RHYMEBUS

# AC Motor Drive
# Vector Control

## RM6G1/RM6G1e Series

Multi-function Vector Inverter 0.4kW~500kW

# All-around Motor Drive Technology

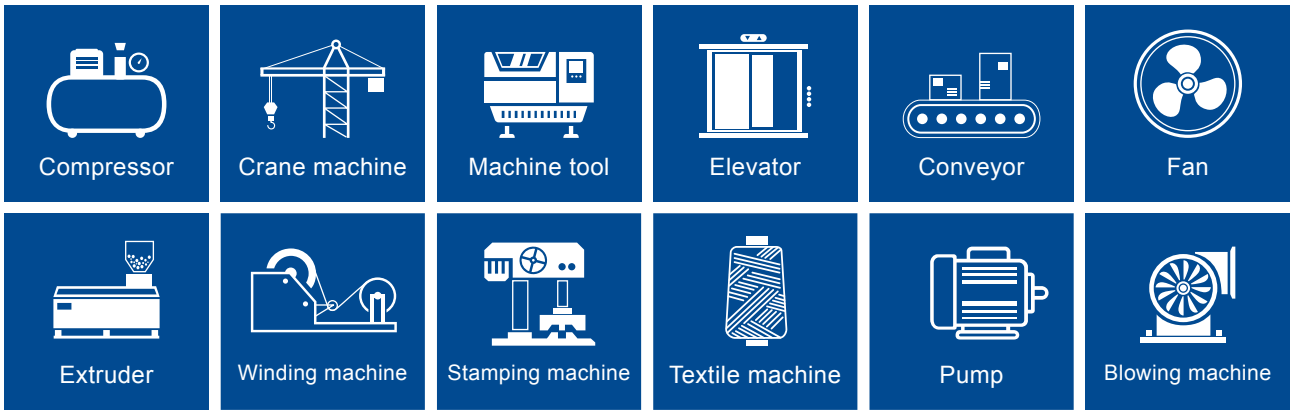
Product series are fully upgraded to keep up with the newest trend of motor control methods

## Vector Control Technology

Control core includes sensorless vector control technology which can precisely control motor without encoder. And besides that, using encoder pairs with Vector control technology can easily achieve the demand of fast speed response and accurate speed control. Meanwhile, it can also achieve simple position control and zero-speed control.

With static Auto-tuning, inverter can get the motor parameter or use dynamic Auto-tuning if you need more accurate system parameters. This technology can effectively decrease adjustment downtime and optimize the matching between motor and inverter.

### Applications




## 6 in 1 Motor Control

| | V/F Control | V/F Control+feedback* | IM Sensorless vector control | IM vector control* | PM Sensorless vector control | PM vector control* |
|---|---|---|---|---|---|---|
| Speed control range | 1:40 | 1:120 | 1:120 | 1:1500 | 1:100 | 1:1500 |
| Speed control accuracy | ±3% | ±0.02% | ±0.2% | ±0.02% | ±0.2% | ±0.02% |
| Speed response | 3Hz | 3Hz | >10Hz | >50Hz | >10Hz | >50Hz |
| Start torque | 150% @ 3Hz | 100% @ 0.5Hz | 200% @ 1Hz | 200% @ 0Hz | 100% @ 2% rated speed | 200% @ 0Hz |

This table are affected by motor spec, control structure and characteristic. For reference only.
*RM6G1e doesn't support encoder speed feedback.

# High Compatible and Adaptable

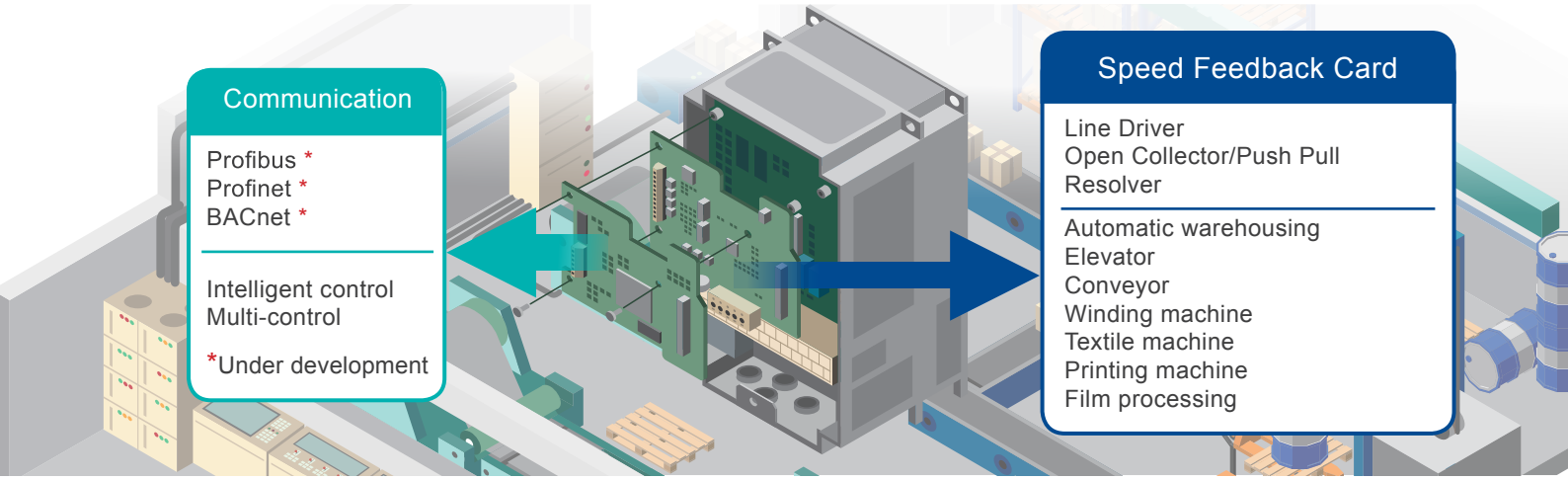
RM6G1 series offer various solutions which trustworthy

## Normal Duty Mode and Heavy Duty Mode in One Inverter

You can set inverter to normal or heavy duty mode with parameters.

## Multiple Communication Interfaces

Built-in RS-485 Modbus, the fastest communication speed is 115,200 bps. And besides that, it supports multiple communication cards to help you handle data and manage your machine.




## Various Control Experience

### PID Control

Air Compressor, HVAC, Pump

Built-in two-stage PID control function, including speed, pressure, flow, temperature control...etc. If inverter doesn't need any PID control, it can be shared with other machine to reduce cost.

### S-curve Control

Elevator, Conveyer

S-curve control can improve the comfortability and stability of elevator.

### 16 Sets Sequence Control

Dryer, Mixer, Textile Machine

It can set up with some algorithms, such as cycle, count, direction, time to simplify the PLC setting.

### KEB

Textile Machine

When interruption of power supply occurred, KEB function will turn on and use motor's regeneration power to slow down motor frequency. This function can prevent yarn from breaking.

### Pulse Input and Output

Stamping Press Machine, Textile Machine, PLC Application

Built-in one set pulse input and output terminals to expand the scope of application.

### Torque Control

Winding Machine

This control method can keep tension stable, restraining the looseness and uneven of winding.

# Safety Is Our First Priority

Safety is one of the most important function of inverters. Rhymebus never compromise

## Functions for Reliability

### Sudden Interruption of Power Supply

- Built-in speed search function. When a power supply recovers, it can automatically start to reach to the original speed. Suitable for fan, blowing machine... etc.
- KEB: When inverter detects the interruption, it can automatically control the motor to stop without power supply. This function can avoid the motor in the free run situation and cause the equipment damage. Suitable for machine tools.

### Surge Countermeasure

Built-in power and surge absorber can effectively reduce the damage done by high voltage surge.

### Motor Overheat Protection

Pair with various temperature sensor (PTC / NTC/ PT100/ RTD392/ KTY84), inverter can send waring or even stop machines when the motor is overheated.

## Safety

### In Line with International Standards

RM6G1 series complies UL, cUL(UL508c, CSA C22.2 NO.14-05), RoHS2.0 and REACH.

