

Model MR-CV11K to MR-CV55K MR-CV11K4 to MR-CV75K4 MR-CR55K/MR-CR55K4 MR-J4-DU700_to MR-J4-DU37K_ MR-J4-DU700_4 to MR-J4-DU55K_4 Instructions and Cautions for Safe Use of AC Servos

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MITSUBISHI FLECTRIC CORPORATION

	HEAD OFFICE. TOKTO BLDG M	
		This guide uses recycled paper.
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Contents of the package

Unp	ack the product and check the rating plate t	o see if the s	ervo amplifier is as you ordered.	
(*	 Converter unit 		(2) Drive unit	
	Contents	Quantity	Contents	Quantity
Co	onverter unit	1	Drive unit	1
Ey	ebolt (55 kW or more)	2	Bus bar (30 kW or more)	2



MR CR 55K4

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

C Software special speci Blank, Jn, Sn, or Un (n = 00 to 999)

Haroware special specificati Blank or 2 to 5 digit alphanu (RJ, ED, PX, RU, RZ, etc.)

 Power supply

 Symbol
 Power supply

 None
 3-phase 200 V AC to 240 V AC to 240 V AC to 240 V AC to 480 V AC to

Power supply Symbol Power supply None 3-phase 200 V AC to 240 V AC 4 3-phase 380 V AC to 480 V AC

Series: MR-CR/MR-CV

<u>MR - J 4</u> - <u>DU 30K B 4</u>

Symbol Capacity [kW] Symbol Capacity [kW]

18 55K 55 30 75K 75

20	
WARNING	警告

・BKGのをELCTR2.BKGK.D0.0017TLOCHCPELEUTAPD.MPRN_MAREJURE ドドキャロのでのたくのためたのものといいの時間、 ・BKDLUEE CHOC ELCTRADE、MF-RN TUDE-ERCLANDE [PLN-ERC ET とののためにないため、 のため、 のためにないため、 のためにないため、 のためにないため、 のためにないため、 のためにないため、 のためにないため、 のため、 のためにないため、 の	E E
ALWAYS CONNECT PROTECTIVE EARTH (PE) FOR PROTECTION AGAINST つしJOURS BRAINCHER LA TERKE (PE) AU CONJUCTEUR DE PROTECTION 为了 防力 L油电 、 请多必进行保护接地 (PE) 。 感電防止の為、保護7-X(PE)の接続を必ず行うこと。	i
DONT TOUCH HEATSING. 体 FAS TOUCHEZ LE DISSIPATEUR THERMICUE. 教教片恐有高温。 故熟7心に触らないこと。高温の恐れあり。	
CNLY B TYPE RCD IS ALLOWED. SEULEMENT DISJONCTEUR DE TYPE B RCD AUTORISÉ. 只有B拳型的(温电保护器) RCD被允许。	

·RCD(漏電遮断器)はタイプBであること。 RCD(漏電遮断器)はタイプBであること。 R SERVICING. Avant Installation ou maintenance

MERCI DE CONSULTER LE MANUEL DUTILISATION AVANT INSTALLATION OU

 ・在安装及維护前,请参考手册。

 ・据付と保守サービスの前に、マニュアルを参照すること。

1 About the manuals

Converter units and drive units are written as servo amplifiers in this guide under certain circumstances

1.1 MELSERVO-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.misubshielectric.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 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 safety servo system is, or will be integrated. For detailed information of the products, refer to each servo amplifier instruction manual.

13. Terms related to safety
 13.1 IEC 61800-5-2 Stop function
 STO function (Refer to IEC 61800-5-2: 2007 4.2.2.2 STO.)
 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.

2. About safety

2. Notice 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.

≜ WARNING	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.

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

- (1) Persons who took a proper training of related work of electrical equipment or persons who can avoid risk based on

2.2 Applications of the devices MR-J4 servo amplifiers comply with the following standards. ISO/EN ISO 1384.91 Clategory 3 PL e, IEC/EN 62061 SIL CL 3, IEC/EN 61800-5-2 (STO), IEC/EN 61800-5-1, IEC/EN 61800-3, IEC/EN 60204-1 MR-J4 servo amplifiers can be used with the MR-J3-D05 safety logic unit, or safety PLCs.

