MEITRACK CLS Sensor User Guide

Change History

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Contents

1 Copyright and Disclaimer

2 Product Functions and Specifications

2.1 Product Functions

- Measure vehicle's fuel level.
- Detect an alarm when the fuel level is too high.
- Detect an alarm when the fuel level is too low.

2.2 Specifications

Item	Specifications
Sensor length	200–1500 mm (The sensor can be shortened based on the length range.)
Diameter	65 cm
Output signal	0–5 V
Power supply	DC 10–32 V
Ambient temperature	-40°C to 85°C
Resolution	1 mm
Tube material	Aluminum alloy

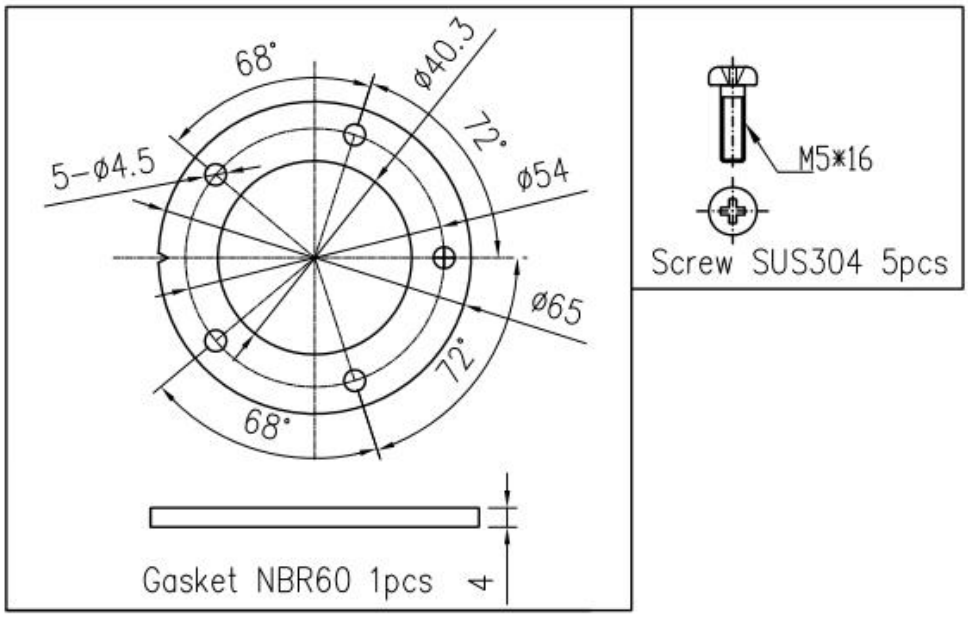
3 Main Device and Accessory

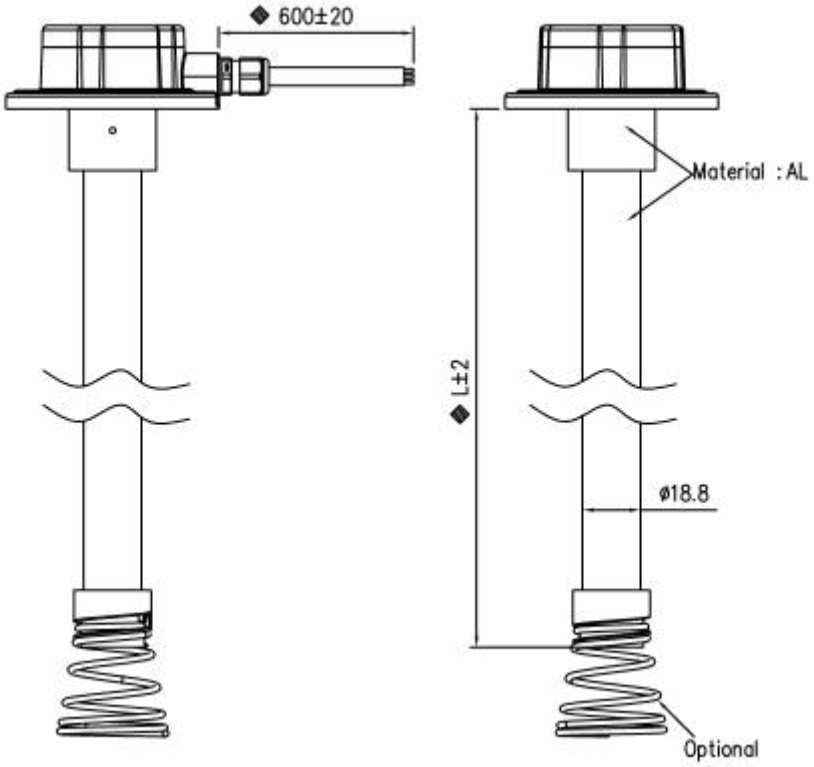
Main device: V-type fuel level sensor (A54 CLS)

