

General-Purpose AC Servo MELSERVO-J3W

Servo Amplifier MR-J3W-0303BN6 Servo Motor HG-AK Series <10 W to 30 W>

March 2013

New Product Release

SV1212-4E-A

2-axis
integrated
type



MR-J3W-0303BN6 (actual size)

Compact body with high performance

Introducing the new ultra-compact servo motor and the compatible servo amplifier that incorporate MR-J3-B servo amplifier's high potential and popular ease-of-use.

Actual size

Flange size
25 × 25 mm



HG-AK0136 (actual size)

Servo Amplifier MR-J3W-0303BN6

- 48 V DC and 24 V DC are available for the main circuit power supply.
- The 2-axis integrated type reduces wiring and saves space.
- Compatible with the high-speed optical network SSCNET III. The functions equivalent to those of MR-J3-B are achieved.

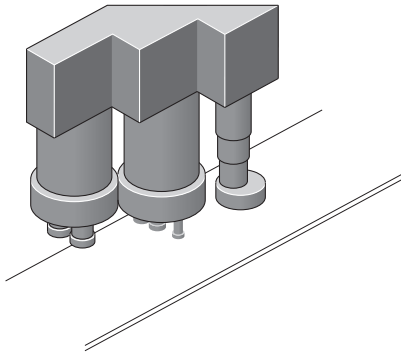
Servo Motor HG-AK Series

- The servo motor with electromagnetic brake is newly released.
- Capacities from 10 W to 30 W with the flange size of 25 mm × 25 mm are available.
- Equipped with 262,144 pulses/rev (18-bit) high-resolution absolute position encoder.
- The weight is lighter by max. approx. 35% compared to the prior model for more compact machine.

Application Examples

- The ultra-compact servo motor with the flange size of 25 mm × 25 mm is suitable for small machines and machine heads.
- The 2-axis integrated servo amplifier and ultra-compact servo motor contribute to more compact machine.
- The high-performance servo amplifier enables shorter tact time.

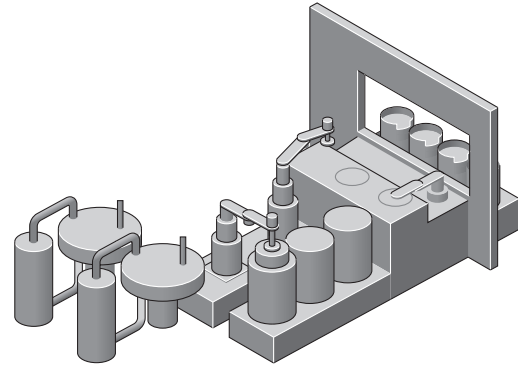
■ Mounters / bonders



Machine head

- The high-performance servo system enables shorter tact time.
- Shorter tact time is achieved by suppressing vibrations.
- The high resolution encoder achieves high-accuracy positioning.

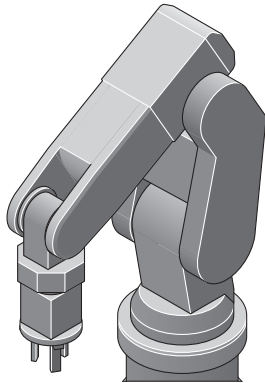
■ Semiconductor / LCD manufacturing systems



Compact machine handling axis

- The small-size servo amplifier and servo motor achieve compact machine.
- The high resolution encoder achieves high-accuracy positioning.

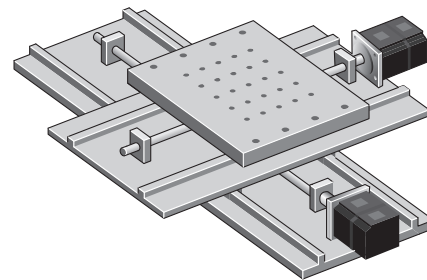
■ Compact robots



Compact robot joint drive and hand

- The 2-axis integrated servo amplifier is available for multiple-joint articulated robots.
- Shorter tact time is achieved by suppressing vibrations.

■ Compact X-Y tables



X-Y positioning

- The high-performance servo system enables shorter tact time.
- The high resolution encoder achieves high-accuracy positioning.
- The 2-axis integrated servo amplifier is suitable for the X-Y table.

■ Electrical parts manufacturing systems

■ Inspection systems

■ Processing machines

■ Electrical devices assembling systems

■ Photovoltaic manufacturing systems

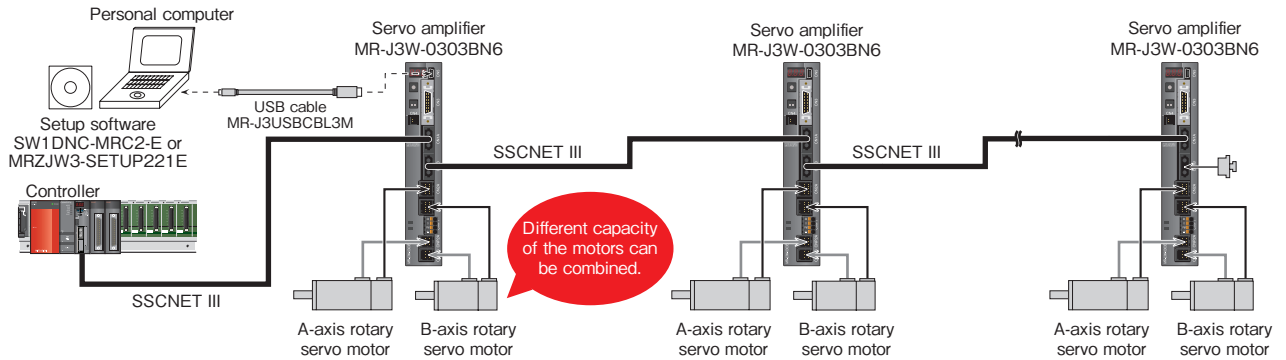
■ Compact actuators

■ Screw tightening systems

■ Others



System Configurations



Model Designation

Servo amplifier

MR - J3W - 0303BN6

Mitsubishi
general-purpose
AC servo amplifier
MELSERVO-J3W
Series
(2-axis AC servo amplifier)

| | |
|--------|-----------------------------------|
| Symbol | Main circuit power supply voltage |
| 6 | 48 V DC/24 V DC |

| | |
|--------|------------|
| Symbol | Interface |
| BN | SSCNET III |

| | | |
|--------|----------------------------|----------------------------|
| Symbol | Rated output [W] | |
| | A-axis ^(Note 1) | B-axis ^(Note 1) |
| 0303 | 30 | 30 |

