## MITSUBISHI **ELECTRIC** General-Purpose AC Servo MITSUBISHI SERVO AMPLIFIERS & MOTORS

IVIEL	DERVU-J4	
MR-J4 Ser	vo amplifier	
MR-J4-10_to I		
MR-J4-60_4 to MR-J4-10_1 to		
MR-J4W2-22B	to MR-J4W2-1010B	
	B, MR-J4W3-444B	
,	/R-J4W2-0303B6	
Instruction	ons and Cautions for	
Safe Us	e of AC Servos	N
Country/Region	Sales office	Tel/Fax
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ISO/EN ISO 13849-1 Category 3 PL e, IEC/EN 62061 SIL CL 3, IEC/EN 61800-5-2 SIL 3 (STO) (Except for MR-J4-03A6 and MR-J4W2-030386). In addition, MR-J4 servo amplifiers can be used with the MR-D30 functional safety unit, MR-J3-D05 safety logic unit, or safety PLCs. (except for MR-J4-03A6 and MR-J4W2-0303B6) 2.3 Correct use.

2.3 Correct use Always use the MR-14 servo amplifiers within specifications (voltage, temperature, etc. Refer to each instruction manual for details.). 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.

WARNING <sup>•</sup>It takes 15 minutes for capacitor discharging. Do not touch the unit and terminals immediation after power off.

2.3.1 Peripheral device and power wiring The followings are selected based on IEC/EN 61800-5-1, UL 508C, and CSA C22.2 No.14. (1) Power Wiring (local wiring and crimping tool) Use only copper wires or copper bus bars for wiring. The following table shows the stranded wire sizes [AWG] and the crimp terminal symbols rated at 15 ° C/60 °C.

Tab	le 1. Recon	nmended wir	es		Tabl	e 2. Recomm	ended crimp te	rminals	
Constant and lifest	75 °C	/60 °C stranded	i wire [AWG]	(Note 2)	Ormhal	Servo ampli terr	fier-side crimp ninals	Manu-	
Servo amplifier	L1/L2/L3	L11/L21	P+/C	U/V/W/ (Note 3)	Symbol	Crimp terminal (Note 2)	Applicable tool	facturer	
MR-J4-03A6/	19/-		/	19/-	а	FVD5.5-4	YNT-1210S		
MR-J4W2-0303B6	(Note 5)		$\sim$	(Note 6)	b (Note 1)	8-4NS	YHT-8S		
MR-J4-10_(1)/MR-J4-20_(1)/					C	FVD2-4	YNT-1614		
MR-J4-40 (1)/MR-J4-60 (4)	14/14				d	FVD14-6	YF-1		
MR-J4-70 <sup></sup> /MR-J4-100_(4)/ MR-J4-200_(4) (T)/ MR-J4-350_4	14/14	14/14	14/14	14/14	e	FVD5.5-6	YNT-1210S		
		14/14	14/14		f	FVD22-6	YF-1	IST	
MR-J4-200_ (S)	12/12				g	FVD38-6	YF-1	(J.S.T.	
MR-J4-350_	12/12			12/12	ĥ	R60-8	YF-1	Mfa. Co	
MR-J4-500 (Note 1)	10: a/10: a		14: c/14: c	10: b/10: b	1	FVD5.5-8	YNT-1210S	Ltd.)	
MR-J4-700 (Note 1)	8: b/8: b		12: a/12: a	8: b/8: b	j	CB70-S8	YF-1		
MR-J4-11K (Note 1)	6: d/4: f		12: e/12: e	4: f/4: f	k	FVD2-6	YNT-1614		
MR-J4-15K (Note 1)	4: f/3: f	12: a/1: 12: e/1: 10: e/11 10: i/11 14: c/14: c	10: e/10: e	3: g/2: g	1	FVD8-6	YF-1		
MR-J4-22K (Note 1)	1: h/-: -		10: i/10: i	1: j/-: -	m	FVD14-8	YF-1		
MR-J4-500_4 (Note 1)	14: c/14: c	14: C/14: C	14 <sup>.</sup> c/14 <sup>.</sup> c	12: a/10: a	n	FVD22-8	YF-1		
MR-J4-700 4 (Note 1)	12: a/12: a		14: C/14: C	10: a/10: a	Note 1.	Cost the crimpin	a part with an incu	Imp         Manufacturer           10 stol         facturer           210S	
MR-J4-11K_4 (Note 1)	10: e/10: e		14: k/14: k	8: I/8: I					
MR-J4-15K 4 (Note 1)	8: 1/8: 1		12: e/12: e	6: d/4: d		depending on th	e size. Máke sure	to use the	
MR-J4-22K_4 (Note 1)	6: m/4: m		12: i/12: i	6: n/4: n	1 I	recommended o	nes or equivalent of	ones.	
MR-J4WB	14/14 (Note 4)	14/14	14/14	14/14	1				

