YASKAWA

MACHINE CONTROLLER
MP2000 SERIES
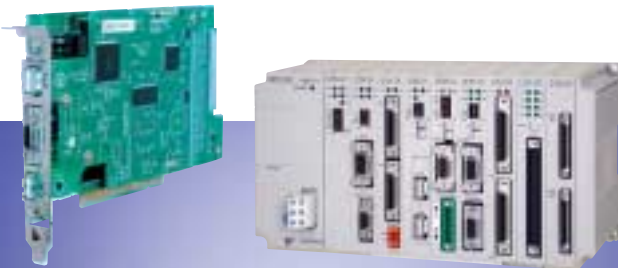
Machine Controller
Line-up

Get the Ideal Motions with the MP2000 Series

The MP2000 Series Machine Controllers form a " triangle base of power ", from which ideal motion control can be achieved on a wide variety of machines. The controller series utilizes its advantages in three key areas :

- · The ability to process large-capacity programs at high speed
- · To carry out complete synchronous control of multiple axes
- · Improved efficiency in simplified portable programming

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High-speed
Multi-axis
Control

Page
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High-level
Synchronization

Triangle
Power

High
Operability

Page
8

MP2000 Series

Panel Type Machine Controller
MP2500

An all-in-one machine controller that combines high-speed sequencing with high-capacity programming and many other features in one panel computer to meet a wide range of applications.

Panel Type

Flexible Machine Controller
MP2200

The flag ship in the MP2000 Series machine controllers with a high-speed motion control cycle of only 0.5 ms. Up to 35 slots can be added for optional modules.

Flexible

All-in-one Type Machine Controller
# MP2300/MP2310/MP2300S

Slots for optional modules are provided for easy construction of various network systems and the expansion of I/O. Flexible system construction is possible.

All-in-one Type

Compact Unit Type Machine Controller
MP2400

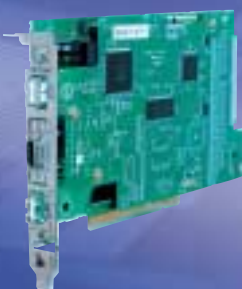Ports for the MECHATROLINK-II and Ethernet (100BASE-TX) are a standard feature to help realize a stand-alone system that requires less space and less wiring.
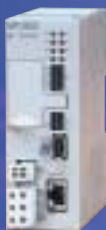
Compact Unit Type

Board Type Machine Controller
MP2100

More than fifty motion Application Program Interfaces (APIs) are available to realize the motion control you desire using your personal computer.

Board Type

C O N T E N T S

Maximizes Speed with Accurate Motion Control

High speeds in program processing and network communication are essential to maximize the output of intricate machines.

The high-speed CPU used in the MP2000 Series shortens the execution time of commands. Also, with the MECHATROLINK-II motion network (transmission speed: 10 Mbps) used in the MP2000 Series, high-accuracy and high-speed motion control on multiple axes is realized.

Higher Speed Performance to Control Greater Number of Axes

● Execution Speed Comparison (Execution speed will vary in different applications and peripheral devices.)

MP930	MP920	MP2100	MP2100M	MP2200	MP2300	MP2310	MP2300S	MP2400	MP2500, MP2500B	MP2500M, MP2500MB
1	1.3	2.0*1	2.0	2.6	2.0*2	2.0	2.0	2.0	2.0	2.0

＊1 : Ver. 2.00 later　　　＊2 : JEPMC-MP2300-E

● Number of Controlled Axes

MP930	MP920	MP2100	MP2100M	MP2200	MP2300	MP2310	MP2300S	MP2400	MP2500, MP2500B	MP2500M, MP2500MB
14 axes	224 axes	16 axes	32 axes	256 axes	48 axes	64 axes	32 axes	16 axes	16 axes	32 axes

MECHATROLINK-II
for Dynamic Switching of Four Control Modes

A MECHATROLINK-II motion network (10 Mbps) is used with the MP2000 Series machine controller for control of an adaptive and highly precise servo drive.
In addition to torque, position, and speed control modes, the MECHATROLINK-II network also supports phase control mode, which delivers very high accuracy. The various control modes can be switched on-the-fly for perfect control of the most complex applications.

MECHATROLINK-I

Transmission Speed	Transmission Cycle (Number of Connected Stations)
4 Mbps	2.0 ms (14 stations)

MECHATROLINK-II

Transmission Speed	Transmission Cycle (Number of Connected Stations)
10 Mbps	0.5 ms (4 stations)*1
	1.0 ms (9 stations)
	1.5 ms (15 stations)*1
	2.0 ms (16 stations)*2

*1: For MP2100M, MP2200, MP2310, MP2300S, and MP2500M only.
*2: Twenty-one stations, including I/O equipment, can be connected.
Note : 0.5 ms and 1.5 ms are not available for the servo drives (SGDH SERVOPACK with NS115 application module) in the Σ-II series.

Four Control Modes All-in-one

● Synchronous Phase Control
(Not applicable for applications using motion control from a PC.)
Speed control with position compensation (electronic shaft) or position control with 100% speed feed forward (electronic cam). Multi-axis servomotors can be controlled synchronously.

0.3mm dia. mechanical pencil lead does not break.

● Torque Control
Generates a constant torque, regardless of speed.

When T1=T2

Torque
T1
Load
Torque
T2
Motor
Speed
Time

● Position Control
Advances to the target position, and stops or holds.

V
Speed V
S-curve Accel/decel.
Linear Accel/decel.
t
Accel. Time t1   Decel. Time t2

● Speed Control
Turns the motor at the specified speed, with user-defined acceleration/deceleration slopes.

V
Speed at Movement V
t
Accel. Time t1   Decel. Time t2

Online Switching Control Modes

V
Synchronous phase control while increasing speed with different accel rates.
Changes accel rate during acceleration
Switches to torque control during synchronous phase control
Speed Control   Synchronous Phase Control   Torque Control   Position Control
t
Switches to synchronous phase control during speed control
Switches to position control during torque control

■ **Applications**
● Injection molding machine
From speed control to torque control
● Packaging machine
From synchronous phase control to position control

Interpolation Functions for Simple Programming

Commands for linear, circular, and helical interpolation are available for easy programming of machine motions.

● Linear Interpolation, Circular Interpolation
Basic motions, such as rapid traverse positioning, linear interpolation, and circular interpolation, can be easily programmed.

Positioning (Up to 16 axes)
Circular interpolation (Up to 2 axes)
Linear interpolation (Up to 16 axes)

● Helical Interpolation
Helical interpolation can be programmed to combine linear and circular interpolation (Fig. A). Helical interpolation can also be used by applying linear interpolation portion to the rotary axis to trace an arc using normal line control (Fig. B).

Circular interpolation   Linear interpolation
R
R
Fig. A Helical Interpolation   Fig. B Normal Line Control

Features / High-speed Multi-axis Control

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High-level Synchronization
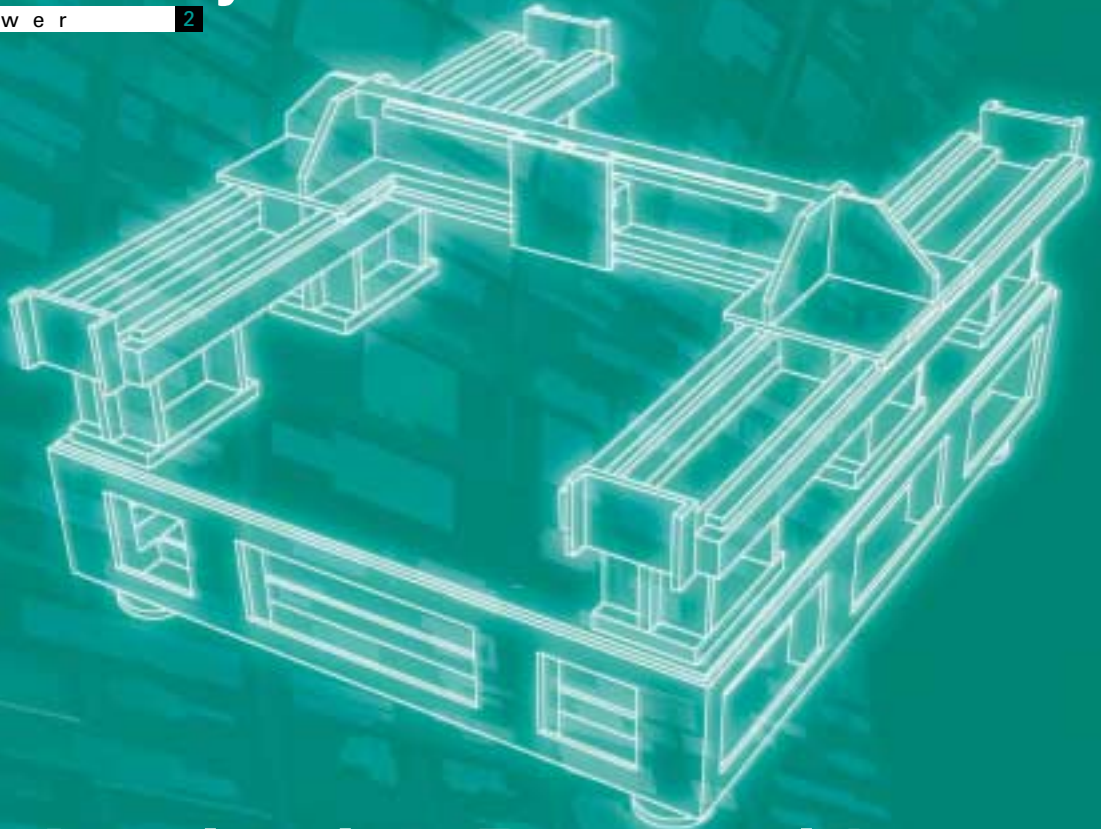
Widens Application Range with Perfect Control

Excellent synchronization of the controller is important in applications that require synchronous control on multiple axes.
The MP2000 Series can meet such requirements in various applications and remarkably improve machine precision.

MP2000 Series for Complete Synchronous Control through a Network

In addition to synchronous control on 32 axes using an SVA-01 analog motion control module, the MP2000 Series is capable of synchronous control between 256 axes using SVB-01 modules.

Because of such high-level synchronization, the MP2000 Series can be used for fully synchronous control of servo drives up to 256 axes (MP2200) connected by MECHATROLINK-II and thus, opens another field of applications.

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Electronic Shaft and Electronic Cam for Simplified Mechanics

With the MP2000 Series controller, AC servo drives that are connected to the MECHATROLINK-II can directly control each axis of a machine.
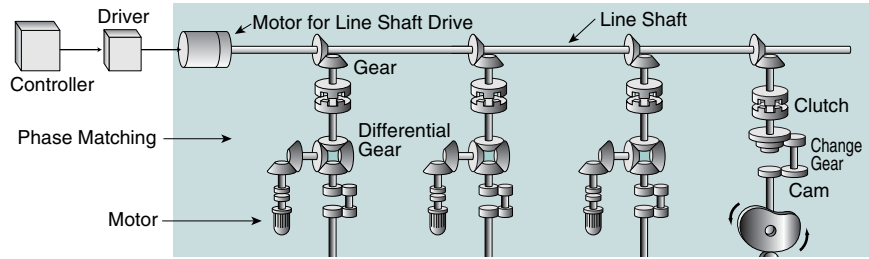Phase adjustment of each slave axis can be accomplished electrically on-the-fly, eliminating the need for mechanical adjustment. This simplification of the mechanical system results in reduced wear and reduced time spent on maintenance, setup, and part replacement.

Cam Data Generation
for Easy Programming
(integrated in MPE720)

Cam curve definition
Define a formula for each cam segment. There is a maximum of 20 segments possible and 25 formulas from which to choose.

Execution with MP2000 Series controller
The data list is processed in the MP2000 Series controller.
Motions of the machine can be viewed and adjusted with the following graphs.
●Cam graph (displacement)
●Control graph (displacement, speed, acceleration, and jerk)

Electronic Shaft and Electronic Cam for Synchronous Phase Control

Driver
Controller
Motor for Line Shaft Drive
Line Shaft
Gear
Phase Matching
Differential Gear
Clutch
Change Gear
Cam
Motor
SERVOPACK
●Application Example
Conveyor
Film feeder
Sealing
Cutting and sealing
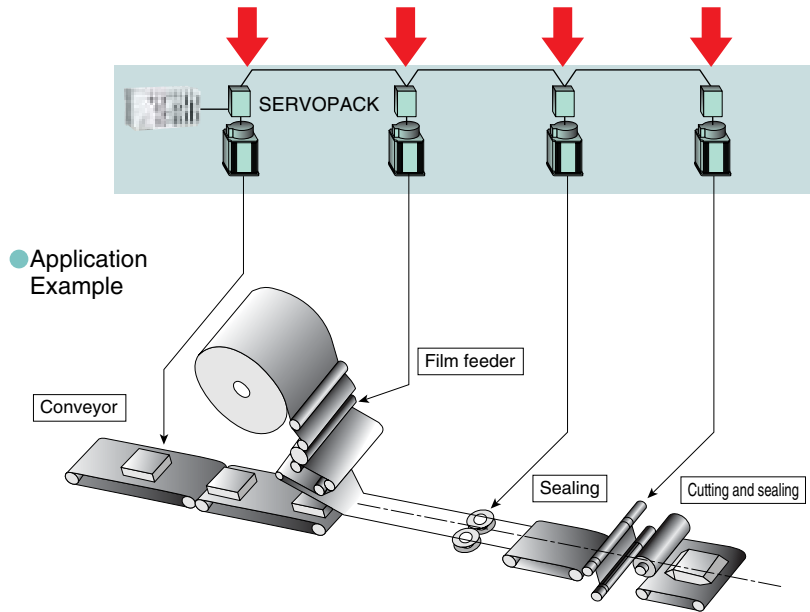
High-speed Performances with the Synchronized Processing of the Sequence and Motion Controls

The MP2000 Series Machine Controller precisely synchronizes motion with high-speed PLC scanning. The motion control starts within 1 scan from the start signal.
Also, the MP2000 Series controller can control different motions at the same time.
The MP2000 Series controller's high-speed performance helps reduce cycle time.

Reduction of cycle time
Simultaneous execution of different motion programs (16 programs max.)

●MP2000 Series

Sequence Control
②Ladder program (High-speed scan)《Relay sequence》
Startup of motion program

Controls the motions in synchronization with high-speed scanning.

②Motion Program
VEL[X]2000 [Y]2000
ACC[X]100 [Y]100
DCC[X]100 [Y]100
MOV[X]0 [Y]0
MVS[X]100.0[Y]200.0 F30000

Motion Control
Servo parameters
Synchronous control
Torque control
Position control
Speed control

Servo parameter settings

The servo parameters can be set from the motion program or from the ladder program for high-speed motion control.

Features / High-level Synchronization

7

High Operability

Optimum engineering tools for motion control & dramatic increases in efficiency

MPE720 Ver.6 Engineering Tool

Easy Programming for Motion Control

● Text-based Motion Programs
Use only one command for interpolated motion. Programming is easy with a text-based language.

● Ladder Programs
With Windows-based operations, anyone can create or edit ladder programs.

■ Easy Motion Programs for Interpolation Control

Use an easy text-based programming language for complicated motion control.

● Easy Programming for Interpolation
A wide variety of commands is available, so sophisticated interpolation can be programmed with only one command.

Commands	Functions
MOV	Positioning
MVS	Linear interpolation
MCW	Circular interpolation, Helical circular interpolation (clockwise)
MCC	Circular interpolation, Helical circular interpolation (counterclockwise)
ZRN	Zero-point return

● Command Input Assistant
With the command input assistant, you can create a program without special knowledge of the syntax.

● BASIC-like Commands or Language
Control commands such as IF and WHILE as well as the user function call (UFC) can be used.

· A comment can be inserted using slashes (//) or quotation marks (" ").

· Complex arithmetic expressions can be written.

● Variety of Debugging Functions
Functions, such as step-by-step program execution and breakpoint setting, are provided to simplify debugging.

Complex Arithmetics Easily Added

Arithmetic expressions for the complex calculations required for motion control can be easily and directly written into ladder programs.

● C Language-like for Programming Arithmetics

· Complex arithmetic operations can be easily written as expressions in C syntax.

· Arithmetic expressions written with the text editor can be inserted as comments using C syntax.

· Up to 100 calculations can be written with one expression and the resulting values can be viewed on the ladder monitor.

Simple Setup and Rich Variety of Monitoring Functions

Provides more effective engineering for motion control.

● Axis Setup Wizard

You can easily make settings for the servo axes following the interactive guide.

▲ Axis Setup Wizard

● Easy Adjust Servo

A PC no longer has to be connected to each servo drive. All servo drives connected to the controller on the MECHATROLINK network can be adjusted on one PC running SigmaWin+, a tool specially designed to adjust servo systems.
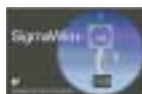
▲ Servo System Adjustment Tool

● Trace Motions & Monitor Axis Status

Monitoring functions include various enhanced tracing functions to view the motion control status and a list of all connected servo drives to view their status in one glance.
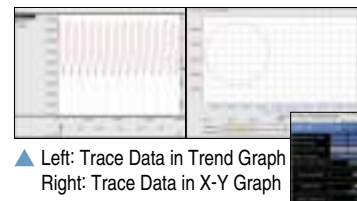
▲ Left: Trace Data in Trend Graph
  Right: Trace Data in X-Y Graph

▲ Axis Monitor

Program Management and Database for Efficient Program Design

● Hierarchy Programming

Ladder programs are organized in three hierarchical levels. The programs are grouped according to the type of process for easy identification of the structure. There are three types of program processes: start, high-speed scan, and low-speed scan. Programs can be duplicated by copying and pasting between different project files (MPE720 version 6 work files) for efficient and standardized programming.
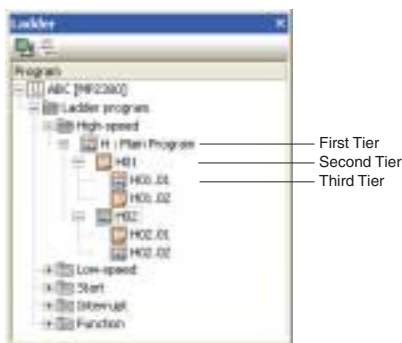
First Tier
Second Tier
Third Tier

● Variable Database

Each register (address + comment) is given with a variable name and identified by name in programs. Two types of variables are used: system setting variables prepared with MPE720 version 6 and user setting variables freely set by the user.
All variables are consolidated in the variable database of the MPE720 version 6 so that they can be shared between different project files.
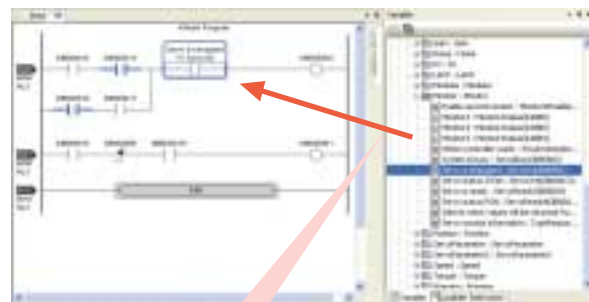
Drag and drop a variable onto the object.

Features / High Operability

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Provides support for equipment and machinery in large systems
MP2500, MP2500M, MP2500B, MP2500MB

PC

FULL ALL IN ONE

PLC sequence programs

Controller

PLC motion control

The MP2500 machine controller integrates HMI with functions for motion control and sequence control for improved performance and greater flexibility when constructing your system. A controller with a separate panel is also available. All models include touch panel displays as a standard feature, so functions for everything from setup to maintenance are convenient and easy to use.

	Panel-integrated type (MP2500)		Panel-separated type (MP2500B)	
Features	● Faster processing: 2.8 times faster than conventional models ● More available user memory: 2 times more than conventional models		● Max distance between panel and controller is 10 m. ● With one slot for optional modules	
Panel Size	15 inches	12.1 inches	12.1 inches	10.4 inches
Resolution	XGA (1024×768)	SVGA (800×600)		
CPU*	Celeron M, 1.86 GHz		AMD Geode LX800, 500 MHz	
Memory*	512 Mbytes			
Disk	CF card: 2 Gbytes, Free space: approx. 700 Mbytes			
PCI Slot for Expansion	1 slot		None	
OS*	WindowsXP Embedded			
LAN*	10BASE-T/100BASE-TX×1ch 100BASE-TX/1000BASE-T×1ch		10BASE-T/100BASE-TX×1ch	
USB*	USB 2.0, 1 port on the front and 4 ports on the side		USB 2.0, 4 ports on the controller	
Motion Network	MP2500 : 1 channel for MECHATROLINK-Ⅱ MP2500M: 2 channels for MECHATROLINK-Ⅱ		MP2500B : 1 channel for MECHATROLINK-Ⅱ MP2500MB: 2 channels for MECHATROLINK-Ⅱ	
Max No. of Controlled Axes	MP2500: 16 axes, MP2500M: 32 axes		MP2500B: 16 axes, MP2500MB: 32 axes	

＊: For panel computers only

Optimized All-in-One System!

Allows you to use a wide variety of MP2000 optional modules and open networks.
With many options available, the optimal control system can be constructed for your equipment.

Supports various open networks.

· Ethernet · DeviceNet · PROFIBUS
· CC-Link (as a slave station) · EtherNet/IP
· FL-net · Serial interface, etc.

MP2500ME

Expansion rack※

Extensive lineup of optional modules in the MP2000 series

MP2500B-OP/MP2500MB-OP

One slot for an optional module※

※ : An expansion rack enables use of 3 to 24 optional modules.

※ : By mounting an EXIOIF module, an expansion rack can be connected to the MP2500B-OP or the MP2500MB-OP in the same configuration as for the MP2500ME.

The panel can be used up to 10 m away from the controller.

Optimum I/O modules can be selected for your system.

· Digital I/O · Analog I/O
· Pulse I/O, etc.

For a Distinctive and Unique HMI!

Create your own HMI without the need for complicated programming with MotionScreen, a tool that enables you design your own screens with icons for a wide variety of components.
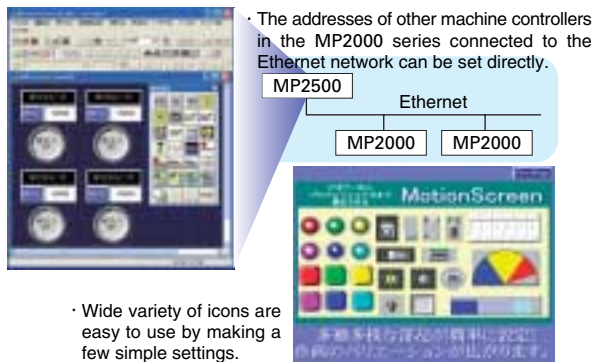
· The addresses of other machine controllers in the MP2000 series connected to the Ethernet network can be set directly.

MP2500

Ethernet

MP2000   MP2000

· Wide variety of icons are easy to use by making a few simple settings.

Note : Menus and displays shown here are examples only. For more information, please contact your Yaskawa representative.

Simplify Engineering Tasks!

The MP2500's standard features include practical design utilities such as startup support and an OS protection tool. Anyone can use the user-friendly operating system without special training or expert knowledge.
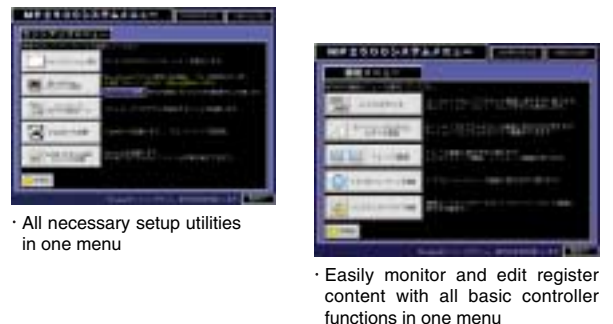
· All necessary setup utilities in one menu

· Easily monitor and edit register content with all basic controller functions in one menu

Note : Menus and displays shown here are examples only. For more information, please contact your Yaskawa representative.

Greater Debugging Efficiency!

The MP2500 controller has a programming port for a PC running MPE720 that can be used to efficiently develop and debug application programs. High-speed, high-precision motion control can be realized with MECHATROLINK.

HMI

USB port on the front

USB link cable

Controller & servo engineering
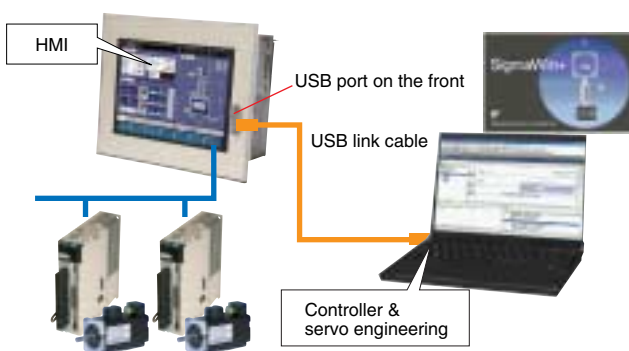
Coordinate Software with MP-Scope!

Simply set the properties of an object and call the method without worrying about protocol for applications written in an object-oriented language such as Visual Basic or Visual C for Windows. Use MP-Scope for easy coordination between the controller and your software to greatly save time when developing control system.

Make the settings for communications.

Paste the MP-Scope object and set the properties.

Then write script for data coordination of the controller.

Features / MP2500, MP2500M, MP2500B, MP2500MB

11
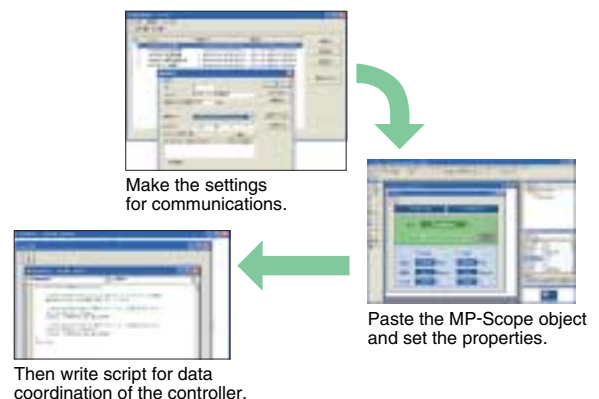
Flexible and Adaptable
MP2200, MP2300, MP2310

Various types of systems, such as analog or networked systems, can be constructed by combining optional modules.
The distributed installation of I/O, the use of a variety of motors drives, and communication to other brands of controllers are possible.

Custom-made Machine Controllers

MP2200 Machine Controller

The MP2200 can be greatly expanded. 9 optional modules can be mounted in one rack and 4 racks can be connected. The CPU modules (CPU-01/CPU-02) for the MP2200 can be used to realize a high-speed, motion-control cycle of 0.5 ms and control of 256 axes.

CPU module (CPU-01/02)

EXIOIF cable

EXIOIF cable

EXIOIF✻ cable

Optional modules

Connection module between racks (EXIOIF)
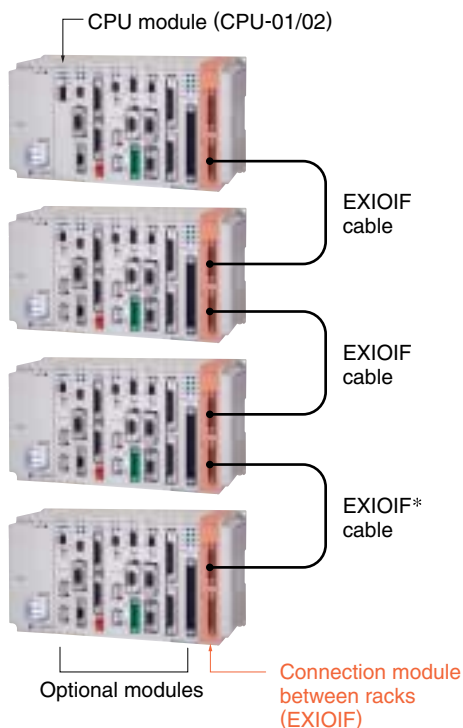
✻: Use an EXIOIF cable that is 6.0 m long or shorter.

Configuration with Max. Number of Racks

MP2200 Base Units

Name	Model	Description
MBU-01	JEPMC-BU2200	85 VAC to 276 VAC
MBU-02	JEPMC-BU2210	24 VDC ± 20%
MBU-03	JEPMC-BU2220-E	24 VDC ± 20%

Note: Attach a cover (sold separately; model: JEPMC-OP2300) to each empty slot.

CPU (indispensable)

EXIOIF

Modules for MP2200

Name	Model	Description
CPU-01	JAPMC-CP2200	· CPU module · Memory: 7.5 Mbytes
CPU-02	JAPMC-CP2210	· CPU module · CompactFlash card slot × 1 · USB port × 1 · Memory: 11.5 Mbytes
CPU-03	JAPMC-CP2220-E	· CPU module · CompactFlash card slot × 1 · Ethernet (100BASE-TX) · Memory: 11.5 Mbytes
CPU-04	JAPMC-CP2230-E	· CPU module · Ethernet (100BASE-TX) · Memory: 11.5 Mbytes
MPU-01	JAPMC-CP2700-E	· Motion Control CPU module · Memory: 11.5 Mbytes · Built-in SVC port for 16-axis control
EXIOIF	JAPMC-EX2200	· For connecting racks (Max. 4 racks)
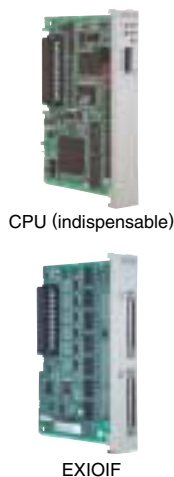
MP2300 and MP2310 Machine Controller

The MP2300 is an all-in-one machine controller. It has three slots for other modules and a basic module whose standard functions include those of a CPU module, an SVB module, and an I/O module. The CPU can be used to control 48 axes (when two SVB-01 modules are mounted).

The MP2310 is an all-in-one machine controller. It has three slots for other modules and a basic module whose standard functions include those of a CPU module, an SVB module, and Ethernet communication module. The CPU can be used to control 64 axes (when three SVB-01 modules are mounted). Modules used for the MP2200 machine controller can be mounted in three optional slots of the MP2310 machine controller.

MP2300, MP2310 Basic Modules

Name	Model	Description
MP2300	JEPMC-MP2300	· 24 VDC ± 20% · MECHATROLINK-II × 1 channel · Input: 8 points, Output: 4 points
MP2310	JEPMC-MP2310-E	· 24 VDC ± 20% · MECHATROLINK-II × 1 channel · Ethernet

Note: Attach a cover (sold separately; model: JEPMC-OP2300) to each empty slot.

MP2300

MP2310

Wide Selection of Modules (For MP2200, MP2300, MP2310)

● Motion Control Modules

Connects to the SERVOPACK for motion control. Various MECHATROLINK slaves can be connected to the SVB-01 module.

Name	Model	Description	＊
SVB-01	JAPMC -MC2310	MECHATROLINK-Ⅱ×1 channel	
SVC-01	JAPMC -MC2320-E	MECHATROLINK-Ⅲ×1 channel	16
SVA-01	JAPMC -MC2300	Analog-output 2-axis servo control	
PO-01	JAPMC -PL2310-E	Pulse-output 4-axis servo control	

＊: Maximum number of modules that one CPU can control.

● I/O Modules

Provides digital or analog I/O interface.

Name	Model	Description
LIO-01	JAPMC -IO2300	Digital input: 16 points (sink output mode) Digital output: 16 points (sink output mode) Pulse input: 1 point
LIO-02	JAPMC -IO2301	Digital input: 16 points (source output mode) Digital output: 16 points (source output mode) Pulse input: 1 point
LIO-04	JAPMC -IO2303	Digital input: 32 points Digital output: 32 points (sink output mode)
LIO-05	JAPMC -IO2304	Digital input: 32 points Digital output: 32 points (source output mode)
LIO-06	JAPMC -IO2305-E	Digital input: 8 points Digital output: 8 points (sink output mode) Analog input: 1 channel Analog output: 1 channel Pulse counter: 1 channel
DO-01	JAPMC -DO2300	Digital output: 64 points (sink output mode)
AI-01	JAPMC -AN2300	Analog input: 8 channels
AO-01	JAPMC -AN2310-E	Analog outnput: 4 channels
CNTR-01	JAPMC -PL2300-E	Pulse-input counter

＊: One CPU can control unlimited number of modules.

● Communication Modules

Used to construct an open network. Modules with various types of interfaces are available.

