





FLOW RANGE	0.005-1300 SLPM (0.01-2600 SCFH)	FD Series
MAX PRESSURE	150 PSIG (10.34 Bar)	

FlowStream®

FD Series

 CSA Certified
 CE Marked

TYPICAL APPLICATIONS

- Burner Management
- Leak Tests
- Gas Consumption
- Gas Blending
- Shielding Gas
- Laboratory R & D
- Laser Cutting
- Die Casting



Features

- Mass flow measurement with integrated temperature and pressure correction
- Visual readout of flow rate or total, pressure, and temperature
- Programmable set points
- No moving parts reduces maintenance
- Wide turndown for precision measurement at low or high flow
- 10-point calibration (NIST Traceable certificate available)

General Description

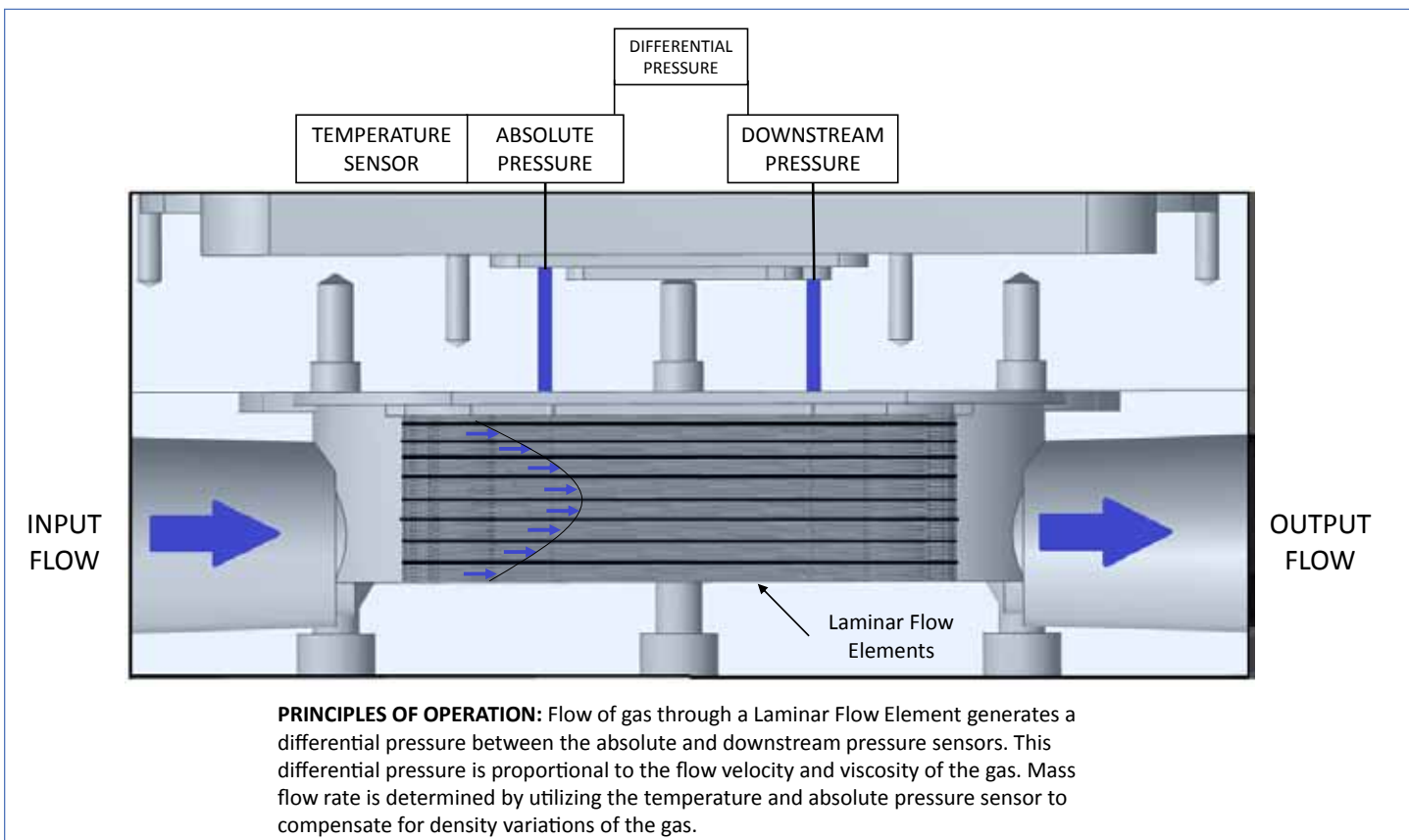
Laminar Flow Element differential pressure flowmeters are good for clean, dry, non-corrosive, non-condensing gasses. Corrected for temperature and pressure, it has a mass flow output. The USB serial data output make the meters suitable for laboratory and the internal lithium-polymer rechargeable battery is useful for portable measurement applications. NIST traceable and CSA units are Type 1 weatherproof. The accuracy is less than 1% of reading subject to limitations described in the Specifications section.

