

Extensive Product Range
versatile and expandable



***XC** series programmable controller*

***XPG/XMH/XP/XMP** series integrated PLC&HMI controller*

XC Product Range Overview

Modular in concept providing ease of expansion
Powerful control functions through flexible modules

Special function expansion BD board



● **XC-2AD2PT-BD**
2-channel 14 bits analog input, 2-channel PT100 temperature input, built-in PID function.



● **XC-COM-H-BD**
Special BD for RS232/RS485 communication, to extend the communication port of basic unit.



● **XC-SD-BD**
Can install SD card, extend the capacity of XC and store the data.



● **XC-2AD2DA-BD**
2-channel analog input, 2-channel analog output.



● **XC-TBOX-BD**
Make the XC access to Ethernet, function is the same as T-BOX module.



● **XC-PBOX-BD**
Connect to PLC, PROFIBUS communication



● **XC-OFC-BD**
Connect to PLC, FON communication



● **XC-4AD-BD**
2-channel analog voltage input, 2-channel analog current input

Peripheral equipment

● HMI



TG, TH, TP touch panel



MP touch panel



OP operate panel

● Connection



Programming cable



Communication cable



COM-USB
(USB to serial port converter)



COM-BLUETOOTH
(Bluetooth module, to realize wireless connection)

Integrated PLC Models

● PLC with integrated analogues XC3-19AR-E



Logical control
analog I/O
PID temperature control
cost-effective, save space

● PLC with integrated HMI & analogues optional



XC3 series PLC functions
TH series touch panel functions
overall control, integrated solution

XC basic unit

● XC1 – Entry Series

Control points: 10/16/24/32

Small and compact fit for general applications on a budget, provides basic control operations such as logical control.

● XC2 – Basic Series

Control points: 14/16/24/32/42/48/60

Increased functionality, including high speed counters, high speed pulse control, various communication modes, increased processing power twice as fast as XC1 series, expandable through BD modules(except 14/16/42 points).

● XC3– Standard Series

Control points: 14/16/24/32/42/48/60

Builds on the functions included in the XC2 series with high speed pulsed output control, PWM, frequency control functions, crystal clock for accurate time control and interrupt control, expandable through expansion modules and BD boards(14 points not support any expansions, 42 points not support extend BD board).

● XC5 – Enhanced Series

Control points: 24/32/48/60

All the functions of the XC3 with 4 axis pulse control output (24/32 points), CANBUS network functionality and fully expandable through expansion modules and BD boards.

● XCM – Motion series

Control points: 24/32/60

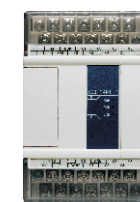
Support basic motion control instructions, realize 2-axis linkage, interpolation, following, coordinates switch(except 60 points), 3-10 axes pulse output, also support most functions of PLC, such as high speed count, interruption, PID control, expansion module and BD board.

● XCC – High performance series

Control points: 24/32

Faster operation speed, up to 5-channel pulse output and 5-channel AB phase high speed count, support basic motion control instructions, realize 2-axis linkage, interpolation, following, coordinates switch. Also support most functions of PLC, such as high speed count, interruption, PID control, expansion module and BD board.

(Sort by series)



10/14/16 points



24/32 points



42 points



48/60 points

(Sort by points)

Expansion Modules

● I/O expansion

Increase I/O count through the range of I/O expansion modules



Input expansion module	Output expansion module	I/O expansion module
XC-E8X XC-E16X XC-E32X XCL-E8X XCL-E16X XCL-E32X-E	XC-E8YR XC-E16YR XC-E32YR XCL-E8YR XCL-E16YR XCL-E32YR	XC-E8YT XC-E16YT XC-E32YT XCL-E8YT XCL-E16YT XCL-E32YT

● Analog expansion

Increase analog count with options for A/D, D/A and dedicated temperature modules



AD type	DA type	Mixed type
XC-E4AD(-H) XC-E8AD(-H) XC-E2AD-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



Expansions for PT100 and thermocouple inputs

Pt 100	Thermocouple	Analog & temperature
XC-E6PT XC-E6PT-P XC-E2PT-H	XC-E2TCA-P XC-E6TCA-P XCL-E6TCA-P	XC-E3AD4PT2DA(-H) XC-E2AD2PT2DA

● MA series expansion module



Based on MODBUS protocol, support up to 16 modules extension

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

Enhanced Functionality

*High speed processing,
High speed data acquisition, Motion Control*

High speed calculation

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

Rich expansions

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



1. I/O expansion module

- Extend I/O count 8~32point modules to a maximum of 284 points.
- Output expansion contains transistor (T) and relay(R) output.

2. Analog and temperature expansion module

- Has D/A, A/D conversion function, can be applied in process control system such as temperature, flow, liquid level, pressure, etc.
- Built-in PID function, wide range of applications, 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.

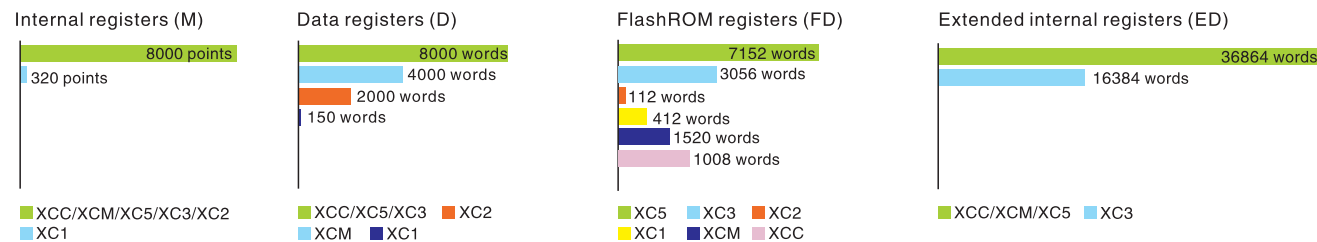
3. Expansion BD board

- The BD board clips onto the front of the PLC minimizing space requirements. Functions include communications and temperature control.

4. Expansion card

- Expansion card can install to PLC directly, no occupy extra space, can realize wired and wireless communication functions

Larger capacity for soft component



Communication function

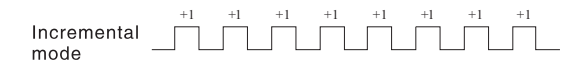
- Multi-communication port (up to 4), support RS232, RS485, CAN-BUS, Ethernet; communicate with inverter, meter and other peripherals.



High speed count

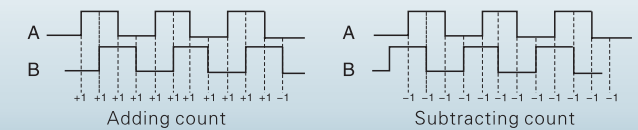
- XC series has 3-channel 2-phase high speed counter and high speed count comparator, enable to connect with rotary encoder directly, count the encoder input signal.
- Use different counters to realize single-phase (incremental mode), pulse + direction mode, AB phase mode counting, the highest frequency can up to 80 KHz.

