

## TSTP SANITARY PRESSURE TRANSMITTER



Sanitary TSTP with Mini-Hirschmann

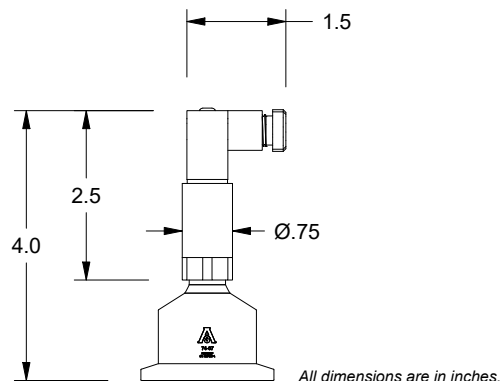


### FEATURES / BENEFITS

- 3-A, Tri-Clamp® Sanitary Connection
- 316 Stainless Wetted Parts
- Designed for "Clean-in-Place" and "Sterilize-in-Place"
- Media Temperatures up to 750°F
- +/- 0.5% Accuracy (3/4" Tri-clamp® +/- 1.0%)
- Excellent Long-Term Stability

### SPECIFICATIONS

<b>Output Signal</b>	4-20mA, 2-Wire (Standard) 0-5V, 0-10V, 1-6V (3-Wire) Additional Outputs Upon Request		
<b>Measuring Principle</b>	Thin-Film-on-Steel		
<b>Pressure Ranges</b>	Vacuum, Compound, Pressure to 7,500psi		
		<b>Proof Pressure</b>	<b>Burst Pressure</b>
	0/30 - 0/300 psi	3 x range	10 x range
	0/500 - 0/7,500 psi	2.5 x range	4 x range
<b>Accuracy NLH at 77°F (BSL)</b>	±0.5% of Span (3/4" Tri-Clamp® +/- 1.0)		
<b>Input</b>	9-32 Vdc (for 4-20mA, 0-5V, 1-6V) 15-32 Vdc (0-10V)		
<b>Temperature</b>	Effect: +/- .02% FS/°F (-13/185°F) Media: Temperature Effect with 1.5" or 2" Tri-Clamp®: +/-0.1% of Span/10°F (for Zero and Span) or +/-0.02 psi/10°F (Greater of) Note: 3/4" Tri-Clamp® Not Recommended for Temperature Variations. Effect is ≤ +/- 0.9 psi/10°F Ambient: -40 to 257°F		
<b>Weight</b>	Approximately 1.8 oz (TP1); 3.9oz (TP2). Tri-Clamp® Weight Additional.		
<b>Environmental Rating</b>	IP65, IP67, IP68 (Depending on Electrical Connection)		



TSTP (1.5" Tri-Clamp®)

Note: Dimensions are nominal and may vary. Check with REOTEMP sales if dimensions are critical. Other case styles available.

### Diaphragm Seal Suitability Guide

		Total Span* (in psi)								
		2	3	5	10	15	30	60	100	150+
TSTP	3/4"	X	X	X	S	S	S	T	T	
	1.5"	X	X	T	T	T	T			
	2"	X	X	T	T					
	2.5"	X	X	T						
	3"	X	X							

\*Total gauge span is additive of negative and positive pressures. Example: -15 - 0 - 30 psi = 45 psi span

- Assembly will function correctly with minimal accuracy degradation.
- T Assembly will function correctly given stable process temperature.
- S Assembly is highly sensitive to orientation and temperature variance. REOTEMP cannot guarantee a stated accuracy.
- X Assembly not offered.

Tri-Clamp® is a registered trademark of Alpha Laval Inc.

