FLOW

THERMAL MASS FLOW METER
FT2A SERIES

DESCRIPTION

The **Fox FT2A Series thermal mass flow meters** are perfect for measuring flow of natural gas, compressed air, propane, oxygen, and most common gases. The flow meters measure both flow rate and temperature with isolated 4-20 mA outputs for both variables. In addition, a separate pulse output can be used for logging total gas flow. The **FT2A** mass flow meters measure gas flow velocity as low as 50 sfpm (standard feet/minute) and as high as 50,000 sfpm, without the need for temperature or pressure compensation.

Each flow meter is calibrated at the factory using the same gas as the application. As a result, the **FT2A** more than meets EPA accuracy requirements for monitoring both boiler intake gas and combustion emissions.

Standard models include a 2 line x 16 character bright white backlit display for viewing flow rate, flow total, elapsed time, process gas temperature and alarms. The **FT2A** has an integral keypad for setting parameters such as signal spans, pulse frequency scaling, pipe area, zero cutoff, filtering, diagnostics and alarms.

The **FT2A Series** is available in two styles, inline or insertion. The inline models (male NPT) include built-in flow conditioners which reduce the need for long straight runs of upstream and downstream pipe. The most common inline sizes are 1/2" to 2" and other inline sizes are available. The insertion models install in a 3/4" coupling (field provided) and are available in insertion lengths to fit pipes from 1-1/2" to 72". Both inline and insertion styles come standard with stainless steel wetted parts, an integral NEMA 4X enclosure rated for Class I, Div. 2, Groups B,C,D hazardous areas, and a NIST calibration certificate.

APPLICATION

Natural gas, air, ammonia, biogas, butane, compressed air, carbon monoxide, carbon dioxide, ethane, ethylene, helium, hydrogen, methane, nitrogen, oxygen, propane, and more

FEATURES

- *Measures gas flow rate in SCFM, SCFH, NM3M, NM3H, KG/M, KG/H, and more, for complete choice in units*
- *Two 4-20 mA analog outputs, flow rate and temperature*
- *RS485-Modbus, Isolated BACnet MS/TP, Profibus-DP, DeviceNet and Ethernet Modbus TCP models available for network communication*
- *Insertion or inline mounting styles for installation choices*
- *All welded 316SS sensor construction and no moving parts for durability and long life*
- *Field programmable for flexibility in configuration*
- *Standard NEMA 4X enclosure designed for Class I, Division 2, Groups B, C, and D*
- *NIST traceable calibration standard to assure accuracy*
- *Free FT2A View™ Software available*

SPECIFICATIONS

Supply Voltage	24 VDC ±10% @ 833 mA, 85-264 @ 12 VA
Accuracy	Flow: ±1% of reading, ±0.2% of full scale
	Temperature: ±1.8°F (±1.0°C) over -40° to 250°F (-40° to 121°C)
Output Signal	2 isolated 4-20 mA outputs (one for flow and one for temperature); 1 isolated pulse output 0-100Hz, 10V p/p for flow (can be used for alarming)
Wiring	Two 3/4" NPT conduit connections on sides of housing
Wiring Terminations	Screw terminals
Communication Interface	
	USB Port-optional: for connection to computer, models available with RS485-Modbus
	BACnet MS/TP, Profibus-DP, DeviceNet and Ethernet Modbus TCP
Media Compatibility	Standard configuration for natural gas; other gases such as air, biogas, butane, carbon monoxide, carbon dioxide, nitrogen, methane, oxygen, propane, etc. optional.
Media Temperature Range	
	-40° to 250°F (-40° to 121°C)
Maximum Pressure Rating	
	500 psig (21 bar)
Materials of Construction	
	316 stainless steel sensor and flow body
Repeatability	±0.2% of full scale
Mounting	1/2" MNPT pipe section to 2" MNPT pipe section (standard inline), 3/4" MNPT coupling, 6" length probe for 1-1/2" to 6" pipes (standard insertion, other lengths available)
Operating Temperature	-40° to 158°F (-40° to 70°C) DC power
	-4° to 158°F (-20° to 70°C) AC powre
Enclosure Rating	NEMA 4X, designed for Class I, Division 2, Groups B, C & D hazardous areas
Weight	
Inline Models	8.0 lb (3.6 kg) to 10.0 lb (4.5 kg)
6" Insertion Model	6.0 lb (2.7 kg)
Approvals	CE, FM/FMc
Warranty	1 year

