

Replacement Set for S, R, and H Series

Contents

1. Introduction
2. Precautions
3. Product Overview
4. Replacement Considerations
5. Replacement Conditions
6. Product Specifications
 - 6-1 Cables
 - 6-2 Mounting Brackets
7. Replacement Methods
 - 7-1 Servomotors
 - 7-2 Servo Drivers
 - 7-3 Cable
8. Information on Decelerators
9. Standard Models
10. Reference Data
 - 10-1 Comparison of S/R/H Series and W Series Data
 - 10-2 Guide to Changing the Thickness of Servomotor Mounting Brackets
 - 10-3 Servo Driver Mounting Hole Positions

1. Introduction

Throughout the 1990s, servo manufacturers continually invested in more compact, higher-performance products. In December 1999, OMRON released the OMNUC W Series, which provides leading-edge functions and enhanced performance at no extra cost. W-series Servomotors and Servo Drivers offer greater value, with higher speed, increased precision, and improved maintenance features, while meeting international standards. Meanwhile, production of the earlier S Series was discontinued in September 1993, and maintenance was terminated in September 2000. Production of the earlier R Series was discontinued in March 1997, and maintenance is scheduled to be terminated in March 2004. Production of the H Series is scheduled to be terminated in April 2005.

This document explains the Replacement Set, which makes it relatively simple for the user to replace the S Series, R Series, or H Series with an upgrade to the W Series.

To ensure the safety of equipment in the future and to further increase machine performance, we respectfully ask our customers to consider switching to the W Series.

2. Precautions

In order to be able to use the Replacement Set, the OMNUC W Series, and Peripheral Devices correctly and safely, be sure that you have first read and understood this document and the following manuals.

- 1) OMNUC W Series User's Manual (Cat No. I531)
- 2) The user's manual for the controller that is being used.
- 3) The OMNUC S Series, R Series, or H Series User's Manual

There may be cases where this Replacement Set will not be sufficient to complete the replacement. Be sure to carefully check the specifications of the OMNUC W Series, the Replacement Set, and the equipment presently being used.

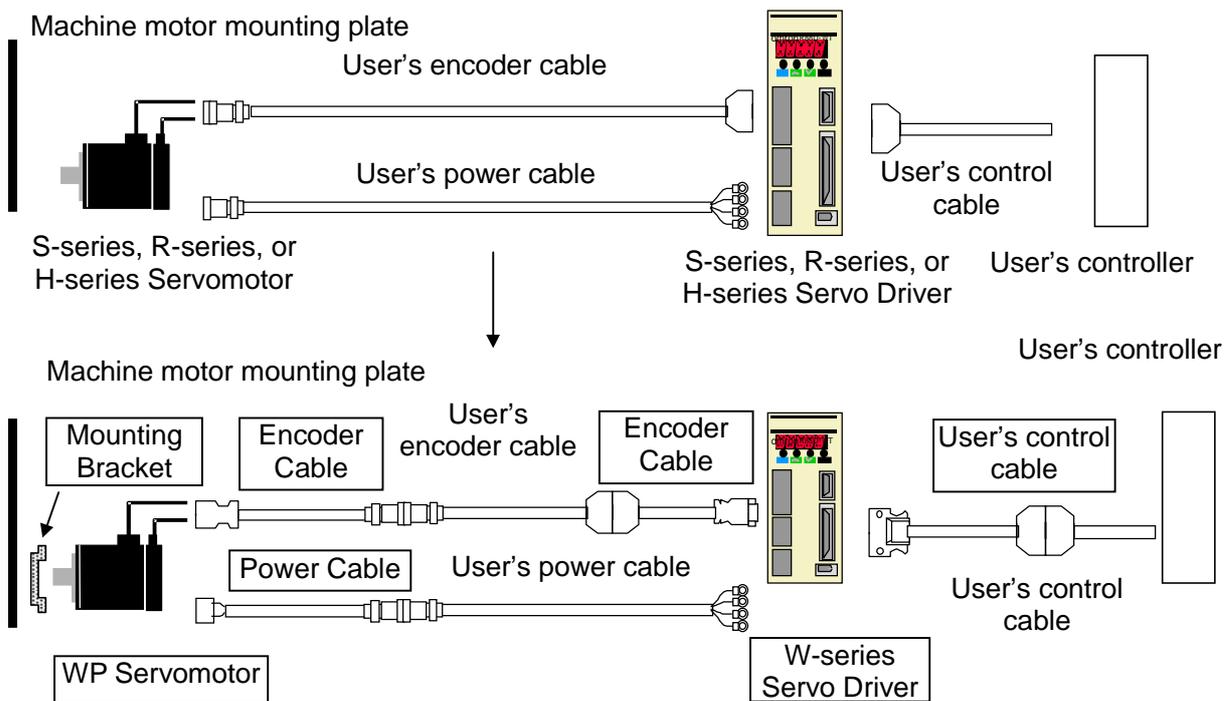
3. Product Overview

Mounting Bracket

Using the Mounting Bracket makes it possible to replace the S-series, R-series, or H-series Servomotor with the W-series Servomotor without changing the positions or diameters of the mounting holes for the machine motor mounting plate.

(1) Cables

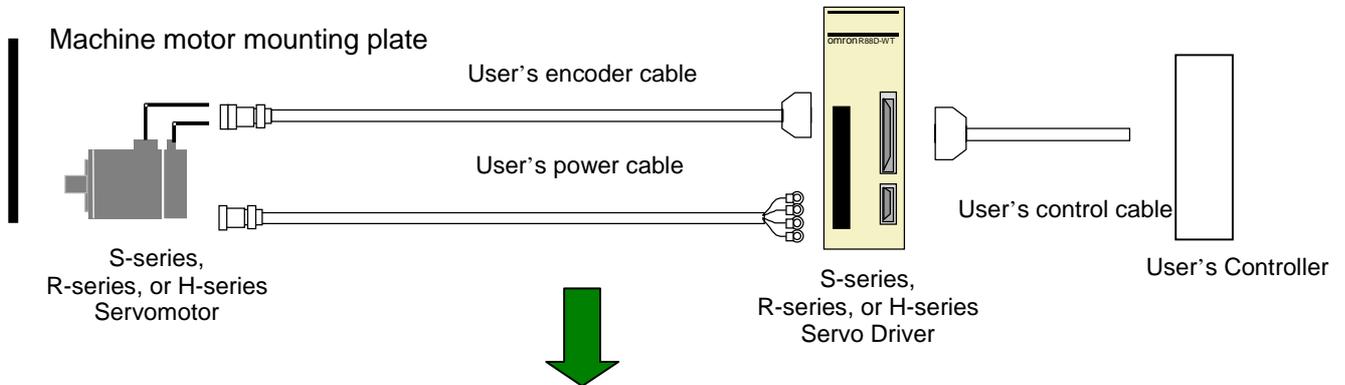
Using encoder, power, and control relay cables eliminates the need for the user to replace the cables presently being used. For example, if the encoder and power cables are long and replacing them is a problem, relay cables can simply be connected at the Servomotor and the Servo Driver, with the existing cables left in place.



Note: For precautions on operations such as changing the Servomotor's shaft length, refer to 7. *Replacement Methods*. Be sure to read these precautions before implementing any changes.

4. Replacement Considerations

As shown below, there are several ways to replace the existing S-series or R-series Servomotor and Servo Driver with the W Series.

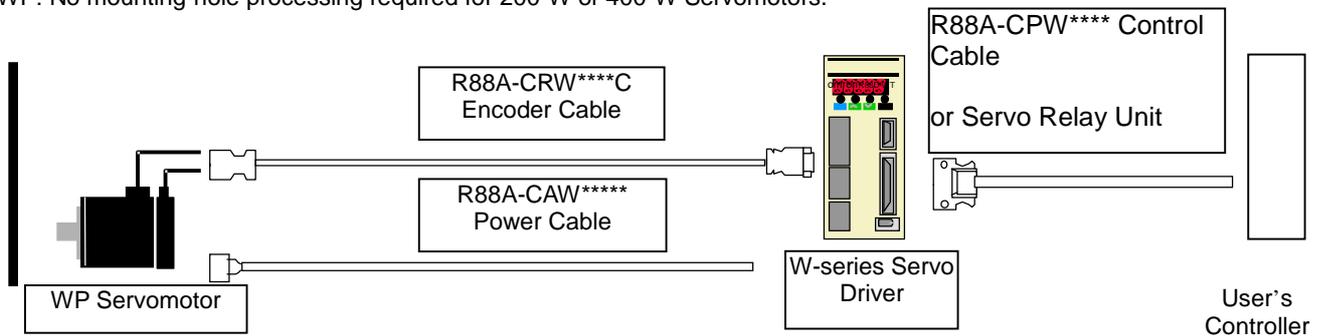


- Pattern A**
 The Servomotor, Servo Driver, and cables currently in use are all replaced by specialized W-series products. In this case, the mounting holes for some Servomotors may differ from those of the Servomotor being replaced.

Machine Motor Mounting Section

WP: Mounting-hole processing required for 100-W, 750-W, and 1,500-W Servomotors.

WP: No mounting-hole processing required for 200-W or 400-W Servomotors.

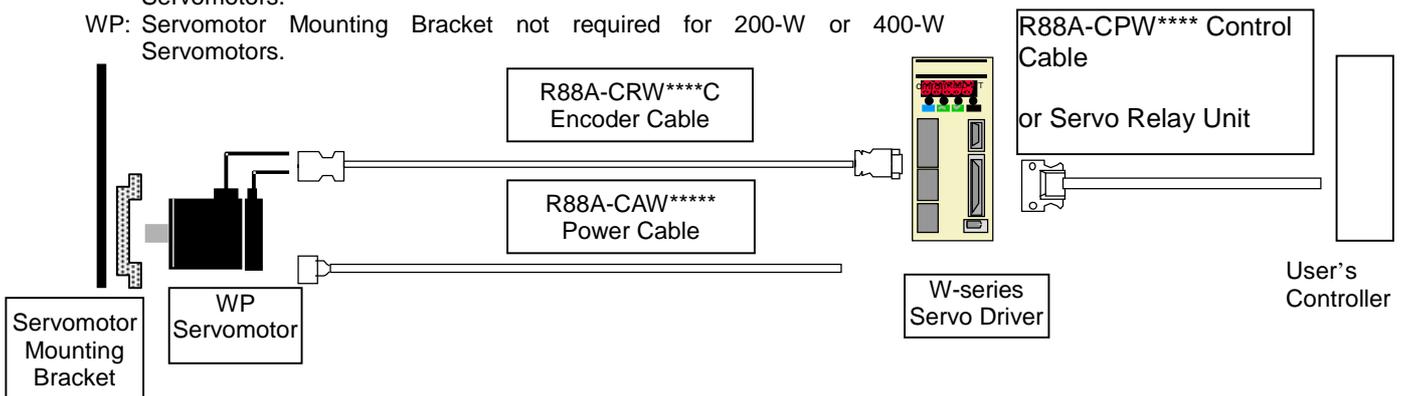


- Pattern B**
 When holes cannot be produced in the machine mounting area, the Servomotor Mounting Bracket is used. There is then no need to produce holes in the machinery.

Machine Motor Mounting Section

WP: Servomotor Mounting Bracket required for 100-W, 750-W, and 1,500-W Servomotors.

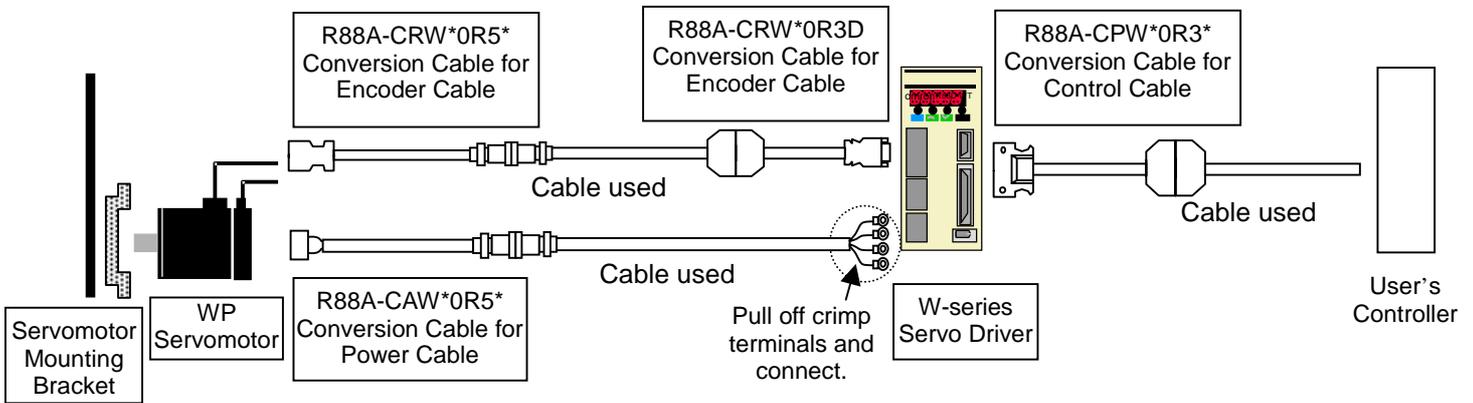
WP: Servomotor Mounting Bracket not required for 200-W or 400-W Servomotors.



- Pattern C
When the cables cannot be changed, Conversion Cables are used.

Machine Motor Mounting Section

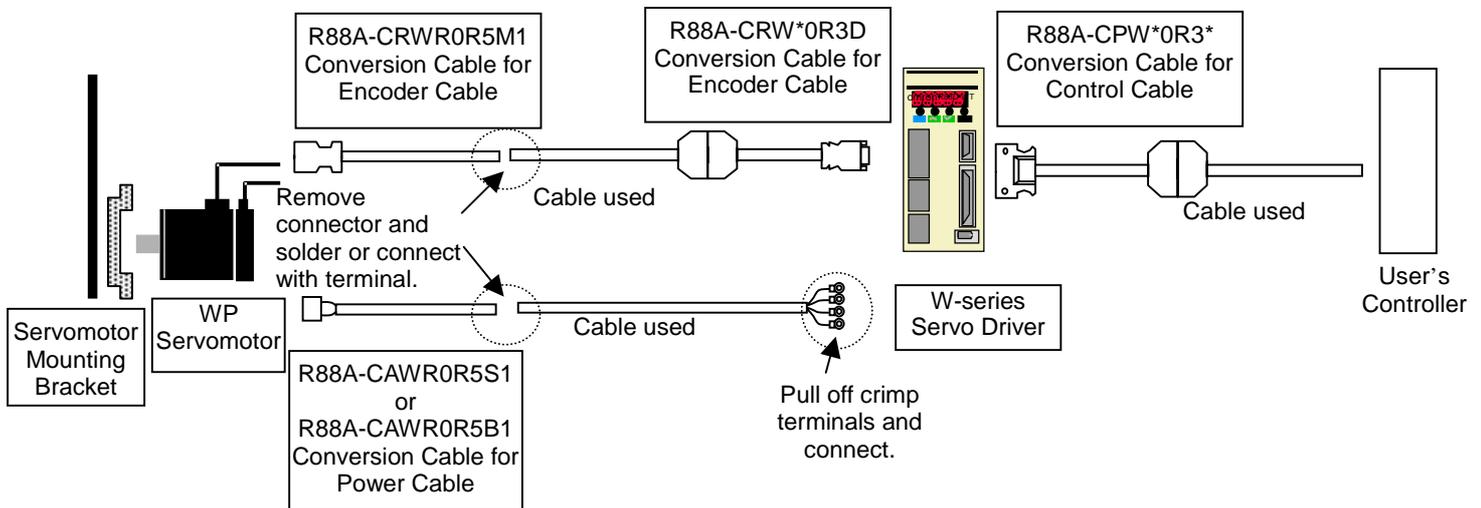
WP: Servomotor Mounting Bracket required for 100-W, 750-W, and 1,500-W Servomotors.
 WP: Servomotor Mounting Bracket not required for 200-W or 400-W Servomotors.



- Pattern D
When using Conversion Cables, the following method can be applied if the positions of connectors or the cost of the Conversion Cables is a problem.

Machine Motor Mounting Section

WP: Servomotor Mounting Bracket required for 100-W, 750-W, and 1,500-W Servomotors
 WP: Servomotor Mounting Bracket not required for 200-W or 400-W Servomotors.



5. Replacement Conditions

The following tables show the various methods for replacing the S, R, and H Series with the W Series, and their respective conditions.

: Can be selected as replacement method.

–: Cannot be selected as replacement method.

(1) S Series

| Model in use | S Series | Replacement model | W Series | Replacement method | | | | Remarks |
|-------------------------|-------------|-------------------|------------------|--------------------|---|---|---|---|
| | | | | A | B | C | D | |
| R88D-SB05 R88D-SR05 | R88M-S05030 | R88D-WT01HL | R88M-WP10030L-S1 | | | – | | Shaft shape must be changed from D-cut to with-key. Output shaft allowable load is reduced. |
| R88D-SB10 R88D-SR10 | R88M-S10030 | R88D-WT01HL | R88M-WP10030L-S1 | | | – | | Shaft shape must be changed from D-cut to with-key. Output shaft allowable load is reduced. |
| | R88M-S20030 | R88D-WT02HL | R88M-WP20030L-S1 | | – | – | | Shaft shape must be changed from D-cut to with-key. Output shaft allowable load is reduced. |
| R88D-SB14 R88D-SR14 | R88M-S30030 | R88D-WT04H | R88M-WP40030H-S1 | | – | – | | Shaft shape must be changed from D-cut to with-key. Output shaft allowable load is reduced. A 200-V power supply voltage is required. |
| R88D-SB25S R88D-SR25 | R88M-S50030 | R88D-WT08H | R88M-WP75030H-S1 | | | | | A 200-V power supply voltage is required. Servo Driver depth (with connector installed) +33 mm |
| | R88M-S75030 | R88D-WT08H | R88M-WP75030H-S1 | | | | | A 200-V power supply voltage is required. Servo Driver depth (with connector installed) +33 mm |

| Servo Driver | Servomotor | Mounting Plate | Power Cable | Encoder Cable | | Control Cable |
|-------------------------|----------------------------|----------------|----------------|----------------|-----------------|--|
| | | | | At Servomotor | At Servo Driver | |
| R88D-SB05 R88D-SR05 | R88M-S05030 | R88A-MF02W | R88A-CAWR0R5S1 | R88A-CRWR0R5M1 | R88A-CRWS0R3D | When analog inputs are used: R88A-CPWR0R3A |
| R88D-SB10 R88D-SR10 | R88M-S10030 R88M-S20030 | Not required. | | | | |
| R88D-SB14 R88D-SB14 | R88M-S30030 | | | | | |
| R88D-SB25S R88D-SR25 | R88M-S50030 R88M-S75030 | R88A-MF03W | R88A-CAWR0R5S2 | R88A-CRWS0R5M | | When pulse train inputs are used: R88A-CPWR0R3P |

In the above cases, it is assumed that the existing cable between the Servo Driver and the Servomotor continues to be used. If a Servomotor with a brake is being used, then the replacement Servomotor and the Power Cable (including the Conversion Cable) must also be of the same type.

(2) R Series (Separate Power Supply)

| Model in use | R Series | Replacement model | W Series | Replacement method | | | | Remarks |
|------------------------|-------------|---------------------------------|--------------------------------------|--------------------|---|---|---|--|
| | | | | A | B | C | D | |
| Servo Driver | Servomotor | Servo Driver | Servomotor | | | | | |
| R88D-RB04 R88D-RR04 | R88M-R06030 | R88D-WT01HL or R88D-WT01H | R88M-WP10030L-S1 R88M-WP10030H-S1 | | | - | | Output shaft allowable load is reduced. |
| | R88M-R11030 | R88D-WT01HL or R88D-WT01H | R88M-WP10030L-S1 R88M-WP10030H-S1 | | | - | | Output shaft allowable load is reduced. |
| R88D-RB05 R88D-RR05 | R88M-R10030 | R88D-WT01HL or R88D-WT01H | R88M-WP10030L-S1 R88M-WP10030H-S1 | | | - | | Output shaft allowable load is reduced. |
| R88D-RB10 R88D-RR10 | R88M-R20030 | R88D-WT02HL or R88D-WT02H | R88M-WP20030L-S1 R88M-WP20030H-S1 | | - | - | | Output shaft allowable load is reduced. |
| | R88M-R30030 | R88D-WT04H | R88M-WP40030H-S1 | | - | - | | Output shaft allowable load is reduced. |
| R88D-RB15 R88D-RR15 | R88M-R45030 | R88D-WT08H | R88M-WP75030H-S1 | | | - | | Servo Driver shaft increased by 10 mm. |
| | R88M-R60030 | R88D-WT08H | R88M-WP75030H-S1 | | | | | Servo Driver shaft increased by 10 mm. |
| R88D-RB20 R88D-RR20 | R88M-R50030 | R88D-WT08H | R88M-WP75030H-S1 | | | | | Servo Driver shaft increased by 10 mm. |
| | R88M-R75030 | R88D-WT08H | R88M-WP75030H-S1 | | | | | Servo Driver shaft increased by 10 mm. |
| | R88M-R82030 | R88D-WT08H or R88D-WT15H | R88M-WP75030H-S1 R88M-WP1K530H-S1 | | | | | Servo Driver shaft increased by 10 mm. When replaced by a 1.5-kW Servomotor, the shaft radius is different. |
| | R88M-R1K130 | R88D-WT15H | R88M-WP1K530H-S1 | | | | | Servo Driver shaft increased by 30 mm. |

| Servo Driver | Servomotor | Mounting Plate | Power Cable | Encoder Cable | | Control Cable |
|--|---|----------------|----------------|----------------|---------------|--|
| | | | | At Servomotor | At Servomotor | |
| R88D-RB04 R88D-RR04 | R88M-R06030 R88M-R11030 | R88A-MF01W | R88A-CAWR0R5S1 | R88A-CRWH0R5M | R88A-CRWR0R3D | When analog inputs are used: R88A-CPWR0R3A |
| R88D-RB05 R88D-RR05 | R88M-R10030 | R88A-MF02W | | R88A-CRWR0R5M1 | | |
| R88D-RB10 R88D-RR10 | R88M-R20030 R88M-R30030 | Not required. | | | | When pulse train inputs are used: R88A-CPWR0R3P |
| R88D-RB04 R88D-RR04 | R88M-R06030 R88M-R11030 | R88A-MF01W | | R88A-CRWH0R5M | | |
| R88D-RB05 R88D-RR05 R88D-RA05 R88D-RP05 | R88M-R10030 | R88A-MF02W | | R88A-CRWR0R5M1 | | |
| R88D-RB10 R88D-RR10 R88D-RA10 R88D-RP10 | R88M-R20030 R88M-R30030 | Not required. | | | | |
| R88D-RB15 R88D-RR15 R88D-RA15 R88D-RP15 | R88M-R45030 R88M-R50030 R88M-R60030 | R88A-MF03W | R88A-CAWR0R5S2 | R88A-CRWR0R5M2 | | |
| R88D-RB20 R88D-RR20 R88D-RA20 R88D-RP20 | R88M-R75030 R88M-R82030 R88M-R1K130 | | R88A-CAWR0R5S3 | | | |

In the above cases, it is assumed that the existing cable between the Servo Driver and the Servomotor continues to be used. If a Servomotor with a brake is being used, then the replacement Servomotor and the Power Cable (including the Conversion Cable) must also be of the same type.

