
DataSheet

| | |
|---|-----------|
| System Configuration | 2 |
| G5 Series AC Servomotor/Servo Drives with built-in EtherCAT Communications .. | 2 |
| G5 Series Linear Motor/Servo Drives with built-in EtherCAT Communications | |
| Linear Motor Type..... | 4 |
| G5-series AC Servomotors/Servo Drives with General-purpose Pulse Train | |
| or Analog Inputs | 6 |
| G5-series AC Servomotors/Servo Drives with Built-in MECHATROLINK-II | |
| Communications..... | 8 |
| G5-series AC Servo Drives with Built-in EtherCAT Communications..... | 10 |
| Contents | |
| Ordering Information | |
| Specifications | |
| Components and Functions | |
| Dimensions | |
| G5-series AC Servo Drives with Built-in EtherCAT Communications Linear | |
| Motor Type | 22 |
| Contents | |
| Ordering Information | |
| Specifications | |
| Components and Functions | |
| Dimensions | |
| G5-Series AC Servo Drives with General-purpose Pulse Train or Analog Inputs..... | 27 |
| Contents | |
| Ordering Information | |
| Specifications | |
| Components and Functions | |
| Dimensions | |
| G5-series AC Servo Drives with Built-in MECHATROLINK-II Communications | 38 |
| Contents | |
| Ordering Information | |
| Specifications | |
| Components and Functions | |
| Dimensions | |
| G5-series AC Servomotors | 47 |
| Contents | |
| Ordering Information | |
| Specifications | |
| Dimensions | |
| G5-series Linear Motor | 74 |
| Contents | |
| Ordering Information | |
| Specifications | |
| Components and Functions | |
| Dimensions | |
| Related Manuals | 89 |

Sysmac® is a trademark or registered trademark of OMRON Corporation in Japan and other countries for OMRON factory automation products.

Windows is registered trademarks of Microsoft Corporation in the USA and other countries.

EtherCAT® is a registered trademark of Beckhoff Automation GmbH for their patented technology.

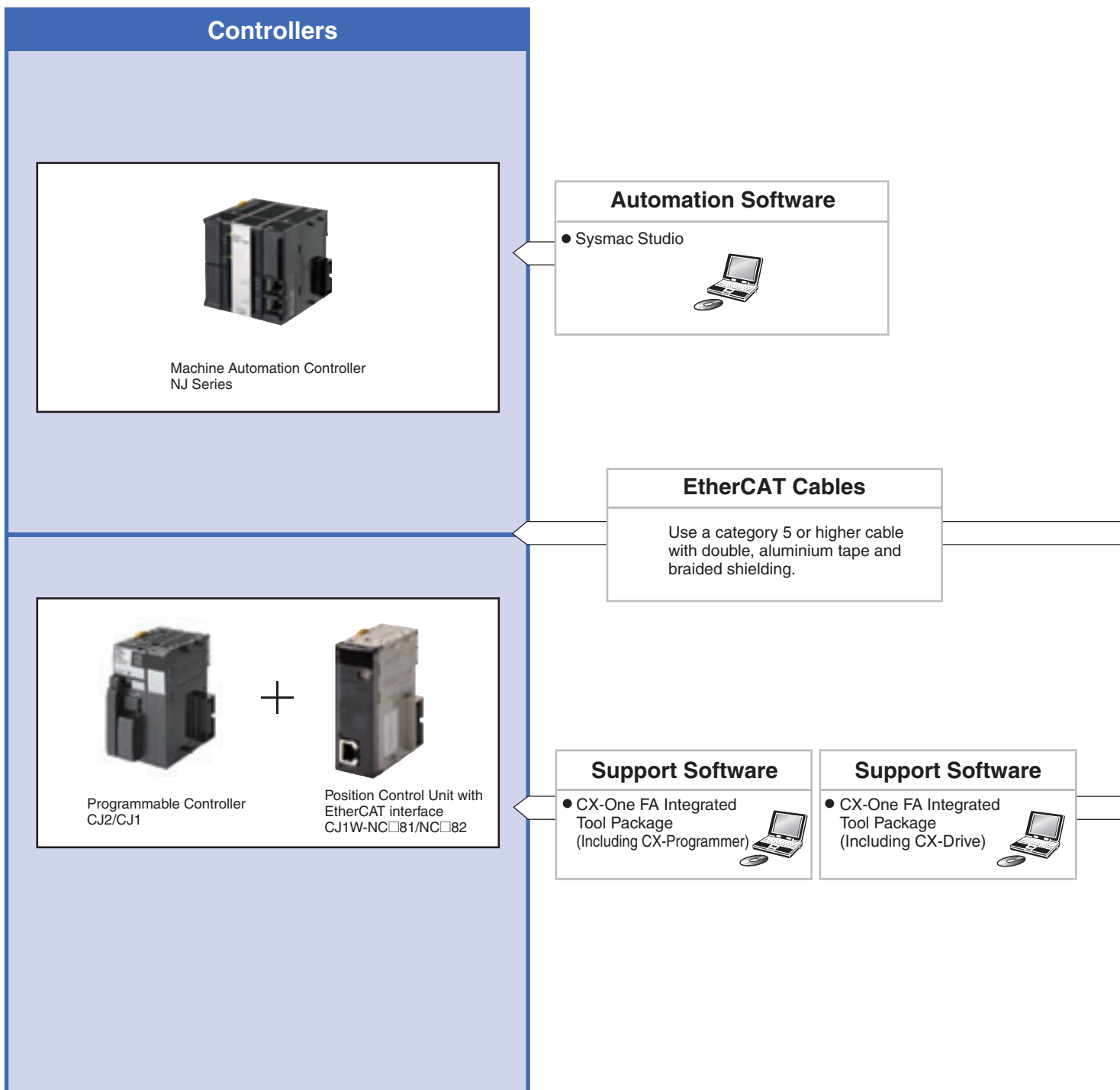
Other company names and product names in this document are the trademarks or registered trademarks of their respective companies.

As a Sysmac Device, the G5-series AC Servomotor/Servo Drive with Built-in EtherCAT Communications is designed to provide optimal functionality and enhanced operability when used in conjunction with a Machine Automation Controller such as NJ series and the automation software Sysmac Studio. Sysmac Device is a generic term for OMRON control devices such as an EtherCAT Slave, designed with unified communications specifications and user interface specifications.

When connecting a Servo Drive to the NJ5 series Machine Automation Controller, it is recommended that you use the Servo Drive with Built-in EtherCAT Communications, R88D-KN□□□-ECT, with unit version 2.1 or later.

R88M-K/R88D-KN□-ECT

System Configuration



High-Speed and High-Precision G5 Series EtherCAT Communications with the Controller



- High-accuracy positioning with fully-closed control.
- Servo Drives for 400VAC globally widens applicable systems and environment, including large-scale equipment.
- Safe design and Safe Torque Off (STO) function.
- Vibration can be suppressed in acceleration/deceleration even in low-rigidity mechanical systems.



Ro

G5-Series
System Configuration

EtherCAT Communications
AC Servo Drive

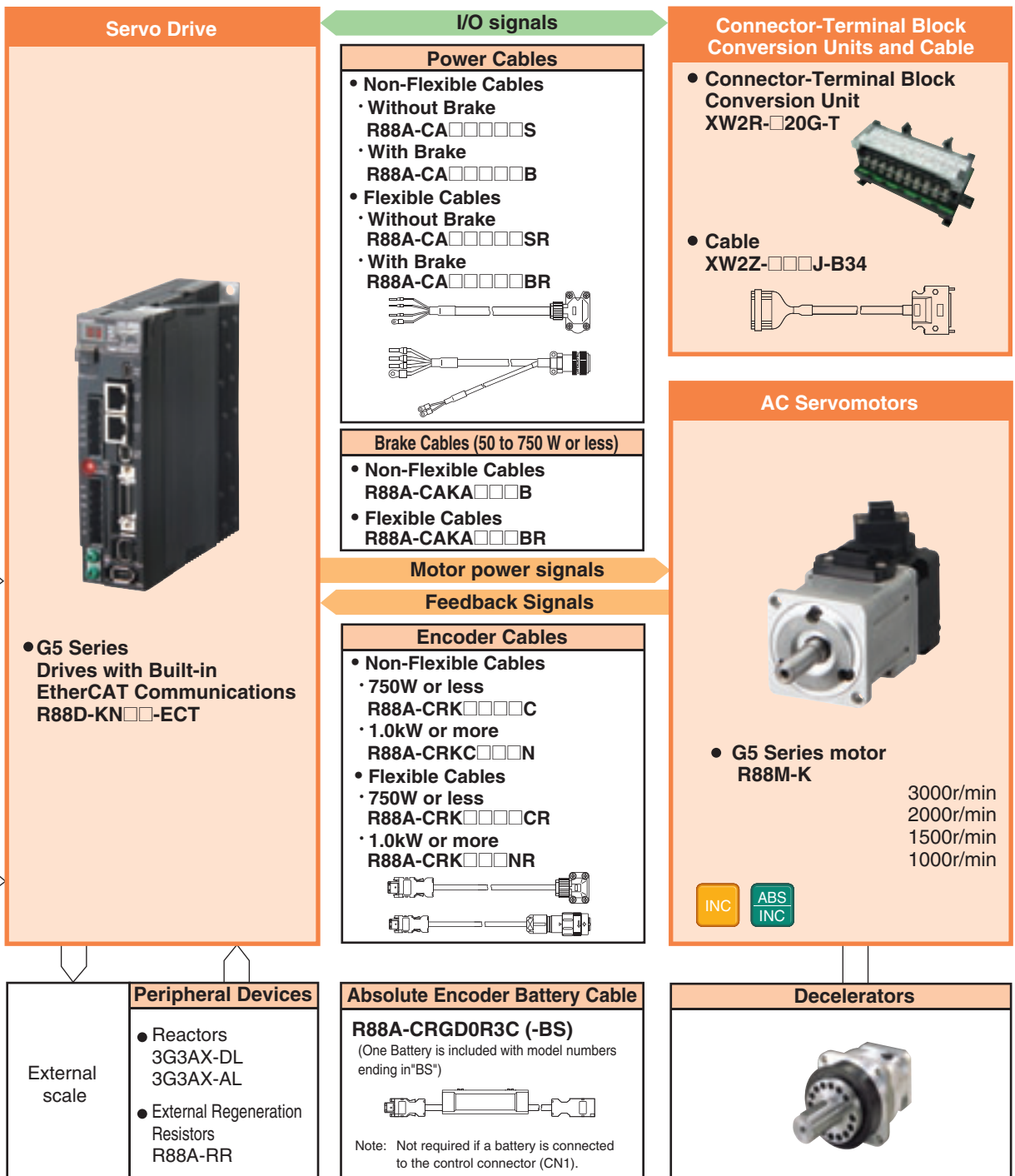
EtherCAT Communications
Linear Motor Type
AC Servo Drive

General-purpose Inputs
AC Servo Drive

ML-II Type
AC Servo Drive

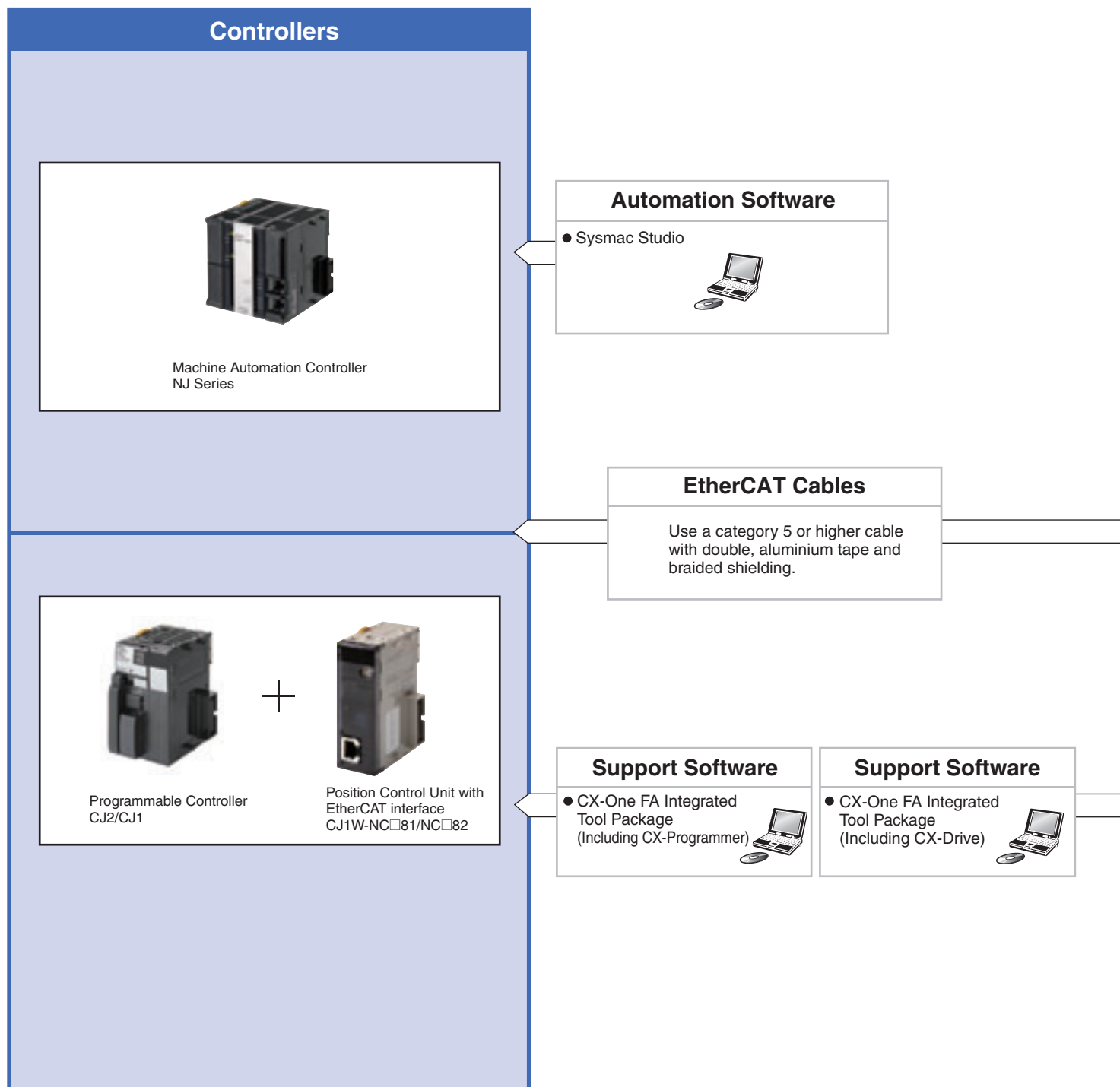
AC Servomotors

Linear Motor

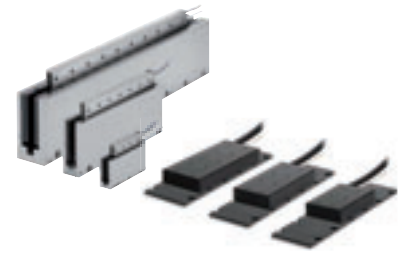


R88L-EC/R88D-KN□-ECT-L

System Configuration



Linear Motor for Higher-speed and Higher-precision



- Inherited functions and performance of G5 series and EtherCAT communications achieve high-speed and high-precision positioning.
- Lineup of compact and high-thrust iron-core motor type and cogging-free ironless motor type with excellent speed stability.
- Same Iron-core motor type for 200V AC and 400V AC.
- Quick setup by automatic setup function.

G5-Series
System Configuration

EtherCAT Communications
AC Servo Drive

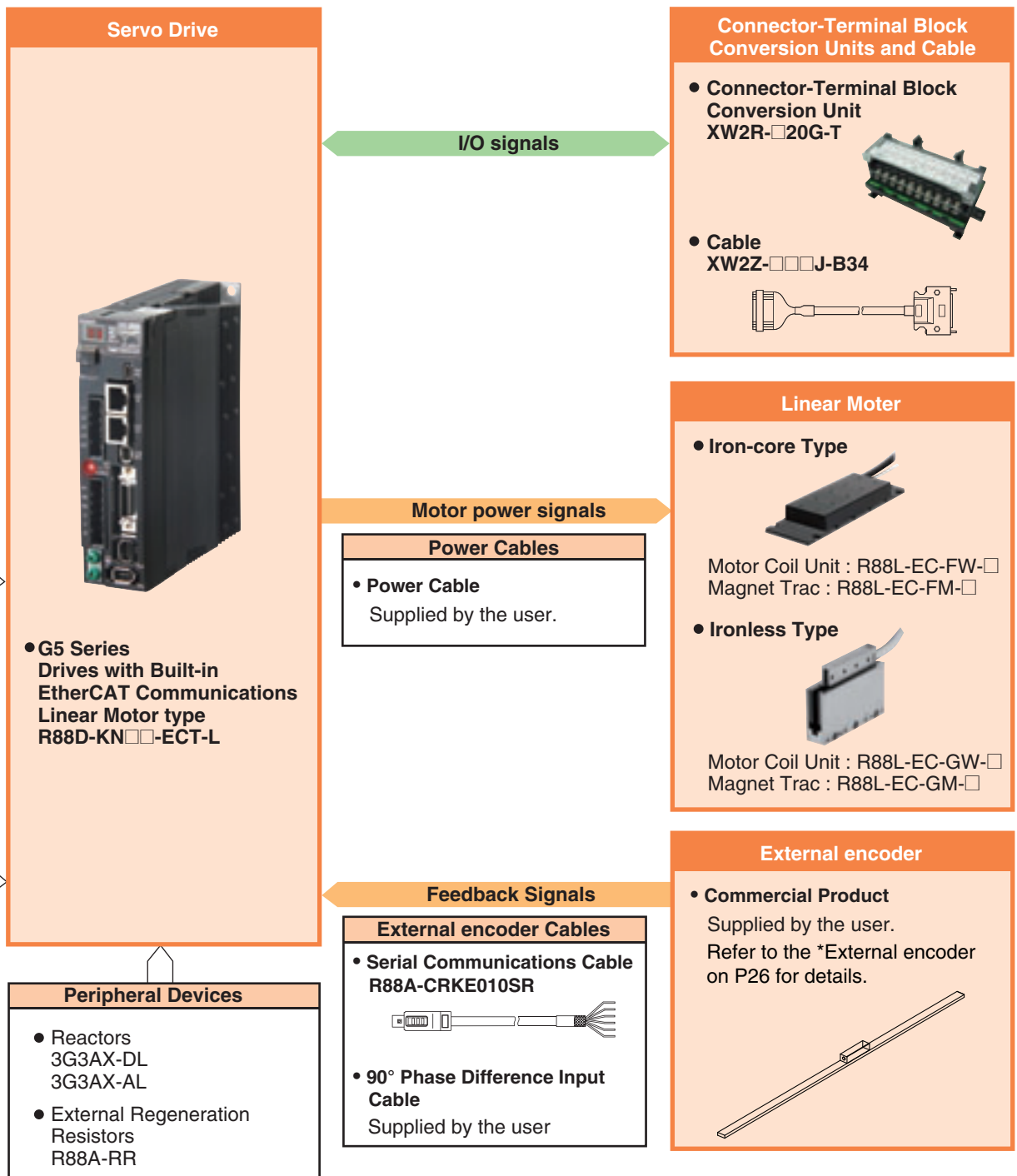
EtherCAT Communications
Linear Motor Type
AC Servo Drive

General-purpose Inputs
AC Servo Drive

ML-II Type
AC Servo Drive

AC Servomotors

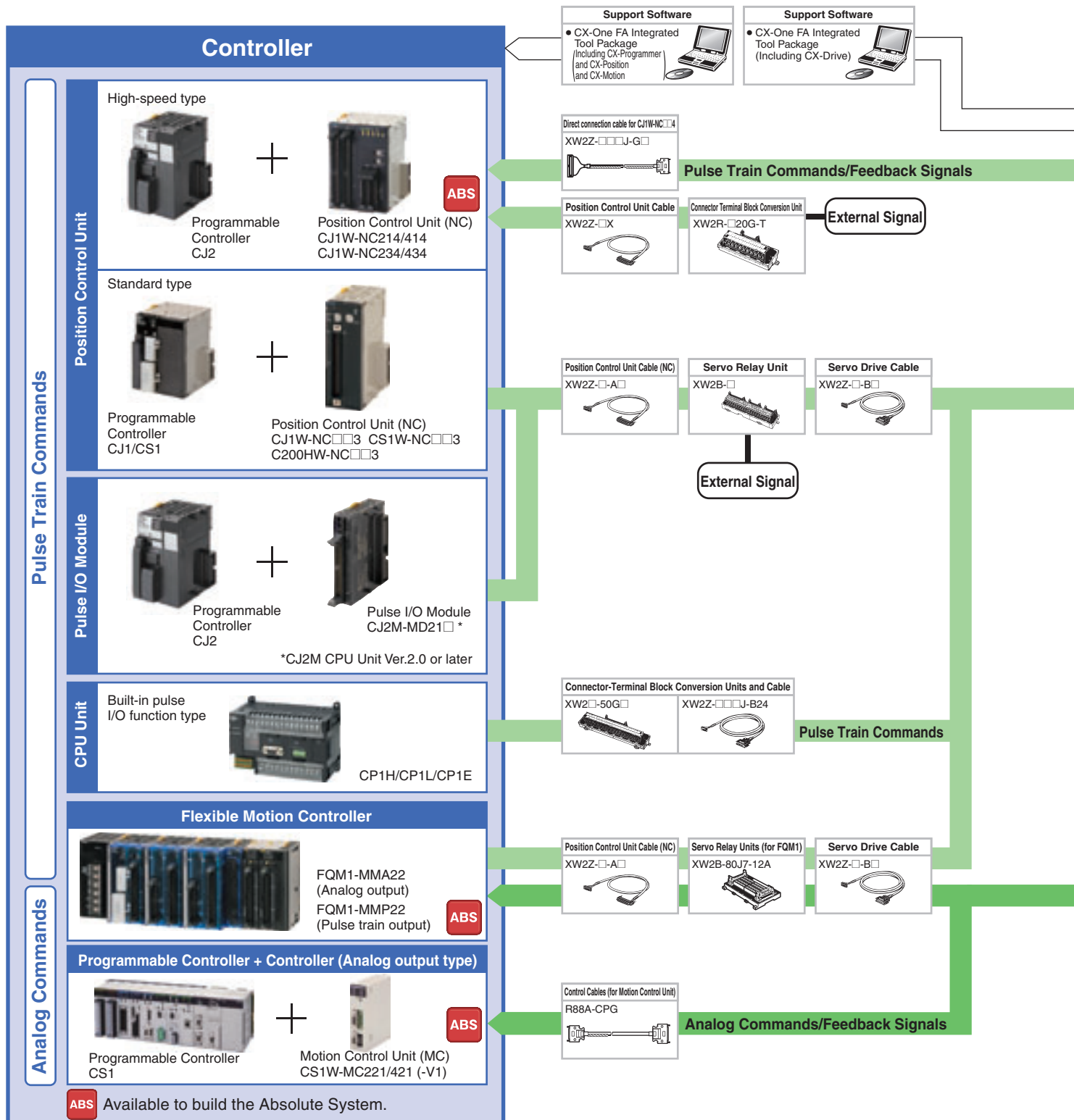
Linear Motor



G5-series AC Servomotors/Servo Drives with General-purpose Pulse Train or Analog Inputs

R88M-K/R88D-KT

System Configuration



The Preeminent Servo That Revolutionizes Motion Control



- Industry Top-class Tracking Performance.
Speed Response Frequency of 2 kHz.
- Best Positioning Accuracy*.
Featuring a 20-bit high-resolution incremental encoder.
* 8 times the resolution of previous OMRON models
- High-precision Positioning.
Fully Closed Loop Control Is a Standard Feature.
- Conforms to the Latest International Standards.
Safety and Productivity.
- Globalization. Lineup of 400 VAC Servomotors.

G5-Series System Configuration

EtherCAT Communications AC Servo Drive

EtherCAT Communications Linear Motor Type AC Servo Drive

General-purpose Inputs AC Servo Drive

ML-II Type AC Servo Drive

AC Servomotors

Linear Motor

USB communications

Servo Drive



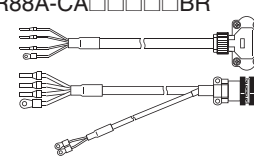
- G5 Series driver R88D-KT

100 VAC
200 VAC
400 VAC

Motor power signals

Power Cables

- Non-flexible Cables
 - Without Brake R88A-CA□□□□□S
 - With Brake R88A-CA□□□□□B
- Flexible Cables
 - Without Brake R88A-CA□□□□□SR
 - With Brake R88A-CA□□□□□BR



Brake Cables (50 to 750 W or less)

- Non-flexible Cables R88A-CAKA□□□□B
- Flexible Cables R88A-CAKA□□□□BR

AC Servomotors



- G5 Series motor R88M-K


3,000 r/min
2,000 r/min
1,500 r/min
1,000 r/min

INC ABS INC

Feedback Signals

Encoder Cables

- Non-Flexible Cables
 - 750W or less R88A-CRK□□□□□C
 - 1.0kW or more R88A-CRK□□□□□N
- Flexible Cables
 - 750W or less R88A-CRK□□□□□CR
 - 1.0kW or more R88A-CRK□□□□□NR




External scale

Peripheral Devices

- Reactors 3G3AX-DL 3G3AX-AL
- External Regeneration Resistors R88A-RR


Absolute Encoder Battery Cable

R88A-CRGD0R3C (-BS)
(One Battery is included with Servo Drivers with model numbers ending in "BS.")



* Not required if a battery is connected to the control connector (CN1).

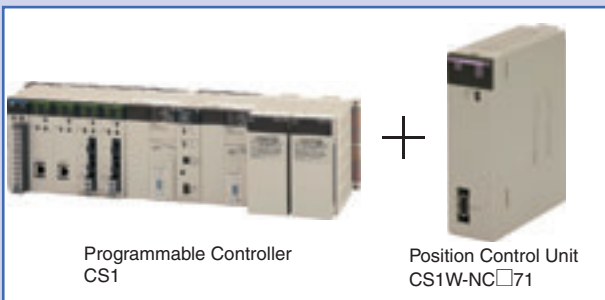
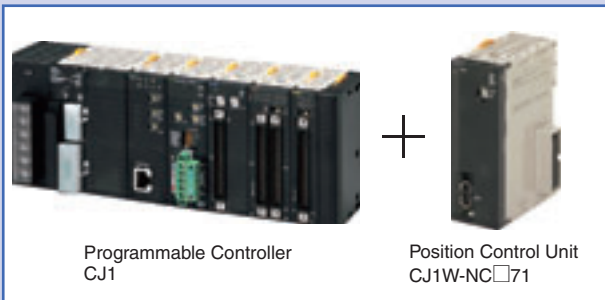
Decelerators



R88M-K/R88D-KN□-ML2

System Configuration

Controllers (MECHATROLINK-II type)



Support Software

- CX-One FA Integrated Tool Package (Including CX-Programmer and CX-Position and CX-Motion)

Support Software

- CX-One FA Integrated Tool Package (Including CX-Drive)

MECHATROLINK-II

MECHATROLINK-II Cables

(With ring core and USB connector on both ends)
FNY-W6003-□□ (OMRON model number)
 (Without ring core USB connector on both ends)
FNY-W6002-□□ (OMRON model number)

MECHATROLINK-II Repeater

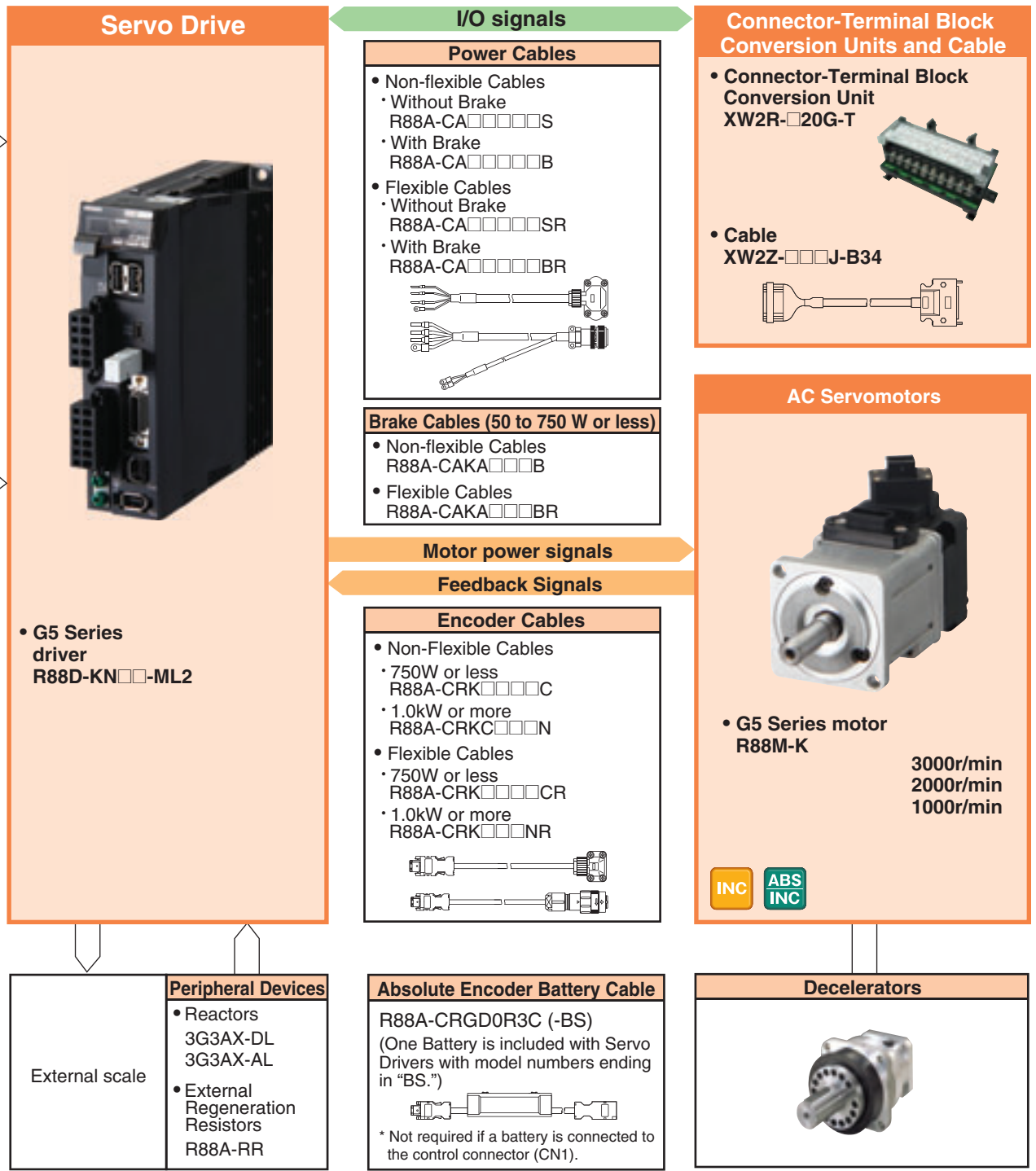
| | | Maximum transmission distance | |
|-----------------------------|---------|-------------------------------|------------------------|
| | | 0 to 30 m | 30 to 50 m |
| Number of connected devices | 1 to 15 | Repeater not required. | Repeater not required. |
| | 16 | Repeater not required. | Repeater required. |



High-Speed and High-Precision G5 Series MECHATROLINK-II Communications with the Controller

- Data transfer using MECHATROLINK-II Communications:
All control data that can be interfaced between the Servo Driver and the Controller is transmitted using data communications. This enables maximizing the Servomotor performance without restricting the transmission performance of the control signals.
- Having a communications module built into the Servo Driver significantly saves space in the control panel.

G5-Series System Configuration
EtherCAT Communications AC Servo Drive
EtherCAT Communications Linear Motor Type AC Servo Drive
General-purpose Inputs AC Servo Drive
ML-II Type AC Servo Drive
AC Servomotors
Linear Motor



USB communications

G5-series AC Servo Drives with Built-in EtherCAT Communications

R88D-KN□-ECT

Contents



- Ordering Information
- Specifications
 - General Specifications
 - Characteristics
 - Servo Drives with Single-phase 100 VAC Input Power
 - Servo Drives with Single-phase or Three-phase 200 VAC Input Power
 - Servo Drives with Three-phase 400 VAC Input Power
 - EtherCAT Communication Specifications
- Version Information
- Names and Functions
 - Servo Drive Part Names
 - Functions
- Dimensions



Ordering Information

Refer to the Ordering Information.

Specifications

General Specifications

| Item | | Specifications | |
|--|---------------|---|--|
| Ambient operating temperature and operating humidity | | 0 to 55°C, 90%RH max. (with no condensation) | |
| Storage ambient temperature and humidity | | -20 to 65°C, 90%RH max. (with no condensation) | |
| Operating and storage atmosphere | | No corrosive gases | |
| Vibration resistance | | 10 to 60 Hz and at an acceleration of 5.88 m/s ² or less (Not to be run continuously at a resonance point) | |
| Insulation resistance | | Between power supply terminals/power terminals and FG terminal: 0.5 MΩ min. (at 500 VDC) | |
| Dielectric strength | | Between power supply/power line terminals and FG terminal: 1,500 VAC for 1 min at 50/60 Hz | |
| Protective structure | | Built into panel | |
| International standard | EC Directives | EMC Directive | EN 55011, EN 61000-6-2, IEC 61800-3 |
| | | Low Voltage Directive | EN 61800-5-1 |
| | | Machinery Directives | EN954-1 (Cat.3), EN ISO 13849-1: 2008 (Category 3) (PLc,d), ISO 13849-1: 2006 (Category 3) (PLc,d), EN61508 (SIL2), EN62061 (SIL2), EN61800-5-2 (STO), IEC61326-3-1 (SIL2) |
| | UL standards | | UL 508C |
| | CSA standards | | CSA22.2 No. 14 |
| Korean Radio Regulations (KC) | | Certified | |

Note: 1. The above items reflect individual evaluation testing. The results may differ under compound conditions.

Note: 2. Always disconnect all connections to the Servo Drive before you perform insulation resistance tests on it. If you perform an insulation resistance test while the Servo Drive is connected, the Servo Drive may be damaged. Never perform dielectric strength tests on the Servo Drive. Failure to follow this precaution may result in damaging internal elements.

Note: 3. Some Servo Drive parts will require maintenance. For details, refer to the G5 series USER'S MANUAL. Confirm the Manual No. that is listed in Related Manuals.

Characteristics

● Servo Drives with 100 VAC Input Power for Single-phase input type

| Item | | | R88D-KNA5L-ECT | R88D-KN01L-ECT | R88D-KN02L-ECT | R88D-KN04L-ECT |
|-----------------------------------|-------------------------|-----------------------|--|----------------|----------------|----------------|
| Continuous output current (rms) | | | 1.2A | 1.7A | 2.5A | 4.6A |
| Input power supply | Main circuit | Power supply capacity | 0.4KVA | 0.4KVA | 0.5KVA | 0.9KVA |
| | | Power supply voltage | Single-phase 100 to 120 VAC (85 to 132 V) 50/60 Hz | | | |
| | | Rated current | 1.7A | 2.6A | 4.3A | 7.6A |
| | | Heat value*1 | 11W | 16.6W | 21W | 25W |
| | Control circuit | Power supply voltage | Single-phase 100 to 120 VAC (85 to 132 V) 50/60 Hz | | | |
| | | Heat value*1 | 4W | 4W | 4W | 4W |
| Weight | | | Approx. 0.8kg | Approx. 0.8kg | Approx. 1.0kg | Approx. 1.6kg |
| Maximum applicable motor capacity | | | 50W | 100W | 200W | 400 W |
| Applicable Servomotor (R88M-) | 3,000 r/min Servomotors | INC | K05030H | K10030L | K20030L | K40030L |
| | | ABS | K05030T | K10030S | K20030S | K40030S |
| | 2,000 r/min Servomotors | ABS | - | - | - | - |
| | | ABS | - | - | - | - |

*1. The heat value is given for rated operation.

● Servo Drives with 200 VAC Input Power for Single-phase/Three-phase input type

| Item | | | R88D-KN01H-ECT | R88D-KN02H-ECT | R88D-KN04H-ECT | R88D-KN08H-ECT | R88D-KN10H-ECT | R88D-KN15H-ECT |
|-----------------------------------|-------------------------|-----------------------|--|----------------|----------------|----------------|----------------|--------------------|
| Continuous output current (rms) | | | 1.2A | 1.6A | 2.6A | 4.1A | 5.9A | 9.4A |
| Input power supply | Main circuit | Power supply capacity | 0.5KVA | 0.5KVA *1 | 0.9KVA | 1.3KVA | 1.8KVA | 2.3KVA |
| | | Power supply voltage | Single-phase or 3-phase 200 to 240 VAC (170 to 264 V) 50/60 Hz | | | | | |
| | | Rated current | 1.6/0.9A *1 | 2.4/1.3A *1 | 4.1/2.4A *1 | 6.6/3.6A *1 | 9.1/5.2A *1 | 14.2/8.1A *1 |
| | | Heat value*2 | 14.3/13.7W*1 | 23/19W *1 | 33/24W *1 | 30/35.5W *1 | 57/49W *1 | 104/93W*1 |
| | Control circuit | Power supply voltage | Single-phase 200 to 240 VAC (170 to 264 V) 50/60 Hz | | | | | |
| | | Heat value*2 | 4W | 4W | 4W | 4W | 7W | 7W |
| Weight | | | Approx. 0.8kg | Approx. 0.8kg | Approx. 1.0kg | Approx. 1.6kg | Approx. 1.8kg | Approx. 1.8kg |
| Maximum applicable motor capacity | | | 100W | 200W | 400W | 750W | 1kW | 1.5kW |
| Applicable Servomotor (R88M-) | 3,000 r/min Servomotors | INC | K05030H K10030H | K20030H | K40030H | K75030H | - | K1K030H K1K530H |
| | | ABS | K05030T K10030T | K20030T | K40030T | K75030T | - | K1K030T K1K530T |
| | 2,000 r/min Servomotors | INC | - | - | - | - | K1K020H | K1K520H |
| | | ABS | - | - | - | - | K1K020T | K1K520T |
| | 1,000 r/min Servomotors | INC | - | - | - | - | - | K90010H |
| | | ABS | - | - | - | - | - | K90010T |

*1. The first value is for single-phase input power and the second value is for 3-phase input power.

*2. The heat value is given for rated operation.

AC Servomotor/Drive G5-series

● Servo Drives with 200 VAC Input Power for Three-phase input type

| Item | | | R88D-KN20H-ECT | R88D-KN30H-ECT | R88D-KN50H-ECT | R88D-KN75H-ECT | R88D-KN150H-ECT | |
|-----------------------------------|---|-----------------------|---|----------------|--------------------|----------------|---|--|
| Continuous output current (rms) | | | 13.4A | 18.7A | 33.0A | 44.0A | 66.1A | |
| Input power supply | Main circuit | Power supply capacity | 3.3KVA | 4.5KVA | 7.5KVA | 11.0KVA | 22.0KVA | |
| | | Power supply voltage | 3-phase 200 to 230 VAC (170 to 253 V) 50/60 Hz | | | | 3-phase 200 to 230 VAC (170 to 253V) 50/60Hz 280 to 325 VDC (238 to 357V) | |
| | | Rated current | 11.8A | 15.1A | 21.6A | 32.0A | 58.0A | |
| | | Heat value *1 | 139W | 108W | 328W | 381W | 720W | |
| | Control circuit | Power supply voltage | Single-phase 200 to 230 VAC (170 to 253 V) 50/60 Hz | | | | Single-phase 200 to 230 VAC (170 to 253V) 50/60Hz 280 to 325 VDC (238 to 357V) | |
| | | Heat value *1 | 10W | 13W | 13W | 15W | 17W | |
| Weight | | | Approx. 2.7kg | Approx. 4.8kg | Approx. 4.8kg | Approx. 13.5kg | Approx. 21.0kg | |
| Maximum applicable motor capacity | | | 2kW | 3kW | 5kW | 7.5kW | 15kW | |
| Applicable Servomotor (R88M-) | 3,000 r/min Servomotors | INC | K2K030H | K3K030H | K4K030H K5K030H | - | - | |
| | | ABS | K2K030T | K3K030T | K4K030T K5K030T | - | - | |
| | 2,000 r/min, 1,500 r/min Servomotors | INC | K2K020H | K3K020H | K4K020H K5K020H | - | - | |
| | | ABS | K2K020T | K3K020T | K4K020T K5K020T | K7K515T | K11K015T K15K015T | |
| | 1,000 r/min Servomotors | INC | - | K2K010H | K3K010H | - | - | |
| | | ABS | - | K2K010T | K3K010T K4K510T | K6K010T | - | |

*1. The heat value is given for rated operation.

● Servo Drives with 400 VAC Input Power for Three-phase input type

| Item | | | R88D-KN06F-ECT | R88D-KN10F-ECT | R88D-KN15F-ECT | R88D-KN20F-ECT | R88D-KN30F-ECT | R88D-KN50F-ECT | R88D-KN75F-ECT | R88D-KN150F-ECT | |
|-----------------------------------|---|-----------------------|--|----------------|--------------------|----------------|----------------|--------------------|----------------|----------------------|--|
| Continuous output current (rms) | | | 1.5A | 2.9A | 4.7A | 6.7A | 9.4A | 16.5A | 22.0A | 33.1A | |
| Input power supply | Main circuit | Power supply capacity | 1.2KVA | 1.8KVA | 2.3KVA | 3.8KVA | 4.5KVA | 6.0KVA | 11.0KVA | 22.0KVA | |
| | | Power supply voltage | 3-phase 380 to 480 VAC (323 to 528 V) 50/60 Hz | | | | | | | | |
| | | Rated current | 2.1A | 2.8A | 4.7A | 5.9A | 7.6A | 12.1A | 16.0A | 29.0A | |
| | | Heat value *1 | 32.2W | 48W | 49W | 65W | 108W | 200W | 300W | 590W | |
| | Control circuit | Power supply voltage | 24 VDC (20.4 to 27.6 V) | | | | | | | | |
| | | Heat value *1 | 7W | 7W | 7W | 10W | 13W | 13W | 15W | 22W | |
| Weight | | | Approx. 1.9kg | Approx. 1.9kg | Approx. 1.9kg | Approx. 2.7kg | Approx. 4.7kg | Approx. 4.7kg | Approx. 13.5kg | Approx. 21.0kg | |
| Maximum applicable motor capacity | | | 600W | 1kW | 1.5kW | 2kW | 3kW | 5kW | 7.5kW | 15kW | |
| Applicable Servomotor (R88M-) | 3,000 r/min Servomotors | INC | - | K75030F | K1K030F K1K530F | K2K030F | K3K030F | K4K030F K5K030F | - | - | |
| | | ABS | - | K75030C | K1K030C K1K530C | K2K030C | K3K030C | K4K030C K5K030C | - | - | |
| | 2,000 r/min, 1,500 r/min Servomotors | INC | K40020F K60020F | K1K020F | K1K520F | K2K020F | K3K020F | K4K020F K5K020F | - | - | |
| | | ABS | K40020C K60020C | K1K020C | K1K520C | K2K020C | K3K020C | K4K020C K5K020C | K7K515C | K11K015C K15K015C | |
| | 1,000 r/min Servomotors | INC | - | - | K90010F | - | K2K010F | K3K010F | - | - | |
| | | | - | - | K90010C | - | K2K010C | K3K010C K4K510C | K6K010C | - | |

*1. The heat value is given for rated operation.

EtherCAT Communications Specifications

| Item | Specification |
|--------------------------------|--|
| Communications standard | IEC 61158 Type 12, IEC 61800-7 CiA 402 Drive Profile |
| Physical layer | 100BASE-TX (IEEE802.3) |
| Connectors | RJ45 × 2 (shielded) ECAT IN: EtherCAT input ECAT OUT: EtherCAT output |
| Communications media | Ethernet Category 5 (100BASE-TX) or higher (twisted-pair cable with double, aluminum tape and braided shielding) is recommended. |
| Communications distance | Distance between nodes: 100 m max. |
| Process data | Fixed PDO mapping |
| Mailbox (CoE) | Emergency messages, SDO requests, SDO responses, and SDO information |
| Distributed clock (DC) | Synchronization in DC mode. DC cycle: 250 μs, 500 μs, 1 ms, 2 ms, 4 ms |
| LED indicators | L/A IN (Link/Activity IN) × 1 L/A OUT (Link/Activity OUT) × 1 RUN × 1 ERR × 1 |
| CiA402 Drive Profile | <ul style="list-style-type: none"> • Cyclic synchronous position mode • Cyclic synchronous velocity mode • Cyclic synchronous torque mode • Profile position mode • Homing mode • Touch probe function (Latch function) • Torque limit function |

Version Information

Unit Versions

| Unit | Model | Unit version | | |
|--|----------------|---------------------------|---------------------------|------------------------|
| | | Unit version 1.0 | Unit version 2.0 | Unit version 2.1 |
| AC Servo Drives G5-Series built-in EtherCAT Communications | R88D-KN□-ECT-R | Supported | | |
| | R88D-KN□-ECT | | Supported | Supported |
| Compatible Sysmac Studio version | | Version 1.00 or higher *1 | Version 1.00 or higher *2 | Version 1.00 or higher |
| Compatible CX-Drive version | | Version 2.2 or higher | Version 2.3 or higher | Version 2.4 or higher |

*1. The function that was enhanced by the upgrade for Unit version 2.0 can not be used. For detail, refer to "Function Support by Unit Version".

*2. The function that was enhanced by the upgrade for Unit version 2.1 can not be used. For detail, refer to "Function Support by Unit Version".

