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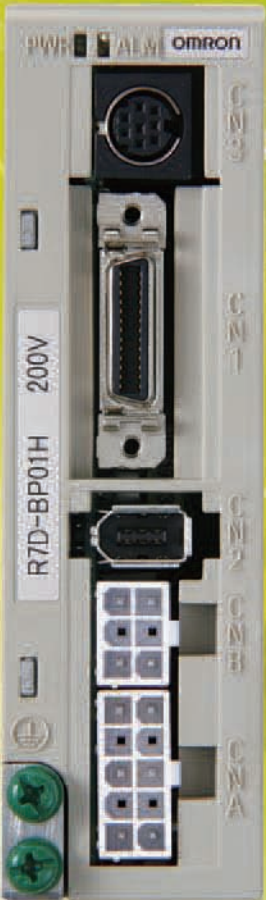
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AC Servomotors/ Servo Drives

SMARTSTEP2

Advanced Functionality in a Super Compact Design



Actual Size
35×120×105 (W×H×D)
(Excluding mounting)



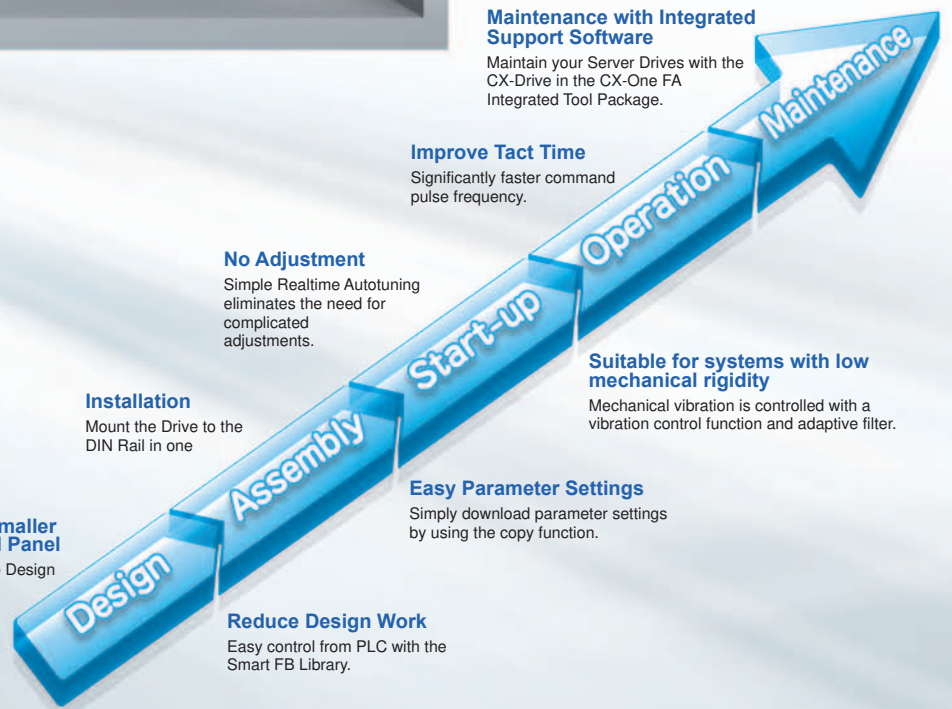
- » Compact
- » Easy
- » High Specification

Easy and Advanced Performance



Compact Design, Easy Application, and Advanced Functions **SMARTSTEP2**

Solve Your Equipment Problems from Design to Maintenance.





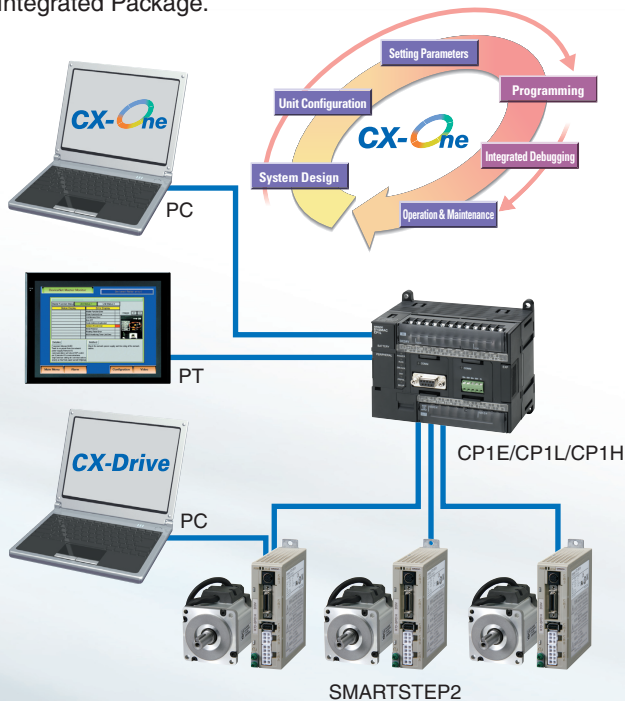
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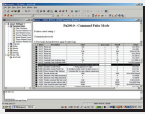
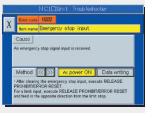
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A New Series

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.



