



Control



Drive



Sensor



Transmission



Digitalization



M-Series Control Products Selection Manual

DOMESTIC CORE · INDEPENDENT CONTROL



Innovation Integrity Service

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HCFA



ATC

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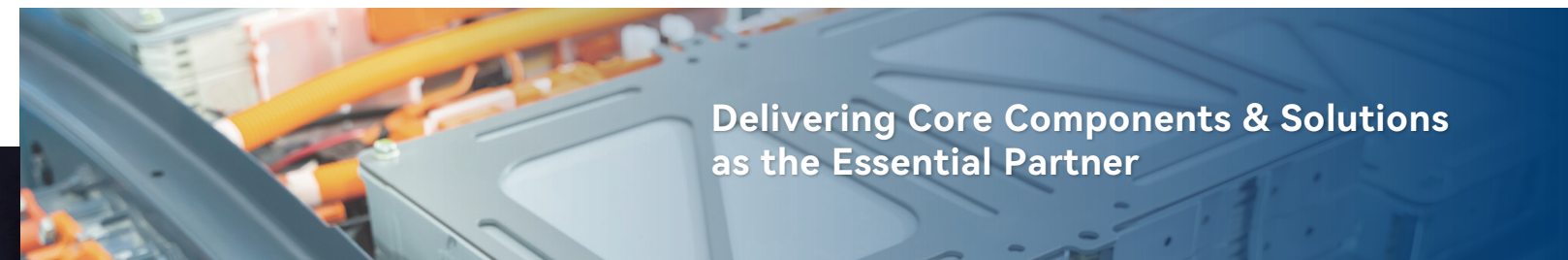
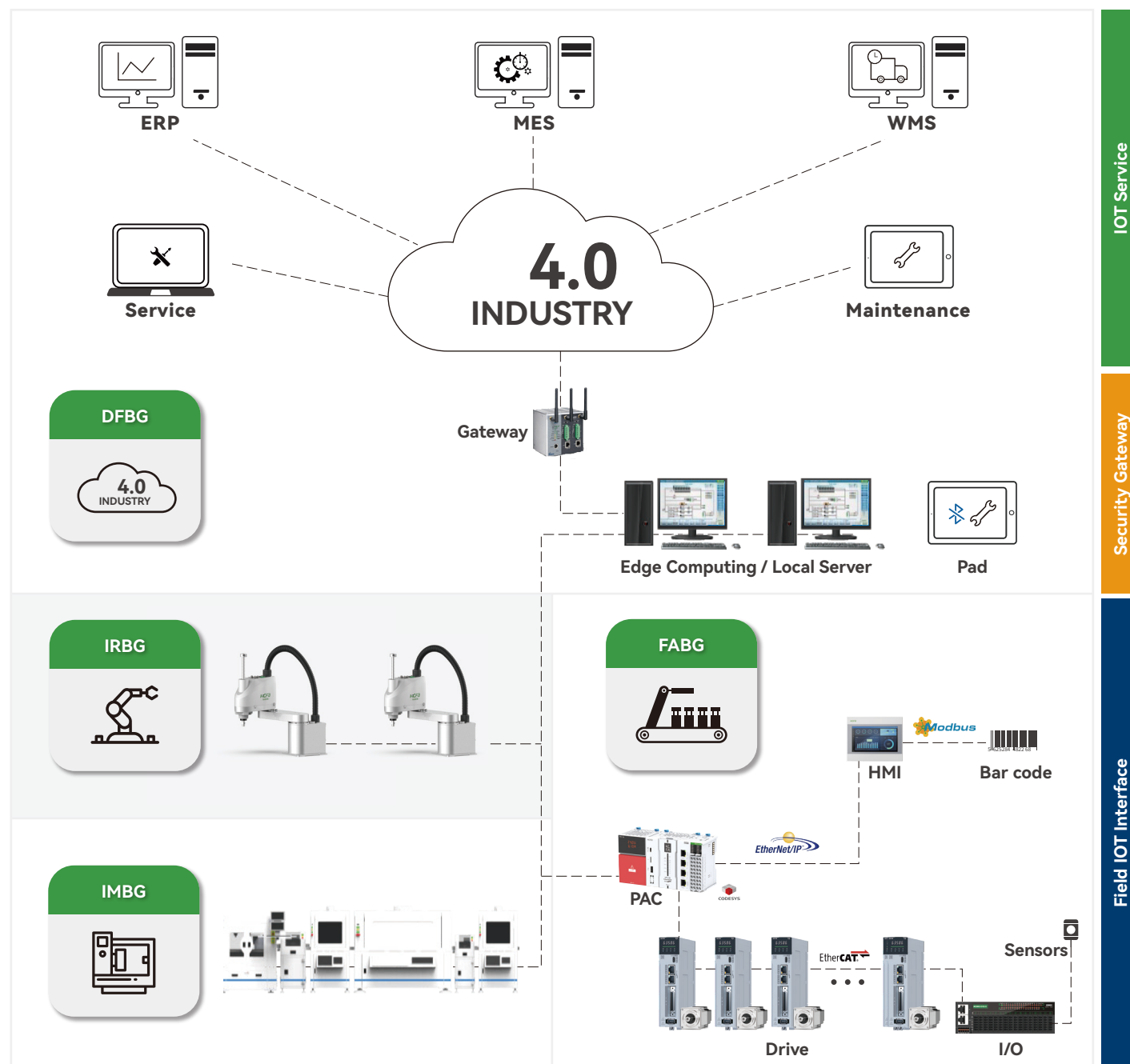
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Empowering Industry, Shaping Smart Manufacturing

We not only provide essential components for industrial automation, but also engage in industrial robots, industrial machinery, and digital factories. We can offer businesses comprehensive solutions integrating **automation, intelligent equipment, and digitalization.**



Delivering Core Components & Solutions
as the Essential Partner

Zhejiang Hechuan Technology Co., Ltd. (HCFA Technology), founded in 2011, is a company dedicated to developing, manufacturing, sales, and application-integration of industrial automation products. It is committed to supplying core components and system-integration solutions for smart factories.

Its product range encompasses controllers, servo systems, vision systems, encoders, variable-frequency drives (VFDs), human-machine interfaces (HMIs), electric rollers, and precision transmission components, covering the entire spectrum of the industrial automation field.

In November 2023, HCFA Technology and Bosch Rexroth inked a strategic cooperation agreement. Bosch Rexroth made a strategic investment in HCFA Technology and planned to collaborate on establishing a subsidiary. Grounded in shared innovative concepts and forward-thinking, the two parties will pool their respective strengths, create resource complementarity, and engage in in-depth cooperation, aiming to become ecological partners throughout the industrial automation value chain and drive the further advancement of China's industrial automation industry.

Stock Code: 688320



Never stop to build up
core competitiveness

R&D Center

6

Number of Establishments

R&D Investment

10%+

Proportion of Revenue

R&D Personnel

300+

Elite Talent Pool

- Six R&D centers across Longyou, Hangzhou, Shenzhen, Dalian, Suzhou, and Germany
- Independently designed ASIC & SOC chips for domestic fabrication and localization substitution
- Industry-leading AMR magnetic technology and high-precision encoders

M

5 MAJOR HIGHLIGHTS

PRODUCT ADVANTAGES



M-SERIES CONTROLLER



Efficiency and Fast

Ultra-fast execution speed +
Multi-task management



Flexible Expansion

Module + Optional cards for flexible
and efficient operation



Diverse Motion Control

Bus + Pulse solutions for various
application needs



Convenient Interconnection

Easy multi-protocol interconnection



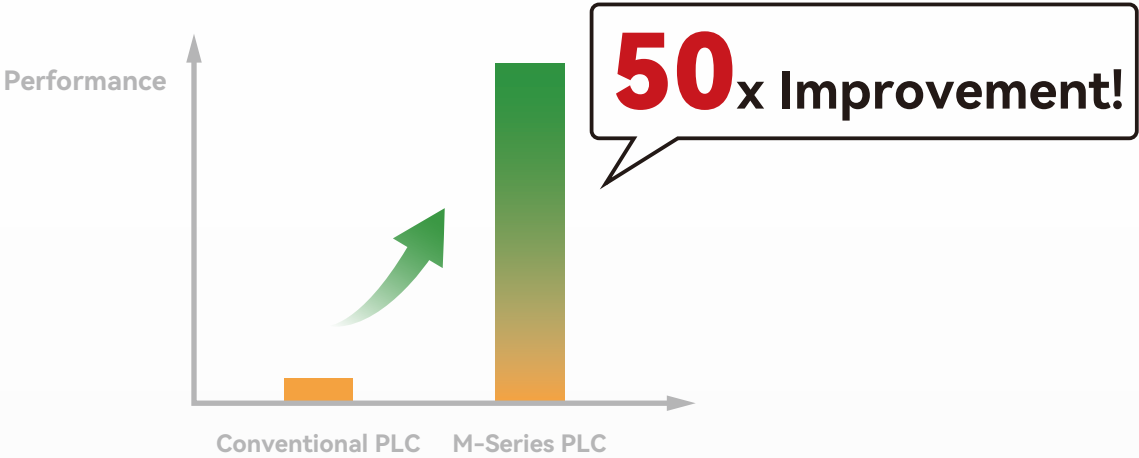
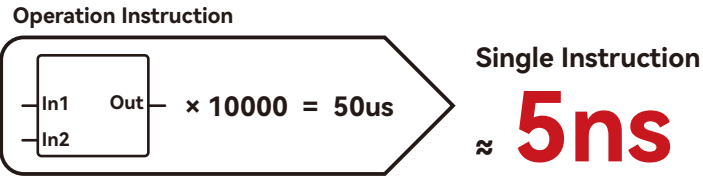
Easy Development

Standardized instructions, multi-language support,
and modular design

EFFICIENT AND FAST

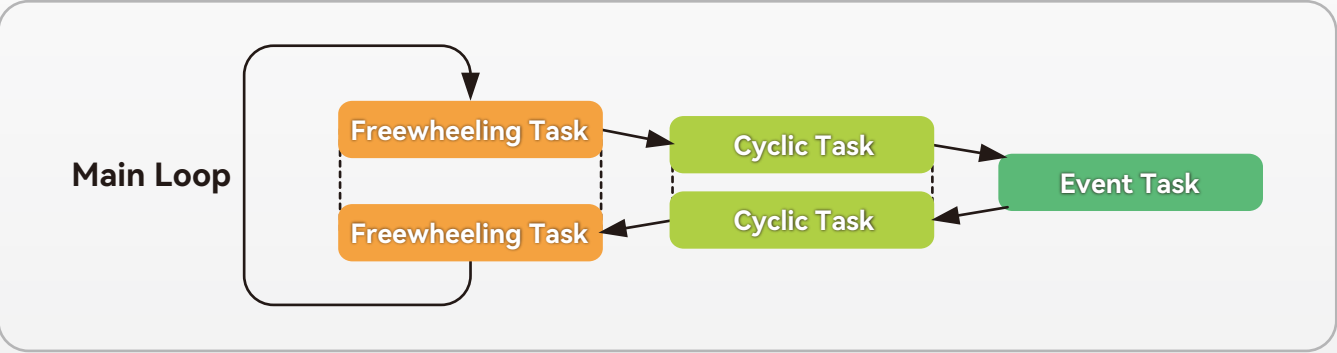
High-Speed Operation Capacity

Enhance instruction processing speed;
Basic instructions execute at
nanosecond-level speeds.

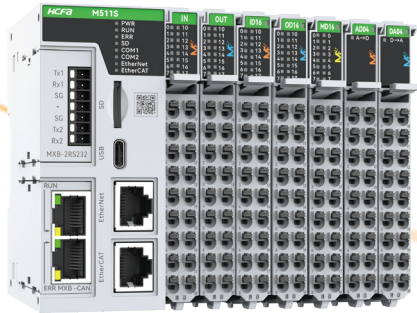


High-efficiency Multi-task Management System

Configure execution modes/frequencies for diverse tasks to optimize system resource allocation.

