

Since 1992

FATEK

I/O Coupler

Remote I/O control system



FATEK



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FATEK AUTOMATION CORPORATION
Due to product updates, specifications may change without further notice.

IO-CV1-06-2026

NEXT Level *SOLUTION*

Module

Power Supply Module (Optional)



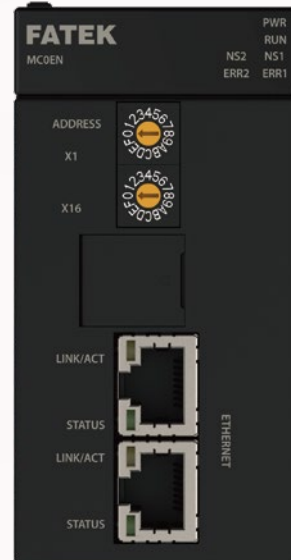
MPA024-24

- Input 100~240VAC
- Output 24VDC 1A

MPA048-24

- Input 100~240VAC
- Output 24VDC 2A

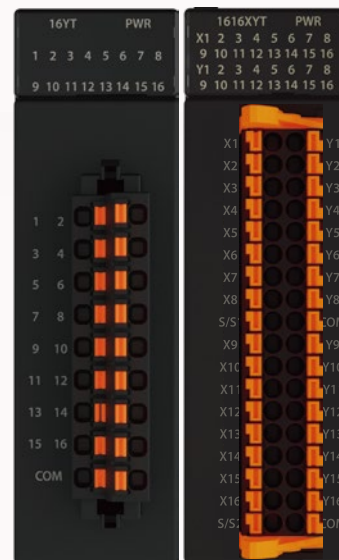
IO Coupler



MC0EN

- EtherNet/IP
- Modbus TCP

Digital



M16X

- 16-point input (Push-in terminal block)

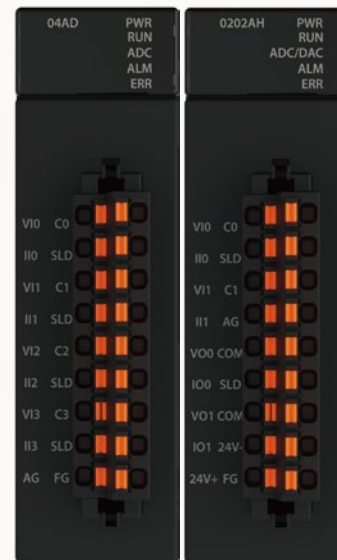
M16Y(T/J/R)

- 16-point input (Push-in terminal block)

M16XY(T/J/R)

- Mixed 16-point input + 16-point output (Push-in terminal block)
- Supports relay/transistor NPN or PNP as options

Analog



M04AD

- 4-channel Analog Input

M04DA

- 4-channel Analog Output

(10~10V or -20~20mA)

M0202AH

- 2-channel Input + 2-channel Output

High Accuracy

M04DAS

- 4-channel Input (1/65535)

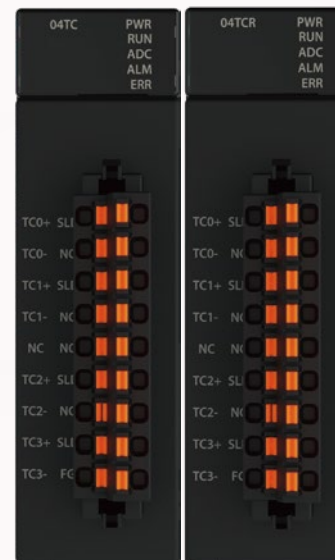
M04DAR

- 4-channel Input (1/160000)

M04ADR

- 4-channel Output (1/54000)

Temperature



M04TC

- 4-ch Thermocouple (K/J/T/E/R/B/N/S)

M0202TH

- 2-ch Thermistor + 2-ch Thermocouple

High Accuracy

M04TCR

- 4-ch Thermocouple ($\pm 0.2\%$)

I/O Bus Extension Repeater

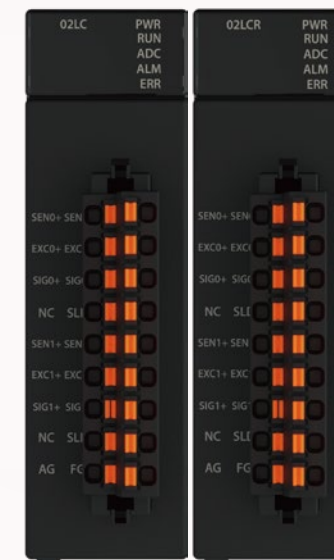


MRPWE-AC

- Input 100~240VAC
- Output 24VDC 2A
- Maximum Expansion Per Unit:
16 local I/O expansion modules

For every 16 modules expanded,
one relay module is required,
with maximum of 3 modules added
per CPU, achieving up to 64 local
I/O expansion modules

Load Cell



M02LC

- 2-ch Weight Measurement,
24-bit, $\pm 0.5\%$

High Accuracy

M02LCR

- 2-ch Weight Measurement,
24-bit, $\pm 0.01\%$

I/O Bus Extension Branch



MRGH/MRGT

- Maximum expansion up to
6 rows (6 sections)
- Total of 64 local I/O expansion modules

Expansion Distance:
Single section of 2 meters,
total length 10 meters

End module



MRE

- End module must be
connected to the right
side of the CPU module
or the end of the entire
row(rack)

Seamless Multi-Brand PLC Connectivity

Supporting multiple brands, various communication protocols, and able to connect in diverse topologies, it offers endless possibilities for you to customize and transform as you wish!

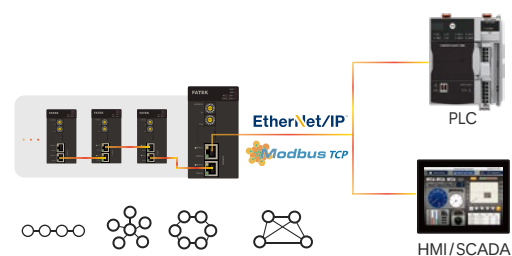
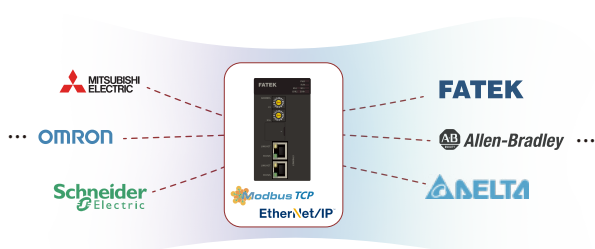


Effortless Switching Between Multiple Brands

Supports a wide range of mainstream PLC brands. Easily switch between Modbus and Ethernet/IP protocols without hardware replacement, seamlessly integrating into various industrial automation systems to meet diverse communication requirements.