### Safe Torque Off (STO)

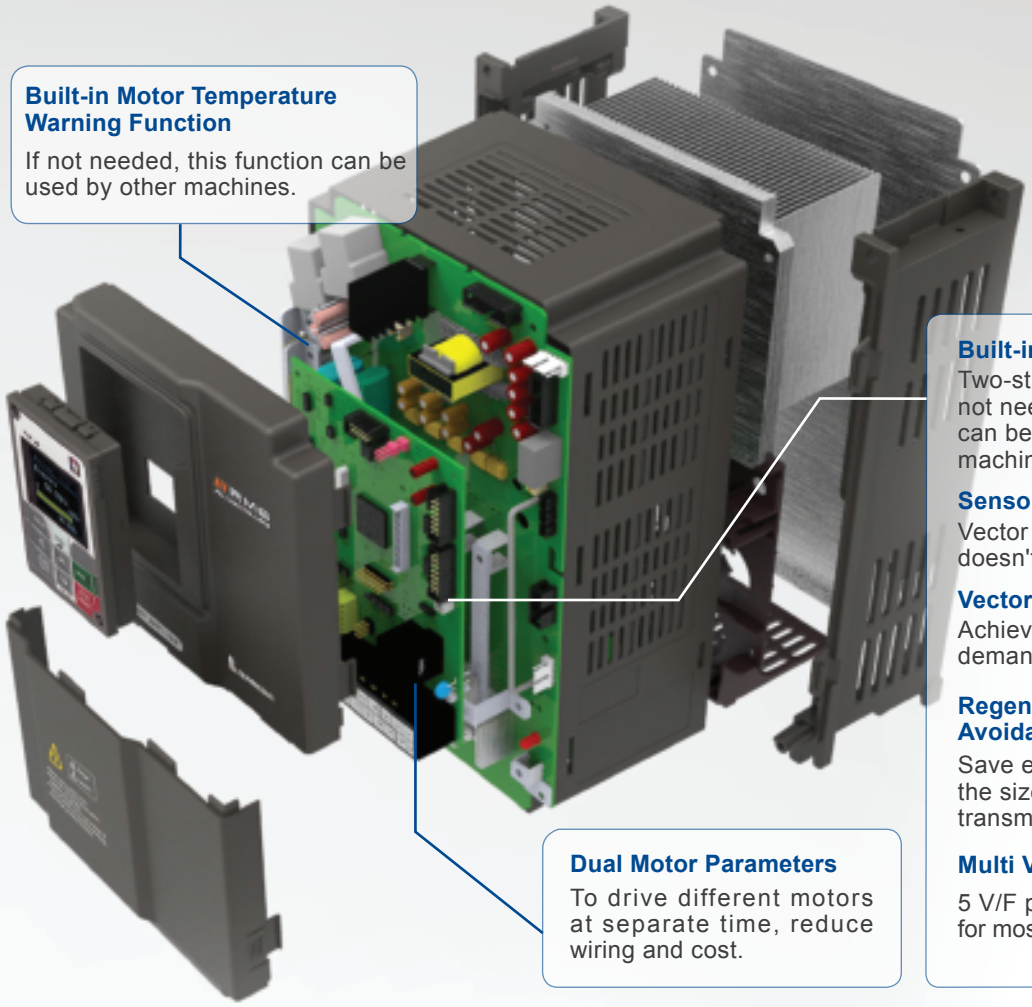
Built-in STO function constructs high safety system. In the meanwhile, it has safety switch output terminals, too.

### Safety Function

Built-in safety functions, such as stall prevention, overvoltage suppression, over exciting braking, high slip braking, dynamic braking.

# Inverter – Not Only Saving Energy

Simplifying wiring, reducing space usage and cost



**Built-in Motor Temperature Warning Function**
If not needed, this function can be used by other machines.

**Dual Motor Parameters**
To drive different motors at separate time, reduce wiring and cost.

**Built-in PID**
Two-stage PID control. If not needed, this function can be used by other machines.

**Sensorless Vector Control**
Vector control which doesn't need encoder.

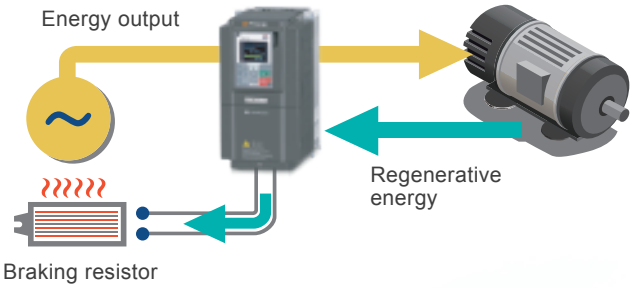
**Vector Control**
Achieve high accuracy demand.

**Regeneration Avoidance Function**
Save energy and reduce the size of braking transmitter and resistor.

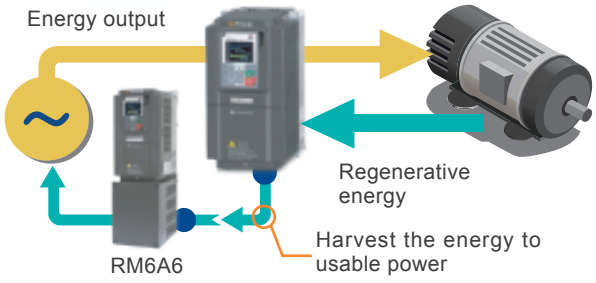
**Multi V/F Pattern**
5 V/F patterns are suitable for most types of loads.

## Enhanced Energy Saving - Power Regeneration

Replace braking resistor with RM6A6 (power regenerative unit) to regenerate regen-power of motor back to grid. Reduce the cost and heat of braking resistor and keep machine operation smooth and safe at the same time.




**Braking Resistor**



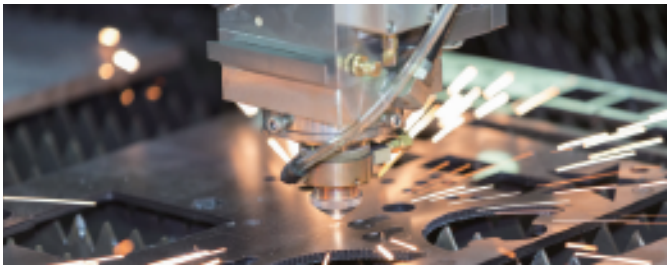

**Power Regenerative**

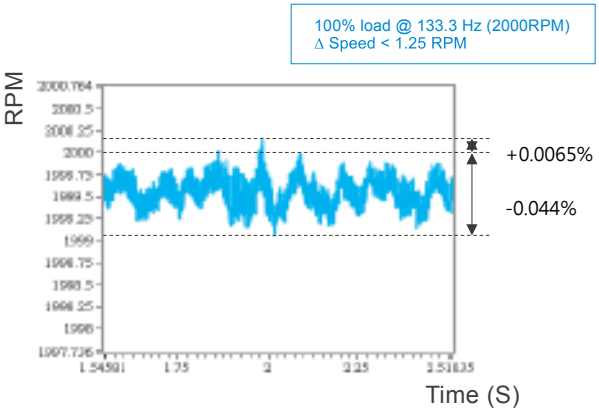
**Suitable Machines:** High inertia, four quadrant loads, rapidly deceleration and constant braking. For example, textile drafting machine, Plano machining center, elevator, lifting crane, stamping press machine and automatic warehous system.

**Intelligent Parallel Operation:** Automatically detect DC voltage level, capable of connecting multiple RM6A6 in parallel to match different motor spec without interfering operation.

## High Speed Accuracy at Steady State

Speed deviation at steady state can be below 0.05%, which is suitable for automatic warehouse system, textile machine, metal sawing machine and servo injection molding machine.

