

# 2

## The Specifications and Parameters of CPU

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This chapter mainly tells the general specifications, performance, external dimension, terminals arrangement and communication interface of the CPU units. For the expansions, please refer to chapter 8.

2-1 . Specifications and Parameters
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2-2 . External Dimension
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2-3 . Terminals Arrangement
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2-4 . Communication Interface
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## 2-1 . Specifications and Parameters

### 2-1-1 . General Specifications

Items	Specifications
Isolate Voltage	Above DC 500V 2M ohm
Anti-noise	Noise voltage 1000Vp-p 1uS pulse per minute
Atmosphere	No erosive, flammable gas
Ambient Temperature	0 ~60
Ambient Humidity	5%~95% (no dew)
COM1 <sup>1</sup>	RS-232, connect with the host machine, HMI to program or debug
COM2 <sup>2</sup>	RS-232/RS-485, connect with net or intelligent instruments, inverters etc.
COM3 <sup>3</sup>	RS-232C/RS-485 expanded by BD card
COM4 <sup>4</sup>	CANBUS COM port
Installation	Use M3 screws or DIN to fix <sup>5</sup>
Grounding	The third type grounding (do not grounding with the strong power system) <sup>6</sup>

1 : All the CPU units have COM1, for program and communication;

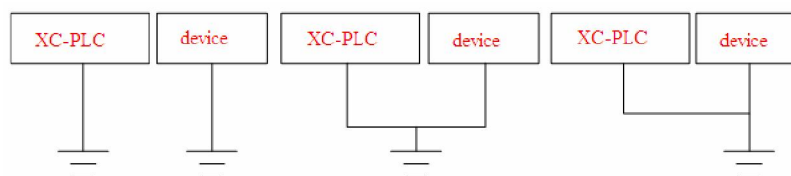
2 : 10I/O、14I/O、16I/O CPU units don't have COM2;

3 : COM3 is the COM port from BD card (XC-COM-BD).

4 : COM4 is only equipped on XC series.

5 : The DIN should be DIN46277, width is 35mm.

6 : The grounding should be like type 1 and 2, not 3.



Type 1

Type 2

Type 3

## 2-1-2 . Performance and Specifications

## XC1 series

Items		Specifications			
Program Executing Form		Loop scan form			
Program Form		Instruction、 Ladder			
Dispose Speed		0.5 us			
Power Off Retentive		Use FlashROM			
User's program space <sup>1</sup>		32K			
I/O points <sup>2</sup>	Total I/O	10	16	24	32
	Input	5 X0~X4	8 X0~X7	12 X0~X13	16 X0~X17
	Output	5 Y0~Y4	8 Y0~Y7	12 Y0~Y13	16 Y0~Y17
Internal Coils (X) <sup>3</sup>		X0~X77 (64)			
Internal Coils (Y) <sup>4</sup>		Y0~Y77 (64)			
Internal Coils (M)		448	M0~M199 【M200~M319】 <sup>5</sup>		
			For Special Use <sup>6</sup> M8000~M8079		
			For Special Use <sup>6</sup> M8120~M8139		
			For Special Use <sup>6</sup> M8170~M8172		
			For Special Use <sup>6</sup> M8238~M8242		
			For Special Use <sup>6</sup> M8350~M8370		
Flow (S)		32	S0~S31		
Timer (T)	Points	80	T0~T23 : 100ms not accumulate		
			T100~T115 : 100ms accumulate		
			T200~T223 : 10ms not accumulate		
			T300~T307 : 10ms accumulate		
			T400~T403 : 1ms not accumulate		
			T500~T503 : 1ms accumulate		
	Spec.	100mS timer: set time 0.1~3276.7sec. 10mS timer: set time 0.01~327.67sec. 1mS timer: set time 0.001~32.767sec.			
Counter (C)	Points	48	C0~C23: 16 bits sequential counter		
			C300~C315: 32 bits sequential/inverse counter		
			C600~C603: single phase high speed counter		
			C620~C621		
			C630~C631		
	Spec.	16 bits counter: set value K0~32,767 32 bits counter: set value -2147483648~ + 2147483647			

