

Industrial Automation Trusted Provider

Programmable Logic Controller

 Intelligent Control
Product Manuals

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ABOUT NIETZ

Nietz Electric Co., Ltd. is located in Shanghai, China. It is a high-tech enterprise focusing on the research and development, manufacturing and sales of PLC and industrial automation control. It has a modern factory building of 27,000m2 and is one of the most powerful global suppliers of industrial automation equipment.

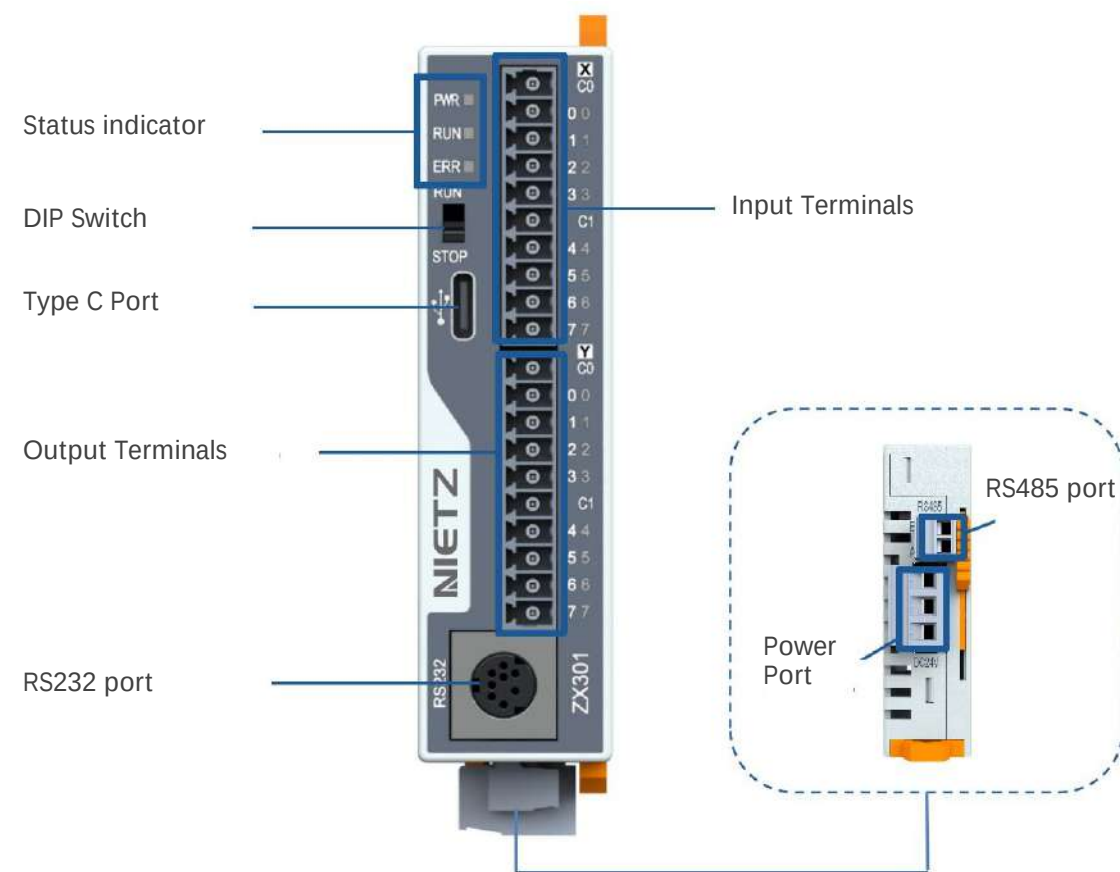
Since its establishment, the company has always taken technological innovation as its core driving force and has been deeply involved in the field of industrial control. At present, it has formed a complete product system covering simple PLC, operation and control PLC, bus PLC and coupler, IO module and functional module. Among them , PLC products adopt modular design, integrate high-speed computing, multi-axis control, network communication and other functions, support Modbus, CANopen and other industrial protocols, and can accurately realize complex logic control and data interaction. With the advantages of stable performance and strong compatibility, the company's solutions are widely used in intelligent transformation of automated production lines, intelligent warehousing and logistics, energy and environmental protection equipment, as well as special equipment such as printing equipment and textile machinery. With the vision of "becoming a leader in industrial automation", the company continues to provide manufacturing customers with integrated industrial control solutions from hardware to software to promote the automation and digital upgrade of the industry.



