



# **TDS Water Quality detection module**

**(Model: ZW-TDS102)**

# **Manual**

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**Zhengzhou Winsen Electronic Technology Co., Ltd**

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Zhengzhou Winsen Electronics Technology CO., LTD

# ZW-TDS102 TDS Water Quality Detection Module

## Profile

ZW-TDS102 TDS water quality detection module is a universal module that uses digital signal output, which can be used to detect the content of total dissolved solids (TDS) in water, and have 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	0-2000 $\mu$ s/cm
Detecting temperature range	0-100 $^{\circ}$ C	Resolution	0.1 $\mu$ s/cm
Output	RS485 (5V level)	Size	58X38mm
Response time	$\leq$ 20S	Output linearity	linearity
Temperature range	0~100 $^{\circ}$ C	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

#### Command example:

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

$$=00*256+0xB9=185/10=18.5^{\circ}\text{C}$$

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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