(3) R Series (With Power Supply)

| Model in use | R Series | Replacement model | W Series | Replacement method | | | | Remarks |
|------------------------|-------------|---------------------------------|--|--------------------|---|---|---|--|
| | | | | A | B | C | D | |
| Servo Driver | Servomotor | Servo Driver | Servomotor | | | | | |
| R88D-RA05 R88D-RP05 | R88M-R10030 | R88D-WT01HL or R88D-WT01H | R88M-WP10030L-S1 R88M-WP10030H-S1 | | | - | | Output shaft allowable load is reduced. Servo Driver depth (with connector installed) +14 mm |
| R88D-RA10 R88D-RP10 | R88M-R20030 | R88D-WT02HL or R88D-WT02H | R88M-WP20030L-S1 R88M-WP20030H-S1 | | - | - | | Output shaft allowable load is reduced. Servo Driver depth (with connector installed) +14 mm |
| | R88M-R30030 | R88D-WT04H | R88M-WP40030H-S1 | | - | - | | Output shaft allowable load is reduced. Servo Driver depth (with connector installed) +14 mm |
| R88D-RA15 R88D-RP15 | R88M-R45030 | R88D-WT08H | R88M-WP75030H-S1 | | | - | | Servo Driver depth (with connector installed) +64 mm |
| | R88M-R60030 | R88D-WT08H | R88M-WP75030H-S1 | | | | | Servo Driver depth (with connector installed) +64 mm |
| R88D-RA20 R88D-RP20 | R88M-R50030 | R88D-WT08H | R88M-WP75030H-S1 | | | | | Servo Driver depth (with connector installed) +64 mm |
| | R88M-R75030 | R88D-WT08H | R88M-WP75030H-S1 | | | | | Servo Driver depth (with connector installed) +64 mm |
| | R88M-R82030 | R88D-WT08H or R88D-WT15H | R88M-WP75030H-S1 R88M-WP1K530H-S1 | | | | | Servo Driver depth (with connector installed) +64 mm When replaced by a 1.5-kW Servomotor, the shaft radius is different. |
| | R88M-R1K130 | R88D-WT15H | R88M-WP1K530H-S1 | | | | | Servo Driver depth (with connector installed) +64 mm |

| Servo Driver | Servomotor | Mounting Plate | Power Cable | Encoder Cable | | Control Cable | |
|--|----------------------------|----------------|----------------|----------------|-----------------|--|----------------|
| | | | | At Servomotor | At Servo Driver | | |
| R88D-RB04 R88D-RR04 | R88M-R06030 R88M-R11030 | R88A-MF01W | R88A-CAWR0R5S1 | R88A-CRWH0R5M | R88A-CRWR0R3D | When analog inputs are used: R88A-CPWR0R3A | |
| R88D-RB05 R88D-RR05 | R88M-R10030 | | | R88A-CRWR0R5M1 | | | |
| R88D-RB10 R88D-RR10 | R88M-R20030 R88M-R30030 | Not required. | | | | | |
| R88D-RB04 R88D-RR04 | R88M-R06030 R88M-R11030 | R88A-MF01W | | R88A-CRWH0R5M | | | |
| R88D-RB05 R88D-RR05 R88D-RA05 R88D-RP05 | R88M-R10030 | R88A-MF02W | | R88A-CRWR0R5M1 | | | |
| R88D-RB10 R88D-RR10 | R88M-R20030 | Not required. | | | | | |
| R88D-RA10 R88D-RP10 | R88M-R30030 | | | | | | |
| R88D-RB15 R88D-RR15 | R88M-R45030 | R88A-MF03W | | | | | |
| R88D-RA15 R88D-RP15 | R88M-R50030 R88M-R60030 | | | R88A-CAWR0R5S2 | | | R88A-CRWR0R5M2 |
| R88D-RB20 R88D-RR20 | R88M-R75030 R88M-R82030 | | | | | | |
| R88D-RA20 R88D-RP20 | R88M-R1K130 | | R88A-CAWR0R5S3 | | | When pulse train inputs are used: R88A-CPWR0R3P | |

In the above cases, it is assumed that the existing cable between the Servo Driver and the Servomotor continues to be used. If a Servomotor with a brake is being used, then the replacement Servomotor and the Power Cable (including the Conversion Cable) must also be of the same type.

(4) H Series

| Model in use | H Series | Replacement model | W Series | Replacement method | | | | Remarks |
|-------------------------------------|-------------|---------------------------------|--|--------------------|---|---|---|--|
| | | | | A | B | C | D | |
| R88D-HL04 R88D-HT04 R88D-HS04 | R88M-H05030 | R88D-WT01HL or R88D-WT01H | R88M-WP10030L-S1 R88M-WP10030H-S1 | | | | – | Output shaft allowable load is reduced. |
| | R88M-H10030 | R88D-WT01HL or R88D-WT01H | R88M-WP10030L-S1 R88M-WP10030H-S1 | | | | – | Output shaft allowable load is reduced. |
| R88D-HL10 R88D-HT10 R88D-HS10 | R88M-H20030 | R88D-WT02HL or R88D-WT02H | R88M-WP20030L-S1 R88M-WP20030H-S1 | | – | | – | Output shaft allowable load is reduced. |
| | R88M-H30030 | R88D-WT04H | R88M-WP40030H-S1 | | – | | – | Output shaft allowable load is reduced. A 200-V power supply is required. |
| R88D-HS22 | R88M-H50030 | R88D-WT08H | R88M-WP75030H-S1 | | | | – | Servo Driver depth (with connector installed) +18 mm |
| | R88M-H75030 | R88D-WT08H | R88M-WP75030H-S1 | | | | – | Servo Driver depth (with connector installed) +18 mm |
| | R88M-H1K130 | R88D-WT15H | R88M-WP1K530H-S1 | | | | – | Servo Driver depth (with connector installed) +18 mm |

| Servo Driver | Servomotor | Mounting Plate | Power Cable | Encoder Cable | | Control Cable |
|------------------------|----------------------------|----------------|----------------|---------------|-----------------|---------------|
| | | | | At Servomotor | At Servo Driver | |
| R88D-HL04 R88D-HS04 | R88M-H05030 R88M-H10030 | R88A-MF02W | R88A-CAWH0R5S1 | R88A-CRWH0R5M | R88A-CRWH0R3D | R88A-CPWH0R3C |
| R88D-HL10 R88D-HS10 | R88M-H20030 R88M-H30030 | Not required. | | | | |
| R88D-HT04 R88D-HS04 | R88M-H05030 R88M-H10030 | R88A-MF02W | | | | |
| R88D-HT10 R88D-HS10 | R88M-H20030 R88M-H30030 | Not required. | | | | |
| R88D-HS22 | R88M-H50030 R88M-H75030 | R88A-MF03W | | | | |
| | R88M-H1K130 | | | | | |

In the above cases, it is assumed that the existing cable between the Servo Driver and the Servomotor continues to be used. If a Servomotor with a brake is being used, then the replacement Servomotor and the Power Cable (including the Conversion Cable) must also be of the same type.

6. Product Specifications

6-1 Cables

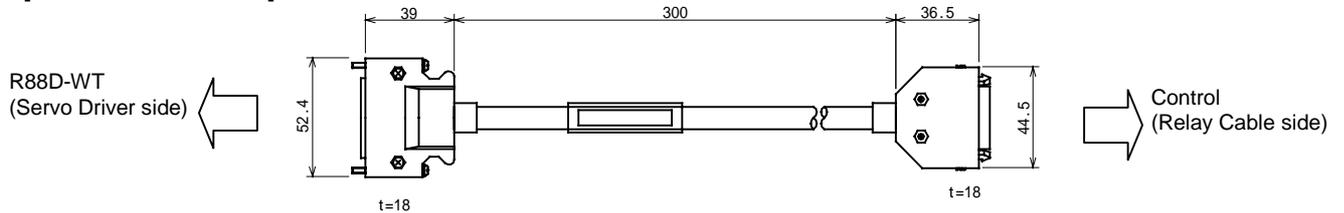
6-1-1 Control Cables

Types of Cables

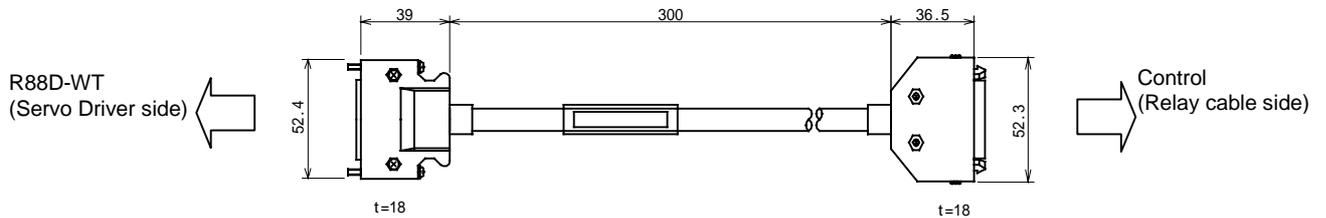
| Model number | Sheath outer diameter | Weight |
|---------------|-----------------------|----------------|
| R88A-CPWR0R3A | 10.8-dia. | Approx. 0.2 kg |
| R88A-CPWR0R3P | | |
| R88A-CPWH0R3C | | |

Connection Configuration and External Dimensions

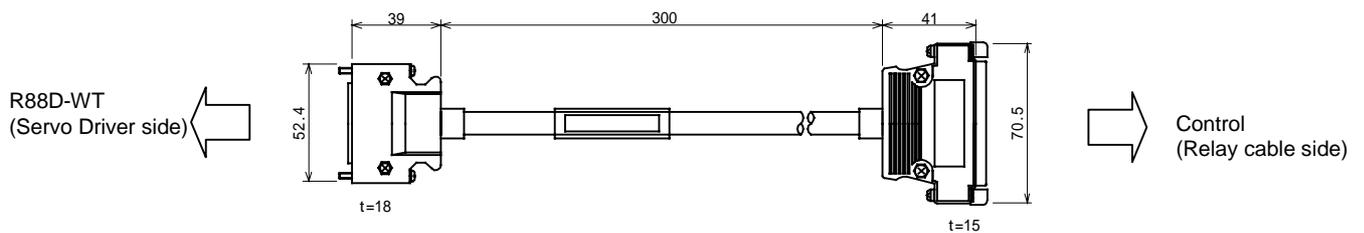
[R88A-CPWR0R3A]



[R88A-CPWR0R3P]



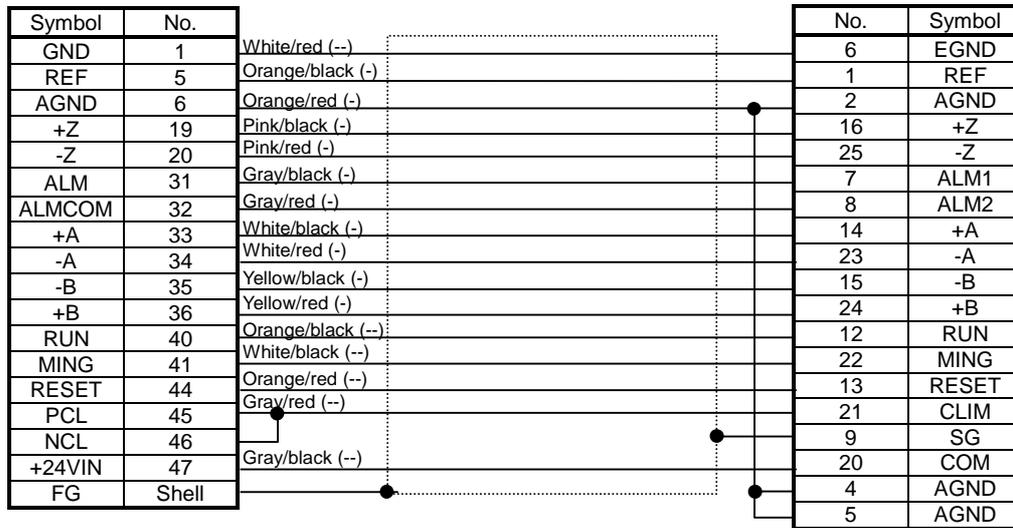
[R88A-CPWH0R3C]



Wiring

R88A-CPWR0R3A

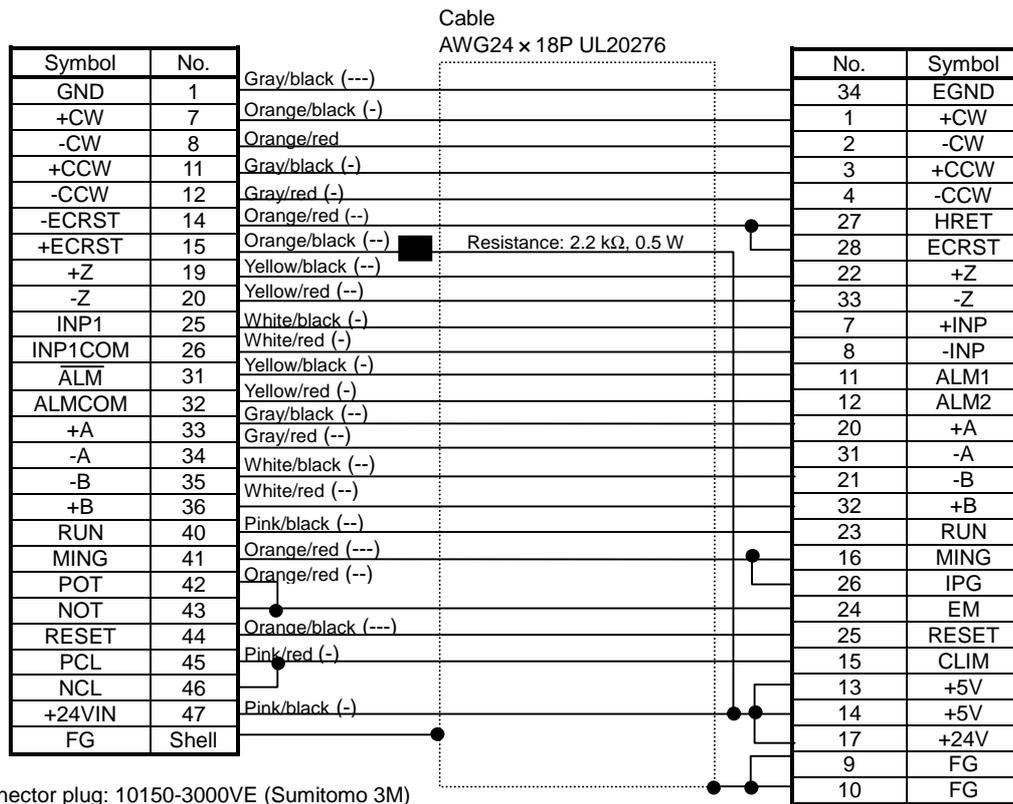
Cable
AWG24 x 18P UL20276



Connector plug: 10150-3000VE (Sumitomo 3M)
Connector case: 10350-52A0-008 (Sumitomo 3M)

Connector plug: MR-25RF (HONDA TSUSHIN KOGYO CO., LTD.)
Connector cover: MR-25LK2 (HONDA TSUSHIN KOGYO CO., LTD.)

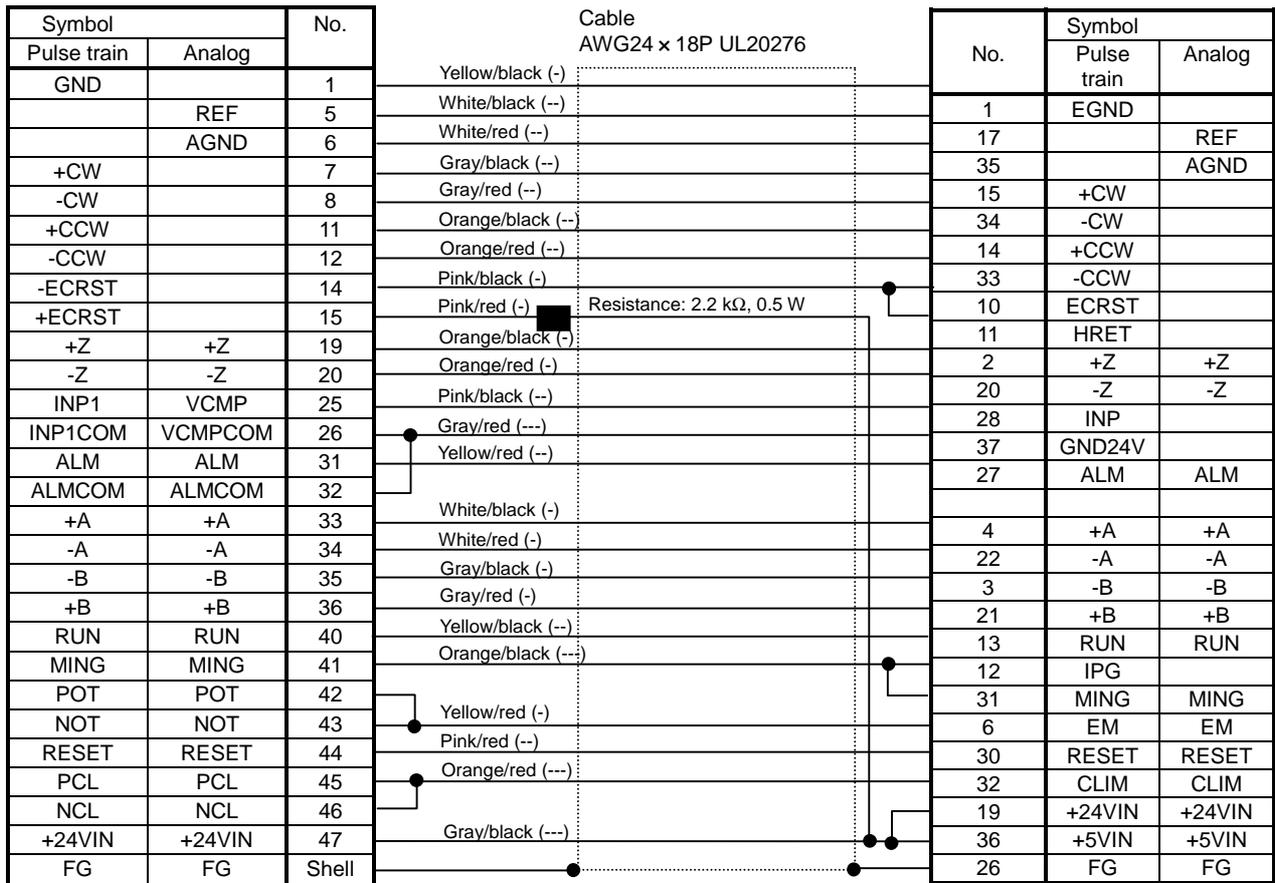
[R88A-CPWR0R3P]



Connector plug: 10150-3000VE (Sumitomo 3M)
 Connector case: 10350-52A0-008 (Sumitomo 3M)

Connector plug: MR-34RF (HONDA TSUSHIN KOGYO CO., LTD.)
 Connector cover: MR-34LK2 (HONDA TSUSHIN KOGYO CO., LTD.)

[R88A-CPWH0R3C]



Connector plug: 10150-3000VE (Sumitomo 3M)
 Connector case: 10350-52A0-008 (Sumitomo 3M)

Connector socket: XM2D-3701 (OMRON)
 Connector case: XM2S-3711 (OMRON)
 Fixing tool: XM2Z-0001 (OMRON)

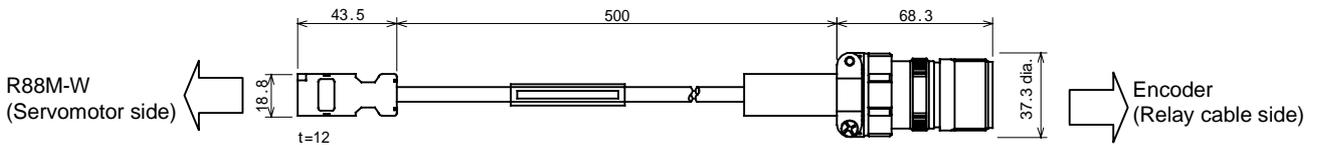
6-1-2 Encoder Cables (at Servomotor)

Types of Cables

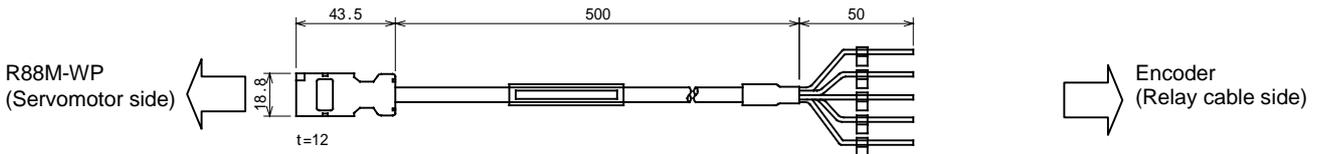
| Model number | Sheath outer diameter | Weight |
|----------------|-----------------------|----------------|
| R88A-CRWS0R5M | 6.5-dia. | Approx. 0.2 kg |
| R88A-CRWR0R5M1 | | Approx. 0.1 kg |
| R88A-CRWR0R5M2 | 6.4-dia. | Approx. 0.2 kg |
| R88A-CRWH0R5M | | Approx. 0.1 kg |

Connection Configuration and External Dimensions

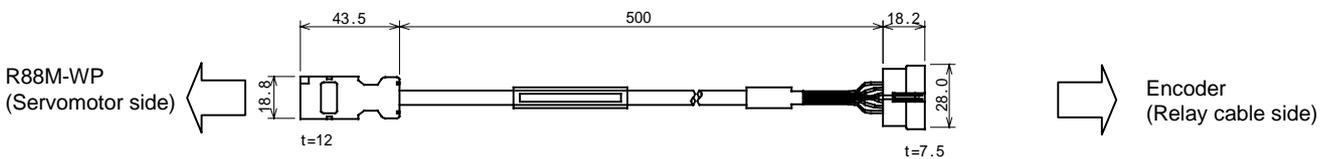
[R88A-CRWS0R5M / R88A-CRWR0R5M2]



[R88A-CRWR0R5M1]

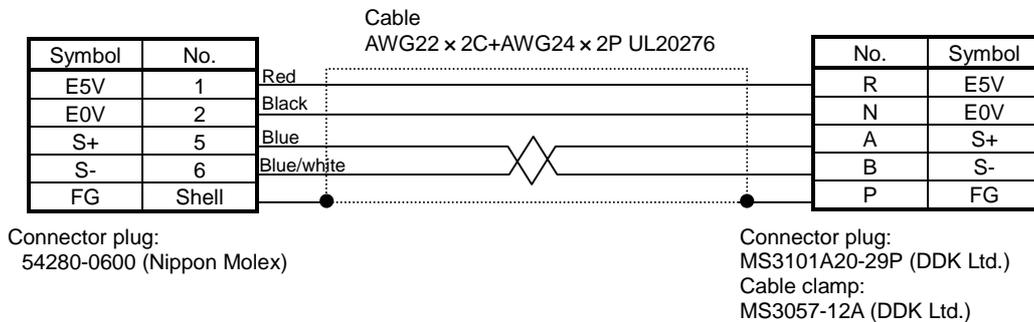


[R88A-CRWH0R5M]

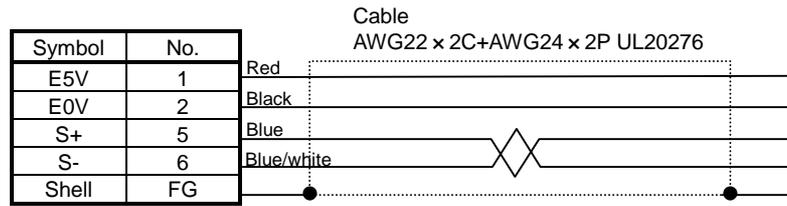


Wiring

R88A-CRWS0R5M

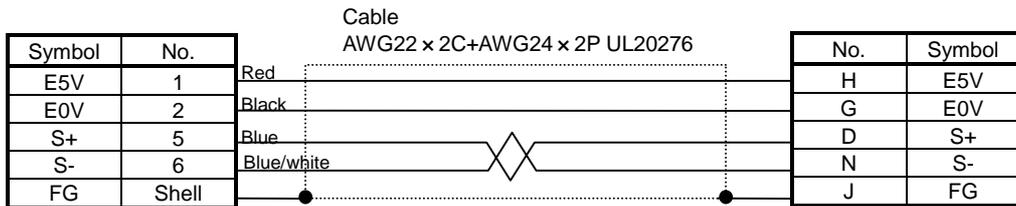


[R88A-CRWR0R5M1]



Connector plug:
54280-0600 (Nippon Molex)

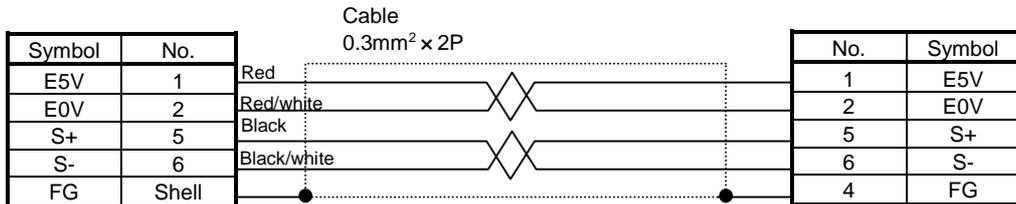
[R88A-CRWR0R5M2]



Connector plug:
54280-0600 (Nippon Molex)

Connector plug:
MS3101A20-11P-KR (AMPHENOL)
Cable clamp:
MS3057-12A (DDK Ltd.)

