Sensor Co.,LTD

USER MANUAL

SMART REMOTE WIRELESS SENSOR

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MZW2600 Series 4G-GPRS/LoRa Instruction Manual

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1. Product introduction

1.1 Product type and model

The IOT pressure and temperature level monitoring terminal (hereinafter referred to as the IOT monitoring terminal) is a smart instrument with low power consumption and wireless communication power consumption. Based on the mature network, Cloud platform and mobile client wireless transmission. This product can set parameters such as pressure / temperature unit, range zero / range full scale, high / low alarm value, fluctuation threshold, upload time and other parameters via USB on the terminal. It can also remotely customize the acquisition frequency through the cloud platform and view real-time data online, the historical data allowing customer to accurately and timely grasp on-site information.

The meter uses a large-capacity lithium battery to provide a stable and reliable power supply for the product, enabling it to operate safely for more than 2 years (uploaded once an hour). The self-developed low-power system can not only provide users with on-site data through the LCD screen, but also upload data through the wireless module, and even graft the data to the user's own cloud platform. The powerful control algorithm enables the instrument to have signal breaks, Transmission, working mode automatic switching, pressure fluctuation real-time alarm, one-click wake-up and other practical functions.

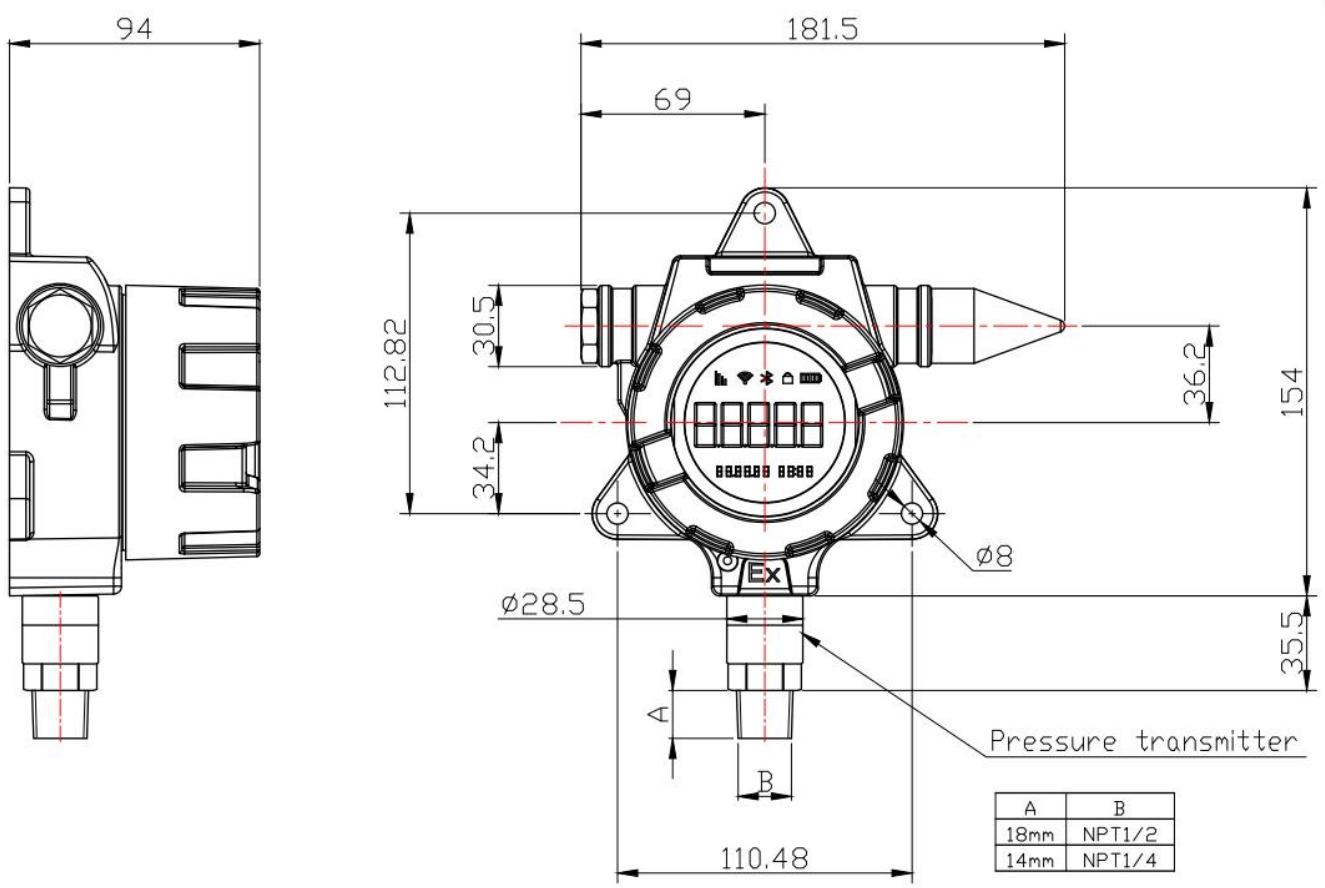
1.2. Basic parameters and customizable parameters

Range	Pressure Range: -1-1…1000Bar optional Temperature Range: Normal: -200~200°C ; Split Type: -200~860°C ; Others by customized. Level Range:0-1m…50m level by customized
Working power	DC 3.6V, 19Ah Li-Battery
Battery Life	2 years (send data once an hour)
Power consumption	Standby current ≤80uA; Average data sending current ≤150mA
Display	Segment code LCD screen and 5 digits measurement data display
Network format	GPRS/3G/4G/LoRa
Antenna format	External antenna
Sampling interval	1 time/min
Data upload interval	5min, 10min, 30min, 60min, 360min, 720min, 1440min The interval can be selected and set. The listed above is partial, and the intervals available is 2min-1440min. Note: The actual upload interval may slightly vary from the set interval. If it fails to upload currently, it will reupload next time.
Configuration method	USB configuration operation, server remote configuration
Wake mode	Button, timing