The integrated LCD display can indicate flow rate or total as well as gas temperature and pressure.

Calibration is done on air with empirically derived conversion factors. Oxygen cleaning optional.

Sizes range from 1/8 to 3/4 inch threaded connections. Anodized aluminum is the standard material for the meter body and 316 Stainless Steel is available for use where external corrosion is a factor.

Principles of Operation



General Specifications

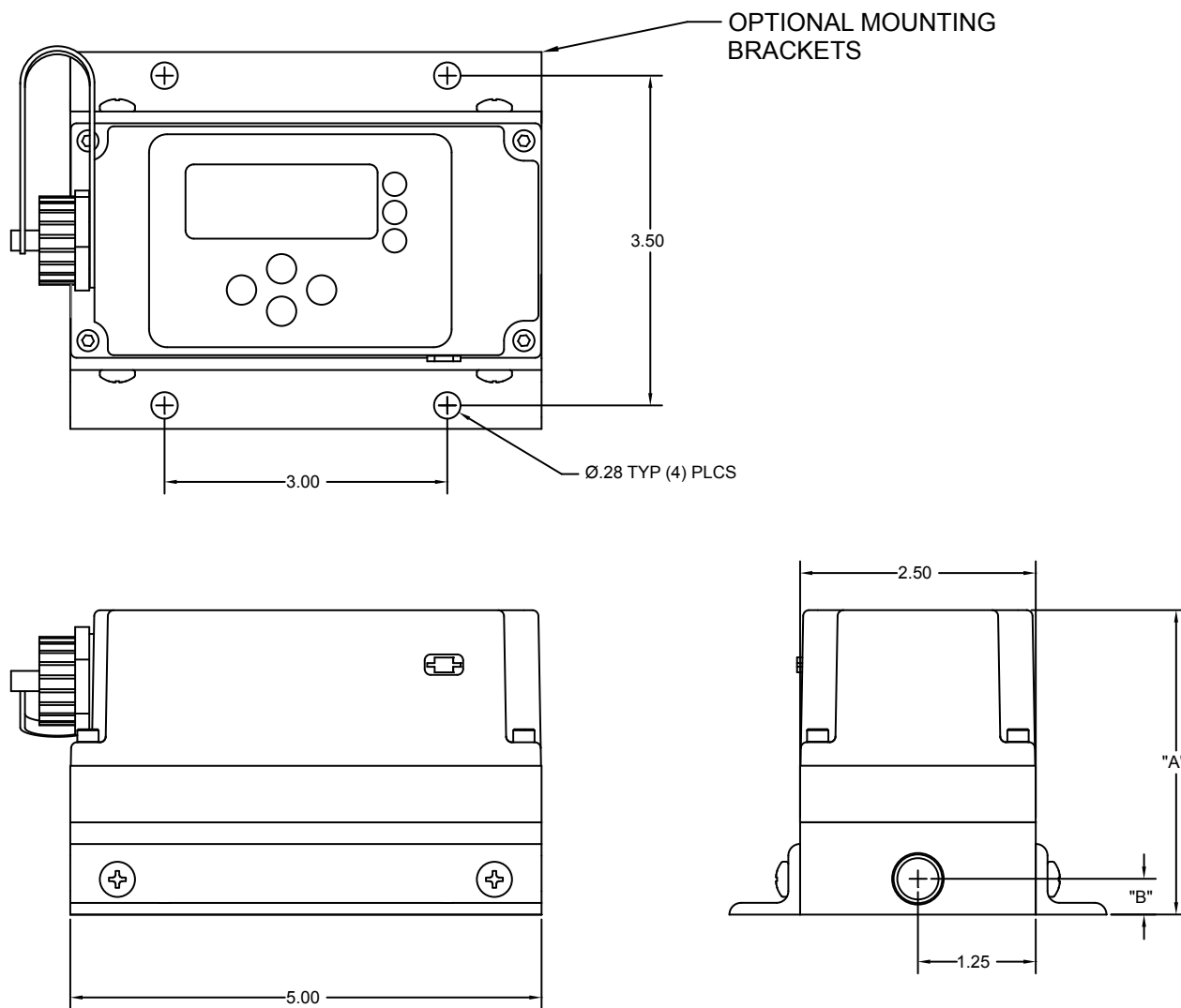
Flow Ranges

High Pressure Drop (2.6 psi)'	2 SLPM/ 5 SCFH F.S. to 1300 SLPM/2600 SCFH F.S.
Turndown Ratio:	400:1 (100:1 Turndown ratio available for units ranged under 20 SLPM/40 SCFH F.S.)
Accuracy:	< +/- 1% of reading
Repeatability:	0.2% of full scale
Response Time:	100 msec
Gases:	Air, Argon, Nitrogen, CO ₂ , Oxygen, Helium, Hydrogen, Methane, and user selectable
Gas Compatibility:	Non-corrosive, non-condensing
Maximum Operating Pressure:	150 PSIG
Burst Pressure:	200 PSIG
Maximum Operating Temperature:	104 °F (40 °C)
Minimum Operating Temperature:	32 °F (0 °C)
Process Connections:	1/8"-1/4"-3/8"-1/2"-3/4" NPT female (SAE, BSPT, BSPP available also)
Display:	Rate, total, pressure, temperature, multi-gas, alarms, multiple engineering units, battery status
Wetted Parts:	
Sensors	Ceramic, silicon, gold, epoxy, RTV
Flow Body Internals	Stainless steel, anodized aluminum, Viton®
Enclosure Rating:	Type 1

Note 1: Port to Port pressure drop at full-scale flow

Electrical Specifications

Supply Voltage:	Direct USB powered, and Internal Lithium-Polymer rechargeable battery
