

## マシンコントローラ

# MP2200/MP23□□□/MP2400

## 安全上のご注意

形式	JEPMC-MP23□□ (-E)	JEPMC-BU22□□ (-E)	JAPMC-AN23□□ (-E)
	JAPMC-CM23□□ (-E)	JAPMC-CP22□□ (-E)	JAPMC-DO23□□ (-E)
	JAPMC-IO23□□ (-E)	JAPMC-MC23□□ (-E)	JEPMC-MP2300S-E
	JEPMC-IO23□□ (-E)	JEPMC-REP2000 (-E)	JEPMC-MP2400-E
	JEPMC-PL29□□ (-E)	JAPMC-EX22□□ (-E)	JAMSC-IO29□□-E
	JEPMC-AN29□□ (-E)	JAPMC-PL23□□-E	JEPMC-MT□29□0-E
	JEPMC-MTD2310-E	JAPMC-CP2700-E	JEPMC-MT20□□-E

製品を安全にお使い頂くために、本書を必ずお読みください。

また、本書をお手元に保管していただくとともに、最終的に本製品をご使用になるユーザー様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。

## Machine Controller

# MP2200/MP23□□□/MP2400

## SAFETY PRECAUTIONS

Type	JEPMC-MP23□□ (-E)	JEPMC-BU22□□ (-E)	JAPMC-AN23□□ (-E)
	JAPMC-CM23□□ (-E)	JAPMC-CP22□□ (-E)	JAPMC-DO23□□ (-E)
	JAPMC-IO23□□ (-E)	JAPMC-MC23□□ (-E)	JEPMC-MP2300S-E
	JEPMC-IO23□□ (-E)	JEPMC-REP2000 (-E)	JEPMC-MP2400-E
	JEPMC-PL29□□ (-E)	JAPMC-EX22□□ (-E)	JAMSC-IO29□□-E
	JEPMC-AN29□□ (-E)	JAPMC-PL23□□-E	JEPMC-MT□29□0-E
	JEPMC-MTD2310-E	JAPMC-CP2700-E	JEPMC-MT20□□-E

To properly use the product, read this manual thoroughly and retain for easy reference, inspection, and maintenance. Ensure the end user receives this manual.

Copyright © 2002 YASKAWA ELECTRIC CORPORATION

---

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form, or by any means, mechanical, electronic, photocopying, recording, or otherwise, without the prior written permission of Yaskawa. No patent liability is assumed with respect to the use of the information contained herein. Moreover, because Yaskawa is constantly striving to improve its high-quality products, the information contained in this manual is subject to change without notice. Every precaution has been taken in the preparation of this manual. Nevertheless, Yaskawa assumes no responsibility for errors or omissions. Neither is any liability assumed for damages resulting from the use of the information contained in this publication.

## 1 Introduction

This safety precautions manual describes the MP2200/MP23□□□/MP2400 Machine Controller. To properly use the MP2200/MP23□□□/MP2400 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 MP2300S Basic Module User's Manual	SIEP C880732 00
Machine Controller MP2400 User's Manual	SIEP C880742 00
Machine Controller MP2300 Basic Module User's Manual	SIEP C880700 03
Machine Controller MP2000 Series Communication Module User's Manual	SIEP C880700 04
Machine Controller MP900/MP2000 Series MECHATROLINK System User's Manual	SIE-C887-5.1
Machine Controller MP2200 User's Manual	SIEP C880700 14
Machine Controller MP2200/MP2300 Motion Module User's Manual	SIEP C880700 16
Machine Controller MP2310 Basic Module User's Manual	SIEP C880732 01

## 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/MP23□□□/MP2400 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 Machine Controller MP2200 User's Manual (Manual No.: SIEP C880700 14), the Machine Controller MP2300 Basic Module User's Manual (Manual No.: SIEP C880700 03), the Machine Controller MP2300S Basic Module User's Manual (Manual No.: SIEP C880732 00), the Machine Controller MP2310 Basic Module User's Manual (Manual No.: SIEP C880732 01), and the Machine Controller MP2400 User's Manual (Manual No.: SIEP C880742 00).  
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.

- If disinfectants or insecticides must be used to treat packing materials such as wooden frames, pallets, or plywood, the packing materials must be treated before the product is packaged, and methods other than fumigation must be used.

Example: Heat treatment, where materials are kiln-dried to a core temperature of 56°C for 30 minutes or more.