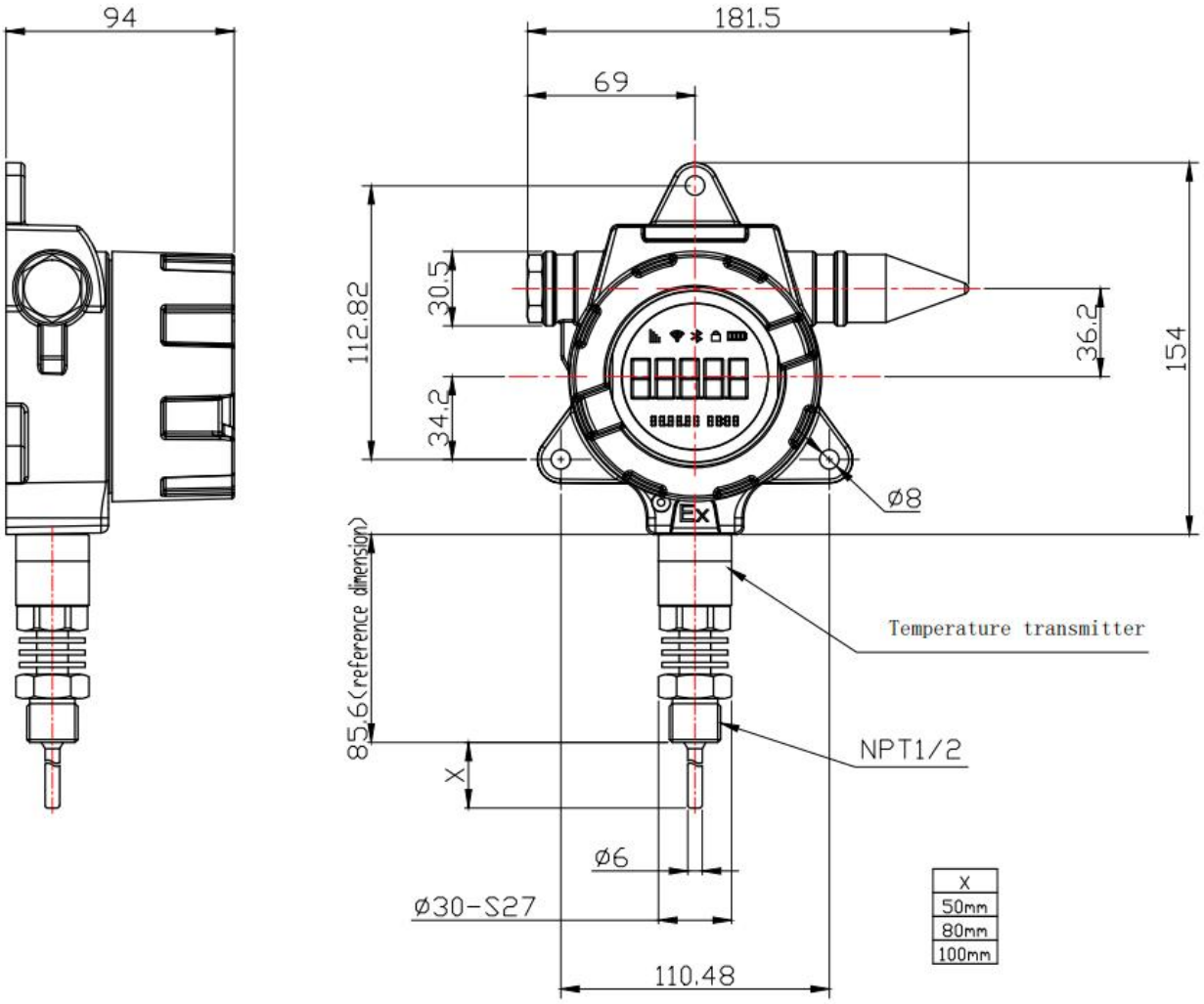
Upload information	Pressure (temperature, level), battery level, signal, date and time, card number, etc.
Operating Temperature	-30°C to +70°C (the medium does not crystallize)
measurement accuracy	0.5% F.S
Temperature effect	0.015%F.S/°C
Protection class	IP66, IP68(level probe only)

1.3. Product dimensions

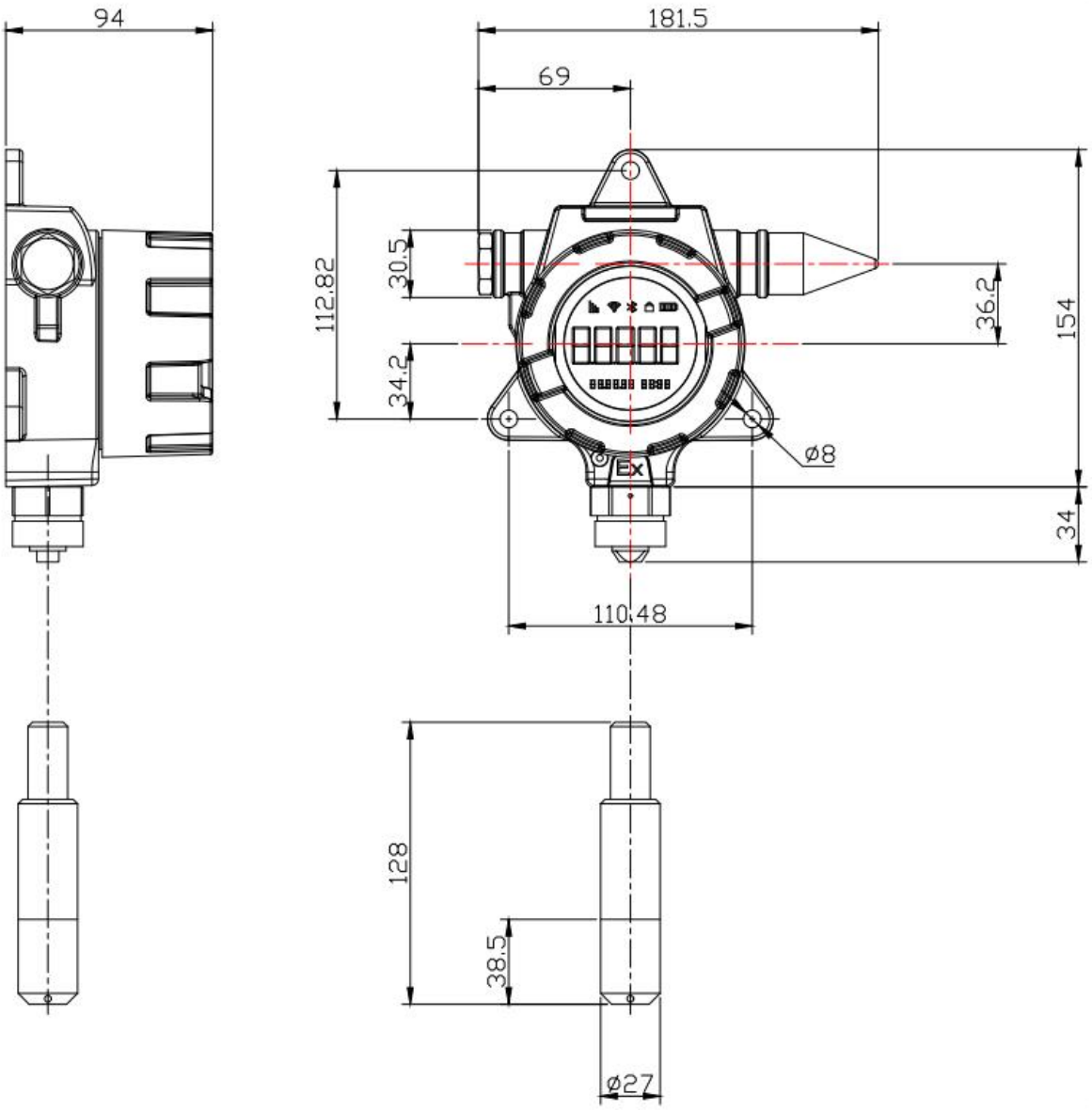
Unit, mm



Pressure sensor, model No. MZW2601



Temperature sensor, model No. MZW2602



Level Sensor, model No. MZW2603

2. Parameters customized orders needed

2.1.Before ordering, the following parameters are needed:

Range	customized
Wireless Type	customized
Network operating frequency (LORA terminal only)	customized
Process Port (connection)	customized
Temperature Probe Length (Temperature terminal only)	customized
Level Cable Length (level terminal only)	customized

3. Basic steps and precautions when using

3.1. First, after receiving the product, unscrew the front cover, use a flat knife to loosen the four screws around the LCD screen. Check the SIM card slot on the back of the PCBA board. Before removing and replacing the card, disconnect the lithium battery and the PCBA circuit board plug-in (power off), and then slide the SIM card buckle with your finger.

3.2. Secondly, purchase a SIM data card or 2/3/4G SIM Flow card for gauge. Please refer to the SIM card slot size of the device when purchasing.

3.3. Thirdly, install the SIM card, lock the buckle, and then insert the battery power and restore the screen to install and tighten the front cover.

3.4. Fourthly, observe whether the data displayed on the LCD screen, including battery power, signal strength, pressure value or liquid level value, temperature value (measured by non-medium temperature, only the room temperature inside the device), time and date, are displayed normally.

