Cat.No. I805–E1–1

OMNUC W-series

AC Servomotors
AC Servodrivers

CATALOG

OMRON

Choose the Servomotor/Servodriver for Each Application

■ Servomotor/Servodriver Combinations

R88M Servomotors						R88D Servodrivers			Application
Style	Rated speed	Capacity	International standards CE, UL/cUL	Shaft end (without reduction gear)	Enclosure rating	100 V	200 V Single phase	200 V Three phase	
Cylinder style	3,000 r/min. (5,000 r/min.)	30 W	Approved	Straight With key With key and tap Straight with tap	IP55 (excluding shaft opening)	WTA3HL	WTA3H	---	Low-inertia machines Machines with fast tact times (Robots, Assembly machines, Conveyance machines)
		50 W				WTA5HL	WTA5H	---	
		100 W				WT01HL	WT01H	---	
		200 W				WT02HL	WT02H	---	
		400 W				---	WT04H	---	
		750 W				---	---	WT08H	
		1 kW		With key and tap Straight	IP67 (excluding shaft opening)	---	---	WT10H	
		1.5 kW				---	---	WT15H	
		2 kW				---	---	WT20H	
		3 kW				---	---	WT30H	
		4 kW				---	---	WT50H	
		5 kW				---	---	WT50H	
	1,000 r/min. (2,000 r/min.)	300 W	Approved	With key and tap Straight	IP67 (excluding shaft opening)	---	---	WT05H	Machines requiring high torque (Simple processing machines, Assembly machines, Transfer machines)
		600 W				---	---	WT08H	
		900 W				---	---	WT10H	
		1.2 kW				---	---	WT15H	
		2 kW				---	---	WT20H	
		3 kW				---	---	WT30H	
		4 kW				---	---	WT50H	
		5.5 kW				---	---	WT60H	
Flat style	3,000 r/min. (5,000 r/min.)	100 W	Approved	Straight With key With key and tap Straight with tap	IP55 (excluding shaft opening) IP67 (including shaft opening)	WT01HL	WT01H	---	Machines allowing little motor depth Machines requiring waterproof motor (Semiconductor-manufacturing machines, Food-processing machines, AGVs)
		200 W				WT02HL	WT02H	---	
		400 W				---	WT04H	---	
		750 W				---	---	WT08H	
		1.5 kW				---	---	WT15H	

Available Models

AC Servodrivers

R88D-WT□□H□
1 2 3 4 5 6

Part	Item	Code	Specification
1	R88D indicates the product is a Servodriver.		
2	Series	W	---
3	Input signal	T	Analog or pulse-train input
4	Max. output capacity	A3	30 W
		A5	50 W
		01	100 W
		02	200 W
		04	400 W
		05	500 W
		08	750 W
		10	1 kW
		15	1.5 kW
		20	2 kW
		30	3 kW
		50	5 kW
		60	6 kW
5	---	H	---
6	Power supply	Blank	200 VAC
		L	100 VAC

Combinations that Maximize Performance

AC Servomotors (Without Reduction Gear)

R88M-W□□□□□□□□-□□□□
1 2 3 4 5 6 7 8 9

Part	Item	Code	Specification
1	R88M indicates the product is a Servomotor.		
2	Series	W	---
3	Style	Blank	Cylinder style
		P	Flat style
4	Motor capacity	030	30 W
		050	50 W
		100	100 W
		200	200 W
		300	300 W
		400	400 W
		600	600 W
		750	750 W
		900	900 W
		1K0	1 kW
		1K2	1.2 kW
		1K5	1.5 kW
		2K0	2 kW
		3K0	3 kW
		4K0	4 kW
		5K0	5 kW
		5K5	5.5 kW
5	Speed	10	1000 r/min.
		30	3000 r/min.
6	Motor power supply specifications	H	200 VAC, incremental encoder
		L	100 VAC, incremental encoder
		T	200 VAC, absolute encoder
		S	100 VAC, absolute encoder
7	Brake	Blank	No brake
		B	24-VDC brake
8	Waterproof specification (See note.)	Blank	Not waterproof
		W	Waterproof
9	Shaft end	Blank	Straight
		S1	With key
		S2	With key and tap
		S3	Straight with tap

Note: The waterproof specification is available with the flat-style Servomotors only.

AC Servomotors (With Reduction Gear)

R88M-W□□□□□□□□-□G□□□□
1 2 3 4 5 6 7 8 9 10

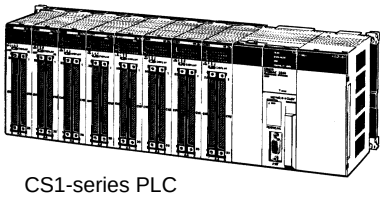
Part	Item	Code	Specification
1	R88M indicates the product is a Servomotor.		
2	Series	W	---
3	Style	Blank	Cylinder style
		P	Flat style
4	Motor capacity	030	30 W
		050	50 W
		100	100 W
		200	200 W
		300	300 W
		400	400 W
		600	600 W
		750	750 W
		900	900 W
		1K0	1 kW
		1K2	1.2 kW
		1K5	1.5 kW
		2K0	2 kW
		3K0	3 kW
		4K0	4 kW
		5K0	5 kW
5	Speed	10	1000 r/min.
		30	3000 r/min.
6	Motor power supply specifications	H	200 VAC, incremental encoder
		L	100 VAC, incremental encoder
		T	200 VAC, absolute encoder
		S	100 VAC, absolute encoder
7	Brake	Blank	No brake
		B	24-VDC brake
8	Gear ratio	G05	1/5
		G09	1/9
		G11	1/11
		G15	1/15
		G20	1/20
		G21	1/21
		G25	1/25
		G29	1/29
		G33	1/33
		G45	1/45
9	Backlash	B	3 minutes max.
		C	About 45 minutes
10	Brake shaft end	Blank	Straight
		J	With key

Note: 1. Check to see whether the desired model is listed in the *Standard Models* on pages 53 to 58. Contact your OMRON dealer if the desired model is not listed in the *Standard Models*.

2. Not all motors can be combined with a brake. See *Servomotor and Reduction Gear Combinations* on page 59 for more details.

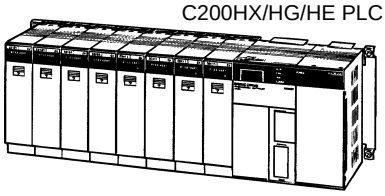
Configure the System to Match the

■ Controllers

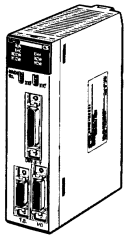


CS1-series PLC

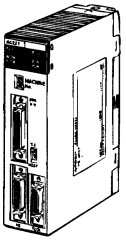
C200HX/HG/HE PLC



Motion Control (MC) Unit

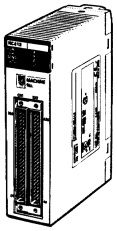


CS1W-MC221/421

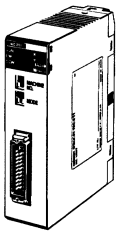


C200H-MC221

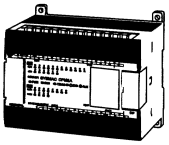
Position Control (NC) Unit



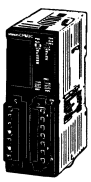
C200HW-NC113/213/413



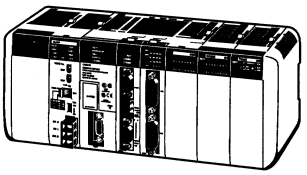
C200H-NC211/112



CPM2A PLC



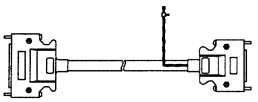
CPM2C PLC



CQM1H PLC

Analog Commands

R88A-CPW□□□M□
Dedicated Control Cable

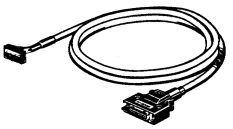


See page 58 for details on available models.

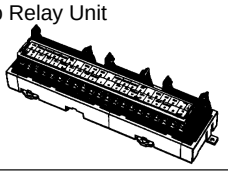
Feedback Signals

Pulse-train Commands

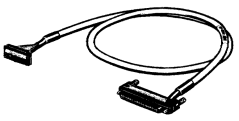
XW2Z-□□□J-B4
Servodriver Cable



XW2B-□□□J6-□B
Servo Relay Unit



XW2Z-□□□J-A□
Dedicated Control Cable

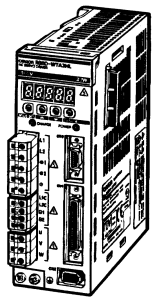


See page 58 for details on available models.

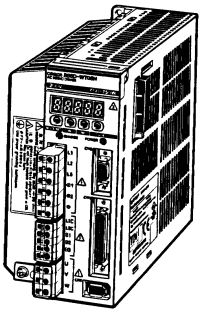
Application.

■ OMNUC W-series Servodrivers

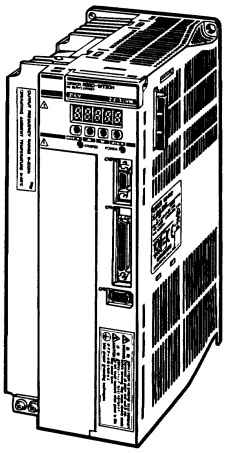
Servodrivers representative of each series are shown.



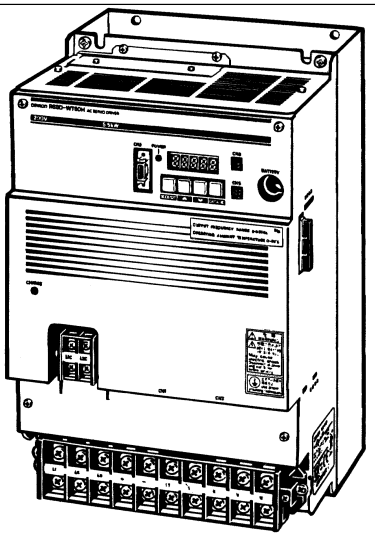
R88D-WTA3HL



R88D-WT08H

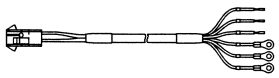


R88D-WT30H



R88D-WT60H

- Power Cables
  For motors without brake:
  R88A-CAW□□□S
  For motors with brake:
  R88A-CAW□□□B

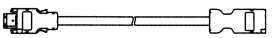


Power Signals

Feedback Signals

- Encoder Cables
  R88A-CRWA□□□C
  For cylinder-style motors (3,000 r/min):
  30 W to 750 W
  For flat-style motors:
  100 W to 1.5 kW

  R88A-CRWB□□□N
  For cylinder-style motors (3,000 r/min):
  1 kW to 5 kW
  For cylinder-style motors (1,000 r/min):
  300 W to 5.5 kW

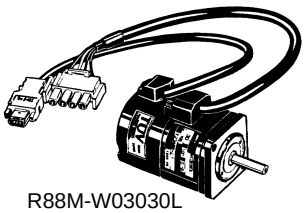


See page 57 for details on available models.

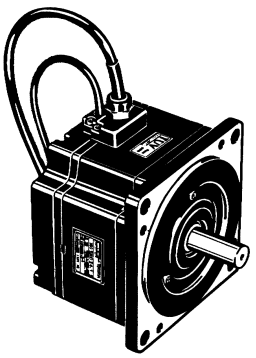
See page 58 for details on available models.

■ OMNUC W-series Servomotors

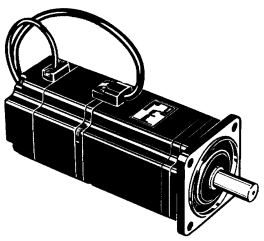
Servomotors representative of each series are shown.



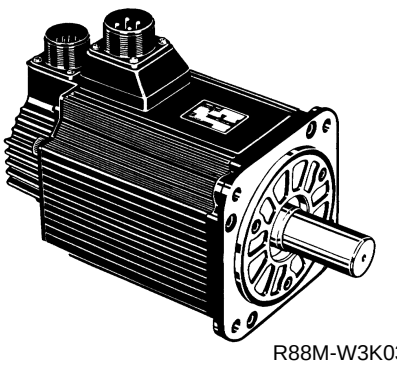
R88M-W03030L



R88M-WP75030M



R88M-W75030T-B

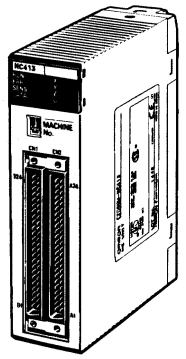


R88M-W3K030H

Combining the Servodriver with a Controller from Simple Positioning

■ Position Control (NC) Units

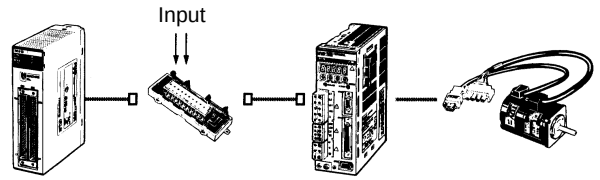
Perform simple positioning just by writing position data from the CPU Unit.



C200HW-NC113/213/413

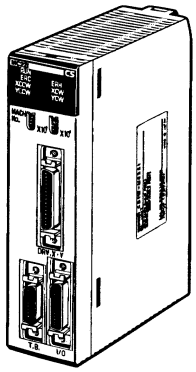
Open Loop Method, Pulse Output

- Simple positioning can be performed with the direct operation function.
- The Position Control Unit can respond to commands from the CPU Unit and produce a pulse output at high speed (10 ms when using the C200HW-NC113.)
- To suppress machine vibration, an S-shape curve can be specified for the acceleration/deceleration curve instead of a trapezoidal curve.
- When the C200HW-NC113 is being used, the Unit's data and parameters can be created and stored easily using the WS01-NCTF1-E Support Software.
- When the C200HW-NC113 is being used, position data can be stored in the Position Control Unit's flash memory, which eliminates the need to periodically replace the backup battery.

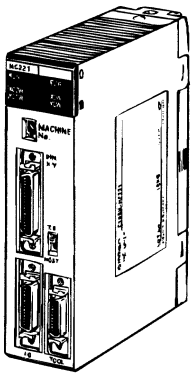


■ Motion Control (MC) Units

These high-speed, highly accurate, 2-axis/4-axis Motion Controllers are equipped with the multi-tasking G language and are compatible with absolute and incremental encoders.

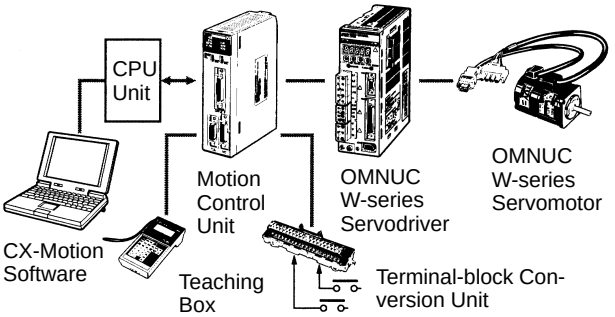


CS1W-MC221/421



C200H-MC221

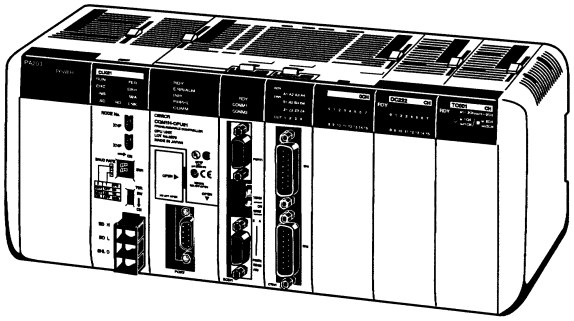
- The multi-tasking G language allows 4 axes to be controlled simultaneously and it is also possible to control each axis independently. The G language can simplify the PLC's ladder program by reducing position-control-related ladder programming.
- Winding operations can be simplified and speeded up. (Instructions providing a 2-axis traverse function are available.)
- The encoder response frequency is 2 Mpps for x4 operation, which is compatible with applications requiring high-speed and high-accuracy.
- A D code (interrupt code) can be output to the CPU Unit when positioning is completed or an important position is passed.
- Programming is easy with the WIndows-based CX-Motion Support Software.
- A manual pulse generator can be used.



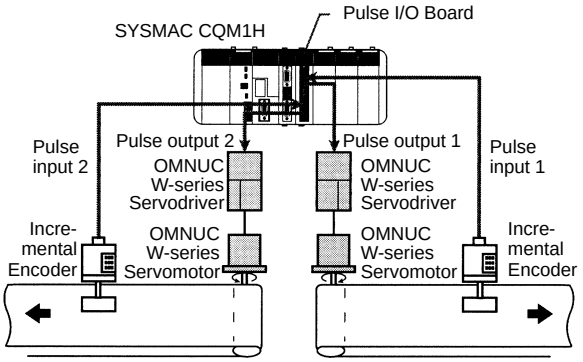
Can Improve Machine Productivity to Advanced Positioning

■ SYSMAC CQM1H

The CQM1H is an advanced, compact PLC that can also provide distributed control. The optional Inner Boards used in the CQM1H can support simple positioning and pulse I/O.



SYSMAC CQM1H



Pulse I/O Board

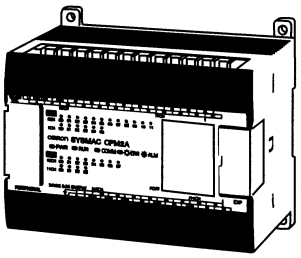
The Pulse I/O Board is equipped with 2 ports which each support a high-speed input at up to 50 KHz and a high-speed output at up to 50 KHz. A Pulse I/O Board can be used for simple 2-axis positioning or speed control with the frequency conversion instructions.

Absolute Encoder Interface Board

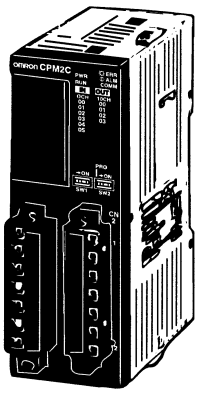
ABS inputs are 12-bit binary gray-code inputs. Position data is retained even when power is interrupted, so it isn't necessary to perform an origin-return procedure when power is restored. In addition, the origin compensation function allows the user to specify any position as the origin.

■ SYSMAC CPM2A/CPM2C

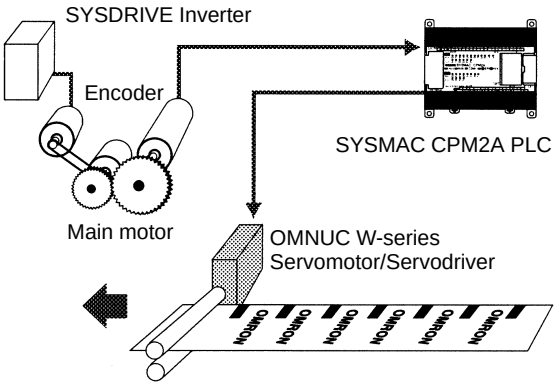
The CPM2A/CPM2C PLCs are equipped with synchronized pulse control and position control functions. Meets the needs for higher line speed and multiple-product small-lot production.



SYSMAC CPM2A



SYSMAC CPM2C



Synchronized Pulse Control

The output pulse frequency can be set to be a specified multiple of the input pulse frequency and that multiple can be changed from the ladder program. This function can be used to adjust the feed rate of packaging film so that the brand name or other printing remains in the correct location during packaging.

Position Control Function

This function supports 1-axis pulse outputs with trapezoidal acceleration/deceleration (10 kHz) and 2-axis simple pulse outputs. A Servomotor can be used for operations such as adjusting the feed rate of workpieces (constant feed) and the amount of fillings (constant amount) such as jam or custard.

Servomotor Specifications

■ Performance Specifications

Cylinder-style Motors (3,000 r/min)

Item		200 VAC											
Servomotor (R88M-)		W0303 0□	W0503 0□	W1003 0□	W2003 0□	W4003 0□	W7503 0□	W1K0 30□	W1K5 30□	W2K0 30□	W3K0 30□	W4K0 30□	W5K0 30□
Servodriver (R88D-)		WTA3H	WTA5H	WT01H	WT02H	WT04H	WT08H	WT10H	WT15H	WT20H	WT30H	WT50H	WT50H
Rated output	W	30	50	100	200	400	750	1 k	1.5 k	2 k	3 k	4 k	5 k
Rated torque	N•m	0.0955	0.159	0.318	0.637	1.27	2.39	3.18	4.90	6.36	9.80	12.6	15.8
Max. momentary torque	N•m	0.286	0.477	0.955	1.91	3.82	7.16	9.54	14.7	19.1	29.4	37.8	47.6
Rated speed	r/min	3,000											
Max. momentary speed	r/min	5,000											
Rated current	A(rms)	0.44	0.64	0.91	2.1	2.8	4.4	5.7	9.7	12.7	18.8	25.4	28.6
Rotor inertia (without brake)	kg•m^2 $\times 10^{-4}$	0.0166	0.022	0.0364	0.106	0.173	0.672	1.74	2.47	3.19	7.0	9.6	12.3
Power rate	kW/s	5.49	11.5	27.8	38.2	93.7	84.8	57.9	97.2	127	137	166	202
Applicable load inertia	Multiple	30				20		10					
Allowable radial load on shaft	N	68		78	245		392	686			980	1176	
Allowable thrust load on shaft	N	54			74		147	196			392		
Approx. weight (without brake)	kg	0.3	0.4	0.5	1.1	1.7	3.4	4.6	5.8	7.0	11.0	14.0	17.0
Approx. weight (with brake)	kg	0.6	0.7	0.8	1.6	2.2	4.3	6.0	7.5	8.5	14.0	17.0	20.0
Encoder resolution (see note 1)	INC	A, B phase: 3,048 pulses/rev.						A, B phase: 32,768 pulses/rev.					
	ABS	A, B phase: 16,384 pulses/rev.						A, B phase: 32,768 pulses/rev.					
Brake specifications													
Inertia	kg•m^2 $\times 10^{-4}$	0.0085			0.058		0.14	0.325			2.1		
Excitation voltage	V	24 VDC ±10%						24 VDC ±10%					
Power consumption	W	6			6.5		6	7			9.8		
Current consumption	A	0.25			0.27		0.25	0.29			0.41		
Static friction torque	N•m	0.2min.		0.34 min.	1.5 min.		2.5 min.	7.8 min.			20 min.		
Absorption time	ms	60 max.			100 max.		200 max.	180 max.					
Release time	ms	30 max.			40 max.		50 max.	100 max.					
Backlash	---	1° (reference value)											
Rating	---	Continuous											
Insulation	---	Type F											

Note: The encoder resolution for the Z phase is 1 pulse/rev.

