

XINJE

**Reliable Partners
In Industrial Automation**

Rich Product Types Create Perfect Control System

PLC/HMI/Integrated Controller/Servo System/Frequency Inverter/Stepper System/Industrial Informatization/ Vision Machine Cameras

2020 ALL PRODUCTS CATALOG

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COMPANY INTRODUCTION



XINJE Electric Co., Ltd. is a prestigious company in China Mainland who dedicates to design, develop and manufacture the automation products and application systems.

Since its set up, the company insists the purpose of innovation, quick response and complete solutions to improve the enterprise competitiveness. Years of efforts get us numbers of patented technologies, which also help us to win many honors from government; They are High-Tech Enterprise Certificate, Leader of Innovation Enterprise Certificate and so on; We are also authorized to be Industrial Key Project Enterprise, Engineering Technology Research Center.

The company offers complete products line which covers PLC Programmable Logic Controllers, HMI Touch Panel Monitors, Servo Control Systems, Frequency Inverters, Vision Machine System, Robot Arms, Network products, etc. We make total automation solutions for customers. In this way, we help customers to improve their productivity, reduce production costs, maximize their profits, and promote their company's value; We XINJE Electric always grow together with our customers.

Up to now, We XINJE Electric has more than 40 branches in China and more than 170 agents in China; We also have 1 branch in Germany and more than 40 distributors overseas; We sell our products all over the world, such as Europe, America, Asia, the Middle East and Africa etc. We XINJE Electric has more than 1000 employees, 4000 m² office area and 20000 m² manufacturing area, one R&D center, two laboratories, one training base. Our company cooperates with a number of universities in China, we established the University - XINJE Laboratory to train the technical engineers.

XINJE was also successfully listed at the Shanghai stock exchange in December, 2016. Our stock code is 603416. With the business philosophy of Innovation, Quality, Service, the company keeps developing and designing much qualified and reliable products, we aim to be a global automation solutions provider. We are committed to build a golden brand reputation in the industrial automation field.

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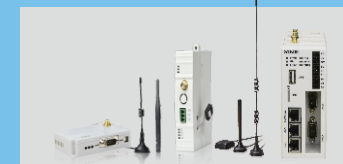
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PROGRAMMABLE LOGIC CONTROLLER

XG Series / XL Series / XD Series / XC Series



XG MIDDLE-SIZE PLC

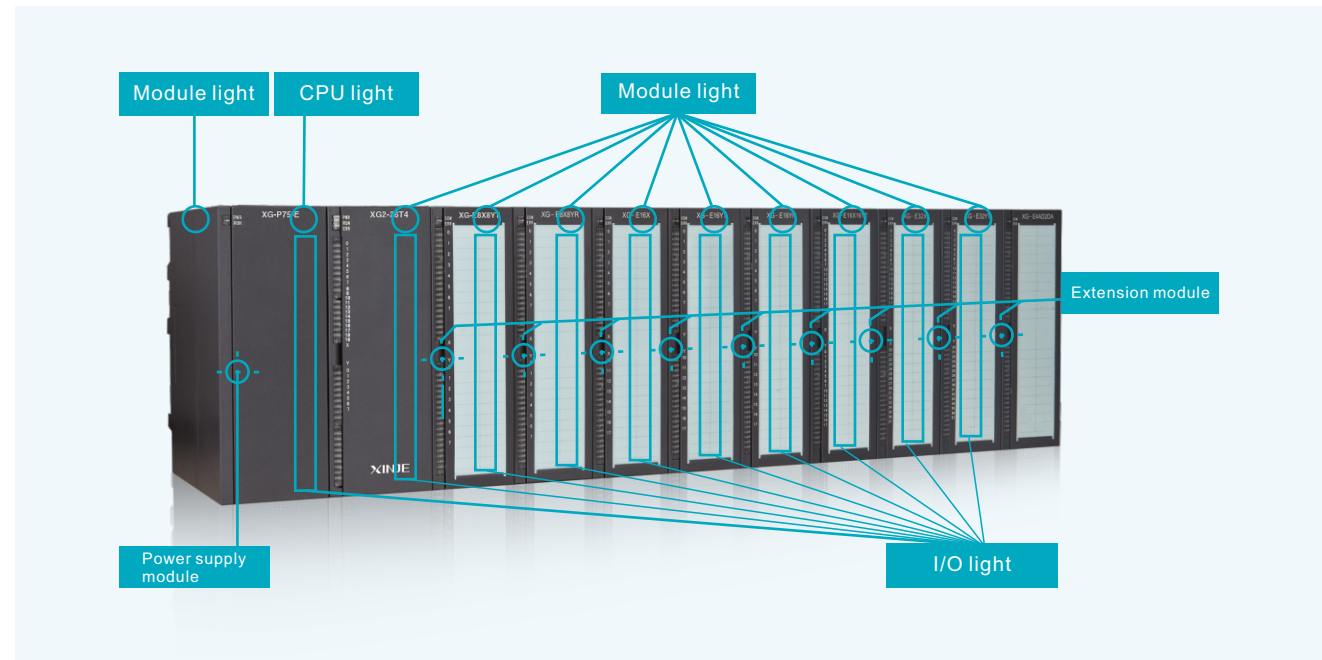
XG1 Series / XG2 Series ^{NEW}

New Design Light and Smart

- Ethernet communication port, fast speed and powerful functions
- Motion control function
- Fast CPU processing speed
- Higher reliability
- Larger memory capacity

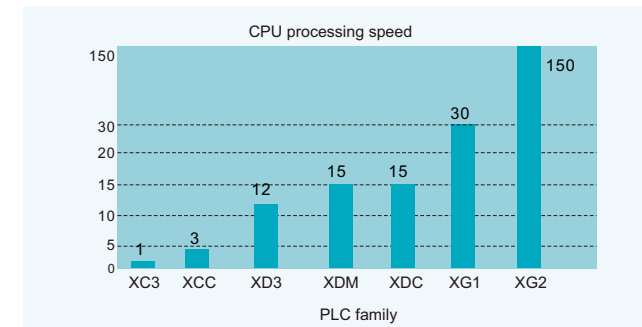
XG MIDDLE-SIZE PLC

XG series PLC has stronger CPU processing capability, higher reliability and compact structure. The PLC models provide complete solutions for customers and create higher value.



High Speed Operation

Basic instruction processing speed 0.005~0.03 us, scanning time 0.2ms per 10000 steps, program capacity 1M~16M, XG1 processing speed is 2~3 times faster than XDM series, XG2 processing speed is 5~6 times faster than XG1 series.



Rich communication ports

The communication ports provided by XG series PLC can meet the requirements of most communication and network conditions. It not only supports Modbus protocol, but also supports other complicated networks. Users can communicate with printers and instruments by free communication protocol. XG1 series PLC has four communication ports, XG2 series has five communication ports.

XG1 series	
2*RS485 port	support Modbus, free, X-NET communication
1*USB port	support high-speed downloading, monitoring, the speed is up to 12M
1*Ethernet port	support remote monitoring and local network monitoring and other Modbus-TCP devices. It can realize the functions of PLC on-line programming, real-time monitoring and data uploading and downloading
XG2 series	
1*RS232 port	support Modbus, the default is Modbus communication
2*RS485 port	support Modbus, free communication
2*Ethernet port	LIN1 supports Ethernet communication, LIN2 supports EtherCAT communication

High speed counting

XG series PLC basic unit can set 4 channels 2-phase 32-bit high speed counter. XG1 series PLC single-phase high-speed counting frequency is up to 80KHz, AB-phase counting (collector signal) frequency is up to 50KHz, can be connected with a rotary encoder to count the input from the encoder. XG2 series PLC single-phase high speed counting frequency and AB-phase high speed counting frequency (differential signal) are up to 200KHz, can be used with hand-operated pulse generator to count the differential signal.

XG1 Series



1M program capacity	I/O sequential control	USB port
X-NET fieldbus	X-NET motion bus	4 channels 100KHz pulse output
Ethernet communication	I/O up to 528 points	Linear and arc interpolation
Basic instruction 0.01~0.03 us, 2~3 times faster than XDM series	Follow function	NPN or PNP input

Abundant Expansions

In order to meet the application requirements in more occasions, XG basic units can be equipped with abundant I/O expansion modules, analog input and output modules, temperature control modules, basic units can expand up to 16 different types of modules, and 512 I/O.



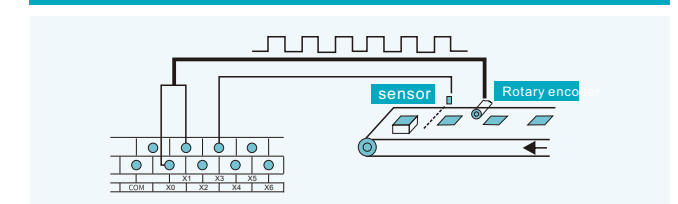
XG series I/O extension module

- Used to expand input, output points, points 8 to 32, the basic unit can be extended to more than 512 points. Input is compatible with NPN, PNP input.
- The output expansion module can be two output types: transistor (T) and relay.

Analog and temperature extension module

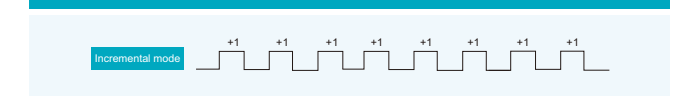
- By expanding analog input, output module, temperature control module, XG series PLC can be applied to process control systems such as temperature, flow, liquid level, pressure, etc.
- With the addition of PID adjusting function, it has wider using field, bigger flexibility and higher control precision.
- Each channel of XG-E8TC-P, XG-E8PT3-P has PID and auto-tuning function, exchange data with basic unit by FROM, TO instruction.

Count input

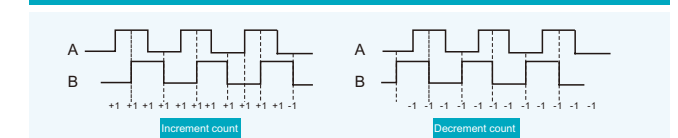


- By selecting different counters, single-phase (incremental mode) and AB-phase mode can be counted (2 or 4 frequency doubling).