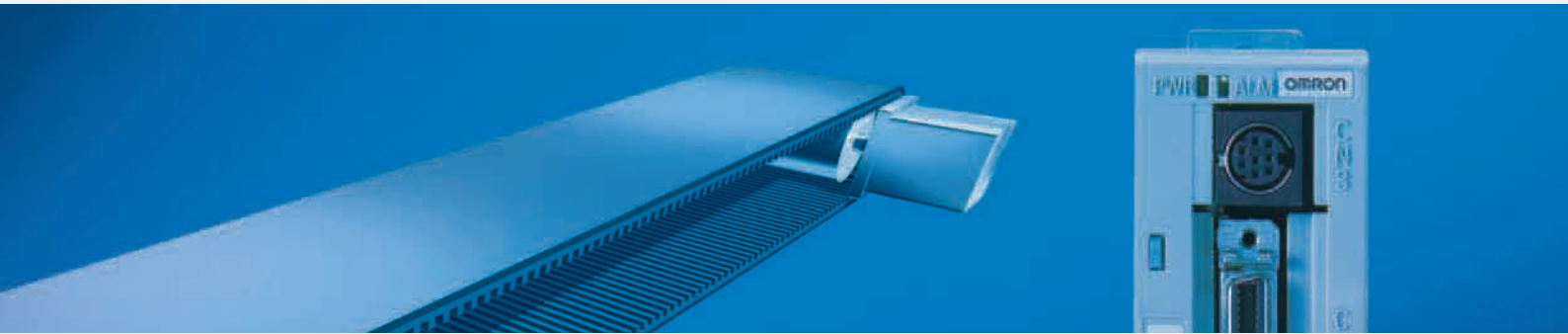
- 
Setting & Programming
 Easy programming with the Smart FB Library
- 
Parameter Editing & Monitoring
 The Servomotor parameters can be edited, monitored, and saved with the CX-Drive.
- 
Alarm & Maintenance
 Easy monitoring of the NC Unit & Drive errors

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.

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Easy monitoring of Position Control Unit and Servo Drive errors

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



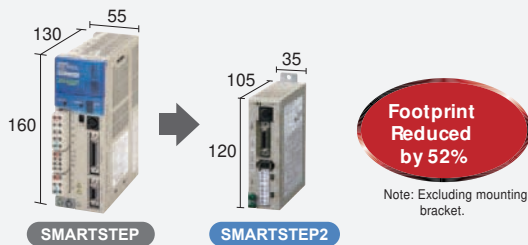
Compact!

Easy!

Smaller Servo Drives for Multi-axis Applications

Reduce footprint in the control panel.

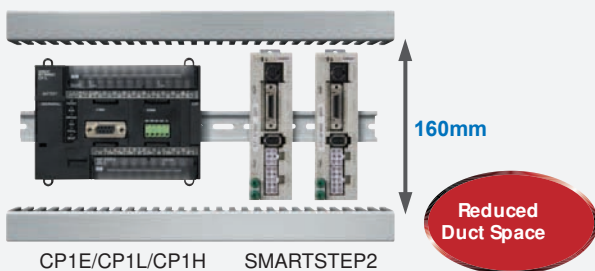
The super-compact SMARTSTEP is now even smaller. The footprint has been reduced by 52%, helping to reduce control panel size.



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.

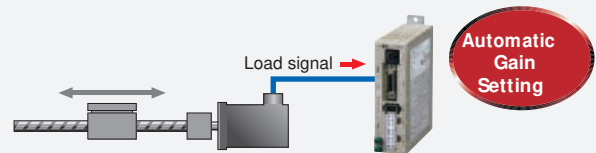


Note: Use the wiring duct and the height max 60mm.
The width between the top and bottom side of the board and the drives is max 100 mm.

Easy 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.

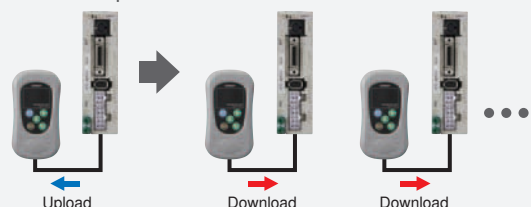
The Servo Drive can be mounted onto a DIN Rail in a single step by using the DIN Rail Mounting Unit (sold separately) for easier assembly and easier maintenance replacements.



