Multi-Sense® Model 231RS

Wet-to-Wet, Differential, Multi-Configurable Pressure Transducer

231RS Cable Version

231RS Armored Cable Version

231RS Conduit Version

FEATURES

- Wet-to-Wet Transducer w/ Remote Sensors
- Conduit and Cable Versions
- Field Selectable Output - True 4 to 20 mA, 0 to 5, 1 to 5, and 0 to 10 VDC
- Each Unit Provides 4 Unidirectional and 4 Bi-directional Switch Selectable Pressure Ranges
- Field Accessible Push-Button Zero and Remote Zero
- Jumper Selectable Port Swap
- Optional LCD
- All Cast Aluminum, NEMA4 Rated Housing
- CE and RoHS Compliant

APPLICATIONS

- Energy Management Systems
- Process Control Systems
- Flow Measurement of Various Gases or Liquids
- Liquid Level Measurement of Pressurized Vessels
- Pressure Drop Across Filters

DESCRIPTION

The Model 231RS with remote sensors reduces labor, materials, and time. The sensors are installed directly into the pipe and electrical connection is made between the remote sensors and the Model 231RS via cables or conduit, reducing labor cost by one-third and the cost of copper to connect the pressure transducer to the pipe. Startup time is reduced since purging air out of the lines is not necessary.

The Multi-Sense® Model 231 Wet-to-Wet differential pressure transducer's all inclusive design provides users with field accessible ranging, choice of output and field zeroing.

NOTE: Setra quality standards are based on ANSI-Z540-1.
The calibration of this product is NIST traceable.

SPECIFICATIONS

Electrical Data (Voltage)	
Circuit	3-Wire
Excitation	15 to 30 VDC/18 to 30 VAC (Reverse Excitation Protected)
Output[4]	0 to 5 VDC, 0 to 10 VDC, 1 to 5 VDC
Output Impedance	30 Ohms
Circuit Consumption	8 mA (typ.) at 5 VDC, 8 mA (typ) at 10 VDC, 40 mA (typ.) at 18-30 VAC
Electrical Data (Current)	
Curcuit	2-wire (Reverse Excitation Protected)
Output[5]	4 to 20 mA
External Load	0 to 250 Ohms
Min. Supply Voltage (VDC)	15 + 0.02 x Resistance of receiver plus line)
Max. Supply Voltage (VDC)	30 + 0.004 x Resistance of receiver plus line)

Performance Data						
Accuracy RSS[1] (at constant temp.)						
Pressure Ranges A, B, C	±1.0% FS					
Pressure Ranges D	±2.0% FS					
Pressure Ranges (Selection Example, Pg 4.)						
Range Code	A	B	C	D	Max. Line Pressure	
RS1	50	25	10	5	50	
RS2	75	37.5	15	7.5	75	
RS3	100	50	20	10	100	
RS4	150	75	30	15	150	
RS5	250	125	50	25	250	
Pressure Media						
Liquids or Gases Compatible with 17-4 PH Stainless Steel Note: Hydrogen not recommended for use with 17-4 PH stainless steel						

Environmental Data	
Operating[3] Temperature °F (°C)	-4 to +185 (-20 to -85)
Storage Temperature °F (°C)	-4 to +185 (-20 to +85)
Vibration	10g from 50Hz to 2000 Hz
Shock	200g
Physical Description	
Case	Die Cast Aluminum, Powder Coated
Pressure Fittings	1/4-18 NPT Male
Electrical Connection	1/2 in. Conduit
Size	4.0 x 6 x 2 in. (102 x 152 x 51 mm)
Weight	1.3 lb
Thermal Effects[2]	
Compensated Range °F (°C)	+32 to +130 (0 to +54)
Zero/Span Shift %FS/100°F (50°C)	2.0 (1.8)
Warm-up Shift	<0.12% FS
Response Time	1 to 5 sec. (selectable)
Proof Pressure	2 x Full Scale
Burst Pressure	15 x Full Scale (50 psi), 10 x Full Scale (75 x 150 psi), 8 x Full Scale (250 psi)

[1] RSS of Non-Linearity, Hysteresis, and Non-Repeatability.
[2] Units calibrated at nominal 70°F. Maximum thermal error computed from this datum.
[3] Operating temperature limits of the electronics only. Pressure media temperatures may be considerably higher or lower.
[4] Calibrated into a 50K ohm load, operable into a 5000 ohm load or greater.
[5] Calibrated at factory with a 24 VDC loop supply voltage and a 250 ohm load.
Specifications subject to change without notice.

