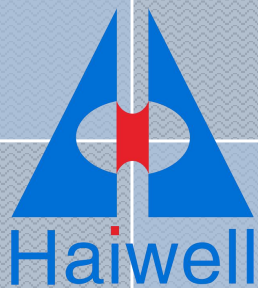


2016

# HAIWELL PLC

## Products Catalogue

THE FIRST PLC (PROGRAMMABLE LOGIC CONTROLLER) USING THE PROGRAMMING SOFTWARE WITH 100% SIMULATION IN CHINA.  
EASY TO STUDY AND EASY TO USE.



XIAMEN HAIWELL TECHNOLOGY CO., LTD.

[www.haiwell.com](http://www.haiwell.com)





**Haiwell PLC** is a versatile high-performance programmable logic controller, which is widely used in plastics, packaging, textiles, food, medical, pharmaceutical, environmental, municipal, printing, building materials, elevators, central air conditioning, numerical control machine tools and other fields of systems and control equipment. In addition to its own various peripheral interfaces (digital input, digital output, analog input, analog output, high-speed counter, high-speed pulse output channels, power supply, communication ports, etc.), it is also expandable with all types of expansion modules for flexible configuration.

Haiwell company owns the 100% independent intellectual property rights over both its hardware and software products, all products can be customized according to customer's requirements to meet the different needs of various industries.

## 7 Characteristics

- ◆ **Quality Guarantee:** In accordance with IEC-61131 international standard develop
- ◆ **Independent Property Rights:** 100% independent intellectual property rights, OEM/ODM are supported
- ◆ **Built-In Simulator:** First one built-in 100% simulator programming software, easy to study and easy to use
- ◆ **Motion Control:** Support linear interpolation, ARC interpolation, original point return, backlash compensation, electric original point redefine
- ◆ **High Openness:** Support 5 communication ports simultaneous working, may constitute N:N network
- ◆ **Communication Function:** Support Modbus RTU/ASCII, Haiwellbus high speed protocol, freedom protocol
- ◆ **Distributed IO:** Module with built-in communication port can be installed distributedly as a remote IO unit

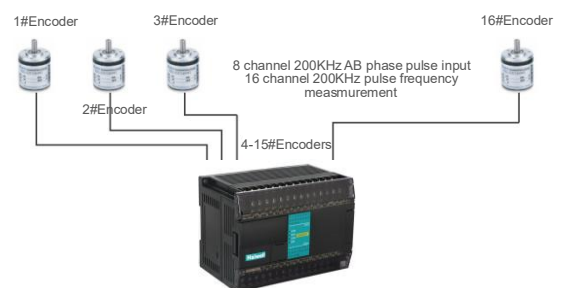
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# Haiwell PLC Features

- **The firmware upgrade function:** Taking the lead in the function of realizing firmware upgrade in a small programmable controller. You can upgrade the system firmware through the firmware upgrade function free, therefore you bought the products previously can also have new features from Haiwell company.
- **Rich network communication function:** CPU host built two communication ports, which can be expandable to five communication ports, each port can be programmed and connects to network, and all of them can be used as masters or slaves. It can support 1: N, N: 1, N: N networking and a variety of man-machine interface and configuration software. It can also connect to network with any third-party devices which have communication capabilities (such as inverters, instruments, barcode readers, etc.).
- **Supporting for multiple communication protocols:** It has internally installed Modbus RTU / ASCII protocol, free communication protocol and the Haiwellbus high-speed communication protocols of Xiamen Haiwell Technology Co., Ltd. Owing to the most convenient communication instruction system, no matter what kind of communication protocols, it only simply needs a communication instruction when dealing with complex communication functions. You will no longer troubled by the problems, such as communications port's conflicts, sending and receiving control, communications interrupt handling issues and you can use a variety of protocols to exchange data easily by mixing them up in the program.
- **High-speed pulse counting function:** Supports 8-channel duplex high-speed (200KHz) pulse counting, counting mode supports 7 kinds (pulse / direction 1 octave, pulse / direction 2 octave, forward / reverse pulse 1 octave, forward / reverse pulse 2 octave, A / B phase pulse 1 octave, A / B phase pulse 2 octave, A / B phase pulse 4 octave), and three kinds of comparisons (single-stage comparison, the absolute mode comparison, the relative mode comparison), supports 8 segments comparison fixed value, with self-learning function.
- **High-speed pulse frequency measurement:** Supports 16-channel (200KHz) high-speed pulse frequency measurement, support the ways of time or pulses to measure the frequency
- **High-speed pulse output:** Supports 8-channel duplex high-speed (200KHz) pulse output, support for acceleration and deceleration pulse output, multi-segment envelope pulse output function, a unique sync pulse output function makes it easy to achieve precise synchronization control. Stand-alone support 16-channel pulse width modulation (PWM), can drive 16 servo or stepper motors.
- **Motion control function:** Each model support for 8-channel (200KHz) motion control, supports arbitrary 2-channel linear interpolation, circular interpolation, support follower pulse output, absolute address, relative address, backlash compensation, original point return, definition of electrical origin.
- **PID control function:** support 32 channels increment PID, support 32 channels auto tuning PID and 32 channels fuzzy temperature control, work with TTC temperature curve control, VC valve control and other instructions to easily control complicated objects in the industry site.
- **Edge capture and interrupts:** CPU supports 8-channel up and down along the catch and interrupt functions, all digital inputs support signal filtering settings, all digital outputs remains set to support power output. Provide 52 real-time interrupts.
- **Powerful analog processing function:** AI register accesses the analog input directly, analog input support engineering conversion, sampling frequency settings, and zero correction. Available AQ registers control the analog output directly, analog output support engineering conversion and can be configured to maintain output.
- **Strong password protection function:** Three levels of password protection function (program files password, each block password, PLC hardware password) and prohibits the application to upload.
- Self-diagnostic function, power failure protection function, calendar (RTC), floating point operations, etc.

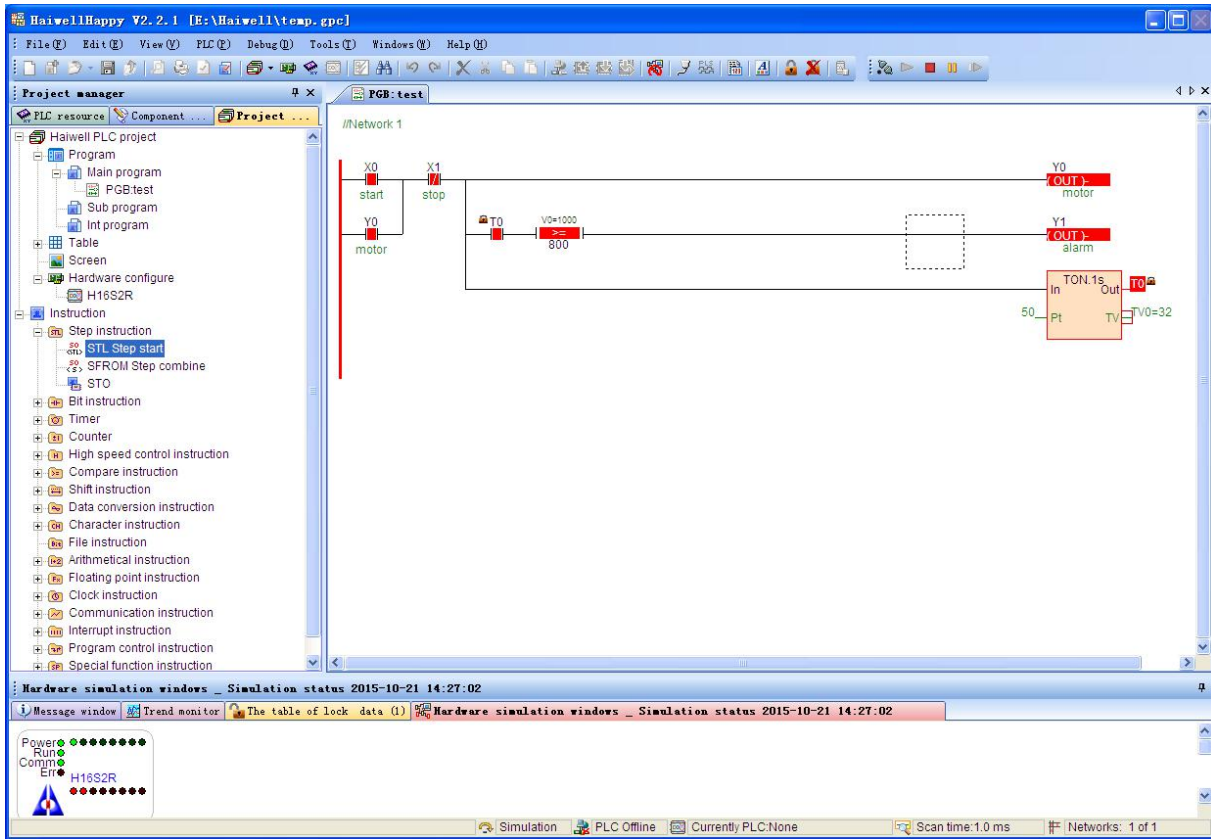
## Haiwell PLC with 16 encoders



## Haiwell PLC with 16 servos

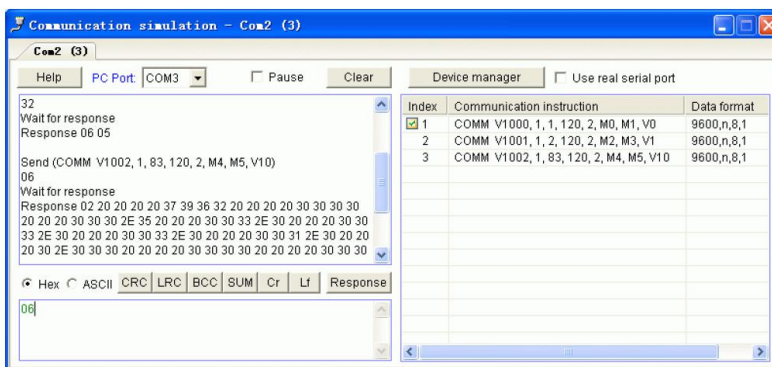


# HaiwellHappy Programming Software

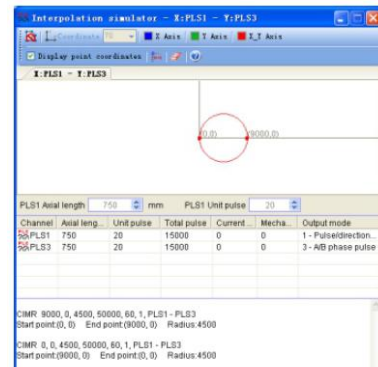


HaiwellHappy is a programming software which is in accordance with IEC 61131-3 standard. It can be used for Haiwell PLC programming. Furthermore, it supports 100% built-in simulator and three kinds of programming languages (LD-Ladder Diagram, FBD-Function Block Diagram and IL-Instruction List). It can run on the systems of Windows 98, Windows 200X, Windows XP and the later Windows version.

## Communications Simulator



## Interpolation Simulator



## HaiwellHappy Features

- **Internal PLC simulator:** Haiwell PLC programming software is the first one with internal simulator in China, realizing the PLC program run in the simulation. During programming or the programming is completed, you can run PLC program in the simulation without online to check the program execution is correct or not. It can reduce on-site commissioning time greatly, reduce debugging difficult and improve debugging efficiency.
- **Communications simulator:** It is used to the debug communication instruction simulation tools. It can be manually input simulate response message returned from slave, or you can use the computer's serial port to communicate with slave really, Simulate the process that PLC executes communication instruction really and process the return data from the slave.
- **Interpolation simulator:** Track and draw the trajectory generated from motion control instructions such as the linear interpolation, circular interpolation, listing parameters of the pulse output channel of the motive plane and corresponding to each axis, display the current position of the channel, the mechanical home position, output mode, you can set shaft length, unit pulses.
- **Function of generate PLC executable file:** PLC program can be generated to executable file which is released and executed independently. So you do not need to send the PLC program to the user, it can be very easy, very safe to put the PLC executable file to the user to download, but do not worry the user would see the program content.
- **Facilitate innovation instruction set:** On the basis of analysis and absorption of various PLC instruction, Haiwell PLC launched many powerful innovations facilitate instruction. As communication instruction (COMM, MODR, MODW, HWRD, HWWR), data portfolio diversification instruction (BUNB, BUNW, WUNW, BDIB, WDIB, WDIW), PID control (PID), valve control (VC), upper and lower alarm (HAL, LAL), range transmitter (SC), temperature curve (TTC) etc. Any one instruction can realize the function but other PLC required to multiple instructions. These instructions are very easy to understand and use, greatly improve the programming efficiency and running speed.
- **Modular project structure:** Create 31 blocks total (main program, sub program, interrupt program) and chose any programming language to program. The execution order of block can be adjusted at random. Each block can be imported and exported independently and has the same password protected of program projects. So we can fully realize the modular programming and program reuse dreams.
- **Instruction using table:** Provides multiple instruction tables. Use these tables can reduce the amount of programs, saving program space, such as initialization data. Each table can be imported and exported independently and has the same password protection of program project.
- **Powerful online features:** Search out all the PLC that connect with the PC. Show running status, fault status, RUN / STOP switch position, hardware configuration information, communication port parameters such detailed information of all the online PLC. Select any PLC for online monitoring, program download, firmware upgrade, controlling PLC stop, adjusting PLC real-time clock, modifying password protection, modifying communication port parameters, modifying the watching-dog time and PLC station names.
- **Online monitoring and debugging functions:** Provide 10 pages of component's monitoring table. It can choose in decimal, hexadecimal, binary, floating point and character to display data. Support component and register component monitoring hybridly and displaying component annotation at the same time. All instruction tables can be imported to the monitoring table.
- **Unique real-time curve function:** Monitor any of the register elements of its real-time curve, convenient to control and debug during the process.
- **Humane input:** Provide shortcuts, drag and drop, click and many other command input. Suggest effective components or range of values for each input and output terminals. It can be entered directly. Some data of combination (such as communication protocols etc.) can also double-click the instruction to configure the input data.
- **Convenient annotation:** Provide the component comment, network comment, instruction comment, block comment, table comment, and project comment. After the component with "//" to input comments directly (e.g.: X0 // motor start).Comments can choose to download to the PLC for reading or modification facilitate.
- **Detailed tips and online help:** Provide PLC resource window, instruction window, etc. All the instructions and detailed description of hardware modules can be found in powerful online help system which is open through clicking F1 key in the programming interface to find the answer. Even if use HaiwellHappy programming software for the first time who can easily complete the preparation of control program.
- **Convenient editing functions:** Support all conventional editing operations, searching and replacing, instruction up and down, network up and down, copying and pasting between program projects.
- **Hardware configuration, sub program parameter passing, local components, indirection, print, preview, debugging, CRC calculation, password protection, etc.**



# PLC Model Description

**H 32 S 2 R**



## 1 Series

- C: Economic PLC MPU
- T: Standard PLC MPU
- H: High Performance PLC MPU
- N: Motion Control PLC MPU

## 2 I/O Point

10-point、16-point、20-point、24-point、32-point、40-point、48-point and 60-point are optional

## 3 Specification

- S: Standard Digital PLC MPU

## 4 Power Specification

- 2: 220V AC
- 0: 24V DC

## 5 Output type




- R: Relay
- T: Transistor



# Model Table

Haiwell PLC main MPU have 4 series (C economic, T standard, H high-performance, N motion control)

## C Series - Economic PLC MPU

Model		Specification				Dimension
24V DC	220V AC	DI	DO	Communication	Max Module	
C10S0R	C10S2R	6	4R*	RS232 + RS485	N/A	 93×95×82mm
C10S0T	C10S2T	6	4T*	RS232 + RS485	N/A	
C16S0R	C16S2R	8	8R	RS232 + RS485	N/A	
C16S0T	C16S2T	8	8T	RS232 + RS485	N/A	
C24S0R	C24S2R	16	8R	RS232 + RS485	N/A	 131×95×82mm
C24S0T	C24S2T	16	8T	RS232 + RS485	N/A	
C32S0R	C32S2R	16	16R	RS232 + RS485	N/A	
C32S0T	C32S2T	16	16T	RS232 + RS485	N/A	
C48S0R	C48S2R	28	20R	RS232 + RS485	N/A	 177×95×82mm
C48S0T	C48S2T	28	20T	RS232 + RS485	N/A	
C60S0R	C60S2R	36	24R	RS232 + RS485	N/A	
C60S0T	C60S2T	36	24T	RS232 + RS485	N/A	

- ◆ MPU Points: 10/16/24/32/48/60;
- ◆ Program capacity: 48K steps;
- ◆ No expansion module function;
- ◆ Cost-effective, high-reliability and practical;
- ◆ AC220V or DC24V power supply;
- ◆ Use removable terminal blocks, with the rechargeable battery for saving real-time clock;
- ◆ The platform update, using ARM architecture, the processing speed increases more than 10 times;
- ◆ COM port: Built-in RS232 and RS485 ports, compatible with Modbus ASCII/RTU Protocol, Free communication Protocol and haiwellbus high speed Protocol.