Name	Model	Description	＊
218IF-01	JAPMC -CM2300	Ethernet (10BASE-T) port × 1 RS-232C port × 1	
218IF-02	JAPMC -CM2302 -E	Ethernet (100BASE-TX) port × 1 RS-232C port × 1	
217IF-01	JAPMC -CM2310	RS-232C port × 1 RS-422/485 port × 1	
260IF-01	JAPMC -CM2320	DeviceNet port × 1 RS-232C port × 1	
261IF-01	JAPMC -CM2330	PROFIBUS port × 1 RS-232C port × 1	8
262IF-01	JAPMC -CM2303 -E	FL-net (100BASE-TX) port × 1 (10BASE-TX) port × 1	
263IF-01 EtherNet/IP	JAPMC -CM2304 -E	Ethernet (100BASE-TX) port × 1	
264IF-01 EtherCAT	JAPMC -CM2305 -E	Ethernet (100BASE-TX) port × 1	
215AIF-01 MPLINK	JAPMC -CM2360	MPLINK communication/ RS-232C	
215AIF-01 CP-215	JAPMC -CM2361	CP-215 communication/ RS-232C	

＊: Maximum number of modules that one CPU can control.
Note: For RS-232C communications, 16 ports can be used.

Network Configuration for MP2200, MP2300, MP2310

Access all controllers in the MP series from the Engineering PC connected to Ethernet and running MPE720.

● Ethernet :
Ethernet is a high-level technology used in open networks linking production sites and businesses, and it supports diverse protocols. Communication middleware makes connecting with PCs easy.

● MPLINK :
MPLINK is the high-speed network linking machine controllers in the MP2000 series for speedy real-time exchange of large volumes of data. [Max. transmission speed: 10 Mbps, Max. 1024 words per station, Max. number of connecting stations: 15 (30 stations with a repeater)]

● MECHATROLINK-Ⅰ/Ⅱ :
The open motion networks, MECHATROLINK-Ⅰand -Ⅱ, enable sophisticated control of complex motions. Numerous vender products are available from MECHATROLINK members. [Max. transmission speed: 10 Mbps, Max. number of connecting stations: 21 (including distributed I/O)]

Server PC

Engineering PC MPE720

Ethernet

MP2300/MP2310

MP2500ME/ MP2500(M)B-OP

MECHATROLINK-Ⅱ 10 Mbps

MECHATROLINK-Ⅱ 10 Mbps

Expansion Rack

MPLINK 10 Mbps

MP2200

MP2300/MP2310

MECHATROLINK-Ⅱ 10 Mbps

MECHATROLINK-Ⅱ 10 Mbps
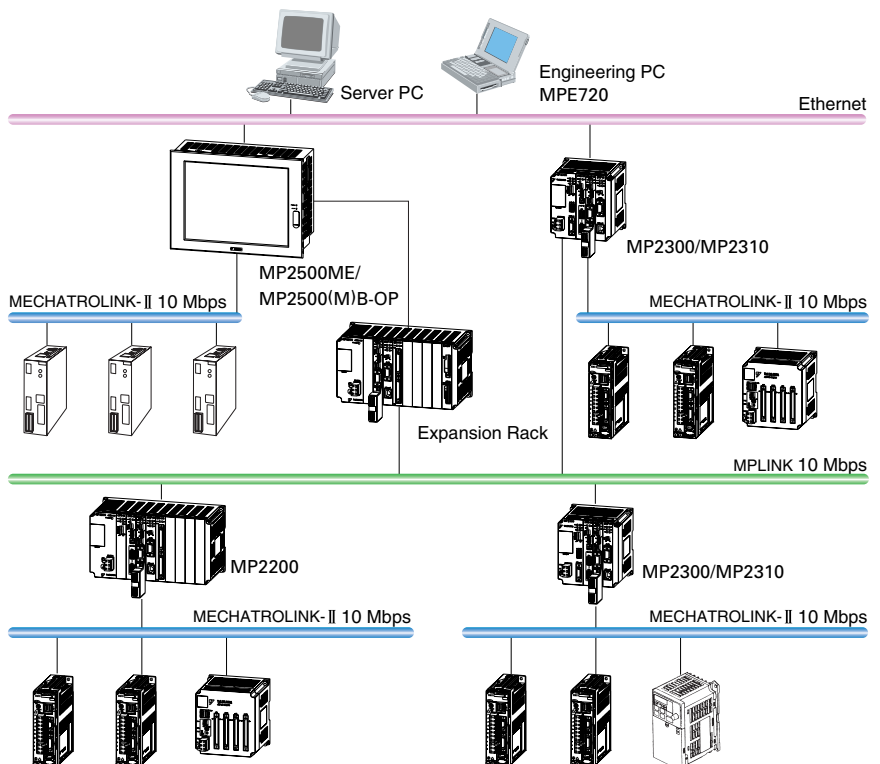
Smaller than the MP2300
MP2300S

The MP2300S is a small, all-in-one machine controller with MECHATROLINK and Ethernet (100BASE-TX) ports, one basic module, and one optional slot.

Simplified Operation for Quicker Startup

Simply register the prepared motion programs in their order of execution. And, these programs will be executed in their registered order without the need to call up programs from the host PLC. By registering several motion programs, sophisticated motions are possible.

Other Machine Controllers in the MP2000 Series

| Wiring & Self-configuration | Group Definition | Programming (Motion programs) | Ladder programming (Call motion programs) | Ladder programming (Communications) | Execution of motion programs |

MP2300S

| Wiring & Self-configuration | Programming (Motion programs) | Execution of motion programs |

Simplified

Engineering Tool MPE720 Version 6

Synchronization of Distributed Systems with MECHATROLINK

● Slave-CPU synchronization is a new function that has been added to MECHATROLINK. By connecting slave machine controllers to the master MP2000-series machine controller with MECHATROLINK, synchronous operation between slave controllers is possible. In this way, the total load can be divided, so the load of each slave controller is reduced and high-speed synchronous operation for multi-axis motions can be performed.

Supports All MP2300 Functions

· Motion functions : Positioning, speed control, torque control, phase control, and electronic cam
· Optional modules : Same as for other MP2000-series machine controllers
· Servo system : JUNMA, Σ-II /Σ-III , Σ-V, Linear Σ, and Direct-drive Σ series

With Ethernet Port (100 Mbps)

· High-speed communications with the touch panel (automatic message receiving)
· Communications with the host PLC without ladder programs (I/O message communications)
· High-speed communications with the MPE720 engineering tool

Applicable for Open Networks [1]

● By mounting an optional module[2], you can connect your system to a variety of open networks. This enables high-performance motion control with a PLC system.

[1] : Ethernet, CC-Link, DeviceNet, PROFIBUS, and FL-net
[2] : If using Ethernet to connect an MP2300S to the host PLC, no optional module is required.
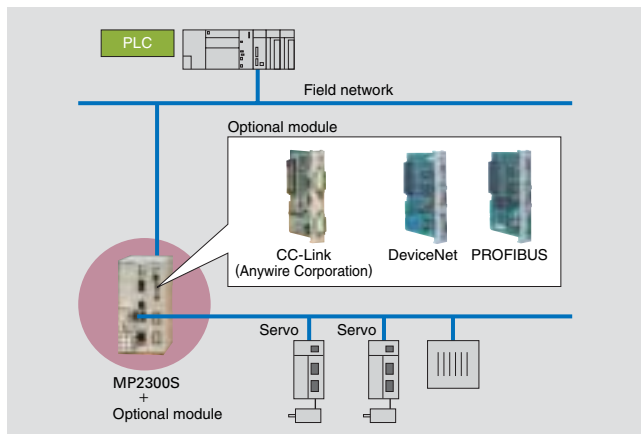
Compact & Easy to Program
MP2400

With MECHATROLINK-Ⅱ and Ethernet (100 Mbps) ports, the MP2400 machine controller unit is compact and easy to program.

Simplified Operation for Quicker Startup

Simply register the prepared motion programs in their order of execution. And, these programs will be executed in their registered order without the need to call up programs from the host PLC. By registering several motion programs, sophisticated motions are possible.

Other Machine Controllers in the MP2000 Series

| Wiring & Self-configuration | → | Group Definition | → | Programming (Motion programs) | → | Ladder programming (Call motion programs) | → | Ladder programming (Communications) | → | Execution of motion programs |

MP2400

| Wiring & Self-configuration | → | Programming (Motion programs) | → | Execution of motion programs |

Simplified
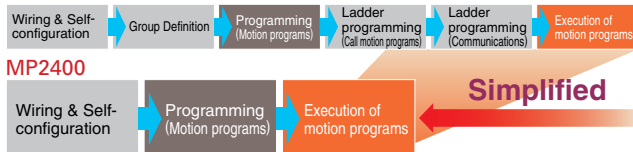
Engineering Tool MPE720 Version 6 Lite

Easy Setup

As one of the features of the machine controllers in the MP2000 series, the MP2000s with the Self-configuration function automatically recognize the configurations of the devices connected to the MECHATROLINK-Ⅱ network and set the required definitions.
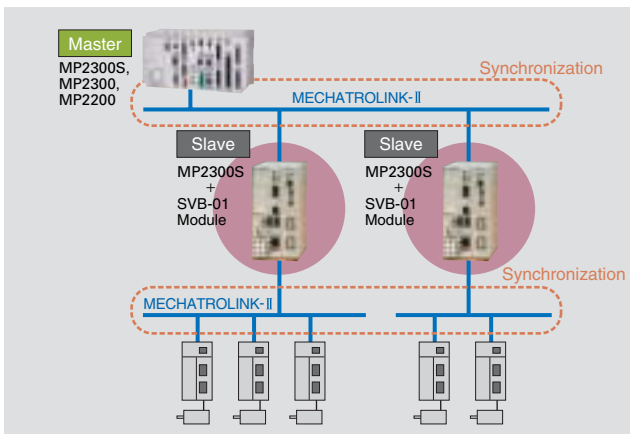
With Ethernet Port (100 Mbps)

· High-speed communications with the touch panel (automatic message receiving)
· Communications with the host PLC without ladder programs (I/O message communications)
· High-speed communications with the MPE720 engineering tool

Free Downloading of Engineering Tool MPE720

The MPE720 engineering tool Ver.6 Lite for the MP2400 machine controllers available for free. Download it from Yaskawa's Product and Technical Information on Yaskawa's website at http://www.e-mechatronics.com.

Industry's Smallest Machine Controller

The MP2400 can easily control 16 axes. A stand-alone system that requires less space and less wiring can be constructed by simply connecting the servo units and the touch panel to the ports for the MECHATROLINK-Ⅱ and Ethernet (100 Mbps).

Touch panel

Ethernet

PLC

MP2400

MECHATROLINK-Ⅱ

Σ-Ⅲ / Σ-Ⅱ   Σ-Stick   JUNMA

MECHATROLINK

Third-party I/O products

· Distributed bit I/O terminal (made by Anywire Corporation)
· Inline bus coupler (made by Phoenix Contact GmbH & Co. KG)

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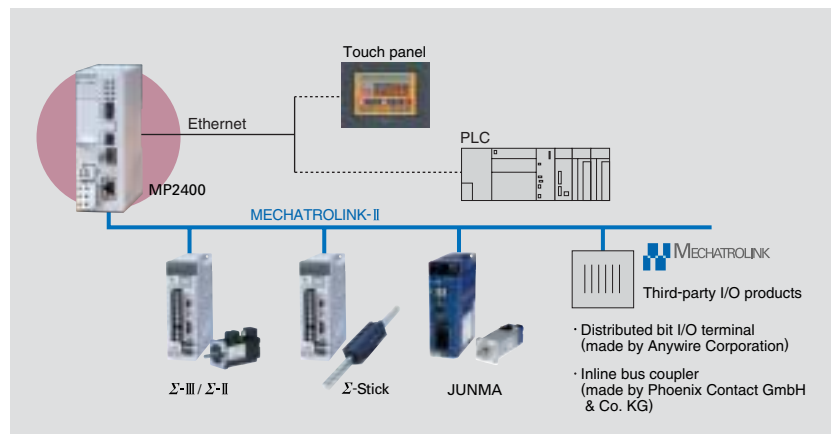
Works in Harmony with Personal Computer
MP2100, MP2100M

Simply install a board that is half the size of a standard PCI on your personal computer, and your computer can be used for servo-drive control. With 51 Application Program Interfaces (APIs) available, you can create a wide variety of motion programs and enter motion commands.

Motion API for Easy Programming of Motion Control

Motion commands can be entered from either your personal computer or the MP2100 depending on your machine's characteristics. The MP2100M has the same specifications as the MP2100 except that it contains a board that has functions similar to the SVB-01 module. Because of this additional board, the MP2100M is capable of carrying out synchronous control on up to 32 axes.
The programming method of the MP2100M is the same as that of the MP2100.

Name	Model
MP2100	JAPMC-MC2100-E
MP2100M	JAPMC-MC2140-E
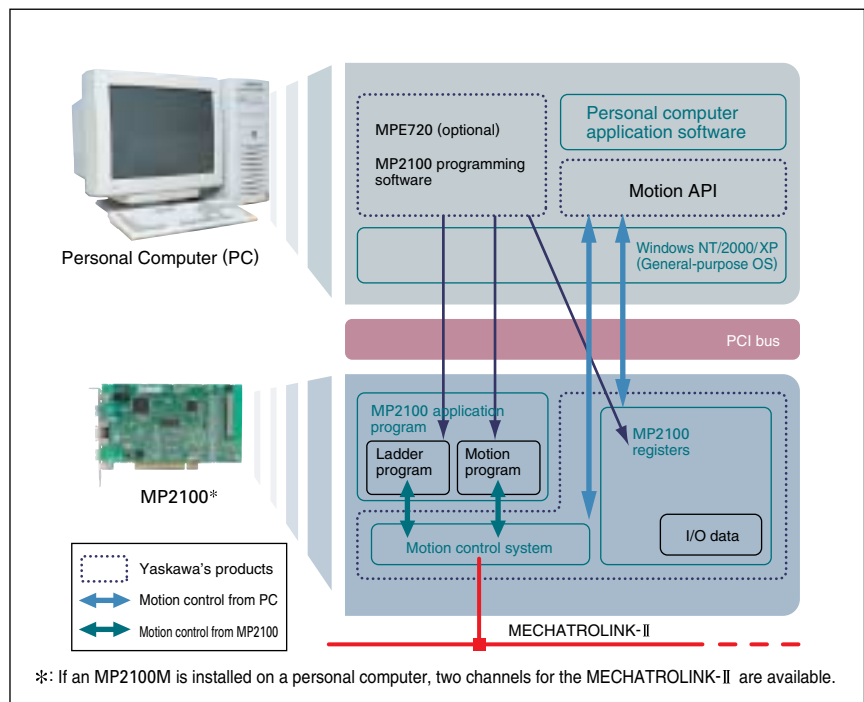
Main Motion APIs

Motion related API
- Device related: Servo ON/OFF
- Positioning: JOG feed, origin return, positioning, external positioning, and specified time positioning
- Interpolation: Linear interpolation, circular interpolation, and helical interpolation
- Torque reference
- Gear function
- Latch function
- Motion operation: Modification of motion data and parameters

System API
- Register operation: I/O operation
- Alarm: Information acquisition and alarm clearing
- System operation: Opening: closing, and switching of object controller
- Operation calendar

Personal Computer (PC)

MPE720 (optional)
MP2100 programming software

Personal computer application software

Motion API

Windows NT/2000/XP (General-purpose OS)

PCI bus

MP2100※

MP2100 application program

Ladder program | Motion program

MP2100 registers

Motion control system

I/O data

MECHATROLINK-II

⬚ Yaskawa's products
⟷ Motion control from PC
⟷ Motion control from MP2100

※: If an MP2100M is installed on a personal computer, two channels for the MECHATROLINK-II are available.

Motion programs are written in Microsoft software such as visual C※. A wide variety of motions can be realized with the 51 motion APIs.

Note: Not applicable for applications using an electronic shaft and cam.

※: Visual C/C++ Ver.6.0
Visual Basic Ver.6.0
Visual C++.NET
Visual Basic.NET

- Applications
Semiconductor equipment, bonders, inspecting units, parts assembling machines, and other similar applications.

Motion API Window

24 Modules in 3 Racks with the MP2100MEX on the MP2100M

The MP2100MEX is an I/F board that enables you to expand the number of racks for the MP2100M. Installing a MP2100M module with an MP2100MEX board attached, allows you to connect your PC to up to 3 racks of MP2200 base units, which can contain an additional 24 modules.

✻: See page 29 for the specifications of the MP2200 base unit and page 31 for those of the EXIOIF module.

MP2100M + MP2100MEX

MP2200 base unit✻1
(3 racks possible)

EXIOIF cable

EXIOIF cable

EXIOIF✻2 cable
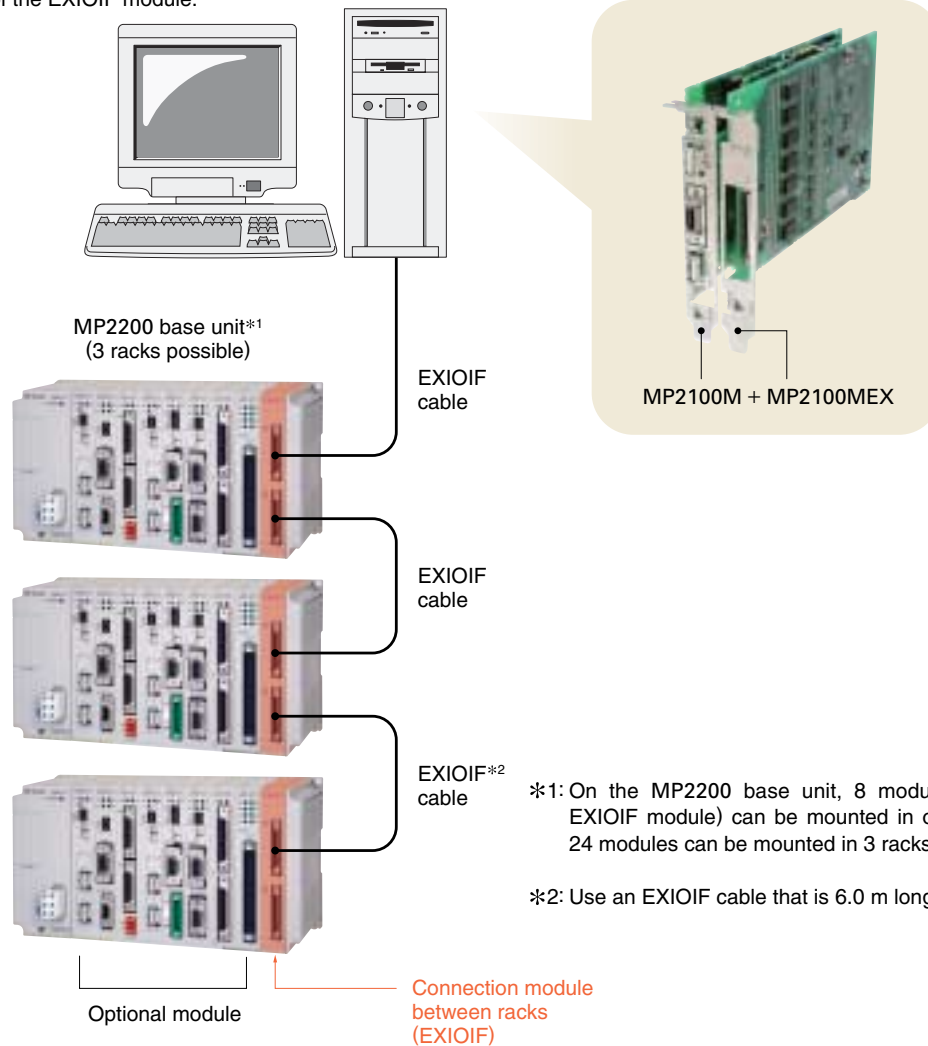
✻1: On the MP2200 base unit, 8 modules (excluding the EXIOIF module) can be mounted in one rack. A total of 24 modules can be mounted in 3 racks.

✻2: Use an EXIOIF cable that is 6.0 m long or shorter.

Optional module

Connection module between racks (EXIOIF)

Other Modules / Terminals : Not Available from Yaskawa

Modules from the listed manufacturers can be directly installed and used with the MP2200, the MP2300, the MP2310, and the MP2300S. A wire-saving bus can be formed with the bit-type distributed I/O terminal connected to the MECHATROLINK-cable connector of a machine controller in the MP2000 series.

●AnyWire DB Master Module [Made by Anywire Corporation]

The AnyWire DB Master module allows a direct connection between the MP2200/MP2300/MP2310 /MP2300S controller and the AnyWire system. Because the AnyWire DB Master module has upper compatibility with the UNI-WIRE system, new ways to construct a system are possible.

Model: AFMP-01

Features

1 The AnyWire system reduces the wiring, time, space, and costs, because you can use general-purpose cables instead of the costly cables.
2 The Dual-Bus system realizes high-efficiency, high-speed transmissions and allows analog transmission (128W) to be connected without disturbing the digital transmission (512 I/O points).
3 Recommended for the drive section, which requires reduced wiring, because general-purpose robot cables, cableveyor devices, slip rings, etc. can be used.

System Configuration: Full Triple Mode Transmission
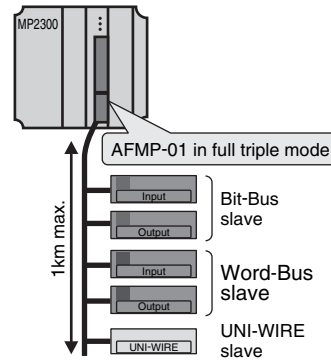
Note: For more details on the AFMP-01 module, contact the Anywire Corporation or visit its web site, http://www.anywire.jp.

●CC-Link Interface Module [Made by Anywire Corporation]

Slave interface module for connecting the MP2200/ MP2300/MP2310/MP2300S to the host CC-Link. Two models are available: the AFMP-02-CA with an AnyWire DB port for reduced wiring and the AFMP-02-C without an Anywire DB port.
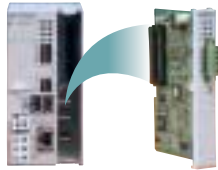
Model: AFMP-02-CA

Features

1 A single CC-Link master station, a PLC from the Q series by Mitsubishi Electric Corporation, can be connected to 16 MP2200, MP2300, MP2310, and MP2300S machine controllers with the CC-Link.
2 The setup time can be greatly reduced by the self-configuration function of the MP2200, MP2300, MP2310, or MP2300S.
3 Anywire port for reduced wiring saves costs and space.

Note: For more details on the AFMP-02-CA module, contact the Anywire Corporation or visit its web site, http://www.anywire.jp.

System Configurations

If a Q-series PLC made by Mitsubishi Electric Corporation is connected to a Machine Controller through CC-Link, only one CC-link master allows you to connect to 16 controllers including MP2200, MP2300, MP2310, and MP2300S Machine Controllers.
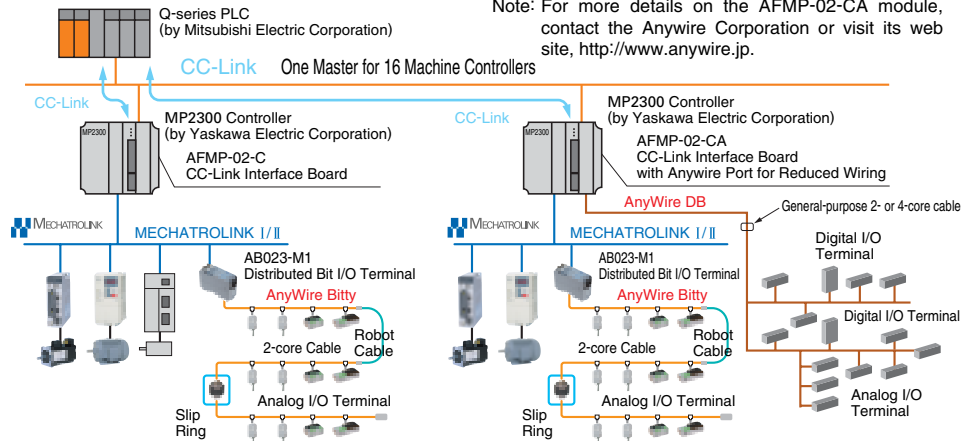
●A-net/A-Link Master Unit Module [Made by Algo System Co., Ltd.]

This A-net/A-Link master unit module can be directly connected to the MP2200, the MP2300, the MP2310, and the MP2300S. The resulting system construction uses less wiring and conforms to SEMI E54.17.

A-net
Max. number of slaves: 64

A-Link
Max. number of slaves: 63

Model: MPANL00-0

Features

1 Two H8S units by Renesas Technology Corp. can be added.
2 Max. 4032 points can be scanned in 0.95 ms (at 12 Mbps).
   Note: Using two A-Link systems (2016 points/system, 0.95 ms at 12 Mbps).
3 Shared memory of 512 Bytes (response speed: 2.36 ms) with A-net.
4 Self-diagnostic function.
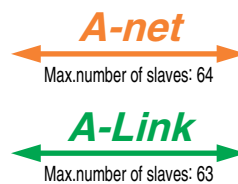
Note: For more details on the MPANL00-0 master unit module, contact the Algo System Co., Ltd. or visit its web site, http://www.algosystem.co.jp.

Related Products

●MYVIS YV260 Network Machine Vision System [Made by Yaskawa Electric Corporation]

[Example of System Configuration]

In this example, the MYVIS YV260 is connected to the open motion network MECHATROLINK. With MECHATROLINK communications, the MYVIS can receive data on the current position of the motor's axes in succession. Using this data, the necessary adjustments are determined for high-accuracy calibration of the machine coordinate system.

Simultaneous capture of images from two cameras increases the processing speed.

Camera 1   Camera 2

Monitor

MP2500 machine controller

Detects two alignment marks. Obtains the amounts to be adjusted in the machine coordinate system, and then correct the positions accordingly.

MYVIS YV260

Stage coordinate data
Position correction data

MECHATROLINK-Ⅱ

SGDV

Connected to other devices such as I/O devices, stepping motors, and inverters.

Item		For Analog Cameras	For Camera Link
Model		JEVSA-YV260□1-E	JEVSA-YV260□2-E
Image Processing		Gray scale pattern matching, binary image analysis etc.	
Memory	Application Program	512 Kbytes (flash memory)	
	Backup Memory	256 Kbytes CMOS (for saving parameters)	
	Template Storage Memory	CF cards (2 Gbytes max.)	
	Image Memory-Frame Memory	4096×4096×8 bits×4 images (Can be used for 640×480×8 bits×192 images)	
	Image Memory-Template Memory	16 Mbytes	
Image Input	Camera Interface	New EIAJ 12-pin connector×4 EIA (640×480) to (1400×1050) Four B&W, 8-bit A/D-converter circuits	Camera Link (MDR26pin)×4 VGA (640×480) to QSXGA (2440×2048), Base Configuration, PoCL-compatible
	Camera Power Supply	Single camera: 12 V, 400 mA, Total: 1.2 A	
	Camera Sync Mode	Internal/external sync	Internal sync
	Random Shutter Supported	Sync-nonreset, sync-reset, single VD or V reset	
	Simultaneous Image Capture	Four cameras	
	Input Image Conversion	Gray level conversion (LUT), mirror mode	
Monitor	Monitor Output	VGA，XGA (color), 15-pin D-sub	
	Image Display	A full-screen or a partial-screen for one camera, simultaneous screen reduction for two or four cameras, gray level conversion (binary image display supported)	
I/F	Field Network	MECHATROLINK-Ⅰ/Ⅱ	
	LAN (Ethernet)	10BASE-T/100BASE-TX	
	General-purpose Serial	RS-232C×2ch (115.2 kbps)	
	Parallel I/O	16 general-purpose outputs (4 of these are also used for stroboscope) +2 outputs exclusive for alarms (24 VDC, photocoupler isolation) 16 general-purpose inputs (4 of these are also used for trigger) +3 inputs exclusive for mode switchings +1 input exclusive for trigger (24 VDC, photocoupler isolation)	
	Track Ball	USB mouse	
Power Supply		100 V/200 VAC, 24 VDC, 30 W	

Other Modules and Terminals/Related Products

Connect an MP2000 machine controller to a display monitor, such as one made by Digital Electronics, to view information about the servo axes or the status of your motion control system without a PC. Visualize your system with MP2000 series machine controllers.

● Programmable Display Unit Pro-face GP3000 Series [Made by Digital Electronics Corporation]

The operations and, status of the controller, servo drives, and inverters can be viewed on the display monitor. The display can also be used for maintenance. You can easily confirm system startup and maintenance status and pinpoint causes when an error occurs with a display onsite instead of computer.

[Features]

1 Touchscreen to easily confirm the status of the MP2000 machine controller
2 Wide variety of windows to monitor all axes and the status of MP2000 machine controller
3 Register list to easily monitor and edit registers
4 Free samples of windows for various functions can be downloaded. No special device is required to set up screens.

Pro-face GP3000 Series
made by Digital Electronics Corporation

MECHATROLINK-Ⅲ
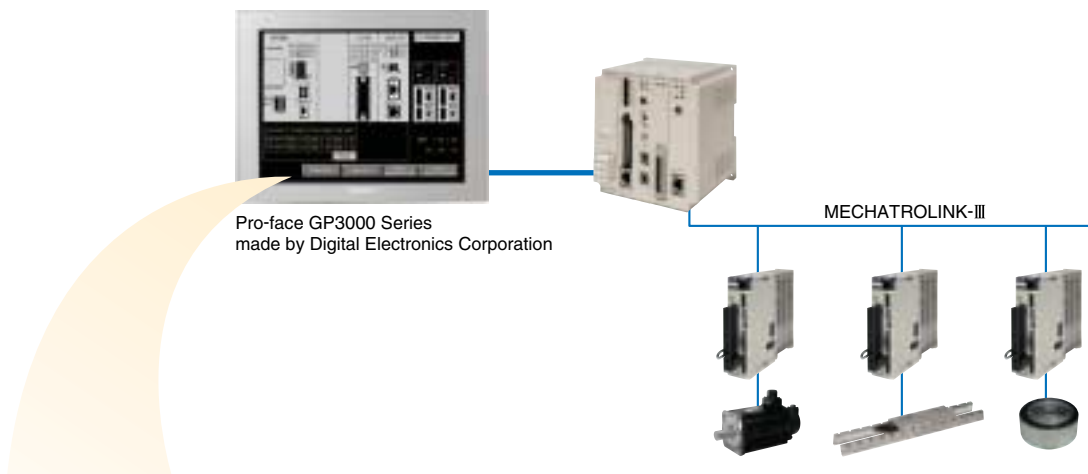
Supports the Visualization Function
for the MP2000 Series Machine Controller

The cockpit parts can be downloaded from the homepage of Digital Electronics Corporation:
http://www.pro-face.com/otasuke/

▲ Main Window
(with Symbolic and Pictorial Parts)

▲ System Error Status

▲ System I/O Error Status

▲ Module Information
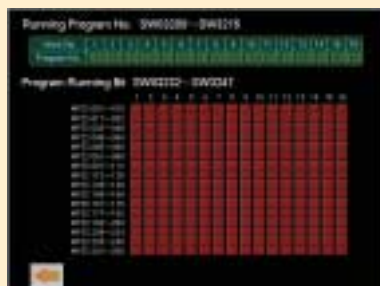
▲ Programs being Executed

▲ Axis Information

Engineering Support Function

By connecting a PC to the USB port on the display monitor of the Pro-face GP3000 series, you can use the engineering tool MPE720 or the servo system adjustment tool SigmaWin+. You can thereby perform motion-control engineering on the touchscreen panel of the display without opening the control panel.

