Coolmay®
Automation Expert

L02 Series Programmable Logic Controller (PLC)

Customize Your Automation Control System

Simple operation, Flexible, Cost-effective

Coolmay L02 series PLC is a high-function general-purpose controller specially designed for automation equipment. L02 series modules can be expanded up to 31 units.

Powerful positioning control function, can support up to 8 axis high-speed pulse control at the same time, suitable for various automation equipment, such as electronic manufacturing, labeling, food packaging, textile equipment and other industry equipment.

The L02 series host has a built-in communication network and communicates with the Ethernet/IP industrial network to realize high-speed data transmission.

Dial switch to set up IP, quickly build a network environment, built-in multiple sets of industry-specific functional modules, convenient for customer applications, and can set multiple password protection to improve system security.

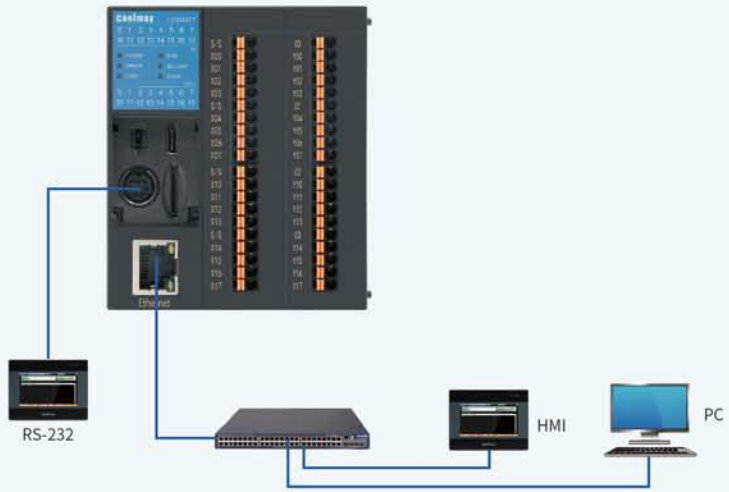
The snap-in buckle design allows the module to be replaced "straight up/down" for easy installation.

The appearance is simple and neat, the dark gray case is anti-fouling and anti-dirty, suitable for harsh industrial environments, and has the characteristics of recyclability, low pollution, and lead-free. It complies with international environmental protection regulations and the concept of resource reuse.

Catalog

L02 series host motion control system

- L02 series CPU supports up to 8 axis servo control, 6 groups of high-speed counter inputs
- Support digital, analog and temperature module expansion (max 31 units)
- Provide high-speed computing speed: the fastest execution speed of basic instructions can reach 0.35μs
- Provide multiple motion control commands such as position, speed, positioning and interpolation
- Built-in maximum 16DI/16DO, RS-232/RS-485*2, Ethernet and CAN interfaces



Integrated host design

- L02 host motion controller has built-in multiple I/O and communication interfaces, which can meet the market demand for compactness, high performance and high value

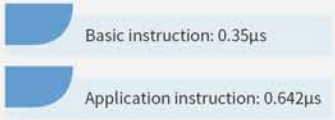
High efficiency computing power

- Super function. Compatible with FX3G/FX3U/FX3S series PLC, fast running speed.
- 32k program capacity, 32k retentive register, support positioning, interruption, linear arc interpolation, PID auto-tuning
- Special encryption, prohibit reading data

CPU performance is greatly improved

High-speed computing

- Maximum I/O:512 points
- Program capacity: 32k steps
- Data storage: 32k words
- Maximum expansion module: 31 units



Execution efficiency optimization

L02 series cycle scanning method

Program cycle scan mode

I/O update

L02 series update

Automatic address allocation, expansion module plug and play

Data is stored permanently, no battery required

Use permanent preservation, write to Flash instantly after power off

Power-off retention area, permanently maintained

When PLC is powered off	
PLC program area	Permanently maintained
Power-off retention area	Permanently maintained

