XINJE

Programmable logic controller

XG1/XL3/XD/XC series

www.xinje.com 2017

XINJE

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XG1 NEW series middle-sized PLC

XL3 NEW series ultrathin PLC

Middle-sized PLC

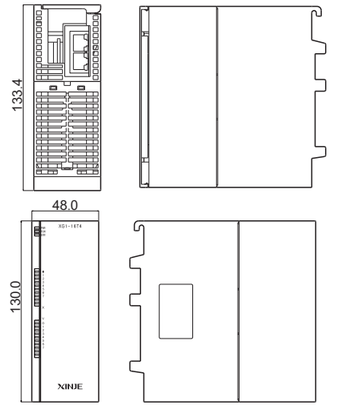
XG1 series

New light appearance

Features

- Ethernet communication port, fast speed and powerful functions
- Motion control function
- Total improved CPU processing speed
- More reliable

Dimension (unit: mm)



Ultrathin PLC

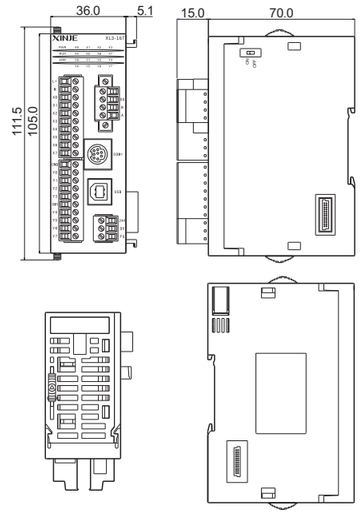
XL3 Series

Small size, powerful function

Features

- Ultrathin appearance, compact and practical, fit for different environment
- Good compatibility
- Support max 10 extension modules
- Outstanding cost performance
- Save installation sapce

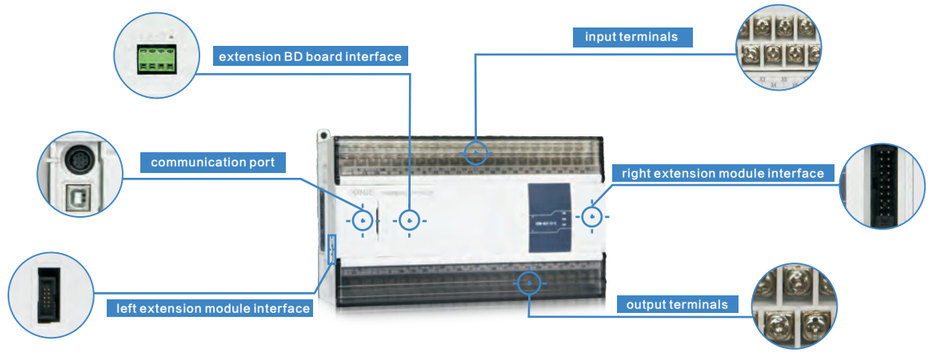
Dimension (unit: mm)



XD NEW series

XD2 series
XD3 series
XD5 series
XDM series
XDC series

- Faster processing speed
- Rich expansion modules
- Stable performance, meet different needs



XD Series

After XC series PLC, XINJE company developped XD series PLC which has faster speed, better performance and fit for various requirments.

Basic model

XD2 series

- 256K program capacity
- I/O sequence control
- Basic model PLC
- 2-axis pulse output
- X-NET fieldbus
- 200KHz pulse output
- No extension function
- Basic instruction 0.02~0.05us

Standard model

XD3 series

- 256K program capacity
- I/O sequence control
- Standard model PLC
- USB communication port
- X-NET fieldbus
- 200KHz pulse output
- Max 380 I/O points
- Basic instruction 0.02~0.05us
- 2-axis pulse output

Enhanced model

XD5-24/32/48/60

- 384K program capacity
- I/O sequence control
- USB communication port
- 200KHz pulse output
- X-NET fieldbus
- Max 572 I/O points
- Basic instruction 0.02~0.05us
- 2-axis pulse output

XD5-24T4/32T4

- 384K program capacity
- I/O sequence control
- USB communication port
- 200KHz pulse output
- X-NET fieldbus
- Max 544 I/O points
- Basic instruction 0.02~0.05us
- 4-axis pulse output

XD5-48T6/60T6

- 384K program capacity
- I/O sequence control
- USB communication port
- 200KHz pulse output
- X-NET fieldbus
- Max 572 I/O points
- Basic instruction 0.02~0.05us
- 6-axis pulse output

Motion control model

XDM-24T4/32T4/60T4

- 384K program capacity
- I/O sequence control
- Standard model PLC
- USB communication port
- X-NET fieldbus
- Function block programming
- 200KHz pulse output
- Max 572 I/O points
- Basic instruction 0.02~0.05us
- Linear and circular interpolation
- Follow-up function
- 4-axis pulse output

XDM-60T10

- 384K program capacity
- I/O sequence control
- Standard model PLC
- USB communication port
- X-NET fieldbus
- Function block programming
- 200KHz pulse output
- Max 572 I/O points
- Basic instruction 0.02~0.05us
- Linear and circular interpolation
- Follow-up function
- 10-axis pulse output

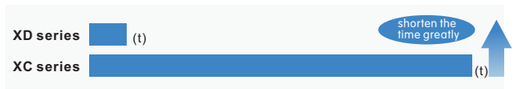
Motion fieldbus model

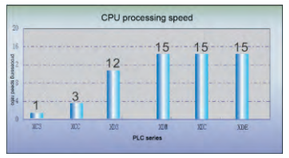
XDC series

- 384K program capacity
- I/O sequence control
- Standard model PLC
- USB communication port
- X-NET fieldbus
- Function block programming
- 200KHz pulse output
- Max 572 I/O points
- Basic instruction 0.02~0.05us
- Follow-up function
- 10-axis pulse output

High speed processing

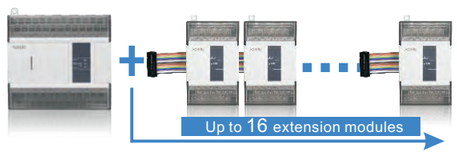
Basic instruction processing speed is 0.02~0.05μs, scanning time is 0.5ms for 10000 steps, program capacity is 256K~384K, the integrated speed is 12~15 times of XC series.





Rich extensions

XD series PLC has rich I/O modules, analog I/O modules, temperature modules, BD board, left extension modules. The PLC unit can connect 10~16 modules, 1~2 BD board, 1 left extension module.



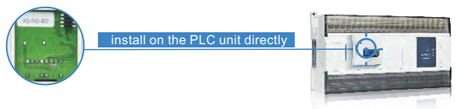
Series	Type	Left extension module	BD board	Right extension module
XD2	16 points	1	0	0
XD3	16 points	1	0	10
	24/32 points	1	1	10
	48/60 points	1	2	10
XD5	24/32/24T4/32T4 points	1	1	16
	48/60 points	1	2	16
	48T6/60T6 points	1	2	16
XDM	24T4/32T4 points	1	1	16
	60T4/T10 points	1	2	16
XDC	24/32 points	1	1	16
	60 points	1	2	16

● **I/O extension module**

- To extend the I/O numbers, 8~32 points, the PLC can extend to 572 points.
- Output extension module has two types which are transistor and relay.

● **Extension BD board**

- The small card can install on the PLC directly, save space, with wireless and wired communication function.



● **Left extension module**

- PLC can transfer the data through WIFI, RS232 or RS485 with the left extension ED module.

● **Analog and temperature extension module**

- D/A and A/D transformation function. Apply to process control system including temperature, flow, liquid level, pressure.
- PID function, only four parameters to set. Fit for various applications, flexible using, high control accuracy.
- XD-E6TC-P, XD-E6PT-P have PID control for each channel, with auto-tune function, transfer data with PLC by instruction FROM and TO.

XD3 series

Larger soft component capacity

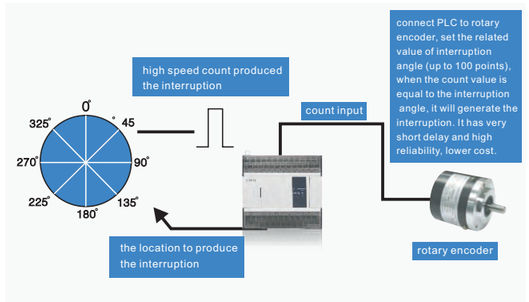
Faster data exchange speed between extension module and main PLC

● The data exchange between extension module and main PLC of XD series is SPI serial communication instead of parallel communication which used by XC series, the speed is faster (μs).

100-segment high speed count interruption function

● High speed count interruption, good real time performance.

● XD series high speed counter has 100 segments of 32 bits preset value. The interruption is produced when the count value difference of each segment is equal to the preset value.



Communication function

● Multi-communication ports (up to 5), support RS232, RS485, motion fieldbus, X-NET fieldbus, Ethernet, can connect VFD, meter and other devices, networking freely.

Subdivided soft component

- Subdivided soft component makes the ladder chart more visually.
- Normal soft component, power-off retentive and special soft component is different from each other by writing format.
- Single phase and AB phase of high speed count also can be distinguished by writing format.

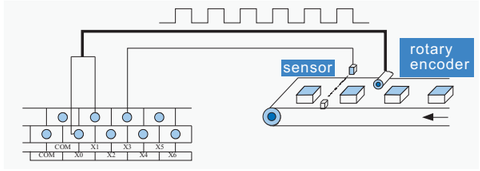
Type		Symbol	Notes	Remark
Bit object		X	Input terminal	
		Y	Output terminal	
		M	Internal coil	
		S	Process coil	
		SM	Special internal coil	similar to the special auxiliary register after M8000 of XC series PLC
		T	Timer coil	
		ET	Precise timer coil	Similar to T600 to T618 of XC series PLC
		C	Counter coil	
		HM	Power-off retentive internal coil	Similar to power-off retentive internal coil of XC series PLC, default is M3000 to M7999
		HS	Power-off retentive process coil	Similar to power-off retentive process coil of XC series PLC, default is S512 to S1023
		HT	Power-off retentive timer coil	New soft component, the timer value and state will be kept even the PLC power is off
		HC	Power-off retentive counter coil	Similar to power-off retentive counter coil of XC series PLC, default is C320 to C630
		HSC	High speed counter coil	Similar to high speed counter coil C600 to C634 of XC series PLC, XD series PLC only have single phase and AB phase mode, AB phase has 2-time frequency and 4-time frequency
		SEM	BLOCK WAIT instruction special coil	The wait coil of XC series PLC can be anyone, in XD series it only can be SEM
Word object	RAM	D	register	
		TD	Timer register	
		ETD	Precise timer register	
		CD	Counter register	
		SD	Special register	
		ID	Analog sampling register	
		QD	Analog output register	
		HD	Power-off retentive register	
		HTD	Power-off retentive timer register	
		HCD	Power-off retentive counter register	
		HSCD	High speed counter register	
		HSD	Power-off retentive special register	
	FLASH	FD	Flash register	protect the customer's intellectual property
		SFD	Special flash register	

High speed count

● XD series PLC can configure 2 to 10 channels of 32-bit high speed count, the max frequency can up to 80KHz, it can connect the rotary encoder and count its value directly.

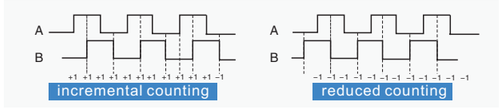
● There are two counting modes including single phase (incremental mode, max frequency 80KHz) and AB phase (2-time/4-time frequency, max frequency 50KHz).

▸ **count input**



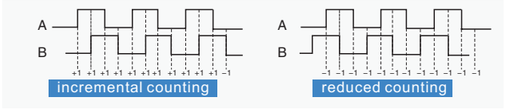
▸ **Multi-counting mode**

▸ **2-time frequency mode**



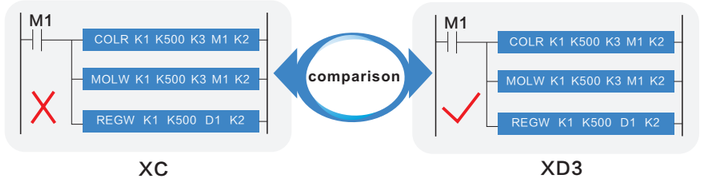
▸ **4-time frequency mode**

AB phase counting has 4-time frequency mode



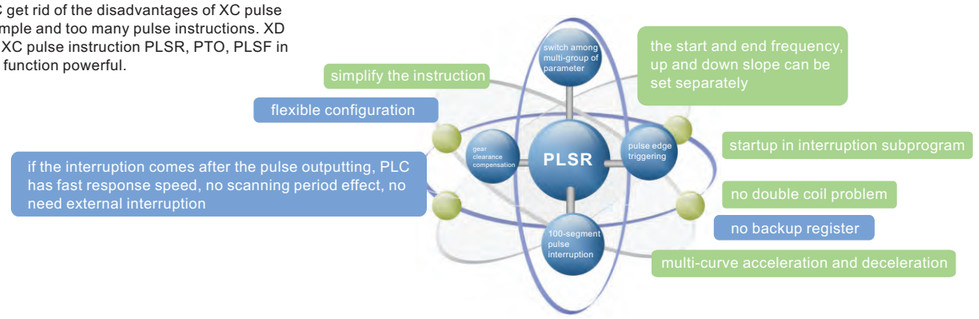
Optimized Modbus instruction

More than one modbus instruction can be triggered by one condition in the main program, these instructions will be executed one by one as the protocol station request. It will not run two instructions at the same time and cause error.



Powerful pulse instruction

XD series PLC get rid of the disadvantages of XC pulse function too simple and too many pulse instructions. XD integrated the XC pulse instruction PLSR, PTO, PLSF in one, make the function powerful.

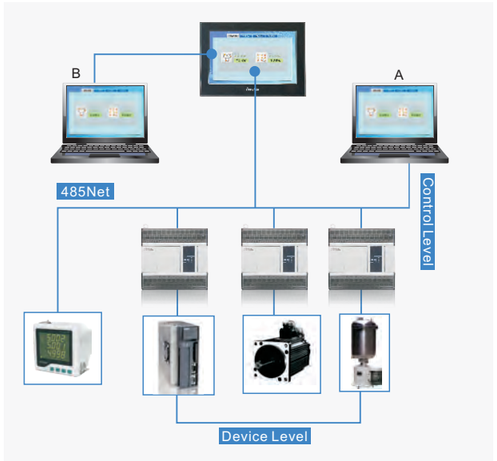


Powerful communication and networking function

XD series PLC communication port not only support Modbus protocol, but also support other complicated network. Users can make free format protocol to communicate with printer and meters.

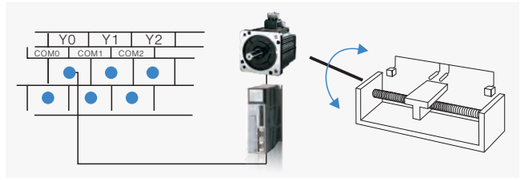
● **Modbus network**

XD series PLC support Modbus (RTU and ASCII) protocol master and slave mode. When PLC is master station, it will send requests to other devices which respond it. When PLC is slave station, it will answer the master station.



200KHz 10 channels pulse output

XD2/XD3/XDC have 2 channels of pulse output, XD5 has 2 to 6 channels of pulse output, XDM has 4 to 10 channels pulse output. Multi-mode output by different instructions. The frequency can up to 200KHz.

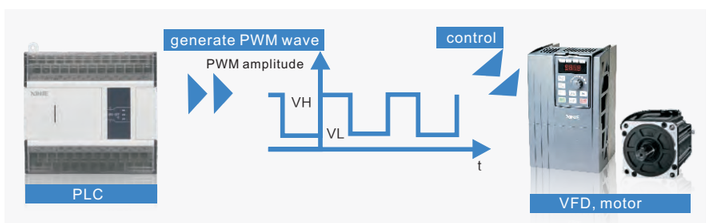


● It needs transistor output PLC for pulse output, such as XD3-16T-E, XD3-60RT-E.
● XD5-24T4/32T4 have 4 channels of pulse output (Y0, Y1, Y2, Y3).
● XD5-48T6/60T6 have 6 channels of pulse output (Y0, Y1, Y2....Y5).
● XDM series PLC has 4 to 10 channels pulse output (Y0, Y1, Y2..... Y11).

series	model	pulse output channel	pulse output terminal
XD2	16T	2	Y0/Y1
XD3	all the transistor output model	2	Y0/Y1
XD5	24T/32T/48T/60T	2	Y0/Y1
	48T6/60T6	6	Y0/Y1/Y2/Y3/Y4/Y5
	24T4/32T4	4	Y0/Y1/Y2/Y3
XDM	24T4/32T4 and 60T4	4	Y0/Y1/Y2/Y3
	60T10	10	Y0/Y1/Y2/Y3/Y4/Y5/ Y6/Y7/Y10/Y11
XDC	24T/32T	2	Y0/Y1
	48T/60T	2	Y0/Y1

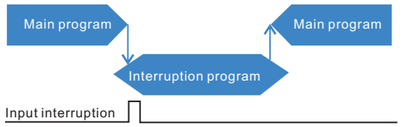
PWM pulse width modulation

● PWM instruction can modulate the pulse width
● The subdivision accuracy is 128 times of XC series PLC, up to 1/65536
● The output frequency is higher than XC series PLC, up to 200KHz
● Control the inverter and DC motor by this function



Interruption

XD series PLC interruption function includes external interruption, timing interruption, 100 segments high speed counter interruption. It can do some special operation by calling the interruption without PLC scanning period influence.



● **Timing interruption**

‣ To run appointed program when the main program is long; to run the program every certain time. The timing interruption is useful for these occasions. It is not affected by PLC scanning period. It will run the subprogram every n ms.

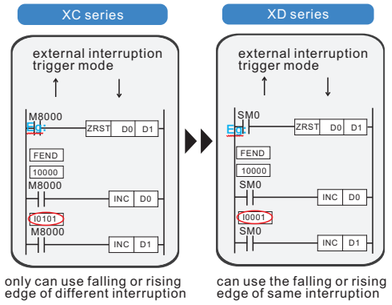
‣ XD series PLC have 20 channels timing interruption, it is 2 times of XC series PLC.

● **External interruption**

‣ The input terminal X is the input of interruption. Each terminal corresponds to an interruption which is activated by falling or rising edge.

‣ XD series PLC have more interruption terminals than XC series.

‣ The falling edge and rising edge can be used at the same time for XD series external interruption.

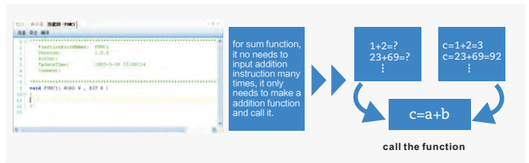


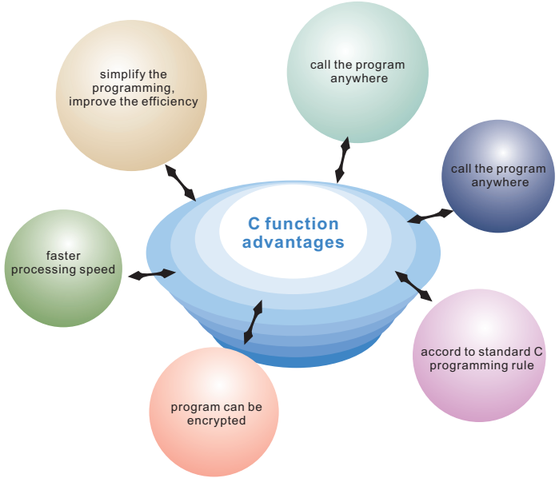
only can use falling or rising edge of different interruption

can use the falling or rising edge of same interruption

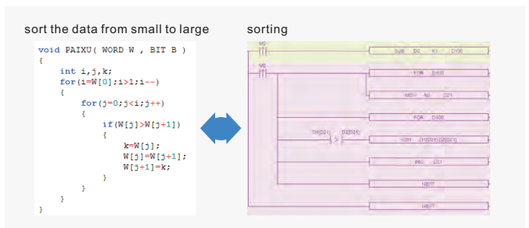
Support C programming(the pioneer in the industry)

● Better program security: call the C program module directly, the C program is encrypted and invisible
● Support all the C functions
● Support local variable and global variable
● Save the program capacity, reduce the workload, improve the programming efficiency

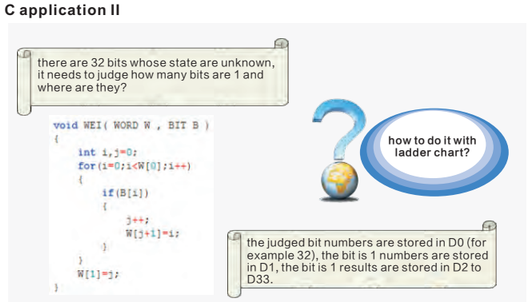




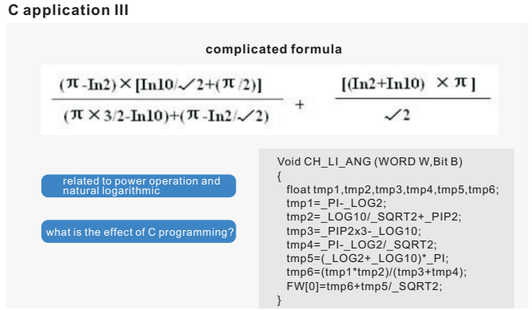
C application I



C application II

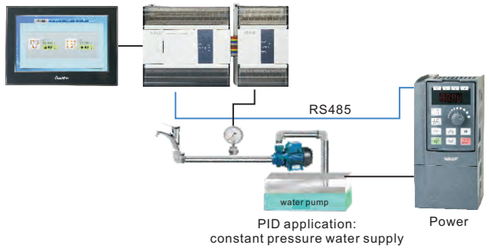


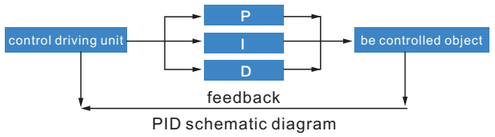
C application III



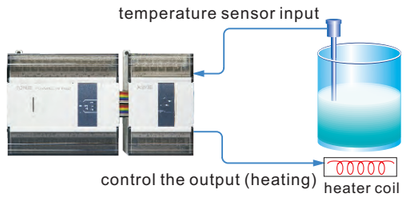
PID control

- XD series PLC support PID control instruction and auto-tune function
- User can get the best sampling time and PID parameters via auto-tune to improve the control accuracy
- Two control methods: step-response and critical oscillation, applied to more occasions



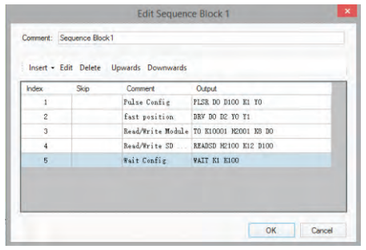


PID schematic diagram



Sequence block

- All the instructions in the sequence block will run one by one. The next instruction will run after the present instruction completed
- The sequence block can optimize the program



Real time clock

- XD series PLC all have RTC inside
- Built-in clock, Li-battery power loss retentive
- XD-CLOCK-BD can apply to high precise clock occasions
- Clock protection function: the PLC clock cannot be changed through communication when secret downloading program in advanced mode

Frequency measurement

- 32 bits instruction FRQM can measure the frequency

Self-diagnosis

- Power on self-diagnosis, monitor the timer, grammar checking

Precise timing

- 32-bit instruction STR can do precise timing
- The precise timer will generate an interruption when it reaches the timer value, each precise timer has related interruption flag
- The precise timer is 1ms 32 bits timer

Password protection

- 6 bits ASCII code, protect the program security
- The soft component FS can protect the intellectual property right of customers

Compact size, easy to installation

- Compact size, two installation methods
- Easy to change the Li-battery of XD series PLC without opening the PLC cover

XD2 basic type

I/O numbers: 16

Data processing function, high speed count, high speed pulse output, communication, real time clock, pulse width modulation (PWM), frequency measurement, precise timing, interruption and so on. The processing speed is 12 times of XC series. Cannot extend modules or BD, ED board.

