FATEK

fatek.com

M Series

Programmable Controller

FATEK

NEXT Level *SOLUTION*

0.8 ns
Ultimate Performance

Ultimate speed leading ahead of the industry

Innovatively developed high-performance processor and high-performance algorithm. Achieves ultimate up to 0.8ns for the command processing speed.Pushes the control performance to the unimaginable "ns" realm.

BASIC LD
0.8ns

| MOV	Multiplication	Floating Point Addition
7.5 ns	38 ns	35 ns

Ultra high precision motion control performance

Independent processing of motion control related tasks with the dedicated motion control CPU. Execute the complicated or massive amount of motion control commands in real-time and accurate manner without affecting the scan time.
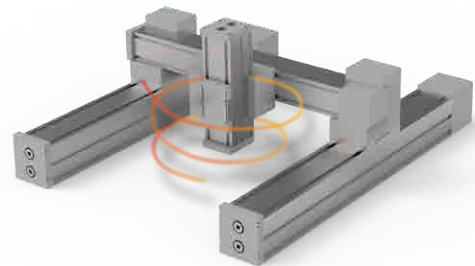
Ultra low delay interrupt response

Achieves up to 7.7 uS interrupt response speed. With interrupt, the input response time will not be not affected by the length of the scan time.Ensure precise and immediate control needs in any situation.

Input Signal — ON / OFF

Interrupt Output — 7.7 uS

General I/O Output

Scan Time
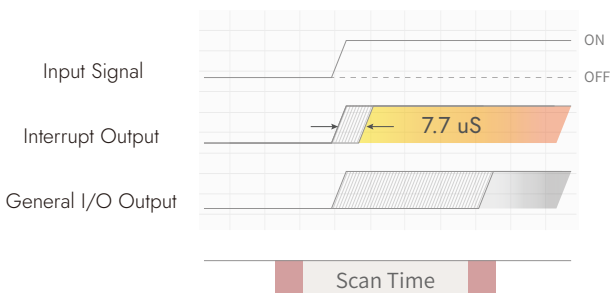
Larger program capacity

Up to 3MB built-in program memory capacity. The advantages of large-point I/O and multi-axis motion control can be fully utilized without limitation. Able to achieve production line and even factory scale monitoring and high-complexity motion control.

Factory and Complex Motion Control

Production Line

Machine

80KB   1MB   3MB

World-class high-capacity and efficient control center

Dual Ethernet communication interface

Ethernet supports Modbus TCP, MQTT and self-defined protocol. Exchange the data with the peripheral devices, systems and platforms easily. And EtherCAT could seamlessly connect with other brands* of EtherCAT servos. Advanced motion control can be achieved by the built-in motion control function without the need of expansion module.
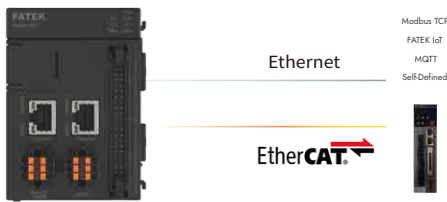
IoT control hub

Support FATEK IoT solution without the need of fixed IP and IoT gateway. Easily achieve the applications such as remote monitoring, project maintenance and alarm notification. And also supports the MQTT Protocol for interfacing with the third-party cloud platform

High-speed pulse output and positioning control

Built-in up to 8 axes and and up to 200KHz high-speed pulse output which can perform positioning control.
And supports advanced functions such as interrupt constant feed and interrupt constant angle. Application such as edge grinding, edge banding and feeding can be easily realized.
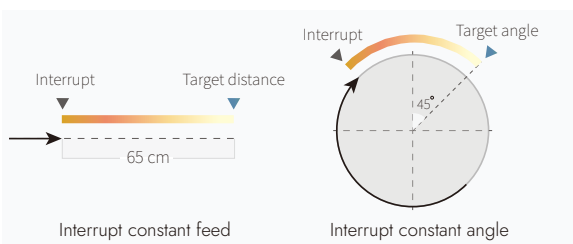
High-density integrated I/O

Built-in 16 sets of digital input and output points respectively. With up to 200KHz high-speed counter and pulse output. Support interrupt and capture input to ensure commands and signal capture are not affected by scan time when control immediacy is extremely required.
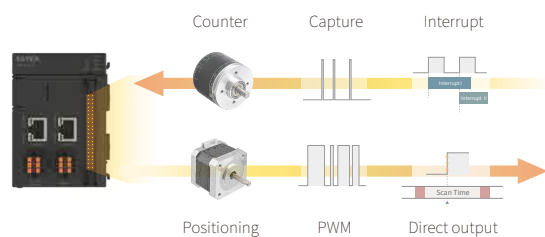
2-channel RS-485 communication ports

Built-in 2-channel RS-485 communication ports and support Modbus Client/Slave.

2-channel analog input interface

Built-in 2-channel 12-bit analog input interface.

* For supported driver brands, please refer to the list on FATEK website

Hardware

Motion

IoT

Software

Line Up

Specification

Dimension

Model List

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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.
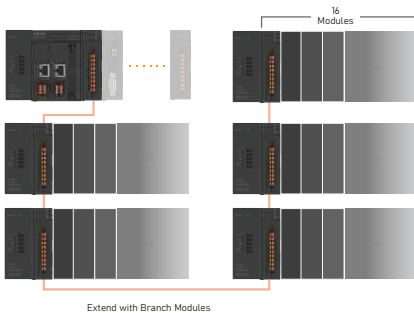
FHB FATEK Hyper-bus data transmission technique

It solves the problem that the serial communication speed will be affected by the number of modules, and the speed can achieve up to 10 times faster than CAN bus. Moreover, the bus connector is designed with a patented vibration damping joint, and now data transmission is not only fast, but also more stable and reliable.

Extend with Branch Modules
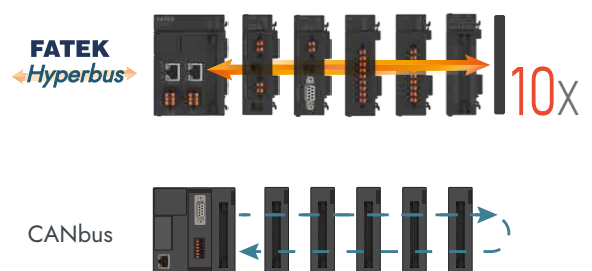
Comprehensive expansion modules

Provide various modules from I/O,communication, numerical monitoring to IoT. In addition to being applicable to various machines and systems, it can also be used as a control and integration hub for cross-system integration.
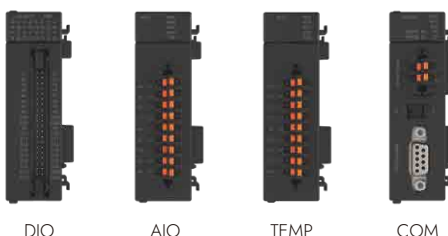
Distributed computing on modules

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

DIO   AIO   TEMP   COM

PID Auto-tuning

Scaling
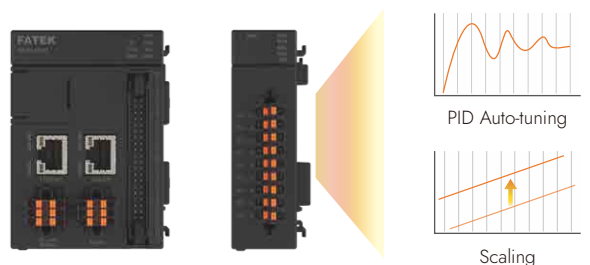
Intuition

Human-centered design

Hardware

Motion

IoT

Software

Line Up

Specification

Dimension

Model List

Battery-free program memory

Program and data memory using non-volatile memory. No battery required to maintain internal data storage. Never need to worry about data loss or damage caused by battery out of power anymore.

Micro-SD* card expansion slot

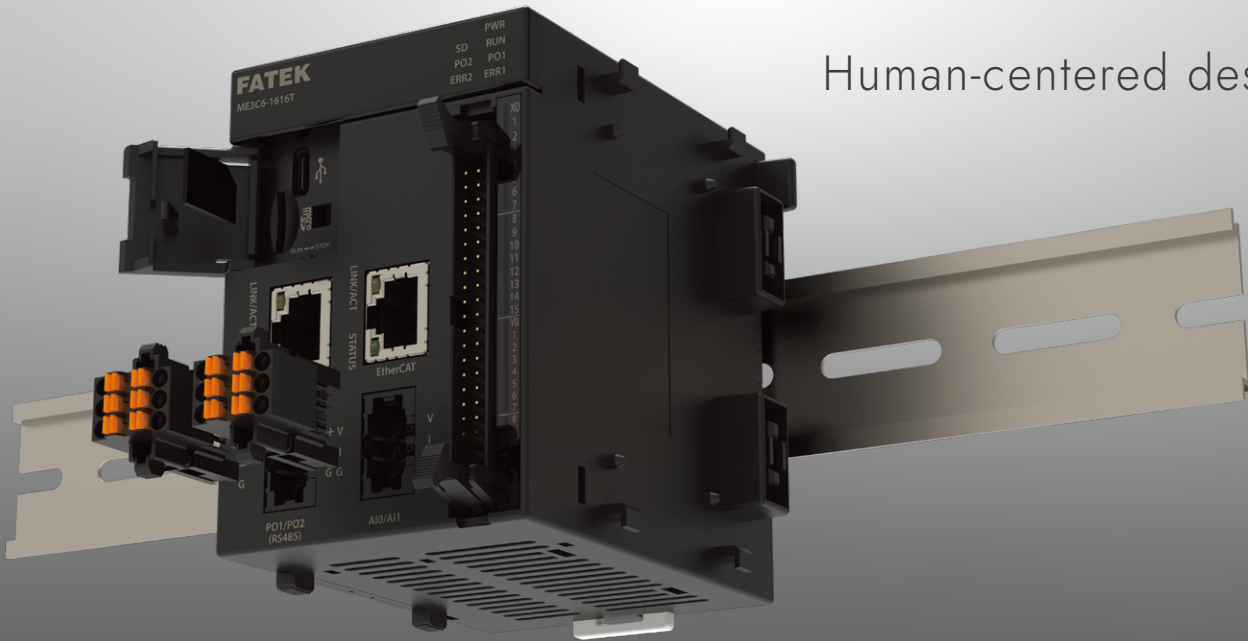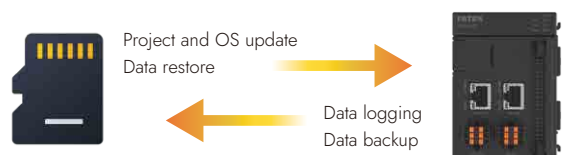Logged data can be directly stored in the Micro-SD card, and also project and OS update, data backup and restore can be performed through the Micro-SD card.It allows the user to complete data logging, project loading and system maintenance without a computer.

