

### 1. Product Model And Appearance

Model	Power Consumption (24VDC)	Dimension
S01RS	0.4VA	30*95*82mm
H01RS	0.4VA	
H02RS	0.5VA	



### 2. Indicator Description

- ① POW: Power indicator, green. Continuous ON - Power good; OFF - Power error.
- ② LINK: Continuous ON when Module and PLC host connection is normal. Flickering when PLC module and host interaction data.
- ③ RS232 0,1: Indicate the communication port 0, 1 as Methods 232 communication. Flickering when Send command As the primary equipment ( Master ). Flickering when Response data As the response equipment ( Slave ).
- ④ RS485 0,1: Indicate the communication port 0, 1 as Methods 485 communication. Flickering when Send command As the primary equipment ( Master ). Flickering when Response data As the response equipment ( Slave ).

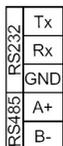
### 3. Environmental specifications for Product

Item	Environment Specification
Temperature/Humidity	Operating temperature: 0~+55°C Storage temperature: -25~+70°C Humidity: 5~95%RH, No condensation
Vibration Resistance	10-57 HZ, amplitude=0.075mm, 57HZ~150HZ acceleration=1G, 10 times each for X-axis, Y-axis and Z-axis
Impact Resistance	15G, duration=11ms, 6 times each for X-axis, Y-axis and Z-axis
Interference Immunity	DC EFT: ±2500V
Over Voltage Resistance	1500VAC/1min between AC terminal and PE terminal, 500VAC/1min between DC terminal and PE terminal
Insulation Impedance	≥ 5MΩ between AC terminal and all input/output points to PE terminal @500VDC
Ground	The third kind of grounding (Connecting to the ground of high voltage system is prohibited)
Operating environment	Avoid dust, moisture, corrosion, electric shock and external shocks
Isolation Method	No isolation between channels, photoelectric isolation adopted in communication interface and internal power

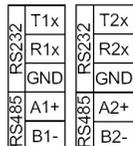
### 4. Module function specification

Extending communication module is used to extend the serial communication interface module. A communication module can be extended RS232 or RS485. Specific choose communication way is determined by module connection, do not need to set parameters. A host can be extended 3 communication module most, That is, a PLC system can take five communication and different devices with which it communicates (Host comes with 2 communication interface, RS232 and RS485). The function of Communications port that is extended with communication module and the host's own is exactly the same.

### 5. Communication module terminal wiring diagram

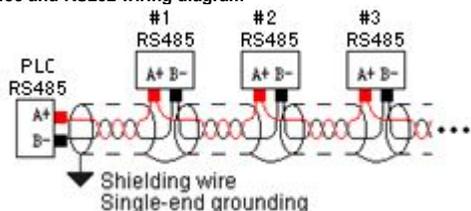


S01RS/H01RS wiring diagram

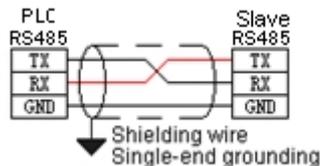


H02RS wiring diagram

### 6. RS485 and RS232 wiring diagram



RS485 wiring diagram



RS232 wiring diagram

### 7. Module connection methods

The connection between extension module and the host or extension module is achieved through the method of bus. Each extension module in the factory are bringing an connecting line that was used to connect the previous module. Opening the small module cover of previous module, and, insert the Cable connector of module which Access to in into the Extension interface of the previous module. Close the flip of the previous module to reset after Plug stability.

### 8. Module parameters specification

**Communication signal distribution** : Communication interface port implementation by the « The PLC hardware configuration» function of HaiwellHappy PLC programming software, The communication port number will be assigned by the system automatically. With the host recently for port 3, followed by ports 4, 5, downloaded to the PLC With the program. Other parameters setting of expand the communication interface module is divided into two cases:

- A. Port of the extension communication as the main equipment (Master), the parameters such as baud rate, format of communication interface are set According to the corresponding communication instruction;
- B. Port of the extension communication as the response equipment (Slave), the parameters such as baud rate, format of communication interface are set According to the Registers the SV system;

#### 1. Communication protocol definition:

Communication protocol	S01RS	H01RS, H02RS
Communication baud rate ( bps )	0 -1200, 1 -2400, 3 -4800, 4 -9600 5 -19200, 6 -38400, 7 -57600	0 -1200, 1 -2400, 3 -4800, 4 -9600 5 -19200, 6 -38400, 7 -57600, 8 -115200
Communication format	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	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
<b>Note:</b> System registers SV54, SV56, SV58 the low byte 4 for communication baud rate; The low byte high four for communication format		

#### 2. Communication error code:

Error code	Description	Error code	Description
0	Normal	5	It contains non-ASCII characters
1	Specify the function code is invalid	6	Response equipment busy, receiving data timeout
2	The address specified is invalid	7	No end character
3	Error in data values	8	
4	Communication information string is too short or too long. Minimum 4 bytes, maximum 128 bytes.	9	Check code error

### 9. PRECAUTIONS FOR USE

- 1. Maximum communication distance of RS485 bus is up to 1000 meters, RS232 using 150 pf/m communication cable, The maximum communication distance is up to 15 meters.
- 2. RS485 bus can communicate with 128 devices. Communication distance is longer, the baud rate higher, the wire thinner, the worse quality of wire rod, the worse converter, converter supply power short (passive converter), the stronger the lightning protection, these will reduce the real load quantity.
- 3. RS485 + and B - cable must be twisted pair.
- 3. RS485 bus must use the bus structure of type of hand in hand, star connection and branching connections.
- 4. To avoid high voltage interference, Communication line should be avoided and the high voltage lines together, From the interference source is more than 10 cm and the vertical line.
- 5. Ensuring equipment wiring is correct, and the construction of textbook. Communication instability problems can adopt the following debugging methods:
  - ① A total of law: Use the power cord or shielded wire all 485 devices connect to GND, Can avoid the equipment affect communication between electric potential difference.
  - ② Terminal resistance method: Parallel connection 120 ohm resistor In A + B -of In the last 485 devices to improve communication quality.
  - ③ Middle section disconnect method: check whether equipment load too much, communication distance is too long, impact on the entire communications lines a device by Disconnect between
  - ④ Separate thread method: Pull a set of communication line to the equipment Separate and Simple, Whether it can be used to eliminate wiring caused the communication failure.
  - ⑤ Replace the converter: Carry a few converters, So we can rule out whether converter quality problem affects the communication quality.

**Note:** Generally do not need to increase the terminal resistance. Only in the case of a 485 communication distance of more than 300 meters, increase the terminal resistance In the beginning and end terminal of the 485 communication and end terminal. Especially the 485 bus equipment quantity is small. When the equipment is large (e.g., more than 22). Generally do not need to increase the terminal resistance, because the terminal resistance can reduce the load capacity of 485 bus