If the electronic products, which include stand-alone products and products installed in machines, are packed with fumigated wooden materials, the electrical components may be greatly damaged by the gases or fumes resulting from the fumigation process. In particular, disinfectants containing halogen, which includes chlorine, fluorine, bromine, or iodine can contribute to the erosion of the capacitors.

## ■ 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.

- Before turning ON the Machine Controller main unit power supply, configure the circuit that turns it ON.

If the Machine Controller main unit power supply is turned ON after an external power supply such as a 24-V power supply for the I/O is turned ON, the output from the option output module may be momentarily turned ON. For details, refer to 8 *Wiring*.

- Implement countermeasures outside of the Machine Controller to ensure the safety of the overall system even if any of the following conditions occurs.

- The Machine Controller fails or an error occurs due to external factors.
- The self-diagnosis function of the Machine Controller detects an error, stops operation, and either turns OFF or holds the signal outputs.
- A Machine Controller output remains ON or OFF as the result of fusing or burning of the output relay or destruction of the output transistor.
- The output voltage drops because the 24-VDC output from the Machine Controller is overloaded or short-circuited, preventing outputting the signal.

Failure to observe this caution may result in injury, damage to the product, or burning.

- Configure emergency stop circuits, interlock circuits, and limit circuits related to safety in control circuits outside of the Machine Controller.

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

- When using MECHATROLINK I/O Modules, use establishing MECHATROLINK communications as an interlock condition.

Failure to observe this caution may result in damage to the product.

---

## ■ 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/MP23□□□/MP2400, resume operation only after transferring the previous MP2200/MP23□□□/MP2400 programs and parameters to the new MP2200/MP23□□□/MP2400.  
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 number of each product upon receiving the delivery.

Products		Abbreviation	Model	Outline
MP2200 Main Unit	Base Unit	MBU-01	JEPMC-BU2200 (-E)	Power supply, Mounting base
		MBU-02	JEPMC-BU2210 (-E)	Power supply, Mounting base
		MBU-03	JEPMC-BU2220 (-E)	Power supply, Mounting base
	CPU Module	CPU-01	JAPMC-CP2200 (-E)	CPU
		CPU-02	JAPMC-CP2210 (-E)	CPU, USB port, and CF card slot
		CPU-03	JAPMC-CP2220-E	CPU, Ethernet, and CF card slot
		CPU-04	JAPMC-CP2230-E	CPU, Ethernet
Connection Module between Racks	EXIOIF	JAPMC-EX2200 (-E)	Connection between racks	
MP2300 Main Unit	Basic Module	MP2300	JEPMC-MP2300 (-E)	Power supply, Mounting base, CPU, MECHATROLINK-I, MECHATROLINK-II, 8 inputs, 4 outputs
MP2310 Main Unit	Basic Module	MP2310	JEPMC-MP2310-E	Power supply, Mounting base, CPU, MECHATROLINK-I, MECHATROLINK-II, Ethernet communication
MP2300S Main Unit	Basic Module	MP2300S	JEPMC-MP2300S-E	Power supply, Mounting base, CPU, MECHATROLINK-I, MECHATROLINK-II, Ethernet communication
MP2400 Main Unit	Basic Module	MP2400	JEPMC-MP2400-E	Power supply, Mounting base, CPU, MECHATROLINK-I, MECHATROLINK-II, Ethernet communication
Option Module	Motion Module	SVA-01	JAPMC-MC2300	Analog interface
		SVB-01	JAPMC-MC2310 (-E)	MECHATROLINK-I, -II interface
		SVC-01	JAPMC-MC2320-E	MECHATROLINK-III
		PO-01	JAPMC-PL2310-E	Pulse output
	Multiple-CPU Module	MPU-01	JAPMC-CP2700-E	Optional Module with CPU + SVC-01 functions
	Communications Module	218IF-01	JAPMC-CM2300 (-E)	RS232C/Ethernet communication
		218IF-02	JAPMC-CM2302-E	
		217IF-01	JAPMC-CM2310 (-E)	RS232C/RS422 communication
		260IF-01	JAPMC-CM2320 (-E)	RS232C/DeviceNet communication
		261IF-01	JAPMC-CM2330 (-E)	RS232C/PROFIBUS communication
		262IF-01	JAPMC-CM2303-E	FL-net communication
		263IF-01	JAPMC-CM2304-E	EtherNet/IP communication
		264IF-01	JAPMC-CM2305-E	EtherCAT communication
		265IF-01	JAPMC-CM2390-E	CompoNet communication
		266IF-01	JAPMC-CM2306-E	PROFINET communication
		266IF-02	JAPMC-CM2307-E	
	215AIF-01	JAPMC-CM2360 (-E)	RS232C/MPLINK communication	
	I/O Module	LIO-01	JAPMC-IO2300 (-E)	16 inputs, 16 outputs (sink mode output) 1 pulse input
		LIO-02	JAPMC-IO2301 (-E)	16 inputs, 16 outputs (source mode output) 1 pulse input

