OMRON

AC Servomotors/ Servo Drives

SMARTSTEP2

Advanced Functionality in a Super Compact Design

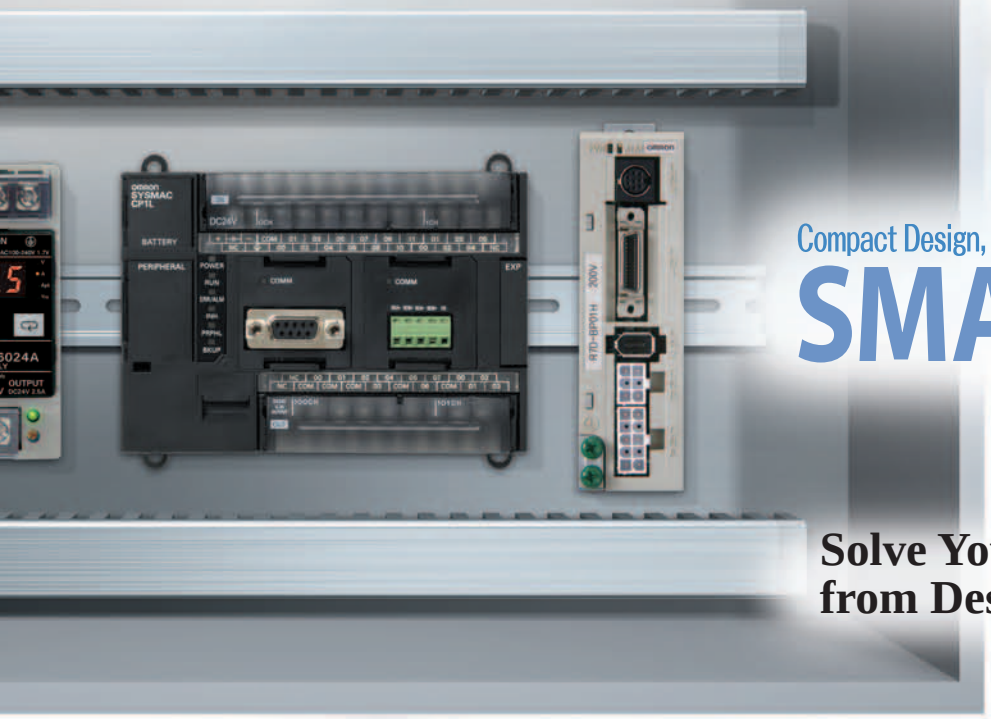
» Compact

» Easy

» High Specification

realizing

Easy and Advanced Performance



Compact Design, Easy Application, and Advanced Functions

SMARTSTEP2

Solve Your Equipment Problems from Design to Maintenance.

Maintenance with Integrated Support Software
Maintain your Server Drives with the CX-Drive in the CX-One FA Integrated Tool Package.

Improve Tact Time
Significantly faster command pulse frequency.

No Adjustment
Simple Realtime Autotuning eliminates the need for complicated adjustments.

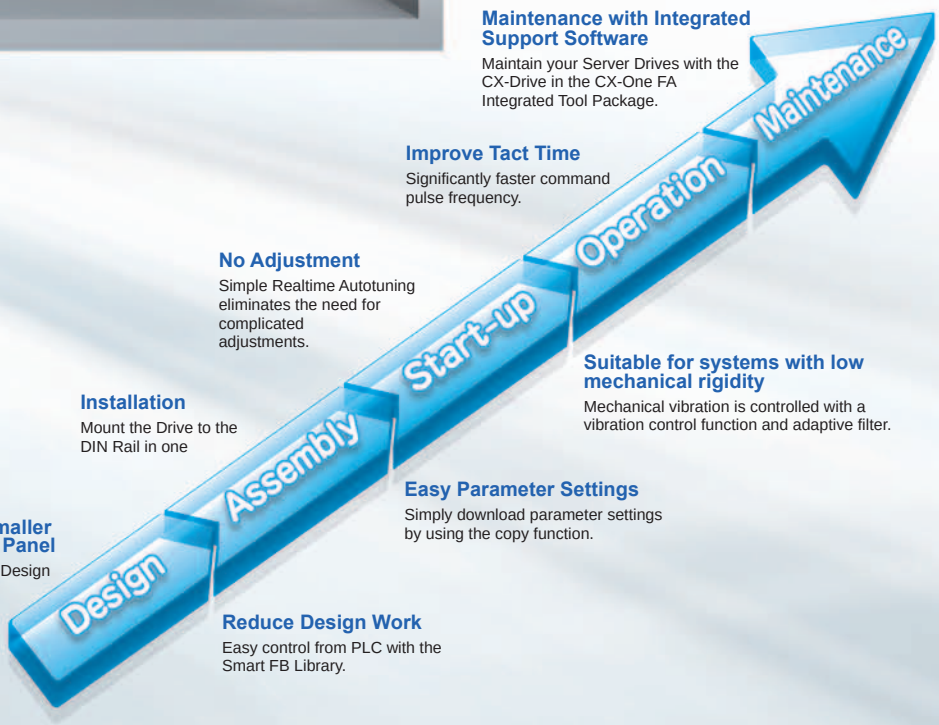
Suitable for systems with low mechanical rigidity
Mechanical vibration is controlled with a vibration control function and adaptive filter.

Installation
Mount the Drive to the DIN Rail in one

Easy Parameter Settings
Simply download parameter settings by using the copy function.

Even Smaller Control Panel
Palm-size Design

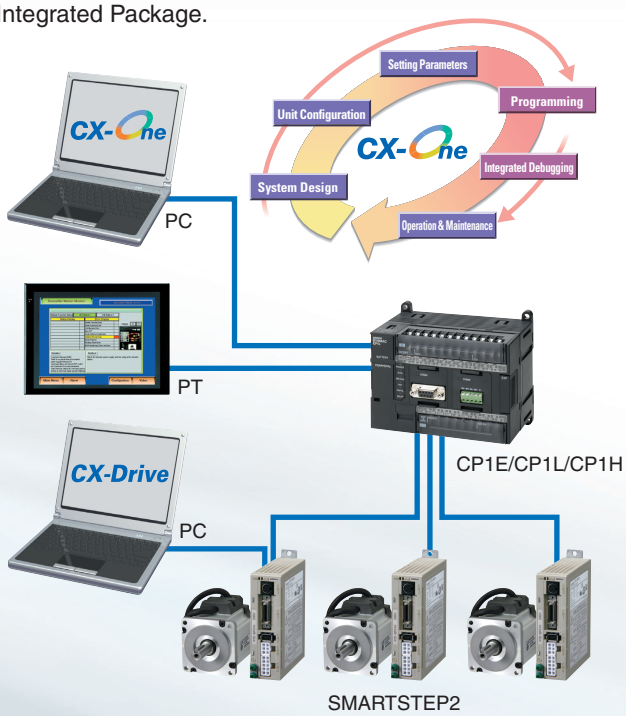
Reduce Design Work
Easy control from PLC with the Smart FB Library.



A New Series

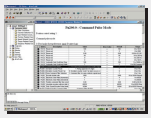
Integrated Development Environment
Cut Your TCO from Design to Maintenance.

Control from a PLC is made easy by using function blocks.
The Servo System can be managed from design to maintenance with the CX-One FA Integrated Package.

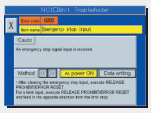


Setting & Programming
Easy programming with the Smart FB Library

Parameter Editing & Monitoring
The Servomotor parameters can be edited, monitored, and saved with the CX-Drive.



Alarm & Maintenance
Easy monitoring of the NC Unit & Drive errors

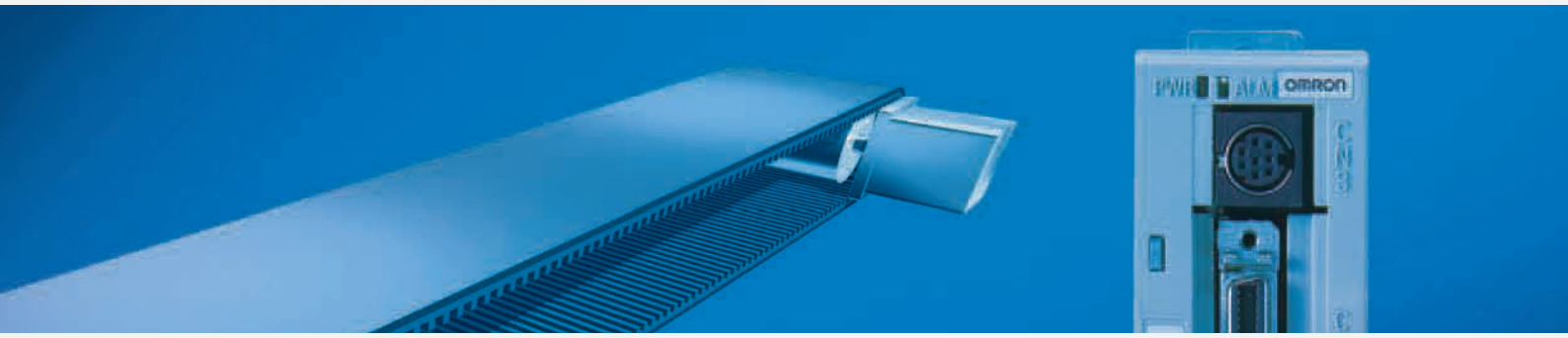


Note: CX-Drive (version 1.61) support for SMARTSTEP2 series Servo Drives can be obtained by using the CX-One V2 auto-update function from May 30, 2008.

INDEX

Easy monitoring of Position Control Unit and Servo Drive errors

Ball Screws, Belt Conveyers,and More: Ideal A Super-compact, High-performance Servo

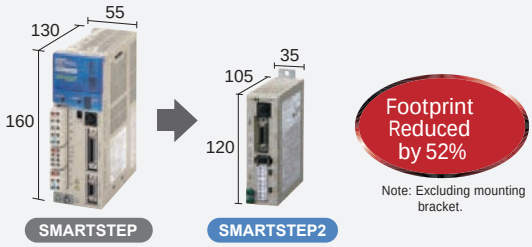


Compact!

Smaller Servo Drives for Multi-axis Applications

Reduce footprint in the control panel.

The super-compact SMARTSTEP is now even smaller. The footprint has been reduced by 52%, helping to reduce control panel size.

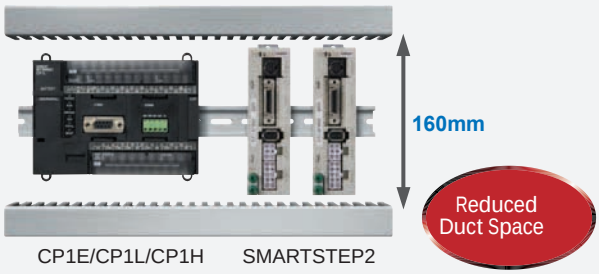


Note: Excluding mounting bracket.

Downsized Servo Drives for Compact PLCs

Reduce your duct pitch.

SMARTSTEP2 is only 120 mm in height. By mounting it onto the same duct as the compact CP1L PLC, the duct pitch can be reduced, minimizing control panel space.



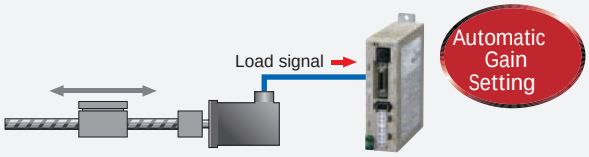
Note: Use the wiring duct and the height max 60mm.
The width between the top and bottom side of the board and the drives is max 100 mm.

Easy!

Easy Adjustment

Realtime autotuning sets the optimum gain.

An autotuning function calculates the device load in realtime and automatically sets the optimum gain, simplifying the adjustment procedure.



Easier Installation

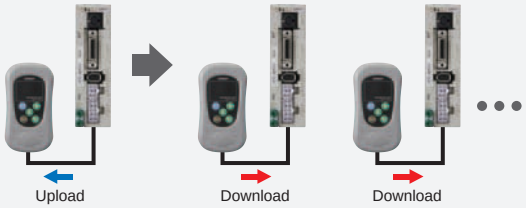
Mount the Servo to a DIN Rail in one step.

The Servo Drive can be mounted onto a DIN Rail in a single step by using the DIN Rail Mounting Unit (sold separately) for easier assembly and easier maintenance replacements.

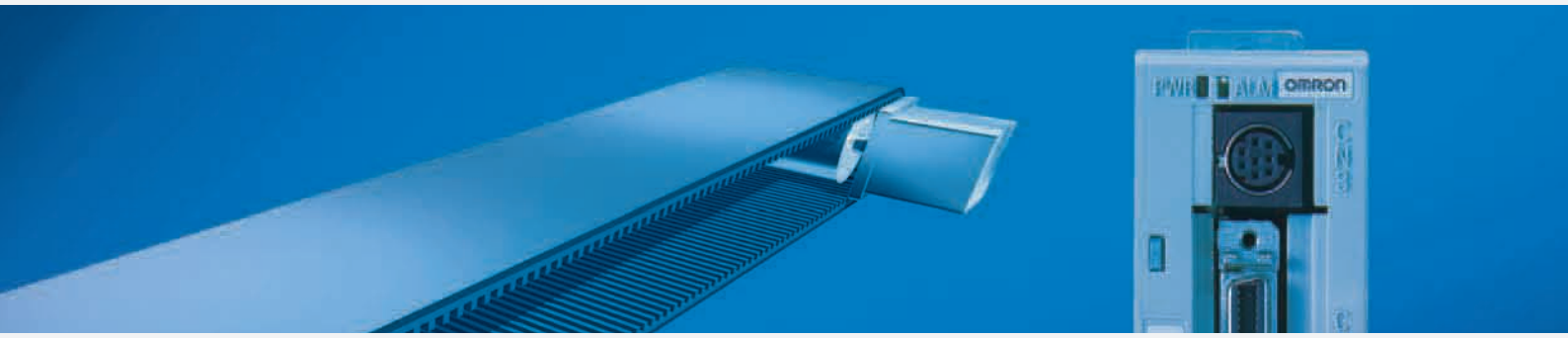
Easy Parameter Settings for Mass Production

Use the Parameter Unit as a copy tool.

Parameter can be easily set for many Servo Drives using the Parameter Unit, enabling easier assembly work in mass production lines.



Ball Screws, Belt Conveyers,and More: Ideal A Super-compact, High-performance Servo

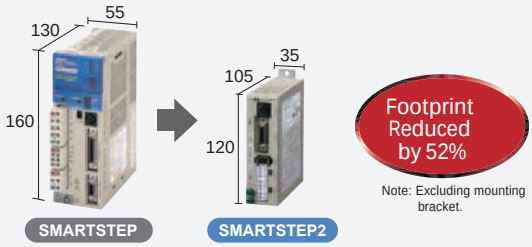


Compact!

Smaller Servo Drives for Multi-axis Applications

Reduce footprint in the control panel.

The super-compact SMARTSTEP is now even smaller. The footprint has been reduced by 52%, helping to reduce control panel size.

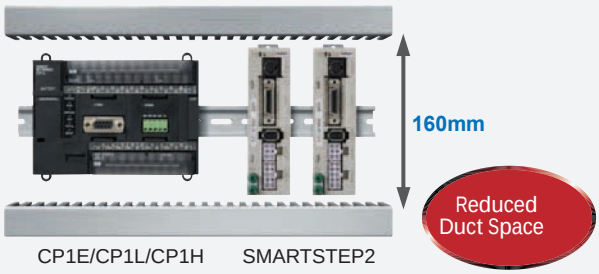


Note: Excluding mounting bracket.

Downsized Servo Drives for Compact PLCs

Reduce your duct pitch.

SMARTSTEP2 is only 120 mm in height. By mounting it onto the same duct as the compact CP1L PLC, the duct pitch can be reduced, minimizing control panel space.



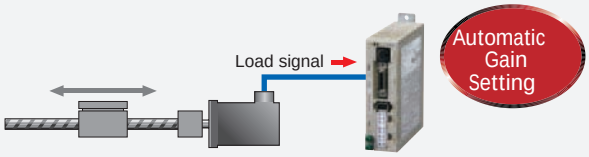
Note: Use the wiring duct and the height max 60mm.
The width between the top and bottom side of the board and the drives is max 100 mm.

Easy!

Easy Adjustment

Realtime autotuning sets the optimum gain.

An autotuning function calculates the device load in realtime and automatically sets the optimum gain, simplifying the adjustment procedure.



Easier Installation

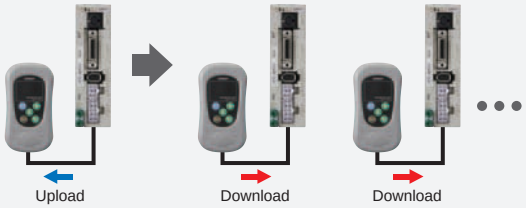
Mount the Servo to a DIN Rail in one step.

The Servo Drive can be mounted onto a DIN Rail in a single step by using the DIN Rail Mounting Unit (sold separately) for easier assembly and easier maintenance replacements.

Easy Parameter Settings for Mass Production

Use the Parameter Unit as a copy tool.

Parameter can be easily set for many Servo Drives using the Parameter Unit, enabling easier assembly work in mass production lines.



Servo variation which contributes to reduction of machine size.

SMARTSTEP2 Series

Servo Drive Variations

			SMARTSTEP2 Series Pulse train input R7D-BP□
Power supply	AC100V		Single-phase
	AC200V		Single-phase / Single/Three-phase / Three-phase
Motor capacity	AC100V		50 W / 100 W / 200 W
	AC200V	Single-phase	200 W
		Single/Three-phase	50 W / 100 W / 400 W
		Three-phase	200 W
Interface	Command type		Pulse train
Control modes	Control modes		Position control
	Control mode switching		——
Tuning functions	Vibration control		Vibration control
	Autotuning		AUTO
	Realtime autotuning		Adaptive filter *1
Servo Drive functions	Torque limits		Torque limit *2
	Encoder output		INC
	Internal set speeds		4 speeds

*1. One adaptive filter and one notch filter. *2. Two limits.

Servomotor Variations

		SMARTSTEP2 Series Pulse train input R88M-G	
	Motor type	Cylinder type	Flat type
	Rated speed	3000r/min	
Servomotor capacity	50W	INC	
	100W	INC	INC
	200W	INC	INC
	400W	INC	INC

Functions

Pulse train: The speed and travel distance are input to the Servo as pulse trains.

Position control: Control is applied to move to the target position and then stop at the target position.

Vibration control function: Vibration is suppressed by automatically setting a filter for the vibration frequency.

Autotuning: The motor is moved according to a command pattern automatically generated by the Servo Drive, then estimates the load inertia from the torque required at that time to automatically set the optimum

Adaptive filter: The machine load inertia is calculated in realtime and the result is used to automatically set the optimum gain.

Torque limit: Switching is possible between the first torque limit and the second torque limit to limit the Servomotor output torque.

Incremental output: When the Controller power supply is turned ON, operation is always started from the origin point.

Servo variation which contributes to reduction of machine size.

SMARTSTEP2 Series

Servo Drive Variations

			SMARTSTEP2 Series Pulse train input R7D-BP□
Power supply	AC100V		Single-phase
	AC200V		Single-phase / Single/Three-phase / Three-phase
Motor capacity	AC100V		50 W / 100 W / 200 W
	AC200V	Single-phase	200 W
		Single/Three-phase	50 W / 100 W / 400 W
		Three-phase	200 W
Interface	Command type		Pulse train
Control modes	Control modes		Position control
	Control mode switching		——
Tuning functions	Vibration control		Vibration control
	Autotuning		AUTO
	Realtime autotuning		Adaptive filter *1
Servo Drive functions	Torque limits		Torque limit *2
	Encoder output		INC
	Internal set speeds		4 speeds

*1. One adaptive filter and one notch filter. *2. Two limits.

Servomotor Variations

		SMARTSTEP2 Series Pulse train input R88M-G	
	Motor type	Cylinder type	Flat type
	Rated speed	3000r/min	
Servomotor capacity	50W	INC	
	100W	INC	INC
	200W	INC	INC
	400W	INC	INC

Functions

Pulse train: The speed and travel distance are input to the Servo as pulse trains.

Position control: Control is applied to move to the target position and then stop at the target position.

Vibration control function: Vibration is suppressed by automatically setting a filter for the vibration frequency.

Autotuning: The motor is moved according to a command pattern automatically generated by the Servo Drive, then estimates the load inertia from the torque required at that time to automatically set the optimum

Adaptive filter: The machine load inertia is calculated in realtime and the result is used to automatically set the optimum gain.

Torque limit: Switching is possible between the first torque limit and the second torque limit to limit the Servomotor output torque.

Incremental output: When the Controller power supply is turned ON, operation is always started from the origin point.

AC Servomotors and SMARTSTEP 2-series Servo Drives with Pulse String Inputs

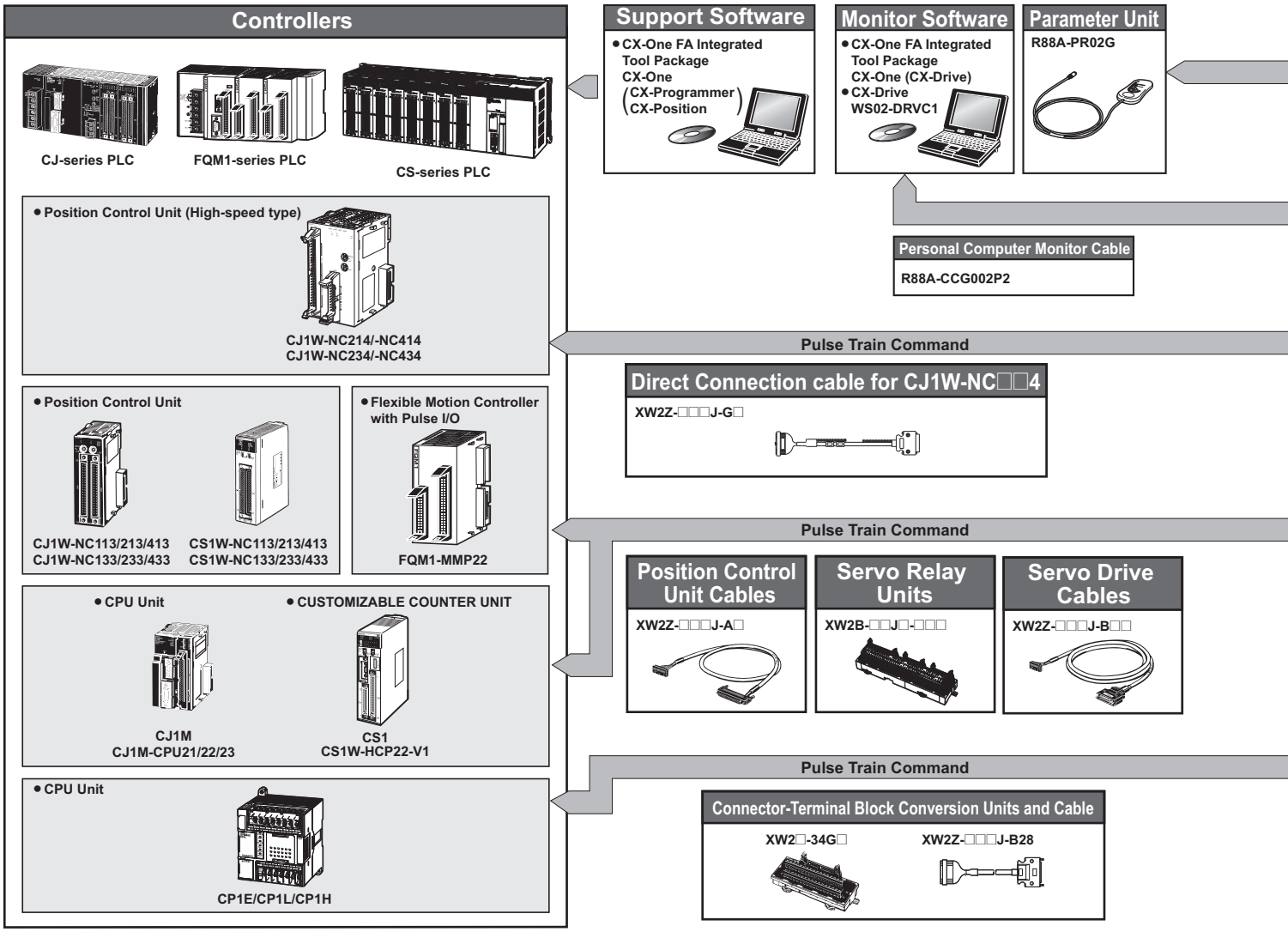
R88M-G/R7D-BP

Advanced Functionality in a Super Compact Design.