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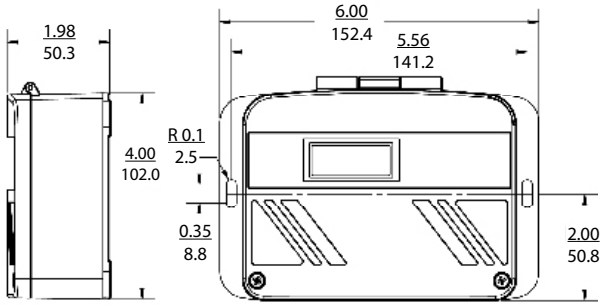
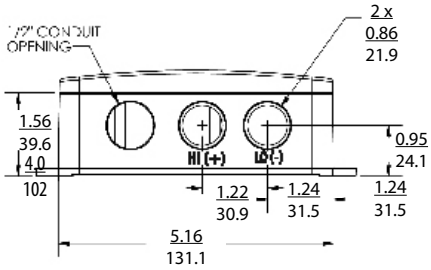
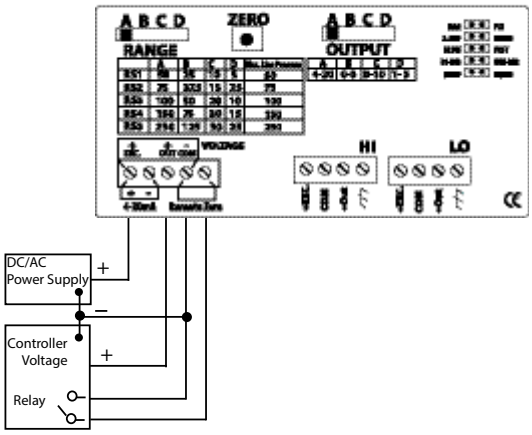


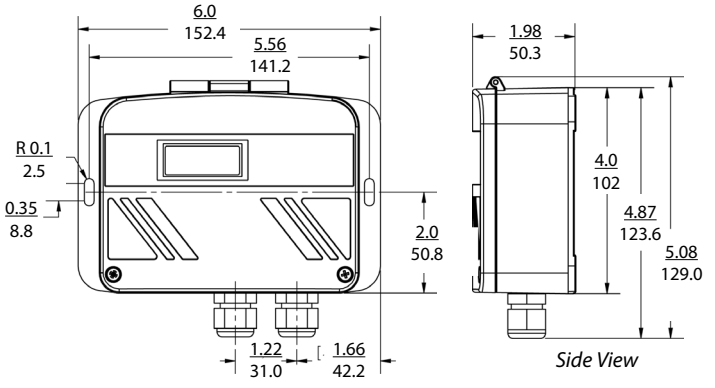


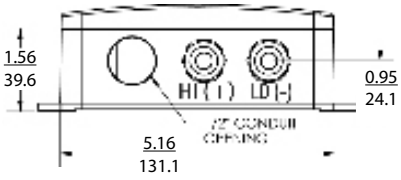
Conduit Version



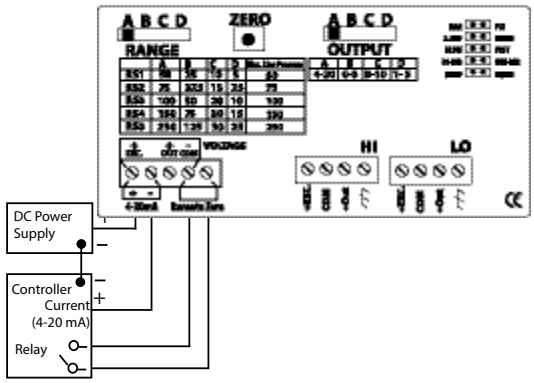
3-Wire - Voltage Output
0 to 5 VDC
0 to 10 VDC
1 to 5 VDC
Remote Zero

