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LEFOO

INTELLIGENT PLUG-IN ELECTROMAGNETIC FLOWMETER

User Manual

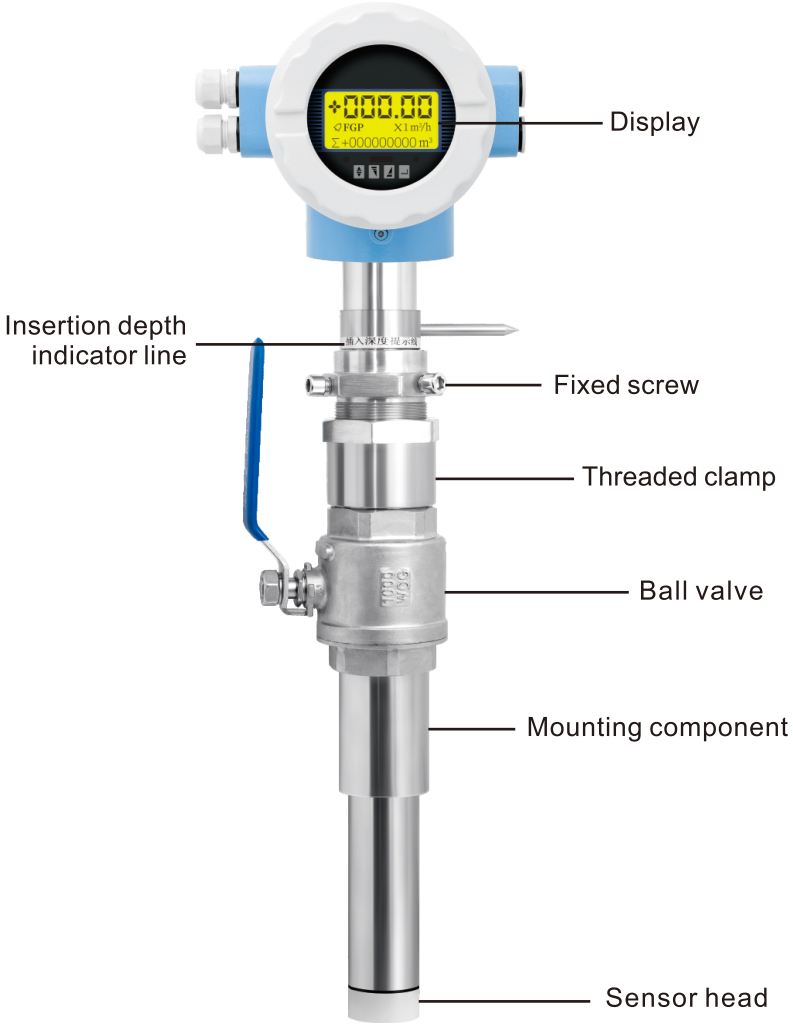
PRODUCT INTRODUCTION

I. This product is a flowmeter designed for measuring liquid flow, with the prerequisite that the medium must be conductive.
II. The measurable flow velocity range of the medium is 0.1 m/s to 15 m/s, with the optimal measurement range being 2 m/s to 3 m/s.
III. Operating Environment Conditions

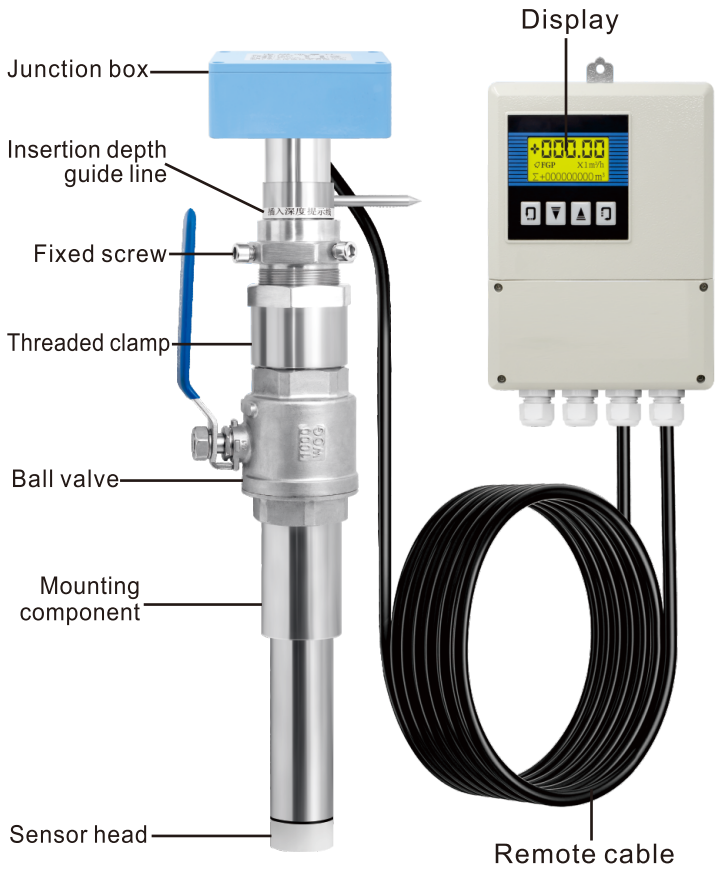
Ambient Temperature: Sensor: -25℃ to +60℃
Converter: -10℃ to +60℃
Relative Humidity: 5%