- Compact AC Servo Drives
  The footprint of the compact AC Servo Drives is only 48% that of the SMARTSTEP A Series, and the volume is only 39%. The AC Servo Drives of the SMARTSTEP 2 Series are also equipped with new functions and higher performance for more accurate positioning.
- Vibration Suppressed during Acceleration/Deceleration of Low-rigidity Mechanisms
  Damping control suppresses vibration when using the SMARTSTEP 2 for low-rigidity mechanisms or devices in which the end vibrates.
- Resonance Control for High-speed Positioning
  Realtime autotuning estimates the load inertia of the machine in realtime and automatically and constantly sets the optimal gain. The adaptive filter automatically suppresses vibration caused by resonance.
- Compatible with 90° Phase Difference Input Command Pulses
  In addition to conventional CW/CCW inputs (2 pulses) and SIGN/PULS inputs (1 pulse), the SMARTSTEP 2 supports 90° phase difference inputs. This makes it possible to input encoder output signals directly into the Servo Drive for simplified synchronization control.

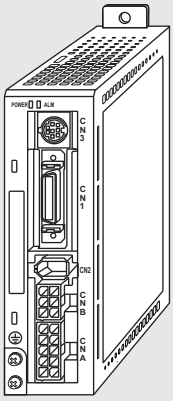
System Configuration

Note: CX-Drive (version 1.61) support for SMARTSTEP2 series Servo Drives can be obtained by using the CX-One V2 auto-update function from May 30, 2008.



- A Wide Range of Pulse Settings
  A wide range of pulse settings, such as the command pulse factor, electronic gear, and encoder dividing rate, enable optimal pulse settings for your device or system.
- Simplified Speed Control with Internal Speed Settings
  Four internal speed settings allow the speed to be easily switched by using external signals.
- Encoder Output Dividing
  The number of motor encoder pulses output by the Servo Drive can be freely set between 1 and 2,500 pulses per rotation. A parameter can also be set to change the phase.

AC Servo Drive

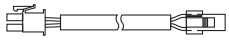


- SMARTSTEP 2 Servo Drive
  R7D-BP

Motor power signals

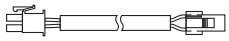
Power Cables

- Standard Cables
  Power Cables
  Without a brake
  R7A-CAB□□□S



With a brake
R88A-CAGA□□B

- Robot Cables
  Power Cables
  Without a brake
  R7A-CAB□□□SR



With a brake
R88A-CAGA□□BR

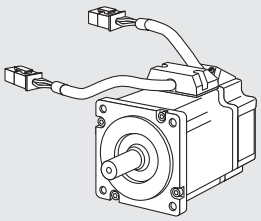
feedback signals

Encoder Cables

- Standard Cables
  R88A-CRGB□□□C

- Robot Cables
  R88A-CRGB□□□CR

AC Servomotors



- G-series Servomotor
  R88M-G

Power Supply Cables

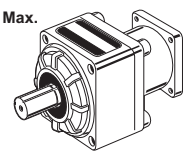
- Single-Phase Power
  R7A-CLB002S2
- Three-Phase Power
  R7A-CLB002S3
- External Regenerative Resistor Connection Cable
  R7A-CLB002RG

Peripheral Devices

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

Decelerators

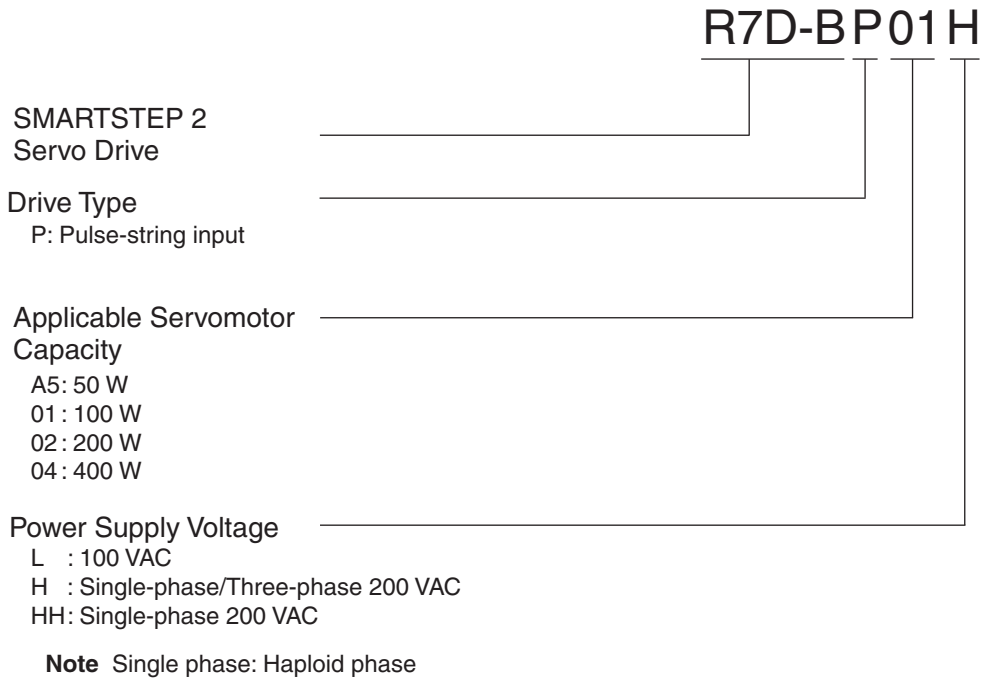
- Backlash: 3 Arcminutes Max.
  R88G-HPG
  Backlash: 15 Arcminutes Max.
  R88G-VRXF



Interpreting Model Numbers

● Servo Drive Model Numbers

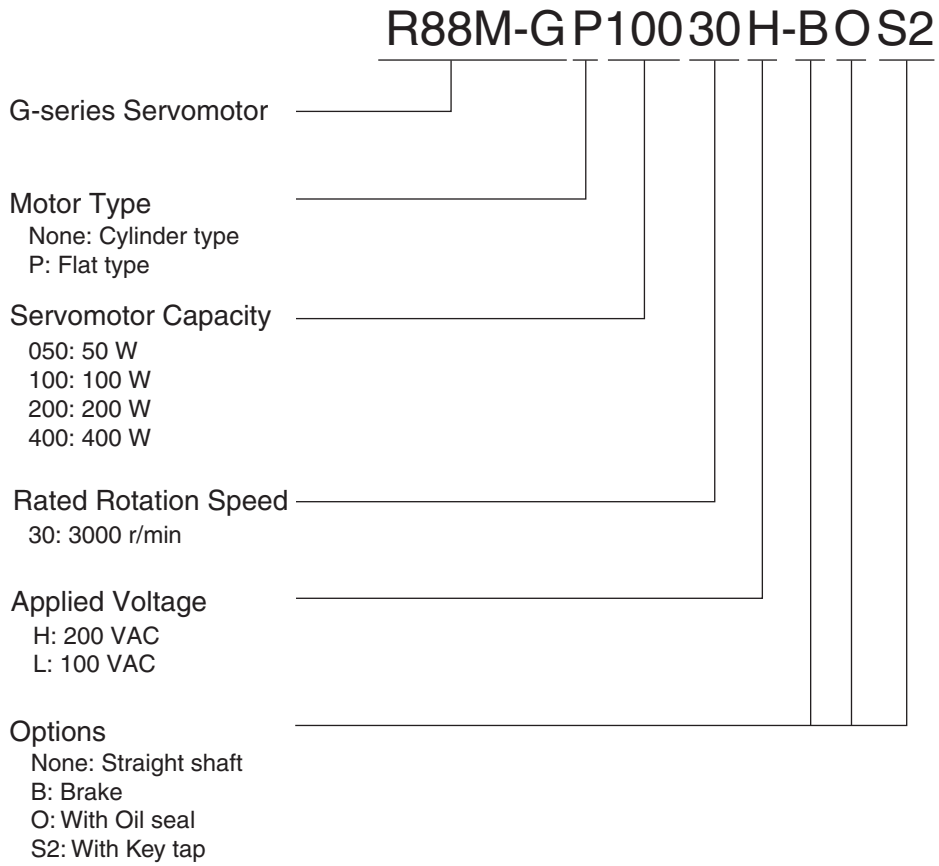
The model number provides information such as the Servo Drive type, the applicableServomotor capacity, and the power supply voltage.



Note Single phase: Haploid phase

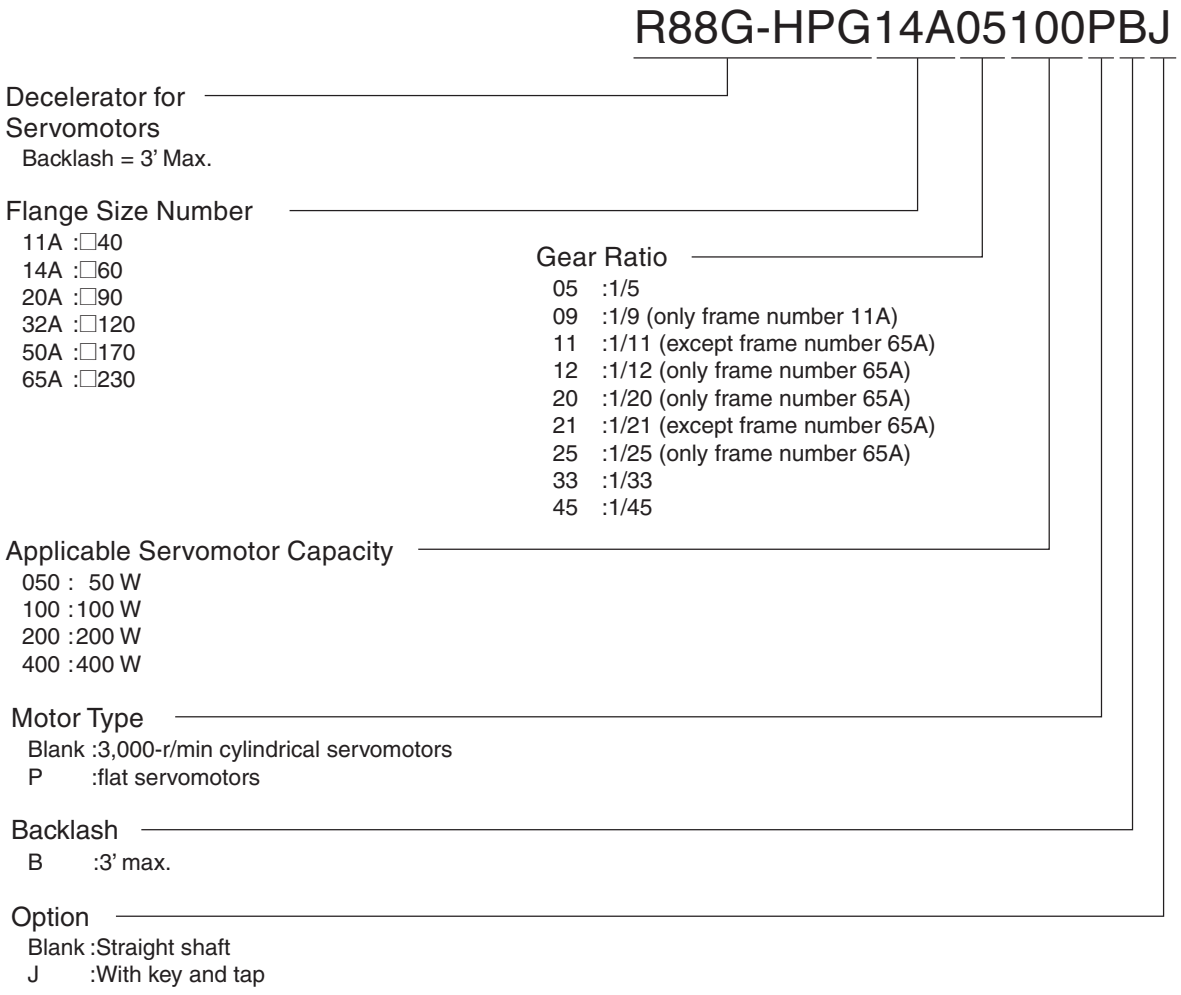
● Servomotor Model Numbers

The model number provides information such as the Servomotor type, Servomotor capacity, rated speed, and options.

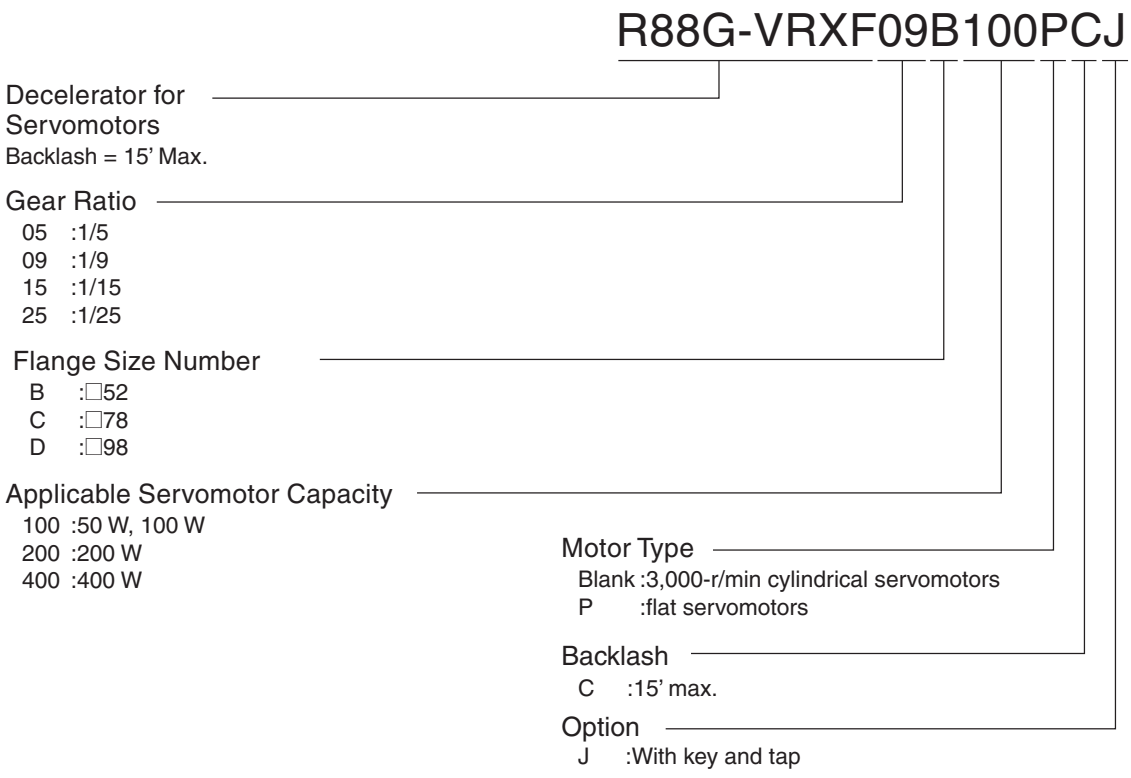


● Understanding Decelerator Model Numbers

Backlash = 3' Max.



Backlash = 15' Max.



Ordering Information

● Servo Drives

Specifications		Model
Single-phase 100 VAC	50 W	**R7D-BPA5L**
	100 W	**R7D-BP01L**
	200 W	**R7D-BP02L**
Single-phase/three-phase 200 VAC	50 W	**R7D-BP01H**
	100 W	
	400 W	**R7D-BP04H**
Single-phase 200 VAC	200 W	**R7D-BP02HH**
Three-phase 200 VAC	200 W	**R7D-BP02H**

● Servomotors

INC 3,000-r/min Cylindrical Servomotors

Specifications			Model	
			Straight shaft	Straight shaft with key and tap
Without brake	100 V	50 W	**R88M-G05030H**	**R88M-G05030H-S2**
		100 W	**R88M-G10030L**	**R88M-G10030L-S2**
		200 W	**R88M-G20030L**	**R88M-G20030L-S2**
	200 V	50 W	**R88M-G05030H**	**R88M-G05030H-S2**
		100 W	**R88M-G10030H**	**R88M-G10030H-S2**
		200 W	**R88M-G20030H**	**R88M-G20030H-S2**
		400 W	**R88M-G40030H**	**R88M-G40030H-S2**
With brake	100 V	50 W	**R88M-G05030H-B**	**R88M-G05030H-BS2**
		100 W	**R88M-G10030L-B**	**R88M-G10030L-BS2**
		200 W	**R88M-G20030L-B**	**R88M-G20030L-BS2**
	200 V	50 W	**R88M-G05030H-B**	**R88M-G05030H-BS2**
		100 W	**R88M-G10030H-B**	**R88M-G10030H-BS2**
		200 W	**R88M-G20030H-B**	**R88M-G20030H-BS2**
		400 W	**R88M-G40030H-B**	**R88M-G40030H-BS2**

Note: Models with oil seals are also available.

INC 3,000-r/min Flat Servomotors

Specifications			Model	
			Straight shaft	Straight shaft with key and tap
Without brake	100 V	100W	**R88M-GP10030L**	**R88M-GP10030L-S2**
		200W	**R88M-GP20030L**	**R88M-GP20030L-S2**
	200 V	100W	**R88M-GP10030H**	**R88M-GP10030H-S2**
		200W	**R88M-GP20030H**	**R88M-GP20030H-S2**
		400W	**R88M-GP40030H**	**R88M-GP40030H-S2**
With brake	100 V	100W	**R88M-GP10030L-B**	**R88M-GP10030L-BS2**
		200W	**R88M-GP20030L-B**	**R88M-GP20030L-BS2**
	200 V	100W	**R88M-GP10030H-B**	**R88M-GP10030H-BS2**
		200W	**R88M-GP20030H-B**	**R88M-GP20030H-BS2**
		400W	**R88M-GP40030H-B**	**R88M-GP40030H-BS2**

Note: Models with oil seals are also available.

● Decelerators

Backlash: 3 Arcminutes Max.

Decelerators for Cylindrical Servomotors

Specifications		Model
Motor capacity	Gear ratio	
50 W	1/5	R88G-HPG11A05100B
	1/9	R88G-HPG11A09050B
	1/21	R88G-HPG14A21100B
	1/33	R88G-HPG14A33050B
	1/45	R88G-HPG14A45050B
100 W	1/5	R88G-HPG11A05100B
	1/11	R88G-HPG14A11100B
	1/21	R88G-HPG14A21100B
	1/33	R88G-HPG20A33100B
	1/45	R88G-HPG20A45100B
200 W	1/5	R88G-HPG14A05200B
	1/11	R88G-HPG14A11200B
	1/21	R88G-HPG20A21200B
	1/33	R88G-HPG20A33200B
	1/45	R88G-HPG20A45200B
400 W	1/5	R88G-HPG14A05400B
	1/11	R88G-HPG20A11400B
	1/21	R88G-HPG20A21400B
	1/33	R88G-HPG32A33400B
	1/45	R88G-HPG32A45400B

Note: 1. The standard models have a straight shaft.
Note: 2. To order a Servomotor with a straight shaft with key, add "J" to the end of the model number, in the place indicated by the box.
Example: R88G-HPG11B05100BJ

Backlash: 15 Arcminutes Max.

Decelerators for Cylindrical Servomotors

Specifications		Model
Motor capacity	Gear ratio	
50 W	1/5	R88G-VRXF05B100CJ
	1/9	R88G-VRXF09B100CJ
	1/15	R88G-VRXF15B100CJ
	1/25	R88G-VRXF25B100CJ
100 W	1/5	R88G-VRXF05B100CJ
	1/9	R88G-VRXF09B100CJ
	1/15	R88G-VRXF15B100CJ
	1/25	R88G-VRXF25B100CJ
200 W	1/5	R88G-VRXF05B200CJ
	1/9	R88G-VRXF09C200CJ
	1/15	R88G-VRXF15C200CJ
	1/25	R88G-VRXF25C200CJ
400 W	1/5	R88G-VRXF05C400CJ
	1/9	R88G-VRXF09C400CJ
	1/15	R88G-VRXF15C400CJ
	1/25	R88G-VRXF25C400CJ

Note: 1. The standard models have a straight shaft with a key.
Note: 2. The backlash is the value when a load of ±4% of the allowable output torque is applied to the output shaft.

Backlash: 3 Arcminutes Max.

Decelerator for Flat Servomotors

Specifications		Model
Motor capacity	Gear ratio	
100 W	1/5	R88G-HPG11A05100PB
	1/11	R88G-HPG14A11100PB
	1/21	R88G-HPG14A21100PB
	1/33	R88G-HPG20A33100PB
	1/45	R88G-HPG20A45100PB
200 W	1/5	R88G-HPG14A05200PB
	1/11	R88G-HPG20A11200PB
	1/21	R88G-HPG20A21200PB
	1/33	R88G-HPG20A33200PB
	1/45	R88G-HPG20A45200PB
400 W	1/5	R88G-HPG20A05400PB
	1/11	R88G-HPG20A11400PB
	1/21	R88G-HPG20A21400PB
	1/33	R88G-HPG32A33400PB
	1/45	R88G-HPG32A45400PB

Note: 1. The standard models have a straight shaft.
Note: 2. To order a Servomotor with a straight shaft with key, add "J" to the end of the model number, in the place indicated by the box.
Example: R88G-HPG11B05100BJ

Backlash: 15 Arcminutes Max.

Decelerators for Flat Servomotors

Specifications		Model
Motor capacity	Gear ratio	
100 W	1/5	R88G-VRXF05B100PCJ
	1/9	R88G-VRXF09B100PCJ
	1/15	R88G-VRXF15B100PCJ
	1/25	R88G-VRXF25B100PCJ
200 W	1/5	R88G-VRXF05B200PCJ
	1/9	R88G-VRXF09C200PCJ
	1/15	R88G-VRXF15C200PCJ
	1/25	R88G-VRXF25C200PCJ
400 W	1/5	R88G-VRXF05C400PCJ
	1/9	R88G-VRXF09C400PCJ
	1/15	R88G-VRXF15C400PCJ
	1/25	R88G-VRXF25C400PCJ

Note: 1. The standard models have a straight shaft with a key.
Note: 2. The backlash is the value when a load of ±4% of the allowable output torque is applied to the output shaft.

Note: Decelerators (Backlash = 15' Max.)
The new R88G-VRXF Series of the Decelerators (Backlash = 15' Max.) was released in October 2017.
The old R88G-VRSF Series will be discontinued at the end of March 2019.