Alphabets in the table indicate crimping tools. Refer to table 2 for the crimp terminals and crimping tools. Select wire sizes depending on the rated output of the servo motors. The Use the crimpi terminal is for the PE terminal of the servo amplifient Use the crimpi terminal is for the PE terminal of the servo amplifient This value is of 24/0/PW/cPh for MR-14-03A6 and MR-14W2-030386. T(s) "means 1-phase 200 V AC power input and "(T)" means 3-phase 200 V AC power implut in the table.

AC power input in the table. 2) Selection example of MCCB and fuse (UL 489 Listed MCCB) as the following table. The T class fuses and molded-case circuit breakers in the table are selected examples based on rated I/O of the servo amplifiers. When you select a smaller capacity servo motor to connect it to the servo amplifier, you can also use smaller capacity T class fuses or molded-case circuit breaker than ones in the table. For selecting ones other than Class T fuses and molded-case circuit breakers below, refer to each servo amplifier instruction manual.

Servo amplifier (100 V class)	Molded-case circuit breaker (120 V AC)	Fuse (300 V)
MR-J4-10_1/MR-J4-20_1/MR-J4-40_1	NV50-SVFU-15A (50 A frame 15 A)	20 A
Servo amplifier (200 V class) (Note)	Molded-case circuit breaker (240 V AC)	Fuse (300 V)
MR-J4-10_/MR-J4-20_/MR-J4-40_/MR-J4-60_ (T)/MR-J4-70_ (T)/MR-J4W2-22B (T	NF50-SVFU-5A (50 A frame 5 A)	10 A
MR-J4-60_(S)/MR-J4-70_(S) /MR-J4-100_(T)/MR-J4W2-22B (S)/ MR-J4W2-44B (T)/MR-J4W2-77B (T)/MR-J4W3-222B/MR-J4W3-444B (T)	NF50-SVFU-10A (50 A frame 10 A)	15 A
MR-J4-100_(S)/MR-J4-200_(T)/MR-J4W2-44B(S)/MR-J4W2-1010B	NF50-SVFU-15A (50 A frame 15 A)	30 A
MR-J4-200_(S)/MR-J4-350_/MR-J4W2-77B (S)/MR-J4W3-444B (S)	NF50-SVFU-20A (50 A frame 20 A)	40 A
MR-J4-500_	NF50-SVFU-30A (50 A frame 30 A)	60 A
MR-J4-700_	NF50-SVFU-40A (50 A frame 40 A)	80 A
MR-J4-11K_	NF100-CVFU-60A (100 A frame 60 A)	125 A
MR-J4-15K_	NF100-CVFU-80A (100 A frame 80 A)	150 A
MR-J4-22K_	NF225-CWU-125A (225 A frame 125 A)	300 A
Note. "(S)" means 1-phase 200 V AC power input and "(T)" means 3-phase 200 V AC	C power input in the table.	
Servo amplifier (400 V class)	Molded-case circuit breaker (480 V AC)	Fuse (600 V)
MR-J4-60_4/MR-J4-100_4	NF100-HRU-5A (100 A frame 5 A)	10 A
MR-J4-200 4	NF100-HRU-10A (100 A frame 10 A)	15 A
MR-J4-350 4	NF100-HRU-10A (100 A frame 10 A)	20 A
MR-J4-500_4	NF100-HRU-15A (100 A frame 15 A)	30 A
MR-J4-700_4	NF100-HRU-20A (100 A frame 20 A)	40 A
MR-J4-11K 4	NF100-HRU-30A (100 A frame 30 A)	60 A
MR-J4-15K_4	NF100-HRU-40A (100 A frame 40 A)	80 A

