



ABDT-MP- II Intelligent Multivariable Liquid Level Gauge

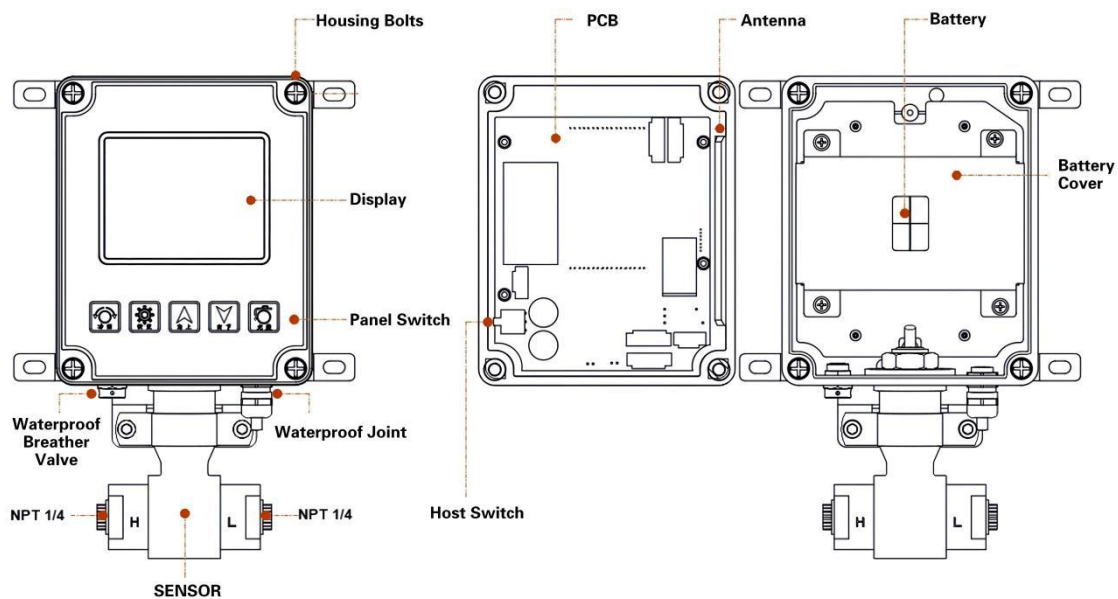
Weifang AOBO Instrument Technology Development Co.,Ltd

CONTENTS

I. Product Overview	2
II. Product Features	2
III. Connection Diagram of Intelligent Transmitter	3
IV. Performance Parameters	4
V. Installation Method and Overall Dimensions	5
VI. Installation Instructions	6
VII. Switch On / Off Description	7
VIII. Symbol Description and Troubleshooting	7
IX. Battery Replacement	8
X. Key Operation	8
XI. Instructions for Use	9

I. Product Overview

ABDT-MP-II Intelligent multivariable liquid level gauge is a multi-functional digital intelligent instrument, which uses advanced and stable monocrystalline silicon technology and unique integrated process technology to realize the simultaneous monitoring of liquid level, differential pressure and pressure by a single core. It also has environmental temperature monitoring and positioning functions. It can be powered by dry battery, solar energy and external power supply. The data can be wired 4~20mA/RS485, The monitoring data can also be transmitted to the IOT cloud server through the 5G/4G/3G/2G wireless network, which is convenient for customers to know the media status in the tank at any time and anywhere.



II. Product Features

2.1 Design features

- ◆ It is designed with advanced, stable and reliable sensor technology and ARM processor;
- ◆ The company's unique sensor overload protection function, and pressure overload will not cause potential safety hazards;

- ◆ Large screen display is adopted, which can simultaneously display a variety of key data information such as pressure, liquid level, volume, filling rate, electric quantity, medium, environmental temperature, signal strength, etc;
- ◆ The shell is made of high-grade ABS material, which can be used outdoors for a long time, reaching IP65 design;
- ◆ Power supply mode, including battery, external power supply or solar power supply;
- ◆ Monitoring data reporting cycle and display refresh frequency can be set according to requirements to meet different needs of customers;
- ◆ It can be equipped with GPS positioning function, which can accurately monitor the position information of the tank body;
- ◆ It has the calibration function to calibrate with the standard table;
- ◆ It can drive the external solenoid valve to provide active safety control capability;
- ◆ Media LO₂/LN₂/LAr/LNG/LPG/CO₂/He can be selected by pressing the key.