- 32-bit CPU.
- XD2 provides 16 points I/O, is fit for basic application.
- 2 RS232 ports and 1 RS485 port, support Modbus, free format and X-NET communication.
- Program capacity: 256KB.
- The CPU processing speed is 12 times of XC series.
- Basic instructions: 0.02~0.05us, 6000 steps of instruction only need 0.1~0.2ms.
- 2-axis 200KHz pulse output.
- Powerful password function, protect the intellectual property right of customers.

Built-in high speed counter

incremental mode		AB phase mode	
count ID	max frequency	count ID	max frequency
2	10KHz	2	5KHz

XD3 standard type

I/O numbers: 16, 24/32, 48/60

Data processing function, high speed count, electronic cam, real time clock, communication (Modbus RTU/ASCII), pulse width modulation (PWM), frequency measurement, precise timing, interruption and so on. The processing speed is 12 times of XC series. All the models can connect 10 extension modules, 1 or 2 BD boards, 1 left extension module.

- 32-bit CPU.
- XD3 provides 16/24/32/48/60 points I/O, is fit for various applications.
- USB port makes the downloading and communication very fast.
- Program capacity: 10K steps/data register ID: 1K words.
- The CPU processing speed is 12 times of XC3 series.
- Basic instructions: 0.02~0.05us, 6000 steps of instruction only need 0.1~0.2ms.
- 2-axis 200KHz pulse output.
- 16 points I/O model also can extend modules.
- Powerful password function, protect the intellectual property right of customers.

Built-in high speed counter

incremental mode		AB phase mode	
count ID	max frequency	count ID	max frequency
2/3	80KHz/10KHz	2/3	50KHz/5KHz

XD5 enhanced type

I/O numbers: 24/32, 48/60

The same functions to XD3. The processing speed is 15 times of XC series. Larger internal space. With serial port and one USB download port. All the models can connect 16 extension modules, 1 or 2 BD boards, 1 left extension module.

- 32-bit CPU.
- XD5 provides 24/32/48/60 points I/O, is fit for various applications.
- USB port makes the downloading and communication very fast.
- Program capacity: 25K steps/data register ID: 70K words.
- The CPU processing speed is 15 times of XC3 series.
- Basic instructions: 0.02~0.05us, 6000 steps of instruction only need 0.1~0.2ms.
- 2-axis to 6-axis 200KHz pulse output.
- Powerful password function, protect the intellectual property right of customers.

Built-in high speed counter

incremental mode		AB phase mode	
counter	max frequency	counter	max frequency
3/4/6	80KHz	3/4/6	50KHz

XDM motion control type

I/O numbers: 24/32, 48/60

Support basic motion control instructions, 2-axis linkage motion, interpolation, follow-up, 4-axis separate pulse output, up to 10-axis pulse output, all the functions of XD series such as high speed count, interruption, PID control, the processing speed is 15 times of XC series, support SD card for data storage, with 1 serial port and 1 USB download port (high speed downloading, monitoring, speed up to 12M). All the models can connect 16 extension modules, 1 or 2 BD boards, 1 left extension module.

- 32-bit CPU.
- XDM provides 24/32/48/60 points I/O, is fit for various applications.
- USB port makes the downloading and communication very fast.
- Program capacity: 25K steps/data register ID: 70K words.
- The CPU processing speed is 15 times of XC3 series, 6000 steps of instruction only need 0.1~0.2ms.
- 4-axis to 10-axis 200KHz pulse output.
- Linear or circular interpolation instructions.
- Follow-up control instructions.
- Powerful password function, protect the intellectual property right of customers.

Built-in high speed counter

incremental mode		AB phase mode	
counter	max frequency	counter	max frequency
4/10	80KHz/10KHz	4/10	50KHz/5KHz

XDC motion control fieldbus type

I/O numbers: 24/32, 48/60

The processing speed is 15 times of XC series. Support floating-point calculation, 2 channels pulse output, 4 channels AB phase high speed count, and all the functions of XD series such as interruption, PID. All the models can connect 16 extension modules, 1 or 2 BD boards, 1 left extension module. Support SD card for data storage, with 2 serial ports, support motion control fieldbus, control 20-axis motions at the same time.

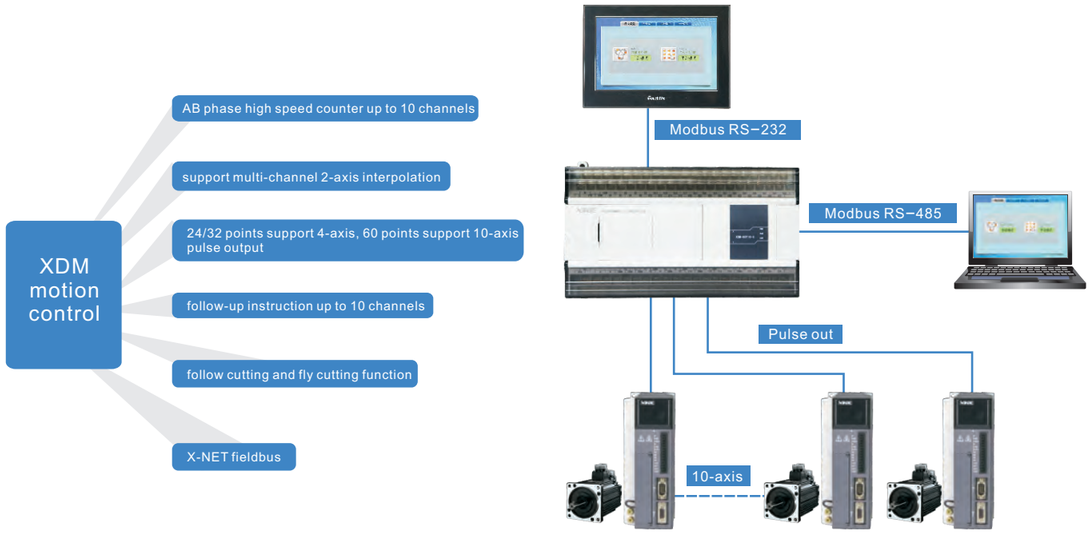
- 32-bit CPU.
- XDC provides 24/32/48/60 points I/O, is fit for various applications.
- Program capacity: 25K steps/data register ID: 70K words.
- The CPU processing speed is 15 times of XC3 series, 6000 steps of instruction only need 0.1~0.2ms.
- 2-axis 200KHz pulse output.
- 1-axis to 20-axis fieldbus control.
- Powerful password function, protect the intellectual property right of customers.

Built-in high speed counter

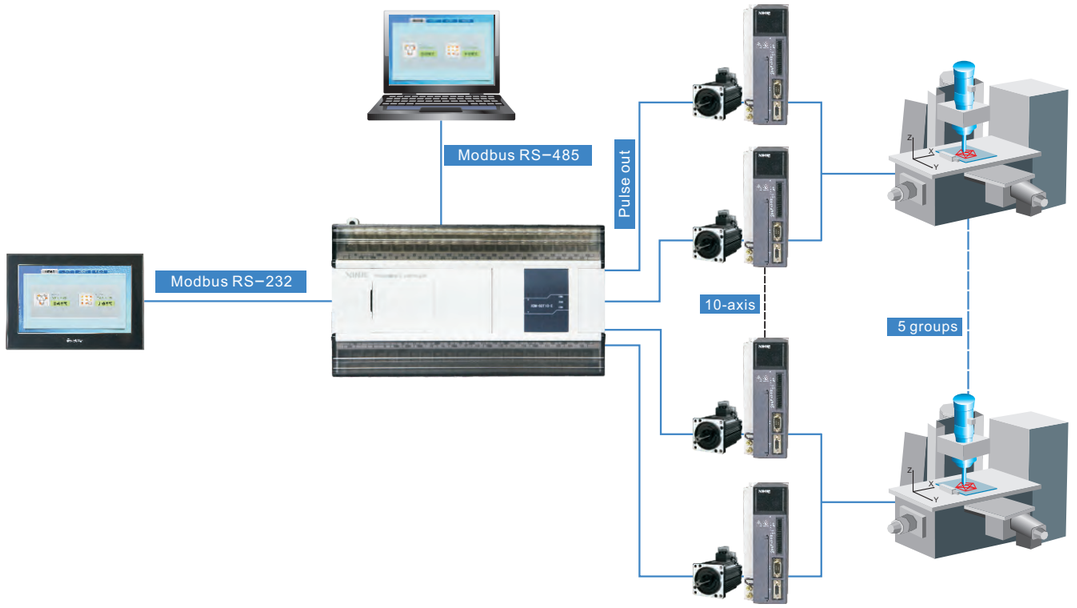
incremental mode		AB phase mode	
counter	max frequency	counter	max frequency
4	80KHz/10KHz	4	50KHz/5KHz

XDM series motion control structure diagram

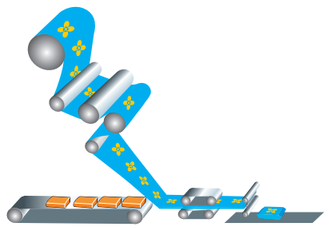
Multi-axis independent control structure diagram



Multi-axis linkage motion control structure diagram

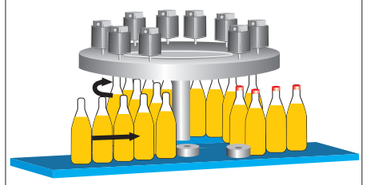


Packing machine



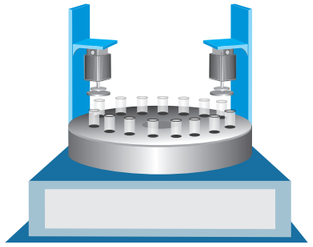
The packing machine can pack the product, the process includes filling, packing, sealing and before and after procedures such as cleaning, stacking, removing. Besides, it also includes counting and printing on the product. The packing machine can improve the production efficiency and reduce labor intensity, be suitable for mass production.

Lid tightener



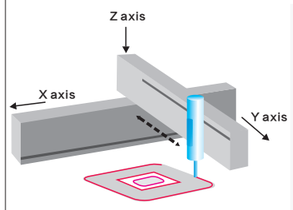
The lid tightener has fast tightening speed, high qualification rate, be suitable for different type of bottle caps such as food, pharmacy, daily chemical, pesticide, cosmetics, etc. The machine has intelligent mechanical torque controlling, easy to adjusting and operation. The worker only needs to put the cap on the bottle, the caps will be auto-tightened by three groups of twisting wheels when the bottle is moving forward. It is fit for single production or attachment production.

The glass bottle grinding machine



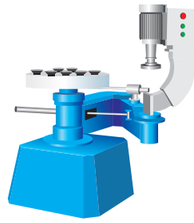
The machine can polish many glass cup-mouths at the same time. It used servo system to improve the precision, product consistency and production efficiency.

Sealant smearing



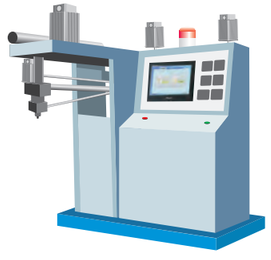
The coating machine can control the fluid sealant and smear it on and inside the product. It can precise find the position, control the sealant accurately, no wire drawing, no sealant leak through. It can be applied to the figure of point, line, arc and circular. It is fit for the product process of injection, coating, point, drop. It is easy to operate, fast and accurately.

Edge grinding machine



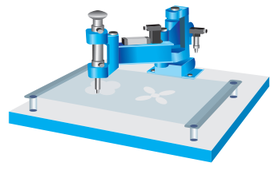
The machine can grind different size and shape of metal edge through linear and circular interpolation function. It contains the coarse grinding, fine grinding, polishing in one process. It has long service life and high efficiency, the shaping is ruled.

Casting machine



This machine can heat the pouring object, then control 2-axis or 3-axis path position through linear or circular interpolation function and pour the object onto the product for splicing and sealing.

Glass cutting machine



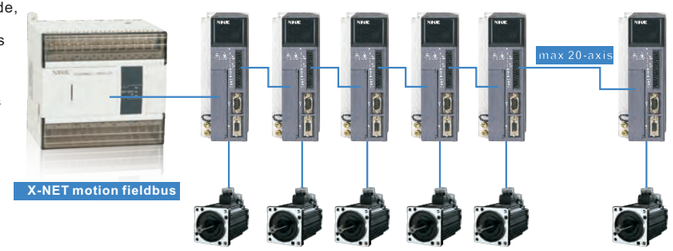
This machine can control 2-axis or 3-axis path position through linear or circular interpolation function. The laser machine which is processing the organic glass has fast cutting speed, high precision, accurate positioning. It can produce artware, model toys, panel lens case, advertising light box, packing box, etc.

XDC series motion fieldbus controller

X-NET motion control fieldbus

The motion fieldbus mode replaces the pulse control mode, makes the system processing speed faster, performance more reliable and stable.It makes the wiring simple and is able to control 20-axis synchronous motion.

- The I/O numbers: 24 points (14/10), 32 points (18/14), 48 points (28/20), 60 points (36/24).
- The I/O can up to 292 input terminals and 280 output terminals through extension modules.
- Support 2 channels of pulse output.
- Support motion control instructions.
- Synchronous period up to 10-axis 4ms, 4-axis 2ms.
- The advanced algorithm makes the control precision higher.



X-NET motion fieldbus

X-NET motion fieldbus accessories

model	name	features
XD-NE-BD	PLC communication extension board	PLC communication extension board
JA-NE-L	servo fieldbus extension board	easy to wiring and operate

XDC system control structure diagram

Built-in function

RS232, RS485, X-NET motion fieldbus.

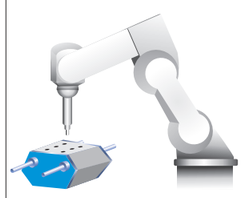
Left extension module

The left side of XD PLC can connect left extension modules including communication, AD/DA/PT/TC.

Right extension module

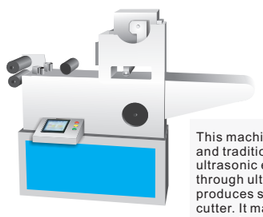
The right side of XD PLC can connect right extension modules including I/O, AD, DA, TC, PT, weighing.

Manipulator



The manipulator is widely used in industry production, medical treatment, entertainment service, military, semiconductor manufacturing, space exploration. Although the shape is different, they have the same characteristics which is receiving instructions and point positioning in 2D or 3D space.

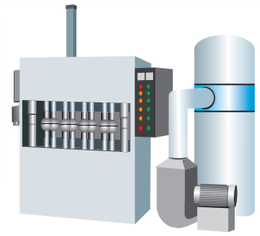
High speed cutting machine



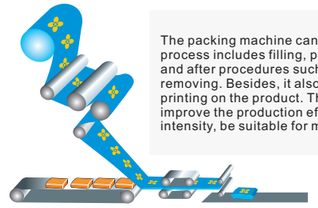
This machine combined ultrasonic welding and traditional shearing. It transfers the ultrasonic energy to the welding head through ultrasonic transducer and produces serious vibration and friction with cutter. It makes the product appearance more elegant and improved the production efficiency.

Ball crusher

This machine can polish the crystal by multi-axis grinding wheel and produce various shapes of crystal crafts. The 20-axis of machine can run at the same time and is controlled by motion fieldbus.



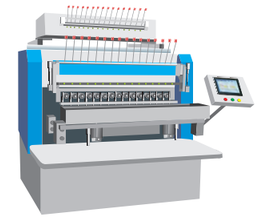
Three-servo packing machine



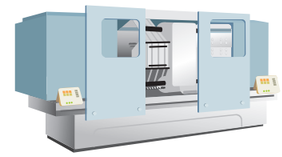
The packing machine can pack the product, the process includes filling, packing, sealing and before and after procedures such as cleaning, stacking, removing. Besides, it also includes counting and printing on the product. The packing machine can improve the production efficiency and reduce labor intensity, be suitable for mass production.

16-axis high speed winding machine

This machine can wind the wires onto the workpiece. Generally, it is used to wind the copper wire. The servo system can replace the traditional frequency inverter to improve the efficiency.



CNC lathe



CNC lathe is one of the automatic lathe installed with program control system which can process the special program and code then translate to digital code and input to CNC device. The CNC device will process the information and output various signals to control the lathe motion to produce the parts as the drawing. The CNC lathe is fit for complicated, accurate and different type of parts, is one type of flexible high-performance lathe.

X-NET fieldbus control system

X-NET fieldbus

The fieldbus replaced the traditional Modbus and free format communication, makes the system faster and reliable. The wiring also become easy. The nodes can up to 32 in single network, different network can communicate with each other.

- XD2, XD3, XD5, XDM, XDC all support X-NET fieldbus.
- I/O numbers can up to 292 inputs and 280 outputs through the extension modules.
- X-NET fieldbus is token ring structure.
- Any node in the network who got the token can send message to other node.
- The speed can up to 3Mbps.

● Network mode

Factory monitoring network, token structure, real-time multi-master station system. Multi-control, configuration or visual system can operate with each other on the same bus. Any node in the network has access right (token), no need external requests to send and receive data.

● Communication speed and distance

The field bus communication speed and medium is related to the site environment. The communication distance has limit as the field bus transferring signal is electricity. The distance is 100m at 3Mbps speed and using XINJE cable. The distance can be 1000m at 192kbps speed. The communication speed can up to 600bit~3Mbit.

● Shield

The shield cable of field bus X-NET must connect to the ground. If the high frequency is serious, it can multi-point-capacitance connect to the ground, cannot directly connect to the ground to avoid ground return current. The shield twin-core cable no need shield but it needs to shield under strong electromagnetism emission environment (automobile industry) to improve the compatibility of electromagnetism. The shielding line and foil must connect the both ends to the ground and cover with large area of shielding wiring to keep good conductivity. The data line must isolate with the high voltage line.

Isolation

The electrical signal of field bus X-NET is electrical isolated with the equipment. If the high voltage input in the network, all the equipment bus transceiver will damage. If there is no isolation, all the equipment circuits will damage.

Intelligent and autonomous

The fieldbus X-NET can process various parameters, running state and error information. It has high intelligence. It can auto-control the system, diagnosis the running status and send the error information to the control center, decrease the maintenance workload, improve the system reliability. Users can check the device running status, the maintenance information, find the error reason and solve the problem earlier. Finally it can save the cost.

Improve the accuracy and reliability

Compared with the analog signal, fieldbus device is intelligent, digitization. It improves the accuracy and reliability of whole system, reduces the transmission error. The system structure is simple, devices and wiring decreased, field meter function enhanced, signal transmission decreased. As the device standardization and function modularization, the system design and rebuilding is easy.

Powerful system expansion

The fieldbus can auto-identify the device reduction or addition, no need to connect new cable and cut the power supply.

Open system

XD series PLC, TN series HMI, DS3E and DS5 series servo drive and frequency inverter have fieldbus X-NET function which can meet most customers' requirements. XINJE company will cooperate with other instrument manufacturers, different devices can interchange information. XINJE products can match more products.

More communication stations

There can be 127 station numbers in the field bus X-NET system.

Save the installation cost

The field bus wiring is very simple. One pair of twisted pair cable can connect multi-devices, save the cables, terminals, slot box, bridges, decrease the workload of wiring design and joint proofreading. It saves the installation and maintenance cost. The system structure is simple, support linear and ring topology, save the time of project design, drafting, cable laying and hardware manage files.

Cable option

The transmission is affected by electromagnetic environment. XINJE cable is shield twin-core or optical fiber which can reach the standard speed and distance. (0.3mm2 and larger multi-strand copper shielded wire is recommended)

Connector

PLC terminal (A, B), extension BD board XD-NE-BD, XD-NO-BD make the connection faster, improve the working efficiency, easy to maintenance.