Output:	Direct USB serial data to PC, or USB memory stick data-logging (16GB Flash Drive included)
Electrical Connection:	Type A USB Receptacle
Battery Life:	40 hours of operation on full battery charge, 10 hours of operation when logging data to USB memory
Recharge Time:	2 hours to full charge (5 VDC/ 1A)



MODEL	DIM "A"	DIM "B"
100 SLPM	3.00"	0.38"
250 SLPM	3.25"	0.58"
500 SLPM	3.50"	0.63"
1000 SLPM	4.00"	0.88"



Select the appropriate symbols to build a model code:

Example: FD- E F- 2 N- 360 SCFH- CO2- USB

SERIES = **FD**

MATERIAL FOR METER BODY
 Anodized Aluminum = **E**
 316 Stainless Steel = **I**

SEALS
 Viton® = **F**
 Buna N = **B**

THREAD TYPE FOR THREADED PORT
 NPT = **N**
 SAE = **T**
 BSPT = **B**
 BSPP = **P**

	PIPE SIZE IN INCHES	
	NPT	SAE, BSPT, BSPP
1/8	= 1	2
1/4	= 2	4
3/8	= 3	6
1/2	= 4	8
3/4	= 6	12

FLOW RANGE IN SLPM		FLOW RANGE IN SCFH	
MIN FLOW	MIN/MAX F.S.	MIN FLOW	MIN/MAX F.S.
0.005	2.0	0.0125	5
0.075	30	0.15	60
0.05	5	0.1	10
0.45	180	0.9	360
0.45	180	0.9	360
0.75	300	1.5	600
0.75	300	1.5	600
1.75	700	3.5	1400
1.75	700	3.5	1400
3.25	1300	6.5	2600

* Argon flow rates are 75% of the above values (multiply by 0.75) due to higher viscosity

GAS TYPE
 Air = **A**
 Argon* = **R**
 Carbon Dioxide = **CO2**
 Helium = **HE**
 Nitrogen = **N**
 Oxygen = **O**
 Hydrogen = **H**
 Methane = **M**

OUTPUT
 USB Serial Data Link = **USB**

SPECIAL OPTIONS
 CLEAN FOR OXYGEN SERVICE = **C1**
 VACUUM USE = **ZVAC**
 SPECIFIC PRESSURE (I.E. P10) = **P__**
 ACTUAL GAS CALIBRATION = **GAS**
 (only available for: Helium, Nitrogen, CO2, Argon & Air)

