TS Detection Module

（Model：ZW-TS101）

Manual

Version： 1.0

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Zhengzhou Winsen Electronic Technology Co., Ltd

Statement

Thanks for purchasing our product. In order to let customers use it better and reduce the faults caused by misuse, please read the manual carefully and operate it correctly in accordance with the instructions. If users disobey the terms or remove, disassemble, change the components inside of the sensor, we shall not be responsible for the loss.

The specific such as color, appearance, sizes &etc, please in kind prevail.

We are devoting ourselves to products development and technical innovation, so we reserve the right to improve the products without notice. Please confirm it is the valid version before using this manual. At the same time, users' comments on optimized using way are welcome.

Please keep the manual properly, in order to get help if you have questions during the usage in the future.

Zhengzhou Winsen Electronics Technology CO., LTD

ZW-TS101 Water Quality Temperature +TDS Detection Module

Profile

ZW-TS101 is a universal module that uses digital signal output, which can be used to detect the content of total dissolved solids (TDS) and temperature for detected water, it has good selectivity and stability.

Characteristics

Low power, high precision, linear output, convenient calibration and good stability.

Main application

It is widely used in the detection of laboratory research, water purifier, lake water and other fields.

Technical parameter

Stable 1

Working Voltage	12V(DC)	Working current	<5mA
Consumption	<25mW	Measuring range	0-2000μs/cm
Detecting temperature range	0-100℃	Resolution	0.1ppm
Output	RS485（5V level）	Size	58X38mm
Response time	≤20S	Output linearity	linearity
Temperature range	0～100℃	Lifespan	3years

Pin definition

PIN1	VCC
PIN2	GND
PIN3	A
PIN4	B
PIN5	TDS sensor +
PIN6	TDS sensor -
PIN7	Temperature +
PIN8	Temperature -

Communication Protocol

1.Communication settings

Baud rate	9600
Data byte	8
Stop byte	1
Check byte	none

2.Command

Read Register: 03 command:

Slave address	Function code	Register start address high byte	Register start address low byte	Register data high byte	Register data low byte	Check code low byte	Check code high byte
1 byte	03H	1byte	1byte	1byte	1byte	1byte	1byte

Correct Response :

Slave address	Function code	Data byte	Data	Check code low byte	Check code high byte
1 byte	03H	1 byte	N_L*2Data byte	1 byte	1 byte

Write Single Register : 06 command :

Slave address	Function code	Register address high byte	Register address low byte	Register value high byte	Register value low byte	Check code low byte	Check code high byte
1 byte	06H	1byte	1byte	1byte	1byte	1byte	1byte

Correct Response :

（When using the FE broadcast address to write，the slave address returns FE address）

Slave address	Function code	Register address high byte	Register address low byte	Register value high byte	Register value low byte	Check code low byte	Check code high byte
1byte	06H	1byte	1byte	1byte	1byte	1byte	1byte

Data Address Table：

Slave address	Variable name	Variable description	Note
0x0000	Temperature	0-100	Only Support 03command
0x0001	TDS	0-2000	Only Support 03command
0x0002	Address	0-247	Support 03\06command

Example Command：

3.1 Read 0#Equipment temperature：（factory default 0#）Host computer sends：00 03 00 00 00 01 85 DB

Slave Reply：00 03 02 00 B9 44 36

Temperature calculation

=00*256+0xB9=185/10=18.5℃

3.2 Read 0#Equipment TDS Value：（factory default 0#）Host computer sends：00 03 00 01 00 01 D4 1B

Slave Reply：00 03 02 01 D8 84 4E

TDS calculation=0x01*256+0xD8=472

3.3 Read 0#Equipment temperature，TDS and equipment address:

Host computer sends：

00 03 00 00 00 03 04 1A

Slave Reply：00 03 06 00 AF 02 27 00 00 49 4E

3.4 Modify the equipment address 1#（Broadcast address FE，Only 1 device is allowed, and there is no repetition address on the bus.）

Host computer sends：

FE 06 00 02 00 01 FD C5

Slave Reply：FE 06 00 02 00 01 FD C5

3.5 Modify the equipment address 2#

Host computer sends：

FE 06 00 02 00 02 BD C4

Slave Reply：FE 06 00 02 00 02 BD C4

Precautions

1.The module should avoid contact with organic solvents, coatings, agents and oils.

2. Do not apply modules to systems involving personal safety.

3. Do not use the module to be installed in a strong air convection environment.

4. The module cannot be subjected to excessive impact or vibration. If you cannot generate sway during use, the value returned will not be accurate.

5. Please power the module in strict accordance with the power supply voltage of the module, and the voltage exceeds 12V will cause the module to be irreversible damage.

6. Do not place the module in a strong air convection environment.

7. Do not place the module for a long time in high concentration organic gases.

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