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ZX300 series PLC



Products Feature

ZX300 series PLC is a small PLC system. Its design is compatible with Mitsubishi FX3U series, self-developed Zx Works programming system, supports ladder diagram and pulse instruction programming, and is mainly used for general logic control. It cooperates with our frequency conversion and pulse servo to realize logic control and simple motion control. It supports modbus RTU communication mode, and can connect sensors, frequency conversion and other slave stations through modbus bus protocol, and can realize data interaction with HMI.

Advantage

Diversified function control

- The host supports up to 4 high-speed pulse outputs, 3 single-phase high-speed counting inputs or 2 AB phase high-speed counting inputs

Rich instruction set

- 64K program storage unit and 4K power-off retention data, meeting most logic control requirements
- RS232 communication port: supports Modbus RTU master-slave communication; supports downloading and monitoring user programs
- RS485 communication port: support Modbus RTU master-slave communication
- USB communication port: support Type C to download monitoring program

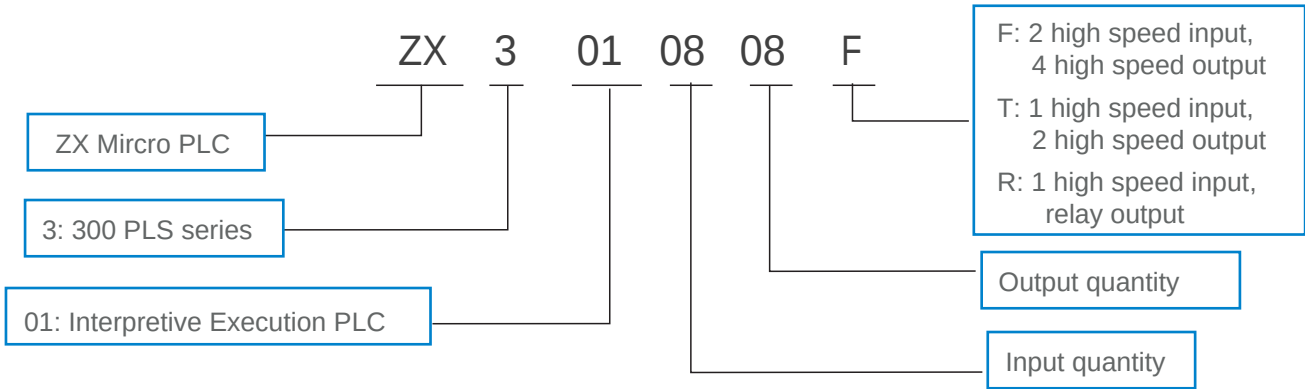
Rich instruction set

- Self-developed programming environment ZxWorks, easy to use and convenient to program
- Compatible with Mitsubishi programming software, enabling seamless program transfer

PLC Model

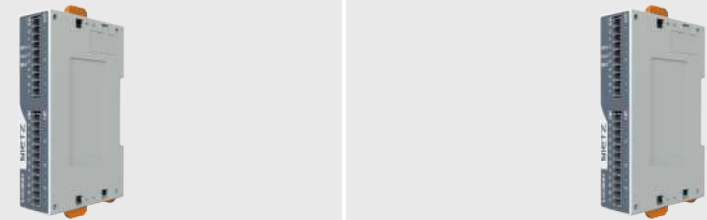
Model	ZX301-0806T	ZX301-0808T	ZX301-0806R	ZX301-0808F
Product image				
Input Power	DC24V±10%, maximum 4A, typical 2.4A Support short circuit/reverse connection protection, no external UPS required			
Data/storage capacity	64K program capacity with 4K retentive data memory			
Instruction processing speed	0.065us			
High-speed counting	Single-ended 3-channel high-speed counting (100K) or AB phase 2-channel high-speed counting (100K)			
Input and Output	The main unit has 8 inputs and 6 outputs (including high-speed input and output)	The main unit has 8 inputs and 8 outputs (including high-speed input and output)	The main body has 8 inputs and 6 relay outputs (including high-speed input)	The main body has 8 inputs and 8 relay outputs (including high-speed input)
Pulse output	2 high-speed outputs (100K)		Replay output	4 high-speed outputs (100K)
Program execution mode	Cyclic scanning, parsing and execution			
Power-off retention	1S			
Communication	1 way RS232; 1 way RS485			
RUN/STOP	Supports PLC RUN/STOP Control			
Expansion Modules	E10 series (Directly connect to PLC, max 1 unit) X10 series (Modbus connect to PLC, max. 12 units)			
Prog. SoftWare	Zx Works, Mitsubishi Gx Works2			

