



# Product Catalogue

## PLC Mainframe



Compact type PLC--PCS2 Series



Stand type PLC--PCG2 Series

## Extension Modules



PSE Series Expansion



PTE Series Expansion

# > Compact PLC-PCS2 Series

## PCS2 Series PLC

PCS2 compact PLC series provides 14-16 points for mainframe and 8~40 points for digital input/output modules, including mainframe maximum input/output expansion up to 256/256 points. In addition, it can be used with analog input/output expansion module, temperature expansion module and weighing expansion module, it is rich in expansion and is stable in performance to meet various applications.



### Technical parameters

Model	Total I/O points	Output Mode	Output amount Rated current	Digital (high speed) Input Points	Digital (high speed) Output Points	Output maximum frequency	Drive Motor	Communication Interface
PCS2-14TN(P)	14 points	NPN(PNP)	0.3A	8(4) <sup>①</sup>	6(1)	200khz	1 axis	RS232/RS485
PCS2-14TN(P)2	14 points	NPN(PNP)	0.3A	8(4) <sup>①</sup>	6(1)	200khz	1 axis	RS232/RS485*2
PCS2-14TN(P)	14 points	NPN(PNP)	0.3A	8(2)	6(1)	200khz	1 axis	RS232/RS485
PCS2-14R	14 points	Relay	2A	8(4) <sup>②</sup>	6(---)	200khz	---	RS232/RS485
PCS2-16TN(P)	16 points	NPN(PNP)	0.3A	8(4) <sup>②</sup>	8(1)	200khz	1 axis	RS232/RS485

Note: The maximum frequency of input is 200kh ① means the maximum frequency of high speed input is 50khz.  
 Note: All compact PLCs have DC24V power input.

Model		PCS2-14TN(P)		PCS2-14TN(P)2	
Specification					
Supply Voltage		24VDC			
Input form		DC (NPN/PNP)			
Input Current		DC24V,5mA			
Input Impedance		4.7K Ω			
Input Points		8			
Input Points		X0~X3	X4~X7	X0~X3	X4~X7
Input maximum frequency		50kHz	10kHz	50kHz	10kHz
Input response time	Off→On	<10 μs	<20 μs	<10 μs	<20 μs
	On→Off	<20 μs	<50 μs	<20 μs	<50 μs
Output Point Type		Transistor NPN(PNP)		Transistor NPN(PNP)	
Output Points		6		6	
Output Points		Y0	Y1~Y5	Y0	Y1~Y5
Maximum output frequency		200kHz	10kHz	200kHz	10kHz
Output response counter time	Off→On	<2.5 μs	<20 μs	<2.5 μs	<20 μs
	On→Off	<5 μs	<30 μs	<5 μs	<30 μs

Model		PCS2-16TN(P)		PCS2-14R	
Specification					
Supply Voltage		24VDC			
Input form		DC (NPN/PNP)			
Input Current		DC24V,5mA			
Input Impedance		4.7K Ω			
Input Points		8			
Input Points		X0~X3	X4~X7	X0~X3	X4~X7
Input maximum frequency		50kHz	10kHz	50kHz	10kHz
Input response time	Off→On	<10 μs	<20 μs	<10 μs	<20 μs
	On→Off	<20 μs	<50 μs	<20 μs	<50 μs
Output Point Type		Transistor NPN(PNP)		Relays	
Output Points		8		6	
Output Points		Y0	Y1~Y7	All	
Maximum output frequency		200kHz	10kHz	-	
Output response counter time	Off→On	<2.5 μs	<20 μs		
	On→Off	<5 μs	<30 μs	About 10ms	

# Standard PLC --PCG2 series

## PCG2 Series

PCG2 standard PLC series provides 14-68 points mainframe and 8-40 points digital input/output modules, including the mainframe maximum input/output expansion up to 256/256 points. In addition, it can be used with analog input/output expansion module, temperature expansion module, and weighing expansion module, with rich expansion and stable performance to meet a variety of applications.