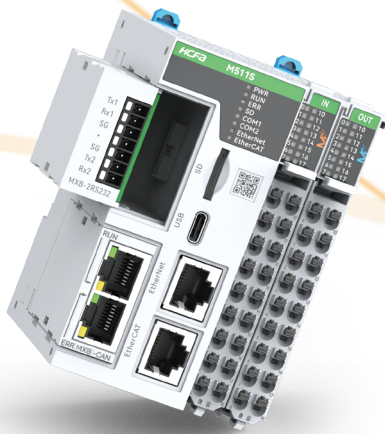


FLEXIBLE EXPANSION



Configurable Options

Requirement-driven customization



Dual-Slot Design

Flexible deployment



Blade Installation Architecture

Space-saving design



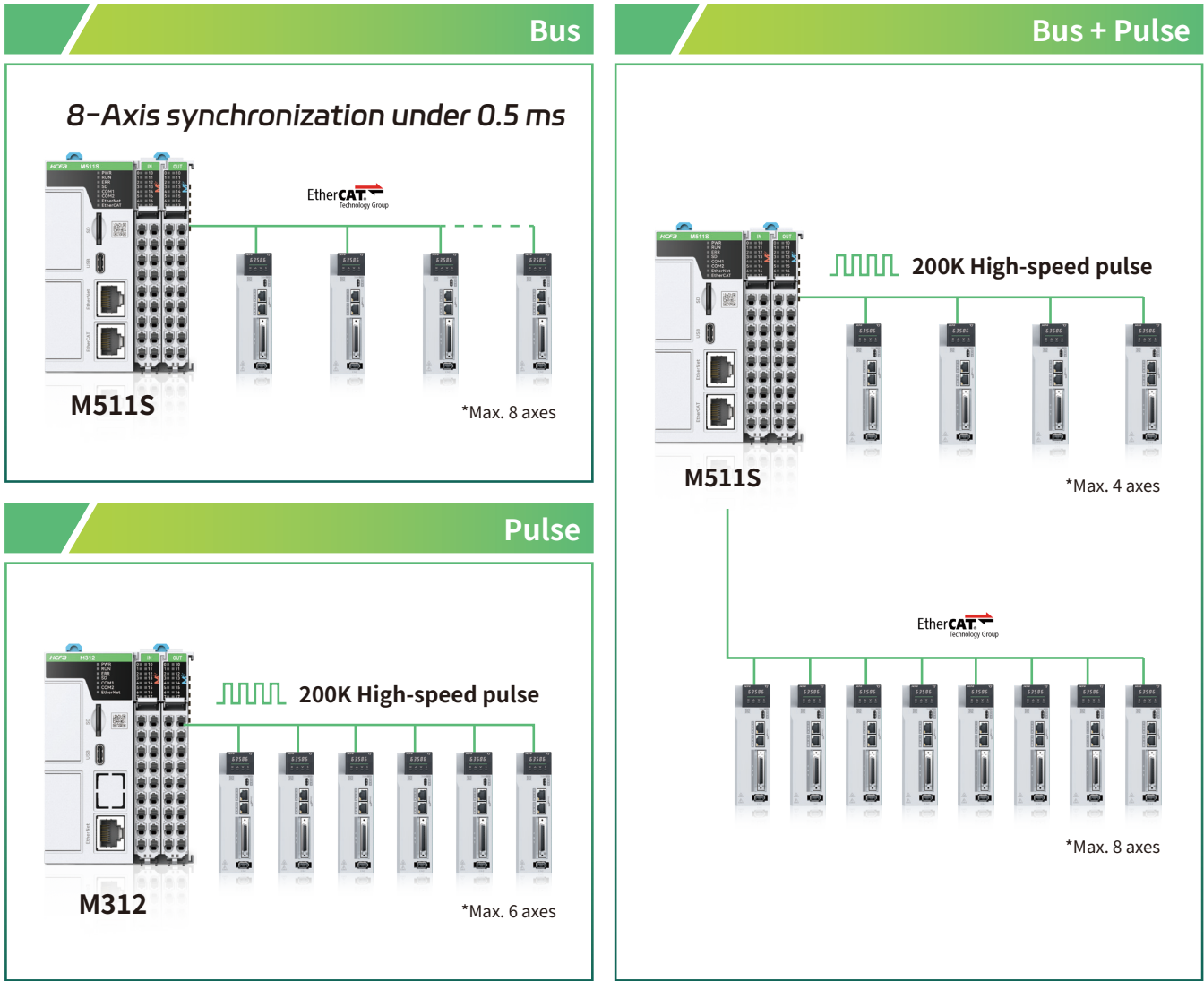
Quick-Release Spring Terminal

Efficient assembly

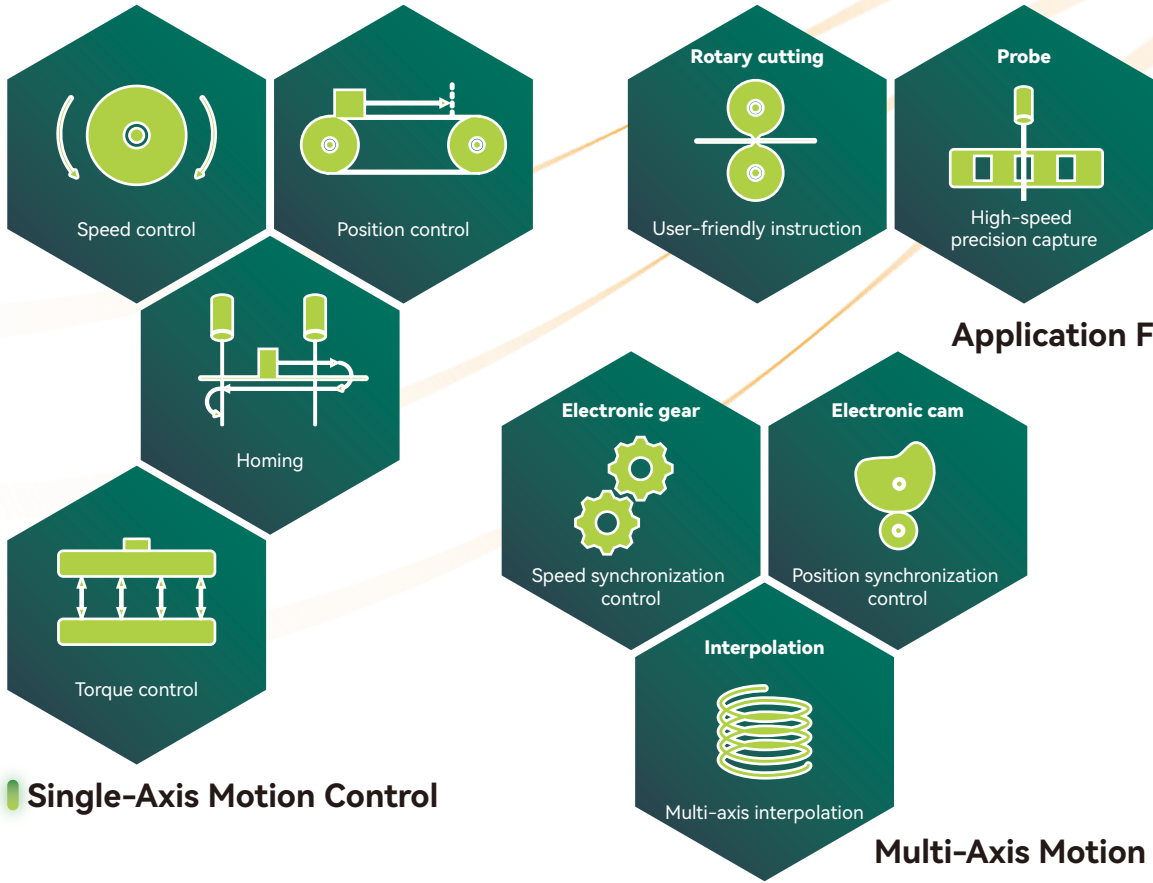
DIVERSE MOTION CONTROL

Flexible Bus and Pulse Control

Multiple axis control modes (bus/pulse/bus+pulse) for diverse scenarios;
EtherCAT high-speed bus (8-axis synchronization under 0.5ms) for high-response demands.

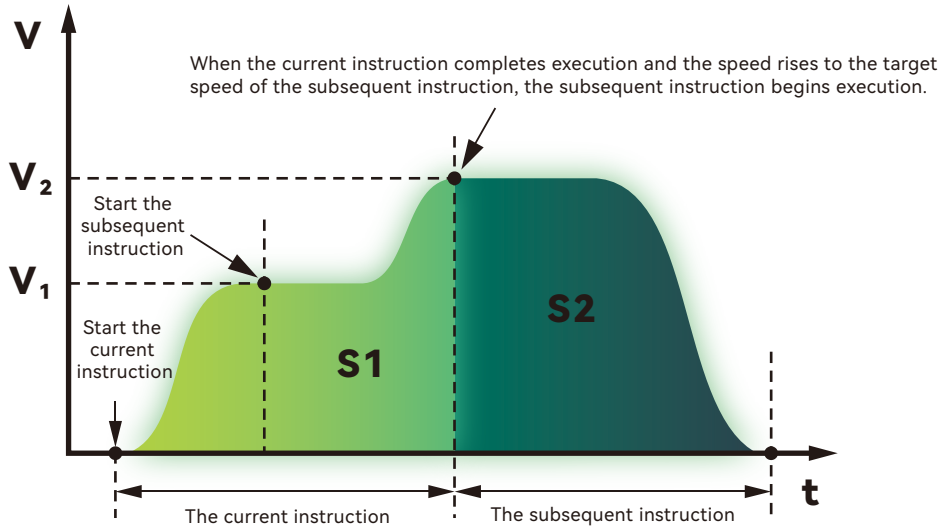


Powerful Motion Control Features

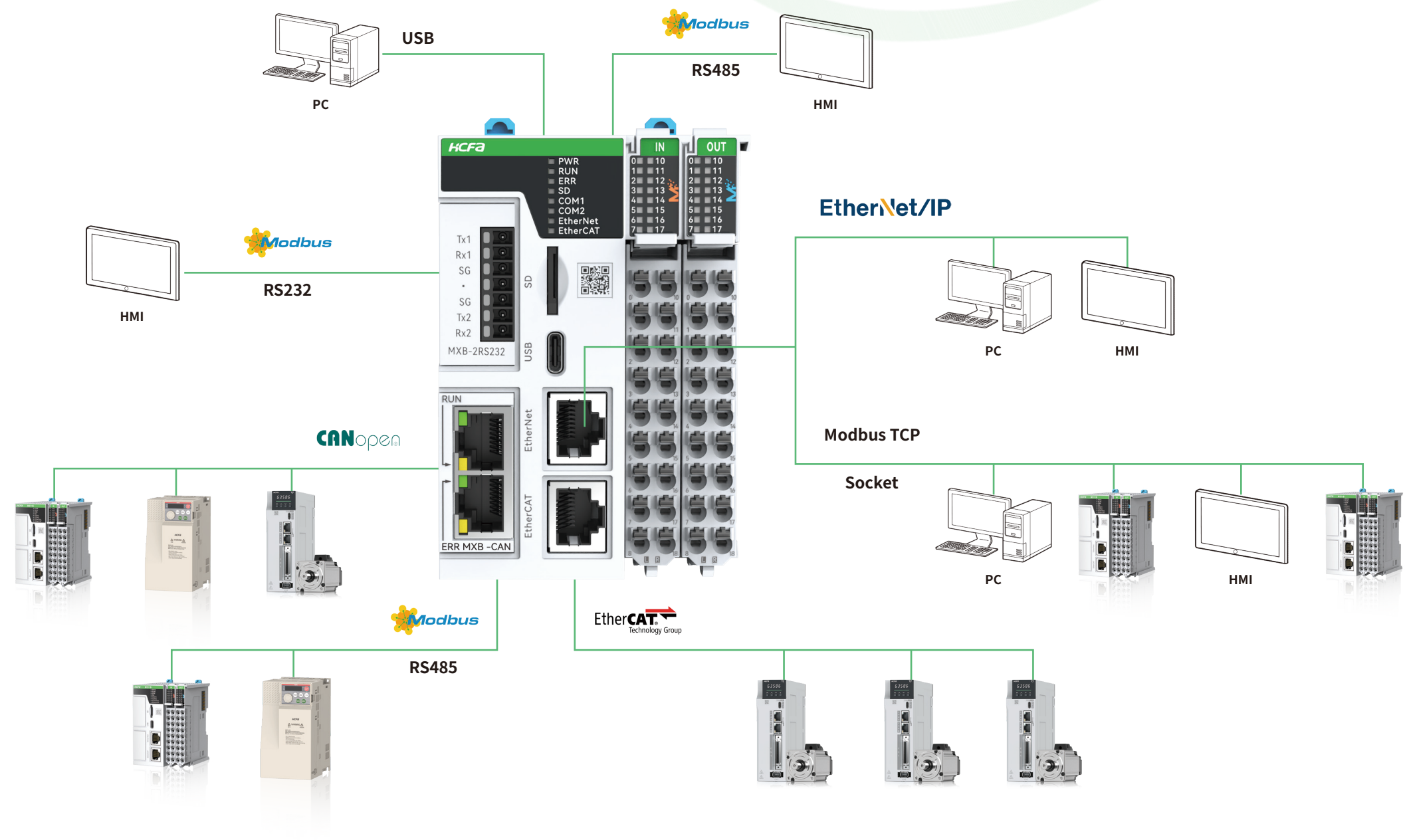


BUFFER MODE

Smooth speed transitions for seamless multi-segment speed control;
Uninterrupted speed for motion cadence enhancement.



