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Rev. index	Issue date	Reason for issue	Author	Review	Review	Review by QA	Approved
B	2020.12.18	Added health check module	JB	MS	JRe	KO	KO
A	2020.03.04	Issued for Fluenta release	MS	JB	AK/Spa/MASO	MB	MB

Replacement for:		Total pages: **17**
Fluenta source doc. (for translations):		

TABLE OF CONTENTS

1. PURPOSE

UFM Manager is a piece of PC software that allows communication between the FGM160 flare gas meter and a service computer. This document describes how to use UFM Manager at Basic and Operator level.

2. TERMS AND DEFINITIONS

FGM160 – Fluenta Flare Gas Meter Model 160

3. RESPONSIBILITY

The Service Manager takes overall responsibility for this manual. This includes validity of the document, as well as for informing all required resources about its meaning, significance and any changes that are made to it. All service engineers within the Fluenta organization are responsible for proper usage of UFM Manager.

4. UFM MANAGER – LOGGING IN

When run for first time, UFM Manager asks for a license. A license file is issued by Fluenta, allowing the user to create a new account. Once a new account has been set up, a new user can be created. To do this, please input a name, password and confirm the level of access (either basic of operator). Access level can be found on the license file. Before login, the user's PC should be physically connected to FGM. To log in one needs a slave ID for the FGM and a COM port (default slave ID is 1, the COM port number depends on RS485 port settings).

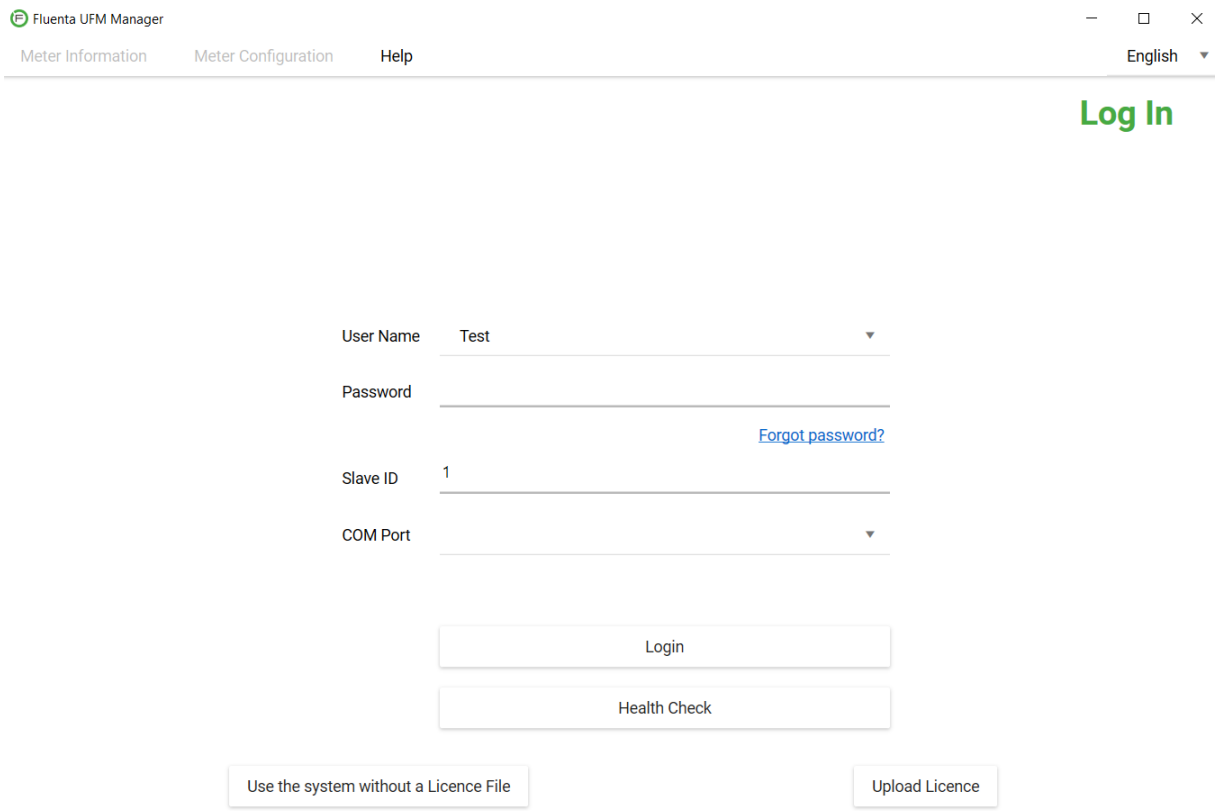

Figure 1: Example of UFM Manager login page

5. UFM MANAGER – BASIC LEVEL

Basic level gives access to the following options:

- Dashboard
- 10-day totalizers
- Data logging
- System configuration
- Help/About Fluenta UFM Manager

5.1 Dashboard

The dashboard gives an overview of the basic live flow parameters and system indicators.

