

S3103

Analog Data Acquisition Module

User's Manual



SHJ

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S3103 is a high quality and low cost analog data acquisition module. S3103 has total 12 channels input, each input has lightning and surge protection. Output use RS485 BUS with surge protection, to reduce interference by serial port communication, the output isolated by high speed opto-couplers. The modules are slave devices that can be easily controlled via the RS485 serial interface using the industry standard Modbus protocol.

Highlights:

- Surge-protected analog inputs with 12-bit resolution and 100k sample speed
- Input is 4-20mA, fixed
- Surge-protected Rs485 ensure reliability
- The channel number is configurable, can be set up from 1 channel through 12 channel, improve sample rate for small count analog input
- 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
- Isolated RS485, non-isolated RS485, RS232 for optional
- 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-----	12-bit
Input channel number-----	12
Input range-----	4~20mA
Input protection-----	Lightning,static
Accuracy-----	±0.1%
Zero drift-----	±3uV/°C
Sample rate-----	95 sample/second(12 channels),710 sample/second(1 channel)
Output BUS-----	Isolated RS485
Output Protection-----	Lightning,static
Power input-----	12~24V(AC/DC)
Power consumption-----	<0.6W

Ambient temperature:

Operation-----0~70℃(32~158℉)

Storage----- -20~85℃(-4~185℉)

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

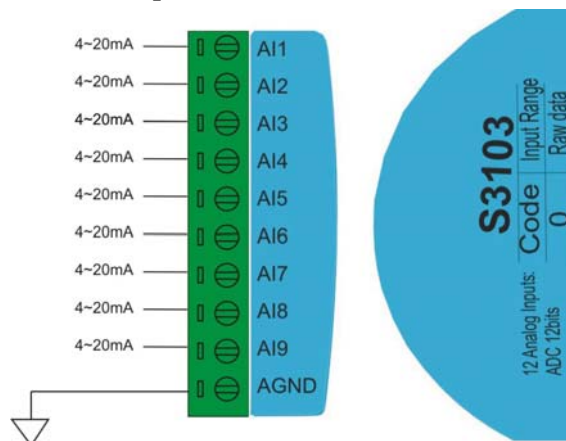
Material,enclosure-----Flame proof plastic

Enclosure rating-----IP31

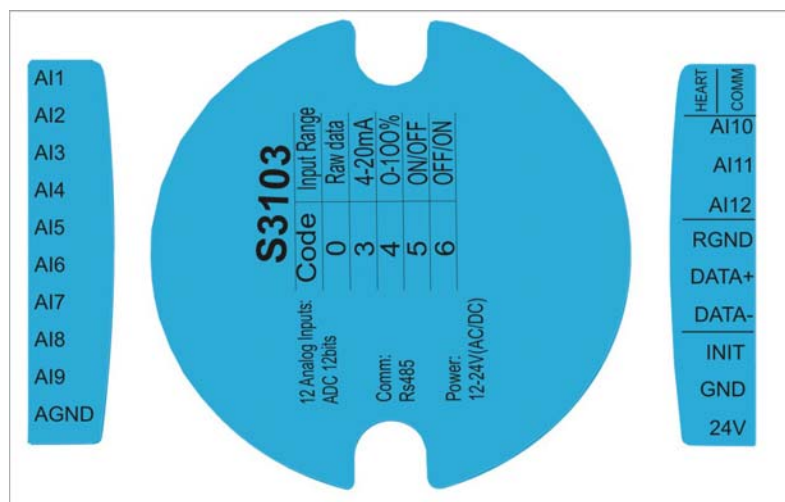
Colour-----Ice Blue

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

Wiring diagram and description:



4-20mA input



Terminal definition

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

Ai9:Channel 9 signal input

Ai10:Channel 10 signal input

Ai11:Channel 11 signal input

Ai12:Channel 12 signal input

AGND: common analog input ground

2、 Power wiring

DC: 24V, positive end

GND, negative end

AC: 24V, hot line

GND, neutral line

3、 RS485 wiring

DATA+: connect to A end of RS485

DATA-: connect to B end of RS485

RGND: Connect to earth if necessary

5、 Reset parameter to default

Connect INIT to GND wne power up,the following parameters back to default.

■ Address of device: 254

■ Baudrate:19200

■ Filter coefficient:10

■

6、 LEDs indication

Heart: Flashing when the system is working

Comm:Flashing when 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	R/W
7	2	3103	3103	Product model	R
8	1	1	255	Hardware version	R