Terminal matching

The field bus X-NET has reflection phenomenon just like all the electromagnetic signal. Both ends of bus network segment must use resistor (120Ω) to absorb the radiation, make the correct voltage and ensure the communication.

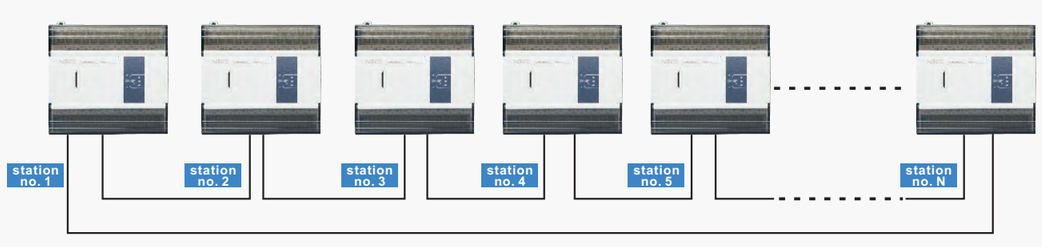
Outstanding cost performance

Users have to spend lots of money for the fieldbus project in nowadays industrial control industry. The XINJE products all have fieldbus X-NET inside, it no needs extra costs. It will not limit by product brand.

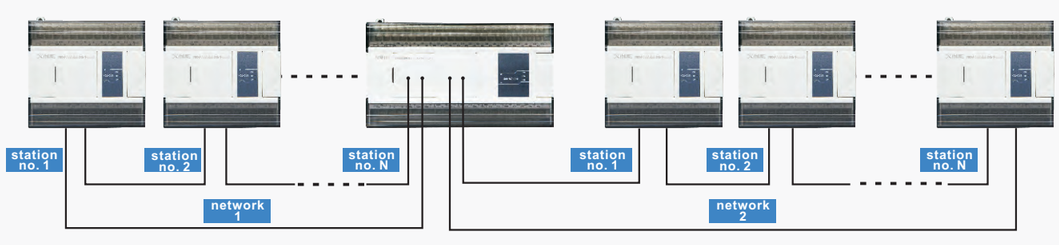
Flexible network topology

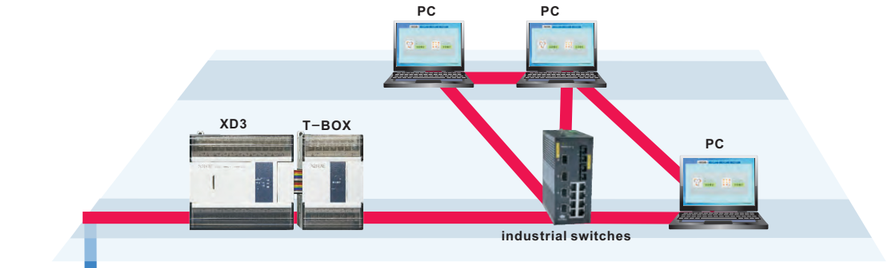
Support various network topology structures including star, line, star and line integrated, ring.

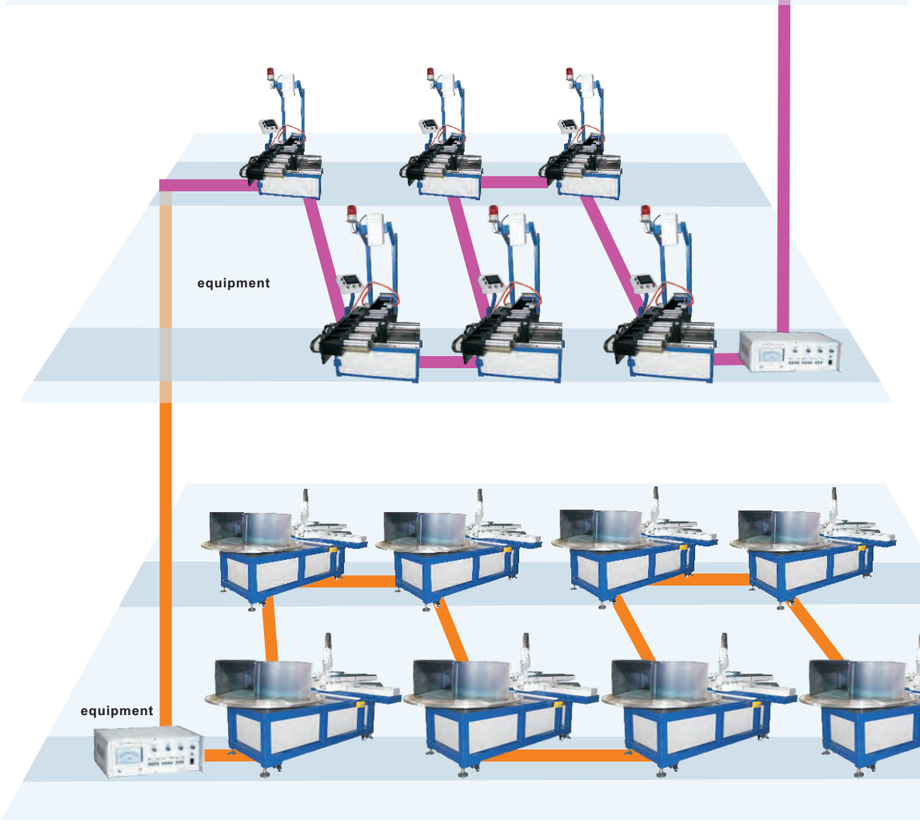
the ring topology



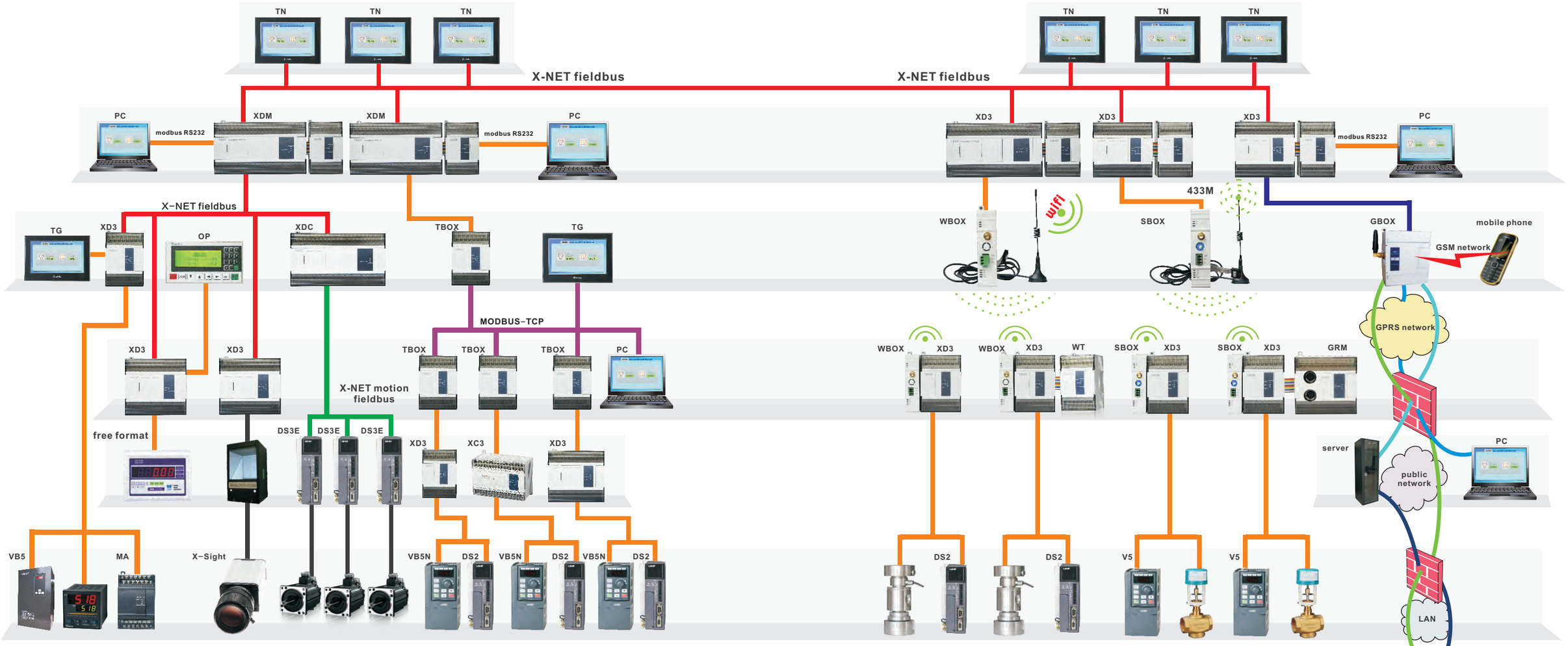
Multi-network structure



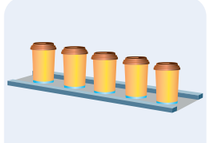




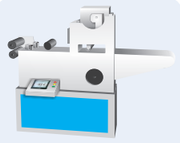
Integrated network structure



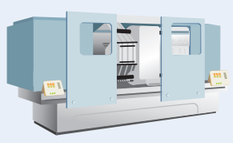
Food processing



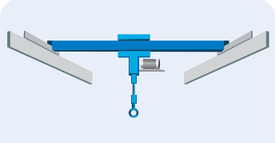
detection



food packing



workshop control



remote monitoring

remote monitoring

remote monitoring

X-NET fieldbus

XINJE XD all series of PLC support X-NET fieldbus, which has the features of intelligent, digital and strong stability. The max speed can up to 3M, the wiring and design is easy, reconsitution is simple.

X-NET motion fieldbus

XINJE XD all series of PLC support X-NET motion fieldbus, which can high speed connect servo system, be fit for multi-axis control, high speed and complicated motion applications. The max axis can up to 20, the max speed can up to 3Mbps.

MODBUS

Support standard Modbus serial port communication, easy to connect other brand of products. It contains RS232, RS485 and free format communication which can be selected as actual applications.

GPRS

Support Modbus-TCP protocol, use together with XC series PLC to connect automation system with GPRS or GSM network. It is fit for distributed system and remote monitoring.

WIFI/433M

WIFI provides the wifi network that other nodes can access and high-speed wireless monitor the device in it. 433M means decreasing the frequency to improve the penetration and tranferring distance, get better wireless communication effect.

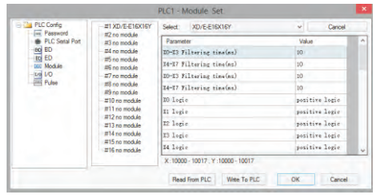
MODBUS-TCP

Support Modbus-TCP protocol, the automation devices connect to each other via the Ethernet. It has better communication performance and makes a widely range of open network.

XD/EPPro edit tool NEW

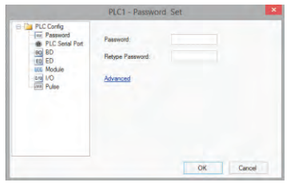
Support XD all series of products

● XD/EPPro software is suitable for XD, XE series PLC, make PLC program, configure the network module, extension module, extension BD and left extension module.

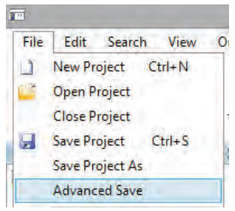


Enhanced password function

● The password can block the program uploading, protect the intellectual property right of user. The password is added to the program downloading to avoid program damage.



● new function advanced save can encrypt the program notes.



Panel configuration

● Easy to write the complicated instruction

▸ XD/EPPro software provides easy editing platform for the complicated instructions including PID, 100-segment high speed counter interruption, electronic cam and so on.

● Easy to configure the pulse instruction

▸ XD/EPPro software has PLSR pulse instruction configuration interface which can configure all the pulse functions.

● pulse configuration guide

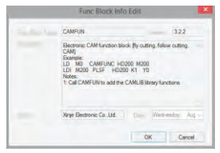
▸ The guide will help user to set the pulse parameters.

Powerful programming language

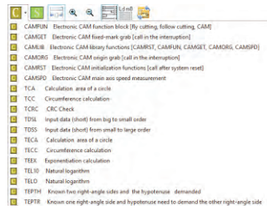
● Support ladder chart and instruction, the two modes can switch to each other

●Support C programming in XD/EPPro, no need to use C programming software

● The function block can be imported and exported, support active code and passive code. The program in the function block is invisible after exporting, the privacy is better

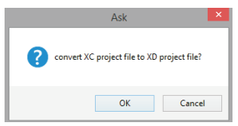


● C library contains more C instructions which can be called directly.



Good compatibility

● XC series PLC program can be transformed to XD program through XD/EPPro software.



XD/EPPro serial port

● Can configure the serial port from COM1 to COM256

● Support Modbus−RTU and Modbus−ASCII protocol

● Support free format communication

Program capacity calculation

● Programmer can know the program capacity accurately.

Rich downloading function

● The data will not be reset, I/O will not be OFF when downloading online, the PLC will auto-run after downloading. User can choosethe downloading data type.

XD2 series PLC

Basic small PLC

■ 7 inputs, 8 outputs
■ 2 channels 200KHz high speed pulse output
■ Faster processing speed
■ Cannot support extension module, BD and ED

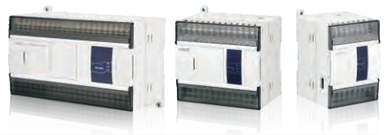
model	specification
XD2−16R−E	AC · 8 · 8 · RS485 · RS232 · R · X · 3 · 20 · 6 · fieldbus XNET
XD2−16R−C	DC · 8 · 8 · RS485 · RS232 · R · X · 3 · 20 · 6 · fieldbus XNET
XD2−16T−E	AC · 8 · 8 · RS485 · RS232 · T · X · 3 · 2 · 20 · 6 · fieldbus XNET
XD2−16T−C	DC · 8 · 8 · RS485 · RS232 · T · X · 3 · 2 · 20 · 6 · fieldbus XNET

AC AC power supply · DC DC power supply · 1 BD board · 16 input · 14 output · real-time clock · R transistor output · R relay output · R transistor and relay output · RS232 RS232 · RS485 RS485 · X NPN · X PNP · 3 pulse input · 2 pulse output · 20 timer interruption · 10 right extension module · 1 left extension module · X10 external interruption · fieldbus XNET X-NET fieldbus · motion fieldbus XNET X-NET motion fieldbus

XD3 series PLC

Economical small PLC

■ max I/O numbers are 380
■ 2 channels 200KHz high speed pulse output
■ 16 points model cannot support right extension module
■ Faster instruction processing speed
■ Rich extension functions



model	specification
XD3−16R−E	AC · 8 · 8 · RS485 · RS232 · R · X · 3 · 10 · 1 · 20 · 6 · fieldbus XNET
XD3−16R−C	DC · 8 · 8 · RS485 · RS232 · R · X · 3 · 10 · 1 · 20 · 6 · fieldbus XNET
XD3−16T−E	AC · 8 · 8 · RS485 · RS232 · T · X · 3 · 2 · 10 · 1 · 20 · 6 · fieldbus XNET
XD3−16T−C	DC · 8 · 8 · RS485 · RS232 · T · X · 3 · 2 · 10 · 1 · 20 · 6 · fieldbus XNET
XD3−16RT−E	AC · 8 · 8 · RS485 · RS232 · R/T · X · 3 · 2 · 10 · 1 · 20 · 6 · fieldbus XNET
XD3−16RT−C	DC · 8 · 8 · RS485 · RS232 · R/T · X · 3 · 2 · 10 · 1 · 20 · 6 · fieldbus XNET
XD3−16PR−E	AC · 8 · 8 · RS485 · RS232 · R · X · 3 · 10 · 1 · 20 · 6 · fieldbus XNET
XD3−16PR−C	DC · 8 · 8 · RS485 · RS232 · R · X · 3 · 10 · 1 · 20 · 6 · fieldbus XNET
XD3−16PT−E	AC · 8 · 8 · RS485 · RS232 · T · X · 3 · 2 · 10 · 1 · 20 · 6 · fieldbus XNET
XD3−16PT−C	DC · 8 · 8 · RS485 · RS232 · T · X · 3 · 2 · 10 · 1 · 20 · 6 · fieldbus XNET
XD3−16PRT−E	AC · 8 · 8 · RS485 · RS232 · R/T · X · 3 · 2 · 10 · 1 · 20 · 6 · fieldbus XNET
XD3−16PRT−C	DC · 8 · 8 · RS485 · RS232 · R/T · X · 3 · 2 · 10 · 1 · 20 · 6 · fieldbus XNET
XD3−24R−E	AC · 14 · 10 · RS485 · RS232 · R · X · 3 · 1 · 10 · 1 · 20 · 10 · fieldbus XNET
XD3−24R−C	DC · 14 · 10 · RS485 · RS232 · R · X · 3 · 1 · 10 · 1 · 20 · 10 · fieldbus XNET
XD3−24T−E	AC · 14 · 10 · RS485 · RS232 · T · X · 3 · 2 · 1 · 10 · 1 · 20 · 10 · fieldbus XNET
XD3−24T−C	DC · 14 · 10 · RS485 · RS232 · T · X · 3 · 2 · 1 · 10 · 1 · 20 · 10 · fieldbus XNET
XD3−24RT−E	AC · 14 · 10 · RS485 · RS232 · R/T · X · 3 · 2 · 1 · 10 · 1 · 20 · 10 · fieldbus XNET
XD3−24RT−C	DC · 14 · 10 · RS485 · RS232 · R/T · X · 3 · 2 · 1 · 10 · 1 · 20 · 10 · fieldbus XNET
XD3−24PR−E	AC · 14 · 10 · RS485 · RS232 · R · X · 3 · 1 · 10 · 1 · 20 · 10 · fieldbus XNET
XD3−24PR−C	DC · 14 · 10 · RS485 · RS232 · R · X · 3 · 1 · 10 · 1 · 20 · 10 · fieldbus XNET
XD3−24PT−E	AC · 14 · 10 · RS485 · RS232 · T · X · 3 · 2 · 1 · 10 · 1 · 20 · 10 · fieldbus XNET
XD3−24PT−C	DC · 14 · 10 · RS485 · RS232 · T · X · 3 · 2 · 1 · 10 · 1 · 20 · 10 · fieldbus XNET
XD3−24PRT−E	AC · 14 · 10 · RS485 · RS232 · R/T · X · 3 · 2 · 1 · 10 · 1 · 20 · 10 · fieldbus XNET
XD3−24PRT−C	DC · 14 · 10 · RS485 · RS232 · R/T · X · 3 · 2 · 1 · 10 · 1 · 20 · 10 · fieldbus XNET
XD3−32R−E	AC · 18 · 14 · RS485 · RS232 · R · X · 3 · 1 · 10 · 1 · 20 · 10 · fieldbus XNET
XD3−32R−C	DC · 18 · 14 · RS485 · RS232 · R · X · 3 · 1 · 10 · 1 · 20 · 10 · fieldbus XNET
XD3−32T−E	AC · 18 · 14 · RS485 · RS232 · T · X · 3 · 2 · 1 · 10 · 1 · 20 · 10 · fieldbus XNET
XD3−32T−C	DC · 18 · 14 · RS485 · RS232 · T · X · 3 · 2 · 1 · 10 · 1 · 20 · 10 · fieldbus XNET
XD3−32RT−E	AC · 18 · 14 · RS485 · RS232 · R/T · X · 3 · 2 · 1 · 10 · 1 · 20 · 10 · fieldbus XNET
XD3−32RT−C	DC · 18 · 14 · RS485 · RS232 · R/T · X · 3 · 2 · 1 · 10 · 1 · 20 · 10 · fieldbus XNET
XD3−32PR−E	AC · 18 · 14 · RS485 · RS232 · R · X · 3 · 1 · 10 · 1 · 20 · 10 · fieldbus XNET
XD3−32PR−C	DC · 18 · 14 · RS485 · RS232 · R · X · 3 · 1 · 10 · 1 · 20 · 10 · fieldbus XNET
XD3−32PT−E	AC · 18 · 14 · RS485 · RS232 · T · X · 3 · 2 · 1 · 10 · 1 · 20 · 10 · fieldbus XNET

model	specification
XD3-32PT-C	DC 18 14 20 RS485 RS232 T NPN 3 2 1 10 1 20 10 fieldbus XNET
XD3-32PRT-E	AC 18 14 20 RS485 RS232 RT NPN 3 2 1 10 1 20 10 fieldbus XNET
XD3-32PRT-C	DC 18 14 20 RS485 RS232 RT NPN 3 2 1 10 1 20 10 fieldbus XNET
XD3-48R-E	AC 28 20 20 RS485 RS232 R NPN 3 2 10 1 20 10 fieldbus XNET
XD3-48R-C	DC 28 20 20 RS485 RS232 R NPN 3 2 10 1 20 10 fieldbus XNET
XD3-48T-E	AC 28 20 20 RS485 RS232 T NPN 3 2 2 10 1 20 10 fieldbus XNET
XD3-48T-C	DC 28 20 20 RS485 RS232 T NPN 3 2 2 10 1 20 10 fieldbus XNET
XD3-48RT-E	AC 28 20 20 RS485 RS232 RT NPN 3 2 2 10 1 20 10 fieldbus XNET
XD3-48RT-C	DC 28 20 20 RS485 RS232 RT NPN 3 2 2 10 1 20 10 fieldbus XNET
XD3-48PR-E	AC 28 20 20 RS485 R PNP 3 2 10 1 20 10 fieldbus XNET
XD3-48PR-C	DC 28 20 20 RS485 R PNP 3 2 10 1 20 10 fieldbus XNET
XD3-48PT-E	AC 28 20 20 RS485 RS232 T PNP 3 2 2 10 1 20 10 fieldbus XNET
XD3-48PT-C	DC 28 20 20 RS485 RS232 T PNP 3 2 2 10 1 20 10 fieldbus XNET
XD3-48PRT-E	AC 28 20 20 RS485 RS232 RT PNP 3 2 2 10 1 20 10 fieldbus XNET
XD3-48PRT-C	DC 28 20 20 RS485 RS232 RT PNP 3 2 2 10 1 20 10 fieldbus XNET
XD3-60R-E	AC 36 24 20 RS485 RS232 R NPN 3 2 10 1 20 10 fieldbus XNET
XD3-60R-C	DC 36 24 20 RS485 RS232 R NPN 3 2 10 1 20 10 fieldbus XNET
XD3-60T-E	AC 36 24 20 RS485 RS232 T NPN 3 2 2 10 1 20 10 fieldbus XNET
XD3-60T-C	DC 36 24 20 RS485 RS232 T NPN 3 2 2 10 1 20 10 fieldbus XNET
XD3-60RT-E	AC 36 24 20 RS485 RS232 RT NPN 3 2 2 10 1 20 10 fieldbus XNET
XD3-60RT-C	DC 36 24 20 RS485 RS232 RT NPN 3 2 2 10 1 20 10 fieldbus XNET
XD3-60PR-E	AC 36 24 20 RS485 R PNP 3 2 10 1 20 10 fieldbus XNET
XD3-60PR-C	DC 36 24 20 RS485 R PNP 3 2 10 1 20 10 fieldbus XNET
XD3-60PT-E	AC 36 24 20 RS485 RS232 T PNP 3 2 2 10 1 20 10 fieldbus XNET
XD3-60PT-C	DC 36 24 20 RS485 RS232 T PNP 3 2 2 10 1 20 10 fieldbus XNET
XD3-60PRT-E	AC 36 24 20 RS485 RS232 RT PNP 3 2 2 10 1 20 10 fieldbus XNET
XD3-60PRT-C	DC 36 24 20 RS485 RS232 RT PNP 3 2 2 10 1 20 10 fieldbus XNET
XD3-20T3TC-E	AC 18 12 RS232 T NPN 2 2 20 6
XD3-20T3TC-E(S)	AC 18 12 RS485 RS232 T NPN 2 2 20 6