Data Register (D)	288 words	D0~D99 【D100~D149】 <sup>5</sup>
		For Special Use <sup>6</sup> D8000~D8029
		For Special Use <sup>6</sup> D8060~D8079
		For Special Use <sup>6</sup> D8120~D8179
		For Special Use <sup>6</sup> D8240~D8249
		For Special Use <sup>6</sup> D8306~D8313
		For Special Use <sup>6</sup> D8460~D8469
FlashROMRegister (FD)	510 words	FD0~FD411
		For Special Use <sup>6</sup> FD8000~FD8011
		For Special Use <sup>6</sup> FD8202~FD8229
		For Special Use <sup>6</sup> FD8306~FD8315
		For Special Use <sup>6</sup> FD8323~FD8335
		For Special Use <sup>6</sup> FD8350~FD8384
High Speed Dispose Ability	No	
Password Protection	6 bits ASCII	
Self-diagnose Function	Power on self-check、 monitor the timer、 grammar check	

<b>XC2 Series</b>
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Items		Specifications					
Program Executing Form		Loop scan form					
Program Form		Instruction、Ladder					
Dispose Speed		0.5 us					
Power Off Retentive		Use FlashROM					
User's program space <sup>1</sup>		128K					
I/O points <sub>2</sub>	Total I/O	14	16	24	32	48	60
	Input	8 X0~X7	8 X0~X7	14 X0~X15	18 X0~X21	28 X0~X33	36 X0~X43
	Output	6 Y0~Y5	8 Y0~Y7	10 Y0~Y11	14 Y0~Y15	20 Y0~Y23	24 Y0~Y27
Internal Coils (X) <sup>3</sup>		X0~X777 (512)					
Internal Coils (Y) <sup>4</sup>		Y0~Y777 (512)					
Internal Coils (M)		8768 points	M0~M2999 【M3000~M7999】 <sup>5</sup>				
			For Special Use <sup>6</sup> M8000~M8767				
Flow (S)		1024 points	S0~S511 【S512~S1023】				
Timer	points	640 points	T0~T99 : 100ms not accumulate				
			T100~T199 : 100ms accumulate				
			T200~T299 : 10ms not accumulate				
			T300~T399 : 10ms accumulate				
			T400~T499 : 1ms not accumulate				
			T500~T599 : 1ms accumulate				
			T600~T639 : 1ms precise time				
	Spec.	100mS timer: set time 0.1~3276.7sec. 10mS timer: set time 0.01~327.67sec. 1mS timer: set time 0.001~32.767sec.					
Counter (C)	points	640 points	C0~C299: 16 bits sequential counter				
			C300~C598: 32 bits sequential/inverse counter				
			C600~C619: single phase high speed counter				
			C620~C629: dual-phase high speed counter				
			C630~C639 : AB phase high speed counter				
	Spec.	16 bits counter: set value K0~32,767 32 bits counter: set value -2147483648~ + 2147483647					
Data Register (D)		2612 Words	D0~D999 【D4000~D4999】 <sup>5</sup>				
			For Special Use <sup>6</sup> D8000~D8511				

		For Special Use <sup>6</sup> D8630~D8729
FlashROM Register (FD)	512 words	FD0~FD255
		For Special Use <sup>6</sup> FD8000~FD8255
High Speed Dispose Ability	High speed counter, pulse output, external interruption	
Password Protection	6 bits ASCII	
Self-diagnose Function	Power on self-check、 monitor the timer、 grammar check	

