# SAGE *INSIGHT*

## Validation and Configuration Software for the Sage Prime Thermal Mass Flow Meter

# User Manual

**DOCUMENT NUMBER #**
**REVISION #11**

**Make the Wise Choice.**
**Choose Sage Flow Meters.**


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# SAGE ***INSIGHT***

Validation and Configuration Software
for the Sage Prime Thermal Mass Flow Meter

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*Not recommended for OSX Operating Systems such as Apple, unless using Windows emulating programs.

# Sage *INSIGHT* Procedure

After the ***INSIGHT*** software is installed correctly, follow the following operational procedure. This document is a guide to the operation of the software and the initial setup required to establish communications with your meter and use the features contained within this program.

Follow these steps:

1. Open the ***INSIGHT*** program and see Figure 1.

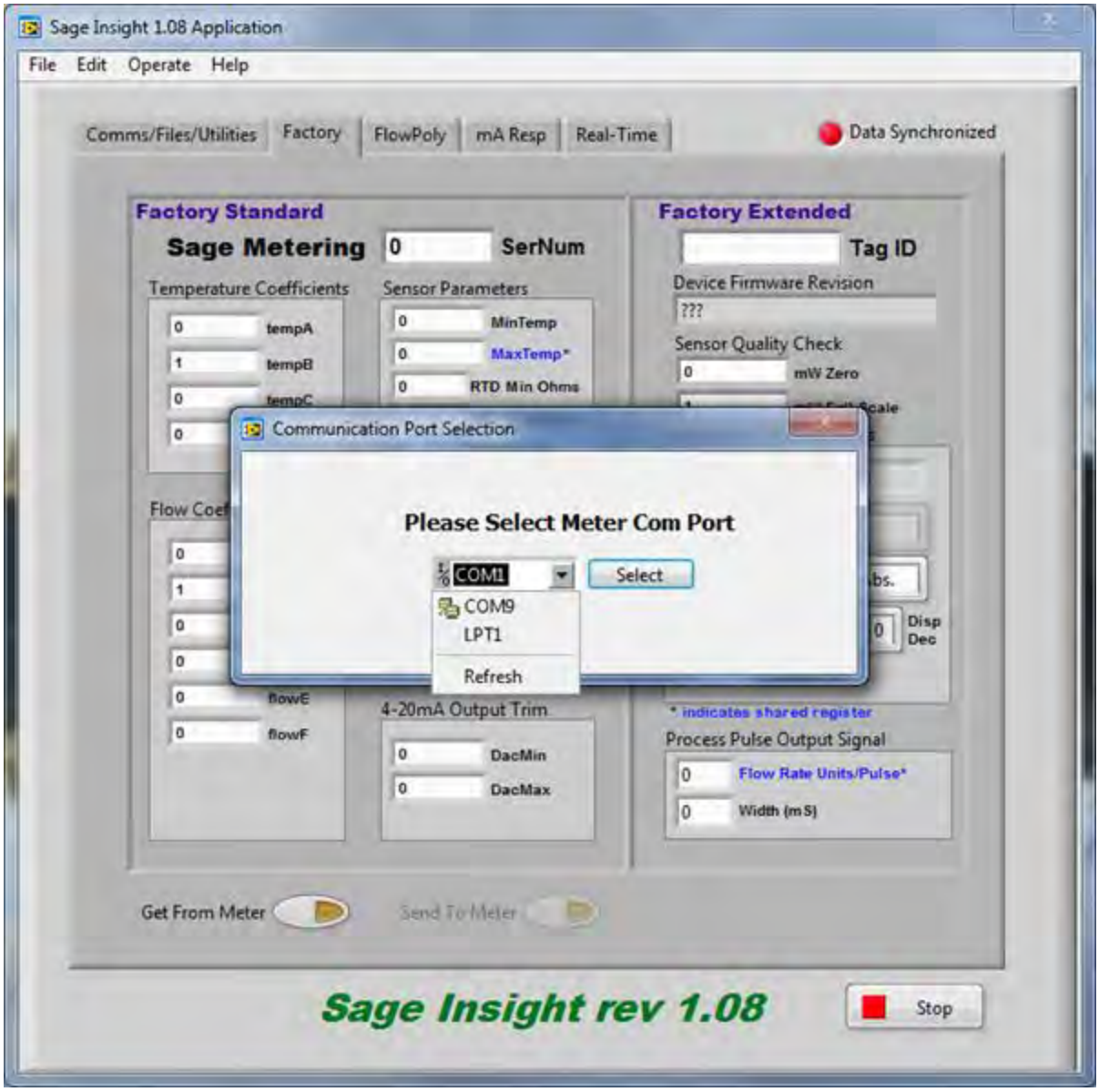


*Figure 1*

2. The screen below appears. Most and first-time users, select Connect to Meter.
3. Find the proper COM port for your RS 485 adapter and click on select (Figure 1).

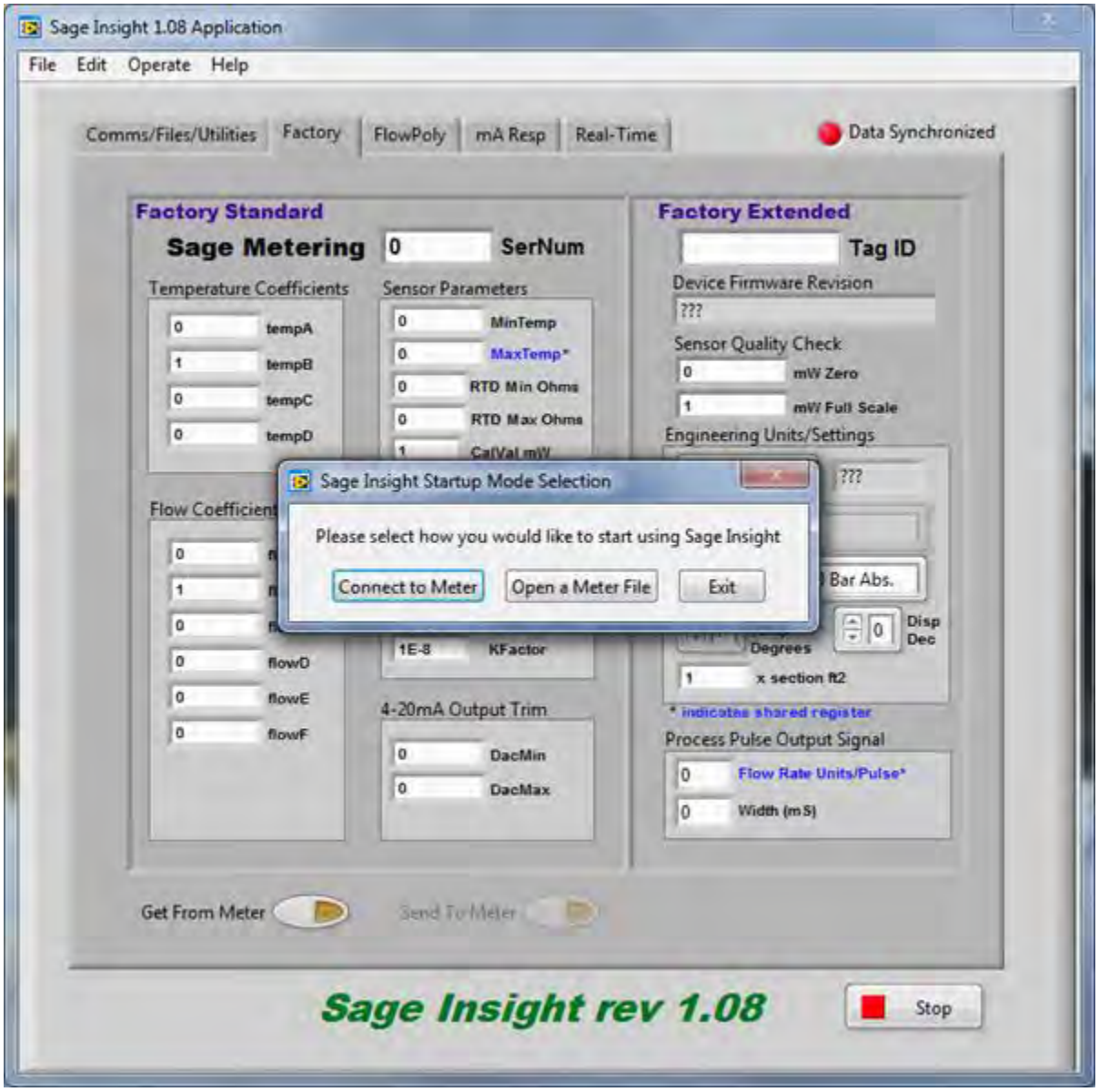


*Figure 2*

4. The next screen that comes up is the Modbus communications parameters. In this window, you can choose one of two ways to establish communication with your Sage PRIME flow meter. See Figure 3.
    - The first method allows for selecting the slave ID, baud rate, and parity. Once the selections are made, click on the Select button.

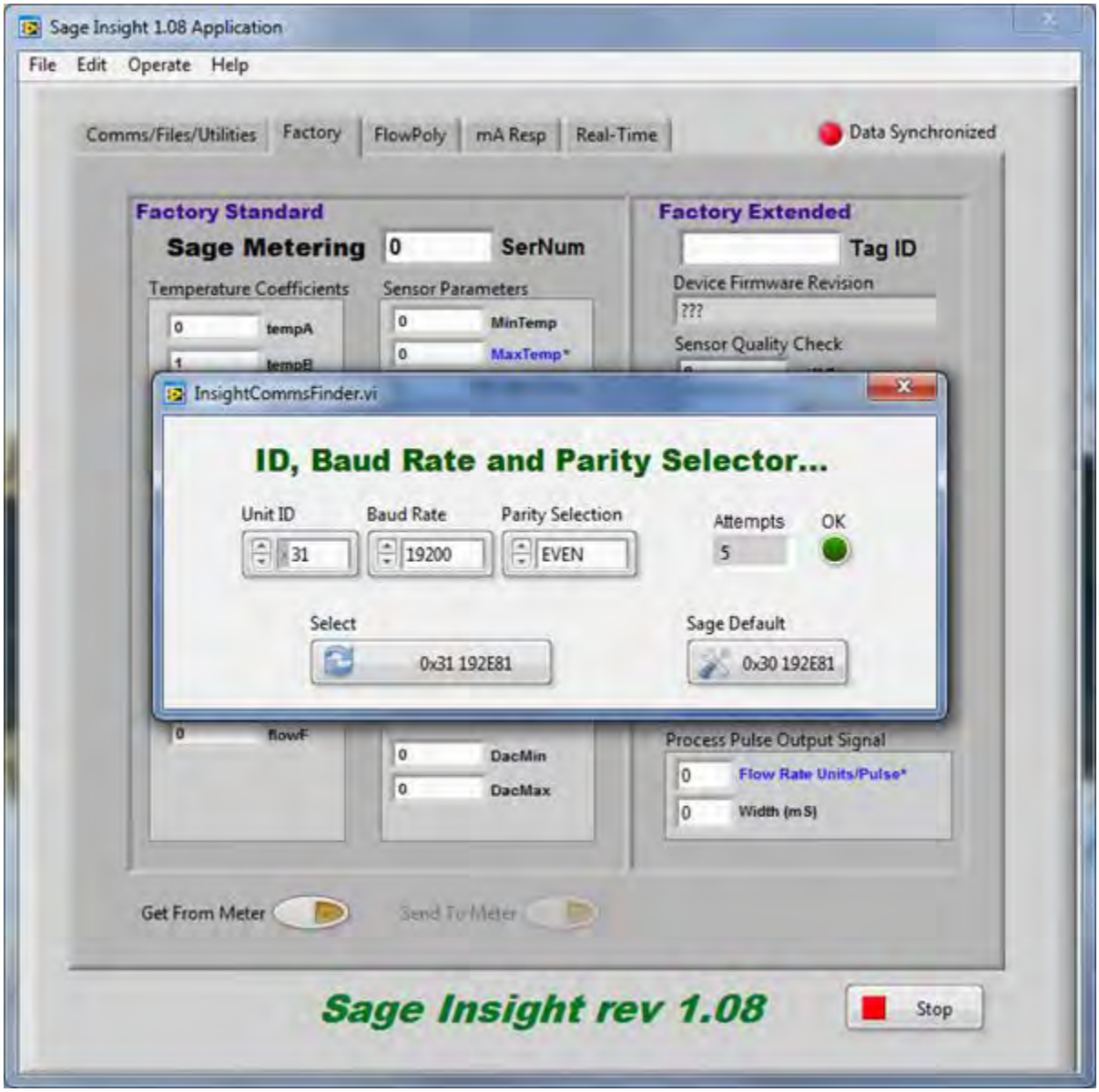


*Figure 3*

- The second method is to select Sage Default. Use this option if the communication parameters are not known. The meter needs to be powered off and then on to use this option. Click the Sage Default button during the startup process.

