



EtherCAT®   E-CAM

**HC2 Series PLC Catalog**  
**EtherCAT&Motion control**

## > Product Catalogue

### >> PLC Mainframe



Compact type PLC--HCS2 Series



Stand type PLC--HCG2 Series



High-Level standard type PLC-HCD2 Series



EtherCAT BUS type PLC--HCH2 Series



EtherCAT&Motion control type PLC--HCM2 Series

### >> Extension Modules



HHE/HSE/HTE Series

## > Company Profile

**HNC ELECTRIC LIMITED** is a company dedicated to the development and production of intelligent industrial automation solutions based on national strategic needs.

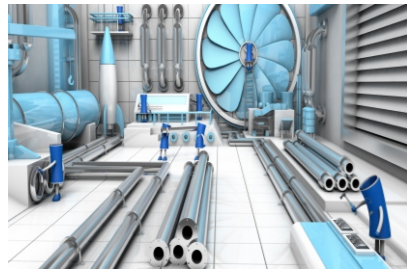
Supported by its outstanding electrical and electronic technology and strong control technology, it provides control, display, drive and system solutions and other related products and services to customers worldwide.

With 25 years of hard work, we have developed and produced professional CNC systems, industrial robots, servo drives, servo motors, reducers, inverters, PLCs, HMIs, etc.

In more than 50 countries and regions around the world, we have established a comprehensive agent system and after-sales service system. In the future, we will, as always, provide more professional services for global industrial automation.



## > Application Field



Electronic Cam



Pillow Packaging



Data Acquisition



Automatic Dispensing



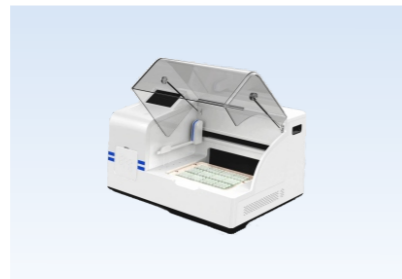
Control Cabinet System



Automatic Sewing



Automatic Printing



Medical Equipment



Automatic Weaving

## > Case display

### Pillow packaging machine



It can realize the functions of fixed length, variable length, tracking standard, anti-cutting, anti-air bag, anti-scalding film and so on. When working in fixed-length and tracking mode, the fastest production capacity is 1200 packages/min. Working in air defense bag, anti-cutting material, indefinite length mode, the production capacity can reach 300 bags/min.

### Automatic tea packaging machine



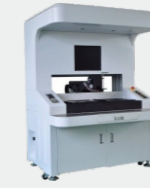
Automatic tea packaging machine can achieve the simultaneous packaging for the inside and outside bags. It can automatically complete bag making, measuring, filling, sealing, slitting, counting and other processes. It has moisture-proof, anti-odor volatilization, preservation of freshness and other functions. It has wide range of packaging, and can perfectly replace manual packaging, realize packaging automation, and it can substantially improve productivity and reduce business costs. It adopts double electronic scales, and the metering and packaging speed can reach 18-20 package/min. Weighing accuracy can reach  $\pm 0.1g$ .

### Rebar straightening machine



Straightening machine, is also called wire straightening machine or straightening and cutting machine. It can be used for straightening and cutting steel bars, can be used for straightening and cutting stainless steel wire, aluminum wire, cold drawn wire, plastic wrapped steel wire, etc. It utilizes our HCM2 type motion control function PLC, and the cutting length can be customized according to customer requirements. For the chasing shear, according to the length set by the customer, the distance of synchronization is automatically calculated. For flying shear, according to the different lengths, it can automatically calculate the most fast speed for wire feeding. For cutting products in length of 400mm, the speed can reach 100m/min. The cut is flush and the error is within 0.4mm. The system has fast response.

### Visual Dispenser



The visual dispenser mainly uses the camera to take the coordinates of the product, and then send the calculated coordinates to the motion controller, which then drives the manipulator to move to the product to perform the dispensing operation. It is widely used in crafts, electronics, clothing and other industries. The two modes can be imported by demonstration and PC graphics. With high-performance embedded motion control as the core, the specialized drip molding process art software control function is integrated. Multiple interpolation algorithms are built in to realize fast path editing and support a variety of files format.

### Automatic granule packing machine



Automatic granule packaging machine can be flexible to achieve 4-scale, 8-scale and 12-scale system building. It can greatly improve weighing Efficiency. It can automatically complete bag making, measuring, filling, sealing, slitting, counting and other functions. It is mainly applicable to jasmine Tea, recipe tea, health tea, herbal tea and other materials. The dosing material system can be configured according to the characteristics of the materials. The electronic scale dosing system is suitable for single material, multi-material, material of irregular shape and other materials that can not be generally weighed in measuring cups. The weighing weight of each scale can be controlled independently and flexibly according to requirements. The weighing accuracy can reach  $\pm 0.1g$ .

### Bag-feeding vacuum packaging machine



The bag vacuum packaging machine can realize the real and empty packaging, the operator only need to put a certain number of packaging bags in the bag of the equipment, the equipment can automatically take the bag, print the date, open the bag, to the metering device signal measurement and feeding, sealing, output, to achieve automatic packaging. The company chooses the HCM2 motion control function PLC, to achieve high-speed servo feeding, pressing, greatly improve the packaging speed, can achieve 100 packages / min. Whether liquid, bulk, granular or powder products, can all be packaged and produced.

### Pearl cotton chasing shear machine



Pearl cotton chasing shear machine is used for cutting and shaping pearl cotton, it utilizes the electronic cam technology and HCM2 motion control type PLC developed by HNC, it is applied to pearl cotton packaging industry, it has made a leap forward compared with the original average capacity. Compared with the traditional mode of the industry, the speed has increased by nearly 7 times. The maximum capacity can reach 15 meters per minute. It can fully liberate manual labor, and also improve efficiency while greatly reducing costs.

### Sorting machine



Sorting machine is used for sorting SMD and LED. With the HNC HCG2 series PLC, the operating speed can be 80K/h, processing time for single product is 45ms. It has high requirements for PLC scan cycle and stability. Compare to certain products that have been used in this industry, the speed has been increased by almost 10%, which significantly reduces the cost and improves the operational efficiency.

HNC series PLC is now mainly divided into high-order, bus, standard, customized, compact, motion control, to fully meet the needs of different industries, different customers, different equipment. PLC programmable controller in addition to have the function of traditional PLC on the market, also have U disk download program, electronic cam, custom instructions, built-in special algorithm custom, special hardware interface custom features, single pulse shaft can drive up to 24 axis stepping, servo motor, support a variety of communication technology, convenient connection, more cost-effective, integration, intelligence

# PLC Controller



**HCH2 bus type PLC**



**HCD2 standard type PLC**



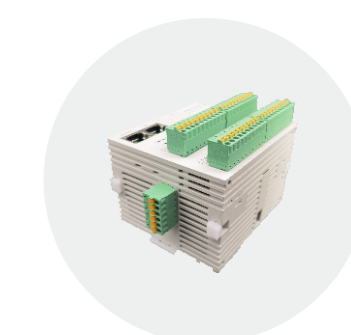
**HCM2 Motion Control PLC**



**HCS2 Series PLC**



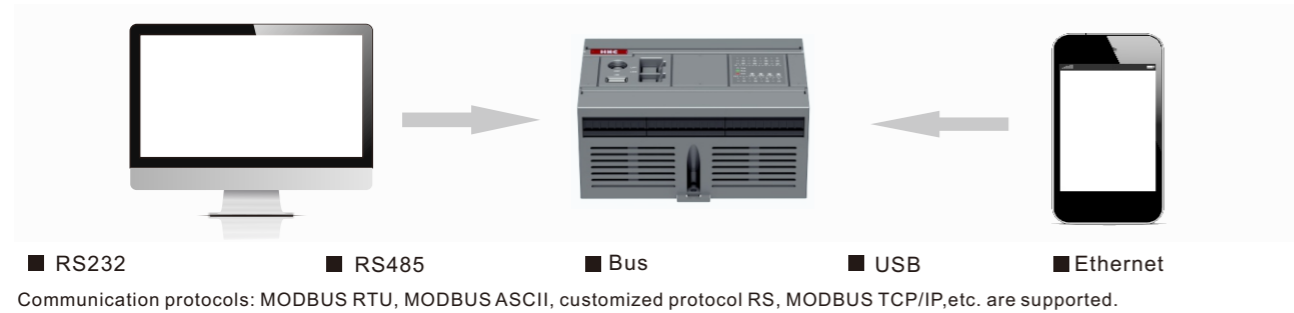
**HCG2 standard type PLC**



**PROFINET, EtherCAT slave station**

# Product Features

## Various communication methods



### USB interface communication

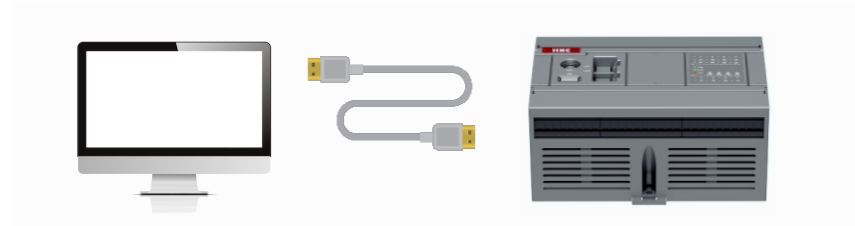
**Function 1:** With the unique USB dual-use function of HNC, the customer only needs to send the encrypted program to the end user via email, and the user will download and store the program in USB disk, and the USB disk is inserted into the USB port of the PLC controller, the system automatically recognizes and completes the download within 1s. It is easy to operate, and it has practical functions, and the ladder file undergoes encryption processing, the program is safe and reliable to prevent source code leakage and to protect the rights of users.



### Benefits of using USB disks to download programs:

- Save time: When the equipment runs stably, it needs to download PLC programs in batches, it is time-consuming by using a computer through a serial line to download PLC programs in batches.
- Save fund: Since the equipment is often off the field, it takes a lot of labor to go back and forth to update the program, and program uploading is easily done via USB disk.
- Easy to use: It is easy to use and easy to update the program thanks to the USB disk that is easy to purchase and carry.
- Safe and reliable: PLC program in the USB disk is PLC. UJC file format and is encrypted, the file cannot be opened and occupies little storage space.

**Function 2:** It can use the protruding-to-protruding USB data cable to connect to a computer to implement online monitoring and facilitate data exchange with the computer, the transmission speed is fast and can reach 12Mbps.



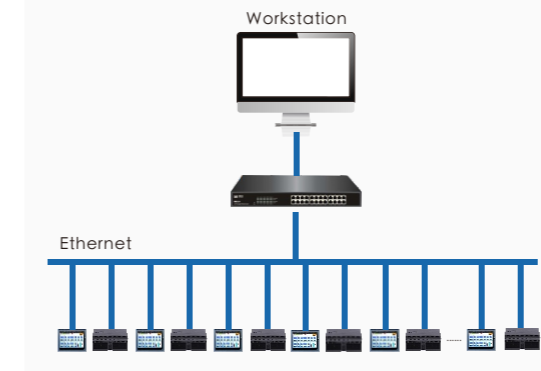
Note: HCG2 series of PLC need to switch functions by changing the status of M1293 when using function 1 and function 2, and it is recommended that the address is displayed in the touch screen. In addition to switching the status of M1293, USB function of HCD2 and HCH2 series of PLC can also switch the mode through the dip switch of the USB block on the PLC, open the small square cover on the left side of the PLC, the location is shown in the figure below



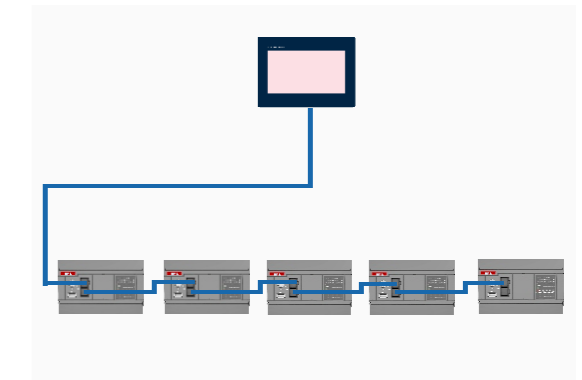
## Ethernet communication

With Ethernet port, you can only easily fill in the set parameters through Ethernet communication, you can realize a PC to multiple PLC online monitoring, download the program. Can connect to the cloud platform, bind the mobile phone wechat, connect to the router, etc.