## Technical parameters

### Transistor output type mainframe

Model	Total I/O points	Output Mode	Output amount Rated current	Digital (high speed) Input Points	Digital (high speed) Output Points	Analog Input Points	Analog Output Points	Analog input/output Voltage Range	Output maximum frequency	Drive Motor	Communication Interface
PCG2-14PN(P)-D	14 points	NPN(PNP)	0.3A	8 (2)	6 (3)	—	—	—	100khz	3 sets	RS232/RS485
PCG2-16TN(P)-D	16 points	NPN(PNP)	0.3A	8 (4) <sup>①</sup>	8 (4)	—	—	—	10khz	—	RS232/RS485
PCG2-16TN(P)-D	16 points	NPN(PNP)	0.3A	8 (2)	8 (1)	—	—	—	200khz	1 sets	RS232
PCG2-24PN(P)-D/A	24 points	NPN(PNP)	0.3A	12(2)	12 (6)	—	—	—	200khz	6 sets	RS232/RS485/USB
PCG2-24TN(P)-D/A	24 points	NPN(PNP)	0.3A	12(2)	12 (2)	—	—	—	200khz	2 sets	RS232/RS485/USB
PCG2-32TN(P)-D/A	32 points	NPN(PNP)	0.3A	16 (2)	16 (4)	—	—	—	200khz	4 sets	RS232/RS485/USB
PCG2-32TN(P)L-D/A	32 points	NPN(PNP)	0.3A	16 (6)	16 (4)	—	—	—	200khz	4 sets	RS232/RS485/USB
PCG2-32PN(P)-D/A	32 points	NPN(PNP)	0.3A	16 (6)	16 (8)	—	—	—	200khz	8 sets	RS232/RS485/USB
PCG2-40TN(P)-D/A	40 points	NPN(PNP)	0.3A	24 (6)	16 (4)	—	—	—	200khz	4 sets	RS232/RS485/USB
PCG2-40TN(P)-C-D/A	40 points	NPN(PNP)	0.3A	24 (6)	16 (4)	—	—	—	200khz	4 sets	RS232/RS485/USB
PCG2-40TN(P)2AO-D	40 points	NPN(PNP)	0.3A	24 (6)	16 (4)	—	2	0-10V	200khz	4 sets	RS232/RS485/USB/CAN
PCG2-40TN(P)1A1AO-D	40 points	NPN(PNP)	0.3A	24 (6)	16 (4)	1	1	0-10V	200khz	4 sets	RS232/RS485/USB
PCG2-48TN(P)-D/A	40 points	NPN(PNP)	0.3A	24 (6)	24 (4)	—	—	—	200khz	4 sets	RS232/RS485/USB
PCG2-48TN(P)6AO-D/A	48 points	NPN(PNP)	0.3A	24(6)	24 (4)	—	6	0-10V	200khz	4 sets	RS232/RS485/USB
PCG2-48TN(P)-6AB-D/A	48 points	NPN(PNP)	0.3A	28 (12)	20 (8)	—	—	—	200khz	4 sets	RS232/RS485/USB
PCG2-60TN(P)-D/A	48 points	NPN(PNP)	0.3A	36 (6)	24 (4)	—	—	—	200khz	8 sets	RS232/RS485/USB
PCG23-60TN(P)-E-D/A	60 points	NPN	0.3A	36 (6)	24(4)	—	—	—	200khz	4 sets	RS232/RS485/USB
PCG2-60PN(P)-D/A setsRS232/RS485/USB	60points	NPN(PNP)	0.3A	36(6)	24(4)	—	—	—	200khz	12	
PCG2-68TN(P)-D	60points	NPN(PNP)	0.3A	36(6)	24(4)	—	—	—	200khz	4sets	RS232/USB

### Relay output type mainframe

Model	Total I/O points	Output Mode	Output amount Rated current	Digital (high speed) Input Points	Relay Output Points	Analog Output Points	Analog input/output Voltage Range	Communication Interface
PCG2-14R-D	14 points	Relay	2A	8(4) <sup>①</sup>	6	—	—	RS232/RS485
PCG2-14R3-D	14 points	Relay	2A	8(4) <sup>①</sup>	6	—	—	RS232*2/RS485
PCG2-16R-D	16 points	Relay	2A	8(4) <sup>①</sup>	8	—	—	RS232
PCG2-1608R-D/A	24 points	Relay	2A	16(-)	8	—	—	RS232/RS485/USB
PCG2-1410R-D/A	24 points	Relay	2A	14(-)	10	—	—	RS232/RS485/USB
PCG2-32R-D/A	32 points	Relay	2A	16 (2)	16	—	—	RS232/RS485/USB
PCG2-40R-D/A	40 points	Relay	2A	24 (6)	16	—	—	RS232/RS485/USB
PCG2-48R-D/A	48 points	Relay	2A	24(6)	24	—	—	RS232/RS485/USB
PCG2-48R6AO-D/A	48 points	Relay	2A	24(6)	24	6	0-10V	RS232/RS485/USB
PCG2-60R-D/A	60 points	Relay	2A	36 (6)	24	—	—	RS232/RS485/USB

Note: The maximum frequency of input is 200kh ① means the maximum frequency of high speed input is 50khz.

Note: D in the product model number means DC24V, A means AC100V-AC240V, and the default is DC24V if there is no suffix D or A for distinguishing purpose

## Performance Features

- Pulse control mode: It can drive stepper/servo motor up to 12 axes.
- It supports single-phase high-speed counting to 12 channels and differential high-speed counting input up to 6 channels: the maximum frequency is 200kHz.
- With Ethernet function, support online monitoring, download program, support MODBUSTCP/IP communication, free protocol communication.
- Using RS232 and RS485 dual-communication port, it both can realize HMI or PC communication, compatible with MODBUS ASCII and MODBUS RTU communication protocols.
- Advanced saving technology in case of power-down, the program is permanently saved.
- It can be expanded to 256 isolated input/output ports.
- Program undergoes encryption processing, it is optional to upload or not for protecting the user's intellectual property.
- You can download by inserting a USB disk, download and monitor the program by using a dual-headed USB cable for faster communication, with a download rate of up to 12Mbps.