Servo motor

HG - AK0136B □

| | |
|--------|---------------------------------|
| Symbol | Shaft end |
| None | Standard (straight shaft) |
| D | D-cut shaft ^(Note 3) |

| | |
|--------|--|
| Symbol | Electromagnetic brake |
| None | None |
| B | Installed ^(Note 2) (Newly released) |

| | |
|--------|-----------------------------------|
| Symbol | Main circuit power supply voltage |
| 6 | 48 V DC/24 V DC |

| | |
|--------|---------------------|
| Symbol | Rated speed [r/min] |
| 3 | 3000 |

| | |
|--------|------------------|
| Symbol | Rated output [W] |
| 01 | 10 |
| 02 | 20 |
| 03 | 30 |

| | |
|--------|------------------------------------|
| Symbol | Size/capacity |
| HG-AK | Ultra-compact size, small capacity |

- Notes: 1. A-axis and B-axis indicate names of axes of the 2-axis servo amplifier.
2. Refer to "HG-AK Series Electromagnetic Brake Specifications" in this brochure for the available models and detailed specifications.
3. Refer to "HG-AK Series Special Shaft End Specifications" in this brochure for detailed specifications.

Combinations of Servo Amplifier and Servo Motor

| Servo amplifier | Servo motor |
|-----------------|---------------------------------|
| MR-J3W-0303BN6 | HG-AK0136, HG-AK0236, HG-AK0336 |