AC AC power supply · DC DC power supply · BD BD board · 18 input · 14 output · real-time clock · T transistor output · R relay output · RT transistor and relay output · RS232 RS232 · RS485 RS485 · NPN NPN · PNP PNP · 3 pulse input · 2 pulse output · 10 right extension module · 1 left extension module · 20 timer interruption · 10 external interruption · fieldbus XNET X-NET fieldbus · motion fieldbus XNET X-NET motion fieldbus

XD5 series PLC

XD3 soft component updated PLC

- Max I/O numbers are 572
- 2 to 6 channels 200KHz high speed pulse output
- Large capacity of program and soft component
- Faster processing speed
- Rich extension function

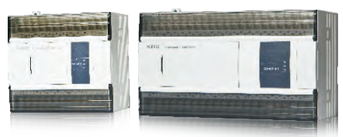
model	specification
XD5-24R-E	AC 14 10 RS485 RS232 NPN 3 10 1 20 10 fieldbus XNET
XD5-24R-C	DC 14 10 RS485 RS232 NPN 3 10 1 20 10 fieldbus XNET
XD5-24T-E	AC 14 10 RS485 RS232 NPN 3 2 10 1 20 10 fieldbus XNET
XD5-24T4-E	AC 14 10 RS485 RS232 NPN 4 4 10 1 20 10 fieldbus XNET
XD5-24T-C	DC 14 10 RS485 RS232 NPN 3 2 10 1 20 10 fieldbus XNET
XD5-24T4-C	DC 14 10 RS485 RS232 NPN 4 4 10 1 20 10 fieldbus XNET
XD5-32R-E	AC 18 14 RS485 RS232 NPN 3 16 1 20 10 fieldbus XNET
XD5-32R-C	DC 18 14 RS485 RS232 NPN 3 16 1 20 10 fieldbus XNET
XD5-32T-E	AC 18 14 RS485 RS232 NPN 3 2 16 1 20 10 fieldbus XNET
XD5-32T4-E	AC 18 14 RS485 RS232 NPN 4 4 16 1 20 10 fieldbus XNET
XD5-32T-C	DC 18 14 RS485 RS232 NPN 3 2 16 1 20 10 fieldbus XNET
XD5-32T4-C	DC 18 14 RS485 RS232 NPN 4 4 16 1 20 10 fieldbus XNET
XD5-48R-E	AC 28 20 RS485 RS232 NPN 3 16 1 20 10 fieldbus XNET
XD5-48R-C	DC 28 20 RS485 RS232 NPN 3 16 1 20 10 fieldbus XNET
XD5-48T-E	AC 28 20 RS485 RS232 NPN 3 2 2 16 1 20 10 fieldbus XNET
XD5-48T-C	DC 28 20 RS485 RS232 NPN 3 2 2 16 1 20 10 fieldbus XNET
XD5-48T6-E	AC 28 20 RS485 RS232 NPN 3 6 2 16 1 20 10 fieldbus XNET
XD5-48T6-C	DC 28 20 RS485 RS232 NPN 3 6 2 16 1 20 10 fieldbus XNET
XD5-60R-E	AC 36 24 RS485 RS232 NPN 3 16 1 20 10 fieldbus XNET
XD5-60R-C	DC 36 24 RS485 RS232 NPN 3 16 1 20 10 fieldbus XNET
XD5-60T-E	AC 36 24 RS485 RS232 NPN 3 2 2 16 1 20 10 fieldbus XNET
XD5-60T-C	DC 36 24 RS485 RS232 NPN 3 2 2 16 1 20 10 fieldbus XNET
XD5-60T6-E	AC 36 24 RS485 RS232 NPN 3 6 2 16 1 20 10 fieldbus XNET
XD5-60T6-C	DC 36 24 RS485 RS232 NPN 3 6 2 16 1 20 10 fieldbus XNET

AC AC power supply · DC DC power supply · BD BD board · 18 input · 14 output · real-time clock · T transistor output · R relay output · RT transistor and relay output · RS232 RS232 · RS485 RS485 · NPN NPN · PNP PNP · 3 pulse input · 2 pulse output · 10 right extension module · 1 left extension module · 20 timer interruption · 10 external interruption · fieldbus XNET X-NET fieldbus · motion fieldbus XNET X-NET motion fieldbus

XDM series PLC

Powerful motion control PLC

- Max I/O numbers are 572
- 4/10 channels 200KHz high speed pulse output
- Support 16 right extension modules
- Support linear, circular interpolation
- Faster processing speed



model	specification
XDM-24T4-E	AC 14 10 RS485 RS232 T NPN 4 4 10 1 20 10 fieldbus XNET
XDM-24T4-C	DC 14 10 RS485 RS232 T NPN 4 4 10 1 20 10 fieldbus XNET
XDM-32T4-E	AC 18 14 RS485 RS232 T NPN 4 4 16 1 20 10 fieldbus XNET
XDM-32T4-C	DC 18 14 RS485 RS232 T NPN 4 4 16 1 20 10 fieldbus XNET
XDM-60T4-E	AC 36 24 RS485 RS232 T NPN 4 4 16 1 20 10 fieldbus XNET
XDM-60T4-C	DC 36 24 RS485 RS232 T NPN 4 4 16 1 20 10 fieldbus XNET
XDM-60T10-E	AC 36 24 RS485 RS232 T NPN 10 10 16 1 20 10 fieldbus XNET
XDM-60T10-C	DC 36 24 RS485 RS232 T NPN 10 10 16 1 20 10 fieldbus XNET

AC AC power supply · DC DC power supply · BD BD board · 18 input · 14 output · real-time clock · T transistor output · R relay output · RT transistor and relay output · RS232 RS232 · RS485 RS485 · NPN NPN · PNP PNP · 3 pulse input · 2 pulse output · 10 right extension module · 1 left extension module · 20 timer interruption · 10 external interruption · fieldbus XNET X-NET fieldbus · motion fieldbus XNET X-NET motion fieldbus

XDC series PLC

Powerful motion fieldbus PLC

- Max I/O numbers are 572
- 2 channels 200KHz high speed pulse output
- Support 16 right extension modules
- Support motion fieldbus X-NET
- Faster processing speed

model	specification
XDC-24T-E	AC 14 10 RS485 RS232 T NPN 3 2 2 16 1 20 10 fieldbus XNET motion fieldbus XNET
XDC-24T-C	DC 14 10 RS485 RS232 T NPN 3 2 2 16 1 20 10 fieldbus XNET motion fieldbus XNET
XDC-32T-E	AC 18 14 RS485 RS232 T NPN 3 2 2 16 1 20 10 fieldbus XNET motion fieldbus XNET
XDC-32T-C	DC 18 14 RS485 RS232 T NPN 3 2 2 16 1 20 10 fieldbus XNET motion fieldbus XNET
XDC-60T-E	AC 36 24 RS485 RS232 T NPN 3 2 2 16 1 20 10 fieldbus XNET motion fieldbus XNET
XDC-60T-C	DC 36 24 RS485 RS232 T NPN 3 2 2 16 1 20 10 fieldbus XNET motion fieldbus XNET

AC AC power supply · DC DC power supply · BD BD board · 18 input · 14 output · real-time clock · T transistor output · R relay output · RT transistor and relay output · RS232 RS232 · RS485 RS485 · NPN NPN · PNP PNP · 3 pulse input · 2 pulse output · 10 right extension module · 1 left extension module · 20 timer interruption · 10 external interruption · fieldbus XNET X-NET fieldbus · motion fieldbus XNET X-NET motion fieldbus

Special function extension BD board

XD series extension communication BD board

installation mode	install inside the XD PLC directly
dimension	40mm×42mm×14mm
using environment	no corrosive gas
environment temperature	0℃ ~ 60℃
environment humidity	5 ~ 95%

XD-NE-BD

XD series PLC extension BD, fieldbus communication, X-NET interface.

Part name:

name		function
communication LED		the LED light is flashing when BD communication well
terminals	A	485+
	B	485-
	SG	signal ground
	●	empty terminal
terminal resistor DIP		choose terminal resistor by turning on the DIP switch (120ohm)

XD-NO-BD

XD series PLC extension BD, fieldbus communication, X-NET optical fiber interface, fast speed, strong anti-interference ability, far communication distance.

Part name:

communication LED	the LED light is flashing when BD communication well
terminal	signal input terminals are on the left, signal output terminals are on the right

XD-NS-BD

XD series PLC extension BD RS-232.

Part name:

name		function
communication LED		the LED light is flashing when BD communication well
terminals	TX	signal send
	RX	signal receive
	GND	ground
	●	empty

left extension module

item	specification
using environment	no corrosive gas
environment temperature	0℃ ~ 60℃
storage temperature	−20 ~ 70℃
environment humidity	5 ~ 95%RH
storage humidity	5 ~ 95%RH
installation	fix with M3 screw or install on the DIN46277 (width 35mm) rail directly
dimension	25mm×100mm×89.0mm
	18mm×100mm×89.0mm

XD-WBOXT-ED

left extension WIFI module

XD-SBOXT-BD

left extension 433M module

XD-NES-ED

left extension RS232/RS485 module

right extension module

the extension cable length can up to 1.5m

I/O extension

if the PLC main unit I/O numbers cannot meet the requirements, please use I/O extension module.

XD series I/O extension module specification

item	specification
using environment	no corrosive gas
environment temperature	0℃ ~ 60℃
storage temperature	−20 ~ 70℃
environment humidity	5 ~ 95%RH
storage humidity	5 ~ 95%RH
installation	fix with M3 screw or install on the DIN46277 (width 35mm) rail directly
dimension	70.8mm×108mm×89.0mm 108.6mm×108mm×89.0mm

XD series I/O extension module model list

model		function
NPN input	PNP input	
XD-E8X	XD-E8PX	8 channels digital input, DC24V power supply
XD-E8YR	-	8 channels relay output, DC24V power supply
XD-E8YT	-	8 channels transistor output, DC24V power supply
XD-E8X8YR	XD-E8PX8YR	8 channels digital input, 8 channels relay output, DC24V power supply
XD-E8X8YT	XD-E8PX8YT	8 channels digital input, 8 channels transistor output, DC24V power supply
XD-E16X	XD-E16PX	16 channels digital input, DC24V power supply
XD-E16YR	-	16 channels relay output, no need power supply
XD-E16YT	-	16 channels transistor output, no need power supply
XD-E16X16YR-E/C	XD-E16PX16YR-E/C	16 channels digital input, 16 channels relay output, AC220V or DC24V
XD-E16X16YT-E/C	XD-E16PX16YT-E/C	16 channels digital input, 16 channels transistor output, AC220V or DC24V
XD-E32YR-E/C	-	32 channels relay output, AC220V or DC24V
XD-E32YT-E/C	-	32 channels transistor output, AC220V or DC24V
XD-E32X-E/C	XD-E32PX-E/C	32 channels digital input, AC220V or DC24V

Input extension module

XD-E8X, XD-E8PX

- 8 input points
- Rated input voltage is DC24V
- Response time below 20ms
- External wiring mode is terminal
- The wiring method is same to PLC main unit
- The P in the model name means PNP input

XD-E16X, XD-E16PX

- 16 input points
- Rated input voltage is DC24V
- Response time below 20ms
- External wiring mode is terminal
- The wiring method is same to PLC main unit
- The P in the model name means PNP input

XD-E32X, XD-E32PX

- 32 input points
- Rated input voltage is DC24V
- Response time below 20ms
- External wiring mode is terminal
- The wiring method is same to PLC main unit
- The P in the model name means PNP input

output extension module

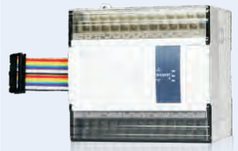
XD-E8YR, XD-E8YT

- 8 output points
- R: relay output T: transistor output
- The wiring method is same to PLC main unit
- External wiring mode is terminal
- R response time below 10ms
- R max load: resistance 3A, inductance 80VA
- response time below 0.2ms
- T max load: resistance 0.5A, inductance 12W 80VA

XD-E16YR, XD-E16YT

- 16 output points
- R: relay output T: transistor output
- The wiring method is same to PLC main unit
- External wiring mode is terminal
- R response time below 10ms
- R max load: resistance 3A, inductance 80VA
- response time below 0.2ms
- T max load: resistance 0.5A, inductance 12W 80VA

XD-E32YR -E/C, XD-E32YT-E/C



- 32 output points
- R: relay output T: transistor output
- The wiring method is same to PLC main unit
- External wiring mode is terminal
- R response time below 10ms
- R max load: resistance 3A, inductance 80VA
- response time below 0.2ms
- T max load: resistance 0.5A, inductance 12W 80VA

I/O extension module

XD-E8X8YR, XD-E8X8YT, XD-E8PX8YR, XD-E8PX8YT

8 input points	Rated input voltage is DC24V
Response time below 20ms	The P in the model name means PNP input
8 output points	R: relay output T: transistor output
R response time below 10ms	T response time below 0.2ms
R max load: resistance 3A, inductance 80VA	T max load: resistance 0.5A, inductance 12W80VA
External wiring mode is terminal	The wiring method is same to PLC main unit76

XD-E16X16YR-E/C, XD-E16X16YT-E/C, XD-E16PX16YR-E/C, XD-E16PX16YT-E/C

16 input points	Rated input voltage is DC24V
Response time below 20ms	The P in the model name means PNP input
16 output points	R: relay output T: transistor output
R response time below 10ms	T response time below 0.2ms
R max load: resistance 3A, inductance 80VA	T max load: resistance 0.5A, inductance 12W80VA
External wiring mode is terminal	The wiring method is same to PLC main unit76

analog extension module

transform the analog signal to digital or digital to analog, receive and process temperature sensor signal.

analog extension module specification

item	specification
using environment	no corrosive gas
environment temperature	0℃ ~ 60℃
storage temperature	−20 ~ 70℃
environment humidity	5 ~ 95%RH
storage humidity	5 ~ 95%RH
installation	fix with M3 screw or install on the DIN46277 (width 35mm) rail directly
dimension	63mm×108mm×89.0mm

AD type

XD-E4AD

- 4 input channels
- Input voltage 0~5/0~10V
- Input current 0~20/4~20mA
- Transforming speed 2ms/channel
- Resolution 1/16383
- Precision ±1%
- Filter coefficient 0~255
- Enable bit is added

XD-E8AD

- 8 input channels
  4 voltage channels and 4 current channels
- Input voltage 0~5/0~10V
- Input current 0~20/4~20mA
- Transforming speed 2ms/channel
- Resolution 1/16383
- Precision ±1%
- Filter coefficient 0~255
- Enable bit is added

DA type

XD-E2DA

2 output channels
output voltage 0~5/0~10V
output current 0~20/4~20mA
Transforming speed 2ms/channel
Resolution 1/4096
Precision ±1%
Enable bit is added

XD-E4DA

2 output channels
output voltage 0~5/0~10V
output current 0~20/4~20mA
Transforming speed 2ms/channel
Resolution 1/4096
Precision ±1%
Enable bit is added

mixed type

XD-E4AD2DA

4 input channels	2 output channels
Input voltage 0~5/0~10V	output voltage 0~5/0~10V
Input current 0~20/4~20mA	output current 0~20/4~20mA
Transforming speed 2ms/channel	Transforming speed 2ms/channel
Resolution 1/16383	Resolution 1/4096
Precision ±1%	Precision ±1%
Filter coefficient 0~255	Enable bit is added
Enable bit is added	

XD-E4AD2DA-B

4 input channels	2 output channels
Input voltage 0~5/0~10V	output voltage 0~5/0~10V
Input current 0~20/4~20mA	Transforming speed 2ms/channel
Transforming speed 2ms/channel	Resolution 1/4096
Resolution 1/16383	Precision ±1%
Precision ±1%	Enable bit is added
Filter coefficient 0~255	
Enable bit is added	

temperature control extension module

Pt100 thermal resistor or thermocouple temperature measurement, PID control inside.

Pt100 thermal resistor

analog extension module XD-E6PT-P general specification

item	specification
using environment	no corrosive gas
environment temperature	0℃ ~ 60℃
storage temperature	−20 ~ 70℃
environment humidity	5 ~ 95%RH
storage humidity	5 ~ 95%RH
installation	fix with M3 screw or install on the DIN46277(width 35mm) rail directly
dimension	63mm×108mm×89.0mm

analog extension module XD-E6PT-P general specification

item	specification
analog input	Pt100 thermal resistor
Temperature range	−100℃ ~ 500℃
Digital output range	−1000~5000, 16-bit signed value, binary
Control precision	±0.5℃
Resolution	0.1℃
Integrated precision	1% (relative max value)
Transformation speed	20ms/channel
Power supply for analog	DC24V±10%，50mA

XD-E6PT-P

6 temperature input channels	Control the heating and cooling
Self-study function	Optional sampling period
Temperature range -100~500℃	Control precision ±0.5℃
Resolution 0.1℃	Integrated precision ±1%
Channel transformation speed 20ms/channel	

TC thermocouple

analog extension module XD-E6TC-P general specification

item	specification
using environment	no corrosive gas
environment temperature	0℃ ~ 60℃
storage temperature	−20 ~ 70℃
environment humidity	5 ~ 95%RH
storage humidity	5 ~ 95%RH
installation	fix with M3 screw or install on the DIN46277(width 35mm) rail directly
dimension	63mm×108mm×89.0mm

analog extension module XD-E6TC-P performance specification

item	specification
analog input	thermocouple K, S, E, N, B, T, J, R
Temperature range	24 0~1300℃ (type K)
Digital output range	25 0~13000, signed 16-bit value, binary
Control precision	±0.5℃
Resolution	0.1℃
Integrated precision	1% (relative max value)
Transformation speed	20ms/channel
Power supply for analog	DC24V±10%，50mA

XD-E6TCA-P

6 temperature input channels	Control the heating and cooling
Self-study function	Optional sampling period
Temperature range 0~1300℃	Control precision ±0.5℃
Resolution 0.1℃	Integrated precision ±1%
Channel transformation speed 20ms/channel	

weighing extension module

transform the weighing signal to digital value

analog input range	DC -39.06 ~ 39.06mV
Resolution	1/16777216(24Bit)
Integrated precision	±0.1%
Transformation speed	0~255 times/second
Power supply	DC24V±10%,100mA
Sensor excitation power supply	5VDC/120mA, can connect 4 350Ω weighing sensor in parallel
Installation mode	fix with M3 screw or install on the DIN46277(width 35mm) rail directly
Dimension	63mm×108mm×89.0mm
Using environment	no corrosive gas
Environment temperature	0℃ ~ 60℃
Environment humidity	5 ~ 95%

XD-E2WT-A

2 weighing channels
AD transformation speed 0~255 times/second
Internal resolution 1/16777216
Display resolution 1/20000
Nonlinear error 0.01% F.S
Time drift 0.005% F.S
Integrated precision ±0.1%

XD-E4WT-A

4 weighing channels
AD transformation speed 0~255 times/second
Internal resolution 1/16777216
Display resolution 1/20000
Nonlinear error 0.01% F.S
Time drift 0.005% F.S
Integrated precision ±0.1%

XD-E1WT-A

1 weighing channels
AD transformation speed 0~255 times/second
Internal resolution 1/16777216
Display resolution 1/20000
Nonlinear error 0.01% F.S
Time drift 0.005% F.S
Integrated precision ±0.1%

MA series remote extension module

MA series modules include digital input and output, analog input and output, temperature control. It uses RS485 port and based on Modbus protocol, can connect PLC, HMI, PLC&HMI integrated controller, and other devices supporting Modbus protocol. It is fit for temperature, flow, liquid level, pressure control, can extend up to 16 modules.