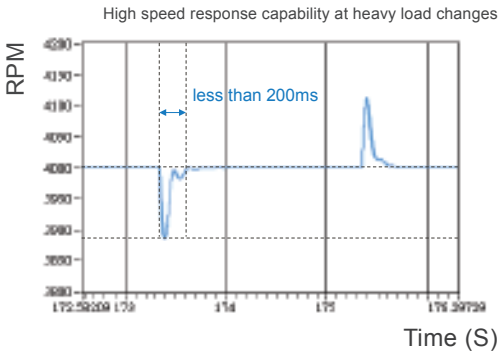





Motor: permanent magnet motor(20hp 8-pole)
Control Condition: Sensorless

## High Torque Output

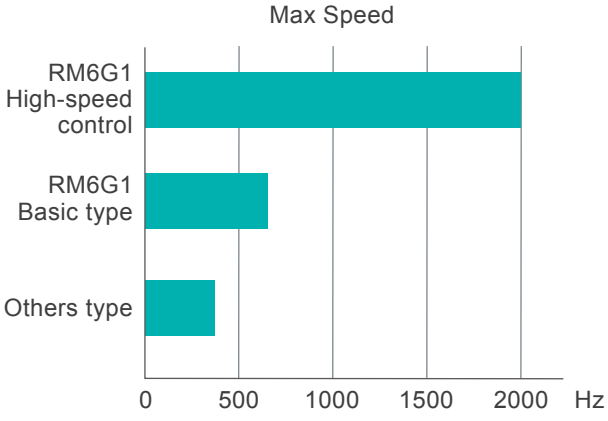
Using sensorless vector control is able to achieve 200% rated torque at extreme low speed. Suitable for high starting torque or heavy-duty machine such as construction construction works machine, tunnel boring machine, air compressor, drilling machine, elevator or crane.




Motor: permanent magnet motor(20hp 8-pole)
Control Condition: Sensorless

## Swift Compensation of Speed at Changing Load

Motor speed will suddenly decrease as load increases, this reduces the quality of processing. With high speed response capability, inverter can drive motor back to the setting frequency in short time. Suitable for stamping press machine, air compressor, metal bandsaw machine and servo hydraulic system.




## High Output Frequency

RM6G1 standard series can reach 600Hz, high speed series can reach 2000Hz. Suitable for high speed spindle, optical polishing and active magnetic bearing centrifugal compressor.

# Intuitive Design

We listen our users's advices to help user find the shortcut they need

## Keypad Evolution

LCD KP-602 supports full color LCD display and multiple languages. It can display text on the screen and can display full parameter name which will reduce the workload when adjusting parameters.


## Parameters Grouping

To optimize parameter setting speed, we group parameters according to their functions.


## PC Tool Optimize Management

Rhymebus PC tool uses Microsoft Windows as the main platform, which can manage and store parameters. Speed up maintenance process.

## Bluetooth Control

With Bluetooth module and Android app, users can control inverters at dangerous field remotely.

## Overall Factory Management

### Predictive Maintenance

RM6G1 series can record 10 sets of error histories, each history can record up to 16 statuses which make problem solving easier. It can also set temperature warning level. Besides, in all series cooling fans can be controlled to run at starting or temperature setpoint.

### Rich Operating Information

RM6G1 series offer lots of data during operation to help you manage the factory, including kWh accumulation value, energy usage, power factor and operation/electric supply time.

## Keypad Introduction

Full color LCD & multilingual keypad
KP-602 (optional)

**1** **Light on:** primary frequency command is set up by keypad or UP/DOWN terminal.
**Light off:** Primary frequency command is set up by multi-functional terminal.

**2**
1. Enter the function setting mode.
2. Back to the monitor mode.

**3**
1. Enter the parameter setting mode.
2. Back to the function setting mode.
3. Switch the monitor mode.

**4** Adjust setting mode and parameters

**5** Dispaly

**6** Indicator (standard keypad only)

**7** Frequency pot (standard keypad only)

**8** Drive start key：
1. Blinking: accelerating/ decelerating.
2. Light on: constant speed.
3. Light off: stops.

**9**
1. Drive stops (cut off the output frequency of terminals)
2. Fault reset

LED basic keypd
KP-601A

## Model Number Scheme

**Product Series**
RM6G1
RM6G1e

**Input Voltage**
2 : AC 200~240V
4 : AC 380~480V

RM6G1e – 2 A005 B 3

**Model Number**
Rated current (normal duty)

**Input Power**
1 : Single-phase
3 : Three-phase

**Brake Type**
B : Built-in braking transistor
E : Without braking transistor

## RM6G1e Specifications (3 in 1)

| Model Case (RM6G1e- □ A □□□□□ ) | | 2A005B1 | 2A007B1 | 2A010B1 | 2A005B3 | 2A007B3 | 2A010B3 | 2A016B3 | 2A022B3 | 4A003B3 | 4A004B3 | 4A005B3 | 4A009B3 | 4A012B3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Maximum Applicable Motor (HP/kW) | Heavy duty | 0.5 0.4 | 1 0.75 | 2 1.5 | 0.5 0.4 | 1 0.75 | 2 1.5 | 3 2.2 | 5 3.7 | 0.5 0.4 | 1 0.75 | 2 1.5 | 3 2.2 | 5 3.7 |
| | Normal duty | 1 0.75 | 2 1.5 | 3 2.2 | 1 0.75 | 2 1.5 | 3 2.2 | 5 3.7 | 7.5 5.5 | 1 0.75 | 2 1.5 | 3 2.2 | 5 3.7 | 7.5 5.5 |
| Rated Output Capacity ( kVA) | Heavy duty | 1.1 | 1.9 | 3 | 1.1 | 1.9 | 3 | 4.2 | 6.5 | 1.1 | 1.9 | 3 | 4.6 | 6.9 |
| | Normal duty | 1.6 | 2.6 | 3.8 | 1.6 | 2.6 | 3.8 | 5.8 | 8.1 | 1.8 | 2.7 | 3.8 | 6.9 | 8.6 |
| Rated Output Current ( A) | Heavy duty | 3 | 5 | 8 | 3 | 5 | 8 | 11 | 17 | 1.5 | 2.5 | 4 | 6 | 9 |
| | Normal duty | 4.2 | 6.8 | 10 | 4.2 | 6.8 | 10 | 15.2 | 21.3 | 2.4 | 3.5 | 5 | 9 | 11.3 |
| Maximum Output Voltage (V) | | Three-phase 200~240V(Correspond to input voltage) | | | | | | | | Three-phase 380~480V(Correspond to input voltage) | | | | |
| Range of Output Frequency (Hz) | | 0.1~600.00Hz | | | | | | | | | | | | |
| Power Source (ø, V, Hz) | | Single-phase 200~240V 50/60Hz | | | Three-phase 200~240V 50/60Hz | | | | | Three-phase 380~480V 50/60Hz | | | | |
| Input Current (A) | Heavy duty | 7 | 13.5 | 19 | 4 | 6 | 10 | 14 | 18 | 2 | 3.5 | 5 | 8 | 12 |
| | Normal duty | 9.7 | 18.1 | 23.8 | 5 | 8 | 12 | 18 | 25.2 | 2.8 | 4.2 | 6 | 12 | 13.4 |
| Permissible AC Power Source Fluctuation | | 170~264V 50/60Hz / ±5% | | | | | | | | 323~528V 50/60Hz / ±5% | | | | |
| Overload Protection | Heavy duty | 150% of drive rated output current for 1 min | | | | | | | | | | | | |
| | Normal duty | 120% of drive rated output current for 1 min | | | | | | | | | | | | |
| Cooling Type | | Natural cooling | | Fan cooling | Natural cooling | | Fan cooling | | | Natural cooling | | Fan cooling | | |
| Applicable Safety Standards | | UL508C, CSA C22.2 No.14-05, EN61800-3, EN61800-5-1 | | | | | | | | | | | | |
| Protective Structure | | IP20 | | | | | | | | | | | | |
| Weight (kg) | | 1.8 | 1.8 | 1.9 | 1.8 | 1.8 | 1.8 | 2.0 | 2.1 | 1.8 | 1.8 | 1.9 | 2.0 | 2.0 |
| Case Code | | Case1 | | | | | | | | | | | | |

