

MRJ4-10_ to MR-J4-22K_/MR-J4-60_4 to MR-J4-22K_4/ MR-J4-10_1 to MR-J4-40_1/MR-J4W2-22B to MR-J4W2-1010B, MR-J4W3-722B/MR-J4W3-244B/MR-J4J336B/MR-J4W2-1303B

Instructions and Cautions for Safe Use of AC Servos

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MITSUBISHI ELECTRIC CORPORATION

HEAD OFFICE: TOKYO BLDG 2-7-3 MARUI 0-8310 JAPAN

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Number of same Symbol Number of sxes W2 2 W3 3

Hardware special specifica Blank or 2 to 5 digit alphan (RJ, ED, PX, RU, RZ, etc.)

Specifications are subject to change without notice. Compliance with the indicated global standards and regulations is current as of the release date of this installation guide. The original instructions for Europe are in English.

AC

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IB(NA)-0300175-AC(2503)MEE

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Contents of the package

Legack the product and check the rating plate to see if the servo amplifier is as you ordered.

oripack the product and check the rating plate to see if the servo amplifier is as you order	ou.
Contents	Quantity
Servo amplifier	1
MELSERVO-J4 Series Instructions and Cautions for Safe Use of AC Servos (This guide)	1

Rating plate Regulation/legislation marking The following shows an example of rating plate for explanation of an example of regulation/legislation marking is sach item.

SER. AC SERVO SER. ASSOCIOO1

Warning plate
The following shows an example of warning plate.

Model
The following describes what each block of a model name indicates
Not all combinations of the symbols are available.



1.About the manuals

To use the MELSERVO-J4 series safely, read each instruction manual carefully.

1.1 MELSERVO-J4 relevant manuals his installation guide explains how to mount MR-J4 servo amplifiers. You can also check it with our website for free. ttp://www.misubishielectric.com/fa/

into, in www.inisconsinerectic.comial If you have any questions about the operation or programming of the equipment described in this guide, contact your local sales office. In addition, when you mount a protective device, specific technical skills which are not detailed in the guide will be required.

1.2 Purpose of this guide This installation guide explains the safe operation of MR-J4 servo amplifiers for engineers of machinery manufacturers and machine operators. This installation guide does not explain how to operate machines in which safe servo system is, or will be integrated. For detailed information of the products, frefer to each servo amplifier instruction manual.

1.3. Terms related to safety
1.3.1 IEC 61800-5-2 Stop function
STO function (Refer to IEC 61800-5-2: 2007 4.2.2.2 STO.) The MR-J4 servo amplifiers have the STO function. The
STO function shuts down energy to servo motors, thus removing torque. This function electronically cuts off power
supply in the servo amplifier. The servo amplifiers without the CN8 connector (such as MR-J4-03A6) do not support this
function. STO function does not support Stop category 1 and 2 for IEC/EN 60204-1.

2. About safety

This chapter explains safety of users and machine operators. Please read the chapter carefully before mounting the equipment. In this installation guide, the specific warnings and cautions levels are classified as follows.

MARNING Indicates that incorrect handling may cause hazardous conditions, resulting in death or severe injury. ⚠CAUTION Indicates that incorrect handling may cause hazardous conditions, resulting in medium or slight injury to personnel or may cause physical damage.

2.1 Professional engineer
Only professional engineers should mount MR-J4 servo amplifiers.
Here, professional engineers should meet all the conditions below.

(1) Persons who took a proper training of related work of electrical equipment or persons who can avoid risk based on any professional engineers. past experience.

(2) Persons who have read and familiarized himself/therself with this installation guide and operating manuals for the protective devices (e.g. light curtain) connected to the safety control system.

2.2 Applications of the devices

MR_J4 servo amplifiers are used to drive servo motors, and comply with the standards shown below.

IEC/EN 1800.5-1/GB 1268.501, IEC/EN 61800.3/GB 12688.3/KN 61800-3 (KS C 9800-3), IEC/EN 60204-1

ISO/EN ISO 13849-1:2015 Category 3 Pt. e, IEC/EN IEC/EN 12682.3/KN 61800-3 (KS C 9800-3), IEC/EN 61800-5-2 (STO) (For combinations of the servo amplifiers and MR_J43.0-105) of the servo amplifiers and MR_J43-105, refer to each servo amplifier and MR_J43-105.