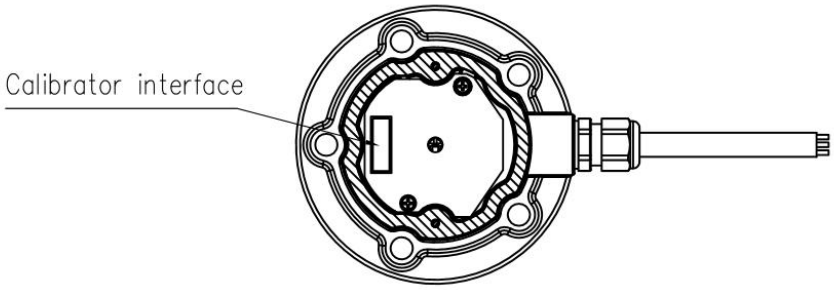
Accessory: Calibrator

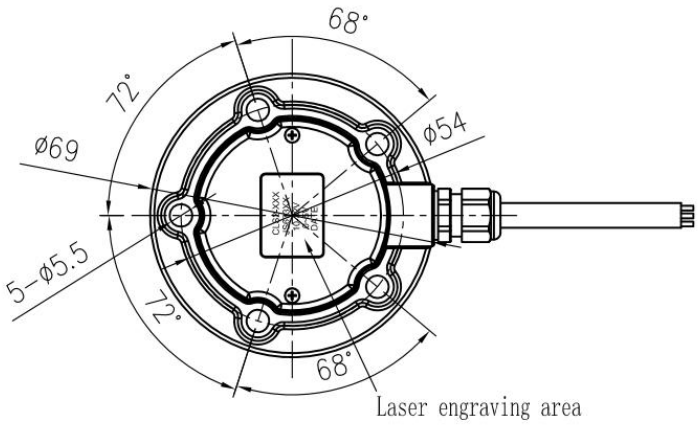
4 View

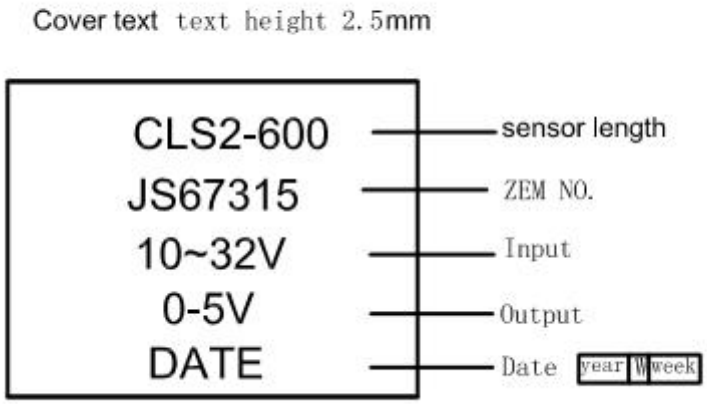
Capacitive level sensor (CLS)











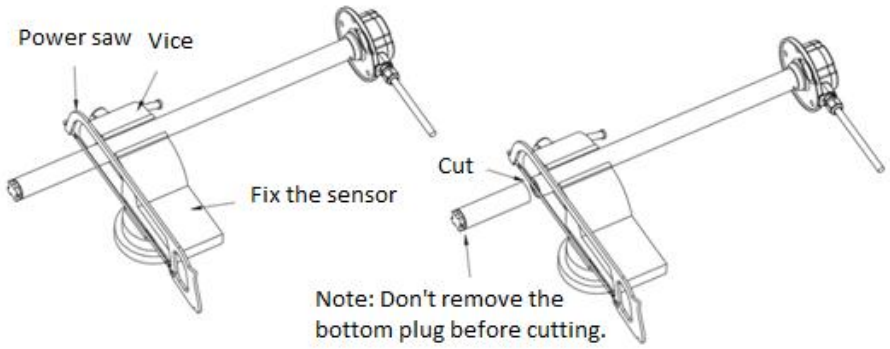
5 Cutting the CLS

You can shorten the CLS according to your requirements.