- Multi-counting modes



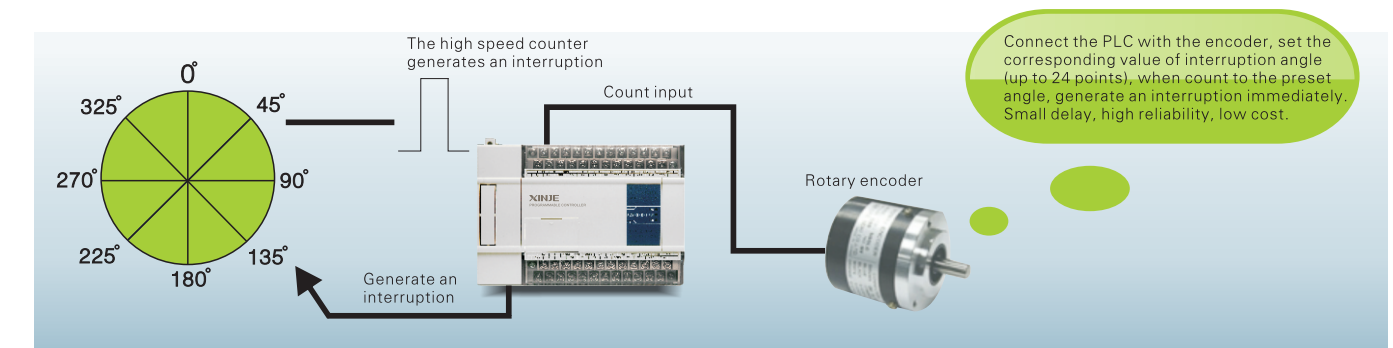
- 4 times frequency mode

AB phase count has 4 times frequency counting mode



24-segment high speed count interruption

- Control in real time with the high speed count interrupt function. Ideal for electronic cam control.
- The high speed counter has 24-segment 32-bit preset value, the interruption is produced when the count difference value is equal to the preset value.

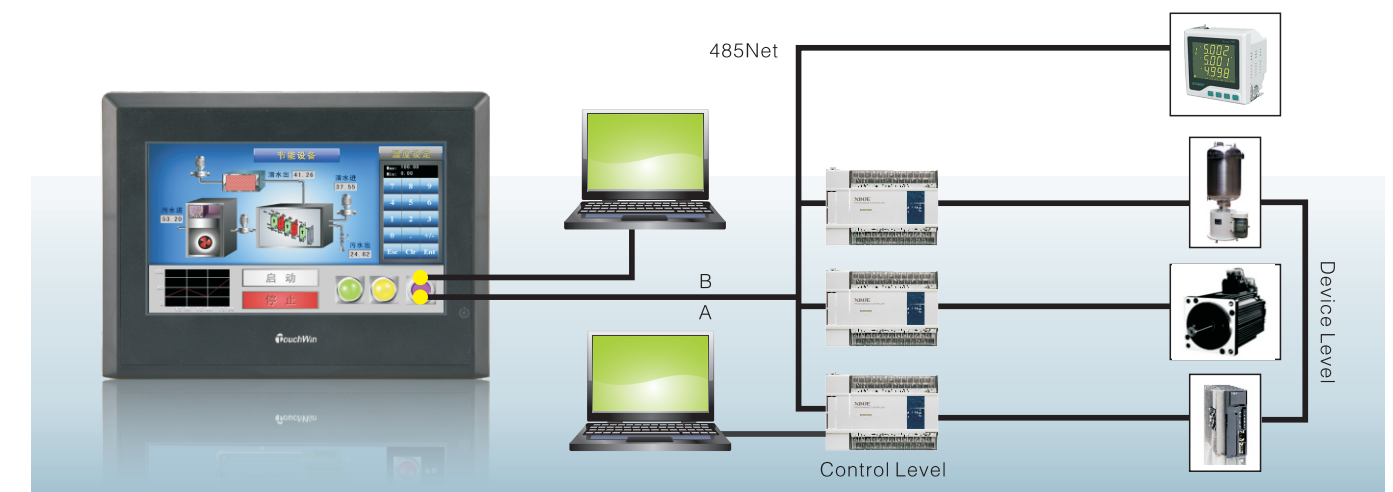


Enhanced communication protocols and network protocols

The XC series is flexible and integrates easily with Modbus protocols and free format protocols.

1. MODBUS networking

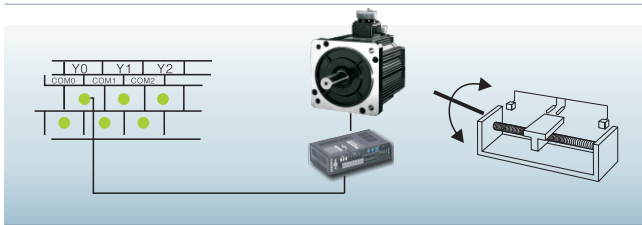
- XC series PLC supports MODBUS master-slave mode. PLC master can send requests to other devices, receive response of other devices; PLC slave only can response master's requests.



Up to 200 KHz, Up to 10-channel output

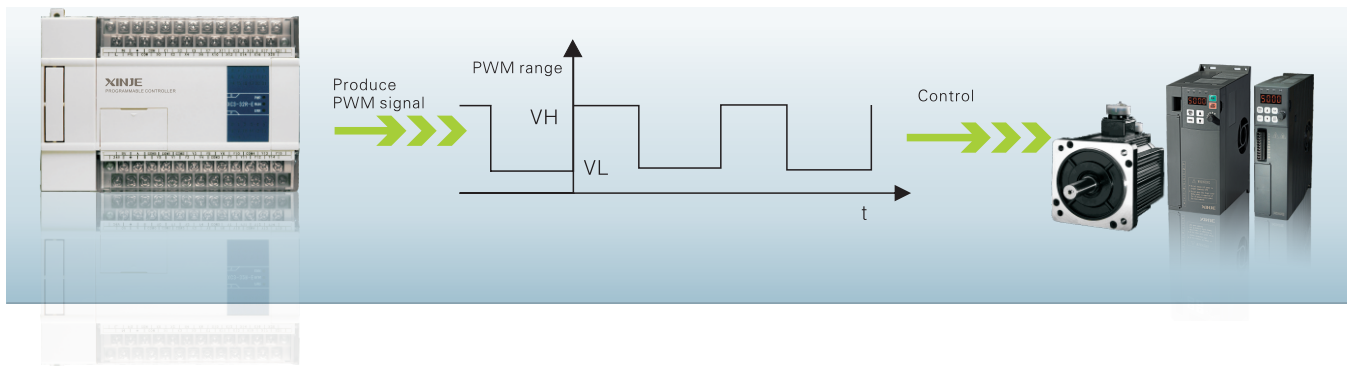
XC2/XC3/XC5 series have 2-channel pulse output. Support multi-mode output with different instructions. The output frequency up to 200 KHz.

- Use PLC with transistor output to support pulse output, such as XC3-14T-E, XC3-60RT-E.
- XCM series and XC5-32T-E have 4-channel pulse output (Y0, Y1, Y2, Y3).
- XCC-32T-E has 5-channel pulse output (Y0 ~ Y4).
- XCM-60T-E has 10-channel pulse output (Y0-Y11).



PWM (pulse width modulation)

- Implement pulse width modulation via PWM instruction.
- Control the inverter and DC motor by this function.



Interrupt function

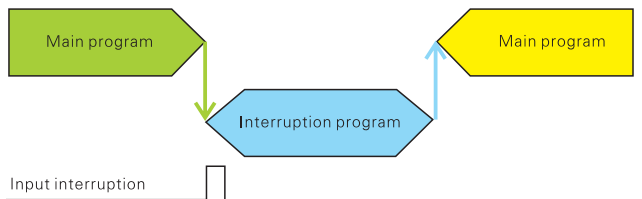
XC series provides a comprehensive interrupt function. Function includes external interrupts, time dependant interrupts, 24-segment high speed counter interrupt. Interrupt can be prioritized outside PLC scan period.

1. External interruption

- Input external interruption from X terminals, each X is an interruption which is activated at falling or rising edge.