■ Ethernet realizes multi-computer multi-screen data exchange  
When each workstation is equipped with an HMI, it is possible to work with multiple PLC groups simultaneously for communication, any two devices can exchange data, data exchange speed is fast and efficient. It supports Modbus TCP/IP protocol.

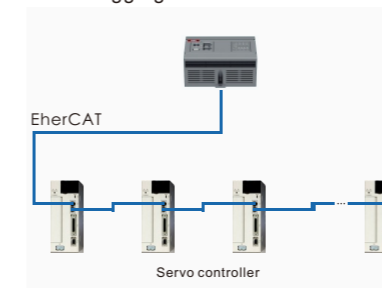


■ Dual Ethernet ports realize switch function  
When a device has multiple PLC controllers, there is no need to connect the switch in the traditional way. Using the PLC with dual Ethernet from HNC can easily realize one screen and multiple computers.



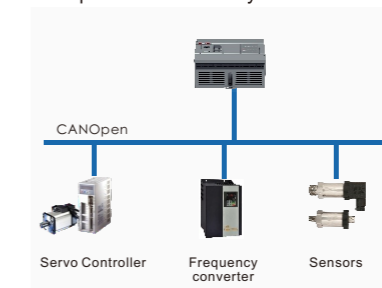
### EtherCAT communication

- Support EtherCAT communication, easy wiring, maximum communication rate: 100Mbps.
- The programming is simple, saving you more installation and debugging time and cost.



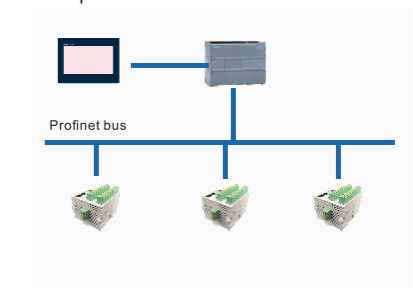
### CANopen communication

- Support CANopen communication protocol, more stable and smarter and easy to wire.
- Maximum communication rate: 1Mbps, improve equipment operation efficiency.



### Profinet communication

- Integrated and pluggable I/O modules, rich modules: analog quantity, digital quantity, weighing, temperature.
- Fast processing speed: High-speed ARM + dedicated ASIC.



# Product Features

## >> Support function customization

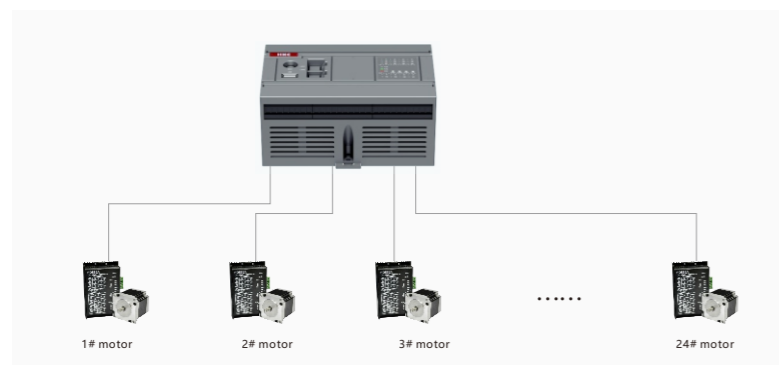
- High cost performance, create industry-specific machines.
- One board is done, without multiple PLC online: set temperature, weighing, analog input / out, multiple SSR solid state output, multi-channel step / servo motor output, multiple communication interface control system and other powerful functions in one.

## >> The advanced storage technology in case of power-down

- Program and data areas are permanently saved and stored in Flash, no battery backup is required.

## >> Motion control functions

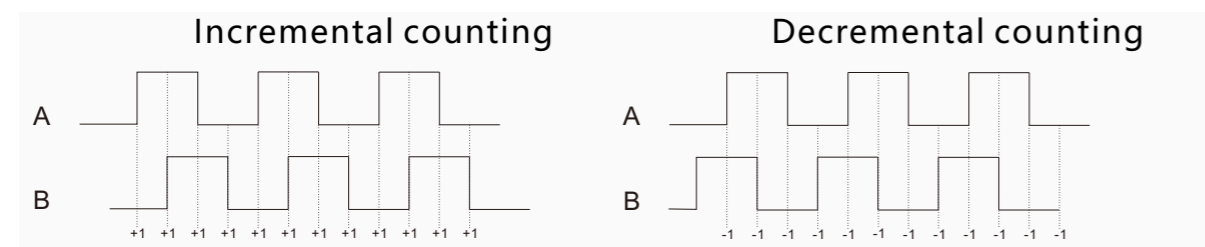
High speed output  
Pulse + direction: Up to 24 stepper/servo motors can be driven by a single board with high speed output at a maximum frequency of 200khz.



### High-speed input

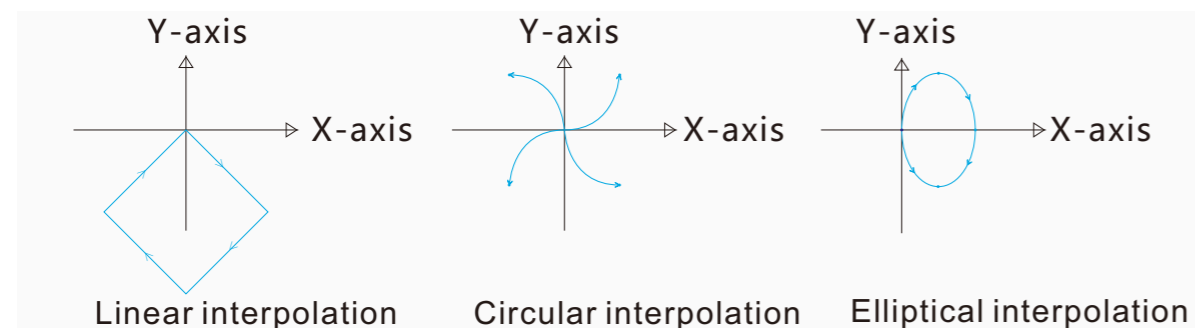
It supports single-phase high-speed counting up to 12 channels, AB-phase high-speed counting up to 6 channels: the maximum frequency of 200khz, it can be connected to the rotary encoder, the encoder rotates, PLC counts the input of the encoder.

AB-phase counting 4x frequency mode

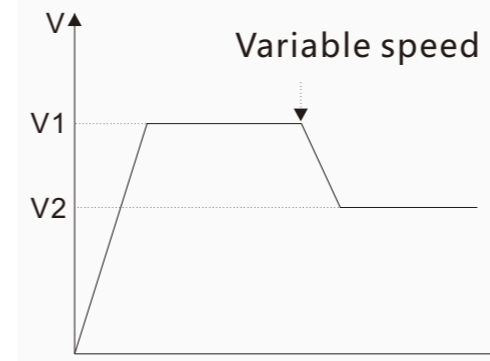


### Interpolation function

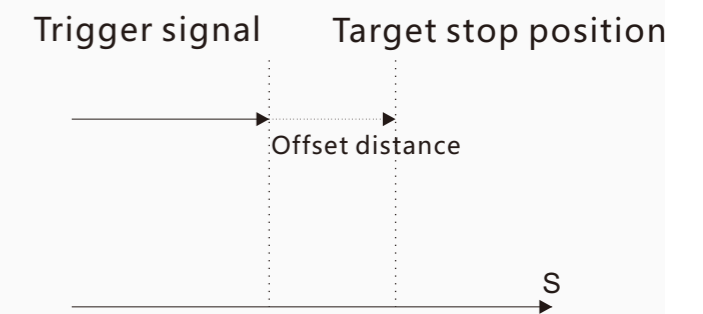
It supports two-axis linkage (linear interpolation/circular interpolation/elliptical interpolation)



## Dynamic online variable speed



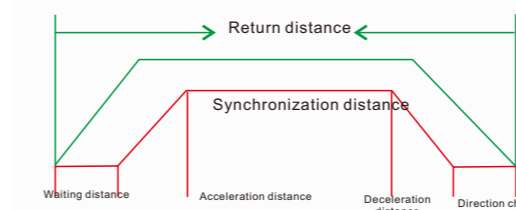
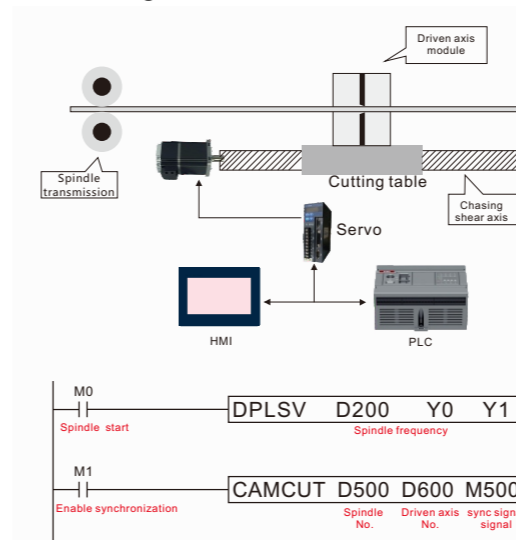
## Dynamic modification of target position



## Wheel cutting, roll cutting, chase cutting, pillow type packing

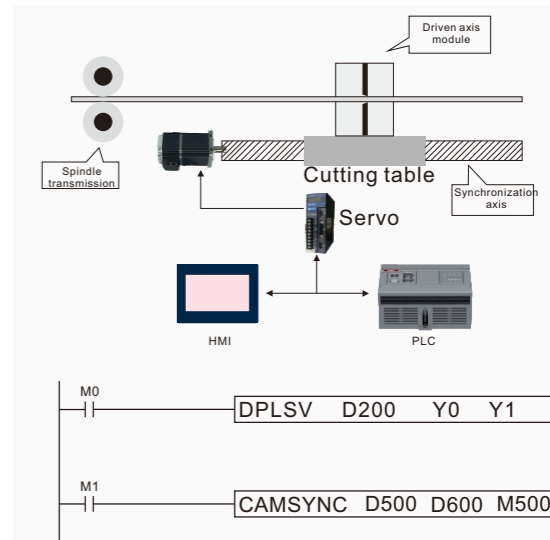
- High accuracy, error within  $\pm 0.2\text{mm}$  at normal operation speed.
- Support for multi-segment indefinite length chasing shear with alignment.
- With fixed-length and alignment function, it is suitable for many occasions.
- The acceleration zone, deceleration zone and return zone have optimized curves for smooth and unobtrusive system operation
- With electronic cam speed profile, the positioning is highly accurate and does not produce any cumulative deviation.

## Chasing shear solution



- Return distance=Shear length-waiting distance-acceleration distance-synchronization distance-deceleration distance-direction change distance
- The chasing shear system only needs to set the required waiting, acceleration, synchronization, deceleration and direction change distance parameters, it can meet the customer's cam adjustment and alignment functions.

## Synchronization solution



- Electronic cam synchronization is easy to program. By using HNC's self-defined CAMSYNC instructions, the driven axis can be synchronized with the spindle.