Function Support by Unit Version

| Unit | | AC Servo Drives G5-Series built-in EtherCAT Communications | | |
|---|---------------------------------------|--|---|------------------|
| Model | | R88D-KN□-ECT-R | R88D-KN□-ECT | |
| Unit version | | Unit version 1.0 | Unit version 2.0 | Unit version 2.1 |
| Sysmac Products Features | Sysmac Error Status | No supported | | Supported |
| | Saving the Node Address Setting | No supported | | Supported |
| | Serial Number Display *1 | No supported | | Supported |
| | ESI Specification (Version 1.0) | No supported | | Supported |
| | SII Data Check | No supported | | Supported |
| Fixed PDO mapping | | No supported | Supported | |
| Variable PDO mapping (1600 hex, 1A00 hex) | | No supported | | Supported |
| Available operation modes | csp: Cyclic synchronous position mode | Supported | | |
| | csv: Cyclic synchronous velocity mode | No supported | Supported | |
| | cst: Cyclic synchronous torque mode | No supported | Supported | |
| | pp: Profile position mode | No supported | | Supported |
| | hm: Homing mode | No supported | Supported | |
| FIR filter function | | No supported | Supported*2 (Available when the communications cycle is 1 ms or above) | |
| Error detection function | Excessive Speed Deviation Error | No supported | Supported | |
| | Interruptions Error | No supported | Supported | |
| Electronic gear function | | Supported | No supported*3 (only to 1:1) | Supported |

AC Servomotor/Drive G5-series

| Unit | | AC Servo Drives G5-Series built-in EtherCAT Communications | | |
|---|--|--|--|---|
| Model | | R88D-KN□-ECT-R | R88D-KN□-ECT | |
| Unit version | | Unit version 1.0 | Unit version 2.0 | Unit version 2.1 |
| Item | | | | |
| Fully-closed Control *4 | | Supported | Available when the communications cycle is 500 μs or above in csp and 1 ms or above in hm. | Available when the communications cycle is 1 ms or above at an electronic gear ratio of 1:1 and 2 ms or above at a gear ratio other than 1:1.*5 |
| Torque limit objects | | PDO mapping to 60E0/60E1 hex is not possible. | PDO mapping to 60E0/60E1 hex is possible.*6 | |
| Positioning Completion Range | | No supported | | Supported |
| Reference Position for CSP (4020 hex) | | No supported | | Supported |
| Data Setting Warning Detection Setting (3781) | | No supported | | Supported*7 |
| Version indication on the unit label | | No supported | Supported | |

*1. The function to show the serial number controlled by OMRON in 1018h-04 hex.

*2. Setting the communications cycle to 500 μs or less does not enable the FIR filter function, although doing so does not cause any error.

*3. Setting this to an electronic gear ratio other than 1:1 simply causes the G5-series AC Servo Drive to operate at 1:1 without any errors.

*4. If Fully-closed Control is not available, a Function Setting Error (Error No. 93.4) will occur.

*5. This is applicable only when the total size of the objects mapped to RxPDO is 12 bytes or less. For details, refer to the USER'S MANUAL.

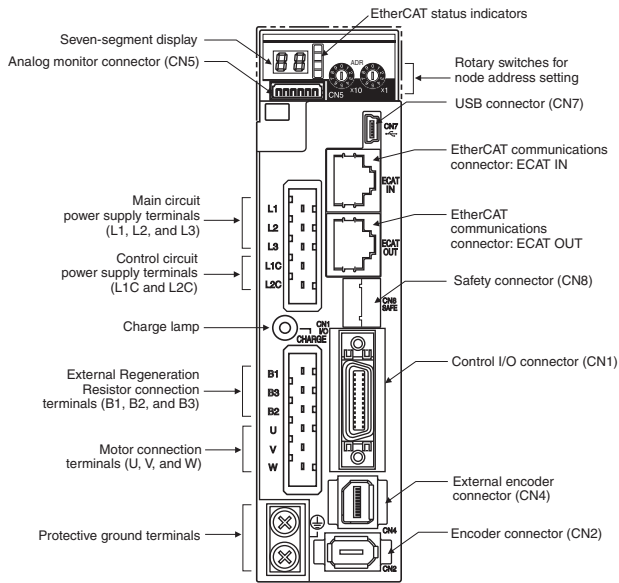
*6. There are objects added (3013 hex/3522 hex) to or renamed (3525 hex/3526 hex) from unit version 1.0.

For details of these objects, refer to Torque Limit Selection (3521 hex) in Extended Objects of each manual.

*7. Only the following Servo Drive models support DC power input:

- R88D-KN75H-ECT • R88D-KN150H-ECT

Components and Functions



Display

A 2-digit 7-segment display shows the node address, error codes, and other Servo Drive status.

Charge Lamp

Lights when the main circuit power supply is turned ON.

EtherCAT Status Indicators

These indicators show the status of EtherCAT communications. For details, refer to the G5 series USER'S MANUAL (Cat.No.I576).

Control I/O Connector (CN1)

Used for command input signals and I/O signals.

Encoder Connector (CN2)

Connector for the encoder installed in the Servomotor.

External Encoder Connector (CN4)*

Connector for an encoder signal used during fully-closed control.

EtherCAT Communications Connectors (ECAT IN and ECAT OUT)

These connectors are for EtherCAT communications.

Analog Monitor Connector (CN5)

You can use a special cable to monitor values, such as the motor rotation speed, torque command value, etc.

USB Connector (CN7)

Communications connector for the computer.

Safety Connector (CN8)

Connector for safety devices.

If no safety devices are used, keep the factory-set safety bypass connector installed.

AC Servomotor/Drive G5-series

*External Encoder

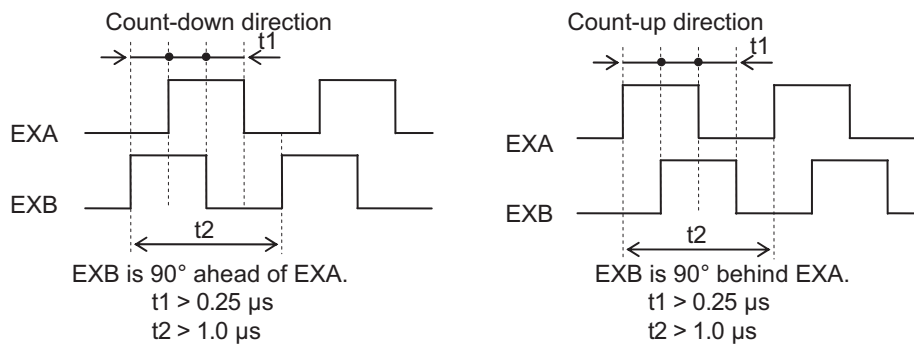
Contact the encoder manufacturer to find out the detailed specifications such as operating environment before use.

| External encoder type | Maker | Example of External encoder | Supported speed *1 | Resolution *4 [μm] | Maximum speed *4 [m/s] |
|---|----------------------|-----------------------------|-------------------------------------|-----------------------|---------------------------|
| 90° phase difference output type *2*3 | – | Phase A/B type | 0 to 4 Mpps (Multiplication × 4) | – | – |
| Serial communications type (Incremental type) *3 | Magnescale Co., Ltd | SR75 | 0 to 400 Mpps | 0.01 to 1 | 3.3 |
| | | SR85 | | 0.01 to 1 | 3.3 |
| | | SL700+PL101RP/RHP | | 0.1 | 10 |
| | | SL710+PL101RP/RHP | | 0.1 | 10 |
| Serial communications type (Absolute type) *3 | Mitutoyo Corporation | AT573A | 0 to 400 Mpps | 0.05 | 2.5 |
| | | ST778A(L) | | 0.1 | 5 |
| | Magnescale Co., Ltd | SR77 | | 0.01 to 1 | 3.3 |
| | | SR87 | | 0.01 to 1 | 3.3 |
| | Renishaw Co. | RESOLUTE | | 0.001 | 0.4 |
| | | | | 0.05 | 20 |
| | FAGOR AUTOMATION | SAP/SVAP/GAP LAP | | 0.1 | 40 |
| | | | | 0.05 | 2.5 |
| | | | | 0.1 | 2 |

*1. The supported speed is the internal feedback pulse speed [external encoder pulse/s] of the external encoder that can be processed by the Servo Drive.

Check the instruction manual of the external encoder for the speed range supported by your external encoder.

*2. These are the directions that the Drive counts a 90° phase difference output.



*3. For the external encoder connection direction, set the direction so that count-up occurs when the motor shaft is rotating counterclockwise, and count-down occurs when the motor shaft is rotating clockwise. If the connection direction cannot be selected due to installation conditions or any other reason, the count direction can be reversed using External Feedback Pulse Direction Switching (3326 hex).

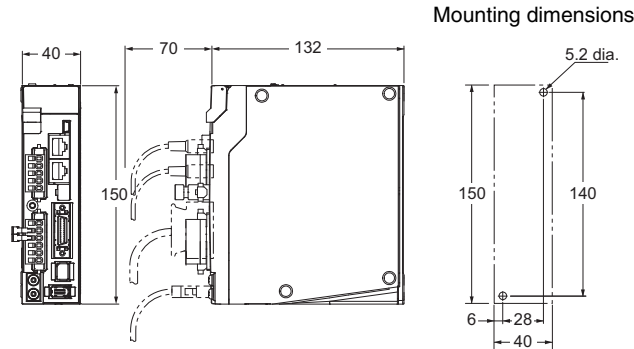
*4. The resolution and maximum speed are the values for the G5-series Servo Drive. The resolution and maximum speed may be different from the specifications of the feedback encoder due to restriction on the maximum pulse frequency of the Servo Drive.

Dimensions

<Wall Mounting>

Single-phase 100 VAC R88D-KNA5L-ECT/-KN01L-ECT (50 to 100 W)
R88D-KN01L-ECT-L (100 W)

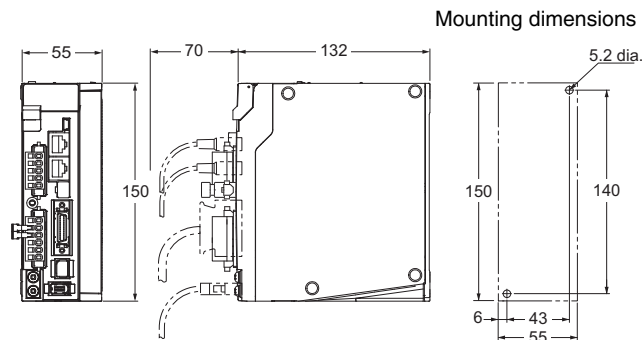
Single-phase/Three-phase 200 VAC R88D-KN01H-ECT/-KN02H-ECT (100 to 200 W)
R88D-KN01H-ECT-L/-KN02H-ECT-L (100 to 200 W)



CAD data

Single-phase 100 VAC R88D-KN02L-ECT (200 W)
R88D-KN02L-ECT-L (200 W)

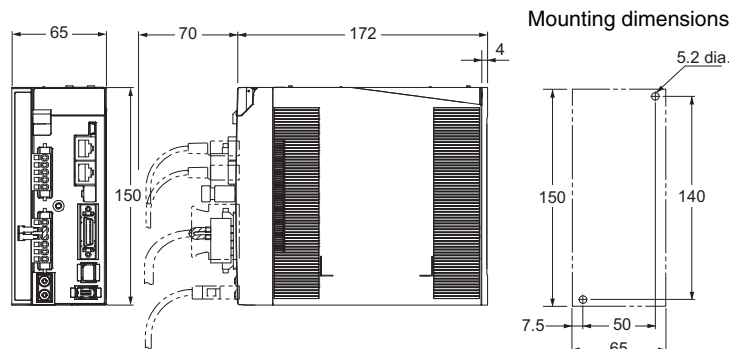
Single-phase/Three-phase 200 VAC R88D-KN04H-ECT (400 W)
R88D-KN04H-ECT-L (400 W)



CAD data

Single-phase 100 VAC R88D-KN04L-ECT (400 W)
R88D-KN04L-ECT-L (400 W)

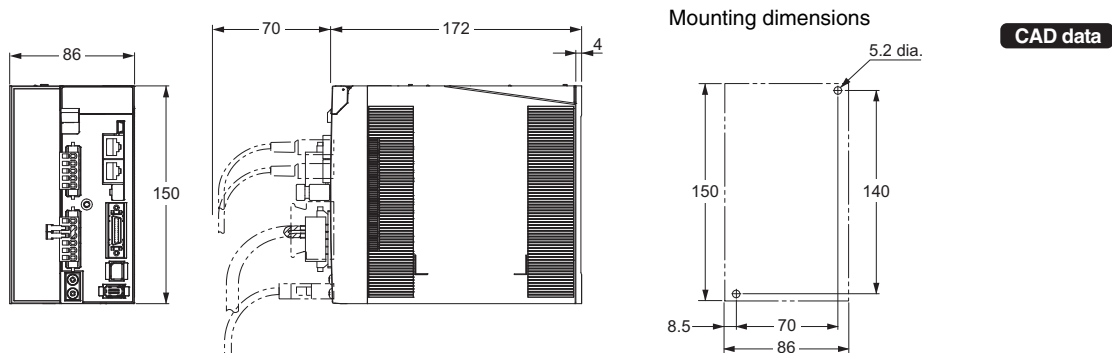
Single-phase/Three-phase 200 VAC R88D-KN08H-ECT (750 W)
R88D-KN08H-ECT-L (750 W)



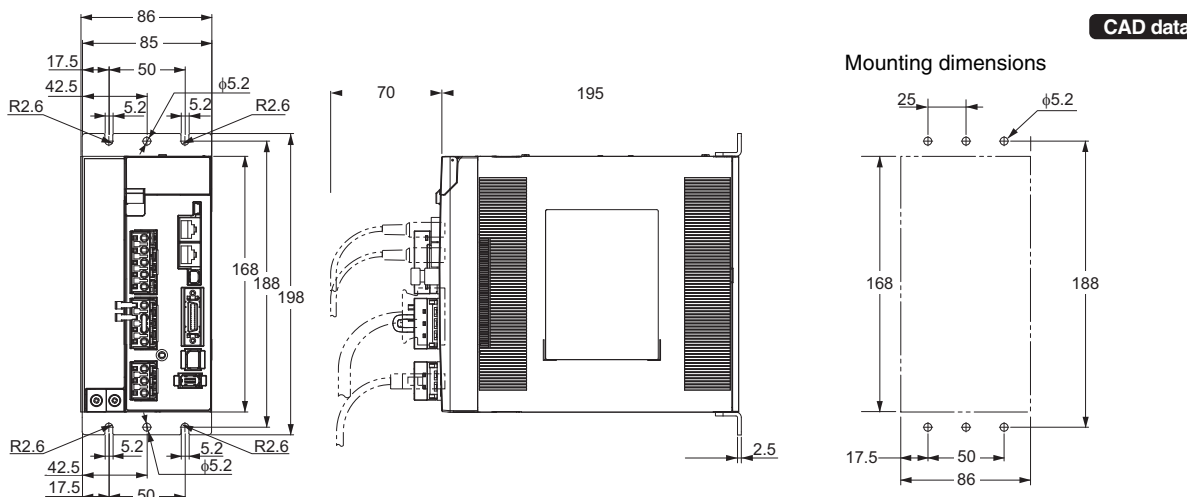
CAD data

Note: R88D-KN□-ECT-L is the AC Servo Drives with Built-in EtherCAT Communications type.

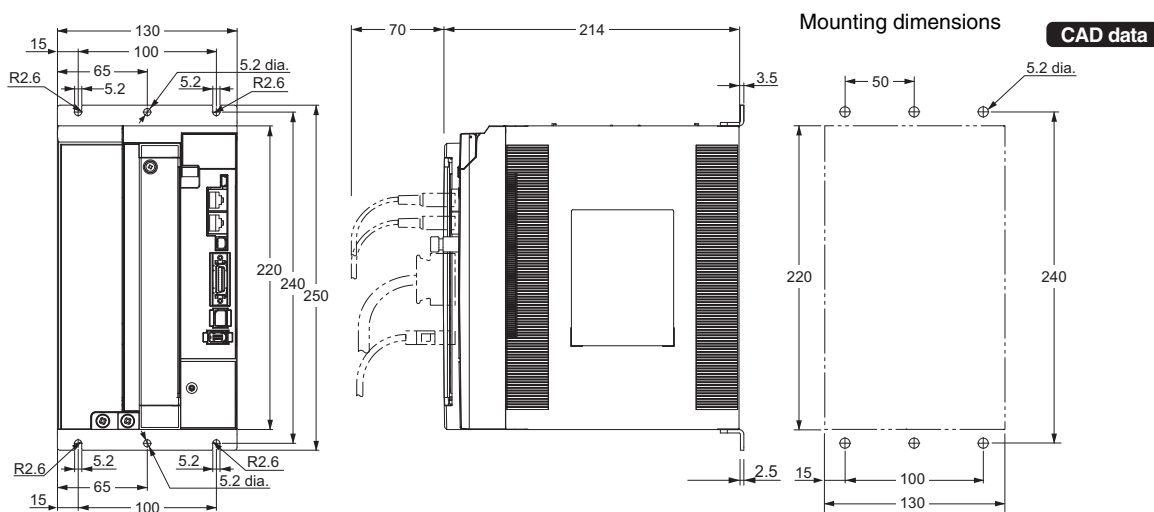
Single-phase/Three-phase 200 VAC R88D-KN10H-ECT/-KN15H-ECT (900 W to 1.5 kW)
R88D-KN10H-ECT-L/-KN15H-ECT-L (1 kW to 1.5 kW)



Three-phase 200 VAC R88D-KN20H-ECT (2 kW)

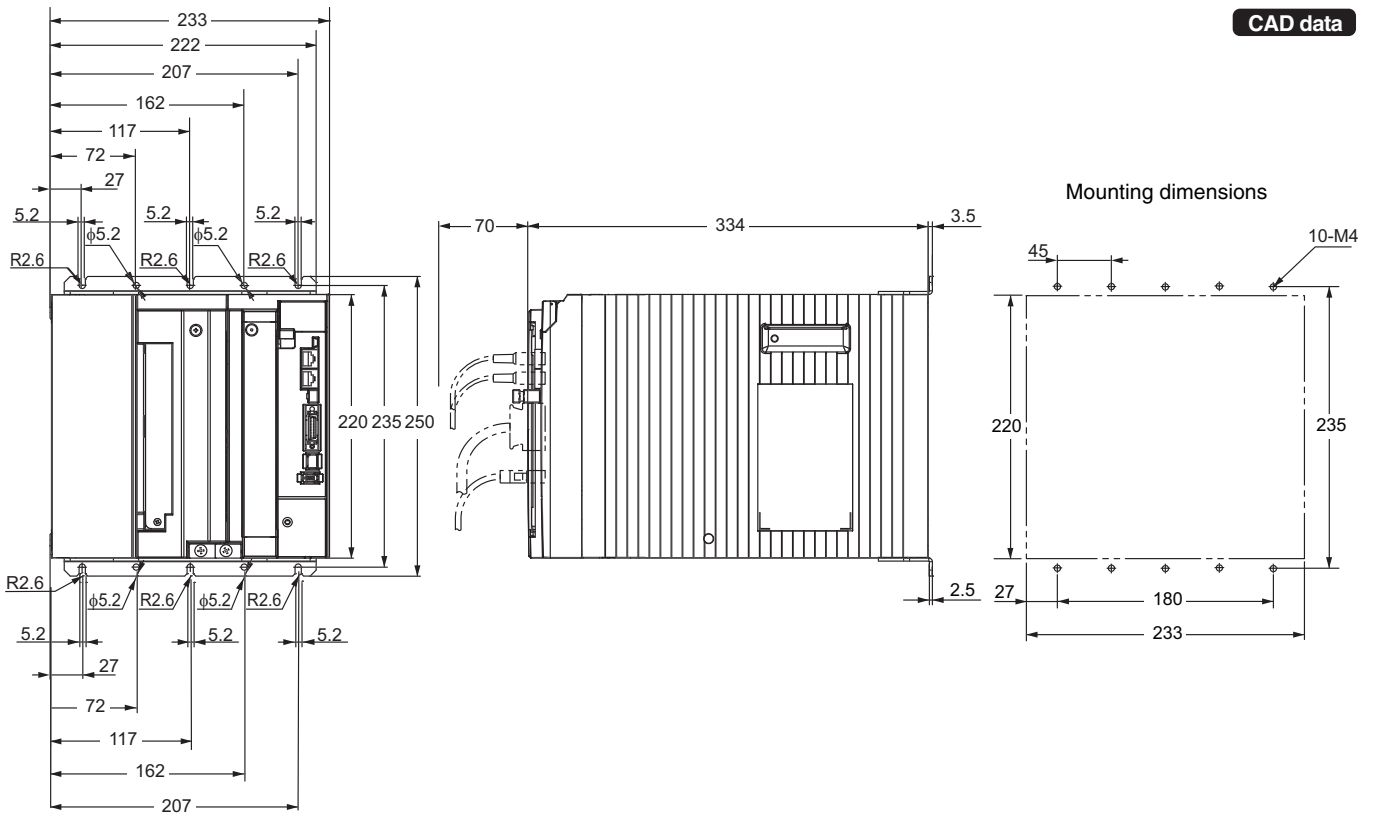


Three-phase 200 VAC R88D-KN30H-ECT/-KN50H-ECT (3 to 5 kW)



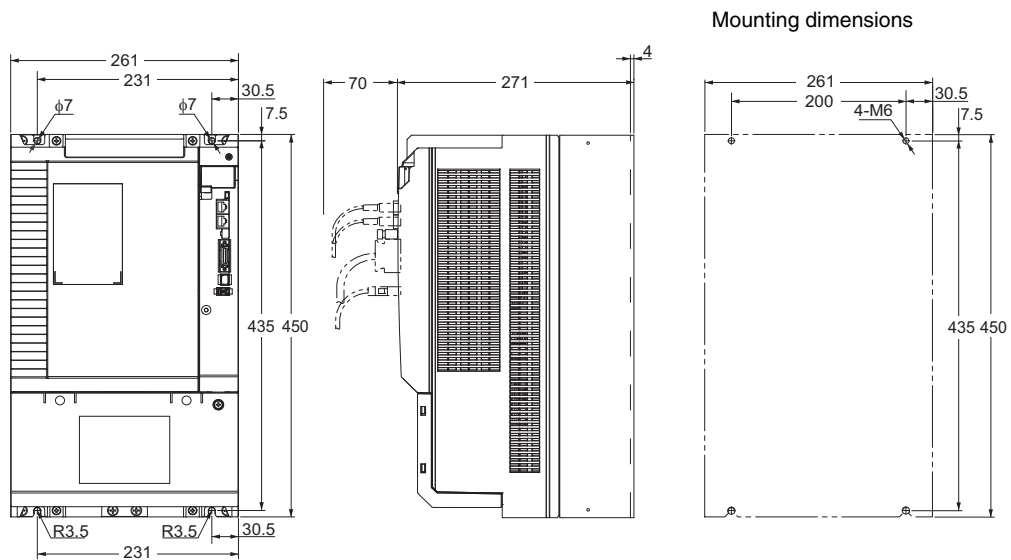
Three-phase 200 VAC R88D-KN75H-ECT (7.5 kW)

CAD data



Three-phase 200 VAC R88D-KN150H-ECT (15 kW)

CAD data



G5-Series
System Configuration

EtherCAT Communications
AC Servo Drive

EtherCAT Communications
Linear Motor Type
AC Servo Drive

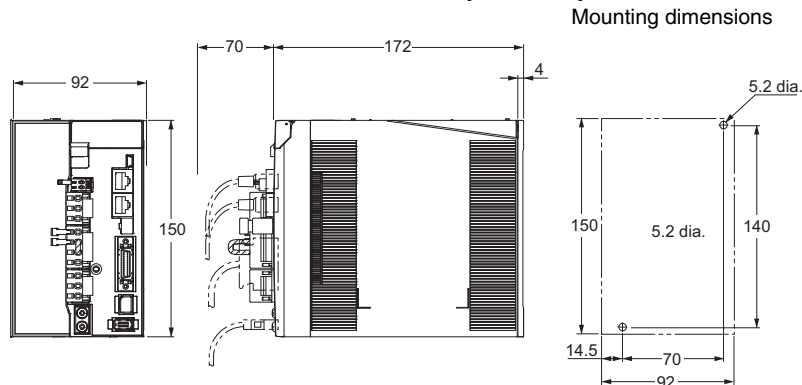
General-purpose Inputs
AC Servo Drive

ML-II Type
AC Servo Drive

AC Servomotors

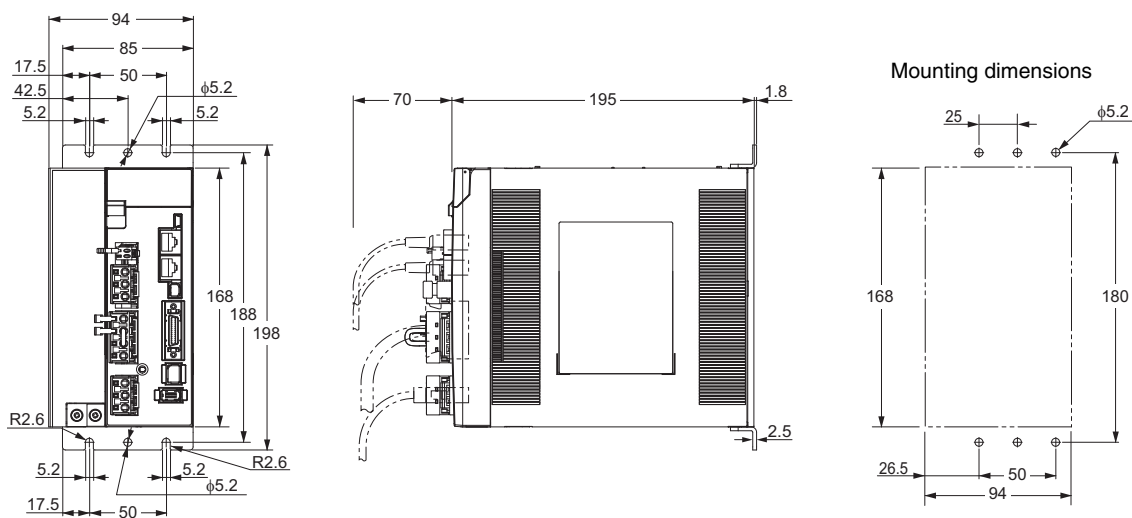
Linear Motor

Three-phase 400 VAC R88D-KN06F-ECT/-KN10F-ECT (600 W to 1.0 kW)
R88D-KN06F-ECT-L/-KN10F-ECT-L (600 W to 1.0 kW)
Three-phase 400 VAC R88D-KN15F-ECT (1.5 kW)
R88D-KN15F-ECT-L (1.5 kW)



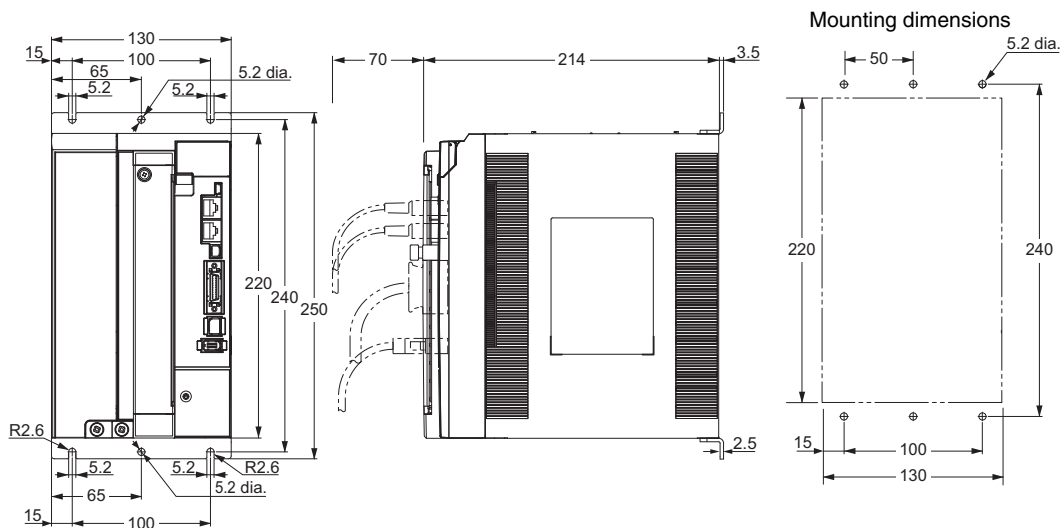
CAD data

Three-phase 400 VAC R88D-KN20F-ECT (2 kW)
R88D-KN20F-ECT-L (2 kW)



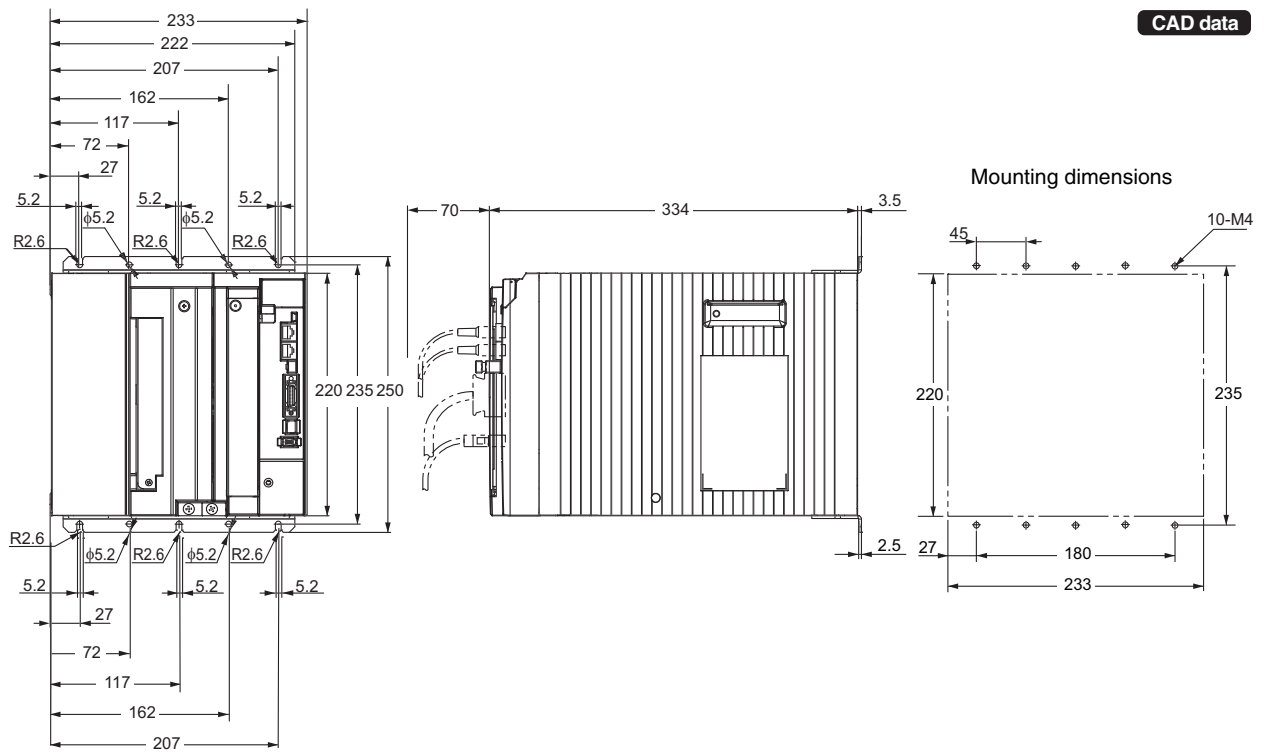
CAD data

Three-phase 400 VAC R88D-KN30F-ECT/-KN50F-ECT (3 to 5 kW)
R88D-KN30F-ECT-L (3 kW)

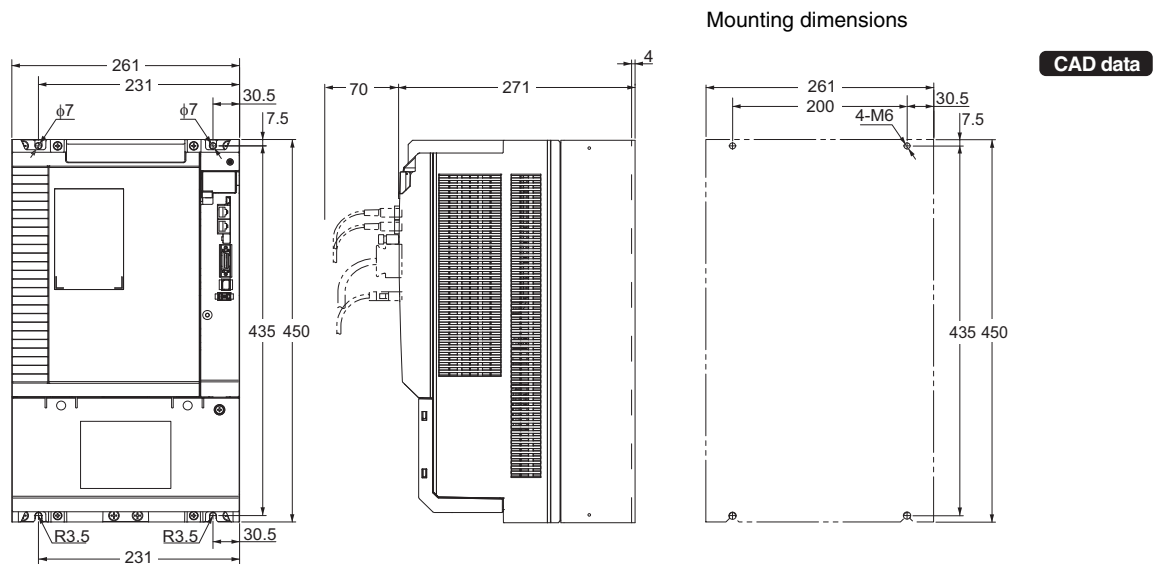


CAD data

Three-phase 200 VAC R88D-KN75H-ECT (7.5 kW)



Three-phase 400 VAC R88D-KN150F-ECT (15kW)



G5-Series
System Configuration

EtherCAT Communications
AC Servo Drive

EtherCAT Communications
Linear Motor Type
AC Servo Drive

General-purpose Inputs
AC Servo Drive

ML-II Type
AC Servo Drive

AC Servomotors

Linear Motor

G5-series AC Servo Drives with Built-in EtherCAT Communications Linear Motor Type

R88D-KN□-ECT-L

Contents



- Ordering Information
- Specifications
 - General Specifications
 - Characteristics
 - Servo Drives with 100 VAC Input Power
 - Servo Drives with 200 VAC Input Power
 - Servo Drives with 400 VAC Input Power
 - EtherCAT Communication Specifications
- Version Information
- Names and Functions
 - Servo Drive Part Names
 - Functions
- Dimensions



Ordering Information

Refer to the Ordering Information.

Specifications

General Specifications

| Item | Specifications | |
|--|---|---|
| Ambient operating temperature and humidity | 0 to 55°C, 20% to 85% max. (with no condensation) | |
| Storage ambient temperature and humidity | -20 to 65°C, 20% to 85% max. (with no condensation) | |
| Operating and storage atmosphere | No corrosive gases | |
| Vibration resistance | 10 to 60 Hz and at an acceleration of 5.88 m/s ² or less (Not to be run continuously at the resonance point) | |
| Insulation resistance | Between power supply terminals/power terminals and FG terminal: 0.5 MΩ min. (at 500 VDC) | |
| Dielectric strength | Between power supply/power terminals and FG terminal: 1,500 VAC for 1 min at 50/60 Hz | |
| Protective structure | Built into panel | |
| EC Directives* | EMC Directive | EN 55011, EN 61000-6-2, EN 61800-3 |
| | Low Voltage Directive | EN 61800-5-1 |
| | Machinery Directives | EN954-1(Cat.3), EN ISO13849-1 (Cat.3)(PLc, d), ISO13849-1(Cat.3)(PLc, d), EN61508(SIL2), EN62061(SIL2), EN61800-5-2 (STO), IEC61326-3-1 (SIL 2) |
| UL standards | UL 508C | |
| CSA standards | CSA22.2 No.14 | |
| Korean Radio Regulations (KC) | Certified | |

* The certification from third party is issued in combination with the revolution type motor. The conformance as the whole system should be checked by machine builder.

Note: 1. The above items reflect individual evaluation testing. The results may differ under compound conditions.

Note: 2. Always disconnect all connections to the Servo Drive before you perform insulation resistance tests on it. If you perform an insulation resistance test while the Servo Drive is connected, the Servo Drive may be damaged. Never perform dielectric strength tests on the Servo Drive. Failure to follow this precaution may result in damaging internal elements.

Note: 3. Some Servo Drive parts will require maintenance. For details, refer to the G5 series USER'S MANUAL. Confirm the Manual No. that is listed in Related Manuals.

Note: 4. Vibration, unstable movement, or acoustic noise may occur by an exogenous noise. In such case, please reduce incoming noise as referred in G5 series user's manuals.

Characteristics

● 100-VAC Input Models for Single-phase input type

| Item | | | R88D-KN01L-ECT-L | R88D-KN02L-ECT-L | R88D-KN04L-ECT-L |
|------------------------|--------------------------|--------------------------|--|------------------|------------------|
| Input power supply | Main circuit | Power supply capacity | 0.4 KVA | 0.5 KVA | 0.9 KVA |
| | | Power supply voltage | Single-phase 100 to 120 VAC (85 to 132 VAC) 50/60 Hz | | |
| | | Rated current | 2.6 A | 4.3 A | 7.6 A |
| | | Heat value ^{*1} | 16.6 W | 21 W | 25 W |
| | Control circuit | Power supply voltage | Single-phase 100 to 120 VAC (85 to 132 VAC) 50/60 Hz | | |
| | | Heat value ^{*1} | 4 W | 4 W | 4 W |
| Mass | | | Approx. 0.8 kg | Approx. 1.0 kg | Approx. 1.6 kg |
| Maximum motor capacity | Motor Rated Rms Current | | 1.7 Arms | 2.5 Arms | 4.6 Arms |
| | Maximum current of motor | | 5.1 Arms | 7.5 Arms | 13.8 Arms |

*1. The heat value is given for rated operation.

● 200-VAC Input Models for Single-phase/Three-phase input type

| Item | | | R88D-KN01H-ECT-L | R88D-KN02H-ECT-L | R88D-KN04H-ECT-L | R88D-KN08H-ECT-L | R88D-KN10H-ECT-L | R88D-KN15H-ECT-L |
|------------------------|----------------------------------|--------------------------|--|-------------------------|-------------------------|-------------------------|-------------------------|--------------------------|
| Input power supply | Main circuit | Power supply capacity | 0.5 KVA | 0.5 KVA | 0.9 KVA | 1.3 KVA | 1.8 KVA | 2.3 KVA |
| | | Power supply voltage | Single-phase or 3-phase 200 to 240 VAC (170 to 264 VAC) 50/60 Hz | | | | | |
| | | Rated current | 1.6/0.9 A ^{*1} | 2.4/1.3 A ^{*1} | 4.1/2.4 A ^{*1} | 6.6/3.6 A ^{*1} | 9.1/5.2 A ^{*1} | 14.2/8.1 A ^{*1} |
| | | Heat value ^{*2} | 14.3/13.7 W ^{*1} | 23/19 W ^{*1} | 33/24 W ^{*1} | 30/35.5 W ^{*1} | 57/49 W ^{*1} | 104/93 W ^{*1} |
| | Control circuit | Power supply voltage | Single-phase 200 to 240 VAC (170 to 264 VAC) 50/60 Hz | | | | | |
| | | Heat value ^{*2} | 4 W | 4 W | 4 W | 4 W | 7 W | 7 W |
| Mass | | | Approx. 0.8 kg | Approx. 0.8 kg | Approx. 1.0 kg | Approx. 1.6 kg | Approx. 1.8 kg | Approx. 1.8 kg |
| Maximum motor capacity | Rated effective current of motor | | 1.2 Arms | 1.6 Arms | 2.6 Arms | 4.1 Arms | 5.9 Arms | 9.4 Arms |
| | Maximum current of motor | | 3.6 Arms | 4.8 Arms | 7.8 Arms | 12.3 Arms | 16.9 Arms | 28.2 Arms |

*1. The first value is for single-phase input power and the second value is for 3-phase input power.

*2. The heat value is given for rated operation.

● 400-VAC Input Models for Three-phase input type

| Item | | | R88D-KN06F-ECT-L | R88D-KN10F-ECT-L | R88D-KN15F-ECT-L | R88D-KN20F-ECT-L | R88D-KN30F-ECT-L |
|------------------------|----------------------------------|--------------------------|--|------------------|------------------|------------------|------------------|
| Input power supply | Main circuit | Power supply capacity | 1.2 KVA | 1.8 KVA | 2.3 KVA | 3.8 KVA | 4.5 KVA |
| | | Power supply voltage | 3-phase 380 to 480 VAC (323 to 528 VAC) 50/60 Hz | | | | |
| | | Rated current | 2.1 A | 2.8 A | 3.9 A | 5.9 A | 7.6 A |
| | | Heat value ^{*1} | 32.2 W | 48 W | 49 W | 65 W | 108 W |
| | Control circuit | Power supply voltage | 24 VDC (20.4 to 27.6 VAC) | | | | |
| | | Heat value ^{*1} | 7 W | 7 W | 7W | 10 W | 13 W |
| Mass | | | Approx. 1.9 kg | Approx. 1.9 kg | Approx. 1.9 kg | Approx. 2.7 kg | Approx. 4.7 kg |
| Maximum motor capacity | Rated effective current of motor | | 1.5 Arms | 2.9 Arms | 4.7 Arms | 6.7 Arms | 9.4 Arms |
| | Maximum current of motor | | 4.5 Arms | 8.7 Arms | 14.1 Arms | 19.7 Arms | 28.2 Arms |

*1. The heat value is given for rated operation.

EtherCAT Communications Specifications

| Item | Specification |
|--------------------------------|--|
| Communications standard | IEC 61158 Type 12, IEC 61800-7 CiA 402 Drive Profile |
| Physical layer | 100BASE-TX (IEEE802.3) |
| Connectors | RJ45 × 2 (shielded) ECAT IN: EtherCAT input ECAT OUT: EtherCAT output |
| Communications media | Ethernet Category 5 (100BASE-TX) or higher (twisted-pair cable with double, aluminum tape and braided shielding) is recommended. |
| Communications distance | Distance between nodes: 100 m max. |
| Process data | Fixed PDO mapping |
| Mailbox (CoE) | Emergency messages, SDO requests, SDO responses, and SDO information |
| Distributed clock (DC) | Synchronization in DC mode. DC cycle: 250 μs, 500 μs, 1 ms, 2 ms, 4 ms |
| LED indicators | L/A IN (Link/Activity IN) × 1 L/A OUT (Link/Activity OUT) × 1 RUN × 1 ERR × 1 |
| CiA402 Drive Profile | <ul style="list-style-type: none"> • Cyclic synchronous position mode • Cyclic synchronous velocity mode • Cyclic synchronous torque mode • Profile position mode • Homing mode • Touch probe function (Latch function) • Torque limit function |

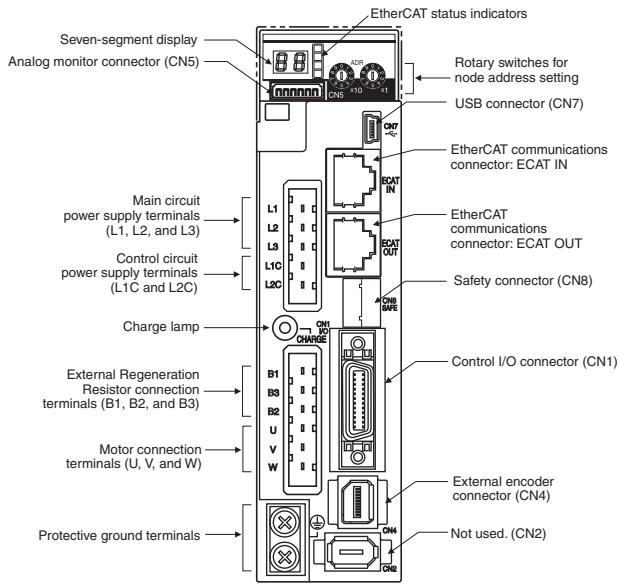
Version Information

Unit Versions

● AC Servo Drives with built-in EtherCAT communications Linear motor type and Software

| Unit | Model | Unit version |
|---|-------------------------|------------------------|
| | | Unit version 1.1 |
| AC Servo Drives G5-Series built-in EtherCAT Communications Linear Motor Type | R88D-KN□□□-ECT-L | Supported |
| Compatible Sysmac Studio version | | Version 1.04 or higher |
| Compatible CX-Drive version | | Version 2.72 or higher |

Components and Functions



Display

A 2-digit 7-segment display shows the node address, error codes, and other Servo Drive status.

Charge Lamp

Lights when the main circuit power supply is turned ON.

EtherCAT Status Indicators

These indicators show the status of EtherCAT communications. For details, refer to the G5 series USER'S MANUAL (Cat.No.I576).

Control I/O Connector (CN1)

Used for command input signals and I/O signals.

External Encoder Connector (CN4)*

Connector for an encoder signal used during fully-closed control.

EtherCAT Communications Connectors (ECAT IN and ECAT OUT)

These connectors are for EtherCAT communications.

Analog Monitor Connector (CN5)

You can use a special cable to monitor values, such as the motor rotation speed, torque command value, etc.

USB Connector (CN7)

Communications connector for the computer.

Safety Connector (CN8)

Connector for safety devices.

If no safety devices are used, keep the factory-set safety bypass connector installed.