2.2 Application

It is widely used to process control field of the industry, such as Petroleum, chemical industry, metallurgy, electric power, food, papermaking, medicine, machinery manufacturing, scientific experiments, aviation and military, etc.

2.3 Visual data platform

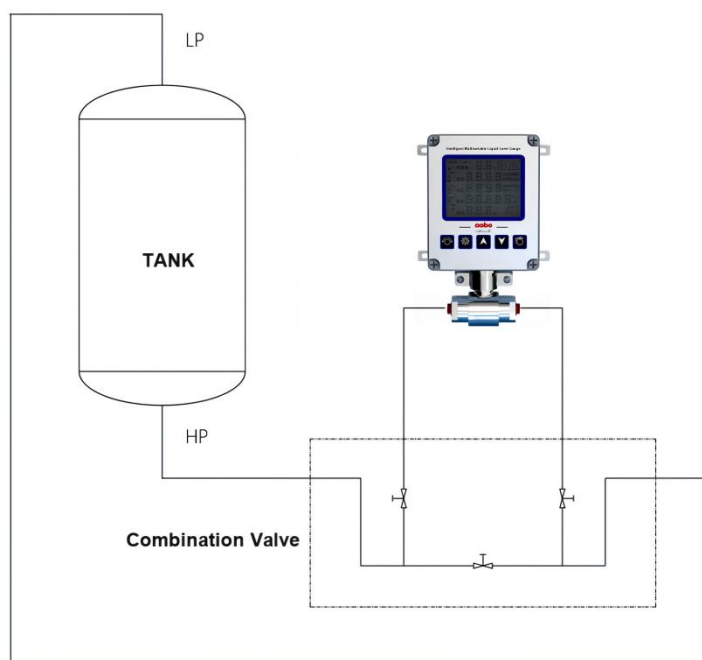
◆ Real time data reporting

The tank liquid level information is detected in real time and sent to the terminal automatically and regularly for viewing.

◆ Timely reporting of abnormalities

When the tank body liquid level information exceeds or is lower than the set threshold, the abnormal information terminal will be sent automatically for viewing.

III. Connection Diagram of Intelligent Transmitter



IV. Performance Parameters

Pressure type	Differential pressure, pressure
Differential pressure	
Differential pressure range	40KPa, 100KPa, 250KPa (other ranges can be customized)
Accuracy	0.2%FS
Pressure	
Pressure measurement range	4MPa (other ranges can be customized)
Accuracy	0.2%FS
Temperature drift	0.5% FS (-20 ~ 70 °C)
Overload pressure	16MPa
Maximum static pressure	40MPa
Ambient temperature	With LCD meter -30 °C ~ 70 °C
Medium temperature	-40 °C ~ 104 °C
Storage temperature	-40 °C ~ 85 °C
Insulation resistance	$\geq 100\text{M } \Omega$ /500VDC (200M Ω /250VDC)
Degree of protection	IP65
Explosion-proof grade	Non explosion proof
Long term stability	$\pm 0.2\%$ FS / year
Power supply	Battery, external power supply, solar energy optional
Data transmission frequency	1 time /3 hours (transmission frequency can be adjusted)
Communication mode	2G/3G/4G
Diaphragm material	316 stainless steel
Interface specification	NPT 1/4
Shell material	ADS+PC

