ITALON

Configurator for ITALON fuel level sensor

User manual
2019

Contents

1. Connecting the fuel sensor and running the configurator

Before launching the Configurator, visit the download section of ITALON website: http://italonpro.com/downloads/ to save and install the driver "Virtual COM Port Drivers - FTDI" for further work with the sensor setting device (USB < -> RS-485 interface converter)

Further, fuel level sensor (hereinafter referred to as FLS) should be connected to the sensor setting device (hereinafter referred to as the SSD). The SSD should be connected to the USB socket of the personal computer (hereinafter referred to as PC).

Turn on the PC. Wait for the operating system to load.

Run the file Dutconf.exe.

As soon as Dutconf.exe is launched, the program window will open on the PC desktop.
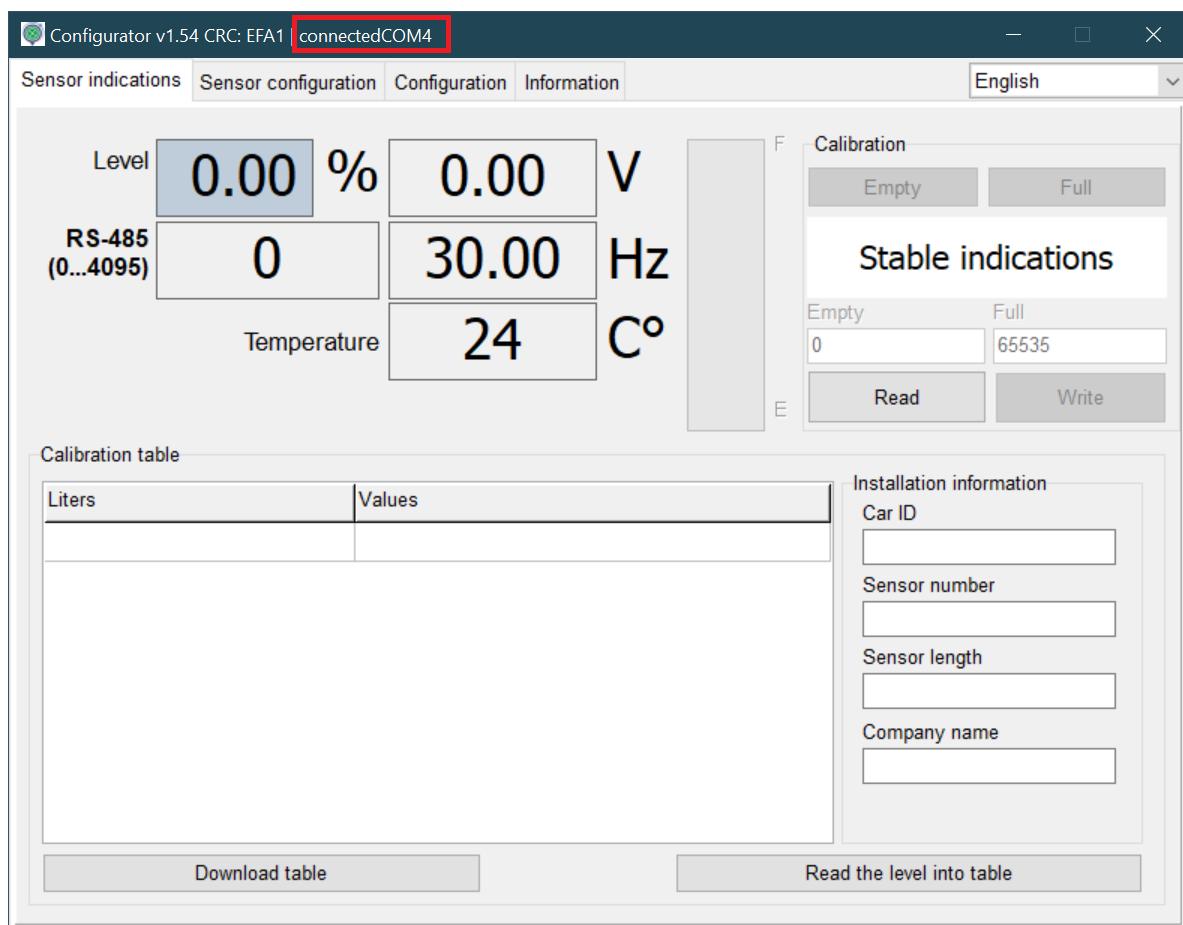