(cont'd)

Products		Abbrevia- tion	Model	Outline
Option Module (cont'd)	I/O Module (cont'd)	LIO-04	JAPMC-IO2303 (-E)	32 inputs, 32 outputs (sink mode output)
		LIO-05	JAPMC-IO2304 (-E)	32 inputs, 32 outputs (source mode output)
		LIO-06	JAPMC-IO2305-E	8 inputs, 8 outputs (sink mode output) 1 analog input, 1 analog output 1 pulse input
		AI-01	JAPMC-AN2300 (-E)	Analog input
		AO-01	JAPMC-AN2310-E	Analog output
		CNTR-01	JAPMC-PL2300-E	Pulse counter
		DO-01	JAPMC-DO2300 (-E)	64 digital outputs
Option Unit	MECHATROLINK I/O Module	IO2310	JEPMC-IO2310 (-E)	64 inputs, 64 outputs (sink mode output)
		IO2330	JEPMC-IO2330 (-E)	64 inputs, 64 outputs (source mode output)
		IO2900-E	JAMSC-IO2900-E	16 inputs
		IO2910-E	JAMSC-IO2910-E	16 outputs (sink mode output)
		IO2920-E	JAMSC-IO2920-E	8 inputs, 8 outputs (sink mode output)
		IO2950-E	JAMSC-IO2950-E	8 relay outputs
		PL2900	JEPMC-PL2900 (-E)	Reversible counter input, 2 channels
		PL2910	JEPMC-PL2910 (-E)	Pulse output, 2 channels
		AN2900	JEPMC-AN2900 (-E)	Analog input, -10 to +10 V, 4 channels
		AN2910	JEPMC-AN2910 (-E)	Analog output, -10 to +10 V, 2 channels
	MECHATROLINK-II Repeater	REP2000	JEPMC-REP2000 (-E)	For extension of MECHATROLINK-II network and increased number of slaves.
	MECHATROLINK-III I/O Module	MTD2310	JEPMC-MTD2310-E	64 inputs, 64 outputs (sink mode output)
		MTA2900	JEPMC-MTA2900-E	Analog input, 8 channels Input range: -10 to +10 V, 0 to 10 V, or 0 to 20 mA Select the range by setting parameters
		MTA2910	JEPMC-MTA2910-E	Analog output, 4 channels Output range: -10 to +10 V or 0 to 10 V Select the range by setting parameters
		MTP2900	JEPMC-MTP2900-E	Pulse input (counter), 2 channels 5 V: Max. frequency 4 MHz with RS-422 (non-insulated) 12 V: Max. frequency 120 kHz
		MTP2910	JEPMC-MTP2910-E	Pulse output (pulse motion) 4 channels 5 V differential output
	MECHATROLINK-III Compatible Module	MTNA-01	JEPMC-MT2010-E	Network Analyzer
		MTNA-02	JEPMC-MT2020-E	Network Adapter

Note: 1. Depending on the combination of option modules in the MP2300, model number will vary.

JEPMC-MP2300-Y□ □ : Arbitrary number

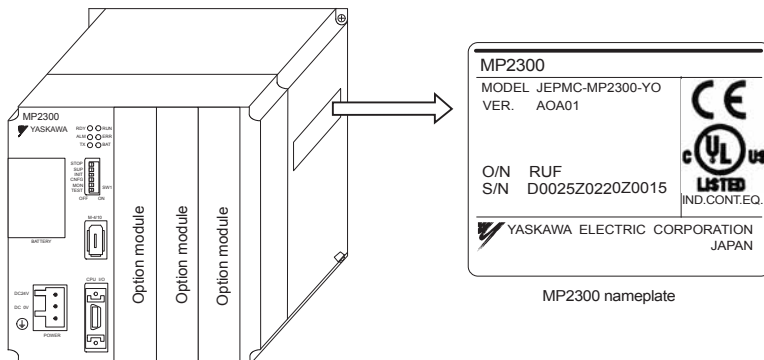
2. Models that have model numbers ending in "-E" are RoHS compliant.