## T Series - Standard PLC MPU

Model		Specification						Dimension
24V DC	220 VAC	DI	DO	Pulse Input	Pulse Output	Communication	Max Module	
T16S0R	T16S2R	8	8R*	2 Channel 200K		RS232 + RS485, Max 5 ports	7	 93×95×82mm
T16S0T	T16S2T	8	8T*	2 Channel 200K	2 Channel 200K	RS232 + RS485, Max 5 ports	7	
T24S0R	T24S2R	16	8R	2 Channel 200K		RS232 + RS485, Max 5 ports	7	 131×95×82mm
T24S0T	T24S2T	16	8T	2 Channel 200K	2 Channel 200K	RS232 + RS485, Max 5 ports	7	
T32S0R	T32S2R	16	16R	2 Channel 200K		RS232 + RS485, Max 5 ports	7	
T32S0T	T32S2T	16	16T	2 Channel 200K	2 Channel 200K	RS232 + RS485, Max 5 ports	7	
T48S0R	T48S2R	28	20R	2 Channel 200K		RS232 + RS485, Max 5 ports	7	 177×95×82mm
T48S0T	T48S2T	28	20T	2 Channel 200K	2 Channel 200K	RS232 + RS485, Max 5 ports	7	
T60S0R	T60S2R	36	24R	2 Channel 200K		RS232 + RS485, Max 5 ports	7	
T60S0T	T60S2T	36	24T	2 Channel 200K	2 Channel 200K	RS232 + RS485, Max 5 ports	7	

- ◆ MPU Points: 10/16/24/32/48/60;
- ◆ Program capacity: 48K steps;
- ◆ Expandable to Max. 7 Modules;
- ◆ AC220V or DC24V power supply;
- ◆ Use removable terminal blocks, with the rechargeable battery for saving real-time clock;
- ◆ The platform update, using ARM+FPGA architecture, the processing speed increases more than 10 times;
- ◆ 2 groups of AB phase 200KHZ pulse output; 2 channels of 200KHZ pulse input;
- ◆ COM port: Built-in RS232 and RS485 ports, compatible with Modbus ASCII/RTU Protocol, Free communication Protocol and haiwellbus high speed Protocol .




## H Series – High Performance PLC MPU

Model		Specification						Dimension
24V DC	220V AC	DI	DO	Pulse Input	Pulse Output	Communication	Max Module	
H16S0R	H16S2R	8	8R*	4 Channel 200K		RS232 + RS485, Max 5 ports	7	 93×95×82mm
H16S0T	H16S2T	8	8T*	4 Channel 200K	4 Channel 200K	RS232 + RS485, Max 5 ports	7	
H24S0R	H24S2R	12	12R	4 Channel 200K		RS232 + RS485, Max 5 ports	7	
H24S0T	H24S2T	12	12T	4 Channel 200K	4 Channel 200K	RS232 + RS485, Max 5 ports	7	
H32S0R	H32S2R	16	16R	4 Channel 200K		RS232 + RS485, Max 5 ports	7	 131×95×82mm
H32S0T	H32S2T	16	16T	4 Channel 200K	4 Channel 200K	RS232 + RS485, Max 5 ports	7	
H40S0R	H40S2R	20	20R	4 Channel 200K		RS232 + RS485, Max 5 ports	7	
H40S0T	H40S2T	20	20T	4 Channel 200K	4 Channel 200K	RS232 + RS485, Max 5 ports	7	
H60S0R	H60S2R	36	24R	4 Channel 200K		RS232 + RS485, Max 5 ports	7	 177×95×82mm
H60S0T	H60S2T	36	24T	4 Channel 200K	4 Channel 200K	RS232 + RS485, Max 5 ports	7	

- ◆ MPU Points: 16/24/32/40/60;
- ◆ Program capacity: 48K steps;
- ◆ Expandable to Max. 7 Modules;
- ◆ AC220V or DC24V power supply;
- ◆ Use removable terminal blocks and use the rechargeable battery for saving real-time clock;
- ◆ The platform update, using ARM+FPGA architecture, the processing speed increases more than 10 times;
- ◆ 4 groups of AB phase 200KHZ pulse output; 4 channels of 200KHZ pulse input;
- ◆ COM port: Built-in RS232 and RS485 ports, compatible with Modbus ASCII/RTU Protocol, up to 5 communication ports and up to 7 non-communication modules.

## N Series - Motion Control PLC MPU

Supports 2-axis linear /arc interpolation, 2-axis synchronous control, absolute address, relative address, backlash compensation, electric original point redefine etc.






Model		Specification						Dimension
24V DC	220V AC	DI	DO	Pulse Input	Pulse Output	Communication	Max Module	
N16S0T	N16S2T	8	8T*	4 Channel 200K	4 Channel 200K	RS232 + RS485, Max 5 ports	7	 93×95×82mm
N24S0T	N24S2T	12	12T	6 Channel 200K	6 Channel 200K	RS232 + RS485, Max 5 ports	7	
N40S0T	N40S2T	20	20T	8 Channel 200K	8 Channel 200K	RS232 + RS485, Max 5 ports	7	 131×95×82mm
N60S0T	N60S2T	36	24T	8 Channel 200K	8 Channel 200K	RS232 + RS485, Max 5 ports	7	 177×95×82mm

- ◆ MPU Points: 16/24/40/60;
- ◆ Program capacity: 48K steps;
- ◆ Expandable to Max. 7 Modules;
- ◆ AC220V or DC24V power supply;
- ◆ Use removable terminal blocks & the rechargeable battery for saving real-time clock;
- ◆ **Support linear/arc interpolation, Synchronism pulse output;**
- ◆ The platform update, using ARM+FPGA architecture, the processing speed increases more than 10 times;
- ◆ **Support absolute address、 relative address; Support backlash compensation、 electric original point redefine etc;**
- ◆ 8 groups of AB phase 200KHZ pulse output; 8 channels of 200KHZ pulse input ;
- ◆ COM port: Bulit-in RS232 and RS485 ports, compatible with Modbus ASCII/RTU Protocol, up tp 5 communication ports and up to 7 non-communication modules .

# Haiwell PLC expansion Modules




Built-in RS485 Communication port, support remote I/O function.

## Digital I/O expansion Modules

Model		Specification			Dimension
24V DC	220V AC	DI	DO	Communication	
H08DI		8			 30×95×82mm
H08DOR			8R*		
H08DOT			8T*		
H08XDR		4	4R		
H08XDT		4	4T		
H16DI		16		RS485,support remote function	 70×95×82mm
H16DOR			16R	RS485,support remote function	
H16DOT			16T	RS485,support remote function	
H16XDR		8	8R	RS485,support remote function	
H16XDT		8	8T	RS485,support remote function	
H24DI	H24DI2	24		RS485,support remote function	 93×95×82mm
H24XDR	H24XDR2	12	12R	RS485,support remote function	
H24XDT	H24XDT2	12	12T	RS485,support remote function	
H40DI	H40DI2	40		RS485,support remote function	 131×95×82mm
H36DOR	H36DOR2		36R	RS485,support remote function	
H36DOT	H36DOT2		36T	RS485,support remote function	
H40XDR	H40XDR2	20	20R	RS485,support remote function	
H40XDT	H40XDT2	20	20T	RS485,support remote function	
H64XDR	H64XDR2	32	32R	RS485,support remote function	 177×95×82mm
H64XDT	H64XDT2	32	32T	RS485,support remote function	



- ◆ MPU Points: 8/16/24/36/40/64;
- ◆ It can be used as expansion module for any haiwell plc;
- ◆ 8-point, 16-point digital modules only support DC24V, digital modules with more than 16-point support both DC24V and 220VAC power supply;
- ◆ Digital modules with more than 8-point have RS485 port, support stand-alone use and can also be used for Remote IO.

## Analog I/O expansion Modules

Model		Specification				Dimension
24V DC	220V AC	AI	AO	Conversion Accuracy	Communication	
H04DT		4 Channel DS18B20 temperature		9~12 bits		 30×95×82mm
H32DT		32 Channel DS18B20 temperature		9~12 bits	RS485, support remote function	
S04AI	S04AI2	4		12 bits	RS485, support remote function	 70×95×82mm
S04AO	S04AO2		4	12 bits	RS485, support remote function	
S04XA	S04XA2	2	2	12 bits	RS485, support remote function	
H04RC	H04RC2	4 thermal resistance		16 bits	RS485, support remote function	
H04TC	H04TC2	4 thermocouple		16 bits	RS485, support remote function	
H08TC	H08TC2	8 thermocouple		16 bits	RS485, support remote function	
S08AI	S08AI2	8		12 bits	RS485, support remote function	
S08AO	S08AO2		8	12 bits	RS485, support remote function	
S08XA	S08XA2	4	4	12 bits	RS485, support remote function	 93×95×82mm
H08RC	H08RC2	8 thermal resistance		16 bits	RS485, support remote function	


- ◆ This series consists of 22 models , including analog , thermal resistance, thermocouple and DS18B20 temperature sensor module, with 4-point,8-point and 32-point;
- ◆ It can be used as expansion module for any Haiwell plc host;
- ◆ Modules with RS485 port can be use as remote I/O;
- ◆ Power supply: internal DC24V or external 220VAC optional;
- ◆ AI, AO supports 6 kinds of signal types: [4,20]mA, [1,5]V, [0,20]mA, [0,5]V, [0,10]V, [-10,10]V;
- ◆ Thermal Resistance kinds: PT100,PT1000, Cu50,Cu100;
- ◆ Thermocouple kinds: S, K, T, E, J, B, N, R, Wre3/25, Wre5/26, [0,20]mV, [0,50]mV, [0,100]mV.

## Communication expansion Modules

Model	Specification	Dimension
S01RS	With isolation ,1 RS232/RS485 communication port, Modbus RTU/ASCII protocol, freedom communication protocol, Haiwellbus high speed communication protocol, Baud rate 1200~57600bps	 30×95×82mm
S01GL	With isolation ,Modbus RTU/ASCII protocol, freedom communication protocol, Haiwellbus high speed communication protocol, Baud rate 1200~115200bps	
H01ZB	Zigbee wireless communication	
PC2ZB	PC to Zigbee module	 48x70x24mm

- ◆ This series consists of 4 models , communication port expansion module and the wireless communication module ;
- ◆ Power supply: internal DC24V;
- ◆ Baud rate 1200~115200bps, master/slave mode can be used well;
- ◆ Support Modbus RTU/ASCII protocol, free communication protocol, HaiwellBus high-speed communication protocol;
- ◆ It can be used as expansion module for any host, except C series PLC, increasing the number of communication ports;
- ◆ Single communication port module can be extended to two or three communication ports, RS485/RS232 port optionally.

## Accessories

Model	Specification	Dimension
ACA20	RS232 programming cable (DB9, length 2 meters)	 2.0m



# Specification

## Haiwell PLC Specification

Item		Specification	Declare
Program control model		Cycle scan model	
Input/output (I/O) control model		Refresh once each cycle scan, support immediately refresh instruction (MPU and expansion module)	
Execution speed of instruction		0.05us/basic instruction	
Program language		LD(ladder) + FBD(function block) + IL( instruction list)	Accord with IEC 61131-3
Program capacity		48K	
Storage way		Flash ROM permanent storage, dispense with backup battery	
X	External input	X0~X1023	Support edge catch and signal filtering set
Y	External output	Y0~Y1023	Power-off preserve output can be configured
M	Auxiliary relay	M0~ M12287	Power-off preserve area can be set freedom
		(default power-off preserve)M1536~M2047	
T	Timer(output coil)	T0~T1023	Power-off preserve area can be set freedom, time base: 10ms, 100ms, 1s be set freedom,T252~T255 1ms
		(default power-off preserve)T96~T127	
C	Counter(output coil)	C0~C255	Power-off preserve area can be set freedom
		(default power-off preserve)C64~C127	
S	Step state bits	S0~S2047	Power-off preserve area can be set Freedom
		(default power-off preserve)S156~S255	
SM	System state bits	SM0~SM215	
LM	Local relay	LM~LM31	
AI	Analog input register	AI0~AI255	Support quantities convert, sample times and zero point correct
AQ	Analog output register	AQ0~AQ255	Support quantities convert, power-off preserve output can be configured
V	Internal data register	V0~V14847	power-off preserve area can be set freedom
		(default power-off preserve)V1000~V2047	
TV	Timer(Current value register)	TV0~TV1023	Power-off preserve area can be set freedom, time base: 10ms, 100ms, 1s can be set freedom,T252~T255 1ms
		(default power-off preserve)TV96~TV127	
CV	Counter(Current value register)	CV0~CV255	Power-off preserve area can be set freedom,CV48~CV79 are 32 bits, Other are 16 bits
		(default power-off preserve)CV64~CV127	
SV	System register	SV0~SV900	
Lv	Local Register	Lv0~Lv31	

Item		Specification	Declare
P	Indexed addressing point	P0~P29 ,use for indirect addressing	
I	Interrupt	I1-I52	
LBL	Lable	255,use for program skip	
Constant	10 Decimal	-32768~+32767(16 bits),-2147483648~+2147483647(32 bits)	
	16 Hexadecimal	0000~FFFF(16 bits),00000000~FFFFFFFF(32 bits )	
Communication port		MPU built-in 2 communication port(RS232/RS485) ,Max 5 communication port (RS232/RS485) expansion	can be program or networking(master/slave)
Communication protocol		Modbus RTU/ASCII protocol, freedom communication protocol, Haiwellbus speed communication protocol, Baud rate 1200~115200bps	
PLC network capacity		PLC communication address can be set external set, Max 254,support 1: N, N: 1, N: N network	
Real time clock(RTC)		Display: year/month/day/hour/minute/second/week	built-in battery
High speed counter		8 Channel, 200K	Have teaching function,7 counting model: 1 - pulse/direction 1 times,2 - pulse/direction 2 times,3 - positive/reversal pulse 1 times,4 - positive/reversal pulse 2 times,5 - A/B phase pulse 1 times,6 - A/B phase pulse 2 times,7 - A/B phase pulse 4 times
High speed pulse output		8 Channel, 200K	5 output models: 1 - single pulse output,2 - pulse/direction output,3 - positive/reversal pulse output,4 - A/B phase pulse output,5 - Synchronism pulse output
Float point arithmetic instruction		support within 32 bits float point arithmetic, integer/float point convert arithmetic	
Password protect		Support three level password protect function(program file password, program block password, PLC hardware password) and upload prohibited function	

## Power Specification

Item		AC Supply	DC Supply
Input power supply		AC85~265V	DC24V -15%~+20%
Power supply frequency		50~60Hz	---
Instant surge		MAX 20A 1.5ms @220VAC	MAX 20A 1.5ms @24VDC
Power output		MAX 25VA	---
Permit Power supply lost		20ms within @220VAC	10ms within
Fuse capacity		2A,250V	2A,250V
Action (working) specification		When input power voltage rise to 95~100VAC, PLC will be run, when input power voltage drop down to 70VAC, PLC will be stopped.	---
Output power supply	5VDC for CPU	5V,-2%~+2%,1.2A(maximum)	5V,-2%~+2%,1.2A(maximum)
	24VDC power supply for output and expansion modules	24V,-15%~+15%,500 mA(maximum)	24V,-15%~+15%,500mA(maximum)
	24VDC power supply for input and external device	24V,-15%~+15%,300mA(maximum)	Direct use the 24VDC input power supply
Isolation model		Transformer/photo electricity isolation,1500VAC/1 minute	No electrical isolation
Protect the power supply		DC24V output over the limit of the current	DC power input polar against, over voltage

## Product Environment Specification

Item	Environment Specification
Temperature/Humidity	Working temperature: 0 ~ + 55 °C storage temperature: - 25 ~ + 70 °C and humidity: 5 ~ 95% RH, no condensation
Anti vibration	10~57Hz range 0.075mm,57Hz~150Hz acceleration 1G,X, Y, Z three axis 10 times each direction
Anti shock	15G,continue 11ms,X, Y, Z three axis 6 times each direction
Anti jamming	AC EFT: ± 2500V, surge: ± 2500V, DC EFT: ±2500V, surge: ±1000V
Over voltage capability	Between AC terminal and PE terminal 1500VAC,1min,Between DC terminal and PE terminal 500VAC,1min
Insulation impedance	Between AC terminal and PE terminal@500VDC,>=5MΩ(Between all input/output terminal and PE terminal@500VDC)
Earth	The third grounding(Cannot connect to the strong power system's earth)
Operation environment	Operated where no dust, moisture, corrosion, electrical shock and physical shock ,etc.

## Digital Input (DI) Specification

Item	Digital Input DI
Input signal	Non-voltage contact or NPN/PNP contact
Action driving	ON: 3.5 mA above OFF: below 1.5 mA
Input impedance	About 4.3KΩ
Input maximum current	10mA
Response time	Default 6.4ms,Configurable 0.8~51.2ms
Isolation mode	Each Channel optical isolation
Input indication	LED light means ON, dark means OFF
Power supply	PLC internal power supply: DC power(sink or source)5.3mA@24VDC

## Digital Output (DO) Specification

Item		Relay Output-R	Transistor Output NPN-T
maximum load	Resistance load	2A/1 point,8A/4 point per COM	0.5A/1 point,2A/4 point per COM
	Inductive load	50VA	5W/DC24V
	Light load	100W	12W/DC24V
Min. load		10mA	2mA
Voltage specification		Below 250VAC,30VDC	30VDC
Drive capability		Maximum 5A/250VAC	MAX 1A 10S
Response time		Off-on 10ms,On-off 5ms	Off→On 10us, On→Off 120us
Leakage current when route opened		---	Below 0.1mA
Isolation mode		Mechanical isolation	Each Channel optical isolation
Output indication		LED light means ON , dark means OFF	
Power supply		PLC internal power supply 24VDC	

## Analog Input (AI) Specification

Item	Voltage Input				Current Input		RTD Input	Thermocouple Input
	-10V~+10V	0V~+10V	0V~+5V	1V~+5V	0~20mA	4~20mA		
Input range	-10V~+10V	0V~+10V	0V~+5V	1V~+5V	0~20mA	4~20mA	Pt100, Pt1000, Cu50, Cu100	S, K, T, E, J, B, N, R, Wre3/25, Wre5/26, [0-20]mV, [0-50]mV, [0-100]mV
Resolution	5mV	2.5mV	1.25mV	1.25mV	5uA	5uA	0.1℃	0.1℃
Input impedance	6MΩ				250Ω		6MΩ	6MΩ
Max input range	±13V				±30mA			±5V
Input indication	LED light means normal , dark means break OFF							
Response time	5ms/4 Channel						560ms/4 Channel ,880ms/8 Channel	
Digital input range	12 bits, Code range: 0~32000(H series module 16 bits A/D convert)						16 bits, Code range: 0~32000	
Precision	0.2% F.S						0.1% F.S	
Power supply	MPU use internal power supply, expansion module use external power supply 24VDC ±10% 5VA							
Isolation mode	Opto-electric isolation, Non-isolation between Channel ,between analog and digital is opto-electric isolation							
Power consumption	24VDC ±20%,100mA(Max)						24VDC ±20%,50mA(Max)	

## Analog Output (AO) Specification

Item	Voltage Output				Current Output	
	-10V~+10V	0V~ +10V	0V~+5V	1V~+5V	0~20mA	4~20mA
Output range	-10V~+10V	0V~ +10V	0V~+5V	1V~+5V	0~20mA	4~20mA
Resolution	5mV	2.5mV	1.25mV	1.25mV	5uA	5uA
Output load impedance	1KΩ@10V		≥500Ω@ 5V		≤500Ω	
Output indication	LED light means normal					
Drive capability	10mA					
Response time	3ms					
Digital output range	12 bits, Code range: 0~32000(H series module 16 bits D/A convert)					
Precision	0.2% F.S					
Power supply	MPU use internal power supply, expansion module use external power supply 24VDC ±10% 5VA					
Isolation mode	Opto-electric isolation, Non-isolation between Channel ,between analog and digital is opto-electric isolation					
Power consumption	24VDC ±20%,100mA(Max)					

# Expansion Modules Parameter

## 4 Channel Analog Modules Parameter Table

Note: CR number corresponding the Modbus register address, the grey parts are read-only, the white parts are readable and writable.