IV. Operating Conditions
Maximum Fluid Temperature: 70℃ (excluding special custom-made options)
Fluid Conductivity: ≥50 μs/cm
V. Requirements for Straight Pipe Section Installation
1)The straight pipe section before the instrument installation should be at least 10 times the diameter of the instrument, and the straight pipe section after the installation should be at least 5 times the diameter.
2)If valves, elbows, or reducers are installed before or after the instrument, the straight pipe section before the instrument must be at least 15 times the diameter, and the straight pipe section after the instrument must be at least 10 times the diameter. (For example, when installing a flowmeter with a diameter of DN100, the straight pipe section before the instrument should be 1 meter, and the section after should be 0.5 meters.)
VI. Installation Location Requirements
1)The instrument should be installed away from strong magnetic field interference (e.g., motors, solenoid valves, frequency converters), with a minimum straight-line distance of 8 meters from such equipment.
2)Avoid installing the instrument under pipelines or other equipment prone to leakage, to prevent moisture damage from dripping or rain that could harm the instrument.
3)The instrument is best installed on a vertical pipeline where the water flows upward. Installation on vertical pipelines with downward water flow is prohibited. If installed horizontally, ensure that the instrument's electrode axis is level or nearly level with the ground, with a maximum tilt angle not exceeding 15 degrees. Additionally, maintain a straight pipe section downstream of at least 5 times the diameter, followed by an upward elbow. This ensures the instrument remains in a fully filled pipe.
4) Properly support the instrument; it should not serve as a load-bearing point.
5) Keep the instrument away from open flames.
6) Avoid installing the instrument in pipeline sections prone to sedimentation or where air bubbles may form.
7) Do not install the instrument in sections with negative pressure or incomplete filling.
8) Do not install at the pump inlet and avoid sections with excessive vibration.
9) The pipeline where the instrument is installed should be designed with a bypass route to facilitate future maintenance.

VII. Protection Requirements
1) Avoid significant temperature differences between the inside and outside of the flowmeter to prevent condensation inside the meter.
2) The flowmeter itself should not be exposed to direct rain (for outdoor installations, rain protection measures must be implemented), except for specially customized models.
VIII. Product Diagram



Integrated product image 1



Remote (separated) product image 2

IX. Follow the steps below for installation

1) The installation location should be chosen where there is no significant vibration and the inner wall of the pipeline is smooth without noticeable irregularities.

2) Drill a 60-62mm hole at the top of the pipeline measurement point. Ensure that the edges of the hole are smooth, without burrs or slag from cutting.

3) Unscrew the mounting component from the sensor and securely weld it over the drilled hole. The requirements are as follows:

A: The lower end of the mounting component should be flush with the inner surface of the pipeline.

B: Ensure there are no leaks at the weld.

4) Loosen the three locking screws on the sensor, then carefully withdraw the detection rod and sensor head as a whole for later installation (Note: Users should never disconnect the sensor head from the insertion rod).

5) Wrap the upper threaded section of the mounting component with PTFE tape, then tightly screw the ball valve, along with the sealing and locking mechanism, onto it.

6) Slowly reinsert the detection rod from above, slightly tighten the locking nut, and push the insertion rod down to the installation depth guide line.

7) Tighten the threaded clamp and the three locking screws to secure the setup.