CONVENIENT INTERCONNECTION



SUPPORTS MULTIPLE
COMMUNICATION PROTOCOLS



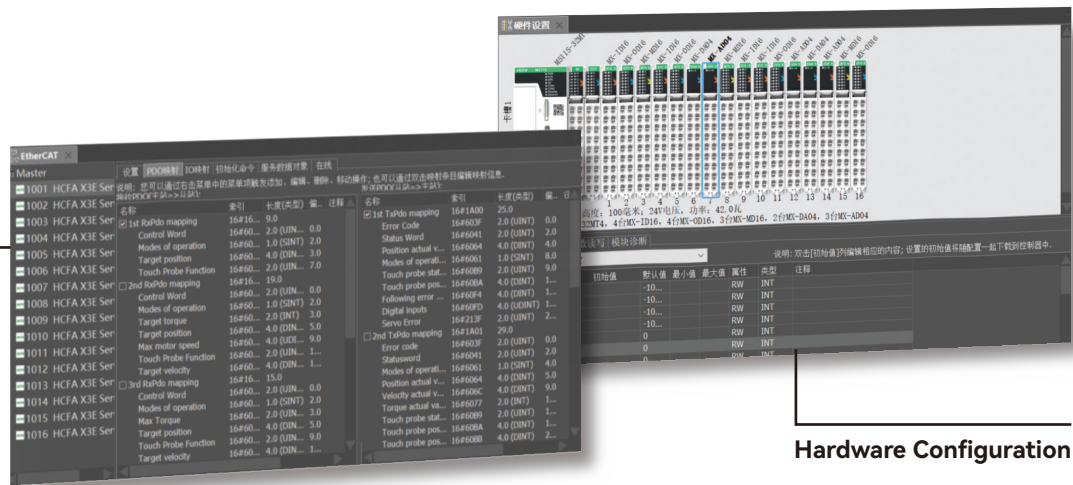
FACILITATES SEAMLESS
MULTI-PROTOCOL
INTERCONNECTION



EASY DEVELOPMENT

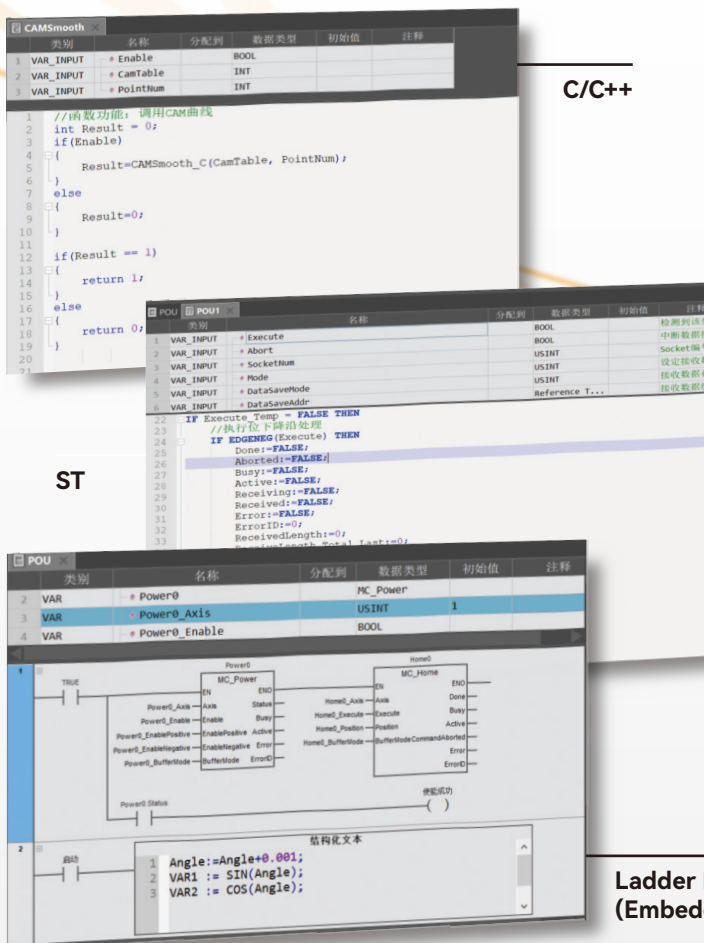
EASY CONFIGURATION

EtherCAT Network Configuration



Hardware Configuration

EASY PROGRAMMING

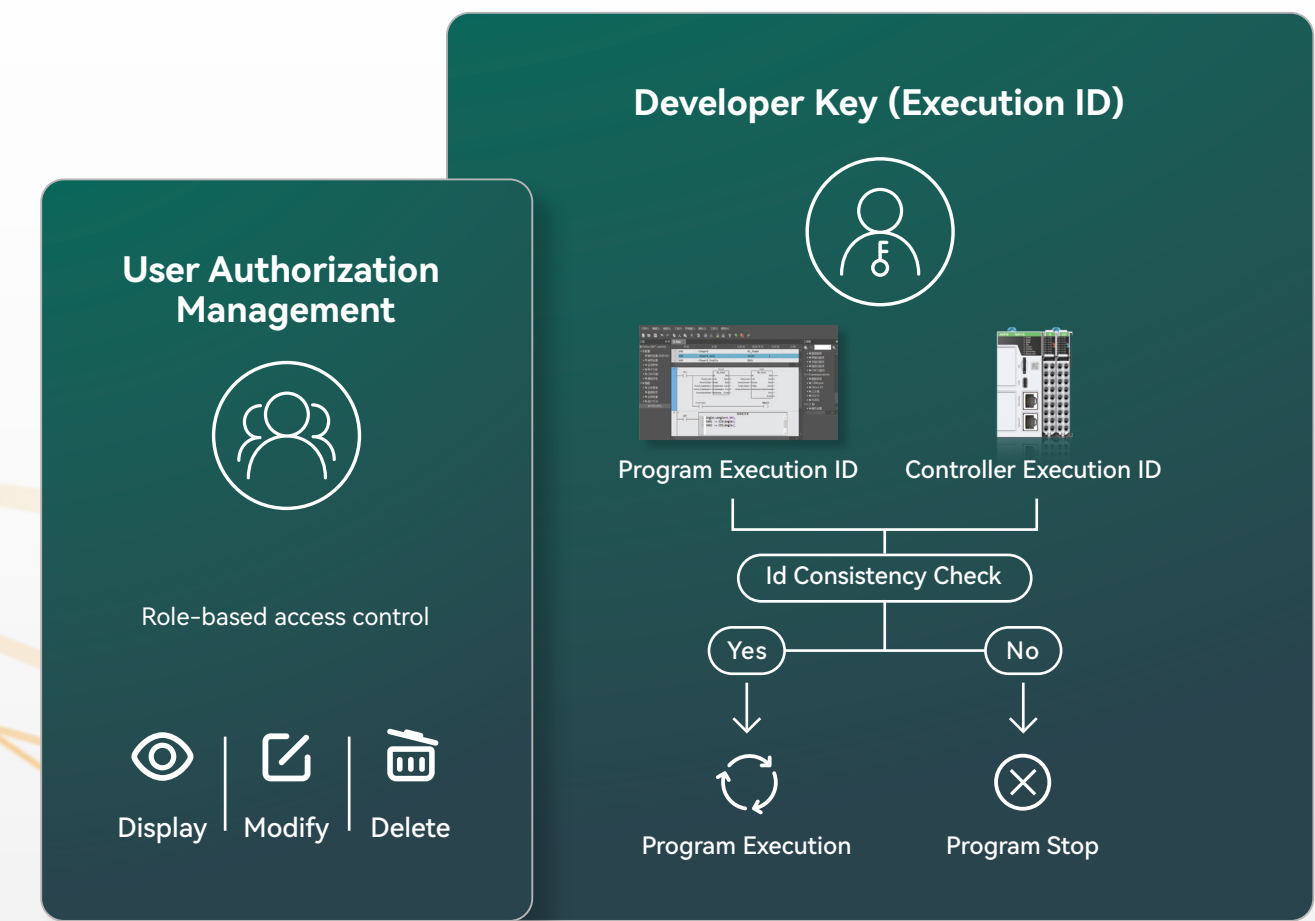


C/C++

ST

Ladder Diagram (Embedded ST)

EASY PROTECTION



EASY DEBUGGING

Online Program Monitoring

Tracking (Oscilloscope)

Naming Rule for M-Series Controllers

H C M 5 0 1 S - 1 6 M T 4 - D - * * * *

1 2 3 4 5 6 7 8 9 10 11

1. Product Name

HC HC: HCFA

2. Product Series

M5 M1: Basic compact controller
M2: Network/Bus basic controller
M3: Motion control basic controller
M5: Bus economy/general controller

3. Number of Ethernet Ports

0 0: None
1: 1 Ethernet port
2: 2 Ethernet ports
3: 3 Ethernet ports

4. Model Code

1 M100/M200/M300 series
0: Type 1 product
1: Type 2 product
2: Type 3 product
3: Type 4 product
M500 series
1: 8-axis EtherCAT motion axes
2: 16-axis EtherCAT motion axes
3: 32-axis EtherCAT motion axes
4: 64-axis EtherCAT motion axes

6. Total I/O Channels

16 14: 8 inputs, 6 outputs
16: 8 inputs, 8 outputs
20: 12 inputs, 8 outputs
30: 16 inputs, 14 outputs
32: 16 inputs, 16 outputs (M300/M500 series); 18 inputs, 14 outputs (M200 series)
40: 24 inputs, 16 outputs
42: 24 inputs, 18 outputs
48: 28 inputs, 20 outputs
60: 36 inputs, 24 outputs

8. Output Type

T T: NPN transistor
R: Relay
P: PNP transistor

9. Pulse Output

4 3: 3-Channel pulse output
4: 4-Channel pulse output
6: 6-Channel pulse output
8: 8-Channel pulse output
10: 10-Channel pulse output

11. Software/Firmware Customization Code and Other Identifiers

***** *: 0-9 / A-Z / N/A

Note: 1. The "Type × product" in the model code are primarily distinguished by their functions.
2. The "EtherCAT motion axes" in the model code indicate the maximum axis count limit.

M-Series Controller General Specifications

> Environmental Specifications

Item	Specification
Operating temperature	0~55°C
Storage temperature	-25~70°C
Ambient humidity	10 - 95% (non-condensing)
Altitude/Pressure	2,000m Max. (80kPa)
Pollution degree	Pollution degree II: Normally non-conductive contamination, with occasional temporary conductivity due to condensation
Cooling method	Passive heat dissipation; Natural air cooling

> AC Power Supply Specifications (M100, M200 Series)

Item	Specification
Power supply voltage	AC 100-240V
Allowable voltage fluctuation	AC 90-265V
Rated frequency	50/60Hz
Allowable power failure time	≤5ms
Max. power consumption	25W

> DC Power Supply Specifications (M300, M500S, M500 Series)

Item	Specification
Power supply voltage	DC 24V
Allowable voltage fluctuation	DC 20.4-28.8V
Power consumption	5W
Undervoltage threshold	19V

> Relay Output Specifications

Item	Specification
Output type	Relay output
External power supply	AC250V,DC30V or less
Circuit insulation	Mechanical insulation
Max. Load	Resistive load: 2A per channel Inductive load: 1A per channel Lamp load: 30W per channel
Min. Load	DC5V 10mA
Insulation resistance	1000MΩ (500VDC)
On/OFF response time	<10ms

> Main Unit High-Speed IO Input Specifications

Item	Specification
Rated input voltage	DC 24V
Input type	Source/Sink (PNP/NPN) input
Rated input current	5mA
ON current	>4mA
OFF current	<2.5mA
ON voltage	≥15V DC
OFF voltage	≤5V DC
Input resistance	2.7kΩ
Max. input frequency	200kHz
Isolation method	Capacitive isolation

> Transistor Output Specifications

Item	Specification
Output type	Sink (NPN) output
Max. load	Resistive load: 0.5A per channel Inductive load: 13W (24VDC) Lamp load: 2.5W (24VDC)
Min. load	1mA / 5V
OFF leakage current	<10μA
Max. output frequency	200kHz
ON/OFF response time	<2.5μs
Isolation method	Capacitive isolation

M-SERIES CONTROLLER

Model			HCM100-14MT3-A HCM100-14MR-A	HCM100-20MT4-A HCM100-20MR-A	HCM100-30MT6-A HCM100-30MR-A	HCM100-40MT6-A HCM100-40MR-A	HCM100-48MT6-A HCM100-48MR-A	HCM100-60MT6-A HCM100-60MR-A
Appearance								
Progra- -mming	Program capacity		256 KBytes					
	Variable capacity		256 KBytes (Persistent data memory: 16 KBytes)					
	I-area (%)		128 Bytes					
	O-area (%Q)		128 Bytes					
	M-area (%M)		128 KBytes					
Programming language			LD, ST, C/C++					
Axis capability	Number of pulse axes (MT models only)		3-axis 100k	4-axis 100k	6-axis 100k			
	Number of encoder axes		2					
	Total axes (pulse axis + encoder axis + virtual axis)		≤16					
Right-side expansion	Max. number of expandable modules		Non-support for right-side expansion; Expansion capability enabled by adding HCMX-CAN-100-BD optional card for CAN remote expansion					
RTC battery			Built-in in the controller					
Optional card	Max. number of optional cards		1					
Controller IO channel	Input	Number of channels	8-channel input	12-channel input	16-channel input	24-channel input	28-channel input	36-channel input
		Function	8-channel external interrupts; 2-channel 100kHz high-speed pulse input (AB phase, pulse+direction, single pulse)					
	Output (MT model: NPN output; MR model: relay output)	Number of channels	6-channel output	8-channel output	14-channel output	16-channel output	20-channel output	24-channel output
		Function	3-channel 100kHz pulse output (pulse+direction)*	4-channel 100kHz pulse output (pulse+direction)*	6-channel 100kHz pulse output (pulse+direction)*			
Electronic cam	Number of cams		-					
	Number of key points per curve		-					
Axis group	Max. number of axis groups		-					
G-code capacity			-					
SD card			-					
USB	Number of interfaces		1×USB2.0 Type-C					
	Function		Program upload/download; Software monitoring & debugging; Firmware upgrade					
Power supply			AC 220V					
Serial port	RS485	Number of interfaces	Max. 3 channels: 1 built-in in the controller, expandable by 2 more via optional HCMXB-2RS485-100-BD card					
		Supported protocols	Modbus master/slave (ASCII/RTU); Custom protocol					
		Max. number of slave stations	32					
		Baud rate (bps)	9600, 19200, 38400, 57600, 115200					
	RS232	Number of interfaces	Max. 3 channels: 1 built-in in the controller, expandable by 2 more via optional HCMXB-2RS232-100-BD card					
		Supported protocols	Modbus master/slave (ASCII/RTU); Custom protocol					
		Max. number of slave stations	1					
CAN		Baud rate (bps)	9600, 19200, 38400, 57600, 115200					
		Number of interfaces	Install optional HCMXB-CAN-100-BD card to support 1 channel					
		Supported protocols	CANopen protocol (DS301), supports master/slave; supports 32 slave stations when acting as a master					

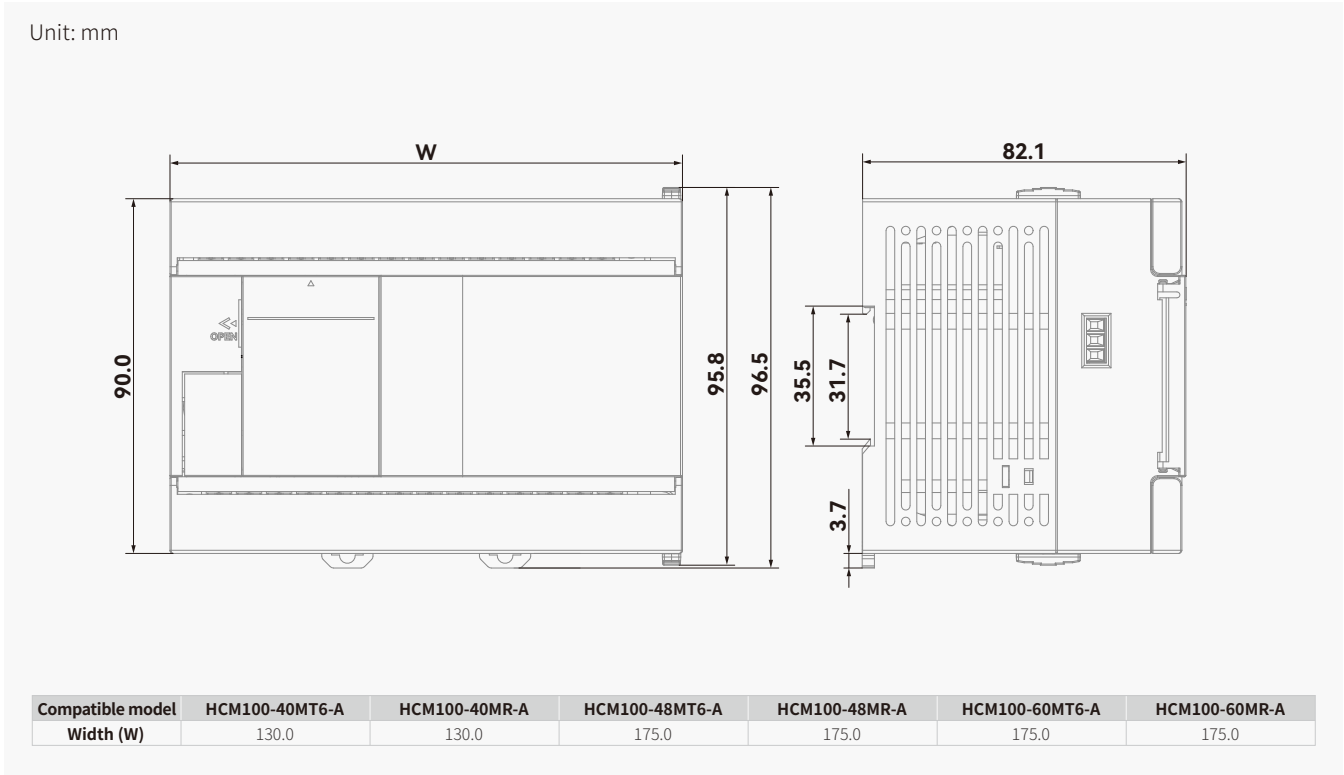
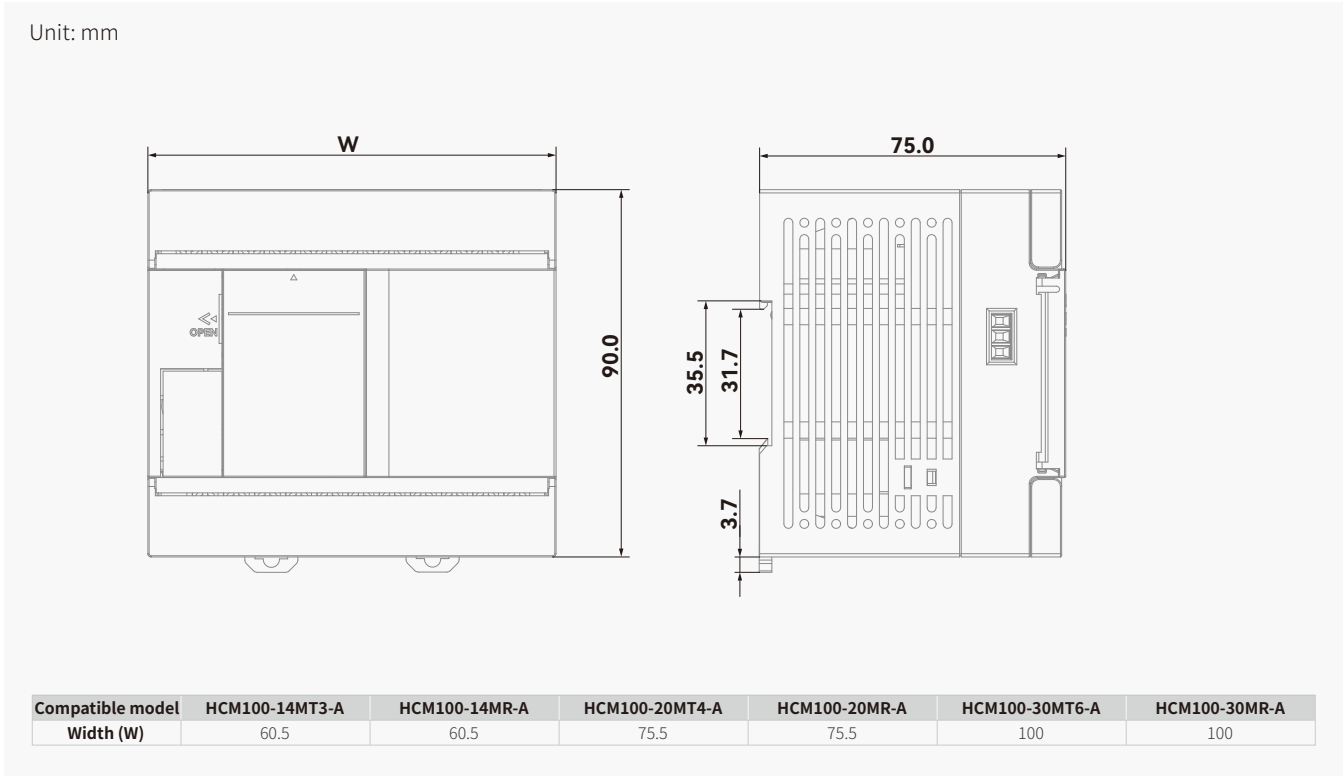
*Note: Pulse output is only supported by MT models.

