Original Instructions

1S-series

OMRON

AC Servomotors (Model: R88M-1L□/-1M□)
AC Servo Drives (Model: R88D-1SN□-ECT)

INSTRUCTION MANUAL

Thank you for purchasing this OMRON Product. Please read this Instruction Manual and *User's Manual,* and thoroughly familiarize yourself with the functions and characteristics of the product before use. Be sure you are using the most recent version of the *User's Manual*. Please retain this Instruction Manual and the *User's Manual* for future reference, and be sure they are delivered to the final user of the Servomotor and Servo Drive.

OMRON Corporation

No. 2884903-0D

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Safety Precautions

- To ensure the safe operation of 1S-series Servomotors and Servo Drives, as well as peripheral devices, read all of this Instruction Manual and the *User's Manual* and be sure you understand the products, safely information, and precautions before attempting operation.
- The *User's Manual* may include illustrations of the products with protective covers removed in order to describe the components of the products in detail. Make sure that these protective covers are on the products before use.
- Consult your OMRON representative when using a product after a long period of storage.

■ Definition of Precautionary Information

- The precautions indicated here provide important information for safety. Be sure to heed the information provided with the precautions.
- The following signal words are used to indicate and classify precautions in this Instruction Manual.

⚠ DANGER	Indicates an imminently hazardous situation which, if not avoided, is likely to result in serious injury or may result in death. Additionally there may be severe property damage.
⚠ WARNING	Indicates a potentially hazardous situation which, if not avoided, will result in minor or moderate injury, or may result in serious injury or death. Additionally there may be significant property damage.
⚠ CAUTION	Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury or in property damage.

Failure to heed the precautions classified as "Caution" may also lead to serious results. Always heed these precautions.

■ Explanation of Symbols

The triangle symbol indicates precautions and warnings.
The specific operation is shown in the triangle and explained in text.
This example indicates a precaution for electric shock.

The triangle symbol indicates precautions and warnings.
The specific operation is shown in the triangle and explained in text.
This example indicates a general precaution.

The filled circle symbol indicates operations that you must do. The specific operation is shown in the circle and explained in text.
This example indicates a requirement for the ground.

■ Warning and Caution

● Transporting and Unpacking

⚠ WARNING

Do not damage, pull, or put excessive stress or heavy objects on the cables.
Doing so may cause electric shock, malfunction, or burning.

● Installation, Wiring and Maintenance

⚠ WARNING

Install the Servo Drive and Servomotor before wiring.
Not doing so may cause electric shock.

Be sure to ground the 100-VAC or 200-VAC input model Servo Drive and Servomotor to 100 Ω or less, and the 400-VAC input model to 10 Ω or less.
Not doing so may cause electric shock.

Do not remove the front cover, terminal covers, cables, or peripheral equipment while the power is supplied.
Doing so may cause electric shock.

Before carrying out wiring or inspection, turn OFF the main circuit power and wait for at least the following specific time.
Not doing so may cause electric shock or burning.

10 minutes: R88D-1SN06F-ECT, R88D-1SN10F-ECT, R88D-1SN15F-ECT, R88D-1SN20F-ECT, R88D-1SN30F-ECT, R88D-1SN55F-ECT, R88D-1SN75F-ECT, R88D-1SN150F-ECT
15 minutes: R88D-1SN01L-ECT, R88D-1SN02L-ECT, R88D-1SN01H-ECT, R88D-1SN02H-ECT, R88D-1SN04H-ECT
20 minutes: R88D-1SN04L-ECT, R88D-1SN08H-ECT, R88D-1SN10H-ECT, R88D-1SN15H-ECT, R88D-1SN20H-ECT, R88D-1SN30H-ECT, R88D-1SN55H-ECT, R88D-1SN75H-ECT, R88D-1SN150H-ECT

⚠ WARNING

Do not damage, pull, or put excessive stress or heavy objects on the cables.
Doing so may cause electric shock, malfunction, or burning.

Use appropriate tools to wire terminals and connectors.
Check that there is no short-circuit before use.
Not doing so may cause electric shock.

Connect the frame ground wire in the motor cable securely to the ⏚ or FG of the Servo Drive.
Not doing so may cause electric shock.

Provide safety measures, such as a fuse, to protect against short circuiting of external wiring and failure of the Servo Drive.
Not doing so may cause a fire.

Install the Servomotor, Servo Drive, and peripheral equipment on non-flammable materials such as metals.
Not doing so may cause a fire.

Keep conductive or flammable foreign objects such as screws, metal pieces, and oil out of the Servo Drive and connectors. Pay particular attention to the connector on the top part of Servo Drive.
Not doing so may cause a fire or electric shock.

Design the configuration to cut off the main circuit power supply when the ERR signal (normally close contact) of the control output function is output (open).

Do not bundle the motor cables.
Doing so may cause fire.

Lock the power cable and extension cable connectors.
Not doing so may cause fire.

When you connect more than one Servo Drive to one noise filter, ensure that the size of wires used for the input side of the noise filter and the size of wires used between the noise filter and the relay terminal blocks are thick enough to pass at least the rated current of the noise filter.
Not doing so may cause a fire or electric shock.

● Operation Check

⚠ WARNING

Use the Servomotor, Servo Drive and motor cable in a specified combination.
Not doing so may cause fire or equipment damage.

● Usage

⚠ WARNING

Do not enter the operating area during operation.
Doing so may cause injury.

Do not touch the Servo Drive radiator, Regeneration Resistor, or Servomotor while the power is supplied or for a while after the power is turned OFF because they get hot.
Doing so may cause fire or a burn injury.

Take appropriate measures to ensure that the specified power with the rated voltage is supplied.
Be particularly careful in locations where the power supply is unstable.
Not doing so may cause failure.

When the power is restored after a momentary power interruption, the machine may restart suddenly.
Do not come close to the machine when restoring power.
Implement measures to ensure safety of people nearby even when the machine is restarted.
Doing so may cause injury.

Use appropriate tools to wire terminals and connectors.
Check that there is no short-circuit before use.
Not doing so may cause electric shock.

Be sure to observe the radiator plate installation conditions that are specified in the manual.
Not doing so may cause the Servo Drive or Servomotor to burn.

If the load that exceeds the allowable range is installed, it may cause the dynamic brake to be damaged.
Be sure to use the appropriate load.
Not doing so may cause the Servo Drive to be damaged.

⚠ WARNING

The dynamic brake is intended for the stop at the time of an error and therefore it has a short-time rating.
If the dynamic brake is activated, provide an interval of 3 minutes or more before the next activation to prevent a circuit failure and burning of the Dynamic Brake Resistor.

Make a design of equipment with consideration of a distance until a Servomotor stops while safety monitoring functions are used.
Not doing so may cause injury and equipment damage.

Do not place flammable materials near the Servomotor, Servo Drive, or peripheral equipment.
Doing so may cause a fire.

If the Servo Drive fails, cut off the power supply to the Servo Drive at the power supply.
Not doing so may cause a fire.

Use an appropriate External Regeneration Resistor. Install an external protective device such as temperature sensor to ensure safety when using the External Regeneration Resistor.
Not doing so run the risk of burnout.

Use an appropriate External Dynamic Resistor.
Not doing so may cause fire, crash or equipment damage.

Use the extension cables in a specified combination.
Not doing so may cause fire, equipment damage.

Before operating the Servo Drive in an actual environment, check if it operates correctly based on the newly set parameters.
Not doing so may cause equipment damage.

When constructing a system that includes safety functions, be sure you understand the relevant safety standards and all related information in user documentation, and design the system to comply with the standards.
Not doing so may cause injury, equipment damage.

An External Regeneration Resistor or an External Regeneration Resistor Unit may become hot. In order to ensure safety, install an external protection such as a guard so as not to touch them easily.
Not doing so may cause a burn injury.

● Transporting and Unpacking

⚠ CAUTION	
When transporting the Servo Drive, do not hold it by the cables, shield clamp, connectors or motor shaft. Injury or failure may result.	
Do not step on the Servo Drive or place heavy articles on it. Injury or failure may result.	
Do not overload the product. Injury or failure may result.	
Be sure to observe the specified amount when piling up products. Injury or failure may result.	

● Wiring

⚠ CAUTION	
Be careful about sharp parts such as the corner of the equipment when handling the Servo Drive and Servomotor. Injury may result.	
Wire the cables correctly and securely. Damage to Servo Drive or fire may result.	

Precautions for Safe Use

- Do not store or install the Servo Drive in the following locations. Electric shock, fire, equipment damage, or malfunction may result.
  - Locations subject to direct sunlight
  - Locations subject to temperatures outside the range specified in the specifications
  - Locations subject to humidity outside the range specified in the specifications
  - Locations subject to condensation as the result of severe changes in temperature
  - Locations subject to corrosive or flammable gases
  - Locations subject to dust (especially iron dust) or salts
  - Locations subject to exposure to water, oil, or chemicals
  - Locations subject to shock or vibration
- Medical electronics such as cardiac pacemakers may malfunction or injury may result.
- If an error occurs, remove the cause of the error and ensure safety, and then perform the error reset and restart the operation.
  Injury, equipment damage, or burning may result.
- Use a robot cable for the wiring to separately install the Servo Drive and Servomotor to moving and fixed parts of the equipment.
  Equipment damage may result.
- Connect the Servo Drive to the Servomotor without a contactor, etc.
  Malfunction or equipment damage may result.
- Do not move a power connector of a Servomotor with 4 kW or more over 5 times.
  Electric shock, equipment damage, or burning may result.
- Be sure to observe the installation conditions. Burning or failure may result.
- Take appropriate and sufficient countermeasures to provide shielding when installing systems in the following locations. Failure may result.
  - Locations subject to static electricity or other forms of noise
  - Locations subject to strong electromagnetic fields
  - Locations subject to possible exposure to radioactivity
  - Locations close to power lines
- Wire the cables correctly and securely.
  Runaway motor, unintended operation of a brake, injury, or failure may result.
- Be careful when you lock the lever of a connector. You may get your finger caught in that.

Precautions for Correct Use

- When unpacking, transporting, or installing the products, observe the following instructions. Injury or failure may result.
  - When lifting the products, do not drop the products.
  - Do not grasp a plastic part of the product.
  - When lifting a Servomotor, always lift the product by grasping a metal part other than the shaft.
  - When lifting the products at 20 kg or more, always have two people lift the products.
    Relevant Servomotor models: R88M-1M2K010T-B□, R88M-1M3K010T-□, R88M-1M2K010C-B□, R88M-1M3K010C-□, R88M-1M4K015T-□, R88M-1M5K015T-□, R88M-1M4K015C-□, R88M-1M5K515C-□, R88M-1M7K515T-□, R88M-1M7K515C-□, R88M-1M11K015T-□, R88M-1M11K015C-□, R88M-1M15K015T-□, R88M-1M15K015C-□
    Relevant motor power cable models: R88A-CA1E050S, R88A-CA1E040B, R88A-CA1E050B, R88A-CA1F040S, R88A-CA1F050S, R88A-CA1F040SF, R88A-CA1F050SF, R88A-CA1K020SF, R88A-CA1F040B, R88A-CA1F050B, R88A-CA1F040BF, R88A-CA1F050BF, R88A-CA1K020BF, R88A-CA1KE20BF
  - When lifting a Servo Drive with the following the product model, always have two people lift the product by grasping a terminal block at the upper/bottom side of Servo Drive. Do not grasp a plastic part and a connector.
    Relevant model: R88D-1SN150H-ECT
  - When lifting a Servo Drive with the following the product model, always have two people lift the product by holding grips at the upper/bottom side of a Servo Drives. Do not grasp a plastic part and a connector.
    Relevant model: R88D-1SN150F-ECT
- Check that the eye bolts are not loose after replacing them.
  If they are loose, the screws can come off and the Servomotor may fall during the transportation by the use of eye bolts.
  Do not put the human body under the Servomotor during the transportation.
- Be sure to observe the mounting direction.
  Failure may result.
- Provide the specified clearance between the Servo Drive and the inner surface of the control panel or other equipment.
  Fire or failure may result.
- Do not apply strong impact on the motor shaft, connectors or Servo Drive.
  Failure may result.
- Do not touch the key grooves with bare hands if the Servomotor with shaft-end key grooves is used.
  Injury may result.
- Use non-magnetic mounting screws. Note also that the depth of any mounted screw does not reach the effective thread length.
  Equipment damage may result.
- Be sure to observe the allowable axial load for the Servomotor.
  Equipment damage may result.
- Install equipment to prevent crash and reduce shock. Do not run the Servomotor outside the operable range by the use of the drive prohibition function such as overtravel.
  Crash against the stroke edge may occur depending on stopping distance and equipment damage may result.
- Do not block the intake or exhaust openings.
  Do not allow foreign objects to enter the Servo Drive.
  Fire may result.

- Tighten the mounting screws, terminal block screws, cable screws and shield clamp bracket screws for the Servo Drive, Servomotor, and peripheral equipment to the specified torque.
  Failure may result.
- Use crimp terminals to wire screw type terminal blocks.
  Do not connect bare stranded wires directly to terminals blocks.
  Fire may result.
- Always use the power supply voltage specified in this document.
  Burning may result.
- Do not apply a commercial power supply directly to the Servomotor.
  Fire or failure may result.
- Disconnect all connections to the Servo Drive and Servomotor before attempting a megger test (insulation resistance measurement) on the Servo Drive and Servomotor.
  Not doing so may result in Servo Drive and Servomotor failure.
  Do not perform a dielectric strength test on the Servo Drive and Servomotor.
  Internal elements may be damaged.
- Carefully perform the wiring and assembling.
  Injury may result.
- Wear the protective equipment when installing or removing the main circuit connector, main circuit connector A, main circuit connector B, main circuit connector E, control power supply connector, or motor connector.
  Do not apply a force after the protrusion of the connector opener reaches the bottom dead center. (As a guide, do not apply a force of 100 N or more.)
- Do not hammer or apply any impact on connectors. Damage may result.
- Be sure to attach a shield clamp by the specified method. Electric shock may result.
- Be sure to install surge suppressors when you connect a load with an induction coil such as a relay to the control output terminal. Malfunction or equipment damage may result.
- Install an immediate stop device externally to the machine so that the operation can be stopped and the power supply is cut off immediately.
  Injury may result.
- Do not adjust or set parameters to extreme values, because it will make the operation unstable.
  Injury may result.
- Secure a sufficient rigidity when you install a Servomotor into equipment.
  Equipment damage or malfunction may result.
- If a problem occurs in serial communications or the computer during a test operation, you have no means to stop the Servomotor.
  Connect an externally installed emergency stop switch, etc. to the Error Stop Input of the general-purpose input so that the Servomotor can be stopped without fail.
- When using the Servomotor with key, run the Servomotor in a state in which the key cannot jump out of the shaft.
  Not doing so may result in hurting people around the equipment due to the jumping key.
- Do not drive the Servomotor by the use of an external drive source.
  Fire may result.
- Install a stopping device on the machine to ensure safety.
  The holding brake is not a stopping device to ensure safety.
  Injury may result.
- Conduct a test operation after confirming that the equipment is not affected.
  Equipment damage may result.
- Do not use the built-in brake of the Servomotor for normal braking operation.
  Failure may result.
- After an earthquake, be sure to conduct safety checks.
  Electric shock, injury, or fire may result.
- Connect an emergency stop (immediate stop) relay in series with the brake interlock output.
  Injury or failure may result.
- Do not use the cable when it is laying in oil or water.
  Electric shock, injury, or fire may result.

- Install safety devices to prevent idling or locking of the electromagnetic brake or the gear head, or leakage of grease from the gear head.
  Injury, damage, or taint damage result.
- Be sure to turn OFF the power supply when not using the Servo Drive for a prolonged period of time.
  Injury or malfunction may result.
- If the Servomotor is not controlled, it may not be possible to maintain the stop. To ensure safety, install a stop device.
  Equipment damage or injury may result.
- Periodically run the Servomotor approximately one rotation when the oscillation operation continues at a small angle of 45° or smaller.
  Servomotor failure may result.
- When a difference between a position indicated by the Servo Drive before the power supply OFF and a position after the power supply ON is one rotation or more, check that devices are placed in appropriate areas.
- Immediately stop the operation and cut off the power supply when unusual smell, noise, smoking, abnormal heat generation, or vibration occurs.
  The Servo Drive or Servomotor may be damaged or burn.
- Fully check the shaft when you reset a brake interlock from PC tool.
- After replacing the Servo Drive, transfer to the new Servo Drive all data needed to resume operation, before restarting operation.
  Equipment damage may result.
- Do not repair the Servo Drive by disassembling it.
  Electric shock or injury may result.

General Specifications for Servo Drives

Item			Specifications
Operating ambient temperature and humidity			0 to 55°C, 90% max. (with no condensation)
Storage ambient temperature and humidity			-20 to 65°C, 90% max. (with no condensation)
Operating and storage atmosphere			No corrosive gases
Operating altitude			1,000 m max.
Vibration resistance			10 to 60 Hz and at an acceleration of 5.88 m/s^2 or less (Not to be run continuously at the resonance frequency)
Insulation resistance			Between power supply terminals/power terminals and PE terminals: 0.5 MΩ min. (at 500 VDC)
Dielectric strength			Between power supply terminals/power terminals and PE terminals: 1,500 VAC for 1 min at 50/60 Hz
Protective structure			IP20 (Built into IP54 panel)
International Standard	EU Directives	EMC Directives	EN 61800-3 second environment, C3 category
		Low Voltage Directive	EN 61800-5-1
		Machinery Directive	EN ISO 13849-1(Cat.3) EN 61508 EN 62061 EN 61800-5-2
	UL standards		UL61800-5-1
	CSA standards		CSA C22.2 No.274

Note: 1. The above items reflect individual evaluation testing.
The results may differ under compound conditions.
2. Disconnect all connections to the Servo Drive before attempting a megger test (insulation resistance measurement) on a Servo Drive. Not doing so may result in the Servo Drive failure. Do not perform a dielectric strength test on the Servo Drive. Internal elements may be damaged.

■ Servo Drive Rating

- 100-VAC Input Model: R88D-1SN□□L-ECT

Item	Unit	Model (R88D-1SN)		
		01L-ECT	02L-ECT	04L-ECT
Rated voltage	VAC	100 to 120 (85 to 132) *1		
		Single-phase		
Power supply frequency	Hz	50/60 (47.5 to 63) *1		
Rated input current	Arms	2.9	4.9	8.4
Rated output	W	100	200	400
Rated output current (FLA)	Arms	1.5	2.5	4.8
Weight	kg	1.2	1.5	1.9
External dimensions (W×H×D)	mm	40×180×185	55×180×185	65×180×215

*1. The values outside parentheses indicate the rated value, and the values inside parentheses indicate the range of acceptable variation.

- 200-VAC Input Model: R88D-1SN□□H-ECT

Item		Unit	Model (R88D-1SN)			
			01H-ECT	02H-ECT	04H-ECT	08H-ECT
Rated voltage		VAC	200 to 240 (170 to 252)*1			
			Single-phase/3-phase			
Power supply frequency		Hz	50/60 (47.5 to 63) *1			
Rated input current	Single-phase	Arms	1.8	2.7	4.6	7.3
	3-phase	Arms	1.0	1.5	2.7	4.0
Rated output		W	100	200	400	750
Rated output current (FLA)		Arms	0.8	1.5	2.5	4.6
Weight		kg	1.2	1.2	1.5	2.0
External dimensions (W×H×D)		mm	40×180×185		55×180×185	65×180×215

Item		Unit	Model (R88D-1SN)			
			10H-ECT	15H-ECT	20H-ECT	30H-ECT
Rated voltage		VAC	200 to 240 (170 to 252)*1			
			3-phase	Single-phase/3-phase	3-phase	
Power supply frequency		Hz	50/60 (47.5 to 63) *1			
Rated input current	Single-phase	Arms	---	15.7	---	---
	3-phase	Arms	5.8	9.0	13.0	15.9
Rated output		W	1k	1.5k	2k	3k
Rated output current (FLA)		Arms	7.7	9.7	16.2	22.3
Weight		kg	2.0	3.4	3.4	3.4
External dimensions (W×H×D)		mm	65×180×215	90×180×225		

Item	Unit	Model (R88D-1SN)		
		55H-ECT	75H-ECT	150H-ECT
Rated voltage	VAC	200 to 240 (170 to 252)*1		
		3-phase		
Power supply frequency	Hz	50/60 (47.5 to 63) *1		
Rated input current	Arms	27.0	38.0	77.0
Rated output	W	5.5k	7.5k	15k
Rated output current (FLA)	Arms	28.6	42.0	70.0
Weight	kg	9.4	9.4	21.0
External dimensions (W×H×D)	mm	200×180×235		220×400×250

*1. The values outside parentheses indicate the rated value, and the values inside parentheses indicate the range of acceptable variation.