## TSTP SANITARY PRESSURE TRANSMITTER

**HOW TO ORDER:** Choose options to build a part number. For example: **TSTP1P181AA03TC15DWD-AG-PM**

MODEL	RANGE	ACCURACY	OUTPUT SIGNAL	ELECTRICAL CONNECTION
<p><b>TSTP1</b> = Sanitary Transmitter (Mini-Hirschmann DIN C, and Others)</p> <p><b>TSTP2</b> = Sanitary Transmitter (Hirschmann DIN A, and others)</p>	<p>See <i>Transmitter Technical Reference on pg. 226</i></p>	<p><b>1</b> = ±0.5% Accuracy (Must Be Selected For 1.5"/2"/2.5"/3" Tri-Clamp®)</p> <p><b>8</b> = ±1% Accuracy (Must Be Selected For 3/4" Tri-Clamp®)</p>	<p><b>A</b> = 4-20mA (2-Wire) (Standard)</p> <p><b>B</b> = 0-5Vdc (3-Wire)</p> <p><b>D</b> = 1-6Vdc (3-Wire)</p> <p><b>E</b> = 0-10Vdc (3-Wire)</p>	<p><b>A00</b> = Mini-Hirschmann, No Cable (DIN 43650C, Form C)</p> <p><b>APVC03</b> = Mini-Hirschmann, w/ 3ft (1 Meter) PVC Shielded Cable</p> <p><b>APVC20</b> = Mini-Hirschmann, w/ 20ft (6 Meter) PVC Shielded Cable</p> <p><b>APVC??</b> = Mini-Hirschmann (?? = ft. of PVC Cable)</p> <p><b>**B00</b> = Hirschmann, No Cable (DIN EN 175301-803 Form A)</p> <p><b>**BPVC05</b> = Hirschmann w/ 5ft (1.5 Meter) PVC Shielded Cable</p> <p><b>**BPVC10</b> = Hirschmann w/ 10ft (3 Meter) PVC Shielded Cable</p> <p><b>**BPVC16</b> = Hirschmann w/ 16ft (5 Meter) PVC Shielded Cable</p> <p><b>**BPVC33</b> = Hirschmann w/ 33ft (10 Meter) PVC Shielded Cable</p> <p><b>**BPVC??</b> = Hirschmann (?? = ft. of PVC Cable)</p> <p><b>CGPUR??</b> = Cable PUR (Shielded, Screwed Cable Gland) -40/158°F (TP2 = -4/158°F) ?? ft.</p> <p><b>CGPVC??</b> = Cable PVC (Shielded, Screwed Cable Gland) 23/140°F ??ft.</p> <p><b>M5PUR05</b> = M12 x 1 (5-pin) w/ 5ft. (1.5 Meter) PUR Shielded Cable</p> <p><b>M5PUR??</b> = M12 x 1 (5-pin) w/ ??ft. PUR Shielded Cable</p> <p><b>MPUR??</b> = M12 x 1 (4-pin) w/ ??ft. PUR Shielded Cable</p> <p><b>*M00</b> = M12 x 1 (4-pin) w/ Mating Connector</p> <p><b>*MPVC03</b> = M12 x 1 (4-pin) Female w/ 3ft (1 Meter) PVC Shielded Cable</p> <p><b>*MPVC10</b> = M12 x 1 (4-pin) Female w/ 10ft (3 Meter) PVC Shielded Cable</p> <p><b>*MPVC33</b> = M12 x 1 (4-pin) Female w/ 33ft (10 Meter) PVC Shielded Cable</p> <p><b>M500</b> = M12 x 1 (5-pin) w/ Mating Connector</p> <p><b>M5PVC03</b> = M12 x 1 (5-pin) Female w/ 3ft (1 Meter) PVC Shielded Cable</p> <p><b>M5PVC10</b> = M12 x 1 (5-pin) Female w/ 10ft (3 Meter) PVC Shielded Cable</p> <p><b>M5PVC33</b> = M12 x 1 (5-pin) Female w/ 33ft (10 Meter) PVC Shielded Cable</p>
<p>NOTE: Additional Electrical Connections Upon Request. Contact Factory.</p>				
<div style="border: 1px solid black; padding: 5px; width: fit-content;"> <p>* TP1 Model Only ** TP2 Model Only</p> </div>				