Cylinder-style Motors (3,000 r/min)

Item			100 VAC			
	Servomotor (R88M-)		W03030□	W05030□	W10030□	W20030□
	Servodriver (R88D-)		WTA3L	WTA5L	WT01L	WT02L
Rated output		W	30	50	100	200
Rated torque		N•m	0.0955	0.159	0.318	0.637
Max. momentary torque		N•m	0.286	0.477	0.955	1.91
Rated speed		r/min	3,000			
Max. momentary speed		r/min	5,000			
Rated current		A(rms)	0.66	0.95	2.4	3.0
Rotor inertia (without brake)		kg•m^2 × 10^{-4}	0.0166	0.022	0.0364	0.106
Power rate		kW/s	5.49	11.5	27.8	38.2
Applicable load inertia		Multiple	30			
Allowable radial load on shaft		N	68		78	245
Allowable thrust load on shaft		N	54			74
Approx. weight (without brake)		kg	0.3	0.4	0.5	1.1
Approx. weight (with brake)		kg	0.6	0.7	0.8	16
Encoder resolution		INC	A, B phase: 2,048 pulses/rev.; Z phase: 1 pulse/rev.			
		ABS	A, B phase: 16,384 pulses/rev.; Z phase: 1 pulse/rev.			
Brake specifications						
	Inertia	kg•m^2 × 10^{-4}	0.0085			0.058
	Excitation voltage	V	24 VDC ±10%			
	Power consumption	W	6			6.5
	Current consumption	A	0.25			0.27
	Static friction torque	N•m	0.2 min.		0.34 min.	1.5 min.
	Absorption time	ms	60 max.			100 max.
	Release time	ms	30 max.			40 max.
	Backlash	---	1° (reference value)			
	Rating	---	Continuous			
	Insulation	---	Type F			

■ General Motor Specifications

Cylinder-style Motors (3,000 r/min)

Item		30 to750 W	1 to 5 kW
Ambient temperature		Operating: 0 to +40°C Storage: –20 to +60°C	
Ambient humidity (with no condensation)		Operating: 20% to 80% Storage: 20% to 80%	
Atmosphere		No corrosive gases	
Vibration resistance		49 m/s^2	24.5 m/s^2
Shock resistance		490 m/s^2 (twice in vertical direction)	
Insulation resistance		10 MΩ min. at 500 VDC	
Dielectric strength		1,500 VAC for 1 min	
Operating position		Any direction	
Insulation class		Type B	Type F
Construction		Totally-enclosed self-cooling	
Enclosure rating		IP55 (see note)	IP67 (see note)
Vibration class		V-15	
EC directives	EMC directive	EN55011 class A group1	
		EN50082-2	
	Low-voltage directive	IEC60034-1, 5, 8, 9 EN60034-1, 9	
UL standards		UL1004	
cUL standards		cUL C22.2 No.100	

Note: Enclosure ratings do not include the shaft opening.

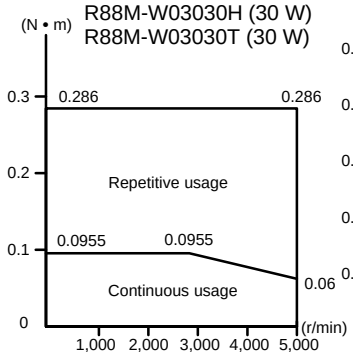
Servomotor Specifications

■ Torque and Rotation Speed Characteristics

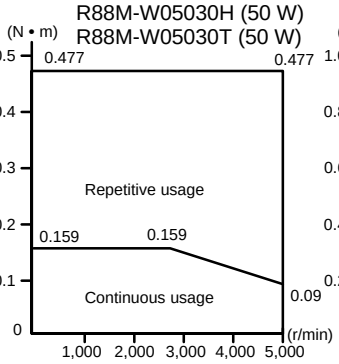
Cylinder-style Motors with 200-VAC Power Supply (3,000 r/min)

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

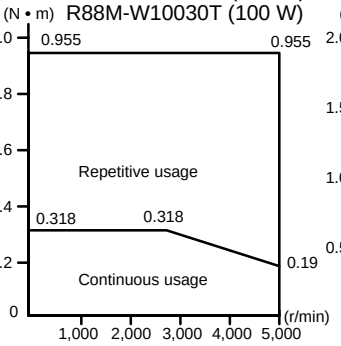
R88M-W03030H (30 W)
R88M-W03030T (30 W)



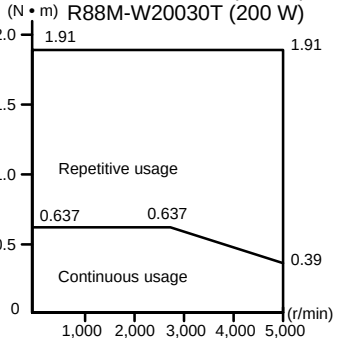
R88M-W05030H (50 W)
R88M-W05030T (50 W)



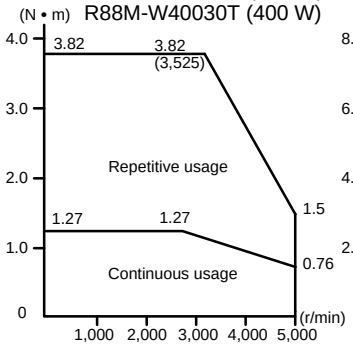
R88M-W10030H (100 W)
R88M-W10030T (100 W)



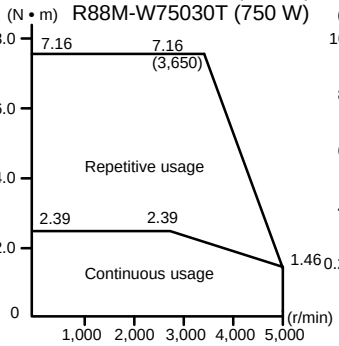
R88M-W20030H (200 W)
R88M-W20030T (200 W)



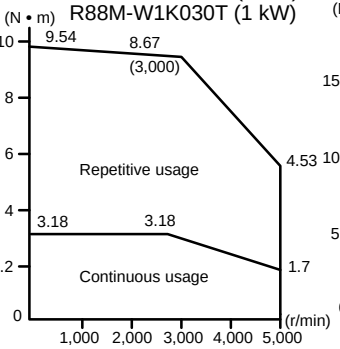
R88M-W40030H (400 W)
R88M-W40030T (400 W)



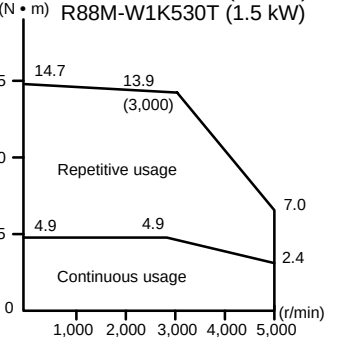
R88M-W75030H (750 W)
R88M-W75030T (750 W)



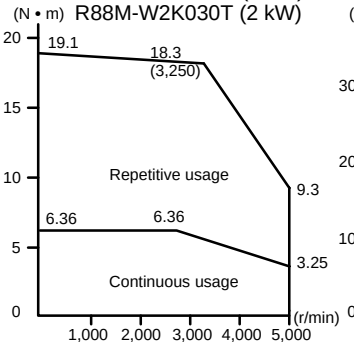
R88M-W1K030H (1 kW)
R88M-W1K030T (1 kW)



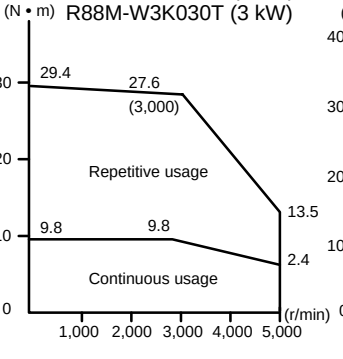
R88M-W1K530H (1.5 kW)
R88M-W1K530T (1.5 kW)



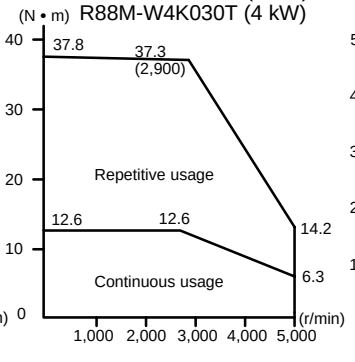
R88M-W2K030H (2 kW)
R88M-W2K030T (2 kW)



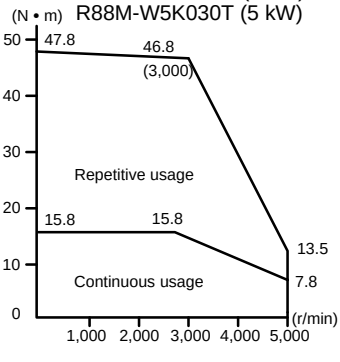
R88M-W3K030H (3 kW)
R88M-W3K030T (3 kW)



R88M-W4K030H (4 kW)
R88M-W4K030T (4 kW)



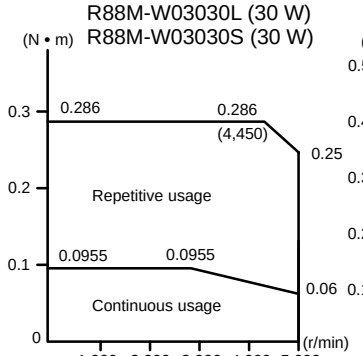
R88M-W5K030H (5 kW)
R88M-W5K030T (5 kW)



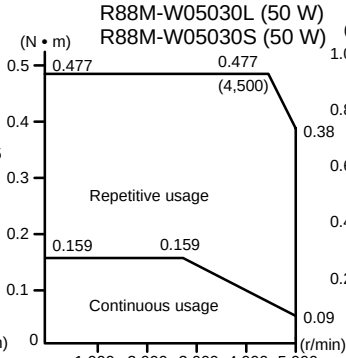
Cylinder-style Motors with 100-VAC Power Supply (3,000 r/min)

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

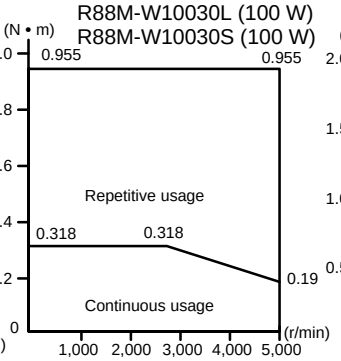
R88M-W03030L (30 W)
R88M-W03030S (30 W)



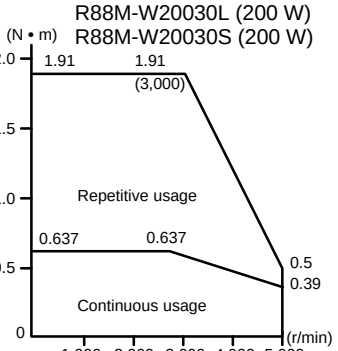
R88M-W05030L (50 W)
R88M-W05030S (50 W)



R88M-W10030L (100 W)
R88M-W10030S (100 W)



R88M-W20030L (200 W)
R88M-W20030S (200 W)



■ Performance Specifications

Cylinder-style Motors (1,000 r/min)

Item		200 VAC							
Servomotor (R88M-)		W30010□	W60010□	W90010□	W1K210□	W2K010□	W3K010□	W4K010□	W5K510□
Servodriver (R88D-)		WT05H	WT08H	WT10H	WT15H	WT20H	WT30H	WT50H	WT60H
Rated output	W	300	600	900	1.2k	2k	3k	4k	5.5k
Rated torque	N•m	2.84	5.68	8.62	11.5	19.1	28.4	38.2	52.6
Max. momentary torque	N•m	7.17	14.1	19.3	28.0	44.0	63.7	107	137
Rated speed	r/min	1,000							
Max. momentary speed	r/min	2,000							
Rated current	A(rms)	3	5.7	7.6	11.6	18.5	24.8	30	43.2
Rotor inertia (without brake)	kg•m^2 × 10^{-4}	7.24	13.9	20.5	31.7	46.0	67.5	89.0	125
Power rate	kW/s	11.2	23.2	36.3	41.5	79.4	120	164	221
Applicable load inertia	Multiple	10							
Allowable radial load on shaft	N	490		686	1176	1470		1764	
Allowable thrust load on shaft	N	98		343	490			588	
Approx. weight (without brake)	kg	5.5	7.6	9.6	14	18	23	30	40
Approx. weight (with brake)	kg	7.5	9.6	12	19	23.5	28.5	35	45.5
Encoder resolution	INC	A, B phase: 32,768 pulses/rev.; Z phase: 1 pulse/rev.							
	ABS								
Brake specifications									
Inertia	kg•m^2 × 10^{-4}	2.1			8.5				
Excitation voltage	V	24 VDC±10%							
Power consumption	W	9.8			18.5			23.5	
Current consumption	A	0.41			0.77			0.98	
Static friction torque	N•m	4.41	12.7		43.1			72.6	
Absorption time	ms	180 ms max.							
Release time	ms	100 ms max.							
Backlash	---	1° max.							
Rating	---	Continuous							
Insulation	---	Type F							

Servomotor Specifications

■ General Motor Specifications

Cylinder-style Motors (1,000 r/min)

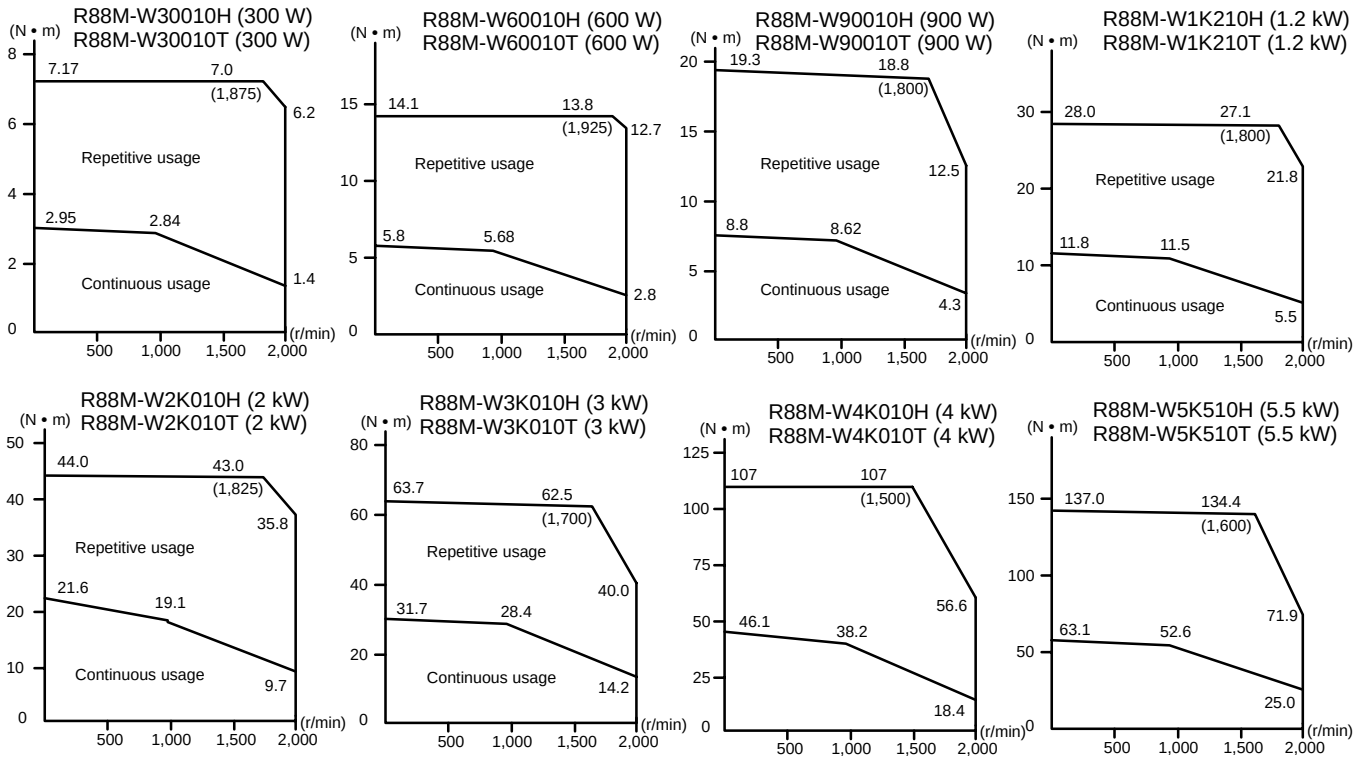
Item		300 to 5.5 kW
Ambient temperature		Operating: 0 to +40°C Storage: –20 to +60°C
Ambient humidity (with no condensation)		Operating: 20% to 80% Storage: 20% to 80%
Atmosphere		No corrosive gases
Vibration resistance		24.5 m/s^2
Shock resistance		490 m/s^2 (twice in vertical direction)
Insulation resistance		10 MΩ min. at 500 VDC
Dielectric strength		1,500 VAC for 1 min
Operating position		Any direction
Insulation class		Type F
Construction		Totally-enclosed self-cooling
Enclosure rating		IP67 (see note)
Vibration class		V-15
EC directives	EMC directive	EN55011 class A group1
		EN50082-2
	Low-voltage directive	IEC60034-1, 5, 8, 9 EN60034-1, 9
UL standards		UL1004
cUL standards		cUL C22.2 No.100

Note: Enclosure ratings do not include the shaft opening.

■ Torque and Rotation Speed Characteristics

Cylinder-style Motors with 200-VAC Power Supply (1,000 r/min)

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



■ Performance Specifications

Flat-style Motors

Item			200 VAC					100 VAC	
Servomotor (R88M-)			WP10030□	WP20030□	WP40030□	WP75030□	WP1K530□	WP10030□	WP20030□
Servodriver (R88D-)			WT01H	WT02H	WT04H	WT08H	WT15H	WT01HL	WT02HL
Rated output		W	100	200	400	750	1.5k	100	200
Rated torque		N•m	0.318	0.637	1.27	2.39	4.77	0.318	0.637
Max. momentary torque		N•m	0.955	1.91	3.82	7.16	14.3	0.955	1.91
Rated speed		r/min	3,000					3,000	
Max. momentary speed		r/min	5,000					5,000	
Rated current		A (rms)	0.89	2.0	2.6	4.1	7.5	2.2	2.7
Rotor inertia (without brake)		$kg•m^2 \times 10^{-4}$	0.0491	0.193	0.331	2.1	4.02	0.0491	0.193
Power rate		kW/s	20.6	21.0	49.0	27.1	56.7	20.6	21.0
Applicable load inertia		Multiple	25	15	10			25	12
Allowable radial load on shaft		N	78	245		392	490	78	245
Allowable thrust load on shaft		N	49	68		147		49	68
Approx. weight (without brake)		kg	0.7	1.4	2.1	4.2	6.6	0.7	1.4
Approx. weight (with brake)		kg	0.9	1.9	2.6	5.7	8.1	0.9	1.9
Encoder resolution		INC	A, B phase: 2,048 pulses/rev., Z phase: 1 pulse/rev.						
		ABS							
Brake specifications									
	Inertia	$kg•m^2 \times 10^{-4}$	0.029	0.109		0.875		0.029	0.109
	Excitation voltage	V	24 VDC±10%					24 VDC±10%	
	Power consumption	W	6	5	7.6	7.5	10	6	5
	Current consumption	A	0.25	0.21	0.32	0.31	0.42	0.25	0.21
	Static friction torque	N•m	0.4 min.	0.9 min.	1.9 min.	3.5 min.	7.1 min.	0.4 min.	0.9 min.
	Absorption time	ms	20 ms max.					20 ms max.	
	Release time	ms	40 ms max.					40 ms max.	
	Backlash	---	1° max.					1° max.	
	Rating	---	Continuous					Continuous	
	Insulation	---	Type F					Type F	

■ General Motor Specifications

Flat-style Motors (3,000 r/min)

Item		100 W to 1.5 kW
Ambient temperature		Operating: 0 to +40°C Storage: –20 to +60°C
Ambient humidity (with no condensation)		Operating: 20% to 80% Storage: 20% to 80%
Atmosphere		No corrosive gases
Vibration resistance		49 m/s^2
Shock resistance		490 m/s^2 (twice in vertical direction)
Insulation resistance		10 MΩ min. at 500 VDC
Dielectric strength		1,500 VAC for 1 min
Operating position		Any direction
Insulation class		Type B
Construction		Totally-enclosed self-cooling
Enclosure rating		IP55 (see note) or IP67
Vibration class		V-15
EC directives	EMC directive	EN55011 class A group1
		EN50082-2
	Low-voltage directive	IEC60034-1, 5, 8, 9 EN60034-1, 9
UL standards		UL1004
cUL standards		cUL C22.2 No.100

Note: Enclosure ratings do not include the shaft opening.

