



## **PH Water Quality Sensor Module**

**(Model: ZW-pH102)**

# **Manual**

Version: 1.2

Valid Date: 2021.12.16

**郑州炜盛电子科技有限公司**

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

## Statement

This manual copyright belongs to Zhengzhou Winsen Electronics Technology Co., LTD. Without the

written permission, any part of this manual shall not be copied, translated, stored in database or retrieval system, also can't spread through electronic, copying, record ways.

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-pH102 water quality sensor module

### Profile

The ZW-PH102 pH detection module is a universal module that uses electrochemical principles to detect the pH values of different solutions, with good selectivity and stability. Built in temperature sensor, capable of temperature compensation, and adopts analog voltage output mode, which is convenient for users and greatly shortens their design and development cycle. It closely integrates electrochemical detection technology with circuit design to meet the detection needs of users for various solutions.



### Module Features

Low power consumption, high cost-effectiveness, wide linear range, easy calibration, and good stability.

### Main Application

Widely applicable in laboratory research, water supply for water plants, wastewater treatment, aquaculture, farmland irrigation and other fields.

### Technical indicators

**Table1**

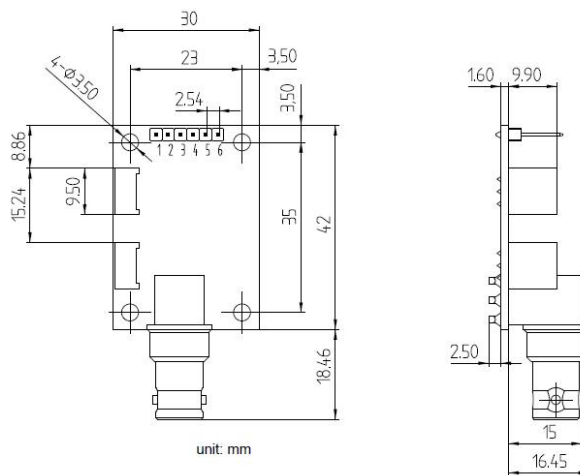
Working voltage	5±0.1V	Working current	5-10mA
Module power consumption	≤50mW	PH range	1-14
Size and dimensions	42X32X18mm	Detect temperature range	0-50°C
Output method	Analog voltage signal	Output linearity	linear
Response time	≤5S	Stable time	≤180S
Temperature range	0°C~50°C	Service life	3 Year

### Pin Definition

**Table 2**

PIN1	VCC
PIN2	GND
PIN3	GND
PIN4	PH value output
PIN5	Level signal output
PIN6	Temperature compensation output

**Figure 1: Module Structure Diagram**



Sensitivity curve

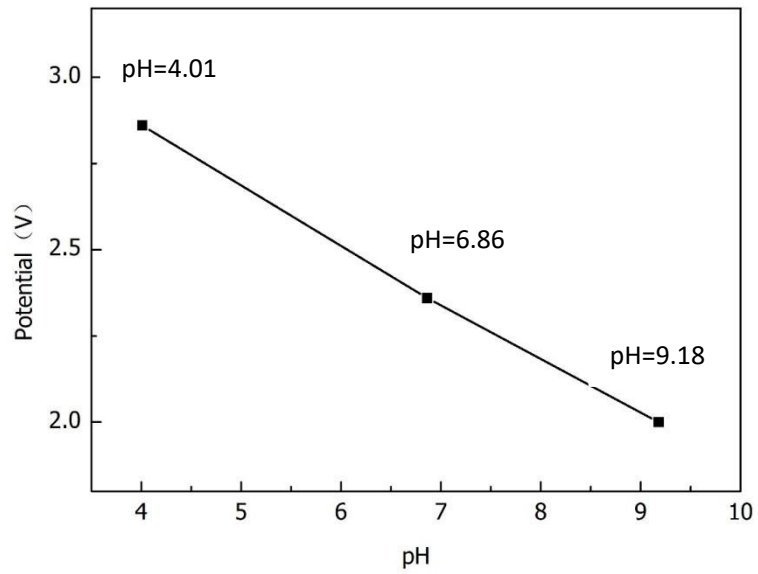


Figure 2: Linear Curve

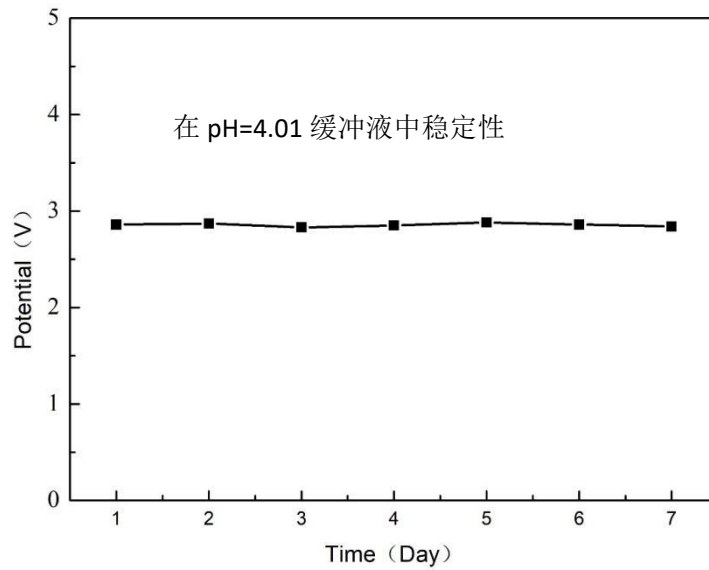


Figure 3: Stability Curve

**Testing method**

The ZW-PH102 pH detection module needs to be calibrated before use. The calibration and detection process is as follows:

1. Prepare two standard buffer solutions with pH=4.01 and pH=6.86.
2. Connect the module to a 5V DC power supply, connect the voltmeter to the pH output terminal, and remove the protective cap from the sensor terminal. Immerse the sensor terminals in solutions with pH=4.01 and pH=6.86, respectively. After about 3 minutes, record the corresponding voltage values on the voltmeter and complete the calibration.
3. Immerse the calibrated sensor tip in the test solution for about 3 minutes until the voltmeter value stabilizes. Record the voltage value, and then calculate the pH value of the test solution. The pH value and corresponding voltage value are shown in Table 3.

**Table 3**

PH	Voltage (V)
4.01	2.8-2.9
6.86	2.3-2.4
9.18	1.9-2.0

**Precautions:**

1. Do not apply the module to systems involving personal safety.
2. Do not install the module in a strong air convection environment for use.
3. The module should avoid contact with organic solvents, coatings, chemicals, oils, and high concentration gases.
4. The module should not withstand excessive impact or vibration, and should not produce shaking during use, otherwise the returned values will be inaccurate.
5. Please strictly supply power to the module according to its supply voltage. Voltage exceeding 5.5V can cause irreversible damage to the module.

**Zhengzhou Winsen Electronics Technology Co., Ltd**  
**Add:** No.299, Jinsuo Road, National Hi-Tech Zone,  
Zhengzhou 450001 China  
**Tel:** +86-371-67169097/67169670  
**Fax:** +86-371-60932988  
**E-mail:** [sales@winsensor.com](mailto:sales@winsensor.com)