AC Servomotor/Drive G5-series

*External Encoder

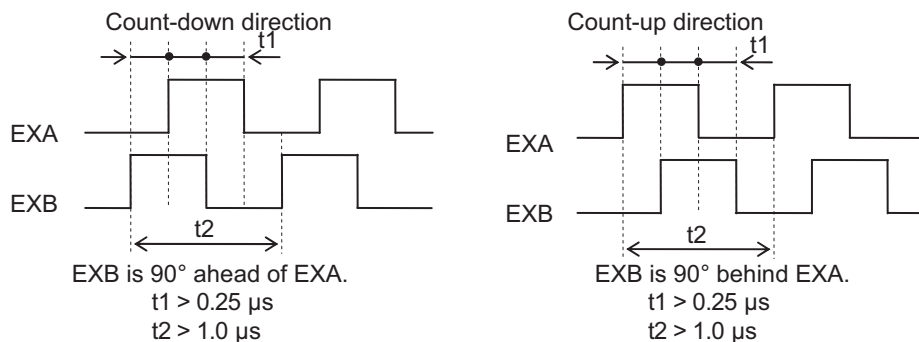
Contact the encoder manufacturer to find out the detailed specifications such as operating environment before use.

| External encoder type | Maker | Example of External encoder | Supported speed ^{*1} | Resolution [μm] ^{*4} | Maximum speed ^{*4} [m/s] |
|--|----------------------|-----------------------------|--|--|-----------------------------------|
| 90° phase difference output type ^{*2*3} | – | Phase A/B type | 0 to 4 Mpps (Multiplication \times 4) | – | – |
| Serial communications type (Incremental type) ^{*3} | Magnescale Co., Ltd | SR75 | 0 to 400 Mpps | 0.01 to 1 | 3.3 |
| | | SR85 | | 0.01 to 1 | 3.3 |
| | | SL700+PL101RP/RHP | | 0.1 | 10 |
| | | SL710+PL101RP/RHP | | 0.1 | 10 |
| Serial communications type (Absolute type) ^{*3} | Mitutoyo Corporation | AT573A | 0 to 400 Mpps | 0.05 | 2.5 |
| | | ST778A(L) | | 0.1 | 5 |
| | Magnescale Co., Ltd | SR77 | | 0.01 to 1 | 3.3 |
| | | SR87 | | 0.01 to 1 | 3.3 |
| | Renishaw Co. | RESOLUTE | | 0.001 | 0.4 |
| | | | | 0.05 | 20 |
| | | | | 0.1 | 40 |
| | FAGOR AUTOMATION | SAP/SVAP/GAP | | 0.05 | 2.5 |
| LAP | | 0.1 | 2 | | |

***1.** The supported speed is the internal feedback pulse speed [external encoder pulse/s] of the external encoder that can be processed by the Servo Drive.

Check the instruction manual of the external encoder for the speed range supported by your external encoder.

***2.** These are the directions that the Drive counts a 90° phase difference output.



***3.** For the external encoder connection direction, set the direction so that count-up occurs when the motor shaft is rotating counterclockwise, and count-down occurs when the motor shaft is rotating clockwise. If the connection direction cannot be selected due to installation conditions or any other reason, the count direction can be reversed using External Feedback Pulse Direction Switching (3326 hex).

***4.** The resolution and maximum speed are the values for the G5-series Servo Drive. The resolution and maximum speed may be different from the specifications of the feedback encoder due to restriction on the maximum pulse frequency of the Servo Drive.

Dimensions

Refer to the page of Dimensions of the built-in EtherCAT communication type.

G5-Series AC Servo Drives with General-purpose Pulse Train or Analog Inputs

R88D-KT

Contents

- Ordering Information
- Specifications
 - General Specifications
 - Characteristics
 - Servo Drives with Single-phase 100 VAC Input Power
 - Servo Drives with Single-phase or three-phase 200 VAC Input Power
 - Servo Drives with Three-phase 200 VAC Input Power
 - Servo Drives with 400 VAC Input Power
- Names and Functions
 - Servo Drive Part Names
 - Functions
- Dimensions



Ordering Information

Refer to the Ordering Information.

Specifications

General Specifications

| Item | | Specifications | |
|--|---------------|---|--|
| Ambient operating temperature and humidity | | 0 to 55°C, 90% max. (with no condensation) | |
| Storage ambient temperature and humidity | | -20 to 65°C, 90% max. (with no condensation) | |
| Operating and storage atmosphere | | No corrosive gases | |
| Vibration resistance | | 10 to 60 Hz and at an acceleration of 5.88 m/s ² or less (Not to be run continuously at the resonance point) | |
| Insulation resistance | | Between power supply terminal/power terminal and FG terminal: 0.5 MΩ min. (at 500 VDC Megger) | |
| Dielectric strength | | Between power supply/power line terminals and FG terminal: 1,500 VAC for 1 min at 50/60 Hz | |
| Protective structure | | Built into panel | |
| International standard | EC directives | EMC directive | EN55011, EN61000-6-2, IEC61800-3 |
| | | Low voltage command | EN61800-5-1 |
| | | Machinery directives | EN954-1 (Cat.3), EN ISO 13849-1: 2008 (PLC,d), ISO 13849-1: 2006 (PLC,d), EN61508 (SIL2), EN62061 (SIL2), EN61800-5-2 (STO), IEC61326-3-1 (SIL2) |
| | UL standards | UL508C * | |
| | CSA standards | CSA22.2 No.14 | |
| Korean Radio Regulations (KC) | | Certified | |

* The Servo drive of R88D-KT20□ and smaller capacity the one are UL-Listed.

The Servo drive of R88D-KT30□ and bigger capacity the one are UL-Recognized.

Note: 1. The above items reflect individual evaluation testing. The results may differ under compound conditions.

Note: 2. Always disconnect all connections to the Servo Drive before you perform insulation resistance tests on it. If you perform an insulation resistance test while the Servo Drive is connected, the Servo Drive may be damaged. Never perform dielectric strength tests on the Servo Drive. Failure to follow this precaution may result in damaging internal elements.

Note: 3. Some Servo Drive parts will require maintenance. For details, refer to the G5 series USER'S MANUAL. Confirm the Manual No. that is listed in Related Manuals.

Note: 4. To conform EMC directive, the tips on wiring and installation written in the G5 series user's manual must be followed. Confirm the Manual No. that is listed in Related Manuals.

G5-Series
System Configuration

EtherCAT Communications
AC Servo Drive

EtherCAT Communications
Linear Motor Type
AC Servo Drive

General-purpose Inputs
AC Servo Drive

ML-II Type
AC Servo Drive

AC Servomotors

Linear Motor

Characteristics

● Servo Drives with 100 VAC Input Power for Single-phase input type

| Item | | | R88D-KTA5L | R88D-KT01L | R88D-KT02L | R88D-KT04L |
|-----------------------------------|-------------------------|-----------------------|---|---------------|---------------|---------------|
| Continuous output current (rms) | | | 1.2A | 1.7A | 2.5A | 4.6A |
| Input power supply | Main circuit | Power supply capacity | 0.4KVA | 0.4KVA | 0.5KVA | 0.9KVA |
| | | Power supply voltage | Single-phase 100 to 115 VAC (85 to 127 V), 50/60 Hz | | | |
| | | Rated current | 1.7A | 2.6A | 4.3A | 7.6A |
| | | Heat value*1 | 11W | 16.6W | 21W | 25W |
| | Control circuit | Power supply voltage | Single-phase 100 to 120 VAC (85 to 132 V), 50/60 Hz | | | |
| | | Heat value*1 | 4W | 4W | 4W | 4W |
| Weight | | | Approx. 0.8 kg | Approx. 0.8kg | Approx. 1.0kg | Approx. 1.6kg |
| Maximum applicable motor capacity | | | 50W | 100W | 200W | 400W |
| Applicable Servomotors (R88M-) | 3,000 r/min Servomotors | INC | K05030H | K10030L | K20030L | K40030L |
| | | ABS | K05030T | K10030S | K20030S | K40030S |
| | 2,000 r/min Servomotors | ABS | - | - | - | - |
| | | ABS | - | - | - | - |

*1. The heat value is given for rated operation.

● Servo Drives with 200 VAC Input Power for Single-phase/Three-phase input type

| Item | | | R88D-KT01H | R88D-KT02H | R88D-KT04H | R88D-KT08H | R88D-KT10H | R88D-KT15H |
|-----------------------------------|-------------------------|-----------------------|---|---------------|---------------|---------------|---------------|--------------------|
| Continuous output current (rms) | | | 1.2A | 1.6A | 2.6A | 4.1A | 5.9A | 9.4A |
| Input power supply | Main circuit | Power supply capacity | 0.5KVA | 0.5KVA | 0.9KVA | 1.3KVA | 1.8KVA | 2.3KVA |
| | | Power supply voltage | Single-phase or Three-phase 200 to 240 VAC (170 to 264 V), 50/60 Hz | | | | | |
| | | Rated current | 1.6/0.9A*1 | 2.4/1.3A *1 | 4.1/2.4A *1 | 6.6/3.6A *1 | 9.1/5.2A *1 | 14.2/8.1A *1 |
| | | Heat value*2 | 14.3/13.7W*1 | 23/19W*1 | 33/24W*1 | 30/35.5W*1 | 57/49W*1 | 104/93W*1 |
| | Control circuit | Power supply voltage | Single-phase 200 to 240VAC (170 to 264V), 50/60Hz | | | | | |
| | | Heat value*2 | 4W | 4W | 4W | 4W | 7W | 7W |
| Weight | | | Approx. 0.8kg | Approx. 0.8kg | Approx. 1.1kg | Approx. 1.6kg | Approx. 1.8kg | Approx. 1.8kg |
| Maximum applicable motor capacity | | | 100W | 200W | 400W | 750W | 1kW | 1.5kW |
| Applicable Servomotors (R88M-) | 3,000 r/min Servomotors | INC | K05030H K10030H | K20030H | K40030H | K75030H | - | K1K030H K1K530H |
| | | ABS | K05030T K10030T | K20030T | K40030T | K75030T | - | K1K030T K1K530T |
| | 2,000 r/min Servomotors | INC | - | - | - | - | K1K020H | K1K520H |
| | | ABS | - | - | - | - | K1K020T | K1K520T |
| | 1,000 r/min Servomotors | INC | - | - | - | - | - | K90010H |
| | | ABS | - | - | - | - | - | K90010T |

*1. The left value is for single-phase input power and the right value is for three-phase input power.

*2. The heat value is given for rated operation.

● Servo Drives with 200 VAC Input Power
for Three-phase input type

| Item | | | R88D-KT20H | R88D-KT30H | R88D-KT50H | R88D-KT75H | R88D-KT150H | |
|-----------------------------------|--------------------------------------|-----------------------|--|---------------|--------------------|----------------|--|--|
| Continuous output current (rms) | | | 13.4A | 18.7A | 33.0A | 44.0A | 66.1A | |
| Input power supply | Main circuit | Power supply capacity | 3.3KVA | 4.5KVA | 7.5KVA | 11.0KVA | 22.0KVA | |
| | | Power supply voltage | 3-phase 200 to 230 VAC (170 to 253 V), 50/60 Hz | | | | 3-phase 200 to 230 VAC (170 to 253V) 50/60Hz 280 to 325 VDC (238 to 357V) | |
| | | Rated current | 11.8A | 15.1A | 21.6A | 32.0A | 58.0A | |
| | | Heat value*1 | 139W | 108W | 328W | 381W | 720W | |
| | Control circuit | Power supply voltage | Single-phase 200 to 230 VAC (170 to 253 V), 50/60 Hz | | | | Single-phase 200 to 230 VAC (170 to 253V) 50/60Hz 280 to 325 VDC (238 to 357V) | |
| | | Heat value*1 | 10W | 13W | 13W | 15W | 17W | |
| Weight | | | Approx. 2.7kg | Approx. 4.8kg | Approx. 4.8kg | Approx. 13.5kg | Approx. 21.0kg | |
| Maximum applicable motor capacity | | | 2kW | 3kW | 5kW | 7.5kW | 15kW | |
| Applicable Servomotors (R88M-) | 3,000 r/min Servomotors | INC | K2K030H | K3K030H | K4K030H K5K030H | - | - | |
| | | ABS | K2K030T | K3K030T | K4K030T K5K030T | - | - | |
| | 2,000 r/min, 1,500 r/min Servomotors | INC | K2K020H | K3K020H | K4K020H K5K020H | - | - | |
| | | ABS | K2K020T | K3K020T | K4K020T K5K020T | K7K515T | K11K015T K15K015T | |
| | 1,000 r/min Servomotors | INC | - | K2K010H | K3K010H | - | - | |
| | | INC | - | K2K010T | K3K010T K4K510T | K6K010T | - | |

*1. The heat value is given for rated operation.

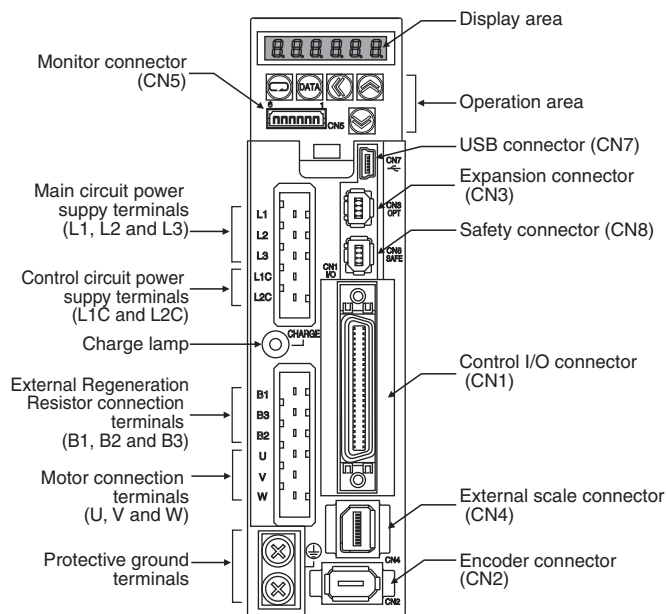
● Servo Drives with 400 VAC Input Power
for Three-phase input type

| Item | | | R88D-KT06F | R88D-KT10F | R88D-KT15F | R88D-KT20F | R88D-KT30F | R88D-KT50F | R88D-KT75F | R88D-KT150F |
|-----------------------------------|--------------------------------------|-----------------------|---|---------------|--------------------|---------------|---------------|--------------------|----------------|----------------------|
| Continuous output current (rms) | | | 1.5A | 2.9A | 4.7A | 6.7A | 9.4A | 16.5A | 22.0A | 33.4A |
| Input power supply | Main circuit | Power supply capacity | 1.2KVA | 1.8KVA | 2.3KVA | 3.8KVA | 4.5KVA | 6.0KVA | 11.0KVA | 22.0KVA |
| | | Power supply voltage | 3-phase 380 to 480 VAC (323 to 528 V), 50/60 Hz | | | | | | | |
| | | Rated current | 2.1A | 2.8A | 3.9A | 5.9A | 7.6A | 12.1A | 16.0A | 29.0A |
| | | Heat value*1 | 32.2W | 48W | 49W | 65W | 108W | 200W | 300W | 590W |
| | Control circuit | Power supply voltage | 24 VDC (20.4 to 27.6) | | | | | | | |
| | | Heat value*1 | 7W | 7W | 7W | 10W | 13W | 13W | 15W | 22W |
| Weight | | | Approx. 1.9kg | Approx. 1.9kg | Approx. 1.9kg | Approx. 2.7kg | Approx. 4.7kg | Approx. 4.7kg | Approx. 13.5kg | Approx. 21.0kg |
| Maximum applicable motor capacity | | | 600W | 1kW | 1.5kW | 2kW | 3kW | 5kW | 7.5kW | 15kW |
| Applicable Servomotors (R88M-) | 3,000 r/min Servomotors | INC | - | K75030F | K1K030F K1K530F | K2K030F | K3K030F | K4K030F K5K030F | - | - |
| | | ABS | - | K75030C | K1K030C K1K530C | K2K030C | K3K030C | K4K030C K5K030C | - | - |
| | 2,000 r/min, 1,500 r/min Servomotors | INC | K40020F K60020F | K1K020F | K1K520F | K2K020F | K3K020F | K4K020F K5K020F | - | - |
| | | ABS | K40020C K60020C | K1K020C | K1K520C | K2K020C | K3K020C | K4K020C K5K020C | K7K515C | K11K015C K15K015C |
| | 1,000 r/min Servomotors | INC | - | - | K90010F | - | K2K010F | K3K010F | - | - |
| | | ABS | - | - | K90010C | - | K2K010C | K3K010C K4K510C | K6K010C | - |

*1. The heat value is given for rated operation.

Components and Functions

Servo Drive Part Names



Display area

A 6-digit 7-segment LED display shows the Servo Drive status, alarm codes, parameters, and other information.

Operation area

Monitors the parameter setting and driver condition.

Charge Lamp

Lits when the main circuit power supply is turned ON.

Control I/O Connector (CN1)

Used for command input signals and I/O signals.

Encoder connector (CN2)

Connector for the encoder installed in the Servomotor.

Expansion Connector (CN3)

A spare connector for expansion. Do not connect anything.

External Scale Connector (CN4)

Connector for an encoder signal used during full closing control.

Monitor Connector (CN5)

Uses a specified cable to monitor the motor rotation speed, torque command value, etc.

USB connector (CN7)

Communications connector for the computer.

Safety Connector (CN8)

Connector for the safety devices.

If no safety device is used, keep the factory-set safety bypass connector installed.

Main Circuit Terminal (CNA)

Main-circuit power terminals (L1, L2, L3)

Control-circuit power terminals (CNA)

Motor connection terminals (CNB)

External Regeneration Resistor connection terminals (B1,B2,B3)

Servomotor connection terminals (U, V, W)

*External Encoder

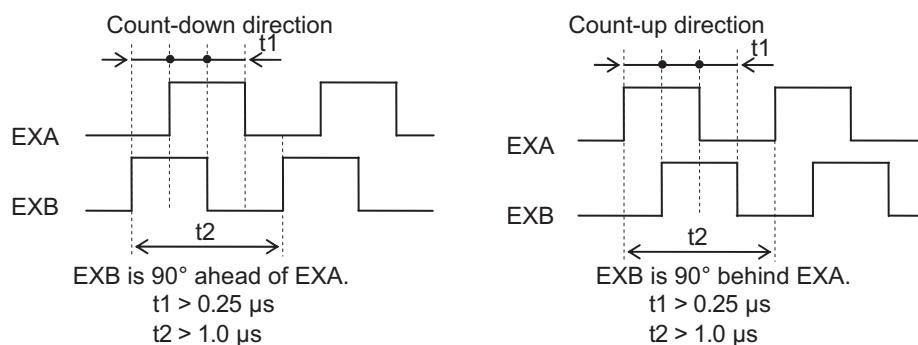
Contact the encoder manufacturer to find out the detailed specifications such as operating environment before use.

| External encoder type | Maker | Example of External encoder | Supported speed*1 | Resolution*4 [μm] | Maximum speed*4 [m/s] |
|--|---------------------|-----------------------------|-------------------------------------|----------------------|--------------------------|
| 90° phase difference output type*2*3 | – | Phase A/B type | 0 to 4 Mpps (Multiplication × 4) | – | – |
| Serial communications type (Incremental type)*3 | Magnescale Co., Ltd | SR75 | 0 to 400 Mpps | 0.01 to 1 | 3.3 |
| | | SR85 | | 0.01 to 1 | 3.3 |
| | | SL700+PL101RP/RHP | | 0.1 | 10 |
| | | SL710+PL101RP/RHP | | 0.1 | 10 |

***1.** The supported speed is the internal feedback pulse speed [external encoder pulse/s] of the external encoder that can be processed by the Servo Drive.

Check the instruction manual of the external encoder for the speed range supported by your external encoder.

***2.** These are the directions that the Drive counts a 90° phase difference output.



***3.** For the external encoder connection direction, set the direction so that count-up occurs when the motor shaft is rotating counterclockwise, and count-down occurs when the motor shaft is rotating clockwise. If the connection direction cannot be selected due to installation conditions or any other reason, the count direction can be reversed using External Feedback Pulse Direction Switching (3326 hex).

***4.** The resolution and maximum speed are the values for the G5-series Servo Drive. The resolution and maximum speed may be different from the specifications of the feedback encoder due to restriction on the maximum pulse frequency of the Servo Drive.

Functions

Basic control

| | |
|------------------|------------------------------|
| Position control | Internally set speed control |
| Speed control | Switching control |
| Torque control | Full closing control* |

* Absolute type external encoder can not connected.

Advanced control

| | | |
|---------------------------|---|---------------------------------------|
| Vibration control | Gain switching | Friction torque compensation function |
| Adaptive filter | Torque limit | Inertia ratio switching function |
| Notch filter | Sequence I/O signal | Hybrid Vibration Suppression Function |
| Electronic gear function | Forward and reverse drive prohibition functions | Feed-forward function |
| Encoder dividing function | Disturbance observer function | Instantaneous speed observer function |
| Brake interlock | Gain switching 3 function | |

Other functions

Safe Torque OFF (STO) Function

Realtime autotuning

Manual tuning

Various parameters

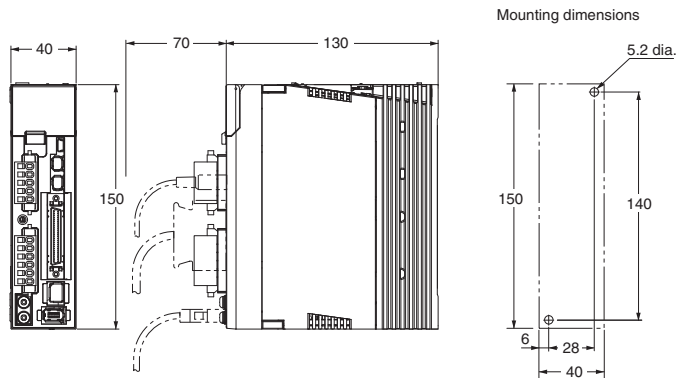
| | |
|----------------------------------|--------------------------------------|
| Basic Parameters | Interface Monitor Setting Parameters |
| Gain Parameters | Extended Parameters |
| Vibration Suppression Parameters | Special Parameters |
| Analog Control Parameters | |

Dimensions

<Wall Mounting>

Single-phase 100 VAC R88D-KTA5L/-KT01L (50 to 100W)

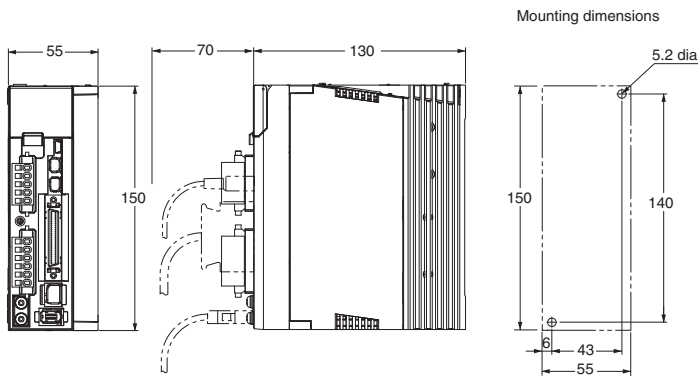
Single-phase/Three-phase 200 VAC R88D-KT01H/-KT02H (100 to 200W)



CAD data

Single-phase/Three-phase 100 VAC R88D-KT02L (200W)

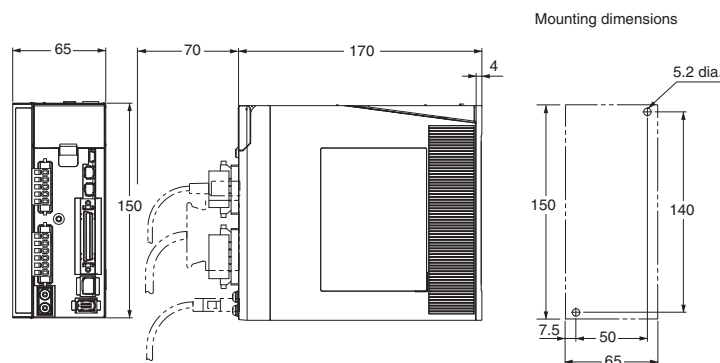
Single-phase/Three-phase 200 VAC R88D-KT04H (400W)



CAD data

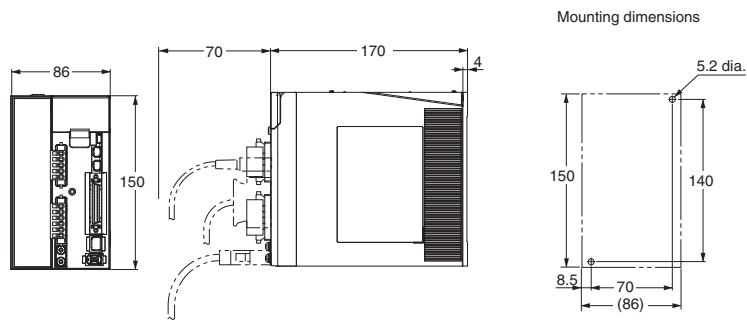
Single-phase 100 VAC R88D-KT04L (400W)

Single-phase/Three-phase 200 VAC R88D-KT08H (750W)



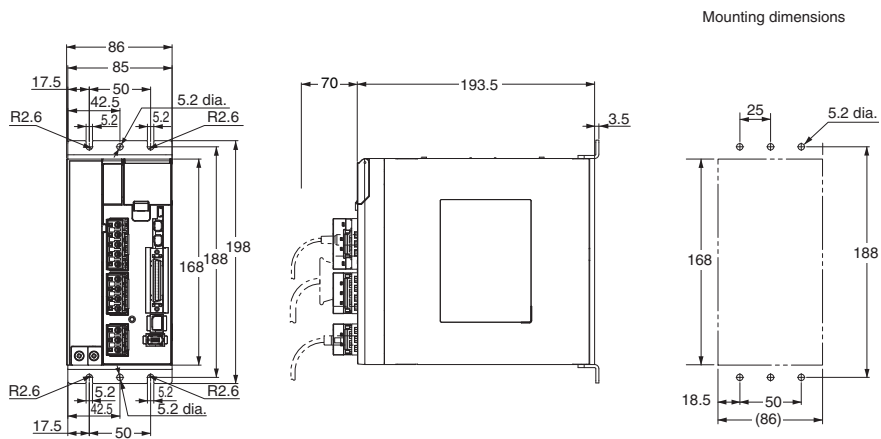
CAD data

Single-phase/Three-phase 200 VAC R88D-KT10H/-KT15H (900W to 1.5kW)



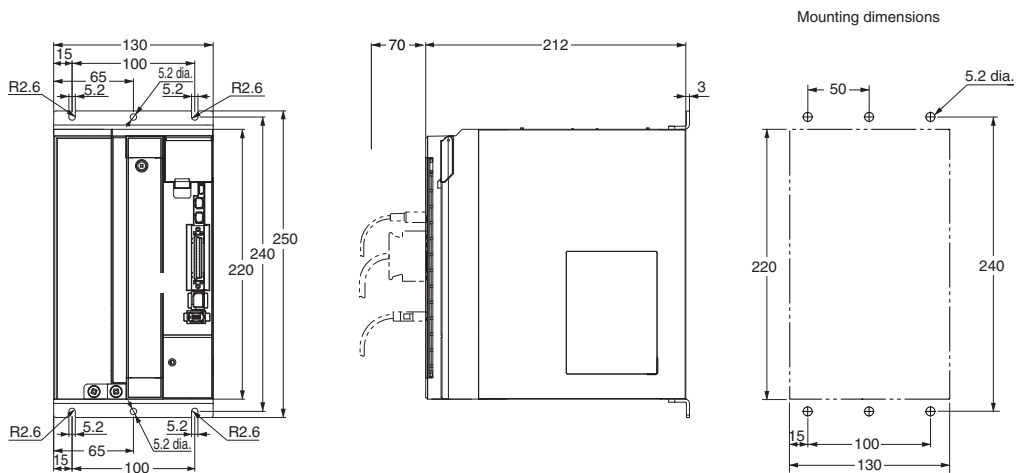
CAD data

Three-phase 200 VAC R88D-KT20H (2kW)



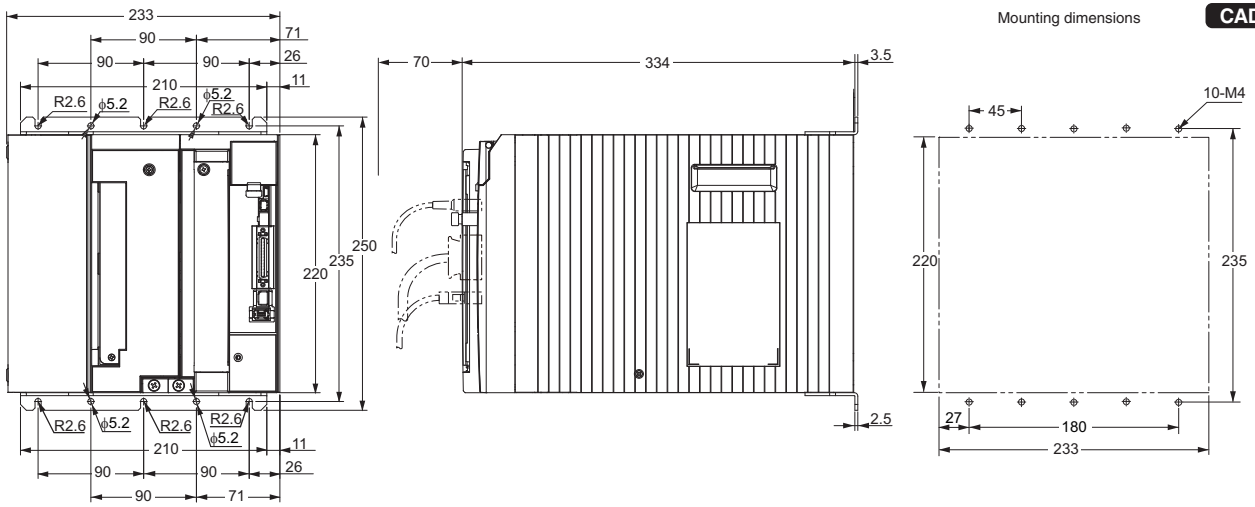
CAD data

Three-phase 200 VAC R88D-KT30H/-KT50H (3 to 5kW)

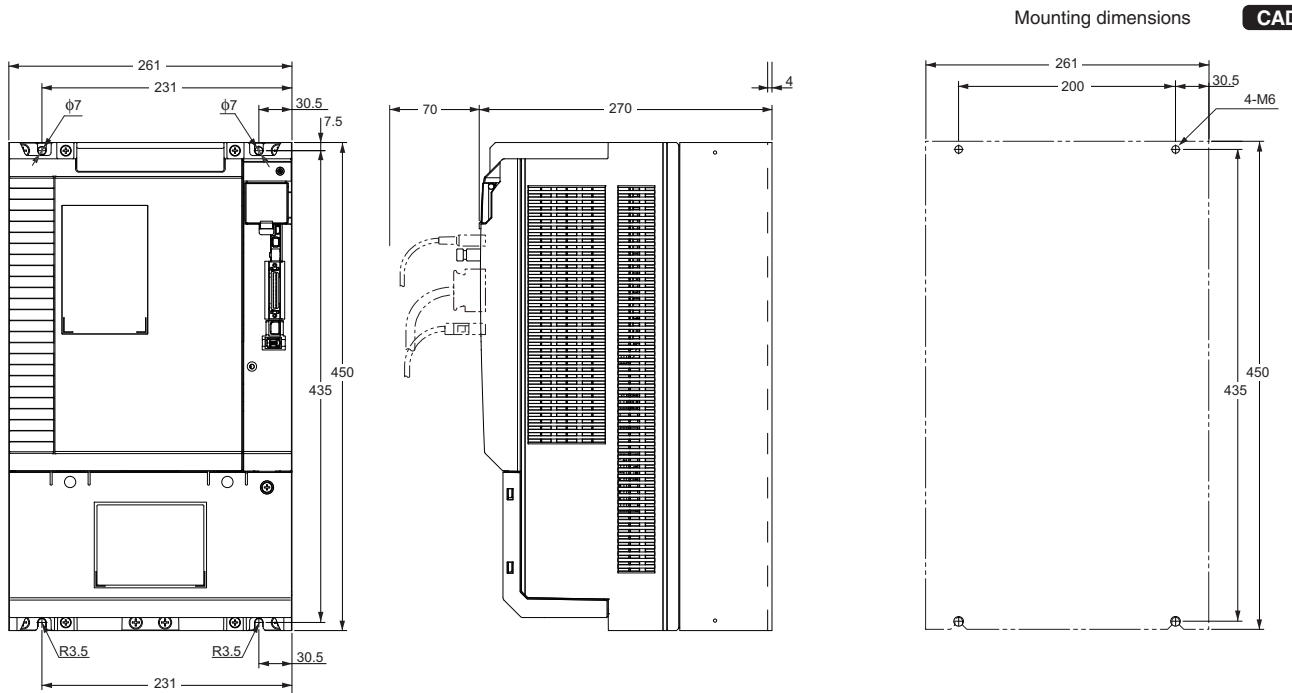


CAD data

Three-phase 200 VAC R88D-KT75H (7.5kW)



Three-phase 200 VAC R88D-KT150H (15kW)



G5-Series
System Configuration

EtherCAT Communications
AC Servo Drive

EtherCAT Communications
Linear Motor Type
AC Servo Drive

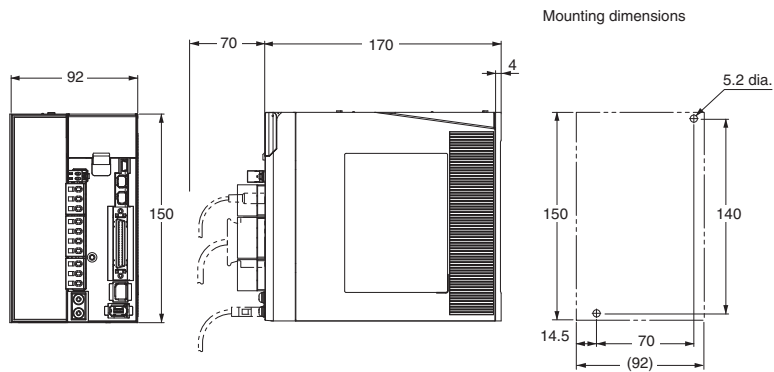
General-purpose Inputs
AC Servo Drive

ML-II Type
AC Servo Drive

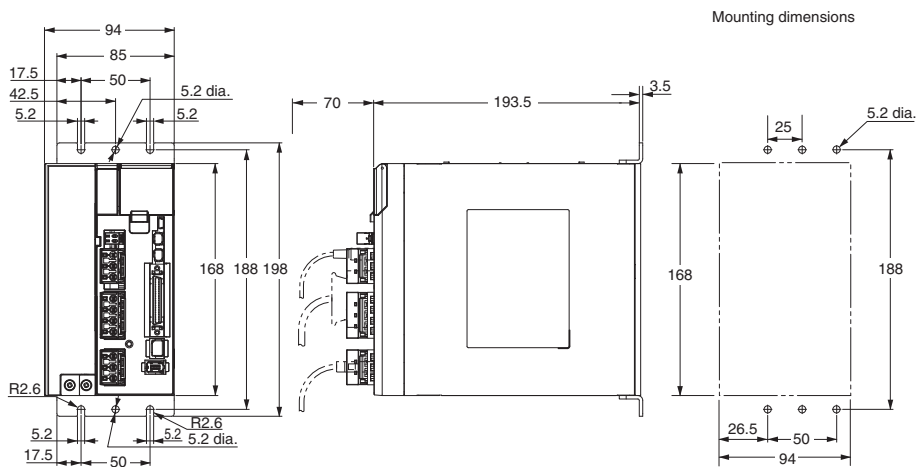
AC Servomotors

Linear Motor

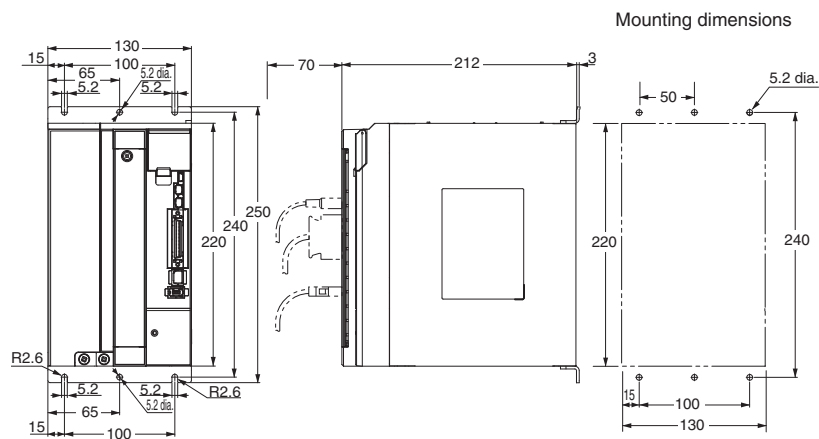
Three-phase 400 VAC R88D-KT06F/-KT10F/-KT15F (600W to 1.5kW)



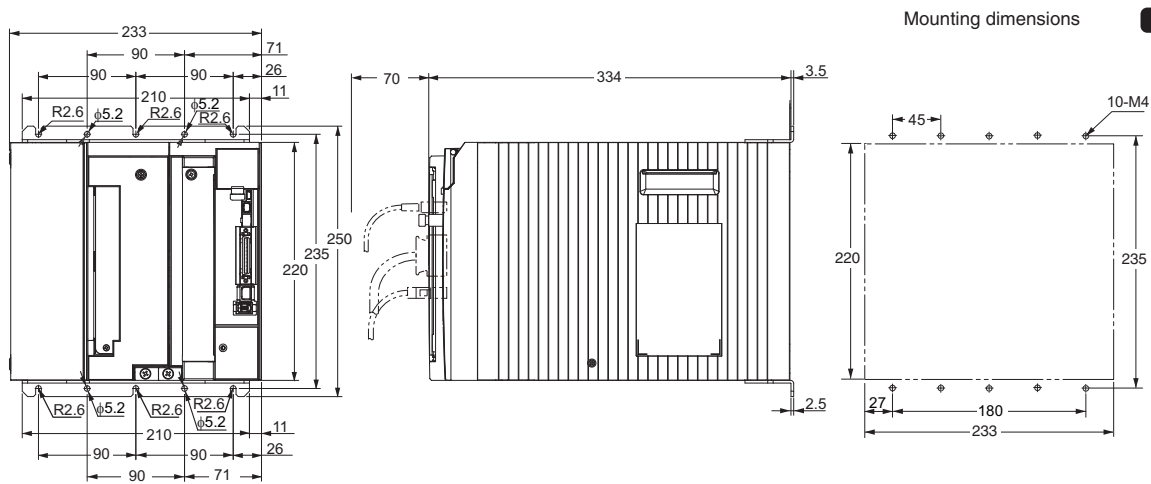
Three-phase 400 VAC R88D-KT20F (2kW)



Three-phase 400 VAC R88D-KT30F/-KT50F (3 to 5kW)



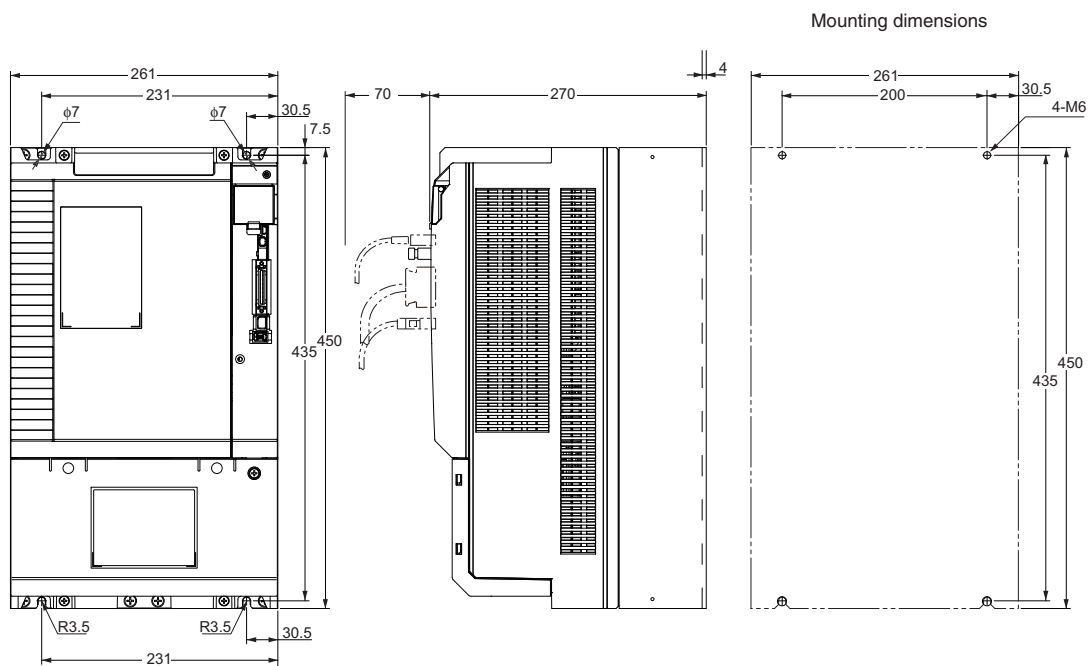
Three-phase 400 VAC: R88D-KT75F (7.5kW)



Mounting dimensions

CAD data

Three-phase 400 VAC R88D-KT150F (150kW)



Mounting dimensions

CAD data

G5-Series
System Configuration

EtherCAT Communications
AC Servo Drive

EtherCAT Communications
Linear Motor Type
AC Servo Drive

General-purpose Inputs
AC Servo Drive

ML-II Type
AC Servo Drive

AC Servomotors

Linear Motor

R88D-KN□-ML2

Contents



- Ordering Information
- Specifications
 - General Specifications
 - Characteristics
 - Servo Drives with Single-phase 100 VAC Input Power
 - Servo Drives with Single-phase or three-phase 200 VAC Input Power
 - Servo Drives with Three-phase 200 VAC Input Power
 - Servo Drives with 400 VAC Input Power
- Names and Functions
 - Servo Drive Part Names
 - Functions
- Dimensions

Ordering Information

Refer to the Ordering Information.

Specifications

General Specifications

| Item | | Specifications | |
|--|---------------|---|--|
| Ambient operating temperature and operating humidity | | 0 to +55C, 90% RH max. (with no condensation) | |
| Storage ambient temperature and humidity | | -20 to +65C, 90% RH max. (with no condensation) | |
| Operating and storage atmosphere | | No corrosive gases | |
| Vibration resistance | | 10 to 60 Hz and at an acceleration of 5.88 m/s ² or less (Not to be run continuously at the resonance point) | |
| Insulation resistance | | Between power supply terminal/power terminal and FG terminal: 0.5 MΩ min. (at 500 VDC Megger) | |
| Dielectric strength | | Between power supply/power line terminals and FG terminal: 1,500 VAC for 1 min at 50/60 Hz | |
| Protective structure | | Built into panel | |
| International standard | EC directives | EMC directive | EN55011, EN61000-6-2, IEC61800-3 |
| | | Low voltage directive | EN61800-5-1 |
| | | Machinery directives | EN954-1 (Cat.3), EN ISO 13849-1: 2008 (PLC,d), ISO 13849-1: 2006 (PLC,d), EN61508 (SIL2), EN62061 (SIL2), EN61800-5-2 (STO), IEC61326-3-1 (SIL2) |
| | UL standards | UL508C | |
| | CSA standards | CSA22.2 No.14 | |
| Korean Radio Regulations (KC) | | Certified | |

Note: 1. The above items reflect individual evaluation testing. The results may differ under compound conditions.

Note: 2. Always disconnect all connections to the Servo Drive before you perform insulation resistance tests on it. If you perform an insulation resistance test while the Servo Drive is connected, the Servo Drive may be damaged. Never perform dielectric strength tests on the Servo Drive. Failure to follow this precaution may result in damaging internal elements.

Note: 3. Some Servo Drive parts will require maintenance. For details, refer to the G5 series USER'S MANUAL. Confirm the Manual No. that is listed in Related Manuals.

Characteristics

● Servo Driver with 100 VAC Input Power for Single-phase input type

| Item | | | R88D-KNA5L-ML2 | R88D-KN01L-ML2 | R88D-KN02L-ML2 | R88D-KN04L-ML2 |
|-----------------------------------|-------------------------|-----------------------|---|----------------|----------------|----------------|
| Continuous output current (rms) | | | 1.2A | 1.7A | 2.5A | 4.6A |
| Input power supply | Main circuit | Power supply capacity | 0.4KVA | 0.4KVA | 0.5KVA | 0.9KVA |
| | | Power supply voltage | Single-phase 100 to 120 VAC (85 to 132 V), 50/60 Hz | | | |
| | | Rated current | 1.7A | 2.6A | 4.3A | 7.6A |
| | | Heat value*1 | 11W | 16.6W | 21W | 25W |
| | Control circuit | Power supply voltage | Single-phase 100 to 120 VAC (85 to 132 V), 50/60 Hz | | | |
| | | Heat value*1 | 4W | 4W | 4W | 4W |
| Weight | | | Approx. 0.8 kg | Approx. 0.8kg | Approx. 1.0kg | Approx. 1.6kg |
| Maximum applicable motor capacity | | | 50W | 100W | 200W | 400W |
| Applicable Servomotors (R88M-) | 3,000 r/min Servomotors | INC | K05030H | K10030L | K20030L | K40030L |
| | | ABS | K05030T | K10030S | K20030S | K40030S |
| | 2,000 r/min Servomotors | ABS | - | - | - | - |
| | | ABS | - | - | - | - |
| | 1,000 r/min Servomotors | ABS | - | - | - | - |
| | | ABS | - | - | - | - |

*1. The heat value is given for rated operation.

● Servo Driver with 200 VAC Input Power for Single-phase/Three-phase input type

| Item | | | R88D-KN01H-ML2 | R88D-KN02H-ML2 | R88D-KN04H-ML2 | R88D-KN08H-ML2 | R88D-KN10H-ML2 | R88D-KN15H-ML2 |
|-----------------------------------|-------------------------|-----------------------|---|----------------|----------------|----------------|----------------|--------------------|
| Continuous output current (rms) | | | 1.2A | 1.6A | 2.6A | 4.1A | 5.9A | 9.4A |
| Input power supply | Main circuit | Power supply capacity | 0.5KVA | 0.5KVA | 0.9KVA | 1.3KVA | 1.8KVA | 2.3KVA |
| | | Power supply voltage | Single-phase or Three-phase 200 to 240 VAC (170 to 264 V), 50/60 Hz | | | | | |
| | | Rated current | 1.6/0.9A *1 | 2.4/1.3A *1 | 4.1/2.4A *1 | 6.6/3.6A *1 | 9.1/5.2A *1 | 14.2/8.1A *1 |
| | | Heat value*2 | 14.3/13.7W *1 | 23/19 W *1 | 33/24 W *1 | 30/35.5 W *1 | 57/49 W *1 | 104/93 W *1 |
| | Control circuit | Power supply voltage | Single-phase 200 to 240 VAC (170 to 264 V), 50/60 Hz | | | | | |
| | | Heat value*2 | 4W | 4W | 4W | 4W | 7W | 7W |
| Weight | | | Approx. 0.8kg | Approx. 0.8kg | Approx. 1.1kg | Approx. 1.6kg | Approx. 1.8kg | Approx. 1.8kg |
| Maximum applicable motor capacity | | | 100W | 200W | 400W | 750W | 1kW | 1.5kW |
| Applicable Servomotors (R88M-) | 3,000 r/min Servomotors | INC | K05030H K10030H | K20030H | K40030H | K75030H | - | K1K030H K1K530H |
| | | ABS | K05030T K10030T | K20030T | K40030T | K75030T | - | K1K030T K1K530T |
| | 2,000 r/min Servomotors | INC | - | - | - | - | K1K020H | K1K520H |
| | | ABS | - | - | - | - | K1K020T | K1K520T |
| | 1,000 r/min Servomotors | INC | - | - | - | - | - | K90010H |
| | | ABS | - | - | - | - | - | K90010T |

*1. The left value is for single-phase input power and the right value is for three-phase input power.