Flexible Topology Configuration

Supports daisy chain, star, and tree configurations, allowing flexible configuration. Built-in dual ethernet ports eliminate the need for additional hubs or switches, greatly enhancing wiring convenience and reducing setup costs.





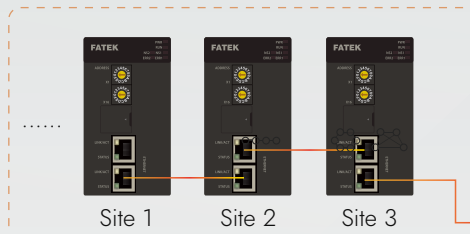
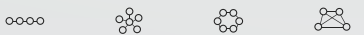
Supports multiple standard protocols
Easily integrates with various mainstream PLCs



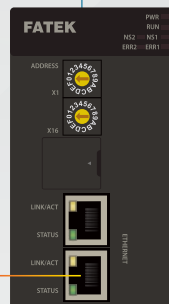
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Supports various connection topologies with flexible and adaptable connectivity, ensuring efficient and stable communication across different scenarios.



EtherNet/IP
Modbus TCP



Modbus TCP EtherNet/IP



Analog Module



Voltage / Current Sensor

Load Cell Module



Load Cell Sensor

Temperature Module



Temperature Sensor

Digital Module



Cylinder



Light curtain

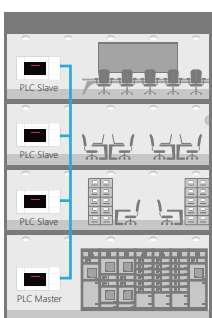


Motor

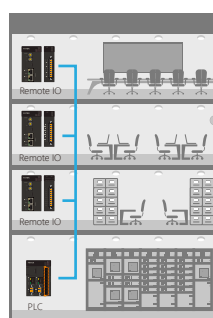
Efficient and Cost-effective Connection Solution

A flexible control solution for replacing multiple PLCs, eliminating the project and communication settings between PLCs. Through a remote I/O system, the setup can be streamlined to control operations using a single PLC. Enables efficient resource sharing and utilization, reduces system costs, simplifies.

PAST



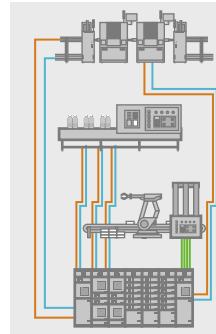
I/O Coupler



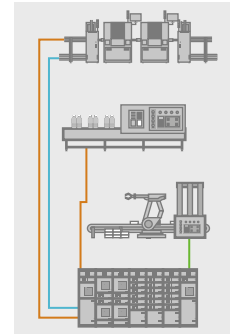
Flexible Connection Solution

Replace the complexity of traditional wiring systems, reducing costs while avoiding potential instability from long-distance wiring. Future system upgrades require only replacing the control module, eliminating the need for large-scale rewiring and simplifying system maintenance.

PAST



I/O Coupler



Powerful Expansion

Efficiency beyond imagination

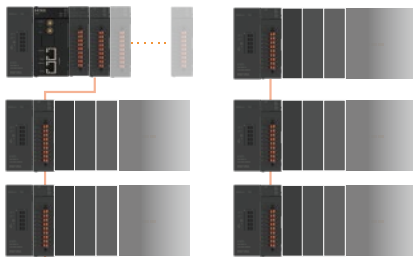


Powerful control over scale and extensibility

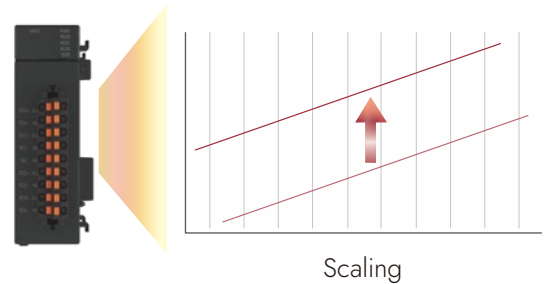
Control scale run up to 2048 DIO and 256 AIO.
Up to 64 expansion modules of various types can be added.
FHB transmission technology can transfer data instantly without delay when monitoring large amounts of controlling data gathered from plentiful modules.

Distributed computing on modules

Each extension module has an independent MCU that can perform complex real-time computing tasks. Various post-processing can be executed directly on the module. Improve system efficiency and significantly reduce CPU loading with a distributed architecture.



Extend with **MRGH & MRGT** IO Bus Extension Module

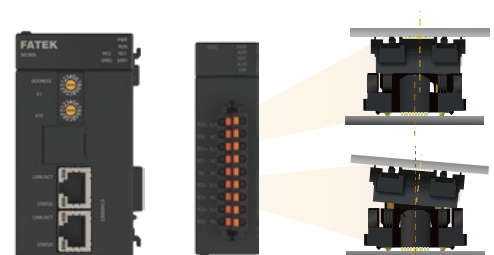
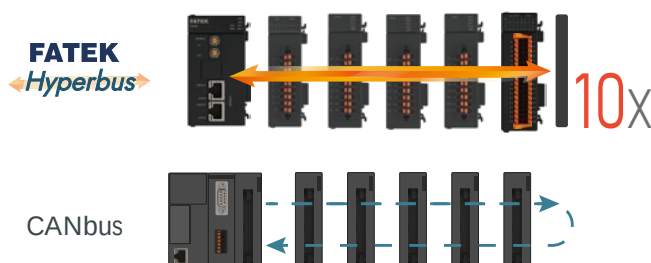


FHB FATEK Hyper-bus data transmission technique

It solves the problem of increasing bus communication response time with more installed modules. Achieve an astonishing communication efficiency. Moreover, the bus connector is designed with a dedicated vibration damping joint, and now data transmission is not only fast, but also more stable and reliable.

Dedicated floating connector

The local bus connector design with vibrate-absorbing joints can absorb the vibration effects caused by the machine and the environment. Improve durability and avoid data loss caused by poor contact. Especially suitable for machinery and transportation industries



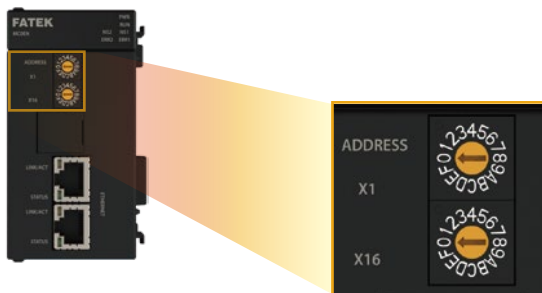
“Intuition

Human-centered design”



Rotary switch for IP address setting

The built-in physical IP address setting knob allows the IP address to be configured not only via software but also directly through the hardware switch, making it easier for on-site personnel to adjust.