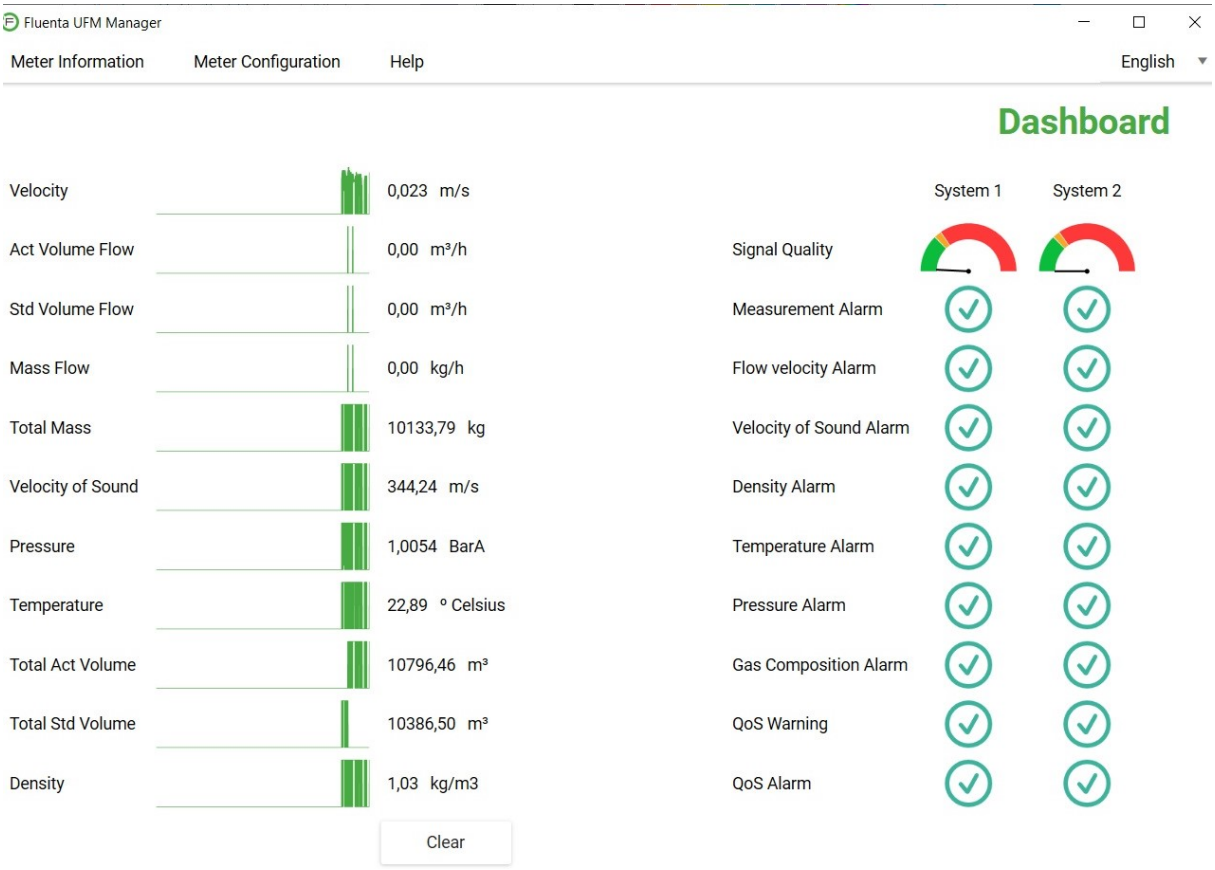

Figure 2: Example of the UFM Manager dashboard

5.2 10-day Totalizers

The 10-day totalizers screen gives you an overview of last 10 days of accumulated:

- Standard volume
- Actual volume
- Mass

It is also possible to save the 10-day totalizers to a CSV file with a button on the bottom of the screen.

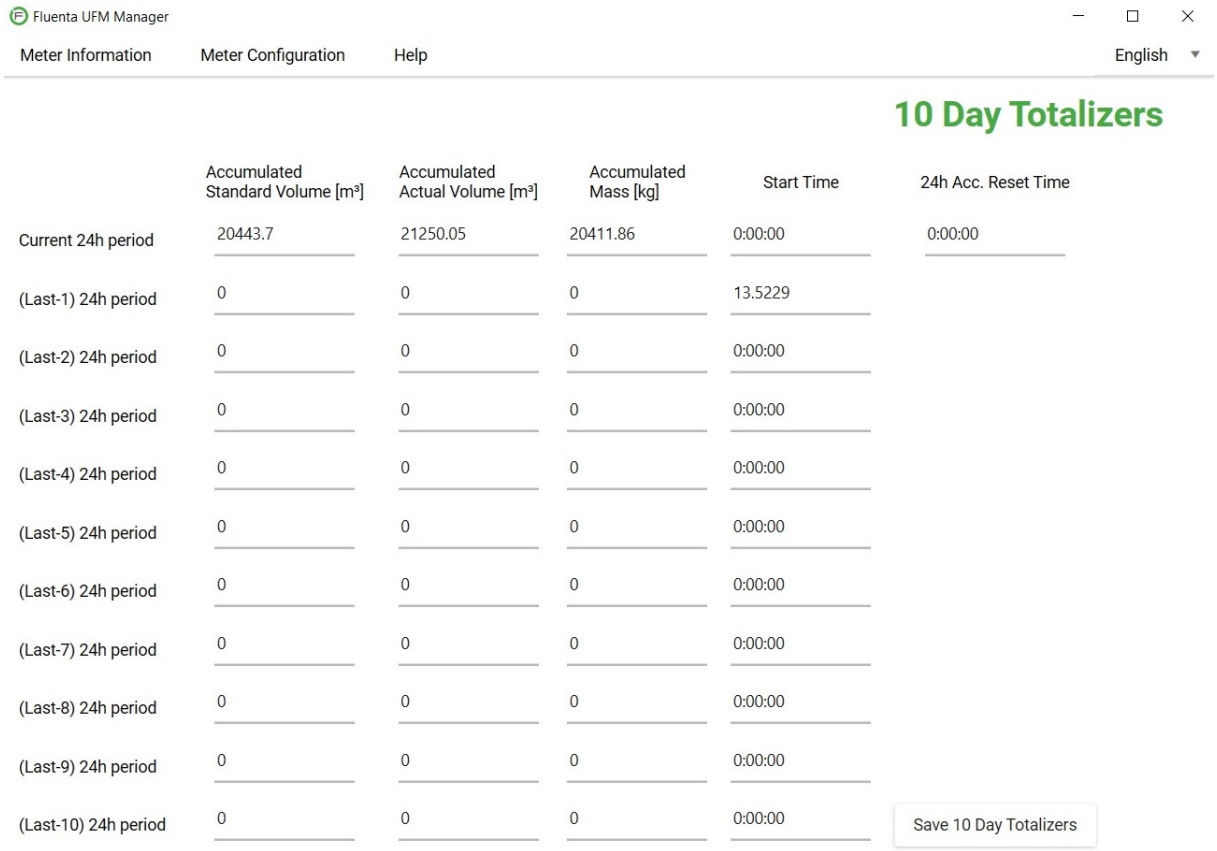

Figure 3: Example of the 10-day totalizers screen

5.3 System Configuration

This page allows you to change:

- System configuration (single, dual)
- Instrument time (this can be set manually, or synchronized with PC)
- Units used for flow values
- Pipe internal diameter
- Theoretical transducer distance
- Standard temperature
- Standard pressure

It is also possible to import system settings as a config file.