digital I/O module general specification

item	specification
input power supply voltage	DC24V±10%
Using environment	no corrosive gas
Environment temperature	0℃ ~ 60℃
Environment humidity	5 ~ 95%
Installation	fix with M3 screw or install on the DIN46277(width 35mm) rail directly
Dimension	63mm×102mm×73.3mm

digital I/O

I/O extension module MA-nXnY

model	notes
MA-8X8YR	8 channels digital input, 8 channels digital output (relay output)
MA-8X8YT	8 channels digital input, 8 channels digital output (transistor output)
MA-16X	16 channels digital input
MA-16YR	16 channels digital output (relay output)
MA-16YT	16 channels digital output (transistor output)

input extension module

MA-16X, MA-16PX

16 input points
Rated input voltage DC24V
Response time below 20ms
External wiring mode is terminal
The wiring method is same to PLC main unit
The P in the model name means PNP input

output extension module

MA-16YR, MA-16YT

16 output points	R: relay output T: transistor output
The wiring method is same to PLC main unit	R max load: resistance 3A, inductance 80VA
External wiring mode is terminal	T response time below 0.2ms
R response time below 10ms	T max load: resistance 0.5A, inductance 12W80VA

I/O extension module

MA-8X8YR, MA-8PX8YR, MA-8X8YT, MA-8PX8YT

8 input points	R response time below 10ms
Rated input voltage DC24V	T response time below 0.2ms
Response time below 20ms	R max load: resistance 3A, inductance 80VA
The P in the model name means PNP input	T max load: resistance 0.5A, inductance 12W80VA
8 output points	External wiring mode is terminal
R: relay output T: transistor output	The wiring method is same to PLC main unit

analog I/O

analog input module MA-nAD

model	notes
MA-4AD	4 channels, 12-bit high precision analog input (voltage/current), each channel has PID function
MA-8AD-A	8 channels, 12-bit high precision analog input (current), each channel has PID function
MA-8AD-V	8 channels, 12-bit high precision analog input (voltage), each channel has PID function

analog output module MA-nDA

model	notes
MA-2DA	2 channels, 10-bit high precision analog output (voltage/current)
MA-4DA	4 channels, 10-bit high precision analog output (voltage/current)

analog I/O module MA-nADmDA

model	notes
MA-4AD2DA	4 channels, 12-bit high precision analog input (voltage/current), each channel has PID function; 2 channels, 10-bit high precision analog output (voltage/current)

AD type

MA-4AD

- 4 input channels
- Input voltage 0~5/0~10V
- Input current 0~20/4~20mA
- Transformation speed 20ms/channel
- Resolution 1/4096
- Precision ±0.8%

MA-8AD-A

- 8 input channels
- Input current 0~20/4~20mA
- Transformation speed 20ms/channel
- Resolution 1/4096
- Precision ±0.8%

MA-8AD-V

- 8 input channels
- Input voltage 0~5/0~10V
- Transformation speed 20ms/channel
- Resolution 1/4096
- Precision ±0.8%

DA type

MA-2DA

- 2 output channels
- output voltage 0~5/0~10V
- output current 0~20/4~20mA
- Transformation speed 3ms/channel
- Resolution 1/1024
- Precision ±0.8%

MA-4DA

- 4 output channels
- output voltage 0~5/0~10V
- output current 0~20/4~20mA
- Transformation speed 3ms/channel
- Resolution 1/1024
- Precision ±0.8%

AD/DA mixed type

MA-4AD2DA

4 input channels	2 output channels
Input voltage 0~5/0~10V	output voltage 0~5/0~10V
Input current 0~20/4~20mA	output current 0~20/4~20mA
Transformation speed 20ms/channel	Transformation speed 3ms/channel
Resolution 1/4096	Resolution 1/1024
Precision ±0.8%	Precision ±0.8%

temperature control

PT100 thermal resistor

MA-6PT-P

6 temperature input channels	Heating and cooling control
Self-study function	Optional sampling period
Temperature range -100~500℃	Control precision ±0.1℃
Resolution 0.1℃	Integrated precision ±0.8%
Transformation speed 20ms/channel	

TC thermocouple

MA-6TCA-P

6 temperature input channels	Heating and cooling control
Self-study function	Optional sampling period
Temperature range 0~1300℃	Control precision ±0.1℃
Resolution 0.1℃	Integrated precision ±0.8%
Transformation speed 20ms/channel	

XD series product specifications

General specification of basic unit

Item	Specification
Insulation voltage	Up DC500V 2Mohm
anti-noise	Noise voltage 1000 Vp-p 1us pulse 1 minute
Air	No corrosive and flammable gas
Environment temperature	0℃~60℃
Environment humidity	5%RH~95%RH (no condensation)
Com 1	RS232, connect to upper device, HMI to debug and programming
Com 2	RS485, connect to smart meter and VFD
Installation	fix with M3 screw or install on the rail directly
Ground	The third ground (cannot connect the ground with high voltage system

- All the basic units have com1 for programming and debug.
- The rail specification is DIN46277, the width is 35mm.
- The ground is better to use single ground or sharing ground, cannot use public ground.

XD2 series basic unit performance specifications

Items		Specifications	
Program execution mode		scan round mode	
Program mode		Instructions, ladder chart, C language	
Processing speed		0.05us	
Power off retentive		FlashROM and Li-battery (3V button battery)	
Users' program capacity※1		256KB	
I/O points※2	Total I/O numbers	16 points	
	Input numbers	8 points X0~X7	
	Output numbers	8 points Y0~Y7	
Internal Coils(X)※3		1280 points: X0~X77, X10000~X11777, X20000~X20277	
Internal Coils(Y)※4		1280 points: Y0~Y77, Y10000~Y11777, Y20000~Y20277	
Internal Coils(M, HM)		11008 points	M0~M7999【HM0~HM959】※5
			For Special Use※6 SM0~SM2047
Procedure(S)		1152 points	S0~S1023【HS0~HS127】
Timer(T)	points	672 points	T0~T575【HT0~HT95】
	Specification	100mS timer: set time 0.1~3276.7s	
		10mS timer: set time 0.01~327.67s	
		1mS timer: set time 0.001~32.767s	
Counter(T)	points	672 points	C0~C575【HC0~HC95】
	Specification	16 bits counter: set value K0~32,767	
		32 bits counter: set value -2147483648~+2147483647	
Data Register(D)		11048 words	D0~D7999【HD0~HD999】※5
			For Special Use※6 SD0~SD2047
FlashROM Register (FD)		5120 words	FD0~FD5119
			For Special Use※6 SFD0~SFD1999
High speed processing ability		High speed counter, pulse output, external interruption	
Password Protection		6 bits ASCII	
Self-diagnose Function		Power on self-check, monitor timer, grammar check	

※1: The users' program capacity means the maximum program capacity when encrypted downloading.
※2: I/O points mean terminal number that users can connect from outside.
※3: X stands for the internal input relays and can be used as middle relay when input points are exceeded.
※4: Y stands for the internal output relays and can be used as middle relay when output points are exceeded.
※5: 【 】means the default power off retentive area, this area can't be changed.
※6: For special use means special usage registers that are occupied by system, can't be applied for other usage.

XD3 series basic unit performance specifications

Items		Specifications				
Program execution mode		scan round mode				
Program mode		Instructions, ladder chart, C language				
Processing speed		0.05us				
Power off retentive		FlashROM and Li-battery (3V button battery)				
Users' program capacity※1		256KB				
I/O points※2	Total I/O numbers	16 points	24 points	32 points	48 points	60 points
	Input numbers	8 points X0~X7	14 points X0~X15	18 points X0~X21	28 points X0~33	36 points X0~X43
	Output numbers	8 pointsY0~Y7	10 points Y0~Y11	14 points Y0~Y15	20 points Y0~Y23	24 points Y0~Y27
Internal Coils(X)※3		1280 points: X0~X77, X10000~X11777, X20000~X20277				
Internal Coils(Y)※4		1280 points: Y0~Y77, Y10000~Y11777, Y20000~Y20277				
Internal Coils(M, HM)		11008 points	M0~M7999【HM0~HM959】※5			
			For Special Use※6 SM0~SM2047			
Procedure(S)		1152 points	S0~S1023【HS0~HS127】			
Timer(T)	points	672 points	T0~T575【HT0~HT95】			
	Specification	100mS timer: set time 0.1~3276.7s				
		10mS timer: set time 0.01~327.67s				
		1mS timer: set time 0.001~32.767s				
Counter(T)	points	672 points	C0~C575【HC0~HC95】			
	Specification	16 bits counter: set value K0~32,767				
		32 bits counter: set value -2147483648~+2147483647				
Data Register(D)		11048 words	D0~D7999【HD0~HD999】※5			
			For Special Use※6 SD0~SD2047			
FlashROM Register (FD)		5120 words	FD0~FD5119			
			For Special Use※6 SFD0~SFD1999			
High speed processing ability		High speed counter, pulse output, external interruption				
Password Protection		6 bits ASCII				
Self-diagnose Function		Power on self-check, monitor timer, grammar check				

※1: The users' program capacity means the maximum program capacity when encrypted downloading.
※2: I/O points mean terminal number that users can connect from outside.
※3: X stands for the internal input relays and can be used as middle relay when input points are exceeded.
※4: Y stands for the internal output relays and can be used as middle relay when output points are exceeded.
※5: 【 】means the default power off retentive area, this area can't be changed.
※6: For special use means special usage registers that are occupied by system, can't be applied for other usage.

XD5 series basic unit performance specifications

Items		Specifications				
Program execution mode		scan round mode				
Program mode		Instructions, ladder chart, C language				
Processing speed		0.05us				
Power off retentive		FlashROM and Li-battery (3V button battery)				
Users' program capacity※1		384KB				
I/O points※2	Total I/O numbers	24 points	32 points	48 points	60 points	
	Input numbers	14 points X0~X15	18 points X0~X21	28 points X0~33	36 points X0~X43	
	Output numbers	10 points Y0~Y11	14 points Y0~Y15	20 points Y0~Y23	24 points Y0~Y27	
Internal Coils(X)※3		1280 points: X0~X77, X10000~X11777, X20000~X20277				
Internal Coils(Y)※4		1280 points: Y0~Y77, Y10000~Y11777, Y20000~Y20277				
Internal Coils(M, HM)		92000 points	M0~M74999【HM0~HM11999】※5			
			For Special Use※6 SM0~SM4999			
Procedure(S)		9000 points	S0~S7999【HS0~HS999】			
Timer(T)	points	7000 points	T0~T4999【HT0~HT1999】			
	Specification	100mS timer: set time 0.1~3276.7s				
		10mS timer: set time 0.01~327.67s				
		1mS timer: set time 0.001~32.767s				
Counter(T)	points	7000 points	C0~C4999【HC0~HC1999】			
	Specification	16 bits counter: set value K0~32,767				
		32 bits counter: set value -2147483648~+2147483647				
Data Register(D)		100000 words	D0~D69999【HD0~HD24999】※5			
			For Special Use※6 SD0~SD4999			
FlashROM Register (FD)		14192 words	FD0~FD8191			
			For Special Use※6 SFD0~SFD5999			
High speed processing ability		High speed counter, pulse output, external interruption				
Password Protection		6 bits ASCII				
Self-diagnose Function		Power on self-check, monitor timer, grammar check				

※1: The users' program capacity means the maximum program capacity when encrypted downloading.
※2: I/O points mean terminal number that users can connect from outside.
※3: X stands for the internal input relays and can be used as middle relay when input points are exceeded.
※4: Y stands for the internal output relays and can be used as middle relay when output points are exceeded.
※5: 【 】means the default power off retentive area, this area can't be changed.
※6: For special use means special usage registers that are occupied by system, can't be applied for other usage.

XDM series basic unit performance specifications

Items		Specifications			
Program execution mode		scan round mode			
Program mode		Instructions, ladder chart, C language			
Processing speed		0.05us			
Power off retentive		FlashROM and Li-battery (3V button battery)			
Users' program capacity※1		384KB			
I/O points※2	Total I/O numbers	24 points	32 points	60 points	
	Input numbers	14 points X0~X15	18 points X0~X21	36 points X0~X43	
	Output numbers	10 points Y0~Y11	14 points Y0~Y15	24 points Y0~Y27	
Internal Coils(X)※3		1280 points: X0~X77, X10000~X11777, X20000~X20277			
Internal Coils(Y)※4		1280 points: Y0~Y77, Y10000~Y11777, Y20000~Y20277			
Internal Coils(M, HM)		92000 points	M0~M74999【HM0~HM11999】※5		
			For Special Use※6 SM0~SM4999		
Procedure(S)		9000 points	S0~S7999【HS0~HS999】		
Timer(T)	points	7000 points	T0~T4999【HT0~HT1999】		
	Specification	100mS timer: set time 0.1~3276.7s			
		10mS timer: set time 0.01~327.67s			
		1mS timer: set time 0.001~32.767s			
Counter(T)	points	7000 points	7000 points		
	Specification	16 bits counter: set value K0~32,767			
		32 bits counter: set value -2147483648~+2147483647			
Data Register(D)		100000 words	D0~D69999【HD0~HD24999】※5		
			For Special Use※6 SD0~SD4999		
FlashROM Register (FD)		14192 words	FD0~FD8191		
			For Special Use※6 SFD0~SFD5999		
High speed processing ability		High speed counter, pulse output, external interruption			
Password Protection		6 bits ASCII			
Self-diagnose Function		Power on self-check, monitor timer, grammar check			

※1: The users' program capacity means the maximum program capacity when encrypted downloading.
※2: I/O points mean terminal number that users can connect from outside.
※3: X stands for the internal input relays and can be used as middle relay when input points are exceeded.
※4: Y stands for the internal output relays and can be used as middle relay when output points are exceeded.
※5: 【 】means the default power off retentive area, this area can't be changed.
※6: For special use means special usage registers that are occupied by system, can't be applied for other usage.

XDC series basic unit performance specifications

Items		Specifications		
Program execution mode		scan round mode		
Program mode		Instructions, ladder chart, C language		
Processing speed		0.05us		
Power off retentive		FlashROM and Li-battery (3V button battery)		
Users' program capacity※1		384KB		
I/O points※2	Total I/O numbers	24 points	32 points	60 points
	Input numbers	14 points X0~X15	18 points X0~X21	36 points X0~X43
	Output numbers	10 points Y0~Y11	14 points Y0~Y15	24 points Y0~Y27
Internal Coils(X)※3		1280 points: X0~X77, X10000~X11777, X20000~X20277		
Internal Coils(Y)※4		1280 points: Y0~Y77, Y10000~Y11777, Y20000~Y20277		
Internal Coils(M, HM)		92000 points	M0~M74999【HM0~HM11999】※5	
			For Special Use※6 SM0~SM4999	
Procedure(S)		9000 points	S0~S7999【HS0~HS999】	
Timer(T)	points	7000 points	T0~T4999 【HT0~HT1999】	
	Specification	100mS timer: set time 0.1~3276.7s		
		10mS timer: set time 0.01~327.67s		
		1mS timer: set time 0.001~32.767s		
Counter(T)	points	7000 points	C0~C4999【HC0~HC1999】	
	Specification	16 bits counter: set value K0~32,767		
		32 bits counter: set value -2147483648~+2147483647		
Data Register(D)		100000 words	D0~D69999【HD0~HD24999】※5	
			For Special Use※6 SD0~SD4999	
FlashROM Register (FD)		14192 words	FD0~FD8191	
			For Special Use※6 SFD0~SFD5999	
High speed processing ability		High speed counter, pulse output, external interruption		
Password Protection		6 bits ASCII		
Self-diagnose Function		Power on self-check, monitor timer, grammar check		

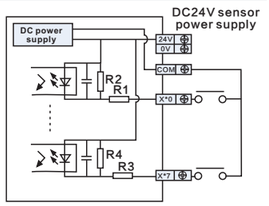
※1: The users' program capacity means the maximum program capacity when encrypted downloading.
※2: I/O points mean terminal number that users can connect from outside.
※3: X stands for the internal input relays and can be used as middle relay when input points are exceeded.
※4: Y stands for the internal output relays and can be used as middle relay when output points are exceeded.
※5: 【 】means the default power off retentive area, this area can't be changed.
※6: For special use means special usage registers that are occupied by system, can't be applied for other usage.

Input specification and wiring

the Input includes NPN and PNP mode.

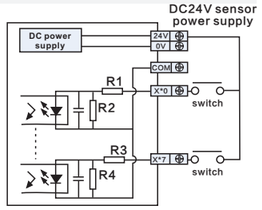
NPN mode specification

Item	Contents
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 mode	Contactor input or NPN open collector transistor
Circuit insulation	Photo-electricity coupling insulation
Input action display	LED lights when input ON



PNP mode specification

Item	Contents
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 mode	Contactor input or PNP open collector transistor
Circuit insulation	Photo-electricity coupling insulation
Input action display	LED lights when input ON



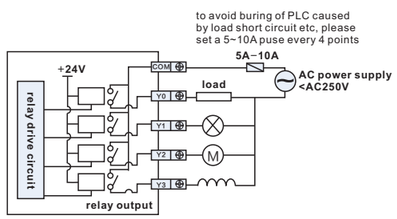
Output specification and wiring

The output includes relay and transistor mode.

Output specification

Relay output

External power		Below AC250V, DC30V
Circuit insulation		Mechanical insulation
Action indicator		LED
Max load	Resistant load	3A
	Inductive load	80VA
	Lamp load	100W
Mini load		DC5V 2mA
Response time	OFF→ON	10ms
	ON→OFF	10ms

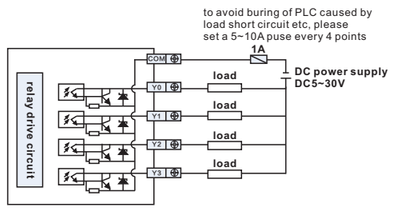


High speed pulse output

Model	RT or T
High Speed Pulse Output Terminal	Y0, Y1(Y2/Y3)(Y4/Y5~Y10/Y11)
External Power Supply	Below DC5~30V
Action Indicator	LED
Maximum Current	50mA
Max output pulse frequency	200KHZ

ordinary transistor output

External power		DC5~30V
Circuit insulation		optocoupler insulation
Action indicator		LED
Max load	Resistant load	0.3A
	Inductive load	8W/DC24V
	Lamp load	1.5W/DC24V
Mini load		DC5V 2mA
Response time	OFF→ON	Below 0.2ms
	ON→OFF	Below 0.2ms



Power supply specification

AC power supply

Items	Content
Rated Voltage	AC100V~240V
Allowed Voltage Range	AC90V~265V
Rated Frequency	50/60Hz
Allow momentary power off time	Interruption Time≤0.5 AC cycle, interval≥1s
Impulse Current	Max 40A below 5mS/AC100V max 60A below 5ms/AC200V
Maximum Power Consumption	12W
Power Supply for Sensor	24VDC±10% 16 points max is 200mA ,32 points max is 400mA

DC power supply

Items	Content
Rated Voltage	DC24V
Allowed Voltage Range	DC21.6V~26.4V
Input Current (Only for basic unit)	120mADC24V
Allow momentary power off time	10msDC24V
Impulse Current	10ADC26.4V
Maximum Power Consumption	12W
Power Supply for Sensor	24VDC±10% 16 points max is 200 mA, 32 points max is 400mA

■ Please use the wire cable more than 2mm2 to avoid the decrease of voltage.
■ Even power off in 10ms, the PLC can still keep working. But when power is off for long time or voltage abnormally decrease, the PLC will stop working, output will be OFF. When power is on again, the PLC will run automatically.
■ The grounding terminals on basic units and extensions are connected together, and connected to the ground well (the third kind of ground).