Once the registers have loaded, the screen on Figure 5 appears. In cases where the user does not make changes to the meter's configuration, he or she can choose the View Only button (see Figure 4) to use safe mode which does permit viewing the programming data available (the data may not be complete if the meter is from an earlier production date).

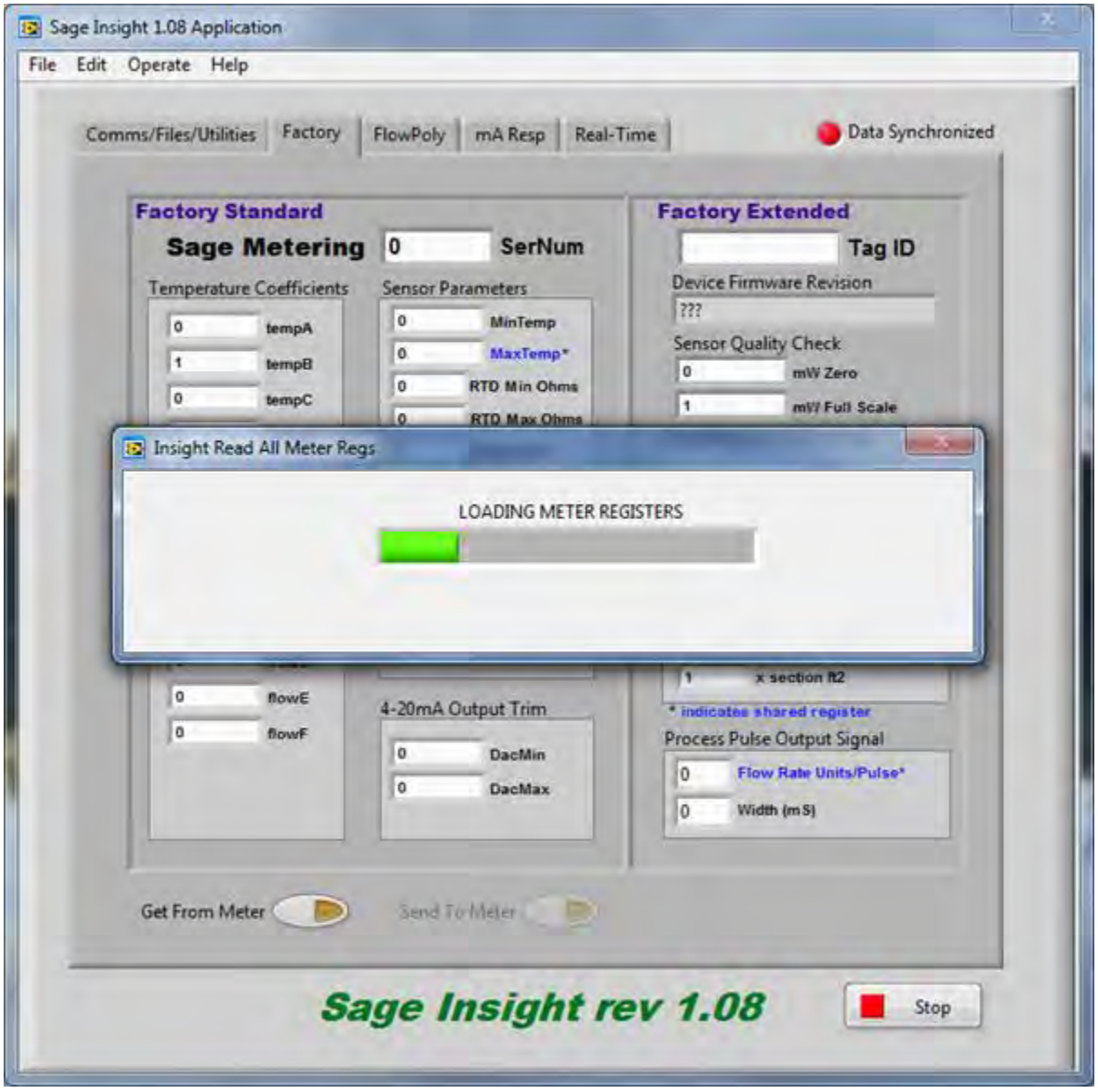


*Figure 4*

In the following section should you want to change engineering units or the STP (Standard Temperature and Pressure) you may be required to enter additional information (some highlighted) so that the calculations function correctly. See Figures 5 and 6.

At this point, you have the option to contact Sage Service and request an updated .dat file that you can load into your meter saving you time and the possibility of a programming error. Should you wish to continue and perform the programming of your meter yourself, the next section guides through those steps.

# Factory Tab

Presently this software does not support a change in the process gas. If you own any early production meters, the gas that comes up as well as some of the other parameters, may not be the correct process specification for your application.

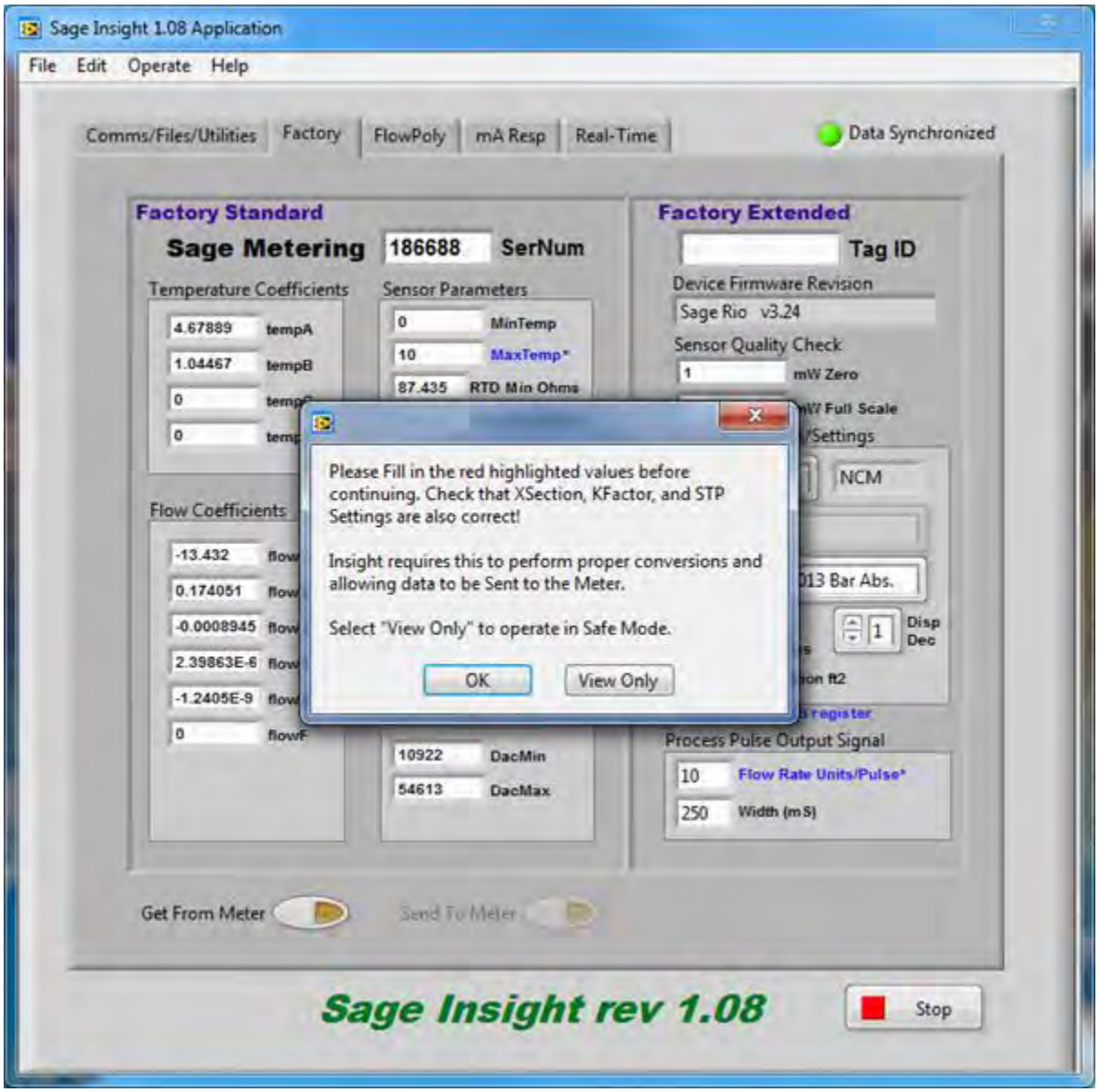


*Figure 5*

1. If you click the OK button, a screen appears that requires the Process Passcode to gain access. This passcode is also used to access the Validation section.
2. At this time, it is advisable to click on the Help button and then click on the Show Context Help. Using this feature allows you to read information on each section and

what information you need to input to enable certain features of this software. The help windows also offer a brief description of the section you click on. If no information is available, it informs you of this as well. See Figure 7.