- 400-VAC Input Model: R88D-1SN□□F-ECT
  Use a neutral grounded 400 VAC 3-phase power supply for the 400 VAC input models.

Item	Unit	Model (R88D-1SN)				
		06F-ECT	10F-ECT	15F-ECT	20F-ECT	30F-ECT
Rated voltage	VAC	380 to 480 (323 to 504) *1				
		3-phase				
Power supply frequency	Hz	50/60 (47.5 to 63) *1				
Rated input current	Arms	2.4	3.1	4.3	6.5	8.4
Rated output	W	600	1k	1.5k	2k	3k
Rated output current (FLA)	Arms	1.8	4.1	4.7	7.8	11.3
Weight	kg	3.4	3.4	3.4	3.4	3.4
External dimensions (W×H×D)	mm	90×180×225				

Item	Unit	Model (R88D-1SN)		
		55F-ECT	75F-ECT	150F-ECT
Rated voltage	VAC	380 to 480 (323 to 504) *1		
		3-phase		
Power supply frequency	Hz	50/60 (47.5 to 63) *1		
Rated input current	Arms	16.0	23.0	40.0
Rated output	W	5.5k	7.5k	15k
Rated output current (FLA)	Arms	14.5	22.6	33.9
Weight	kg	9.4	9.4	21.0
External dimensions (W×H×D)	mm	200×180×235		220×400×250

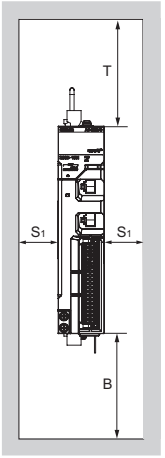
*1. The values outside parentheses indicate the rated value, and the values inside parentheses indicate the range of acceptable variation.

■ Space Conditions around Servo Drives

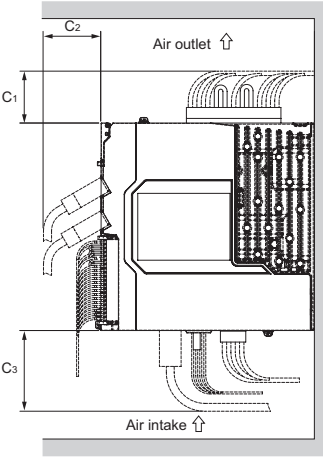
- Install the Servo Drives according to the dimension conditions shown in the following illustration, and ensure proper dispersion of heat from inside the Servo Drives and convection inside the panel.
  If the Servo Drives are installed side by side, install a fan for air circulation to prevent uneven temperatures inside the panel.

● R88D-1SN01L-ECT/-1SN02L-ECT/-1SN04L-ECT/-1SN01H-ECT/-1SN02H-ECT/-1SN04H-ECT/-1SN08H-ECT/-1SN10H-ECT/-1SN15H-ECT/-1SN20H-ECT/-1SN30H-ECT/-1SN06F-ECT/-1SN10F-ECT/-1SN15F-ECT/-1SN20F-ECT/-1SN30F-ECT

● Single-unit Installation

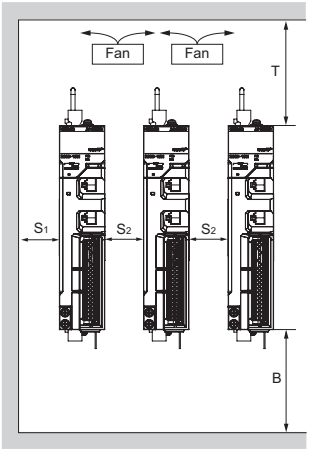


Front view

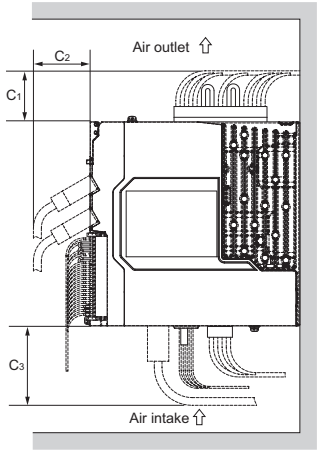


Side view

- Side-by-side Installation



Front view



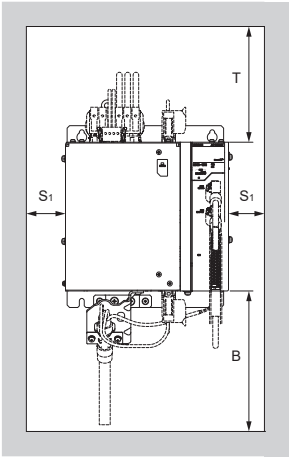
Side view

Dimensions	Distance	
T	100 mm min.	
B	100 mm min.	
S_1	40 mm min.	
S_2	10 mm min.	
C_1	R88D-1SN01L-ECT/-1SN02L-ECT/-1SN04L-ECT/ -1SN01H-ECT/-1SN02H-ECT/-1SN04H-ECT/ -1SN08H-ECT/-1SN10H-ECT	45 mm min.
	R88D-1SN15H-ECT/-1SN20H-ECT/ -1SN30H-ECT/-1SN06F-ECT/-1SN10F-ECT/ -1SN15F-ECT/-1SN20F-ECT/-1SN30F-ECT	60 mm min.
C_2	50 mm min.	
C_3	70 mm min.	

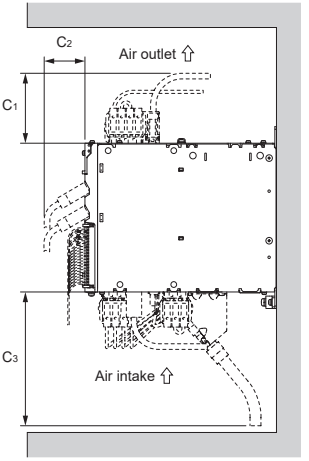
- Install the Servo Drive on the vertical metal surface.
- To provide electrical conduction, remove any paint from the surface on which you install the Servo Drives. Also, it is recommended that you apply conductive plating if you make the mounting bracket by yourself.
- The recommended tightening torque for installing the Servo Drive is 1.5 N·m. Make sure that the threaded portion has the sufficient strength to withstand the recommended torque.
- You can install Servo Drives without the clearance of S_2 if the operating ambient temperature is from 0 to 45°C.

- R88D-1SN55H-ECT/-1SN75H-ECT/-1SN150H-ECT/-1SN55F-ECT/-1SN75F-ECT/-1SN150F-ECT

- Single-unit Installation

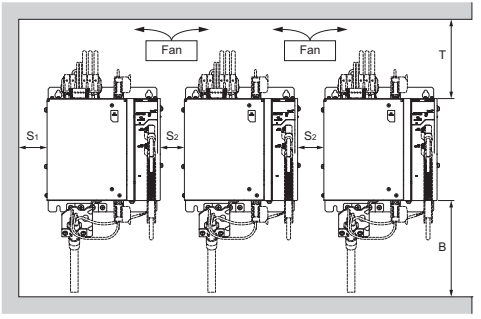


Front view

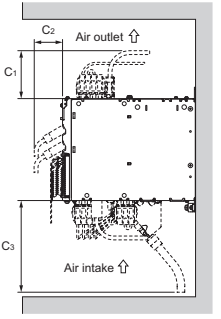


Side view

- Side-by-side Installation



Front view



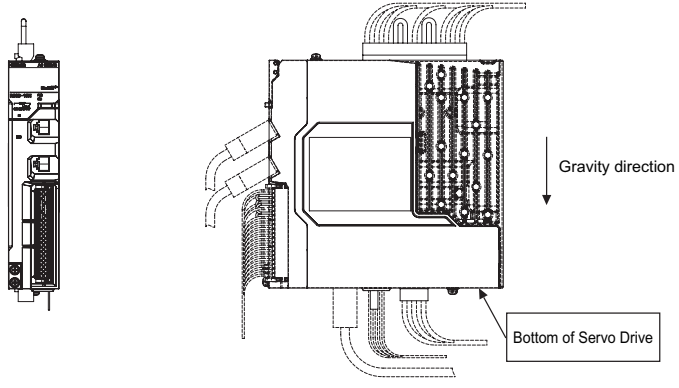
Side view

Dimensions	Distance	
T	R88D-1SN55H-ECT/-1SN75H-ECT/-1SN55F-ECT/-1SN75F-ECT	200 mm min.
	R88D-1SN150H-ECT/-1SN150F-ECT	280 mm min.
B	500 mm min.	
S_1	40 mm min.	
S_2	40 mm min.	
C_1	R88D-1SN55H-ECT/-1SN75H-ECT/-1SN55F-ECT/-1SN75F-ECT	130 mm min.
	R88D-1SN150H-ECT/-1SN150F-ECT	170 mm min.
C_2	50 mm min.	
C_3	450 mm min.	

- Install the Servo Drive on the vertical metal surface.
- To provide electrical conduction, remove any paint from the surface on which you install the Servo Drives. Also, it is recommended that you apply conductive plating if you make the mounting bracket by yourself.
- The recommended tightening torques for installing the Servo Drives are the followings. Make sure that the threaded portion has the sufficient strength to withstand the recommended torque.
  R88D-1SN55H-ECT/-1SN75H-ECT/-1SN55F-ECT/-1SN75F-ECT: Tightening torque 3 N·m
  R88D-1SN150H-ECT/-1SN150F-ECT: Tightening torque 5.2 N·m
- Set S_2 distance over a value shown above table to install a Servo Drives.

■ Mounting Direction

Turn the bottom of Servo Drive in the gravity direction.



Front view

Side view

■ Operating Environment Conditions

The environment in which the Servo Drive is operated must meet the following conditions. The Servo Drive may malfunction if it is operated under any other conditions.

Item	Specifications
Operating ambient temperature	0 to 55°C
Operating ambient humidity	90% max. (with no condensation)
Operating atmosphere	No corrosive gases
Operating altitude	1,000 m max.

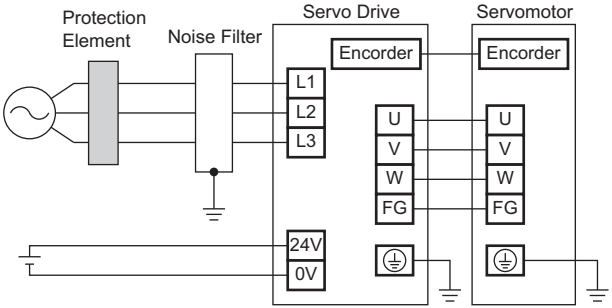
■ Ambient Temperature Control

- Operation in an environment in which there is minimal temperature rise is recommended to maintain a high level of reliability.
- When Servo Drives are installed in a closed space, such as a box, the ambient temperature may rise due to the heat that is generated from each unit. Use a fan or air conditioner to maintain the ambient temperature of the Servo Drive from under the operating environment conditions.
- The Servo Drive surface may rise in temperature of 30°C above the ambient temperature. Use heat-resistant materials for wiring, and provide a distance from any devices and wiring that are sensitive to heat.
- The use of the Servo Drive in a hot environment shortens its lifetime.
  When you use the Servo Drive in continuous operation, use a fan or air conditioner to maintain the ambient temperature at or below 40°C.

■ Keeping Foreign Objects Out of Units

- Take measures during installation and operation to keep foreign objects such as metal particles, oil, machining oil, dust, or water out of the Servo Drive.
- Place a cover over the Servo Drive or take other preventive measures to keep foreign objects such as drill filings out of the Servo Drive during installation. Be sure to remove the cover after installation is complete. If the cover is left on during operation, heat dissipation from the Servo Drive is blocked, which may result in malfunction.

■ Wiring Diagram



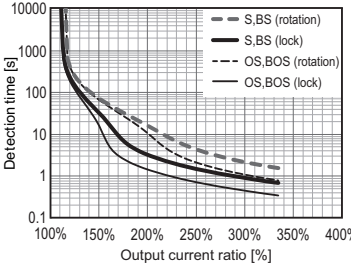
- The above diagram shows the wiring of Servomotor on the temperature protection.
- The length of motor cable must be 50 m or less.*1
- The length of encoder cable must be 50 m or less.*1
- Connect a leakage breaker and fuse as a protection element.

*1 The cable length does not meet the EMC Directives.
Refer to Compatibility Conditions of EU Directives.

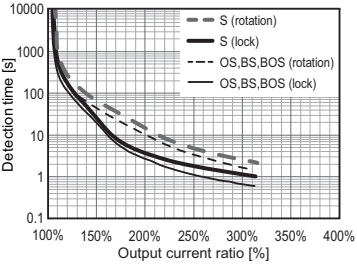
■ Overload Characteristics (Electronic Thermal Function)

- Solid state motor overload protection is provided in each model. The overload protection (electronic thermal) function is built into the Servo Drive to protect the Servo Drive and Servomotor from overloading. If an overload occurs, first eliminate the cause of the error and then wait for the Servomotor temperature to drop before you turn ON the power again. If the error reset is repeated at short intervals, the motor windings may burn out.
- The Servo Drive parameter shall be set at no more than the full load current rating of the Servomotor.
- In the some models, the detection time of the overload protection function is shorter than existing models. If the overload warning or error occur, change the operation pattern by increasing the acceleration/deceleration time or the like.

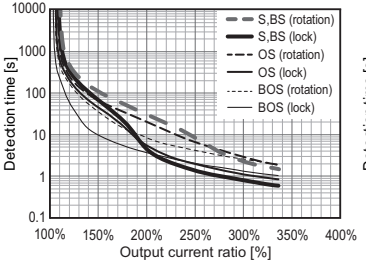
● R88M-1M05030S



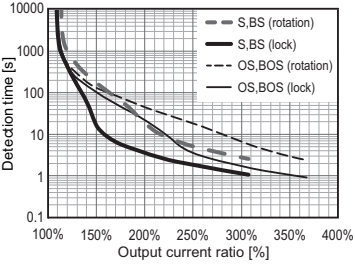
● R88M-1M10030S



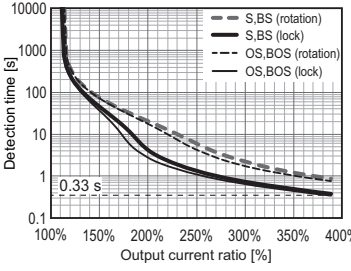
● R88M-1M20030S



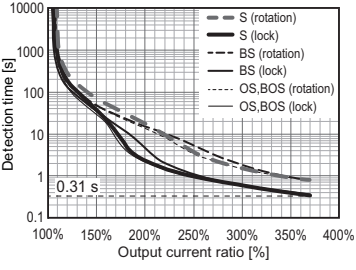
● R88M-1M40030S



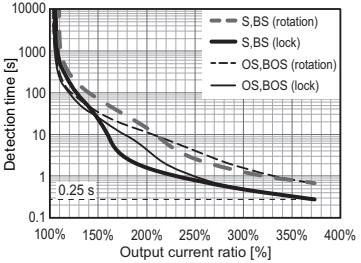
● R88M-1M05030T



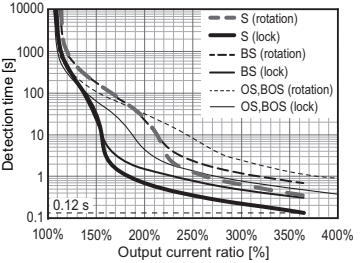
● R88M-1M10030T



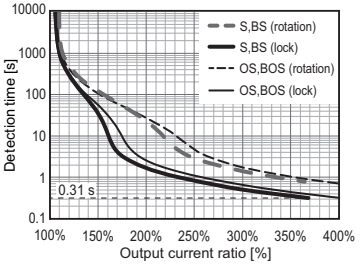
● R88M-1M20030T



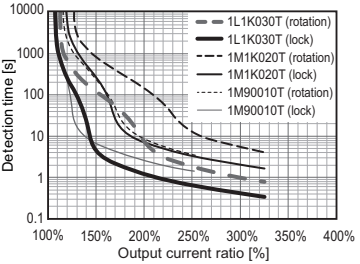
● R88M-1M40030T



● R88M-1M75030T



● R88M-1L1K030T/-1M1K020T/
-1M90010T



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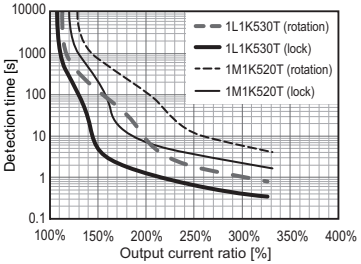

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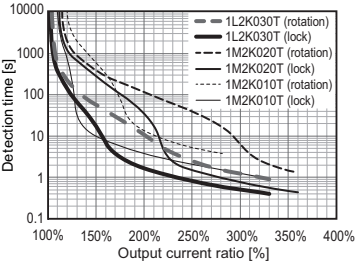
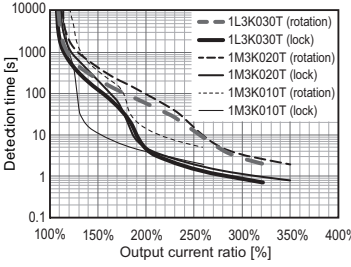


● R88M-1L3K030T/-1M3K020T/
-1M3K010T



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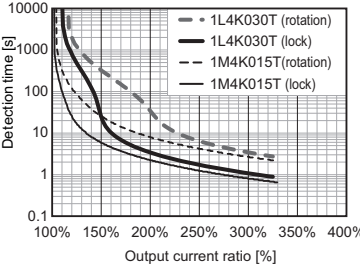
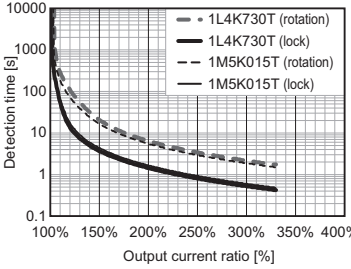
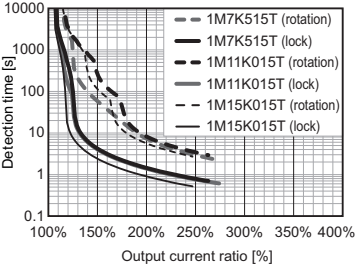


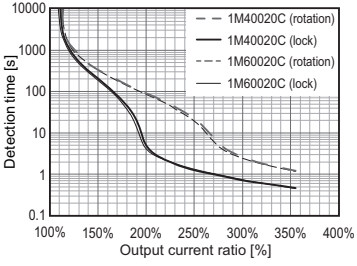
● R88M-1L4K730T/-1M5K015T



● R88M-1M7K515T/-1M11K015T/
-1M15K015T



● R88M-1M40020C/-1M60020C



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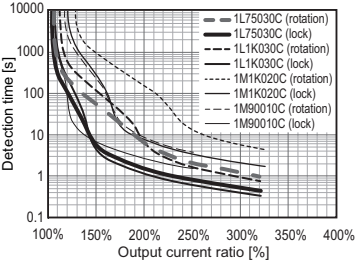
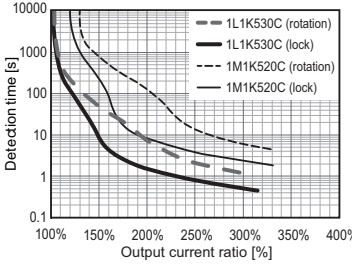


● R88M-1L1K530C/-1M1K520C



● R88M-1L2K030C/-1M2K020C/
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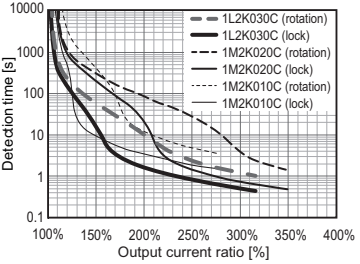

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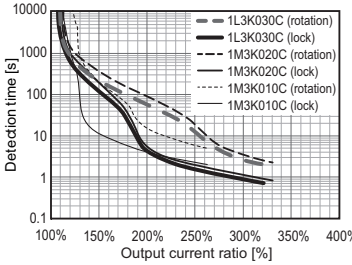