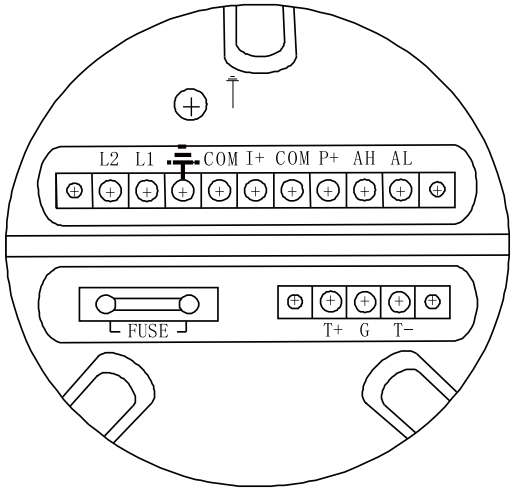
X. Adjustment

1) Insert the rod until it reaches the installation line, then rotate the rod so that the flow direction indicator aligns and is parallel with the direction of the fluid flow.

2) After making the adjustment, firmly tighten the locking threaded clamp, and then securely tighten the three locking screws. These screws ensure that the insertion rod is not pushed out by the internal pressure of the pipeline and that the rod remains stable without shifting or wobbling. (Note: When tightening the first two screws, stop applying force as soon as they make contact with the insertion rod. Only the third screw should be tightened fully to secure the setup.)

XI. Terminal Function Description, Display Indicator Explanation, and Button Function Description

1) Terminal Function Description

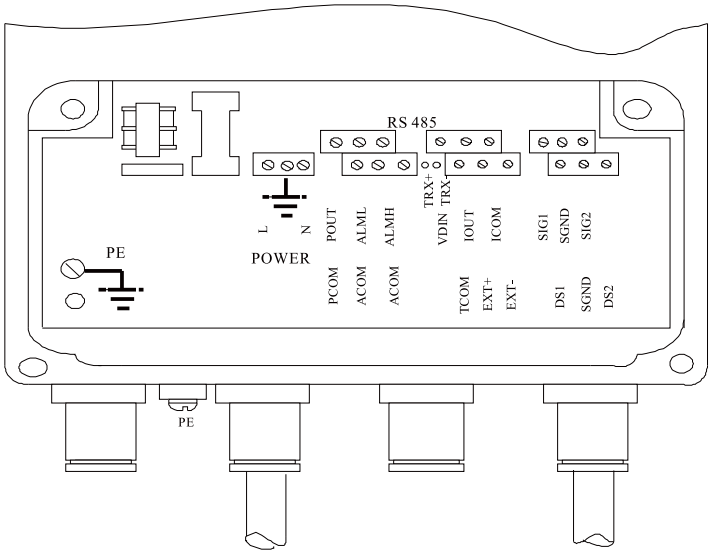


Wiring Diagram 1 for Integrated Model

The meanings of the labels for each terminal are as follows:

I+:	Current Output Terminal
COM:	Current Output Ground
P+:	Bidirectional Flow Frequency (Pulse) Output
COM:	Frequency (Pulse) Output Ground
AL:	Low Limit Alarm Output (Special Order Required)
AH:	High Limit Alarm Output (Special Order Required)
FUSE:	Power Input Fuse
T+:	Communication Output
T−:	Communication Output
G:	RS232 Communication Ground
L_1:	220V (24V) Power Input
L_2:	220V (24V) Power Input

