Fox Thermal
Precision Mass Flow Measurement
An ONICON Brand

MODEL FT1 FLOW METER TROUBLESHOOTING GUIDE

This document has been created to assist Fox Thermal's technical service staff to resolve flow meter problems. Your assistance to provide complete details is appreciated. At times, you may need to refer to the FT1 Instruction Manual. A link to the Fox Thermal model FT1 Instruction Manual is located on the "Downloads" tab of the FT1 product webpage or you can use the direct link below:
https://www.foxthermal.com/products/pdf/ft1/ft1-manual.pdf
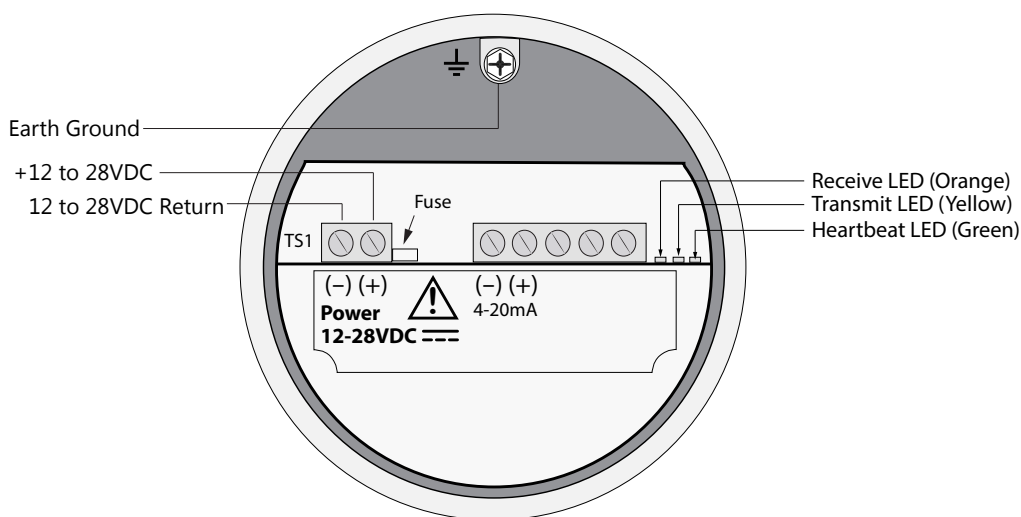
Section A: General information:

1. What is the serial number and model number of the flow meter?

2. Please describe the problems in detail.

3. Approximately when did the problem start? Did the flow meter ever work properly or has the problem existed since the initial installation?

Section B: Troubleshooting:

1. Please provide all alarm codes shown on the display #3 of the meter. You can also read the alarms using a laptop and Fox's FT1 View™ software. Refer to FT1 Instruction Manual for a full list of alarm codes.

2. What is the measured input power to the flow meter?

Figure B.1: FT1 Wiring Access and Location of Fuse, USB, and LED Indicators

Earth Ground
+12 to 28VDC
12 to 28VDC Return
Fuse
TS1
(−) (+)
Power
12-28VDC
(−) (+)
4-20mA
Receive LED (Orange)
Transmit LED (Yellow)
Heartbeat LED (Green)

3. Test/Check fuses and LED status lights for FT1.

    •   With the power off, take a resistance measurement across the fuse to ensure it measures less than 1 ohm.

    •   Is the LP3 LED on main board blinking once per second?

4. Have any of the flow meter settings been changed since you received the meter from Fox?

Section C: Investigating flow meter inaccuracy:

1. How high or low is the flow meter reading and at what flow rate? Please provide specific data.

2. Confirm that the 4mA and 20mA scaling in the PLC or DCS matches the scaling in the flow meter's settings. If you are using the 4-20mA output also confirm that the measurement unit (SCFM, KG/HR, NM3H, etc.) in the Fox meter is the same as in your PLC/DCS.

3. Did the meter ever read accurately or do you believe it has measured incorrectly since it was installed?

4. If measuring a gas mixture, have you checked to be sure that the mixture parts equal 100%? If not, what gas are you currently measuring?

5. Has there been any change in meter location or pipe configuration?

6. Is the insertion depth setting in accordance with Fox Thermal installation instructions? Refer to FT1 Instruction Manual for insertion depth.

7. What is the inside diameter (ID) of the pipe? Is the actual pipe ID the same as listed on the flow meter's Calibration Certificate?

8. Compare the STP (Standard Temperature and Pressure) settings (values and units) in the meter with the information recorded on the calibration certificate. Do the settings match? This is a requirement for accurate measurement.

9. How much straight pipe is upstream and downstream of the flow meter?   Fox recommends a minimum of 15 diameters of straight pipe upstream of the flow meter and 10 diameters downstream. Refer to FT1 Instruction Manual for upstream and downstream conditions for insertion and flowbody types.

10. Is the flow indicator on the flow meter probe pointing in the direction of flow? If your meter is an inline-type, is the flow body or spool piece installed with the flow conditioner on the upstream side of the sensor? Refer to the FT1 Instruction Manual for information regarding the direction of flow.

For assistance contact the Fox Thermal Service Department:
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