

## WARRANTY/ NON-WARRANTY MAINTENANCE HISTORY

Arrival date	Expertise report number	QC stamp	Warranty period changes

According to section 13 of the "Provision of measurement uniformity" law, fuel level sensors which underwent the maintenance procedure ought to be verified again.

# SCOUT

## Fuel level sensor PetrolX



Operation  
Manual

### 1 OVERVIEW

Fuel level sensor PetrolX (FLS - further) is designed to measure the fuel level in the vehicle's tank.

The following types of fuel can be measured:

- gasoline;
- summer/winter diesel fuel;
- other liquid oil byproducts that remain liquid in the operational temperature range.

The required onboard voltage is 12-24 VDC. FLS can only be used with the monitoring module in order to collect, store and send data to the server. The sensor gathers the following data: the fuel level and FLS temperature. The digital RS-485 or frequency output can be used for tracker data exchange.

Additionally, the FLS measures the temperature and conducts a check of the internal circuits for self-diagnostic purposes.

### OPERATING CONDITIONS

- Operational temperature range is -40 to +85°C;
- The FLS should not have any mechanical damage;
- Mounting cable should not be damaged;
- The minimal probe length is 200 mm(after cutting);
- FLS must only be used with fuel that remains liquid in the operational range;
- Using poor-quality fuel can lead to a probe stoppage.

### SPECIFICATION

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Table 1

Parameter	Value
Probe length L, mm	700, 1000, 1500, 2000, 2500, 3000
Supply voltage, V	7...50 B
Supply current, mA,	<15
Power consumption, W	<0.4
Maximal Size, mm,	73x80x(L+40)
Weight, kg, maximum	0.5 (L=700mm), 0.6 (L=1000mm), 0.7 (L= 1500mm), 1.2 (L=2000mm), 1.7 (L=2500mm), 2 (L=3000mm)
Operating Conditions:	
- Operational temperature range, °C	-40 to +85;
- Humidity at 25°C, %	30 to 80
Ingress protection	IP66
Primary output accuracy, %	<1
Absolute output accuracy(throughout the operational temperature range)	<2
Measured temperatures, °C	-40...+85
Outputs:	- frequency - RS-485 (ScoutNet and LLS protocols)
LLS RS-485 baud-rate, b/s	1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200
Automatic transmission interval LLS, s	1 to 255
Frequency out, Hz	10...10 000
Average service life	> 8 years

Table 2

Position	Amount
FLS PetrolX	1 pc
Installation kit	
— Gasket	1 pc
— Bolt	4 pc
— Spare bolt	1 pc
— Sealing bolt	2 pc
— Sealed washer	6 pc
— Fuse holder	1 pc
— Fuse	1 pc
— Connection cable (7m)	1 pc
— Indicator seal	2 pc
— Sealing wire, 45 cm	1 pc
— Heatshrink tube for FLS connector	1 pc
Passport	1 pc
Operational manual(1 per batch)	1 pc
Package	1 pc

5      INSTALLATION RECOMMENDATIONS

6. Overall recommendations

Installation has to be carried out by certified and trained specialists.  
The vehicle's manufacturer safety requirements should be met during the installation and calibration. Also, the safety requirements concerning the vehicle should be executed.  
Check if the installation set is full before installing the FLS. Make sure that there is no damage on the surface or on the cable.

C. Installation location selection

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Based on the tank geometry, FLS should be installed as close as possible to the tank center.  
If it is not possible, the FLS should be mounted as close as possible to the recommended place.  
Installing the FLS far away from the recommended places can lead to measurement errors caused by the vehicle incline.  
It is recommended to install more then one sensor for low, long tanks.

	Front view	Side view	Top view
Rectangular tank			
Cylindrical tank			
Complex tank			

a. Installation order:

1. Installation location selection
2. Fuel tank preparation
3. FLS probe cutting
4. FLS calibration
5. FLS configuration
6. Tracker connection
7. FLS installation
8. Tank profiling
9. FLS sealing

Required materials and instruments are shown in table 3.

Table 3

Nº	Items required for installation
1	Metal tape measure
2	Tank measuring rod
3	Core drill (recommended Ø (32÷ 35)mm)
4	Metal drill bit (recommended Ø (3÷ 3,7)mm)
5	Drill (screw gun)
6	Flat-blade Screwdriver
7	Hacksaw
8	Pliers
9	Blow drier
10	Zip ties (30 pc)
11	Calibration plug
12	Gasoline-proof sealant
13	Universal 485 Scout Configurator
14	PetrolX configuration cable
15	Laptop with the Scout Configurator installed

INSTALLATION RECOMMENDATIONS

D. FLS probe cutting

Measure the tank depth L1. Cut off the probe to the (L1 -10...20mm), to protect the FLS from short circuit, which can be caused by water in the tank's bottom. Smooth out the cut, be sure to remove any metal parts.  
**Install the insulation plug(from the installation kit) (figure 2).**  
**CAUTION!** FLS Calibration, operation and tank profiling conducted without the insulation plug **may cause incorrect** fuel level measurement!

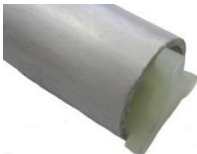


Figure 2

E. Connector pin assignment is shown in Table 4.

Table      4

Pin number	Assignment		Wire colour
1C	Power (+)	12/24 V	Red
2C	Power(-)	12/24 V	Black
1B	Frequency out	Output	Blue
1A	RS-485 A	ScoutNet or LLS	Grey
2A	RS-485 B		White