M-SERIES CONTROLLER

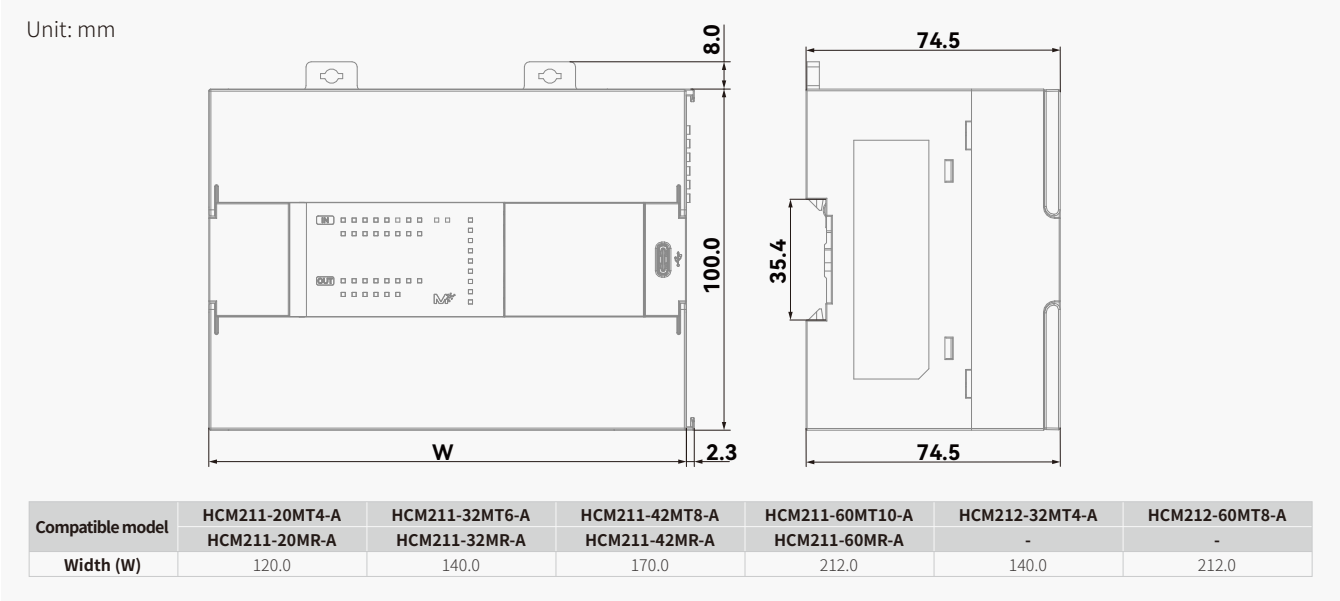
Model			HCM211-20MT4-A HCM211-20MR-A		HCM211-32MT6-A HCM211-32MR-A		HCM211-42MT8-A HCM211-42MR-A		HCM211-60MT10-A HCM211-60MR-A		HCM212-32MT4-A -		HCM212-60MT8-A -			
Appearance																
Programming	Program capacity		512 KBytes													
	Variable capacity		256 KBytes (Persistent data memory: 32 KBytes)													
	I-area (%I)		128 Bytes													
	O-area (%Q)		128 Bytes													
	M-area (%M)		128 KBytes													
Programming language			LD, ST, C/C++													
Axis capability	EtherCAT axis		-													
	Number of pulse axes (MT models only)		4-axis 200k		6-axis 200k		8-axis 200k		10-axis 200k		8 (PDO-Free configuration; only available for slaves provided in programming software)		8-axis 200k			
	Number of encoder axes		2				4				2		4			
	Total axes (EtherCAT axis + pulse axis + encoder axis + virtual axis)		≤16													
Right-side expansion	Max. number of expandable modules		16													
RTC battery			Built-in in the controller													
Optional card			Max. number of optional cards		1											
Controller IO channel	Input	Number of channels	12-channel input		18-channel input		24-channel input		36-channel input		18-channel input		36-channel input			
		Function	8-channel external interrupts; 2-channel 200kHz high-speed pulse input (AB phase, pulse+direction, single pulse)		8-channel external interrupts; 4-channel 200kHz high-speed pulse input (AB phase, pulse+direction, single pulse)		8-channel external interrupts; 4-channel 200kHz high-speed pulse input (AB phase, pulse+direction, single pulse)		8-channel external interrupts; 2-channel 200kHz high-speed pulse input (AB phase, pulse+direction, single pulse)		8-channel external interrupts; 4-channel 200kHz high-speed pulse input (AB phase, pulse+direction, single pulse)					
	Output (MT model: NPN output; MR model: relay output)	Number of channels	8-channel output		14-channel output		18-channel output		24-channel output		14-channel output		24-channel output			
		Function	4-channel 200kHz pulse output (pulse+direction)*		6-channel 200kHz pulse output (pulse+direction)*		8-channel 200kHz pulse output (pulse+direction)*		10-channel 200kHz pulse output (pulse+direction)*		4-channel 200kHz pulse output (pulse+direction)*		8-channel 200kHz pulse output (pulse+direction)*			
Electronic cam	Number of cams		16													
	Number of key points per curve		32													
Axis group	Max. number of axis groups		1 axis group (each axis group supports up to 8-axis interpolation)													
G-code capacity			-													
SD card			1													
USB	Number of interfaces		1×USB2.0 Type-C													
	Function		Program upload/download; Software monitoring & debugging; Firmware upgrade													
Power supply			AC 220V													
Serial port	RS485	Number of interfaces	Max. 4 channels: 2 built-in in the controller, expandable by 2 more via optional HCMXB-2RS485-200-BD card													
		Supported protocols	Modbus master/slave (ASCII/RTU); Custom protocol													
		Max. number of slave stations	32													
		Baud rate (bps)	9600, 19200, 38400, 57600, 115200													
	RS232	Number of interfaces	Install optional HCMXB-2RS232-200-BD card to support 2 channels													
		Supported protocols	Modbus master/slave (ASCII/RTU); Custom protocol													
		Max. number of slave stations	1													
CAN	Number of interfaces		1													
	Supported protocols		CANopen protocol (DS301), supports master/slave; supports 32 slave stations when acting as a master								CANopen protocol (DS301), supports master/slave; supports 16 slave stations when acting as a master					
EtherNet	Number of interfaces		1													
	Function		Communication, program download/upload													
	Data transmission speed		100/10Mbps													
	Total TCP connections		16(ModbusTCP+Socket + EtherNet/IP)								12 (ModbusTCP+Socket)					
	Modbus TCP		Client (Master) Max. connections: 16; Server (Slave) Max. connections: 16													
	Socket		Max. connections: 8 (UDP+TCP)													
EtherNet/IP (slave mode only)	Cable		Standard industrial Ethernet communication cable													
	Implicit CIP communication		Max. connections: 8; Max. data per connection: 200 Bytes; Cycle interval: 5~1000ms													
	Explicit CIP communication		Class 3 connections: 8; UCMM (unconnected message manager) concurrent client access: 16													
EtherCAT	Topology															
	Transmission medium															
	Max. node-to-node transmission distance		100m													
	Max. number of nodes		8 (PDO-Free configuration; only available for slaves provided in programming software)													
	Max. process data		1380 Bytes (Max. frames: 1)													
	Communication cycle		Min. 500μs													
	Supported protocols		EtherCAT master													

*Note: Pulse output is only supported by MT models.

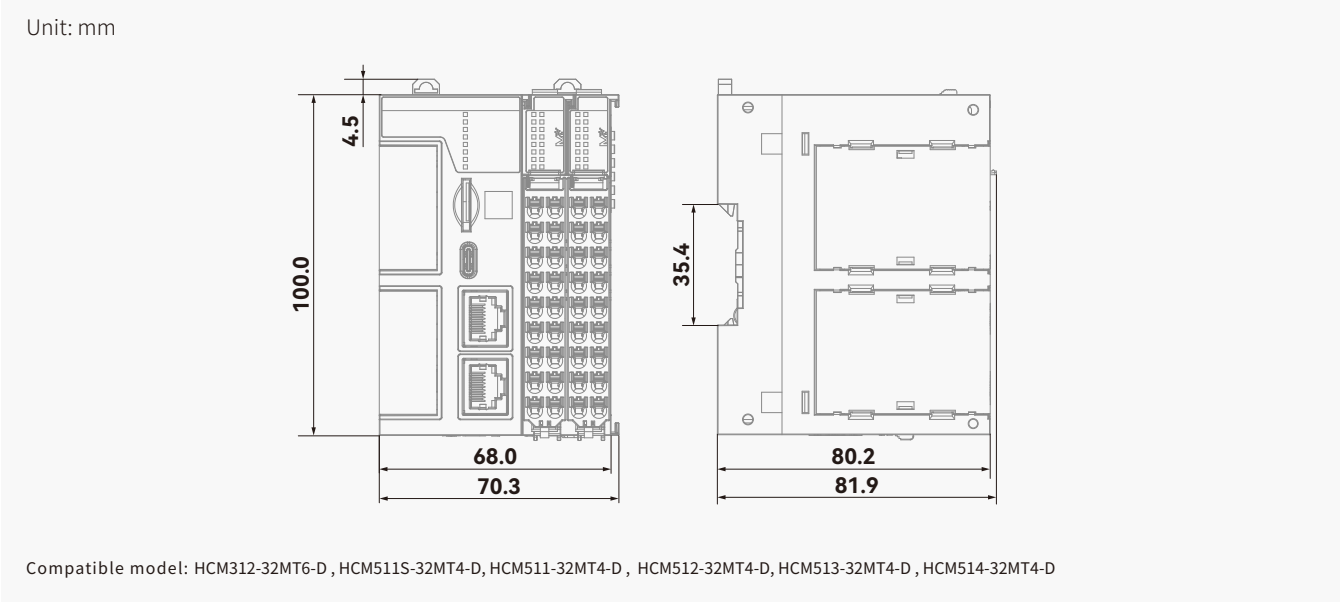
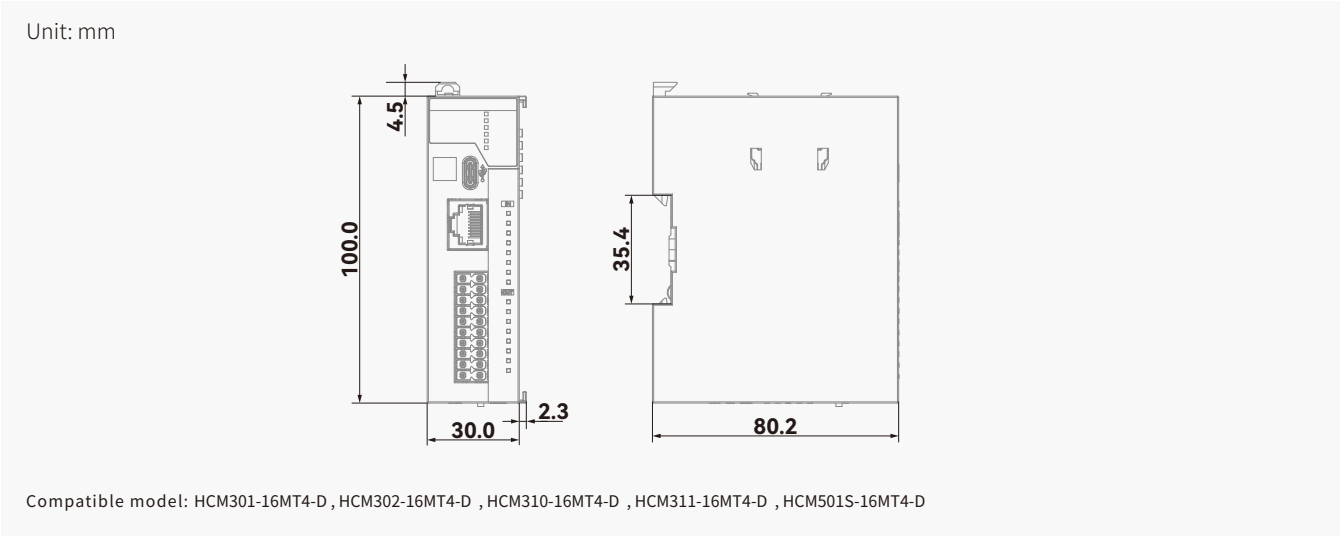
M100-Series Controller