Project and OS update
Data restore

Data logging
Data backup

Patented floating connector

The local bus connector design with patented 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

Convenient wiring and quick dismantling

Quick wiring without tools using Push-in terminals. And can ensure contacts tightly connected to avoid poor contact.

RUN/STOP switch

The physical switch can change-over the state of PLC without a computer. Significantly improve the convenience of tuning and debugging

Type-C interface

Adopt USB Type-C as the standard programming interface. Project upload/download and online monitoring/editing simply with the use of common USB Type-C cable.

* Only support MFM06 - dedicated Micro-SD card

Independent motion control CPU

Perform complex motion control
with precision

Independent motion control CPU

Motion control operates independently of the PLC logic program.
Even if the execution of complex high-speed and high-precision
motion control requirements will not be affected by the program
scan time or other interrupt tasks.It can ensure the best control
accuracy and stability

EtherCAT

EtherCAT fieldbus can be seamlessly connected with other brands*
of EtherCAT servos,and provide reliable and highly efficient control
method while exhibiting faster transmission speed.
Wiring simply done by using standard RJ-45 cables.
Improve assembly efficiency while reducing the maintenance cost.

M PLC   Servo
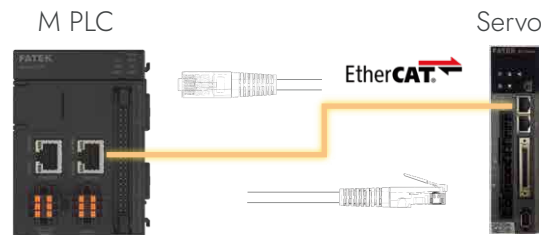
16-axis synchronous motion control

Control up to 16-axis servo driver simultaneously without the
 need of expanding any motion control module or linking
several CPUs.Perform high-precision multi-axis
time-synchronized cooperative control.Each axis can be used
to carry out the advanced motion-sync control.

Advanced interpolation function

Built-in linear, circular and helical interpolation functions,
and support drawing out continuous point arc between
two motion points. The two motion trajectories can be connected
with each other by auxiliary circles which smoother transitions
and reduced mechanical vibration.

16 Axes
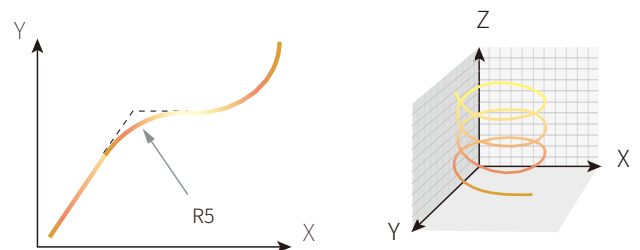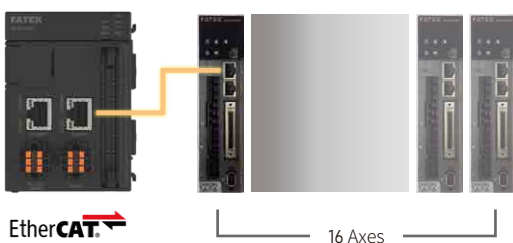
* For supported driver brands, please refer to the list on FATEK website

Powerful motion control functions

Easily handle various needs

Hardware

Motion

IoT

Software

Line Up

Specification

Dimension

Model List

Point 1

Point 2

Point 3

Motion-sync control

Synchronous axis control can be completed with PLC, without the need for mechanical structures such as transmission gears, clutches and shafts.Provides the flexibility to adjust synchronization parameters in a timely manner in addition to reducing mechanical parts and maintenance costs.

Electronic cam

Support electronic cam function on the output axis of motion-sync control.Executes fly shear/rotary knife action without physical cam mechanism.Easily meet complex machine application requirements such as packaging and cutting

Axis 1

Axis 2

Differential gear at input end

Mst axis phase cmps

Variable gear

Main clutch

Differential gear at output end

Trq limit clutch

Step angle cmps

Cam — Output filter

Output axis

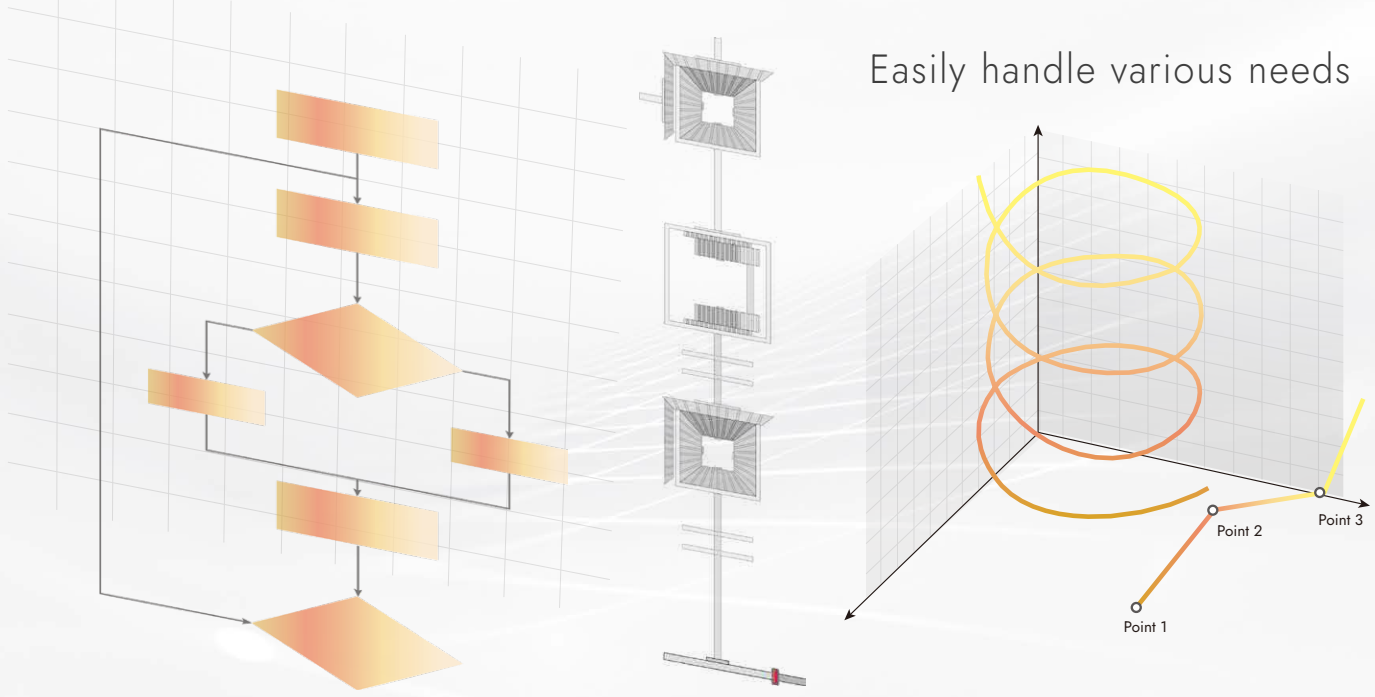## Stabilized and smooth control

Support S-curve acceleration/deceleration in various motion control modes.On the premise of not reducing the acceleration and deceleration to maintain the existing operating efficiency, it can reduce the jitter caused by the rapid change of speed and make the operation smoother.

Easy and intuitive motion control

Plan the motion control tasks with the highly visualized Motion Flow. Complex motion control processes and requirements can be easily implemented through an intuitive graphical process-Motion flow , that requires no programming at all.

V

Time

UperLogic

M-CV1-02-2023
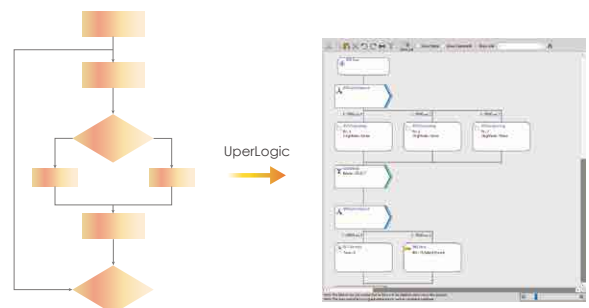
Monitor and control remote devices
anytime and anywhere

iMonitor - remote data monitoring

Easily monitor and control the data of the scattered devices remotely through mobile phones and computers.
Alarm notifications can inform the administrator when detecting abnormal operations.Pinpoint the device address instantly through the GPS information.

iAccess - remote project maintenance with module*

No need for fixed IP and complex firewall settings, as long as the PLC is connected to the Internet, you can easily and quickly perform remote project and firmware maintenance, and you can use UperLogic to achieve real-time online monitoring and project editing. Devices are now within arm's length, no matter how far away they are.

MOTOR=ON TEMP.=26
SWITCH=OFF HUM.=65

Browser   **android**   **iOS**

FATEK
ONLY

OS
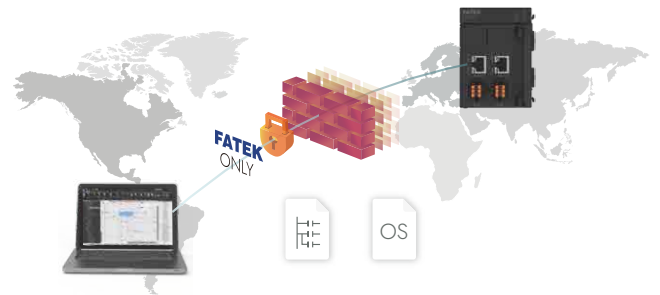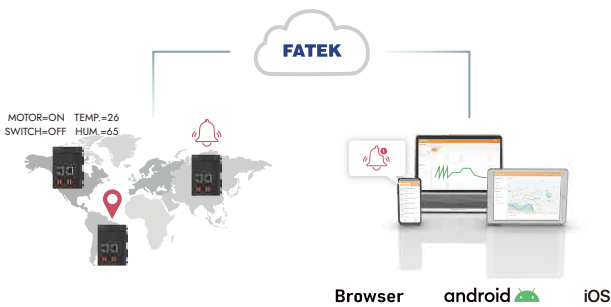
Connect mainstream cloud platforms with MQTT

Built-in MQTT communication protocol which is commonly used in IoT standard.Provide a convenient setting interface, which can easily connect to mainstream cloud platforms without any programming. The user will be allowed to expand wider realm and aspect applications without limitation.

