

# CALIBRATION VALIDATION FOX MODEL FT3 GAS FLOW METER

## CAL-V™

### SENSOR AND ELECTRONICS TEST

#### INSITU

- Complete test of sensor elements and electronics
- In your pipe, under normal process conditions
- Operator-initiated via front panel, FT3 View™, or MODBUS
- Hold outputs at last value or go to zero; operator-selectable
- Test takes less than 5 minutes; 3 minutes typical
- Test results in pass/fail message
- Data saved in meter for look-up anytime
- Calibration Validation Certificate can be generated if test is initiated using FT3 View™ software

## Zero CAL-CHECK™

### SENSOR TEST AT ZERO FLOW VS. FIELD BASELINE

#### INSITU

- Customer-set zero flow baseline established under normal zero flow conditions
- Test compares sensor characteristics at zero flow with customer-set zero flow baseline
- Operator-initiated from front panel, FT3 View™, or MODBUS
- Fail condition indicates possible dirty sensor
- Use of Fox Packing Gland Assembly to retract probe is a convenient way to establish a zero flow condition
- Test takes less than 5 minutes after zero flow condition established
- Calibration Validation Certificate can be generated if test is initiated using FT3 View™ software

or

### SENSOR TEST AT ZERO FLOW VS. FACTORY BASELINE

#### OUT OF PIPE

- Test compares sensor characteristics at zero flow at ambient temperature and atmospheric pressure with factory characteristics
- Used to confirm Zero CAL-CHECK™ when insitu zero flow condition cannot be established
- Operator-initiated from front panel, FT3 View™, or MODBUS
- Test takes less than 5 minutes after out of pipe set-up complete
- Calibration Validation Certificate can be generated if test is initiated using FT3 View™ software

The CAL-V™ and Zero CAL CHECK™ features are of particular value in environmental monitoring applications where periodic calibration validation is mandated. For more information, contact a Fox Application Specialist at (831) 384-4300.

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## CREATIVE SOLUTIONS

Fox Thermal Instruments knows that customers want creative and effective solutions to some of their common process problems. Downtime due to equipment maintenance, or calibration, costs money and wastes valuable time. Calibration Validation of flow meters in the field provides assurance of the functionality of the meter and avoids the downtime associated with annual calibrations.

Used in succession, Fox's CAL-V™ and Zero CAL-CHECK™ Tests can give you the reassurance that your meter is performing accurately in the field without the need to interrupt flow or send the meter back to the factory. The tests are quick and easy to perform at any time and help with the challenging requirements for measuring the flow of air and gases.

### CAL-V™

The CAL-V™ feature is an in-situ calibration routine that validates the flow meter's calibration accuracy by testing the functionality of the sensor and its associated signal processing circuitry. This innovative approach lets you **validate instrument calibration in the pipe, at process conditions, with just a push of a button.** At the conclusion of the test, the meter will display a pass/fail message and the CAL-V™

data is saved in the meter for look-up at any time. CAL-V™ is an operator-initiated test that can be performed at any flow rate, including zero, and is completed in just three to four minutes. During the test, the meter's microprocessor adjusts the signal to the sensor elements and determines the resulting electrical characteristics. These site-determined characteristics are compared with the data that was collected and stored in the instrument electronics during the original factory calibration. Matching data within established tolerances confirms the meter is measuring accurately.

### Zero CAL-CHECK™

Zero CAL-CHECK™ is used to ensure that the flow meter still retains its original NIST-traceable calibration at zero flow.

### IN SITU Zero CAL-CHECK™

If zero flow can be established, the sensor does not need to be removed and the procedure can be done in the pipe. If zero flow cannot be established, a Fox Packing Gland Assembly is used to remove the sensor from the gas stream to simulate a "no flow" condition.

The test compares sensor characteristics at zero flow with customer-set zero flow baseline and takes less than five minutes to complete after

zero flow condition has been established.

### OUT OF PIPE Zero CAL-CHECK™

If zero flow cannot be established and the meter must be removed from the pipe, this test may be used. The test will compare the sensor characteristics at zero flow at ambient temperature and atmospheric pressure with the factory characteristics. This test can also be performed in less than five minutes once the set up is complete.

### EASY ACCURACY REPORTING

Both CAL-V™ and Zero CAL-CHECK™ can be initiated from the front panel, USB connection, or RS485 Modbus. If initiated by Fox's FT3 View™ software tool, CAL-V™ and Zero CAL-CHECK™ Calibration Validation Certificates can be produced at the conclusion of the tests.

This feature is of particular value in environmental monitoring applications, such as flare and vents, where periodic calibration validation is mandated. This in situ calibration validation helps operators comply with environmental mandates and eliminates the cost and inconvenience of annual factory calibration. It can also be used to streamline quality assurance, improve process initiatives, and apply scheduled maintenance procedures.