● Accessories and Cables

Control Cables (for CN1)

Specifications		Model
Connector-Terminal Block Cables	1 m	XW2Z-100J-B28
	2 m	XW2Z-200J-B28
General-purpose Control Cables	1 m	R7A-CPB001S
	2 m	R7A-CPB002S

Encoder Cables (for CN2) (Standard Cables)

Specifications		Model
Standard Cables (connectors attached)	3 m	R88A-CRGB003C
	5 m	R88A-CRGB005C
	10 m	R88A-CRGB010C
	15 m	R88A-CRGB015C
	20 m	R88A-CRGB020C

Servomotor Power Cables (for CNB) (Standard Cables)

Specifications		Model
Standard Cables (connectors attached)	3 m	R7A-CAB003S
	5 m	R7A-CAB005S
	10 m	R7A-CAB010S
	15 m	R7A-CAB015S
	20 m	R7A-CAB020S

Brake Cables (Standard Cables)

Specifications		Model
Standard Cables	3 m	R88A-CAGA003B
	5 m	R88A-CAGA005B
	10 m	R88A-CAGA010B
	15 m	R88A-CAGA015B
	20 m	R88A-CAGA020B

Encoder Cables (for CN2) (Robot Cables)

Specifications		Model
Robot Cables (connectors attached)	3 m	R88A-CRGB003CR
	5 m	R88A-CRGB005CR
	10 m	R88A-CRGB010CR
	15 m	R88A-CRGB015CR
	20 m	R88A-CRGB020CR

Servomotor Power Cables (for CNB) (Robot Cables)

Specifications		Model
Robot Cables (connectors attached)	3 m	R7A-CAB003SR
	5 m	R7A-CAB005SR
	10 m	R7A-CAB010SR
	15 m	R7A-CAB015SR
	20 m	R7A-CAB020SR

Brake Cables (Robot Cables)

Specifications		Model
Robot Cables	3 m	R88A-CAGA003BR
	5 m	R88A-CAGA005BR
	10 m	R88A-CAGA010BR
	15 m	R88A-CAGA015BR
	20 m	R88A-CAGA020BR

Personal Computer Monitor Cable

Specifications		Model
Personal Computer Monitor Cable	2 m	R88A-CCG002P2

Power Supply Cables

Specifications		Model
Power Supply Input Cable for Single-Phase Power (connectors attached)	2 m	R7A-CLB002S2
Power Supply Input Cable for Three-Phase Power (connectors attached)	2 m	R7A-CLB002S3
External Regenerative Resistor Connection Cable	2 m	R7A-CLB002RG

Connectors

Specifications	Model
Main Circuit Connector (CNA)	R7A-CNB01P
Servomotor Connector (CNB)	R7A-CNB01A
Control Input Connector (CN1)	R88A-CNW01C
Encoder Input Connector (CN2)	R88A-CNW01R
Servomotor Connector for Encoder Cable	R88A-CNG02R
Servomotor Connector for Servomotor Power Cable	R88A-CNG01A
Brake Cable Connector	R88A-CNG01B

Connector-Terminal Block Conversion Units

Specifications	Model
With M3 screws	XW2B-34G4
With M3.5 screws	XW2B-34G5
With M3 screws	XW2D-34G6

External Regeneration Resistors

Specifications	Model
220 W, 47 Ω	R88A-RR22047S1
80 W, 100 Ω	R88A-RR080100S
80 W, 50 Ω	R88A-RR08050S

Reactors

Specifications	Applicable Servo Drive	Model
Single-phase 100 V	R7D-BPA5L	3G3AX-DL2002
	R7D-BP01L	3G3AX-DL2004
	R7D-BP02L	3G3AX-DL2007
Single-phase 200 V	R7D-BP01H	3G3AX-DL2004
	R7D-BP02HH	3G3AX-DL2004
	R7D-BP04H	3G3AX-DL2007
Three-phase 200 V	R7D-BP01H	3G3AX-AL2025
	R7D-BP02H	3G3AX-AL2025
	R7D-BP04H	3G3AX-AL2025

DIN Rail Mounting Unit

Specifications	Model
DIN Rail Mounting Unit	R7A-DIN01B

Parameter Unit

Specifications	Model
Parameter Unit	R88A-PR02G

Direct Connection Cable

Specification (Unit)	The number of axes	Length	Model
CJ1W-NC234/-NC434 (Line-driver output type)	for 1 axis	1 m	**XW2Z-100J-G12**
		5 m	**XW2Z-500J-G12**
		10 m	**XW2Z-10MJ-G12**
	for 2 axis	1 m	**XW2Z-100J-G4**
		5 m	**XW2Z-500J-G4**
		10 m	**XW2Z-10MJ-G4**
CJ1W-NC214/-NC414 (Open collector output type)	for 1 axis	1 m	**XW2Z-100J-G16**
		3 m	**XW2Z-300J-G16**
	for 2 axis	1 m	**XW2Z-100J-G8**
		3 m	**XW2Z-300J-G8**

Servo Relay Units (for CN1)

Specifications		Model
For CJ1W-NC133/-NC113 For CS1W-NC133/-NC113 For C200HW-NC113 ✻		**XW2B-20J6-1B**
For CJ1W-NC233/-NC433/-NC213/-NC413 For CS1W-NC233/-NC433/-NC213/-NC413 For C200HW-NC213/-NC413 ✻		**XW2B-40J6-2B**
For CJ1M-CPU21 For CJ1M-CPU22 For CJ1M-CPU23	for 1 axis	**XW2B-20J6-8A**
	for 2 axis	**XW2B-40J6-9A**
For FQM1-MMP22		**XW2B-80J7-12A**

✻ C200HW-NC was discontinued.

Servo Relay Unit Cables (for Servo Drives)

Specifications		Model
For CJ1M (XW2B-20J6-8A/XW2B-40J6-9A)	1 m	**XW2Z-100J-B32**
	2 m	**XW2Z-200J-B32**
For FQM1-MMP22 (XW2B-80J7-12A)	1 m	**XW2Z-100J-B30**
	2 m	**XW2Z-200J-B30**

Servo Relay Unit Cables (for Position Control Units)

Specifications			Model
For CJ1W-NC133		0.5 m	**XW2Z-050J-A18**
		1 m	**XW2Z-100J-A18**
For CJ1W-NC233/-NC433		0.5 m	**XW2Z-050J-A19**
		1 m	**XW2Z-100J-A19**
For CS1W-NC133		0.5 m	**XW2Z-050J-A10**
		1 m	**XW2Z-100J-A10**
For CS1W-NC233/-NC433		0.5 m	**XW2Z-050J-A11**
		1 m	**XW2Z-100J-A11**
For CJ1W-NC113		0.5 m	**XW2Z-050J-A14**
		1 m	**XW2Z-100J-A14**
For CJ1W-NC213/-NC413		0.5 m	**XW2Z-050J-A15**
		1 m	**XW2Z-100J-A15**
For CS1W-NC113 For C200HW-NC113 ✻		0.5 m	**XW2Z-050J-A6**
		1 m	**XW2Z-100J-A6**
For CS1W-NC213/-NC413 For C200HW-NC213/-NC413 ✻		0.5 m	**XW2Z-050J-A7**
		1 m	**XW2Z-100J-A7**
For CJ1M-CPU21 For CJ1M-CPU22 For CJ1M-CPU23		0.5 m	**XW2Z-050J-A33**
		1 m	**XW2Z-100J-A33**
For FQM1-MMP22	General-purpose I/O Cables	0.5 m	**XW2Z-050J-A28**
		1 m	**XW2Z-100J-A28**
		2 m	**XW2Z-200J-A28**
	Special I/O Cables	0.5 m	**XW2Z-050J-A30**
		1 m	**XW2Z-100J-A30**
		2 m	**XW2Z-200J-A30**

✻ C200HW-NC was discontinued.

FA Integrated Tool Package CX-One

Product name	Specifications	Number of licenses	Media	Model	Standards
FA Integrated Tool Package CX-One Ver. 4.□	The CX-One is a comprehensive software package that integrates Support Software for OMRON PLCs and components. CX-One runs on following OS. OS: Windows XP (Service Pack 3 or higher, 32-bit version) / Windows Vista (32-bit/64-bit version) / Windows 7 (32-bit/64-bit version) / Windows 8 (32-bit/64-bit version) / Windows 8.1 (32-bit/64-bit version) / Windows 10 (32-bit/64-bit version) CX-One Version.4.□ includes CX-Drive Ver.2.□.	1 license ✻	DVD	**CXONE-AL01D-V4**	–

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

Servo Drive-Servomotor Combinations

Only the Servomotor and Servo Drive combinations listed here can be used. Do not use other combinations.

● Cylindrical Servomotor

Servomotors Combinations

Voltage	Servo Drive	Servomotor		
	Pulse-string input	Rated output	Without brake	With brake
Single-phase 100VAC	R7D-BPA5L	50 W	R88M-G05030H	R88M-G05030H-B
	R7D-BP01L	100 W	R88M-G10030L	R88M-G10030L-B
	R7D-BP02L	200 W	R88M-G20030L	R88M-G20030L-B
Single-phase 200 VAC	R7D-BP01H	50 W	R88M-G05030H	R88M-G05030H-B
		100 W	R88M-G10030H	R88M-G10030H-B
	R7D-BP02HH	200 W	R88M-G20030H	R88M-G20030H-B
	R7D-BP04H	400 W	R88M-G40030H	R88M-G40030H-B
Three-phase 200 VAC	R7D-BP01H	50 W	R88M-G05030H	R88M-G05030H-B
		100 W	R88M-G10030H	R88M-G10030H-B
	R7D-BP02H	200 W	R88M-G20030H	R88M-G20030H-B
	R7D-BP04H	400 W	R88M-G40030H	R88M-G40030H-B

● Flat Servomotor

Servomotors Combinations

Voltage	Servo Drive	Servomotor		
	Pulse-string input	Rated output	Without brake	With brake
Single-phase 100VAC	R7D-BP01L	100 W	R88M-GP10030L	R88M-GP10030L-B
	R7D-BP02L	200 W	R88M-GP20030L	R88M-GP20030L-B
Single-phase 200 VAC	R7D-BP01H	100 W	R88M-GP10030H	R88M-GP10030H-B
	R7D-BP02HH	200 W	R88M-GP20030H	R88M-GP20030H-B
	R7D-BP04H	400 W	R88M-GP40030H	R88M-GP40030H-B
Three-phase 200 VAC	R7D-BP01H	100 W	R88M-GP10030H	R88M-GP10030H-B
	R7D-BP02H	200 W	R88M-GP20030H	R88M-GP20030H-B
	R7D-BP04H	400 W	R88M-GP40030H	R88M-GP40030H-B

Servomotor and Decelerator Combinations

● 3,000-r/min Servomotors

Motor model	1/5	1/11 (1/9 for flange size No.11)	1/21	1/33	1/45
R88M-G05030□	R88G-HPG11A05100B□ (Also used with R88M-G10030□)	R88G-HPG11A09050B□ (Gear ratio 1/9)	R88G-HPG14A21100B□ (Also used with R88M-G10030□)	R88G-HPG14A33050B□	R88G-HPG14A45050B□
R88M-G10030□	R88G-HPG11A05100B□	R88G-HPG14A11100B□	R88G-HPG14A21100B□	R88G-HPG20A33100B□	R88G-HPG20A45100B□
R88M-G20030□	R88G-HPG14A05200B□	R88G-HPG14A11200B□	R88G-HPG20A21200B□	R88G-HPG20A33200B□	R88G-HPG20A45200B□
R88M-G40030□	R88G-HPG14A05400B□	R88G-HPG20A11400B□	R88G-HPG20A21400B□	R88G-HPG32A33400B□	R88G-HPG32A45400B□

● 3,000-r/min Flat Servomotors

Motor model	1/5	1/11	1/21	1/33	1/45
R88M-GP10030□	R88G-HPG11A05100PB□	R88G-HPG14A11100PB□	R88G-HPG14A21100PB□	R88G-HPG20A33100PB□	R88G-HPG20A45100PB□
R88M-GP20030□	R88G-HPG14A05200PB□	R88G-HPG20A11200PB□	R88G-HPG20A21200PB□	R88G-HPG20A33200PB□	R88G-HPG20A45200PB□
R88M-GP40030□	R88G-HPG20A05400PB□	R88G-HPG20A11400PB□	R88G-HPG20A21400PB□	R88G-HPG32A33400PB□	R88G-HPG32A45400PB□

Servo Relay Units and Cables

Select the Servo Relay Unit and Cable according to the model number of the Position Control Unit being used.

Position Control Unit	Position Control Unit Cable		Servo Relay Unit	Servo Drive Cable
CJ1W-NC133	XW2Z-□□□J-A18		XW2B-20J6-1B	XW2Z-□□□J-B29
CJ1W-NC233	XW2Z-□□□J-A19		XW2B-40J6-2B	
CJ1W-NC433				
CS1W-NC133	XW2Z-□□□J-A10		XW2B-20J6-1B	
CS1W-NC233	XW2Z-□□□J-A11		XW2B-40J6-2B	
CS1W-NC433				
CJ1W-NC113	XW2Z-□□□J-A14		XW2B-20J6-1B	
CJ1W-NC213	XW2Z-□□□J-A15		XW2B-40J6-2B	
CJ1W-NC413				
CS1W-NC113	XW2Z-□□□J-A6		XW2B-20J6-1B	
C200HW-NC113 ✻				
CS1W-NC213	XW2Z-□□□J-A7		XW2B-40J6-2B	
CS1W-NC413				
C200HW-NC213 ✻				
C200HW-NC413 ✻				
CJ1M-CPU21	XW2Z-□□□J-A33		XW2B-20J6-8A XW2B-40J6-9A (for 2 axes)	XW2Z-□□□J-B32
CJ1M-CPU22				
CJ1M-CPU23				
FQM1-MMP22	General-purpose I/O	XW2Z-□□□J-A28	XW2B-80J7-12A	XW2Z-□□□J-B30
	Special I/O	XW2Z-□□□J-A30		

✻ C200HW-NC was discontinued.

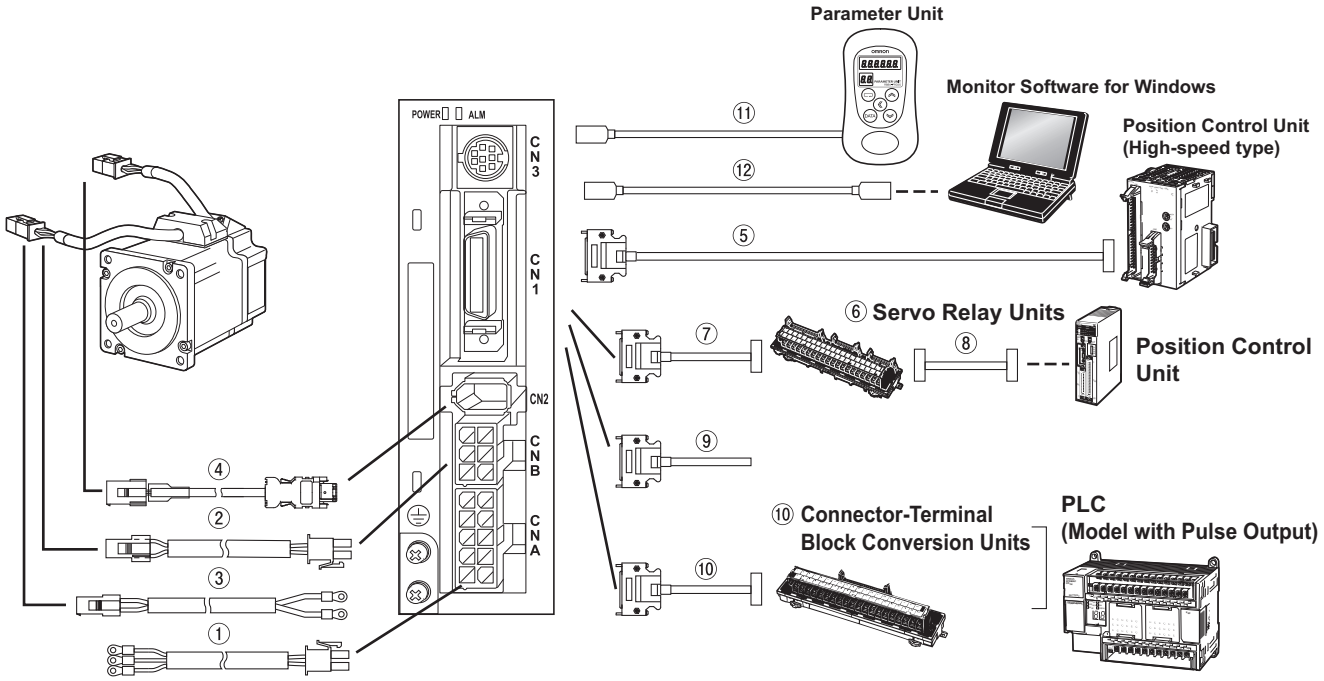
Note: 1. Insert the cable length into the boxes in the model number (□□□). Position Control Unit cables come in two lengths: 0.5 m and 1 m (some are also available in lengths of 2 m). Servo Drive Cables also come in two lengths: 1 m and 2 m. For information on cable lengths, refer to Accessories and Cables on page 15.

Note: 2. Two Servo Drive Cables are required if 2-axis control is performed using one Position Control Unit.

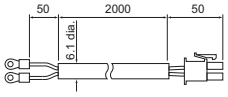
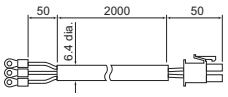
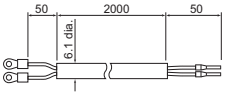
Note: 3. Direct cable is available for CJ1W-NC□□4 Position Control Unit (High-Speed type).

Specifications	The number of axes	Model
For CJ1W-NC214/-NC414 (open collector output type)	1 axis	XW2Z-□□□J-G13
For CJ1W-NC214/-NC414 (open collector output type)	2 axis	XW2Z-□□□J-G5
For CJ1W-NC234/-NC434 (line-driver output type)	1 axis	XW2Z-□□□J-G9
For CJ1W-NC234/-NC434 (line-driver output type)	2 axis	XW2Z-□□□J-G1

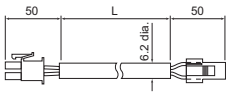
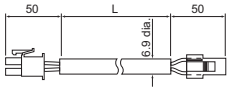
Cable Combinations



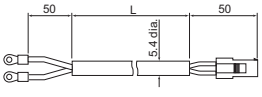
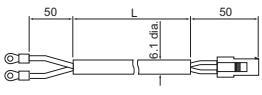
● Power Supply Cables (for CNA)

Symbol	Name	Connected to	Model	Description
①	Power Supply Input Cable for Single-Phase Power (connectors attached)	Single-phase 100 V/Single-phase 200 V R7D-BP	R7A-CLB002S2	 [Servo Drive Connector] Connector pins: 5556PBTL (Molex Japan Co., Ltd.) Connector case: 5557-10R-210 (Molex Japan Co., Ltd.)
	Power Supply Input Cable for Three-Phase Power (connectors attached)	Three-Phase 200 V R7D-BP	R7A-CLB002S3	 [Servo Drive Connector] Connector pins: 5556PBTL (Molex Japan Co., Ltd.) Connector case: 5557-10R-210 (Molex Japan Co., Ltd.)
	External Regenerative Resistor Connection Cable	Using the Servo Drive with External Regeneration Resistor Connected R88A-RR22047S1 R88A-RR080100S R88A-RR08050S	R7A-CLB002RG	

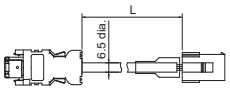
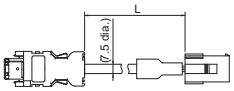
● Servomotor Power Cables (for CNB)

Symbol	Name	Connected to	Model	Description
②	Standard Servomotor Power Cables with Connectors	R88M-G□□□30□-□ R88M-G□□□30□-□S2 R88M-GP□□□30□-□ R88M-GP□□□30□-□S2	R7A-CAB□□□S The empty boxes in the model number are for the cable length. The cable can be 3, 5, 10, 15, or 20 m long.	[Servo Drive Connector] Connector pins: 5556PBTL (Molex Japan Co., Ltd.) Connector case: 5557-06R-210 (Molex Japan Co., Ltd.)  [Servomotor Connector] Connector pins: 170366-1 or 170362-1 (Tyco Electronics AMP KK) Connector case: 172159-1 (Tyco Electronics AMP KK)
	Robot Servomotor Power Cables with Connectors	R88M-G□□□30□-□ R88M-G□□□30□-□S2 R88M-GP□□□30□-□ R88M-GP□□□30□-□S2	R7A-CAB□□□SR The empty boxes in the model number are for the cable length. The cable can be 3, 5, 10, 15, or 20 m long.	[Servo Drive Connector] Connector pins: 5556PBTL (Molex Japan Co., Ltd.) Connector case: 5557-06R-210 (Molex Japan Co., Ltd.)  [Servomotor Connector] Connector pins: 170366-1 or 170362-1 (Tyco Electronics AMP KK) Connector case: 172159-1 (Tyco Electronics AMP KK)

● Brake Cables

Symbol	Name	Connected to	Model	Description
③	Standard Brake Cables	R88M-G□□□30□-B R88M-G□□□30□-BS2 R88M-GP□□□30□-B R88M-GP□□□30□-BS2	R88A-CAGA□□□B The empty boxes in the model number are for the cable length. The cable can be 3, 5, 10, 15, or 20 m long.	 [Servomotor Connector] Connector pins: 170366-1 or 170362-1 (Tyco Electronics AMP KK) Connector case: 172157-1 (Tyco Electronics AMP KK)
	Robot Brake Cables	R88M-G□□□30□-B R88M-G□□□30□-BS2 R88M-GP□□□30□-B R88M-GP□□□30□-BS2	R88A-CAGA□□□BR The empty boxes in the model number are for the cable length. The cable can be 3, 5, 10, 15, or 20 m long.	 [Servomotor Connector] Connector pins: 170366-1 or 170362-1 (Tyco Electronics AMP KK) Connector case: 172157-1 (Tyco Electronics AMP KK)

● Encoder Cables (for CN2)

Symbol	Name	Connected to	Model	Description
④	Standard Encoder Cables with Connectors	R88M-G□□□30□-□ R88M-G□□□30□-□S2 R88M-GP□□□30□-□ R88M-GP□□□30□-□S2	R88A-CRGB□□□C The empty boxes in the model number are for the cable length. The cable can be 3, 5, 10, 15, or 20 m long.	[Servo Drive Connector] Connector pins: 50639-8028 (Molex Japan Co., Ltd.) Connector cace: Crimped I/O connector: (Molex Japan Co., Ltd.)  [Servomotor Connector] Connector pins: 170365-1 (Tyco Electronics AMP KK) Connector case: 172160-1 (Tyco Electronics AMP KK)
	Robot Encoder Cables with Connectors	R88M-□□□30□-□ R88M-G□□□30□-□S2 R88M-GP□□□30□-□ R88M-GP□□□30□-□S2	R88A-CRGB□□□CR The empty boxes in the model number are for the cable length. The cable can be 3, 5, 10, 15, or 20 m long.	[Servo Drive Connector] Connector pins: 50639-8028 (Molex Japan Co., Ltd.) Connector cace: Crimped I/O connector: (Molex Japan Co., Ltd.)  [Servomotor Connector] Connector pins: 170365-1 (Tyco Electronics AMP KK) Connector case: 172160-1 (Tyco Electronics AMP KK)

● Control Cables (for CN1)

Symbol	Name	Connected to	Model
⑤	Direct connection cable for Position Control Unit (High-speed type)	Open collector output type (High-speed type) for CJ1W-NC214/NC414	XW2Z-□□□J-G16 The empty boxes in the model number are for the cable length. The cable can be 1 or 3 m long.
			XW2Z-□□□J-G8 The empty boxes in the model number are for the cable length. The cable can be 1 or 3 m long.
		Line-driver output type (High-speed type) for CJ1W-NC234/NC434	XW2Z-□□□J-G12 The empty boxes in the model number are for the cable length. The cable can be 1, 5, or 10 m long.
			XW2Z-□□□J-G4 The empty boxes in the model number are for the cable length. The cable can be 1, 5, or 10 m long.
⑥	Servo Relay Units	CJ1W-NC113/NC133 CS1W-NC113/NC133 C200HW-NC113 ✻	XW2B-20J6-1B
		CJ1W-NC213/NC233/NC413/NC433 CS1W-NC213/NC233/NC413/NC433 C200HW-NC213/NC413 ✻	XW2B-40J6-2B
		CJ1M-CPU21/CPU22/CPU23 (one axis)	XW2B-20J6-8A
		CJ1M-CPU21/CPU22/CPU23 (two axes)	XW2B-40J6-9A
		FQM1-MMP22	XW2B-80J7-12A
⑦	Servo Drive Cables	Position Control Unit/CQM1H (XW2B-□J6-□B)	XW2Z-□□□J-B29 The empty boxes in the model number are for the cable length. The cable can be 1, or 2 m long.
		CJ1M (XW2B-□J6-□A)	XW2Z-□□□J-B32 The empty boxes in the model number are for the cable length. The cable can be 1, or 2 m long.
		FQM1-MMP22 (XW2B-80J7-12A)	XW2Z-□□□J-B30 The empty boxes in the model number are for the cable length. The cable can be 1, or 2 m long.
⑧	Position Control Units Cables	CJ1W-NC133	XW2Z-□□□J-A18 The empty boxes in the model number are for the cable length. The cable can be 0.5, or 1 m long.
		CJ1W-NC233/NC433	XW2Z-□□□J-A19 The empty boxes in the model number are for the cable length. The cable can be 0.5, or 1 m long.
		CS1W-NC133	XW2Z-□□□J-A10 The empty boxes in the model number are for the cable length. The cable can be 0.5, or 1 m long.
		CS1W-NC233/NC433	XW2Z-□□□J-A11 The empty boxes in the model number are for the cable length. The cable can be 0.5, or 1 m long.
		CJ1W-NC113	XW2Z-□□□J-A14 The empty boxes in the model number are for the cable length. The cable can be 0.5, or 1 m long.
		CJ1W-NC213/NC413	XW2Z-□□□J-A15 The empty boxes in the model number are for the cable length. The cable can be 0.5, or 1 m long.
		CS1W-NC113 C200HW-NC113 ✻	XW2Z-□□□J-A6 The empty boxes in the model number are for the cable length. The cable can be 0.5, or 1 m long.
		CS1W-NC213/NC413 C200HW-NC213/NC413 ✻	XW2Z-□□□J-A7 The empty boxes in the model number are for the cable length. The cable can be 0.5, or 1 m long.
		CJ1M-CPU21/CPU22/CPU23	XW2Z-□□□J-A33 The empty boxes in the model number are for the cable length. The cable can be 0.5, or 1 m long.
		FQM1-MMP22 (General-purpose I/O)	XW2Z-□□□J-A28 The empty boxes in the model number are for the cable length. The cable can be 0.5, 1m, or 2 m long.
		FQM1-MMP22 (Special I/O)	XW2Z-□□□J-A30 The empty boxes in the model number are for the cable length. The cable can be 0.5, 1m, or 2 m long.

✻ C200HW-NC was discontinued.