## > Compact PLC-HCS2 Series

### HCS2 Series PLC

HCS2 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
HCS2-14TN(P)	14 points	NPN(PNP)	0.3A	8(4) <sup>①</sup>	6(1)	200khz	1 axis	RS232/RS485
HCS2-14TN(P)2	14 points	NPN(PNP)	0.3A	8(4) <sup>①</sup>	6(1)	200khz	1 axis	RS232/RS485*2
HCS2-14R	14 points	Relay	2A	8(4) <sup>①</sup>	6(--)	200khz	---	RS232/RS485
HCS2-16TN(P)	16 points	NPN(PNP)	0.3A	8(4) <sup>①</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		HCS2-14TN(P)		HCS2-14TN(P)2	
Specification					
Supply Voltage		24VDC			
Input form		DC (NPN/PNP)			
Input Current		DC24V,5mA			
Input Impedance		4.7K $\Omega$			
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 $\mu$ s	<20 $\mu$ s	<10 $\mu$ s	<20 $\mu$ s
	On→Off	<20 $\mu$ s	<50 $\mu$ s	<20 $\mu$ s	<50 $\mu$ s
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 $\mu$ s	<20 $\mu$ s	<2.5 $\mu$ s	<20 $\mu$ s
	On→Off	<5 $\mu$ s	<30 $\mu$ s	<5 $\mu$ s	<30 $\mu$ s

Model		HCS2-16TN(P)		HCS2-14R	
Specification					
Supply Voltage		24VDC			
Input form		DC (NPN/PNP)			
Input Current		DC24V,5mA			
Input Impedance		4.7K $\Omega$			
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 $\mu$ s	<20 $\mu$ s	<10 $\mu$ s	<20 $\mu$ s
	On→Off	<20 $\mu$ s	<50 $\mu$ s	<20 $\mu$ s	<50 $\mu$ s
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 $\mu$ s	<20 $\mu$ s		
	On→Off	<5 $\mu$ s	<30 $\mu$ s	About 10ms	

# > Standard PLC --HCG2 series

## HCG2 Series

HCG2 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
HCG2-14TN(P)-D	14 points	NPN(PNP)	0.3A	8(2)	6(3)	—	—	—	100khz	3 sets	RS232/RS485
HCG2-16TN(P)-D	16 points	NPN(PNP)	0.3A	8(4) <sup>①</sup>	8(4)	—	—	—	10khz	—	RS232/RS485
HCG2-24TN(P)-D/A	24 points	NPN(PNP)	0.3A	12(2)	12(6)	—	—	—	200khz	6 sets	RS232/RS485/USB
HCG2-24TN(P)-D/A	24 points	NPN(PNP)	0.3A	12(2)	12(2)	—	—	—	200khz	2 sets	RS232/RS485/USB
HCG2-32TN(P)-D/A	32 points	NPN(PNP)	0.3A	16(2)	16(4)	—	—	—	200khz	4 sets	RS232/RS485/USB
HCG2-32TN(P)-L-D/A	32 points	NPN(PNP)	0.3A	16(6)	16(4)	—	—	—	200khz	4 sets	RS232/RS485/USB
HCG2-32TN(P)-D/A	32 points	NPN(PNP)	0.3A	16(6)	16(8)	—	—	—	200khz	8 sets	RS232/RS485/USB
HCG2-40TN(P)-D/A	40 points	NPN(PNP)	0.3A	24(6)	16(4)	—	—	—	200khz	4 sets	RS232/RS485/USB
HCG2-40TN(P)-C-D/A	40 points	NPN(PNP)	0.3A	24(6)	16(4)	—	—	—	200khz	4 sets	RS232/RS485/USB
HCG2-40TN(P)2AO-D	40 points	NPN(PNP)	0.3A	24(6)	16(4)	—	2	0-10V	200khz	4 sets	RS232/RS485/USB/CAN
HCG2-40TN(P)1AI1AO-D	40 points	NPN(PNP)	0.3A	24(6)	16(4)	1	1	0-10V	200khz	4 sets	RS232/RS485/USB
HCG2-48TN(P)-D/A	48 points	NPN(PNP)	0.3A	24(6)	24(4)	—	—	—	200khz	4 sets	RS232/RS485/USB
HCG2-48TN(P)6AO-D/A	48 points	NPN(PNP)	0.3A	24(6)	24(4)	—	6	0-10V	200khz	4 sets	RS232/RS485/USB
HCG2-48TN(P)-6AB-D/A	48 points	NPN(PNP)	0.3A	28(12)	20(8)	—	—	—	200khz	4 sets	RS232/RS485/USB
HCG2-60TN(P)-D/A	60 points	NPN(PNP)	0.3A	36(6)	24(4)	—	—	—	200khz	8 sets	RS232/RS485/USB
HCG23-60TN(P)-E-D/A	60 points	NPN(PNP)	0.3A	36(6)	24(4)	—	—	—	200khz	4 sets	RS232/RS485/USB
HCG2-60TN(P)-D/A	60points	NPN(PNP)	0.3A	36(6)	24(4)	—	—	—	200khz	12 sets	RS232/RS485/USB
HCG2-68TN(P)-D	60points	NPN(PNP)	0.3A	36(6)	24(4)	—	—	—	200khz	4 sets	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
HCG2-14R-D	14 points	Relay	2A	8(4) <sup>①</sup>	6	—	—	RS232/RS485
HCG2-16R-D	16 points	Relay	2A	8(4) <sup>①</sup>	8	—	—	RS232/RS485
HCG2-1608R-D/A	24 points	Relay	2A	16(-)	8	—	—	RS232/RS485/USB
HCG2-1410R-D/A	24 points	Relay	2A	14(-)	10	—	—	RS232/RS485/USB
HCG2-32R-D/A	32 points	Relay	2A	16(2)	16	—	—	RS232/RS485/USB
HCG2-40R-D/A	40 points	Relay	2A	24(6)	16	—	—	RS232/RS485/USB
HCG2-48R-D/A	48 points	Relay	2A	24(6)	24	—	—	RS232/RS485/USB
HCG2-48R6AO-D/A	48 points	Relay	2A	24(6)	24	6	0-10V	RS232/RS485/USB
HCG2-60R-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 MODBUS TCP/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	HCG2-14R-D	HCG2-16R-D	HCG2-16TN(P)-D	HCG2-14PN(P)-D	HCG2-24PN(P)-D	HCG2-32TN(P)/R-D/A	HCG2-48TN(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	<10μs	<20μs	<2.5μs	<20μs	<2.5μs	<20μs	
	On→Off	<20μs	<50μs	<5μs	<50μs	<5μs	<50μs	

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)1AI1AO-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	<2.5μs		<20μs		
	On→Off	<5μs		<50μs		

## Electrical specifications for output points

Specification	Model	HCG2-14R-D	HCG2-16R-D	HCG2-32R-D	HCG2-40R-D	HCG2-48R-D	HCG2-48R6AO-D	HCG2-60R-D
Output Point Type		Relay Output						
Output Points		All						
Maximum load		2AAC250V/DC30V						
Response time		About 10ms						

Specification	Model	HCG2-16T(N)P-D	HCG2-24PN(P)-D/A HCG2-32PN(P)-D/A HCG2-60PN(P)-D/A	HCG2-40TN(P)-D/A HCG2-40TN(P)-C-D/A HCG2-32/40TN(P)-E-D/A HCG2-68TN(P)-D	HCG2-40TN(P)2AO-D HCG2-40TN(P)1AI1AO-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
Maximum frequency		10kHz	200kHz	200kHz	10kHz	200kHz
Maximum load	Resistive	0.3A/1 point (2.4A/COM)				
	Inductive	15W				
Response time	Off→On	<20μs	<2μs	<20μs	<2μs	<20μs
	On→Off	<30μs	<3μs	<30μs	<3μs	<30μs



# Standard PLC--HCD2 series

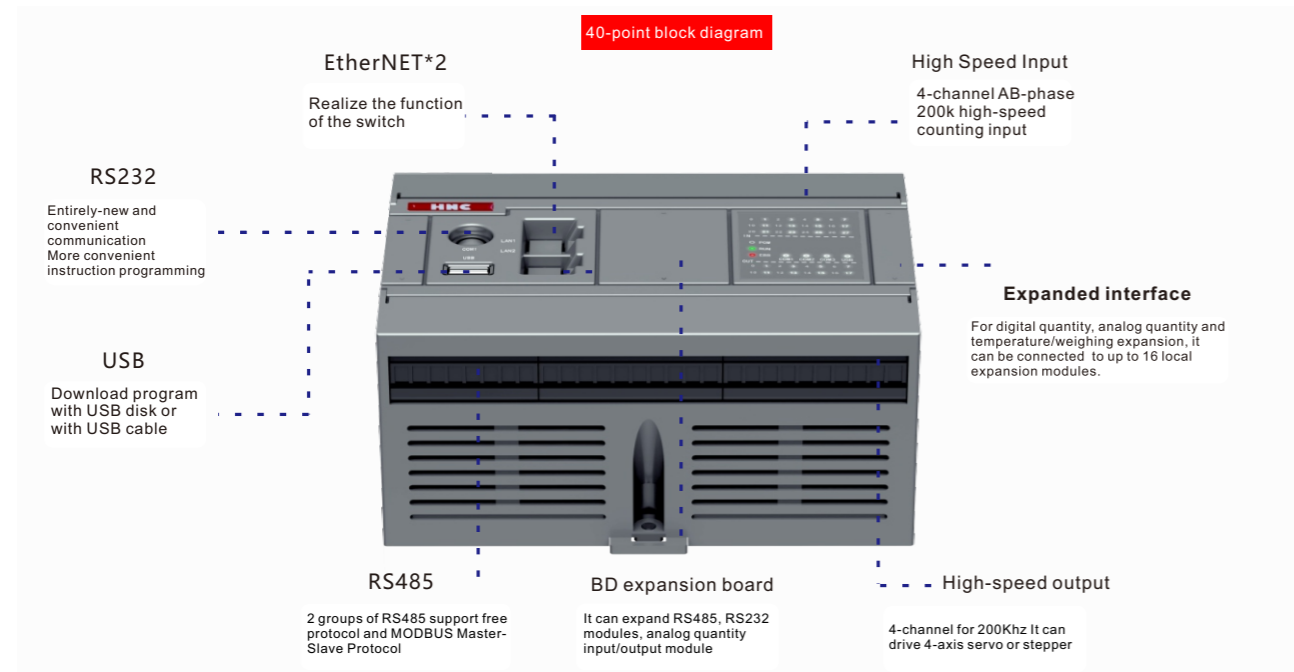
## HCD2 Series

HCD2 standard PLC series provides 14~60 points mainframe and 8~40 points digital input/output modules, including the maximum input/output expansion of the mainframe 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.

### Performance features

- High speed input/output: 4-channel AB phase for input of 200Khz, 8-axis high speed output of 200Khz.
- With Ethernet function, support online monitoring, download program, support MODBUS TCP/IP communication, free protocol communication.
- Using RS232 and RS485\*2 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.
- Rich expansion: it can be expanded to 512 digital quantities, it otherwise can be matched with analog, weighing and temperature expansions.
- 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

### System block diagram



### Model List

Without Ethernet				
Number of points	AC Power		DC Power	
	Relay Output	Transistor output (NPN/PNP) type	Relay Output	Transistor output (NPN/PNP) type
16 points	HCD2-16R-A	HCD2-16TN(P)-A	HCD2-16R-D	HCD2-16TN(P)-D
24 points	HCD2-24R-A	HCD2-24TN(P)-A	HCD2-24R-D	HCD2-24TN(P)-D
32 points	HCD2-32R-A	HCD2-32TN(P)-A	HCD2-32R-D	HCD2-32TN(P)-D
40 points	HCD2-40R-A	HCD2-40TN(P)-A	HCD2-40R-D	HCD2-40TN(P)-D
48 points	HCD2-48R-A	HCD2-48TN(P)-A	HCD2-48R-D	HCD2-48TN(P)-D
60 points	HCD2-60R-A	HCD2-60TN(P)-A	HCD2-60R-D	HCD2-60TN(P)-D

With Ethernet				
Number of points	AC Power		DC Power	
	Relay Output	Transistor output NPN/PNP type	Relay Output	Transistor output (NPN/PNP) type
16 points	HCD2-16R-E-A	HCD2-16TN(P)-E-A	HCD2-16R-E-D	HCD2-16TN(P)-E-D
24 points	HCD2-24R-E-A	HCD2-24TN(P)-E-A	HCD2-24R-E-D	HCD2-24TN(P)-E-D
32 points	HCD2-32R-2E-A	HCD2-32TN(P)-2E-A	HCD2-32R-2E-D	HCD2-32TN(P)-2E-D
40 points	HCD2-40R-2E-A	HCD2-40TN(P)-2E-A	HCD2-40R-2E-D	HCD2-40TN(P)-2E-D
48 points	HCD2-48R-2E-A	HCD2-48TN(P)-2E-A	HCD2-48R-2E-D	HCD2-48TN(P)-2E-D
60 points	HCD2-60R-2E-A	HCD2-60TN(P)-2E-A	HCD2-60R-2E-D	HCD2-60TN(P)-2E-D

Note 1: 16-24 points with 1 Ethernet port, 32-60 points with 2 Ethernet ports

## Technical parameters

The following are the technical specifications of PLC with Ethernet port, other technical specifications of PLC without Ethernet port are the same.