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.



for a Wide Range of Applications System That's Easy to Use

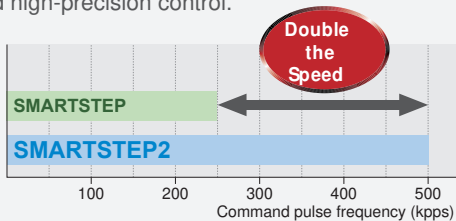
SMARTSTEP2 for Precise Positioning with Ease

Advanced Functionality!

Reduce Tact Time

Achieve high-speed positioning and movement.

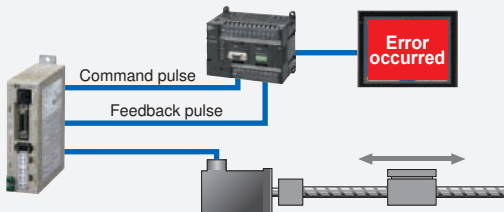
The command pulse frequency at 500 kpps is twice as fast as previous OMRON models, enabling high-speed and high-precision control.



Check the Present Position

Monitor positioning errors with a feedback pulse.

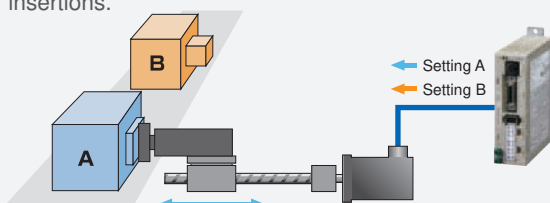
The present position can be checked from the host using the feedback pulse sent from the Servo Drive to the Controller, allowing device errors to be monitored.



Change Pressing Force

Torque limiting function.

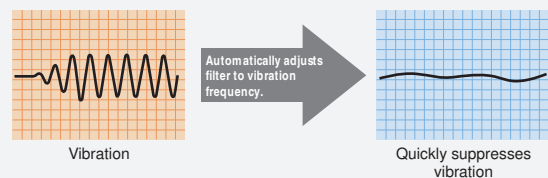
Set two torque limits, and switch between the two limits depending on the application, such as pressing or part insertions.



Reduce Mechanical Vibration

Quick suppression of vibration with an adaptive filter.

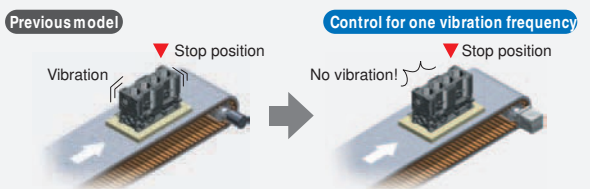
The vibration frequency is automatically measured to remove vibration. Even if the resonant frequency changes, realtime evaluation automatically follows the changes to reduce the effect of vibration due to low mechanical rigidity, such as for conveyor belts.



Reduce Tact Time

High-speed positioning with vibration control.


Mechanical vibration at the stop position caused by low mechanical rigidity can be suppressed by removing the vibration frequency.



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	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.
- AUTO:** 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.
- INC:** 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