Convenient wiring and quick dismantling

The Push-in terminal allows for tool-free, quick wiring and ensures secure connections to prevent poor contact.



Mapping table for communication

Software enables viewing of the mapping table addresses for the current module configuration, simplifying the development of upper-level monitoring PLC projects.

Description	Address	Size
ID:0 M04AD		
ID:1 M04ADR		
Channel 0 value	300005	2
Channel 1 value	300007	2
Channel 2 value	300009	2
Channel 3 value	300011	2
AI Error Code	300638	2
Channel 0 max value hold	300640	2
Channel 0 min value hold	300642	2
Channel 1 max value hold	300644	2

Status indicator

Built-in status indicator lights clearly show abnormal conditions of the coupler modules or communication faults.

Hardware Initialization

No need for computer and editing software; the physical switch can restore the factory settings, ensuring operability in emergencies.

Type-C interface

USB Type-C is used as the standard transmission interface, allowing project upload/download and online monitoring editing with common Type-C transmission cables.

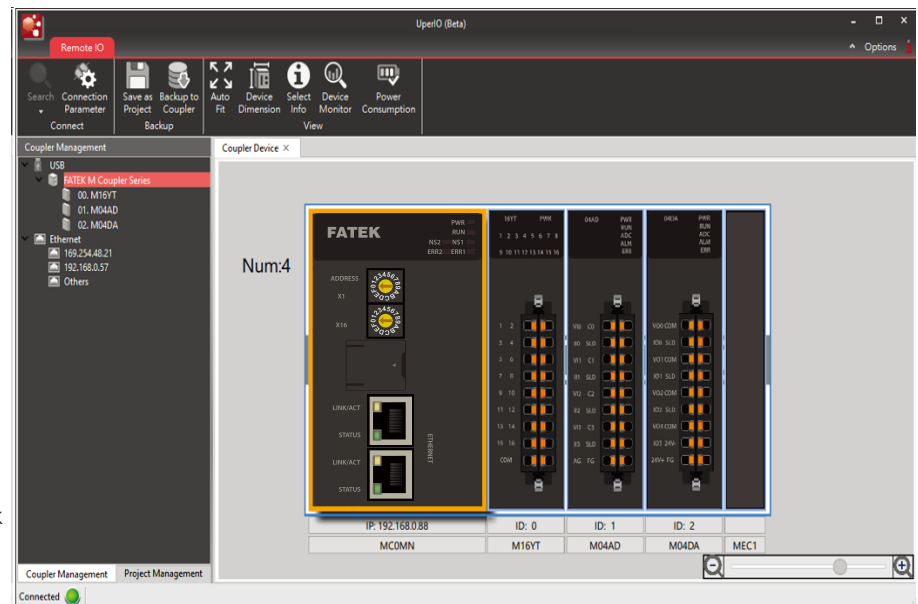


Device Search

Devices can be searched through USB or Ethernet. Easily scan for devices in the local area network by clicking the search function. The search can be targeted specifically at individual network cards. Customize device names and descriptions for convenient distinction.

Automatic system composition scanning

Once connected to the PLC, it will automatically scan the system composition. There is no more need to go to the field or open the control cabinet to check the configuration, and no need to manually enter the module model name to get complete information.



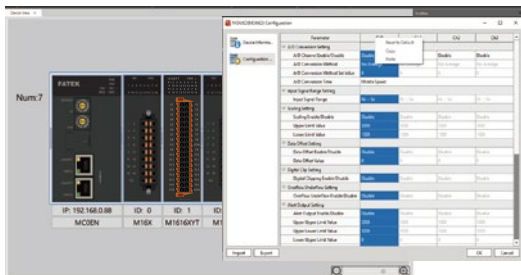
DEVICE VIEW

device information at a glance



Module parameter setting

Set and calibrate the module by clicking on the module icon on device view, and support advanced settings such as alarm, upper and lower limits, and offsets. Quick setup without the need of hardware jumpers or registers and ladder settings.



Project comparison

After onlining, it will automatically compare the project consistency between the computer and the IO coupler, and list the comparison results of IO coupler and modules respectively. Based on the comparison result, you may select the specific item for executing upload or download.

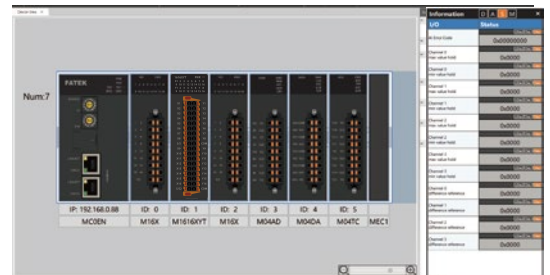


Module dimensions and information

Display data information and dimensions of individual modules and the entire configuration. Conveniently provide the information you need when planning machines and systems.

Online real-time monitoring

Click the module icon on the device view to open the real-time monitoring page, and it will also list out the register data and status code of the module. Clearly get the module information without reading the manual and looking up to the register table.



Drag and Drop

Simply drag and drop to plan the system composition. Automatically prompts whether the location and quantity of the modules are in compliance with the specifications, and help quickly carry out configuration planning without the need of manuals.



Automatic power consumption

The power consumption of the module is displayed below the module icon on device view, and the total system power margin is automatically calculated to ensure sufficient power supply.

Coupler Unit

MCOEN



IO Slots: 16/64*

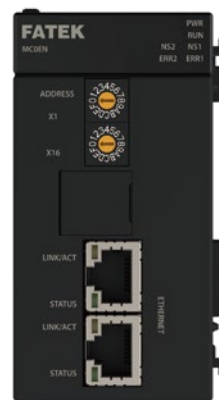
IO Data Points: Inputs: 1024

Outputs: 1024

Analog Channels: Total 256

Interfaces: RJ × 2

*Supports up to 64 units via I/O bus extension module



PowerSupply



MPA024-24

Input : 100~240VAC (50/60Hz)

Output : 24VDC 1A

(External+Internal)

Power : 24W



MPA048-24

Input : 100~240VAC (50/60Hz)

Output : 24VDC 2A

(External+Internal)

Power : 48W

Digital

Local I/O expansion

Digital Input



M16X

Input : 16 points

24VDC Input

Push-in terminal blocks

Digital Output



M16Y T/J/R

Output : 16 points

T: SINK(NPN) J: SOURCE (PNP) R:RELAY

Push-in terminal blocks

Digital Input & Output



M1616XY T/J/R

Input : 16 points Output : 16 points

24VDC Input

T: SINK(NPN) J: SOURCE (PNP) R:RELAY

Push-in terminal blocks

Load cell

Local I/O expansion

Load cell input



M02LC

Input : 2 points

Resolution : 24 bits

Precision : ±0.5%

Push-in terminal blocks

High Precision Load cell Input



M02LCR

Input : 2 points

Resolution : 24 bits

Precision : ±0.01%

Push-in terminal blocks

Analog Input



M04AD

Input : 4 points Voltage/ Current
Resolution : 1/16383
Precision : $\pm 0.1\%$
Push-in terminal blocks