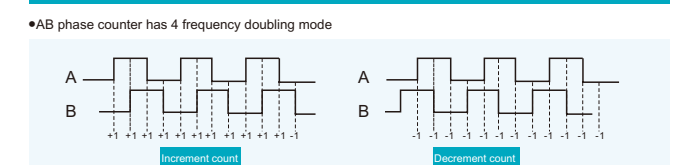
Multiple counting modes are optional



2 frequency doubling mode



4 frequency doubling mode



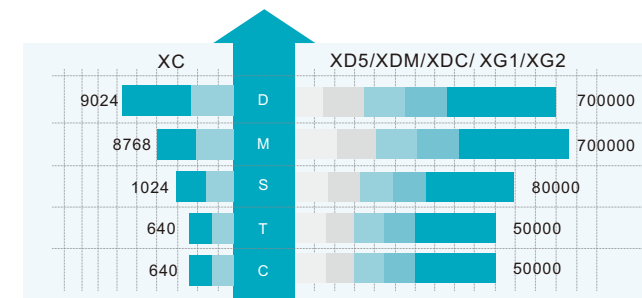
- AB phase counter has 4 frequency doubling mode

XG2 Series



16M program capacity	I/O sequential control	EtherCAT bus
Basic instruction 0.005~0.01 us, 5~6 times faster than XG1 series	Follow function	4 channels 100KHz pulse output
Linear and arc interpolation	Ethernet communication	I/O up to 538 points
NPN/differential signal input	4 channels 200KHz differential input high speed counting	

Expanded software component capacity



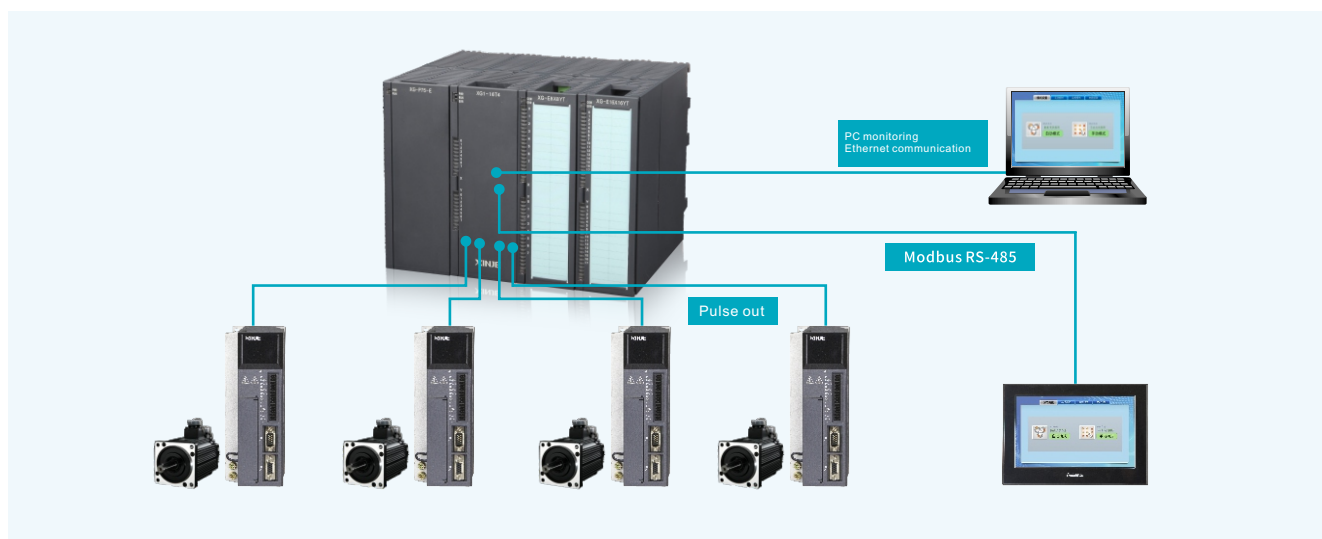
Product Introduction

Powerful motion control function

- Pulse function PLSR instruction has multiple functions and rich back-to-origin mode.
- Interpolation function Two-axis coordinated control (linear/arc interpolation) (only XDM, XDME, XLME, XG1, XG2 series PLC support this function).
- X-NET motion bus Support 1 channel 20-axis X-NET motion bus (only XDC, XG1 series PLC support this function).
- EtherCAT motion bus Support 1 channel 32-axis EtherCAT motion bus (only XG2 supports this function).

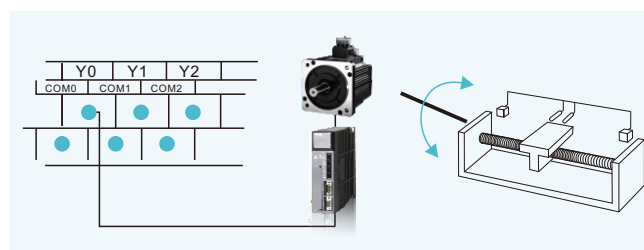
Pulse function

Multi-axis independent control diagram



4 channels 100KHz pulse output

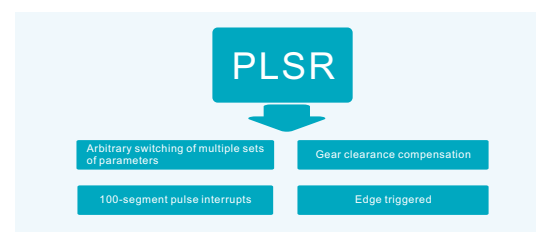
Series	Model	Pulse output channels	Pulse output terminals
XG1 series	16T4	4	Y0/Y1/Y2/Y3
XG2 series	26T4	4	Y0/Y1/Y2/Y3



Pulse instruction function is more powerful

XG series PLC eliminates the shortcomings of single function and too many instructions of XC series pulse instruction. It integrates the functions of original XC series PLSR, PTO and other pulse instructions into one, which makes the pulse function more compact and powerful.

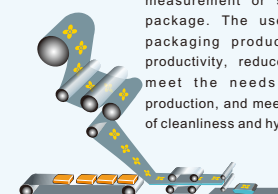
- ⊙ Reduced instruction
- ⊙ Flexible configuration
- ⊙ Various acceleration and deceleration curves
- ⊙ Startup in interrupt subprogram
- ⊙ Start, end frequency, rising and falling slope can be set separately, higher accuracy than XC series PLC
- ⊙ After the pulse outputting finished, it can deal with other program when the interrupt arrived, fast response, not affected by scan cycle, saving external interrupt resources.



Application

Packing machine

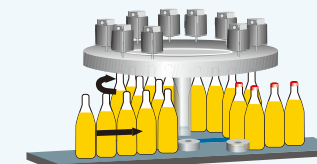
Packing machine can complete all or part of the product and commodity packaging process. Packaging process includes filling, packaging, sealing and other major processes, as well as its related before and after processes, such as cleaning, stacking and disassembly.



In addition, packaging also includes measurement or stamping on the package. The use of mechanical packaging products can improve productivity, reduce labor intensity, meet the needs of large-scale production, and meet the requirements of cleanliness and hygiene.

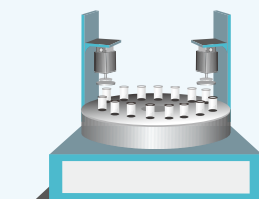
Screwing machine

Automatic screwing machine has beautiful appearance, dexterity, fast screwing speed and high qualification rate. It is suitable for screwing different bottle shapes in food, pharmaceutical, daily chemical, pesticide, cosmetics and other industries. The design of this machine is new and original, the mechanical torque control is intelligent, and the operation and adjustment are very convenient. The operator only needs to place the cap on the bottle mouth. In the process of forward movement, the cover is tightened automatically by three sets of rubbing wheels. It can be used in stand-alone production, and it is also an ideal model for connecting production.



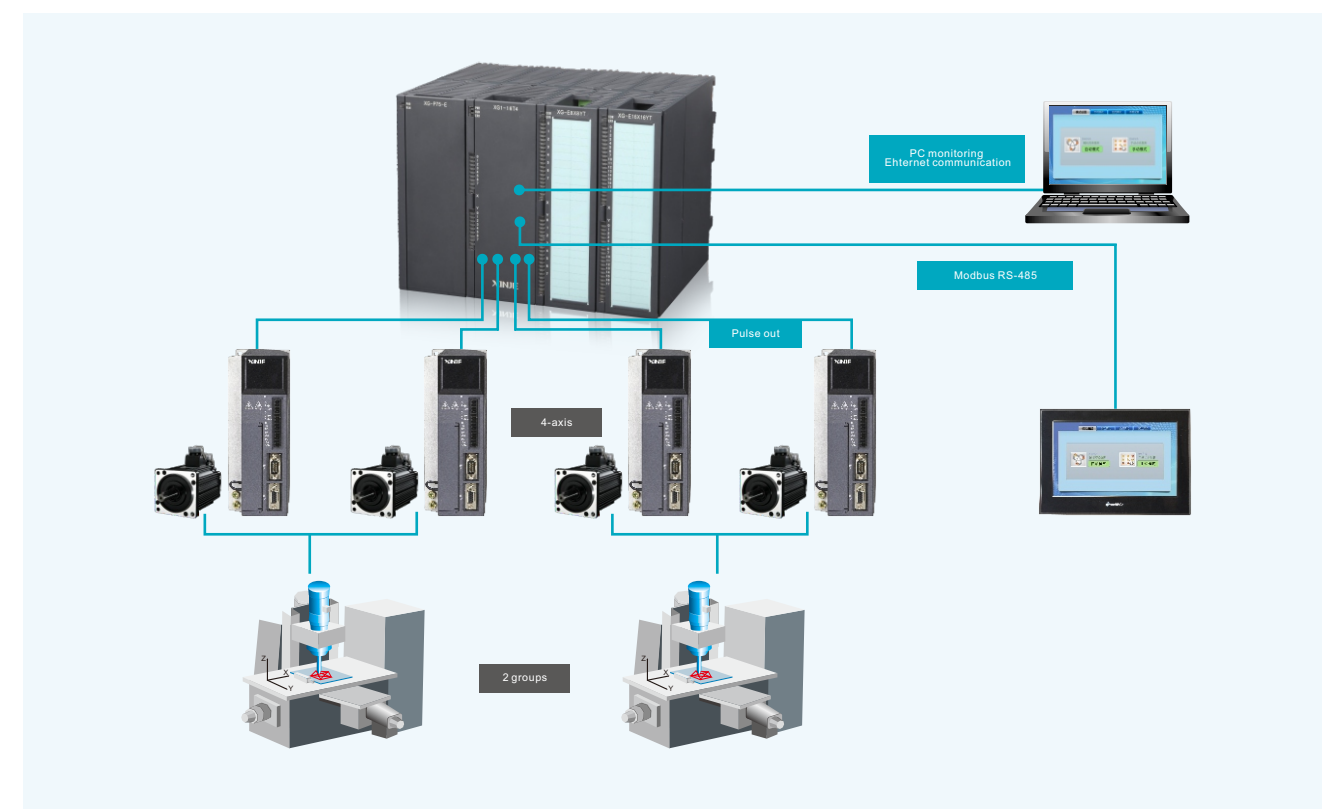
Glass grinding machine

The automatic grinding of glass cup mouth can realize simultaneous processing of multiple glasses. Through servo drive system, the advantages of high grinding accuracy and high product consistency can be realized, and the production efficiency of customers can be rapidly improved.



