



Operating Instructions

Reed-11/Reed-21

Remote Transmitter

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Catalog

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1 Product introduction

1.1 Product overview

The Reed-11 remote transmitter with HART functionality is utilized in conjunction with the FLAP-11 series magnetic flap level meter, outputting a 4-20mA analog signal and a digital signal via the HART protocol. It is widely applied in industries such as petroleum, chemicals, metallurgy, pharmaceuticals, electric power, food processing, and papermaking, among others, for continuous liquid level measurement.

1.2 Working principle

The Reed-11 incorporates HART communication, enabling remote control of equipment operations. It is employed in conjunction with the FLAP-11 series magnetic flap liquid level meter to transmit the on-site liquid level signal back to the equipment or control room via a 4 ~ 20mA current, facilitating real-time monitoring of tank liquid levels. As the internal float moves with varying liquid levels, the position of the magnetic steel within the float alters the state of magnetic switches within the Reed-11 tube. Only the reed tube corresponding to the magnetic steel's position remains closed, while others remain open, thereby modifying resistance values. The float position acts akin to a potentiometer's sliding contact point. With float movement, resistance changes, thereby adjusting output voltage. This voltage is then converted into a 4 ~ 20mA current signal through current/voltage conversion. The transmitter typically achieves resolutions of $\pm 5\text{mm}$ or $\pm 10\text{mm}$, with higher accuracy achieved by employing multiple reed tubes.

1.3 Scope of application

It is widely utilized in industries such as petroleum, chemicals, metallurgy, pharmaceuticals, electric power, food processing, papermaking, and other sectors for continuous liquid level measurement.

2 Product characteristics

1. Utilizes imported plastic-sealed reed pipes, ensuring long service life.
2. Incorporates the imported TI single-chip CLT technology to perform voltage and current conversion, achieving a 4 ~ 20mA output.
3. Equipped with a high-performance CPU and imported HART chip to provide 4 ~ 20mA

+ HART output.

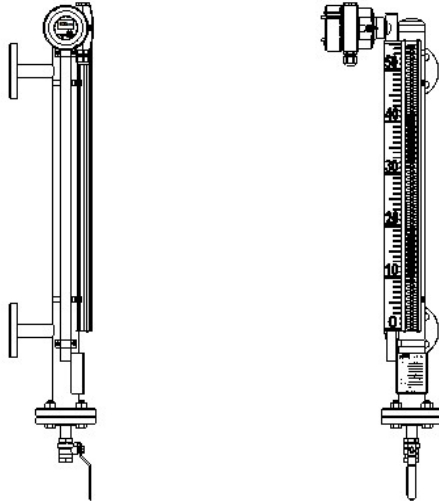
4. Certified for dual explosion-proof protection, including flameproof and intrinsic safety certifications.

5. Features a high protection level, reaching up to IP66/IP67.

6. The outer tube is constructed from 304 stainless steel, offering strong corrosion resistance.

3 Installation guide

Before installation, verify that the instrument model complies with the environmental requirements of the site, including factors such as measuring range, resolution, and explosion-proof ratings, to ensure proper functionality after installation.



4 Wiring

4.1 Safety tips

For safety, wiring should only be performed with the power turned off. When wiring explosion-proof instruments, it is essential to adhere to the specific wiring requirements for explosion-proof devices.