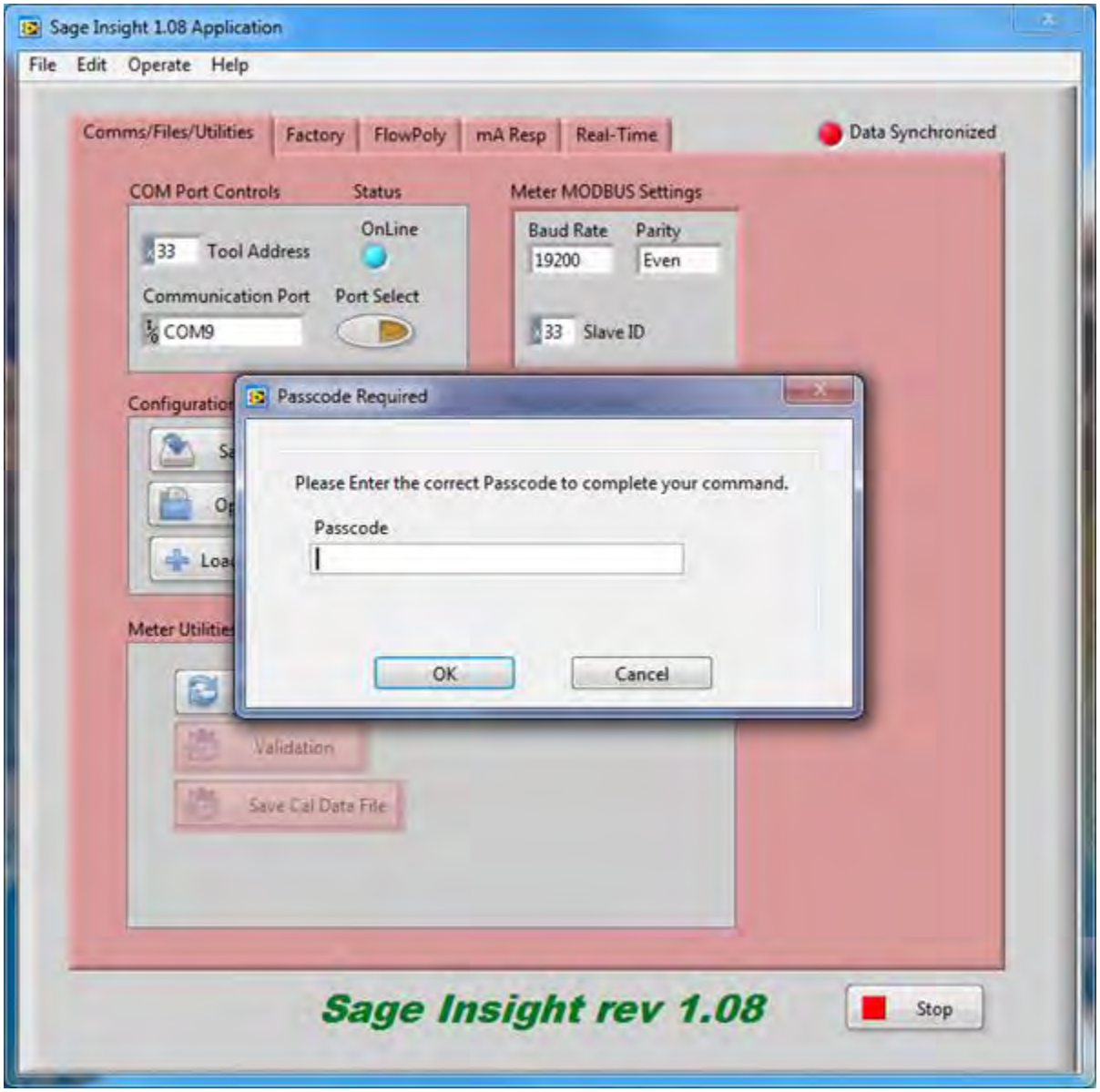


*Figure 6*

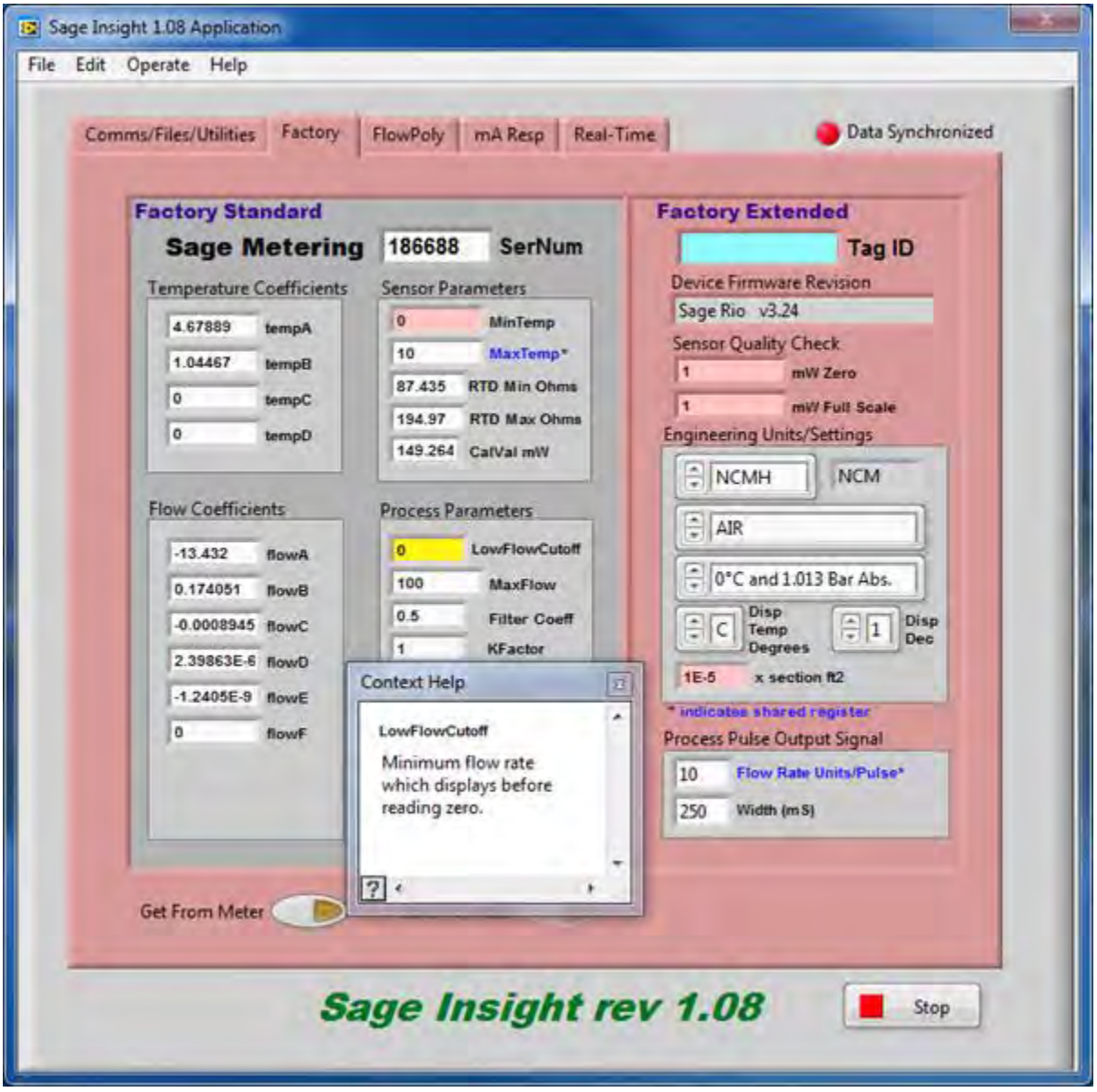


*Figure 7*

3. Click on the Access button to open the section and enter the passcode.
4. To enter the required data in the pink highlighted sections, you need to access the Process Change level. The passcode is 99999. Click on OK after you have typed in the passcode. See Figure 8.

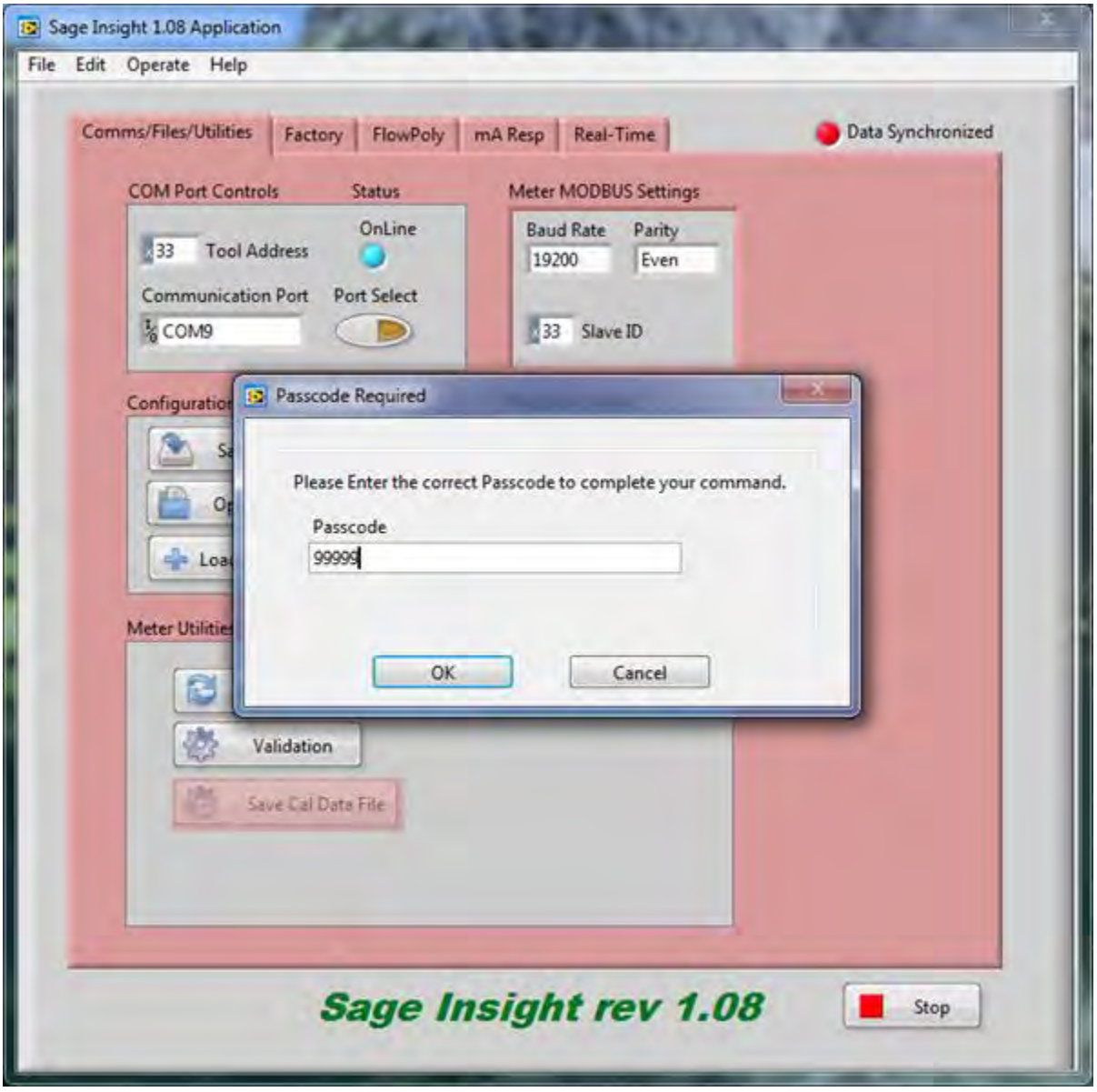


*Figure 8*

5. After entering the passcode, click on the Factory tab. Here, the user inputs the required information in the pink highlighted sections. You can also choose to make changes to the temperature and pressure reference as well as moving/removing the decimal.
6. In Figure 9, notice the section labeled Engineering Units/Settings. While not all parts are highlighted in pink, it is important to verify the information and when required, make the appropriate changes to ensure the information is correct since these are the default settings and may not reflect how your device is configured. The last item you may be required to enter is the “x section ft2.” To change this value, you need the Factory level

