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Ultrasonic Level Meter

TUA03_Product Manual

1. Product Information

1.1 Product Overview

The ultrasonic level gauge is an externally affixed level measurement sensor used to measure the height of the liquid level inside tanks, tanks, and containers.
The sensor uses ultrasonic detection principle to detect the height of the fuel level of the fuel tank, and then through the intelligent processing of the height of the fuel level value is converted into the value

of the fuel quantity, which is sent to the system platform through GPS, and the fuel quantity data is transmitted to the back-end supervision system, so as to achieve the purpose of real-time monitoring of the vehicle's fuel consumption.

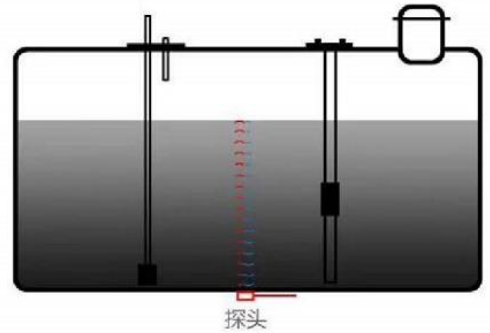
At present, the product is mainly used in the field of car networking for using to real-time monitoring of fuel tank level changes to achieve the detection of fuel, which can be used to prevent fuel theft, optimize operating costs and the driver's driving behavior and assist statistical decision-making, etc.

This product can also be used in the chemical industry, water conservancy, storage tanks and other fields with liquid level detection needs.

Product Pictures

1.2 Working Principle

Ultrasonic level gauge is the use of ultrasonic echo ranging principle, the sensor is installed in the bottom of the tank on the outside surface, from the bottom of the ultrasonic signal, encountered in the liquid surface reflection back, and then according to the time and speed of the liquid level height.



At the same time combined with digital signal processing technology, overcoming

the influence of the vessel wall, to achieve high-precision non-contact measurement of the liquid level in the vessel, in terms of application can meet the requirements of industrial applications.

1.3 Main performance

- ☑ **High range.** Default 1m
- ☑ **High Precision.** Measurement resolution 0.1mm, measurement accuracy ±0.5%FS
- ☑ **Easy to install.** No need to drill holes in the tank, no damage to the tank structure
- ☑ **Rich in interfaces.** Support RS232, RS485
- ☑ **Good stability.** Operating Temperature Range -30℃~+80℃
- ☑ **Professional certifications.** CE / ROHS / CNEX explosion-proof certification / IP67 protection certification

1.4 Technical parameters

serial number	sports event	instructions

1	operating voltage	9~36VDC
2	Operating power consumption	0.36W/12VDC
3	operating temperature	-30℃~+80℃
4	Storage temperature	-40℃~+85℃
5	Measurement range	3~100cm ①
6	Measurement accuracy	±0.5% FS
7	Measurement resolution	0.1mm
8	protection class	IP67
9	communication interface	RS232, RS485
10	Communication port parameters	Baud rate defaults to 9600 (baud rate is configurable) No parity bit, 8 data bits, 1 stop bit, no flow control.
11	Fuel tank material	Conventional tanks such as aluminium/iron/plastic can be used.

