

# FMB640 UL202 Ultrasonic Fuel Sensor



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## Introduction to the product

UL202 Ultrasonic Fuel Level Sensor connected to FMB640 using RS232 interface.

### UL202

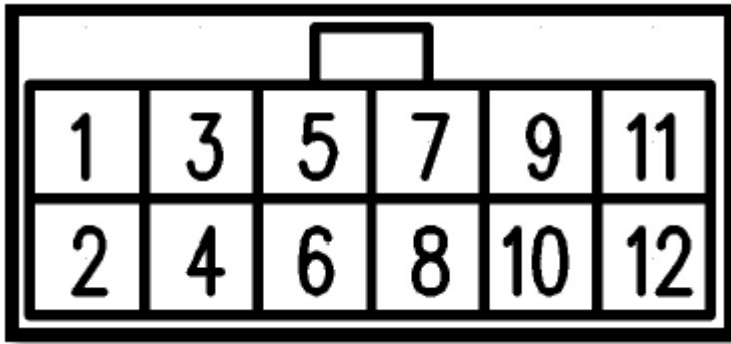
Color	Definition of LED light
Green light	the probe works normally
Red light	the probe is abnormal (the probe line is not inserted or probe drops off)



### UL202 sensor technical parameters:

Description	Physical specification
Operating voltage	9-36VDC
Maximum power consumption	0.8W/12VDC
Work temperature	-40°C - +85°C
Measurement range	Determined according to materials and thickness of the container
Pressure bearing scope	<0.8kg or 0.8MPa
Liquid measurement accuracy	+/-0.5%
Equipment interface	Provided output port of RS232

**Port definition of user interface** - User interface port is used to connect **UL202 Ultrasonic Fuel Level Sensor** connected to FMB640 using with RS232 interface



### Port definition

PIN position n Nr.	Function	Description	Color
1	Positive pole of Power supply	9-36VDC	Red
2	Negative pole of Power supply	-	Black
3	RS232 TX	RS232 transmitting terminal	Yellow
4	RS232 RX	RS232 receiving terminal	RED
10	GND	Ground	Black

### Installation

Before installation, make sure UL202 Ultrasonic Fuel Level Sensor is not powered ON. The RED and BLACK wires of User Interface line have to be connected to the Power Supply of the vehicle with RED wire connecting the positive role and BLACK wire connecting the ground. UL202 has RS232 serial port output:



### FMB640 configuration

In order to configurate FMB640 to read UL202 Fuel Sensor information, COM1/2 port have to be selected as "UL202-2 Fuel Sensor". Default baudrate is 9600.

The image shows a settings application interface. On the left is a vertical sidebar menu with various settings categories. The 'RS232 \ RS485' option is highlighted with a red box, and a red arrow points from it to the 'COM1 settings' section in the main settings area. The 'COM1 settings' section has a red box around the 'Mode' dropdown, which is set to 'UL202 Fuel Sensor'. The 'Baudrate' is set to '9600'. The 'COM2 settings' section is also visible, with 'Mode' set to 'Silent' and 'Baudrate' set to 'Default'.

Category	Setting	Value
Garmin Settings	Ping Filter	
	Unicode filter	
RS485 Settings	Mode	Disabled
	Baudrate	Default
RS232 Settings	COM1 settings	
	Mode	UL202 Fuel Sensor
	Baudrate	9600
	COM2 settings	
	Mode	Silent
	Baudrate	Default

To receive UL202 Fuel Sensor information to configured server, Ultrasonic UL202 Fuel level and status have to be enabled in "I/O" section.

GPRS

Data Acquisition

SMS \ Call Settings

SMS Events

GSM Operators

Features

Accelerometer Features

Auto Geofence

Manual Geofence Settings

Manual Geofence Zones

Trip \ Odometer

Bluetooth

I/O

LVCAN

FMS IO

Manual CAN IO

Tachograph Data

RS232 \ RS485

CAN \ Tachograph

Continental TPMS

Custom scenarios

Mobileye

I/O

Input Name	Units	Priority			
RFID2		None	Low	High	Panic
LLS 1 Fuel Level	kvants or l	None	Low	High	Panic
LLS 2 Fuel Level	kvants or l	None	Low	High	Panic
LLS 3 Fuel Level	kvants or l	None	Low	High	Panic
LLS 4 Fuel Level	kvants or l	None	Low	High	Panic
LLS 5 Fuel Level	kvants or l	None	Low	High	Panic
LLS 1 Temperature	°C	None	Low	High	Panic
LLS 2 Temperature	°C	None	Low	High	Panic
LLS 3 Temperature	°C	None	Low	High	Panic
LLS 4 Temperature	°C	None	Low	High	Panic
LLS 5 Temperature	°C	None	Low	High	Panic
Ultrasonic UL220 Fuel level 1		None	Low	High	Panic
Ultrasonic UL220 Fuel level 2		None	Low	High	Panic
Ultrasonic UL220 Status 1		None	Low	High	Panic
Ultrasonic UL220 Status 2		None	Low	High	Panic
Network Type		None	Low	High	Panic

## RS232 connection



RS232 Communication: The Yellow wire (TX) is connected with PIN6 RS232 Rx and the Blue wire (RX) is connected with PIN5 RS232 Tx. The Black wire (GND) connected to Teltonika GNSS device ground.

 **NOTE: RS232 is available on both PORT1 and PORT2**

## Installation steps

1. Requirements: main body of the sensor, probe, extension line, user interface line, couplingagent, 2.8-meter long hose clamp, sand paper and glue.
2. The customers need to prepare: 12V power supply, isolating tape, and duster cloth and paper tissue (used to wipe off grease dirt).
3. Before installing on the vehicle, ensure that the vehicle is at horizontal ground and the fuel tank is placed on frame horizontally.
4. The installation area of probe should avoid the fuel filler, fuel outlet, fuel return pipe, fuel float

and baffle.

5. Select the flat part at fuel tank bottom or close to the central area as possible.
6. For circular oil tank, in addition to avoiding the barrier, the tangent plane closest to the ground should be selected.  

7. Connect the main body of the sensor with user interface line, extension line, probe connection line.
8. Power ON control box. The fuel level is displayed 000.0 at the moment.
9. Apply coupling agent on probe surface. Press the probe at the selected installation position. The display of the main body displays the currently measured liquid level.
10. Hold down "Key 1" for more than 8 seconds and release it to enter input state of total fuel tank height. F030 in the figure below means that total height of the fuel tank is 30cm. Press "Key 2" to increase and press "Key 3" to decrease. Hold down "key 1" for 8 second to confirm the parameters.
11. After total height of the fuel tank is put properly, it enters the input state for current liquid level of the oil tank. E030 in the figure below means that current liquid level height is 30cm. Press "key 2" to increase and press "key 3" to decrease.  

12. After the current liquid level of the oil tank is put properly, press "key 1" more than 8 seconds to enter the automatic adjustment state of oil tank signal strength.
  1. At the moment, you may observe whether the displayed height on the display screen is consistent with actual fuel level (for example, the predicted level is about 300mm and displayed 285.2mm).
  2. If the display screen displays 000.0 or the displayed height is quite different from the actual condition, the probe may be moved slightly or grind the fuel tank wall more. In addition, the buzzer in the equipment sounds continuously (if the buzzer sounds on and off or does not sound, it needs to seek the installation point or grind the fuel tank wall more until the buzzer does not sound).
  3. Hold down "key 1" for more than 8 seconds to complete search and test of installation point.