Unit: mm



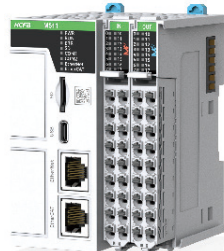
M300/M500-Series Controller



M-SERIES CONTROLLER

Model			HCM301-16MT4-D	HCM302-16MT4-D	HCM310-16MT4-D	HCM311-16MT4-D	HCM312-32MT6-D	
Appearance								
Programming	Program capacity		256 KBytes			512 KBytes		
	Variable capacity		256 KBytes (Persistent data memory: 16 KBytes)			256 KBytes (Persistent data memory: 32 KBytes)		
	I-area (%I)		128 Bytes					
	O-area (%Q)		128 Bytes					
	M-area (%M)		128 KBytes					
Programming language			LD, ST, C/C++					
Axis capability	Number of pulse axes		4-axis 100k		4-axis 200k		6-axis 200k	
	Number of encoder axes		2					
	Total axes (EtherCAT axis + pulse axis + encoder axis + virtual axis)		≤16					
Right-side expansion	Max. number of expandable modules		16					
RTC battery	Built-in in the controller						Install the HCMXB-RTC-BD optional card for support	
Optional card	Max. number of optional cards		-				2	
Controller IO channel	Input	Number of channels	8-channel input				16-channel input	
		Function	8-channel external interrupts; 2-channel 200kHz high-speed pulse input (AB phase, pulse+direction, single pulse)		8-channel external interrupts; 2-channel 200kHz high-speed pulse input (AB phase, pulse+direction, single pulse)			
	Output	Number of channels	8-channel output				16-channel output	
		Function	4-channel 100kHz pulse output (pulse+direction)*		4-channel 200kHz pulse output (pulse+direction)*		6-channel 200kHz pulse output (pulse+direction)*	
Electronic cam	Number of cams		-	16	-	16	16	
	Number of key points per curve		-	32	-	32	32	
Axis group	Max. number of axis groups		-	1 axis group (each axis group supports up to 8-axis interpolation)	-	1 axis group (each axis group supports up to 8-axis interpolation)	1 axis group (each axis group supports up to 8-axis interpolation)	
G-code capacity			-					
SD card			-				1	
USB	Number of interfaces		1×USB2.0 Type-C					
	Function		Program upload/download; Software monitoring & debugging; Firmware upgrade					
Power supply			DC24V(±10%)					
Serial port	RS485	Number of interfaces	1					Max. 4 channels: 2 built-in in the controller, expandable by 2 more via optional HCMXB-2RS485-BD card
		Supported protocols	Modbus master/slave (ASCII/RTU); Custom protocol					
		Max. number of slave stations	32					
		Baud rate (bps)	9600, 19200, 38400, 57600, 115200					
	RS232	Number of interfaces	1					Install optional HCMXB-2RS232-BD card to support 2 channels
		Supported protocols	Modbus master/slave (ASCII/RTU); Custom protocol					
		Max. number of slave stations	1					
CAN	Number of interfaces		-					Install optional HCMXB-CAN-BD card to support 1 channel
	Supported protocols		-					
EtherNet	Number of interfaces		-	1				
	Function		-	Communication, program download/upload				
	Data transmission speed		-	100/10Mbps				
	Total TCP connections		-	16(ModbusTCP+Socket + EtherNet/IP)				
	Modbus TCP		-	Client (Master) Max. connections: 16; Server (Slave) Max. connections: 16				
	Socket		-	Max. connections: 8 (TCP/UDP)				
	Cable		-	Standard industrial Ethernet communication cable				
EtherNet/IP (slave mode only)	Implicit CIP communication		-	Max. connections: 8; Max. data per connection: 200 Bytes; Cycle interval: 5~1000ms				
	Explicit CIP communication		-	Class 3 connections: 8; UCMM (unconnected message manager) concurrent client access: 16				

M-SERIES CONTROLLER

Model			HCM500S-16MT4-D	HCM501S-16MT4-D	HCM511S-32MT4-D	HCM511-32MT4-D	HCM512-32MT4-D	HCM513-32MT4-D	HCM514-32MT4-D
Appearance									
Programming	Program capacity		512 KBytes			20 MBytes			
	Variable capacity		256 KBytes (Persistent data memory: 32 KBytes)			20 MBytes (Persistent data memory: 128 KBytes)			
	I-area (%I)					128 Bytes			
	O-area (%Q)					128 Bytes			
	M-area (%M)					128 KBytes			
Programming language						LD, ST, C/C++			
Axis capability	EtherCAT axis		4 (PDO-Free configuration; only available for slaves provided in programming software)	8 (PDO-Free configuration; only available for slaves provided in programming software)		8	16	32	64
	Number of pulse axes (MT models only)					4-axis 200k			
	Number of encoder axes					2			
	Total axes (EtherCAT axis + pulse axis + encoder axis + virtual axis)		≤16			≤64			≤128
Right-side expansion	Max. number of expandable modules					16			
RTC battery			Built-in in the controller		Supported by installing the optional HCMXB-RTC-BD card				
Optional card	Max. number of optional cards		-		2				
Controller IO channel	Input	Number of channels	8-channel input		16-channel input				
	Function				8-channel external interrupts; 2-channel 200kHz high-speed pulse input (AB phase, pulse+direction, single pulse)				
	Output	Number of channels	8-channel output		16-channel output				
	Function				4-channel 200kHz high-speed pulse output (pulse+direction)				
Electronic cam	Number of cams		16		64				
	Number of key points per curve		32		2048				
Axis group	Max. number of axis groups		1 axis group (each axis group supports up to 8-axis interpolation)		8 axis group (each axis group supports up to 8-axis interpolation)				
G-code capacity			-		16MB (supports up to 64 G-code files, each with a maximum size of 256KB)				
SD card			Not supported		1				
USB	Number of interfaces				1×USB2.0 Type-C				
	Function				Program upload/download; Software monitoring & debugging; Firmware upgrade				
Power supply					DC24V(±10%)				
Serial port	RS485	Number of interfaces	1		Max. 4 channels: 2 built-in in the controller, expandable by 2 more via optional HCMXB-2RS485-BD card				
		Supported protocols			Modbus master/slave (ASCII/RTU); Custom protocol				
		Max. number of slave stations			32				
		Baud rate (bps)			9600, 19200, 38400, 57600, 115200				
	RS232	Number of interfaces	1		Install optional HCMXB-2RS232-BD card to support 2 channels				
		Supported protocols			Modbus master/slave (ASCII/RTU); Custom protocol				
		Max. number of slave stations			1				
CAN	Number of interfaces		-		9600, 19200, 38400, 57600, 115200				
	Supported protocols		-		CANopen protocol (DS301), supports master/slave; supports 16 slave stations when acting as a master				
EtherNet	Function		-		CANopen protocol (DS301), supports master/slave; supports 32 slave stations when acting as a master				
	Data transmission speed		-		Communication, program download/upload				
	Total TCP connections		-		100/10Mbps				
	Modbus TCP		-		12 (ModbusTCP+Socket)	16 (ModbusTCP+Socket + EtherNet/IP)			
	Socket		-		Client (Master) Max. connections: 4; Server (Slave) Max. connections: 4	Client (Master) Max. connections: 16; Server (Slave) Max. connections: 16			
	Cable		-		Max. connections: 4 (TCP/UDP)	Max. connections: 8 (TCP/UDP)			
EtherNet/IP (slave mode only)	Implicit CIP communication		-		Standard industrial Ethernet communication cable				
	Explicit CIP communication		-		Max. connections: 8; Max. data per connection: 200 Bytes; Cycle interval: 5~1000ms				
EtherCAT	Topology				Class 3 connections: 8; UCMM (unconnected message manager) concurrent client access: 16				
	Transmission medium				Linear topology				
	Max. node-to-node transmission distance				Standard Ethernet communication cable				
	Max. number of slave stations		8 (PDO-Free configuration; only available for slaves provided in programming software)		16	32	64	128	
	Max. process data				100m				
	Communication cycle		Min. 500μs		1380 Bytes (Max. frames: 1)				
	Supported protocols				Min. 250μs				
					EtherCAT master				

Naming Rule for M-Series Optional Cards

HCMXB-2RS232-200-BD-****

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1.Product Name

HC

HC: HCFA controller

2.Optional Card Series

MXB

MXB: M-Series optional expansion

3.Product Series

2RS232

ID04: 4-channels digital input

OD04: 4-channels digital output

MA03: 2-channels analog input + 1-channel analog output

2RS232: Two RS232 serial ports

2RS485: Two RS485 serial ports

CAN: CAN communication protocol

RTC: Real-Time Clock battery backup car

AB: 1-channel AB-Phase differential encoder optional card

2AB: 2-channel AB-Phase differential encoder optional card

4.Suffix

200

None: M300/M500S/M500-Series optional card

500: M500-Series optional card

200: M200-Series optional card

100: M100-Series optional card

5.Suffix

BD

BD: BD optional card

6.Software/Firmware Customization Code and Other Identifier

*

*: 0-9 / A-Z / N/A

PNP: Sourcing

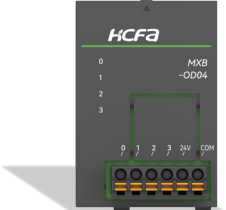
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Specifications

M-SERIES OPTIONAL CONFIGURATION

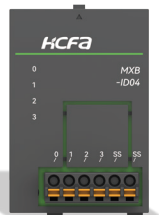
Optional Card

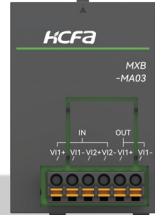
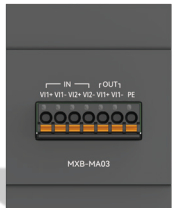
M-Series Optional Card Specifications

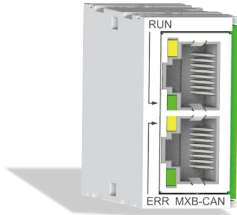
Model	HCMXB-OD04-BD (Compatible with M312, M511S and M500 controllers)	HCMXB-OD04-100-BD (Compatible with M100 controllers)	HCMXB-OD04-200-BD (Compatible with M200 controllers)
Appearance			
General specifications	4-channel transistor digital output, supporting NPN output		
Rated load	Resistive load: 0.5A per channel, 2A per common terminal Inductive load: 7.2W per channel, 24W per common terminal Lamp load: 5W per channel, 18W per common terminal		
OFF leakage current	<10μA		
ON/OFF response time	500μs/500μs		
Output frequency	Resistive load: 100 Hz Inductive load: 0.5 Hz Lamp load: 10 Hz		
Isolation method	One common terminal is used for every 4 channels.		

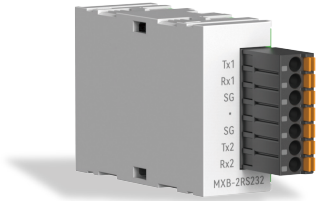
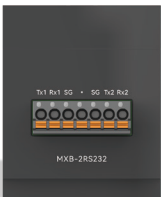
Model	HCMXB-OD04-BD-PNP (Compatible with M312, M511S and M500 controllers)	HCMXB-OD04-100-BD-PNP (Compatible with M100 controllers)	HCMXB-OD04-200-BD-PNP (Compatible with M200 controllers)
Appearance			
General specifications	4-channel transistor digital output, supporting PNP output		
Rated load	Resistive load: 0.5A per channel, 2A per common terminal Inductive load: 7.2W per channel, 12W per common terminal Lamp load: 5W per channel, 10W per common terminal		
OFF leakage current	<10μA		
ON/OFF response time	500μs/500μs		
Output frequency	Resistive load: 100 Hz Inductive load: 0.5 Hz Lamp load: 10 Hz		
Isolation method	One common terminal is used for every 4 channels.		

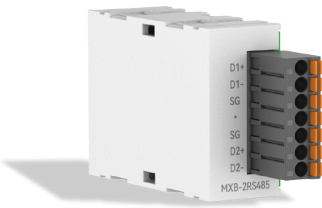
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Model	HCMXB-ID04-BD (Compatible with M312, M511S and M500 controllers)	HCMXB-ID04-100-BD (Compatible with M100 controllers)	HCMXB-ID04-200-BD (Compatible with M200 controllers)
Appearance			
General specifications	4-channel transistor digital input, supporting NPN or PNP input		
Rated input current	5mA		
ON current	>4mA		
OFF current	<2. 5mA		
ON voltage	≥15VDC		
OFF voltage	≤5VDC		
Input response time (ON/OFF)	100μs/100μs		
Software filter	Supported		
Input impedance	2. 7kΩ		
Isolation method	Integrated chip capacitive isolation		
Common mode	One common terminal is used for every 4 channels		

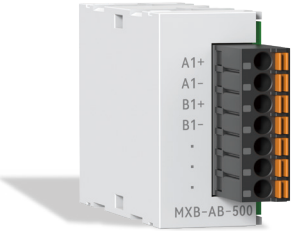
Model	HCMXB-MA03-BD (Compatible with M312, M511S and M500 controllers)	HCMXB-MA03-100-BD (Compatible with M100 controllers)	HCMXB-MA03-200-BD (Compatible with M200 controllers)
Appearance			
General specifications	3-channel analog, supporting 2 channels analog input and 1 channel analog output		
Resolution	12-bit		
Input type	Voltage / Current		
Input wire-break detection	Wire-break detection supported in 4mA~20mA mode		
Conversion time	6ms per channel		
Accuracy	±1% (at 25°C, full scale) / ±3% (full temperature range, full scale)		
Input	Mode: Conversion value		
	-1: Off		
	0: 0V~10V (0~32000)		
	1: 0V~5V (0~32000)		
	2: 1V~5V (0~32000)		
	3: 0mA~20mA (0~32000)		
	4: 4mA~20mA (0~32000)		
	>200kΩ/250Ω		
	Averaging filter, average count selectable from 1 to 100		
Out-put	Voltage / Current		
	1ms per channel		
	±1% (at 25°C, full scale)		
	±5% (full temperature range, full scale)		
	Mode: Conversion value		
	-1: Off		
	0: 0V~10V (0~32000)		
	1: 0V~5V (0~32000)		
	2: 1V~5V (0~32000)		
	3: 0mA~20mA (0~32000)		
	4: 4mA~20mA (0~32000)		
	>2kΩ/<=500Ω		
Refresh method during controller stop/failure	Reset or hold (selectable)		
Isolation method	Non-isolated		