FATEK IoT Solution

Easily monitor, control and maintain scattered devices anytime, anywhere.Intuitive user-friendly operation interface and web content management system.Ready-to-use without the need of additional IoT platform development.Support cross-platform to ensure running on various devices.

DashBoard   MAP   Project
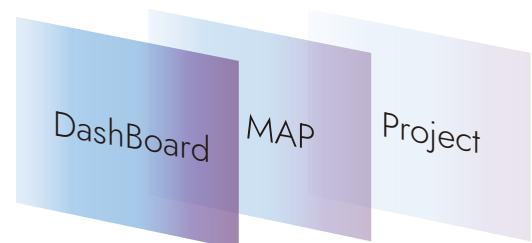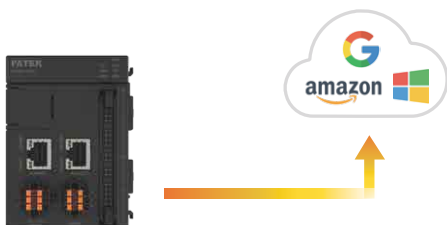
* Will be supported in the future

M SERIES Programming Software

UperLogic

Powerful and approachable

UperLogic

Hardware

Motion

IoT

Software

Line Up

Specification

Dimension

Model List
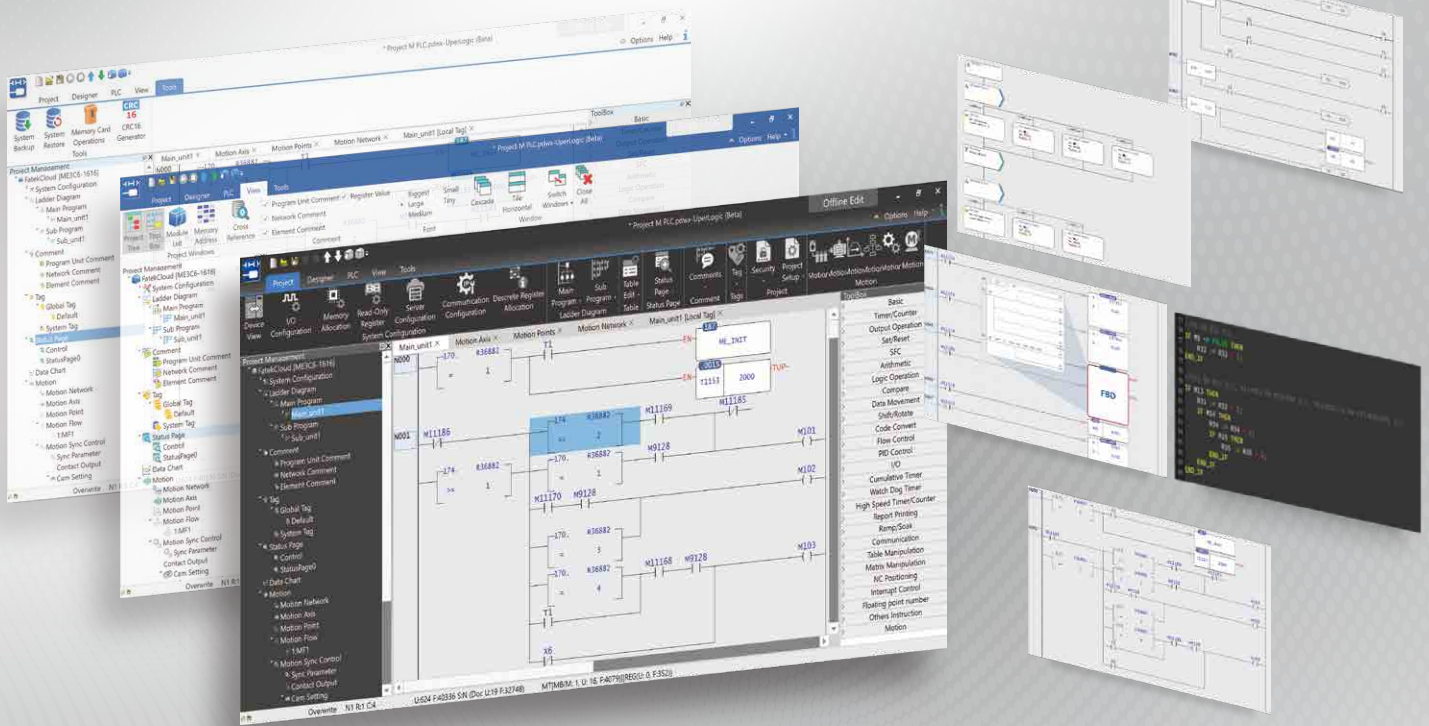
Support LD / ST / FBD / SFC

IEC 61131-3 like programming language

DEVICE VIEW

device information at a glance

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.
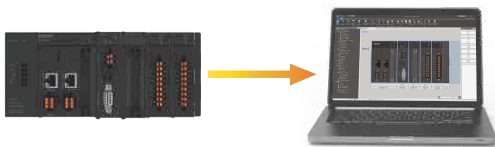
Drag and Drop

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.
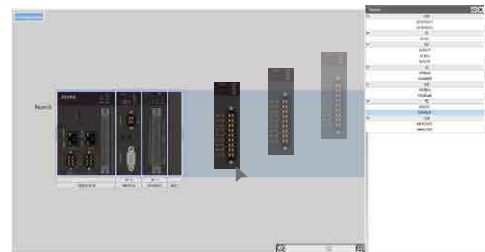
Online real-time monitoring

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.

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.
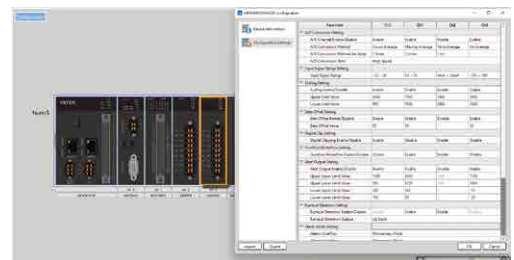
Module dimensions and information

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

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.

Comprehensive and powerful features

Hardware

Motion

IoT

Software

Line Up

Specification

Dimension

Model List
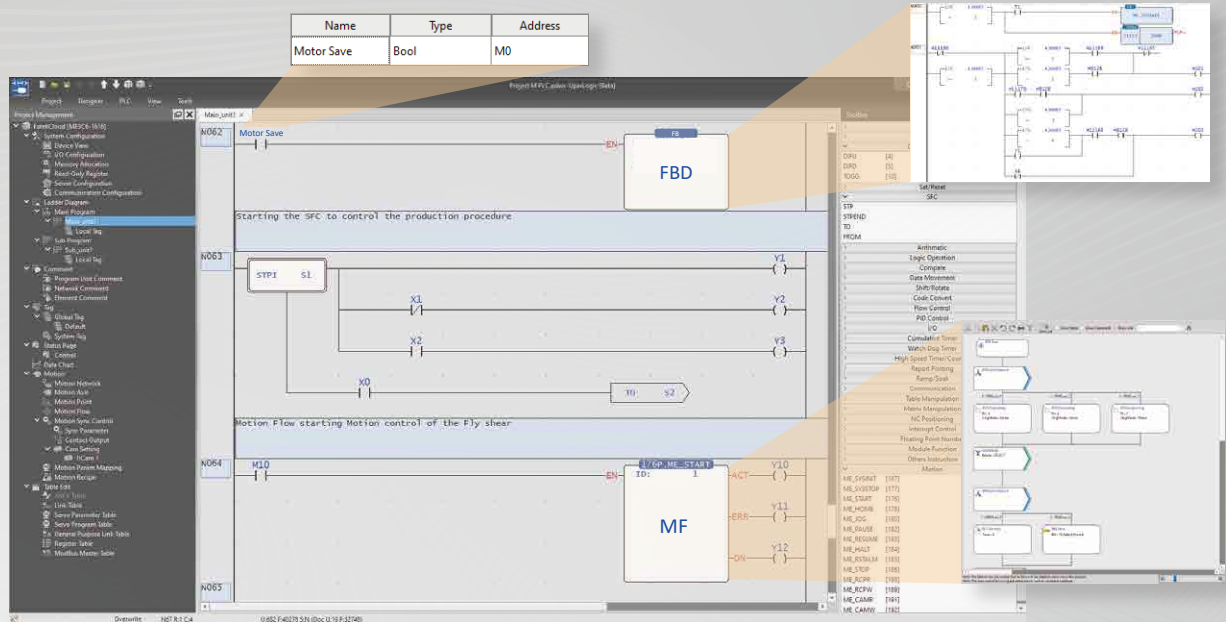
Multi-language editing

Support LD / ST / FBD / STP / MF editing languages. Multiple languages can be mixed and matched in the same project.The most suitable language could be selected for project development according to different applications.
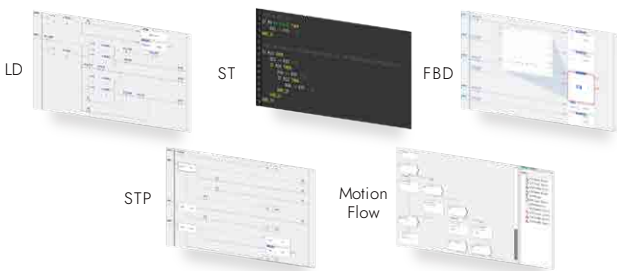
PLC TAG

Directly define the object, function and register address by name, no longer have to worry about not being able to identify the purpose represented by the register address for each item.Easily manage and import/export tag settings through the tag database.

LD   ST   FBD

STP   Motion Flow
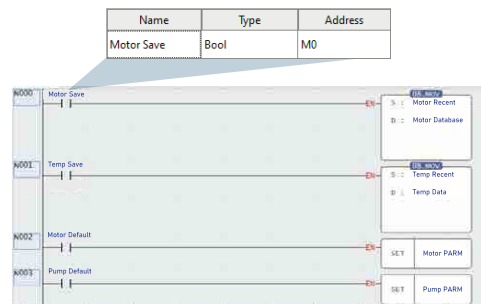
Intellectual property protection

Projects and Data Protection

Project, data and settings
can be protected by password

Download and project verifying

PASSWORD
★ ★ ★ ★ ★ ★

Project upload/download permissions
can also be protected by password

Project and PLC binding

PLC ID
1596

ID 1596

ID 2546
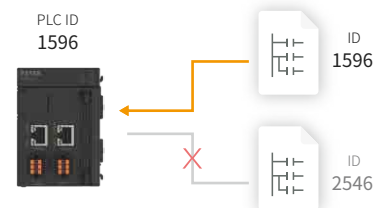
Project can be run if only when
Project ID and PLC ID match

Modbus mapping table

When used as a slave, it can automatically correspond the external Modbus address to the internal register. The communication between the third-party device and the PLC can be easily completed without programming.