(3) Power supply
 (3) Power supply
 (3) Power supply
 (4) Fower supply
 (5) Power supply
 (6) Power supply
 (7) Power supplies of reinforced insulation type to main circuit, control circuit, and UL listed (recognized) 48 V DC/24 V DC power supplies which can generate more than 12 A/2 4 Per axis.
 (4) Grounding

al of the server

12 A22.4 A per pais. Grounding To prevent an electric shock, always connect the protective earth (PE) of there adhered by of the servo amplifier to the protective earth (PE) of the cablet. Do not connect was grounding cables to the same protective the cablet. Do not connect was grounding cables to the same protective the cablet. Do not connect was grounding cables to the same protective the cablet. Do not connect was grounding cables to the same protective the cablet. Do not connect was grounding cables to the same protective the cablet. Do not connect was ground the protective earth (PE) terminal of the serve amplifier to prevent an electric shock. This product can cause a d.c. current to the protective earthing conductor. Where a residual current-operated protective (RCD) earth-leakage current breaker) device is used for protection in case of direct or indirect contact, only an RCD of Type B is allowed on the supply side of this 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.

Iter interference in the construction of the construc

Isubishi Electric FR-BLF tended to be used on a low-voltage public network which supplies domestic premises; ence is expected if used on such a network. The installer shall provide a guide for luding recommended mitigation devices. To avoid the risk of crosstalk to signal cables, the shall either recommend that the power interface cable be segregated from signal cables. b) installed with the amplifers in the same cabinet. Do not connect the other electric

We are by the DC power supply insplice with the annumers in the same cabinet. Do not connect the other electric devices to the DC power supply. For Declaration of Conformity (DoC) Hereby, MITSUBISHI ELECCTRIC EUROPE B.V., declares that the servo amplifiers are in compliance with the necessary requirements and standards (2006/42EC, 2004/108/EC and 2006/95/EC). For the copy of Declaration of Conformity, contact your local sales office.

of Conformity, contact your local sales office.
 2.3.3 USA/Canada compliance
 This servo amplifier is designed in compliance with UL 508C and CSA C22.2 No.14.
 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 55 °C or 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 of 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).
 Overford protection characteristics

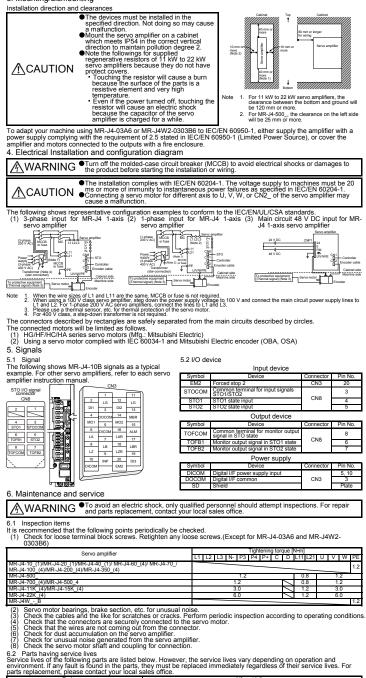
030366).
03. Overload protection characteristics
The MR-J4 servo amplifiers have solid-state servo motor overload protection. (It is set on the basis (full load current of the servo amplifier.).
04. Over-temperature protection for motor
Motor Over temperature sensing is not provided by the drive. Integral thermal protection(s) is not provided by the drive.
Integral thermal protection(s) is necessary for motor and refer to chapter 4 for the proper connection.
05. Branch circuit protection
06. For installation in United States, branch circuit 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 Canada Electrical Code and any applicable provincial codes.

Each class and a branch circuit protection must be provided, in accordance with the Canada Electrical Code and any applicable provincial codes. 2.3.4 South Korea compliance This product Compliance This product Complies with the Radio Wave Law (KC mark), Please note the following to use the product. 이 기기는 업무용 (AE) 전자파적합기기로서 판 매자 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 product, use a distance greater than 30 m between the product and third party sensitive radio communications for an MR-34-22K, (4). 2.4 General cautions for safety protection and protective measures Observe the following items to ensure proper use of the MELSERVO MR-34 servo amplifiers. (1) For safety components and installing systems, only qualified personnel and professional engineers should perform. (2) When mounting, installing, and using the MELSERVO MR-34 servo amplifier, always observe standards and directives applicable in the country. (3) The item about noises of the test notices in the manuals should be observed.