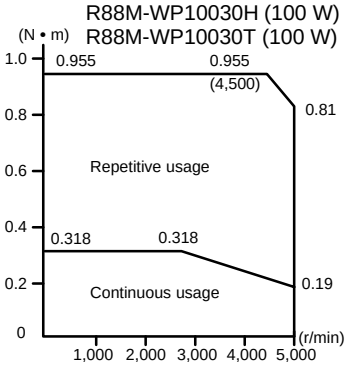
Servomotor Specifications

■ Torque and Rotation Speed Characteristics

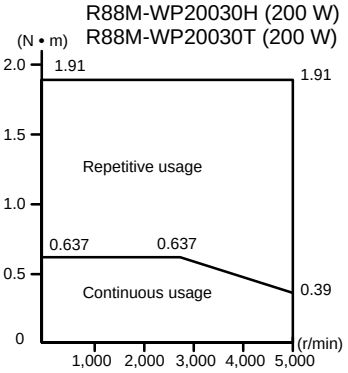
Flat-style Motors with 200-VAC Power Supply

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

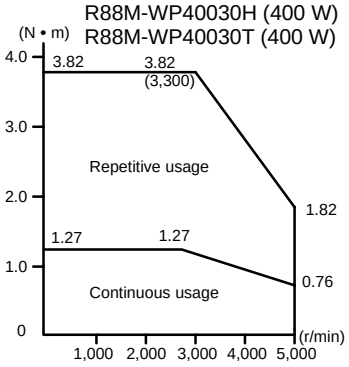
R88M-WP10030H (100 W)
R88M-WP10030T (100 W)



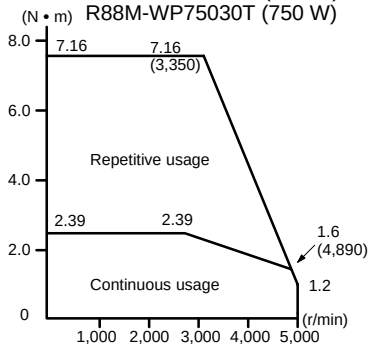
R88M-WP20030H (200 W)
R88M-WP20030T (200 W)



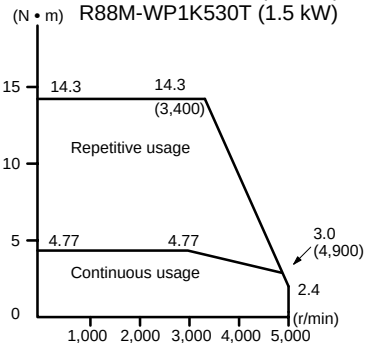
R88M-WP40030H (400 W)
R88M-WP40030T (400 W)



R88M-WP75030H (750 W)
R88M-WP75030T (750 W)



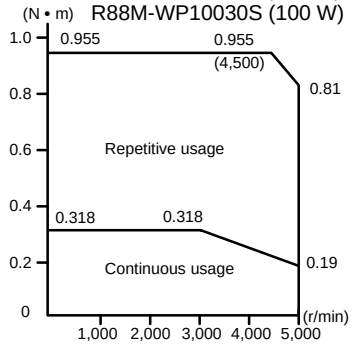
R88M-WP1K530H (1.5 kW)
R88M-WP1K530T (1.5 kW)



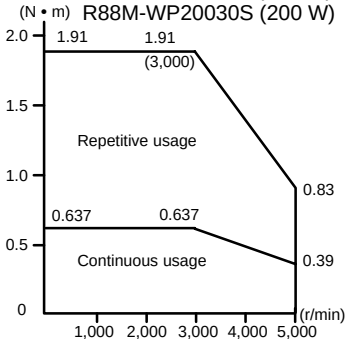
Flat-style Motors with 100-VAC Power Supply

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

R88M-WP10030L (100 W)
R88M-WP10030S (100 W)



R88M-WP20030L (200 W)
R88M-WP20030S (200 W)



■ Performance Specifications

Servodrivers

Item			200 VAC											
		Servomotor (R88M–)	WTA3H	WTA5H	WT01H	WT02H	WT04H	WT05H	WT08H	WT10H	WT15H	WT20H	WT30H	WT50H	WT60H
Maximum servomotor output			30 W	50 W	100 W	200 W	400 W	500 W	750 W	1 kW	1.5 kW	2 kW	3 kW	5 kW	5.5 kW
Continuous output current (O-P)			0.44 A	0.64 A	0.91 A	2.1 A	2.8 A	3.8 A	5.7 A	7.6 A	11.6 A	18.5 A	24.8 A	32.9 A	46.9 A
Momentary maximum output current (O-P)			1.3 A	2.0 A	2.8 A	6.5 A	8.5 A	11.0 A	13.9 A	17 A	28 A	42 A	56 A	84 A	110 A
Weight			0.8 kg				1.1 kg	1.7 kg		1.7 kg	2.8 kg	3.8 kg		5.5 kg	15 kg
Input power supply		Main circuits	Single-phase 200 to 230 VAC, +10% to –15%, 50/60 Hz				Three-phase 200 to 230 VAC, +10% to –15%, 50/60 Hz								
		Control circuits	Single-phase 200 to 230 VAC, +10% to –15%, 50/60 Hz												
Control method			All-digital servo												
Seed feedback			Serial encoder, 13/16/17 bits (incremental and absolute encoders)												
Capacity	Analog inputs	Speed control range	1:5,000												
		Load fluctuation rate	±0.01% max. at 0% to 100% (at rated rotation speed)												
		Voltage fluctuation rate	0% at rated voltage ±10% (at rated rotation speed)												
		Temperature fluctuation rate	±0.1% max. at 25 ± 25°C (at rated rotation speed)												
		Frequency characteristics	400 Hz (at the same load as the rotor inertia)												
		Torque control repeatability	±2%												
		Acceleration time setting	0 to 10 s (acceleration and deceleration set separately)												
	Pulse train inputs	Maximum response pulse frequency	Line driver input: 500 Kpps Open collector input: 200 Kpps												
		Positioning range	0 to 250 (command unit)												
		Feed-forward compensation	0% to 100%												
		Bias setting	0 to 450 r/min												
Input signals		Position command pulse	Feed pulse, forward/reverse signal, forward pulse, reverse pulse, 90° phase difference (phases A/B) signal												
		Speed command voltage	±2 to 10 VDC / rated rotation speed (motor forward rotation by +voltage) Mechanical impedance: Approx. 14 kΩ; circuit time constant: Approx. 47 μs												
		Torque command voltage	±1 to 10 VDC / rated torque (motor forward torque by +voltage) Mechanical impedance: Approx. 14 kΩ; circuit time constant: Approx. 47 μs												
		Sequence input	Run command, gain deceleration, position lock command, control mode switch, gain switch, direction command, pulse prohibit, forward/reverse current limit, speed selection command, forward/reverse drive prohibit, alarm reset												
Output signals		Position feedback output	Phase A, phase B, phase Z, absolute phase (for absolute encoders only): Line driver output												
		Speed monitor output	1 V/1,000 r/min												
		Current monitor output	1 V/rated torque												
		Sequence output	Servo alarm, alarm code (3-bit output): CN1 output terminal fixed, speed conformity, positioning completion 1, motor rotation detection, servo ready, current limit detection, brake interlock, warning, positioning completion 2, speed limit detection												
Dynamic brake stopping			Operates when the power supply turns off, a servo alarm is generated, an overrun occurs, or the servo turns off.												
Other protective functions			Parameter destruction, main circuit detector error, parameter setting error, motor mismatch, overcurrent, regenerative error, regenerative overload, overvoltage, undervoltage, overspeeding, overload, dynamic brake overload, inrush resistance overload, heating plate overheating, backup error (absolute), checksum error (absolute), battery error (absolute), absolute error (absolute), overspeed error (absolute), encoder overheating, speed command input read error, torque command input read error, system error, overrun detection, excessive rotation data error (absolute), encoder communications error, encoder parameter error, encoder data error, multiple rotation limit mismatch (absolute), error counter count-up, phase-failure detection, Parameter Unit transmission error												

Note: Applicable rotor inertia differs according to the motor. Refer to the motor specifications.

Servodriver Specifications

Servodrivers

Item			100 VAC			
		Servomotor (R88M–)	WTA3HL	WTA5HL	WT01HL	WT02HL
Maximum servomotor output			30 W	50 W	100 W	200 W
Continuous output current (O-P)			0.66 A	0.95 A	2.4 A	3.0 A
Momentary maximum output current (O-P)			2.0 A	2.9 A	7.2 A	9.0 A
Weight			0.8 kg			1.1 kg
Input power supply		Main circuits	Single-phase 100 to 115 VAC, +10% to –15%, 50/60 Hz			
		Control circuits	Single-phase 100 to 115 VAC, +10% to –15%, 50/60 Hz			
Control method			All-digital servo			
Seed feedback			Serial encoder, 13/16/17 bits (incremental and absolute encoders)			
Capacity	Analog inputs	Speed control range	1:5000			
		Load fluctuation rate	±0.01% max. at 0% to 100% (at rated rotation speed)			
		Voltage fluctuation rate	0% at rated voltage ±10% (at rated rotation speed)			
		Temperature fluctuation rate	±0.1% max. at 25 ± 25°C (at rated rotation speed)			
		Frequency characteristics	400 Hz (at the same load as the rotor inertia)			
		Torque control repeatability	±2%			
		Acceleration time setting	0 to 10 s (acceleration and deceleration set separately)			
	Pulse train inputs	Maximum response pulse frequency	Line driver input: 500 Kpps Open collector input: 200 Kpps			
		Positioning range	0 to 250 (command unit)			
		Feed-forward compensation	0% to 100%			
		Bias setting	0 to 450 r/min			
Input signals		Position command pulse	Feed pulse, forward/reverse signal, forward pulse, reverse pulse, 90° phase difference (phases A/B) signal			
		Speed command voltage	±2 to 10 VDC / rated rotation speed (motor forward rotation by +voltage) Mechanical impedance: Approx. 14 kΩ; circuit time constant: Approx. 47 μs			
		Torque command voltage	±1 to 10 VDC / rated torque (motor forward torque by +voltage) Mechanical impedance: Approx. 14 kΩ; circuit time constant: Approx. 47 μs			
		Sequence input	Run command, gain deceleration, position lock command, control mode switch, gain switch, direction command, pulse prohibit, forward/reverse current limit, speed selection command, forward/reverse drive prohibit, alarm reset			
Output signals		Position feedback output	Phase A, phase B, phase Z, absolute phase (for absolute encoders only): Line driver output			
		Speed monitor output	1 V/1000 r/min			
		Current monitor output	1 V/rated torque			
		Sequence output	Servo alarm, alarm code (3-bit output): CN1 output terminal fixed, speed conformity, positioning completion 1, motor rotation detection, servo ready, current limit detection, brake interlock, warning, positioning completion 2, speed limit detection			
Dynamic brake stopping			Operates when the power supply turns OFF, a servo alarm is generated, an overrun occurs, or the servo turns OFF.			
Other protective functions			Parameter destruction, main circuit detector error, parameter setting error, motor mismatch, overcurrent, regenerative error, regenerative overload, overvoltage, undervoltage, overspeeding, overload, dynamic brake overload, inrush resistance overload, heating plate overheating, backup error (absolute), checksum error (absolute), battery error (absolute), absolute error (absolute), overspeed error (absolute), encoder overheating, speed command input read error, torque command input read error, system error, overrun detection, excessive rotation data error (absolute), encoder communications error, encoder parameter error, encoder data error, multiple rotation limit mismatch (absolute), error counter count-up, phase-failure detection, Parameter Unit transmission error			

Note: Applicable rotor inertia differs according to the motor. Refer to the motor specifications.

■ General Specifications

Item		Specifications
Ambient temperature		Operating: 0 to +55°C Storage: –20 to +85°C
Ambient humidity (with no condensation)		Operating: 20 to 90% max. Storage: 20 to 90% max.
Atmosphere		No corrosive gases.
Vibration resistance		4.9 m/s^2
Shock resistance		19.6 m/s^2 (3 times each in X, Y, and Z directions)
Insulation resistance		1 MΩ min. at 500 VDC
Dielectric strength		1,500 VAC for 1 min
Protective structure		Built into control panel (IP10)
Vibration class		V-15
EC directives	EMC directive	EN55011
		EN50082-2
	Low-voltage directive	EN50178
UL standards		UL508C
cUL standards		cUL C22.2 No. 14

External Dimensions

■ AC Servomotors

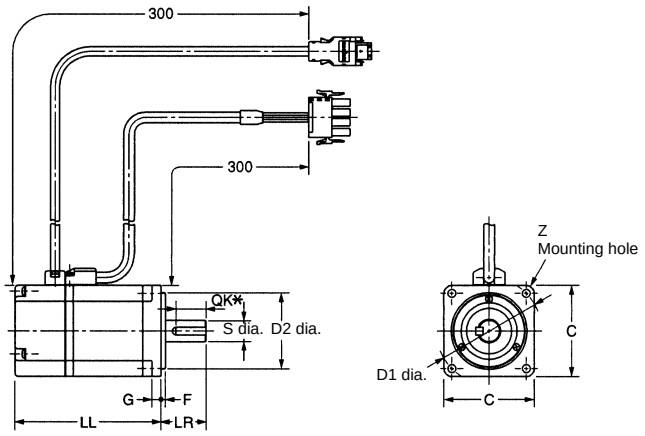
Cylinder-style Motors without Brakes (3,000 r/min)

200 VAC: 30 W/50 W/100 W/200 W/400 W/750 W

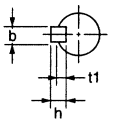
R88M-W03030H (-S1)/W05030H (-S1)/W10030H (-S1)/W20030H (-S1)/W40030H (-S1)/W75030H (-S1)
R88M-W03030T (-S1)/W05030T (-S1)/W10030T (-S1)/W20030T (-S1)/W40030T (-S1)/W75030T (-S1)

100 VAC: 30 W/50 W/100 W/200 W

R88M-W03030L (-S1)/W05030L (-S1)/W10030L (-S1)/W20030L (-S1)
R88M-W03030S (-S1)/W05030S (-S1)/W10030S (-S1)/W20030S (-S1)



*Shaft end



* These dimensions are applicable to R88M-W□-S1 with key.

Dimensions (mm) / Model	LL	LR	Flange surface						Shaft end				
			C	D1	D2	F	G	Z	S	OK*	b*	h*	t1*
R88M-W03030□	69.5	25	40	46	30^{h7}	2.5	5	Two, 4.3 dia.	6^{h6}	14	2	2	1.2
R88M-W05030□	77												
R88M-W10030□	94.5								8^{h6}		3	3	1.8
R88M-W20030□	96.5	30	60	70	50^{h7}	3	6	Four, 5.5 dia.	14^{h6}	20	5	5	3
R88M-W40030□	124.5												
R88M-W75030□	145	40	80	90	70^{h7}	3	8	Four, 7 dia.	16^{h6}	30			

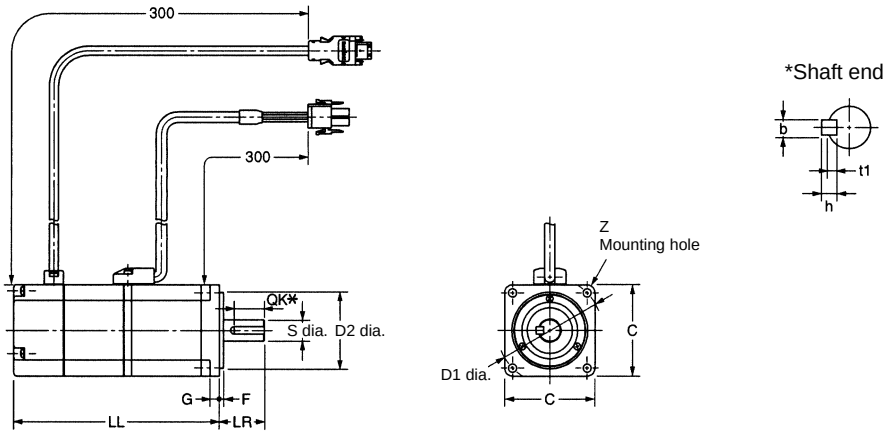
Cylinder-style Motors with Brakes (3,000 r/min)

200 VAC: 30 W/50 W/100 W/200 W/400 W/750 W

R88M-W03030H-B (S1)/W05030H-B (S1)/W10030H-B (S1)/W20030H-B (S1)/W40030H-B (S1)/W75030H-B (S1)
R88M-W03030T-B (S1)/W05030T-B (S1)/W10030T-B (S1)/W20030T-B (S1)/W40030T-B (S1)/W75030T-B(S1)

100 VAC: 30 W/50 W/100 W/200 W

R88M-W03030L-B (S1)/W05030L-B (S1)/W10030L-B (S1)/W20030L-B (S1)
R88M-W03030S-B (S1)/W05030S-B (S1)/W10030S-B (S1)/W20030S-B (S1)



* These dimensions are applicable to R88M-W□-BS1 with key.

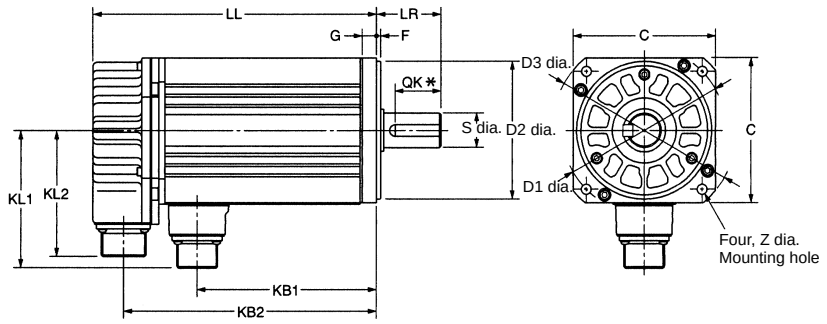
Dimensions (mm) / Model	LL	LR	Flange surface						Shaft end				
			C	D1	D2	F	G	Z	S	OK*	b*	h*	t1*
R88M-W03030□	101	25	40	46	30^{h7}	2.5	5	Two, 4.3 dia.	6^{h6}	14	2	2	1.2
R88M-W05030□	108.5												
R88M-W10030□	135								8^{h6}		3	3	1.8
R88M-W20030□	136	30	60	70	50^{h7}	3	6	Four, 5.5 dia.	14^{h6}	20	5	5	3
R88M-W40030□	164												
R88M-W75030□	189.5	40	80	90	70^{h7}	3	8	Four, 7 dia.	16^{h6}	30			

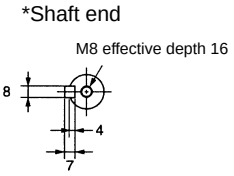
External Dimensions

Cylinder-style Motors without Brakes (3,000 r/min)

200 VAC: 1 kW/1.5 kW/2 kW/3 kW/4 kW/5 kW

R88M-W1K030H-S2/W1K530H-S2/W2K030H-S2/W3K030H-S2/W4K030H-S2/W5K030H-S2
R88M-W1K030T-S2/W1K530T-S2/W2K030T-S2/W3K030T-S2/W4K030T-S2/W5K030T-S2





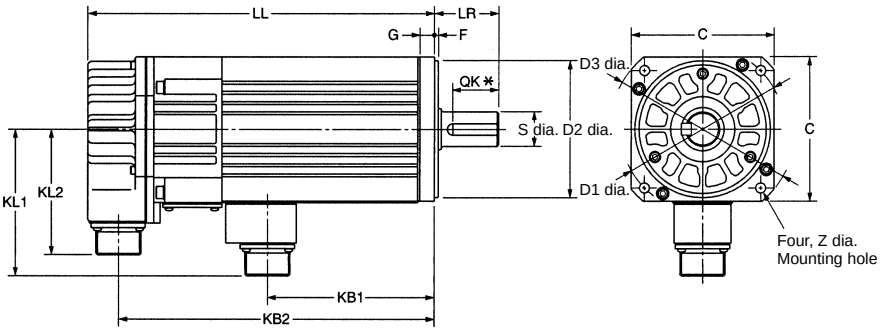
* These dimensions are applicable to R88M-W□-S2 with key and tap.

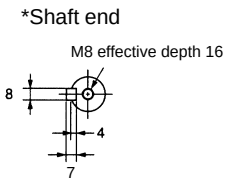
Dimensions (mm) / Model	LL	LR	KB1	KB2	KL1	KL2	Flange surface							Shaft end	
							C	D1	D2	D3	F	G	Z	S	OK*
R88M-W1K030□	149	45	76	128	96	88	100	115	95^{h7}	130	3	10	7	24^{h6}	32
R88M-W1K530□	175		102	154											
R88M-W2K030□	198		125	177											
R88M-W3K030□	199	63	124	178	114	88	130	145	110^{h7}	165	6	12	9	28^{h6}	50
R88M-W4K030□	236		161	215											
R88M-W5K030□	276		201	255											

Cylinder-style Motors with Brakes (3,000 r/min)

200 VAC: 1 kW/1.5 kW/2 kW/3 kW/4 kW/5 kW

R88M-W1K030H-BS2/W1K530H-BS2/W2K030H-BS2/W3K030H-BS2/W4K030H-BS2/W5K030H-BS2
R88M-W1K030T-BS2/W1K530T-BS2/W2K030T-BS2/W3K030T-BS2/W4K030T-BS2/W5K030T-BS2





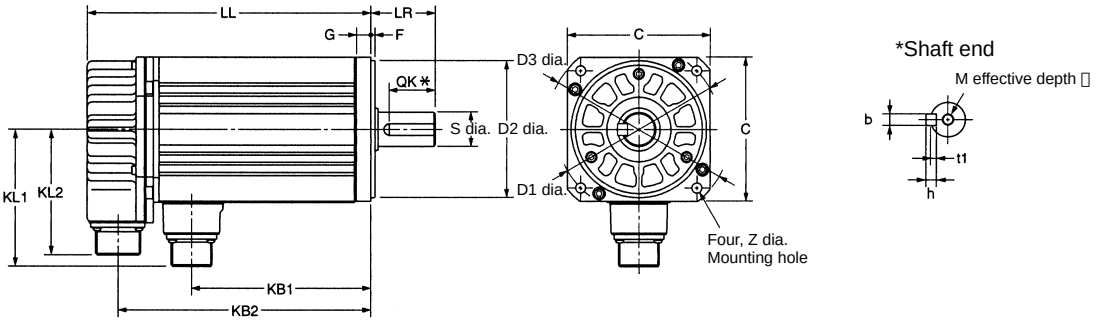
* These dimensions are applicable to R88M-W□-BS2 with key and tap.

Dimensions (mm) / Model	LL	LR	KB1	KB2	KL1	KL2	Flange surface							Shaft end	
							C	D1	D2	D3	F	G	Z	S	OK*
R88M-W1K030□	193	45	67	171	102	88	100	115	95^{h7}	130	3	10	7	24^{h6}	32
R88M-W1K530□	219		93	197											
R88M-W2K030□	242		116	220											
R88M-W3K030□	237	63	114	216	119	88	130	145	110^{h7}	165	6	12	9	28^{h6}	50
R88M-W4K030□	274		151	253											
R88M-W5K030□	314		191	293											

Cylinder-style Motors without Brakes (1,000 r/min)

200 VAC: 300 W/600 W/900 W/1.2 kW/2 kW/3 kW

R88M-W30010H-S2/W60010H-S2/W90010H-S2/W1K210H-S2/W2K010H-S2/W3K010H-S2
R88M-W30010T-S2/W60010T-S2/W90010T-S2/W1K210T-S2/W2K010T-S2/W3K010T-S2



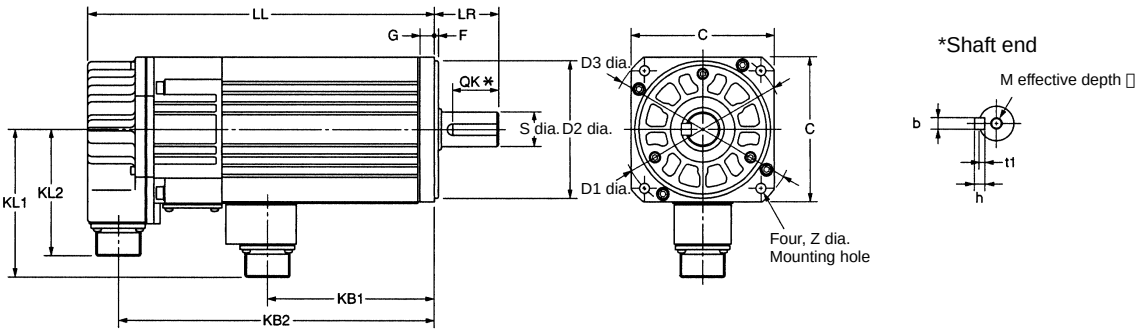
* These dimensions are applicable to R88M-W□-S2 with key and tap.

Dimensions (mm) / Model	LL	LR	KB1	KB2	KL1	KL2	Flange surface							Shaft end						
							C	D1	D2	D3	F	G	Z	S	QK*	b*	h*	t1*	m	□
R88M-W30010□	138	58	65	117	109	88	130	145	110^{h7}	165	6	12	9	19^{h6}	25	5	5	3	M5	12
R88M-W60010□	161		88	140																
R88M-W90010□	185		112	164										22^{h6}		6	6	3.5		
R88M-W1K210□	166	79	89	144	140	88	180	200	$114.3\ ^{0}_{-0.025}$	230	3.2	18	13.5	$35\ ^{+0.01}_{0}$	60	10	8	5	M12	25
R88M-W2K010□	192		115	170																
R88M-W3K010□	226		149	204																

Cylinder-style Motors with Brakes (1,000 r/min)

200 VAC: 300 W/600 W/900 W/1.2 kW/2 kW/3 kW

R88M-W30010H-BS2/W60010H-BS2/W90010H-BS2/W1K210H-BS2/W2K010H-BS2/W3K010H-BS2
R88M-W30010T-BS2/W60010T-BS2/W90010T-BS2/W1K210T-BS2/W2K010T-BS2/W3K010T-BS2



* These dimensions are applicable to R88M-W□-S2 with key and tap.