<b>XC3 Series</b>
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Items		Specifications					
Program Executing Form		Loop scan form					
Program Form		Instruction、 Ladder					
Dispose Speed		0.5 us					
Power Off Retentive		Use FlashROM and Li battery					
User's program space <sup>1</sup>		128K					
I/O points <sup>2</sup>	Total I/O	14	24	32	48	60	
	Input	8 X0~X7	14 X0~X15	18 X0~X21	28 X0~X33	36 X0~X43	
	Output	6 Y0~Y5	10 Y0~Y11	14 Y0~Y15	20 Y0~Y23	24 Y0~Y27	
Internal Coils (X) <sup>3</sup>		X0~X777 (512)					
Internal Coils (Y) <sup>4</sup>		Y0~Y777 (512)					
Internal Coils (M)		8768 points	M0~M2999 【M3000~M7999】 <sup>5</sup>				
			For Special Use <sup>6</sup> M8000~M8767				
Flow (S)		1024 points	S0~S511 【S512~S1023】				
Timer	points	640 points	T0~T99 : 100ms not accumulate				
			T100~T199 : 100ms accumulate				
			T200~T299 : 10ms not accumulate				
			T300~T399 : 10ms accumulate				
			T400~T499 : 1ms not accumulate				
			T500~T599 : 1ms accumulate				
			T600~T639 : 1ms precise time				
	Spec.		100mS timer: set time 0.1~3276.7sec. 10mS timer: set time 0.01~327.67sec. 1mS timer: set time 0.001~32.767sec.				
Counter (C)	points	640 points	C0~C299: 16 bits sequential counter				
			C300~C598: 32 bits sequential/inverse counter				

			C600~C619: single phase high speed counter
			C620~C629: dual-phase high speed counter
			C630~C639 : AB phase high speed counter
	Spec.	16 bits counter: set value K0~32,767 32 bits counter: set value -2147483648~ + 2147483647	
Data Register (D)	9024 words	D0~D3999 【D4000~D7999】 <sup>5</sup>	
		For Special Use <sup>6</sup> D8000~D9023	
FlashROM Register (FD)	2048 words	FD0~FD1535	
		For Special Use <sup>6</sup> FD8000~FD8512	
Expansion's Register (ED) <sup>7</sup>	16384 words	ED0~ED16383	
High Speed Dispose Ability	High speed counter, pulse output, external interruption		
Password Protection	6 bits ASCII		
Self-diagnose Function	Power on self-check、 monitor the timer、 grammar check		

<b>XC5 Series</b>
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Items		Specifications			
Program Executing Form		Loop scan form			
Program Form		Instruction、 Ladder			
Dispose Speed		0.5 us			
Power Off Retentive		Use FlashROM			
User's program space <sup>1</sup>		96K			
I/O points <sup>2</sup>	Total I/O	24	32	48	60
	Input	14 X0~X15	18 X0~X21	28 X0~X33	36 X0~X43
	Output	10 Y0~Y11	14 Y0~Y15	20 Y0~Y23	24 Y0~Y27
Internal Coils (X) <sup>3</sup>		512 points: X0~X777			
Internal Coils (Y) <sup>4</sup>		512 points: Y0~Y777			
Internal Coils (M)	8768 points	M0~M3999 【M4000~M7999】 <sup>5</sup>			
		For Special Use <sup>6</sup> M8000~M8767			
Flow (S)	1024 points	S0~S511 【S512~S1023】			

Timer	points	640 points	T0~T99 : 100ms not accumulate
			T100~T199 : 100ms accumulate
			T200~T299 : 10ms not accumulate
			T300~T399 : 10ms accumulate
			T400~T499 : 1ms not accumulate
			T500~T599 : 1ms accumulate
			T600~T639 : 1ms precise time
	Spec.	100mS timer: set time 0.1~3276.7sec. 10mS timer: set time 0.01~327.67sec. 1mS timer: set time 0.001~32.767sec.	
Counter (C)	points	640 points	C0~C299: 16 bits sequential counter
			C300~C598: 32 bits sequential/inverse counter
			C600~C619: single phase high speed counter
			C620~C629: dual-phase high speed counter
			C630~C639 : AB phase high speed counter
	Spec.	16 bits counter: set value K0~32,767 32 bits counter: set value -2147483648~ + 2147483647	
Data Register (D)		9024 words	D0~D999
			【D4000~D4999】 <sup>5</sup>
			For Special Use <sup>6</sup> D8000~D8511
			For Special Use <sup>6</sup> D8630~D8729
FlashROM Register (FD)		6144 words	FD0~FD5119
			For Special Use <sup>6</sup> FD8000~FD9023
Expand the internal registers (ED) <sup>7</sup>		36864 words	ED0~ED36863
High Speed Dispose Ability		High speed counter, pulse output, external interruption	
Password Protection		6 bits ASCII	
Self-diagnose Function		Power on self-check、 monitor the timer、 grammar check	