## Electrical specification of input point

Specification	Model	PCG2-14R-D	PCG2-16R-D	PCG2-16TN(P)-D	PCG2-14PN(P)-D	PCG2-24PN(P)-D	PCG2-32TN(P)/R-D/A	PCG2-48TN(P)-6AB-D/A
Input Points		X0~X3	X4~	X0~X1	X2~X7, X10~	X0~X13	X14~	
Input Point Type		Digital input						
Input form		DC (NPN/PNP)						
Input Current		DC24V, 5mA						
Input Impedance		4.7KΩ						
Maximum frequency		50kHz	10kHz	200kHz	10kHz	200kHz	10kHz	
Response time	Off→On	<10 μs	<20 μs	<2.5 μs	<20 μs	<2.5 μs	<20 μs	
	On→Off	<20 μs	<50 μs	<5 μs	<50 μs	<5 μs	<50 μs	

Specification	Model	HCG2-32PN(P)-D/A	HCG2-40TN(P)-D/A	HCG2-60TN(P)-D/A	HCG2-40TN(P)-C-D/A	HCG2-40TN(P)1A1AO-D/A	HCG2-32TN(P)L-D	HCG2-40R-D/A	HCG2-60R-D/A	HCG2-48TN(P)6AO-D/A	HCG2-48R6AO-D/A	
Input Points		X0~X5					X6~X7, X10~					
Input Point Type		Digital input										
Input form		DC (NPN/PNP)										
Input Current		DC24V, 5mA										
Input Impedance		4.7KΩ										
Maximum frequency		200kHz					10kHz					
Response time	Off→On	<2.5 μs					<20 μs					
	On→Off	<5 μs					<50 μs					

## Electrical specifications for output points

Specification	Model	PCG2-14R-D	PCG2-16R-D	PCG2-32R-D	PCG2-40R-D	PCG2-48R-D	PCG2-48R6AO-D	PCG2-60R-D
Output Point Type		Relay Output						
Output Points		All						
Maximum load		2AAC250V/DC30V						
Response time		About 10ms						

Specification	Model	PCG2-16T(N)P-D	PCG2-24PN(P)-D/A PCG2-32PN(P)-D/A PCG2-60PN(P)-D/A	PCG2-40TN(P)-D/A PCG2-40TN(P)-C-D/A PCG2-32/40TN(P)-E-D/A PCG2-68TN(P)-D	HCG2-40TN(P)2AO-D HCG2-40TN(P)1A1AO-D HCG2-48TN(P)6AO-D/A HCG2-60TN(P)-D/A	HCG2-48TN(P)-6AB-D/A		
Output Point Type		NPN (PNP)	NPN (PNP)	NPN (PNP)		NPN (PNP)		
Output Points		All	Y0, Y2, Y4, Y6, ..... (output points are even)	Y0, Y2, Y4, Y6	Y1, Y3, Y5, Y7~	Y0, Y2, Y4, Y6, Y10, Y12, Y14, Y16 Y1, Y3, Y5, Y7, Y11 Y13, Y15, Y17		
Maximum frequency		10kHz	200kHz	200kHz	10kHz	200kHz 10kHz		
Maximum load	Resistive	0.3A/1 point (2.4A/COM)						
	Inductive	15W						
Response time	Off→On	<20 μs	<2 μs	<20 μs	<2 μs	<20 μs	<2 μs	<20 μs
	On→Off	<30 μs	<3 μs	<30 μs	<3 μs	<30 μs	<3 μs	<30 μs

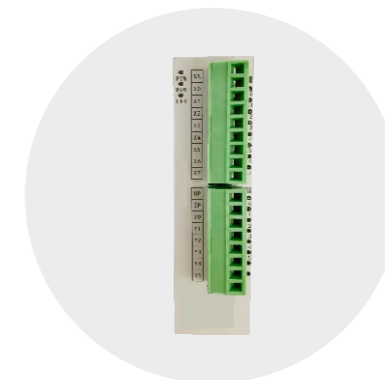


# Extension Modules

Extended Series	Mainframe Series
PTE Series	PCS2 series
PSE Series	PCG2 series



**PSE Series Expansion**



**PTE Series Expansion**

## > Card Type Extension--PTE Series

In order to meet the application requirements of more occasions, the mainframe can be equipped with abundant expansion modules. Pentax expansion modules are mainly divided into digital input and output expansion modules, analog input and output expansion modules, temperature expansion modules, weighing expansion modules and other major categories. Each type of module has a variety of points, and can be flexibly configured with various I/O scales of the Company to achieve higher cost performance.