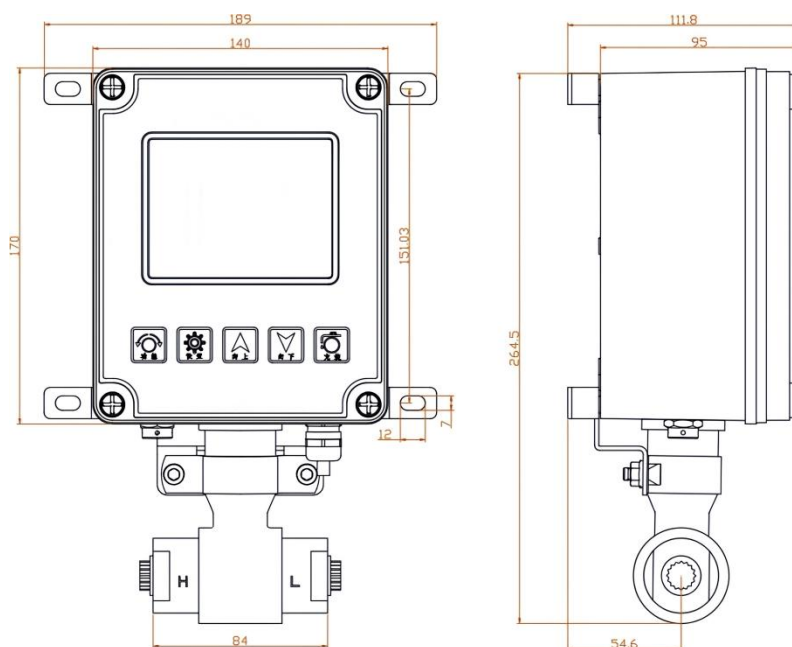
Size / weight	140mm*170mm*95mm/1.5kg (excluding options)
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Note: Other extended functions are customized and developed according to customer requirements.

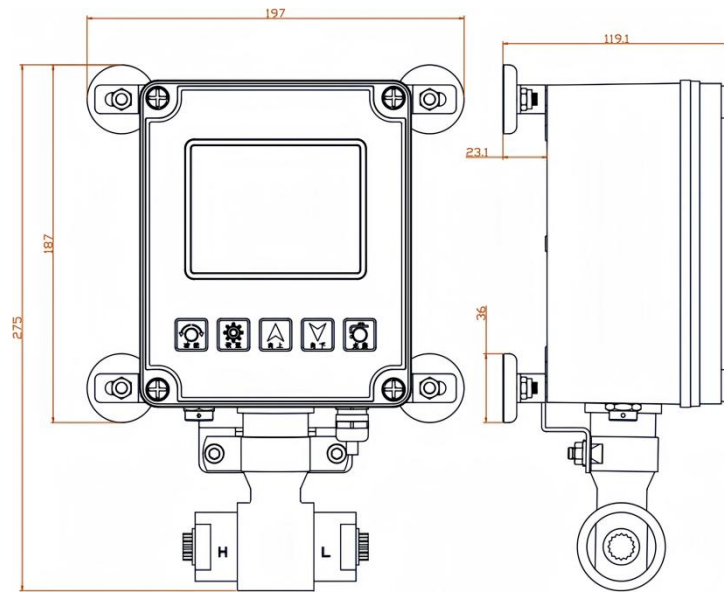
V. Installation Method and Overall Dimensions

This product provides a variety of installation methods, according to the actual situation, choose the appropriate installation method.

5.1 Bare metal installation and overall dimensions



5.2 Installation with strong magnet and overall dimensions



VI. Installation Instructions

1. Please reserve sufficient operation space according to the installation size of the liquid level gauge and the butt joint of the pipeline in advance to ensure that the wrench and other tools can operate normally;
2. The liquid phase corresponds to H and the gas phase pipeline corresponds to L;
3. After aligning the mounting hole of the liquid level gauge bracket with the mounting hole of the base plate, insert four connecting bolts and cover the matching nuts (if it is fixed by magnetic suction, fix the magnet with the host through the nut first, and then directly adsorb it on the mounting base plate).



4. Use a wrench to tighten the fixing bolts and nuts;
5. Check whether there is air leakage at H and L ends. If it is normal, the installation is completed. If there is air leakage, reinstall and tighten until there is no air leakage;

6. Set reasonable key parameters according to the actual situation (if necessary);
7. Observe whether the liquid level gauge screen display is normal after ventilation;
8. Check whether the terminal has data push and accuracy;
9. For the connecting wires of each optional function, please refer to the corresponding line mark of the product for connection.

Note: if it is necessary to provide ferrule nuts and butt nuts of other specifications, it is necessary to communicate with our company in advance, and the whole machine is not equipped with other installation accessories by default.

VII. Switch On / Off Description

1. When the product is shipped, it is started by default, and the reserved power switch can be turned on and off.
2. The IOT network card is installed by default at the factory.
3. When opening the cover, pay attention to protect the circuit board and related lines.

