

F-5000 View Software Installation and Operation Guide



Notice

This publication must be read in its entirety before performing any operation. Failure to understand and follow these instructions could result in serious personal injury and/or damage to the equipment. Should this equipment require repair or adjustment beyond the procedures given herein, contact the factory at:

**ONICON, INC.
11451 BELCHER ROAD SOUTH
LARGO, FL 33773 USA
TELEPHONE: +1 (727) 447-6140
FAX: +1 (727) 442-5699
EMAIL: SERVICE@ONICON.COM**

**Download Technical Data Sheets from our website:
www.onicon.com**

ONICON believes that the information provided herein is accurate however be advised that the information contained herein is NOT a guarantee for satisfactory results. Specifically, this information is neither a warranty nor guarantee, expressed or implied, regarding performance; merchantability; fitness; or any other matter with respect to the products; nor recommendation for the use of the product/process information in conflict with any patent. Please note that ONICON, Inc. reserves the right to change and/or improve the product design and specification without notice.



ONICON F-5000 Manuals:

- **Model F-5400 Instruction Manual**
- **Model F-5500 Instruction Manual**

Table Of Contents

1. Introduction	Page 5
2. Installation	Page 6
3. Operation	Page 9
a. Main Screen	Page 9
b. Charts Settings	Page 11
c. Configure	Page 13
d. Data Logger	Page 19
e. Simulation Mode	Page 21
f. Zero CAL-CHECK® Test	Page 23
g. Zero CAL-CHECK® Certificate	Page 23
4. Glossary of Terms and Abbreviations	Page 26
5. Index	Page 27

Introduction: Safety Information

To ensure correct use of the software, please read this manual thoroughly.

Regarding this Manual:

- This manual should be passed on to the end user.
- Before use, read this manual thoroughly to comprehend its contents.
- The contents of this manual may be changed without prior notice.
- All rights reserved. No part of this manual may be reproduced in any form without ONICON's written permission.
- All reasonable effort has been made to ensure the accuracy of the contents of this manual. However, if any errors are found, please inform ONICON.
- ONICON assumes no responsibilities for this product except as stated in the warranty.
- If the customer or any third party is harmed by the use of this product, ONICON assumes no responsibility for any such harm owing to any defects in the product which were not predictable, or for any indirect damages.

Safety Precautions:

The following general safety precautions must be observed during all phases of installation, operation, service, and repair of this product. Failure to comply with these precautions or with specific WARNINGS given elsewhere in this manual violates safety standards of design, manufacture, and intended use of the product. ONICON Incorporated assumes no liability for the customer's failure to comply with these requirements. If this product is used in a manner not specified in this manual, the protection provided by this product may be impaired.

The following symbols are used in this manual:



Messages identified as "Note" or "Important Note" contain information critical to the proper operation of the product.

Messages identified as "Caution" (refer to accompanying documents) contain information regarding potential damage to the product or other ancillary products. Messages identified as "Warning" contain information regarding the personal safety of individuals involved in the installation, operation or service of this product.

Introduction

Introduction

Introduction

Thank you for purchasing the Model F-5000 series Thermal Gas Mass Flow meter from ONICON. An extensive engineering effort has been invested to deliver advanced features, accuracy measurement performance, and outstanding reliability.

The F-5000 View software allows users to easily display data and configure the F-5000 to their specific application parameters. Then, log flow/temperature data to an Excel file.

Note: For the Model F-5500 flow meter only, the software can also access the Calibration Validation diagnostic function using the Zero CAL-CHECK® test.

This Manual contains the installation and operation instructions for the F-5000 View Software.

This manual is divided into the following sections: Introduction, Installation, Operation, Glossary and Index.



Installation

Installation

Installation

Open the enclosure of your F-5000 series flow meter as instructed in your meter's instruction manual. Connect the flow meter to a PC or laptop using the mini USB port (type A, mini cable). If the PC is connected to the Internet and running Windows 7/8™, the PC will try to automatically load the VCP driver. If the driver does not load automatically, download the VCP driver at: www.ftdichip.com/Drivers/VCP.htm

Note: The latest version of the F-5000 View software is available for download at www.onicon.com/5500 or www.onicon.com/5400.