2.3 Correct use
Use the MR-J4 servo amplifiers within specifications. Refer to each instruction manual for specifications such as voltage, temperature, etc. Mitsubishi Electric Co. accepts no claims for liability if the equipment is used in any other way or if modifications are made to the device, even in the context of mounting and installation.

●If you need to get close to the moving parts of the machine for inspection or others, ensure safety by confirming the power off, etc. Otherwise, it may cause an accident.
●It takes 15 minutes maximum for capacitor discharging. Do not touch the unit and terminals immediately after power off.

2.3.1 Peripheral device and power wiring
The following are selected based on IEC/EN 61800-5-1, UL 61800-5-1, UL 508C, and CSA C22.2 No. 274.

(1) Grounding
To prevent an electric shock, always connect the protective earth (PE) of the cabinet. Do not connect two grounding cables to the same protective earth (PE) terminal. Always connect cables to the same protective earth (PE) terminal. Always connect cables to the same protective earth (PE) terminal. Always connect cables to the same protective. To product can cause a DC current in the protective earthing conductor. To protect directifionified contact using an earth-leakage current breaker (RCD), only an RCD of type B can be used for the power supply side of the product.

product.
The MR-J4-700_4 is high protective earthing conductor current equipment, the minimum size of the protective earthing conductor must comply with the local safety regulations.

(2) Power Wiring (local wiring and crimping tool) The following table shows the stranded wire sizes [AWG] and the crimp terminal symbols rated at 75 °C/60 °C.

L1/L2/L3 L11/L21 U/V/W/Œ 14/14 Manu-facturer 12/12 8-4NS FVD38-6 J.S.T. Mfg. Co., Ltd.) R-J4W2-22B/MF R-J4W2-77B (T R-J4W2-1010B/ R-J4W3-222B/ 14/14 (Note 4) 14/14 14/14 14/14

- Optional cables provided by Missubsini Electric and Missubsini Electric System Service Co., Ltd. are available. Select wire sizes depending on the rated output of the servo motors. The values in the table are sizes based on Use the crimp terminal c for the Picewister of the
- rated output of the servo amplifiers.

 4. Use the crimp terminal to fit he PE terminal of the servo amplifier.

 5. "(S)" means 1-phase 200 V AC power input and "(T)" means 3-phase 200 V AC power input in the table. Whe using a 1-phase 200 V AC power input, caprellet the servo amplifier at 75 % or less of the effective load ratio.

