

S7500
Analog Data Acquisition Module
User's Manual

SHJ

Sales: Michael@shjelectronic.com

Support: support@shjelectronic.com

S7500 zigbee analog input module is a high quality and low cost analog data acquisition module. S7500 has total 8 channels input, each input has lightning and surge protection, the inputs can be -5V to 5V. Output use RS485 or ZIGBEE wireless. 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. Both of Rs485 and Zigbee using the industry standard Modbus protocol.

Highlights:

- Surge-protected analog inputs with 16-bit resolution and 100k sample speed
- Special reference chip guarantee high accurate reading
- Reliable Zigbee can up to 3000 meters communication
- The channel number is configurable, can be set up from 1 channel through 8 channel, improve sample rate for small count analog input
- Standard ModBus protocol allows for up to 254 unique devices on one network
- A lot of spare FLASH can be used to store user's parameters
- RS485 or ZIGBEE for optional
- Can detect RS485 or ZIGBEE automatically, no need jumper
- You can tell us your requirement. we will update our firmware even after you received the modules ,you can update your modules through ISP.

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:

Resolution-----	16-bit
Input channel number-----	8
Input range-----	+5V to -5V
Input protection-----	Lightning, static
Accuracy-----	±0.1%
Zero drift-----	±3uV/°C
Sample rate-----	95 sample/second(8 channels),710 sample/second(1 channel)
Output BUS-----	RS485/Zigbee(detect automatically)
Output Protection-----	Lightning,static
Power input-----	15~24V(AC/DC)
Power consumption-----	<0.6W

Ambient temperature:

Operation-----0~70℃(32~158℉)

Storage----- -20~85℃(-4~185℉)

Ambient humidity-----10%~90%RH

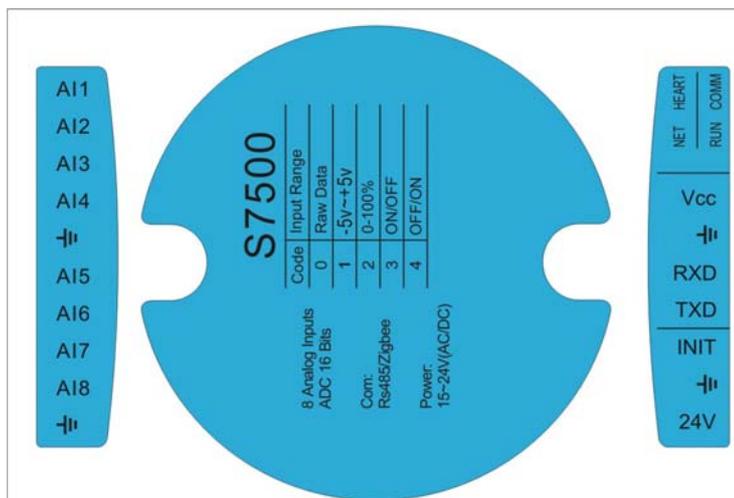
Material,enclosure-----Flame proof plastic

Enclosure rating-----IP31

Colour-----Ice Blue

Size-----100*69*25 mm

Wiring diagram and description:



1、 Input wiring

Ai1:Channel 1 signal input

Ai2:Channel 2 signal input

Ai3:Channel 3 signal input

Ai4:Channel 4 signal input

Ai5:Channel 5 signal input

Ai6:Channel 6 signal input

Ai7:Channel 7 signal input

Ai8:Channel 8 signal input

GND: common for all signal, connect together internal

2、 Power wiring

DC: 24V, positive end

GND, negative end

AC: 24V, hot line

GND, neutral line

3、 RS485 wiring, here is TTL level, we will provide RS485 to TTL card

TXD:TXD of MCU,TTL

RXD:RXD of MCU,TTL

GND: System ground

VCC: 5V power supply for Rs485 card, can provide 100mA current for user sensor.

5、 Reset parameter to default

Put the jumper between GND and INIT ,the following parameters back to default.

■ Address of device: 254

■ Baudrate:19200

6、 LEDs indication

Heart: Flashing when the system is working

Comm: Flashing when serial port communication

NET: Will flash in Configuration mode, keep lighting when enter a wireless network successfully

RUN: Will flash in Configuration mode. Will flash when Zigbee module in working mode.