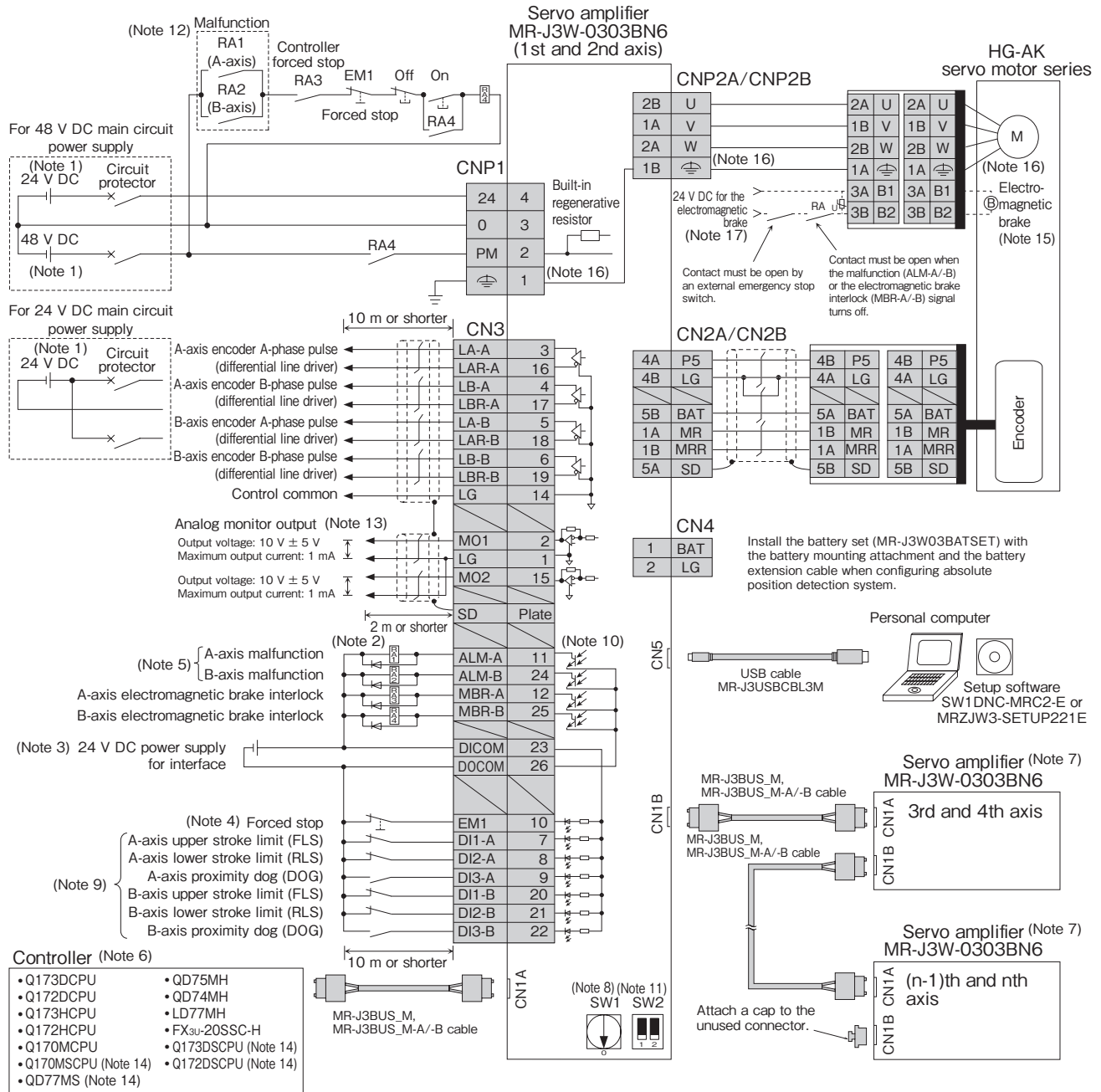
MR-J3W-0303BN6 Specifications

| Servo amplifier model | | MR-J3W-0303BN6 | |
|--|--|--|---------------|
| Rated output | | 30 W (A-axis) | 30 W (B-axis) |
| Output | Rated voltage | 3-phase 48 V AC | |
| | Rated current (each axis) [A] | 2.4 | 2.4 |
| Main circuit power supply | Voltage ^(Note 1) | 48 V DC/24 V DC ^(Note 4) | |
| | Rated current | For 48 V DC: 2.4 A/for 24 V DC: 4.8 A | |
| | Permissible voltage fluctuation | For 48 V DC: 40.8 V DC to 55.2 V DC For 24 V DC: 21.6 V DC to 26.4 V DC | |
| Control circuit power supply | Voltage | 24 V DC | |
| | Rated current [A] | 0.5 | |
| | Permissible voltage fluctuation | 21.6 V DC to 26.4 V DC | |
| | Power consumption [W] | 10 | |
| Interface power supply | | 24 V DC ± 10% (required current capacity: 0.25 A ^(Note 5)) | |
| Control method | | Sine-wave PWM control/current control method | |
| Capacitor regeneration | Reusable regenerative energy ^(Note 2) [J] | 0.9 | |
| | Moment of inertia (J) equivalent to permissible charging amount ^(Note 3) [$\times 10^{-4}$ kg·m ²] | 0.18 | |
| Tolerable regenerative power of the built-in regenerative resistor [W] | | 1.3 | |
| Dynamic brake | | Built-in ^(Note 6, 7) | |
| Communication function | | USB: Connect a personal computer (MR Configurator_ compatible) | |
| Protective functions | | Overcurrent shut-off, regenerative overvoltage shut-off, overload shut-off (electronic thermal), servo motor overheat protection, encoder error protection, regenerative error protection, undervoltage protection, instantaneous power failure protection, overspeed protection, error excessive protection | |
| Compliance to standards | | Refer to "Conformity with Global Standards and Regulations" on p. 6 in this brochure. | |
| Structure (IP rating) | | Natural cooling, open (IP20) | |
| Close mounting | | Possible ^(Note 8) | |
| Environment | Ambient temperature | 0 °C to 55 °C (non-freezing), storage: -20 °C to 65 °C (non-freezing) | |
| | Ambient humidity | 90 %RH maximum (non-condensing), storage: 90 %RH maximum (non-condensing) | |
| | Ambience | Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust | |
| | Altitude | 1000 m or less above sea level | |
| | Vibration resistance | 5.9 m/s ² at 10 Hz to 55 Hz (directions of X, Y and Z axes) | |
| Mass [kg] | | 0.3 | |

- Notes: 1. Rated output and speed of a servo motor are applicable when the servo amplifier, combined with the servo motor, is operated within the specified power supply voltage.
2. The reusable regenerative energy is the energy generated when a machine, which has a moment of inertia equivalent to the permissible charging amount, decelerates from the rated speed to a stop.
3. The permissible charging amount is equivalent to the moment of inertia when the servo motor decelerates from the rated speed to a stop. When two axes are simultaneously decelerated, the permissible charging amount is equivalent to the total moments of inertia of the two axes. Otherwise, the permissible charging amount is equivalent to the moment of inertia of each axis.
4. Set [Pr. Po04] to "1 _ _ _" to use 24 V DC.
5. 0.25 A is the value when all of the input/output points are used. The current capacity can be stepped down according to the number of input/output points.
6. The dynamic brake is electronic. The electronic dynamic brake does not operate when the control circuit power is off. It may not operate depending on the alarms and the warnings. Refer to "MR-J3W-0303BN6 MR-J3W-□B Servo Amplifier Instruction Manual" for details.
7. When using the dynamic brake, refer to "MR-J3W-0303BN6 MR-J3W-□B Servo Amplifier Instruction Manual" for the permissible load to motor inertia ratio.
8. When the servo amplifiers are closely mounted, keep the ambient temperature within 0 °C to 45 °C, and use them with 75% or less of the effective load rate.