CONNECTION TYPE	TRI-CLAMP® SIZE	MOUNTING	FILL FLUID	OPTIONS
<p><b>TC</b> = Tri-Clamp</p> <p><b>CI</b> = I-Line</p>	<p><b>75</b> = 3/4" Tri-Clamp</p> <p><b>15</b> = 1.5" Tri-Clamp</p> <p><b>20</b> = 2" Tri-Clamp</p> <p><b>25</b> = 2.5" Tri-Clamp</p> <p><b>30</b> = 3" Tri-Clamp</p>	<p><b>-DWD</b> = Direct Mount, Welded</p> <p><b>-RTR</b> = 6" Cooling Tower</p> <p><b>-STW</b> = 3" Cooling Standoff</p> <p><b>-W??</b> = PVC Coated SS Capillary, Welded</p> <p>Note: ?? = Length in feet (e.g. 05 = 5 feet)</p>	<p><b>-AG</b> = Glycerin USP</p> <p><b>-BN</b> = Neobee M20</p> <p><b>-AS</b> = Silicone DC200</p> <p><b>-BS</b> = Food-grade Silicone</p> <p>See 58 for Complete Fill Guide</p>	<p><b>-TS</b> = Stainless Steel Tag (1-10 Characters)</p> <p><b>-PM</b> = Positive Material Identification Certification</p> <p><b>-MC</b> = M12 x 1 Female Connector</p>

## TSTP SANITARY PRESSURE TRANSMITTER

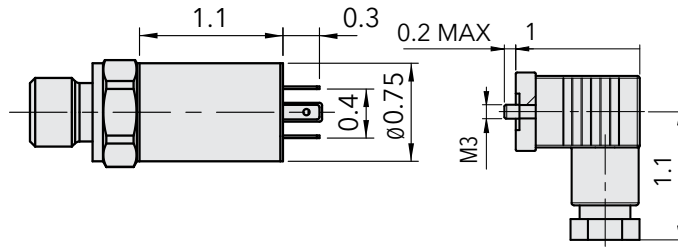
### TRANSMITTER ONLY SPECIFICATIONS (NOT INCLUDING TRI-CLAMP®/I-LINE)

<b>Electrical Data</b>	Output / supply voltage	4 ... 20 mA: 24 (9...32) VDC 0 ... 5 VDC: 24 (9...32) VDC 1 ... 6 VDC: 24 (9...32) VDC 0 ... 10 VDC: 24 (15...32) VDC
	Rise Time	Typ. 1 ms / 10 ... 90 % nominal pressure
	Inverse-polarity protection, short-circuit strength @77°F during 5 min	4-20mA: to U <sub>s</sub> = 32 VDC 0-5 VDC, 1-6 VDC, 0-10 VDC: to U <sub>s</sub> = 28VDC
<b>Environmental Conditions</b>	Media Temp	-40 to 257°F
	Ambient Temp	-40 to 257°F (Cable PVC 23/140°F) (Cable PUR: TP1 = -40/158°F, TP2 = -4/158°F)
	Protection	IP65, IP67, IP68 (depending on electrical connection)
	Humidity	Max. 95% relative
	Vibration	15g RMS (20-2000 Hz)(EN60068-2-64) 25 g sin (80-2000 Hz), 1 oct./min, (1x @ 77°F) (EN60068-2-6)
	Shock(TP1)	50 g / 11 ms 100 g / 6 ms Male electrical plug M12x1 (EN60068-2-27)
	Shock(TP2)	500 g/1ms (EN 60068-2-27)
<b>EMC Protection</b>	Emission	EN/IEC 61000-6-3
	Immunity	EN/IEC 61000-6-2
<b>Mechanical Data</b>	Sensor (wetted parts)	1.4542 (AISI630)
	Pressure connection (wetted parts)	1.4542 (AISI630)
	Housing	TP1: 1.4301 (AISI304) TP2: 1.4542 (AISI630) or 1.4404 (AISI 316L)
	Sealing	FPM/EPDM/NBR
	Male Electrical Plug	See ordering information
	Weight (TP1)	appr. 1.8 oz
	Weight (TP2)	appr. 2.8 to 3.9 oz
<b>Mounting torque</b>		18.5 in-lbs
<b>Accuracy</b>	NLH @ 77°F (BSL)	[% FS typ.] +/- 0.25
	TEB @ -13 to 185°F	[% FS typ.] +/- 1.75
	TC zero point and span	[%FS/K typ.] +/- 0.02
	Long term stability 1 year	[%FS/K typ.] +/- 0.06