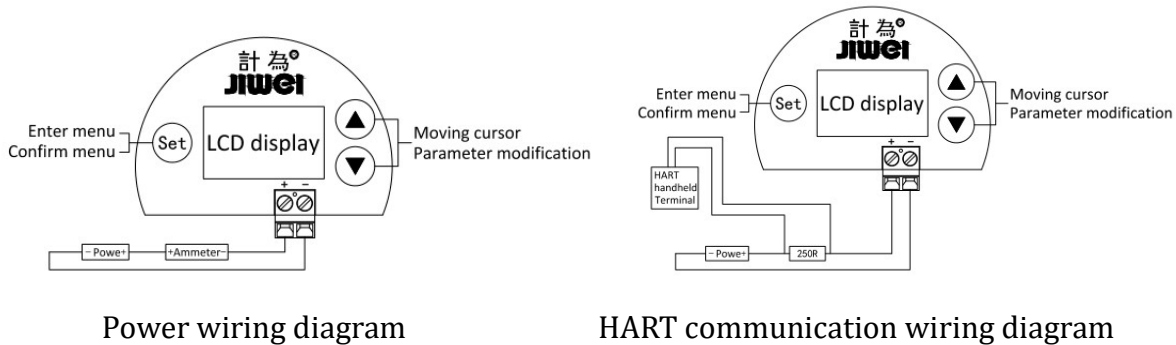
4.2 Access cable

The cable for the reed tube remote transmitter is typically a standard cable with a circular cross-section, having a diameter of 5-9mm. Using cables outside this range may compromise the sealing effect of the cable entry.

If cables of other specifications are required, ensure the use of appropriate cable entry bolts and carefully check the sealing performance of the replaced cable entry.

4.3 Wiring diagram

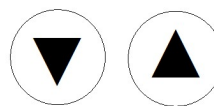
Connect cables securely as shown in the following figure.



5 Menu interface and operation description

5.1 Menu Description:

There are three buttons on the panel, through which the instrument can be adjusted, and the measured value is displayed on the LCD screen after debugging.



- ◆ Enter the menu
- ◆ Moving cursor
- ◆ Confirm menu
- ◆ Select menu item
- ◆ Confirm parameter modification
- ◆ Parameter modification

| Display | Description |
|---------------|---|
| Level Data: | The main page displays the liquid level title |
| Sensor error! | The sensor is not connected or damaged |

| Display | Description |
|---------------|---------------------------|
| 1: Setup Menu | Infrastructure entry |
| 2: Calibrate | Current calibration inlet |
| 3:Exit | Return to previous menu |

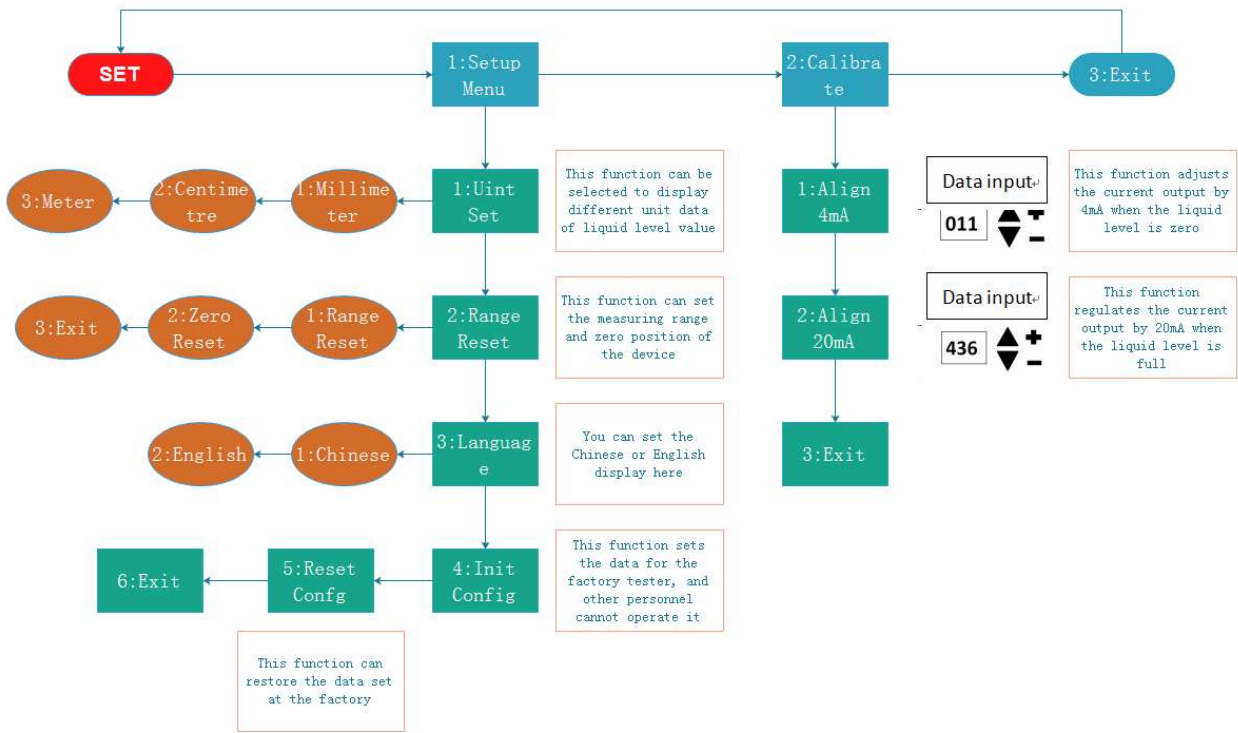
| Display | Description |
|---------------|--|
| 1: Align 4mA | 4mA calibration function Settings (This function requires professional personnel and equipment to operate) |
| 2: Align 20mA | 20mA calibration function Settings (This function requires professional personnel and equipment to operate) |
| 3: Exit | Return to previous menu |

