

マシンコントローラMP21□□/

MP2100M用拡張I/F基板MP2100MEX

Machine Controller MP21□□/

Expansion I/F Board MP2100MEX for MP2100M

安全上のご注意 SAFETY PRECAUTIONS

形式(Type): JAPMC-MC2100	JAPMC-MC2150	JAPMC-EX2100
JAPMC-MC2110	JAPMC-MC2160	
JAPMC-MC2130	JAPMC-MC2170	
JAPMC-MC2140	JAPMC-MC2180	

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 MP21□□* Machine Controller and the Expansion Interface Board MP2100MEX. To properly use the MP21□□ Machine Controller and the MP2100MEX, 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.

* MP21□□ indicates MP2100, MP2100M, MP2100CP, MP2100MCP, MP2110, MP2110M, MP2110CP and MP2110MCP.

Product Name	Model	Remarks
MP2100	JAPMC-MC2100	PCI bus-compatible
MP2110	JAPMC-MC2110	PCI bus-compatible
MP2100M	JAPMC-MC2140	MP2100 (MECHATROLINK 2 port version)
MP2110M	JAPMC-MC2130	MP2110 (MECHATROLINK 2 port version)
MP2100CP	JAPMC-MC2160	C-PCI bus MP2100
MP2110CP	JAPMC-MC2150	C-PCI bus MP2110
MP2100MCP	JAPMC-MC2180	C-PCI bus MP2100M
MP2110MCP	JAPMC-MC2170	C-PCI bus MP2110M

2 Reference Manuals

This table lists related reference manuals:

Manual Titles	Manual No.
Machine Controller MP2100/MP2100M USER'S MANUAL DESIGN AND MAINTENANCE	SIEPC88070001

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 series 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 MP21□□ 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 MP21□□/MP2100MEX.

Failure to observe this warning may result in electric shock.

- Never fail to turn OFF a personal computer when installing the MP21□□/MP2100MEX in a personal computer.

Failure to observe this warning may result in electric shock.

- Follow the procedures and instructions for trial operation precisely as noted in the MP2100/MP2100M Machine Controller User's Manual: Design and Maintenance (Manual No.: SIEPC88070001).

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, place or drop heavy objects on the MP21□□/MP2100MEX.

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.

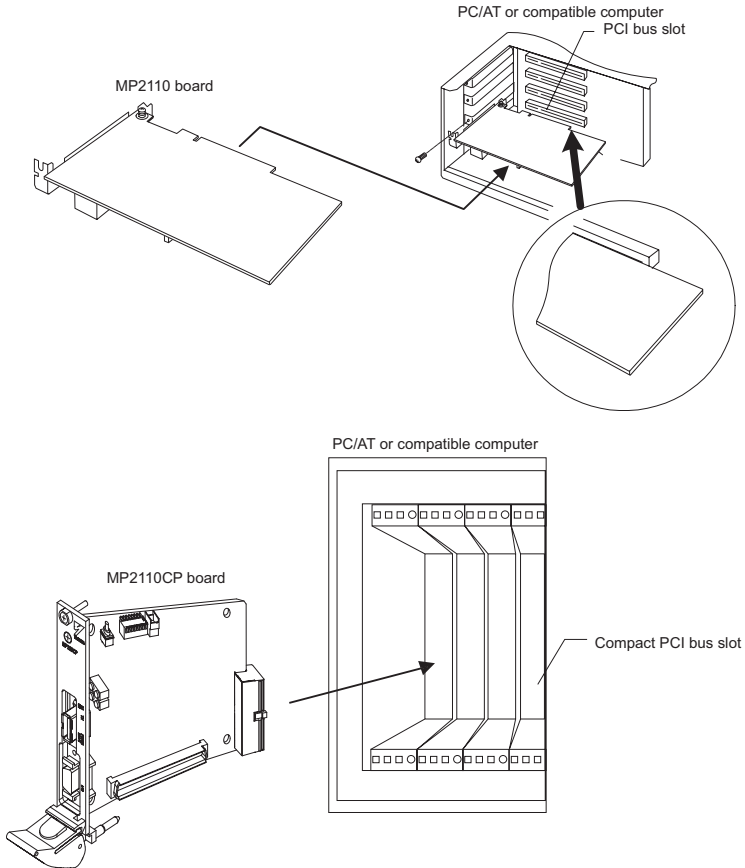
- Do not place any load exceeding the limit.