Self-defined protocol

Provide convenient and intuitive self-defined protocol setting table.Even non-mainstream devices and sensors can be easily connected.

Intuitive and convenient operation experience
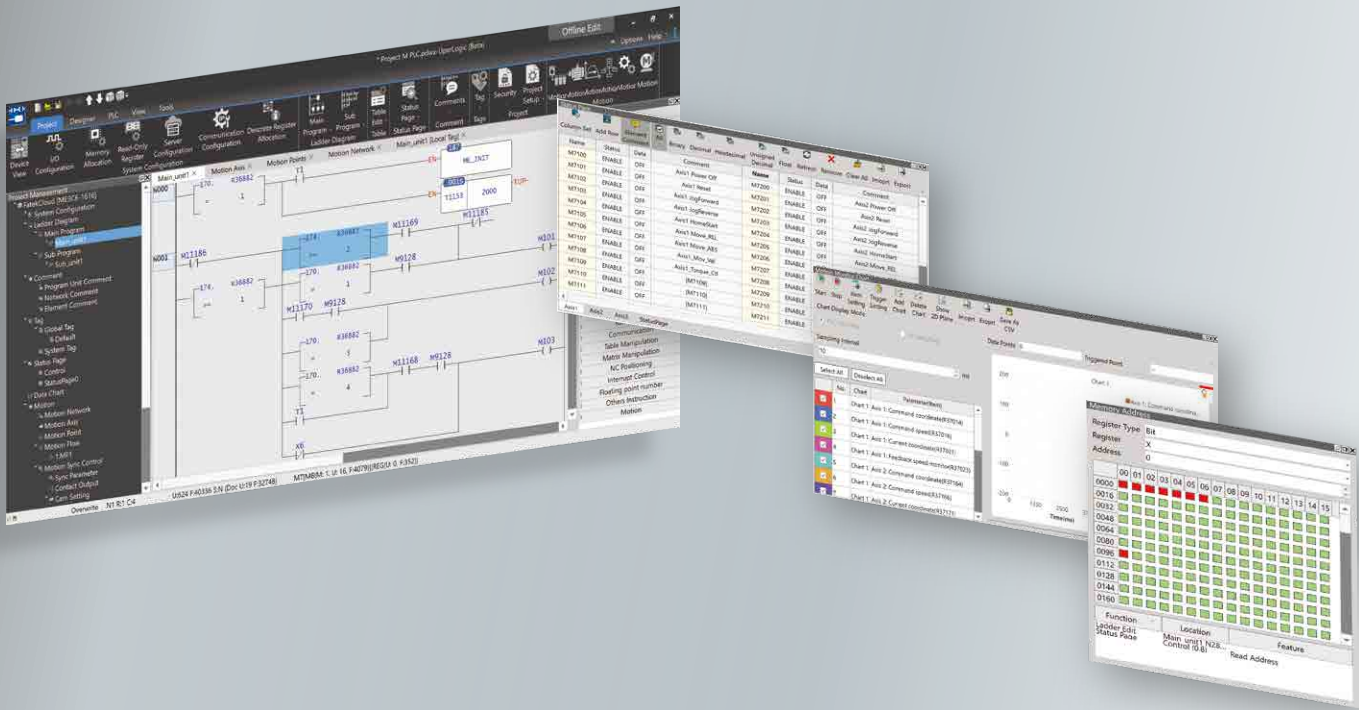
Tree View and multi-window editing

Tree structure project management window.
Project and parameter settings can be clearly and simply managed hierarchically and systematically.
Flexible multi-window interface easy for multitasking.
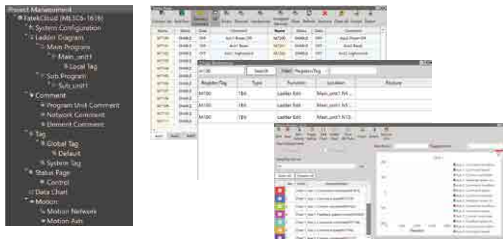
Memory Map

Clearly indicate the PLC internal memory usage.
By clicking on the used resources, it can guide you to the related component or function.Significantly improve resource planning efficiency and accessibility.
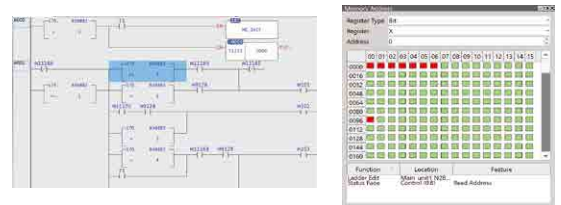
Project comparison

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

Project   Device

Project automatic backup

A specific time interval can be set for project backup during project development.The project will be saved automatically if the user shuts down the software without saving.Automatic backup ensures that the results are properly retained in the event of any PC errors during programming.
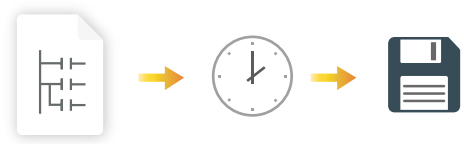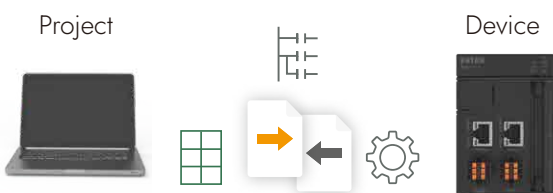
Network device scanning

Easily scan devices in LAN through a single click.
Eliminate the intricate process of confirming IP information device by device.

Hotkey input

Support keyboard hotkey command input.
Skip the tedious steps of clicking the window to enter the function item by item with the mouse.

A simple motion planning approach

Hardware

Motion

IoT

Software

Line Up

Specification

Dimension

Model List
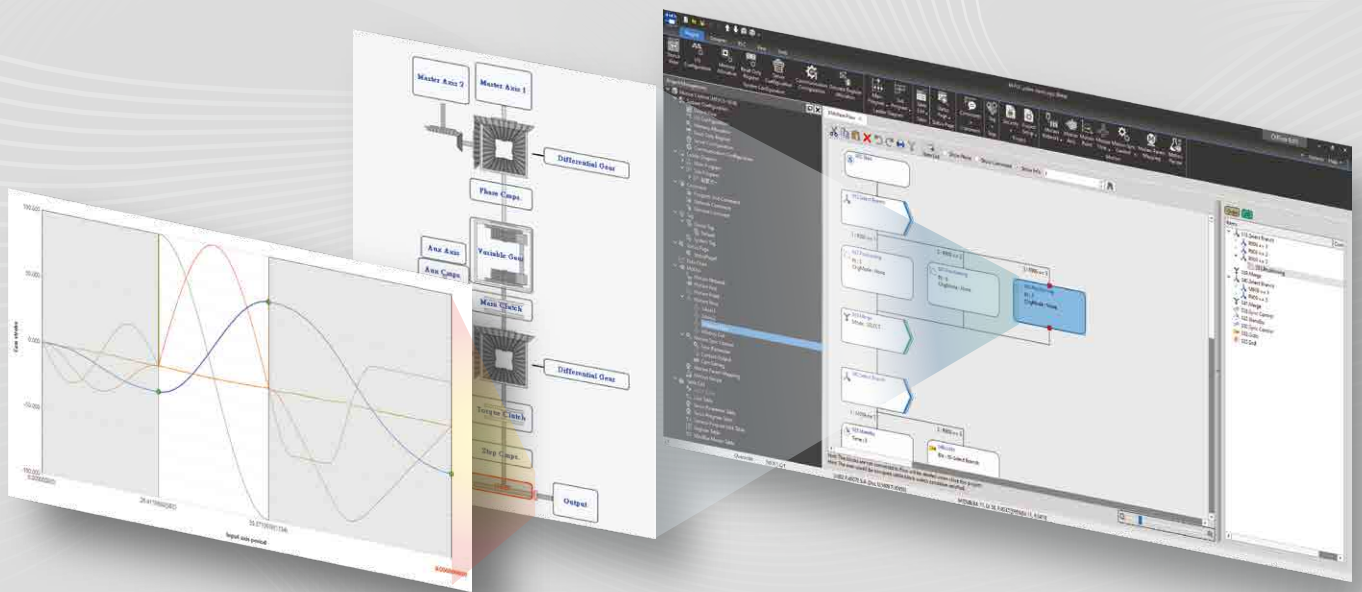
Motion Flow

Intuitively plan motion control processes graphically without the need of complex programming.Even complicated motion action can be concisely defined through intuitive motion block.
Motion flow is highly visualized, it allows the user to comprehend the control process and the command simply by viewing.
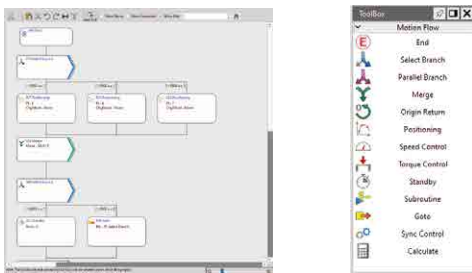
Sync parameter

Directly click on the icon of the synchronous axis mechanism to adjust the detailed parameters of the clutch and gear,etc.It allows the user to change the interaction between input and output axes quickly and flexibly.
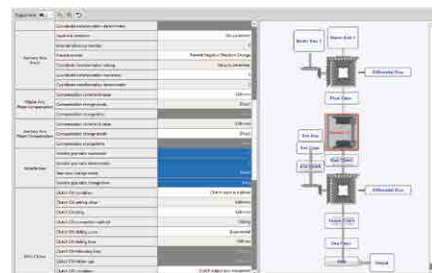
Electronic cam

Intuitive adjustment of cam stroke and phase by chart dragging. Built-in up to 22 cam profiles for quick and easy cam shape creation. Cam configuration can be achieved without complicated parameter calculation and setting.
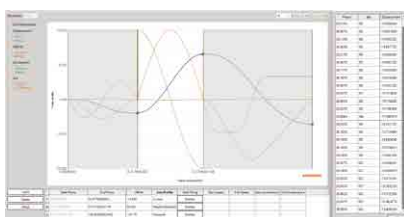
Trajectory simulation

Simulate the motion settings in the motion point table and draw the values and trajectories.Display multiple values at once, such as position, velocity, and acceleration.Quickly verify the correctness of parameters without running the machine.
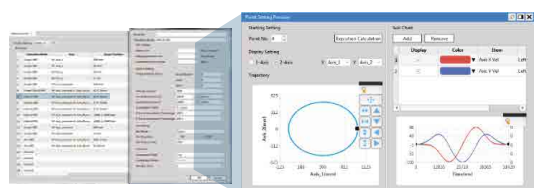
Contact output

Cam phase and PLC output can be linked.
The required on or off value of the output can be triggered at a specific cam stroke interval.