If no data are read from the sensor, the presence and correctness of the installed COM port should be checked in the Configurator Settings tab (the connection status is indicated in the red-framed program header).
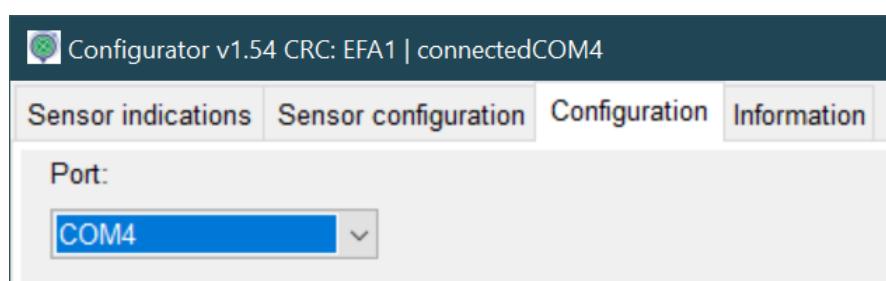
The Dutconf.exe program's interface is a window with the following tabs:

- **Sensor Readings tab.**

In the Level field, the FLS fuel level data are displayed in percentages (%), in volts (V, analog output), in hertz (Hz, frequency output) and in digital form (XXXX for 12-bit binary number presented in decimal form). The data are duplicated graphically.
In sensors starting from the number 16050877 and higher, the internal temperature of the sensor (printed circuit board) is displayed in degrees C°.
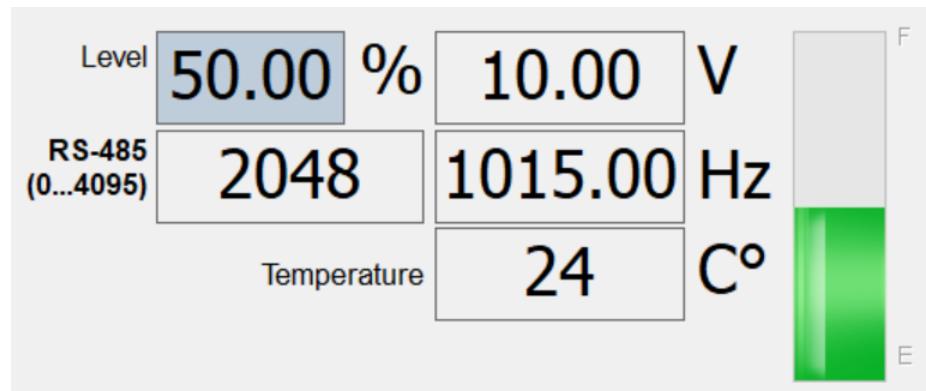
Note:

The configurator does not measure voltage and frequency on the analog-frequency output, but calculates values based on the level obtained using the RS-485 protocol. To assess the state of the analog-frequency output, a voltmeter, a frequency meter, or (if an ITALON's SSD is used), the luminescence intensity of a white LED (approximate estimate) shall be used according to Table 1.

This mode of LED operation allows to evaluate the FLS serviceability by indirect methods. This introduction simplifies the FLS setting up procedure.

Table 1.

|	
LED is not lit	Analog output, 0V level value
	Frequency output enabled without a pull-up resistor
LED is on steadily (the glow intensity varies in accordance with the voltage change from 5 to 20V).	Analog output, level from 5 to 20V
	Frequency output with a resistor and a frequency greater than 30 Hz
LED glows pulsing with a frequency proportional to the frequency at the analog-frequency output	Frequency output and 0% (30 Hz) level enabled

2. Setting empty and full tank values

FLS is calibrated in the following sequence:

1) The level specified in the sensor (button "Read") shall be read

2) FLS shall be immersed in fuel, then wait until the readings become stable and set "Full"

3) Remove the sensor; wait until all the fuel has run out and the readings are stable; set "Empty".

