

# **S5134**

## **Ethernet IO Modules**

**8 Channels Universal AI, 8 Channels AO**

**8 Channels DO, 3 Channels DI**



**SHJ**

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**S5134** is a high quality and low cost analog data acquisition module with 8 universal analog inputs. Each input can be 0-5V,0-10V,0-20mA,thermistor,dry contact, open-collector input,8 channels 0-10V analog output,3 isolated digital input and 8 channels isolated open-collector digital output. The digital input can be dry contact, wet contact and open-collector, each input also can be 32-bit counter.S5134 has RS485 and rj45 two type interface,rs485 support standard Modbus RTU protocol and RJ45 support Modbus Tcpip protocol.It can easy integrate with PLC and labview with standard Modbus/Modbus Tcpip protocol

**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 8 channels, for analog input and set up from 1 to 6 for digital input, improve sample rate for small count input**
- **8 channels 0-10V analog output with high accurate reference chip**
- **Isolated digital inputs can be configured as counter input, total 32 bits,1000Hz**
- **Total 8 channels isolated open-collector digital output**
- **Standard ModBus TCP/IP protocol,easy work with PLC**
- **Standard ModBus protocol allows for up to 254 unique devices on one RS485 network**
- **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----- $\pm 0.1\%$   
 Analog Input Zero drift----- $\pm 3\mu\text{V}/^\circ\text{C}$   
 Analog Input Sample Rate-----60 sample/second(8 channels),900 sample/second(1 channel)

Analog Output Resolution-----12-bit  
 Analog Output Channel Number-----8  
 Analog Output Range-----0-10V  
 Analog Output Accuracy----- $\pm 0.2\%$  of FSR  
 Analog Output Zero Drift----- $\pm 30\mu\text{V}/^\circ\text{C}$

Digital Input Channel Number-----3  
 Digital Input Range-----+4V~+36V  
 Digital Input Signal-----wet contact, dry contact, open-collector  
 Digital Input Counter Frequency-----100Hz@3channels;1000Hz@1channel  
 Digital Input Counter Length-----32-bit

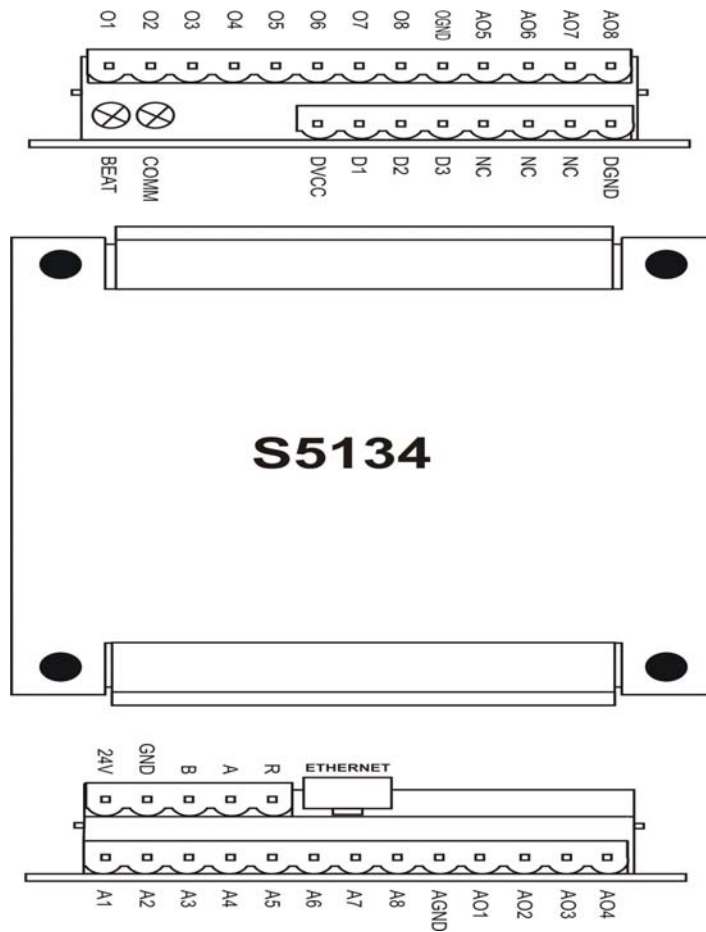
Output channel number-----8  
 Output signal-----open-collector  
 Output current-----maximum 40mA

Output BUS-----Ethernet/RS485  
     RS232/RS485 protocol-----MODBUS/RTU  
     Ethernet protocol-----MODBUS/TCP  
 Output Protection-----Lightning,static  
 Power input-----15~24V(AC/DC)  
 Power consumption-----<0.6W