Interpolation function

Multi-axis coordinated motion diagram

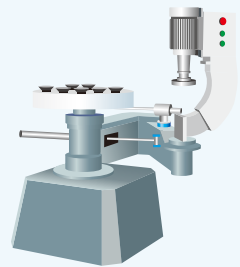


Product Introduction

•Application

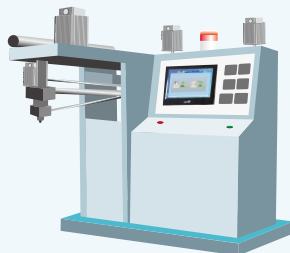
Edge grinding machine

Through linear arc interpolation and other motion control functions, the edge grinding machine can realize the grinding operation of various shapes. It has the characteristics of rough grinding, fine grinding and polishing at one time. It is suitable for grinding inclined surfaces and straight edges of metal belts of different sizes and thicknesses. It is equipped with spare grinding wheels. It has the advantages of long service life, regular shape and high efficiency.



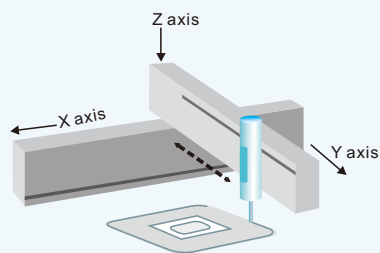
Pouring machine

By heating and melting the pouring material, and then through linear arc interpolation and other motion control functions, the pouring machine realizes high-precision path positioning control of two or three axes. The melting material is quantitatively encapsulated and coated on the product to achieve the purpose of adhesion and sealing.



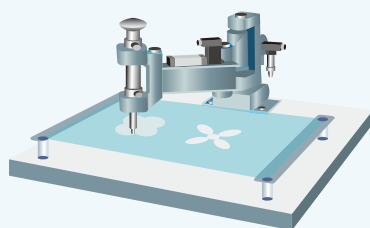
Application of sealant

The coating machine specially controls the fluid sealant. It can coat the fluid droplets on the product surface or internal, accurate positioning, accurate sealant control, no wire drawing, no leakage, no sealant dripping. Mainly used for injection, coating, dripping to the precise position of each product in the product process, can be used to achieve dotting, drawing lines, circle or arc. It can replace manual work and realize mechanized production. It can be operated by a single machine. It is simple, convenient, high-speed and accurate.



Glass cutting machine

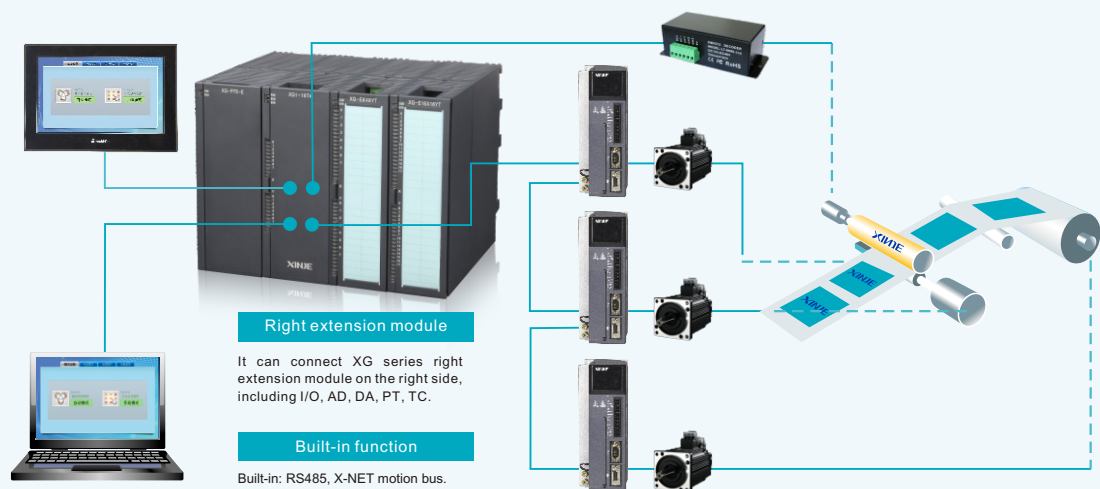
Glass cutting machine through linear arc interpolation and other motion control functions, to achieve two or three axes of high-precision path positioning control, the laser cutting machine which processing organic glass has fast speed, high accuracy, accurate positioning. It can produce gifts, panel lens cases, model toys, advertising light boxes, signboard display supplies, packaging boxes, etc.



X-NET motion bus

•XG1 series control diagram

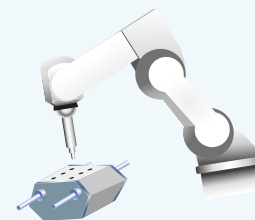
X-NET motion bus control replaces the traditional pulse control mode, making the whole system faster, more reliable and more stable. At the same time, it makes the complicated wiring simpler, meets the requirements of improving equipment performance, and can control 20-axis synchronous motion.



•Application

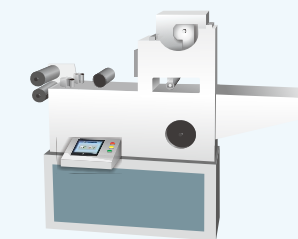
Mechanical arm

Robot arm is the most widely used automatic mechanical device in the field of robotics. It can be seen in the fields of industrial manufacturing, medical treatment, entertainment services, military, semiconductor manufacturing and space exploration. Although they have different shapes, they all have a common characteristic, that is, they can accept instructions and accurately locate a point in three-dimensional (or two-dimensional) space for operation.



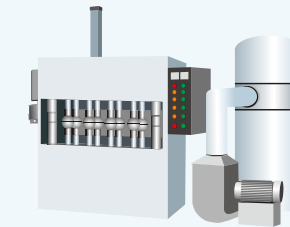
High speed cutting machine

The high-speed cutting machine combines the ultrasonic cutting technology with the traditional cutting technology. When the ultrasonic generator works, the ultrasonic energy is transmitted to the welding head through the ultrasonic transducer, which produces violent vibration and friction with the tool mould, so as to achieve the shearing effect. Shearing products have the advantages of beauty, firmness and high production efficiency.



Ball grinder

The grinding ball machine uses multi-axis grinding wheels to grind artificial or natural crystals. At most, it can run more than twenty shafts at the same time, so as to produce crystalline products with different shapes. The more than twenty shafts can be controlled by bus, which can realize multi-axis control in a simple and economical way.



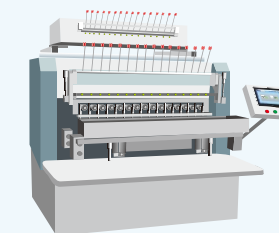
Three servo packing machine

Packaging machine can complete all or part of the product and commodity packaging process. Packaging process includes filling, packaging, sealing and other major processes, as well as its related before and after processes, such as cleaning, stacking and disassembly. In addition, packaging also includes measurement or stamping on the package. The use of mechanical packaging products can improve productivity, reduce labor intensity, meet the needs of large-scale production, and meet the requirements of cleanliness and hygiene.



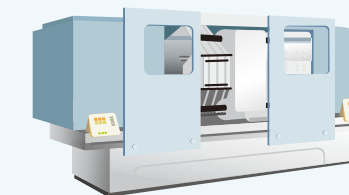
16-axis high-speed winder

High-speed winding machine is a device that twists linear objects onto specific work pieces. It is usually used for copper wire winding. In the past, high-speed winding was realized by variable-frequency motor combined with tension control system. With the increasing demand for efficiency in modern industry, the original variable-frequency motor can be replaced by servo to achieve high-speed and efficient production.



CNC lathes

CNC machine tool is the abbreviation of digital control machine tool. It is an automatic machine tool equipped with program control system. The control system can logically process programs with control coding or other symbolic instructions, decode them, use coded number to display, and input them into the NC device through the information carrier. After calculation and processing, the NC device sends out various control signals to control the movement of the machine tool, and automatically processes the parts according to the shape and size required by the drawings. CNC machine tool is a flexible and efficient automatic machine tool, which can solve the problems of complex, precise, small batch and multi-variety parts processing. It represents the development direction of modern machine tool control technology and is a typical mechatronic product.

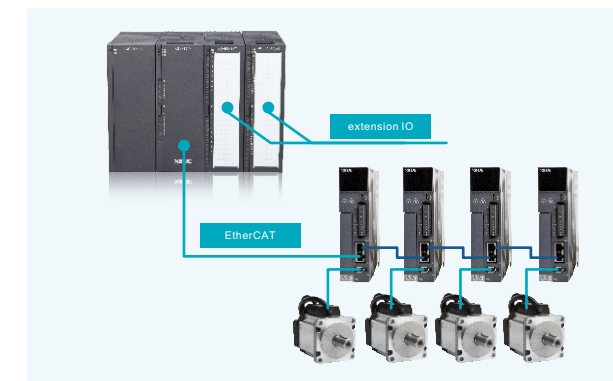


EtherCAT motion bus

EtherCAT communication is a real-time Ethernet for open network communication between master and slave stations. Compared with the traditional bus system, the EtherCAT bus has more axes, shorter control period, higher bandwidth utilization and more flexible system structure.

EtherCAT communication is mainly used in XG2 series PLC. At present, it can support 32-axis servo synchronous motion, 2-channel touch probe function, position, speed, torque and other control modes. It is widely used in various industries.

- ◎ Only XG2 series PLC and DS5C series servo driver support EtherCAT communication.
- ◎ Support 32-axis slave stations.
- ◎ The slave stations support the drivers with EtherCAT protocol, such as Xinje DS5C servo driver.
- ◎ The longest distance between slave stations is 100 meters.
- ◎ The communication period between master and slave station is 500~1000us.



Product Introduction

●Network mode

EtherCAT (Ethernet Control Automation Technology) is an open field bus system based on Ethernet.

●Communication speed and distance

The field environment decides the communication speed and medium of motion control. Because the bus uses electric signals to transmit data, its communication distance generally has certain requirements. It uses the special network cable of Xinje, the longest distance between nodes is 100m. The synchronization period under 16-axis is 500 microseconds, and the synchronization period under 32-axis is 1ms.

●Shield

The outer layer of shielded cable must have a good grounding. Xinje network cable JC-CA-OP5 has shielding layer and grounding function. If other industrial UTP5 network cables are used, the two ends of the network cable should be connected with the protective ground, and covered by shielding wiring as large as possible, so as to maintain good communication ability. It is also suggested that the data cable must be isolated from the high voltage cable.

●Isolation

Whether as the master station of the XG2 series of PLC or as the slave station of driver, their network ports and equipment are electrically isolated. Fieldbus cables are distributed in all corners of the workshop. Once high voltage is connected in series, the bus transceiver of all equipments in the whole network will be damaged. If there is no isolation, the high voltage signal will continue to damage other circuits inside the equipment, leading to serious consequences.

●Multi-axis for communication

In an EtherCAT motion bus system, up to 32 axes can be achieved at present, and subsequent companies will continue to develop to 64 axes.

●Intelligence and autonomy

EtherCAT bus can deal with all kinds of parameters, operation status information and fault information. It has high intelligence. It can complete the basic function of automatic control only by field equipment, and can diagnose the operation status of equipment at any time, which greatly improves the reliability of the whole system. As field control equipment often has self-diagnosis function, and can send fault information to control room, which reduces maintenance work. Users can check the operation, diagnose and maintain information of all equipment, so as to early analyze the causes of the fault and quickly eliminate it, shorten the maintenance downtime, and ultimately achieve the purpose of increasing profits.

