

Machine Controller MP900シリーズ

安全上のご注意 SAFETY PRECAUTIONS

形式(Type): MP920: JEPMC-AN2□□/CM2□□/CP2□□/EX200/
IO2□□/MB2□□/MC2□□/PL2□□/PS2□□
MP930: JEPMC-IO35□□/MC3□□
MP940: JEPMC-MC4□□

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.



YASKAWA

株式会社 安川電機

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1 INTRODUCTION

This safety precautions manual describes the MP900 Series Machine Controller. To properly use the MP900 Series 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.

In this manual, the MP900 Series is defined as an abbreviation for the MP920, MP930, and MP940.

2 RELATED MANUALS

Refer to the following related manuals as required.

Manual Name	Manual Number
Machine Controller MP920 USER'S MANUAL DESIGN AND MAINTENANCE	SIEZ-C887-2.1
Machine Controller MP920 USER'S MANUAL MOTION MODULE	SIEZ-C887-2.5
Machine Controller MP920 USER'S MANUAL COMMUNICATION MODULE	SIEZ-C887-2.6
Machine Controller MP930 USER'S MANUAL DESIGN AND MAINTENANCE	SIEZ-C887-1.1
Machine Controller MP940 USER'S MANUAL DESIGN AND MAINTENANCE	SIEZ-C887-4.1

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 MP900 Series 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 MP900 Series.

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 MP900 Series Machine Controller User's Manual DESIGN AND MAINTENANCE.

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 MP900 Series 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.

CAUTION

- 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 MP900 Series.
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 MP900 Series, resume operation only after transferring the previous MP900 Series programs and parameters to the new MP900 Series.
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 that the modules are surely packaged when shipping.

The following table shows the MP900 Series modules.

■ MP920

Module type	Name	Description	Specifications
Mounting Base	Long Mounting Base	MB-01	Power supply + 9 slots
	Short Mounting Base	MB-02	Power supply + 6 slots
Power Supply Module	AC Input Power Supply Module	PS-01	AC 100/200V
	DC Input Power Supply Module	PS-03	DC 24V
CPU Module	Standard CPU Module	CPU-01	Memory: 2MB
	High-speed CPU Module	CPU-02	Memory: 4MB
Motion Module	4-axis Servo Module	SVA-01	Analog outputs, 4-axis control
	2-axis Servo Module	SVA-02	Analog outputs, 2-axis control
	MECHATROLINK I/F Module	SVB-01	MECHATROLINK
	Pulse Output Module	PO-01	Pulse output
I/O Module	Digital Input Module	DI-01	Digital input 64 points
	Digital Output Module	DO-01	Digital output 64 points
	Digital I/O Module	LIO-01	DI 32 points, DO 32 points
	Counter Module	CNTR-01	Counter 4 channels
	Analog Input Module	AI-01	Analog input 4 channels
	Analog Output Module	AO-01	Analog output 4 channels
Communication Module	217 IF Module	217IF	General-purpose serial communication
	Ethernet I/F Module	218IF	Ethernet communication
	215 IF Module	215IF	Realtime core communication
	DeviceNet I/F Module	260IF	DeviceNet communication
Expand Module	Expansion Module	EXIOIF	System bus expansion, maximum 4 rack

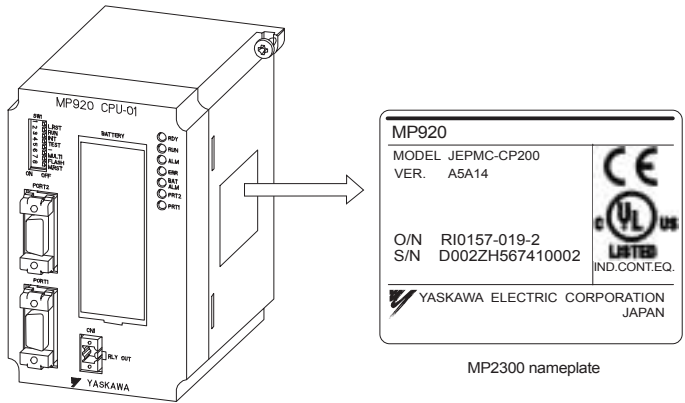
■ MP930

Module type	Description	Specifications
MC 350 Unit	MP930	Memory: 2MB
MC 360 Unit	MP930-02	Memory: 4MB
I/O Unit	IO350	Input 64 points, Output 64 points