Engineering Tool
MPE720

Servo System Adjustment Tool
SigmaWin+

Touchscreen Panel
of the Display

Control Panel

USB

Ethernet

MECHATROLINK-Ⅲ

Pro-face GP3000 Series
made by
Digital Electronics Corporation
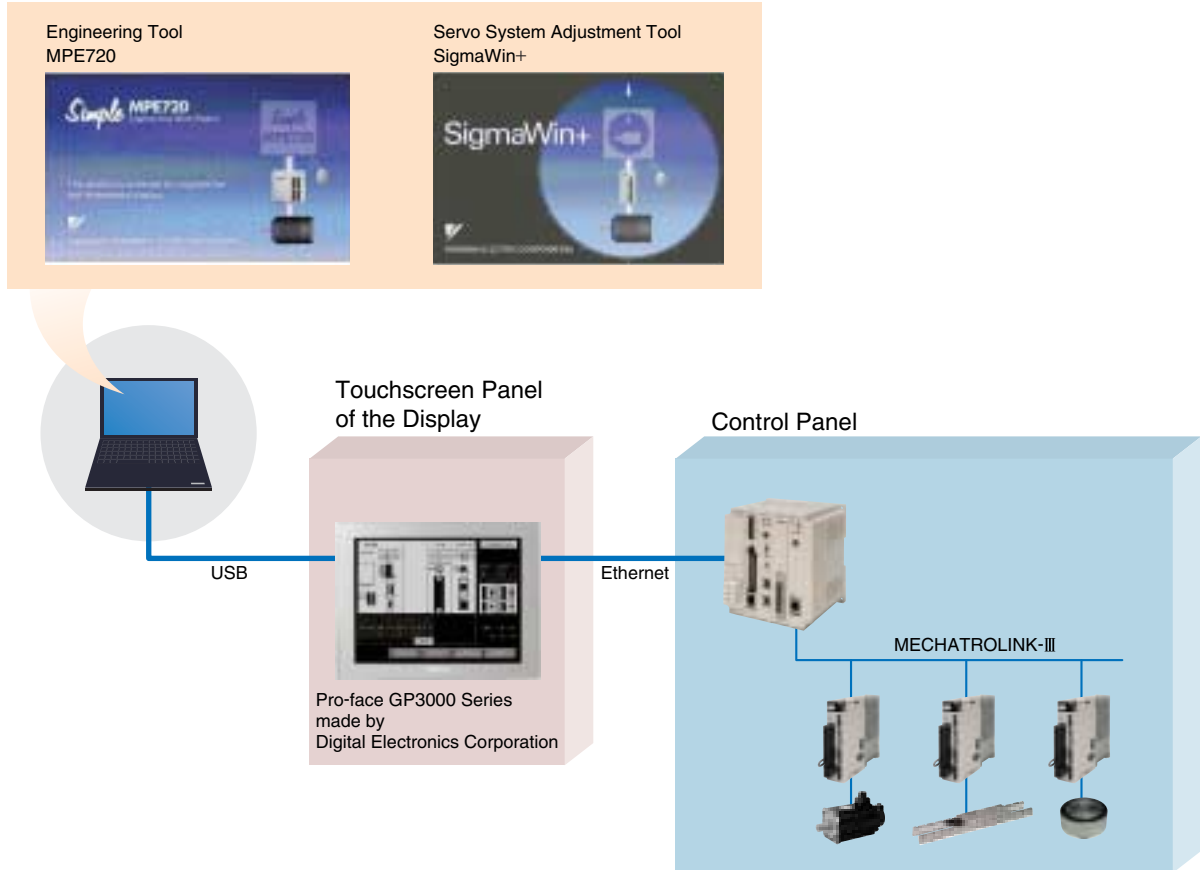
For the MP2000-series Machine Controllers Third-party MECHATROLINK-compliant Devices

Partners of the MECHATROLINK Members' Association manufacture the following MECHATROLINK-compliant devices. These devices can be connected to the MECHATROLINK connector on any MP2000-series machine controller for a bus with reduced wiring.

●Remote I/O R7 Series   Made by M-System Co., Ltd

Connects different networks to one MECHATROLINK network.

- ・The R7 series of I/O modules has a power supply as well as communications section and I/O capability in a compact design. The R7 series is ideal for applications in which remote I/O is required because a small number of signals are scattered.
- ・No location restrictions
- ・Extension modules can be added to a basic module. One R7 module can be used for a variety of I/O signals, including analog I/O and contact I/O.

Master controller

Motion network

DeviceNet

Integrates

Master controller

MECHATROLINK

Motion units   I/O section

Motion units   I/O section
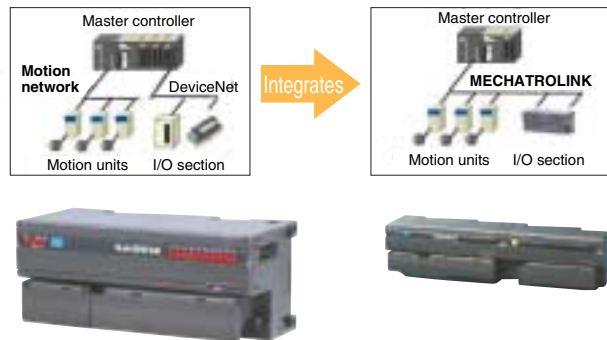
Note: For inquiries on R7 series Compact Remote I/O, contact M-System Co., Ltd.
For more details, visit the M-System website: http://www.m-system.co.jp/

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●MECHATROLINK Bit-type Distributed I/O Terminal

Made by Anywire Corporation

The MECHATROLINK Bit-type distributed I/O terminal contributes to the reduction of wiring required for drive systems that use MECHATROLINK-I/II.
Introduction of this new I/O terminal into a MECHATROLINK open-network system significantly reduces the total costs and increases system reliability, because the MECHATROLINK I/O terminal can be used with any transmission media such as robot cables and slip rings.
The Bitty series of I/O terminals from AnyWire can be connected to increase the flexibility in transmissions by supporting the connection of cables for signals from sensors and actuators in the system. Possible to expand number of I/O points to 432 by connecting I/Os with a bus that reduces the amount of wiring required.

Model: AB023-M1

Note: For more details on AFMP-01 module and AB023-M1I/O terminal, contact Anywire Corporation or visit its web site, http://www.anywire.jp.

MP2200/2300/2310 (Yaskawa)

MECHATROLINK

MECHATROLINK Bit-type Distributed I/O Terminal

Servo Drives

Tree, Star, or Multi-drop Connection with Cables

24 VDC Power Supply

Bus

1 or 2-point I/O Terminal

4-, 8-, or 16-point I/O Terminal

General-purpose Robot Cable

Slip Ring for Robot Arm

I/O Terminal

Terminator

I/O Terminal

Indicator Lamp

Sensor

Solenoid Valve
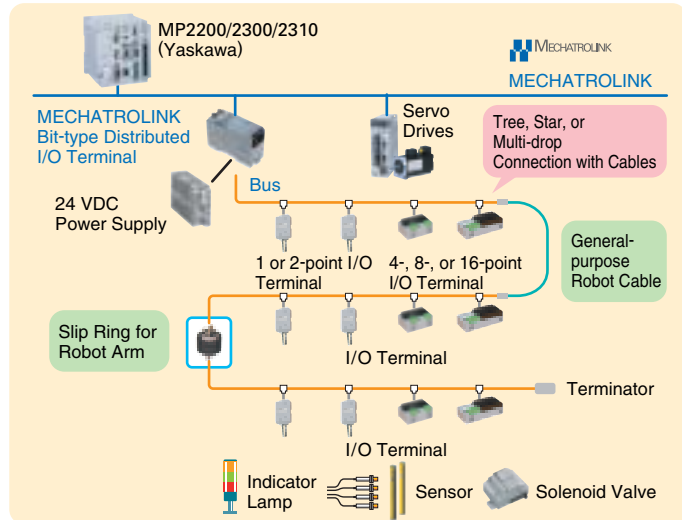
●No out-of-step Stepping Motor and Driver Package

Made by Oriental Motor Co., Ltd.

・ The MECHATROLINK-II compliant α STEP stepping motor and driver in the AS-series uses a unique closed-loop control and eliminates missed steps.
・ The α STEP does not require tuning or hunting to achieve high-response positioning without any missing steps during sudden load changes or acceleration.
・ Only one cable is required to connect the motor to the driver.
・ A wide range of products including various types of geared motor, the EZ Limo motorized sliders, and the DG series of hollow rotary actuators can be connected and controlled with MECHATROLINK-II.

Note: For more information on ASD□□-□ME stepping motors, contact Oriental Motor Co., Ltd. or visit its website at http://www.orientalmotor.com.

Model: ASD□□-□ME

●Controller for Stepping & Servo Motors

Made by Melec Inc.

・ Easy operation by combining I/O bit signals.
・ Specially designed software enables you to make settings or confirm operation status on the personal computer.
・ Individual control of four axes with compact motion controller: 88.5 × 94 × 59 mm (W×D×H)

Model: C-M581S

Note: For more information on C-580-series controllers, contact Melec Inc. or visit its website at http://www.melec-inc.com.

●MECHATROLINK Inline Bus Coupler for Modular I/O Systems

Made by Phoenix Contact GmbH & Co. KG

・ The Inline bus coupler, model IL M II BK DI8 DO4-PAC, has eight digital input terminals and four digital output terminals as a standard feature.
・ The Inline modules for I/O signals can be expanded, and 52 modules can be connected.
・ A wide range of input and output modules are available, including digital input, digital output, analog input, analog output, and temperature control modules.
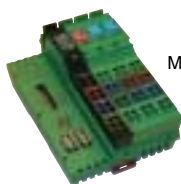
Model: IL M II BK DI8 DO4-PAC

Digital I/O modules

Analog I/O modules

Note: For more information on IL M II BK DI8 DO4-PAC, contact Phoenix Contact GmbH & Co. KG or visit its website at, http://phoenixcontact.com/global/.

●Module-type Digital Temperature Controller

Made by RKC Instrument Inc.

・ Easily construct a multi-channel temperature control system by connecting the MECHATROLINK-compliant communications converter module to the temperature control modules.
・ A single temperature control module can control temperatures of four points or two points. Also, 16 modules can be connected for temperature control of maximum 64 points.
・ Digital I/O modules to output temperature alarms and to switch operation modes by using contact signals can also be connected.

Model: SRZ
Communications converter module COM-MY
Temperature control module Z-TIO
Digital I/O module Z-DIO

Note: For more information on SRZ temperature controllers, contact RKC Instrument Inc. or visit its website at http://www.rkcinst.co.jp.

More about the MP2000 Series

1 Self-configuration Function   Try it!

Input definition settings that are necessary with other controllers are not needed, so the setup time is greatly reduced.

The MP2000 Series Machine Controller automatically recognizes the devices connected to MECHATROLINK-Ⅱ.

- Optional module configuration definitions
- I/O register assignment
- Communication parameter settings (MP2200 and MP2300 only)
- Servo drives (servo parameters and parameters) connected to MECHATROLINK-Ⅱ
- I/O points connected to MECHATROLINK-Ⅱ

For programming

For module configuration definition, I/O assignment, servo parameter settings, and other settings.

MP900 Series

MP2000 Series

Self-configuration function

Setup time **reduced to 10%**
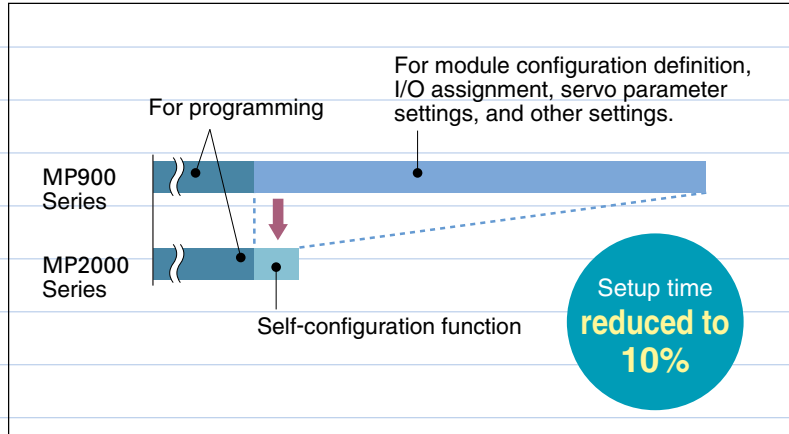
■ Self-configuration with DIP switches

STOP	6
SUP	5
INIT	4
CNFG	3
MON	2
TEST	1

OFF ON
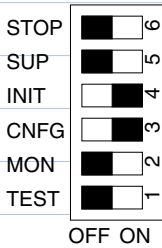
Set the DIP switches, INIT and CNFG, on the basic module or on the CPU module to ON, and then turn on the power supply.

More Information
- Any definitions that have been set with the self-configuration function will not be saved in the Flash ROM. Use the MPE720 to save these definitions in the Flash ROM.

■ Self-configuration with the MPE720
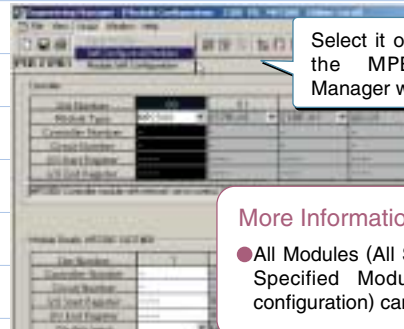
Select it on the order menu in the MPE720 Engineering Manager window.

More Information
- All Modules (All Self-configuration) or Specified Modules (Module Self-configuration) can be selected.

2 Application Converter Function*   Try it!

Existing programs can be easily converted for reuse.

＊: Included in the MPE720 Engineering Tool version 5.

The ladder and motion program registers used in the MP900 Series can be converted for use in the MP2000 Series.

Notes: 1 For some registers and parameters, options must be selected before converting.
2 When using applications for the MP900 series with MPE720 version 6, compress the converted file into a MAL file.

MPE720 Version 5

Application Converter Function

MPE720 Version 5

Ladder program

Application conversion A

Ladder program

MP920

Ladder program by Ladder Works

Application conversion B

Ladder program by Ladder Works

MP2200

Motion program, etc.

Application conversion C

Motion program, etc.
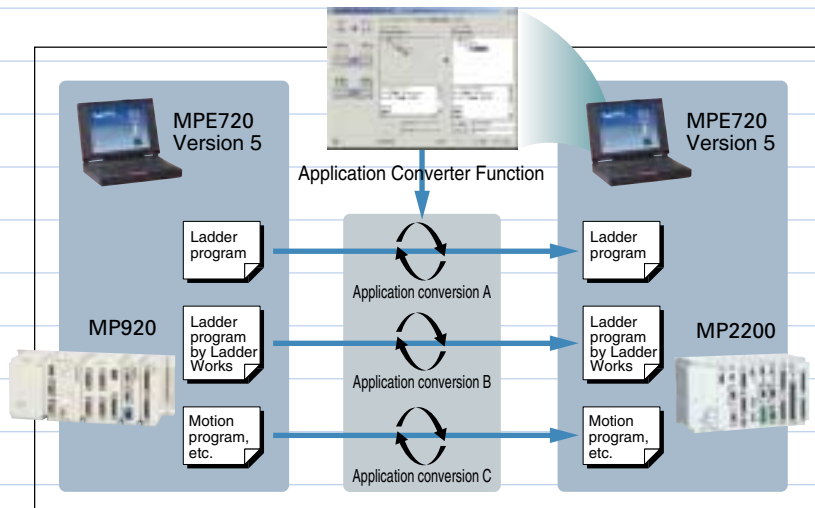
Support Tools (Optional)

For Monitoring and Managing Controller Information
MPLOGGER

By installing MPLOGGER in your PC, you can
· Monitor the machine-controller data on an Excel sheet and
· Save the machine-controller data at regular cycles in an mdb✻ database format in your PC.
By enabling you to monitor data and make settings on a PC, MPLOGGER provides great back-up support for the operator and administrator.
✻: Microsoft Access database

MPLOGGER, simplified data logger software package for machine controllers

Main Functions

● Simplified HMI Function

Has a simplified HMI function for monitoring the controller data by using the data as it is updated in the cells in an Excel sheet.

● Table Format Display/Historical Trend Graph Display

By using Excel functions and simple SQL commands, the data stored in .mbd files can be displayed in tables or historical trend graphs.

● Monitoring Function

Simply set the controller's address in a cell in an Excel sheet to view and set the controller's data.

Configuration Example

PC running Windows (MPLOGGER installed)

Ethernet

MEMOBUS (serial communications)

MPE720 can be installed in the same PC

MP2300

MP2200
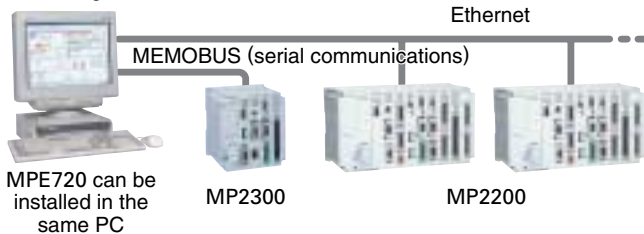
Applicable for Yaskawa's MP series of machine controllers. Applicable for MEMOBUS and Ethernet communications.

For Loading Application Program
MPLoader

MPLoader is a data transfer tool that can be used to easily update the application program of machine controllers in the MP2000 series without using the MPE720.
Functions such as system configuration definition, programming, and monitoring are not provided so that the original application program is secure and will not be overwritten.

MPLoader, data transfer tool for machine controllers

Main Functions

● For Simplified Loading

The application program can be easily loaded to a machine controller if MPLoader is installed on your PC.

● For Machine Controllers in the MP2000 and MP900 series.

MPLoader can be used in a system that has different models of machine controllers from the MP series.

● For Compressed and Non-compressed Data

MPLoader can be used to decompress a compressed MAL file and load the data to the controller. Also, it can be used to batch load non-compressed PLC files. Data can be compressed as MAL files with MPE720 Ver.5.10 or later.

Program Provider

User

②Send file as by mail attachment, etc.

①Compress file

③Decompress the file

④Load file to controller

MP2000

MPE720
(Ver5.10 or later)
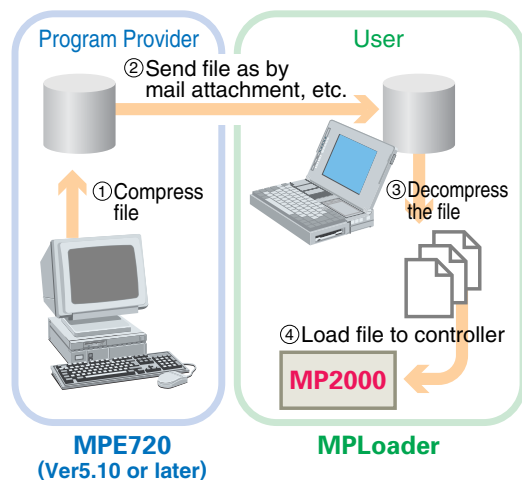
MPLoader

For Self-extraction and Automatic Transmission of Application Data
MPLoadMaker (For MP2100, MP2100M, MP2200, MP2300, and MP2310)

Main Functions

MPLoadMaker is a tool that is used to create an auto transfer data (Auto_MPL) with applications∗ for machine controllers in the MP2000 series. When a CD-ROM containing the newly created data (Auto_MPL) is inserted in the PC (target PC) connected to the machine controllers, Auto_MPL will automatically decompress, open the application file, and send the data to the target controllers.

∗: Applicable to MAL files (application files compressed as MAL files by MPE720 version 5) and YMW files (MPE720 version 6 work files).

PC for Software Development

Target PC

Write Auto_MPL onto a CD-ROM.

Insert the CD in the drive.

Auto_MPL automatically decompresses, opens the application file, and sends the data.

MPLoadMaker

Serial/Ethernet/USB Communications

Create an auto transfer data (Auto_MPL) with an MP2000 application.

Machine Controllers in the MP2000 Series

Note: MPLoadMaker does not have a function to write CD-ROMs.
      A CD burner and a driver are necessary.

Features

● Transfer of application data is possible even when the target PC does not have an application transfer tool (MPE720 version 5/version 6).

● A single CD-ROM can be used to automatically transfer application data to several machine controllers.

● Because the Auto_MPL function is limited only to decompression and transfers, the application data cannot be erroneously edited on the target PC.

Support Tools

Connection Diagram with Optional Modules and Cables

An example of how the MP2200 can be connected is shown. Each connection is marked by a number. Refer to that number in the table to see the cable specifications for that specific connection.
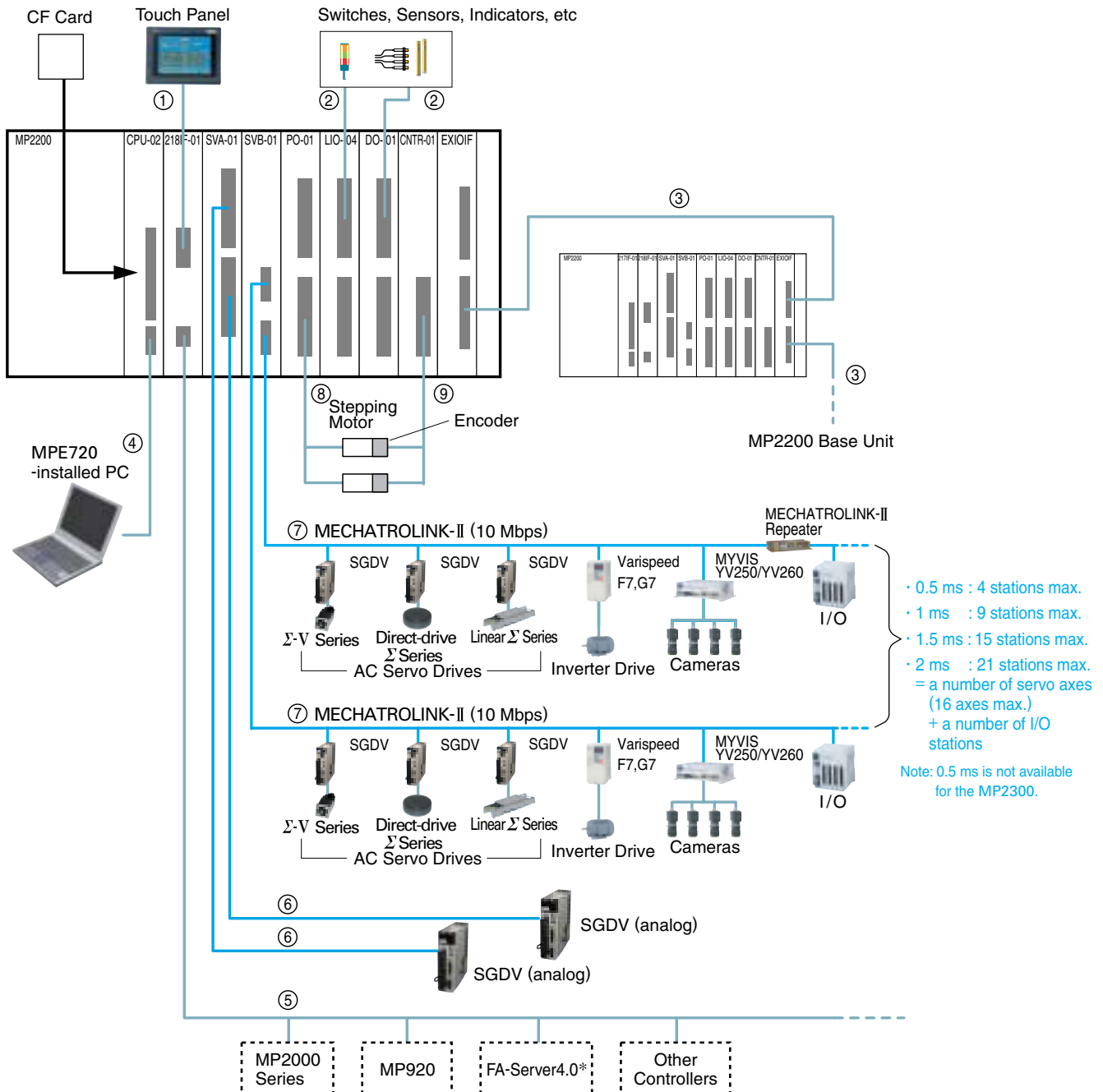
✳: Can be connected to the OPC server such as FA-Server4.0 (made by Roboticsware, Inc.) to monitor the data via the 218IF-01 Ethernet port. Contact Roboticsware, Inc. for more information (http://www.roboticsware.co.jp/index.htm).

Names and Models of Cables

No.	Name	Model	Length m
①	RS-232C Communication Cable	JEPMC-W5311-□□	2.5 / 15.0
②	I/O Cable for LIO-04 and DO-01	JEPMC-W6060-□□	0.5 / 1.0 / 3.0
③	EXIOIF Cable	JEPMC-W2091-□□	0.5 / 1.0 / 2.5
④	USB Cable	Use a USB cable.	
⑤	Ethernet Communication Cable	Use10BASE-T cross or straight cables.	
⑥	Connection Cable for SVA-01	JEPMC-W2040-□□	0.5 / 1.0 / 3.0
⑦	MECHATROLINK-Ⅱ Cable	JEPMC-W6002-□□	0.5 / 1.0 / 3.0 / 5.0 / 10.0 / 20.0 / 30.0 / 40.0 / 50.0
		JEPMC-W6003-□□	0.5 / 1.0 / 3.0 / 5.0 / 10.0 / 20.0 / 30.0 / 40.0 / 50.0
⑧	Connection Cable for PO-01	JEPMC-W6060-□□	0.5 / 1.0 / 3.0
⑨	I/O Cable for CNTR-01	JEPMC-W2063-□□-E	0.5 / 1.0 / 3.0

Note: See pages 14 and 15 for examples of the system configuration if using the MP2300S and the MP2400.

System Configurations

System Configuration for MP2500M

Host Communication by Ethernet, etc.

MECHATROLINK-II (10 Mbps)

- 1 ms: 9 stations max.
- 2 ms: 21 stations max.
  = a number of servo axes (16 axes max.)
  + a number of I/O stations

| SGDV | SGDV | SGDV | Varispeed F7,G7 | MYVIS YV250/ YV260 |

Σ-V Series | Direct-drive Σ Series | Linear Σ Series | Inverter Drive | Cameras | I/O

AC Servo Drives

MECHATROLINK-II (10 Mbps)

- 0.5 ms : 4 stations max.
- 1.0 ms : 9 stations max.
- 1.5 ms : 15 stations max.
- 2.0 ms : 21 stations max.
  = a number of servo axes (16 axes max.)
  + a number of I/O stations

| SGDV | SGDV | SGDV | Varispeed F7,G7 | MYVIS YV250/ YV260 |

Σ-V Series | Direct-drive Σ Series | Linear Σ Series | Inverter Drive | Cameras | I/O

AC Servo Drives

System Configuration for MP2100M

Host Communication by Ethernet, etc.

- 1 ms: 9 stations max.
- 2 ms: 21 stations max.
  = a number of servo axes (16 axes max.)
  + a number of I/O stations

MECHATROLINK-II (10 Mbps)

PC

MP2100M
(4 boards
can be connected.)

Motion API

MPE720
Engineering
Tool

| SGDV | SGDH + NS115 | SGDV | SGDV | |

Σ-V Series | Σ-II Series | Linear Σ Series | Direct-drive Σ Series | Remote I/O

AC Servo Drives

SVB Board Side: MECHATROLINK-II (10 Mbps)

- 0.5 ms : 4 stations max.
- 1.0 ms : 9 stations max.
- 1.5 ms : 15 stations max.
- 2.0 ms : 21 stations max.
  = a number of servo axes (16 axes max.)
  + a number of I/O stations

Note : 0.5 ms and 1.5 ms are not
available for the servo drives
(SGDH SERVOPACK with
NS115 application module)
in the Σ-II series.

| SGDV | SGDH + NS115 | SGDV | SGDV | |

Σ-V Series | Σ-II Series | Linear Σ Series | Direct-drive Σ Series | Remote I/O

AC Servo Drives

General Specifications (MP2000 Series excluding MP2500 and MP2500M)

Items		Specifications	Items		Specifications
Environmental Conditions	Ambient Operating Temperature	0℃ to +55℃*	Mechanical Operating Conditions	Vibration Resistance	Conforming to JIS B3502 ·Frequency: 16.7 Hz Vibration acceleration: 14.7 m/s² 2 hours in each direction (X, Y, and Z) ·Frequency: 10 Hz to 57 Hz Vibration amplitude: Single-amplitude of 0.075 mm ·Frequency: 57 Hz to 150 Hz Vibration acceleration: a fixed acceleration of 9.8 m/s²
	Ambient Storage Temperature	−25℃ to +85℃			
	Ambient Operating Humidity	30% to 95%RH (non-condensing)			
	Ambient Storage Humidity	5% to 95%RH (non-condensing)			
	Pollution Level	1 (Conforming to JIS B3501)			
	Corrosive Gas	No combustible or corrosive gas			
	Operating Altitude	2,000 m above sea level or lower			
Electrical Operating Conditions	Noise Resistance	Conforming to EN61000-6-2, EN55011 (Group 1, Class A) Power supply noise (FT noise): 2 kV or larger for 1 min. Radiation noise (FT noise): 1 kV or larger for 1 min.		Shock Resistance	Peak acceleration of 147 m/s² (15 G) twice for 11 ms in each direction (X, Y, and Z)
			Installation Requirements	Ground	Ground to 100Ω or less
				Cooling Method	Natural cooling

＊: If using the PO-01 or CPU-03 module, an operating temperature of 0℃ to +50℃ is required.

Machine Controller Main Units

●MP2500, MP2500M, MP2500B, MP2500MB

Approx. Mass: 8 kg

Model:
JEPMC-MP25 ☐ ☐ -N ☐ ☐ -E
　　　　　① ②　　③

① Board type (with PCI slot)

0 : Motion board with one
　　MECHATROLINK-Ⅱ port

4 : Motion board with two
　　MECHATROLINK-Ⅱ ports

② Expansion board type (Option)

0 : Without expansion board

E : EXIOIF
　　(for panel-integrated type only)

U : Optional module mounting unit
　　(for panel-separated type only)

③ Panel computer specifications

P0 : Panel-integrated type with
　　15-inch display screen
　　CPU: Celeron M, 1.86 GHz
　　Memory: 512 Mbytes

P1 : Panel-integrated type with
　　12.1-inch display screen
　　CPU: Celeron M, 1.86 GHz
　　Memory: 512 Mbytes

B0 : Panel-separated type
　　CPU: AMD Geode LX800,
　　　　500 MHz
　　Memory: 512 Mbytes

■ Electrical Conditions

Items		Panel Integrated: JEPMC-MP25☐☐-NP☐	Panel Separated: JEPMC-MP25☐☐-NB0
Power Supply	Rated Voltage	100 V/240 VAC	24 VDC
	Allowable Voltage Range	85 VAC to 264 VAC	24 VDC ±10%
	Rated Frequency	50/60 Hz	−
	Allowable Frequency Range	47 Hz to 63 Hz	−
	Allowable Momentary Power Loss Time	1 cycle max. (Interval are 1 s or more.)	−
	Power Consumption	145 VA max.	23 W max.
	Inrush Current	40 A max.	1 A max.
Dielectric Strength		1500 VAC 20 mA for one minute (between live part terminal and FG terminal)	−
Insulation Resistance		500 VDC 10 MΩ min. (between live part terminal and FG terminal)	−

■ Environmental Conditions

Items		Panel Integrated: JEPMC-MP25☐☐-NP☐	Panel Separated: JEPMC-MP25☐☐-NB0 Optional Panel for Separated Panel: JEPMC-OP25PNL-10/20
Physical Environment	Ambient Operating Temperature	0℃ to +50℃	0℃ to +40℃
	Ambient Storage Temperature	−20℃ to +60℃	−10℃ to +50℃
	Ambient Operating /Storage Humidity	10% to 90%RH (with no condensation)	30% to 85%RH (with no condensation)
	Dust	There must be no dust.	There must be no dust.
	Corrosive Gas	There must be no corrosive gas.	There must be no corrosive gas.
Mechanical Operation Conditions	Vibration Resistance	Compliance with JIS B 3502, IEC/EN 61131-2. 5 Hz to 9 Hz : Single amplitude of 3.5 mm 9 Hz to 150 Hz : A constant acceleration of 9.8 m/s² In each X, Y and Z direction 10 cycle 100 min. each	Compliance with JIS B 3502. Vibration amplitude and acceleration • 10 Hz ≦ Frequency < 57 Hz : Single amplitude of 0.075 mm • 57 Hz ≦ Frequency < 150 Hz : A constant acceleration of 9.8 m/s² In each X, Y, and Z direction Sweep rate (1 octave/min) × number of sweeps (10)
Electrical Operation Conditions	Noise Resistance	Voltage noise : 1500 V$_{P-P}$ Pulse width : 50 ns, 500 ns, 1 μs Rise time : 1 ns (Noise simulator)	Compliance with EN55011 Group 1 Class A Power supply noise (FT noise) : 2 kV or larger for 1 min. Radiation noise (FT noise) : 1 kV or larger for 1 min.
	Electrostatic Resistance Discharging	Contact discharge method 6 kV (IEC/EN 61000-4-2 level 3)	Compliance with EN 61000-4.2 ±6 kV (direct contact) , ±8 kV (under ground)
	Ground	Ground to 100Ω or less.	Ground to 100Ω or less.