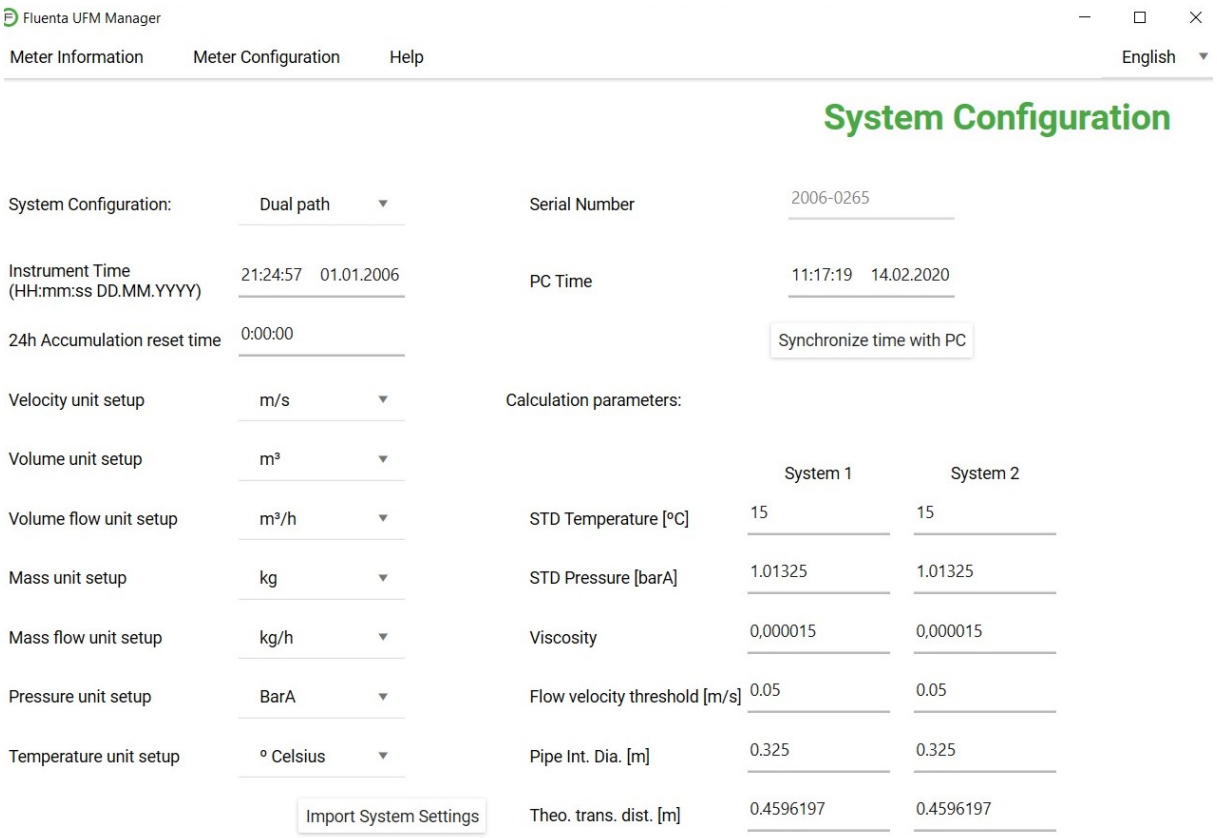

Figure 4: Example of system configuration settings

5.4 Help/About Fluenta UFM Manager

This page shows helpful information including: System information, license information, system users and software information.

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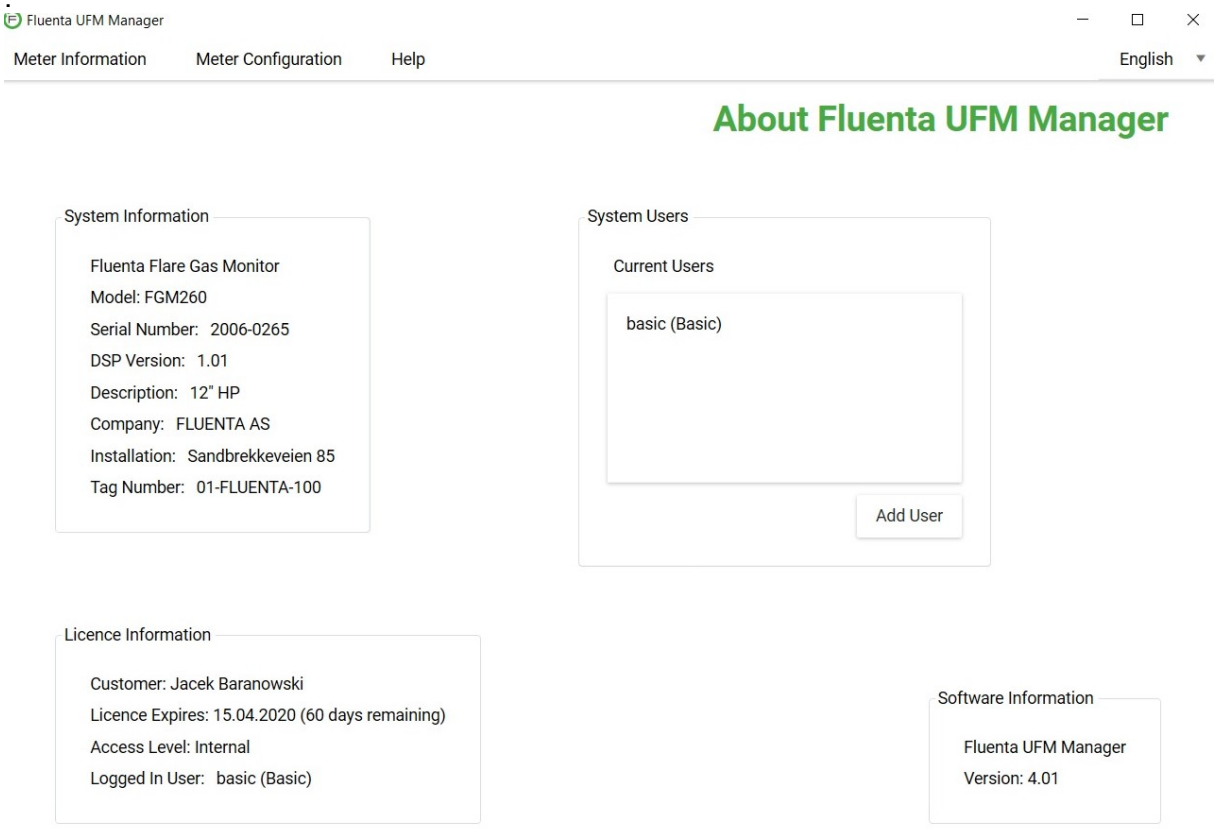