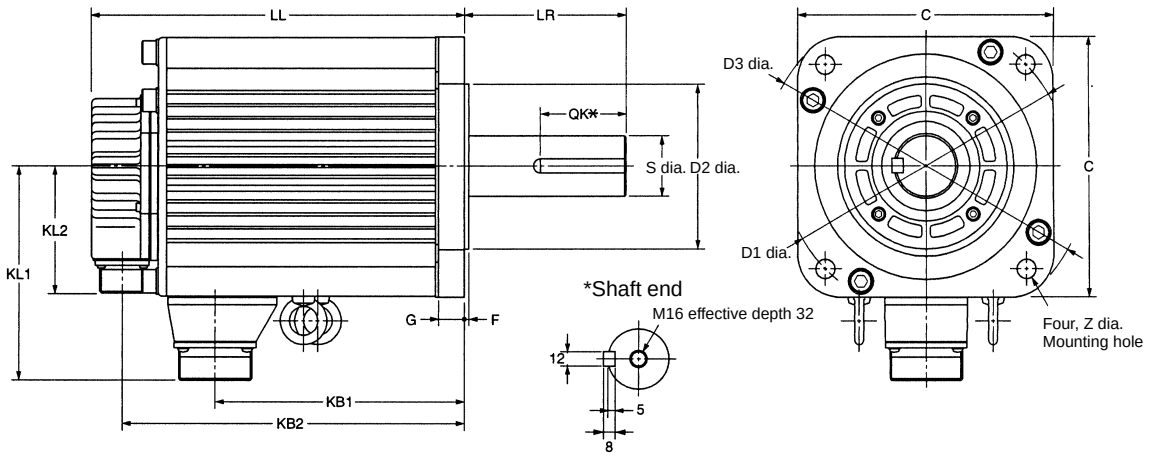
Dimensions (mm) / Model	LL	LR	KB1	KB2	KL1	KL2	Flange surface							Shaft end						
							C	D1	D2	D3	F	G	Z	S	QK*	b*	h*	t1*	m	□
R88M-W30010□	176	58	56	154	120	88	130	145	110^{h7}	165	6	12	9	19^{h6}	25	5	5	3	M5	12
R88M-W60010□	199		79	177																
R88M-W90010□	223		103	201										22^{h6}		6	6	3.5		
R88M-W1K210□	217	79	79	195	146	88	180	200	$114.3\ ^{0}_{-0.025}$	230	3.2	18	13.5	$35\ ^{+0.01}_{0}$	60	10	8	5	M12	25
R88M-W2K010□	243		105	221																
R88M-W3K010□	277		139	255																

External Dimensions

Cylinder-style Motors without Brakes (1,000 r/min)

200 VAC: 4 kW/5.5 kW

R88M-W4K010H-S2/W5K510H-S2
R88M-W4K010T-S2/W5K510T-S2



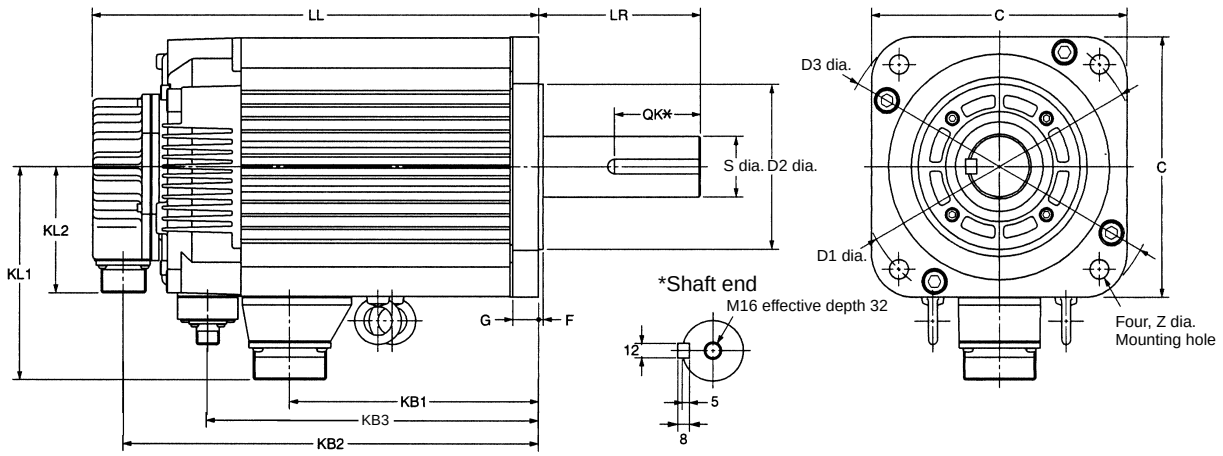
* These dimensions are applicable to R88M-W□-S2 with key and tap.

Dimensions (mm) / Model	LL	LR	KB1	KB2	KL1	KL2	Flange surface							Shaft end	
							C	D1	D2	D3	F	G	Z	S	QK*
R88M-W4K010□	260	113	174	238	150	88	180	220	114.3 $^{0}_{-0.025}$	230	3.2	18	13.5	42^{h6}	90
R88M-W5K010□	334		248	312											

Cylinder-style Motors with Brakes (1,000 r/min)

200 VAC: 4 kW/5.5 kW

R88M-W4K010H-BS2/W5K510H-BS2
R88M-W4K010T-BS2/W5K510T-BS2



* These dimensions are applicable to R88M-W□-S2 with key and tap.

Dimensions (mm) / Model	LL	LR	KB1	KB2	KB3	KL1	KL2	Flange surface							Shaft end	
								C	D1	D2	D3	F	G	Z	S	QK*
R88M-W4K010□	311	113	174	289	231	150	88	180	200	114.3 $^{0}_{-0.025}$	230	3.2	18	13.5	42^{h6}	90
R88M-W5K510□	385		248	363	305											

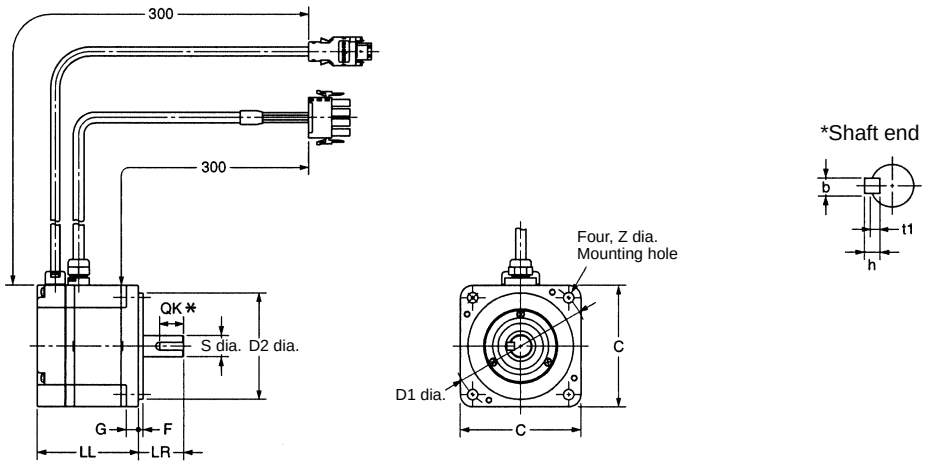
Flat-style Motors without Brakes

200 VAC: 100 W/200 W/400 W/750 W/1.5 kW

R88M-WP10030H (-S1)/WP20030H (-S1)/WP40030H (-S1)/WP75030H (-S1)/WP1K530H (-S1)
R88M-WP10030T (-S1)/WP20030T (-S1)/WP40030T (-S1)/WP75030T (-S1)/WP1K530T (-S1)

100 VAC: 100 W/200 W

R88M-WP10030L (-S1)/WP20030L (-S1)
R88M-WP10030S (-S1)/WP20030S (-S1)



* These dimensions are applicable to R88M-W□-S1 with key.

Dimensions (mm) / Model	LL	LR	Flange surface						Shaft end				
			C	D1	D2	F	G	Z	S	QK*	b*	h*	t1*
R88M-WP10030□	62	25	60	70	50^{h7}	3	6	5.5	8^{h6}	14	3	3	1.8
R88M-WP20030□	67	30	80	90	70^{h7}	3	8	7	14^{h6}	16	5	5	3
R88M-WP40030□	87												
R88M-WP75030□	86.5	40	120	145	110^{h7}	3.5	10	10	16^{h6}	22			
R88M-WP1K530□	114.5								19^{h6}		6	6	3.5

External Dimensions

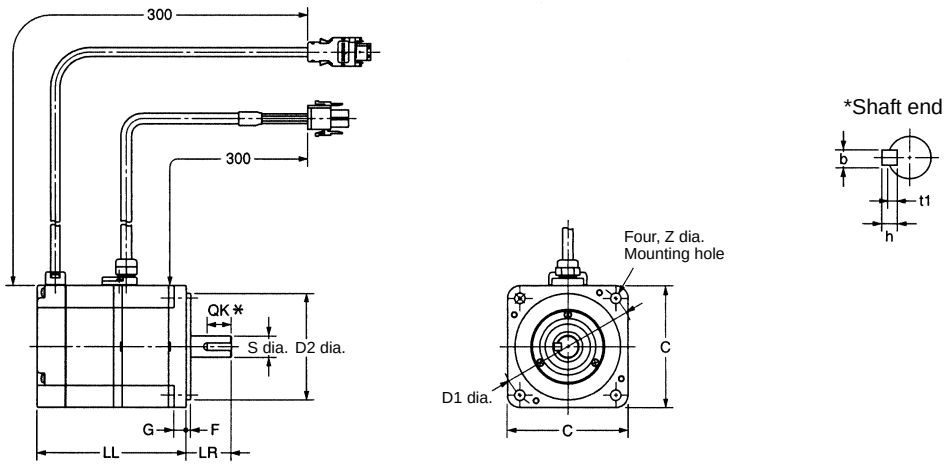
Flat-style Motors with Brakes

200 VAC: 100 W/200 W/400 W/750 W/1.5 kW

R88M-WP10030H-B (S1)/WP20030H-B (S1)/WP40030H-B (S1)/WP75030H-B (S1)/WP1K530H-B (S1)
R88M-WP10030T-B (S1)/WP20030T-B (S1)/WP40030T-B (S1)/WP75030T-B (S1)/WP1K530T-B (S1)

100 VAC: 100 W/200 W

R88M-WP10030L-B (S1)/WP20030L-B (S1)
R88M-WP10030S-B (S1)/WP20030S-B (S1)



* These dimensions are applicable to R88M-W□-BS1 with key

Dimensions (mm) / Model	LL	LR	Flange surface						Shaft end				
			C	D1	D2	F	G	Z	S	QK*	b*	h*	t1*
R88M-WP10030□	91	25	60	70	50^{h7}	3	6	5.5	8^{h6}	14	3	3	1.8
R88M-WP20030□	98.5	30	80	90	70^{h7}	3	8	7	14^{h6}	16	5	5	3
R88M-WP40030□	118.5												
R88M-WP75030□	120	40	120	145	110^{h7}	3.5	10	10	16^{h6}	22			
R88M-WP1K530□	148								19^{h6}		6	6	3.5