[R88A-CRWH0R5M]



Connector plug:
54280-0600 (Nippon Molex)

Receptacle housing:
SMR-10V-N (J.S.T. Mfg Co., Ltd.)
Pin contacts:
BYM-001G-0.6A (J.S.T. Mfg Co., Ltd.)

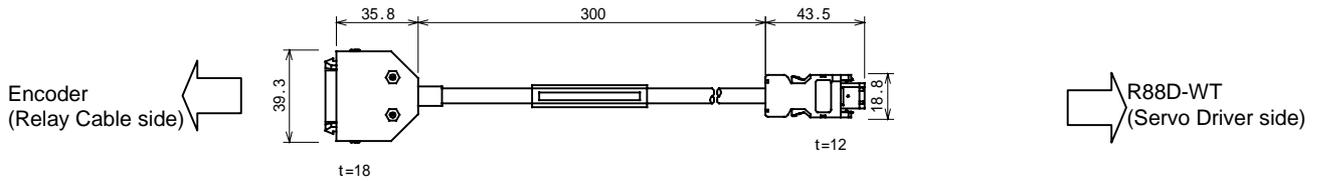
6-1-3 Encoder Cables (to Servo Driver)

Types of Cables

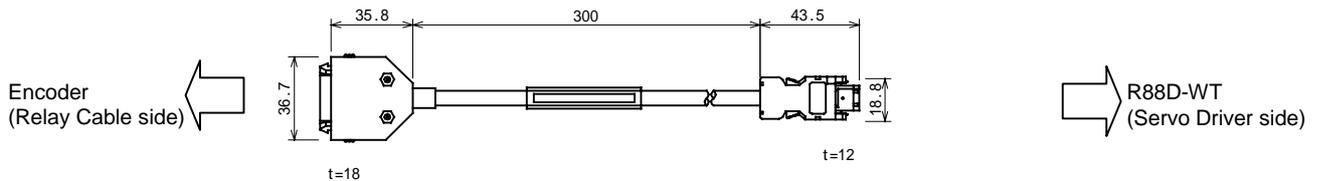
| Model number | Sheath outer diameter | Weight |
|---------------|-----------------------|----------------|
| R88A-CRWS0R3D | 6.5-dia. | Approx. 0.1 kg |
| R88A-CRWR0R3D | | |
| R88A-CRWH0R3D | | |

Connection Configuration and External Dimensions

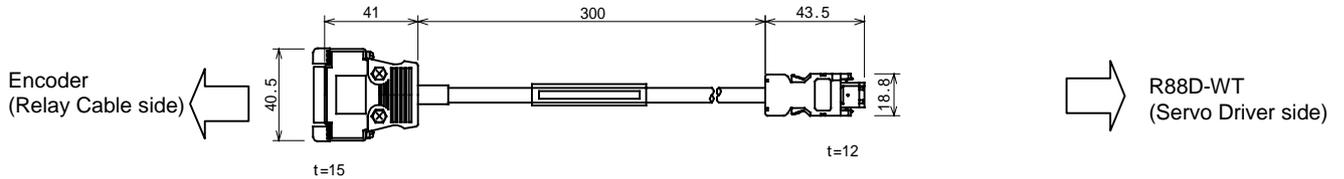
[R88A-CRWS0R3D]



[R88A-CRWR0R3D]

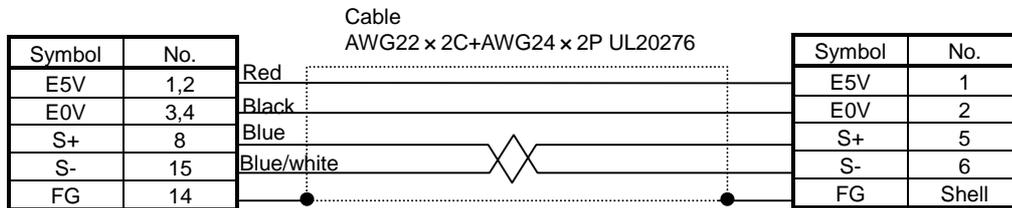


[R88A-CRWH0R3D]



Wiring

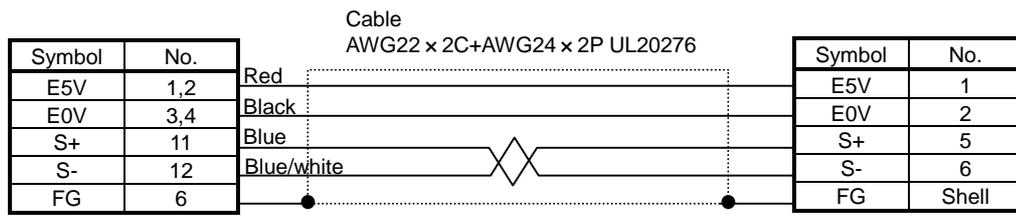
[R88A-CRWS0R3D]



Connector plug: MR-20RF (HONDA TSUSHIN KOGYO CO., LTD.)
 Connector cover: MR-20LK2 (HONDA TSUSHIN KOGYO CO., LTD.)

Connector plug: 55101-0600 (Nippon Molex)
 Crimp terminals: 50639-8091 (Nippon Molex)

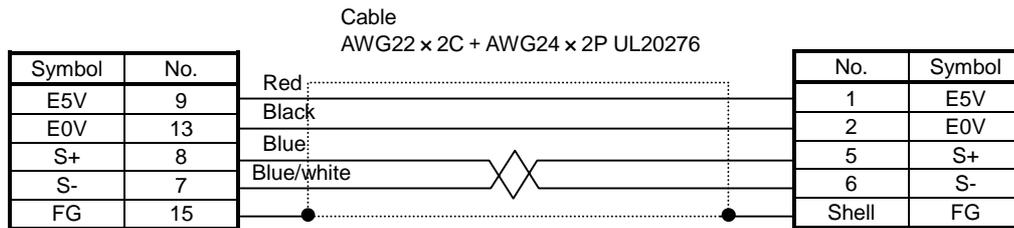
[R88A-CRWR0R3D]



Connector plug: MR-16RF (HONDA TSUSHIN KOGYO CO., LTD.)
Connector cover: MR-16LK2 (HONDA TSUSHIN KOGYO CO., LTD.)

Connector plug: 55101-0600 (Nippon Molex)
Crimp terminals: 50639-8091 (Nippon Molex)

[R88A-CRWH0R3D]



6-1-4 Power Cables

R88A-CAWR

Types of Cables

For Servomotors Without Brakes

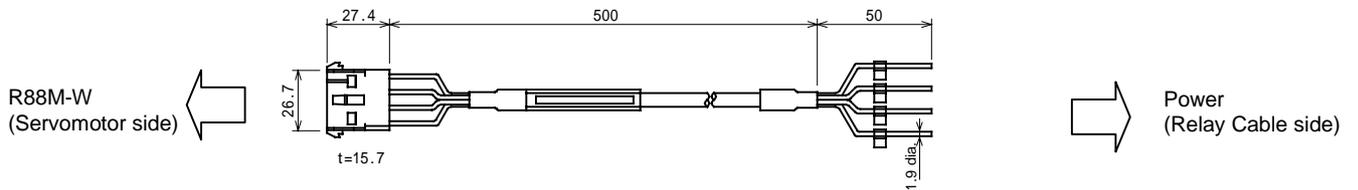
| Model number | Sheath outer diameter | Weight |
|----------------|-----------------------|----------------|
| R88A-CAWR0R5S1 | 6.2-dia. | Approx. 0.1 kg |
| R88A-CAWR0R5S2 | | Approx. 0.2 kg |
| R88A-CAWR0R5S3 | 10.4-dia. | Approx. 0.3 kg |
| R88A-CAWH0R5S1 | 8.0-dia. | Approx. 0.1 kg |
| R88A-CAWH0R5S2 | | Approx. 0.1 kg |

For Servomotors With Brakes

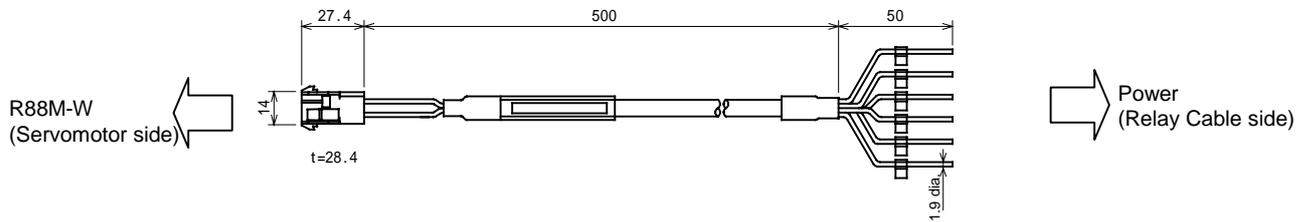
| Model number | Sheath outer diameter | Weight |
|----------------|-----------------------|----------------|
| R88A-CAWR0R5B1 | 7.4-dia. | Approx. 0.1 kg |
| R88A-CAWR0R5B2 | 6.2-dia. | Approx. 0.2 kg |
| R88A-CAWR0R5B3 | 10.4-dia. | Approx. 0.3 kg |
| R88A-CAWH0R5B1 | 9.5-dia. | Approx. 0.1 kg |
| R88A-CAWH0R5B2 | | Approx. 0.2 kg |

Connection Configuration and External Dimensions

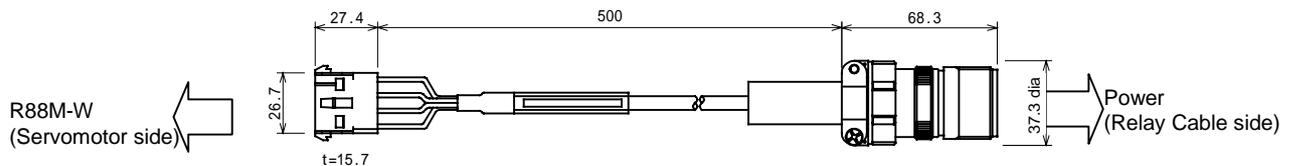
[R88A-CAWR0R5S1]



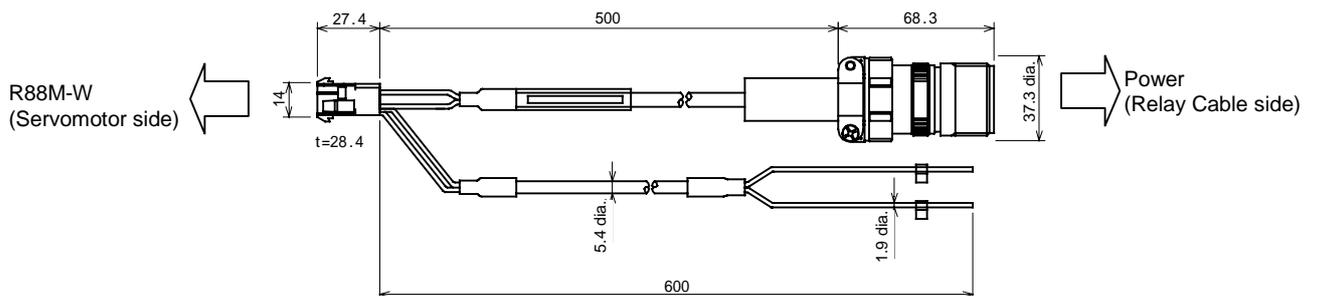
[R88A-CAWR0R5B1]



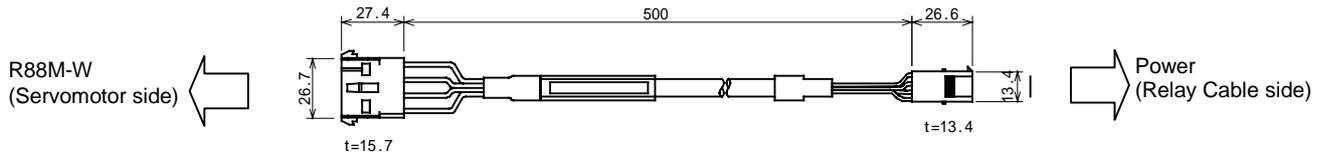
[R88A-CAWR0R5S2/R88A-CAWR0R5S3]



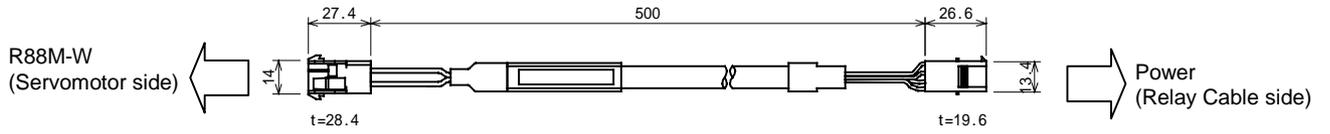
[R88A-CAWR0R5B2/R88A-CAWR0R5B3]



[R88A-CAWH0R5S1/R88A-CAWH0R5S2]



[R88A-CAWH0R5B1/R88A-CAWH0R5B2]



Connection Configuration and External Dimensions

[R88A-CAWR0R5S1]

| Symbol | No. | Cable |
|---------|-----|--------------------------|
| Phase U | 1 | Red AWG20 × 4C UL2464 |
| Phase V | 2 | White |
| Phase W | 3 | Blue |
| FG | 4 | Green/yellow |

Connector cap: 350780-1 (Tyco Electronics AMP K.K.)
 Connector socket: 350689-3 (Tyco Electronics AMP K.K.)

[R88A-CAWR0R5B1]

| Symbol | No. | Cable |
|---------|-----|--------------------------|
| Phase U | 1 | Red AWG20 × 6C UL2464 |
| Phase V | 2 | White |
| Phase W | 3 | Blue |
| FG | 4 | Green/yellow |
| Brake | 5 | Black |
| Brake | 6 | Brown |

Connector cap: 350781-1 (Tyco Electronics AMP K.K.)
 Connector socket: 350689-3 (Tyco Electronics AMP K.K.)

[R88A-CAWR0R5S2 / R88A-CAWR0R5S3]

| Symbol | No. | Cable | No. | Symbol |
|---------|-----|---|-----|---------|
| Phase U | 1 | Red R88A-CAWR0R5S2 :AWG20 × 4C UL2464 R88A-CAWR0R5S3 :AWG14 × 4C UL2463 | A | Phase U |
| Phase V | 2 | White | B | Phase V |
| Phase W | 3 | Blue | C | Phase W |
| FG | 4 | Green/yellow | D | FG |

Connector cap: 350780-1 (Tyco Electronics AMP K.K.)
 Connector socket:
 R88A-CAWR0R5S2 350689-3 (Tyco Electronics AMP K.K.)
 R88A-CAWR0R5S3 (1 to 3 pins) 350551-6 (Tyco Electronics AMP K.K.)
 (4 pins) 350551-3 (Tyco Electronics AMP K.K.)

Connector plug MS3101A20-4P (DDK Ltd.)
 Cable clamp: MS3057-12A (DDK Ltd.)

[R88A-CAWR0R5B2 / R88A-CAWR0R5B3]

| Symbol | No. | Cable | No. | Symbol |
|---------|-----|---|-----|---------|
| Phase U | 1 | Red R88A-CAWR0R5B2 :AWG20 × 4C UL2464 R88A-CAWR0R5B3 :AWG14 × 4C UL2463 | A | Phase U |
| Phase V | 2 | White | B | Phase V |
| Phase W | 3 | Blue | C | Phase W |
| FG | 4 | Green/yellow | D | FG |
| Brake | 5 | Black | | |
| Brake | 6 | Brown | | |

Connector cap: 350781-1 (Tyco Electronics AMP K.K.)
 Connector socket:
 R88A-CAWR0R5B2 350689-3 (Tyco Electronics AMP K.K.)
 R88A-CAWR0R5B3 (1 to 3 pins) 350551-6 (Tyco Electronics AMP K.K.)
 (4 pins) 350551-3 (Tyco Electronics AMP K.K.)
 (5, 6 pins) 350689-3 (Tyco Electronics AMP K.K.)

Connector plug MS3101A20-4P (DDK Ltd.)
 Cable clamp: MS3057-12A (DDK Ltd.)

[R88A-CAWH0R5S1/R88A-CAWH0R5S2]

| Symbol | | No. | | Cable | | AWG16 x 4C UL2464 | |
|---------|---|--------------|---|---------|---|-------------------|---|
| Phase U | 1 | Red | 1 | Phase U | 1 | Phase U | 1 |
| Phase V | 2 | White | 2 | Phase V | 2 | Phase V | 2 |
| Phase W | 3 | Black | 3 | Phase W | 3 | Phase W | 3 |
| FG | 4 | Green/yellow | 4 | FG | 4 | FG | 4 |

R88A-CAWH0R5S1

Connector cap:

350780-1 (Tyco Electronic AMP K.K.)

Connector socket:

350550-3 (Tyco Electronic AMP K.K.)

R88A-CAWH0R5S2

Connector cap:

350780-1 (Tyco Electronic AMP K.K.)

Connector socket:

(1 to 3 pins) 350550-6

(Tyco Electronics AMP K.K.)

(4 pins) 350550-3 (Tyco Electronics AMP K.K.)

Plug housing:

LR-04-1 (J.S.T. Mfg Co., Ltd.)

Crimp terminals:

LLM-61T-2.0 (J.S.T. Mfg Co., Ltd.)

[R88A-CAWH0R5B1/R88A-CAWH0R5B2]

| Symbol | | No. | | Cable | | AWG16 x 6C UL2464 | |
|---------|---|-----|---|---------|---|-------------------|---|
| Phase U | 1 | 1 | 1 | Phase U | 1 | Phase U | 1 |
| Phase V | 2 | 2 | 2 | Phase V | 2 | Phase V | 2 |
| Phase W | 3 | 3 | 3 | Phase W | 3 | Phase W | 3 |
| FG | 4 | 4 | 4 | FG | 4 | FG | 4 |
| Brake | 5 | 5 | 5 | Brake | 5 | Brake | 5 |
| Brake | 6 | 6 | 6 | Brake | 6 | Brake | 6 |

R88A-CAWH0R5S1

Connector cap:

350781-1

(Tyco Electronic AMP K.K.)

Connector socket:

350550-3

(Tyco Electronic AMP K.K.)

R88A-CAWH0R5S2

Connector cap:

350781-1 (Tyco Electronic AMP K.K.)

Connector socket:

(1 to 3 pins) 350550-6

(Tyco Electronics AMP K.K.)

(4 to 6 pins) 350550-3

(Tyco Electronics AMP K.K.)

Plug housing:

LR-06-1 (J.S.T. Mfg Co., Ltd.)

Crimp terminals:

LLM-61T-2.0 (J.S.T. Mfg Co., Ltd.)

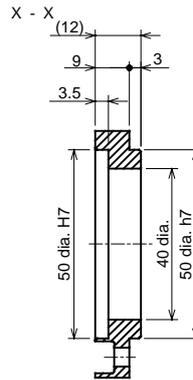
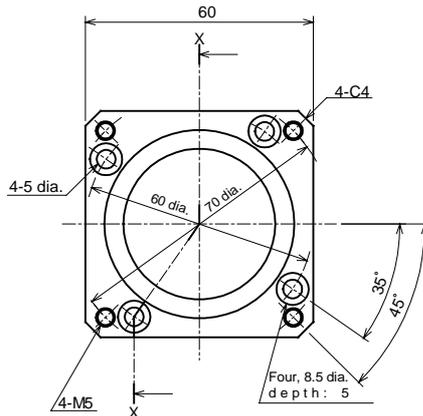
6-2 Mounting Brackets

Types of Mounting Brackets

| Model number | Weight |
|--------------|----------------|
| R88A-MF01 | Approx. 0.1 kg |
| R88A-MF02 | |
| R88A-MF03 | Approx. 0.4 kg |

External Dimensions

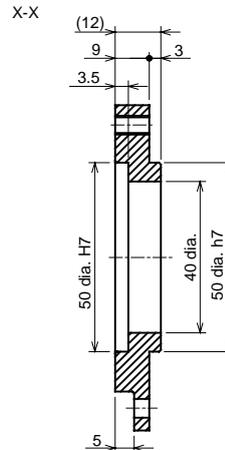
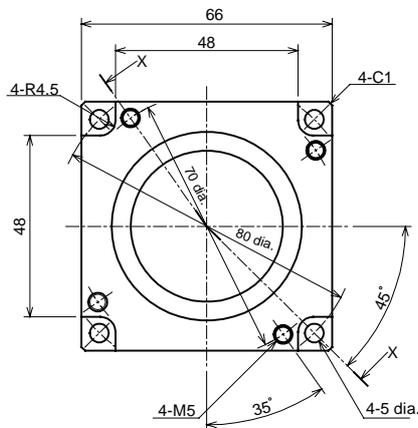
[R88A-MF01]



Accessories (included)

- Mounting Bracket bolts with hexagonal holes M4-10
- Servomotor bolts with hexagonal holes M5-14

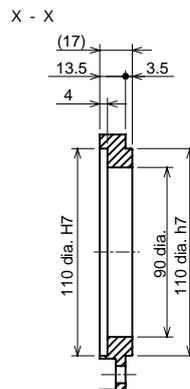
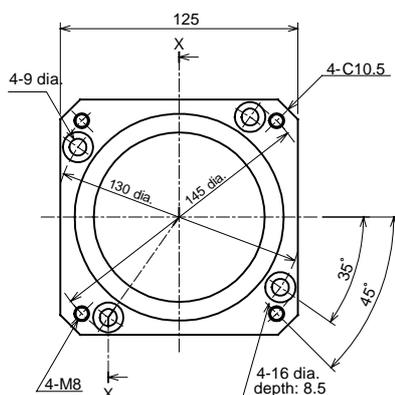
[R88A-MF02]



Accessories (included)

- Mounting Bracket bolts with hexagonal holes M4-10
- Servomotor bolts with hexagonal holes M5-14

[R88A-MF03]



Accessories (included)

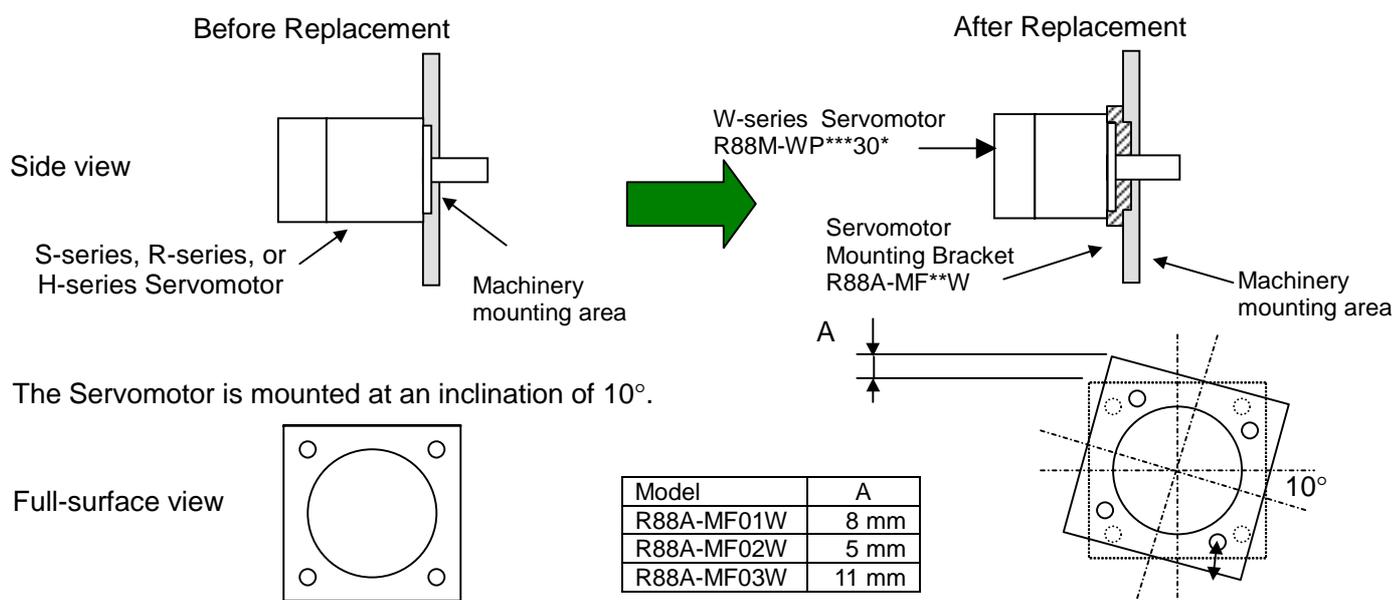
- Mounting Bracket bolts with hexagonal holes M8-16
- Servomotor bolts with hexagonal holes M8-22