Series Model	HCD2-16TN(P)/R-E	HCD2-24TN(P)/R-E	HCD2-32TN(P)/R-2E	HCD2-40TN(P)/R-2E	HCD2-48TN(P)/R-2E	HCD2-60TN(P)/R-2E
Total number of points	16 points	24 points	32 points	40 points	48 points	60 points
Number of digital input points	8	14	16	24	24	36
Number of digital output points	8	10	16	16	24	24
Output method	T:NPN(PNP)/R:Relay	T:NPN(PNP)/R:Relay	T:NPN(PNP)/R:Relay	T:NPN(PNP)/R:Relay	T:NPN(PNP)/R:Relay	T:NPN(PNP)/R:Relay
High-speed input counter	3-channel AB phase	3-channel AB phase	4-channel AB phase	4-channel AB phase	4-channel AB phase	4-channel AB phase
High-speed input maximum frequency	200khz	200khz	200khz	200khz	200khz	200khz
Right Module	16	16	16	16	16	16
Left Extension	Communication extension supported	Communication extension supported	Communication extension supported	Communication extension supported	Communication extension supported	Communication extension supported
BD Board	Support 1 board	Support 1 board	Support 1 board	Support 1 board	Support 2 board	Support 2 board
Serial communication port	RS232/RS485*2	RS232/RS485*2	RS232/RS485*2	RS232/RS485*2	RS232/RS485*2	RS232/RS485*2
USB communication port	None	None	Program downloading/Firmware upgrade	Program downloading/Firmware upgrade	Program downloading/Firmware upgrade	Program downloading/Firmware upgrade
Ethernet port	Support 1 port	Support 1 port	Support 2 ports	Support 2 ports	Support 2 ports	Support 2 ports
Number of pulse axes	T: 4 axis/ R: None	T: 4 axis/ R: None	T:4 axis/P:8 axis/Rename	T:4 axis/P:8 axis/Rename	T:4 axis/P:12 axis/Rename	T:4 axis/P:12 axis/Rename
High-speed output maximum frequency	200khz	200khz	200khz	200khz	200khz	200khz
Bus Functions	None	None	None	None	None	None
Number of bus axis	None	None	None	None	None	None
Program Capacity	30k	30k	30k	30k	30k	30k
Perpetual Calendar	Supported	Supported	Supported	Supported	Supported	Supported
Size (mm)	114*100*73	114*100*73	155*100*73	155*100*73	218*100*73	218*100*73
Protection level	Ip20					
Working environment temperature	5 to 55°C (41 to 131°F), No condensation					
Relative Humidity	5 to 95%					
Transport ambient temperature	-25~70°C (-13-158T)					
Vibration resistance	10M/S <sup>2</sup>					
Working altitude	0 ~ 2000M, without capacity reduction, 2000M or more, ambient temperature <40°C (104°F)					

### Electrical specification of input point

Series Model HCD2-	16TN(P)/R, 24TN(P)/R		32TN(P)/R, 40TN(P)/R, 48TN(P)/R, 60TN(P)/R	
Input Points	X0~X5	X6~	X0~X7	X10~
Input Point Type	Digital input			
Input form	DC (NPN/PNP type)			
Input Current	5mA			
Input Impedance	4.7KQ			
Maximum frequency	200kHz	10kHz	200kHz	10kHz
Response time	Off→On	<2.5μs	<2.5μs	<20μs
	On→Off	<5μs	<5μs	<50μs

### Electrical specification of output point

Series Model HCD2-	16TN(P), 24TN(P), 32TN(P), 40TN(P), 48TN(P), 60TN(P)		32PN(P), 40PN(P)		48PN(P), 60PN(P)	
Output Point Type	NPN(PNP)					
Output Points	Y0, Y2, Y4, Y6	Y1, Y3, Y5, Y7~Y17	Ya0, Y2...Y16 (8 even output ports)	Y0, Y2...Y26 (12 even output ports)		
Maximum frequency	200khz	10Khz				
Maximum load	Resistive	0.3A/1 point (2.4A/COM)				
	Inductive	15W				
Response time	Off→On	<2μs	<20μs			
	On→Off	<3μs	<30μs			

Series Model HCD2-	16R, 24R, 32R, 40R, 48R, 60R	
Output Point Type	Relay Output	
Output Points	All	
Maximum load	2A AC250V /DC30V	
Response time	About 10ms	

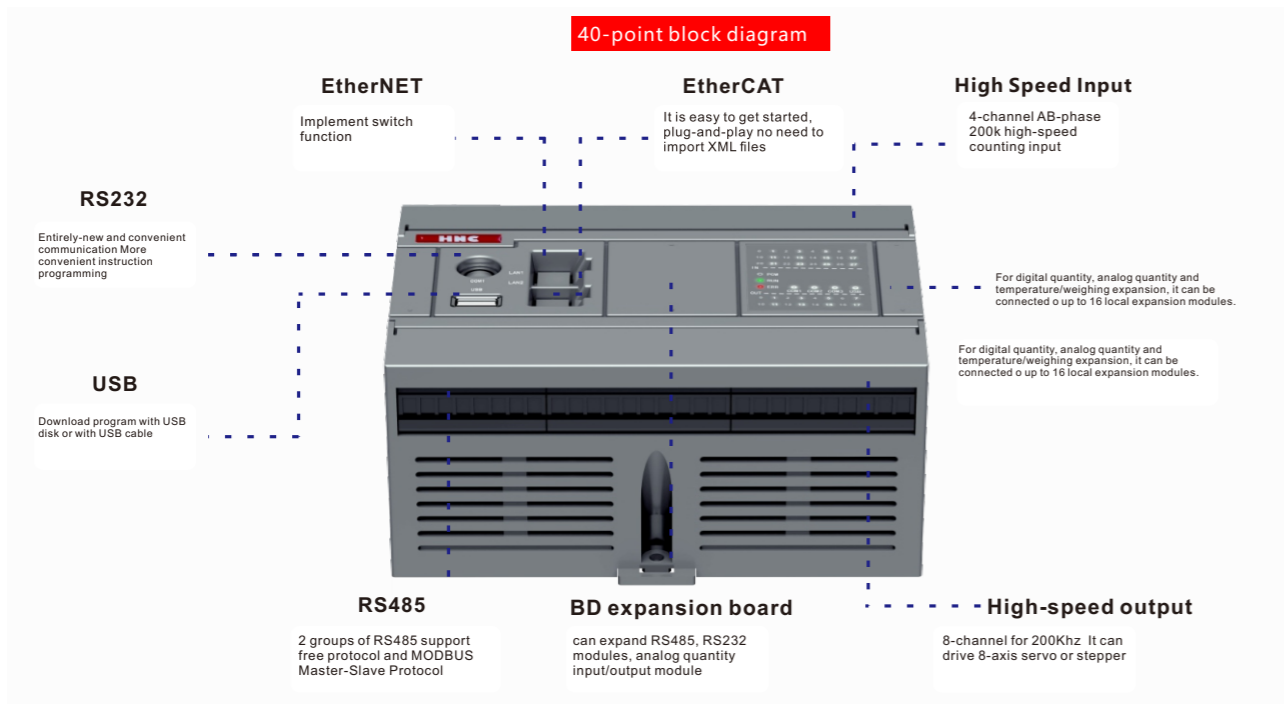
# > EtherCAT Bus Type PLC--HCH2 Series

Multi-axis controller based on EtherCAT field bus has a bus transmission rate of 100Mbps, uses a distributed clock, combines pulse axes with bus axes, can quickly, accurately and efficiently transfer data, is convenient for users to quickly get started. It supports single-axis motion commands such as position, speed, torque and return to origin, and supports multi-axis commands such as electronic gear, electronic cam, linear interpolation and circular arc interpolation. With multiple built-in communication ports, there are RS232, RS485, USB and Ethernet ports for users to choose. It has perpetual calendar and can expand IO ports.

## Performance features

- Pulse control method and bus control: The bus is combined with the pulse axis for flexible and free distribution.
- High speed input/output: 4-channels AB phase for input of 200Khz, 8-axis high speed output of 200Khz.
- With Ethernet function, support online monitoring, download program, support MODBUS TCP/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
- Rich expansion: it can be expanded to 512 digital quantities, it otherwise can be matched with analog, weighing and temperature expansions.
- 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.

## HCH2 series



## Hardware Upgrade

- New upgraded appearance
- More communication: USB/RS232/RS485\*2.
- In-line terminals for easier disassembly.

## Software Upgrade

- MODBUS communication commands are more convenient and PLC programs do not need to be polled.
- High-speed on-line connection is possible between the main body PLC mainframes.
- PLC program capacity is expanded to 60K.

## Model List

Number of points	Axis number of bus	Model			
		AC Power		DC Power	
		Relay Output	Transistor output (NPN/PNP type)	Relay Output	Transistor output (NPN/PNP type)
16 points	8-axis	HCH2-16R-E-A	HCH2-16TN(P)-E-A	HCH2-16R-E-D	HCH2-16TN(P)-E-D
24 points	8-axis	HCH2-24R-E-A	HCH2-24TN(P)-E-A	HCH2-24R-E-D	HCH2-24TN(P)-E-D
32 points	8-axis	HCH2-32R-E-A	HCH2-32TN(P)-E-A	HCH2-32R-E-D	HCH2-32TN(P)-E-D
32 points	16-axis		HCH2-32TN(P)2-E-A		HCH2-32TN(P)2-E-D
32 points	32-axis		HCH2-32TN(P)4-E-A		HCH2-32TN(P)4-E-D
40 points	8-axis	HCH2-40R-E-A	HCH2-40TN(P)-E-A	HCH2-40R-E-D	HCH2-40TN(P)-E-D
48 points	8-axis	HCH2-48R-E-A	HCH2-48TN(P)-E-A	HCH2-48R-E-D	HCH2-48TN(P)-E-D
60 points	8-axis	HCH2-60R-E-A	HCH2-60TN(P)-E-A	HCH2-60R-E-D	HCH2-60TN(P)-E-D