MR-J3W-0303BN6 Standard Wiring Diagram Example

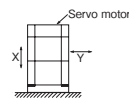


HG-AK Series (Ultra-compact Size, Small Capacity) Specifications

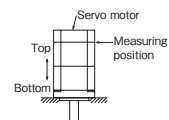
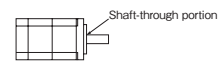
| Servo motor model | | HG-AK | 0136(B) | 0236(B) | 0336(B) |
|---|----------------------------------|--|---|---------|---------|
| Compatible servo amplifier model | | | MR-J3W-0303BN6 | | |
| Power supply capacity ^(Note 1) | | [W] | 230 | 360 | 480 |
| Continuous running duty | Rated output | [W] | 10 | 20 | 30 |
| | Rated torque ^(Note 2) | [N·m] | 0.032 | 0.064 | 0.095 |
| Maximum torque | | [N·m] | 0.095 | 0.191 | 0.286 |
| Rated speed | | [r/min] | 3000 | | |
| Maximum speed | 48 V DC | [r/min] | 6000 | | |
| | 24 V DC | [r/min] | 5000 | | |
| Permissible instantaneous speed | 48 V DC | [r/min] | 6900 | | |
| | 24 V DC | [r/min] | 5750 | | |
| Power rate at continuous rated torque | Standard | [kW/s] | 3.54 | 9.01 | 14.95 |
| | With electromagnetic brake | [kW/s] | 2.41 | 6.99 | 12.32 |
| Rated current | | [A] | 2.1 | 2.1 | 2.2 |
| Maximum current | | [A] | 6.3 | 6.3 | 6.6 |
| Regenerative braking frequency ^(Note 3) | | [times/min] | 1700 | 1200 | 900 |
| Moment of inertia J | Standard | [$\times 10^{-4}$ kg·m ²] | 0.0029 | 0.0045 | 0.0061 |
| | With electromagnetic brake | [$\times 10^{-4}$ kg·m ²] | 0.0042 | 0.0058 | 0.0074 |
| Recommended load to motor inertia ratio ^(Note 4) | | | 30 times or less | | |
| Speed/position detector | | | Absolute/incremental 18-bit encoder (resolution: 262144 pulses/rev) | | |
| Oil seal | | | None | | |
| Insulation class | | | 130(B) | | |
| Structure | | | Totally enclosed, natural cooling (IP rating: IP55) ^(Note 8) | | |
| Environment ^(Note 5) | Ambient temperature | | 0 °C to 40 °C (non-freezing), storage: -15 °C to 70 °C (non-freezing) | | |
| | Ambient humidity | | 80 %RH maximum (non-condensing), storage: 90 %RH maximum (non-condensing) | | |
| | Ambience | | Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust | | |
| | Altitude | | 1000 m or less above sea level | | |
| Vibration resistance ^(Note 6) | | | X: 49 m/s ² Y: 49 m/s ² | | |
| Vibration rank | | | V10 ^(Note 9) | | |
| Compliance to standards | | | Refer to "Conformity with Global Standards and Regulations" on p. 6 in this brochure. | | |
| Permissible load for the shaft ^(Note 7) | L | [mm] | 16 | 16 | 16 |
| | Radial | [N] | 34 | 44 | 49 |
| | Thrust | [N] | 14 | 14 | 14 |
| Mass | Standard | [kg] | 0.12 | 0.14 | 0.16 |
| | With electromagnetic brake | [kg] | 0.22 | 0.24 | 0.26 |

- Notes: 1. The power supply capacity varies depending on the impedance of DC power supply and wiring.
2. When unbalanced torque is generated, such as in a vertical lift machine, it is recommended that the unbalanced torque of the machine be kept under 70% of the servo motor rated torque.
3. The regenerative braking frequency shows the permissible frequency when the servo motor, without a load and a regenerative option, decelerates from the rated speed to a stop. When a load is connected; however, the value will be the table value/(m+1), where m = Moment of inertia of load/Moment of inertia of servo motor. When the operating speed exceeds the rated speed, the regenerative braking frequency is inversely proportional to the square of (operating speed/rated speed). Take measures to keep the regenerative power [W] during operation below the tolerable regenerative power of built-in regenerative resistor [W]. Use caution, especially when the operating speed changes frequently or when the regeneration is constant (as with vertical feeds).
4. Contact your local sales office if the load to motor inertia ratio exceeds the value in the table.
5. In the environment where the servo motor is exposed to oil mist, oil and/or water, a standard specification servo motor may not be usable. Contact your local sales office for more details.

6. The vibration direction is shown in the diagram to the right. The numerical value indicates the maximum value of the component (commonly the bracket in the opposite direction of the servo motor shaft). Fretting more likely occurs on the bearing when the servo motor stops. Thus, maintain vibration level at approximately one-half of the allowable value.
7. Refer to the diagram to the right for the permissible load for the shaft. Do not apply a load exceeding the value specified in the table on the shaft. The values in the table are applicable when each load is applied singly.
8. The shaft-through portion, the connector, and the power cable leading part are excluded. Refer to the diagram to the right for shaft-through portion.
9. V10 indicates that the amplitude of the servo motor itself is 10 μm or less. The diagram to the right shows mounting posture and measuring position of the servo motor during the measurement.



L: Distance between the flange mounting surface and the center of load





HG-AK Series Electromagnetic Brake Specifications

(Note 1)

| Model | | HG-AK | 0136B | 0236B | 0336B |
|--|----------------------------|-----------------------------------|-------|-------|-------|
| Type | | Spring actuated type safety brake | | | |
| Rated voltage | | 24 V DC -10% | | | |
| Power consumption [W] at 20 °C | | 1.8 | | | |
| Electromagnetic brake static friction torque [N·m] | | 0.095 | | | |
| Permissible braking work | Per braking [J] | 4.6 | | | |
| | Per hour [J] | 46 | | | |
| Electromagnetic brake life ^(Note 2) | Number of brakings [Times] | 20000 | | | |
| | Work per braking [J] | 1 | | | |

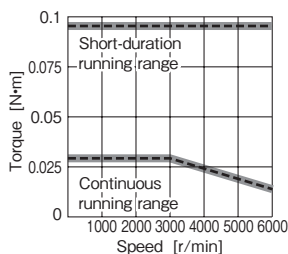
Notes: 1. The electromagnetic brake is for holding. It should not be used for deceleration applications.

2. Brake gap is not adjustable. Electromagnetic brake life is defined as the time period until the readjustment is needed.

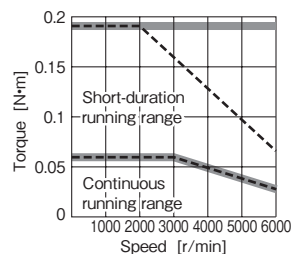
HG-AK Series Torque Characteristics

(Note 3, 4)

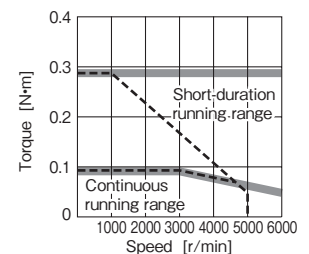
HG-AK0136(B) ^(Note 1, 2)



HG-AK0236(B) ^(Note 1, 2)



HG-AK0336(B) ^(Note 1, 2)



Notes: 1. — : For 48 V DC.

2. - - - : For 24 V DC.

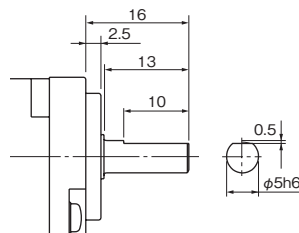
3. This is applicable when Mitsubishi optional cable MR-J3W03PWCBL5M-A-H or MR-J3W03PWBRCBL5M-A-H is used.