*2. The heat value is given for rated operation.

AC Servomotor/Drive G5-series

● Servo Driver with 200 VAC Input Power for Three-phase input type

| Item | | | R88D-KN20H-ML2 | R88D-KN30H-ML2 | R88D-KN50H-ML2 |
|-----------------------------------|-------------------------|-----------------------|--|----------------|--------------------|
| Continuous output current (rms) | | | 13.4A | 18.7A | 33.0A |
| Input power supply | Main circuit | Power supply capacity | 3.3KVA | 4.5KVA | 7.5KVA |
| | | Power supply voltage | Three-phase 200 to 230 VAC (170 to 253 V), 50/60 Hz | | |
| | | Rated current | 11.8A | 15.1A | 21.6A |
| | | Heat value*1 | 139W | 108W | 328W |
| | Control circuit | Power supply voltage | Single-phase 200 to 230 VAC (170 to 253 V), 50/60 Hz | | |
| | | Heat value*1 | 10W | 13W | 13W |
| Weight | | | Approx. 2.7kg | Approx. 4.8kg | Approx. 4.8kg |
| Maximum applicable motor capacity | | | 2kW | 3kW | 5kW |
| Applicable Servomotors (R88M-) | 3,000 r/min Servomotors | INC | K2K030H | K3K030H | K4K030H K5K030H |
| | | ABS | K2K030T | K3K030T | K4K030T K5K030T |
| | 2,000 r/min Servomotors | INC | K2K020H | K3K020H | K4K020H K5K020H |
| | | ABS | K2K020T | K3K020T | K4K020T K5K020T |
| | 1,000 r/min Servomotors | INC | – | K2K010H | K3K010H |
| | | INC | – | K2K010T | K3K010T |

*1. The heat value is given for rated operation.

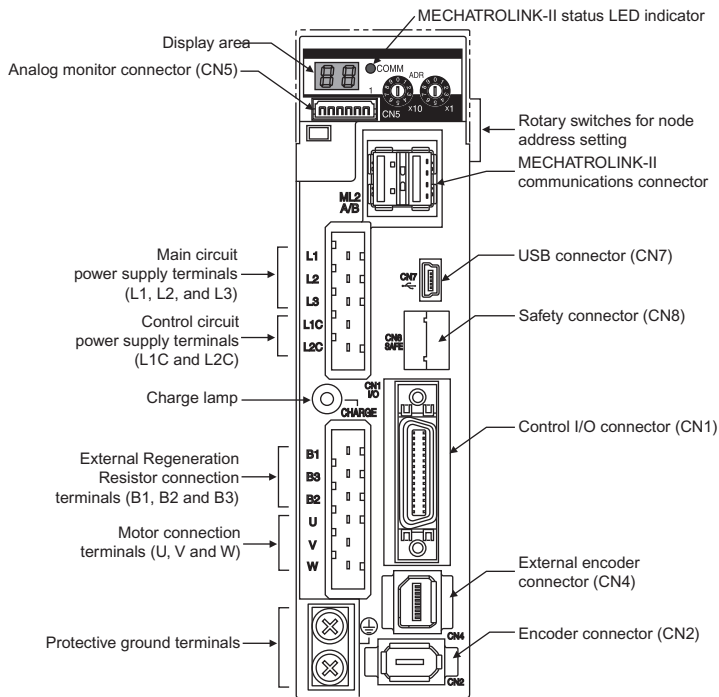
● Servo Driver with 400 VAC Input Power for Three-phase input type

| Item | | | R88D-KN06F-ML2 | R88D-KN10F-ML2 | R88D-KN15F-ML2 | R88D-KN20F-ML2 | R88D-KN30F-ML2 | R88D-KN50F-ML2 |
|-----------------------------------|-------------------------|-----------------------|--|----------------|--------------------|----------------|----------------|--------------------|
| Continuous output current (rms) | | | 1.5A | 2.9A | 4.7A | 6.7A | 9.4A | 16.5A |
| Input power supply | Main circuit | Power supply capacity | 1.2KVA | 1.8KVA | 2.3KVA | 3.8KVA | 4.5KVA | 6.0KVA |
| | | Power supply voltage | Single-phase 380 to 480 VAC (323 to 528 V), 50/60 Hz | | | | | |
| | | Rated current | 2.1A | 2.8A | 3.9A | 5.9A | 7.6A | 12.1A |
| | | Heat value*1 | 32.2W | 48W | 49W | 65W | 108W | 200W |
| | Control circuit | Power supply voltage | 24 VDC (20.4 to 27.6) | | | | | |
| | | Heat value*1 | 7W | 7W | 7W | 10W | 13W | 13W |
| Weight | | | Approx. 1.9kg | Approx. 1.9kg | Approx. 1.9kg | Approx. 2.7kg | Approx. 4.7kg | Approx. 4.7kg |
| Maximum applicable motor capacity | | | 600W | 1kW | 1.5kW | 2kW | 3kW | 5kW |
| Applicable Servomotors (R88M-) | 3,000 r/min Servomotors | INC | – | K75030F | K1K030F K1K530F | K2K030F | K3K030F | K4K030F K5K030F |
| | | ABS | – | K75030C | K1K030C K1K530C | K2K030C | K3K030C | K4K030C K5K030C |
| | 2,000 r/min Servomotors | INC | K40020F K60020F | K1K020F | K1K520F | K2K020F | K3K020F | K4K020F K5K020F |
| | | ABS | K40020C K60020C | K1K020C | K1K520C | K2K020C | K3K020C | K4K020C K5K020C |
| | 1,000 r/min Servomotors | INC | – | – | K90010F | – | K2K010F | K3K010F |
| | | ABS | – | – | K90010C | – | K2K010C | K3K010C |

*1. The heat value is given for rated operation.

Components and Functions

Servo Drive Part Names



Display area

A 2-digit 7-segment LED indicator shows the node address, alarm codes, and other driver status.

Charge Lamp

Lits when the main circuit power supply is turned ON.

MECHATROLINK-II Status LED Indicator

Indicates the communications status of the MECHATROLINK-II.

Control I/O Connector (CN1)

Used for command input signals and I/O signals.

Encoder connector (CN2)

Connector for the encoder installed in the Servomotor.

External Encoder Connector (CN4)

Connector for an encoder signal used during full closing control.

Analog Monitor Connector (CN5)

2 analog outputs to monitor values like motor rotation speed, torque command value, etc.

MECHATROLINK-II Communications Connectors (ML2A and ML2B)

Connectors for MECHATROLINK-II communications.

USB Connector (CN7)

Communications Connector for the computer.

Safety Connector (CN8)

Connector for the safety devices.

If no safety device is used, keep the factory-set safety bypass connector installed.

AC Servomotor/Drive G5-series

*External Encoder

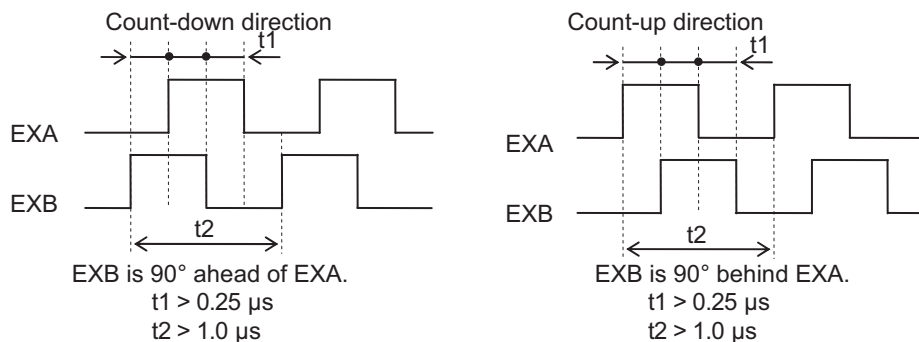
Contact the encoder manufacturer to find out the detailed specifications such as operating environment before use.

| External encoder type | Maker | Example of External encoder | Supported speed*1 | Resolution*4 [μm] | Maximum speed*4 [m/s] |
|--|----------------------|-----------------------------|-------------------------------------|----------------------|--------------------------|
| 90° phase difference output type*2*3 | – | Phase A/B type | 0 to 4 Mpps (Multiplication × 4) | – | – |
| Serial communications type (Incremental type)*3 | Magnescale Co., Ltd | SR75 | 0 to 400 Mpps | 0.01 to 1 | 3.3 |
| | | SR85 | | 0.01 to 1 | 3.3 |
| | | SL700+PL101RP/RHP | | 0.1 | 10 |
| | | SL710+PL101RP/RHP | | 0.1 | 10 |
| Serial communications type (Absolute type)*3 | Mitutoyo Corporation | AT573A | 0 to 400 Mpps | 0.05 | 2.5 |
| | | ST778A(L) | | 0.1 | 5 |
| | Magnescale Co., Ltd | SR77 | | 0.01 to 1 | 3.3 |
| | | SR87 | | 0.01 to 1 | 3.3 |
| | Renishaw Co. | RESOLUTE | | 0.001 | 0.4 |
| | | | | 0.05 | 20 |
| | | | | 0.1 | 40 |
| | FAGOR AUTOMATION | SAP/SVAP/GAP | | 0.05 | 2.5 |
| LAP | | 0.1 | 2 | | |

*1. The supported speed is the internal feedback pulse speed [external encoder pulse/s] of the external encoder that can be processed by the Servo Drive.

Check the instruction manual of the external encoder for the speed range supported by your external encoder.

*2. These are the directions that the Drive counts a 90° phase difference output.



*3. For the external encoder connection direction, set the direction so that count-up occurs when the motor shaft is rotating counterclockwise, and count-down occurs when the motor shaft is rotating clockwise. If the connection direction cannot be selected due to installation conditions or any other reason, the count direction can be reversed using External Feedback Pulse Direction Switching (3326 hex).

*4. The resolution and maximum speed are the values for the G5-series Servo Drive. The resolution and maximum speed may be different from the specifications of the feedback encoder due to restriction on the maximum pulse frequency of the Servo Drive.

Functions

Basic control

| | |
|------------------|------------------------------|
| Position control | Internally set speed control |
| Speed control | Switching control |
| Torque control | Full closing control |

Advanced control

| | | |
|---------------------------|---|---------------------------------------|
| Vibration control | Gain switching | Friction torque compensation function |
| Adaptive filter | Torque limit | Inertia ratio switching function |
| Notch filter | Sequence I/O signal | Hybrid Vibration Suppression Function |
| Electronic gear function | Forward and reverse drive prohibition functions | Feed-forward function |
| Encoder dividing function | Disturbance observer function | Instantaneous speed observer function |
| Brake interlock | Gain switching 3 function | |

Other functions

Safe Torque OFF (STO) Function

Realtime autotuning

Manual tuning

Various parameters

| | |
|----------------------------------|--------------------------------------|
| Basic Parameters | Interface Monitor Setting Parameters |
| Gain Parameters | Extended Parameters |
| Vibration Suppression Parameters | Special Parameters |
| Analog Control Parameters | |

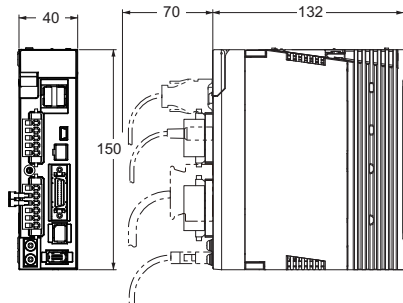
Dimensions

<Wall Mounting>

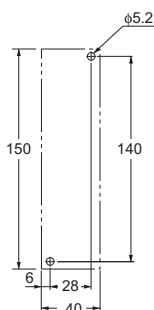
Single-phase 100VAC R88D-KNA5L-ML2/-KN01L-ML2 (50 to 100W)

Single-phase/Three-phase 200VAC R88D-KN01H-ML2/-KN02H-ML2 (100 to 200W)

External dimensions



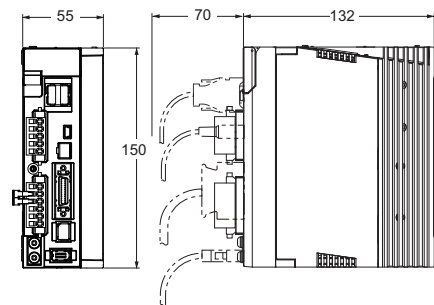
Mounting dimensions



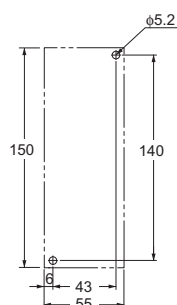
Single-phase/Three-phase 100VAC R88D-KN02L-ML2 (200W)

Single-phase/Three-phase 200VAC R88D-KN04H-ML2 (400W)

External dimensions



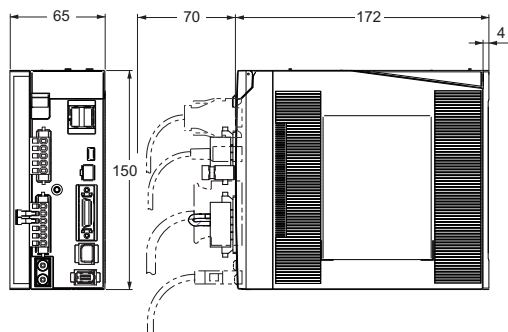
Mounting dimensions



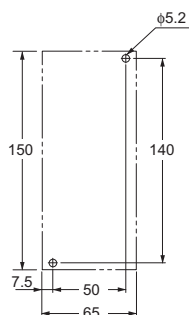
Single-phase/Three-phase 100VAC R88D-KN04L-ML2 (400W)

Single-phase/Three-phase 200VAC R88D-KN08H-ML2 (750W)

External dimensions

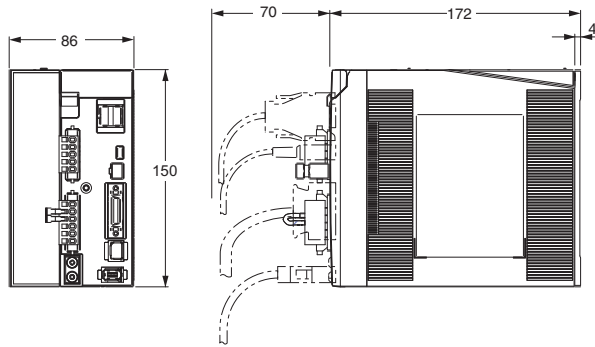


Mounting dimensions

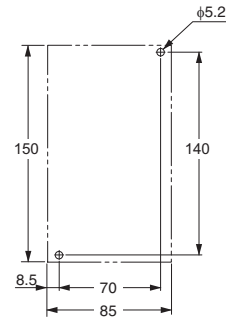


Single-phase/Three-phase 200VAC R88D-KN10H-ML2/-KN15H-ML2 (900 to 1.5kW)

External dimensions

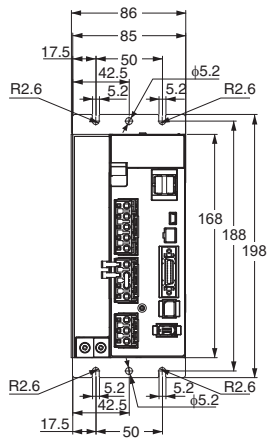


Mounting dimensions

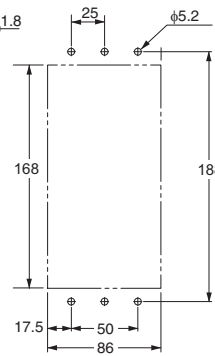


Three-phase 200VAC R88D-KN20H-ML2 (2kW)

External dimensions

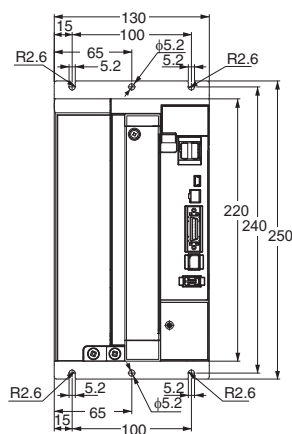


Mounting dimensions

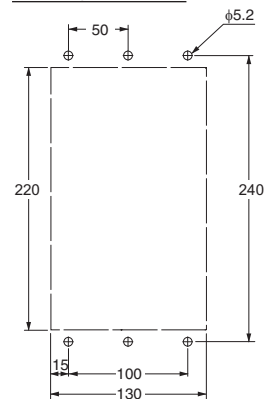


Three-phase 200VAC R88D-KN30H-ML2/-KN50H-ML2 (3 to 5kW)

External dimensions



Mounting dimensions



G5-Series
System Configuration

EtherCAT Communications
AC Servo Drive

EtherCAT Communications
Linear Motor Type
AC Servo Drive

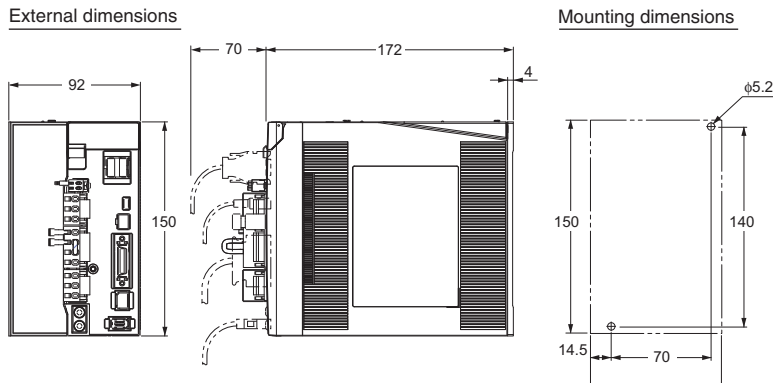
General-purpose Inputs
AC Servo Drive

ML-II Type
AC Servo Drive

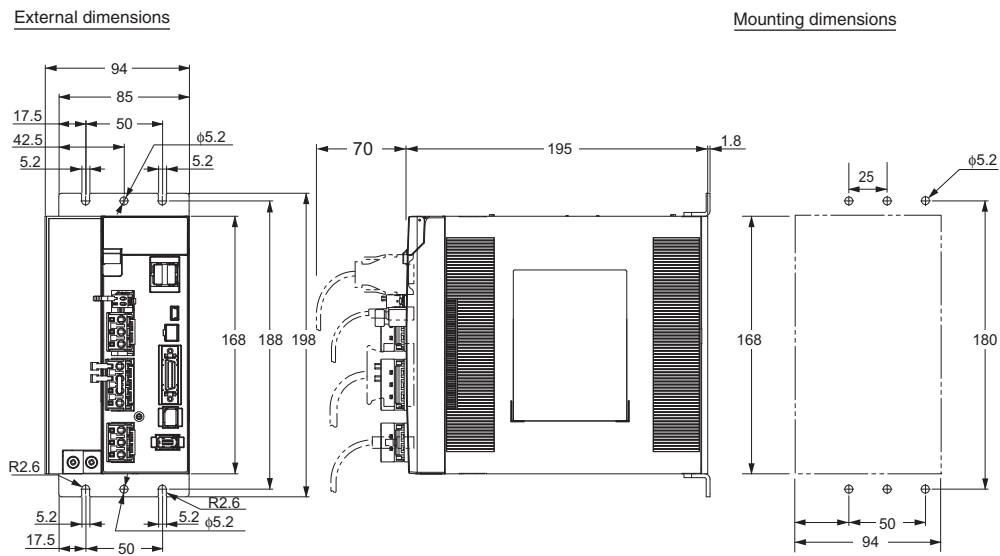
AC Servomotors

Linear Motor

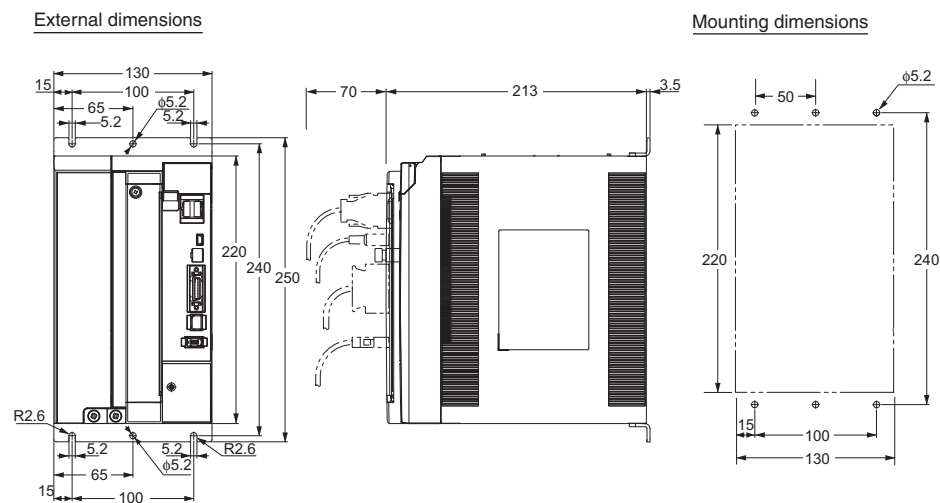
**Three-phase 400VAC R88D-KN06F-ML2/-KN10F-ML2 (600 to 1.0kW)
Three-phase 400VAC R88D-KN15F-ML2 (1.5kW)**



Three-phase 400VAC R88D-KN20F-ML2 (2kW)



Three-phase 400VAC R88D-KN30F-ML2/-KN50F-ML2 (3 to 5kW)



G5-series AC Servomotors

R88M-K INC ABS/INC

Contents

- Ordering Information
- Specifications
 - General Specifications
 - Characteristics/Torque and Rotation Speed Characteristics
 - <Cylinder type>
 - 3,000 r/min servomotors (100V, 200V, 400V)
 - 2,000 r/min servomotors (200V, 400V)
 - 1,500 r/min servomotors (200V/400V)
 - 1,000 r/min servomotors (200V/400V)
 - Encoder Specifications
- Dimensions



Ordering Information

Refer to the Ordering Information.

Specifications

General Specifications

| Item | 3,000-r/min motors | | 1,000-r/min motors 1,500-r/min motors 2,000-r/min motors |
|---|--|------------------------------|--|
| | 50 to 750W | 1 to 5kW | 900 W to 15kW |
| Ambient operating temperature and operating humidity | 0 to 40°C 20 to 85% RH (with no condensation) | | |
| Storage ambient temperature and humidity | -20 to +65°C, 20% to 85% RH (with no condensation) Guaranteed maximum temperature: 72 hours at 80°C | | |
| Operating and storage atmosphere | No corrosive gases | | |
| Vibration resistance ^{*1} | Acceleration of 49 m/s ² 24.5 m/s ² max. in X, Y, and Z directions when the motor is stopped | | |
| Impact resistance | Acceleration of 98 m/s ² max. 3 times each in X, Y, and Z directions | | |
| Insulation resistance | Between power terminal and FG terminal: 20 MΩ min. (at 500 VDC Megger) | | |
| Dielectric strength | 1,500 VAC between power terminal and FG terminal (sensed current 10 mA) for 1 min (voltage 100 V, 200 V) 1,800 VAC between power terminal and FG terminal (sensed current 10 mA) for 1 min (voltage 400 V) 1,000 VAC between brake terminal and FG terminal (sensed current 10 mA) for 1 min | | |
| Insulation class | Class B | Class F | |
| Protective structure | IP67 (except for through-shaft parts and motor and encoder connector pins) | | |
| International standard | EC directive | Low voltage directive | EN60034-1/-5 |
| | UL standards | | UL1004-1 |
| | CSA standards | | CSA 22.2 No.100 |
| | | | UL1004-1, UL1004-6 ^{*2} |

*1. The amplitude may be amplified by machine resonance. Do not exceed 80% of the specified value for extended periods of time.

*2. UL 1004-6 applies only to 1,500-r/min Servomotors of 7.5 to 15 kW and 1,000-r/min Servomotors of 4.5 to 6 kW.

Note: 1. Do not use the cable when it is laying in oil or water.

Note: 2. Do not expose the cable outlet or connections to stress due to bending or the weight of the cable itself.

Note: 3. Always disconnect all connections to the Servo Motor before you perform insulation resistance tests on it. If you perform an insulation resistance test while the Servo Motor is connected, the Servo Motor may be damaged. Never perform dielectric strength tests on the Servo Motor. Failure to follow this precaution may result in damaging internal elements.

Note: 4. To conform EMC directive, the tips on wiring and installation written in the G5 series user's manual must be followed. Confirm the Manual No. that is listed in Related Manuals.

Characteristics/Torque and Rotation Speed Characteristics

Characteristics

<Cylinder type>

3,000 r/min Servomotors (100 VAC Input Power)

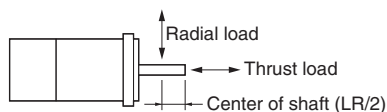
| Model (R88M-) | | K05030H | K10030L | K20030L | K40030L | |
|--------------------------------------|--------------------------------|------------------------------------|---|-------------------------------|-------------------------------|-----------------------|
| Item | Unit | K05030T | K10030S | K20030S | K40030S | |
| Rated output *1 | W | 50 | 100 | 200 | 400 | |
| Rated torque *1 | N • m | 0.16 | 0.32 | 0.64 | 1.3 | |
| Rated rotation speed | r/min | 3,000 | | | | |
| Momentary maximum rotation speed | r/min | 6,000 | | | | |
| Momentary maximum torque*1 | N • m | 0.48 | 0.95 | 1.91 | 3.8 | |
| Rated current *1 | A (rms) | 1.1 | 1.6 | 2.5 | 4.6 | |
| Momentary maximum current*1 | A (0-p) | 4.7 | 6.9 | 10.6 | 19.5 | |
| Rotor inertia | Without brake | kg • m ² | 0.025×10 ⁻⁴ | 0.051×10 ⁻⁴ | 0.14×10 ⁻⁴ | 0.26×10 ⁻⁴ |
| | With brake | kg • m ² | 0.027×10 ⁻⁴ | 0.054×10 ⁻⁴ | 0.16×10 ⁻⁴ | 0.28×10 ⁻⁴ |
| Applicable load inertia | – | 30 times the rotor inertia max. *2 | | | | |
| Torque constant *1 | N • m/A | 0.11±10% | 0.14±10% | 0.20±10% | 0.21±10% | |
| Power rate *1 | Without brake | kW/s | 10.1 | 19.8 | 28.9 | 62.4 |
| | With brake | kW/s | 9.4 | 18.7 | 25.3 | 37.8 |
| Mechanical time constant | Without brake | ms | 1.43 | 1.03 | 0.61 | 0.48 |
| | With brake | ms | 1.54 | 1.09 | 0.70 | 0.52 |
| Electrical time constant | ms | 0.82 | 0.91 | 3.0 | 3.4 | |
| Allowable radial load *3 | N | 68 | 68 | 245 | 245 | |
| Allowable thrust load *3 | N | 58 | 58 | 98 | 98 | |
| Weight | Without brake | kg | Approx. 0.31 | Approx. 0.45 | Approx. 0.78 | Approx. 1.2 |
| | With brake | kg | Approx. 0.51 | Approx. 0.65 | Approx. 1.2 | Approx. 1.6 |
| Radiator plate dimensions (material) | | 100×80×t10 (Al) | | 130×120×t12 (Al) | | |
| Applicable drivers (R88D-) | | KTA5L/KNA5L-ML2/ KNA5L-ECT | KT01L/KN01L-ML2/ KN01L-ECT | KT02L/KN02L-ML2/ KN02L-ECT | KT04L/KN04L-ML2/ KN04L-ECT | |
| Brake specifications | Brake inertia | kg • m ² | 2×10 ⁻⁷ | 2×10 ⁻⁷ | 1.8×10 ⁻⁶ | 1.8×10 ⁻⁶ |
| | Excitation voltage *4 | V | 24 VDC±10% | | | |
| | Power consumption (at 20°C) | W | 7 | 7 | 9 | 9 |
| | Current consumption (at 20°C) | A | 0.3 | 0.3 | 0.36 | 0.36 |
| | Static friction torque | N • m | 0.29 min. | 0.29 min. | 1.27 min. | 1.27 min. |
| | Attraction time *5 | ms | 35 max. | 35 max. | 50 max. | 50 max. |
| | Release time *5 | ms | 20 max. | 20 max. | 15 max. | 20 max. |
| | Backlash | | ±1° | | | |
| | Allowable work per braking | J | 39.2 | 39.2 | 137 | 137 |
| | Allowable total work | J | 4.9×10 ³ | 4.9×10 ³ | 44.1×10 ³ | 44.1×10 ³ |
| | Allowable angular acceleration | rad/s ² | 30,000 max. (Speed of 2,800 r/min or more must not be changed in less than 10 ms) | | | |
| | Brake limit | – | 10 million times min. | | | |
| | Rating | – | Continuous | | | |
| Insulation class | – | Type F | | | | |

*1. These are the values when the motor is combined with a driver at normal temperature (20°C, 65%). The momentary maximum torque indicates the standard value.

*2. Applicable load inertia.

- The operable load inertia ratio (load inertia/rotor inertia) depends on the mechanical configuration and its rigidity. For a machine with high rigidity, operation is possible even with high load inertia. Select an appropriate motor and confirm that operation is possible.
- If the dynamic brake is activated frequently with high load inertia, the Dynamic Brake Resistor may burn. Do not repeatedly turn the servo ON/OFF while the dynamic brake is enabled.
- The dynamic brake is designed only for emergency stops. Design the system so that the Servomotor remains stopped for at least 3 minutes after applying the dynamic brake. Otherwise the dynamic brake circuits may fail.

*3. The allowable radial and thrust loads are the values determined for a limit of 20,000 hours at normal operating temperatures. The allowable radial loads are applied as shown in the following diagram.



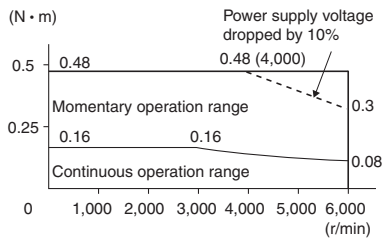
*4. This is a non-excitation brake. (It is released when excitation voltage is applied.)

*5. The operation time is the value (reference value) measured with a surge suppressor (CR50500 by Okaya Electric Industries Co., Ltd.).

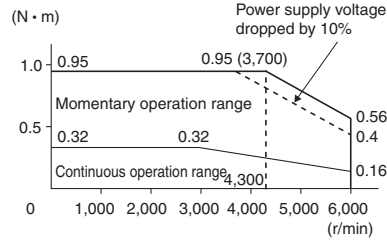
Torque and Rotation Speed Characteristics 3,000 r/min Servomotors (100 VAC Input Power)

The following graphs show the characteristics with a 3-m standard cable and a 100 VAC input.

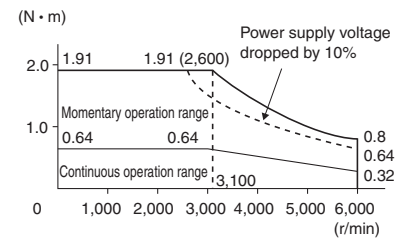
- R88M-K05030H/T (50W)



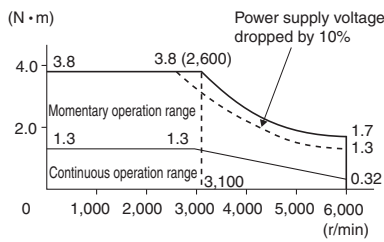
- R88M-K10030L/S (100W)



- R88M-K20030L/S (200W)



- R88M-K40030L/S (400W)



Note 1: The continuous operation range is the range in which continuous operation is possible. Continuous operation at the maximum speed is also possible. However, doing so will reduce the output torque.

Note 2: If the motor power cable exceeds 20 m, the voltage drop will increase and the momentary operation range will become narrower.

AC Servomotor/Drive G5-series

Characteristics

3,000 r/min Servomotors (200 VAC Input Power)

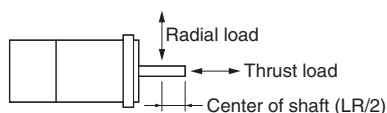
| Model (R88M-) | | K05030H | K10030H | K20030H | K40030H | K75030H | K1K030H | K1K530H | K2K030H | K3K030H | K4K030H | K5K030H | | |
|--------------------------------------|--------------------------------|---|---|---|---|---|---|---|---|---|---|---|-----------------------|--|
| Unit | | K05030T | K10030T | K20030T | K40030T | K75030T | K1K030T | K1K530T | K2K030T | K3K030T | K4K030T | K5K030T | | |
| Rated output *1 | W | 50 | 100 | 200 | 400 | 750 | 1000 | 1500 | 2000 | 3000 | 4000 | 5000 | | |
| Rated torque *1 | N • m | 0.16 | 0.32 | 0.64 | 1.3 | 2.4 | 3.18 | 4.77 | 6.37 | 9.55 | 12.7 | 15.9 | | |
| Rated rotation speed | r/min | 3,000 | | | | | | | | | | | | |
| Momentary maximum rotation speed | r/min | 6,000 | | | | 5,000 | | | | 4,500 | | | | |
| Momentary maximum torque *1 | N • m | 0.48 | 0.95 | 1.91 | 3.8 | 7.1 | 9.55 | 14.3 | 19.1 | 28.6 | 38.2 | 47.7 | | |
| Rated current *1 | A (rms) | 1.1 | 1.1 | 1.5 | 2.4 | 4.1 | 6.6 | 8.2 | 11.3 | 18.1 | 19.6 | 24.0 | | |
| Momentary maximum current *1 | A (0-p) | 4.7 | 4.7 | 6.5 | 10.2 | | 28 | 35 | 48 | 77 | 83 | 102 | | |
| Rotor inertia | Without brake | kg • m ² | 0.025×10 ⁻⁴ | 0.051×10 ⁻⁴ | 0.14×10 ⁻⁴ | 0.26×10 ⁻⁴ | 0.87×10 ⁻⁴ | 2.03×10 ⁻⁴ | 2.84×10 ⁻⁴ | 3.68×10 ⁻⁴ | 6.50×10 ⁻⁴ | 12.9×10 ⁻⁴ | 17.4×10 ⁻⁴ | |
| | With brake | kg • m ² | 0.027×10 ⁻⁴ | 0.054×10 ⁻⁴ | 0.16×10 ⁻⁴ | 0.28×10 ⁻⁴ | 0.97×10 ⁻⁴ | 2.35×10 ⁻⁴ | 3.17×10 ⁻⁴ | 4.01×10 ⁻⁴ | 7.85×10 ⁻⁴ | 14.2×10 ⁻⁴ | 18.6×10 ⁻⁴ | |
| Applicable load inertia | – | 30 times the rotor inertia max. *2 | | | | | 20 times the rotor inertia max. *2 | 15 times the rotor inertia max. *2 | | 15 times the rotor inertia max. *2 | | | | |
| Torque constant *1 | N • m/A | 0.11±10% | 0.21±10% | 0.32±10% | 0.40±10% | 0.45±10% | 0.37 | 0.45 | 0.44 | 0.41 | 0.49 | 0.49 | | |
| Power rate *1 | Without brake | kW/s | 10.1 | 19.8 | 28.9 | 62.3 | 65.4 | 49.8 | 80.1 | 110 | 140 | 126 | 146 | |
| | With brake | kW/s | 9.4 | 18.7 | 25.3 | 57.8 | 58.7 | 43.0 | 71.8 | 101 | 116 | 114 | 136 | |
| Mechanical time constant | Without brake | ms | 1.43 | 1.07 | 0.58 | 0.43 | 0.37 | 0.61 | 0.49 | 0.44 | 0.41 | 0.51 | 0.50 | |
| | With brake | ms | 1.54 | 1.13 | 0.66 | 0.46 | 0.42 | 0.71 | 0.55 | 0.48 | 0.49 | 0.56 | 0.54 | |
| Electrical time constant | ms | 0.82 | 0.90 | 3.2 | 3.4 | 5.3 | 5.8 | 6.3 | 6.7 | 11 | 12 | 13 | | |
| Allowable radial load *3 | N | 68 | 68 | 245 | 245 | 392 | 490 | 490 | 490 | 490 | 784 | 784 | | |
| Allowable thrust load *3 | N | 58 | 58 | 98 | 98 | 147 | 196 | 196 | 196 | 196 | 343 | 343 | | |
| Weight | Without brake | kg | Approx. 0.31 | Approx. 0.46 | Approx. 0.79 | Approx. 1.2 | Approx. 2.3 | Approx. 3.5 | Approx. 4.4 | Approx. 5.3 | Approx. 8.3 | Approx. 11.0 | Approx. 14.0 | |
| | With brake | kg | Approx. 0.51 | Approx. 0.66 | Approx. 1.2 | Approx. 1.6 | Approx. 3.1 | Approx. 4.5 | Approx. 5.4 | Approx. 6.3 | Approx. 9.4 | Approx. 12.6 | Approx. 16.0 | |
| Radiator plate dimensions (material) | | 100×80×t10 (Al) | | | 130×120×t12 (Al) | | 170×160×t12 (Al) | 320×300×t20 (Al) | | 380×350×t30 (Al) | | | | |
| Applicable drives (R88D-) | | KT01H/ KN01H- ML2/ KN01H- ECT | KT01H/ KN01H- ML2/ KN01H- ECT | KT02H/ KN02H- ML2/ KN02H- ECT | KT04H/ KN04H- ML2/ KN04H- ECT | KT08H/ KN08H- ML2/ KN08H- ECT | KT15H/ KN15H- ML2/ KN15H- ECT | KT15H/ KN15H- ML2/ KN15H- ECT | KT20H/ KN20H- ML2/ KN20H- ECT | KT30H/ KN30H- ML2/ KN30H- ECT | KT50H/ KN50H- ML2/ KN50H- ECT | KT50H/ KN50H- ML2/ KN50H- ECT | | |
| Brake specifications | Brake inertia | kg • m ² | 2×10 ⁻⁷ | 2×10 ⁻⁷ | 1.8×10 ⁻⁶ | 1.8×10 ⁻⁶ | 0.33×10 ⁻⁴ | 0.33×10 ⁻⁴ | 0.33×10 ⁻⁴ | 0.33×10 ⁻⁴ | 0.33×10 ⁻⁴ | 1.35×10 ⁻⁴ | 1.35×10 ⁻⁴ | |
| | Excitation voltage *4 | V | 24 VDC±10% | | | | | | | | | | | |
| | Power consumption (at 20°C) | W | 7 | 7 | 9 | 9 | 17 | 19 | 19 | 19 | 19 | 22 | 22 | |
| | Current consumption (at 20°C) | A | 0.3 | 0.3 | 0.36 | 0.36 | 0.70±10% | 0.81±10% | 0.81±10% | 0.81±10% | 0.81±10% | 0.90±10% | 0.90±10% | |
| | Static friction torque | N • m | 0.29 min. | 0.29 min. | 1.27 min. | 1.27 min. | 2.5 min. | 7.8 min. | 7.8 min. | 7.8 min. | 11.8 min. | 16.1 min. | 16.1 min. | |
| | Attraction time *5 | ms | 35 max. | 35 max. | 50 max. | 50 max. | 50 max. | 50 max. | 50 max. | 50 max. | 80 max. | 110 max. | 110 max. | |
| | Release time *5 | ms | 20 max. | 20 max. | 15 max. | 15 max. | 15 max. *6 | 15 max. *6 | 15 max. *6 | 15 max. *6 | 15 max. *6 | 50 max. *6 | 50 max. *6 | |
| | Backlash | | ±1° | | | | | | | | | | | |
| | Allowable work per braking | J | 39.2 | 39.2 | 137 | 137 | 392 | 392 | 392 | 392 | 392 | 1470 | 1470 | |
| | Allowable total work | J | 4.9×10 ³ | 4.9×10 ³ | 44.1×10 ³ | 44.1×10 ³ | 4.9×10 ⁵ | 4.9×10 ⁵ | 4.9×10 ⁵ | 4.9×10 ⁶ | 4.9×10 ⁶ | 2.2×10 ⁶ | 2.2×10 ⁶ | |
| | Allowable angular acceleration | rad/s ² | 30,000 max. (Speed of 2,800 r/min or more must not be changed in less than 10 ms) | | | | | 10,000 | | | | | | |
| | Brake limit | – | 10 million times min. | | | | | | | | | | | |
| | Rating | – | Continuous | | | | | | | | | | | |
| Insulation class | – | Type F | | | | | | | | | | | | |

*1. These are the values when the motor is combined with a driver at normal temperature (20°C, 65%). The momentary maximum torque indicates the standard value.

*2. Applicable load inertia.

- The operable load inertia ratio (load inertia/rotor inertia) depends on the mechanical configuration and its rigidity. For a machine with high rigidity, operation is possible even with high load inertia. Select an appropriate motor and confirm that operation is possible.
- If the dynamic brake is activated frequently with high load inertia, the Dynamic Brake Resistor may burn. Do not repeatedly turn the servo ON/OFF while the dynamic brake is enabled.
- The dynamic brake is designed only for emergency stops. Design the system so that the Servomotor remains stopped for at least 3 minutes after applying the dynamic brake. Otherwise the dynamic brake circuits may fail.

*3. The allowable radial and thrust loads are the values determined for a limit of 20,000 hours at normal operating temperatures. The allowable radial loads are applied as shown in the following diagram.



*4. This is a non-excitation brake. (It is released when excitation voltage is applied.)

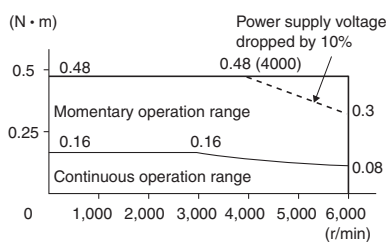
*5. The operation time is the value (reference value) measured with a Spark Killer (CR50500 by Okaya Electric Industries Co., Ltd.).

*6. Direct current switching with a varistor (Z15D151 by SEMITEC Co.).

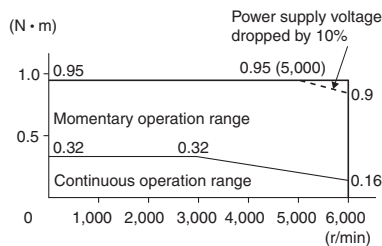
Torque and Rotation Speed Characteristics 3,000 r/min Servomotors (200 VAC Input Power)

The following graphs show the characteristics with a 3 m standard cable and a 200 VAC input.

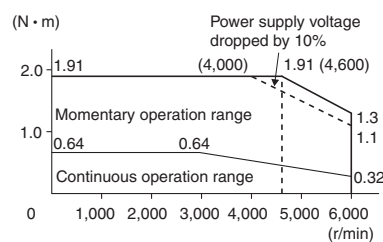
• R88M-K05030H/T (50W)



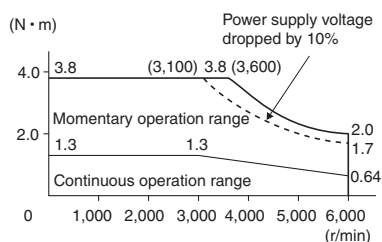
• R88M-K10030H/T (100W)



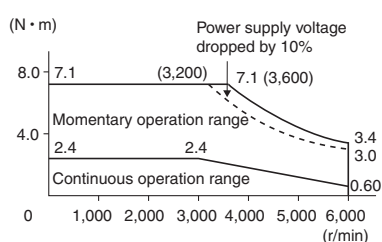
• R88M-K20030H/T (200W)



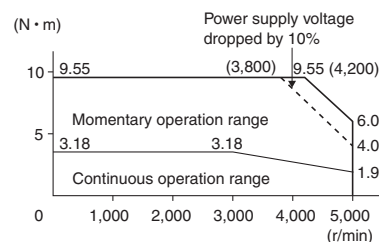
• R88M-K40030H/T (400W)



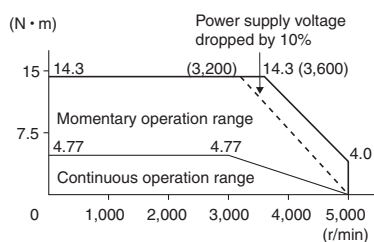
• R88M-K75030H/T (750W)



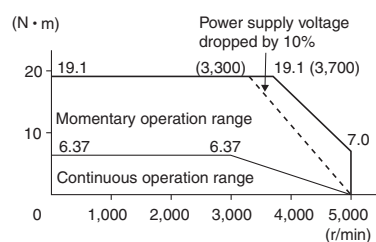
• R88M-K1K030H/T (1kW)



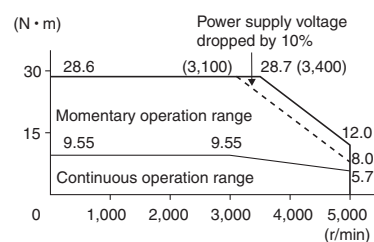
• R88M-K1K530H/T (1.5kW)



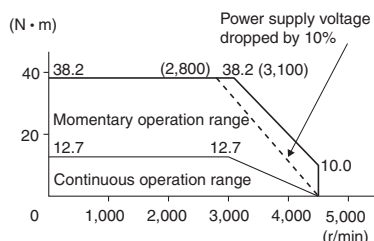
• R88M-K2K030H/T (2kW)



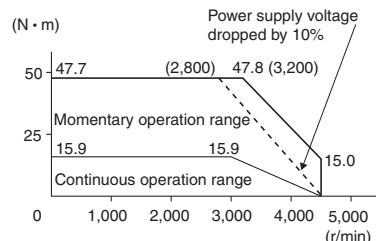
• R88M-K3K030H/T (3kW)



• R88M-K4K030H/T (4kW)



• R88M-K5K030H/T (5kW)



Note 1: The continuous operation range is the range in which continuous operation is possible. Continuous operation at the maximum speed is also possible. However, doing so will reduce the output torque.

