

# LoRaWAN C<sub>2</sub>H<sub>4</sub> Temperature and Humidity User Manual



# Content

|                                                      |    |
|------------------------------------------------------|----|
| Content .....                                        | 2  |
| 1. Overview .....                                    | 3  |
| 2. Technical Parameters .....                        | 3  |
| 2.1 Product List .....                               | 4  |
| 3. Configuration and Installation .....              | 5  |
| 3.1 LW304 Interface Description .....                | 5  |
| 3.2 LW304 Parameter Configuration Instructions ..... | 6  |
| 3.3 LW304 Size and Installation .....                | 12 |
| 4. Protocol Description .....                        | 14 |
| 4.1 Data Format .....                                | 14 |
| 4.2 Upward Data .....                                | 14 |
| 4.3 Downward data .....                              | 15 |

## 1. Overview

LoRa wireless ethylene sensor is a wireless IoT sensor used for monitoring ethylene gas. Based on LoRa spread spectrum modulation technology, it achieves ultra long distance communication between terminals. Equipped with high-performance ethylene sensors and microprocessors, it has the characteristics of high detection accuracy, stable performance, and low power consumption. It can preset thresholds based on the environment and proactively report data anomalies. Widely used in industrial safety, agricultural production, environmental protection and other scenarios.

## 2. Technical Parameters

|                        |                                                             |
|------------------------|-------------------------------------------------------------|
| Power Supply           | 5~28VDC                                                     |
| Weight                 | 120g                                                        |
| Operating Emperature   | -20℃~50℃                                                    |
| Measuring Principle    | Electrochemical Principle                                   |
| Measuring Range        | C <sub>2</sub> H <sub>4</sub> :0 ~ 100 ppm                  |
| Resolution Ratio       | C <sub>2</sub> H <sub>4</sub> :0.1 ppm                      |
| Temp.and Humi. Sensor  | Temp Range:-40~+80 ℃                                        |
|                        | Accuracy:±0.3 ℃                                             |
|                        | Humi Range:0~99.9 %RH                                       |
|                        | Accuracy:±2 %RH                                             |
| Sensor Lifespan        | < 2 years                                                   |
| Frequency              | CN470/IN865/EU868/RU864/US915/AU915/<br>KR920/AS923-1&2&3&4 |
| Mode                   | OTAA Class A/C(Default: Class C)                            |
| Reporting cycle        | External power supply:10min(Default reporting cycle)        |
| Communication Protocol | LoRaWAN,LoRa TDMA Networking                                |

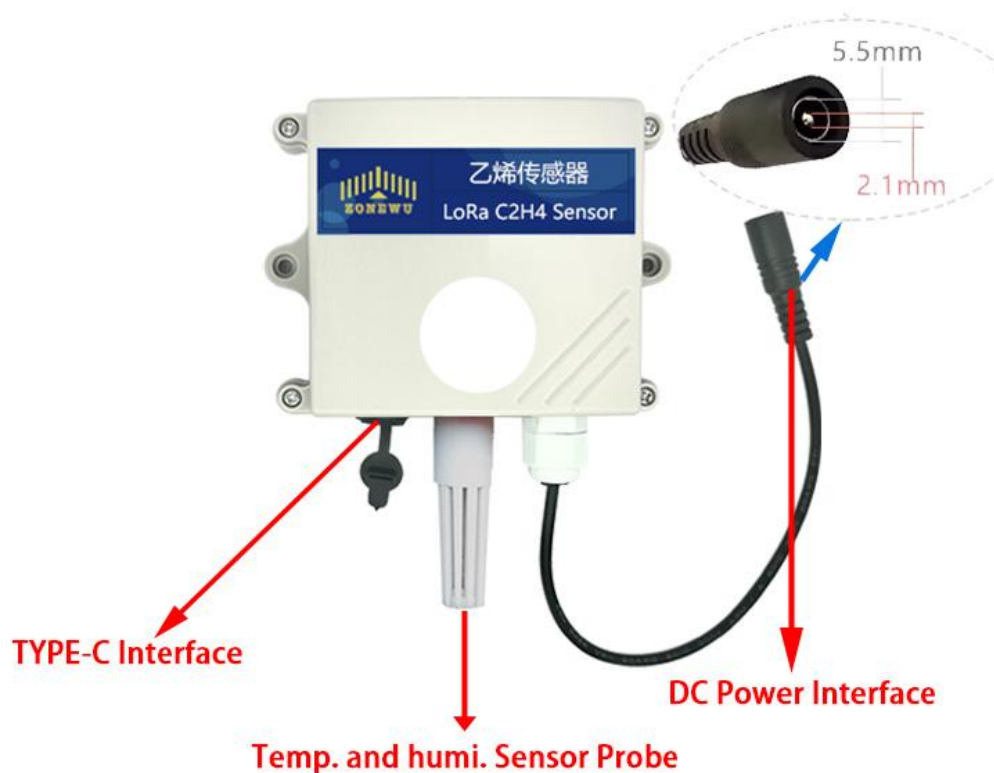
|                                              |                                                                                                                                            |
|----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Equipment information<br/>(Reference)</b> | AppEUI: 0000000000000001<br><br>DevEUI: aaaa202404150001<br><br>AppKey: 00001111222233334444555566667777<br><br>MAC Version: LoRaWAN 1.0.3 |
|----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|