Products Code



Expasion Modules

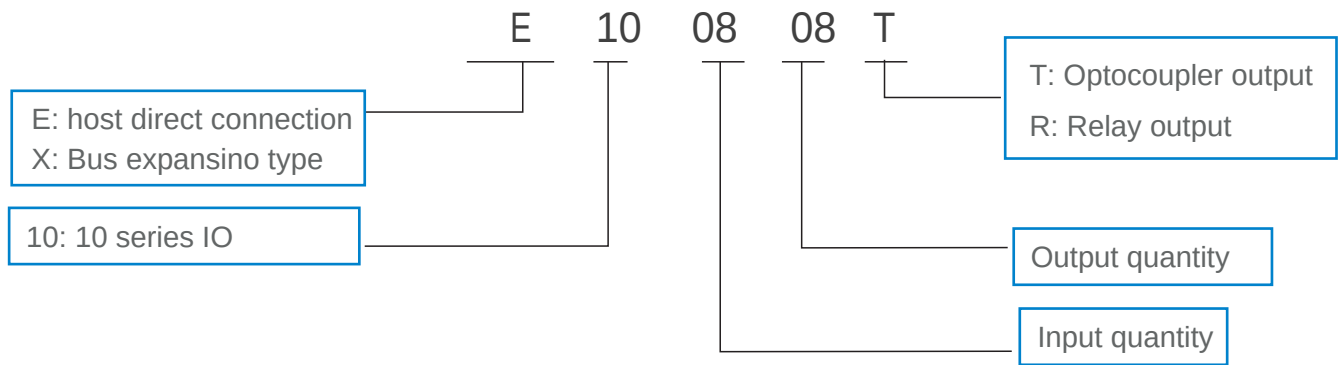
Host direct connection

Model	E10-0808T	E10-0808R
Product image		
Description Interface	8-channel DI and 8-channel DO/ NPN open-drain output	8-way DI and 8-way relay/4 groups
Parameter Description	Isolation method: Optocoupler isolation Rated voltage: 24VDC+20% Current consumption: Single point maxi. 0.3A	Isolation method: optocoupler/relay isolation Rated voltage: 24VDC+20% Current consumption: Single point maxi. 0.3A

