

# Model 831

## Pressure Transmitters



### Description

The Model 831 transmitters are the most durable, accurate and cost-effective fixed range pressure transmitter available. An all 316 stainless steel transmitter, it is designed for years of stable performance in even the toughest environmental and corrosive media conditions. With its all-welded construction, this transmitter is weatherproof and capable of a direct spray with forces up to 200 psi without internal leakage. The Model 831 (standard and low power) has FM and CSA explosion-proof ratings. The 831D (differential pressure) also carries the CSA explosion-proof rating. All Model 831s meet NACE standards for offshore applications. A one year warranty is standard with every unit.

The small size and light weight of the Model 831 transmitter eliminates the need for complicated mounting hardware and mechanical supports, thereby substantially reducing installation time. The in-line connection permits simple field wiring without the need for additional hardware, adding to the speed and ease of installation.

The standard Model 831 and the Model 831D feature a 4 to 20 mA output standard with a 12 to 30 VDC power supply. The Model 831 Low Power provides a three wire

1-5 or 0.8-3.2 voltage output and requires less than 30 milliwatts of total power to operate. The combination of low power requirement, small size, excellent performance and low price make the Model 831 Low Power Transmitter ideal for critical outdoor applications. This model requires 6 or 8-14 VDC excitation and is available in pressure ranges from 15 to 5000 psi.

### Features

- Available in Differential Pressure, Low Power or Standard version
- All welded 316L stainless steel construction and wetted parts
- 3/4 inch NPT female conduit connection cable
- 1/2 inch NPT female pressure port, 1/2" NPT male, 1/4" NPT male
- 24 inch cable length standard
- All models are CSA approved, explosion proof, and meet NACE standards for off-shore applications
- The Low Power and Standard versions are FM approved with the explosion proof rating

### Product Features

#### Model 831 Standard

- Available in pressure ranges from 6 psig to 5000 psig
- Rugged construction
- Available with conduit adapter
- Optional EMI protection

#### Model 831 Low Power

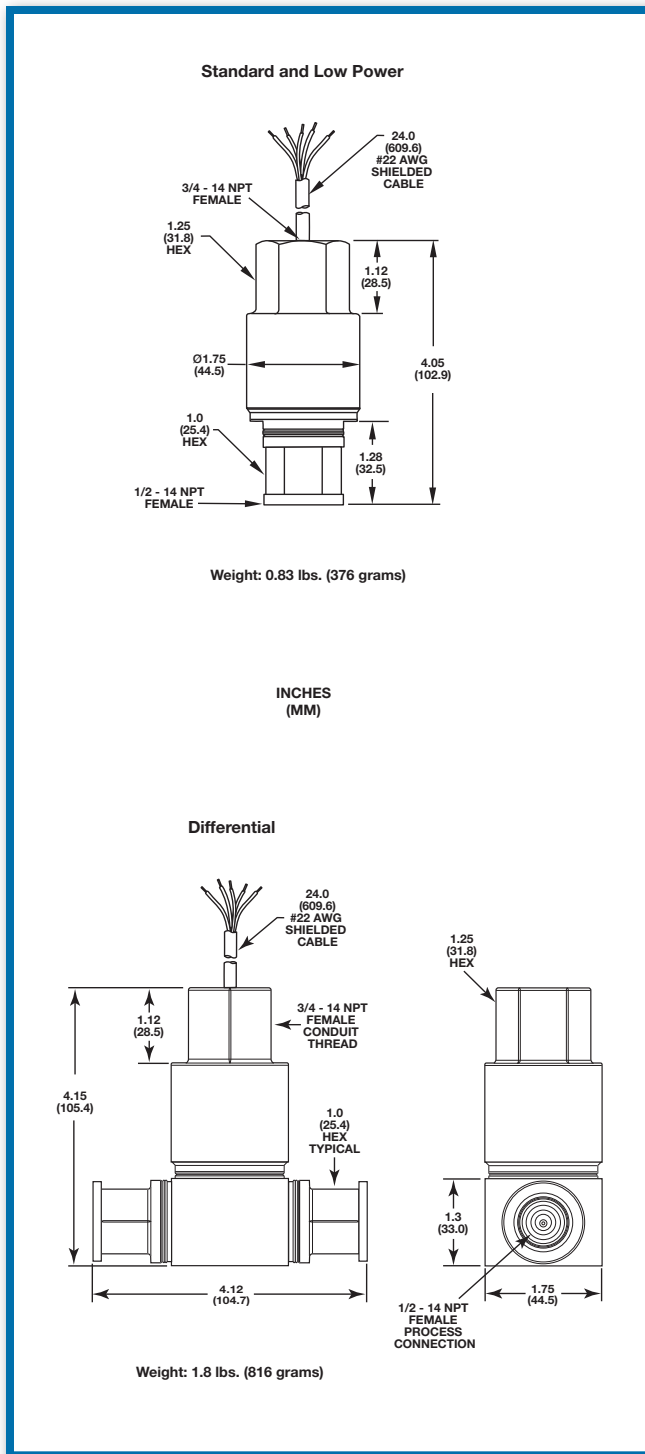
- Available in pressure ranges from 6 psig to 5000 psig
- 8 to 14 or 6 to 14 VDC with reverse polarity protection
- Perfect for solar or battery applications
- Current draw  $\leq 3$  mA
- Optional EMI protection

#### Model 831D

- Measures differential pressure
- Available in pressure ranges from 6 psid to 500 psid

# Model 831 Pressure Transmitters

## Dimensions



### SPECIFICATIONS:

Functional Specification Service

Standard Pressure Ranges \*\*

Output

Null Offset at 77°F (25°C)

Span Offset at 77°F (25°C)

Power Supply (Transmitter must be powered by an approved power supply.)