7. Replacement Methods

7-1 Servomotors

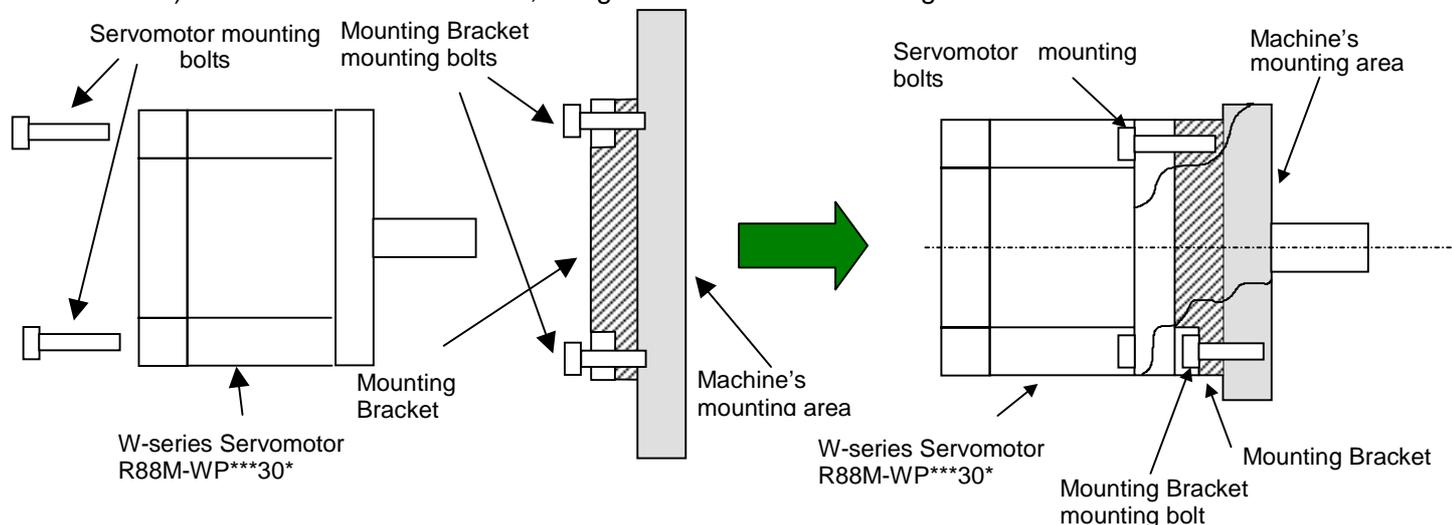
(1) Servomotor Mounting Method (Mounting to Machinery)

When replacing an S-series, R-series, or H-series Servomotor with a W-series Servomotor, there may be differences in the positions of the holes for mounting to the machinery. In such cases, there are different replacement methods for producing new mounting holes at the machinery, and for using the Servomotor Mounting Bracket. In the example shown in the following diagram, the Servomotor is replaced using a Servomotor Mounting Bracket.



● Mounting Procedure

- 1) Remove from the machinery the Servomotor that is to be replaced.
- 2) Using the accessory bolts with hexagonal holes, mount the Servomotor Mounting Bracket to the machine's mounting area. It can be mounted directly to the same place as the Servomotor being replaced, with no need for new holes.
- 3) Mount the new Servomotor, using the Servomotor mounting bolts.



- Bolts Used with Servomotor Mounting Bracket (Included as Accessories with Mounting Bracket)

| Bolts | Mounting Bracket model (R88A-) | | | Remarks |
|--|--------------------------------|-------|-------|--|
| | MF01W | MF02W | MF03W | |
| Mounting Bracket mounting bolts (with hexagonal holes) | M4-10 | M4-10 | M8-16 | If other lengths are required, the bolts must be purchased separately. |
| Servomotor mounting bolts (with hexagonal holes) | M5-14 | M5-14 | M8-22 | Use these bolts for both nominal diameter and length. |

(2) Precautions for Servomotor Replacement

When replacing a Servomotor, the following three points require special attention.

- 1) Changing the length of the Servomotor shaft.
- 2) Changing the Servomotor shaft's shape or capacity
- 3) Changing the shaft load position

1) Changing the Length of the Servomotor Shaft.

- When an S-, R-, or H-series Servomotor is replaced by a W-series Servomotor, the length of the Servomotor shaft is changed.
- Refer to the following tables to check the amount of change in the Servomotor shaft end position, and make the appropriate adjustments by means of adjusting the length of the coupling.

S Series

| S-series model (R88M-) | W-series model (R88M-) | LR size | | F size | | Mounting Bracket model (R88A-) | Mounting Bracket thickness t | Amount of change in shaft end position Δ LR |
|------------------------|------------------------|---------|----|--------|-----|--------------------------------|------------------------------|--|
| | | S | W | S | W | | | |
| S05030 | WP10030L-S1 | 29 | 25 | 3.5 | 3 | MF02W | 9 | -13 |
| S10030 | WP10030L-S1 | 29 | 25 | 3.5 | 3 | MF02W | 9 | -13 |
| S20030 | WP20030L-S1 | 29 | 30 | 3.5 | 3 | Not required. | - | +1 |
| S30030 | WP40030H-S1 | 29 | 30 | 3.5 | 3 | Not required. | - | +1 |
| S50030 | WP75030H-S1 | 40 | 40 | 4 | 3.5 | MF03W | 13.5 | -13.5 |
| S75030 | WP75030H-S1 | 40 | 40 | 4 | 3.5 | MF03W | 13.5 | -13.5 |

[Unit: mm]

R Series

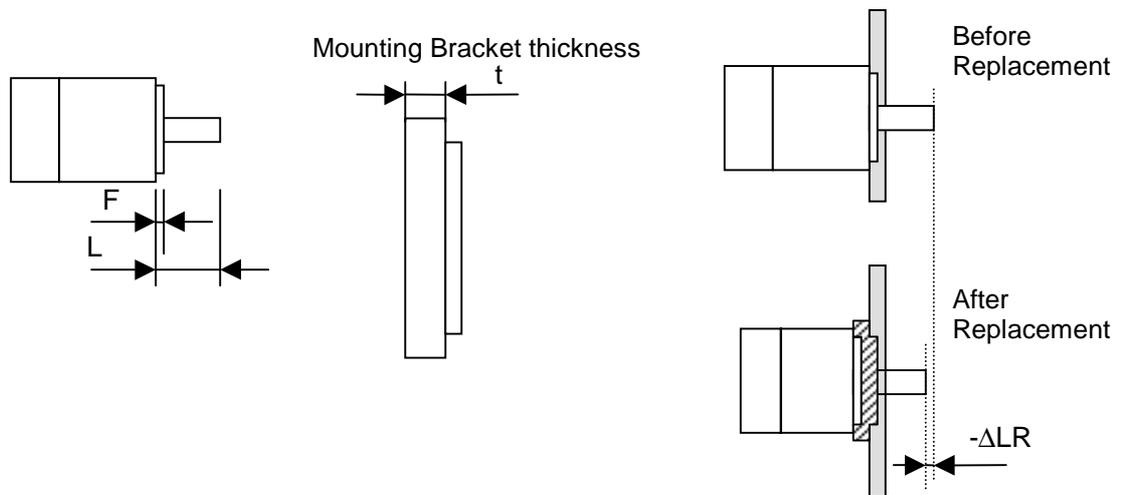
| R-series mode. (R88M-) | W-series model (R88M-) | LR size | | F size | | Mounting Bracket model (R88A-) | Mounting Bracket thickness t | Amount of change in shaft end position Δ LR |
|------------------------|------------------------|---------|----|--------|-----|--------------------------------|------------------------------|--|
| | | R | W | R | W | | | |
| R06030 | WP10030L/H-S1 | 30 | 25 | 3 | 3 | MF01W | 9 | -14 |
| R11030 | WP10030L/H-S1 | 30 | 25 | 3.5 | 3 | MF01W | 9 | -14 |
| R10030 | WP10030L/H-S1 | 29 | 25 | 3.5 | 3 | MF02W | 9 | -13 |
| R20030 | WP20030L/H-S1 | 29 | 30 | 3.5 | 3 | Not required. | - | +1 |
| R30030 | WP40030H-S1 | 29 | 30 | 3.5 | 3 | Not required. | - | +1 |
| R45030 | WP75030H-S1 | 40 | 40 | 4 | 3.5 | MF03W | 13.5 | -13.5 |
| R50030 | WP75030H-S1 | 40 | 40 | 4 | 3.5 | MF03W | 13.5 | -13.5 |
| R60030 | WP75030H-S1 | 40 | 40 | 4 | 3.5 | MF03W | 13.5 | -13.5 |
| R75030 | WP75030H-S1 | 40 | 40 | 4 | 3.5 | MF03W | 13.5 | -13.5 |
| R82030 | WP75030H-S1 | 40 | 40 | 4 | 3.5 | MF03W | 13.5 | -13.5 |
| R1K130 | WP1K530H-S1 | 40 | 40 | 4 | 3.5 | MF03W | 13.5 | -13.5 |

[Unit: mm]

H Series

| R-series mode. (R88M-) | W-series model (R88M-) | LR size | | F size | | Mounting Bracket model (R88A-) | Mounting Bracket thickness t | Amount of change in shaft end position ΔLR |
|---------------------------|---------------------------|---------|----|--------|-----|-----------------------------------|---------------------------------|---|
| | | H | W | H | W | | | |
| H05030 | WP10030L/H-S1 | 29 | 25 | 3.5 | 3 | MF02W | 9 | -13 |
| H10030 | WP10030L/H-S1 | 29 | 25 | 3.5 | 3 | MF02W | 9 | -13 |
| H20030 | WP20030L/H-S1 | 29 | 30 | 3.5 | 3 | Not required. | - | +1 |
| H30030 | WP40030H-S1 | 29 | 30 | 3.5 | 3 | Not required. | - | +1 |
| H50030 | WP75030H-S1 | 40 | 40 | 4 | 3.5 | MF03W | 13.5 | -13.5 |
| H75030 | WP75030H-S1 | 40 | 40 | 4 | 3.5 | MF03W | 13.5 | -13.5 |
| H1K130 | WP1K530H-S1 | 40 | 40 | 4 | 3.5 | MF03W | 13.5 | -13.5 |

[Unit: mm]



The Mounting Bracket is manufactured in only one thickness. If adjusting the length of the coupling is a problem and the Mounting Bracket thickness must be changed, this procedure must be performed by the user. Because of the need to maintain the strength of the Mounting Bracket, it is recommended that the thickness of the Mounting Bracket not be reduced, but, rather, that the thickness be increased to match the length of the coupling.

2) Changing the Servomotor Shaft's Shape or Capacity

Be careful when selecting the Servomotor, because the shafts of the Servomotors to be replaced have differing shapes.

- The 50-W to 300-W S-series Servomotor shaft shape is a standard D cut.
The W-series Servomotor shaft shape is straight or with-key.
R88M-WP***30H/L Straight
R88M-WP***30H/L-S1 With-key
- The standard 500-W or 750-W S-series Servomotor shaft shape is a straight shaft with key, conforming to the former JIS standards. The W Series conforms to the new JIS standards, so the tolerance in dimensions is different.
- When an 820-W R-series Servomotor is replaced by a 750-W W-series Servomotor, there is a capacity reduction of approximately 10%.

When an 820-W R-series Servomotor is replaced by a 1.5-kW W-series Servomotor, the shaft diameter is different.

- When a 110-W R-series Servomotor is replaced by a 100-W W-series Servomotor, there is a capacity reduction of approximately 10%.

3) Changing the Shaft Load Position

When an S-series, R-series, H-series Servomotor is replaced by a W-series Servomotor, the allowable radial load and thrust load are changed. In particular, when a Mounting Bracket is used, the radial thrust application point is changed. Adjust the specifications to within the range for the W-series Servomotor.

7-2 Servo Drivers

When replacing a Servo Driver, the following seven points require special attention.

- (1) Starting operation
- (2) Power supply voltage
- (3) Producing mounting holes
- (4) Changing Servo Driver parameter settings
- (5) Differences in control I/O interfaces
- (6) When Servo Driver depth is increased
- (7) Regenerative absorption

Refer to the relevant manuals, and use the settings appropriate for the system.

(1) Starting Operation

Be careful about the following points when starting operation.

- Before turning ON the power, check whether the wiring is correct.
- Before connecting to the machinery, check the Servomotor's rotation by performing a jog operation with no load.
- Some Servo Driver parameter changes are only enabled when the power is turned OFF and then back ON again.

(2) Power Supply Voltage

When an S-series, R-series, or H-series Servo Driver is replaced by a W-series Servo Driver, the power supply voltage may be changed. Prepare a power supply to match the capacity for the W-series Servo Driver, as shown in the following table.

| Servo Driver model | Capacity | Main circuit power supply | Control circuit power supply |
|--------------------|----------|--|------------------------------|
| R88D-WT01HL | 100 W | Single-phase, 100 V AC | Single-phase, 100 V AC |
| R88D-WT02HL | 200 W | Single-phase, 100 V AC | Single-phase, 100 V AC |
| R88D-WT01H | 100 W | Single-phase, 200 V AC | Single-phase, 200 V AC |
| R88D-WT02H | 200 W | Single-phase, 200 V AC | Single-phase, 200 V AC |
| R88D-WT04H | 400 W | Single-phase, 200 V AC | Single-phase, 200 V AC |
| R88D-WT08H | 750 W | Three-phase, 200 V AC/single-phase, 230 V AC | Single-phase, 200 V AC |
| R88D-WT15H | 1.5 kW | Three-phase, 200 V AC | Single-phase, 200 V AC |

(3) Producing Mounting Holes

- When producing holes in the control panel, be careful to prevent filings from getting inside of the machinery.
- If producing holes in the control panel is a problem, use the mounting holes for the S-series, R-series, or H-series Servo Driver, and prepare a mounting bracket that will enable the W-series Servo Driver to be mounted.

(4) Changing Servo Driver Parameter Settings

S-series and R-series Servo Driver settings are made by means of switches and variable resistors, whereas W-series Servo Driver settings are made by means of parameters. When replacing an S-series or R-series Servo Driver, the W-series Servo Driver parameter settings will have to be changed from the default values. The main related parameters are shown in the following tables. For further details, refer to the *OMNUC AC*

Servomotor and Servo Driver User's Manual. (Cat. No. I531) and to the individual manuals for the particular S-series, R-series, and H-series Servo Drivers that are currently in use.

The following table shows the relationship between the S-series and R-series settings and the W-series parameter settings.

Requires special care during replacement.
A: Analog models P: Pulse models

| S Series | | R Series | | S, R Series settings | W Series parameters | Remarks |
|----------|---|----------|---|--|--------------------------------|---|
| A | P | A | P | | | |
| | | | | AC gain changeover | Pn103 | Can also be set by online auto-tuning. |
| | | | | AC gain Start correction | Fn001 Pn100, 101, 103 | Can also be set by online auto-tuning. |
| | | | | Speed | Pn300 | |
| | | | | Reverse speed | – | The W Series does not have the REF input function, and the Conversion Cable for the Control Cable does not handle it. |
| | | | | Auxiliary speed | – | The W Series does not have the SREF input function, and the Conversion Cable for the Control Cable does not handle it. |
| | | | | Torque limit | Pn404, 405 | |
| | | | | Zero balance | Fn009 | |
| | | | | | - | No adjustment required. |
| | | | | Position loop gain Deviation counter reset | Pn102 | |
| | | | | Feed forward (FF) gain FF switching FF pulse width switching FF amount changeover | Pn109 Pn10A | |
| | | | | Position command pulse factor Encoder feedback pulse factor | Pn202 Pn203 | |
| | | | | Command pulse input mode | Pn200.0 | |
| | | | | Positioning completed width | Pn500 | |
| | | | | Rotation direction switching | Pn000.0 | The W Series does not have the –REF of the S-series analog models, so take that into account for this function. |
| | | | | Frequency changeover of high range filter | Pn307 | |
| | | | | Proportional control switching | Pn10b.0 Pn10d | |
| | | | | Dynamic brake setting | Pn001.0 | |
| | | | | Control mode | Pn000.1 | In the S and R Series, the control mode is fixed, but in the W Series it is set by parameter. |
| | | | | Encoder dividing ratio | Pn201 | The ratio is fixed at 1,000 pulses/revolution for the S and R Series. The default setting for the W Series is also 1,000 pulses/revolution, so there is no need to change it. |
| | | | | Speed/current monitor output NM/AM | Pn003.0, 003.1 Fn00C, Fn00d | The monitor output for the W Series is not the control connector, but the monitor output connector (CN5). Care is required, because the maximum output voltage is different. |

The following table shows the relationship between the H-series settings and the W-series parameter settings.

Requires special care during replacement.
A: Analog models P: Pulse models

| H Series | | H Series parameters | H Series settings | W Series parameters | Remarks |
|----------|---|---------------------|--|-------------------------|---|
| A | P | | | | |
| | | 81 | Driver type specification | Pn000.1 | Switches between analog input and pulse train input. |
| | | 82 | Input pulse type specification | Pn200.0 | |
| | | 83 | Rotation direction specification | Pn000.0 | Rotation direction with respect to the speed reference voltage |
| | | 84 23 24 | Soft start input specification Soft start acceleration time Soft start deceleration time | Pn305, Pn306 | |
| | | 85 | Error processing method specification | Pn001.0 | Selects the method used to stop when errors occur. Dynamic brake specification |
| | | 86 | Encoder output specification | Pn201 | Encoder feedback dividing ratio setting |
| | | 87 | Parameter initialize | Fn005 | |
| | | 20 | Inertia ratio setting | Fn001, Pn103 | Can also be set by online auto-tuning. |
| | | 0 | Speed loop proportional gain | Pn100 | |
| | | 1 | Speed loop integral gain | Pn101 | |
| | | 2 | Position loop proportional gain | Pn102 | |
| | | 3 | Torque restriction value | Pn404, Pn405 | |
| | | 4 | Position loop FF gain | Pn109, Pn10A | |
| | | 5 | Positioning completed width | Pn500 | |
| | | 6 | Speed reference scale | Pn300 | |
| | | 7 9 | Internal speed setting 1 Internal speed setting 2 | Pn301 Pn302 Pn303 | |
| | | 11 | Speed reference offset adjustment | Fn009 | |
| | | 21 22 | Electronic gear ratio (G1) Electronic gear ratio (G2) | Pn202 Pn203 | |

(5) Differences in Control I/O Interfaces

The following table shows the differences between the S-series and R-series settings and the W-series control I/O interface.

Requires special care during replacement.
A: Analog models P: Pulse models

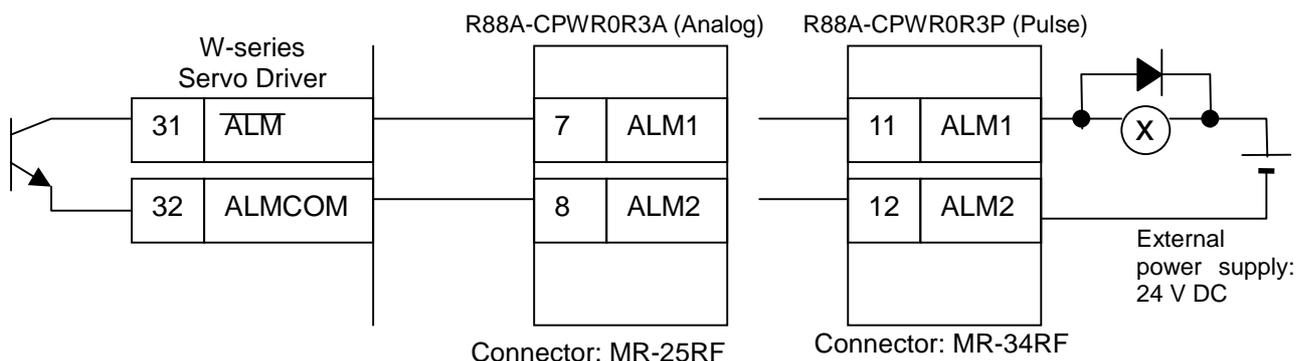
| S Series | | R Series | | S, R Series I/O | Points requiring special attention |
|----------|---|----------|---|---|---|
| A | P | A | P | | |
| | | | | ALM1, ALM2 (Alarm output) | The alarm outputs for the S and R Series are contact (relay) outputs, but for the W Series they are open collector outputs. Be careful about load current and polarity. |
| | | | | +5 V DC power supply input | The S and R Series employ a 5-V DC power supply for the input power supply. (There is also a 24-V power supply for the R Series). Use a 24-V DC power supply for the W Series. |
| | | | | EM (Emergency stop input) | Use POT (forward drive prohibit) and NOT (reverse drive prohibit) inputs for the W Series. |
| | | | | HRET (Origin return command) ECRST (Deviation counter reset input) | The W Series does not have an HRET input. Use the ECRST input to execute origin search. |
| | | | | -REF | The W Series does not have a -REF input. For reverse rotation with positive voltage, use the REF input. In the Conversion Cable, -REF and AGND are short-circuited. Do not apply voltage between -REF and AGND. |
| | | | | MING (Gain reduction input) IPG (Pulse prohibit input) | The S and R Series have separate inputs, but the W Series uses the Control Mode to switch a single input function. |
| | | | | P15, N15 (Built-in command voltage) | The W Series does not have P15 and N15. Prepare a separate power supply as required. |

● ALM1, ALM2 (Alarm Output)

| Model | S Series | | R Series | |
|-------|----------|---|----------|---|
| | A | P | A | P |
| | | | | |

The alarm outputs for the S and R Series are contact (relay) outputs, but for the W Series they are open collector outputs. Be careful about load current and polarity. Change the wiring if the polarity at ALM1 is not positive (+). The output specifications for the W Series are 30 V DC max, and 50 mA max.

- The internal wiring of the Conversion Cable for the Control Cable is as follows:



● +5-V DC Power Supply Input

| Model | S Series | | R Series | |
|-------|----------|---|----------|---|
| | A | P | A | P |
| | | | | |

S-series and R-series pulse models employ a 5-V DC power supply for the input power supply (and there is also a 24-V power supply for the R Series). The W Series uses a 24-V DC input power supply, so this must be prepared when converting to the W Series. In addition, it is necessary to check the individual I/O load currents to ensure that they remain within the allowable ranges in the specifications.

● EM (Emergency Stop Input)

| Model | S Series | | R Series | |
|-------|----------|---|----------|---|
| | A | P | A | P |
| | | | | |

In place of the emergency stop input (EM) of the S and R Series, the W Series uses POT (forward drive prohibit) and NOT (reverse drive prohibit) inputs.

When this input is used, the following parameters must be set.