Failure to observe this caution may result in injury or malfunction.

■ INSTALLATION

⚠ CAUTION

- The MP2110/MP2110M/MP2110CP/MP2110MCP is mounted in the PCI/Compact PCI slot of a standard personal computer (IBM PC/AT or compatible).



- To prevent the MP2110/MP2110M/MP2110CP/MP2110MCP from being damaged by static electricity, discharge any static electricity by touching a grounded metal object.
- Before installing or removing the MP2110/MP2110M/MP2110CP/MP2110MCP, always turn OFF the host computer's power supply and unplug the computer's power cord.
- When installing the MP2110/MP2110M/MP2110CP/MP2110MCP, always press the Board firmly until it is fully seated in the PCI/Compact PCI slot. If the Board is not fully inserted, the MP2110/MP2110M/MP2110CP/MP2110MCP and/or host computer may be damaged or operate incorrectly. If the MP2110/MP2110M/MP2110CP/MP2110MCP cannot be inserted into the PCI/Compact PCI slot with firm pressure, do not try to force it into the slot. Remove the Board, align it properly, and try inserting it again.

CAUTION

- When handling the MP2110/MP2110M/MP2110CP/MP2110MCP, hold the Board by its edges and never touch the components or soldered connections. Touching the components or leads can cause cuts or damage the MP2110/MP2110M/MP2110CP/MP2110MCP or host computer.
- In some computers, it is necessary to secure the MP2110/MP2110M/MP2110CP/MP2110MCP in the PCI/ Compact PCI slot with a screw or a clip after inserting the Board into the slot. Refer to the host computer's user manual for details on securing PCI Boards. If the MP2110/MP2110M/MP2110CP/MP2110MCP is not secured, it may become loose and the MP2110/MP2110M/MP2110CP/MP2110MCP and/or host computer may be damaged or operate incorrectly.
- Never use the MP2110/MP2110M/MP2110CP/MP2110MCP in locations subject to water, corrosive atmospheres, or flammable gas, or near burnable objects.
There is a risk of electrical shock or fire.
- Do not subject the MP2110/MP2110M/MP2110CP/MP2110MCP to strong shock.
There is a risk of an accident.
- Do not freeze the MP2110/MP2110M/MP2110CP/MP2110MCP during operating and saving it.
There is a risk of an accident.

■ 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 MP21□□/MP2100MEX.
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 MP21□□, resume operation only after transferring the previous MP21□□ programs and parameters to the new MP21□□.
Failure to observe this caution may result in damage to the product.