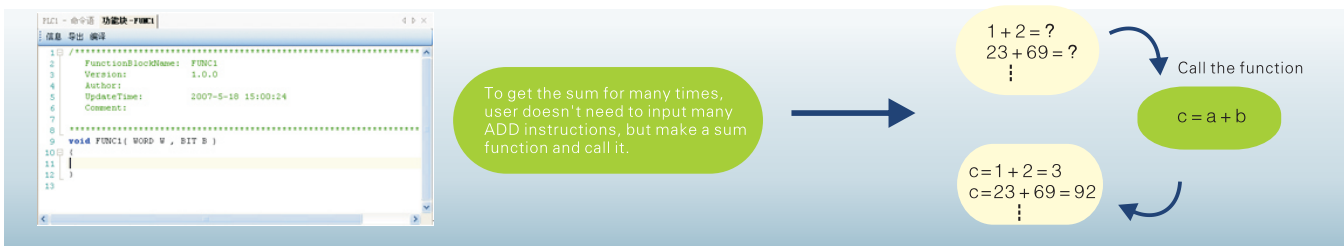
2. Timing interruption

- Program interrupts routine and call at set intervals. Run as part of a sub routine every N ms.



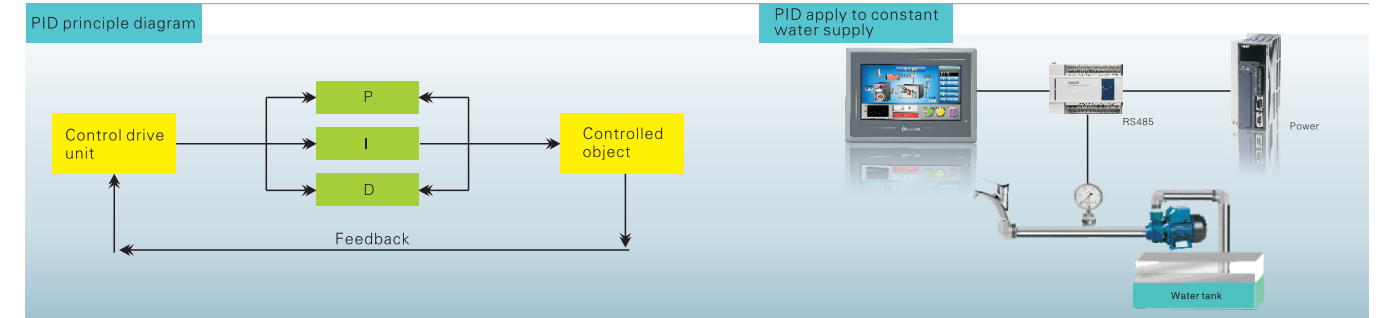
Support C program block, the pioneer in this field

- Better program privacy: call the C block after making the C program, the internal program is invisible.
- Support enhanced operational functions; include all the C-supported functions.
- Save internal space, reduce the workload, programming is more efficient.



PID control

- XC series PLC supports PID control instruction and auto-tune function.
- Users can get the best sampling time and PID parameters via auto-tune, improve the control accuracy.

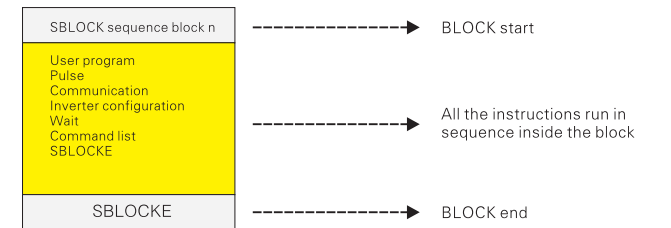


Sequence block

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 process

- 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-bit instruction STR can make precise timing.
- The precise timer will generate an interruption flag when it reaches timer value; each precise timer has related interruption flag.
- The precise timer is a 1ms 32-bit timer.

Frequency measurement

- 32-bit instruction FRQM can measure the frequency.

Real-time clock

- Built-in real-time clock, Li-battery power-down memory.

Password protection

- 6-bit ASCII, protect the program security.

Self-diagnosis

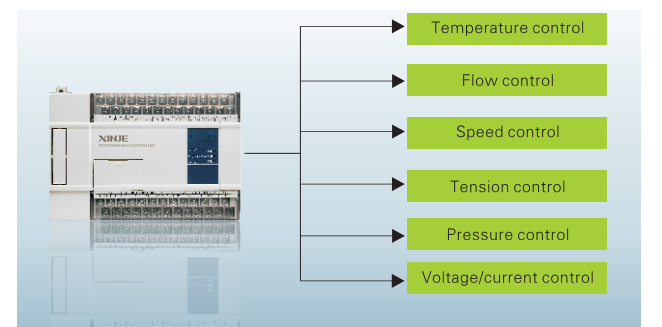
- Power-on self-examination, timer monitoring, grammar checking

Small size, easy to install

- Compact structure; improve the utilization, two installation modes.

XC3-19AR-E meets diverse needs

- Support analog I/O without connecting expansion module
- Logical control and analog I/O in one unit
- Digital input: 9 points (NPN optical-coupler isolation); digital output: 10 points (relay)
- Analog input: 8 points (voltage); analog output (current/voltage)
- 10-bit high precision analog I/O, PID control inside.
- 2-channel AB phase input, 4-channel high speed count (10 KHz).
- 2-channel 32-bit pulse output, cost-effective, save space.



XPG/XMH/XP/XMP series integrated PLC&HMI controller

Control • Display • Extend

Superior performance, integrated solution

Combined functions in one unit reduces complexity

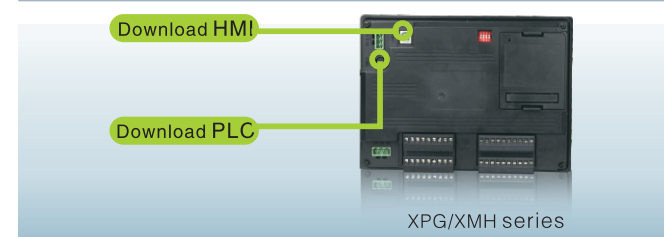
- XPG3-30 = XD3-32 + TG765
- XMH3-30 = XC3-32 + TH765
- Integrate PLC and HMI in one unit
- Display area can be touched, easy to control



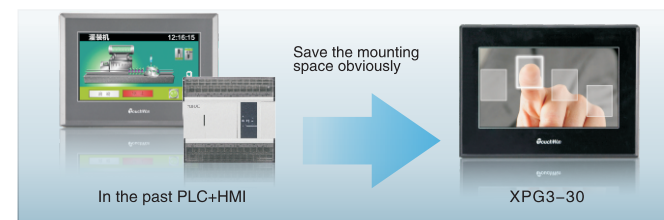
Integrated structure design, perfect combination of PLC and HMI

1. Integrated structure, save mounting space

- Multi-functional programming port: download HMI and PLC program with the same cable



2. Compact structure, save the space of electrical cabinet



Flexible extension function [can extend 2 BD boards]

- XMH3-30 can meet more needs of analog and temperature control; support 2 BD boards, the BD board type up to 5.
- Other types support 1 BD board.



Powerful data backup function, user-friendly interface

1. Data export/import via USB port

XMH3-30 has USB-A port on the front and back side which is used to backup the data, especially designed for the field data collection and storage, data export and import. The maintenance and checking of project data are more effective by CSV format.



2. Project downloading is fast and time-saving

- USB-A port is accord with USB2.0, using USB cable can transfer the data at high speed and save the download time.



