# TOPFLYtech TA34 Analog and RS232 Ultrasonic Fuel Sensor

User Manual

Revision 1.1

# Contents

## 1. Profiles

TOPFLYtech TA34 ultrasonic fuel sensor is an air level gauge for measuring the liquid level in the fuel tank or other container, and it is mainly used in internet of vehicles, for monitoring the change of the fuel level of the fuel tank in real time to achieve the detection of liquid level. It can be used to prevent oil stealing, optimize operating costs, optimize driver driving behavior, assist statistical decision making, etc.

## 2. Mechanism

Through the ultrasonic transducer, the emitted ultrasonic waves propagate down and encounter the liquid level of the container or the tank. Reflected on the surface of the liquid level, the reflected echo is converted and converted into an electrical signal by the transducer. The propagation time of the acoustic wave is proportional to the distance from the sound wave to the surface of the object. The acoustic wave transmission distance D and the sound velocity C and the acoustic transmission time T Relationships can be expressed by formulas: D = C × T / 2. The height of the liquid can then be obtained by conversion.

## 3. TA34 Ultrasonic Fuel Sensor Specifications

| | |
|---|---|
| Operating Voltage | 9V~36V DC |
| Power Consumption | Normal:0.45W Sleep:0.04W |
| Work Current | ≤50mA |
| Work Temperature | -20C°~ 65C°(-4°F ~ 149°F) |
| Storage Temperature | -30C°~ 70C°(-22°F ~ 158°F) |
| Measuring Distance | 30mm ~ 1000mm |
| Resolution | 0.1mm |
| Measuring Accuracy | ±1% FS |
| Ingress Protection Rating | IP67 |
| Output | RS232, RS485, Analog (0-5V) |
| Port Parameter | Baud rate 9600, no parity check; 8 data bits; 1 stop bit |
| Wire | 6 wires |
| Dimensions | 72*72*30mm |
| Cable length | 8 meters |

## 4. TA34 Fuel Sensor Pin Definition

| | | |
|---|---|---|
| Red | VCC | DC 9~36V |
| Black | Ground | Power ground |
| Blue | RX | Receiving signal line |
| Yellow | TX | Transmitting signal line |
| Brown | SGround | Signal ground |
| Green | Analog | DC 0~5V |

## 5. Accessories List

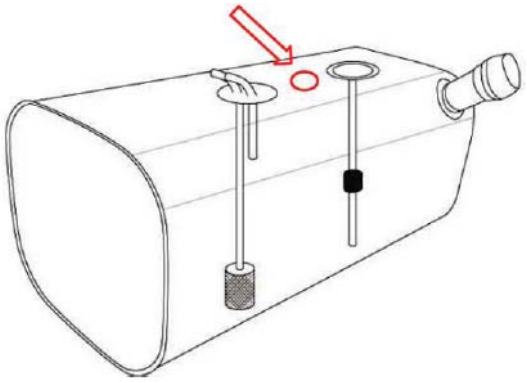
| | | |
|---|---|---|
| Ultrasonic sensor | 1 |  |
| Waterproof washer | 1 |  |
| Self-tapping screw | 5 |  |

## 6. Installation

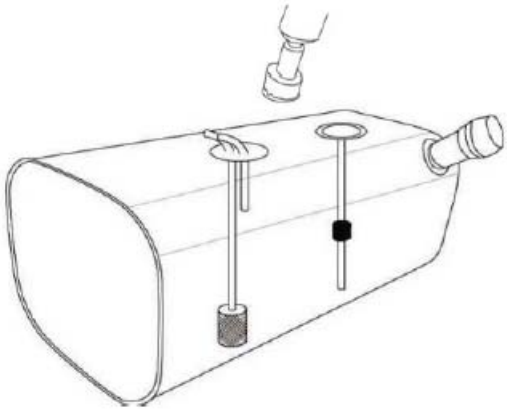
6.1 Park the vehicle on a flat ground with ignition off.

6.2 Make sure the tank of vehicle is empty.

6.3 Select the appropriate installation point: avoid the oil float, fuel filler, return pipe, etc.

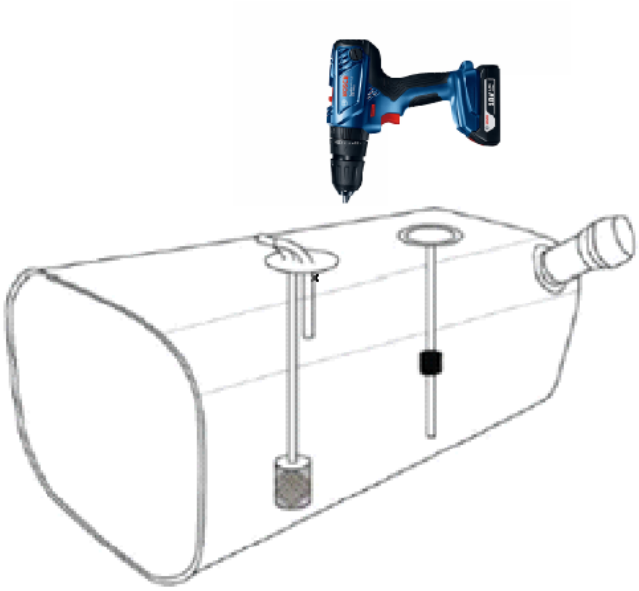


6.4 Opening hole: Use a manual drill with a 38mm diameter hole opener use a manual drill with a 38mm diameter hole opener to open the hole in the selected position of tank.
Electric drill recommended - BOSHI GSB180-LI, drill bit size is 38mm

6.5 Mark the punching position: put a waterproof gasket, mark the screw hole with a marker pen.

6.6 Screw hole: After marking the hole position, remove the washer and drill the screw hole with a hole cutter with a diameter of 4.2mm.



The drill like this:

6.7 Clean up debris: remove debris from punching

6.8 Lock the self-tapping screws: Align the screw holes and tighten the screws.
Pay attention: When locking the screw, use the full torque 1/4~1/3 of the hand-held electric drill to screw, Prevent the torque from being too large and cause the equipment to deform.

**7. What type of the device can use our TA34?**

TOPFLYTECH TA34 ultrasonic sensor support

1. RS232/RS485 only work with TOPFLYtech's devices, the details please check TOPFLYtech protocol;
2. Analog out range from 0V to 5V, can work with all brand name analog input device. (Full level output is 5V, empty level output bases on the height of tank, the range from 0 to 4.9V)

**8. Analog output voltage VS height of fuel level.**

For the calibration table, please see "TOPFLYtech TA34 Ultrasonic Fuel Level Sensor Calculation Table" excel.