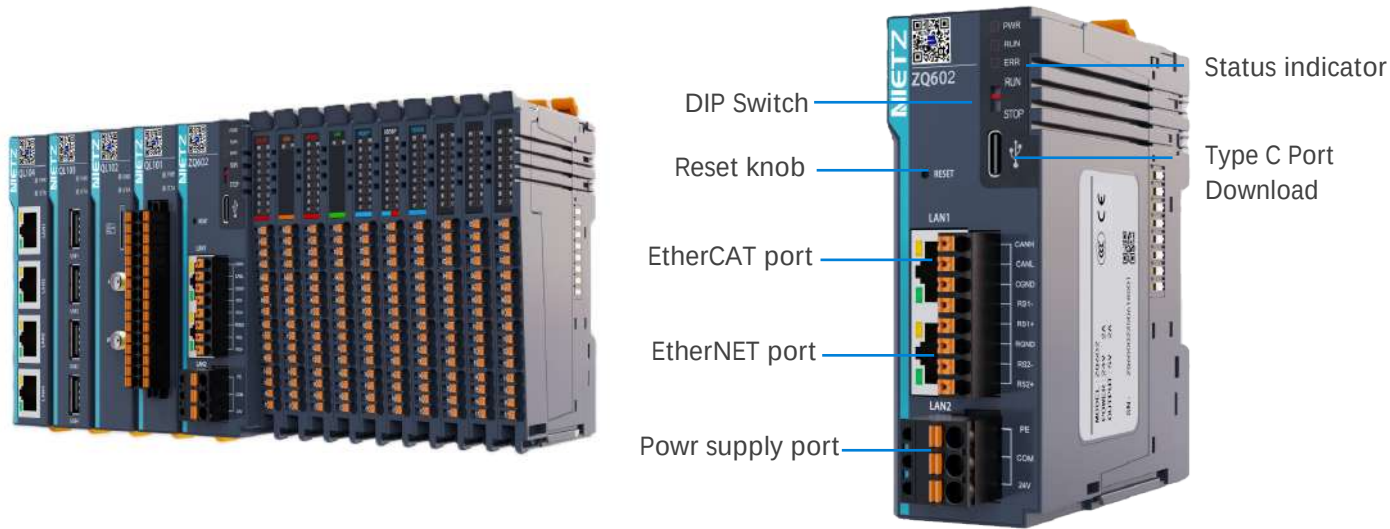
Bus expansion type

Model	X10-0808T	X10-0808R	X10-0402A	X10-4PT	X10-4TC
Product image					
Interface	8-channel DI and 8-channel DO/NPN open-drain output	8-way DI and 8-way relay/4 groups	2-way AO, 4-way A1	4-channel/2-wire thermal resistance acquisition	4-channel/2-wire thermocouple acquisition
Parameter Description	Isolation method: Optocoupler Rated voltage: 24VDC±20% Current consumption: Single point maxi. 0.3A	Isolation method: Optocoupler / Relay isolation Rated voltage: 24VDC±20% Current consumption: Single point max.5A	Input: 0~10V, 4~20mA Input accuracy: 12 bits ±5 % Output: 0~10V, 4~20mA Output accuracy: 16 bits ±5 %	Pt100,Pt500, Pt1000,Cu100, KTY84-130, NTC5K,NTC10K	Thermocouple type: B, E, N, J, K, R, S, T

Expansion Module Code



ZQ600 series PLC



Model		ZQ601	ZQ602
Input Power		DC24V±10%, maximum 4A, typical 2.4A, supports short circuit/reverse connection protection, no external UPS required	
Memory		4G	
Data/storage capacity		128M program capacity, 128M data capacity (1M power-off retention space)	
Communication specifications	EtehrCAT	1 channel, support expansion	
	Modbus RTU	2 channels	
	CAN communication	The main unit has 1 CAN channel (maximum 8 slaves), supporting CANopen and CAN free protocols	
	USB communication	Support	
EtherCAT Communication	EtherCAT Axes	Max. 16 axis	Max. 32 axis
	EtherCAT slaves	Support up to 256	
	Communication cycle	1ms 4-axis synchronization	1ms 8-axis synchronization
ProfiNET Communication		Support ProfiNET master-slave	
Scalability	Right expansino	The main unit supports 32 QY20 series blade modules	
	Left expansion	EtherCAT redundancy, EtherCAT splitter, 4-way routing, high-speed pulse, 4g/5g, remote debugging/monitoring, MQTT cloud, EtherCAT slave and other functions	
	Remote expansion	Support EtherCAT and/EtherNet/IP/ProfNET/ModbusTCP/CAN distributed expansion	
RUN/STOP		PLC stop/run can be realized	
RESET	Factory Reset	Support	
Programmin language		IEC61131-3	

Products Feature

ZQ600 series is a high-performance medium-sized PLC. Its design and development fully complies with PLC open specifications and IEC 61131-3 standards, supports programming languages such as ST, LD, SFC, CFC, etc., and has the advantages of strong CPU performance, table and reliable software and hardware system design, rich expansion capabilities, small size, modularization, etc. It is mainly used in motion control scenarios and complex production line networking scenarios, especially suitable for multi-channel servo control, multi-bus protocol integration and other scenarios.

Advantage

Powerful software and hardware configuration

- Dual-core processor, 1.4GHz main frequency, nanosecond instruction processing speed
- 128M Byte program capacity, 128M Byte data capacity (1M Byte supports power-off retention variables and 64K M device power-off retention)
- The main unit can be expanded to 32 QY20 series IO modules, supporting DI, DO, AD, DA, PT, and TC. Data can be saved even when power is off without the need for an external UPS module.

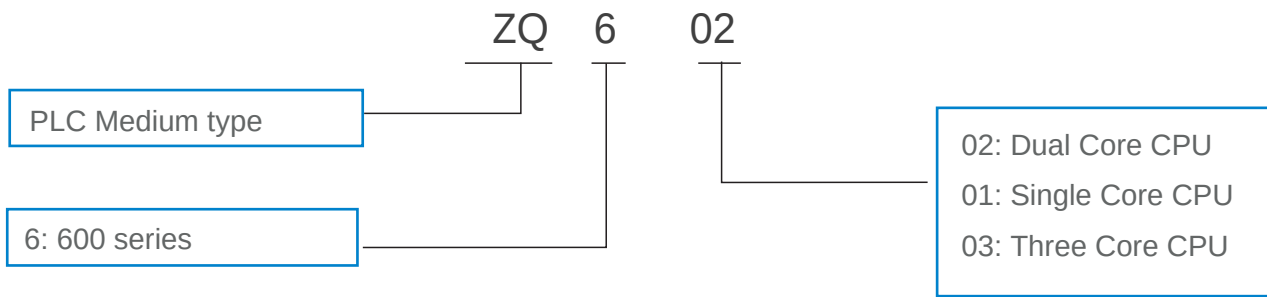
Rich communication interfaces

- Supports two Ethernet ports, LAN1 supports configuration as EtherCAT; EtherCAT supports up to 32 axis control and can connect 256 EtherCAT slaves. LAN2 supports ProfiNET master, LAN1 and LAN2 both support 63 Modbus TCP slaves and 16 OPC UA session (client) connections; LAN1 and LAN2 both support EtherNET/IP master and slave
- Supports 2-way RS485 communication (both master and slave modes), 1-way CAN communication, and supports 127 slaves when used as a CANopen master; supports CAN free protocol
- Support USB download monitoring program and firmware upgrade function