# RM6G1 Three-phase 200V Specifications

| Model Case (RM6G1-2A □□□ B3/E3) | | 005 | 007 | 010 | 016 | 022 | 031 | 042 | 060 | 075 | 090 | 112 | 150 | 185 | 220 | 275 | 346 | 410 | 500 | 700 | 840 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Maximum Applicable Motor (HP/kW) | Heavy duty | 0.5 / 0.4 | 1 / 0.75 | 2 / 1.5 | 3 / 2.2 | 5 / 3.7 | 7.5 / 5.5 | 10 / 7.5 | 15 / 11 | 20 / 15 | 25 / 18.5 | 30 / 22 | 40 / 30 | 50 / 37 | 60 / 45 | 75 / 55 | 100 / 75 | 125 / 90 | 150 / 110 | 200 / 160 | 250 / 185 |
| | Normal duty | 1 / 0.75 | 2 / 1.5 | 3 / 2.2 | 5 / 3.7 | 7.5 / 5.5 | 10 / 7.5 | 15 / 11 | 20 / 15 | 25 / 18.5 | 30 / 22 | 40 / 30 | 50 / 37 | 60 / 45 | 75 / 55 | 100 / 75 | 125 / 90 | 150 / 110 | 175 / 132 | 250 / 185 | 300 / 220 |
| Rated Output Capacity ( kVA) | Heavy duty | 1.1 | 1.9 | 3 | 4.2 | 6.5 | 9.5 | 13 | 18 | 24 | 29 | 34 | 44 | 57 | 70 | 84 | 112 | 132 | 165 | 223 | 267 |
| | Normal duty | 1.6 | 2.6 | 3.8 | 5.8 | 8.1 | 12 | 16 | 23 | 29 | 34 | 43 | 57 | 70 | 84 | 105 | 132 | 156 | 191 | 267 | 321 |
| Rated Output Current (A) | Heavy duty | 3 | 5 | 8 | 11 | 17 | 25 | 33 | 46 | 63 | 75 | 90 | 115 | 150 | 185 | 220 | 295 | 346 | 432 | 585 | 700 |
| | Normal duty | 4.2 | 6.8 | 10 | 15.2 | 21.3 | 31 | 42 | 60 | 75 | 90 | 112 | 150 | 185 | 220 | 275 | 346 | 410 | 500 | 700 | 840 |
| Maximum Output Voltage (V) | | Three-phase 200~240V (Correspond to input voltage) | | | | | | | | | | | | | | | | | | | |
| Range of Output Frequency (Hz) | | 0.1~600.00Hz | | | | | | | | | | | | | | | | | | | |
| Power Source (ø, V, Hz) | | Three-phase 200~240V 50/60Hz | | | | | | | | | | | | | | | | | | | |
| Input Current (A) | Heavy duty | 5 | 6 | 10 | 14 | 18 | 30 | 40 | 60 | 72 | 86 | 103 | 132 | 183 | 211 | 240 | 280 | 330 | 405 | 550 | 660 |
| | Normal duty | 6.1 | 8 | 12 | 18 | 25.2 | 41 | 56 | 68 | 86 | 103 | 128 | 183 | 211 | 240 | 280 | 330 | 385 | 470 | 660 | 792 |
| Permissible AC Power Source Fluctuation | | 170~264V 50/60Hz / ±5% | | | | | | | | | | | | | | | | | | | |
| Overload Protection | Heavy duty | 150% of drive rated output current for 1 min | | | | | | | | | | | | | | | | | | | |
| | Normal duty | 120% of drive rated output current for 1 min | | | | | | | | | | | | | | | | | | | |
| Cooling Type | | Natural cooling | Fan cooling | | | | | | | | | | | | | | | | | | |
| Applicable Safety Standards | | UL508C, CSA C22.2 No.14-05, EN61800-3, EN61800-5-1 | | | | | | | | | | | | | | | | | | | |
| Protective Structure | | IP20 | | | | | | | | | | | | IP00 (IP20 OPTION) | | | | | | | |
| Weight (kg) | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.1 | 5.4 | 5.7 | 12.4 | 13.1 | 14.7 | 14.8 | 42.7 | 44.3 | 46.3 | 63.6 | 89 | 90 | 164 | 167 |
| Case Code | | Case 2 | | | | | | Case 3 | | Case 4 | | | | Case 5 | | | Case 6 | Case 7 | | Case 8 | |

# RM6G1 Three-phase 400V Specifications

| Model Case (RM6G1-4A □□□ B3/E3) | | 004 | 005 | 009 | 012 | 018 | 023 | 031 | 039 | 045 | 058 | 075 | 091 | 110 | 144 | 180 | 216 | 253 | 304 | 377 | 415 | 480 | 585 | 700 | 860 | 960 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Maximum Applicable Motor (HP/kW) | Heavy duty | 1 / 0.75 | 2 / 1.5 | 3 / 2.2 | 5 / 3.7 | 7.5 / 5.5 | 10 / 7.5 | 15 / 11 | 20 / 15 | 25 / 18.5 | 30 / 22 | 40 / 30 | 50 / 37 | 60 / 45 | 75 / 55 | 100 / 75 | 125 / 90 | 150 / 110 | 175 / 132 | 200 / 160 | 250 / 185 | 300 / 220 | 350 / 250 | 420 / 315 | 500 / 375 | 600 / 450 |
| | Normal duty | 2 / 1.5 | 3 / 2.2 | 5 / 3.7 | 7.5 / 5.5 | 10 / 7.5 | 15 / 11 | 20 / 15 | 25 / 18.5 | 30 / 22 | 40 / 30 | 50 / 37 | 60 / 45 | 75 / 55 | 100 / 75 | 125 / 90 | 150 / 110 | 175 / 132 | 200 / 160 | 250 / 185 | 300 / 220 | 350 / 250 | 420 / 315 | 500 / 375 | 600 / 450 | 700 / 500 |
| Rated Output Capacity ( kVA) | Heavy duty | 1.9 | 3 | 4.6 | 6.9 | 11 | 14 | 18 | 23 | 30 | 34 | 46 | 57 | 69 | 88 | 114 | 137 | 165 | 193 | 236 | 287 | 329 | 366 | 446 | 533 | 660 |
| | Normal duty | 2.7 | 3.8 | 6.9 | 8.6 | 14 | 18 | 24 | 30 | 34 | 44 | 57 | 69 | 84 | 110 | 137 | 165 | 193 | 232 | 287 | 316 | 366 | 446 | 533 | 655 | 732 |
| Rated Output Current (A) | Heavy duty | 2.5 | 4 | 6 | 9 | 14 | 18 | 24 | 30 | 39 | 45 | 61 | 75 | 91 | 115 | 150 | 180 | 216 | 253 | 310 | 377 | 432 | 480 | 585 | 700 | 866 |
| | Normal duty | 3.5 | 5 | 9 | 11.3 | 18 | 23 | 31 | 39 | 45 | 58 | 75 | 91 | 110 | 144 | 180 | 216 | 253 | 304 | 377 | 415 | 480 | 585 | 700 | 860 | 960 |
| Maximum Output Voltage (V) | | Three-phase 380~480V (Correspond to input voltage) | | | | | | | | | | | | | | | | | | | | | | | | |
| Range of Output Frequency (Hz) | | 0.1~600.00Hz | | | | | | | | | | | | | | | | | | | | | | | | |
| Power Source (ø, V, Hz) | | Three-phase 380~480V 50/60Hz | | | | | | | | | | | | | | | | | | | | | | | | |
| Input Current (A) | Heavy duty | 3.5 | 5 | 8 | 12 | 16 | 22 | 28 | 43 | 47 | 52 | 74 | 86 | 105 | 136 | 155 | 181 | 202 | 217 | 288 | 355 | 401 | 440 | 540 | 650 | 806 |
| | Normal duty | 4.2 | 6 | 12 | 13.4 | 20 | 26 | 44 | 47 | 52 | 66 | 86 | 105 | 132 | 162 | 181 | 202 | 217 | 282 | 355 | 385 | 440 | 540 | 627 | 800 | 900 |
| Permissible AC power Source Fluctuation | | 323~528V 50/60Hz / ±5% | | | | | | | | | | | | | | | | | | | | | | | | |
| Overload Protection | Heavy duty | 150% of drive rated output current for 1 min | | | | | | | | | | | | | | | | | | | | | | | | |
| | Normal duty | 120% of drive rated output current for 1 min | | | | | | | | | | | | | | | | | | | | | | | | |
| Cooling Type | | Natural cooling | Fan cooling | | | | | | | | | | | | | | | | | | | | | | | |
| Applicable Safety Standards | | UL508C, CSA C22.2 No.14-05, EN61800-3, EN61800-5-1 | | | | | | | | | | | | | | | | | | | | | | | | |
| Protective Structures | | IP20 | | | | | | | | | | | | | IP00 (IP20 OPTION) | | | | | | | | | | | |
| Weight (kg) | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.1 | 5.6 | 5.7 | 5.8 | 12.8 | 12.9 | 15 | 15.3 | 44 | 45.5 | 46.4 | 64 | 64.5 | 95 | 97 | 159 | 163 | 164 | 217 | 272 |
| Case Code | | Case 2 | | | | | | Case 3 | | | Case 4 | | | | Case 5 | | | Case 6 | | Case 7 | | Case 8 | | | Case 9 | |