## Technical parameters

Series Model HCH2-	HCH2-16TN(P)/R-E	HCH2-24TN(P)/R-E	HCH2-32TN(P)/TN(P)2/TN(P)4/R-E	HCH2-40TN(P)/R-E	HCH2-48TN(P)/R-E	HCH2-60TN(P)/R-E
Total number of points	16 points	24 points	32 points	40 points	48 points	60 points
Number of digital input points	8	14	16	24	24	36
Number of digital output points	8	10	16	16	24	24
Output method	T:NPN(PNP)/R:Relay	T:NPN(PNP)/R:Relay	T:NPN(PNP)/R:Relay	T:NPN(PNP)/R:Relay	T:NPN(PNP)/R:Relay	T:NPN(PNP)/R:Relay
High-speed input counter	3-channel AB phase(X0~X05)	3-channel AB phase(X0~X05)	4-channel AB phase(X0~X07)	4-channel AB phase(X0~X07)	4-channel AB phase(X0~X07)	4-channel AB phase(X0~X07)
High-speed input maximum frequency	200khz	200khz	200khz	200khz	200khz	200khz
Right Module	16	16	16	16	16	16
Left Extension	Communication extension supported	Communication extension supported	Communication extension supported	Communication extension supported	Communication extension supported	Communication extension supported
BD Board	Support 1 board	Support 1 board	Support 1 board	Support 1 board	Support 2 board	Support 2 board
Serial communication port	RS232/RS485*2	RS232/RS485*2	RS232/RS485*2	RS232/RS485*2	RS232/RS485*2	RS232/RS485*2
USB communication port	None	None	Program Download/Firmware Upgrade	Program Download/Firmware Upgrade	Program Download/Firmware Upgrade	Program Download/Firmware Upgrade
Ethernet communication port	None	None	Support 1 port	Support 1 port	Support 1 port	Support 1 port
Number of pulse axes	T: 4 axis/ R:-	T: 5 axis/ R:-	T: 8 axis/ R:-	T: 8 axis/ R:-	T: 8 axis/ R:-	T: 8 axis/ R:-
High-speed output maximum frequency	200khz	200khz	200khz	200khz	200khz	200khz
Bus Function	EtherCAT Bus	EtherCAT Bus	EtherCAT Bus	EtherCAT Bus	EtherCAT Bus	EtherCAT Bus
Number of bus axis	8 axis	8 axis	T:8 axis/T2:16axis/T4:32 axis/R:8 axis	8 axis	8 axis	8 axis
Program Capacity	60k	60k	60k	60k	60k	60k
Perpetual Calendar	Supported	Supported	Supported	Supported	Supported	Supported
Size(mm)	114*100*73	114*100*73	155*100*73	155*100*73	155*100*73	218*100*73
Protection level	IP 20					
Working environment temperature	5~55°C (41-131°F) No condensation					
Relative Humidity	5~95%					
Transport ambient temperature	-25~70°C (-13-158T)					
Vibration resistance	10M/S²					
Working altitude	0~2000M without capacity reduction, 2000M or more, ambient temperature <40°C (104°F)					
Description	Note: If the pulse axes and bus axes are total in 16 axes, the program can be customized to freely assign them. For example, the number of pulse axes is defined as 2 axes, the bus axes are 14 axes					

## Electrical specification of input point

Series Model HCH2-	16TN(P)/R, 24TN(P)/R		32TN(P)/TN(P)2/TN(P)4/R, 40TN(P)/R, 48TN(P)/R, 60TN(P)	
Input Points	X0~X5	X6~	X0~X7	X10~
Input Point Type	Digital input			
Input form	DC (NPN /PNP)			
Input Current	5mA			
Input Impedance	4.7KΩ			
Maximum frequency	200kHz	10kHz	200kHz	10kHz
Response time	Off→On	<2.5μs	<20μs	<2.5μs
	On→Off	<5μs	<50μs	<5μs

## Electrical specification of output point

Series Model HCH2-	16R, 24R, 32R, 40R, 48R, 60R	
Output Point Type	NPN/PNP	
Output Points	Y0-Y16: output points are even digits, 4 points for 16T, 5 points for 24T, 8 points for 32T-60T	Y1, Y3, Y5...Y17 (output point are base bit)
Maximum frequency	200Khz	10Khz
Maximum Load	Resistive: 0.3A/1point (2.4A/COM)	
	Inductive: 15W	
Response Time	Off→On	<2μs
	On→Off	<3μs

Series Model HCH2-	16R, 24R, 32R, 40R, 48R, 60R	
Output Point Type	Relay Output	
Output Points	All	
Maximum load	2A AC250V /DC30V	
Response time	About 10ms	

# > Motion Control Type PLC--HCM2 Series

## HCM2 Series PLC-Electronic Cam

HCM2 series PLC provides 32-60 points mainframe with built-in electronic cam function, including fixed length chasing shear, flying shear, wheel cutting, synchronization and other technical solutions. It adopts electronic cam speed curve, has high positioning accuracy and has no accumulated error. With HNC's self-defined instructions, it is simple to make application programming and is easy to understand, and it runs smoothly. The alignment accuracy is within 0.20mm. It can also be used with analog input/output module, temperature module and weighing module. It is rich in expansion and has stable performance to meet various applications.

### Model List

Series	Number of points	Model	
		AC Power	DC Power Supply
HCM2	16 points	HCM2-16TN(P)-E-A	HCM2-16TN(P)-E-D
HCM2	24 points	HCM2-24TN(P)-E-A	HCM2-24TN(P)-E-D
HCM2	32 points	HCM2-32TN(P)-E-A	HCM2-32TN(P)-E-D
HCM2	32 points	HCM2-32TN(P)2-E-A	HCM2-32TN(P)2-E-D
HCM2	32 points	HCM2-32TN(P)4-E-A	HCM2-32TN(P)4-E-D
HCM2	40 points	HCM2-40TN(P)-E-A	HCM2-40TN(P)-E-D

Note 1: In the product model number, D means DC24V, A means AC100V-AC240V, and those without differentiation suffix D or A mean DC24V by default.  
 Note 2: HCM2 is bus type PLC with electronic cam function, please refer to the description of EtherCAT bus type PLC series in the previous chapter.  
 Oscilloscope function: monitor the change of each component over time during operation, to facilitate analysis of problems and effective debugging.  
 Note 3: For motion control PLCs, you can refer to HNC Motion Control User's Guide for the use of electronic cams and multi-axis control.

### Focus on motion control, making electronic cams simpler and more precise

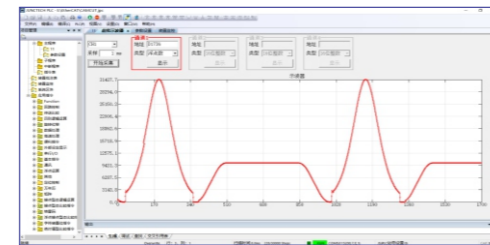
- Rich function: chasing shear, flying shear, synchronization, following, motion overlay, virtual axes, custom cams, etc.
- Accurate positioning: Electronic cam speed curve is used, with an accuracy of 0.20mm.
- Easy programming: Easier control with dedicated cam commands
- Case application: Pillow packing machine: fixed length, variable length, tagging, anti-pack emptiness, anti-film scalding, anti-material cutting, etc. When working in fixed length and tagging, the maximum capacity is 1200 bags/min. When working in anti-pack emptiness, antimaterial cutting and variable length mode, the production capacity can reach 300 packs/min.

### Performance features

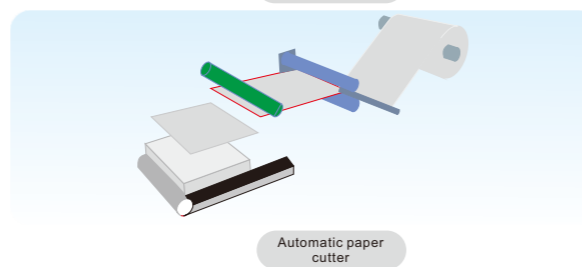
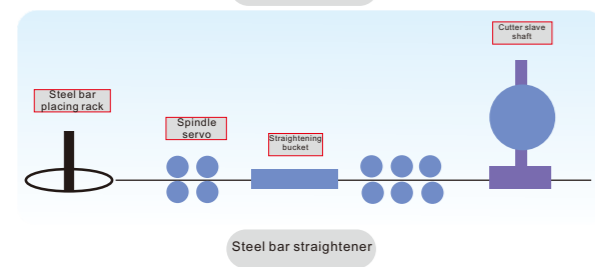
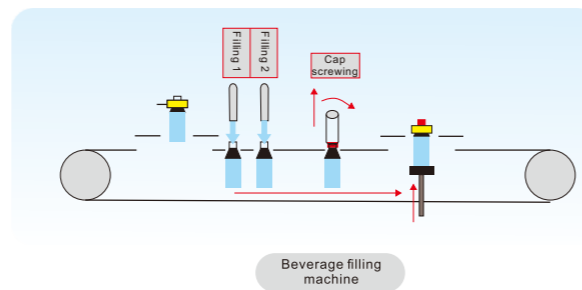
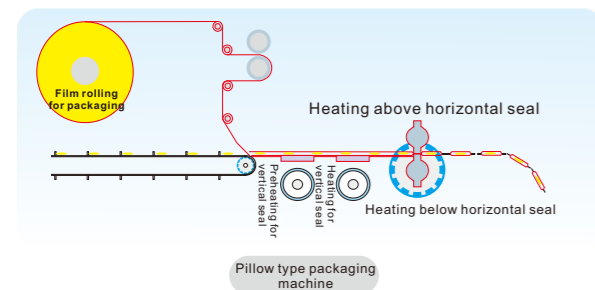
- Expandable to 256 isolated input/output ports.
- Advanced saving technology in case of power-down, the program is permanently saved.
- Pulse control method: up to 12 axes stepper/servo motors can be driven.
- With program encryption processing, it can be set whether to upload or not to protect the user's intellectual property.
- You can download the program by inserting a USB disk or use a dual-headed USB cable to download and monitor the program, with faster communication speed, the download rate is up to 12Mbps.
- By Using RS232 and RS485 dual communication port, it both can realize HMI or PC communication, it is compatible with MODBUS ASCII and MODBUS RTU communication protocols