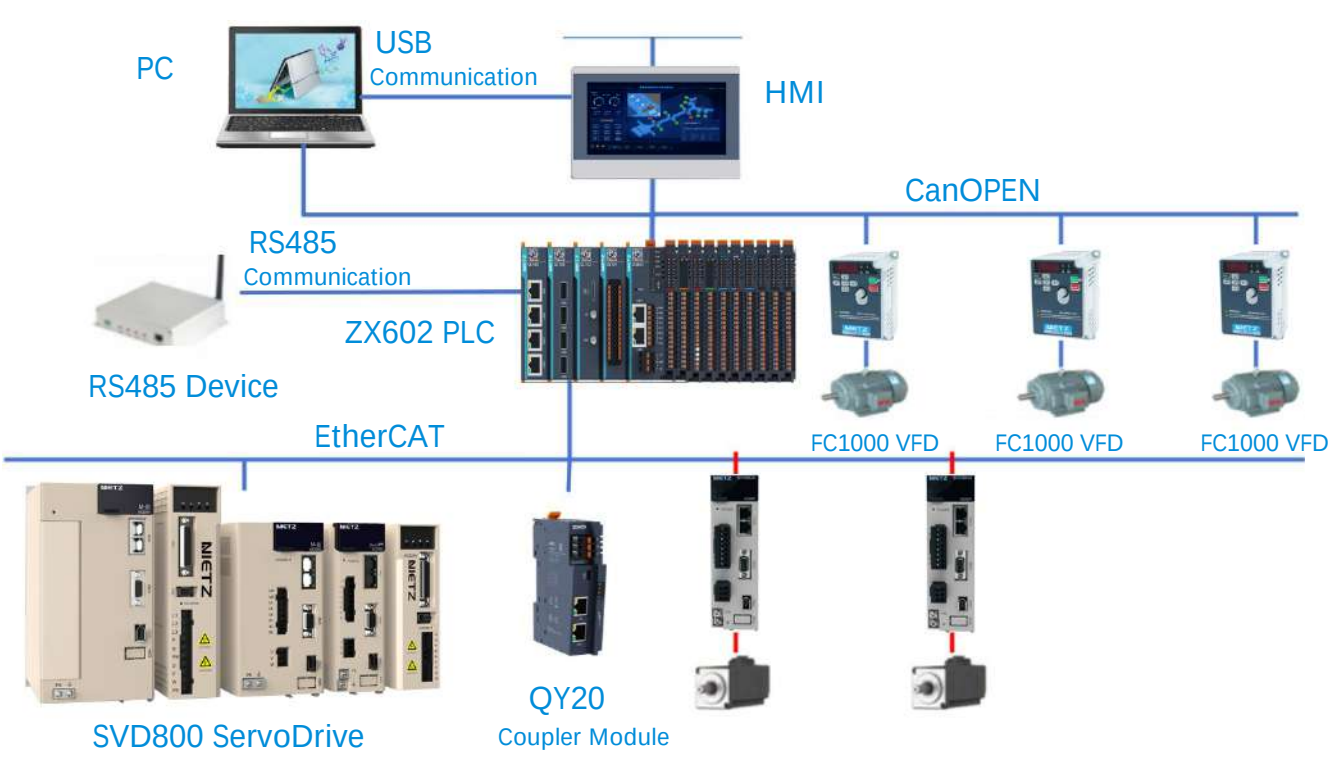
Flexible and comprehensive performance

- 1ms cycle 8-axis synchronous control supports up to 64 axes
- The entire series supports EtherCAT linear, star, and ring network topologies. Through expansion modules, branch integration can be achieved