Models that have model numbers ending in "(-E)" can be ordered with or without "-E."

## ■ 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.

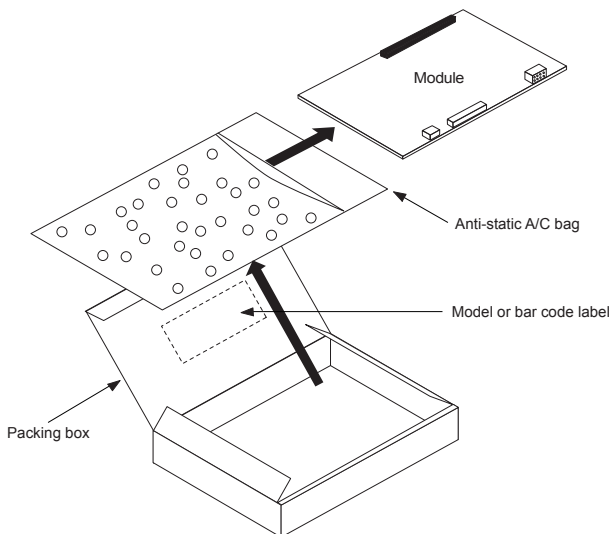


MP2300 with option module installed

## ■ 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/MP23□□□/MP2400.

- Install MP2200/MP23□□□/MP2400 perpendicular to the wall so that the front panel faces outward.
- Firmly secure the MP2200/MP23□□□/MP2400 through four mounting holes.
- Install MP2200/MP23□□□/MP2400 so that MP2200/MP23□□□/MP2400 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"> <li>• Design the control panel size, unit layout, and cooling method so that the temperature around the periphery of the MP2200/MP23□□□/MP2400 does not exceed 55°C.</li> <li>• When installing MP2200/MP23□□□/MP2400 side by side in a control panel, install cooling fans and provide sufficient space around each MP2200/MP23□□□/MP2400 to allow cooling by fan and natural convection.</li> </ul>
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/MP23□□□/MP2400 does not exceed 55°C.
When installed near a source of vibration	Install a vibration isolator underneath the MP2200/MP23□□□/MP2400 to prevent it from receiving vibration.
When installed in a place receiving corrosive gases	Corrosive gases do not immediately affect the MP2200/MP23□□□/MP2400 but will eventually cause contactor-related devices to malfunction. Take appropriate action to protect against corrosive gases.
Others	<ul style="list-style-type: none"> <li>• Avoid installation in a hot and humid place or where excessive dust or iron powder is present in the air.</li> <li>• Be sure there is no condensation or freezing.</li> <li>• Keep the ambient temperature 45 °C or less to ensure long-term reliability.</li> </ul>

## 8 Wiring

When using MP2000 series option output modules or option output units, if the Machine Controller main unit power supply is turned ON after an external power supply such as a 24-V power supply for the I/O is turned ON, the output from the option output module or the option output unit may be momentarily turned ON.

Before turning ON the Machine Controller main unit power supply, configure the circuit that turns it ON.

### CAUTION

- When using MECHATROLINK I/O Modules, use establishing MECHATROLINK communications as an interlock condition.

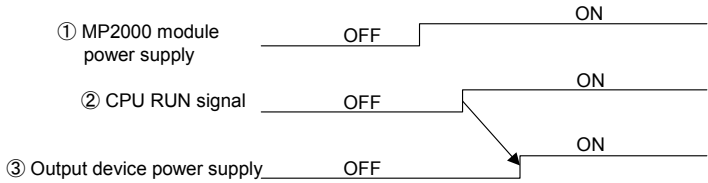
Failure to observe this caution may result in damage to the product.

The power ON sequences and circuit configuration examples are as shown below.