● **MP2500, MP2500M, MP2500B, MP2500MB (cont'd)**

■ Hardware Specifications

Items		Panel Integrated: JEPMC-MP25□□-NP□	Panel Separated: JEPMC-MP25□□-NB0
Panel Computer	Display	15-inch XGA TFT 1024×768, 12.1-inch SVGA 800×600	12.1-inch SVGA 800×600, 10.4-inch SVGA 800×600
	CPU	Celeron M 440, 1.86 GHz	AMD Geode LX800, 500 MHz
	Main Memory	512 Mbytes	512 Mbytes
	Disk	CF card: 2 Gbytes, Free space: approx. 700 Mbytes	CF card: 2 Gbytes, Free space: approx. 700 Mbytes
	Video Memory	64 Mbytes, 260,000 colors	64 Mbytes, 260,000 colors
	Serial	RS-232C: 4 ports (One of these ports can be used to switch to RS-422/RS485)	Option: Two RS-232C ports (Available soon)
	USB	USB: 5 ports (1 on the front, 4 on the back)	USB: 4 ports
	LAN	10/100BASE: 1 channel, 10/100/1000BASE: 1 channel, automatic switching	10/100BASE: 1 channel
	Sound	Speaker output: 1 port	Speaker output: 1 port
	Expansion Slot	One spare PCI slot	No spare slot
	Compatible OS	WindowsXP Embedded	WindowsXP Embedded
	Ambient Operating Temperature	0 to +50℃	0 to +40℃
	Operating Environment	IP65	–
	Power Supply	100/240 VAC (50/60 Hz)	24 VDC
	Cooling Method	Cooling fan	Natural cooling
	Diagnostic Functions	RAS (Reliability, Availability, and Serviceability) functions (power supply voltage, cooling fan, watchdog, touch panel, etc.)	–
Motion Board	Motion Network	MECHATROLINK-Ⅱ (One channel with MP2500/MP2500M, two channels with MP2500M/MP2500MB) Up to 21 stations, including servo drives and I/O devices, can be connected. (16 axes max. for servo drives)	
	I/O Signals	Digital input : 5 points (one of these is also used for interrupt.), 24 VDC, 4 mA Digital output : 4 points, 24 VDC, 100 mA, open-collector, and sink mode output	

■ Optional Module for Remote Maintenance
  Model: CPMC-MPREMO-SUP

● MP2200 Base Units

Model: JEPMC-BU2200
Approx. Mass: 665 g

Model: JEPMC-BU2220-E
Approx. Mass: 500 g

Items	Specifications		
	JEPMC-BU2200 (MBU-01)	JEPMC-BU2210 (MBU-02)	JEPMC-BU2220-E (MBU-03)
Power Supply	Input power voltage: 85 VAC to 276 VAC Current consumption: 1.5 A or less with I/O rating Inrush current: 40 A or less when completely discharged, 275 VAC input, output rating	Input power voltage: 24 VDC ±20% Current consumption: 3.0 A or less with I/O rating Inrush current: 10 A or less when completely discharged, output rating	Input power voltage: 24 VDC ±20% Current consumption: 3.0 A or less with I/O rating Inrush current: 40 A or less when completely discharged, output rating
Motion Network	Not available for the base unit		
I/O Signals	Not available for the base unit		
Slot for Optional Modules	9 slots		4 slots
Expansion Configuration	Maximum of 4 base units can be connected using the EXIOIF.		
Dimensions (mm)	240×130×108 (W×H×D)		120×130×108 (W×H×D)

● MP2300 and MP2310 Basic Modules

Model: JEPMC-MP2300
Approx. Mass: 500 g

Model: JEPMC-MP2310-E
Approx. Mass: 500 g

Items	Specifications	
	MP2300	MP2310-E
Power Supply	Input power voltage: 24 VDC ±20% Current consumption: 1 A Inrush current: 40 A or less	
Motion Network	One channel for MECHATROLINK-Ⅱ: Twenty-one stations, including servo drives and I/O equipment, can be connected. (16 axes for servo drives) Transmission speed: 10 Mbps (MECHATROLINK-Ⅱ) Transmission distance: See "MECHATROLINK-Ⅱ Repeater" on page 40.	
Communication Port 1	Not available for the basic module	Ethernet: 100BASE-TX/10BASE-T, 1 port
I/O Signals	Digital input: 8 points (One point can be used for interrupts), 24 VDC, 4 mA, and source mode or sink mode input Digital output: 4 points, 24 VDC, 100 mA,open collector, and sink mode output	Not available for the basic module
Slot for Optional Modules	3 slots	
Dimensions (mm)	120×130×108 (W×H×D)	

● MP2300S Basic Module

Model: JEPMC-MP2300S-E
Approx. Mass: 390 g

Items	Specifications
Power Supply	Input supply voltage: 24 VDC ±20% Current consumption: 1 A max. Inrush current: 40 A
Motion Network	One channel for MECHATROLINK-Ⅱ: 21 stations, including servodrives and I/O devices, can be connected. (Maximum 16 axes for servodrives) Transmission speed: 10 Mbps (MECHATROLINK-Ⅱ) Transmission distance: See "MECHATROLINK-Ⅱ Repeater" on page 40.
Communications Port	Ethernet: 100BASE-TX/10BASE-T, one port
I/O Signals	Input: None Output: CPU Ready status output (relay output)
Slot for Optional Modules	1 slot
Dimensions (mm)	64 (W)×130 (H)×108 (D)

● MP2400

Model: JEPMC-MP2400-E
Approx. Mass: 350 g

Items	Specifications
Power Supply	Input supply voltage: 24 VDC ±20% Current consumption: 1 A max. Inrush current: 40 A
Motion Network	One channel for MECHATROLINK-Ⅱ: 21 stations, including servodrives and I/O devices, can be connected. (Maximum 16 axes for servodrives) Transmission speed: 10 Mbps (MECHATROLINK-Ⅱ) Transmission distance: See "MECHATROLINK-Ⅱ Repeater" on page 40.
Communications Port	Ethernet: 100BASE-TX/10BASE-T, one port
I/O Signals	Input: None Output: CPU Ready status output (relay output)
Slot for Optional Modules	None
Dimensions (mm)	45 (W)×130 (H)×108 (D)

● MP2100, MP2100M Boards
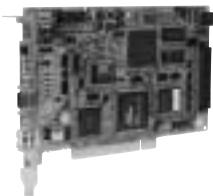
MP2100 Board
Model: JAPMC-MC2100-E
Approx. Mass: 135 g

Items	Specifications
Power Supply	Input supply voltage: 5 VDC ± 5%
Dimensions (mm)	106.68 × 174.63 Half the size of a standard PCI
Motion Network	MECHATROLINK-Ⅱ: One channel with MP2100, two channels with MP2100M Twenty-one stations, including servo drives and I/O equipment, can be connected per channel. (16 axes for servo drives) Transmission speed: 10 Mbps (MECHATROLINK-Ⅱ) Transmission distance: See "MECHATROLINK-Ⅱ Repeater" on page 40.
I/O Signals	Digital input: 5 points (One point can be used for interrupts), 24 VDC, 4 mA, and source mode or sink mode input Digital output: 4 points, 24 VDC, 100 mA, open collector, and sink mode output
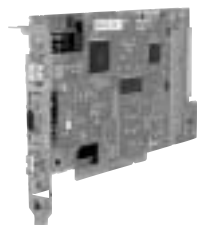
MP2100M Board
Model: JAPMC-MC2140-E
Approx. Mass: 210 g

■ Host Computer Specifications

Items		Specifications
Hardware	Model	PC/AT compatible (excluding NEC 9800 series)
	CPU	Pentium 200 MHz or more (Pentium 400 MHz or more recommended)
	Memory Capacity	64 MB or more
	Free Hard Space	500 Mbytes min.
	Display Resolution	800×600 or more (1024×768 recommended)
	Expansion Slot*	Half the size of a standard PCI slot
	Interrupts*	First-level use (IRQ sharing is possible.)
	I/O Memory*	32 kB shared memory used
Software	OS	Windows NT 4.0 Workstation SP5 or later, Windows 2000 Professional SP1 or later, Windows XP
	Web Browser	Microsoft IE 5.5 SP2 or later
	Language	Microsoft Visual C/C++ 6.0 SP5 or later, Microsoft Visual Basic6.0 SP5 or later, Visual C.net

＊: These specifications are applicable if using one set of MP2100s. If using two or more sets in the same host personal computer, the resources to which the number of sets was applied are needed for the above-mentioned specifications.

CPU Module   Applicable Models: MP2200

● MP2200 CPU Module (CPU-01/CPU-02/CPU-03/CPU-04/MPU-01)

CPU-01 Module
Model: JAPMC
-CP2200
Approx. Mass: 66 g

CPU-02 Module
Model: JAPMC
-CP2210
Approx. Mass: 75 g

CPU-03 Module
Model: JAPMC
-CP2220-E
Approx. Mass: 86 g

CPU-04 Module
Model: JAPMC
-CP2230-E
Approx. Mass: 86 g
NEW

MPU-01 Module
Model: JAPMC
-CP2700-E
Approx. Mass: 86 g
NEW

Items	Specifications				
	CPU-01	CPU-02	CPU-03	CPU-04	MPU-01
Max. Number of Controlled Axes	256 axes				16 axes
High-speed Scan	0.5 ms to 32.0 ms (in units of 0.5 ms)				0.25 ms, 0.5 ms to 32.0 ms (in units of 0.5 ms)
Low-speed Scan	2.0 ms to 300.0 ms (in units of 0.5 ms)				2.0 ms to 300.0 ms (in units of 0.5 ms)
User Memory Capacity	7.5 Mbytes	11.5 Mbytes			11.5 Mbytes
Expansion Ports	–	1 slot for Compact Flash card		–	–
		1 port for USB	1 port for Ethernet		1 port for Ethernet

Notes: 1 Not applicable to multiple CPU system
2 An MPU-01 module must be used with an MP2100M board or a CPU module with a built-in Ethernet port (MP2310, MP2300S, CPU-03, or CPU-04.)

Connection Module

● Connection Module between Racks (EXIOIF)

Applicable Model: MP2200

Items	Specifications
Number of Expansion Racks	4 racks max.
Rack No.	Automatically identified

Model: JAPMC-EX2200
Approx. Mass: 80 g

● Expansion I/F Board for MP2100M and MP2500M (MP2100MEX)

Applicable Model: MP2100M MP2500M

Items	Specifications
Number of Expansion Racks	3 racks max.
Rack No.	Automatically identified
Current Consumption	Approx. 650 mA at 5 V supplied by PCI bus.
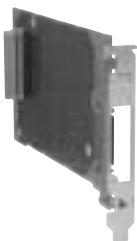
Model: JAPMC-EX2100
Approx. Mass: 90 g

Hardware Specifications

Communication Modules

Applicable Models: (MP 2200) (MP 2300) (MP 2310) (MP 2300S)

● General-purpose Serial Communication Module (217IF-01)

Model: JAPMC-CM2310
Approx. Mass: 100 g

■ For RS-232C Communication

Items	Specifications
Interface	One port
Connector	D-sub 9 pins (Female)
Max. Transmission Distance	15 m
Max. Transmission Speed	76.8 kbps
Access Mode	Asynchronous (Start-stop synchronization)
Communication Protocols	MEMOBUS (Master or Slave)
	MELSEC (A-compatible 1C frame, type:1)
	OMRON (only for host mode)
	Non-procedure
Media Access Control Method	1:1
Transmission Format (Can be set)	Data bit length: 7 or 8 bits
	Stop bits: 1 or 2 bits
	Parity bits: Even, odd, or none

■ For RS-422/485 Communication

Items	Specifications
Interface	One port (RS-422 or -485)
Connector	MDR 14 pins (Female)
Max. Transmission Distance	300 m
Max. Transmission Speed	76.8 kbps
Access Mode	Asynchronous (Start-stop synchronization)
Communication Protocols	MEMOBUS (Master or Slave)
	MELSEC (A-compatible 1C frame, type:1)
	OMRON (only for host mode)
	Non-procedure
Media Access Control Method	1:1 (RS-422)
	1:N (RS-485)
Transmission Format (Can be set)	Data bit length: 7 or 8 bits
	Stop bits: 1 or 2 bits
	Parity bits: Even, odd, or none

● Ethernet Communication Module (218IF-01/02)

218IF-01 Module
Model: JAPMC-CM2300
Approx. Mass: 90 g

218IF-02 Module
Model: JAPMC-CM2302-E
Approx. Mass: 90 g

■ For Ethernet Communication

Items	Specifications
Interface	One port (10BASE-T for 218 IF-01, 100 BASE-TX/10BASE-T for 218 IF-02) (RJ-45 modular jack)
Max. Segment Length	100 m
Transmission Speed	218IF-01: 10 Mbps
	218IF-02: 100 Mbps/10 Mbps
Access Mode	IEEE802.3
Connections	TCP/UDP/IP/ARP/ICMP
Max. Number of Words in Transmission	218IF-01: 510 words
	218IF-02: 2044 words
Communication Protocols	Extended MEMOBUS
	MEMOBUS
	MELSEC (A-compatible 1C frame, type:1)
	Non-procedure
	MODBUS/TCP
Max. Number of Connections	20 stations

■ For RS-232C Communication

Items	Specifications
Interface	One port
Connector	D-sub 9 pins (Female)
Max. Transmission Distance	15 m
Max. Transmission Speed	19.2 kbps (Using 218IF-01)
	115.2 kbps (Using 218IF-02)
Access Mode	Asynchronous (Start-stop synchronization)
Communication Protocols	MEMOBUS (Master or Slave)
	MELSEC (A-compatible 1C frame, type:1)
	OMRON (only for host mode)
	Non-procedure
Media Access Control Method	1:1
Transmission Format (Can be set)	Data bit length: 7 or 8 bits
	Stop bits: 1 or 2 bits
	Parity bits: Even, odd, or none

● DeviceNet Communication Module (260IF-01)

Model: JAPMC-CM2320
Approx. Mass: 90 g

■ For DeviceNet Communication

Items		Specifications
Number of Circuits		1
Applicable Communication		Conforms to DeviceNet ·I/O transmission (polled I/O and bit-strobed I/O) ·Explicit messaging
I/O Communication	Max. Number of Slaves	63 nodes
	Max. I/O Bytes	1024 bytes, 256 bytes per node
Message Communication (Only for Master)	Max. Number of Nodes	63 nodes
		Synchronous communications possible: 8 nodes
	Max. Message Length	256 bytes
	Executed Functions	MSG-SND function
Switches on the Front		Two rotary switches: Node address settings DIP switch: Settings for transmission speed and switching master or slave
Indicators		2 LEDs: MS and NS
Power Voltage for Communication		24 VDC ±10% (Using the specially designed cable)
Max. Current Consumption		Communication power: 45 mA (Supplied by transmission connectors)

■ For RS-232C Communication

Items	Specifications
Interface	One port
Connector	D-sub 9 pins (Female)
Max. Transmission Distance	15 m
Max. Transmission Speed	19.2 kbps
Access Mode	Asynchronous (Start-stop synchronization)
Communication Protocols	MEMOBUS (Master or Slave)
	MELSEC (A-compatible 1C frame, type:1)
	OMRON (only for host mode)
	Non-procedure
Media Access Control Method	1:1
Transmission Format (Can be set)	Data bit length: 7 or 8 bits
	Stop bits: 1 or 2 bits
	Parity bits: Even, odd, or none

●PROFIBUS Communication Module (261IF-01)
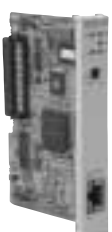
Model: JAPMC-CM2330
Approx. Mass: 90 g

■ For PROFIBUS Communication

Items	Specifications
Functions	DP slave Cyclic communication (DP standard function)
Transmission Speed	12 M/6 M/4 M/3 M/1.5 M/750 k/500 k/187.5 k/ 93.75 k/19.2 k/9.6 kbps (Automatic detection)
Configuration	By PROFIBUS Master
Slave Address	1 to 64
I/O Processing	Total capacity of IW/OW registers: 64 words
	Max. I/O allocation (IN and OUT each): 64 words
Diagnostic Functions	Display for status and slave status using the EWS. I/O error display for SW registers.

■ For RS-232C Communication

Items	Specifications
Interface	One port
Connector	D-sub 9 pins (Female)
Max. Transmission Distance	15 m
Max. Transmission Speed	19.2 kbps
Access Mode	Asynchronous (Start-stop synchronization)
Communication Protocols	MEMOBUS (Master or Slave)
	MELSEC (A-compatible 1C frame, type:1)
	OMRON (only for host mode)
	Non-procedure
Media Access Control Method	1:1
Transmission Format (Can be set)	Data bit length: 7 or 8 bits
	Stop bits: 1 or 2 bits
	Parity bits: Even, odd, or none

●FL-net Communication Module (262IF-01)

Model: JAPMC-CM2303-E
Approx. Mass: 80 g

■ For 262IF-01 Communication

Items			Specifications	
FL-net Transmission	Transmission Specifications[1]	Interface	100BASE-TX	10BASE-T
		Transmission Mode	Full duplex or half duplex	
		Transmission Speed	100 Mbps	10 Mbps
		Max. Segment Length	100 m between hub and nodes if UTP cables are used	
		Connector	RJ-45 connector	
		Auto Negotiation	Supported (Transmission speed and communication mode cannot be fixed.)	
	Cyclic Communication Specifications	Max. Number of Nodes	254 nodes max. if repeaters are used (Only 64 nodes, including the local node, can be allocated.)[2]	

		Data Size	Max. data size within network
			    Area 1 (Bit data) : 8 kbits Area 2 (Word data) : 8 kwords
			Max. data size per station (node)
			    Area 1 + Area 2 : 8 kbits + 8 kwords can be allocated.	

		Media Access Control Method	N : N	
	Message Communication Specifications	Number of Message Channels	10	
		Engineering Communication	None	
		Message Service	Read Word Block, Write Word Block, Read Network Parameter, Write Network Parameter[3], Change Other Node to Stop Mode[3], Change Other Node to Run Mode[3], Read Profile, Transmissive Message, Read Log Data, Clear Log Data, Return Message	
		Number of Transmission Words	512 words max.	

＊1 : Conforms to Ethernet specifications
＊2 : The number of nodes that the 262IF-01 can allocate to I/O is limited to 64, including the local node, in accordance with the specifications of the MP series Machine Controllers.
＊3 : Supported by client nodes only. (In FL-net communications, the node sending data is called the client, and the node receiving data is called the server.)

●EtherNet / IP Communication Module

Model: JAPMC-CM2304-E
Approx. Mass: 80 g

■ For 263IF-01 Communication

Items			Specifications	
EtherNet / IP Transmission	Transmission Specifications[1]	Interface	100BASE-TX	10BASE-T
		Transmission Mode	Full duplex or half duplex	
		Transmission Speed	100 Mbps	10 Mbps
		Max. Segment Length	100 m between hub and nodes if UTP cables are used	
		Connector	RJ-45 connector	
		Auto Negotiation	Supported (Transmission speed and communication mode cannot be fixed.)	
	I/O Communication Specifications	Max. Number of Connectable I/O Devices	64 units (Does not include the devices used for explicit message communication)[2]	

		Max. Number of I/O Bytes	Max. Number of I/O Bytes within the network
			    Inputs/outputs : 8192 bytes each per system (Total number of bytes of I/O data exchanged among all connected devices)
			    Inputs/outputs : 500 bytes each per device	

		Communication Mode	Scanner and adapter	
	Explicit Message Communication Specifications	Max. Number of Connectable Devices for Explicit Message Communication	64 units (Number of devices that can communicate simultaneously : 10)[2]	
		Number of Message Channels	10	
		Max. Number of Message Bytes	504 bytes	
		Communication Mode	Client and server	
		Connection Type	Unconnected type (UCMM) When the module functions as a server, connected type (class 3) is also supported.	

＊1 : Conforms to Ethernet specifications
＊2 : Max. Number of connectable devices is based on the specifications of the MP series Machine Controllers.

Hardware Specifications

● EtherCAT Communication Module (264IF-01)

Model : JAPMC-CM2305-E
Approx. Mass : 100 g

NEW

■ For 264IF-01 Communication

Items			Specifications
EtherCAT Transmission	Transmission Specifications	Transmission Mode	Full duplex
		Transmission Speed	100 Mbps
		Distance between Nodes	100 m
		Connector	RJ-45 connector, 2 ports (1 circuit)
		Cable	CAT 5e STP cable Straight or cross cable
		Topology	Line topology (structure)
		Functions	As a slave station of EtherCAT
		Address	Automatic allocation by Master
	Process Data Communications (Cyclic)	Supported Protocol	EtherCAT standard (Protocols such as CoE, SoE, and VoE are not supported.)
		Data Size	Input data : 198 words max. Output data : 198 words max. Input data + Output data : 200 words max. in total
		Media Access Control Method	Between master and slave (1 : 1)
		Communication Cycle	According to the configuration of Master
	Mailbox Communication (Message)	Supported Protocol	EtherCAT standard (Protocols such as CoE, EoE, FoE, SoE, and VoE are not supported.)
		Message Service	System message only (Cannot use user messages such as read/write memory.)

● MPLINK Communication Module (215AIF-01 MPLINK)
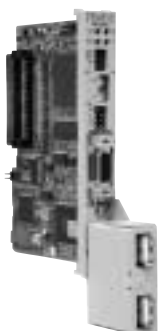
Model: JAPMC-CM2360
Approx. Mass: 130 g

■ For MPLINK Communication

Items	Specifications
Transmission Method	MPLINK
Module Model	JAPMC-CM2360
Interface	One port
Connector	USB port with T-branch connector＊
Cable	MECHATROLINK cable (JEPMC-W6002-□□)
Transmission Speed	10 Mbps
Max. Transmission Distance	50 m: 16 stations 100 m: 32 stations (With MECHATROLINK-Ⅱ JEPMC-REP2 repeater)
Max. Number of Words in Link Transmission	4096 words per line. 1024 words per station.
Media Access Control Method	N : N
Max. Number of Connecting Stations	16 stations (32 stations with repeater)
Relay Function	Available

■ For RS-232C Communication

Items	Specifications
Interface	One port
Connector	D-sub 9 pins (Female)
Max. Transmission Distance	15 m
Max. Transmission Speed	19.2 kbps
Access Mode	Asynchronous (Start-stop synchronization)
Communication Protocols	MEMOBUS (Master or Slave) MELSEC (A-compatible 1C frame, type:1) OMRON (only for host mode) Non-procedure
Media Access Control Method	1:1
Transmission Format (Can be set)	Data bit length: 7 or 8 bits Stop bits: 1 or 2 bits Parity bits: Even, odd, or none

＊: A T-branch connector is included in the package. Spares can also be ordered separately. (Model: JEPMC-OP2310)

● CP-215 Communication Module (215AIF-01 CP-215)
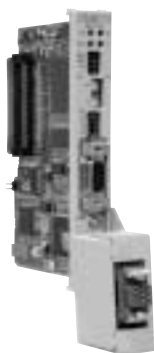
Model: JAPMC-CM2361
Approx. Mass: 130 g

■ For CP-215 Communication

Items	Specifications
Transmission Method	CP-215
Module Model	JAPMC-CM2361＊1
Interface	One port
Connector	USB port with MR connector converter＊2
Cable	No ready-made cable available. See page 59 for details on cable specifications.
Transmission Speed	2 Mbps / 4 Mbps
Max. Transmission Distance	270 m at 2 Mbps and 170 m at 4 Mbps.
Max. Number of Words in Link Transmission	2048 words per line. 512 words per station.
Media Access Control Method	N : N
Max. Number of Connecting Stations	32 stations (64 stations with repeater)
Relay Function	Available

■ For RS-232C Communication

Items	Specifications
Interface	One port
Connector	D-sub 9 pins (Female)
Max. Transmission Distance	15 m
Max. Transmission Speed	19.2 kbps
Access Mode	Asynchronous (Start-stop synchronization)
Communication Protocols	MEMOBUS (Master or Slave) MELSEC (A-compatible 1C frame, type:1) OMRON (only for host mode) Non-procedure
Media Access Control Method	1:1
Transmission Format (Can be set)	Data bit length: 7 or 8 bits Stop bits: 1 or 2 bits Parity bits: Even, odd, or none

＊1：Cannot be mounted in the slot to the left of 260IF-01. JAPMC-CM2361 modules cannot be mounted side by side.
＊2：An MR connector converter is included in the package. Spares can also be ordered separately. (Model: JEPMC-OP2320)

Motion Control Modules Applicable Models: (MP 2200) (MP 2300) (MP 2310) (MP 2300S)

●MECHATROLINK-Ⅱ Motion Control Module (SVB-01)
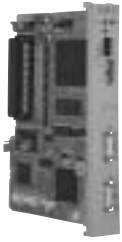
Model: JAPMC-MC2310
Approx. Mass: 80 g

Items	Specifications
Communication Circuits	1 circuit
Communication Ports	2 ports
Terminator	External resistor (JEPMC-W6022 required)
Transmission Speed	10 Mbps
Communication Cycle	0.5 ms, 1 ms, 1.5 ms, 2 ms
Number of Connecting Stations*	21 stations (16 axes for servo drives) /2 ms, 15 stations (15 axes for servo drives) /1.5 ms, 9 stations (9 axes for servo drives) /1 ms, 4 stations (4 axes for servo drives) /0.5 ms
Retry Function	Available with MECHATROLINK-Ⅱ
Slave Function	Available with MECHATROLINK-Ⅱ
Transmission Distance	See "MECHATROLINK-Ⅱ Repeater" on page 40.

＊ : MECHATROLINK-Ⅱ (32-byte mode)

●MECHATROLINK-Ⅲ Motion Control Module (SVC-01)

Model: JAPMC-MC2320-E
Approx. Mass: 70 g

Items	Specifications
Communication Circuits	1 circuit
Communication Ports	2 ports
Terminator	Not required
Transmission Speed	100 Mbps
Communication Cycle	125 μs, 250 μs, 500 μs, 1 ms
Number of Connecting Stations	21 stations (16 axes for servo drives) /1 ms, 15 stations (15 axes for servo drives) /500 μs, 8 stations (8 axes for servo drives) /250 μs, 4 stations (4 axes for servo drives) /125 μs
Retry Function	Available with MECHATROLINK-Ⅲ
Slave Function	Not available
Transmission Distance	Distance between stations : 20 cm to 100 m

●Analog Output Motion Control Module (SVA-01)
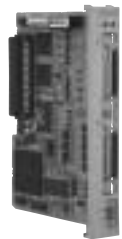
Model: JAPMC-MC2300
Approx. Mass: 100 g

Items	Specifications
Number of Controlled Axes	2
Analog Output	2 channels/1 axis, −10 V to +10 V, 16-bit D/A
Analog Input	2 channels/1 axis, −10 V to +10 V, 16-bit A/D
Pulse Input	1 channel/1 axis, 5-V differential inputs, phase A/B pulse, and 4 Mpps (16 Mpps with 4 multipliers)
Input Signals	6 points/1 axis, 24 VDC, 4 mA, and source mode or sink mode input
Output Signals	6 points/1 axis, 24 VDC, 100 mA, open collector, and sink mode output

●Pulse Output Motion Control Module (PO-01)
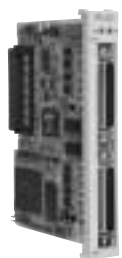
Model: JAPMC-PL2310-E
Approx. Mass: 100 g

Items	Specifications
Number of Controlled Axes	4
Pulse Output	Output Method : CW/CCW, sign + pulse, and A/B Maximum Frequency : 4 Mpps with CW/CCW or sign + pulse, 1 Mpps with phase A/B (before multiplication) Interface : 5-V differential outputs
Digital Input	5 points × 4 channels, source mode input DI_0 : Separate for each power supply··· 5 V/3.9 mA, 12 V/10.9 mA, 24 V/4.1 mA DI_1 to DI_4: Power supply shared ··· 24 V/4.1 mA
Digital Output	4 points × 4 channels Open collector and sink mode output (24 V/100 mA)
Current Consumption	5 V, 1.0 A max.

Hardware Specifications

I/O Modules Applicable Models: (MP2200) (MP2300) (MP2310) (MP2300S)

● I/O Modules (LIO-01/-02)

LIO-01 Module
Model: JAPMC-IO2300
Approx. Mass: 80 g
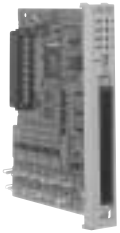
LIO-02 Module
Model: JAPMC-IO2301
Approx. Mass: 80 g

■ Digital I/O for LIO-01/-02 Modules

Items	Specifications

Input Signals	16 points (All connected) and 24 VDC ±20%, 5 mA (TYP)
	    Sink mode or source mode input and photocoupler isolation
	    Min. ON voltage/current: 15 V/1.6 mA
	    Max. OFF voltage/current: 5 V/1.0 mA
	    Max. Response time: OFF→ON 1 ms and ON→OFF 1 ms
	    Interruption (DI-00): DI-00 can be used for interruptions. If an interruption is enabled,
	                                the interrupt drawing is started when DI-00 is set to ON.
	    Pulse latch (DI-01): DI-01 can be used for pulse latching. If pulse latching is enabled,
	                                the pulse counter is latched when DI-01 is set to ON.

Output Signals	16 points (All connected) and 24 VDC ±20%, 100 mA max.
	    Open collector: sink mode output (LIO-01 module)
	                            source mode output (LIO-02 module)
	    Photocoupler isolation and Max. OFF current: 0.1 mA
	    Max. Response time: OFF→ON 1 ms and ON→OFF 1 ms
	    Output protection : Fuse (for protection against fires caused by an overcurrent when
	                                outputting after a short circuit occurred)
	                                If circuit protection is required, provide a fuse for each output circuit.

■ Pulse Input for LIO-01/-02 Modules

Items	Specifications
Number of Channels	1 (Phase A, B, or Z input)
Input Circuit	Phase A/B: 5 V differential inputs, no insulation, and max. frequency 4 MHz Phase Z: 5 V/12 V photocoupler inputs and max. frequency 500 kHz
Input Method	A/B (1,2, or 4 multipliers), sign (1 or 2 multipliers), UP/DOWN (1 or 2 multipliers)
Latch Input	Pulse latch with phase Z or DI-01 Max. Response time: 5 μs when input with phase Z; 60 μs when input with DI-01
Others	Coincident detection; Preset and clear functions for counter values

● I/O Modules (LIO-04/-05)
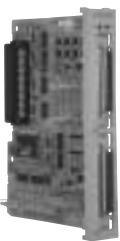
LIO-04 Module
Model: JAPMC-IO2303
Approx. Mass: 80 g
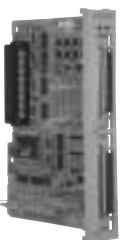
LIO-05 Module
Model: JAPMC-IO2304
Approx. Mass: 80 g

Items	Specifications

Input Signals	32 points (8 points connected) and 24 VDC ±20%, 5 mA (TYP)
	    Sink mode or source mode input and photocoupler isolation
	    Min. ON voltage/current: 15 V/1.6 mA
	    Max. OFF voltage/current: 5 V/1.0 mA
	    Max. Response time: OFF→ON 0.5 ms and ON→OFF 0.5 ms
	    Interruption (DI-00, DI-01, DI-16, DI-17):
	        DI-00, DI-01, DI-16, and DI-17 can be used for interruptions. If an interruption is enabled, the interrupt drawing is started when DI-00, DI-01, DI-16, or DI-17 is set to ON.
	    Note: See right for the derating conditions.

Output Signals	32 points (8 points connected) and 24 VDC ±20%, 100 mA max.
	    Open collector: sink mode output (LIO-04 module), source mode output (LIO-05 module)
	    Photocoupler isolation and Max. OFF current: 0.1 mA
	                    Max. Response time: OFF→ON 0.5 ms and ON→OFF 1 ms
	    Output protection: Fuse (for protection against fires caused by an overcurrent when
	                            outputting after a short circuit occurred)
	                            If circuit protection is required, provide a fuse for each output circuit.