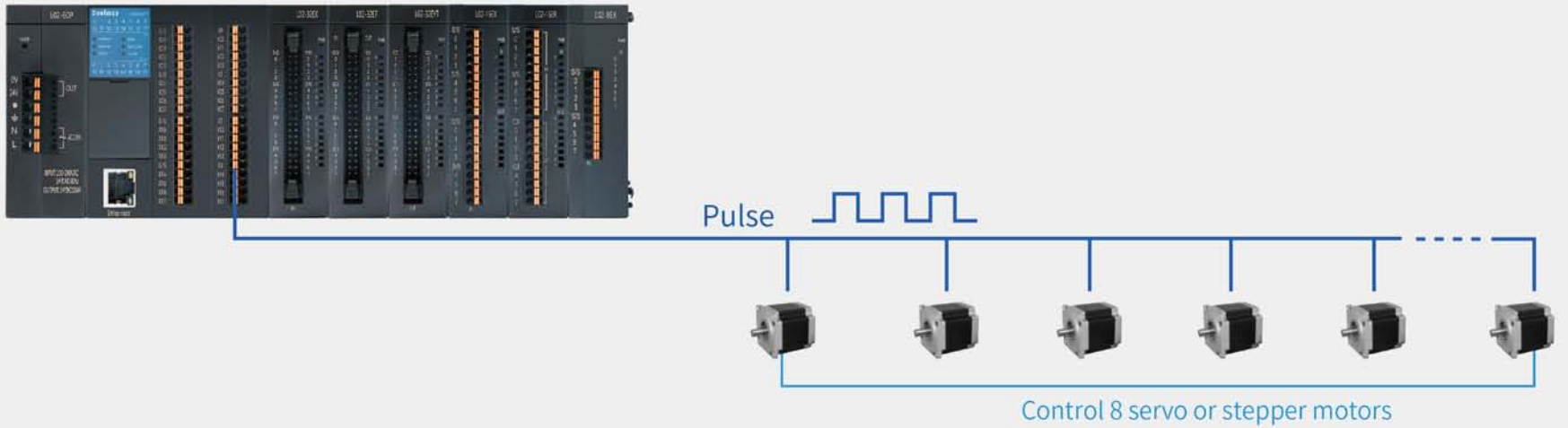
Perpetual calendar timing function, use general commercially available CR1620 batteries

Drawer type, can be installed by customers

Install commercially available

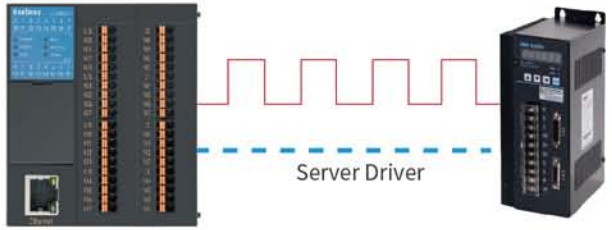
When PLC is powered off	
Perpetual calendar	Time keeping

Powerful axis control - positioning control solution



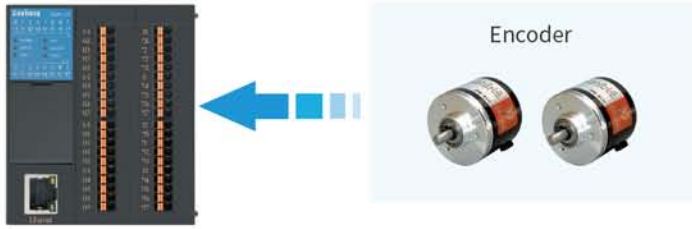
Positioning control, high-speed pulse

- L02M32T/L02M24T CPU: 8-axis(4-axis 200KHz+4-axis 100KHz)
- Support positioning, can quickly complete the support positioning function, up to 8 axes
- Specify Y0, Y1 for continuous interpolation; support Z axis (under development)
- The control of each axis is commanded, the PLC program is highly readable, and the maintenance is convenient



High-speed counter

- Real-time high-precision monitoring: 6 groups of 60 KHz
- Up to 6 external input interrupts



Easy installation

Design, easy to install

Space saving, most suitable for installation in mechanical equipment

No screwdriver required for installation

- Adopt press-type terminal wiring
- Screwdriver-free installation, convenient and fast installation

Easy installation

Open the white buckle, align the expansion interface and push the module directly in, press the white buckle at both ends to complete the installation

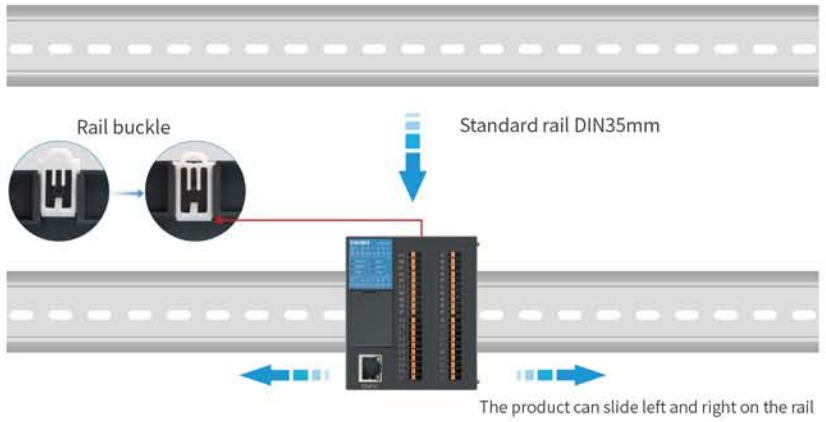
Arrange the modules neatly

Push the module in

Press the buckle

Rail installation method

The CPU module and the expansion modules can be directly installed on the standard rail DIN35mm without a backplane; press the rail buckle to directly lock the product on the rail

