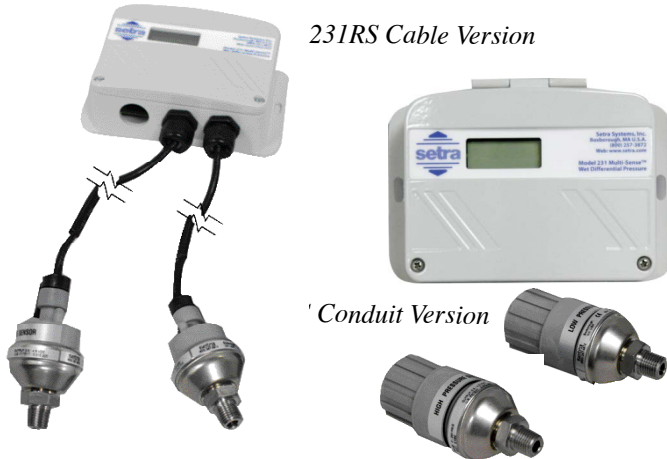


# Multi-Sense® Model 231RS



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



231RS Cable Version

Conduit Version

## Industry First Wet-to-Wet Remote Sensor Design

### 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.

### 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

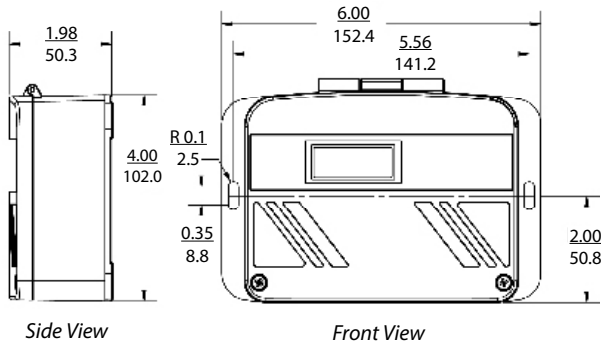
### APPLICATIONS

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

## SPECIFICATIONS

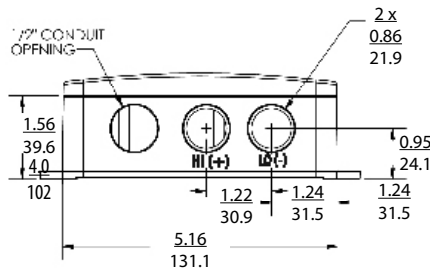
Electrical Data (Voltage)		Performance Data						Environmental Data			
Circuit	3-Wire	Accuracy RSS <sup>1</sup> (at constant temp.)						Operating <sup>3</sup> Temperature °F (°C)	-4 to +185 (-20 to -85)		
Excitation	15 to 30 VDC/18 to 30 VAC (Reverse Excitation Protected)	Pressure Ranges A, B, C			±1.0% FS			Storage Temperature °F (°C)	-4 to +185 (-20 to +85)		
Output <sup>4</sup>	0 to 5 VDC, 0 to 10 VDC, 1 to 5 VDC	Pressure Ranges D			±2.0% FS			Vibration	10g from 50Hz to 2000 Hz		
Output Impedance	30 Ohms	<b>Pressure Ranges (Selection Example, Pg 4.)</b>						Shock	200g		
Circuit Consumption	8 mA (typ.) at 5 VDC, 8 mA (typ) at 10 VDC, 40 mA (typ.) at 18-30 VAC		A	B	C	D	Max. Line Pressure	<b>Physical Description</b>			
		MS1	50	25	10	5	50	Case	Die Cast Aluminum, Powder Coated		
		MS2	100	50	20	10	100	Pressure Fittings	1/4-18 NPT Male		
<b>Electrical Data (Current)</b>		MS3	250	125	50	25	250	Electrical Connection	1/2 in. Conduit		
Circuit	2-wire (Reverse Excitation Protected)	<b>Pressure Media</b>						Size	4.0 x 6 x 2 in. (102 x 152 x 51 mm)		
Output <sup>5</sup>	4 to 20 mA	Liquids or Gases Compatible with 17-4 PH Stainless Steel Note: Hydrogen not recommended for use with 17-4 PH stainless steel						Weight	1.3 lb		
External Load	0 to 250 Ohms	<sup>1</sup> RSS of Non-Linearity, Hysteresis, and Non-Repeatability. <sup>2</sup> Units calibrated at nominal 70° F. Maximum thermal error computed from this datum. <sup>3</sup> Operating temperature limits of the electronics only. Pressure media temperatures may be considerably higher or lower. <sup>4</sup> Calibrated into a 50K ohm load, operable into a 5000 ohm load or greater. <sup>5</sup> Calibrated at factory with a 24 VDC loop supply voltage and a 250 ohm load. Specifications subject to change without notice.						<b>Thermal Effects<sup>2</sup></b>			
Min. Supply Voltage (VDC)	15 + 0.02 x Resistance of receiver plus line)							Compensated Range °F (°C)		+32 to +130 (0 to +54)	
Max. Supply Voltage (VDC)	30 + 0.004 x Resistance of receiver plus line)							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)							