MR-J4W2-77B (S)/

	IEC/EN/UL 61800-5-1, UL 508C, CSA C22.2 No. 274 compliant (Note 2)			UL LISTED compliant	
Servo amplifier (Note 1)	Molded-case circuit breaker (Note 3)		Fast-acting fuse (Class T, J, CC)	Semiconductor fuse	
, , ,	Recommended product model (Mitsubishi Electric product)	Maximum rating	Maximum rating	Recommended product model (BUSSMANN product)	Maximum rating
MR-J4-10_1/MR-J4-20_1/MR-J4-40_1	NV50-SVFU-15A	120 V, 15 A	300 V, 20 A	170M1411	700 V, 25 A
MR-J4-10 /MR-J4-20 /MR-J4-40 /MR-J4-60 (T)/ MR-J4-70 (T)	NF50-SVFU-5A	240 V, 15 A	300 V, 15 A	170M1412	700 V, 32 A
MR-J4W2-22B (T)				170M1414	700 V, 50 A
MR-J4-60_ (S)/MR-J4-70_ (S)/MR-J4-100_ (T)				170M1412	700 V, 32 A
MR-J4W2-22B (S)/MR-J4W2-44B (T)/ MR-J4W3-222B/MR-J4W3-444B (T)	NF50-SVFU-10A	U-10A 240 V, 15 A	300 V, 15 A	170M1414	700 V, 50 A
MR-J4W2-77B (T)				170M1415	700 V, 63 A
MR-J4-100_(S)		240 V, 15 A	300 V, 30 A	170M1412	700 V, 32 A
MR-J4-200_ (T)/MR-J4W2-44B (S)	NF50-SVFU-15A			170M1414	700 V, 50 A
MR-J4W2-1010B	1			170M1415	700 V, 63 A
MR-J4-200_ (S)/MR-J4W3-444B (S)	NE50-SVEU-20A	240 V. 20 A	300 V 40 A	170M1414	700 V, 50 A
MR-J4-350_/MR-J4W2-77B (S)				170M1415	700 V, 63 A
MR-J4-500_	NF50-SVFU-30A	240 V, 30 A	300 V, 60 A	170M1415	700 V, 63 A
MR-J4-700_	NF50-SVFU-40A	240 V, 40 A	300 V, 80 A	170M1416	700 V, 80 A
MR-J4-11K_	NF100-CVFU-60A	240 V, 60 A	300 V, 125 A	170M1418	700 V, 125 A
MR-J4-15K_	NF100-CVFU-80A	240 V, 80 A	300 V, 150 A	170M1419	700 V, 160 A
MR-J4-22K_	NF250-CVU-125A	240 V, 125 A	300 V, 300 A	170M1422	700 V, 315 A
MR-J4-60_4/MR-J4-100_4	NF100-HRU-5A	480 V, 15 A	600 V, 15 A	170M1411	700 V, 25 A
MR-J4-200_4	NF100-HRU-10A	480 V, 15 A	600 V, 15 A	170M1412	700 V, 32 A
MR-J4-350_4	NF100-HRU-10A	480 V, 15 A	600 V, 20 A	170M1413	700 V, 40 A
MR-J4-500_4	NF100-HRU-15A	480 V, 15 A	600 V, 30 A	170M1413	700 V, 40 A
MR-J4-700_4	NF100-HRU-20A	480 V, 20 A	600 V, 40 A	170M1414	700 V, 50 A
MR-J4-11K_4	NF100-HRU-30A	480 V, 30 A	600 V, 60 A	170M1417	700 V, 100 A
MR-J4-15K_4	NF100-HRU-40A	480 V, 40 A	600 V, 80 A	170M1418	700 V, 125 A
MR-J4-22K_4	NF100-HRU-60A	480 V, 60 A	600 V, 125 A	170M1418	700 V, 125 A

"(S)" means 1-phase 200 V AC power input and "(T)" means 3-phase 200 V AC power input in the table.
When using MR-J4M series servo amplifiers for a machine that is required to comply with CSA standards, use molded-case circuit breakers with a rating of 15 A
For products having "SA" or "10%" in the recommended model, products up to "15A" can be used. N°250-CVU-12SA is the replacement for NF225-CWU-125A.

(4) Power supply
This servo amplifier can be supplied from star-connected supply with grounded neutral point of overvoltage
This servo amplifier can be supplied from star-connected supply with grounded neutral point of overvoltage
category III (overvoltage category II for 1-phase servo amplifiers, MR-J4-03A6, and MR-J4W2-0303B6) set forth in
IECEN 00064-1. For the interface power supply, use an external 24 V DC power supply with reinforced insulation
or I/O terminals. on I/O terminals. Provide a reinforced insulation DC power supply for MR-J4-03A6 and MR-J4W2-0303B6. For the main circuit power supply, provide each axis with a UL certified power supply of 48 V DC, 1.2 A or more; or 24 V DC, 2.4 A or

more.

(5) Motor overload and Over temperature protection
The overload protection of the servo motor does not include a thermal memory function, and is not speed
sensitive. The servo amplifier cannot detect overheating of the servo motor. The servo motors are protected by the
servo motor overheat protection function of the servo amplifiers (a protection characteristic based on 120 % of the
rated current). To provide the servo motor with overheat protection, use a magnetic contactor (electromagnetic
switch) with a thermal relay. Alternatively, install al thermal sensor or equivalent equipment near the rating plate of
the servo motor to check that the servo motor temperature is under 105 °C with sensing device. (Refer to Chapter
4)

2.3.2 Europe/UK compliance
The CE/UKCA marking proves the compliance of the servo product with the essential requirements specified in the
relevant EU Directives and UK Regulations, and this marking also applies to machines and equipment incorporating

relevant EU Directives and UR Regulations, and this highest period to the servos.