Number of Input ON Points,
Temperature Derating

(32 points, 28℃) (32 points, 41℃)
Input voltage 24 VDC
Input voltage 28.8 VDC
(16 points, 55℃)
(10 points, 55℃)
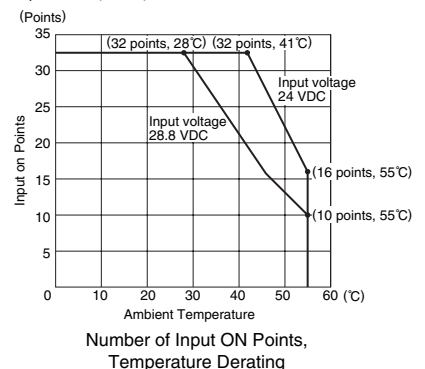
●I/O Module (LIO-06)

Model: JAPMC-IO2305-E
Approx. Mass: 80 g

■ LIO-06 Module Specifications

Items		Specifications
Digital Input Signals	Number of Input Points	8
	Input Method	Sink mode/source mode
	ON Voltage/Current	15 VDC min./2 mA min.
	OFF Voltage/Current	5 VDC max./1 mA max.
	Max. Response Time	OFF→ON: 0.5 ms max., ON→OFF: 0.5 ms max.
	Number of Common Points	1
Digital Output Signals	Number of Output Points	8
	Output Method	Sink mode
	External Voltage	19.2 VDC to 28.8 VDC
	Output Current	100 mA/point
	ON Voltage	1 V max.
	Current Leakage While OFF	0.1 mA max.
	Max. Response Time	OFF→ON: 0.25 ms max., ON→OFF: 1 ms max.
	Number of Common Points	1
Analog Input Signals	Analog Input Range	−10 V to +10 V
	Number of Channels	1
	Input Impedance	Approx. 20 kΩ
	Input Voltage Characteristics	±10 V (±31276) Resolution: 16 bits
Analog Output Signals	Analog Output Range	−10 V to +10 V
	Number of Channels	1
	Output Voltage Characteristics	±10 V (±31276) Resolution: 16 bits
Pulse Counter	Number of Channels	1
	Counter Mode	Reversible counter
	A/B Pulse Signal Form	5-V differential input
	A/B Pulse Signal Polarity	Positive logic/negative logic
	Pulse Counting Methods	Sign (Multiplier: 1 or 2) UP/DOWN (Multiplier: 1 or 2) A/B pulse (Multiplier: 1, 2, or 4)
	Max. Frequency	4 MHz
	Number of Latch Input Points	Can be selected from two points (Phase-Z latch or DI latch)
	Coincidence Detection Function	Available (Output terminal: DO_07)
	Coincident Interruption	Available

● Output Module (DO-01)

Model: JAPMC-DO2300
Approx: 80 g

Items	Specifications
Number of Output Points	64
Output Method	Transistor or open collector: sink mode output
Isolation	Photocoupler isolation
Output Voltage	24 VDC (+19.2 V to 28.8 V)
Max. Output Current	100 mA
Max. OFF Current	0.1 mA
Max. Response Time	OFF→ON: 0.5 ms / ON→OFF: 1 ms
Number of Common Points	8
Protective Circuit	Fuse for common circuits
Fuse Rating	1 A
Error Detection	Fuse blowout detection

● Analog Input Module (AI-01)

Model: JAPMC-AN2300
Approx. Mass: 100 g

Items	Specifications	
Analog Input Range	−10 V to +10 V	0 mA to 20 mA
Number of Channels	8 [(4 channels/connector)×2]	
Number of Channels to be Used	1 to 8	
Isolation	Between channels: Not isolated Between input connector and system power supply: Photocoupler isolation	
Max. Rated Input	±15 V	±30 mA
Input Impedance	20 kΩ	250Ω
Resolution	16 bits (−31276 to +31276)	15 bit (0 to +31276)
Accuracy (0℃ to 55℃)	±0.3% (±30 mV)∗	±0.3% (±0.06 mA)∗
Input Conversion Time	1.4 ms max.	
Current Consumption	5 V, 500 mA	

∗:After offset and gain adjustment by MPE720.

● Analog Output Module (AO-01)
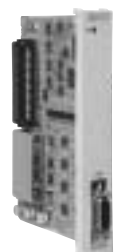
Model: JAPMC-AN2310-E
Approx. Mass: 90 g

Items	Specifications	
Number of Channels	4	
Number of Channels to be Used	1 to 4	
Isolation	Between channels: Not isolated Between input connector and system power supply: Photocoupler isolation	
Output Voltage Range	−10 V to +10 V	0 V to +10 V
Resolution	16 bits (−31276 to +31276)	15 bits (0 to +31276)
Maximum Allowable Load Current	±5 mA	
Accuracy 25℃	±0.1% (±10 mV)	
Accuracy 0℃ to 55℃	±0.3% (±30 mV)	
Output Delay Time	1.2 ms∗	
Current Consumption	5 V, 800 mA max.	

∗: After change with a full scale of −10 V to +10 V.

● Counter Module (CNTR-01)

Model: JAPMC-PL2300-E
Approx. Mass: 85 g

Items	Specifications
Number of Channels	2
Input Circuit (Selected by software)	5-V differential: 4-MHz response frequency (RS-422, not isolated) 12 V: 120-kHz response frequency (12 V, 7 mA, current source mode input, and photocoupler isolation)
Input Method	A/B (1, 2, or 4 multipliers), UP/DOWN (1 or 2 multipliers), and sign (1 or 2 multipliers)
Counter Functions	Reversible counter, interval counter, and frequency measurement
Maximum Frequency	4 MHz with 5-V differential input (16 MHz with 4 multipliers)
Coincident Interruption	Simultaneous output to CPU module via system bus and output module.
Coincident Output	2 points, 24 V, 50 mA current sink mode input, and photocoupler isolation
DO Output	2 points, 24 V, 50 mA, current sink mode input, and photocoupler isolation (zone output, speed-coincidence output, and frequency-coincidence output)
PI Latch Input	2 points, 24 V, source mode input, and photocoupler isolation
Current Consumption	5 V, 600 mA

I/O Modules for MECHATROLINK-II

Applicable Models: MP2500 MP2200 MP2300 MP2310 MP2300S MP2100

●64-point I/O Modules (IO2310 / IO2330)

Model: JEPMC-IO2310
Approx. Mass: 590 g

Model: JEPMC-IO2330
Approx. Mass: 590 g

Items	Specifications
I/O Signals	Input: 64 points, 24 VDC, 5 mA, sink/source mode input
	Output: 64 points, 24 VDC, 50 mA when all points ON*
	sink mode output (IO2310), source mode output (IO2330)
	Signal connection method: Connector (FCN360 series)
Module Power Supply	24 VDC (20.4 V to 28.8 V)
	Rated current: 0.5 A, Inrush current: 1 A

＊:The max. rating is 100 mA per point (depending on derating conditions).

●Various I/O Modules

Model: JEPMC-PL2900/PL2910,
JEPMC-AN2900/AN2910
Approx. Mass: 300 g

Model: JAMSC-IO2900-E/-IO2910-E,
JAMSC-IO2920-E/-IO2950-E
Approx. Mass: 300 g

■ Counter Module (PL2900)

Model	JEPMC-PL2900
Number of Input Channels	2
Functions	Pulse counter, notch output
Pulse Input Method	Sign (1/2 multipliers), A/B (1/2/4 multipliers), UP/DOWN (1/2 multipliers)
Max. Counter Speed	1200 kpps (4 multipliers)
Pulse Input Voltage	3/5/12/24 VDC
External Power Supply	For input signal: 24 VDC For driving load: 24 VDC For module: 24 VDC (20.4 V to 26.4 V) 120 mA or less

■ Pulse Output Module (PL2910)

Model	JEPMC-PL2910
Number of Output Channels	2
Functions	Pulse positioning, JOG run, zero-point return
Pulse Output Method	CW, CCW pulse, sign + pulse
Max. Output Speed	500 kpps
Pulse Output Voltage	5 VDC
Pulse Interface Circuit	Open collector output 5 VDC,10 mA/circuit
External Control Signal	Digital input: 8 points/module 5 VDC × 4 points, 24 VDC × 4 points Digital output: 6 points/module 5 VDC × 4 points, 24 VDC × 2 points

■ Analog Input Module (AN2900)
■ Analog Output Module (AN2910)

Model	JEPMC-AN2900	JEPMC-AN2910
Number of Input/Output Channels	Input : 4	Output : 2
Input/Output Voltage Range	Input : −10 V to +10 V	Output : −10 V to +10 V
Input Impedance	1 MΩ min.	−
Max. Allowable Load Current	−	±5 mA (2 MΩ)
Data Region	−32000 to +32000	
Input/Output Delay Time	Input : 4 ms max.	Output : 1 ms max.
Error	+0.5% F.S (at 25℃), ±1.0% F.S (at 0℃ to 60℃)	+0.2% F.S (at 25℃), ±0.5% F.S (at 0℃ to 60℃)
External Power Supply	24 VDC (20.4 V to 26.4 V), 120 mA max.	

■ 16-point Input Module (IO2900-E)
■ 16-point Output Module (IO2910-E)

Model	JAMSC-IO2900-E	JAMSC-IO2910-E
Number of Input/Output Points	Input : 16	Output : 16
Rated Voltage	12/24 VDC	
Rated Current	2 mA/5 mA	0.3 A
Input/Output Method	Input : sink/source mode input	Output : sink mode output
External Power Supply	24 VDC (20.4 V to 28.8 V), 90 mA	24 VDC (20.4 V to 28.8 V), 110 mA

■ 8-point I/O Module (IO2920-E)

Model	JAMSC-IO2920-E
Number of I/O Points	8/8
Rated Voltage	12/24 VDC
Rated Current	Input : 2 mA/5 mA Output : 0.3 mA
Input/Output Method	Input : sink/source mode input Output : sink mode
External Power Supply	24 VDC (20.4 V to 28.8 V), 90 mA

■ Relay Output Module (IO2950-E)

Model	JAMSC-IO2950-E
Number of Output Points	8
Rated Voltage	12/24 VDC, 100/200 VAC
Rated Current	1.0 A
Output Method	Contact output
External Power Supply	24 VDC (20.4 V to 28.8 V), 150 mA

Hardware Specifications

39

● Image-processing Unit (MYVIS)

Model: JEVSA-YV260
Approx. Mass: 2.5 kg

A networked machine vision system that processes images and takes into account the servo coordinate system with detection of the servo-axis position.

Items		Standalone Type	
		Unit Type	
		For Analog Cameras	For Camera Link
Model		JEVSA-YV260□1-E	JEVSA-YV260□2-E
Image Processing		Gray scale pattern matching, binary image analysis etc.	
CPU		Main CPU : SH-4A (600 MHz), Sub CPU : SH-2A (200 MHz)	
Image Processing Hardware	LSI	FPGA	
	Pre-processing Function	Inter-image operations (addition, averaging, subtraction, and difference operation), 3×3 filter, dilation/erosion	
Memory	Application Program	512 Kbytes (flash memory)	
	Backup Memory	256 Kbytes CMOS(for saving parameters)	
	Template Storage Memory	CF cards (2 Gbytes max.)	
	Image Memory-Frame Memory	4096×4096×8 bits×4 images (Can be used for 640×480×8 bits×192 images)	
	Image Memory-Template Memory	16 Mbytes	
Image Input	Camera Interface	New EIAJ 12-pin connector×4 EIA (640×480) to (1400×1050) Four B&W, 8-bit A/D-converter circuits	CameraLink (MDR26pin)×4 VGA (640×480) to QSXGA (2440×2048), Base Configuration, PoCL-compatible
	Camera Power Supply	Single camera : 12 V, 400 mA, Total : 1.2 A max.	
	Camera Sync Mode	Internal/external sync	Internal sync
	Random Shutter Supported	Sync-nonreset, sync-reset, single VD or V reset	
	Simultaneous Image Capture	Four cameras	
	Input Image Conversion	Gray level conversion (LUT), mirror mode	
Monitor	Monitor Output	VGA, XGA (color), 15pin D-sub	
	Image Display	A full-screen or a partial-screen for one camera, simultaneous screen reduction for two or four cameras, gray level conversion (binary image display supported)	
I/F	Field Network	MECHATROLINK-I/II	
	LAN (Ethernet)	10BASE-T/100BASE-TX	
	General-purpose Serial	RS-232C×2ch (115.2 kbps)	
	Parallel I/O	16 general-purpose outputs (4 of these are also used for stroboscope) ＋2 outputs exclusive for alarms (24 VDC, photocoupler isolation) 16 general-purpose inputs (4 of these are also used for trigger) ＋3 inputs exclusive for mode switchings ＋1 input exclusive for trigger (24 VDC, photocoupler isolation)	
	Track Ball	USB mouse	
Power Supply		100 V/200 VAC, 24 VDC, 30 W	

● MECHATROLINK-II Repeater

Model: JEPMC-REP2000
Approx. Mass: 340 g

Required to stabilize communication and to extend the total length of the cable.

Items	Specifications
Communication Type	MECHATROLINK-II
Max. Cable Length	Between controller and repeater: 50 m, After repeater: 50 m
Max. Connected Stations	Total stations on both sides of repeater: 30＊
Restrictions	M-II Master — MECHATROLINK-II — REP 2000 — MECHATROLINK-II — Terminator. Slave - Slave. Total cable length ≦30 m: 15 stations max. 30 m < Total cable length ≦50 m: 14 stations max. Slave - Slave. Total cable length ≦30 m: 16 stations max. 30 m < Total cable length ≦50 m: 15 stations max. 100 m max.
Power Supply	24 VDC, 100 mA

＊ : Limited to the max. number of connectable stations of the controller (e.g., 21 stations for the MP2000 series).

MECHATROLINK-Ⅲ Compatible Modules

Applicable Models: MP2200 MP2300 MP2310 MP2300S

●Hub Module

Model : JEPMC-MT2000-E
Approx. Mass : 800 g

NEW

Items	Specifications
Data Transfer Method	MECHATROLINK-Ⅲ
Transmission Speed	100 Mbps
Transmission Medium	MECHATROLINK-Ⅲ cable, model : JEPMC-W6012-□□-E
Number of MECHATROLINK Ports	Master-side port : 1 (CNM1) to connect the master station
	Slave-side port : 8 (CNS1 to CNS8) to connect slave stations
Arbitration	FIFO arbitration discipline
	Error when multiple slave-side ports receive data at the same time
Transmission Delay Time between Ports	600 ns (typ)
Indicators	1 indicator for power supply ON/OFF, 9 indicators for port link status
External Power Supply	24 VDC (±20%), 0.5 A (CN1)
Installation Orientation	Vertical or horizontal
Exterior	Painted

●Network Analyzer

Model : JEPMC-MT2010-E
Approx. Mass : 270 g

NEW

Traces the data sent or received through MECHATROLINK-Ⅲ communication (cyclic communication).

Items	Specifications
Power Supply	Input supply voltage : 24 VDC ±20%
	Current consumption : 1 A max.
	Inrush current : 40 A
Motion Network	Two channels for MECHATROLINK-Ⅲ
	(To be connected to the end of network connection.)
	Transmission speed : 100 Mbps (MECHATROLINK-Ⅲ)
	Transmission distance : 20 cm to 100 m
	Terminator : not required
Communication Ports	1 port (Ethernet : 100BASE-TX/10BASE-T)

Note : Requires the analyzer tool (model : CPMC-NWAN710) for settings and operation.

●Network Adapter Module

Model : JEPMC-MT2020-E
Approx. Mass : 270 g

NEW

Relays MECHATROLINK-Ⅲ messages from Ethernet port to MECHATROLINK-Ⅲ network.

Items	Specifications
Power Supply	Input supply voltage : 24 VDC±20%
	Current consumption : 1 A max.
	Inrush current : 40 A
Motion Network	Two channels for MECHATROLINK-Ⅲ
	(To be connected to the end of network connection.)
	Transmission speed : 100 Mbps (MECHATROLINK-Ⅲ)
	Transmission distance : 20 cm to 100 m
	Terminator : not required
Communication Ports	1 port (Ethernet : 100BASE-TX/10BASE-T)

Note : Requires the adapter tool (model : CMPC-NWAD710) for settings and operation.

●64-point I/O Module

Model : JEPMC-MTD2310-E
Approx. Mass : 550 g

NEW

Items	Specifications
I/O Signals	Input: 64 points, 24 VDC, 5 mA, sink/source mode input
	Output: 64 points, 24 VDC, 50 mA when all points ON* sink mode output
Module Power Supply	24 VDC (20.4 V to 28.8 V)
	Rated current: 0.5 A

＊ : The max. rating is 100 mA per point (depending on derating conditions).

Hardware Specifications

Other Modules Contact individual manufacturers for more details.

● AnyWire DB Master Applicable Models : (MP 2200) (MP 2300) (MP 2310) (MP 2300S)

Model: AFMP-01
Approx. Mass: 90 g

Made by
Anywire Corporation

Items	Specifications			
Transmission Clock	7.8 kHz	15.6 kHz	31.3 kHz	62.5 kHz
Max. Transmission Distance	1 km	500 m	200 m	100 m
Transmission Protocol	Special protocol (Anywire Bus DB protocol)			
	Note: Upper compatibility with UNI-WIRE protocol			
Max. Number of I/Os	Full triple mode: 2304 points (Bit-Bus: 256 points, Word-Bus: 2048 points)			
	Full quadruple mode: 2560 points (Bit-Bus: 512 points, Word-Bus: 2048 points)			
Dual-Bus Function	Bit-Bus　　Full triple mode: 256 bits max., Full quadruple mode: 512 bits max.			
	Word-Bus　Full triple mode: 128 words max. (64 words each for IN and OUT),			
	Full quadruple mode: 128 words max. (64 words each for IN and OUT)			
Max. Number of Stations	128 stations (Fan-out = 200)			
	Note: Anywire DB products: Fan-in = 1, UNI-WIRE products: Fan-in = 10			
Connection Cable	General-purpose 2-wire cable or 4-wire cable (VCTF 0.75 sq to 1.25 sq)			
	Special flat cable (0.75 sq), general purpose wire (0.75 sq to 1.25 sq)			

● CC-Link Interface Module Applicable Models : (MP 2200) (MP 2300) (MP 2310) (MP 2300S)

Model: AFMP-02-C
Approx. Mass: 90 g

Made by
Anywire Corporation

Model: AFMP-02-CA
Approx. Mass: 90 g

Made by
Anywire Corporation

	Item	Specifications	AFMP -02-C	AFMP -02-CA
CC-Link Specifications	Station Type	Remote device station	●	●
	Number of Stations	4	●	●
	No. of Remote Stations	Station number setting range: 1 to 61 (4 stations are occupied after setting the number of stations)	●	●
	No. of Remote Device Points	Input: Max. 896 points, Output: Max.896 points (Version 2.0 with 8 times setting)Input: Max. 112 points, Output: Max. 112 points (Version 1.1)	●	●
	No. of Remote Register Points	Input: Max. 128 points, Output: Max. 128 points (Version 2.0 with 8 times setting) Input: Max. 16 points, Output: Max. 16 points (Version 1.1)	●	●
	Transmission Speed	10 M, 5 M, 2.5 M, 625 k, and 156 kbps (Select with the switch.)	●	●
	Transmission Distance	100 m (10 Mbps), 160 m (5 Mbps), 400 m (2.5 Mbps), 900 m (625 kbps), and 1200 m (156 kbps)	●	●
	No. of CC-Link that can be connected	$(1 \times a) + (2 \times b) + (3 \times c) + (4 \times d) \leqq 64$ [a: Number of slave products that occupy one station, b: Number of slave products that occupy two stations , c: Number of slave products that occupy three stations, d: Number of slave products that occupy four stations] $(16 \times A) + (54 \times B) + (88 \times C) \leqq 2304$ [A: Number of remote I/O stations (Max. 64 units) B: Number of remote device station units: (Max. 42 units) C: Number of local station and intelligent device station units (Max. 26 units)]	●	●
	Connection Cable	CC-Link cable; a three-core, shielded, twisted-pair cable	●	●
Anywire DB Specifications	Transmission Clock	7.8 kHz, 15.6 kHz, 31.3 kHz, and 62.5 kHz	—	●
	Max. Transmission Distance	Max. Overall Cable Extension Length: 100 m, 200 m, 500 m, or 1 km.	—	●
	I/O Points	Full triplex mode: Max. 2304 points (Bit-bus: Max. 256 points, Word-bus: Max. 2048 points) Full quadruplex mode: 2560 points (Bit-bus: Max.512 points, Word-bus: Max. 2048 points)	—	●
	Anywire Bus Port	One port, detachable terminal block	—	●
	Connection Cable	General-purpose 2-core or 4-core cable (VCTF 0.75 sq to 1.25 sq), dedicated flat cable (0.75 sq), general-purpose wire (0.75 sq to 1.25 sq)	—	●

● A-net /A-Link Master Unit Module Applicable Models: (MP 2200) (MP 2300) (MP 2310) (MP 2300S)

Model: MPANL00-0
Approx. Mass: 90 g

Made by
Algo System Co., Ltd.

Items	A-net	A-Link
Communication Control IC	MKY40	MKY36
Communication Mode	Two-wire half duplex	Four-wire full duplex / two-wire half duplex
Transmission Speed	3/6/12 Mbps	3/6/12 Mbps
Error Detection	CRC-16	CRC-12
Transmission Distance	300/200/100 m	300/200/100 m

Dimensions Units: mm

● Touch Panel with Integrated 15-inch Display (MP2500/MP2500M)

Top View   Side View
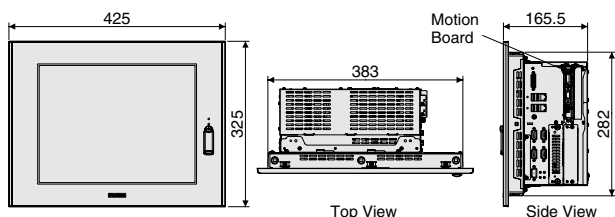
● Touch Panel with Integrated 12.1-inch Display (MP2500/MP2500M)

Top View   Side View
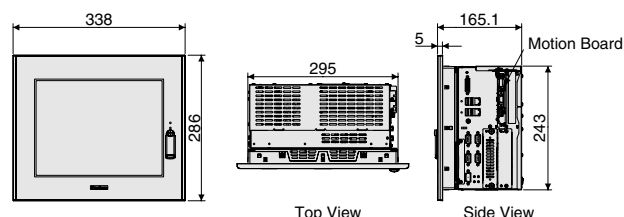
● Touch Panel with Separate 10.4-inch Display (PNL-10)

4 Tapped Holes (M3): Used to fix the controller unit.

Cable for Connecting the Controller Unit
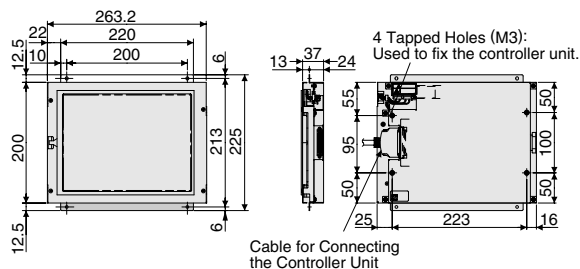
● Touch Panel with Separate 12.1-inch Display (PNL-12)

4 Tapped Holes (M3): Used to fix the controller unit.

Cable for Connecting the Controller Unit
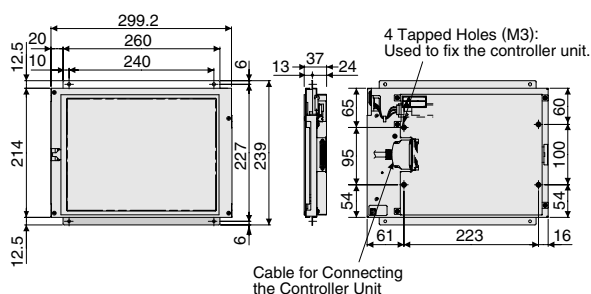
● Separated PC Box (MP2500B/MP2500MB)

4-4.5 Dia. Holes

Motion Board
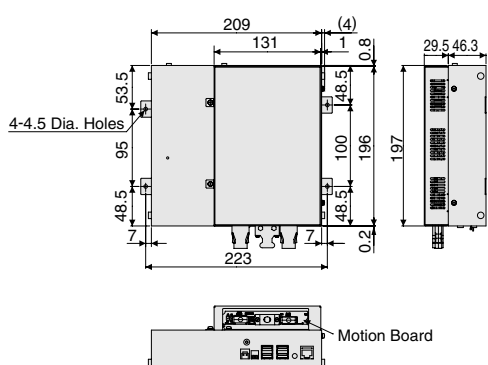
● Separated PC Box (MP2500B-OP/MP2500MB-OP)

Motion Board
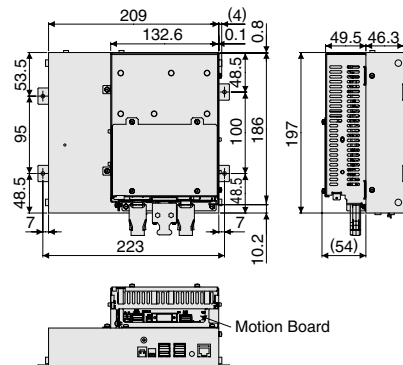
● MP2200 Base Unit

BU2200 (MBU-01), BU2210 (MBU-02)

■ Mounting Hole Diagram

4-Tapped Holes M4

BU2220 (MBU-03)

M4 Mounting Screws (4) Protruding Length: 3.5

Connector of Cable Side (3P) 721-203/026-000

■ Mounting Hole Diagram

4-Tapped Holes M4

Name plate
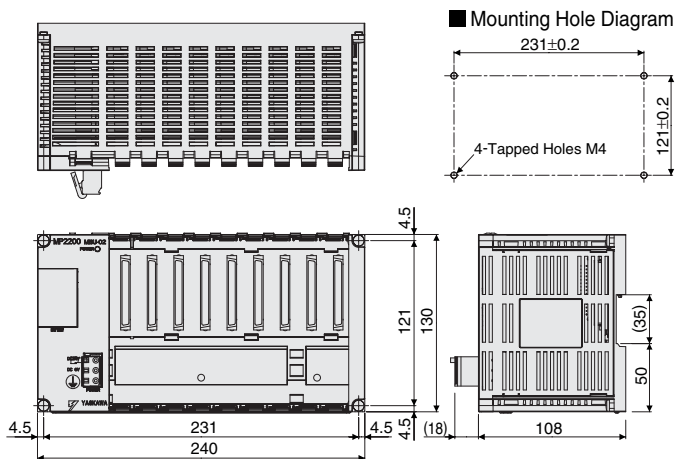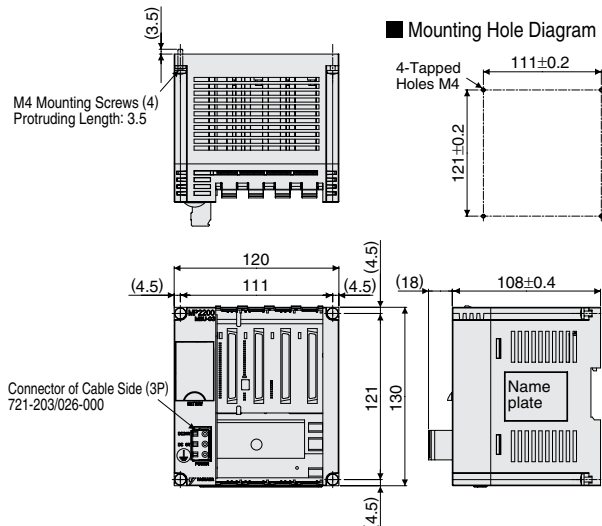
Dimensions Units: mm

● MP2300, MP2310 Basic Module

MP2300

MP2310

■ Mounting Hole Diagram

4-Tapped Holes M4

● MP2300S Basic Module

Connector for Relay (2-pin)

Power-supply Connector (3-pin)

Terminator for MECHATROLINK (included in the accessories)

DIN Rail※ (Width: 35)

(10: With DIN Rail Mounted)

※: Metal brackets can be also used to mount the module.

● MP2400

Connector for Relay (2-pin)

Power-supply Connector (3-pin)

DIN Rail※ (Width: 35)

(10: With DIN Rail Mounted)

※: Metal brackets can be also used to mount the module.

● MP2100 Board (Half the Size of Standard PCI)
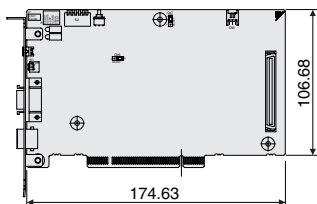
● MP2100M Board (Half the Size of Standard PCI)
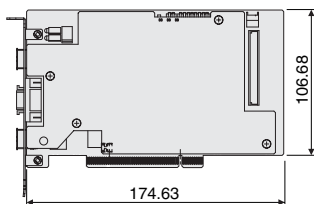
● MP2100MEX Board
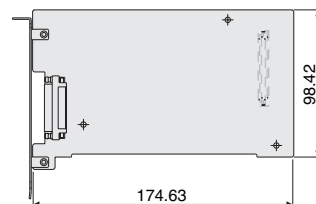
● MECHATROLINK-II Compatible Modules

64-point I/O Module

■ Mounting Hole Diagram

4-Tapped Holes M4
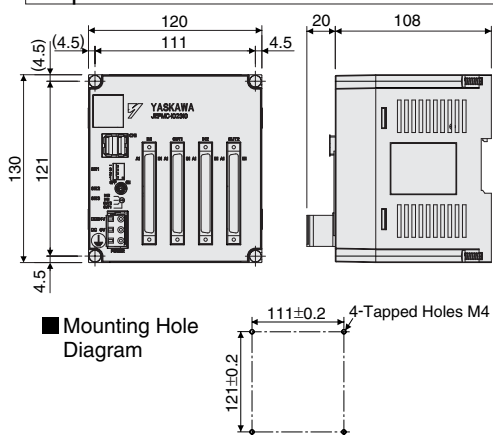
Counter, Pulse, and Analog Modules

■ Mounting Hole Diagram (Two Methods)

・Base mounted

2-Tapped Holes M4

・Rear mounted

2-Tapped Holes M4
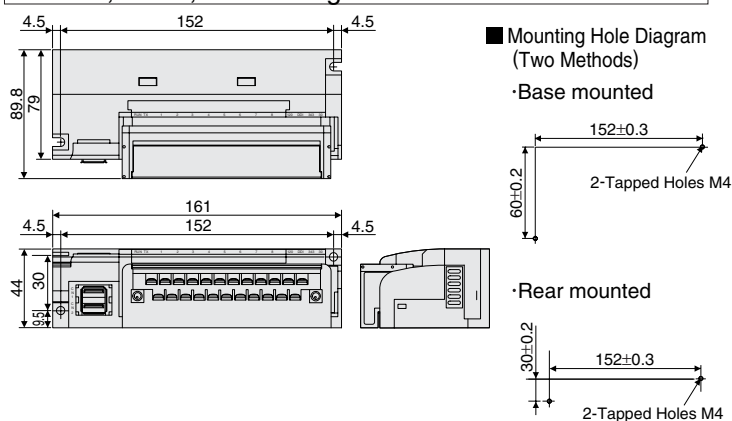
16-point/8-point I/O Module, Relay Output Module

●MECHATROLINK-Ⅲ Compatible Modules

Hub Module

Connector of Cable Side (3P)
721-203/026-000
(made by WAGO Company
of Japan, Ltd.)

Lever
231-131
(made by WAGO Company
of Japan, Ltd.)

