Turbidity Water Quality Sensor Module

(Model：ZW-TUR101)

Manual

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Zhengzhou Winsen Electronics Technology CO., LTD

ZW-TUR101 Turbidity water quality sensor module

Profile

ZW-TUR101 turbidity detection module is a universal module with high precision and low range, which reflects the turbidity of the water by detecting the content of suspended solids in the water.

The module adopts RS485 standard signal output, which has the characteristics of high detection accuracy and good stability, and is widely used in the detection of various low-turbidity water environments.

Fig1. Sensor module image

Main application

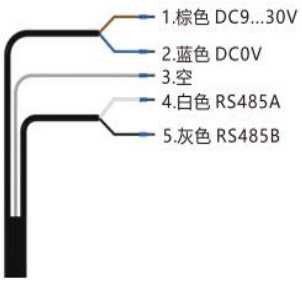
It is widely used in the turbidity detection of industrial water use, secondary water supply, water treatment and other scenarios

Technical indicators

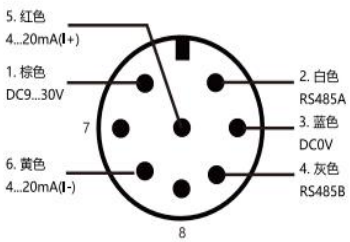
Measure range	0-20NTU； 0-100NTU	Measure accuracy	4% F.S.
Temperature range	0-60℃	Shell material	ABS
Operating voltage	9-30V（DC）	Levels of protection	IP68
Output type	RS485	Pressure tolerance range	0-1bar

The electrode wiring

电极出线1



电极出线2



M12接口

Communication protocol

1. General Settings

Baud rate	9600
Data bits	8 bit
Stop bit	1 bit
Check bit	None
Address	1(default)

2.ZW-TUR101 turbidity detection module calibration

Before calibration, write the value of the standard fluid to be calibrated into the corresponding register. Write the correction value at first point, second point, third point and fourth point before calibration.

①If the correction value for the first point is 1.000, the data 0x 3F 80 00 00 is written to the register 0x29,

Send instruction: 01 10 00 29 00 02 04 00 00 3F 80 21 8D

②If the correction value for the second point is 10.000, the data 0x 41 20 00 00 is written to the register 0x2D

Send instruction: 01 10 00 2D 00 02 04 00 00 41 20 01 A6

③ If the correction value for the third point is 20.000, the data 0x 41 A0 00 00 is written to the register 0x 31

Send instruction: 01 10 00 31 00 02 04 00 00 41 A0 01 5F

④If the value corrected for the fourth point is 30.000, the data 0x 41 F0 00 00 is written to the register 0x 35

Send instruction: 01 10 00 35 00 02 04 00 00 41 F0 00 90

3.Data format

Module addresses	Function code	Register start address		Register number		Byte number	Write to the storage data a hexadecimal floating point				CRC16	
		High Byte	Low byte	High Byte	Low byte		C	D	A	B	Low byte	High Byte
0x 01	0x 10	0x 00	0x 29	0x 00	0x 02	0x 04	0x 00	0x 00	0x 3F	0x 80	0x 21	0x D8

Note: When writing floating point data, the high and low bytes should be converted, namely hexadecimal 0x 3F 80 00 00, and the high and low bytes transposition 0x 00 00 3F 80 write to the corresponding register.

4. Start the calibration sensor:

Step 1:

Clean and put the sensor into the first point of correction fluid to send instruction 01 03 00 18 00 02 44 0C Read the AD measured value in the register 0x 00 18 , and after the AD measured value is stable, write the current AD value in the register 0x 00 2B ,

For example : the current AD value is 100, send instruction: 01 10 00 28 00 02 04 00 64 00 00 F1 DB

Repeat Step 1 to write the AD value of the calibration point to the registers 0x 00 2F, 0x 00 33, and 0x 00 37 to complete the calibration of the sensor.

5.Read the number of floating points:

Send instructions

Module addresses	Function code	Register start address		Register number		CRC16	
		High Byte	Low byte	High Byte	Low byte	Low byte	High Byte
0x 01	0x 03	0x 00	0x 01	0x 00	0x 02	0x 95	0x CB

Return the value

Module addresses	Function code	Byte number	Write to the storage data a hexadecimal floating point				CRC16	
			C	D	A	B	Low byte	High Byte
0x 01	0x 10	0x 04	0x 2C	0x 81	0x 40	0x 91	0x 52	0x E7

Note: 723741DB is converted to floating point, CDAB is converted to ABCD, that is, 41DB7237 is converted to floating point as 27.4.

Precautions

1. After using the sensor, clean it and put it away; after long-term storage, it needs to be electrified and polarized before use.
2. The cable connector must be kept dry and tidy to prevent moisture corrosion;
3. When the water is cut off or not in use, the sensor should be taken out and cleaned, wiped dry;
4. It is recommended to clean and inspect the sensor every 30 days to ensure the normal operation of the sensor.

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