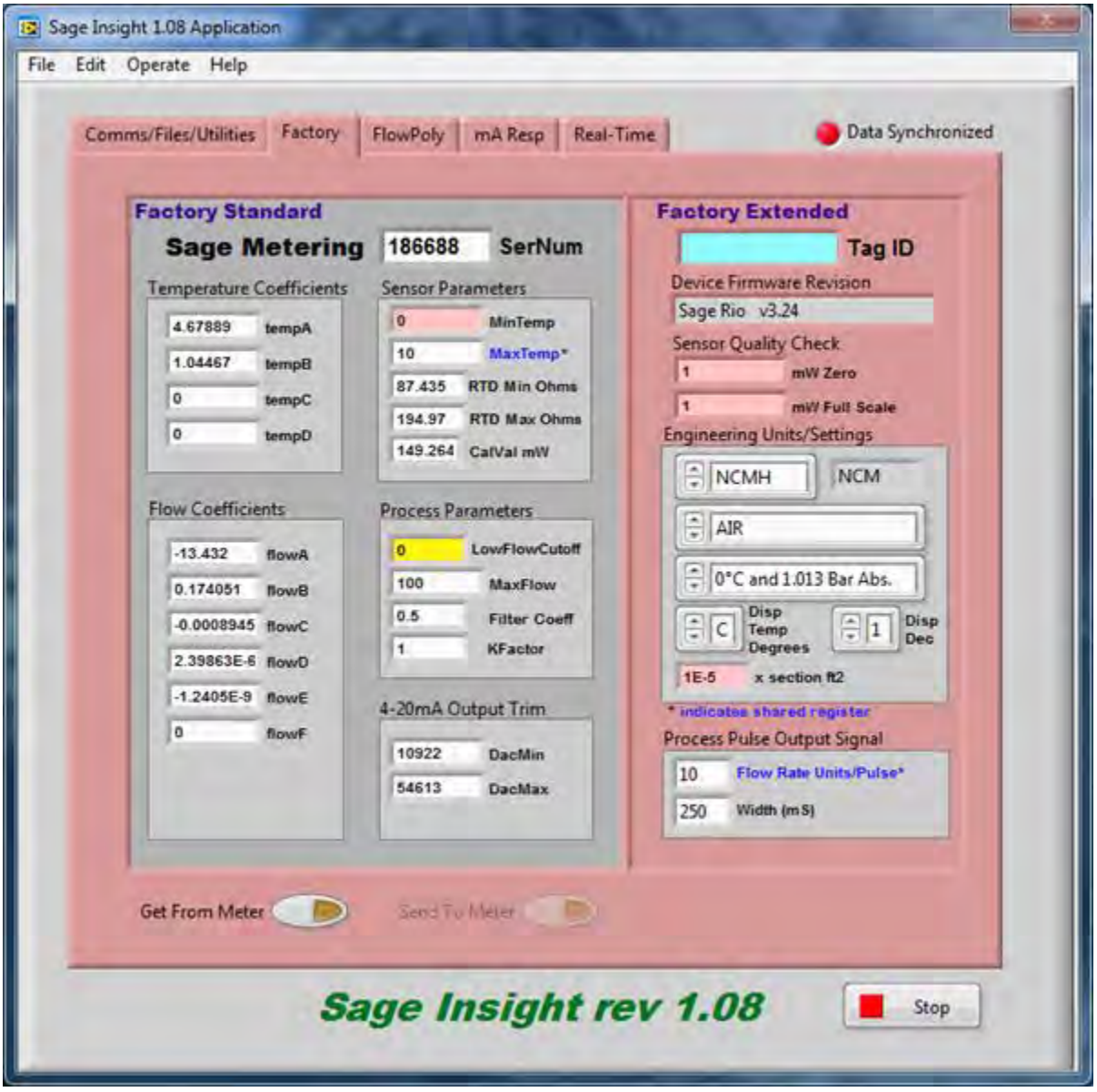


*Figure 9*

passcode (see Appendix). Once entered and the Send to Meter button is clicked, a .dat file is generated and needs to be saved in the ***INSIGHT*** folder. This file is the meter's base settings and used if you want to use the Factory Restore feature. It is critical to fill out the information properly.

7. If Sage preloaded your data (applicable to newer or recently serviced units), then the additional information noted above should already be filled out (no pink highlighted sections). The background remains pink until you save a Cal Data File by clicking on the now active Save Cal Data File button.
8. If your meter was not specified to incorporate a low flow cutoff, a yellow highlighted section displays every time your device connects to the ***INSIGHT*** software. You do not need to enter a

value in this section. All of the required information is on the certificate of conformance. If the user does not have access to this document, contact Sage customer service. Please have available the serial number of the device and Sage will provide the necessary information.

9. In the Tag ID section, you can enter a tag to identify the meter and any changes made during this interface session. Depending on the firmware of your meter, you may only be able to make changes to the Tag ID once. The Tag ID is limited to 8 characters.

# Comms/Files/Utilities

In this section, we discuss the procedure for using features available in this tab. The most often used feature available is the Meters Utilities section. Before this can be accessed, you must first have entered a passcode in the Passcode Control section. If you have already done so, skip the next two steps.

1. In the Passcode Control section click on access.

2. Enter this passcode; 99999 and click OK. See Figure 10.

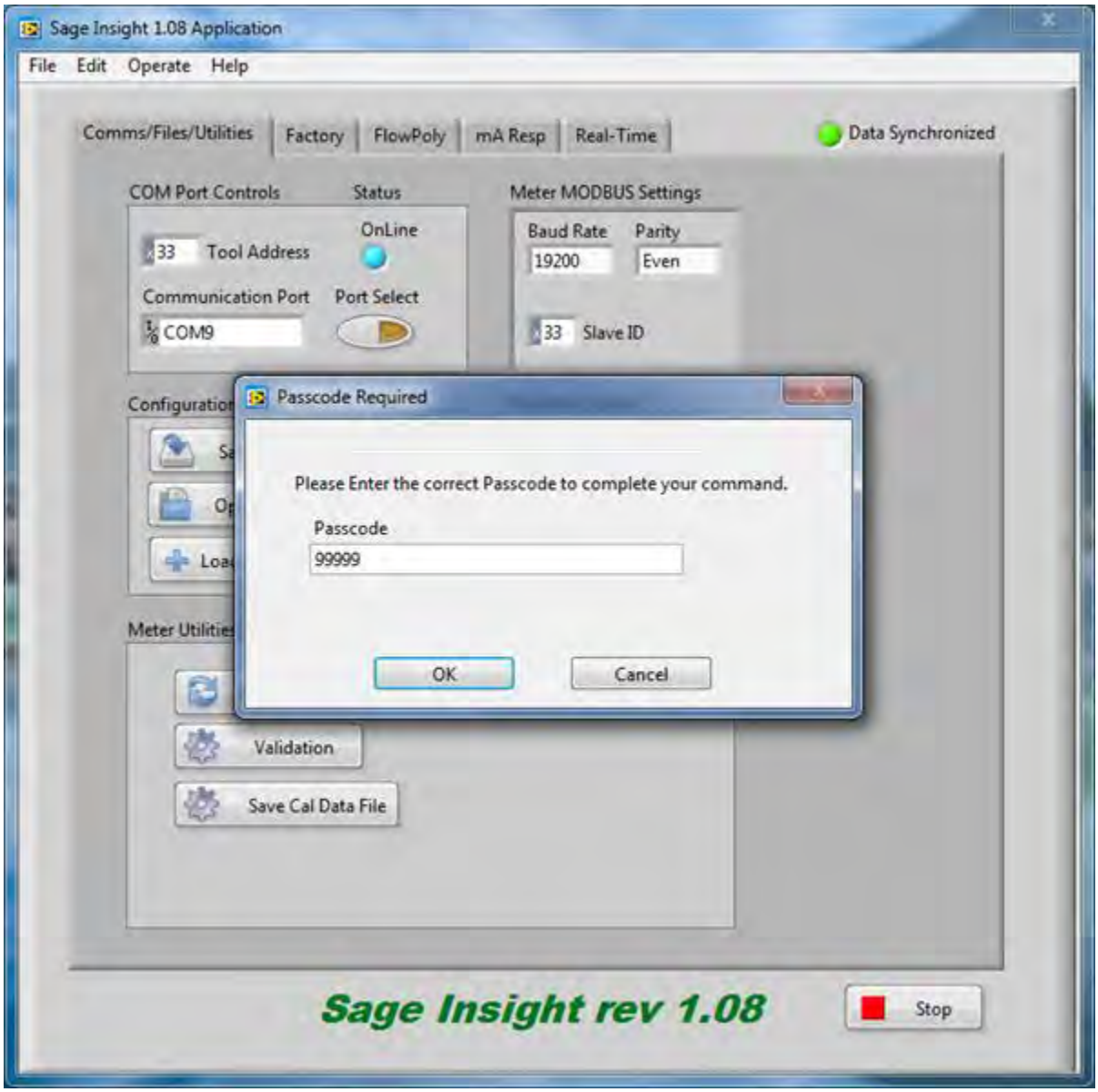


*Figure 10*

# Validation

This procedure grants Process Change permissions and access to the Validation section of this tab. Once you click Validation the warning in Figure 11 appears:

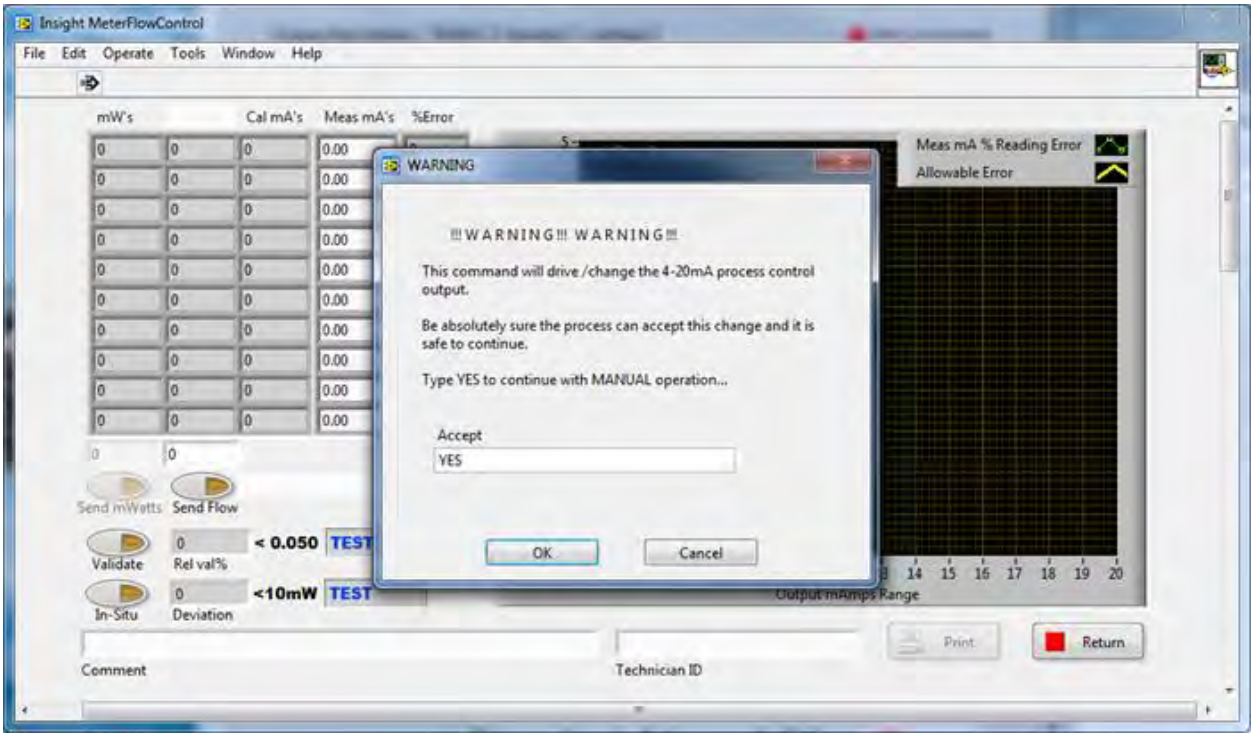


*Figure 11*

To proceed, in the Accept window type in caps “YES “and click OK.

You can perform some checks and calibration tests here.

Send Flow: this top button allows you to set a flow rate by choosing the actual flow you desire. A corresponding 4-20mA output signal appears as a means to verify the process signal.

By inputting the flow rate in the box above the button and clicking, the rate briefly illuminates. The set flow rate displays on the meter and the output signal reads the corresponding 4-20mA output.

Validate: this button initiates a sensor check that compares the two RTDs in a “non-heated” state. Once you click on this button the sensor validation test runs and the results reflect in the window marked Rel Val% followed by a pass/fail.