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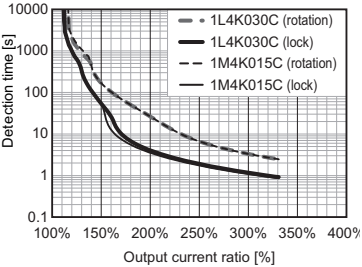

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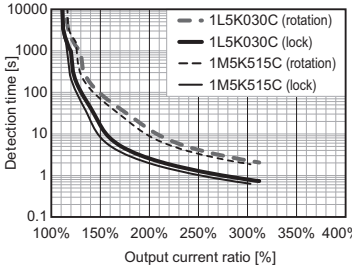
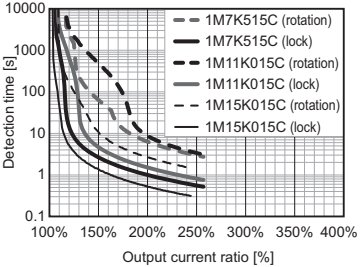


● R88M-1M7K515C/-1M11K015C/
-1M15K015C



Terminal Block

■ Terminal Block Specifications

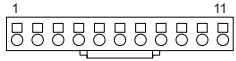
Symbol	Name	Specifications	
L1 L2 L3	Main circuit power supply input *1	R88D-1SN□□L-ECT • 100 to 400 W: Single-phase 100 to 120 VAC (85 to 132 VAC) 50/60 Hz (47.5 to 63 Hz) R88D-1SN□□H-ECT • 100 to 750 W, 1.5 kW: Single-phase 200 to 240 VAC (170 to 252 VAC) 50/60 Hz (47.5 to 63 Hz) • 100 to 15 kW: 3-phase 200 to 240 VAC (170 to 252 VAC) 50/60 Hz (47.5 to 63 Hz) R88D-1SN□□F-ECT • 600 to 15 kW: 3-phase 380 to 480 VAC (323 to 504 VAC) 50/60 Hz (47.5 to 63 Hz)	
+24V *2 0V *3	Control circuit power supply input	24 VDC±10%	
B1 *4 B2 B3 *5	External Regeneration Resistor connection terminals	When the Internal Regeneration Resistor is used: *6 • Open between B1 and B2. • Short-circuit B2 and B3. When the External Regeneration Resistor is used: • Connect the External Regeneration Resistor between B1 and B2. • Open between B2 and B3.	
N1 N2	DC reactor connection terminals *5	When the DC reactor is not used: • Short-circuit N1 and N2. When the DC reactor is used: • Connect the DC reactor between N1 and N2.	
U	Motor connection terminals	Phase U	These are output terminals to the Servomotor. Be sure to wire them correctly.
V		Phase V	
W		Phase W	
FG *7		FG	This is a frame ground terminal for the Servomotor.
DB1 DB2 DB3	External Dynamic brake Resistor connection terminals *8	When the Internal Dynamic brake Resistor is used: • Open between DB1 and DB2. • Short-circuit DB2 and DB3. When the External Dynamic brake Resistor is used: • Connect the External Dynamic brake Resistor between DB1 and DB2. • Open between DB2 and DB3.	

*1. For single-phase, connect between any two phases out of the following: L1, L2, and L3.
*2. For the R88D-1SN□□L-ECT, R88D-1SN0□H-ECT, and R88D-1SN10H-ECT, the symbol of this terminal is 24V.
*3. For the R88D-1SN□□L-ECT, R88D-1SN0□H-ECT, and R88D-1SN10H-ECT, the symbol of this terminal is Ø .
*4. For the R88D-1SN□□L-ECT, R88D-1SN0□H-ECT, and R88D-1SN10H-ECT, the symbol of this terminal is P/B1.

*5. For the R88D-1SN150□-ECT, there is no terminal with the symbol.
*6. No Internal Regeneration Resistor is built into the R88D-1SN01L-ECT, R88D-1SN01H-ECT, R88D-1SN02H-ECT, R88D-1SN02L-ECT, R88D-1SN04H-ECT, R88D-1SN150H-ECT, and R88D-1SN150F-ECT.
*7. Only the R88D-1SN15H-ECT, R88D-1SN20H-ECT, R88D-1SN30H-ECT, R88D-1SN55H-ECT, R88D-1SN75H-ECT, R88D-1SN150H-ECT and R88D-1SN□□F-ECT have this terminal.
*8. Only the R88D-1SN55□-ECT, R88D-1SN75□-ECT and R88D-1SN150□-ECT have this terminal.

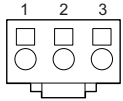
- Main circuit connector (CNA): R88D-1SN□□L-ECT/R88D-1SN0□H-ECT/R88D-1SN10H-ECT

Pin No.	Symbol
1	L1
2	L2
3	L3
4	B3
5	B2
6	P/B1
7	N1
8	N2
9	N3 (Reserved)
10	24V
11	Ø



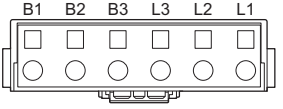
- Motor connector (CNC): R88D-1SN□□L-ECT/R88D-1SN0□H-ECT/R88D-1SN10H-ECT

Pin No.	Symbol
1	U
2	V
3	W



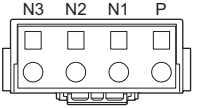
- Main circuit connector A (CNA): R88D-1SN15H-ECT/R88D-1SN20H-ECT/R88D-1SN30H-ECT/R88D-1SN06F-ECT/R88D-1SN10F-ECT/R88D-1SN15F-ECT/R88D-1SN20F-ECT/R88D-1SN30F-ECT

Pin No.	Symbol
---	B1
---	B2
---	B3
---	L3
---	L2
---	L1



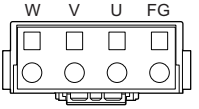
- Main circuit connector B (CNB): R88D-1SN15H-ECT/R88D-1SN20H-ECT/R88D-1SN30H-ECT/R88D-1SN06F-ECT/R88D-1SN10F-ECT/R88D-1SN15F-ECT/R88D-1SN20F-ECT/R88D-1SN30F-ECT

Pin No.	Symbol
---	N3 (Reserved)
---	N2
---	N1
---	P (Reserved)



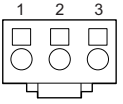
- Motor connector (CNC): R88D-1SN15H-ECT/R88D-1SN20H-ECT/R88D-1SN30H-ECT/R88D-1SN06F-ECT/R88D-1SN10F-ECT/R88D-1SN15F-ECT/R88D-1SN20F-ECT/R88D-1SN30F-ECT

Pin No.	Symbol
---	W
---	V
---	U
---	FG



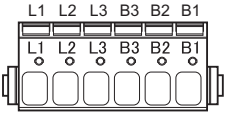
- Control power supply connector (CND): R88D-1SN15H-ECT/ R88D-1SN20H-ECT/ R88D-1SN30H-ECT/R88D-1SN06F-ECT/R88D-1SN10F-ECT/R88D-1SN15F-ECT/ R88D-1SN20F-ECT/R88D-1SN30F-ECT

Pin No.	Symbol
1	+24V
2	0V
3	---



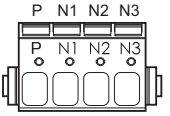
- Main circuit connector A (CNA): R88D-1SN55□-ECT/R88D-1SN75□-ECT

Pin No.	Symbol
---	L1
---	L2
---	L3
---	B3
---	B2
---	B1



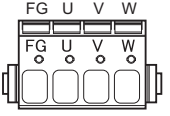
- Main circuit connector B (CNB): R88D-1SN55□-ECT/R88D-1SN75□-ECT

Pin No.	Symbol
---	P (Reserved)
---	N1
---	N2
---	N3 (Reserved)



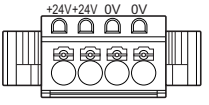
- Motor connector (CNC): R88D-1SN55□-ECT/R88D-1SN75□-ECT/ R88D-1SN150F-ECT

Pin No.	Symbol
---	FG
---	U
---	V
---	W



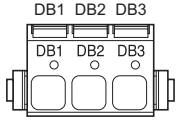
- Control power supply connector (CND): R88D-1SN55□-ECT/R88D-1SN75□-ECT/ R88D-1SN150□-ECT

Pin No.	Symbol
---	+24V
---	+24V
---	0V
---	0V



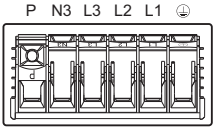
- Main circuit connector E (CNE): R88D-1SN55□-ECT/R88D-1SN75□-ECT/R88D-1SN150□-ECT

Pin No.	Symbol
---	DB1
---	DB2
---	DB3



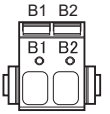
- Main circuit terminal block (CNA): R88D-1SN150H-ECT

Pin No.	Symbol
---	P (Reserved)
---	N3 (Reserved)
---	L3
---	L2
---	L1
---	⏚



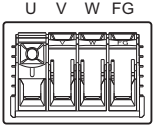
- Main circuit connector B (CNB): R88D-1SN150□-ECT

Pin No.	Symbol
---	B1
---	B2



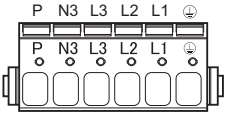
- Motor terminal block (CNC): R88D-1SN150H-ECT

Pin No.	Symbol
---	U
---	V
---	W
---	FG



- Main circuit connector A (CNA): R88D-1SN150F-ECT

Pin No.	Symbol
---	P (Reserved)
---	N3 (Reserved)
---	L3
---	L2
---	L1
---	⏚



■ Terminal Block Wire Sizes

The following tables show the rated current that flows to the terminal block on the Servo Drive and the applicable wire sizes. Use the wire with the rated voltage of 600 V or higher for the main circuit.
The wire size is determined for when the heat-resistant polyvinyl chloride insulated wire (HIV) is used at the ambient temperature of 50°C.

- Wire Sizes for 100-VAC Input Model: R88D-1SN□□L-ECT

Item		Unit	Model (R88D-1SN)		
			01L-ECT	02L-ECT	04L-ECT
Power supply capacity		kVA	0.4	0.6	1.0
Main circuit power supply input *1	Rated current	Arms	2.9	4.9	8.4
	Wire size	---	AWG20 to 14 /0.5 to 2.0 mm^2	AWG18 to 14 /0.75 to 2.0 mm^2	AWG14 /2.0 mm^2
Control circuit power supply input	Wire size	---	AWG20 to 16/0.5 to 1.5 mm^2		
Motor connection terminals *2	Rated current	Arms	1.5	2.5	4.8
	Wire size	---	AWG22 to 14/ 0.32 to 2.0 mm^2	AWG20 to 14/ 0.5 to 2.0 mm^2	AWG18 to 14/ 0.75 to 2.0 mm^2
Protective earth ⏚	Wire size	---	AWG12/2.5 mm^2 or larger		
	Screw size	---	M4		
	Tightening torque	N·m	1.2		

*1. Connect between any two phases out of the following: L1, L2, and L3.
*2. Provide the same current capacity for the wiring of the motor connection terminals and for that of B1 and B2.

- Wire Sizes for 200-VAC Input Model: R88D-1SN□□H-ECT

Item		Unit	Model (R88D-1SN)			
			01H-ECT	02H-ECT	04H-ECT	08H-ECT
Power supply capacity		kVA	0.6	0.6	1.0	1.4
Main circuit power supply input *1	Rated current	Arms	1.8/1.0*2	2.7/1.5*2	4.6/2.7*2	7.3/4.0*2
	Wire size	---	AWG22 to 14 /0.32 to 2.0 mm^2	AWG20 to 14 /0.5 to 2.0 mm^2	AWG18 to 14 /0.75 to 2.0 mm^2	AWG16 to 14 /1.3 to 2.0 mm^2
Control circuit power supply input	Wire size	---	AWG20 to 16/0.5 to 1.5 mm^2			
Motor connection terminals*3	Rated current	Arms	0.8	1.5	2.5	4.6
	Wire size	---	AWG22 to 14 /0.32 to 2.0 mm^2		AWG20 to 14/0.5 to 2.0 mm^2	AWG18 to 14/0.75 to 2.0 mm^2
Protective earth	Wire size	---	AWG12/2.5 mm^2 or larger			
	Screw size	---	M4			
	Tightening torque	N·m	1.2			

*1. For single-phase, connect between any two phases out of the following: L1, L2, and L3.
*2. The first value is for single-phase input power and the second value is for 3-phase input power.
*3. Provide the same current capacity for the wiring of the motor connection terminals and for that of B1 and B2.

Item		Unit	Model (R88D-1SN)			
			10H-ECT	15H-ECT	20H-ECT	30H-ECT
Power supply capacity		kVA	2.0	2.5	3.6	4.7
Main circuit power supply input*1	Rated current	Arms	5.8	15.7/9.0*2	13.0	15.9
	Wire size	---	AWG16 to 14 /1.3 to 2.0 mm^2	AWG12 to 8/3.3 to 8.4 mm^2		
Control circuit power supply input	Wire size	---	AWG20 to 16/0.5 to 1.5 mm^2			
Motor connection terminals*3	Rated current	Arms	7.7	9.7	16.2	22.3
	Wire size	---	AWG16 to 14 /1.3 to 2.0 mm^2	AWG14 to 8 /2.0 to 8.4 mm^2	AWG10 to 8 /5.3 to 8.4 mm^2	
Protective earth	Wire size	---	AWG12/2.5 mm^2 or larger			
	Screw size	---	M4			
	Tightening torque	N·m	1.2			

*1. For single-phase, connect between any two phases out of the following: L1, L2, and L3.
*2. The first value is for single-phase input power and the second value is for 3-phase input power.

*3. Provide the same current capacity for the wiring of the motor connection terminals and for that of B1 and B2.

Item		Unit	Model (R88D-1SN)		
			55H-ECT	75H-ECT	150H-ECT
Power supply capacity		kVA	11.2	15.8	32.0
Main circuit power supply input	Rated current	Arms	27.0	38.0	77.0
	Wire size	---	AWG10 to 4 /5.3 to 25 mm^2	AWG8 to 4 /8.4 to 25 mm^2	AWG4 to 1 /21.2 to 50 mm^2
Control circuit power supply input	Wire size	---	AWG20 to 16/0.5 to 1.5 mm^2		
Motor connection terminals*1	Rated current	Arms	28.6	42.0	70.0
	Wire size	---	AWG10 to 4 /5.3 to 25mm^2	AWG8 to 4 /8.4 to 25 mm^2	AWG4 to 1 /21.2 to 50 mm^2
Protective earth	Wire size	---	AWG10/5.3 mm^2 or larger		AWG6/13.3 mm^2 or larger
	Screw size	---	M5		
	Tightening torque	N·m	2.3		

*1. Provide the same current capacity for the wiring of the motor connection terminals and for that of B1 and B2.

- Wire Sizes for 400-VAC Input Model: R88D-1SN□□F-ECT

Item		Unit	Model (R88D-1SN)				
			06F-ECT	10F-ECT	15F-ECT	20F-ECT	30F-ECT
Power supply capacity		kVA	1.4	2.0	2.1	4.2	5.0
Main circuit power supply input	Rated current	Arms	2.4	3.1	4.3	6.5	8.4
	Wire size	---	AWG16 to 8/1.3 to 8.4 mm^2				AWG 14 to 8 /2.0 to 8.4 mm^2
Control circuit power supply input	Wire size	---	AWG20 to 16/0.5 to 1.5 mm^2				
Motor connection terminals*1	Rated current	Arms	1.8	4.1	4.7	7.8	11.3
	Wire size	---	AWG16 to 8/1.3 to 8.4 mm^2			AWG14 to 8 /2.0 to 8.4 mm^2	
Protective earth	Wire size	---	AWG12/2.5 mm^2 or larger				
	Screw size	---	M4				
	Tightening torque	N·m	1.2				

*1. Provide the same current capacity for the wiring of the motor connection terminals and for that of B1 and B2.

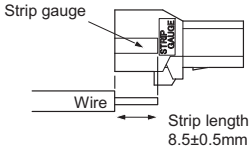
Item		Unit	Model (R88D-1SN)		
			55F-ECT	75F-ECT	150F-ECT
Power supply capacity		kVA	13.3	19.1	33.3
Main circuit power supply input	Rated current	Arms	16.0	23.0	40.0
	Wire size	---	AWG12 to 4 /3.3 to 25 mm^2	AWG10 to 4 /5.3 to 25 mm^2	AWG8 to 4 /8.4 to 25 mm^2
Control circuit power supply input	Wire size	---	AWG20 to 16/0.5 to 1.5 mm^2		
Motor connection terminals*1	Rated current	Arms	14.5	22.6	33.9
	Wire size	---	AWG14 to 4 /2.0 to 25 mm^2	AWG10 to 4 /5.3 to 25 mm^2	AWG8 to 4 /8.4 to 25 mm^2
Protective earth ⏚	Wire size	---	AWG12/2.5 mm^2 or larger	AWG10/5.3 mm^2 or larger	
	Screw size	---	M5		
	Tightening torque	N·m	2.3		

*1. Provide the same current capacity for the wiring of the motor connection terminals and for that of B1 and B2.

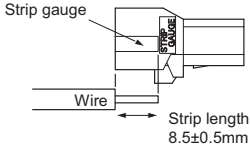
■ Terminal Block Wiring Procedure

1. Remove the terminal block from the Servo Drive before wiring.
   The Servo Drive may be damaged if the wiring is done with the terminal block in place.
2. Strip off the covering from the wire.
   If the stripped wire is bended, loose or too large in diameter due to twist, retwist it gently and check its strip length by the use of a gauge before you use it.
   Smoothen the cut surface of wires and the stripped surface of covering. Or, you can use a ferrule.

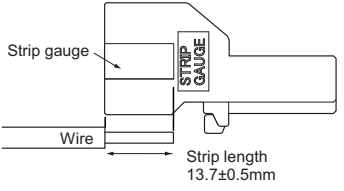
- R88D-1SN01L-ECT/-1SN02L-ECT/-1SN04L-ECT/-1SN01H-ECT/
  -1SN02H-ECT/-1SN04H-ECT/-1SN08H-ECT/-1SN10H-ECT



- R88D-1SN15H-ECT/-1SN20H-ECT/-1SN30H-ECT/-1SN06F-ECT/
  -1SN10F-ECT/-1SN15F-ECT/-1SN20F-ECT/-1SN30F-ECT

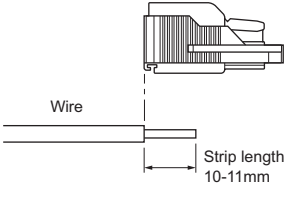


(CND)

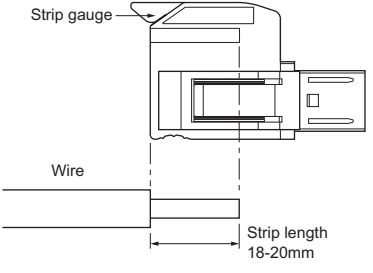


(CNA/CNB/CNC)

- R88D-1SN55H-ECT/-1SN75H-ECT/-1SN55F-ECT/-1SN75F-ECT/-1SN150F-ECT

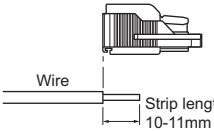


(CND)

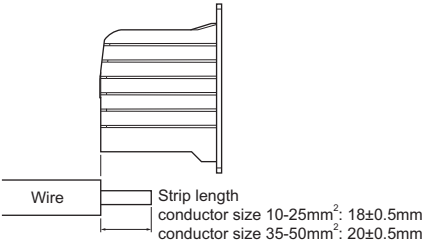


(CNA/CNB/CNC/CNE)

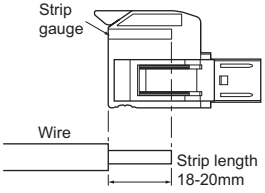
- R88D-1SN150H-ECT



(CND)

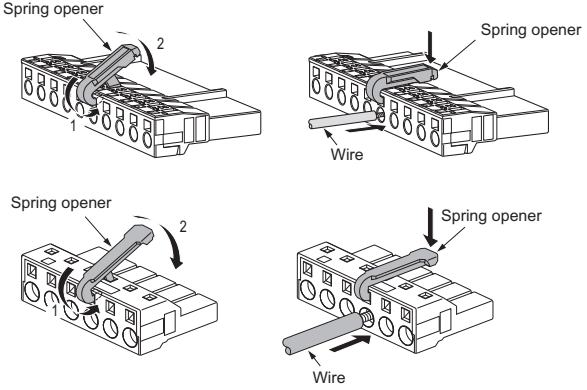


(Terminal block)

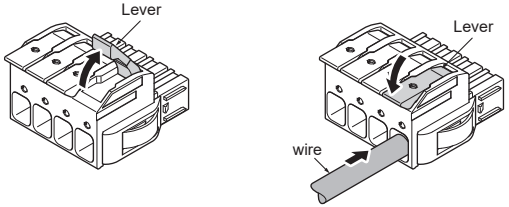


(CNB/CNE)

3. Connect the wires.
   Insert the hook of the spring opener into a square hole located on the same side as the wire holes, and use your thumb to press down the lever of the spring opener until it clicks into place.
   Insert the wire fully into the back of a wire hole while the lever of the spring opener is held down.
   Release the lever, and then pull the wire gently to check that it does not come out.