High speed counter configuration table

XD2-16R/T

	single phase incremental mode							AB phase mode				
	HSC0	HSC2	HSC4	HSC6	HSC8	HSC10	HSC12	HSC0	HSC2	HSC4	HSC6	HSC8
max frequency	10K	10K	10K					5K	5K	5K		
4-time frequency								2/4	2/4	2/4		
Counter interruption	√	√	√					√	√	√		
X000	U							A				
X001								B				
X002												
X003		U							A			
X004									B			
X005			U									
X006										A		
X007										B		

XD3-16/24/32/48/60T/R/RT

	single phase incremental mode							AB phase mode				
	HSC0	HSC2	HSC4	HSC6	HSC8	HSC10	HSC12	HSC0	HSC2	HSC4	HSC6	HSC8
max frequency	80K	10K	10K					50K	5K	5K		
4-time frequency								2/4	2/4	2/4		
Counter interruption	√	√	√					√	√	√		
X000	U							A				
X001								B				
X002												
X003		U							A			
X004									B			
X005												
X006			U							A		
X007										B		
X010												

XD5-24T/32T/48T/60T

	single phase incremental mode							AB phase mode				
	HSC0	HSC2	HSC4	HSC6	HSC8	HSC10	HSC12	HSC0	HSC2	HSC4	HSC6	HSC8
max frequency	80K	80K	80K					50K	50K	50K		
4-time frequency								2/4	2/4	2/4		
Counter interruption	√	√	√					√	√	√		
X000	U							A				
X001								B				
X002												
X003		U							A			
X004									B			
X005												
X006			U							A		
X007										B		
X010												
X011												
X012												
X013												

XD5-24T4/32T4

	single phase incremental mode						AB phase mode					
	HSC0	HSC2	HSC4	HSC6	HSC8	HSC10	HSC0	HSC2	HSC4	HSC6	HSC8	HSC10
max frequency	80K	80K	80K	80K			50K	50K	50K	50K		
4-time frequency							2/4	2/4	2/4	2/4		
Counter interruption	√	√	√	√			√	√	√	√		
X000	U						A					
X001							B					
X002												
X003		U						A				
X004								B				
X005												
X006			U						A			
X007									B			
X010												
X011				U						A		
X012										B		
X013												
X014												
X015												
X016												
X017												
X020												
X021												

XD5-48T6/60T6

	single phase incremental mode						AB phase mode					
	HSC0	HSC2	HSC4	HSC6	HSC8	HSC10	HSC0	HSC2	HSC4	HSC6	HSC8	HSC10
max frequency	80K	80K	80K	80K	80K	80K	50K	50K	50K	50K	50K	50K
4-time frequency							2/4	2/4	2/4	2/4	2/4	2/4
Counter interruption	√	√	√	√	√	√	√	√	√	√	√	√
X000	U						A					
X001							B					
X002												
X003		U						A				
X004								B				
X005												
X006			U						A			
X007									B			
X010												
X011				U						A		
X012										B		
X013												
X014					U						A	
X015											B	
X016												
X017												
X020						U						A
X021												B

XDM-24T4/32T4/60T4, XDC-24T/32T/48T/60T

	single phase incremental mode							AB phase mode				
	HSC0	HSC2	HSC4	HSC6	HSC8	HSC10	HSC12	HSC0	HSC2	HSC4	HSC6	HSC8
max frequency	80K	80K	80K	80K				50K	50K	50K	50K	
4-time frequency								2/4	2/4	2/4	2/4	
Counter interruption	√	√	√	√				√	√	√	√	
X000	U							A				
X001								B				
X002												
X003		U							A			
X004									B			
X005												
X006			U							A		
X007										B		
X010												
X011												
X012				U							A	
X013											B	

XDM-60T10	single phase incremental mode											
	HSC0	HSC2	HSC4	HSC6	HSC8	HSC10	HSC12	HSC14	HSC16	HSC18	HSC20	HSC22
max frequency	80K	80K	80K	80K	80K	80K	80K	80K	10K	10K		
4-time frequency												
Counter interruption	√	√	√	√	√	√	√	√	√	√		
X000	U											
X001												
X002												
X003		U										
X004												
X005												
X006			U									
X007												
X010												
X011				U								
X012												
X013												
X014					U							
X015												
X016												
X017						U						
X020												
X021												
X022							U					
X023												
X024												
X025								U				
X026												
X027												
X030									U			
X031												
X032												
X033										U		
X034												

XDM-60T10	AB phase mode											
	HSC0	HSC2	HSC4	HSC6	HSC8	HSC10	HSC12	HSC14	HSC16	HSC18	HSC20	HSC22
max frequency	50K	50K	50K	50K	50K	50K	50K	50K	5K	5K		
4-time frequency												
Counter interruption	√	√	√	√	√	√	√	√	√	√		
X000	A											
X001	B											
X002												
X003		A										
X004		B										
X005												
X006			A									
X007			B									
X010												
X011				A								
X012				B								
X013												
X014					A							
X015					B							
X016												
X017						A						
X020						B						
X021												
X022							A					
X023							B					
X024												
X025								A				
X026								B				
X027												
X030									A			
X031									B			
X032												
X033										A		
X034										B		
X035												

Serial port (RS232/RS485) communication parameters

Item	Parameters
Communication mode	Half duplex
Baud rate	9600bps, 19200bps (defaulted), 38400bps, 57600bps, 115200bps
Data type	Data bit: 5, 6, 7, 8(defaulted), 9 Stop bit: 1(defaulted), 1.5, 2 Parity bit: no parity, odd, even(defaulted)
Mode	RTU(defaulted), ASCII, free format, fieldbus X-NET
Station number	1~255 (defaulted is 1)
Before sending delay	1~100ms(defaulted is 3ms)
Reply overtime	1~1000ms(defaulted is 300ms)
Retry times	1~20 times(defaulted is 3 times)

Instruction list

Application instruction

Type	Instruction	Function
Program process	CJ	Condition jump
	CALL	Call the subprogram
	SRET	Subprogram return
	STL	Process start
	STLE	Process end
	SET	Open assigned process, close present process
	ST	Open assigned process, not close present process
	FOR	Cycle start
	NEXT	Cycle end
	FEND	Main program end
Data comparison	LD=	Initial logic ON when (S1)=(S2)
	LD>	Initial logic ON when (S1)>(S2)
	LD<	Initial logic ON when (S1)<(S2)
	LD<>	Initial logic ON when (S1)≠(S2)
	LD>=	Initial logic ON when (S1)≥(S2)
	LD<=	Initial logic ON when (S1)≤(S2)
	AND=	Serial connection ON when (S1)=(S2)
	AND>	Serial connection ON when (S1)>(S2)
	AND<	Serial connection ON when (S1)<(S2)
	AND<>	Serial connection ON when (S1)≠(S2)
	AND>=	Serial connection ON when (S1)≥(S2)
	AND<=	Serial connection ON when (S1)≤(S2)
	OR=	Parallel connection ON when (S1)=(S2)
	OR>	Parallel connection ON when (S1)>(S2)
	OR<	Parallel connection ON when (S1)<(S2)
	OR<>	Parallel connection ON when (S1)≠(S2)
	OR>=	Parallel connection ON when (S1)≥(S2)
	OR<=	Parallel connection ON when (S1)≤(S2)
Data transmission	CMP	Data comparison
	ZCP	Data range comparison
	MOV	Transmission
	BMOV	Data block transmission
	FMOV	Multi-point repeat transmission
	FWRT	Write in FlashROM
	MSET	Batch set on
	ZRST	Batch reset
	SWAP	Exchange the high byte and low byte
	XCH	Exchange the data
Data calculation	ADD	Addition
	SUB	Subtraction
	MUL	Multiplication
	DIV	Division
	INC	Increase by one
	DEC	Decrease by one

Type	Instruction	Function
Data calculation	MEAN	Get the mean value
	WAND	Logic AND
	WOR	Logic OR
	WXOR	Logic XOR
	CML	Reverse
	NEG	Negative
Data shift	SHL	Arithmetic shift left
	SHR	Arithmetic shift right
	LSL	Logic shift left
	LSR	Logic shift right
	ROL	Cycle shift left
	ROR	Cycle shift right
	SFTL	Bit shift left
	SFTR	Bit shift right
	WSFL	Word shift left
	WSFR	Word shift right
Data transformation	WTD	Word integer change to double word integer
	FLT	16 bits integer change to floating number
	FLTD	64 bits integer change to floating number
	INT	Floating number change to integer
	BIN	BCD code change to binary
	BCD	Binary change to BCD code
	ASCI	Hex change to ASCII
	HEX	ASCII change to hex
	DECO	Decoding
	ENCO	High-bit encoding
	ENCOL	Low-bit encoding
	GRY	Binary change to gray code
	GBIN	Gray code change to binary
Floating calculation	ECMP	Floating number comparison
	EZCP	Floating number range comparison
	EADD	Floating number addition
	ESUB	Floating number subtraction
	EMUL	Floating number multiplication
	EDIV	Floating number division
	ESQR	Floating number square
	SIN	Floating number sine
	COS	Floating number cosine
	TAN	Floating number tangent
	ASIN	Floating number arcsine
	ACOS	Floating number arccosine
	ATAN	Floating number arctangent
Clock	TRD	Read clock data
	TWR	Write clock data

Basic instruction

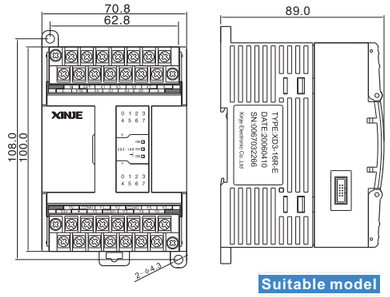
Instruction	Function
LD	Initial logic normally open contactor
LDI	Initial logic normally close contactor
AND	Serial connection normally open contactor
ANI	Serial connection normally close contactor
OR	Parallel connection normally open contactor
ORI	Parallel connection normally close contactor
LDP	Initial logic rising-edge of pulse
LDF	Initial logic falling-edge of pulse
ANDP	Serial connection rising-edge of the pulse
ANDF	Serial connection falling-edge of the pulse
ORP	Parallel connection rising-edge of the pulse
ORF	Parallel connection falling-edge of the pulse
LDD	Read normally open contactor
LDDI	Read normally close contactor
ANDD	Read normally open contactor, serial connection
ANDDI	Read normally close contactor, serial connection
ORD	Read normally open contactor, parallel connection
ORDI	Read normally close contactor, parallel connection
OUT	Coil drive
OUTD	Output to the contactor
ORB	Parallel connection of serial circuit block
ANB	Serial connection of parallel circuit block
MCS	New generatrix start
MCR	Generatrix reset
ALT	Coil reverse
PLS	ON for one scanning period at rising-edge
PLF	ON for one scanning period at falling-edge
SET	Keep the coil ON
RST	Reset the coil
TMR	Timer drive
OUT	Counter drive
RST	Reset the contactor or present value
END	I/O operation and return to step 0
GROUP	Instruction block folding start
GROUPE	Instruction block folding end

Special instruction

Type	Instruction	Function
Pulse output	PLSR	Multi-segment pulse output
	PLSF	Variable frequency pulse output
	ZRN	Mechanical return to zero
	PLSMV	Refresh the pulse number immediately
	STOP	Stop the pulse
High speed counter	DMOV	Read 32 bits high speed counter
	DMOV	Write 32 bits high speed counter
	CNT (_AB)	100-segment high speed counter interruption
	CNT (_AB)	Electronic cam
	RST	Reset high speed counter
Modbus communication	COLR	Modbus read coil
	INPR	Modbus read input coil
	COLW	Modbus write single coil
	MCLW	Modbus write multi coils
	REGR	Modbus read register
	INRP	Modbus read input register
	REGW	Modbus write single register
	MRGW	Modbus write multi registers
Precise timing	STR	Precise timing
	DMOV	Read precise timing register
	STOP	Stop precise timing
Interruption	EI	Enable the interruption
	DI	Disable the interruption
	IRET	Interruption return
Sequence block	SBLOCK	Block start
	SBLOCKE	Block end
	SBSTOP	Stop block
	SBGOON	Continue running the stop block
	WAIT	Wait
Write and read the module	FROM	Read the module
	TO	Write in
Others	FRQM	Frequency measurement
	PWM	Pulse width modulation
	PID	PID control
	NAME_C	C function block

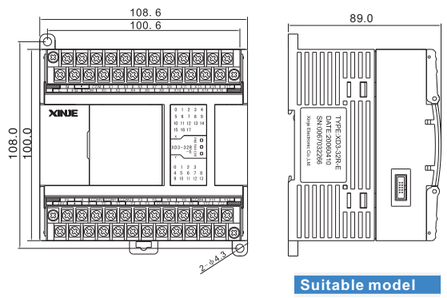
Dimension (unit: mm)

XD series basic unit



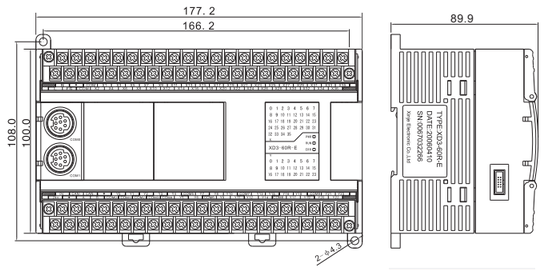
Suitable model

Series	I/O numbers
XD2	16 points
XD3	



Suitable model

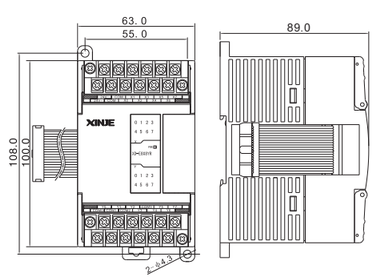
Series	I/O numbers
XD3 XD5 XDM XDC	24/32points



Suitable model

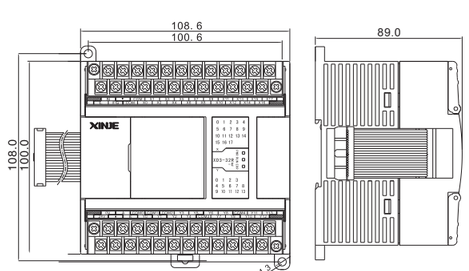
Series	I/O numbers
XD3 XD5 XDM XDC	48/60points

XD3 series right extension module



Suitable model

Module type	Model
Input and output	8X/8Y
	8X8Y
	16X/16Y
Analog	All

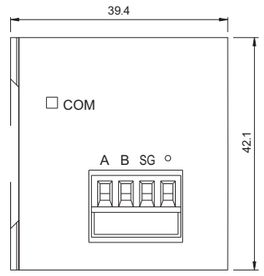


Suitable model

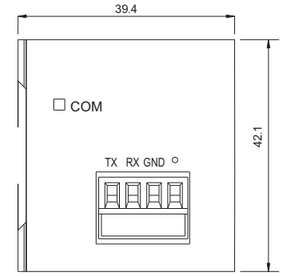
Module type	Model
I/O module	32X/32Y
	16X16Y

XD series extension BD

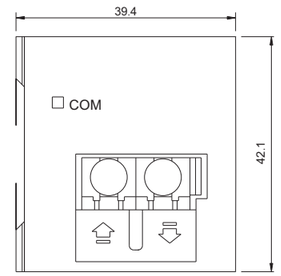
XD-NE-BD



XD-NS-BD

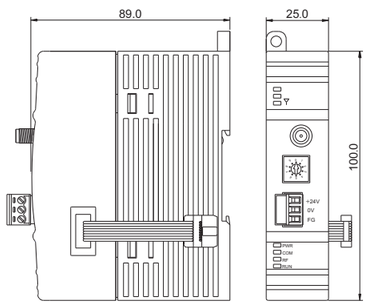


XD-NO-BD

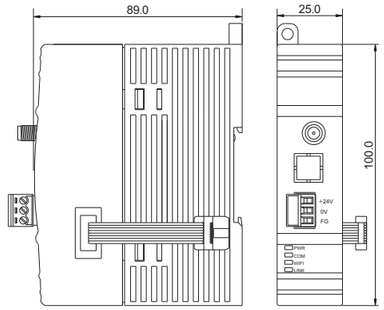


XD series left extension module

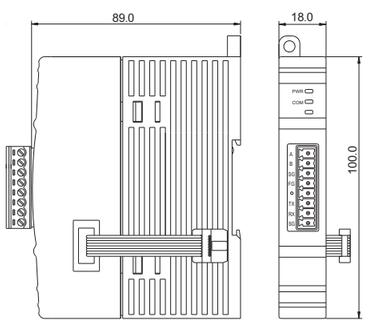
XD-SBOXT-ED



XD-WBOXT-ED



XD-NES-ED



XC Series

Special function extension BD board

XC-2AD2PT-BD

2 channels 14 bits high precise input(voltage), 2 channels PT100 temperature input, with PID function.

XC-2AD2PT-H-BD

2 channels 14 bits high precise input(voltage), 2 channels PT100 temperature input, with PID function. Electrical isolation with PLC main unit, enhanced protection for AD input.

XC-COM-H -BD

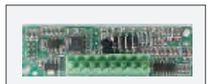
Special BD for RS232/RS485 communication, extend the communication port of basic unit. RS485 port is isolated.

XC-COM -BD

Special BD for RS232/RS485 communication, extend the communication port of basic unit.

XC-SD -BD

To install SD card, extend the capacity of XC and store the data.



XC-2AD2DA-BD

2 channels analog input(voltage), 2 channels analog output(current).

XC-TBOX-BD

Connect the PLC with the Ethernet, the function is the same to T-BOX.

XC-OFC-BD

Connect to PLC for RS485 optical fiber communication.

XC-4AD-BD

2 channels analog voltage input, 2 channels analog current input.

XC-4AD-H-BD

2 channels analog voltage input, 2 channels analog current input. Electrical isolation with PLC main unit, enhanced protection for AD input.

Special PLC

● **Special function basic unit XC3-19AR-E**

logic control, analog I/O, compact size, cost saving

● **PLC and HMI integrated controller XMH/XMP/XP series**

XC3 series PLC function, TH series HMI function, integrated control

Peripheral equipment

HMI

TG/TH/TP series HMI

MP series touch panel

OP series operate panel

Connection

Programming cable

Communication cable

USB-COM (USB to serial port convertor)

COM-BLT
(Blue-tooth module, wireless short distance connection)

XC basic unit

● **XC1 series affordable**

I/O numbers: 10/16/24/32

Compact model fit for general applications, the functions include logic control, data calculation and other basic functions.

● **XC2 series basic**

I/O numbers: 14/16/24/32/42/48/60

The functions include data processing, high speed count, high speed pulse output, communication. The processing speed is 2 times of XC1 series. The register numbers are less than XC3, cannot expand module but can connect expansion BD (except 14/16/42 models).

● **XC3 series standard**

I/O numbers: 14/24/32/42/48/60

The functions include data processing, high speed count, high speed pulse output, communication, PWM, frequency measurement, precise timing, interruption. Can connect expansion module and BD(14 I/O cannot support any expansions, 42 I/O cannot support BD).

● **XC5 series enhanced**

I/O numbers: 24/32/48/60

All the functions of XC3 series, 4-axis pulse output (24/32 support), CANBUS network, can connect expansion modules and BD, the register numbers are more than XC3.

● **XCM series motion control**

I/O numbers: 24/32/60

Support motion control instructions, the functions include two-axis linkage, interpolation, following, coordinates transformation (except I/O 60), 3-10 axes pulse output. Support most functions of XC series such as PID control, high speed count, interruption. Can connect expansion modules and BD.

● **XCC series high performance**

I/O numbers: 24/32

Faster processing speed, support 5 channels pulse output, 5 channels AB phase high speed count, motion control instructions, 2-axis linkage, interpolation, following, coordinates transformation, most functions of XC series such as high speed count, high speed pulse output, interruption, PID control. Can connect expansion modules and BD.

sort by I/O numbers | 10/14/16points | 24/32points | 42points | 48/60points

Expansion modules XCC series PLC only can connect XCL series expansion module

● **I/O expansion**

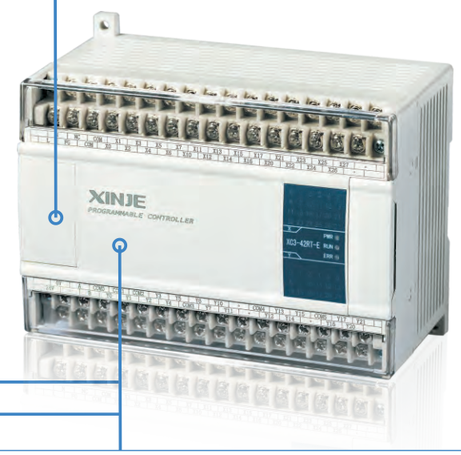
XC-E16X

XC-E8X8YR

XC-E32YR

If the I/O numbers of main unit cannot meet the requirements, it can use I/O extension modules.

Input extension module	Output extension module	I/O extension module
XC(L)-E8X XC(L)-E16X XC(L)-E32X	XC(L)-E8YR XC(L)-E8YT XC(L)-E16YR XC(L)-E16YT XC(L)-E32YR XC(L)-E32YT	XC(L)-E8X8YR XC(L)-E8X8YT XC(L)-E16X16YR XC(L)-E16X16YT



● **Analog expansion**

XC-E4AD

XC-E4DA

XC-E4AD2DA

AD, DA transformation, temperature control

AD model	DA model	mixed model
XC-E2AD-H XC-E4AD(-H) XC-E8AD(-H) XC-E8AD-B	XC-E2DA(-H) XC-E4DA(-H) XC-E4DA-B-H XCL-E4DA	XC-E4AD2DA(-H) XC-E4AD2DA-B-H XCL-E4AD2DA

● **Temperature control**

XC-E6PT-P

XC-E6TCA-P

Pt100 thermal resistor and K/E thermocouple signal input, built-in PID function

PT100	Thermocouple model	Analog and temperature mixed model
XC-E2PT-H XC-E6PT(-H) XC-E6PT-P(-H)	XC-E2TCA-P XC(L)-E6TCA-P	XC-E3AD4PT2DA(-H) XC-E2AD2PT2DA

● **MA series extension module**

digital 8 inputs/ 8 outputs

analog 4 inputs/2 outputs

Based on Modbus protocol, can extend up to 16 modules

Digital I/O	Analog I/O	Temperature control
MA-8X8YR, MA-8X8YT MA-16X MA-16YR, MA-16YT	MA-2DA, MA-4DA MA-4AD, MA-8AD-A(V) MA-4AD2DA	MA-6PT-P MA-6TCA-P

* the model with "H" is photoelectricity isolation for each channel.

High speed calculation

Basic instruction 0.2~0.5us, scanning time 10000 steps 5ms, program capacity 32K~256K.

Rich extensions

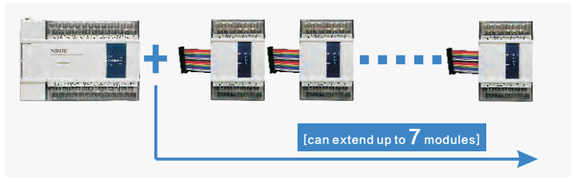
In order to meet more application needs, XC series PLC can extend I/O module, analog module, temperature control module. Can extend 7 different modules and 1 BD board.

● I/O extension module

- To extend I/O numbers, the numbers are 8~32, can extend the basic unit I/O numbers to 540
- The output expansion module contains transistor (T) and relay (R).