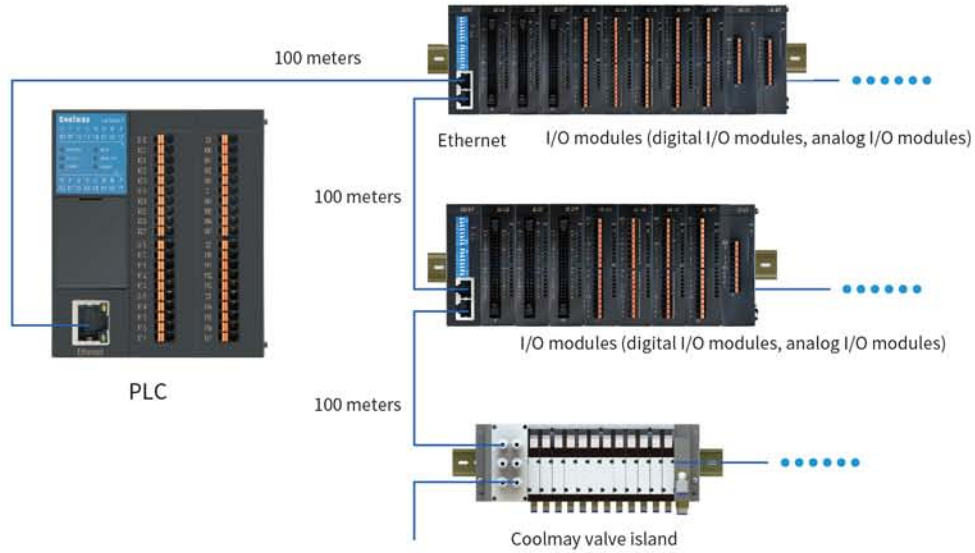


Put into the rail card slot, press the rail buckle, the installation is complete

Industrial network solution Ⅰ

Ethernet/IP solution

The communication bus protocol adopts the standard Ethernet/IP communication bus, which can easily realize barrier-free connection with Ethernet/IP PLC or industrial computer. The communication interface mode is 2 RJ45 Fast Ethernet interfaces, and the internal port switching function has been implemented, so multiple slave stations can be easily cascaded without adding a switch.



The module communication interface supports the Ethernet/IP bus protocol, conforms to the IEC61158 standard and GB/T25105 standard, and can realize the seamless connection of mainstream Ethernet/IP master stations

- Integrated dual-port switching function, convenient to achieve linear topology
- Use dial switch to set the IP address, 192.168.IP1.IP0, simple and convenient
- Adopt standard rail installation, fix with buckle