IN
MM





Cable Version



2-Wire - Current Output
4 to 20 mA
Remote Zero

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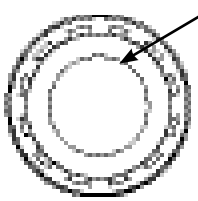
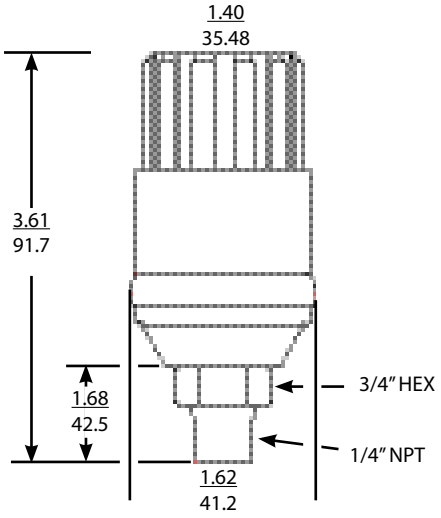
DIMENSIONS

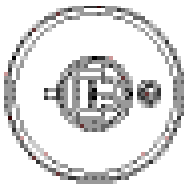
1/2 inch Conduit Opening



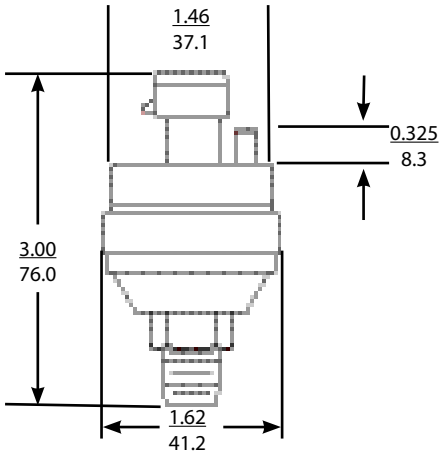
IN
MM



Transducer w/Conduit

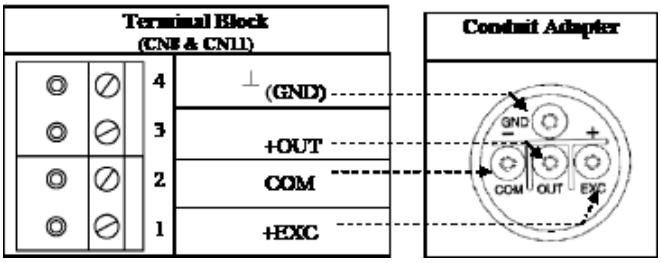


IN
MM

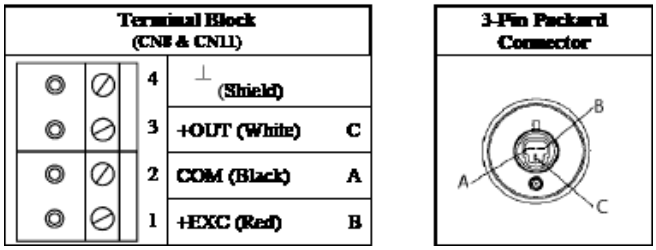


Transducer w/Packard Connector

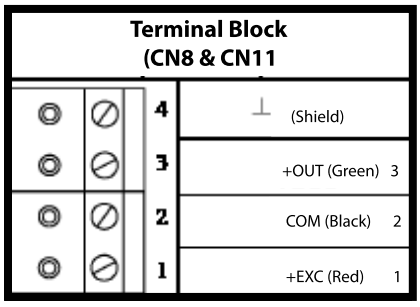
WIRING

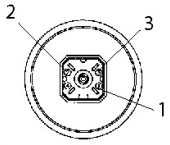


Transducer w/Conduit

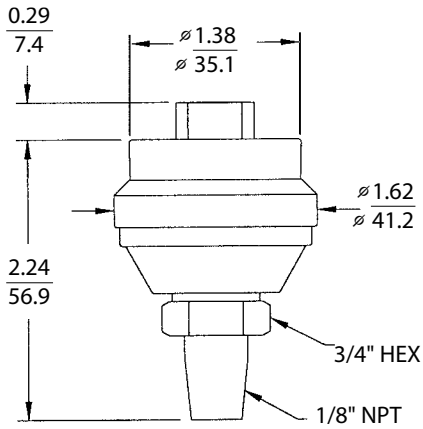


Transducer w/Packard Connector





Top View: Hirschmann Connector
Type: G4A1M#931807-106



Transducer w/Hirschmann Connector

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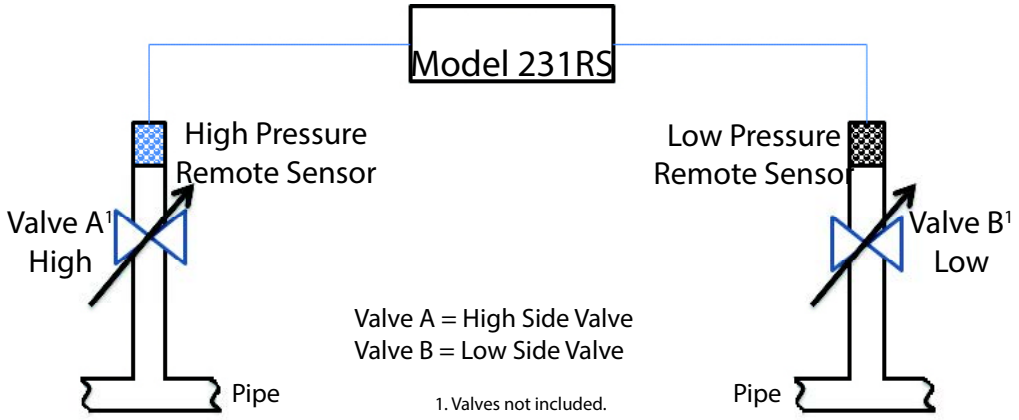
INSTALLATION



PRESSURE RANGE CODE SELECTOR (IMPORTANT: READ BEFORE ORDERING)

Examine the pressure application and determine what is the Highest System Line Pressure.
Determine what is the Differential Pressure being measured.
Find the MAX. Line Pressure in the table on the right that is ≥ to your Highest System Line Pressure.
Verify that your DP falls within the selectable ranges in that row.
Follow that row to the left and select that range code.

Range Code	A	B	C	D	Max. Line Pressure
RS1	50	25	10	5	50