Perform the following steps:

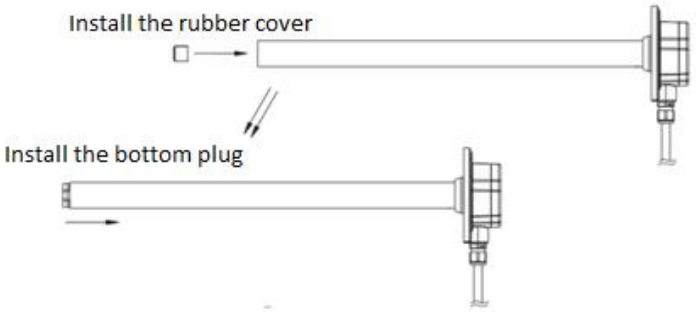
1. Determine the desired sensor length according to your needs.
2. Cut the unnecessary sensor using the power saw and clean up fuel sensor's burrs using the file.
3. Remove the bottom plug and install it into the sensor.

For example, as shown in the above figure, the desired sensor length is L-3.0 mm.



To avoid tube deformation, don't use great force to fix the fuel sensor.

To avoid a block, clean up burrs in the oil tube.



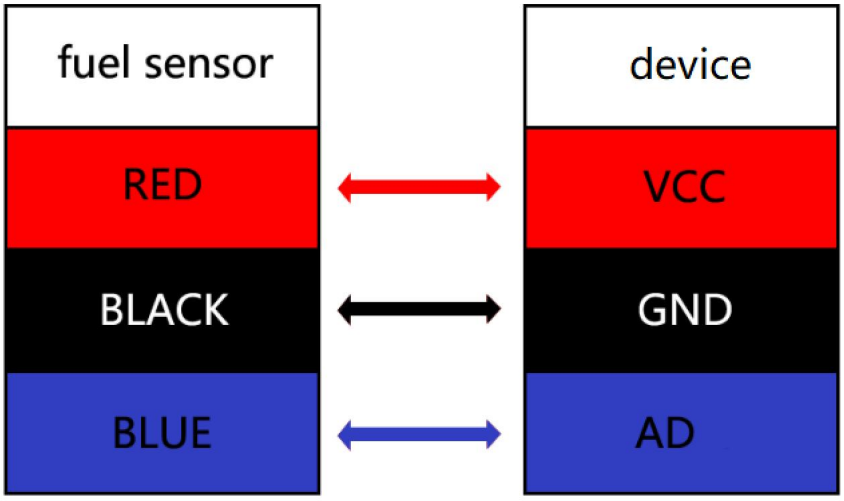
Caution: To avoid damaging the rubber cover, please install the rubber cover first and then the bottom plug.

6 Installing and Configuring the CLS

Install the CLS into the vehicle according to your requirements.

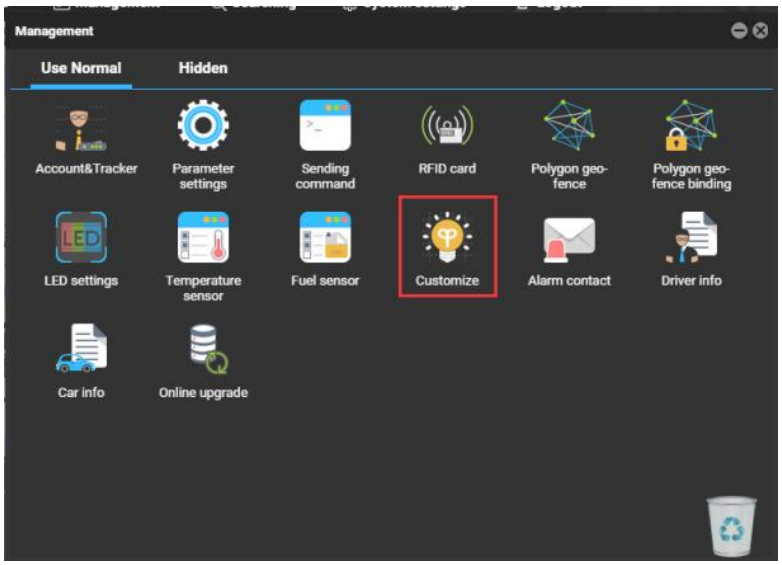
6.1 Connecting the CLS to a Non-dedicated Port

When the CLS is connected to the device with AD, cut the white plug at the end of the CLS and connect the sensor to the tracker according to the following cabling:



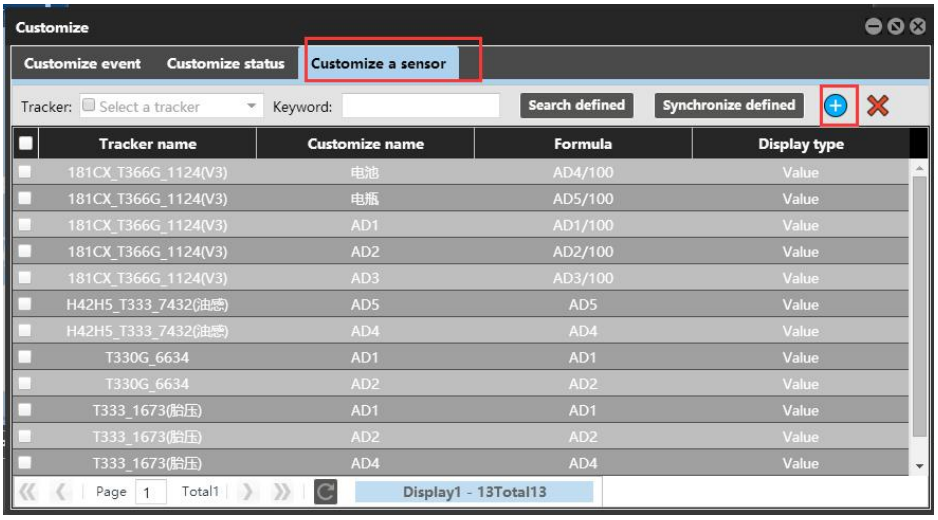
6.2 Adding the CLS to MS03

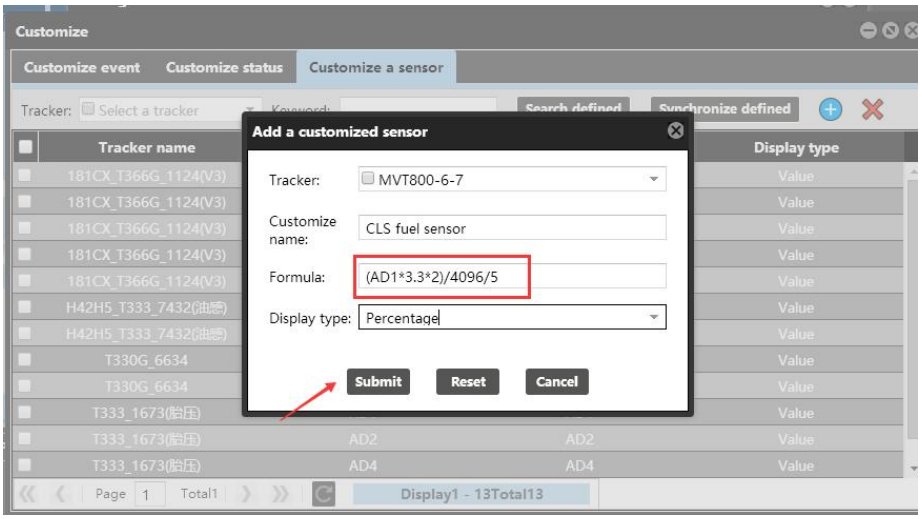
1. Add the MVT600/T1/T333 to the MS03 platform, and connect the CLS to the tracker.
2. On the MS03 platform, choose **Management** > **Customize**.



3. On the **Customize a sensor** tab page, click  . On the **Add a customized sensor** window that is displayed, specify

Tracker, **Customize name**, **Formula**, and **Display type**, and click **Submit**.





6.3 Calibrating the CLS

1. Open the sensor cover and connect the calibrator to the sensor.

2. Calibrate the full level: Fill the fuel tank to the full level, put the sensor into the tank, and wait for about 30 seconds until the sensor tube is filled with fuel. Then press and hold down the **F** button of the calibrator. The sensor will enter the full level calibration mode if the green LED indicator blinks. Then release the **F** button. After about 10 seconds, the full level is calibrated successfully if the green LED indicator is off.

   Calibrate the empty level: Take the sensor away from the fuel tank. After the fuel is drained from the sensor tube, press and hold down the **E** button of the calibrator. The sensor will enter the empty level calibration mode if the green LED indicator blinks. Then release the **E** button. After about 10 seconds, the empty level is calibrated successfully if the green LED indicator is off.