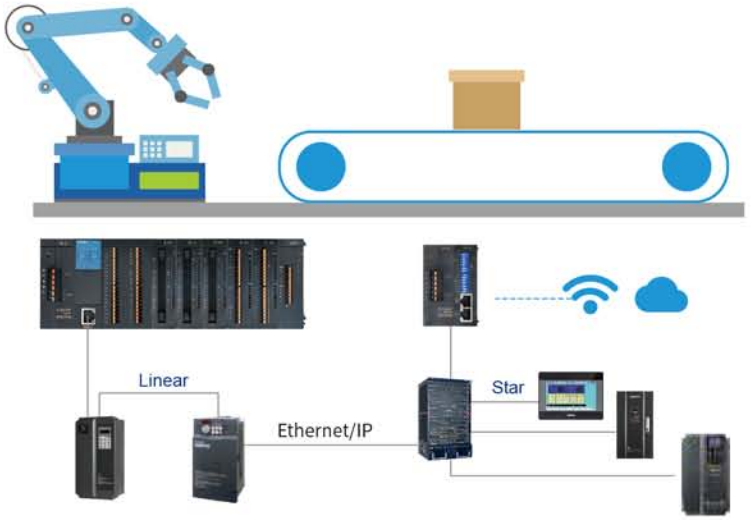
Technical specifications

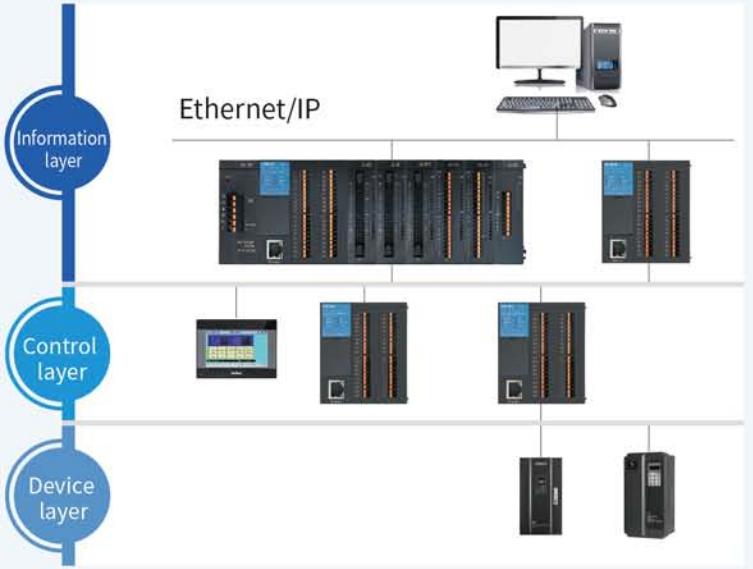
Communication bus		
Bus protocol	Ethernet/IP	
Connection method	RJ45	
Communication rate	100Mb/s	
Communication distance	100m（Station distance）	
Status, alarm, diagnosis		
Power status display	Green RUN LED	
Network port indication (Flashes when there is data exchange)	Green LINK1 light corresponds to LAN1	Green LINK2 light corresponds to LAN2

Industrial network solution II

Flexible network system construction

- Support star-shaped, linear network topology, can quickly expand and manage production lines
- Compatible with IT network, no need to cut the network or maintain by professional IT technicians