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FLOW

WIRING
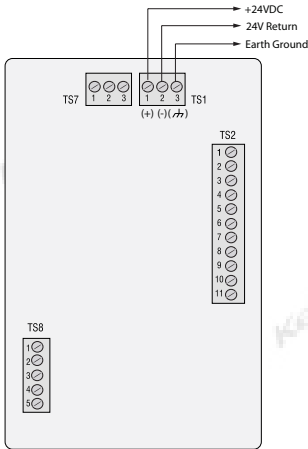
Figure 1: Connections for 24VDC Supply

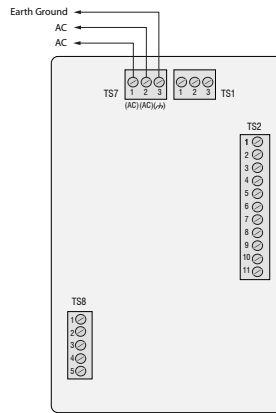Figure 2: Connections for Optional AC Power

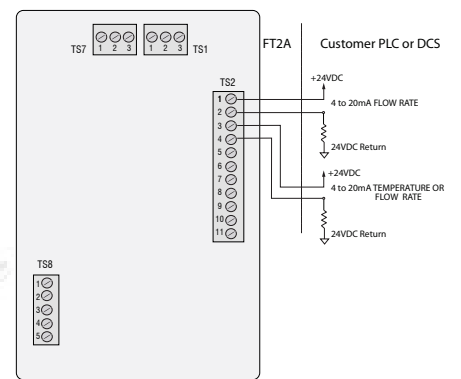Figure 3: 4 to 20mA Output Wiring for Customer-Supplied Power Source

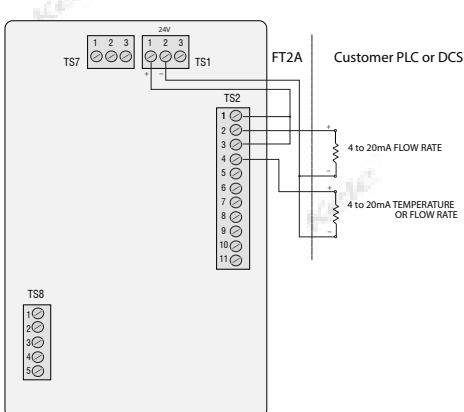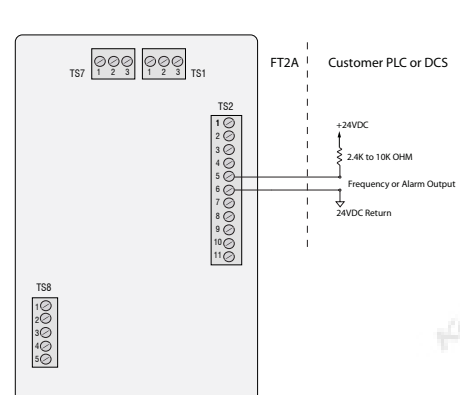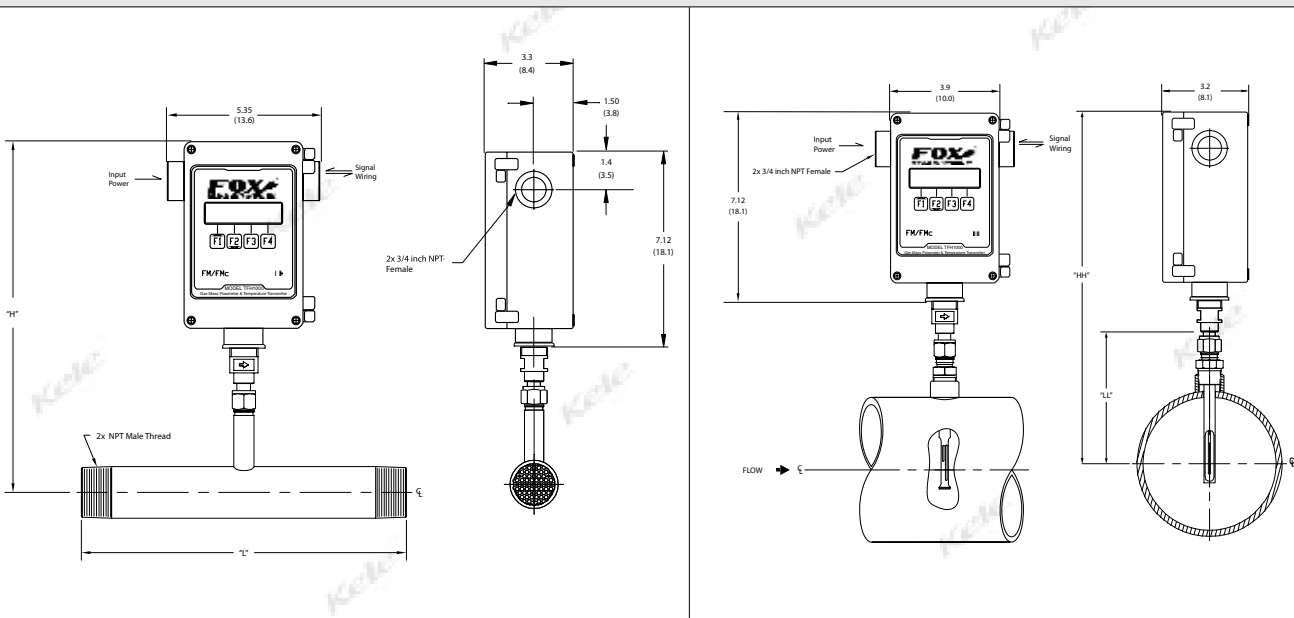Figure 4: 4 to 20mA Output Wiring for Loop Power Provided by FT2A