**Note:** Only available with the expansion module of the Company's mainframe

### Performance Features

- Input and output are optoelectronic isolated for each channel, with high reliability and anti-interference capability.
- Power supply has reverse connection protection and surge absorption function, which can be applied to a variety of working environments.
- The maximum number of digital I/O points is: 256DI/256DO.
- One mainframe can be equipped with 16 expansion modules.

### PTE Series Digital Expansion

#### Digital input expansion



Model	Function	Specification
PTE-8XT	8-channel digital input	NPN/PNP input DC24V power supply, no need for external power supply Maximum frequency at input point : 10Khz
PTE-16XT	16-channel digital input	

#### Digital output expansion



Model	Function	Specification
PTE-8YTN(P)	8-channel transistor output	DC24V power supply, no need for external power supply TP: PNP type transistor output TN: NPN type transistor output Response time: approx. 50us Maximum output current: 0.3A per point
PTE-16YTN	16-channel transistor output	
PTE-16YTP	16-channel transistor output	

#### Digital input/output expansion



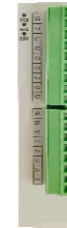
Model	Function	Specification
PTE-16TN(P)	8-channel digital input, 8-channel transistor output	DC24V power supply, no need for external power supply NPN/PNP input Maximum input point frequency 10Khz TP: PNP type transistor output TN: NPN type transistor output T response time: about 50us T maximum output current: 0.3A per point

### PTE Series Analog Expansion

#### Performance Features

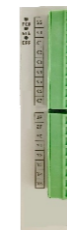
- High reliability and strong anti-interference capability.
- Power supply has reverse connection protection and surge absorption function, it can be applied to a variety of working environments.

#### Analog input expansion



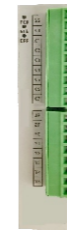
Model	Function	Specification
PTE-8AI	8-channel analog input	Voltage range: 0V-10V Current range: 0-20mA; 4-20mA Resolution: 12bit

#### Analog output expansion



Model	Function	Specification
PTE-4AO	4channel analog input	Voltage range: -10V-10V Current range: 0-20mA; 4-20mA Resolution: 12bit

#### Analog input/output expansion



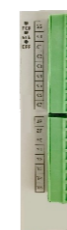
Model	Function	Specification
PTE-4AI2AOS	4-channel analog input, 2-channel analog output	Voltage range: (input: 0V-5V; 0-10V,output: 0-10V) Current range: 0-20mA; 4-20mA Resolution: 12bit

#### Temperature Extension



Model	Function	Specification
PTE-4PTY	4-channel temperature input, 4-channel transistor NPN output	Support PT100, measurement range -50~300°C, accuracy 1°C
PTE-1AI-1AO	1 channel temperature input, 1 channel analog output	Support K-type thermocouple, measuring range 0~800°C Voltage range: 0~10V

#### Weighing Extension



Model	Function	Specification
PTE-2L	2-channel weighing input	DC24V power supply, no need for external power supply Resolution 24 bits, accuracy ±1%
PTE-4L	4-channel weighing input	DC24V power supply, no need for external power supply Resolution 24 bits, accuracy ±1%

## > Standard Extension--PSE Series

In order to meet the application requirements of more occasions, the mainframe can be equipped with abundant expansion modules. Pentax expansion modules are mainly divided into digital input and output expansion modules, analog input and output expansion modules, temperature expansion modules, weighing expansion modules and other major categories.

Each type of module has a variety of points, and can be flexibly configured with various I/O scales of the Company to achieve higher cost performance.

**Note:** Only available with the expansion module of the Company's mainframe

### PSE Series Digital Expansion

#### Performance Features

- Input and output are optoelectronically isolated for each channel, with high reliability and strong anti-interference capability.
- Power supply has reverse connection protection and surge absorption function, it can be applied to a variety of working environments.
- The maximum number of digital I/O points is: 256DI/256DO.
- One mainframe can be equipped with 16 expansion modules.

#### Digital input expansion



Model	Function	Specification
PSE-8XT	8-channel digital input	NPN/PNP input DC24V power supply, no need for external power supply Maximum frequency at input point: 10Khz
PSE-16XT	16-channel digital input	

#### Digital output expansion



Model	Function	Specification
PSE-8YTN(P)	8-channel transistor output	DC24V power supply, no need for external power supply R: Relay output TP: PNP type transistor output TN: NPN type transistor output R response time: approx. 10ms T response time: about 50us R maximum output current: max. 2A T maximum output current: 0.3A per point
PSE-16YTN(P)	16-channel transistor output	
PSE-16YR	16-channel relay output	
PSE-32YTN(P)	32-channel transistor output	

#### Digital input/output expansion



Model	Function	Specification
PSE-8TN(P)	4-channel digital input, 4-channel transistor output	DC24V power supply, no need for external power supply NPN/PNP input Maximum frequency at input point 10Khz
PSE-16TN(P)	8-channel digital input, 8-channel transistor output	
PSE-16R	8-channel digital input, 8-channel relay output	R: Relay output TP: PNP type transistor output TN: NPN type transistor output R response time: about 10ms T response time: about 50us R maximum output current: max. 2A T maximum output current: 0.3A per point
PSE-32TN(P)	16-channel digital input, 16-channel transistor output	
PSE-32R	16-channel digital input, 16-channel relay output	
PSE-40TN(P)	24-channel of digital input, 16-channel of transistorized output	

### PSE Series Analog Expansion

#### Performance Features

- High reliability and strong anti-interference capability.
- Power supply has reverse connection protection and surge absorption function, it can be applied to a variety of working environments.

