

**S7512**  
**Zigbee IO Modules**  
**12 Channels Universal AI**  
**12 Channels RO**

**SHJ**

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**S7512** is a high quality and low cost analog data acquisition module with 12 universal analog inputs. Each input can be 0-5V,0-10V,0-20mA,thermistor,dry contact, open-collector input,12 channels relay output.S6512 has RS485 and Zigbee wireless two type interface, RS485 and Zigbee both support standard Modbus RTU protocol .It can easy integrate with PLC and labview with standard Modbus RTU protocol. Zigbee can realize the point-to-point, point-to-multipoint, multipoint-to-multipoint data transmission, can form a star, peer to peer and mesh network structure.

#### Highlights:

- **Surge-protected analog inputs with 12-bit resolution and 100k sample speed**
- **Input can be any combination of 0-5V,4-20mA,0-10V,NTC 10K thermistor, open-collector and dry contact**
- **The channel number is configurable, can be set up from 1 channel through 12 channels, for analog input improve sample rate for small count input**
- **Relay output support normal open**
- **Reliable Zigbee can up to 2000 meters communication, line of sight**
- **Zigbee can realize the point-to-point, point-to-multipoint, multipoint-to-multipoint data transmission, can form a star, peer to peer and mesh network structure**
- **A lot of spare FLASH can be used to store user's parameters**
- **Can update your firmware via ISP through RS485 network, can provide any hex file to help you finish some logic control**
- **DIN support available**

#### Application:

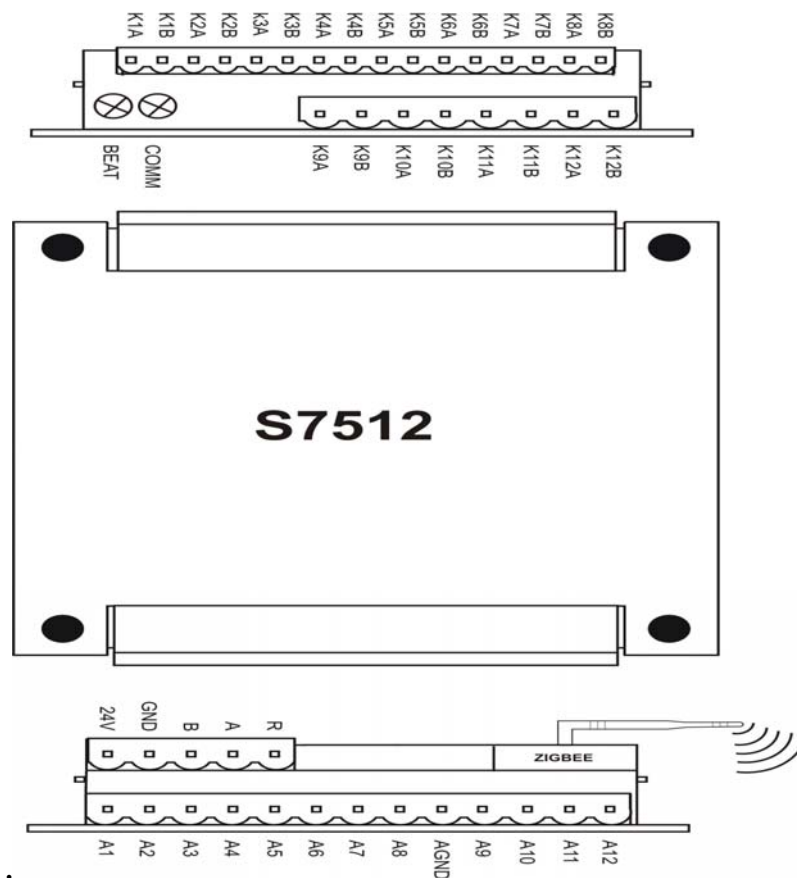
- ✓ Remote data acquisition
- ✓ Process monitoring
- ✓ Industrial process control
- ✓ Energy management
- ✓ Supervisory control
- ✓ Security systems
- ✓ Laboratory automation
- ✓ Building automation
- ✓ Product testing
- ✓ Direct digital control