Note 2: If the motor power cable exceeds 20 m, the voltage drop will increase and the momentary operation range will become narrower.

AC Servomotor/Drive G5-series

Characteristics

3,000 r/min Servomotors (400 VAC Input Power)

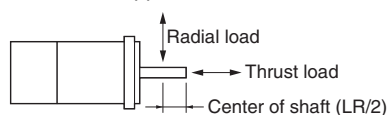
| Item | Model (R88M-) Unit | K75030F | K1K030F | K1K530F | K2K030F | K3K030F | K4K030F | K5K030F | |
|--------------------------------------|--------------------------------|------------------------------------|------------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------|
| | | K75030C | K1K030C | K1K530C | K2K030C | K3K030C | K4K030C | K5K030C | |
| Rated output *1 | W | 750 | 1,000 | 1,500 | 2,000 | 3,000 | 4,000 | 5,000 | |
| Rated torque *1 | N • m | 2.39 | 3.18 | 4.77 | 6.37 | 9.55 | 12.7 | 15.9 | |
| Rated rotation speed | r/min | 3,000 | | | | | | | |
| Momentary maximum rotation speed | r/min | 5,000 | | | | | 4,500 | | |
| Momentary maximum torque*1 | N • m | 7.16 | 9.55 | 14.3 | 19.1 | 28.6 | 38.2 | 47.7 | |
| Rated current *1 | A (rms) | 2.4 | 3.3 | 4.2 | 5.7 | 9.2 | 9.9 | 12.0 | |
| Momentary maximum current *1 | A (0-p) | 10 | 14 | 18 | 24 | 39 | 42 | 51 | |
| Rotor inertia | Without brake | kg • m ² | 1.61×10 ⁻⁴ | 2.03×10 ⁻⁴ | 2.84×10 ⁻⁴ | 3.68×10 ⁻⁴ | 6.50×10 ⁻⁴ | 12.9×10 ⁻⁴ | 17.4×10 ⁻⁴ |
| | With brake | kg • m ² | 1.93×10 ⁻⁴ | 2.35×10 ⁻⁴ | 3.17×10 ⁻⁴ | 4.01×10 ⁻⁴ | 7.85×10 ⁻⁴ | 14.2×10 ⁻⁴ | 18.6×10 ⁻⁴ |
| Applicable load inertia | – | 20 times the rotor inertia max. *2 | 15 times the rotor inertia max. *2 | | | | | | |
| Torque constant *1 | N • m/A | 0.78 | 0.75 | 0.89 | 0.87 | 0.81 | 0.98 | 0.98 | |
| Power rate *1 | Without brake | kW/s | 35.5 | 49.8 | 80.1 | 110 | 140 | 126 | 146 |
| | With brake | kW/s | 29.6 | 43 | 71.8 | 101 | 116 | 114 | 136 |
| Mechanical time constant | Without brake | ms | 0.67 | 0.60 | 0.49 | 0.45 | 0.40 | 0.51 | 0.50 |
| | With brake | ms | 0.8 | 0.70 | 0.55 | 0.49 | 0.49 | 0.56 | 0.54 |
| Electrical time constant | ms | 5.9 | 5.8 | 6.5 | 6.6 | 12 | 13 | 13 | |
| Allowable radial load *3 | N | 490 | 490 | 490 | 490 | 490 | 784 | 784 | |
| Allowable thrust load *3 | N | 196 | 196 | 196 | 196 | 196 | 343 | 343 | |
| Weight | Without brake | kg | Approx. 3.1 | Approx. 3.5 | Approx. 4.4 | Approx. 5.3 | Approx. 8.3 | Approx. 11.0 | Approx. 14.0 |
| | With brake | kg | Approx. 4.1 | Approx. 4.5 | Approx. 5.4 | Approx. 6.3 | Approx. 9.4 | Approx. 12.6 | Approx. 16.0 |
| Radiator plate dimensions (material) | | 320×300×t20 (Al) | | | | 380×350×t30 (Al) | | | |
| Applicable drives (R88D-) | | KT10F/ KN10F-ML2/ KN10F-ECT | KT15F/ KN15F-ML2/ KN15F-ECT | KT15F/ KN15F-ML2/ KN15F-ECT | KT20F/ KN20F-ML2/ KN20F-ECT | KT30F/ KN30F-ML2/ KN30F-ECT | KT50F/ KN50F-ML2/ KN50F-ECT | KT50F/ KN50F-ML2/ KN50F-ECT | |
| Brake specifications | Brake inertia | kg • m ² | 0.33×10 ⁻⁴ | 0.33×10 ⁻⁴ | 0.33×10 ⁻⁴ | 0.33×10 ⁻⁴ | 0.33×10 ⁻⁴ | 0.33×10 ⁻⁴ | 1.35×10 ⁻⁴ |
| | Excitation voltage *4 | V | 24 VDC±10% | | | | | | |
| | Power consumption (at 20°C) | W | 17 | 19 | 19 | 19 | 19 | 22 | 22 |
| | Current consumption (at 20°C) | A | 0.70±10% | 0.81±10% | 0.81±10% | 0.81±10% | 0.81±10% | 0.90±10% | 0.90±10% |
| | Static friction torque | N • m | 2.5 min. | 7.8 min. | 7.8 min. | 7.8 min. | 11.8 min. | 16.1 min. | 16.1 min. |
| | Attraction time *5 | ms | 50 max. | 50 max. | 50 max. | 50 max. | 80 max. | 110 max. | 110 max. |
| | Release time *5 | ms | 15 max. *6 | 15 max. *6 | 15 max. *6 | 15 max. *6 | 15 max. *6 | 50 max. *6 | 50 max. *6 |
| | Backlash | | ±1° | | | | | | |
| | Allowable work per braking | J | 392 | 392 | 392 | 392 | 392 | 1470 | 1470 |
| | Allowable total work | J | 4.9×10 ⁵ | 4.9×10 ⁵ | 4.9×10 ⁵ | 4.9×10 ⁵ | 4.9×10 ⁵ | 2.2×10 ⁶ | 2.2×10 ⁶ |
| | Allowable angular acceleration | rad/s ² | 10,000 | | | | | | |
| | Brake limit | – | 10 million times min. | | | | | | |
| | Rating | – | Continuous | | | | | | |
| Insulation class | – | Type F | | | | | | | |

*1. These are the values when the motor is combined with a driver at normal temperature (20°C, 65%). The momentary maximum torque indicates the standard value.

*2. Applicable load inertia.

- The operable load inertia ratio (load inertia/rotor inertia) depends on the mechanical configuration and its rigidity. For a machine with high rigidity, operation is possible even with high load inertia. Select an appropriate motor and confirm that operation is possible.
- If the dynamic brake is activated frequently with high load inertia, the Dynamic Brake Resistor may burn. Do not repeatedly turn the servo ON/OFF while the dynamic brake is enabled.
- The dynamic brake is designed only for emergency stops. Design the system so that the Servomotor remains stopped for at least 3 minutes after applying the dynamic brake. Otherwise the dynamic brake circuits may fail.

*3. The allowable radial and thrust loads are the values determined for a limit of 20,000 hours at normal operating temperatures. The allowable radial loads are applied as shown in the following diagram.



*4. This is a non-excitation brake. (It is released when excitation voltage is applied.)

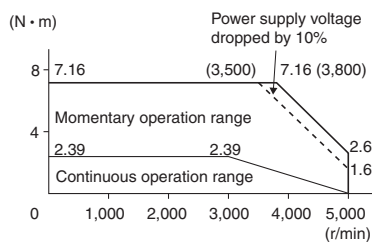
*5. The operation time is the value (reference value) measured with a Spark Killer (CR50500 by Okaya Electric Industries Co., Ltd.).

*6. Direct current switching with a varistor (Z15D151 by SEMITEC Co.).

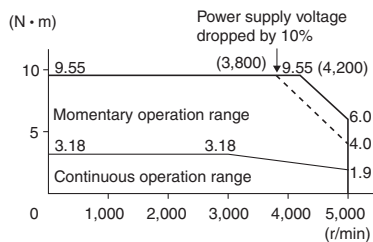
Torque and Rotation Speed Characteristics 3,000 r/min Servomotors (400 VAC Input Power)

The following graphs show the characteristics with a 3 m standard cable and a 400 VAC input.

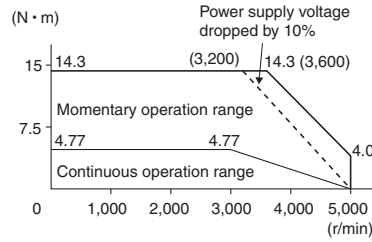
- R88M-K75030F/C (750W)



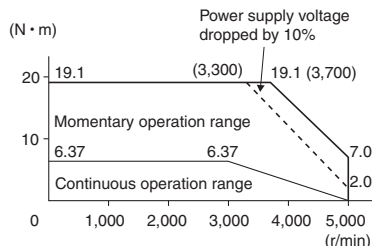
- R88M-K1K030F/C (1kW)



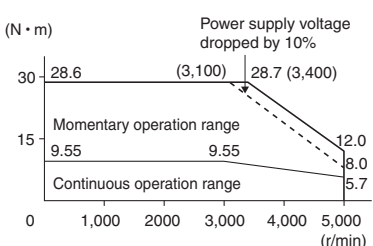
- R88M-K1K530F/C (1.5kW)



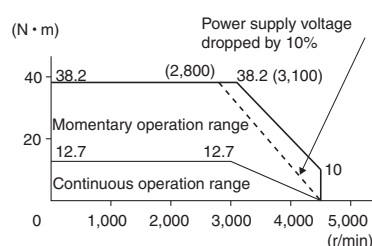
- R88M-K2K030F/C (2kW)



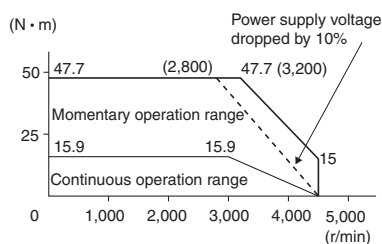
- R88M-K3K030F/C (3kW)



- R88M-K4K030F/C (4kW)



- R88M-K5K030F/C (5kW)



Note 1: The continuous operation range is the range in which continuous operation is possible. Continuous operation at the maximum speed is also possible. However, doing so will reduce the output torque.

Note 2: If the motor power cable exceeds 20 m, the voltage drop will increase and the momentary operation range will become narrower.

AC Servomotor/Drive G5-series

Characteristics

1,500 r/min, 2,000 r/min Servomotors (200 VAC Input Power)

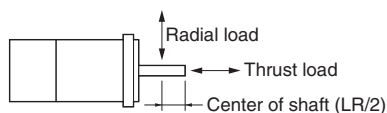
| Model (R88M-) | | K1K020H | K1K520H | K2K020H | K3K020H | K4K020H | K5K020H | — | — | — | |
|--------------------------------------|--------------------------------|---|---|---|---|---|---|-------------------------|---------------------------|---------------------------|----------------------|
| Item | Unit | K1K020T | K1K520T | K2K020T | K3K020T | K4K020T | K5K020T | K7K515T | K11K015T | K15K015T | |
| Rated output *1 | W | 1,000 | 1,500 | 2,000 | 3,000 | 4,000 | 5,000 | 7,500 | 11,000 | 15,000 | |
| Rated torque *1 | N • m | 4.77 | 7.16 | 9.55 | 14.3 | 19.1 | 23.9 | 47.8 | 70.0 | 95.0 | |
| Rated rotation speed | r/min | 2,000 | | | | | | 1,500 | | | |
| Momentary maximum rotation speed | r/min | 3,000 | | | | | | 3,000 | 2,000 | | |
| Momentary maximum torque *1 | N • m | 14.3 | 21.5 | 28.6 | 43.0 | 57.3 | 71.6 | 119.0 | 175.0 | 224.0 | |
| Rated current *1 | A (rms) | 5.7 | 9.4 | 11.5 | 17.4 | 21.0 | 25.9 | 44.0 | 54.2 | 66.1 | |
| Momentary maximum current *1 | A (0-p) | 24 | 40 | 49 | 74 | 89 | 110 | 165 | 203 | 236 | |
| Rotor inertia | Without brake | kg • m ² | 4.60×10 ⁻⁴ | 6.70×10 ⁻⁴ | 8.72×10 ⁻⁴ | 12.9×10 ⁻⁴ | 37.6×10 ⁻⁴ | 48.0×10 ⁻⁴ | 101×10 ⁻⁴ | 212×10 ⁻⁴ | 302×10 ⁻⁴ |
| | With brake | kg • m ² | 5.90×10 ⁻⁴ | 7.99×10 ⁻⁴ | 10.0×10 ⁻⁴ | 14.2×10 ⁻⁴ | 38.6×10 ⁻⁴ | 48.8×10 ⁻⁴ | 107×10 ⁻⁴ | 220×10 ⁻⁴ | 311×10 ⁻⁴ |
| Applicable load inertia | — | 10 times the rotor inertia max. *2 | | | | | | | | | |
| Torque constant *1 | N • m/A | 0.63 | 0.58 | 0.64 | 0.59 | 0.70 | 0.70 | 0.77 | 0.92 | 1.05 | |
| Power rate *1 | Without brake | kW/s | 49.5 | 76.5 | 105 | 159 | 97.1 | 119 | 226 | 231 | 302 |
| | With brake | kW/s | 38.6 | 64.2 | 91.2 | 144 | 94.5 | 117 | 213 | 223 | 293 |
| Mechanical time constant | Without brake | ms | 0.80 | 0.66 | 0.66 | 0.57 | 0.65 | 0.63 | 0.58 | 0.80 | 0.71 |
| | With brake | ms | 1.02 | 0.80 | 0.76 | 0.63 | 0.66 | 0.64 | 0.61 | 0.83 | 0.74 |
| Electrical time constant | ms | 9.4 | 10 | 10 | 12 | 20 | 19 | 21 | 31 | 32 | |
| Allowable radial load *3 | N | 490 | 490 | 490 | 784 | 784 | 784 | 1,176 | 2,254 | 2,254 | |
| Allowable thrust load *3 | N | 196 | 196 | 196 | 343 | 343 | 343 | 490 | 686 | 686 | |
| Weight | Without brake | kg | Approx. 5.2 | Approx. 6.7 | Approx. 8.0 | Approx. 11.0 | Approx. 15.5 | Approx. 18.6 | Approx. 36.4 | Approx. 52.7 | Approx. 70.2 |
| | With brake | kg | Approx. 6.7 | Approx. 8.2 | Approx. 9.5 | Approx. 12.6 | Approx. 18.7 | Approx. 21.8 | Approx. 40.4 | Approx. 58.9 | Approx. 76.3 |
| Radiator plate dimensions (material) | | 275×260×t15 (Al) | | | 380×350×t30 (Al) | 470×440×t30 (Al) | | 550×520×t30 (Al) | 670×630×t35 (Al) | | |
| Applicable drives (R88D-) | | KT10H/ KN10H- ML2/ KN10H- ECT | KT15H/ KN15H- ML2/ KN15H- ECT | KT20H/ KN20H- ML2/ KN20H- ECT | KT30H/ KN30H- ML2/ KN30H- ECT | KT50H/ KN50H- ML2/ KN50H- ECT | KT50H/ KN50H- ML2/ KN50H- ECT | KT75H/ KN75H- ECT | KT150H/ KN150H- ECT | KT150H/ KN150H- ECT | |
| Brake specifications | Brake inertia | kg • m ² | 1.35×10 ⁻⁴ | 1.35×10 ⁻⁴ | 1.35×10 ⁻⁴ | 1.35×10 ⁻⁴ | 4.7×10 ⁻⁴ | 4.7×10 ⁻⁴ | 4.7×10 ⁻⁴ | 7.1×10 ⁻⁴ | 7.1×10 ⁻⁴ |
| | Excitation voltage *4 | V | 24 VDC±10% | | | | | | | | |
| | Power consumption (at 20°C) | W | 14 | 19 | 19 | 22 | 31 | 31 | 34 | 26 | 26 |
| | Current consumption (at 20°C) | A | 0.59±10% | 0.79±10% | 0.79±10% | 0.90±10% | 1.3±10% | 1.3±10% | 1.4±10% | 1.08±10% | 1.08±10% |
| | Static friction torque | N • m | 4.9 min. | 13.7 min. | 13.7 min. | 16.2 min. | 24.5 min. | 24.5 min. | 58.8 min. | 100 min. | 100 min. |
| | Attraction time *5 | ms | 80 max. | 100 max. | 100 max. | 110 max. | 80 max. | 80 max. | 150 max. | 300 max. | 300 max. |
| | Release time *5 | ms | 70 max. *6 | 50 max. *6 | 50 max. *6 | 50 max. *6 | 25 max. *6 | 25 max. *6 | 50 max. | 140 max. | 140 max. |
| | Backlash | | ±1° | | | | | | | | |
| | Allowable work per braking | J | 588 | 1,176 | 1,176 | 1,470 | 1,372 | 1,372 | 1,372 | 2,000 | 2,000 |
| | Allowable total work | J | 7.8×10 ⁵ | 1.5×10 ⁶ | 1.5×10 ⁶ | 2.2×10 ⁶ | 2.9×10 ⁶ | 2.9×10 ⁶ | 2.9×10 ⁶ | 4.0×10 ⁶ | 4.0×10 ⁶ |
| | Allowable angular acceleration | rad/s ² | 10,000 | | | | | | 5,000 | 3,000 | |
| | Brake limit | — | 10 million times min. | | | | | | | | |
| | Rating | — | Continuous | | | | | | | | |
| Insulation class | — | Type F | | | | | | | | | |

*1. These are the values when the motor is combined with a driver at normal temperature (20°C, 65%). The momentary maximum torque indicates the standard value.

*2. Applicable load inertia.

- The operable load inertia ratio (load inertia/rotor inertia) depends on the mechanical configuration and its rigidity. For a machine with high rigidity, operation is possible even with high load inertia. Select an appropriate motor and confirm that operation is possible.
- If the dynamic brake is activated frequently with high load inertia, the Dynamic Brake Resistor may burn. Do not repeatedly turn the servo ON/OFF while the dynamic brake is enabled.
- The dynamic brake is designed only for emergency stops. Design the system so that the Servomotor remains stopped for at least 3 minutes after applying the dynamic brake. Otherwise the dynamic brake circuits may fail.

*3. The allowable radial and thrust loads are the values determined for a limit of 20,000 hours at normal operating temperatures. The allowable radial loads are applied as shown in the following diagram.



*4. This is a non-excitation brake. (It is released when excitation voltage is applied.)

*5. The operation time is the value (reference value) measured with a Spark Killer (CR50500 by Okaya Electric Industries Co., Ltd.).

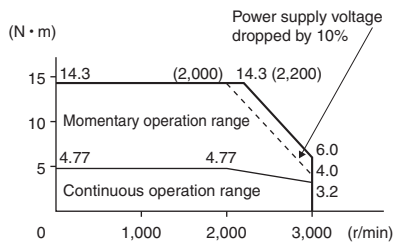
*6. Direct current switching with a varistor (Z15D151 by SEMITEC Co.).

Torque and Rotation Speed Characteristics

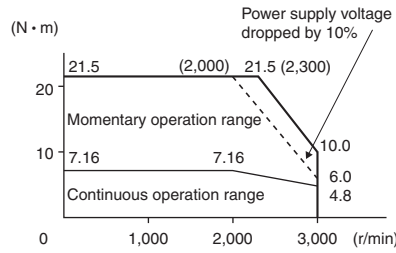
1,500 r/min, 2,000 r/min Servomotors (200 VAC Input Power)

The following graphs show the characteristics with a 3 m standard cable and a 200 VAC input.

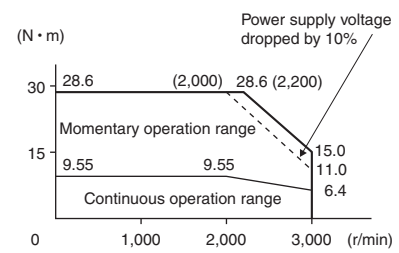
- R88M-K1K020H/T (1kW)



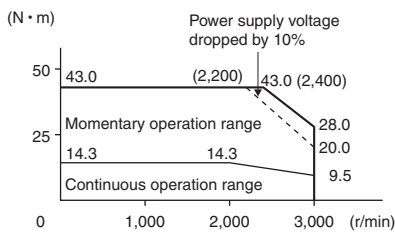
- R88M-K1K520H/T (1.5kW)



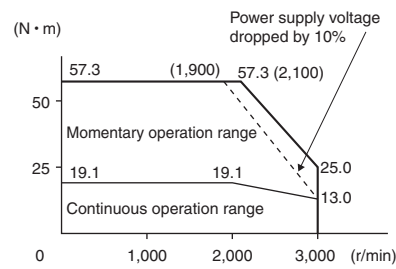
- R88M-K2K020H/T (2kW)



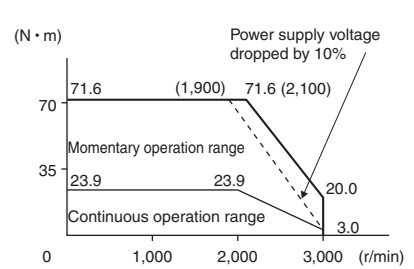
- R88M-K3K020H/T (3kW)



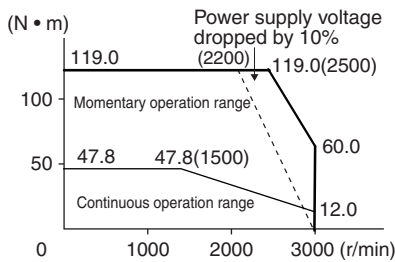
- R88M-K4K020H/T (4kW)



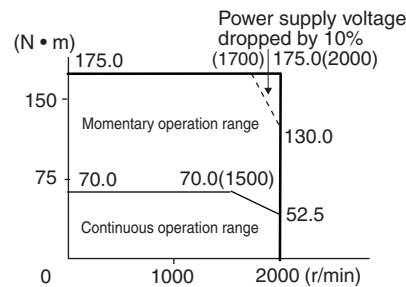
- R88M-K5K020H/T (5kW)



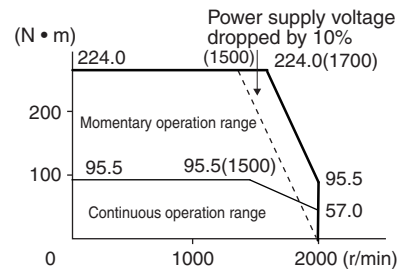
- R88M-K7K515T (7.5kW)



- R88M-K11K015T (11kW)



- R88M-K15K015T (15kW)



Note 1: The continuous operation range is the range in which continuous operation is possible. Continuous operation at the maximum speed is also possible. However, doing so will reduce the output torque.

Note 2: If the motor power cable exceeds 20 m, the voltage drop will increase and the momentary operation range will become narrower.

AC Servomotor/Drive G5-series

Characteristics

1,500 r/min, 2,000 r/min Servomotors (400 VAC Input Power)

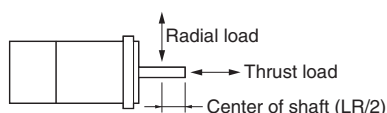
| Model (R88M-) | | K40020F | K60020F | K1K020F | K1K520F | K2K020F | K3K020F | K4K020F | K5K020F | — | — | — | | |
|--------------------------------------|--------------------------------|---------------------|---|---|---|---|---|---|---|---|-------------------------|---------------------------|---------------------------|---------------------|
| Item | | Unit | K40020C | K60020C | K1K020C | K1K520C | K2K020C | K3K020C | K4K020C | K5K020C | K7K515C | K11K015C | K15K015C | |
| Rated output *1 | | W | 400 | 600 | 1,000 | 1,500 | 2,000 | 3,000 | 4,000 | 5,000 | 7,500 | 11,000 | 15,000 | |
| Rated torque *1 | | N • m | 1.91 | 2.86 | 4.77 | 7.16 | 9.55 | 14.3 | 19.1 | 23.9 | 47.8 | 70.0 | 95.9 | |
| Rated rotation speed | | r/min | 2,000 | | | | | | | | | 1,500 | | |
| Momentary maximum rotation speed | | r/min | 3,000 | | | | | | | | | 2,000 | | |
| Momentary maximum torque *1 | | N • m | 5.73 | 8.59 | 14.3 | 21.5 | 28.7 | 43.0 | 57.3 | 71.6 | 119.0 | 175.0 | 224.0 | |
| Rated current *1 | | A (rms) | 1.2 | 1.5 | 2.8 | 4.7 | 5.9 | 8.7 | 10.6 | 13.0 | 22.0 | 27.1 | 33.1 | |
| Momentary maximum current *1 | | A (0-p) | 4.9 | 6.5 | 12 | 20 | 25 | 37 | 45 | 55 | 83 | 101 | 118 | |
| Rotor inertia | Without brake | kg • m ² | 1.61×10 ⁻⁴ | 2.03×10 ⁻⁴ | 4.60×10 ⁻⁴ | 6.70×10 ⁻⁴ | 8.72×10 ⁻⁴ | 12.9×10 ⁻⁴ | 37.6×10 ⁻⁴ | 48.0×10 ⁻⁴ | 101×10 ⁻⁴ | 212×10 ⁻⁴ | 302×10 ⁻⁴ | |
| | With brake | kg • m ² | 1.90×10 ⁻⁴ | 2.35×10 ⁻⁴ | 5.90×10 ⁻⁴ | 7.99×10 ⁻⁴ | 10.0×10 ⁻⁴ | 14.2×10 ⁻⁴ | 38.6×10 ⁻⁴ | 48.8×10 ⁻⁴ | 107×10 ⁻⁴ | 220×10 ⁻⁴ | 311×10 ⁻⁴ | |
| Applicable load inertia | | — | 10 times the rotor inertia max. *2 | | | | | | | | | | | |
| Torque constant *1 | | N • m/A | 1.27 | 1.38 | 1.27 | 1.16 | 1.27 | 1.18 | 1.40 | 1.46 | 1.54 | 1.84 | 2.10 | |
| Power rate *1 | Without brake | kW/s | 22.7 | 40.3 | 49.5 | 76.5 | 105 | 159 | 97.1 | 119 | 226 | 231 | 302 | |
| | With brake | kW/s | 19.2 | 34.8 | 38.6 | 64.2 | 91.2 | 144 | 94.5 | 117 | 213 | 223 | 293 | |
| Mechanical time constant | Without brake | ms | 0.70 | 0.62 | 0.79 | 0.66 | 0.68 | 0.56 | 0.60 | 0.60 | 0.58 | 0.80 | 0.71 | |
| | With brake | ms | 0.83 | 0.72 | 1.01 | 0.79 | 0.78 | 0.61 | 0.61 | 0.61 | 0.61 | 0.83 | 0.74 | |
| Electrical time constant | | ms | 5.7 | 5.9 | 10 | 10 | 10 | 12 | 21 | 19 | 21 | 31 | 32 | |
| Allowable radial load *3 | | N | 490 | 490 | 490 | 490 | 490 | 784 | 784 | 784 | 1,176 | 2,254 | 2,254 | |
| Allowable thrust load *3 | | N | 196 | 196 | 196 | 196 | 196 | 343 | 343 | 343 | 490 | 686 | 686 | |
| Weight | Without brake | kg | Approx. 3.1 | Approx. 3.5 | Approx. 5.2 | Approx. 6.7 | Approx. 8.0 | Approx. 11.0 | Approx. 15.5 | Approx. 18.6 | Approx. 36.4 | Approx. 52.7 | Approx. 70.2 | |
| | With brake | kg | Approx. 4.1 | Approx. 4.5 | Approx. 6.7 | Approx. 8.2 | Approx. 9.5 | Approx. 12.6 | Approx. 18.7 | Approx. 21.8 | Approx. 40.4 | Approx. 58.9 | Approx. 76.3 | |
| Radiator plate dimensions (material) | | | 320×300×t20 (Al) | | | 275×260×t15 (Al) | | | 380×350×t30 (Al) | 470×440×t30 (Al) | | | 550×520×t30 (Al) | 670×630×t35 (Al) |
| Applicable drives (R88D-) | | | KT06F/ KN06F- ML2/ KN06F- ECT | KT06F/ KN06F- ML2/ KN06F- ECT | KT10F/ KN10F- ML2/ KN10F- ECT | KT15F/ KN15F- ML2/ KN15F- ECT | KT20F/ KN20F- ML2/ KN20F- ECT | KT30F/ KN30F- ML2/ KN30F- ECT | KT50F/ KN50F- ML2/ KN50F- ECT | KT50F/ KN50F- ML2/ KN50F- ECT | KT75F/ KN75F- ECT | KT150F/ KN150F- ECT | KT150F/ KN150F- ECT | |
| Brake specifications | Brake inertia | kg • m ² | 1.35×10 ⁻⁴ | 1.35×10 ⁻⁴ | 1.35×10 ⁻⁴ | 1.35×10 ⁻⁴ | 1.35×10 ⁻⁴ | 1.35×10 ⁻⁴ | 4.7×10 ⁻⁴ | 4.7×10 ⁻⁴ | 4.7×10 ⁻⁴ | 7.1×10 ⁻⁴ | 7.1×10 ⁻⁴ | |
| | Excitation voltage *4 | V | 24 VDC±10% | | | | | | | | | | | |
| | Power consumption (at 20°C) | W | 17 | 17 | 14 | 19 | 19 | 22 | 31 | 31 | 34 | 26 | 26 | |
| | Current consumption (at 20°C) | A | 0.70±10% | 0.70±10% | 0.59±10% | 0.79±10% | 0.79±10% | 0.90±10% | 1.3±10% | 1.3±10% | 1.4±10% | 1.08±10% | 1.08±10% | |
| | Static friction torque | N • m | 2.5 min. | 2.5 min. | 4.9 min. | 13.7 min. | 13.7 min. | 16.2 min. | 24.5 min. | 24.5 min. | 58.8 min. | 100 min. | 100 min. | |
| | Attraction time *5 | ms | 50 max. | 50 max. | 80 max. | 100 max. | 100 max. | 110 max. | 80 max. | 80 max. | 150 max. | 300 max. | 300 max. | |
| | Release time *5 | ms | 15 max. *7 | 15 max. *7 | 70 max. *6 | 50 max. *6 | 50 max. *6 | 50 max. *6 | 25 max. *6 | 25 max. *6 | 50 max. | 140 max. | 140 max. | |
| | Backlash | | ±1° | | | | | | | | | | | |
| | Allowable work per braking | J | 392 | 392 | 588 | 1,176 | 1,176 | 1,470 | 1,372 | 1,372 | 1,372 | 1,372 | 2,000 | 2,000 |
| | Allowable total work | J | 4.9×10 ⁵ | 4.9×10 ⁵ | 7.8×10 ⁵ | 1.5×10 ⁶ | 1.5×10 ⁶ | 2.2×10 ⁶ | 2.9×10 ⁶ | 2.9×10 ⁶ | 2.9×10 ⁶ | 2.9×10 ⁶ | 4.0×10 ⁶ | 4.0×10 ⁶ |
| | Allowable angular acceleration | rad/s ² | 10,000 | | | | | | | | | 5,000 | 3,000 | |
| | Brake limit | — | 10 million times min. | | | | | | | | | | | |
| | Rating | — | Continuous | | | | | | | | | | | |
| Insulation class | — | Type F | | | | | | | | | | | | |

*1. These are the values when the motor is combined with a driver at normal temperature (20°C, 65%). The momentary maximum torque indicates the standard value.

*2. Applicable load inertia.

- The operable load inertia ratio (load inertia/rotor inertia) depends on the mechanical configuration and its rigidity. For a machine with high rigidity, operation is possible even with high load inertia. Select an appropriate motor and confirm that operation is possible.
- If the dynamic brake is activated frequently with high load inertia, the Dynamic Brake Resistor may burn. Do not repeatedly turn the servo ON/OFF while the dynamic brake is enabled.
- The dynamic brake is designed only for emergency stops. Design the system so that the Servomotor remains stopped for at least 3 minutes after applying the dynamic brake. Otherwise the dynamic brake circuits may fail.

*3. The allowable radial and thrust loads are the values determined for a limit of 20,000 hours at normal operating temperatures. The allowable radial loads are applied as shown in the following diagram.



*4. This is a non-excitation brake. (It is released when excitation voltage is applied.)

*5. The operation time is the value (reference value) measured with a Spark Killer (CR5050 by Okaya Electric Industries Co., Ltd.).

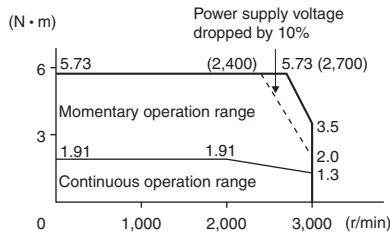
*6. Direct current switching with a varistor (Z15D151 by SEMITEC Co.).

Torque and Rotation Speed Characteristics

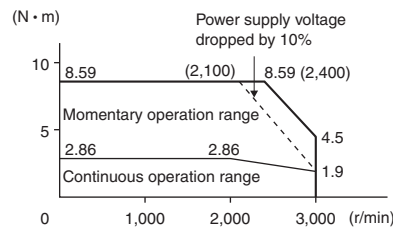
1,500 r/min, 2,000 r/min Servomotors (400 VAC Input Power)

The following graphs show the characteristics with a 3 m standard cable and a 400 VAC input.

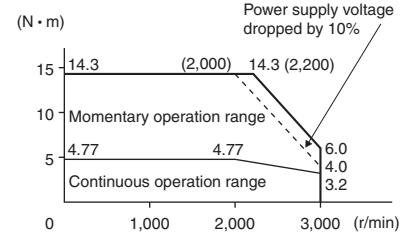
- R88M-K40020F/C (400W)



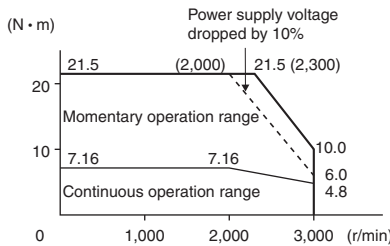
- R88M-K60020F/C (600W)



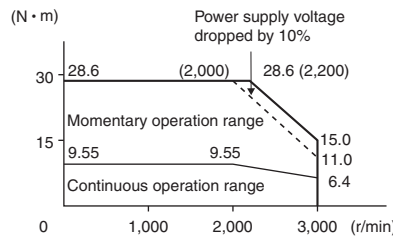
- R88M-K1K020F/C (1kW)



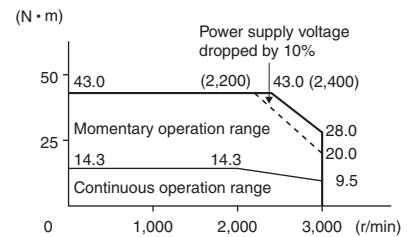
- R88M-K1K520F/C (1.5kW)



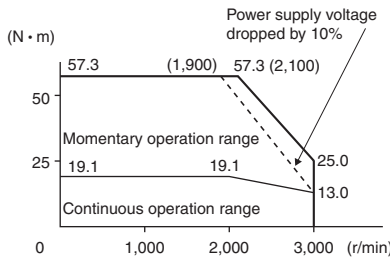
- R88M-K2K020F/C (2kW)



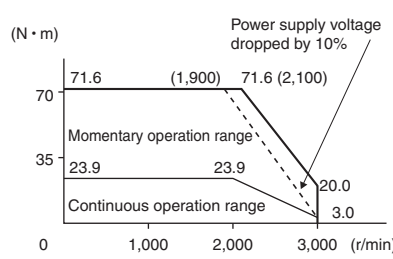
- R88M-K3K020F/C (3kW)



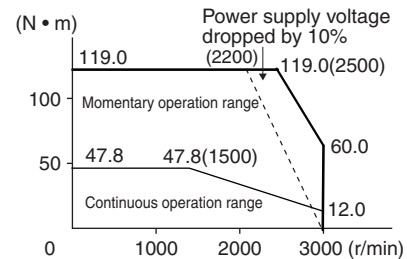
- R88M-K4K020F/C (4kW)



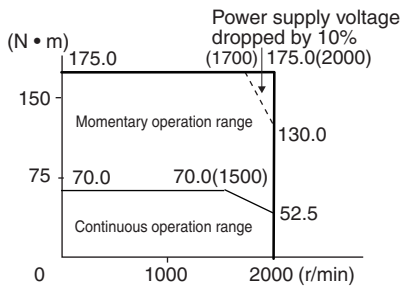
- R88M-K5K020F/C (5kW)



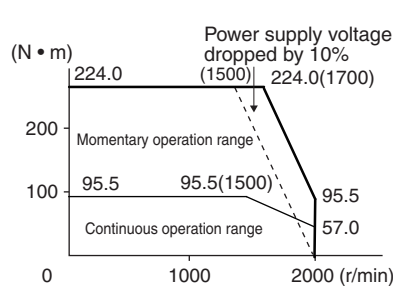
- R88M-K7K515C (7.5kW)



- R88M-K11K015C (11kW)



- R88M-K15K015C (15kW)



Note 1: The continuous operation range is the range in which continuous operation is possible. Continuous operation at the maximum speed is also possible. However, doing so will reduce the output torque.

Note 2: If the motor power cable exceeds 20 m, the voltage drop will increase and the momentary operation range will become narrower.

AC Servomotor/Drive G5-series

Characteristics

1,000 r/min Servomotors (200/400 VAC Input Power)

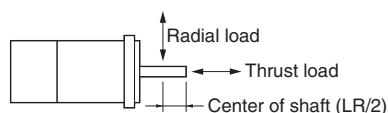
| Model (R88M-) | | 200 VAC | | | | | 400 VAC | | | | | |
|--------------------------------------|--------------------------------|---|--|---|-------------------------|-------------------------|---|---|---|-------------------------|-------------------------|----------------------|
| | | K90010H | K2K010H | K3K010H | – | – | K90010F | K2K010F | K3K010F | – | – | |
| Item | Unit | K90010T | K2K010T | K3K010T | K4K510T | K6K010T | K90010C | K2K010C | K3K010C | K4K510C | K6K010C | |
| Rated output *1 | W | 900 | 2,000 | 3,000 | 4,500 | 6,000 | 900 | 2,000 | 3,000 | 4,500 | 6,000 | |
| Rated torque *1 | N • m | 8.59 | 19.1 | 28.7 | 43.0 | 57.0 | 8.59 | 19.1 | 28.7 | 43.0 | 57.3 | |
| Rated rotation speed | r/min | 1,000 | | | | | | | | | | |
| Momentary maximum rotation speed | r/min | 2,000 | | | | | | | | | | |
| Momentary maximum torque *1 | N • m | 19.3 | 47.7 | 71.7 | 107.0 | 143.0 | 19.3 | 47.7 | 71.7 | 107.0 | 143.0 | |
| Rated current *1 | A (rms) | 7.6 | 17.0 | 22.6 | 29.7 | 38.8 | 3.8 | 8.5 | 11.3 | 14.8 | 19.4 | |
| Momentary maximum current *1 | A (0-p) | 24 | 60 | 80 | 110 | 149 | 12 | 30 | 40 | 55 | 74 | |
| Rotor inertia | Without brake | kW/s | 6.70×10 ⁻⁴ | 30.3×10 ⁻⁴ | 48.4×10 ⁻⁴ | 79.1×10 ⁻⁴ | 101×10 ⁻⁴ | 6.70×10 ⁻⁴ | 30.3×10 ⁻⁴ | 48.4×10 ⁻⁴ | 79.1×10 ⁻⁴ | 101×10 ⁻⁴ |
| | With brake | kW/s | 7.99×10 ⁻⁴ | 31.4×10 ⁻⁴ | 49.2×10 ⁻⁴ | 84.4×10 ⁻⁴ | 107×10 ⁻⁴ | 7.99×10 ⁻⁴ | 31.4×10 ⁻⁴ | 49.2×10 ⁻⁴ | 84.4×10 ⁻⁴ | 107×10 ⁻⁴ |
| Applicable load inertia | – | 10 times the rotor inertia max. *2 | | | | | | | | | | |
| Torque constant *1 | N • m/A | 0.86 | 0.88 | 0.96 | 1.02 | 1.04 | 1.72 | 1.76 | 1.92 | 2.05 | 2.08 | |
| Power rate *1 | Without brake | kW/s | 110 | 120 | 170 | 233 | 325 | 110 | 120 | 170 | 233 | 325 |
| | With brake | kW/s | 92.4 | 116 | 167 | 219 | 307 | 92.4 | 116 | 167 | 219 | 307 |
| Mechanical time constant | Without brake | ms | 0.66 | 0.75 | 0.63 | 0.55 | 0.54 | 0.66 | 0.76 | 0.61 | 0.55 | 0.54 |
| | With brake | ms | 0.78 | 0.78 | 0.64 | 0.63 | 0.57 | 0.79 | 0.78 | 0.62 | 0.63 | 0.57 |
| Electrical time constant | ms | 11 | 18 | 21 | 20 | 23 | 11 | 18 | 22 | 20 | 23 | |
| Allowable radial load *3 | N | 686 | 1176 | 1470 | 1470 | 1764 | 686 | 1176 | 1470 | 1470 | 1764 | |
| Allowable thrust load *3 | N | 196 | 490 | 490 | 490 | 588 | 196 | 490 | 490 | 490 | 588 | |
| Weight | Without brake | kg | Approx. 6.7 | Approx. 14.0 | Approx. 20.0 | Approx. 29.4 | Approx. 36.4 | Approx. 6.7 | Approx. 14.0 | Approx. 20.0 | Approx. 29.4 | Approx. 36.4 |
| | With brake | kg | Approx. 8.2 | Approx. 17.5 | Approx. 23.5 | Approx. 33.3 | Approx. 40.4 | Approx. 8.2 | Approx. 17.5 | Approx. 23.5 | Approx. 33.3 | Approx. 40.4 |
| Radiator plate dimensions (material) | | 270×260×115 (Al) | | | 470×440×t30 (Al) | 550×520×t30 (Al) | 270×260×t15 (Al) | 470×440×t30 (Al) | | | 550×520×t30 (Al) | |
| Applicable drives (R88D-) | | KT15H/ KN15H- ML2/ KN15H- ECT | KT30H/ KN30H- ML2/ KN30HF- ECT | KT50H/ KN50H- ML2/ KN50H- ECT | KT50H/ KN50H- ECT | KT75H/ KN75H- ECT | KT15F/ KN15F- ML2/ KN15F- ECT | KT30F/ KN30F- ML2/ KN30F- ECT | KT50F/ KN50F- ML2/ KN50F- ECT | KT50F/ KN50F- ECT | KT75F/ KN75F- ECT | |
| Brake specifications | Brake inertia | kg • m ² | 1.35×10 ⁻⁴ | 4.7×10 ⁻⁴ | 4.7×10 ⁻⁴ | 4.7×10 ⁻⁴ | 4.7×10 ⁻⁴ | 1.35×10 ⁻⁴ | 4.7×10 ⁻⁴ | 4.7×10 ⁻⁴ | 4.7×10 ⁻⁴ | 4.7×10 ⁻⁴ |
| | Excitation voltage *4 | V | 24 VDC±10% | | | | | | | | | |
| | Power consumption (at 20°C) | W | 19 | 31 | 34 | 34 | 34 | 19 | 31 | 34 | 34 | 34 |
| | Current consumption (at 20°C) | A | 0.79±10% | 1.3±10% | 1.4±10% | 1.4±10% | 1.4±10% | 0.79±10% | 1.3±10% | 1.4±10% | 1.4±10% | 1.4±10% |
| | Static friction torque | N • m | 13.7 min. | 24.5 min. | 58.8 min. | 58.8 min. | 58.8 min. | 13.7 min. | 24.5 min. | 58.8 min. | 58.8 min. | 58.8 min. |
| | Attraction time *5 | ms | 100 max. | 80 max. | 150 max. | 150 max. | 150 max. | 100 max. | 80 max. | 150 max. | 150 max. | 150 max. |
| | Release time *5 | ms | 50 max. *6 | 25 max. *7 | 50 max. *7 | 50 max. | 50 max. | 50 max. *6 | 25 max. *6 | 50 max. *6 | 50 max. | 50 max. |
| | Backlash | | ±1° | | | | | | | | | |
| | Allowable work per braking | J | 1,176 | 1,372 | 1,372 | 1,372 | 1,372 | 1,176 | 1,372 | 1,372 | 1,372 | 1,372 |
| | Allowable total work | J | 1.5×10 ⁶ | 2.9×10 ⁶ | 2.9×10 ⁶ | 2.9×10 ⁶ | 2.9×10 ⁶ | 1.5×10 ⁶ | 2.9×10 ⁶ | 2.9×10 ⁶ | 2.9×10 ⁶ | 2.9×10 ⁶ |
| | Allowable angular acceleration | rad/s ² | 10,000 | | | 5,000 | | 10,000 | | | 5,000 | |
| | Brake limit | – | 10 million times min. | | | | | | | | | |
| Rating | – | Continuous | | | | | | | | | | |
| Insulation class | – | Type F | | | | | | | | | | |

*1. These are the values when the motor is combined with a driver at normal temperature (20°C, 65%). The momentary maximum torque indicates the standard value.

*2. Applicable load inertia.

- The operable load inertia ratio (load inertia/rotor inertia) depends on the mechanical configuration and its rigidity. For a machine with high rigidity, operation is possible even with high load inertia. Select an appropriate motor and confirm that operation is possible.
- If the dynamic brake is activated frequently with high load inertia, the Dynamic Brake Resistor may burn. Do not repeatedly turn the servo ON/OFF while the dynamic brake is enabled.
- The dynamic brake is designed only for emergency stops. Design the system so that the Servomotor remains stopped for at least 3 minutes after applying the dynamic brake. Otherwise the dynamic brake circuits may fail.

*3. The allowable radial and thrust loads are the values determined for a limit of 20,000 hours at normal operating temperatures. The allowable radial loads are applied as shown in the following diagram.