Figure 5: Example of the help page

6. UFM MANAGER – OPERATOR LEVEL

Operator level is an expansion of Basic level with some additional options.

These include:

- Analog outputs
- Input configuration
- Flowmeter alarms
- Modbus configuration
- Other outputs
- Graphs and live data

6.1 Analog Outputs

This page gives you the possibility to configure and set the values of the analogue outputs. Each output can be configured according to user's requirements.

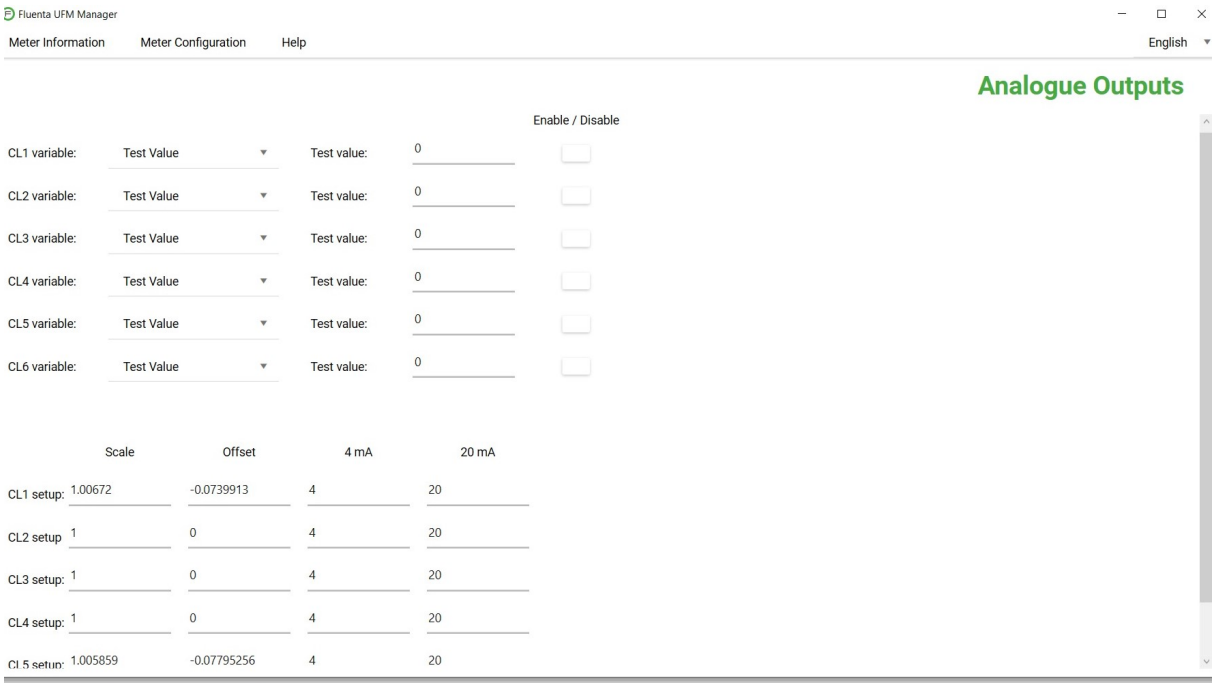

Figure 6: Example of the Analogue Outputs page

6.2 Input Configuration

This page allows you to set up the type of pressure and temperature inputs (HART, current loop, or fixed at standard). Each input can be set up according to requirements. For HART inputs, it is possible to set different input modes for the transmitters (single, dual, or double).

