



SAGE INSIGHT Validation and Configuration Software

Get INSIGHT into the Operation and Configuration of Your Sage Prime Thermal Mass Flow Meter

INSIGHT is a new, powerful, yet easy to use software program which gives the user testing, diagnostics, performance verification and local configuration capabilities for a Sage Prime Thermal Mass Flow Meter. This new software permits the user to get the assurance that the accuracy of the Sage Prime is performing per the original specifications and perform diagnostic tests which up to now were unavailable.

The Software Has Three Main Functions

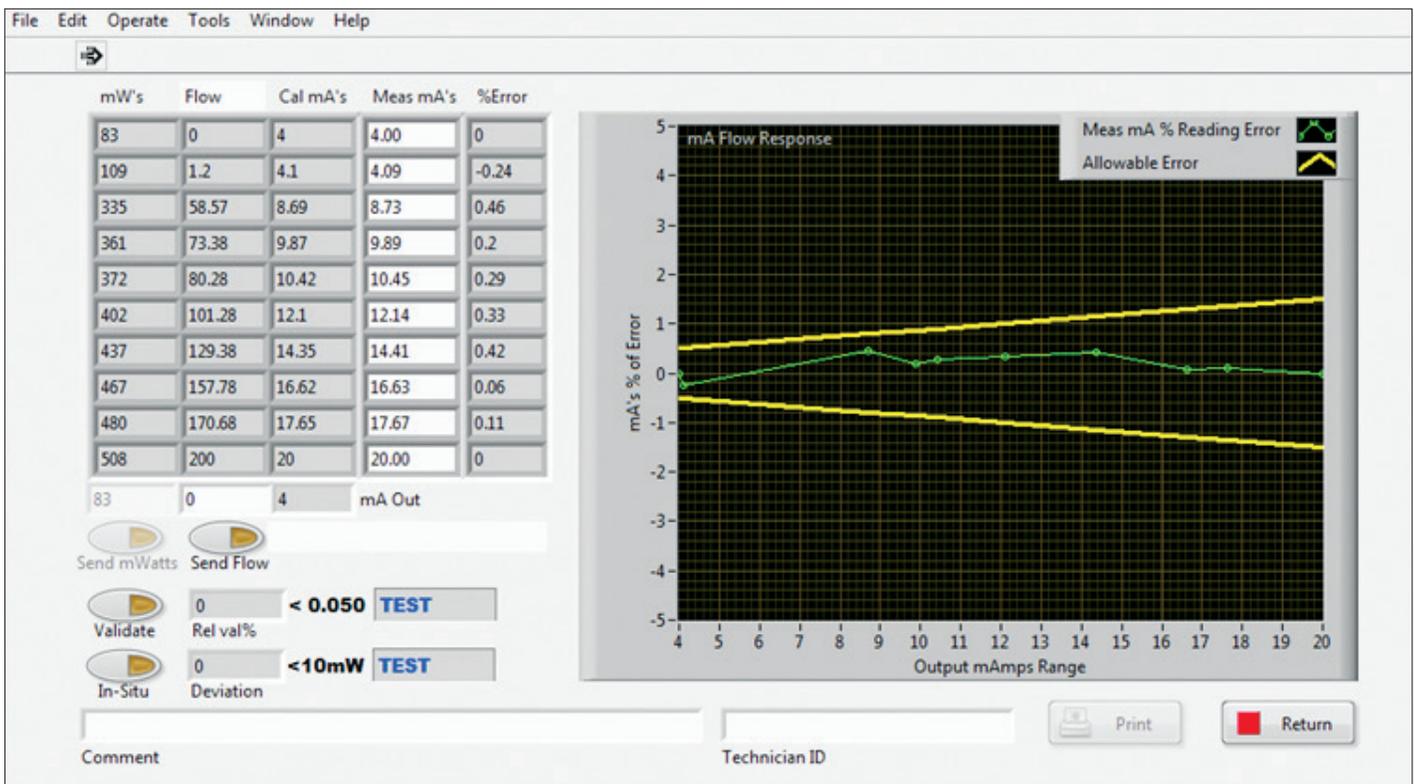
- 1) Verify that the flow meter is within original calibration and that the sensors are clean.
- 2) Confirm that the flow meter is measuring flow based on the original factory calibration and that the linear output signal is correct.

- 3) Check or change the configuration of the instrument, such as changing pipe size or engineering units.

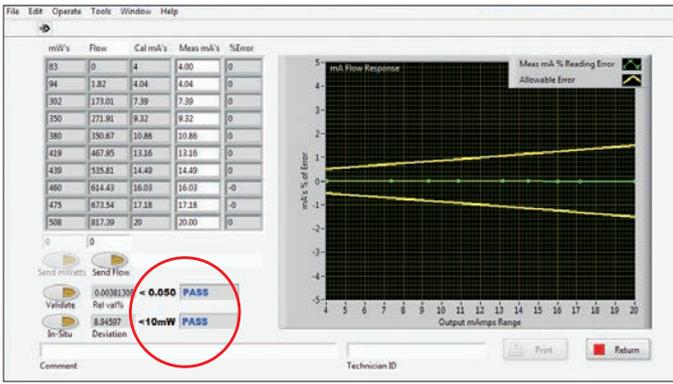
Calibration and Functional Checks

To confirm that the flow meter is providing the correct mA output signal the user can enter a flow rate and INSIGHT will command the Prime to generate that flow rate. The display of the Prime will show this data, and the Prime will generate the 4-20 mA output signal that corresponds to this flow. This permits the user to check that the flow meter output signal matches the expected value.