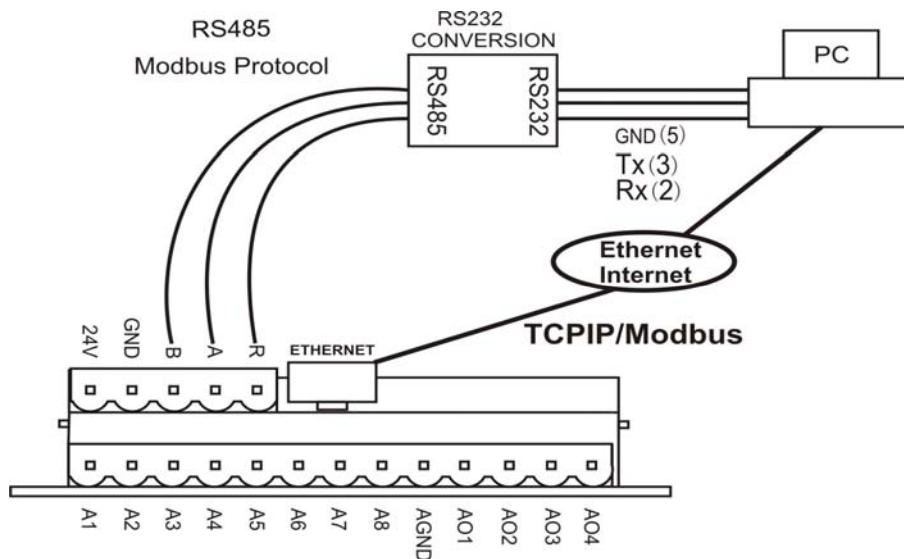
**Ambient temperature:**

    Operation----- $-20\sim 85^\circ\text{C}$ ( $-4\sim 185^\circ\text{F}$ )  
 Storage----- $-40\sim 125^\circ\text{C}$ ( $-40\sim 257^\circ\text{F}$ )  
 Ambient humidity-----10%~90%RH  
 Material,enclosure-----Flame proof plastic  
 Enclosure rating-----IP31  
 Colour-----White/Black  
 Size-----115\*90\*43 mm