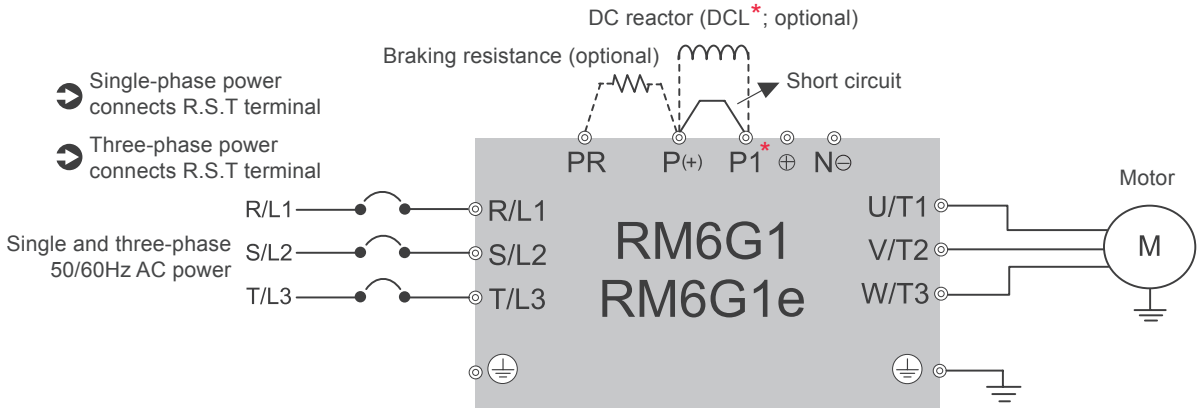
*The weights of RM6G1 series in the standard specifications exclude ACL and DCL.

# General Specifications

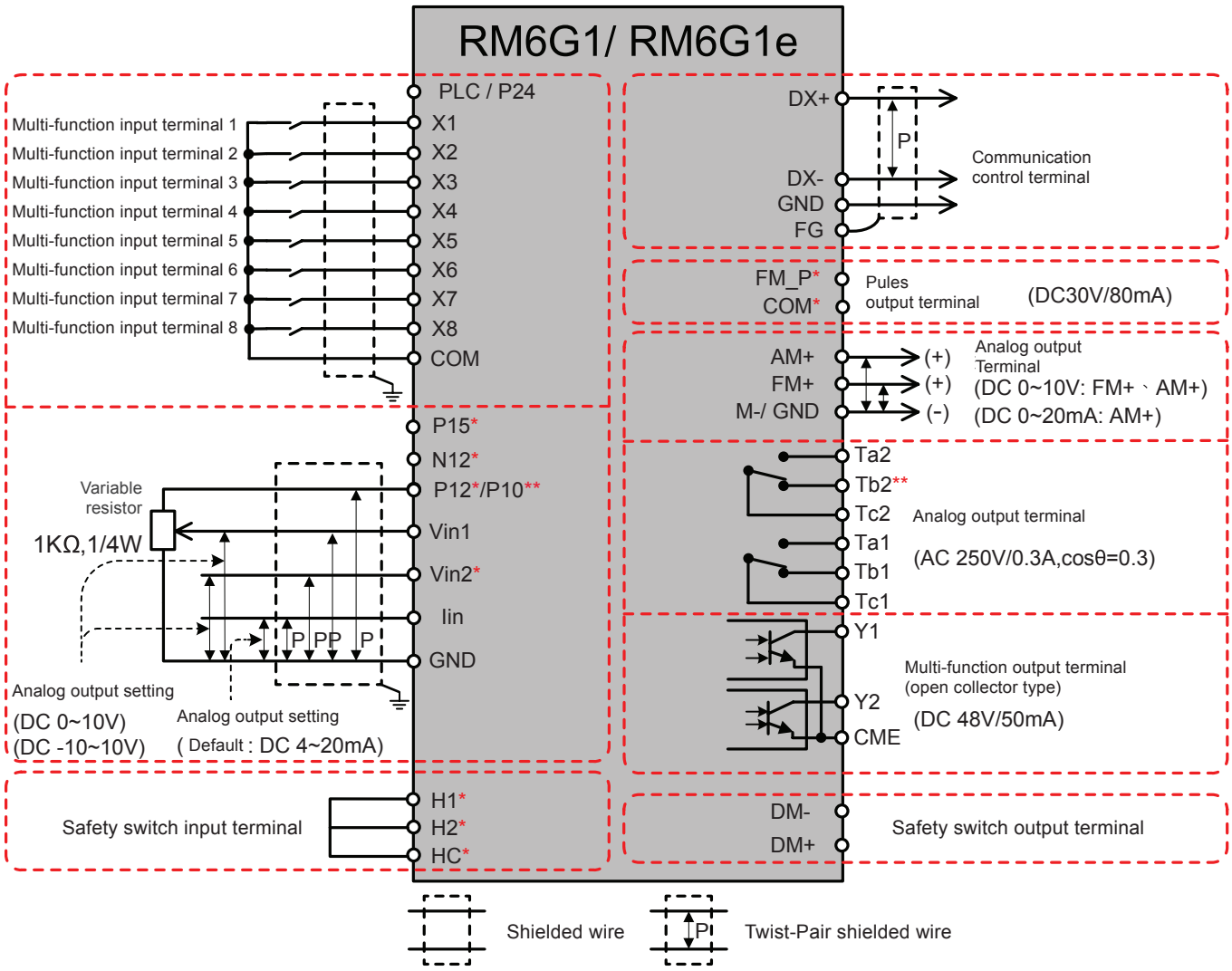
| | | | |
|---|---|---|---|
| Control Characteristics | Control method | | • V/F control • PM sensorless vector control • IM sensorless vector control |
| | | | • V/F control + speed feedback card* • PM vector control + speed feedback card*<br>• IM vector control + speed feedback card* |
| | Range of frequency setting | | 0.01~600Hz |
| | Resolution of frequency setting | | • Digital keypad (KP-601A / KP602): 0.01Hz<br>• RM6G1 Analog signal: 0.03Hz / 60Hz(11bit)<br>• RM6G1e Analog signal: 0.06Hz / 60Hz(10bit) |
| | Resolution of output frequency | | 0.01Hz |
| | Frequency setting signal | | -10~10V , 0~10V, 4~20mA, Pulse input* |
| | Overload protection | Heavy duty | 150% of drive rated output current for 1 min. (Inverse time curve protection) |
| | | Normal duty | 120% of drive rated output current for 1 min. (Inverse time curve protection) |
| | DC braking | | • Time of DC braking after stop/before start: 0~60.0sec<br>• DC braking frequency at stop: 0.1 ~ 60Hz<br>• DC braking level: 0~150% of rated current |
| | Braking torque | | Approximately 20% (with built-in braking resistor connected, braking torque is above 100%) |
| | Acceleration / deceleration time | | • 0.1~3200.0sec or 0.01~320.0sec<br>• The setting of acceleration/deceleration time can be adjusted from 0.01Hz to 600.00Hz. |
| | Stall prevention | | • Acceleration/constant speed stall prevention (Current level 30~200%)<br>• Stall prevention when decelerate |
| | Other functions | | Slip compensation, auto-torque compensation, auto-adjustment for output voltage stability, auto-operation for energy-saving, auto-adjustment of switching frequency, restart after instantaneous power failure, speed tracing, overload detection, acceleration/deceleration switch , parameters copy, dynamic brake unit duty control,16 sections of operating procedures control, kWh accumulation value, counter, timer, Modbus communication, jump frequency, holding frequency, upper and lower limits output frequency ,16 sections speed, S curve acceleration and deceleration, motor temperature display and protection, drive temperature display, cooling fan conotrol, pulse input/output*, password lock, predictive maintenance information, error record, PID control (two-stage PID), upper and lower limits detection feedback, Traverse for textile, switching parameter sets for 2 independent motors, automatic adjustment, torque limit, KEB function, Overvoltage suppress function. |
| | Expansion card* | | PG card (Line Driver, Open Collector) |
| Operation Characteristics | Input | Multi-function inputs | • 8 sets programmable input terminals: X1~X8<br>• RM6G1: X8 also has function of pulse input |
| | | Analog inputs | • Vin1/Vin2*-GND: DC 0~10V or DC -10~+10V<br>• Iin-GND: DC 4~20mA/2~10V or DC 0~20mA/0~10V |
| | | Simulate analog inputs | Vin3, Vin4 (the same function as Vin1, Vin2*): set by parameters/communication |
| | Output | Multi-function outputs | • 5 sets programmable output detecetion: Ta1-Tb1-Tc1, Ta2-Tb2**-Tc2, Y1-CME, Y2-CME, FM_P-COM*<br>• 2 sets programmable output detecetion: Y3, Y4 (detecetion function= Y1, Y2) |
| | | Analog outputs | • "FM+": DC 0~10V<br>• "AM+": DC 0~10V or DC 0~20mA/DC 4~20mA |
| Display | LED keypad (KP-601A) optional | | Monitor the frequency of drive, voltage, current, drive temperature, motor temperature, terminal status…etc. |
| | LCD keypad (KP-602) | | Full-color display, multiple languages and 8 descriptions of monitor modes are shown at the same time. |
| Protections | Fault protection | Error trip messages of drive | EEPROM error (EEr), A/D converter error (AdEr), fuse open (SC), under voltage during operation (LE1), drive over current (OC), grounding fault (GF), over voltage (OE), drive overheat (OH), motor overload (OL), drive overload (OL1), system overload (OLO), external fault (EF), keypad interruption during copy (PAdF), input/output under-phase protection (IPLF/OPLF) |
| | | Warning messages of drive | Power source under voltage (LE), drive output interruption (bb), coast to stop (Fr), dynamic brake transistor over voltage (db), keypad cable trip before connecting (Err_00), keypad cable trip during operation (Err_01), direction command error (dFt), version copy error (FAult) |
| Environment | Atmosphere | | Non-corrosive or non-conductive, or non-explosive gas or liquid, and non-dusty |
| | Surrounding temperature | | • Heavy duty: -10 ℃ (14 ℉) ~ +50 ℃ (122 ℉) (Non-freezing and non-condensing)<br>• Normal duty: -10 ℃ (14 ℉) ~ +40 ℃ (104 ℉) (Non-freezing and non-condensing) |
| | Storage temperature | | -20 ℃ (- 4 ℉) ~ +70 ℃ (158 ℉) |
| | Relative humidity | | 90% RH or less (non-condensing atmosphere) |
| | Vibration | | Less than 5.9m/sec² (0.6G) |
| | Altitude | | Less than 1000m (3280 ft.) |