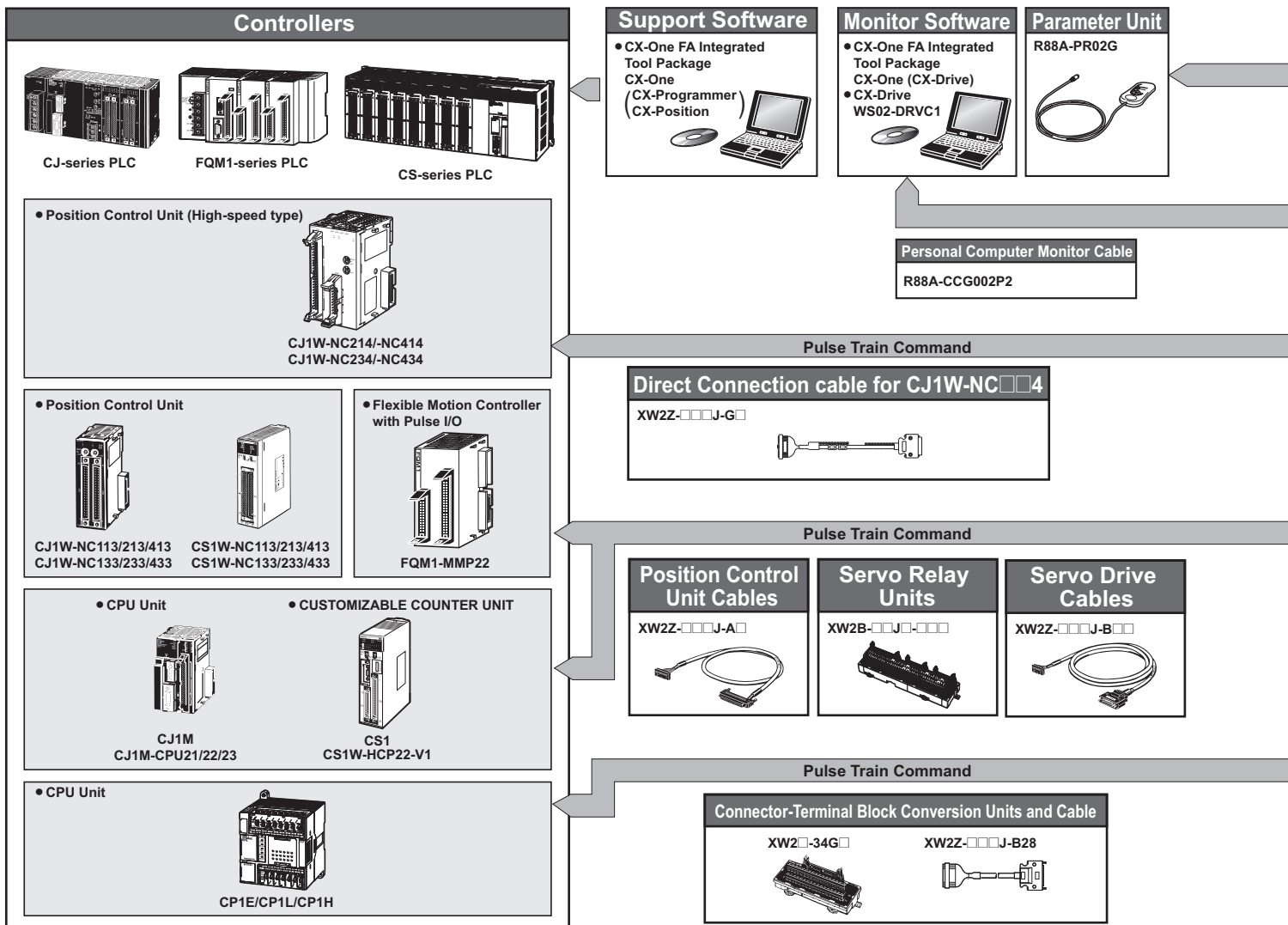
Realtime autotuning estimates the load inertia of the machine in realtime and automatically and constantly sets the optimal gain. The adaptive filter automatically suppresses vibration caused by resonance.

• Compatible with 90° Phase Difference Input Command Pulses

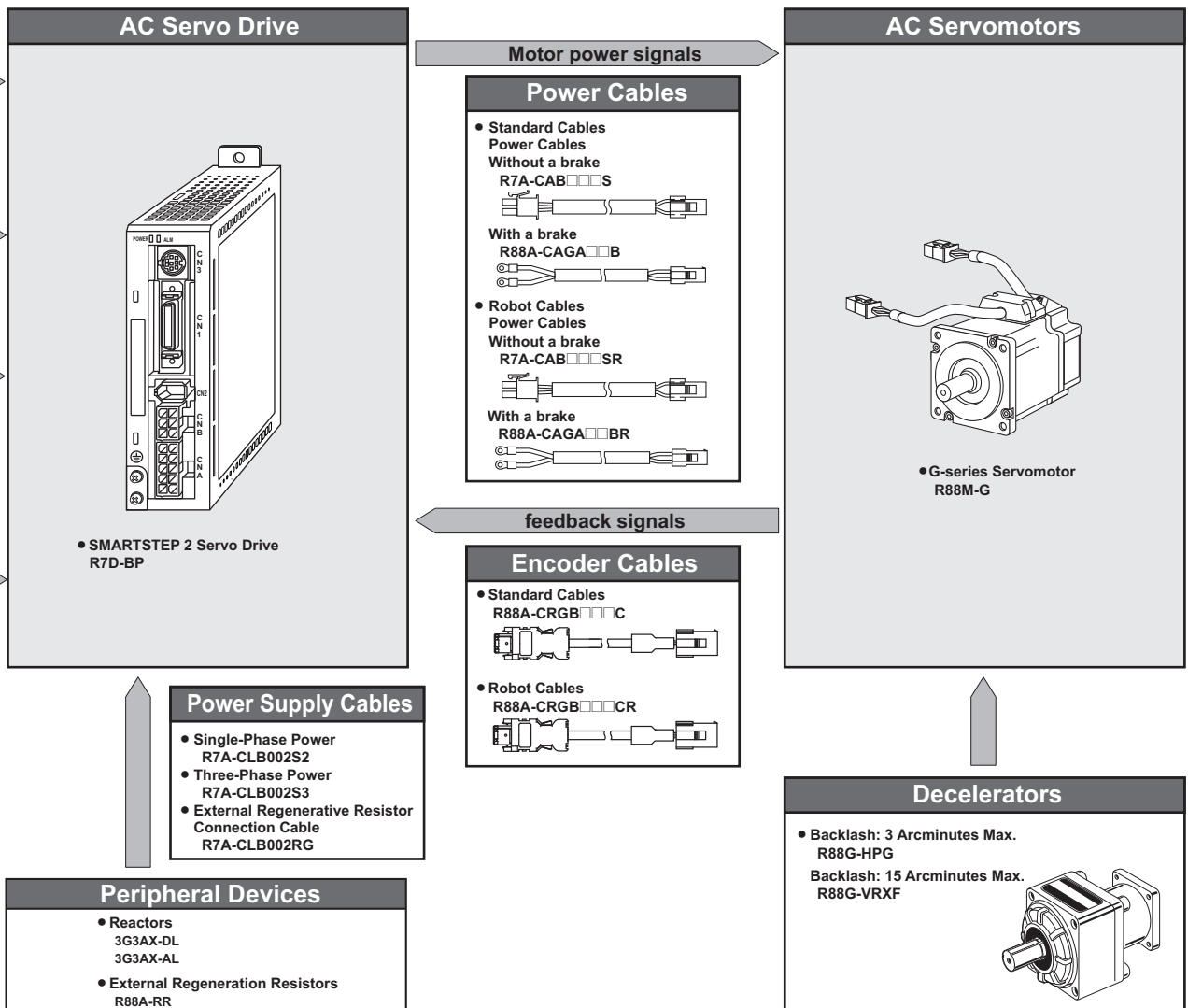
In addition to conventional CW/CCW inputs (2 pulses) and SIGN/PULS inputs (1 pulse), the SMARTSTEP 2 supports 90° phase difference inputs. This makes it possible to input encoder output signals directly into the Servo Drive for simplified synchronization control.