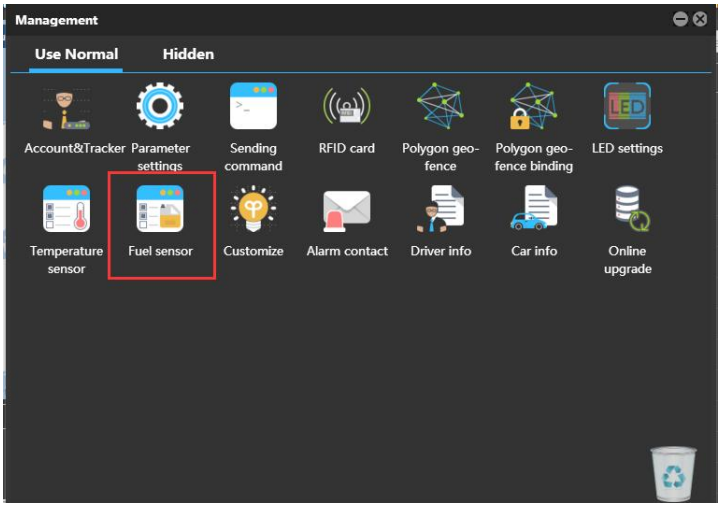
3. After calibration is finished, disconnect the calibrator, close the sensor cover, and tighten the screws. Then connect the red and black cables to the tracker's power cables. The calibration will become effective after the sensor is powered on.

Caution:

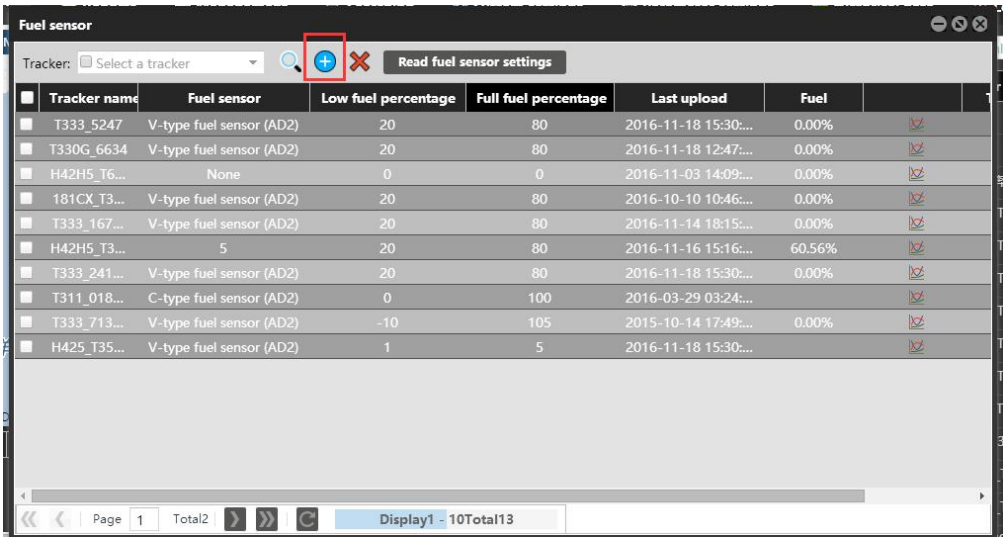
1. You must set the full level first and then the empty level.
2. If you don't press the button correctly during calibration, please turn off the calibrator and then calibrate the sensor again.
3. Don't disconnect the calibrator from the power supply during calibration. Otherwise, please calibrate the sensor again.

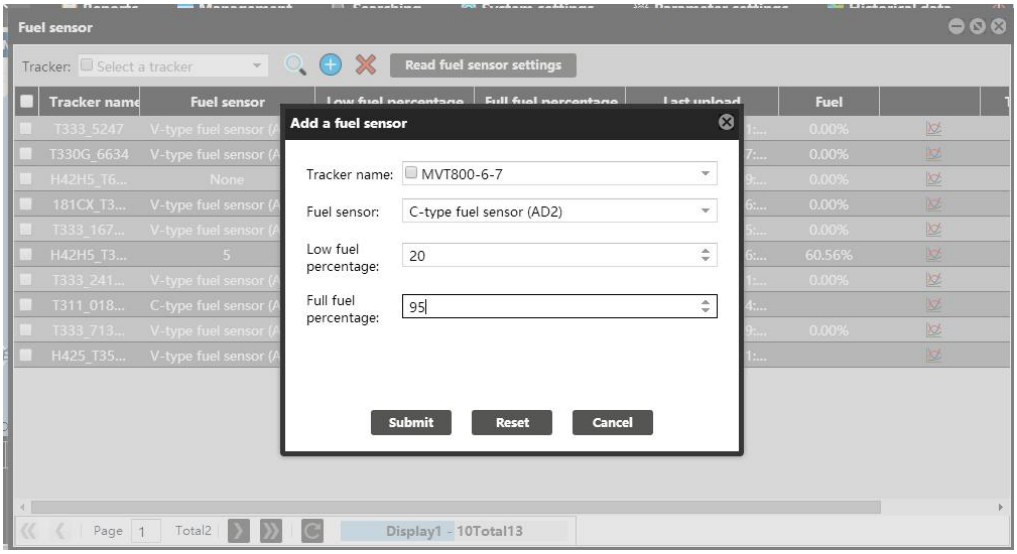
6.4 Adding the CLS to MS03

1. Add the T1/MVT600/MVT800/T333 to the MS03 platform, and connect the CLS to the tracker.
2. On the MS03 platform, choose **Management** > **Fuel sensor**.