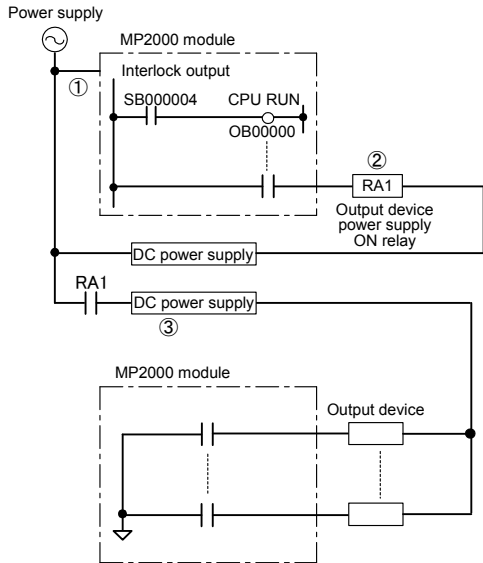
■ When the output is connected to Relay and Solenoid

Configure the circuit so that the power supply to the output device (relay, solenoid, etc.) will be turned ON upon the CPU RUN output (interlock output) of the MP2000 module.

<Power ON Sequence>



<Circuit Configuration Example>

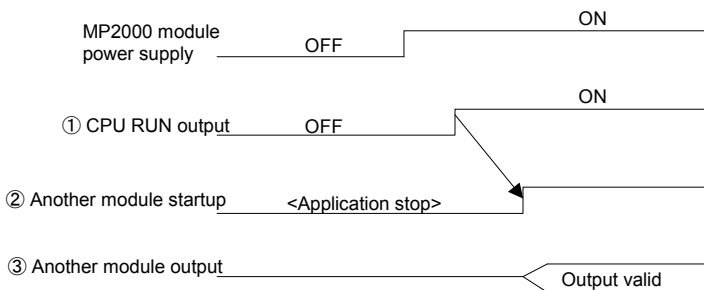


SB000004: Normally the ON coil turns ON with proper operation of the CPU.  
 OB000000: Interlock output

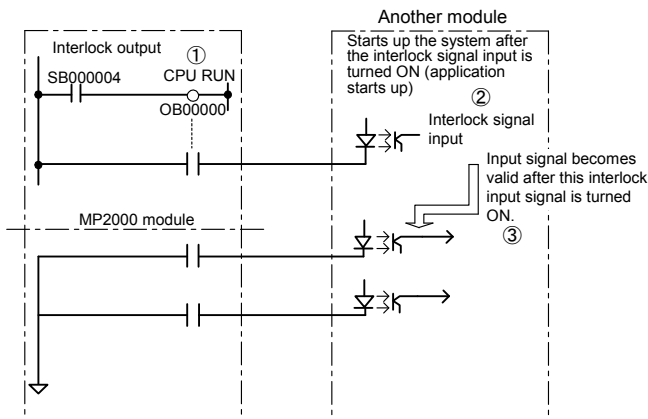
## ■ When the output is connected to a CPU built-in module input

Connect the CPU RUN output (interlock output) of the MP2000 module to another module as an interlock signal, and after confirming that CPU RUN output of the MP2000 module is turned ON, use the output of the other module. Any output before turning ON the CPU RUN output is invalid.

<Power ON Sequence>



<Circuit Configuration Example>



SB000004: Normally the ON coil turns ON with proper operation of the CPU.  
OB000000: Interlock output

---

## ■ Intended Option Output Modules

The intended option output modules are listed below.

- JAPMC-IO2300 (-E) (LIO-01)
- JAPMC-IO2301 (-E) (LIO-02)
- JAPMC-IO2303 (-E) (LIO-04)
- JAPMC-IO2304 (-E) (LIO-05)
- JAPMC-IO2305-E (LIO-06)
- JAPMC-AN2310-E (AO-01)
- JAPMC-PL2300-E (CNTR-01)
- JAPMC-PL2310-E (PO-01)
- JAPMC-DO2300 (-E) (DO-01)
- JAPMC-MC2300 (-E) (SVA-01)
- JAPMC-MC2310 (-E) (SVB-01)
- JAPMC-MC2320-E (SVC-01)
- JAPMC-CP2700-E (MPU-01)
- JEPMC-MP2300 (-E) (MP2300 basic module)
- JEPMC-IO2310 (-E) (MECHATROLINK-II 64 points I/O module, sink mode output)
- JEPMC-IO2330 (-E) (MECHATROLINK-II 64 points I/O module, source mode output)
- JEPMC-AN2910 (-E) (MECHATROLINK-II analog output module)
- JAMSC-IO2910-E (16 outputs output module, sink mode output)
- JAMSC-IO2920-E (8 inputs, 8 outputs I/O module, sink mode output)
- JAMSC-IO2950-E (8 relay outputs, relay output module)
- JEPMC-MTD2310-E (MECHATROLINK-III 64 points I/O module, sink mode output)
- JEPMC-MTA2900-E (MECHATROLINK-III analog input module)
- JEPMC-MTA2910-E (MECHATROLINK-III analog output module)
- JEPMC-MTP2900-E (MECHATROLINK-III pulse input module)
- JEPMC-MTP2910-E (MECHATROLINK-III pulse output module)



## 9 Inspection

This section describes the MP2200/MP23□□□/MP2400 basic inspections.