Fig. 2.1: Online Download Location for F-5000 View™ Software

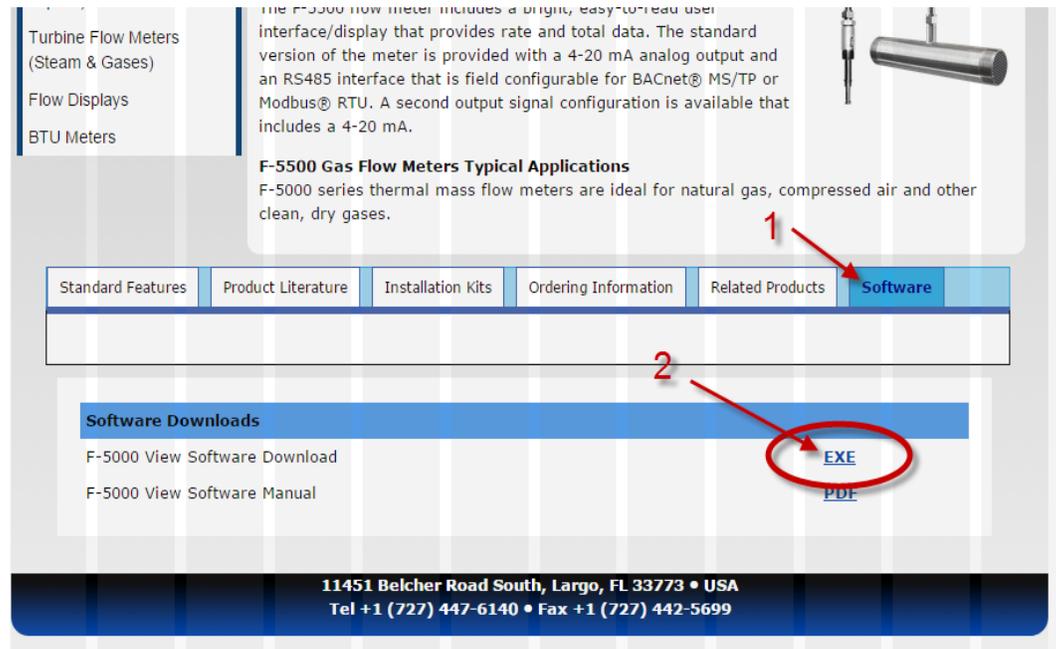
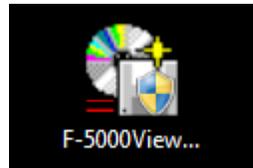


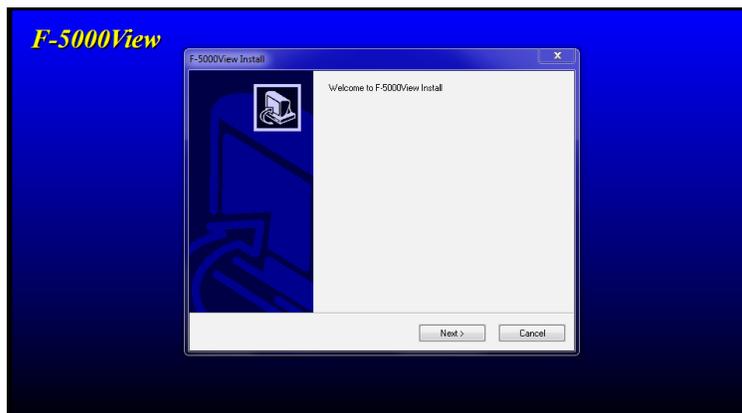
Fig. 2.2: F-5000 View Software Icon



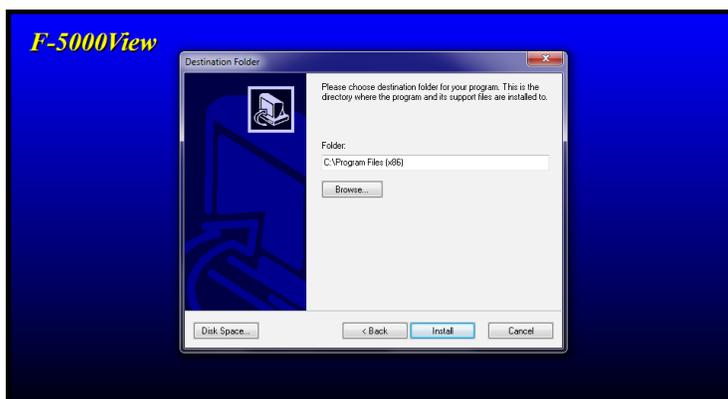
Installation

Installation

To install the F-5000 View program, run the "F-5000View_V#.##-setup.exe" file that is located in the sub-folder of the downloaded file. After clicking "Next" the screen will show:



Select the folder in which you wish to install F-5000 View, then click "Install".



When the program is done installing, you may exit, then restart your computer.

Note: The F-5000 View software will automatically detect the model type (F-5500 or F-5400).

Note: Some features that are available on the F-5500 will not be available for the F-5400 and will not appear as options to configure using this software program.



Installation

COM Port Assignment

COM Port Assignment

Be sure to have your F-5000 series flow meter connected by mini USB to a PC or laptop before opening the F-5000 View software. Upon opening F-5000 View for the first time, Windows will assign a "virtual COM port". The COM port number that has been assigned will appear automatically in the drop down box.

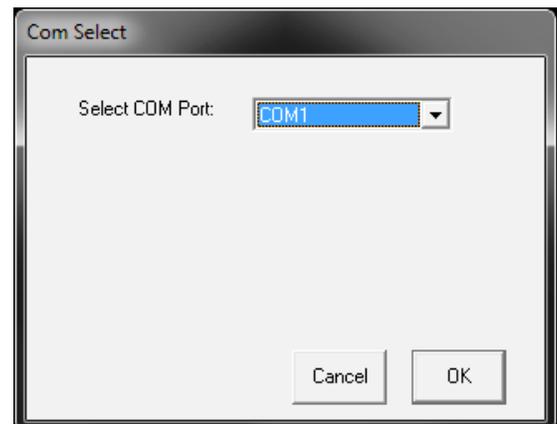
If the correct COM Port does not appear, go to Control Panel/Device Manager and click on Ports (COM & LPT). The COM port number should be displayed under the USB symbol.