ACCESSORIES
 MOUNTING BRACKETS = **8426-ASSY**



FLOW RANGE	0.005-1300 SLPM (0.01-2600 SCFH)	FP Series
PRESSURE	150 PSIG (10.34 Bar)	

FlowStream®

FP Series



TYPICAL APPLICATIONS

- Burner Management
- Leak Tests
- Gas Consumption
- Gas Blending
- Shielding Gas
- Laser Cutting
- Die Casting

Features

- Mass flow measurement with integrated temperature and pressure correction
- Visual readout of flow rate or total, pressure, and temperature
- Programmable set points
- No moving parts reduces maintenance
- Wide turndown for precision measurement at low or high flow
- 10-point calibration (NIST Traceable certificate available)

General Description

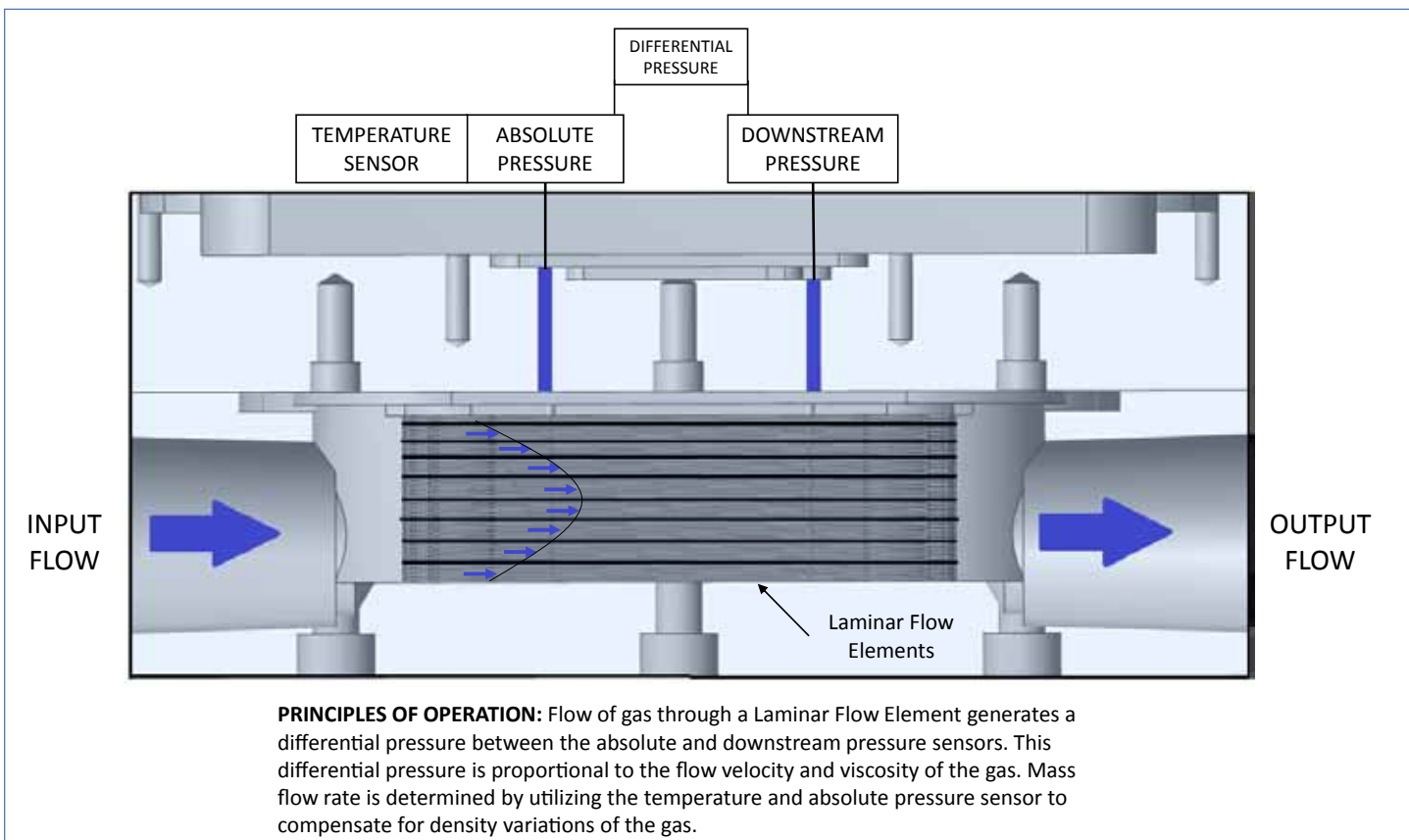
Laminar Flow Element differential pressure flowmeters are good for clean, dry, non-corrosive, non-condensing gasses. Corrected for temperature and pressure, it has a mass flow output. The analog (4-20 mA) output along with 2 programmable alarm set points make the meters suitable for process automation systems. NIST traceable and CSA units are Type 4 weatherproof. The accuracy is less than 1% of reading subject to limitations described in the Specifications section.