● Analog and temperature extension module

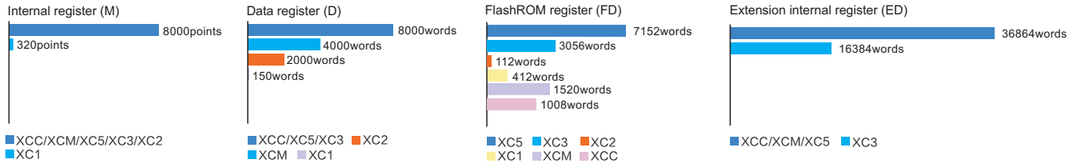
- AD, DA transformation function, fit for process control system such as temperature, flow, liquid level, pressure, etc
- Built-in PID function, wide range of application, high control accuracy
- Each channel of XC-E6TCA-P and XC-E2AD2PT2DA can perform PID and auto-tune individually, exchange data with PLC by instruction FROM and TO



● Extension BD

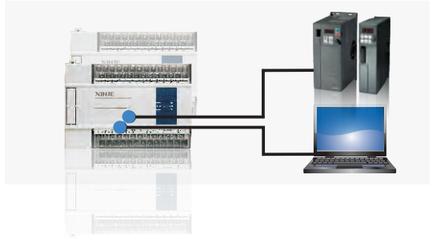
- AD, DA transformation function, fit for process control system such as temperature, flow, liquid level, pressure, etc
- Can install on the PLC directly, not occupy extra space, with wired and wireless communication functions

Larger capacity for soft component



Communication function

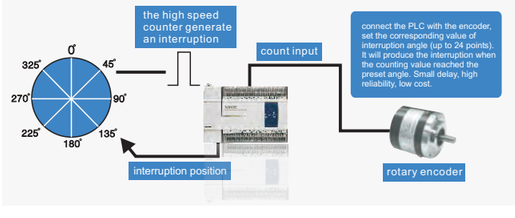
● Multi-communication port (max 4 ports), support RS232, RS485, Ethernet. Can communicate with frequency inverter, meter and other devices, easy to build communication network.



24-segment high speed count interruption

● High speed count interruption has good real-time feature

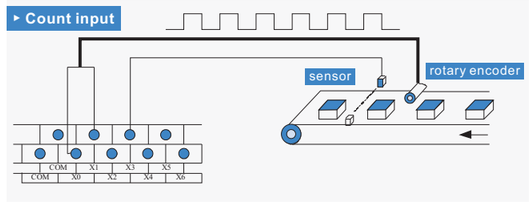
● The high speed count has 24-segment 32 bits preset value, the interruption is produced when the count difference value is equal to the preset value.

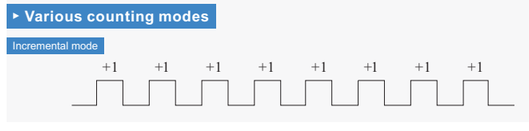


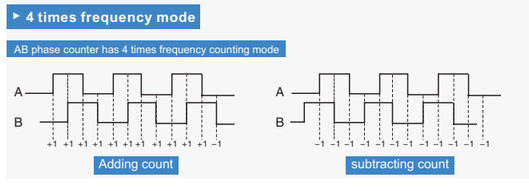
High speed count

● XC series PLC has 2~6 channels 2 phases 32 bits high speed counter and high speed count comparator, can connect rotary encoder directly and count the encoder signal

● The counting mode includes single phase (incremental mode), pulse and direction mode, AB phase mode (1 time, 4 times). The max frequency is 80KHz





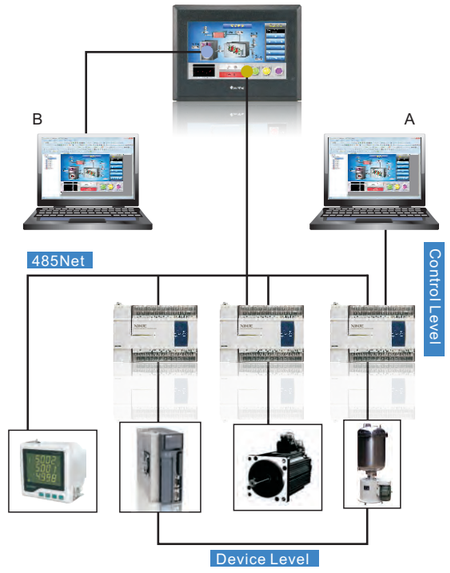


Enhanced communication and networking function

XC series PLC supports Modbus protocol, free format protocol and other complicated network. The PLC can communicate with printer and meter through free format protocol.

● Modbus networking

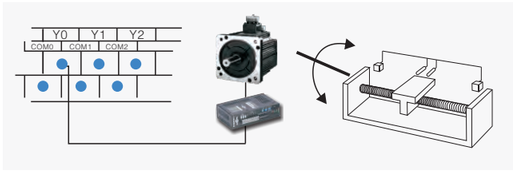
XC series PLC supports Modbus master-slave mode. PLC master station can send requests to other devices, other devices will response it. PLC slave station only can response the master station.



Up to 200KHz pulse output, support 10 channels

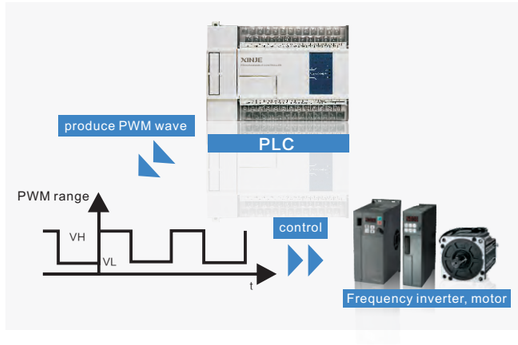
XC2/XC3 (I/O 48/60) have 2 channels pulse output. Support multi-mode output with different instructions. The output frequency can up to 200KHz.

- It needs transistor output PLC to output pulse, such as XC3-14T-E or XC3-60RT-E
- XC5 (I/O 24/32) series have 4 channels pulse output (Y0~Y3)
- XCC-32T-E has 5 channels pulse output (Y0~Y4)
- XCM-60T-E has 10 channels pulse output (Y0~Y11)



PWM pulse width modulation

● PWM instruction has pulse width modulation function.
● This function can control the frequency inverter and DC motor.



Interruption function

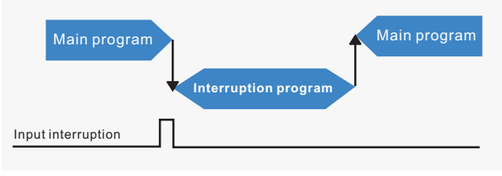
The interruption function includes external interruption, timing interruption, 24-segment high speed count interruption. The special operations can be done by calling the interruption. It will not be affected by the PLC scanning period.

● External interruption

▸ X terminal is the external interruption input, each X is corresponding to an interruption which is activated by falling or rising edge.

● Timing interruption

▸ The timing interruption is very useful when it needs to process special program in long running period main program, or it needs to run special program every certain time in sequence control program. The interruption will not be affected by PLC scanning period. The interruption subprogram will run every N ms.

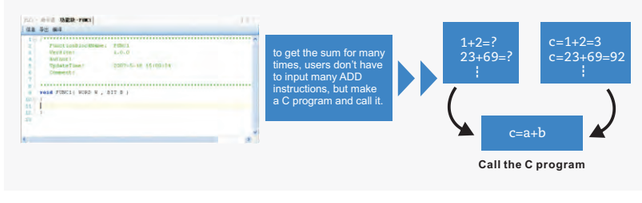


C programming function

● Better program privacy, the C program is invisible after encrypted and can be called in the main program.

● Support rich calculation functions: contain all the C functions.

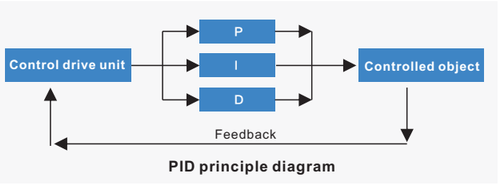
● Save internal space, reduce the workload, programming is more efficient.



PID control

● XC series PLC has PID control instruction and auto-tune function.

● Users can get the best sampling time and PID parameters by auto-tune function, improve the controlling accuracy.



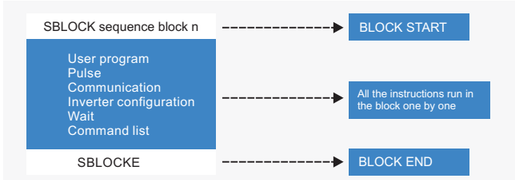
PID principle diagram

Sequence block

All the instructions run one by one in the sequence block. The next instruction will run after the current instruction ends.

● The block can optimize the programming method of pulse and communication instruction in the program.

Multi-pulse and communication instructions cannot run at the same time in the process which makes the programming method complicated. The block can simplify the program.



Precise timing

● 32 bits instruction STR is precise timing function.

● The precise timer will generate an interruption flag when it reaches the timing value. Each precise timer has corresponding interruption flag.

● The precise timer is a 1ms 32 bits timer.

Frequency measurement

● 32 bits instruction FRQM can measure the frequency.

Real-time clock

● Built-in real-time clock, Li-battery power-off retentive.

Self-diagnosis

● Power-on self-examination, timer monitoring, grammar checking.

Password protection

● 6 bits ASCII, protect the program security.

Small size, easy to install

● Compact structure, improve the utilization, two installation modes.

XC3-19AR-E meets diverse needs

● Has analog I/O without connecting extension module.

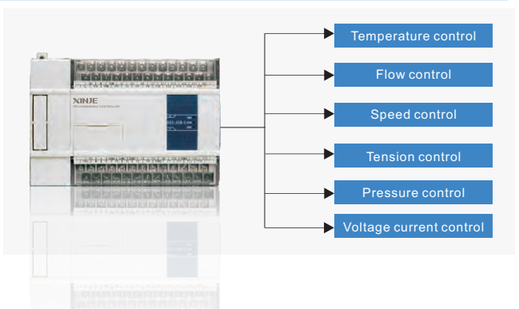
▸ Logic control and analog I/O in one unit

Digital input: 9 (NPN optical-coupler isolation); digital output: 10 (relay)
Analog input: 8 (voltage); analog output: 2 (voltage/current)

● bits high precision analog input, 8 bits analog output .

● 2 channels AB phase input, 4 channels high speed count (10KHz).

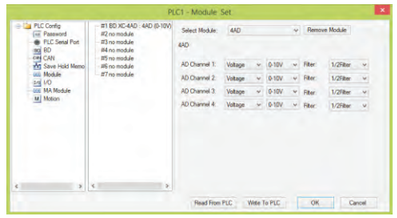
● 2 channels 32 bits pulse output, cost-effective, save space



XCPpro software

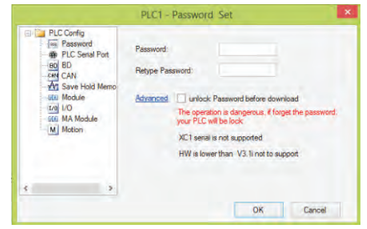
Support all series of PLC products

XCPpro software is fit for XC series PLC and XMH, XMP, XP series HMI&PLC integrated controller. It can make PLC program and configure the network module, extension module and extension BD.



Enhanced password function

The password can block the program uploading and protect the intellectual property rights of user. The password is also added to program downloading to avoid program damage.



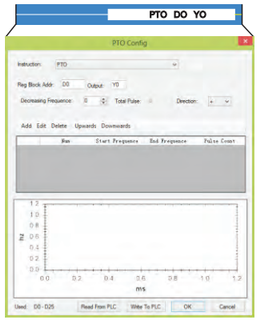
Panel configuration

● Reduce the difficulty of making complicated instructions

▸ XCPpro provides easy editing environment for complicated instructions such as multi-pulse output, PID control, 24-segment high speed count interruption.

● Improve the configuration of pulse instruction

▸ New pulse instructions such as PTO are added to XCPpro software, these instructions can be configured in the panel.

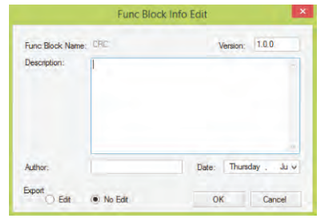


Powerful programming ability, better compatibility

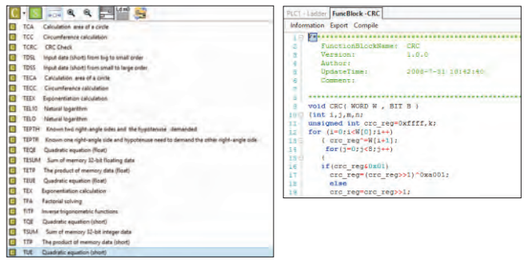
● Support ladder chart and instructions, the two modes can be switched.

● XCPpro software can make C program, no need change to C programming software.

● The function block can be exported and imported, support source code and passive code. If exporting the passive code, the program cannot be read. The privacy is better.



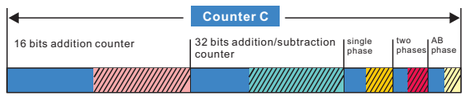
● C function library contains more C instructions which can be called directly



Power-off retentive in sections

● User can set the power-off retentive range of ED register

● XCPpro software can set the power-off retentive range of various registers such as timer, counter by changing the value in FD register.



The shaded area is power-off retentive. Area A, B, C, D, E can be set by users.

Serial port setting

● Enable to configure from com1 to com256.

Download the program online

● Online downloading will not clear the data and shut down the output. PLC will auto-run after downloading.

Better system compatibility

● Compatible with different OS: Windows2000/XP/7.

● Support 64 bits operation system.

Calculate the program size

● The programmer can command the program capacity accurately.

Useful simple functions

● Cancel, redo, forward, backward, grammar, checking, instruction prompt.

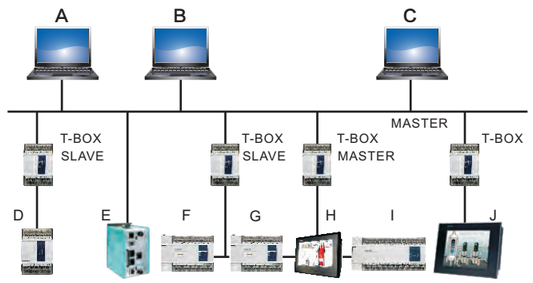
Industry Ethernet module T-BOX

Open network, enhanced communication ability

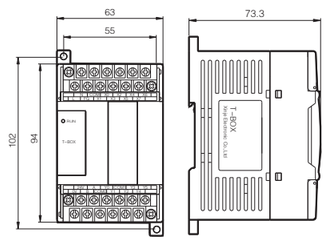
● Support Modbus-TCP protocol, connect all the industry devices by T-BOX to form Ethernet control system. It breaks the island state of traditional industry automation, makes the communication more efficient and realizes a wide range of open network.

Equipped T-BOX with the PLC brings many advantages

● Flexible distributed automation structure, simplify the system management.
● Access Ethernet via RJ45 port and TCP/IP protocol.
● Realize remote programming, monitoring and diagnosing via Ethernet, save time and cost.
● Store and manage the information via Ethernet, simplify the operation of data processing.
● Cost-effective, easy to maintain, friendly diagnosis function.
● Modbus communication is one-master multi-slave mode, the speed is very slow.
Multi-station devices can high-speed exchange data between master and slave PLC through T-BOX.



Dimension (unit: mm)

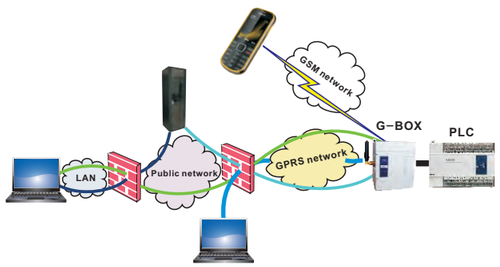


Wireless data transmission module G-BOX

The G-BOX with XC series PLC can make wireless connection with GPRS or GSM network. It supports Modbus-TCP protocol, fit for distributed system and remote monitoring.

Features

● Open and transparent data transmission
● Data terminal has TCP/IP protocol stack inside, support TCP, UDP, DNS, PPP, etc.
● Standard industry interface (RS232 or RS485)
• Persistent online mode, with break redial and heartbeat function
● Support SMS sending and receiving
● Support local configuration
● Support GPRS and GSM network communication



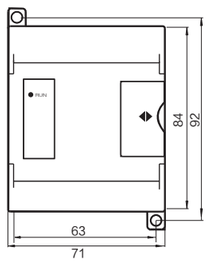
Wireless upload and download PLC program, real-time monitoring

It is hard to monitor and change the PLC program in remote control system. If XC series PLC is equipped with G-BOX, user can monitor the device, wireless upload/download program via PC though the system is in remote place.

Communicate with mobile by SMS

When PLC is equipped with G-BOX, PLC can communicate with user's mobile by SMS. User can remote monitor the PLC state with the mobile. If the PLC has problem, G-BOX will send error code to user's mobile, after user replied the G-BOX, G-BOX will send the user's modification SMS to the PLC to solve the problem.

Dimension (unit: mm)



Wireless networking W-BOX

W-BOX can be configured as wireless STA and AP, support 2 wireless interfaces in theory.

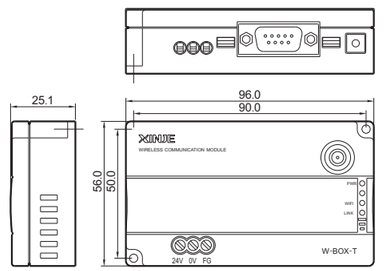
● AP mode: PC and mobile phone can search this hot spot and connect the PLC, HMI through virtual serial port of W-BOX.

● STA+AP mode: W-BOX has AP+STA function, STA interface can connect router and server in the network through TCP. PC and mobile phone can connect AP interface to control serial port device and configure the module.

Application

● Remote device monitoring
● Application of the internet of things
● Industry control
● Handheld device

Dimension (unit: mm)



Compatible PLC version and series

series	W-BOX-T		XD-WBOXT-ED	
XD	×	not support	√	v3.2 and up
XC	√	XC2 and up	×	not support

Transparent transmission S-BOX

● Wireless transparent transmission, no protocol. The two modules can communicate with each other when the baud rate (DIP switch), channel (button) settings are same. It makes the communication of HMI, PC, PLC faster and easy.
● S-BOX includes S-BOX-T and XD-SBOXT-ED, the latter only can be used to left extension module of XD series PLC.

S-BOX-T

XD-SBOXT-ED

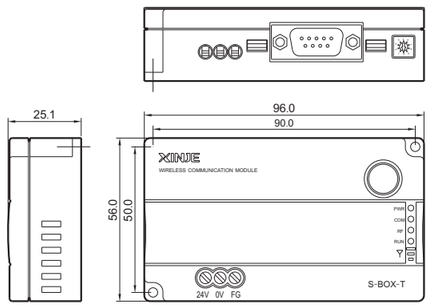
XD-SBOXT-ED	XD-SBOXT-ED connect to XD series PLC
	

*Note: this model is special for left extension module of XD series PLC, the functions are same to S-BOX-T.

Application

● Wireless meter reading, wireless sensor
● Container information management
● Automation data collection
● Industry control, telemetry
● POS system, asset management
● Building automation and security
● The electric power monitoring of high temperature and high pressure
● Meteorological monitoring and remote sensing

Dimension (unit: mm)



MA series data acquisition and control module

MA series module includes digital I/O, analog I/O and temperature control. MA module has RS485 port which based on Modbus protocol, can connect to PLC, HMI, integrated PLC&HMI controller and other devices which support Modbus. It is suitable for process control system such as temperature, flow, level, pressure. Support 16 extension modules.

Digital I/O module MA-nXnY

Type	Explanation
MA-8X8YR	8 channels digital input, 8 channels digital output (relay output)
MA-8X8YT	8 channels digital input, 8 channels digital output (transistor output)
MA-16X	16 channels digital input
MA-16YR	16 channels digital output (relay output)
MA-16YT	16 channels digital output (transistor output)

Analog output module MA-nDA

Type	Explanation
MA-2DA	2 channels 10 bits high precision analog output (voltage/current)
MA-4DA	4 channels 10 bits high precision analog output (voltage/current)

Analog input module MA-nAD

Type	Explanation
MA-4AD	4 channels 12 bits high precision analog input (voltage/current), each channel has PID control
MA-8AD-A	8 channels 12 bits high precision analog input (current), each channel has PID control
MA-8AD-V	8 channels 12 bits high precision analog input (voltage), each channel has PID control

Analog I/O module MA-nADmDA

Type	Explanation
MA-4AD2DA	4 channels 12 bits high precision analog input (voltage/current), each channel has PID control. 2 channels 10 bits high precision analog output (voltage/current).

Temperature control module MA-nPT-P/MA-nTCA-P

Type	Explanation
MA-6PT-P	6 channels PT100 input, each channel has PID control; 6 channels output. 1mA constant current output will not be affected by external environment.
MA-6TCA-P	6 channels thermocouple input, each channel has PID control; 6 channels output. 1mA constant current output will not be affected by external environment.