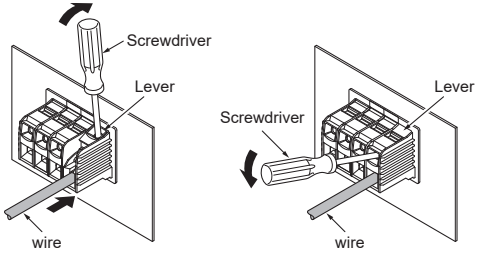


   Use fingers to push up the lever until it clicks into place.
   Insert the wire fully into the back of a wire hole while the lever is pushed up.
   Use fingers to push up the lever until it clicks into place.
   Pull the wire gently to make sure that it does not come out.

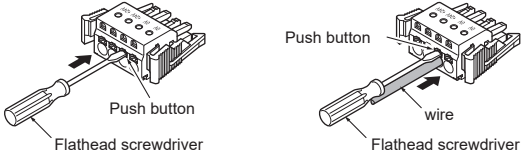


   Insert a screwdriver into a hole of a lever and push up the lever.
   Insert the wire fully into the back of a wire hole.
   Insert the screwdriver into the hole of the lever and push down the lever.
   Pull the wire gently to make sure that it is completely caught by a bracket and does not come out.

Use a fully tough screwdriver.
Recommended Driver Model: SZK PZ2 VDE (PHOENIX CONTACT)

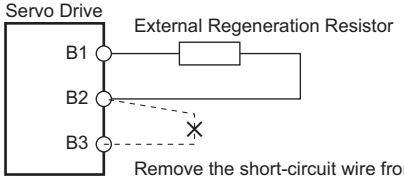


Insert the wire fully into the back of a wire hole while a push button is pressed with a flathead screwdriver.
Pull the wire gently to make sure that it does not come out.
A solid wire or a twisted wire crimped the ferrule terminals can be inserted even if you do not press the push button.



■ Connection of External Regeneration Resistor

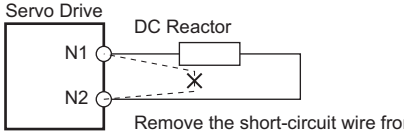
When an External Regeneration Resistor is required, remove the short-circuit wire from B2 and B3, and connect an External Regeneration Resistor between B1 and B2 as shown below.



* R88D-1SN150□-ECT does not have the B3 terminal and a short-circuit wire.

■ Connection of DC Reactor

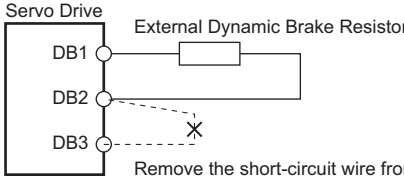
When a DC reactor is required, remove the short-circuit wire from N1 and N2, and connect a DC reactor between N1 and N2 as shown below.



* R88D-1SN150□-ECT does not have the DC reactor connection terminal.

■ Connection of External Dynamic Brake Resistor

When an External Dynamic Brake Resistor is required, remove the short-circuit wire from DB2 and DB3, and connect an External Dynamic Resistor between DB1 and DB2 as shown below.



Compatibility Conditions of EU Directives

- This is a product designed for industrial environments.
  Use in residential area may cause radio interference, in which case the user may be required to take adequate measures to reduce interference.
- This type of PDS is not intended to be used on a low-voltage public network which supplies domestic premises.

■ Manufacturer and EU Representative

Manufacturer:	OMRON Corporation (Manufacturer) Shiokoji Horikawa, Shimogyo-ku, Kyoto, 600-8530, Japan
EU Representative:	OMRON Europe B.V. (Representative and Importer in EU) Wegalaan 67-69, 2132 JD Hoofddorp, The Netherlands

■ Compatibility Conditions of Low Voltage Directive

- Installation Environment

Item	Specifications
Operating ambient temperature and humidity	0 to 55°C, 90% max. (with no condensation)
Overvoltage category	III
Pollution Degree	2
Altitude	1,000 m max.
Protective structure	IP20 (To be built into the IP54 enclosure)
Protection class	I
Input power supply	AC power supply When the DC power input is used, the Servo Drive does not conform to EU standards.
Short-circuit current rating (SCCR)	5,000 Arms

■ Servo Drive Rating

- 100-VAC Input Model: R88D-1SN□□L-ECT

Item	Unit	Model (R88D-1SN)		
		01L-ECT	02L-ECT	04L-ECT
Rated voltage	VAC	100 to 120 Single-phase		
Power supply frequency	Hz	50/60		
Rated input current	Arms	2.9	4.9	8.4
Rated output	W	100	200	400

- 200-VAC Input Model: R88D-1SN□□H-ECT

Item		Unit	Model (R88D-1SN)			
			01H-ECT	02H-ECT	04H-ECT	08H-ECT
Rated voltage		VAC	200 to 240			
			Single-phase/3-phase			
Power supply frequency		Hz	50/60			
Rated input current	Single-phase	Arms	1.8	2.7	4.6	7.3
	3-phase	Arms	1.0	1.5	2.7	4.0
Rated output		W	100	200	400	750

Item		Unit	Model (R88D-1SN)			
			10H-ECT	15H-ECT	20H-ECT	30H-ECT
Rated voltage		VAC	200 to 240			
			3-phase	Single-phase/ 3-phase	3-phase	
Power supply frequency		Hz	50/60			
Rated input current	Single-phase	Arms	---	15.7	---	---
	3-phase	Arms	5.8	9.0	13.0	15.9
Rated output		W	1k	1.5k	2k	3k

Item	Unit	Model (R88D-1SN)		
		55H-ECT	75H-ECT	150H-ECT
Rated voltage	VAC	200 to 240		
		3-phase		
Power supply frequency	Hz	50/60		
Rated input current	Arms	27.0	38.0	77.0
Rated output	W	5.5k	7.5k	15k

- 400-VAC Input Model: R88D-1SN□□F-ECT
  Use a neutral grounded 400 VAC 3-phase power supply for the 400 VAC input models.

Item	Unit	Model (R88D-1SN)			
		06F-ECT	10F-ECT	15F-ECT	20F-ECT
Rated voltage	VAC	380 to 480			
		3-phase			
Power supply frequency	Hz	50/60			
Rated input current	Arms	2.4	3.1	4.3	6.5
Rated output	W	600	1k	1.5k	2k

Item	Unit	Model (R88D-1SN)			
		30F-ECT	55F-ECT	75F-ECT	150F-ECT
Rated voltage	VAC	380 to 480			
		3-phase			
Power supply frequency	Hz	50/60			
Rated input current	Arms	8.4	16.0	23.0	40.0
Rated output	W	3k	5.5k	7.5k	15k

- Control Circuit Power Supply
  Rating 24 VDC/1.2 A (Capacity of Drive 3 kW or less)
  Rating 24 VDC/1.6 A (Capacity of Drive 5.5 kW or more)

- Installation of Short-circuit Protection Element
  Connect an IEC 60269-1 CLASS gG fuse or an equivalent fuse the melting time is shorter, to the main circuit power.
  Select a fuse that satisfies the maximum current rating of the following table.

Servo Drive model	Maximum current rating
R88D-1SN01L-ECT	16 A
R88D-1SN02L-ECT	16 A
R88D-1SN04L-ECT	16 A
R88D-1SN01H-ECT	16 A
R88D-1SN02H-ECT	16 A
R88D-1SN04H-ECT	16 A
R88D-1SN08H-ECT	16 A
R88D-1SN10H-ECT	16 A
R88D-1SN15H-ECT	40 A
R88D-1SN20H-ECT	40 A
R88D-1SN30H-ECT	40 A
R88D-1SN06F-ECT	20 A
R88D-1SN10F-ECT	20 A
R88D-1SN15F-ECT	20 A
R88D-1SN20F-ECT	20 A
R88D-1SN30F-ECT	20 A

Connect the IEC60947 breaker or IEC 60269-1 CLASS gG fuse which should have the fusing time shorter than the UL class RK5 fuse or equivalence.
Select a breaker or a fuse that satisfies the maximum current rating of the following table.

Servo Drive model	Maximum current rating
R88D-1SN55H-ECT	60 A
R88D-1SN75H-ECT	60 A
R88D-1SN150H-ECT	125 A
R88D-1SN55F-ECT	30 A
R88D-1SN75F-ECT	30 A
R88D-1SN150F-ECT	60 A

■ Terminal Block Wire Sizes

The following tables show the rated current that flows to the terminal block on the Servo Drive and the applicable wire sizes.

- Wire Sizes for 100-VAC Input Model: R88D-1SN□□L-ECT

Item		Unit	Model (R88D-1SN)		
			01L-ECT	02L-ECT	04L-ECT
Power supply capacity		kVA	0.4	0.6	1.0
Main circuit power supply input*1	Rated current	Arms	2.9	4.9	8.4
	Wire size	---	0.5 to 1.5 mm^2	0.75 to 1.5 mm^2	1.5 mm^2
Control circuit power supply input	Wire size	---	0.5 to 1.5 mm^2		
Motor connection terminals	Rated current	Arms	1.5	2.5	4.8
	Wire size	---	0.5 to 1.5 mm^2		0.75 to 1.5 mm^2
Protective earth	Wire size	---	2.5 mm^2 or larger		
	Screw size	---	M4		
	Tightening torque	N·m	1.2		

*1. Connect between any two phases out of the following: L1, L2, and L3.

- Wire Sizes for 200-VAC Input Model: R88D-1SN□□H-ECT

Item		Unit	Model (R88D-1SN)			
			01H-ECT	02H-ECT	04H-ECT	08H-ECT
Power supply capacity		kVA	0.6	0.6	1.0	1.4
Main circuit power supply input*1	Rated current	Arms	1.8/1.0*2	2.7/1.5*2	4.6/2.7*2	7.3/4.0*2
	Wire size	---	0.5 to 1.5 mm^2		0.75 to 1.5 mm^2	1.5 mm^2
Control circuit power supply input	Wire size	---	0.5 to 1.5 mm^2			
Motor connection terminals	Rated current	Arms	0.8	1.5	2.5	4.6
	Wire size	---	0.5 to 1.5 mm^2			0.75 to 1.5 mm^2
Protective earth	Wire size	---	2.5 mm^2 or larger			
	Screw size	---	M4			
	Tightening torque	N·m	1.2			

*1. For single-phase, connect between any two phases out of the following: L1, L2, and L3.
*2. The first value is for single-phase input power and the second value is for 3-phase input power.

Item		Unit	Model (R88D-1SN)			
			10H-ECT	15H-ECT	20H-ECT	30H-ECT
Power supply capacity		kVA	2.0	2.5	3.6	4.7
Main circuit power supply input *1	Rated current	Arms	5.8	15.7/9.0*2	13.0	15.9
	Wire size	---	1.5 mm^2	4.0 to 6.0 mm^2		
Control circuit power supply input	Wire size	---	0.5 to 1.5 mm^2			
Motor connection terminals	Rated current	Arms	7.7	9.7	16.2	22.3
	Wire size	---	1.5 mm^2	2.5 to 6.0 mm^2	6.0 mm^2	
Protective earth	Wire size	---	2.5 mm^2 or larger	4.0 mm^2 or larger*3		
	Screw size	---	M4			
	Tightening torque	N·m	1.2			

*1. For single-phase, connect between any two phases out of the following: L1, L2, and L3.
*2. The first value is for single-phase input power and the second value is for 3-phase input power.
*3. The wire size of protective earth must be greater than or equal to the wire size of main circuit power supply input.

Item		Unit	Model (R88D-1SN)		
			55H-ECT	75H-ECT	150H-ECT
Power supply capacity		kVA	11.2	15.8	32.0
Main circuit power supply input	Rated current	Arms	27.0	38.0	77.0
	Wire size	---	6 to 25 mm^2	10 to 25 mm^2	25 to 50 mm^2
Control circuit power supply input	Wire size	---	0.5 to 1.5 mm^2		
Motor connection terminals	Rated current	Arms	28.6	42.0	70.0
	Wire size	---	6 to 25 mm^2	10 to 25 mm^2	25 to 50 mm^2
Protective earth	Wire size	---	6 mm^2 or larger	10 mm^2 or larger	16 mm^2 or larger
	Screw size	---	M5		
	Tightening torque	N·m	2.3		

- Wire Sizes for 400-VAC Input Model: R88D-1SN□□F-ECT

Item		Unit	Model (R88D-1SN)				
			06F-ECT	10F-ECT	15F-ECT	20F-ECT	30F-ECT
Power supply capacity		kVA	1.4	2.0	2.1	4.2	5.0
Main circuit power supply input	Rated current	Arms	2.4	3.1	4.3	6.5	8.4
	Wire size	---	1.5 to 6.0 mm^2				2.5 to 6.0 mm^2
Control circuit power supply input	Wire size	---	0.5 to 1.5 mm^2				
Motor connection terminals	Rated current	Arms	1.8	4.1	4.7	7.8	11.3
	Wire size	---	1.5 to 6.0 mm^2			2.5 to 6.0 mm^2	
Protective earth	Wire size	---	2.5 mm^2 or larger*1				
	Screw size	---	M4				
	Tightening torque	N·m	1.2				

*1. The wire size of protective earth must be greater than or equal to the wire size of main circuit power supply input.

Item		Unit	Model (R88D-1SN)		
			55F-ECT	75F-ECT	150F-ECT
Power supply capacity		kVA	13.3	19.1	33.3
Main circuit power supply input	Rated current	Arms	16.0	23.0	40.0
	Wire size	---	4 to 25 mm^2	6 to 25 mm^2	10 to 25 mm^2
Control circuit power supply input	Wire size	---	0.5 to 1.5 mm^2		
Motor connection terminals	Rated current	Arms	14.5	22.6	33.9
	Wire size	---	2.5 to 25 mm^2	6 to 25 mm^2	10 to 25 mm^2
Protective earth	Wire size	---	4 mm^2 or larger	6 mm^2 or larger	10 mm^2 or larger
	Screw size	---	M5		
	Tightening torque	N·m	2.3		

- Wiring to Protective Earth Terminal
  Use a round terminal for the protective earth terminal.

■ Overload Protection (Electronic Thermal Function)

- Servo Drive memorizes a load ratio after an overload occurs. Therefore, when you run a Servomotor under the same condition, an overload occurs earlier than when the first overload occurs.
- Overload protection does not have Speed Sensitive.

■ Compatibility Conditions of EMC Directives

● Wiring Conforming to EMC Directives

1S-series Servo Drives conform to EMC Directives (EN 61800-3) under the wiring conditions described in this section.

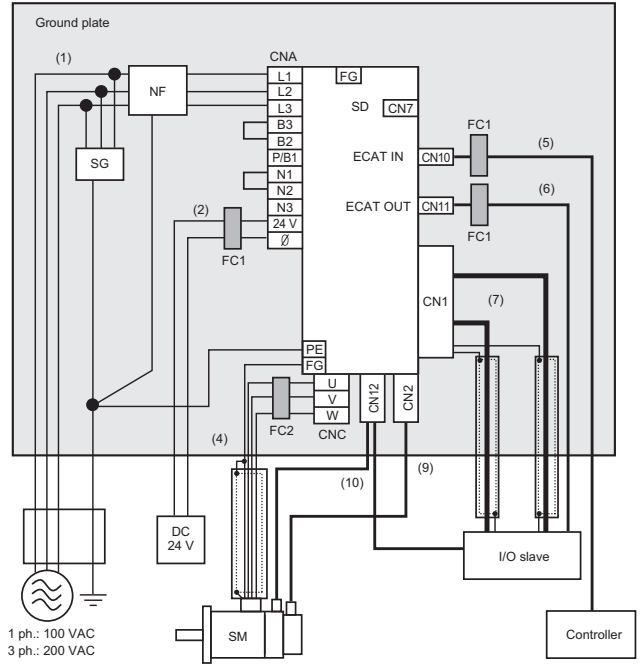
The following conditions are determined so that 1S-series products can conform to EMC Directives.

When the products are installed in the equipment, the customer must perform the check to confirm that the overall machine conforms to EMC Directives.

The following are the conditions required for conformance to the EMC Directives.

- Install the Servo Drive on the ground plate.
- Install a noise filter and lightening surge absorbing element (surge absorber) on the power line.
- Use braided-shield cables for the I/O signals and encoder. Tinned soft steel wires must be used for the shield.
- Ground the shield of each cable.

- Peripheral Equipment Connection Examples
  R88D-1SN01L-ECT/-1SN02L-ECT/-1SN04L-ECT/
  -1SN01H-ECT/-1SN02H-ECT/-1SN04H-ECT/-1SN08H-ECT



Note: For single-phase inputs, connect between any two phases out of the following: L1, L2, and L3.

- Provide single-point grounding of the ground plate for unit frame grounding as shown in the above diagram.
- Use a ground wire with a minimum thickness of 2.5 mm^2 and arrange the wiring so that the protective earth wire is as short as possible.
- Install a surge absorber and noise filter near the main circuit connector of Servo Drive. Separate I/O wires from each other for the wiring.

• Device Details

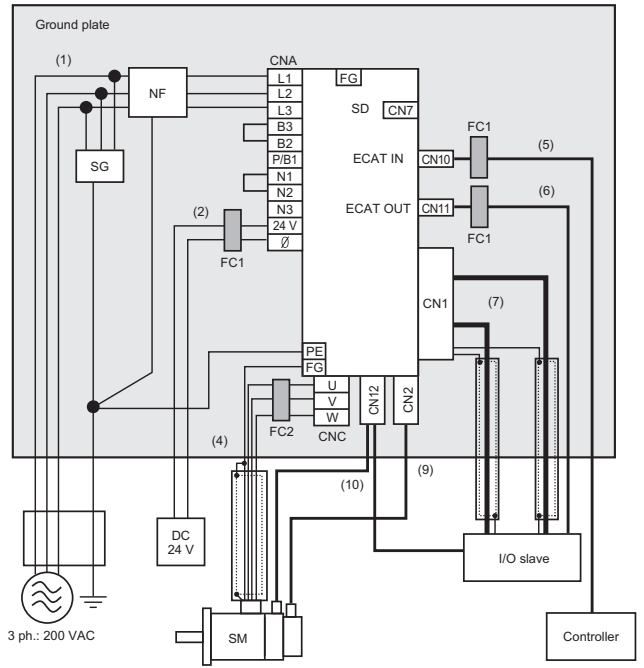
Symbol	Name	Manufacturer	Model	Remarks
SG	Surge absorber	SOSHIN ELECTRIC	LT-C12G801WS	1 ph. 100 VAC/200 VAC
			LT-C32G801WS	3 ph. 200 VAC
NF	Noise filter	SOSHIN ELECTRIC	HF2020C-SZA-33DDD	1 ph. 100 VAC/200 VAC (20 A)
			HF3020C-SZC-33DDD	3 ph. 200 VAC (20 A)
		OMRON	R88A-FI1S103	1 ph. R88D-1SN01L-ECT
				1 ph. R88D-1SN01H-ECT
				1 ph. R88D-1SN02H-ECT
			R88A-FI1S105	1 ph. R88D-1SN02L-ECT
				1 ph. R88D-1SN04H-ECT
			R88A-FI1S109	1 ph. R88D-1SN04L-ECT
				1 ph. R88D-1SN08H-ECT
			R88A-FI1S202	3 ph. R88D-1SN01H-ECT
				3 ph. R88D-1SN02H-ECT
			R88A-FI1S203	3 ph. R88D-1SN04H-ECT
			R88A-FI1S208	3 ph. R88D-1SN08H-ECT
SD	Servo Drive	OMRON	---	*1
SM	Servomotor	OMRON	---	*1
FC1	Ferrite core	NEC TOKIN	ESD-SR-250	---
FC2	Ferrite core	SEIWA ELECTRIC MFG	E04SR301334	---
---	I/O slave	---	---	---
---	Controller	---	---	---

*1. Servo Drives and Servomotors are combined according to the specifications.