#### Analog output expansion



Model	Function	Specification
PSE-4AO	4-channel analog output	Voltage range: -10V~10V Current range: 0-20mA; 4-20mA Resolution: 12bit
PSE-4AOS	4-channel analog output	Voltage range: 0V-10V Current range: 0-20mA; 4-20mA Resolution: 12bit

#### Analog input/output expansion



Model	Function	Specification
PSE-4AI2AO	4-channel analog input, 2-channel analog output	Voltage range: (input/output: -10V~10V) Current range: (input/output: 0-20mA; 4-20mA) Resolution: 12bit
PSE-4AI2AOS	4-channel analog input, 2-channel analog output	Voltage range: (input: 0V-5V; 0-10V, output: 0-10V) Current range: 0-20mA; 4-20mA Resolution: 12bit

#### Temperature Extension



Model	Function	Specification
PSE-4TCY	4-channel temperature input, 4-channel transistor NPN output	Support K-type thermocouple, measurement range: 0~900°C, accuracy: 1°C
PSE-4TCY2	4-channel temperature input, 4-channel transistor NPN output with RS485	Support K-type thermocouple, measurement range: 0~900°C, accuracy: 1°C
PSE-8TCY	8-channel temperature input, 8-channel transistor NPN output	Support K-type thermocouple, measurement range: 0~900°C, accuracy: 1°C
PSE-8TCY2	8-channel temperature input, 8-channel transistor NPN output with RS485	Support K-type thermocouple, measurement range: 0~900°C, accuracy: 1°C
PSE-8PT	8-channel temperature input	Support PT100, measurement range: -50~300°C, accuracy: 1°C
PSE-2TC-A	2-channel temperature input, 2-channel SSR firmware relay output	Support PT100/K type thermocouple, measuring range: 300°C, accuracy: °C

#### Weighing Extension



Model	Function	Specification
PSE-2L	2-channel weighing input	DC24V power supply, no need for external power supply Resolution 24 bits, accuracy ±1%
PSE-4L	4-channel weighing input	DC24V power supply, no need for external power supply Resolution 24 bits, accuracy ±1%

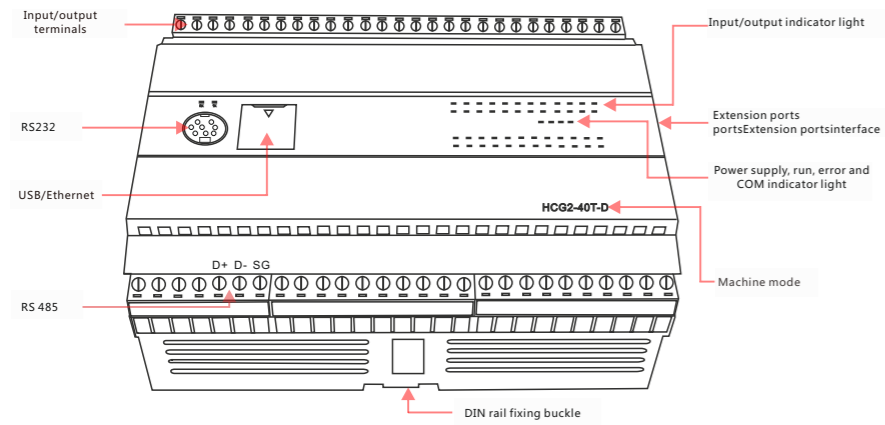
#### Thyristor output extension



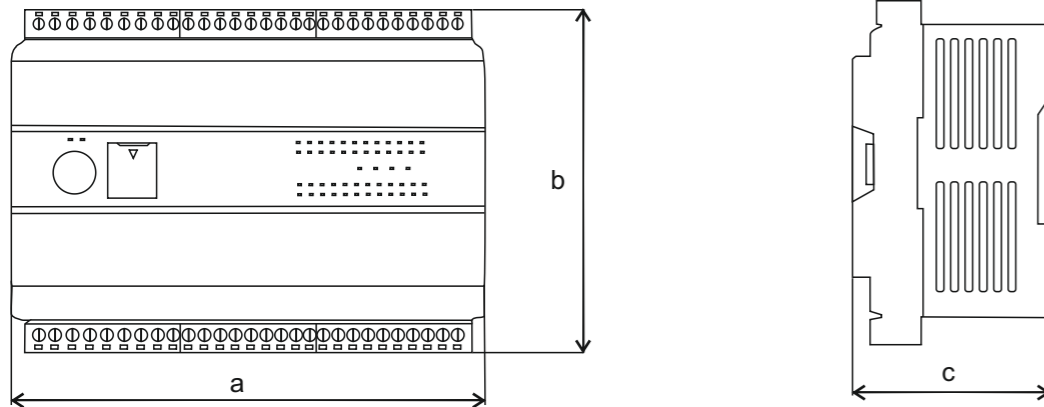
Model	Function	Specification
PSE-4S-A	4-channel SSR thyristor output	DC24V power supply, no need for external power supply Drive AC vibration plate within 500W