High Resolution Analog Input



M04ADS

Input : 4 points Voltage/ Current
Resolution : 1/65535
Precision : $\pm 0.1\%$
Push-in terminal blocks



M04ADR

Input : 4 points Voltage/ Current
Resolution : 1/160000
Precision : $\pm 0.1\%$
Push-in terminal blocks

Analog Output



M04DA

Output : 4 points Voltage/ Current
Resolution : 1/16383
Precision : $\pm 0.2\%$
Push-in terminal blocks

High Resolution Analog Output



M04DAR

Output : 4 points Voltage/ Current
Resolution : 1/54000
Precision : $\pm 0.05\%$
Push-in terminal blocks

Analog Input & Output



M0202AH

Input : 2 points Voltage/ Current	Output : 2 points Voltage/ Current
Resolution : 1/16383	Resolution : 1/16383
Precision : $\pm 0.1\%$	Precision : $\pm 0.2\%$
Push-in terminal blocks	

Temperature Input



M04TC

Input : 4 points
Thermocouple : K,J,E,T,R,B,N,S
Resolution : 0.1°C
Precision : $\pm 0.5\%$
Push-in terminal blocks

High Precision Temperature Input



M04TCR

Input : 4 points
Thermocouple : K,J,E,T,R,B,N,S
Resolution : 0.1°C
Precision : $\pm 0.2\%$
Push-in terminal blocks

Temperature Input



M04RTD

Input : 4 points
RTD : Pt100/JPt100: (-200~850 $^{\circ}\text{C}$)
Pt1000/JPT1000: (-200~600 $^{\circ}\text{C}$)
Pt100(1000) - DIN EN 60751
JPt100(1000) - JIS C 1609-1981
Resolution : 0.1°C Precision : $\pm 0.1\%$
Push-in terminal blocks

Mixed Temperature Input



M0202TH

Input : 2 points	RTD : Pt100/JPt100: (-200~850 $^{\circ}\text{C}$)
Input : 2 points	Pt1000/JPT1000: (-200~600 $^{\circ}\text{C}$)
Thermocouple : K,J,E,T,R,B,N,S,mV	Pt100(1000) - DIN EN 60751
Resolution : 0.1°C	JPt100(1000) - JIS C 1609-1981
Precision : $\pm 0.5\%$	Resolution : 0.1°C
Push-in terminal blocks	Precision : $\pm 0.1\%$

Repeater



MRPWE-AC

Input : 100~240VAC (50/60Hz)
Output : 24VDC 2A
(External+Internal)
Power : 24W
Maximum expansion number of modules per unit: 16 modules with maximum of 3 modules added per CPU, achieving up to 64 local I/O expansion modules

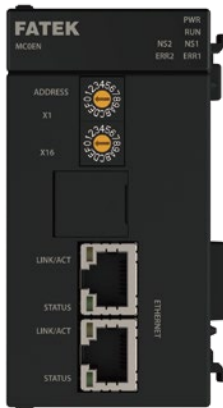
Head/Tail Branch



MRGH/MRGT

Maximum expansion up to 6 rows (6 sections)
Total of 64 expansion modules
Expansion Distance:
Single section of 2 meters, total length 10 meters

Coupler Unit



Item	MC0EN
Power consumption	DC24V±20% 80mA
Grounding	Class D grounding
Environmental temperature	0 ~ 55°C
Storage temperature	-25 ~ 70°C
Environmental humidity	5 ~ 95%RH(non-condensing, RH-2)
Working atmosphere	Free from excessive conductive dust and corrosive gas
Altitude	≤ 2000m
Vibration resistance	5 to 8.4Hz Half-amplitude: 3.5mm 8.4 to 150 Hz Constant acceleration: 19.6m/s ² (2G) 3 directions of X, Y, Z: 10times (IEC61131-2 compliants)
Shock resistance	10G, three times for each direction of 3 axes
Noise resistance	1500 Vp-p, pulse width 1μS
Withstand voltage	1500VAC, 1 minute,
Pollution resistance	Degree II
Certifications	CE、UL*

* Certification in progress

Specifications		MC0EN
Communication Protocol		Modbus TCP/IP, EtherNet/IP adapter
Maximum expandable module count		64 units (The main unit supports 16 modules and is expandable up to 64 with the MRPWE-AC repeater module)
Expanded I/O Modules	digital input	1024
	digital output	1024
	analog input/output	Total channels 256
Expanded I/O Module Data Length		Input: Up to 1024 Bytes Output: Up to 512 Bytes
Ethernet/IP connection count		16
Ethernet/IP Support function		Periodic Communication (Class 1) Message Communication (Class 3, UCMM)
Periodic communication via Ethernet/IP		Input: Up to 128 Bytes Output: Up to 64 Bytes
Ethernet/IP message communication		Receive: Up to 504 Bytes Transmit: Up to 504 Bytes
Number of Modbus TCP connections		16 (Shared with FATEK Protocol)
Communication Interface	ETHERNET	10/100 Base-T, RJ-45 Ethernet port * 2 supports switch function
	Transmission Line	10Mbps: Category 3 or higher UTP or STP (STP recommended) 100Mbps: Category 5 or higher UTP or STP (STP recommended)
	Transmission Distance	Within 100 meters, the distance between devices
	Topology Method	Daisy Chain, Star Topology, Tree Topology
	TCP/IP Maximum Connection Count	16
Peripheral Devices (USB)	Specifications	USB 2.0 Specification - Type C Connector (Device Side)
	Transmission Speed	Maximum 12 Mbps (Megabits per second)
	Transmission Distance	Maximum 2 meters

Power Supply Module



Item	MPA024-24	MPA048-24
Input voltage	100~240 VAC	
Frequency	50/60Hz	
Maximum input current	1A max.	
Inrush current (cold start)	22A/115VAC (44A/230VAC)	
Rated output current (External+Internal)	1A	2A
Rated output power (External+Internal)	24W	48W
External output voltage	24 VDC	
Output voltage range	24 VDC+/-1%	
Output ripple+noise	< 1%	
Hold-up time	>15ms/ 115VAC , >60ms/ 220VAC	
Overcurrent protection	101%~133% Foldback overload protection, automatically recover when overload is removed	
Overvoltage protection	34~36 VDC / Latching overvoltage protection, re-power on to recover	
Conversion efficiency	86%/110VAC, 87%/220VAC	
Withstand voltage	3,000 VAC (Primary-secondary), 1,500 VAC (Primary-PE), 500 VAC(Secondary-PE)	
Insulation resistance	>100M Ohms/500VDC	
Fuse	2A	
Environmental temperature	0°C ~55°C	
Environmental humidity	20%~90% (Non-condensing)	