<b>XCM Series</b>
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Items		Specifications		
Program Executing Form		Loop scan form		
Program Form		Instruction、 Ladder		
Dispose Speed		0.5 us		
Power Off Retentive		Use FlashROM and Li battery		
User's program space <sup>1</sup>		160K		
I/O points	Total I/O	24	32	48



2	Input	14 X0~X015	18 X0~X021	28 X0~X33
	Output	10 Y0~Y011	14 Y0~Y015	20 Y0~Y23
Internal Coils (X) 3		X0~X1037 (Total 544)		
Internal Coils (Y) 4		Y0~Y1037 (Total 544)		
Internal Coils (M)		8768 points	M0~M2999 【M3000~M7999】 5	
			For Special Use 6M8000~M8768	
Flow (S)		1024 points	S0~S511 【S512~S1023】	
Timer	points	640 points	T0~T99 : 100ms not accumulate	
			T100~T199 : 100ms accumulate	
			T200~T299 : 10ms not accumulate	
			T300~T399 : 10ms accumulate	
			T400~T499 : 1ms not accumulate	
			T500~T599 : 1ms accumulate	
			T600~T639 : 1ms precise time	
	Spec.	100mS timer: set time 0.1~3276.7sec. 10mS timer: set time 0.01~327.67sec. 1mS timer: set time 0.001~32.767sec.		
Counter (C)	points	640 points	C0~C299: 16 bits sequential counter	
			C300~C598: 32 bits sequential/inverse counter	
			C600~C619: single phase high speed counter	
			C620~C629: dual-phase high speed counter	
			C630~C639 : AB phase high speed counter	
	Spec.	16 bits counter: set value K0~32,767 32 bits counter: set value -2147483648~ + 2147483647		
Data Register (D)		5024 words	D0~D2999 【D4000~D4999】 5	
			For Special Use 6D8000~D9023	
		524 words	FD0~FD63	
			For Special Use 6FD8000~FD8349	
			For Special Use 6FD8890~FD8999	
Expand the internal registers (ED) 7		36864 words	ED0~ED36863	
High Speed Dispose Ability		High speed counter, pulse output, external interruption		
Password Protection		6 bits ASCII		
Self-diagnose Function		Power on self-check、 monitor the timer、 grammar check		

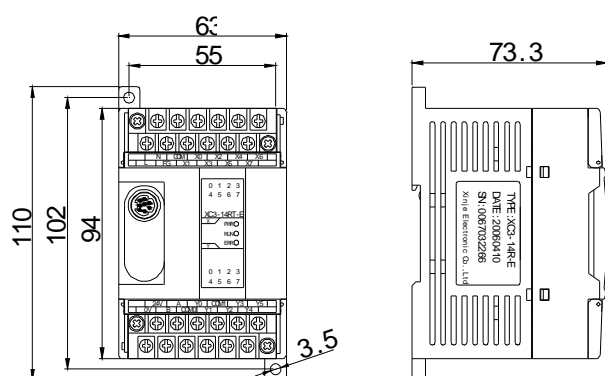
1 : the user's program space: refer to the maximum program space when download secretly.

- 2 : I/O points: refer to the terminal number that users can connect from outside
- 3 : X: refer to the internal input relays, users can use middle relay when exceed the Input points
- 4 : Y: refer to the internal output relays, users can use middle relay when exceed the Output points
- 5 : 【 】 Sign: the default power off retentive area, this area can be changed
- 6 : For special use: refer to the special usage registers that are occupied by the system, can't be applied for other usage. For details, please refer to Appendix 1;
- 7 : Only the hardware with 3.0 or above version of the CPU units have internal expansion register ED;

## 2-2 . External Dimension

Graph 1

(Unit: mm)