| Display | Description |
|----------------|---|
| 1: Unit Set | Select different unit data for the liquid level display |
| 2: Range Reset | Set the measuring range and set the starting zero position of the range |
| 3: Language | Set the display language (Chinese or English) |
| 4: Init Config | This function is operated by professional personnel at the factory, set the factory data, so that the data can be restored when the factory Settings are restored |
| 5: Reset Confg | When the customer uses the device adjustment data, this function can be used to restore the factory Settings of the data. |
| 6:Exit | Return to previous menu |

| Display | Description |
|----------------|--|
| 1: Range Reset | Set the range to be measured. The factory default setting is the maximum range that can be measured by the device. When setting, the amount of the range plus zero cannot exceed the maximum range |
| 2: Zero Reset | This function can set the measurement starting zero position, the factory default setting is 0, after using this function, set the measuring range equal to the maximum range minus the offset of zero |
| 3: Exit | Return to previous menu |

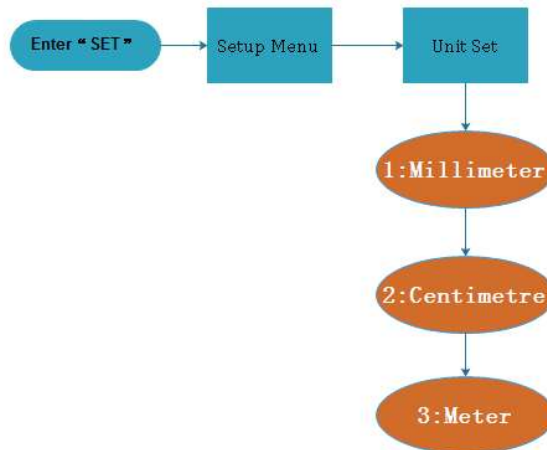
5.2 Operation flow chart

After the meter is powered on and displayed, press the Set key to enter the menu operation interface setting function, as shown in the following figure.