*4. This is a non-excitation brake. (It is released when excitation voltage is applied.)

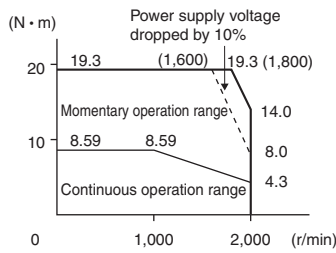
*5. The operation time is the value (reference value) measured with a Spark Killer (CR50500 by Okaya Electric Industries Co., Ltd.).

*6. Direct current switching with a varistor (Z15D151 by SEMITEC Co.).

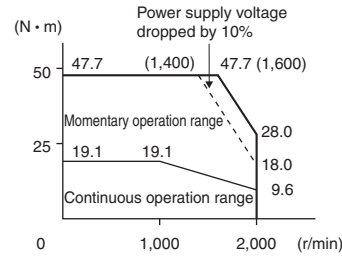
Torque and Rotation Speed Characteristics 1,000 r/min Servomotors (200/400 VAC Input Power)

The following graphs show the characteristics with a 3 m standard cable and a 200 VAC input.

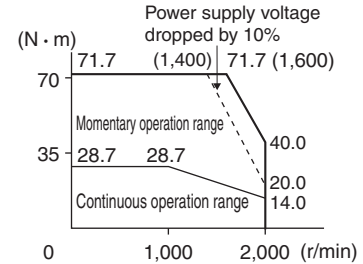
- R88M-K90010H/T/F/C (900W)



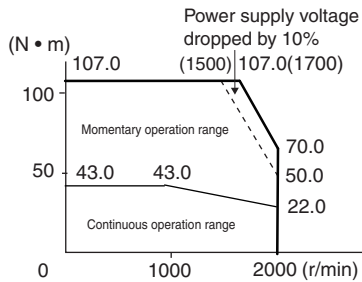
- R88M-K2K010H/T/F/C (2kW)



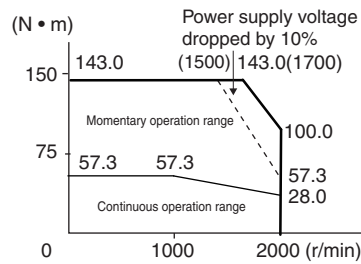
- R88M-K3K010H/T/F/C (3kW)



- R88M-K4K510T/C (4.5kW)



- R88M-K6K010T/C (6kW)



Note 1: The continuous operation range is the range in which continuous operation is possible. Continuous operation at the maximum speed is also possible. However, doing so will reduce the output torque.

Note 2: If the motor power cable exceeds 20 m, the voltage drop will increase and the momentary operation range will become narrower.

Encoder Specifications

Incremental Encoders

| Item | Specifications |
|----------------------|--|
| Encoder system | Optical encoder 20 bits |
| No. of output pulses | Phases A and B: 262,144 pulses/rotation Phase Z: 1 pulse/rotation |
| Power supply voltage | 5 VDC±5% |
| Power supply current | 180 mA (max.) |
| Output signals | +S, -S |
| Output interface | RS-485 compliance |

Absolute Encoders

| Item | Specifications |
|--------------------------------|--|
| Encoder system | Optical encoder 17 bits |
| No. of output pulses | Phases A and B: 32,768 pulses/rotation Phase Z: 1 pulse/rotation |
| Maximum rotations | -32,768 to +32,767 rotations |
| Power supply voltage | 5 VDC±5% |
| Power supply current | 110 mA (max.) |
| Applicable battery voltage | 3.6 VDC |
| Current consumption of battery | 265 μA for a maximum of 5 s right after power interruption 100 μA for operation during power interruption 3.6 μA when power is supplied to Servo Drive |
| Output signals | +S, -S |
| Output interface | RS-485 compliance |

Note: Multi-rotation Data Backup

- The multi-rotation data will be lost if the battery cable connector is disconnected at the motor when connecting the battery cable for the absolute encoder and battery.
- The multi-rotation data will be lost if CN2 is disconnected when connecting the battery to CN1 without the use of a battery cable for the absolute encoder.

G5-Series
System Configuration

EtherCAT Communications
AC Servo Drive

EtherCAT Communications
Linear Motor Type
AC Servo Drive

General-purpose Inputs
AC Servo Drive

ML-II Type
AC Servo Drive

AC Servomotors

Linear Motor

AC Servomotor/Drive G5-series

Dimensions

<Cylinder type>

3,000 r/min Servomotors (100/200 VAC)

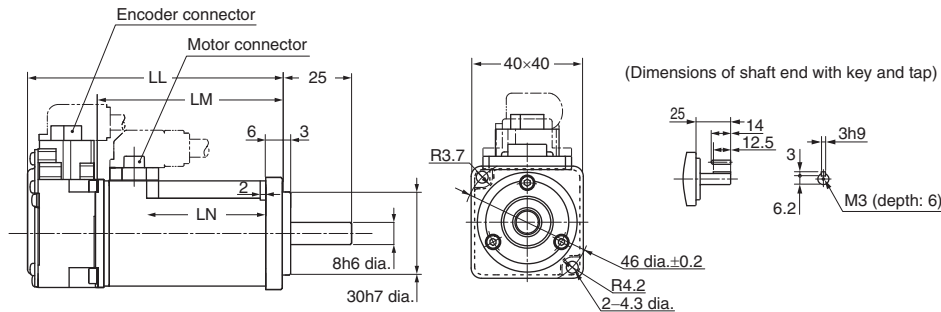
50W/100W

• Without brake

- R88M-K05030H (-S2)/-K10030□ (-S2) **INC**
- R88M-K05030T (-S2)/-K10030□ (-S2) **ABS**

| Model | Dimensions (mm) | | |
|--------------|-----------------|----|----|
| | LL | LM | LN |
| R88M-K05030□ | 72 | 48 | 23 |
| R88M-K10030□ | 92 | 68 | 43 |

CAD data

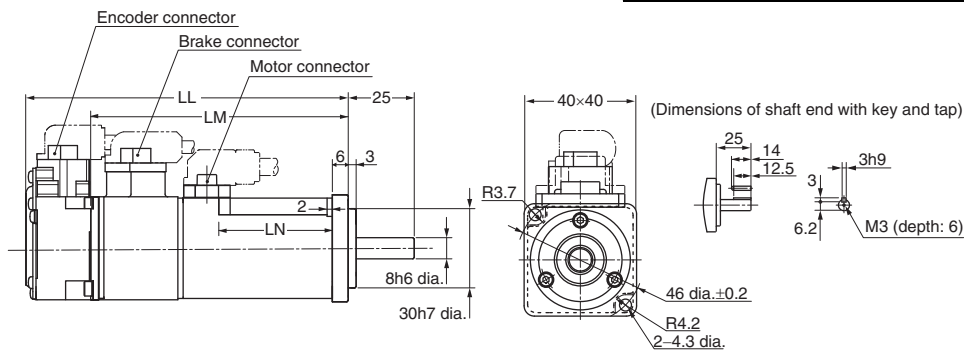


• With brake

- R88M-K05030H-B (S2)/-K10030□-B (S2) **INC**
- R88M-K05030T-B (S2)/-K10030□-B (S2) **ABS**

| Model | Dimensions (mm) | | |
|-----------------|-----------------|----|----|
| | LL | LM | LN |
| R88M-K05030□-B□ | 102 | 78 | 23 |
| R88M-K10030□-B□ | 122 | 98 | 43 |

CAD data



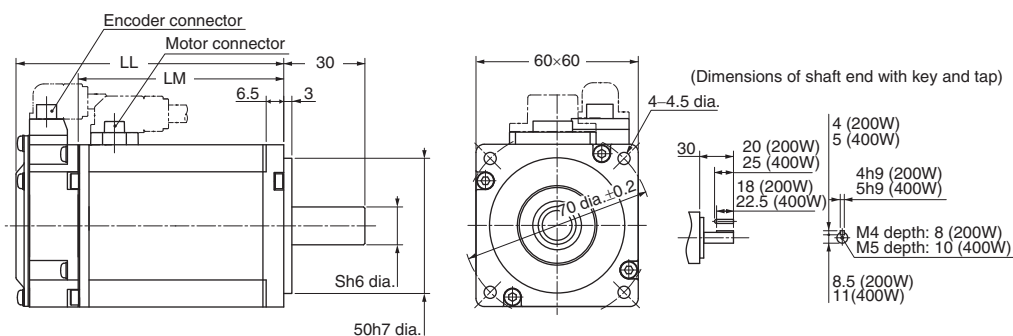
200W/400W

• Without brake

- R88M-K20030□ (-S2)/-K40030□ (-S2) **INC**
- R88M-K20030□ (-S2)/-K40030□ (-S2) **ABS**

| Model | Dimensions (mm) | | |
|--------------|-----------------|------|----|
| | LL | LM | LN |
| R88M-K20030□ | 79.5 | 56.5 | 11 |
| R88M-K40030□ | 99 | 76 | 14 |

CAD data



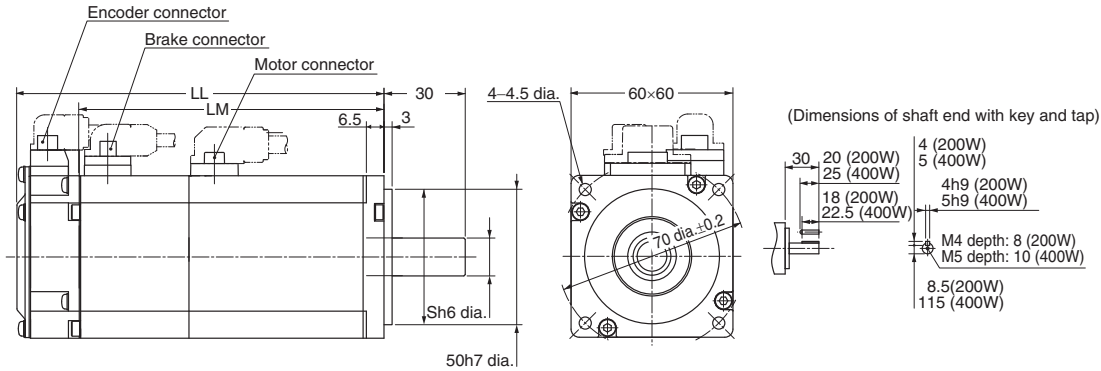
Note: The standard models have a straight shaft. A model with a key and tap is indicated by adding "S2" to the end of the model number. Models with an oil seal are indicated with O at the end of the model number. The motor dimensions do not change.

• **With brake**

- R88M-K20030□-B (S2)/-K40030□-B (S2) **INC**
- R88M-K20030□-B (S2)/-K40030□-B (S2) **ABS**

| Model | Dimensions (mm) | | |
|-----------------|-----------------|-------|----|
| | LL | LM | S |
| R88M-K20030□-B□ | 116 | 93 | 11 |
| R88M-K40030□-B□ | 135.5 | 112.5 | 14 |

CAD data

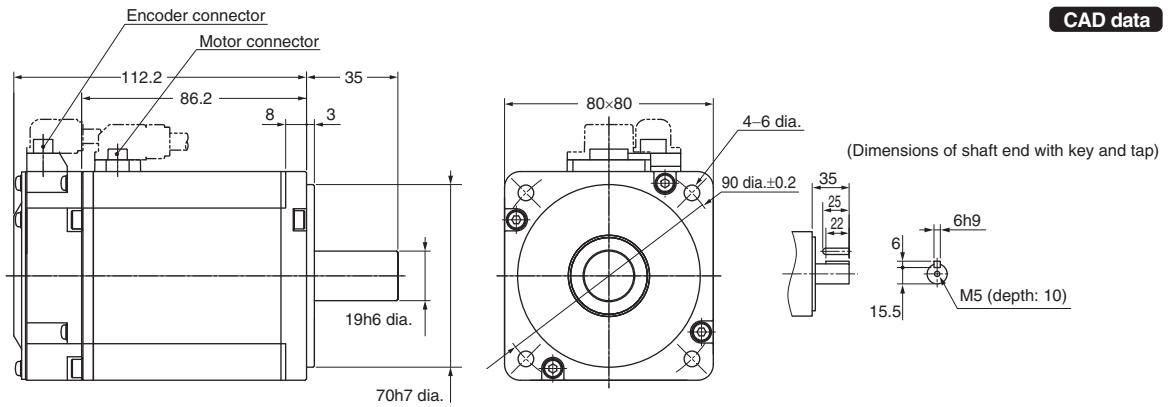


750W

• **Without brake**

- R88M-K75030H (-S2) **INC**
- R88M-K75030T (-S2) **ABS**

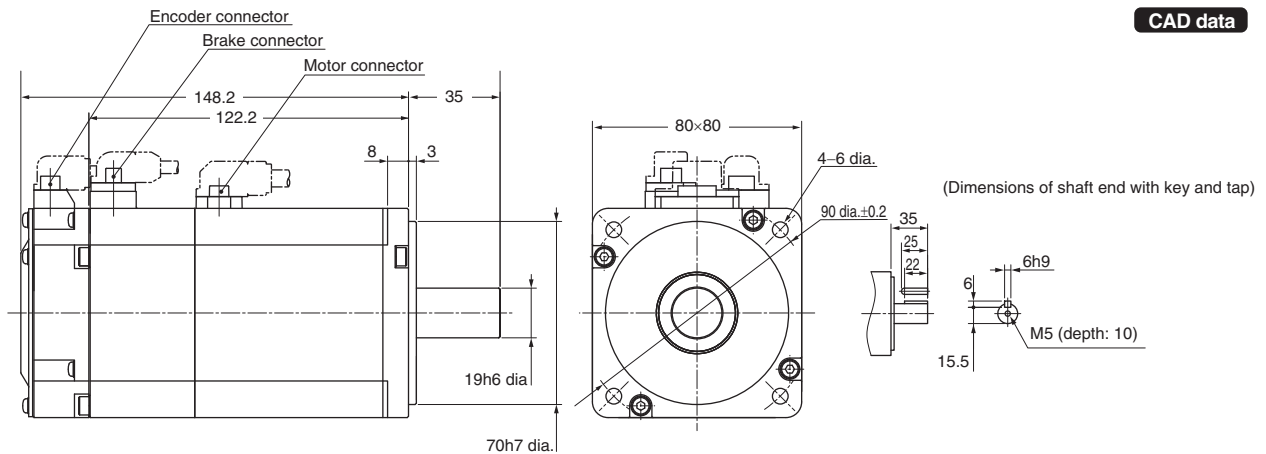
CAD data



• **With brake**

- R88M-K75030H-B (S2) **INC**
- R88M-K75030T-B (S2) **ABS**

CAD data



Note: The standard models have a straight shaft. A model with a key and tap is indicated by adding "S2" to the end of the model number. Models with an oil seal are indicated with O at the end of the model number. The motor dimensions do not change.

AC Servomotor/Drive G5-series

1kW/1.5kW/2kW

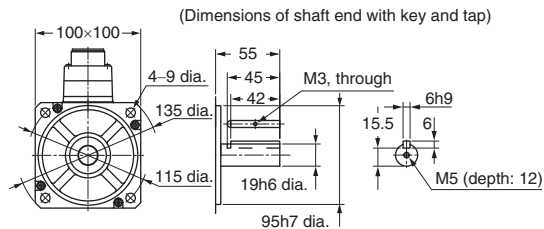
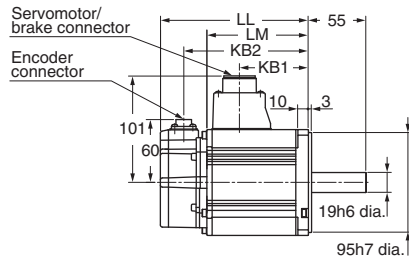
• Without brake

- R88M-K1K030H (-S2)/-K1K530H (-S2)/-K2K030H (-S2) **INC**
- R88M-K1K030T (-S2)/-K1K530T (-S2)/-K2K030T (-S2) **ABS**

• With brake

- R88M-K1K030H-B (S2)/-K1K530H-B (S2)/-K2K030H-B (S2) **INC**
- R88M-K1K030T-B (S2)/-K1K530T-B (S2)/-K2K030T-B (S2) **ABS**

| Model | Dimensions (mm) | | | |
|-----------------|-----------------|-------|-------|-------|
| | LL | LM | KB1 | KB2 |
| R88M-K1K030□ | 141 | 97 | 66 | 119 |
| R88M-K1K530□ | 159.5 | 115.5 | 84.5 | 137.5 |
| R88M-K2K030□ | 178.5 | 134.5 | 103.5 | 156.5 |
| R88M-K1K030□-B□ | 168 | 124 | 66 | 146 |
| R88M-K1K530□-B□ | 186.5 | 142.5 | 84.5 | 164.5 |
| R88M-K2K030□-B□ | 205.5 | 161.5 | 103.5 | 183.5 |



CAD data

3kW

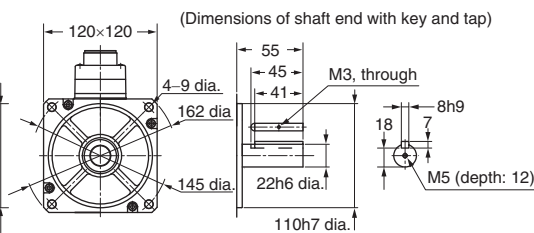
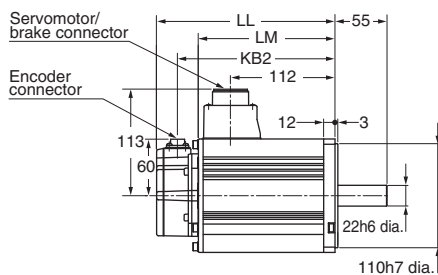
• Without brake

- R88M-K3K030H (-S2) **INC**
- R88M-K3K030T (-S2) **ABS**

• With brake

- R88M-K3K030H-B (S2) **INC**
- R88M-K3K030T-B (S2) **ABS**

| Model | Dimensions (mm) | | |
|-----------------|-----------------|-----|-----|
| | LL | LM | KB2 |
| R88M-K3K030□ | 190 | 146 | 168 |
| R88M-K3K030□-B□ | 215 | 171 | 193 |



CAD data

4kW/5kW

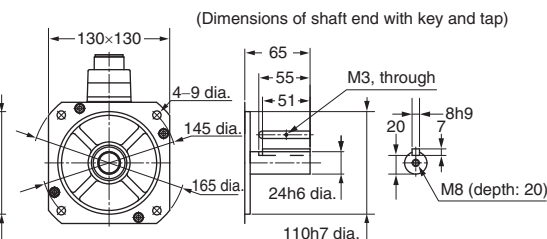
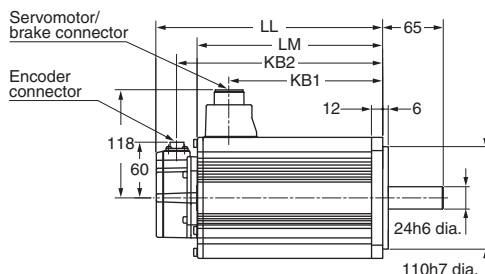
• Without brake

- R88M-K4K030H (-S2)/-K5K030H (-S2) **INC**
- R88M-K4K030T (-S2)/-K5K030T (-S2) **ABS**

• With brake

- R88M-K4K030H-B (S2)/-K5K030H-B (S2) **INC**
- R88M-K4K030T-B (S2)/-K5K030T-B (S2) **ABS**

| Model | Dimensions (mm) | | | |
|-----------------|-----------------|-----|-----|-----|
| | LL | LM | KB1 | KB2 |
| R88M-K4K030□ | 208 | 164 | 127 | 186 |
| R88M-K5K030□ | 243 | 199 | 162 | 221 |
| R88M-K4K030□-B□ | 236 | 192 | 127 | 214 |
| R88M-K5K030□-B□ | 271 | 227 | 162 | 249 |



CAD data

Note: The standard models have a straight shaft. A model with a key and tap is indicated by adding "S2" to the end of the model number. Models with an oil seal are indicated with O at the end of the model number. The motor dimensions do not change.

3,000 r/min Servomotors (400 VAC)

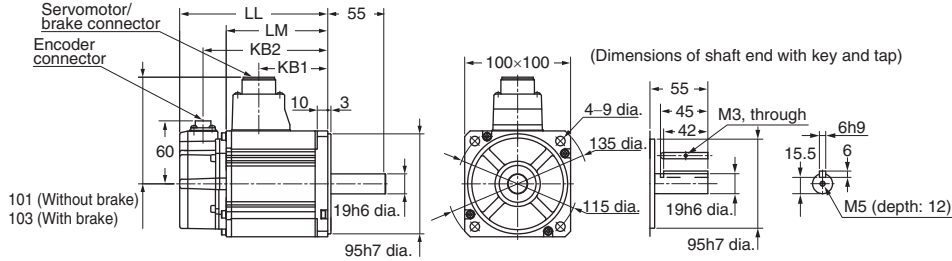
750W/1kW/1.5kW/2kW

• Without brake

- R88M-K75030F (-S2)/-K1K030F (-S2)/-K1K530F (-S2)/-K2K030F (-S2) **INC**
- R88M-K75030C (-S2)/-K1K030C (-S2)/-K1K530C (-S2)/-K2K030C (-S2) **ABS**

• With brake

- R88M-K75030F-B (S2)/-K1K030F-B (S2)/-K1K530F-B (S2)/-K2K030F-B (S2) **INC**
- R88M-K75030C-B (S2)/-K1K030C-B (S2)/-K1K530C-B (S2)/-K2K030C-B (S2) **ABS**



CAD data

| Model | Dimensions (mm) | | | |
|-----------------|-----------------|-------|-------|-------|
| | LL | LM | KB1 | KB2 |
| R88M-K75030□ | 131.5 | 87.5 | 56.5 | 109.5 |
| R88M-K1K030□ | 141 | 97 | 66 | 119 |
| R88M-K1K530□ | 159.5 | 115.5 | 84.5 | 137.5 |
| R88M-K2K030□ | 178.5 | 134.5 | 103.5 | 156.5 |
| R88M-K75030□-B□ | 158.5 | 114.5 | 53.5 | 136.5 |
| R88M-K1K030□-B□ | 168 | 124 | 63 | 146 |
| R88M-K1K530□-B□ | 186.5 | 142.5 | 81.5 | 164.5 |
| R88M-K2K030□-B□ | 205.5 | 161.5 | 100.5 | 183.5 |

3kW

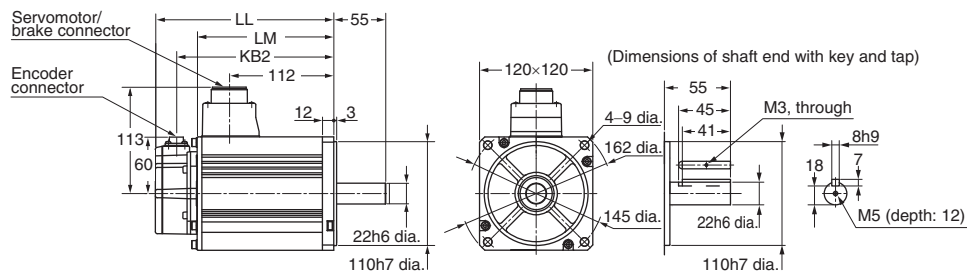
• Without brake

- R88M-K3K030F (-S2) **INC**
- R88M-K3K030C (-S2) **ABS**

• With brake

- R88M-K3K030F-B (S2) **INC**
- R88M-K3K030C-B (S2) **ABS**

| Model | Dimensions (mm) | | |
|-----------------|-----------------|-----|-----|
| | LL | LM | KB2 |
| R88M-K3K030□ | 190 | 146 | 168 |
| R88M-K3K030□-B□ | 215 | 171 | 193 |



CAD data

Note: The standard models have a straight shaft. A model with a key and tap is indicated by adding "S2" to the end of the model number. Models with an oil seal are indicated with O at the end of the model number. The motor dimensions do not change.

AC Servomotor/Drive G5-series

4kW/5kW

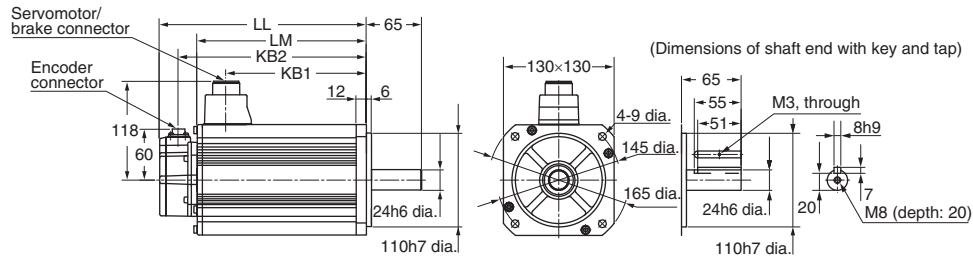
• Without brake

- R88M-K4K030F (-S2)/-K5K030F (-S2) **INC**
- R88M-K4K030C (-S2)/-K5K030C (-S2) **ABS**

• With brake

- R88M-K4K030F-B (S2)/-K5K030F-B (S2) **INC**
- R88M-K4K030C-B (S2)/-K5K030C-B (S2) **ABS**

| Model | Dimensions (mm) | | | |
|------------------------|-----------------|-----|-----|-----|
| | LL | LM | KB1 | KB2 |
| R88M-K4K030□ | 208 | 164 | 127 | 186 |
| R88M-K5K030□ | 243 | 199 | 162 | 221 |
| R88M-K4K030□-B□ | 236 | 192 | 127 | 214 |
| R88M-K5K030□-B□ | 271 | 227 | 162 | 249 |



Note: The standard models have a straight shaft. A model with a key and tap is indicated by adding “S2” to the end of the model number. Models with an oil seal are indicated with O at the end of the model number. The motor dimensions do not change.

1,500r/min, 2,000 r/min Servomotors (200 VAC)

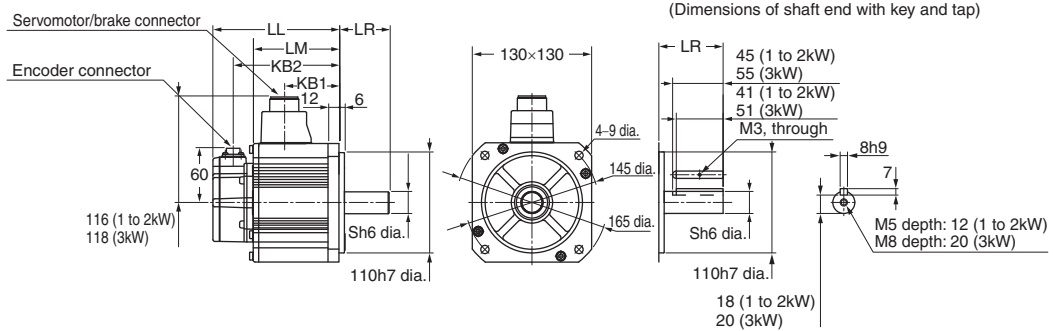
1kW/1.5kW/2kW/3kW

• Without brake

- R88M-K1K020H (-S2)/-K1K520H (-S2)/-K2K020H (-S2)/-K3K020H (-S2) **INC**
- R88M-K1K020T (-S2)/-K1K520T (-S2)/-K2K020T (-S2)/-K3K020T (-S2) **ABS**

• With brake

- R88M-K1K020H-B (S2)/-K1K520H-B (S2)/-K2K020H-B (S2)/-K3K020H-B (S2) **INC**
- R88M-K1K020T-B (S2)/-K1K520T-B (S2)/-K2K020T-B (S2)/-K3K020T-B (S2) **ABS**



| Model | Dimensions (mm) | | | | | |
|-----------------|-----------------|----|-------|----|------|-------|
| | LL | LR | LM | S | KB1 | KB2 |
| R88M-K1K020□ | 138 | 55 | 94 | 22 | 60 | 116 |
| R88M-K1K520□ | 155.5 | 55 | 111.5 | 22 | 77.5 | 133.5 |
| R88M-K2K020□ | 173 | 55 | 129 | 22 | 95 | 151 |
| R88M-K3K020□ | 208 | 65 | 164 | 24 | 127 | 186 |
| R88M-K1K020□-B□ | 166 | 55 | 122 | 22 | 60 | 144 |
| R88M-K1K520□-B□ | 183.5 | 55 | 139.5 | 22 | 77.5 | 161.5 |
| R88M-K2K020□-B□ | 201 | 55 | 157 | 22 | 95 | 179 |
| R88M-K3K020□-B□ | 236 | 65 | 192 | 24 | 127 | 214 |

4kW/5kW

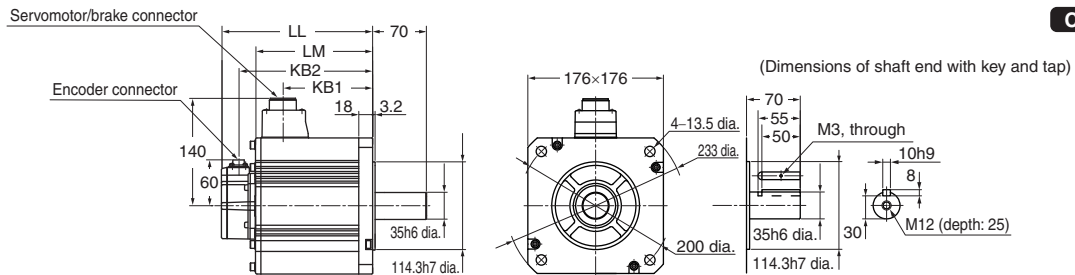
• Without brake

- R88M-K4K020H (-S2)/-K5K020H (-S2) **INC**
- R88M-K4K020T (-S2)/-K5K020T (-S2) **ABS**

• With brake

- R88M-K4K020H-B (S2)/-K5K020H-B (S2) **INC**
- R88M-K4K020T-B (S2)/-K5K020T-B (S2) **ABS**

| Model | Dimensions (mm) | | | |
|-----------------|-----------------|-----|-----|-----|
| | LL | LM | KB1 | KB2 |
| R88M-K4K020□ | 177 | 133 | 96 | 155 |
| R88M-K5K020□ | 196 | 152 | 115 | 174 |
| R88M-K4K020□-B□ | 206 | 162 | 96 | 184 |
| R88M-K5K020□-B□ | 225 | 181 | 115 | 203 |



Note: The standard models have a straight shaft. A model with a key and tap is indicated by adding "S2" to the end of the model number. Models with an oil seal are indicated with O at the end of the model number. The motor dimensions do not change.

AC Servomotor/Drive G5-series

7.5kW

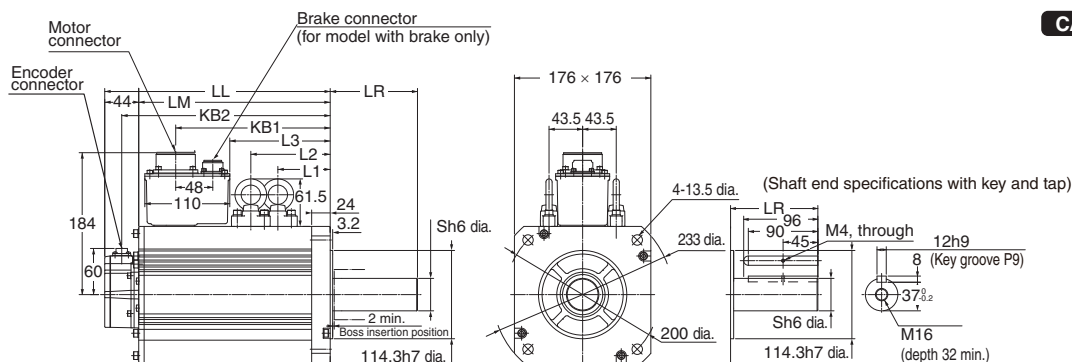
• Without brake

- R88M-K7K515T (-S2) **ABS**

• With brake

- R88M-K7K515T-B (S2) **ABS**

| Model | Dimensions (mm) | | | | | | | | |
|-----------------|-----------------|-----|-----|----|-----|-----|-------|-------|-----|
| | LL | LR | LM | S | KB1 | KB2 | L1 | L2 | L3 |
| R88M-K7K515T□ | 312 | 113 | 268 | 42 | 219 | 290 | 117.5 | 117.5 | 149 |
| R88M-K7K515T-B□ | 337 | 113 | 293 | 42 | 253 | 315 | 117.5 | 152.5 | 183 |



CAD data

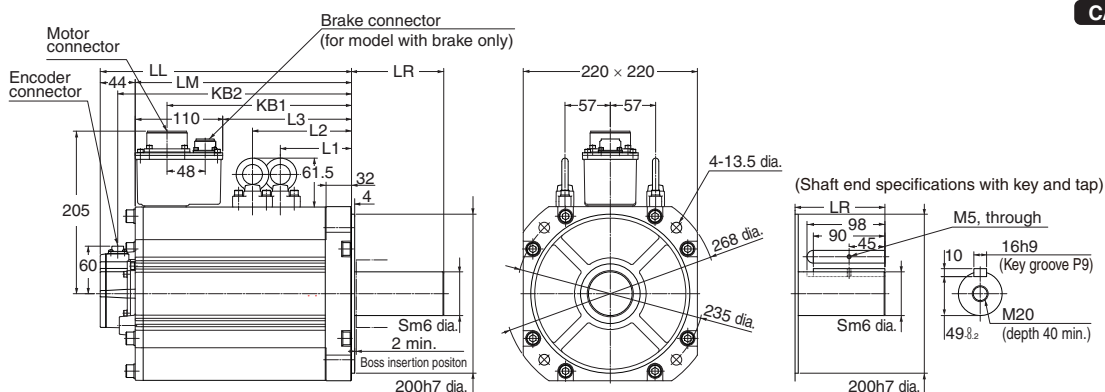
11kW/15kW

• Without brake

- R88M-K11K015T (-S2)/-K15K015T (-S2) **ABS**

• With brake

- R88M-K11K015T-B (S2)/R88M-K15K015T-B (S2) **ABS**



CAD data

| Model | Dimensions (mm) | | | | | | | | |
|------------------|-----------------|-----|-----|----|-----|-----|-------|-------|-----|
| | LL | LR | LM | S | KB1 | KB2 | L1 | L2 | L3 |
| R88M-K11K015T□ | 316 | 116 | 272 | 55 | 232 | 294 | 124.5 | 124.5 | 162 |
| R88M-K15K015T□ | 384 | 116 | 340 | 55 | 300 | 362 | 158.5 | 158.5 | 230 |
| R88M-K11K015T-B□ | 364 | 116 | 320 | 55 | 266 | 342 | 124.5 | 159.5 | 196 |
| R88M-K15K015T-B□ | 432 | 116 | 388 | 55 | 334 | 410 | 158.5 | 193.5 | 264 |

Note: The standard models have a straight shaft. A model with a key and tap is indicated by adding "S2" to the end of the model number. Models with an oil seal are indicated with O at the end of the model number. The motor dimensions do not change.

1,500 r/min, 2,000 r/min Servomotors (400 VAC)

400W/600W

• Without brake

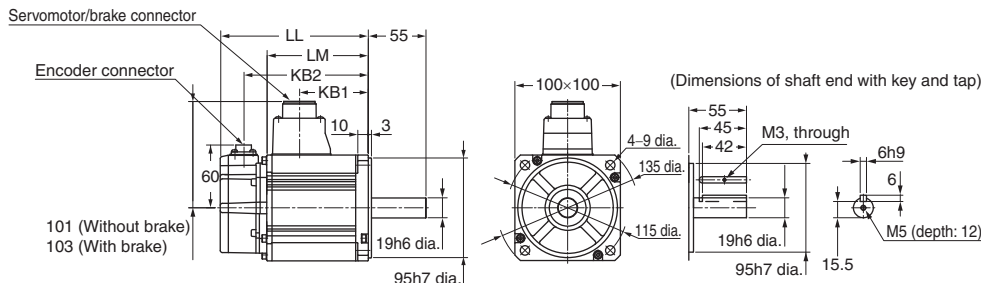
- R88M-K40020F (-S2)/-K60020F (-S2) **INC**
- R88M-K40020C (-S2)/-K60020C (-S2) **ABS**

• With brake

- R88M-K40020F-B (S2)/-K60020F-B (S2) **INC**
- R88M-K40020C-B (S2)/-K60020C-B (S2) **ABS**

| Model | Dimensions (mm) | | | |
|-----------------|-----------------|-------|------|-------|
| | LL | LM | KB1 | KB2 |
| R88M-K40020□ | 131.5 | 87.5 | 56.5 | 109.5 |
| R88M-K60020□ | 141 | 97 | 66 | 119 |
| R88M-K40020□-B□ | 158.5 | 114.5 | 53.5 | 136.5 |
| R88M-K60020□-B□ | 168 | 124 | 63 | 146 |

CAD data



1kW/1.5kW/2kW/3kW

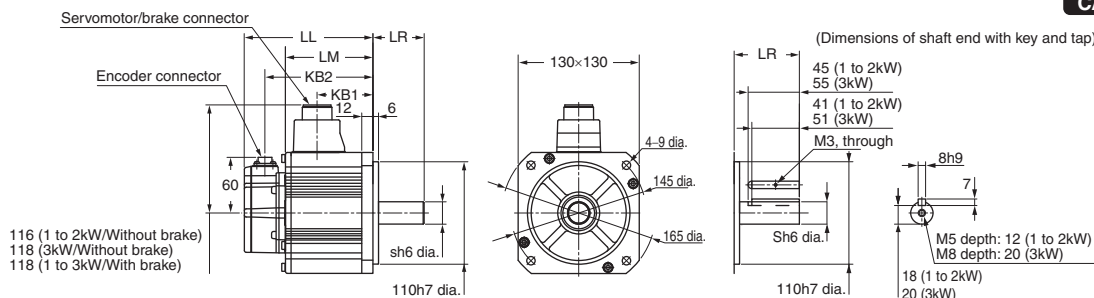
• Without brake

- R88M-K1K020F (-S2)/-K1K520F (-S2)/-K2K020F (-S2)/-K3K020F (-S2) **INC**
- R88M-K1K020C (-S2)/-K1K520C (-S2)/-K2K020C (-S2)/-K3K020C (-S2) **ABS**

• With brake

- R88M-K1K020F-B (S2)/-K1K520F-B (S2)/-K2K020F-B (S2)/-K3K020F-B (S2) **INC**
- R88M-K1K020C-B (S2)/-K1K520C-B (S2)/-K2K020C-B (S2)/-K3K020C-B (S2) **ABS**

CAD data



| Model | Dimensions (mm) | | | | | |
|-----------------|-----------------|----|-------|----|------|-------|
| | LL | LR | LM | S | KB1 | KB2 |
| R88M-K1K020□ | 138 | 55 | 94 | 22 | 60 | 116 |
| R88M-K1K520□ | 155.5 | 55 | 111.5 | 22 | 77.5 | 133.5 |
| R88M-K2K020□ | 173 | 55 | 129 | 22 | 95 | 151 |
| R88M-K3K020□ | 208 | 65 | 164 | 24 | 127 | 186 |
| R88M-K1K020□-B□ | 166 | 55 | 122 | 22 | 57 | 144 |
| R88M-K1K520□-B□ | 183.5 | 55 | 139.5 | 22 | 74.5 | 161.5 |
| R88M-K2K020□-B□ | 201 | 55 | 157 | 22 | 92 | 179 |
| R88M-K3K020□-B□ | 236 | 65 | 192 | 24 | 127 | 214 |

Note: The standard models have a straight shaft. A model with a key and tap is indicated by adding "S2" to the end of the model number. Models with an oil seal are indicated with O at the end of the model number. The motor dimensions do not change.

G5-Series
System Configuration

EtherCAT Communications
AC Servo Drive

EtherCAT Communications
Linear Motor Type
AC Servo Drive

General-purpose Inputs
AC Servo Drive

ML-II Type
AC Servo Drive

AC Servomotors

Linear Motor

AC Servomotor/Drive G5-series

4kW/5kW

• Without brake

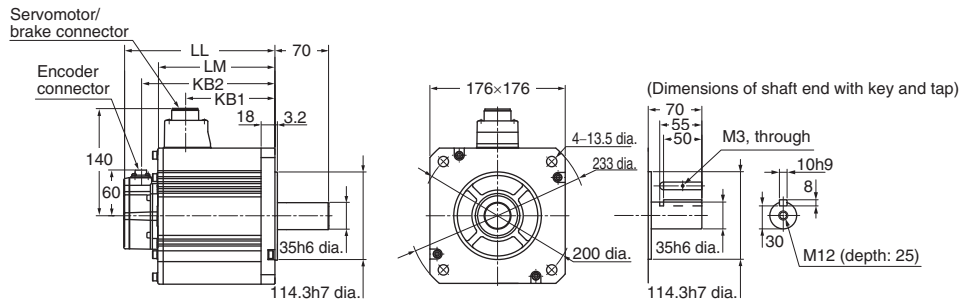
- R88M-K4K020F (-S2)/-K5K020F (-S2) **INC**
- R88M-K4K020C (-S2)/-K5K020C (-S2) **ABS**

• With brake

- R88M-K4K020F-B (S2)/-K5K020F-B (S2) **INC**
- R88M-K4K020C-B (S2)/-K5K020C-B (S2) **ABS**

| Model | Dimensions (mm) | | | |
|------------------------|-----------------|-----|-----|-----|
| | LL | LM | KB1 | KB2 |
| R88M-K4K020□ | 177 | 133 | 96 | 155 |
| R88M-K5K020□ | 196 | 152 | 115 | 174 |
| R88M-K4K020□-B□ | 206 | 162 | 96 | 184 |
| R88M-K5K020□-B□ | 225 | 181 | 115 | 203 |

CAD data



7.5kW

• Without brake

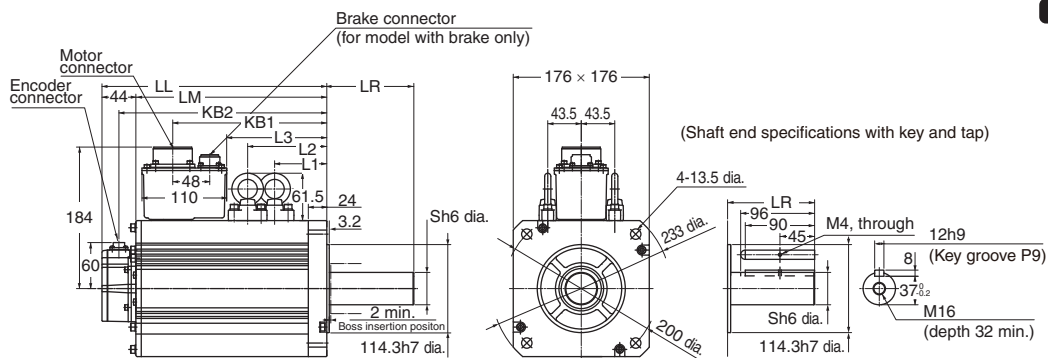
- R88M-K7K515C (-S2) **ABS**

• With brake

- R88M-K7K515C-B (S2) **ABS**

| Model | Dimensions (mm) | | | | | | | | |
|------------------------|-----------------|-----|-----|----|-----|-----|-------|-------|-----|
| | LL | LR | LM | S | KB1 | KB2 | L1 | L2 | L3 |
| R88M-K7K515C□ | 312 | 133 | 268 | 42 | 219 | 290 | 117.5 | 117.5 | 149 |
| R88M-K7K515C-B□ | 337 | 113 | 293 | 42 | 253 | 315 | 117.5 | 152.5 | 183 |

CAD data



Note: The standard models have a straight shaft. A model with a key and tap is indicated by adding "S2" to the end of the model number. Models with an oil seal are indicated with O at the end of the model number. The motor dimensions do not change.

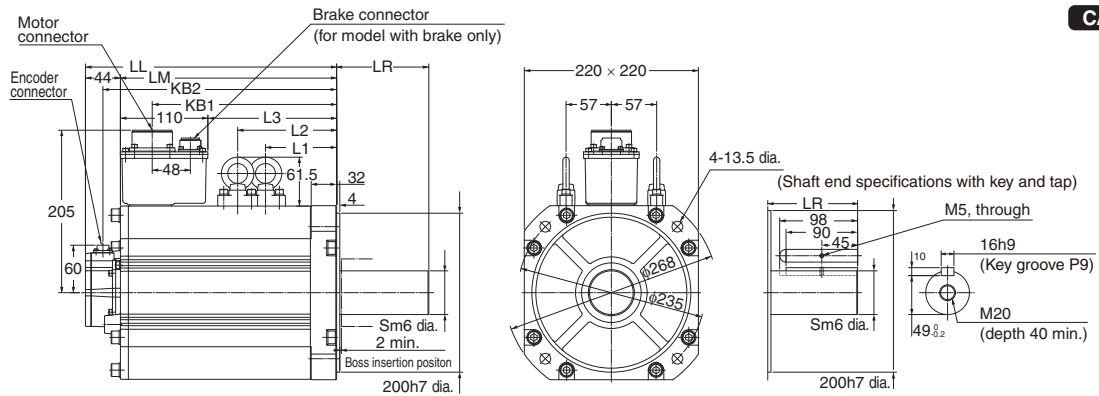
11kW/15kW

• Without brake

- R88M-K11K015C (-S2)/K15K015C (-S2) **ABS**

• With brake

- R88M-K11K015C-B (S2)/R88M-K15K015C-B (S2) **ABS**



CAD data

| Model | Dimensions (mm) | | | | | | | | |
|------------------|-----------------|-----|-----|----|-----|-----|-------|-------|-----|
| | LL | LR | LM | S | KB1 | KB2 | L1 | L2 | L3 |
| R88M-K11K015C□ | 316 | 116 | 272 | 55 | 232 | 294 | 124.5 | 124.5 | 162 |
| R88M-K15K015C□ | 384 | 116 | 340 | 55 | 300 | 362 | 158.5 | 158.5 | 230 |
| R88M-K11K015C-B□ | 364 | 116 | 320 | 55 | 266 | 342 | 124.5 | 159.5 | 196 |
| R88M-K15K015C-B□ | 432 | 116 | 388 | 55 | 334 | 410 | 158.5 | 193.5 | 264 |

Note: The standard models have a straight shaft. A model with a key and tap is indicated by adding "S2" to the end of the model number. Models with an oil seal are indicated with O at the end of the model number. The motor dimensions do not change.