Panel design closes to user needs

Program the function buttons to provide flexible user input [XMH series]

- 8 function-buttons can be set to any functions, the buttons are sensitive and precise
- The panel is equipped with power LED, easy to command the machine running state



Superior performance, complete function

- The button cover can be changed easily [XMH series]

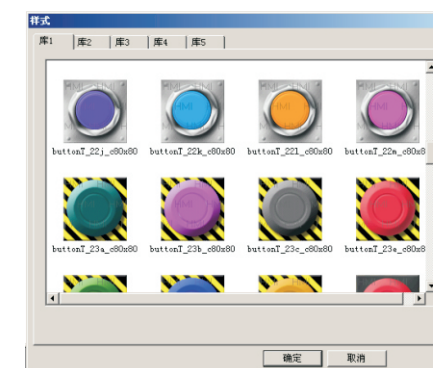


Display

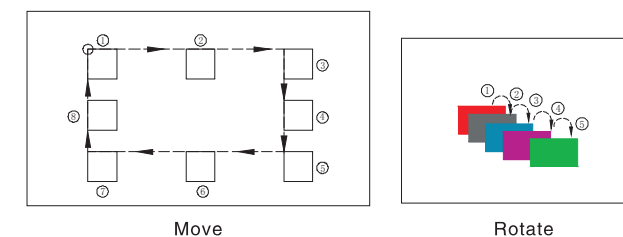
1. Vivid display and project gallery support all the functions of TH series HMI

- True color LCD, XPG series is 160 thousand color, XMH series is 65536 color
- 7 inches big screen, more displaying contents, more vibrant colors
- Built-in 128MB FlashROM, meet large project needs

2. 3D gallery enhances the look and feel of the HMI design



3. New animation features provide real time graphical control



4. Process control and data acquisition function enables complex trending



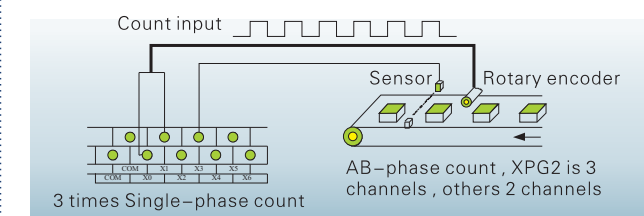
5. Enhanced alarm function enables the user to identify process issues quickly.

- The flexible setting of alarm list and alarm window helps the user to find the error and shorten the machine downtime, recover the system rapidly

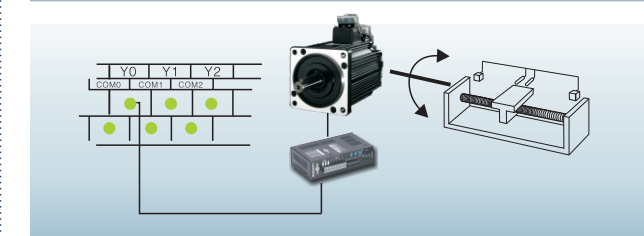


XPG-30 use XD3 PLC chip, has rich PLC functions, others use XC3 PLC chips

- Up to 80 KHz 32-bit high speed counter



- 2-channel 200 KHz pulse output



Communication

Equipped with two ports, fast connect to other devices

- Download port: download HMI and PLC program
- Communication port: PLC communicates with other devices via RS232 or RS485 port

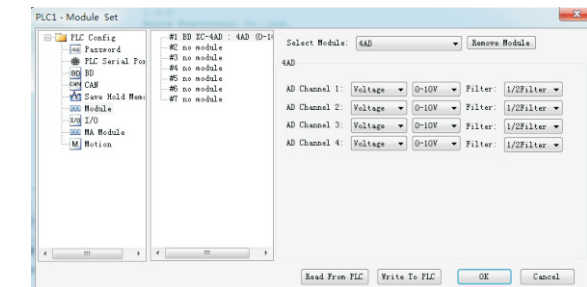


XCPPro edit tool [V3.3]

Special module

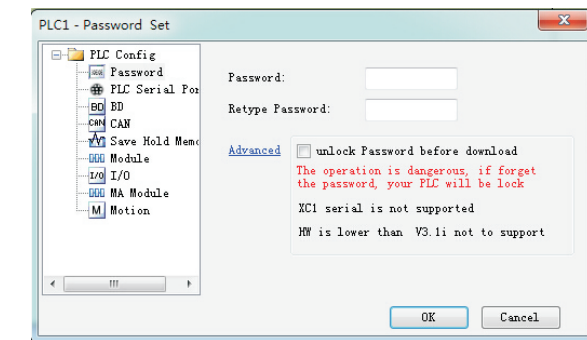
Support all series of PLC products

XCPPro V3.3 is suitable for XC series PLC and XMH/XMP/XP series integrated PLC&HMI. It can make PLC program, configure network module, expansion module and expansion BD board.



Enhanced password

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.



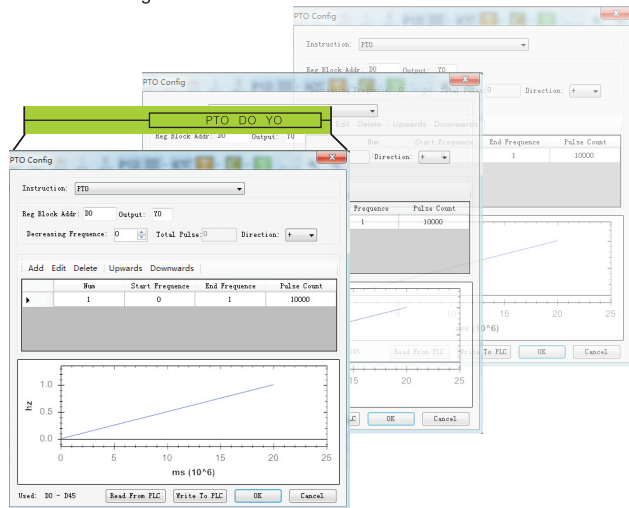
Panel configuration

1. 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.

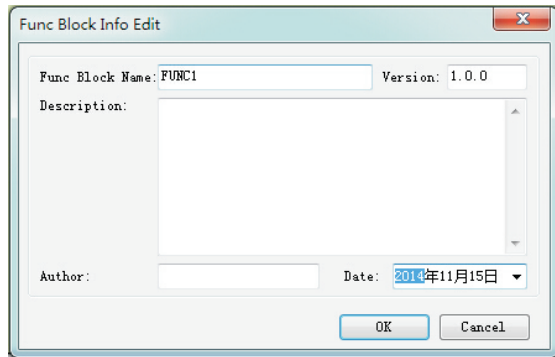
2. Improve the configuration of pulse instruction

- New pulse instruction PTO is added to XCPPro V3.3, the instruction can be configured in the software.

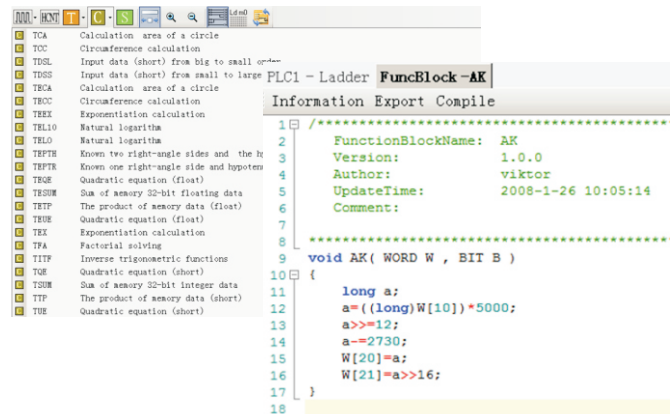


Powerful ability of program editing

- Edit by ladder chart or instructions, the two modes can be switched.
- Support C block in XCPPro, no need C software
- Export/import the function block, support two modes: source code and passive code. If export the passive code, the program cannot be read, the privacy is better.