I/O Bus Extension

Repeater



Head/Tail Branch



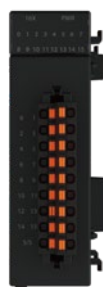
Item	MRPWE-AC
Input voltage	100~240 VAC
Frequency	50/60Hz
Maximum input current	1A max.
Inrush current (cold start)	22A/115VAC (44A/230VAC)
Rated output current (External+Internal)	2A
Rated output power (External+Internal)	48W
External output voltage	24 VDC
Output voltage range	24 VDC+/-1%
Output ripple+noise	< 1%
Hold-up time	>15ms/ 115VAC , >60ms/ 220VAC
Overcurrent protection	101%~133% Foldback overload protection automatically recover when overload is removed
Overvoltage protection	34~36 VDC / Latching overvoltage protection, re-power on to recover
Conversion efficiency	86%/110VAC, 87%/220VAC
Withstand voltage	3,000 VAC (Primary-secondary), 1,500 VAC (Primary-PE), 500 VAC(Secondary-PE)
Insulation resistance	>100M Ohms/500VDC
Fuse	2A
Environmental temperature	0°C ~55°C
Environmental humidity	20% ~ 90%(non-condensing)
Maximum expansion of modules	One repeater module can expand to 16 local I/O expansion modules, with maximum of 3 repeaters added per CPU, achieving up to 64 local I/O expansion modules. (Including the original 16 local I/O expansion modules directly supported by the CPU)
Installation location	Can only be installed between local I/O modules, cannot be installed between CPU and high-speed modules.
Notes	Cannot be expanded to the second row, must be connected to the main section (basic section)

Item	MRGH	MRGT
Number of expansion	with a maximum of 6 rows (6 sections), totaling 64 local I/O expansion modules.	
Maximum Expansion Distance	Single section of 2 meters, total length 10 meters	
Installation Location	It can only be installed to the right of the power module, not in the main section, and must be placed in the expansion section (from the second row onward). There is only one port on the front, so it cannot be directly daisy-chained to the next row's MRGH. To connect to the next row, an additional MRGT module is required.	It can only be placed in the RACK (entire section) at the end of a row, specifically to the left of the end cap. For each additional expansion section (next row), an MRGT module must be added.
Power expansion	The left side must be connected to a power module or supplied with 24V from an external power source to provide power for the expansion modules in this section.	It does not include power expansion, and a power module cannot be connected to the left side to expand internal power.
Notes	Requires the use of MFB20M-120 dedicated connection cable and includes one MRE End module.	Requires the use of MFB20M-120 dedicated connection cable

Digital Module

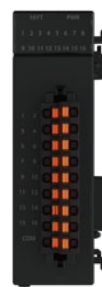
Local I/O

Digital Input



Item	M16X
Input points	16
Input type	24VDC single-end input
Maximum input frequency	Medium to Low speed 1kHz
Input signal voltage	24VDC±10%
Threshold current	ON > 4mA
	OFF < 1.5mA
Maximum input current	7.6mA
Input resistance	5.6 kΩ
Isolation type	Optical isolation, 500VAC, 1 minute
SINK/SOURCE wiring	Via variation of internal common terminal S/S and external common wiring
Noise filtering time	DHF(0 ~ 70ms) + AHF(0.47ms)
External connection	18 pins Push-in terminal blocks

Digital Output



Item	M16YT/J	M16YR
Output points	16	16
Output type	T: Transistor SINK(NPN) J: Transistor SOURCE(PNP)	Wiring of relay single-end output
Maximum output frequency	Medium to Low speed 1kHz	ON/OFF
Working voltage	5~30VDC	<250VAC, 30VDC
Maximum load current	Resistive 0.5A	2A/Single, 8A/Common
	Inductive 0.5A	80VA(AC)/24VA(DC)
Maximum voltage drop/ conducting resistance	2.2V	0.06V(first time)
Minimum load	—	2mA/DC
Leakage current	< 0.1mA/30VDC	—
Maximum output delay time	ON > OFF < 10μS	10ms
Maximum output delay time	OFF > ON < 40μS	10ms
Isolation type	Optical isolation, 500VAC, 1 min	Electromagnetic isolation, 500VAC, 1 min
SINK / SOURCE Wiring	Selected based on the model cannot be changed	Polarity-free components, configurable as either SINK or SOURCE output
External connection	18 pins Push-in terminal blocks	

Analog Module

Local I/O

Analog Input



Item	M04AD			M04ADS			M04ADR			
Input points	4			4			4			
Analog Input characteristics and resolution	Voltage	Input range	Value	Resolution	Input range	Value	Resolution	Input range	Value	Resolution
		-10~+10V	-8192~8191	1.2mV	-10~+10V	-32768~32767	0.3mV	-10~+10V	-80000~80000	0.125mV
		-5~+5V	-8192~8191	0.6mV	-5~+5V	-32768~32767	0.15mV	-5~+5V	-80000~80000	0.0625mV
		0~10V	0~16383	0.6mV	0~10V	0~65535	0.15mV	0~10V	0~80000	0.125mV
		0~5V	0~16383	0.3mV	0~5V	0~65535	0.075mV	0~5V	0~80000	0.0625mV
		1~5V	0~16383	0.24mV	1~5V	0~65535	0.06mV	1~5V	0~80000	0.05mV
	Current	Input range	Value	Resolution	Input range	Value	Resolution	Input range	Value	Resolution
		-20mA~+20mA	-8192~8191	2.4uA	-20mA~+20mA	-32768~32767	0.6uA	-20mA~+20mA	-80000~80000	0.25uA
		0~20mA	0~16383	1.2uA	0~20mA	0~65535	0.3uA	0~20mA	0~80000	0.25uA
		4~20mA	0~16383	0.97uA	4~20mA	0~65535	0.24uA	4~20mA	0~80000	0.2uA
	Conversion precision	Voltage	±0.1% (25° C±5° C) ±0.2% (0 ~ 55° C)					±0.1% (25° C±5° C) ±0.2% (0 ~ 55° C)		
		Current	±0.2% (25° C±5° C) ±0.4% (0 ~ 55° C)					±0.1% (25° C±5° C) ±0.2% (0 ~ 55° C)		
Conversion speed	High speed : 300us/Ch Medium speed : 500us/Ch Low speed : 1ms/Ch 50Hz filtering : 80ms/Ch 60Hz filtering: 68ms/Ch			Medium speed : 500us/Ch Low speed : 1ms/Ch 50Hz filtering : 80ms/Ch 60Hz filtering: 68ms/Ch			High speed : 1.5ms/Ch. Medium speed : 4ms/Ch. Low speed : 15ms/Ch. 50Hz filtering : 80ms/Ch. 60Hz filtering : 68ms/Ch.			
Input resistance	Voltage : 1MΩ Current : 250Ω									
Hardware maximum input	Voltage : — 15V ~+ 15V Current : -30mA~+30mA									
Isolation method	Between analog input terminals and CPU : Isolation (Transformer(power) and optical coupler(signal)) No isolation between each channel									
External connection	18 pins Push-in terminal blocks									