■ MP940

Module type	Description	Specifications
MP940 Module	MP940	MECHATROLINK version
	MP940D	DeviceNet version

The following diagram shows an example of a nameplate and its location on the MP920, type of CPU-01.



7 INSTALLATION

Observe the following precautions when installing MP900 Series.

- Install MP900 Series perpendicular to the wall so that the front panel faces outward.
- Firmly secure the MP900 Series through four mounting holes.
- Install MP900 Series so that MP900 Series can be cooled by natural convection.

■ 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 MP900 Series does not exceed 55°C. • When installing MP900 Series side by side in a control panel, install cooling fans and provide sufficient space around each MP900 Series 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 MP900 Series does not exceed 55°C.
When installed near a source of vibration	Install a vibration isolator underneath the MP900 Series to prevent it from receiving vibration.
When installed in a place receiving corrosive gases	Corrosive gases do not immediately affect the MP900 Series 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 MP900 Series basic inspections and part replacement period.

■ MP900 Series Inspection

For inspections and maintenance of the MP900 Series, 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 MP900 Series general specifications.

Item		Specifications
Environmental Conditions	Ambient Operating Temperature	0 to 55 °C
	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 Gas	There must be no combustible or corrosive gas.
	Operating Altitude	2,000 m above sea level or lower
Electrical Operating Conditions	Noise Resistance	Conforming to JIS B 3502: 1,500 V (p-p) in either normal or common modes with a pulse width of 100 ns/11 µs and a rise time of 1 ns (tested with impulse noise simulator)
Mechanical Operating Conditions	Vibration Resistance	Conforming to JIS B 3502: 10 to 57 Hz with single-amplitude of 0.075 mm 57 to 150 Hz with fixed acceleration of 9.8 m/s ² 10 sweeps each in X, Y, and Z directions (sweep time: 1 octave/min)
	Shock Resistance	Conforming to JIS B 3502: Peak acceleration of 147 m/s ² twice for 11 ms each in the X, Y, and Z directions
Installation Requirements	Ground	Ground to 100 Ω max.
	Cooling Method	Natural cooling

Machine Controller MP900シリーズ

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製造・販売

株式会社 安川電機

入間事業所 埼玉入間市上藤沢480番地 〒358-8555
代 表 TEL (042)962-5730 FAX (042)962-6138
関東地区 八王子営業所 TEL (0426)44-3844 FAX (0426)45-0438
信越地区 長野営業所 TEL (0266)58-3233 FAX (0266)58-7721
東北地区 東北営業所 TEL (022)265-8111 FAX (022)267-5554
名古屋支店 名古屋市中村区名駅3丁目25番9号 堀内ビル9階 〒450-0002
代 表 TEL (052)581-2761 FAX (052)581-2274
東海地区 豊田営業所 TEL (0565)27-7771 FAX (0565)27-7770
大阪支店 大阪市北区堂島2丁目4番27号 新藤田ビル4階 〒530-0003
代 表 TEL (06)6346-4500 FAX (06)6346-4555

近畿地区 京滋営業所 TEL (075)212-4631 FAX (075)212-4634
北陸地区 北陸営業所 TEL (076)233-2107 FAX (076)223-5696
富山出張所 TEL (076)444-2228 FAX (076)444-2241
中国支店 広島市南区西荒神町1番6号テリハ広島3階 〒733-0806
代 表 TEL (082)568-8191 FAX (082)568-8195
中国地区 岡山出張所 TEL (086)225-1030 FAX (086)223-1528
九州支店 福岡市中央区天神4丁目1番1号 7期明星ビル7階 〒810-0001
代 表 TEL (092)714-5906 FAX (092)714-5799
九州地区 熊本出張所 TEL (096)382-8186 FAX (096)382-6109

IRUMA BUSINESS CENTER

480, Kamifujiisawa, Iruma, Saitama 358-8555, Japan
Phone 81-42-962-5696 Fax 81-42-962-6138

YASKAWA ELECTRIC AMERICA, INC.