If prompted, enter the assigned COM port in F-5000 View by using the drop down menu and press **OK**.

Note: The flow meter must be plugged into the computer in order for the system to register it.



Fig. 2.3: COM Port Selection Window



Operation: Main Screen

Main Screen

Main Screen

The image below depicts the main screen that appears upon entering F-5000 View.

Fig. 3.1: F-5000 View™ Main Screen



Note: Data on the screen is refreshed at user selected update rate. See p. 11 for more information on setting up Charts.

Charts Button

This calls up two charts that can be configured for either temperature or flow. Each chart can be individually enlarged and rescaled from the original default settings. For more information on how to change the charts settings, refer to "Operation: Chart Settings" on page 11.

Note: It can be set for either automatic or manual scaling.



Operation: Main Screen

Main Screen

Data Log

This function allows all selected data to be logged to an Excel file at the specified sample time. All readings are time/date stamped. For more information on using the Data Logger function, refer to "Operation: Data Logger" on page 20.

Configure

This allows the operator to go in and set the application parameters. This can be done either via the F-5000 View software or manually via the instrument's display. For more information on configuring application parameters, refer to "Operation: Configure" on page 13.

Simulation

This function can be used to verify that all the flow meter outputs are working properly. The easiest way to perform this check is to enter a specific temperature/flow rate. The corresponding analog outputs can be verified using a DMM and using a watch for the pulse. Refer to Page 21 for more information on how to use the Simulation function.

Zero CAL-CHECK® (available only on Model F-5500)

The Zero CAL-CHECK® calibration validation test can be performed while the unit is still in the pipe (if a no flow condition can be established) or out of the pipe when zero flow cannot be established. Zero CAL-CHECK® does the following:

- Checks for build-up on sensor that could affect calibration
- Further validates the zero stability of the meter
- Checks thermal conductivity (heat transfer) repeatability of the sensor

The Zero CAL-CHECK® calibration validation test is explained in greater detail on p. 23.



Note: Zero CAL-CHECK will not show up as an option for the Model F-5400.

Alarms

The unit can be configured for high/low alarms for either flow or temperature. The "alarms window" displays any alarms or warnings.