• Cable Details

No.	Interface	Max. cable length/shield	Cable classification		Ferrite core
			EN/IEC 61800-3	EN/IEC 61000-6-7	
1	Power supply cable (main circuit)	3 m Non-shielded	Power supply port	AC input power supply port	None
2	Power supply cable (control circuit)	3 m Non-shielded	Port for process measurement and control	Signal and control line	2 turns
4	Motor cable (Servomotor)	20 m Shielded	Power supply interface	Signal and control line	2 turns
5	EtherCAT communications cable (ECAT IN)	20 m Shielded	Signal interface	Signal and control line	1 turn
6	EtherCAT communications cable (ECAT OUT)	20 m Shielded	Signal interface	Signal and control line	1 turn
7	Safety/control I/O cables	20 m Shielded	Signal interface	Signal and control line	None
		20 m Shielded	Signal interface	Signal and control line	None
9	Encoder cable	20 m Shielded	Signal interface	Signal and control line	None
10	Brake interlock cable	20 m Non-shielded	Signal interface	Signal and control line	None

- Peripheral Equipment Connection Examples
  R88D-1SN10H-ECT



- Provide single-point grounding of the ground plate for unit frame grounding as shown in the above diagram.
- Use a ground wire with a minimum thickness of 2.5 mm^2 and arrange the wiring so that the protective earth wire is as short as possible.
- Install a surge absorber and noise filter near the main circuit connector of Servo Drive. Separate I/O wires from each other for the wiring.

• Device Details

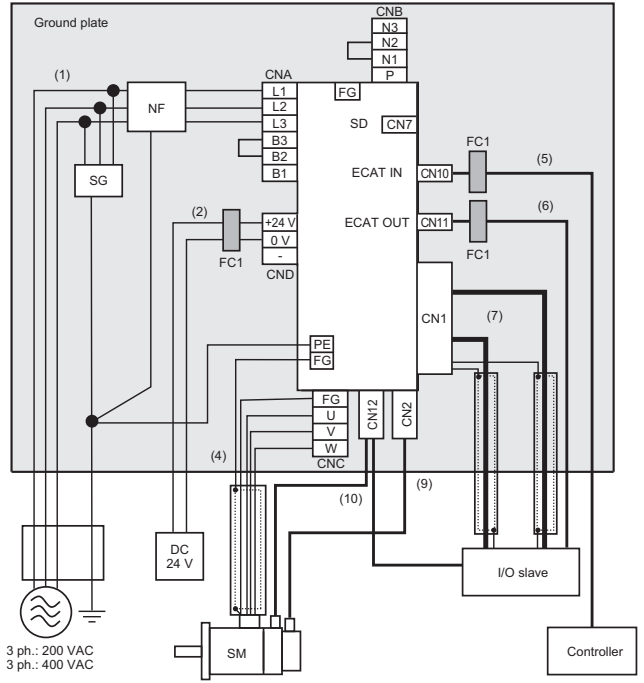
Symbol	Name	Manufacturer	Model	Remarks
SG	Surge absorber	SOSHIN ELECTRIC	LT-C32G801WS	3 ph. 200 VAC
NF	Noise filter	SOSHIN ELECTRIC	HF3020C-SZC-33DDD	3 ph. 200 VAC (20 A)
		OMRON	R88A-FI1S208	3 ph. R88D-1SN10H-ECT
SD	Servo Drive	OMRON	R88D-1SN10H-ECT	*1
SM	Servomotor	OMRON	---	*1
FC1	Ferrite core	NEC TOKIN	ESD-SR-250	---
FC2	Ferrite core	SEIWA ELECTRIC MFG	E04SR301334	---
---	I/O slave	---	---	---
---	Controller	---	---	---

*1. Servo Drives and Servomotors are combined according to the specifications.

• Cable Details

No.	Interface	Max. cable length/shield	Cable classification		Ferrite core
			EN/IEC 61800-3	EN/IEC 61000-6-7	
1	Power supply cable (main circuit)	3 m Non-shielded	Power supply port	AC input power supply port	None
2	Power supply cable (control circuit)	3 m Non-shielded	Port for process measurement and control	Signal and control line	2 turns
4	Motor cable (Servomotor)	20 m Shielded	Power supply interface	Signal and control line	2 turns
5	EtherCAT communications cable (ECAT IN)	20 m Shielded	Signal interface	Signal and control line	1 turn
6	EtherCAT communications cable (ECAT OUT)	20 m Shielded	Signal interface	Signal and control line	1 turn
7	Safety/control I/O cables	20 m Shielded	Signal interface	Signal and control line	None
		20 m Shielded	Signal interface	Signal and control line	None
9	Encoder cable	20 m Shielded	Signal interface	Signal and control line	None
10	Brake interlock cable	20 m Shielded	Signal interface	Signal and control line	None

- Peripheral Equipment Connection Examples
  R88D-1SN15H-ECT/-1SN20H-ECT/-1SN30H-ECT/-1SN6F-ECT/-1SN10F-ECT/
  -1SN15F-ECT/-1SN20F-ECT/-1SN30F-ECT



Note: For single-phase inputs, connect between any two phases out of the following: L1, L2, and L3.

- Provide single-point grounding of the ground plate for unit frame grounding as shown in the above diagram.
- Use a ground wire with a minimum thickness of 2.5 mm^2 and arrange the wiring so that the protective earth wire is as short as possible.
- Install a surge absorber and noise filter near the main circuit connector A of Servo Drive. Separate I/O wires from each other for the wiring.

• Device Details

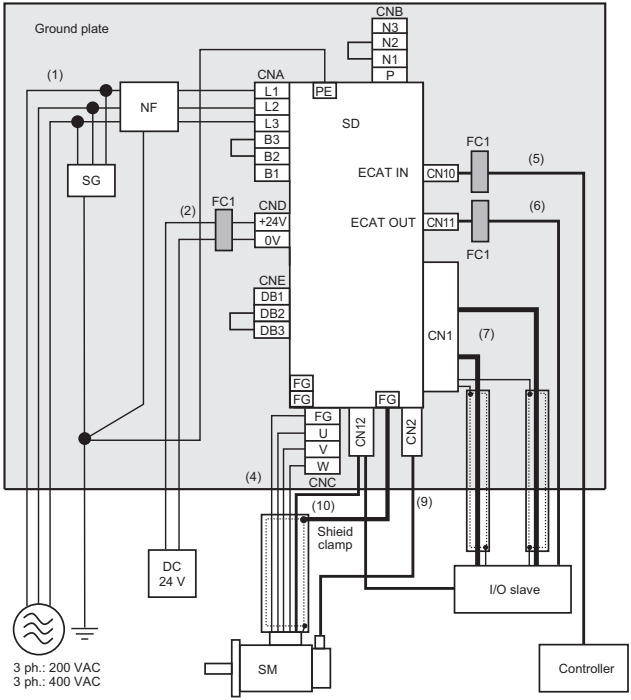
Symbol	Name	Manufacturer	Model	Remarks
SG	Surge absorber	SOSHIN ELECTRIC	LT-C12G801WS	1 ph. 100 VAC/200 VAC
			LT-C32G801WS	3 ph. 200 VAC
			LT-C35G102WS	3 ph. 400 VAC
NF	Noise filter	SOSHIN ELECTRIC	HF2020C-SZC-33DDD	1 ph. 200 VAC (20 A)
			HF3020C-SZC-33DDD	3 ph. 200 VAC (20 A)
			HF3020C-SZC	3 ph. 400 VAC (20 A)
		OMRON	R88A-FI1S116	1 ph. R88D-1SN15H-ECT
			R88A-FI1S216	3 ph. R88D-1SN15H-ECT
				3 ph. R88D-1SN20H-ECT
				3 ph. R88D-1SN30H-ECT
			R88A-FI1S309	3 ph. R88D-1SN06F-ECT
				3 ph. R88D-1SN10F-ECT
				3 ph. R88D-1SN15F-ECT
				3 ph. R88D-1SN20F-ECT
				3 ph. R88D-1SN30F-ECT
SD	Servo Drive	OMRON	---	*1
SM	Servomotor	OMRON	---	*1
FC1	Ferrite core	NEC TOKIN	ESD-SR-250	---
---	I/O slave	---	---	---
---	Controller	---	---	---

*1. Servo Drives and Servomotors are combined according to the specifications.

• Cable Details

No.	Interface	Max. cable length/shield	Cable classification		Ferrite core
			EN/IEC 61800-3	EN/IEC 61000-6-7	
1	Power supply cable (main circuit)	3 m Non-shielded	Power supply port	AC input power supply port	None
2	Power supply cable (control circuit)	3 m Non-shielded	Port for process measurement and control	Signal and control line	2 turns
4	Motor cable (Servomotor)	20 m Shielded	Power supply interface	Signal and control line	None
5	EtherCAT communications cable (ECAT IN)	20 m Shielded	Signal interface	Signal and control line	1 turn
6	EtherCAT communications cable (ECAT OUT)	20 m Shielded	Signal interface	Signal and control line	1 turn
7	Safety/control I/O cables	20 m Shielded	Signal interface	Signal and control line	None
		20 m Shielded	Signal interface	Signal and control line	None
9	Encoder cable	20 m Shielded	Signal interface	Signal and control line	None
10	Brake interlock cable	20 m Shielded	Signal interface	Signal and control line	None

- Peripheral Equipment Connection Examples
  R88D-1SN55H-ECT/-1SN75H-ECT/-1SN55F-ECT/-1SN75F-ECT



- Provide single-point grounding of the ground plate for unit frame grounding as shown in the above diagram. For grounding of the Servo Drive, use any of a PE terminal or FG terminals.
- Use a ground wire with a minimum thickness of 4.0 mm^2 and arrange the wiring so that the protective earth wire is as short as possible.
- Install a surge absorber and noise filter near the main circuit connector A of Servo Drive. Separate I/O wires from each other for the wiring.
- A shield clamp bracket comes with a power cable.

• Device Details

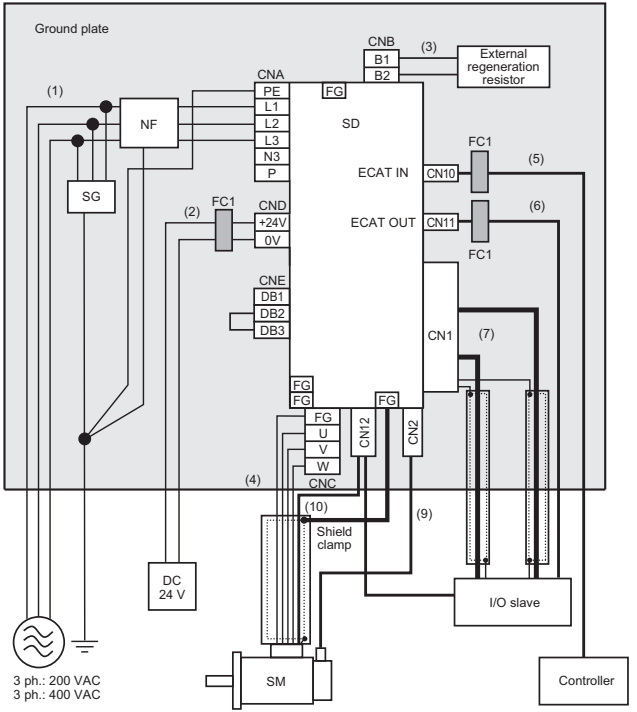
Symbol	Name	Manufacturer	Model	Remarks
SG	Surge absorber	SOSHIN ELECTRIC	LT-C32G801WS	3 ph. 200 VAC
			LT-C35G102WS	3 ph. 400 VAC
NF	Noise filter	SOSHIN ELECTRIC	HF3040C-SZA-33EDD	3 ph. R88D-1SN55H-ECT
			HF3050C-SZB-33EDD HF3080C-SZC-33EDE	3 ph. R88D-1SN75H-ECT
			HF3040C-SZA-47DDD	3 ph. 400 VAC (40 A)
SD	Servo Drive	OMRON	---	*1
SM	Servomotor	OMRON	---	*1
FC1	Ferrite core	NEC TOKIN	ESD-SR-250	---
---	I/O slave	---	---	---
---	Controller	---	---	---

*1. Servo Drives and Servomotors are combined according to the specifications.

• Cable Details

No.	Interface	Max. cable length/shield	Cable classification		Ferrite core
			EN/IEC 61800-3	EN/IEC 61000-6-7	
1	Power supply cable (main circuit)	3 m Non-shielded	Power supply port	AC input power supply port	None
2	Power supply cable (control circuit)	3 m Non-shielded	Port for process measurement and control	Signal and control line	2 turns
4	Motor cable (Servomotor)	20 m Shielded	Power supply interface	Signal and control line	None
5	EtherCAT communi-cations cable (ECAT IN)	20 m Shielded	Signal interface	Signal and control line	1 turn
6	EtherCAT communi-cations cable (ECAT OUT)	20 m Shielded	Signal interface	Signal and control line	1 turn
7	Safety/control I/O cables	20 m Shielded	Signal interface	Signal and control line	None
		20 m Shielded	Signal interface	Signal and control line	None
9	Encoder cable	20 m Shielded	Signal interface	Signal and control line	None
10	Brake interlock cable	20 m Shielded	Signal interface	Signal and control line	None

- Peripheral Equipment Connection Examples
  R88D-1SN150H-ECT/-1SN150F-ECT



- Provide single-point grounding of the ground plate for unit frame grounding as shown in the above diagram. For grounding of the Servo Drive, use any of a PE terminal or FG terminals.
- Use a ground wire with a minimum thickness of 4.0 mm^2 and arrange the wiring so that the protective earth wire is as short as possible.
- Install a surge absorber and noise filter near the main circuit connector A of Servo Drive. Separate I/O wires from each other for the wiring.
- A shield clamp bracket comes with a power cable.

• Device Details

Symbol	Name	Manufacturer	Model	Remarks
SG	Surge absorber	SOSHIN ELECTRIC	LT-C32G801WS	3 ph. 200 VAC
			LT-C35G102WS	3 ph. 400 VAC
NF	Noise filter	SOSHIN ELECTRIC	HF3100C-SZC-33EDE	3 ph. 200 VAC
			HF3080C-SZC-47EDE	3 ph. 400 VAC
SD	Servo Drive	OMRON	---	*1
SM	Servomotor	OMRON	---	*1
FC1	Ferrite core	NEC TOKIN	ESD-SR-250	---
---	I/O slave	---	---	---
---	Controller	---	---	---
---	External regeneration resistor	OMRON	R88A-RR55002R5	3 ph. 200 VAC
			R88A-RR55010	3 ph. 400 VAC

*1. Servo Drives and Servomotors are combined according to the specifications.

• Cable Details

No.	Interface	Max. cable length/shield	Cable classification		Ferrite core
			EN/IEC 61800-3	EN/IEC 61000-6-7	
1	Power supply cable (main circuit)	3 m Non-shielded	Power supply port	AC input power supply port	None
2	Power supply cable (control circuit)	3 m Non-shielded	Port for process measurement and control	Signal and control line	2 turns
3	Motor cable (External Regeneration)	0.5 m Shielded	Power supply interface	Signal and control line	None
4	Motor cable (Motor)	20 m Shielded	Power supply interface	Signal and control line	None
5	EtherCAT communications cable (ECAT IN)	20 m Shielded	Signal interface	Signal and control line	1 turn
6	EtherCAT communications cable (ECAT OUT)	20 m Shielded	Signal interface	Signal and control line	1 turn
7	Safety/control I/O cables	20 m Shielded	Signal interface	Signal and control line	None
		20 m Shielded	Signal interface	Signal and control line	None
9	Encoder cable	20 m Shielded	Signal interface	Signal and control line	None
10	Brake interlock cable	20 m Shielded	Signal interface	Signal and control line	None

Compatibility Conditions of UL/CSA Standards

- Installation Environment

Item	Specifications
Maximum surrounding Air Temperature	55°C
Storage environment rating (For Canada)	-20 to 65°C
Overvoltage category	III
Pollution Degree	2
Location	At a maximum altitude of 1,000 m
Protection class	I
Input power supply	AC power supply When the DC power input is used, the Servo Drive does not conform to UL/CSA standards.

• Attach the included warning label inside the control panel.

■ Servo Drive Rating

- 100-VAC Input Model: R88D-1SN□□L-ECT

Item	Unit	Model (R88D-1SN)		
		01L-ECT	02L-ECT	04L-ECT
Rated voltage	VAC	100 to 120		
		Single-phase		
Power supply frequency	Hz	50/60		
Rated input current	Arms	2.9	4.9	8.4
Rated output current (FLA)	Arms	1.5	2.5	4.8
Short-circuit current rating (SCCR)	---	120 V 5,000 Arms		

- 200-VAC Input Model: R88D-1SN□□H-ECT

Item		Unit	Model (R88D-1SN)			
			01H-ECT	02H-ECT	04H-ECT	08H-ECT
Rated voltage		VAC	200 to 240			
			Single-phase/3-phase			
Power supply frequency		Hz	50/60			
Rated input current	Single-phase	Arms	1.8	2.7	4.6	7.3
	3-phase	Arms	1.0	1.5	2.7	4.0
Rated output current (FLA)		Arms	0.8	1.5	2.5	4.6
Short-circuit current rating (SCCR)		---	240 V 5,000 Arms			

Item		Unit	Model (R88D-1SN)			
			10H-ECT	15H-ECT	20H-ECT	30H-ECT
Rated voltage		VAC	200 to 240			
			3-phase	Single-phase/3-phase	3-phase	
Power supply frequency		Hz	50/60			
Rated input current	Single-phase	Arms	---	15.7	---	---
	3-phase	Arms	5.8	9.0	13.0	15.9
Rated output current (FLA)		Arms	7.7	9.7	16.2	22.3
Short-circuit current rating (SCCR)		---	240 V 5,000 Arms			

Item	Unit	Model (R88D-1SN)		
		55H-ECT	75H-ECT	150H-ECT
Rated voltage	VAC	200 to 240		
		3-phase		
Power supply frequency	Hz	50/60		
Rated input current	Arms	27.0	38.0	77.0
Rated output current (FLA)	Arms	28.6	42.0	70.0
Short-circuit current rating (SCCR)	---	240 V 5,000 Arms		

- 400-VAC Input Model: R88D-1SN□□F-ECT

Item	Unit	Model (R88D-1SN)			
		06F-ECT	10F-ECT	15F-ECT	20F-ECT
Rated voltage	VAC	380/219Y-480/277Y			
		3-phase			
Power supply frequency	Hz	50/60			
Rated input current	Arms	2.4	3.1	4.3	6.5
Rated output current (FLA)	Arms	1.8	4.1	4.7	7.8
Short-circuit current rating (SCCR)	---	480 V 5,000 Arms			

Item	Unit	Model (R88D-1SN)			
		30F-ECT	55F-ECT	75F-ECT	150F-ECT
Rated voltage	VAC	380/219Y-480/277Y			
		3-phase			
Power supply frequency	Hz	50/60			
Rated input current	Arms	8.4	16.0	23.0	40.0
Rated output current (FLA)	Arms	11.3	14.5	22.6	33.9
Short-circuit current rating (SCCR)	---	480 V 5,000 Arms			

- Control Circuit Power Supply
- Capacity of Drive 3 kW or less
  Rating 24 VDC/1.2 A
  Control Circuit Overcurrent Protection is required.
- Capacity of Drive 5.5 kW or more
  Rating 24 VDC (Class 2)/1.6A

■ Terminal Block Wire Sizes

The following tables show the rated current that flows to the terminal block on the Servo Drive and the applicable wire sizes.
Use 75°C Copper Conductors only.