# > Mainframe size

## Introduction to product dimensions and positions of PCG2 Series

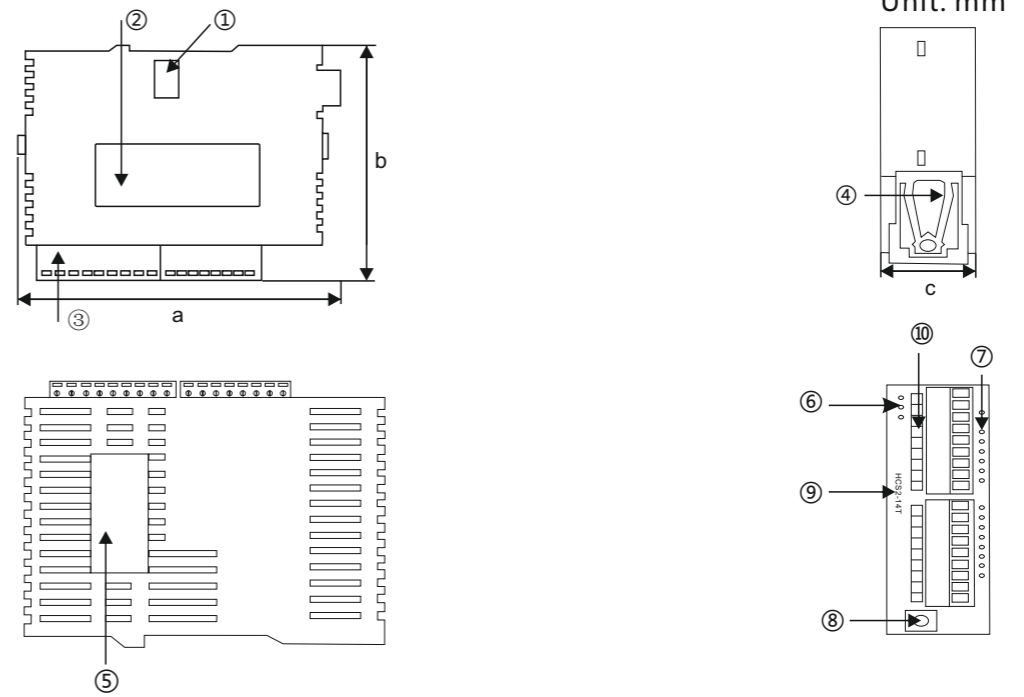


## Mounting dimensions



Mainframe	Size (mm)		
	a	b	c
14-16 points	60	110	61
24-40 points	141	110	61
48-68 points	201	110	61