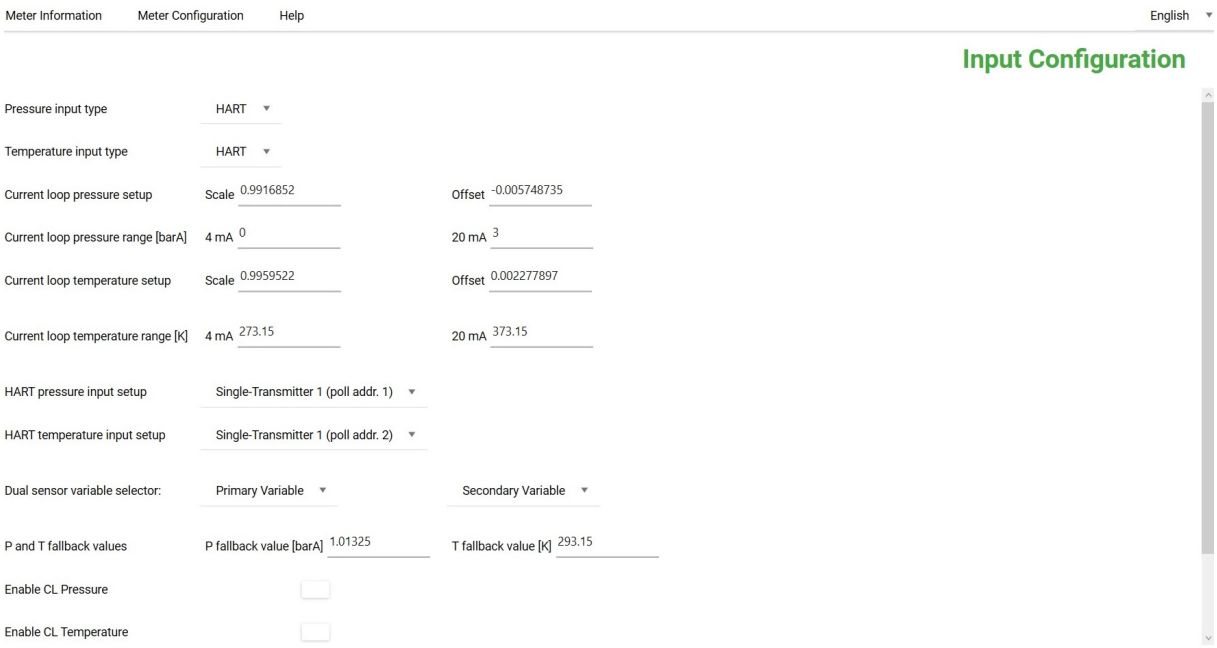

Figure 7: Example of the Input Configuration page

6.3 Flowmeter Alarms

This page allows configuration of the flow meter alarms. The user can configure the range for temperatures [K], pressure [BarA], sound velocity [m/s], flow velocity [m/s], quality of signal warning threshold, and quality of signal alarm threshold.

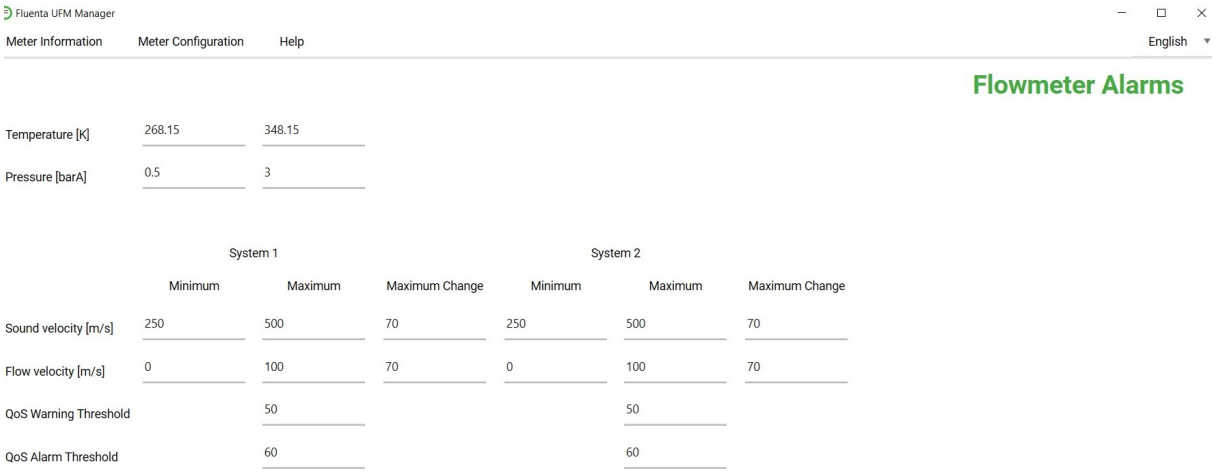

Figure 8: Example of Flowmeter Alarms page

6.4 Modbus configuration

This page allows the user to configure the DCS Modbus port. All settings can be altered so thatymatch the DCS Modbus link.

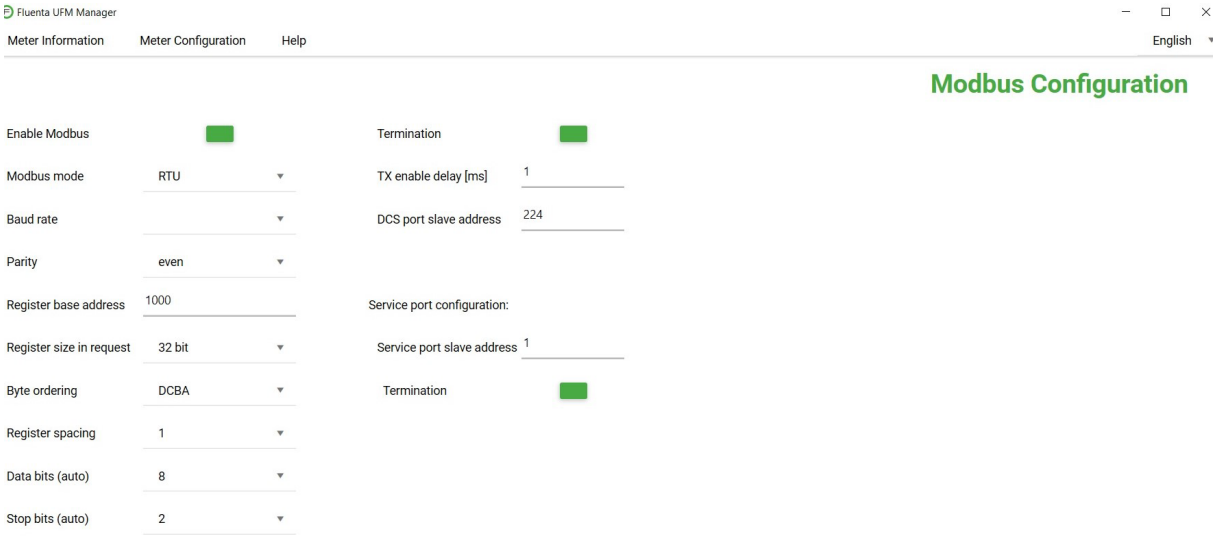

Figure 9: Example of the Modbus Configuration page

6.5 Other outputs

This section allows for the configuration of all additional outputs. These include pulse, frequency, or HART. Available parameters for pulse/frequency are: scale, offset, range scale, range offset, and test value. For HART, it is possible to choose four different process variables and HART output addresses.