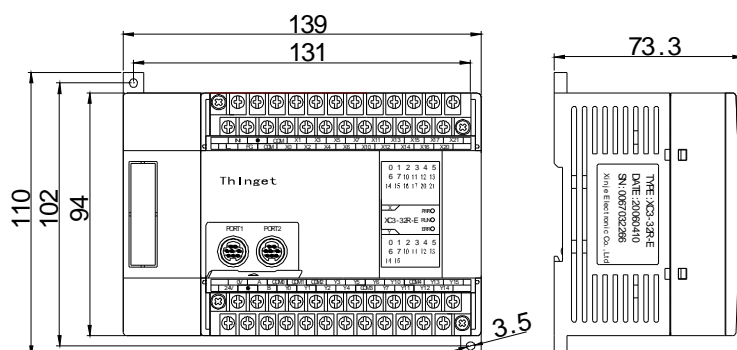


Suitable Model

Series	I/O
XC1	10 and 16
XC2	14 and 16
XC3	14

Graph 2

(Unit: mm)

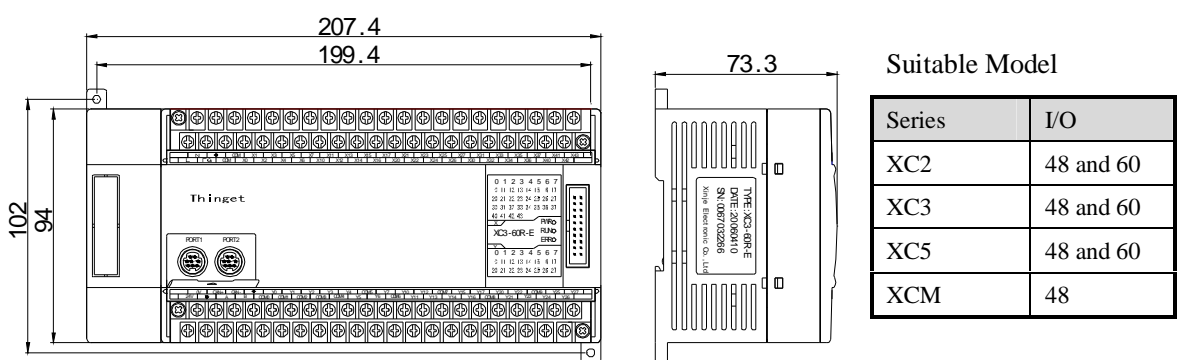


Suitable Model

Series	I/O
XC1	24 and 32
XC2	24 and 32
XC3	24 and 32
XC5	24 and 32
XCM	24 and 32

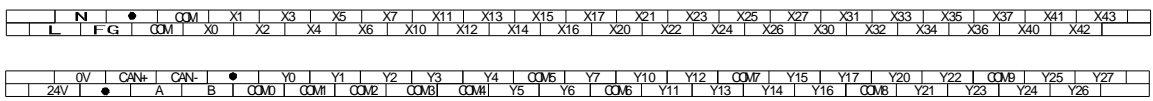
Graph 3

(Unit: mm)