①Description of the measuring range

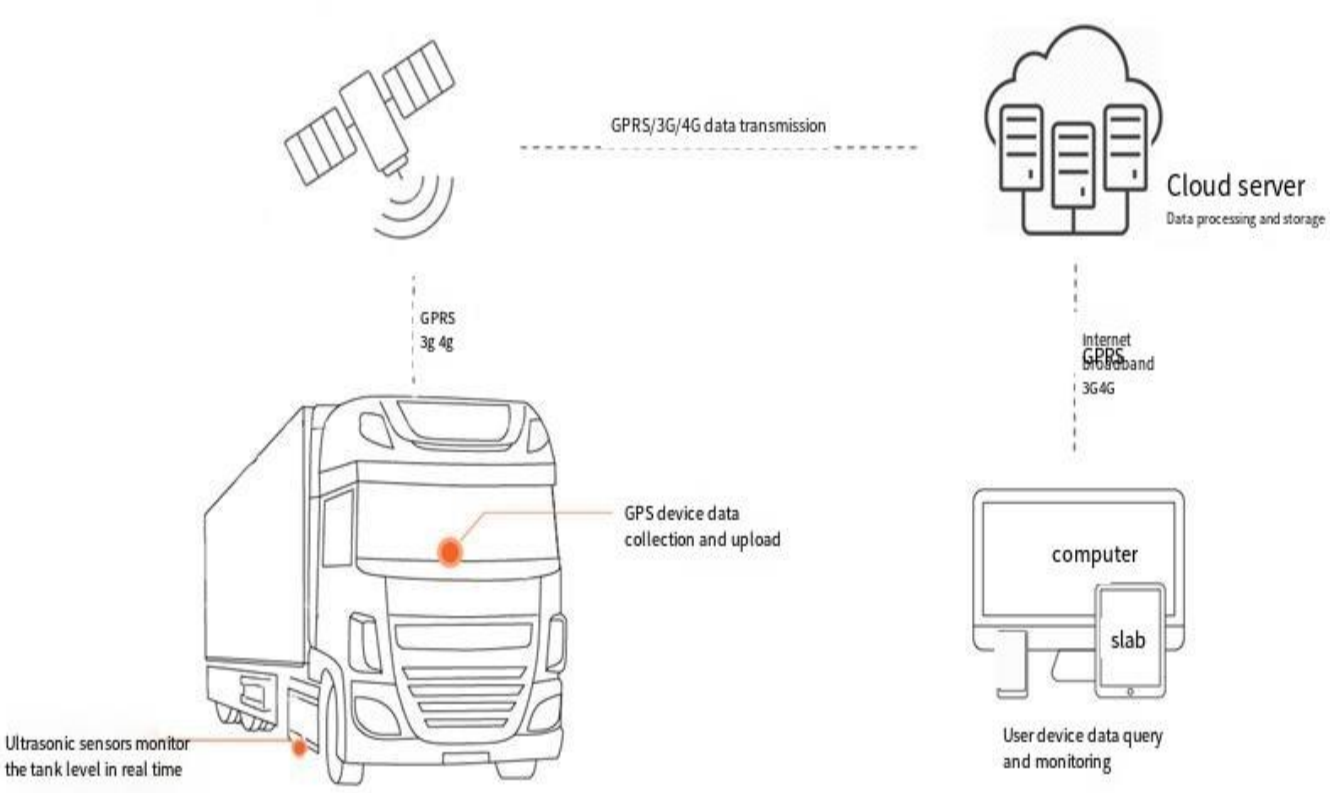
- For 5mm thick Q235 type steel plate, the measuring range is 3~100cm under No. 0 diesel oil.

- The rest is based on the actual measured height, depending on the material and thickness of the packaging.

2. Product Applications

2.1 Vehicle networking monitoring topology

A conventional **Vehicle networking** solution is shown below.



Our ultrasonic level meter products have been widely used in logistics fleet, buses, tankers, fire trucks, sanitation trucks and different commercial vehicles for real-time fuel level monitoring.

2.2 Other application scenarios

Industrial Controls – Textile Mills

Through the ultrasonic level meter and PLC connection, measurement and output of different water level segments to the PLC, the equipment operation, cleaning, pausing control, to achieve automated operation.

Rainwater monitoring

Measurement of the level of water in the storage area of the rain gauge to determine the amount of rainfall over time, and automatic drainage according to the level.

Road water monitoring

By monitoring the height of the water level on the road, the water condition is displayed in real time on the LED signage and vehicles are guided through the road.