- Wire Sizes for 100-VAC Input Model: R88D-1SN□□L-ECT

Item		Unit	Model (R88D-1SN)		
			01L-ECT	02L-ECT	04L-ECT
Power supply capacity		kVA	0.4	0.6	1.0
Main circuit power supply input*1	Rated current	Arms	2.9	4.9	8.4
	Wire size	---	AWG14		
Motor connection terminals	Rated current	Arms	1.5	2.5	4.8
	Wire size	---	AWG14		
Protective earth	Wire size	---	AWG12 or larger		
	Screw size	---	M4		
	Tightening torque	Lb·In	10.7		

*1. Connect between any two phases out of the following: L1, L2, and L3.

- Wire Sizes for 200-VAC Input Model: R88D-1SN□□H-ECT

Item		Unit	Model (R88D-1SN)			
			01H-ECT	02H-ECT	04H-ECT	08H-ECT
Power supply capacity		kVA	0.6	0.6	1.0	1.4
Main circuit power supply input*1	Rated current	Arms	1.8/1.0*2	2.7/1.5*2	4.6/2.7*2	7.3/4.0*2
	Wire size	---	AWG14			
Motor connection terminals	Rated current	Arms	0.8	1.5	2.5	4.6
	Wire size	---	AWG14			
Protective earth	Wire size	---	AWG12 or larger			
	Screw size	---	M4			
	Tightening torque	Lb·In	10.7			

*1. For single-phase inputs, connect between any two phases out of the following: L1, L2, and L3.
*2. The first value is for single-phase input power and the second value is for 3-phase input power.

Item		Unit	Model (R88D-1SN)			
			10H-ECT	15H-ECT	20H-ECT	30H-ECT
Power supply capacity		kVA	2.0	2.5	3.6	4.7
Main circuit power supply input*1	Rated current	Arms	5.8	15.7/9.0*2	13.0	15.9
	Wire size	---	AWG14	AWG12 to 8		

Item		Unit	Model (R88D-1SN)			
			10H-ECT	15H-ECT	20H-ECT	30H-ECT
Motor connection terminals	Rated current	Arms	7.7	9.7	16.2	22.3
	Wire size	---	AWG14	AWG14 to 8	AWG10 to 8	
Protective earth	Wire size	---	AWG12 or larger			
	Screw size	---	M4			
	Tightening torque	Lb·In	10.7			

*1. For single-phase inputs, connect between any two phases out of the following: L1, L2, and L3.
*2. The first value is for single-phase input power and the second value is for 3-phase input power.

Item		Unit	Model (R88D-1SN)		
			55H-ECT	75H-ECT	150H-ECT
Power supply capacity		kVA	11.2	15.8	32.0
Main circuit power supply input	Rated current	Arms	27.0	38.0	77.0
	Wire size	---	AWG8 to 4		AWG3 to 1
Motor connection terminals	Rated current	Arms	28.6	42.0	70.0
	Wire size	---	AWG8 to 4	AWG6 to 4	AWG3 to 1
Protective earth	Wire size	---	AWG10 or larger		AWG6 or larger
	Screw size	---	M5		
	Tightening torque	Lb·In	20.4		

- Wire Sizes for 400-VAC Input Model: R88D-1SN□□F-ECT

Item		Unit	Model (R88D-1SN)				
			06F-ECT	10F-ECT	15F-ECT	20F-ECT	30F-ECT
Power supply capacity		kVA	1.4	2.0	2.1	4.2	5.0
Main circuit power supply input	Rated current	Arms	2.4	3.1	4.3	6.5	8.4
	Wire size	---	AWG14 to 8				
Motor connection terminals	Rated current	Arms	1.8	4.1	4.7	7.8	11.3
	Wire size	---	AWG14 to 8				
Protective earth	Wire size	---	AWG12 or larger				
	Screw size	---	M4				
	Tightening torque	Lb·In	10.7				

Item		Unit	Model (R88D-1SN)		
			55F-ECT	75F-ECT	150F-ECT
Power supply capacity		kVA	13.3	19.1	33.3
Main circuit power supply input	Rated current	Arms	16.0	23.0	40.0
	Wire size	---	AWG12 to 4	AWG10 to 4	AWG8 to 4
Motor connection terminals	Rated current	Arms	14.5	22.6	33.9
	Wire size	---	AWG12 to 4	AWG10 to 4	AWG8 to 4
Protective earth	Wire size	---	AWG12 or larger	AWG10 or larger	
	Screw size	---	M5		
	Tightening torque	Lb·In	20.4		

- Wiring to Main Circuit Terminal
  In order to conform to UL/CSA standards, be sure to use the connector which comes with the Servo Drive.
- Wiring to Protective Earth Terminal
  Use a UL-listed round terminal for the protective earth terminal.
- Main Circuit Wiring
  Suitable for use on a circuit capable of delivering not more than 5,000 Arms symmetrical amperes, maximum rated input voltage when protected by UL-listed fuses or by UL-listed braker.
  Be sure to connect a UL-listed molded case fuse or a UL-listed braker.
  Integral solid state short circuit protection does not provide branch circuit protection.
  Branch circuit protection must be provided in accordance with the Manufacturer Instructions, National Electrical Code and any additional local codes.
- Integral solid state short circuit protection (For Canada)
  Integral solid state short circuit protection does not provide branch circuit protection. Branch circuit protection must be provided in accordance with the Canadian Electrical Code, Part 1.
- Use the fuse from the following table as well as an equivalent, or the fuse that belongs to the following class: CC, CF, G, J, R or T.

Servo Drive model	CLASS	Voltage (Minimum)	Ampere
R88D-1SN01L-ECT	RK5	120 V	15 A
R88D-1SN02L-ECT	RK5	120 V	15 A
R88D-1SN04L-ECT	RK5	120 V	15 A
R88D-1SN01H-ECT	RK5	240 V	15 A
R88D-1SN02H-ECT	RK5	240 V	15 A
R88D-1SN04H-ECT	RK5	240 V	15 A
R88D-1SN08H-ECT	RK5	240 V	15 A
R88D-1SN10H-ECT	RK5	240 V	15 A
R88D-1SN15H-ECT	RK5	240 V	40 A

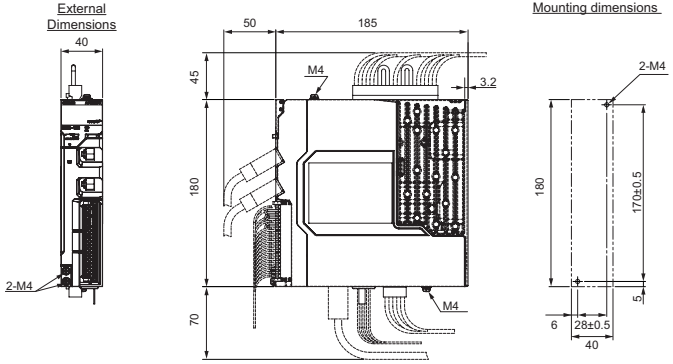
Servo Drive model	CLASS	Voltage (Minimum)	Ampere
R88D-1SN20H-ECT	RK5	240 V	40 A
R88D-1SN30H-ECT	RK5	240 V	40 A
R88D-1SN06F-ECT	RK5	480 V	20 A
R88D-1SN10F-ECT	RK5	480 V	20 A
R88D-1SN15F-ECT	RK5	480 V	20 A
R88D-1SN20F-ECT	RK5	480 V	20 A
R88D-1SN30F-ECT	RK5	480 V	20 A

- Use the UL-listed breaker or UL class fuse (RK5, CC, CF, G, J, R or T) which has the rated current in the table.

Servo Drive model	Voltage (Minimum)	Ampere
R88D-1SN55H-ECT	240 V	60 A
R88D-1SN75H-ECT	240 V	60 A
R88D-1SN150H-ECT	240 V	125 A
R88D-1SN55F-ECT	480 V	30 A
R88D-1SN75F-ECT	480 V	30 A
R88D-1SN150F-ECT	480 V	60 A

■ External and Mounting Dimensions

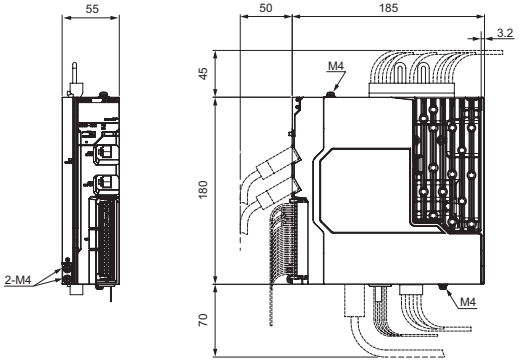
- R88D-1SN01L-ECT/R88D-1SN01H-ECT/R88D-1SN02H-ECT



Servo Drive model	Weight
R88D-1SN01L-ECT	1.2 kg
R88D-1SN01H-ECT	1.2 kg
R88D-1SN02H-ECT	1.2 kg

- R88D-1SN02L-ECT/R88D-1SN04H-ECT

External Dimensions

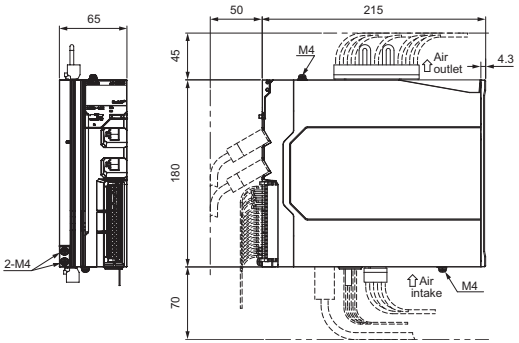


Mounting dimensions

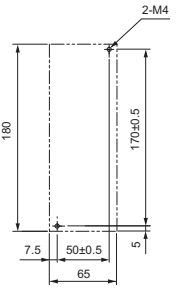
Servo Drive model	Weight
R88D-1SN02L-ECT	1.5 kg
R88D-1SN04H-ECT	1.5 kg

- R88D-1SN04L-ECT/R88D-1SN08H-ECT/R88D-1SN10H-ECT

External dimensions



Mounting dimensions

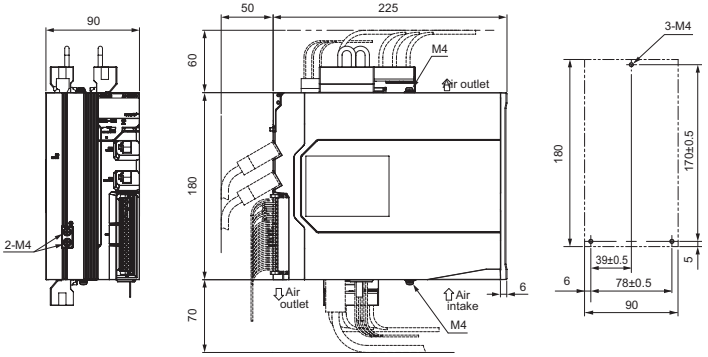


Servo Drive model	Weight
R88D-1SN04L-ECT	1.9 kg
R88D-1SN08H-ECT	2.0 kg
R88D-1SN10H-ECT	2.0 kg

- R88D-1SN15H-ECT/R88D-1SN20H-ECT/R88D-1SN30H-ECT/R88D-1SN06F-ECT/ R88D-1SN10F-ECT/R88D-1SN15F-ECT/R88D-1SN20F-ECT/R88D-1SN30F-ECT

External dimensions

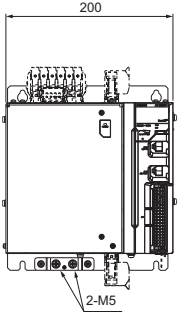
Mounting dimensions

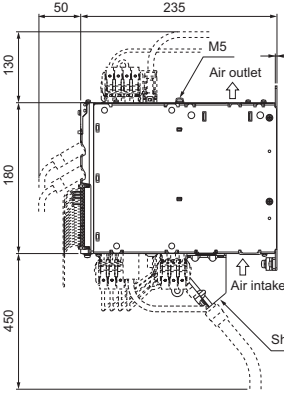


Servo Drive model	Weight
R88D-1SN15H-ECT	3.4 kg
R88D-1SN20H-ECT	3.4 kg
R88D-1SN30H-ECT	3.4 kg
R88D-1SN06F-ECT	3.4 kg
R88D-1SN10F-ECT	3.4 kg
R88D-1SN15F-ECT	3.4 kg
R88D-1SN20F-ECT	3.4 kg
R88D-1SN30F-ECT	3.4 kg

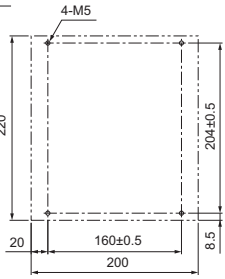
- R88D-1SN55H-ECT/R88D-1SN75H-ECT/R88D-1SN55F-ECT/R88D-1SN75F-ECT

External dimensions





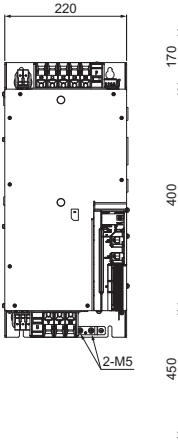
Mounting dimensions



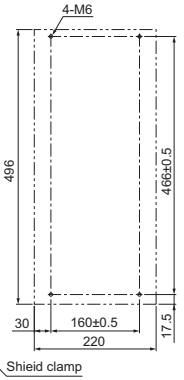
Servo Drive model	Weight
R88D-1SN55H-ECT	9.4 kg
R88D-1SN75H-ECT	9.4 kg
R88D-1SN55F-ECT	9.4 kg
R88D-1SN75F-ECT	9.4 kg

- R88D-1SN150H-ECT

External dimensions



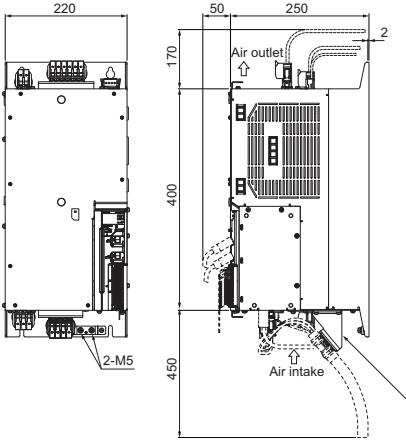
Mounting dimensions



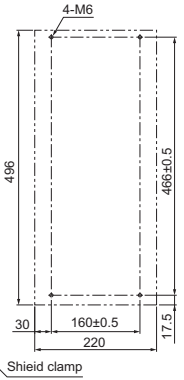
Servo Drive model	Weight
R88D-1SN150H-ECT	21 kg

- R88D-1SN150F-ECT

External dimensions



Mounting dimensions



Servo Drive model	Weight
R88D-1SN150F-ECT	21 kg

Korean Radio Regulations (KC)

• Observe the following precaution if you use this product in Korea.

사용자안내문
이 기기는 업무용 환경에서 사용할 목적으로 적합성평가를 받은 기기로서 가정용 환경에서 사용하는 경우 전파간섭의 우려가 있습니다.

■ Guide for Users

This equipment has been evaluated for conformity in a commercial environment. When used in a residential environment, it may cause radio interference.
• The 1S-series Servo Drives comply with the Korean Radio Regulations (KC).
• The 1S-series Servomotors are exempt from the Korean Radio Regulations (KC).

National standard (GB)

Rated output 550 W or more Servomotors comply with the following national standard (GB).

GB 30253《永磁同步电动机能效限定值及能效等级》

Combinations of Servo Drives and Servomotors

■ Combination Tables

The tables in this section show the possible combinations of 1S-series Servo Drives and Servomotors. The Servomotors and Servo Drives can only be used in the listed combinations. "□" at the end of the motor model number is for options, such as the shaft type and brake.

● 3,000-r/min Servomotors and Servo Drives

Main circuit power supply voltage	Rated output	Servomotor	Servo Drive
Single-phase 100 VAC	50 W	R88M-1M05030S-□	R88D-1SN01L-ECT
	100 W	R88M-1M10030S-□	R88D-1SN01L-ECT
	200 W	R88M-1M20030S-□	R88D-1SN02L-ECT
	400 W	R88M-1M40030S-□	R88D-1SN04L-ECT
Single-phase/3-phase 200 VAC	50 W	R88M-1M05030T-□	R88D-1SN01H-ECT
	100 W	R88M-1M10030T-□	R88D-1SN01H-ECT
	200 W	R88M-1M20030T-□	R88D-1SN02H-ECT
	400 W	R88M-1M40030T-□	R88D-1SN04H-ECT
	750 W	R88M-1M75030T-□	R88D-1SN08H-ECT
	1.5 kW	R88M-1L1K530T-□	R88D-1SN15H-ECT
3-phase 200 VAC	1 kW	R88M-1L1K030T-□	R88D-1SN10H-ECT
	2 kW	R88M-1L2K030T-□	R88D-1SN20H-ECT
	3 kW	R88M-1L3K030T-□	R88D-1SN30H-ECT
	4 kW	R88M-1L4K030T-□	R88D-1SN55H-ECT
	4.7 kW	R88M-1L4K730T-□	R88D-1SN55H-ECT

Main circuit power supply voltage	Rated output	Servomotor	Servo Drive
3-phase 400 VAC	750 W	R88M-1L75030C-☐	R88D-1SN10F-ECT
	1 kW	R88M-1L1K030C-☐	R88D-1SN10F-ECT
	1.5 kW	R88M-1L1K530C-☐	R88D-1SN15F-ECT
	2 kW	R88M-1L2K030C-☐	R88D-1SN20F-ECT
	3 kW	R88M-1L3K030C-☐	R88D-1SN30F-ECT
	4 kW	R88M-1L4K030C-☐	R88D-1SN55F-ECT
	5 kW	R88M-1L5K030C-☐	R88D-1SN55F-ECT

- 2,000-r/min Servomotors and Servo Drives

Main circuit power supply voltage	Rated output	Servomotor	Servo Drive
Single-phase/3-phase 200 VAC	1.5 kW	R88M-1M1K520T-☐	R88D-1SN15H-ECT
3-phase 200 VAC	1 kW	R88M-1M1K020T-☐	R88D-1SN10H-ECT
	2 kW	R88M-1M2K020T-☐	R88D-1SN20H-ECT
	3 kW	R88M-1M3K020T-☐	R88D-1SN30H-ECT
3-phase 400 VAC	400 W	R88M-1M40020C-☐	R88D-1SN06F-ECT
	600 W	R88M-1M60020C-☐	R88D-1SN06F-ECT
	1 kW	R88M-1M1K020C-☐	R88D-1SN10F-ECT
	1.5 kW	R88M-1M1K520C-☐	R88D-1SN15F-ECT
	2 kW	R88M-1M2K020C-☐	R88D-1SN20F-ECT
	3 kW	R88M-1M3K020C-☐	R88D-1SN30F-ECT

- 1,500-r/min Servomotors and Servo Drives

Main circuit power supply voltage	Rated output	Servomotor	Servo Drive
3-phase 200 VAC	4 kW	R88M-1M4K015T-☐	R88D-1SN55H-ECT
	5 kW	R88M-1M5K015T-☐	R88D-1SN55H-ECT
	7.5 kW	R88M-1M7K515T-☐	R88D-1SN75H-ECT
	11 kW	R88M-1M11K015T-☐	R88D-1SN150H-ECT
	15 kW	R88M-1M15K015T-☐	R88D-1SN150H-ECT
3-phase 400 VAC	4 kW	R88M-1M4K015C-☐	R88D-1SN55F-ECT
	5.5 kW	R88M-1M5K515C-☐	R88D-1SN55F-ECT
	7.5 kW	R88M-1M7K515C-☐	R88D-1SN75F-ECT
	11 kW	R88M-1M11K015C-☐	R88D-1SN150F-ECT
	15 kW	R88M-1M15K015C-☐	R88D-1SN150F-ECT

- 1,000-r/min Servomotors and Servo Drives

Main circuit power supply voltage	Rated output	Servomotor	Servo Drive
3-phase 200 VAC	900 W	R88M-1M90010T-□	R88D-1SN10H-ECT
	2 kW	R88M-1M2K010T-□	R88D-1SN20H-ECT
	3 kW	R88M-1M3K010T-□	R88D-1SN30H-ECT
3-phase 400 VAC	900 W	R88M-1M90010C-□	R88D-1SN10F-ECT
	2 kW	R88M-1M2K010C-□	R88D-1SN20F-ECT
	3 kW	R88M-1M3K010C-□	R88D-1SN30F-ECT

■ Servomotor Characteristics

- 3,000-r/min Servomotors

Item	Unit	Model (R88M-) 100 VAC			
		1M05030S	1M10030S	1M20030S	1M40030S
Rated output[*1]	W	50 (45)	100 (95)	200 (190)	400 (320)
Rated torque[*1]	N·m	0.159(0.143)	0.318 (0.302)	0.637 (0.605)	1.27 (1.02)
Rated rotation speed	r/min	3,000			
Maximum rotation speed	r/min	6,000			
Rated current[*1]	Arms	1.2	1.5	2.5	4.8 (4.0)
Rated frequency	Hz	250	250	250	250

Item	Unit	Model (R88M-) 200 VAC				
		1M05030T	1M10030T	1M20030T	1M40030T	1M75030T
Rated output[*1]	W	50 (45)	100 (95)	200 (190)	400 (320)	750 (675)
Rated torque[*1]	N·m	0.159 (0.143)	0.318 (0.302)	0.637 (0.605)	1.27 (1.02)	2.39 (2.15)
Rated rotation speed	r/min	3,000				
Maximum rotation speed	r/min	6,000				
Rated current[*1]	Arms	0.67	0.84	1.5	2.5 (2.1)	4.6 (4.2)
Rated frequency	Hz	250	250	250	250	250

Item	Unit	Model (R88M-) 200 VAC					
		1L1K030T	1L1K530T	1L2K030T	1L3K030T	1L4K030T	1L4K730T
Rated output	W	1,000	1,500	2,000	3,000	4,000	4,700
Rated torque	N·m	3.18	4.77	6.37	9.55	12.7	15.0
Rated rotation speed	r/min	3,000					
Maximum rotation speed	r/min	5,000					
Rated current	Arms	5.2	8.8	12.5	17.1	22.8	25.7
Rated frequency	Hz	250	250	250	250	250	250

Item	Unit	Model (R88M-) 400 VAC			
		1L75030C	1L1K030C	1L1K530C	1L2K030C
Rated output	W	750	1,000	1,500	2,000
Rated torque	N·m	2.39	3.18	4.77	6.37
Rated rotation speed	r/min	3,000			
Maximum rotation speed	r/min	5,000			
Rated current	Arms	3.0	3.0	4.5	6.3
Rated frequency	Hz	250	250	250	250

Item	Unit	Model (R88M-) 400 VAC		
		1L3K030C	1L4K030C	1L5K030C
Rated output	W	3,000	4,000	5,000
Rated torque	N·m	9.55	12.7	15.9
Rated rotation speed	r/min	3,000		
Maximum rotation speed	r/min	5,000		
Rated current	Arms	8.7	12.8	13.6
Rated frequency	Hz	250	250	250

*1. For models with an oil seal, values in parentheses are used due to derating. Derating is not required for models without values in parentheses.