Motion Network

Simply connect other brands EtherCAT servo drivers* by importing ESI files.
And also support virtual axis planning.

* For supported driver brands, please refer to the list on FATEK website

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Line Up

ME   Advanced Motion

General		Motion and Positioning Control			Communication	IO & Expansion
Basic LD **0.8 nS**	Motiton Control EtherCAT	Positioning Control Pulse	20 axes	Ethernet	32 DIO
Total Program Memory **3 MB**	E-Cam	Flying shear Rotary knife	Motion Sync	EtherCAT	2 AI
DIO **2048**	Helical interpolation	Circular interpolation	Linear interpolation	RS 485	SD slot
AIO **256**	Point-to-Point	Interrupt constant feed	Interrupt constant angle	IoT	Type C

* The above table lists the highest-level specifications of the series. Please refer to the specification table for each single model.

MS General Motion

General		Motion and Positioning Control			Communication	IO & Expansion
Basic LD 0.8 nS	Motiton Control EtherCAT	Positioning Control Pulse	20 axes		Ethernet	32 DIO
Total Program Memory 3 MB	E-Cam	Flying Saw Rotary cut	Motion Sync		EtherCAT	2 AI
DIO 2048	Helical interpolation	Circular interpolation	Linear interpolation		RS 485	SD slot
AIO 256	Point-to-Point	Interrupt constant feed	Interrupt constant angle		IoT	Type C

MA BASIC

General		Motion and Positioning Control			Communication	IO & Expansion
Basic LD 0.8 nS	Motiton Control EtherCAT	Positioning Control Pulse	8 axes		Ethernet	32 DIO
Total Program Memory 80 KB	E-Cam	Flying Saw Rotary cut	Motion Sync		EtherCAT	2 AI
DIO 2048	Helical interpolation	Circular interpolation	Linear interpolation		RS 485	SD slot
AIO 256	Point-to-Point	Interrupt constant feed	Interrupt constant angle		IoT	Type C

Power Supply

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

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

Input : 16 points   Output : 16 points
24VDC Input
T: SINK(NPN) J: SOURCE (PNP)
40 pins header connector

Analog

Analog Input

M04AD

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

High Resolution Analog Input

M04ADR

Input : 4 points   Voltage/ Current
Resolution : 1/80000
Precision: ±0.1%
Push-in terminal blocks

Analog Output

M04DA

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

High Resolution Analog Output

M04DAR

Output : 4 points   Voltage/ Current
Resolution : 1/27000
Precision : ±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 : ±0.1% / ±0.2%   Precision : ±0.2%
Push-in terminal blocks

Temperature

Temperature Input

M04TC

Input : 4 points
Thermocouple : K,J,E,T,R,B,N,S,mV
Resolution : 0.1℃
Precision : ±0.5%
Push-in terminal blocks

High Precision Temperature Input

M04TCR

Input : 4 points
Thermocouple : K,J,E,T,R,B,N,S,mV
Resolution : 0.1℃
Precision : ±0.2%
Push-in terminal blocks

Mixed Temperature Input

M0202TH

Input : 2 points
Thermocouple : K,J,E,T,R,B,N,S,mV
Resolution : 0.1℃
Precision : ±0.2%
Push-in terminal blocks

Input : 2 points
RTD : Pt100/JPt100: (-200~800℃)
Pt1000/JPT1000:(-200~600℃)
Pt100/1000(α=0.00385)
JPt100/1000(α=0.003916)
Resolution : 0.1℃
Precision : ±0.5%

Load cell

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

Communication

Communication Expansion   High-speed*

MHCM25

1 port RS485 + 1 port RS232
Speed and interface:
RS485 - Max. 230400 bps
Push-in terminal blocks
RS232 - Max. 115200 bps
D-Sub 9-Pin

MHCM55

2 ports RS485
Speed and interface:
RS485 - Max. 230400 bps
Push-in terminal blocks

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* Support up to 6 high-speed modules, and need to be installed in the first 6 expansion positions on the right side of the CPU (placed between the CPU and general modules)

Specifications

ME
Advanced Motion

MS
General Motion

MA
BASIC

General Specifications

Item	ME □□□ -1616 ◇ / MS □□□ -1616◇	MA □□□ -1616 ◇
Power consumption	DC24V±20%，0.2A	DC24V±20%，0.15A
Grounding	Class D grounding	
Environmental temperature	0 ～ 55℃	
Storage temperature	-25 ～ 70℃	
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/s2 (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	
CPU module weight	246 g (without end cover)	236 g (without end cover)
	280 g (with end cover)	270 g (with end cover)
Certifications	CE、UL*	

Input Specifications

Digital Input

Item	Specification
Input points	16 points (8 points/1 common point)
Input type	24VDC single-end input
Maximum input frequency	200KHz
Input signal voltage	24VDC±10%
Threshold — ON current	> 4mA
Threshold — OFF current	< 2mA
Maximum input current	6mA(@DC24V)
Input indication	Displayed by LED: light when "ON", dark when "OFF"
Isolation method	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 ~ 15ms) ＋ AHF(0.47μs)
External connection	40 pins header connector

Analog Input

Item		Specification		
Input point		2		
Analog Input characteristics and resolution	Voltage	Analog input range	Value	Resolution
		0~10V	0~4096	2.44mV
	Current	Analog input range	Value	Resolution
		0~20mA	0~4096	4.88uA
Conversion precision	Voltage	±1% (25° C±5℃)		
	Current	±1% (25° C±5℃)		
Conversion speed		Conversion once for each scan		
Input resistance		Voltage：76KΩ Current：165Ω		
Hardware maximum input		Voltage：0 ~ 10V Current：0 ~ 20mA		
Isolation method		Between analog input terminals and CPU：Isolation (Transformer(power) and optical coupler(signal)) No isolation between each channel		
External connection		2 ch，2X3 pins Push-in terminal blocks		

Output Specifications

Digital Output

Item		MA/MS/ME Series*	MA1I4-1616 ◇
Output points		16	
Output mode		Single-end transistor output	
Maximum output frequency		200KHz	100KHz
Working voltage		5～30VDC	
Maximum load current Resistive		0.1A	
Maximum voltage drop(@Maximum load)		0.6V	
Leakage current		＜ 0.1 mA/30VDC	
Maximum output delay time	ON → OFF	2us	
Maximum output delay time	OFF → ON	2us	
Output status indication		Displayed by LED: Light when "ON", dark when "OFF"	
Isolation method		Optical isolation, 500VAC, 1 minute	
SINK/SOURCE output type		Choose SINK/SOURCE by models and non-exchangeable	
External connection		40 pins box header connector	

* Except for MA1I4-1616 ◇

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℃ ~55℃	
Environmental humidity	20%~90% (Non-condensing)	

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Performance specifications

Specification		ME1C1-1616◇	ME2C3-1616◇	ME2C4-1616◇	ME2C5-1616◇	ME3C6-1616◇	MS1C1-1616◇	MS1C2-1616◇	MS2C3-1616◇	MS2C4-1616◇	MS2C5-1616◇	MS3C6-1616◇
Programming language		LD / ST / FBD / STP / MotionFlow										
Instruction execution speed	LD Instruction	0.8nS / LD										
	MOV Instruction	7.5nS / MOV										
Maximum I/O	DIO	1024	1024	1024	2048	2048	512	512	512	1024	2048	2048
	AIO	128	128	128	256	256	128	128	128	128	256	256
Maximum number of Modules	General + High-speed	64 units (with the use of extension module)										
	High-speed	6 units (need to be installed between CPU and general module)										
Program Memory	PLC	40 KB	60 KB	60 KB	60 KB	80 KB	40 KB	40KB	60KB	60 KB	60 KB	80 KB
	Motion	370 KB	742 KB	1.1 MB	1.5 MB	3 MB	370 KB	556 KB	802KB	1.1 MB	1.5 MB	3 MB
Memory card Dedicated Industrial Grade Micro-SD Card	Project and OS update	Support project and OS update with memory card										
	Data Logging、Backup、Restore	●	●	●	●	●	–	–	●	●	●	●
Built-in digital input and output		Input 16 points 、 Output 16 points										
Built-in analog input		2ch 12bits										
Communication Interface	ETHERNET Interface	1 port 10/100 Base-T										
	Modbus / User-Defined	Master/Slave	Master/Slave	Master/Slave	Master/Slave	Master/Slave	Slave	Slave	Master/Slave	Master/Slave	Master/Slave	Master/Slave
	EtherCAT	1 port										
	RS-485	2 ports，Support Master/Slave，Communication speed 4.8K ～ 921.6Kbps										
	USB	1 port，USB Type C (USB 2.0)										
IoT expansion*		MQTT ，FATEK iMonitor / iAccess										
Motion Control	Number of motion control axes	6 axis	8 axis	12 axis	16 axis	20 axis	6 axis	7 axis	12 axis	12 axis	16 axis	20 axis
	Pulse Axes	4 axis	4 axis	4 axis	4 axis	4 axis	4 axis	4 axis	8 axis	4 axis	4 axis	4 axis
	Pulse Output frequency	200KHz	200KHz	200KHz	200KHz	200KHz	200KHz	200KHz	100KHz	200KHz	200KHz	200KHz
	Pulse Pulse output mode	6 Modes (U、Ux2、A/B、A/Bx2、A/Bx3、A/Bx4)										
	Pulse Positioning control	●	●	●	●	●	●	●	●	●	●	●
	EtherCAT Number of axis	2 axis	4 axis	8 axis	12 axis	16 axis	2 axis	3 axis	4 axis	8 axis	12 axis	16 axis
	EtherCAT Linear and Circular Interpolation/ Positioning control	●	●	●	●	●	●	●	●	●	●	●
	EtherCAT Helical Interpolation / E-cam	●	●	●	●	●	–	–	–	–	–	–
High-speed counter 200KHz		8 channel*					6 channel*	7 channel*	8 channel*			
High-speed timer 0.1mS		1 (16-bit) , 4 (32-bit)										
HSPWM	Points	16 points										
	Output frequency	72Hz ~ 18.432KHz (with 0.1% resolution) / 720Hz ~ 184.32KHz (with 1% resolution)										
Interrupt control	External interrupt control	16 interrupts (8 points input positive/negative edge)										
	Internal interrupt control	12 interrupts (4 sets of 0.1 ms / 4 sets of 1 ms / 4sets of 10 ms)										
	Counter control	8										
Captured input	points	up to 16										
	Minimum capturable Pulse width	>10µs(High speed input)										
Digital Filter		X0~X15 (Adjustable frequency 14KHz ~ 1.8MHz , Adjustable time constant 0 ~ 1.5mS/0~15mS (unit: 0.1mS/1mS))										
DI	X	512	512	512	1024	1024	256	256	256	512	1024	1024
DO	Y	512	512	512	1024	1024	256	256	256	512	1024	1024
Temporary relay	TR	16										
Internal relay	M	29600										
Step relay	S	3104										
Timer "Time-Up" status contact	T	1024										
Counter "Count-Up" status contact	C	16 bit : 1024, 32 bit : 256										
Timer	TMR	1024										
	CTR 16	1024										
	CTR 32	256										
Data register	R	34768										
	D	12000										
	ROR	4096										
	F	65536										
Input/Output register	AI+AO	128	128	128	256	256	128	128	128	128	256	256
Special system register	SR	7944(all)										
Index register	XR	12(V、Z、P0~P9(10))										
Calendar Register		sec,min,hour,day,month,year,week										
Data retentive	Program and Data	Non-volatile memory (no battery required)										
	Calendar	Battery										