### ■ MP2200/MP23□□□/MP2400 Inspection

For inspections and maintenance of the MP2200/MP23□□□/MP2400, 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.

## 10 General Specifications

The following table shows the MP2200/MP23□□□/MP2400 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"> <li>• 16.7Hz with the amount of 14.7 m/s<sup>2</sup> frequency, three directions for two hours each.</li> <li>• 10 to 57 Hz with single-amplitude of 0.075 mm</li> <li>• 57 to 150 Hz with fixed acceleration of 9.8m/s<sup>2</sup></li> </ul>
	Shock Resistance	Peak acceleration of 147 m/s <sup>2</sup> 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

## Revision History

The revision dates and numbers of the revised manuals are given on the bottom of the back cover.

MANUAL NO. TOBP C880700 02B

Published in Japan January 2011 02-9  $\diamond$ -1

└─ WEB revision number  
└─ Revision number  
└─ Date of original publication  
└─ Date of publication

Date of Publication	Rev. No.	WEB Rev. No.	Section	Revised Content
January 2014	$\diamond$ 7	0	Back cover	Revision: Address
March 2013	$\diamond$ 20	0	Back cover	Revision: Address
September 2012	$\diamond$ 9	0	Chapter 6	Addition: Description of Ethernet communication for MP2310 main unit
August 2012	$\diamond$ 8	0	–	Revision: Address
July 2012	$\diamond$ 7	0	–	Printed version of the user's manual that is available on the web (web version: TOBP C880700 02K<16>-1)
			Back cover	Revision: Address
	$\diamond$ 6	1	Front cover	Revision: Model JEPMC-MP2300-Y□□ (-E) → JEPMC-MP23□□ (-E) Addition: Model JEPMC-MT20□□-E
			Chapter 2, chapter 5	Addition: Machine Controller MP2310 Basic Model USER'S MANUAL
			Chapter 6	Addition: Fourteen module models Revision: Model JAPMC-MC2300 (-E) → JAPMC-MC2300
			Chapter 8	Addition: Model JAPMC-MC2310 (-E) (SVB-01)
	Back cover	Revision: Address		
October 2011		0	Inside of back cover	Addition: Precautions for Korean Radio Waves Act
June 2011	$\diamond$ 5	0	–	TOBP C880700 02I<14>-1, available on the Web.
April 2011	$\diamond$ 4	1	Chapter 9	Deletion: Description of part replacement period
February 2011		0	–	TOBP C880700 02H<13>-1, available on the Web.
January 2011	$\diamond$ 3	1	Front cover, chapter 6, chapter 8	Addition: Model JAPMC-CP2700-E Addition: Description of "-E" or "(-E)" to model numbers ending
			Chapter 6, chapter 8	Addition: Model JAPMC-MC2320-E
			Chapter 8	Deletion: Model JAPMC-MC2100, JAPMC-MC2140
November 2010	$\diamond$ 3	0	Front cover	Revision: Format
			Back cover	Revision: Address, format
May 2010	$\diamond$ 2	–	All chapters	Addition: Model JEPMC-MT□□29□□0-E, JEPMC-MTD2310-E
June 2008	$\diamond$ 1	–	Back cover	Revision: Address
May 2008	$\diamond$ 0	–	All chapters	Addition: Model JAMSC-IO29□□
			Chapter 5	Addition: PL on circuit construction
			Chapter 8	Addition: Chapter 8 Wiring
			Back cover	Revision: Address
December 2007	$\diamond$ 9	–	Back cover	Revision: Address
November 2007	$\diamond$ 8	–	Chapter 5	Addition: PL on fumigation
			Back cover	Revision: Address
March 2007	$\diamond$ 7	–	All chapters	Addition: Model JEPMC-MP2300S-E, JEPMC-MP2400-E
July 2005	$\diamond$ 6	–	All chapters	Slightly revised

