

BHT-D type PH value and temperature transmitter manual

I. Overview

BHT-D type PH value and temperature transmitter adopts dual high-resistance three-electrode system.

Electrode loose alarm, electrode good or bad alarm during calibration, power failure protection (can keep calibration results and preset data from shutdown or power failure And lost), over-current protection, over-voltage protection, high measurement accuracy, fast response, long service life and so on.

The user-friendly online one-button calibration function is convenient for users to periodically calibrate and correct the electrode, combined with temperature compensation function, can effectively complete the process of conversion, processing and other measurement data.

The product is small in size, light in weight, easy to install and maintain, and has standard industrial signal output (0-5V, 0-10V, 4-20MA, ModbusRTU485) can meet all kinds of real-time monitoring equipment on site.

The product is convenient to connect with various control equipment and display instruments, and realize online monitoring of PH value and temperature status. This product is used in various occasions where pH value and temperature need to be measured and controlled.

Application

This product is suitable for: electroplating, fermentation, food processing, sewage treatment, metallurgy, environmental protection and other occasions.

Product appearance dimensions

Fourth, technical parameters

Technical Parameters	Parameter value
Temperature measurement range	-20 °C ~ + 80 °C
Temperature measurement accuracy	± 0.5 °C
Measuring pH range	0.0 ~ 14.0PH
PH measurement accuracy	± 0.01PH
Power supply	DC: 12V ~ 24V
Signal output	DC: 0 ~ 5V or 0 ~ 10V or 4-20MA or ModbusRTU485
Load Resistance	Voltage output: R load ≥ 10KΩ Current output: R load ≤ (Uvcc-3) / 0.02 ohm
Power consumption	< 1W
Storage conditions	10-50 °C (-20- + 80 °C peak) 20-60% RH
Use environment	-20 °C ~ + 80 °C (PH can only test solutions above 0 degrees)
Dimensions	65 × 46 × 28.5mm ³

Five, model description

Serial number	model	Parameter description (temperature transmission range can be customized, default -20- + 80 °C)
1	BHT-D / V05	PH temperature integrated, 0-5V output
2	BHT-D / V10	PH temperature integrated, 0-10V output
3	BHT-D / I	PH temperature integrated, 4-20mA output
4	BHT-D / RS485	PH temperature integrated, ModbusRTU485 output

Signal output

PH measurement range	0.0 ~ 14.0PH
PH value	0.00 1.00 2.00 3.00 4.00 5.00 6.00 7.00 8.00 9.00 10.00 11.00 12.00 13.00 14.00
0-5V output	0.00 0.36 0.71 1.07 1.43 1.79 2.14 2.50 2.86 3.21 3.57 3.93 4.29 4.64 5.00
0-10V output	0.00 0.71 1.43 2.14 2.86 3.57 4.29 5.00 5.71 6.43 7.14 7.86 8.57 9.29 10.00
4-20mA output	4.00 5.14 6.29 7.43 8.57 9.71 10.86 12.00 13.14 14.29 15.43 16.57 17.71 18.86 20.00

For details of ModbusRTU485 output, please refer to: BHT-D / RS485 PH Temperature Transmitter Instructions

Temperature measurement range	-20 ~ 80 °C										
Temperature (°C)	-20	-10	0	10	20	30	40	50	60	70	80
0-5V output	0.00	0.50	1.00	1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00
0-10V output	0.00	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00
4-20mA output	4.00	5.60	7.20	8.80	10.40	12.00	13.60	15.20	16.80	18.40	20.00

Seven, transmitter calibration and electrode quality detection

A. Prepare the calibration solution (use the CO₂-free distilled water at about 25 °C to prepare PH4.00 and PH9.18 calibration solutions)

1. Wash two 250ml measuring cups with CO₂-free distilled water, and mark PH4.00 and PH9.18 on the outside of the two measuring cups.
2. Place the PH4.00 buffer powder in the measuring cup marked as PH4.00 in step 1.

3. Rinse the inner wall of the plastic bag with a small amount of CO₂-free distilled water, pour it into the corresponding measuring cup, and then dilute to 250ml with Distilled water, shake well and set aside.

4. Place the pH9.18 buffer powder in the measuring cup marked with PH9.18 in step 1.

5. Rinse the inner wall of the plastic bag with a small amount of CO₂-free distilled water and pour into the corresponding measuring cup, then dilute to 250ml with Distilled water, shake well and set aside.