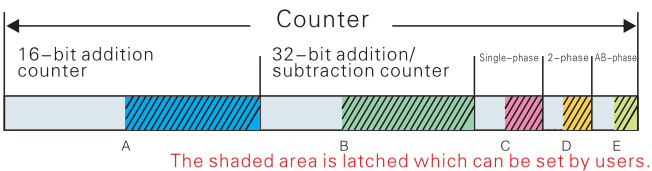


- Add C instruction library, can be called directly.



Latched in sections

- The latched range of extension internal register ED can be set by user.
- XCPPro V3.3 can set the latched range of various registers such as timer, counter by changing the value in FD register.



Serial port configuration

- 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.

Calculate the program size

- The programmer can command the program capacity accurately.

Better system compatibility

- Compatible with different OS: Windows2000/XP/7
- Support 64-bit operation system

Useful simple functions

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

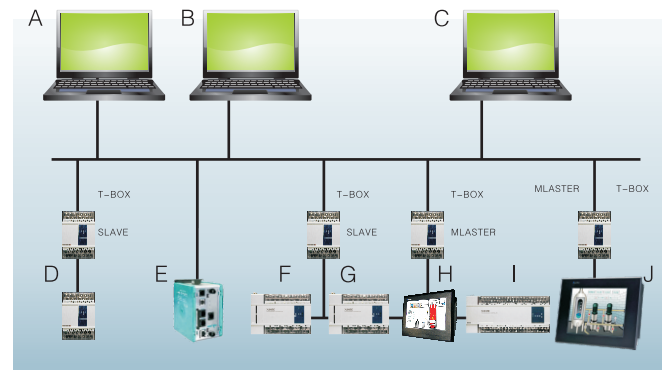
Industry Ethernet module T-BOX

Open network, enhanced communication capability

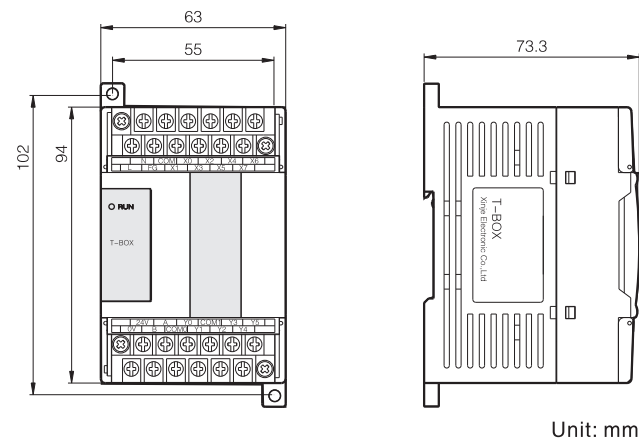
Support MODBUS-TCP protocol; connect all the industry devices by T-BOX to form Ethernet control system. It breaks the "island state" of traditional industry automation, makes the communication more efficient and realizes a wide range of open network.

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 process data.
- Cost-effective, easy to maintain, friendly diagnosis function.
- MODBUS communication is one-master multi-slave mode, the speed is very slow. By using T-BOX, multi-station device can realize high-speed data exchanging between master PLC and slave PLCs.

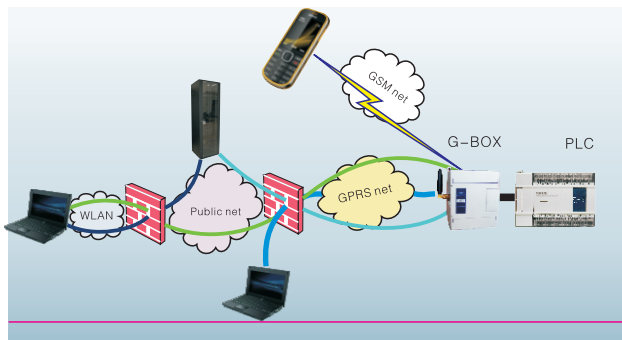


Dimension



Wireless data transmission module G-BOX

Use G-BOX with XC series PLC to enable wireless connection to GPRS and GSM network, support MODBUS-TCP protocol. It is suitable for distributed system, 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, break redial and heartbeat functions
- Support SMS sending and receiving
- Support local configuration
- Support GPRS and GSM two communication modes

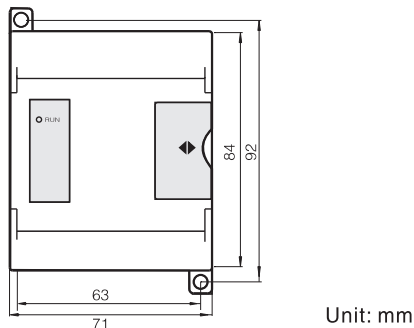
Wireless upload/download PLC program, real-time monitoring

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.

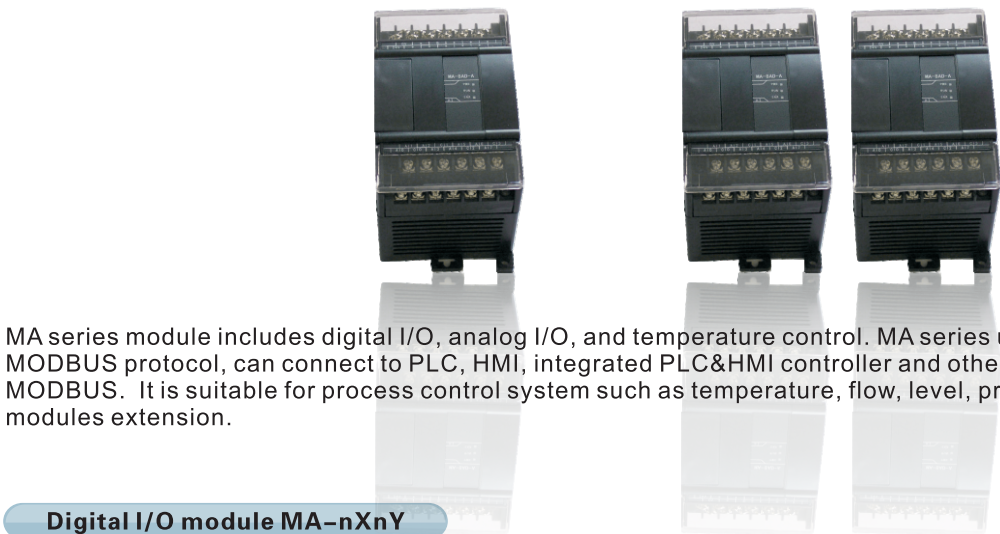
Dimension



Special module

Product specifications of XC series

MA series data acquisition and control module



MA series module includes digital I/O, analog I/O, and temperature control. MA series uses RS485 port, bases 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 up to 16 modules extension.

Digital I/O module MA-nXnY

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

Analog output module MA-nDA

Type	Explanation
MA-2DA	2-channel, 10-bit high precision analog output (voltage/current)
MA-4DA	4-channel, 10-bit high precision analog output (voltage/current)

Analog input module MA-nAD

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

Analog I/O module MA-nADmDA

Type	Explanation
MA-4AD2DA	4-channel, 12-bit high precision analog input (voltage/current), PID control for each channel; 2-channel, 10-bit high precision analog output (voltage/current)

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

Type	Explanation
MA-6PT-P	6-channel PT100 input, PID control for each channel; 6-channel output. 1mA constant current output, free from outside interference.
MA-6TCA-P	6-channel thermocouple input, PID control for each channel; 6-channel output. 1mA constant current output, free from outside interference.