3. Installation Instructions

3.1 Product List

Optional Installation and Commissioning Tools – WiFi Serial Server

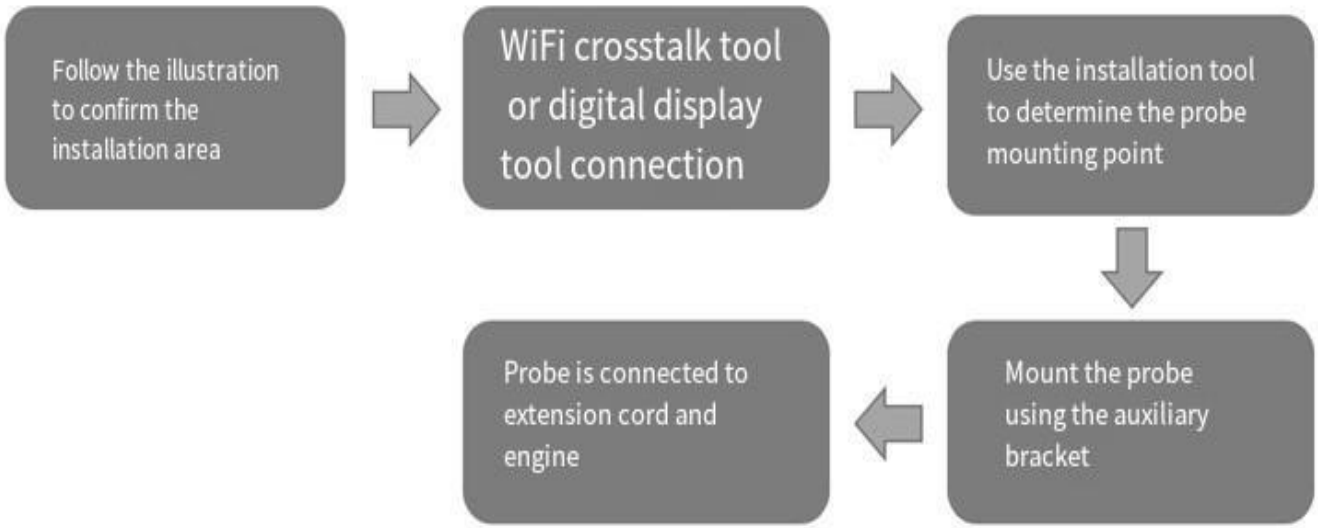
- When unpacking the product, please check whether the package is complete according to the above list of standard equipment.
- Optional installation tool, we recommend option 1, i.e. WiFi Serial Server, which is more convenient to use; before installation, please scan the QR code on the installation manual to download the corresponding APP.

3.2 Pre-installation Precautions

- Ensure that the vehicle has 2 hours or more to spare to complete the installation;.
- Installation tools: pliers, insulating tape, one screwdriver, cable ties, charging battery.
- Make sure your vehicle is at least 30% full of fuel and parked on a level surface before installation, otherwise the installation will be compromised.
- Before installation, please be sure to carefully understand the installation instructions or installation video, if in doubt, please contact our technical support.

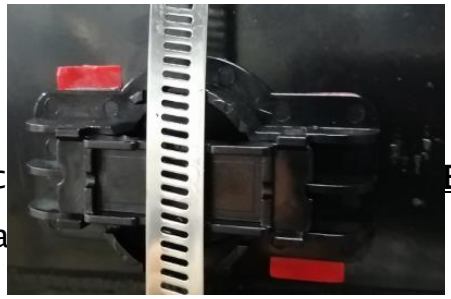
3.3 Installation steps

As shown in the figure below, the ultrasonic level meter is installed and fixed in the bottom area of the tank or container through the following five steps, and connected to the vehicle to



achieve real-time monitoring of the vehicle's fuel level.

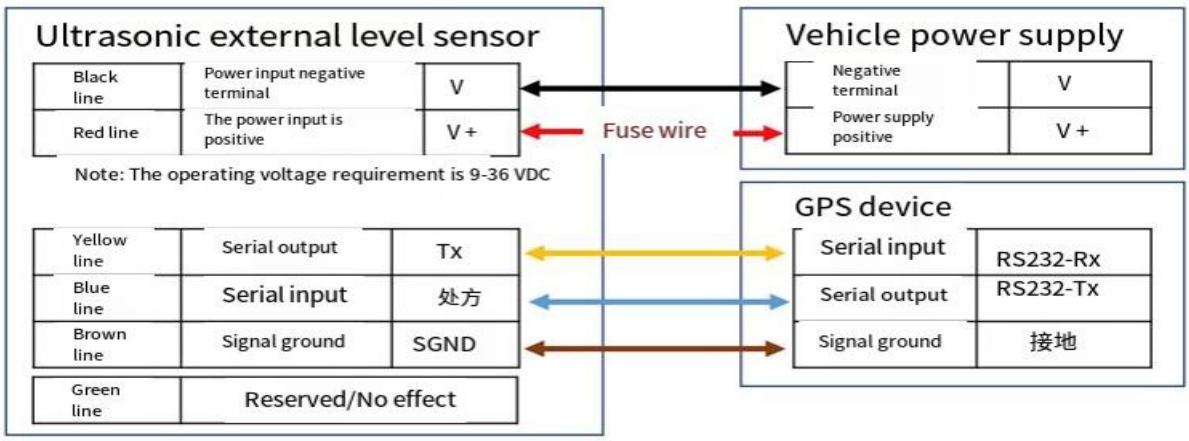
Auxiliary bracket installation effect picture



B mounting instructions

3.4 Wiring Definitions

RS232 interface.



RS485 Interface.