Exit

Exit the application

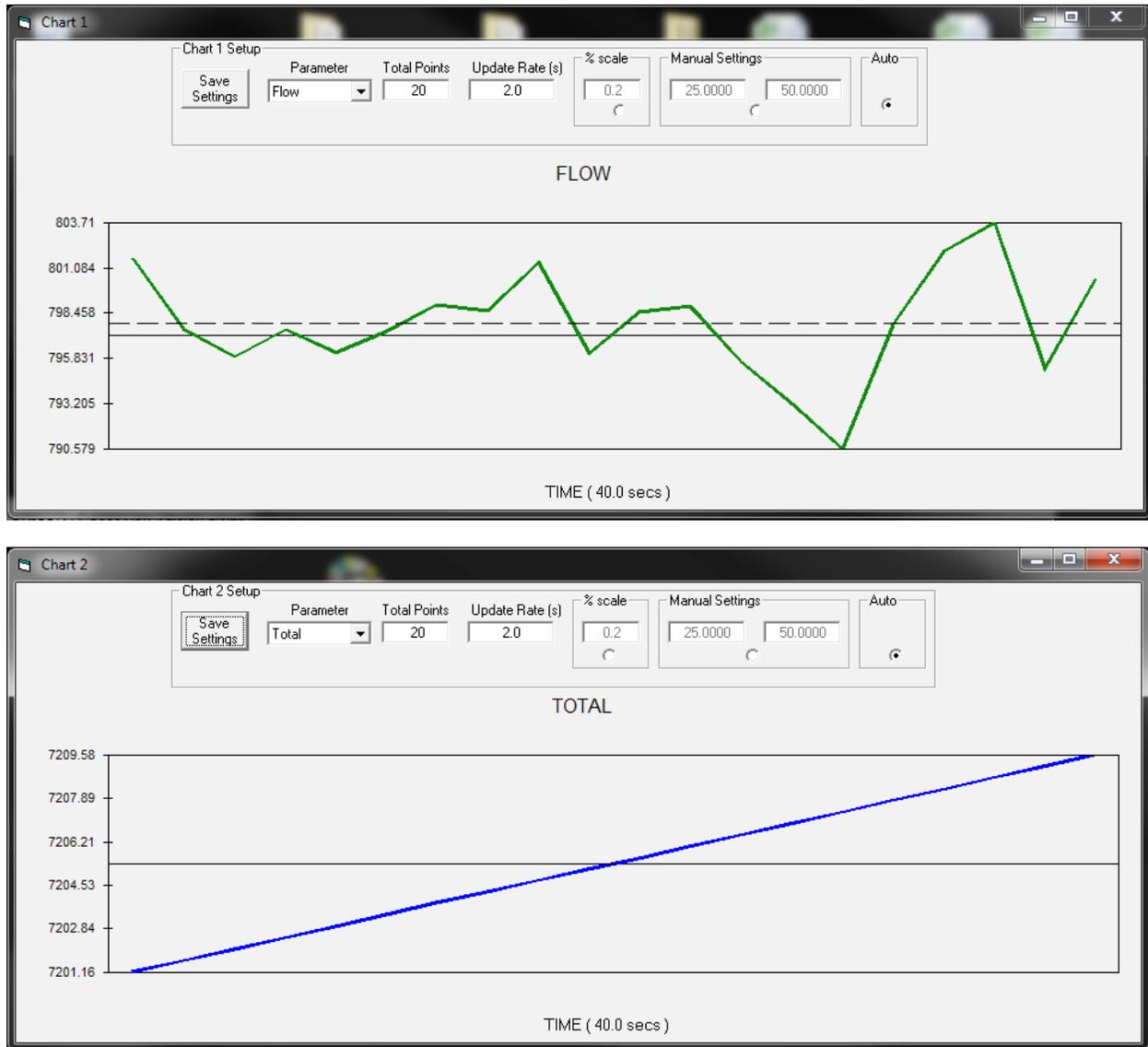
Operation: Chart Settings

Charts Settings

Charts Settings

From the main menu screen, click on "Charts". Two charts, one for flow and the other for temperature, will appear side-by-side.

Fig. 3.2: Chart Settings Window - Charts 1 and 2



Each chart can be selected for flow, temperature or total flow and scaled in one of three ways: a plus/minus percent scale, inputting min/max values manually, or real-time automatic scaling.

OPERATION

Operation: Chart Settings

Charts Settings

Save Setting

The user can save any new chart settings on the main page window. These settings can then be closed by clicking on the "X" at the top right corner of the window.

Parameters

All meter operating parameters can easily be selected for charting: flow, temperature or total flow.

Total Points

The total points specifies the number of points plotted on the graph. Older data is automatically omitted.

Update Rate

The update rate controls the data refresh rate.

Percent (%) Scale

This sets the scale to a plus/minus specified percentage from the initial measured value. Typically, the minimum/maximum is scaled at plus/minus 10% of that initial value.

Manual Chart Setting

The Manual mode allows a user to input min/max values for chart scaling. When entering new values, press enter for them to take effect.

Automatic Chart Setting

Automatic mode lets the program adjust the scaling on a real-time basis based on the entire range of values.

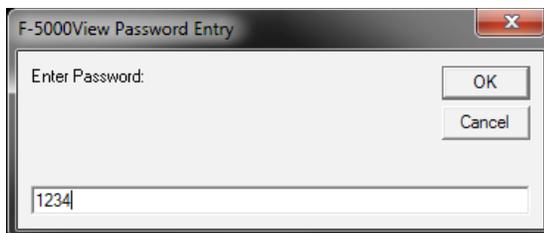
Operation: Configure

Configure

Configure

From the main menu, click on the "Configure" button and enter the requested password for either Level I (1234) or Level II (9111) access.

Fig. 3.3: Password Window



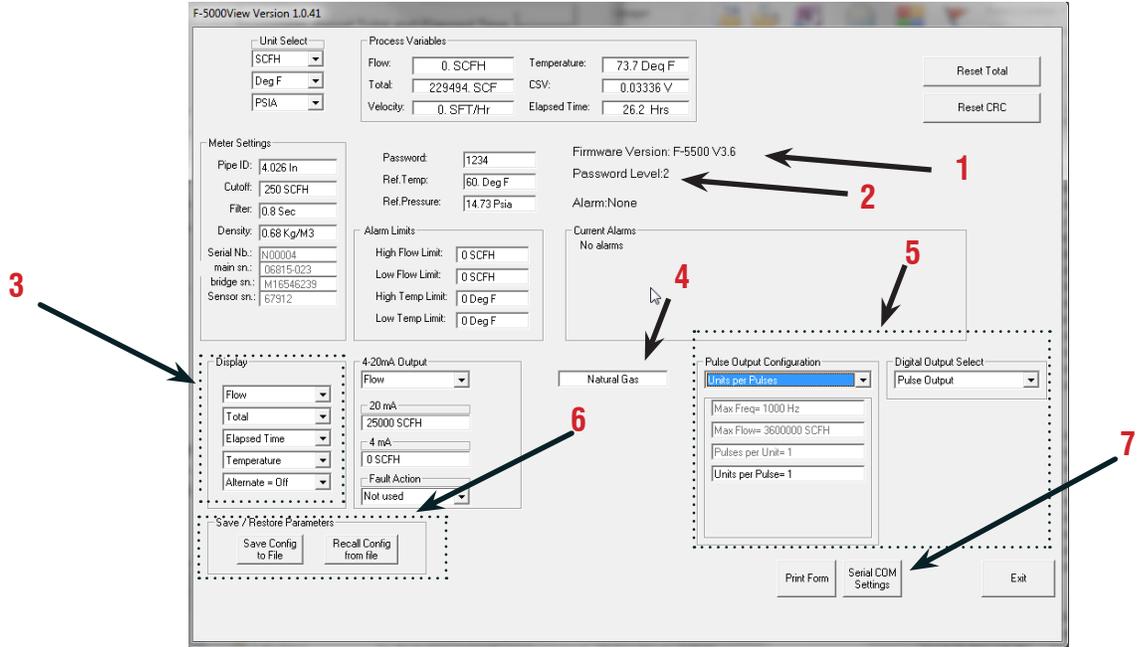
Note: Most users will only need access to the Level I screen to do basic setting of units, alarms and output scaling.

