---------|-----------------------------------|--------------------------------------------------------------------------|
| I578    | 3G3RX-□□□□□-V1                    | RX-V1 Series High-function General-purpose Inverter USER'S MANUAL        |
| I560    | 3G3RX-□□□□□                       | RX Series High-function General-purpose Inverter USER'S MANUAL           |
| I574    | 3G3AX-MX2-ECT<br>3G3AX-RX-ECT     | MX2 series/RX series V1 type EtherCAT Communication Unit USER'S MANUAL   |
| I581    | 3G3AX-MX2-DRT-E<br>3G3AX-RX-DRT-E | MX2 series/RX series V1 type DeviceNet™ Communication Unit USER'S MANUAL |
| I582    | 3G3AX-MX2-CRT-E<br>3G3AX-RX-CRT-E | MX2 series/RX series V1 type CompoNet™ Communication Unit USER'S MANUAL  |
| I580    | 3G3RX-□□□□□-V1<br>CXONE-AL□□D-V□  | CX-Drive Drive Programming USER'S MANUAL                                 |
| W463    | CXONE-AL□□D-V□                    | CX-One FA Integrated Tool Package SETUP MANUAL                           |
| W453    | CXONE-AL□□D-V□<br>WS02-DRVC01     | CX-Drive OPERATION MANUAL                                                |
| W504    | SYSMAC-SE□                        | Sysmac Studio Version 1 OPERATION MANUAL                                 |

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**CSM\_13\_12**

**Cat. No. I919-E1-05**

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