(1) EMC requirement MR-J4 servo amplifiers comply with EN/BS EN IEC 61800-3. As for I/O wires (max. length 10 m. However, 3 m for STO cable for CN8.) and encoder cables (max. length 50 m), use shielded wires and ground the shields. Install an EMC filter and surge protector on the primary side for input and output of 200 V class and for output of 400 V class servo amplifiers. In addition, use a line noise filter for outputs of the 11 kW and 15 kW of 400 V class servo amplifiers. In addition, use a line noise filter for outputs of the 11 kW and 15 kW of 400 V class servo amplifiers. Soshin Electric HF3000A-LIN series. Society of the 11 kW and 15 kW of 400 V class servo amplifiers. In addition, use a line noise filter in the output of 400 V class servo amplifiers. As expression of the 11 kW and 15 kW of 400 V class servo amplifiers. Surge protector: Okaya Electric Industries. RSPD series Line noise filter. Missubshi Electric FR-BLF MR-J4 Series are not intended to be used on a low-voltage network which supplies domestic premises; electromagnetic interference is expected if used on such a network. The installer shall provide a guide for installation and use; including recommended mitigation devices. To avoid the risk of crosstall to signal cables, the installation instructions shall either recommend that the power interface cable be segregated from signal cables, the installation instructions shall either recommend that the power interface cable be segregated from signal cables, the installation instructions shall either recommend that the power interface cable be segregated from signal cables, the installation instructions shall either recommend that the power interface cable be segregated from signal cables, the installation instructions shall either recommend that the power interface cable be segregated from signal cables, the installation and use; on continuity (200 content) (200 content) (200 content) (200 content) (200 content)

n Canada, the servo amplifier is designed in compliance with CSA C22.2 No. 274. Installation The minimum cabinet size is 150% of each MR.J4 servo amplifier's volume. Also, design the cabinet so that the ambient temperature in the cabinet is 5° Cor less. The servo amplifier must be installed in the metal cabinet. Additionally, mount the servo amplifier on a cabinet that the protective earth based on the standard of IEC/EN 60204-1 is correctly connected. For environment, the units should be used in open type (UL 50) and overvoltage category shown in table in section 8.1. The servo amplifier needs to be installed at or below pollution degree 2. For connection, use copper wires.

Short-circuit current rating (SCCR)
Suitable For Use On A Circuit Capable Of Delivering Not More Than 100 kA rms Symmetrical Amperes, 500 Volts Maximum (Not More Than 5 kA rms Symmetrical Amperes, 48 Volts Maximum for MR-J4-03A6 and MR-J4W2-0303B6). For SCCR (25 kA and 50 kA) when using a type E combination motor controller (motor circuit breaker), refer to each servo amplifier instruction manual.

efer to each servo amplifier instruction manual.

Sranch circuit protection
For installation in United States, branch circuit protection must be provided, in accordance with the National

To instantion in other oratios, and in oration protection must be provided, in accordance with the National Electrical Code and any applicable local codes. For installation in Canada, branch circuit protection must be provided, in accordance with the Canadian Electrical Code and any applicable provincial codes.

2.3.4 South Korea compliance
Products that bear the KC mark comply with the Radio Wave Law. Please note the following to use the product.
이 기기는 업무용 (A) 전 자파적 합기 로서 판매자 또는 사용자는 이 점을 주의하시기 바라며, 가정외의 지역에서 사용하는 것을 목적으로 합니다.
(The product is for business use (Class A) and meets the electromagnetic compatibility requirements. The seller and the user must note the above point, and use the product in a place except for home.)
In addition, use an EMC filter, surge protector, ferrite core, and line noise filter or outputs. Use a distance greater than 30 m between the product and third party sensitive radio communications for an MR-V4-22K_(4).

2.4 General cautions for safety protection and protective measures
Observe the following items to ensure proper use of the MR-J4 servo amplifiers.

(1) For safety components and installing systems, only qualified personnel and professional engineers should perform.

(i) To salely components and installing systems, only qualified personnel and professional engineers should perform.
 (2) When mounting, installing, and using the MR-J4 servo amplifier, always observe standards and directives applicable in the country.

applicable in the country.

2.5 Residual risk

(1) Be sure that all safety related switches, relays, sensors, etc., meet the required safety standards.

(2) Perform all risk assessments and safety level certification to the machine or the system as a whole.

(3) If the upper and lower power module in the servo amplifier are shorted and damaged simultaneously, the servo motor may make a half revolution at a maximum.