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.



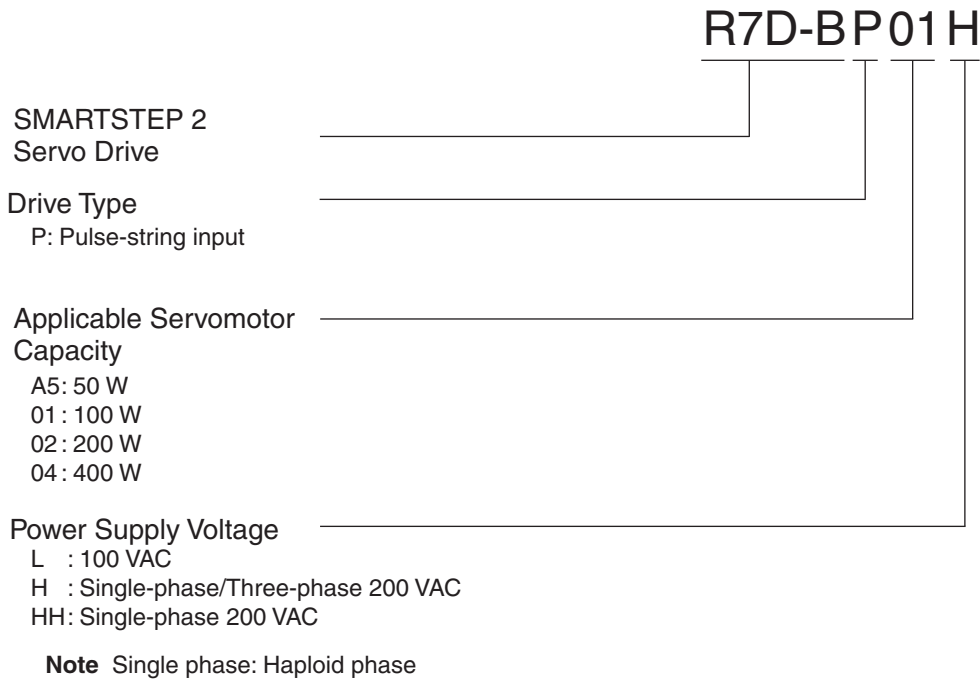
- **A Wide Range of Pulse Settings**
A wide range of pulse settings, such as the command pulse factor, electronic gear, and encoder dividing rate, enable optimal pulse settings for your device or system.
- **Simplified Speed Control with Internal Speed Settings**
Four internal speed settings allow the 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.