●Outstanding cost-effective performance

In the industry control nowadays, when it comes to bus control, users need to spend a lot of money on it, while EtherCAT bus does not need to spend an extra penny. The company directly allocates it to XG2 series PLC and DS5C series servo driver. The customers who need to use this function can directly use it, so that it achieves an unprecedented high cost-effective performance.

●Strong system expansibility

One-click identifies the number of slave devices, and the node address is automatically set. The device can adjust the position of the node only by changing the node and scanning again. The structure is simple and the application is flexible.

●Openness of system

EtherCAT is an open real-time Ethernet communication protocol. The driver supporting standard EtherCAT communication protocol can communicate with XG2, it can support the control of 32-axis servo synchronous motion, and can meet the needs of customers in most occasions.

●Save installation cost

The connection of EtherCAT motion control system is very simple. Thanks to EtherCAT, the star topology of EtherCAT can be replaced by simple linear structure. Because EtherCAT does not need hubs and switches, XG2 series PLC body and DS5C series servo have EtherCAT communication network ports, so the consumption of cable and bridge frame is greatly reduced, the workload of connection design and joint proofreading is also greatly reduced, which is convenient to save installation costs, maintenance costs, system structure is simple, engineering design and drawing quantity, laying cables, processing time and hardware management files are reduced.

●Cable select

The transmission process is inevitably affected by the surrounding electromagnetic environment. Only when the cable is used correctly can the specified speed and transmission distance be achieved. It is recommended that users use industrial UTP5 cables, or Xinje cable.

●Connector

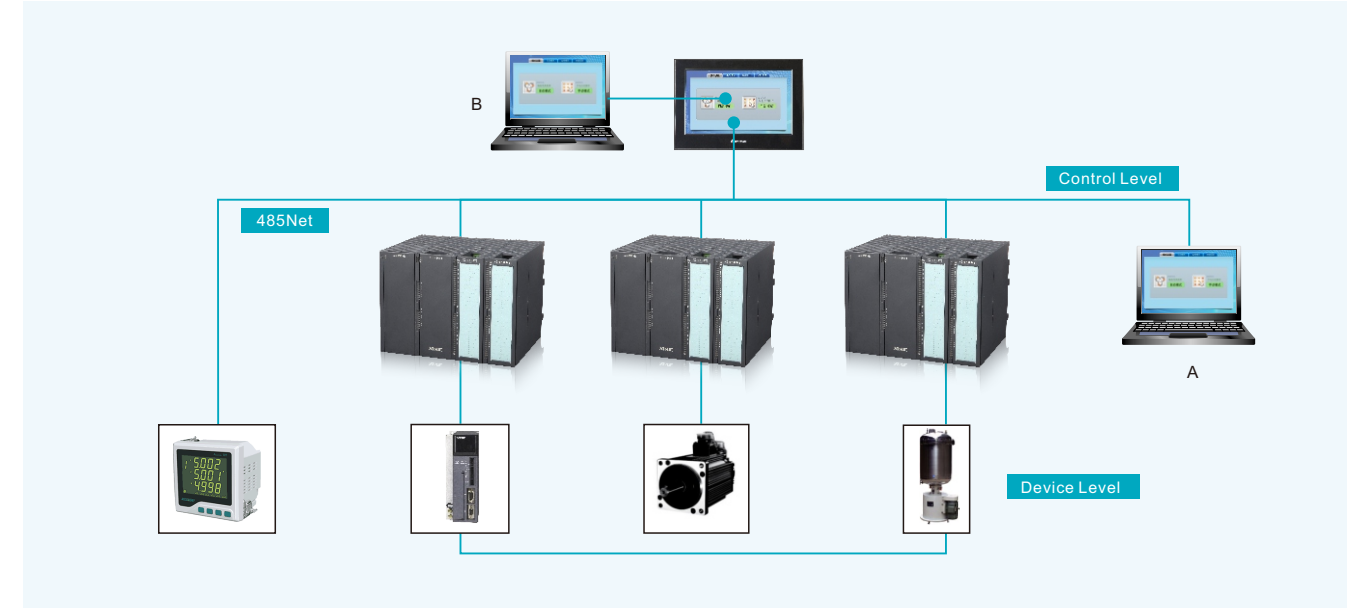
XG2 series PLC and DS5C series servo driver have EtherCAT communication network ports. Only special network cables, such as Xinje JC-CA-OP5, make the connection more convenient, efficient and convenient for maintenance.

●Terminal matching

Because EtherCAT bus is based on network communication, it does not need terminal resistance to solve the problem of signal reflection.

●Improve the accuracy and reliability of the system

EtherCAT supports the master station redundancy of hot backup. Since the EtherCAT slave controller chip will automatically return the data frame when the loop is interrupted, the failure of a device will not cause the whole network to be paralyzed. At the same time, the distributed clock used in EtherCAT system makes the vibration of the clock far less than 1us through the calibration mechanism of the master clock and the slave clock in the system. Because the synchronization is realized by hardware, the reliability of EtherCAT is guaranteed to a great extent.



X-NET networking

●X-NET fieldbus

Fieldbus control replaces the traditional Modbus communication and free communication, making the whole system faster, more reliable and more stable. At the same time, it makes the complex wiring simpler and meets the requirements of improving project performance. A single network can connect up to 32 nodes at the same time, and the network can communicate with each other.

- ① XD/XL/XG1 series support X-NET fieldbus.
- ② X-NET fieldbus belongs to token network structure.
- ③ Any node in the network can actively send information to other nodes on the network after obtaining the token.
- ④ The speed can up to 3Mbps.

■ Network mode

For workshop monitoring network, it is a token structure, real-time multi-master network. It is a multi-master system. It can realize multiple control configurations or visualization systems interoperable on a bus. Any node in the network has access rights (tokens), and can send and receive data without external requests.

■ Shield

The outer layer of shielded cable used in fieldbus X-NET must be well grounded at one point. If the high frequency interference is serious, multi-point capacitive grounding can be adopted, and multi-point direct grounding can not be allowed to avoid generating ground loop current. Shielded double-core cable can also be used, it depends on the environmental conditions, if the system is in high electromagnetic environment (automobile manufacturing), shielded cables must be used. Shielding can improve electromagnetic compatibility. If the shielded braided wire and shielded foil are used, it needs to connect with the protection ground, and cover by the shielded wiring as large area as possible to maintain good communication capability. It is also suggested that the data cable must be isolated from the high voltage cable.

■ Communication speed and distance

The field environment determines the communication speed and medium of fieldbus. As fieldbus uses electric signals to transmit data, it is necessary to adopt special cable of Xinje, which can reach 5 meters at 3 Mbps speed, and 300 meters at 192 Kbps speed. The rate can reach 600Bit~3MBit.

●Flexible network topology

■ Ring topology



Powerful communication and networking functions

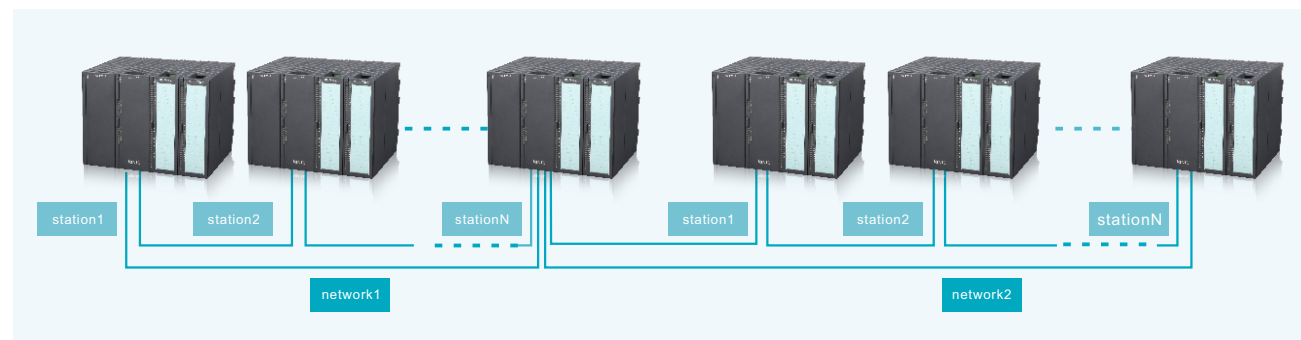
The communication port provided by XG series PLC can meet the needs of most communication and network.

- Modbus networking Supports (RTU and ASCII) protocol master and slave mode.
- X-NET networking A single network can connect up to 32 nodes at the same time, and the network can communicate with each other. X-NET fieldbus belongs to token network structure, and its speed can reach 3M.
- Ethernet communication Supports remote monitoring and local network monitoring as well as communication between modbus-tcp, TCP/IP, free format, UDP and other devices. It can realize the functions of PLC on-line programming, real-time monitoring and data uploading downloading.

Modbus networking

XG series PLC supports Modbus (RTU/ASCII) protocol master-slave mode. When PLC is used as master station equipment, it sends requests to other slave devices through Modbus instructions, other devices can make corresponding requests. When PLC is used as slave station equipment, it can only respond to the requests of other master stations.