Model	HCMXB-CAN-BD (Compatible with M312, M511S and M500 controllers)	HCMXB-CAN-100-BD (Compatible with M100 controllers)
Appearance		
General specifications	CANopen protocol (DS301), supports master/slave	
Number of supported slave stations	Refer to controller specifications	
Link layer	CAN2.0A	
Termination resistor	External 120Ω resistor	
Baud rate (bps)	20K, 50K, 125K, 250K, 500K, 1M	
Topology	Daisy chain topology and star topology	
Transmission medium	CIA-compliant CAN cable	
Max. communication distance	2500m (20kbps)	
Synchronization cycle	Min. 1ms	

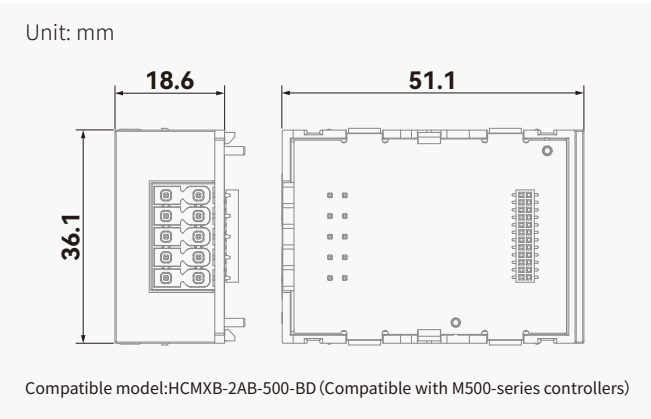
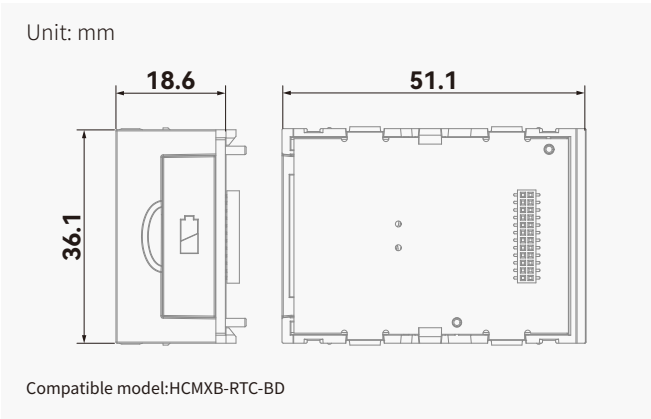
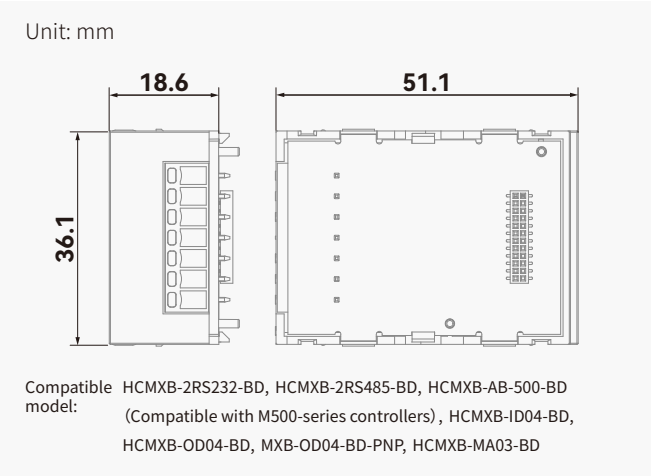
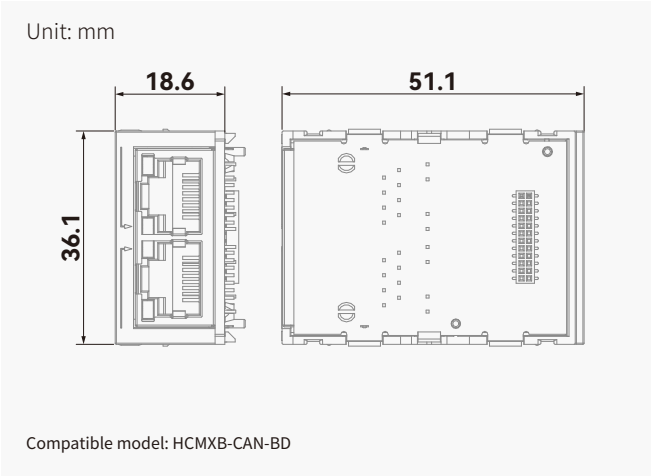
Model	HCMXB-2RS232-BD (Compatible with M312, M511S and M500 controllers)	HCMXB-2RS232-100-BD (Compatible with M100 controllers)	HCMXB-2RS232-200-BD (Compatible with M200 controllers)
Appearance			
General specifications	2-channel RS232 communication optional card; Independently configurable as master or slave station, supporting Modbus protocol and custom protocol		
Communication mode	RTU/ASCII		
Max. number of supported stations	1		
Baud rate (bps)	9600, 19200, 38400, 57600, 115200		
Max. communication distance	15m (9600bps)		

Model	HCMXB-2RS485-BD (Compatible with M312, M511S and M500 controllers)	HCMXB-2RS485-100-BD (Compatible with M100 controllers)	HCMXB-2RS485-200-BD (Compatible with M200 controllers)
Appearance			
General specifications	2-Channel RS485 communication card; Standalone master/slave configurable; Modbus & Custom protocol support		
Communication mode	RTU/ASCII		
Max. number of supported slave stations	32		
Termination resistor	External 120Ω resistor		
Baud rate (bps)	9600, 19200, 38400, 57600, 115200		
Max. communication distance	500m (9600bps)		

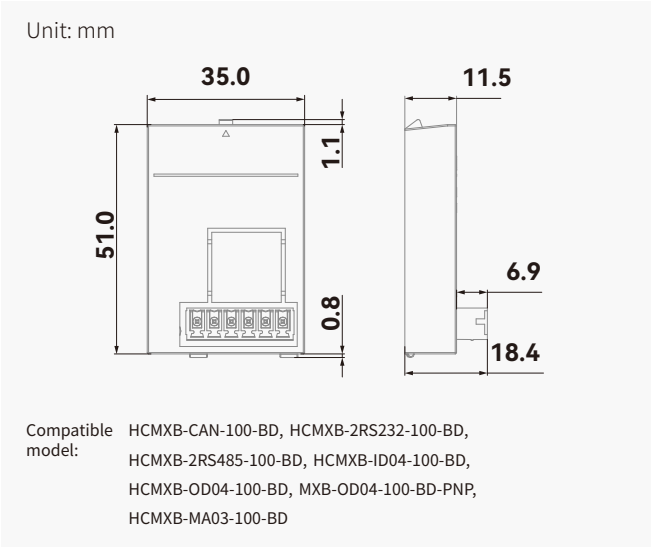
Model	HCMXB-RTC-BD (Compatible with M312, M511S and M500 controllers)
Appearance	
General specifications	Real-Time Clock battery backup card (timekeeping during power failure)
Clock accuracy	Monthly accuracy: 120s
Clock format	YYYY-MM-DD-Weekday-HH:MM:SS
Battery specifications	HCFA standard battery (replaceable, 3-5 years lifespan)

Model	HCMXB-AB-500-BD (Compatible with M500 controllers)	HCMXB-2AB-500-BD (Compatible with M500 controllers)
Appearance		
General specifications	1-channel AB-Phase differential encoder optional card	2-channel AB-Phase differential encoder optional card
Counting mode	AB-Phase 1x/2x/4x frequency multiplication	
Counting direction	Up/Down-counting	
Maximum counting frequency	1MHz	
Rated voltage/power	DC5V/0.5W	

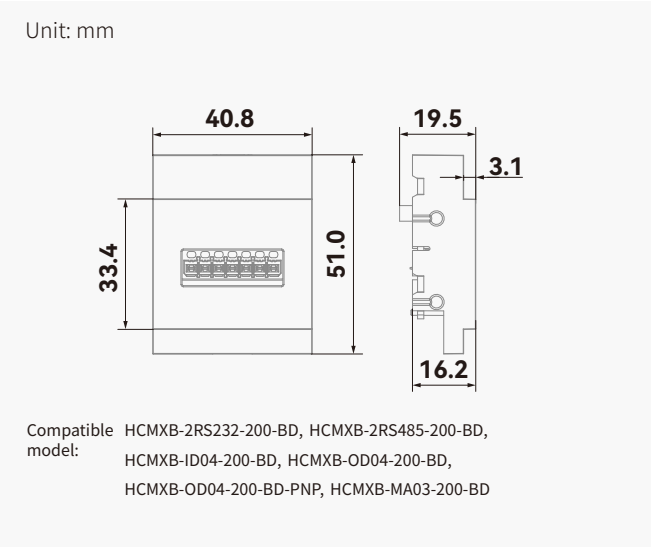
M312, M511S, M500 Series Controller



M100-Series Controller Optional Card



M200-Series Controller Optional Card



Naming Rule for M-Series Expansion Modules

HCMX-MD16-D-****

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1.Product Name

HC

HC: HCFA

2.Product Series

MX

M X : M-Series general-purpose expansion
MXE: EtherCAT remote I/O
MXC: CANopen remote I/O
MXP: Profinet remote I/O

3.Function Module

MD

OC: Relay output
ID: Digital input
OD: Digital output
MD: Digital Mixed
AD: Analog input
DA: Analog output
TC: Temperature measurement (Thermocouple)
PT: Temperature measurement (RTD)
EC: EtherCAT Coupler

4.Number of channels

16

04: 4 Channels
08: 8 Channels
16: 16 Channels
32: 32 Channels

5.Power Supply Type

D

D: DC power supply

6.Software/Firmware Customization Code and Other Identifiers

*

*: 0-9 / A-Z / N/A
PNP: Sourcing

Coupler Module

Model	HCMX-EC01-D
Appearance	
Product type	EtherCAT coupler
Max. number of expansion modules	16
Communication protocol	EtherCAT
Communication speed	100Mbps
Max. inter-station distance	100m
Operation mode	FreeRun, SM-Synchron, DC-Synchron
Rated voltage	DC 24V

Temperature Measurement Module

Model	HCMX-TC04-D	HCMX-PT04-D
Appearance		
Voltage	DC24V (DC20.4~28.8V)	
Power*	1W	
Input type	Thermocouple	RTD (2-wire / 3-wire)
Sensor type and measurement range	K: -270.0°C ~ 1370.0°C, 454.0°F ~ 2498.0°F B: 200.0°C ~ 1800.0°C, 392.0°F ~ 3272.0°F R: -50.0°C ~ 1765.0°C, -58.0°F ~ 3209.0°F T: -270.0°C ~ 400.0°C, -454.0°F ~ 752.0°F J: -210.0°C ~ 1200.0°C, -346.0°F ~ 2192.0°F N: -200.0°C ~ 1300.0°C, -328.0°F ~ 2372.0°F E: -270.0°C~1000.0°C, -454.0°F ~ 18320°F S: -50.0°C ~ 1765.0°C, -58.0°F ~ 3209.0°F	Pt100: -200.0°C ~ 850.0°C, -328.0°F ~ 1562.0°F Pt500: -200.0°C ~ 850.0°C, -328.0°F ~ 1562.0°F Pt1000: -200.0°C ~ 850.0°C, -328.0°F ~ 1562.0°F Cu100: -50.0°C ~ 150.0°C, -58.0°F ~302.0°F KTY84: 0.0°C ~ 200.0°C, 32.0°F ~ 392.0°F NTC5K_B:2000: -30.0°C ~ 200.0°C, -22.0°F ~ 392.0°F NTC5K_B:3950: -15.0°C ~ 100.0°C, 5.0°F ~212.0°F NTC5K_B:6000: 0.0°C ~ 100.0°C, 32.0°F ~ 212.0°F NTC10K_B:2000: -25.0°C ~ 200.0°C, -13.0°F ~ 392.0°F NTC10K_B:3950: 0.0°C ~ 150.0°C, 32.0°F ~ 302.0°F NTC10K_B:6000: 6.0°C ~ 100.0°C, 42.8°F ~ 212.0°F
Temperature unit	Celsius °C / Fahrenheit °F	
Compensation method	External cold junction compensation	-
Conversion time	120ms/channel	90ms/channel
Accuracy (25°C)	±0.1% (full scale) + cold junction compensation error	±0.1% (full scale)
Accuracy (0~55°C)	±0.3% (full scale) + cold junction compensation error	±0.3% (full scale)
Resolution	24bit	
Sensitivity	0.1°C / 0.1°F	
Channel enable/disable	Support	
Filtering function	Moving average filter	
Input wire break detection	Support	
Over-limit check	Support	
Isolation method	Isolation between I/O terminals and power supply, no isolation between channels	

*: The rated power indicated here is the maximum power under full load operation.