Interpreting Model Numbers

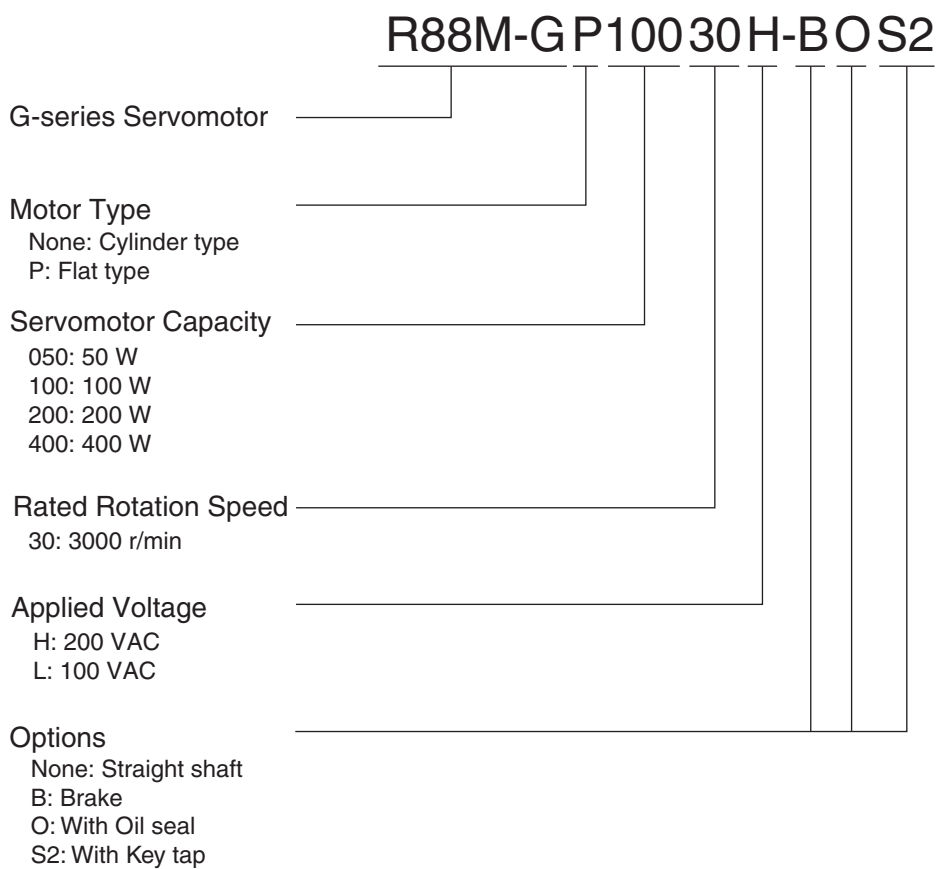
● Servo Drive Model Numbers

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



● 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.

R88G-HPG14A05100PBJ

Decelerator for Servomotors
Backlash = 3' Max.

Flange Size Number

- 11A :□40
- 14A :□60
- 20A :□90
- 32A :□120
- 50A :□170
- 65A :□230

Gear Ratio

- 05 :1/5
- 09 :1/9 (only frame number 11A)
- 11 :1/11 (except frame number 65A)
- 12 :1/12 (only frame number 65A)
- 20 :1/20 (only frame number 65A)
- 21 :1/21 (except frame number 65A)
- 25 :1/25 (only frame number 65A)
- 33 :1/33
- 45 :1/45

Applicable Servomotor Capacity

- 050 : 50 W
- 100 :100 W
- 200 :200 W
- 400 :400 W

Motor Type

- Blank :3,000-r/min cylindrical servomotors
- P :flat servomotors

Backlash

- B :3' max.

Option

- Blank :Straight shaft
- J :With key and tap

Backlash = 15' Max.

R88G-VRXF09B100PCJ

Decelerator for Servomotors
Backlash = 15' Max.

Gear Ratio

- 05 :1/5
- 09 :1/9
- 15 :1/15
- 25 :1/25

Flange Size Number

- B :□52
- C :□78
- D :□98

Applicable Servomotor Capacity

- 100 :50 W, 100 W
- 200 :200 W
- 400 :400 W

Motor Type

- Blank :3,000-r/min cylindrical servomotors
- P :flat servomotors

Backlash

- C :15' max.

Option

- J :With key and tap

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
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
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
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 $\pm 4\%$ 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
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 $\pm 4\%$ 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
		1 m	XW2Z-100J-G8
	for 2 axis	1 m	XW2Z-100J-G8
		3 m	XW2Z-300J-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

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 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.

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.