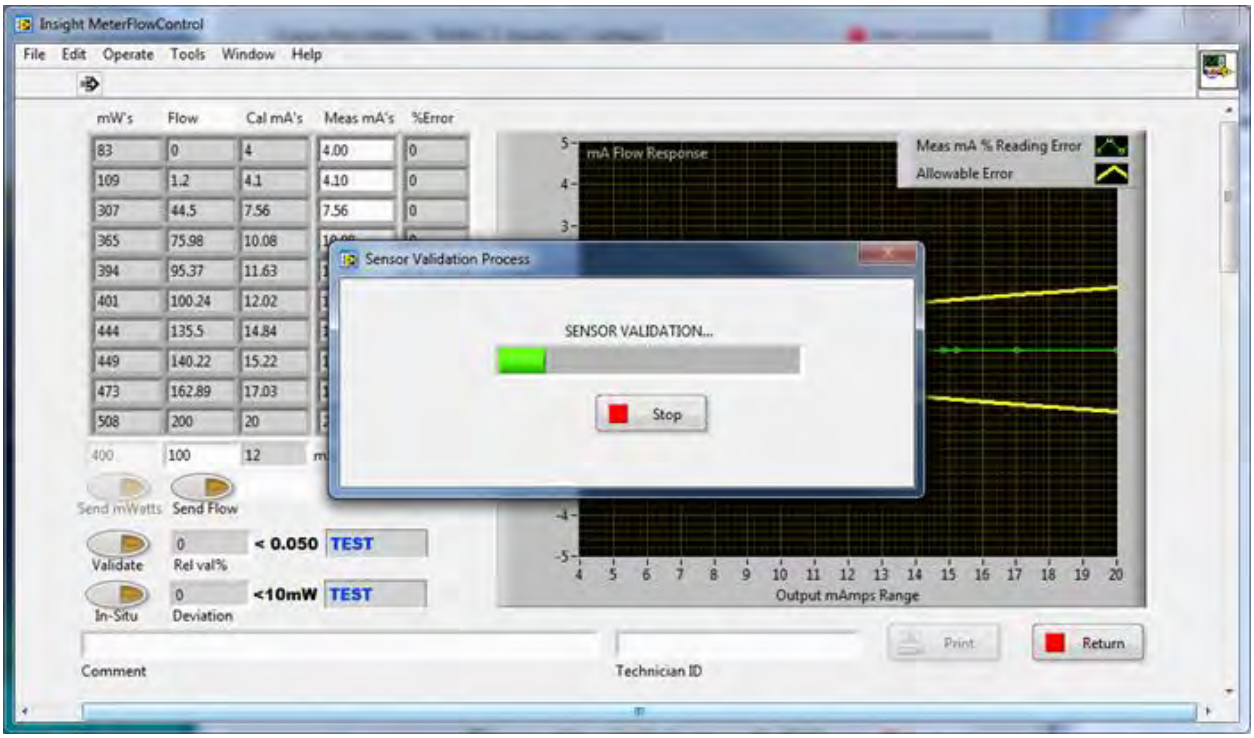


*Figure 12*

In-Situ: The In-Situ test provides a means to check the meter at a “no flow” condition, and compares the reading to the original reported “zero flow” value. This diagnostic test not only qualifies the sensor performance and the “live zero” calibration point (when passed) but also confirms that the sensor is clean. It essentially provides a means to verify that the meter is operating properly with no drift or shift and is free from contamination.

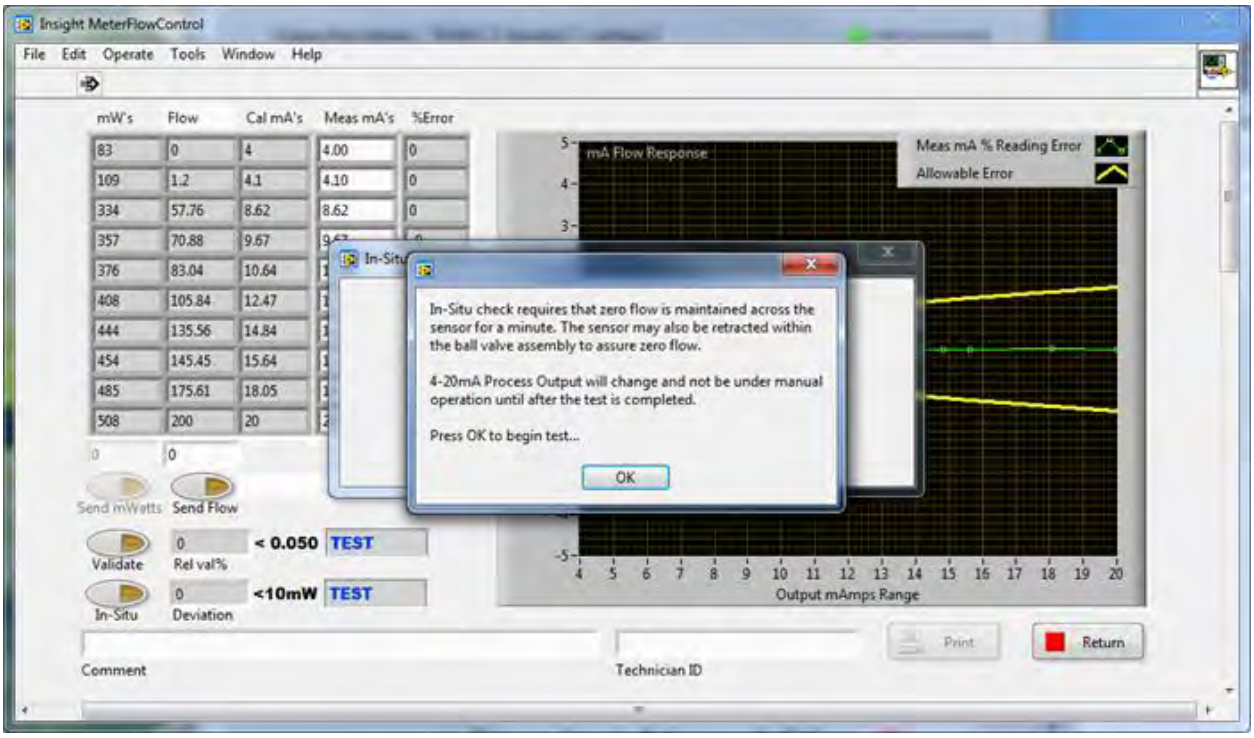


*Figure 13*

Should you click on the Stop button during either test, the following warning displays (Figure 14):

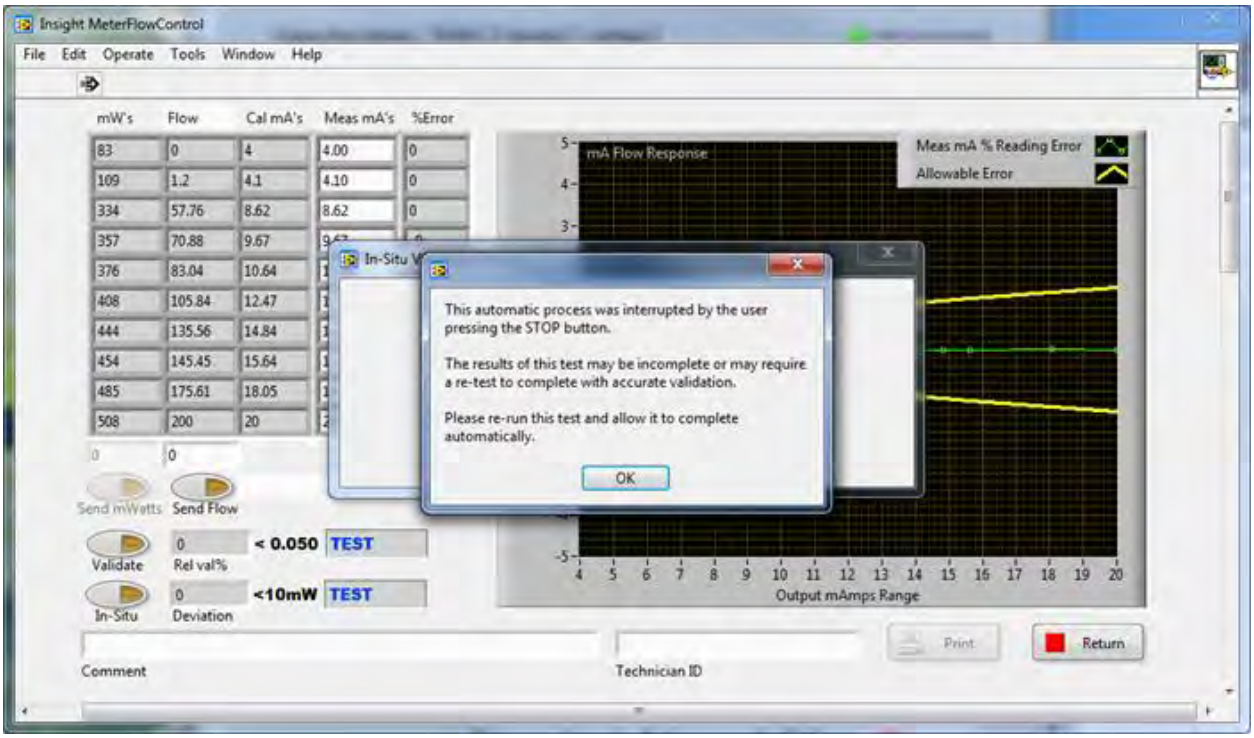


*Figure 14*

Followed by Aborted instead of Pass/Fail. See Figure 15.

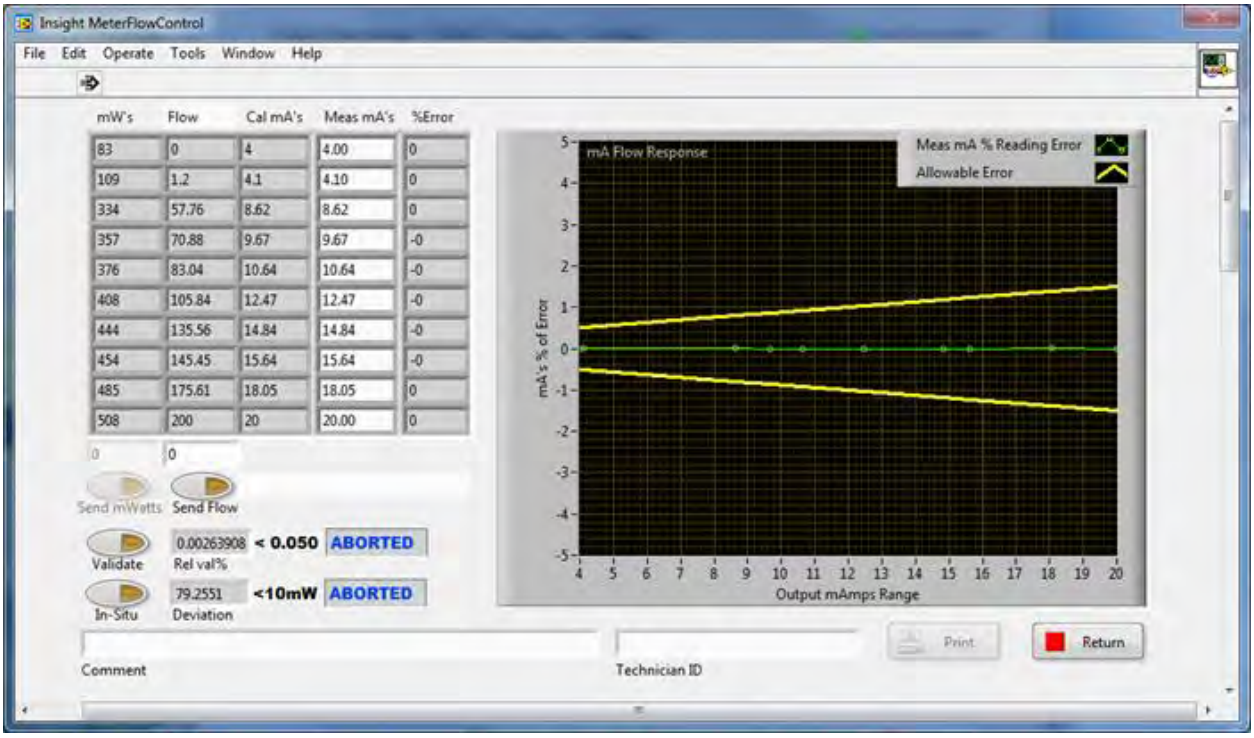


*Figure 15*

If you wish to print a test report at the conclusion of the testing, you are required to enter a technician ID and any comments in the provided sections. Once you have completed those sections, **press the Tab key** to enable the Print button. When you have completed your validation testing in this section, you may exit by clicking on the Return button in the lower right corner. This sequence takes you back to the Factory tab.

