TIANSHUI HUATIAN SENSOR

CYB4500 SERIES WIRELESS PRESSURE TRANSMITTER

Tianshui Huatian Sensor Co., Ltd
天 水 华 天 传 感 器 有 限 公 司

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CYB4500

1 Introduction

This wireless pressure transmitter belongs to the supporting product of oil-water well wireless monitoring system, and is suitable for pressure monitoring during production, storage and transportation process of oil-water well. Adopts micro-power wireless communication mode, no wiring required, so installation becomes quicker, safer and more convenient. In addition, there are matching wireless adapters that can convert many wireless pressure signals into MODBUS standard signals for transmission via Ethernet or serial port, which can help to access measurement control system more convenient and has a wide range of applications.

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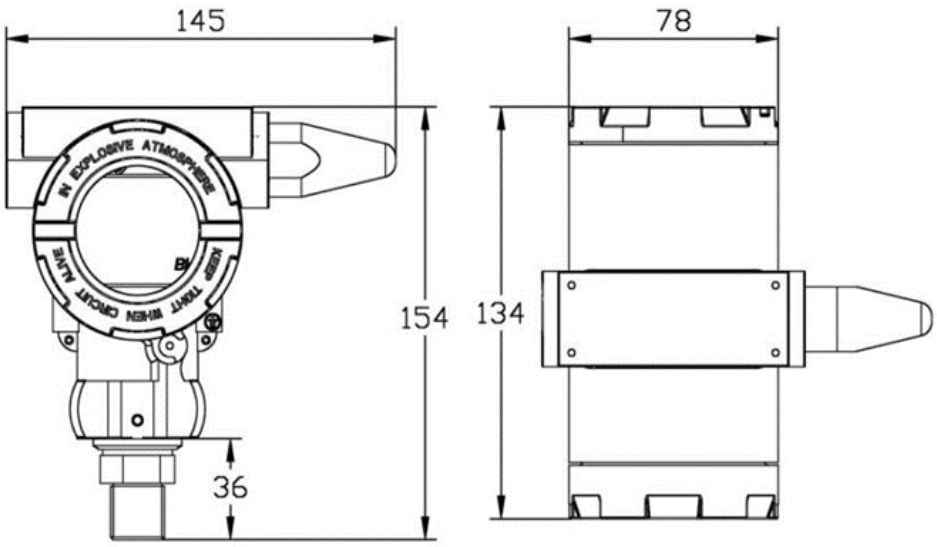
2 Working Principle

The sensing element of this wireless pressure transmitter is a diffused silicon pressure sensor, and the Lora module is used for wireless communication. The sensitive chip uses integrated circuit technology to make a sensitive piezoresistance on a crystalline silicon wafer to form a wheatstone bridge as a sensitive device for force-electric conversion. When an external force is applied, the bridge loses its balance. When a constant current excitation power is applied to the bridge circuit, the pressure signal can be linearly converted into a millivolt-level voltage signal, amplified into a digital signal, and then sent by a wireless module to a host computer.

3 Technical indicators

Pressure range	(0 ～ 100) bar (can be customized)
Accuracy level	0.5
Measuring medium	liquid, gas
Overload pressure	150% F.S
Reporting cycle	1 minute to 12 hours can be set
Decimal digit	0 to 3 digits can be set
Signal transmission	Lora wireless
Transmitting power	⩽150mW
Transmission distance	ordinary 2Km
Working power	3.6V lithium battery
Battery life	⩾2 years (upload once every 120 minutes)
Process interface	standard M20 × 1.5 (or customized according to requirements)
Explosion-proof grade	Exia Ⅱ BT4 Ga
Ingress protection	IP66
Working environment temperature	-40 ℃ ～ 70 ℃
Working environment humidity	⩽95% RH
Product weight	1350g (net weight)

4 Dimensional Drawing



5 Display Description

The display panel of the wireless pressure transmitter is as follows:

The sections of the display panel are described below:

Code	Code description
1	Over-pressure alarm indicator, flashes when pressure value exceeds range
2	Debug interface
3	Button settings
4	Button 1
5	Button 2
6	Battery level indicator
7	Battery voltage indicator
8	Lora signal indicator

9	Lora signal strength indicator
10	Lora channel indicator
11	Pressure value
12	Pressure value unit
13	Full pressure indicator
14	Group code and serial number

6 Installation Notes

6.1 Make sure that the pressure measurement range required by the process is consistent with the pressure transmitter to be installed.
6.2 The thread specifications of the process interface must be matched with the wireless pressure transmitter.
6.3 Before installing a pressure transmitter on the pipeline, closing the valve (needle valve or gate valve) on the pipeline where the pressure transmitter to be installed, and then screw the transmitter directly into the upper port of the valve. After installation, open the valve to confirm that there is no leakage, that is, the installation is qualified.

7 Parameter Settings

7.1 Set the instrument parameters by using the manual operator
1) Select "Initialize" on the manual operator, enter the wireless channel, network, group number, and serial number to be set in the pop-up dialog window, and press the "Set" button to save.
2) Place the magnet in the magnetic induction zone of the wireless pressure transmitter for 6 seconds. The transmitter resets and obtains the parameters from the manual operator.
3) When you hear the “tick” sound of the manual operator, it means that the parameters of the wireless pressure transmitter have been set successfully.
7.2 Use the buttons to set the instrument parameters.
1) Press the Zero button, the instrument enters the setting mode and displays [01].
2) Press the W2 button to enter the communication address setting state, and the modified digit flickers. At this time, press the W1 button to modify, and hex cyclically increments from 0-F. After the specified number is selected, press the W2 button to switch to the next digit. After the highest digit is set, press W2 to automatically exit the address setting and enter the next parameter setting item [02].
3) Press the W1 button to switch parameter setting items. To make the parameters effective after the modification is completed, you must press the W1 button, switch to the [99] setting item, press the W2 button to enter the setting, and set its value to 1111. After setting, press the W2 button to confirm, the instrument will automatically restart, and the new parameters are saved.

4) If you do not enter the [99] setting item, the previously modified parameters will not take effect, and automatically exit the setting state after the button times out.

5) Parameter list description

Code	Code description
【01】	Enable target Lora address to be specified, default 0.
【02】	Target Lora address, [01] is valid after enabling.
【03】	Regular data response waiting time.
【04】	Lora channel, subtract 11 from the channel calculated from the well name.
【05】	Lora Network ID.
【06】	Instrument Lora address, default 0xfffe, assigned by the coordinator.
【07】	Group code and serial number.
【08】	Maximum sleep time.
【99】	Save parameters, set to 1111 effective.

8 Common Fault Handling

When the instrument cannot work normally, users can refer to the following table for simple maintenance. If the fault cannot be eliminated, please contact the manufacturer.

Situation	Cause Analysis	Approach
The instrument has no display	Dead battery	Replace battery
The host computer cannot receive data	Wireless parameters are different	Set the instrument's wireless channel and ID to be the same as the host computer
Low pressure	Pressure hole is blocked	Remove the instrument and clean the pressure hole

9 After-sale Service

The warranty period of this product is one year under the conditions that the user fully complied with the requirements of the instructions, used correctly, and there is no artificial damage.