Nameplate

FG Screw (M3)
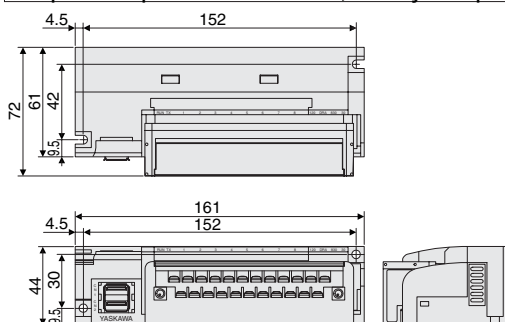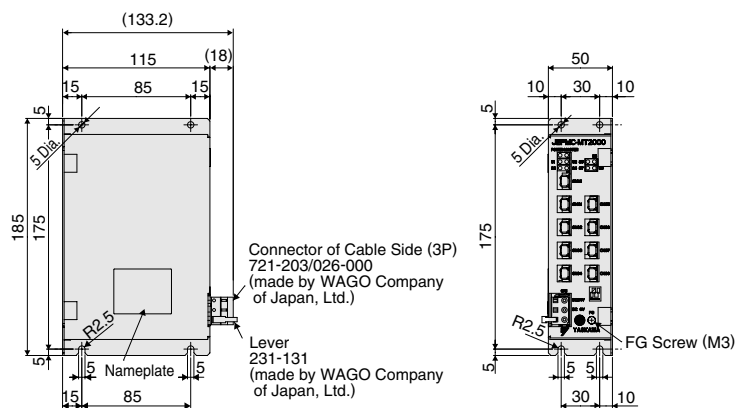
Network Analyzer, Network Adapter Module

Nameplate

POWER Connector (3P)
721-203/026-000

64-point I/O Module

■ Mounting Hole
   Diagram

4-Tapped Holes M4

111±0.2

121±0.2
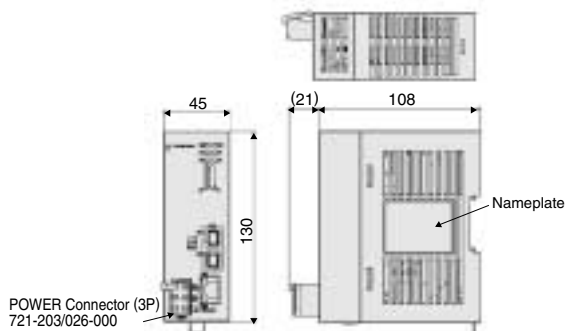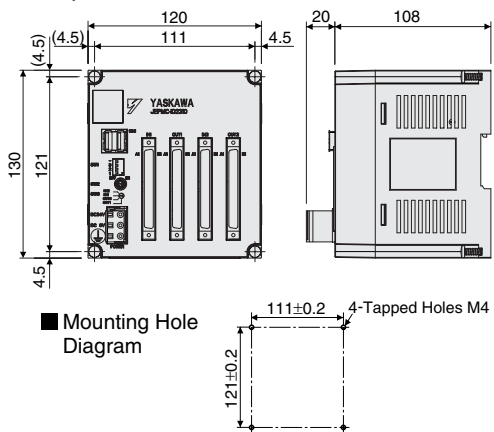
Sequence Controls

Items	Specifications
Program Capacity	MP2200: 150 k steps max. only with the ladder program. (Varies according to the size of the motion program used.) MP2500, MP2500M, MP2300, MP2310, MP2300S, MP2100, MP2100M: 120 k steps max. only with the ladder program. (Varies according to the size of the motion program used.) MP2400: Equivalent to 800 k characters only when using motion programs.
Control Method	Sequence: High-speed and low-speed scan methods
Programming Language	Ladder program: Relay circuit Textual language: Numerical operations, logic operations, etc.
Scanning	2 scan levels : High-speed scan and low-speed scan High-speed scan time setting : 1.0 ms to 32 ms (Integral multiple of a MECHATROLINK-II communication cycle) (0.5 ms to 32 ms for MP2200) Low-speed scan time setting : 2.0 ms to 300 ms (Integral multiple of a MECHATROLINK-II communication cycle)
User Drawings, Functions, and Motion Programs	Startup drawings (DWG.A) : 64 drawings max. Up to 3 hierarchical drawing levels High-speed scan process drawings (DWG.H) : 200 drawings max. Up to 3 hierarchical drawing levels Low-speed scan process drawings (DWG.L) : 500 drawings max. Up to 3 hierarchical drawing levels Interrupt processing drawings (DWG.I) : 64 drawings max. Up to 3 hierarchical drawing levels Number of steps : Up to 1000 steps/drawing User functions : Up to 500 functions Motion programs : Up to 256 Revision history of drawings and motion programs Security functions of drawings and motion programs
Data Memory	Common data (M) registers : 64 k words System (S) registers : 4 k words Drawing local (D) registers : Up to 16 k words/drawing Drawing constant (#) registers : Up to 16 k words/drawing Input (I) registers : 32 k words (shared with output registers) Output (O) registers : 32 k words (shared with input registers) Constant (C) registers : 16 k words
Trace Memory	Data trace : 128 k words (32 k words × 4 groups), 16 items/group defined
Memory Backup	Program memory : Flash memory (Battery backup for M registers)
Data Types	Bit (relay) : ON/OFF Integer : −32768 to +32767 Double-length integer: −2147483648 to +2147483647 Real number : ± (1.175E −38 to 3.402E +38)
Register Designation Method	Register number : Direct designation of register number Symbolic designation : Up to 8 alphanumeric characters (up to 200 symbols/drawing) With automatic number or symbol assignment

Note: The MP2400 has no user drawings because the MP2400 uses only motion programs.

Motion Controls

Items		Specifications			
Control Specifications		PTP control, interpolation, speed reference output, torque reference output, position reference output, phase reference output			
Zero-point Return (17 types)		① DEC1+C ② ZERO ③ DEC1+ZERO ④ C pulse ※⑤ DEC2+ZERO ※⑥ DEC1+LMT+ZERO ※⑦ DEC2+C ※⑧ DEC1+LMT+C ⑨ C pulse only ⑩ POT & C pulse ⑪ POT only ⑫ HOME LS & C ⑬ INPUT ⑭ HOME only ⑮ NOT & C pulse ⑯ NOT only ⑰ INPUT & C pulse ※: Only with SVA			
Number of Controlled Axes		1 to 16 axes (1 group)			
Reference Unit		mm, inch, deg, pulse			
Reference Unit Minimum Setting		1, 0.1, 0.01, 0.001, 0.0001, 0.00001			
Coordinate System		Rectangular coordinates			
Max. Programmable Value		−2147483648 to +2147483647 (signed 32-bit value)			
Speed Reference Unit		mm/min, inch/min, deg/min, pulse/min, mm/s, inch/s, deg/s, pulse/s			
Acceleration/Deceleration Type		Linear, asymmetric, S-curve			
Override Function		Positioning: 0.01% to 327.67% by axis Interpolation: 0.01% to 327.67% by group			
Programs	Language	Special motion language: Ladder			
	Number of Tasks	16 (Equal to the number of tasks that the ladder instruction, MSEE, can execute at the same time.)			
	Number of Programs	Up to 256			
	Program Capacity	MP2200	36 k lines (1.6 M characters) when the ladder program has 4 k steps. ⌐ Varies according to the size of the motion program used. For example, the motion program has 24 k lines (1.2 M characters) ∟ when the ladder program has 40 k steps.		
		MP2500, MP2500M, MP2300, MP2310, MP2300S, MP2100, MP2100M	24 k lines (1.2 M characters) when the ladder program has 4 k steps. ⌐ Varies according to the size of the motion program used. For example, the motion program has 16 k lines (800 k characters) ∟ when the ladder program has 40 k steps.		
		MP2400	Equivalent to 800 k characters only when using motion programs.		

Support Tools (Optional)

● MPE720 Version 6 Engineering Tool Model:CPMC-MPE770

Hardware and Software Requirements

Items	Specifications
CPU	Pentium 800 MHz or more (1 GHz or more recommended)
Memory	128 Mbytes or more (256 Mbytes or more recommended)
Free Hard Disk Space	200 Mbytes min.
Display	Resolution: 1024×768 pixels min., High Color (16 bits)
CD Drive	1 (only for installation)
Communication Port	RS-232C, Ethernet, MP2100 bus, or USB
Basic OS	Windows 2000 (SP1 or later), Windows XP, or Windows Vista
Others	Internet Explorer 5.5 or later, Adobe Reader Version 6.00 or later (Version 8.1.0 or later in Windows Vista)

Functions

Items	Specifications
Ladder Editor	Ladder mode by Ladder Works, Ladder mode
Engineering Manager	Command execution, Definition setting, Ladder program (ladder mode), Table data definition, Motion program
Parameters	Symbol manager for database management in ladder mode by Ladder Works; parameters: system, axis, I/Os, and global.
Help	Command/operation help (ladder mode by Ladder Works), Version information
Communication Process	Communication setting
Printing	Preview in ladder mode by Ladder Works, Program, and Cross reference (ladder mode)
Register List	Register display
Cam Tool	Electronic cam data generation
Customized Functions	Editor (ladder mode by Ladder Works), Toolbar

Commands for Motion Programs

Classifications	Commands	Functions	Classifications	Commands	Functions
Axis Move Commands	MOV	Positioning	Control Commands	MSEE	Subprogram call
	MVS	Linear interpolation		TIM	Dwell time
	MCC	Circular interpolation, Helical circular interpolation (counterclockwise)		IOW	I/O wait
				END	Program end
	MCW	Circular interpolation, Helical circular interpolation (clockwise)		RET	Subprogram end
				EOX	One scan wait
	ZRN	Zero-point return	Sequence Commands	IF, ELSE, IEND	Branching commands
	SKP	Skip		WHILE, WEND	Repeat commands
	MVT	Set time positioning			
	EXM	External positioning		PFORK, JOINTO, PJOINT	Parallel execution commands
Basic Control Commands	ABS	Absolute mode			
	INC	Incremental mode			
	POS	Current position set		SFORK, JOINTO, SJOINT	Selective execution commands
	PLN	Coordinate plane setting			
	MVM	Move on machine coordinate			
	PLD	Program current position update		=	Substitution
Speed and Acceleration/Deceleration Commands	ACC	Acceleration time change		+, −, *, /, MOD	Arithmetic operations
	SCC	S-curve time constant change		|, ^, &, !	Logic operations
	VEL	Set velocity		SIN, COS, TAN, ASN, ACS, ATN, SQRT, BIN, BCD	Function commands
	IAC	Interpolation acceleration time change			
	IDC	Interpolation deceleration time change			
	IFP	Interpolation feed speed ratio setting		==, <>, >, <, >=, <=	Numeric comparison commands
	FMX	Maximum interpolation feed speed setting			
High-level Control Commands	PFN	In-position check		SFR, SFL, BLK, CLR	Data operation
	INP	Second in-position check		(), S{}, R{}	Others
	SNG	Ignore single block signal			
	UFC	User function call			

Commands for Sequence Programs (For MP2300S and MP2400 only)

Classifications	Commands	Functions	Classifications	Commands	Functions
Control Commands	FUNC	User function call	Sequence Control Commands	PON, NON	Rising pulse, falling pulse
	SSEE	Sequence program call		TON, NOFF	Turn On Delay timer, Turn OFF Delay timer

Commands for Ladder Programs

Classifications	Instructions	Functions
Program Control Instructions	SEE	Child drawing call
	MSEE	Motion program call
	FUNC	Function call
	XCALL	Extension program call
	FOR / END_FOR	For structure
	WHILE / END_WHILE	While structure
	IF / END_IF	If structure
	EXPRESSION	Expression structure
Relay Circuit Instructions	NOC	NO contact
	NCC	NC contact
	ON-PLS	Rising pulse
	OFF-PLS	Falling pulse
	TON [10ms]	10 ms on-delay timer
	TOFF [10ms]	10 ms off-delay timer
	TON [1s]	1 s on-delay timer
	TOFF [1s]	1 s off-delay timer
	COIL	Coil
	S-COIL	Set coil
	R-COIL	Reset coil
Data Operation Instructions	RCHK	Range check
	ROTL	Bit left rotation
	ROTR	Bit right rotation
	MOVB	Bit transfer
	MOVW	Word transfer
	XCHG	Exchange transfer
	SETW	Table initialization
	BEXTD	Byte-to-word expansion
	BPRESS	Word-to-byte compression
	BSRCH	Binary search
	SORT	Sort
	SHFTL	Bit left shift
	SHFTR	Bit right shift
	COPYW	Word copy
	BSWAP	Byte swap

Classifications	Instructions	Functions
Logic Operation Instructions	AND	Conjunction
	OR	Logical sum
	XOR	Exclusive OR
Numeric Operation Instructions	ADD	Addition
	SUB	Subtraction
	ADDX	Extended addition
	SUBX	Extended subtraction
	STORE	Store
	MUL	Multiplication
	DIV	Division
	INC	Increment
	DEC	Decrement
	MOD	Integer remainder
	REM	Real number remainder
	TMADO	Add time
	TMSUB	Subtract time
	SPEND	Spend time
Numeric Conversion Instructions	INV	Sign inversion
	COM	1's complement
	ABS	Absolute value conversion
	BIN	Binary conversion
	BCD	BCD conversion
	PARITY	Parity conversion
	ASCII	ASCII conversion 1
	BINASC	ASCII conversion 2
	ASCBIN	ASCII conversion 3
Numeric Comparison Instructions	<	<
	≦	≦
	=	=
	≠	≠
	≧	≧
	>	>
Basic Function Instructions	SQRT	Square root
	SIN	Sine
	COS	Cosine
	TAN	Tangent
	ASIN	Arc sine
	ACOS	Arc cosine
	ATAN	Arc tangent
	EXP	Exponent
	LN	Natural logarithm
	LOG	Common logarithm

Classifications	Instructions	Functions
Direct I/O Instructions	INS	Direct input
	OUTS	Direct output
DDC Instructions	DZA	Dead zone A
	DZB	Dead zone B
	LIMIT	Upper/lower limit
	PI	PI control
	PD	PD control
	PID	PID control
	LAG	First-order lag
	LLAG	Phase lead/lag
	FGN	Function generator
	IFGN	Inverse function generator
	LAU	Linear accelerator
	SLAU	S-curve accelerator
	PWM	Pulse width modulation
Table Data Operation Instructions	TBLBR	Table read
	TBLBW	Table write
	TBLSRL	Row search
	TBLSRC	Column search
	TBLCL	Table clear
	TBLMV	Table block transfer
	QTBLR,QTBLRI	Queue table read
	QTBLW,QTBLWI	Queue table write
	QTBLCL	Queue table write pointer clear
System Functions	COUNTER	Counter
	FINFOUT	First-in/first-out
	TRACE	Trace
	DTRC-RD	Data trace read
	FTRC-RD	Failure trace read
	ITRC-RD	Inverter trace read
	MSG-SND	Send message
	MSG-RCV	Receive message
	ICNS-WR	Inverter constant write
	ICNS-RD	Inverter constant read

Electronic Cam Data Generation Tool

Items	Specifications
Data Generation	Cam curves can be selected from: • Straight line • Parabolic • Simple harmonic • Cycloid • Modified trapezoid • Modified sine • Modified constant velocity • Asymmetrical cycloid • Asymmetrical modified trapezoid • Trapecloid • Single-dwell cycloid m=1 • Single-dwell cycloid m=2/3 • Single-dwell modified trapezoid m=1 • Single-dwell ferguson trapezoid • Single-dwell modified trapezoid m=2/3 • Single-dwell modified sine • Single-dwell trapecloid • No-dwell simple harmonic • No-dwell modified trapezoid • No-dwell modified constant velocity • NC2 curve • Free-form curve • Inverted trapecloid • Paired strings • Inverted paired strings
Data Editing	Data graph: Parameter setting, style setting, graph data editing Data list: Insert, delete, etc. Control graph display: Displacement data, speed data, acceleration data, jerk data, graph comparison
Data Transfer	Cam data file is transferred to registers (M or C)

Software Specifications

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Support Tools (Optional)

●Motion API Model: CPMC-MPA700

Hardware and Software Requirements

Items	Specifications
CPU	Pentium 200 MHz or more (Pentium 400 MHz or more recommended)
Memory Capacity	64 Mbytes min.
Free Hard Disk Space	500 Mbytes min.
Display	Resolution: 800×600 pixels min. (1024×768 pixels recommended)
Expansion Slot	PCI half-size slot ×1
Interrupt Processing	Single level specifications (IRQ sharing possible)
I/O Memory	32 kbytes shared memory
OS	Windows 2000 Professional SP1 or higher, Windows XP Professional SP1 or higher, Windows Vista
Development Language	Microsoft Visual C/C++ 6.0 SP5 or higher, Microsoft Visual Basic 6.0 SP5 or higher
Motion Board	MP2100 (JAPMC-MC2100) or MP2100M (JAPMC-MC2140)

Motion Related API

Classifications	Commands	Functions	Classifications	Commands	Functions
Device	All clear for axis definition	ymcClearAllAxes( )	Interpolation	Direct interpolation	ymcMoveLinear( )
	Clear for axis definition	ymcClearAxis( )		Circular interpolation (specified main coordinate)	ymcMoveCircularCenter( )
	Clear for device	ymcClearDevice( )			
	Device definition	ymcDeclareDevice( )		Circular interpolation (specified radius)	ymcMoveCircularRadius( )
	Axis definition	ymcDeclareAxis( )			
	Acquisition of axis handle information	ymcGetAxisHandles( )		Helical interpolation (specified main coordinate)	ymcMoveHelicalCenter( )
Unit Conversion	Conversion: command unit to floating decimal point	ymcConvertFix2Float( )		Helical interpolation (specified radius)	ymcMoveHelicalRadius( )
	Conversion: floating decimal point to command unit	ymcConvertFix2Fix( )	Torque Reference	Torque reference	ymcMoveTorque( )
			Gears	Disable gear control	ymcDisableGear( )
Parameter-related Operations	Acquisition of motion parameter	ymcGetMotionParameter Value( )		Enable gear control	ymcEnableGear( )
	Setting for motion parameter	ymcSetMotionParameter Value( )		Setting for gear ratio	ymcSetGearRatio( )
	Setting for current position	ymcDefinePosition( )	Compensation	Compensation: positioning	ymcPositionOffset( )
Positioning	Positioning	ymcMovePositioning( )	Motion-related Operations	Change motion data	ymcChangeDynamics( )
	JOG feeding	ymcMoveJOG( )		Disable axial execution	ymcStopMotion( )
	JOG feeding disable	ymcStopJOG( )	Driver-related Operations	Servo ON/OFF setting	ymcServoControl( )
	Origin return operation	ymcMoveHomePosition( )			
	Positioning with specified time	ymcMoveIntimePositioning( )	Others	Disable latch	ymcDisableLatch( )
	External positioning	ymcMoveExternalPositioning( )		Enable latch	ymcEnableLatch( )
	Positioning for driver	ymcMoveDriverPositioning( )		Latch on standby	ymcWaitTime( )

System API

Classifications	Commands	Functions	Classifications	Commands	Functions
Data-related Operations	Setting for bit	ymcSetIoDataBit( )	System-related Operations	Specification of controller	ymcOpenController( )
	Setting for data	ymcSetIoDataValue( )		Release of specified controller	ymcCloseController( )
	Acquisition of data	ymcGetIoDataValue( )		Change of controller	ymcSetController( )
	Setting for register data value	ymcSetRegisterData( )		Acquisition of controller	ymcGetController( )
	Acquisition of register data value	ymcGetRegisterData( )		Acquisition of information on last error for the performed function	ymcGetLastError( )
	Acquisition of register data handle	ymcGetRegisterDataHandle( )	Calendar-related Operations	Acquisition of controller calendar	ymcGetCalendar( )
System-related Information	Acquisition of alarm information	ymcGetAlarm( )		Setting of controller calendar	ymcSetCalendar( )
	Clear alarm	ymcClearAlarm( )	Others	Detection time setting of API timeout	ymcSetAPITimeoutValue( )
	Clear system alarm	ymcClearServoAlarm( )			

● Control Information Monitoring Tool **MPLOGGER** Model: CPMC-MPG700

Hardware and Software Requirements

Items	Specifications
CPU	Pentium II 233 MHz min.
Memory Capacity	64 Mbytes min.
Free Hard Disk Space	1 Gbytes min. when logging, 100 Mbytes min. when not logging
Display	Resolution: 800×600 pixels min.
CD Drive	1 (Network drive can be used.)
OS	Windows 2000 (SP1 or later), Windows XP (SP2 or later), Windows Vista
Application Programs	Microsoft Excel 97 or higher, DAO (Microsoft) Version 3.5, CimScope (Yaskawa's communication driver) Version 0.34 or higher.

● Data Transfer Tool **MPLoader** Model: CPMC-MPL700C

Hardware and Software Requirements

Items	Specifications
CPU	Pentium 133 MHz min.
Memory Capacity	32 Mbytes min.
Free Hard Disk Space	20 Mbytes min.
Display	Resolution: 800×600 pixels min., High Color (16 bits)
OS	Windows 98SE/2000/XP

● Communication Middleware **MPScope** Model: CPMC-MPS700

Hardware and Software Requirements

Items	Specifications
CPU	Pentium 800 MHz min.
Memory Capacity	128 Mbytes min.
Free Hard Disk Space	50 Mbytes min. at system drive
Communication Port	Serial, Ethernet, PCI bus[1], or USB[2]
OS	Windows XP (SP2 or later), Windows Vista (SP1 or later)
Development Language	Microsoft Visual C++ 6.0 Microsoft Visual Basic 6.0 Microsoft Visual C++ .NET Microsoft Visual Basic .NET

[1]: With MP2100, MP2100M, MP2500, or MP2500M
[2]: With MP2200-02 (CPU-02)

● **OPC Server** Model: FA-Server 4.0
Robotics, Inc.
(http://www.roboticsware.co.jp)

Hardware and Software Requirements

Items	Specifications
CPU	Pentium 133 MHz min.
Free Hard Disk Space	30 Mbytes min.
OS	Windows 98/Me/NT4.0/2000/XP
Development Language	Microsoft Visual Basic, Microsoft Visual C++ (See Robticsware's website for more information.)

● Compression/Transfer tool for Auto Startup File **MPLoadMaker** Model: CPMC-MPL710

| Items | PC | |
	PC for software development with MPLoadMaker	Target PC
Applicable Machine Controller	MP2100, MP2100M, MP2200, MP2300	
CPU	Pentium II 400 MHz min.	
Free Hard Disk Space	More than 25 Mbytes[1] (For one auto startup file)	More than 1 Mbytes[1] (Only for transferring)
Memory Capacity	128 Mbytes min.	
Display Resolution	800×600 pixels min.	
OS	Windows 98SE (Japanese or English), Windows 2000 (Japanese or English), Windows XP (Japanese or English)	Windows 2000 (Japanese or English), Windows XP (Japanese or English)
Communication Interface	—	217IF[2], 218IF[2], USB, MP2100
File Transfer	MAL or YMW files	
Continuous Application Transfer	—	Provided
Hard Disk Space for Installation	30 Mbytes	Installation not required

[1] : Depending on the size of the application file to be transferred.
[2] : Cannot be used for relays.

Software Specifications

Model Designations   For details, refer to each catalog.

● Σ-II Series (Catalog number: KAE-S800-30)

SERVOPACKs

SGD□－A3 A E A－□

Σ-II Series SERVOPACKs
SGDM, SGDH*, SGDP, SGDJ

Capacity
A3 : 30 W
to
1E : 15.0 kW

Supply Voltage
A : 200 VAC
B : 100 VAC
D : 400 VAC

Options
Blank : Base-mounted
R   : Rack-mounted (5 kW max. only)
P   : Duct-ventilation (6 kW to 15 kW only)
S   : Single-phase, 220 V power supply (Only for SGDH SERVOPACK with 800 W, 1.5 kW)

Design Revision Order
(For SGDM or SGDP with Absolute Encoder only)

Control Type
Note: Depending on the SERVOPACK type, the functions will vary as shown below.
·SGDM → D
·SGDH → E } For speed, torque, and position control
·SGDP → P: For position control
·SGDJ → P: For position control, S: For speed and torque control

* : By mounting an application module, the SGDH SERVOPACK can be connected to a MECHATROLINK-II or DeviceNet network.

＜ Application Modules Applicable Models ＞
JUSP-NS115   : For MECHATROLINK-II networks
JUSP-NS300   : For DeviceNet networks
JEPMC-MC410 : MP940 Machine Controllers for DeviceNet networks

Servomotors

SGM□H－01 A A A 2 1 D

Σ-II Series Servomotor
SGMAH, SGMPH, SGMGH
SGMSH, SGMDH, SGMUH

Connector
Blank : Standard
D   : Waterproof connector (Only for SGMAH and SGMPH motors)

Rated Output

Code	Output	Code	Output	Code	Output
A3	30 W	08	750 W	32	3.2 kW
A5	50 W	09	900 W (850 W)	40	4.0 kW
01	100 W	10	1.0 kW	44	4.4 kW
02	200 W	12	1.2 kW	50	5.0 kW
03	300 W	13	1.3 kW	55	5.5 kW
04	400 W	15	1.5 kW	75	7.5 kW
05	450 W	20	2.0 kW (1.8 kW)	1A	11 kW
06	600 W	22	2.2 kW	1E	15 kW
07	650 W	30	3.0 kW (2.9 kW)	–	–

Notes : 1. The values in parentheses are for SGMGH servomotors (1500 min-1).
2. Refer to Quick Reference-2, Combination of Machine Controllers and Σ-II Series, on page 64 for rated output details for each model.

Options

Code	Specifications
1	No Option
B	90-VDC Brake
C	24-VDC Brake
D	Oil Seal, 90-VDC Brake
E	Oil Seal, 24-VDC Brake
S	Oil Seal

Voltage

Code	Voltage	Applicable Models
A	200 VAC	SGMAH, SGMPH, SGMGH, SGMSH, SGMDH
B	100 VAC	SGMAH, SGMPH
D	400 VAC	SGMAH, SGMPH, SGMGH, SGMSH, SGMUH

Shaft End Specifications

Code	Specifications	Applicable Models
2	Straight, No key (Standard)	SGMAH, SGMPH, SGMGH, SGMSH, SGMDH, SGMUH
3	Taper 1/10, Parallel key (Optional)	SGMGH, SGMSH, SGMUH
4	Straight, Key (Optional)	SGMAH, SGMPH
5	Taper 1/10, Woodruff key (Optional)	SGMGH (Only for some models)
6	Straight, Key,Tap (Optional)	SGMAH, SGMPH, SGMGH, SGMSH, SGMDH, SGMUH
8	Straight, Tap (Optional)	SGMAH, SGMPH

Serial Encoder Specifications

Code	Specifications	Applicable Models
1	16-bit Absolute (Standard)	SGMAH, SGMPH
2	17-bit Absolute (Standard)	SGMGH, SGMSH, SGMDH
4*	16-bit Absolute (Optional)	SGMAH, SGMPH
A	13-bit Incremental (Standard)	SGMAH, SGMPH
B	16-bit Incremental (Optional)	SGMAH, SGMPH
C	17-bit Incremental (Standard)	SGMGH, SGMSH, SGMDH, SGMUH

* : This model has the built-in capacitor for saving the data. The length of the motor will be longer than other models.

Design Revision Order

Code	Specifications	Applicable Models
A	Standard	SGMAH, SGMPH, SGMGH (1500 min-1), SGMSH, SGMDH, SGMUH
B		SGMGH (1000 min-1)
C	For High-precision Machinery	SGMGH (1500 min-1)-05 to -44 only
D		SGMGH (1000 min-1)-03 to -30 only
E	IP67 (Optional)	SGMPH

● Σ-Ⅲ Series (Catalog number: KAEP S800000 32)

SERVOPACKs

SGDS － A5 A 01 A □

Σ-Ⅲ Series SERVOPACK
SGDS

Mounting Method
Blank : Base-mounted (For models of 7.5 kW or less)
R : Rack-mounted (For models of 5.0 kW or less)

Design Revision Order
A, B …

Max. Applicable Motor Rated Output

Code	Output	Code	Output	Code	Output
A3	30 W	05	500 W	30	3.0 kW
A5	50 W	08	750 W	50	5.0 kW
01	100 W	10	1.0 kW	60	6.0 kW
02	200 W	15	1.5 kW	75	7.5 kW
04	400 W	20	2.0 kW	–	–

Interface Specifications

Code	Specifications	Applicable Servomotors
01	For analog voltage/pulse reference	
02	For analog voltage/pulse reference and fully closed control	Rotary servomotors
12	For MECHATROLINK-Ⅱ and fully closed control	
05	For analog voltage/pulse reference	Linear servomotors
15	For MECHATROLINK-Ⅱ	

Supply Voltage

Code	Supply Voltage
A	200 VAC
F	100 VAC [Input: 100 V, Output: 200 V (voltage doubled)]
B	100 VAC [Input: 100 V, Output: 100 V (for SGMMJ motors)]

Servomotors

SGM□□ － 01 A C A 2 1 □

Σ-Ⅲ Series Servomotor
SGMMJ, SGMAS, SGMPS
SGMSS, SGMGH

Options (SGMMJ only)

Code	Lead Length	Code	Lead Length
Blank	300 mm	J	1000 mm
H	500 mm	K	1500 mm

Rated Output

Code	Output	Code	Output	Code	Output	Code	Output
A1	10 W	03	300 W	12	1.2 kW[*2]	44	4.4 kW
A2	20 W	04	400 W	13	1.3 kW	50	5.0 kW
A3	30 W	05	450 W	15	1.5 kW	55	5.5 kW
A5	50 W	06	600 W	20	2.0 kW[*3]	70	7.0 kW
C2	150 W	08	750 W	25	2.5 kW	75	7.5 kW
01	100 W	09	900 W[*1]	30	3.0 kW[*4]	–	–
02	200 W	10	1.0 kW	40	4.0 kW	–	–

＊1 : SGMGH (1500 min⁻¹) : 850 W
＊2 : SGMAS : 1.15 kW
＊3 : SGMGH (1500 min⁻¹) : 1.8 kW
＊4 : SGMGH (1500 min⁻¹) : 2.9 kW

Options

Code	Specifications
1	No Option
B	90-VDC Brake
C	24-VDC Brake
D	Oil Seal, 90-VDC Brake
E	Oil Seal, 24-VDC Brake
S	Oil Seal

Note : The model designation for SGMMJ motors will show code 1 or C.

Voltage

Code	Voltage	Applicable Models
A	200 VAC	SGMAS＊, SGMPS＊, SGMSS, SGMGH
B	100 VAC	SGMMJ

＊ : 200-VAC supply voltage can be used for SGMAS and SGMPS motors even when 100 VAC is used for SERVOPACKs.

Shaft End Specifications

Code	Specifications	Applicable Models
2	Straight, No key (Standard)＊	SGMAS, SGMPS, SGMSS, SGMGH
3	Taper 1/10, Parallel key (Optional)	SGMSS, SGMGH
4	Straight, Key (Optional)	SGMAS, SGMPS
5	Taper 1/10, Woodruff key (Optional)	SGMGH (Only for some models)
6	Straight, Key, Tap (Optional)	SGMAS, SGMPS, SGMSS, SGMGH
8	Straight, Tap (Optional)	SGMAS, SGMPS
A	Straight, Flat (Optional)	SGMMJ

＊ : Standard for SGMMJ models: straight and no flat.

Serial Encoder Specifications

Code	Specifications	No. of Pulses
A[*1]	13-bit Incremental (Standard)	2048P/R
C[*2]	17-bit Incremental (Standard)	32768P/R
2	17-bit Absolute (Standard)	32768P/R

＊1 : Only for SGMMJ motors.
＊2 : Not for SGMMJ motors.

Design Revision Order

Code	Specifications	Applicable Models
A	Standard	SGMAS, SGMPS, SGMSS, SGMGH (1500 min⁻¹)
B		SGMMJ, SGMGH (1000 min⁻¹)
C	For High-precision Machinery	SGMGH (1500 min⁻¹) -05 to -44 only
D		SGMGH (1000 min⁻¹) -03 to -30 only
E	IP67 (Optional)	SGMPS

AC Servo Drives

Model Designations For details, refer to each catalog.

● Σ-V Series (Catalog number: KAEP S800000 42)

SERVOPACKs

SGDV – R70 A 01 A □

Σ-V Series SERVOPACK
SGDV

Current

	100 V		200 V		400 V
Code	Applicable Servomotor Max. Capacity	Code	Applicable Servomotor Max. Capacity	Code	Applicable Servomotor Max. Capacity
R70	0.05 kW	R70	0.05 kW	1R9	0.5 kW
R90	0.1 kW	R90	0.1 kW	3R5	1.0 kW
2R1	0.2 kW	1R6	0.2 kW	5R4	1.5 kW
2R8	0.4 kW	2R8	0.4 kW	8R4	2.0 kW
		3R8	0.5 kW	120	3.0 kW
		5R5	0.75 kW	170	5.0 kW
		7R6	1.0 kW	210	6.0 kW
		120	1.5 kW	260	7.5 kW
		180	2.0 kW	280	11 kW
		200	3.0 kW	370	15 kW
		330	5.0 kW		
		470	6.0 kW		
		550	7.5 kW		
		590	11 kW		
		780	15 kW		

Options

Code	Specifications
Blank	Base-mounted (Standard)
001000	Rack-mounted (Optional)✻

✻: SERVOPACKs of 6 kW or more are duct-ventilated.