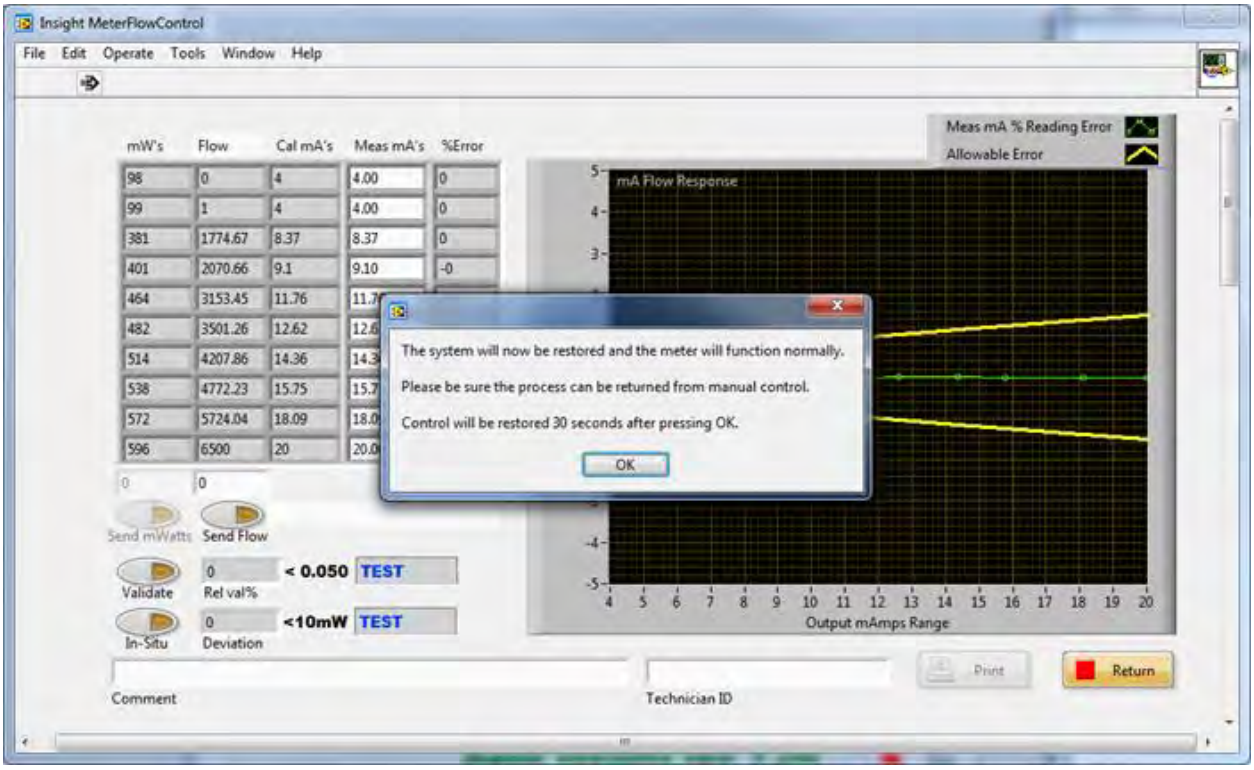


*Figure 16*

If you have made any changes in the configuration of your meter, the background color changes to pink indicating the program and meter are not synchronized. If you want to make those changes permanent, you must send the new changes to the meter (see Figure 17). To do this click Send To Meter and the program loads the new information into the meter then reinitializes. You need to reestablish the connection to the meter and are prompted to do so by the appearance of the INSIGHT comms finder window. Please note; if you have made any changes in the communications configuration (baud, parity or slave ID), those changes need to be entered into the appropriate sections of the INSIGHT comms finder to connect to the meter properly. Once the registers have loaded the program displays the reconfigured meters data and the background color returns to gray with the Data Synchronized light displaying green.

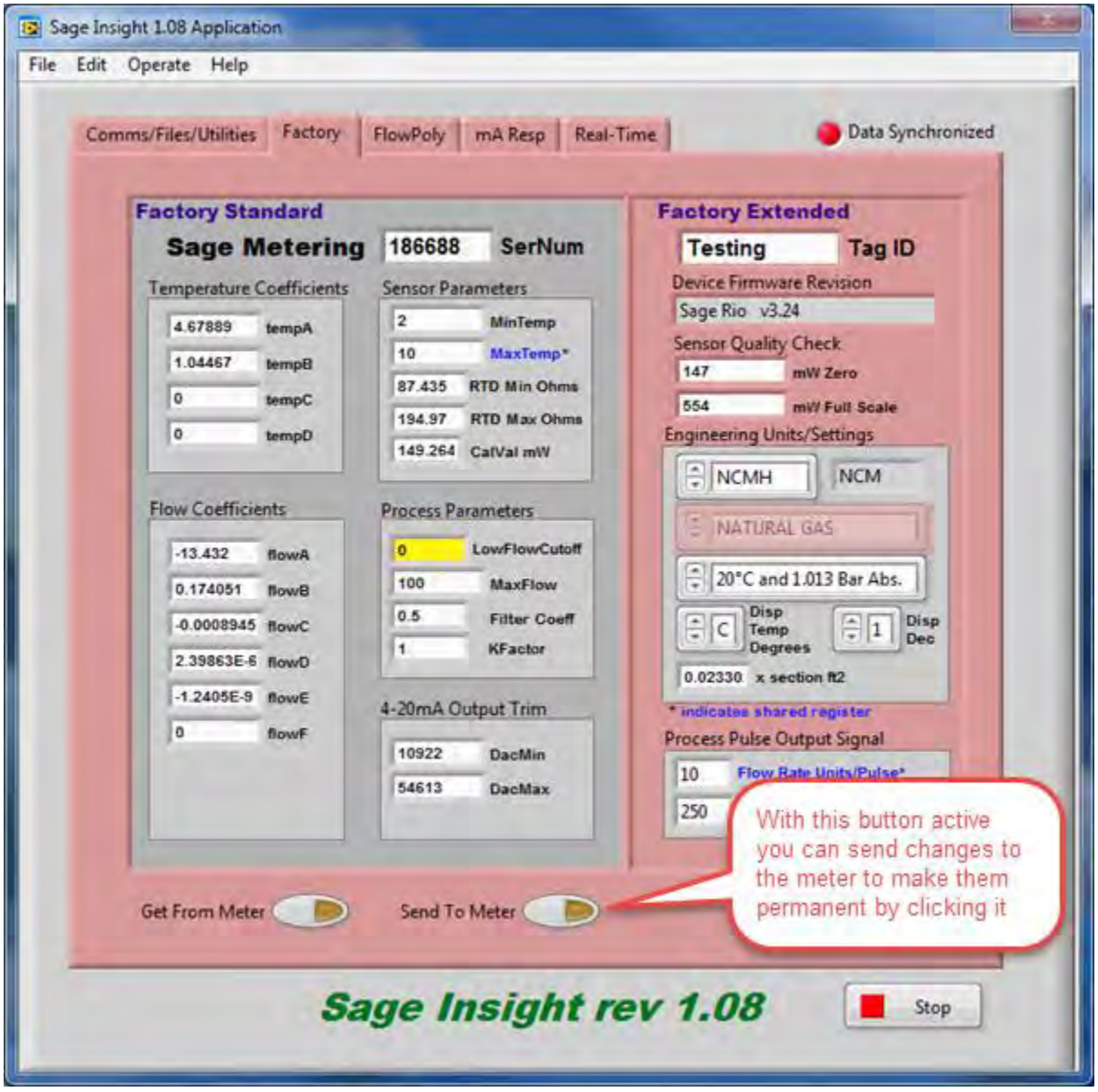
Sage Insight 1.08 Application
File Edit Operate Help
Comms/Files/Utilities
Factory
FlowPoly
mA Resp
Real-Time
Data Synchronized
Factory Standard
Sage Metering
186688
SerNum
Temperature Coefficients
4.67889 tempA
1.04467 tempB
0 tempC
0 tempD
Sensor Parameters
2 MinTemp
10 MaxTemp*
87.435 RTD Min Ohms
194.97 RTD Max Ohms
149.264 CalVal mW
Flow Coefficients
-13.432 flowA
0.174051 flowB
-0.0008945 flowC
2.39863E-6 flowD
-1.2405E-9 flowE
0 flowF
Process Parameters
0 LowFlowCutoff
100 MaxFlow
0.5 Filter Coeff
1 KFactor
4-20mA Output Trim
10922 DacMin
54613 DacMax
Factory Extended
Testing
Tag ID
Device Firmware Revision
Sage Rio v3.24
Sensor Quality Check
147 mW Zero
554 mW Full Scale
Engineering Units/Settings
NCMH
NCM
NATURAL GAS
20°C and 1.013 Bar Abs.
C
Disp Temp Degrees
1
Disp Dec
0.02330 x section ft2
* indicates shared register
Process Pulse Output Signal
10 Flow Rate Units/Pulse*
250
With this button active you can send changes to the meter to make them permanent by clicking it
Get From Meter
Send To Meter
Sage Insight rev 1.08
Stop

*Figure* 17

Should you make any errors in configuration or simply want to restore your device back to the original factory settings this may be accomplished by using the Restore Factory button in the Comms/Files/Utilities tab.

