

S3400S

4 Channels 12Bits Analog Output Module

User's Manual



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S3400S has total 4 channels current and voltage output. The current and voltage can output at the same time. S3400S can output gradually through slew rate control and has default output when power up, all parameters store in nonvolatile RAM. Output BUS is RS485 with has surge protection. The modules are slave devices that can be easily controlled via the RS485 serial interface using the industry standard Modbus protocol.

Highlights:

- Multiple output range setting, 0-10V, 0-5V, 0-20mA, 4-20mA
- Surge-protected and isolated RS485 ensure reliability
- 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 via ISP through RS485 BUS.

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

Output channel number-----4

Output signal-----Current/Voltage

Output Range-----0-10V,0-5V,0-20mA,4-20mA

Accuracy:

 Current Output-----±0.1% of FSR

 Voltage Output-----±0.2% of FSR

Zero Drift:

 Current Output-----±0.2uA/°C

 Voltage Output-----±30uV/°C

Output Slope Rate:

 Current Output-----0.125 – 128 mA/sec

Voltage Output-----	0.0625 – 64 V/sec
Current Load Resistor-----	0 to 300
Output BUS-----	RS485 with Standard Modbus protocol
Power input-----	15~24V(AC/DC)
Power consumption-----	<0.6W
Ambient temperature:	
Operation-----	0~70℃ (32~158°F)
Storage-----	-20~85℃ (-4~185°F)
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:

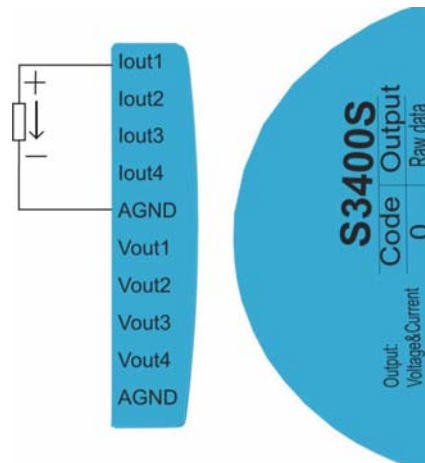


Figure 1 wiring for current output

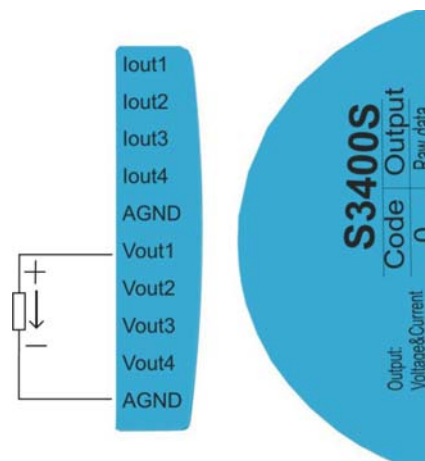


Figure 2 wiring for voltage output

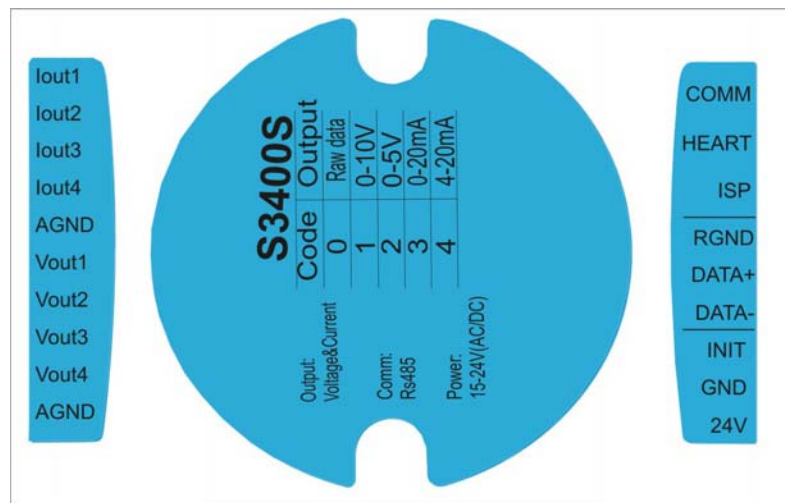


Figure 3 terminal definition

1、 Output wiring

Iout1~Iout4: Current output channel 1 through 4

Vout1~Vout4: Voltage output channel 1 through 4

AGND: Ground for current and voltage output

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

4、 Reset parameter to default

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

- Address of device: 254
- Baudrate:19200

5、 LEDs indication

ISP: The module in ISP mode, can update hex in this mode.