■ DISPOSAL

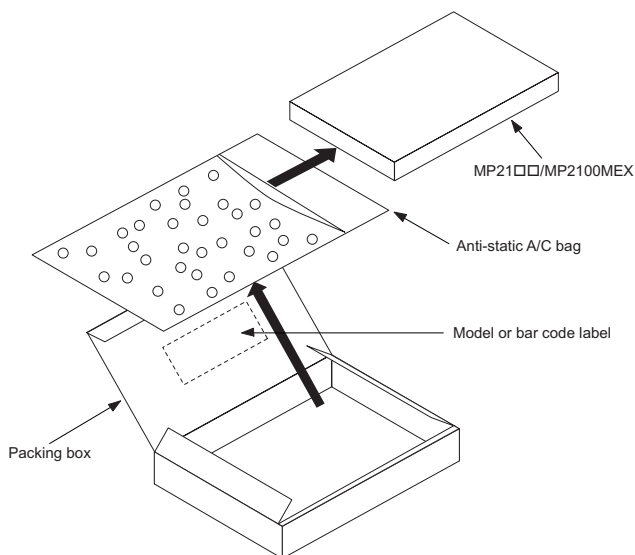
CAUTION

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

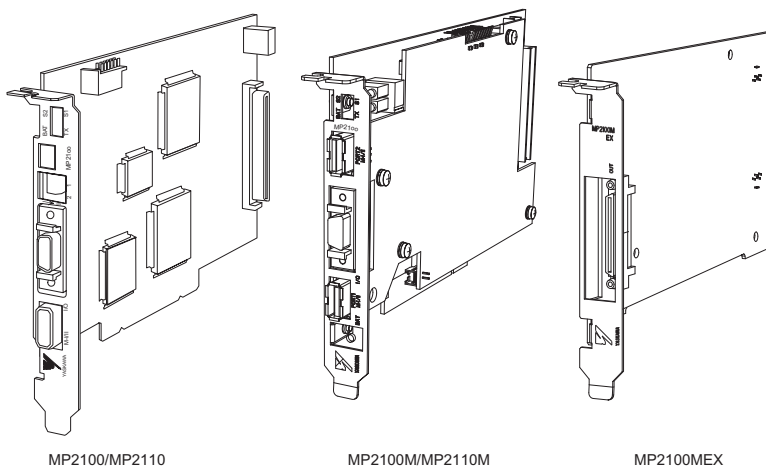
6 RECEIVING

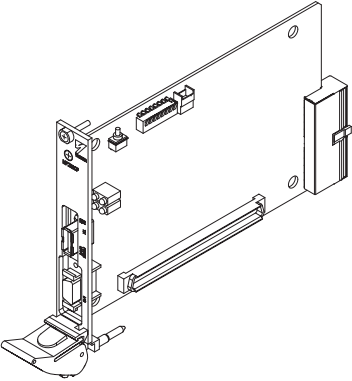
Open the box and remove the MP21□□ or the MP2100MEX from the anti-static A/C bag as shown in the following.

Confirm that the model written on the packing box's label is the same as on the MP21□□/MP2100MEX.

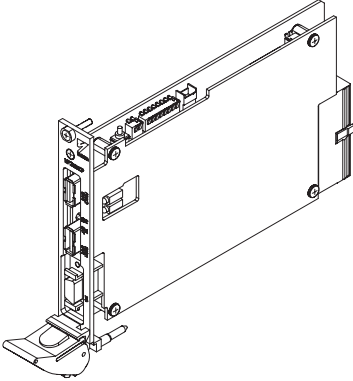


The following shows the appearance of the MP21□□ and the MP2100MEX.





MP2100CP/MP2110CP

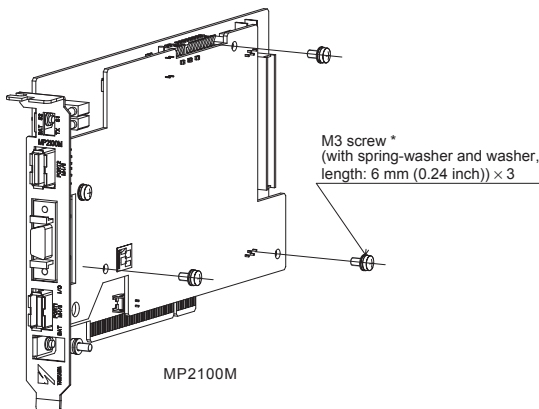


MP2100MCP/MP2110MCP

7 MP2100MEX INSTALLATION

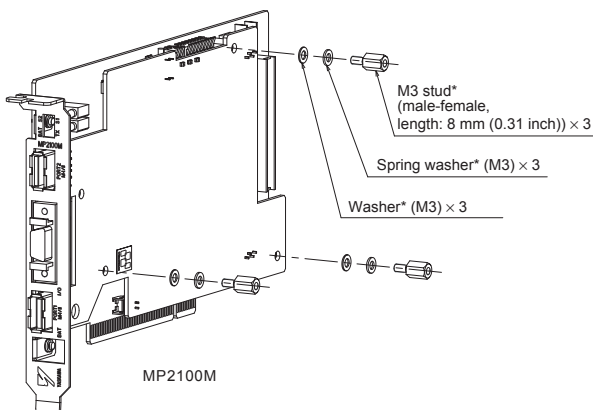
Install a MP2100MEX in a MP2100M according to the following procedure.