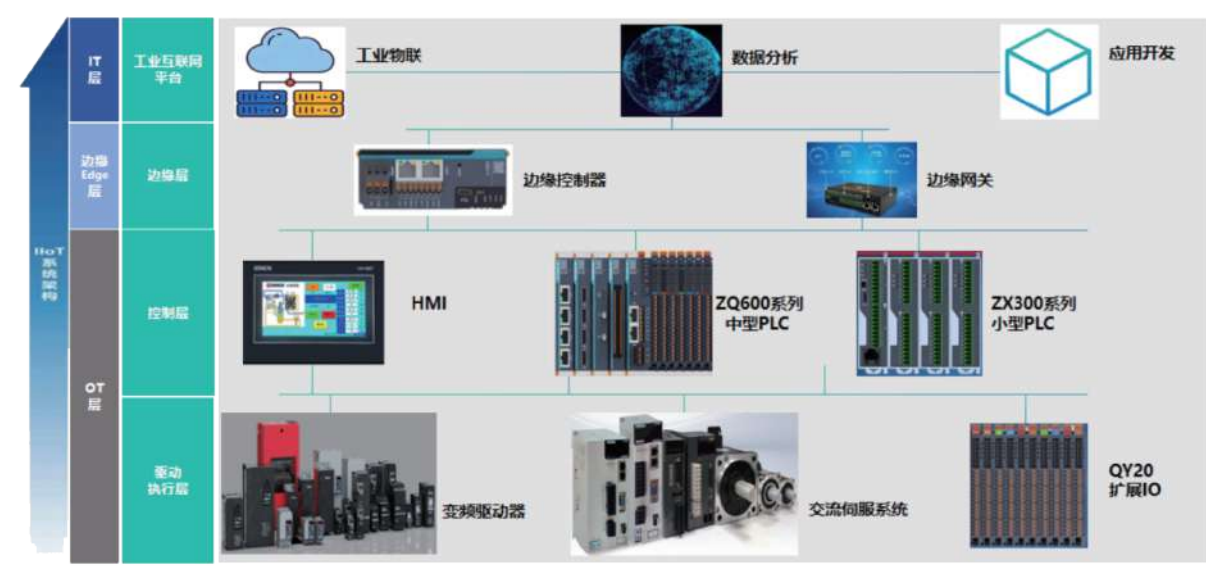
PLC Code



ZQ600 series PLC



The ZQ600 Series PLC supports multiple fieldbuses, enabling comprehensive expansion connectivity. Its conventional architecture diagram is shown below



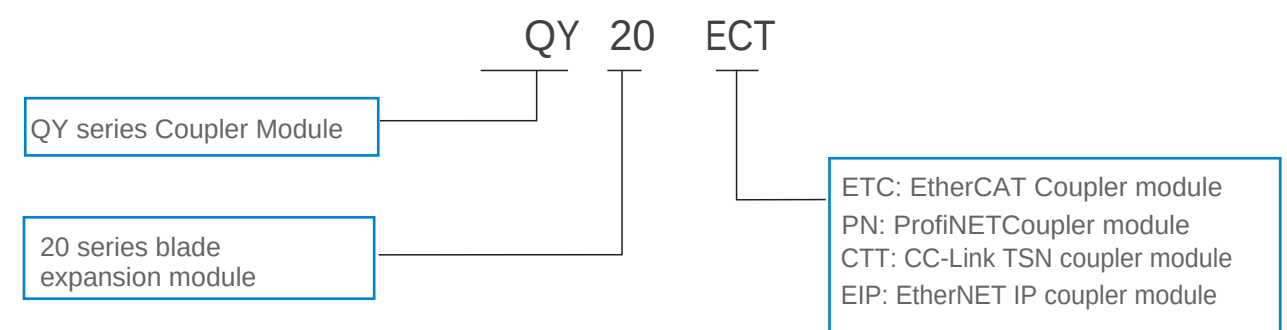
Use ladder diagrams, function blocks and ST language that comply with IEC61131-3/PLC open standards to effectively reduce project development time and improve project development efficiency.

Coupler Module



Model	QY20-ECT	QY20-PN	QY20-CCT	QY20-EIP
Product image				
Protocol	EtherCAT	ProfiNET	CC-Link IE TSN	EtherNET IP
Supported IO number	32			
Input Power	DC24V±10%,0.5A			
Output	5V 2A			
Works Temp.	-20℃~55℃			
Ptoteective class	IP20			

Expansion Module Code



QY20 Coupler Module

The QY20 series plug-in I/O modules are composed of a coupler module, an I/O function module, a relay power supply module and a cover. The I/O function module is divided into various types and function modules with various points, such as digital quantity, analog quantity, pulse output, encoder, temperature, etc. Customers can match them according to on-site needs. It supports mainstream communication protocols such as EtherCAT, PROFINET, CC-Link-TSN, and is widely used in various bus applications.

Advantage

Thin and light insert

- Plug-in module design, the coupler is as thin as 24mm; a single module is as thin as 12mm

Rich types

- I/O expansion modules of various types and points, including digital, analog, pulse output, encoder, temperature, etc.