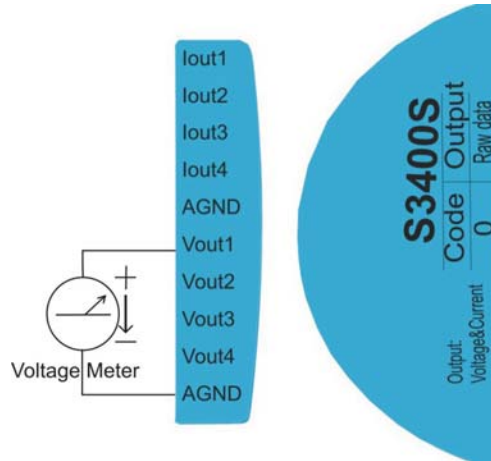
Heart: Flashing when the system is working

Comm: Flashing when serial port communication is working

Calibration:

Voltage calibration:

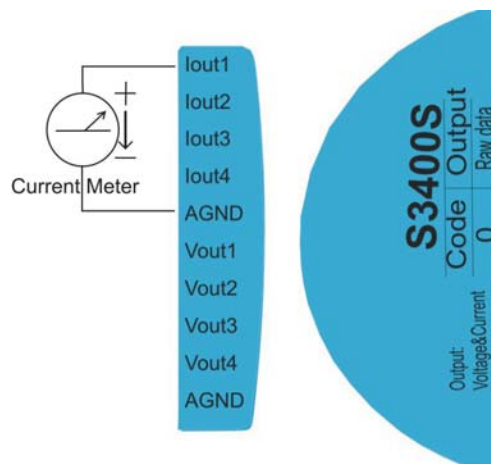
1. Attach a voltage meter refer to the following picture.



2. Power up the module and wait 30 minutes.
3. Write 1 to the corresponding range setting register
4. Write 0 to output register
5. Get the reading from multimeter and write down to paper, RD1
6. Write 10000 to output register
7. Get the reading from multimeter and write down to paper, RD2
8. Write $RD1 \times 1000$ to the corresponding minimum calibration register
9. Write $RD2 \times 1000$ to the corresponding maximum calibration register

Current calibration:

1. Attach a current meter refer to the following picture.



2. Power up the module and wait 30 minutes.
3. Write 5 to the corresponding range setting register
4. Write 0 to output register
5. Get the reading from multimeter and write down to paper, RD1

6. Write 20000 to output register
7. Get the reading from multimeter and write down to paper, RD2
8. Write RD1*1000 to the corresponding minimum calibration register
9. Write RD2*1000 to the corresponding maximum calibration register

Table 1 : Slew rate table

Code	V/sec	mA/sec	Code	V/sec	mA/sec
0	Change instantly		6	2.0	4.0
1	0.0625	0.125	7	4.0	8.0
2	0.125	0.25	8	8.0	16.0
3	0.25	0.5	9	16.0	32.0
4	0.5	1.0	10	32.0	64.0
5	1.0	2.0	11	64.0	128.0

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	3499	3499	Product model	R	
8	1	1	255	Hardware version	R	
9	2	12	1152	Baudrate setting		R/W
				ValueBuadrate		
				121200		
				242400		
				484800		
				969600		
				192*19200		
				38438400		
				57657600		
				1152115200		
For example:write 96 to register 9 to set the baudrate 9600.						
10	1	4	4	Gain range setting.	R	
11-99	-	-	-	Reserved	-	

100-103	2	0	20000	Analog output, dependent on the corresponding range setting. Value for raw data is 0 through 4095, value for engineering units should multiple 1000. For example, you want output 0.05V, should write 50 to the corresponding output register.	R/W
104-107	1	0	4	Output range setting. 0 = raw data, 1 = 0-10V, 2 = 0 – 5V, 3 = 0 – 20mA, 4 = 4 – 20mA.	R/W
108-111	1	0	11	Slew rate setting. See table 1.	R/W
111-115	2	0	20000	Power up analog output, dependent on the corresponding range setting.	R/W
116	2	0	25000	The minimum reading from multimeter when calibrate analog output channel 1	R/W
117	2	0	25000	The maximum reading from multimeter when calibrate analog output channel 1	R/W
118	2	0	25000	The minimum reading from multimeter when calibrate analog output channel 2	R/W
119	2	0	25000	The minimum reading from multimeter when calibrate analog output channel 2	R/W
120	2	0	25000	The maximum reading from multimeter when calibrate analog output channel 3	R/W
121	2	0	25000	The maximum reading from multimeter when calibrate analog output channel 3	R/W
122	2	0	25000	The minimum reading from multimeter when calibrate analog output channel 4	R/W
123	2	0	25000	The maximum reading from multimeter when calibrate analog output channel 4	R/W
124	1	1	100	Respond delay for serial communication, the units is ms and default is 10ms	R/W