Specifications of basic unit

General specifications

Item	Specifications
Insulation voltage	Above DC500V 2MΩ
Noise immunity	Noise voltage 1000Vp-p 1μs pulse 1 minute
Air	No corrosive , flammable gas
Ambient temperature	0 ~ 60 ℃
Ambient humidity	5% ~ 95% (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 specifications

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 resistance 2KΩ~1MΩ)	DC4~20mA (external load resistance less than 500Ω)
Digital input range	-	8-bit (0~255)	
Digital output range	12-bit (0 ~ 4095)	-	
Resolution	1/4095(12Bit)	1/255(8Bit)	
Integrated precision	0.8%		
Transformation speed	15ms/channel	2ms/channel	
Power for analog	DC24V ± 10%, 100mA		

Performance specifications

Item		Specifications												
Series		XC1		XC2		XC3			XC5		XCM		XCC	
Points		10/16	24/32	14/16	24/32	48/60	14	24/32	48/60	24/32	48/60	24/32	60	32
Program running mode		Cyclic scan												
Programming mode		Instruction, ladder chart												
Operation speed		0.5us												
Latched		FlashROM		FlashROM and Li-battery										
User program capacity		32KB		128KB					96KB		128KB		256KB	
I/O points		5/5	12/12	8/6	14/10	28/20	8/6	14/10	28/20	14/10	28/20	14/10	36/24	18/14
		8/8	16/16	8/8	18/14	36/24		18/14	36/24	18/14	36/24	18/14		
Internal coil		448		8768			8768			8768		8768		8768
Timer (T)	Points	80		640			640			640		640		640
	Spec	100ms timer: 0.1~3276.7s 10ms timer: 0.01~327.67s 1ms timer: 0.001~32.767s												
Counter (C)	Points	48		640			640			640		640		640
	Spec	16-bit counter: 0~32767 32-bit counter: -2147483648~2147483647												
Process (S)		32		1024			1024			1024		1024		1024
Data register (D)		150		2000			8000			8000		4000		8000
FlashROM (FD)		412		128			3072			7168		1536		1024
		—		—			16384			36864		36864		36864
High speed count		—		Up to 4-channel, 80KHz, 3 HSC mode (single-phase, pulse & direction, AB phase)										
Pulse output		—		2-channel output (special 5-channel)					4channels	2channels	3/4channels	10channels	5channels	
External interruption		—		2 kinds of external interruption (rising edge, falling edge)										
Password protection		6-bit ASCII												
Self-diagnosis		Power-on self-test, monitoring timer, grammar checking												

Full range of products list

XC series type list

Type							Input points (DC24V)	Output points (R/T)
AC power			DC power					
	Relay output	Transistor output	Mixed transistor & relay output	Relay output	Transistor output	Mixed transistor & relay 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
PNP	XC2-60R-E	XC2-60T-E	XC2-60RT-E	XC2-60R-C	XC2-60T-C	XC2-60RT-C	36	24
	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
NPN	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
	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
PNP	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
	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
NPN	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
	-	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	XC5-48R-E	XC5-48T-E	XC5-48RT-E	XC5-48R-C	XC5-48T-C	XC5-48RT-C	28	20
	XC5-60R-E	XC5-60T-E	XC5-60RT-E	XC5-60R-C	XC5-60T-C	XC5-60RT-C	36	24
	-	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	XC5-48PR-E	XC5-48PT-E	XC5-48PRT-E	XC5-48PR-C	XC5-48PT-C	XC5-48PRT-C	28	20
	XC5-60PR-E	XC5-60PT-E	XC5-60PRT-E	XC5-60PR-C	XC5-60PT-C	XC5-60PRT-C	36	24
	-	XCM-24T3-E	-	-	XCM-24T3-C	-	14	10
	-	XCM-24T4-E	-	-	XCM-24T4-C	-	14	10
PNP	-	XCM-32T3-E	-	-	XCM-32T3-C	-	18	14
	-	XCM-32T4-E	-	-	XCM-32T4-C	-	18	14
	-	XCM-60T-E	-	-	XCM-60T-C	-	36	24
	-	XCM-24PT3-E	-	-	XCM-24PT3-C	-	14	10
NPN	-	XCM-24PT4-E	-	-	XCM-24PT4-C	-	14	10
	-	XCM-32PT3-E	-	-	XCM-32PT3-C	-	18	14
	-	XCM-32PT4-E	-	-	XCM-32PT4-C	-	18	14
	-	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

Integrated PLC&HMI controller type list

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

Analog expansion module

Type		Description
Analog input	XC-E2AD(H)	2-channel analog input
	XC-E4AD(H)	4-channel analog input
	XC-E8AD(H)	8-channel analog input(first 4 channels voltage input , last 4 channels current input)
	XC-E8AD-B	first 4 channels voltage input(optional) , last 4 channels current input(can not select)
	XC(L)-E4AD2DA(H)	4-channel analog input, 2-channel analog output
	XC-E4AD2DA-B-H	4-channel analog input (voltage/current optional), 2-channel analog output (optional)
Analog output	XC-E2DA(H)	2-channel analog output
	XC(L)-E4DA(H)	4-channel analog output
	XC-E4DA-B-H	4-channel analog voltage output(optional)
Temperature measurement	XC-E2PT(H)	2-channel PT100 input
	XC-E6PT(H)	6-channel PT100 input
	XC-E6PT-P(H)	6-channel PT100 input ,built-in PID control
	XC(L)-E6TCA-P	6-channel K/S/E/N/J/T/R thermocouple input, built-in PID control per channel
	XC-E2TCA-P	2-channel K/S/E/N/J/T/R thermocouple input, built-in PID control per channel
	XC-E3AD4PT2DA	3-channel analog input ,4-channel PT100 input ,2 channel analog output
	XC-E2AD2PT2DA	2-channel analog input,2-channel PT100 input ,built-in PID control per channel , 2 channel analog utput

*Note.the module with *H*hardware is isolated with photoelectric process.

Expansion BD board type list

Type		Description
Temperature measurement	XC-2AD2PT-BD	2-channel analog input, 2-channel PT100 input
Communication	XC-COM-(H)-BD	RS232/485 communication
SD card	XC-SD-BD	Extend the capacity of PLC
Analog	XC-2AD2DA-BD	2-channel analog input, 2-channel analog output
Ethernet	XC-TBOX-BD	To access to Ethernet
Fiber communication	XC-OFC-BD	Connect to PLC , PROFIBUS communication
PRIFBUS	XC-PBOX-BD	Connect to PLC , FON communication
Analog measurement	XC-4AD-BD	2-channel analog voltage input , 2-channel analog current inputu

Connection accessories type list

Type		Description
USB converter	COM-USB	Connect PC to PLC via USB port
Bluetooth	COM-Bluetooth	Short-distance wireless connection of PLC and PC

Instruction list

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 pulse
ANDF	Serial connection falling-edge of pulse
ORP	Parallel connection rising-edge of pulse
ORF	Parallel connection falling-edge of 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	Negate the coil
PLS	ON for one scanning period at rising-edge of pulse
PLF	ON for one scanning period at falling-edge of pulse
SET	Keep the coil ON
RST	Clear the coil-ON state
OUT	Counter drive
RST	Reset the contactor, clear the current value
END	Operate output/input and return to step 0
GROUP	Block folding start
GROUPE	Block folding end