AC Servomotor/Drive G5-series

1,000 r/min Servomotors (200 VAC)

900W

• Without brake

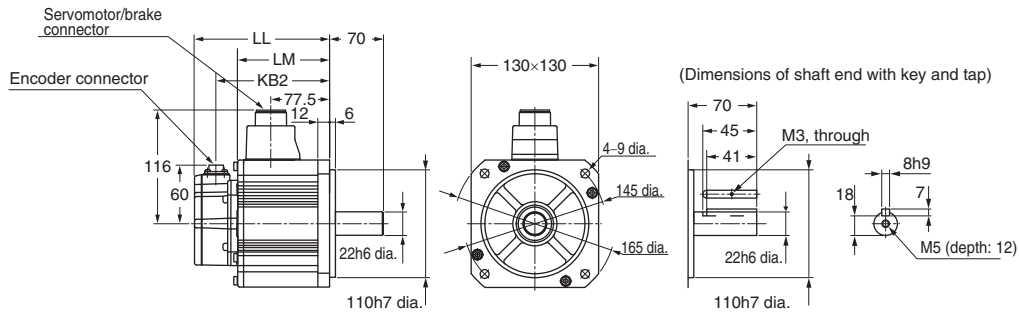
- R88M-K90010H (-S2) **INC**
- R88M-K90010T (-S2) **ABS**

• With brake

- R88M-K90010H-B (S2) **INC**
- R88M-K90010T-B (S2) **ABS**

| Model | Dimensions (mm) | | |
|-----------------|-----------------|-------|-------|
| | LL | LM | KB2 |
| R88M-K90010□ | 155.5 | 111.5 | 133.5 |
| R88M-K90010□-B□ | 183.5 | 139.5 | 161.5 |

CAD data



2kW/3kW

• Without brake

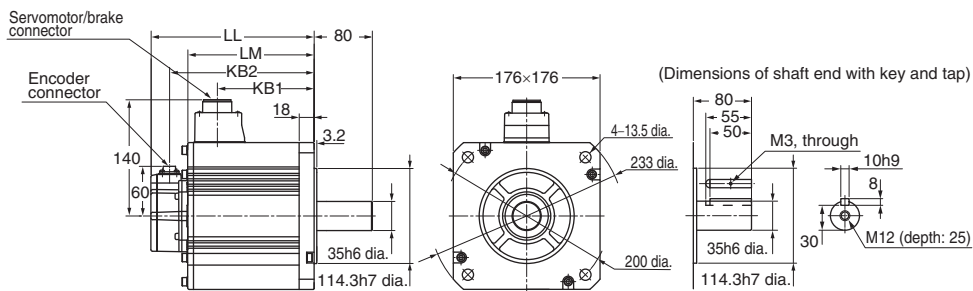
- R88M-K2K010H (-S2)/-K3K010H (-S2) **INC**
- R88M-K2K010T (-S2)/-K3K010T (-S2) **ABS**

• With brake

- R88M-K2K010H-B (S2)/-K3K010H-B (S2) **INC**
- R88M-K2K010T-B (S2)/-K3K010T-B (S2) **ABS**

| Model | Dimensions (mm) | | | |
|-----------------|-----------------|-------|-------|-------|
| | LL | LM | KB1 | KB2 |
| R88M-K2K010□ | 163.5 | 119.5 | 82.5 | 141.5 |
| R88M-K3K010□ | 209.5 | 165.5 | 128.5 | 187.5 |
| R88M-K2K010□-B□ | 192.5 | 148.5 | 82.5 | 170.5 |
| R88M-K3K010□-B□ | 238.5 | 194.5 | 128.5 | 216.5 |

CAD data



4.5kW

• Without brake

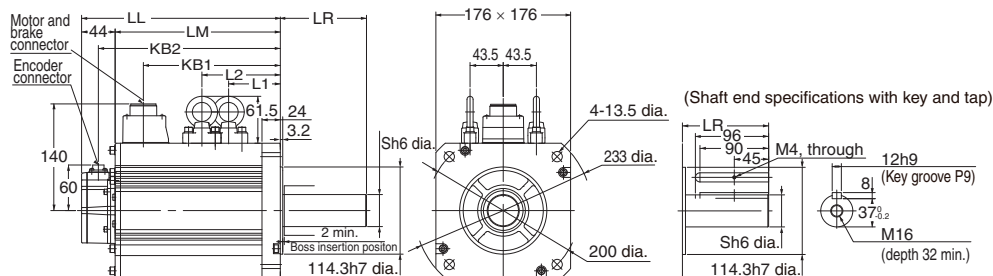
- R88M-K4K510T (-S2) **ABS**

• With brake

- R88M-K4K510T-B (S2) **ABS**

| Model | Dimensions (mm) | | | | | | | |
|-----------------|-----------------|-----|-----|----|-----|-----|----|-----|
| | LL | LR | LM | S | KB1 | KB2 | L1 | L2 |
| R88M-K4K510T□ | 266 | 113 | 222 | 42 | 185 | 244 | 98 | 98 |
| R88M-K4K510T-B□ | 291 | 113 | 247 | 42 | 185 | 269 | 98 | 133 |

CAD data



Note: The standard models have a straight shaft. A model with a key and tap is indicated by adding "S2" to the end of the model number. Models with an oil seal are indicated with O at the end of the model number. The motor dimensions do not change.

6kW

• Without brake

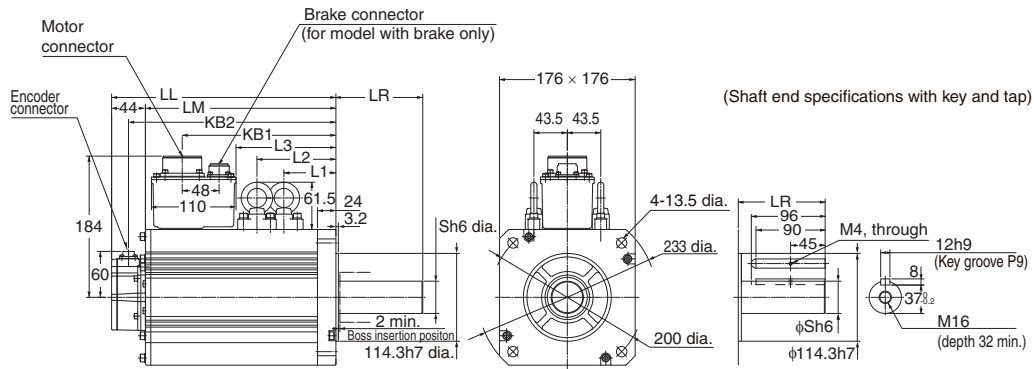
- R88M-K6K010T (-S2) **ABS**

• With brake

- R88M-K6K010T-B (S2) **ABS**

| Model | Dimensions (mm) | | | | | | | | |
|-----------------|-----------------|-----|-----|----|-----|-----|-------|-------|-----|
| | LL | LR | LM | S | KB1 | KB2 | L1 | L2 | L3 |
| R88M-K6K010T□ | 312 | 113 | 268 | 42 | 219 | 290 | 117.5 | 117.5 | 149 |
| R88M-K6K010T-B□ | 337 | 113 | 293 | 42 | 253 | 315 | 117.5 | 152.5 | 183 |

CAD data



Note: The standard models have a straight shaft. A model with a key and tap is indicated by adding “S2” to the end of the model number. Models with an oil seal are indicated with O at the end of the model number. The motor dimensions do not change.

AC Servomotor/Drive G5-series

1,000 r/min Servomotors (400 VAC)

900W

• Without brake

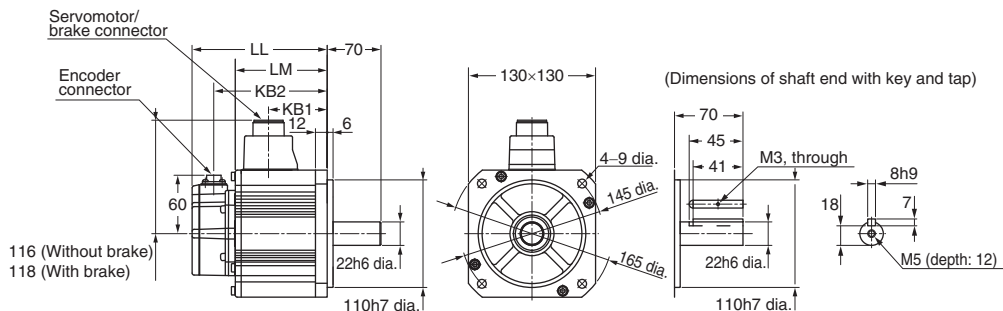
- R88M-K90010F (-S2) **INC**
- R88M-K90010C (-S2) **ABS**

• With brake

- R88M-K90010F-B (S2) **INC**
- R88M-K90010C-B (S2) **ABS**

| Model | Dimensions (mm) | | | |
|-----------------|-----------------|-------|------|-------|
| | LL | LM | KB1 | KB2 |
| R88M-K90010□ | 155.5 | 111.5 | 77.5 | 133.5 |
| R88M-K90010□-B□ | 183.5 | 139.5 | 74.5 | 161.5 |

CAD data



2kW/3kW

• Without brake

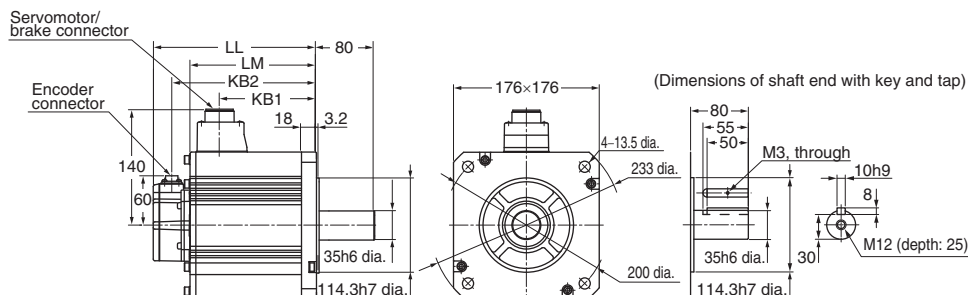
- R88M-K2K010F (-S2)/-K3K010F (-S2) **INC**
- R88M-K2K010C (-S2)/-K3K010C (-S2) **ABS**

• With brake

- R88M-K2K010F-B (S2)/-K3K010F-B (S2) **INC**
- R88M-K2K010C-B (S2)/-K3K010C-B (S2) **ABS**

| Model | Dimensions (mm) | | | |
|-----------------|-----------------|-------|-------|-------|
| | LL | LM | KB1 | KB2 |
| R88M-K2K010□ | 163.5 | 119.5 | 82.5 | 141.5 |
| R88M-K3K010□ | 209.5 | 165.5 | 128.5 | 187.5 |
| R88M-K2K010□-B□ | 192.5 | 148.5 | 82.5 | 170.5 |
| R88M-K3K010□-B□ | 238.5 | 194.5 | 128.5 | 216.5 |

CAD data



4.5kW

• Without brake

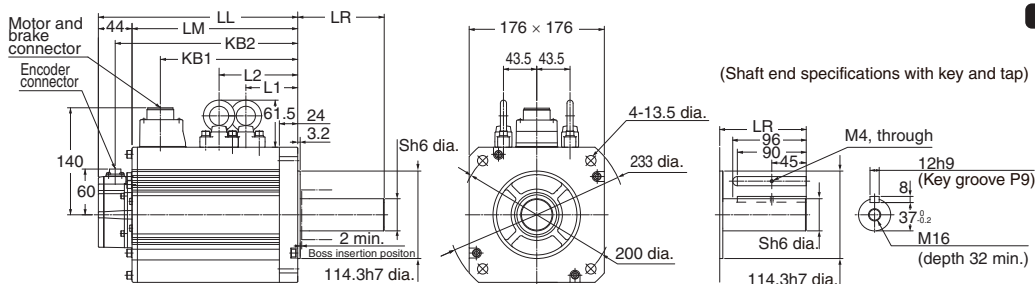
- R88M-K4K510C (-S2) **ABS**

• With brake

- R88M-K4K510C-B (S2) **ABS**

| Model | Dimensions (mm) | | | | | | | |
|-----------------|-----------------|-----|-----|----|-----|-----|----|-----|
| | LL | LR | LM | S | KB1 | KB2 | L1 | L2 |
| R88M-K4K510T□ | 266 | 113 | 222 | 42 | 185 | 244 | 98 | 98 |
| R88M-K4K510T-B□ | 291 | 113 | 247 | 42 | 185 | 269 | 98 | 133 |

CAD data



Note: The standard models have a straight shaft. A model with a key and tap is indicated by adding "S2" to the end of the model number. Models with an oil seal are indicated with O at the end of the model number. The motor dimensions do not change.

6kW

• Without brake

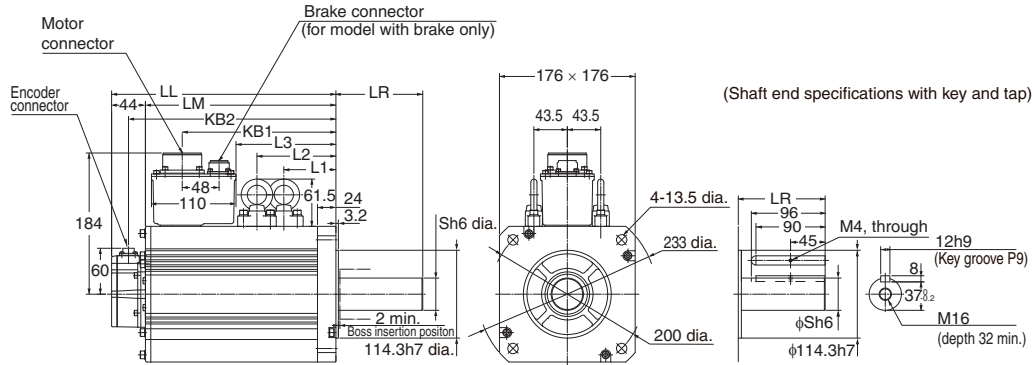
- R88M-K6K010C (-S2) **ABS**

• With brake

- R88M-K6K010C-B (S2) **ABS**

| Model | Dimensions (mm) | | | | | | | | |
|-----------------|-----------------|-----|-----|----|-----|-----|-------|-------|-----|
| | LL | LR | LM | S | KB1 | KB2 | L1 | L2 | L3 |
| R88M-K6K010C□ | 312 | 113 | 268 | 42 | 219 | 290 | 117.5 | 117.5 | 149 |
| R88M-K6K010C-B□ | 337 | 113 | 293 | 42 | 253 | 315 | 117.5 | 152.5 | 183 |

CAD data



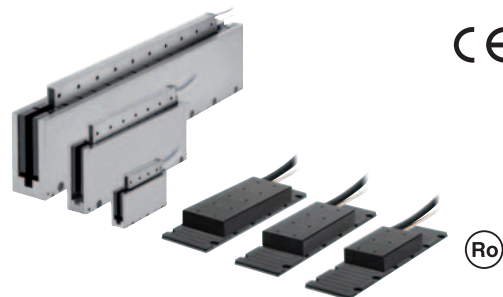
Note: The standard models have a straight shaft. A model with a key and tap is indicated by adding “S2” to the end of the model number. Models with an oil seal are indicated with O at the end of the model number. The motor dimensions do not change.

G5-series Linear Motor

R88L-EC-□

Contents

- Ordering Information
- Specifications
 - General Specifications
 - Iron-core Linear Motors
 - Ironless Linear Motors
 - Characteristics
 - Iron-core Linear Motors
 - Ironless Linear Motors
- Dimensions



Ordering Information

Refer to the Ordering Information.

Specifications

General Specifications

● Iron-core Linear Motors

| Item | Description |
|--|---|
| Operating ambient temperature humidity | 0 to 40°C, 20% to 80% (with no condensation) |
| Storage ambient temperature and humidity | -20 to +65°C, 85% max. (with no condensation) |
| Operating and storage atmosphere | No corrosive gases |
| Vibration resistance* | Acceleration of 49 m/s ² max. in X, Y, and Z directions |
| Impact resistance | Acceleration of 98 m/s ² max. 3 times each in X, Y, and Z directions |
| Insulation resistance | Between power terminal and FG terminal: 10 MΩ min. (at 500 VDC) |
| Dielectric strength | Between power terminal and FG terminal: 2,750 VDC for 1 s Between power terminal and sensor: 2,750 VDC for 1 s |
| Protective structure | IP00 |
| Maximum coil temperature (Motor Coil Unit) | 130°C |
| Maximum magnet temperature (Magnet Track) | 70°C |
| Insulation class | Class B |
| Cooling method | Self-cooling |
| International standard | EN60034-1 |
| EC directive | |
| Low voltage directive | |

● Ironless Linear Motors

| Item | Description |
|--|---|
| Operating ambient temperature humidity | 0 to 40°C, 20% to 80% (with no condensation) |
| Storage ambient temperature and humidity | -20 to +65°C, 85% max. (with no condensation) |
| Operating and storage atmosphere | No corrosive gases |
| Vibration resistance* | Acceleration of 49 m/s ² max. in X, Y, and Z directions |
| Impact resistance | Acceleration of 98 m/s ² max. 3 times each in X, Y, and Z directions |
| Insulation resistance | Between power terminal and FG terminal: 10 MΩ min. (at 500 VDC) |
| Dielectric strength | Between power terminal and FG terminal: 2,250 VDC for 1 s Between power terminal and sensor: 2,250 VDC for 1 s |
| Protective structure | IP00 |
| Maximum coil temperature (Motor Coil Unit) | 110°C |
| Maximum magnet temperature (Magnet Track) | 70°C |
| Insulation class | Class B |
| Cooling method | Self-cooling |
| International standard | EN60034-1 |
| EC directive | |
| Low voltage directive | |

* The amplitude may be increased by machine resonance. As a guideline, do not exceed 80% of the specified value.

Characteristics/Speed - Force Characteristics

Characteristics

● Iron-core Linear Motors

| Item | Unit | R88L-EC- | | | | | | |
|---|--------|--------------------------------------|-------------------|-----------------------|--------------|--------------|-----------------------|--------------|
| | | FW-0303-ANPC | FW-0306-ANPC | FW-0606-ANPC | FW-0609-ANPC | FW-0612-ANPC | FW-1112-ANPC | FW-1115-ANPC |
| Maximum speed (100VAC) | m/s | 2.5 | 2.5 | 2 | - | - | - | - |
| Maximum speed (200VAC) | m/s | 5 | 5 | 4 | 4 | 4 | 2 | 2 |
| Maximum speed (400VAC) | m/s | 10 | 10 | 8 | 8 | 8 | 4 | 4 |
| Continuous force*1 | N | 48 | 96 | 160 | 240 | 320 | 608 | 760 |
| Momentary maximum force*2 | N | 105 | 210 | 400 | 600 | 800 | 1,600 | 2,000 |
| Continuous current*2 | Arms | 1.24 | 2.4 | 3.4 | 5.2 | 6.9 | 6.5 | 8.2 |
| Momentary maximum current*1 | Arms | 3.1 | 6.1 | 10 | 15 | 20 | 20 | 25 |
| Motor force constant | N/Arms | 39.7 | 39.7 | 46.5 | 46.5 | 46.5 | 93.0 | 93.0 |
| Back electromotive force | V·s/m | 13.2 | 13.2 | 15.5 | 15.5 | 15.5 | 31 | 31 |
| Motor constant | N/√W | 9.75 | 13.78 | 19.49 | 23.87 | 27.57 | 41.47 | 46.37 |
| Phase resistance | Ω | 5.34 | 2.68 | 1.83 | 1.23 | 0.92 | 1.6 | 1.29 |
| Phase inductance | mH | 34.7 | 17.4 | 13.7 | 9.2 | 6.9 | 12.8 | 10.3 |
| Electrical time constant | ms | 6.5 | 6.5 | 7.5 | 7.5 | 7.5 | 8 | 8 |
| Maximum continuous power consumption | W | 32 | 63 | 88 | 131 | 175 | 279 | 349 |
| Thermal resistance | K/W | 2.20 | 1.10 | 0.78 | 0.52 | 0.39 | 0.23 | 0.18 |
| Thermal time constant | s | 110 | 110 | 124 | 124 | 124 | 126 | 126 |
| Magnetic attractive force | N | 300 | 500 | 1,020 | 1,420 | 1,820 | 3,640 | 4,440 |
| Magnetic pole pitch | mm | 24 | 24 | 24 | 24 | 24 | 24 | 24 |
| Mass (except cables) | kg | 0.48 | 0.78 | 1.31 | 1.84 | 2.37 | 4.45 | 5.45 |
| Cooling plate dimensions | mm | 238×220×10 | 238×220×10 | 250×287×12 | 250×287×12 | 250×287×12 | 371×330×14 | 371×330×14 |
| Application Servo Drives (R88D-□-ECT-L) | | KN01L/KN02H/KN06F | KN02L/KN04H/KN10F | KN04L/KN08H/KN15F | KN10H/KN20F | KN15H/KN30F | KN15H/KN30F | KN15H/KN30F |
| Magnet Trac (R88L-EC-) | | FM-03096-A/FM-03144-A/ FM-03384-A | | FM-06192-A/FM-06288-A | | | FM-11192-A/FM-11288-A | |
| Magnet Trac Unit Length | mm | 96/144/384 | | 192/288 | | | 192/288 | |

*1. This shows a value measured when the Motor Coil Unit is at 100°C and the Magnet Trac is at 25°C. The coil unit is mounted in the center of an aluminum moving table (heat sink) which has its size larger than indicated in table as cooling condition.

*2. The Motor Coil Unit is subjected to a temperature rise of 6 K/s.

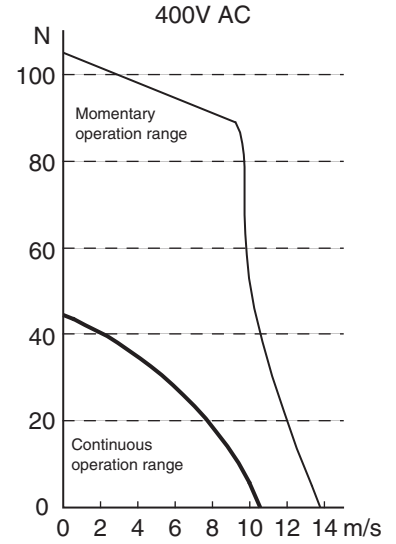
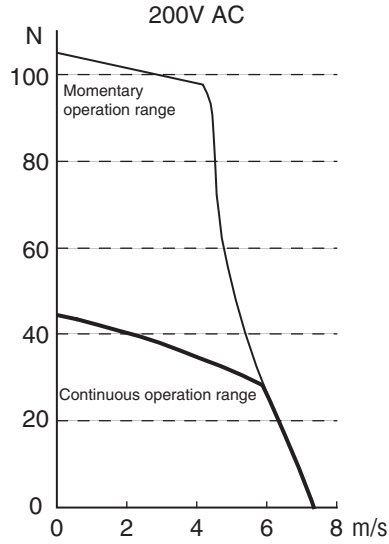
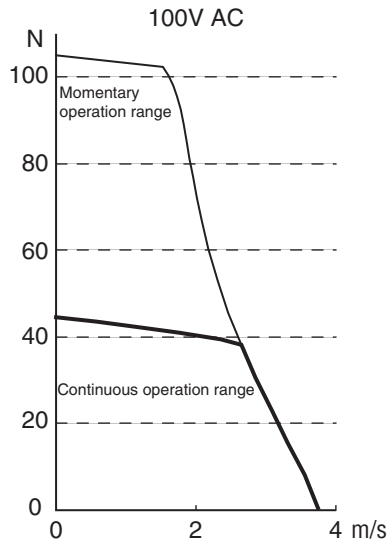
AC Servomotor/Drive G5-series

Speed - Force Characteristics

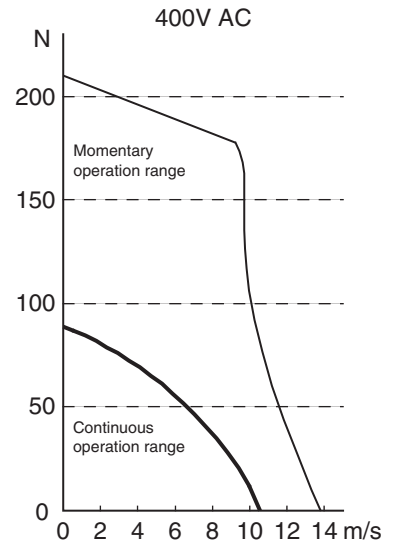
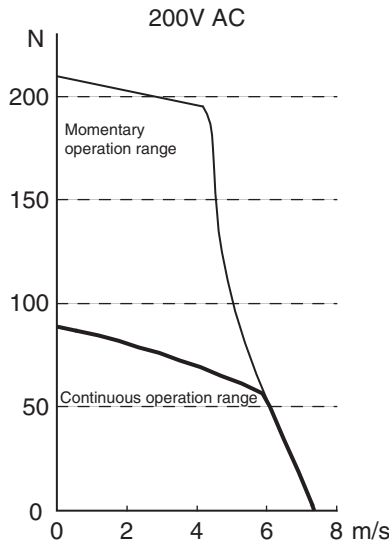
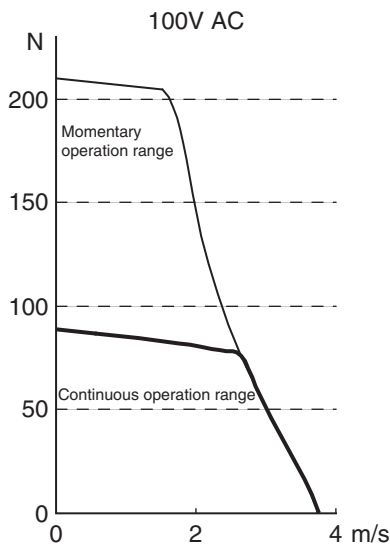
The following graphs show the performance when the coil temperature of the Motor Coil Unit is 100°C.

The maximum operation speed is limited by considering the guide mechanism, encoder, and other aspects. If it is 5 m/s or higher, please consult with your OMRON representative.

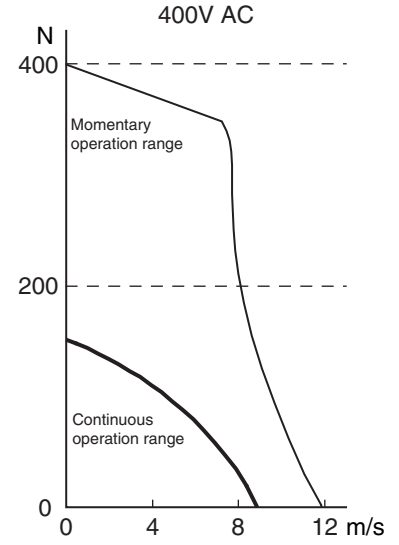
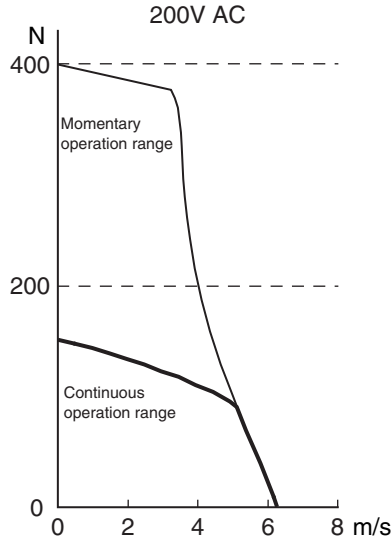
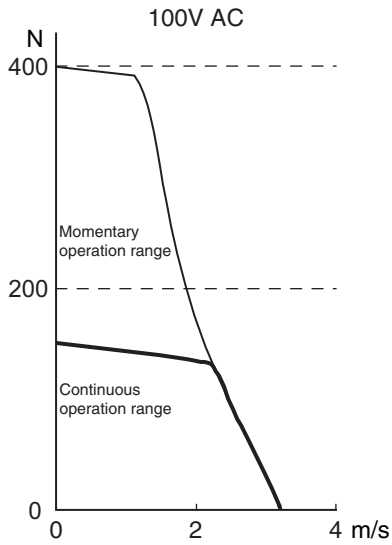
R88L-EC-FW-0303



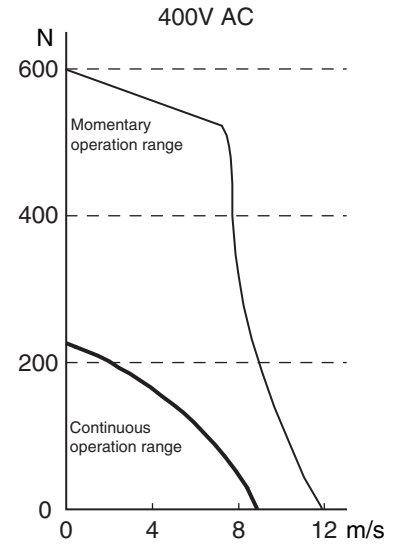
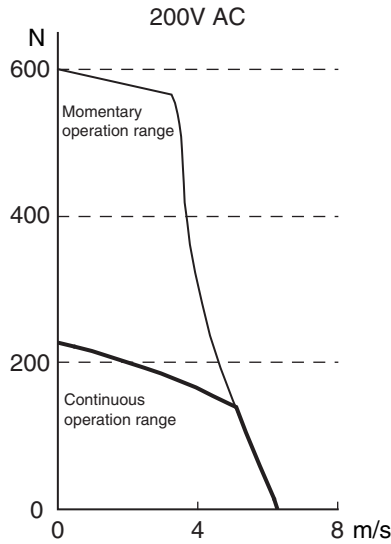
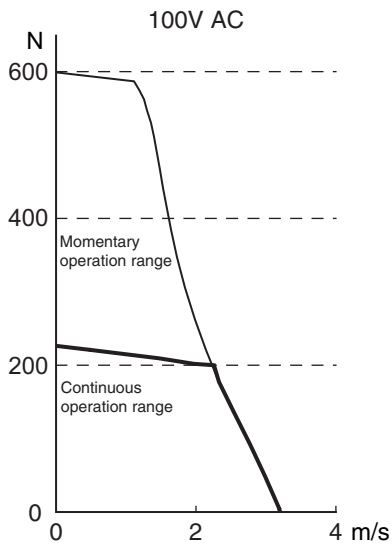
R88L-EC-FW-0306



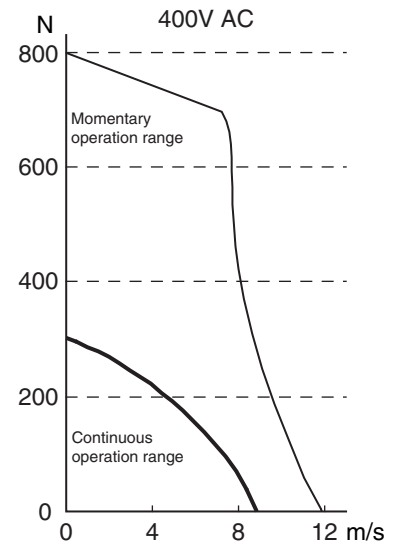
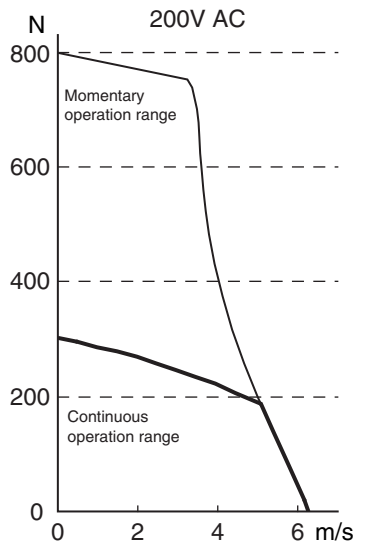
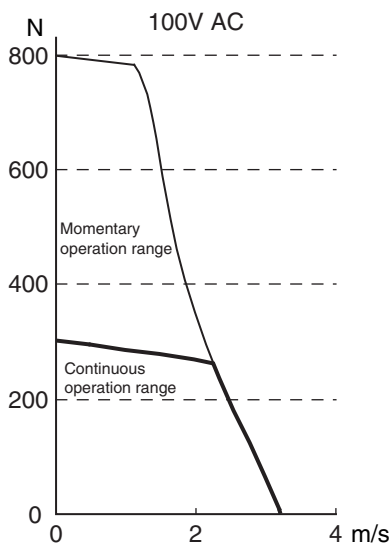
R88L-EC-FW-0606



R88L-EC-FW-0609



R88L-EC-FW-0612



G5-Series
System Configuration

EtherCAT Communications
AC Servo Drive

EtherCAT Communications
Linear Motor Type
AC Servo Drive

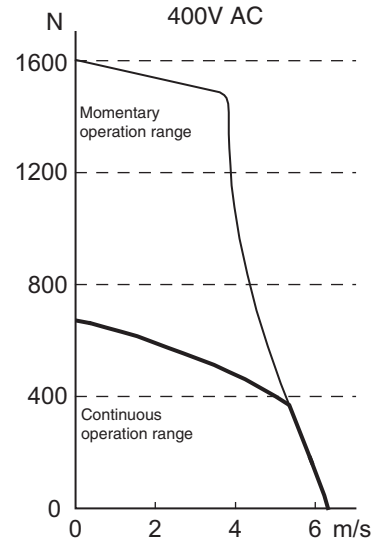
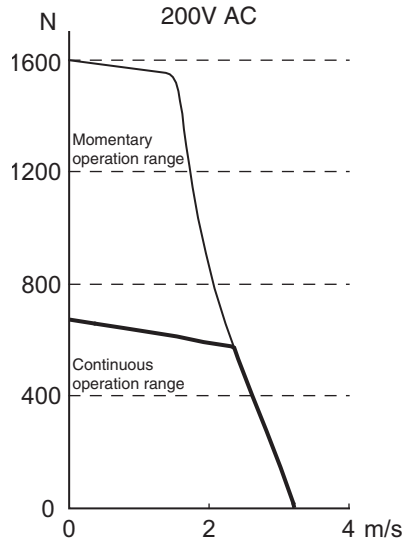
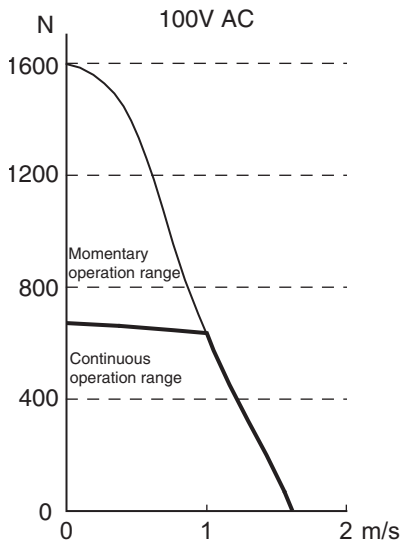
General-purpose Inputs
AC Servo Drive

ML-II Type
AC Servo Drive

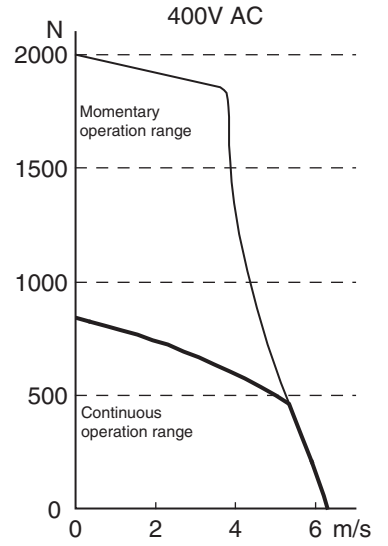
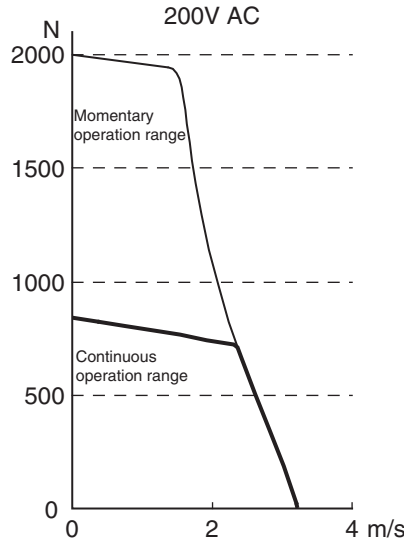
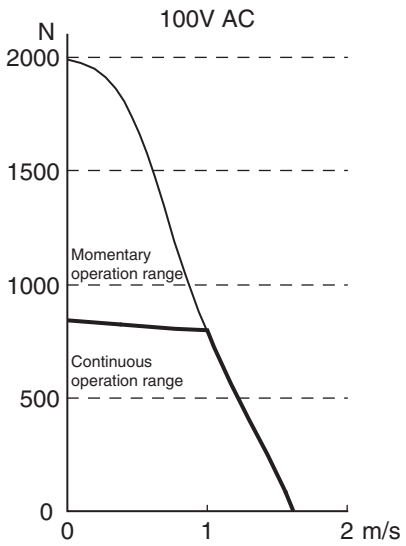
AC Servomotors

Linear Motor

R88L-EC-FW-1112



R88L-EC-FW-1115



● Ironless Linear Motors

| Item | Unit | R88L-EC- | | | | | | | | | |
|---|--------|--------------------------------------|-------|------------------|------------------|---|------------------|------------------|--------------------------------------|------------------|------------------|
| | | GW-0303 -ANPS | | GW-0306 -ANPS | GW-0309 -ANPS | GW-0503 -ANPS | GW-0506 -ANPS | GW-0509 -ANPS | GW-0703 -ANPS | GW-0706 -ANPS | GW-0709 -ANPS |
| Maximum speed (100VAC) | m/s | 8 | - | 8 | - | 2.2 | 2.2 | 2.2 | 1.2 | 1.2 | - |
| Maximum speed (200VAC) | m/s | - | 16 | 16 | 16 | 4.4 | 4.4 | 4.4 | 2.4 | 2.4 | 2.4 |
| Continuous force*1 | N | 26.5 | | 53 | 80 | 58 | 117 | 175 | 117 | 232 | 348 |
| Momentary maximum force*2 | N | 100 | 96 | 200 | 300 | 240 | 480 | 720 | 552 | 1110 | 1730 |
| Continuous current*2 | Arms | 1.33 | | 2.66 | 4.0 | 0.87 | 1.76 | 2.60 | 0.94 | 1.87 | 2.81 |
| Momentary maximum current*1 | Arms | 5.0 | 4.8 | 10.0 | 15.0 | 3.50 | 7.1 | 10.6 | 4.5 | 9.0 | 14 |
| Motor force constant | N/Arms | 19.9 | | 19.9 | 19.9 | 68.0 | 68.0 | 68.0 | 124.0 | 124.0 | 124.0 |
| Back electromotive force | V·s/m | 6.6 | | 6.6 | 6.6 | 22.7 | 22.7 | 22.7 | 41.3 | 41.3 | 41.3 |
| Motor constant | N/√W | 4.90 | | 6.93 | 8.43 | 9.85 | 13.96 | 17.03 | 17.97 | 25.44 | 31.14 |
| Phase resistance | Ω | 5.5 | | 2.8 | 1.8 | 15.9 | 8.0 | 5.3 | 15.8 | 7.9 | 5.3 |
| Phase inductance | mH | 1.8 | | 0.9 | 0.6 | 13 | 6.5 | 4.2 | 28.0 | 14.0 | 9.0 |
| Electrical time constant | ms | 0.35 | | 0.35 | 0.35 | 0.8 | 0.8 | 0.8 | 1.8 | 1.8 | 1.8 |
| Maximum continuous power consumption | W | 47 | | 95 | 142 | 67 | 134 | 200 | 82 | 165 | 247 |
| Thermal resistance | K/W | 2.1 | | 1.06 | 0.71 | 1.70 | 0.85 | 0.65 | 1.56 | 1.04 | 0.52 |
| Thermal time constant | s | 36 | | 36 | 36 | 72 | 72 | 72 | 96 | 96 | 96 |
| Magnetic attractive force | N | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Magnetic pole pitch | mm | 30 | | 30 | 30 | 42 | 42 | 42 | 57 | 57 | 57 |
| Mass (except cables) | kg | 0.084 | | 0.162 | 0.24 | 0.25 | 0.47 | 0.69 | 0.55 | 0.95 | 1.35 |
| Application Servo Drives (R88D-□-ECT-L) | | KN01L | KN02H | KN04L/ KN08H | KN10H | KN01L/ KN01H | KN02L/ KN04H | KN04L/ KN08H | KN02L/ KN04H | KN04L/ KN08H | KN10H |
| Magnet Trac (R88L-EC-) | | GM-03090-A/GM-03120-A/ GM-03390-A | | | | GM-05126-A/GM-05168-A/ GM-05210-A/GM-05546-A | | | GM-07114-A/GM-07171-A/ GM-07456-A | | |
| Magnet Trac Unit Length | mm | 90/120/390 | | | | 126/168/210/546 | | | 114/171/456 | | |

*1. This shows a value measured when the Motor Coil Unit is at 100°C and the Magnet Trac is at 25°C.

*2. The Motor Coil Unit is subjected to a temperature rise of 40 K/s.

G5-Series
System Configuration

EtherCAT Communications
AC Servo Drive

EtherCAT Communications
Linear Motor Type
AC Servo Drive

General-purpose Inputs
AC Servo Drive

ML-II Type
AC Servo Drive

AC Servomotors

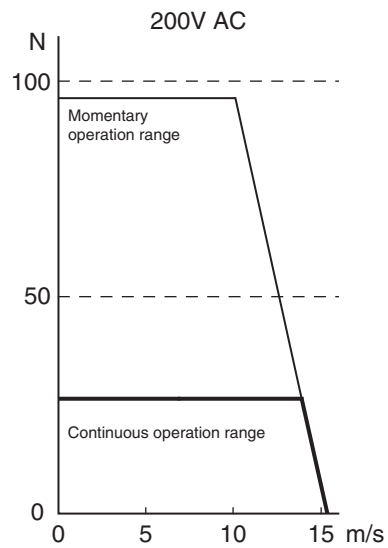
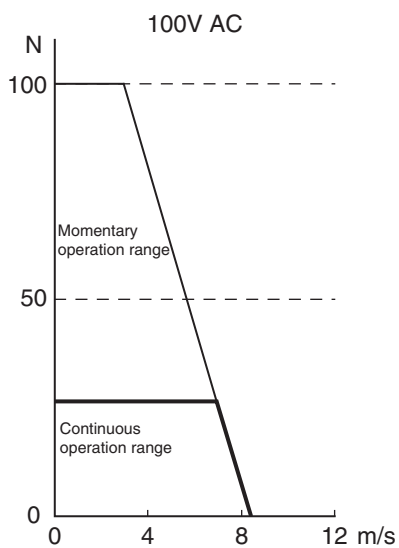
Linear Motor

AC Servomotor/Drive G5-series

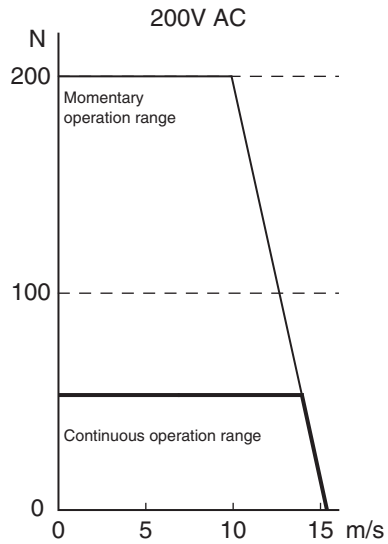
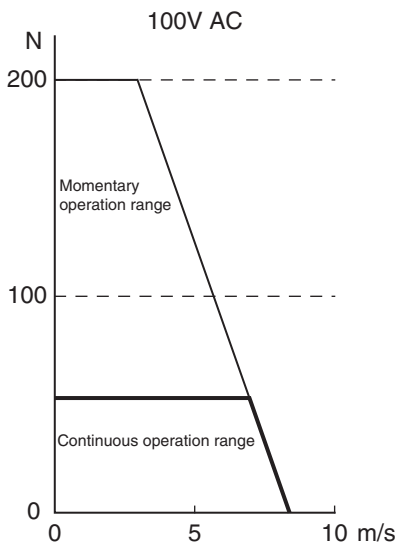
Speed - Force Characteristics

The maximum operation speed is limited by considering the guide mechanism, encoder, and other aspects. If it is 5 m/s or higher, please consult with your OMRON representative.