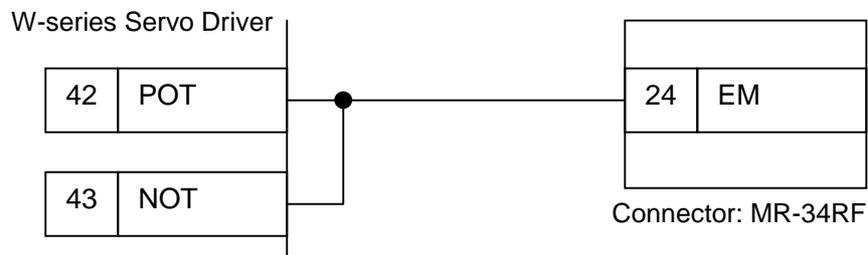
Pn50A.3 POT signal input terminal allocation:

Enabled by 2L input. (OFF: Forward drive prohibit)

Pn50b.0 NOT signal input terminal allocation:

Enabled by 3L input. (OFF: Reverse drive prohibit)

The following diagram shows the internal wiring of the Control Cable (R88A-CPWR0R3P).



● HRET (Origin Search Command), ECRST (Deviation Counter Reset)

| Model | S Series | | R Series | |
|-------|----------|---|----------|---|
| | A | P | A | P |
| | | | | |

- With the S and R Series, an origin search can be executed using the HRET input. The W Series, however, does not have an HRET input. Use the ECRST input at the Controller to execute the origin search. (Change the mode.)

• OMRON Controllers

C200H-NC111, C500-NC111-V1/NC112

There is no origin return command for Position Control Units.

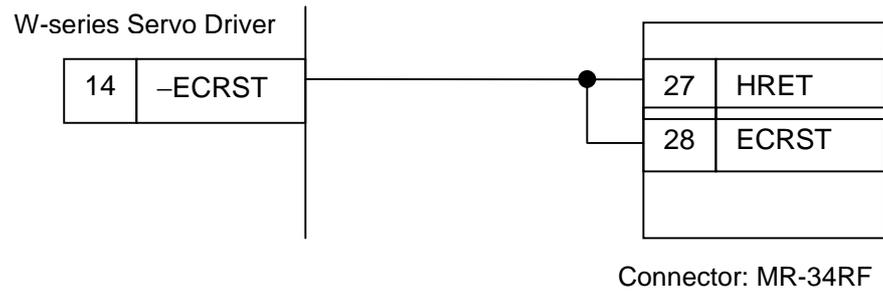
When HRET inputs are being used with other Output Units, use the Position Control Unit's origin search function, or use ECRST inputs to execute the origin search.

C200H-NC112/NC211, C500-NC211, C200HW-NC113/NC213/NC413

Mode 3 is the mode that uses the origin return command.

Use in Mode 1 or Mode 2.

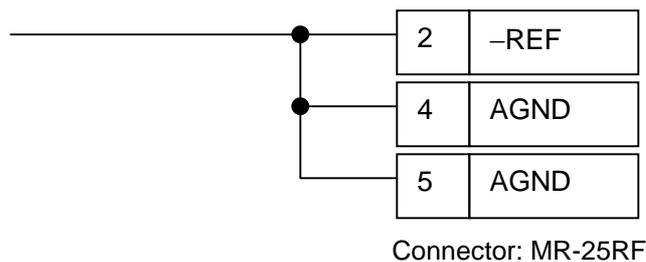
- With the S and R Series, the deviation counter is reset by an ECRST input. Input pulse commands are prohibited while the ECRST input is in progress.
 - With the W Series, use the default settings for Pn200.1 (Position control setting 1: Deviation Counter reset).
 - Default setting: = 1: The deviation counter is reset at the leading edge of the signal (L→H).
 - With the W Series, special attention is required because input pulse commands are not prohibited while the ECRST input is in progress.
- The following diagram shows the internal wiring of the Control Cable (R88A-CPWR0R3P).



● -REF

| Model | S Series | | R Series | |
|-------|----------|---|----------|---|
| | A | P | A | P |
| | | | | |

- The W Series does not have a -REF function.
 - For reverse rotation with positive voltage, set the parameters so that rotation will be reversed when positive voltage is applied to the REF input.
 - Pn000.0 (Reverse Rotation Mode) 0: Forward rotation with positive voltage;
1: Reverse rotation with positive voltage
- In the Conversion Cable for the Control Cable (R88A-CPWR0R3A), -REF and AGND are short-circuited. Do not apply voltage between -REF and AGND.



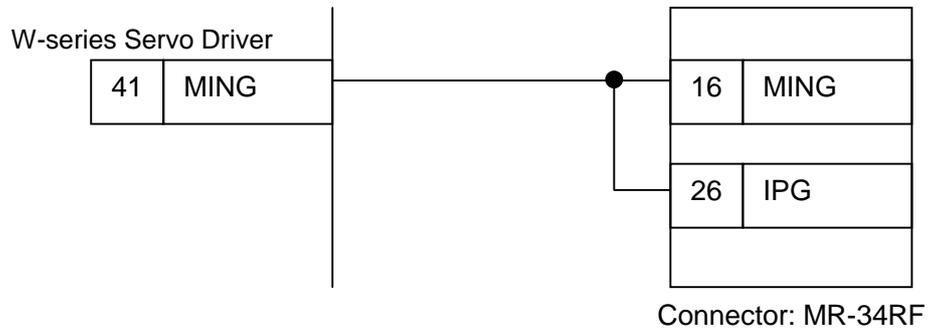
● MING (Gain Reduction Input), IPG (Pulse Prohibit Input)

| Model | S Series | | R Series | |
|-------|----------|---|----------|---|
| | A | P | A | P |
| | | | | |

The S and R Series have separate inputs, but the W Series uses the Control Mode to switch a single input function. Set the Control Mode in the following way.

| Function | W-series Control Mode |
|-----------------------|--|
| MING (Gain reduction) | Pn000.1: 1 Position control |
| IPG (Pulse prohibit) | Pn000.1: b Position control with pulse prohibit function |

- The following diagram shows the internal wiring of the Control Cable (R88A-CPWR0R3 P).



- P15, N15 (Built-in Command Voltage)

| Model | S Series | | R Series | |
|-------|----------|---|----------|---|
| | A | P | A | P |
| | | | | |

The S Series and R Series have a built-in power supply of ± 15 V as the power supply for the speed command voltage, but the W Series does not. If the speed command reference is to be set by external controls, prepare a separate power supply.

The following table shows the differences between the H-series settings and the W-series control I/O interface.

Requires special care during replacement.
A: Analog models P: Pulse models

| H Series | | H Series I/O | Points requiring special attention |
|----------|---|--|--|
| A | P | | |
| | | +5 V DC power supply input | The H Series employs a 5-V DC power supply for the input power supply. Use a 24-V DC power supply for the W Series. |
| | | EM (Emergency stop input) | Use POT (forward drive prohibit) and NOT (reverse drive prohibit) inputs for the W Series. |
| | | HRET (Origin return command) ECRST (Deviation counter reset input) | The W Series does not have an HRET input. Use the ECRST input to execute origin search. |
| | | MING (Gain reduction input) IPG (Pulse prohibit input) PLOCK (Position lock input) | The H Series has separate inputs, but the W Series uses the Control Mode to switch a single input function. |
| | | SST (Soft start input) VSEL (Internal setting speed selection) | These signals are connected to ECRST with the R88A-CPWH0R3C Control Cable. When using the soft start function, connect to another W-series input, and set the parameters and control mode accordingly. |
| | | SREF (Auxiliary speed reference) | The W Series does not have the SREF input function, and the Conversion Cable for the Control Cable does not handle it. |

● +5-V DC Power Supply Input

| Model | A | P |
|-------|---|---|
| | | |

H-series models employ a 5-V DC power supply for the input power supply. The W Series uses a 24-V DC input power supply, so this must be prepared when converting to the W Series. In addition, it is necessary to check the individual I/O load currents to ensure that they remain within the allowable ranges in the specifications.

● EM (Emergency Stop Input)

| Model | A | P |
|-------|---|---|
| | | |

In place of the emergency stop input (EM) of the H Series, the W Series uses POT (forward drive prohibit) and NOT (reverse drive prohibit) inputs.

When this input is used, the following parameters must be set.

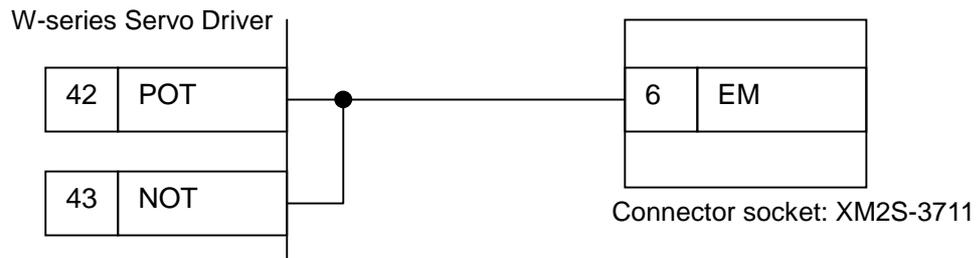
Pn50A.3 POT signal input terminal allocation:

Enabled by 2L input. (OFF: Forward drive prohibit)

Pn50b.0 NOT signal input terminal allocation:

Enabled by 3L input. (OFF: Reverse drive prohibit)

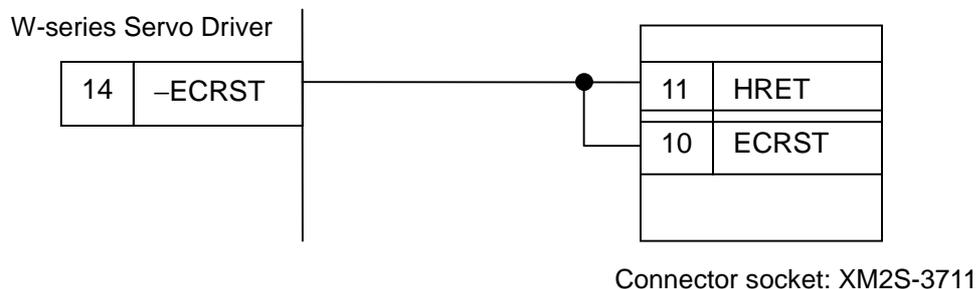
The following diagram shows the internal wiring of the Control Cable (R88A-CPWH0R3C).



● HRET (Origin Search Command), ECRST (Deviation Counter Reset)

| Model | A | P |
|-------|---|---|
| | | |

- With the H Series, an origin search can be executed using the HRET input. The W Series, however, does not have an HRET input. Use the ECRST input at the Controller to execute the origin search. (Change the mode.)
- OMRON Controllers
C200H-NC111, C500-NC111-V1/NC112
There is no origin return command for Position Control Units.
When HRET inputs are being used with other Output Units, use the Position Control Unit's origin search function, or use ECRST inputs to execute the origin search.
C200H-NC112/NC211, C500-NC211, C200HW-NC113/NC213/NC413
Mode 3 is the mode that uses the origin return command.
Use in Mode 1 or Mode 2.
- With the H Series, the deviation counter is reset by an ECRST input. Input pulse commands are prohibited while the ECRST input is in progress.
With the W Series, use the default settings for Pn200.1 (Position control setting 1: Deviation Counter reset).
Default setting: = 1: The deviation counter is reset at the leading edge of the signal (L→H).
With the W Series, special attention is required because input pulse commands are not prohibited while the ECRST input is in progress.
- The following diagram shows the internal wiring of the Control Cable (R88A-CPWH0R3C).



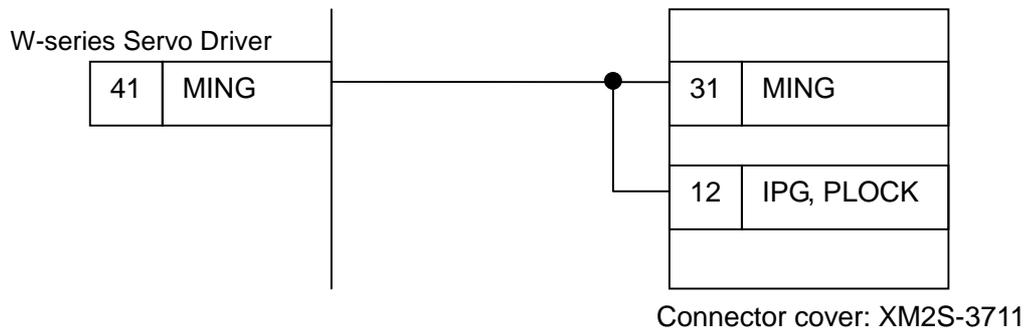
- MING (Gain Reduction Input), IPG (Pulse Prohibit Input), PLOCK (Position Lock Input)

| | | |
|-------|---|---|
| Model | A | P |
| | | |

The H Series has separate inputs, but the W Series uses the Control Mode to switch a single input function. Set the Control Mode in the following way.

| Function | W-series Control Mode |
|-----------------------------|--|
| MING (Gain reduction) | Pn000.1= 1 Position control |
| PLOCK (Position lock input) | Pn000.1= A Speed control with position lock function |
| IPG (Pulse prohibit) | Pn000.1= b Position control with pulse prohibit function |

- The following diagram shows the internal wiring of the Control Cable (R88A-CPWH0R3C).

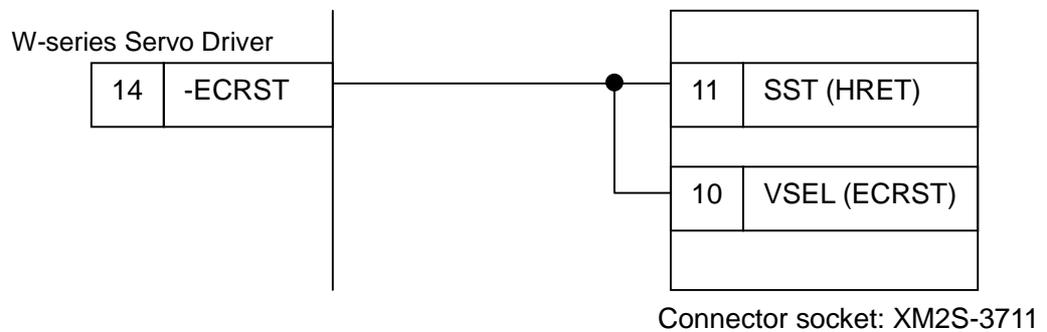


- SST (Soft Start Input), VSEL (Internal Setting Speed Selection)

| | | |
|-------|---|---|
| Model | A | P |
| | | |

The H-series SST and VSEL are connected to the W-series ECRST signal. For this reason, when using the soft start function, connect the switch to pins 40 to 46 of the W-series control connector. The input selection is set in W-series parameters Pn50A to Pn50d. The control mode selection is set in W-series parameter Pn000.1.

- The following diagram shows the internal wiring of the Control Cable (R88A-CPWH0R3C). (Signal names in parentheses are pulse type signals.)



(6) When Servo Driver Depth is Increased

When an S-series, R-series, or H-series Servo Driver is replaced by a W-series Servo Driver, the depth may be increased. Moreover, the connector for the W-series Servo Driver is attached to the front panel, so take that into account as well. For details, refer to the *OMNUC W-series AC Servomotor and Servo Driver User's Manual* (Cat. No. I531).

(7) Regenerative Absorption

When an S-series, R-series, or H-series Servo Driver is replaced by a W-series Servo Driver, the amount of regenerative absorption may be reduced. If the regenerative energy is calculated and found to exceed the regenerative absorption capacity of the W Series, then increase that capacity by measures such as incorporating external regenerative resistance. For details, refer to the *OMNUC W-series AC Servomotor and Servo Driver User's Manual* (Cat. No. I531).

7-3 Cable

When replacing cable, the following three points require special attention.

(1) Secure the conversion cables.

Do not use the following cables in the moving section and secure them: Encoder conversion cable, power cable conversion cable, and control cable conversion cable.

(2) When replacing cable with W-series cable and not using Conversion Cable, select cable that matches the W Series capacity.

(3) When using Conversion Cable, the preparation explained below is required.

- Encoder Cable

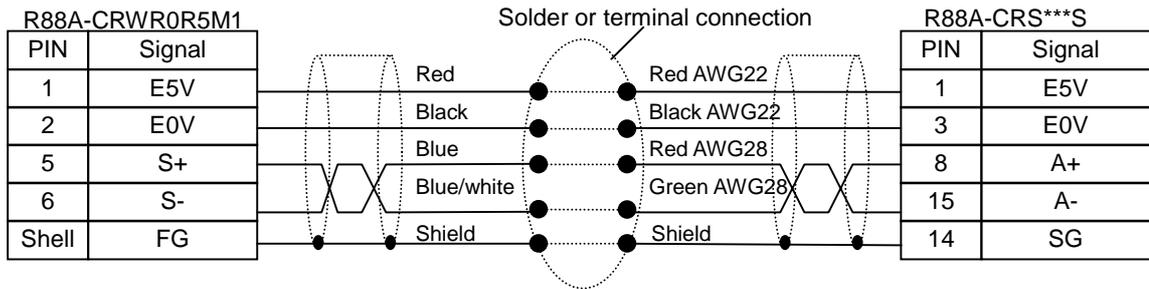
- R88A-CRWR0R5M1 Conversion Cable for Encoder Cable

Applicable Servomotors: S Series (50, 100, 200, and 300 W)

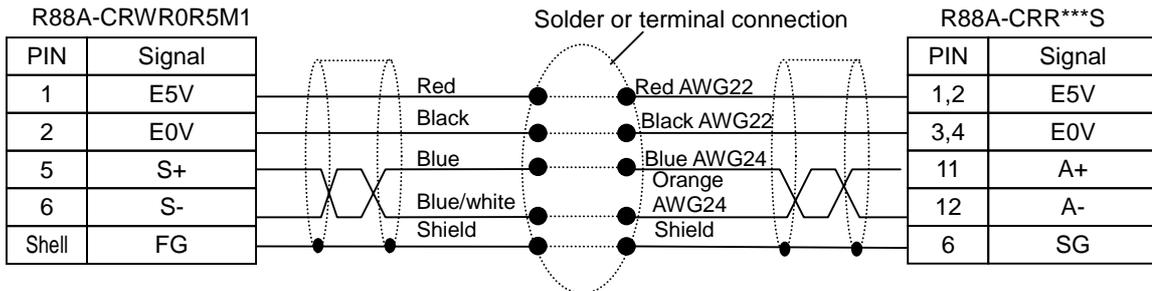
Series (100, 200, 300, and 450 W)

This Conversion Cable has a connector at one end. Use solder or a terminal to connect it to the cable that already in use.

When Cable Already in Use is R88A-CRS***S



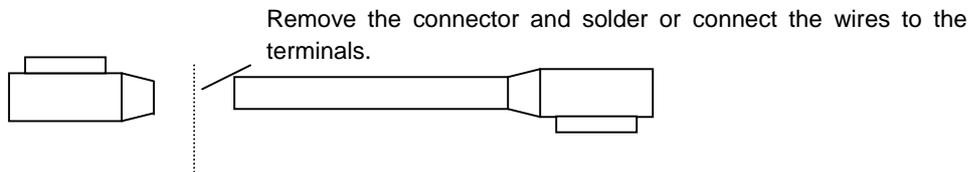
When Cable Already in Use is R88A-CRR***S



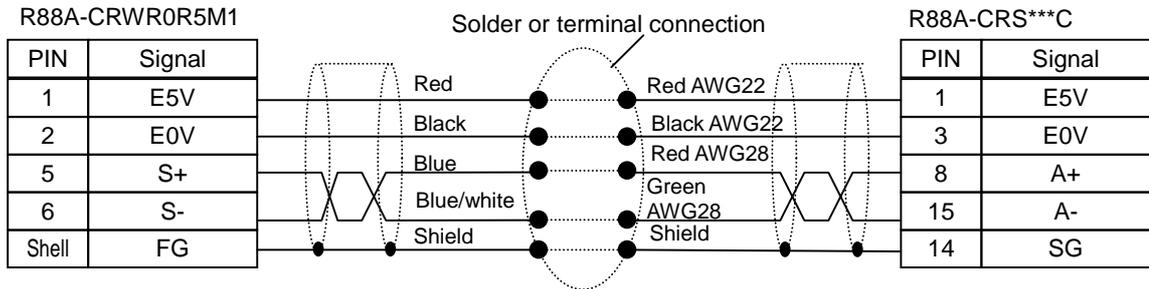
- Servomotors with Connector and Cable (R88M-S****-5C)

Applicable Servomotors: S Series (50, 100, 200, and 300 W)

Remove the connector at the Servomotor end of the Extension Cable (R88A-CRS***C), and connect the Conversion Cable (R88A-CRWR0R5M1) by either soldering it or using a terminal.



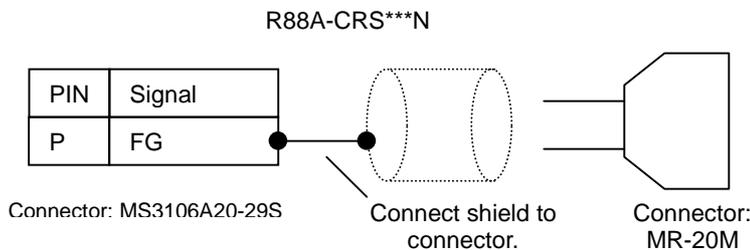
When Cable Already in Use is R88A-CRS***C



- Conversion Cable for Encoder Cable (R88A-CRWS0R5M) + Cable Already in Use (R88A-CRS***N)

Applicable Servomotors: S Series (500 W and 750 W)

Connect to the shield of the cable that is already in use (R88A-CRS***N).



- Power Cable

Conversion Cable for Power Cable: R88A-CAWR0R5S1/B1/S2/B2/S3/B3

Applicable Servomotors: S Series (50, 100, 200, 300, 500, 750 W)

R Series (60, 110, 100, 200, 300, 450, 500, 600, 750, 820, 1100 W)

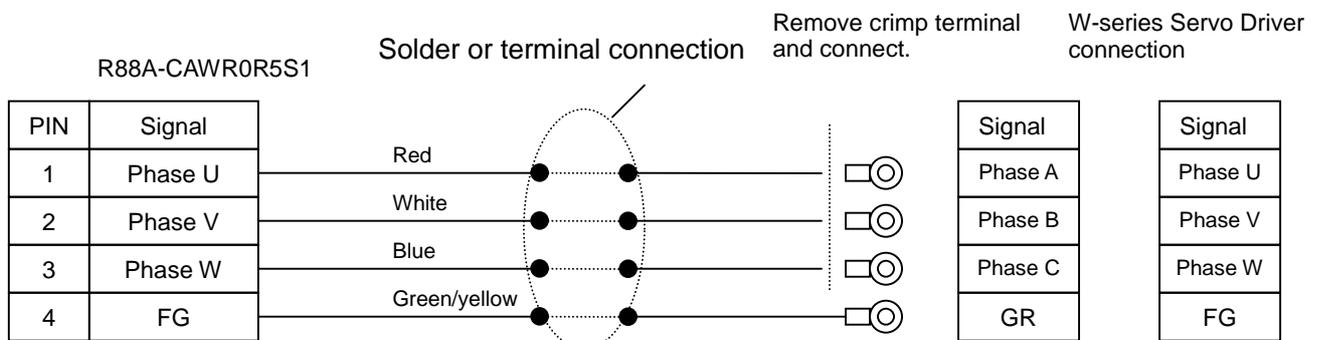
Use solder or a terminal to connect one end of the connector cable to the cable that is already in use.

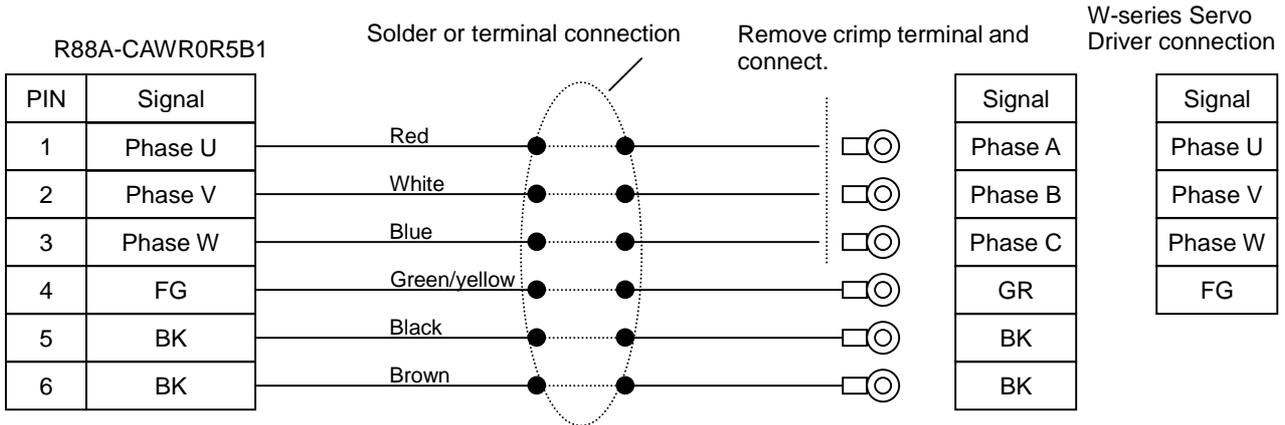
Remove the crimp terminal and connect to the W-series Servo Driver.