2.3 Correct use Use the MR-14 servo amplifiers within specifications. Refer to each instruction manual for specifications such as voltage, temperature, etc. Misubishi 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 Ht takes 20 minutes maximum for capacitor discharging. Do not touch the unit and terminals

2.3.1 Selection of peripheral equipment and wire The followings are selected based on IEC/EN 61800-5-1, UL 508C, and CSA C22.2 No. 14.

(1) Local wing and crimping tool The following table shows the stranded wire sizes [AWG] and the crimp terminal symbols rated at 75 °C/60 °C.

Converter unit 75 Cr60 C stranded wire [AWC] (Noie 2) L17L221 stranded wire [AWC] (Noie 2) Drive unit 75 Cr60 C stranded wire [AWC] (Noie 2) RCV11K (Note 1) 8: ht6 i. L11/L21 L+/L- MR-V11K (Note 1) 2: arXiv Bit MS i. MR-V11K (Note 1) 2: arXiv MR-V11K (Note 1) Bit MS i. MR-V11K (Note 1) 2: arXiv MR-V11K (Note 1) Bit MS i. MR-V11K (Note 1) 10: [/: MR-V11K (Note 1) Bit MS i. MR-V11K (Note 1) 10: [/: MR-V11K (Note 1) Bit MS i. MR-V11K (Note 1) 10: [/: MR-V11K (Note 1) Bit MS i. MR-V11K (Note 1) 10: [/: MR-V11K (Note 1) Bit MS i. MR-V11K (Note 1) 10: [/: MR-V11K (Note 1) Bit MS i. MR-V11K (Note 1) 10: [/: MR-V11K (Note 1) Bit MS i. MR-V11K (Note 1) 10: [/: MR-V11K (Note 1) Bit MS i. MR-V11K (Note 1) 10: [/: MR-V11K (Note 1) Bit MS i. MR-V11K (Note 1) 10: [/: MR-V11K (MNote 1) Bit MS i.	Table 1. Recommended wire												
IR-CV11K (Note 1) 8: 06: n IR-CV11K (Note 1) 8: 06: n IR-CV11K (Note 1) 4: 0/2: - IR-CV11K (Note 1) 4: 0/2: - IR-CV11K (Note 1) 10: 0/10: - IR-CV11K (Note 1) 2: n/10: - IR-CV11K (Note 1) 2: n/10: - IR-CV11K (Note 1) 10: 0/10: - IR-CV11K (Note 1) 30: 0/1: - IR-CV11K (Note 1) 10: 0/10:	Converter unit	75 °C/60 °C stranded	wire [AWG]	(Note 2)	Drive unit	75 °C/60 °C	C stranded v	wire [AWG] (Note 2)					
/R-CR55K (Note 1) 2 × 2/0: d (Note 4)/ 2 × 2/0: - MR-J4-DU30K 4 (Note 1) 3: t/2: f MR-J4-DU37K 4 (Note 1) 2: t/1: c	Converter unit AR-CV11K (Note 1) AR-CV11K (Note 1) AR-CV31K (Note 1) AR-CV37K (Note 1) AR-CV35K (Note 1) AR-CV45K (Note 1) AR-CV11K4 (Note 1) AR-CV30K4 (Note 1) AR-CV37K4 (Note 1) AR-CV35K4 (Note 1) AR-CV35K4 (Note 1) AR-CV55K4 (Note 1)	75 C/60 C stranded L1/L2/L3 (Wole 3) 8: N/6: 8: N/6: 10: //10: / 10: //- 30: k/- 10: //- 30: k/- 10: //- 10: //-	wire [AWG] . L11/L21	Note 2) L+/L- Exclusive Bus Bar	Drive unit MR-J4-DU700 (Note 1) MR-J4-DU900 (Note 1) MR-J4-DU1TK (Note 1) MR-J4-DU3K (Note 1) MR-J4-DU3K (Note 1) MR-J4-DU3K (Note 1) MR-J4-DU37K (Note 1) MR-J4-DU37K 4 (Note 1) MR-J4-DU17K 4 (Note 1) MR-J4-DU15K 4 (Note 1)	75 'C/60 'C L11/L21 14: g/14: g	Exclusive Bus Bar	vire [AWG] (Note 2) U/V/W/⊕ (Note 3) 8: 0/6:m 4: e/2:n 2: n/1/0: j 1/0: j/- 2': n/2/0: - 2': n/2/0: - 2': n/2/0: - 2': 2/0: d (Note 4)/ - 10: p/10: p 8: 0/6:m 8: 0/6:m 6: m/6:m 6: m/6:m					
4R-CR55K4 (Note 1) 2: c/1/0: - MR-14-DL45K 4 (Note 1) 1/0: d/1/0: -	MR-CR55K (Note 1)	2 × 2/0: d (Note 4)/ 2 × 2/0: - 2: c/1/0: -			MR-J4-DU30K_4 (Note 1) MR-J4-DU37K_4 (Note 1) MR-I4-DU45K_4 (Note 1)			3: f/2: f 2: t/1: c 1/0: d/1/0: -					