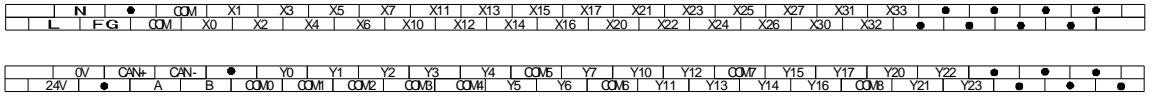


2-3 . Terminals Arrangement

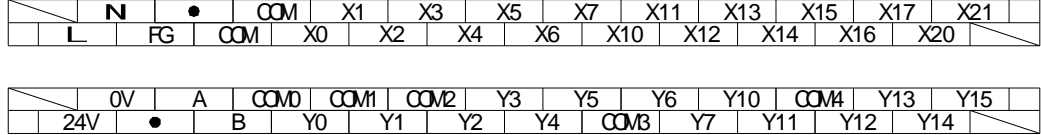
I Graph A



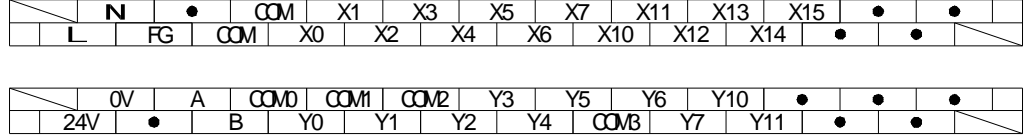
I Graph B



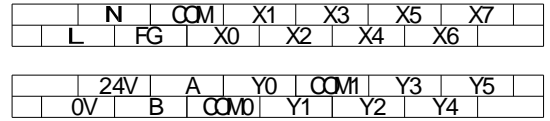
I Graph C



I Graph D



I Graph E



I Graph F

	N	COM	X1	X3	X5	X7	
L	FG	X0	X2	X4	X6		

	24V	Y0	Y2	COM1	Y5	Y7	
	0V	COM0	Y1	Y3	Y4	Y6	

#### I Graph G

	N	•	COM	X1	X3	X5	X7	X11	X13	X15	X17	X21	
L	FG	COM	X0	X2	X4	X6	X10	X12	X14	X16	X20		

	0V	A	COM0	Y1	Y2	COM2	Y5	Y6	Y10	COM4	Y13	Y15	
	24V	•	B	Y0	COM1	Y3	Y4	COM3	Y7	Y11	Y12	Y14	

#### I Graph H

	N	•	COM	X1	X3	X5	X7	X11	X13	X15	•	•	
L	FG	COM	X0	X2	X4	X6	X10	X12	X14	•	•		

	0V	A	COM0	Y1	Y2	COM2	Y5	Y6	Y10	•	•	•	
	24V	•	B	Y0	COM1	Y3	Y4	COM3	Y7	Y11	•	•	

#### I Graph I

	N	•	COM	X1	X3	X5	X7	X11	X13	X15	X17	•	
L	FG	COM	X0	X2	X4	X6	X10	X12	X14	X16	•		

	0V	A	Y0	Y2	COM1	Y5	Y7	Y10	Y12	COM3	Y15	Y17	
	24V	B	COM0	Y1	Y3	Y4	Y6	COM2	Y11	Y13	Y14	Y16	

#### I Graph J

	N	•	COM	X1	X3	X5	X7	X11	X13	•	•	•	
L	FG	COM	X0	X2	X4	X6	X10	X12	•	•	•		

	0V	A	Y0	Y2	COM1	Y5	Y7	Y10	Y12	•	•	•	
	24V	B	COM0	Y1	Y3	Y4	Y6	COM2	Y11	Y13	•	•	

#### I Graph K

	N	COM	X1	X3	•	•	
L	FG	X0	X2	X4	•		

	24V	Y0	Y2	COM1	•	•	
	0V	COM0	Y1	Y3	Y4	•	

The Graph to the model:

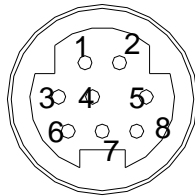
Graph	Suitable Model	Comment
A	XC2-60、XC3- 60、 XC5- 60	36 input/24 output

B	XC2-48、XC3- 48、XC5- 48	28 input/20 output
C	XC2-32、XC3- 32	18 input/14 output
D	XC2-24、XC3- 24	14 input/10 output
E	XC2-14、XC3- 14	8 input/6 output
F	XC1- 16、XC2-16	8 input/8 output
G	XC5- 32、XCM-32	18 input/14 output
H	XC5- 24、XCM-24	14 input/10 output
I	XC1- 32	16 input/16 output
J	XC1- 24	12 input/12 output
K	XC1-10	5 input/5 output

## 2-4 . Communication Ports

### COM1

Pins of COM1:



2 : PRG

4 : RxD

5 : TxD

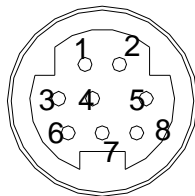
6 : VCC

8 : GND

Mini Din 8 female

### COM2

Pins of COM2 <sup>1</sup>:



4 : RxD

5 : TxD

8 : GND

Mini Din 8 female

### Program Cable



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1 :in the graph we show only RS232 of COM2, we extend RS485 (A, B) to the terminals), so we here don't list them out.

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