Analog Output

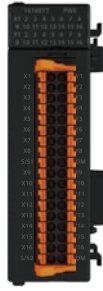


Item		M04DA			M04DAR		
Output points		4			4		
Analog Output characteristics and resolution	Voltage	Output range	Value	Resolution	Output range	Value	Resolution
		-10~+10V	-8192~8191	1.2mV	-10~+10V	-27000~27000	0.37mV
		-5~+5V	-8192~8191	0.6mV	-5~+5V	-27000~27000	0.185mV
		0~10V	0~16383	0.6mV	0~10V	0~27000	0.37mV
		0~5V	0~16383	0.3mV	0~5V	0~27000	0.185mV
	Current	1~5V	0~16383	0.2mV	1~5V	0~27000	0.148mV
		Output range	Value	Resolution	Output range	Value	Resolution
		0~20mA	0~16383	1.22μA	0~20mA	0~27000	0.74μA
		4~20mA	0~16383	0.97μA	4~20mA	0~27000	0.592μA
Conversion precision	Voltage	±0.2% (25°C ±5°C) ±0.5% (0~55°C)			±0.05% (25°C ±5°C) ±0.3% (0~55°C)		
	Current	±0.2% (25°C ±5°C) ±0.5% (0~55°C)			±0.05% (25°C ±5°C) ±0.3% (0~55°C)		
Conversion speed		1ms/ch			0.5ms/ch		
Minimum load resistance		Voltage : 1kΩ			Voltage : 1kΩ		
Maximum load resistance		Current : 500Ω			Current : 500Ω		
Hardware maximum input	Voltage	-10.2~+10.2V -5.1~+5.1V -0.2~10.2V -0.1~5.1V 0.9~5.1V			-10.2~+10.2V -5.1~+5.1V -0.2~10.2V -0.1~5.1V 0.9~5.1V		
		0~20.2mA 4~20.2mA			0~20.2mA 4~20.2mA		
	Current						
Isolation method		Between analog output terminals and CPU : Isolation (Transformer(power) and optical coupler(signal)) No isolation between each channel					
External connection		18 pins Push-in terminal blocks					

Digital Module

Local I/O

Digital Input & Output



Item		M1616XYT/J	M1616XYR
Input	Input points	16	
	Input type	24VDC single-end input	
	Maximum input frequency	Medium to Low speed 1kHz	
	Input signal voltage	24VDC $\pm$ 10%	
	Threshold current	ON	$> 4\text{mA}$
		OFF	$< 1.5\text{mA}$
	Maximum input current	7.6mA	
	Input resistance	5.6 k Ω	
	Common method	16 points / 4 common(S/S)	
Output	Output points	16	16
	Output type	Transistor NPN(T)/PNP(U)	Wiring of relay single-end output
	Maximum output frequency	Medium to Low speed 1kHz	ON/OFF
	Working voltage	5~30VDC	$<250\text{VAC}$, 30VDC
	Maximum voltage drop/ conducting resistance	2.2V	0.06V(first time)
	Leakage current	$< 0.1\text{mA}/30\text{VDC}$	
	Maximum output delay time	ON > OFF	$< 10\mu\text{s}$
		OFF > ON	$< 40\mu\text{s}$
	Maximum load current	Resistive	0.5A/single 4A/Common
		Inductive	80VA(AC)/24VA(DC)
	SINK / SOURCE Wiring	Selected based on the model cannot be changed	
	External connection	36 pins Push-in terminal blocks	

Load cell Module

Local I/O

Load cell input



Item		M02LC	M02LCR
Input points		2	2
A/D Converter Utilized		24 bits	24 bits
Conversion precision		$\pm 0.5\%$ (25° C $\pm$ 5° C) $\pm 1\%$ (0 ~ 55° C)	$\pm 0.01\%$ (25° C $\pm$ 5° C) $\pm 0.4\%$ (0 ~ 55° C)
Sampling period		High speed: 2 ms/ch (for single-point use) General :10ms/ch	General :10ms/ch
Level of sensitivity		$\pm 1.0\text{mV/V}$ 、 $\pm 2.0\text{mV/V}$ 、 $\pm 3.0\text{mV/V}$ 、 $\pm 4.0\text{mV/V}$	
Zero drift		0.2 $\mu\text{V}/^{\circ}\text{C}$	
Gain drift		$\pm 10\text{ppm}/^{\circ}\text{C}$	
Excitation Voltage		5VDC $\pm$ 5%, Output current :60mA max. 6 wires	
Isolation method		Between analog input terminals and CPU : Isolation (Transformer(power) and optical coupler(signal)) No isolation between each channel	
External connection		18 pins Push-in terminal blocks	

Analog Module

Local I/O

Analog Input & Output



Item		M0202AH					
Input/Output points		2 input			2 output		
Analog characteristics and resolution	Voltage	Input range	Value	Resolution	Output range	Value	Resolution
		-10~+10V	-8192~8191	1.2mV	-10~+10V	-8192~8191	1.2mV
		-5~+5V	-8192~8191	0.6mV	-5~+5V	-8192~8191	0.6mV
		0~10V	0~16383	0.6mV	0~10V	0~16383	0.6mV
		0~5V	0~16383	0.3mV	0~5V	0~16383	0.3mV
	1~5V	0~16383	0.2mV	1~5V	0~16383	0.2mV	
	Current	Input range	Value	Resolution	Output range	Value	Resolution
		-20mA~+20mA	-8192~8191	2.4uA	0~20mA	0~16383	1.22uA
		0~20mA	0~16383	1.2uA			
4~20mA	0~16383	0.97uA	4~20mA	0~16383	0.97uA		
Conversion precision	Voltage	$\pm 0.1\%$ (25°C $\pm 5^\circ\text{C}$) $\pm 0.2\%$ (0 ~ 55°C)			$\pm 0.2\%$ (25°C $\pm 5^\circ\text{C}$) $\pm 0.5\%$ (0~55°C)		
	Current	$\pm 0.2\%$ (25°C $\pm 5^\circ\text{C}$) $\pm 0.4\%$ (0 ~ 55°C)			$\pm 0.2\%$ (25°C $\pm 5^\circ\text{C}$) $\pm 0.5\%$ (0~55°C)		
Conversion speed		High speed : 300us/Ch Medium speed : 500us/Ch Low speed : 1ms/Ch 50Hz filtering : 80ms/Ch 60Hz filtering : 68ms/Ch			1ms/ch		
Isolation method		Between analog input/output terminals and CPU : Isolation (Transformer(power) and optical coupler(signal)) No isolation between each channel					
External connection		18 pins Push-in terminal blocks					