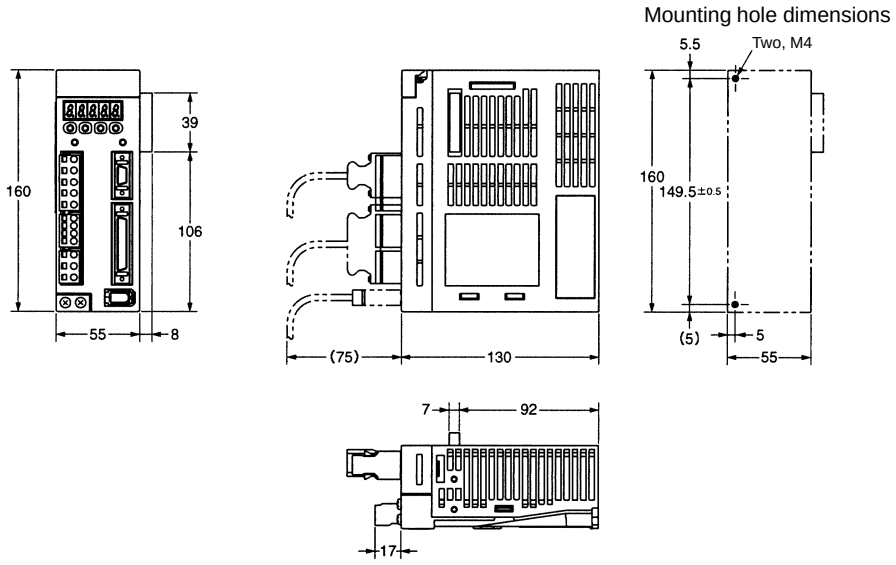
MEMO

External Dimensions

■ AC Servodrivers

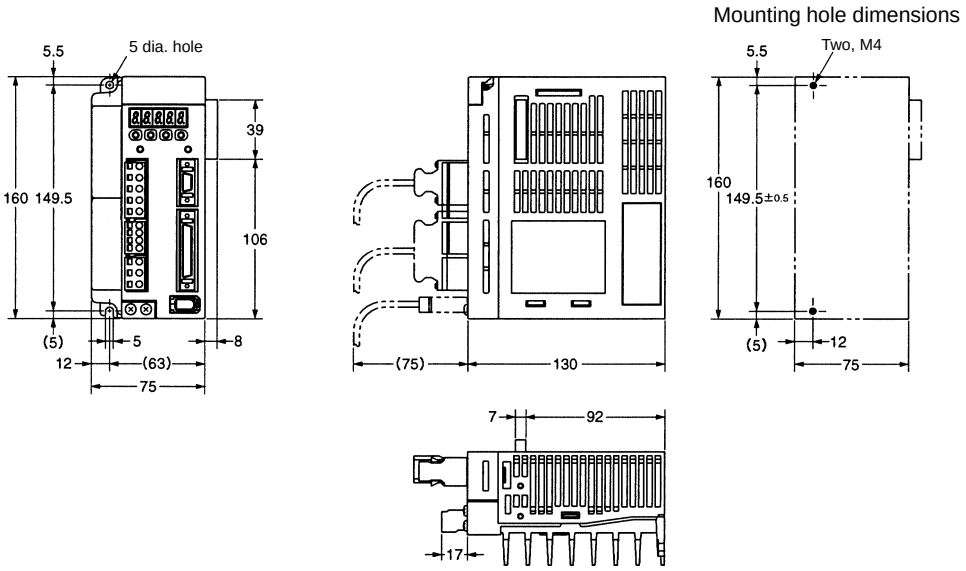
200 VAC: 30 W/50 W/100 W/200 W
R88D-WTA3H/WTA5H/WT01R/WT02H

100 VAC: 30 W/50 W/100 W
R88D-WTA3HL/WTA5HL/WT01HL



200 VAC: 400 W
R88D-WT04H

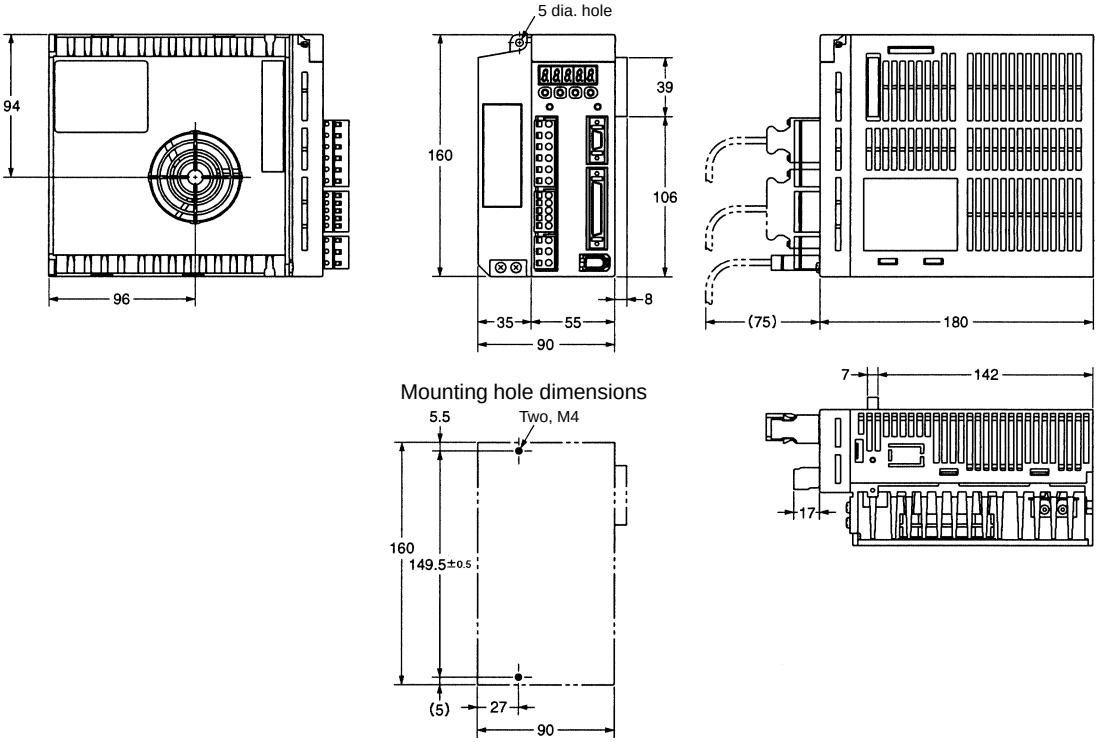
100 VAC: 200 W
R88D-WT02HL



External Dimensions

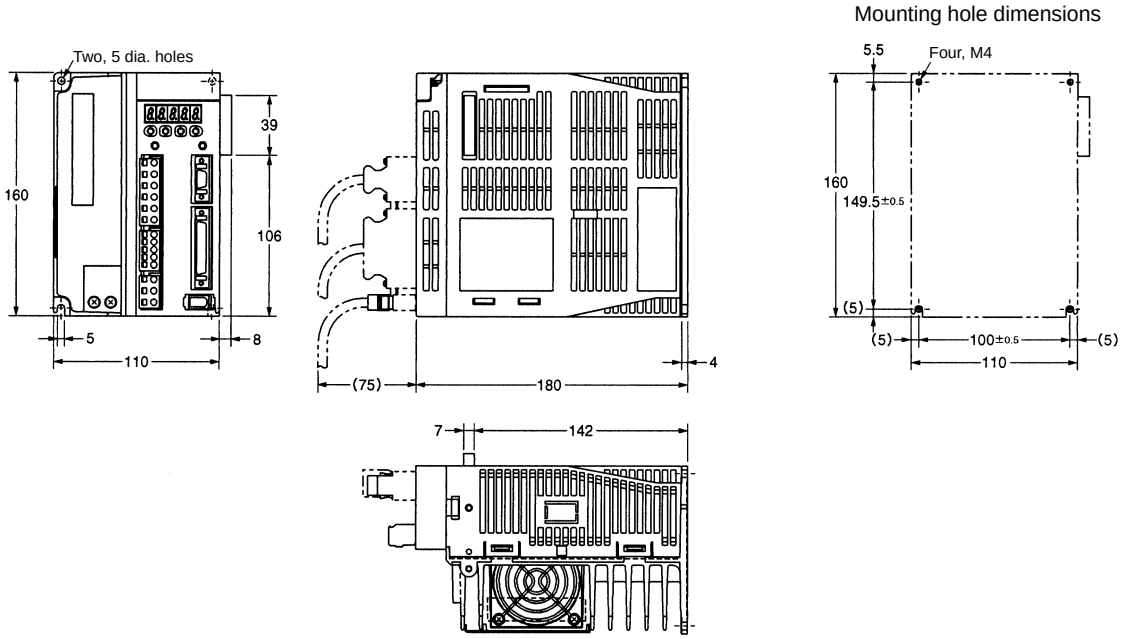
200 VAC: 500 W/750 W/1 kW

R88D-WT05H/WT08H/WT10H



200 VAC: 1.5 kW

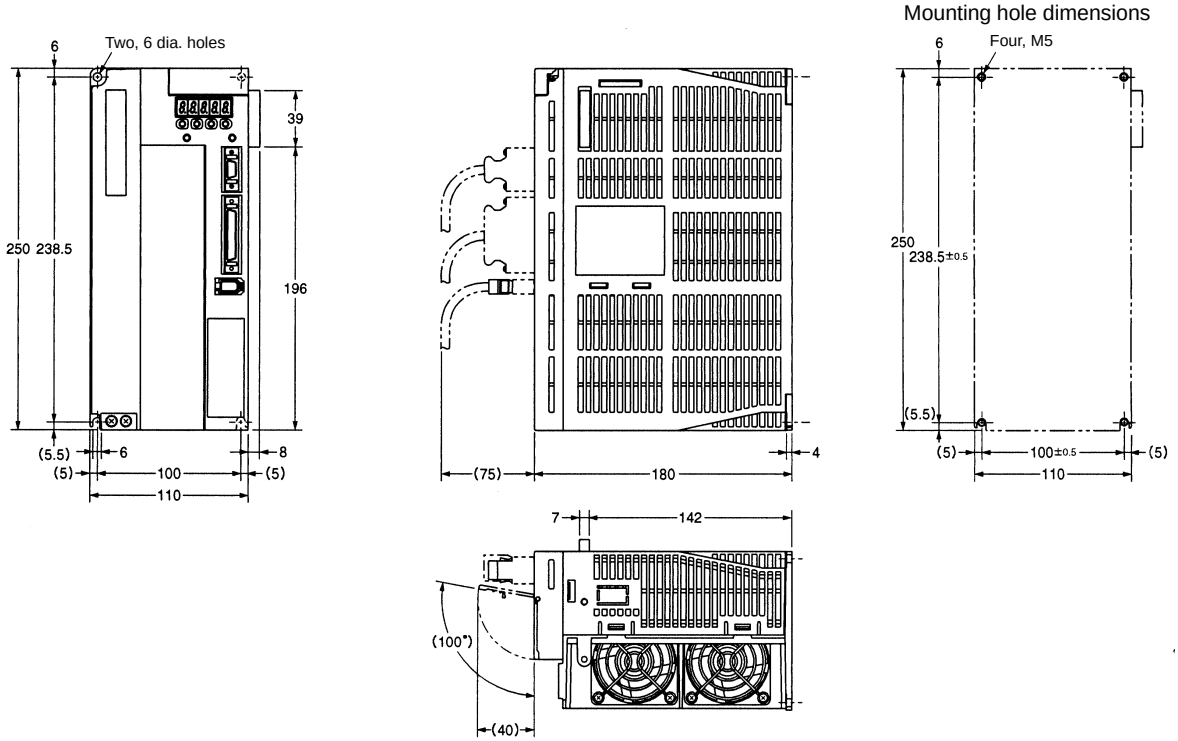
R88D-WT15H



External Dimensions

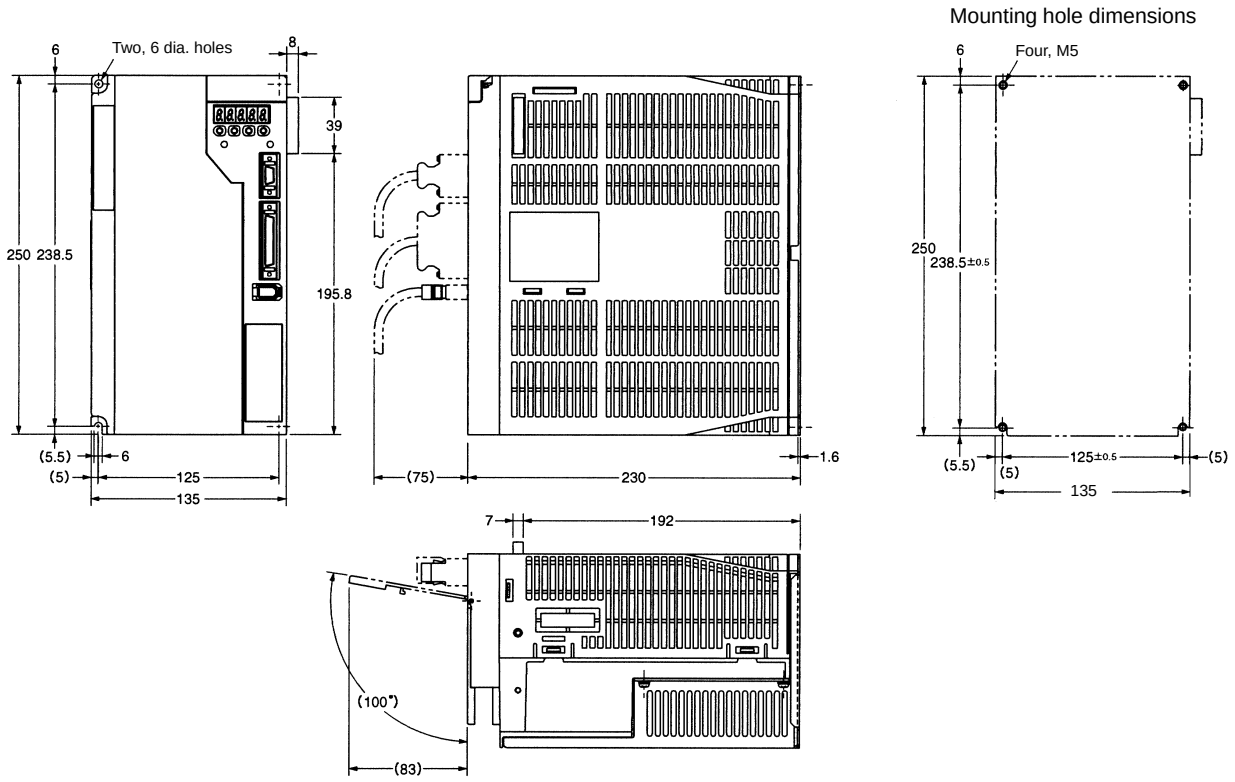
200 VAC: 2 kW/3 kW

R88D-WT20H/WT30H



200 VAC: 5 kW

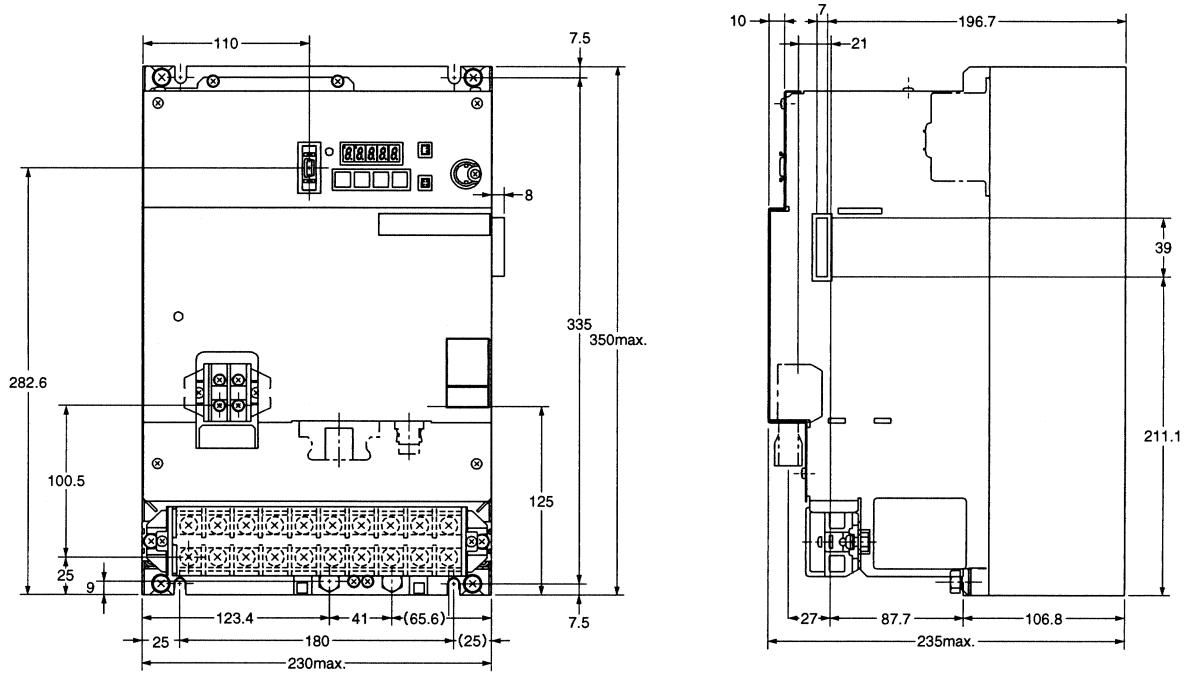
R88D-WT50H

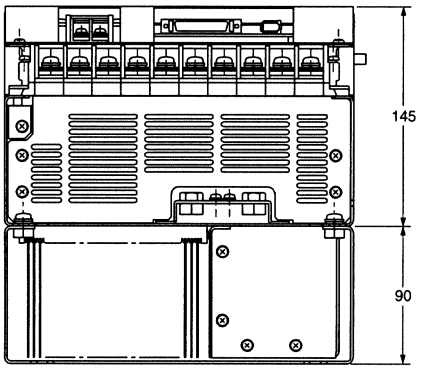


External Dimensions

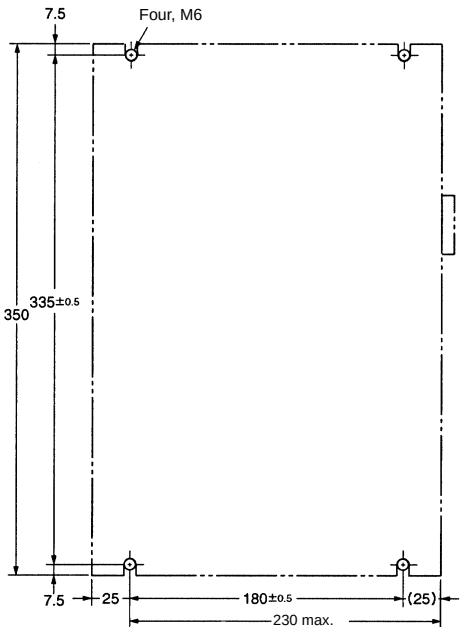
200 VAC: 6 kW

R88D-WT60H

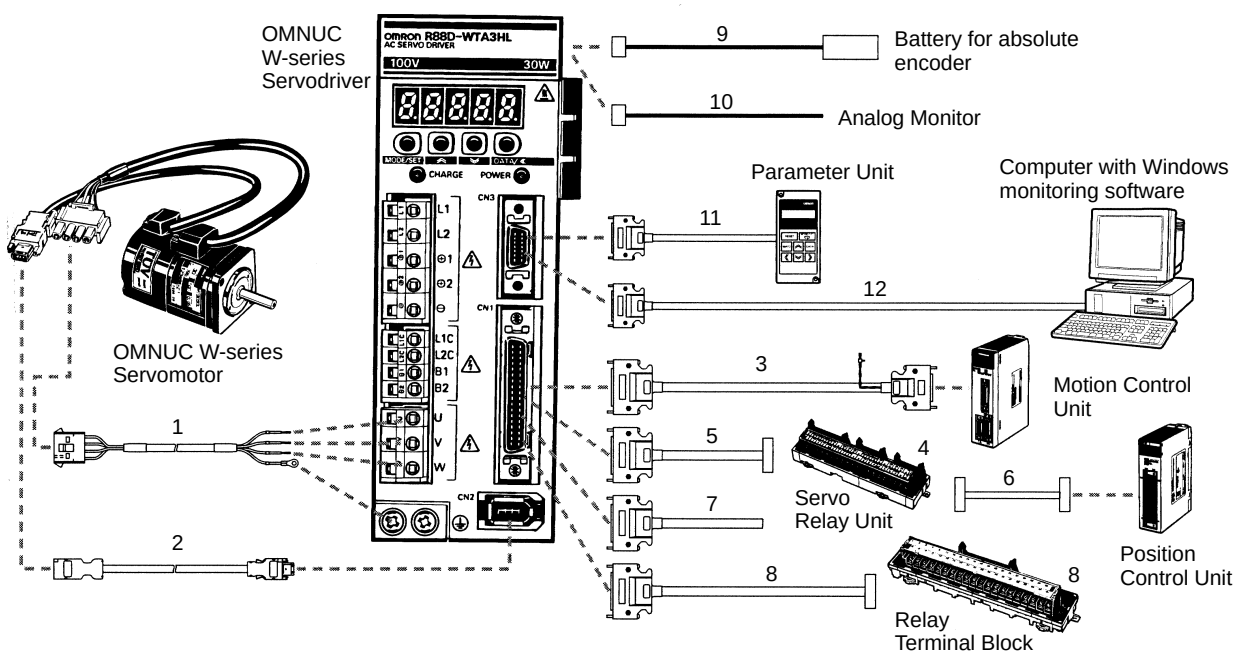




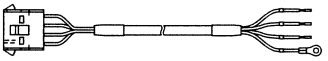
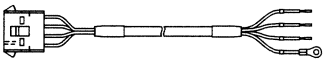
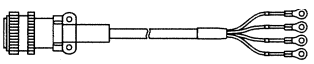
Mounting hole dimensions

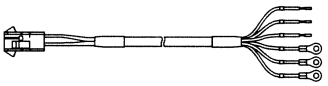
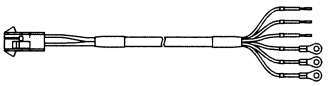
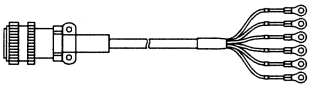
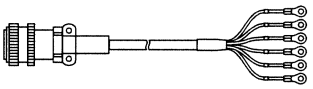


Cable Specifications



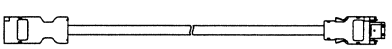
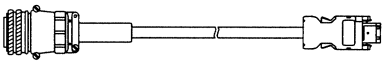
■ Power Cables

Symbol	Description	Connect to:	Model	Remarks
1	Power Cables for Servomotors without Brakes	Cylinder-style Servomotors (3,000 r/min): 30 to 750 W Flat-style Servomotors (3,000 r/min): 100 to 750 W	R88A-CAWA□□□S □represents one of the following cable lengths: 3 m, 5 m, 10 m, 15 m, 20 m, 30 m, 40 m, 50 m	Connector on motor end (manufactured by AMP Japan, Ltd.) Connector cap: 350780-1 Connector socket: 350689-3 
		Flat-style Servomotors (3,000 r/min): 1.5 kW	R88A-CAWB□□□S □represents one of the following cable lengths: 3 m, 5 m, 10 m, 15 m, 20 m, 30 m, 40 m, 50 m	Connector on motor end (manufactured by AMP Japan, Ltd.) Connector cap: 350780-1 Connector socket: 350550-6 
		Cylinder-style Servomotors (3,000 r/min): 1 to 2 kW Cylinder-style Servomotors (1,000 r/min): 300 to 900 W	R88A-CAWC□□□S □represents one of the following cable lengths: 3 m, 5 m, 10 m, 15 m, 20 m, 30 m, 40 m, 50 m	Connector on motor end (manufactured by Daiichi Denshi Kogyo Co., Ltd.) Connector cap: MS3106B18-10S Cable clamp: MS3057-10A 
		Cylinder-style Servomotors (3,000 r/min): 3 to 5 kW Cylinder-style Servomotors (1,000 r/min): 1.2 to 3 kW	R88A-CAWD□□□S □represents one of the following cable lengths: 3 m, 5 m, 10 m, 15 m, 20 m, 30 m, 40 m, 50 m	Connector on motor end (manufactured by Daiichi Denshi Kogyo Co., Ltd.) Connector cap: MS3106B22-22S Cable clamp: MS3057-12A 

Symbol	Description	Connect to:	Model	Remarks
1	Power Cables for Servomotors with Brakes	Cylinder-style Servomotors (3,000 r/min): 30 to 750 W Flat-style Servomotors (3,000 r/min): 100 to 750 W	R88A-CAWA□□□B □represents one of the following cable lengths: 3 m, 5 m, 10 m, 15 m, 20 m, 30 m, 40 m, 50 m	Connector on motor end (manufactured by AMP Japan, Ltd.) Connector cap: 350781-1 Connector socket: 350689-3 
		Flat-style Servomotors (3,000 r/min): 1.5 kW	R88A-CAWB□□□B □represents one of the following cable lengths: 3 m, 5 m, 10 m, 15 m, 20 m, 30 m, 40 m, 50 m	Connector on motor end (manufactured by AMP Japan, Ltd.) Connector cap: 350781-1 Connector socket: 350550-6 
		Cylinder-style Servomotors (3,000 r/min): 1 to 2 kW Cylinder-style Servomotors (1,000 r/min): 300 to 900 W	R88A-CAWC□□□B □represents one of the following cable lengths: 3 m, 5 m, 10 m, 15 m, 20 m, 30 m, 40 m, 50 m	Connector on motor end (manufactured by Daiichi Denshi Kogyo Co., Ltd.) Connector cap: MS3106B20-15S Cable clamp: MS3057-12A 
		Cylinder-style Servomotors (3,000 r/min): 3 to 5 kW Cylinder-style Servomotors (1,000 r/min): 1.2 to 3 kW	R88A-CAWD□□□B □represents one of the following cable lengths: 3 m, 5 m, 10 m, 15 m, 20 m, 30 m, 40 m, 50 m	Connector on motor end (manufactured by Daiichi Denshi Kogyo Co., Ltd.) Connector cap: MS3106B24-10S Cable clamp: MS3057-16A 

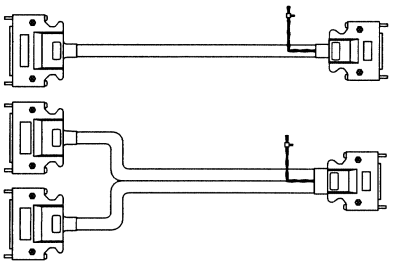
Note: The following power cables are available for Cylinder-style Servomotors with a capacity of 4 to 5.5 kW (1,000 r/min).
Motors without Brakes (4 kW): R88A-CAWE□□□S
Motors without Brakes (5.5 kW): R88A-CAWF□□□S
Motors with Brakes (4 kW/5.5 kW): R88A-CAWE□□□B (Cables for motors without brakes are also required.)

■ Encoder Cables (for CN2)

Symbol	Description	Connect to:	Model	Remarks
2	Encoder Cable	Cylinder-style Servomotors (3,000 r/min): 30 to 750 W Flat-style Servomotors (3,000 r/min): 100 W to 1.5 kW	R88A-CRWA□□□C □represents one of the following cable lengths: 3 m, 5 m, 10 m, 15 m, 20 m, 30 m, 40 m, 50 m	Connector on motor end (manufactured by MOLEX JAPAN CO., Ltd.) Connector socket: 54280-0600 Connector on driver end (manufactured by MOLEX JAPAN CO., Ltd.) Crimp terminal: 50639-8091 Connector plug: 55101-0006 
		Cylinder-style Servomotors (3,000 r/min): 1 to 5 kW Cylinder-style Servomotors (1,000 r/min): 300 W to 5.5 kW	R88A-CRWB□□□N □represents one of the following cable lengths: 3 m, 5 m, 10 m, 15 m, 20 m, 30 m, 40 m, 50 m	Connector on motor end (manufactured by Daiichi Denshi Kogyo Co., Ltd.) Connector socket: MS3106B20-29S Cable clamp: MS3057-12A Connector on driver end (manufactured by MOLEX JAPAN CO., Ltd.) Crimp terminal: 50639-8091 Connector plug: 55101-0006 

Cable Specifications

■ Control Cables (for CN1)

Symbol	Description	Connect to	Model	Remarks
3	Control Cable	Motion Control Units (for all SYSMAC CS1, C200H, and CV PCs)	R88A-CPW□□□M◊ □represents one of the following cable lengths: 1 m, 2 m, 3 m, 5 m ◊ represents the number of axes: 1: 1 axis 2: 2 axes	
4	Servo Relay Unit	C200HW-NC113 Position Control Unit	XW2B-20J6-1B	---
		C200HW-NC213/413 Position Control Unit	XW2B-40J6-2B	
5	Servodriver Connecting Cable	Position Control Unit	XW2Z-□□□J-B4 □represents either of the following cable lengths: 1 m, 2 m	
6	Position Control Unit Connecting Cable	C200HW-NC113 Position Control Unit	XW2Z-□□□J-A6 □represents either of the following cable lengths: 50 cm, 1 m	
		C200HW-NC213/413 Position Control Unit	XW2Z-□□□J-A7 □represents either of the following cable lengths: 50 cm, 1 m	
7	Control Cable	General-purpose Controller	R88A-CPW□□□S □represents either of the following cable lengths: 1 m, 2 m	
8	Relay Terminal Block Cable	General-purpose Controller	R88A-CTW□□□N □represents either of the following cable lengths: 1 m, 2 m	
	Relay Terminal Block		XW2B-50G5	
---	Control I/O Connector CN1	---	R88A-CNU11C	

■ CN3 Options

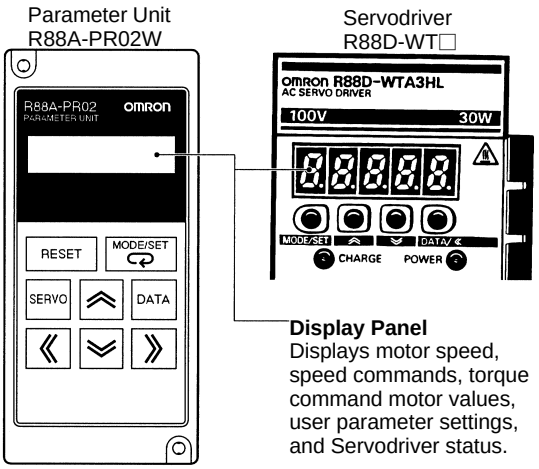
Symbol	Description	Connect to:	Model
11	Parameter Unit with Cable	---	R88A-PR02W
	Parameter Unit Connecting Cable	R88A-PR02U	R88A-CCW002C
12	Computer Connecting Cable	IBM PC/AT or compatibles	R88A-CCW002P2

■ Other Options

Symbol	Description	Connect to:	Model
9	Backup Battery	Absolute encoder	R88A-BAT01W
10	Analog Monitor Cable	---	R88A-CMW001S

Note: For details, refer to *Product List* on page 53.

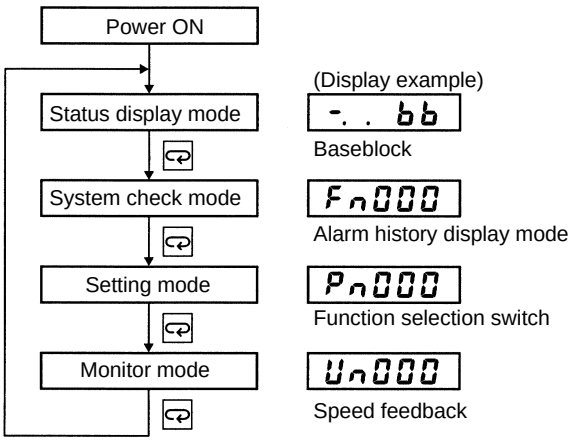
■ Operating Functions



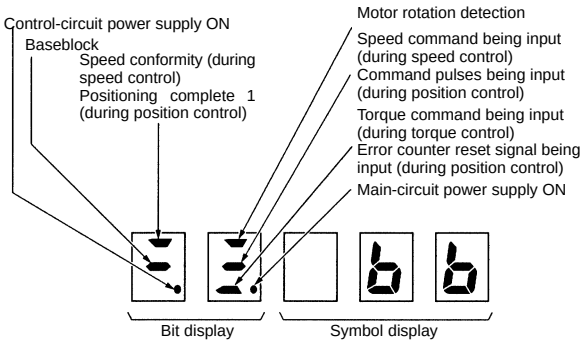
Display Panel
Displays motor speed, speed commands, torque command motor values, user parameter settings, and Servodriver status.

■ Changing Modes

To change modes, press the MODE/SET Key.