Side View

Front View

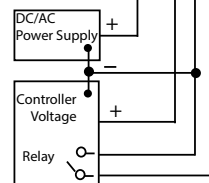
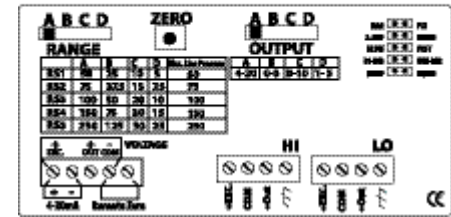


IN  
MM

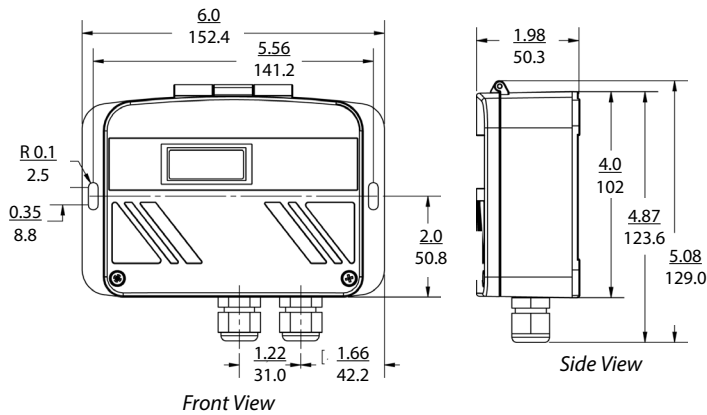
Bottom View

Conduit Version

IN  
MM

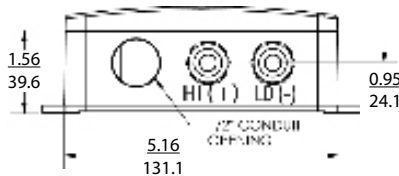


3-Wire - Voltage Output  
 0 to 5 VDC  
 0 to 10 VDC  
 1 to 5 VDC  
 Remote Zero



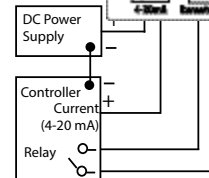
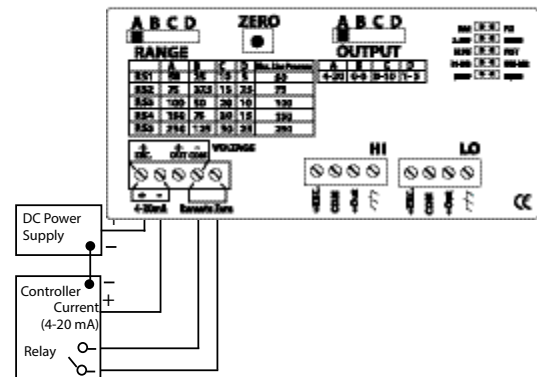
Front View

Side View



Bottom View

Cable Version



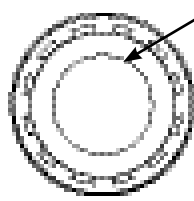
2-Wire - Current Output  
 4 to 20 mA  
 Remote Zero

# Multi-Sense® Model 231RS

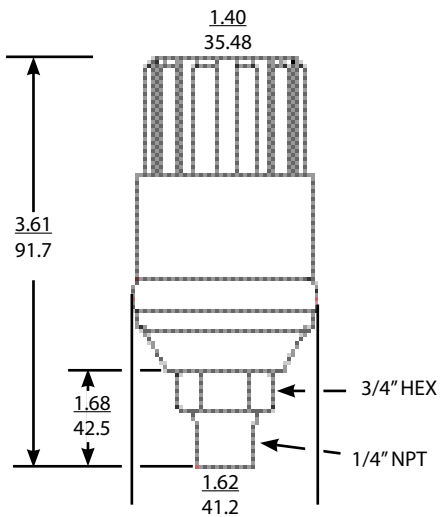
Wet-to-Wet, Differential, Multi-Configurable Pressure Transducer