*Items not equipped with RM6G1e **Items not equipped with RM6G1

## Main Circuit Terminal Wiring Diagram




## Control Terminal Circuit Wiring Diagram




*Items not equipped with RM6G1e **Items not equipped with RM6G1

## Main Circuit Terminals

| Symbol | Function | Description |
|---|---|---|
| R, S, (L1,L2) | AC power source input terminals | Single-phase; sinusoidal power source input terminals |
| R, S, T (L1, L2, L3) | | Three-phase; sinusoidal power source input terminals |
| ⊕ 、N ⊖ | DC power source input terminals* | External DC power source terminal (Models within 2A150 and within 4A110 have ⊕ terminal) |
| U, V, W (T1, T2, T3) | Drive outputs to motor terminals | Output three-phase variable frequency and voltage to motor |
| P(+), N ⊖ | Dynamic brake unit terminals | The terminals can be connected to dynamic braking unit (option) |
| P(+), PR | External braking resistor terminals | The terminals can be connected to external brake resistor (option) |
| P(+), P1* | External reactor terminals | The terminal can be connected to DC reactor (DCL) for improving power factor. The original configuration is a jumper. |
| PE and ⏚ | Grounding terminals | Ground the drive in compliance with the NEC standard or local electrical code |

## Control Terminals

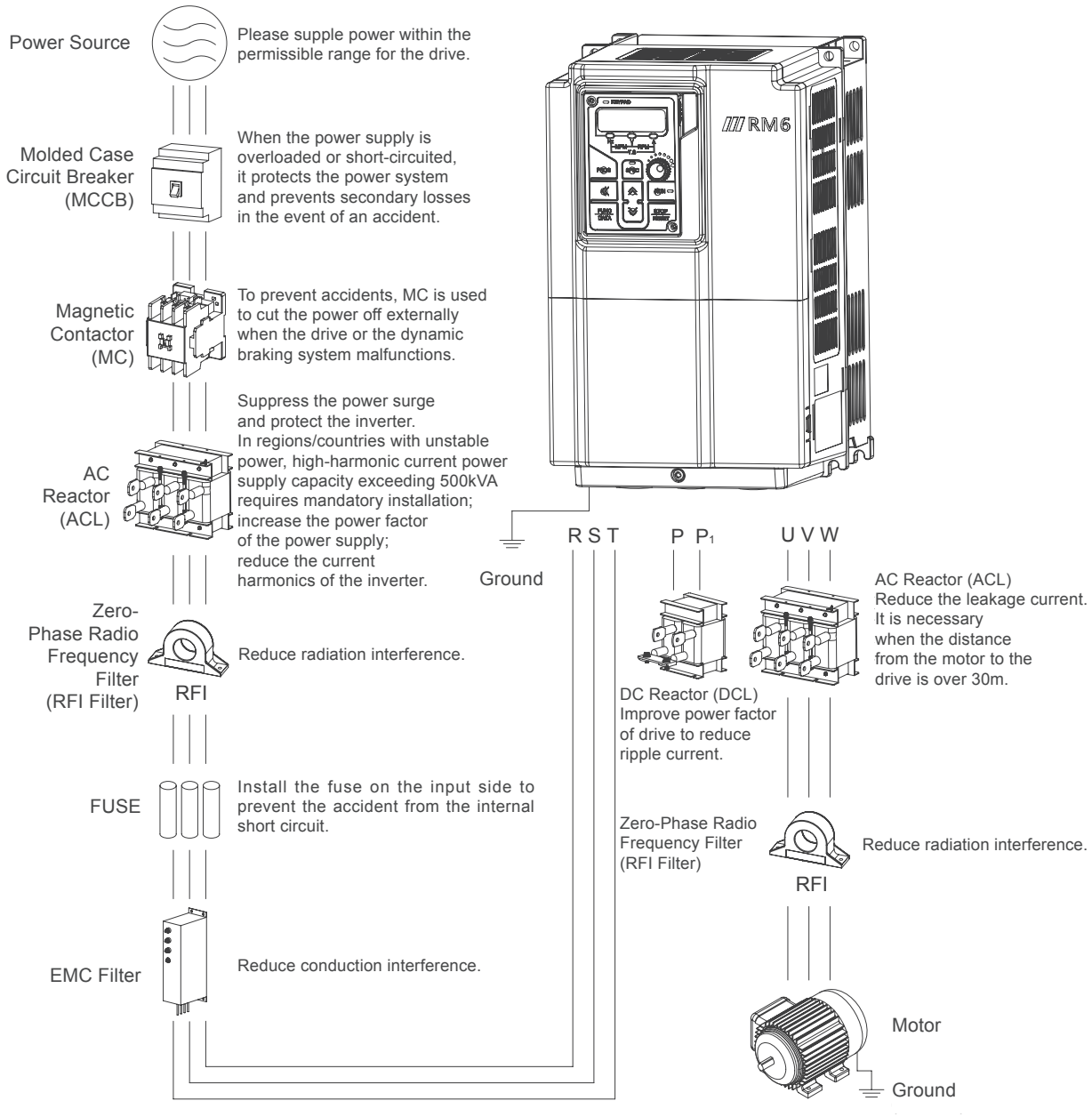
| Type | | Symbol | Function | Description | |
|---|---|---|---|---|---|
| Control Circuit Terminal | Control Power | PLC/P24 | Power terminal for control device | Output DC+24V; Maximum supplied current is 100mA | |
| | | P12*/P10** | | Output DC+12V (RM6G1e output DC+10V); Maximum supplied current is 20mA | |
| | | N12* | | Output DC-12V; Maximum supplied current is 20mA | |
| | | GND | Common of analog input terminals | Common terminal for control power (P12 、N12 、P15) and analog input terminals (Vin1/ Vin2/ Iin) | |
| | Input Terminals | X1 | Multi-function input terminal 1 | ● Set the function at H1-00. Default setting: Forward command | |
| | | X2 | Multi-function input terminal 2 | ● Set the function at H1-01. Default setting: Reverse command | |
| | | X3 | Multi-function input terminal 3 | ● Set the function at H1-02. Default setting: Jog command | |
| | | X4 | Multi-function input terminal 4 | ● Set the function at H1-03. Default setting: External fault command | |
| | | X5 | Multi-function input terminal 5 | ● Set the function at H1-04. Default setting: Reset command | |
| | | X6 | Multi-function input terminal 6 | ● Set the function at H1-05. Default setting: Disable | |
| | | X7 | Multi-function input terminal 7 | ● Set the function at H1-06. Default setting: Disable | |
| | | X8 | Multi-function input terminal 8 | ● Set the function at H1-07. Default setting: Disable | |
| | | COM | Common of digital input terminals | ● Common of input control terminal (X1~X8)<br>● Control power (PLC), pulse input signal (FM_P) | |