### Electronic cam PLC with oscilloscope function

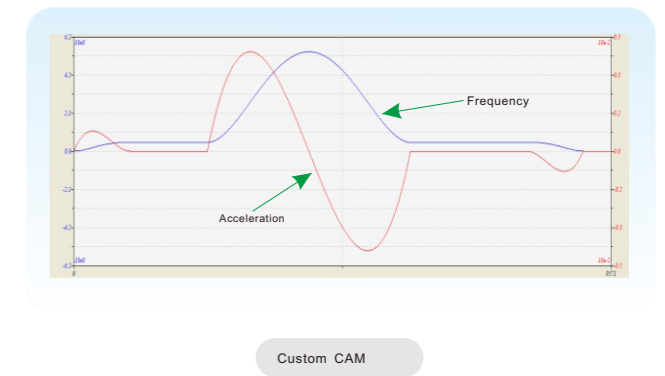
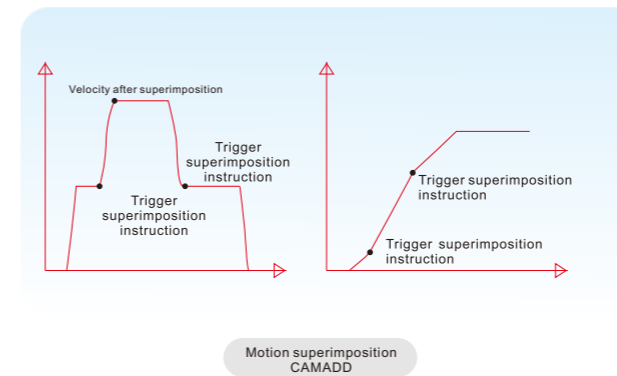
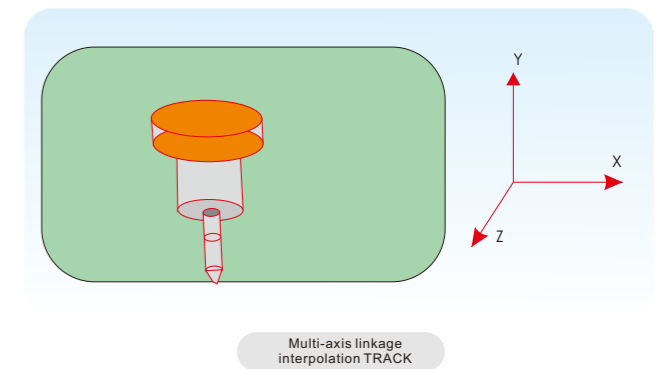
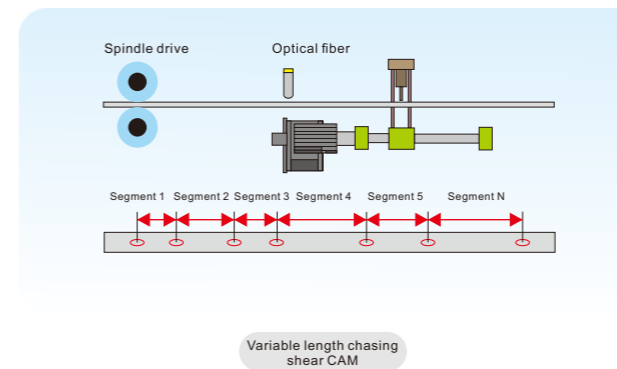
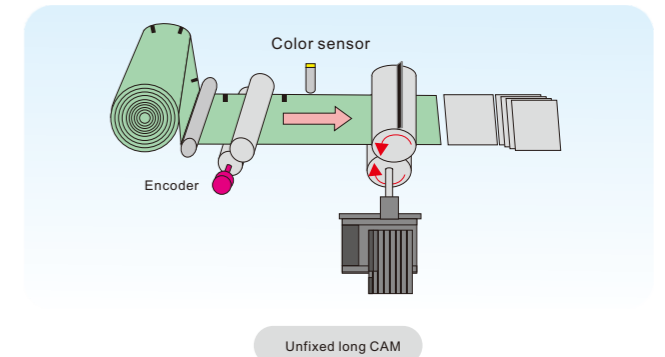
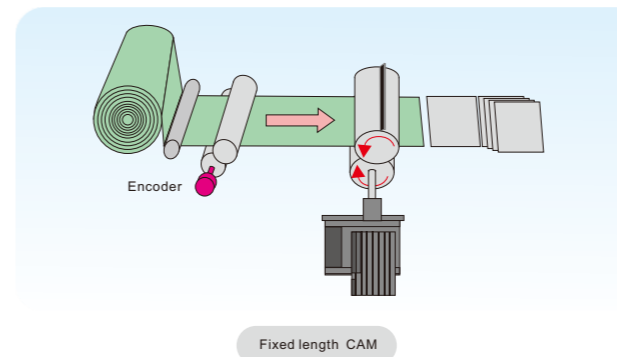
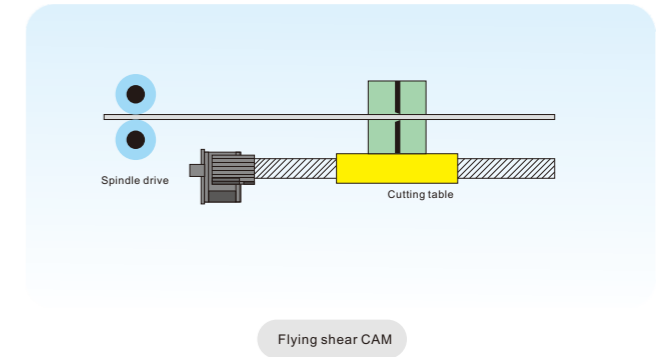
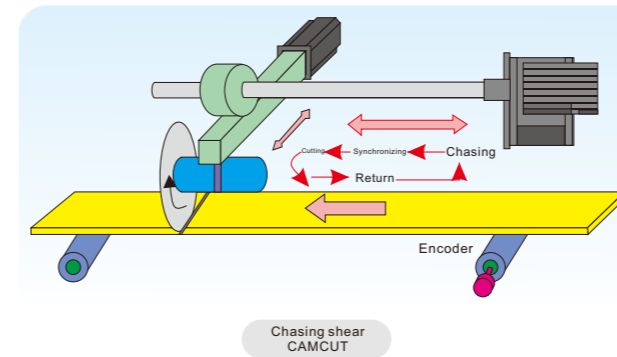
Oscilloscope function: monitor the change of each component over time during operation, to facilitate analysis of problems and effective debugging.



### Typical applications



### Motion control functions



# > Profinet, EtherCAT Bus Type Distributed I/O

PROFINET, launched by PROFIBUS International (P), is a new generation of automation bus standard based on Industrial Ethernet technology. PROFINET provides a complete network solution for the automation communication field, including hot topics in the current automation field such as realtime Ethernet, motion control, distributed automation, fault safety and network security. HNC to PROFINET bus products mainly cover all-in-one IO, plug-in IO, bus coordinating with Siemens s7-1200, these products are widely used in many industries.

EtherCAT is a deterministic industrial Ethernet, which was first developed by Beckhoff in Germany. Automation generally requires short update times (or cycle times), low communication jitter during data synchronization and low hardware costs, and EtherCAT was developed to allow Ethernet to be used in automation applications. HNC to EtherCAT bus products include all-in-one IOs and plug-in IOs, with a wide range of products, models and functions.

## Performance Features

- Spring-loaded extractable terminals for easier connection and maintenance.
- A wide variety of I/O: digital, analog, temperature, and weighing.
- Fast processing speed: high-speed ARM + dedicated ASIC.
- More cost-effective and easy to connect.
- Up to 32 digital points for a single module, expandable with 16 expansion modules.
- Card type machine, small size and small space occupation.



## Distributed Remote Module



## Model List

Coupler	
HTEP-32TP	PROFINET coupler, 16-input (NPN/PNP type), 16-output (PNP type)
HTEE-32TN	EtherCAT coupler, 16-input (NPN/PNP type), 16-output (NPN type)
HTEE-32TP	EtherCAT coupler, 16-input (NPN/PNP type), 16-output (PNP type)

Digital quantities	
HTE-8X	8-channel digital input, NPN/PNP type
HTE-8YTN(P)	8-channel digital output, NPN/PNP type
HTE-16YTN(P)	16-channel digital output, NPN/PNP type
HTE-16TN(P)	8-channel digital input, 8-channel digital output, NPN/PNP type

Analog	
HTE-4AI2AO	4/2-channel analog input/output, (0~10V,0~20mA)/(±10V,0~20mA) adjustable
HTE-4AO	4-channel analog output, adjustable (10~10V,0-20mA)
HTE-8AI	8-channel analog input, (0~10V,0-20mA) adjustable

Temperature	
HTE-4PTY	4-channel temperature input, 4-channel transistor NPN output, support PT100, measurement range: -50~300°C, accuracy: 1°C

Weighing	
HTE-2L	2-channel weighing input, 24-bit resolution, accuracy: ±1%
HTE-4L	4-channel weighing input, 24-bit resolution, accuracy: ±1%

## Electrical specifications

Digital Electrical specification of input point		
Input type	DC (leakage type)	
Input Impedance	4.7KΩ	
Maximum frequency at input point	10kHz	
Input response time	Off→On	<20μs
	On→Off	<50μs

Digital Electrical specification of output point		
Output method	NPN/PNP	
Maximum frequency at output point	10kHz	
Maximum Load	Resistive	0.3/1point
	Inductive	1.5W
Output Response time	Off→On	<20μs
	On→Off	<30μs

# Extension Modules

HNC series expansion modules are mainly divided into standard, customized, and compact models. Digital modules, analog modules, temperature modules, weighing modules, function modules, etc. are available.

Note 1: HHE series expansion and HCD2, HCH2, HCM2 series mainframe have the same appearance and color, HSE series expansion and HCG2 have the same appearance and color, HTE series expansion and HCS2 have the same appearance and color.

List of each series of extensions matched with each series of mainframes

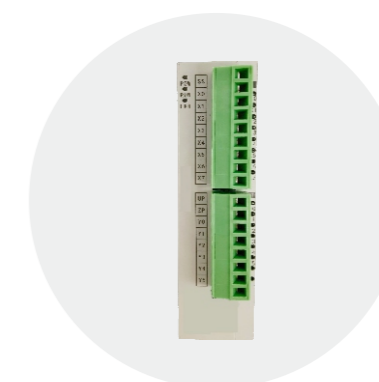
Extended Series	Mainframe Series
HTE Series	HCS2 series
HSE Series	HCG2 series
HHE Series	HCD2 HCH2 HCM2 series



**HHE Series Expansion**



**HSE Series Expansion**



**HTE Series Expansion**

## > Card Type Extension--HTE Series

In order to meet the application requirements of more occasions, the mainframe can be equipped with abundant expansion modules. HNC's 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.

### HTE Series Digital Expansion

#### Digital input expansion



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

#### Digital output expansion



Model	Function	Specification
HTE-8YTN	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
HTE-8YTP	8-channel transistor output	
HTE-16YTN	16-channel transistor output	
HTE-16YTP	16-channel transistor output	

#### Digital input/output expansion



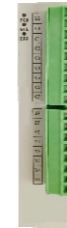
Model	Function	Specification
HTE-16TN	8-channel digital input, 8-channel transistor output	DC24V power supply, no need for external power supply NPN/PNP input Maximum input point frequency 10Khz TP: PNP type transistor output TN: NPN type transistor output T response time: about 50us T maximum output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

### HTE Series Analog Expansion

#### Performance Features

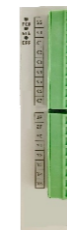
- High reliability and strong anti-interference capability.
- Power supply has reverse connection protection and surge absorption function, it can be applied to a variety of working environments.

#### Analog input expansion



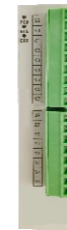
Model	Function	Specification
HTE-8AI	8-channel analog input	Voltage range: 0V-10V Current range: 0-20mA; 4-20mA Resolution: 12bit

#### Analog output expansion



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

#### Analog input/output expansion



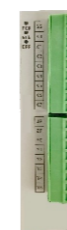
Model	Function	Specification
HTE-4AI2AO	4-channel analog input, 2-channel analog output	Voltage range: (input: 0V-5V; 0-10V,output: ±10V) Current range: 0-20mA; 4-20mA Resolution: 12bit

#### Temperature Extension



Model	Function	Specification
HTE-4PTY	4-channel temperature input, 4-channel transistor NPN output	Support PT100, measurement range -50~300°C, accuracy 1°C
HTE-1AI1AO	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
HTE-2L	2-channel weighing input	DC24V power supply, no need for external power supply Resolution 24 bits, accuracy ±1%
HTE-4L	4-channel weighing input	DC24V power supply, no need for external power supply Resolution 24 bits, accuracy ±1%

## > Standard Extension--HSE Series

In order to meet the application requirements of more occasions, the mainframe can be equipped with abundant expansion modules. HNC's 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

### HSE 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
HSE-8X	8-channel digital input	NPN/PNP input DC24V power supply, no need for external power supply Maximum frequency at input point: 10Khz
HSE-16X	16-channel digital input	

#### Digital output expansion



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

#### Digital input/output expansion



Model	Function	Specification
HSE-8TN	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
HSE-8TP	4-channel digital input, 4-channel transistor output	
HSE-16TN	8-channel digital input, 8-channel transistor output	R: Relay output TP: PNP type transistor output TN: NPN type transistor output R response time: about 10ms T response time: about 50us
HSE-16TP	8-channel digital input, 8-channel transistor output	
HSE-16R	8-channel digital input, 8-channel relay output	R maximum output current: max. 2A T maximum output current: 0.3A per point
HSE-32TN	16-channel digital input, 16-channel transistor output	
HSE-32TP	16-channel digital input, 16-channel transistor output	
HSE-32R	16-channel digital input, 16-channel relay output	
HSE-40TN	24-channel of digital input, 16-channel of transistorized output	
HSE-40TP	24-channel of digital input, 16-channel of transistorized output	

### HSE 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
HSE-4AO	4-channel analog output	Voltage range: -10V~10V Current range: 0-20mA; 4-20mA Resolution: 12bit

#### Analog input/output expansion



Model	Function	Specification
HSE-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

#### Temperature Extension



Model	Function	Specification
HSE-4TCY	4-channel temperature input, 4-channel transistor NPN output	Support K-type thermocouple, measurement range: 0~900°C, accuracy: 1°C
HSE-4TCY2	4-channel temperature input, 4-channel transistor NPN output with RS485	Support K-type thermocouple, measurement range: 0~900°C, accuracy: 1°C
HSE-8TCY	8-channel temperature input, 8-channel transistor NPN output	Support K-type thermocouple, measurement range: 0~900°C, accuracy: 1°C
HSE-8TCY2	8-channel temperature input, 8-channel transistor NPN output with RS485	Support K-type thermocouple, measurement range: 0~900°C, accuracy: 1°C
HSE-8PT	8-channel temperature input	Support PT100, measurement range: -50~300°C, accuracy: 1°C

#### Weighing Extension



Model	Function	Specification
HSE-2L	2-channel weighing input	DC24V power supply, no need for external power supply Resolution 24 bits, accuracy ±1%
HSE-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
HSE-4S-A	4-channel SSR thyristor output	DC24V power supply, no need for external power supply Drive AC vibration plate within 500W

## > Standard Extension--HHE Series

In order to meet the application requirements of more occasions, the mainframe can be equipped with abundant expansion modules. HNC's 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 mainframes of the Company.