- Conversion Cable for Power Cable: R88A-CAWR0R5S1/B1

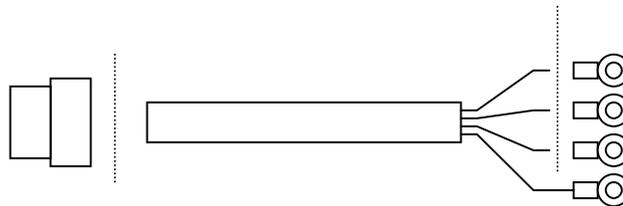
Applicable Servomotors: S Series (50, 100, 200, 300 W)

R Series (60, 110, 100, 200, 300, 450 W)

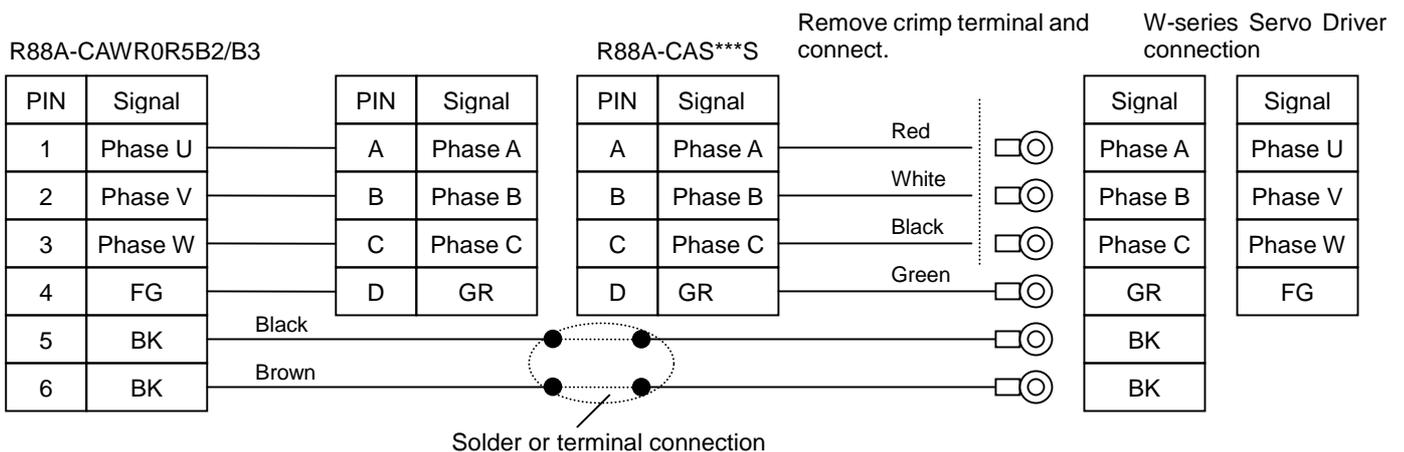
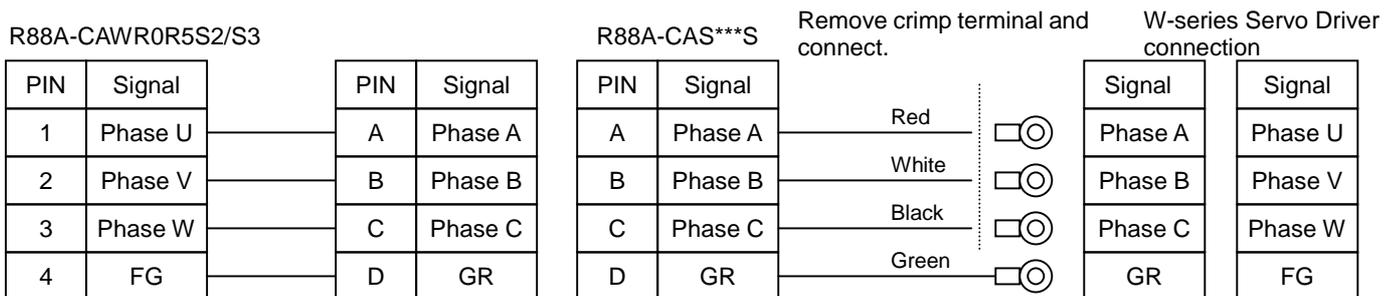




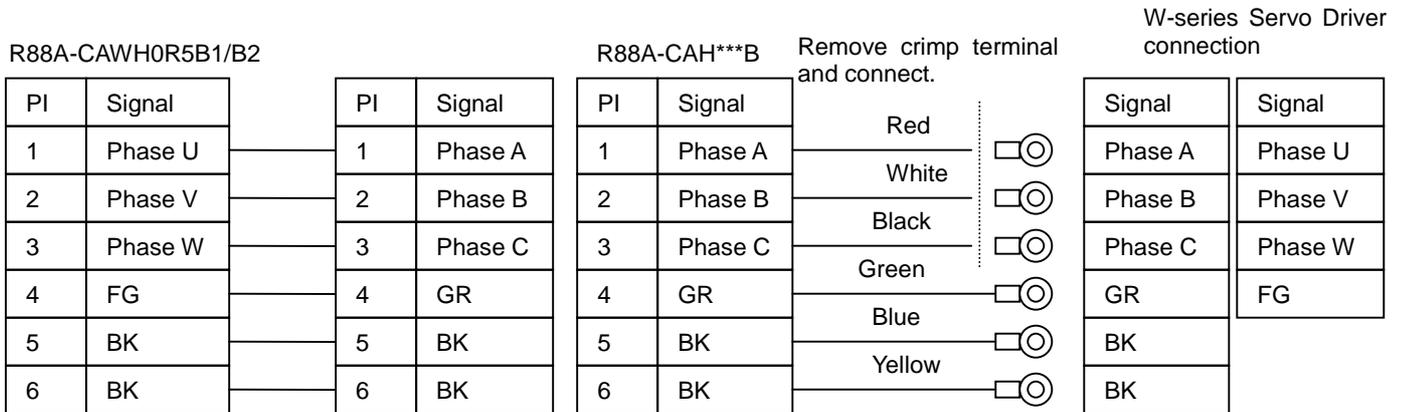
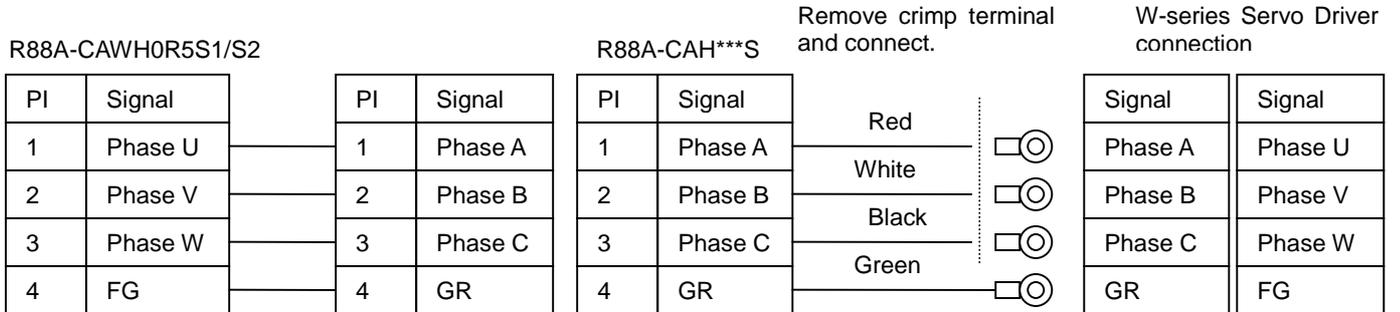
- If the cable that is already in use is a Power Cable for 60 or 110 W (R88A-CAR***S/B), remove the connector at the Servomotor end, and then use solder or a terminal to connect the Conversion Cable for Power Cable (R88A-CAWR0R5S1/B1).



- Conversion Cable for Power Cable: R88A-CAWR0R5S2/B2
Applicable Servomotors: S Series (500 W and 750 W)
R Series (500, 600, 750, and 820 W)
- Conversion Cable for Power Cable: R88A-CAWR0R5S3/B3
Applicable Servomotor: R Series (1100 W)

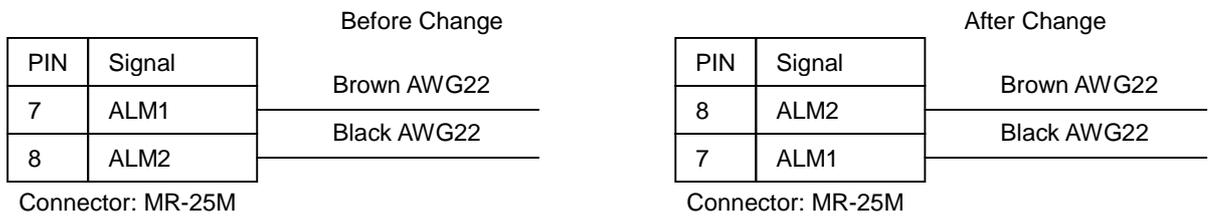


- Conversion Cable for Power Cable: R88A-CAWH0R5S1/B1
Applicable Servomotors: H Series (50 W and 750 W)
- Conversion Cable for Power Cable: R88A-CAWH0R5S2/B2
Applicable Servomotor: H Series (1100 W)

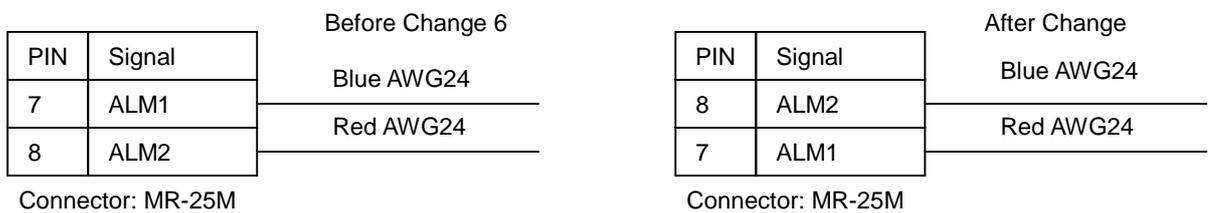


- Control Cable

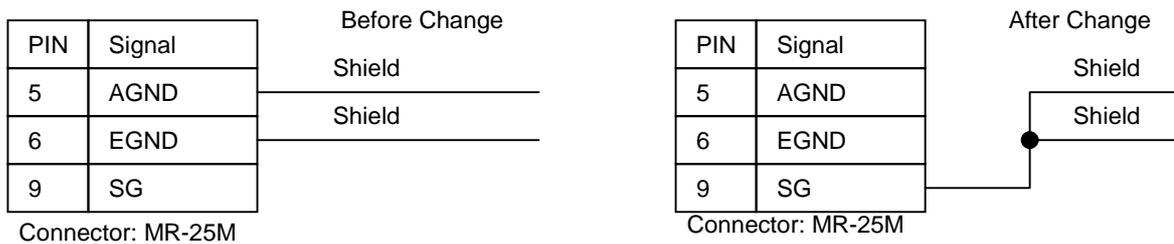
- With analog models, the wiring must be changed as shown below if R88A-CPS***N Control Cable is being used. Reverse the wiring for pins 7 and 8.



- With analog models, the wiring must be changed as shown below if FN515-CCR***N Control Cable is being used. Reverse the wiring for pins 7 and 8.



- Connect the pin 5 and pin 6 shields to pin 9



8. Information on Decelerators

(1) Servomotors with Decelerators

Installation and specifications are not compatible between W-series Servomotors with Decelerators and the S-series, R-series, and H-series Servomotors with Decelerators. Therefore, if W-series Servomotors with Decelerators are to be used, they will have to be newly designed.

For those customers for whom compatibility is an important consideration, decelerators by Sumitomo Heavy Industries, Ltd. that are compatible with OMRON products can be purchased separately and mounted to W-series Servomotors. Please contact your OMRON representative for information on models and prices.

(2) Technical Inquiries about Decelerators

Sumitomo Heavy Industries, Ltd.

PTC KANSAI Sales Department

4-5-33, Kitahama, Chuo-ku, Osaka 541-0041, Japan

TEL: +81-6-6223-7136

9. Standard Models

(1) Mounting Brackets

| Model | Standard price (yen) | Application |
|------------|----------------------|--|
| R88A-MF01W | 10,700 | R Series, 60/100 W |
| R88A-MF02W | 10,900 | S Series, 50/100 W; R Series, 100 W; H Series, 50/100 W |
| R88A-MF03W | 15,300 | S Series, 500/750 W; R Series, 450 W and up; H Series, 500/750 W |

(2) Power Cable

| Model | Standard price (yen) | Application |
|----------------|----------------------|--|
| R88A-CAWR0R5S1 | 4,250 | S Series, 50/100/200/300 W (without brake) R Series, 60/110/100/200/300/450 W (without brake) |
| R88A-CAWR0R5S2 | 10,400 | S Series, 500/750 W (without brake) R Series, 500/600/750/820 W (without brake) |
| R88A-CAWR0R5S3 | 11,900 | R Series, 820/1100 W (with brake) |
| R88A-CAWR0R5B1 | 4,700 | S Series, 50/100/200/300 W (with brake) R Series, 60/110/100/200/300/450 W (with brake) |
| R88A-CAWR0R5B2 | 11,100 | S Series, 500/750 W (with brake) R Series, 500/600/750/820 W (with brake) |
| R88A-CAWR0R5B3 | 12,600 | R Series, 820/1100 W (with brake) |
| R88A-CAWH0R5S1 | 5,450 | H Series, 50/100/200/300/500/750 W (without brake) |
| R88A-CAWH0R5S2 | 4,350 | H Series, 1,100 W (without brake) |
| R88A-CAWH0R5B1 | 5,800 | H Series, 50/100/200/300/500/750 W (with brake) |
| R88A-CAWH0R5B2 | 6,050 | H Series, 1,100 W (with brake) |

(3) Encoder Cable

| Model | Standard price (yen) | Application |
|----------------|----------------------|--|
| R88A-CRWS0R3D | 8,650 | S Series (For Servo Driver side) |
| R88A-CRWR0R5M1 | 5,250 | S Series, 50/100/200/300 W R Series, 100/200/300/450 W (For Servomotor side) |
| R88A-CRWS0R5M | 15,200 | S Series, 500/750 W (For Servomotor side) |
| R88A-CRWR0R3D | 8,500 | R Series; H Series (For Servo Driver side) |
| R88A-CRWH0R5M | 6,400 | R Series, 60/100 W H Series (For Servomotor side) |
| R88A-CRWR0R5M2 | 22,000 | R Series, 500/600/750/820/1100 W (For Servomotor side) |
| R88A-CRWH0R3D | 9,300 | H Series (For Servo Driver side) |

(4) Control Cable

| Model | Standard price (yen) | Application |
|---------------|----------------------|---|
| R88A-CPWR0R3A | 10,600 | S and R Series, analog input models |
| R88A-CPWR0R3P | 13,500 | S and R Series, pulse train input models |
| R88A-CPWH0R3C | 15,800 | H Series, analog/pulse train input models |

10. Reference Data

10-1 Comparison of S/R/H Series and W Series Data

(1) S Series

| S Series | | W Series | | Changes in Servomotor Shape | | | | | | | |
|--------------|-------------|------------------|--|-----------------------------|-----|----------------|-----|----------------|----|------------------------|------|
| | | | | Diagonal | | Mounting holes | | Shaft diameter | | Effective shaft length | |
| Power supply | Servomotor | Servomotor | | S | WP | S | WP | S | WP | S | WP |
| 100V | R88M-S05030 | R88M-WP10030L-S1 | | 66 | 60 | 80 | 70 | 8 | 8 | 24 | 22 |
| | R88M-S10030 | | | 66 | 60 | 80 | 70 | 8 | 8 | 24 | 22 |
| | R88M-S20030 | R88M-WP20030L-S1 | | 80 | 80 | 90 | 90 | 14 | 14 | 24.5 | 27 |
| | R88M-S30030 | R88M-WP40030H-S1 | | 80 | 80 | 90 | 90 | 14 | 14 | 24.5 | 27 |
| | R88M-S50030 | R88M-WP75030H-S1 | | 120 | 120 | 130 | 145 | 16 | 16 | 35 | 36.5 |
| | R88M-S75030 | | | 120 | 120 | 130 | 145 | 16 | 16 | 35 | 36.5 |

| S Series | | W Series | | Servomotor characteristics | | | | | | | | | |
|--------------|-------------|------------------|--|--|----------|--------------------|-------|--------------------------|-------|-----------------------|-----|-----------------------|-----|
| | | | | Application inertia (kg·m ²) | | Rated torque (N·m) | | Maximum momentary torque | | Shaft radial load (N) | | Shaft thrust load (N) | |
| Power supply | Servomotor | Servomotor | | S | WP | S | WP | S | WP | S | WP | S | WP |
| 100V | R88M-S05030 | R88M-WP10030L-S1 | | 1.25E-04 | 1.23E-04 | 0.159 | 0.318 | 0.477 | 0.955 | 102.9 | 78 | 29.4 | 49 |
| | R88M-S10030 | | | 1.76E-04 | 1.23E-04 | 0.319 | 0.318 | 0.957 | 0.955 | 112.7 | 78 | 29.4 | 49 |
| | R88M-S20030 | R88M-WP20030L-S1 | | 5.20E-04 | 2.32E-04 | 0.636 | 0.637 | 1.908 | 1.91 | 186.2 | 245 | 78.4 | 68 |
| | R88M-S30030 | R88M-WP40030H-S1 | | 7.51E-04 | 3.31E-04 | 0.954 | 1.27 | 2.862 | 3.82 | 196 | 245 | 78.4 | 68 |
| | R88M-S50030 | R88M-WP75030H-S1 | | 2.56E-03 | 2.10E-03 | 1.6 | 2.39 | 4.8 | 7.16 | 352.8 | 392 | 117.6 | 147 |
| | R88M-S75030 | | | 3.55E-03 | 2.10E-03 | 2.39 | 2.39 | 5.975 | 7.16 | 352.8 | 392 | 117.6 | 147 |

| S Series | | W Series | | Servo Driver shape | | | | | | | | Servo Driver characteristics | | | |
|--------------|----------------|--------------|--------------|--------------------|-----|--------|----|--------|-----|---------------------|-----|-----------------------------------|------|--------|-----|
| | | | | H (mm) | | W (mm) | | D (mm) | | Including connector | | Amount of regenerative energy (W) | | | |
| Power supply | Servo Driver | Power supply | Servo Driver | S | WP | S | WP | S | WP | S | WP | S (J) | (W) | WP (J) | (W) |
| 100V | R88D-SB (R)05* | 100V | R88D-WT01HL | 250 | 160 | 75 | 55 | 180 | 130 | 191 | 174 | By Power Supply Unit | 15.7 | - | |
| | R88D-SB (R)10* | | | 250 | 160 | 75 | 55 | 180 | 130 | 191 | 174 | By Power Supply Unit | 15.7 | - | |
| | | 100V | R88D-WT02HL | 250 | 160 | 75 | 75 | 180 | 130 | 191 | 174 | By Power Supply Unit | 15.7 | - | |
| | | 200V | R88D-WT04H | 250 | 160 | 75 | 75 | 180 | 130 | 191 | 174 | By Power Supply Unit | 37.1 | - | |
| | | 200V | R88D-WT08H | 250 | 160 | 120 | 90 | 180 | 180 | 191 | 224 | By Power Supply Unit | - | 12.0 | |

(2) R Series

| R Series | | W Series | Changes in Servomotor Shape | | | | | | | |
|--------------|------------------|------------------|-----------------------------|-----|----------------|-----|----------------|----|------------------------|------|
| | | | Diagonal | | Mounting holes | | Shaft diameter | | Effective shaft length | |
| Power supply | Servomotor | Servomotor | R | WP | R | WP | R | WP | R | WP |
| 100V | R88M-R06030 | R88M-WP10030L-S1 | 53 | 60 | 60 | 70 | 8 | 8 | 24 | 22 |
| | R88M-R11030 | | 53 | 60 | 60 | 70 | 8 | 8 | 24 | 22 |
| | R88M-R10030 | R88M-WP10030L-S1 | 66 | 60 | 80 | 70 | 8 | 8 | 24 | 22 |
| | R88M-R20030 | R88M-WP20030L-S1 | 80 | 80 | 90 | 90 | 14 | 14 | 24.5 | 27 |
| | R88M-R30030 | R88M-WP40030H-S1 | 80 | 80 | 90 | 90 | 14 | 14 | 24.5 | 27 |
| 200V | R88M-R06030 | R88M-WP10030H-S1 | 53 | 60 | 60 | 70 | 8 | 8 | 24 | 22 |
| | R88M-R11030 | | 53 | 60 | 60 | 70 | 8 | 8 | 24 | 22 |
| | R88M-R10030 | R88M-WP10030H-S1 | 66 | 60 | 80 | 70 | 8 | 8 | 24 | 22 |
| | R88M-R20030 | R88M-WP20030H-S1 | 80 | 80 | 90 | 90 | 14 | 14 | 24.5 | 27 |
| | R88M-R30030 | R88M-WP40030H-S1 | 80 | 80 | 90 | 90 | 14 | 14 | 24.5 | 27 |
| | R88M-R45030 | R88M-WP75030H-S1 | 120 | 120 | 130 | 145 | 16 | 16 | 35 | 36.5 |
| | R88M-R50030 | | 120 | 120 | 130 | 145 | 16 | 16 | 35 | 36.5 |
| | R88M-R60030 | | 120 | 120 | 130 | 145 | 16 | 16 | 35 | 36.5 |
| | R88M-R75030 | | 120 | 120 | 130 | 145 | 16 | 16 | 35 | 36.5 |
| | R88M-R82030 | | 120 | 120 | 130 | 145 | 16 | 16 | 35 | 36.5 |
| | R88M-WP1K530H-S1 | | 120 | 120 | 130 | 145 | 16 | 19 | 35 | 36.5 |
| | | | R88M-R1K130 | 120 | 120 | 130 | 145 | 19 | 19 | 35 |