## 2.1 Product List

- LoRaWAN C<sub>2</sub>H<sub>4</sub> Temperature and Humidity Sensor 1 piece
- TYPE-C data cable 1 piece

### 3. Configuration and Installation

#### 3.1 LW304 Interface Description



- 1. TYPE-C Interface:**  
Used for device serial port configuration. It can also serve as a power supply interface.
- 2. Temperature and humidity sensor probe:**  
Used for monitoring environmental temperature and humidity values
- 3. DC Power Interface:**  
DC5.5 \* 2.1 female socket, power supply interface, DC5-28V.

## 3.2 LW304 Parameter Configuration Instructions

Configuration preparation:

- ◆ USB Type-C data cable
- ◆ Computer (Windows system)
- ◆ Configuration Tool Toolbox

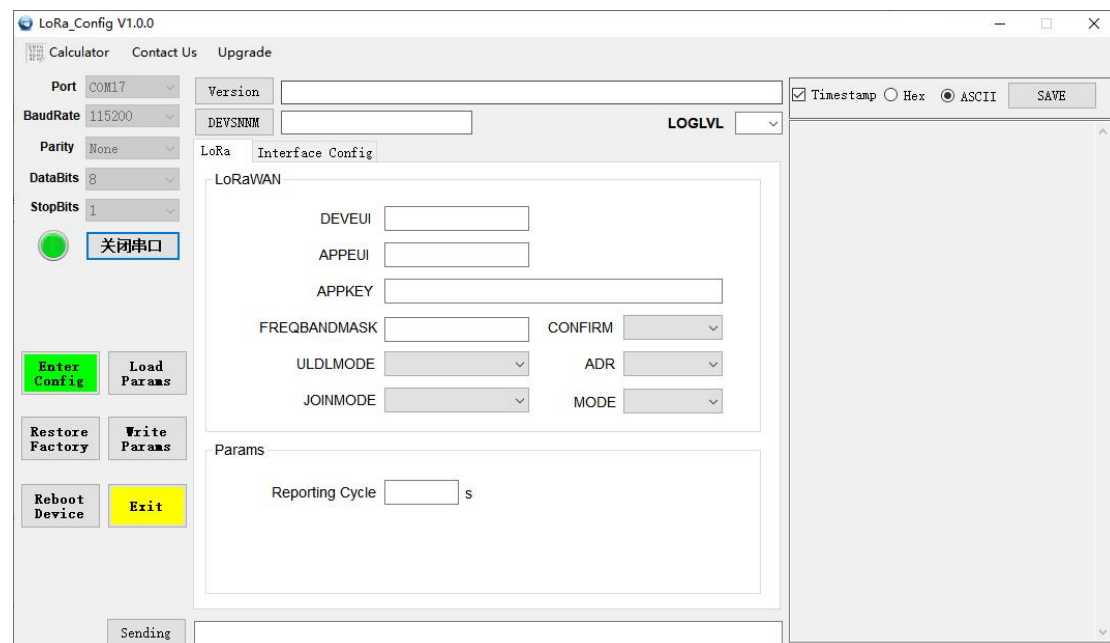
Download: <http://www.zonewu.com/en/Configuration-Tools.html>

1. Install serial port driver program.CH340 USB to serial port .
2. Connect the LW30X to the PC using a USB cable and check if there is a COM port. If not, please recheck the equipment wiring and driver installation.
3. Open the configuration tool LoRa\_config  LoRa\_config V1.0.0 .open the corresponding COM port .