Loop Resistance (max.) for mA or Load (min.) for VDC

### TEMPERATURE LIMITS:

Operating and Electronics (Ambient)

Process Interface and Storage

Compensated

Burst Pressure

Overrange Limits

Humidity Limits

Accuracy

Stability

Temperature Effect (between -20° and 180°F (-29° and 82°C) Referenced to 77°F (25°C))

Zero and Span

Vibration Effect

Overrange Effect

### PHYSICAL SPECIFICATIONS:

Process Wetted Parts

Non Wetted Parts

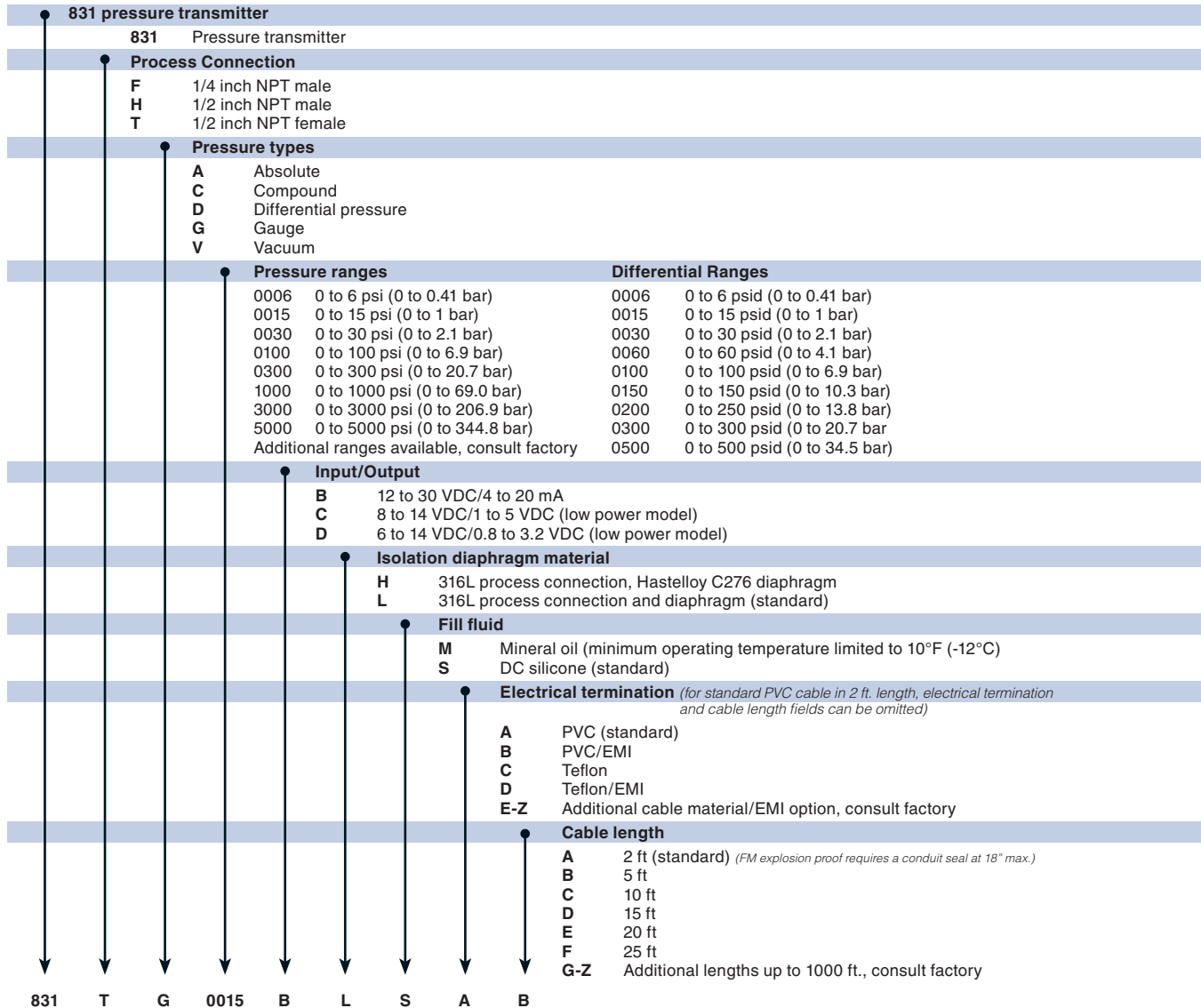
Safety Classifications

Model 831 Low Power Fixed Range Pressure Transmitter	Model 831 Standard (4-20 mA) Fixed Range Pressure Transmitter	Model 831D Differential Pressure Fixed Range Transmitter
Liquid, gas or vapor	Liquid, gas or vapor	Liquid, gas or vapor
0 to 6 psig (0 to 0.41bar) to 0 to 5000 psig (0 to 344.8 bar)**	0 to 6 psig (0 to 0.41bar) to 0 to 5000 psig (0 to 344.8 bar)**	0 to 6 psid (0 to 0.41bar) to 0 to 500 psid (0 to 34.4 bar)**
1-5 VDC or 0.8-3.2 VDC, limited to 14 VDC	4-20 mADC, limited to 30 mADC	4-20 mADC, limited to 30 mADC
For 1-5 VDC unit $\pm 1\%$ of span. For 0.8-3.2 VDC unit $\pm 2\%$ of span.	4.0 mA $\pm 2\%$ span	4.0 mA $\pm 1\%$ span
For 1-5 VDC unit $\pm 1\%$ of span. For 0.8-3.2 VDC unit $\pm 2\%$ of span.	16.0 mA $\pm 1\%$ span	16.0 mA $\pm 1\%$ span
8 to 14 or 6 to 14 VDC with reverse polarity protection	12 to 30 VDC with reverse polarity protection	12 to 30 VDC with reverse polarity protection
50k ohms minimum	900 ohms maximum at 30 volts	900 ohms maximum at 30 volts
-40 to 140°F (-40 to 60°C)	-40 to 140°F (-40 to 60°C)	-40 to 140°F (-40 to 60°C)
-40 to 212°F (-40 to 100°C)	-40 to 212°F (-40 to 100°C)	-40 to 212°F (-40 to 100°C)
-20 to 160°F (-29 to 71°C)	-20 to 160°F (-29 to 71°C)	-20 to 160°F (-29 to 71°C)
		2500 psig
300%	300%	3X FS differential pressure range
0-100% RH	0-100% RH	0-100% RH
$\pm 0.3\%$ of full scale including linearity (BFSL), hysteresis and repeatability at 25°C and 12VDC	$\pm 0.3\%$ of full scale including linearity (BFSL), hysteresis and repeatability at 25°C and 12VDC	$\pm 0.5\%$ of full scale including linearity (BFSL), hysteresis and repeatability at 25°C and 12VDC