Design Revision Order
A, B ···

Interfaces

Code	Specifications	Applicable Servomotor
01	For analog/pulse reference	Rotary servomotors
05		Linear servomotors
11	For MECHATROLINK-II	Rotary servomotors
15		Linear servomotors

Supply Voltage

Code	Specifications
F	100 VAC
A	200 VAC
D	400 VAC

Servomotors

● Without Gears

SGM□□ – 01 A D A 2 1

Σ-V Series Servomotors
SGMJV, SGMAV, SGMPS,
SGMGV, SGMSV

Rated Output

Code	Output	Code	Output
A5	50 W	15	1.5 kW
01	100 W	20	2.0 kW✻1
C2	150 W	25	2.5 kW
02	200 W	30	3.0 kW✻2
03	300 W	40	4.0 kW
04	400 W	44	4.4 kW
05	450 W	50	5.0 kW
06	550 W	55	5.5 kW
08	750 W	70	7.0 kW
09	850 W	75	7.5 kW
10	1.0 kW	1A	11 kW
13	1.3 kW	1E	15 kW

✻1 : SGMGV 1.8 kW   ✻2 : SGMGV 2.9 kW

Note : Refer to Quick Reference-5, Combination of Machine Controllers and Σ-V Series, on page 66 for rated output details for each model.

Voltage

Code	Voltage	Applicable Models
A	200 VAC	All models
D	400 VAC	SGMGV, SGMSV

Note : When ordering SGMPS servomotors, add an "-E" at the end of the model number. This indicates that it is RoHS-compliant.

Options

Code	Specifications	Applicable Models
1	No Options	All models
B	90-VDC Brake	SGMGV, SGMSV
C	24-VDC Brake	All models
D	Oil Seal, 90-VDC Brake	SGMGV, SGMSV
E	Oil Seal, 24-VDC Brake	All models
S	Oil Seal	All models

Shaft End

Code	Specifications	Applicable Models
2	Straight, Without Key (Standard)	All models
6	Straight, Key, Tap (Optional)	All models
B	Two-flat faces (Optional)	SGMJV, SGMAV

Design Revision Order

Code	Specifications	Applicable Models
A	IP55 (Standard)	SGMPS
	IP65 (Standard)	SGMJV, SGMAV
	IP67 (Standard)	SGMGV, SGMSV✻
E	IP67 (Optional)	SGMPS

✻: Except SGMSV-70 servomotors (IP22)

Serial Encoder

Code	Specifications	Applicable Models
2	17-bit Absolute (Standard)	SGMPS
3	20-bit Absolute (Standard)	SGMJV, SGMAV, SGMGV, SGMSV
A	13-bit Incremental (Standard)	SGMJV
C	17-bit Incremental (Standard)	SGMPS
D	20-bit Incremental (Standard)	SGMJV, SGMAV, SGMGV, SGMSV

● With Gears

SGM□□ – 01 A D A H 1 2 1

Σ-V Series Servomotors
SGMJV, SGMAV, SGMPS

Rated Output
See the table above.

Voltage
See the table above.

Serial Encoder
See the table above.

Design Revision Order
A : Standard

Speed Reducer
H : HDS planetary low-backlash gear

Note : When ordering SGMPS servomotors, add an "-E" at the end of the model number. This indicates that it is RoHS-compliant.

Options

Code	Specifications
1	No Options
C	24-VDC Brake

Shaft End

Code	Specifications
0	Flange Output
2	Straight, Without Key
6	Straight, Key, Tap

Gear Ratio

Code	Specifications
B	1/11 (Not applicable for 50 W models.)
C	1/21
1	1/5
2	1/9 (Applicable only for 50 W models.)
7	1/33

● JUNMA Series 〔Applicable for MECHATROLINK-Ⅱ〕 (Catalog number: KAEP S800000 41)

SERVOPACKs

SJDE － 02 A N A

JUNMA Series SERVOPACK
SJDE

Applicable Servomotor
Capacity
01 : 100 W
02 : 200 W
04 : 400 W
08 : 750 W

Supply Voltage
A : 200 VAC

Design Revision Order
A

Interface Specifications
N : MECHATROLINK-Ⅱ

Servomotors

SJME － 02 A M B 4 1

JUNMA Series Servomotor
SJME

Rated Output
01 : 100 W
02 : 200 W
04 : 400 W
08 : 750 W

Voltage
A : 200 VAC

Options
1 : No Option
C : 24-VDC Brake

Shaft End Specifications
4 : Straight, Key

Design Revision Order
B

Encoder Specifications
M : Incremental Encoder

● Direct-drive Σ Series
(Catalog number: KAEP S800000 06)

SERVOPACKs

Σ-Ⅱ SGDH (Refer to page 52.)

Σ-Ⅲ SGDS (Refer to page 53.)

Σ-V SGDV (Refer to page 54.)

Servomotors

SGMCS － 04 C 3 A 1 1

Direct-drive
Servomotor

Rated Torque

Small-capacity Models	Medium-capacity Models
02: 2 N·m	45: 45 N·m
04: 4 N·m	80: 80 N·m
05: 5 N·m	1A: 110 N·m
07: 7 N·m	1E: 150 N·m
08: 8 N·m	2Z: 200 N·m
10: 10 N·m	
14: 14 N·m	
16: 16 N·m	
17: 17 N·m	
25: 25 N·m	
35: 35 N·m	

Motor Outer Diameter
B: φ135 mm   E: φ290 mm
C: φ175 mm   M: φ280 mm
D: φ230 mm   N: φ360 mm

Option Specifications
1: Without options

Flange Specifications
1: C face
(Mounted on
non-load side)[1]
(Mounted on load side)[2]
3: C face[2]
(Mounted on
non-load side)
4: C face[1]
(With cable on side)

Design Revision Order
A, B …

Encoder Specifications
3 : 20-bit absolute[3] (Standard)
D : 20-bit incremental (Optional)

[1] : Only for small-capacity models.
[2] : Only for medium-capacity models.
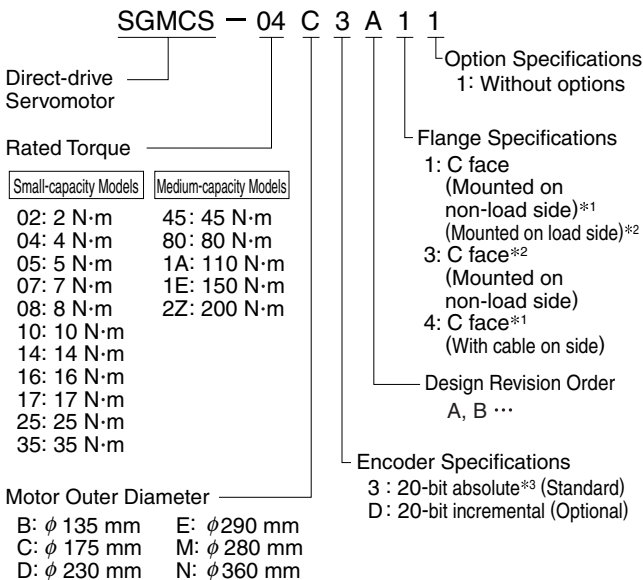[3] : Without multiturn data

● Linear Σ Series

SERVOPACKs

Σ-Ⅱ SGDH (Refer to page 52.)
(Catalog number: KAE-S800-39)

Σ-Ⅲ SGDS (Refer to page 53.)
(Catalog number: KAEP S800000 32)

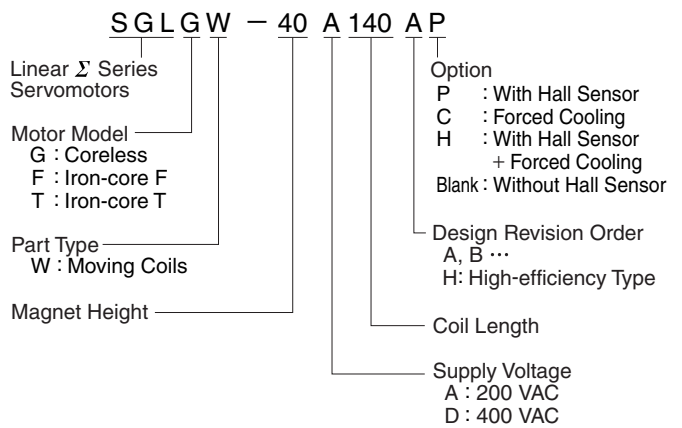Σ-V SGDV (Refer to page 54.)
(Catalog number: KAEP S800000 42)

Servomotors

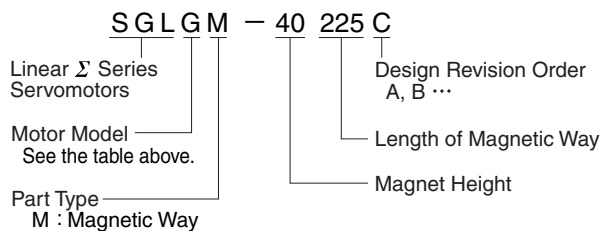### ● Moving Coils

S G L G W － 40 A 140 A P

Linear Σ Series
Servomotors

Motor Model
G : Coreless
F : Iron-core F
T : Iron-core T

Part Type
W : Moving Coils

Magnet Height

Option
P : With Hall Sensor
C : Forced Cooling
H : With Hall Sensor
+ Forced Cooling
Blank : Without Hall Sensor

Design Revision Order
A, B …
H: High-efficiency Type

Coil Length

Supply Voltage
A : 200 VAC
D : 400 VAC

● Magnetic Way

S G L G M － 40 225 C

Linear Σ Series
Servomotors

Motor Model
See the table above.

Part Type
M : Magnetic Way

Magnet Height

Length of Magnetic Way

Design Revision Order
A, B …

AC Servo Drives

Model Designations   For details, refer to each catalog.

● Σ-Stick Series (Catalog number: KAEP S800000 33)
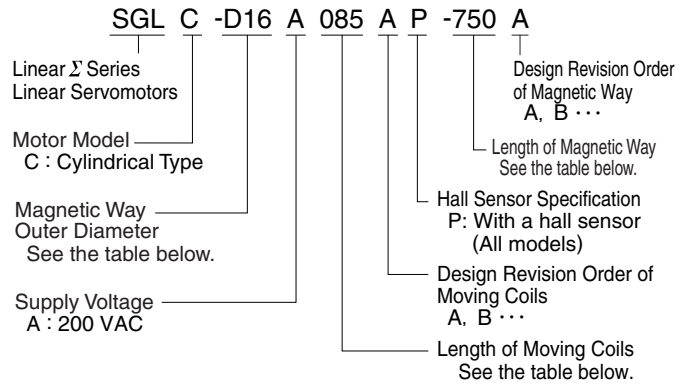
SERVOPACKs

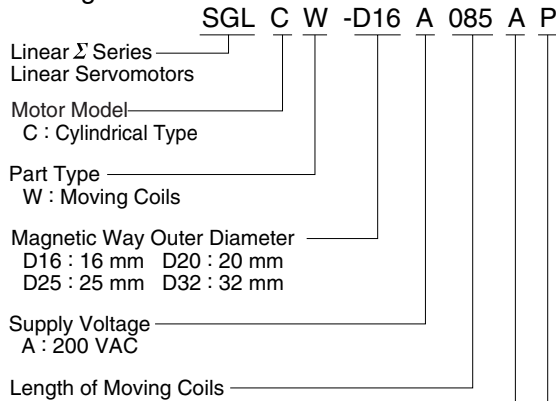Σ-Ⅲ **SGDS** (Refer to page 53.)

Σ-Ⅴ **SGDV** (Refer to page 54.)

Servomotors (Integrated Model)

● Moving Coils and Magnetic Way
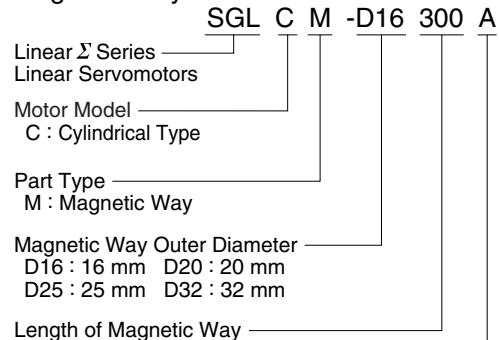
SGL C -D16 A 085 A P -750 A

- Linear Σ Series
  Linear Servomotors
- Motor Model
  C : Cylindrical Type
- Magnetic Way
  Outer Diameter
    See the table below.
- Supply Voltage
  A : 200 VAC
- Length of Moving Coils
    See the table below.
- Design Revision Order of
  Moving Coils
    A, B ···
- Hall Sensor Specification
  P: With a hall sensor
    (All models)
- Length of Magnetic Way
    See the table below.
- Design Revision Order
  of Magnetic Way
    A, B ···

Servomotors (Non-integrated Model)

● Moving Coils

SGL C W -D16 A 085 A P

- Linear Σ Series
  Linear Servomotors
- Motor Model
  C : Cylindrical Type
- Part Type
  W : Moving Coils
- Magnetic Way Outer Diameter
  D16 : 16 mm   D20 : 20 mm
  D25 : 25 mm   D32 : 32 mm
- Supply Voltage
  A : 200 VAC
- Length of Moving Coils

Magnetic Way Outer Diameter Code	Coil Length Code	Coil Length mm
D16	085	85
	115	115
	145	145
D20	100	100
	135	135
	170	170
D25	125	125
	170	170
	215	215
D32	165	165
	225	225
	285	285

- Design Revision Order
  A, B···
- Hall Sensor Specification
  (All models)
  P: With a hall sensor

● Magnetic Way

SGL C M -D16 300 A

- Linear Σ Series
  Linear Servomotors
- Motor Model
  C : Cylindrical Type
- Part Type
  M : Magnetic Way
- Magnetic Way Outer Diameter
  D16 : 16 mm   D20 : 20 mm
  D25 : 25 mm   D32 : 32 mm
- Length of Magnetic Way

Magnetic Way Outer Diameter Code	Magnetic Way Length Code	Magnetic Way Length mm
D16	300	300
	510	510
	750	750
D20	350	350
	590	590
	870	870
D25	450	450
	750	750
	1110	1110
D32	600	600
	1020	1020
	1500	1500

- Design Revision Order
  A, B···

Note : An integrated model is the standard model when ordering a servomotor from the Σ-Stick series.
　　　Contact your Yaskawa representative to order a servomotor with only moving coils or a magnetic way.

Order List

Notes : 1 If the model number has "-E", the product is compliant with RoHS directives.
2 If the model number has "(-E)", both RoHS-compliant and non RoHS-compliant products are available. Contact your Yaskawa representative for details.

●Controller Main Units, Modules, and Support Tools

Classifications	Products	Model Name	Model	Specifications	Qty
Machine Controller Main Units	MP2100 board*1	MP2100	JAPMC-MC2100 (-E)	1 channel for MECHATROLINK-Ⅱ, 5-point input and 4-point output	
	MP2100M board*1	MP2100M	JAPMC-MC2140 (-E)	2 channels for MECHATROLINK-Ⅱ, 5-point input and 4-point output	
	MP2200 base unit*1	MBU-01	JEPMC-BU2200 (-E)	100 VAC/200 VAC input base unit (9 slots)	
		MBU-02	JEPMC-BU2210 (-E)	24 VDC input base unit (9 slots)	
		MBU-03	JEPMC-BU2220 (-E)	24 VDC input base unit (4 slots)	
	MP2300 basic module (CPU module included)	MP2300	JEPMC-MP2300 (-E)	24 VDC input, 1 channel for MECHATROLINK-Ⅱ, I/O ・A battery (JZSP-BA01) for backup data is provided.	
	MP2310 basic module	MP2310	JEPMC-MP2310-E	24 VDC input, 1 channel for MECHATROLINK-Ⅱ, 1 channel for Ethernet (100 Mbps) ・A battery (JZSP-BA01) for backup data is provided.	
	MP2300S basic module	MP2300S	JEPMC-MP2300S-E	1 channel for MECHATROLINK-Ⅱ, 1 channel for Ethernet (100 Mbps) 1-point output ・A battery (JZSP-BA01) for backup data is provided.	
	MP2400 module	MP2400	JEPMC-MP2400-E	1 channel for MECHATROLINK-Ⅱ, 1 channel for Ethernet (100 Mbps) 1-point output ・A battery (JZSP-BA01) for backup data is provided.	
	MP2500	MP2500	JEPMC-MP2500-NP0-E	15-inch panel integrated type 1 channel for MECHATROLINK-Ⅱ	
			JEPMC-MP2500-NP1-E	12.1-inch panel integrated type 1 channel for MECHATROLINK-Ⅱ	
	MP2500M	MP2500M	JEPMC-MP2540-NP0-E	15-inch panel integrated type 2 channels for MECHATROLINK-Ⅱ	
			JEPMC-MP2540-NP1-E	12.1-inch panel integrated type 2 channels for MECHATROLINK-Ⅱ	
		MP2500ME	JEPMC-MP254E-NP0-E	15-inch panel integrated type 2 channels for MECHATROLINK-Ⅱ + EXIOIF	
			JEPMC-MP254E-NP1-E	12.1-inch panel integrated type 2 channels for MECHATROLINK-Ⅱ + EXIOIF	
	MP2500B	MP2500B	JEPMC-MP2500-NB0-E	Separated PC Box, 1 channel for MECHATROLINK-Ⅱ	
	MP2500MB	MP2500MB	JEPMC-MP2540-NB0-E	Separated PC Box, 2 channels for MECHATROLINK-Ⅱ	
	MP2500B-OP	MP2500B-OP	JEPMC-MP250U-NB0-E	Separated PC Box, 1 channel for MECHATROLINK-Ⅱ + Spare slot × 1*2	
	MP2500MB-OP	MP2500MB-OP	JEPMC-MP254U-NB0-E	Separated PC Box, 2 channels for MECHATROLINK-Ⅱ+ Spare slot × 1*2	
CPU Module	CPU-01 module	CPU-01	JAPMC-CP2200 (-E)	CPU for MP2200 ・A battery (JZSP-BA01) for backup data is provided.	
	CPU-02 module	CPU-02	JAPMC-CP2210 (-E)	CPU module for MP2200, with CF card slot and USB port ・A battery (JZSP-BA01) for backup data is provided.	
	CPU-03 module	CPU-03	JAPMC-CP2220-E	CPU module for MP2200, with CF card slot, 1 channel for Ethernet (100 Mbps) ・A battery (JZSP-BA01) for backup data is provided.	
	CPU-04 module	CPU-04	JAPMC-CP2230-E	High-speed CPU for MP2200, 1 channel for Ethernet (100 Mbps) ・A battery (JZSP-BA01) for backup data is provided.	
	MPU-01 module	MPU-01	JAPMC-CP2700-E	Module with CPU and SVC-01 functions, 1 channel for MECHATROLINK-Ⅲ	

＊1 : Battery (JZSP-BA01) for backup data is sold separately.
＊2 : One MP2000-series optional module can be mounted in the spare slot.

AC Servo Drives

Ordering Reference

Order List

Notes : 1 If the model number has "-E", the product is compliant with RoHS directives.
2 If the model number has "(-E)", both RoHS-compliant and non RoHS-compliant products are available. Contact your Yaskawa representative for details.

● Controller Main Units, Modules, and Support Tools (cont'd)

Classifications	Products	Model Name	Model	Specifications	Qty
Connection Module	Expansion interface module	EXIOIF	JAPMC-EX2200 (-E)	Expansion interface for MP2200	
	Expansion interface board	MP2100MEX	JAPMC-EX2100 (-E)	Expansion interface board for MP2100M	
	Repeater	−	JEPMC-REP2000 (-E)	MECHATROLINK-Ⅱ repeater	
Motion Modules	Motion control module	SVB-01	JAPMC-MC2310 (-E)	1 channel for MECHATROLINK-Ⅱ	
		SVC-01	JAPMC-MC2320-E	1 channel for MECHATROLINK-Ⅲ	
	Analog motion control module	SVA-01	JAPMC-MC2300 (-E)	Analog servo interface × 2 axes	
	Pulse Output Motion Control Module	PO-01	JAPMC-PL2310-E	Pulse-output, 4-axis servo control	
Communication Modules	General-purpose serial communication module	217IF-01	JAPMC-CM2310 (-E)	RS-232C/RS-422 communication	
	Ethernet communication module	218IF-01	JAPMC-CM2300 (-E)	RS-232C/Ethernet communication	
		218IF-02	JAPMC-CM2302-E	RS-232C/Ethernet (100 Mbps) communications	
	DeviceNet communication module	260IF-01	JAPMC-CM2320 (-E)	RS-232C/DeviceNet communication	
	PROFIBUS communication module	261IF-01	JAPMC-CM2330 (-E)	RS-232C/PROFIBUS communication	
	FL-net communication module	262IF-01	JAPMC-CM2303-E	Cyclic transmission and message transmission	
	EtherNet / IP communication module	263IF-01	JAPMC-CM2304-E	I/O transmission and Explicit message transmission	
	EtherCAT communication module	264IF-01	JAPMC-CM2305-E	As a slave station of EtherCAT	
	MPLINK communication module	215AIF-01 MPLINK	JAPMC-CM2360 (-E)	RS-232C/MPLINK communication	
	CP-215 communication module	215AIF-01 CP-215	JAPMC-CM2361 (-E)	RS-232C/CP-215 communication	
I/O Modules	I/O module	LIO-01	JAPMC-IO2300 (-E)	16-point input, 16-point output (sink mode output), and 1-point pulse input	
		LIO-02	JAPMC-IO2301 (-E)	16-point input, 16-point output (source mode output), and 1-point pulse input	
		LIO-04	JAPMC-IO2303 (-E)	32-point input and 32-point output (sink mode output)	
		LIO-05	JAPMC-IO2304 (-E)	32-point input and 32-point output (source mode output)	
	LIO-06 module	LIO-06	JAPMC-IO2305-E	Digital input: 8 points, digital output: 8 points, analog input:1 channel, analog output:1 channel, pulse counter: 1 channel	
	Output module	DO-01	JAPMC-DO2300 (-E)	64-point output (sink mode output)	
	Analog input module	AI-01	JAPMC-AN2300 (-E)	8 channels for analog input	
	Analog output module	AO-01	JAPMC-AN2310-E	4 channels for analog output	
	Counter module	CNTR-01	JAPMC-PL2300-E	2 channels, selection of 2 input circuits: 5-V differential or 12 V.	
Distributed I/O Modules (I/O Modules for MECHATROLINK-Ⅱ)	64-point I/O module	IO2310	JEPMC-IO2310 (-E)	64-point input and 64-point output (sink mode output)	
		IO2330	JEPMC-IO2330 (-E)	64-point input and 64-point output (source mode output)	
	Counter module	PL2900	JEPMC-PL2900 (-E)	Reversible counter: 2 channels	
	Pulse output module	PL2910	JEPMC-PL2910 (-E)	Pulse output: 2 channels	
	Analog input module	AN2900	JEPMC-AN2900 (-E)	Analog input: −10 V to +10 V, 4 channels	
	Analog output module	AN2910	JEPMC-AN2910 (-E)	Analog output: −10 V to +10 V, 2 channels	
	16-point input module	IO2900-E	JAMSC-IO2900-E	16-point input	
	16-point output module	IO2910-E	JAMSC-IO2910-E	16-point output (sink mode output)	
	8-point I/O module	IO2920-E	JAMSC-IO2920-E	8-point input and 8-point output (sink mode output)	
	Relay output module	IO2950-E	JAMSC-IO2950-E	8 contact outputs	
MECHATROLINK-Ⅲ Compatible Modules	Hub module	HUB	JEPMC-MT2000-E	−	
	Network analyzer	MTNA-01	JEPMC-MT2010-E	−	
	Network adapter module	MTNA-02	JEPMC-MT2020-E	−	
	64-point I/O module	MTD2310	JEPMC-MTD2310-E	64-point input and 64-point output (sink mode output)	

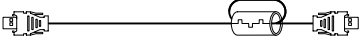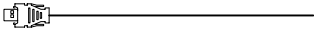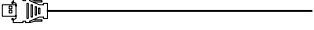| Classifications	Products	Model Name	Model	Specifications	Qty
Engineering Tool	MPE720 version 5	–	CPMC-MPE720	· The programming software to support you from system design to maintenance · Intuitive ladder programming and editing functions · Cam data generations · MPE720 Ver.5 : Applicable for Windows 95/98/NT4.0/2000/XP.	
	MPE720 version 6	–	CPMC-MPE770	· MPE720 Ver.6 : Applicable for Windows 2000 (SP1 or later)/XP. Note: MPE720 Ver.6 is not available with machine controllers in the MP900 series.	
API	Motion API	–	CPMC-MPA700	Header file, library, DLL, driver, and manual	
Screen-creation Tool	MotionScreen Builder	–	CPMC-MPMS700B	· For MP2500 and MP2500M · For HMI development without programming · Provides API for VC.	
Controller Data Monitoring Tool	MPLOGGER	–	CPMC-MPG700	· Monitors the machine-controller data on an Excel sheet.	
Data Transfer Tool	MPLoader	–	CPMC-MPL700C	· Loads data to Machine Controller without using MPE720.	
Automatic Compression/ Transfer Tool	MPLoadMaker	–	CPMC-MPL710	· Creates an auto transfer file with application data.	
Communication Middleware	MPScope	–	CPMC-MPS700	· Acts as middleware between the MP2000 machine controller and the host PC, so a COM interface can be used to execute the functions for the register operations even if data is received from a variety of communications networks.	

● Cables and Connectors
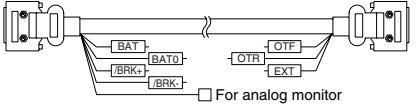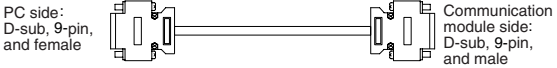
Name	Model	Length m	Specifications	Qty
Cable for MECHATROLINK-Ⅲ	JEPMC-W6012-A2-E	0.2	With MECHATROLINK-Ⅲ connectors on both ends	
	JEPMC-W6012-A5-E	0.5		
	JEPMC-W6012-01-E	1.0		
	JEPMC-W6012-02-E	2.0		
	JEPMC-W6012-03-E	3.0		
	JEPMC-W6012-05-E	5.0		
	JEPMC-W6012-10-E	10.0		
	JEPMC-W6012-20-E	20.0		
	JEPMC-W6012-30-E	30.0		
	JEPMC-W6012-50-E	50.0		
	JEPMC-W6013-10-E	10.0	With ring core	
	JEPMC-W6013-20-E	20.0		
	JEPMC-W6013-30-E	30.0		
	JEPMC-W6013-50-E	50.0		
	JEPMC-W6014-A5-E	0.5	With a connector on the controllers end	
	JEPMC-W6014-01-E	1.0		
	JEPMC-W6014-03-E	3.0		
	JEPMC-W6014-05-E	5.0		
	JEPMC-W6014-10-E	10.0		
	JEPMC-W6014-30-E	30.0		
	JEPMC-W6014-50-E	50.0		
Cable for MECHATROLINK-Ⅱ and MPLINK	JEPMC-W6002-A5 (-E)	0.5	With connectors on both ends	
	JEPMC-W6002-01 (-E)	1.0		
	JEPMC-W6002-03 (-E)	3.0		
	JEPMC-W6002-05 (-E)	5.0		
	JEPMC-W6002-10 (-E)	10.0		
	JEPMC-W6002-20 (-E)	20.0		
	JEPMC-W6002-30 (-E)	30.0		
	JEPMC-W6002-40 (-E)	40.0		
	JEPMC-W6002-50 (-E)	50.0		

Ordering Reference
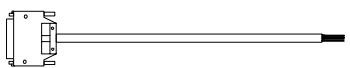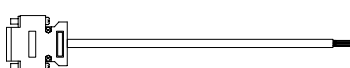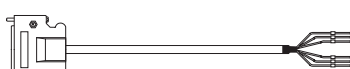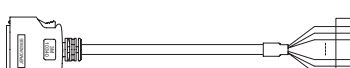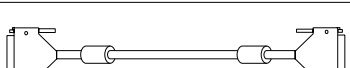
Order List

Notes : 1 If the model number has "-E", the product is compliant with RoHS directives.
2 If the model number has "(-E)", both RoHS-compliant and non RoHS-compliant products are available. Contact your Yaskawa representative for details.

● Cables and Connectors (cont'd)

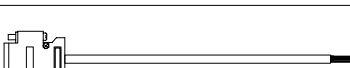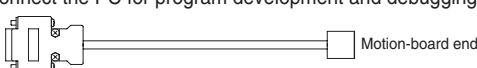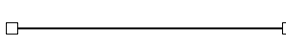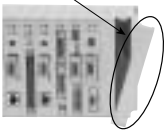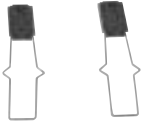| Name	Model	Length m	Specifications	Qty
Cable for MECHATROLINK-II and MPLINK	JEPMC-W6003-A5 (-E)	0.5	With ring core	
	JEPMC-W6003-01 (-E)	1.0		
	JEPMC-W6003-03 (-E)	3.0		
	JEPMC-W6003-05 (-E)	5.0		
	JEPMC-W6003-10 (-E)	10.0		
	JEPMC-W6003-20 (-E)	20.0		
	JEPMC-W6003-30 (-E)	30.0		
	JEPMC-W6003-40 (-E)	40.0		
	JEPMC-W6003-50 (-E)	50.0		
MPLINK Cable	JEPMC-W6011-A5	0.5	With a connector on the controllers end Note: Never use these cables with MECHATROLINK-II.	
	JEPMC-W6011-01	1.0		
	JEPMC-W6011-03	3.0		
	JEPMC-W6011-05	5.0		
	JEPMC-W6011-10	10.0		
	JEPMC-W6011-20	20.0		
	JEPMC-W6011-30	30.0		
	JEPMC-W6011-40	40.0		
	JEPMC-W6011-50	50.0		
Cable for MECHATROLINK-I	JEPMC-W6010-01	1.0	With a connector on the controller end Note: Use only to connect a Σ-I series servodrives to the MP2000-series machine controller that acts as the master station. Never use these cables for connecting devices other than Σ-I servodrives.	
	JEPMC-W6010-03	3.0		
	JEPMC-W6010-05	5.0		
	JEPMC-W6010-07	7.0		
	JEPMC-W6010-10	10.0		
	JEPMC-W6010-15	15.0		
	JEPMC-W6010-20	20.0		
	JEPMC-W6010-30	30.0		
	JEPMC-W6010-40	40.0		
	JEPMC-W6010-50	50.0		
Terminator	JEPMC-W6022 (-E)	–	For MECHATROLINK-II	
Ring Core	JEPMC-W6021	–	For MECHATROLINK-II cable	
Connection Cable for SVA-01	JEPMC-W2040-A5	0.5	With connectors on both ends	
	JEPMC-W2040-01	1.0		
	JEPMC-W2040-03	3.0		
RS-232C Communication Cable (217IF-01, 218IF-01, 260IF-01, 261IF-01, and 215AIF-01)	JEPMC-W5311-03-E	2.5	Connection cable for MPE720-installed PC PC side: D-sub, 9-pin, and female Communication module side: D-sub, 9-pin, and male	
	JEPMC-W5311-15-E	15.0		
RS-422/485 Communication Cable for 217IF-01			No ready-made cable available. Prepare a cable that meets these specifications. : Connector: 10114-3000VE made by Sumitomo 3M Co., Ltd. Shell : 10314-52A0-008 made by Sumitomo 3M Co., Ltd. Cable : Max. length 300 m, shielded (Use shielded cable and a modem to reduce noise.)	