■ Status Display Mode

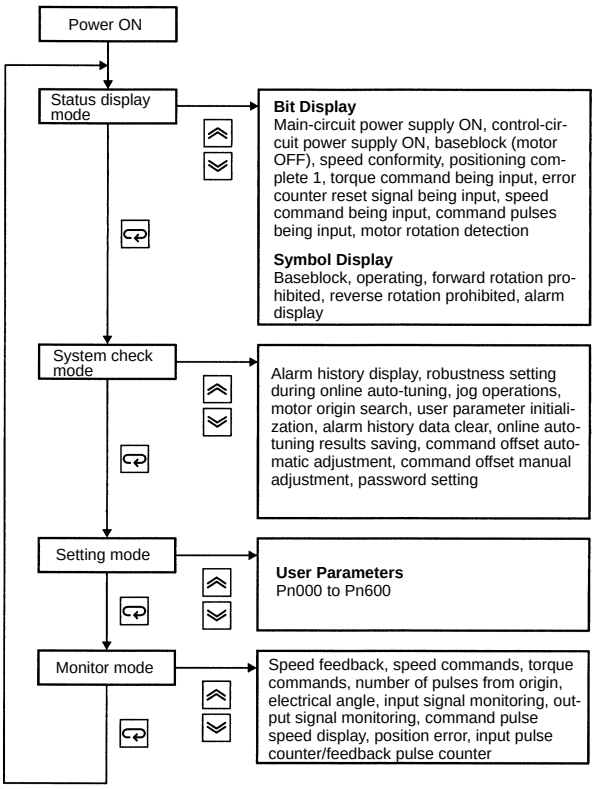


Symbol	Status
bb	Baseblock (motor OFF)
rUn	Operating
p%t	Forward rotation prohibited (forward overtravel)
n%t	Reverse rotation prohibited (reverse overtravel)
a.02	Alarm display (refer to *Alarm List* on page 38)

■ Unit Keys

R88A-PR02W	R88D-WT□	Function
RESET	+	Resets an alarm.
MODE/SET	MODE/SET	Switches between status display mode, system check mode, setting mode, and monitor mode. Used as a data setting key while in setting mode.
SERVO	MODE/SET	Turns ON or OFF the Servo while jog operations are being performed.
DATA	DATA/«	Switches between parameter display and data display, and records data.
»	»	Increments parameter settings. Used as a forward rotation start key during jog operation.
«	«	Decrements parameter settings. Used as a reverse rotation start key during jog operation.
«	DATA/«	Selects the digit whose setting is to be changed. When selected, **the digit flashes.**
»		

■ Mode Details



Monitor Item and Alarm List

■ Monitor Mode

Monitor No.	Monitor item	Unit	Explanation
Un000	Speed Feedback	r/min	Displays the actual motor speed.
Un001	Speed Command	r/min	Displays the speed command value or internally set speed value during speed control. 0 is displayed during pulse-train input control.
Un002	Torque Command	%	Displays the command value for a current loop that is expressed by treating the rated torque as 100%.
Un003	Number of Pulses from Z-Phase	Pulses	Displays the number of pulses from Z-Phase in encoder resolution units (multiplied by 4).
Un004	Electrical Angle	degrees	Displays the motor electrical angle.
Un005	Input Signal Monitor	---	Displays driver I/O signal status by turning ON or OFF each signal bit.
Un006	Output Signal Monitor	---	
Un007	Command Pulse Speed Display	r/min	Displays command pulse frequency converted in r/min.
Un008	Position Deviation (Error Counter)	Reference units	Displays the number of pulses accumulated in the error counter (Position Deviation) that are converted in reference units (input pulse references).
Un009	Motor Load Rate	%	Displays effective torque at intervals of 10 s that is expressed by treating the rated torque as 100%.
Un00A	Regeneration Load Rate	%	Displays the amount of regeneration energy absorbed at intervals of 10 s that is expressed by treating the Pn600 setting (Regenerative Resistor Capacity) as 100%.
Un00B	Dynamic Brake Resistance Load Rate	%	Displays the resistance load factor at intervals of 10 s that is expressed by treating the rated load factor as 100%.
Un00C	Input Pulse Counter	Reference units	Displays the number of counted input pulses in hexadecimal notation.
Un00D	Feedback Pulse Counter	Pulses	Displays the number of counted encoder feedback pulses in hexadecimal notation (multiplied by 4).

■ Alarm Displays

Display	Alarm code			Alarm details
	AL01	AL02	AL03	
A.02	OFF	OFF	OFF	Parameter destruction, Servodriver EEP-ROM data error
A.03				Main circuit detector error
A.04				Parameter setting error
A.05				Motor mismatch, Servomotor and Servodriver capacity mismatch
A.10	ON	OFF	OFF	Overcurrent or heat sink overheating (1.5 kW min.)
A.30	ON	ON	OFF	Regeneration error (broken resistor wiring, transistor short-circuit)
A.32				Regeneration overload
A.40	OFF	OFF	ON	Overvoltage
A.41				Undervoltage
A.51	ON	OFF	ON	Overspeed
A.71	ON	ON	ON	Overload (maximum momentary load)
A.72				Overload (maximum continuous load)
A.73				Dynamic brake overload
A.74				Inrush resistance overload
A.7A				Radiation shield overheating (Displayed for 30 W to 1.0 kW models only)
A.81	OFF	OFF	OFF	Backup error
A.82				Checksum error
A.83				Parity error
A.84				Absolute error
A.85				Overspeed error
A.8b				Encoder overheating
Ab1				Speed command input read error
Ab2				Torque command input read error
AbF				System error
AC1	ON	OFF	ON	Overrun detection
ACB				Excessive rotation data error
AC9				Encoder communications error
ACA				Encoder parameter error
ACb				Encoder data error
ACC	ON	OFF	ON	Multiple rotation limit mismatch
Ad0	ON	ON	OFF	Error counter count-up
AF1	OFF	ON	OFF	Phase-failure detected

Note: Alarm codes are output to pin 37 (AL01), pin 38 (AL02), and pin 39 (AL03) of the CN1 connector on the Servodriver.

■ List of Parameters

Function Selection Parameters

PRM. No.	Parameter name	Digit	Function name	Setting	Explanation	Factory setting	Unit	Setting range
Pn000	Function Selection Basic Switches					0010	---	---
		0	Reverse Rotation Mode	0	Defines forward rotation as counter-clockwise (CCW) rotation.			
				1	Defines forward rotation as clockwise (CW) rotation.			
		1	Control Mode Selection	0	Speed control (analog command)			
				1	Position control (pulse-train command)			
				2	Torque control (analog command)			
				3	Internally set speed control			
				4	Internally set speed control ↔ Speed control (analog command)			
				5	Internally set speed control ↔ Position control (pulse-train command)			
				6	Internally set speed control ↔ Torque control (analog command)			
				7	Position control (pulse-train command) ↔ Speed control (analog command)			
				8	Position control (pulse-train command) ↔ Torque control (analog command)			
				9	Torque control (analog command) ↔ Speed control (analog command)			
				A	Speed control with position lock function (analog command)			
				B	Position control with pulse prohibit function (pulse-train command)			
		2	Unit No. Setting	0 to F	Sets the unit No. of the device communicating with Servodriver.			
		3	Not Used					
Pn001	Function Selection Application Switches 1					1002	---	---
		0	Servo OFF or Alarm Stop Mode	0	Uses the dynamic brake to stop the Servomotor.			
				1	Uses the dynamic brake to stop the Servomotor, and releases the dynamic brake after the Servomotor stops.			
				2	Coasts the Servomotor to a stop.			
		1	Run Prohibit Input Stop Mode	0	Stops the Servomotor according to the Pn001.0 setting.			
				1	Decelerates the Servomotor to a stop at the torque specified in Pn406 and then locks the Servomotor.			
				2	Decelerates the Servomotor to a stop at the torque specified in Pn406 and then turns OFF the Servomotor.			
		2	Main Circuit Power Supply AC/DC Input Selection	0	Supplies AC power from L1, L2, and (L3) terminals.			
				1	Supplies DC power from (+) 1 and (–) terminals.			
		3	Warning Code Output Selection	0	Outputs only alarm codes from AL01, AL02, and AL03.			
				1	Outputs both alarm codes and warning codes from AL01, AL02, and AL03.			

Note: 1. Do not change the factory settings of any “Not Used” parameters.

2. When changing the Pn000, Pn001, or Pn002 parameter, always turn OFF and then ON the main circuit and control circuit power supplies to make the settings valid.

User Parameters

PRM. No.	Parameter name	Digit	Function name	Setting	Explanation	Factory setting	Unit	Setting range
Pn002	Function Selection Application Switches 2					0000	---	---
		0	Torque Command Input Switch during Position/Speed Control	0	None.			
				1	Uses TREF for analog torque limit input.			
				2	Uses TREF for torque feed-forward input.			
				3	Uses TREF for analog torque limit input when PCL and NCL are ON.			
		1	Speed Command Input Switch during Torque Control	0	None.			
				1	Uses REF for analog torque limit input.			
		2	Absolute Encoder Usage	0	Uses the absolute encoder as an absolute encoder.			
				1	Uses the absolute encoder as an incremental encoder.			
		3	Not Used					
Pn003	Function Selection Application Switches 3					0002	---	---
		0	Analog Monitor 1	0	Motor speed: 1 V/1,000 r/min			
				1	Speed command: 1 V/1,000 r/min			
				2	Torque command: 0.05 V/rated torque			
				3	Position error: 0.05 V/1 command unit			
				4	Position error: 0.05 V/100 command units			
				5	Reference pulse frequency: 1 V/1,000 r/min			
				6	Motor speed: 1 V/250 r/min			
				7	Motor speed: 1 V/125 r/min			
				8 to F	Reserved			
		1	Analog Monitor 2	0 to F	Same as Analog Monitor 1			
		2 to 3	Not Used					
Pn004 and Pn005	Not Used					0000	---	---

Note: 1. Do not change the factory settings of any “Not Used” parameters.

2. When changing the Pn000, Pn001, or Pn002 parameter, always turn OFF and then ON the main circuit and control circuit power supplies to make the settings valid.

Gain-related Parameters

PRM. No.	Parameter name	Digit	Function name	Setting	Explanation	Factory setting	Unit	Setting range
Pn100	Speed Loop Gain					80	Hz	1 to 2000
Pn101	Speed Loop Integral Time Constant					2000	0.01 ms	15 to 51200
Pn102	Position Loop Gain					40	1/s	1 to 2000
Pn103	Inertia Ratio					300	%	0 to 10000
Pn104	Speed Loop Gain 2					80	Hz	1 to 2000
Pn105	Speed Loop Integral Time Constant 2					2000	0.01 ms	15 to 51200
Pn106	Position Loop Gain 2					40	1/s	1 to 2000
Pn107	Bias Rotational Speed					0	r/min	0 to 450
Pn108	Bias Addition Baud					7	Command units	0 to 250
Pn109	Feed-forward Amount					0	%	0 to 100
Pn10A	Feed-forward Command Filter					0	0.01 ms	0 to 6400

PRM. No.	Parameter name	Digit	Function name	Setting	Explanation	Factory setting	Unit	Setting range
Pn10B	Speed Control Settings					0004	---	---
		0	P Control Switching Condition	0	Uses an internal torque command value as the switching condition (level setting: Pn10C).			
				1	Uses a speed command value as the switching condition (level setting: Pn10D).			
				2	Uses an acceleration command value as the switching condition (level setting: Pn10E).			
				3	Uses the number of error pulses as the switching condition (level setting: Pn10F).			
				4	Does not use the P control switching function.			
		1	Speed Control Loop Switch	0	PI control			
				1	IP control			
		2 to 3	Not Used					
Pn10C	P Control Switching (Torque Command)					200	%	0 to 800
Pn10D	P Control Switching (Speed Command)					0	r/min	0 to 10000
Pn10E	P Control Switching (Acceleration Command)					0	10r/ min/s	0 to 3000
Pn10F	P Control Switching (Deviation Pulse)					10	Command units	0 to 10000
Pn110	Online Autotuning Setting					0012	---	---
		0	Online Autotuning Selection	0	Performs autotuning only when the system runs for the first time after the power is turned ON.			
				1	Performs autotuning continuously.			
				2	Does not perform autotuning.			
		1	Speed Feedback Compensation Selection	0	Enabled			
				1	Disabled			
		2	Friction Compensation Selection	0	Friction compensation: Disabled			
				1	Friction compensation: Small rated torque ratio			
				2	Friction compensation: Large rated torque ratio			
		3	Not Used					
Pn111	Speed Feedback Compensating Gain					100	%	1 to 500

Note: Do not change the factory settings of any “Not Used” parameters.

User Parameters

PRM. No.	Parameter name	Digit	Function name	Setting	Explanation	Factory setting	Unit	Setting range
Pn112	Not Used					100		
Pn113						1000		
Pn114						200		
Pn115						32		
Pn116						16		
Pn117						100		
Pn118						100		
Pn119						50		
Pn11A						1000		
Pn11B						50		
Pn11C						70		
Pn11D						100		
Pn11E						100		
Pn11F						0		
Pn120						0		
Pn121						50		
Pn122						0		
Pn123						0		

Note: Do not change the factory settings of any “Not Used” parameters.

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Position Control-related Parameters

PRM. No.	Parameter name	Digit	Function name	Set-ting	Explanation	Factory setting	Unit	Setting range
Pn200	Position Control Setting 1					1011	---	---
		0	Command Pulse Mode	0	Feed pulse/forward-reverse signal: Positive logic			
				1	Forward rotation pulse/reverse rotation pulse: Positive logic			
				2	Phase-A/B signal with 90° phase differential (×1): Positive logic			
				3	Phase-A/B signal with 90° phase differential (×2): Positive logic			
				4	Phase-A/B signal with 90° phase differential (×4): Positive logic			
				5	Feed pulse/forward-reverse signal: Negative logic			
				6	Forward rotation pulse/reverse rotation pulse: Negative logic			
				7	Phase-A/B signal with 90° phase differential (×1): Negative logic			
				8	Phase-A/B signal with 90° phase differential (×2): Negative logic			
				9	Phase-A/B signal with 90° phase differential (×4): Negative logic			
		1	Error Counter Clear Signal Form	0	Clears the error counter when the clear signal goes high.			
				1	Clears the error counter on the rising edge of the clear signal.			
				2	Clears the error counter when the clear signal goes low.			
				3	Clears the error counter on the falling edge of the clear signal.			
		2	Error Counter Clear during Servo OFF or Alarm	0	Clears the error counter when the Servo is turned OFF or when an alarm is generated.			
				1	Does not clear the error counter when the Servo is turned OFF or when an alarm is generated.			
				2	Clears the error counter only when an alarm is generated.			
		3	Pulse Command Filter Selection	0	Uses command filter for line driver signal input (500 Kpps).			
				1	Uses command filter for open collector signal input (200 Kpps).			
Pn201	Encoder Divider Rate					1000	Pulses/revolution	16 to 16384
Pn202	Electronic Gear Ratio G1 (Numerator)					4	---	1 to 65535
Pn203	Electronic Gear Ratio G2 (Denominator)					1	---	1 to 65535
Pn204	Position Command Filter Time Constant 1					0	0.01 ms	0 to 6400
Pn205	Absolute Encoder Multi-turn Limit Setting					65535	Number of revolutions	0 to 65535
Pn206	Not Used					16384		

User Parameters

PRM. No.	Parameter name	Digit	Function name	Set-ting	Explanation	Factory setting	Unit	Setting range
Pn207	Position Control Set-ting 2					0000	---	---
		0	Position Command Filter Selection	0	Primary filter			
				1	Linear acceleration/deceleration			
		1	Speed Command In-put Switch (during Position Control)	0	None			
				1	Uses REF for speed feed-forward in-put.			
		2 to 3	Not Used					
Pn208	Position Command Filter Time Constant 2					0	0.01 ms	0 to 6400

Speed-related Parameters

PRM. No.	Parameter name	Digit	Function name	Setting	Explanation	Factory setting	Unit	Setting range
Pn300	Speed Command Scale					1000	0.01 V/rated speed	150 to 3000
Pn301	No.1 Internal Speed Setting					100	r/min	0 to 10000
Pn302	No. 2 Internal Speed Setting					200	r/min	0 to 10000
Pn303	No. 3 Internal Speed Setting					300	r/min	0 to 10000
Pn304	Jog Speed					500	r/min	0 to 10000
Pn305	Soft Start Acceleration Time					0	ms	0 to 10000
Pn306	Soft Start Deceleration Time					0	ms	0 to 10000
Pn307	Speed Command Filter Time Constant					40	0.01 ms	0 to 65535
Pn308	Speed Feedback Filter Time Constant					0	0.01 ms	0 to 65535

Note: 1. Do not change the factory settings of any “Not Used” parameters.

2. When changing any position control-related parameters (Pn200 to Pn208), always turn OFF and then ON the main circuit and control circuit power supplies to make the settings valid.

3. For 13-bit encoders, dividing will not occur if a value of 2048 or greater is specified in Pn201.

Torque-related Parameters

PRM. No.	Parameter name	Digit	Function name	Setting	Explanation	Factory setting	Unit	Setting range
Pn400	Torque Command Scale					30	0.1 V/rated torque	10 to 100
Pn401	Torque Command Filter Time Constant					40	0.01 ms	0 to 65535
Pn402	Forward Torque Limit					350	%	0 to 800
Pn403	Reverse Torque Limit					350	%	0 to 800
Pn404	Forward Rotation External Current Limit					100	%	0 to 800
Pn405	Reverse Rotation External Current Limit					100	%	0 to 800
Pn406	Emergency Stop Torque					350	%	0 to 800
Pn407	Speed Limit					3000	r/min	0 to 10000
Pn408	Torque Command Setting					0000	---	---
		0	Notch Filter Selec-tion	0	None			
				1	Uses notch filter for torque command.			
		1 to 3	Not Used					
Pn409	Notch Filter Frequency					2000	Hz	50 to 2000

Sequence-related Parameters

PRM. No.	Parameter name	Digit	Function name	Setting	Explanation	Factory setting	Unit	Setting range
Pn500	Positioning Completed Width 1					3	Command units	0 to 250
Pn501	Position Lock Rotation Speed					10	r/min	0 to 10000
Pn502	Rotation Speed For Motor Rotation Detection					20	r/min	0 to 10000
Pn503	Speed Conformity Signal Output Width					10	r/min	0 to 100
Pn504	Positioning Completion Range 2					3	Command units	1 to 250
Pn505	Deviation Counter Overflow Level					1024	Command units × 256	1 to 32767
Pn506	Brake Timing 1					0	10 ms	0 to 50
Pn507	Brake Command Speed					100	r/min	0 to 10000
Pn508	Brake Timing 2					50	10 ms	10 to 100
Pn509	Momentary Hold Time					20	ms	20 to 1000
Pn50A	Input Signal Selections 1					8100	---	---
		0	Input Signal Allocation Mode	0	Uses the same sequence input signal allocation setting as the R88D–UT. For details, refer to the user's manual (SBCE-309).			
				1	Enables any sequence input signal allocation settings.			

Note: 1. Do not change the factory settings of any "Not Used" parameters.

2. When changing any Input Signal Selection parameters (Pn50A to Pn50D), always turn OFF and then ON the main circuit and control circuit power supplies to make the settings valid.

User Parameters

PRM. No.	Parameter name	Digit	Function name	Setting	Explanation	Factory setting	Unit	Setting range
Pn50A	Input Signal Selections 1	1	RUN Signal Input Terminal Allocation	0	Allocates the signal to CN1-40 pin: Enabled when low.	8100	---	---
				1	Allocates the signal to CN1-41 pin: Enabled when low.			
				2	Allocates the signal to CN1-42 pin: Enabled when low.			
				3	Allocates the signal to CN1-43 pin: Enabled when low.			
				4	Allocates the signal to CN1-44 pin: Enabled when low.			
				5	Allocates the signal to CN1-45 pin: Enabled when low.			
				6	Allocates the signal to CN1-46 pin: Enabled when low.			
				7	Always enabled.			
				8	Always disabled.			
				9	Allocates the signal to CN1-40 pin: Enabled when high.			
				A	Allocates the signal to CN1-41 pin: Enabled when high.			
				B	Allocates the signal to CN1-42 pin: Enabled when high.			
				C	Allocates the signal to CN1-43 pin: Enabled when high.			
				D	Allocates the signal to CN1-44 pin: Enabled when high.			
				E	Allocates the signal to CN1-45 pin: Enabled when high.			
				F	Allocates the signal to CN1-46 pin: Enabled when high.			
		2	MING (Gain Reduction) Signal Input Terminal Allocation	0 to F	Same as Pn50A.1			
		3	POT (Forward Run Prohibit) Signal Input Terminal Allocation	0 to F	Same as Pn50A.1			
Pn50B	Input Signal Selection 2					6548	---	---
		0	NOT (Reverse Run Prohibit) Signal Input Terminal Allocation	0 to F	Same as Pn50A.1			
		1	RESET (Alarm Reset) Signal Input Terminal Allocation	0 to F	Same as Pn50A.1			
		2	PCL (Forward Torque Limit) Signal Input Terminal Allocation	0 to F	Same as Pn50A.1			
		3	NCL (Reverse Torque Limit) Signal Input Terminal Allocation	0 to F	Same as Pn50A.1			
Pn50C	Input Signal Selections 3					8888	---	---
		0	RDIR (Rotation Direction Command) Signal Input Terminal Allocation	0 to F	Same as Pn50A.1			
		1	SPD1 (Speed Selection Command 1) Signal Input Terminal Allocation	0 to F	Same as Pn50A.1			
		2	SPD2 (Speed Selection Command 2) Signal Input Terminal Allocation	0 to F	Same as Pn50A.1			
		3	CSEL (Control Mode Selection) Signal Input Terminal Allocation	0 to F	Same as Pn50A.1			

Note: 1. Do not change the factory settings of any ”Not Used” parameters.

2. When changing any Input Signal Selection parameters (Pn50A to Pn50D), always turn OFF and then ON the main circuit and control circuit power supplies to make the settings valid.