CR Number	Function Declare				
	S04AI	S04AO	S04XA	H04RC	H04TC
00H	The low byte is the module code, and the high byte is the module version number.				
01H	Communication address				
02H	Communication protocol: The low 4-bit of the low byte: 0 - N,8, 2 For RTU, 1 - E,8,1 For RTU, 2 - O,8,1 For RTU, 3 - N,7,2 For ASCII, 4 - E,7,1 For ASCII, 5 - O,7,1 For ASCII, 6 - N,8, 1 For RTU The high 4-bit of the low byte: 0 - 2400, 1 - 4800, 2 - 9600, 3 - 19200, 4 - 38400, 5 - 57600, 6 - 115200				
03H~06H	Extend module name				
07H~08H	Default IP address: 192.168.0.88				
09~0AH	Reserve				
0BH	High byte subnet mask (b3~b0,1 indicates 255, 0 indicates 0, for example subnet mask 255.255.255.0, b3~b0=1110), low byte reserved				
0CH~0EH	Reserve				
0FH	Error code: 0-Normal, 1-Illegal firmware identity, 2-Incomplete firmware, 3-System data access exception, 4-No external 24V power supply				
10H	The input value of channel 1	The output value of channel 1	The input value of channel 1	The input value of channel 1	The input value of channel 1
11H	The input value of channel 2	The output value of channel 2	The input value of channel 2	The input value of channel 2	The input value of channel 2
12H	The input value of channel 3	The output value of channel 3	The signal type of input channel 1, note 2	The input value of channel 3	The input value of channel 3
13H	The input value of channel 4	The output value of channel 4	The signal type of input channel 2, note 2	The input value of channel 4	The input value of channel 4
14H	The signal type of channel 1, note 2	The signal type of channel 1, note 2	Use the engineering value mark, note 6	The signal type of channel 1, note 3	The signal type of channel 1, note 4
15H	The signal type of channel 2, note 2	The signal type of channel 2, note 2	The lower limit in engineering value of input channel 1	The signal type of channel 2, note 3	The signal type of channel 2, note 4
16H	The signal type of channel 3, note 2	The signal type of channel 3, note 2	The lower limit in engineering value of input channel 2	The signal type of channel 3, note 3	The signal type of channel 3, note 4
17H	The signal type of channel 4, note 2	The signal type of channel 4, note 2	The upper limit in engineering value of input channel 1	The signal type of channel 4, note 3	The signal type of channel 4, note 4
18H	Use the engineering value mark, note 6	Use the engineering value mark, note 6	The upper limit in engineering value of input channel 2	Use the engineering value mark, note 6	Use the engineering value mark, note 6
19H	The lower limit in engineering value of channel 1	The lower limit in engineering value of channel 1	The sampling frequency of input channel 1	The lower limit in engineering value of channel 1	The lower limit in engineering value of channel 1
1AH	The lower limit in engineering value of channel 2	The lower limit in engineering value of channel 2	The sampling frequency of input channel 2	The lower limit in engineering value of channel 2	The lower limit in engineering value of channel 2
1BH	The lower limit in engineering value	The lower limit in engineering value	zero point correction value of input	The lower limit in engineering value of	The lower limit in engineering value of



	of channel 3	of channel 3	channel 1	channel 3	channel 3
1CH	The lower limit in engineering value of channel 4	The lower limit in engineering value of channel 4	zero point correction value of input channel 2	The lower limit in engineering value of channel 4	The lower limit in engineering value of channel 4
1DH	The upper limit in engineering value of channel 1	The upper limit in engineering value of channel 1	Channel 1~2 input disconnection alarm, note 5	The upper limit in engineering value of channel 1	The upper limit in engineering value of channel 1
1EH	The upper limit in engineering value of channel 2	The upper limit in engineering value of channel 2	The output value of output channel	The upper limit in engineering value of channel 2	The upper limit in engineering value of channel 2
1FH	The upper limit in engineering value of channel 3	The upper limit in engineering value of channel 3	The output value of channel 2	The upper limit in engineering value of channel 3	The upper limit in engineering value of channel 3
20H	The upper limit in engineering value of channel 4	The upper limit in engineering value of channel 4	The signal type of output channel 1, note 2	The upper limit in engineering value of channel 4	The upper limit in engineering value of channel 4
21H	The sampling frequency of channel 1, note 1	Power-off output mark, note 8	The signal type of output channel 2, note 2	The sampling frequency of channel 1, note 1	The sampling frequency of channel 1, note 1
22H	The sampling frequency of channel 2, note 1	The power-off output value of channel 1	Use the engineering value mark, note 6	The sampling frequency of channel 2, note 1	The sampling frequency of channel 2, note 1
23H	The sampling frequency of channel 2, note 1	The power-off output value of channel 2	The lower limit in engineering value of output channel 1	The sampling frequency of channel 3, note 1	The sampling frequency of channel 3, note 1
24H	The sampling frequency of channel 2, note 1	The power-off output value of channel 3	The lower limit in engineering value of output channel 2	The sampling frequency of channel 4, note 1	The sampling frequency of channel 4, note 1
25H	The zero point correction value of channel 1	The power-off output value of channel 4	The upper limit in engineering value of output channel 1	The zero point correction value of channel 1	The zero point correction value of channel 4
26H	The zero point correction value of channel 1	Channel indicator status, note 7	The upper limit in engineering value of output channel 2	The zero point correction value of channel 2	The zero point correction value of channel 2
27H	The zero point correction value of channel 3	Reserve	The power-off output mark, note 8	The zero point correction value of channel 3	The zero point correction value of channel 3
28H	The zero point correction value of channel 4		The power-off output value of output channel 1	The zero point correction value of channel 4	The zero point correction value of channel 4
29H	Channel 1~4 input disconnection alarm, note 5		The power-off output value of output channel 2	Channel 1~4 input disconnection alarm, note 5	Channel 1~4 input disconnection alarm, note 5
2AH	Reserve		The output channel indicator, note 7	Reserve	Reserve
2BH~2FH			Reserve		

**Note:**

- Sampling frequency: 0 - 2 times、1 - 4 times、2 - 8 times、3 - 16 times、4 - 32 times、5 - 64 times、6 - 128 times、7 - 256 times
- Signal type: 0 - [4,20]mA、1 - [0,20]mA、2 - [1,5]V、3 - [0,5]V、4 - [0,10]V、5 - [-10,10]V
- The signal type of thermal resistance: 0 - Pt100、1 - Pt1000、2 - Cu50、3 - Cu100
- The signal type of thermocouple: 0 - S、1 - K、2 - T、3 - E、4 - J、5 - B、6 - N、7 - R、8 - Wre3/25、9 - Wre5/26、10 - [0,20]mV、11 - [0,50]mV、12 - [0,100]mV
- Disconnection alarm: Each bit indicates 1 channel, 0-normal, 1-disconnection
- Use the engineering value mark: Each bit indicates 1 channel, 0-No, 1-Yes
- Channel indicator status: Each bit indicates 1 channel, 0-off, 1-on
- Power-off output mark: Each bit indicates 1 channel, 0-No, 1-Yes
- The output flag while power supply lost: each bits signify 1 Channel, 0-No, 1-Yes

## 8 Channel Analog Modules Parameter Table

Note: CR number corresponding the Modbus register address, the grey parts are read-only, the white parts are readable and writable.

CR Number	Function Declare				
	S08AI	S08AO	S08XA	H08RC	H08TC
00H	The low byte is the module code, and the high byte is the module version number.				
01H	Communication address				
02H	Communication protocol: The low 4-bit of the low bytes: 0 - N,8,2 For RTU, 1 - E,8,1 For RTU, 2 - O,8,1 For RTU, 3 - N,7,2 For ASCII, 4 - E,7,1 For ASCII, 5 - O,7,1 For ASCII, 6 - N,8, 1 For RTU The high 4-bit of the low bytes: 0 – 2400, 1 – 4800, 2 – 9600, 3 – 19200, 4 – 38400, 5 – 57600, 6 - 115200				
03H~06H	Extend module name				
07H~08H	Default IP address: 192.168.0.88				
09~0AH	Reserve				
0BH	High byte subnet mask(b3~b0,1 indicates 255,0 indicates 0 , for example, subnet mask 255.255.255.0, b3~b0=1110), low byte Reserved				
0CH~0EH	Reserve				
0FH	Error code: 0-Normal, 1-Illegally firmware identity, 2-Incomplete firmware, 3-System data access exception, 4-No external 24V power supply				
10H	The input value of channel 1	The output value of channel 1	The input value of channel 1	The input value of channel 1	The input value of channel 1
11H	The input value of channel 2	The output value of channel 2	The input value of channel 2	The input value of channel 2	The input value of channel 2
12H	The input value of channel 3	The output value of channel 3	The input value of channel 3	The input value of channel 3	The input value of channel 3
13H	The input value of channel 4	The output value of channel 4	The input value of channel 4	The input value of channel 4	The input value of channel 4
14H	The input value of channel 5	The output value of channel 5	The signal type of input channel 1, note 2	The input value of channel 5	The input value of channel 5
15H	The input value of channel 6	The output value of channel 6	The signal type of input channel 2, note 2	The input value of channel 6	The input value of channel 6
16H	The input value of channel 7	The output value of channel 7	The signal type of input channel 3, note 2	The input value of channel 7	The input value of channel 7
17H	The input value of channel 8	The output value of channel 8	The signal type of input channel 4, note 2	The input value of channel 8	The input value of channel 8
18H	The signal type of channel 1, note 2	The signal type of channel 1, note 2	Use the engineering value mark, note 6	The signal type of channel 1, note 3	The signal type of channel 1, note 4
19H	The signal type of channel 2, note 2	The signal type of channel 2, note 2	The lower limit in engineering value of input channel 1	The signal type of channel 2, note 3	The signal type of channel 2, note 4
1AH	The signal type of channel 1, note 2	The signal type of channel 1, note 2	The lower limit in engineering value of input channel 2	The signal type of channel 3, note 3	The signal type of channel 3, note 4
1BH	The signal type of channel 4, note 2	The signal type of channel 4, note 2	The lower limit in engineering value of input channel 3	The signal type of channel 4, note 3	The signal type of channel 4, note 4
1CH	The signal type of channel 5, note 2	The signal type of channel 5, note 2	The lower limit in engineering value of input channel 4	The signal type of channel 5, note 3	The signal type of channel 5, note 4

1DH	The signal type of channel 6, note 2	The signal type of channel 6, note 2	The upper limit in engineering value of input channel 1	The signal type of channel 6, note 3	The signal type of channel 6, note 4
1EH	The signal type of channel 7, note 2	The signal type of channel 7, note 2	The upper limit in engineering value of input channel 2	The signal type of channel 7, note 3	The signal type of channel 7, note 4
1FH	The signal type of channel 8, note 2	The signal type of channel 8, note 2	The upper limit in engineering value of input channel 3	The signal type of channel 8, note 3	The signal type of channel 8, note 4
20H	Use the engineering value mark, note 6	Use the engineering value mark, note 6	The upper limit in engineering value of input channel 4	Use the engineering value mark, note 6	Use the engineering value mark, note 6
21H	The lower limit in engineering value of channel 1	The lower limit in engineering value of channel 1	The sampling frequency of input channel 1, note 1	The lower limit in engineering value of channel 1	The lower limit in engineering value of channel 1
22H	The lower limit in engineering value of channel 2	The lower limit in engineering value of channel 2	The sampling frequency of input channel 2, note 1	The lower limit in engineering value of channel 2	The lower limit in engineering value of channel 2
23H	The lower limit in engineering value of channel 3	The lower limit in engineering value of channel 3	The sampling frequency of input channel 3, note 1	The lower limit in engineering value of channel 3	The lower limit in engineering value of channel 3
24H	The lower limit in engineering value of channel 4	The lower limit in engineering value of channel 4	The sampling frequency of input channel 4, note 1	The lower limit in engineering value of channel 4	The lower limit in engineering value of channel 4
25H	The lower limit in engineering value of channel 5	The lower limit in engineering value of channel 5	The zero point correction value of input channel 1	The lower limit in engineering value of channel 5	The lower limit in engineering value of channel 5
26H	The lower limit in engineering value of channel 6	The lower limit in engineering value of channel 6	The zero point correction value of input channel 2	The lower limit in engineering value of channel 6	The lower limit in engineering value of channel 6
27H	The lower limit in engineering value of channel 7	The lower limit in engineering value of channel 7	The zero point correction value of input channel 3	The lower limit in engineering value of channel 7	The lower limit in engineering value of channel 7
28H	The lower limit in engineering value of channel 8	The lower limit in engineering value of channel 7	The zero point correction value of input channel 4	The lower limit in engineering value of channel 8	The lower limit in engineering value of channel 8
29H	The upper limit in engineering value of channel 1	The upper limit in engineering value of channel 1	Channel 1~4 input disconnection alarm, note 5	The upper limit in engineering value of channel 1	The upper limit in engineering value of channel 1
2AH	The upper limit in engineering value of channel 2	The upper limit in engineering value of channel 2	The output value of output channel 1	The upper limit in engineering value of channel 2	The upper limit in engineering value of channel 2
2BH	The upper limit in engineering value of channel 3	The upper limit in engineering value of channel 3	The output value of output channel 2	The upper limit in engineering value of channel 3	The upper limit in engineering value of channel 3
2CH	The upper limit in engineering value of channel 4	The upper limit in engineering value of channel 4	The output value of output channel 3	The upper limit in engineering value of channel 4	The upper limit in engineering value of channel 4
2DH	The upper limit in engineering value of channel 5	The upper limit in engineering value of channel 5	The output value of output channel 4	The upper limit in engineering value of channel 5	The upper limit in engineering value of channel 5

2EH	The upper limit in engineering value of channel 6	The upper limit in engineering value of channel 1	The signal type of output channel 1, note 2	The upper limit in engineering value of channel 6	The upper limit in engineering value of channel 6
2FH	The upper limit in engineering value of channel 7	The upper limit in engineering value of channel 7	The signal type of output channel 2, note 2	The upper limit in engineering value of channel 7	The upper limit in engineering value of channel 7
30H	The upper limit in engineering value of channel 8	The upper limit in engineering value of channel 1	The signal type of output channel 3, note 2	The upper limit in engineering value of channel 8	The upper limit in engineering value of channel 8
31H	The sampling frequency of channel 1, note 1	Power-off output mark, note 8	The signal type of output channel 4, note 2	The sampling frequency of channel 1, note 1	The sampling frequency of channel 1, note 1
32H	The sampling frequency of channel 2, note 1	The power-off output value of channel 1	Use the engineering value mark, note 6	The sampling frequency of channel 2, note 1	The sampling frequency of channel 2, note 1
33H	The sampling frequency of channel 3, note 1	The power-off output value of channel 2	The lower limit in engineering value of output channel 1	The sampling frequency of channel 3, note 1	The sampling frequency of channel 3, note 1
34H	The sampling frequency of channel 4, note 1	The power-off output value of channel 3	The lower limit in engineering value of output channel 2	The sampling frequency of channel 4, note 1	The sampling frequency of channel 4, note 1
35H	The sampling frequency of channel 5, note 1	The power-off output value of channel 4	The lower limit in engineering value of output channel 3	The sampling frequency of channel 5, note 1	The sampling frequency of channel 5, note 1
36H	The sampling frequency of channel 6, note 1	The power-off output value of channel 5	The lower limit in engineering value of output channel 4	The sampling frequency of channel 6, note 1	The sampling frequency of channel 6, note 1
37H	The sampling frequency of channel 7, note 1	The power-off output value of channel 6	The upper limit in engineering value of output channel 1	The sampling frequency of channel 7, note 1	The sampling frequency of channel 7, note 1
38H	The sampling frequency of channel 8, note 1	The power-off output value of channel 7	The upper limit in engineering value of output channel 2	The sampling frequency of channel 8, note 1	The sampling frequency of channel 8, note 1
39H	The zero point correction value of channel 1	The power-off output value of channel 8	The upper limit in engineering value of output channel 3	The zero point correction value of channel 1	The zero point correction value of channel 1
3AH	The zero point correction value of channel 2	Channel indicator status, note 7	The upper limit in engineering value of output channel 4	The zero point correction value of channel 2	The zero point correction value of channel 2
3BH	The zero point correction value of channel 3	Reserve	The power-off output mark, note 8	The zero point correction value of channel 3	The zero point correction value of channel 3
3CH	The zero point correction value of channel 4		The power-off output value of output channel 1	The zero point correction value of channel 4	The zero point correction value of channel 4
3DH	The zero point correction value of channel 5		The power-off output value of output channel 2	The zero point correction value of channel 5	The zero point correction value of channel 5
3EH	The zero point correction value of channel 6		The power-off output value of output channel 3	The zero point correction value of channel 6	The zero point correction value of channel 6
3FH	The zero point correction value of channel 7		The power-off output value of output channel 4	The zero point correction value of channel 7	The zero point correction value of channel 7

40H	The zero point correction value of channel 8		Output channel indicator, note 7	The zero point correction value of channel 8	
41H	Channel 1~8 input disconnection alarm, note 5		Reserve	Channel 1~8 input disconnection, note 5	Channel 1~8 input disconnection alarm, note 5
42H~4FH	Reserve			Reserve	Reserve

**Note:**

- Sampling frequency: 0 - 2 times、1 - 4 times、2 - 8 times、3 - 16 times、4 - 32 times、5 - 64 times、6 - 128 times、7 - 256 times
- Signal type: 0 - [4,20]mA、1 - [0,20]mA、2 - [1,5]V、3 - [0,5]V、4 - [0,10]V、5 - [-10,10]V
- The signal type of thermal resistance: 0 - Pt100、1 - Pt1000、2 - Cu50、3 - Cu100
- The signal type of thermocouple: 0 - S、1 - K、2 - T、3 - E、4 - J、5 - B、6 - N、7 - R、8 - Wre3/25、9 - Wre5/26、10 - [0,20]mV、11 - [0,50]mV、12 - [0,100]mV
- Disconnection alarm: Each bit indicates 1 channel, 0-normal, 1-disconnection
- Use the engineering value mark: Each bit indicates 1 channel, 0-No, 1-Yes
- Channel indicator status: Each bit indicates 1 channel, 0-off, 1-on
- Power-off output mark: Each bit indicates 1 channel, 0-No, 1-Yes
- The output flag while power supply lost: each bits signify 1 Channel ,0-No,1-Yes

## Digital Modules Parameter Table

Note: CR number corresponding the Modbus register address),the grey parts are read-only, the white parts are readable and writable.