(4) Only qualified personnel are authorized to install, start-up, repair or service the machines in which these components are installed. Only trained engineers should install and operate the equipment. (ISO 13849-1:2015 Table F.1 No. 5)

(5) Separate the wiring for safety observation function from other signal wirings. (ISO 13849-1:2015 Table F.1 No. 1)

Table F.1 No. 5)
Separate the wiring for safety observation function from other signal wirings. (ISO 13849-1:2015 Table F.1 No. 1)
Protect the cables with appropriate ways (routing them in a cabinet, using a cable guard, etc.).
Keep the required clearance/creepage distance depending on voltage you use.

2.6 Disposal Disposal of unusable or irreparable devices should always occur in accordance with the applicable country-specific

waste disposal regulations.

2.7 Lithium battery transportation

To transport lithium batteries, take actions to comply with the instructions and regulations such as the United Nations (UN), the International Civil Aviation Organization (ICAO), and the International Maritime Organization (IMO). The batteries (MR-BAT6V15ST-A, MR-BAT6V1, and MR-BAT6V15B) are assembled batteries from the State of St

 Mounting/dismounting The devices must be installed in the specified direction. Not doing so may Cause a malfunction.

 Mount the servo amplifier on a cabinet which meets IP54 in the correct vertical arrangement. Which meets 1F34 in the Correct vehicle direction to maintain pollution degree 2 ■ The regenerative resistor supplied with 11 kW to 22 kW servo amplifiers does not have a protective cover. Touching not have a protective cover. Touching the resistor (including wings)screw hole areal may cause a burn injury and electing shock. Eyen if the power was go and the temperature of the control of the contr 40 mm or more (Note 1) discharged and the following reasons.

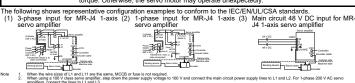
It may cause a burn injury due to very high temperature without cooling.

It may cause an electric shock due to charged capacitor of the servo amplifer. For 11 kW to 22 kW servo amplifiers, the clearance between the bottom and ground will be 120 mm or more.
 When mounting MR-J4-500_, maintain a minimum clearance of 25 mm on the left side.

To adapt your machine using MR-J4-03A6 or MR-J4W2-0303B6 to IEC/EN 60950-1, either supply the amplifier with a power supply complying with the requirement of 2.5 stated in IEC/EN 60950-1 (Limited Power Source), or cover the amplifier and motors connected to the outputs with a fire enclosure. Electrical Installation and configuration diagram

MARNING Turn off the molded-case circuit breaker (MCCB) to avoid electrical shocks or damages to the product before starting the installation or wiring. ● The installation complies with IEC/EN 60204-1. The voltage supply to machines must be 20 ms or more of tolerance against instantaneous power failure as specified in IEC/EN 60204-1 eConnecting a servo motor for different axis to U, V, W, or CN2_ of the servo amplifier may cause a malfunction.

■ Securely connect the cables in the specified method and tighten them with the specified torque. Otherwise, the servo motor may operate unexpectedly. **∆**CAUTION



5.2 I/O device

The connectors described by rectangles are safely separated from the main circuits described by circles The connected motors will be limited as follows.

HG/HF/HC/HA series servo motors (Mfg.: Mitsubishi Electric)
 Using a servo motor complied with IEC 60034-1 and Mitsubishi Electric encoder (OBA, OSA)

5. Signals

5.1 Signal
The following shows MR-J4-10B signals as a typical
example. For other servo amplifiers, refer to each
servo amplifier instruction manual. STO I/O signal 3 STOCOM 6 5 TOFB1 STO2

Input device z minal for input signals Output device CN8

5.3 Signals and STO state
The following table shows the STO1 and STO2 states when the power is on in normal state and STO1 and STO2 are on (closed or off (opened).

6. Maintenance, service and trouble shooting MARNING ●To avoid an electric shock, only qualified personnel should attempt inspections. For repair and parts replacement, contact your local sales office.

It is recommended that the following points periodically be checked.