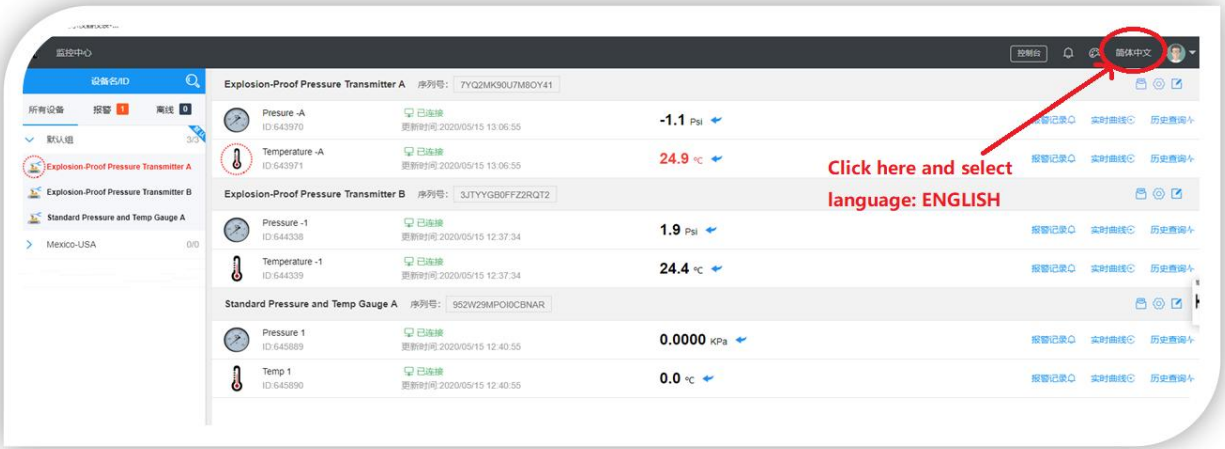
3.5. Fifthly, install the equipment directly. If the equipment is installed outdoors, it is recommended to add an instrument box for shielding protection.

3.6. Finally, check the following cloud platform operation guide for configuring device parameters.

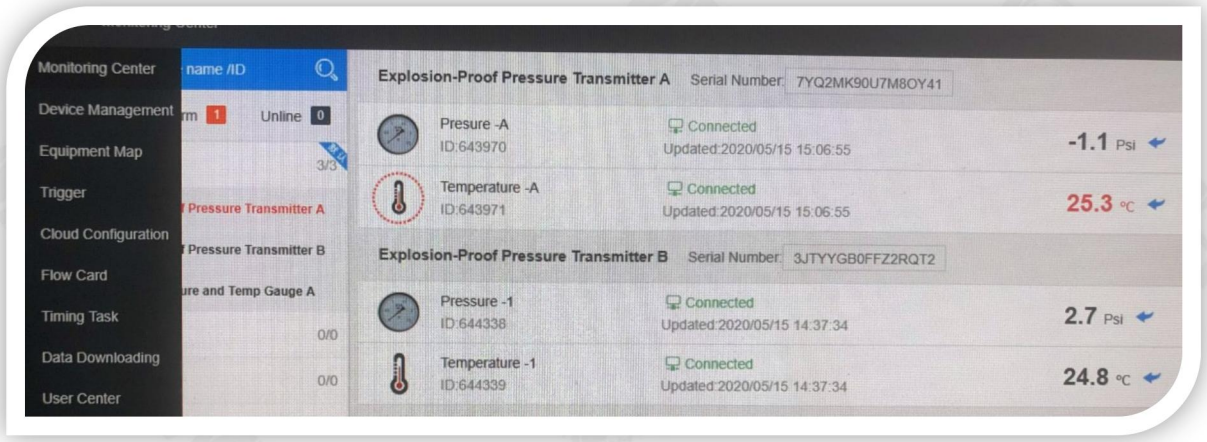
3.7. If you want use yourself server and platform, please see point 5 and pages 15.

4. How to use cloud platform and cost introduction

4.1. Cloud platform login: Cloud platform URL: www.mac-smart-iot.com
Use the account and password provided by MACSENSOR to enter the cloud platform, as shown below:

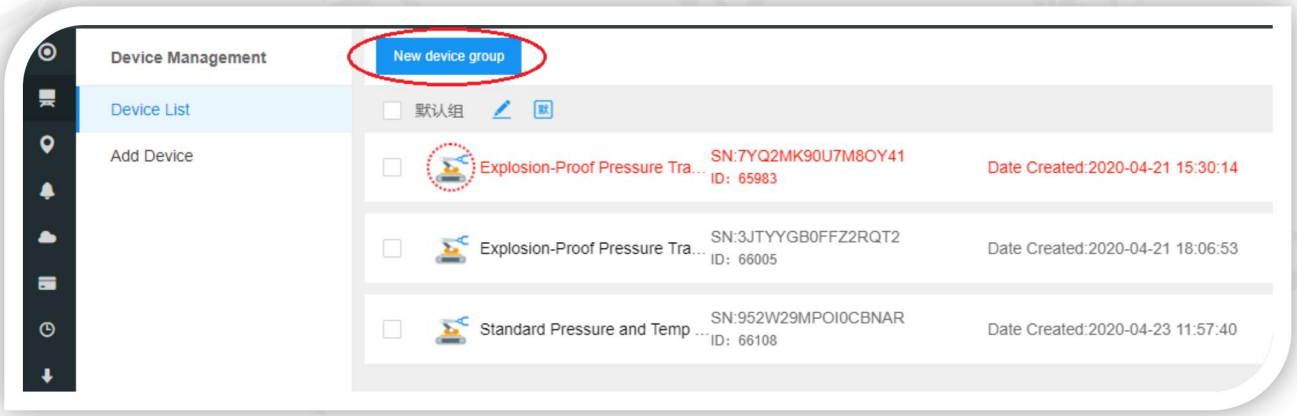


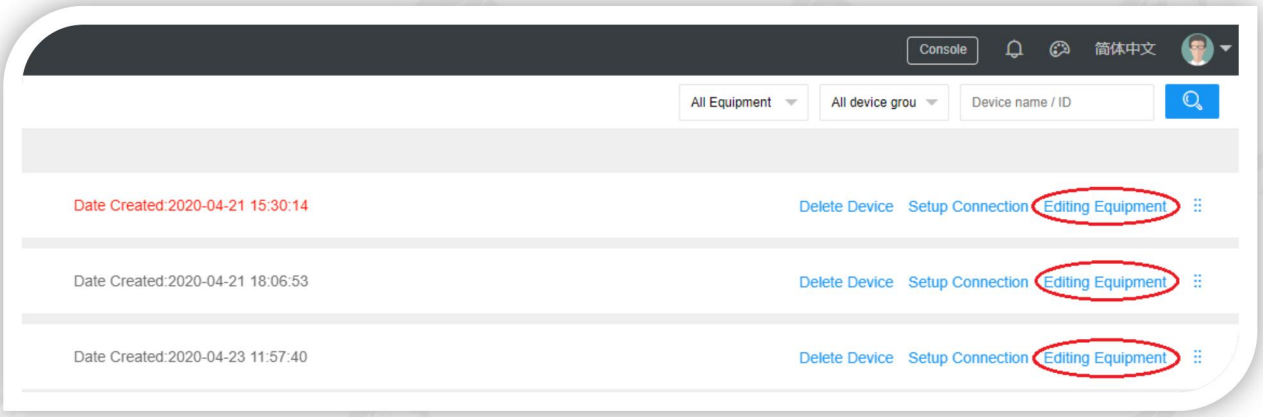
After converted to English interface display, move the mouse to the left to jump out of the navigation bar, as shown below:



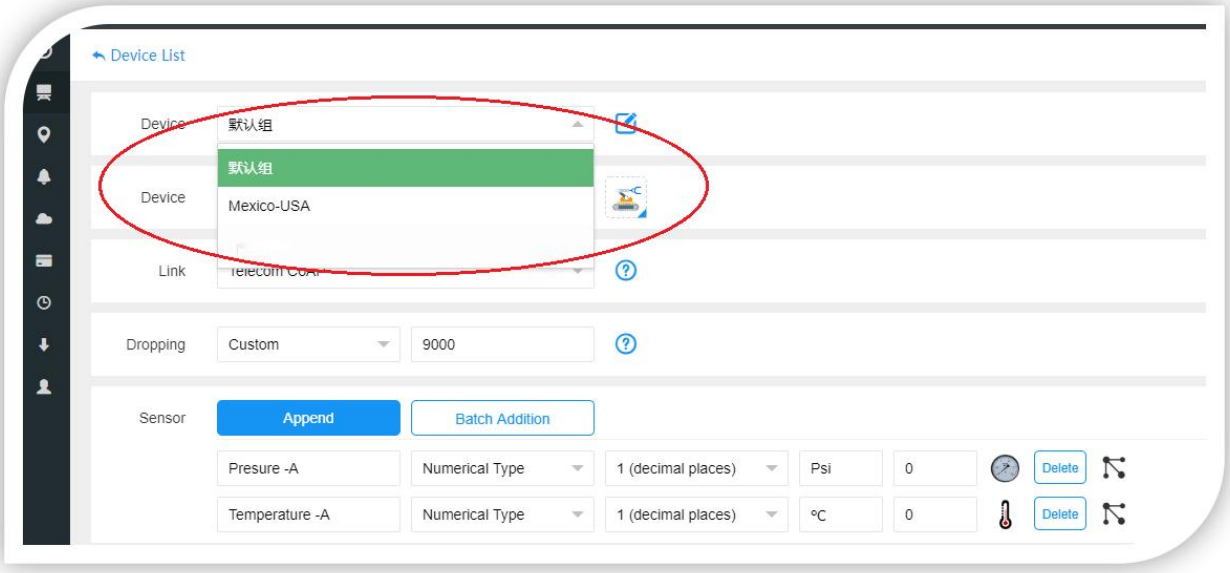
Customers can group devices in the corresponding column of the navigation bar and configure the necessary parameters, such as device name / display decimal point / device data upload cycle / cloud platform device offline delay (usually set to the device data upload cycle time 3 times longer) / download historical data, etc.

4.2. Device grouping: Customers can create device grouping and classify device grouping under the device management module in the navigation bar, as shown in the following figure:

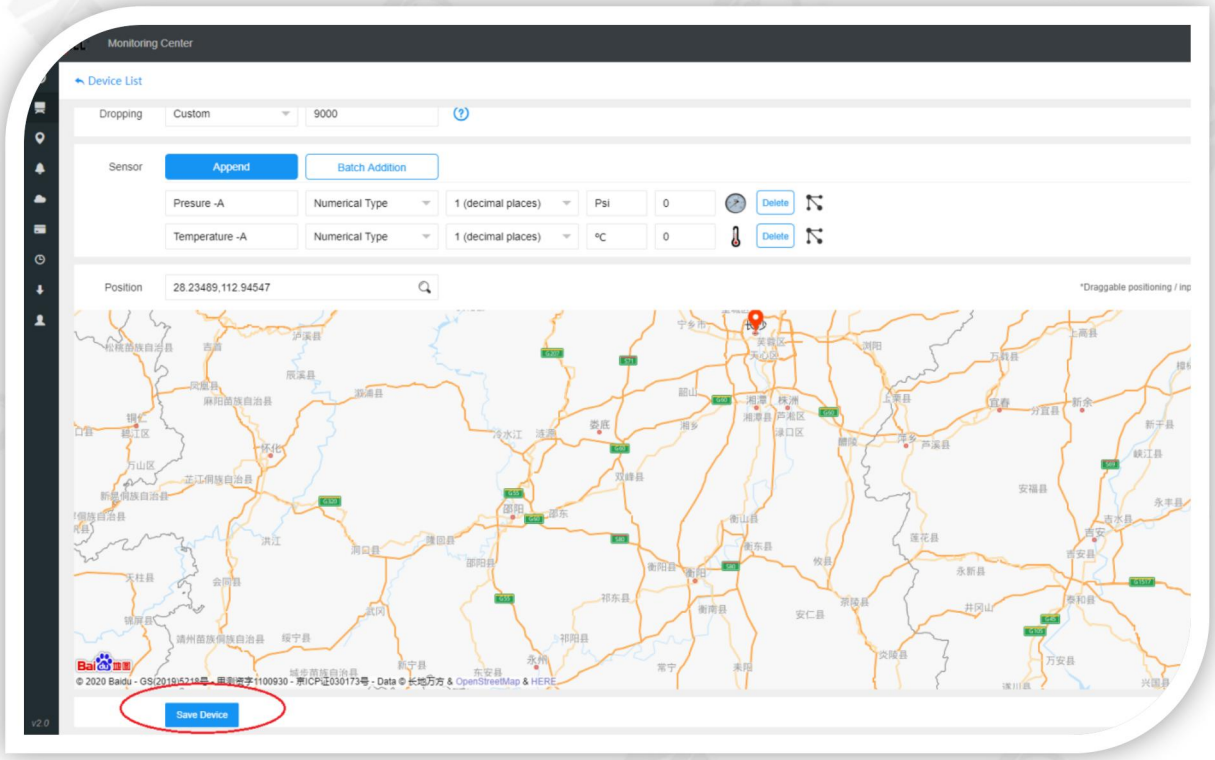




Selection Group



Save Configuration

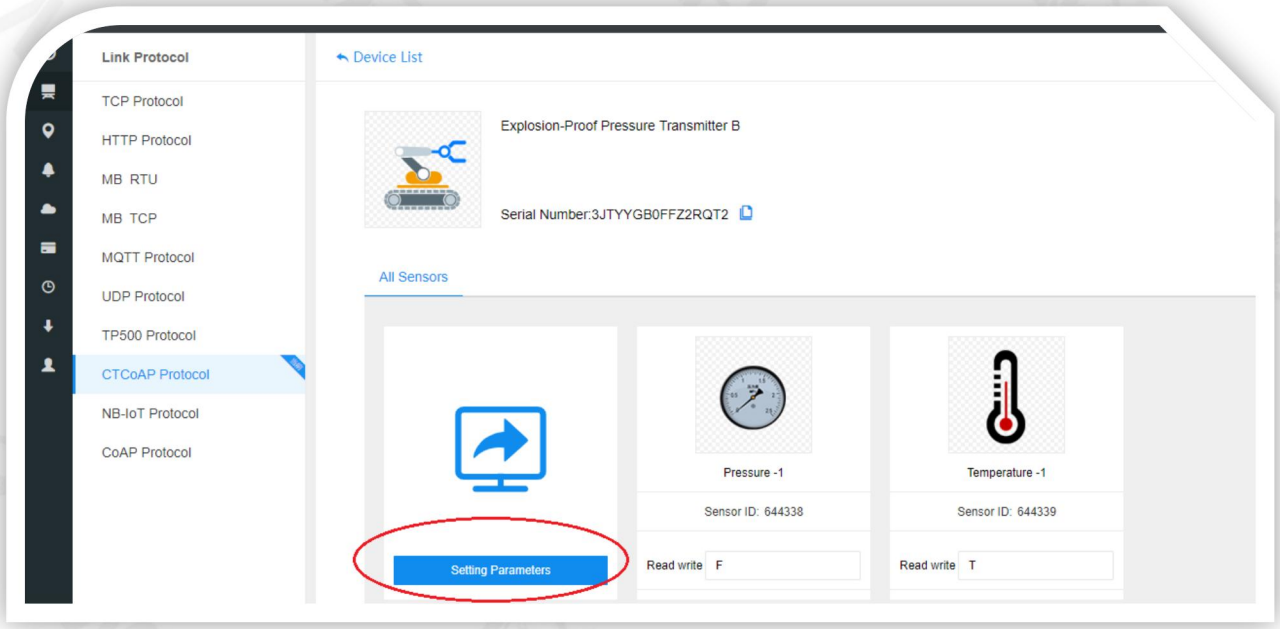


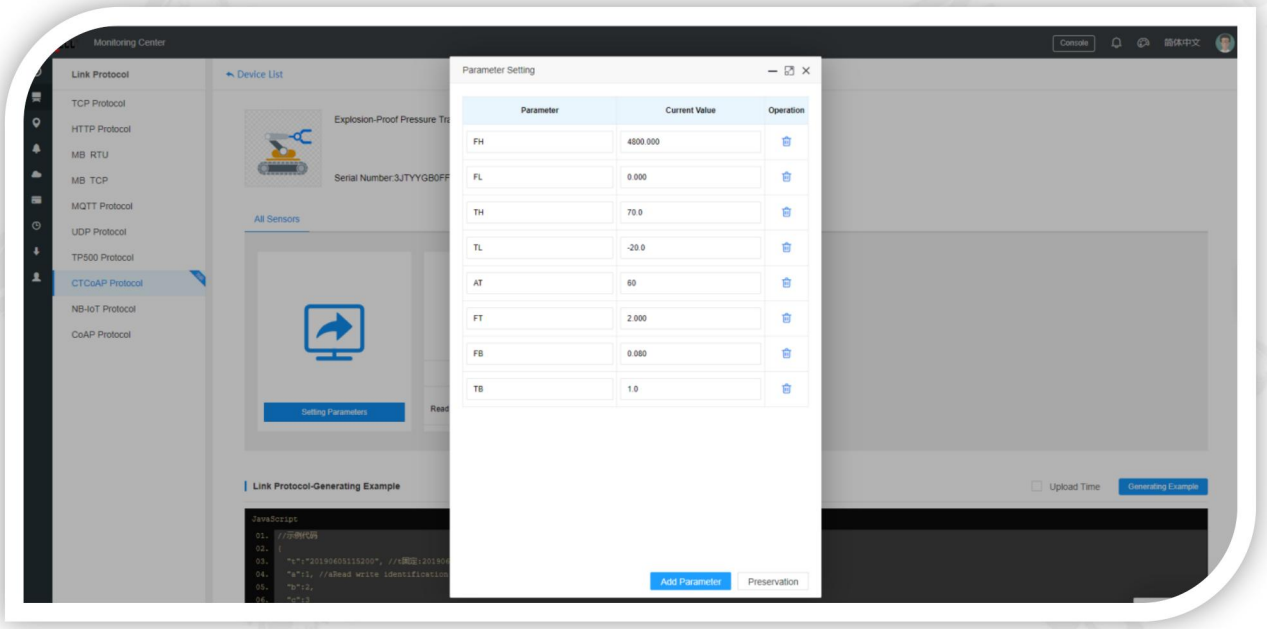
4.3. Setting parameter configuration, alarm setting, data analysis and processing

4.3.1. Customers can edit each device in the device management module under the navigation bar. On the device editing page, there are product name modification, group adjustment, cloud platform device offline delay time setting, sensor addition, and device installation location information establishment, etc.

When setting, it should be noted that the delay time of the cloud platform device offline usually should be set to three times the interval of uploading data between devices, which is the best. You can also add and delete devices on the device management page.

4.3.2. The connection settings on this page usually do not need to be changed (except for the time period for device data reporting). Before the device leaves the factory, the factory will configure the communication information parameters. The following is the entry into the device data collection interval time setting, as shown in the figure:

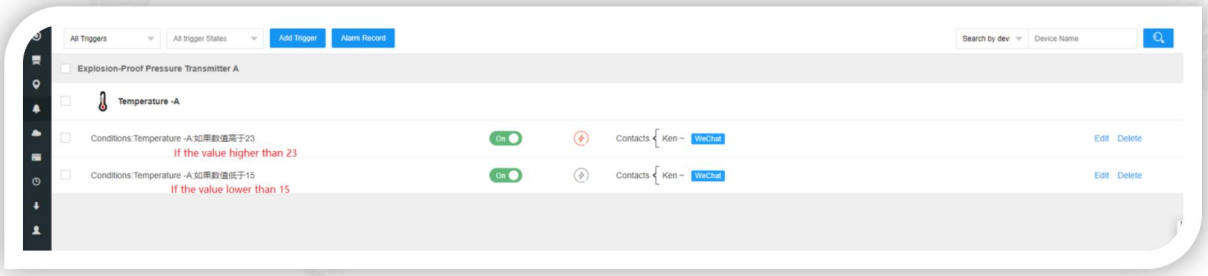


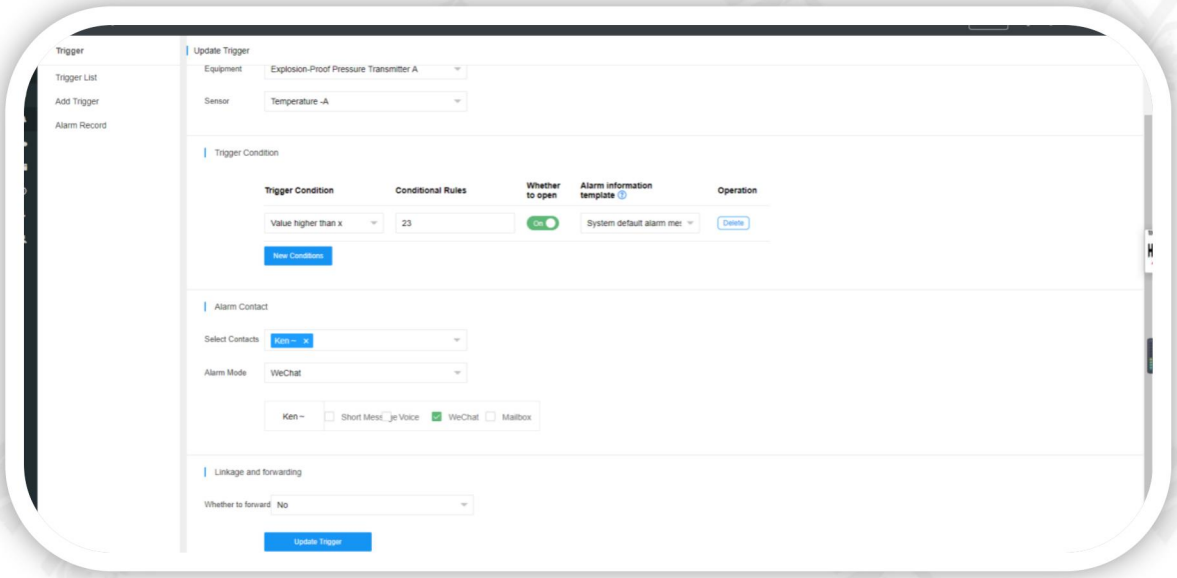


FH: the upper limit of pressure or liquid level range;
FL: the lower limit of pressure or liquid level range;
TH: the upper limit of the temperature range;
TL: the lower limit of the temperature range;
AT: the interval between sensor data reporting (minimum 3 minutes, maximum 1440 minutes)
FT: Floating value alarm;
FB: Pressure or liquid level alarm recovery difference;
TB: Temperature alarm recovery difference

4.3.3. Alarm trigger configuration

Customers can set high and low alarm values for devices and sensors in the trigger module under the navigation bar.