F-5000 View software is an intuitive program that automatically recognizes meter model and configuration that determines which of the following screens will appear.

Operation: Configure

Configure Options

Fig. 3.4: Level II Configuration Screen - Password Levels and Options



Notes:

1. This field will show the firmware version for your model type of meter (F-5400 or F-5500)
2. The Password Level will show whether the user has entered a Level 1 or Level 2 password. Not all parameters may be accessed at a Level 1 password.
3. This section will only show for a Model F-5500. The F-5400 does not come with a display
4. This field will display the gas that the flow meter has been calibrated to measure.
5. The pulse settings will only show on a flow meter that has been ordered with the Pulse Option.
6. The "Save/Restore Parameter" options are not available using a Level 1 password.
7. The serial communication settings can be accessed by clicking on the "Serial COM Settings" button. The serial communication settings will only show on a flow meter that has been ordered with either the HART or MODBUS/BACnet communication options.

Unit Select

Unit Select

The "Unit Select" section is used to change the desired units in the flow rate, temperature and reference pressure parameters.



Operation: Configure

Process Properties

Process Properties

Pipe Inner Diameter (ID): The pipe inner diameter can be entered in either inches or millimeters, depending on whether the flow or mass measurement units selected are metric or US standard. Once entered, the program will automatically recalculate the pipe cross-sectional area for the velocity/flow calculations. A precise ID is required to ensure accurate flow measurement.

Cut-off: A gas flow rate at - or below - the cut-off setting will cause the meter to read zero.

Filter: Changing this value will increase or decrease the damping of the flow rate reading. Increase the setting to increase damping. The default setting is 0.8 (see F-5000 Manual for more details).

Serial Numbers: Serial numbers of the meter, the main board, bridge and sensor (factory set).

Display

Display (F-5500 only)

With the top four drop-down boxes, the user can choose the data to display. By selecting "Alternate", the screen automatically switches between the data screens.

Alarm Limits

Alarm Limits

Users can set both high and low alarms for both flow and temperature. When a limit is reached, an alarm message is displayed and the digital output is activated. The digital output can be used to control an external buzzer, light or other device to alert the operator.

Analog 4 to 20 mA

Analog 4 to 20 mA

The F-5500 and F-5400 have one analog 4 to 20 mA output that is configurable for either flow or temperature. Though the F-5500 and F-5400 are scaled for the specific application at the factory, F-5000 View allows the operator to easily re-scale the 4 to 20 mA output as needed.

Process Variables

Process Variables

Flow: Current flow rate in selected units

Total: Cumulative mass or volume flow in selected units

Velocity: Flow velocity

Temperature: Gas temperature (Fahrenheit or Celsius)

CSV: Current sense voltage

Elapsed Time: Time since the Totalizer was reset

Operation: Configure

Reference Conditions

Reference Conditions

Reference temperature and pressure are the standard (or normal) temperature and pressure (STP) for which the flow rate is calculated.

Digital Output Select

Digital Output Select

This selection configures the F-5000 digital output for either pulses (counts) or an alarm output.

Pulse Output Scaling

Pulse Output Scaling

If the pulse (counts) output is selected, the pulse scaling can be programmed three different ways using the menu "Pulse Output Configuration".

- Units per Pulse (example: 10SCF/Pulse)
- Maximum flow and maximum frequency
- Pulses per Unit



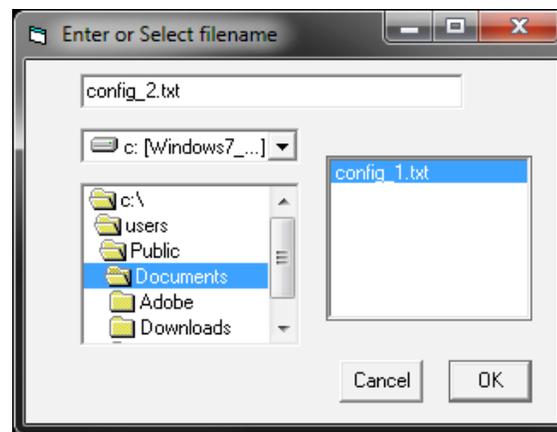
Save Current Configuration

Note: If RS485 option has been ordered on a F-5500 meter, the Pulse option is not available.

Save Current Configuration to File

The current configuration parameters are saved to a text file.