connect these models to a terminal block, be sure to use the screws that come with the terminal block habets in the table indicate crimping tools. For crimp terminals and applicable tools, refer to table 2, leg; wire sizes depending on the rated output of the serve motors. The values in the table are sizes ba d on rated output of the sen cit wire sizes depending on the rated output of the sizes and the sizes depending on the rated output of the sizes than 175 A, 2/0: d can also be used.

	Table 2. Recommended crimp terminal																													
Symbol	Servo amplifier-side c	Manufacturar	1	Symbol	Servo amplifier-side c	Manufacturer																								
Oymbol	Crimp terminal (Note 2)	Applicable tool	Wanuacturer	anulaciulei		Crimp terminal (Note 2)	Applicable tool	Wanulacturer																						
а	FVD5.5-10	YNT-1210S		1	h	FVD8-5	YF-1/E-4																							
b	FVD22-10	YF-1/E-4			i	FVD14-5	YF-1/E-4																							
c (Note1)	P38-10	YPT-60-21		j (Note 1)	60-S8	YF-1/E-4																								
C (NOLET)	100-10	YF-1/E-4	ICT		k (Note 1)	80-10	YF-1/E-4	ICT																						
d (Note1)	D60 10	YPT-60-21 JST				FVD5.5-5	YNT-1210S	J51																						
u (Noter)	R00-10	YF-1/E-4	Co Itd)		m	FVD14-8	YF-1/E-4	Co Itd)																						
e	FVD22-8	YF-1/E-4	,	,	,	00., Ltd.)	,	,	,	00., 2.0.)	00., Eld.)	CO., LIU.)	CO., LIU.)	00., E(d.)	00., 2.0.)	00., Etd.)	00., Eld.)	00., Eld.)	00., Eld.)	00., £.d.)	00., 2.0.)	00., Etd.)	00., 2.0.)	00., 2.0.)	00., Eld.)		n	FVD38-8	YF-1/E-4	
f (Note1)	P38.8	YPT-60-21																										-		
T (NOLE T)	R36-6	YF-1/E-4			р	FVD5.5-8	YNT-1210S																							
g	FVD2-4	YNT-1614			q (Note 1)	22-S5	YF-1/E-4																							

Note 1. Coat the crimping part with an insulation tube. 2 Some crimp terminals may not be mounted depending on their sizes. Make sure to use the record nded ones or equivalent one

(2) Selection example of MCCB and fuse Use a fuse (T class) or the molded-case circuit breaker (UL 489 Listed MCCB) indicated in the table below. 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.

Converter unit	Molded-case circuit breaker (240 V AC)	Fuse (300 V)	Converter unit	Molded-case circuit breaker (480 V AC)	Fuse (600 V)
MR-CV11K	NF100-CVFU-60A (100 A frame 60 A)	80 A	MR-CV11K4	NF100-HRU-30A (100 A frame 30 A)	40 A
MR-CV18K	NF100-CVFU-100A (100 A frame 100 A)	150 A	MR-CV18K4	NF100-HRU-50A (100 A frame 50 A)	80 A
MR-CV30K	NF225-CVFU-150A (225 A frame 150 A)	225 A	MR-CV30K4	NF100-HRU-80A (100 A frame 80 A)	150 A
MR-CV37K	NF225-CVFU-200A (225 A frame 200 A)	300 A	MR-CV37K4	NF100-HRU-100A (100 A frame 100 A)	150 A
MR-CV45K	NF225-CWU-225A (225 A frame 225 A)	350 A	MR-CV45K4	NF250-SVU-125A (250 A frame 125 A)	200 A
MR-CV55K	NF400-SKW-300A (400 A frame 300 A)	400 A	MR-CV55K4	NF250-SVU-150A (250 A frame 150 A)	225 A
MR-CR55K	NF225-CWU-175A (225 A frame 175 A)	300 A	MR-CV75K4	NF250-SVU-200A (250 A frame 200 A)	300 A
			MR-CR55K4	NF125-SVU-125A (125 A frame 125 A)	200 A

С

- (3) Power supply This servo amplifier can be used on the condition of overvoltage category III set forth in IEC/EN 60664-1. For the interface power supply, use an external 24 V DC power supply with reinforced insulation on I/O terminals.

interface power supply, use an external 24 V DC power supply with reinforced insulation on I/O terminals. (4) 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 terminals one-to-one. This product can cause a DC current in 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.