9	2	12	1152	Baudrate setting		R
				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	2	0	4095	Channel 1 reading ,the units decided by register 113		R/W
101	2	0	4095	Channel 2 reading ,the units decided by register 114		R/W
102	2	0	4095	Channel 3 reading ,the units decided by register 115		R/W
103	2	0	4095	Channel 4 reading ,the units decided by register 116		R/W
104	2	0	4095	Channel 5 reading ,the units decided by register 117		R/W
105	2	0	4095	Channel 6 reading ,the units decided by register 118		R/W
106	2	0	4095	Channel 7 reading ,the units decided by register 119		R/W
107	2	0	4095	Channel 8 reading ,the units decided by register 120		R/W
108	2	0	4095	Channel 8 reading ,the units decided by register 121		R/W
109	2	0	4095	Channel 8 reading ,the units decided by register 122		R/W
110	2	0	4095	Channel 8 reading ,the units decided by register 123		R/W
111	2	0	4095	Channel 8 reading ,the units decided by register 124		R/W
112	2	1	4095	Enable/disable the corresponding channel,0 = disable,1* = enable.Bit0 correspond to channel 1 and Bit11 correspond to channel 12.For example,enable channel 1,2 and disable channel 3 through 12,write 0x03 to register 113.		R/W
113	1	0	8	Channel 1 units setting.0* = raw AD sample reading,3 = 4~20mA(real value = the current reading / 100,for example, the current reading is 288,the real voltage is 488/100 = 4.88mA),4 = 0~100%,5 = ON/OFF,6 = OFF/ON.		R/W
114	1	0	8	Channel 2 units setting.Parameter same with register 113		R/W

115	1	0	8	Channel 3 units setting.Parameter same with register 113.	R/W
116	1	0	8	Channel 4 units setting.Parameter same with register 113.	R/W
117	1	0	8	Channel 5 units setting.Parameter same with register 113.	R/W
118	1	0	8	Channel 6 units setting.Parameter same with register 113.	R/W
119	1	0	8	Channel 7 units setting.Parameter same with register 113.	R/W
120	1	0	8	Channel 8 units setting.Parameter same with register 113.	R/W
121	1	0	8	Channel 9 units setting.Parameter same with register 113.	R/W
122	1	0	8	Channel 10 units setting.Parameter same with register 113.	R/W
123	1	0	8	Channel 11 units setting.Parameter same with register 113.	R/W
124	1	0	8	Channel 12 units setting.Parameter same with register 113.	R/W
125	1	0	100	Channel 1 Filter factor,0 = no filter,10* is default.	R/W
126	1	0	100	Channel 2 Filter factor,0 = no filter,10* is default.	R/W
127	1	0	100	Channel 3 Filter factor,0 = no filter,10* is default.	R/W
128	1	0	100	Channel 4 Filter factor,0 = no filter,10* is default.	R/W
129	1	0	100	Channel 5 Filter factor,0 = no filter,10* is default.	R/W
130	1	0	100	Channel 6 Filter factor,0 = no filter,10* is default.	R/W
131	1	0	100	Channel 7 Filter factor,0 = no filter,10* is default.	R/W
132	1	0	100	Channel 8 Filter factor,0 = no filter,10* is default.	R/W
133	1	0	100	Channel 9 Filter factor,0 = no filter,10* is default.	R/W
134	1	0	100	Channel 10 Filter factor,0 = no filter,10* is default.	R/W
135	1	0	100	Channel 11 Filter factor,0 = no filter,10* is default.	R/W
136	1	0	100	Channel 12 Filter factor,0 = no filter,10* is default.	R/W
137	2	0	4095	In calibration mode, channel 1 sample data as input 0 volts	R/W
138	2	0	4095	In calibration mode, channel 1 sample data as input is full scale	R/W
139	2	0	4095	In calibration mode, channel 2 sample data as input 0 volts	R/W
140	2	0	4095	In calibration mode, channel 2 sample data as input is full scale	R/W
141	2	0	4095	In calibration mode, channel 3 sample data as input 0 volts	R/W
142	2	0	4095	In calibration mode, channel 3 sample data as input is full scale	R/W

143	2	0	4095	In calibration mode, channel 4 sample data as input 0 volts	R/W
144	2	0	4095	In calibration mode, channel 4 sample data as input is full scale	R/W
145	2	0	4095	In calibration mode, channel 5 sample data as input 0 volts	R/W
146	2	0	4095	In calibration mode, channel 5 sample data as input is full scale	R/W
147	2	0	4095	In calibration mode, channel 6 sample data as input 0 volts	R/W
148	2	0	4095	In calibration mode, channel 6 sample data as input is full scale	R/W
149	2	0	4095	In calibration mode, channel 7 sample data as input 0 volts	R/W
150	2	0	4095	In calibration mode, channel 7 sample data as input is full scale	R/W
151	2	0	4095	In calibration mode, channel 8 sample data as input 0 volts	R/W
152	2	0	4095	In calibration mode, channel 8 sample data as input is full scale	R/W
153	2	0	4095	In calibration mode, channel 9 sample data as input 0 volts	R/W
154	2	0	4095	In calibration mode, channel 9 sample data as input is full scale	R/W
155	2	0	4095	In calibration mode, channel 10 sample data as input 0 volts	R/W
156	2	0	4095	In calibration mode, channel 10 sample data as input is full scale	R/W
157	2	0	4095	In calibration mode, channel 11 sample data as input 0 volts	R/W
158	2	0	4095	In calibration mode, channel 11 sample data as input is full scale	R/W
159	2	0	4095	In calibration mode, channel 12 sample data as input 0 volts	R/W
160	2	0	4095	In calibration mode, channel 12 sample data as input is full scale	R/W