### 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.

### HHE series digital expansion

#### Digital input expansion



Model	Function	Specification
HHE-8X	8-channel digital input	NPN/PNP input DC24V power supply, no need for external power supply, maximum input point frequency 10Khz
HHE-16X	16-channel digital input	

#### Digital output expansion



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

#### Digital input/output expansion



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

### HHE 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
HHE-8AI	8-channel analog input	Voltage range: 0V~10V Current range: 0-20mA Resolution: 12bit

#### Analog output expansion



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

#### Analog input/output expansion



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

### Temperature Extension



Model	Function	Specification
HHE-2TCY	2-channel temperature input, 2-channel transistor NPN output	Support K-type thermocouple, measurement range 0~9009, accuracy: 1°C
HHE-2TCY2	2-channel temperature input, 2-channel transistor NPN output with RS485	Support K-type thermocouple, measurement range 0~9009, accuracy: 1°C
HHE-4TCY	4-channel temperature input, 4-channel transistor NPN output	Support K-type thermocouple, measurement range 0~9009, accuracy: 1°C
HHE-4TCY2	4-channel temperature input, 4-channel transistor NPN output with RS485	Support K-type thermocouple, measurement range 0~9009, accuracy: 1°C
HHE-8TCY	4-channel temperature input, 4-channel transistor NPN output	Support K-type thermocouple, measurement range 0~9009, accuracy: 1°C
HHE-8TCY2	4-channel temperature input, 4-channel transistor NPN output, with RS485	Support K-type thermocouple, measurement range 0~900°C, accuracy 1°C
HHE-8PT	8-channel temperature input	Support PT100, measurement range -50~300°C, accuracy: 1°C

### Weighing Extension

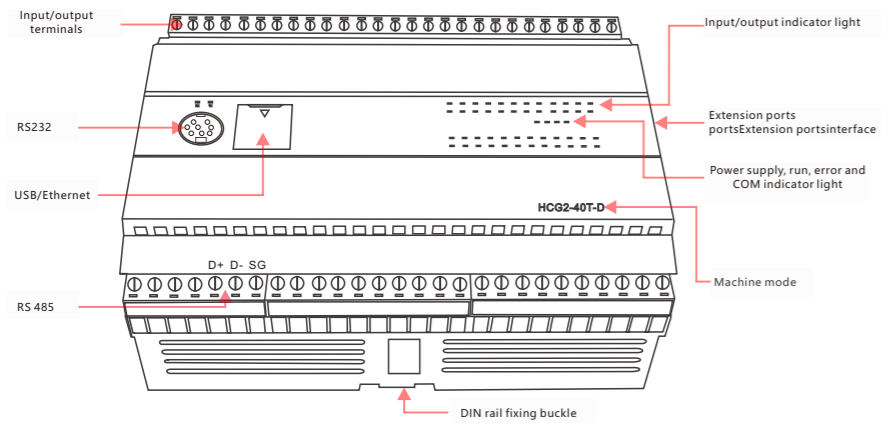


Model	Function	Specification
HHE-2L	2-channel weighing input	DC24V power supply, no need for external power supply resolution 24 bits, accuracy: 1°C
HHE-4L	4-channel weighing input	DC24V power supply, no need for external power supply resolution 24 bits, accuracy: 1°C

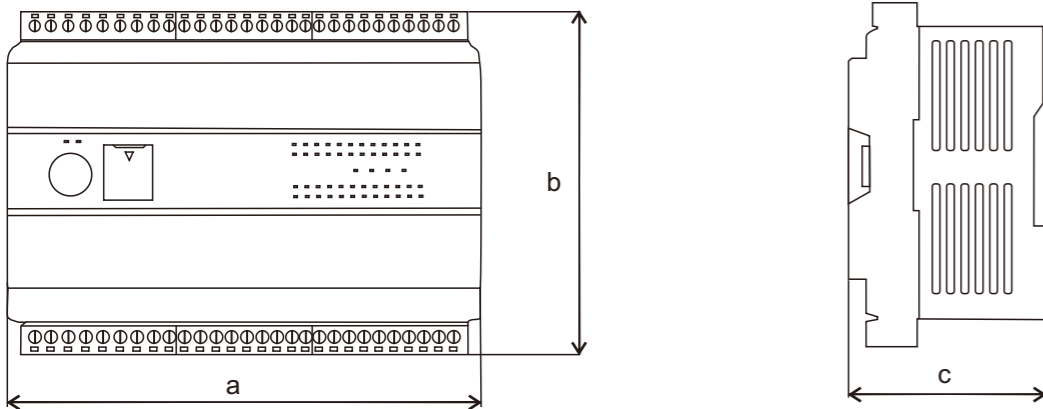


# ▶ Mainframe size

## ■ Introduction to product dimensions and positions of HCG2 Series

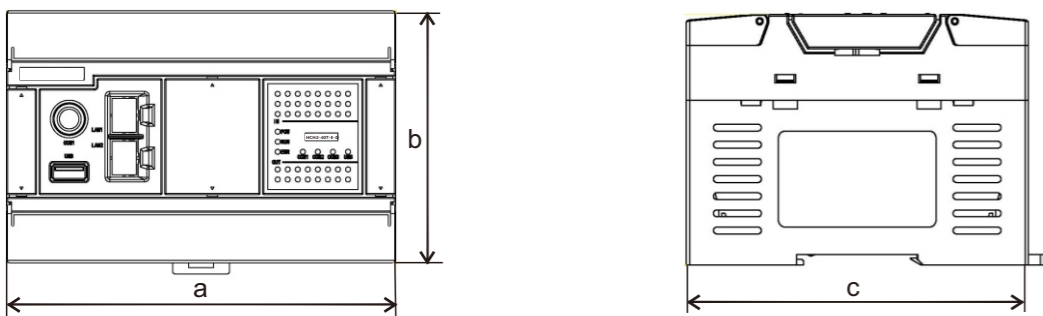


## ■ Mounting dimensions



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

## ■ Mounting dimensions of HCD2/HCH2/HCM2 series mainframe

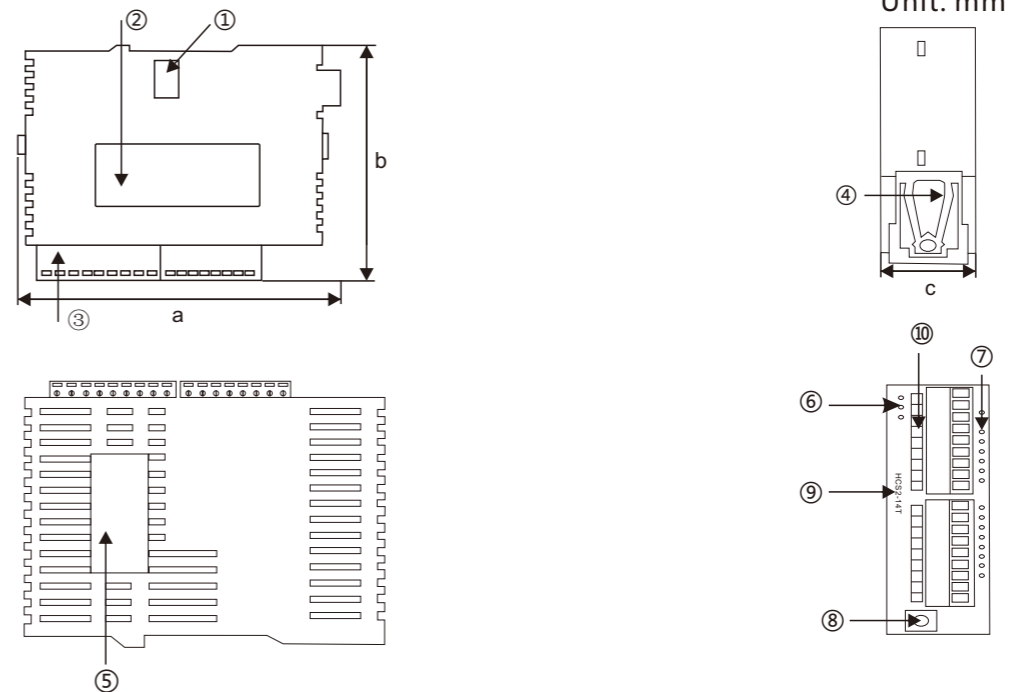


Mainframe	Size (mm)		
	a	b	c
14-24 points	114	100	73
32-40 points	155	100	73
48-60 points	278	100	73

Note 1: For 48-60 points, 2 BD expansion boards for exterior appearance; for 14-40 points, 1 BD expansion board.

Note 2: For 14-24 points, for PLC with Ethernet port, then there is no USB interface; for PLC with USB interface, there is no Ethernet port.

## ■ Introduction to product dimensions and positions of HCS2 series mainframe

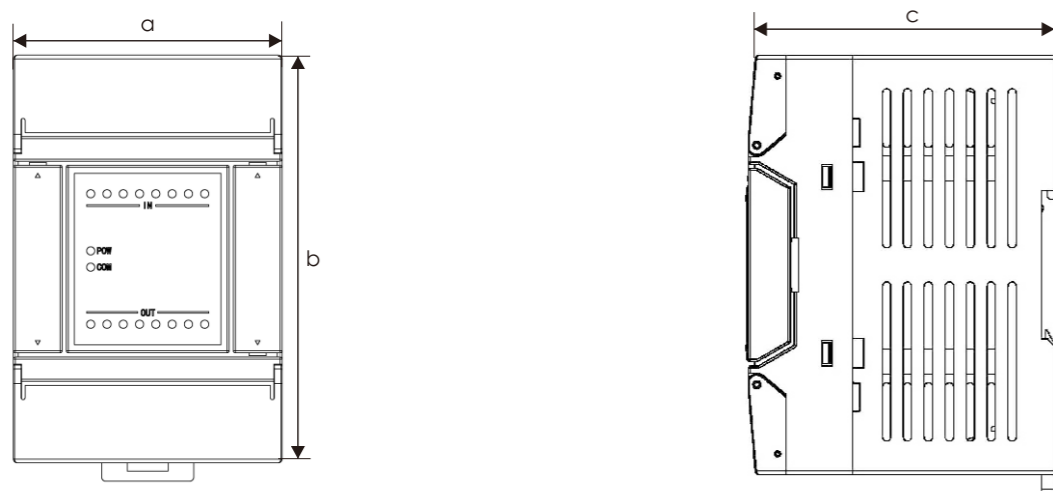


- ① Expansion interface
- ② Nameplate
- ③ Input/output terminals
- ④ DIN rail fixing buckle
- ⑤ Company's logo
- ⑥ Power, operation, error indicator light
- ⑦ Input/output indicator
- ⑧ RS232 interface
- ⑨ Machine model
- ⑩ Input/Output silkscreen name