2.3.2 EU compliance

2.5.2 EO Compliance The MR-J4 serve amplifiers are designed to comply with the following directions to meet requirements for mounting, using, and periodic technical inspections: Machinery directive (2006/42/EC), EMC directive (2014/30/EU), and Low-voltage directive (2014/36/EU).

- (1) EMC requirement
- EMC requirement
 MR-14 servo amplifiers comply with category C3 in accordance with EN 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. Instail an ENC filter and surge protector on the primary side of the servo amplifier. In addition, use a
 line noise filter for outputs of the servo amplifiers. The following shows recommended products.
 EMC filter. Soshin Electric H78000A-UN series, TF3000C-TX series, COSEL FTB series
 Surge protector: Okaya Electric Industries RSPD series Line noise filter. Mitsubish lectric PR-BIF
 MR-14 Series are not intended to be used on a low-voltage public network. Which supplies domestic premises;
 Radio frequency interference is expected if used on such a network. The installer shall provide a guide for
 Installation and use, including recommended mitgation devices. To avoid the risk of crosstalk to signal cables, the
 installation instructions shall either recommend that the power interface cable be segregated from signal cables.
 (2) For Declaration of Conformity (DoC)
 Hereby, MITSUBISHI ELECTRIC ELICROPE B.V., declares that the servo amplifiers are in compliance with the
 necessary requirements and standards (2006/42/EC, 2014/30/EU and 2014/35/EU). For the copy of Declaration 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.
- (1) Installation
- 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 a 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 chapter 8. The servo amplifier needs to be installed at or below of pollution degree 2. Use only copper wires or copper bus bars for wiring. Use only copper writes of copper our set of the set of
- Maximum. (3) Overload protection characteristics The MR-J4 servo amplifiers have servo motor overload protective function. (It is set on the basis (full load current) of 120% rated current of the servo amplifier.) (4) Over-temperature protection for motor

- Ver-emperature protection for motion votor. Over temperature sensing is not provided by the drive. Integral thermal protection(s) is necessary for motor and refer to chapter 4 for the proper connection. Fanch circuit protection Fanch circuit protection Factrical Cade 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.

2.3.4 South Korea compliance (MR-CR55K(4) and 30 kW or more of MR-J4-DU)

2.3.4 South Korea compliance (MR-CR55K(4) and 30 KW or more of MR-J4-DU) This product complies with the Radio Wave Law (KC mark) Please note the following to use the product. 이 기기는 업무용 (A급) 전자파적 합기기로서 판 매자 또는 사용자는 이 점을 주의하시기 바라며, 가정외의 지역에서 사용하는 것을 목적으 로 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 on the primary side for inputs. Use a ferrite core and line noise filter for outputs. Use a distance greater than 30 m between the product and third party sensitive radio communications.

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 When mounting, installing, and using the MR-14 serve 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 scattery 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 modules 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 adjust the machines in which these components are installed. Only trained engineers should install and operate the equipment. (ISO 13849-1 Table F 1 No. 5)
 Senarate the writing for safety cheargation function from other signal writings. (ISO 13840-1 Table F 1 No. 1)
- F.1 No. 5)
 (5) Separate the wiring for safety observation function from other signal wirings. (ISO 13849-1 Table F.1 No. 1)
 (6) Protect the cables with appropriate ways (routing them in a cabinet, using a cable guard, etc.).
 (7) Keep the required clearnec/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. (Example: European Waste 16 02 14)

um pattery transportation ori tithium batteries, take actions to comply with the instructions and regulations such as the United Nations International Civil Aviation Organization (ICAO), and the International Maritime Organization (IMO), rise (MR-BAT6V1SET, IMR-BAT6V1, and MR-BAT6V1BJ) are assembled batteries from two batteries (lithium tery CR17335A) which are not subject to the dangerous goods (Class 9) of the UN Recommendations. (UN), the Inter

WARNING •Turn off the molded-case circuit breaker (MCCB) to avoid electrical shocks or damages to the product before starting the installation or wiring. CAUTION 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 6 connecting a servo motor of the wrong axis to U, V, W, or CN2_ of the servo amplifier may cause a malfunction.