The integrated LCD display can indicate flow rate or total as well as gas temperature and pressure.

Calibration is done on air with empirically derived conversion factors. Oxygen cleaning optional.

Sizes range from 1/8 to 3/4 inch threaded connections. Anodized aluminum is the standard material for the meter body and 316 Stainless Steel is available for use where external corrosion is a factor.

Principles of Operation



General Specifications

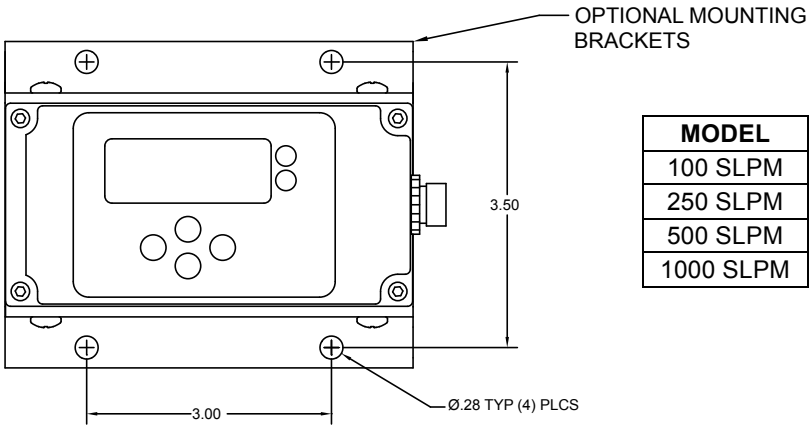
Flow Ranges

High Pressure Drop (2.6 psi)¹	2 SLPM/ 5 SCFH F.S. to 1300 SLPM/2600 SCFH F.S.
Turndown Ratio:	400:1 (100:1 Turndown ratio available for units ranged under 20 SLPM/40 SCFH F.S.)
Accuracy:	< +/- 1% of reading
Repeatability:	± 0.2% of full-scale
Response Time:	25msec
Gases:	Air, Argon, Nitrogen, CO ₂ , Oxygen, Helium Hydrogen, Methane, and user selectable
Gas Compatibility:	Non-corrosive, non-condensing
Maximum Operating Pressure:	150 PSIG
Burst Pressure:	200 PSIG
Maximum Operating Temperature:	176 °F (80 °C)
Minimum Operating Temperature:	-13 °F (-25 °C)
Process Connections:	1/8"-1/4"-3/8"-1/2"-3/4" NPT female (SAE, BSPT, BSPP available also)
Display:	LCD rate/total, pressure, temperature, multi-gas, alarms, multiple engineering units
Wetted Parts:	
Sensors	Ceramic, silicon, gold, epoxy, RTV
Flow Body Internals	Stainless steel, anodized aluminum, Viton®
Enclosure Rating:	Type 4

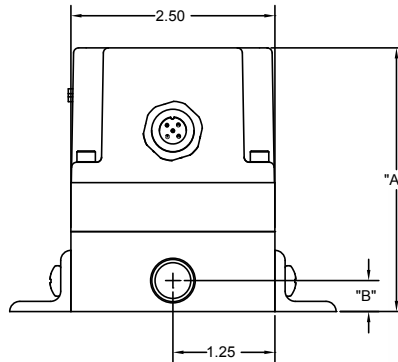
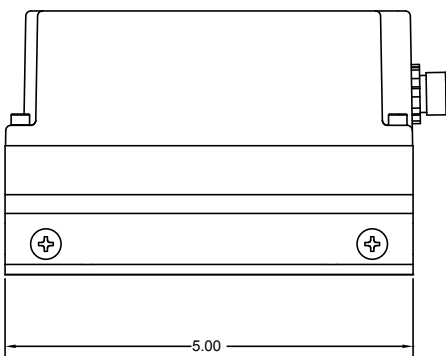
Note 1: Port to Port pressure drop at full-scale flow

