

Natural Gas & Propane Immersible Thermal Gas Mass Flow Meter

Features

- Fast response flow meter optimized for natural gas or propane measurement applications
- 200 millisecond response to changes in flow rate
- Programmable pulse output for remote totalization
- Optional Modbus communication
- Smart electronics permit field adjustment of critical flow meter settings
- Field validation of flow meter calibration
- Outstanding rangeability
- 2 x 12 backlit LCD display totalizer values along with instantaneous flow display
- Minimal flow blockage and low pressure drop
- CE approved

SIERRA[®]
INSTRUMENTS
THE MASS FLOW COMPANY



For information online...

www.sierrainstruments.com

BOILER-TRAK™



Description

Sierra Instruments' Boiler-Trak™ Immersible Thermal Mass Flow Meter provides an optimized solution for natural gas or propane flow measurement applications. Boiler-Trak is designed to provide an economical solution to new regulations for the burning of natural gas or propane in heaters and boilers. The meter's sensor offers long-term reliability and a 200 millisecond response to changes in flow rate.

The versatile microprocessor-based transmitter integrates the functions of flow-range adjustment, meter validation and diagnostics in a probe-mounted NEMA 4X (IP65) housing. Mass flow rate and totalized flow, as well as other configuration variables, are displayed on the meter's 2 x 12 backlit LCD panel.

The meter also provides an optical/galvanic isolated 4-20 mA output and two alarm outputs along with a programmable pulse output for remote totalization. An optional Modbus Communications package is also available. The programmable transmitter is easily configured via RS-232 and Sierra's Smart Interface™ Windows™ based software (supplied with the meter) or three push buttons in the device. Boiler-Trak is suitable for pipes or ducts from 1.25-inches to 6-inches.

Windows is a registered trademarks of Microsoft.

The information contained herein is subject to change without notice.

Performance Specifications

Accuracy of Point Velocity

+/- 1% of full scale (actual gas calibration)
 +/- 1% of full scale +/- 3% of reading (correlation)

Repeatability

+/- 0.2% of full scale

Temperature Coefficient

+/- 0.02% of reading per °F within +/- 50°F of customer specified conditions
 +/- 0.03% of reading per °F within +/- 50°F to 100°F of customer specified conditions
 +/- 0.04% of reading per °C within +/- 25°C of customer specified conditions
 +/- 0.06% of reading per °C within +/- 25°C to 50°C of customer specified conditions

Pressure Coefficient

.02% per 7 kpa for natural gas / Methane / Propane

Response Time

200 milliseconds to 63% of final velocity value

Operating Specifications

Gases

Natural gas, Propane, Methane

Gas Pressure

0 psig to 120 psig (0 to 8 barg) Note: actual gas calibration limited to 30 psig (2 barg)

Pressure Drop

Negligible

Gas & Ambient Temperature

Gas . . . -40°F to 176°F (-40°C to 80°C)

Note: actual gas calibration limited to 50°F to 100°F (10°C to 38°C)

Ambient . . . -40°F to 120°F (-40°C to 50°C)

Power Requirements

15 to 18 VDC (regulated), 625 mA maximum

Note: no other option available due to safety consideration

Output Signal

Linear 0–5 VDC and 4–20 mA proportional to mass flow rate. *Modbus Optional

Standard Calibrated Flow Rates

In various sizes of schedule 40 piping - STP = 70°F, 1atm (21°C, 101.3 kpa)	
1.25"	80 SCFM (2.1 NM ³ /min)
1.5"	110 SCFM (2.9 NM ³ /min)
2"	185 SCFM (4.9 NM ³ /min)
2.5"	265 SCFM (7.0 NM ³ /min)
3"	410 SCFM (10.8 NM ³ /min)
4"	705 SCFM (18.5 NM ³ /min)
6"	1600 SCFM (42.1 NM ³ /min)

Tables

(L) Dimensions

Code	L
L04	4.0 (101.6)
L06	6.0 (152.4)
L09	9.0 (228.6)
L13	13.0 (330.2)

All dimensions are inches. Millimeters are in parentheses. Certified drawings are available on request.

Operating Specifications (cont.)