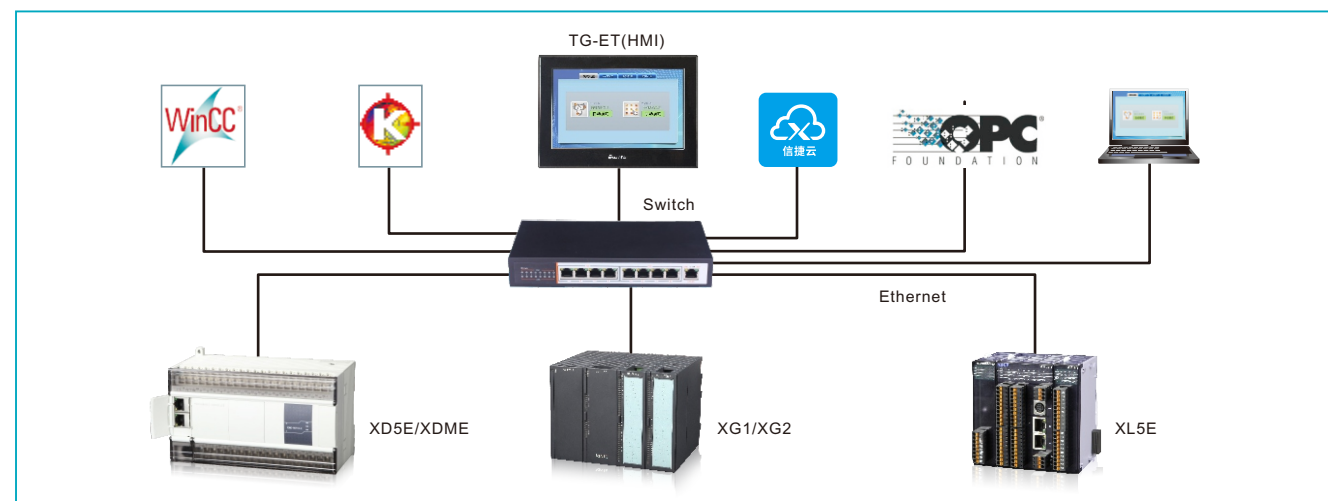
Multi-network structure



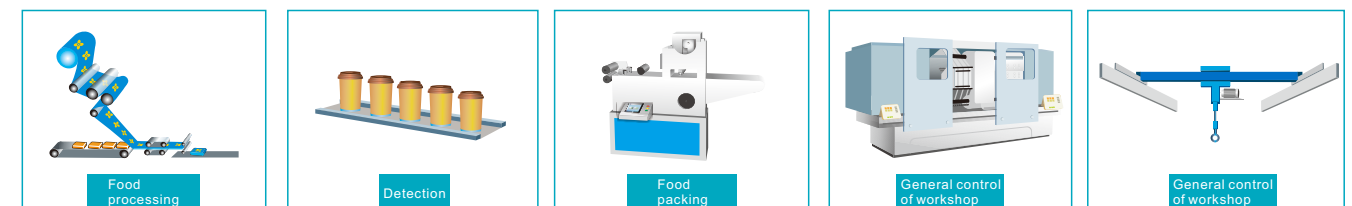
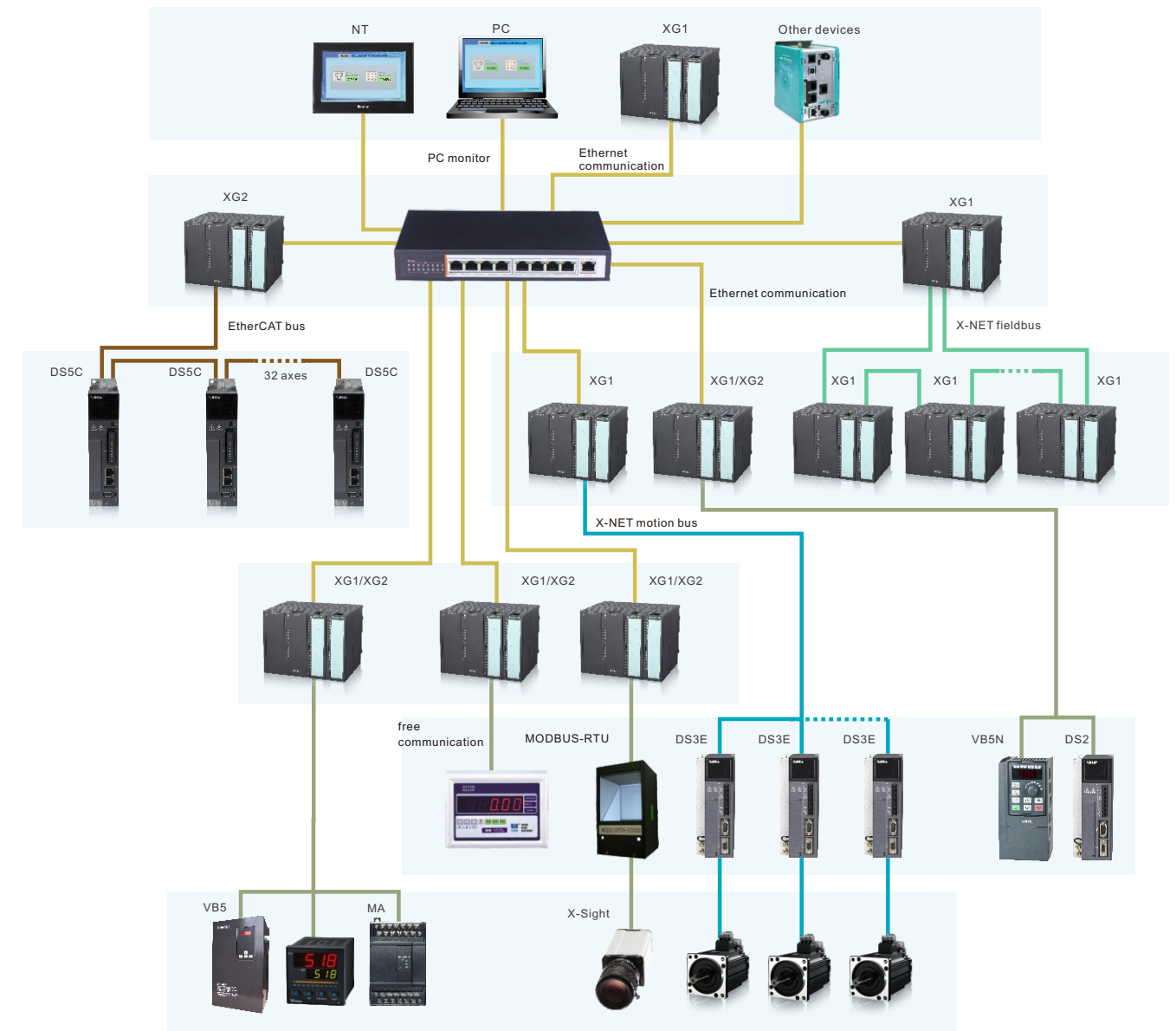
Ethernet communication

Ethernet communication is mainly used in XG1, XG2 series PLC, which is faster than USB. In many PLC communication occasions, users can communicate with any PLC on the spot through only one switch. In addition to its application in local area network, Ethernet also supports the functions of remote searching, monitoring operation and uploading and downloading of PLC through the Internet.

- Support TCP/IP communication, up to 32 communication connections
- Support Modbus TCP communication
- Support industrial fieldbus based on X-NET protocol
- Support PLC remote searching, data monitoring, program uploading downloading through Internet
- Rich data interface for PC development



Comprehensive Network Structure Diagram



X-NET fieldbus	X-NET motion bus	MODBUS	Ethernet communication	EtherCAT communication
----------------	------------------	--------	------------------------	------------------------

XG/XL/XD series PLC supports X-NET fieldbus. It has the advantages of intellectualization, digitalization and stability. The highest speed can achieve 3M. It has the advantages of simple design, convenient wiring and easy reconfiguration.

XG/XL/XD series PLC supports X-NET motion bus. Servo can be connected at high speed, suitable for multi-axis control, high-speed and complex motion control, up to 20 axes can be controlled at the same time, the maximum speed can reach 3Mbps.

It supports standard MODBUS serial communication and can be easily integrated with various brand devices. It supports free communication and can cooperate flexibly with the actual situation.

Supporting Ethernet communication protocol, automation equipment can easily form an Ethernet control system through interconnection of Ethernet. It breaks the traditional industrial automation island state, has higher communication performance and achieves a wide range of open network.

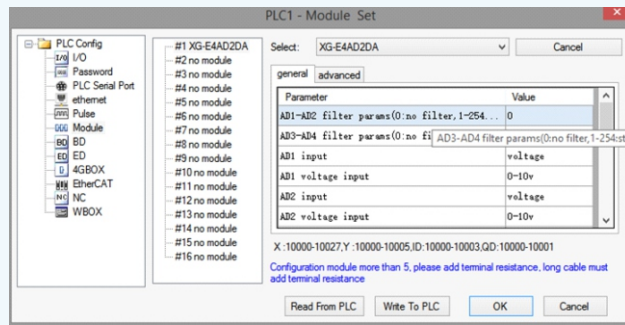
Supporting standard EtherCAT protocol, automation devices are interconnected through Ethernet to achieve faster communication speed. It has better synchronization, and the fully open technology can meet today and future technical requirements.

XD/XG/XL series PLC programming software

Programmable logic controller

Support XD/XG/XL series PLC products

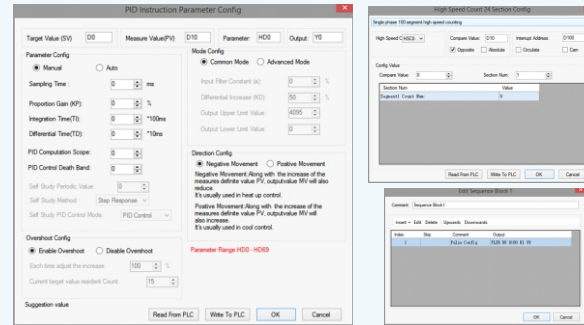
The programming software is suitable for XD/XG/XL series PLC, it can make program, configure the network module, extension module, BD card and left extension module.



Panel configuration

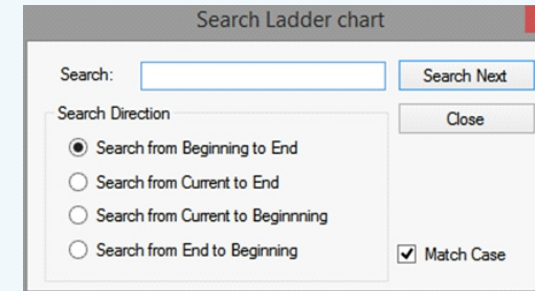
•Reduces the difficulty of compiling complex instructions

XD/XG/XL series PLC programming software provides simple and easy operation interface for some complicated instructions such as PID, 100 segments high speed counting interrupt.



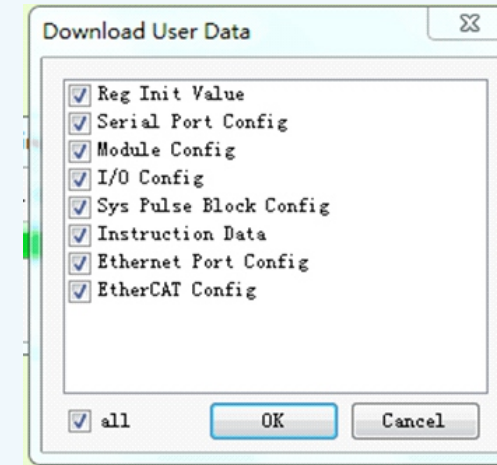
Convenient way to find soft components

Put the mouse on the soft components, press Ctrl+F to show the contents.



Rich download function

Support online download program, data will not be emptied, output point will not be shut down, after downloading, PLC automatically run. It is free to choose which data to download.

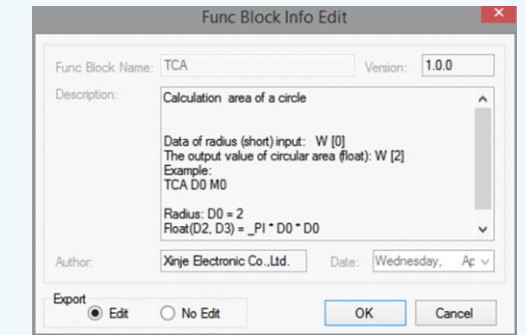


Various programming languages

•Support easy to understand ladder chart and instructions, both can be switched at any time, users choose according to their programming habits.