● Control Cables (for CN1)

Symbol	Name	Connected to	Model
⑨	General-purpose Control Cables	Cables for General-purpose Controllers	R7A-CPB□□□S The empty boxes in the model number are for the cable length. The cable can be 1, or 2 m long.
⑩	Connector Terminal Block Cables	Cables for General-purpose Controllers	XW2Z-□□□J-B28 The empty boxes in the model number are for the cable length. The cable can be 1, or 2 m long.
	Connector-Terminal Block Conversion Units	Conversion Unit for General-purpose Controllers (M3 screws)	XW2B-34G4
		Conversion Unit for General-purpose Controllers (M3.5 screws)	XW2B-34G5
		Conversion Unit for General-purpose Controllers (M3 screws)	XW2D-34G6

● Communications Cables (for CN3)

Symbol	Name	Connected to	Length (m)	Model
⑪	Parameter Unit	—	1.5 m	R88A-PR02G
⑫	Personal Computer Monitor Cable	Windows	2 m	R88A-CCG002P2

● Connectors

Symbol	Name	Connected to	Model
—	Main Circuit Connector (CNA)	—	**R7A-CNB01P**
—	Servomotor Connector (CNB)	—	**R7A-CNB01A**
—	Control I/O Connector (CN1)	—	**R88A-CNW01C**
—	Encoder Input Connector (CN2)	—	**R88A-CNW01R**
—	Servomotor Connector for Encoder Cable	—	**R88A-CNG02R**
—	Servomotor Connector for Servomotor Power Cable	—	**R88A-CNG01A**
—	Brake Cable Connector	Windows	**R88A-CNG01B**

Servo Drive Specifications (R7D-BP)

● General Specifications

Item			Specifications
Ambient operating temperature Ambient operating humidity			0 to 55°C, 90% max. (with no condensation)
Ambient storage temperature Ambient storage humidity			–20 to 65°C, 90% max. (with no condensation)
Storage and operating atmosphere			No corrosive gasses, no dust, no iron dust, no exposure to moisture or cutting oil
Vibration resistance			10 to 60 Hz; acceleration: 5.9 m/s² (0.6 G) max.
Impact resistance			Acceleration of 19.6 m/s² max. 3 times each in X, Y, and Z directions.
Insulation resistance			Between power supply/power line terminals and frame ground: 0.5 MΩ min. (at 500 VDC)
Dielectric strength			Between power supply/power line terminals and frame ground: 1,500 VAC for 1 min at 50/60 Hz Between each control signal and frame ground: 500 VAC for 1 min
Altitude			1,000 m above sea level max. (860 hp min.)
Degree of protection			Built into panel (IP10).
International standards	EC Directives	EMC Directive	EN 55011 class A group 1 EN 61000-6-2
		Low Voltage Directive	EN 50178
	UL standards		UL 508C
	cUL standards		cUL C22.2 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. Depending on the operating conditions, some Servo Drive parts will require maintenance.
Note: 4. The service life of the Servo Drive is 50,000 hours at an average ambient temperature of 40°C at 80% of the rated torque (excluding axial-flow fan).

● Characteristics

100 VAC specification

Item	Servo Drive model		
	R7D-BPA5L	R7D-BP01L	R7D-BP02L
Continuous output current (rms)	1.0 A	1.6 A	2.5 A
Momentary maximum output current (rms)	3.3 A	5.1 A	7.5 A
Power supply capacity	0.16 KVA	0.25 KVA	0.42 KVA
Input power supply voltage (main circuit)	Single-phase 100 to 115 VAC (85 to 127 V), 50/60 Hz		
Input power supply current (rms) (main circuit)	1.4 A	2.2 A	3.7 A
Heat generated (main circuit)	12 W	16 W	22 W
Control method	All-digital servo		
Inverter method	IGBT-driven PWM method		
PWM frequency	12 kHz		6 kHz
Maximum response frequency (command pulses)	Line drive: 500 kpps, Open collector: 200 kpps		
Weight	0.35 kg		0.42 kg
Applicable motor capacity	50 W	100 W	200 W

200 VAC specification

Item	Servo Drive model			
	R7D-BP01H	R7D-BP02HH	R7D-BP02H	R7D-BP04H
Continuous output current (rms)	1.0 A	1.6 A	1.6 A	2.5 A
Momentary maximum output current (rms)	3.3 A	4.9 A	4.9 A	7.8 A
Power supply capacity	0.27 KVA (0.30 KVA) See note	0.35 KVA	0.42 KVA	0.69 KVA (0.77 KVA) See note
Input power supply voltage (main circuit)	Both single-phase and three-phase 200 to 240 VAC (170 to 264 V), 50/60 Hz			
Input power supply current (rms) (main circuit)	0.7 A (1.5 A) See note	1.6 A	1.1 A	1.8 A (3.5 A) See note
Heat generated (main circuit)	14 W	16 W	20 W	26W
Control method	All-digital servo			
Inverter method	IGBT-driven PWM method			
PWM frequency	12 kHz			6 kHz
Maximum response frequency (command pulses)	Line drive: 500 kpps, Open collector: 200 kpps			
Weight	0.35 kg	0.42 kg	0.35 kg	0.42 kg
Applicable motor capacity	100 W	200 W	200 W	400 W

Note: Values inside parentheses ( ) are for single-phase 200-V use.

Servomotor Specifications (R88M-G)

● General Specifications

Item			Specifications
Ambient operating temperature **Ambient operating humidity**			0 to 40°C, 85% max. (with no condensation)
Ambient storage temperature **Ambient storage humidity**			–20 to 65°C, 85% max. (with no condensation)
Storage and operating atmosphere			No corrosive gases
Vibration resistance			49 m/s² max. in the X, Y, and Z directions
Impact resistance			Acceleration of 98 m/s² max. 3 times each in the X, Y, and Z directions
Insulation resistance			20 MΩ min. at 500 VDC between the power terminals and FG terminal
Dielectric strength			1,500 VAC (50 or 60 Hz) for 1 minute between the power terminals and FG terminal
Operating position			Any direction
Insulation class			Type B
Construction			Totally-enclosed, self-cooling
Degree of protection			IP65 (excluding the through-shaft portion)
Vibration class			V-15
Mounting method			Flange-mounting
International standards	**EC Directives**	**Low Voltage Directive**	IEC 60034-5:2001
	UL standards		UL 1004 File No. E179189
	cUL standards		cUL 22.2, No.100

Note: 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.

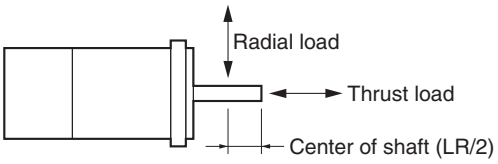
● Characteristics

3,000-r/min Cylindrical Servomotors

100 VAC specification

Item		Unit	R88M-G05030H	R88M-G10030L	R88M-G20030L
Rated output *1		W	50	100	200
Rated torque *1		N·m	0.16	0.32	0.64
Rated rotation speed		r/min	3000		
Max. rotation speed		r/min	5000		
Max. momentary torque *1		N·m	0.48	0.95	1.78
Rated current *1		A (rms)	1.1	1.7	2.5
Max. momentary current *1		A (rms)	3.4	5.1	7.6
Rotor inertia		kg·m²	2.5×10^{-6}	5.1×10^{-6}	1.4×10^{-5}
Applicable load inertia		—	30 times rotor inertia max.		
Power rate *1		kW/s	10.4	20.1	30.3
Allowable radial load *2		N	68	68	245
Allowable thrust load *2		N	58	58	98
Weight	Without brake	kg	0.3	0.5	0.8
	With brake	kg	0.5	0.7	1.3
Radiation shield dimensions (material)		—	100 × 80 × t10 (Al)		130 × 120 × t12 (Al)
Brake specifications	Brake inertia	kg·m²	2.0×10^{-7}	2.0×10^{-7}	1.8×10^{-6}
	Excitation voltage *3	V	24 VDC ±10%		
	Power consumption (at 20°C)	W	7	7	9
	Current consumption (at 20°C)	A	0.30	0.30	0.36
	Static friction torque	N·m	0.29 min.	0.29 min.	1.27 min.
	Attraction time *4	ms	35 max.	35 max.	50 max.
	Release time *4	ms	20 max.	20 max.	15 max.
	Backlash		±1°		
	Allowable work per braking operation	J	39.2	39.2	137
	Allowable total work	J	4.9×10^3	4.9×10^3	44.1×10^3
	Allowable angular acceleration	rad/s²	30,000 max. (Speed of 2,800 r/min minimum must not be stopped in less than 10 ms)		
	Brake life	—	10,000,000 operations min.		
	Rating	—	Continuous		
	Insulation class	—	Type F		

* **1.** These are the values when the Servomotor is combined with a Servo Drive at room temperature. The momentary maximum torque shown above indicates the standard value.
* **2.** The allowable radial and thrust loads are the values determined for a service life of 20,000 hours at normal operating temperatures. The values are also for the locations shown in the following diagram.
* **3.** The brakes operate when the circuit is open (i.e., they are released when voltage is applied).
* **4.** The operation time is the measured value (reference value) with a varistor installed as a surge suppressor.

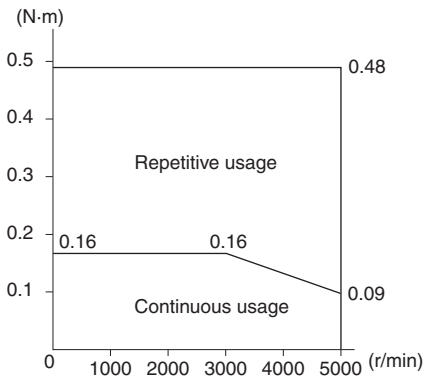


Torque and Rotation Speed Characteristics

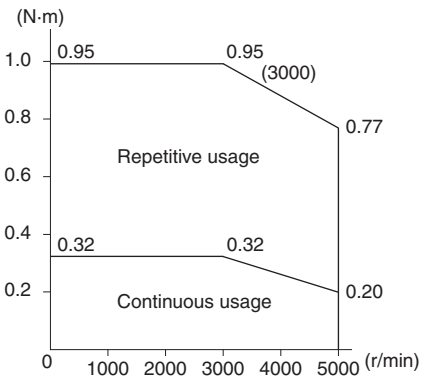
● 3,000-r/min Cylindrical Servomotors

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

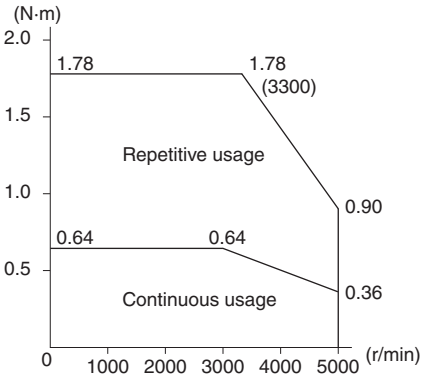
R88M-G05030H



R88M-G10030L



R88M-G20030L



Servomotor Specifications (R88M-G)

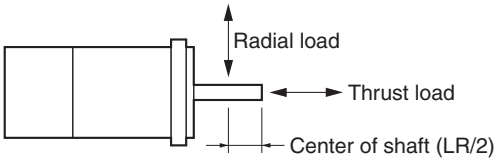
● Characteristics

3,000-r/min Cylindrical Servomotors

200 VAC specification

Item		Unit	R88M-G05030H	R88M-G10030H	R88M-G20030H	R88M-G40030H
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	3000			
Max. rotation speed		r/min	5000			
Max. momentary torque *1		N·Em	0.48	0.95	1.78	3.60
Rated current *1		A (rms)	1.1	1.1	1.6	2.6
Max. momentary current *1		A (rms)	3.4	3.4	4.9	7.9
Rotor inertia		kg·m²	2.5×10^{-6}	5.1×10^{-6}	1.4×10^{-5}	2.6×10^{-5}
Applicable load inertia		—	30 times rotor inertia max.			
Power rate *1		kW/s	10.4	20.1	30.3	62.5
Allowable radial load *2		N	68	68	245	245
Allowable thrust load *2		N	58	58	98	98
Weight	Without brake	kg	0.3	0.5	0.8	1.2
	With brake	kg	0.5	0.7	1.3	1.7
Radiation shield dimensions (material)		—	100 × 80 × t10 (Al)		130 × 120 × t12 (Al)	
Brake specifications	Brake inertia	kg·m²	2.0×10^{-7}	2.0×10^{-7}	1.8×10^{-6}	7.5×10^{-6}
	Excitation voltage *3	V	24 VDC ±10%			
	Power consumption (at 20°C)	W	7	7	9	9
	Current consumption (at 20°C)	A	0.30	0.30	0.36	0.36
	Static friction torque	N·m	0.29 min.	0.29 min.	1.27 min.	1.27 min.
	Attraction time *4	ms	35 max.	35 max.	50 max.	50 max.
	Release time *4	ms	20 max.	20 max.	15 max.	15 max.
	Backlash		±1°			
	Allowable work per braking operation	J	39.2	39.2	137	196
	Allowable total work	J	4.9×10^{3}	4.9×10^{3}	44.1×10^{3}	147×10^{3}
	Allowable angular acceleration	rad/s²	30,000 max. (Speed of 2,800 r/min minimum must not be stopped in less than 10 ms)			
	Brake life	—	10,000,000 operations min.			
	Rating	—	Continuous			
	Insulation class	—	Type F			

* **1.** These are the values when the Servomotor is combined with a Servo Drive at room temperature. The momentary maximum torque shown above indicates the standard value.
* **2.** The allowable radial and thrust loads are the values determined for a service life of 20,000 hours at normal operating temperatures. The values are also for the locations shown in the following diagram.
* **3.** The brakes operate when the circuit is open (i.e., they are released when voltage is applied).
* **4.** The operation time is the measured value (reference value) with a varistor installed as a surge suppressor.

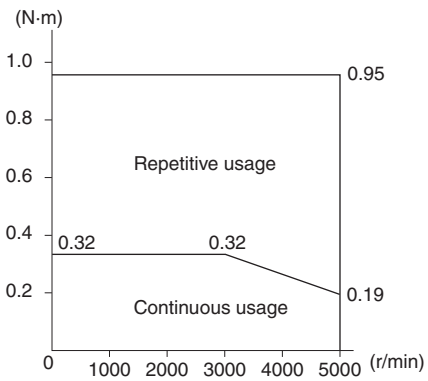


Torque and Rotation Speed Characteristics

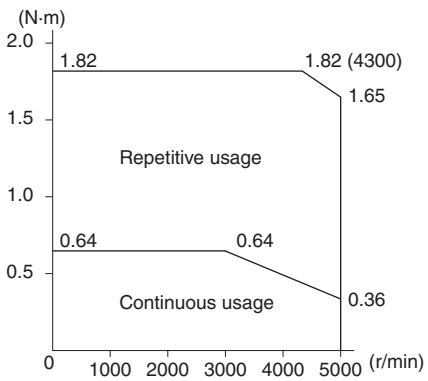
● 3,000-r/min Cylindrical Servomotors

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

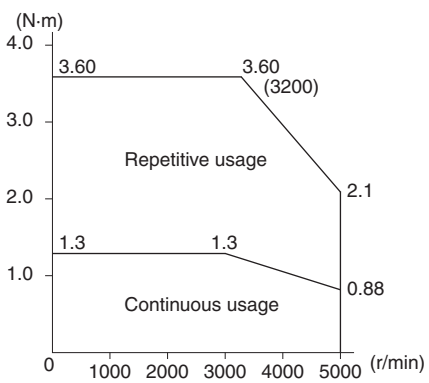
R88M-G10030H



R88M-G20030H



R88M-G40030H



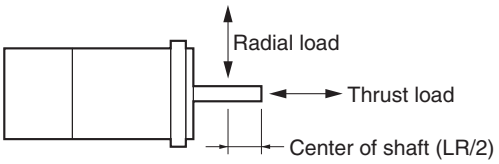
Servomotor Specifications (R88M-G)

● 3,000-r/min Flat Servomotors

100 VAC specification

Item		Unit	R88M-GP10030L	R88M-GP20030L
Rated output *1		W	100	200
Rated torque *1		N·m	0.32	0.64
Rated rotation speed		r/min	3,000	
Max. rotation speed		r/min	5,000	
Max. momentary torque *1		N·m	0.85	1.86
Rated current *1		A(rms)	1.6	2.5
Max. momentary current *1		A(0-p)	6.9	10.5
Rotor inertia		kg·m²	9.0×10^{-6}	3.4×10^{-5}
Applicable load inertia		—	20 times rotor inertia max.	
Power rate *1		kW/s	11.4	12.0
Allowable radial load *2		N	68	245
Allowable thrust load *2		N	58	98
Weight	Without brake	kg	0.65	1.3
	With brake	kg	0.90	2.0
Radiation shield dimensions (material)		—	130 × 120 × t10 (Al)	170 × 160 × t12 (Al)
Brake specifications	Brake inertia	kg·m²	3.0×10^{-6}	9.0×10^{-6}
	Excitation voltage *3	V	24 VDC ±10%	
	Power consumption (at 20°C)	W	7	10
	Current consumption (at 20°C)	A	0.29	0.41
	Static friction torque	N·m	0.29 min.	1.27 min.
	Attraction time *4	ms	50 max.	60 max.
	Release time *4	ms	15 max.	15 max.
	Backlash		±1°	
	Allowable work per braking operation	J	137	196
	Allowable total work	J	44.1×10^3	147×10^3
	Allowable angular acceleration	rad/s²	10,000 max. (Speed of 950 r/min minimum must not be stopped in less than 10 ms)	
	Brake life	—	10,000,000 operations min.	
	Rating	—	Continuous	
	Insulation class	—	Type F	

* **1.** These are the values when the Servomotor is combined with a Servo Drive at room temperature. The momentary maximum torque shown above indicates the standard value.
* **2.** The allowable radial and thrust loads are the values determined for a service life of 20,000 hours at normal operating temperatures. The values are also for the locations shown in the following diagram.
* **3.** The brakes operate when the circuit is open (i.e., they are released when voltage is applied).
* **4.** The operation time is the measured value (reference value) with a varistor installed as a surge suppressor.

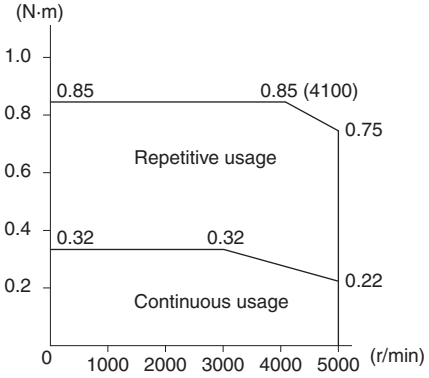


Torque and Rotation Speed Characteristics

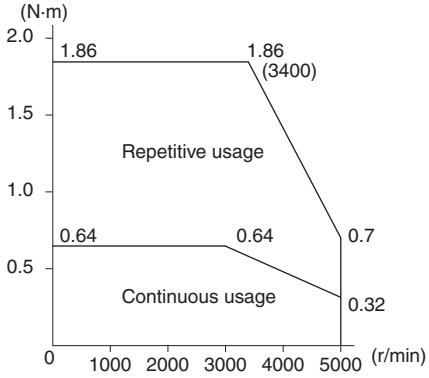
● 3,000-r/min Flat Servomotors

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

R88M-GP10030L



R88M-GP20030L



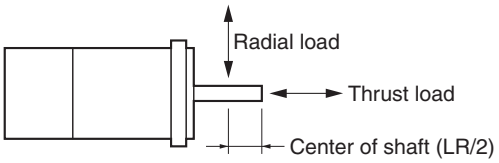
Servomotor Specifications (R88M-G)

● 3,000-r/min Flat Servomotors

200 VAC specification

Item		Unit	R88M-GP10030H	R88M-GP20030H	R88M-GP40030H
Rated output *1		W	100	200	400
Rated torque *1		N·m	0.32	0.64	1.3
Rated rotation speed		r/min	3000		
Max. rotation speed		r/min	5000		
Max. momentary torque *1		N·m	0.90	1.82	3.60
Rated current *1		A(rms)	1.0	1.6	4.4
Max. momentary current *1		A(0-p)	4.3	6.8	18.6
Rotor inertia		kg·m²	9.0×10^{-6}	3.4×10^{-5}	6.4×10^{-5}
Applicable load inertia		—	20 times rotor inertia max.		
Power rate *1		kW/s	11.4	11.8	25.5
Allowable radial load *2		N	68	245	245
Allowable thrust load *2		N	58	98	98
Weight	Without brake	kg	0.7	1.3	1.8
	With brake	kg	0.9	2.0	2.5
Radiation shield dimensions (material)		—	130 × 120 × t10 (Al)	170 × 160 × t12 (Al)	
Brake specifications	Brake inertia	kg·m²	3.0×10^{-6}	9.0×10^{-6}	9.0×10^{-6}
	Excitation voltage *3	V	24 VDC ±10%		
	Power consumption (at 20°C)	W	7	10	10
	Current consumption (at 20°C)	A	0.29	0.41	0.41
	Static friction torque	N·m	0.29 min.	1.27 min.	1.27 min.
	Attraction time *4	ms	50 max.	60 max.	60 max.
	Release time *4	ms	15 max.	15 max.	15 max.
	Backlash		±1°		
	Allowable work per braking operation	J	137	196	196
	Allowable total work	J	44.1×10^3	147×10^3	147×10^3
	Allowable angular acceleration	rad/s²	10,000 max. (Speed of 950 r/min minimum must not be stopped in less than 10 ms)		
	Brake life	—	10,000,000 operations min.		
	Rating	—	Continuous		
	Insulation class	—	Type F		

* **1.** These are the values when the Servomotor is combined with a Servo Drive at room temperature. The momentary maximum torque shown above indicates the standard value.
* **2.** The allowable radial and thrust loads are the values determined for a service life of 20,000 hours at normal operating temperatures. The values are also for the locations shown in the following diagram.
* **3.** The brakes operate when the circuit is open (i.e., they are released when voltage is applied).
* **4.** The operation time is the measured value (reference value) with a varistor installed as a surge suppressor.

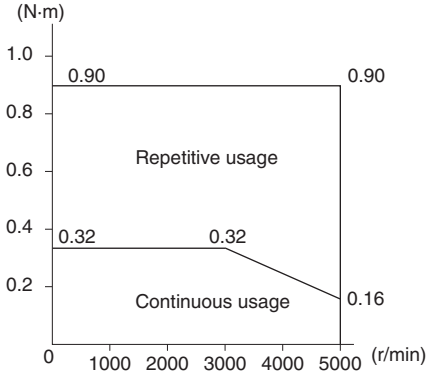


Torque and Rotation Speed Characteristics

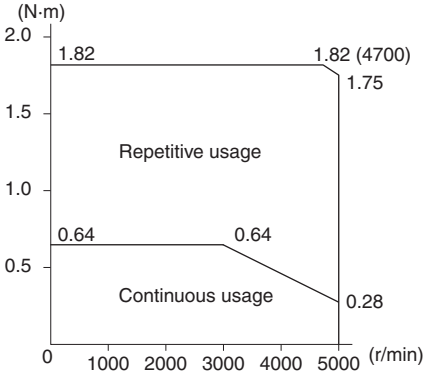
● 3,000-r/min Flat Servomotors

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

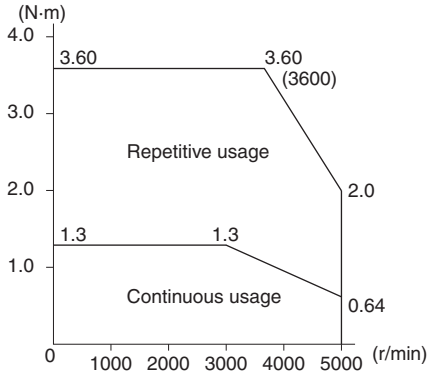
R88M-GP10030H



R88M-GP20030H



R88M-GP40030H



Decelerator Specifications (R88G-HPG/VRXF)

■Standard Models and Specifications

● Backlash: 3 Arcminutes Max.