(1) Check for loose terminal block screws. Retighten any loose screws. (Except for MR-J4-03A6 and MR-J4W2-0303B6)

	Servo amplitier	L1 L2 L3 N- P3 P4 P+ C D	L11 L21	UVWF	Έ
	MR-J4-10_(1)/MR-J4-20_(1)/MR-J4-40_(1)/ MR-J4-60_(4)/ MR-J4-70_/	1.2			
	MR-J4-100_(4)/MR-J4-200_(4)/MR-J4-350_(4)				
	MR-J4-500	1.2	8.0	1.2	_
	MR-J4-700_(4)/MR-J4-500_4	1.2	0.8	1.2	
	MR-J4-11K_(4)/MR-J4-15K_(4)	3.0	1.2	3.0	
	MR-J4-22K (4)	6.0	1.2	6.0	
	MR-J4WB			1	1.2

NW - 8
Servo motor bearings, brake section, etc. for unusual noise.
Check the cables and the like for scratches or cracks. Perform periodic inspection according to operating conditions.
Check that the connectors are securely connected to the servo motor.
Check that the wires are not coming out from the connector.
Check that unusual noise generated from the servo amplifier.
Check for unusual noise generated from the servo amplifier.
Check the servo motor shaft and coupling for connection.
Make sure that the emergency stop circuit operates properly such that an operation can be stopped immediately and a power is shut off by the emergency stop circuit operates properly such that an operation can be stopped immediately and a power is shut off by the emergency stop circuit operates properly such that an operation can be stopped immediately

6.2 Parts having service life Service life Service life of the following parts is listed below. However, the service life varies depending on operation and environment. If any fault is found in the parts, they must be replaced immediately regardless of their service life. For and compart in lease contact your local sales office.

parto replacement, piedes contact your i				
Part name	Life guideline			
Smoothing capacitor	10 years (Note 3)			
Relay	Number of times of power-on, dynamic brake activation, and forced stop: 100,000 in total			
,	Number of times that STO turns on and off: 1,000,000 in total			
Cooling fan	10,000 hours to 30,000 hours (2 years to 3 years) (Note 4)			
Battery backup time (Note 1)	Approximately 20,000 hours (equipment power supply: off, ambient temperature: 20 °C)			
Battery life (Note 2)	5 years from date of manufacture			
Note: 1 The time is far union MD M 1 axis come amplifies with an extensional approximation and DATO//SCT AD DATO//SCT A as MD DATO//D I Car data is and other hallow health in particular internal control of the contro				

refer to each networks manual.

Guilly of the bidders of corputed by the storage condition. The biddery size is 5 years from the production date regarders of the connection bidder.

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7. Transportation and storage

Transport the products correctly according to their mass.
Stacking in excess of the limited number of product packages is not allowed.
For detailed information on transportation and handling of the battery, refer to the servo

CAUTION

Install the product in a load-bearing place of servo amplifier and servo motor in accordance with the instruction manual.

So not place to servo amplifier and servo motor in accordance with the instruction manual.

So not place to servo amplifier and servo motor in accordance with the instruction manual.

So not place to servo amplifier and servo motor in accordance with the instruction manual.

So not place to servo amplifier and servo motor in accordance with the instruction manual.

	Item	Environment	
	Operation [°C	0 to 55 Class 3K3 (IEC/EN 60721-3-3)	
Ambient temperature	Transportation (Note) [°C	-20 to 65 Class 2K12 (IEC/EN 60721-3-2)	
	Storage (Note) [°C	-20 to 65 Class 1K4 (IEC/EN 60721-3-1)	
Ambient humidity			
Vibration resistance	Test condition	10 Hz to 57 Hz with constant amplitude of 0.075 mm 57 Hz to 150 Hz with constant acceleration of 9.8 m/s² to IEC/EN 61800-5-1 (Test Fc of IEC 60068-2-6)	
	Operation	5.9 m/s ²	
resistance	Transportation (Note)	Class 2M3 (IEC/EN 60721-3-2)	
	Storage	Class 1M2 (IEC/EN 60721-3-2)	
Pollution degre	e	2	
IP rating		IP20 (IEC/EN 60529), Terminal block IP00	
		Open type (UL 50)	
Altitude	Operation, storage	Max. 2000 m above sea level	
Ailliude	Transportation	Max. 10000 m above sea level	