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	R/W																		
7	2	7500	7500	Product model	R																		
8	1	1	255	Hardware version	R																		
9	2	12	384	Baudrate setting	R																		
				<table border="1"> <thead> <tr> <th>Value</th> <th>Buadrate</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></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </tbody> </table>		Value	Buadrate	12	1200	24	2400	48	4800	96	9600	192	19200	384	38400				
				Value		Buadrate																	
				12		1200																	
				24		2400																	
				48		4800																	
				96		9600																	
				192		19200																	
				384		38400																	
For example:write 96 to register 9 to set the baudrate 9600.																							
10-99	-	-	-	Reserved	-																		
100	2	0	65535	Channel 1 reading ,the units decided by register 109	R/W																		
101	2	0	65535	Channel 2 reading ,the units decided by register 110	R/W																		
102	2	0	65535	Channel 3 reading ,the units decided by register 111	R/W																		
103	2	0	65535	Channel 4 reading ,the units decided by register 112	R/W																		
104	2	0	65535	Channel 5 reading ,the units decided by register 113	R/W																		
105	2	0	65535	Channel 6 reading ,the units decided by register 114	R/W																		

Continue...

Address	Bytes	Value range		Description	Property
		Min	Max		
106	2	0	65535	Channel 7 reading ,the units decided by register 115	R/W
107	2	0	65535	Channel 8 reading ,the units decided by register 116	R/W
108	1	1	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 108.	R/W
109	1	0	8	Channel 1 units setting.0* = raw AD sample reading,1 = -5V0~+5V(real value = the current reading / 100,for example, the current reading is 288,the real voltage is 288/100 = 2.88V), 2 = 0~100%,35 = ON/OFF,4 = OFF/ON,.	R/W
110	1	0	8	Channel 2 units setting.Parameter same with register 109.	R/W
111	1	0	8	Channel 3 units setting.Parameter same with register 109.	R/W
112	1	0	8	Channel 4 units setting.Parameter same with register 109.	R/W
113	1	0	8	Channel 5 units setting.Parameter same with register 109.	R/W
114	1	0	8	Channel 6 units setting.Parameter same with register 109.	R/W
115	1	0	8	Channel 7 units setting.Parameter same with register 109.	R/W
116	1	0	8	Channel 8 units setting.Parameter same with register 109.	R/W
117	1	0	100	Channel 1 Filter factor,0 = no filter,10* is default.	R/W
118	1	0	100	Channel 2 Filter factor,0 = no filter,10* is default.	R/W
119	1	0	100	Channel 3 Filter factor,0 = no filter,10* is default.	R/W
120	1	0	100	Channel 4 Filter factor,0 = no filter,10* is default.	R/W
121	1	0	100	Channel 5 Filter factor,0 = no filter,10* is default.	R/W
122	1	0	100	Channel 6 Filter factor,0 = no filter,10* is default.	R/W
123	1	0	100	Channel 7 Filter factor,0 = no filter,10* is default.	R/W
124	1	0	100	Channel 8 Filter factor,0 = no filter,10* is default.	R/W

Continue...

Address	Bytes	Value range		Description	Property
		Min	Max		
125	2	0	65535	In calibration mode, channel 1 sample data as input -3 volts	R/W
126	2	0	65535	In calibration mode, channel 1 sample data as input 3 volts	R/W
127	2	0	65535	In calibration mode, channel 2 sample data as input -3 volts	R/W
128	2	0	65535	In calibration mode, channel 2 sample data as input 3 volts	R/W
129	2	0	65535	In calibration mode, channel 3 sample data as input -3 volts	R/W
130	2	0	65535	In calibration mode, channel 3 sample data as input 3 volts	R/W
131	2	0	65535	In calibration mode, channel 4 sample data as input -3 volts	R/W
132	2	0	65535	In calibration mode, channel 4 sample data as input 3 volts	R/W
133	2	0	65535	In calibration mode, channel 5 sample data as input -3 volts	R/W
134	2	0	65535	In calibration mode, channel 5 sample data as input 3 volts	R/W
135	2	0	65535	In calibration mode, channel 6 sample data as input -3 volts	R/W
136	2	0	65535	In calibration mode, channel 6 sample data as input 3 volts	R/W
137	2	0	65535	In calibration mode, channel 7 sample data as input -3 volts	R/W
138	2	0	65535	In calibration mode, channel 7 sample data as input 3 volts	R/W
139	2	0	65535	In calibration mode, channel 8 sample data as input -3 volts	R/W
140	2	0	65535	In calibration mode, channel 8 sample data as input 3 volts	R/W
141	1	1	100	Serial port respond delay, the units 2.5ms.default is 2.	R/W
142	2	0	65535	Zigbee module address	R/W
143	1	0	255	Zigbee Net ID, the default is 255	R/W
144	1	1	7	Net type,01 = mesh network, 02 = star network, 07 = peer to peer network.. default is 02.	R/W
145	1	1	4	Module type,01 = center module, 03 = router module, 04 = terminal module. The default is router module.	R/W
146	1	1	3	Transfer mode. 01 = broadcast, 02 = master-slave, 03 = peer to peer. Default is 02.	R/W
147	1	0	15	Signal channel, recommend is 4,9,14,15.	R/W
148	1	0	1	Send parameters to Zigbee module.1 = send.	R/W
149	1	0	1	Get parameters from Zigbee module. 1 = get.	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