VIII. Symbol Description and Troubleshooting

※ Display the name of the medium, indicating that the medium contained in the tank is as shown in the display, such as "LNG", indicating that the tank is filled with liquefied natural gas.

※ The display of "  " indicates that the system has faults and needs to be checked.

※ Unable to start: please open the cover to check whether the power supply is normally connected; Please use a multi meter to check whether the battery voltage is $14 \pm 0.4V$.

※ The service platform has no data: please check whether the product is started normally; Observe whether the display page antenna "  " has a signal.

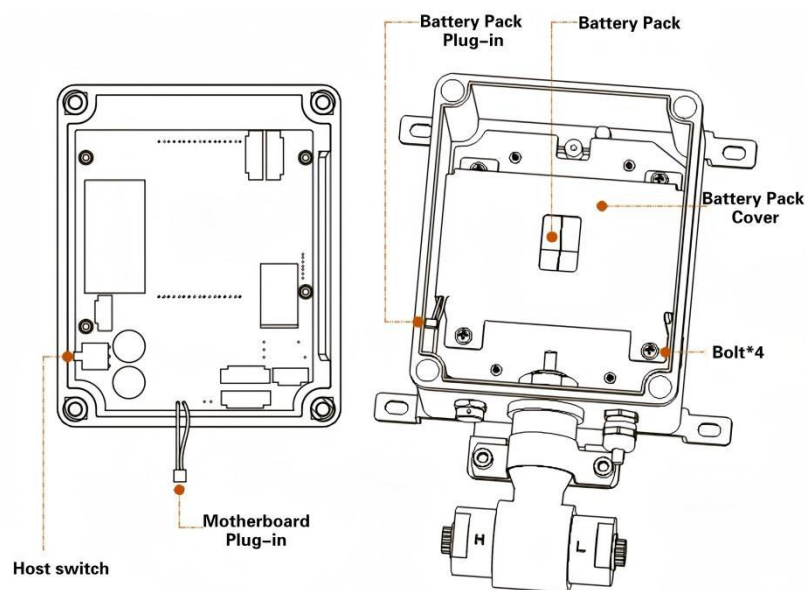
※ For other faults, it is recommended to contact our after-sales service personnel. Do not repair and handle them by yourself.

IX. Battery Replacement

This product is equipped with a battery pack consisting of 4 No. 1 dry batteries as standard (if you need to replace the battery pack, please contact us to purchase the battery pack).

1. Shut down the machine first, and then unscrew the four bolts of the housing.
2. Disconnect the connector between the battery pack and the main board, then loosen the four fixing bolts of the battery cover, and take out the battery that needs to be replaced.
3. Clip the new battery pack into the battery cover, and lock the 4 fixing bolts of the battery cover.
4. Connect the plug-in of the battery pack and the main board and lock it. Turn on the machine. If it is displayed normally, lock the shell bolt.

Note: pay attention to protect the main board and related lines when the cover is opened and powered on.



X. Key Operation

Before leaving the factory, the liquid level gauge has been configured and no key is required. Key definition:

"Function": menu switch button

"Setting": confirm button

"Up button (↑)": move button up button

"Down button (↓)": move button down

"Filling": press the button to refresh the screen and send it remotely (Note: long term use will seriously affect the battery life)

XI. Instructions for Use

→ About the network

ABDT-MP-II uses built-in SIM card communication (mobile 4G by default), and it is necessary to confirm the actual installation of on-site signal network at the time of purchase.

In case of any abnormality, please confirm the communication mode of the replacement equipment or the installation location with the technician in advance.

→ About power supply

※ ABDT-MP-I is powered by internal dry battery by default, and can also be equipped with external power supply or solar power supply.

※ The equipment can operate normally for about 12 months when it is initially powered by dry battery. (data transmission cycle is 3 hours)

※ Before using the equipment, confirm the battery status, replace the battery or charge it in case of power loss, (full charge within 6 hours), and restart the test if necessary.

※ The best working temperature of the battery is 10-40°C. Extreme environment will affect the battery life and charging and discharging efficiency.

※ If there is high-frequency data push or special installation environment, please contact the technician to customize the scheme.

Contact

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