2121 Norman Drive South, Waukegan, IL 60085, U.S.A.
Phone 1-847-887-7000 Fax 1-847-887-7370

MOTOMAN INC. HEADQUARTERS

805 Liberty Lane West Carrollton, OH 45449, U.S.A.
Phone 1-937-847-6200 Fax 1-937-847-6277

YASKAWA ELÉTRICO DO BRASIL COMÉRCIO LTD.A.

Avenida Fagundes Filho, 620 Bairro Saude-Sao Paulo-SP, Brazil
CEP: 04304-000
Phone 55-11-5071-2552 Fax 55-11-5581-8795

YASKAWA ELECTRIC EUROPE GmbH

Am Kronberger Hang 2, 65824 Schwalbach, Germany
Phone 49-6196-568-300 Fax 49-6196-568-398

Motoman Robotics Europe AB

Box 504 S38525 Torsås, Sweden
Phone 46-486-48800 Fax 46-486-41410

Motoman Robotec GmbH

Kammerfeldstra. 1, 85391 Allershausen, Germany
Phone 49-8166-90-100 Fax 49-8166-90-103

YASKAWA ELECTRIC UK LTD.

1 Hunt Hill Orchard Road Cumbernauld, G68 9LF, United Kingdom
Phone 44-1236-735000 Fax 44-1236-458182

YASKAWA ELECTRIC KOREA CORPORATION

Ktpa Bldg #1201, 35-4 Yoido-dong, Yeongdongpo-Ku, Seoul 150-010, Korea
Phone 82-2-784-7844 Fax 82-2-784-8495

YASKAWA ELECTRIC (SINGAPORE) PTE. LTD.

151 Lorong Chuan, #04-01, New Tech Park Singapore 556741, Singapore
Phone 65-6282-3003 Fax 65-6289-3003

YASKAWA ELECTRIC (SHANGHAI) CO., LTD.

No.18 Xizang Zhong Road, Room 1805, Harbour Ring Plaza
Shanghai 20000, China
Phone 86-21-5385-2200 Fax 86-21-5385-3299

YATEC ENGINEERING CORPORATION

4F., No.49 Wu Kong 6 Rd, Wu-Ku Industrial Park, Taipei, Taiwan
Phone 886-2-2298-3676 Fax 886-2-2298-3677

YASKAWA ELECTRIC (HK) COMPANY LIMITED

Rm. 2909-10, Hong Kong Plaza, 186-191 Connaught Road West, Hong Kong
Phone 852-2803-2385 Fax 852-2547-5773

BEIJING OFFICE

Room No. 301 Office Building of Beijing International Club, 21
Jianguomenwai Avenue, Beijing 100020, China
Phone 86-10-6532-1850 Fax 86-10-6532-1851

TAIPEI OFFICE

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

SHANGHAI YASKAWA-TONGJI M & E CO., LTD.

27 Hui He Road Shanghai China 200437
Phone 86-21-6553-6060 Fax 86-21-5588-1190

BEIJING YASKAWA BEIKE

AUTOMATION ENGINEERING CO., LTD.

30 Xue Yuan Road, Haidian, Beijing P.R. China Post Code: 100083
Phone 86-10-6233-2782 Fax 86-10-6232-1536

SHOUGANG MOTOMAN ROBOT CO. LTD.

7, Yongchang-North Street, Beijing Economic Technological Investment &
Development Area, Beijing 100076, P.R. China
Phone 86-10-6788-0551 Fax 86-10-6788-2878



YASKAWA

株式会社 安川電機

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