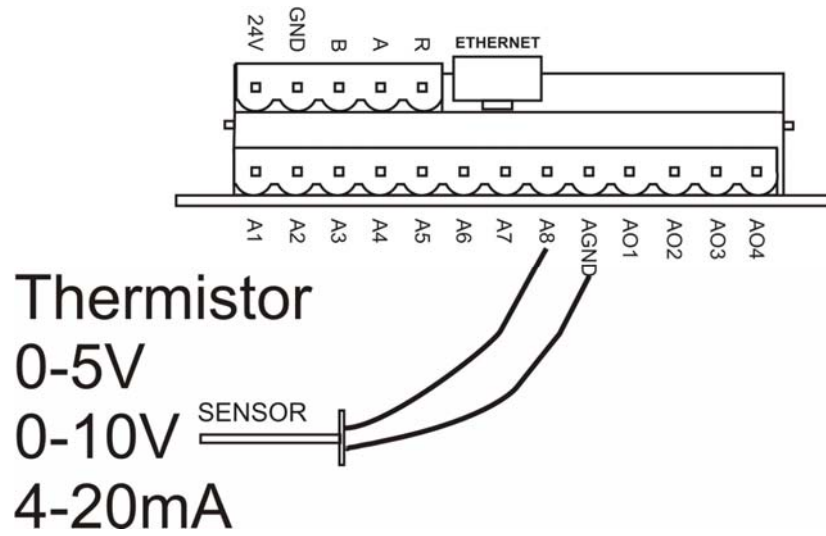
**Wiring diagram and description:**



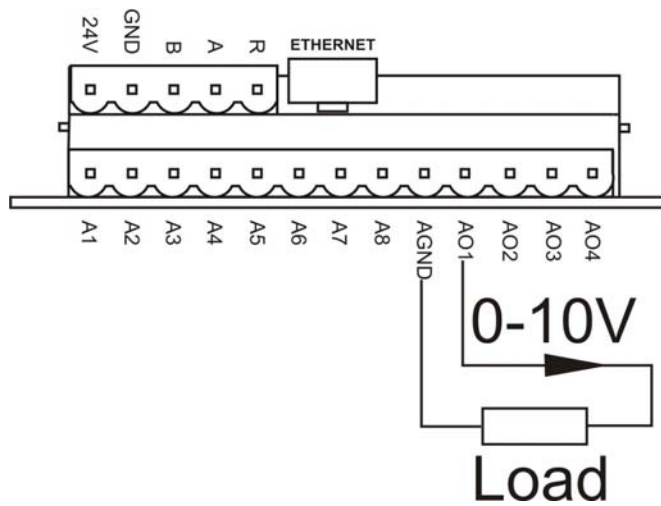
Top view figure



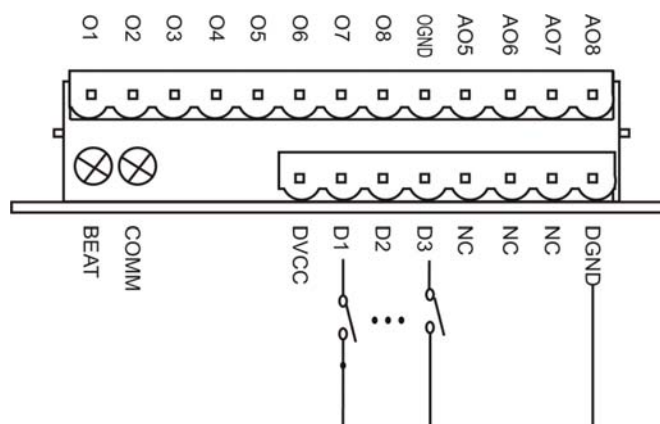
Communication wiring diagram



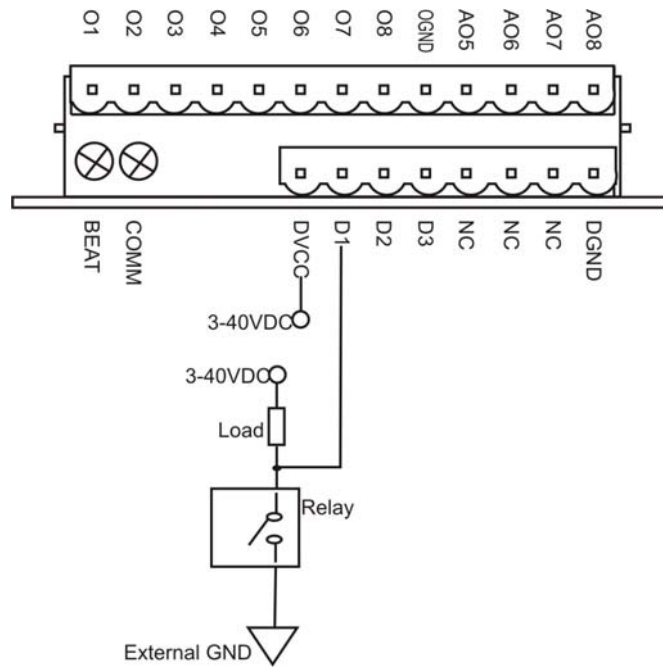
Analog inputs wiring diagram



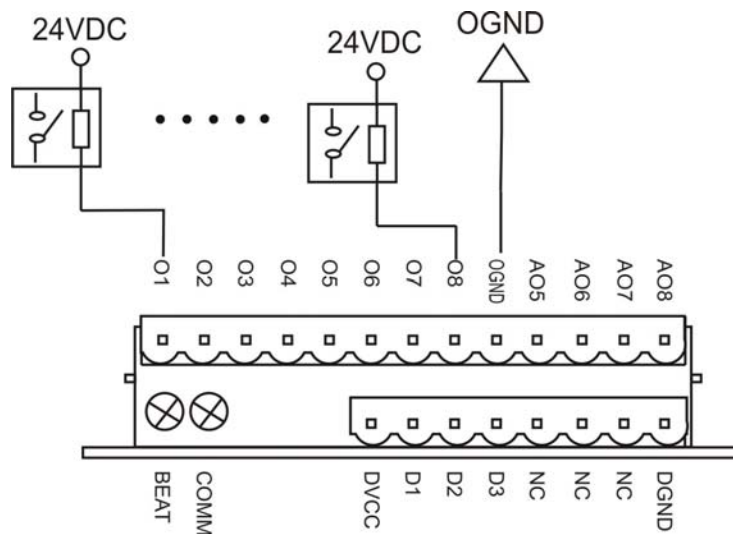
Analog outputs wiring diagram



Dry contact wiring diagram



**WET contact wiring diagram**



**Isoalted digital output wiring diagram**

### 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

All digital inputs can be jumper-configured in 1 of 2 ways:

- ✧ Wet contact input
- ✧ Dry contact, open-collector input

### **PINs and LEDs**

#### **Power supply**

24VAC: power supply positive input, has reverse protection, accept AC and DC input