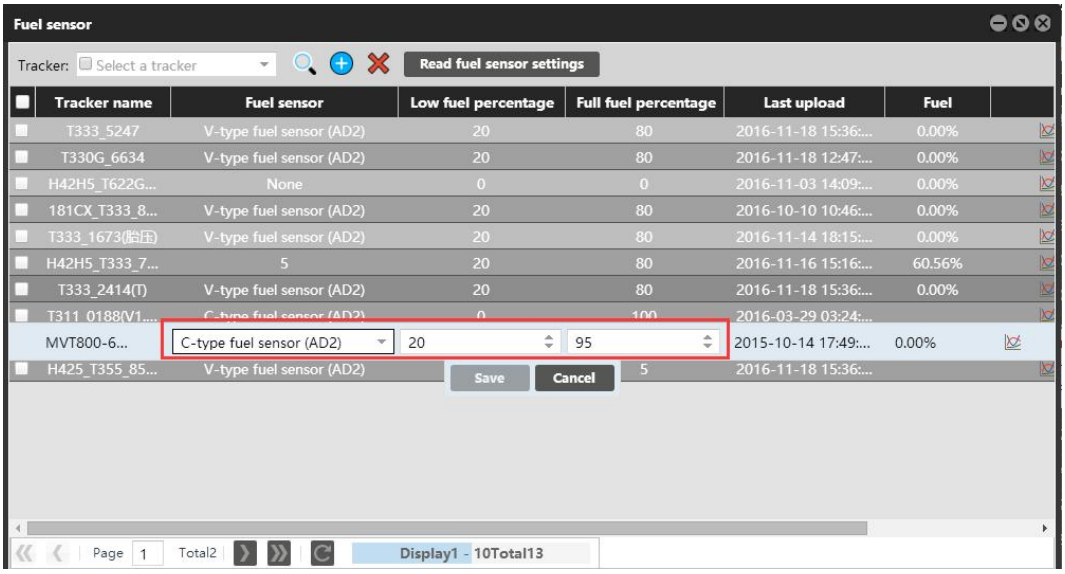
3. On the **Fuel sensor** window that is displayed, click  . On the **Add a fuel sensor** window, specify **Tracker name**, **Fuel sensor**, **Low fuel percentage**, and **Full fuel percentage**, and click **Submit**.





Note: There are three types of fuel level sensors: C-type (Capacitive), R-type (Resistive) and V-type (Voltage). Parameter **None** indicates that no fuel level sensor is used. (C-type and R-type fuel sensors are V-type fuel sensors.)

4. On the **Fuel sensor** window, double-click a sensor to modify parameters **Fuel sensor**, **Low fuel percentage**, and **Full fuel percentage** as required.



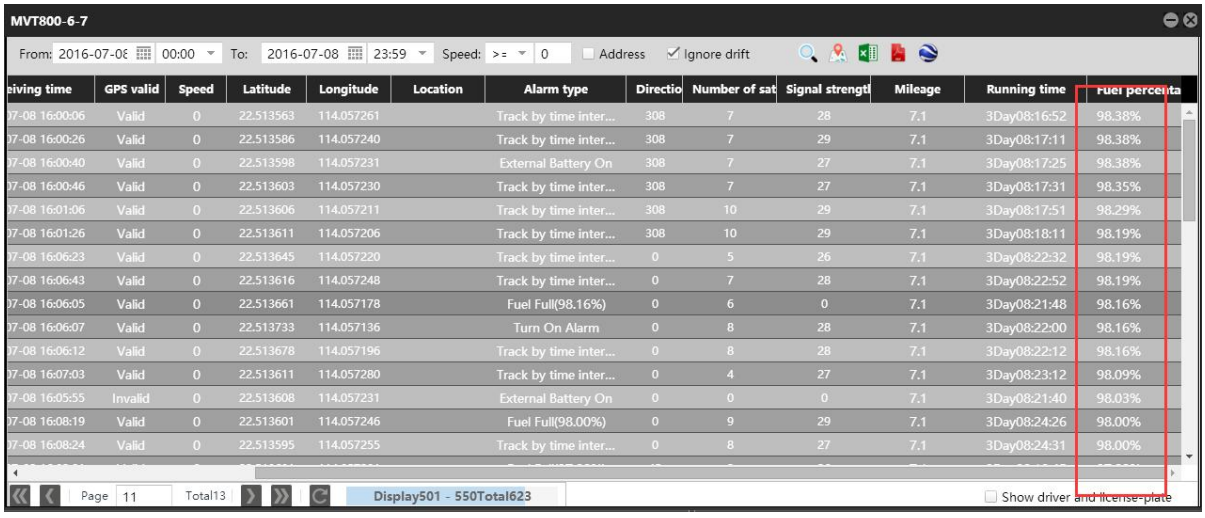
Note: When the fuel detection port of the MVT600/T1/MVT800/T333 is connected to the fuel level sensor, no formula is required on MS03. When the sensor detects that the fuel is lower than the lower limit or is higher than the upper limit, an alarm will be generated.