Date of Publication	Rev. No.	WEB Rev. No.	Section	Revised Content
November 2004	⑤	-	All chapters	Addition: Model JEPMC-IO23□□, JAPMC-AN23□□, JAPMC-PL23□□, JAPMC-DO23□□
June 2004	④	-	All chapters	Addition: Model JAPMC-EX22□□
April 2004	③	-	All chapters	Slightly revised
September 2003	②	-	All chapters	Addition: Model JEPMC-BU22□□, JAPMC-MC23□□
June 2003	①	-	All chapters	Addition: Model JEPMC-PL29□□, JEPMC-AN29□□
September 2002	-	-	-	First edition

# Machine Controller

# MP2200/MP23□□□/MP2400

## SAFETY PRECAUTIONS

---

#### **IRUMA BUSINESS CENTER (SOLUTION CENTER)**

480, Kamifujisawa, Inuma, Saitama 358-8555, Japan  
Phone 81-4-2962-5151 Fax 81-4-2962-6138  
<http://www.yaskawa.co.jp>

#### **YASKAWA AMERICA, INC.**

2121 Norman Drive South, Waukegan, IL 60085, U.S.A.  
Phone 1-800-YASKAWA (927-5292) or 1-847-887-7000 Fax 1-847-887-7310  
<http://www.yaskawa.com>

#### **YASKAWA ELÉTRICO DO BRASIL LTDA.**

Avenida Piraporinha 777, Diadema, São Paulo, 09950-000, Brasil  
Phone 55-11-3585-1100 Fax 55-11-3585-1187  
<http://www.yaskawa.com.br>

#### **YASKAWA EUROPE GmbH**

Hauptstraße 185, Eschborn 65760, Germany  
Phone 49-6196-569-300 Fax 49-6196-569-398  
<http://www.yaskawa.eu.com>

#### **YASKAWA ELECTRIC KOREA CORPORATION**

9F, Kyobo Securities Bldg, 26-4, Yeouido-dong, Yeongdeungpo-gu, Seoul, 150-737, Korea  
Phone 82-2-784-7844 Fax 82-2-784-8495  
<http://www.yaskawa.co.kr>

#### **YASKAWA ELECTRIC (SINGAPORE) PTE. LTD.**

151 Lorong Chuan, #04-02A, New Tech Park 556741, Singapore  
Phone 65-6282-3003 Fax 65-6289-3003  
<http://www.yaskawa.com.sg>

#### **YASKAWA ELECTRIC (CHINA) CO., LTD.**

12F, Carlton Bld., No.21 HuangHe Road, HuangPu District, Shanghai 200003, China  
Phone 86-21-5385-2200 Fax 86-21-5385-3299  
<http://www.yaskawa.com.cn>

#### **YASKAWA ELECTRIC (CHINA) CO., LTD. BEIJING OFFICE**

Room 1011, Tower W3 Oriental Plaza, No.1 East Chang An Ave.,  
Dong Cheng District, Beijing 100738, China  
Phone 86-10-8518-4086 Fax 86-10-8518-4082

#### **YASKAWA ELECTRIC TAIWAN CORPORATION**

9F, 16, Nanking E. Rd., Sec. 3, Taipei 104, Taiwan  
Phone 886-2-2502-5003 Fax 886-2-2505-1280



YASKAWA ELECTRIC CORPORATION

In the event that the end user of this product is to be the military and said product is to be employed in any weapons systems or the manufacture thereof, the export will fall under the relevant regulations as stipulated in the Foreign Exchange and Foreign Trade Regulations. Therefore, be sure to follow all procedures and submit all relevant documentation according to any and all rules, regulations and laws that may apply.

Specifications are subject to change without notice for ongoing product modifications and improvements.

© 2002-2014 YASKAWA ELECTRIC CORPORATION. All rights reserved.

MANUAL NO. TOBP C880700 02M

Published in Japan January 2014 02-9 -0  
13-6-9

한국 전파법에 관한 주의사항

韓国電波法に關連する注意事項

Precautions for Korean Radio Waves Act

针对韩国电波法的注意事项

사용자 안내문

기종별	사용자 안내문
A 급 기기 (업무용 방송 통신기 자재)	이 기기는 업무용 (A 급) 전자파 적합 기기로서 판매자 또는, 사용자는 이 점을 주의하시기 바라며, 가정외의 지역에서 사용하는 것을 목적으로 합니다.