- : Power supply negative input

#### **RS485 Port**

B: Connect to B of RS485

A: Connect to A of RS485

R: Connect to GND for RS485

#### **Ethernet port**

Connect to local Ethernet network through RJ45 cable

#### **Inputs**

##### **Analog:**

A1 ~ A8: Analog input 1 through 8

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

##### **Digital:**

DVCC: Power source input for digital input 1 through 3,wet contact input available

D1 ~ D3: Digital input channel 1 through 3

DGND: common for digital input 1 through 3, available in dry input mode

#### **Outputs**

##### **Analog:**

AO1 ~ AO8: Analog output 1 through 8

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

##### **Digital:**

O1~O8: Digital output channel 1 through 8

OGND: common GND for digital output 1 through 8

#### **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	Property
		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	5134	5134	Product model		R
8	1	1	255	Hardware version		R
9	2	12	1152	Baudrate setting		R/W
				Value	Buadrate	
				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		-
100-107	2	0	4095	Analog reading for channel input 1 through 8,the units decided by register 119 through 126		R
108	1	0	255	Status for digital input channel 1 through 3, 0 = contact active,1 = contact inactive.Bit0 correspond to channel 1,bit1 correspond to channel 2 etc.		R
109	1	0	255	Open-collector output,0 = active,1 = inactive.Bit0 correspond to output 1,bit1 correspond to channel 2 etc.		R/W
110	2	0	10000	Analog output1 voltage setting,6000 set output voltage 6.00V		R/W
111~117	2	0	10000	Analog output2~8 voltage setting,6000 set output voltage 6.00V		R/W
118	1	0	255	Enable/disable the corresponding channel,0 = disable,1* = enable.Bit0 correspond to channel 1 and Bit7 correspond to channel 8.For example,enable channel 1,2 and disable channel 3 through 8,write 0x03 to register 118.		R/W
119-126	1	0	8	Channel 1 through 8 units 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, elsius(real value = current reading / 10),8 = 10K thermistor,Fahrenheit(real value = current reading / 10).		R/W



127-134	1	0	100	Channel 1 through 8 Filter factor, 0 = no filter, 10* is default.	R/W
135,137, 139 ...	2	0	4095	In calibration mode, channel 1 through 8 sample data as input 0 volts	R/W
136,138 140...	2	0	4095	In calibration mode, channel 1 through 8 sample data as input is full scale	R/W
151	2	0	30000	The minimum reading from multimeter when calibrate analog output channel 1	R/W
152	2	0	30000	The maximum reading from multimeter when calibrate analog output channel 1, multimeter is show 10.05V, then write 10050 to this register.	R/W
153,155 ...	2	0	30000	The minimum reading from multimeter when calibrate analog output channel 2~8	R/W
154,156 ...	2	0	30000	The maximum reading from multimeter when calibrate analog output channel 2~8	R/W
167~174	2	0	1000	Analog input 1 through 8 in temperature units, use calibrate temperature by adjust the offset	R/W
175	2	0	65535	High word for digital input1 counter	R/W
176	2	0	65535	Low word for digital input1 counter, value of counter = (175) * 65536 + (176)	R/W
177	2	0	65535	High word for digital input2 counter	R/W
178	2	0	65535	Low word for digital input2 counter, value of counter = (177) * 65536 + (178)	R/W
179	2	0	65535	High word for digital input3 counter	R/W
180	2	0	65535	Low word for digital input3 counter, value of counter = (179) * 65536 + (180)	R/W
183~186				Reserved	-
187	2	1	30000	Filter time for counter input, the units is 10us and the default is 200us	R/W
188	1	0	255	Disable/enable input, 0 = disable and 1 = enable. Bit0 correspond to input1, Bit1 correspond to input 2 and so on.	R/W
189	1	0	1	Input status selection. 0 = ON/OFF, 1 = OFF/ON, default is ON/OFF	R/W
190	1	0	1	Digital input counter will increase at rising edge or falling edge. 0 = rising edge, 1 = falling edge, default is rising edge	R/W
191	1	1	100	Respond delay for serial communication, the units is ms and default is 10ms	R/W
192	1	0	1	Write 1 to set all analog output 0V	R/W

193	1	0	1	Write 1 to set only RS485 port work; write 0, both rs485 and Ethernet work ,but Ethernet has higher priority; default is 1	R/W
194	1	0	1	Default is 0, write 1 enable store counter when power off.	R/W
195-199	-	-	-	reserved	-
200-203	1	0	255	Device local IP address, default is 192.168.0.18	R/W
204-207	1	0	255	Gate way address, default I is 192.168.0.X	R/W
208-211	1	0	255	Subnet address, default is 255.25.255.0	R/W
212-217	1	0	255	MAC address	R/W
218	2	0	65535	Port number, default is 502, Write this register also save value of register 200 to 218.	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 S5134,parameters will go to default settings.