Electrical Specifications

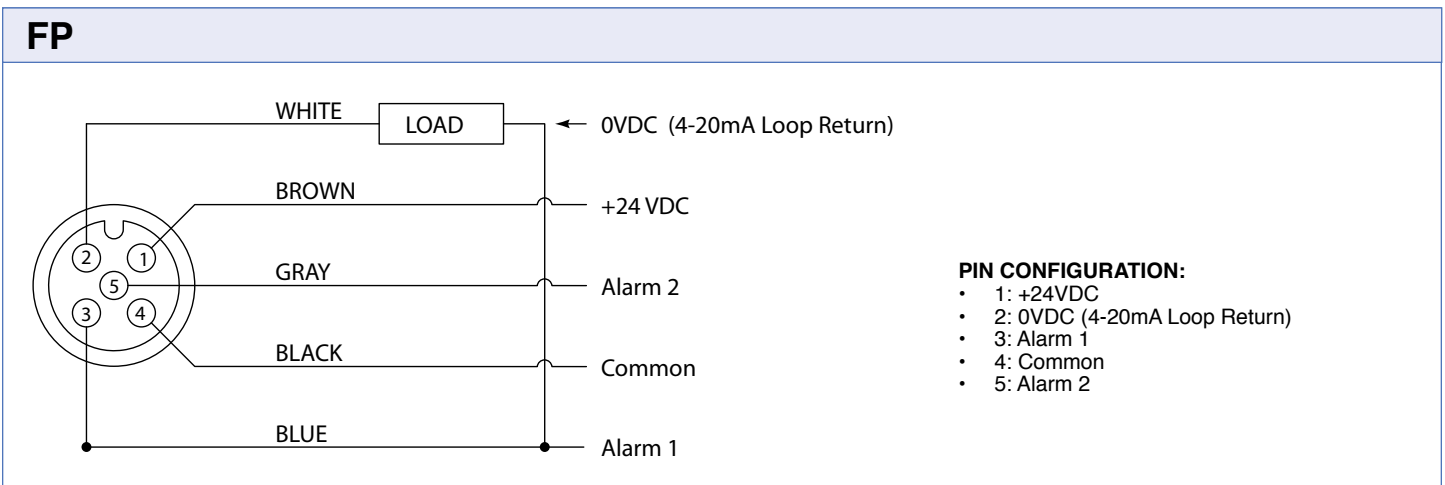
Supply Voltage:	10–24 VDC (loop-powered 4-20mA output)
Supply Current:	22 mA (max) for 4-20 mA loop-powered transmitters
Output:	4-20 mA (2-wire loop powered) with 2 Alarms
Electrical Connection:	5-pin connector



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PIN CONNECTOR PINOUTS



ACCESSORY CABLES AVAILABLE FOR PIN CONNECTOR METERS

Series	Description	Length in Meters	Part Number
FP	5 pin female	1	6241-1M
		3	6241-3M
		10	6241-10M

Select the appropriate symbols to build a model code:

Example: FP- E F- 2 N- 360 SCFH- CO2- X1B

SERIES = **FP**

MATERIAL FOR METER BODY
 Anodized Aluminum = **E**
 316 Stainless Steel = **I**

SEALS
 Viton® = **F**
 Buna N = **B**

THREAD TYPE FOR THREADED PORT
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PIPE SIZE IN INCHES	PIPE SIZE IN INCHES	
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 Carbon Dioxide = **CO2**
 Helium = **HE**
 Nitrogen = **N**
 Oxygen = **O**
 Hydrogen = **H**
 Methane = **M**

OUTPUT
 4-20 mA with 2 alarms = **X1B**

SPECIAL OPTIONS
 CLEAN FOR OXYGEN SERVICE = **C1**
 VACUUM USE = **ZVAC**
 SPECIFIC PRESSURE (I.E. P10) = **P__**
 ACTUAL GAS CALIBRATION = **GAS**
 (only available for: Helium, Nitrogen, CO2, Argon & Air)

ACCESSORIES
 MOUNTING BRACKETS = **8426-ASSY**