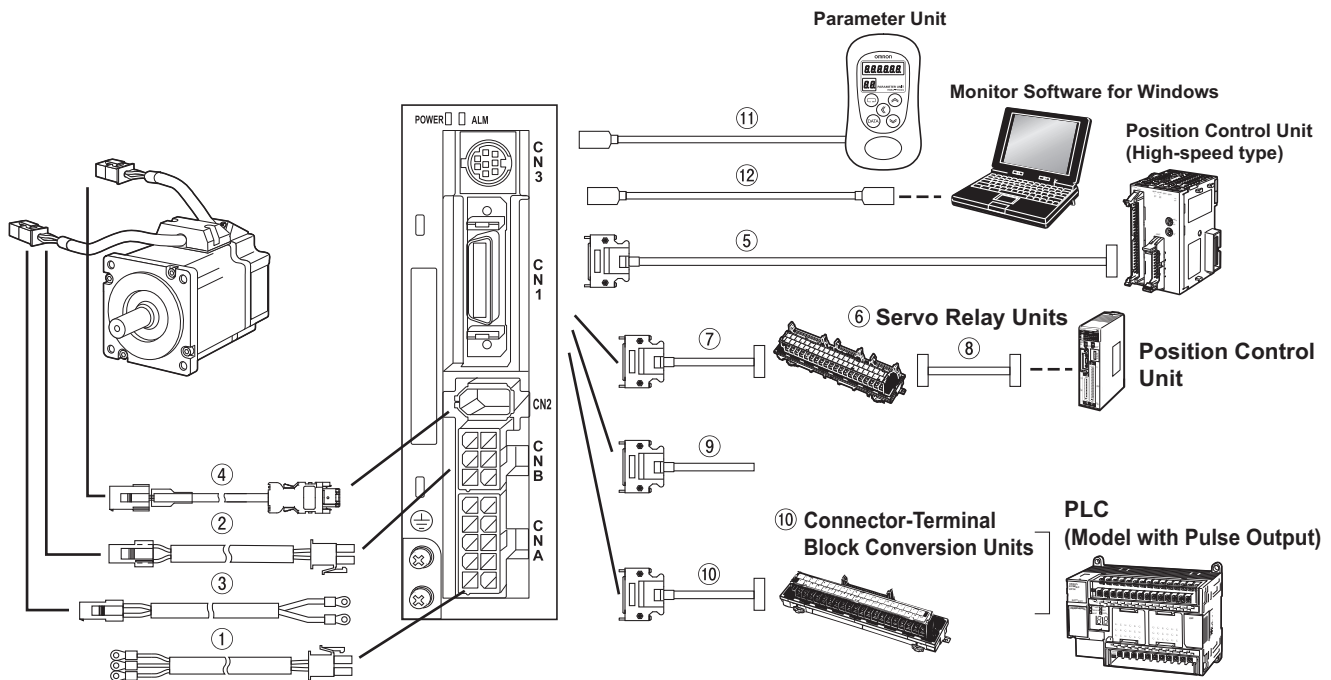
Note: 1. Insert the cable length into the boxes in the model number (□□□). Position Control Unit cables come in two lengths: 0.5 m and 1 m (some are also available in lengths of 2 m). Servo Drive Cables also come in two lengths: 1 m and 2 m. For information on cable lengths, refer to Accessories and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

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

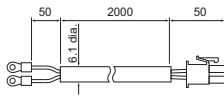
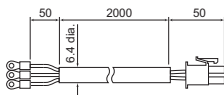
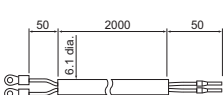
Note: 3. Direct cable is available for CJ1W-NC□□4 Position Control Unit (High-Speed type).

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

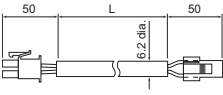
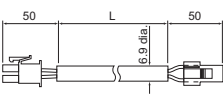
Cable Combinations



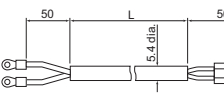
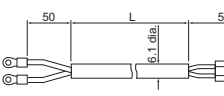
● Power Supply Cables (for CNA)

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	 <p>[Servo Drive Connector] Connector pins: 5556PBT (Molex Japan Co., Ltd.) Connector case: 5557-10R-210 (Molex Japan Co., Ltd.)</p>
	Power Supply Input Cable for Three-Phase Power (connectors attached)	Three-Phase 200 V R7D-BP	R7A-CLB002S3	 <p>[Servo Drive Connector] Connector pins: 5556PBT (Molex Japan Co., Ltd.) Connector case: 5557-10R-210 (Molex Japan Co., Ltd.)</p>
	External Regenerative Resistor Connection Cable	Using the Servo Drive with External Regeneration Resistor Connected R88A-RR22047S1 R88A-RR080100S R88A-RR08050S	R7A-CLB002RG	

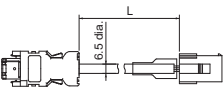
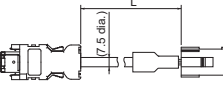
● Servomotor Power Cables (for CNB)

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.	 <p>[Servo Drive Connector] Connector pins: 5556PBT (Molex Japan Co., Ltd.) Connector case: 5557-06R-210 (Molex Japan Co., Ltd.)</p> <p>[Servomotor Connector] Connector pins: 170366-1 or 170362-1 (Tyco Electronics AMP KK) Connector case: 172159-1 (Tyco Electronics AMP KK)</p>
	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.	 <p>[Servo Drive Connector] Connector pins: 5556PBT (Molex Japan Co., Ltd.) Connector case: 5557-06R-210 (Molex Japan Co., Ltd.)</p> <p>[Servomotor Connector] Connector pins: 170366-1 or 170362-1 (Tyco Electronics AMP KK) Connector case: 172159-1 (Tyco Electronics AMP KK)</p>