3. When installing an external regenerative resistor, set the resistor capacity (W).

PRM. No.	Parameter name	Digit	Function name	Setting	Explanation	Factory setting	Unit	Setting range
Pn50D	Input Signal Selections 4					8888	---	---
		0	PLOCK (Position Lock Command) Signal Input Terminal Allocation	0 to F	Same as Pn50A.1			
		1	IPG (Pulse Prohibit) Signal Input Terminal Allocation	0 to F	Same as Pn50A.1			
		2	GSEL (Gain Selection) Signal Input Terminal Allocation	0 to F	Same as Pn50A.1			
		3	Not Used					
Pn50E	Output Signal Selections 1					3211	---	---
		0	INP1 (Positioning Completed 1) Signal Output Terminal Allocation	0	Disabled (Not used for the output signal)			
				1	Allocates the signal to CN1-25 and CN1-26 pins.			
				2	Allocates the signal to CN1-27 and CN1-28 pins.			
				3	Allocates the signal to CN1-29 and CN1-30 pins.			
		1	VCMP (Speed Coincidence) Signal Output Terminal Allocation	0 to 3	Same as Pn50E.0.			
		2	TGON (Motor Rotation Detection) Signal Output Terminal Allocation	0 to 3	Same as Pn50E.0.			
		3	READY (Servo Ready) Signal Output Terminal Allocation	0 to 3	Same as Pn50E.0.			
Pn50F	Output Signal Selections 2					0000	---	---
		0	CLMT (Torque Limit Detection) Signal Output Terminal Allocation	0 to 3	Same as Pn50E.0.			
		1	VLMT (Speed Limit Detection) Signal Output Terminal Allocation	0 to 3	Same as Pn50E.0.			
		2	BKIR (Brake Interlock) Signal Output Terminal Allocation	0 to 3	Same as Pn50E.0.			
		3	WRN (Warning) Signal Output Terminal Allocation	0 to 3	Same as Pn50E.0.			
Pn510	Output Signal Selections 3					0000	---	---
		0	INP2 (Positioning Completed 2) Signal Output Terminal Allocation	0 to 3	Same as Pn50E.0.			
		1 to 3	Not Used					
Pn511	Not Used					8888	---	---
Pn512	Output Signal Reversal					0000	---	---
		0	CN1-25/26 Pin Output Signal Reversal	0	Does not reverse output signal.			
				1	Reverses output signal.			
		1	CN1-27/28 Pin Output Signal Reversal	0, 1	Same as Pn512.0.			
		2	CN1-29/30 Pin Output Signal Reversal	0, 1	Same as Pn512.0.			
		3	Not Used					

Other Parameters

PRM. No.	Parameter name	Digit	Function name	Setting	Explanation	Factory setting	Unit	Setting range
Pn600	Regenerative Resistor Capacity					0	10 W	0 to maximum (depending on each model)
Pn601	Not Used					0		

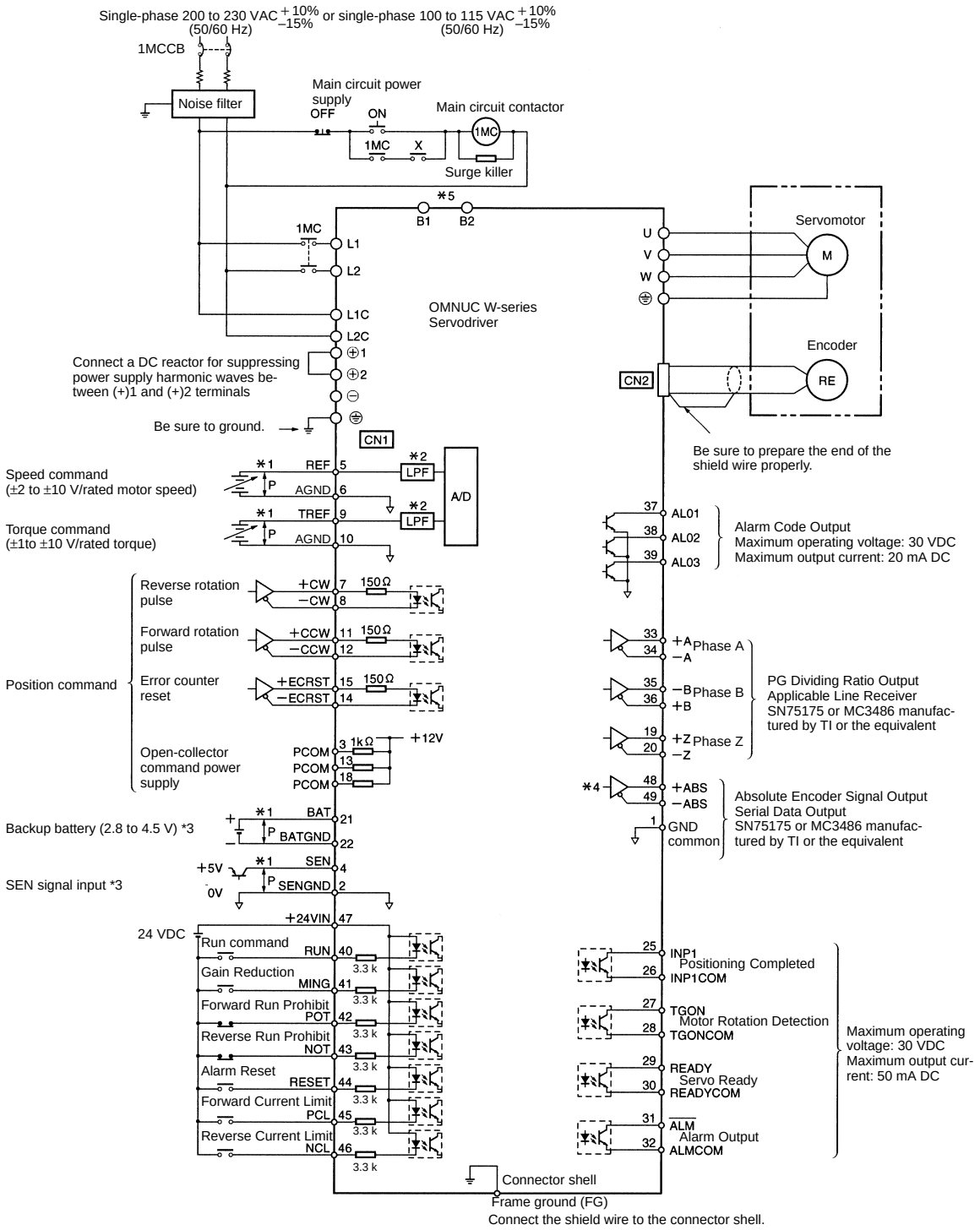
Note: 1. Do not change the factory settings of any “Not Used” parameters.

2. When changing any Input Signal Selection parameters (Pn50A to Pn50D), always turn OFF and then ON the main circuit and control circuit power supplies to make the settings valid.

3. When installing an external regenerative resistor, set the resistor capacity (W).

Connection Diagrams

■ Single-phase



*1. P represents a twisted-pair cable.

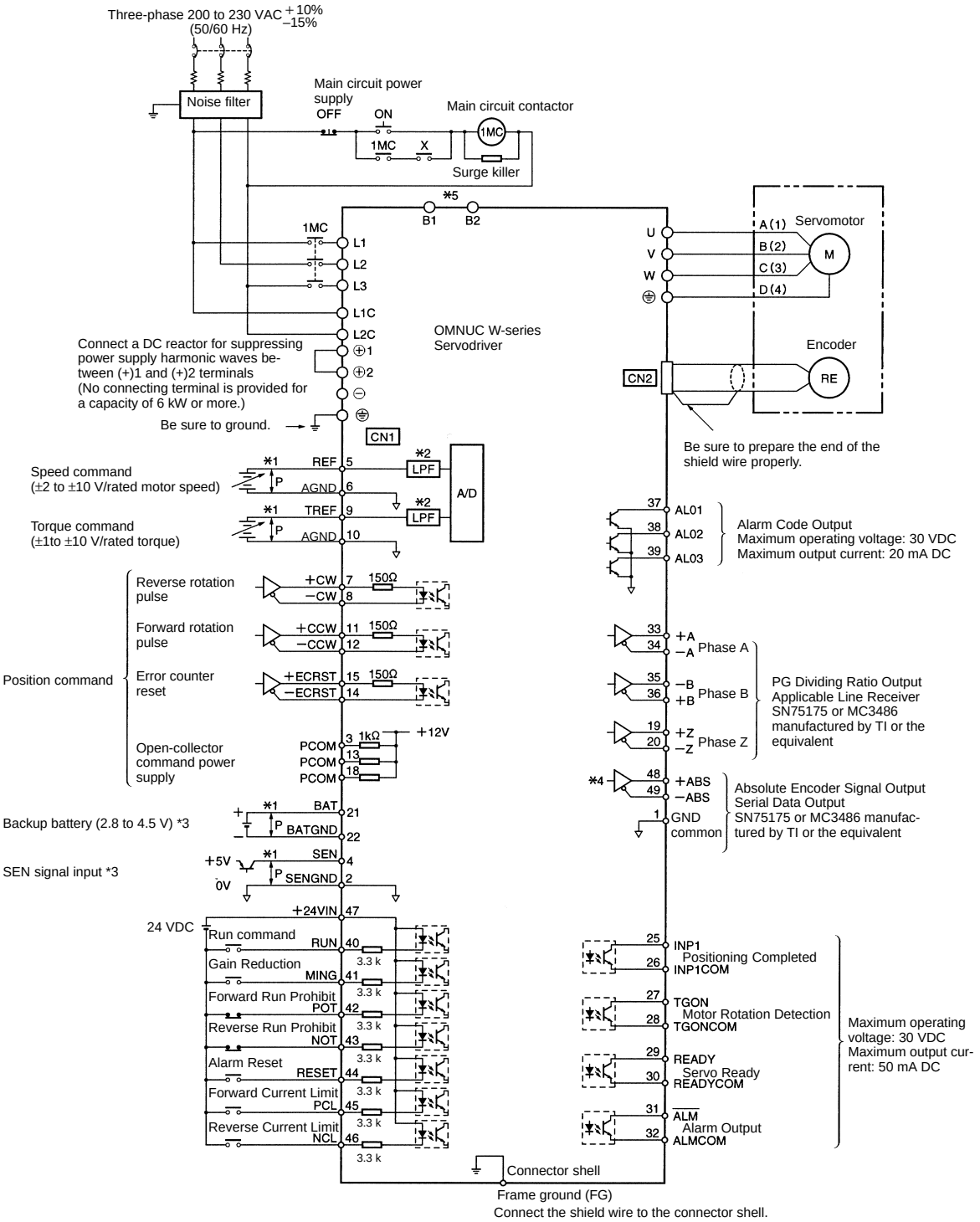
*2. Primary filter

*3. Connect when using an absolute encoder.

*4. Used only with an absolute encoder.

*5. A regenerative resistor can be connected between B1 and B2.

■ Three-phase



*1. ⌐P¬ represents a twisted-pair cable.

*2. Primary filter

*3. Connect when using an absolute encoder.

*4. Used only with an absolute encoder.

*5. When using an external regenerative resistor, connect it between B1 and B2.
(When the capacity is 6 kW, connect a Regenerative Resistor Unit.)

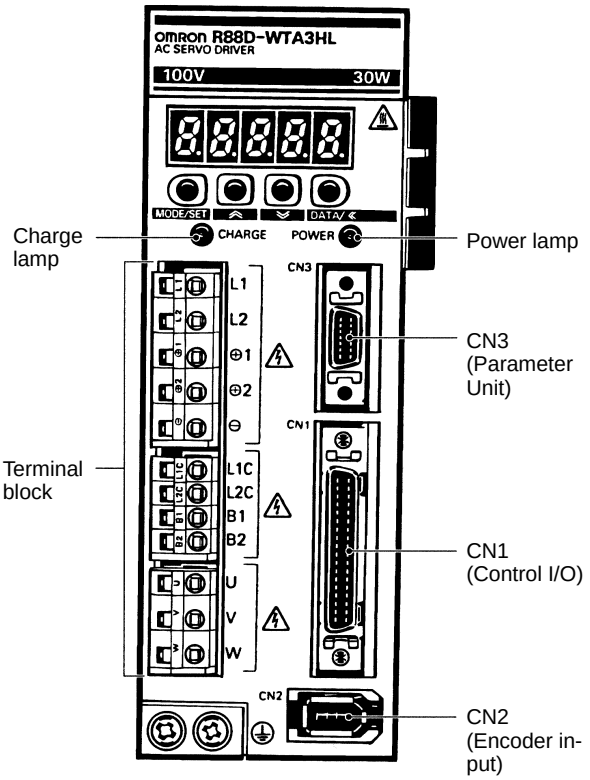
Terminal Blocks and Connectors

■ Terminal Blocks

Symbol	Name	Function	
L1, L2 or L1, L2, L3	Main circuit AC input terminal	AC power input terminals for the main circuit. R88D-WT□□ H (200 VAC): 200/230 VAC (170 to 253 V), 50/60 Hz R88D-WT□□ HL (100 VAC): 100/115 VAC (85 to 127 V), 50/60 Hz	
U	Servomotor connection terminal	Red	Terminals for outputs to the Servomotor.
V		White	
W		Blue	
L1C, L2C	Control power input terminal	AC power input terminals for the control circuit. R88D-WT□□ H (200 VAC): 200/230 VAC (170 to 253 V), 50/60 Hz R88D-WT□□ HL (100 VAC): 100/115 VAC (85 to 127 V), 50/60 Hz	
⏚	Frame ground	Ground terminal. Ground to a maximum of 100Ω. (class 3).	
B1, B2 or B1, B2, B3	Main circuit DC output terminal	5 kW or less: Connect an external regenerative resistor if regenerative energy is high. 5.5 kW: There is no internal regenerative resistor. Be sure to connect an external Regenerative Resistor Unit.	
⊕1, ⊕2	DC reactor connection terminal for suppressing power supply harmonic waves	Normally, short ⊕1 and ⊕2. If a countermeasure against power supply harmonic waves is needed, connect a DC reactor between ⊕1 and ⊕2. Note: These terminals do not exist on the R88D-WT60H.	
⊕	Main circuit DC output terminal (positive)	Normally, not connected. This terminal exists on the R88D-WT60H only.	
⊖	Main circuit DC output terminal (negative)	Normally, not connected.	

■ CN2 Encoder Inputs

Pin No.	Symbol	Signal name
1	E5V	Encoder power supply + 5V
2	E0V	Encoder power supply ground
3	BAT+	Battery + (used only with absolute encoder)
4	BAT–	Battery – (used only with absolute encoder)
5	S+	Encoder serial signal input
6	S–	Encoder serial signal input



■ CN1 Control Inputs

For Speed and Torque Control

Pin No.	Symbol	Signal name	Function/interface
5	REF	Speed command input	±2 to ±10 V/rated speed
6	AGND	Speed command input ground	Can be changed using the Pn300 user parameter (Speed Ccommand Scale).
9	TRFF	Torque command input	±1 to ±10 V/rated torque
10	AGND	Torque command input ground	Can be changed using the Pn400 user parameter (Torque Command Scale).

For Position Control

Pin No.	Symbol	Signal name	Function/interface
3	PCOM	Open collector command power supply	Used to input CW, CCW, and ECRST signals as open-collector outputs. Connect + inputs to these terminals and connect – inputs to open-collector output terminals.
13			
18			
7	+PULS/CW/A	Feed pulse, reverse pulse, 90° phase difference pulse (phase A)	Line-driver input: 10 mA at 3 V; maximum response frequency: 500 kpps Open-collector input: 25 mA at 5 V; maximum response frequency: 200 kpps
8	–PULS/CW/A		
11	+SIGN/CCW/B	Forward/reverse signal, forward pulse, 90° phase difference pulse (phase B)	Switches between feed pulse and forward/reverse signal, between reverse pulse and forward pulse, or between phases A and B 90° phase difference pulses (×1, 2, 4) according to the Pn200 setting (Position Control Switches 1).
12	–SIGN/CCW/B		
14	–ECRST	Error counter reset	Line-driver input: 10 mA at 3 V Open-collector input: 25 mA at 5 V ON: Disables the command and resets the error counter.
15	+ECRST		

Shared Terminals

Pins 41 to 44 can be reassigned using the Pn50A to Pn50D user parameters.

Pin No.	Symbol	Signal name	Function/interface
40	RUN	Speed command input	ON: Servo ON
41 to 46	MING	Gain deceleration input	ON: Switches speed loop to P control to decrease speed loop gain.
	TVSEL	Control mode switch input	ON: Switches each control mode.
	PLOCK	Position lock command input	ON: Enables position lock when the motor speed drops below the position lock rotation speed set in Pn501.
	IPG	Pulse disable input	ON: Prohibits input command pulses.
	RDIR	Rotation direction command input	Rotation direction command for internal speed settings 1 to 3. (OFF: Forward rotation, ON: Reverse rotation)
	POT	Forward drive prohibit input	Forward rotation overtravel input (OFF when prohibited)
	NOT	Reverse drive prohibit input	Reverse rotation overtravel input (OFF when prohibited)
	RESET	Alarm reset input	ON: Resets Servo alarm status.
	PCL	Forward rotation current limit input	ON: Limits current according to the value specified in Pn404 (Forward External Torque Limit)
	NCL	Reverse rotation current limit input	ON: Limits current according to the value specified in Pn405 (Reverse External Torque Limit)
	SPD1	Speed selection command 1 input	Switches the internal speed settings (Pn301, Pn302, Pn303).
	SPD2	Speed selection command 2 input	
	GSEL	Gain selection input	ON: Switches to the second speed loop gain (Pn104, Pn105, Pn106).
47	+24VIN	+24 VDC control power supply input	+24 V input power supply for pins 40, 41, 42, 43, 44, 45, and 46
4	SEN	Sensor ON input (see note)	ON: Supplies 5 V power to absolute encoder.
2	SENGND	Sensor ON input ground (see note)	
21	BAT	Backup battery + input (see note)	Backup battery connection terminals for absolute encoder in case of power interruption
22	BATGND	Backup battery – input (see note)	

Note: These input signals are used with absolute encoder only.

Terminal Blocks and Connectors

■ CN1 Control Outputs

Pins 16 and 17 can be reassigned using the Pn003 user parameter. Pins 25 to 30 can be reassigned using the Pn50E to Pn510 user parameters.

Pin No.	Symbol	Signal name	Function/interface
1	GND	Ground common	Ground for encoder outputs and alarm codes.
19	+Z	Encoder Z-phase + output	Encoder Z-phase output (1 pulse/revolution). Line-driver output: Conforms to RS-422A
20	–Z	Encoder Z-phase – output	
25	INP1, INP2	Positioning completion output 1, 2	ON when the position error is within the positioning completed width specified in Pn500 while in position control mode. Always OFF while in other modes.
26 to 30	VCMP	Speed conformity output	ON when the speed error is within the speed coincidence signal output width specified in Pn503 while in speed control mode. Always OFF while in other modes.
	TGON	Servomotor rotation detection output	ON when the motor speed exceeds the motor rotation detection level specified in Pn502.
	READY	Servo ready output	ON if no errors are detected after the main circuit power supply is turned ON.
	CLIMT	Current limit detection output	If PCL (forward rotation current limit input) or NCL (reverse rotation current limit input) is ON, the CLIMT signal will turn ON when the output torque reaches the external torque limit specified in Pn404/405 or the torque limit specified in Pn402/403, whichever is lower. If PCL (forward rotation current limit input) or NCL (reverse rotation current limit input) is OFF, the CLIMT signal will turn ON when the output torque reaches the torque limit specified in Pn402/403.
	VLIMT	Speed limit detection output	ON when the motor speed is controlled by Pn407 in torque control mode. Always OFF while in other modes.
	BKIR	Brake interlock output	Outputs holding brake timing signals according to the Pn506, Pn507, and Pn508 user parameter settings.
	WARN	Warning output	OFF when an overload warning or a regeneration overload warning is detected.
31	ALM	Alarm output	Turns OFF the output when the Servodriver generates an alarm. Open-collector output: 30 VDC, 50 mA max.
32	ALMCOM	Alarm output ground	
33	+A	Encoder A-phase + output	Outputs encoder pulses divided according to the Pn201 setting (PG ratio). Line-driver output: Conforms to RS-422A
34	–A	Encoder A-phase – output	
35	–B	Encoder B-phase – output	Outputs encoder pulses divided according to the Pn201 setting (PG ratio). Line-driver output: Conforms to RS-422A
36	+B	Encoder B-phase + output	
37	AL01	Alarm code output 1	Outputs an alarm code when the Servodriver generates an alarm. Open-collector output: 30 VDC, 20 mA max.
38	AL02	Alarm code output 2	
39	AL03	Alarm code output 3	
48	+ABS	Absolute encoder signal + output (see note)	Outputs absolute encoder data. Line-driver output: Conforms to RS-422A
49	–ABS	Absolute encoder signal – output (see note)	
Shell	FG	Frame ground	Ground terminal for shield wire of cable and FG line

Note: These input signals are used with absolute encoder only.

■ AC Servomotors

Cylinder-style Motors (3,000 r/min) with Incremental Encoders

Specifications				Model
Straight shafts without key	Without brake	200 VAC	30 W	R88M-W03030H
			50 W	R88M-W05030H
			100 W	R88M-W10030H
			200 W	R88M-W20030H
			400 W	R88M-W40030H
			750 W	R88M-W75030H
		100 VAC	30 W	R88M-W03030L
			50 W	R88M-W05030L
			100 W	R88M-W10030L
			200 W	R88M-W20030L
	With brake	200 VAC	30 W	R88M-W03030H-B
			50 W	R88M-W05030H-B
			100 W	R88M-W10030H-B
			200 W	R88M-W20030H-B
			400 W	R88M-W40030H-B
			750 W	R88M-W75030H-B
		100 VAC	30 W	R88M-W03030L-B
			50 W	R88M-W05030L-B
			100 W	R88M-W10030L-B
			200 W	R88M-W20030L-B

Specifications				Model
Straight shafts with key	Without brake	200 VAC	30 W	R88M-W03030H-S1
			50 W	R88M-W05030H-S1
			100 W	R88M-W10030H-S1
			200 W	R88M-W20030H-S1
			400 W	R88M-W40030H-S1
			750 W	R88M-W75030H-S1
			1 kW	R88M-W1K030H-S2
			1.5 kW	R88M-W1K530H-S2
			2 kW	R88M-W2K030H-S2
			3 kW	R88M-W3K030H-S2
			4 kW	R88M-W4K030H-S2
			5 kW	R88M-W5K030H-S2
		100 VAC	30 W	R88M-W03030L-S1
			50 W	R88M-W05030L-S1
			100 W	R88M-W10030L-S1
			200 W	R88M-W20030L-S1
	With brake	200 VAC	30 W	R88M-W03030H-BS1
			50 W	R88M-W05030H-BS1
			100 W	R88M-W10030H-BS1
			200 W	R88M-W20030H-BS1
			400 W	R88M-W40030H-BS1
			750 W	R88M-W75030H-BS1
			1 kW	R88M-W1K030H-BS2
			1.5 kW	R88M-W1K530H-BS2
			2 kW	R88M-W2K030H-BS2
			3 kW	R88M-W3K030H-BS2
			4 kW	R88M-W4K030H-BS2
			5 kW	R88M-W5K030H-BS2
		100 VAC	30 W	R88M-W03030L-BS1
			50 W	R88M-W05030L-BS1
			100 W	R88M-W10030L-BS1
			200 W	R88M-W20030L-BS1

Note: “S1” at the end of a model name represents models with key and without tap. “S2” at the end of a model name represents models with key and tap. Motors with a capacity of 1 kW or more do not have the S1 or S3 type.

Product List

Cylinder-style Motors (3,000 r/min) with Absolute Encoders

Specifications				Model
Straight shafts without key	Without brake	200 VAC	30 W	R88M-W03030T
			50 W	R88M-W05030T
			100 W	R88M-W10030T
			200 W	R88M-W20030T
			400 W	R88M-W40030T
			750 W	R88M-W75030T
		100 VAC	30 W	R88M-W03030S
			50 W	R88M-W05030S
			100 W	R88M-W10030S
			200 W	R88M-W20030S
	With brake	200 VAC	30 W	R88M-W03030T-B
			50 W	R88M-W05030T-B
			100 W	R88M-W10030T-B
			200 W	R88M-W20030T-B
			400 W	R88M-W40030T-B
			750 W	R88M-W75030T-B
		100 VAC	30 W	R88M-W03030S-B
			50 W	R88M-W05030S-B
			100 W	R88M-W10030S-B
			200 W	R88M-W20030S-B

Specifications				Model
Straight shafts with key	Without brake	200 VAC	30 W	R88M-W03030T-S1
			50 W	R88M-W05030T-S1
			100 W	R88M-W10030T-S1
			200 W	R88M-W20030T-S1
			400 W	R88M-W40030T-S1
			750 W	R88M-W75030T-S1
			1 kW	R88M-W1K030T-S2
			1.5 kW	R88M-W1K530T-S2
			2 kW	R88M-W2K030T-S2
			3 kW	R88M-W3K030T-S2
			4 kW	R88M-W4K030T-S2
			5 kW	R88M-W5K030T-S2
		100 VAC	30 W	R88M-W03030S-S1
			50 W	R88M-W05030S-S1
			100 W	R88M-W10030S-S1
			200 W	R88M-W20030S-S1
	With brake	200 VAC	30 W	R88M-W03030T-BS1
			50 W	R88M-W05030T-BS1
			100 W	R88M-W10030T-BS1
			200 W	R88M-W20030T-BS1
			400 W	R88M-W40030T-BS1
			750 W	R88M-W75030T-BS1
			1 kW	R88M-W1K030T-BS2
			1.5 kW	R88M-W1K530T-BS2
			2 kW	R88M-W2K030T-BS2
			3 kW	R88M-W3K030T-BS2
			4 kW	R88M-W4K030T-BS2
			5 kW	R88M-W5K030T-BS2
		100 VAC	30 W	R88M-W03030S-BS1
			50 W	R88M-W05030S-BS1
			100 W	R88M-W10030S-BS1
			200 W	R88M-W20030S-BS1

Note: “S1” at the end of a model name represents models with key and without tap. “S2” at the end of a model name represents models with key and tap. Motors with a capacity of 1 kW or more do not have the S1 or S3 type.