4. Torque drops when the power supply voltage is below the specified value.

HG-AK Series Special Shaft End Specifications

Motors with the following specifications are also available.

D-cut shaft



[Unit: mm]

Conformity with Global Standards and Regulations

(Note 1)

MR-J3W series conforms to global standards as standard.

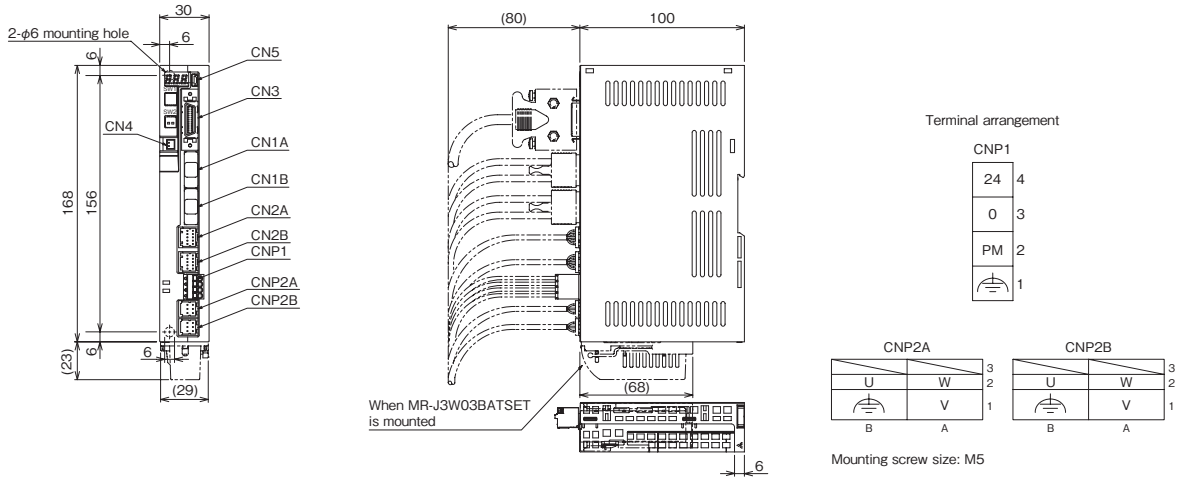
| Available model | | MR-J3W-0303BN6 | HG-AK series |
|--|-----------------------------------|--|--|
| European EC directive | Low voltage directive | EN 61800-5-1 | EN 60034-1/EN 60034-5 |
| | EMC directive ^(Note 2) | EN 61800-3 | EN 60034-1 |
| | RoHS directive | Compliant | Compliant |
| UL standard | | UL 508C | UL 1004-1/UL 1004-6 |
| CSA standard | | CSA C22.2 No.14 | CSA C22.2 No.100 |
| Measures for Administration of the Pollution Control of Electronic Information Products (Chinese RoHS) | | Compliant (optional cables and connectors) | Compliant (optional cables and connectors) |
| China Compulsory Certification (CCC) | | N/A | N/A |
| Korea Radio Wave Law (KC) | | Compliant | N/A |

Notes: 1. When exporting the product, follow the local laws and regulations.

2. Refer to "Servo Amplifier Instruction Manual" and "EMC Installation Guidelines" when your system needs to meet the EMC directive.

MR-J3W-0303BN6 Dimensions

(Note 1)

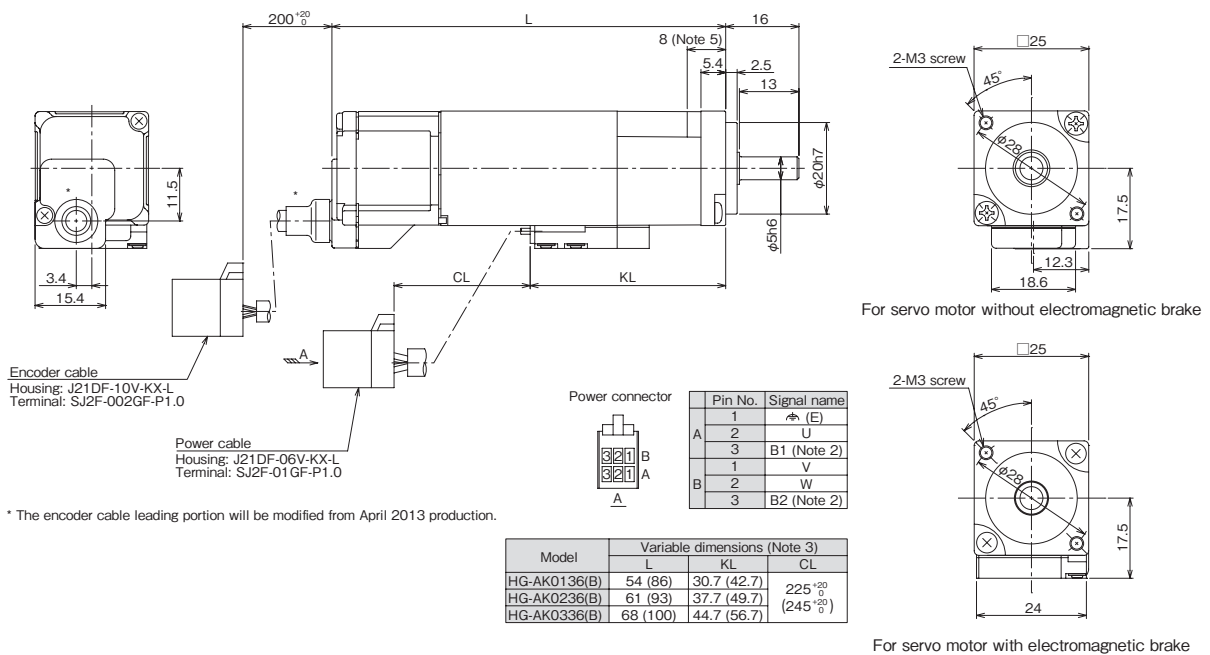


Notes: 1. CNP1 connector (insertion type) is supplied with the servo amplifier.