<0.5% FS per 6 months	<0.5% FS per 6 months	<0.5% FS per 6 months
$\pm 2\%$ FS per 50°F (28°C)	$\pm 2\%$ FS per 50°F (28°C)	$\pm 2\%$ FS per 50°F (28°C)
$\pm 0.1\%$ of span for 3G to 200 Hz	$\pm 0.1\%$ of span for 3G to 200 Hz	$\pm 0.1\%$ of span for 3G to 2000 Hz
$\pm 0.15\%$ FS per 200% of maximum range	$\pm 0.15\%$ FS per 200% of maximum range	$\pm 0.15\%$ FS per 200% of maximum range
316L Stainless Steel (std) or Hastelloy C276	316L Stainless Steel (std) or Hastelloy C276	316L Stainless Steel (std)
316 Stainless Steel	316 Stainless Steel	316 Stainless Steel
PVC cable jacket (std)	PVC cable jacket (std)	PVC cable jacket (std)
Nylon cable strain relief	Nylon cable strain relief	Nylon cable strain relief
Buna-N cable seal	Buna-N cable seal	Buna-N cable seal
CSA (Canada and USA)	CSA (Canada and USA)	CSA (Canada and USA)
Explosion Proof for Class I, Division 1, Groups B, C, and D; Class II, Groups E, F, and G; Class III, Hazardous Locations and meets CSA requirements for Enclosure 4	Explosion Proof for Class I, Division 1, Groups B, C, and D; Class II, Groups E, F, and G; Class III, Hazardous Locations and meets CSA requirements for Enclosure 4	Explosion Proof for Class I, Div 1, Groups B, C, and D; Class II, Groups E, F, and G; Class III, Hazardous Locations and meets CSA requirements for Enclosure 4
(Conduit seal must be within 18 inches of transmitter.) Max. ambient = 140°F (60°C)	(Conduit seal must be within 18 inches of transmitter.) Max. ambient = 140°F (60°C)	(Conduit seal must be within 18 inches of transmitter.) Max. ambient = 140°F (60°C)
Factory Mutual (FM)	Factory Mutual (FM)	NACE
Explosion Proof for Class I, Division 1, Groups B, C, and D; Class II, Groups E, F, and G; Class III Hazardous Locations Indoor and Outdoor NEMA Type 4 Enclosure	Explosion Proof for Class I, Division 1, Groups B, C, and D; Class II, Groups E, F, and G; Class III Hazardous Locations Indoor and Outdoor NEMA Type 4 Enclosure	
NACE	NACE	

\*\*Alternate and very low pressure ranges available, consult factory

# Model 831 Pressure Transmitters

## Model Numbering:



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