1. Remove three M3 screws from the MP2100M.



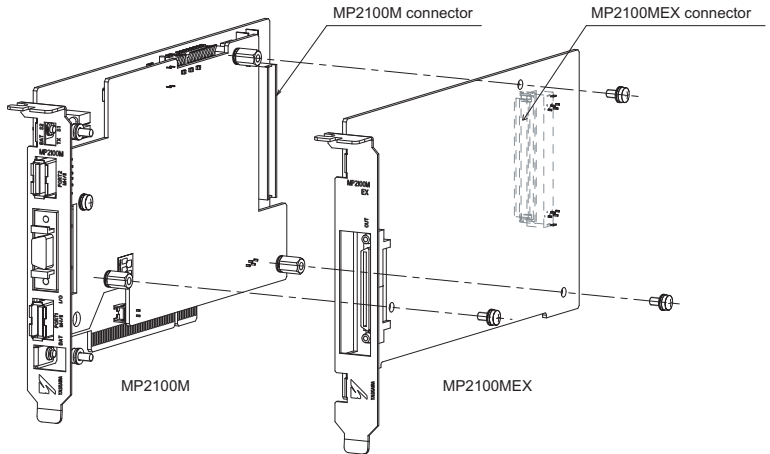
* Screws are included in the MP2100M. The tightening torque is 0.49 N·m (5 kgf·cm).

2. Attach a washer and spring washer to a stud. Then, mount the stud in screw holes on the MP2100M.

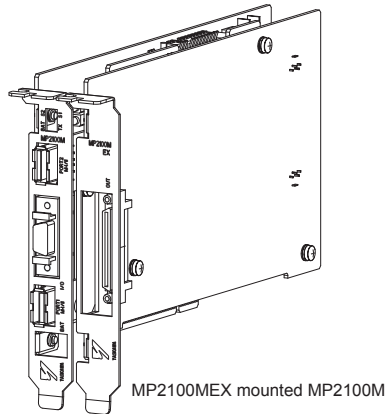


* Washers and studs are included in the MP2100MEX. The tightening torque is 0.49 N·m (5 kgf·cm).

3. Mount the MP2100MEX connector to the MP2100M connector.
4. Then, pass the screws removed from the MP2100M through three screw holes on the MP2100MEX and fix them on the studs mounted on the MP2100M.



Install the completed MP2100M with the MP2100MEX in a personal computer to refer to
 ■ INSTALLATION on page E-5.



8 INSPECTION

This section describes the MP21□□/MP2100MEX basic inspections and part replacement period.

■ MP21□□/MP2100MEX Inspection

For inspections and maintenance of the MP21□□/MP2100MEX, 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 board mounting screws of a personal computer.	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 MP21□□/MP2100MEX general specifications.

Item		Specifications	
		MP21□□	MP2100MEX
Peripheral Temperature	Operating Temperature	0 to 55 °C	
	Storage Temperature	-25 to 85 °C	
Humidity		30 % to 95 %RH (non-condensing)	
Power Supply Voltage		5 V±5 % (supplied by a personal computer)	5 V±5 % (supplied by a MP2100M)
Vibration Resistance		No Regulation	
Shock Resistance		No Regulation	
Noise Resistance	Power Supply Noise (FT Noise)	No Regulation	
	Radiation Noise (FT Noise)	1000V max., for one minute	
	Ground Noise (Impulse Noise)	No Regulation	
	Static Electricity Noise (Contact Discharging)	4000 V max., ten times	
Grounding		Depend on a personal computer.	
Altitude		Altitude:2000m min.	
Others		No corrosive gas	

マシンコントローラMP21□□/ MP2100M用拡張I/F基板MP2100MEX Machine Controller MP21□□/ Expansion I/F Board MP2100MEX for MP2100M 安全上のご注意 SAFETY PRECAUTIONS

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