Motion control instruction

Instruction	Function
ABS	Absolute address
CCW	Arc counterclockwise interpolation
CHK	Servo checking
CW	Arc clockwise interpolation
DRV	High-speed locate
DRVR	Electrical return to zero
DRVZ	Mechanical return to zero
FOLLOW	Following
INC	Incremental address
LIN	Linear interpolation
PLAN	Select space or plane
TIM	Stable time
SETR	Set the electrical zero
SETP	Set the coordinate system

Special instruction

Type	Instruction	Function
Pulse output	PLSY	single-segment pulse without speed up/down
	PLSA	Absolute position multi-segment pulse
	PLSR	Relative position multi-segment pulse
	PLSF	Variable frequency pulse output
	PLSNEXT/PLSNT	Switch the pulse segment
	DRVA	Absolute position single-segment pulse
	DRVI	Relative position single-segment pulse
	PLSMV	Store the pulse quantity in the register
	STOP	Stop the pulse
	ZRN	Return to the origin
	PTO	Relative multi-segment pulse output
	PTOA	Absolute multi-segment pulse output
	PSTOP	Stop the pulse
	PTF	Variable frequency pulse output

Application instruction

Type	Instruction	Function
Process	CJ	Condition jump
	CALL	Call the subprogram
	SRET	Subprogram return
	STL	Process start
	STLE	Process end
	SET	Open assigned process, close current process
	ST	Open assigned process, not close current 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)
Data transmission	CMP	Data comparison
	ZCP	Data zone comparison
	MOV	Data transmission
	BMOV	Data block transmission
	FMOV	Multi-point repeat transmission
	EMOV	Float transmission
	FWRT	Write into FlashROM
	MSET	Multi-set on
	ZRST	Multi-reset
	SWAP	Exchange the high byte and low byte
Data calculation	XCH	Exchange two values
	ADD	Addition
	SUB	Subtraction
	MUL	Multiplication
	DIV	Division
	INC	Plus one
	DEC	Minus one

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

Type	Instruction	Function
Data calculation	MEAN	Get the mean value
	WAND	Logic and
	WOR	Logic or
	WXOR	Logic xor
	CML	Negate
	NEG	Negative
Data shift	SHL	Arithmetic shift left
	SHR	Arithmetic shift right
	LSL	Logic shift left
	LSR	Logic shift right
	ROL	Rotate left
	ROR	Rotate right
	SFTL	Bit shift left
	SFTR	Bit shift right
	WSFL	Word shift left
	WSFR	Word shift right
Data conversion	WTD	Word convert to double word
	FLT	16-bit integer convert to float
	DFLT	32-bit integer convert to float
	FLTD	64-bit integer convert to float
	INT	Float convert to integer
	BIN	BCD convert to binary
	BCD	Binary convert to BCD
	ASCI	Hex convert to ASCII
	HEX	ASCII convert to hex
	DECO	Decoding
	ENCO	High-bit encoding
	ENCOL	Low-bit encoding
	GRY	Binary convert to gray code
	GBIN	Gray code convert to binary
Float calculation	ECMP	Float comparison
	EZCP	Float zone comparison
	EADD	Float addition
	ESUB	Float subtraction
	EMUL	Float multiplication
	EDIV	Float division
	ESQR	Float square
	SIN	Float sine
	COS	Float cosine
	TAN	Float tangent
Clock	ASIN	Float arcsine
	ACOS	Float arccosine
	ATAN	Float arctangent
	TRD	Read clock data
	TWR	Write clock data

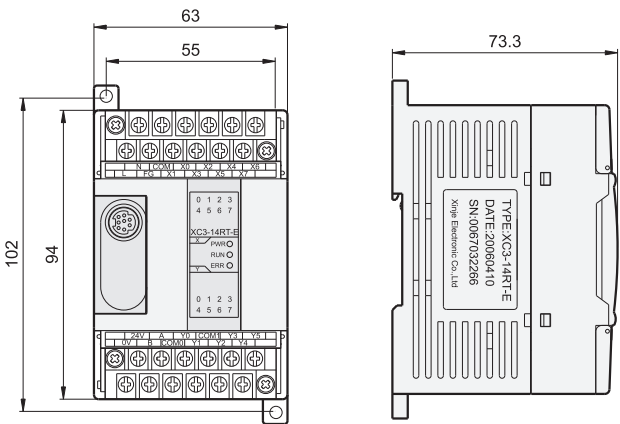
Type	Instruction	Function
Precise timing	STR	Precise timing
	STRR	Read precise timing register
	STRS	Stop precise timing
Interruption	EI	Enable the interruption
	DI	Disable the interruption
	IRET	Interruption return
Sequence block	SBLOCK	Block start
	SBLOCKE	Block end
	BSTOP	Stop the block
	BGOON	Continue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

Configuration list

Type		XP series			XMP series	XMH series	XPG series
Specification		XP1-18/R/T/RT-C	XP2-18/R/T/RT-C	XP3-18/R/T/RT-C	XMP2-32/R/T/RT-E	XMH3-30/R/T/RT-E	XPG3-30/R/T/RT-C
Structure	HMI	OP330 (XP)			MP760-T(XMP-32)	B/MH765-M(XB/MH-30)	TG765-MT/UT/ET/XT
	PLC	XC1-18R/T/RT	XC2-18R/T/RT	XC3-18R/T/RT	XC2-32R/T/RT	XC3-32R/T/RT	XD3-32R/T/RT
Features	Input Voltage	DC24V (Voltage range: DC22V-DC26V)			AC220V (Voltage range: AC100V-240V)		DC24V (Voltage range: DC22V-DC26V)
Port	COM0	RS232 (Download/upload PLC program, Download OP program)			/	RS232 (Download/upload PLC program, PLC PORT1 communication port)	
	COM1	/			RS232 (Download/upload PLC/HMI program)	RS232 (PLC PORT2 communication port)	/
	COM2	/			RS232 (PLC PORT2 communication port)	/	/
	AB terminal	/	RS485 (PLC PORT2 communication port)				
	USB port1	/	/	USB-B, Download/upload HMI program			
	USB port2	/					USB-A, U Bets
Panel	Type	LCD yellow green			256 color	65536 color	16770k color
	Panel size	3.7 inches			7 inches		
	Touch	Cannot touch			Amr touch	4 wire resistive touc	
PLC	Programming	Instructions list, ladder chart, C language					
	Processing speed	0.3us			0.5us	0.3us	0.05us
	I/O points	Input 10 points, output 8 points			Input 16 points, output 16 points	Input 16 points, output 14 points	
	High speed process function	/	Hsc, pulse output, external interrupt				
	Password protection	6 bit ASCII					
	Self diagnosis	Power-on self-examination,timer monitoring,grammar checking					

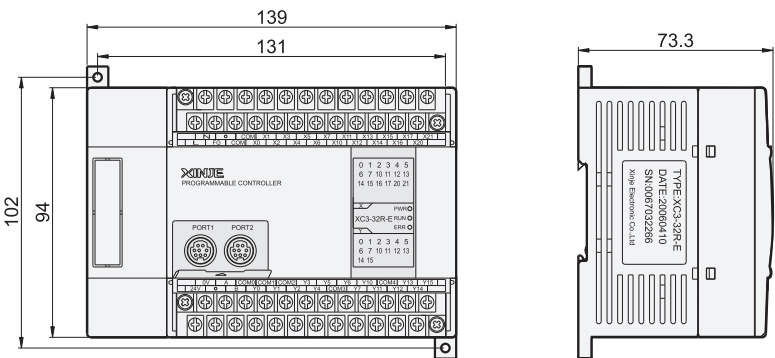
Dimension

Dimension of basic unit (unit: mm)



