

# **S6135**

## **Ethernet IO Modules**

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

### **11 Channels DI**



**SHJ**

**Sales: Michael@shjelectronic.com**

**Support: support@shjelectronic.com**

**S6135** 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,11 isolated digital input. The digital input can be dry contact, wet contact and open-collector, each input also can be 32-bit counter.S6135 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 11 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
- Standard ModBus TCPIP 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:**

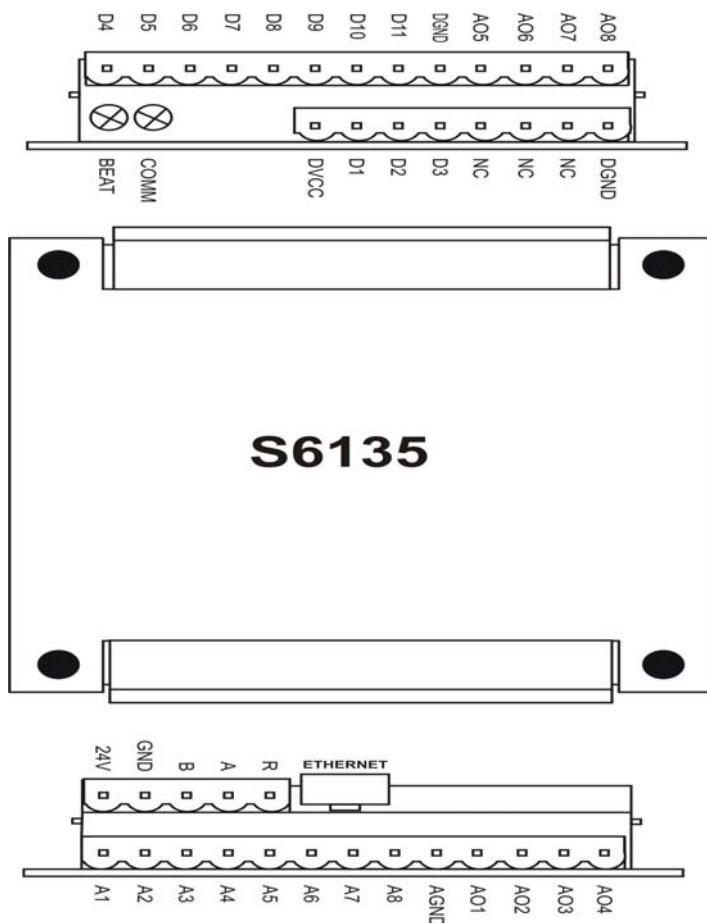
- ✓ Remote data acquisition
- ✓ Process monitoring
- ✓ Industrial process control
- ✓ Energy management
- ✓ Supervisory control
- ✓ Security systems
- ✓ Laboratory automation
- ✓ Building automation
- ✓ Product testing
- ✓ Direct digital control

**Technical data:**

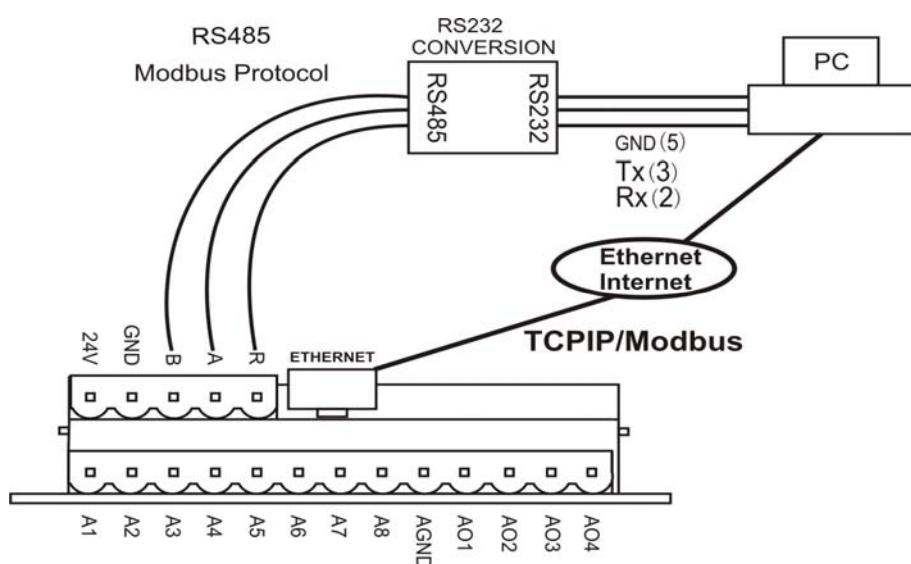
Analog Input Resolution-----	12-bit
Analog Input Channel Number-----	8
Analog Input range-----	0-5V,0-10v,0-20mA, thermistor, dry contact,open-collector
Analog Input Protection-----	Lightning,static
Analog Input Accuracy-----	±0.1%