Port default parameters:

|          |             |
|----------|-------------|
| BaudRate | 115200bit/s |
| Parity   | None        |
| DataBits | 8           |
| StopBits | 1           |

As follows:



4. 1.Enter Config → 2.Load Params → 3.LoRaWAN → 4.Write Params  
→ 5.Reboot Device

LoRa\_Config V1.0.0

Calculator Contact Us Upgrade

Port COM17 BaudRate 115200 Parity None DataBits 8 StopBits 1

Version DEVSNNM LOGLV

Timestamp Hex ASCII SAVE

LoRa Interface Config

LoRaWAN

DEVEUI APPEUI APPKEY

FREQBANDMASK CONFIRM

ULDLMODE ADR

JOINMODE MODE

Params

Reporting Cycle s

Enter Config Load Params

Restore Factory Write Params

Reboot Device Exit

Sending

LoRa Interface Config

LoRaWAN

DEVEUI BF01240726D00001

APPEUI 331341E186891989

APPKEY 5572404c696e6b4c6f52613230313823

FREQBANDMASK 0002 CONFIRM Close ACK

ULDLMODE Abnormal Freq Mo ADR Close

MODE ClassC

Params

Reporting Cycle 600 s

LoRaWAN Interface:

| Item   | Describe                                           | Notes  |
|--------|----------------------------------------------------|--------|
| DevEUI | Node's globally unique identifier code             | 64bit  |
| AppEUI | Node's application identifier code                 | 64bit  |
| AppKey | Assigned to the terminal by the application owner. | 128bit |

|              |                                                                   |  |
|--------------|-------------------------------------------------------------------|--|
| FREQBANDMASK | Set frequency group mask                                          |  |
| ULDLMODE     | Set up uplink and downlink same frequency but different frequency |  |
| CONFIRM      | Set uplink transmission type                                      |  |
| ADR          | Set adaptive speed                                                |  |
| MODE         | Set device working mode                                           |  |

The device will be configured with ternary parameters by default when it leaves the factory:

DevEUI: BF01240726D00001

AppEUI: 331341E186891989

AppKey: 5572404c696e6b4c6f52613230313823

**NOTE: All sensors are shipped with AppEUI and AppKey default to 331341E186891989 and 5572404c696e6b4c6f52613230313823.**

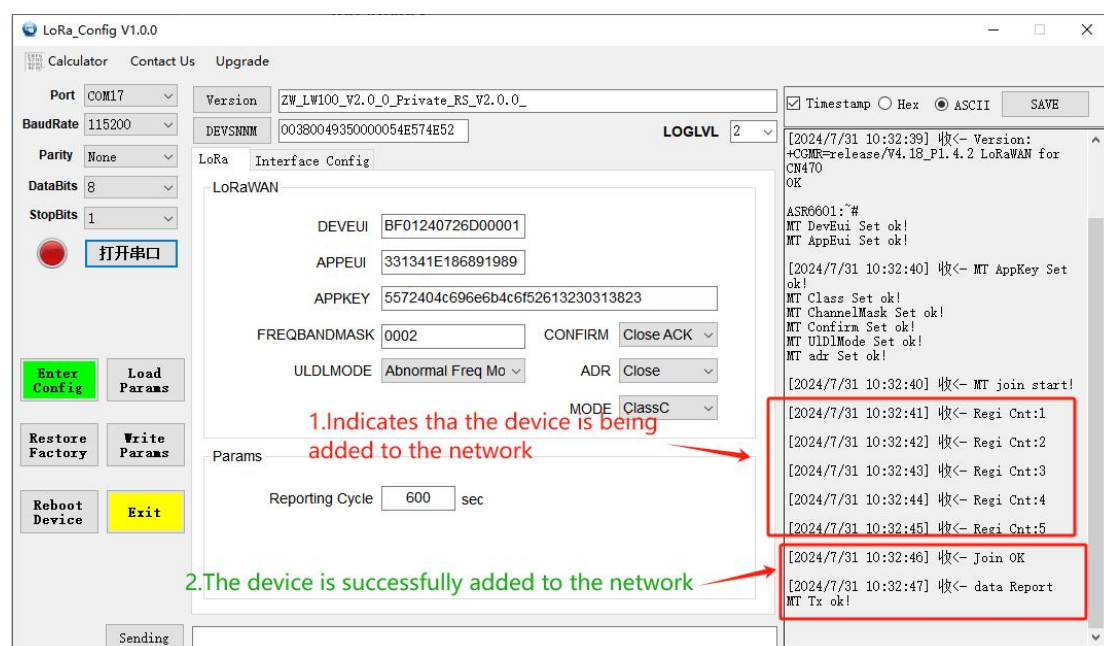
**Users can customize according to their own applications**