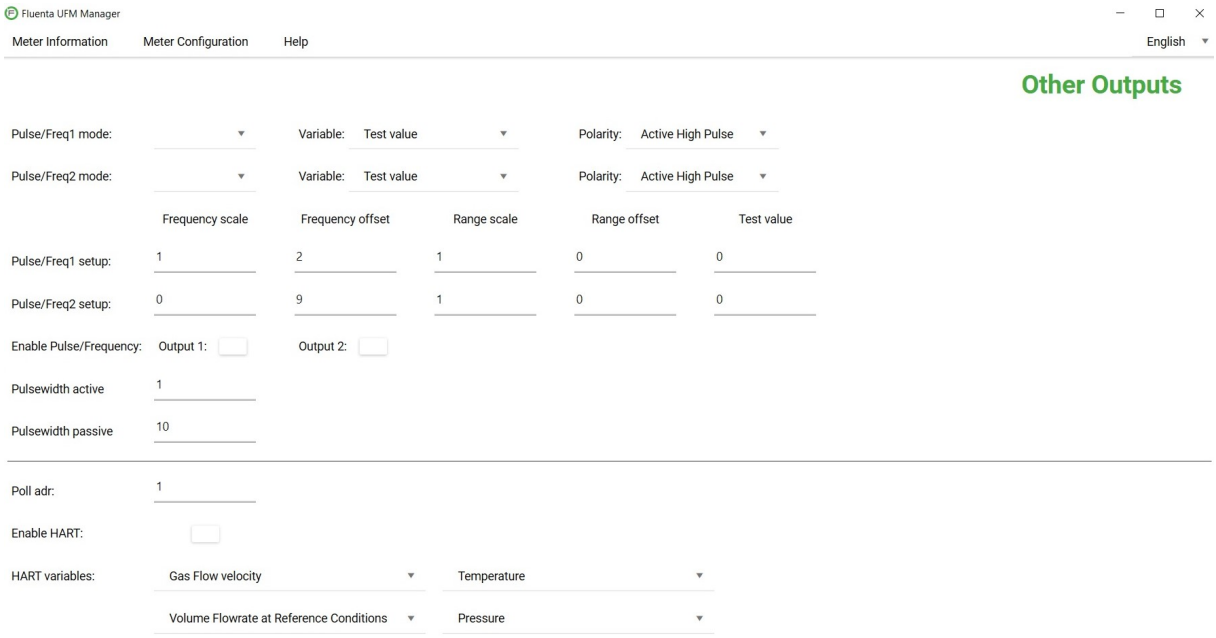

Figure 10: Example of the Other Outputs page

6.6 Graphs and live data.

This section allows users to collect ultrasonic signals from the flow computer. The obtained signals can then be saved as text files for further troubleshooting. This can be done for both single and dual-path systems. It is also possible to plot up to four process variables in real time.

To save a signal graph to a file, click ‘save to file’. The default save location is the installation folder for UFM Manager).

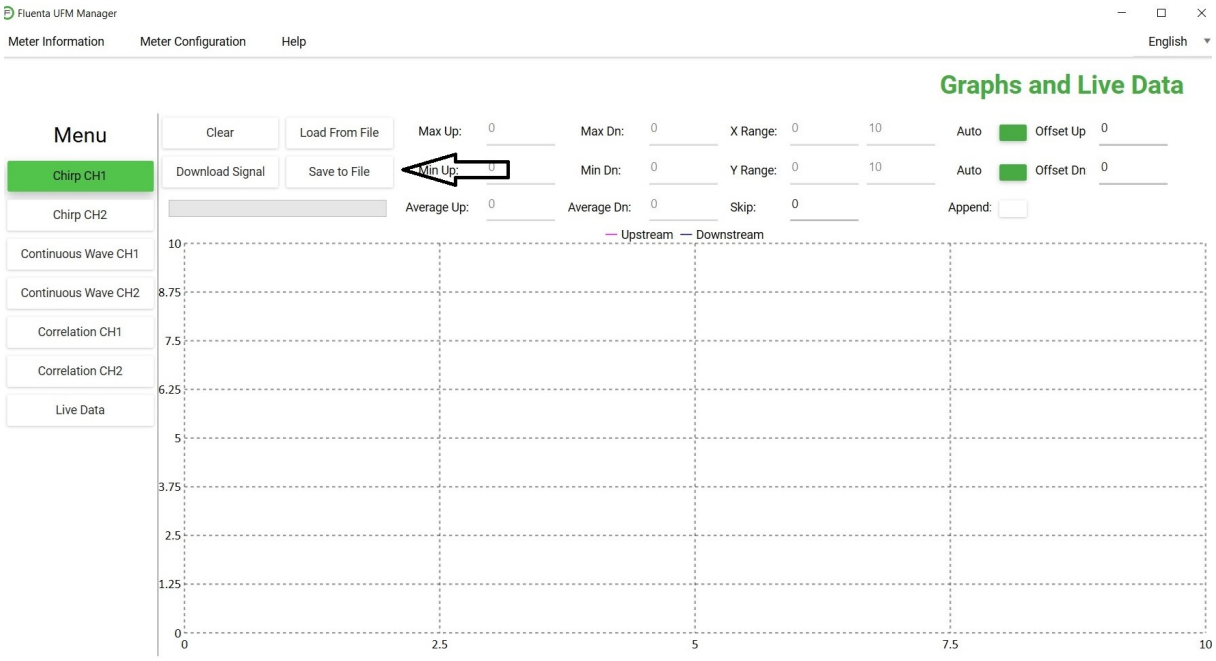

Figure 11: Example of the graphs and live data page, with the 'save to file' button highlighted

6.7 Health Check

An automatic module allows user to collect flow meter data that can be used for health assessment and troubleshooting of the flow computer. The Health Check requires an Operator or higher level of access. The module is enabled via log in page.