#### Technical data:

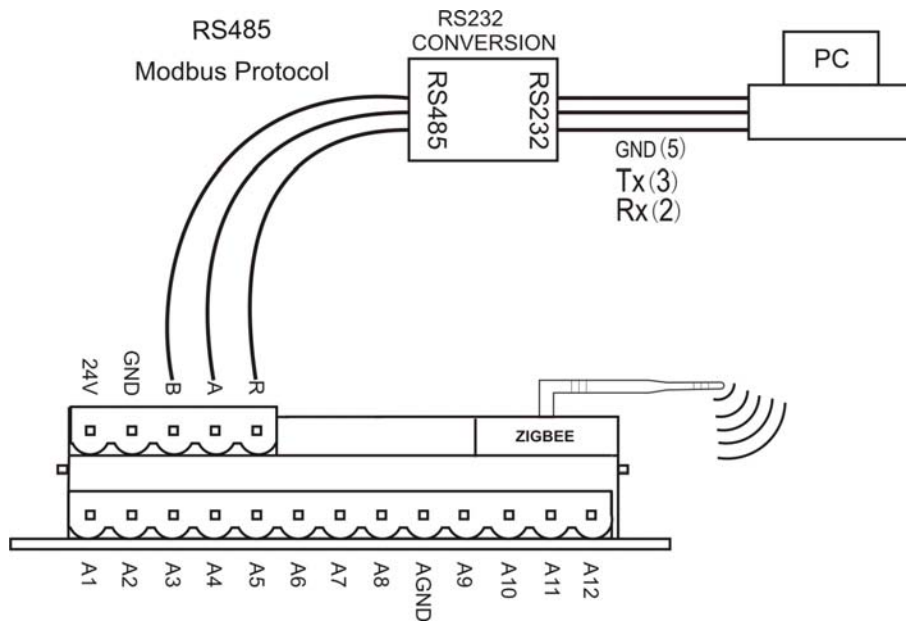
Analog Input Resolution-----12-bit  
 Analog Input Channel Number-----8  
 Analog Input range-----0-5V,0-10v,0-20mA, thermistor, dry contact,open-collector  
 Analog Input Protection-----Lightning,static  
 Analog Input Accuracy-----±0.1%  
 Analog Input Zero drift-----±3uV/°C  
 Analog Input Sample Rate-----60 sample/second(8 channels),900 sample/second(1 channel)

Output channel number-----12  
 Output load -----0.5A@`125VAC  
  
 Output BUS-----Zigbee/RS485  
     RS485 protocol-----MODBUS/RTU  
     Zigbee protocol-----MODBUS/RTU  
 Output Protection-----Lightning,static  
 Power input-----12~60VDC  
 Power consumption-----<0.6W  
 Ambient temperature:  
     Operation----- -20~85℃(-4~185°F)  
     Storage----- -40~125℃(-40~257°F)  
 Ambient humidity-----10%~90%RH  
 Material,enclosure-----Flame proof plastic  
 Enclosure rating-----IP31  
 Colour-----White/Black  
 Size-----115\*90\*43 mm