Analog Input Zero drift-----	±3uV/°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-----	± 0.2% of FSR
Analog Output Zero Drift-----	± 30uV/°C
Digital Input Channel Number-----	11
Digital Input Range-----	+4V~+36V
Digital Input Signal-----	wet contact, dry contact, open-collector
Digital Input Counter Frequency-----	50Hz@11channels;500Hz@1channel
Digital Input Counter Length-----	32-bit
Output BUS-----	Ethernet/RS485
RS232/RS485 protocol-----	MODBUS/RTU
Ethernet protocol-----	MODBUS/TCP/IP
Output Protection-----	Lightning,static
Power input-----	15~24V(AC/DC)
Power consumption-----	<0.6W
Ambient temperature:	
Operation-----	-20~85°C(-4~185°F)
Storage-----	-40~125°C(-40~257°F)
Ambient humidity-----	10%~90%RH
Material,enclosure-----	Flame proof plastic
Enclosure rating-----	IP31
Colour-----	White/Black
Size-----	115*90*43 mm

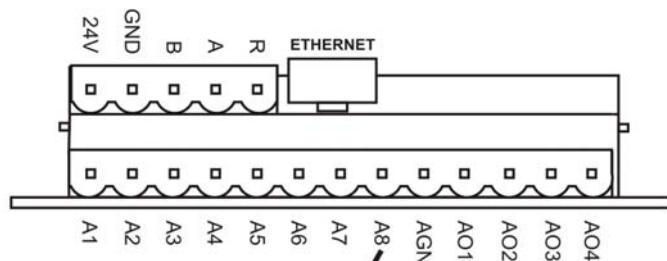
**Wiring diagram and description:**



Top view figure

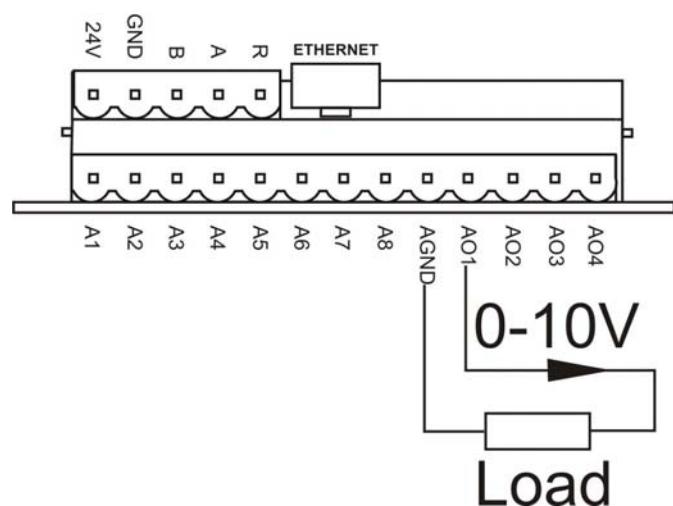


Communication wiring diagram

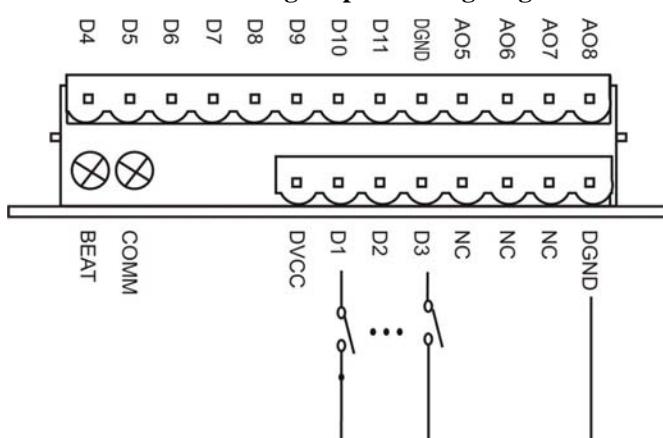


**Thermistor  
0-5V  
0-10V  
4-20mA**

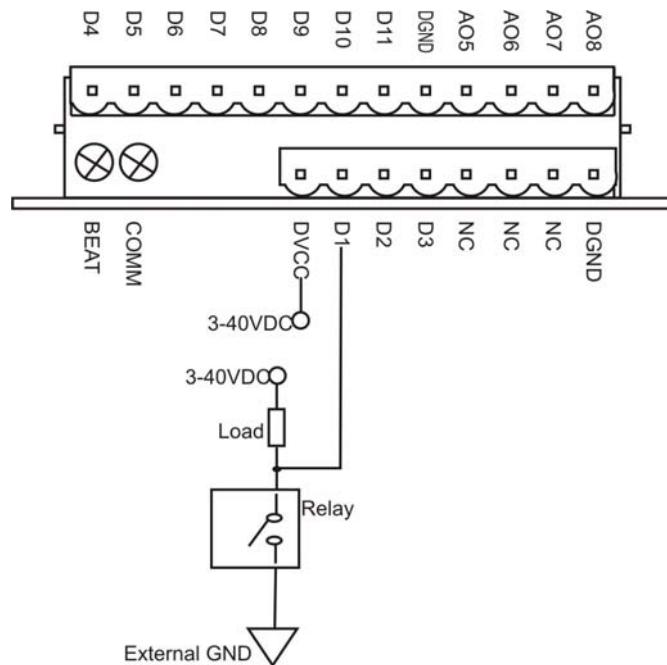
Analog inputs wiring diagram



Analog outputs wiring diagram



Dry contact wiring diagram



WET contact 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 ~ D11: Digital input channel 1 through 11

DGND: common for digital input 1 through 11, 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

## 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	6135	6135	Product model	R													
8	1	1	255	Hardware version	R													
9	2	12	1152	Baudrate setting	R/W													
				<table border="1"> <thead> <tr> <th>Value</th><th>Baudrate</th></tr> </thead> <tbody> <tr><td>12</td><td>1200</td></tr> <tr><td>24</td><td>2400</td></tr> <tr><td>48</td><td>4800</td></tr> <tr><td>96</td><td>9600</td></tr> <tr><td>192*</td><td>19200*</td></tr> <tr><td>384</td><td>38400</td></tr> <tr><td>576</td><td>57600</td></tr> <tr><td>1152</td><td>115200</td></tr> </tbody> </table>		Value	Baudrate	12	1200	24	2400	48	4800	96	9600	192*	19200*	384