Suitable type

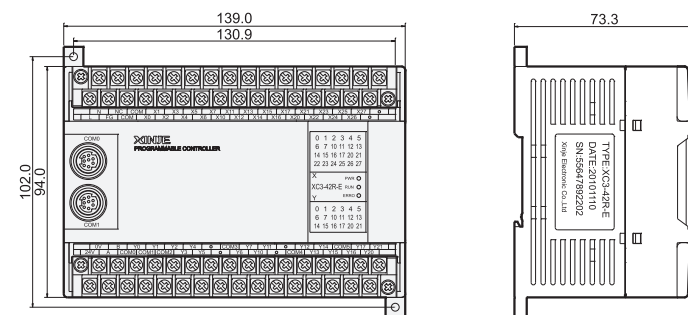
Type	Points
XC1 series	10/16
XC2 series	14/16
XC3 series	14



Suitable type

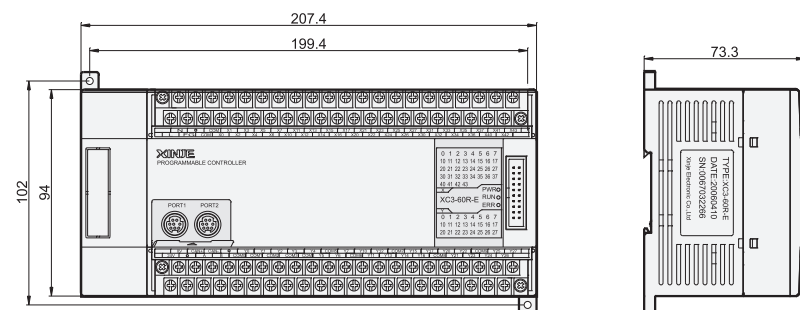
Type	Points
XC1 series	24/32
XC2 series	
XC3 series	
XC5 series	
XCM series	
XCC series	

Dimensions



Suitable type

Type	Points
XC2 series	42
XC3 series	

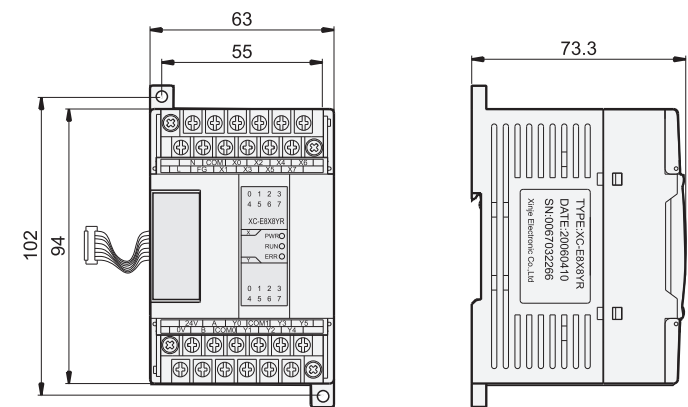


Suitable type

Type	Points
XC2 series	48/60
XC3 series	48/60
XC5 series	48/60
XCM series	60

Dimensions of expansion module (unit: mm)

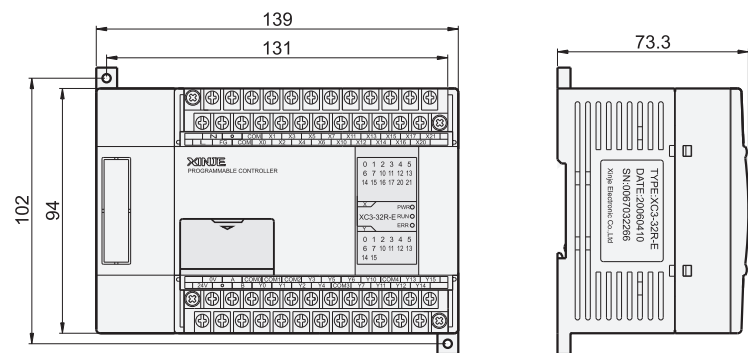
● Figure 1



Suitable type

Module	Type
I/O	8 points, 16 points
Analog	All
Temperature	All
Mixed	All

● Figure 2

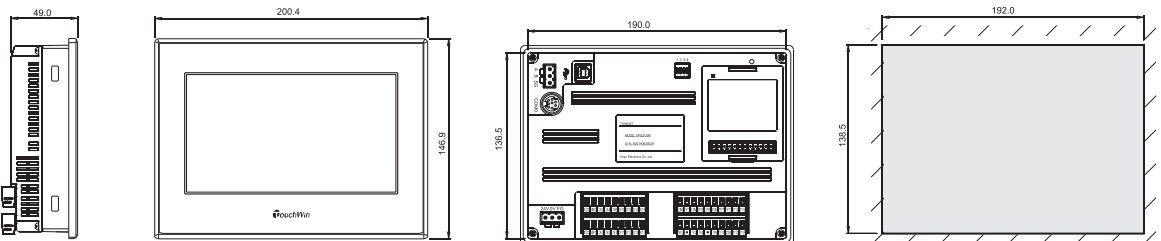


Suitable type

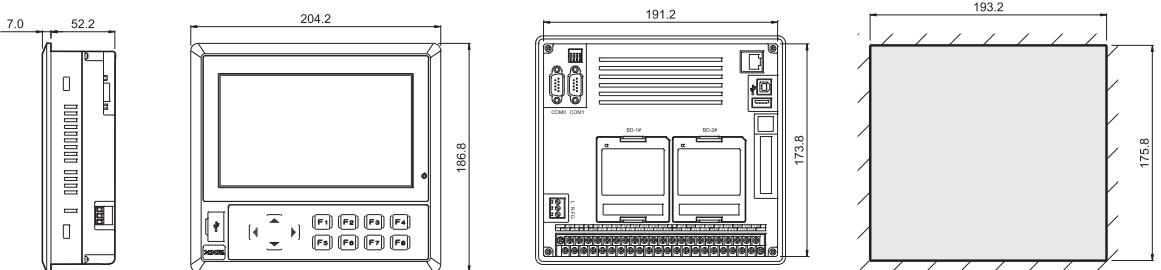
Module	Type
I/O	32 points
Analog	/
Temperature	/
Mixed	/

Dimensions of Integrated PLC&HMI controller (unit: mm)

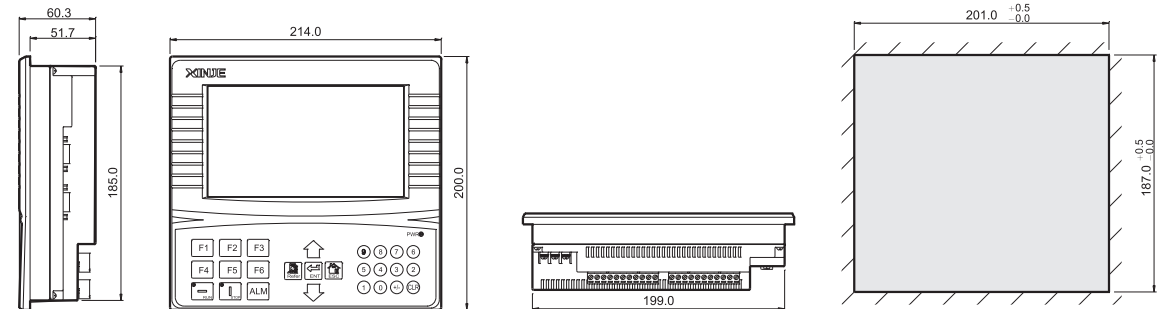
XPG3-30R/T/RT-C



XMH3-30R/T/RT-E



XMP2-32R/T/RT-E



XP1/XP2/XP3-18R/T/RT-C