Decelerators for Cylindrical Servomotors

Model (R88G-)			Rated speed	Rated torque	Ratio	Maximum momentary speed	Maximum momentary torque	Decelerator inertia	Allowable radial load	Allowable thrust load	Weight
			r/min	N·m	%	r/min	N·m	kg·m²	N	N	kg
50 W	1/5	HPG11A05100B	600	0.60	75	1000	1.80	5.00×10^{-7}	135	538	0.29
	1/9	HPG11A09050B	333	1.17	81	555	3.51	3.00×10^{-7}	161	642	0.29
	1/21	HPG14A21100B	143	2.18	65	238	6.54	5.00×10^{-6}	340	1358	1.04
	1/33	HPG14A33050B	91	3.73	71	151	11.2	4.40×10^{-6}	389	1555	1.04
	1/45	HPG14A45050B	67	5.09	71	111	15.2	4.40×10^{-6}	427	1707	1.04
100 W	1/5	HPG11A05100B	600	1.37	86	1000	4.07	5.00×10^{-7}	135	538	0.29
	1/11	HPG14A11100B	273	2.63	75	454	7.80	6.00×10^{-6}	280	1119	1.04
	1/21	HPG14A21100B	143	5.40	80	238	16.0	5.00×10^{-6}	340	1358	1.04
	1/33	HPG20A33100B	91	6.91	65	151	20.5	6.50×10^{-5}	916	3226	2.4
	1/45	HPG20A45100B	67	9.42	65	111	27.9	6.50×10^{-5}	1006	3541	2.4
200 W	1/5	HPG14A05200B	600	2.49	78	1000	7.44	2.07×10^{-5}	221	883	1.02
	1/11	HPG14A11200B	273	6.01	85	454	17.9	1.93×10^{-5}	280	1119	1.09
	1/21	HPG20A21200B	143	10.2	76	238	30.6	4.90×10^{-5}	800	2817	2.9
	1/33	HPG20A33200B	91	17.0	81	151	50.8	4.50×10^{-5}	916	3226	2.9
	1/45	HPG20A45200B	67	23.2	81	111	69.3	4.50×10^{-5}	1006	3541	2.9
400 W	1/5	HPG14A05400B	600	5.66	87	1000	16.5	2.07×10^{-5}	221	883	1.09
	1/11	HPG20A11400B	273	11.7	82	454	34.2	5.70×10^{-5}	659	2320	2.9
	1/21	HPG20A21400B	143	23.5	86	238	68.8	4.90×10^{-5}	800	2547	2.9
	1/33	HPG32A33400B	91	34.7	81	151	101.7	6.20×10^{-5}	1565	6240	7.5
	1/45	HPG32A45400B	67	47.4	81	111	138.6	6.10×10^{-5}	1718	6848	7.5

Note: 1. The Decelerator inertia is the Servomotor shaft conversion value.
Note: 2. The enclosure rating for Servomotors with Decelerators is IP44.
Note: 3. The allowable radial load is the value at the LR/2 position.
Note: 4. The standard models have a straight shaft. To order a Servomotor with a straight shaft with a key, add a “J” to the end of the model number, in the place indicated by the box.

Decelerator for Flat Servomotors

Model (R88G-)			Rated speed	Rated torque	Ratio	Maximum momentary speed	Maximum momentary torque	Decelerator inertia	Allowable radial load	Allowable thrust load	Weight
			r/min	N·m	%	r/min	N·m	kg·m²	N	N	kg
100 W	1/5	HPG11A05100PB	600	1.37	85	1000	3.84 (3.63)	5.00×10^{-7}	135	538	0.34
	1/11	HPG14A11100PB	273	2.63	75	454	7.39 (6.98)	6.00×10^{-6}	280	1119	1.04
	1/21	HPG14A21100PB	143	5.40	80	238	15.2 (14.6)	5.00×10^{-6}	340	1358	1.04
	1/33	HPG20A33100PB	91	6.91	65	151	19.4 (18.3)	4.50×10^{-5}	916	3226	2.9
	1/45	HPG20A45100PB	67	9.42	65	111	26.5 (25.0)	4.50×10^{-5}	1006	3541	2.9
200 W	1/5	HPG14A05200PB	600	2.49	78	1000	7.09	2.07×10^{-5}	221	883	0.99
	1/11	HPG20A11200PB	273	4.75	68	454	13.5	5.80×10^{-5}	659	2320	3.1
	1/21	HPG20A21200PB	143	10.2	76	238	29.2	4.90×10^{-5}	800	2817	3.1
	1/33	HPG20A33200PB	91	17.0	81	151	48.5	4.50×10^{-5}	916	3226	3.1
	1/45	HPG20A45200PB	67	23.2	81	111	66.1	4.50×10^{-5}	1006	3541	3.1
400 W	1/5	HPG20A05400PB	600	4.67	72	1000	12.9	7.10×10^{-5}	520	1832	3.1
	1/11	HPG20A11400PB	273	11.7	82	454	32.4	5.80×10^{-5}	659	2320	3.1
	1/21	HPG20A21400PB	143	23.5	86	238	65.2	4.90×10^{-5}	800	2817	3.1
	1/33	HPG32A33400PB	91	34.7	81	151	96.2	2.80×10^{-4}	1565	6240	7.8
	1/45	HPG32A45400PB	67	47.4	81	111	131.2	2.80×10^{-4}	1718	6848	7.8

Note: 1. The Decelerator inertia is the Servomotor shaft conversion value.
Note: 2. The enclosure rating for Servomotors with Decelerators is IP44.
Note: 3. The allowable radial load is the value at the LR/2 position.
Note: 4. The standard models have a straight shaft. To order a Servomotor with a straight shaft with a key, add a “J” to the end of the model number, in the place indicated by the box.
Note: 5. The values inside parentheses ( ) are those when using a 100-V motor.

● Backlash: 15 Arcminutes Max.

Decelerators for Cylindrical Servomotors

Model (R88G-)			Rated speed	Rated torque	Ratio	Maximum momentary speed	Maximum momentary torque	Decelerator inertia	Allowable radial load	Allowable thrust load	Weight
			r/min	N·m	%	r/min	N·m	kg·m²	N	N	kg
50 W	1/5	VRXF05B100CJ	600	0.66	82	1000	1.97	6.04×10^{-6}	392	196	0.55
	1/9	VRXF09B100CJ	333	1.18	82	556	3.54	4.97×10^{-6}	441	220	0.55
	1/15	VRXF15B100CJ	200	1.85	77	333	5.54	5.26×10^{-6}	588	294	0.70
	1/25	VRXF25B100CJ	120	3.08	77	200	9.24	5.14×10^{-6}	686	343	0.70
100 W	1/5	VRXF05B100CJ	600	1.44	90	1000	4.28	6.04×10^{-6}	392	196	0.55
	1/9	VRXF09B100CJ	333	2.59	90	556	7.70	4.97×10^{-6}	441	220	0.55
	1/15	VRXF15B100CJ	200	4.13	86	333	12.26	5.26×10^{-6}	588	294	0.70
	1/25	VRXF25B100CJ	120	6.88	86	200	20.43	5.14×10^{-6}	686	343	0.70
200 W	1/5	VRXF05B200CJ	600	2.94	92	1000	8.19	1.47×10^{-5}	392	196	0.72
	1/9	VRXF09C200CJ	333	4.78	83	556	13.30	2.37×10^{-5}	931	465	1.70
	1/15	VRXF15C200CJ	200	8.26	86	333	22.96	3.02×10^{-5}	1176	588	2.10
	1/25	VRXF25C200CJ	120	13.76	86	200	38.27	2.93×10^{-5}	1323	661	2.10
400 W	1/5	VRXF05C400CJ	600	5.72	88	1000	15.84	3.7×10^{-5}	784	392	1.70
	1/9	VRXF09C400CJ	333	10.30	88	556	28.51	2.37×10^{-5}	931	465	1.70
	1/15	VRXF15C400CJ	200	17.36	89	333	48.06	3.02×10^{-5}	1176	588	2.10
	1/25	VRXF25C400CJ	120	28.93	89	200	80.10	2.93×10^{-5}	1323	661	2.10

Note: 1. The value given for the Decelerator inertia is the Servomotor shaft conversion value.
Note: 2. The protective structure rating of the Servomotor combined with the Decelerator is IP44. (Excluding Decelerator and Servomotor connecting parts.)
Note: 3. The value given for the allowable radial load is the value at the center of the shaft (T/2).
Note: 4. The standard shaft type is a shaft with key and tap. (The key is temporarily assembled to the shaft.)
Note: 5. Take care so that the surface temperature of the Decelerator does not exceed 90°C.

Decelerator for Flat Servomotors

Model (R88G-)			Rated speed	Rated torque	Ratio	Maximum momentary speed	Maximum momentary torque	Decelerator inertia	Allowable radial load	Allowable thrust load	Weight
			r/min	N·m	%	r/min	N·m	kg·m²	N	N	kg
100 W	1/5	VRXF05B100PCJ	600	1.44	90	1000	4.05 (3.83)	6.00×10^{-6}	392	196	0.70
	1/9	VRXF09B100PCJ	333	2.59	90	556	7.29 (6.89)	5.00×10^{-6}	441	220	0.70
	1/15	VRXF15B100PCJ	200	4.13	86	333	11.61 (10.97)	5.70×10^{-6}	588	294	0.90
	1/25	VRXF25B100PCJ	120	6.88	86	200	19.35 (18.28)	5.50×10^{-6}	686	343	0.90
200 W	1/5	VRXF05B200PCJ	600	2.94	92	1000	8.37 (8.56)	1.50×10^{-5}	392	196	0.90
	1/9	VRXF09C200PCJ	333	4.78	83	556	13.60 (13.89)	2.70×10^{-5}	931	465	2.00
	1/15	VRXF15C200PCJ	200	8.26	86	333	23.48 (23.99)	3.02×10^{-5}	1176	588	2.40
	1/25	VRXF25C200PCJ	120	13.76	86	200	39.13 (39.99)	2.90×10^{-5}	1323	661	2.40
400 W	1/5	VRXF05C400PCJ	600	5.72	88	1000	15.84	3.70×10^{-5}	784	392	2.00
	1/9	VRXF09C400PCJ	333	10.30	88	556	28.51	2.70×10^{-5}	931	465	2.00
	1/15	VRXF15C400PCJ	200	17.36	89	333	48.06	3.02×10^{-5}	1176	588	2.40
	1/25	VRXF25C400PCJ	120	28.93	89	200	80.10	2.90×10^{-5}	1323	661	2.40

Note: 1. The values inside parentheses ( ) are those when using a 100-V motor.
Note: 2. The value given for the Decelerator inertia is the Servomotor shaft conversion value.
Note: 3. The protective structure rating of the Servomotor combined with the Decelerator is IP44. (Excluding Decelerator and Servomotor connecting parts.)
Note: 4. The value given for the allowable radial load is the value at the center of the shaft (T/2).
Note: 5. The standard shaft type is a shaft with key and tap. (The key is temporarily assembled to the shaft.)
Note: 6. Take care so that the surface temperature of the Decelerator does not exceed 90°C.

Encoder, External Regeneration Resistors, Reactor and Parameter Unit Specifications

● Encoder Specifications

Item	Specifications
Encoder system	Optical encoder (incremental encoder)
No. of output pulses	Phases A and B: 2,500 pulses/rotation, Phase Z: 1 pulse/rotation
Power supply voltage	5 V ±5%
Power supply current	180 mA (max.)
Output signals	+S, −S
Output interface	EIA RS-485 compliance
	Duplex serial communications data

● External Regeneration Resistors Specifications

Model	Resistance	Nominal capacity	Regeneration absorption for 120°C temperature rise	Heat radiation condition	Thermal switch output specifications
R88A-RR08050S	50 Ω	80 W	20 W	Aluminum 250 × 250, Thickness: 3.0	Operating temperature: 150°C±5%, NC contact, Rated output: 30 VDC, 50 mA max.
R88A-RR080100S	100 Ω	80 W	20 W	Aluminum 250 × 250, Thickness: 3.0	Operating temperature: 150°C±5%, NC contact, Rated output: 30 VDC, 50 mA max.
R88A-RR22047S1	47 Ω	220 W	70 W	Aluminum 350 × 350, Thickness: 3.0	Operating temperature: 170°C±5%, NC contact, Rated output: 3 A

● Reactor Specifications

Reactor type	Specifications			
	Model	Rated current (A)	Inductance (mH)	Weight (kg)
Single-phase Reactors	3G3AX-DL2002	1.6 A	21.4 mH	0.8 kg
	3G3AX-DL2004	3.2 A	10.7 mH	1.0 kg
	3G3AX-DL2007	6.1 A	6.75 mH	1.3 kg
Three-phase Reactor	3G3AX-AL2025	10 A	2.8 mH	2.8 kg

● Parameter Unit Specifications

General Specifications

Item	Specifications
Operating ambient temperature **Operating ambient humidity**	0 to 55°C 90% max. (with no condensation)
Storage ambient temperature **Storage ambient humidity**	−20 to 80°C 90% max. (with no condensation)
Storage and operating atmosphere	No corrosive gases
Vibration resistance	5.9 m/s² max.

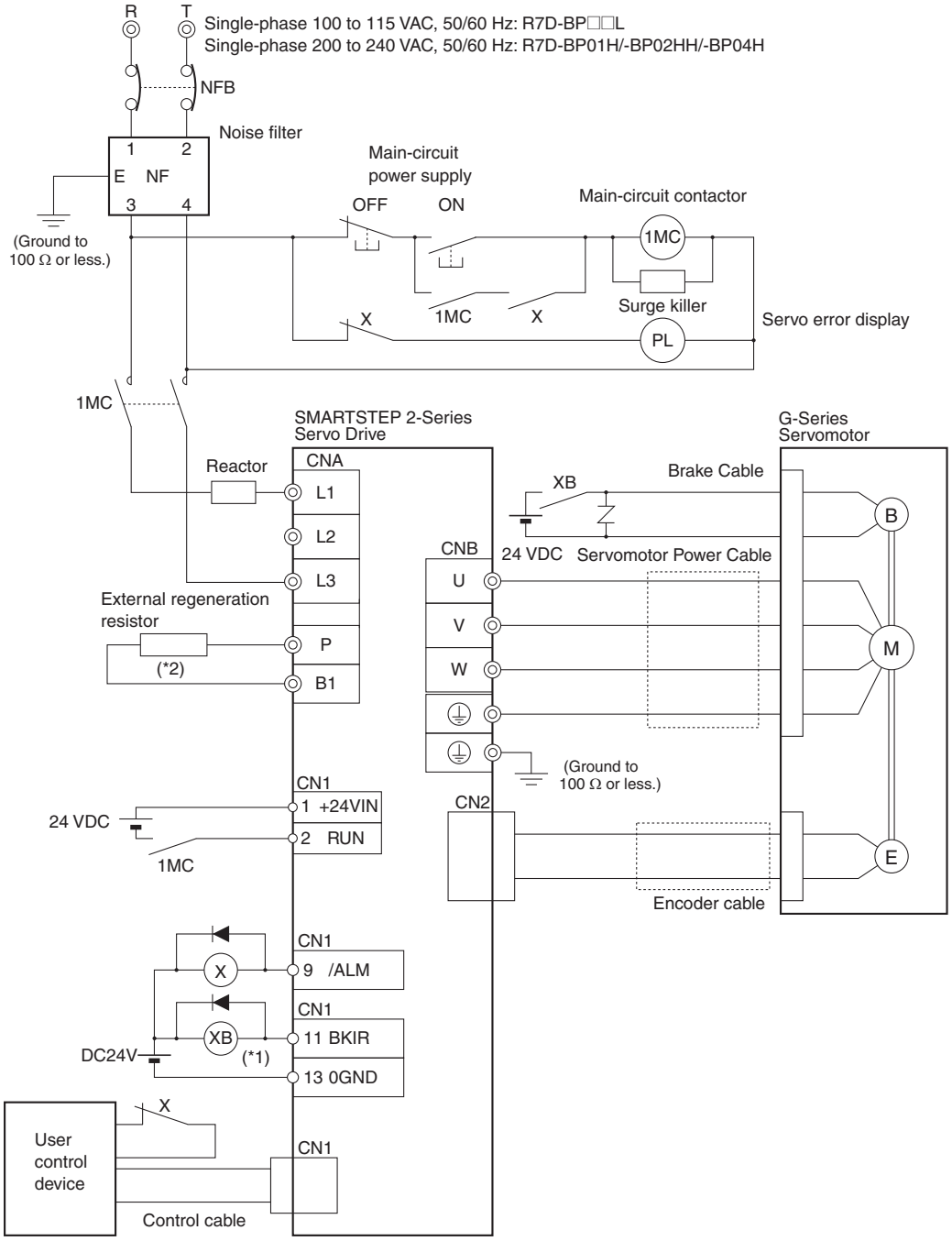
Performance Specifications

Item		Specifications
Type		Hand-held
Cable length		1.5 m
Connectors		Mini DIN 8-pin MD connector
Display		7-segment LED
External dimensions		62 × 114 × 15 mm (W × H × D)
Weight		Approx. 0.1 kg (including cable that is provided)
Communications specifications	**Standard**	RS-232
	Communications method	Asynchronous (ASYNC)
	Baud rate	9,600 bps
	Start bits	1 bit
	Data	8 bits
	Parity	None
	Stop bits	1 bit

Connections

● Peripheral Device Connection Examples

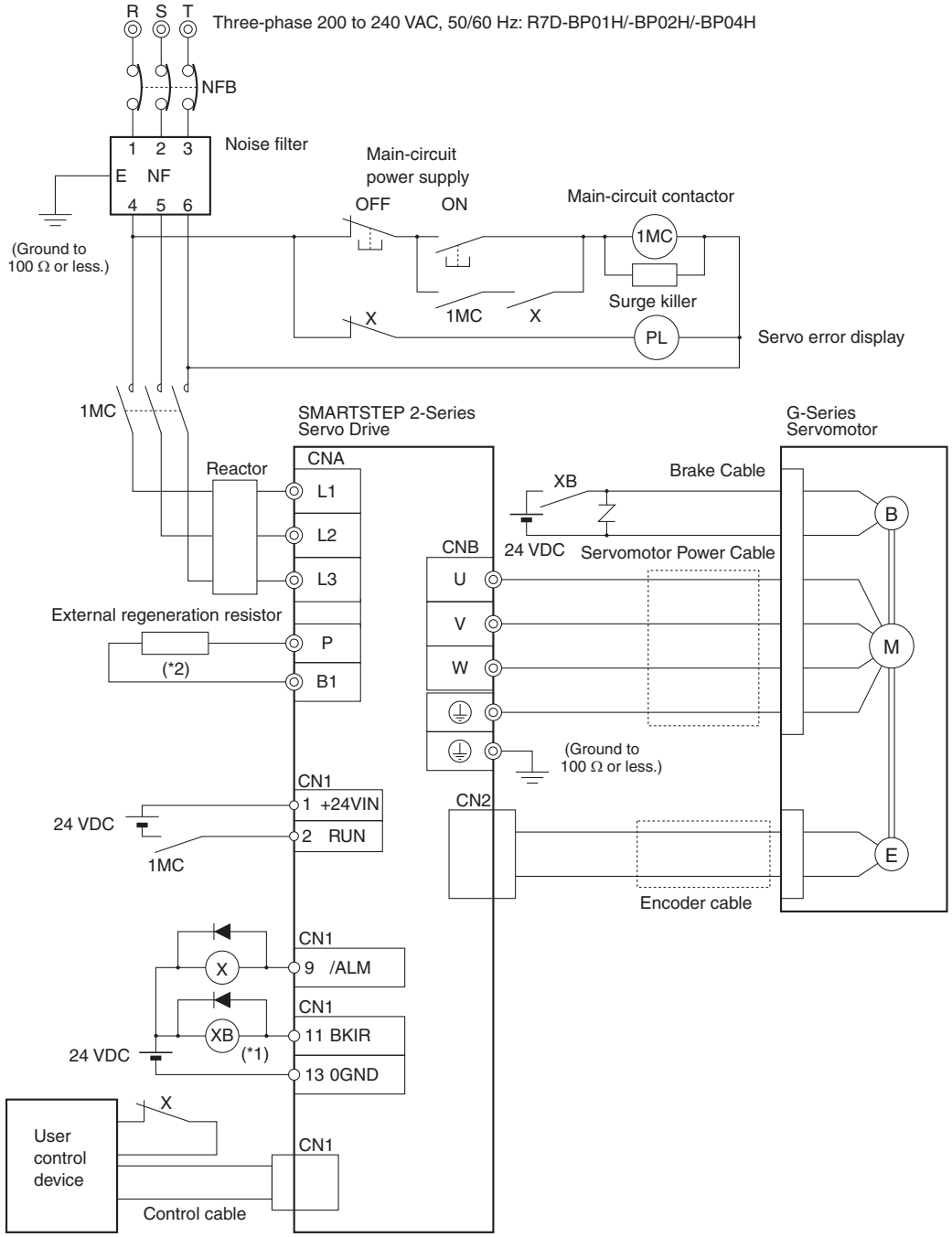
R7D-BPA5L/-BP01L/-BP02L/-BP04L/-BP01H/-BP02HH/-BP04H



*** 1.** Recommended Relay: OMRON G7T Relay (24-VDC model)
*** 2.** An External Regeneration Resistor can be connected.
Connect this resistor if the regenerative energy exceeds regeneration absorption capacity in the Servo Drive.

Note: 1. The dynamic brake will operate while the main circuit power supply or the control circuit power supply is OFF.
Note: 2. When turning OFF the main circuit power supply, turn OFF the RUN Command Input (RUN) at the same time.

R7D-BP01H/-BP02H/-BP04H



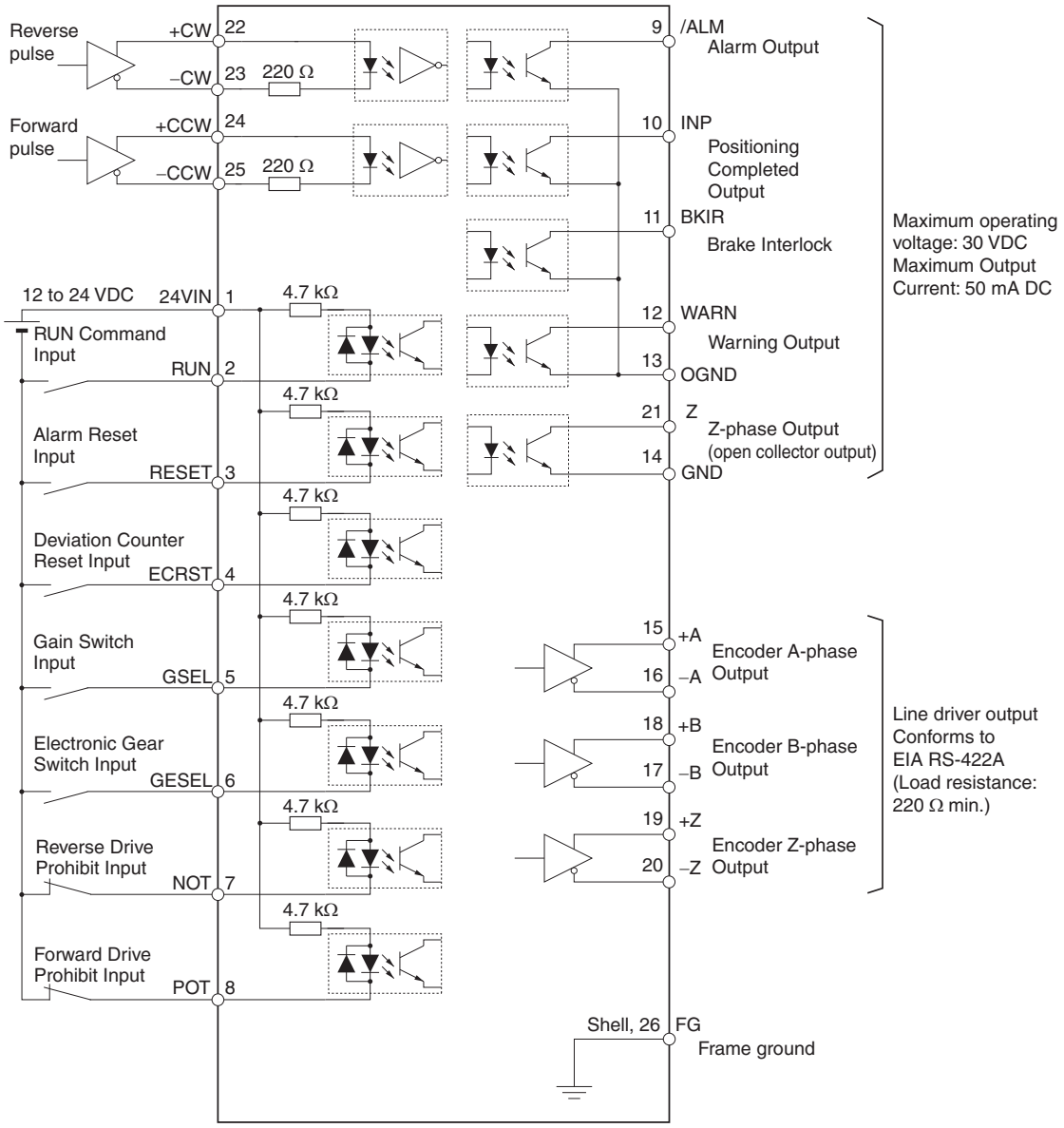
*1. Recommended Relay: OMRON G7T Relay (24-VDC model)
*2. An External Regeneration Resistor can be connected.
Connect this resistor if the regenerative energy exceeds regeneration absorption capacity in the Servo Drive.