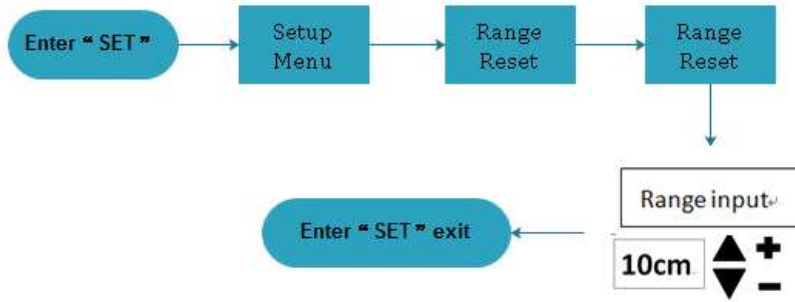


5.3 Main operation

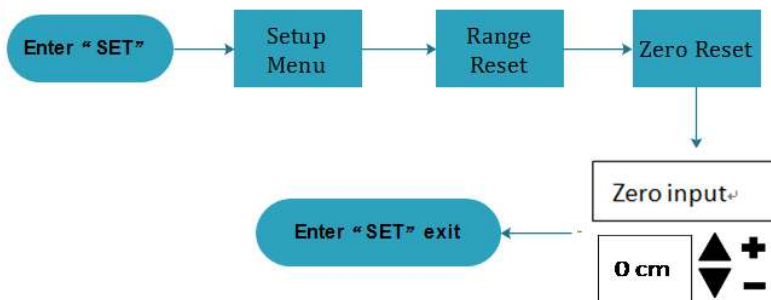
a. Display unit selection: Press "SET" to enter the menu, select "Setup Menu", select "Unit Set", the operation is as follows.



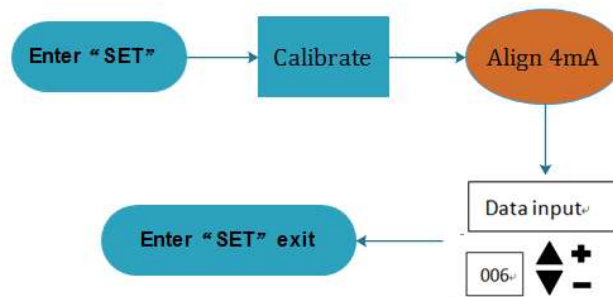
b. Set the range: Press "SET" to enter the menu, select "Setup Menu", select "Range Reset", select "1: Range Reset" operation as shown below.



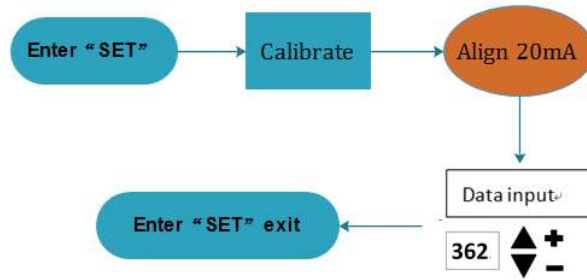
c. Range zero setting: Press "SET" key to enter the menu, select "Setup Menu", select "range Reset", select "2: Zero Reset " operation as shown below.



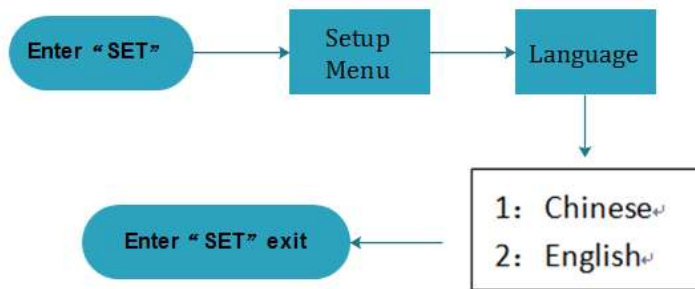
d. 4mA current calibration: This operation requires professional personnel and professional tools to operate, after the device is connected to the ammeter, put the magnet ball at the zero point of the range, and then enter the Settings menu to adjust the current. Press "SET" to enter the menu, select "Calibrate", and select "1: Align 4mA" as shown in the following figure.



e. 20mA current calibration: This operation requires professional personnel and professional tools. After the device is connected to the ammeter, remove the magnet ball or place it at the maximum range, and then go to the Settings menu to adjust the current. Press "SET" to enter the menu, select "Calibrate", and select "Align 20mA " as shown in the following figure.



f. Language display Settings: Press "SET" to enter the menu, select "Setup Menu", select "language", the operation is as follows.



