

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

BoilerTrak™
620S-BT



DESCRIPTION

Sierra Instruments' BoilerTrak™ Immersible Thermal Mass Flow Meter provides an optimized solution for natural gas or propane flow measurement applications. BoilerTrak 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. Optimized for natural gas and propane measurement for 1, 2, 3, 4 inch Sch. 40 pipe sizes.



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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

0.02% of full scale per psi 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

15V models operate from 15-18VDC (regulated) and draw 625 mA maximum.
24V models operate from 18-24VDC (regulated) and draw 850 mA maximum.

Always refer to the data label on the product, which specifies the DC power input range, before connecting power to the flowmeter.

Warning! Older BoilerTraks, which operated at 15-18VDC, must stay at 15-18VDC.

Standard Calibrated Flow Rulesv	
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)

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

See page 3. All dimensions are inches. Millimeters are in parentheses .
Certified drawings are available on request.

Operating Specifications (cont.)

Output Signal

Linear 0–5 VDC and 4-20 mA proportional to mass flow rate.
Modbus RTU Digital Communication

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 (99,999,999) 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 glass coating epoxy

Enclosure

NEMA 4X (IP65) powder-coated cast aluminum

Electrical Connections

One 1/2-inch female NPT

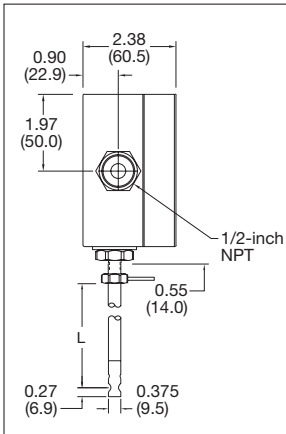
Mounting

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

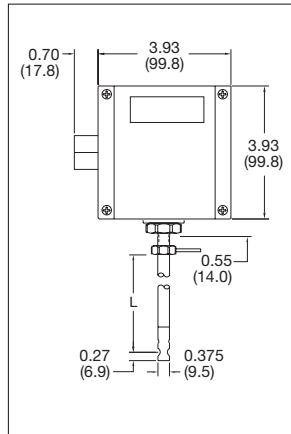
Certifications

CE approved

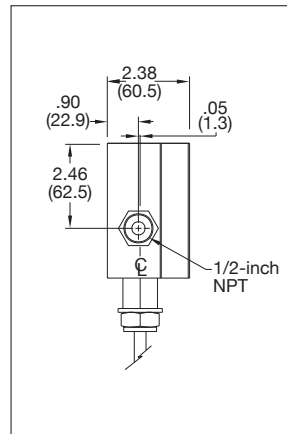
NEMA 4X—
Side View (EN2)



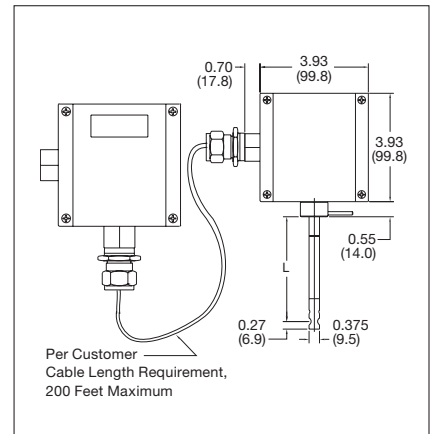
NEMA 4X—
Front View (EN2)



NEMA 4X with Junction Box—
Side View (EN4)



NEMA 4X with Junction Box—
Front View (EN4)



ORDERING THE 620-BT

Features						Options				
620S-BT										
Parent	1	2	3	4	5	6	1	2	3	4

Instructions: To order the 620S-BT please fill in each number block by selecting the codes from the corresponding features and options below and following pages.

Parent Number

620S-BT	BoilerTrak™ Insertion Mass Flow Meter optimized for natural gas and propane. 15V-24VDC input power with a 3/8-inch in diameter probe. Includes "Smart Electronics" with PC configuration software, CE approved.
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Feature 1: Probe Length

L04	4-inches (10 cm)
L06	6-inch (15 cm)
L09	9-inch (23 cm)
L13	13-inch (33 cm)
L24	24-inch (61 cm)

Feature 3: Output

V1	0-5 VDC, linear
V3	0-10 VDC, linear
V4	4-20 mA, linear (default)

Feature 5: Digital Communications

XX	None
P1	Totalizer pulse output (1 Hz max)
MB	Modbus communications protocol

Feature 2: Electronics Enclosure

N2	NEMA 4X (IP65) Enclosure. Mounted directly on probe.
N4	Remote NEMA 4X (IP65) Enclosure with Junction Box. Cable sold separately.

Feature 2a: Power Input (620S-BT Only)

15V	15-18 VDC standard operating input voltage to allow for up to 12,000 SFPM flows. For 620S-BT meters only.
24V	18-24V extended operating input voltage to allow for up to 17,000 SFPM flow. For 620S-BT meters only.

Note: New Feature 2a Power Input is for 620S-BT BoilerTrak models only. Do not select either of these for standard 620S.

Feature 4: Display

NR	No readout
DD	Digital display. 2 x 12 digit, backlit, LCD display

ORDERING THE MODEL 620S-BT (continued)

Feature 6b: Gas (620S-BT only)

08	Methane (natural gas) calibration (1.0% full scale)	12	Propane calibration (1.0% full scale)
09	Methane (natural gas) correlation (3.0% reading plus 1% full scale)	13	Propane correlation (3.0% reading plus 1.0% full scale)

Note: Full scale calibrations available to 17,000 SFPM, Power Input dependent, see Feature 2a.

Option 1 : Non-Resettable Totalizer

NRT	Totalizer cannot be reset in the field.
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Option 3: Mounting Orientation

LU	Mounting left side, flow up.
LD	Mounted left side, flow down.
RU	Mounted right side, flow up.
RD	Mounted right side, flow down.

Option 2: Remote Cable

C010	Remote cable, 10-foot length, 20AWG
C025	Remote cable, 25-foot length, 20AWG
C050	Remote cable, 50-foot length, 16AWG
C100	Remote cable, 100-foot length, 16AWG

Option 4: Oxygen Cleaning

O2C	Flow meter cleaned and bagged for oxygen (O2) service, includes cert.
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Measurably Different.®

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