Specification		MA1N1-1616◇	MA1N2-1616◇	MA1N3-1616◇	MA1I4-1616◇	MA1M3-1616◇	MA2M3-1616◇	MA3M3-1616◇
Programming language		LD / ST / FBD / STP / MotionFlow						
Instruction execution speed	LD Instruction	0.8nS / LD						
	MOV Instruction	7.5nS / MOV						
Maximum I/O	DIO	512	512	512	512	512	1024	2048
	AIO	128	128	128	128	128	128	256
Maximum number of Modules	General + High-speed	64 units (with the use of extension module)						
	High-speed	6 units (need to be installed between CPU and general module)						
Program Memory	PLC	40 KB	40 KB	40 KB	40 KB	40 KB	60 KB	80 KB
	Motion	–	–	–	–	–	–	–
Memory card Dedicated Industrial Grade Micro-SD Card	Project and OS update	Support project and OS update with memory card						
	Data Logging、Backup、Restore	–	–	–	–	●	●	●
Built-in digital input and output		Input 16 points 、 Output 16 points						
Built-in analog input		–	–	–	–	–	–	–
Communication Interface	ETHERNET / Interface	1 port 10/100 Base-T						
	ETHERNET / Modbus / User-Defined	Slave	Slave	Slave	Slave	Master/Slave	Master/Slave	Master/Slave
	EtherCAT	–	–	–	–	–	–	–
	RS-485	2 ports，Support Master/Slave，Communication speed 4.8K ～ 921.6Kbps						
	USB	1 port，USB Type C (USB 2.0)						
IoT expansion*		MQTT ，FATEK iMonitor / iAccess						
Motion Control	Number of motion control axes	2 axis	3 axis	4 axis	8 axis	4 axis	4 axis	4 axis
	Pulse / Axes	2 axis	3 axis	4 axis	8 axis	4 axis	4 axis	4 axis
	Pulse / Output frequency	200KHz	200KHz	200KHz	100KHz	200KHz	200KHz	200KHz
	Pulse / Pulse output mode	6 Modes (U、Ux2、A/B、A/Bx2、A/Bx3、A/Bx4)						
	Pulse / Positioning control	●	●	●	●	●	●	●
	EtherCAT / Number of axis	–	–	–	–	–	–	–
	EtherCAT / Linear and Circular Interpolation/ Positioning control	–	–	–	–	–	–	–
	EtherCAT / Helical Interpolation / E-cam	–	–	–	–	–	–	–
High-speed counter 200KHz		2 channel	3 channel	4 channel	8 channel	8 channel	8 channel	8 channel
High-speed timer 0.1mS		1 (16-bit) , 4 (32-bit)						
HSPWM	Points	16 points						
	Output frequency	72Hz ~ 18.432KHz (with 0.1% resolution) / 720Hz ~ 184.32KHz (with 1% resolution)						
Interrupt control	External interrupt control	16 interrupts (8 points input positive/negative edge)						
	Internal interrupt control	12 interrupts (4 sets of 0.1 ms / 4 sets of 1 ms / 4sets of 10 ms)						
	Counter control	8						
Captured input	points	up to 16						
	Minimum capturable Pulse width	>10μs(High speed input)						
Digital Filter		X0~X15　(Adjustable frequency 14KHz ~ 1.8MHz , Adjustable time constant 0 ~ 1.5mS/0~15mS (unit: 0.1mS/1mS))						
DI	X	256	256	256	256	256	512	1024
DO	Y	256	256	256	256	256	512	1024
Temporary relay	TR	16						
Internal relay	M	29600						
Step relay	S	3104						
Timer "Time-Up" status contact	T	1024						
Counter "Count-Up" status contact	C	16 bit : 1024, 32 bit : 256						
Timer	TMR	1024						
	CTR 16	1024						
	CTR 32	256						
Data register	R	34768						
	D	12000						
	ROR	4096						
	F	65536						
Input/Output register	AI+AO	128	128	128	128	128	128	256
Special system register	SR	7944(all)						
Index register	XR	12(V、Z、P0~P9(10))						
Calendar Register		sec,min,hour,day,month,year,week						
Data retentive	Program and Data	Non-volatile memory (no battery required)						
	Calendar	Battery						

◇：T — Transistor SINK(NPN) output ；J — Transistor SOURCE (PNP) output

　*　CPU supports MQTT protocol and iMonitor functions. iAccess function needs to be expanded through modules. iMonitor and iAccess services require a licence key to activate

　*　MS1C1-1616◇ of which 2 channels, MS1C2-1616◇ of which 3 channels, and other models of which 4 channels of HSC are only dedicated for EtherCAT motion only

　*　**Positioning Control**: Including Point-to-Point Positioning Control、Interrupt constant feed/angle ； **Circular interpolation**: Including Linear/Circular interpolation and functions in **Positioning Control**

　　E-CAM: Including Fly shear、Rotary knife、Helical interpolation and functions in **Positioning Control** and **Circular interpolation**

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Digital Input

Digital Output

Digital Input & Output

Item		M16X
Input points		16
Input type		24VDC single-end input
Maximum input frequency		Medium speed 1kHz
Input signal voltage		24VDC±10%
Threshold current	ON	＞4mA
	OFF	＜1.5mA
Maximum input current		7.6mA
Input resistance		5.6kΩ
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(0.47μs)
External connection		18 pins Push-in terminal blocks

Item		M16YT	M16YJ	M16YR
Output points		16	16	16
Output type		Transistor SINK(NPN)	Transistor SOURCE(PNP)	Wiring of relay single-end output
Maximum output frequency		Medium speed 1kHz	Medium speed 1kHz	ON/OFF
Working voltage		5~30VDC	5~30VDC	<250VAC,30VDC
Maximum load current	Resistive	0.5A	0.5A	2A/Single，8A/Common
	Inductive	0.5A	0.5A	80VA(AC)/24VA(DC)
Maximum voltage drop/ conducting resistance		2.2V	2.2V	0.06V(first time)
Minimum load		—	—	2mA/DC
Leakage current		＜0.1mA/30VDC	＜0.1mA/30VDC	—
Maximum output delay time	ON > OFF	＜10μS	＜10μS	10ms
Maximum output delay time	OFF > ON	＜40μS	＜40μS	10ms
Isolation type		Optical isolation, 500VAC, 1 minute		
External connection		18 pins Push-in terminal blocks		
Internal power consumption		＜150mA	＜163mA	＜90mA
External connection		18 pins Push-in terminal blocks		

Item			M1616XYT/J
Input	Input points		16
	Input type		24VDC single-end input
	Maximum input frequency		Medium speed 1kHz
	Input signal voltage		24VDC±10%
	Threshold current	ON	＞4mA
		OFF	＜1.5mA
	Maximum input current		7.6mA
	Input resistance		5.6kΩ
	Common method		16 points / 4 common point
Output	Output points		16
	Output type		Transistor NPN/PNP
	Maximum output frequency		Medium speed 1kHz
	Working voltage		5~30VDC
	Maximum voltage drop/ conducting resistance		2.2V
	Leakage current		＜0.1mA/30VDC
	Maximum output delay time	ON > OFF	＜10μS
	Maximum output delay timet	OFF > ON	＜40μS
	Common method		16 points / 4 common point
	External connection		40 pins box header connector

Analog Module

Analog Input

Analog Output

Item			M04AD			M04ADR		
Input points			4			4		
Analog Input characteristics and resolution	Voltage	Input range	Value	Resolution	Input range	Value	Resolution	
		-10~+10V	-8192~8191	1.2mV	-10~+10V	-80000~80000	0.125mV	
		-5~+5V	-8192~8191	0.6mV	-5~+5V	-80000~80000	0.0625mV	
		0~10V	0~16383	0.6mV	0~10V	0~80000	0.125mV	
		0~5V	0~16383	0.3mV	0~5V	0~80000	0.0625mV	
		1~5V	0~16383	0.24mV	1~5V	0~80000	0.05mV	
	Current	Input range	Value	Resolution	Input range	Value	Resolution	
		-20mA~+20mA	-8192~8191	2.4uA	-20mA~+20mA	-80000~80000	0.25uA	
		0~20mA	0~16383	1.2uA	0~20mA	0~80000	0.25uA	
		4~20mA	0~16383	0.97uA	4~20mA	0~80000	0.2uA	
Conversion precision	Voltage		±0.1% (25°C±5℃) ±0.2% (0～55℃)			±0.1% (25°C±5℃) ±0.2% (0～55℃)		
	Current		±0.2% (25°C±5℃) ±0.4% (0～55℃)			±0.1% (25°C±5℃) ±0.2% (0～55℃)		
Conversion speed			High speed : 300us/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			18 pins Push-in terminal blocks		