Cylinder-style Motors (1,000 r/min) with Incremental Encoders

Specifications				Model
Straight shafts with key	Without brake	200 VAC	300 W	R88M-W30010H-S2
			600 W	R88M-W60010H-S2
			900 W	R88M-W90010H-S2
			1.2 kW	R88M-W1K210H-S2
			2 kW	R88M-W2K010H-S2
			3 kW	R88M-W3K010H-S2
			4 kW	R88M-W4K010H-S2
			5.5 kW	R88M-W5K510H-S2
	With brake		300 W	R88M-W30010H-BS2
			600 W	R88M-W60010H-BS2
			900 W	R88M-W90010H-BS2
			1.2 kW	R88M-W1K210H-BS2
			2 kW	R88M-W2K010H-BS2
			3 kW	R88M-W3K010H-BS2
			4 kW	R88M-W4K010H-BS2
			5.5 kW	R88M-W5K510H-BS2

Note: "S2" at the end of a model name represents models with key and tap. Motors with a speed of 1,000 r/min do not have the S1 or S3 type.

Cylinder-style Motors (1,000 r/min) with Absolute Encoders

Specifications				Model
Straight shafts with key	Without brake	200 VAC	300 W	R88M-W30010T-S2
			600 W	R88M-W60010T-S2
			900 W	R88M-W90010T-S2
			1.2 kW	R88M-W1K210T-S2
			2 kW	R88M-W2K010T-S2
			3 kW	R88M-W3K010T-S2
			4 kW	R88M-W4K010T-S2
			5.5 kW	R88M-W5K510T-S2
	With brake		300 W	R88M-W30010T-BS2
			600 W	R88M-W60010T-BS2
			900 W	R88M-W90010T-BS2
			1.2 kW	R88M-W1K210T-BS2
			2 kW	R88M-W2K010T-BS2
			3 kW	R88M-W3K010T-BS2
			4 kW	R88M-W4K010T-BS2
			5.5 kW	R88M-W5K510T-BS2

Note: "S2" at the end of a model name represents models with key and tap. Motors with a speed of 1,000 r/min do not have the S1 or S3 type.

Flat-style Motors with Incremental Encoders

Specifications				Model
Straight shafts without key	Without brake	200 VAC	100 W	R88M-WP10030H
			200 W	R88M-WP20030H
			400 W	R88M-WP40030H
			750 W	R88M-WP75030H
			1.5 kW	R88M-WP1K530H
		100 VAC	100 W	R88M-WP10030L
			200 W	R88M-WP20030L
	With brake	200 VAC	100 W	R88M-WP10030H-B
			200 W	R88M-WP20030H-B
			400 W	R88M-WP40030H-B
			750 W	R88M-WP75030H-B
			1.5 kW	R88M-WP1K530H-B
		100 VAC	100 W	R88M-WP10030L-B
			200 W	R88M-WP20030L-B
Straight shafts with key	Without brake	200 VAC	100 W	R88M-WP10030H-S1
			200 W	R88M-WP20030H-S1
			400 W	R88M-WP40030H-S1
			750 W	R88M-WP75030H-S1
			1.5 kW	R88M-WP1K530H-S1
		100 VAC	100 W	R88M-WP10030L-S1
			200 W	R88M-WP20030L-S1
	With brake	200 VAC	100 W	R88M-WP10030H-BS1
			200 W	R88M-WP20030H-BS1
			400 W	R88M-WP40030H-BS1
			750 W	R88M-WP75030H-BS1
			1.5 kW	R88M-WP1K530H-BS1
		100 VAC	100 W	R88M-WP10030L-BS1
			200 W	R88M-WP20030L-BS1

Flat-style Motors with Absolute Encoders

Specifications				Model
Straight shafts without key	Without brake	200 VAC	100 W	R88M-WP10030T
			200 W	R88M-WP20030T
			400 W	R88M-WP40030T
			750 W	R88M-WP75030T
			1.5 kW	R88M-WP1K530T
		100 VAC	100 W	R88M-WP10030S
			200 W	R88M-WP20030S
	With brake	200 VAC	100 W	R88M-WP10030T-B
			200 W	R88M-WP20030T-B
			400 W	R88M-WP40030T-B
			750 W	R88M-WP75030T-B
			1.5 kW	R88M-WP1K530T-B
		100 VAC	100 W	R88M-WP10030S-B
			200 W	R88M-WP20030S-B
Straight shafts with key	Without brake	200 VAC	100 W	R88M-WP10030T-S1
			200 W	R88M-WP20030T-S1
			400 W	R88M-WP40030T-S1
			750 W	R88M-WP75030T-S1
			1.5 kW	R88M-WP1K530T-S1
		100 VAC	100 W	R88M-WP10030S-S1
			200 W	R88M-WP20030S-S1
	With brake	200 VAC	100 W	R88M-WP10030T-BS1
			200 W	R88M-WP20030T-BS1
			400 W	R88M-WP40030T-BS1
			750 W	R88M-WP75030T-BS1
			1.5 kW	R88M-WP1K530T-BS1
		100 VAC	100 W	R88M-WP10030S-BS1
			200 W	R88M-WP20030S-BS1

Product List

Flat-style Motors (Waterproof Type) with Incremental Encoders

Specifications				Model
Straight shafts without key	Without brake	200 VAC	100 W	R88M-WP10030H-W
			200 W	R88M-WP20030H-W
			400 W	R88M-WP40030H-W
			750 W	R88M-WP75030H-W
			1.5 kW	R88M-WP1K530H-W
		100 VAC	100 W	R88M-WP10030L-W
			200 W	R88M-WP20030L-W
	With brake	200 VAC	100 W	R88M-WP10030H-BW
			200 W	R88M-WP20030H-BW
			400 W	R88M-WP40030H-BW
			750 W	R88M-WP75030H-BW
			1.5 kW	R88M-WP1K530H-BW
		100 VAC	100 W	R88M-WP10030L-BW
			200 W	R88M-WP20030L-BW
Straight shafts with key	Without brake	200 VAC	100 W	R88M-WP10030H-WS1
			200 W	R88M-WP20030H-WS1
			400 W	R88M-WP40030H-WS1
			750 W	R88M-WP75030H-WS1
			1.5 kW	R88M-WP1K530H-WS1
		100 VAC	100 W	R88M-WP10030L-WS1
			200 W	R88M-WP20030L-WS1
	With brake	200 VAC	100 W	R88M-WP10030H-BWS1
			200 W	R88M-WP20030H-BWS1
			400 W	R88M-WP40030H-BWS1
			750 W	R88M-WP75030H-BWS1
			1.5 kW	R88M-WP1K530H-BWS1
		100 VAC	100 W	R88M-WP10030L-BWS1
			200 W	R88M-WP20030L-BWS1

Flat-style Motors (Waterproof Type) with Absolute Encoders

Specifications				Model
Straight shafts without key	Without brake	200 VAC	100 W	R88M-WP10030T-W
			200 W	R88M-WP20030T-W
			400 W	R88M-WP40030T-W
			750 W	R88M-WP75030T-W
			1.5 kW	R88M-WP1K530T-W
		100 VAC	100 W	R88M-WP10030S-W
			200 W	R88M-WP20030S-W
	With brake	200 VAC	100 W	R88M-WP10030T-BW
			200 W	R88M-WP20030T-BW
			400 W	R88M-WP40030T-BW
			750 W	R88M-WP75030T-BW
			1.5 kW	R88M-WP1K530T-BW
		100 VAC	100 W	R88M-WP10030S-BW
			200 W	R88M-WP20030S-BW
Straight shafts with key	Without brake	200 VAC	100 W	R88M-WP10030T-WS1
			200 W	R88M-WP20030T-WS1
			400 W	R88M-WP40030T-WS1
			750 W	R88M-WP75030T-WS1
			1.5 kW	R88M-WP1K530T-WS1
		100 VAC	100 W	R88M-WP10030S-WS1
			200 W	R88M-WP20030S-WS1
	With brake	200 VAC	100 W	R88M-WP10030T-BWS1
			200 W	R88M-WP20030T-BWS1
			400 W	R88M-WP40030T-BWS1
			750 W	R88M-WP75030T-BWS1
			1.5 kW	R88M-WP1K530T-BWS1
		100 VAC	100 W	R88M-WP10030S-BWS1
			200 W	R88M-WP20030S-BWS1

■ AC Servodrivers

Specifications			Model
Common to analog and pulse train inputs Common to incremental and absolute encoders	200 VAC	30 W	R88D-WTA3H
		50 W	R88D-WTA5H
		100 W	R88D-WT01H
		200 W	R88D-WT02H
		400 W	R88D-WT04H
		500 W	R88D-WT05H
		750 W	R88D-WT08H
		1 kW	R88D-WT10H
		1.5 kW	R88D-WT15H
		2 kW	R88D-WT20H
		3 kW	R88D-WT30H
		5 kW	R88D-WT50H
		6 kW	R88D-WT60H
	100 VAC	30 W	R88D-WTA3HL
		50 W	R88D-WTA5HL
		100 W	R88D-WT01HL
		200 W	R88D-WT02HL

■ Power Cables

Specification			Model
For motors without brakes	30-W to 750-W cylinder-style motors (3,000 r/min) 100-W to 750-W flat-style motors	3 m	R88A-CAWA003S
		5 m	R88A-CAWA005S
		10 m	R88A-CAWA010S
		15 m	R88A-CAWA015S
		20 m	R88A-CAWA020S
		30 m	R88A-CAWA030S
		40 m	R88A-CAWA040S
		50 m	R88A-CAWA050S
	1.5-kW flat-style motors	3 m	R88A-CAWB003S
		5 m	R88A-CAWB005S
		10 m	R88A-CAWB010S
		15 m	R88A-CAWB015S
		20 m	R88A-CAWB020S
		30 m	R88A-CAWB030S
		40 m	R88A-CAWB040S
		50 m	R88A-CAWB050S
	300-W to 900-W cylinder-style motors (1,000 r/min) 1-kW to 2-kW cylinder-style motors (3,000 r/min)	3 m	R88A-CAWC003S
		5 m	R88A-CAWC005S
		10 m	R88A-CAWC010S
		15 m	R88A-CAWC015S
		20 m	R88A-CAWC020S
		30 m	R88A-CAWC030S
		40 m	R88A-CAWC040S
		50 m	R88A-CAWC050S
	1.2-kW to 3-kW cylinder-style motors (1,000 r/min) 3-kW to 5-kW cylinder-style motors (3,000 r/min)	3 m	R88A-CAWD003S
		5 m	R88A-CAWD005S
		10 m	R88A-CAWD010S
		15 m	R88A-CAWD015S
		20 m	R88A-CAWD020S
		30 m	R88A-CAWD030S
		40 m	R88A-CAWD040S
		50 m	R88A-CAWD050S

Specification			Model
Motors with brakes	30-W to 750-W cylinder-style motors (3,000 r/min) 100-W to 750-W flat-style motors	3 m	R88A-CAWA003B
		5 m	R88A-CAWA005B
		10 m	R88A-CAWA010B
		15 m	R88A-CAWA015B
		20 m	R88A-CAWA020B
		30 m	R88A-CAWA030B
		40 m	R88A-CAWA040B
		50 m	R88A-CAWA050B
	1.5-kW flat-style motors	3 m	R88A-CAWB003B
		5 m	R88A-CAWB005B
		10 m	R88A-CAWB010B
		15 m	R88A-CAWB015B
		20 m	R88A-CAWB020B
		30 m	R88A-CAWB030B
		40 m	R88A-CAWB040B
		50 m	R88A-CAWB050B
	300-W to 900-W cylinder-style motors (1,000 r/min) 1-kW to 2-kW cylinder-style motors (3,000 r/min)	3 m	R88A-CAWC003B
		5 m	R88A-CAWC005B
		10 m	R88A-CAWC010B
		15 m	R88A-CAWC015B
		20 m	R88A-CAWC020B
		30 m	R88A-CAWC030B
		40 m	R88A-CAWC040B
		50 m	R88A-CAWC050B
	1.2-kW to 3-kW cylinder-style motors (1,000 r/min) 3-kW to 5-kW cylinder-style motors (3,000 r/min)	3 m	R88A-CAWD003B
		5 m	R88A-CAWD005B
		10 m	R88A-CAWD010B
		15 m	R88A-CAWD015B
		20 m	R88A-CAWD020B
		30 m	R88A-CAWD030B
		40 m	R88A-CAWD040B
		50 m	R88A-CAWD050B

Note: The following power cables are available for 4-kW to 5.5-kW cylinder-style motors (1,000 r/min). For the list prices, contact your local sales representative.
Motors without brakes (4 kW): 88A-CAWE□□□S
Motors without brakes (5.5 kW): 88A-CAWF□□□S
Motors with brakes (4/5.5 kW): 88A-CAWE□□□B
(Note: The power cables for motors without brake are also required.)

Product List

■ Encoder Cables

Specification		Model
30-W to 750-W cylinder-style motors (3,000 r/min) 100-W to 1.5-kW flat-style motors	3 m	R88A-CRWA003C
	5 m	R88A-CRWA005C
	10 m	R88A-CRWA010C
	15 m	R88A-CRWA015C
	20 m	R88A-CRWA020C
	30 m	R88A-CRWA030C
	40 m	R88A-CRWA040C
	50 m	R88A-CRWA050C
1-kW to 5-kW cylinder-style motors (3,000 r/min) 300-W to 5.5-kW cylinder-style motors (1,000 r/min)	3 m	R88A-CRWB003N
	5 m	R88A-CRWB005N
	10 m	R88A-CRWB010N
	15 m	R88A-CRWB015N
	20 m	R88A-CRWB020N
	30 m	R88A-CRWB030N
	40 m	R88A-CRWB040N
	50 m	R88A-CRWB050N

Note: All these cables are common to incremental and absolute encoders.

■ Control Cables and Relay Units

Specification				Model
For Motion Control Units	Control cables for 1 axis (common to SYSMAC CS1, C200H, and CV-series PCs)		1 m	R88A-CPW001M1
			2 m	R88A-CPW002M1
			3 m	R88A-CPW003M1
			5 m	R88A-CPW005M1
	Control cables for 2 axes (common to SYSMAC CS1, C200H, and CV-series PCs)		1 m	R88A-CPW001M2
			2 m	R88A-CPW002M2
			3 m	R88A-CPW003M2
			5 m	R88A-CPW005M2
For Position Control Units and SYSMAC CQM1	Servo Relay Units	For C200H-NC112 For C200HW-NC113		XW2B-20J6-1B
		For C200H-NC211 For C200HW-NC213/413		XW2B-40J6-2B
		For CQM1-CPU43		XW2B-20J6-3B
	Cables on Servodriver end		1 m	XW2Z-100J-B4
			2 m	XW2Z-200J-B4
	Cables on Position Control Unit end	For C200HW-NC113	0.5 m	XW2Z-050J-A6
			1 m	XW2Z-100J-A6
		For C200HW-NC213/413	0.5 m	XW2Z-050J-A7
			1 m	XW2Z-100J-A7
		For CQM1-CPU43	0.5 m	XW2Z-050J-A3
			1 m	XW2Z-100J-A3
		For C200H-NC112	0.5 m	XW2Z-050J-A1
			1 m	XW2Z-100J-A1
		For C200H-NC211 and C500-NC113/211	0.5 m	XW2Z-050J-A2
			1 m	XW2Z-100J-A2
For general-purpose controllers	Control cables with connector at one end		1 m	R88A-CPW001S
			2 m	R88A-CPW002S
	Cables for relay terminal block		1 m	R88A-CTW001N
			2 m	R88A-CTW002N
	Relay terminal block			XW2B-50G5

■ Parameter Units

Specification	Model
Handy type for OMNUC W-series (with 1-m cable)	R88A-PR02W
Cable for U-series (2 m) (see note)	R88A-CCW002C

Note: This cable can be used to connect the R88A-PR02U Parameter Unit for U-series to the W-series Servodriver.

■ Backup Battery Unit for Absolute Encoder

Specification	Model
1,000 mA 3.6 V (except for WT60H)	R88A-BAT01W

■ External Regenerative Resistors

Specification	Model
220 W 47 Ω	R88A-RR22047S
880 W 6.25 Ω	R88A-RR88006

■ DC Reactors

Specification	Model
For R88D-WT30H	R88A-PX5059
For R88D-WT15H/WT20H	R88A-PX5060
For R88D-WT05H/WT08H/WT10H	R88A-PX5061
For R88D-WT02HL	R88A-PX5062
For R88D-WTA3HL/WTA5HL/WT01HL	R88A-PX5063
For R88D-WT50H	R88A-PX5068
For R88D-WT04H	R88A-PX5069
For R88D-WT02H	R88A-PX5070
For R88D-WTA3H/WTA5H/WT01H	R88A-PX5071

■ Front Panel Mounting Brackets

Specification	Model
For R88D-WTA3□ to WT10H	R88A-TK01W
For R88D-WT15H	R88A-TK02W
For R88D-WT20H/WT30H/WT50H	R88A-TK03W

■ Other Peripheral Cables and Connectors

Specification	Model
Analog monitoring cable (1 m)	R88A-CMW001S
Personal computer monitoring cable (2 m)	R88A-CCW002P2
Control I/O connector CN1	R88A-CNU11C

Servomotor and Reduction Gear Combinations

■ Motor and Reduction Gear Combinations

Motor type	Capacity	Reduction gear type	
		Standard (Backlash: 30' max.)	Economy (Backlash: Approx. 45')
Cylinder-style motor (3,000 r/min)	30 to 750 W	Yes	Yes
	1 to 5 kW	Yes	No
Cylinder-style motor (1,000 r/min)	300 W to 5.5 kW	Yes	No
Flat-style motor	100 to 750 W	Yes	Yes
	1.5 kW	Yes	No

Note: "Yes" represents compatible combinations. Any combinations without "Yes" cannot be used.

■ 30-W to 750-W Cylinder-style Motors (3,000 r/min)

Standard Reduction Gears (Backlash: 3' max.)

Motor capacity	Basic model	Reduction gear ratio				
		1/5	1/9	1/11	1/21	1/33
		-□G05B□	-□G09B□	-□G11B□	-□G21B□	-□G33B□
30 W	R88M-W03030□	Yes	Yes	No	Yes	Yes
50 W	R88M-W05030□	Yes	Yes	No	Yes	Yes
100 W	R88M-W10030□	Yes	No	Yes	Yes	Yes
200 W	R88M-W20030□	Yes	No	Yes	Yes	Yes
400 W	R88M-W40030□	Yes	No	Yes	Yes	Yes
750 W	R88M-W75030□	Yes	No	Yes	Yes	Yes

Note: "Yes" represents compatible combinations. Any combinations without "Yes" cannot be used.

Economy Reduction Gears (Backlash: Approx. 45')

Motor capacity	Basic model	Reduction gear ratio			
		1/5	1/9	1/15	1/25
		-□G05CJ	-□G09CJ	-□G15CJ	-□G25CJ
30 W	R88M-W03030□	No	No	No	No
50 W	R88M-W05030□	No	No	No	No
100 W	R88M-W10030□	Yes	Yes	Yes	Yes
200 W	R88M-W20030□	Yes	Yes	Yes	Yes
400 W	R88M-W40030□	Yes	Yes	Yes	Yes
750 W	R88M-W75030□	Yes	Yes	Yes	Yes

Note: 1. "Yes" represents compatible combinations. Any combinations without "Yes" cannot be used.
2. These reduction gears can be attached to only shafts with key.

■ 100-W to 1.5-kW Flat-style Motors (3,000 r/min)

Standard Reduction Gears (Backlash: 3' max.)

Motor capacity	Basic model	Reduction gear ratio			
		1/5	1/11	1/21	1/33
		-□G05B□	-□G11B□	-□G21B□	□G33B□
100 W	R88M-WP10030□	Yes	Yes	Yes	Yes
200 W	R88M-WP20030□	Yes	Yes	Yes	Yes
400 W	R88M-WP40030□	Yes	Yes	Yes	Yes
750 W	R88M-WP75030□	Yes	Yes	Yes	Yes
1.5 kW	R88M-WP1K530□	Yes	Yes	Yes	Yes

Note: "Yes" represents compatible combinations.

Economy Reduction Gears (Backlash: Approx. 45')

Motor capacity	Basic model	Reduction gear ratio			
		1/5	1/9	1/15	1/25
		-□G05CJ	-□G09CJ	-□G15CJ	-□G25CJ
100 W	R88M-WP10030□	Yes	Yes	Yes	Yes
200 W	R88M-WP20030□	Yes	Yes	Yes	Yes
400 W	R88M-WP40030□	Yes	Yes	Yes	Yes
750 W	R88M-WP75030□	Yes	Yes	Yes	Yes
1.5 kW	R88M-WP1K530□	No	No	No	No

Note: 1. "Yes" represents compatible combinations. Any combinations without "Yes" cannot be used.
2. These reduction gears can be attached to only shafts with key.

Servomotor and Reduction Gear Combinations

■ 1-kW to 5-kW Cylinder-style Motors (3,000 r/min)

Motor capacity	Basic model	Reduction gear ratio				
		1/5	1/9	1/20	1/29	1/45
		-□G 05BJ	-□G 09BJ	-□G 20BJ	-□G 29BJ	-□G 45BJ
1 kW	R88M-W1K030□	Yes	Yes	Yes	Yes	Yes
1.5 kW	R88M-W1K530□	Yes	Yes	Yes	Yes	Yes
2 kW	R88M-W2K030□	Yes	Yes	Yes	Yes	Yes
3 kW	R88M-W3K030□	Yes	Yes	Yes	Yes	Yes
4 kW	R88M-W4K030□	Yes	Yes	Yes	Yes	No
5 kW	R88M-W5K030□	Yes	Yes	Yes	No	No

Note: 1. ”Yes” represents compatible combinations. Any combinations without ”Yes” cannot be used.

2. These reduction gears can be attached to only shafts with key.

■ 300-W to 5.5-kW Cylinder-style Motors (1,000 r/min)

Motor capacity	Basic model	Reduction gear ratio				
		1/5	1/9	1/20	1/29	1/45
		-□G 05BJ	-□G 09BJ	-□G 20BJ	-□G 29BJ	-□G 45BJ
300 W	R88M-W30010□	Yes	Yes	Yes	Yes	Yes
600 W	R88M-W60010□	Yes	Yes	Yes	Yes	Yes
900 W	R88M-W90010□	Yes	Yes	Yes	Yes	Yes
1.2 kW	R88M-W1K210□	Yes	Yes	Yes	Yes	Yes
2 kW	R88M-W2K010□	Yes	Yes	Yes	No	No
3 kW	R88M-W3K010□	Yes	Yes	No	No	No
4 kW	R88M-W4K010□	No	No	No	No	No
5 kW	R88M-W5K510□	No	No	No	No	No

Note: 1. ”Yes” represents compatible combinations. Any combinations without ”Yes” cannot be used.

2. These reduction gears can be attached to only shafts with key.