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

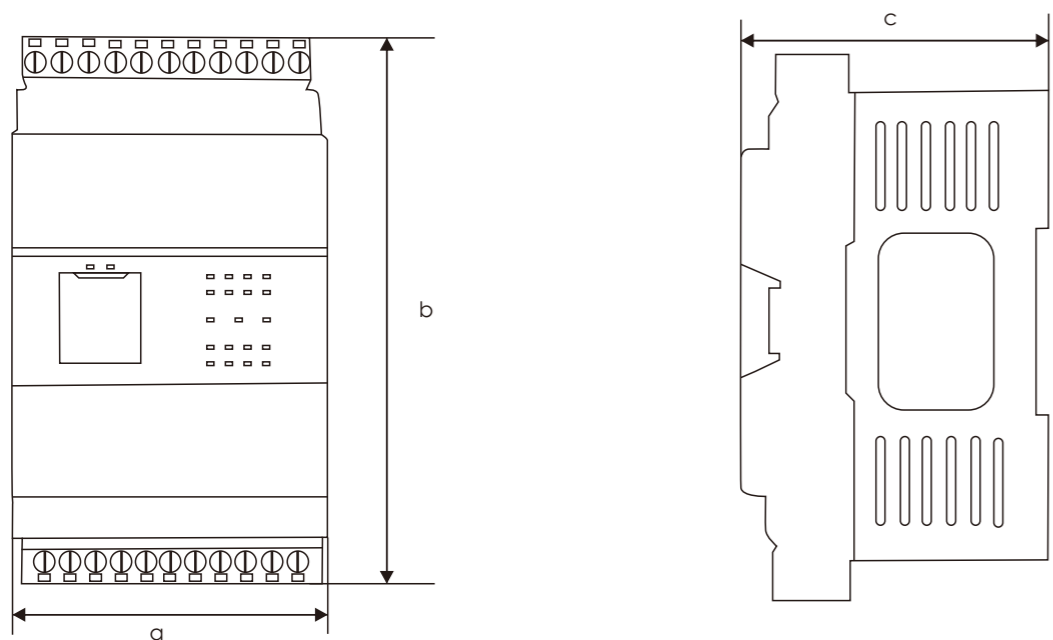
## Expansion Dimensions

### HHE Series Expansion Product Dimensions



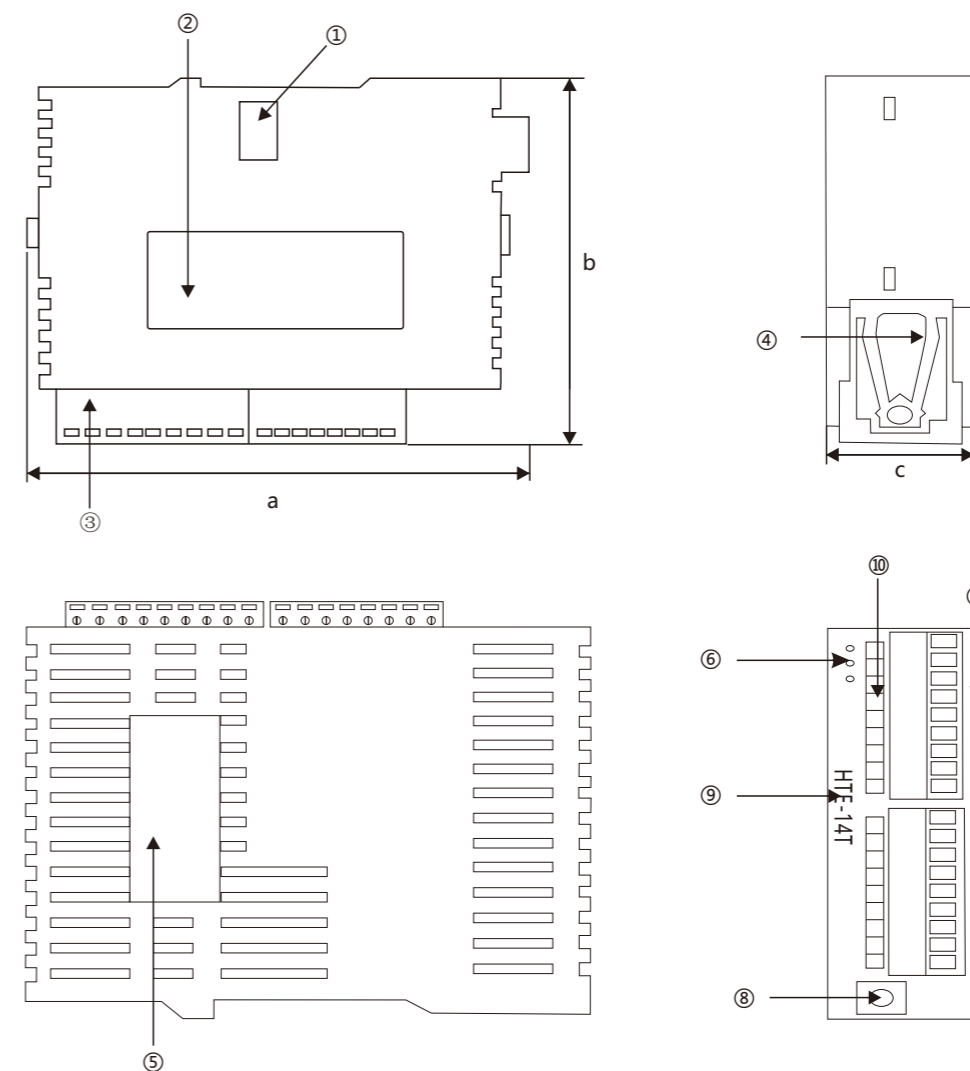
Mainframe	Size (mm)		
	a	b	c
8-16 points	66	100	73
24-40 points	114	100	73

### HSE 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, HSE-8TCY	141	110	60

### Dimensions of HTE Series Expansion



- Expansion interface
- 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

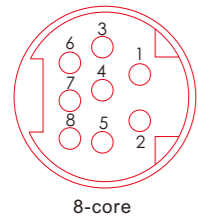
Expansion	Size (mm)		
	a	b	c
8-16 points	90	60	26

## > PLC Expansion

### LED system status self-diagnosis

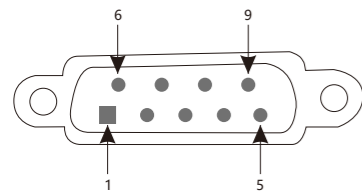
- POW (24VDC/AC220V power supply indicator light)
  - On: 24VDC/AC220V power supply is normal
  - Off: no 24VDC/AC220V power supply
- RUN (Run indicator light)
  - On: PLC program runs normally
  - Off: PLC program is not running/Insufficient voltage of DC24V (AC220V)
- COM (expansion indicator light)
  - 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



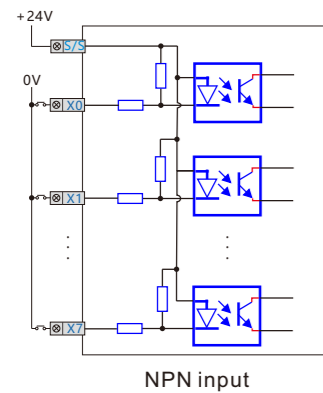
Pin number	Description	Description
5	TXD	Sending data
4	RXD	Receiving data
3	GND	Signal ground
6	GND	Signal ground
8	GND	Signal ground

### 9-pin RS232 interface diagram

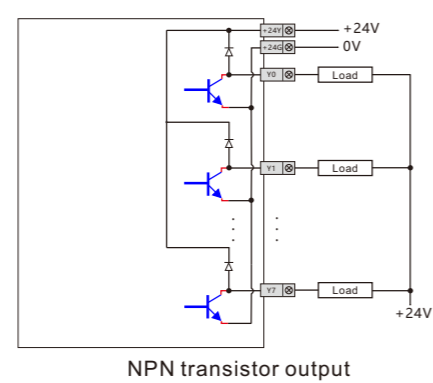


Pin number	Description	Description
2	TXD	Sending data
3	RXD	Receiving data
5	GND	Signal ground
9	GND	Signal ground

### Input wiring diagram



### Output wiring diagram

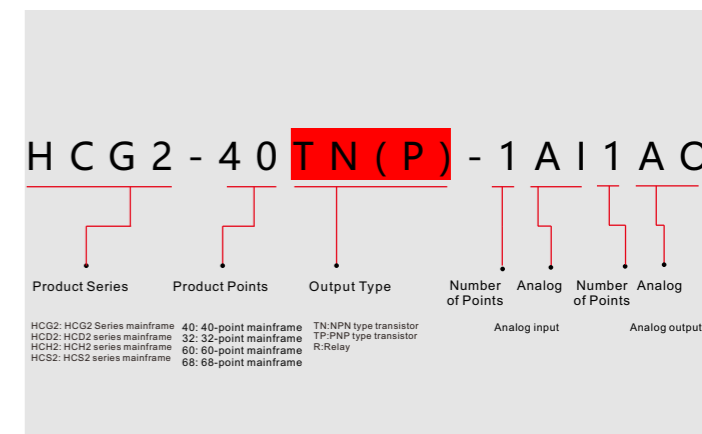
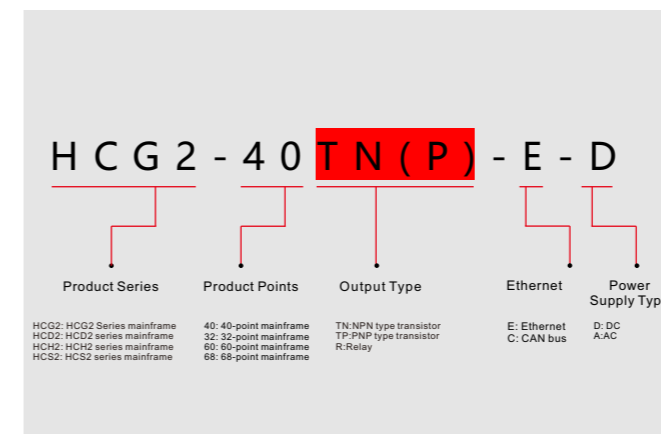
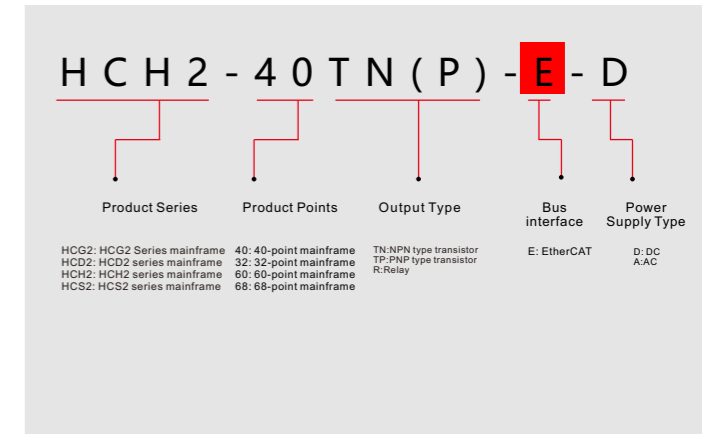
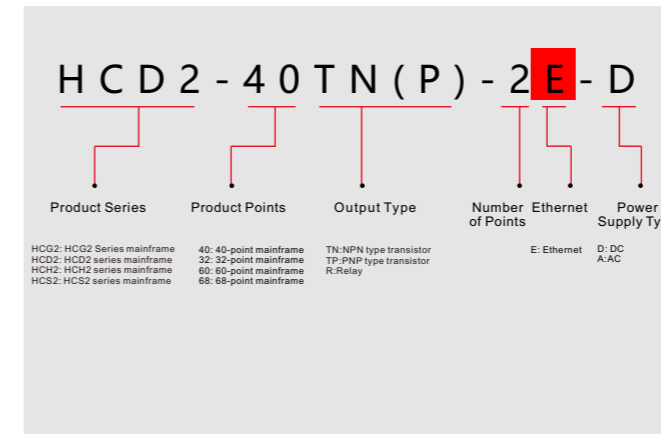


### Serial port (RS232/RS485) communication parameter specifications

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