Fig. 3.5: Save Current Configuration to File Window



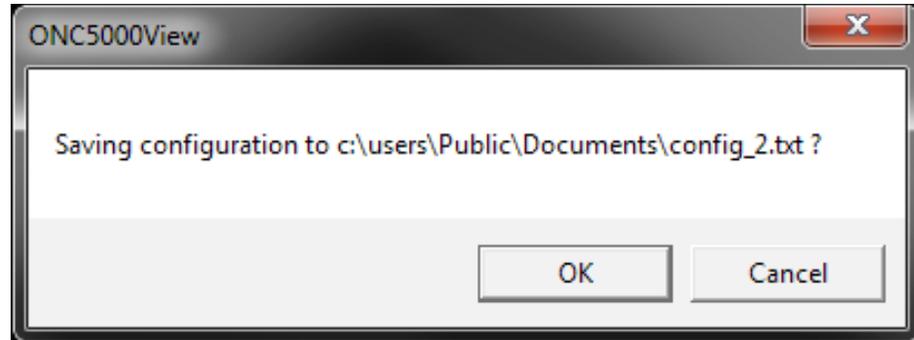
Select an existing file to overwrite or a new file name and then press **OK**. A confirmation window will be shown.



Note: This feature is only accessed with a Level II password.

Operation: Configure

Fig. 3.6: Confirmation of Saved Configuration Window



Recall Configuration



Recall Configuration to File

This allows the operator to recall an existing configuration file.

Note: This feature is only accessed with a Level II password.

Operation: Configure

Serial COM Settings

Serial COM Settings

Use this function to set the serial communication settings for any of the optional F-5000 bus communication boards.

Fig. 3.7: Select Serial Communication Window - MODBUS

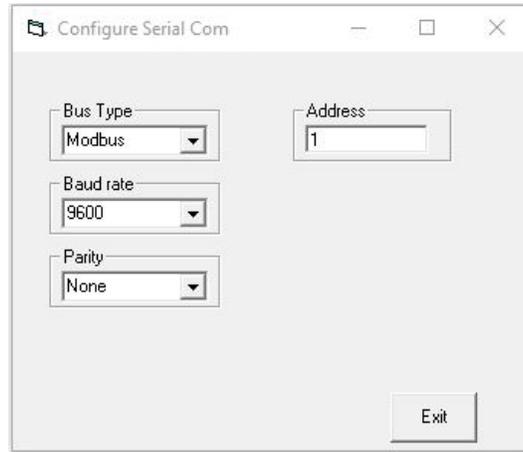
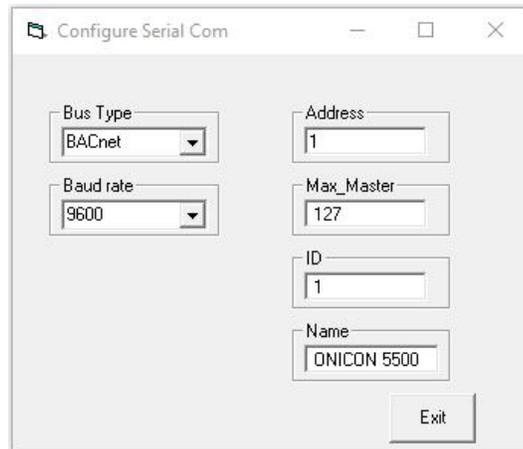


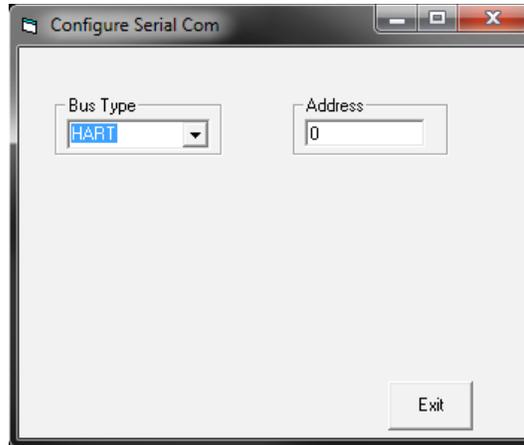
Fig. 3.8: Select Serial Communication Window - BACnet



Note: MODBUS and BACnet are only available on a F-5500 meter configured for RS485 Modbus RTU and BACnet MS/TP.

Operation: Configure

Fig. 3.9: Select Serial Communication Window - HART



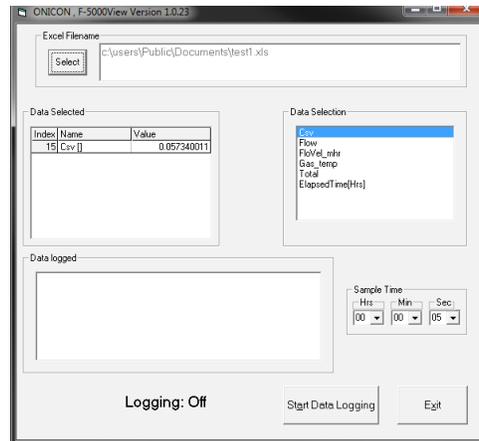
Operation: Data Logger

Data Logger

Data Logger

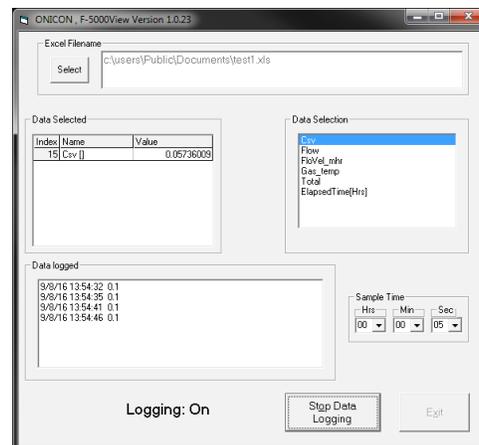
The Data Logger screen can be accessed from the main screen. Clicking the "Data Logger" function will prompt the user for a password. Enter a Level I or Level II password and the Data Logger window will appear.