8. Technical data

	Item	MR.J4-10 /MR.J4-20 / MR.J4-40 /MR.J4-60 / MR.J4-10 / MR.J4-100 / MR.J4-200 / MR.J4W2-27B/ MR.J4W2-47B/ MR.J4W2-47B/ MR.J4W3-222B/ MR.J4W3-444B	MR-J4-350 / MR-J4-500 / MR-J4-700 / MR-J4-700 / MR-J4-11K / MR-J4-11K / MR-J4-15K / MR-J4-22K_	MR-J4-10_1/ MR-J4-20_1/ MR-J4-40_1	MR-J4-60 4/ MR-J4-100 4/ MR-J4-200 4/ MR-J4-350 4/ MR-J4-500 4/ MR-J4-700 4/ MR-J4-11K 4/ MR-J4-15K 4/ MR-J4-22K 4	MR-J4-03A6/ MR-J4W2-0303B6
Power supply	Main circuit (line voltage)	3-phase or 1-phase 200 V AC to 240 V AC, 50 Hz/60 Hz (Note 2)	3-phase 200 V AC to 240 V AC, 50 Hz/60 Hz (Note 2)	1-phase 100 V AC to 120 V AC, 50 Hz/60 Hz	3-phase 380 V AC to 480 V AC, 50 Hz/60 Hz	48 V DC or 24 V DC
	Control circuit (line voltage)	1-phase 200 V AC to 240 V AC, 50/60 Hz (Note 2)		1-phase 100 V AC to 120 V AC, 50 Hz/60 Hz	1-phase 380 V AC to 480 V AC, 50 Hz/60 Hz	24 V DC
	Interface (SELV)	24 V DC (required current capacity: MR-J4- A _, 500 mA; MR-J4- B _, 300 mA; MR-J4W2- B _, 350 mA; MR-J4W3- B, 450 mA; MR-J4- GF _, 300 mA				mA;
Control m	ethod		Sine-wave PV	/M control, current con	trol method	,
Safety sub-function		STO (IEC/EN 61800-5-2)				
Compliance with standards (Note 3)		EN ISO 13849-1:2015 Category 3 PL e, IEC 61508 SIL 3, EN IEC 62061:2021 maximum SIL 3, and EN 61800-5-2				
Mean time to dangerous failure (MTTFd)		MTTFd ≥ 100 [years] (314a)				
Diagnostic coverage (DC)		DC = Medium, 97.6 [%]				
Probability per hour (of dangerous failures PFH)		PFH = 6.4 × 10 ⁻⁹ [1/h]			
	ne (T _M) (Note 4)	T _M = 20 [years]				
	performance	8 ms or less (STO input off → energy shut off)				
Pollution of	legree			2 (IEC/EN 60664-1)		
Overvolta	ge category	1-phase 100 V AC/200 V AC: II (IEC/EN 60664-1), 3-phase 200 V AC/400 V AC: III (IEC/EN 60664-1)				(IEC/EN 60664-1)
Protective	class	I (IEC/EN 61800-5-1)			III (IEC/EN 61800-5-1)	
Short-circuit current rating (SCCR) 100 kA				5 kA (Note 1)		

Note

1. For the use in USCanada, constitute a transch circuit including the power supply which endures SCCR of 5 kA minimum in the industrial cablinet.

2. MR-AH.—Rul alons apports a power supply of 283 V DC to 340 V DC.

3. Service of the supply of the

8.2 Dimensions/mounting hole process drawing

d1 Q JAW2-22B/MR-J4W2-44B 6 6 156 ± 0.5 6 3-154 ± 0.5 16 156 ± 0.5 6 73 ± 0.3 154 ± 0.5 16 156 ± 0.5 6 73 ± 0.3 154 ± 0.5 16 156 ± 0.5 6 156 ± 0.5 16 156

9. Check list for user documentation

MITSUBISHI MR-J4 installation checklist for manufacturer/installer

MR-J4 installation checklist for manufacturer/installer
The following items must be satisfied by the initial test operation at least. The manufacturer/installer must be responsible for checking the standards in the items.
Maintain and keep this checklist with related documents of machines to use this for periodic inspection.

1. Is it based on directive/istandard applied to the machine?
2. Is directive/istandard contained in Declaration of Conformity (DoC)?
3. Does the protection instrument conform to the category required?
4. Are electric shock protective measures (protective class) effective?
5. Is the STO function checked (test of all the shut-off wiring)?
Checking the items will not be instead of the first test operation or periodic inspection by professional engineers.

Warranty

Warranty

1. Warranty period and coverage

We will repair any failure or defect hereinafter referred to as "failure" in our FA equipment hereinafter referred to as the "Product" arises

We will repair any failure or defect hereinafter referred to as "failure" in our FA equipment hereinafter referred to as the "Product" arises

Product or our service provider. However, we will charge the actual cost of dispatching our engineer for an on-site repair work or

request by customer in Japan or oversees countries. We are not responsible for any on-site readjustment and/or trial run that may be

required after a defective unit are repaired or replaced.

to the Product.