Note: 1. The dynamic brake operates when the main circuit power supply or the control circuit power supply is turned OFF.
Note: 2. When turning OFF the main circuit power supply, turn OFF the RUN Command Input (RUN) signal at the same time.

I/O Circuit Diagrams

● Control I/O Specifications (CN1)

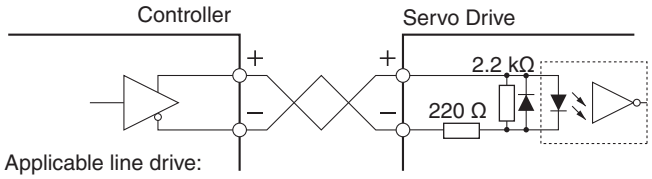
Control I/O Signal Connections and External Signal Processing



● Control Input Circuits

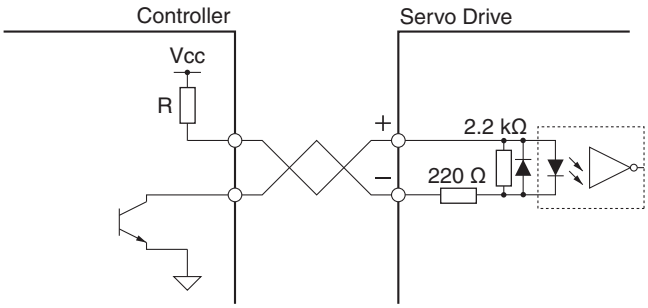
• Position Command Pulse Inputs

Line Drive Input



Applicable line drive:
AM26LS31A or equivalent

Open-collector Input



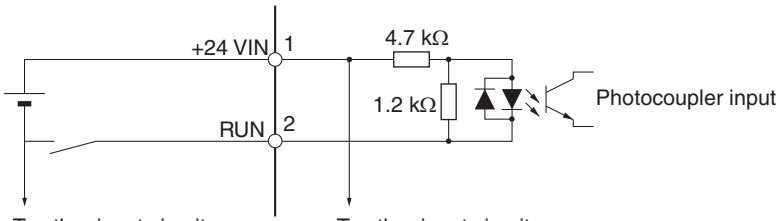
Note: Select a value for resistance R so that the input current will be from 7 to 15 mA. Refer to the following table.

$$\frac{Vcc - 1.5}{R + 220} \fallingdotseq 10mA \quad (7\text{-}15mA)$$

Vcc	R
24 V	2 kΩ
12 V	1 kΩ
5V	0Ω (Shorted)

• Sequence Inputs

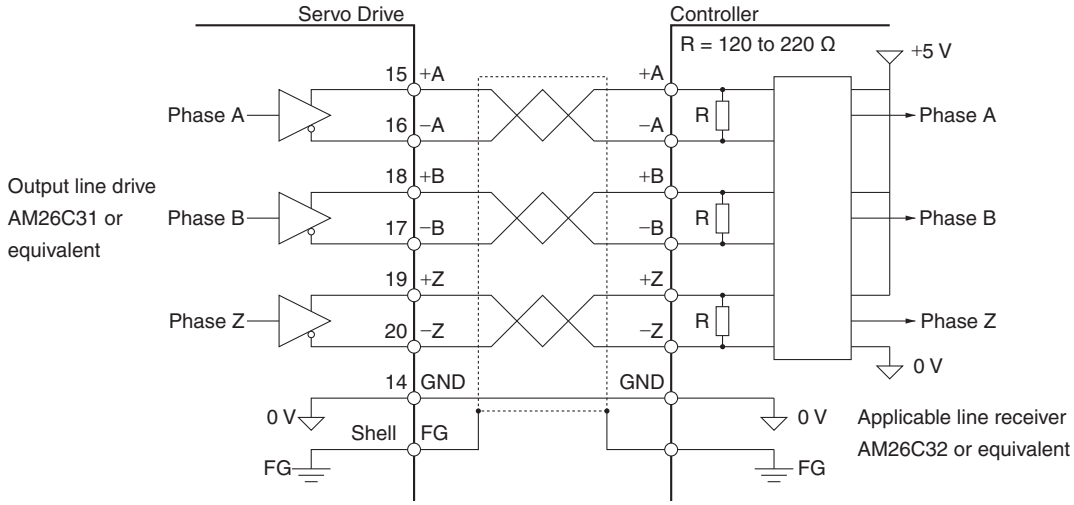
External power supply:
12 VDC±5% to
24 VDC±5%
Power supply capacity:
50 mA min. (per Unit)



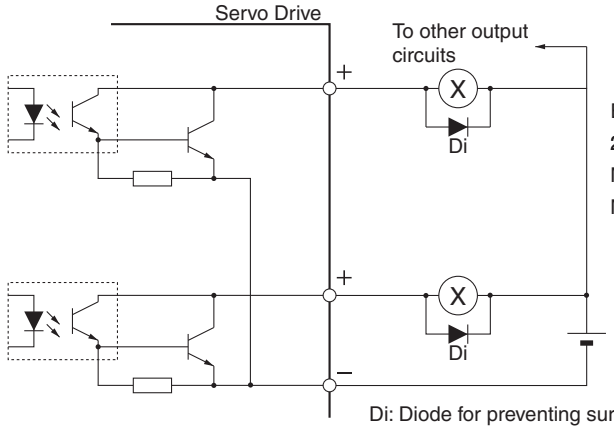
Signal Levels
ON level: 10 V min.
OFF level: 3 V max.

● Control Output Circuits

• Position Feedback Output



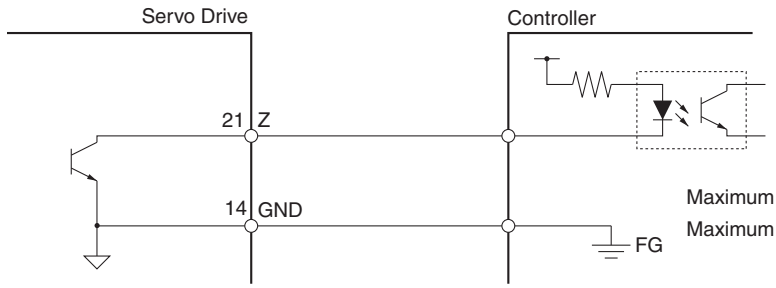
• Sequence and Alarm Outputs



External power supply
24 VDC ± 1 V
Maximum operating voltage: 30 VDC
Maximum output current: 50 mA

Di: Diode for preventing surge voltage
(Use high-speed diodes.)

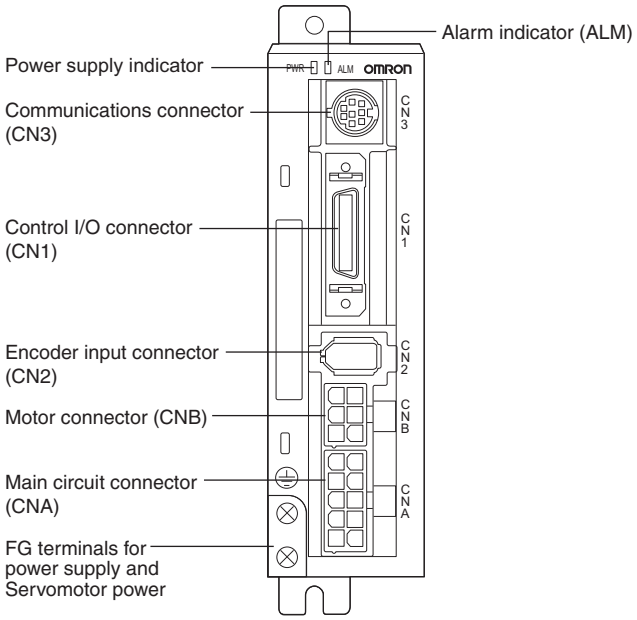
• Phase-Z Output (Open-collector Output)



Maximum operating voltage: 30 VDC
Maximum output current: 50 mA

Nomenclature and Functions

■Servo Drive Nomenclature



● R7A-CNZ01P Main Circuit Connector (CNA)

Terminal label	Pin No.	Name
L1	10	Main circuits power supply input
L2	8	
L3	6	
P	5	External Regeneration Resistance Unit connection terminal
B1	3	
FG	1	Frame ground

● R7A-CNB01A Servomotor Connector (CNB) Specifications

Terminal label	Pin No.	Name
U	1	Servomotor connection Terminals
V	4	
W	6	
⏚	3	Frame ground

● Power Supply Indicator (PWR)

Indicator	Status
Lit green	Main power is ON.
Lit orange	Flashes at a 1-second intervals when there is a warning (i.e., overload, excessive regenerative energy, or fan speed error).
Lit red	An alarm has occurred.

● Alarm Indicator (ALM)

This indicator lights when an alarm has occurred.

● CN1 Control Inputs

Pin No.	Signal name	Function
1	+24VIN	DC power supply input for control
2	RUN	RUN Command Input
3	RESET	Alarm Reset Input *1
4	ECRST/VSEL2	Deviation Counter Reset Input or Internally Set Speed Selection 2 Input
5	GSEL/ VZERO/TLSEL	Gain Switch Input, Zero Speed Designation Input, or Torque Limit Switch Input
6	GESEL/VSEL1	Electronic Gear Switch Input or Internally Set Speed Selection 1 Input *2
7	NOT	Reverse Drive Prohibit Input
8	POT	Forward Drive Prohibit Input
22	+CW/PULS/FA	Reverse Pulses Input, Feed Pulses Input, or 90° Phase Difference Pulses (Phase A)
23	–CW/PULS/FA	
24	+CCW/SIGN/FB	Forward Pulses, Direction Signal, or 90° Phase Difference Pulses (Phase B)
25	–CCW/SIGN/FB	

*** 1.** Some alarms cannot be cleared using this input.
*** 2.** Do not input command pulses for 10 ms before or after switching the electronic gear.

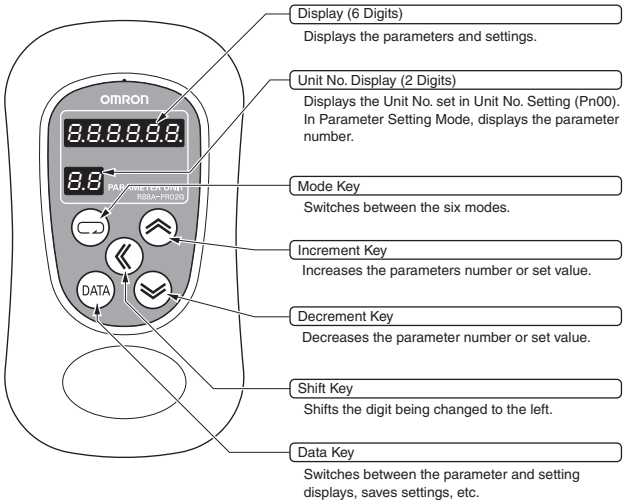
● CN1 Control Outputs

Pin No.	Signal name	Function
9	/ALM	Alarm Output *1
10	INP/TGON	Positioning Completed Output or Servomotor Rotation Amount Detection Output
11	BKIR	Brake Interlock Output
12	WARN	Warning Output
13	OGND	Output Ground Common
14	GND	Ground Common
15	+A	Encoder Phase-A Output
16	–A	
17	–B	Encoder Phase-B Output
18	+B	
19	+Z	Encoder Phase-Z Output
20	–Z	
21	Z	Phase-Z Output

*** 1.** This is OFF for approximately 2 seconds after turning ON the power.

Note: This is OFF for approximately 2 seconds after turning ON the power.An open-collector output interface is used for sequence outputs (maximum operating voltage: 30 VDC; maximum output current: 50 mA).

■R88A-PR02G Parameter Unit Nomenclature



● Function Selection Parameters

Parameter name	Explanation
Unit No. Setting	Set the unit number.
Default Display	Set the data to display on the Parameter Unit when the power supply is turned ON.
Control Mode Selection	Set the control mode to be used.
Drive Prohibit Input Selection	You can stop the Servomotor from rotating beyond the device's travel range by connecting limit inputs.
Zero Speed Designation/ Speed Command Direction Switch	Set the function of the Zero Speed Designation Input (VZERO) and Torque Limit Switch Input (TLSEL).
Warning Output Selection	Allocate the function of the Warning Output (WARN).

● Servo Gain Parameters

Parameter name	Explanation
Position Loop Gain *1	Set to adjust the position loop responsiveness.
Speed Loop Gain *1	Set to adjust the speed loop responsiveness.
Speed Loop Integration Constant *1	Set the speed loop integral time constant.
Speed Feedback Filter Time Constant *1	Set the time constant for the low pass filter through which the signal passes after the speed signal from the encoder signal is converted.
Torque Command Filter Time Constant *1	Set the primary lag filter constant for the torque command section.
Feed-forward Amount *1	Set the position control feed-forward compensation value.
Feed-forward Command Filter *1	Set the position control feed-forward command filter.
Position Loop Gain 2 *1	Set to adjust the position loop responsiveness.
Speed Loop Gain 2 *1	Set to adjust the speed loop responsiveness.
Speed Loop Integration Constant 2 *1	Set the speed loop integral time constant.
Speed Feedback Filter Time Constant 2 *1	Set the time constant for the low pass filter through which the signal passes after the speed signal from the encoder signal is converted.
Torque Command Filter Time Constant 2 *1	Set the primary lag filter constant for the torque command section.
Notch Filter 1 Frequency	Set the notch frequency of the resonance suppression notch filter.
Notch Filter 1 Width	Set the width to one of five levels for the resonance suppression notch filter. Normally, use the default setting.
Inertia Ratio *1	Set the ratio between the mechanical system inertia and the Servomotor rotor inertia.
Realtime Autotuning Mode Selection	Set the operating mode for realtime autotuning.
Realtime Autotuning Machine Rigidity Selection	Set the machine rigidity for executing realtime autotuning to one of 16 levels. The higher the machine rigidity, the greater the setting needs to be. The higher the setting, the higher the responsiveness.
Autotuning Operation Setting	Set the operating pattern for autotuning.
Overrun Limit Setting	Set the possible operating range for the Servomotor. The overwrite limit function is disabled if this parameter is set to 0.
Vibration Frequency	Set the vibration frequency for dampening to suppress vibration at the end of the load.
Vibration Filter Setting	Set vibration filter for dampening to suppress vibration at the end of the load.
Adaptive Filter Table Number *1	Gives the table entry number corresponding to the frequency of the adaptive filter. This parameter is set automatically and cannot be changed if the adaptive filter is enabled (i.e., if the Realtime Autotuning Mode Selection (Pn21) is set to 1 to 3 or 7).
Gain Switching Input Operating Mode Selection	Enable or disable gain switching. If switching is enabled, the setting of the Gain Switch Setting (Pn31) is used as the condition for switching between gain 1 and gain 2.
Gain Switch Setting	Select the condition for switching between gain 1 and gain 2. The Gain Switching Input Operating Mode (Pn30) must be set to 1 (enabled).
Gain Switch Time *1	This parameter is enabled when the Gain Switch Setting (Pn31) is set to 3, or 5 to 10. Set the delay time from the point at which status no longer meets the switching condition selected in Pn31 until returning to gain 1.
Gain Switch Level Setting *1	This parameter is enabled when the Gain Switch Setting (Pn31) is set to 3, 5, 6, 9, or 10. Set the judgment level for switching between gain 1 and gain 2. The unit for the setting depends on the condition set for the Gain Switch Setting (Pn31).
Gain Switch Hysteresis Setting *1	Set the hysteresis width above and below the judgment level set in the Gain Switch 1 Level Setting (Pn33).
Position Loop Gain Switching Time *1	When switching between gain 1 and gain 2 is enabled, set the switching time to use for the position loop gain to switch the gain stepwise.

*** 1.** These parameters are automatically changed by executing realtime autotuning. To set them manually, set the Realtime Autotuning Mode Selection (Pn21) to 0.

● Position Control Parameters

Parameter name	Explanation
Command Pulse Input Setting	The command pulses can be multiplied by a factor of 2 or 4 when 90° phase differential signal inputs is selected as the input format for the command pulses in the Command Pulse Mode (Pn42).
Command Pulse Rotation Direction Switch	Set the Servomotor rotation direction for the command pulse input.
Command Pulse Mode	Set the form of the pulse inputs sent as the command to the Servo Drive from a position controller.
Encoder Divider Rate Setting	Set the number of encoder pulses to be output from the Servo Drive for each rotation. The setting can be made from 1 to 16,384 pulses/rotation, but the setting will not be valid if it exceeds 2,500 pulses/rotation.
Encoder Output Direction Switch	Set to reverse the logic of encoder pulses output from the Servo Drive.
Electronic Gear Ratio Numerator 1	Set the pulse rate for command pulses and Servomotor travel distance. $\frac{\text{Electronic Gear Ratio Numerator 1 (Pn46)}}{\text{Electronic Gear Ratio Numerator 2 (Pn47)}} \text{ or } \times 2^{\text{Electronic Gear Ratio Numerator Exponent (Pn4A)}}$ Electronic Gear Ratio Denominator (Pn4B)
Electronic Gear Ratio Numerator 2	
Electronic Gear Ratio Numerator Exponent	Set the pulse rate for command pulses and Servomotor travel distance. $\frac{\text{Electronic Gear Ratio Numerator 1 (Pn46)}}{\text{Electronic Gear Ratio Numerator 2 (Pn47)}} \text{ or } \times 2^{\text{Electronic Gear Ratio Numerator Exponent (Pn4A)}}$ Electronic Gear Ratio Denominator (Pn4B)
Electronic Gear Ratio Denominator	
Position Command Filter Time Constant Setting	Set the time constant for the primary lag filter for the command pulse input. If the parameter is set to 0, the filter will not function. The larger the setting, the larger the time constant.
Smoothing Filter Setting	Select the FIR filter time constant used for the command pulse input. The higher the setting, the smoother the command pulses.

● Internally Set Speed Control Parameters

Parameter name	Explanation
No. 1 Internal Speed Setting	Set the No. 1 internal speed.
No. 2 Internal Speed Setting	Set the No. 2 internal speed.
No. 3 Internal Speed Setting	Set the No. 3 internal speed.
No. 4 Internal Speed Setting	Set the No. 4 internal speed.
Jog Speed	Set the speed for jogging.
Soft Start Acceleration Time	Set the acceleration time for internal speed control. Set the time (setting × 2 ms) until 1,000 r/min is reached.
Soft Start Deceleration Time	Set the deceleration time for internal speed control. Set the time (setting × 2 ms) until operation stops from 1000 r/min.
Torque Limit	Set the limit to the Servomotor's maximum torque.

● Sequence Parameters

Parameter name	Explanation
Positioning Completion Range	Set the range for the Positioning Completed Output (INP).
Zero Speed Detection	Set the speed for the Warning Output for zero speed detection.
Rotation Speed for Motor Rotation Detection	Set the speed for the Servomotor Rotation Amount Detection Output (TGON) for Internally Set Speed Control.
Deviation Counter Overflow Level	Set the detection level for the Deviation Counter Overflow Alarm. The alarm level will be the setting times 256 pulses.
Deviation Counter Overflow Alarm Disabled	Enable or disable the Deviation Counter Overflow Alarm.
Stop Selection for Drive Prohibition Input	Set the operation used to decelerate to a stop after the Forward Drive Prohibit Input (POT) or Reverse Drive Prohibit Input (NOT) has been received.
Stop Selection for Alarm Generation	Set the operation to use during deceleration and after stopping when an error occurs for any protective function of the Servo Drive. The deviation counter will be cleared when an alarm occurs.
Stop Selection with Servo OFF	Set the operation to use during deceleration and after stopping and set the deviation counter status when the RUN Command Input (RUN) is turned OFF.
Brake Timing when Stopped	Set the brake timing when stopped. When the Servomotor is stopped and the RUN Command Input (RUN) is turned OFF, the Brake Interlock Output (BKIR) will turn OFF, and the Servomotor will turn OFF after waiting for the time period set for this parameter (i.e., setting × 2 ms).
Brake Timing during Operation	Set the brake timing during operation. When the Servomotor is operating and the RUN Command Input (RUN) is turned OFF, the Servomotor will decelerate to reduce speed, and the Brake Interlock Output (BKIR) will turn OFF after a set time (i.e., setting × 2 ms) has elapsed. BKIR will also turn OFF if the speed drops to 30 r/min or lower before the set time.
Regeneration Resistor Selection	Set this parameter to 1 or 2 if an external generation resistor is mounted.
Overspeed Detection Level Setting	Set the No. 1 overspeed detection level if torque limit switching is enabled by setting the Zero-speed Designation/Torque Limit Switch (Pn06).
No. 2 Torque Limit	Set the No. 2 torque limit if torque limit switching is enabled by setting the Zero-speed Designation/Torque Limit Switch (Pn06).
No. 2 Deviation Counter Overflow Level	Set the No. 2 deviation counter overflow level if torque limit switching is enabled by setting the Zero-speed Designation/Torque Limit Switch (Pn06).
No. 2 Overspeed Detection Level Setting	Set the No. 2 overspeed detection level if torque limit switching is enabled by setting the Zero-speed Designation/Torque Limit Switch (Pn06).

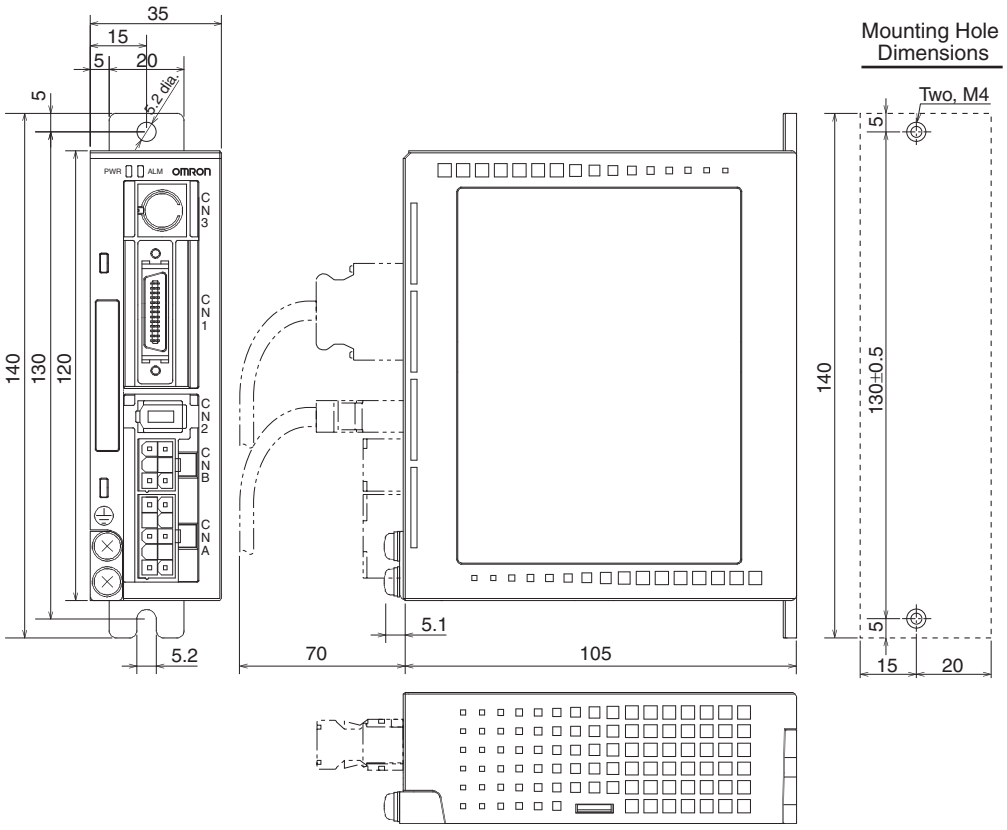
Dimensions

(Unit: mm)