Alarms

Hard contact user-adjustable high and low
 Dead band adjustable with Smart Interface™ software
 Relay ratings Maximum 42 VAC or 42 VDC, 140 mA

Displays

Alphanumeric 2 x 12 digit backlit LCD
 Adjustable variables via on-board switches (password protected)
 or with Smart Interface™ software
 Adjustable variables. . Full scale (50 to 100 %)
 Time Response (1 to 7 seconds)
 Correction factor setting (0.5 to 5)
 Zero and span

Totalizer

Eight digits (9,999,999) in engineering units
 Resettable by software or on-board switches

Software

Smart Interface™ Windows™-based software
 Minimum 8 MB of RAM, preferred 16 MB of RAM
 RS-232 communication
 Additional features. . . Alarm dead band adjustment
 Low flow cut-off adjustment
 Linearization adjustment
 Save / Load configurations
 Flow meter validation

Physical Specifications

Wetted Material

Probe. 316SS
 Sensor. 304SS, glass coating epoxy

Enclosure

NEMA 4X (IP65) powder-coated cast aluminum

Electrical Connections

One 1/2-inch female NPT

Mounting

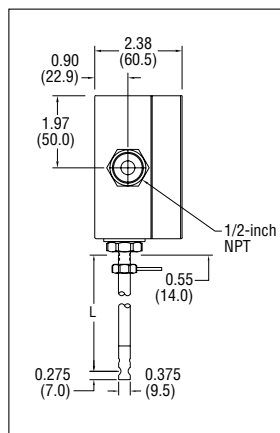
3/8-inch tube compression fitting with 1/2-inch male NPT

Certifications

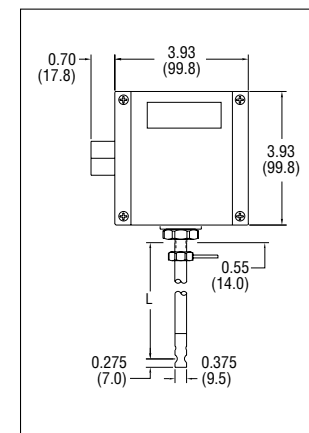
CE approved

Dimensional Specifications

NEMA 4X – Side View (EN2)



NEMA 4X – Front View (EN2)



All dimensions are inches. Millimeters are in parentheses. Certified drawings are available on request.

Ordering the 620S BT

620S BT

PART NUMBER

620S BT Boiler-Trak™ Mass Flow Meter

PROBE LENGTH

L04 3.7 - inches (9.5 cm)
L06 6 - inch (15 cm)
L09 9 - inch (23 cm)
L13 13 - inch (33 cm)
 Longer: consult factory

MOUNTING ACCESSORIES

M1 Compression Fitting
 3/8-inch probe feed through by x 1/2-inch Male NPT

ELECTRONICS ENCLOSURE

M1 NEMA 4X (IP65) Enclosure
 Mounted directly on probe.

OUTPUT SIGNAL

V1 0-5 VDC, Linear
V3 0-10 VDC, Linear
V4 4-20 mA, Linear

DISPLAY

NR No Readout
DD Digital Display

SPECIFY GAS

8 Methane (natural gas) calibration (+/- 1.0% full scale)
9 Methane (natural gas) correlation (+/- 3.0% reading plus 1.0% full scale)
12 Propane calibration (+/- 1.0% full scale)
13 Propane correlation (+/- 3.0% reading plus 1.0% full scale)

**Note: For other gases, please use Sierra Model 620S or 640S*

OPTION 1 (DIGITAL COMMUNICATIONS)

PULSE Pulse
MB MODBUS

--	--	--	--	--	--	--	--

--	--

--	--

--	--

--	--

--	--

--	--

--	--

--	--



SIERRA[®]
INSTRUMENTS
THE MASS FLOW COMPANY

BOILER-TRAKK[™]

SIERRA INSTRUMENTS, NORTH AMERICA • 5 Harris Court, Building L • Monterey, California • (800) 866-0200 • (831) 373-0200 • Fax (831) 373-4402 • www.sierrainstruments.com

SIERRA INSTRUMENTS, EUROPE • Bijlmansweid 2 • 1934RE Egmond aan den Hoef • The Netherlands • +31 72 5071400 • Fax: +31 72 5071401

SIERRA INSTRUMENTS, ASIA • Rm.618, Tomson Centre, Bldg. A • 188 Zhang Yang Road • Pu Dong New District • Shanghai, P.R. China 200122 • +8621 5879 8521/22 • Fax: +8621 5879 8586