XR3690

8-channel data logger

User Manual

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XR3690 using the standard RS485 bus MODBUS-RTU protocol,easy access to PLC，DCS and other instruments or systems for monitoring temperature,humidity@6#temperature@2 state quantities.The internal use of high-precision sensing core and related devices to ensure high reliability and excellent long-term stability,can be customized RS232,RS485,CAN,4-20mA,DC0~5V\10V,ZIGBEE,Lora,WIFI,GPRS and other output methods.

Technical Parameters

Technical parameter	Parameter value
Brand	XUNCHIP
Temperature measuring range	-30℃~80℃
Temperature measuring accuracy	±0.5℃ @25℃
Support sensor	SHT30
Channels	6
Input bus	IIC
Temperature measuring range	-30℃~85℃
Temperature measuring accuracy	±0.5℃ @25℃
Temperature sensors	2
Temperature Channels	2
Max Sensors of channel	1
Support temperature sensor	sensor of DS18B20
Communication Interface	RS485
Power	DC9~24V 1A
Running temperature	-30~85℃
Working humidity	5%RH~90%RH

Wiring instructions

In the case of broken wires, wire the wires as shown in the figure. If the product itself has no leads, the core color is for reference.

Communication Protocol

The product uses RS485 MODBUS-RTU standard protocol format, all operation or reply commands are hexadecimal data. The default device address is 1 when the device leaves the factory, and the module or NON-Recorder default baud rate is 9600,8,n,1 ,but data recorder default baud rate is 115200 .

1. Read data (function code 0x03)

The query frame (hexadecimal) is used to query the data of each measuring point or channel. For the multi-channel DS18B20 temperature module, since each channel supports a large number of points, each query frame There is also a limit on the length of reply bytes, so the device is designed to query data by channel. The device is divided into 2 channels, each channel supports a maximum of 062 measuring points, sending example: query 1 #All measuring point data on channel 1 of the device, the host computer sends the command: 01 03 01 01 00 3E 94 26 .

Address	Function Code	Start Address	Data Length	Check Code
01	03	01 01	00 3E	94 26

For the correct query frame, the device will respond with data: 01 03 7C 00 79 00 7A 00 7B 00 7C 00 7D 00 7E 00 7F 00 80 00 81 00 82 00 83 00 84 00 85 00 86 00 87 00 88 00 89 00 8A 00 8B 00 8C 00 8D 00 8E 00 8F 00 90 00 91 00 92 00 93 00 94 00 95 00 96 00 97 00 98 00 99 00 9A 00 9B 00 9C 00 9D 00 9E 00 9F 00 A0 00 A1 00 A2 00 A3 00 A4 00 A5 00 A6 00 A7 00 A8 00 A9 00 AA 00 AB 00 AC 00 AD 00 AE 00

AF 00 B0 00 B1 00 B2 00 B3 00 B4 00 B5 00 B6 B6 58 , response format: address, function code, length, data 1, data 2,..., data n, CRC16 calibration Verification code.

Because the display resolution of the module is 0.01, take the value of data 1 as an example, if the value is 121, then 121 is divided by the magnification 100, and the actual data value is 1.21 degrees. In practical applications, each data value It occupies two bytes, that is, an integer variable, and the actual value is divided by 100 on the basis of this value. When the data is BA D2, that is, when -177.10 is displayed, it indicates that no sensor is connected. When the data is B4 92 , that is, when -193.10 is displayed, it means that the number on the bus does not have the correct serial number

2. Common data address table

In order to query the data of the standby channel, the node address can be addressed. The device queries data by There are 10 channels, and only 10 query commands are used to find out all the data of the device. The relationship between the starting address of each channel and the 4xxxx address in the configuration software is shown in the table, and its basic calculation method is: n* 256+02, where n is the channel number. For example, the register at position 1 of channel 1 is 40258.

Configuration Address	Register Address	Register Description	Data Type	Value Range
40258	01 01	1CH 1#PTemperature	Read Only	0~65535
40259	01 02	1CH 2#PTemperature	Read Only	0~65535
......	.....	（1 Omission of mid-channel measurement points)	...	...
40320	01 3E	1CH 62#PTemperature	Read Only	0~65535
40514	02 01	2CH 1#PTemperature	Read Only	0~65535
40515	02 02	2CH 2#PTemperature	Read Only	0~65535
......	.....	（2 Omission of mid-channel measurement points)	...	...
40576	02 3E	2CH 62#PTemperature	Read Only	0~65535
----	----	Middle channel omitted)	----	----
40514	03 01	2CH 1#PTemperature	Read Only	0~65535
40515	03 02	2CH 2#PTemperature	Read Only	0~65535
......	.....	（2 Omission of	...	...

		mid-channel measurement points)		
40576	03 3E	2CH 62#PTemperature	Read Only	0~65535

3 Modify device address and baud rate

（1） Modify device address

The device sets the device address and baud rate through the dial switch on the left side of the product. In the application, when multiple machines are required to be networked, the device addresses in the network cannot be the same, so the user needs to change the device Address, the address range that can be changed by the device is 1-63. The address of the device can be changed by DIP switch S1. Dial the DIP switch to [ON] to indicate 1, and the 1-6 segments of the DIP switch S1 are related to the address. The relevant system is shown in the following table:

Segment 6	Segment 5	Segment 4	Segment 3	Segment 2	Segment 1	Address value
0	0	0	0	0	0	1
0	0	0	0	0	0	2
0	0	0	0	0	0	3
0	0	0	0	0	0	4
...	...	...	...	...	...	n
1	1	1	1	1	1	63

(2) Modify the baud rate

The baud rate setting is realized by the first 3 segments of the DIP switch S2. The fourth segment of S2 is not enabled and can be pulled to the 0 position. As shown in the figure on the right, the DIP switch is dialed to [ON] means 1, and pulling it to the side of the number means 0, the meaning is as follows.

Segment 3	Segment 2	Segment 1	Baud Rate
0	0	0	9600
0	0	1	9600
0	1	0	4800

Disclaimer

Contact Us

Brand: XUNCHIP

Address: Room 208, Building 8, No. 215, Nandong Road, Baoshan District, Shanghai, Xinxin Brand Business Department

Chinese site: http://www.xunchip.com

International site: http://www.xunchip.com
SKYPE: soobuu
E-mail: sale@sonbest.com
Tel: 86-021-51083595 / 66862055 / 66862075 / 66861077