Servo Drives

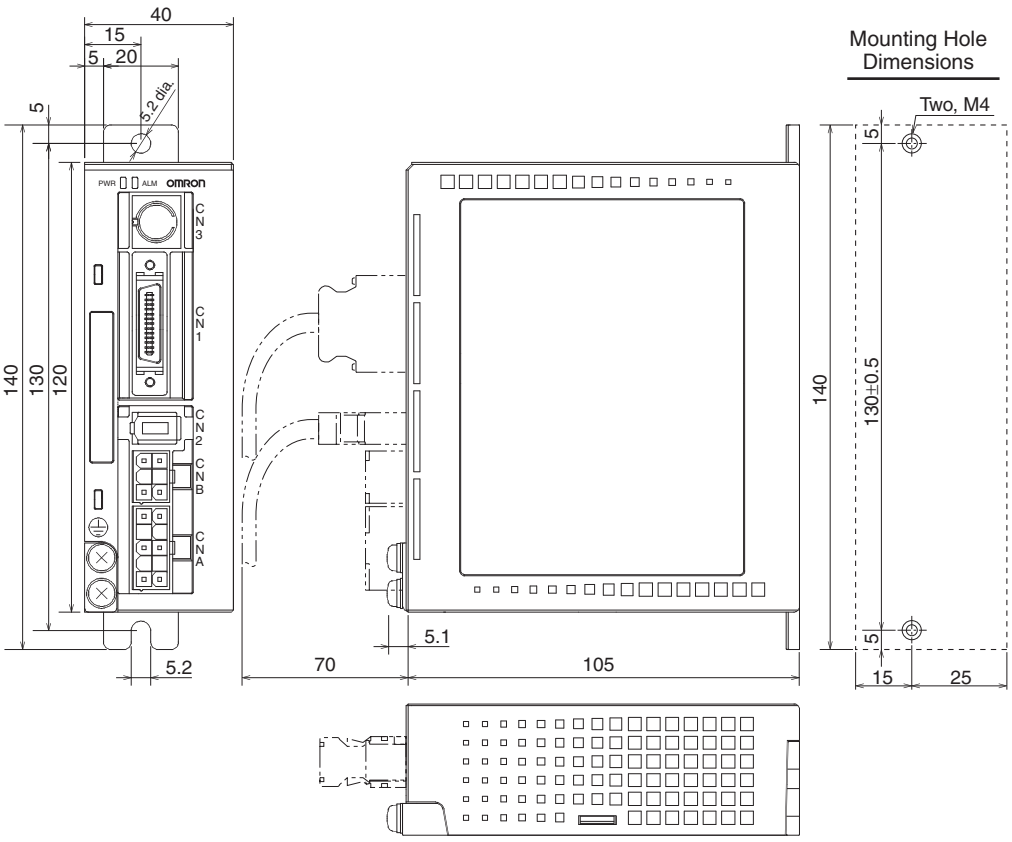
• 50 W/100 W/200 W

R7D-BPA5L
R7D-BP01L
R7D-BP01H
R7D-BP02H



• 200 W/400 W

R7D-BP02L
R7D-BP02HH
R7D-BP04H



3,000-r/min Cylindrical Servomotors

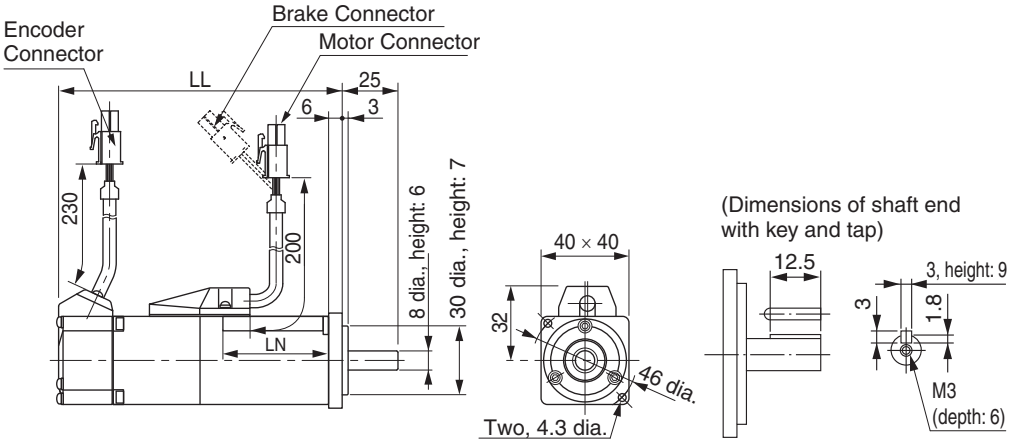
• 50 W/100 W

Without brake R88M-G05030H (-S2)
R88M-G10030L (-S2)
R88M-G10030H (-S2)

With brake R88M-G05030H (-S2)
R88M-G10030L (-S2)
R88M-G10030H (-S2)

Model	LL	LN
R88M-G05030H	72	26.5
R88M-G05030H-B *1	102	26.5
R88M-G10030□ *2	92	46.5
R88M-G10030□-B *1, *2	122	46.5

*** 1.** This is the model number for the Servomotor with a brake.
*** 2.** Put "L" or "H" in the place indicated by the box.
Note: The standard models have a straight shaft. To order a Servomotor with a straight shaft with a key, add "S2" to the end of the model number.



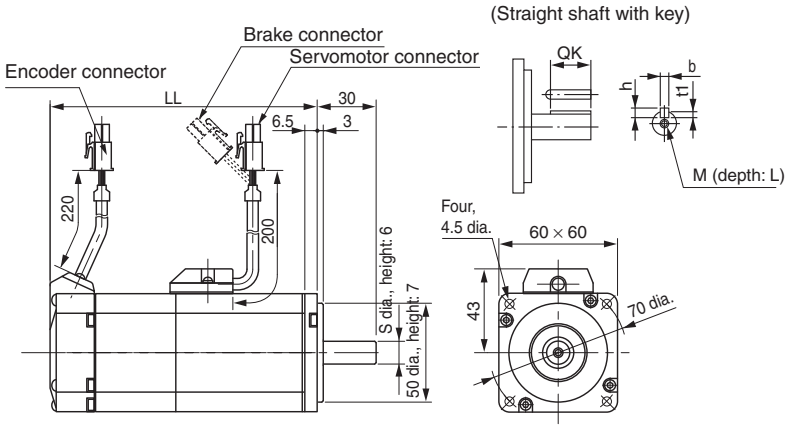
• 200 W/400 W

Without brake R88M-G20030L (-S2)
R88M-G20030H (-S2)
R88M-G40030H (-S2)

With brake R88M-G20030L-B (S2)
R88M-G20030H-B (S2)
R88M-G40030H-B (S2)

Model	LL	S	Dimensions for models with key and tap *3					
			QK	b	h	t1	M	L
R88M-G20030□ *1	79	11	18	4h9	4	2.5	M4	8
R88M-G20030□-B *1,*2	115.5	11	18	4h9	4	2.5	M4	8
R88M-G40030H	98.5	14	22.5	5h9	5	3	M5	10
R88M-G40030H-B *2	135	14	22.5	5h9	5	3	M5	10

*** 1.** Put "L" or "H" in the place indicated by the box.
*** 2.** This is the model number for the Servomotor with a brake.
*** 3.** To order a Servomotor with a straight shaft with a key, add "S2" to the end of the model number.
Note: The standard models have a straight shaft.



3,000-r/min Flat Servomotors

• 100 W/200 W/400 W

Without brake

R88M-GP10030L (-S2)
R88M-GP10030H (-S2)
R88M-GP20030L (-S2)
R88M-GP20030H (-S2)
R88M-GP40030H (-S2)

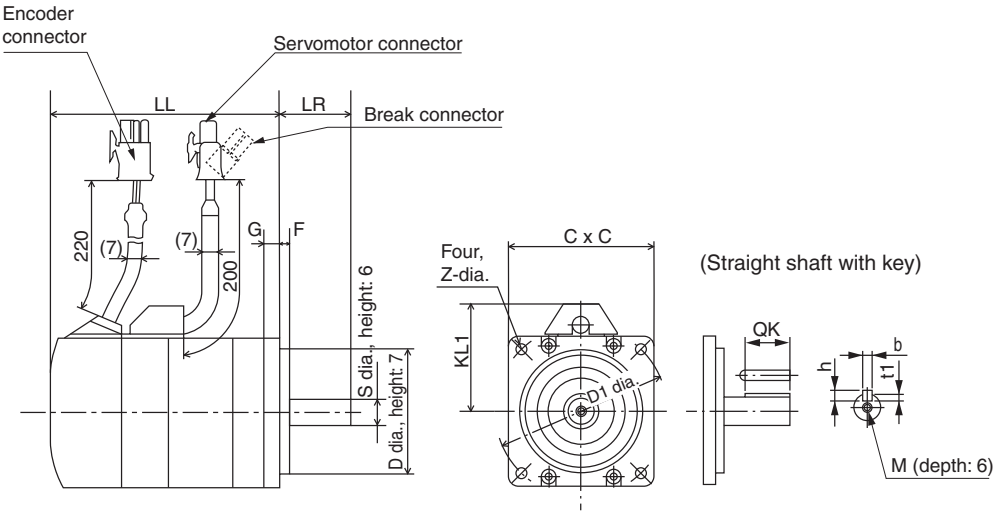
With brake

R88M-GP10030L-B (S2)
R88M-GP10030H-B (S2)
R88M-GP20030L-B (S2)
R88M-GP20030H-B (S2)
R88M-GP40030H-B (S2)

Model	LL	LR	S	D1	D2	C	F	G	KL1	Z	Dimensions for models with key and tap*3					
											QK	b	h	t1	M	L
R88M-GP10030□ *1	60	25	8	70	50	60	3	7	43	4.5	12.5	3h9	3	1.8	M3	6
R88M-GP10030□-B *1, *2	84	25	8	70	50	60	3	7	43	4.5	12.5	3h9	3	1.8	M3	6
R88M-GP20030□ *1	67	30	11	90	70	80	5	8	53	5.5	18	4h9	4	2.5	M4	8
R88M-GP20030□-B *1, *2	99.5	30	11	90	70	80	5	8	53	5.5	18	4h9	4	2.5	M4	8
R88M-GP40030H	82	30	14	90	70	80	5	8	53	5.5	22.5	5h9	5	3	M5	10
R88M-GP40030H-B *2	114.5	30	14	90	70	80	5	8	53	5.5	22.5	5h9	5	3	M5	10

*** 1.** Put "L" or "H" in the place indicated by the box.
*** 2.** This is the model number for the Servomotor with a brake.
*** 3.** To order a Servomotor with a straight shaft with a key, add "S2" to the end of the model number.

Note: The standard models have a straight shaft.



● Decelerators

Backlash: 3 Arcminutes Max.

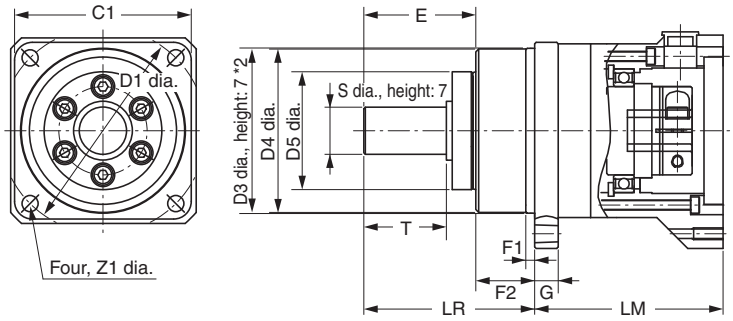
<Cylinder Type>

3,000-r/min servomotors (50 to 400 W)

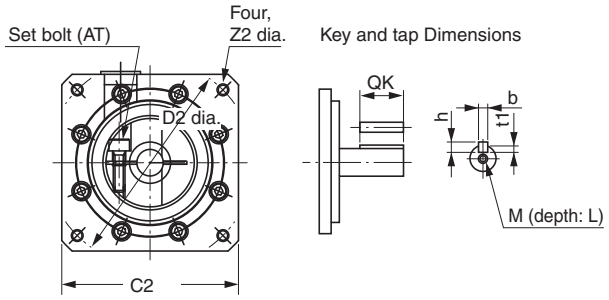
Model			Outline Drawings	Dimensions (mm)											
				LM	LR	C1	C2	D1	D2	D3	D4	D5	E	F1	F2
50W	1/5	R88G-HPG11B05100B□	1 *4	39.5	42	40	40 × 40	46	46	40	39.5	29	27	2.2	15
	1/9	R88G-HPG11B09050B□	1 *4	39.5	42	40	40 × 40	46	46	40	39.5	29	27	2.2	15
	1/21	R88G-HPG14A21100B□	1	64.0	58	60	60 × 60	70	46	56	55.5	40	37	2.5	21
	1/33	R88G-HPG14A33050B□	1	64.0	58	60	60 × 60	70	46	56	55.5	40	37	2.5	21
	1/45	R88G-HPG14A45050B□	1	64.0	58	60	60 × 60	70	46	56	55.5	40	37	2.5	21
100W	1/5	R88G-HPG11B05100B□	1 *4	39.5	42	40	40 × 40	46	46	40	39.5	29	27	2.2	15
	1/11	R88G-HPG14A11100B□	1	64.0	58	60	60 × 60	70	46	56	55.5	40	37	2.5	21
	1/21	R88G-HPG14A21100B□	1	64.0	58	60	60 × 60	70	46	56	55.5	40	37	2.5	21
	1/33	R88G-HPG20A33100B□	2	66.5	80	90	55 dia.	105	46	85	84	59	53	7.5	27
	1/45	R88G-HPG20A45100B□	2	66.5	80	90	55 dia.	105	46	85	84	59	53	7.5	27
200W	1/5	R88G-HPG14A05200B□	1	64.0	58	60	60 × 60	70	70	56	55.5	40	37	2.5	21
	1/11	R88G-HPG14A11200B□	1	64.0	58	60	60 × 60	70	70	56	55.5	40	37	2.5	21
	1/21	R88G-HPG20A21200B□	2	71.0	80	90	89 dia.	105	70	85	84	59	53	7.5	27
	1/33	R88G-HPG20A33200B□	2	71.0	80	90	89 dia.	105	70	85	84	59	53	7.5	27
	1/45	R88G-HPG20A45200B□	2	71.0	80	90	89 dia.	105	70	85	84	59	53	7.5	27
400W	1/5	R88G-HPG14A05400B□	1	64	58	60	60 × 60	70	70	56	55.5	40	37	2.5	21
	1/11	R88G-HPG20A11400B□	2	71	80	90	89 dia.	105	70	85	84	59	53	7.5	27
	1/21	R88G-HPG20A21400B□	2	71	80	90	89 dia.	105	70	85	84	59	53	7.5	27
	1/33	R88G-HPG32A33400B□	2	104	133	120	122 dia.	135	70	115	114	84	98	12.5	35
	1/45	R88G-HPG32A45400B□	2	104	133	120	122 dia.	135	70	115	114	84	98	12.5	35

Note: 1. The standard models have a straight shaft.
Note: 2. To order a Decelerator with a straight shaft with key and tap, add "J" to the end of the model number, in the place indicated by the box. (e.g., R88G-HPG11B05100BJ)
Note: 3. The diameter of the motor shaft insertion portion is the same as the diameter of the shaft of the corresponding motor.
Note: 4. Applicable for the servomotors with key, if the key is removed.
Note: 5. The dimensional drawings in this document are designed to indicate only the main dimensions. They do not necessarily represent the detailed shapes of the products.

Outline Drawings 1

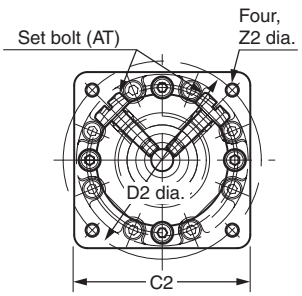


There is one set bolt.



*2. The tolerance for the R88G-HPG50□ and R88G-HPG65□ is h8.

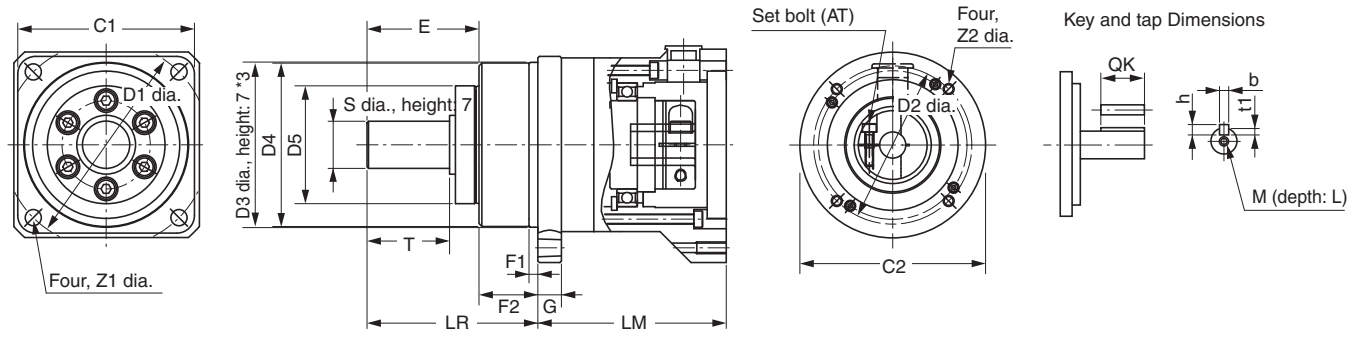
*4. For the R88G-HPG11B series, two set bolts are positioned at an angle of 90° from each other.



Dimensions (mm)											Model		
G	S	T	Z1	Z2	AT*1	Key Dimensions				Tap Dimensions				
						QK	b	h	t1	M	L			
5	8	20	3.4	M4 × 9	M3	15	3	3	1.8	M3	6	R88G-HPG11B05100B□	1/5	
5	8	20	3.4	M4 × 9	M3	15	3	3	1.8	M3	6	R88G-HPG11B09050B□	1/9	
8	16	28	5.5	M4 × 10	M3	25	5	5	3	M4	8	R88G-HPG14A21100B□	1/21	50W
8	16	28	5.5	M4 × 10	M3	25	5	5	3	M4	8	R88G-HPG14A33050B□	1/33	
8	16	28	5.5	M4 × 10	M3	25	5	5	3	M4	8	R88G-HPG14A45050B□	1/45	
5	8	20	3.4	M4 × 9	M3	15	3	3	1.8	M3	6	R88G-HPG11B05100B□	1/5	
8	16	28	5.5	M4 × 10	M3	25	5	5	3	M4	8	R88G-HPG14A11100B□	1/11	
8	16	28	5.5	M4 × 10	M3	25	5	5	3	M4	8	R88G-HPG14A21100B□	1/21	100W
10	25	42	9	M4 × 10	M4	36	8	7	4	M6	12	R88G-HPG20A33100B□	1/33	
10	25	42	9	M4 × 10	M4	36	8	7	4	M6	12	R88G-HPG20A45100B□	1/45	
8	16	28	5.5	M4 × 10	M4	25	5	5	3	M4	8	R88G-HPG14A05200B□	1/5	
8	16	28	5.5	M4 × 10	M4	25	5	5	3	M4	8	R88G-HPG14A11200B□	1/11	
10	25	42	9	M4 × 10	M4	36	8	7	4	M6	12	R88G-HPG20A21200B□	1/21	200W
10	25	42	9	M4 × 10	M4	36	8	7	4	M6	12	R88G-HPG20A33200B□	1/33	
10	25	42	9	M4 × 10	M4	36	8	7	4	M6	12	R88G-HPG20A45200B□	1/45	
8	16	28	5.5	M4 × 10	M4	25	5	5	3	M4	8	R88G-HPG14A05400B□	1/5	
10	25	42	9	M4 × 10	M4	36	8	7	4	M6	12	R88G-HPG20A11400B□	1/11	
10	25	42	9	M4 × 10	M4	36	8	7	4	M6	12	R88G-HPG20A21400B□	1/21	400W
13	40	82	11	M4 × 10	M4	70	12	8	5	M10	20	R88G-HPG32A33400B□	1/33	
13	40	82	11	M4 × 10	M4	70	12	8	5	M10	20	R88G-HPG32A45400B□	1/45	

*** 1.** This is the set bolt.

Outline Drawings 2



*3. The tolerance for the R88G-HPG50□ and R88G-HPG65□ is h8.

Backlash: 3 Arcminutes Max.

<Flat Servomotors>

3,000-r/min servomotors (100 to 400 W)

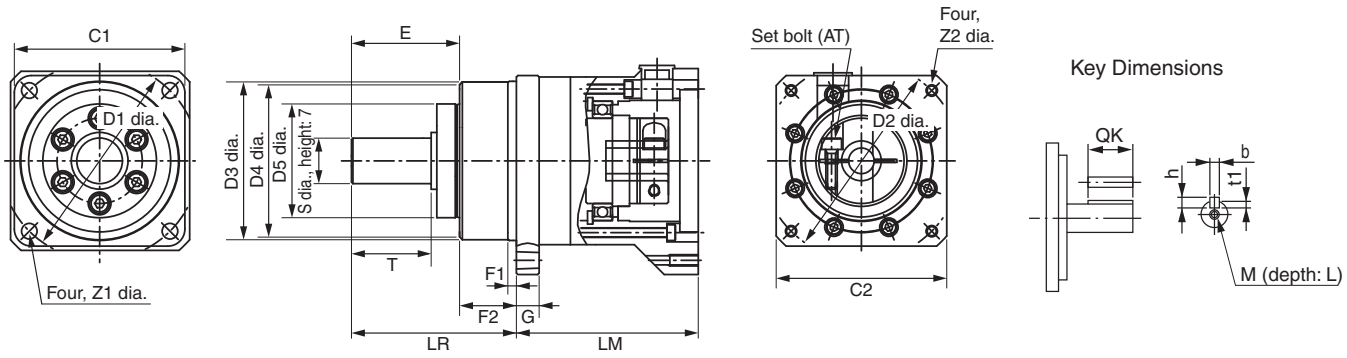
Model			Dimensions (mm)												
			LM	LR	C1	C2	D1	D2	D3	D4	D5	E	F1	F2	G
100 W	1/5	R88G-HPG11A05100PB	39.5	42	40	60 × 60	46	70	40.0	39.5	29	27	2.2	15	5
	1/11	R88G-HPG14A11100PB	64.0	58	60	60 × 60	70	70	56.0	55.5	40	37	2.5	21	8
	1/21	R88G-HPG14A21100PB	64.0	58	60	60 × 60	70	70	56.0	55.5	40	37	2.5	21	8
	1/33	R88G-HPG20A33100PB	71.0	80	90	89 dia.	105	70	85.0	84.0	59	53	7.5	27	10
	1/45	R88G-HPG20A45100PB	71.0	80	90	89 dia.	105	70	85.0	84.0	59	53	7.5	27	10
200 W	1/5	R88G-HPG14A05200PB	65.0	58	60	80 × 80	70	90	56.0	55.5	40	37	2.5	21	8
	1/11	R88G-HPG20A11200PB	78.0	80	90	80 × 80	105	90	85.0	84.0	59	53	7.5	27	10
	1/21	R88G-HPG20A21200PB	78.0	80	90	80 × 80	105	90	85.0	84.0	59	53	7.5	27	10
	1/33	R88G-HPG20A33200PB	78.0	80	90	80 × 80	105	90	85.0	84.0	59	53	7.5	27	10
	1/45	R88G-HPG20A45200PB	78.0	80	90	80 × 80	105	90	85.0	84.0	59	53	7.5	27	10
400 W	1/5	R88G-HPG20A05400PB	78.0	80	90	80 × 80	105	90	85.0	84.0	59	53	7.5	27	10
	1/11	R88G-HPG20A11400PB	78.0	80	90	80 × 80	105	90	85.0	84.0	59	53	7.5	27	10
	1/21	R88G-HPG20A21400PB	78.0	80	90	80 × 80	105	90	85.0	84.0	59	53	7.5	27	10
	1/33	R88G-HPG32A33400PB	104.0	133	120	122 dia.	135	90	115.0	114.0	84	98	12.5	35	13
	1/45	R88G-HPG32A45400PB	104.0	133	120	122 dia.	135	90	115.0	114.0	84	98	12.5	35	13

Note: 1. The standard models have a straight shaft. To order a Decelerator with a straight shaft with a key, add "J" to the end of the model number, in the place indicated by the box.

Note: 2. The diameter of the motor shaft insertion portion is the same as the diameter of the shaft of the corresponding motor.

Note: 3. Applicable for the servomotors with key, if the key is removed.

Outline Drawings



	Dimensions (mm)						Key dimensions (mm)					Weight (kg)	Model		
	S	T	Z1	Z2	AT*1	QK	b	h	t1	M	L				
	8	20	3.4	M4	M3	15	3	3	1.8	M3	6	0.34	**R88G-HPG11A05100PB**	1/5	
	16	28	5.5	M4	M3	25	5	5	3.0	M4	8	1.04	**R88G-HPG14A11100PB**	1/11	
	16	28	5.5	M4	M3	25	5	5	3.0	M4	8	1.04	**R88G-HPG14A21100PB**	1/21	100 W
	25	42	9.0	M4	M3	36	8	7	4.0	M6	12	2.9	**R88G-HPG20A33100PB**	1/33	
	25	42	9.0	M4	M3	36	8	7	4.0	M6	12	2.9	**R88G-HPG20A45100PB**	1/45	
	16	28	5.5	M4	M4	25	5	5	3.0	M4	8	0.99	**R88G-HPG14A05200PB**	1/5	
	25	42	9.0	M5	M4	36	8	7	4.0	M6	12	3.1	**R88G-HPG20A11200PB**	1/11	
	25	42	9.0	M5	M4	36	8	7	4.0	M6	12	3.1	**R88G-HPG20A21200PB**	1/21	200 W
	25	42	9.0	M5	M4	36	8	7	4.0	M6	12	3.1	**R88G-HPG20A33200PB**	1/33	
	25	42	9.0	M5	M4	36	8	7	4.0	M6	12	3.1	**R88G-HPG20A45200PB**	1/45	
	25	42	9.0	M5	M4	36	8	7	4.0	M6	12	3.1	**R88G-HPG20A05400PB**	1/5	
	25	42	9.0	M5	M4	36	8	7	4.0	M6	12	3.1	**R88G-HPG20A11400PB**	1/11	
	25	42	9.0	M5	M4	36	8	7	4.0	M6	12	3.1	**R88G-HPG20A21400PB**	1/21	400 W
	40	82	11.0	M5	M6	70	12	8	5.0	M10	20	7.8	**R88G-HPG32A33400PB**	1/33	
	40	82	11.0	M5	M6	70	12	8	5.0	M10	20	7.8	**R88G-HPG32A45400PB**	1/45	

*** 1.** This is the set bolt.

Backlash: 15 Arcminutes Max.