| R Series | | W Series | Servomotor characteristics | | | | | | | | | |
|--------------|------------------|------------------|--|----------|--------------------|-------|--------------------------|-------|-----------------------|-----|-----------------------|-----|
| | | | Application inertia (kg·m ²) | | Rated torque (N·m) | | Maximum momentary torque | | Shaft radial load (N) | | Shaft thrust load (N) | |
| Power supply | Servomotor | Servomotor | R | WP | R | WP | R | WP | R | WP | R | WP |
| 100V | R88M-R06030 | R88M-WP10030L-S1 | 1.23E-04 | 1.23E-04 | 0.191 | 0.318 | 0.637 | 0.955 | 112.7 | 78 | 29.4 | 49 |
| | R88M-R11030 | | 1.96E-04 | 1.23E-04 | 0.351 | 0.318 | 1.18 | 0.955 | 112.7 | 78 | 29.4 | 49 |
| | R88M-R10030 | R88M-WP10030L-S1 | 1.85E-04 | 1.23E-04 | 0.319 | 0.318 | 0.951 | 0.955 | 112.7 | 78 | 29.4 | 49 |
| | R88M-R20030 | R88M-WP20030L-S1 | 5.20E-04 | 2.32E-04 | 0.636 | 0.637 | 2.35 | 1.91 | 186.2 | 245 | 78.4 | 68 |
| | R88M-R30030 | R88M-WP40030H-S1 | 7.55E-04 | 3.31E-04 | 0.955 | 1.27 | 2.74 | 3.82 | 196 | 245 | 78.4 | 68 |
| 200V | R88M-R06030 | R88M-WP10030H-S1 | 1.23E-04 | 1.23E-04 | 0.191 | 0.318 | 0.637 | 0.955 | 112.7 | 78 | 29.4 | 49 |
| | R88M-R11030 | | 1.96E-04 | 1.23E-04 | 0.351 | 0.318 | 1.18 | 0.955 | 112.7 | 78 | 29.4 | 49 |
| | R88M-R10030 | R88M-WP10030H-S1 | 1.85E-04 | 1.23E-04 | 0.319 | 0.318 | 0.951 | 0.955 | 112.7 | 78 | 29.4 | 49 |
| | R88M-R20030 | R88M-WP20030H-S1 | 5.20E-04 | 2.90E-04 | 0.636 | 0.637 | 2.35 | 1.91 | 186.2 | 245 | 78.4 | 68 |
| | R88M-R30030 | R88M-WP40030H-S1 | 7.55E-04 | 3.31E-04 | 0.955 | 1.27 | 2.74 | 3.82 | 196 | 245 | 78.4 | 68 |
| | R88M-R45030 | R88M-WP75030H-S1 | 1.57E-03 | 2.10E-03 | 1.43 | 2.39 | 3.53 | 7.16 | 332.2 | 392 | 117.6 | 147 |
| | R88M-R50030 | | 1.99E-03 | 2.10E-03 | 1.6 | 2.39 | 4.1 | 7.16 | 352.8 | 392 | 117.6 | 147 |
| | R88M-R60030 | | 1.99E-03 | 2.10E-03 | 1.91 | 2.39 | 4.9 | 7.16 | 352.8 | 392 | 117.6 | 147 |
| | R88M-R75030 | | 2.45E-03 | 2.10E-03 | 2.39 | 2.39 | 7 | 7.16 | 372.4 | 392 | 117.6 | 147 |
| | R88M-R82030 | | 2.45E-03 | 2.10E-03 | 2.39 | 2.39 | 7 | 7.16 | 372.4 | 392 | 117.6 | 147 |
| | R88M-WP1K530H-S1 | | 2.45E-03 | 4.02E-03 | 2.61 | 4.77 | 7.64 | 14.3 | 372.4 | 490 | 117.6 | 147 |
| | | | R88M-R1K130 | 3.59E-03 | 4.02E-03 | 3.5 | 4.77 | 8.62 | 14.3 | 441 | 490 | 147 |

| R Series | | W Series | | Servo Driver shape | | | | | | | | Servo Driver characteristics | | | |
|--------------|---------------|--------------|--------------|--------------------|-----|--------|-----|--------|-----|---------------------|----------------------|-----------------------------------|------|--------|------|
| | | | | H (mm) | | W (mm) | | D (mm) | | Including connector | | Amount of regenerative energy (W) | | | |
| Power supply | Servo Driver | Power supply | Servo Driver | R | WP | R | WP | R | WP | R | WP | S (J) | (W) | WP (J) | (W) |
| 100V | R88D-RB (R)04 | 100V | R88D-WT01HL | 250 | 160 | 80 | 55 | 220 | 130 | 231 | 174 | By Power Supply Unit | | | |
| | 250 | | | 160 | 80 | 55 | 220 | 130 | 231 | 174 | By Power Supply Unit | | | | |
| | R88D-RB (R)05 | | R88D-WT02HL | 250 | 160 | 80 | 75 | 220 | 130 | 231 | 174 | By Power Supply Unit | | | |
| | R88D-RB (R)10 | 200V | R88D-WT04H | 250 | 160 | 80 | 75 | 220 | 130 | 231 | 174 | By Power Supply Unit | | | |
| 200V | R88D-RB (R)04 | 200V | R88D-WT01H | 250 | 160 | 80 | 55 | 220 | 130 | 231 | 174 | By Power Supply Unit | | | |
| | 250 | | | 160 | 80 | 55 | 220 | 130 | 231 | 174 | By Power Supply Unit | | | | |
| | R88D-RB (R)05 | | R88D-WT02H | 250 | 160 | 80 | 55 | 220 | 130 | 231 | 174 | By Power Supply Unit | | | |
| | R88D-RB (R)10 | | R88D-WT04H | 250 | 160 | 80 | 75 | 220 | 130 | 231 | 174 | By Power Supply Unit | | | |
| | R88D-RB (R)15 | | R88D-WT08H | 250 | 160 | 80 | 90 | 220 | 180 | 231 | 224 | By Power Supply Unit | | | |
| | R88D-RB (R)20 | | | 250 | 160 | 80 | 90 | 220 | 180 | 231 | 224 | By Power Supply Unit | | | |
| | R88D-WT15H | | 250 | 160 | 80 | 110 | 220 | 180 | 231 | 224 | By Power Supply Unit | | | | |
| 200V | R88D-RA (P)05 | 200V | R88D-WT01H | 350 | 160 | 150 | 55 | 160 | 130 | 160 | 174 | 35.0 | - | 37.1 | - |
| | R88D-RA (P)10 | | | R88D-WT02H | 350 | 160 | 150 | 55 | 160 | 130 | 160 | 174 | 35.0 | - | 37.1 |
| | | | R88D-WT04H | 350 | 160 | 150 | 75 | 160 | 130 | 160 | 174 | 35.0 | - | 37.1 | - |
| | | | R88D-WT08H | 350 | 160 | 150 | 90 | 160 | 180 | 160 | 224 | - | 25.0 | - | 12.0 |
| | | | | 350 | 160 | 150 | 90 | 160 | 180 | 160 | 224 | - | 25.0 | - | 12.0 |
| | R88D-WT15H | | 350 | 160 | 150 | 110 | 160 | 180 | 160 | 224 | - | 25.0 | - | 14.0 | |

(3) H Series

| H Series | | W Series | Changes in Servomotor Shape | | | | | | | |
|--------------|-------------|------------------|-----------------------------|-----|----------------|-----|----------------|----|------------------------|------|
| | | | Diagonal | | Mounting holes | | Shaft diameter | | Effective shaft length | |
| Power supply | Servomotor | Servomotor | S | WP | S | WP | S | WP | S | WP |
| 100V | R88M-H05030 | R88M-WP10030L-S1 | 66 | 60 | 80 | 70 | 8 | 8 | 24 | 22 |
| | R88M-H10030 | | 66 | 60 | 80 | 70 | 8 | 8 | 24 | 22 |
| | R88M-H20030 | R88M-WP20030L-S1 | 80 | 80 | 90 | 90 | 14 | 14 | 24.5 | 27 |
| | R88M-H30030 | R88M-WP40030H-S1 | 80 | 80 | 90 | 90 | 14 | 14 | 24.5 | 27 |
| 200V | R88M-H05030 | R88M-WP10030H-S1 | 66 | 60 | 80 | 70 | 8 | 8 | 24 | 22 |
| | R88M-H10030 | | 66 | 60 | 80 | 70 | 8 | 8 | 24 | 22 |
| | R88M-H20030 | R88M-WP20030H-S1 | 80 | 80 | 90 | 90 | 14 | 14 | 24.5 | 27 |
| | R88M-H30030 | R88M-WP40030H-S1 | 80 | 80 | 90 | 90 | 14 | 14 | 24.5 | 27 |
| | R88M-H50030 | R88M-WP75030H-S1 | 120 | 120 | 130 | 145 | 16 | 16 | 35 | 36.5 |
| | R88M-H75030 | | 120 | 120 | 130 | 145 | 16 | 16 | 35 | 36.5 |
| | R88M-H1K130 | R88M-WP1K530H-S1 | 120 | 120 | 130 | 145 | 19 | 19 | 35 | 36.5 |

| H Series | | W Series | Servomotor characteristics | | | | | | | | | |
|--------------|-------------|------------------|--|----------|--------------------|-------|--------------------------|-------|-----------------------|-----|-----------------------|-----|
| | | | Application inertia (kg·m ²) | | Rated torque (N·m) | | Maximum momentary torque | | Shaft radial load (N) | | Shaft thrust load (N) | |
| Power supply | Servomotor | Servomotor | S | WP | S | WP | S | WP | S | WP | S | WP |
| 100V | R88M-H05030 | R88M-WP10030L-S1 | 1.40E-04 | 1.23E-04 | 0.16 | 0.318 | 0.48 | 0.955 | 103 | 78 | 29 | 49 |
| | R88M-H10030 | | 2.20E-04 | 1.23E-04 | 0.32 | 0.318 | 0.95 | 0.955 | 113 | 78 | 29 | 49 |
| | R88M-H20030 | R88M-WP20030L-S1 | 4.40E-04 | 2.32E-04 | 0.64 | 0.637 | 1.91 | 1.91 | 186 | 245 | 78 | 68 |
| | R88M-H30030 | R88M-WP40030H-S1 | 6.50E-04 | 3.31E-04 | 0.95 | 1.27 | 2.86 | 3.82 | 196 | 245 | 78 | 68 |
| 200V | R88M-H05030 | R88M-WP10030H-S1 | 1.40E-04 | 1.23E-04 | 0.16 | 0.318 | 0.48 | 0.955 | 103 | 78 | 29 | 49 |
| | R88M-H10030 | | 2.20E-04 | 1.23E-04 | 0.32 | 0.318 | 0.95 | 0.955 | 113 | 78 | 29 | 49 |
| | R88M-H20030 | R88M-WP20030H-S1 | 4.40E-04 | 2.90E-04 | 0.64 | 0.637 | 1.91 | 1.91 | 186 | 245 | 78 | 68 |
| | R88M-H30030 | R88M-WP40030H-S1 | 6.50E-04 | 3.31E-04 | 0.95 | 1.27 | 2.86 | 3.82 | 196 | 245 | 78 | 68 |
| | R88M-H50030 | R88M-WP75030H-S1 | 2.50E-03 | 2.10E-03 | 1.59 | 2.39 | 4.76 | 7.16 | 353 | 392 | 118 | 147 |
| | R88M-H75030 | | 4.10E-03 | 2.10E-03 | 2.39 | 2.39 | 7.17 | 7.16 | 373 | 392 | 118 | 147 |
| | R88M-H1K130 | R88M-WP1K530H-S1 | 5.70E-03 | 4.02E-03 | 3.5 | 4.77 | 8.62 | 14.3 | 441 | 490 | 147 | 147 |

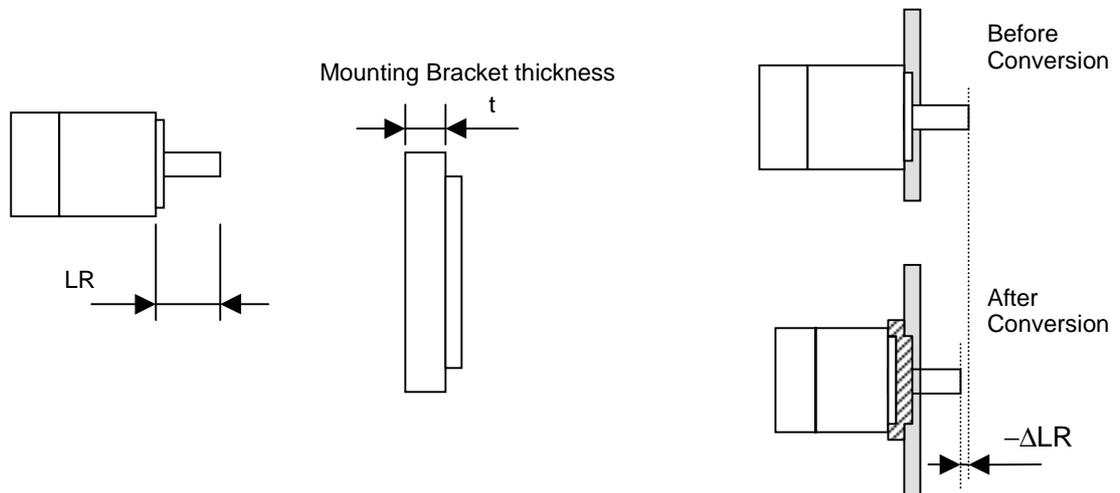
| H Series | | W Series | Servo Driver shape | | | | | | | | Servo Driver characteristics | | | | |
|--------------|--------------|--------------|--------------------|-----|--------|-----|--------|-----|---------------------|-----|-----------------------------------|--------|------|------|---|
| | | | H (mm) | | W (mm) | | D (mm) | | Including connector | | Amount of regenerative energy (W) | | | | |
| Power supply | Servo Driver | Servo Driver | H | WP | H | WP | H | WP | H | WP | H(J) | WP (J) | (W) | | |
| 100V | R88D-HL04 | R88D-WT01HL | 250 | 160 | 80 | 55 | 195 | 130 | 206 | 174 | 33.0 | - | 15.7 | - | |
| | R88D-HS04 | | 250 | 160 | 80 | 55 | 195 | 130 | 206 | 174 | 33.0 | - | 15.7 | - | |
| | R88D-HL10 | | R88D-WT02HL | 250 | 160 | 80 | 75 | 195 | 130 | 206 | 174 | 33.0 | - | 15.7 | - |
| | R88D-HS10 | | | 250 | 160 | 80 | 75 | 195 | 130 | 206 | 174 | 33.0 | - | 15.7 | - |
| 200V | R88D-HT04 | R88D-WT01H | 250 | 160 | 80 | 55 | 195 | 130 | 206 | 174 | - | 10.0 | 37.1 | - | |
| | R88D-HS04 | | 250 | 160 | 80 | 55 | 195 | 130 | 206 | 174 | - | 10.0 | 37.1 | - | |
| | R88D-HT10 | R88D-WT02H | 250 | 160 | 80 | 55 | 195 | 130 | 206 | 174 | - | 10.0 | 37.1 | - | |
| | R88D-HS10 | | 250 | 160 | 80 | 75 | 195 | 130 | 206 | 174 | - | 10.0 | 37.1 | - | |
| | R88D-HS22 | R88D-WT08H | 250 | 160 | 110 | 90 | 195 | 180 | 206 | 224 | By Power Supply Unit | - | 12.0 | - | |
| | | | 250 | 160 | 110 | 90 | 195 | 180 | 206 | 224 | By Power Supply Unit | - | 12.0 | - | |
| | | R88D-WT15H | 250 | 160 | 110 | 110 | 195 | 180 | 206 | 224 | By Power Supply Unit | - | 14.0 | - | |

10-2 Guide to Changing the Thickness of Servomotor Mounting Brackets

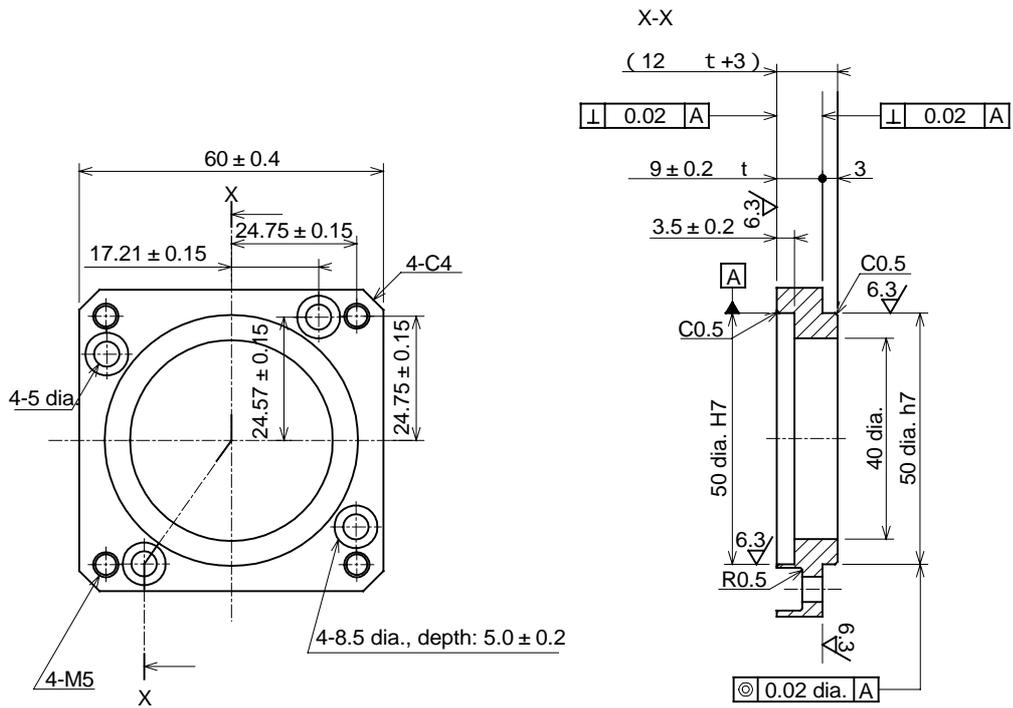
The Mounting Bracket is manufactured in only one thickness. If adjusting the length of the coupling is a problem and the Mounting Bracket thickness must be changed, this procedure must be performed by the user. Because of the need to maintain the strength of the Mounting Bracket, it is recommended that the thickness of the Mounting Bracket not be reduced, but, rather, that the thickness be increased to match the length of the coupling. Refer to the diagrams for individual models shown below and increase the thickness (t). As the thickness (t) is changed, the position of the end of the Servomotor shaft changes according to the following equation:

(Amount of change in position of Servomotor shaft end) $-\Delta LR = (LR \text{ dimension of S or R Series}) - (LR \text{ dimension of W Series}) + (\text{Mounting Bracket thickness } t)$

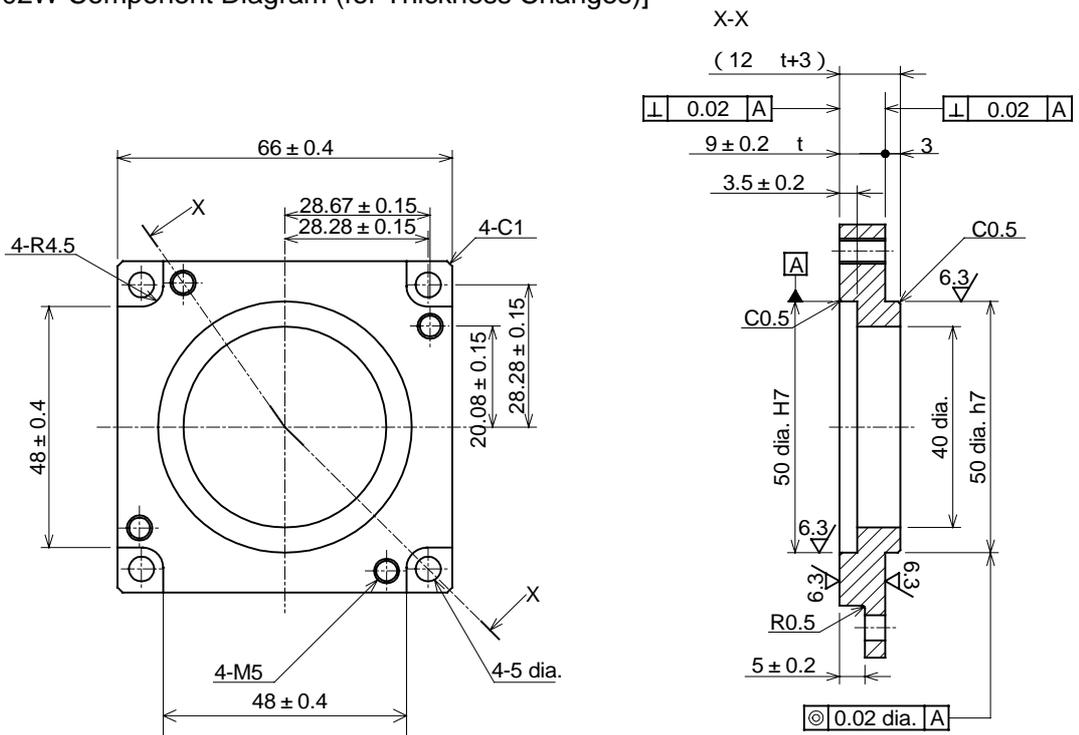
To maintain sufficient strength, use A2017P-T351 or other materials with a durability of at least 215 N/ mm².



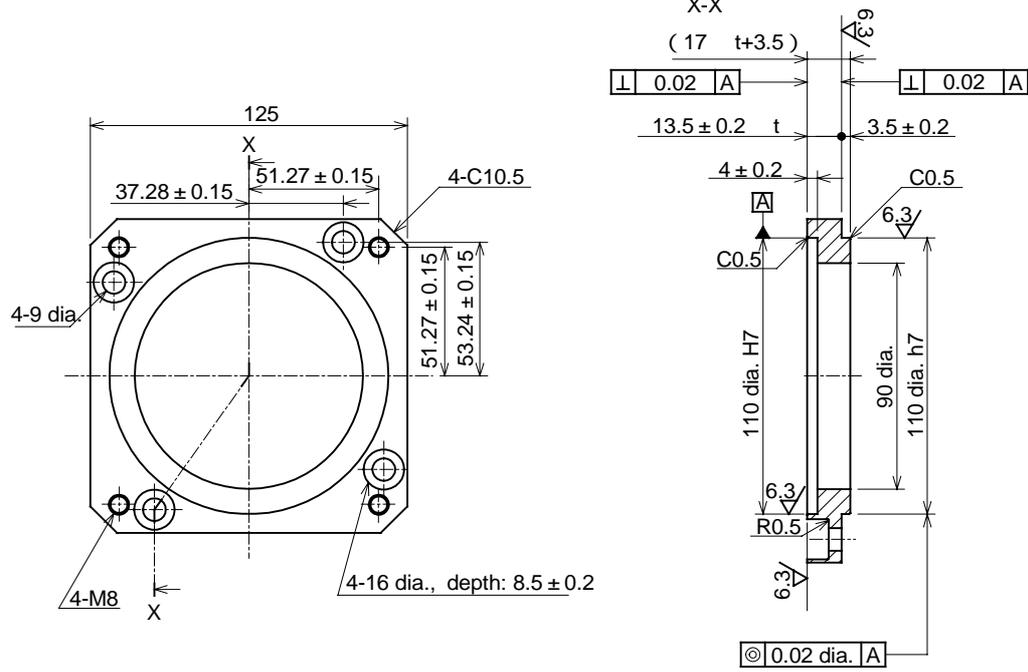
[R88A-MF01W Component Diagram (for Thickness Changes)]



[R88A-MF02W Component Diagram (for Thickness Changes)]



[R88A-MF03W Component Diagram (for Thickness Changes)]



10-3 Servo Driver Mounting Hole Positions

The positions of mounting holes for the S-series, R-series, and H-series Servo Drivers are changed for W-series Servo Drivers as shown below.

If producing holes in the control panel is a problem, use the mounting holes for the S-series or R-series Servo Driver, and prepare a mounting bracket that will enable the W-series Servo Driver to be mounted. Refer to the hole-position diagrams on the following pages.