4) To finish the calibration, click "Write"
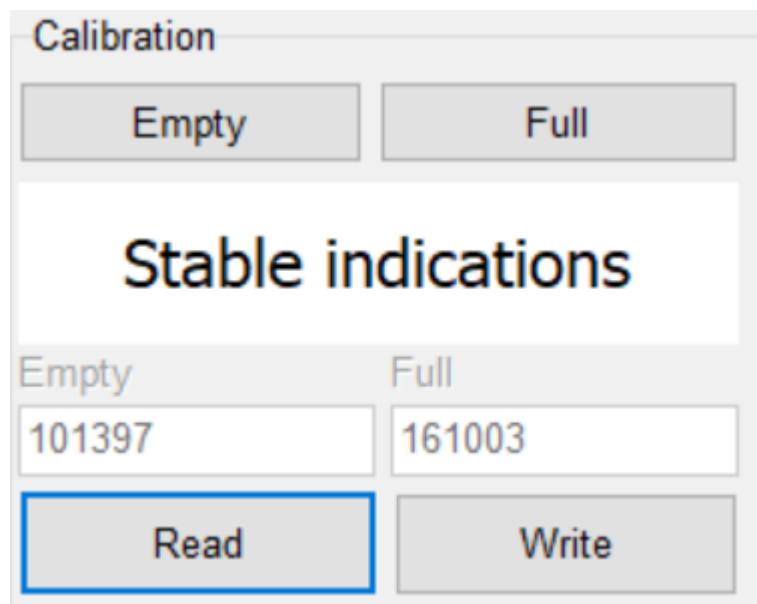
ATTENTION! CALIBRATE BY IMMERSING IN FUEL ONLY!

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3. Calibrating FLS
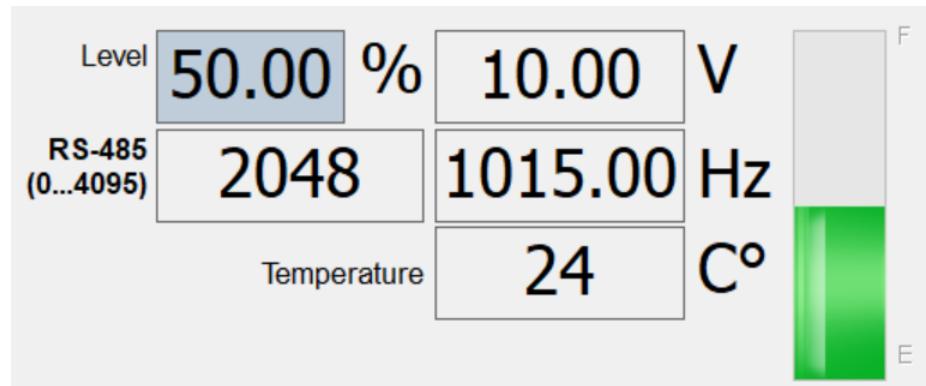
At the beginning of calibration, select the field by right-clicking on the desired field (it will be highlighted in gray) from which the data of intermediate values reflecting shape of the tank will be recorded in the calibration table.
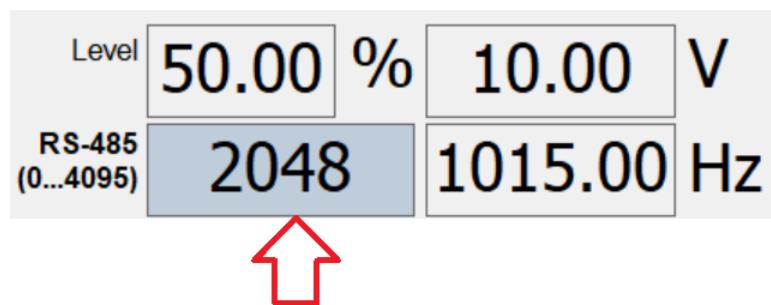
The window with the numerical value is selected to be recorded in the calibration table.

Data from FLS are polled automatically. Calibration points will be recorded after the inscription "Readings are stable" appears.

WHEN CALIBRATING, THE AVERAGING OF THE READINGS IS RECOMMENDED TO BE TURNED OFF.

(on the Sensor Setup tab) otherwise, when the FLS is connected, the readings display can be delayed excessively)

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The field "Calibration table" is used to obtain data concerning the calibration of FLS in a specific tank. To correlate the obtained data and the fuel filled in the tank, the data must be entered by clicking on the button "Enter Level to Table" and then the table shall be saved by pressing the button "Unload Table...". In this case, the table is uploaded into a file in the Fort-Telecom, Wialon format to import into the application or ITALON (number of calibration points, liters, sensor readings). The file name is generated automatically in the format "Machine number-Sensor number-Sensor length-Company name" (group of fields "Installation Description").

If two FLS must be calibrated simultaneously, 2 SSDs shall be used, each connected to its FLS, as well as two running configurators (launched from different directories). The corresponding COM ports will be specified for each SSD.