7 Querying Reports

7.1 Historical Data

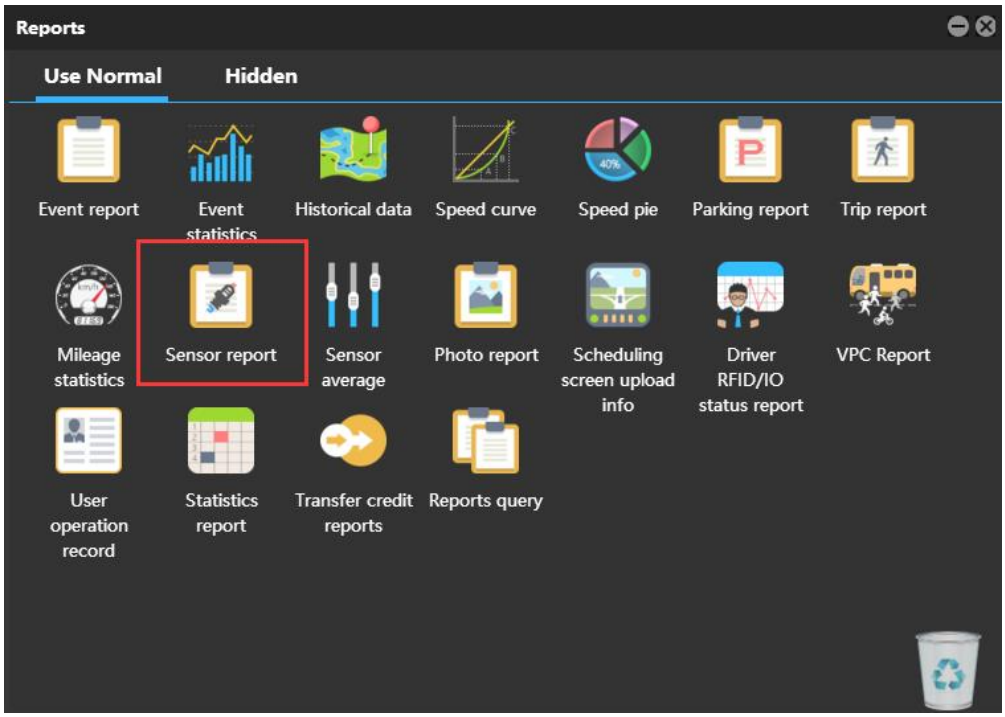
1. On the MS03, choose **Reports**.
2. On the **Reports** window, select **Historical data** from **Use Normal**. The **Historical data** window is displayed.