Once started, the module requires user to select the COM port and a path to the directory that will store all data (this means that the location must be usable for the program). After that, an automatic process can start. This will run each test in an order and collect the data. Every step progress is described in the log window. It is also possible to run manually each of the steps or only the selected ones. Once the test is passed and finished, a checkbox will appear next to the test indicating it is finished. The automatic process takes around 15 minutes, after that the program will indicate that the data must be zipped and sent to support@fluenta.com for evaluation.

Tests run during health check:

- Communication test – tests if the flow computer is online and reachable
- Configuration – the program collects config data
- History – the module collects config changes history
- Signals – the program will attempt to collect and plot ultrasonic signals, there will be 3 sets of signals collected
- Log data – the program will collect 10 minutes of flow measurement data to assess the performance
- Live data – collects current live data for the process

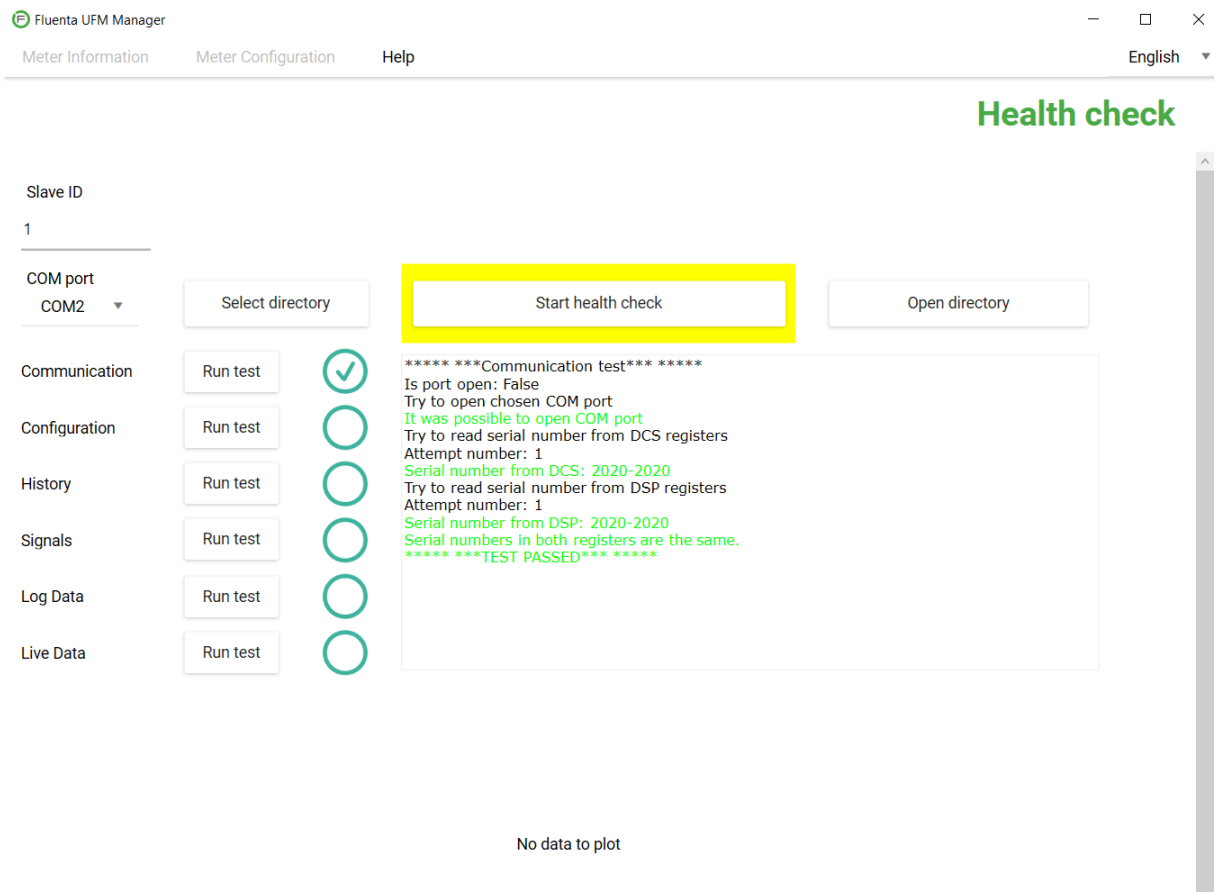

Figure 12. Health check module

7. HOW TO

This section instructs the user how to perform common tasks with the UFM Manager software.

7.1 Obtaining a Service Connection

In order to obtain a service connection, the RS485 port must be used. In order to do this, a USB to RS485 converter is needed. A COM port number must then be specified according to Windows Device Manager. It is important to make sure the COM port is set to RS485 with correct mode (two or four wires). It is also important to observe correct wiring. The Tx and Rx pairs/wires must be crossed and the COM port connection must be wired according to the serial converter manufacturer instructions.