4. Setting FLS outputs

- **"Sensor configuration" tab.**

Click the "Read Configuration" button. In the "Output Mode" field, the mode (analog or frequency) required for operation must be selected. The corresponding fields are activated to change certain settings.

In analog mode, a voltage range from 0 to 20 V can be selected. The voltage at the analog output depends directly on the sensor supply: If the power will come from a 12V battery, then the maximum value should be set to not more than 10V. On top of that, the direct and inverse dependences of the output voltage vs. the amount of fuel in the tank can be set (the word "REVERSE" appears in the second option).
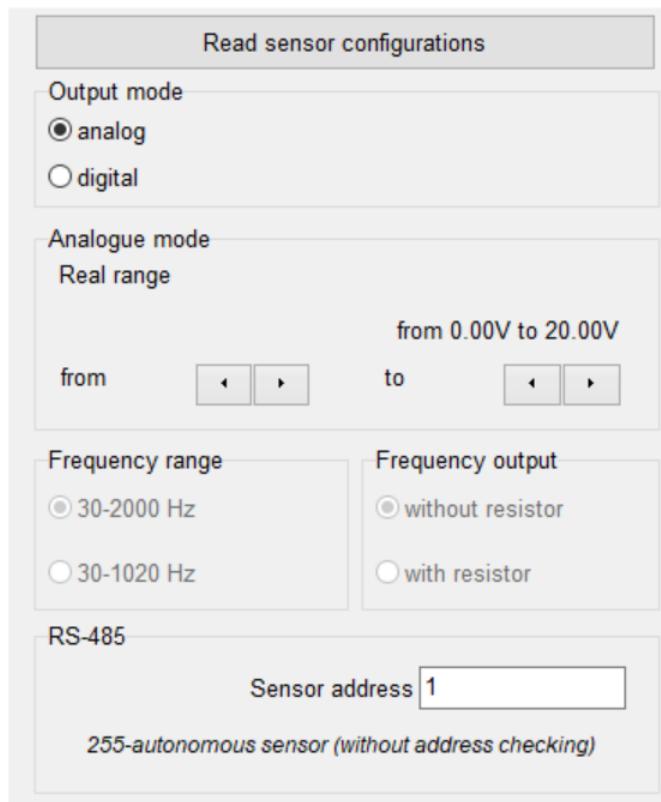
In the frequency mode, 2 ranges of 30-2000 Hz and 30-1020 Hz are preset. The option of the frequency output "with a resistor" or "without a resistor" is selected on the recommendation of the manufacturer of navigation equipment to which the FLS will be connected.

ATTENTION! RS-485 OUTPUT is ON PERMANENTLY and can function in combination with frequency or analog outputs!
The sensor address is set in the range from 0 to 255
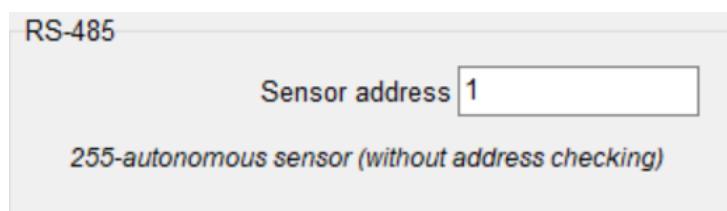
IMPORTANT: In the FLS program, functions are implemented to remotely diagnose the circuit closure, water ingress and damage to the line.

- FLS outputs the minimum value of 1 via RS-485 (0 is output to the configurator), that is, if you see the value "0" in the monitoring system, this means that the line is damaged; if the value is "1", then the tank is empty.

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- **-** FLS outputs the maximum value of 4094 via RS-485 ("4095" is output to the configurator) during normal operation of the FLS, that is, if you see the value "4095" in the monitoring system, it means that water has entered the measuring part or the sensor design is closed.

RECOMMENDATION: *If the analog-frequency output of the sensor is not used, then it is recommended to set the output mode to "Frequency" and "without resistor" in order to reduce power consumption.*

Voltage or frequency from FLS are transmitted simultaneously with data on the RS-485 output. In the "Results Averaging" field, the time for averaging the results obtained from the FLS is selected in the range from 0 to 128 seconds (the manufacturer recommends a minimum time of 10 seconds; or 32-128 seconds when used in harsh conditions). The time for averaging the results is set depending on the conditions for the future operation of the FLS.