(3) Even during the term of warranty, the repair cost will be charged on you in the following cases;

1. a failure caused by your improper storing or handling, carelessness or negligence, etc., and a failure caused by your hard or software problem

sense in the industry
sense in the industry
and itself and industry
a facility of the industry
a facility of the industry
a facility which may be regarded as avoidable if consumable parts designated in the instruction manual, etc. are duly maintained and replaced

3. Service in overseas countries
 will accept the repair work of the Product. However, the terms and conditions of the repair work only differ depending on each FA center in overseas countries will accept the repair work only differ depending on each FA center. Please ask your local FA center for details.

4. Exclusion of loss in opportunity and secondary loss from warranty liability.

Regardless of the gratis warranty term, Misubais shall not be liable for compensation to:

(1) Damages caused by any cause found not to be the responsibility of Misubaish.

(3) Special damages and secondary damages whether foreseable or not, compensation for accidents, and compensation for damages to products other than Misubaish products.

(4) Registeement by the user, maintenance of not site environment enterture has not and other transfer.

Specifications listed in our catalogs, manuals or technical documents may be changed without notice

6. Application and use of the Product

ppincation and use of the Product
) For the use of our AC Servo, its applications should be those that may not result in a serious damage even if any failure or mafunction occurs in AC Servo, and a backup or fail-safe function should operate on an external system to AC Servo when any failure or mafunction occurs.

failure or malfunction occurs.

(2) Our AC Sevo is designed and manufactured as a general purpose product for use at general industries.

Therefore, applications substantially influential on the public interest for such as atomic power plants and other power plants of electric power companies, and also which require a special quality assurance system, including applications for railway compar and government or public offices are not recommended, and we assume no responsibility for any failure caused by these

and government or public othoses are not recommensed, and we assure in responsement, or sery an expense and papellations when used. In addition, applications which may be substantially influential to human lives or properties for such as airlines, medical treatmen railways service, incineration and fuel systems, man-operated material handling equipment, entertainment machines, safety machines, etc. are not recommended, and we assume no responsibility for any failure caused by these applications when used. We will review the acceptability of the abovernentnost applications, if you agree not to require a specific quality for a specific application. Please contact us for consultation.

[Limitations]
(1) You are requested to conduct an initial failure diagnosis by yourself, as a general rule.
It can also be carried out by us or our service company upon your request and the actual cost will be charged. However, it will not be charged five are responsible for the cause of the failure.
(2) This limited warrardy applies only when the condition, method, environment, etc. of use are in compliance with the terms and conditions and instructions that are set forth in the instruction manual and user manual for the Product and the caution label affixed

or software problem a failure caused by any alteration, etc. to the Product made on your side without our approval a failure which may be regarded as avoidable, if your equipment in which the Product is incorporated is equipped with a safety device required by applicable less and has any function or structure considered to be indispensable according to a common

and replaced
any replacement of consumable parts (battery, fan, smoothing capacitor, etc.)
a preplacement of consumable parts (battery, fan, smoothing capacitor, etc.)
a failure caused by external factors such as inevitable accidents, including without limitation fire and abnormal fluctuation of voltage, and acts of Cod. including without limitation activables, lighting and natural disasters
7. a failure generated by an uniforeseeable cause with a scientific technology that was not available at the time of the shipment of the Product from our company
8. any other failures which we are not responsible for or which you acknowledge we are not responsible for

 any other faulties which we are not responsible for or which you acknowledge we are not responsible for
 Term of warrantv after the stop of production
 We may accept the repair at charge for another seven (7) years after the production of the product is disconlinued. The announcement of the stop of production for each model can be seen in our Sales and Service, etc.
 Please note that the Product (including its spare parts) cannot be ordered after its stop of production. 3. Service in overseas countries

nt by the user, maintenance of on-site equipment, start-up test run and other tasks

5. Change of Product specifications

application. Please contact us for consultation. Missubsint Electric shall have no responsibility or liability for any problems involving programmable controller trouble and system trouble caused by DoS attacks, unauthorized access, computer viruses, and other cyberattacks.