The devices must be installed in the

correct vertical direction to mai pollution degree 2.

CAUTION • Mount the servo amplifuer on a cabinet which meets IP54 in the

4. Electrical Installation and configuration diagram

The following shows representative configuration examples to conform to the IEC/EN/UL/CSA standards. Connection with resistance regeneration converter unit Connection with power regeneration converter



Note Please use a thermal sensor etc. for thermal protection of the servo motor

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)



6. Maintenance and service

3. Mounting/dismounting

Installation direction and clearances

WARNING [•]To avoid an electric shock, only qualified personnel should attempt inspections. For repair and parts replacement, contact your local sales office.

6.2 Parts having service life Service life of the following p

erv backup time

7. Transportation and storage

≜CAUTION

Ambient emperature

bration sistance

Pollution degree

rating

6.1 Inspection items It is recommended that the following points periodically be checked.





Check 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

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

The time is for using MR-J4 servo amplifier with a rotary servo motor using MR-BAT6V1SET or MR-BAT6V1BJ. For details 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 connection

status. The characteristic of smoothing capacitor is deteriorated due to ripple currents, etc. The life of the capacitor greatly depends on ambient temperature and operating conditions. The capacitor will be the end of its life in 10 years of continuous operation in air conditioned environment (40° currounding air temperature or less for use at the maximum 1000 m above sea level. 30° Cor less for over 1000 m to

Transport the products correctly according to their mass.
 Stacking in excess of the limited number of product packages is not allowed.
 Do not hold the front cover to transport the servo amplifier. Otherwise, it may drop.
 For detailed information on transportation and handling of the battery, refer to the servo

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

0 to 55 Class 3K3 (IEC/EN 60721-3-3) -20 to 65 Class 2K4 (IEC/EN 60721-3-2)

Class 2M3 (IEC/EN 60721-3-2 Class 1M2 (IEC/EN 60721-3-2

20 (IEC/EN 60529), Terminal block IP0

0 Hz to 57 Hz with constant amplitude of 0.075 mm constant acceleration of 9.8 m/s² to IEC/EN 61800-5-1 (Test Fc of IEC

Number of pr

Approximately 20.00

with the instruction manual. • Do not put excessive load on the machine.

57 Hz to 150 Hz with c

When you keep or use it, please fulfill the following environment

est condition

ransportation (Note) Storage

p and controller forced stop and off for STO: 100 000 fi

urs (2 years to 3 ye

100.000 time

- conditions. Check that the connectors are securely connected to the servo motor. Check that the wires are not coming out from the connector. Check for dust accumulation on 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 cricuit operates properly such that an operation can be stopped immediately and a power is shut off by the emergency stop switch.

8.1 Converter unit

				MR													
	Item		CR_			CV	<u></u>			CR_				CV_			
			55K	11K	18K	30K	37K	45K	55K	55K4	11K4	18K4	30K4	37K4	45K4	55K4	75K4
Output	Rated voltag			270 V D	C to 32	4 V DC					513	V DC t	o 648 V	DC		_	
output	Rated curre	215.9	41	76	144	164	198	238	113.8	21	38	72	82	99	119	150	
	Main circuit (line	Voltage, Frequency	3-pł	3-phase 200 V AC to 240 V AC, 50 Hz/60 Hz 3-phase 380 V AC to 480 V AC, 50 Hz/60										/60 Hz			
Power supply	voltage)	Current [A]	191.3	35	65	107	121	148	200	100.7	18	35	61	70	85	106	130
	Control circuit (line voltage)		1-phas	1-phase 200 V AC to 240 V AC, 50 Hz/60 Hz, 0.3 A 1-phase 380 V AC to 480 V AC, 50 Hz/60 Hz, 0.2 A											Α		
	Interface (SI	ELV)		24 V DC ± 10% (required current capacity: MR-CR_, 150 mA; MR-CV_, 350 mA)													
Pollution	degree								2 (IE)	C/EN 60	664-1)						
Overvolta	age category						3-pha	ise 200	V AC/4	00 V AC	: III (IEC	C/EN 60	664-1)				
Protectiv	e class			I (IEC/EN 61800-5-1)													
Short-cir (SCCR)	cuit current ra	ating		100 kA													
8.2 Driv	e unit																