After presetting the FLS, the configuration should be recorded with the "Record Sensor Configuration" button.
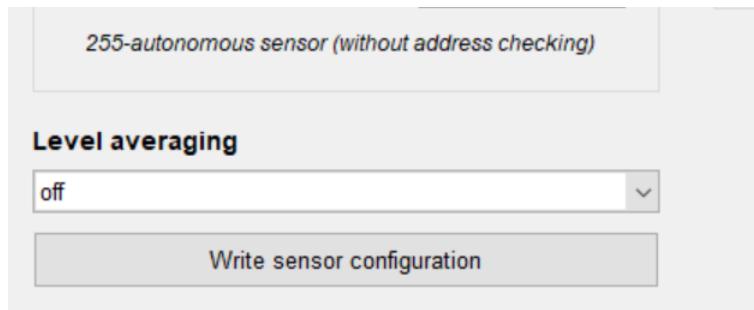
5. Additional functions in operating FLS

Software version: If you need to update the version of the FLS application, you can check the current and new versions on the manufacturer's website http://italonpro.com/downloads/. Only files with the extension "*.bin" are used to update. First, click the "Read Version" button to check the version of the application and bootloader that are currently installed on the FLS.


To update the FLS software, click the "Select File..." button in the "Software Update" field, specify the path to the firmware file and click the "Update" button
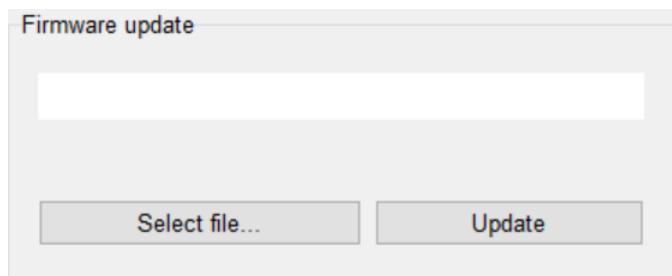
Important: If an error occurred during the software update or the installation of the file was not completed, the FLS should be switched to a SSD (USB <-> RS-485 interface converter) and the "Refresh" button should be pressed within the first 2-3 seconds.

The column "Import/export of empty+full" is used additionally to calibrate the tank and to simplify the use of FLS operated in the same conditions. The data obtained from the calibration of a FLS can be used for other FLS; in doing so, the "empty-full" calibration will not be repeated. When importing "empty" and "full" calibration data to a new FLS, the settings should be, first, exported by clicking on the button "Enter Calibration to File..."; immediately after that, click the "Record Calibration From File..." button to import the settings already saved before.
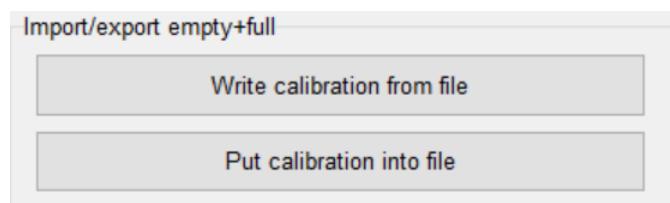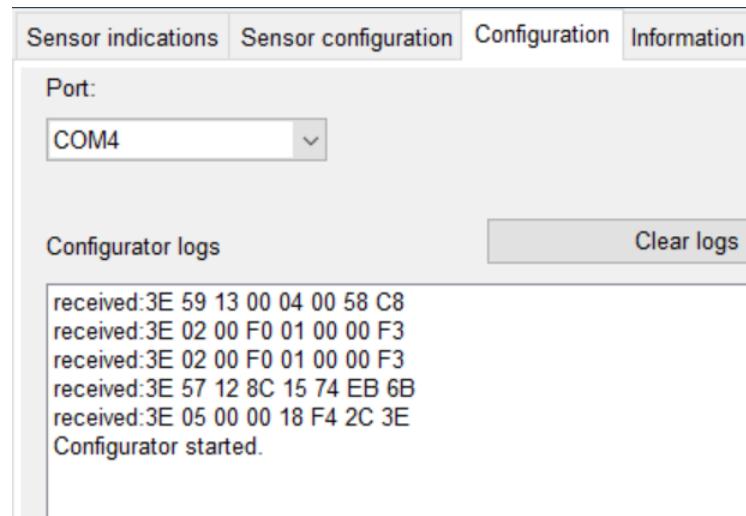
- **"Configurator" tab.**

Select the appropriate PC port in the "Port" field to connect and work with the FLS. To control the operation of the FLS, use the "Configurator's Log" which is saved as a file
«log.txt » in the directory from which the configurator was launched.

- **"Information" tab.**

This tab contains reference information on how to work with the Configurator.