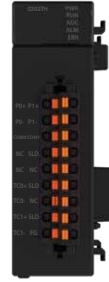| Item			M04DA			M04DAR		
Output points			4			4		
Analog Output characteristics and resolution	Voltage	Output range	Value	Resolution	Output range	Value	Resolution	
		-10~+10V	-8192~8191	1.2mV	-10~+10V	-27000~27000	0.37mV	
		-5~+5V	-8192~8191	0.6mV	-5~+5V	-27000~27000	0.185mV	
		0~10V	0~16383	0.6mV	0~10V	0~27000	0.37mV	
		0~5V	0~16383	0.3mV	0~5V	0~27000	0.185mV	
		1~5V	0~16383	0.2mV	1~5V	0~27000	0.148mV	
	Current	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℃) ±0.5% (0~55℃)			±0.05% (25°C±5℃) ±0.3% (0~55℃)		
	Current		±0.2% (25°C±5℃) ±0.5% (0~55℃)			±0.05% (25°C±5℃) ±0.3% (0~55℃)		
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		
	Current		0~20.2mA 4~20.2mA			0~20.2mA 4~20.2mA		
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					

Analog Module

Analog Input & Output

Item	M0202AH					
Input/Output points	2 input			2 output		
Analog characteristics and resolution		Input range	Value	Resolution	Output range	Value	Resolution

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	1.22μA
		0~20mA	0~16383	1.2uA			
		4~20mA	0~16383	0.97uA	4~20mA	0~16383	0.97uA
Conversion precision	Voltage	±0.1% (25°C±5°C) ±0.2% (0~55°C)			±0.2% (25°C±5°C) ±0.5% (0~55°C)		
	Current	±0.2% (25°C±5°C) ±0.4% (0~55°C)			±0.2% (25°C±5°C) ±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

Temperature input

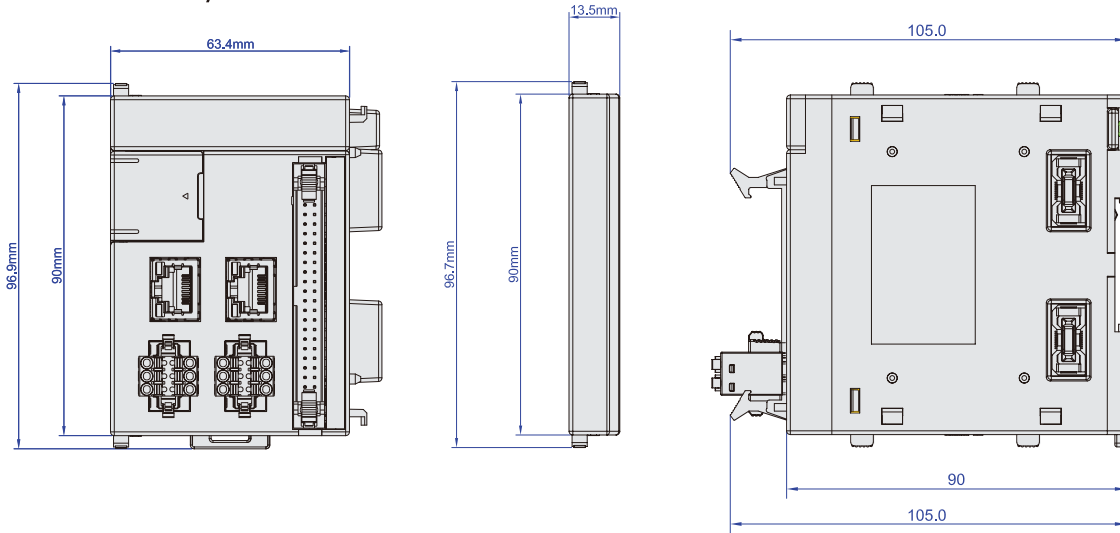| Item	M04TC	M04TCR	M0202TH	
Input points	4	4	2 RTD	2 TC
Sensor	Thermocouple K,J,E,T,R,B,N,S,mV		Pt100/JPt100: (-200~800°C) Pt1000/JPT1000:(-200~600°C) Pt100/1000(α=0.00385) JPt100/1000(α=0.003916)	Thermocouple K,J,E,T,R,B,N,S,mV
Resolution	0.1°C	0.1°C	0.1°C	0.1°C
Conversion precision	±0.5% (25°C±5°C) ±1% (0~55°C)	±0.2% (25°C±5°C) ±0.4% (0~55°C)	±0.5% (25°C±5°C) ±0.5% (0~55°C)	±0.2% (25°C±5°C) ±1% (0~55°C)
Sampling period	High speed : 200ms/ch General : 400ms/ch	High speed : 100ms/ch General : 200ms/ch	High speed : 200ms/ch General : 400ms/ch	High speed : 200ms/ch General : 400ms/ch
Control period	1~100 sec		1~100 sec	
Operating mode	PID control、ON/OFF contol		PID control、ON/OFF contol	
Tuning mode	PID auto-tuning mode		PID auto-tuning mode	
Isolation method	Between analog input terminals and CPU : Isolation (Transformer(power) and optical coupler(signal)) No isolation between each channel		Between analog input terminals and CPU : Isolation (Transformer(power) and optical coupler(signal)) No isolation between each channel	
External connection	18 Pin Push-in terminal blocks		18 Pin Push-in terminal blocks	

Load cell Module

Load cell input

Item	M02LC	M02LCR
Input points	2	2
A/D Converter Utilized	24 bits	24 bits
Conversion precision	±0.5% (25°C±5°C) ±1% (0~55°C)	±0.01% (25°C±5°C) ±0.4% (0~55°C)
Sampling period	High speed :2ms/ch General :10ms/ch	General :10ms/ch
Level of sensitivity	±1.0mV/V、±2.0mV/V、±3.0mV/V、±4.0mV/V	
Zero drift	0.2uV/°C	
Gain drift	±10ppm/°C	
Excitation Voltage	5VDC±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	

Communication Module High-speed*

RS-232
RS-485
RS-485

Item	MHCM25	MHCM55
Communication standard	1 port RS485 + 1 port RS232	2 port RS485
Connection interface	RS485: 2X2 pins Push-in terminal blocks RS232 : D-Sub 9-Pin	2X2 pins Push-in terminal blocks
Maximum number of connections	RS485: 32 slave RS232: 1 slave	RS485: 32 slave
Transmission speed	RS485: Maximum 230400 RS232: Maximum 115200	RS485: Maximum 230400
Transmission distance	RS485: 1200M RS232: 15M	RS485: 1200M
Isolation method	Transformer(power) isolation	

Hardware / Motion / IoT / Software / Line Up / Specification / Dimension / Model List

* Support up to 6 high-speed modules, and need to be installed in the first 6 expansion positions on the right side of the CPU (placed between the CPU and general modules)
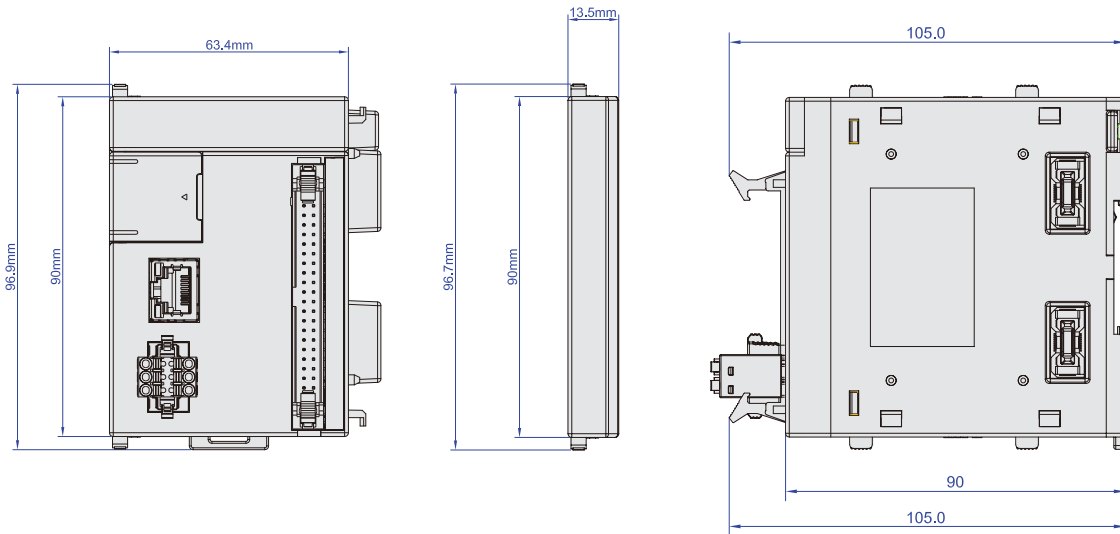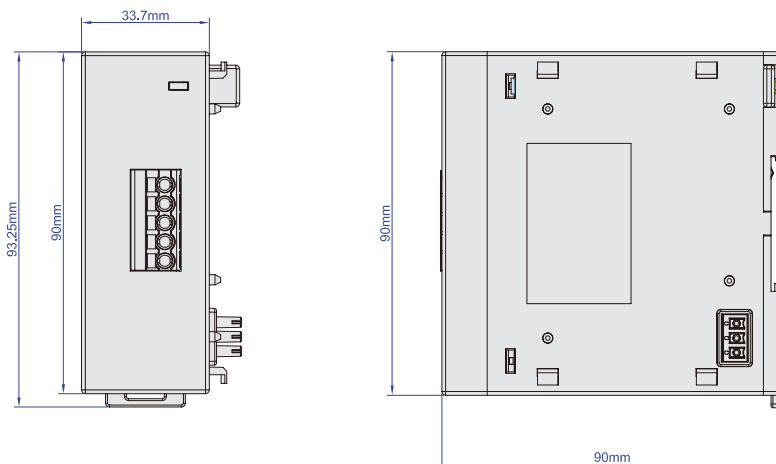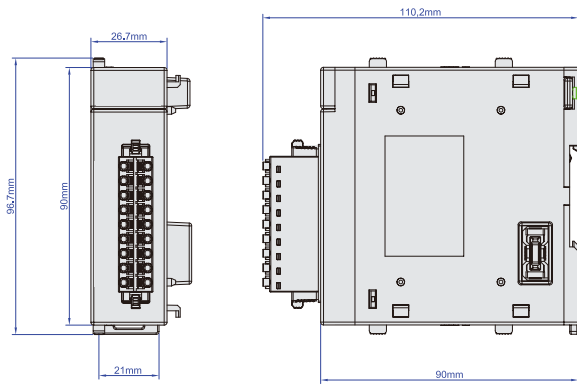
Dimensions