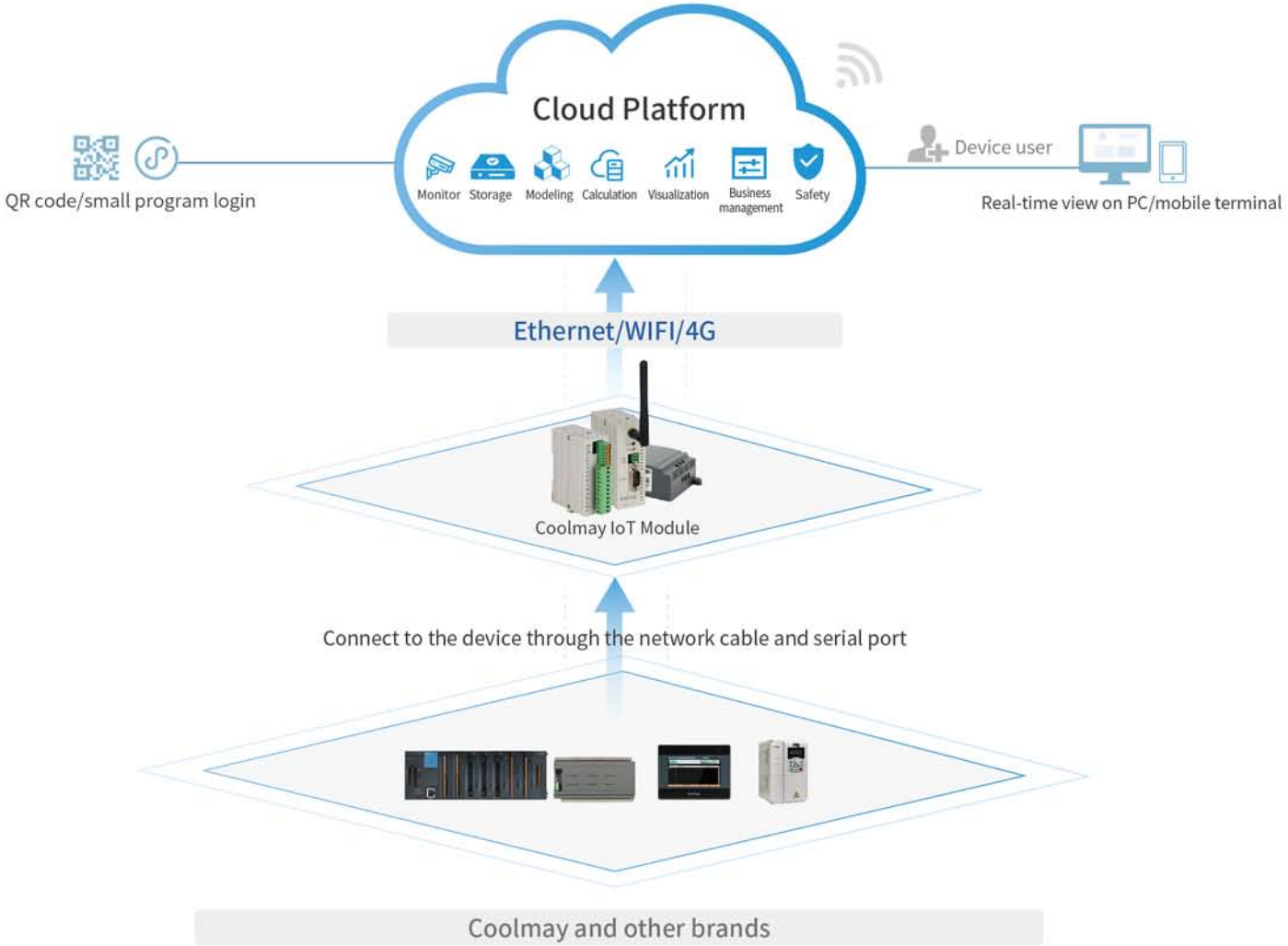
One cable, one network

- Coolmay's Ethernet/IP solution connects devices through network cables, simplifying wire material preparation and inventory.
- Replace the traditional three-tier industrial network architecture and seamlessly connect with 100 Mb/s high-speed network.

Cloud platform

Coolmay cloud service platform

The platform is an IoT system that can complete terminal device data collection, real-time control, alarm push, group management, configuration design, video monitor and other functions in one stop.



Serial communication solution

L02 series host

- Provide 2 RS-485, support Mitsubishi programming port protocol, Modbus networking protocol, Freeport protocol, Mitsubishi BD board protocol and N:N protocol, easily realize the interconnection between PLCs and the communication with external equipment such as man-machine interface and inverter .
- 1 CAN port， supports CAN2.0A, CAN2.0B, Modbus networking and Freeport protocols, which can easily realize multi-channel interconnection.
- 1 high-speed Ethernet interface, supports Mitsubishi programming port protocol, Modbus TCP/UDP protocol, Ethernet/IP protocol.

Multiple programming languages

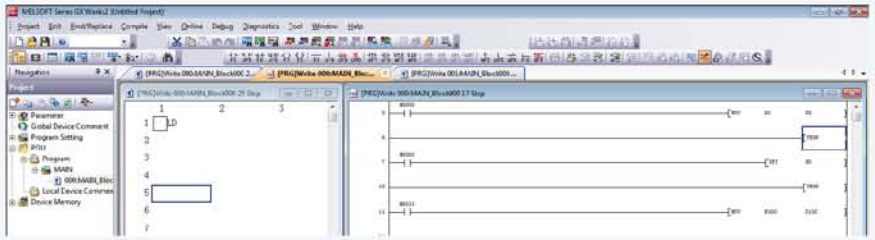
Various programming languages can be used together in the project

Ladder diagram(LD)

The most extensive ladder diagram is used, and an easy-to-use editing interface is provided to help users quickly create programs

Sequential function chart(SFC)

Express the actions of each stage in a flow chart, intuitive and easy to understand, suitable for applications that emphasize staged process control



Multiple safety protection functions Ensure the confidentiality of user program data

Safety - provide a variety of program protection functions, combined with the best application of security and performance

- The host is protected by 8 characters password
- The number of input errors is limited
- Protection function that prohibits uploading

Naming principle

Host module

L02M32R/L02M32T

L02	M	32	R，T
Series	General Controller Main Module	I/O points	Output type
		16DI 16DO	R：Relay output T：Transistor output

L02M24R/L02M24T

L02	M	24	R，T
Series	General Controller Main Module	I/O points	Output type
		12DI 12DO+4AD 4DA	R：Relay output T：Transistor output

Digital input module

L02-8EX/L02-16EX/L02-32EX

L02	8	EX
Series	I/O input points	Category/Input module
	8: 8 points 16:16 points 32: 32 points	

Digital output module

L02-8EYR/L02-8EYT/L02-16EYR /L02-16EYT/L02-32EYT

L02	8	EY	R，T
Series	I/O output points	Category/Output module	Output type
	8: 8 points 16:16 points 32: 32 points		R：Relay output T：Transistor output

Digital input/output module

L02-16ER/L02-16ET/L02-32ET

L02	16	E	R，T
Series	I/O points	Category/Input and output model	Output type
	16：8DI 8DO 32：16DI 16DO		R：Relay output T：Transistor output

Voltage and current analog module

L02-4AD/L02-4DA/L02-4AD2DA

L02	4	AD
Series	Analog channel	Type
	4 channels	AD: analog input DA: analog output xADxDA: analog input/output

Temperature and weighing module

L02-4RTD/L02-4TC/L02-4NTC/L02-2LC

L02	4	RTD
Series	Analog channel	Type
	4 channels	RTD: PT100/PT1000 TC: Thermocouple NTC: NTC10K/50K/100K LC: Weighing