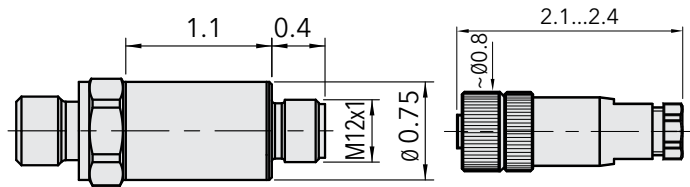
## TSTP SANITARY PRESSURE TRANSMITTER

### TSTP1 Dimensions

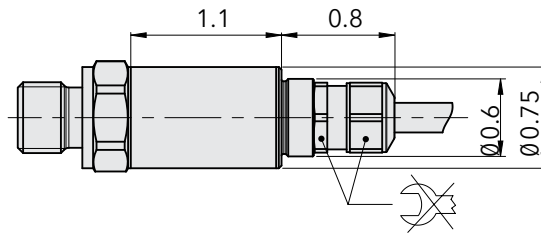
All dimensions are in inches.



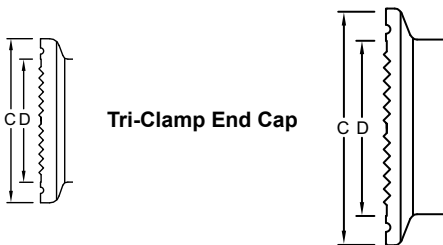
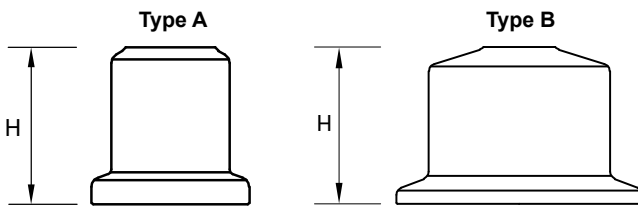
Mini-Hirschmann DIN Form C



M12 (4-pin or 5-pin)



Cable Out (PVC or PUR)



Tri-Clamp End Cap


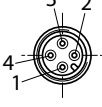
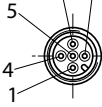

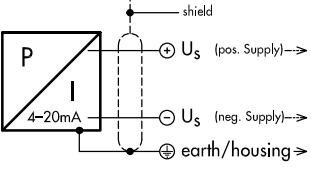
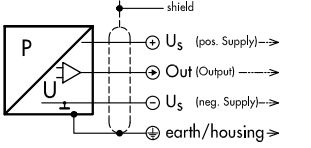
	Type A	Type B				
Process Connection	3/4"*	1.5"	2"	2.5"	3"	4"
Outer Diameter (C)	1"	2"	2.5"	3.1"	3.6"	4.7"
Diaphragm (D)	0.65"	1.4"	1.9"	2.2"	2.5"	3.6"
Height (H)	1"	1.3"	1.3"	1.3"	1.3"	1.6"

\*DSTC75 ONLY

Note: Height is subject to change based on the adapter required to fit instrument to seal.