CR Number	Function Declare
	H16DI, H16DOR, H16DOT, H16XDR, H16XDT, H24DI, H24XDR, H24XDT, H40DI, H36DOR, H36DOT, H40XDR, H40XDT, H64XDR, H64XDT
00H	The low byte is the module code, and the high byte is the module version number.
01H	Communication address
02H	Communication protocols:The low 4-bit of the low bytes: 0 - N,8,2 For RTU, 1 - E,8,1 For RTU, 2 - O,8,1 For RTU, 3 - N,7,2 For ASCII, 4 - E,7,1 For ASCII, 5 - O,7,1 For ASCII, 6 - N,8, 1 For RTU The high 4-bit of the low bytes: 0 – 2400, 1 – 4800, 2 – 9600, 3 – 19200, 4 – 38400, 5 – 57600, 6 - 115200
03H~06H	Extend module name
07H~08H	Default IP address: 192.168.0.88
09~0AH	Reserve
0BH	High byte subnet mask (b3~b0,1 indicates 255, 0 indicates 0, for example, subnet mask 255.255.255.0, b3~b0=1110), low byte reserved
0CH~0EH	Reserve
0FH	Error code : 0-normal, 1-illegal firmware identity ,2-incomplete firmware, 3-system data access exception, 4-No external 24V power supply
10H~4FH	DI channel 1~64 input value
50H~8FH	DO channel 1~64 output value
90H	Filtering time of DI ms, 0 - 0.8、 1 - 1.6、 2 - 3.2、 3 - 6.4、 4 - 12.8、 5 - 25.6、 6 - 51.2
91H~9FH	Reserve



## H02PW Module Parameter Table

Note: CR number corresponding the Modbus register address),the grey parts are read-only, the white parts are readable and writable.

CR Number	Function Declare
00H	The low byte is the module code, and the high byte is the module version number.
01H	Communication address
02H	Communication protocols:The low 4-bit of the low bytes: 0 - N,8,2 For RTU, 1 - E,8,1 For RTU, 2 - O,8,1 For RTU, 3 - N,7,2 For ASCII, 4 - E,7,1 For ASCII, 5 - O,7,1 For ASCII, 6 - N,8, 1 For RTU The high 4-bit of the low bytes: 0 – 2400, 1 – 4800, 2 – 9600, 3 – 19200, 4 – 38400, 5 – 57600, 6 - 115200
03H~06H	Extend module name
07H~08H	Default IP address: 192.168.0.88
09~0AH	Reserve
0BH	High byte subnet mask (b3~b0,1 indicates 255, 0 indicates 0, for example, subnet mask 255.255.255.0, b3~b0=1110), low byte reserved
0CH~0EH	Reserve
0FH	Error code: 0-normal, 1-illegal firmware identity ,2-incomplete firmware, 3-system data access exception, 4-No external 24V power supply
10H	Voltage measured value of channel 1
11H	Electric current measured value of channel 1
12H	Voltage measured value of channel 2
13H	Electric current measured value of channel 2
14H	Voltage output value of channel 1
15H	Electric current output value of channel 1
16H	Voltage output value of channel 2
17H	Electric current output value of channel 2
18H	PWM output cycle of channel 1
19H	PWM output cycle of channel 2
1AH	PWM output duty cycle of channel 1
1BH	PWM output duty cycle of channel 2
1CH~3FH	Reserve

## Digital Temperature Module Parameter Table

Note: CR number corresponding the Modbus register address),the grey parts are read-only, the white parts are readable and writable.

CR Number	H04DT Function Declare	CR Number	H32DT Function Declare
00H	The low byte is the module code, and the high byte is the module version number.		
01H	Communication address		
02H	Communication protocols:The low 4-bit of the low bytes: 0 - N,8,2 For RTU, 1 - E,8,1 For RTU, 2 - O,8,1 For RTU, 3 - N,7,2 For ASCII, 4 - E,7,1 For ASCII, 5 - O,7,1 For ASCII, 6 - N,8, 1 For RTU The high 4-bit of the low bytes: 0 – 2400, 1 – 4800, 2 – 9600, 3 – 19200, 4 – 38400, 5 – 57600, 6 - 115200		
03H~06H	Extend module name		
07H~08H	Default IP address: 192.168.0.88		
09~0AH	Reserve		
0BH	High byte subnet mask (b3~b0,1 indicates 255, 0 indicates 0, for example, subnet mask 255.255.255.0, b3~b0=1110), low byte reserved		
0CH~0EH	Reserve		
0FH	Error code : 0-normal, 1-illegal firmware identity ,2-incomplete firmware, 3-system data access exception, 4-no external 24V power supply		
10H~13H	Temperature input value of channel 0~3	10H~1FH	Temperature value in 1~16 path of channel 1
14H~17H	Humidity input value of channel 0~3	20H~2FH	Temperature value in 1~16 path of channel 2
18H~1BH	Signal type of channel 0~3 (0-DS18B20, 1-SHT11)	30H	A/D data bits of channel 1
1CH	The using identification of engineering value	31H	A/D data bits of channel 2
1DH~20H	The data lower-limit of channel 0~3	32H	Temperature disconnection alarm in 1~16 path of channel 1, each bit indicates 1 channel, 0- normal, 1- disconnection.
21H~24H	The data upper-limit of channel 0~3	33H	Temperature disconnection alarm in 1~16 path of channel 2, each bit indicates 1 channel, 0- normal, 1- disconnection.
25H~28H	A/D data bit of channel 0~3	34H	Configuration number of channel 1
29H~2CH	zero point correction of channel 0~3	35H	Configuration number of channel 2.
2DH	Sensor disconnection alarm of channel 0~3, each bit indicates 1 channel, 0- normal, 1- disconnection	36~75H	The serial numbers in 1~16 path of channel 1, each serial number uses 4 registers.
2EH~2FH	Reserve	76~B5H	The serial numbers of 1~16 path of channel 2, each serial number uses 4 registers.
		B6~C5H	Reserve
		C6H	Channel 1 clears the power-off counts in the configuration
		C7H	Channel 2 clears the power-off counts in the configuration

# Indicator Declare

## CPU Indicator Declare

- POW: power indicator .green, constant light - power normal. Not light - Power abnormal.
- RUN: Running indicator .green, constant light - PLC is running. Not light - PLC is stopping.
- COM: communication indicator .green, flicker - communicating, flicker frequency signify the speed of the communication. Not light - No communication.
- ERR: Error indicator .double(red, yellow), as follows:

Consult Manage	Signify Information Type	ERR The State Of The Indicator
Normal	Without error	Not light
Normal, just prompt take attention to the locked data	PLC have the component which locked	Yellow flicker: On 0.2 seconds and Off 0.8 seconds
Adjust the PLC hardware configure	Problem in the soft setting ,permit user keep on operate the user program	Yellow flicker: On 0.2 seconds and Off 0.8 seconds
Check the parallel bus(check the RTC battery;check expansion module power supply)	Communication abnormal between module, auto dislodge the abnormal module, permit user keep on operate the user program	Yellow flicker: On 0.8 seconds and Off 0.2 seconds
Upgrade the firmware or modify the user program	Firmware abnormal or user program abnormal, cannot operate the user program	Red slowly flicker: On 0.5 seconds and Off 0.5 seconds
Maintain	Hardware error, user program con not running	yellow constant light

Note: For specific error code please check the system register SV3, error code corresponding the content see detail the “system error code table”.

## expansion Modules Indicator Declare

- POW: power indicator green, constant light -Power normal. Not light - Power error.
- LINK: many state indicator .three colors(Red, Yellow, Green), as follow:

Consult Manage	Module Bus State	LINK The State Of The Indicator
Normal	Module no communication	Not light
	MPU identification the module but have not communication	Green constant light
	Serial or parallel communicating	Green flicker: indicator light 30ms not light 30ms
parallel power supply not enough, must connect to external power supply	Without serial or parallel communicate	Yellow flicker: indicator light 0.5s not light 0.5s
	With serial or parallel communicate	Yellow dark and shake alternately: indicator not light 0.5s shark 0.5s
Upgrade the firmware fail, re-upgrade the firmware of the module	Without serial or parallel communicate	Red flicker: indicator light 0.5s not light 0.5s
	With serial or parallel communicate	Red dark and shake alternately: indicator not dark 0.5s shark 0.5s
Maintain	Without serial or parallel communicate	Red constant light
	With serial or parallel communicate	Red shark quickly: indicator light 30ms not light 30ms

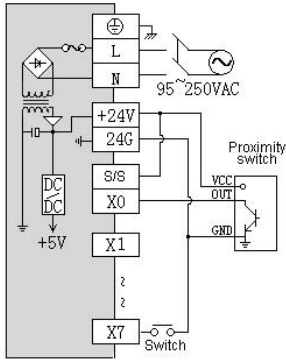
**Note:** For specific error code please check the module parameter register CR15, error code corresponding the content see detail the “CR parameter table”.

## I/O Indicator Declare

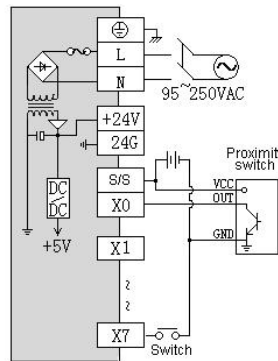
I/O Indicator Type	Indicate Information	The State Of The Indicator
DI	Without signal input	No light
	With signal input	Constant light
	Pulse signal input	Flicker (high frequency often birght)
DO	Without signal output	No light
	With signal output	Constant light
	Pulse signal output	Flicker (high frequency often birght)
AI	Without signal input	No light
	With signal input	Constant light
AO	Without signal output (Channel abnomal)	No light
	With signal output	Constant light

# I/O Wiring Diagram

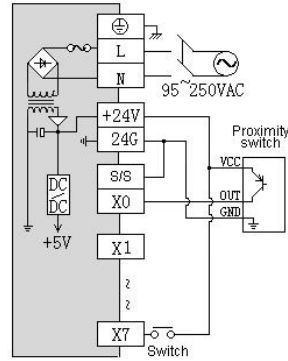
## Digital Input (DI) Wiring Diagram



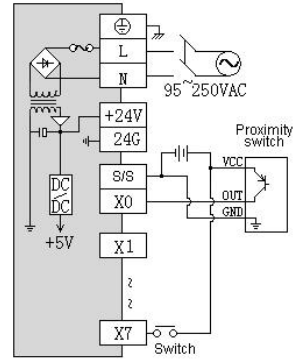
NPN Internal power



NPN External power

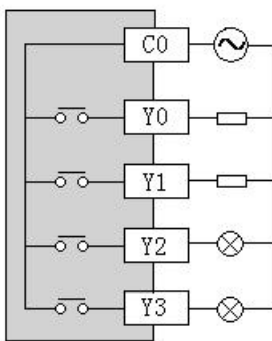


PNP Internal power

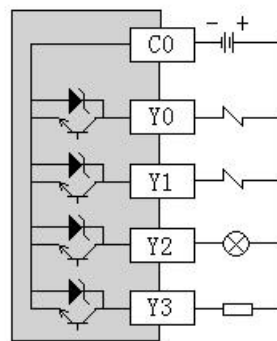


PNP External power

## Digital Output (DO) Wiring Diagram

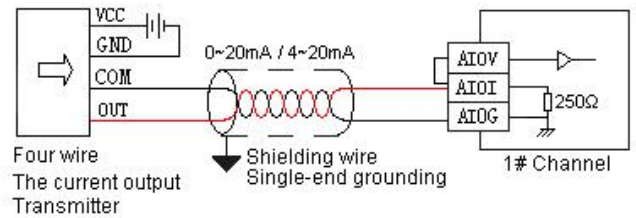
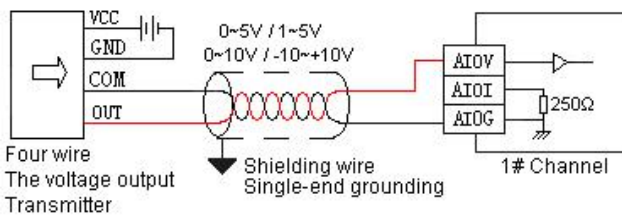
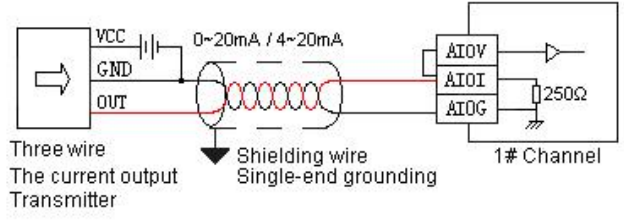
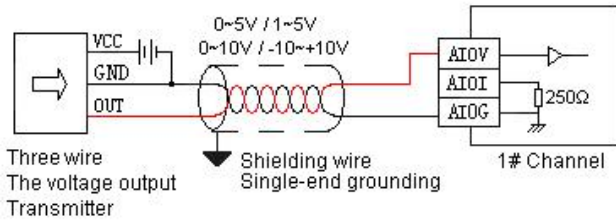
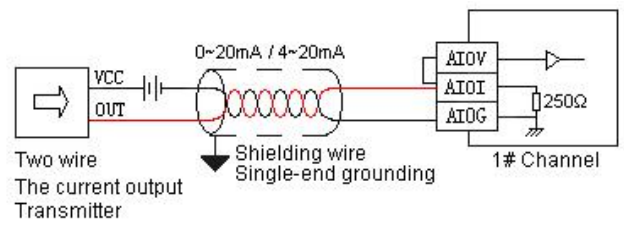
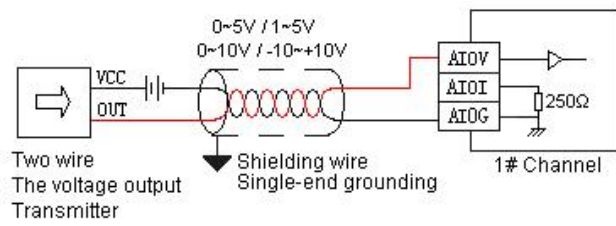


AC/DC Relay output

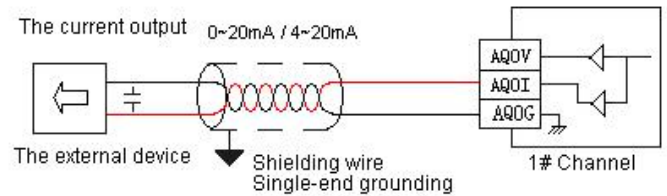
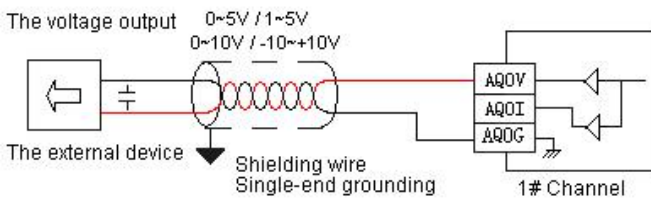


DC NPN Transistor output

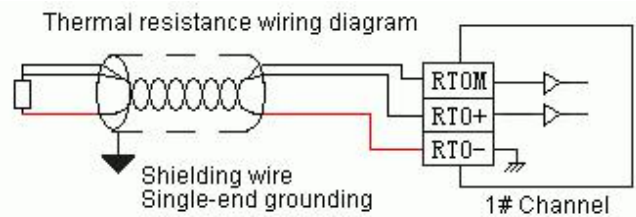
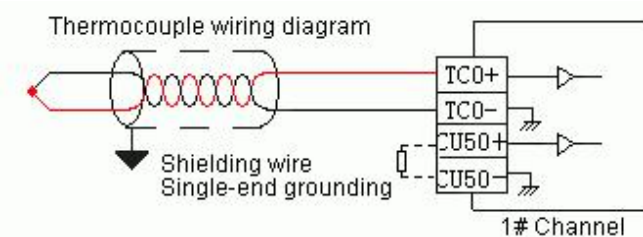
## Analog Input (AI) Wiring Diagram



## Analog Output (AO) Wiring Diagram



## Thermocouple & RTD Input Wiring Diagram



# Haiwell PLC Instruction Table

Haiwell PLC have a set of abundance high-efficiency instruction system, depend on absorb instructions of others PLC , support up to 200 application instructions , among there are many powerful innovate easy instructions .as communication instructions (COMM, MODR, MODW, HWRD, HWWR), character conversion instructions (ITOC, CTOI, FTOC, CTOF), data combination disperse instructions (BUNB, BUNW, WUNW, BDIB, WDIB, WDIW), bound alarm instructions(HAL, LAL), valve control instructions(VC), temperature curve(TTC) etc.