- Residual risk
   Be sure that all safety related switches, relays, sensors, etc., meet the required safety standards.
   Perform all risk assessments and safety level certification to the machine or the system as a whole.
   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.
   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 Table F1 No.5)

Components are installed. Only trained engineers should install and operate the equipment. (ISO 13449-11 able F.1 No.1)
 Separate the wiring for safety observation function from other signal wirings. (ISO 13849-11 able F.1 No.1)
 Protect the cables with appropriate ways (routing them in a cabinet, using a cable guard, etc.).
 Weep the required clearance/creepage distance depending on voltage you use.
 Disposal of unusable or irreparable devices should always occur in accordance with the applicable country-specific waste disposal regulations. (Example: European Waste 16 02 14)
 Zi thium 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 (IMR-BATGVISET, MR-BATGVIST, MR-BATGVI, and MR-BATGVISL) are assembled batteries from two batteries (Ithium metal battery CR17335A) which are not subject to the dangerous goods (Class 9) of the UN Recommendations.

3. Mounting/dismounting



Smoothing capacitor	(Note 3) 10 years							
Relay	Number of power-on, forced stop and controller forced stop times: 100 000 times Number of on and off for STO: 1,000,000 times							
Cooling fan	10,000 hours to 30,000 hours (2 years to 3 years)							
(Note 1) Battery backup time	Approximately 20,000 hours (equipment power supply: off, ambient temperature: 20 °C)							
(Note 2) Battery life	5 years from date of manufacture							
Note 1. The time is for using MR-J4 1-axis servo amplifier with an rotary servo motor using MR-BAT6V1SET, MR-BAT6V1SET-A, or MR-								

 The time is for using MR-J4 1-axis servo amplifier with an rotary servo motor using MR-BAT6V1SET, MR-BAT6V1SET-A, or MR-BAT6V1BJ. For defails and other battery backup time, refer to each instruction manual.
 Quality of the batteries degrades by the storage condition. The battery life is 5 years from the production date regardless of the connecti Ubiny or intro batteries our our average constraints of the straints of the

7. Transportation and storage

∕∆САІ		ot fic I the he is	the products correctly according to their mass. In excess of the limited number of product packages is not allowed. Id the front cover to transport the servo amplifier. Otherwise, it may drop. product in a load-bearing place of servo amplifier and servo motor in accordance struction manual. It on or put heavy load on the equipment. ed information on transportation and handling of the battery, refer to the servo mstruction manual.						
When you ke	eep or use it, please	e fulf	ill the following environment.						
	Item		Environment						
Ambient	Operation	[°C]	0 to 55 Class 3K3 (IEC/EN 60721-3-3)						
temperature	Transportation (Note) [°C]		-20 to 65 Class 2K4 (IEC/EN 60721-3-2)						
	Storage (Note)	[°C]	-20 to 65 Class 1K4 (IEC/EN 60721-3-1)						
Ambient humidity	Operation, transportation storage	rtation, 5 %RH to 90 %RH							
	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/s <sup>2</sup> to IEC/EN 61800-5-1 (Test Fc of IEC 60068-2-6)						
Vibration resistance	Operation		5.9 m/s <sup>2</sup>						
i calatal ICC	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						
ii raung			Open type (UL 50)						

## MITSUBISHI ELECTRIC CORPORATION

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

The following shows an example of rating plate for explanation of each item	i
5	

ACCENT         SR. ACCERNO           MODEL, MR.J4-10B         POVER: 100W           POVER: 100W         NRUT1700-230Hz 1A           STD: ECENNIB00-51 MAN: IBNA)000175         Max.Surrondma Ar Temp: 55°C           Parameter.         C2000424451	Serial number Model Capacity Rated output current Standard, Manual number Ambient temperature
MTRIBIOL D DOTEC CORRORATION DATE 2016	KC certification number

# Warning plate Model The following shows an example of warning plate. The following describes what each block of a model name indicates.