| | | Vin1 | Analog input terminal 1 | ● Input range DC 0~10V or DC -10~10V, input impedance 20kΩ | |
| | | Vin2* | Analog input terminal 2 | ● Selective function of DIP switch-SW2: Thermistor or external voltage signal | |
| | | Iin | Analog input terminal 3 | ● Selective function of DIP switch-SW1: Current signal or voltage signal | |
| | Output Terminals | FM_P* | Pulse output signal terminal | ● NPN open collector isolated output: Maximum value: 30vDC/80mA. Default setting: Output frequency | |
| | | AM + | Analog output terminal 1 | ● Selective output signal-JP4: Current signal or voltage signal | |
| | | FM + | Analog output terminal 2 | ● Set the function at H4-00. Default setting: Output frequency | |
| | | M -*/GND | Common of analog output terminals | ● Common of analog output terminal | |
| | | Ta1 | Multi-function output terminals (relay type) | Capacity: AC 250V, 0.5A Max, cos θ =0.3 | ● Set the function at H2-04. Default setting: Error detection |
| | | Tb1 | | | ● Set the function at H2-04. Default setting: Error detection |
| | | Tc1 | | | ● Common of Ta1, Tb1 terminals |
| | | Ta2 | | Capacity: AC 250V, 0.5A Max, cos θ =0.3 | ● Set the function at H2-05. Default setting: Detection during operation |
| | | Tb2** | | | ● Set the function at H2-05. Default setting: Detection during operation |
| | | Tc2 | | | ● Ta2 common terminal |
| | | Y1 | Multi-function output terminals (open collector type) | Capacity: DC 48V, 50mA Max | ● Set the function at H2-00. Default setting: Zero speed detection |
| | | Y2 | | | ● Set the function at H2-01. Default setting: Zero speed detection |
| | | CME | | | ● Common of Y1, Y2 terminals |

## Communication Control Terminals

| Type | Symbol | Function | Description |
|---|---|---|---|
| Communication terminals | DX + | MODBUS Communication terminals | ● With HMI/NB to control the inverter<br>● Communication protocol: Modbus (interface: RS-485)<br>● Terminal resistor switch-DSW1, terminal resistor=120Ω |
| | DX - | | |
| | GND | Common terminals of communication terminals | |
| | FG | MODBUS Communication terminal | Grounding terminal of shielding wire |

*Items not equipped with RM6G1e **Items not equipped with RM6G1

## Peripheral Equipment of Drive




## ACL Installation Guide:

**RST** input side:

- When the power capacity is over 500 kVA or 10 times larger than the rated capacity of drive.
- When the heater (with the SCR), air compressor, high frequency equipment or welding machine is installed at the same power source system, the harmonic current will interfere the drive.

**UVW** output side:

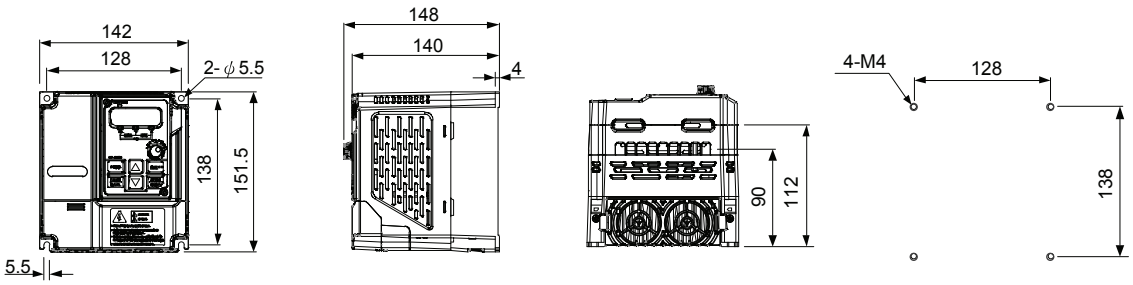
- Cable length between the drive and the motor is over 30 meters or multiple motors are used in parallel.

**RM6G1** series: ACL is standard equipment. 200V: 2A346E3 and above; 400V: 4A180E3 and above.
DCL standard configuration. 200V: 2A700E3 and above; 400V: 4A304E3 and above.

Note: For detailed matching equipment selection.