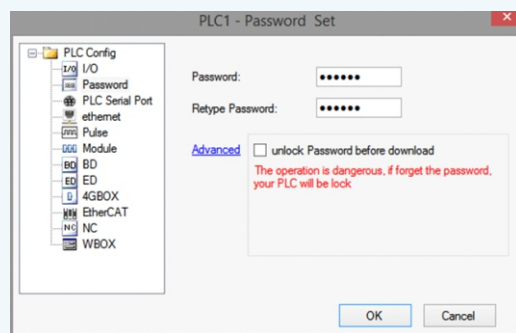
•In XD/XL/XG series PLC software, C language can be written directly without switching to C language programming software.

•Function blocks can be imported and exported freely, supporting active code and passive code. After passive code is exported, the program in function blocks will not be read, and the confidentiality is better.



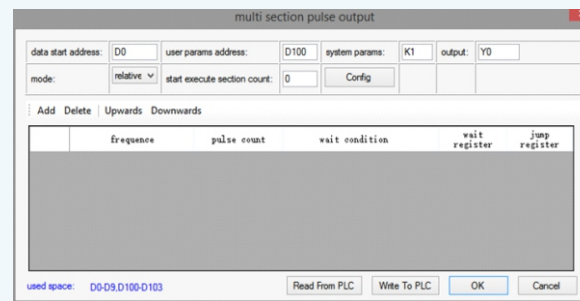
Enhanced password function

• The improved password function can not only restrict the upload of PLC program, protect the intellectual property rights of users, but also add password protection to download programs, effectively prevent the program damage in PLC.



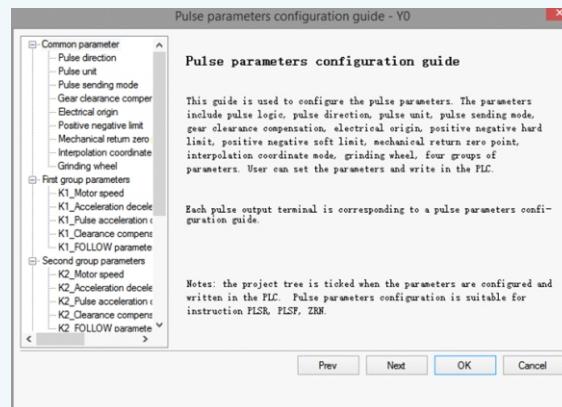
•Improved pulse instruction configuration

XD/XG/XL series PLC programming software has PLSR pulse instruction configuration interface, all the functions of this instruction can be set in this interface.

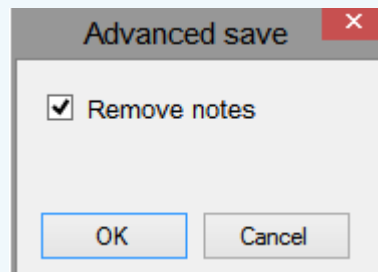


•Pulse configuration wizard

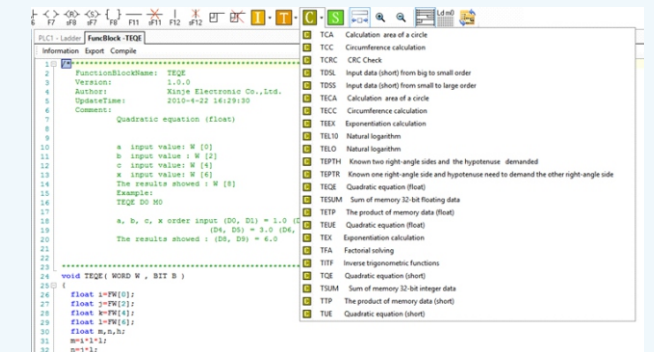
The pulse configuration wizard can help users set the pulse parameters.



•New advanced save function, you can choose whether to keep the program annotations confidential or not.

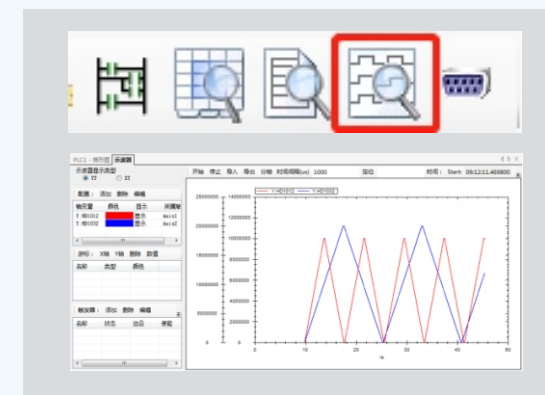


•Add C language function library, containing more C language instructions, can be directly invoked.



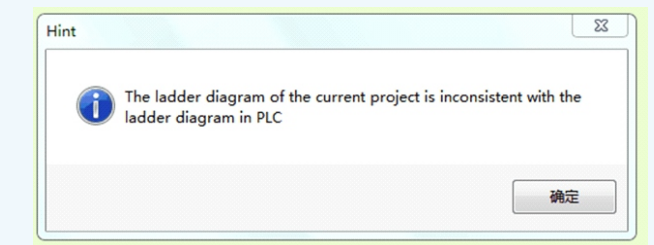
Oscilloscope function

The oscilloscope function can be used only when EtherCAT slave station is connected. It can accurately and intuitively observe the waveform curves of different signal amplitudes varying with time, which is convenient for monitoring and analysis.



Automatic comparing ladder chart

Compare the program in the software and PLC. If inconsistency occurs, an error message will be prompted.



Software serial port configuration

•COM1~COM3 can be configured.

•Modbus-RTU or Modbus-ASCII protocol can be selected.

•Support free communication.

Computing program occupied space

Programmers can accurately know the use of program capacity in PLC.

XG1 Series PLC

Powerful motion control PLC	Up to 528 I/O points	4-channel 100KHz high speed pulse output	X-NET communication
	16 right extension modules	Linear arc interpolation	Faster instruction processing speed

Model	Specification
XG1-16T4	

AC power supply	Input	: Transistor output	: RS485	: XNETfieldbus	: NPN	: Pulse input	: Right extension module	: Timing interruption
DC power supply	Output	: Relay output	: RS485	: XNET motion bus	: PNP	: Pulse output	: Left extension module	: External interruption
BD card	Clock	: Transistor and relay output	: EtherCAT motion bus					

Application function

Function	Explanation
Soft component capacity	By subdividing all the soft components, the average capacity of the soft components is 8 times that of XC.
Data exchange speed between PLC and extension module is faster	SPI serial port communication mode, (2ms per channel)
100-segment high speed count interruption	100-segment 32-bit preset value, each segment can produce interruption, good real-time ability, high reliability and low cost
High speed counting	4-channel 50KHz AB phase or 4-channel 80KHz single phase high speed counter
Modbus instruction processing optimization	The same condition can trigger multiple instructions
Powerful pulse instructions	Multifunctional PLSR Gear clearance compensation 100-segment pulse interruption Arbitrary switching of multiple sets of parameters Various curve acceleration and deceleration It can be started in the interrupt subroutine
Powerful communication and networking function	Modbus networking Support (RTU and ASCII) protocol master-slave mode networking X-NET networking The maximum speed of token network structure can reach 3Mbps. A single network can connect up to 32 nodes at the same time. Ethernet communication Support PLC remote searching, monitoring, uploading downloading through Internet. In many occasions of PLC communication, users can communicate with any PLC on the spot through only one switch.
Pulse width modulation	The precision of pulse width subdivision can reach 1/65536, which can be used to control frequency converter and DC motor.
Interruption function	Interruption contains external interrupt, timing interrupt, 100-segment high speed counter interrupt, electronic CAM and 100-segment pulse interrupt, will not be affected by scanning period.
C language function	Program confidentiality is better, support all the C language functions
PID control	Support multi-channel PID simultaneous control and auto-tuning function. It has two control methods, step response method and critical oscillation method. It can be flexibly applied to more control occasions.
Sequence block	8 block instructions can be executed sequentially at the same time; the ladder chart of users is greatly optimized.
Frequency measurement	32-bit instruction FRQM can measure the frequency
Password protection	Improving program security by 6-bit ASCII. New FS soft component can effectively protect customer's intellectual property rights
Self-diagnostic function	Power-on self-check, monitor timer, grammar check
Real-time clock	Built-in clock, Lithium battery power supply, with power-down memory function (clock protection: when selecting advanced mode of encrypted download, the PLC clock cannot be changed through communication)
Precise timing	32-bit instruction STR has 1ms precise timing function, when the time arrives, interrupt flags are generated and interrupt subroutines are executed.
Simple appearance, easy to install	Compact structure, improve space utilization

Basic unit performance specification

Item	Specification		
Program execution mode	Cyclic scanning mode		
Programming method	Instruction, ladder chart, C language		
Processing speed	0.01~0.03us		
Power-off retentive	Use FlashROM and Li battery (3V button battery)		
User program capacity	1M		
User program ^{※2}	Total points	16 points	
	Input points	8 points X0~X7	
	Output points	8 points Y0~Y7	
Internal coil (X) ^{※3}	1280: X0~77, X10000~11777, X20000~20177, X30000~30077		
Internal coil (Y) ^{※4}	1280: Y0~77, Y10000~11777, Y20000~20177, X30000~30077		
Internal coil (M, HM)	87000 points	M0~M69999 HM0~HM11999 ^{※5}	
		Special use ^{※6} SM0~SM4999	
Flow (S)	9000 points	S0~S7999 HS0~HS999	
Timer (T)	Points	7000 points	
	Specification	100ms timer: setting time 0.1~3276.7s	
		10ms timer: setting time 0.01~327.67s	
1ms timer: setting time 0.001~32.767s			
Counter (C)	Points	7000 points	
	Specification	C0~C4999 【HC0~HC1999】	
		16-bit counter: setting value 0~32767	
		32-bit counter: setting value -2147483648~+2147483647	
Data register(D)	100000 words	D0~D69999 【HD0~HD24999】 ^{※5}	
FlashROM register (FD)	14192 words	FD0~FD8191	
		Special use ^{※6} SFD0~SFD5999	
High-speed processing function	High speed counter, pulse output, external interrupt		
Password protection	6-bit ASCII		
Self-diagnosis function	Power-on self-test, monitor timer, grammar check		

※1 User program capacity refers to the maximum program capacity when secret downloading.
 ※2 I/O points refer to the number of terminals that users can input and output signals from outside.
 ※3 X is internal input relay, X beyond the number of I points can be used as an intermediate relay.
 ※4 Y is internal output relay, Y beyond the number of O points can be used as an intermediate relay.
 ※5 [] is the default power-off holding area and cannot be changed.
 ※6 special use is special registers occupied by the system, cannot be used for other purpose.