Integrated Model Terminal Description Diagram 1

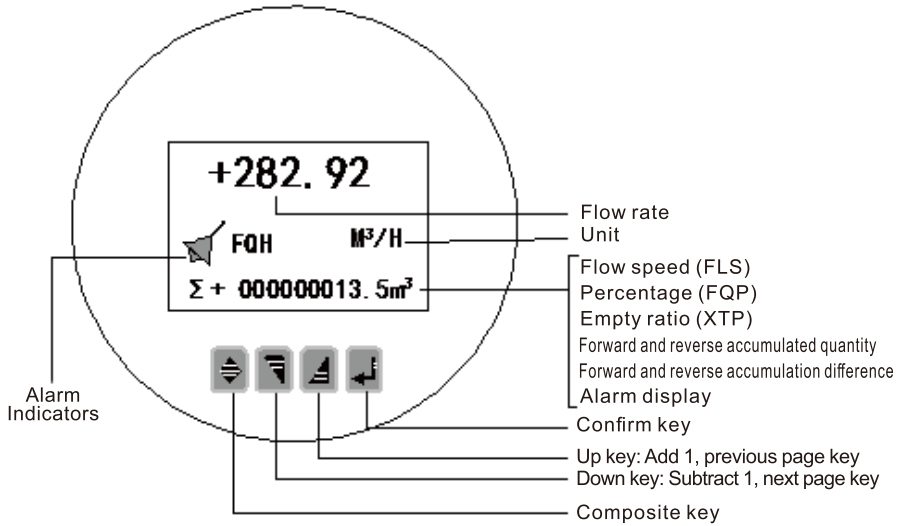


Wiring Diagram 2 for Remote Model

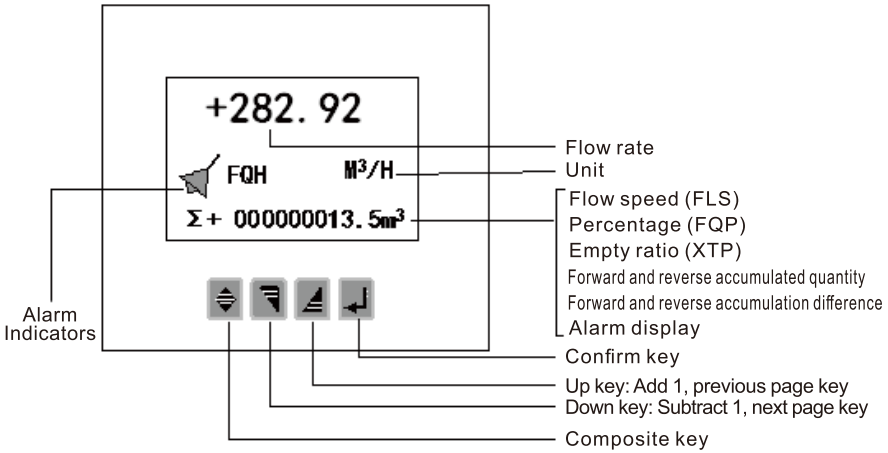
SIG 1	Signal 1	Connect to Remote Sensor
SGND	Signal Ground	
SIG 2	Signal 2	
DS 1	Excitation Shield 1	
DS 2	Excitation Shield 2	
EXT +	Excitation Current +	
EXT -	Excitation Current -	
VDIN	24V Connection for Two-Wire Current Loop	Analog Current Output
IOUT	Analog Current Output	
ICOM	Analog Current Output Ground	
POUT	Flow Frequency (Pulse) Output	Frequency or Pulse Output
PCOM	Frequency (Pulse) Output Ground	
ALMH	High Limit Alarm Output	Dual Alarm Outputs
ALML	Low Limit Alarm Output	
ACOM	Alarm Output Ground	
TRX +	Communication Input	Communication Input
TRX -	Communication Input	
TCOM	RS232 Communication Ground	

Remote Model Terminal Description Diagram 2

2)Display Explanation and Button Function Description:



Integrated Display Instructions - Figure 1



Split Display Instructions - Figure 2

Instructions: In the measurement mode, press the "Composite Key + Confirm Key," and the interface will display "Parameter Settings." Press the "Confirm Key" once, and the interface will show "00000." Use the key functions as shown in the figure above to enter the correct password, then press "Composite Key + Confirm Key" to enter the parameter menu, where you can modify specific parameters. (This product has been fully calibrated before leaving the factory and can be used directly after installation without further adjustment. Therefore, the password setting is not provided in the manual. If you need to change parameters, please contact our company.) To return to the operating state, press and hold the confirm key for a few seconds.

XII. Alarm Information

1) In the measurement mode, the instrument automatically displays the following fault information:

When a prompt appears on the left side of the general display, the following fault information is shown:

FQH ---- Flow High Limit Alarm

FQL ---- Flow Low Limit Alarm

FGP ---- Empty Pipe Alarm

SYS ---- System Excitation Alarm

2) The fault handling is as follows:

FQH ---- Flow High Limit Alarm; This function is typically disabled at the factory.

FQL ---- Flow Low Limit Alarm; This function is typically disabled at the factory.

FGP ---- Empty Pipe Alarm; Please check if the medium in the pipeline is full or if the conductivity is too low.

SYS ---- System Excitation Alarm; Please confirm whether the instrument wiring is correct or if there is any looseness in the connections. If the above issues are ruled out, please contact our company directly.

XIII. Notes

Please carefully read the above terms before installing the instrument to ensure proper use. If the instrument fails to operate due to incorrect installation or usage that does not follow the requirements, the resulting losses will not be covered by our company. If you have any questions during installation, please contact our company. If internal parameter adjustments are needed, please refer to the "Electromagnetic Flowmeter Converter User Manual" or contact our company directly.