## Instruction Set Table

Instruction Type	Instruction Name	8bit Model	32bit Model	Instruction Function	Support Language		
					LD	FBD	IL
Compare switch	=	LB.= HB.=	D.=	Equal to compare switch ,have 16 bit/32 bit /low byte/high byte model	√		
	<>	LB.<> HB.<>	D.<>	Unequal to compare switch ,have 16 bit/32 bit /low byte/high byte model	√		
	>	LB.> HB.>	D.>	Greater than compare switch ,have 16 bit/32 bit /low byte/high byte model	√		
	>=	LB.>= HB.>=	D.>=	Great than or equal to compare switch ,have 16 bit/32 bit /low byte/high byte model	√		
	<	LB.< HB.<	D.<	Less than compare switch ,have 16 bit/32 bit /low byte/high byte model	√		
	<=	LB.<= HB.<=	D.<=	Less than or equal to compare switch ,have 16 bit/32 bit /low byte/high byte model	√		
	F.=			Floating-point number equal to compare switch	√		
	F.<>			Floating-point number unequal to compare switch	√		
	F.>			Floating-point number greater than compare switch	√		
	F.>=			Floating-point number greater than or equal to compare switch	√		
	F.<			Floating-point number less than compare switch	√		
	F.<=			Floating-point number less than or equal to compare switch	√		
Step instruction	STL			Step start	√		
	SFROM			Step combine	√		
	STO			Step jump	√		
Bit instruction	AND			Logic AND		√	√
	OR			Logic OR		√	√
	XOR			Logic XOR		√	√
	OUT			Coil output	√	√	√
	SET			Setting	√	√	√
	RST			Reset	√	√	√
	ALT			ON/OFF alternately output	√	√	√
	ZRST			Batch reset	√	√	√

Instruction Type	Instruction Name	8bit Model	32bit Model	Instruction Function	Support Language		
					LD	FBD	IL
	ENO			Get ENO output			√
Timer	TON			Delay ON	√	√	√
	TOF			Delay OFF	√	√	√
	TP			Pulse timer	√	√	√
Counter	CTU		D.CTU	Increase counter	√	√	√
	CTD		D.CTD	Decrease counter	√	√	√
	CTUD		D.CTU D	Increase and Decrease counter	√	√	√
High speed control instruction	RESH			IO refresh	√	√	√
	SHC			Single high speed counter	√	√	√
	HHSC			High speed counter	√	√	√
	HCWR			Write high speed counter	√	√	√
	SPD			Speed detection	√	√	√
	PWM			Pulse width modulation	√	√	√
	PLSY		D.PLS Y	Pulse output	√	√	√
	PLSR		D.PLS R	Accelerate and decelerate pulse output	√	√	√
	ZRN			Origin point return	√	√	√
	SETZ			Set electric origin point	√	√	√
	PPMR			Linear interpolation	√	√	√
	CIMR			Circular interpolation	√	√	√
	SPLS			Single pulse output	√	√	√
	SYNP			Synchronization pulse output	√	√	√
	PSTOP			Stop pulse output	√	√	√
DVIT			Interrupt positioning pulse output	√	√	√	
ECAM			The electronic CAM	√	√	√	
Compare instruction	CMP		D.CMP	Compare instruction	√	√	√
	ZCP		D.ZCP	Regional comparison	√	√	√
	MATC		D.MAT C	Numerical match	√	√	√
	ABSC		D.ABS C	Absolute cam comparison	√	√	√
	BON			ON bit determine	√	√	√
	BONC		D.BON C	ON bit numbers	√	√	√
	MAX		D.MAX	Maximum	√	√	√
	MIN		D.MIN	Minimum	√	√	√
	SEL		D.SEL	Selection of conditions	√	√	√
	MUX		D.MUX	Multi-choice	√	√	√
Shift instruction	LBST			Low byte evaluation	√	√	√
	HBST			High byte evaluation	√	√	√



Instruction Type	Instruction Name	8bit Model	32bit Model	Instruction Function	Support Language		
					LD	FBD	IL
	MOV		D.MOV	Move	√	√	√
	BMOV			Block move	√	√	√
	FILL			Fill	√	√	√
	XCH			Byte swap	√	√	√
	BXCH			Block swap	√	√	√
	SHL			Bit left shift	√	√	√
	SHR			Bit right shift	√	√	√
	WSHL			Word left shift	√	√	√
	WSHR			Word right shift	√	√	√
	ROL			Bit rotate left shift	√	√	√
	ROR			Bit rotate right shift	√	√	√
	WROL			Word rotate left shift	√	√	√
	WROR			Word rotate right shift	√	√	√
	BSHL			Byte left shift	√	√	√
	BSHR			Byte right shift	√	√	√
	ATBL			Append to array	√	√	√
	FIFO			First in first out	√	√	√
	LIFO			Last in first out	√	√	√
	SORT			Data sort	√	√	√
Data conversion instruction	ENCO			Encoder	√	√	√
	DECO			Decoder	√	√	√
	BTOW			Bit convert to word	√	√	√
	WTOB			Word convert to bit	√	√	√
	HEX	HEX.L B		ASCII convert to hexadecimal	√	√	√
	ASCI	ASCI.L B		Hexadecimal convert to ASCII	√	√	√
	BUNB			Discrete bit combination to continuous bit	√	√	√
	BUNW			Discrete bit combination to continuous word	√	√	√
	WUNW			Discrete word combination to continuous word	√	√	√
	BDIB			Continuous bit disperse to discrete bit	√	√	√
	WDIB			Continuous word disperse to discrete bit	√	√	√
	WDIW			Continuous word disperse to discrete word	√	√	√
	BCD		D.BCD	BIN convert to BCD	√	√	√
	BIN		D.BIN	BCD convert to BIN	√	√	√
	ITOL			Integer convert to long integer	√	√	√
	GRAY			BIN convert to GRAY code	√	√	√
	GBIN			GRAY code convert to BIN	√	√	√
Character instruction	GHLB			Obtain high low byte	√	√	√
	GETB			Capture byte string	√	√	√

Instruction Type	Instruction Name	8bit Model	32bit Model	Instruction Function	Support Language		
					LD	FBD	IL
	BCMP	BCMP.LB		Byte string comparison	√	√	√
	ITOC		D.ITOC	Integer convert to character	√	√	√
	CTOI			Character convert to integer	√	√	√
	FTOC			Floating point convert to character	√	√	√
	CTOF			Character convert to floating point	√	√	√
Arithmetical instruction	WNOT		D.WNOT	Negation	√	√	√
	WAND		D.WAND	AND operation	√	√	√
	WOR		D.WOR	OR operation	√	√	√
	WXOR		D.WXOR	XOR operation	√	√	√
	ADD		D.ADD	Addition	√	√	√
	SUB		D.SUB	Subtraction	√	√	√
	INC		D.INC	Increase 1	√	√	√
	DEC		D.DEC	Decrease 1	√	√	√
	MUL		D.MUL	Multiplication	√	√	√
	DIV		D.DIV	Division	√	√	√
	ACCU		D.ACCU	Accumulation	√	√	√
	AVG		D.AVG	Average	√	√	√
	ABS		D.ABS	Absolute value	√	√	√
NEG		D.NEG	Two's complement	√	√	√	
Floating point instruction	FCMP			Floating point comparison	√	√	√
	FZCP			Floating point regional comparison	√	√	√
	FMOV			Floating point move instruction	√	√	√
	FADD			Floating point addition	√	√	√
	FSUB			Floating point subtraction	√	√	√
	FMUL			Floating point multiplication	√	√	√
	FDIV			Floating point division	√	√	√
	FACCU			Floating point accumulation	√	√	√
	FAVG			Floating point average	√	√	√
	FMAX			Floating point maximum	√	√	√
	FMIN			Floating point minimum	√	√	√
	FTOI			Floating point convert to integer	√	√	√
	ITOF		D.ITOF	Integer convert to floating point	√	√	√
	FABS			Floating point absolute	√	√	√
	FSQR			Floating point square root	√	√	√
	FSIN			Sine	√	√	√
	FCOS			Cosine	√	√	√
FTAN			Tangent	√	√	√	

Instruction Type	Instruction Name	8bit Model	32bit Model	Instruction Function	Support Language		
					LD	FBD	IL
	FASIN			Arcsine	√	√	√
	FACOS			Arccosine	√	√	√
	FATAN			Arctangent	√	√	√
	FLN			Natural logarithm	√	√	√
	FLOG			The base-10 logarithm of a number	√	√	√
	FEXP			Nature exponential	√	√	√
	FRAD			Angle convert to radian	√	√	√
	FDEG			Radian convert to angle	√	√	√
	FXY			Exponent	√	√	√
Clock instruction	TCMP			Real time clock comparison	√	√	√
	TACCU			Time accumulative total	√	√	√
	SCLK			Setup system clock	√	√	√
	TIME			Time switch	√	√	√
	DATE			Date switch	√	√	√
	INVT			Count down	√	√	√
Communication instruction	SUM	SUM.L B		SUM verify	√	√	√
	BCC	BCC.L B		BCC verify	√	√	√
	CRC	CRC.L B		CRC verify	√	√	√
	LRC	LRC.L B		LRC verify	√	√	√
	COMM	COMM. LB		Serial communications	√	√	√
	MODR			Modbus read	√	√	√
	MODW			Modbus write	√	√	√
	HWRD			Haiwellbus read	√	√	√
	HWWR			Haiwellbus write	√	√	√
	RCV			Receive communication data	√	√	√
	XMT	XMT.LB		Sent communication data	√	√	√
	FROM			expansion module CR register read	√	√	√
	TO			expansion module CR register write	√	√	√
	TCPMDR			Modbus TCP read	√	√	√
	TCPMDW			Modbus TCP write	√	√	√
TCPHWR			Haiwellbus TCP read	√	√	√	
TCPHWW			Haiwellbus TCP write	√	√	√	
Interrupt instruction	ATCH			Interrupt binding	√	√	√
	DTCH			Interrupt release	√	√	√
	ENI			Enable interrupt	√	√	√
	DISI			Disable interrupt	√	√	√
Program	MC			Master control	√	√	√

Instruction Type	Instruction Name	8bit Model	32bit Model	Instruction Function	Support Language		
					LD	FBD	IL
control instruction	MCR			Master control clear	√	√	√
	FOR			Loop command	√	√	√
	NEXT			Loop end	√	√	√
	WAIT			Delay wait	√	√	√
	CALL			Call subroutine	√	√	√
	EXIT			Condition exit	√	√	√
	REWD			Scanning time reset	√	√	√
	JMPC			Condition jump	√	√	√
	LBL			Jump label	√	√	√
Special function instruction	GPWM			General pulse width modulation	√	√	√
	FTC			Fuzzy temperature control	√	√	√
	PID			PID control	√	√	√
	HAL		D.HAL	Upper limit alarm	√	√	√
	LAL		D.LAL	Lower limit alarm	√	√	√
	LIM		D.LIM	Range limitation	√	√	√
	SC		D.SC	Linear conversion	√	√	√
	VC			Valve control	√	√	√
	TTC			Temperature curve control	√	√	√
	APID			Self-tuning PID	√	√	√

## General Declare of the Instruction

- En enable input: En is the enable input item of the instruction. Only En have electricity (ON), the instruction executed, otherwise not executed.
- Eno Enable output: Eno is the Enable output item of the instruction, indicate the instruction is executing. When En have electricity (ON) and instruction executed properly then Eno output have electricity (ON), when En have not electricity (OFF) or instruction executed error (e.g: parameter not property of the instruction ) then Eno output have not electricity (OFF). The application instruction in LD, FBD language ,the great mass of the instruction have Eno Enable output item, All IL instructions have not Eno output item, it will be instead of the ENO instruction in IL language.
- In LD language the AND, OR, XOR instructions, will be instead of logic link.
- 32 bit instruction at 16 bit instruction name "D.", indicate use 2 continuous register. Such as ADD,16 bit addition is ADD,32 bit addition is D.ADD.
- 8 bit instruction at 16 bit instruction behind the name plus ".LB", indicate only use the low byte of the register. Such as COMM, 16 bit instruction is COMM, 8 bit instruction is COMM.LB.
- When the parameter items of many instruction which autoOccupy several continuous register, pay special attention to them when programming, avoid reusing the register to program execution incorrect.

### Note:

Except CV48~CV79 are 32 bit register (total 32 entries), Haiwell PLC other registers (AI, AQ, V, SV, LV, TV, CV, P) all are 16 bit register, one 16 bit register have 2 byte compose, one 32 bit register have 2 continuous 16 bit registers compose.

# SM System Status Bit

SM system status bit is a group of special internal relay of the system, can be used unlimited in the program, each SM has a special function. Do not use the SM which unlisted.

SM	Function Declare	R/W	Power-Off Preserve	Default
SM0	On during running, Off during stopping	R	No	0
SM1	Off during running, On during stopping	R	No	0
SM2	On during the first scan when PLC starts RUN and then be Off	R	No	0
SM3	10ms clock pulse	R	No	0
SM4	100ms clock pulse	R	No	0
SM5	1s clock pulse	R	No	0
SM8	Scan time-out	R	No	0
SM9	PLC switch status	R	No	0
SM10	Run status	R	No	0
SM11	System failure	R	No	0
SM12	Hardware configure table mismatch the module	R	No	0
SM13	Battery in low voltage, malfunction or no battery	R	No	0
SM14	Divide by zero flag	R	No	0
SM15	Data overflow flag	R	No	0
SM16	COM1 communicate error	R	No	0
SM17	COM2 communicate error	R	No	0
SM18	COM3 communicate error	R	No	0
SM19	COM4 communicate error	R	No	0
SM20	COM5 communicate error	R	No	0
SM25	HSC0 study mode control, 0-Normal mode 1-study mode	R/W	No	0
SM26	HSC0 confirm the study control	R/W	No	0
SM27	HSC0 reset control 0 is automatic reset 1 is not reset	R/W	No	0
SM30	HSC0 direction 0-Addition 1-Subtract	R	No	0
SM31	HSC0 error	R	No	0
SM33	HSC1 study mode control, 0-Normal mode 1-study mode	R/W	No	0
SM34	HSC1 confirm the study control	R/W	No	0
SM35	HSC1 reset control 0 is automatic reset 1 is not reset	R/W	No	0
SM38	HSC1 direction 0-Addition 1-Subtract	R	No	0
SM39	HSC1 error	R	No	0
SM41	HSC2 study mode control, 0-Normal mode 1-study mode	R/W	No	0
SM42	HSC2 confirm the study control	R/W	No	0
SM43	HSC2 reset control 0 is automatic reset 1 is not reset	R/W	No	0
SM46	HSC2 direction 0-Addition 1-Subtract	R	No	0
SM47	HSC2 error	R	No	0
SM49	HSC3 study mode control, 0-Normal mode 1-study mode	R/W	No	0
SM50	HSC3 confirm the study control	R/W	No	0
SM51	HSC3 reset control 0 is automatic reset 1 is not reset	R/W	No	0
SM54	HSC3 direction 0-Addition 1-Subtract	R	No	0
SM55	HSC3 error	R	No	0
SM57	HSC4 study mode control, 0-Normal mode 1-study mode	R/W	No	0

SM58	HSC4 confirm the study control	R/W	No	0
SM59	HSC4 reset control 0 is automatic reset 1 is not reset	R/W	No	0
SM62	HSC4 direction 0-Addition 1-Subtract	R	No	0
SM63	HSC4 error	R	No	0
SM65	HSC5 study mode control, 0-Normal mode 1-study mode	R/W	No	0
SM66	HSC5 confirm the study control	R/W	No	0
SM67	HSC5 reset control 0 is automatic reset 1 is not reset	R/W	No	0
SM70	HSC5 direction 0-Addition 1-Subtract	R	No	0
SM71	HSC5 error	R	No	0
SM73	HSC6 study mode control, 0-Normal mode 1-study mode	R/W	No	0
SM74	HSC6 confirm the study control	R/W	No	0
SM75	HSC6 reset control 0 is automatic reset 1 is not reset	R/W	No	0
SM78	HSC6 direction 0-Addition 1-Subtract	R	No	0
SM79	HSC6 error	R	No	0
SM81	HSC7 study mode control, 0-Normal mode 1-study mode	R/W	No	0
SM82	HSC7 confirm the study control	R/W	No	0
SM83	HSC7 reset control 0 is automatic reset 1 is not reset	R/W	No	0
SM86	HSC7 direction 0-Addition 1-Subtract	R	No	0
SM87	HSC7 error	R	No	0
SM93	PLS0 prohibit the forward pulse	R/W	yes	0
SM94	PLS0 prohibit the reverse pulse	R/W	yes	0
SM95	PLS0 prohibit the brake function	R/W	yes	0
SM96	PLS0 pulse output flag	R	yes	0
SM97	PLS0 pulse output direction flag 0-forward 1-Reverse	R	yes	0
SM98	PLS0 error flag	R	yes	0
SM99	PLS0 position mode 0-relatively mode 1-absolutely mode	R/W	yes	0
SM100	PLS0 output when position complete	R	yes	0
SM109	PLS1 prohibit the forward pulse	R/W	yes	0
SM110	PLS1 prohibit the reverse pulse	R/W	yes	0
SM111	PLS1 prohibit the brake function	R/W	yes	0
SM112	PLS1 pulse output flag	R	yes	0
SM113	PLS1 pulse output direction flag 0-forward 1-Reverse	R	yes	0
SM114	PLS1 error flag	R	yes	0
SM115	PLS1 position mode 0-relatively mode 1-absolutely mode	R/W	yes	0
SM116	PLS1 output when position complete	R	yes	0
SM125	PLS2 prohibit the forward pulse	R/W	yes	0
SM126	PLS2 prohibit the reverse pulse	R/W	yes	0
SM127	PLS2 prohibit the brake function	R/W	yes	0
SM128	PLS2 pulse output flag	R	yes	0
SM129	PLS2 pulse output direction flag 0-forward 1-Reverse	R	yes	0
SM130	PLS2 error flag	R	yes	0
SM131	PLS2 position mode 0-relatively mode 1-absolutely mode	R/W	yes	0
SM132	PLS2 output when position complete	R	yes	0
SM141	PLS3 prohibit the forward pulse	R/W	yes	0
SM142	PLS3 prohibit the reverse pulse	R/W	yes	0
SM143	PLS3 prohibit the brake function	R/W	yes	0
SM144	PLS3 pulse output flag	R	yes	0