XG2 Series PLC

Powerful motion control PLC

Up to 538 I/O points

4-channel 100KHz high speed pulse output

EtherCAT communication

16 right extension modules

Linear arc interpolation

Faster instruction processing speed

Model	Specification
XG2-26T4	

- AC : AC power supply
- DC : DC power supply
- BD card
- Input
- Output
- Clock
- Transistor output
- Relay output
- Transistor and relay output
- RS485 : RS485
- RS232 : RS232
- XNET : XNETfieldbus
- XNET : XNET motion bus
- EtherCAT : EtherCAT motion bus
- NPN
- PNP
- Differential signal
- Pulse input
- Pulse output
- Right extension module
- Left extension module
- Timing interruption
- External interruption

Application function

Function	Explanation
Soft component capacity	By subdividing all the soft components, the average capacity of the soft components is 10 times that of XD.
Data exchange speed between PLC and extension module is faster	SPI serial port communication mode, (2ms per channel)
100-segment high speed count interruption	100-segment 32-bit preset value, each segment can produce interruption, good real-time ability, high reliability and low cost
High speed counting	4-channel 200KHz single phase or 4-channel 200KHz differential signal high speed counter
Modbus instruction processing optimization	The same condition can trigger multiple instructions
Powerful pulse instructions	Multifunctional PLSR Gear clearance compensation 100-segment pulse interruption Arbitrary switching of multiple sets of parameters Various curve acceleration and deceleration It can be started in the interrupt subroutine
Powerful communication and networking function	Modbus networking Support (RTU and ASCII) protocol master-slave mode networking Ethernet communication Support PLC remote searching, monitoring, uploading downloading through Internet. In many occasions of PLC communication, users can communicate with any PLC on the spot through only one switch. EtherCAT motion control At present, the maximum number of slave stations are 64 axes and the synchronization period of 32 axes is 1 ms. 2-channel Touch probe function, position, speed and torque control mode, widely applicable to various industries.
Pulse width modulation	Not support
Interruption function	Interruption contains external interrupt, timing interrupt, 100-segment high speed counter interrupt, electronic CAM and 100-segment pulse interrupt, will not be affected by scanning period.
C language function	Program confidentiality is better, support all the C language functions
PID control	Support multi-channel PID simultaneous control and auto-tuning function. It has two control methods, step response method and critical oscillation method. It can be flexibly applied to more control occasions.
Sequence block	8 block instructions can be executed sequentially at the same time; the ladder chart of users is greatly optimized.
Frequency measurement	Not support
Password protection	Improving program security by 6-bit ASCII. New FS soft component can effective protect customer's intellectual property rights
Self-diagnostic function	Power-on self-check, monitor timer, grammar check
Real-time clock	Built-in clock, Lithium battery power supply, with power-down memory function (clock protection: when selecting advanced mode of encrypted download, the PLC clock cannot be changed through communication)
Precise timing	Not support
Simple appearance, easy to install	Compact structure, improve space utilization

Basic unit performance specification

Item	Specification		
Program execution mode	Cyclic scanning mode		
Programming method	Instruction, ladder chart, C language		
Processing speed	0.005-0.01us		
Power-off retentive	Use FlashROM and Li battery (3V button battery)		
User program capacity	16M		
User program ^{※2}	Total points	26 points	
	Input points	18 points X0-X21	
	Output points	8 points Y0-Y7	
Internal coil (X) ^{※3}	1280: X0-77, X10000-11777, X20000-20177, X30000-30077		
Internal coil (Y) ^{※4}	1280: Y0-77, Y10000-11777, Y20000-20177, X30000-30077		
Internal coil (M, HM)	798000 points	M0-M699999 【HM0-HM47999】 ^{※5}	
		Special use ^{※6} SM0-SM49999	
Flow (S)	84000 points	S0-S79999 【HS0-HS3999】	
Timer (T)	Points	58000 points	
		Specification	100ms timer: setting time 0.1-3276.7s
			10ms timer: setting time 0.01-327.67s
1ms timer: setting time 0.001-32.767s			
Counter (C)	Points	58000 points	
		Specification	C0-C49999 【HC0-HC7999】
			16-bit counter: setting value 0-32767
32-bit counter: setting value -2147483648-2147483647			
Data register(D)	810000 words	D0-D699999 【HD0-HD99999】 ^{※5}	
FlashROM register (FD)	75536 words	FD0-FD65535	
		Special use ^{※6} SFD0-SFD9999	
High-speed processing function	High speed counter, pulse output, external interrupt		
Password protection	6-bit ASCII		
Self-diagnosis function	Power-on self-test, monitor timer, grammar check		

※1 User program capacity refers to the maximum program capacity when secret downloading.
 ※2 I/O points refer to the number of terminals that users can input and output signals from outside.
 ※3 X is internal input relay, X beyond the number of I points can be used as an intermediate relay.
 ※4 Y is internal output relay, Y beyond the number of O points can be used as an intermediate relay.
 ※5 [] is the default power-off holding area and cannot be changed.
 ※6 special use is special registers occupied by the system, cannot be used for other purpose.

XG Series Extension Module


XG I/O extension module

When I/O points of PLC can not meet the requirements of use, I/O extension module can be used.

•XG series I/O extension module list


Model	Function
XG-E8X8YR	8-channel NPN or PNP digital input, 8-channel relay output
XG-E8X8YT	8-channel NPN or PNP digital input, 8-channel transistor output
XG-E16X	16-channel NPN or PNP digital input
XG-E16YR	16-channel relay output
XG-E16YT	16-channel transistor output
XG-E16X16YR	16-channel NPN or PNP digital input, 16-channel relay output
XG-E16X16YT	16-channel NPN or PNP digital input, 16-channel transistor output
XG-E32X	32-channel NPN or PNP digital input
XG-E32YT	32-channel transistor output

XG-E8X8YR, XG-E8X8YT



8 input points	R: output relay
Rated input voltage 24V	External wiring method: terminals
8 output points	T: output transistor
R max load: resistance 3A inductance 80VA	Wiring method is same to PLC
Response time below 20ms	R response time below
T max load: resistance 0.5A inductance 12W80VA	T response time below 0.2ms


XG-E16X16YR, XG-E16X16YT



16 input points	R: output relay
16 output points	External wiring method: terminals
Rated input voltage 24V	T: output transistor
R max load: resistance 3A inductance 80VA	Wiring method is same to PLC
Response time below 20ms	R response time below 10ms
T max load: resistance 0.5A inductance 12W80VA	T response time below 0.2ms


•Input extension module

XG-E16X



16 input points
Rated input voltage 24V
Response time below 20ms
External wiring method: terminals
Wiring method is same to PLC


XG-E32X



32 input points
Rated input voltage 24V
Response time below 20ms
External wiring method: terminals
Wiring method is same to PLC


•I/O extension module

XG-E16YR, XG-E16YT



Rated input voltage 24V	R: Output relay
16 output points	External wiring method: terminals
R max load: resistance 3A inductance 80VA	T: output transistor
Response time below 20ms	Wiring method is same to PLC
T max load: resistance 0.5A inductance 12W80VA	R response time below 10ms
	T response time below 0.2ms

XG-E32YT




Rated input voltage 24V	T: output transistor
32 output points	T response time below 0.2ms
Response time below 20ms	External wiring method: terminals
T max load: resistance 0.5A inductance 12W80VA	Wiring method is same to PLC

XG series analog extension module

The signal can be D/A or A/D converted, and the signal of temperature transmitter can be received and processed.


•AD model

XG-E8AD-A-S



8 input channels
Input current 0~20/4~20/-20~20mA
Conversion speed 2ms/channel
Resolution 1/65535(16-bit)
Accuracy ±1%
Filtering coefficient 0~254
Added enabling flags


XG-E8AD-V-S



8 input channels
Input voltage 0~5/0~10/-5~5/-10~10V
Conversion speed 2ms/channel
Resolution 1/65535(16-bit)
Accuracy ±1%
Filtering coefficient 0~254
Added enabling flags

•Mixed model

XG-E4AD2DA



4 input channels	2 output channels
Input voltage 0~5/0~10/-5~5/-10~10V	output voltage 0~5/0~10/-5~5/-10~10V
Input current 0~20/4~20/-20~20mA	output current 0~20/4~20mA
Conversion speed 2ms/channel	Resolution 1/4095(12-bit)
Resolution 1/16383(14-bit)	Accuracy ±1%
Accuracy ±1%	Added enabling flags
Filtering coefficient 0~254	
Added enabling flags	

•DA model

XG-E4DA-S



4 output channels
output voltage 0~5/0~10/-5~5/-10~10V
output current 0~20/4~20mA
Resolution 1/65535(16-bit)
Accuracy ±1%
Added enabling flags

XG series extension module specifications

Item	Specification
Using environment	Non-corrosive gas
Environment temperature	0°C~60°C
Storage temperature	-20~70°C
Environment humidity	5~95%RH
Storage humidity	5~95%RH
Installation	Install on the rail XG-EB-length(mm)
Dimension	130.0mm×40.0mm×133.4mm

XG temperature control extension module

Pt100 thermal resistor and thermocouple temperature measurement, built-in PID control.

• PT100 thermal resistor model

■ Analog extension module XG-E8PT3-P performance

Item	Content
Analog input signal	PT100 thermal resistor
Measuring range	-100°C~500°C
Digital input range	-1000~5000, 16-bit, binary
Control accuracy	±0.5°C
Resolution	0.1°C
Comprehensive accuracy	1% (relative maximum)
Conversion speed	650ms/8 channels
Power supply for analog	DC24V±10%, 50mA

XG-E8PT3-P

8 temperature input channels (3-wire has compensation)
Auto-tuning function
Measuring range -100°C~500°C
Heating and cooling control
Resolution 0.1°C
Control accuracy ±0.5°C
Channel conversion speed 650ms/8 channels
Comprehensive accuracy ±1%

• TC thermocouple model

■ Analog extension module XG-E8TC-P performance

Item	Content
Analog input signal	K, S, E, N, B, T, J, R types of thermocouple
Measuring range	0°C~1300°C (type K)
Digital input range	0~13000, signed 16-bit, binary
Control accuracy	±0.5°C
Resolution	0.1°C
Comprehensive accuracy	1% (relative maximum)
Conversion speed	450ms/8 channels
Power supply for analog	DC24V±10%, 50mA

XG-E8TC-P

8 temperature input channels
Auto-tuning function
Measuring range 0°C~1800°C
Heating and cooling control
Resolution 0.1°C
Control accuracy ±0.5°C
Channel conversion speed 450ms/8 channels
Comprehensive accuracy ±1%

I/O Specification And Wiring

Power supply specification

• Special power supply XG-P75-E

The special independent power supply guarantees the normal operation of PLC in a good and reliable power supply system and prolongs the service life of PLC.