Power module

L02-60P

L02	60P	
Series	Category	Function
	Power module	100-240VAC input /24VDC output

Ethernet/IP module

L02-EIP

L02	EIP	
Series	Category	Function
	Ethernet/IP module	RJ45*2, support Ethernet/IP protocol

Product model and specification

CPU host

L02M32T

L02M32R

L02M24T

L02M24R

L02 series host standard specifications			
Program capacity 32k steps	Basic command speed 0.35μs	Input and output I/O: Maximum 512 Expansion module: 31 units	
Type-C/RS-232/RS-485*2/ CAN/Ethernet	Micro SD Card	Ethernet/IP, Modbus, CAN, Remote I/O[*1]	
Model	**Built-in I/O**	**High-speed output**	**High-speed input**
L02M32T	16DI/16DO	4-axis 200 KHz+4-axis 100 KHz Pulse output	6 channels 60KHz High-speed counter
L02M32R	16DI/16DO	4-axis 200 KHz+4-axis 100 KHz Pulse output	6 channels 60KHz High-speed counter
L02M24T	12DI/12DO 4AI/4AO	4-axis 200 KHz+4-axis 100 KHz Pulse output	6 channels 60KHz High-speed counter
L02M24R	12DI/12DO 4AI/4AO	4-axis 200 KHz+4-axis 100 KHz Pulse output	6 channels 60KHz High-speed counter

Power module L02-60P	
	Input 100-240VAC
	Output 24VDC,0.5A

Product specification

Model		L02M32T	L02M32R	L02M24T	L02M24R
programming language		Ladder diagram(LD)	Instruction list		Sequential function chart(SFC)
Command processing speed	Basic instruction (LD)	0.35μs			
	Application instruction	0.642μs			
Program capacity		32k steps			
Storage capacity	Date (D)	[D0~D127] 128points General / [D128~D7999] 7872points Retentive / [D8000~D8511] 512points Special			
	Expansion (R)	[R0~R22999] 23000points Support power-down retention / [R23000~R23999] 1000points Internal use			
Expansion model		Max limit of 31 units: max 12 analog input/output respectively			
Max I/O		FX3U mode: 512 points; FX3G mode: 256 points (the sum of input and output points)			
CPU Digital I/O		16DI / 16DO		12DI / 12DO	
CPU analog I/O		-		4AD/4DA	
I/O	X	256 points(X0 ~ X377)			
	Y	256 points(Y0 ~ Y377)			
Bit device	M	[M0~M383] 384points General / [M384~M1535] 1152points Retentive / [M1536~M7679] 6144points General			
		[M8000~M8511] 512points Special			
	S	[S0-S9] 10points Initial state/ [S10~S999] 990points Retentive/ [S1000~S4095] 3096points General			
Timer T		[T0~T199] 200points 100ms General / [[T250~T255] 6points 100ms Retentive			
		[T246~T249] 4points 1ms cumulative Retentive / [T256~T319] 64points 1ms General			
		[T200~T245] 46points 10ms General ※The 10ms timer is affected by the scan period. If the scan period is 12ms, the timer becomes 12ms and executes once.			
16-bit counter C		[C0~C15] 16points General			
		[C16~C199] 184points Retentive			
32-bit counter C		[C200~C219] 20points General		[C220~C234] 15points Retentive	
		[C235~C245 Single phase single counting] [C246~C250 Single phase double counting] [C251~C255 Two-phase double counting			
High-speed pulse		4-axis 200KHz+4-axis 100KHz			
High-speed counter		6 channels 60KHz			
DO type		L02M32T/L02M24T: Transistor output, load maximum 500mA, low level NPN, COM connected to negative L02M32R/L02M24R: Relay output, load maximum 2A, dry contact, COM can be connected to positive or negative			
Default COM		Type-C, RS-232, RS-485*2, Ethernet, CAN			
Protocol		Mitsubishi programming port Modbus RTU, Modbus TCP, Modbus UDP, freeport protocol, CAN, Ethernet/IP, Mitsubishi BD board			

Product specification

Model		L02M32T	L02M32R	L02M24T	L02M24R
Data backup functionNo battery storage	Program	Flash ROM			
	Retentive area	MRAM has no write limit			
Calendar(RTC)		Commercially available batteries CR1620 (optional)			
Self-diagnosis		CPU abnormalities, internal memory problems, etc.			
Rated input voltage	Host	24 VDC(±10%)			
	Expansion module				