	<i>A</i>	1	Not all combinat	ions d	of the sym	bols a	are a	vailable.
	E				MR-J4W	2-22	в —	
	RNING 警告 - 現在学校になったいたちのようには、日本の日本には国家になった。 - 日本の日本には、日本の日本には、日本の日本には国家になった。 - 市の日本日本には、日本の日本には、日本の日本には国家には、 - 市の日本日本の日本には、日本の日本の日本には、日本の日本の日本には、 - 市の日本日本の日本の日本の日本の日本の日本の日本の日本の日本の日本 - 市内日本の日本の日本の日本の日本の日本の日本の日本の日本の日本の日本の日本 - 日本の日本の日本の日本の日本の日本の日本の日本の日本の日本の日本の日本の日本の日				Series Number of axes Symbol Number of axes	T		Software special specification Blank, Jn, Sn, or Un (n = 00 to 999) Hardware special specification Blank or 2 to 5 dgit alphanumeric (RJ, ED, PX, RU, RZ, etc.) wer supply
	电容放电器要15分样。 感覺の恐れあり、電源面相直後にコニットや暗子部を触れないこと。 12737放電時間:15分		Rated output		W3 3		(Sy	mbol Power supply ione 3-phase or 1-phase 200 V AC to 240 V AC 1 1-ohase 100 V AC to 120 V AC
	AUWAS CONJECT PROTECTIVE ENRITH (PE) FOR PROTECTION AGAINST. TOWORS BRANCHER LA TEXNE (FILM CONJUCTEME PROTECTION 为了防止酸皂、満多必須行保护接地(PE)。 電電防止の為、保護アールPEIの接触を必ず行うこと。		Symbol Rated output [kW] 03 0.03 10 0.1 20 0.2	0303 22	Rated output           A-axis         B-axis           0.03         0.03           0.2         0.2	C-axis		4 3-phase 380 V AC to 480 V AC 6 48 V DC/24 V DC
A	DONT TOUCH HEATSINK ME PAG TOUCHEZ LE DOBSIPATEUR THERMIDUE. 数数方の右着温温。 動数方のに触らないこと。高速の恐れあり。		40 0.4 60 0.6 70 0.75 100 1	44 77 1010 222	0.4 0.4 0.75 0.75 1 1 0.2 0.2	02		mbol Corresponding A General-purpose interface B SSCNET II/H
4	OLY 5 TYPE RCD IS ALLORED. SELLEIDENT (MILORATE) RCD TYPE B RCD ALTOMSE 人有B装型版的(濃電化料合語)RCD 線を作ら。 RCD 濃度液解解体タイプ目であること。		200 2 350 3.5 500 5	444	0.4 0.4	0.4		
・IIER ・在	EFT TO MANUAL BEFORE FIRSTALLING OR BERNITING. CITE COMMUTER LIMITESTIM ANNE FIRSTALLING OU INNTENNEE. 交援及夏雄州前, 清参考書品。 すと保守サービスの前に、マニュアルを参照すること。		700 7 11K 11 15K 15 22K 22					

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

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, refer to each servo amplifier instruction manual. 1.3 Terms related to safety 1.3 Terms related to safety 1.3 TIEC 61800-5-25 top 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. In addition, MR-J4-03A6 and MR-J4W2-0303B6 don't support this function. 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.

	<b>≜</b> WARNING	Indicates that incorrect handling may cause hazardous conditions, resulting in death or severe injury.
I		Indicates that incorrect handling may cause hazardous conditions, resulting in medium or slight injury

CAUTION Indicates that incorrect handling may cause to personnel or may cause physical damage

2.1 Professional engineer Only professional engineers should mount MR-J4 servo amplifiers.

- Only processional engineers should meet the all conditions below.
   Persons who took a proper engineering training or qualified persons who are engaged in electrical equipment Check if applicable technical training is available at your local Mitsubishi Electric office. Contact your local sales office for schedules and locations. (2) Persons who can access operating manuals for the protective devices (e.g. light curtain) connected to the safety control system. Persons who have read and familiarized himself/herself with the manuals. 22. Applications of the devices MR-J4 servo amplifiers comply with the following standards. IEC/EN 61800-51, IEC/EN 61800-3, IEC/EN 61800-31, IEC/EN 61204-1

MTSUBISH ELECTRIC CORPORATION DATE 2014 6

Not all	combinati	ons	MR Seri Number	<u>J 4 W</u>		are available.	vite stinetists missian ar Envic output of 400 V class serv V class servo amplifiers. T EMC filter: Soshin Ele Surge protector: Okay Line noise filter: Mitsu MR-J4 Series are not inter
Rated		_				None 3-phase or 1-phase 200 V AC to 240 V AC 1 1-phase 100 V AC to 120 V AC	radio frequency interference
Symbol 03	Rated output [kW] 0.03	Symbol	A-axis	ed output	[kW] C-axis	4 3-chase 380 V AC to 480 V AC	Installation and use, includ
10	0.1	0303	0.03	0.03		6 48 V DC/24 V DC	installation instructions sha
20	0.2	22	0.2	0.2	7	Corresponding	Use the DC power supply
40	0.4	44	0.4	0.4	$\sim$	Symbol Corresponding	
60			0.75	0.75	$\sim$	A General-purpose interface	devices to the DC power s
70	0.75	1010	1	1		B SSCNET II/H	(2) For Declaration of Conform
100	1	222	0.2	0.2	0.2		