Easy to install

- The snap-on rail structure is easy to disassemble and maintain; the screw-free terminal blocks reduce wiring time, improve installation efficiency, and allow for easy expansion. Each coupler can support up to 32 I/O modules; the three-stage structure design and detachable terminals can be quickly replaced without reinstalling the cables; easy for later maintenance
- One-click upgrade of coupler and module firmware via Type-C connection

High speed response

- Transmission speed can reach 100Mbps (full duplex), the shortest communication cycle can reach 500us, high-precision distributed clock, precise synchronization (jitter<1 us) high-speed backplane bus, fast response.

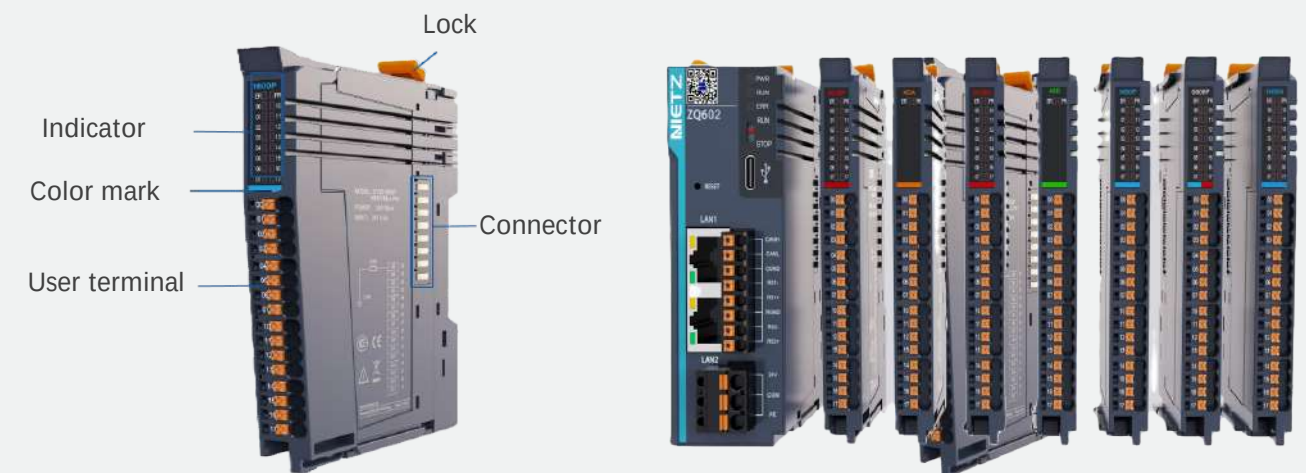
Various protections

- Power input (coupler, relay power module, etc.) has reverse connection protection, digital output (transistor type), analog output (voltage, current), short circuit protection function

Mainstream protocols

- Supports a variety of mainstream bus communication protocols, easily connects to EtherCAT, PROFINET, CCLink-TSN, EtherNet/IP and other field buses<

QY20 IO Module



The QY20 series IO expansion module adopts a plug-in structure. Through the high-speed backplane bus, it can realize the IO expansion of EtherCAT, ProfiNET, EtherNet/IP, CC-Link TSN and other protocols, or directly expand to the right side of the ZQ600 series PLC to realize the expansion of the PLC; including digital input and output, analog input and output, temperature acquisition, high-speed input and output processing modules.

Advantage

Rich types

- The extended IO module has rich functions. The IO module includes digital quantity, analog quantity, temperature, pressure, pulse and other types. It can be flexibly combined and expanded and can be applied to different occasions.
- Support error diagnosis, the adapter is marked with an error indicator light, and each module also supports fault alarm function, making detection and maintenance simple and convenient.
- The type of I/O can be quickly identified by the color of each module's faceplate

Easy to install

- The snap-on rail structure is easy to disassemble and maintain; the screw-free terminal blocks reduce wiring time, improve installation efficiency, and allow for easy expansion. Each coupler can support up to 32 I/O modules; the three-stage structure design and detachable terminals can be quickly replaced without reinstalling the cables; easy for later maintenance
- One-click upgrade of coupler and module firmware via Type-C connection