SM145	PLS3 pulse output direction flag 0-forward 1-Reverse	R	yes	0
SM146	PLS3 error flag	R	yes	0
SM147	PLS3 position mode 0-relatively mode 1-absolutely mode	R/W	yes	0
SM148	PLS3 output when position complete	R	yes	0
SM157	PLS4 prohibit the forward pulse	R/W	yes	0
SM158	PLS4 prohibit the reverse pulse	R/W	yes	0
SM159	PLS4 prohibit the brake function	R/W	yes	0
SM160	PLS4 pulse output flag	R	yes	0
SM161	PLS4 pulse output direction flag 0-forward 1-Reverse	R	yes	0
SM162	PLS4 error flag	R	yes	0
SM163	PLS4 position mode 0-relatively mode 1-absolutely mode	R/W	yes	0
SM164	PLS4 output when position complete	R	yes	0
SM173	PLS5 prohibit the forward pulse	R/W	yes	0
SM174	PLS5 prohibit the reverse pulse	R/W	yes	0
SM175	PLS5 prohibit the brake function	R/W	yes	0
SM176	PLS5 pulse output flag	R	yes	0
SM177	PLS5 pulse output direction flag 0-forward 1-Reverse	R	yes	0
SM178	PLS5 error flag	R	yes	0
SM179	PLS5 position mode 0-relatively mode 1-absolutely mode	R/W	yes	0
SM180	PLS5 output when position complete	R	yes	0
SM189	PLS6 prohibit the forward pulse	R/W	yes	0
SM190	PLS6 prohibit the reverse pulse	R/W	yes	0
SM191	PLS6 prohibit the brake function	R/W	yes	0
SM192	PLS6 pulse output flag	R	yes	0
SM193	PLS6 pulse output direction flag 0-forward 1-Reverse	R	yes	0
SM194	PLS6 error flag	R	yes	0
SM195	PLS6 position mode 0-relatively mode 1-absolutely mode	R/W	yes	0
SM196	PLS6 output when position complete	R	yes	0
SM205	PLS7 prohibit the forward pulse	R/W	yes	0
SM206	PLS7 prohibit the reverse pulse	R/W	yes	0
SM207	PLS7 prohibit the brake function	R/W	yes	0
SM208	PLS7 pulse output flag	R	yes	0
SM209	PLS7 pulse output direction flag 0-forward 1-Reverse	R	yes	0
SM210	PLS7 error flag	R	yes	0
SM211	PLS7 position mode 0-relatively mode 1-absolutely mode	R/W	yes	0
SM212	PLS7 output when position complete	R	yes	0

# SV System Register

SV system register is a group of special internal register of the system, can be used unlimited in the program, each SV has a special function. Do not use the SM which unlisted.

SV	Function Declare	R/W	Power-Off Preserve	Default
SV0	The present scan time(unit 0.1ms)	R	No	0
SV1	The minimum scan time(unit 0.1ms)	R	No	0
SV2	The maximum scan time(unit 0.1ms)	R	No	0
SV3	System fault code, detail see the system fault code table	R	No	0
SV4	COM1 communicate error code	R	No	0
SV5	COM2 communicate error code	R	No	0
SV6	COM3 communicate error code	R	No	0
SV7	COM4 communicate error code	R	No	0
SV8	COM5 communicate error code	R	No	0
SV9	The error line number during compile	R	No	0
SV11	AI input on the CPU module break off alarm every bit express one channel 0-Normal 1-break off	R	No	0
SV12	Year	R	No	0
SV13	Month(1-12)	R	No	0
SV14	Day(1-31)	R	No	0
SV15	Hour(0-23)	R	No	0
SV16	Minute(0-59)	R	No	0
SV17	Second(0-59)	R	No	0
SV18	Week(1-7,Monday~Sunday)	R	No	0
SV19	PLC station's name	R/W	yes	0
SV20	PLC station's name	R/W	yes	0
SV21	PLC station's name	R/W	yes	0
SV22	PLC station's name	R/W	yes	0
SV23	PLC station's name	R/W	yes	0
SV24	PLC station's name	R/W	yes	0
SV25	Timer of program scan time-out(unit ms)	R/W	yes	200 ms
SV26	PLC address 1~254	R	yes	1
SV27	Low byte is expansion modules 0~31 High byte is type	R	yes	0
SV28	Low byte is CPU's type High byte is CPU's version	R	yes	0
SV29	Low byte is first expansion module's code High byte is first expansion module's version	R	yes	0
SV30	Low byte is second expansion module's code High byte is second expansion module's version	R	yes	0
SV31	Low byte is third expansion module's code High byte is third expansion module's version	R	yes	0
SV32	Low byte is fourth expansion module's code High byte is fourth expansion module's version	R	yes	0
SV33	Low byte is fifth expansion module's code High byte is fifth expansion module's version	R	yes	0



SV34	Low byte is sixth expansion module's code High byte is sixth expansion module's version	R	yes	0
SV35	Low byte is seventh expansion module's code High byte is seventh expansion module's version	R	yes	0
SV36	Low byte is eighth expansion module's code High byte is eighth expansion module's version	R	yes	0
SV37	Low byte is ninth expansion module's code High byte is ninth expansion module's version	R	yes	0
SV38	Low byte is tenth expansion module's code High byte is tenth expansion module's version	R	yes	0
SV39	Low byte is eleventh expansion module's code High byte is eleventh expansion module's version	R	yes	0
SV40	Low byte is twelfth expansion module's code High byte is twelfth expansion module's version	R	yes	0
SV41	Low byte is thirteenth expansion module's code High byte is thirteenth expansion module's version	R	yes	0
SV42	Low byte is fourteenth expansion module's code High byte is fourteenth expansion module's version	R	yes	0
SV43	Low byte is fifteenth expansion module's code High byte is fifteenth expansion module's version	R	yes	0
SV44	COM1 communicate protocol: Low 4 bit of low byte: 0 - N,8, 2 For RTU 1 - E,8, 1 For RTU 2 - O 8, ,1 For RTU 3 - N,7, 2 For ASCII 4 - E,7, 1 For ASCII 5 - O,7, 1 For ASCII 6 - N,8, 1 For RTU(H/N serial support) High 4 bit of low byte: 0 - 2400 1 - 4800 2 - 9600 3 - 19200 4 - 38400 5 - 57600 6 - 115200(H/N serial support)	R/W	yes	30H,19200, N,8, 2 RTU
SV45	COM1 communicate overtime ,unit ms	R/W	yes	200ms
SV46	COM2 communicate protocol, the same as COM1	R/W	yes	30H
SV47	COM2 communicate overtime ,unit ms	R/W	yes	200ms
SV48	PLC program size	R	yes	0
SV49	Low byte of system clock ,unit 16us	R	yes	
SV50	High byte of system clock ,unit 16us	R	yes	
SV54	COM3 communicate protocol, the same as COM1	R/W	yes	30H
SV55	COM3 communicate overtime ,unit ms	R/W	yes	200ms
SV56	COM4 communicate protocol, the same as COM1	R/W	yes	30H
SV57	COM4 communicate overtime ,unit ms	R/W	yes	200ms
SV58	COM5 communicate protocol, the same as COM1	R/W	yes	30H
SV59	COM5 communicate overtime ,unit ms	R/W	yes	200ms
SV60	HSC0 current segment number	R	yes	0
SV61	HSC0 low word of current value	R	yes	0
SV62	HSC0 high word of current value	R	yes	0
SV63	HSC0 error code	R	yes	0
SV64	HSC1 current segment number	R	yes	0
SV65	HSC1 low word of current value	R	yes	0
SV66	HSC1 high word of current value	R	yes	0

SV67	HSC1 error code	R	yes	0
SV68	HSC2 current segment number	R	yes	0
SV69	HSC2 low word of current value	R	yes	0
SV70	HSC2 high word of current value	R	yes	0
SV71	HSC2 error code	R	yes	0
SV72	HSC3 current segment number	R	yes	0
SV73	HSC3 low word of current value	R	yes	0
SV74	HSC3 high word of current value	R	yes	0
SV75	HSC3 error code	R	yes	0
SV76	HSC4 current segment number	R	yes	0
SV77	HSC4 low word of current value	R	yes	0
SV78	HSC4 high word of current value	R	yes	0
SV79	HSC4 error code	R	yes	0
SV80	HSC5 current segment number	R	yes	0
SV81	HSC5 low word of current value	R	yes	0
SV82	HSC5 high word of current value	R	yes	0
SV83	HSC5 error code	R	yes	0
SV84	HSC6 current segment number	R	yes	0
SV85	HSC6 low word of current value	R	yes	0
SV86	HSC6 high word of current value	R	yes	0
SV87	HSC6 error code	R	yes	0
SV88	HSC7 current segment number	R	yes	0
SV89	HSC7 low word of current value	R	yes	0
SV90	HSC7 high word of current value	R	yes	0
SV91	HSC7 error code	R	yes	0
SV92	PLS0 current segment number	R	yes	0
SV93	PLS0 low word of pulse output number	R	yes	0
SV94	PLS0 high word of pulse output number	R	yes	0
SV95	PLS0 low word of current position	R	yes	0
SV96	PLS0 high word of current position	R	yes	0
SV97	PLS0 error code	R	yes	0
SV98	PLS1 current segment number	R	yes	0
SV99	PLS1 low word of pulse output number	R	yes	0
SV100	PLS1 high word of pulse output number	R	yes	0
SV101	PLS1 low word of current position	R	yes	0
SV102	PLS1 high word of current position	R	yes	0
SV103	PLS1 error code	R	yes	0
SV104	PLS2 current segment number	R	yes	0
SV105	PLS2 low word of pulse output number	R	yes	0
SV106	PLS2 high word of pulse output number	R	yes	0

SV107	PLS2 low word of current position	R	yes	0
SV108	PLS2 high word of current position	R	yes	0
SV109	PLS2 error code	R	yes	0
SV110	PLS3 current segment number	R	yes	0
SV111	PLS3 low word of pulse output number	R	yes	0
SV112	PLS3 high word of pulse output number	R	yes	0
SV113	PLS3 low word of current position	R	yes	0
SV114	PLS3 high word of current position	R	yes	0
SV115	PLS3 error code	R	yes	0
SV116	PLS4 current segment number	R	yes	0
SV117	PLS4 low word of pulse output number	R	yes	0
SV118	PLS4 high word of pulse output number	R	yes	0
SV119	PLS4 low word of current position	R	yes	0
SV120	PLS4 high word of current position	R	yes	0
SV121	PLS4 error code	R	yes	0
SV122	PLS5 current segment number	R	yes	0
SV123	PLS5 low word of pulse output number	R	yes	0
SV124	PLS5 high word of pulse output number	R	yes	0
SV125	PLS5 low word of current position	R	yes	0
SV126	PLS5 high word of current position	R	yes	0
SV127	PLS5 error code	R	yes	0
SV128	PLS6 current segment number	R	yes	0
SV129	PLS6 low word of pulse output number	R	yes	0
SV130	PLS6 high word of pulse output number	R	yes	0
SV131	PLS6 low word of current position	R	yes	0
SV132	PLS6 high word of current position	R	yes	0
SV133	PLS6 error code	R	yes	0
SV134	PLS7 current segment number	R	yes	0
SV135	PLS7 low word of pulse output number	R	yes	0
SV136	PLS7 high word of pulse output number	R	yes	0
SV137	PLS7 low word of current position	R	yes	0
SV138	PLS7 high word of current position	R	yes	0
SV139	PLS7 error code	R	yes	0
SV140	When value is -23206 prohibit all output of Y	R/W	yes	0
SV141	COM1 communicate instruction execute interval unit ms	R/W	yes	0
SV142	The soft address of PLC(1~254)	R	yes	0
SV143	The setted address of the external DIP switch	R	yes	0
SV144	Low word of serial number	R	yes	0
SV145	High word of serial number	R	yes	0
SV146	Time of the direction output before the pulse output(5~100us)	R/W	yes	5

SV151	Number of locked data	R	yes	0
SV152	IP address,default: 192.168.0.88	R/W	yes	0x0058
SV153	IP address,default: 192.168.0.88	R/W	yes	0xC0A8
SV154	Subnet mask,default: 255.255.255.0	R/W	yes	0xFF00
SV155	Subnet mask,default: 255.255.255.0	R/W	yes	0xFFFF
SV156	PLS0 low word of mechanical original point	R	yes	0
SV157	PLS0 high word of mechanical original point	R	yes	0
SV158	PLS0 number of pulses to compensate the reverse interval	R/W	yes	0
SV159	PLS0 follow performance parameters,range: 1~100	R/W	yes	50
SV160	PLS1 low word of mechanical original point	R	yes	0
SV161	PLS1 high word of mechanical original point	R	yes	0
SV162	PLS1 number of pulses to compensate the reverse interval	R/W	yes	0
SV163	PLS1 follow performance parameters,range: 1~100	R/W	yes	50
SV164	PLS2 low word of mechanical original point	R	yes	0
SV165	PLS2 high word of mechanical original point	R	yes	0
SV166	PLS2 number of pulses to compensate the reverse interval	R/W	yes	0
SV167	PLS2 follow performance parameters,range: 1~100	R/W	yes	50
SV168	PLS3 low word of mechanical original point	R	yes	0
SV169	PLS3 high word of mechanical original point	R	yes	0
SV170	PLS3 number of pulses to compensate the reverse interval	R/W	yes	0
SV171	PLS3 follow performance parameters,range: 1~100	R/W	yes	50
SV172	PLS4 low word of mechanical original point	R	yes	0
SV173	PLS4 high word of mechanical original point	R	yes	0
SV174	PLS4 number of pulses to compensate the reverse interval	R/W	yes	0
SV175	PLS4 follow performance parameters,range: 1~100	R/W	yes	50
SV176	PLS5 low word of mechanical original point	R	yes	0
SV177	PLS5 high word of mechanical original point	R	yes	0
SV178	PLS5 number of pulses to compensate the reverse interval	R/W	yes	0
SV179	PLS5 follow performance parameters,range: 1~100	R/W	yes	50
SV180	PLS6 low word of mechanical original point	R	yes	0
SV181	PLS6 high word of mechanical original point	R	yes	0
SV182	PLS6 number of pulses to compensate the reverse interval	R/W	yes	0
SV183	PLS6 follow performance parameters,range: 1~100	R/W	yes	50
SV184	PLS7 low word of mechanical original point	R	yes	0
SV185	PLS7 high word of mechanical original point	R	yes	0
SV186	PLS7 number of pulses to compensate the reverse interval	R/W	yes	0
SV187	PLS7 follow performance parameters,range: 1~100	R/W	yes	50
SV801	HSC0 low word of frequency	R	yes	0
SV802	HSC0 high word of frequency	R	yes	0
SV803	HSC1 low word of frequency	R	yes	0

SV804	HSC1 high word of frequency	R	yes	0
SV805	HSC2 low word of frequency	R	yes	0
SV806	HSC2 high word of frequency	R	yes	0
SV807	HSC3 low word of frequency	R	yes	0
SV808	HSC3 high word of frequency	R	yes	0
SV809	HSC4 low word of frequency	R	yes	0
SV810	HSC4 high word of frequency	R	yes	0
SV811	HSC5 low word of frequency	R	yes	0
SV812	HSC5 high word of frequency	R	yes	0
SV813	HSC6 low word of frequency	R	yes	0
SV814	HSC6 high word of frequency	R	yes	0
SV815	HSC7 low word of frequency	R	yes	0
SV816	HSC7 high word of frequency	R	yes	0
SV817	Historical fault code	R	yes	0
SV818	Historical fault code	R	yes	0
SV819	Historical fault code	R	yes	0
SV820	Historical fault code	R	yes	0
SV821	Historical fault code	R	yes	0
SV822	Historical fault code	R	yes	0
SV823	Historical fault code	R	yes	0
SV824	Historical fault code	R	yes	0
SV825	Historical fault code	R	yes	0
SV826	Historical fault code	R	yes	0
SV827	Historical fault code	R	yes	0
SV828	Historical fault code	R	yes	0
SV829	Historical fault code	R	yes	0
SV830	Historical fault code	R	yes	0
SV831	Historical fault code	R	yes	0
SV832	Historical fault code	R	yes	0
SV833	COM2 Communicate instruction execute interval unit ms	R/W	yes	0
SV834	COM3 Communicate instruction execute interval unit ms	R/W	yes	0
SV835	COM4 Communicate instruction execute interval unit ms	R/W	yes	0
SV836	COM5 Communicate instruction execute interval unit ms	R/W	yes	0

# System Interruption Table

Haiwell PLC support 52 system interruption, include pulse output, edge catch, high speed counter and timed interruption.