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.																		
Reserved																		
Analog reading for channel input 1 through 8,the units decided by register 119 through 126																		

108	2	0	2047	Status for digital input channel 1 through 1, 0 = contact active,1 = contact inactive.Bit0 correspond to channel 1,bit1 correspond to channel 2 etc.	R
109	-	-	-	-	-
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 112.	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	1	30000	Filter time for counter input, the units is 10us and the default is 200us	R/W

176	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
177	1	0	255	Disable/enable input,0 = disable and 1 = enable.Bit0 correspond to input9, Bit1 correspond to input 10 and so on.	R/W
178	1	0	1	Input status selection.0 = ON/OFF,1 = OFF/ON, default is ON/OFF.	R/W
179	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
180	1	1	100	Respond delay for serial communication, the units is ms and default is 10ms	R/W
181	1	0	1	Write 1 to set all analog output 0V	R/W
182	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
183~193	1	0	1	Show digital status for each digital input, read only	R
194	1	0	255	Communication timeout timer, unit is second, if no communication in settings second, set all analog output to 0	R/W
195	1	0	1	Default is 0, write 1 enable store counter when power off.	R/W
196-199	-	-	-	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
300	2	0	65535	High word for digital input1 counter	R/W
301	2	0	65535	Low word for digital input1 counter, value of counter = (300) *65536 + (301)	R/W
302	2	0	65535	High word for digital input2 counter	R/W
303	2	0	65535	Low word for digital input2 counter, value of counter = (302) *65536 + (303)	R/W
304,306, 308...	2	0	65535	High word for digital input3,4,5... counter	R/W
305,307, 309..	2	0	65535	Low word for digital input3,4,5... counter, value of counter = (304...) *65536 + (305...)	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 S6135, parameters will go to default settings.