- S Series

- 1) R88D-SB05 (S)/SB10 (S)/SR05/SR10 → R88D-WT01HL/WT01H/WT02H
- 2) R88D-SB10 (S)/SB14 (S)/SR10/SR14 → R88D-WT02HL/WT04H
- 3) R88D-SB25S/SR25 → R88D-WT08H
- 4) R88D-SB25S/SR25 with Fan → R88D-WT08H

- R Series (Separate Power Supply)

- 1) R88D-RB04/RB05/RB10/RR04/RR05/RR10 → R88D-WT01HL/WT01H/WT02H
- 2) R88D-RB10/RR10 → R88D-WT02HL/WT04H
- 3) R88D-RB15/RB20/RR15/RR20 → R88D-WT08H
- 4) R88D-RB20/RR20 → R88D-WT15H

- R Series (With Power Supply)

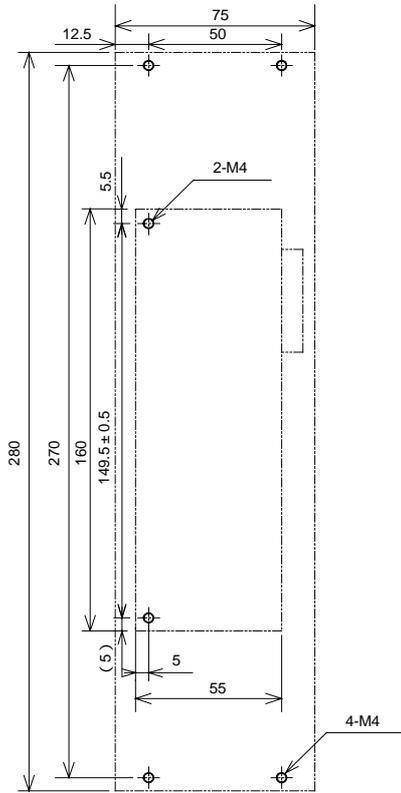
- 1) R88D-RA05/RA10/RP05/RP10 → R88D-WT01HL/WT01H/WT02H
- 2) R88D-RA10/RP10 → R88D-WT02HL/WT04H
- 3) R88D-RA15/RA20/RP15/RP20 → R88D-WT08H
- 4) R88D-RA20/RP20 → R88D-WT15H

- H Series

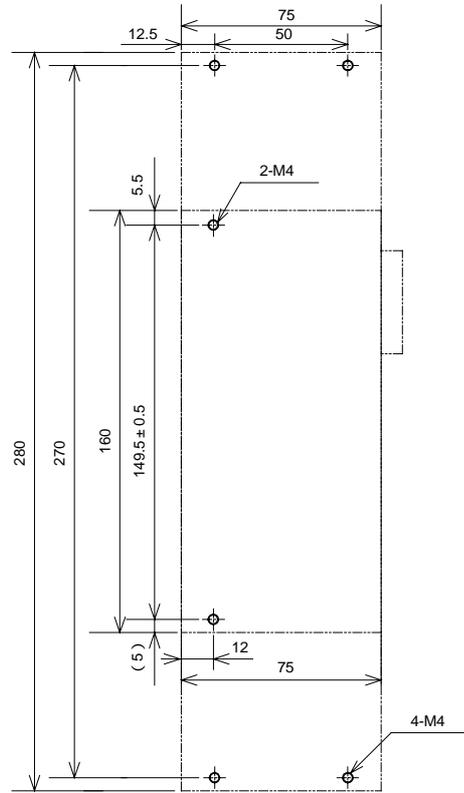
- 1) R88D-HL04/HT04/HS04/HL10/HT10/HS10 → R88D-WT01HL/WT01H/WT02H
- 2) R88D-HL10/HT10/HS10 → R88D-WT02HL/WT04H
- 3) R88D-HS22 → R88D-WT08H
- 4) R88D-HS22 → R88D-WT15H

● S Series

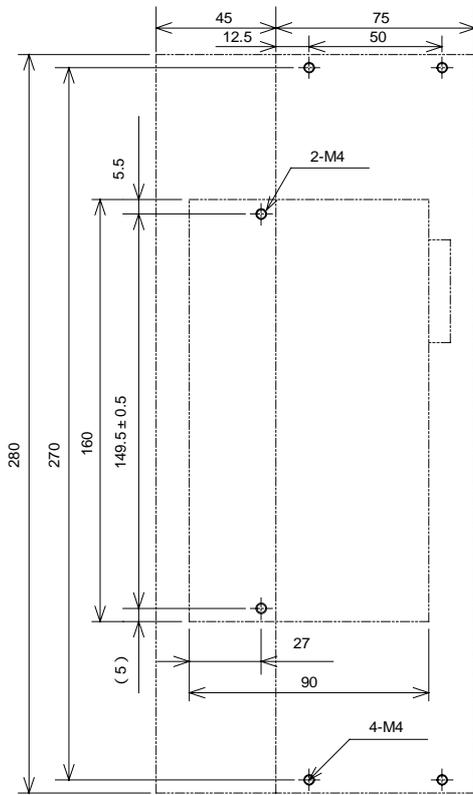
1) R88D-SB05 (S)/SB10 (S)/SR05/SR10
→ R88D-WT01HL/WT01H/WT02H



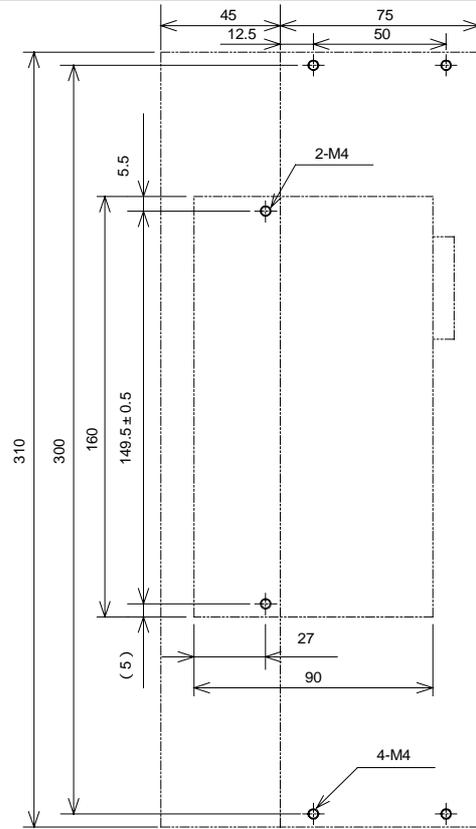
2) R88D-SB10 (S)/SB14 (S)/SR10/SR14
→ R88D-WT02HL/WT04H



3) R88D-SB25S/SR25
 → R88D-WT08H

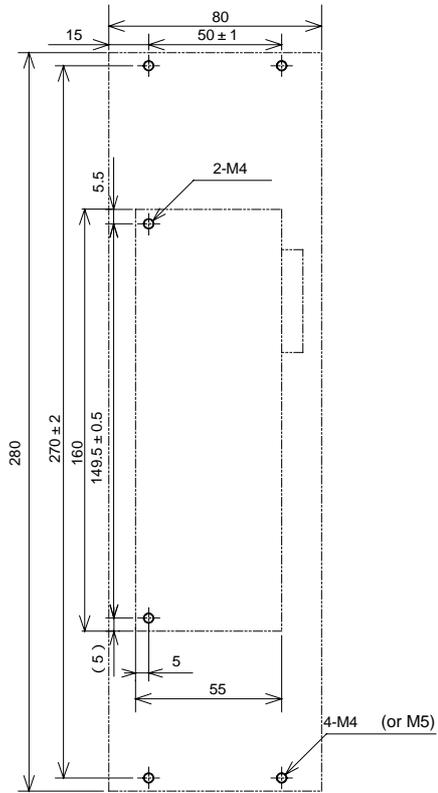


4) R88D-SB25S/SR25 With Fan
 → R88D-WT08H

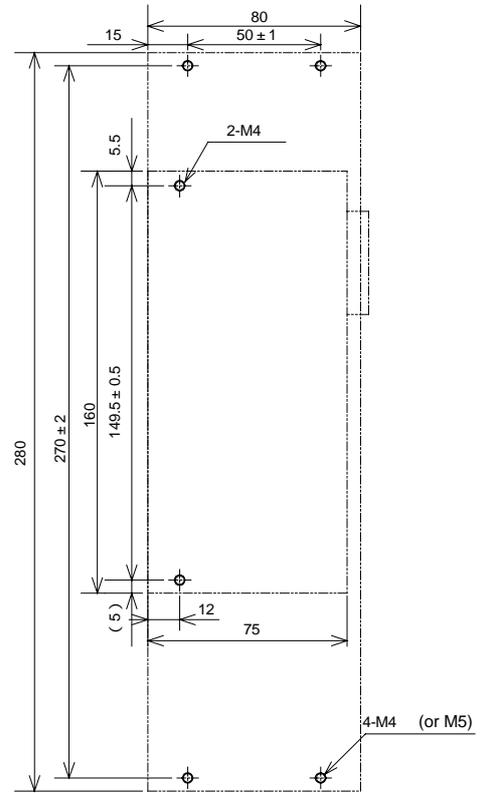


● R Series (Separate Power Supply)

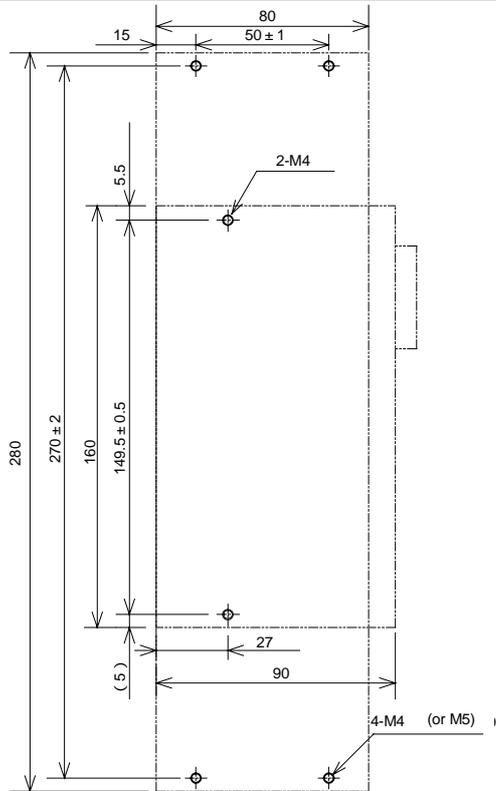
1) R88D-RB04/RB05/RB10/RR04/RR05/RR10
→R88D-WT01HL/WT01H/WT02H



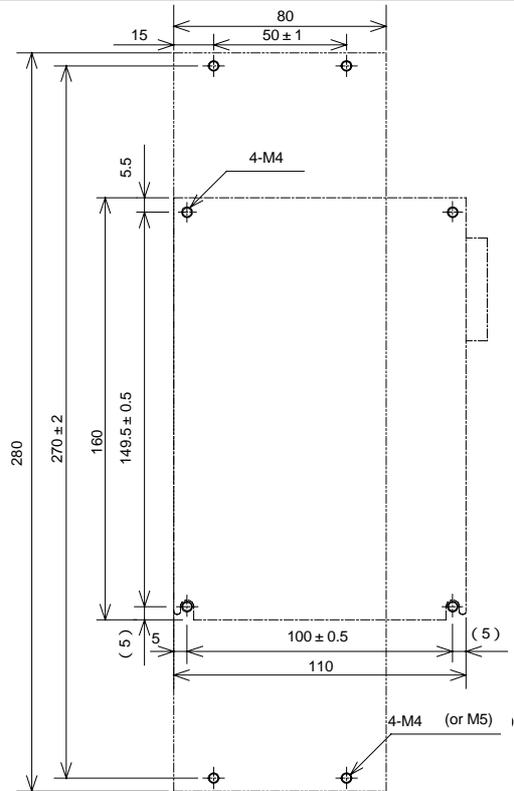
2) R88D-RB10/RR10
→R88D-WT02HL/WT04H



3) R88D-RB15/RB20/RR15/RR20
→ R88D-WT08H

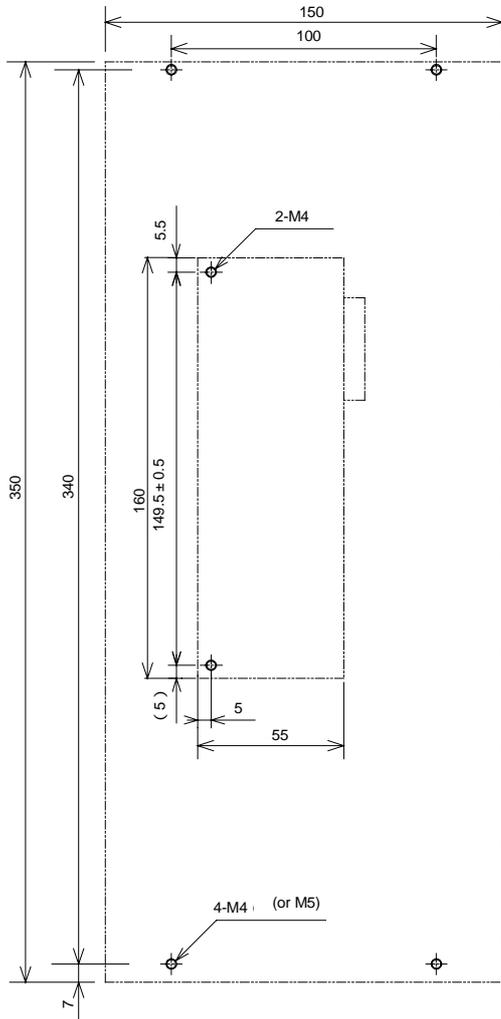


4) R88D-RB20/RR20
→ R88D-WT15H

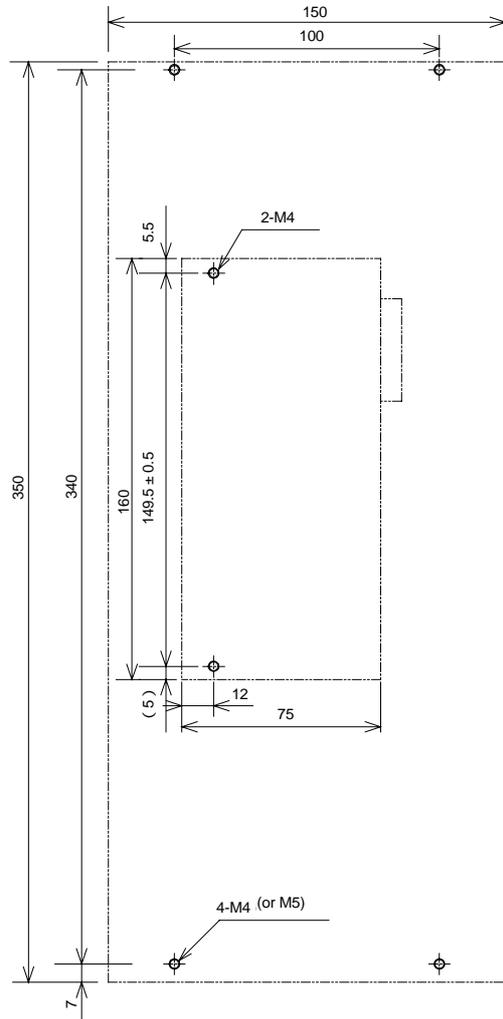


● R Series (With Power Supply)

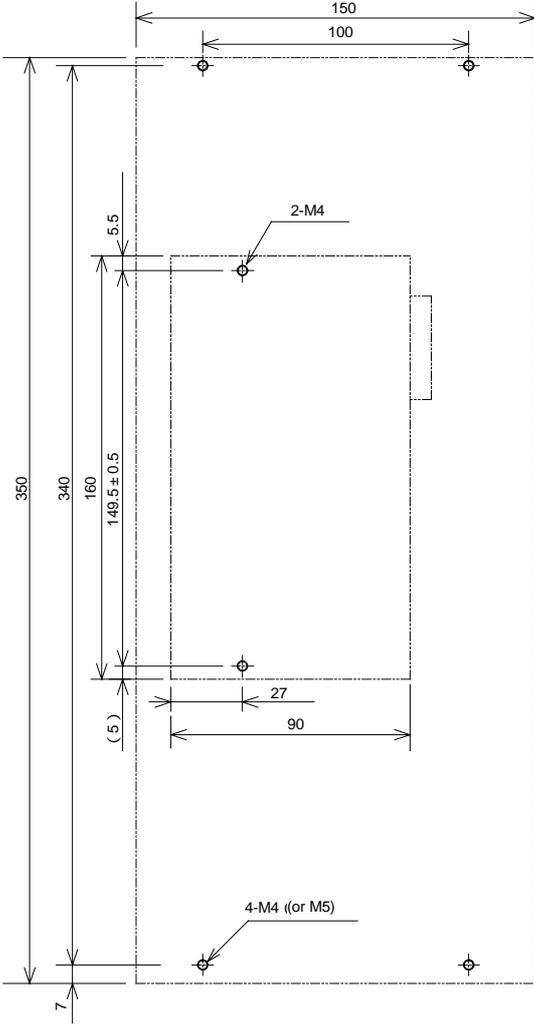
1) R88D-RA05/RA10/RP05/RP10
→ R88D-WT01HL/WT01H/WT02H



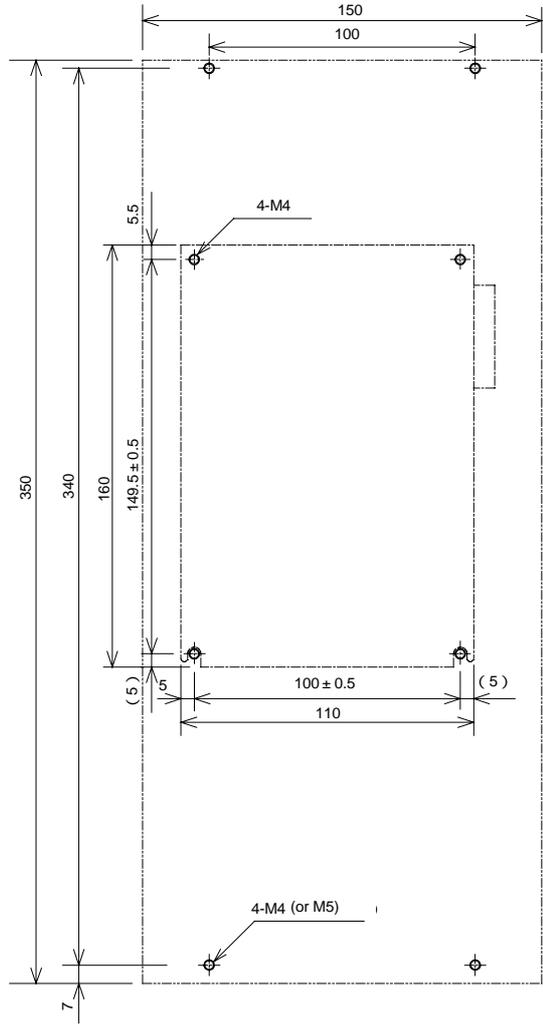
2) R88D-RA10/RP10
→ R88D-WT02HL/WT04H



3) R88D-RA15/RA20/RP15/RP20
→ R88D-WT08H

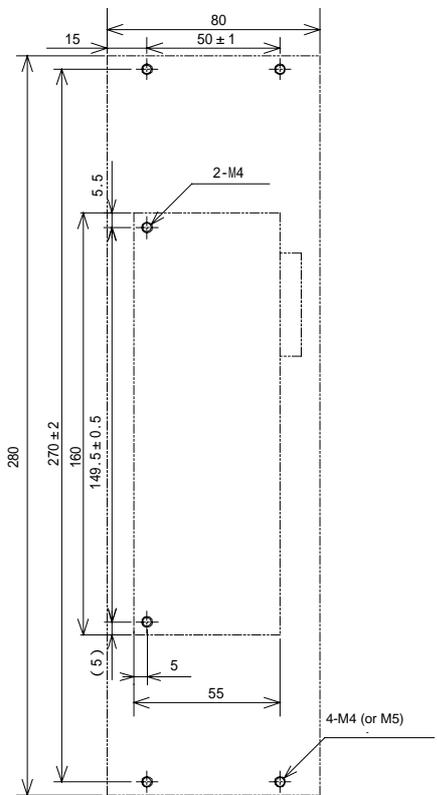


4) R88D-RA20/RP20
→ R88D-WT15H

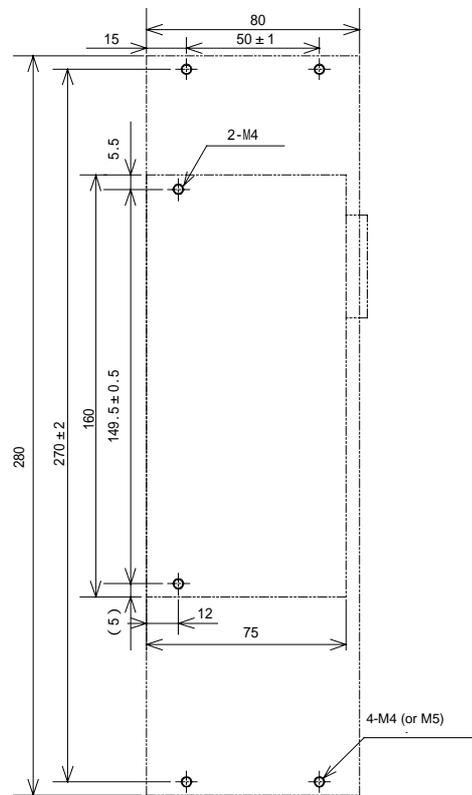


● H Series

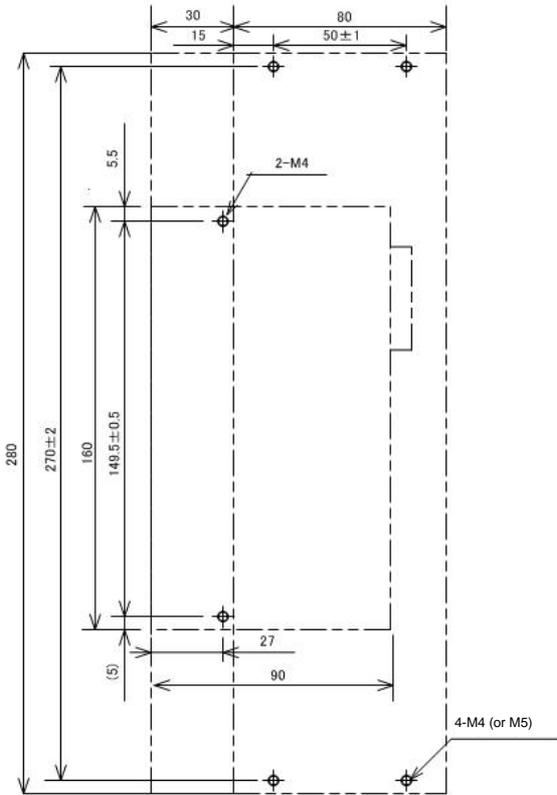
1) R88D-HL04/HT04/HL10/HT10/HS10
 → R88D-WT01HL/WT01H/WT02H



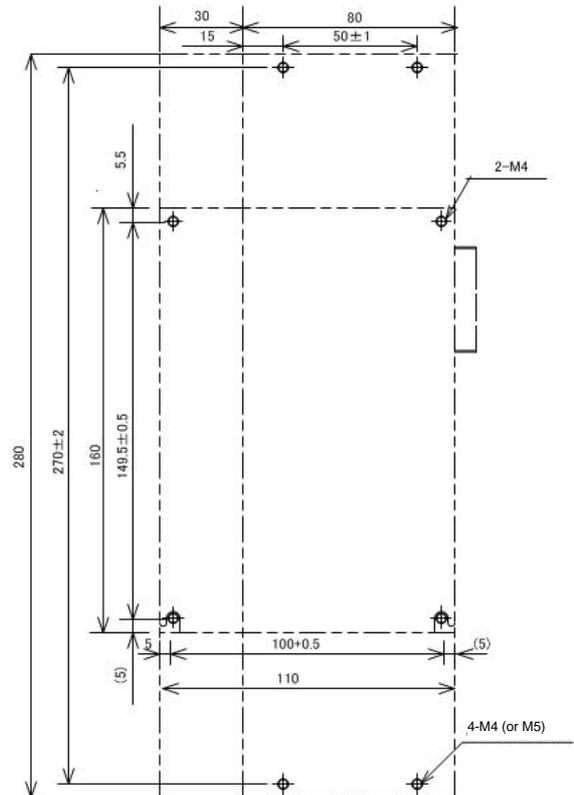
2) R88D-HL10/HT10/HS10
 → R88D-WT02HL/WT04H



3) R88D-HS22
 → R88D-WT08H



4) R88D-HS22
 → R88D-WT15H



OMRON

OMRON Corporation

FA Systems Division H.Q.

66 Matsumoto
Mishima-city, Shizuoka 411-8511
Japan
Tel: (81)55-977-9181/Fax: (81)55-977-9045

Regional Headquarters

OMRON EUROPE B.V.

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

OMRON ELECTRONICS LLC

1 East Commerce Drive, Schaumburg, IL 60173
U.S.A.
Tel: (1)847-843-7900/Fax: (1)847-843-8568

OMRON ASIA PACIFIC PTE. LTD.

83 Clemenceau Avenue,
#11-01, UE Square,
Singapore 239920
Tel: (65)6835-3011/Fax: (65)6835-2711

Authorized Distributor: