

Machine Controller MP2200/MP2300

安全上のご注意 SAFETY PRECAUTIONS

形式(Type): JEPMC-MP2300-Y□□ JEPMC-BU22□□ JAPMC-AN23□□
JAPMC-CM23□□ JAPMC-CP22□□ JAPMC-DO23□□
JAPMC-IO23□□ JAPMC-MC23□□
JEPMC-IO23□□ JEPMC-REP2000
JEPMC-PL29□□ JAPMC-EX22□□
JEPMC-AN29□□ JAPMC-PL23□□

本書は、最終的に本製品をお使いになる方のお手元に確実に届けられるよう、お取り計らい願います。

Upon receipt of the product and prior to installing the product, read these safety precautions thoroughly and retain them for future reference.



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1 INTRODUCTION

This safety precautions manual describes the MP2200/MP2300 Machine Controller. To properly use the MP2200/MP2300 Machine Controller, read this safety precautions manual and user's manual (see the table below) thoroughly, and retain for easy reference for inspections and maintenance etc. Make sure that these manuals reach the end user.

2 RELATED MANUALS

Refer to the following related manual as required.

Manual Name	Manual Number
Machine Controller MP2300 Basic Module User's Manual	SIEPC88070003
Machine Controller MP2300 Communication Module User's Manual	SIEPC88070004
Machine Controller MP900/MP2000 Series MECHATROLINK System User's Manual	SIE-C887-5.1
Machine Controller MP2200 User's Manual	SIEPC88070014
Machine Controller MP2200/MP2300 Motion Module User's Manual	SIEPC88070016

3 GENERAL PRECAUTIONS

The following describes general precautions. Note the following to ensure safe application.

- The drawings presented in this manual are sometimes shown without covers or protective guards. Always replace the cover or protective guard as specified first, and then operate the products in accordance with the manual.
- The drawings presented in this manual are typical examples and may not match the product you received.
- This manual is subject to change due to product improvement, specific modification, and manual improvement. When this manual is revised, the manual code is updated and the new manual is published as a next edition. The edition number appears on the front and back covers.
- If the manual must be ordered due to loss or damage, inform your nearest Yaskawa representative or one of the offices listed on the back of this manual.
- Yaskawa will not take responsibility for the results of unauthorized modifications of this product. Yaskawa shall not be liable for any damages or troubles resulting from unauthorized modification.

4 SAFETY INFORMATION

The following conventions are used to indicate precautions in this manual. Failure to heed precautions provided in this manual can result in serious or possibly even fatal injury or damage to the products or to related equipment and systems.




Indicates precautions that, if not heeded, could possibly result in loss of life or serious injury.




Indicates precautions that, if not heeded, could result in relatively serious or minor injury, damage to the product, or faulty operation.

In some situations, the precautions indicated could have serious consequences if not heeded.



Indicates prohibited actions that must not be performed. For example, this symbol would be used to indicate that fire is prohibited as follows: .



Indicates compulsory actions that must be performed. For example, this symbol would be used to indicate that grounding is compulsory as follows: .

5 NOTES FOR SAFE OPERATION

Read this manual thoroughly before checking products on delivery, storage and transportation, installation, wiring, maintenance and inspection, and disposal of the MP2200/MP2300 Machine Controller.



WARNING

- Before starting operation with a machine connected, make sure that an emergency stop can be applied at any time.

Failure to observe this warning may result in injury.

- Never touch the inside of the unit.

Failure to observe this warning may result in electric shock.

- Do not remove the front cover while the power is ON.

Failure to observe this warning may result in electric shock.

- Follow the procedures and instructions for trial operation precisely as noted in the MP2200 Machine Controller User's Manual (Manual No.: SIEPC88070014) and the MP2300 Machine Controller Basic Module User's Manual (Manual No.: SIEPC88070003).

Malfunctions that occur after the servomotor is connected to the equipment not only damage the equipment, but may also cause an accident resulting in death or injury.

- Do not damage, press, exert excessive force or place heavy objects on the cables.

Failure to observe this warning may result in electric shock, stopping operation of the product, or burning.

- Do not modify the product.

Failure to observe this warning may result in injury or damage to the product.

- Do not come close to the machine immediately after resetting momentary power loss to avoid an unexpected restart. Take appropriate measures to ensure safety against an unexpected restart.

Failure to observe this warning may result in injury.



- Installation, disassembly, or repair must be performed only by authorized personnel.

Failure to observe this warning may result in electric shock or injury.

■ STORAGE AND TRANSPORTATION

CAUTION

- Do not store or install the product in the following places.
 - Locations subject to direct sunlight.
 - Locations subject to temperatures outside the range specified in the storage/installation temperature conditions.
 - Locations subject to humidity outside the range specified in the storage/installation humidity conditions.
 - Locations subject to condensation as the result of extreme changes in temperature.
 - Locations subject to corrosive or flammable gases.
 - Locations subject to dust, salts, or iron dust.
 - Locations subject to exposure to water, oil, or chemicals.
 - Locations subject to shock or vibration.Failure to observe this caution may result in fire, electric shock, or damage to the product.
- Do not place any load exceeding the limit.
Failure to observe this caution may result in injury or malfunction.

■ INSTALLATION

CAUTION

- Never use the products in an environment subject to water, corrosive gases, inflammable gases, or combustibles.
Failure to observe this caution may result in electric shock or fire.
- Do not step on or place a heavy object on the product.
Failure to observe this caution may result in injury.
- Do not cover the inlet or outlet ports and prevent any foreign objects from entering the product.
Failure to observe this caution may cause internal elements to deteriorate resulting in malfunction or fire.
- Be sure to install the product in the correct direction.
Failure to observe this caution may result in malfunction.
- Provide the specified clearances between the unit and the control panel or with other devices.
Failure to observe this caution may result in fire or malfunction.
- Do not apply any strong impact.
Failure to observe this caution may result in malfunction.

■ WIRING

CAUTION

- Be sure to wire correctly and securely.
Failure to observe this caution may result in motor overrun, injury, or malfunction.
- Always use the specified power supply voltage.
An incorrect voltage may result in burning.
- Take appropriate measures to ensure that the input power supply is supplied within the specified voltage fluctuation range. Be particularly careful in places where the power supply is unstable.
An incorrect power supply may result in damage to the product.
- Install external breakers or other safety devices against short-circuiting in external wiring.
Failure to observe this caution may result in fire.
- Take appropriate and sufficient countermeasures for each when installing systems in the following locations.
 - Locations subject to static electricity or other forms of noise.
 - Locations subject to strong electromagnetic fields and magnetic fields.
 - Locations subject to possible exposure to radioactivity.
 - Locations close to power supplies.
 Failure to observe this caution may result in damage to the product.
- Do not reverse the polarity of the battery when connecting it.
Failure to observe this caution may damage the battery or cause it to explode.

■ MAINTENANCE AND INSPECTION

CAUTION

- Do not disassemble the unit.
Failure to observe this caution may result in electric shock or injury.
- Do not attempt to change wiring while the power is ON.
Failure to observe this caution may result in electric shock or injury.
- When replacing the MP2200/MP2300, resume operation only after transferring the previous MP2200/MP2300 programs and parameters to the new MP2200/MP2300.
Failure to observe this caution may result in damage to the product.

■ DISPOSAL

CAUTION

- When disposing of the products, treat them as ordinary industrial waste.

6 RECEIVING

Confirm the model and the serial number of each product upon receiving the delivery.

Products		Abbrevia- tion	Model	Outline
MP2200 Main Unit	Base Unit	MBU-01	JEPMC-BU2200	Power supply, Mounting base
		MBU-02	JEPMC-BU2210	Power supply, Mounting base
	CPU Module	CPU-01	JAPMC-CP2200	CPU
		CPU-02	JAPMC-CP2210	CPU, USB port, and CF card slot
	Connection Module between Racks	EXIOIF	JAPMC-EX2200	Connection between racks
MP2300 Main Unit	Basic Module	MP2300	JEPMC-MP2300	Power supply, mounting base, CPU, MECHATROLINK-I, MECHATROLINK-II, 8 inputs, 4 outputs
Option Module	Motion Module	SVA-01	JAPMC-MC2300	Analog interface
		SVB-01	JAPMC-MC2310	MECHATROLINK-II interface
		PO-01	JAPMC-PL2310	Pulse output
	Communications Module	218IF-01	JAPMC-CM2300	RS232C/Ethernet communication
		217IF-01	JAPMC-CM2310	RS232C/RS422 communication
		260IF-01	JAPMC-CM2320	RS232C/DeviceNet communication
		261IF-01	JAPMC-CM2330	RS232C/PROFIBUS communication
		215AIF-01	JAPMC-CM2360	RS232C/MPLINK Communication
	I/O Module	LIO-01	JAPMC-IO2300	16 inputs, 16 outputs (sink mode output) 1 pulse input
		LIO-02	JAPMC-IO2301	16 inputs, 16 outputs (source mode output) 1 pulse input
		LIO-04	JAPMC-IO2303	32 inputs, 32 outputs (sink mode output)
		LIO-05	JAPMC-IO2304	32 inputs, 32 outputs (source mode output)
		AI-01	JAPMC-AN2300	Analog input
		AO-01	JAPMC-AN2310	Analog output
		CNTR-01	JAPMC-PL2300	Pulse counter
		DO-01	JAPMC-DO2300	64 digital outputs
Option Unit	MECHATROLINK I/O Module	IO2310	JEPMC-IO2310	64 inputs, 64 outputs (sink mode output)
		IO2330	JEPMC-IO2330	64 inputs, 64 outputs (source mode output)
		PL2900	JEPMC-PL2900	Reversible counter input, 2 channels
		PL2910	JEPMC-PL2910	Pulse output, 2 channels
		AN2900	JEPMC-AN2900	Analog input, -10 to 10 V, 4 channels
		AN2910	JEPMC-AN2910	Analog output, -10 to 10 V, 2 channels
	MECHATROLINK-II Repeater	REP2000	JEPMC-REP2000	For extension of MECHATROLINK-II net- work and increased number of slaves.

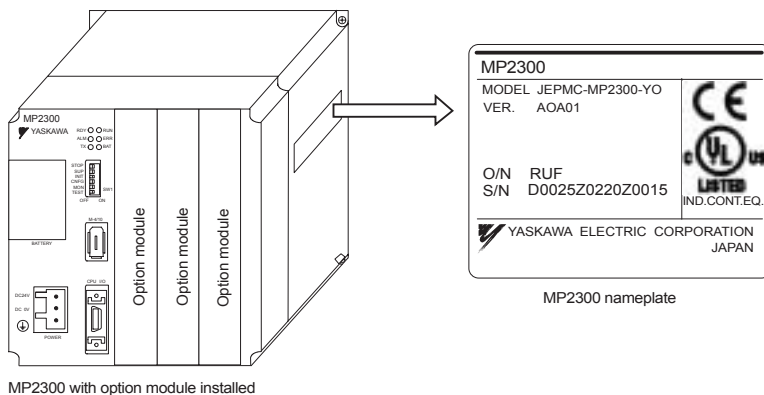
Note: Depending on the combination of option modules in the MP2300,
model number will vary.

JEPMC-MP2300-Y□ □ : Arbitrary number

■ Nameplate of Main Unit and Option Unit

Nameplates with the model and so on of the unit are located on the side of the unit.

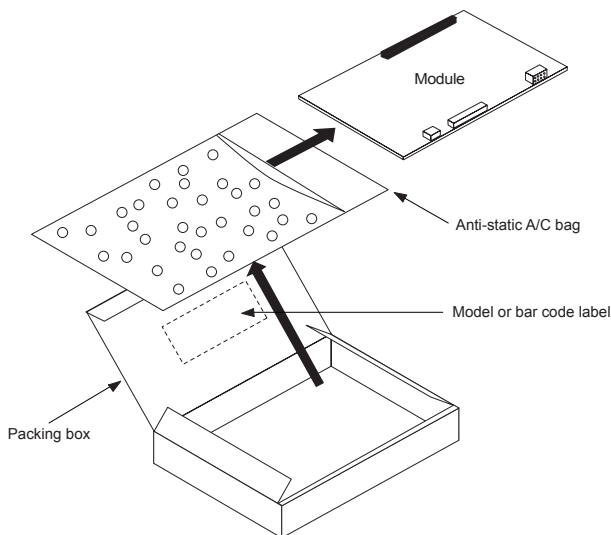
The following diagram shows an example of a nameplate.



■ Nameplate of CPU Module and Option Module

The model and the serial number of the modules are located on the top of the board.

A module do not have a nameplate.



7 INSTALLATION

Observe the following precautions when installing MP2200/MP2300.

- Install MP2200/MP2300 perpendicular to the wall so that the front panel faces outward.
- Firmly secure the MP2200/MP2300 through four mounting holes.
- Install MP2200/MP2300 so that MP2200/MP2300 can be cooled by natural convection.
- Be sure to install a cover (JEPMC-OP2300) on the front of an unused slot.

■ Installation Sites

For installation sites, use proper care with the following notes.

Situation	Notes on Installation
When installed in a control panel	<ul style="list-style-type: none">• Design the control panel size, unit layout, and cooling method so that the temperature around the periphery of the MP2200/MP2300 does not exceed 55°C.• When installing MP2200/MP2300 side by side in a control panel, install cooling fans and provide sufficient space around each MP2200/MP2300 to allow cooling by fan and natural convection.
When installed near a heating unit	Suppress radiation heat from the heating unit and a temperature rise caused by convection so that the temperature around the periphery of the MP2200/MP2300 does not exceed 55°C.
When installed near a source of vibration	Install a vibration isolator underneath the MP2200/MP2300 to prevent it from receiving vibration.
When installed in a place receiving corrosive gases	Corrosive gases do not immediately affect the MP2200/MP2300 but will eventually cause contactor-related devices to malfunction. Take appropriate action to protect against corrosive gases.
Others	<ul style="list-style-type: none">• Avoid installation in a hot and humid place or where excessive dust or iron powder is present in the air.• Be sure there is no condensation or freezing.• Keep the ambient temperature 45 °C or less to ensure long-term reliability.

8 INSPECTION

This section describes the MP2200/MP2300 basic inspections and part replacement period.

■ MP2200/MP2300 Inspection

For inspections and maintenance of the MP2200/MP2300, follow the inspection procedures in the table below at least once every year.

Item	Frequency	Procedure	Remedy
Clean unit interior and circuit boards	At least once a year	Check for dust, dirt, and oil on surfaces.	Clean with compressed air or cloth.
Loose screws	At least once a year	Check for loose terminal block and connector screws.	Tighten any loose screws.
Defective parts in unit or on circuit boards	At least once a year	Check for discoloration, damage or discontinuities due to heating.	Contact your YASKAWA representative.

9 GENERAL SPECIFICATIONS

The following table shows the MP2200/MP2300 general specifications.

	Item	Specifications
Environment Conditions	Ambient Operating Temperature	0 to +55 °C
	Ambient Storage Temperature	-25 to +85 °C
	Ambient Operating Humidity	30 % to 95 %RH (with no condensation)
	Ambient Storage Humidity	5 % to 95 %RH (with no condensation)
	Pollution Level	Pollution level 1 conforming to JIS B3501
	Corrosion Resistance	No inflammable or corrosive gas
	Operating Altitude	Less than 2,000 m above sea level
Mechanical Operating Conditions	Vibration Resistance	Conforming to JIS B3502: <ul style="list-style-type: none"> • 16.7Hz with the amount of 14.7 m/s² frequency, three directions for two hours each. • 10 to 57 Hz with single-amplitude of 0.075 mm • 57 to 150 Hz with fixed acceleration of 9.8m/s²
	Shock Resistance	Peak acceleration of 147 m/s ² twice for 11 ms in the every direction
Electrical Operating Conditions	Noise Resistance	Conforming to EN 61000-4-2 and EN 65011 (class A) Power supply noise (FT noise): More than 2kV for one minute Radiation noise (FT noise): More than 2kV for one minute Ground noise (Impulse noise): More than 1kV for ten minutes Static electricity noise (Aerial discharging) : Ten times of more than 8 kV
Installation Requirements	Grounding	Ground to 100 Ω or less
	Cooling Method	Natural cooling

Machine Controller MP2200/MP2300

安全上のご注意 SAFETY PRECAUTIONS

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