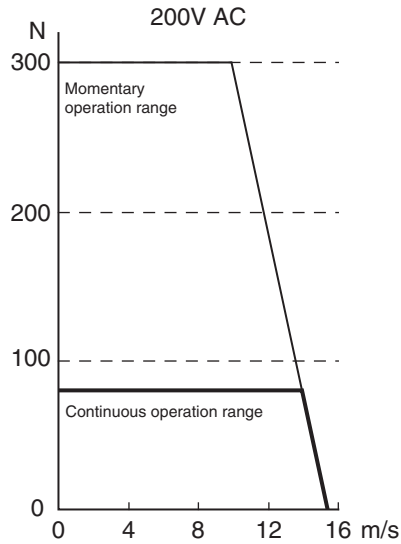
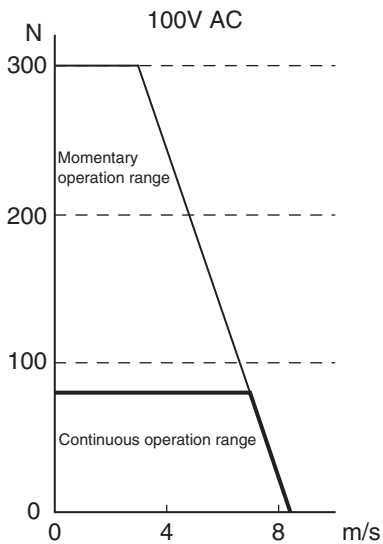
R88L-EC-GW-0303



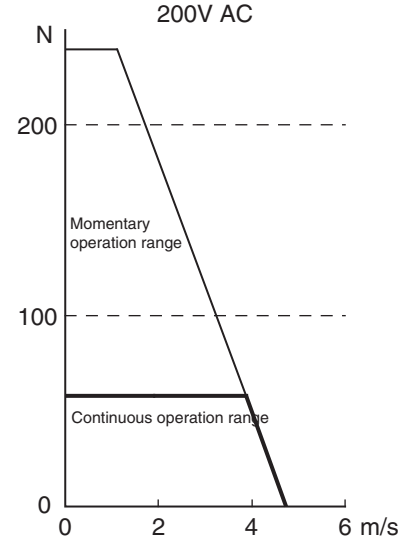
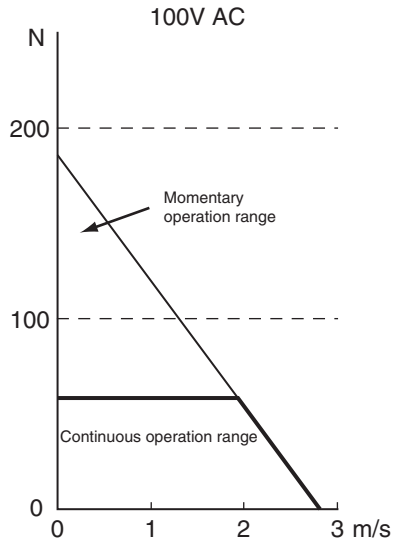
R88L-EC-GW-0306



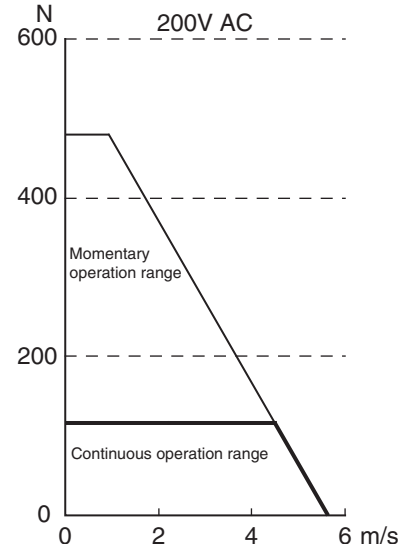
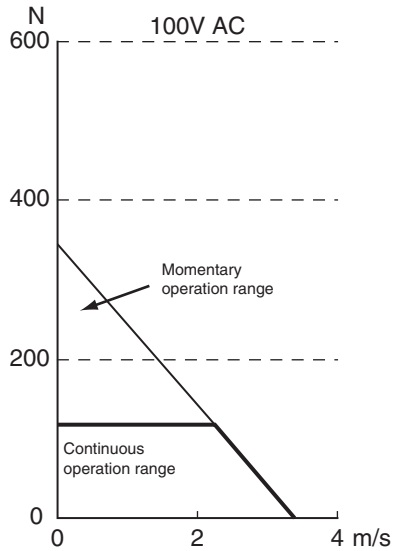
R88L-EC-GW-0309



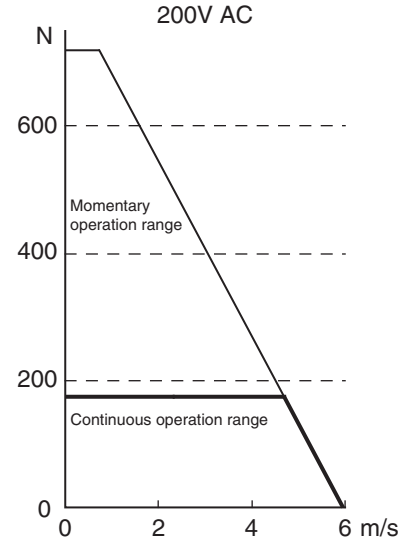
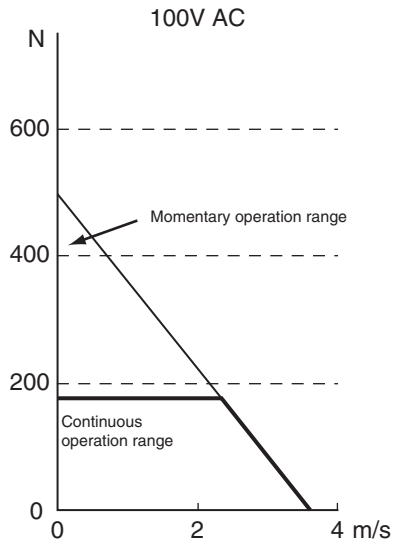
R88L-EC-GW-0503



R88L-EC-GW-0506



R88L-EC-GW-0509



G5-Series
System Configuration

EtherCAT Communications
AC Servo Drive

EtherCAT Communications
Linear Motor Type
AC Servo Drive

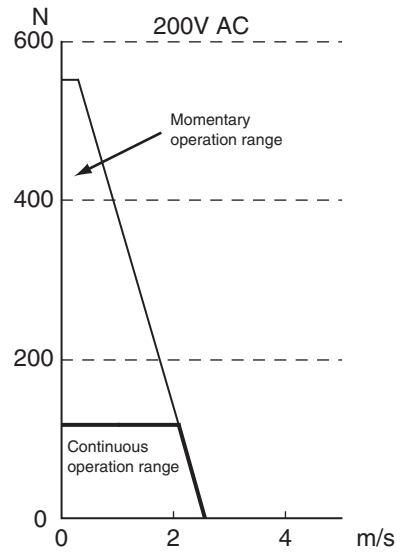
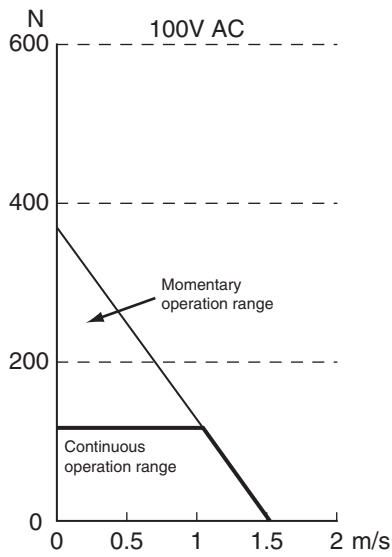
General-purpose Inputs
AC Servo Drive

ML-II Type
AC Servo Drive

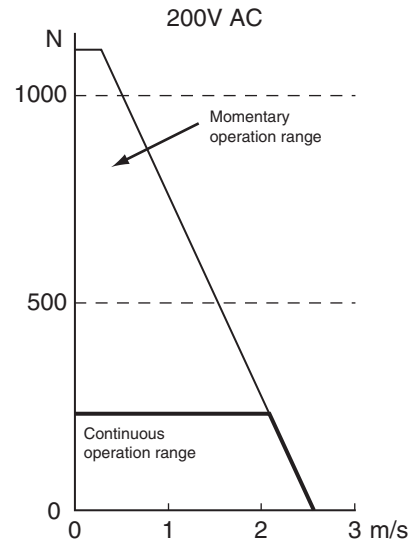
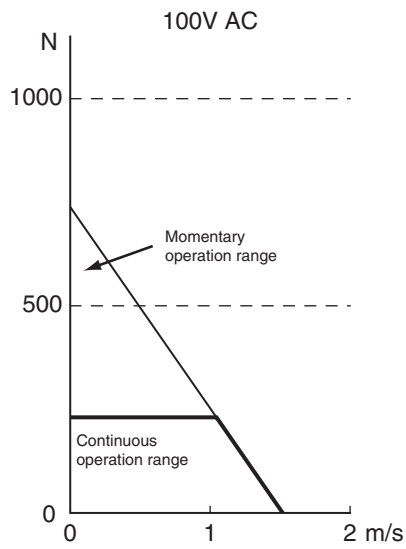
AC Servomotors

Linear Motor

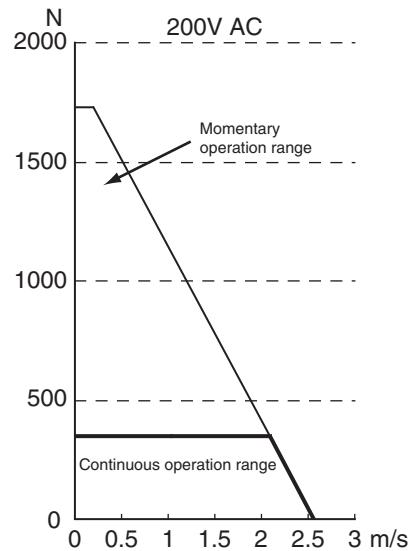
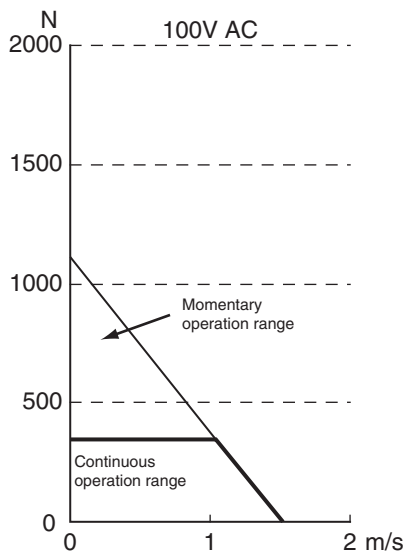
R88L-EC-GW-0703



R88L-EC-GW-0706



R88L-EC-GW-0709



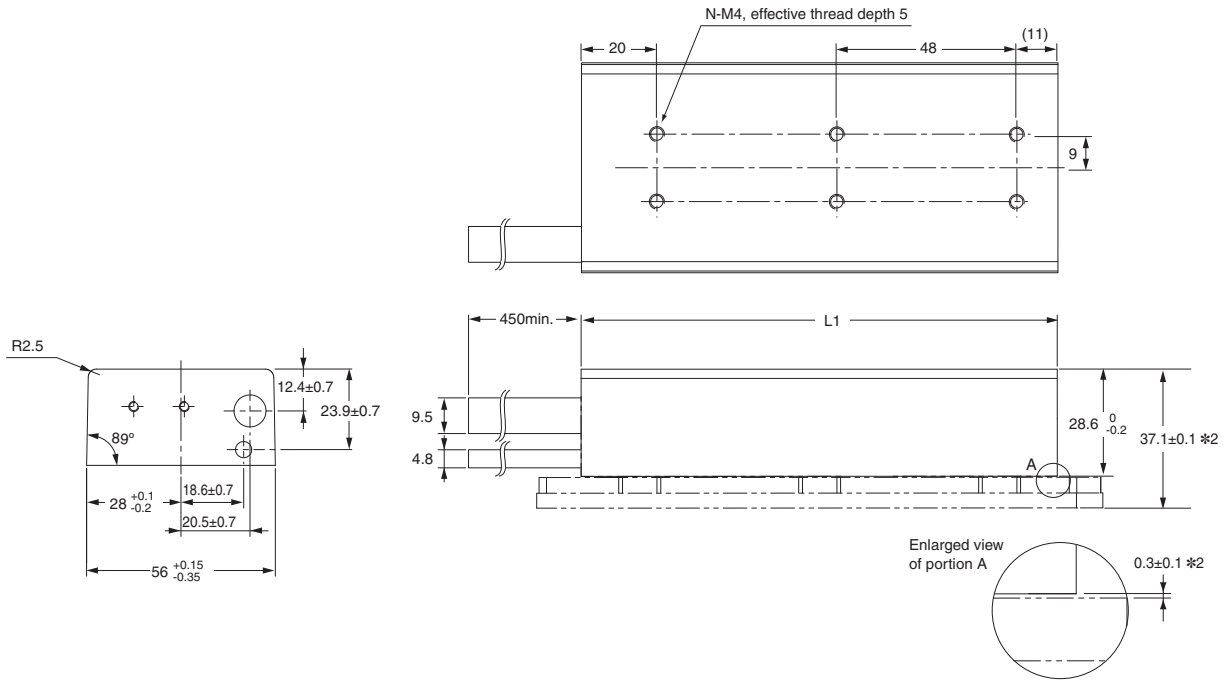
Dimensions

Iron-core Linear Motors

• Motor Coil Unit

- R88L-EC-FW-0303/0306

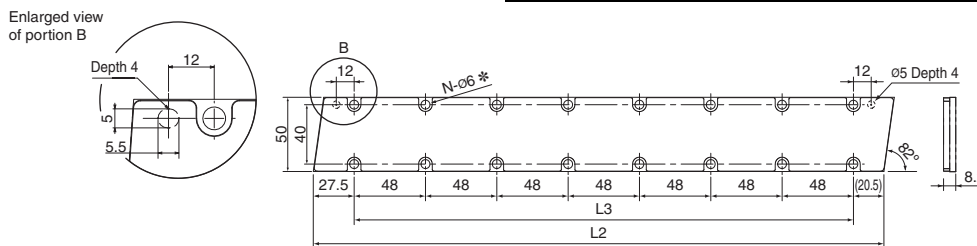
| Model | L1 [mm] | Number of holes [N] | Mass[kg] *1 |
|-----------------|-----------------|---------------------|-------------|
| R88L-EC-FW-0303 | 79 +0.15/-0.35 | 4 | 0.72 |
| R88L-EC-FW-0306 | 127 +0.15/-0.35 | 6 | 1.03 |



- *1. The weight of 450-mm cables is included.
- *2. These values indicate mounting dimensions.

• Magnet Trac

| Model | L2 [mm] | L3 [mm] | Number of holes [N] | Mass [kg] |
|--------------------|---------|---------|---------------------|--------------|
| R88L-EC-FM-03096-A | 96 | 48 | 4 | Approx. 0.22 |
| R88L-EC-FM-03144-A | 144 | 96 | 6 | Approx. 0.32 |
| R88L-EC-FM-03384-A | 384 | 336 | 16 | Approx. 0.85 |



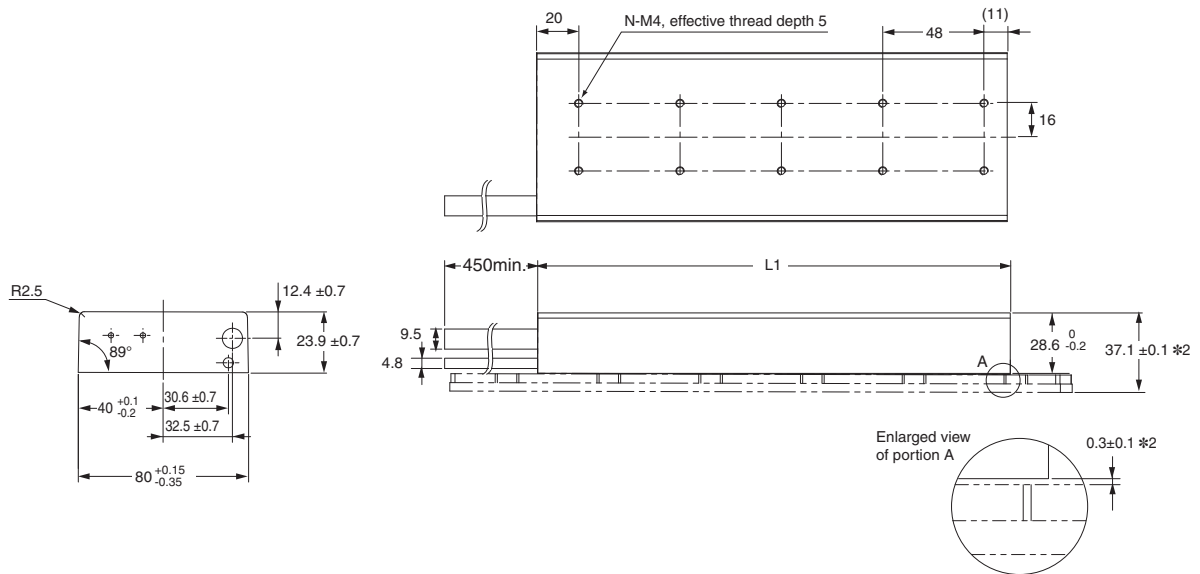
- * Use M5 low head allen head bolts.

AC Servomotor/Drive G5-series

• Motor Coil Unit

- R88L-EC-FW-0606/-0609/-0612

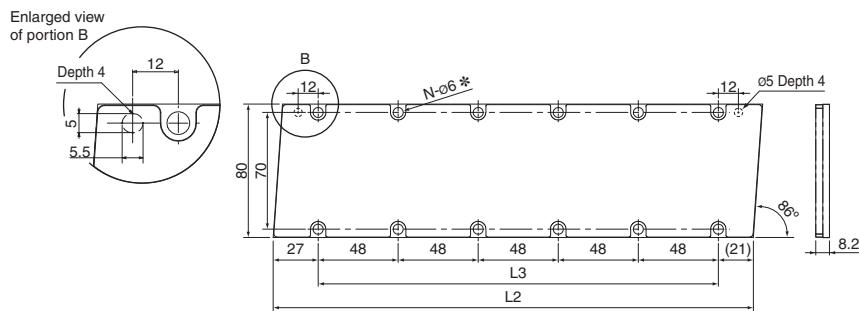
| Model | L1 [mm] | Number of holes [N] | Mass [kg] *1 |
|-----------------|-----------------|---------------------|--------------|
| R88L-EC-FW-0606 | 127 +0.15/-0.35 | 6 | 1.59 |
| R88L-EC-FW-0609 | 175 +0.15/-0.35 | 8 | 2.15 |
| R88L-EC-FW-0612 | 223 +0.15/-0.35 | 10 | 2.7 |



- *1. The weight of 450-mm cables is included.
- *2. These values indicate mounting dimensions.

• Magnet Trac

| Model | L2 [mm] | L3 [mm] | Number of holes [N] | Mass [kg] |
|--------------------|---------|---------|---------------------|--------------|
| R88L-EC-FM-06192-A | 192 | 144 | 8 | Approx. 0.77 |
| R88L-EC-FM-06288-A | 288 | 240 | 12 | Approx. 1.15 |

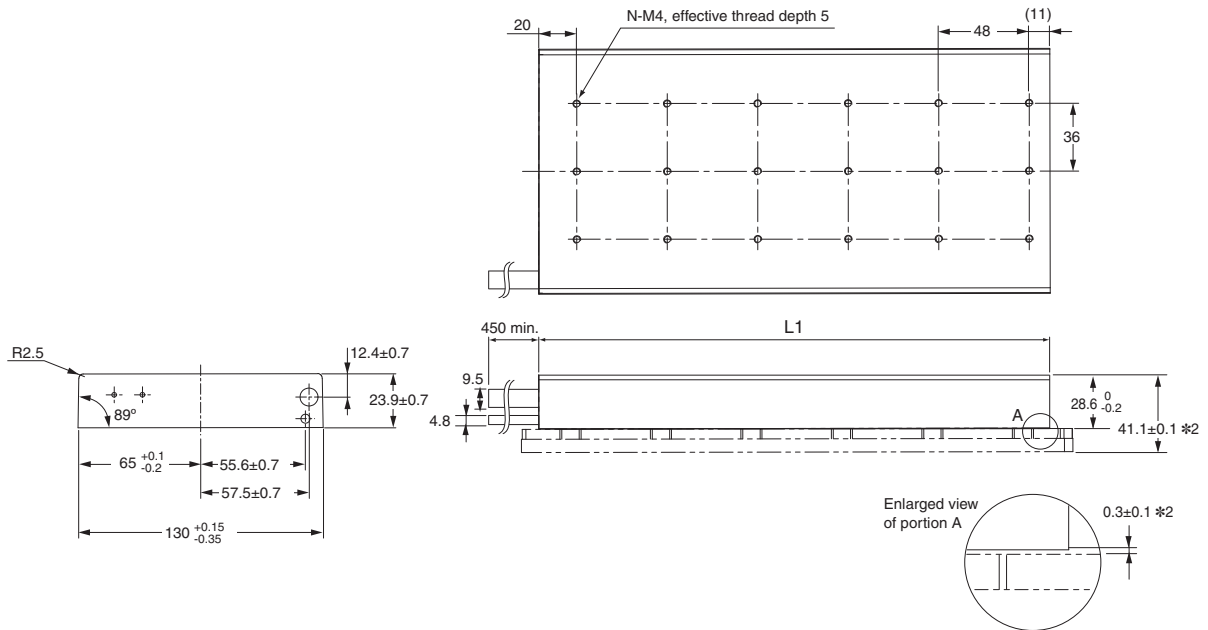


- * Use M5 low head allen head bolts.

• Motor Coil Unit

- R88L-EC-FW-1112/-1115

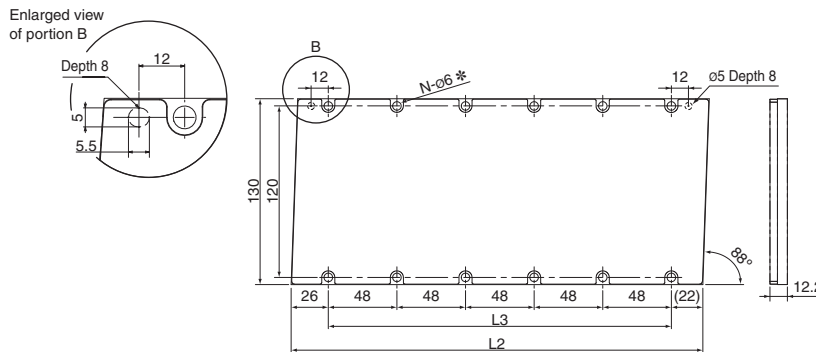
| Model | L1 [mm] | Number of holes [N] | Mass [kg] *1 |
|-----------------|-----------------|---------------------|--------------|
| R88L-EC-FW-1112 | 223 +0.15/-0.35 | 15 | 4.89 |
| R88L-EC-FW-1115 | 271 +0.15/-0.35 | 18 | 5.94 |



- *1. The weight of 450-mm cables is included.
- *2. These values indicate mounting dimensions.

• Magnet Trac

| Model | L2 [mm] | L3 [mm] | Number of holes [N] | Mass [kg] |
|--------------------|---------|---------|---------------------|--------------|
| R88L-EC-FM-11192-A | 192 | 144 | 8 | Approx. 2.12 |
| R88L-EC-FM-11288-A | 288 | 240 | 12 | Approx. 3.18 |



- * Use M5 low head allen head bolts.

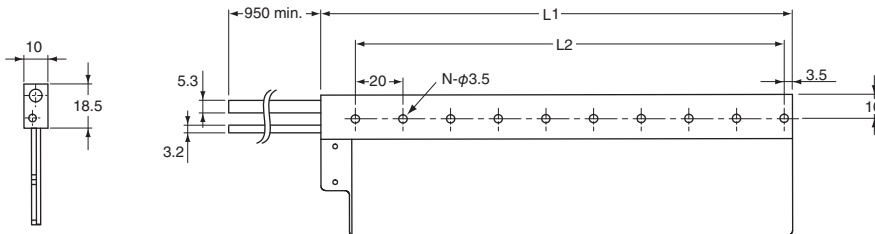
AC Servomotor/Drive G5-series

● Ironless Linear Motors

• Motor Coil Unit

- R88L-EC-GW-0303/-0306/-0309

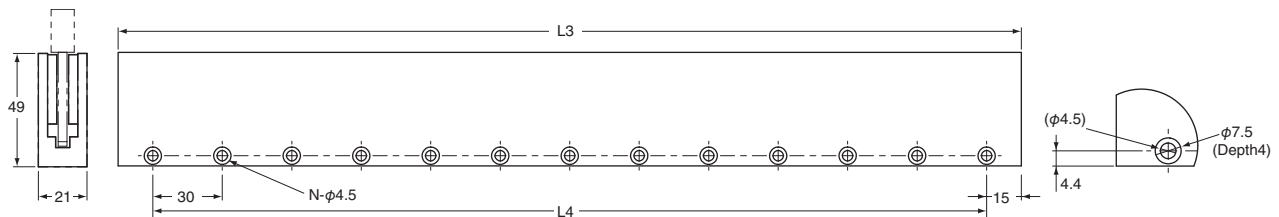
| Model | L1 [mm] | L2 [mm] | Number of holes [N] | Mass [kg] * |
|-----------------|---------|---------|---------------------|-------------|
| R88L-EC-GW-0303 | 78 | 60 | 4 | 0.2 |
| R88L-EC-GW-0306 | 138 | 120 | 7 | 0.28 |
| R88L-EC-GW-0309 | 198 | 180 | 10 | 0.36 |



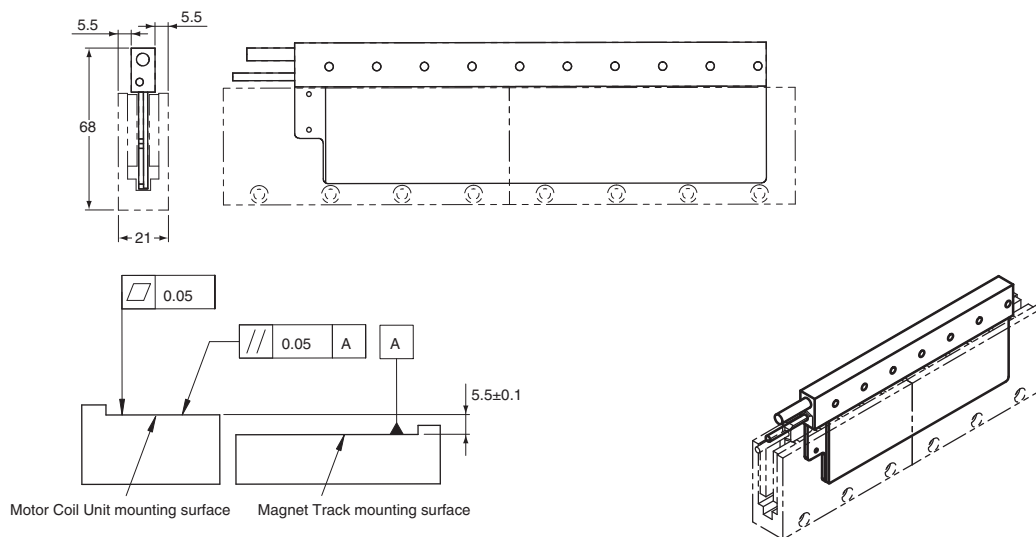
* The weight of 950-mm cables is included.

• Magnet Trac

| Model | L3 [mm] | L4 [mm] | Number of holes [N] | Mass [kg] |
|--------------------|---------|---------|---------------------|--------------|
| R88L-EC-GM-03090-A | 90 | 60 | 3 | Approx. 0.46 |
| R88L-EC-GM-03120-A | 120 | 90 | 4 | Approx. 0.61 |
| R88L-EC-GM-03390-A | 390 | 360 | 13 | Approx. 1.97 |



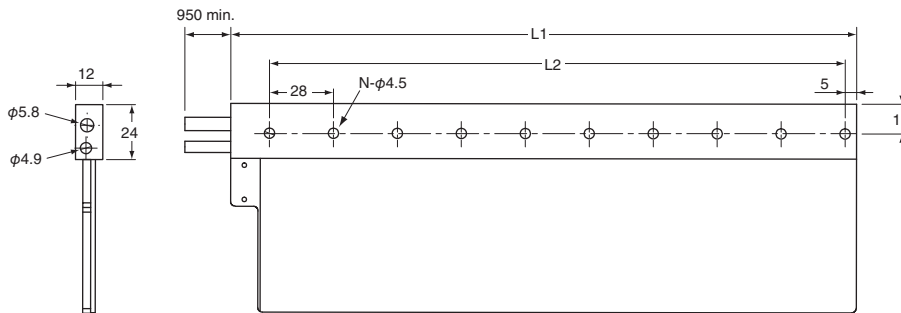
• Combination diagram



• Motor Coil Unit

- R88L-EC-GW-0503/-0506/-0509

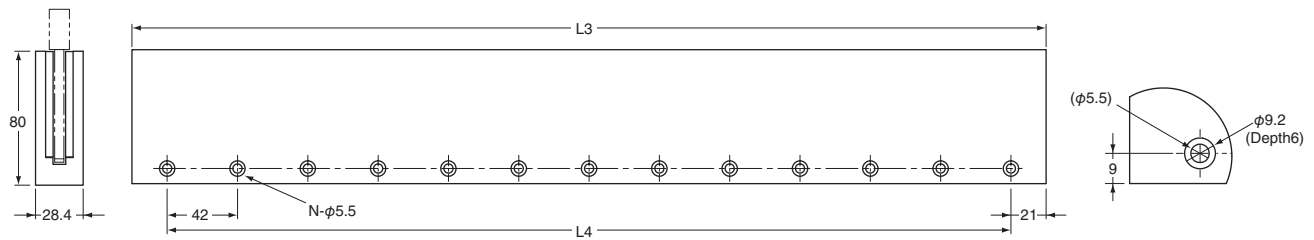
| Model | L1 [mm] | L2 [mm] | Number of holes [N] | Mass [kg] * |
|-----------------|---------|---------|---------------------|-------------|
| R88L-EC-GW-0503 | 106 | 84 | 4 | 0.48 |
| R88L-EC-GW-0506 | 190 | 168 | 7 | 0.71 |
| R88L-EC-GW-0509 | 274 | 252 | 10 | 0.94 |



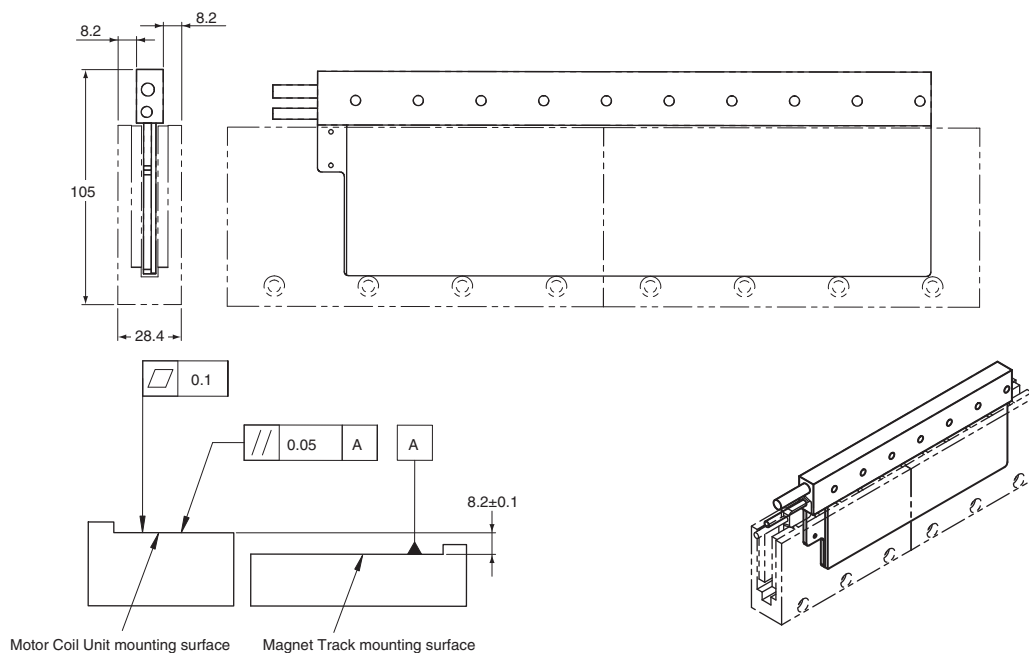
* The weight of 950-mm cables is included.

• Magnet Trac

| Model | L3 [mm] | L4 [mm] | Number of holes [N] | Mass [kg] |
|--------------------|---------|---------|---------------------|--------------|
| R88L-EC-GM-05126-A | 126 | 84 | 3 | Approx. 1.49 |
| R88L-EC-GM-05168-A | 168 | 126 | 4 | Approx. 1.98 |
| R88L-EC-GM-05210-A | 210 | 168 | 5 | Approx. 2.47 |
| R88L-EC-GM-05546-A | 546 | 504 | 13 | Approx. 6.43 |



• Combination diagram

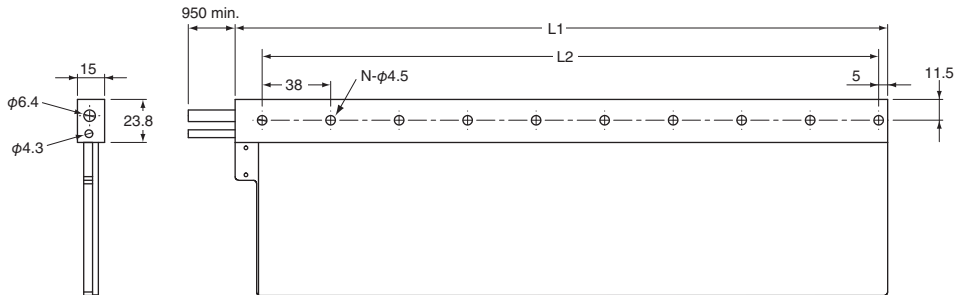


AC Servomotor/Drive G5-series

• Motor Coil Unit

• R88L-EC-GW-0703/-0706/-0709

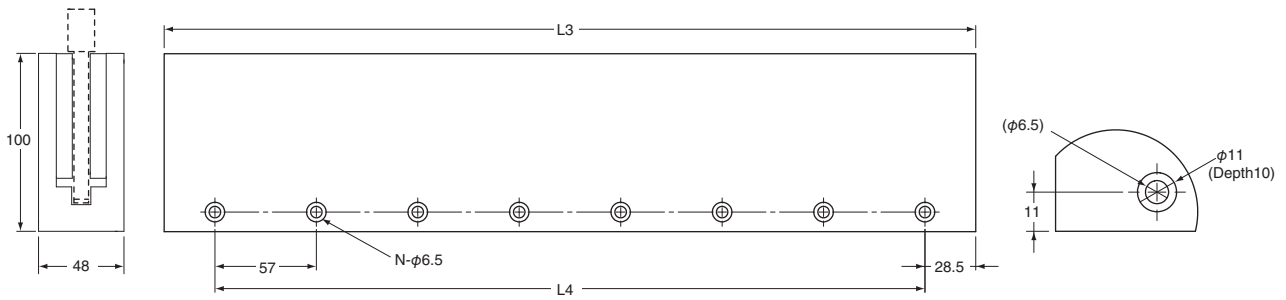
| Model | L1 [mm] | L2 [mm] | Number of holes [N] | Mass [kg] * |
|-----------------|---------|---------|---------------------|-------------|
| R88L-EC-GW-0703 | 134 | 114 | 4 | 0.9 |
| R88L-EC-GW-0706 | 248 | 228 | 7 | 1.32 |
| R88L-EC-GW-0709 | 362 | 342 | 10 | 1.74 |



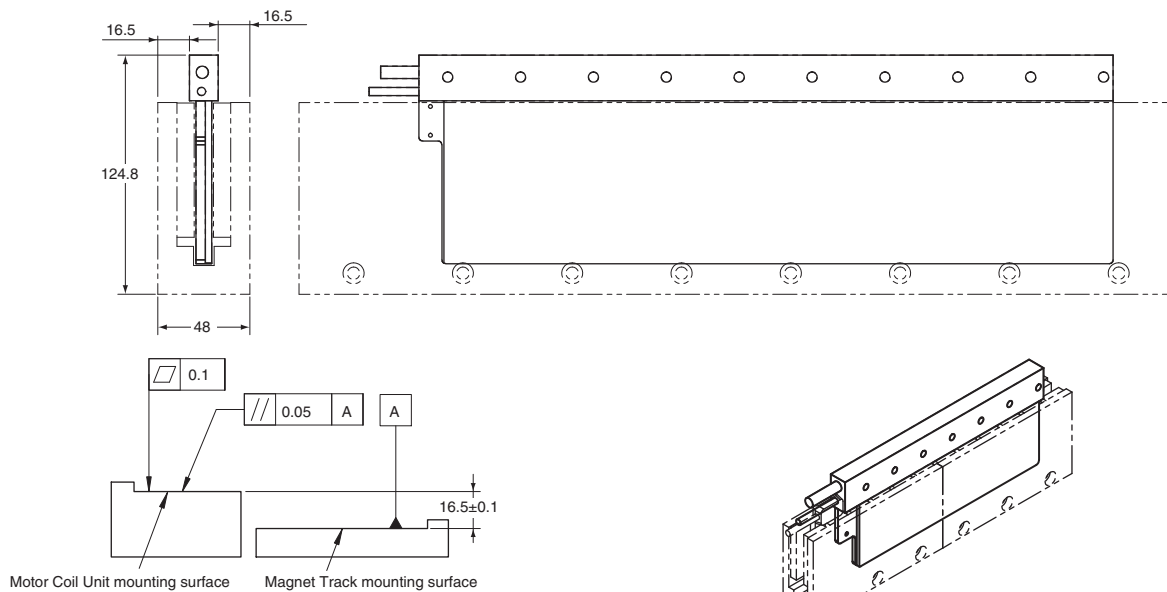
* The weight of 950-mm cables is included.

• Magnet Trac

| Model | L3 [mm] | L4 [mm] | Number of holes [N] | Mass [kg] |
|--------------------|---------|---------|---------------------|--------------|
| R88L-EC-GM-07114-A | 114 | 57 | 2 | Approx. 2.88 |
| R88L-EC-GM-07171-A | 171 | 114 | 3 | Approx. 4.31 |
| R88L-EC-GM-07456-A | 456 | 399 | 8 | Approx. 11.5 |



• Combination diagram



Related Manuals

Please read the relevant manuals of G5-Series

| English Cat. No. | Japanese Cat. No. | Type | Name |
|------------------|-------------------|-------------------------|--|
| I571 | SBCE-357 | R88D-KT/R88M-K | G5-SERIES AC SERVOMOTOR AND SERVO DRIVE USER'S MANUAL |
| I572 | SBCE-358 | R88D-KN□-ML2/R88M-K | G5-SERIES MECHATROLINK-II Communications AC SERVOMOTOR AND SERVO DRIVE USER'S MANUAL |
| I573 | SBCE-360 | R88D-KN□-ECT-R/R88M-K | G5-SERIES EtherCAT Communications for Position Control AC SERVOMOTOR AND SERVO DRIVE USER'S MANUAL |
| I576 | SBCE-365 | R88D-KN□-ECT/R88M-K | G5-SERIES EtherCAT Communications AC SERVOMOTOR AND SERVO DRIVE USER'S MANUAL |
| I577 | SBCE-366 | E88D-KN□-ECT-L/R88L-EC | G5-SERIES EtherCAT Communications Linear Motor Type LINEARMOTOR AND DRIVE USER'S MANUAL |
| W487 | SBCE-359 | CJ1W-NC□81/CJ1W-NC□82 | CJ-series Position Control Unit Operation Manual |
| W446 | SBCA-337 | CXONE-AL□□C-V□-AL□□D-V□ | CX-Programmer Operation Manual |
| W453 | SBCE-375 | CXONE-□□□□C-V□/□□□□D-V□ | CX-Drive OPERATION MANUAL |
| W504 | SBCA-362 | SYSMAC-SE2□□□ | Sysmac Studio Version 1 Operation Manual |

G5-Series
System Configuration

EtherCAT Communications
AC Servo Drive

EtherCAT Communications
Linear Motor Type
AC Servo Drive

General-purpose Inputs
AC Servo Drive

ML-II Type
AC Servo Drive

AC Servomotors

Linear Motor

MEMO

Read and Understand this Catalog

Please read and understand this catalog before purchasing the product. Please consult your OMRON representative if you have any questions or comments.

Warranty and Limitations of Liability

WARRANTY

OMRON's exclusive warranty is that the products are free from defects in materials and workmanship for a period of one year (or other period if specified) from date of sale by OMRON.

OMRON MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, REGARDING NON-INFRINGEMENT, MERCHANTABILITY, OR FITNESS FOR PARTICULAR PURPOSE OF THE PRODUCTS. ANY BUYER OR USER ACKNOWLEDGES THAT THE BUYER OR USER ALONE HAS DETERMINED THAT THE PRODUCTS WILL SUITABLY MEET THE REQUIREMENTS OF THEIR INTENDED USE. OMRON DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED.

LIMITATIONS OF LIABILITY

OMRON SHALL NOT BE RESPONSIBLE FOR SPECIAL, INDIRECT, OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR COMMERCIAL LOSS IN ANY WAY CONNECTED WITH THE PRODUCTS, WHETHER SUCH CLAIM IS BASED ON CONTRACT, WARRANTY, NEGLIGENCE, OR STRICT LIABILITY.

In no event shall the responsibility of OMRON for any act exceed the individual price of the product on which liability is asserted.

IN NO EVENT SHALL OMRON BE RESPONSIBLE FOR WARRANTY, REPAIR, OR OTHER CLAIMS REGARDING THE PRODUCTS UNLESS OMRON'S ANALYSIS CONFIRMS THAT THE PRODUCTS WERE PROPERLY HANDLED, STORED, INSTALLED, AND MAINTAINED AND NOT SUBJECT TO CONTAMINATION, ABUSE, MISUSE, OR INAPPROPRIATE MODIFICATION OR REPAIR.

Application Considerations

SUITABILITY FOR USE

OMRON shall not be responsible for conformity with any standards, codes, or regulations that apply to the combination of products in the customer's application or use of the products.

At the customer's request, OMRON will provide applicable third party certification documents identifying ratings and limitations of use that apply to the products. This information by itself is not sufficient for a complete determination of the suitability of the products in combination with the end product, machine, system, or other application or use.

The following are some examples of applications for which particular attention must be given. This is not intended to be an exhaustive list of all possible uses of the products, nor is it intended to imply that the uses listed may be suitable for the products:

- Outdoor use, uses involving potential chemical contamination or electrical interference, or conditions or uses not described in this catalog.
- Nuclear energy control systems, combustion systems, railroad systems, aviation systems, medical equipment, amusement machines, vehicles, safety equipment, and installations subject to separate industry or government regulations.
- Systems, machines, and equipment that could present a risk to life or property.

Please know and observe all prohibitions of use applicable to the products.

NEVER USE THE PRODUCTS FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON PRODUCTS ARE PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.

PROGRAMMABLE PRODUCTS

OMRON shall not be responsible for the user's programming of a programmable product, or any consequence thereof.

Disclaimers

CHANGE IN SPECIFICATIONS

Product specifications and accessories may be changed at any time based on improvements and other reasons. Consult with your OMRON representative at any time to confirm actual specifications of purchased product.

DIMENSIONS AND WEIGHTS

Dimensions and weights are nominal and are not to be used for manufacturing purposes, even when tolerances are shown.

PERFORMANCE DATA

Performance data given in this catalog is provided as a guide for the user in determining suitability and does not constitute a warranty. It may represent the result of OMRON's test conditions, and the users must correlate it to actual application requirements. Actual performance is subject to the OMRON Warranty and Limitations of Liability.

OMRON Corporation Industrial Automation Company

Tokyo, JAPAN

Contact: www.ia.omron.com

Regional Headquarters

OMRON EUROPE B.V.

Wegalaan 67-69-2132 JD Hoofddorp
The Netherlands
Tel: (31)2356-81-300/Fax: (31)2356-81-388

OMRON ELECTRONICS LLC

One Commerce Drive Schaumburg,
IL 60173-5302 U.S.A.
Tel: (1) 847-843-7900/Fax: (1) 847-843-7787

OMRON ASIA PACIFIC PTE. LTD.

No. 438A Alexandra Road # 05-05/08 (Lobby 2),
Alexandra Technopark,
Singapore 119967
Tel: (65) 6835-3011/Fax: (65) 6835-2711

OMRON (CHINA) CO., LTD.

Room 2211, Bank of China Tower,
200 Yin Cheng Zhong Road,
PuDong New Area, Shanghai, 200120, China
Tel: (86) 21-5037-2222/Fax: (86) 21-5037-2200

Authorized Distributor:

© OMRON Corporation 2009 All Rights Reserved.
In the interest of product improvement,
specifications are subject to change without notice.

CSM_8_1_1014
Cat. No. I816-E1-06

Printed in Japan
1012 (1109) (IT)

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Omron:

[R88D-KN01H-ECT](#) [R88D-KN01L-ECT](#) [R88D-KN02L-ECT](#) [R88D-KN04L-ECT](#) [R88D-KN06F-ECT](#) [R88D-KN08H-ECT](#) [R88D-KN10F-ECT](#) [R88D-KN10H-ECT](#) [R88D-KN150F-ECT](#) [R88D-KN15F-ECT](#) [R88D-KN15H-ECT](#) [R88D-KN20F-ECT](#) [R88D-KN20H-ECT](#) [R88D-KN30F-ECT](#) [R88D-KN30H-ECT](#) [R88D-KN50F-ECT](#) [R88D-KN50H-ECT](#) [R88D-KN75F-ECT](#) [R88D-KNA5L-ECT](#) [R88D-KT150F](#) [R88D-KT75F](#) [R88D-KT75H](#) [R88M-K11K015C-BS2](#) [R88M-K11K015C-S2](#) [R88M-K15K015C-S2](#) [R88M-K7K515C-BS2](#) [R88M-K7K515C-S2](#) [R88M-K7K515T-BS2](#) [R88M-K7K515T-S2](#)

Компания «Life Electronics» занимается поставками электронных компонентов импортного и отечественного производства от производителей и со складов крупных дистрибьюторов Европы, Америки и Азии.

С конца 2013 года компания активно расширяет линейку поставок компонентов по направлению коаксиальный кабель, кварцевые генераторы и конденсаторы (керамические, пленочные, электролитические), за счёт заключения дистрибьюторских договоров

Мы предлагаем:

- Конкурентоспособные цены и скидки постоянным клиентам.
- Специальные условия для постоянных клиентов.
- Подбор аналогов.
- Поставку компонентов в любых объемах, удовлетворяющих вашим потребностям.
- Приемлемые сроки поставки, возможна ускоренная поставка.
- Доставку товара в любую точку России и стран СНГ.
- Комплексную поставку.
- Работу по проектам и поставку образцов.
- Формирование склада под заказчика.
- Сертификаты соответствия на поставляемую продукцию (по желанию клиента).
- Тестирование поставляемой продукции.
- Поставку компонентов, требующих военную и космическую приемку.
- Входной контроль качества.
- Наличие сертификата ISO.

В составе нашей компании организован Конструкторский отдел, призванный помогать разработчикам, и инженерам.

Конструкторский отдел помогает осуществить:

- Регистрацию проекта у производителя компонентов.
- Техническую поддержку проекта.
- Защиту от снятия компонента с производства.
- Оценку стоимости проекта по компонентам.
- Изготовление тестовой платы монтаж и пусконаладочные работы.



Тел: +7 (812) 336 43 04 (многоканальный)

Email: org@lifeelectronics.ru

www.lifeelectronics.ru