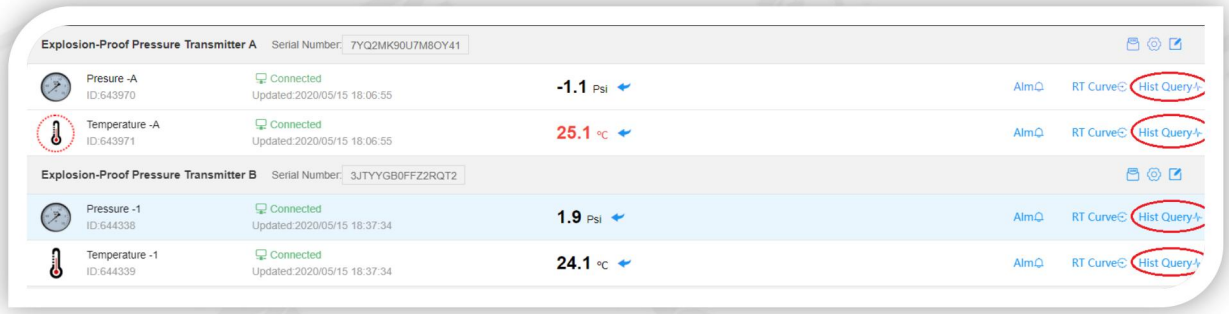


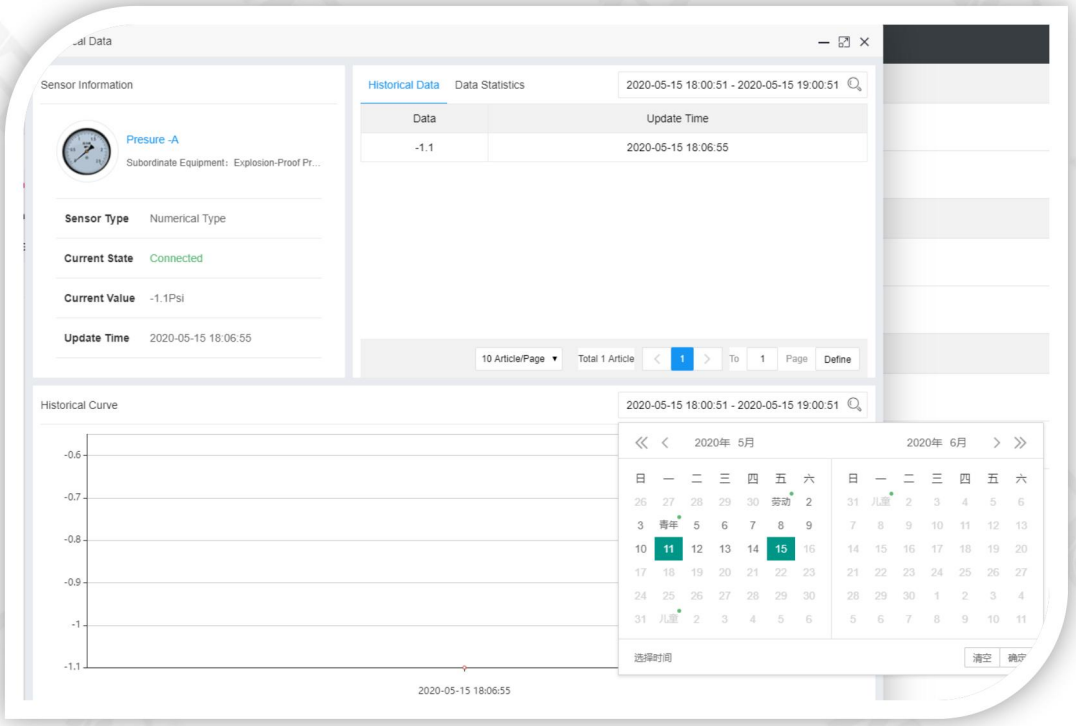


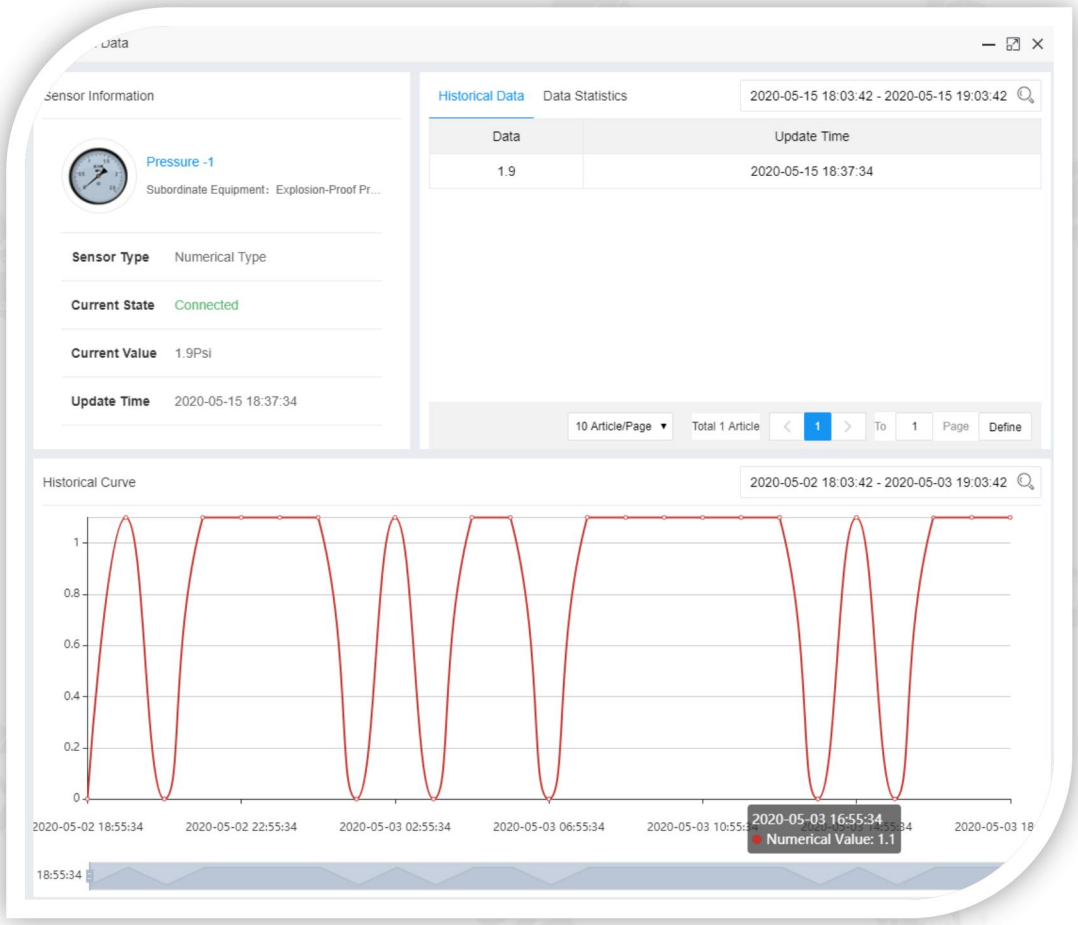
SMS alarm, e-mail alarm, WeChat alarm, voice alarm are optional (SMS / Voice alarm need to pay the operator fee)

4.3.4. Data viewing, analysis and processing

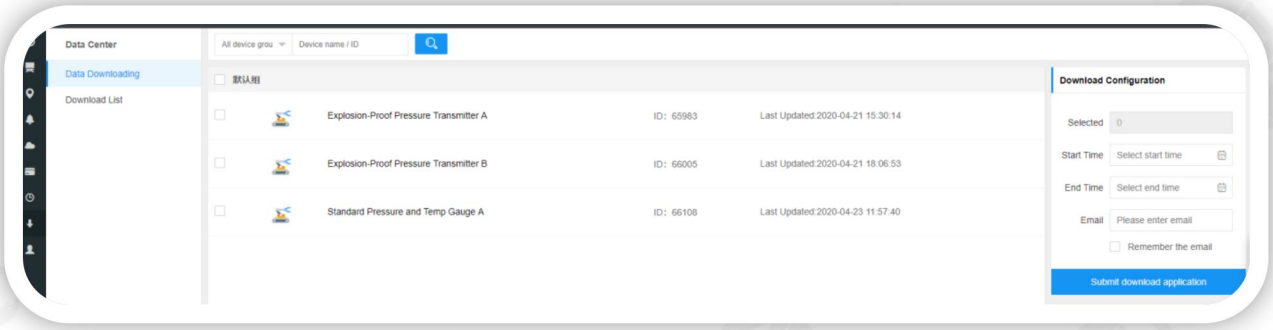
Customers can intuitively read the values and alarms of each device and sensor on the device monitoring interface. On the right side of the device, there is a historical data curve viewing function. The customer can freely set the historical data viewing time range, and can also view the historical data table, as shown below:

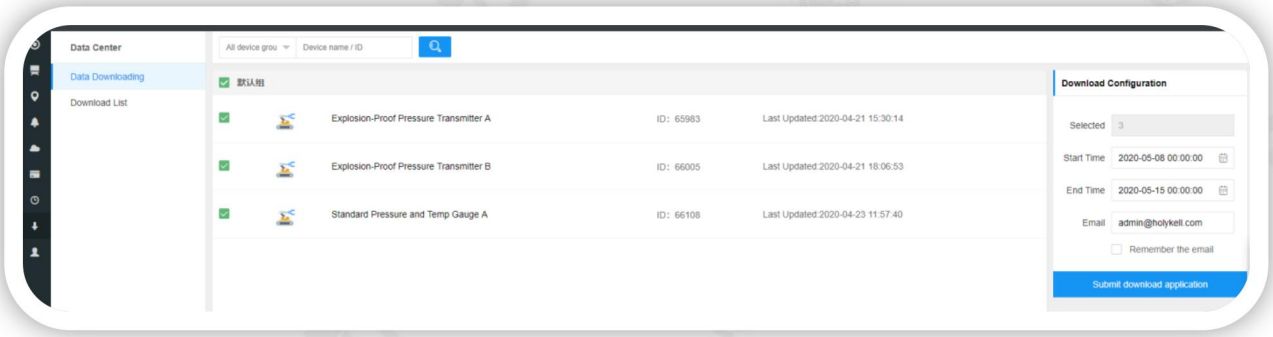


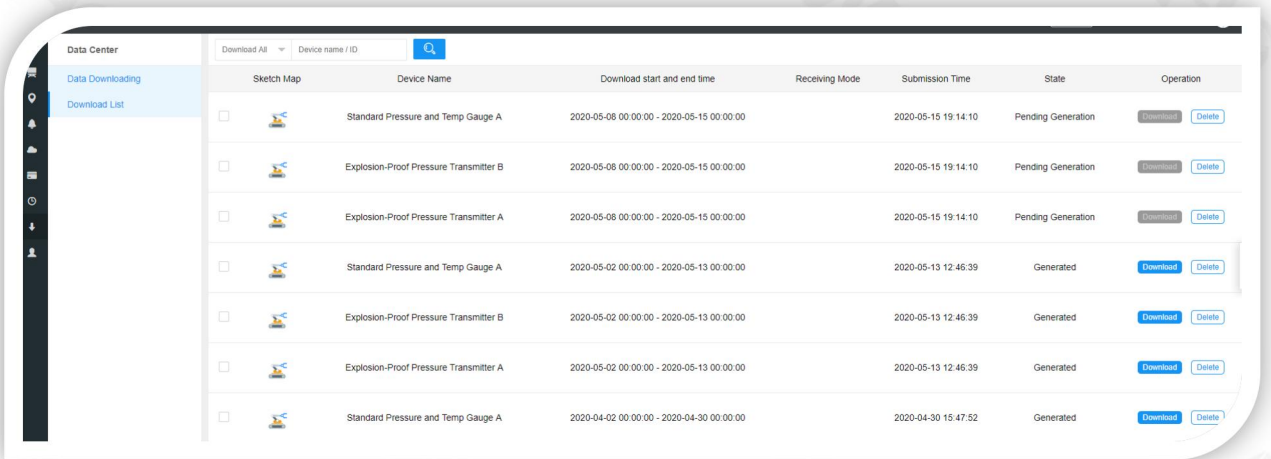

Sensor Information
Presure -A
Subordinate Equipment：Explosion-Proof Pr...
Sensor Type Numerical Type
Current State Connected
Current Value -1.1Psi
Update Time 2020-05-15 18:06:55
Historical Data
Data Statistics
2020-05-15 18:00:51 - 2020-05-15 19:00:51
Data
Update Time
-1.1
2020-05-15 18:06:55
10 Article/Page
Total 1 Article
To
Page
Define
Historical Curve
2020-05-15 18:00:51 - 2020-05-15 19:00:51
2020年 5月
2020年 6月
选择时间
清空
确定
-0.6
-0.7
-0.8
-0.9
-1
-1.1
2020-05-15 18:06:55

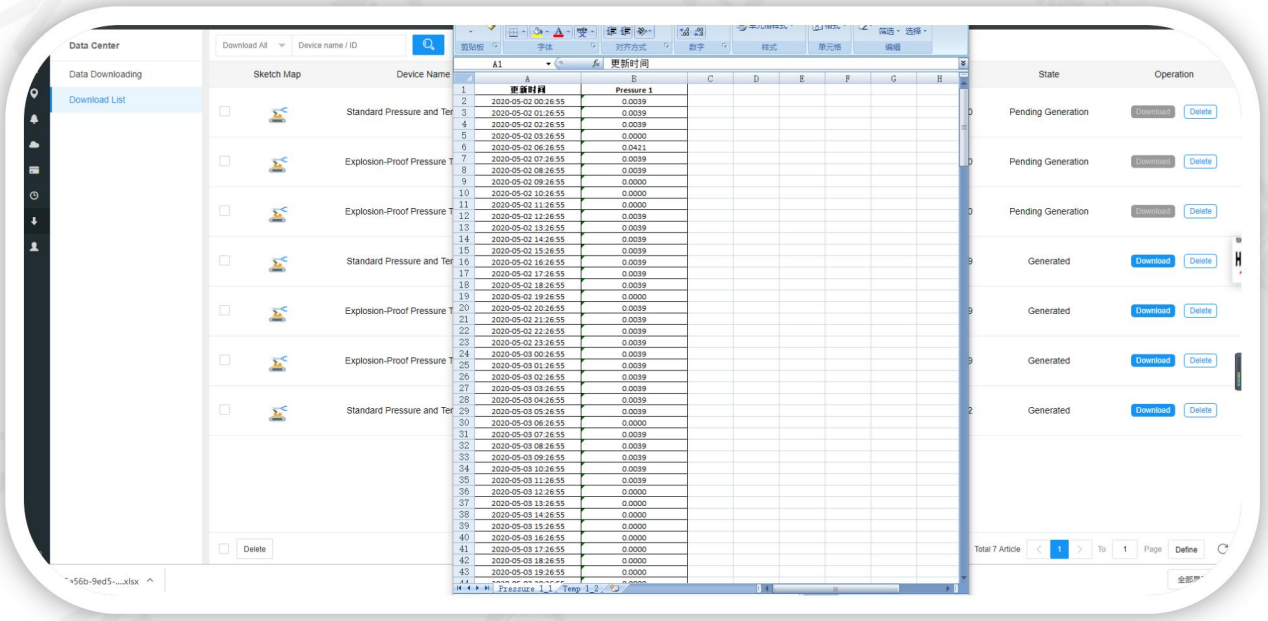

Sensor Information
Pressure -1
Subordinate Equipment：Explosion-Proof Pr...
Sensor Type Numerical Type
Current State Connected
Current Value 1.9Psi
Update Time 2020-05-15 18:37:34
Historical Data
Data Statistics
2020-05-15 18:03:42 - 2020-05-15 19:03:42
Data
Update Time
1.9
2020-05-15 18:37:34
10 Article/Page
Total 1 Article
To
Page
Define
Historical Curve
2020-05-02 18:03:42 - 2020-05-03 19:03:42
1
0.8
0.6
0.4
0.2
0
2020-05-02 18:55:34
2020-05-02 22:55:34
2020-05-03 02:55:34
2020-05-03 06:55:34
2020-05-03 16:55:34
Numerical Value: 1.1
18:55:34

4.3.5. Customers can use the data download center of the navigation bar to download each device individually or in batches for historical data recording. The file is saved to the local computer in EXCELL format, which is convenient for customers to analyze and make decisions on the historical data of the equipment. Check the data download interface below:









Notes:

1. Make sure that the flow card purchased is not in arrears and is normally activated.

2. Make sure that the plug of the power cord is firmly in contact, and power off the battery before replacing it.

Finally, with regard to the cost of using the MACSENSOR cloud platform, the MACSENSOR cloud platform is free for sample testing and small batch system application customers (the number of devices used by a single customer is less than 50). For the number of online devices of a single customer greater than 50, according to 1 USD / unit /year counts the annual fee for the number of devices with more than 50 units.