Electrical and environmental specifications

Item		Specification
Internal current consumption	Host	150 mA
	Expansion module	Relay output <150 mA, other modules <80 mA
Operating temperature		0 ~ 50 °C
Storage temperature		-20 ~ 70 °C
Operating humidity		5 ~ 95%，no condensation
Storage humidity		5 ~ 95%，no condensation
Vibration resistant		Comply with international standards, IEC61131-2, IEC60068-2-6 (TESTFc), Sinusoidal 5-8.4 Hz 3.5 mm displacement, 8.4-150 Hz 1 G acceleration
Shock proof		Comply with international standard specification IEC61131-2IEC60068-2-27 (TESTEa) half sine 15 g peak, 11 ms duration
working environment		No corrosive gas exists
Installation location		Inside the control box
Pollution level		2

L02 series DIO module

Digital input module



8 points	16 points	32 points
Quick wiring terminal block	Quick wiring terminal block	High density horn block terminal block
L02-8EX	L02-16EX	L02-32EX

Rated input voltage 5~24VDC

Reaction time 1 ms

Filter function 1~20 ms

Digital input/output module



16 points	16 points	32 points
Quick wiring terminal block 8 points input 8 points transistor output	Quick wiring terminal block 8 points input 8 points transistor output	High density horn block terminal block 16 points input 16 points transistor output
L02-16ET	L02-16ER	L02-32ET

Reaction time

1ms (Transistor)

10ms (Relay)

Digital output module





8 points	8 points	16 points	16 points	32 points
Quick wiring terminal block Transistor output	Quick wiring terminal block Relay output	Quick wiring terminal block Transistor output	Quick wiring terminal block Relay output	High density horn block terminal block Transistor output
L02-8EYT	L02-8EYR	L02-16EYT	L02-16EYR	L02-32EYT

L02 series AIO module

Analog input module

4 points
Analog input
L02-4AD

Analog output module

4 points
Analog output
L02-4DA

Analog input/output module

4/2 points
Analog input/ output
L02-4AD2DA

Temperature analog module



4 points	4 points	4 points
Temperature transducer /PT100/PT1000	Temperature transducer/ Thermocouple	Temperature transducer/ Thermistor
L02-4RTD	L02-4TC	L02-4NTC

Weighing module

2 points
Weighing module
L02-2LC

Basic function	
50/60Hz filter	High-speed dynamic weighing
Dual channel independent sampling	Rated weight 0.4%
2 sets of channels	4-wire Load Cell