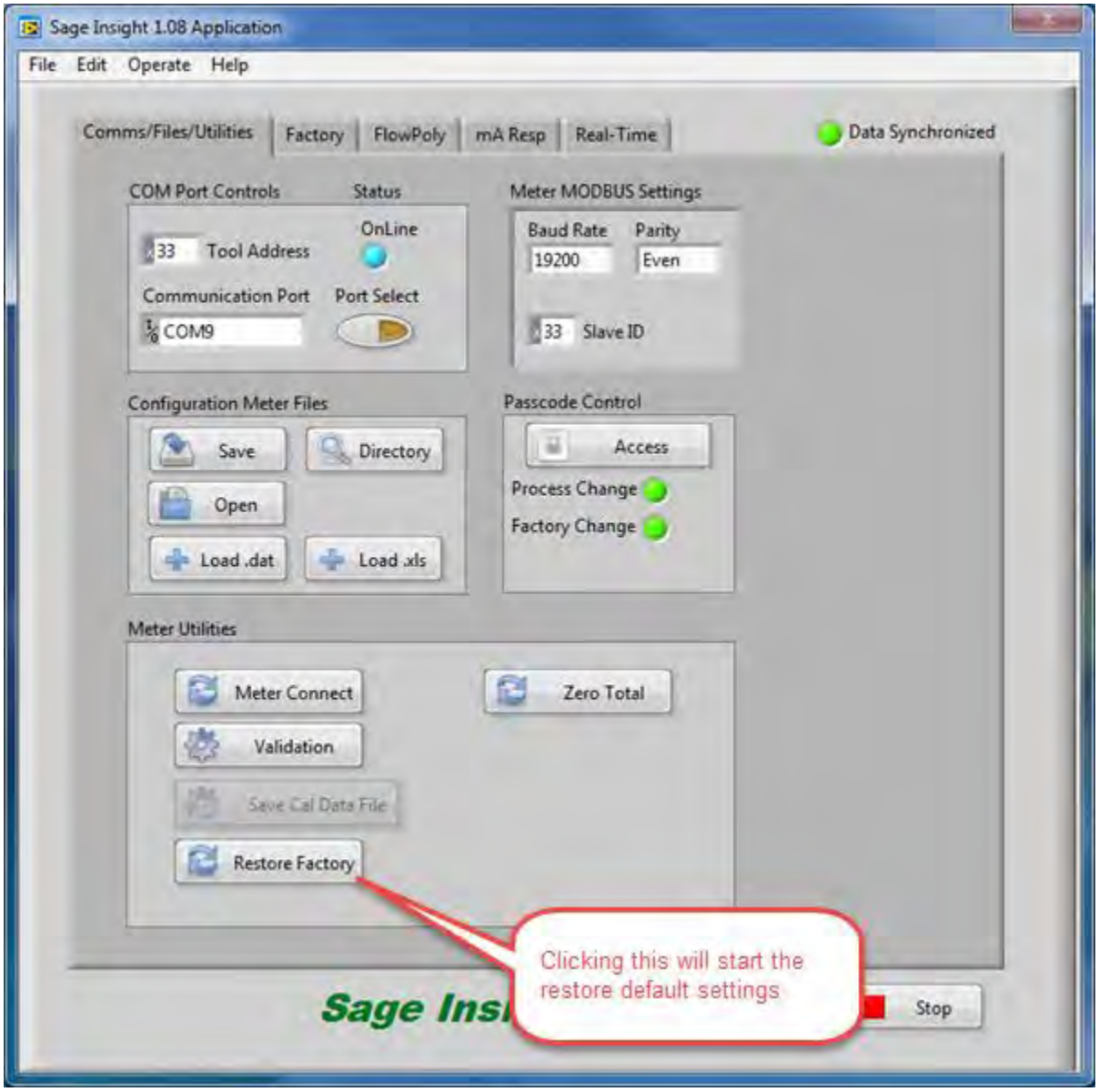


*Figure 18*

Zero Total: This new feature allows the user to reset the totalizer counter to a zero value.

This concludes the functional portion of the ***INSIGHT*** program. The next two tabs are for informational purposes, and a description of each tab follows.

# FlowPoly

Using this tab reveals the raw flow curve of your flow meter. You have options for exporting the data as well as changing the appearance of the graph and how it displays.

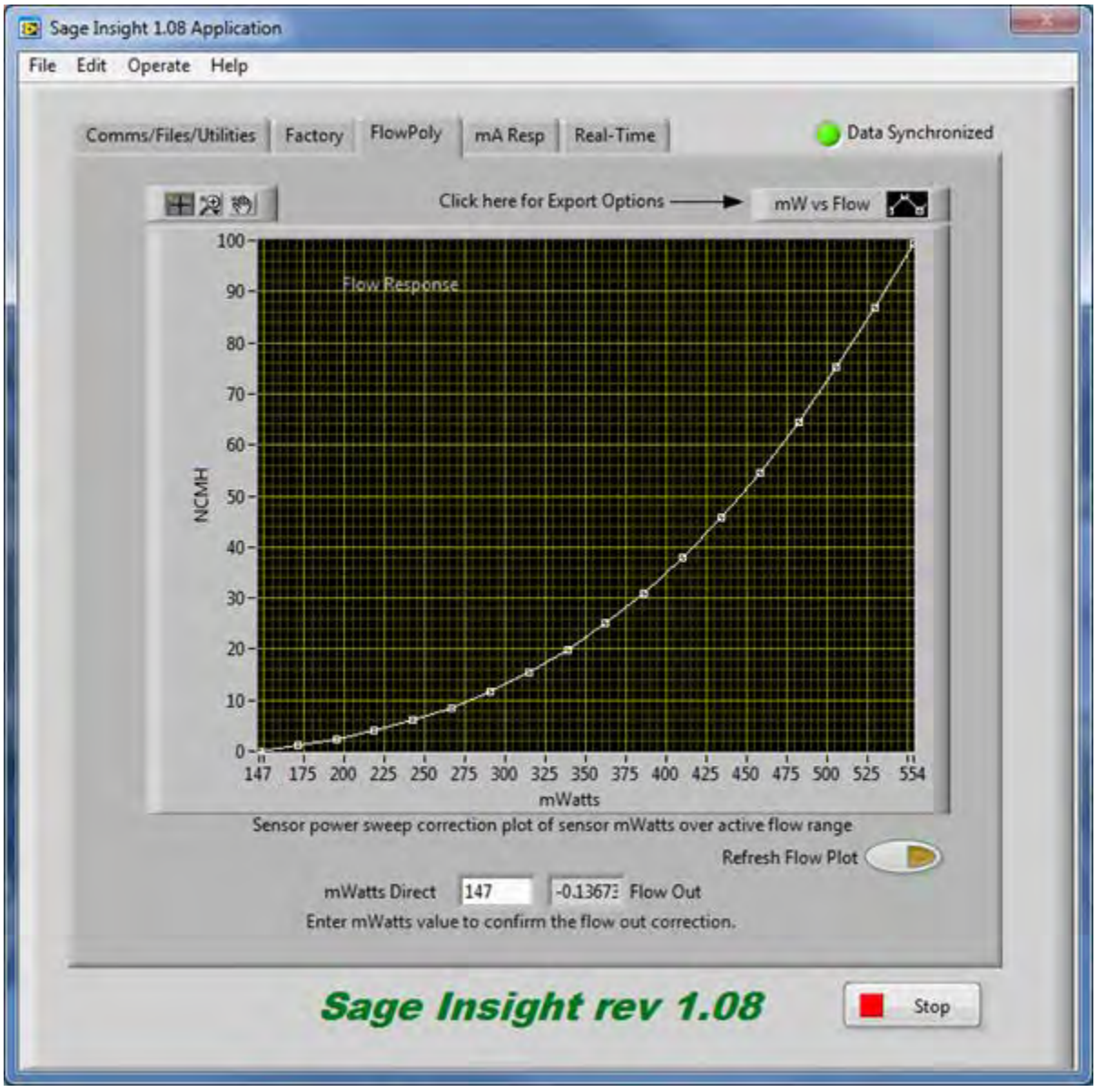


*Figure 19*

# mA Resp

In this tab, you see the linear graph of the analog output signal proportional to the flow rate. You have the same options for exporting the data as well as changing the appearance of the graph and how it displays.

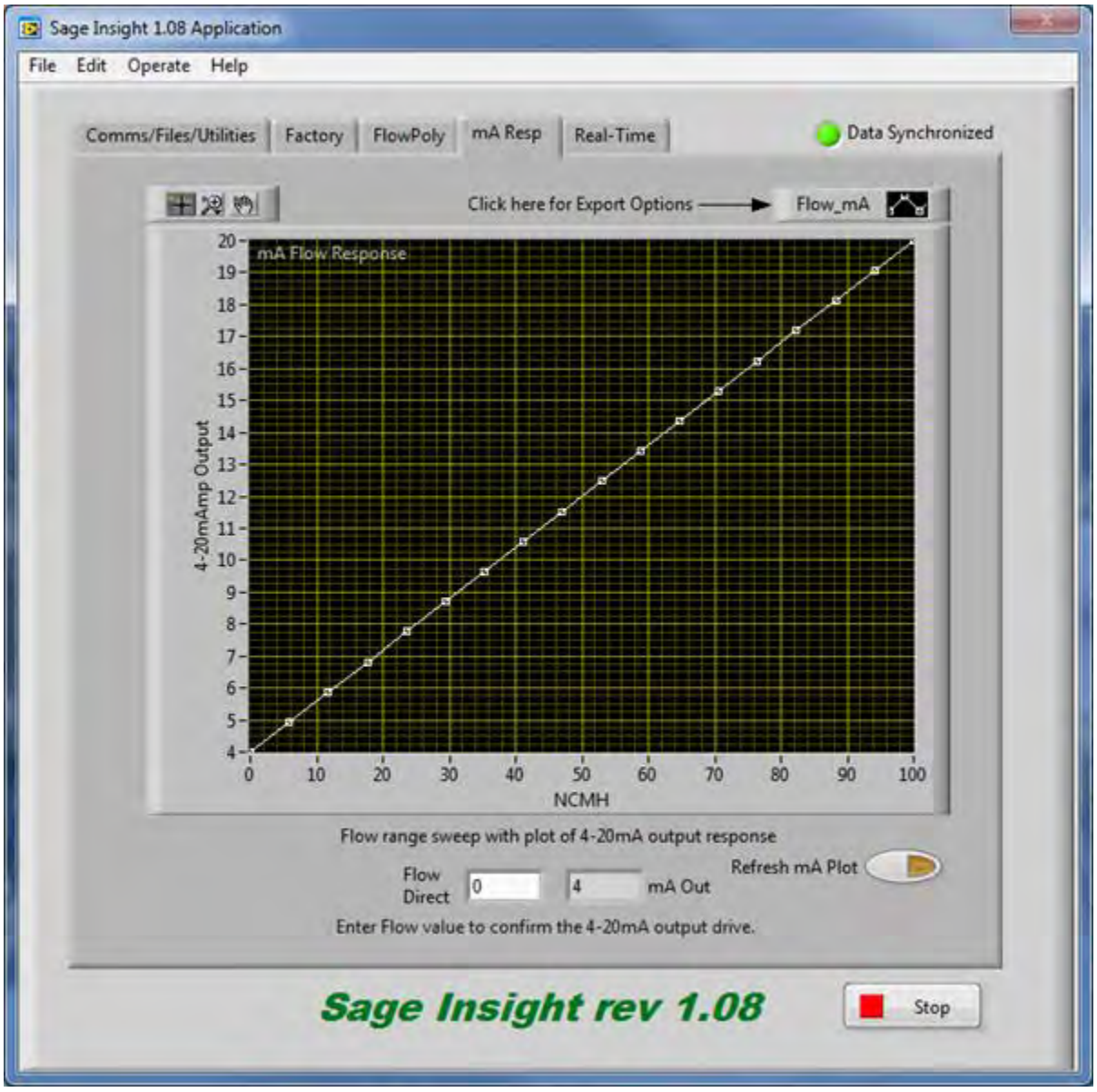


*Figure 20*

# Real-Time and Data Logging

The Real-Time tab is a graphical display for;