Specifications of basic unit

● General specification

Item	Specification
Insulation voltage	Above DC500V 2MΩ
Noise immunity	Noise voltage 1000Vp-p 1μs
Air	No corrosive, flammable gas
Ambient temperature	0℃ ~ 60℃
Ambient humidity	5RH%~95RH% (no condensation)
COM1	RS232, connect with PC, HMI to program and debug
COM2	RS232/RS485, connect with network, meters, inverter…
COM3	Extension port of BD board, RS232/RS485
Installation	Fix with M3 screw or install on the rail directly
Ground	Third ground (cannot ground with strong power system)

● XC3-19AR-E specification

Item	Analog input (AD)	Analog output (DA)	
	Voltage input	Voltage output	Current output
Analog input range	0 ~ 10V	–	
Max input range	DC±18V	–	
Analog output range	–	DC 0~10V (external load resistor 2KΩ~1MΩ)	DC4~20mA (external load resistor less than 500Ω)
Digital input range	–	8 bits (0~255)	
Digital output range	12 bits (0~4095)	–	
Resolution	1/4095 (Bit)	1/255 (8Bit)	
Integrated precision	0.8%		
Transformation speed	15ms/channel	2ms/channel	
Power for analog	DC24V±10%,100mA		

● Performance specification

Item		Specification										
Series		XC1		XC2			XC3			XC5	XCM	XCC
I/O numbers		10/16	24/32	14/16	24/32/42	48/60	14	24/32/42	48/60	24/32	60	24/32
Program running mode		Cyclic scan										
Programming mode		Instruction, ladder chart										
Processing speed		0.5 us										
Power-off retentive		FlashROM		FlashROM and Li-battery								
User program capacity		32KB		128KB						96KB	128KB	256KB
I/O numbers		5/5 5/8	12/12 16/16	8/6 8/8	14/10 18/14 24/18	28/20 36/24	8/6	14/10 18/14 24/18	28/20 36/24	14/10 18/14	36/24	14/10 18/14
Internal coil		448		8768								
Timer (T)	Numbers	80		640								
	Specification	100MS TIMER: 0.1~3276.7S 10MS TIMER: 0.01~327.67S 1MS TIMER: 0.001~32.767S										
Counter (C)	Numbers	48		640								
	Specification	16 BITS COUNTER: 0~32767 32 BITS COUNTER: -2147483648~2147483647										
Sequence (S)		32		1024			1024			1024	1024	1024
Data register (D)		150		2000			8000			8000	4000	8000
FlashROM register (FD)		412		128			3072			7168	1536	1024
Extension internal register (ED)		-		-			16384			36864	36864	36864
High speed counter		-		max 6 channels, 80KHz, 3 kinds of high speed counting mode (single phase, pulse&direction, AB phase is 50KHz)								
Pulse output		-		2channels						4chnnels	10channels	5channels
External interruption		-		2 kinds of external interruption (rising edge, falling edge)								
Password		6 bits ASCII										
Self-diagnosis		power-on self-test, monitoring timer, grammar checking										

XC series model list

Model							Input numbers (DC24V)	Output numbers (R,T)
	AC power supply			DC power supply				
	Relay output	Transistor output	Relay&transistor mixed output	Relay output	Transistor output	Relay&transistor mixed output		
NPN	XC1-10R-E	XC1-10T-E	-	XC1-10R-C	XC1-10T-C	-	5	5
	XC1-16R-E	XC1-16T-E	-	XC1-16R-C	XC1-16T-C	-	8	8
	XC1-24R-E	XC1-24T-E	-	XC1-24R-C	XC1-24T-C	-	12	12
	XC1-32R-E	XC1-32T-E	-	XC1-32R-C	XC1-32T-C	-	16	16
PNP	XC1-10PR-E	XC1-10PT-E	-	XC1-10PR-C	XC1-10PT-C	-	5	5
	XC1-16PR-E	XC1-16PT-E	-	XC1-16PR-C	XC1-16PT-C	-	8	8
	XC1-24PR-E	XC1-24PT-E	-	XC1-24PR-C	XC1-24PT-C	-	12	12
	XC1-32PR-E	XC1-32PT-E	-	XC1-32PR-C	XC1-32PT-C	-	16	16
NPN	XC2-14R-E	XC2-14T-E	XC2-14RT-E	XC2-14R-C	XC2-14T-C	XC2-14RT-C	8	6
	XC2-16R-E	XC2-16T-E	XC2-16RT-E	XC2-16R-C	XC2-16T-C	XC2-16RT-C	8	8
	XC2-24R-E	XC2-24T-E	XC2-24RT-E	XC2-24R-C	XC2-24T-C	XC2-24RT-C	14	10
	XC2-32R-E	XC2-32T-E	XC2-32RT-E	XC2-32R-C	XC2-32T-C	XC2-32RT-C	18	14
	XC2-42R-E	XC2-42T-E	XC2-42RT-E	XC2-42R-C	XC2-42T-C	XC2-42RT-C	24	18
	XC2-48R-E	XC2-48T-E	XC2-48RT-E	XC2-48R-C	XC2-48T-C	XC2-48RT-C	28	20
	XC2-60R-E	XC2-60T-E	XC2-60RT-E	XC2-60R-C	XC2-60T-C	XC2-60RT-C	36	24
PNP	XC2-14PR-E	XC2-14PT-E	XC2-14PRT-E	XC2-14PR-C	XC2-14PT-C	XC2-14PRT-C	8	6
	XC2-16PR-E	XC2-16PT-E	XC2-16PRT-E	XC2-16PR-C	XC2-16PT-C	XC2-16PRT-C	8	8
	XC2-24PR-E	XC2-24PT-E	XC2-24PRT-E	XC2-24PR-C	XC2-24PT-C	XC2-24PRT-C	14	10
	XC2-32PR-E	XC2-32PT-E	XC2-32PRT-E	XC2-32PR-C	XC2-32PT-C	XC2-32PRT-C	18	14
	XC2-42PR-E	XC2-42T-E	XC2-42RT-E	XC2-42R-C	XC2-42PT-C	XC2-42RT-C	24	18
	XC2-48PR-E	XC2-48PT-E	XC2-48PRT-E	XC2-48PR-C	XC2-48PT-C	XC2-48PRT-C	28	20
	XC2-60PR-E	XC2-60PT-E	XC2-60PRT-E	XC2-60PR-C	XC2-60PT-C	XC2-60PRT-C	36	24
NPN	XC3-14R-E	XC3-14T-E	XC3-14RT-E	XC3-14R-C	XC3-14T-C	XC3-14RT-C	8	6
	XC3-24R-E	XC3-24T-E	XC3-24RT-E	XC3-24R-C	XC3-24T-C	XC3-24RT-C	14	10
	XC3-32R-E	XC3-32T-E	XC3-32RT-E	XC3-32R-C	XC3-32T-C	XC3-32RT-C	18	14
	XC3-42R-E	XC3-42T-E	XC3-42RT-E	XC3-42R-C	XC3-42T-C	XC3-42RT-C	24	18
	XC3-48R-E	XC3-48T-E	XC3-48RT-E	XC3-48R-C	XC3-48T-C	XC3-48RT-C	28	20
	XC3-60R-E	XC3-60T-E	XC3-60RT-E	XC3-60R-C	XC3-60T-C	XC3-60RT-C	36	24
PNP	XC3-14PR-E	XC3-14PT-E	XC3-14PRT-E	XC3-14PR-C	XC3-14PT-C	XC3-14PRT-C	8	6
	XC3-24PR-E	XC3-24PT-E	XC3-24PRT-E	XC3-24PR-C	XC3-24PT-C	XC3-24PRT-C	14	10
	XC3-32PR-E	XC3-32PT-E	XC3-32PRT-E	XC3-32PR-C	XC3-32PT-C	XC3-32PRT-C	18	14
	XC3-42PR-E	XC3-42PT-E	XC3-42PRT-E	XC3-42PR-C	XC3-42PT-C	XC3-42PRT-C	24	18
	XC3-48PR-E	XC3-48PT-E	XC3-48PRT-E	XC3-48PR-C	XC3-48PT-C	XC3-48PRT-C	28	20
	XC3-60PR-E	XC3-60PT-E	XC3-60PRT-E	XC3-60PR-C	XC3-60PT-C	XC3-60PRT-C	36	24
NPN	-	XC5-24T-E	XC5-24RT-E	-	XC5-24T-C	XC5-24RT-C	14	10
	-	XC5-32T-E	XC5-32RT-E	-	XC5-32T-C	XC5-32RT-C	18	14
PNP	-	XC5-24PT-E	XC5-24PRT-E	-	XC5-24PT-C	XC5-24PRT-C	14	10
	-	XC5-32PT-E	XC5-32PRT-E	-	XC5-32PT-C	XC5-32PRT-C	18	14
NPN	-	XCM-60T-E	-	-	XCM-60T-C	-	36	24
PNP	-	XCM-60PT-E	-	-	XCM-60PT-C	-	36	24
NPN	-	XCC-24T-E	-	-	XCC-24T-C	-	14	10
	-	XCC-32T-E	-	-	XCC-32T-C	-	18	14
PNP	-	XCC-24PT-E	-	-	XCC-24PT-C	-	14	10
	-	XCC-32PT-E	-	-	XCC-32PT-C	-	18	14

*Note: NPN and PNP are for input terminal.

I/O extension

Model				I/O numbers	Input numbers (DC24V)	Output numbers (R,T)
	Input	Output				
		Relay output	Transistor output			
NPN	XC(L)-E8X	-	-	8	8	-
	-	XC(L)-E8YR	XC(L)-E8YT	8	-	8
	-	XC(L)-E8X8YR	XC(L)-E8X8YT	16	8	8
	XC(L)-E16X	-	-	16	16	-
	-	XC(L)-E16YR	XC(L)-E16YT	16	-	16
	-	XC(L)-E16X16YR-E	XC(L)-E16X16YT-E	32	16	16
	-	XC-E16X16YR-C	XC(L)-E16X16YT-C	32	16	16
	XC(L)-E32X-E	-	-	32	32	-
	XC-E32X-C	-	-	32	32	-
	-	XC(L)-E32YR-E	XC(L)-E32YT-E	32	-	32
	-	XC-E32YR-C	XC(L)-E32YT-C	32	-	32
PNP	XC-E8PX	-	-	8	8	-
	-	XC-E8PX8YR	XC-E8PX8YT	16	8	8
	XC-E16PX	-	-	16	16	-
	-	XC(L)-E16PX16YR-E	-	32	16	16
	-	XC-E16PX16YR-C	-	32	16	16
	XC-E32PX-E	-	-	32	32	-

*Note: NPN and PNP are for input terminal.

Analog and temperature extension modules

Model		Description
Analog input	XC-E2AD(-H)	2 channels analog input
	XC-E4AD(-H)	4 channels analog input
	XC-E8AD(-H)	8 channels analog input (first 4 channels are voltage input, last 4 channels are current input)
	XC-E8AD-B	first 4 channels are voltage input (-10~10V/-5~5V), last 4 channels are current input (-20~20mA)
	XC(L)-E4AD2DA(-H)	4 channels analog input, 2 channels analog output
	XC-E4AD2DA-B-H	4 channels analog input (voltage/current), 2 channels voltage output (-10~10V/-5~5V)
Analog output	XC-E2DA(-H)	2 channels analog output
	XC-E4DA(-H)	4 channels analog output
	XCL-E4DA	
	XC-E4DA-B-H	4 channels voltage output (-10~10V/-5~5V)
Temperature measurement	XC-E2PT(-H)	2 channels PT100 input
	XC-E6PT(-H)	6 channels PT100 input
	XC-E6PT-P(-H)	6 channels PT100 input, with PID control function
	XC(L)-E6TCA-P	6 channels K, S, E, N, J, T, R thermocouple input, each channel has PID function
	XC-E2TCA-P	2 channels K, S, E, N, J, T, R thermocouple input, each channel has PID function
	XC-E3AD4PT2DA	3 channels analog input, 4 channels PT100 input, 2 channels analog output
	XC-E2AD2PT2DA	2 channels analog input, 2 channels PT100 input, each channel has PID function, 2 channels analog output

*Note: the model with H is photoelectric isolation for each channel.

Extension BD board model list

Model		Description
Temperature measurement	XC-2AD2PT-BD	2 channels analog input, 2 channels PT100 input
Communication	XC-COM(-H)-BD	RS232/485 communication
SD card	XC-SD-BD	Extend the XC PLC data capacity
Analog I/O	XC-2AD2DA-BD	2 channels analog input, 2 channels analog output
Ethernet	XC-TBOX-BD	Connect to the Ethernet
Optical fiber communication	XC-OFC-BD	Connect PLC and make optical fiber communication
Analog input	XC-4AD-BD	2 channels voltage input, 2 channels current input

Connection accessory model list

Model		Description
USB convertor	USB-COM	PLC connect to PC via USB port
Bluetooth	COM-BLT	Short distance wireless connection between PLC and PC

Basic instructions

Instruction	Function
LD	Initial logic normally open contactor
LDI	Initial logic normally close contactor
AND	Serial connection normally open contactor
ANI	Serial connection normally close contactor
OR	Parallel connection normally open contactor
ORI	Parallel connection normally close contactor
LDP	Initial logic rising-edge of pulse
LDF	Initial logic falling-edge of pulse
ANDP	Serial connection rising-edge of the pulse
ANDF	Serial connection falling-edge of the pulse
ORP	Parallel connection rising-edge of the pulse
ORF	Parallel connection falling-edge of the pulse
LDD	Read normally open contactor
LDDI	Read normally close contactor
ANDD	Read normally open contactor, serial connection
ANDDI	Read normally close contactor, serial connection
ORD	Read normally open contactor, parallel connection
ORDI	Read normally close contactor, parallel connection
OUT	Coil drive
OUTD	Output to the contactor
ORB	Parallel connection of serial circuit block
ANB	Serial connection of parallel circuit block
MCS	New generatrix start
MCR	Generatrix reset
ALT	Coil reverse
PLS	ON for one scanning period at rising-edge
PLF	ON for one scanning period at falling-edge
SET	Keep the coil ON
RST	Reset the coil
TMR	Timer drive
OUT	Counter drive
RST	Reset the contactor or present value
END	I/O operation and return to step 0
GROUP	Instruction block folding start
GROUPE	Instruction block folding end

Motion control instruction

Instruction	Function
ABS	Absolute address
CCW	Arc anticlockwise interpolation
CHK	Servo checking
CW	Arc clockwise interpolation
DRV	High speed positioning
DRVR	Electrical back to zero
DRVZ	Mechanical back to zero
FOLLOW	Follow
INC	Incremental address
LIN	Linear interpolation
PLAN	Plane or space choice
TIM	Stable time
SETR	Set the electrical zero
SETP	Set the coordinate system

Application instruction

Type	Instruction	Function
Program process	CJ	Condition jump
	CALL	Call the subprogram
	SRET	Subprogram return
	STL	Process start
	STLE	Process end
	SET	Open assigned process, close present process
	ST	Open assigned process, not close present process
	FOR	Cycle start
	NEXT	Cycle end
	FEND	Main program end
Data comparison	LD =	Initial logic ON when (S1)=(S2)
	LD>	Initial logic ON when (S1)>(S2)
	LD<	Initial logic ON when (S1)<(S2)
	LD<>	Initial logic ON when (S1)≠(S2)
	LD>=	Initial logic ON when (S1)≥(S2)
	LD<=	Initial logic ON when (S1)≤(S2)
	AND =	Serial connection ON when (S1)=(S2)
	AND >	Serial connection ON when (S1)>(S2)
	AND <	Serial connection ON when (S1)<(S2)
	AND <>	Serial connection ON when (S1)≠(S2)
	AND >=	Serial connection ON when (S1)≥(S2)
	AND <=	Serial connection ON when (S1)≤(S2)
	OR =	Parallel connection ON when (S1)=(S2)
	OR >	Parallel connection ON when (S1)>(S2)
	OR <	Parallel connection ON when (S1)<(S2)
	OR <>	Parallel connection ON when (S1)≠(S2)
	OR >=	Parallel connection ON when (S1)≥(S2)
	OR <=	Parallel connection ON when (S1)≤(S2)
Data transmission	CMP	Data comparison
	ZCP	Data range comparison
	MOV	Transmission
	BMOV	Data block transmission
	FMOV	Multi-point repeat transmission
	FWRT	Write in FlashROM
	MSET	Batch set on
	ZRST	Batch reset
	SWAP	Exchange the high byte and low byte
	XCH	Exchange the data
Data calculation	ADD	Addition
	SUB	Subtraction
	MUL	Multiplication
	DIV	Division
	INC	Increase by one
	DEC	Decrease by one

Type	Instruction	Function
Data calculation	MEAN	Get the mean value
	WAND	Logic AND
	WOR	Logic OR
	WXOR	Logic XOR
	CML	Reverse
	NEG	Negative
Data shift	SHL	Arithmetic shift left
	SHR	Arithmetic shift right
	LSL	Logic shift left
	LSR	Logic shift right
	ROL	Cycle shift left
	ROR	Cycle shift right
	SFTL	Bit shift left
	SFTR	Bit shift right
	WSFL	Word shift left
	WSFR	Word shift right
Data transformation	WTD	Word integer change to double word integer
	FLT	16 bits integer change to floating number
	FLTD	64 bits integer change to floating number
	INT	Floating number change to integer
	BIN	BCD code change to binary
	BCD	Binary change to BCD code
	ASCI	Hex change to ASCII
	HEX	ASCII change to hex
	DECO	Decoding
	ENCO	High-bit encoding
	ENCOL	Low-bit encoding
	GRY	Binary change to gray code
	GBIN	Gray code change to binary
Floating calculation	ECMP	Floating number comparison
	EZCP	Floating number range comparison
	EADD	Floating number addition
	ESUB	Floating number subtraction
	EMUL	Floating number multiplication
	EDIV	Floating number division
	ESQR	Floating number square
	SIN	Floating number sine
	COS	Floating number cosine
	TAN	Floating number tangent
	ASIN	Floating number arcsine
	ACOS	Floating number arccosine
	ATAN	Floating number arctangent
Clock	TRD	Read clock data
	TWR	Write clock data

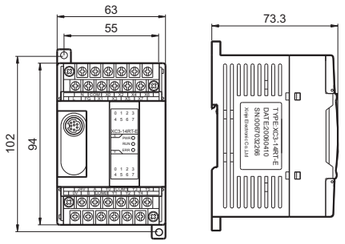
Special instruction

Type	Instruction	Function
Pulse output	PLSY	Single-segment pulse output without acceleration and deceleration
	PLSA	Absolute position multi-segment pulse output
	PLSR	Relative position multi-segment pulse output
	PLSF	Variable frequency pulse output
	PLSNEXT/PLSNT	Pulse segment changing
	DRVA	Absolute position single segment pulse control
	DRVI	Relative position single segment pulse control
	PLSMV	Store the pulse numbers in the register
	STOP	Stop the pulse
	ZRN	Mechanical return to zero
	PTO	Relative multi-segment pulse output
	PTOA	Absolute multi-segment pulse output
	PSTOP	Pulse stop
	PTF	Variable frequency pulse output

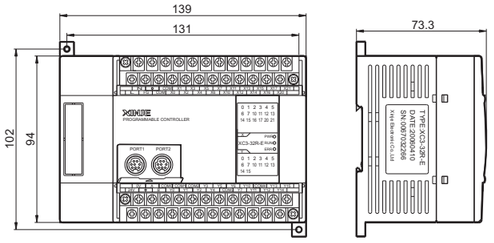
Type	Instruction	Function
High speed counter	HSCR	Read 32 bits high speed counter
	HSCW	Write 32 bits high speed counter
	OUT	24-segment high speed count interruption
	RST	Reset high speed counter
Modbus communication	COLR	Modbus read coil
	INPR	Modbus read input coil
	COLW	Modbus write single coil
	MCLW	Modbus write multi coils
	REGR	Modbus read register
	INRR	Modbus read input register
	REGW	Modbus write single register
	MRGW	Modbus write multi registers
Free format communication	SEND	Free format data send
	RCV	Free format data receive

Type	Instruction	Function
Precise timing	STR	Precise timing
	STRR	Read precise timing register
	STRS	Stop precise timing
Interruption	EI	Enable the interruption
	DI	Disable the interruption
	IRET	Interruption return
Sequence block	SBLOCK	Block start
	SBLOCKE	Block end
	BSTOP	Stop block
	BGOON	Continue running the stop block
	WAIT	Wait
Write and read the module	FROM	Read the module
	TO	Write in
Others	FRQM	Frequency measurement
	PWM	Pulse width modulation
	PID	PID control
	NAME_C	C function block

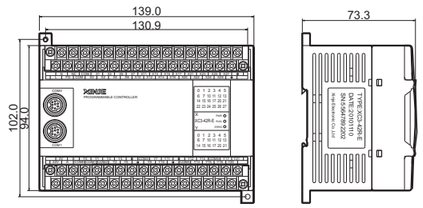
Dimension of basic unit



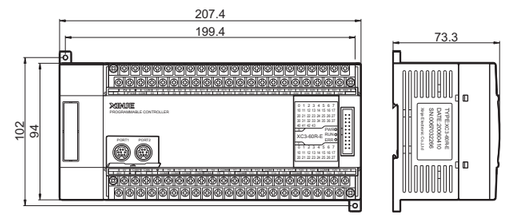
Suitable model	
Series	I/O numbers
XC1	10/16
XC2	14/16
XC3	14



Suitable model	
Series	I/O numbers
XC1	24/32
XC2	24/32
XC3	24/32
XC5	24/32
XCC	24/32



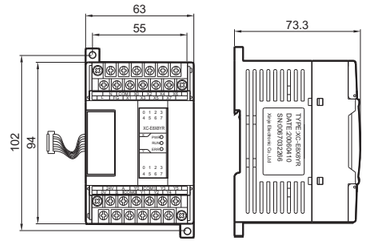
Suitable model	
Series	I/O numbers
XC2	42
XC3	42



Suitable model	
Series	I/O numbers
XC2	48/60
XC3	48/60
XCM	60

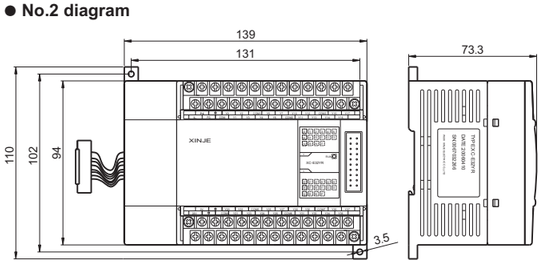
Dimension of extension module

● No.1 diagram



Suitable model	
Series	I/O numbers
I/O	8, 16
Analog	All
Temperature	All
Mixed	All

● No.2 diagram



Suitable model	
Series	I/O numbers
I/O	32
Analog	-
Temperature	-
Mixed	-