[Unit: mm]

HG-AK Series Dimensions

(Note 1, 4)



- Notes: 1. For dimensions without tolerance, general tolerance applies.
 2. The electromagnetic brake terminals (B1, B2) do not have polarity.
 3. Dimensions in brackets are for the models with electromagnetic brake.
 4. Use a friction coupling to fasten a load.
 5. Select the mounting screw whose length is within this dimension.

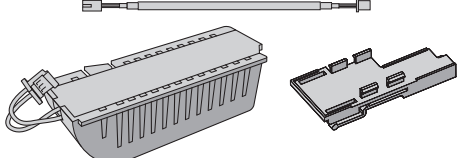
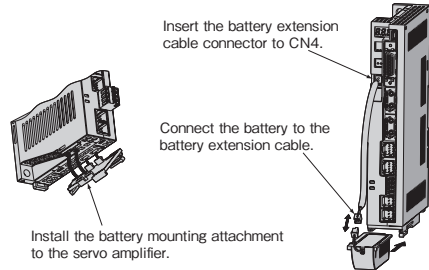
[Unit: mm]



Battery Set (MR-J3W03BATSET) and Battery (MR-J3BAT)

The absolute position data can be retained by mounting the battery on the servo amplifier.
A battery is not required when the servo system is used in incremental method.

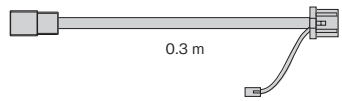
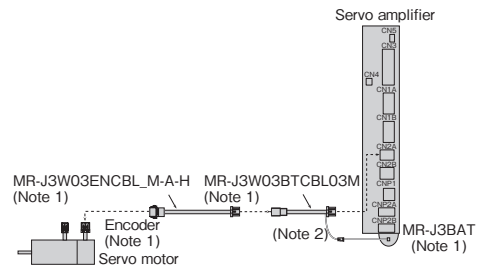
When using MR-J3BAT, the battery mounting attachment and the battery extension cable are required. Purchase MR-J3W03BATSET which includes MR-J3BAT, the battery mounting attachment, and the battery extension cable for the first time.

| Appearance | Mounting method |
|---|--|
|  <p> * MR-J3W03BATSET: Includes MR-J3BAT, the battery mounting attachment, and the battery extension cable. * MR-J3BAT: Battery </p> <p> Model: MR-J3BAT (Note 1) Nominal voltage: 3.6 V Nominal capacity: 2000 mAh Lithium content: 0.65 g Primary battery: ER6 Mass: 25 g </p> |  <p> Insert the battery extension cable connector to CN4. Connect the battery to the battery extension cable. Install the battery mounting attachment to the servo amplifier. </p> |

Notes: 1. MR-J3BAT is a lithium metal battery contains ER6. This battery is not subject to the dangerous goods (Class 9) of the UN Recommendations. To transport lithium metal batteries and lithium metal batteries contained in equipment by means of transport subject to the UN Recommendations, take actions to comply with the following regulations: the United Nations Recommendations on the Transport of Dangerous Goods, the Technical Instruction (ICAO-TI) by the International Civil Aviation Organization (ICAO), and the International Maritime Dangerous Goods Code (IMDG Code) by the International Maritime Organization (IMO). To transport the batteries, check the latest standards or the laws of the destination country and take actions. Contact your local sales office for more details. (As of March 2013)

Junction Battery Cable (MR-J3W03BTCBL03M)

This cable is used to hold the absolute position data if the servo amplifier has to be removed from a machine for shipping. The servo motor does not have a super capacitor (for holding an absolute position data for short time) in the encoder. When this optional cable is used, the absolute position data can be held even when the encoder cable is disconnected from the servo amplifier, making it easy to do maintenance on the servo amplifier.

| Appearance | Mounting method |
|--|---|
|  <p>0.3 m</p> |  <p> Servo amplifier MR-J3W03ENCBL_M-A-H (Note 1) MR-J3W03BTCBL03M (Note 1) Encoder (Note 1) Servo motor (Note 2) MR-J3BAT (Note 1) </p> |

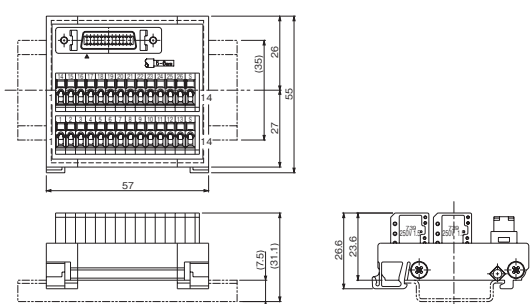
Notes: 1. To hold the absolute position data, the encoder, the encoder cable, the junction cable and the battery must be kept connected.
2. Use the junction battery cable in combination with the optional encoder cable (MR-J3W03ENCBL_M-A-H) or the encoder connector set (MR-J3W03CN2-_P).

| User's system | Battery (MR-J3BAT) | Junction battery cable (MR-J3W03BTCBL03M) |
|-------------------|---|---|
| Incremental | Not required | Not required |
| Absolute position | Not necessary to hold an absolute position data after the encoder cable is disconnected from the servo amplifier | Not required |
| | Necessary to hold an absolute position data after the encoder cable is disconnected from the servo amplifier (Note 1) | Required |

Notes: 1. Start up the absolute position detection system after connecting this optional cable.