- Flow
- Temp
- mWatts

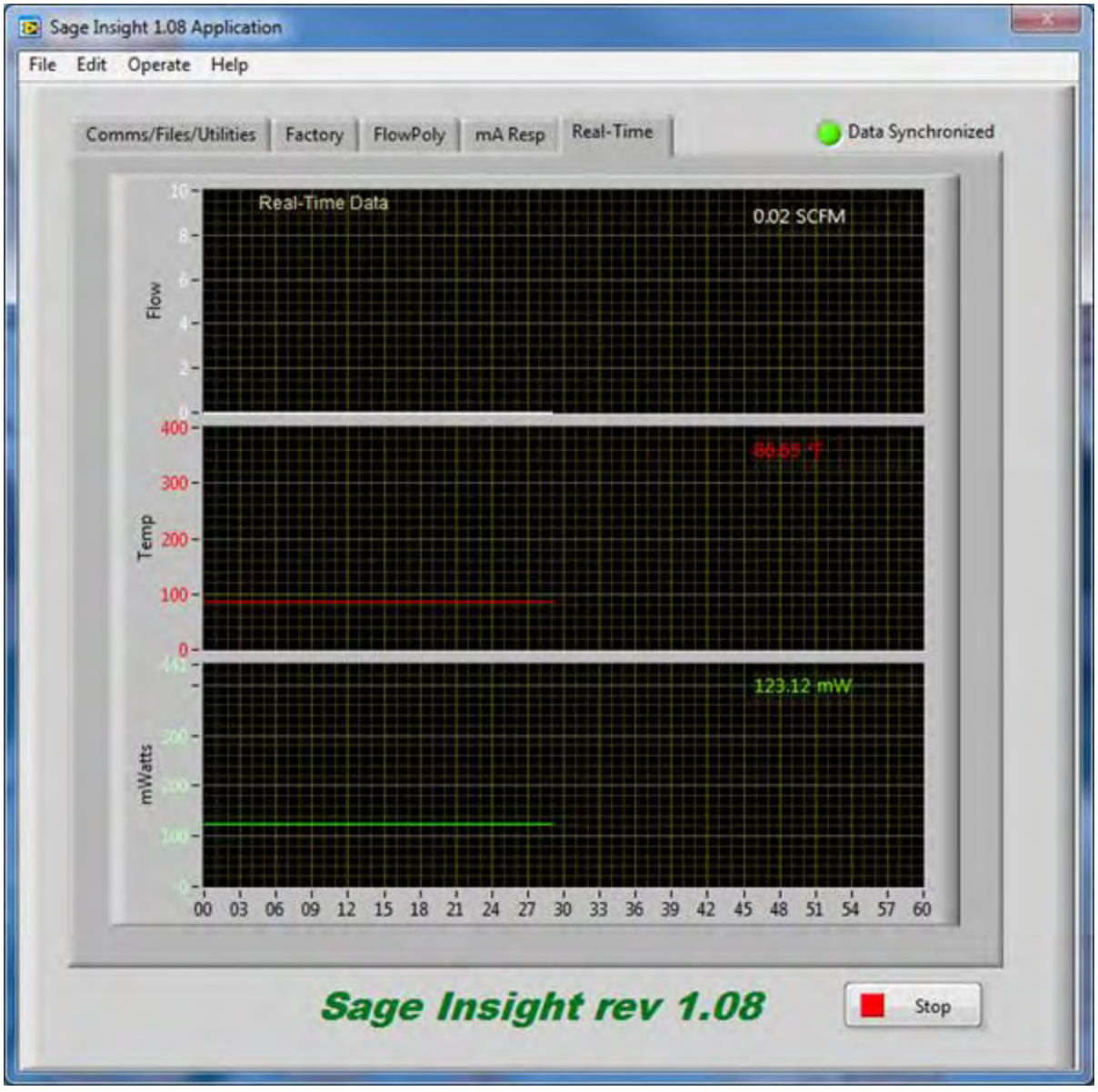


*Figure 21*

Here the real-time reading from your flow meter is displayed numerically and graphically. While you are on this tab, the samples continue to graph until you leave the tab. Going to another tab resets the logger.

You may also export the logged data to an Excel spreadsheet.

To export the complete log files, set the X to AutoScale. To enable this feature, place the pointer on the graph and right-click. A drop-down menu appears and click AutoScale X (see figure 22).

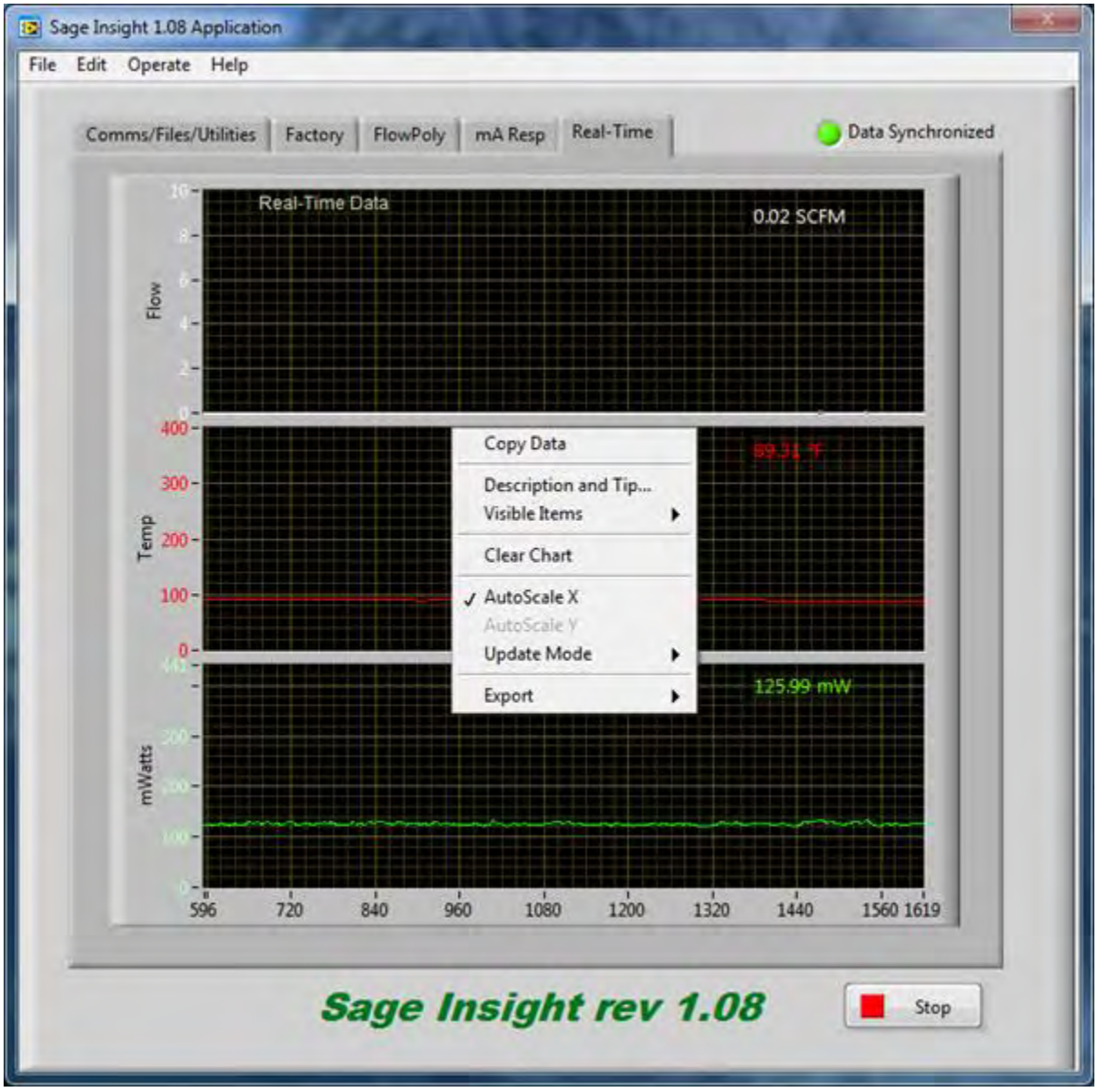


*Figure 22*

When ready to export the logged readings; right-click inside the graph and select Export. Then choose one of the three export options (see Figure 23).

Note: the export is a snapshot of the logged information up to the time you exported the data.

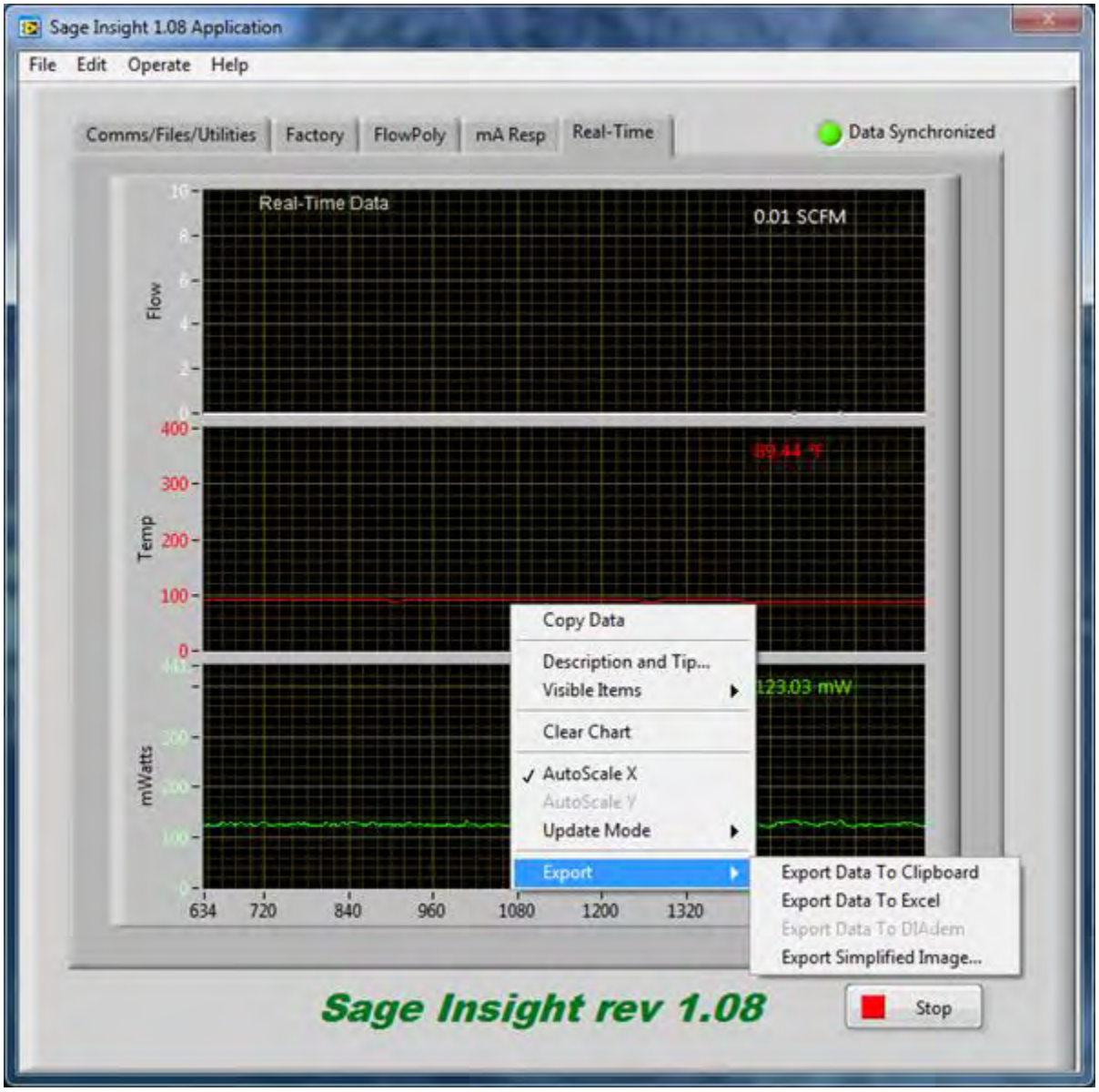


*Figure 23*

This concludes the description of the tabs.

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# Appendix

## How to locate the com port for your ULINX;

Windows 7

- Click the start button.
- Right-click computer and click properties.
- Click Device Manager.
- Click Ports (Com & LPT), look for the RS-485 Isolated Port and note the COM number.

Windows 10

- Right-click the start button.
- Click Device Manager.
- Click Ports (Com & LPT), look for the RS-485 Isolated Port and note the COM number.

**Factory Passcode**

Note, the Factory Passcode is 99990* and is used as a higher level passcode for older meters that require additional data to be entered for proper operation.

Instead of entering this additional data, Sage can furnish upon request an updated file that can be uploaded to your meter using ***INSIGHT*** that does not require the higher level passcode. Should you opt for this service, please contact Sage Service Department with the serial number (s) of the meter(s).

For changes to the process parameters of your meter, the passcode is 99999 which can be found on page 10 of this document.

*Note, if a supervisor or manager does not wish for the operator of this software to inadvertently corrupt the meters programming data, we recommend the removal of this Appendix from this ***INSIGHT*** procedure/manual.