## Introduction to product dimensions and positions of PCS2 series mainframe

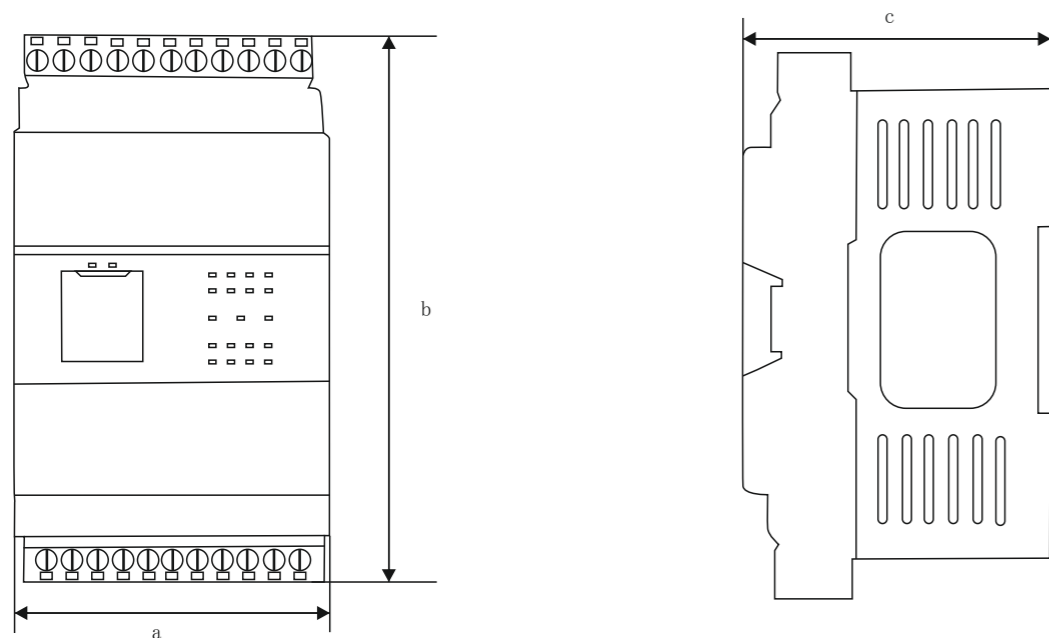


- ① Expansion interface
- ② Nameplate
- ③ Input/output terminals
- ④ DIN rail fixing buckle
- ⑤ Company's logo
- ⑥ Power, operation, error indicator light
- ⑦ Input/output indicator
- ⑧ RS232 interface
- ⑨ Machine model
- ⑩ Input/Output silkscreen name

Mainframe	Size (mm)		
	a	b	c
14-16 points	90	60	26

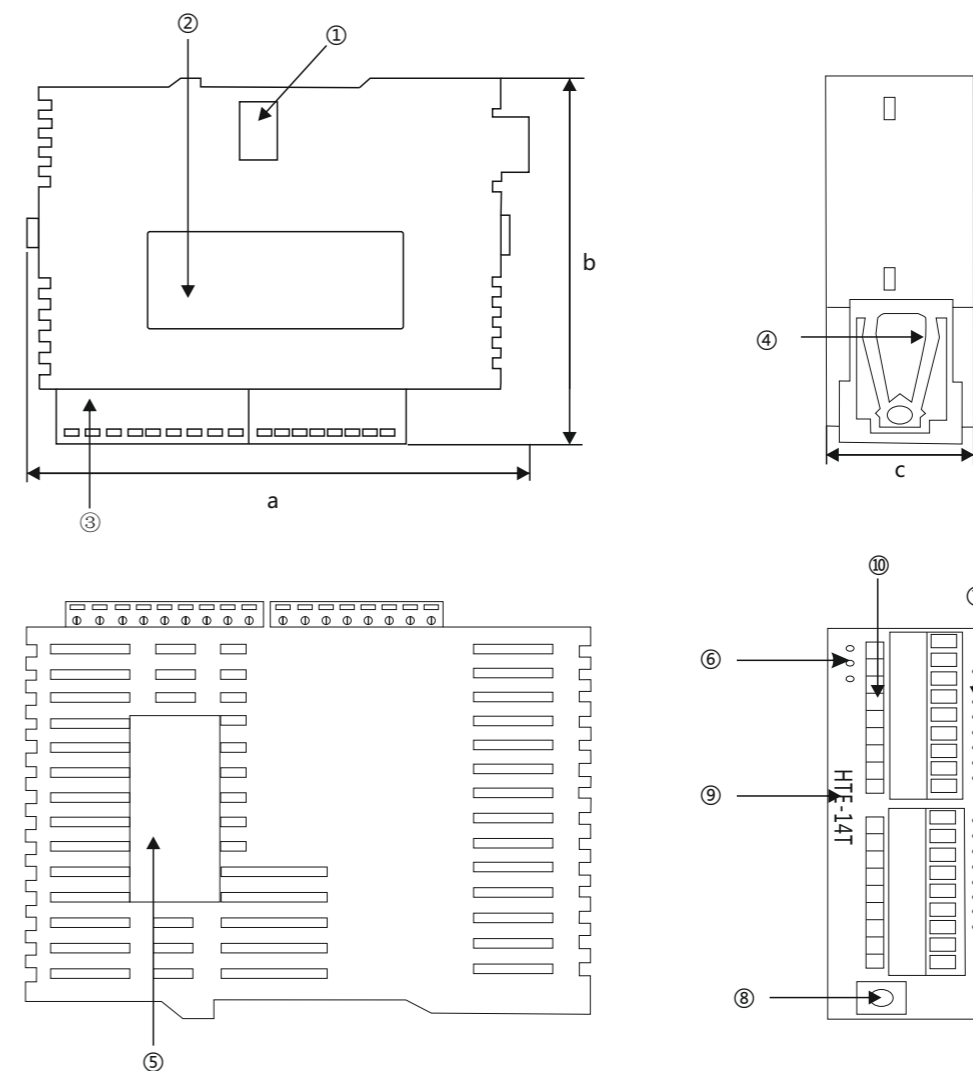
## > Expansion Dimensions

### ■ PSE Series Expansion Product dimensions



Expansion	Size (mm)		
	a	b	c
8-16 point digital quantity expansion and analog quantity expansion	60	110	60
32-40 point digital quantity expansion, PSE-8TCY	141	110	60