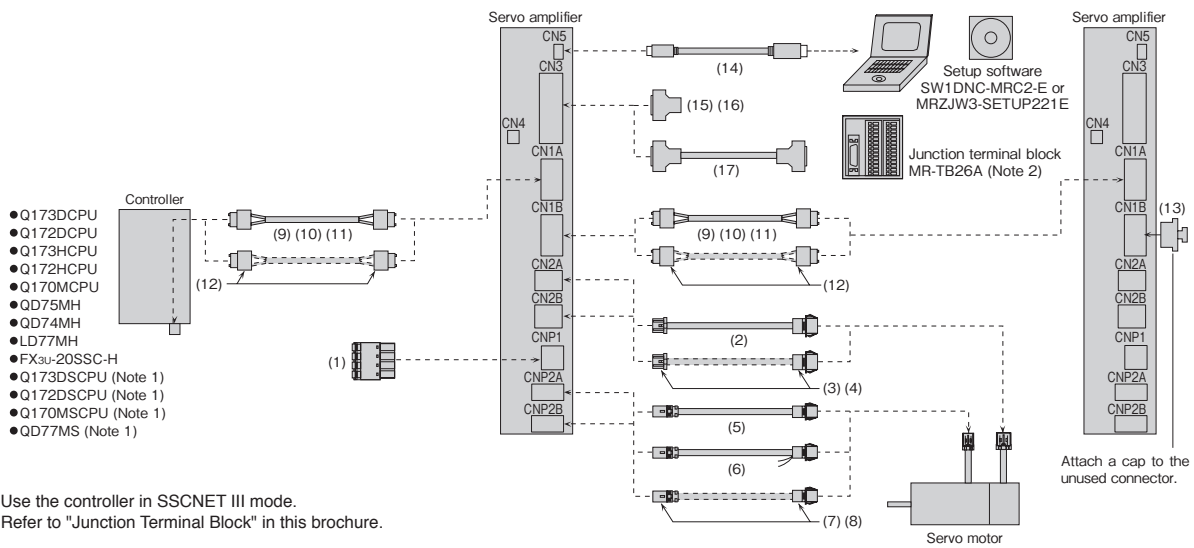
Junction Terminal Block (MR-TB26A)

Connect all signals via the junction terminal block.

| Dimensions (Note 1) | | [Unit: mm] | |
|---|--|--|--|
|  | | Specifications | |
| Rating | 32 V AC/DC, 0.5 A | | |
| Applicable wire (terminal side) | Stranded wire | 0.08 mm ² to 1.5 mm ² (AWG 28 to 14) | |
| | Solid wire | ø0.32 mm to 1.2 mm | |
| | Insulator OD | 3.4 mm or shorter | |
| Operating tool | 210-619 (WAGO) or equivalent 210-119SB (WAGO) or equivalent | | |
| Strip length | 5 mm to 6 mm | | |

Notes: 1. The lengths in brackets apply when the junction terminal block is mounted on a 35 mm wide DIN rail.

Configuration Example for MR-J3W-0303BN6








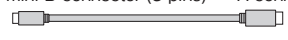

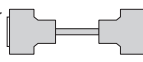


Cables and Connectors (Note 3)

| | Item | Model | IP rating | Description |
|---------------|---|---|-----------|--|
| For CNP1 | (1) Servo amplifier power connector | (Standard accessory) | - | <p>Power connector (Phoenix Contact) Connector: FK-MCP1,5/4-ST-3,5 or an equivalent product</p> <p>Applicable wire size: 0.14 mm² to 1.5 mm² (AWG 26 to 16) Insulator OD: Up to 2.9 mm</p> <p>* For the standard accessory, the color of this connector is changed, and letters are specially printed.</p> |
| | (2) Encoder cable | MR-J3W03ENCBL_M-A-H _ = cable length: 1, 2, 5, 10, 20, 30 m | - | <p>Servo amplifier connector (TE Connectivity Ltd. Company) Receptacle housing: 1-1827862-5 Receptacle contact: 1827587-2</p> <p>Encoder connector (J.S.T. Mfg.) Tab housing: J21DPM-10V-KX Tab contact: SJ2M-01GF-M1.0N</p> |
| For CN2A/CN2B | (3) Encoder connector set (Qty: 2 pcs) | MR-J3W03CN2-2P | - | <p>Servo amplifier connector (TE Connectivity Ltd. Company) Receptacle housing: 1-1827862-5 Receptacle contact: 1827587-2</p> <p>Encoder connector (J.S.T. Mfg.) Tab housing: J21DPM-10V-KX Tab contact: SJ2M-01GF-M1.0N</p> |
| | (4) Encoder connector set (Qty: 20 pcs) | MR-J3W03CN2-20P | - | <p>Applicable cable Wire size: 0.2 mm² to 0.38 mm² (AWG 24 to 22) Insulator OD: 1.11 mm to 1.53 mm</p> <p>* Crimping tool (1762846-1) is required for the servo amplifier connector. Crimping tool (YRS-8861) is required for the encoder connector.</p> |



Cables and Connectors (Note 3)