FREQBANDMASK: The frequency group mask for LoRaWAN operation, with 16 bits corresponding to 16 frequency groups. Default is 0001. Users need to configure it according to the actual application region.

Params Interface:

| Item            | Describe                                          | Notes |
|-----------------|---------------------------------------------------|-------|
| Reporting cycle | adjustable range 1-65535, default is 600s (10min) |       |

Printing logs of device startup and network connection:

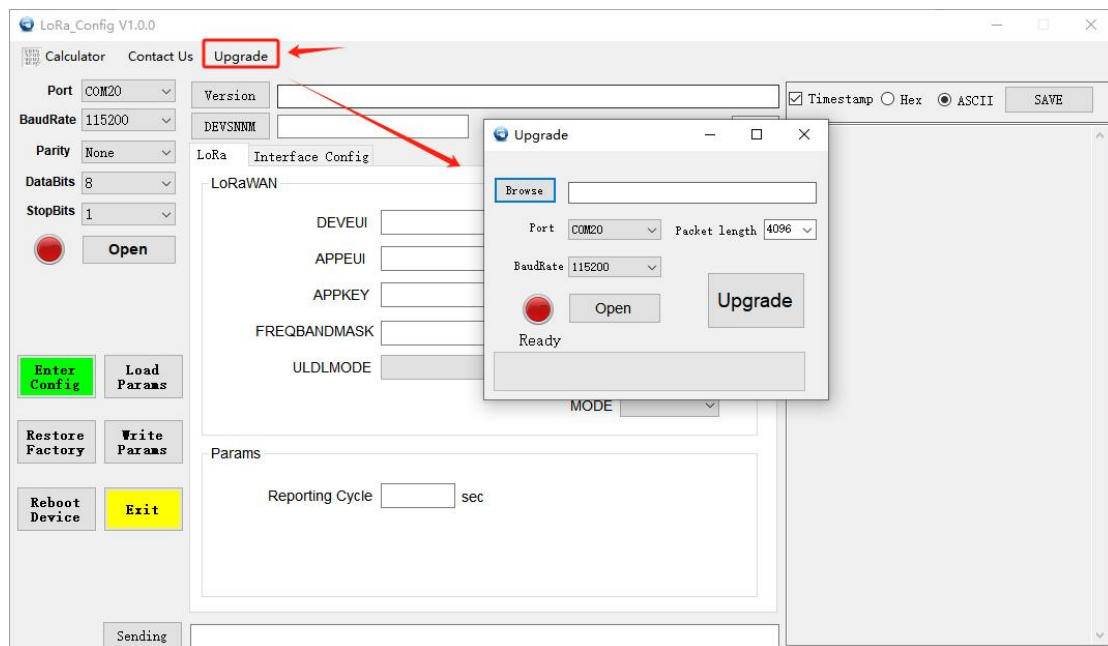


The device is equipped with a built-in LED indicator light, which is located next