- 2,000-r/min Servomotors

Item	Unit	Model (R88M-) 200 VAC			
		1M1K020T	1M1K520T	1M2K020T	1M3K020T
Rated output	W	1,000	1,500	2,000	3,000
Rated torque	N·m	4.77	7.16	9.55	14.3
Rated rotation speed	r/min	2,000			
Maximum rotation speed	r/min	3,000			
Rated current	Arms	5.2	8.6	11.3	15.7
Rated frequency	Hz	167	167	167	167

Item	Unit	Model (R88M-) 400 VAC					
		1M4002 0C	1M6002 0C	1M1K02 0C	1M1K52 0C	1M2K02 0C	1M3K02 0C
Rated output	W	400	600	1,000	1,500	2,000	3,000
Rated torque	N·m	1.91	2.86	4.77	7.16	9.55	14.3
Rated rotation speed	r/min	2,000					
Maximum rotation speed	r/min	3,000					
Rated current	Arms	1.1	1.6	2.9	4.1	5.7	8.6
Rated frequency	Hz	167	167	167	167	167	167

- 1,500-r/min Servomotors

Item	Unit	Model (R88M-) 200 VAC				
		1M4K015T	1M5K015T	1M7K515T	1M11K015T	1M15K015T
Rated output	W	4,000	5,000	7,500	11,000	15,000
Rated torque	N·m	25.5	31.8	47.8	70.0	95.5
Rated rotation speed	r/min	1,500				
Maximum rotation speed	r/min	3,000			2,000	
Rated current	Arms	25.7	25.8	41.2	57.0	60.7
Rated frequency	Hz	100	100	100	125	125

Item	Unit	Model (R88M-) 400 VAC				
		1M4K015C	1M5K515C	1M7K515C	1M11K015C	1M15K015C
Rated output	W	4,000	5,500	7,500	11,000	15,000
Rated torque	N·m	25.5	35.0	47.8	70.0	95.5
Rated rotation speed	r/min	1,500				
Maximum rotation speed	r/min	3,000			2,000	
Rated current	Arms	12.8	14.0	22.0	31.4	33.3
Rated frequency	Hz	100	100	100	125	125

- 1,000-r/min Servomotors

Item	Unit	Model (R88M-) 200 VAC		
		1M90010T	1M2K010T	1M3K010T
Rated output	W	900	2,000	3,000
Rated torque	N·m	8.59	19.1	28.7
Rated rotation speed	r/min	1,000		
Maximum rotation speed	r/min	2,000		
Rated current	Arms	6.7	14.4	21.2
Rated frequency	Hz	83	67	67

Item	Unit	Model (R88M-) 400 VAC		
		1M90010C	1M2K010C	1M3K010C
Rated output	W	900	2,000	3,000
Rated torque	N·m	8.59	19.1	28.7
Rated rotation speed	r/min	1,000		
Maximum rotation speed	r/min	2,000		
Rated current	Arms	3.6	7.1	10.6
Rated frequency	Hz	83	67	67

Motor Power Cable

■ Combinations of Motor Power Cables and Servomotors

Applicable Servomotors		Model	
		Without brake wire	With brake wire
100 VAC 200 VAC	3,000-r/min Servomotors 100 W, 200 W, 400 W, 750 W	R88A-CA1A□□□S R88A-CA1A□□□SF	---
100 VAC 200 VAC	3,000-r/min Servomotors 50 W, 200 W, 400 W, 750 W	R88A-CA1A□□□SFR	---
200 VAC	3,000-r/min Servomotors 1 kW 2,000-r/min Servomotors 1 kW 1,000-r/min Servomotors 900 W	R88A-CA1B□□□S R88A-CA1B□□□SF	R88A-CA1B□□□B R88A-CA1B□□□BF
200 VAC	3,000-r/min Servomotors 1.5 kW 2,000-r/min Servomotors 1.5 kW	R88A-CA1C□□□S R88A-CA1C□□□SF	R88A-CA1C□□□B R88A-CA1C□□□BF
400 VAC	3,000-r/min Servomotors 750 W, 1 kW, 1.5 kW, 2 kW 2,000-r/min Servomotors 400 W, 600 W, 1 kW, 1.5 kW, 2 kW 1,000-r/min Servomotors 900 W	R88A-CA1C□□□S R88A-CA1C□□□SF	R88A-CA1D□□□B R88A-CA1D□□□BF
200 VAC 400 VAC	3,000-r/min Servomotors 2 kW (200 VAC), 3 kW (200 VAC/ 400 VAC) 2,000-r/min Servomotors 2 kW (200 VAC), 3 kW (200 VAC/ 400 VAC) 1,000-r/min Servomotors 2 kW (200 VAC/400 VAC), 3 kW (400 VAC)	R88A-CA1E□□□S R88A-CA1E□□□SF	R88A-CA1E□□□B R88A-CA1E□□□BF
200 VAC	1,000-r/min Servomotors 3 kW	R88A-CA1F□□□S R88A-CA1F□□□SF	R88A-CA1F□□□B R88A-CA1F□□□BF
200 VAC 400 VAC	200 VAC 3,000-r/min Servomotors 4 kW, 4.7 kW 1,500-r/min Servomotors 4 kW, 5 kW 400 VAC 3,000-r/min Servomotors 4 kW, 5 kW 1,500-r/min Servomotors 4 kW, 5.5 kW, 7.5 kW	R88A-CA1H□□□SF	R88A-CA1H□□□BF R88A-CA1HE□□□BF[*1]
200 VAC 400 VAC	1,500-r/min Servomotors 11 kW, 15 kW	R88A-CA1J□□□SF	R88A-CA1J□□□BF R88A-CA1JE□□□BF[*1]
200 VAC	1,500-r/min Servomotors 7.5 kW, 11 kW, 15 kW	R88A-CA1K□□□SF	R88A-CA1K□□□BF R88A-CA1KE□□□BF[*1]

*1. R88A-CA1□E□□BF is an extension cable. This cable can be used when extending a power cable whether it has a brake wire or not.

■ Specifications for Combinations of Unit Versions and Motor Power Cables

For the motor power cables, there are two types of cable versions available: version 1.0 and 1.1, and eight types of cable lengths available: 3 m, 5 m, 10 m, 15 m, 20 m, 30 m, 40 m, and 50 m. When you use a unit version 1.2 or earlier of Servo Drive, use a motor power cable of 20 m or less.
The following table shows the specifications for combinations of cable versions, cable lengths, and unit versions.

Motor Power Cable				Specifications for combinations			
				Unit version 1.2 or earlier		Unit version 1.3 or later	
Model (R88A-)	Cable length	Cable version		Cable version		Cable version	
		Ver.1.0	Ver.1.1	Ver.1.0	Ver.1.1	Ver.1.0	Ver.1.1
CA1A□□□S CA1A□□□SF CA1A□□□SFR CA1A□□□B CA1A□□□BF	3 m, 5 m, 10 m, 15 m, 20 m	Yes	Yes	Available	Available	Available	Available
	30 m, 40 m, 50 m	---	Yes	---	Unavailable	---	Available
CA1B□□□S CA1B□□□SF CA1B□□□B CA1B□□□BF	3 m, 5 m, 10 m, 15 m, 20 m	Yes	Yes	Available	Available	Available	Available
	30 m, 40 m, 50 m	---	Yes	---	Unavailable	---	Available
CA1C□□□S CA1C□□□SF CA1C□□□B CA1C□□□BF	3 m, 5 m, 10 m, 15 m, 20 m	Yes	Yes	Available	Available	Available	Available
	30 m, 40 m, 50 m	---	Yes	---	Unavailable	---	Available
CA1D□□□B CA1D□□□BF	3 m, 5 m, 10 m, 15 m, 20 m	Yes	---	Available	---	Available	---
	30 m, 40 m, 50 m	Yes	---	Unavailable	---	Available	---
CA1E□□□S CA1E□□□SF CA1E□□□B CA1E□□□BF	3 m, 5 m, 10 m, 15 m, 20 m	Yes	Yes	Available	Available	Available	Available
	30 m, 40 m, 50 m	---	Yes	---	Unavailable	---	Available

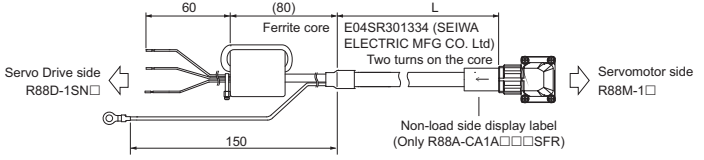
Motor Power Cable				Specifications for combinations			
				Unit version 1.2 or earlier		Unit version 1.3 or later	
Model (R88A-)	Cable length	Cable version		Cable version		Cable version	
		Ver.1.0	Ver.1.1	Ver.1.0	Ver.1.1	Ver.1.0	Ver.1.1
CA1F□□□S CA1F□□□SF CA1F□□□B CA1F□□□BF	3 m, 5 m, 10 m, 15 m, 20 m	Yes	---	Available	---	Available	---
	30 m, 40 m, 50 m	Yes	---	Unavail-able	---	Available	---
CA1H0□□SF CA1H0□□BF	3 m, 5 m, 10 m, 15 m, 20 m	Yes	---	Available	---	Available	---
CA1HE□□BF	10 m, 20 m	Yes	---	Unavail-able*1	---	Avail-able*2	---
CA1J0□□SF CA1J0□□BF	3 m, 5 m, 10 m, 15 m, 20 m	Yes	---	Available	---	Available	---
CA1JE□□BF	10 m, 20 m	Yes	---	Unavail-able*1	---	Avail-able*2	---
CA1K0□□SF CA1K0□□BF	3 m, 5 m, 10 m, 15 m, 20 m	Yes	---	Available	---	Available	---
CA1KE□□BF	10 m, 20 m	Yes	---	Unavail-able*1	---	Avail-able*2	---

*1. You cannot use an extension cable for a unit version 1.2 or earlier of Servo Drive.
*2. This can be used when the total wire length of motor power cables per Servo Drive is 50 m or less.
Refer to 93 page Combination of Power Cable and Extension Cable for details.

■ External Dimensions of Motor Power Cables

- R88A-CA1A□□□S/R88A-CA1A□□□SF/R88A-CA1A□□□SFR

  Connection configuration and external dimensions [mm]

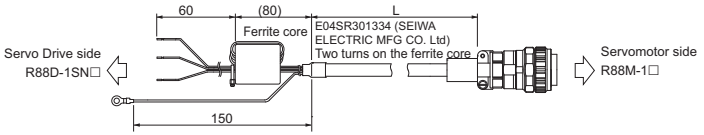


Model	Length [L]	Outer diameter of sheath	Weight
R88A-CA1A003S	3 m	6.8/7.2 dia.*1	Approx. 0.4 kg
R88A-CA1A005S	5 m		Approx. 0.6 kg
R88A-CA1A010S	10 m		Approx. 1.1 kg
R88A-CA1A015S	15 m		Approx. 1.5/1.6 kg*1
R88A-CA1A020S	20 m		Approx. 2.0/2.1 kg*1
R88A-CA1A030S	30 m		Approx. 3.1 kg
R88A-CA1A040S	40 m		Approx. 4.0 kg
R88A-CA1A050S	50 m		Approx. 4.9 kg
R88A-CA1A003SF	3 m	6.8/7.2 dia.*1	Approx. 0.4 kg
R88A-CA1A005SF	5 m		Approx. 0.6 kg
R88A-CA1A010SF	10 m		Approx. 1.1 kg
R88A-CA1A015SF	15 m		Approx. 1.5/1.6 kg*1
R88A-CA1A020SF	20 m		Approx. 2.0/2.1 kg*1
R88A-CA1A030SF	30 m		Approx. 3.0 kg
R88A-CA1A040SF	40 m		Approx. 4.0 kg
R88A-CA1A050SF	50 m		Approx. 4.9 kg
R88A-CA1A003SFR	3 m	6.8/7.2 dia.*1	Approx. 0.4 kg
R88A-CA1A005SFR	5 m		Approx. 0.6 kg
R88A-CA1A010SFR	10 m		Approx. 1.1 kg
R88A-CA1A015SFR	15 m		Approx. 1.5/1.6 kg*1
R88A-CA1A020SFR	20 m		Approx. 2.0/2.1 kg*1
R88A-CA1A030SFR	30 m		Approx. 3.0 kg
R88A-CA1A040SFR	40 m		Approx. 4.0 kg
R88A-CA1A050SFR	50 m		Approx. 4.9 kg

*1. In △/□, △ and □ represent the value of cable version 1.0 and that of cable version 1.1 respectively.

- R88A-CA1B□□□S/R88A-CA1B□□□SF

  Connection configuration and external dimensions [mm]

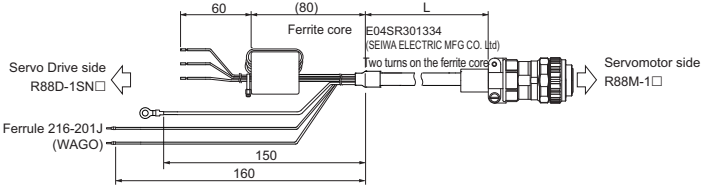


Model	Length [L]	Outer diameter of sheath	Weight
R88A-CA1B003S	3 m	10.8/13.3 dia.*1	Approx. 1.0/1.4 kg*1
R88A-CA1B005S	5 m		Approx. 1.6/2.0 kg*1
R88A-CA1B010S	10 m		Approx. 2.9/3.7 kg*1
R88A-CA1B015S	15 m		Approx. 4.3/5.4 kg*1
R88A-CA1B020S	20 m		Approx. 5.7/7.2 kg*1
R88A-CA1B030S	30 m		Approx. 10.4 kg
R88A-CA1B040S	40 m		Approx. 13.7 kg
R88A-CA1B050S	50 m		Approx. 17.0 kg
R88A-CA1B003SF	3 m	10.8/15.3 dia.*1	Approx. 1.0/1.4 kg*1
R88A-CA1B005SF	5 m		Approx. 1.6/2.1 kg*1
R88A-CA1B010SF	10 m		Approx. 2.9/3.9 kg*1
R88A-CA1B015SF	15 m		Approx. 4.3/5.7 kg*1
R88A-CA1B020SF	20 m		Approx. 5.7/7.5 kg*1
R88A-CA1B030SF	30 m		Approx. 11.0 kg
R88A-CA1B040SF	40 m		Approx. 14.5 kg
R88A-CA1B050SF	50 m		Approx. 17.9 kg

*1. In △/□, △ and □ represent the value of cable version 1.0 and that of cable version 1.1 respectively.

- R88A-CA1B□□□B/R88A-CA1B□□□BF

  Connection configuration and external dimensions [mm]

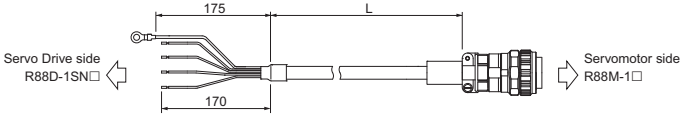


Model	Length [L]	Outer diameter of sheath	Weight
R88A-CA1B003B	3 m	12.5/13.3 dia.*1	Approx. 1.2/1.4 kg*1
R88A-CA1B005B	5 m		Approx. 1.9/2.1 kg*1
R88A-CA1B010B	10 m		Approx. 3.5/3.8 kg*1
R88A-CA1B015B	15 m		Approx. 5.1/5.5 kg*1
R88A-CA1B020B	20 m		Approx. 6.7/7.3 kg*1
R88A-CA1B030B	30 m		Approx. 10.7 kg
R88A-CA1B040B	40 m		Approx. 14.0 kg
R88A-CA1B050B	50 m		Approx. 17.4 kg
R88A-CA1B003BF	3 m	12.5/14.7 dia.*1	Approx. 1.2/1.3 kg*1
R88A-CA1B005BF	5 m		Approx. 1.9 kg
R88A-CA1B010BF	10 m		Approx. 3.5 kg
R88A-CA1B015BF	15 m		Approx. 5.1 kg
R88A-CA1B020BF	20 m		Approx. 6.7/6.8 kg*1
R88A-CA1B030BF	30 m		Approx. 9.9 kg
R88A-CA1B040BF	40 m		Approx. 12.9 kg
R88A-CA1B050BF	50 m		Approx. 16.0 kg

*1. In △/□, △ and □ represent the value of cable version 1.0 and that of cable version 1.1 respectively.

- R88A-CA1C□□□S/R88A-CA1C□□□SF

  Connection configuration and external dimensions [mm]

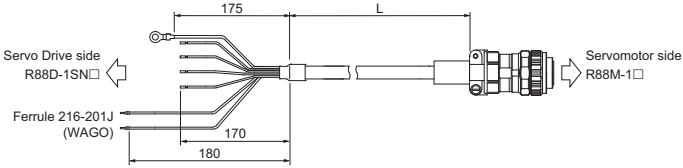


Model	Length [L]	Outer diameter of sheath	Weight
R88A-CA1C003S	3 m	10.8/13.3 dia.*1	Approx. 1.0/1.3 kg*1
R88A-CA1C005S	5 m		Approx. 1.6/2.0 kg*1
R88A-CA1C010S	10 m		Approx. 2.9/3.6 kg*1
R88A-CA1C015S	15 m		Approx. 4.3/5.3 kg*1
R88A-CA1C020S	20 m		Approx. 5.7/7.1 kg*1
R88A-CA1C030S	30 m		Approx. 10.3 kg
R88A-CA1C040S	40 m		Approx. 13.6 kg
R88A-CA1C050S	50 m		Approx. 16.9 kg
R88A-CA1C003SF	3 m	10.8/15.3 dia.*1	Approx. 1.0/1.3 kg*1
R88A-CA1C005SF	5 m		Approx. 1.6/2.1 kg*1
R88A-CA1C010SF	10 m		Approx. 2.9/3.8 kg*1
R88A-CA1C015SF	15 m		Approx. 4.3/5.6 kg*1
R88A-CA1C020SF	20 m		Approx. 5.7/7.5 kg*1
R88A-CA1C030SF	30 m		Approx. 10.9 kg
R88A-CA1C040SF	40 m		Approx. 14.4 kg
R88A-CA1C050SF	50 m		Approx. 17.9 kg

*1. In △/□, △ and □ represent the value of cable version 1.0 and that of cable version 1.1 respectively.