Remote Expansion Module

Model	HCMXE-MD16-D	HCMXC-MD16-D	HCMXP-MD16-D
Appearance			
Product type	EtherCAT remote I/O	CANopen remote I/O	Profinet remote I/O
Max. number of expansion modules	16		
Expansion module input specification	8-channel input, NPN/PNP input		
Expansion module output specification	8-channel output, NPN output		
Communication protocol	EtherCAT	CANopen	Profinet
Communication speed	100Mbps	Max. 1Mbps	100Mbps
Max. communication distance	100m	5000m (10Kbps)	100m
Operation mode	FreeRun, SM-Synchron, DC-Synchron	-	-
Rated voltage	DC 24V		

Digital Input Module

Model	HCMX-ID08-D	HCMX-ID16-D	HCMX-ID32-D
Appearance			
Number of input channels	8	16	32
Input type	NPN/PNP		
Rated power	1W		
Rated input voltage	DC24V		
Rated input current	5mA		
Input ON current	>4mA		
Input OFF current	<2.5mA		
Input ON voltage	≥DC15V		
Input OFF voltage	≤DC5V		
Hardware response time (ON/OFF)	100µs/100µs		
Software filtering	Support		
Input resistance	2.7kΩ		
Common terminal mode	8 Channels per common terminal		

Digital Output Module

Model	HCMX-OD08-D	HCMX-OD16-D	HCMX-OD32-D
Appearance			
Number of output channels	8	16	32
Output type	NPN		
Rated power	1W	1W	1.5W
Control circuit voltage	DC24V		
Rated load current (resistive)	0.5A/channel, 4A/common terminal		
Rated load current (inductive)	7.2W/channel, 24W/common terminal		
Rated load current (lamp)	5W/channel, 18W/common terminal		
OFF leakage current	< 10µA		
Hardware response time (ON/OFF)	500µs/500µs		
Output frequency	Resistive load: 100Hz; Inductive load: 0.5Hz; Lamp load: 10Hz		
Protection function	Short-circuit protection; Overcurrent protection		
Common terminal mode	For 8-channel output modules: 1 common terminal per 8 channels; For 16/32-channel output modules: 1 common terminal per 16 channels		

Model	HCMX-OD08-D-PNP	HCMX-OD16-D-PNP	HCMX-OD32-D-PNP	HCMX-OC08-D
Appearance				
Number of output channels	8	16	32	8
Output type	PNP			Relay
Rated power	1W	1W	1.5W	1.5W
Control circuit voltage	DC24V			AC250V/DC30V
Rated load current (resistive)	0.5A/channel, 2A/common terminal			2A/channel, 8A/common terminal
Rated load current (inductive)	7.2W/channel, 12W/common terminal			1A/channel, 4A/common terminal
Rated load current (lamp)	5W/channel, 10W/common terminal			30W/channel, 120W/common terminal
Leakage current when OFF	< 10µA			-
Hardware response time (ON/OFF)	500µs/500µs			10ms/10ms
Output frequency	Resistive load: 100Hz; Inductive load: 0.5Hz; Lamp load: 10Hz			Resistive load: 1Hz; Inductive load: 0.5Hz; Lamp load: 1Hz
Min. number of operable switching cycles	-			100000
Protection function	Short-circuit protection; Overcurrent protection			-
Common terminal mode	For 8-channel output modules: 1 common terminal per 8 channels; For 16/32-channel output modules: 1 common terminal per 16 channels			1 common terminal per 4 channels

Digital Mixed Module

Model		HCMX-MD16-D	HCMX-MD32-D	HCMX-MD16-D-PNP	HCMX-MD32-D-PNP
Appearance					
Input specifications	Number of input channels	8	16	8	16
	Input type	NPN/PNP			
	Rated input voltage	DC24V			
	Rated input current	5mA			
	Input ON current	>4mA			
	Input OFF current	<2.5mA			
	Input ON voltage	≥DC15V			
	Input OFF voltage	≤DC5V			
	Hardware response time (ON/OFF)	100μs/100μs			
	Software filtering	Support			
	Input resistance	2.7kΩ			
Output specifications	Number of output channels	8	16	8	16
	Output type	NPN		PNP	
	Control circuit voltage	DC24V			
	Rated load current (resistive)	0.5A/channel, 4A/common terminal		0.5A/channel, 2A/common terminal	
	Rated load current (inductive)	7.2W/channel, 24W/common terminal		7.2W/channel, 12W/common terminal	
	Rated load current (lamp)	5W/channel, 18W/common terminal		5W/channel, 10W/common terminal	
	OFF leakage current	< 10μA			
	Hardware response time (ON/OFF)	500μs/500μs			
	Output frequency	Resistive load: 100Hz; Inductive load: 0.5Hz; Lamp load: 10Hz			
	Protection function	Short-circuit protection; Overcurrent protection			
Rated power		1W	1.5W	1W	1.5W
Common terminal mode		8 Channels per common terminal	16 Channels per common terminal	8 Channels per common terminal	16 Channels per common terminal

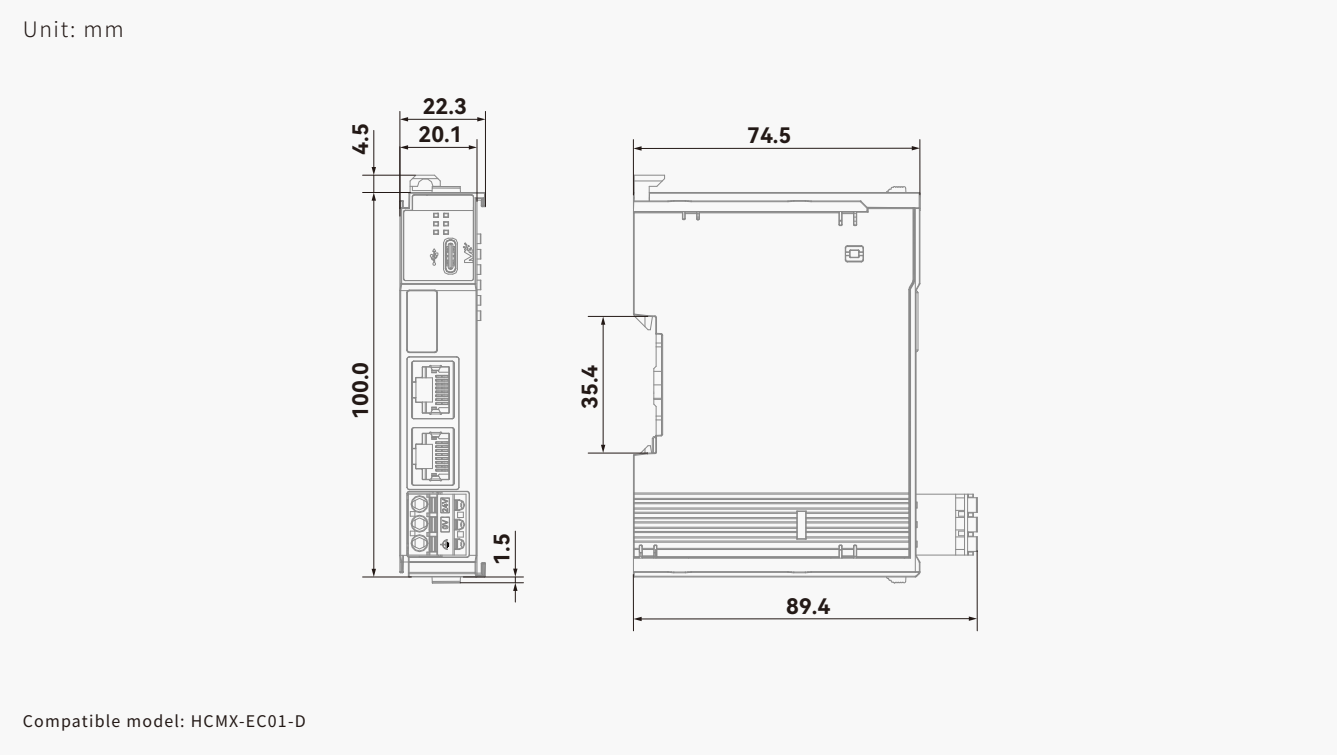
Analog Input Module

Model	HCMX-AD04-D	HCMX-AD04S-D
Appearance		
Input type	Voltage/Current	
Number of input channels	4	
Resolution	16-bit	14-bit
Conversion time	60μs/channel	
Accuracy	Ambient temperature 25°C: ±0.1% (full scale range); Full temperature range: ±0.2% (full scale range)	Ambient temperature 25°C: ±0.5% (full scale range); Full temperature range: ±1% (full scale range)
Supported modes & Converted values	-10V~10V (-32000~32000)	
	-5V~5V (-32000~32000)	
	0V~5V (0~32000)	
	1V~5V (0~32000)	
	-20mA~20mA (-32000~32000)	
	0mA~20mA (0~32000)	
	4mA~20mA (0~32000)	
Rated input voltage	DC24V	
Rated power	1W	
Filtering function	Support	
Input disconnection detection	Supported in 4 mA to 20 mA mode	

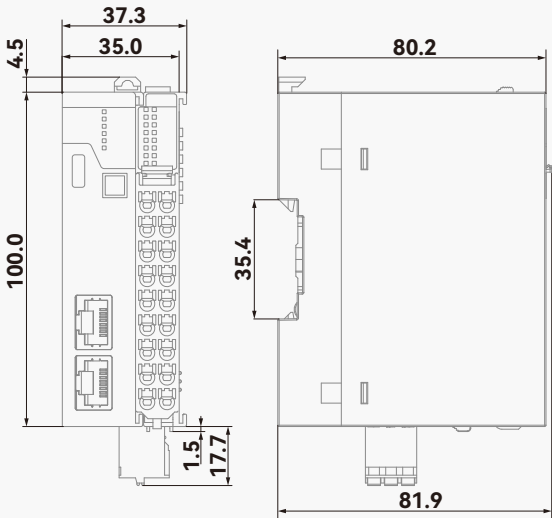
Analog Output Module

Model	HCMX-DA04-D	HCMX-DA04S-D
Appearance		
Output type	Voltage/Current	
Number of output channels	4	
Resolution	16-bit	14-bit
Conversion time	60μs/channel	
Accuracy	Ambient temperature 25°C: ±0.1% (full scale range); Full temperature range: ±0.2% (full scale range)	Ambient temperature 25°C: ±0.5% (full scale range); Full temperature range: ±1% (full scale range)
Supported modes & Converted values	-10V~10V (-32000~32000)	
	0V~10V (0~32000)	
	0mA~20mA (0~32000)	
	4mA~20mA (0~32000)	
Rated input voltage	DC24V	
Rated power	1W	
Voltage output diagnosis	Short-circuit detection and over-temperature protection	
Current output diagnosis	Open-circuit detection and over-temperature protection	