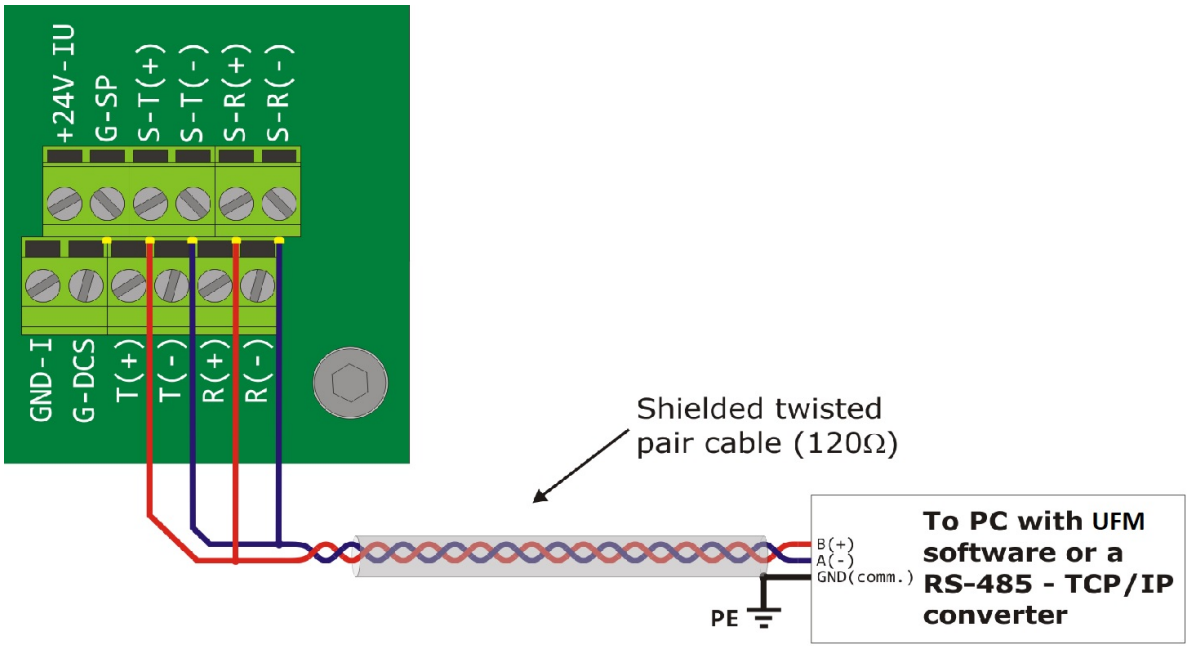

Figure 13: Service connection with FGM160 – two wire connection

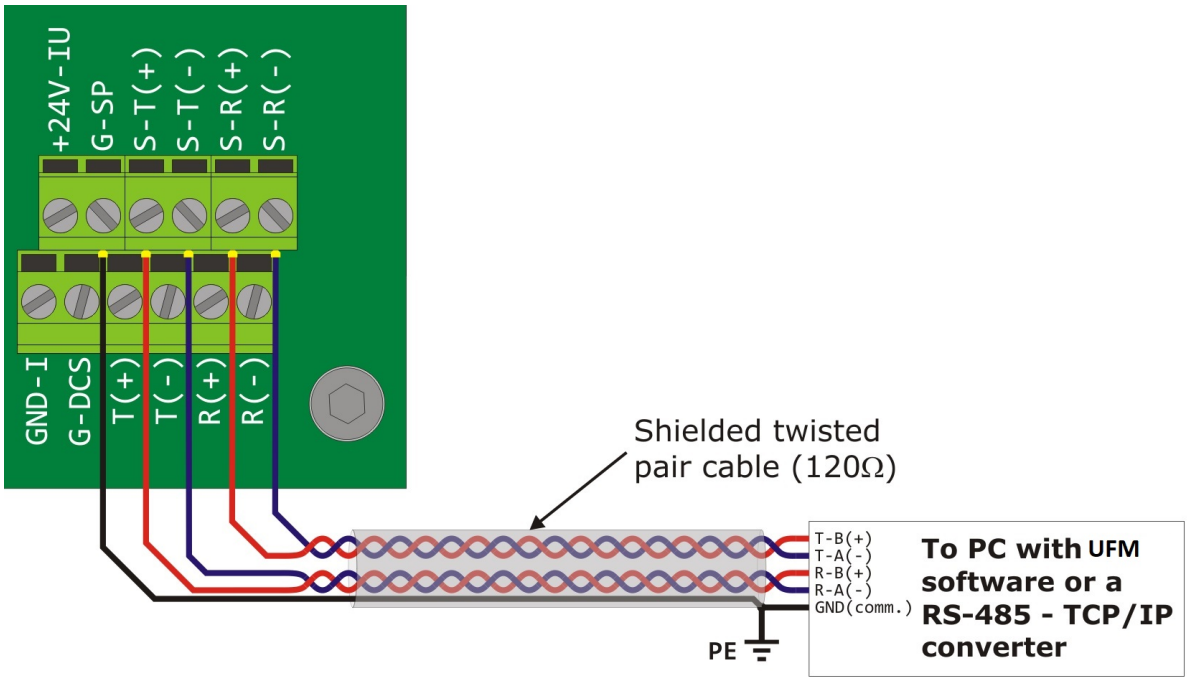

Figure 14: Service connection with FGM160 - four wire connection.

7.2 Configuring and Analogue Output

Each analogue output needs to be set with a parameter selected from the drop-down list. The field enable/disable option allows you to activate the output. This will be green when active. Each active output needs a minimum and maximum range, which should be entered in the appropriate fields.

7.3 Configuring an Analogue Input

When the temperature and pressure transmitters are connected to the FGM, the type of connection must be chosen from the drop-down list (HART, current loop, or fixed at standard). For analogue input, an option “Enable CL pressure” or/and “Enable CL temperature” should be switched on (green colour). For analogue input it is also important to set the range that matches the transmitters (pressure is in bars and temperature is in Kelvins).

Gauge Pressure

If a customer installs a gauge pressure transmitter instead of absolute, the pressure range must by offset by 1.01325 bar in order to obtain absolute reading. This is important as the FGM160 uses only absolute readings. By applying the offset, the pressure reading is then treated as absolute. Please note that this workaround will affect the accuracy of the meter as the offset value is constant, where gauge pressure is the difference between ambient and process.

7.4 Changing Modbus Parameter

Most modbus parameters can be selected from the drop-down list. It is important to match the settings of the modbus port with the DCS serial link.

7.5 Troubleshooting the Service Connection

If there is no service connection with the FGM160, the following checks must be performed:

- FGM is physically connected to your PC/laptop
- FGM is energized
- Proper connection was chosen (2- or 4- wire) for your adapter in system settings (this will depend on physical connection)
- COM port chosen for UFM is not used by any other application
- The license for UFM Manager is valid
- Proper slave address for FGM160 was chosen (default is 1)

8. REFERENCES

72.120.304 – FGM 160 Functional description
62.120.001 – FGM 160 Installation and Hook-up instructions