Interruption No.	Interruption Type	Declare	Priority Level
1	Pulse output interruption	PLS0 pulse output start	High to low  (the small interruption no. priority the big interruption no.)
2		PLS0 pulse output complete	
3		PLS1 pulse output start	
4		PLS1 pulse output complete	
5		PLS2 pulse output start	
6		PLS2 pulse output complete	
7		PLS3 pulse output start	
8		PLS3 pulse output complete	
9		PLS4 pulse output start	
10		PLS4 pulse output complete	
11		PLS5 pulse output start	
12		PLS5 pulse output complete	
13		PLS6 pulse output start	
14		PLS6 pulse output complete	
15		PLS7 pulse output start	
16		PLS7 pulse output complete	
17	Edge catch interruption	X0 rise edge catch	
18		X1 rise edge catch	
19		X2 rise edge catch	
20		X3 rise edge catch	
21		X4 rise edge catch	
22		X5 rise edge catch	
23		X6 rise edge catch	
24		X7 rise edge catch	
25		X0 drop edge catch	
26		X1 drop edge catch	
27		X2 drop edge catch	
28		X3 drop edge catch	
29		X4 drop edge catch	
30		X5 drop edge catch	
31		X6 drop edge catch	
32		X7 drop edge catch	
33	High speed counter interruption	HSC0 current value=preset value(each segment preset be generated)	
34		HSC0 input direction changed	
35		HSC1 current value=preset value(each segment preset be generated)	
36		HSC1 input direction changed	
37		HSC2 current value=preset value(each segment preset be generated)	
38		HSC2 input direction changed	
39		HSC3 current value=preset value(each segment preset be generated)	
40		HSC3 input direction changed	

Interruption No.	Interruption Type	Declare	Priority Level	
41		HSC4 current value=preset value(each segment preset be generated)		
42		HSC4 input direction changed		
43		HSC5 current value=preset value(each segment preset be generated)		
44		HSC5 input direction changed		
45		HSC6 current value=preset value(each segment preset be generated)		
46		HSC6 input direction changed		
47		HSC7 current value=preset value(each segment preset be generated)		
48		HSC7 input direction changed		
49		Timed interruption		T252 timer reaches target
50				T253 timer reaches target
51				T254 timer reaches target
52				T255 timer reaches target

# Error Code Table

Error Category	Description
A	Hardware failure, user program not runnable , needs to return to factory repair , red indicator light keeps on
B	Firmware exception or user program exception, user program not runnable , red indicator light will be on 0.5 seconds and be off 0.5 seconds
C	Communication exception between the modules, automatically remove the module with exception, yellow indicator light will be on 0.8 seconds and be off 0.2 seconds
D	Incorrect software setup, allow the user program to continu, yellow indicator light will be on 0.2 seconds and be off 0.8 seconds

Error Code	Message Indicated	Error Category	Indicator color	Indicator effect
0	System normal			
1	CPU firmware incomplete	B	Red	On 0.5 seconds and Off 0.5 seconds
2	CPU memory 1 access error	A	Red	Keep on
3	CPU memory 2 access error	A	Red	Keep on
4	RTC access error	A	Red	Keep on
5	CPU I/O access Error	A	Red	Keep on
6	CPU memory 3 access error	A	Red	Keep on
7	I/O board access error	A	Red	Keep on
8	Enhanced bus work abnormal	A	Red	Keep on
59	Slave CPU firmware incomplete	B	Red	On 0.5 seconds and Off 0.5 seconds
60	1# expansion module firmware incomplete	B	Red	On 0.5 seconds and Off 0.5 seconds
61	2# expansion module firmware incomplete	B	Red	On 0.5 seconds and Off 0.5 seconds
62	3# expansion module firmware incomplete	B	Red	On 0.5 seconds and Off 0.5 seconds
63	4# expansion module firmware incomplete	B	Red	On 0.5 seconds and Off 0.5 seconds
64	5# expansion module firmware incomplete	B	Red	On 0.5 seconds and Off 0.5 seconds
65	6# expansion module firmware incomplete	B	Red	On 0.5 seconds and Off 0.5 seconds
66	7# expansion module firmware incomplete	B	Red	On 0.5 seconds and Off 0.5 seconds
67	8# expansion module firmware incomplete	B	Red	On 0.5 seconds and Off 0.5 seconds
68	9# expansion module firmware incomplete	B	Red	On 0.5 seconds and Off 0.5 seconds
69	10# expansion module firmware incomplete	B	Red	On 0.5 seconds and Off 0.5 seconds
70	11# expansion module firmware incomplete	B	Red	On 0.5 seconds and Off 0.5 seconds
71	12# expansion module firmware incomplete	B	Red	On 0.5 seconds and Off 0.5 seconds
72	13# expansion module firmware incomplete	B	Red	On 0.5 seconds and Off 0.5 seconds
73	14# expansion module firmware incomplete	B	Red	On 0.5 seconds and Off 0.5 seconds
74	15# expansion module firmware incomplete	B	Red	On 0.5 seconds and Off 0.5 seconds
75	expansion module hardware failure	B	Red	On 0.5 seconds and Off 0.5 seconds
87	Illegal table content	B	Red	On 0.5 seconds and Off 0.5 seconds



Error Code	Message Indicated	Error Category	Indicator color	Indicator effect
88	Out of program stack space	B	Red	On 0.5 seconds and Off 0.5 seconds
89	Programming software version is too low	B	Red	On 0.5 seconds and Off 0.5 seconds
90	User program corrupted	B	Red	On 0.5 seconds and Off 0.5 seconds
91	Step component exceed range	B	Red	On 0.5 seconds and Off 0.5 seconds
92	Step combine exceed range	B	Red	On 0.5 seconds and Off 0.5 seconds
93	The table record number is beyond range	B	Red	On 0.5 seconds and Off 0.5 seconds
94	Catch edge times exceed range	B	Red	On 0.5 seconds and Off 0.5 seconds
95	Configuration data is illegal when power supply drop	B	Red	On 0.5 seconds and Off 0.5 seconds
96	Function code illegal	B	Red	On 0.5 seconds and Off 0.5 seconds
97	Operand illegal	B	Red	On 0.5 seconds and Off 0.5 seconds
98	Number of instructions for the same sort out of scope	B	Red	On 0.5 seconds and Off 0.5 seconds
99	No end instruction	B	Red	On 0.5 seconds and Off 0.5 seconds
100	Access 1# expansion module I/O fails	C	Yellow	On 0.8 seconds and Off 0.2 seconds
101	Access 2# expansion module I/O fails	C	Yellow	On 0.8 seconds and Off 0.2 seconds
102	Access 3# expansion module I/O fails	C	Yellow	On 0.8 seconds and Off 0.2 seconds
103	Access 4# expansion module I/O fails	C	Yellow	On 0.8 seconds and Off 0.2 seconds
104	Access 5# expansion module I/O fails	C	Yellow	On 0.8 seconds and Off 0.2 seconds
105	Access 6# expansion module I/O fails	C	Yellow	On 0.8 seconds and Off 0.2 seconds
106	Access 7# expansion module I/O fails	C	Yellow	On 0.8 seconds and Off 0.2 seconds
107	Access 8# expansion module I/O fails	C	Yellow	On 0.8 seconds and Off 0.2 seconds
108	Access 9# expansion module I/O fails	C	Yellow	On 0.8 seconds and Off 0.2 seconds
109	Access 10# expansion module I/O fails	C	Yellow	On 0.8 seconds and Off 0.2 seconds
110	Access 11# expansion module I/O fails	C	Yellow	On 0.8 seconds and Off 0.2 seconds
111	Access 12# expansion module I/O fails	C	Yellow	On 0.8 seconds and Off 0.2 seconds
112	Access 13# expansion module I/O fails	C	Yellow	On 0.8 seconds and Off 0.2 seconds
113	Access 14# expansion module I/O fails	C	Yellow	On 0.8 seconds and Off 0.2 seconds
114	Access 15# expansion module I/O fails	C	Yellow	On 0.8 seconds and Off 0.2 seconds
131	RTC battery failure	C	Yellow	On 0.8 seconds and Off 0.2 seconds
132	expansion module power supply not normal	C	Yellow	On 0.8 seconds and Off 0.2 seconds
133	Storage program and running program inconsistent	C	Yellow	On 0.8 seconds and Off 0.2 seconds
140	Hardware configuration incompatible	D	Yellow	On 0.2 seconds and Off 0.8 seconds
141	Scan timeout watchdog operate	B	Red	On 0.5 seconds and Off 0.5 seconds
142	Have locked datas	D	Yellow	On 0.2 seconds and Off 0.8 seconds
143	Current running step tasks is above upper limit	D	Yellow	On 0.2 seconds and Off 0.8 seconds

# Communication Address Code Table

## Haiwell PLC Bit Component

Equivalently Modbus address type 0, 1, support Modbus function code 1, 2, 5, 15)

Component	Name	Component Range	Read/ Write	Modbus Communication Address Code		Declare
				Hexadecimal	Decimal	
X	External input	X0~X1023	R	0x0000~0x03FF	0~1023	
Y	External output	Y0~Y1023	R/W	0x0600~0x09FF	1536~2559	
M	Auxiliary relay	M0~M12287	R/W	0x0C00~0x3BFF	3072~15359	
T	Timer(output coil)	T0~T1023	R/W	0x3C00~0x3FFF	15360~16383	
C	Counter(output coil)	C0~C255	R/W	0x4000~0x40FF	16384~16639	
SM	System status bit	SM0~SM215	all be read, some be wrote	0x4200~0x42D7	16896~17111	
S	Step relay	S0~S2047	R/W	0x7000~0x77FF	28672~30719	

## Haiwell PLC Register Component

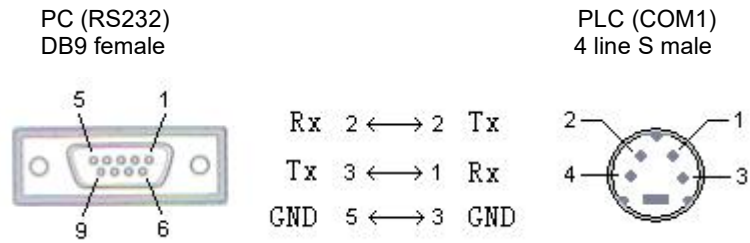
(Equivalently Modbus address type 3, 4, support Modbus function code 3, 4, 6, 16)

Component	Name	Component Range	Read/ Write	Modbus Communication Address Code		Declare
				Hexadecimal	Decimal	
CR	expansion module parameter	CR0~CR255	All can be read, some can be wrote	0x00~0xFF	0~255	Use Modbus protocol to access expansion module
AI	Analog input register	AI0~AI255	R	0x0000~0x00FF	0~255	
AQ	Analog output register	AQ0~AQ255	R/W	0x0100~0x01FF	256~511	
V	Internal data register	V0~V14847	R/W	0x0200~0x3BFF	512~15359	
TV	Timer(current value )	TV0~TV1023	R/W	0x3C00~0x3FFF	15360~16383	
CV	Counter(current value )	CV0~CV255	R/W	0x4000~0x40FF	16384~16639	16 bit register, among CV48~CV79 32 bit register
SV	System special register	SV0~SV900	All can be read, some can be wrote	0x4400~0x4784	17408~18308	

### Declare:

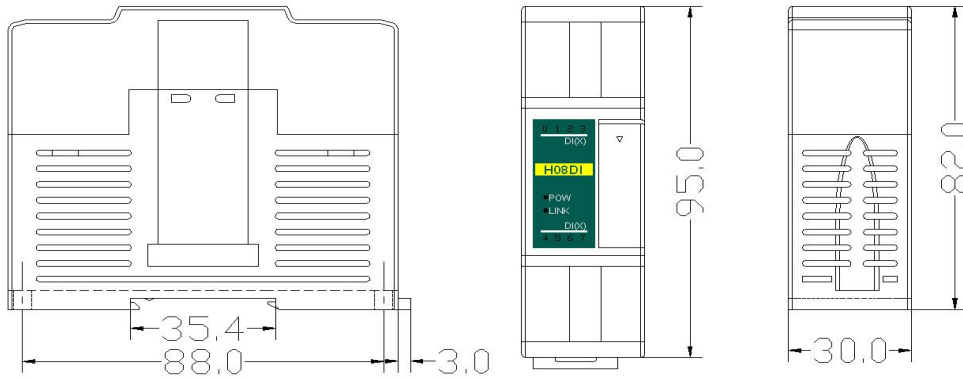
- Haiwell PLC use the stand Modbus protocol (support RTU and ASCII mode),can communicate to HMI and configuration soft which support Modbus protocol
- Haiwell PLC's Modbus addressing number from 0, Some HMI or configuration soft from 1,if HMI or configuration soft modbus addressing from 0 then communicate direct, e.g. M0 is 0x3072,V0 is 4x0512. if HMI or configuration soft modbus addressing from 1 then the address must add 1,e.g.M0 is 0x3073[3072+1],V0 is 4x0513[512+1].The first place address is the Modbus protocol component type(0/1 is bit relay ,3/4 is word register , 0/4 can read and write,1/3 read only)other places are the component address.

# Programming Cable Wiring Diagram




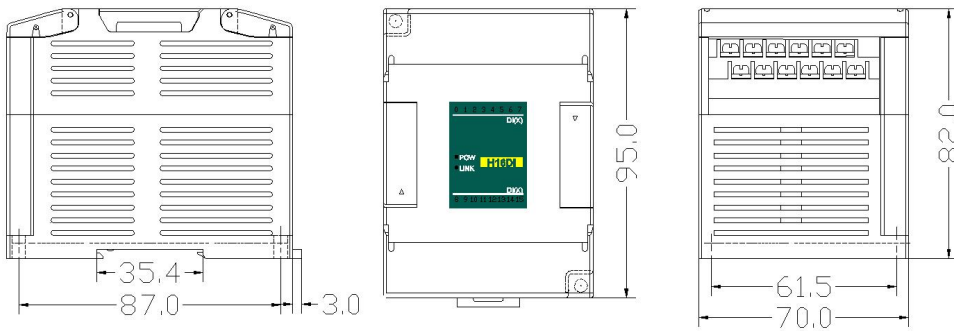
# Product Dimension

Basic unit dimensions (mm)




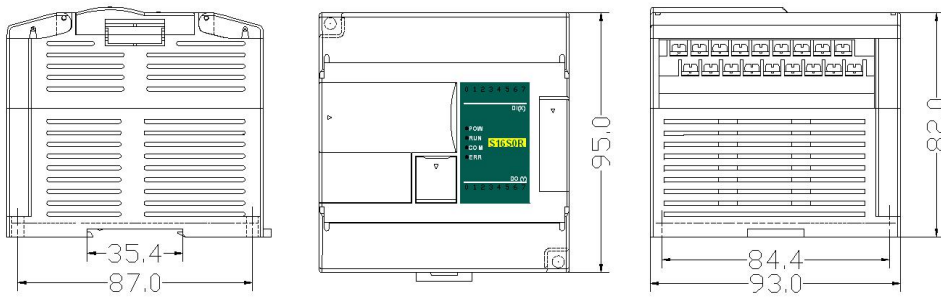
## Applicable Models

Series	Model	Dimension
Digital I/O expansion Modules	H08DI	 30*95*82mm
	H08DOR	
	H08DOT	
	H08XDR	
	H08XDT	
Communication expansion Modules	S01RS	
	S01GL	
	H01ZB	
Temperature expansion Modules	H04DT	
	H32DT	




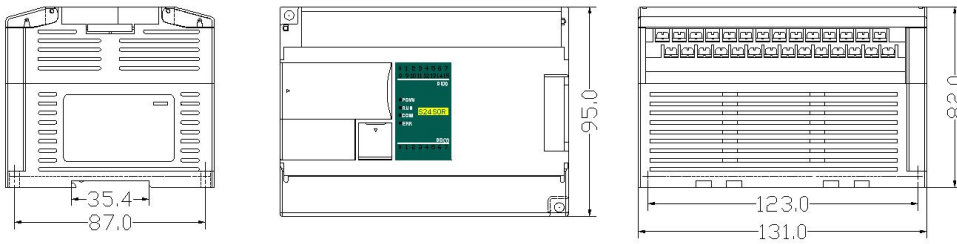
**Applicable Models**

Series	Model		Dimension
	24VDC	220VAC	
Digital I/O expansion Modules	H16DI		 70*95*82mm
	H16DOR		
	H16DOT		
	H16XDR		
	H16XDT		
Analog I/O expansion Modules	S04AI	S04AI2	
	S04AO	S04AO2	
	S04XA	S04XA2	
Temperature expansion Modules	H04RC	H04RC2	
	H04TC	H04TC2	
	H08TC	H08TC2	




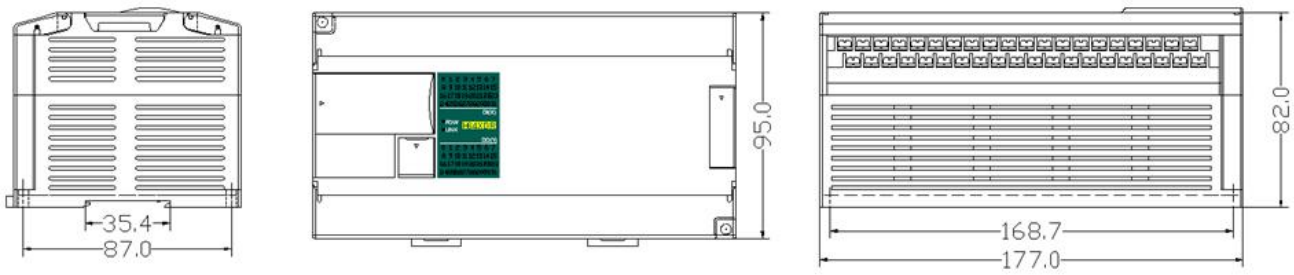
**Applicable Models**

Series	Model		Dimension
	24VDC	220VAC	
C series	C10S0R	C10S2R	 93*95*82mm
	C10S0T	C10S2T	
	C16S0R	C16S2R	
	C16S0T	C16S2T	
T series	T16S0R	T16S2R	
	T16S0T	T16S2T	
H series	H16S0R	H16S2R	
	H16S0T	H16S2T	
	H24S0R	H24S2R	
	H24S0T	H24S2T	
N series	N16S0T	N16S2T	
	N24S0T	T24S2T	
Digital I/O expansion Modules	H24DI	H24DI2	
	H24XDR	H24XDR2	
	H24XDT	H24XDT2	
Analog I/O expansion Modules	S08AI	S08AI2	
	S08AO	S08AO2	
	S08XA	S08XA2	
Temperature expansion Modules	H08RC	H08RC2	




**Applicable Models**

Series	Model		Dimension
	24VDC	220VAC	
C series	C24S0R	C24S2R	 131*95*82mm
	C24S0T	C24S2T	
	C32S0R	C32S2R	
	C32S0T	C32S2T	
T series	T24S0R	T32S2R	
	T24S0T	T32S2T	
	T32S0R	T32S2R	
	T32S0T	T32S2T	
H series	H32S0R	H32S2R	
	H32S0T	H32S2T	
	H40S0R	H40S2R	
	H40S0T	H40S2T	
N series	N40S0T	N40S2T	
Digital I/O expansion Modules	H40DI	H40DI2	
	H36DOR	H36DOR2	
	H36DOT	H36DOT2	
	H40XDR	H40XDR2	
	H40XDT	H40XDT2	



**Applicable Models**

Series	Model		Dimension
	24VDC	220VAC	
C series	C48S0R	C48S2R	 177*95*82mm
	C48S0T	C48S2T	
	C60S0R	C60S2R	
	C60S0T	C60S2T	
T series	T48S0R	T48S2R	
	T48S0T	T48S2T	
	T60S0R	T60S2R	
	T60S0T	T60S2T	
H series	H60S0R	H60S2R	
	H60S0T	H60S2T	
N series	N60S0T	N60S2T	
Digital I/O expansion Modules	H64XDR	H64XDR2	
	H64XDT	H64XDT2	



## Products Installation Method

The PLC should be secured to an enclosed cabinet while mounting. For heat dissipation, make sure to provide a minimum clearance of 50mm between the unit and all sides of the cabinet. (See the figure.)