1. About the manuals

	Item				_,		nvironr		avel				
Altitude Note. In reg	Operation, storage Transportation ular transport packagin				N	Max. 2000 Max. 1000	0 m ab	ove sea	level				
8. Tech	nical data J4 servo amplifier	-											
	Item	MR-J4-10 /MR-J4-20 / MR-J4-40 /MR-J4-60_/ MR-J4-100 / MR-J4-100 / MR-J4-100 / MR-J4W2-22B/ MR-J4W2-22B/ MR-J4W2-27B/ MR-J4W3-4222B/ MR-J4W3-444B	MR-J4 MR-J4 MR-J4 MR-J4W3 MR-J4W3 MR-J4 MR-J4	/	MR-J MR-J MR-	14-10_1 14-20_ 14-40_	1/ 1/ 1	MR- MR- MR-	-J4-60_4/ J4-100_4/ J4-200_4/ J4-500_4/ J4-500_4/ J4-700_4/ J4-11K_4/ J4-15K_4/ J4-22K_4	I MF	WR-J4-03 -J4W2-0	A6/ 303B6	
	Main circuit (line voltage)	3-phase or 1-phase 200 V AC to 240 V AC, 50 Hz/60 Hz	3-ph 200 V 240 \ 50 Hz/	AC to / AC to / AC.		1-1 100 120 50 H	ohase V AC to V AC, V AC, Iz/60 H	2		-phase I V AC to 0 V AC, Hz/60 Hz		48 V DC 24 V D	or C
Power supply	Control circuit (line voltage)	1-phase 200 V AC to	240 V AC, 9	50/60 Hz		1-1 100 120 50 H	ohase V AC to V AC. z/60 H	z	1 380 48 50	-phase V AC to 0 V AC, Hz/60 Hz		24 V D	с
Control me			DC (required MF Sir	e-wave	PW	acity: MR , 350 mA; M control	MR-J4	_, 500 m W3B,	1A; MF 450 m	t-J4B_, 30 hA)	10 mA;		
IEC/EN 618 Mean time Effectivene	to dangerous failure ss of fault monitoring	EN	ISO 13849- EN 62061 S	IL CL 3, MTTFd 2 DC = H	≥ 10	0 [years]	0-5-2 8	BIL 3					$\geq$
Average pr failures per Mission tim			F	FH = 6.4	40 ×	10 <sup>-9</sup> [1/h]						$\geq$	$\geq$
Response Pollution de Overvoltag			Tu = 20 (years) 8 ms or less (STO input off - energy shut off) 2 (IEC/EN 80664-1) 1-phase 100 V AC/200 V AC; II (IEC/EN 80664-1) 3-phase 200 V AC/400 V AC; III (IEC/EN 80664-1)										
Protective of Short-circu	class it current rating			I (IEC/EN		800-5-1)	2 E T U	,001 1)				C/EN 600 III C/EN 618 5 kA (No	00-5-1)
Note. For th cabin	e use in US/Canada, c et.	constitute a branch circuit	including th				endur	es SCCI	R of 5	kA minimum	in the		,
8.2 Serv	o amplifier dimens		amplifier			W	/ariable	e dimens H		ble [mm] D	—	Mass	[kg]
H Front	Side	MR-J4-03A6 MR-J4-10_(1)/MR-J MR-J4-40_(1)/MR-J	4-20_(1) 4-60			30 40 40		10 16 16	8	90 135 170		0.2 0.8 1.0	
1		MR-J4-70_/MR-J4- MR-J4-200_(4) MR-J4-350	100_			60 90		16 16 16	8	185 195		1.4 2.1 2.3	
<u>↓ · · ·</u> →	<b>← _ →</b>	MR-J4-500_ MR-J4-700_ MR-J4-11K_(4)/MR-	14-15K (4)			105 172 220	2	25 30 40	0	200 200 260		4.0 6.2 13.4	
		MR-J4-22K_(4) MR-J4-60_4/MR-J4 MR-J4-350_4				260 60 105	)	40 40 16 25	0 8	260 260 195 200		18.	2
		MR-J4-330_4 MR-J4-500_4 MR-J4-700_4 MR-J4W2-0303B6				130 172	)	25 25 30 16	0	200 200 200 100		4.3	
		MR-J4W2-22B/MR- MR-J4W2-77B/MR-	J4W2-1010			30 60 85 85		16 16	8 8	100 195 195	_	0.3 1.4 2.3	
8.3 Mou	nting hole	MR-J4W3-222B/MR	-J4VV3-444	5			sieble a	16				2.3	Screw
	→H <sup>ĕ</sup> ¶ f MR-J4-0	Servo amplifier	a	a1	9	b 0 ± 0.5	c 5	dimensio	-	d1	e 4	e1 4	f M5
b	MR-J4-7	0 (1)/MR-J4-20 (1)/ 10_(1)/MR-J4-60_ 70_/MR-J4-100_	6 12	6 12	15	56 ± 0.5	6	42 ±		$\mathbb{N}$	//	$\Delta$	M5 M5
ctoria d	e MR-J4-5 MR-J4-7	/00_	6 6 6	45 6 6	23	56 ± 0.5 35 ± 0.5 35 ± 0.5	6 7.5 7.5	78 ± 93 ± 160 ±	0.5 : 0.5	93 ± 0.5 160 ± 0.5	///		M5 M5 M5