Power module

Power module
L02-60P

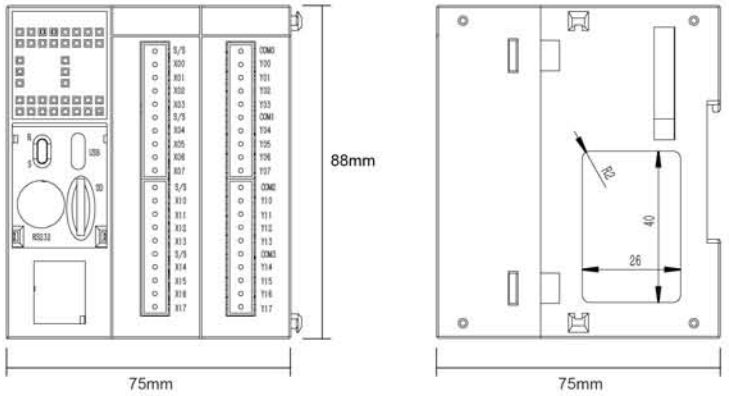
Ethernet/IP module

Ethernet/IP module
L02-EIP

Dimension

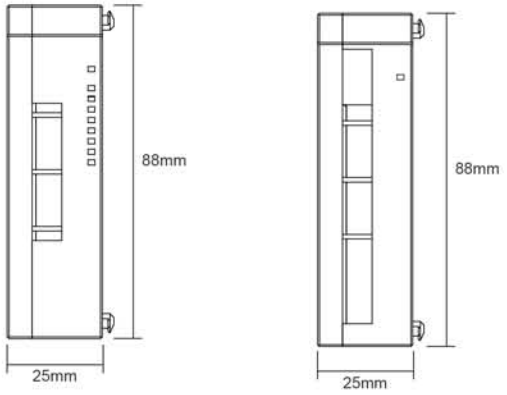
Host module

L02M32T,L02M32R,L02M24T,L02M24R



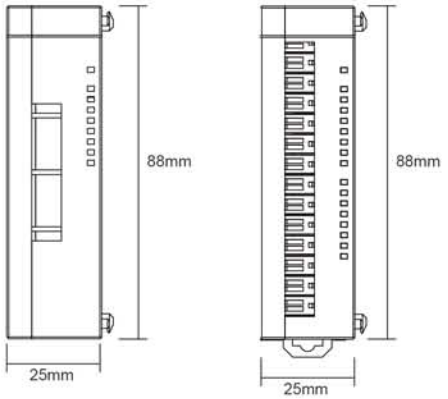
A/O module

L02-4AD,L02-4DA,L02-4AD2DA
L02-4RTD,L02-4TC,L02-4NTC,L02-2LC



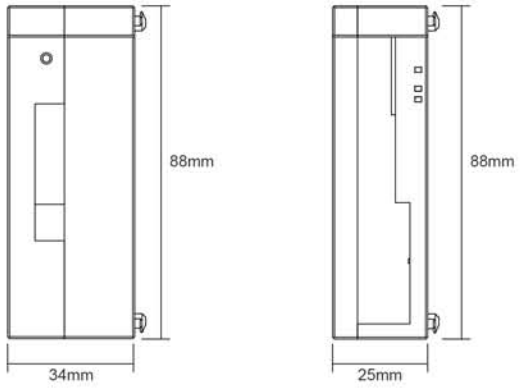
DIO module

L02-8EX,L02-16EX,L02-32EX
L02-16ET,L02-16ER,L02-32ET
L02-8EYT,L02-8EYR,L02-16EYT,L02-16EYR,L02-32EYT



Power module　Ethernet/IP module

L02-60P
L02-EIP



Order guide

CPU module

Name	Model	Program capacity	Max I/O points/ expansion module	I/O	DO Type	AIO Type	High-speed counter	High-speed pulse	Default COM	Memory card	Terminal block
CPU Module	L02M32T	32K steps	512 points/31 sets	16DI/16DO	Transistor	-	6 channels 60KHz	4-axis 200KHz+4-axis 100KHz (Y4～Y7 pulse total transmis-sion does not exceed 200KHz)	Type-C RS-232 RS-485*2 Ethernet CAN Free	Micro SD max32G	Press
	L02M32R				Relay	-					
	L02M24T			12DI/12DO 4AI/4AO	Transistor	2V2A					Press
	L02M24R				Relay						

DIO module

Input module

L02 series	Model	Digital input	Digital output	DO type	Input signal	Terminal block
	L02-8EX	8	NULL	NULL	5~24V	Press
	L02-16EX	16	NULL	NULL	5~24V	Press
	L02-32EX	32	NULL	NULL	5~24V	horn block terminal

Input/output module

L02 series	Model	Digital input	Digital output	DO type	Input signal	Terminal block
	L02-16ET	8	8	Transistor	5~24V	Press
	L02-16ER	8	8	Relay	5~24V	Press
	L02-32ET	16	16	Transistor	5~24V	horn block terminal

Output module

L02 series	Model	Digital input	Digital output	DO type	Input signal	Terminal block
	L02-8EYT	-	8	Transistor	NULL	Press
	L02-8EYR	-	8	Relay	NULL	Press
	L02-16EYT	-	16	Transistor	NULL	Press
	L02-16EYR	-	16	Relay	NULL	Press
	L02-32EYT	-	32	Transistor	NULL	horn block terminal

AIO module

L02 series	Model	Type	Analog input	Analog output	Resolution	Analog type (optional)	Terminal block
Analog input module	L02-4AD	AD	4	0	0.15mV 0.15mV 0.3mV 0.3mV 0.6uA 0.5uA 0.6uA	0~5V -5~5V 0~10V -10~10V 0~20mA 4~20mA -20~20mA	Press
Analog output module	L02-4DA	DA	0	4	0.15mV 0.3mV 0.6uA 0.5uA	0~5V 0~10V 0~20mA 4~20mA	Press
Analog input/ output module	L02-4AD2DA	AD	4	0	0.15mV 0.15mV 0.3mV 0.3mV 0.6uA 0.5uA 0.6uA	0~5V -5~5V 0~10V -10~10V 0~20mA 4~20mA -20~20mA	Press
		DA	0	2	0.15mV 0.3mV 0.6uA 0.5uA	0~5V 0~10V 0~20mA 4~20mA	Press
Temperature analog module	L02-4RTD	AD	4	0	0.1℃	PT100 PT1000	Press
	L02-4TC	AD	4	0	0.1℃	Type J/K/S/T/E thermocouple	Press
	L02-4NTC	AD	4	0	0.1℃	NTC 10K/50K/100K	Press
Weighing module	L02-2LC	AD	2	0	24bit	-	Press

Power module

Name	Model	Input	Output	Safety standard
Power module	L02-60P	100-240VAC 1A MAX60Hz	24VDC 0.5A	CE/UL

Ethernet/IP module

Name	Model	Specification
Ethernet/IP module	L02-EIP	
		The communication interface is 2 RJ45 100M Ethernet interfaces, the port has built-in switch function, which can easily realize the cascading of multiple slave stations and supports the Ethernet/IP protocol

Serve our customers wholeheartedly

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