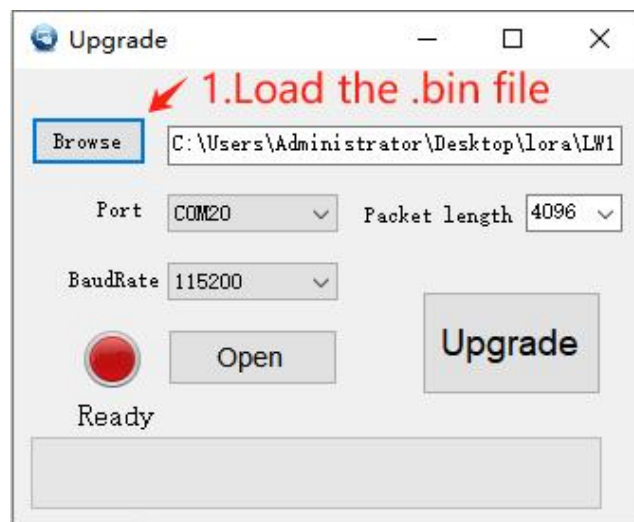
to the antenna interface and can be seen as a green light through the casing.

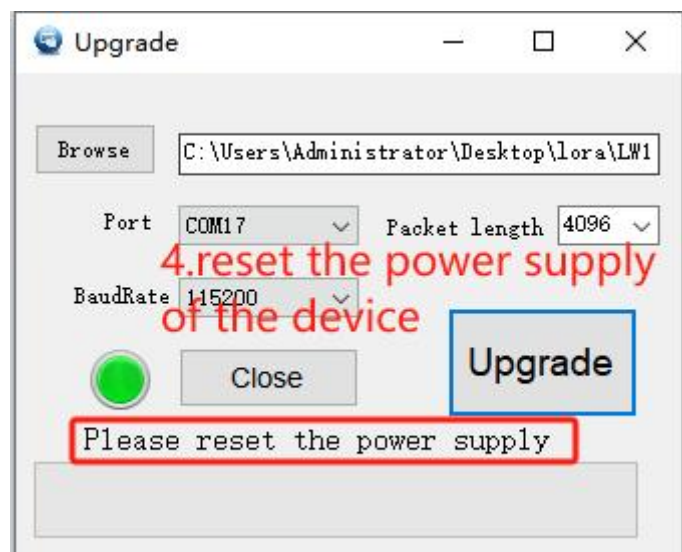
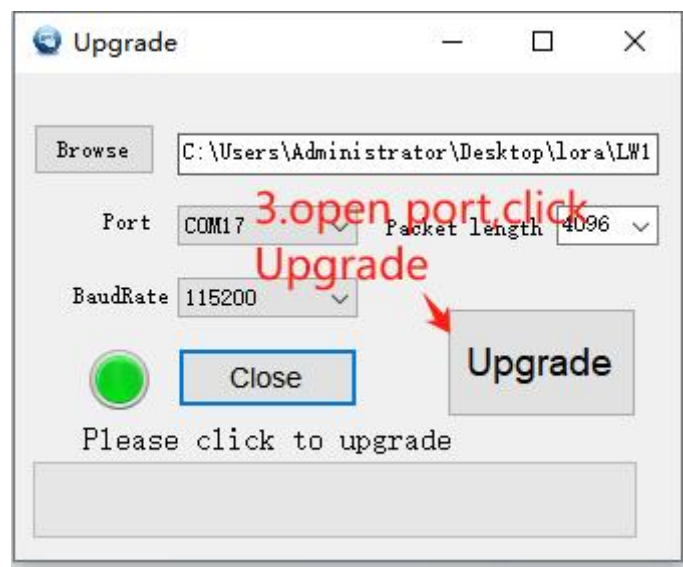
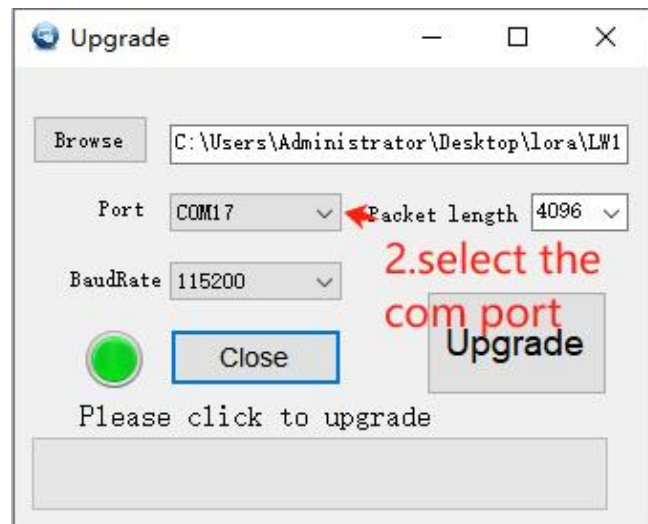
| LED                   | Status  | Describe                          |
|-----------------------|---------|-----------------------------------|
| Green indicator light | Flicker | Add to the network                |
|                       | Light   | Successfully added to the network |