High speed response

- High-speed backplane bus, fast response

How to Order

Code	Model	Destription
45.02.0006	QY20-0016P	16 ways digital output module, PNP
45.02.0004	QY20-0016N	16 ways digital output module, NPN
45.02.0003	QY20-1600P	16 ways digital input module, PNP
45.02.0005	QY20-1600N	16 ways digital input module, NPN
45.02.0013	QY20-0808P	8 ways digital input+8 ways digital output, PNP
45.02.0019	QY20-0808N	8 ways digital input+8 ways digital output, NPN
45.02.0008	QY20-4AD	4 ways analog input module, $\pm 10V/0\sim 10V/\pm 5V/0\sim 5V/1\sim 5V/0\sim 20mA/4\sim 20mA$
45.02.0009	QY20-4DA	4 ways analog output module, $10V/0\sim 10V/5V/0\sim 5V/1\sim 5V/0\sim 20mA/4\sim 20mA$
45.02.0014	QY20-8AI	8 ways digital input module high precision current type, $0\sim 20mA/4\sim 20mA$
45.02.0011	QY20-8AV	8 ways digital input module high precision voltage type, $\pm 10V/0\sim 10V/\pm 5V/0\sim 5V/1\sim 5V$
45.02.0012	QY20-8AI-L	8 ways digital input module low precession current type, $0\sim 20mA/4\sim 20mA$
45.02.0021	QY20-8AV-L	8 ways digital input module high precession voltage type, $0\sim 10V/0\sim 5V/1\sim 5V$
45.02.0015	QY20-4PT	4 ways thermal resistor temp. detect module
45.02.0016	QY20-4TC	4 ways thermocouple
45.02.0017	QY20-2HC	2 ways encoder high speed count module, 5V
45.02.0018	QY20-4PO	4 ways pulse output module, 5V
45.02.0022	QY20-PS	Power module

Digital output modules

Model	QY20-0016P	QY20-0016N
Product image		
Interface	16 ways PNP digital output	16 ways NPN digital output
Input power	24V DC ($\pm 20\%$) 30mA	
Output characteristics	Single channel 500mA, resistive load, inductive load, lamp load	
Operating temperature	$-10^{\circ}\text{C} \sim 80^{\circ}\text{C}$	
Protection level	IP20	

Digital input modules

Model	QY20-1600P	QY20-1600N
Product image		
Interface	16-channel PNP digital input	16 ways NPN digital input
Input power	24V DC ($\pm 20\%$) 30mA	
Output characteristics	24V 500mA Input 1 logic: 15V~26V Input 0 logic: 0V~3V	
Operating temperature	$-10^{\circ}\text{C} \sim 80^{\circ}\text{C}$	
Protection level	IP20	

QY20 IO Module

Analog input and output modules

Model	QY20-4AD	QY20-4DA
Product image		
Interface	4 ways analog input	4 ways analog output
Input power	24V DC ($\pm 20\%$) 30mA	
Output characteristics	$-10V\sim 10V/0\sim 20mA$ (range can be adjusted)	
Operating temperature	$-10^{\circ}\text{C} \sim 80^{\circ}\text{C}$	
Protection level	IP20	

Digital input & output module

Model	QY20-0808P	QY20-0808N
Product image		
Interface	8-channel PNP digital input 8-channel PNP digital output	8-channel NPN digital input 8-channel NPN digital output
Input power	24V DC ($\pm 20\%$) 30mA	
Input characteristics	24V 500mA Input 1 logic: 15V~26V Input 0 logic: 0V~3V	
Output characteristics	Single channel 500mA, resistive load, inductive load, lamp load	
Operating temperature	$-10^{\circ}\text{C} \sim 80^{\circ}\text{C}$	
Protection level	IP20	

QY20 IO Module

Temperature detect module

Model	QY20-4PT	QY20-4TC
Product image		
Interface	4 ways thermal resistor detect module	4 ways thermocouple detect module
Input power	24V DC (±20%) 30mA	
Input characteristics	Pt100, Pt500, Pt1000, Cu100, KTY84-130 NTC5K, NTC10K	Thermocouple: B, E, N, J, K, R, S, T
Operating temperature	-10℃ ~80℃	
Protection level	IP20	

Multi-way analog input module

Model	QY20-8AI	QY20-8AIL-L	QY20-8AV	QY20-8AV-L
Product image				
Interface	8-channel current input(16bit)	8-channel current input(12bit)	8-channel voltage input(16bit)	8-channel voltage input(12bit)
Input power	24V DC (±20%) 30mA			
Input characteristics	0~20mA Programmable Range		-10~10V Programmable Range	
Operating temperature	-10℃~80℃			
Protection level	IP20			

Other function module

Model	QY20-4HC	QY20-4PO	QY20-PS
Product image			
Interface	2 ways encoder module	4 ways pulse output module	Power module
Input power	24V DC (±20%) 30mA		
Input characteristics	2 ways of differential input, each supports dual probe input	4 channels of pulse output supports positioning & velocity motion modes	24V DC (±20%) 30mA
Operating temperature	-10℃ ~80℃		
Protection level	IP20		