## RM6G1e Dimensions

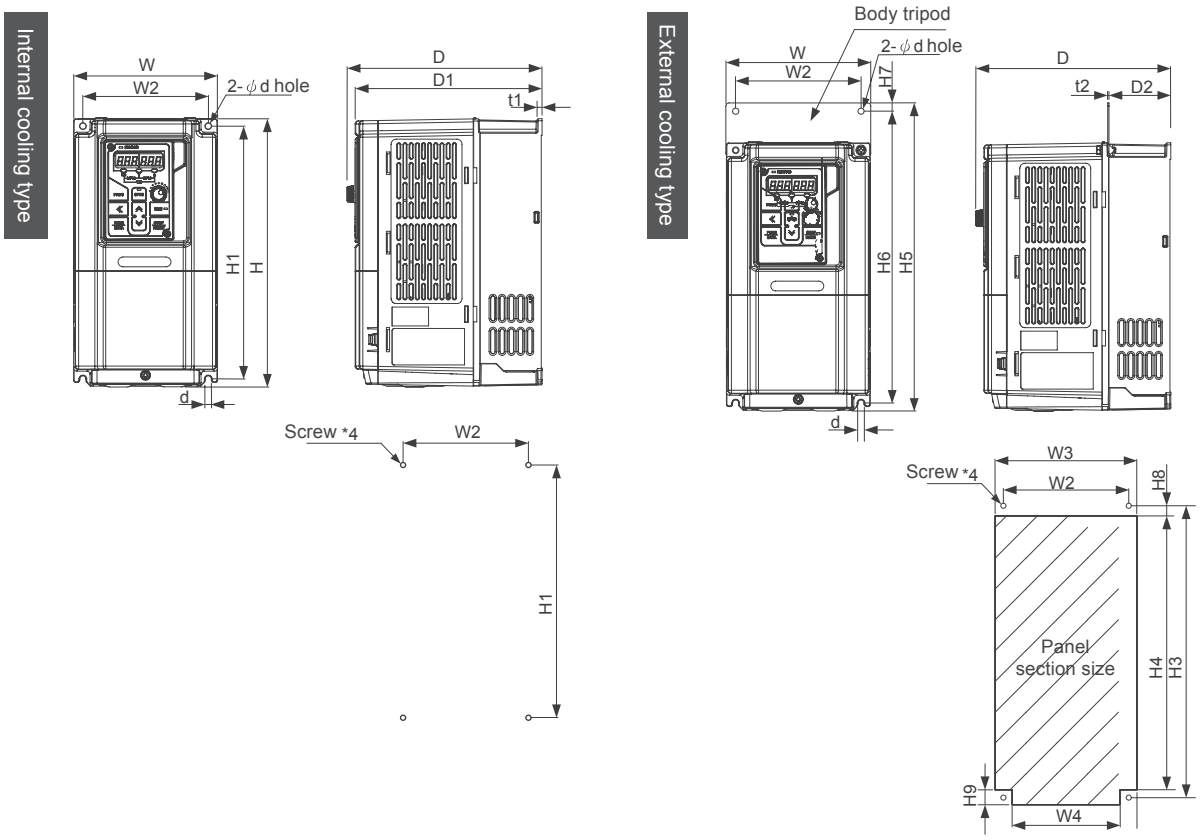
Case 1

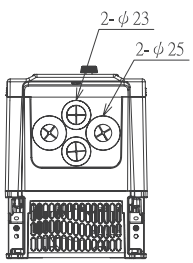



Unit: mm

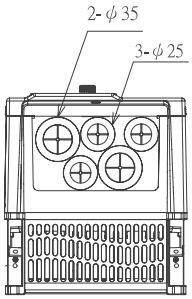
## RM6G1 Dimensions

Case 2~4

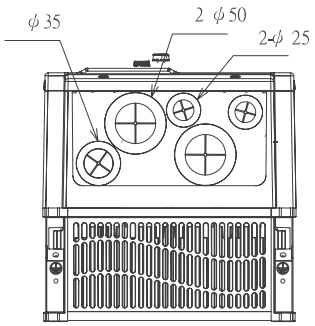



Case 2



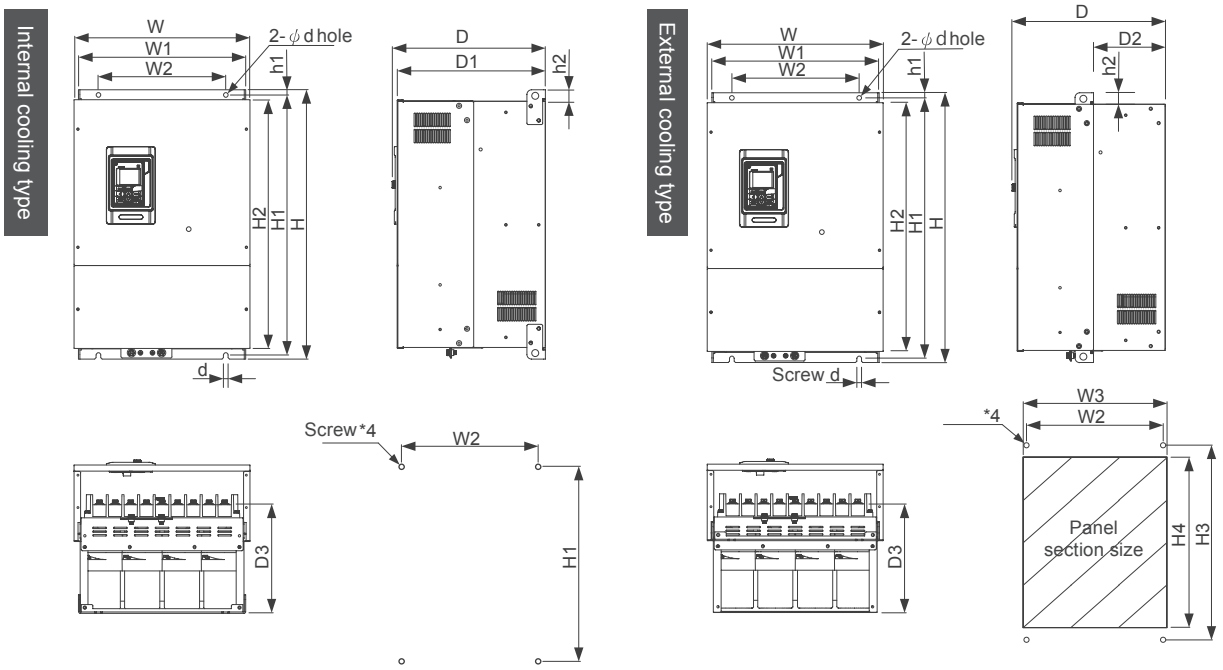

Case 3




Case 4

Unit: mm

Case 5~9




Unit: mm

## RM6G1 Dimensions

| Case | type | | Dimension (mm) | | | | | | | | | | | | | | | | | | | | | | | Screw |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 200V | 400V | W | W1 | W2 | W3 | W4 | H | H1 | H2 | H3 | H4 | H5 | H6 | H7 | H8 | H9 | h1 | h2 | t1 | t2 | D | D1 | D2 | D3 | d | (mm) |
| CASE2 | 005~031 | 004~023 | 140 | - | 122 | 138.5 | 105 | 260 | 246 | - | 284 | 267 | 300 | 284 | 8 | 10 | 14.5 | - | - | 4.7 | 1.2 | 190 | 182 | 60 | - | 6 | M5 |
| CASE3 | 042~060 | 031~045 | 180 | - | 162 | 178.5 | 149 | 290 | 277 | - | 313 | 290 | 329 | 313 | 8 | 10 | 20 | - | - | 9 | 1.6 | 207 | 199 | 74 | - | 6.5 | M5 |
| CASE4 | 075~150 | 058~110 | 250 | - | 230 | 248.5 | 212 | 400 | 380 | - | 427 | 396 | 448 | 427 | 10 | 11.5 | 29 | - | - | 9.5 | 2 | 258 | 250 | 103 | - | 9 | M8 |
| CASE5 | 185~275 | 144~216 | 386 | 361 | 275 | 365 | - | 584 | 562 | 539 | 564 | 545 | - | - | - | - | - | 11 | 25 | - | - | 331 | 323 | 155 | 242 | 10 | M8 |
| CASE6 | 346 | 253~304 | 446 | 418 | 275 | 427 | - | 685 | 660 | 630 | 662 | 634 | - | - | - | - | - | 14 | 30 | - | - | 334 | 326 | 163 | 246 | 12 | M10 |
| CASE7 | 410~500 | 377~415 | 508 | 479 | 275 | 487 | - | 818 | 785 | 751 | 788 | 758 | - | - | - | - | - | 19 | 35 | - | - | 374 | 366 | 183 | 257 | 15 | M12 |
| CASE8 | 700~840 | 480~700 | 696 | 654 | 580 | 657 | - | 1000 | 974 | 929 | 978 | 936 | - | - | - | - | - | 15 | 39 | - | - | 413 | 405 | 182 | 294 | 15 | M12 |
| CASE9 | - | 860~960 | 992 | 954 | 710 | 958 | - | 1030 | 1003 | 963 | 1007 | 968 | - | - | - | - | - | 15 | 39 | - | - | 427 | 419 | 185 | 308 | 15 | M12 |

More product detial information, please scane the QR-code to download operation manual.

# Green Tech

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( *Information subject to change without notice. )