At the same time, for the independent cloud platform customers with customized company LOGO, the annual fee for the first year is US $ 1,250, and the annual fee is US $ 650 in the following year, each one platform with max 3,000 capacity of equipment. If customers want to extend more big capacity of equipment, each time increase 3,000pcs and US $ 500 each year.

5. How to configuration when use client's platform.

At first, please follow up pages 6 basic steps to replacement SIM flow card.

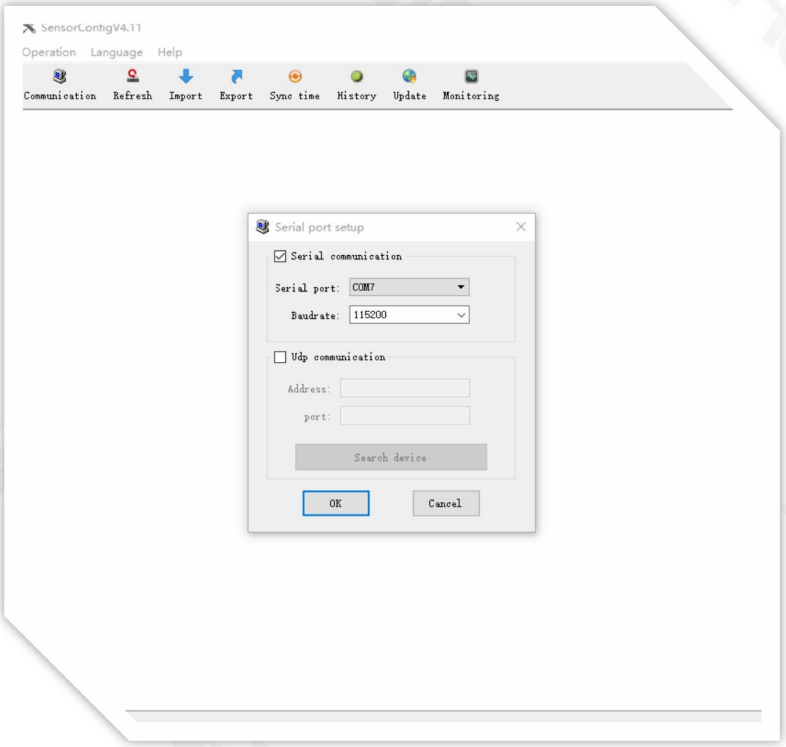
Second, MACSENSOR Smart Wireless Sensors connect with third party platform have two options as below:

5.1. Data upload to third party platform directly.

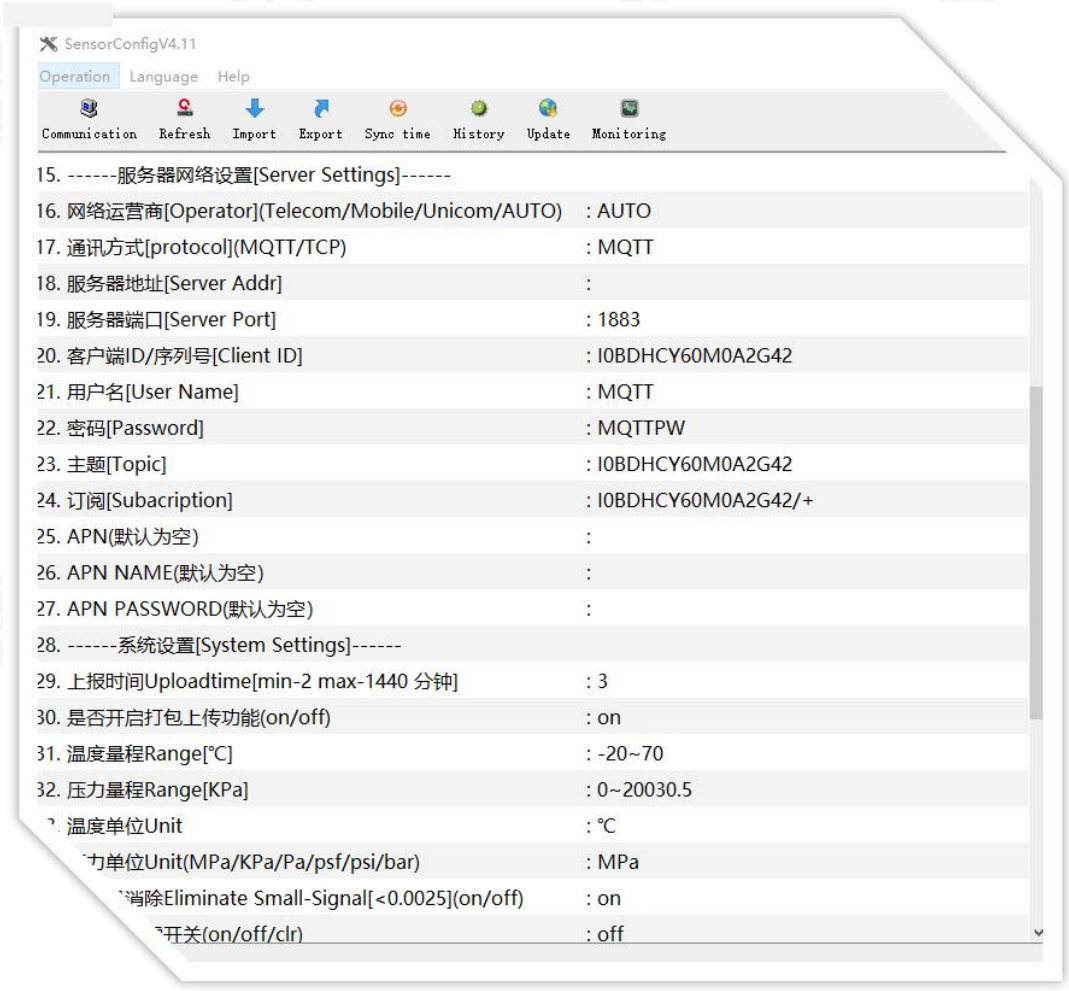
5.1.1 Configuration Gauge by USB-TYPE C communication cable, computer/laptop and configuration software (English and Chinese optional Language)

See below Pictures Show:





Communication Port Setting and Connection



Third Party Server IP address / Server Port / APN Setting

5.1.2 Third Party Platform Analysis Wireless Gauge Module Protocol

Besides above steps parameters configuration, Client's need contact with your platform design engineer's team and asking them help you to Analysis our Gauge protocol on your platform. So that the platform can understand MACSENSOR wireless sensors communication and working mechanism.

MACSENSOR equipment/gauge/wireless sensor analysis protocol inquiry our sales engineer, please.

5.2. Data upload to third party platform by MACSENSOR API port

5.2.1. The same steps as 5.1.1.

5.2.2. Besides above steps parameters configuration, Client's need contact with your platform design engineer's team and asking them help you to match API port, API port documents please inquiry MACSENSOR sales engineer.

6. Product warranty and after-sales policy

MACSENSOR wireless intelligent products provide a 12-month warranty period (except batteries). The batteries are consumables. The battery life is related to the data collection time period and data upload platform time frequency set by the customer. Therefore, we only provide a 2-month warranty for battery. The battery life can be up to five years (the maximum usage time of 4G terminals can reach 2-3 years)

For product after-sales policy, please refer to MACSENSOR's product after-sale warranty policy rules.

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