					MR-J4-DU_												
	Item	700_	900_	11K_	15K_	22K_	30K_	37K_	700_4	900_4	11K_4	15K_4	22K_4	30K_4	4 37K_	4 45K_	4 55K_4
Output	Rated voltage		3-r	phase 1	170 V A	AC, 360	Hz				3-	phase 3	323 V A	C, 360) Hz		
Output	Rated current [A]	37	54	68	87	126	174	204	17	25	32	41	63	87	102	131	143
	Main circuit		The main circuit power of the drive unit is supplied by the converter unit.														
Power supply	Control circuit (line voltage)		1-phase 200 V AC to 240 V AC, 50 Hz/60 Hz, 0.3 A 1-phase 380 V AC to 480 V AC,									AC, 50	, 50 Hz/60 Hz, 0.2 A				
	Interface (SELV)		24	V DC :	± 10% (require	d curre	nt capar	city: MF	₹-J4-Dι	J_A_, 5	500 mA;	MR-J4	-DU_B	_, 300	(mA)	
Control n	nethod					Si	ine-way	/e PWM	contro	I, curre	nt contr	rol meth	iod				
Safety of (STO)	oservation function		EN ISO 13849-1 category 3 PL e, IEC 61508 SIL 3, EN 62061 SIL CL 3, and EN 61800-5-2														
IEC/EN C	o1800-5-2 (Note)																
mean un	le to dangerous failure	L	Milled 2 100 [years] (314a)														
of a systematic	em or subsystem		DC = Medium, 97.6 [%]														
Average failures r	probability of dangerous per hour	$PFH = 6.4 \times 10^{-9} [1/h]$															
Mission f	time	TM = 20 [years]															
Respons	se performance	8 ms or less (STO input off → energy shut off)															
Pollution	i degree		2 (IEC/EN 60664-1)														
Overvolt	age category	3-phase 200 V AC/400 V AC: III (IEC/EN 60664-1)															
Protectiv	/e class		I (IEC/EN 61800-5-1)														
Short-cir	cuit current rating		100 kA														

Note. Servo amplifiers manufactured in August 2015 or later comply with SIL 3 requirement: 8.3 Dimensions/mounting hole process drawing

Ŧ				Convertor unit/drive unit		Variab	le dimens	sions [n	nm]		Mooo [kg]
				Converter uniburive unit	W		н		D		iviass [kg]
4	Front	Side		MR-CR55K/MR-CR55K4	30	0	380		300		22
Ţ				MR-CV11K/MR-CV18K/ MR-CV11K4/MR-CV18K4	90)	380		270		7.0
	- W ,	, D →		MR-CV30K/MR-CV37K/MR-CV45K/ MR-CV30K4/MR-CV37K4/MR-CV45K4	15	0	380		300		10.7
		W1	Approx. W5	MR-CV55K/MR-CV55K4/MR-CV75K4	30	0	380		300		26.5
0 00 W3 W2 000				MR-J4-DU700_/ MR-J4-DU900_/ MR-J4-DU11K_/MR-J4-DU700_4/ MR-J4-DU900_4/MR-J4-DU11K_4	15	0	380		300		9.9
				MR-J4-DU15K_/MR-J4-DU22K_ MR-J4-DU15K_4_/MR-J4-DU22K_4	24	0	380		300		15.2
	Com	mater unit/		MR-J4-DU30K_/MR-J4-DU37K_	30	0	380		300		21
88	39 D	rive unit	8	MR-J4-DU30K_4/MR-J4-DU37K_4	24	0	380		300		16
1		e.		MR-J4-DU45K_4/MR-J4-DU55K_4	30	0	380		300		19
	Pun	ched hole									
				Converter unit/Drive unit			Variable	dimens	sions [mm]		Screw size
L	L Ho		11			W1	W2	W3	W4	W5	A
		A screw ox. 19 ox. 10	Approx. 10 Approx. 19	MR-CR55K/MR-CR55K4/ MR-J4-DU30K_/MR-J4-DU37K_/ MR-J4-DU45K_4/MR-J4-DU55K_4	1	300	260	20	281	9.5	M6
				MR-CV11K/MR-CV18K/ MR-CV11K4/MR-CV18K4		90	-	45	82	4	M5
				MR-CV30K/MR-CV37K/ MR-CV45K/MR-CV30K4/ MR-2V47K4/MR-CV45K4/ MR-J4-DU700_//MR-J4-DU900_/ MR-J4-DU11K_/MR-J4-DU11K_4 MR-J4-DU900_4/MR-J4-DU11K_4		150	60	45	142	4	M5
				MR-CV55K/MR-CV55K4/MR-CV7	5K4	300	180	60	282	9	M5
				MR-J4-DU15K_/MR-J4-DU22K_/ MR-J4-DU15K_4/MR-J4-DU22K_4 MR-J4-DU30K_4/MR-J4-DU37K_4	1/ 1	240	120	60	222	9	M5