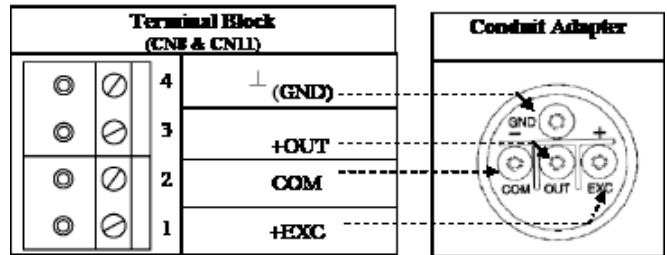
1/2 inch Conduit Opening



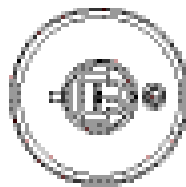
IN  
MM



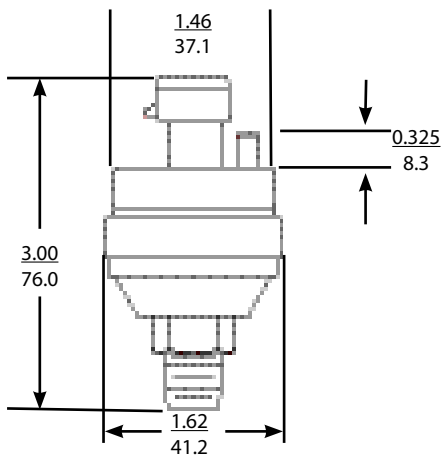
Transducer w/Conduit



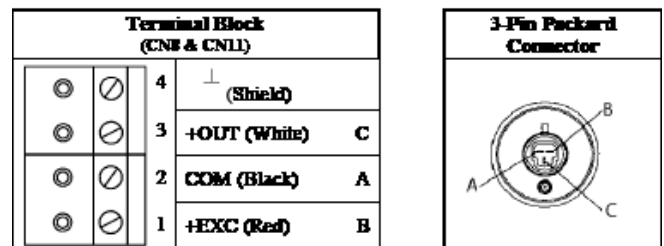
Transducer w/Conduit



IN  
MM

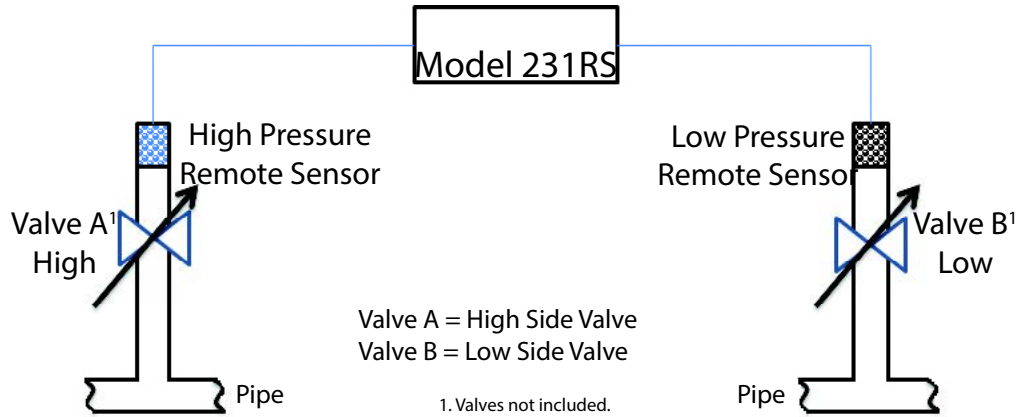


Transducer w/Packard Connector



Transducer w/Packard Connector

### 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  $\geq$  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
MS1	50	25	10	5	50
MS2	100	50	20	10	100
MS3	250	125	50	25	250

Example:  
 Highest System Line Pressure: 125 psig  
 Differential Pressure Measured: 75 psid  
 "Max Line Pressure"  $\geq$  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 <sup>1</sup>		
		3M	4M	Std.	N	No Display	Std.	10	10ft
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
							Opt.	30	30ft

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 <sup>2</sup>	UNIDIRECTIONAL PRESSURE RANGES	BIDIRECTIONAL PRESSURE RANGES
RS1	5, 10, 25, 50 psid	$\pm 5, \pm 10, \pm 25, \pm 50$ psid
RS2	7.5, 15, 37.5, 75 psid	$\pm 7.5, \pm 15, \pm 37.5, \pm 75$ psid
RS3	10, 20, 50, 100 psid	$\pm 10, \pm 20, \pm 50, \pm 100$ psid
RS4	15, 30, 75, 150 psid	$\pm 15, \pm 30, \pm 75, \pm 150$ psid
RS5	25, 50, 125, 250 psid	$\pm 25, \pm 50, \pm 125, \pm 250$ psid

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