| | | Item | Model | IP rating | Description | |
|--------------------------|------|--|--|------------------------------------|--|---|
| For CNP2A/CNP2B | (5) | Servo motor power cable (for standard servo motor) | MR-J3W03PWCBL_ M-A-H _ = cable length: 1, 2, 5, 10, 20, 30 m | - | <p>Servo amplifier connector (TE Connectivity Ltd. Company) Receptacle housing: 1-1827864-3 or an equivalent product Receptacle contact: 1871745-1</p> <p>Power connector (J.S.T. Mfg.) Tab housing: J21DPM-06V-KX Tab contact: SJ2M-21GF-M1.0N</p>  <p>* The shape of housing used for the servo amplifier connector is partially modified.</p> | |
| | (6) | Servo motor power cable (for the servo motor with electromagnetic brake) | MR-J3W03PWBRCL_ M-A-H _ = cable length: 1, 2, 5, 10, 20, 30 m | - | <p>Servo amplifier connector (TE Connectivity Ltd. Company) Receptacle housing: 1-1827864-3 or an equivalent product Receptacle contact: 1871745-1</p> <p>Power connector (J.S.T. Mfg.) Tab housing: J21DPM-06V-KX Tab contact: SJ2M-21GF-M1.0N</p>  <p>* The shape of housing used for the servo amplifier connector is partially modified.</p> | |
| | (7) | Servo motor power connector set (Qty: 2 pcs) | MR-J3W03CNP2-2P | - | <p>Servo amplifier connector (TE Connectivity Ltd. Company) Receptacle housing: 1-1827864-3 or an equivalent product Receptacle contact: 1871745-1</p> <p>Power connector (J.S.T. Mfg.) Tab housing: J21DPM-06V-KX Tab contact: BJ2M-21GF-M1.0N</p>  | |
| | (8) | Servo motor power connector set (Qty: 20 pcs) | MR-J3W03CNP2-20P | - | <p>Applicable cable Wire size: 0.34 mm² to 0.75 mm² (AWG 22 to 19) Insulator OD: 1.4 mm to 1.9 mm</p> <p>* Crimping tool (1762625-1) is required for the servo amplifier connector. Crimping tool (YRF-1120) is required for the power connector. * The shape of housing used for the servo amplifier connector is partially modified.</p> | |
| For controller/CN1A/CN1B | (9) | SSCNET III cable (Note 1) (standard cord for inside cabinet) | MR-J3BUS_M _ = cable length: 0.15, 0.3, 0.5, 1, 3 m | - | <p>SSCNET III connector (Japan Aviation Electronics Industry) PF-2D103 (connector)</p> <p>SSCNET III connector (Japan Aviation Electronics Industry) PF-2D103 (connector)</p>  | |
| | (10) | SSCNET III cable (Note 1) (standard cable for outside cabinet) | MR-J3BUS_M-A _ = cable length: 5, 10, 20 m | - | | |
| | (11) | SSCNET III cable (Note 1) (long distance cable, long bending life) | MR-J3BUS_M-B _ = cable length: 30, 40, 50 m* ¹ | - | <p>SSCNET III connector (Japan Aviation Electronics Industry) CF-2D103-S (connector)</p> <p>SSCNET III connector (Japan Aviation Electronics Industry) CF-2D103-S (connector)</p>  | |
| | (12) | SSCNET III connector set (Note 1, 2) | MR-J3BCN1 | - | <p>SSCNET III connector (Japan Aviation Electronics Industry) PF-2D103 (connector)</p> <p>SSCNET III connector (Japan Aviation Electronics Industry) PF-2D103 (connector)</p>  | |
| For CN1B | (13) | SSCNET III connector cap | (Standard accessory) | - |  | |
| For CN5 | (14) | Personal computer communication cable | USB cable | MR-J3USBCBL3M Cable length: 3 m | - | <p>Servo amplifier connector mini-B connector (5 pins)</p> <p>Personal computer connector A-connector</p>  <p>* Do not use this cable for SSCNET III compatible controller.</p> |
| For CN3 | (15) | Connector set | MR-J2CMP2 (Qty: 1 pc) | - |  <p>Servo amplifier connector (3M or an equivalent product) 10126-3000PE (connector) 10326-52F0-008 (shell kit)</p> | |
| | (16) | | MR-ECN1 (Qty: 20 pc) | - | | |
| | (17) | Junction terminal block cable | MR-TBNATBL_M _ = cable length: 0.5, 1 m | - | <p>Junction terminal block connector (3M or an equivalent product) 10126-6000EL (connector) 10326-3210-000 (shell kit)</p> <p>Servo amplifier connector (3M or an equivalent product) 10126-6000EL (connector) 10326-3210-000 (shell kit)</p>  | |

Notes: 1. Read carefully through the precautions enclosed with the options before use.

2. Dedicated tools are required. Contact your local sales office for more details.



3. Refer to "MR-J3W-0303BN6 MR-J3W-□B Servo Amplifier Instruction Manual" and "Servo Motor Instruction Manual (Vol. 2)" for cables and connectors available on the market.

For unlisted lengths

*1. For unlisted lengths of the cables, contact Mitsubishi Electric System & Service Co., Ltd. FA PRODUCT DIVISION by email: oss-ip@melscp

Wires (Example of Selection)

The following are examples of wire sizes when 600 V polyvinyl chloride insulated wires (IV wires) or 600 V grade heat-resistant polyvinyl chloride insulated wires (HIV wires) with a length of 30 m are used.

| Servo amplifier model | Wire size ^(Note 1) | | |
|-----------------------|--|--|-------------------------------|
| | 24, 0, PM,  | U, V, W,  | B1, B2 |
| MR-J3W-0303BN6 | AWG 16 ^(Note 2) | AWG 19 | 1.25 mm ² (AWG 16) |

Notes: 1. This wire size is selected when HG-AK0336(B) is used for two axes.
2. A voltage drop occurs by the current supplied to the servo amplifier according to the wiring impedance.

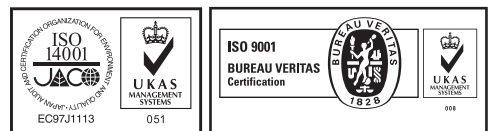
Circuit Protector

| Power supply specifications | Circuit protector ^(Note 1) |
|--|---------------------------------------|
| Control circuit power supply (24 V DC) | CP30-BA 1P 1-M 1A |
| Main circuit power supply (48 V DC) | CP30-BA 1P 1-M 5A |
| Control circuit power supply/main circuit power supply (24 V DC) | CP30-BA 1P 1-M 10A |

Notes: 1. Use the circuit protector whose operation characteristics is medium-speed type.



Mitsubishi Electric Corporation Nagoya Works is a factory certified for ISO14001 (standards for environmental management systems) and ISO9001 (standards for quality assurance management systems)



Safety Warning

To ensure proper use of the products listed in this catalog, please be sure to read the instruction manual prior to use.

MITSUBISHI ELECTRIC CORPORATION

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