9.Check list for user documentation

MR-CV/MR-CR/MR-J4-DU installation checklist for manufacturer/installe

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.

- It is it based on directive/standard applied of the machine? Is it based on directive/standard applied to the machine? Is directive/standard contained in Declaration of Conformity (DoC)? Does the protection instrument conform to the category required? Are electric shock protective measures (protective class) effective? Is the STO function checked (test of all the shut-off wining)? cking the items will not be instead of the first test operation or periodic inst Yes [Yes [Yes [Yes [Yes [], No [

[Warranty] 1. Warranty period and coverage

Warranny 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" arisen during warranty period at no charge due to causes for which we are responsible through the distributor from which you purchased the Product or our service provider. However, we will charge the actual cost of dispatching our enginee for an on-site repair work on request by customer in Japan or overseas 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. Term1 ITTI] The term of warranty for Product is twelve (12) months after your purchase or delivery of the Product to a place designated by you or eighteen (18) months from the date of manufacture whichever comes first ("Warranty Period"). Warranty period for repaired Product cannot exceed beyond the original warranty period before any repair work). [Limitations] Interuons] 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 if we are responsible for the cause of the failure. for the cause of the failure. This limited warranty 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 to the Product. Even during the term of warranty, the repair cost will be charged on you in the following cases. (ii) a failure valued 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 laws and has any function or structure considered to be indepensable according to a common sense in the indus (iv) a failure which may be regarded as avoidable if consumable parts designated in the instruction manual, etc. are duly maintained and a failure caused by any alteration, etc. to the Product made on your side without our approval (replaced
 (v) any replaced
 (v) any replacement of consumable parts (battery, fan, smoothing capacitor, etc.)
 (v) any replacement of consumable parts (battery, fan, smoothing capacitor, etc.)
 (vi) a failure caused by varemal factors such as inevitable accidents, including without limitation entry limitation entry and natural disesters
 (vii) a failure generated by an unforeseeable cause with a scientific technology that was not available at the time of the shipment of the Product from our company
 (viii) any other failures which we are not responsible for or which you acknowledge we are not responsible for Term of warranty after the stop of production I erm of warranty arter the stop or production We may accept the repair at charge for another seven (7) years after the production of the product is discontinued. 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. Service in overseas countries Our regional FA Center in overseas countries will accept the repair work of the Product. However, the terms and conditions of the repair work may differ depending on each FA Center. Please ask your local FA center for details. the repair work may differ depending on each FA Center. Please ask your local FA center for details. Exclusion of loss in opportunity and secondary loss from warranty liability Regardless of the graits warranty term, Mitsubishi shall not be liable for compensation to: Damages caused by any cause found not to be the responsibility of Mitsubishi. Loss in opportunity, lost profits incurred to the user by Failures of Mitsubishi products. Special damages and secondary damages whether foreseeable or not, compensation for accidents, and compensation for damages to products other than Mitsubishi products. Replacement by the user, maintenance of on-site equipment, start-up test run and other tasks. Change of Product specifications fications listed in our catalogs, manuals or technical documents may be changed without notic Application and use of the Product

Application and use of the Product For the use of our General-Purpose AC Servo, its applications should be those that may not result in a serious damage even if any failure on malfunction occurs in General-Purpose AC Servo, and a backup or fail-safe function should operate on an comparise system to energy the series of the series of

by these applications when used. In addition, applications which may be substantially influential to human lives or properties for such as airlines, medical treatments, railway 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 abovementioned applications, if you agree not to require a specific quality for a specific apolication. Please contact us for consultation.