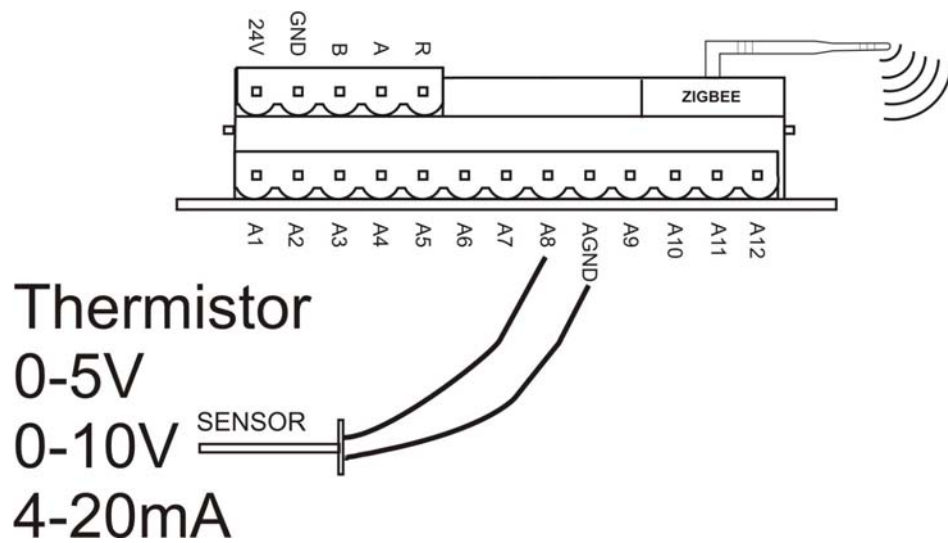
**Wiring diagram and description:**



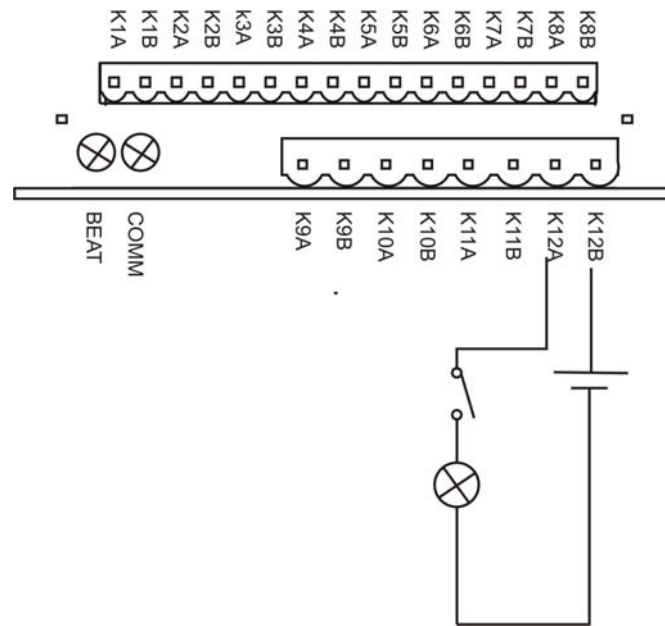
**Top view figure**



Communication wiring diagram



Analog inputs wiring diagram



**Relay output,normal open**

### Inputs

Each analog input can be jumper-configured in 1 of 4 ways:

- ✧ 0-5V signal
- ✧ 0-10V
- ✧ 0-20mA
- ✧ Dry contact, thermistor, open-collector. thermistor default is 10K NTC, but can custom according to your sensor type

### PINs and LEDs

Power supply

24VDC: power supply positive input, has reverse protection

- : Power supply negative input

RS485 Port

B: Connect to B of RS485

A: Connect to A of RS485

R: Connect to GND for RS485

Zigbee port

Connect to Zigbee network through 2.4GHz

Inputs

Analog:

A1 ~ A12: Analog input 1 through 12

AGND: common for analog input 1 through 8,also use for analog output

## Outputs

### RELAY:

KA1~KA12: Normal open end for relay output channel 1 through 12

KB11~KB12: Normal open end for relay output channel 1 through 12

## Leds

BEAT: Will flash when system is working

Comm: Will flash when RS485 serial port communication

## Modbus register list:

**Note: \* means default value**

Address	Bytes	Value range		Description	Proper ty	
		Min	Max			
0-3	4	1	4294967295	Serial number,unique for each product	R	
4-5	2	100	65535	Firmware version number	R	
6	1	1	254	Device address,default is 254*	R/W	
7	2	7512	7512	Product model	R	
8	1	1	255	Hardware version	R	
9	2	12	1152	Baudrate setting	R/W	
				Value		Baudrate
				12		1200
				24		2400
				48		4800
				96		9600
				192*		19200*
				384		38400
				576		57600
				1152		115200
For example:write 96 to register 9 to set the baudrate 9600.						
10-99	-	-	-	Reserved	-	
100-111	2	0	4095	Analog reading for channel input 1 through 12,the units decided by register 114 through 125	R	
112	2	0	4095	Relay output,0 = active,1 = inactive.Bit0 correspond to output 1,bit1 correspond to channel 2 etc.	R/W	

113	2	0	4095	Enable/disable the corresponding channel,0 = disable,1* = enable.Bit0 correspond to channel 1 and Bit1correspond to channel 2.	R/W
114-125	1	0	8	Channel 1 through 2units setting.0* = raw AD sample reading,1 = 0~5V(real value = the current reading / 100,for example, the current reading is 288,the real voltage is 288/100 = 2.88V),2 = 0~10V(real value = current reading / 100),3 = 4~20mA(real value = the current reading / 100),4 = 0~100%,5 = ON/OFF,6 = OFF/ON,7 = 10K thermistor, celsius(real value = current reading / 10),8 = 10K thermistor,Fahrenheit(real value = current reading / 10).	R/W
126-137	1	0	100	Channel 1 through 2 Filter factor,0 = no filter,10* is default.	R/W
138,140 ...	2	0	4095	In calibration mode, channel 1 through 12 sample data as input 0 volts	R/W
139,141 ...	2	0	4095	In calibration mode, channel 1 through 12 sample data as input is full scale	R/W
162~173	2	0	1000	Analog input 1 through 12 in temperature units, use calibrate temperature by adjust the offset	R/W
174	1	1	100	Respond delay for serial communication, the units is ms and default is 10ms	R/W
175-199	-	-	-	Reserved	-
200	2	0	65535	Zigbee module address	R/W
201	1	0	255	Net ID, the default is 255	R/W
202	1	1	7	Net type,01 = mesh network, 02 = star network, 07 = peer to peer network.. default is 02.	R/W
203	1	1	4	Module type,01 = center module, 03 = router module, 04 = terminal module. The default is router module.	R/W
204	1	1	3	Transfer mode. 01 = broadcast, 02 = master-slave, 03 = peer to peer. Default is 02.	R/W

**Default Settings:**

Device ID: 254, 255 is broadcast address

Data Format: 1 start bit, 8 data bit, 1 stop bit, none parity

Baudrate: 19200

There are a INIT jumper inside the board,short INIT then power on S7512,parameters will go to default settings.