Temperature Module

Local I/O

Temperature input

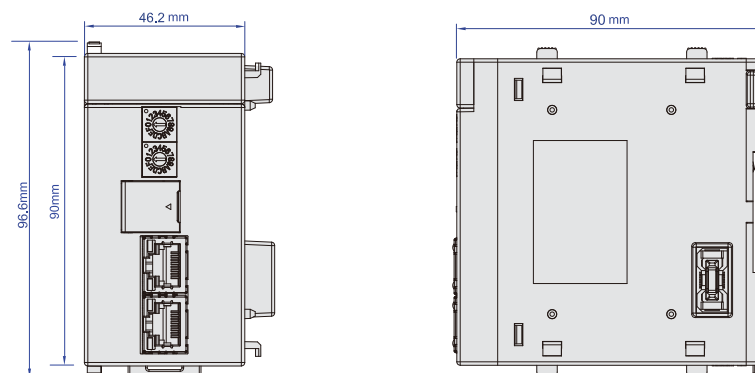


Item	M04TC	M04TCR	M04RTD	M0202TH	
Input points	4 TC	4 TC	4RTD	2 RTD	2 TC
Sensor	Thermocouple K,J,E,T,R,B,N,S,mV		Pt100/Pt1000: (-200-850℃) JPt1000/JPt1000: (-200-600℃) Pt100(1000) - DIN EN60751 JPt100(1000) - JIS 1609-1981		Thermocouple K,J,E,T,R,B,N,S,mV
Resolution	0.1℃	0.1℃	0.1℃	0.1℃	0.1℃
Conversion precision	±0.5% (25° C±5° C) ±1% (0 ~ 55° C)	±0.2% (25° C±5° C) ±0.4% (0 ~ 55° C)	±0.1% (25° C±5° C) ±0.5% (0 ~ 55° C)		±0.5% (25° C±5° C) ±1% (0 ~ 55° C)
Sampling period	High speed : 200ms/ch General : 400ms/ch	High speed : 100ms/ch General : 200ms/ch	100ms/ch		High speed : 200ms/ch General : 400ms/ch
PID Control period	Adjustable computation interval: 0.1 to 30 seconds (TS), plus an additional scan cycle.				
Control Method	PID control、ON/OFF control				
Calibration Method	PID auto-tuning mode				
Isolation method	Between analog input terminals and CPU : Isolation (Digital Isolator) Analog input channels: Insulated (Optocoupler isolation)				
External connection	18 Pin Push-in terminal blocks				