### ■ Dimensions of PTE Series Expansion



□ Expansion interface

⑥ Power, operation, error indicator light

□ Nameplate

⑦ Input/output indicator

③ Input/output terminals

⑧ RS232 interface

④ DIN rail fixing buckle

⑨ Machine model

⑤ Company's logo

⑩ Input/Output silkscreen name

Expansion	Size (mm)		
	a	b	c
8-16 points	90	60	26

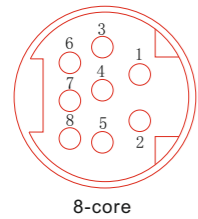


## > PLC Expansion

### LED system status self-diagnosis

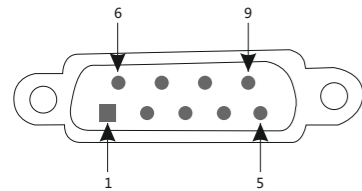
- POW (24VDC/AC220V power supply indicator light)
  - On: 24VDC/AC220V power supply is normal
  - Off: no 24VDC/AC220V power supply
- RUN (Run indicator light)
  - On: PLC program runs normally
  - Off: PLC program is not running/Insufficient voltage of DC24V (AC220V)
- COM (expansion indicator light)
  - On: Successful connect to the expansion module
  - Off: not connected/incorrectly connected to the expansion module
- ERR (Run error indicator light)
  - Blink: PLC program has run error/or program invalid run
  - Off: PLC program runs normally

### Round port RS232 interface diagram



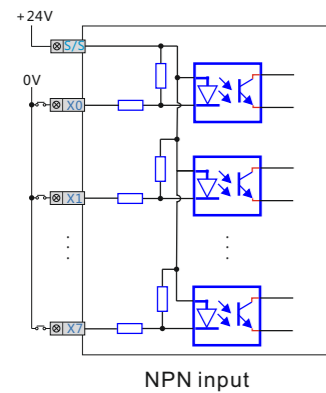
Pin number	Description	Description
5	TXD	Sending data
4	RXD	Receiving data
3	GND	Signal ground
6	GND	Signal ground
8	GND	Signal ground

### 9-pin RS232 interface diagram

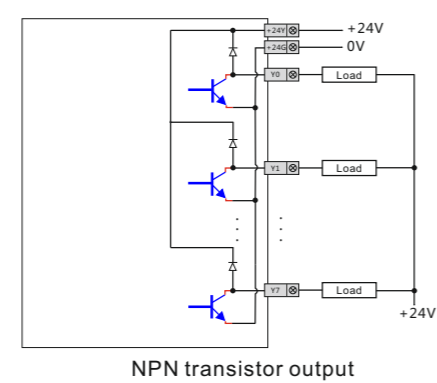


Pin number	Description	Description
2	TXD	Sending data
3	RXD	Receiving data
5	GND	Signal ground
9	GND	Signal ground

### Input wiring diagram



### Output wiring diagram

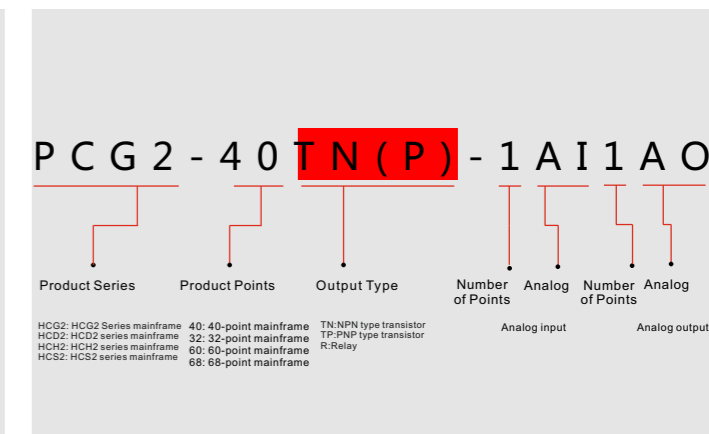
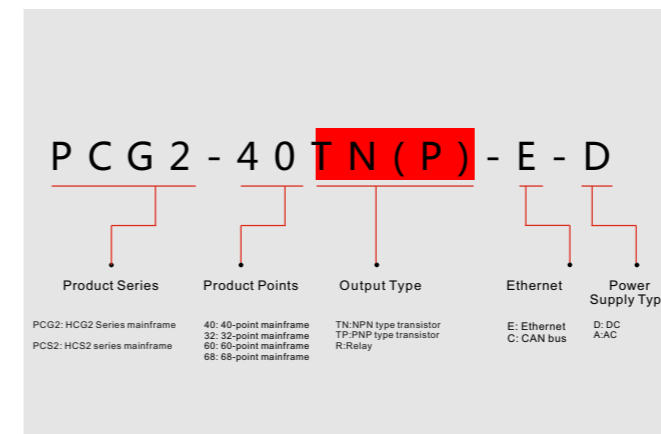


### Serial port (RS232/RS485) communication parameter specifications

Category	Parameters
Communication mode	Half Duplex
Baud rate	9600bps (factory default), 19200bps, 38400bps, 57600bps, 115200bps
Data type	7 (factory default), 8
Mode	RTU, ASCII (factory default)
Station number	1-255 (factory default 1)

## > Naming Rules

### >> Mainframe naming rules



### >> Naming Rules for Extensions