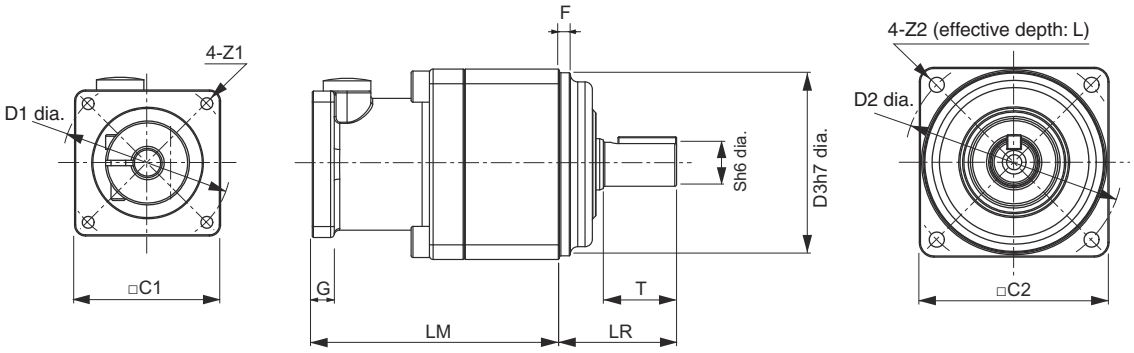
<Cylinder Type>

3,000-r/min servomotors (50 to 400 W)

Model			Dimensions (mm)										
			LM	LR	C1	C2	D1	D2	D3	F	G	S	T
50 W	1/5	R88G-VRXF05B100CJ	67.5	32	40	52	46	60	50	3	6	12	20
	1/9	R88G-VRXF09B100CJ	67.5	32	40	52	46	60	50	3	6	12	20
	1/15	R88G-VRXF15B100CJ	78.0	32	40	52	46	60	50	3	6	12	20
	1/25	R88G-VRXF25B100CJ	78.0	32	40	52	46	60	50	3	6	12	20
100 W	1/5	R88G-VRXF05B100CJ	67.5	32	40	52	46	60	50	3	6	12	20
	1/9	R88G-VRXF09B100CJ	67.5	32	40	52	46	60	50	3	6	12	20
	1/15	R88G-VRXF15B100CJ	78.0	32	40	52	46	60	50	3	6	12	20
	1/25	R88G-VRXF25B100CJ	78.0	32	40	52	46	60	50	3	6	12	20
200 W	1/5	R88G-VRXF05B200CJ	72.5	32	60	52	70	60	50	3	10	12	20
	1/9	R88G-VRXF09C200CJ	89.5	50	60	78	70	90	70	3	8	19	30
	1/15	R88G-VRXF15C200CJ	100.0	50	60	78	70	90	70	3	8	19	30
	1/25	R88G-VRXF25C200CJ	100.0	50	60	78	70	90	70	3	8	19	30
400 W	1/5	R88G-VRXF05C400CJ	89.5	50	60	78	70	90	70	3	8	19	30
	1/9	R88G-VRXF09C400CJ	89.5	50	60	78	70	90	70	3	8	19	30
	1/15	R88G-VRXF15C400CJ	100.0	50	60	78	70	90	70	3	8	19	30
	1/25	R88G-VRXF25C400CJ	100.0	50	60	78	70	90	70	3	8	19	30

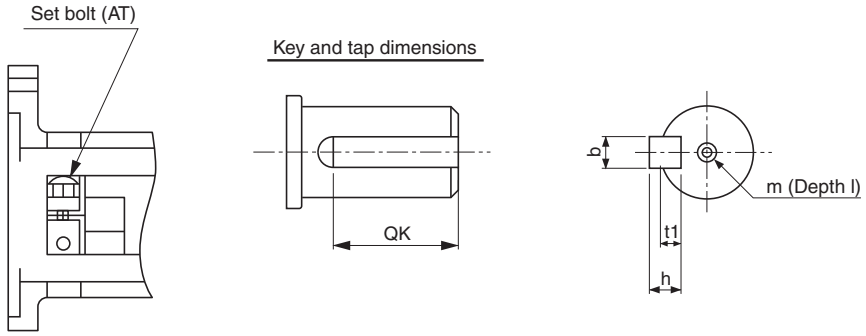
Note: 1. The standard shaft type is a shaft with key and tap.
Note: 2. The diameter of the motor shaft insertion is same as of the corresponding Servomotor shaft.
Note: 3. If the key on a Servomotor with key is uninstalled, it is possible to use the Decelerator by installing the Servomotor without above mentioned key.
Note: 4. The external dimensions diagrams in this manual provide only the main dimensions. They are not intended to show the detail shapes of the products.

Outline Drawings



	Dimensions (mm)										Model		
	Z1	Z2	AT	L	Key				Tap				
					QK	b	h	t1	m	l			
	M4	M5	M4	12	16	4	4	2.5	M5	10	**R88G-VRXF05B100CJ**	1/5	50 W
	M4	M5	M4	12	16	4	4	2.5	M5	10	**R88G-VRXF09B100CJ**	1/9	
	M4	M5	M4	12	16	4	4	2.5	M5	10	**R88G-VRXF15B100CJ**	1/15	
	M4	M5	M4	12	16	4	4	2.5	M5	10	**R88G-VRXF25B100CJ**	1/25	
	M4	M5	M4	12	16	4	4	2.5	M5	10	**R88G-VRXF05B100CJ**	1/5	100 W
	M4	M5	M4	12	16	4	4	2.5	M5	10	**R88G-VRXF09B100CJ**	1/9	
	M4	M5	M4	12	16	4	4	2.5	M5	10	**R88G-VRXF15B100CJ**	1/15	
	M4	M5	M4	12	16	4	4	2.5	M5	10	**R88G-VRXF25B100CJ**	1/25	
	M4	M5	M4	12	16	4	4	2.5	M5	10	**R88G-VRXF05B200CJ**	1/5	200 W
	M4	M6	M5	20	22	6	6	3.5	M6	12	**R88G-VRXF09C200CJ**	1/9	
	M4	M6	M5	20	22	6	6	3.5	M6	12	**R88G-VRXF15C200CJ**	1/15	
	M4	M6	M5	20	22	6	6	3.5	M6	12	**R88G-VRXF25C200CJ**	1/25	
	M4	M6	M5	20	22	6	6	3.5	M6	12	**R88G-VRXF05C400CJ**	1/5	400 W
	M4	M6	M5	20	22	6	6	3.5	M6	12	**R88G-VRXF09C400CJ**	1/9	
	M4	M6	M5	20	22	6	6	3.5	M6	12	**R88G-VRXF15C400CJ**	1/15	
	M4	M6	M5	20	22	6	6	3.5	M6	12	**R88G-VRXF25C400CJ**	1/25	

Outline Drawings



Backlash: 15 Arcminutes Max.

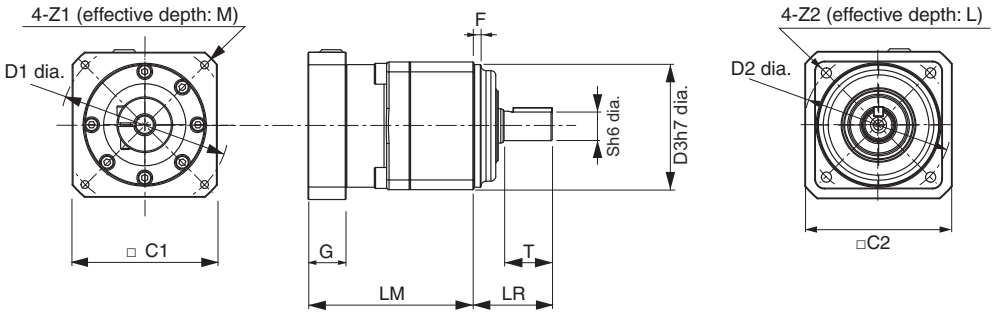
<Flat Servomotors>

3,000-r/min servomotors (100 to 400 W)

Model			Dimensions (mm)											
			LM	LR	C1	C2	D1	D2	D3	F	G	S	T	
100 W	1/5	R88G-VRXF05B100PCJ	67.5	32	60	52	70	60	50	3	15.5	12	20	
	1/9	R88G-VRXF09B100PCJ	67.5	32	60	52	70	60	50	3	15.5	12	20	
	1/15	R88G-VRXF15B100PCJ	83.5	32	60	52	70	60	50	3	15.5	12	20	
	1/25	R88G-VRXF25B100PCJ	83.5	32	60	52	70	60	50	3	15.5	12	20	
200 W	1/5	R88G-VRXF05B200PCJ	77.5	32	80	52	90	60	50	3	21.5	12	20	
	1/9	R88G-VRXF09C200PCJ	94.5	50	80	78	90	90	70	3	21.5	19	30	
	1/15	R88G-VRXF15C200PCJ	105.0	50	80	78	90	90	70	3	21.5	19	30	
	1/25	R88G-VRXF25C200PCJ	105.0	50	80	78	90	90	70	3	21.5	19	30	
400 W	1/5	R88G-VRXF05C400PCJ	94.5	50	80	78	90	90	70	3	21.5	19	30	
	1/9	R88G-VRXF09C400PCJ	94.5	50	80	78	90	90	70	3	21.5	19	30	
	1/15	R88G-VRXF15C400PCJ	105.0	50	80	78	90	90	70	3	21.5	19	30	
	1/25	R88G-VRXF25C400PCJ	105.0	50	80	78	90	90	70	3	21.5	19	30	

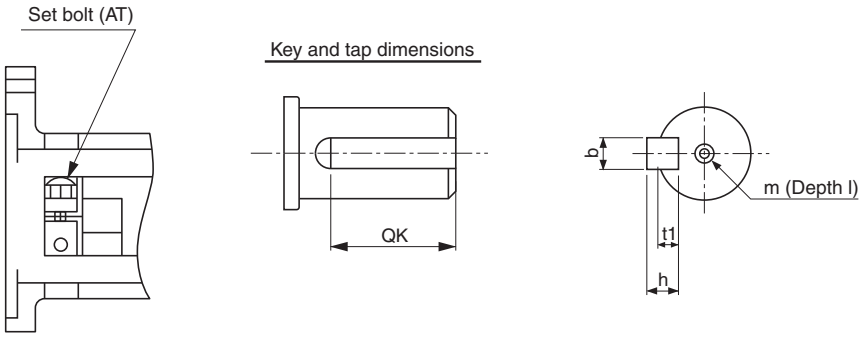
Note: 1. The standard shaft type is a shaft with key and tap.
Note: 2. The diameter of the motor shaft insertion is same as of the corresponding Servomotor shaft.
Note: 3. If the key on a Servomotor with key is uninstalled, it is possible to use the Decelerator by installing the Servomotor without above mentioned key.
Note: 4. The external dimensions diagrams in this manual provide only the main dimensions. They are not intended to show the detail shapes of the products.

Outline Drawings



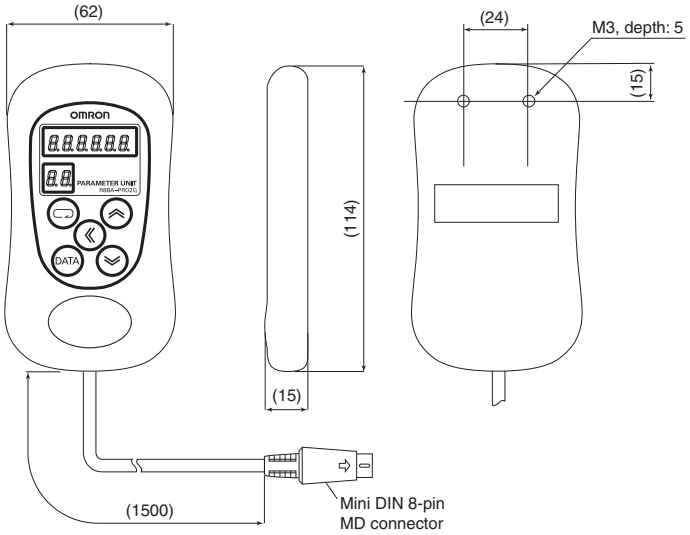
Dimensions (mm)											Model		
Z1	Z2	AT	M	L	Key				Tap				
					QK	b	h	t1	m	l			
M4	M5	M4	9	12	16	4	4	2.5	M5	10	**R88G-VRXF05B100PCJ**	1/5	100 W
M4	M5	M4	9	12	16	4	4	2.5	M5	10	**R88G-VRXF09B100PCJ**	1/9	
M4	M5	M4	9	12	16	4	4	2.5	M5	10	**R88G-VRXF15B100PCJ**	1/15	
M4	M5	M4	9	12	16	4	4	2.5	M5	10	**R88G-VRXF25B100PCJ**	1/25	
M5	M5	M4	11	12	16	4	4	2.5	M5	10	**R88G-VRXF05B200PCJ**	1/5	200 W
M5	M6	M5	11	20	22	6	6	3.5	M6	12	**R88G-VRXF09C200PCJ**	1/9	
M5	M6	M5	11	20	22	6	6	3.5	M6	12	**R88G-VRXF15C200PCJ**	1/15	
M5	M6	M5	11	20	22	6	6	3.5	M6	12	**R88G-VRXF25C200PCJ**	1/25	
M5	M6	M5	11	20	22	6	6	3.5	M6	12	**R88G-VRXF05C400PCJ**	1/5	400 W
M5	M6	M5	11	20	22	6	6	3.5	M6	12	**R88G-VRXF09C400PCJ**	1/9	
M5	M6	M5	11	20	22	6	6	3.5	M6	12	**R88G-VRXF15C400PCJ**	1/15	
M5	M6	M5	11	20	22	6	6	3.5	M6	12	**R88G-VRXF25C400PCJ**	1/25	

Outline Drawings



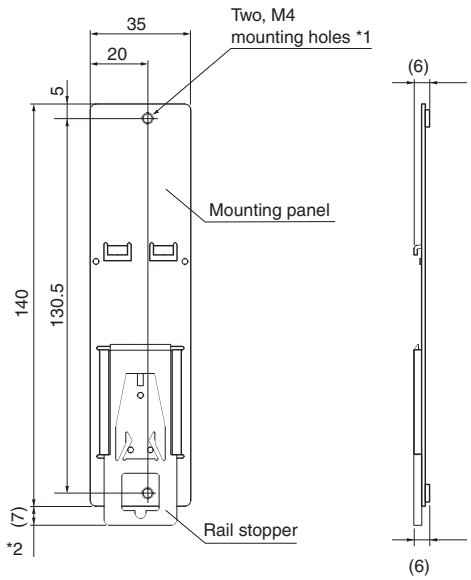
● Parameter Unit

R88A-PR02G



● DIN Rail Mounting Unit

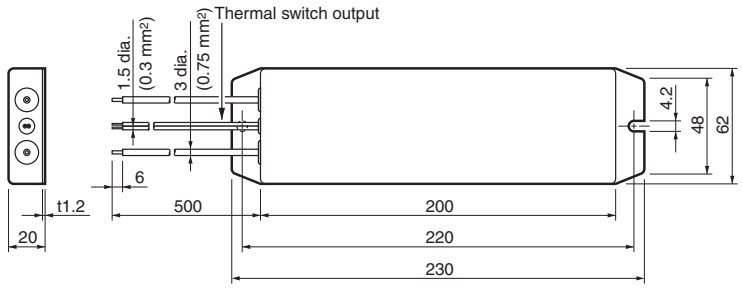
R7A-DIN01B



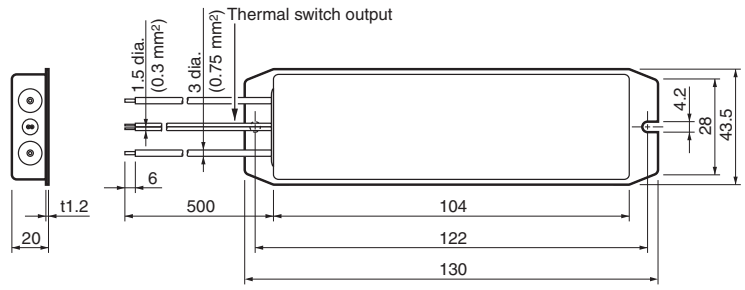
*** 1.** Two mounting screws (M4, length: 8) are included.
*** 2.** When the rail stopper is extended, this dimension becomes 10 mm.

● External Regeneration Resistor

R88A-RR22047S1



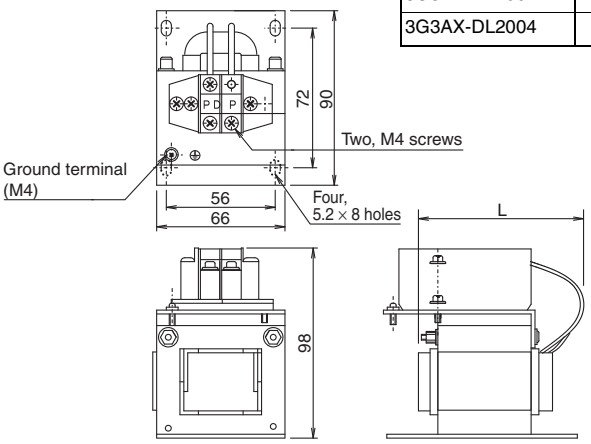
R88A-RR08050S
R88A-RR080100S



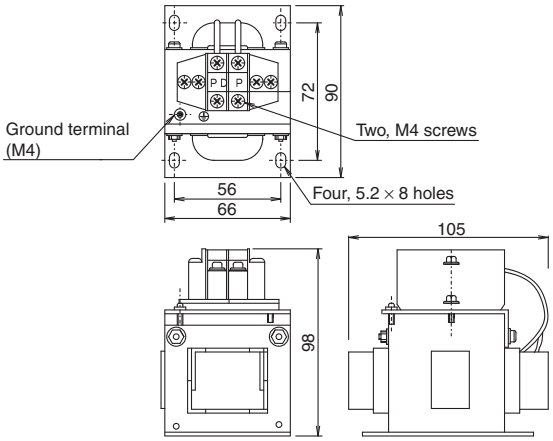
Reactor

3G3AX-DL2002
3G3AX-DL2004

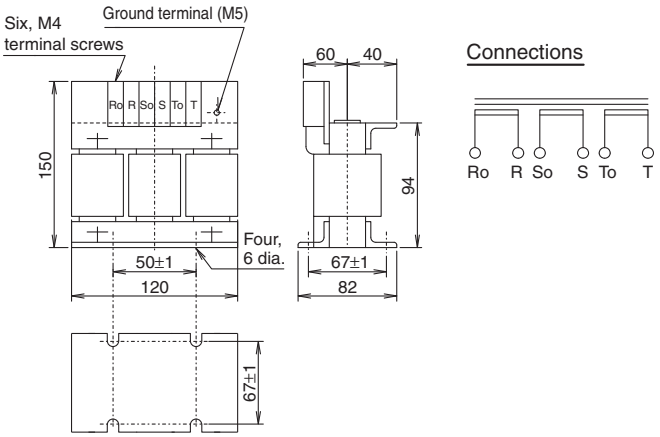
Model	L
3G3AX-DL2002	85
3G3AX-DL2004	95



3G3AX-DL2007



3G3AX-AL2025



Connections

About Manuals

English Cat. No.	Japanese Cat. No.	Type	Name
I561	SBCE-348	R88M-G/R7D-BP	AC Servomotors and SMARTSTEP 2-series Servo Drives with Pulse String Inputs User's Manual
W453	SBCE-375	CXONE-□□□□C-V□/ □□□□D-V□	CX-Drive OPERATION MANUAL

MEMO

Terms and Conditions Agreement

Read and understand this catalog.

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

Warranties.

(a) Exclusive Warranty. Omron's exclusive warranty is that the Products will be free from defects in materials and workmanship for a period of twelve months from the date of sale by Omron (or such other period expressed in writing by Omron). Omron disclaims all other warranties, express or implied.

(b) Limitations. OMRON MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, ABOUT NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OF THE PRODUCTS. BUYER ACKNOWLEDGES THAT IT ALONE HAS DETERMINED THAT THE PRODUCTS WILL SUITABLY MEET THE REQUIREMENTS OF THEIR INTENDED USE.

Omron further disclaims all warranties and responsibility of any type for claims or expenses based on infringement by the Products or otherwise of any intellectual property right. (c) Buyer Remedy. Omron's sole obligation hereunder shall be, at Omron's election, to (i) replace (in the form originally shipped with Buyer responsible for labor charges for removal or replacement thereof) the non-complying Product, (ii) repair the non-complying Product, or (iii) repay or credit Buyer an amount equal to the purchase price of the non-complying Product; provided that in no event shall Omron be responsible for warranty, repair, indemnity or any other claims or expenses 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. Return of any Products by Buyer must be approved in writing by Omron before shipment. Omron Companies shall not be liable for the suitability or unsuitability or the results from the use of Products in combination with any electrical or electronic components, circuits, system assemblies or any other materials or substances or environments. Any advice, recommendations or information given orally or in writing, are not to be construed as an amendment or addition to the above warranty.

See http://www.omron.com/global/ or contact your Omron representative for published information.

Limitation on Liability; Etc.

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

Further, in no event shall liability of Omron Companies exceed the individual price of the Product on which liability is asserted.

Suitability of Use.

Omron Companies shall not be responsible for conformity with any standards, codes or regulations which apply to the combination of the Product in the Buyer's application or use of the Product. At Buyer's request, Omron will provide applicable third party certification documents identifying ratings and limitations of use which apply to the Product. This information by itself is not sufficient for a complete determination of the suitability of the Product in combination with the end product, machine, system, or other application or use. Buyer shall be solely responsible for determining appropriateness of the particular Product with respect to Buyer's application, product or system. Buyer shall take application responsibility in all cases.

NEVER USE THE PRODUCT FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY OR IN LARGE QUANTITIES WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON PRODUCT(S) IS PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.

Programmable Products.

Omron Companies shall not be responsible for the user's programming of a programmable Product, or any consequence thereof.

Performance Data.

Data presented in Omron Company websites, catalogs and other materials 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 user must correlate it to actual application requirements. Actual performance is subject to the Omron's Warranty and Limitations of Liability.

Change in Specifications.

Product specifications and accessories may be changed at any time based on improvements and other reasons. It is our practice to change part numbers when published ratings or features are changed, or when significant construction changes are made. However, some specifications of the Product may be changed without any notice. When in doubt, special part numbers may be assigned to fix or establish key specifications for your application. Please consult with your Omron's representative at any time to confirm actual specifications of purchased Product.

Errors and Omissions.

Information presented by Omron Companies has been checked and is believed to be accurate; however, no responsibility is assumed for clerical, typographical or proofreading errors or omissions.

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

OMRON Corporation **Industrial Automation Company**
Kyoto, 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
2895 Greenspoint Parkway, Suite 200
Hoffman Estates, IL 60169 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:

CSM_9_6_0917
Cat. No. I813-E1-04 0917(0208)

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for Specialised Cables ***category:***

Click to view products by Omron ***manufacturer:***

Other Similar products are found below :

603PT6 603SS6L 604PT6 604SS6 706000D02F200 910640 1200740077 1200740114 AC172 ACL-SSI-4 R88ACAKA0015SRE R88ACAWL005SDE R88ACRGD0R3C 1300150047 1300660036 1302262116 1300150149 1300220020 1300220104 1300220119 1301240492 1301810221 1365323-1 1613055 176P12 1971465-2 20240400003 20240400013 2085828-1 20886510030 2-22733-8 22733-8 CB-5PSBC-RS CB-704EC-RS CB-BATACC-RS CB-JST3PSW-RS CB-M12COM-R10 25AC84 25AK84X 25AU25 25FN82 3011-03 AC118 ACL-HHS-1M(CAT5E) SSL009PC2DC012N FC2A-KC6C 2085828-2 20886510150 CCS-FCB-5 CCSFCBF2