(cont'd)

Name	Model	Length m	Specifications		Qty
Ethernet Communication Cable for 218IF-01	Use 10Base-T cross or straight cables.				
DeviceNet Communication Cable for 260IF-01	Use DeviceNet cables. Refer to the ODVA-J web site. (http://www.odva.astem.or.jp/)				
PROFIBUS Communication Cable for 261IF-01	Use PROFIBUS cables. Refer to the PROFIBUS web site (http://www.profibus.jp/). Make sure the cable outlet position and direction so that it will not stand in the way of the RS-232C connector connection when selecting a cable.				
CP-215 Communication Cable for 215AIF-01	No ready-made cable available. Prepare a cable that meets these specifications.: Wire: YS-IPEV-SB (75Ω) or YS-IPEV-S (75Ω) made by Fujikura Ltd. Connector on module end: MR-8RFA4 (G) made by Honda Tsushin Kogyo, Co., Ltd. Connector on cable end: MR-8M (G) made by Honda Tsushin Kogyo, Co., Ltd.				
I/O Cable for MP2300	JEPMC-W2060-A5-E	0.5	With a connector on the MP2300 end		
	JEPMC-W2060-01-E	1.0			
	JEPMC-W2060-03-E	3.0			
I/O Cable for LIO-01 and LIO-02	JEPMC-W2061-A5	0.5	With a connector on the LIO-01/-02 end		
	JEPMC-W2061-01	1.0			
	JEPMC-W2061-03	3.0			
I/O Cable for LIO-04, LIO-05, DO-01, and PO-01	JEPMC-W6060-05-E	0.5	With a connector on the LIO-04/LIO-05/ DO-01 end		
	JEPMC-W6060-10-E	1.0			
	JEPMC-W6060-30-E	3.0			
I/O cable for LIO-06	JEPMC-W2064-A5-E	0.5	With a connector on the LIO-06 end, 50 pins (With shielded wire)		
	JEPMC-W2064-01-E	1.0			
	JEPMC-W2064-03-E	3.0			
Input Cable for AI-01	JEPMC-W6080-05-E	0.5	With a connector on the AI-01 end		
	JEPMC-W6080-10-E	1.0			
	JEPMC-W6080-30-E	3.0			
Output Cable for AO-01	JEPMC-W6090-05-E	0.5	With a connector on the AO-01 end		
	JEPMC-W6090-10-E	1.0			
	JEPMC-W6090-30-E	3.0			
I/O Cable for CNTR-01	JEPMC-W2063-A5-E	0.5	With a connector on the CNTR-01 end		
	JEPMC-W2063-01-E	1.0			
	JEPMC-W2063-03-E	3.0			
EXIOIF Cable	JEPMC-W2091-A5	0.5	With connectors on both ends		
	JEPMC-W2091-01	1.0			
	JEPMC-W2091-2A5	2.5			
I/O Cable for MP2100, MP2100M, MP2500, MP2500M, MP2500B, and MP2500MB	JEPMC-W2062-A5	0.5	With a connector on the controller end.		
	JEPMC-W2062-01	1.0			
	JEPMC-W2062-03	3.0			
I/O Cable for IO2310 and IO2330	JEPMC-W5410-05-E	0.5	With a connector on the IO2310/IO2330 end		
	JEPMC-W5410-10-E	1.0			
	JEPMC-W5410-30-E	3.0			
Programming Cable for MP2500, MP2500M, MP2500B, and MP2500MB	JEPMC-W2010-03	3.0	Serial cable to connect the PC for program development and debugging. PC end: D-sub, 9-pin, and female Motion-board end		
	JEPMC-W2010-05	5.0			
	JEPMC-W2010-15	15.0			
Battery Extension Cable for MP2100	JEPMC-W2090-01	1.0	With connectors on both ends		
T- branch Connector	JEPMC-OP2310-E	–	MPLINK communication connector for 215AIF-01		
MR Connector Converter	JEPMC-OP2320	–	CP-215 communication connector for 215AIF-01		

Ordering Reference

Order List

● Optional Products

Applicable Machine Controller	Product Name	Product Model	Specifications	Qty
MP2000 Series Machine Controllers	Lithium battery	JZSP-BA01	For data backup, 3.6 V	
MP2200, MP2300	Protective cover	JEPMC-OP2300	Front cover for empty slot	
	Module mounting fixtures	JEPMC-OP300	Used to mount a module on DIN rail (1 pair in a set)	
MP2200 (CPU-02), MP2500, MP2500M, MP2500B, MP2500MB	CompactFlash for data storage	CFI-128MDG	Type I, 128 Mbytes	
		CFI-256MDG	Type I, 256 Mbytes	
		CFI-512MDG	Type I, 512 Mbytes	
MP2500, MP2500M, MP2500B, MP2500MB	CompactFlash adapter (PCMCIA)	CFC-ADP03	CompactFlash adapter for PCMCIA connectors	
	Screen protection sheets	CA3-DFS15-01	For integrated 15-inch touch panel	
		CA7-DFS12-01	For integrated 12-inch touch panel	
	Replaceable backlights	CA7-BLU15-01	For integrated 15-inch touch panel	
		CA3-BLU12-01	For integrated 12-inch touch panel	
	Gaskets	CA7-WPG15-01	For integrated 15-inch touch panel	
		CA7-WPG12-01	For integrated 12-inch touch panel	
	Brackets	CA3-ATFALL-01	Brackets used for installing the MP2500/MP2500M controllers (2 sets of 4/set)	
	Battery kit	JEPMC-OP2500	A kit containing a lithium battery, cable (1 m), and clip (Mounting screws are not included.)	
MP2300S, MP2400	Unit base	JEPMC-OP2300S-E JEPMC-OP2400-E	Attachment for installing the machine controller	

Quick Reference-1
List of Optional Modules

● : Available, × : Not available　※ : Version number of the software for the CPU in the machine controller
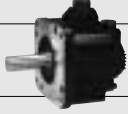
Classification		Model	Specifications	MP2500/M/B/MB	MP2200	MP2300/2310/2300S	MP2100/M
Optional Modules	CPU Modules	CPU-01	CPU	×	●	×	×
		CPU-02	USB+CFIF	×	● ※Version 2.42 or later	×	×
		CPU-03	Ethernet+CFIF	×	● ※Version 2.70 or later	×	×
		CPU-04	CPU+Ethernet	×	●	×	×
		MPU-01	CPU+SVC-01	×	●	● ※Version 2.73 or later (Cannot be used with MP2300.)	×
	Expansion Module	EXIOIF	Expansion	×	●	×	×
	Communication Modules	217IF-01	Serial communication	×	●	●	×
		218IF-01	Ethernet communication	×	●	●	×
		218IF-02	Ethernet communication	×	● ※Version 2.60 or later	● ※Version 2.60 or later	×
		260IF-01	DeviceNet communication	×	●	●	×
		261IF-01	PROFIBUS communication	×	●	●	×
		262IF-01	FL-net	×	● ※Version 2.63 or later	● ※Version 2.63 or later	×
		263IF-01	EtherNet / IP	×	● ※Version 2.64 or later	● ※Version 2.64 or later	×
		264IF-01	EtherCAT	×	● ※Version 2.73 or later	● ※Version 2.73 or later	×
		215AIF-01	CP-215 communication	×	● ※Version 2.41 or later	● ※Version 2.41 or later	×
			MPLINK	×	● ※Version 2.41 or later	● ※Version 2.41 or later	×
	Motion Modules	SVB-01	MECHATROLINK-II	×	● ※Version 2.02 or later	● ※Version 2.02 or later	×
		SVC-01	MECHATROLINK-III	×	● ※Version 2.70 or later	● ※Version 2.70 or later	×
		SVA-01	Analog output	×	● ※Version 2.20 or later	● ※Version 2.20 or later	×
		PO-01	Pulse output	×	● ※Version 2.44 or later	● ※Version 2.44 or later	×
	I/O Modules	LIO-01	16-point input/16-point output (sink mode output), counter	×	●	●	×
		LIO-02	16-point input/16-point output (source mode output), counter	×	●	●	×
		LIO-04	32-point input/32-point output (sink mode output)	×	● ※Version 2.20 or later	● ※Version 2.20 or later	×
		LIO-05	32-point input/32-point output (source mode output)	×	● ※Version 2.32 or later	● ※Version 2.32 or later	×
		LIO-06	Digital input: 8 points, digital output: 8 points (sink), analog input: 1 channel, analog output: 1 channel, pulse counter: 1 channel	×	● ※Version 2.63 or later	● ※Version 2.63 or later	×
		DO-01	64-point output (sink mode output)	×	● ※Version 2.32 or later	● ※Version 2.32 or later	×
		AI-01	Analog input	×	● ※Version 2.40 or later	● ※Version 2.40 or later	×
		AO-01	Analog output	×	● ※Version 2.44 or later	● ※Version 2.44 or later	×
		CNTR-01	Counter	×	● ※Version 2.44 or later	● ※Version 2.44 or later	×
		AFMP-01	AnyWire DB Master (made by Anywire Corporation)	×	● ※Version 2.02 or later	● ※Version 2.02 or later	×
		AFMP-02-C	CC-Link Slave Interface Module	×	● ※Version 2.51 or later	● ※Version 2.51 or later	×
		AFMP-02-CA	CC-Link Slave Interface with AnyWire DB Master Interface Module	×	● ※Version 2.51 or later	● ※Version 2.51 or later	×
		MPALN00-0	A-net/ A-Link Master Unit Module (made by Algo System Co.,Ltd.)	×	● ※Version 2.46 or later	● ※Version 2.46 or later	×
Distributed I/O Modules	For M-III	MTD2310	64-point input/64-point output	×	●	● ※Version 2.73 or later (Cannot be used with MP2300.)	×
	For M-II	IO2310	64-point input/64-point output	●	●	●	●
		IO2330	64-point input/64-point output	●	●	●	●
		PL2900	Counter	●	●	●	●
		PL2910	Pulse output	●	●	●	●
		AN2900	Analog input	●	●	●	●
		AN2910	Analog output	●	●	●	●
		IO2900-E	16-point input module	●	●	●	●
		IO2910-E	16-point output module	●	●	●	●
		IO2920-E	8-point I/O module	●	●	●	●
		IO2950-E	Relay output module	●	●	●	●
		AB023-M1	Bit-type distributed I/O terminal (made by Anywire Corporation)	●	●	●	●
	For M-I	IO350	24 VDC, 64-point input/64-point output	●	●	●	●
		120DDI34330	12/24 VDC, 16-point input	●	●	●	●
		120DDO34340	12/24 VDC, 16-point output	●	●	●	●
		120DAI53330	100 VAC, 8-point input	●	●	●	●
		120DAI73330	200 VAC, 8-point input	●	●	●	●
		120DAO83330	100/200 VAC, 8-point output	●	●	●	●
		120DRA83030	Wide-range voltage relay contact, 8-point output	●	●	●	●
		120AVI02030	Analog input, 4 channels	●	●	●	●
		120AVO01030	Analog output, 2 channels	●	●	●	●
		120EHC21140	Reversible counter, 2 channels	●	●	●	●
		120MMB20230	Pulse output, 2 channels	●	●	●	●
Others	For M-II	REP2000	MECHATROLINK-II repeater	●	●	●	●
		MYVIS YV250/YV260	Image-processing unit	●	●	●	●

Note: M-I stands for MECHATROLINK-I, M-II for MECHATROLINK-II, and M-III for MECHATROLINK-III.

Ordering Reference

Quick Reference

Combination of Machine Controllers and Σ-II Series

● : Available

			SGDM-□□□DA	SGDH-□□□E	SGDP-□□□P	SGDJ-□□□S	SGDJ-□□□P	SGDH-□□□E+NS100	SGDH-□□□E+NS115
Machine Controllers	MP2100,MP2100M Board							●	●
	MP2200	SVA-01 Module	●	●	●				
	MP2300	SVB-01 Module						●	●
	MP2310	PO-01 Module	●	●	●		●		
	MP2300/MP2310/MP2300S Basic Module,MP2400							●	●
	MP2500/M/B/MB							●	●

SERVOPACK Model / Servomotor : Rated Output / Servomotor Model / Servomotor Series

Category	Servomotor Series	Servomotor Model	Rated Output	SGDM-□□□DA	SGDH-□□□E	SGDP-□□□P	SGDJ-□□□S	SGDJ-□□□P	SGDH-□□□E+NS100	SGDH-□□□E+NS115
Small-capacity	Super High Power Rate Series SGMAH	SGMAH-A3□	30 W	●	●	●	●	●	●	●
		SGMAH-A5□	50 W	●	●	●	●	●	●	●
		SGMAH-01□	100 W	●	●	●	●	●	●	●
		SGMAH-02□	200 W	●	●	●	●	●	●	●
		SGMAH-03D	300 W	●	●	●	●	●	●	●
		SGMAH-04A	400 W	●	●	●	●	●	●	●
		SGMAH-07D	650 W	●	●	●			●	●
		SGMAH-08A	750 W	●	●	●			●	●
	Flat Series SGMPH	SGMPH-01□	100 W	●	●	●	●	●	●	●
		SGMPH-02□	200 W	●	●	●	●	●	●	●
		SGMPH-04□	400 W	●	●	●	●	●	●	●
		SGMPH-08□	750 W	●	●	●			●	●
		SGMPH-15□	1.5 kW	●	●				●	●
Medium-capacity	High-speed Feed Series SGMGH (1500 min⁻¹)	SGMGH-05□□A	0.45 kW	●	●				●	●
		SGMGH-09□□A	0.85 kW	●	●				●	●
		SGMGH-13□□A	1.3 kW	●	●				●	●
		SGMGH-20□□A	1.8 kW	●	●				●	●
		SGMGH-30□□A	2.9 kW	●	●				●	●
		SGMGH-44□□A	4.4 kW	●	●				●	●
		SGMGH-55□□A	5.5 kW	●	●				●	●
		SGMGH-75□□A	7.5 kW	●	●				●	●
		SGMGH-1A□□A	11 kW	●	●				●	●
		SGMGH-1E□□A	15 kW	●	●				●	●
	High-speed Feed Series SGMGH (1000 min⁻¹)	SGMGH-03□□B	0.3 kW	●	●				●	●
		SGMGH-06□□B	0.6 kW	●	●				●	●
		SGMGH-09□□B	0.9 kW	●	●				●	●
		SGMGH-12□□B	1.2 kW	●	●				●	●
		SGMGH-20□□B	2.0 kW	●	●				●	●
		SGMGH-30□□B	3.0 kW	●	●				●	●
		SGMGH-40□□B	4.0 kW	●	●				●	●
		SGMGH-55□□B	5.5 kW	●	●				●	●
	Super High Power Rate Series SGMSH	SGMSH-10□	1.0 kW	●	●				●	●
		SGMSH-15□	1.5 kW	●	●				●	●
		SGMSH-20□	2.0 kW	●	●				●	●
		SGMSH-30□	3.0 kW	●	●				●	●
		SGMSH-40□	4.0 kW	●	●				●	●
		SGMSH-50□	5.0 kW	●	●				●	●
	Flat Series SGMDH	SGMDH-22A	2.2 kW	●	●				●	●
		SGMDH-32A	3.2 kW	●	●				●	●
		SGMDH-40A	4.0 kW	●	●				●	●
	High-speed Feed Series SGMUH	SGMUH-10D	1.0 kW		●				●	●
		SGMUH-15D	1.5 kW		●				●	●
		SGMUH-30D	3.0 kW		●				●	●
		SGMUH-40D	4.0 kW		●				●	●
Large-capacity	Large-capacity Σ-II Series SGMVH	SGMVH-2B	22 kW	●	●				●	●
		SGMVH-3Z	30 kW	●	●				●	●
		SGMVH-3G	37 kW	●	●				●	●
		SGMVH-4E	45 kW	●	●				●	●
		SGMVH-5E	55 kW	●	●				●	●
		SGMVH-7E	75 kW	●	●				●	●

Quick Reference-3
Combination of Machine Controllers and Σ-Ⅲ Series

● : Available

Machine Controllers		SGDS-□□01	SGDS-□□02	SGDS-□□05	SGDS-□□12	SGDS-□□15
MP2100,MP2100M Board					●	●
MP2200	SVA-01 Module	●	●	●		
MP2300	SVB-01 Module				●	●
MP2310	PO-01 Module	●	●	●		
MP2300/MP2310/MP2300S Basic Module,MP2400					●	●
MP2500/M/B/MB					●	●

	Servomotor Series	Servomotor Model	Servomotor : Rated Output	SGDS-□□01	SGDS-□□02	SGDS-□□05	SGDS-□□12	SGDS-□□15
Small-capacity	Super High Power Rate Series SGMMJ	SGMMJ-A1B	10 W	●	●		●	
		SGMMJ-A2B	20 W	●	●		●	
		SGMMJ-A3B	30 W	●	●		●	
	Super High Power Rate Series SGMAS	SGMAS-A5A	50 W	●	●		●	
		SGMAS-01A	100 W	●	●		●	
		SGMAS-C2A	150 W	●	●		●	
		SGMAS-02A	200 W	●	●		●	
		SGMAS-04A	400 W	●	●		●	
		SGMAS-06A	600 W	●	●		●	
		SGMAS-08A	750 W	●	●		●	
		SGMAS-12A	1.15 kW	●	●		●	
	Flat Series SGMPS	SGMPS-01A	100 W	●	●		●	
		SGMPS-02A	200 W	●	●		●	
		SGMPS-04A	400 W	●	●		●	
		SGMPS-08A	750 W	●	●		●	
		SGMPS-15A	1.5 kW	●	●		●	
Medium-capacity	Super High Power Rate Series SGMSS	SGMSS-10A	1.0 kW	●	●		●	
		SGMSS-15A	1.5 kW	●	●		●	
		SGMSS-20A	2.0 kW	●	●		●	
		SGMSS-25A	2.5 kW	●	●		●	
		SGMSS-30A	3.0 kW	●	●		●	
		SGMSS-40A	4.0 kW	●	●		●	
		SGMSS-50A	5.0 kW	●	●		●	
		SGMSS-70A	7.0 kW	●	●		●	
	High-speed Feed Series (1500 min-1) SGMGH	SGMGH-05□□A	450 W	●	●		●	
		SGMGH-09□□A	850 W	●	●		●	
		SGMGH-13□□A	1.3 kW	●	●		●	
		SGMGH-20□□A	1.8 kW	●	●		●	
		SGMGH-30□□A	2.9 kW	●	●		●	
		SGMGH-44□□A	4.4 kW	●	●		●	
		SGMGH-55□□A	5.5 kW	●	●		●	
		SGMGH-75□□A	7.5 kW	●	●		●	
	High-speed Feed Series (1000 min-1) SGMGH	SGMGH-03□□B	300 W	●	●		●	
		SGMGH-06□□B	600 W	●	●		●	
		SGMGH-09□□B	900 W	●	●		●	
		SGMGH-12□□B	1.2 kW	●	●		●	
		SGMGH-20□□B	2.0 kW	●	●		●	
		SGMGH-30□□B	3.0 kW	●	●		●	
		SGMGH-40□□B	4.0 kW	●	●		●	
		SGMGH-55□□B	5.5 kW	●	●		●	

Combination of Machine Controllers and JUNMA Series

● : Available

Machine Controllers			SJDE-□□□AP	SJDE-□□□AN
MP2100,MP2100M Board				●
MP2200	SVA-01 Module			
MP2300	SVB-01 Module			●
MP2310	PO-01 Module		●	
MP2300/MP2310/MP2300S Basic Module,MP2400				●
MP2500/M/B/MB				●
SERVOPACK Model				
Servomotor : Rated Output				
Servomotor Model				
Servomotor Series				
Small-capacity SJME		SJME-01AM	100 W	●	●
		SJME-02AM	200 W	●	●
		SJME-04AM	400 W	●	●
		SJME-08AM	750 W	●	●
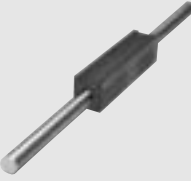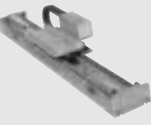
Combination of Machine Controllers and Σ-V Series

● : Available

Machine Controllers			SGDV-□□□01	SGDV-□□□05	SGDV-□□□11	SGDV-□□□15
MP2100,MP2100M Board					●	●
MP2200	SVA-01 Module		●	●		
MP2300	SVB-01 Module				●	●
MP2310	PO-01 Module		●	●		
MP2300/MP2310/MP2300S Basic Module,MP2400					●	●
MP2500/M/B/MB					●	●
SERVOPACK Model						
Servomotor : Rated Output						
Servomotor Model						
Servomotor Series						
Small-capacity	SGMJV	SGMJV-A5A	50 W	●		●	
		SGMJV-01A	100 W	●		●	
		SGMJV-02A	200 W	●		●	
		SGMJV-04A	400 W	●		●	
		SGMJV-08A	750 W	●		●	
	SGMAV	SGMAV-A5A	50 W	●		●	
		SGMAV-01A	100 W	●		●	
		SGMAV-C2A	150 W	●		●	
		SGMAV-02A	200 W	●		●	
		SGMAV-04A	400 W	●		●	
		SGMAV-06A	550 W	●		●	
		SGMAV-08A	750 W	●		●	
		SGMAV-10A	1.0 kW	●		●	
	SGMPS	SGMPS-01A	100 W	●		●	
		SGMPS-02A	200 W	●		●	
		SGMPS-04A	400 W	●		●	
		SGMPS-08A	750 W	●		●	
		SGMPS-15A	1.5 kW	●		●	
Medium-capacity	SGMSV	SGMSV-10□	1.0 kW	●		●	
		SGMSV-15□	1.5 kW	●		●	
		SGMSV-20□	2.0 kW	●		●	
		SGMSV-25□	2.5 kW	●		●	
		SGMSV-30□	3.0 kW	●		●	
		SGMSV-40□	4.0 kW	●		●	
		SGMSV-50□	5.0 kW	●		●	
		SGMSV-70A	7.0 kW	●		●	
	SGMGV	SGMGV-03□	0.3 kW	●		●	
		SGMGV-05□	0.45 kW	●		●	
		SGMGV-09□	0.85 kW	●		●	
		SGMGV-13□	1.3 kW	●		●	
		SGMGV-20□	1.8 kW	●		●	
		SGMGV-30□	2.9 kW	●		●	
		SGMGV-44□	4.4 kW	●		●	
		SGMGV-55□	5.5 kW	●		●	
		SGMGV-75□	7.5 kW	●		●	
		SGMGV-1A□	11 kW		●	●	
		SGMGV-1E□	15 kW	●		●	

Quick Reference-6
Combination of Machine Controllers and Direct Drives / Linear Drives

● : Available

			SGDM-□□□DA	SGDH-□□□E	SGDP-□□□P	SGDJ-□□□S	SGDJ-□□□P	SGDH-□□□E+NS100	SGDH-□□□E+NS115	SGDS-□□□01	SGDS-□□□02	SGDS-□□□05	SGDS-□□□12	SGDS-□□□15	SGDV-□□□01	SGDV-□□□05	SGDV-□□□11	SGDV-□□□15
Machine Controllers	MP2100,MP2100M Board							●	●				●	●	●	●		●	●
	MP2200	SVA-01 Module	●	●		●				●	●	●			●	●		
	MP2300	SVB-01 Module						●	●				●	●	●	●		●	●
	MP2310	PO-01 Module	●	●	●		●			●	●	●			●	●		
	MP2300/MP2310/MP2300S Basic Module,MP2400							●	●				●	●	●	●		●	●
	MP2500/M/B/MB							●	●				●	●	●	●		●	●
SERVOPACK Model																		

Direct-drive : Rated Torque, Linear : Peak Force

Series	Servomotor Series	Servomotor Model	Torque/Force	SGDM-□□□DA	SGDH-□□□E	SGDP-□□□P	SGDJ-□□□S	SGDJ-□□□P	SGDH-□□□E+NS100	SGDH-□□□E+NS115	SGDS-□□□01	SGDS-□□□02	SGDS-□□□05	SGDS-□□□12	SGDS-□□□15	SGDV-□□□01	SGDV-□□□05	SGDV-□□□11	SGDV-□□□15
Direct-drive Σ Series	Small-capacity Series SGMCS	SGMCS-02B	2.0 N·m		●				●	●	●	●		●		●		●	
		SGMCS-05B	5.0 N·m		●				●	●	●	●		●		●		●	
		SGMCS-07B	7.0 N·m		●				●	●	●	●		●		●		●	
		SGMCS-04C	4.0 N·m		●				●	●	●	●		●		●		●	
		SGMCS-10C	10.0 N·m		●				●	●	●	●		●		●		●	
		SGMCS-14C	14.0 N·m		●				●	●	●	●		●		●		●	
		SGMCS-08D	8.0 N·m		●				●	●	●	●		●		●		●	
		SGMCS-17D	17.0 N·m		●				●	●	●	●		●		●		●	
		SGMCS-25D	25.0 N·m		●				●	●	●	●		●		●		●	
		SGMCS-16E	16.0 N·m		●				●	●	●	●		●		●		●	
		SGMCS-35E	35.0 N·m		●				●	●	●	●		●		●		●	
	Medium-capacity Series SGMCS	SGMCS-45M	45.0 N·m		●				●	●	●	●	●			●		●	
		SGMCS-80M	80 N·m		●				●	●	●	●	●			●		●	
		SGMCS-1AM	110 N·m		●				●	●	●	●	●			●		●	
		SGMCS-80N	80 N·m		●				●	●	●	●	●			●		●	
		SGMCS-1EN	150 N·m		●				●	●	●	●	●			●		●	
		SGMCS-2ZN	200 N·m		●				●	●	●	●	●			●		●	
Linear Σ Series	SGLGW Coreless GW	SGLGW-30A050	40 N		●				●	●			●			●		●	●
		SGLGW-30A080	80 N		●				●	●			●			●		●	●
		SGLGW-40A140	140 N		●				●	●			●			●		●	●
		SGLGW-40A253	280 N		●				●	●			●			●		●	●
		SGLGW-40A365	420 N		●				●	●			●			●		●	●
		SGLGW-60A140	220 N		●				●	●			●			●		●	●
		SGLGW-60A253	440 N		●				●	●			●			●		●	●
		SGLGW-60A365	660 N		●				●	●			●			●		●	●
		SGLGW-90A200	1300 N		●				●	●			●			●		●	●
		SGLGW-90A370	2200 N		●				●	●			●			●		●	●
		SGLGW-90A535	3000 N		●				●	●			●			●		●	●
	SGLFW Iron-core FW	SGLFW-20A090	86 N		●				●	●			●			●		●	●
		SGLFW-20A120	125 N		●				●	●			●			●		●	●
		SGLFW-35□120	220 N		●				●	●			●			●		●	●
		SGLFW-35□230	440 N		●				●	●			●			●		●	●
		SGLFW-50□200	600 N		●				●	●			●			●		●	●
		SGLFW-50□380	1200 N		●				●	●			●			●		●	●
		SGLFW-1Z□200	1200 N		●				●	●			●			●		●	●
		SGLFW-1Z□380	2400 N		●				●	●			●			●		●	●
	SGLTW Iron-core TW	SGLTW-20A170A	380 N		●				●	●			●			●		●	●
		SGLTW-20A320A	760 N		●				●	●			●			●		●	●
		SGLTW-20A460A	1140 N		●				●	●			●			●		●	●
		SGLTW-35A170A	660 N		●				●	●			●			●		●	●
		SGLTW-35A320A	1320 N		●				●	●			●			●		●	●
		SGLTW-35A460A	2000 N		●				●	●			●			●		●	●
		SGLTW-35□170H	600 N		●				●	●			●			●		●	●
		SGLTW-35□320H	1200 N		●				●	●			●			●		●	●
		SGLTW-40□400B	2600 N		●				●	●			●			●		●	●
		SGLTW-40□600B	4000 N		●				●	●			●			●		●	●
		SGLTW-50□170H	900 N		●				●	●			●			●		●	●
		SGLTW-50□320H	1800 N		●				●	●			●			●		●	●
		SGLTW-80□400B	5000 N		●				●	●			●			●		●	●
		SGLTW-80D600B	7500 N		●				●	●			●			●		●	●

Combination of Machine Controllers and Σ-Stick/Σ-Trac

● : Available

			SGDS-□□□01	SGDS-□□□02	SGDS-□□□05	SGDS-□□□12	SGDS-□□□15	SGDV-□□□□01	SGDV-□□□□05	SGDV-□□□□11	SGDV-□□□□15
Machine Controllers	MP2100,MP2100M Board				●	●				●	●
	MP2200 MP2300 MP2310	SVA-01 Module	●	●	●			●	●		
		SVB-01 Module			●	●				●	●
		PO-01 Module	●	●	●			●	●		
	MP2300/MP2310/MP2300S Basic Module,MP2400				●	●				●	●
	MP2500/M/B/MB				●	●				●	●
SERVOPACK Model											
Servomotor : Rated Output **Direct-drive : Rated Torque, Linear : Peak Force**											
Servomotor Model											
Servomotor Series											

Type	Series	Servomotor Model	Force	SGDS-□□□01	SGDS-□□□02	SGDS-□□□05	SGDS-□□□12	SGDS-□□□15	SGDV-□□□□01	SGDV-□□□□05	SGDV-□□□□11	SGDV-□□□□15
Cylindrical Type	SGLC (Σ-Stick)	SGLC-D16A085	60 N			●		●		●		●
		SGLC-D16A115	90 N			●		●		●		●
		SGLC-D16A145	120 N			●		●		●		●
		SGLC-D20A100	150 N			●		●		●		●
		SGLC-D20A135	225 N			●		●		●		●
		SGLC-D20A170	300 N			●		●		●		●
		SGLC-D25A125	280 N			●		●		●		●
		SGLC-D25A170	420 N			●		●		●		●
		SGLC-D25A215	560 N			●		●		●		●
		SGLC-D32A165	420 N			●		●		●		●
		SGLC-D32A225	630 N			●		●		●		●
		SGLC-D35A285	840 N			●		●		●		●
Linear Slider	Σ-Trac	SGT□F3 □-□□□	220 N			●		●		●		●
		SGT□F4 □-□□□	440 N			●		●		●		●
		SGT□F9 □-□□□	600 N			●		●		●		●
		SGT□FA □-□□□	1200 N			●		●		●		●
		SGT□GD□-□□□	140 N			●		●		●		●
		SGT□GE□-□□□	280 N			●		●		●		●
		SGT□GF□-□□□	420 N			●		●		●		●
		SGT□GG□-□□□	220 N			●		●		●		●
		SGT□GH□-□□□	440 N			●		●		●		●
		SGT□GI □-□□□	660 N			●		●		●		●

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The warranty period for a product that was purchased (hereafter called "delivered product") is one year from the time of delivery to the location specified by the customer or 18 months from the time of shipment from the Yaskawa factory, whichever is sooner.

■ Warranty Scope

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This warranty does not cover failures that result from any of the following causes.

1. Improper handling, abuse, or use in unsuitable conditions or in environments not described in product catalogs or manuals, or in any separately agreed-upon specifications

2. Causes not attributable to the delivered product itself

3. Modifications or repairs not performed by Yaskawa

4. Abuse of the delivered product in a manner in which it was not originally intended

5. Causes that were not foreseeable with the scientific and technological understanding at the time of shipment from Yaskawa

6. Events for which Yaskawa is not responsible, such as natural or human-made disasters

(2) Limitations of Liability

1. Yaskawa shall in no event be responsible for any damage or loss of opportunity to the customer that arises due to failure of the delivered product.

2. Yaskawa shall not be responsible for any programs (including parameter settings) or the results of program execution of the programs provided by the user or by a third party for use with programmable Yaskawa products.

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2. The customer must confirm that the Yaskawa product is suitable for the systems, machines, and equipment used by the customer.

3. Consult with Yaskawa to determine whether use in the following applications is acceptable. If use in the application is acceptable, use the product with extra allowance in ratings and specifications, and provide safety measures to minimize hazards in the event of failure.

   • Outdoor use, use involving potential chemical contamination or electrical interference, or use in conditions or environments not described in product catalogs or manuals

   • Nuclear energy control systems, combustion systems, railroad systems, aviation systems, vehicle systems, medical equipment, amusement machines, and installations subject to separate industry or government regulations

   • Systems, machines, and equipment that may present a risk to life or property

   • Systems that require a high degree of reliability, such as systems that supply gas, water, or electricity, or systems that operate continuously 24 hours a day

   • Other systems that require a similar high degree of safety

4. Never use the product for an application involving serious risk to life or property without first ensuring that the system is designed to secure the required level of safety with risk warnings and redundancy, and that the Yaskawa product is properly rated and installed.

5. The circuit examples and other application examples described in product catalogs and manuals are for reference. Check the functionality and safety of the actual devices and equipment to be used before using the product.

6. Read and understand all use prohibitions and precautions, and operate the Yaskawa product correctly to prevent accidental harm to third parties.

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Full Support

●e-Mecha Site

To see details on Yaskawa's controllers, click **Controllers** on Yaskawa's Products and Technical Information website, usually referred to as the e-Mecha site. Here, you can find and download drawings, specifications, dimensions, and other information about the MP2000 series.

Note: Some information is restricted to members only.

Yaskawa's e-Mecha Site

Catalogs and Manuals for Download

Product Dimensions

●CD-ROM Manual

A CD-ROM with updated manuals (PDF) for the MP2000 series is available. Contact your Yaskawa representative for more information.

■ Hardware and Software Requirement

Items	Specifications
CPU	Pentium
RAM	64 Mbytes min.
Free Hard Disk Space	24 Mbytes min.
OS	Windows 98/Me/NT4.0/2000/XP

Document No. : SIBC A500005 00

Read Before Ordering

Full Support

MP2000 SERIES

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