Fig. 3.10: Data Logger Window - Logging Turned Off



Select the sample time from the drop down menu, and then select the required data from the Data Selection list. Select or create a name for the Excel file and then press the "Start Data Logging" button.

Fig. 3.11: Data Logger Window - Logging Turned On



When "Start Data Logging" is pressed, the data is recorded in the specified Excel file - and also displayed in the Data Logged window. Pressing "Stop Data Logging" ends data acquisition.

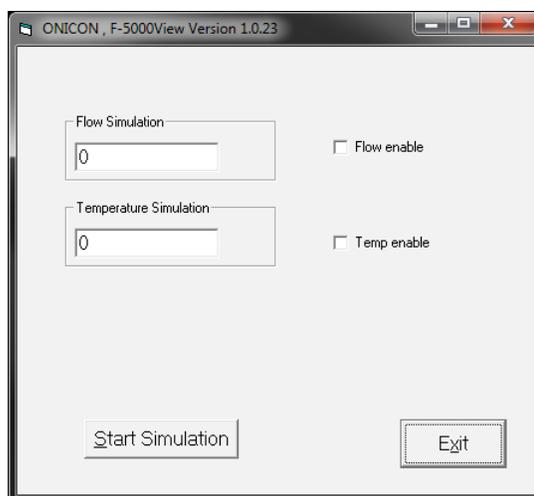
Operation: Simulation Mode

Simulation Mode

Simulation Mode

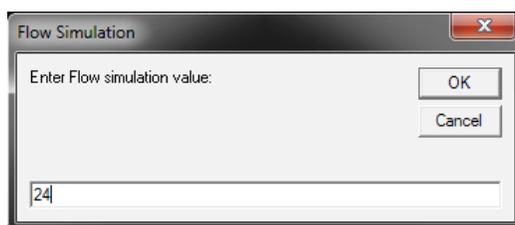
After clicking on "Simulation", a password will be requested. Enter the password and then the Simulation screen will be shown.

Fig. 3.12: Simulation Mode Window



The simulation mode simulates flow rate, temperature and/or Current Sense Voltage (CSV). Click on the required data and enter a value. Simulation mode allows users to verify the analog output, digital output and totalizer at simulated flow rates and temperature.

Fig. 3.13: Entering a Simulation Value



Enter the value, click **OK**, select the corresponding checkbox, and press "Start Simulation".

Operation: Simulation Mode

Simulation
Mode

Fig. 3.14: Simulation Running



In Simulation mode, all F-5000 outputs and the Totalizer respond as if in normal measurement mode. Click "Halt Simulation" to end.

Operation: Zero CAL-CHECK®

Zero CAL-CHECK®

Zero CAL-CHECK® (F-5500 only)

Zero CAL-CHECK® is performed to verify the following:

- Checks for build-up on sensor that could affect calibration
- Further validates the zero stability of the meter
- Checks thermal conductivity (heat transfer) repeatability of the sensor

From the Main Screen, click on the "Zero CAL_CHECK" button to access the Zero CAL-CHECK® Menu Window.

Fig. 3.15: Zero CAL-CHECK® Menu Window

On the Zero CAL-CHECK® Menu, there are fields to enter information about the person performing the test, meter tag information, and any other important information may be entered into the comments area.

The user can also specify a particular folder name and location to save this data. The data will be stored in a log that can be accessed at a later time.

Please note that the test will take about five minutes.

When ready to start, click the appropriate "Perform Zero CAL-CHECK" button.

Operation: Zero CAL-CHECK®

Zero CAL-CHECK®

Fig. 3.16: Stable Conditions Confirmation Window

During the test, the Zero CAL-CHECK® button will display the current calculated value and a countdown timer of seconds left on the test.

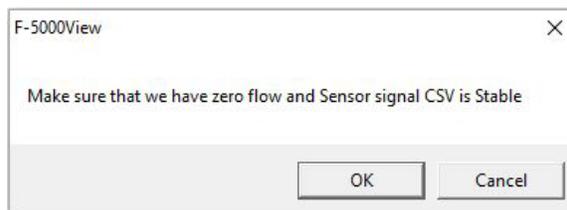
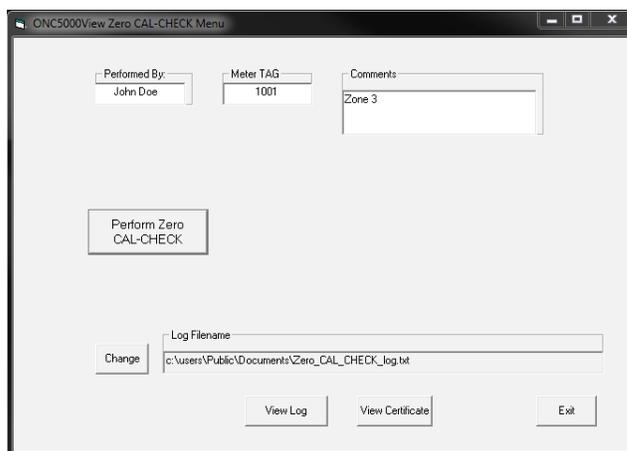