	MR-J4-2 MR-J4-6	60_4/MR-J4-100_4	12 12 12	12 12 12	37	30 ± 0.5 76 ± 0.5 56 ± 0.5	10 12 6	196 ± 236 ± 42 ±	0.5 0.3	196 ± 0.5 236 ± 0.5	///	$\mathbb{N}$	M5 M10 M5
	MR-J4-5 MR-J4-7	00_4 700_4	$\begin{array}{cccccccccccccccccccccccccccccccccccc$						///	M5 M5 M5			
	MR-J4W	/2-0303B6 /2-22B/MR-J4W2-44B /2-77B/MR-J4W2-1010B	6	6 6	15	6 ± 0.5 6 ± 0.5 6 ± 0.5	6 6	73 ±	0.3	$\square$	///		M5 M5 M5
9. Chec	k list for user d	ocumentation	6	6	15	56 ± 0.5	6	73 ±	0.3		/	$\sim$	M5
respons Maintair 1. Is 2. Is 3. D 4. A, 4. 5. Is Checkin (Warrar 1. War Wer Warrar 1. War War War War (Iterm] The t you c whild (1) You serv (0) a (0)	bible for checking the it based on direct directive/standard ces the protection directive/standard ces the protection get he terms will no the STO function get he items will no the STO function get he items will no the standard the standard	or defect hereinafter r arranty period at no ci Product or our service on request by custom run that may be requir product is twelve (12) this from the date of m scxceed beyond the ori nduct an initial failure i our request and the at cites only when the co oiles only when the co attention, etc. to the Pro- regarded as avoidable, if sumable parts (battery, f sumable parts (battery, f sumable parts (battery, f the attention each as inee without limitation each as inee without initiation each as inee without initiation each as inee without initiation each as inee without for each as the poly of production poly of production for each poly forduction for each poly forduction for each as inee with cit (inicidian) [its spail	ne initial tems. ocuments ocuments to the car to the car to the car to the car to the car the shut-o- rst test op eferred to a harge due b provider. er in Japar ed after a c after ac diagnosist diagnosist diagnosist ctual cost v ndition, me the instruc- trosonsumable an, smoothin itable acida ke, lightning vith a scienti for or which on or seven (7, ch model c re parts) car till accept t A Center. In a gainst	test op of maar of maar of maar of maar of maar of the on your set of the of t	pera chirry mityreq region person	(IDCC)? rective ? rective ? re	I leas sise thi sise this sise this sise this sise this sise in the sise sise sise sise sister and size size size size size size size size	t. The s for p Yes [ Yes [ Yes ] Yes [ Yes ] Yes [ or rep] ry of the active Yes [ or rep] ry of the active Yes active or rep ry of the active Yes active	mar eriod 	ic inspect o [ ] ] ] ] ] ] ] ] ] ] ] ] ] ] ] ] ] ]	end to a he distriction of the distribution of	ineers. as the ributor fright of the esignate esignate esignate esignate response re	rom neer ed by our sible and bel offware ce ce ce ce d , and dustry d , and nodustry d modustry d modustry we are
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We will review the acceptability of the abovementioned applications, if you agree not to require a specific quality for a specific application. Please contact us for consultation.