INSIGHT will also provide a 10 point loop evaluation which verifies the output signal from the Prime matches the original calibration data. The expected output signal from the Prime is compared with the actual output signal entered by the user. INSIGHT will determine and graph any error between the expected signal and the actual analog output as shown below.



10 point loop evaluation



Pass-fail tests

Test Performed to Verify Calibration Includes:

1) Power off sensor validation test where **INSIGHT** compares the electrical values of the two RTD sensors to ensure that they are within the original specifications.

2) In-situ calibration verification under a no flow condition. This proven test verifies that the zero flow signal obtained during the test matches the zero flow signal obtained during calibration under the same operating conditions. When this occurs, the user can be confident that the entire calibration curve of the Sage Prime has not shifted.

When the flow meter passes both these tests, the user can be assured that the flow meter is performing per the original calibration and that the sensors are clean.

The test results provide a quantitative value along with a pass/fail.

Once the test is completed, a report giving an analysis of the operation of the flow meter is developed and can be printed for the user's internal documentation or be provided to any authoritative agency to confirm the accuracy of the flow meter.

mW's	Flow	Cal mA's	Meas mA's	%Error
77.000	0.000	4.000	4.000	0.000
82.000	6.000	4.020	4.020	0.000
367.000	1256.774	8.020	8.020	-0.000
411.000	1715.476	9.490	9.490	0.000
444.000	2112.929	10.760	10.760	-0.000
485.000	2690.046	12.610	12.610	0.000
510.000	3087.932	13.880	13.880	-0.000
539.000	3588.980	15.480	15.480	0.000
566.000	4102.008	17.130	17.130	0.000
608.000	5000.000	20.000	20.000	0.000

- Min Flow = 0.050
 - Max Flow = 50.000
 - mW Zero = 80
 - mW Max = 607
 - Filtering = 0.500
 - K Factor = 1.000
 - Cal Val = 76.187

***** VALIDATION RESULTS *****

- Sensor Relative Variance = 0.004% (< 0.050) SCORE = PASS <--

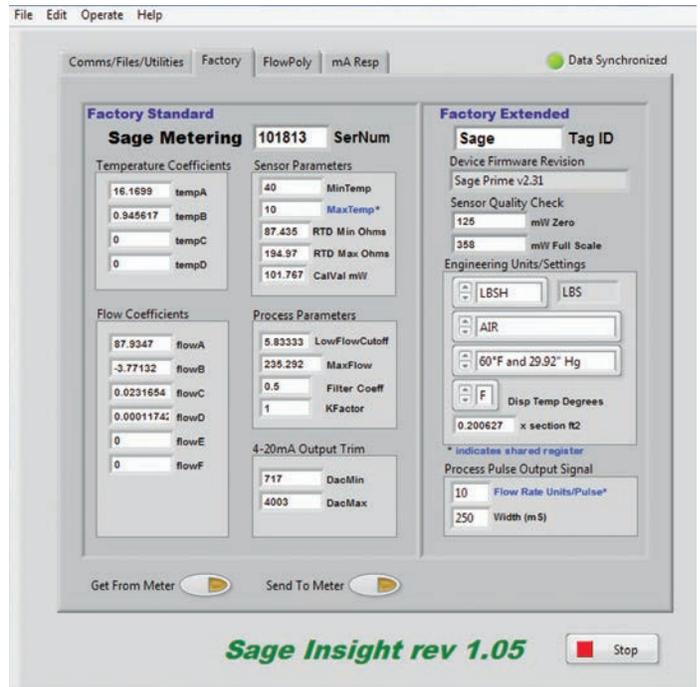
***** IN-SITU RESULTS *****

- Sensor mW Deviation = 17.797 (< 10.000) INDICATION = FAIL <--
 - CONTAMINATION SUSPECTED

Configuration Changes

Changes in the process conditions may necessitate changes in the configuration of the Sage Metering flow meter. Sage Metering can assist in developing new calibration parameters, if needed, which can easily be loaded into the flow meter using **INSIGHT** software. Such items as different operating range, K factor, pipe size, units of measurement, re-range output signal, can all easily be changed with **INSIGHT**.

Context sensitive help screens assist the user in understanding the functionality of the various entries.



All newly purchased Sage Prime flow meters will be compatible with **INSIGHT**. For older Sage Prime flow meters, backward compatibility is achieved by contacting the Sage Service Department. Simply supply your flow meter's serial number, and they will send you an updated file containing all of the data from the original calibration formatted to be compatible with your new **INSIGHT** software. This data can be directly read into **INSIGHT**, and will automatically render your older Prime compatible with **INSIGHT**.

NOTE: **INSIGHT** requires **Windows 7** or higher and a Modbus to RS485 converter which is provided with the **INSIGHT** software. The flow meter must be provided with MODBUS communication capabilities.