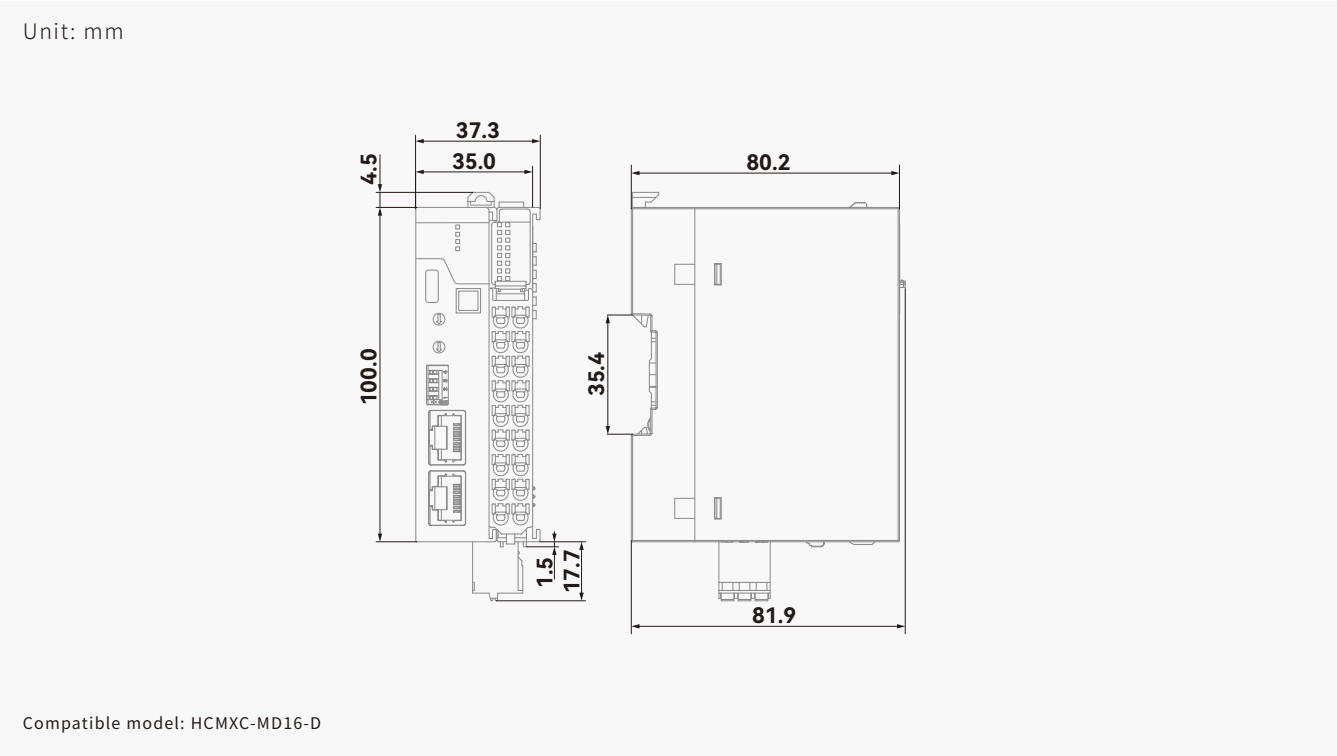
Coupler Module



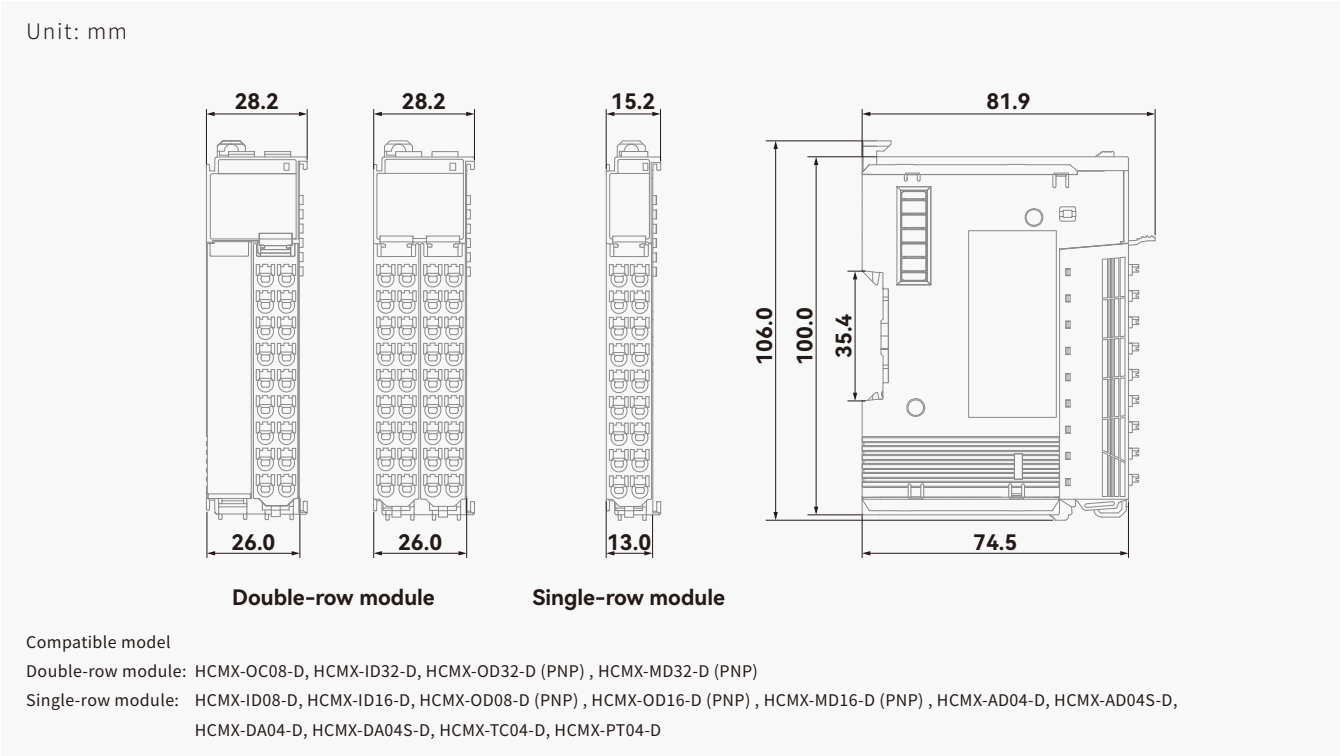
Unit: mm



Remote Expansion Module



Digital/Analog/Temperature Measurement Modules



HCFA Control System Product Overview

M-Series Controllers / Optional Cards / Expansion Modules

M-Series Selection Overview Table

M-Series Controller Selection Table

Model	Specifications	UL certifica- -tion	CE certifica- -tion	Page
HCM100-14MR-A	Relay output, 100k high-speed counter*2, 8 inputs 6 outputs, RS232*1, RS485*1, USB*1, 1 optional card	-	√	13
HCM100-14MT3-A	100k pulse axis*3, 100k high-speed counter*2, 8 inputs 6 outputs, RS232*1, RS485*1, USB*1, 1 optional card	-	√	
HCM100-20MR-A	Relay output, 100k high-speed counter*2, 12 inputs 8 outputs, RS232*1, RS485*1, USB*1, 1 optional card	-	√	
HCM100-20MT4-A	100k pulse axis*4, 100k high-speed counter*2, 12 inputs 8 outputs, RS232*1, RS485*1, USB*1, 1 optional card	-	√	
HCM100-30MR-A	Relay output, 100k high-speed counter*2, 16 inputs 14 outputs, RS232*1, RS485*1, USB*1, 1 optional card	-	√	
HCM100-30MT6-A	100k pulse axis*6, 100k high-speed counter*2, 16 inputs 14 outputs, RS232*1, RS485*1, USB*1, 1 optional card	-	√	
HCM100-40MR-A	Relay output, 100k high-speed counter*2, 24 inputs 16 outputs, RS232*1, RS485*1, USB*1, 1 optional card	-	√	14
HCM100-40MT6-A	100k pulse axis*6, 100k high-speed counter*2, 24 inputs 16 outputs, RS232*1, RS485*1, USB*1, 1 optional card	-	√	
HCM100-48MR-A	Relay output, 100k high-speed counter*2, 28 inputs 20 outputs, RS232*1, RS485*1, USB*1, 1 optional card	-	√	
HCM100-48MT6-A	100k pulse axis*6, 100k high-speed counter*2, 28 inputs 20 outputs, RS232*1, RS485*1, USB*1, 1 optional card	-	√	
HCM100-60MR-A	Relay output, 100k high-speed counter*2, 36 inputs 24 outputs, RS232*1, RS485*1, USB*1, 1 optional card	-	√	
HCM100-60MT6-A	100k pulse axis*6, 100k high-speed counter*2, 36 inputs 24 outputs, RS232*1, RS485*1, USB*1, 1 optional card	-	√	
HCM211-20MR-A	Relay output, 200k high-speed counter*2, 12 inputs 8 outputs, EtherNet*1, CAN*1, RS485*2, USB*1, 1 optional card, SD card*1, supports 16 right-side expansion modules	-	√	15
HCM211-20MT4-A	200k pulse axis*4, 200k high-speed counter*2, 12 inputs 8 outputs, EtherNet*1, CAN*1, RS485*2, USB*1, 1 optional card, SD card*1, supports 16 right-side expansion modules	-	√	
HCM211-32MR-A	Relay output, 200k high-speed counter*2, 18 inputs 14 outputs, EtherNet*1, CAN*1, RS485*2, USB*1, 1 optional card, SD card*1, supports 16 right-side expansion modules	-	√	
HCM211-32MT6-A	200k pulse axis*6, 200k high-speed counter*2, 18 inputs 14 outputs, EtherNet*1, CAN*1, RS485*2, USB*1, 1 optional card, SD card*1, supports 16 right-side expansion modules	-	√	
HCM211-42MR-A	Relay output, 200k high-speed counter*4, 24 inputs 18 outputs, EtherNet*1, CAN*1, RS485*2, USB*1, 1 optional card, SD card*1, supports 16 right-side expansion modules	-	√	
HCM211-42MT8-A	200k pulse axis*8, 200k high-speed counter*4, 24 inputs 18 outputs, EtherNet*1, CAN*1, RS485*2, USB*1, 1 optional card, SD card*1, supports 16 right-side expansion modules	-	√	
HCM211-60MR-A	Relay output, 200k high-speed counter*4, 36 inputs 24 outputs, EtherNet*1, CAN*1, RS485*2, USB*1, 1 optional card, SD card*1, supports 16 right-side expansion modules	-	√	16
HCM211-60MT10-A	200k pulse axis*10, 200k high-speed counter*4, 36 inputs 24 outputs, EtherNet*1, CAN*1, RS485*2, USB*1, 1 optional card, SD card*1, supports 16 right-side expansion modules	-	√	
HCM212-32MT4-A	200k pulse axis*4, 200k high-speed counter*2, EtherCAT bus axis*8, 18 inputs 14 outputs, EtherNet*1, CAN*1, RS485*2, USB*1, 1 optional card, SD card*1, supports 16 right-side expansion modules	-	√	
HCM212-60MT8-A	200k pulse axis*8, 200k high-speed counter*4, EtherCAT bus axis*8, 36 inputs 24 outputs, EtherNet*1, CAN*1, RS485*2, USB*1, 1 optional card, SD card*1, supports 16 right-side expansion modules	-	√	
HCM301-16MT4-D	100k pulse axis*4, 100k high-speed counter*2, RS485*1, RS232*1, 8 inputs 8 outputs, supports 16 right-side expansion modules	-	√	19
HCM302-16MT4-D	100k pulse axis*4, 100k high-speed counter*2, RS485*1, RS232*1, 8 inputs 8 outputs, supports 16 right-side expansion modules	-	√	
HCM310-16MT4-D	200k pulse axis*4, 200k high-speed counter*2, EtherNet*1, RS485*1, RS232*1, 8 inputs 8 outputs, supports 16 right-side expansions	-	√	
HCM311-16MT4-D	200k pulse axis*4, 200k high-speed counter*2, EtherNet*1, RS485*1, RS232*1, 8 inputs 8 outputs, supports 16 right-side expansions	-	√	20
HCM312-32MT6-D	200k pulse axis*6, 200k high-speed counter*2, EtherNet*1, RS485*2, 16 inputs 16 outputs, 2 optional cards, supports 16 right-side expansion modules, SD card*1	√	√	
HCM500S-16MT4-D	200k pulse axis*4, 200k high-speed counter*2, EtherCAT bus axis*4*1, RS485*1, RS232*1, 8 inputs 8 outputs, supports 16 right-side expansion modules	-	√	21
HCM501S-16MT4-D	200k pulse axis*4, 200k high-speed counter*2, EtherCAT bus axis*8*1, RS485*1, RS232*1, 8 inputs 8 outputs, supports 16 right-side expansion modules	-	√	
HCM511S-32MT4-D	200k pulse axis*4, 200k high-speed counter*2, EtherCAT bus axis*8*1, EtherNet*1, RS485*2, 16 inputs 16 outputs, 2 optional cards, supports 16 right-side expansion modules, SD card*1	√	√	
HCM511-32MT4-D	200k pulse axis*4, 200k high-speed counter*2, EtherCAT bus axis*8*1, EtherNet*1, RS485*2, 16 inputs 16 outputs, 2 optional cards, supports 16 right-side expansion modules, SD card*1	-	√	22
HCM512-32MT4-D	200k pulse axis*4, 200k high-speed counter*2, EtherCAT bus axis*16, EtherNet*1, RS485*2, 16 inputs 16 outputs, 2 optional cards, supports 16 right-side expansion modules, SD card*1	-	√	
HCM513-32MT4-D	200k pulse axis*4, 200k high-speed counter*2, EtherCAT bus axis*32, EtherNet*1, RS485*2, 16 inputs 16 outputs, 2 optional cards, supports 16 right-side expansion modules, SD card*1	-	√	
HCM514-32MT4-D	200k pulse axis*4, 200k high-speed counter*2, EtherCAT bus axis*64, EtherNet*1, RS485*2, 16 inputs 16 outputs, 2 optional cards, supports 16 right-side expansion modules, SD card*1	-	√	

M-Series Optional Card Selection Table

Model	Compatible controller	Specifications	Page
HCMXB-CAN-100-BD	M100-Series	Supports CANopen protocol (DS301), configurable as master or slave	26
HCMXB-2RS232-100-BD		2-channel RS232 serial ports, independently configurable as master or slave, supporting Modbus protocol and custom protocol	
HCMXB-2RS485-100-BD		2-channel RS485 serial ports, independently configurable as master or slave, supporting Modbus protocol and custom protocol	27
HCMXB-ID04-100-BD		4-channel digital input, supporting NPN or PNP input	25
HCMXB-OD04-100-BD		4-channel digital output, supporting NPN output	24
HCMXB-OD04-100-BD-PNP		4-channel digital output, supporting PNP output	
HCMXB-MA03-100-BD		3-channel analog I/O, 12-bit resolution, supporting 2-channel analog input and 1-channel analog output	25
HCMXB-2RS232-200-BD	M200-Series	2-channel RS232 serial port, independently configurable as master or slave, supporting Modbus protocol and custom protocol	26
HCMXB-2RS485-200-BD		2-channel RS485 serial port, independently configurable as master or slave, supporting Modbus protocol and custom protocol	27
HCMXB-ID04-200-BD		4-channel digital input, supporting NPN or PNP input	25
HCMXB-OD04-200-BD		4-channel digital output, supporting NPN output	24
HCMXB-OD04-200-BD-PNP		4-channel digital output, supporting PNP output	
HCMXB-MA03-200-BD		3-channel analog I/O, 12-bit resolution, supporting 2-channel analog input and 1-channel analog output	25
HCMXB-CAN-BD	M312, M511, M511S, M512, M513, M514	Supports CANopen protocol (DS301), configurable as master or slave	26
HCMXB-2RS232-BD		2-channel RS232 serial port, independently configurable as master or slave, supporting Modbus protocol and custom protocol	
HCMXB-2RS485-BD		2-channel RS485 serial port, independently configurable as master or slave, supporting Modbus protocol and custom protocol	27
HCMXB-RTC-BD		RTC battery backup card: Maintains calendar timing during controller power loss	
HCMXB-ID04-BD		4-channel digital input, supporting NPN or PNP input	25
HCMXB-OD04-BD		4-channel digital output, supporting NPN output	24
HCMXB-OD04-BD-PNP		4-channel digital output, supporting PNP output	
HCMXB-MA03-BD		3-channel analog I/O, 12-bit resolution, supporting 2-channel analog input and 1-channel analog output	25
HCMXB-AB-500-BD	M511, M512, M513, M514	1-channel AB-phase differential encoder optional card: Supports 1x/2x/4x frequency multiplication, and up-counting/down-counting	27
HCMXB-2AB-500-BD		2-channel AB-phase differential encoder optional card: Supports 1x/2x/4x frequency multiplication, and up-counting/down-counting	

M-Series Expansion Module Selection Table

Model	Specification	UL certification	CE certification	Page
HCMX-EC01-D	EtherCAT coupler, supporting 16 right-side expansion modules	-	√	30
HCMX-TC04-D	4-channel thermocouple temperature measurement module, supporting K, B, R, N, J, T, E, S and other thermocouple sensor types	-	√	
HCMX-PT04-D	4-channel RTD temperature sensor measurement module, supporting Pt100, Pt500, Pt1000, Cu100, KTY84, NTC5K_B:2000, NTC5K_B:3950, NTC5K_B:6000, TC10K_B:2000, NTC10K_B:3950, and NTC10K_B:6000, among other RTD and temperature sensor types.	-	√	
HCMXE-MD16-D	EtherCAT remote IO, with built-in 8-channel input & 8-channel output, supporting 16 right-side expansion modules	-	√	31
HCMXC-MD16-D	CANopen remote IO, with built-in 8-channel input & 8-channel output, supporting 16 right-side expansion modules	-	√	
HCMXP-MD16-D	Profinet remote IO, with built-in 8-channel input & 8-channel output, supporting 16 right-side expansion modules	-	√	
HCMX-ID08-D	8-channel digital input, supporting NPN or PNP input	-	√	
HCMX-ID16-D	16-channel digital input, supporting NPN or PNP input	√	√	
HCMX-ID32-D	32-channel digital input, supporting NPN or PNP input	-	√	32
HCMX-OC08-D	8-channel relay output	-	√	
HCMX-OD08-D	8-channel digital output, supporting NPN output	-	√	
HCMX-OD08-D-PNP	8-channel digital output, supporting PNP output	-	√	
HCMX-OD16-D	16-channel digital output, supporting NPN output	√	√	
HCMX-OD16-D-PNP	16-channel digital output, supporting PNP output	√	√	
HCMX-OD32-D	32-channel digital output, supporting NPN output	-	√	
HCMX-OD32-D-PNP	32-channel digital output, supporting PNP output	-	√	

HCMX-MD16-D	16-channel digital mixed: 8-channel digital input (NPN/PNP), 8-channel digital output (NPN)	√	√	33
HCMX-MD16-D-PNP	16-channel digital mixed: 8-channel digital input (NPN/PNP), 8-channel digital output (PNP)	√	√	
HCMX-MD32-D	32-channel digital mixed: 16-channel digital input (NPN/PNP), 16-channel digital output (NPN)	-	√	
HCMX-MD32-D-PNP	32-channel digital mixed: 16-channel digital input (NPN/PNP), 16-channel digital output (PNP)	-	√	
HCMX-AD04-D	4-channel analog input, 16-bit resolution. Supporting modes: -10V~10V, -5V~5V, 0V~5V, 1V~5V, -20mA~20mA, 0mA~20mA, 4mA~20mA	√	√	34
HCMX-AD04S-D	4-channel analog input, 14-bit resolution. Supporting modes: -10V~10V, -5V~5V, 0V~5V, 1V~5V, -20mA~20mA, 0mA~20mA, 4mA~20mA	√	√	
HCMX-DA04-D	4-channel analog output, 16-bit resolution. Supporting modes: -10V~10V, 0V~10V, 0~20mA, 4mA~20mA	√	√	
HCMX-DA04S-D	4-channel analog output, 14-bit resolution. Supporting modes: -10V~10V, 0V~10V, 0~20mA, 4mA~20mA	√	√	

M-Series Programming Software

Name	Overview	Page
SysCtrl Studio	M-Series PLC programming software: Integrated multi-functional engineering debugging software tool	-