Figure 5: Frequency/Alarm Output Isolated (Recommended)

DIMENSIONS

ORDERING INFORMATION

MODEL	DESCRIPTION
FT2A	**Thermal Mass Flowmeter and Temperature Transmitter**
FT2A	**Thermal Mass Flowmeter with Standard Sensor -40 to 250°F (-40 to 112°C)**

	Insertion Sensor or Flow Body
06IE	Insertion meter with 6-inch probe
09I	Insertion meter with 9-inch probe
12I	Insertion meter with 12-inch probe
15I	Insertion meter with 15-inch probe
18I	Insertion meter with 18-inch probe
24I	Insertion meter with 24-inch probe
30I	Insertion meter with 30-inch probe
36I	Insertion meter with 36-inch probe
15R	15"Probe w/ 60 PSI retractor and full port valve - 3/4" male NPT
18R	18"Probe w/ 60 PSI retractor and full port valve - 3/4" male NPT
24R	24"Probe w/ 60 PSI retractor and full port valve - 3/4" male NPT
30R	30"Probe w/ 60 PSI retractor and full port valve - 3/4" male NPT
36R	36"Probe w/ 60 PSI retractor and full port valve - 3/4" male NPT
05P	1/2" male NPT ends SCH 40 12"
075P	3/4" male NPT ends SCH 40 12"
10P	1" male NPT ends SCH 40 12"
125P	1.25" male NPT ends SCH 40 12"
15P	1.5" male NPT ends SCH 40 12"
20P	2" male NPT ends SCH 40 12"
25P	2.5" male NPT ends SCH 40 18"
30P	3" male NPT ends SCH 40 18"
05F	1/2" 150# RF flanges SCH 40 18"
075F	3/4" 150# RF flanges SCH 40 12"
10F	1" 150# RF flanges SCH 40 12"
125F	1.25" 150# RF flanges SCH 40 12"
15F	1.5" 150# RF flanges SCH 40 12"
20F	2" 150# RF flanges SCH 40 12"
25F	2.5" 150# RF flanges SCH 40 18"
30F	3" 150# RF flanges SCH 40 18"
40F	4" 150# RF flanges SCH 40 18"
60F	6" 150# RF flanges SCH 40 24"

	Feature 2: Sensor Material	
S	Stainless Steel	

		Feature 4: Enclosure
1	Local NEMA 4X Enclosure, 24 VDC powered	
2	Local NEMA 4X Enclosure, 85 to 264 VAC powered	

	Feature 5: Bus Options
B0	No Communications Bus
MB	Modbus (RS 485)
BN	BACnet MS/TP (RS 485)

	Feature 6: Calibration
G3	Ar, CO2, H2, CH4, Natural Gas, 02: MF less than 1000 SCFM (1700 NM3H)

FT2A	06IE	S	1	MB	G3	*Example:* FT2A-06IE-S-1-MB-G3

Thermal Mass Flow Meter, 6 inch, Stainless Steel, Modbus

NOTE: An FT2A application data form must be filled out electronically to create an application ID#. Use the Fox Thermal web site to create an app id#. https://foxthermalinstruments.com/configure-meter/configurator.php

ACCESSORIES

102299	90° elbow mounting kit, makes housing upright in vertical pipe installations
102878	Teflon ferrule kit, for ease in removal of the insertion models
104870	USB Cable
DCP-1.5-W	Power supply, 24 VAC IN to 24 VDC Out
DCPA-1.2	Power supply, 120 VAC In to 24 VAC/24 VDC Out