● 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.	 <p>[Servomotor Connector] Connector pins: 170366-1 or 170362-1 (Tyco Electronics AMP KK) Connector case: 172157-1 (Tyco Electronics AMP KK)</p>
	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.	 <p>[Servomotor Connector] Connector pins: 170366-1 or 170362-1 (Tyco Electronics AMP KK) Connector case: 172157-1 (Tyco Electronics AMP KK)</p>

● 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.	<p>[Servo Drive Connector] Connector pins: 50639-8028 (Molex Japan Co., Ltd.) Connector case: Crimped I/O connector: (Molex Japan Co., Ltd.)</p>  <p>[Servomotor Connector] Connector pins: 170365-1 (Tyco Electronics AMP KK) Connector case: 172160-1 (Tyco Electronics AMP KK)</p>
	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.	<p>[Servo Drive Connector] Connector pins: 50639-8028 (Molex Japan Co., Ltd.) Connector case: Crimped I/O connector: (Molex Japan Co., Ltd.)</p>  <p>[Servomotor Connector] Connector pins: 170365-1 (Tyco Electronics AMP KK) Connector case: 172160-1 (Tyco Electronics AMP KK)</p>

● 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/s ² (0.6 G) max.
Impact resistance		Acceleration of 19.6 m/s ² 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/s ² max. in the X, Y, and Z directions
Impact resistance		Acceleration of 98 m/s ² 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
	UL standards	IEC 60034-5:2001
	cUL standards	UL 1004 File No. E179189
		cUL 22.2, No.100

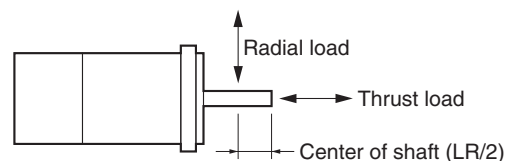
Note: Always disconnect all connections to the Servo Drive before you perform insulation resistance tests on it. If you perform an insulation resistance test while the Servo Drive is connected, the Servo Drive may be damaged.
Never perform dielectric strength tests on the Servo Drive. Failure to follow 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·m ²	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·m ²	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/s ²	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			

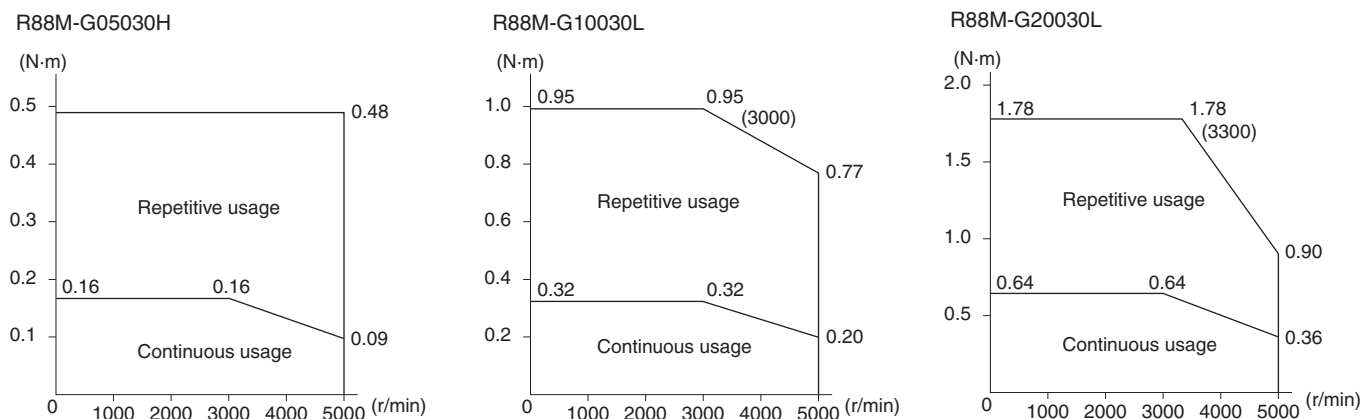
- * 1. These are the values when the Servomotor is combined with a Servo Drive at room temperature. The momentary maximum torque shown above indicates the standard value.
- * 2. The allowable radial and thrust loads are the values determined for a service life of 20,000 hours at normal operating temperatures. 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.



Servomotor Specifications (R88M-G)

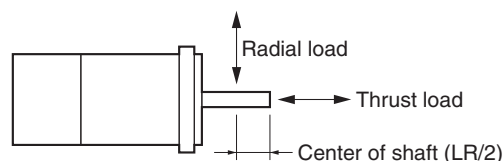
● Characteristics

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·m ²	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·m ²	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/s ²	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.