3. Select a tracker, set the query time, and click . The results will be displayed, as shown in the following figure.

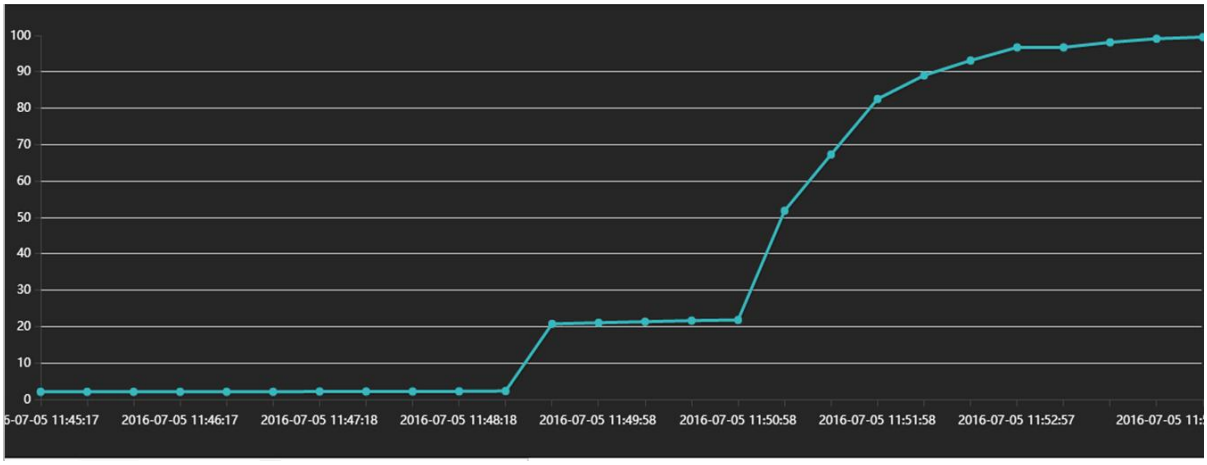


7.2 Sensor Report

1. On the **Reports** window, choose **Sensor report** from **Use Normal**. The **Sensor report** window is displayed.



2. Select a tracker and sensor, set the query time, and click . The results will be displayed, as shown in the following figure.



8 Obtaining the Sensor Installation Video

Please visit the following website to view the fuel sensor installation video: http://www.meitrack.com/en/video-tutorials/.

9 FAQ

1. How are the sensors calibrated?

A: Put the CLS into the tank (or calibration container), add oil to the full level, wait for the oil to enter the sensor completely and then connect the calibrator, turn on the calibrator switch, press and hold down the "F" key, release the key after the green light blinks, and let the green light blink until it stops; take the sensor out of the tank (or the calibration container), and let the oil flow back to the tank. (or calibration container), when the oil is finished dripping, press and hold the "E" key, release the key after the green light blinks, and let the green light blink to a stop to complete the calibration; the calibrator should be connected all the time during the calibration process, and the power can not be cut off. The calibration sequence must be full and then empty, otherwise the calibration will not be successful.

2. Why does the calibrator not work?

A: First check if the battery is charged, a new battery can calibrate 15~20 CLS; then make sure the indicator light on the calibrator is normal.

3. The green light blinks according to the manual when calibrating a full position, but does not blink when calibrating an empty position.

A: First of all, confirm whether the battery power is sufficient, connect the calibrator after the red light is slightly lit or does not light up when it indicates that the power is insufficient. Then verify that the calibrator does not shut off and reopen or that the calibrator is disconnected from the sensor.

4. Why is the CLS output not full (or inaccurate output) when the sensor is calibrated and filled with full oil?

A: The refueling did not reach the calibrated full level. If the calibrated full level in the sensor head below the small hole, the actual amount of oil did not reach the small hole; in general, as long as the oil tank to add about 90% of the tank has reached what is often referred to as the full tank, so if the calibrated full level in the sensor head below the words, the value is about 4.5V (about 90% of the oil).

5. How to make sure that the CLS is at the full tank position after calibrated?

A: Calibrate and set the full and empty level directly on the tank; if it is not possible to calibrate on site, a rod can be used to measure the height of the liquid level in the tank when it is full and mark the rod, then mark the CLS at the same height, and refuel the tank in the homemade measuring cylinder to the marked position to calibrate the full level.

6. Why is it recommended that another calibration be required at the customer's premises?

A: First of all, different oils will have an effect on the sensor; secondly, the customer requires a full position that is different from the calibrated position in the factory; and lastly, if there is a cut-out, it will have to be re-calibrated.

7. Can CLS be used to measure water?

A: No, CLS cannot be used to measure conductive media (e.g., water); when the liquid is conductive, CLS will always show a voltage around full or close to 100 percent.

8. Why does the CLS output of the voltage signal keep showing about 0.7V?

A: The sensor is normal because the ground and signal wires are reversed. The one shipped before 2014/5/1 is the blue ground wire, and the one shipped after 2014/5/1 is the black ground wire.

9. What is the shortest length the CLS can be cut off to?

A: The truncated portion cannot exceed 2/3 of the total length of the original sensor,
i.e. the truncation cannot be less than 1/3 of what it was before the truncation. e.g. CLS1-900 can be truncated to CLS1-300 at the shortest.

10. Is there any impact on product functionality after CLS cutting?

A: If the cuts are made as required, debris is cleaned up, assembly is in place and re-calibration is successful, the cuts will have no effect on the function of the product.

11. What length should we order the CLS?

A: The height of the tank minus the wall thickness of the upper and lower tanks, and then subtract 1~2cm is the height of the CLS; for tanks higher than 1 meter, consider increasing the bottom spring, the height of the tank minus the wall thickness of the upper and lower tanks, and then subtract 1cm can be.

If you have any questions, do not hesitate to email us at info@meitrack.com.