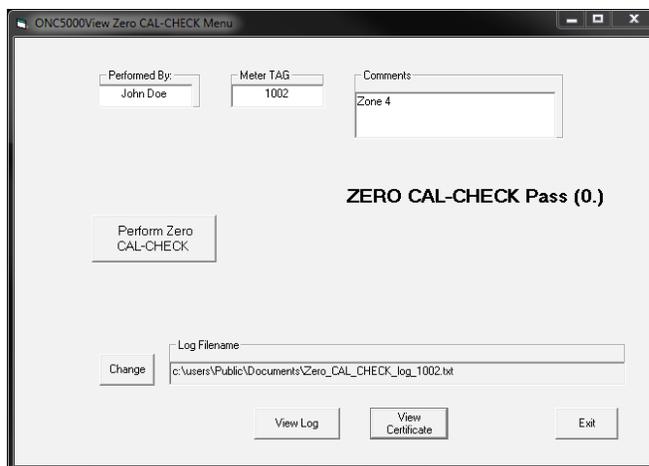
Fig. 3.17: Running a Zero CAL-CHECK® Test



Zero CAL-CHECK®
Results

A Pass/Fail message for the Zero CAL-CHECK® test will be displayed at the test conclusion.

Fig. 3.18: Zero CAL-CHECK® Results Window



Operation: Zero CAL-CHECK® Certificate

Zero CAL-CHECK® Certificate

Zero CAL-CHECK® Certificate

The Zero CAL-CHECK® Certificate function displays the latest certification. When performing a Zero CAL-CHECK® test, all the data is logged into a log file with all pertinent data, including the serial number. A laptop or PC can be used to perform the Zero CAL-CHECK® test on the F-5000 meter. When a Zero CAL-CHECK® certificate is requested, the program will search the log file for the specific serial number and will display only the last check performed.

Fig. 3.19: Zero CAL-CHECK® Certificate

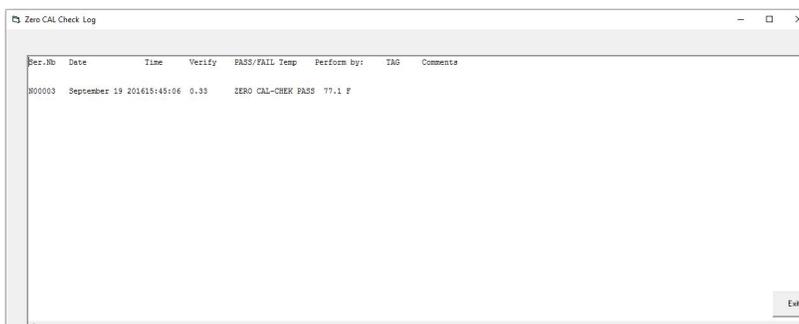


Zero CAL-CHECK® Log

Zero CAL-CHECK® Log

The "View Log" button allows the operator to view a log of previous Zero CAL-CHECK® tests that have been executed on the meter.

Fig. 3.20: Zero CAL-CHECK® Log



Definitions

Glossary of Terms
and Definitions



COM	Communication
CSV	Current Sense Voltage
DMM	Digital Multimeter
ID	Inner Diameter
mA	Milliamps
PC	Personal Computer
RTD	Resistance Temperature Detector
STP	Standard Temperature and Pressure
TSI	Temperature Sense Current

Index

Index

Alarm Limits, p. 15
Analog 4-20 mA output (Pulse Output enabled models only), p. 15
Configure, p. 13
 Address (RS485 enabled models only), p. 18
 Analog 4-20 mA Output, p. 15
 Alarm Limits, p. 15
 Baud rate (RS485 enabled models only), p. 18
 Digital Output (Pulse Output enabled models only), p. 15
 Filter value, p. 15
 Flow cutoff, p. 15
 Frequency Output (Pulse Output enabled models only), p. 15
 Parity (RS485 enabled models only), p. 18
 Password, p. 13
 Pipe Area, p. 15
 Reset Total, p. 13
 Reset CRC, p. 13
 Serial Communication (RS485 enabled models only), p. 18
 Unit settings, p. 15
Dampening factor, p. 15
Filter value, p. 15
Frequency Output (Pulse Output enabled models only), p. 15
Glossary, p. 26
Installation, p. 6
Introduction, p. 5
Password
 Level 1, p. 13
 Level 2, p. 13
Reset Total and Elapsed Time, p. 13
RS485 Settings (RS485 enabled models only), p. 18
Simulation Mode, p. 21
USB, p. 6
Zero CAL-CHECK®, p. 23



Information



Caution



Wiring



Definition of Terms



Troubleshooting Tips