CPU

ME / MS

MA

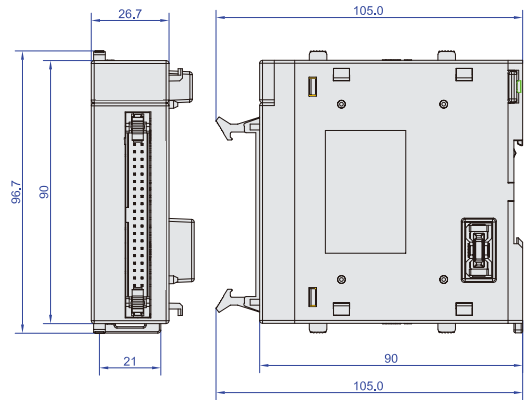## Power Supply Module

MPA024/48-24

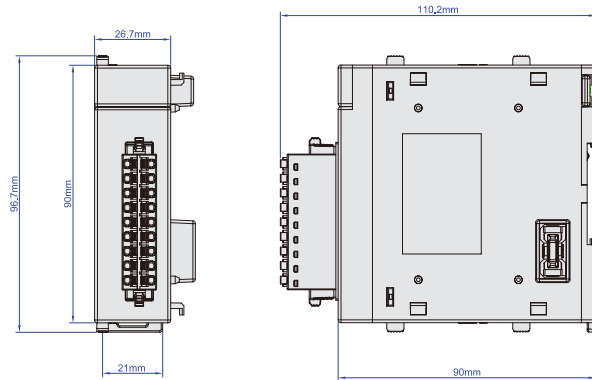# Digital Module

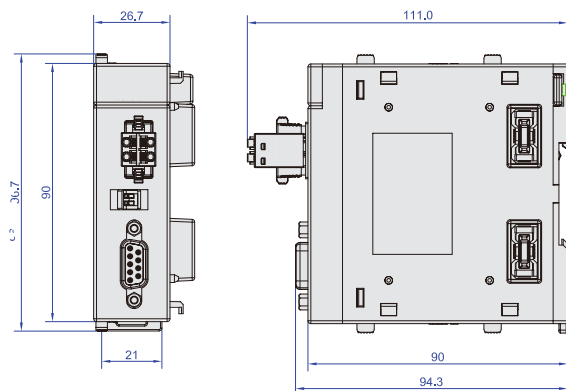### M16X / M16Y T/J/R

M1616XY T/J

Analog / Temperature / Load cell Module

M04DA R / M04DA R / M0202AH / M04TC R / M0202TH / M02LC R
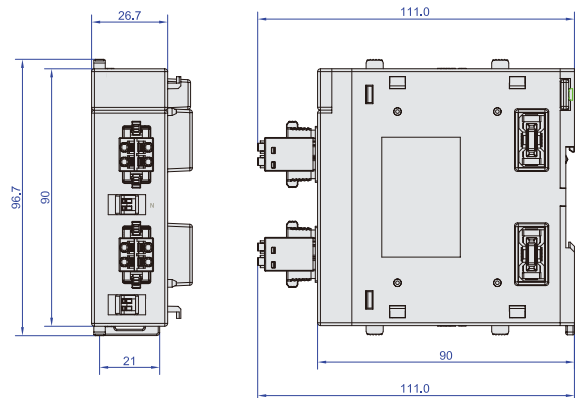

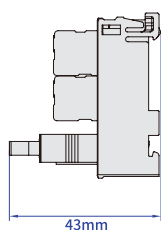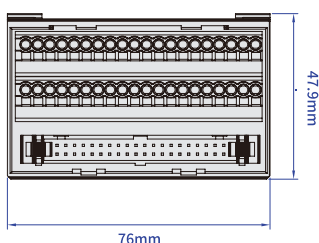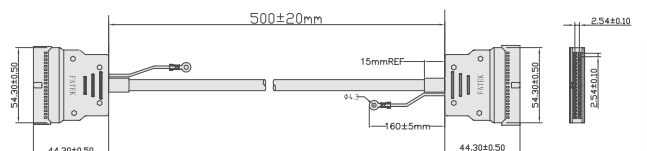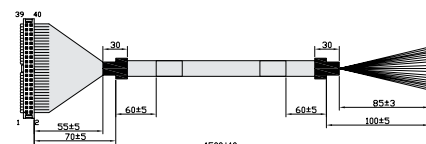# Communication Module

MHCM25

MHCM55

Peripheral and Accessory

MFT40T

MFW40I-50

MFW40N-150

Hardware

Motion

IoT

Software

Line Up

Specification

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Model List

M-CV1-02-2023

Model List

Category		Model	Maximum I/O Points		Total Program Memory		Built-in Ethernet Communication [2]	HSC [1]	HSPO [1]	Total Axes	Pulse	EtherCAT		
			DIO	AIO	PLC	Motion					Positioning Control	Axes	Circular interpolation [4]	E-CAM [4]
Basic CPU	**Pulse Positioning Control**[1] Point-to-Point、Interrupt constant feed、Interrupt constant angle **Built-in I/O**: Input 16 / Output 16 **Communication Ports**: Ethernet、2 ports RS485、USB Type-C FHB expansion bus、Micro-SD slot、Run/Stop switch	MA1N1-1616◇	512	128	40 KB	—	Slave	2	2	2	2	–	–	–
		MA1N2-1616◇	512	128	40 KB	—	Slave	3	3	3	3	–	–	–
		MA1N3-1616◇	512	128	40 KB	—	Slave	4	4	4	4	–	–	–
		MA1I4-1616◇	512	128	40 KB	—	Slave	8	8[1]	8	8[1]	–	–	–
		MA1M3-1616◇	512	128	40 KB	—	Master/Slave	8	4	4	4	–	–	–
		MA2M3-1616◇	1024	128	60 KB	—	Master/Slave	8	4	4	4	–	–	–
		MA3M3-1616◇	2048	256	80 KB	—	Master/Slave	8	4	4	4	–	–	–
General Motion CPU	**EtherCAT Motion Control**: Linear/Circular interpolation、Positioning Control[4] **Pulse Positioning Control**:[1] Point-to-Point、Interrupt constant feed、Interrupt constant angle **Built-in I/O**: Input 16 / Output 16、12-bit 2ch analog input **Communication Ports**: EtherCAT、Ethernet、2 ports RS485、USB Type-C FHB expansion bus、Micro-SD slot、Run/Stop switch	MS1C1-1616◇	512	128	40 KB	370 KB	Slave	6[3]	4	6	4	2	●	–
		MS1C2-1616◇	512	128	40 KB	556 KB	Slave	7[3]	4	7	4	3	●	–
		MS2C3-1616◇	512	128	60 KB	802 KB	Master/Slave	8[3]	8[1]	12	8[1]	4	●	–
		MS2C4-1616◇	1024	128	60 KB	1.1 MB	Master/Slave	8[3]	4	12	4	8	●	–
		MS2C5-1616◇	2048	256	60 KB	1.5 MB	Master/Slave	8[3]	4	16	4	12	●	–
		MS3C6-1616◇	2048	256	80 KB	3 MB	Master/Slave	8[3]	4	20	4	16	●	–
Advanced Motion CPU	**EtherCAT Motion Control**: E-Cam、Linear/Circular/Helical interpolation、Positioning Control[4] **Pulse Positioning Control**:[1] Point-to-Point、Interrupt constant feed、Interrupt constant angle **Built-in I/O**: Input 16 / Output 16、12-bit 2ch analog input **Communication Ports**: EtherCAT、Ethernet、2 ports RS485、USB Type-C FHB expansion bus、Micro-SD slot、Run/Stop switch	ME1C1-1616◇	1024	128	40 KB	370 KB	Master/Slave	8[3]	4	6	4	2	●	●
		ME2C3-1616◇	1024	128	60 KB	742 KB	Master/Slave	8[3]	4	8	4	4	●	●
		ME2C4-1616◇	1024	128	60 KB	1.1 MB	Master/Slave	8[3]	4	12	4	8	●	●
		ME2C5-1616◇	2048	256	60 KB	1.5 MB	Master/Slave	8[3]	4	16	4	12	●	●
		ME3C6-1616◇	2048	256	80 KB	3 MB	Master/Slave	8[3]	4	20	4	16	●	●

◇ : T — Transistor SINK(NPN) output ; J — Transistor SOURCE (PNP) output

* 1 : 200 KHz HSC and HSPO，MA1I4-1616◇、MS2C3-1616◇ support up to 100KHz HSPO   * 2 : Including Modbus and Self-defined protocol. Differ only in Ethernet port, serial port supports both Master and Slave

* 3 : MS1C1-1616◇ of which 2 channels, MS1C2-1616◇ of which 3 channels, and other models of which 4 channels of HSC are only dedicated for EtherCAT motion only

* 4 : **Positioning Control**: Including Point-to-Point Positioning Control、Interrupt constant feed/angle ; **Circular interpolation**: Including Linear/Circular interpolation and functions in **Positioning Control**

　　 E-CAM: Including Fly shear、Rotary knife、Helical interpolation and functions in **Positioning Control** and **Circular interpolation**

Category	Model	Specifications
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，40 pins header connector
	M1616XYJ	16 points 24 VDC digital input，16 points transistor SOURCE(PNP) output，40 pins header connector
Analog I/O Module	M04ADR	4 channels，Voltage and current input，Resolution:1/160000
	M04AD	4 channels，Voltage and current input，Resolution:1/16383
	M04DAR	4 channels，Voltage and current output，Resolution:1/27000
	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)，Resolution: ±0.2%（25° C±5° C）
	M04TC	4 channels，Thermocouple temperature input (K, J, T, E, R, B, N, S, mV)，Resolution: ±0.5%（25° C±5° C）
	M0202TH	2 channels RTD(JIS or DIN) + 2 channels thermocouple(K, J, T, E, R, B, N, S, mV) temperature input，Resolution: 0.1° C
Load Cell Module	M02LCR	2 channels load cell input module，A/D Converter Utilized: 24 bits，Precision: ±0.01%（25° C±5° C）
	M02LC	2 channels load cell input module，A/D Converter Utilized: 24 bits，Precision: ±0.5%（25° C±5° C）
Communication Module	MHCM25	1 port RS232 + 1 port RS485 high speed* serial communication
	MHCM55	2 ports RS485 high speed* serial communication
Coupler Unit	MC0MN	Remote I/O Coupler (Modbus / TCP)
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
Dedicated Memory Card	MFM06	Industrial grade Micro-SD card，Data-log area: 6GB*
Peripheral and Accessory	MFT40T	40 pins interface module，Connection method: PID
	MFW40I-50	High density modules connector 40pin socket, 22AWG I/O cable length 50cm
	MFW40N-150	High density modules connector 40pin socket(discrete wire at one end), 22AWG I/O cable length 150cm

* Support up to 6 high-speed modules, and need to be installed in the first 6 expansion positions on the right side of the CPU (placed between the CPU and general modules)

* The functions of the memory card vary by CPU model. Please check the CPU specification list for the supported features.

Hardware

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