- R88A-CA1C□□□B/R88A-CA1C□□□BF

  Connection configuration and external dimensions [mm]

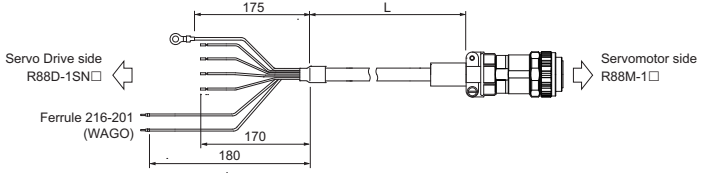


Model	Length [L]	Outer diameter of sheath	Weight
R88A-CA1C003B	3 m	12.5/13.3 dia.*1	Approx. 1.2/1.3 kg*1
R88A-CA1C005B	5 m		Approx. 1.9/2.0 kg*1
R88A-CA1C010B	10 m		Approx. 3.5/3.7 kg*1
R88A-CA1C015B	15 m		Approx. 5.1/5.5 kg*1
R88A-CA1C020B	20 m		Approx. 6.7/7.2 kg*1
R88A-CA1C030B	30 m		Approx. 10.6 kg
R88A-CA1C040B	40 m		Approx. 14.0 kg
R88A-CA1C050B	50 m		Approx. 17.3 kg
R88A-CA1C003BF	3 m	12.5/14.7 dia.*1	Approx. 1.2 kg
R88A-CA1C005BF	5 m		Approx. 1.9 kg
R88A-CA1C010BF	10 m		Approx. 3.5/3.4 kg*1
R88A-CA1C015BF	15 m		Approx. 5.1 kg
R88A-CA1C020BF	20 m		Approx. 6.7 kg
R88A-CA1C030BF	30 m		Approx. 9.8 kg
R88A-CA1C040BF	40 m		Approx. 12.9 kg
R88A-CA1C050BF	50 m		Approx. 16.0 kg

*1. In △/□, △ and □ represent the value of cable version 1.0 and that of cable version 1.1 respectively.

- R88A-CA1D□□□B/R88A-CA1D□□□BF

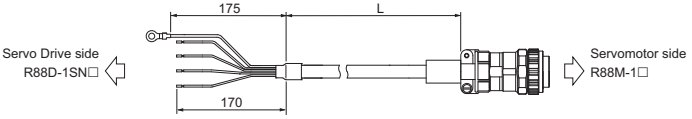
  Connection configuration and external dimensions [mm]



Model	Length [L]	Outer diameter of sheath	Weight
R88A-CA1D003B	3 m	12.5 dia.	Approx. 1.3 kg
R88A-CA1D005B	5 m		Approx. 1.9 kg
R88A-CA1D010B	10 m		Approx. 3.5 kg
R88A-CA1D015B	15 m		Approx. 5.2 kg
R88A-CA1D020B	20 m		Approx. 6.8 kg
R88A-CA1D030B	30 m		Approx. 10.0 kg
R88A-CA1D040B	40 m		Approx. 13.3 kg
R88A-CA1D050B	50 m		Approx. 16.5 kg
R88A-CA1D003BF	3 m	12.5 dia.	Approx. 1.3 kg
R88A-CA1D005BF	5 m		Approx. 1.9 kg
R88A-CA1D010BF	10 m		Approx. 3.5 kg
R88A-CA1D015BF	15 m		Approx. 5.2 kg
R88A-CA1D020BF	20 m		Approx. 6.8 kg
R88A-CA1D030BF	30 m		Approx. 10.0 kg
R88A-CA1D040BF	40 m		Approx. 13.3 kg
R88A-CA1D050BF	50 m		Approx. 16.5 kg

- R88A-CA1E□□□S/R88A-CA1E□□□SF

  Connection configuration and external dimensions [mm]

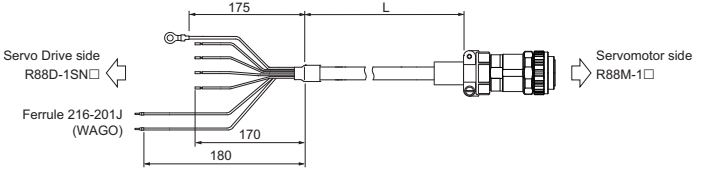


Model	Length [L]	Outer diameter of sheath	Weight
R88A-CA1E003S	3 m	12.0/15.0 dia.*1	Approx. 1.2/1.7 kg*1
R88A-CA1E005S	5 m		Approx. 1.9/2.6 kg*1
R88A-CA1E010S	10 m		Approx. 3.5/4.8 kg*1
R88A-CA1E015S	15 m		Approx. 5.1/7.1 kg*1
R88A-CA1E020S	20 m		Approx. 6.7/9.4 kg*1
R88A-CA1E030S	30 m		Approx. 13.8 kg
R88A-CA1E040S	40 m		Approx. 18.2 kg
R88A-CA1E050S	50 m		Approx. 22.5 kg
R88A-CA1E003SF	3 m	12.0/15.5 dia.*1	Approx. 1.2/1.4 kg*1
R88A-CA1E005SF	5 m		Approx. 1.9/2.2 kg*1
R88A-CA1E010SF	10 m		Approx. 3.5/4.0 kg*1
R88A-CA1E015SF	15 m		Approx. 5.1/5.9 kg*1
R88A-CA1E020SF	20 m		Approx. 6.7/7.8 kg*1
R88A-CA1E030SF	30 m		Approx. 11.4 kg
R88A-CA1E040SF	40 m		Approx. 14.9 kg
R88A-CA1E050SF	50 m		Approx. 18.5 kg

*1. In △/□, △ and □ represent the value of cable version 1.0 and that of cable version 1.1 respectively.

- R88A-CA1E□□□B/R88A-CA1E□□□BF

  Connection configuration and external dimensions [mm]

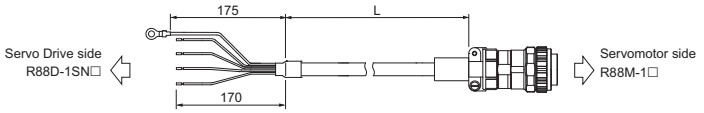


Model	Length [L]	Outer diameter of sheath	Weight
R88A-CA1E003B	3 m	14.0/15.0 dia.*1	Approx. 1.4/1.8 kg*1
R88A-CA1E005B	5 m		Approx. 2.2/2.8 kg*1
R88A-CA1E010B	10 m		Approx. 4.1/5.1 kg*1
R88A-CA1E015B	15 m		Approx. 6.0/7.5 kg*1
R88A-CA1E020B	20 m		Approx. 7.8/9.9 kg*1
R88A-CA1E030B	30 m		Approx. 14.5 kg
R88A-CA1E040B	40 m		Approx. 19.1 kg
R88A-CA1E050B	50 m		Approx. 23.7 kg
R88A-CA1E003BF	3 m	14.2/15.5 dia.*1	Approx. 1.4/1.5 kg*1
R88A-CA1E005BF	5 m		Approx. 2.2 kg
R88A-CA1E010BF	10 m		Approx. 4.1/4.0 kg*1
R88A-CA1E015BF	15 m		Approx. 6.0/5.9 kg*1
R88A-CA1E020BF	20 m		Approx. 7.8 kg
R88A-CA1E030BF	30 m		Approx. 11.4 kg
R88A-CA1E040BF	40 m		Approx. 15.0 kg
R88A-CA1E050BF	50 m		Approx. 18.6 kg

*1. In △/□, △ and □ represent the value of cable version 1.0 and that of cable version 1.1 respectively.

- R88A-CA1F□□□S/R88A-CA1F□□□SF

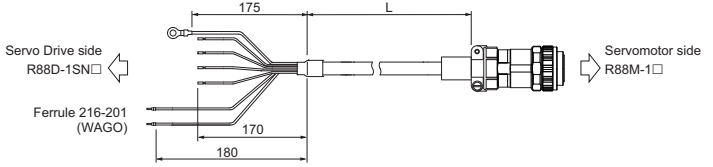
  Connection configuration and external dimensions [mm]



Model	Length [L]	Outer diameter of sheath	Weight
R88A-CA1F003S	3 m	14.5 dia.	Approx. 1.9 kg
R88A-CA1F005S	5 m		Approx. 3.0 kg
R88A-CA1F010S	10 m		Approx. 5.8 kg
R88A-CA1F015S	15 m		Approx. 8.6 kg
R88A-CA1F020S	20 m		Approx. 11.4 kg
R88A-CA1F030S	30 m		Approx. 16.9 kg
R88A-CA1F040S	40 m		Approx. 22.5 kg
R88A-CA1F050S	50 m		Approx. 28.1 kg
R88A-CA1F003SF	3 m	14.5 dia.	Approx. 1.9 kg
R88A-CA1F005SF	5 m		Approx. 3.0 kg
R88A-CA1F010SF	10 m		Approx. 5.8 kg
R88A-CA1F015SF	15 m		Approx. 8.6 kg
R88A-CA1F020SF	20 m		Approx. 11.4 kg
R88A-CA1F030SF	30 m		Approx. 16.9 kg
R88A-CA1F040SF	40 m		Approx. 22.5 kg
R88A-CA1F050SF	50 m		Approx. 28.1 kg

- R88A-CA1F□□□B/R88A-CA1F□□□BF

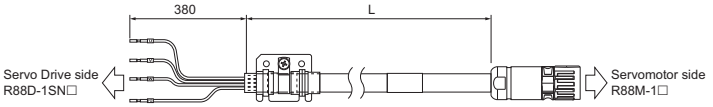
  Connection configuration and external dimensions [mm]



Model	Length [L]	Outer diameter of sheath	Weight
R88A-CA1F003B	3 m	17.0 dia.	Approx. 2.2 kg
R88A-CA1F005B	5 m		Approx. 3.5 kg
R88A-CA1F010B	10 m		Approx. 6.7 kg
R88A-CA1F015B	15 m		Approx. 9.9 kg
R88A-CA1F020B	20 m		Approx. 13.0 kg
R88A-CA1F030B	30 m		Approx. 19.4 kg
R88A-CA1F040B	40 m		Approx. 25.8 kg
R88A-CA1F050B	50 m		Approx. 32.1 kg
R88A-CA1F003BF	3 m	17.0 dia.	Approx. 2.2 kg
R88A-CA1F005BF	5 m		Approx. 3.5 kg
R88A-CA1F010BF	10 m		Approx. 6.7 kg
R88A-CA1F015BF	15 m		Approx. 9.9 kg
R88A-CA1F020BF	20 m		Approx. 13.0 kg
R88A-CA1F030BF	30 m		Approx. 19.4 kg
R88A-CA1F040BF	40 m		Approx. 25.8 kg
R88A-CA1F050BF	50 m		Approx. 32.1 kg

- R88A-CA1H□□□SF

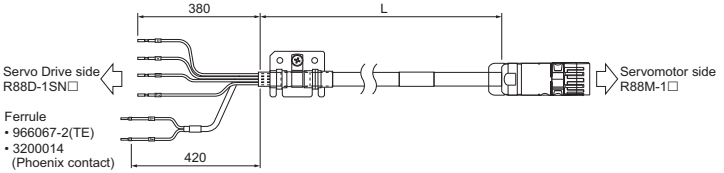
  Connection configuration and external dimensions [mm]



Model	Length [L]	Outer diameter of sheath	Weight
R88A-CA1H003SF	3 m	15.0 dia.	Approx. 1.9 kg
R88A-CA1H005SF	5 m		Approx. 2.8 kg
R88A-CA1H010SF	10 m		Approx. 4.9 kg
R88A-CA1H015SF	15 m		Approx. 7.2 kg
R88A-CA1H020SF	20 m		Approx. 9.4 kg

- R88A-CA1H□□□BF

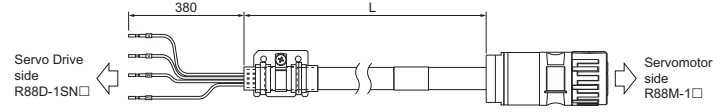
  Connection configuration and external dimensions [mm]



Model	Length [L]	Outer diameter of sheath	Weight
R88A-CA1H003BF	3 m	15.0 dia.	Approx. 1.9 kg
R88A-CA1H005BF	5 m		Approx. 2.8 kg
R88A-CA1H010BF	10 m		Approx. 4.9 kg
R88A-CA1H015BF	15 m		Approx. 7.2 kg
R88A-CA1H020BF	20 m		Approx. 9.4 kg

- R88A-CA1J□□□SF

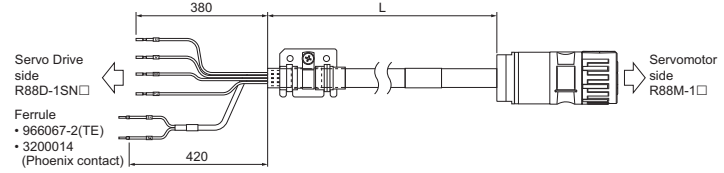
  Connection configuration and external dimensions [mm]



Model	Length [L]	Outer diameter of sheath	Weight
R88A-CA1J003SF	3 m	17.3 dia.	Approx. 2.4 kg
R88A-CA1J005SF	5 m		Approx. 3.3 kg
R88A-CA1J010SF	10 m		Approx. 6.0 kg
R88A-CA1J015SF	15 m		Approx. 8.7 kg
R88A-CA1J020SF	20 m		Approx. 11.5 kg

- R88A-CA1J□□□BF

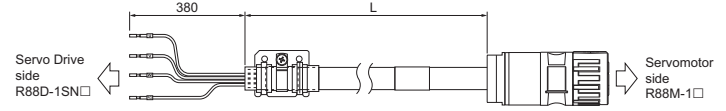
  Connection configuration and external dimensions [mm]



Model	Length [L]	Outer diameter of sheath	Weight
R88A-CA1J003BF	3 m	17.3 dia.	Approx. 2.4 kg
R88A-CA1J005BF	5 m		Approx. 3.3 kg
R88A-CA1J010BF	10 m		Approx. 6.0 kg
R88A-CA1J015BF	15 m		Approx. 8.7 kg
R88A-CA1J020BF	20 m		Approx. 11.5 kg

- R88A-CA1K□□□SF

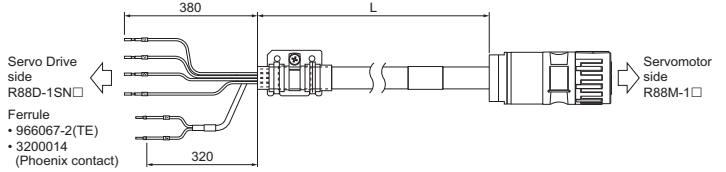
  Connection configuration and external dimensions [mm]



Model	Length [L]	Outer diameter of sheath	Weight
R88A-CA1K003SF	3 m	23.2 dia.	Approx. 4.8 kg
R88A-CA1K005SF	5 m		Approx. 6.7 kg
R88A-CA1K010SF	10 m		Approx. 12.5 kg
R88A-CA1K015SF	15 m		Approx. 18.7 kg
R88A-CA1K020SF	20 m		Approx. 24.9 kg

- R88A-CA1K□□□BF

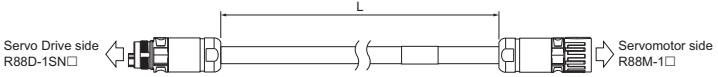
  Connection configuration and external dimensions [mm]



Model	Length [L]	Outer diameter of sheath	Weight
R88A-CA1K003BF	3 m	23.2 dia.	Approx. 4.8 kg
R88A-CA1K005BF	5 m		Approx. 6.7 kg
R88A-CA1K010BF	10 m		Approx. 12.5 kg
R88A-CA1K015BF	15 m		Approx. 18.7 kg
R88A-CA1K020BF	20 m		Approx. 24.9 kg

- R88A-CA1HE□□□BF

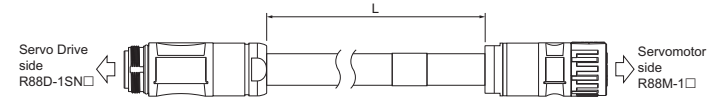
  Connection configuration and external dimensions [mm]



Model	Length [L]	Outer diameter of sheath	Weight
R88A-CA1HE10BF	10 m	15.0 dia.	Approx. 5.2 kg
R88A-CA1HE20BF	20 m		Approx. 9.7 kg

- R88A-CA1JE□□□BF

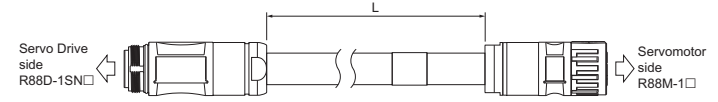
  Connection configuration and external dimensions [mm]



Model	Length [L]	Outer diameter of sheath	Weight
R88A-CA1JE10BF	10 m	17.3 dia.	Approx. 6.2 kg
R88A-CA1JE20BF	20 m		Approx. 11.7 kg

- R88A-CA1KE□□□BF

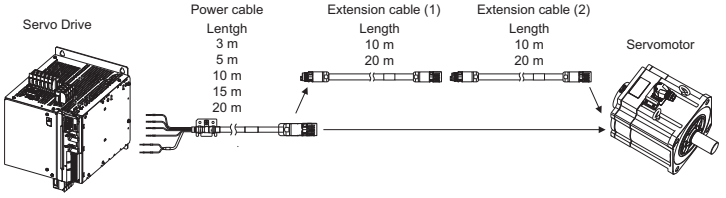
  Connection configuration and external dimensions [mm]



Model	Length [L]	Outer diameter of sheath	Weight
R88A-CA1KE10BF	10 m	23.2 dia.	Approx. 12.8 kg
R88A-CA1KE20BF	20 m		Approx. 25.2 kg

■ Combination of Power Cable and Extension Cable

Specifications for cases when a power cable is used with extension cables are given below.
When Servomotor is 4 kW or more and the power cable is over 20 m, follow the below list that specifies the combination of power cable with extension cable.
You can use an extension cable when you use a unit version 1.3 or later of Servo Drive. When you use a unit version 1.2 or earlier of Servo Drive, use a motor power cable of 20 m or less.



Length [L]				Combination
Total	Power cable	Extension cable (1)	Extension cable (2)	
3	3	---	---	Power cable
5	5	---	---	Power cable
10	10	---	---	Power cable
15	15	---	---	Power cable
20	20	---	---	Power cable
30	20	10	---	Power cable + extension cable (1)
40	20	20	---	Power cable + extension cable (1)
50	20	10	20	Power cable + extension cable (1) + extension cable (2)*1

*1. Extension cable (1); 20 m + Extension cable (2); 10 m can be usable.

Maintenance

■ Servo Drive Lifetime

- The lifetime of Servo Drive depends on application conditions. When the ambient temperature is 40°C and the average output is 70% of the rated output, the design life expectancy is ten years.
- The use of the Servo Drive in a hot environment shortens its lifetime. We recommend that the ambient temperature and the power supply ON time be reduced as much as possible to lengthen the lifetime of the Servo Drive.
- The lifetimes for the different parts of Servo Drive are given below.

Name	Lifetime
Inrush current prevention relay	Approx. 36,500 operations (lifetime depends on application conditions.)
Brake interlock relay	Approx. 36,500 operations (lifetime depends on application conditions.)

Product Disposal

Comply with the local ordinance and regulations when disposing of the product.

Dispose of in accordance with WEEE Directive

Reference Manuals

Manual name	Models	Cat. No.
AC Servomotors/Servo Drives 1S-series with Built-in EtherCAT® Communications User's Manual	R88M-1L□/-1M□ R88D-1SN□-ECT	I586

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Note: Specifications subjuect to change without notice.