Note: Because the temperature compensation range in the calibration state is limited, the temperature of the CO₂-free distilled water used for the calibration solution is around 25 ° C! If the configured calibration solution needs to be reused, please keep it sealed, and it can only be used if the calibration solution is not contaminated. To reuse!

B, a calibration transmitter (step calibration process is not executed as long as 9, by pressing a calibration button can be used to terminate the current verification process in advance, the

After that, the sensor also works with the parameters of the last successful calibration.)

1. Clean the electrode and temperature sensor with clean water and wipe dry with a soft paper towel.

2. Connect the transmitter power, PH electrode and temperature sensor correctly.

3. Immerse the electrode and temperature sensor into the prepared pH 4.00 calibration solution at the same time.

4. Press and hold the calibration button until the calibration indicator lights up yellow, then release the button.

5. Quickly press the calibration button twice until the calibration indicator flashes red. At this time, the transmitter enters the process of calibration PH4.00. (The duration of this process is 30 seconds.) After the calibration, the calibration indicator is always red.

6. After the calibration indicator is always red, remove the PH electrode and temperature sensor from the pH 4.00 calibration solution, and then use water to

The electrode and temperature sensor are cleaned and wiped with a soft paper towel (this process does not require the electrode and temperature sensor to be removed from the solution). (Removed), removing the pH electrode or temperature sensor before the calibration process has ended normally will cause the calibration process to end prematurely, and Do not save this calibration data! !!

7. Immerse the electrode and temperature sensor into the prepared pH9.18 calibration solution at the same time.

8. Quickly press the calibration button once. At this time, the calibration indicator flashes green, and the transmitter enters the process of calibration PH9.18 (this The duration of the process is 30 seconds. After the calibration, the calibration indicator will be solid green for 20 seconds, and then blink yellow for 20 seconds to indicate Save the calibration data.

9, the electrode and temperature probe looseness, good and bad detection (automatic judgment) and data storage:

If the temperature probe or electrode is damaged, loose or the electrodes do not match during the calibration, the calibration indicator is red and green.

The color flashes alarm alternately. After blinking for 20 seconds, the indicator goes out. This round of calibration is over. The data of this round of calibration is not saved.

During the calibration process, if the electrodes and temperature probes are tested without fault, the transmitter will automatically store the data of the current calibration. The quasi-indicator light is always yellow for 20 seconds, and the current round of calibration is over.

If the electrode or temperature probe is loose during normal use, the calibration indicator will flash red and green alternately.

10. The current calibration process is not performed until the data saving process in step 9 can be performed by long pressing the calibration button until the calibration indicator The yellow light flashes once and then goes out to terminate the calibration process in advance.

Eight, repair and maintenance

1. The electrode is cleaned every two weeks, depending on the condition of the water sample.

2. Calibrate the transmitter periodically with a calibration solution, once a month. Depending on the condition of the water sample.

3. When the sensor output stabilization time is too long (usually the stabilization time is less than 10 seconds) or the sensor response is slow, Clean the electrode with 0.1mHCL regeneration solution.

4. If the transmitter cannot be calibrated, if you replace it with a new electrode and still cannot successfully calibrate, please contact our company.

Nine, wiring instructions

Temperature output T / B	4	Temperature load or meter
Ground GND	3	12 ~ 24VDC power negative
PH output H / A	2	PH load or meter
Power VCC	1	12 ~ 24VDC positive pole

Attention: The voltage or current output mode has been configured according to the requirements of the customer when ordering;

The customer needs to carefully check the matching of the output signal with the collector or instrument port when wiring, such as changing the signal mode,

The transmitter power supply must be powered off to avoid damage (especially the voltage output cannot be connected to the current sampling terminal, it is likely that

Will cause IC damage);

Before connecting the power supply to the transmitter, the customer should carefully check whether the wiring is correct and avoid human damage. (Such as Incorrect connection may cause the internal components of the transmitter to burn out and affect normal use);

Eight, installation method:

1. Fix the transmitter with M5 screws through the two holes on the left and right sides of the housing or the holes on the top of the red pin
2. Guide rail installation;

Nine, matters needing attention

1. Turn off the power when installing and replacing. Check whether the leads are correct before connecting the power.
2. Please store in a dry environment when not used for a long time.
3. Some functional indicators of the product may be modified, and the indicators on the product identification shall prevail.
4. The warranty period is 12 months. During the warranty period, non-artificial products will be used normally.