6 Error symptom handling

If the meter is not turned on after being powered on, check whether the power supply is correctly connected.

When the instrument display interface prompts: sensor is not properly connected, check whether the reed tube is properly connected.

7 Technical data

| | |
|-------------------------------|-------------------------|
| Resolution | ±5mm/±10mm |
| Supply-Voltage Range | 18~36V DC |
| Ambient temperature | -40~120℃ |
| Ambient temperature | -20~60℃ |
| SIL Authentication (Reed-21S) | SIL2(HFT≥0)/SIL3(HFT≥1) |

| | |
|-----------------------|---------------------------------------|
| Explosion-proof class | Flameproof type Ex d IIC T6 Gb |
| | Intrinsic safety type Ex ia IIC T6 Ga |
| Class of protection | IP66/IP67 |
| Cable interface | 1/2"NPT or M20×1.5 |
| Signal output | 4-20mA and HART |

8 Certifications

Depending on the model of the product, the relevant certifications and applications are also very different. Therefore, attention should be paid to the requirements of relevant licenses for different models of instruments. The relevant licenses of specific models can be downloaded and consulted on the company's official website “www.jiweimeter.cn”.

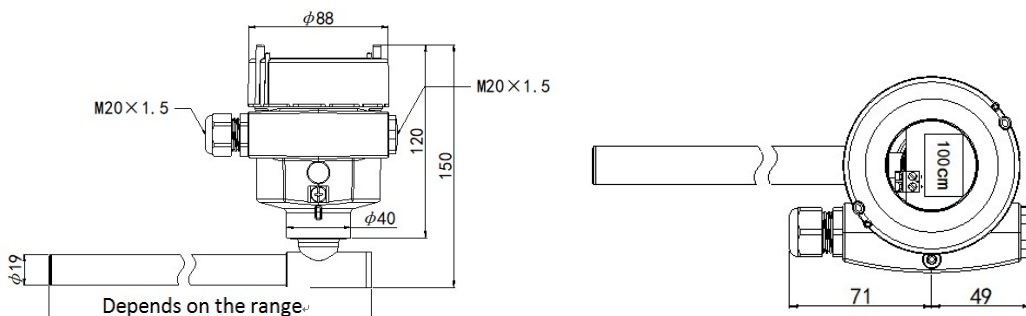
9 Explosion-proof certifications

Explosion-proof instruments meet the requirements of relevant domestic explosion-proof standards. The relevant certificates of explosion-proof certification can be downloaded from the company's official website “www.jiweimeter.cn”.

10 Class of protection

The protection grade of this instrument can reach the IP66/67 standard and pass the testing requirements of relevant institutions. You can log in to the company's official website “www.jiweimeter.cn” to download the relevant test report.

11 Dimension drawing



12 Equipment maintenance

The services we provide to our customers include technical consultation, user training,

on-site installation and commissioning, product replacement and maintenance, and on-site technical support. The warranty period of the product is one year, free maintenance for you during the warranty period, long-term technical support, if you need consultation in use, welcome to call the service hotline: +86 755 28407683, you can also log in “www.jiweimeter.cn” to query related services.

13 Storage and transportation

13.1 Package

The meter you purchase will be protected by packaging materials during transportation to the place of use.

The instrument is packed in cartons or wooden cases, which will not harm the environment and can be recycled. Please let professional recycling enterprises recycle the packaging materials.

13.2 Transport

The instructions on the shipping package should be followed, otherwise the instrument will be damaged.

After receiving the goods, please check the integrity of the package and possible transportation damage. If any damage or hidden defects are found during transportation, please give timely feedback.

13.3 Storage

The following conditions should be followed when storing packaged objects:

Avoid open storage;

Avoid storage in humid and dusty places;

Avoid contact with corrosive media;

Avoid strong sunlight;

Avoid mechanical vibration;

Storage environment (relative air humidity: 0 ~ 95%; Storage temperature: -20 ~ 60°C).