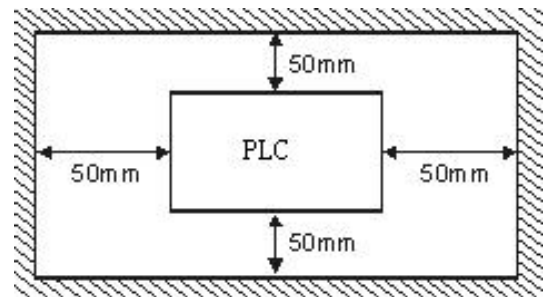
**Rail Mounting:** Use standard 35 mm rail.

**Screw Mounting:** Each MPU or expansion module has two positioning screw holes, the diameter of the hole is 4.5mm. Please refer to the dimension figure for the location of the positioning holes and their spacing.

To avoid over temperature and for a better heat dissipation, do not mount PLC to a position near to the bottom/top of the cabinet. Do not mount PLC in vertical direction.

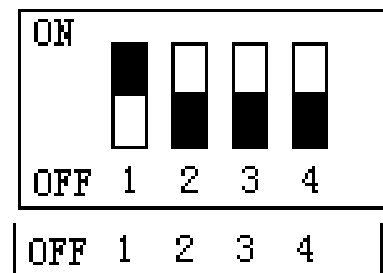
### expansion Module Wiring:

Connections between expansion modules and connections between module and MPU are achieved through bus. An expansion cable will be configured to every expansion module, for the connection between two different modules. Connection methods: turn the right side of extended interface (the last MPU or expansion module) over, plug the expansion cable in the extended interface, then press down the cover of the extended interface to reset the interface, the extended interface at the right side of the module will be reserved for expansion of the next module. Connect all expansion modules in turn in the same way.



## Correspondence Address Setting

**Method 1:** modify address by code switch. The 4-bit code switch is used to set PLC's address, as shown in the figure on the right side. The black rectangle indicates the position of each code switch. When the switch was toggled to ON, the bit was set to 1, bit will be set to 0 when the corresponding switch was toggled to OFF. The 4-bit code switch's state indicates PLC's address by the following rule: the "1" switch represents the first bit (b0), the "4" switch represents the fourth bit (b3). Therefore the 4-bit code switch is able to represents binary number range from 0000 to 1111, PLC's address will be the decimal number converted from the binary number set by the code switch.



**Method 2:** modify address through programming software interface. Select "PLC" option in the menu bar, then select "Setup PLC Parameters" option from the follow-up options, checked "Use PLC Soft

# Haiwell Products Index

## PLC (Programmable Logic Controller) Products

R\*: Relay    T\*: Transistor    C\*: Channel

#	Model	Series	Power	DI	DO	Pulse input	Pulse output	Communication	Max Ext.	Page
1	C10S0R	C	24V DC	6	4R*			RS232 + RS485	N/A	8
2	C10S0T	C	24V DC	6	4T*			RS232 + RS485	N/A	8
3	C16S0R	C	24V DC	8	8R			RS232 + RS485	N/A	8
4	C16S0T	C	24V DC	8	8T			RS232 + RS485	N/A	8
5	C24S0R	C	24V DC	16	8R			RS232 + RS485	N/A	8
6	C24S0T	C	24V DC	16	8T			RS232 + RS485	N/A	8
7	C32S0R	C	24V DC	16	16R			RS232 + RS485	N/A	8
8	C32S0T	C	24V DC	16	16T			RS232 + RS485	N/A	8
9	C48S0R	C	24V DC	28	20R			RS232 + RS485	N/A	8
10	C48S0T	C	24V DC	28	20T			RS232 + RS485	N/A	8
11	C60S0R	C	24V DC	36	24R			RS232 + RS485	N/A	8
12	C60S0T	C	24V DC	36	24T			RS232 + RS485	N/A	8
13	C10S2R	C	220V AC	6	4R			RS232 + RS485	N/A	8
14	C10S2T	C	220V AC	6	4T			RS232 + RS485	N/A	8
15	C16S2R	C	220V AC	8	8R			RS232 + RS485	N/A	8
16	C16S2T	C	220V AC	8	8T			RS232 + RS485	N/A	8
17	C24S2R	C	220V AC	16	8R			RS232 + RS485	N/A	8
18	C24S2T	C	220V AC	16	8T			RS232 + RS485	N/A	8
19	C32S2R	C	220V AC	16	16R			RS232 + RS485	N/A	8
20	C32S2T	C	220V AC	16	16T			RS232 + RS485	N/A	8
21	C48S2R	C	220V AC	28	20R			RS232 + RS485	N/A	8
22	C48S2T	C	220V AC	28	20T			RS232 + RS485	N/A	8
23	C60S2R	C	220V AC	36	24R			RS232 + RS485	N/A	8
24	C60S2T	C	220V AC	36	24T			RS232 + RS485	N/A	8
25	T16S0R	T	24V DC	8	8R	200K, 2C*		RS232 + RS485, Max 5 ports	7	9
26	T16S0T	T	24V DC	8	8T	200K, 2C	200K, 2C	RS232 + RS485, Max 5 ports	7	9
27	T24S0R	T	24V DC	16	8R	200K, 2C		RS232 + RS485, Max 5 ports	7	9
28	T24S0T	T	24V DC	16	8T	200K, 2C	200K, 2C	RS232 + RS485, Max 5 ports	7	9
29	T32S0R	T	24V DC	16	16R	200K, 2C		RS232 + RS485, Max 5 ports	7	9
30	T32S0T	T	24V DC	16	16T	200K, 2C	200K, 2C	RS232 + RS485, Max 5 ports	7	9
31	T48S0R	T	24V DC	28	20R	200K, 2C		RS232 + RS485, Max 5 ports	7	9
32	T48S0T	T	24V DC	28	20T	200K, 2C	200K, 2C	RS232 + RS485, Max 5 ports	7	9
33	T60S0R	T	24V DC	36	24R	200K, 2C		RS232 + RS485, Max 5 ports	7	9
34	T60S0T	T	24V DC	36	24T	200K, 2C	200K, 2C	RS232 + RS485, Max 5 ports	7	9
35	T16S2R	T	220V AC	8	8R	200K, 2C		RS232 + RS485, Max 5 ports	7	9

#	Model	Series	Power	DI	DO	Pulse input	Pulse output	Communication	Max Ext.	Page
36	T16S2T	T	220V AC	8	8T	200K, 2C	200K, 2C	RS232 + RS485, Max 5 ports	7	9
37	T24S2R	T	220V AC	16	8R	200K, 2C		RS232 + RS485, Max 5 ports	7	9
38	T24S2T	T	220V AC	16	8T	200K, 2C	200K, 2C	RS232 + RS485, Max 5 ports	7	9
39	T32S2R	T	220V AC	16	16R	200K, 2C		RS232 + RS485, Max 5 ports	7	9
40	T32S2T	T	220V AC	16	16T	200K, 2C	200K, 2C	RS232 + RS485, Max 5 ports	7	9
41	T48S2R	T	220V AC	28	20R	200K, 2C		RS232 + RS485, Max 5 ports	7	9
42	T48S2T	T	220V AC	28	20T	200K, 2C	200K, 2C	RS232 + RS485, Max 5 ports	7	9
43	T60S2R	T	220V AC	36	24R	200K, 2C		RS232 + RS485, Max 5 ports	7	9
44	T60S2T	T	220V AC	36	24T	200K, 2C	200K, 2C	RS232 + RS485, Max 5 ports	7	9
45	H16S0R	H	24V DC	8	8R	200K, 4C		RS232 + RS485, Max 5 ports	7	10
46	H16S0T	H	24V DC	8	8T	200K, 4C	200K, 4C	RS232 + RS485, Max 5 ports	7	10
47	H24S0R	H	24V DC	12	12R	200K, 4C		RS232 + RS485, Max 5 ports	7	10
48	H24S0T	H	24V DC	12	12T	200K, 4C	200K, 4C	RS232 + RS485, Max 5 ports	7	10
49	H32S0R	H	24V DC	16	16R	200K, 4C		RS232 + RS485, Max 5 ports	7	10
50	H32S0T	H	24V DC	16	16T	200K, 4C	200K, 4C	RS232 + RS485, Max 5 ports	7	10
51	H40S0R	H	24V DC	20	20R	200K, 4C		RS232 + RS485, Max 5 ports	7	10
52	H40S0T	H	24V DC	20	20T	200K, 4C	200K, 4C	RS232 + RS485, Max 5 ports	7	10
53	H60S0R	H	24V DC	36	24R	200K, 4C		RS232 + RS485, Max 5 ports	7	10
54	H60S0T	H	24V DC	36	24T	200K, 4C	200K, 4C	RS232 + RS485, Max 5 ports	7	10
55	H16S2R	H	220V AC	8	8R	200K, 4C		RS232 + RS485, Max 5 ports	7	10
56	H16S2T	H	220V AC	8	8T	200K, 4C	200K, 4C	RS232 + RS485, Max 5 ports	7	10
57	H24S2R	H	220V AC	12	12R	200K, 4C		RS232 + RS485, Max 5 ports	7	10
58	H24S2T	H	220V AC	12	12T	200K, 4C	200K, 4C	RS232 + RS485, Max 5 ports	7	10
59	H32S2R	H	220V AC	16	16R	200K, 4C		RS232 + RS485, Max 5 ports	7	10
60	H32S2T	H	220V AC	16	16T	200K, 4C	200K, 4C	RS232 + RS485, Max 5 ports	7	10
61	H40S2R	H	220V AC	20	20R	200K, 4C		RS232 + RS485, Max 5 ports	7	10
62	H40S2T	H	220V AC	20	20T	200K, 4C	200K, 4C	RS232 + RS485, Max 5 ports	7	10
63	H60S2R	H	220V AC	36	24R	200K, 4C		RS232 + RS485, Max 5 ports	7	10
64	H60S2T	H	220V AC	36	24T	200K, 4C	200K, 4C	RS232 + RS485, Max 5 ports	7	10
65	N16S0T	N	24V DC	8	8T	200K, 4C	200K, 4C	RS232 + RS485, Max 5 ports	7	11
66	N24S0T	N	24V DC	12	12T	200K, 4C	200K, 4C	RS232 + RS485, Max 5 ports	7	11
67	N40S0T	N	24V DC	20	20T	200K, 4C	200K, 4C	RS232 + RS485, Max 5 ports	7	11
68	N60S0T	N	24V DC	36	24T	200K, 4C	200K, 4C	RS232 + RS485, Max 5 ports	7	11
69	N16S2T	N	220V AC	8	8T	200K, 4C	200K, 4C	RS232 + RS485, Max 5 ports	7	11
70	N24S2T	N	220V AC	12	12T	200K, 4C	200K, 4C	RS232 + RS485, Max 5 ports	7	11
71	N40S2T	N	220V AC	20	20T	200K, 4C	200K, 4C	RS232 + RS485, Max 5 ports	7	11
72	N60S2T	N	220V AC	36	24T	200K, 4C	200K, 4C	RS232 + RS485, Max 5 ports	7	11

## PLC expansion Modules Index

### Digital I/O expansion Modules

R\*: Relay T\*: Transistor

#	Model	Power	DI	DO	Communication	Page
73	H08DI	24V DC	8			12
74	H08DOR	24V DC		8R*		12
75	H08DOT	24V DC		8T*		12
76	H08XDR	24V DC	4	4R		12
77	H08XDT	24V DC	4	4T		12
78	H16DI	24V DC	16		RS485, support remote function	12
79	H16DOR	24V DC		16R	RS485, support remote function	12
80	H16DOT	24V DC		16T	RS485, support remote function	12
81	H16XDR	24V DC	8	8R	RS485, support remote function	12
82	H16XDT	24V DC	8	8T	RS485, support remote function	12
83	H24DI	24V DC	24		RS485, support remote function	12
84	H24XDR	24V DC	12	12R	RS485, support remote function	12
85	H24XDT	24V DC	12	12T	RS485, support remote function	12
86	H40DI	24V DC	40		RS485, support remote function	12
87	H36DOR	24V DC		36R	RS485, support remote function	12
88	H36DOT	24V DC		36T	RS485, support remote function	12
89	H40XDR	24V DC	20	20R	RS485, support remote function	12
90	H40XDT	24V DC	20	20T	RS485, support remote function	12
91	H64XDR	24V DC	32	32R	RS485, support remote function	12
92	H64XDT	24V DC	32	32T	RS485, support remote function	12
93	H24DI2	220V AC	24		RS485, support remote function	12
94	H24XDR2	220V AC	12	12R	RS485, support remote function	12
95	H24XDT2	220V AC	12	12T	RS485, support remote function	12
96	H40DI2	220V AC	40		RS485, support remote function	12
97	H36DOR2	220V AC		36R	RS485, support remote function	12
98	H36DOT2	220V AC		36T	RS485, support remote function	12
99	H40XDR2	220V AC	20	20R	RS485, support remote function	12
100	H40XDT2	220V AC	20	20T	RS485, support remote function	12
101	H64XDR2	220V AC	32	32R	RS485, support remote function	12
102	H64XDT2	220V AC	32	32T	RS485, support remote function	12

## Analog I/O expansion Modules

#	Model	Power	AI	AO	Conversion Accuracy	Communication	Page
103	H04DT	24V DC	4 Channel DS18B20 temperature		9~12 bits		13
104	H32DT	24V DC	32 Channel DS18B20 temperature		9~12 bits	RS485, support remote function	13
105	S04AI	24V DC	4		12 bits	RS485, support remote function	13
106	S04AO	24V DC		4	12 bits	RS485, support remote function	13
107	S04XA	24V DC	2	2	12 bits	RS485, support remote function	13
108	H04RC	24V DC	4 thermal resistance		16 bits	RS485, support remote function	13
109	H04TC	24V DC	4 thermocouple		16 bits	RS485, support remote function	13
110	H08TC	24V DC	8 thermocouple		16 bits	RS485, support remote function	13
111	S08AI	24V DC	8		12 bits	RS485, support remote function	13
112	S08AO	24V DC		8	12 bits	RS485, support remote function	13
113	S08XA	24V DC	4	4	12 bits	RS485, support remote function	13
114	H08RC	24V DC	8 thermal resistance		16 bits	RS485, support remote function	13
115	S04AI2	220V AC	4		12 bits	RS485, support remote function	13
116	S04AO2	220V AC		4	12 bits	RS485, support remote function	13
117	S04XA2	220V AC	2	2	12 bits	RS485, support remote function	13
118	H04RC2	220V AC	4 thermal resistance		16 bits	RS485, support remote function	13
119	H04TC2	220V AC	4 thermocouple		16 bits	RS485, support remote function	13
120	H08TC2	220V AC	8 thermocouple		16 bits	RS485, support remote function	13
121	S08AI2	220V AC	8		12 bits	RS485, support remote function	13
122	S08AO2	220V AC		8	12 bits	RS485, support remote function	13
123	S08XA2	220V AC	4	4	12 bits	RS485, support remote function	13
124	H08RC2	220V AC	8 thermal resistance		16 bits	RS485, support remote function	13

## Communication expansion Modules

#	Model	Specification	Page
125	S01RS	With isolation ,1 RS232/RS485 communication port, Modbus RTU/ASCII protocol, freedom communication protocol, Haiwellbus high speed communication protocol, Baud rate 1200~57600bps	14
126	S01GL	With isolation ,Modbus RTU/ASCII protocol, freedom communication protocol, Haiwellbus high speed communication protocol, Baud rate 1200~115200bps	14
127	H01ZB	Zigbee wireless communication	14
128	PC2ZB	PC to Zigbee module	14

## Accessories

#	Model	Descriptions	Page
129	ACA20	RS232 programming cable, DB9, 2.0M	14



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