RS2	75	37.5	15	7.5	75
RS3	100	50	20	10	100
RS4	150	75	30	15	150
RS5	250	125	50	25	250

Example:
Highest System Line Pressure: 125 psig
Differential Pressure Measured: 75 psid
"Max Line Pressure" ≥ to System Line Pressure: 150 psid (75 psid DP falls within ranges in this row)
Select Range Code: RS4

ORDERING INFORMATION

2 3 1 G – [ ][ ][ ] – [ ][ ] – [ ] – [ ][ ]

Model	Range Code	Pressure Connection		Display			Cable[1]		
231G = 231RS	See Table 1 Below	3M	1/4-18 NPT Male Remote Sensor (Conduit Version)	Std.	N	No Display	Std.	10	10ft
		4M	1/4-18 NPT Male Remote Sensor (Cable Version)	Opt.	D	LCD Display	Opt.	20	20ft
		AJ	1/4-18 NPT Male Remote Sensors (Armored Jacket Version)				Opt.	30	30ft
							Opt.	40	40ft
							Opt.	50	50ft

Ordering Example: 231GRS44MN10 = Model 231RS w/Range Code RS4, 1/4-18 NPT Male Remote Sensor (Cable Version) , No Display, 10ft. Cable

Table 1. Range Specification

RANGE CODE[2]	UNIDIRECTIONAL PRESSURE RANGES	BIDIRECTIONAL PRESSURE RANGES
RS1	5, 10, 25, 50 psid	±5, ±10, ±25, ±50 psid
RS2	7.5, 15, 37.5, 75 psid	±7.5, ±15, ±37.5, ±75 psid
RS3	10, 20, 50, 100 psid	±10, ±20, ±50, ±100 psid
RS4	15, 30, 75, 150 psid	±15, ±30, ±75, ±150 psid
RS5	25, 50, 125, 250 psid	±25, ±50, ±125, ±250 psid

1. Cable lengths only available with Pressure Connection Code 4M. 2. For higher ranges contact factory.

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