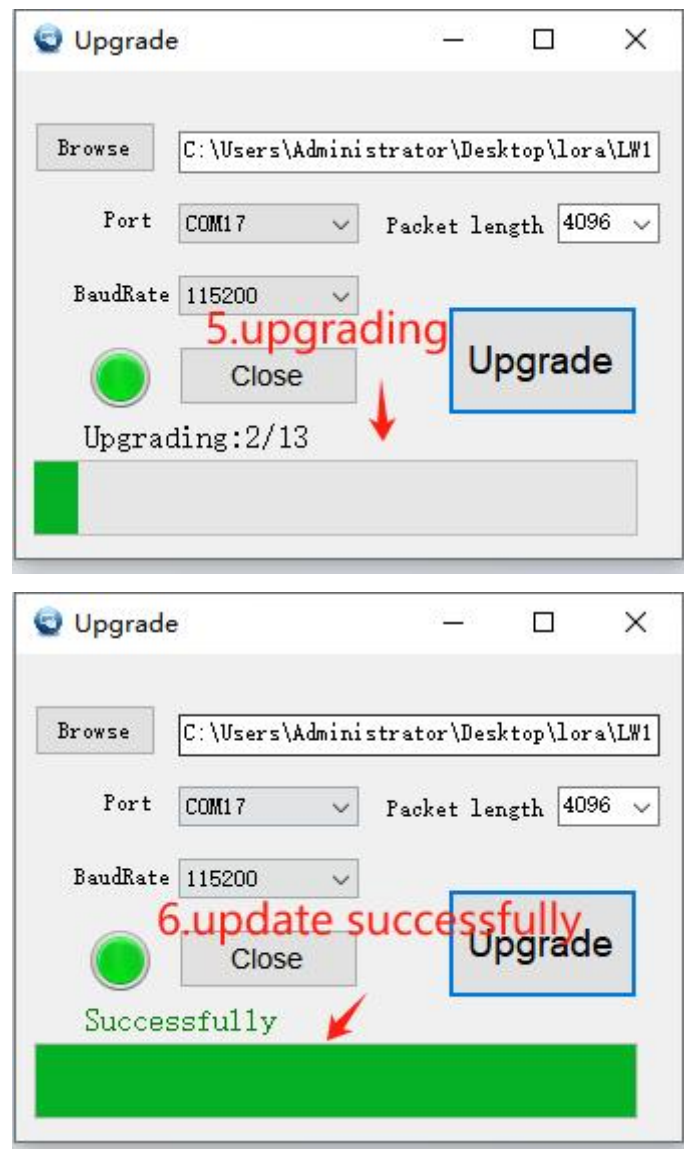
Firmware upgrade:



Click to upgrade → Pop up upgrade window







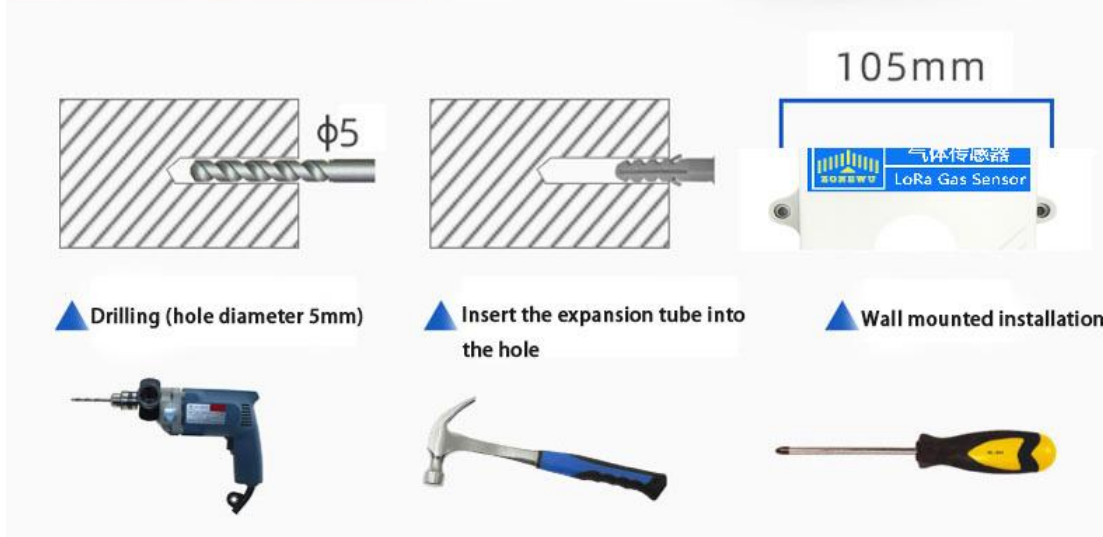
If there is an upgrade error during the upgrade process, you can close and reopen the upgrade window and follow the instructions to upgrade again.

### 3.3 LW304 Size and Installation



Product size

# Installation Method



## Installation instructions

## 4. Protocol Description

### 4.1 Data Format

The up/down data of the device is based on hexadecimal format. High position in front, low position in back.

| address | code   | length | data   |        |        |
|---------|--------|--------|--------|--------|--------|
| 1 byte  | 1 byte | 1 byte | 2 byte | 2 byte | 2 byte |

### 4.2 Upward Data

The device information is reported once during network access or restart.

| Sensor address | Instruction type | Data Length | Data                          |       |       |
|----------------|------------------|-------------|-------------------------------|-------|-------|
|                |                  |             | C <sub>2</sub> H <sub>4</sub> | Temp. | Humi. |
| 01             | 04               | 06          | 00A9                          | 0109  | 0207  |
| 1              | 4                | 6           | 16.9                          | 26.5℃ | 51.9  |

Note:

1.If the received data is FFFF FFFF, it indicates that the sensor is not connected or the sensor is abnormal.

2.When the temperature is below 0 ℃, The temperature data is uploaded in the form of a supplementary code.

Temperature: FF9B H (hexadecimal)= -101=>Temperature= -10.1 ℃

#### 4.2.1 Register Address Description

| Register address | 0001H                         | 0002H       | 0003H      |
|------------------|-------------------------------|-------------|------------|
| Parameter        | C <sub>2</sub> H <sub>4</sub> | Temperature | humidity   |
| Unit             | ppm                           | ℃           | %          |
| Range            | 0-100ppm                      | -40~+80 ℃   | 0~99.9 %RH |
| Data Type        | uint16                        | int16       | uint16     |
| Sample Value     | /10                           | /10         | /10        |
| Operate          | Read                          | Read        | Read       |

### 4.3 Downward data

Support configuring devices through downstream commands. When the downlink command is in confirmation packet mode, the device will immediately send a reply packet after executing the command.

#### 4.3.1 Restart the device

| Starting byte<br>(1byte) | Instruction type<br>(1byte) | Trail byte<br>(1byte) |
|--------------------------|-----------------------------|-----------------------|
| 0xFE                     | 01                          | 0xEF                  |

Response:

| Starting byte<br>(1byte) | Instruction type<br>(1byte) | Trail byte<br>(1byte) |
|--------------------------|-----------------------------|-----------------------|
| 0xEF                     | 01                          | 0xFE                  |

#### 4.3.2 Set Reporting cycle

| Starting byte<br>(1byte) | Instruction type<br>(1byte) | Reporting cycle<br>(2byte) | Trail byte<br>(1byte) |
|--------------------------|-----------------------------|----------------------------|-----------------------|
| 0xFE                     | 02                          | X                          | 0xEF                  |

Response:

| Starting byte<br>(1byte) | Instruction<br>type (1byte) | Reporting<br>cycle (2byte) | Trail byte<br>(1byte) |
|--------------------------|-----------------------------|----------------------------|-----------------------|
| 0xEF                     | 02                          | X                          | 0xFE                  |