Dimensions

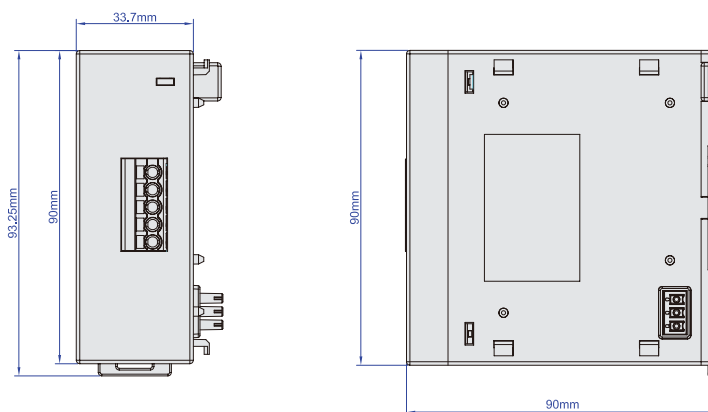
Coupler Unit

MCOEN



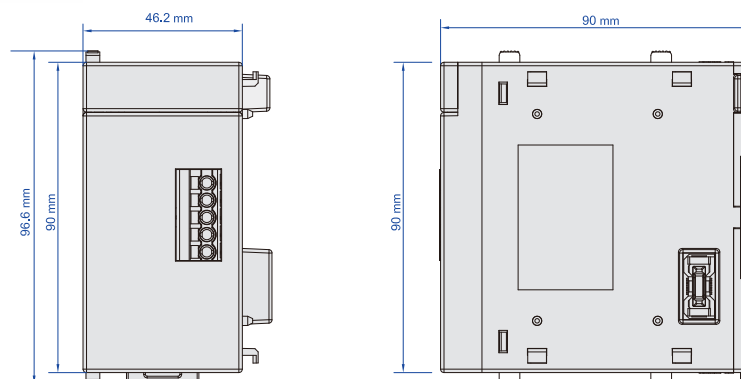
Power Supply Module

MPA024/48-24

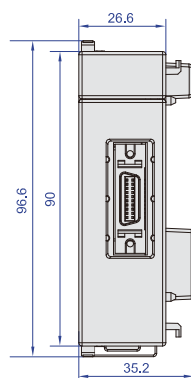


IO Bus Extension

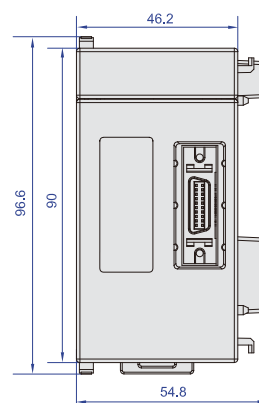
MRPWE-AC



MRGH

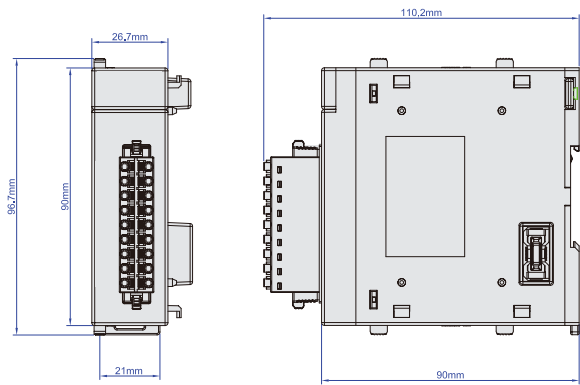


MRGT

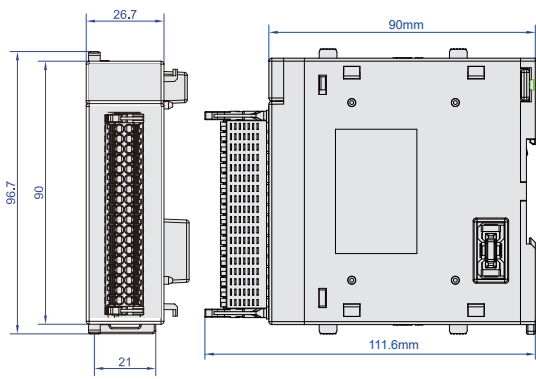


Digital Module

M16X / M16Y T/J/R

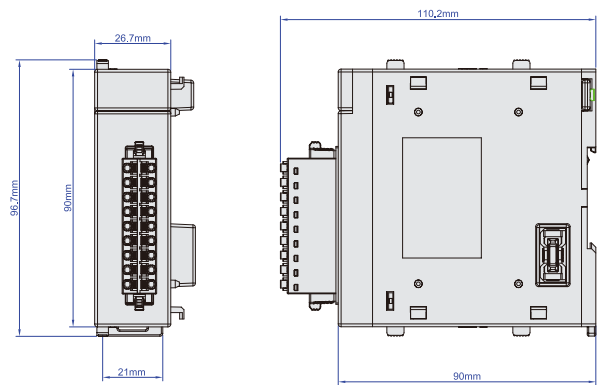


M1616XY T/J/R



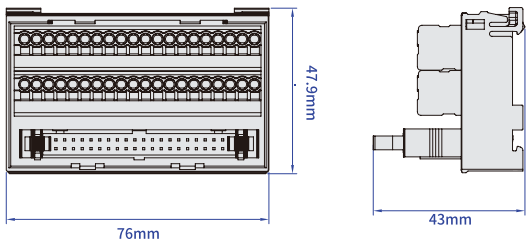
Analog Module

M04AD S/R / M04DA R / M0202AH / M04TC R / M04RTD / M0202TH / M02LC R

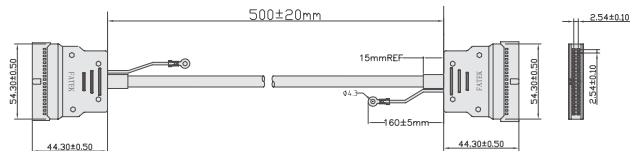


Peripheral and Accessory

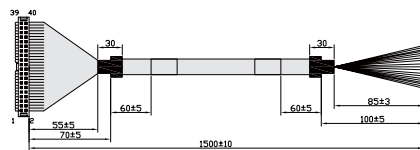
MFT40T



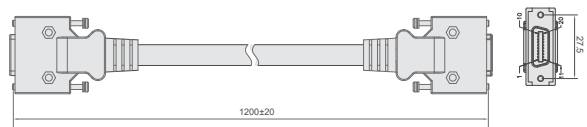
MFW40I-50



MFW40N-150



MFB20M-120



Model List

Category		Model	Specifications
Coupler Unit		MC0EN	Remote I/O Coupler (Modbus TCP and Ethernet/IP)
Local I/O Expansion	Digital I/O Module	M16X	16 points 24 VDC digital input , Push-in terminal blocks
		M16YT	16 points transistor SINK(NPN) output , Push-in terminal blocks
		M16YJ	16 points transistor SOURCE(PNP) output , Push-in terminal blocks
		M16YR	16 points relay output , Push-in terminal blocks
		M1616XYT	16 points 24 VDC digital input , 16 points transistor SINK(NPN) output , Push-in terminal blocks
		M1616XYJ	16 points 24 VDC digital input , 16 points transistor SOURCE(PNP) output , Push-in terminal blocks
		M1616XYR	16 points 24 VDC digital input , 16 points relay output , Push-in terminal blocks
	Analog I/O Module	M04ADR	4 channels , Voltage and current input , Resolution:1/160000
		M04ADS	4 channels , Voltage and current input , Resolution:1/65535
		M04AD	4 channels , Voltage and current input , Resolution:1/16383
		M04DAR	4 channels , Voltage and current output , Resolution:1/54000
		M04DA	4 channels , Voltage and current output , Resolution:1/16383
		M0202AH	2 channels voltage and current input + 2 channels voltage and current output , Resolution:1/16383
	Temperature Input Module	M04TCR	4 channels , Thermocouple temperature input (K, J, T, E, R, B, N, S, mV) , Precision: $\pm 0.2\%$ (25° C $\pm 5^{\circ}$ C)
		M04TC	4 channels , Thermocouple temperature input (K, J, T, E, R, B, N, S, mV) , Precision: $\pm 0.5\%$ (25° C $\pm 5^{\circ}$ C)
		M04RTD	4 channels RTD(Pt100/Pt1000, JPt100/JPt1000) , Precision: $\pm 0.1\%$ (25° C $\pm 5^{\circ}$ C)
		M0202TH	2 channels RTD + 2 channels thermocouple , Precision: RTD: $\pm 0.1\%$, TC: $\pm 0.5\%$ (25° C $\pm 5^{\circ}$ C)
	Load Cell Module	M02LCR	2 channels load cell input module , A/D Converter Utilized: 24 bits , Precision: $\pm 0.01\%$ (25° C $\pm 5^{\circ}$ C)
		M02LC	2 channels load cell input module , A/D Converter Utilized: 24 bits , Precision: $\pm 0.5\%$ (25° C $\pm 5^{\circ}$ C)
	End module	MRE	End module must be connected to the right side of the CPU module or the end of the entire row(rack)
I/O Bus Extension	Repeater Module	MRGH	The head module must be used with the MRGT (tail). Each row can expand up to 16 Local I/O expansion modules, with a maximum of 6 rows (6 sections, racks), for a total of 64 Local I/O expansion modules.
	IO Bus Extension Module (Head)	MRGT	The tail module must be used with the MRGH (head). Each row can expand up to 16 Local I/O expansion modules, with a maximum of 6 rows (6 sections, racks), for a total of 64 Local I/O expansion modules.
	IO Bus Extension Module (Tail)	MRGT	The tail module must be used with the MRGH (head). Each row can expand up to 16 Local I/O expansion modules, with a maximum of 6 rows (6 sections, racks), for a total of 64 Local I/O expansion modules.
Power Expansion Module	Power Supply Module	MPA024-24	Input: 100~240VAC (50/60Hz) , Output: 24VDC 1A(Internal and external) , 24W
		MPA048-24	Input: 100~240VAC (50/60Hz) , Output: 24VDC 2A(Internal and external) , 48W
Peripheral and Accessory	Terminal block	MFT40T	40 pins interface module , Connection method: PID(for engineering testing purpose, not necessary)
	High density DI/DO connection cable	MFW40I-50	High density modules connector 40pin socket, Vertical cable exit, shielded 28AWG I/O cable length 50cm Usually used with MFT40T
		MFW40N-150	High density modules connector 40pin socket (discrete wire at one end) , Horizontal cable exit, shielded 28AWG I/O cable length 150cm
		MFW40NS-300	High density modules connector 40pin socket (discrete wire at one end) , Vertical cable exit, 22AWG I/O cable length 300cm
	I/O Bus Extension Module connection cable	MFB20M-120	Connection between I/O bus extension modules: MRGT and MRGH with a 20-pin MDR connector, cable length 120 cm