Item	Content
Rated voltage	AC100V~240V
Allowable voltage	AC90V~265V
Rated frequency	50Hz~60Hz
Allowable instantaneous power off time	Downtime ≤ 0.5 AC cycle, space ≥ 1s
Impulse current	Max below 40A 5ms/AC100V Max below 60A 5ms/AC200V
Max consumption power	Rated voltage

• External DC power supply

Item	Content
Rated voltage	DC24V
Voltage allowable range	DC21.6V~26.4V
Input current (basic unit)	120mA DC24V
Allowable instantaneous power off time	10ms DC24V
Impulse current	10A DC26.4V
Max consumption power	12W
Power supply for sensor	24VDC±10%

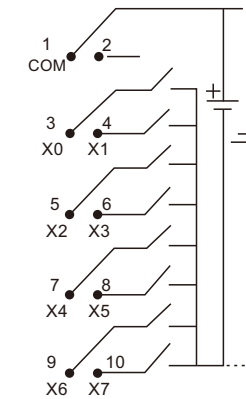
XG1 series PLC input specification and wiring

XG1 series PLC supports NPN and PNP mode, the following is specification and wiring details:

• Input specification

Item	Content
Input signal voltage	DC24V±10%
Input signal current	7mA/DC24V
Input ON current	Above 4.5mA
Input OFF current	Below 1.5mA
Input response time	About 10ms
Input signal form	NPN or PNP open collector transistor
Circuit insulation	Photoelectric coupled insulation
Input action display	LED lights when input is ON

• Input terminal and wiring



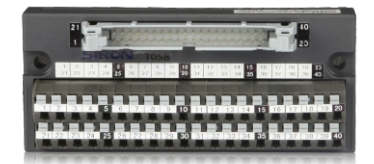
Note: • Input part: The solid line is NPN connection, the dotted line is PNP connection, please refer to the above figure, compatible with NPN and PNP input mode.

• The common terminal com of the input terminal corresponds to all input points, and the com of the output terminal corresponds to different Y output points.

XG2 series PLC input specification and wiring

XG2 series PLC terminals are different from XG1, it is an external module JT-G26.

XG2 series PLC supports NPN and differential signal mode, the following is specification and wiring details:

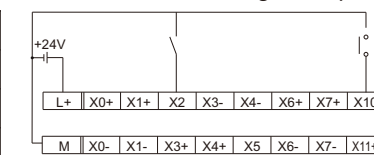


Terminal model: JT-G26

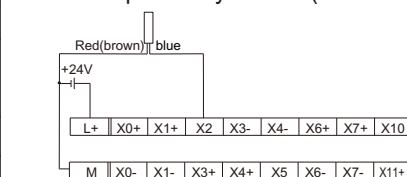
• NPN mode specification

Item	Content
Input signal voltage	DC24V±10%
Input signal current	7mA/DC24V
Input ON current	Above 4.5mA
Input OFF current	Below 1.5mA
Input response time	About 10ms
Input signal form	NPN open collector transistor (X2 X5 X10 X13 X14 X15 X16 X17 X20)
Circuit insulation	Photoelectric coupled insulation
Input action display	LED lights when input is ON

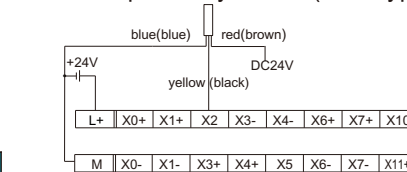
• Switch button wiring example



• 2-wire proximity switch (NO or NC) wiring example



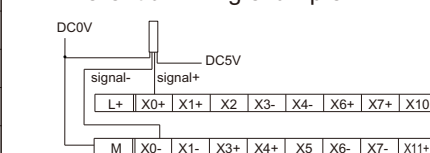
• 3-wire proximity switch (NPN type) wiring example



• Differential signal mode specification

Item	Content
Input signal voltage	DC5V±10%
Input signal current	12mA/DC5V
Input ON current	Above 4.5mA
Input OFF current	Below 1.5mA
Input response feature	Max 200KHz
Input signal form	Differential input (X0 X1 X3 X4 X6 X7 X11 X12)
Circuit insulation	Photoelectric coupled insulation
Input action display	LED lights when input is ON

• Differential wiring example



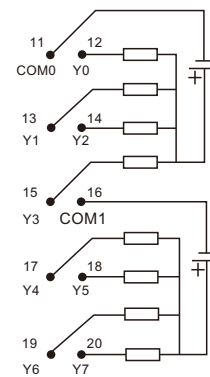
Note: there are four groups of differential signal; X0+, X0-, X1+, X1-, X3+, X3-, X4+, X4-, X6+, X6-, X7+, X7-, X11+, X11-, X12+, X12-; which can be used as high speed counting input. If it needs to receive collector signal, the differential signal should be converted to collector signal through DIFF-OC card.

Transistor output

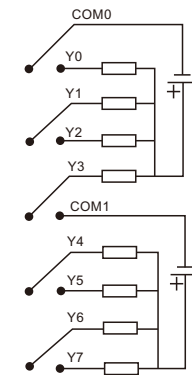
•Output specification

Item	Content	
External power supply	Below DC5-30V	
Circuit insulation	Optocoupler insulation	
Action display	LED light	
Max load	Resistance load	0.3A
	Inductance load	7.2W/DC24V
	Light load	1.5W/DC24V
Min load	DC5V 2mA	
Response time	OFF-->ON	Below 0.2ms
	ON-->OFF	Below 0.2ms

•XG1 output terminal wiring



•XG2 output terminal wiring



High speed pulse output

Model	T4 Model
High speed pulse output	Y0-Y3
External power supply	Below DC5-30V
Action display	LED light
Max current	50mA
Pulse max output frequency	100KHz

Note:

- When using high speed pulse output function, PLC can output pulse of 100KHz-200KHz, but there is no guarantee that all servos will work properly. Please connect 500ohm resistor between output terminal and 24V power supply.
- When the PLC is out of the factory, it is usually equipped with plug-and-pull spring connector to facilitate wiring. The connector requires that the length of the conductor stripped is at least 1.5 cm. When wiring, press the yellow spring switch with a small-sized screwdriver, insert the wire into the corresponding hole, and loosen the spring switch.

High Speed Counter Configuration List

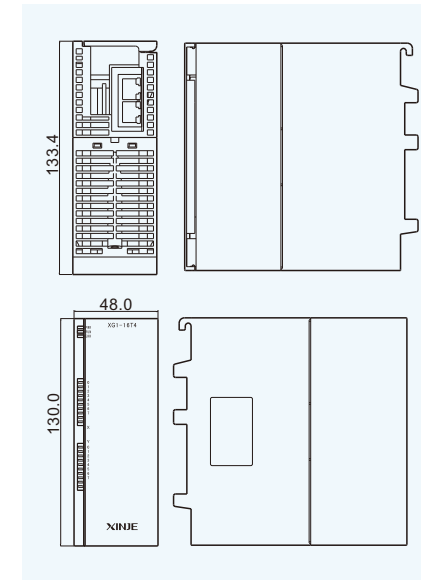
	XG1-16T4							
	Single phase incremental mode				AB phase mode			
	HSC0	HSC2	HSC4	HSC6	HSC0	HSC2	HSC4	HSC6
Max frequency	80K	80K	80K	80K	50K	50K	50K	50K
4 frequency doubling					2/4	2/4	2/4	2/4
Counting interrupt	✓	✓	✓	✓	✓	✓	✓	✓
X000	U				A			
X001					B			
X002		U			A			
X003					B			
X004			U				A	
X005							B	
X006				U				A
X007								B

	XG2-26T4							
	Single phase incremental mode				Differential mode			
	HSC0	HSC2	HSC4	HSC6	HSC0	HSC2	HSC4	HSC6
Max frequency	200K	200K	200K	200K	200K	200K	200K	200K
4 frequency doubling					2/4	2/4	2/4	2/4
Counting interrupt								
X000+	U+				A+			
X000-	U-				A-			
X001+					B+			
X001-					B-			
X002								
X003+		U+			A+			
X003-		U-			A-			
X004+					B+			
X004-					B-			
X005								
X006+			U+		A+			
X006-			U-		A-			
X007+					B+			
X007-					B-			
X010								
X011+				U+				A+
X011-				U-				A-
X012+								B+
X012-								B-

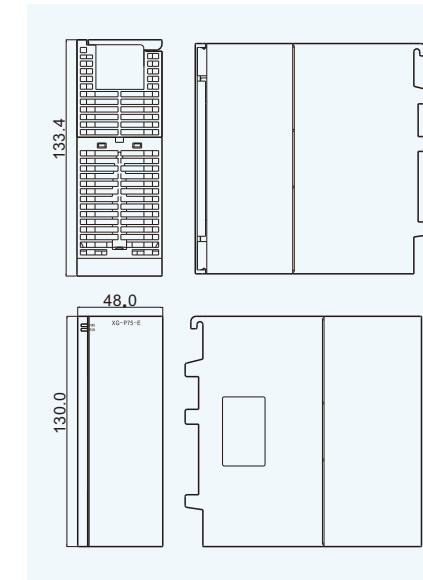
Dimension (Unit: mm)

XG1 series

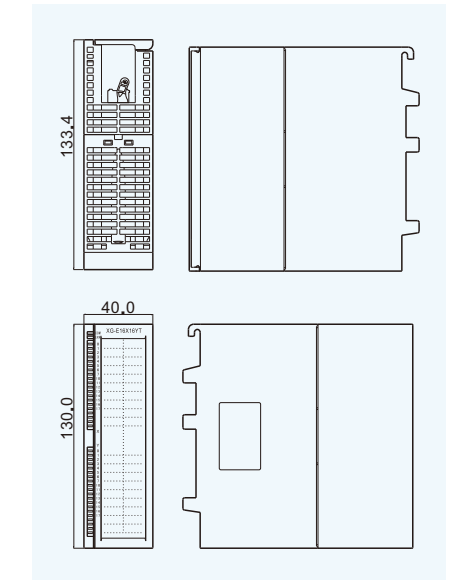
•PLC



•Power supply module

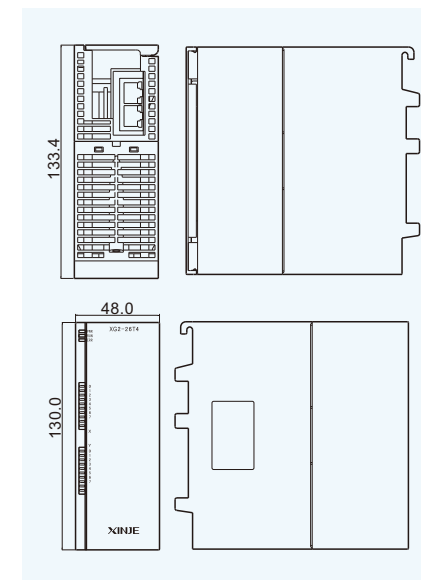


•Extension module

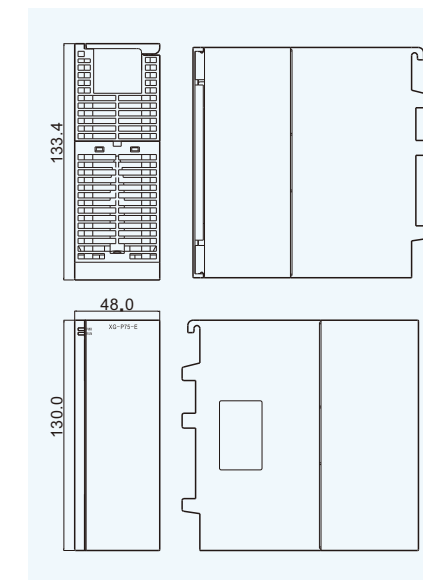


XG2 series

•PLC



•Power supply module



•Extension module