## TSTP SANITARY PRESSURE TRANSMITTER

### TSTP1 Electrical Connection

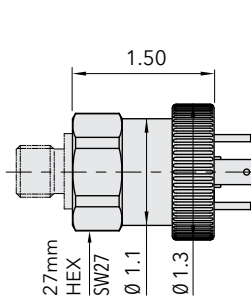
		Protection / electrical connection			
		IP65 <sup>1) 2)</sup>	IP67 <sup>1) 2)</sup>		IP67,IP68 <sup>2) 3)</sup>
		Mini - Hirschmann DIN C	M12x1		Cable
			4-pole 	5-pole 	
Output signal	 <p>4-20mA</p>	<p>2</p> <p>1</p> <p>4</p>	<p>1</p> <p>3</p> <p>4</p>	<p>4</p> <p>1</p> <p>5</p>	<p>white</p> <p>brown yellow</p>
	 <p>0/5 VDC, 1/6 VDC, 0/10VDC</p>	<p>1</p> <p>2</p> <p>3</p> <p>4</p>	<p>1</p> <p>2</p> <p>3</p> <p>4</p>	<p>2</p> <p>4</p> <p>3</p> <p>5</p>	<p>white</p> <p>green</p> <p>brown yellow</p>

- 1) Provided female connector is mounted according to instructions
- 2) Ventilation via male electric plug/cable end
- 3) IP68, 290 psi, 30 min

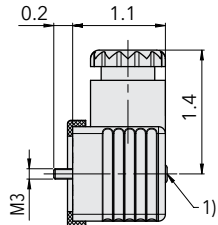
## TSTP SANITARY PRESSURE TRANSMITTER

### TSTP2 Dimensions

All dimensions are in inches.

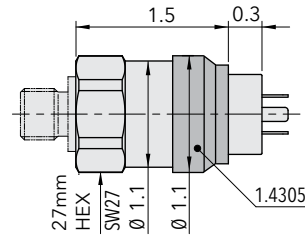


Hirschmann DIN A

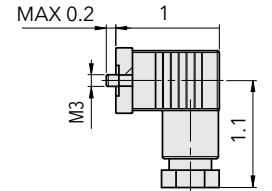


1) Tightening torque 4.4...5.3 in-lbs

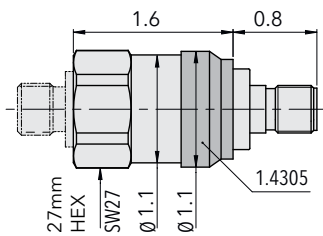
Hirschmann DIN A



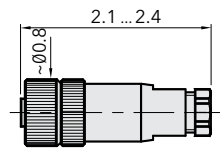
Mini-Hirschmann DIN C



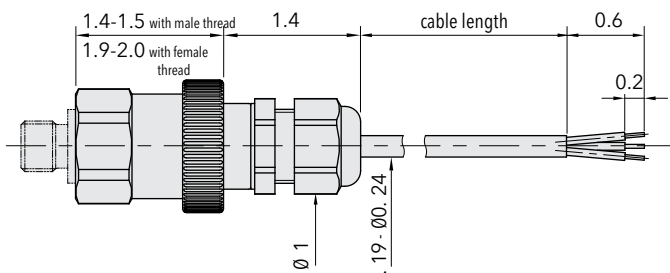
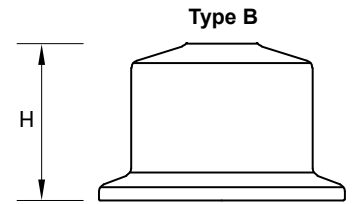
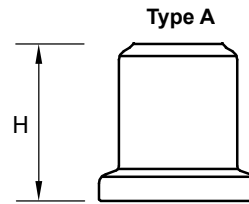
Mini-Hirschmann DIN C



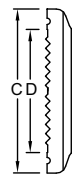
M12 (5 pin)



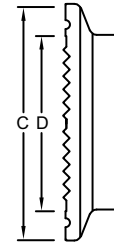
M12 mating connector



Cable Out (PVC or PUR)



Tri-Clamp End Cap



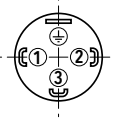
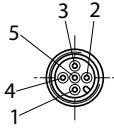
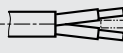
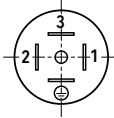
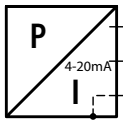
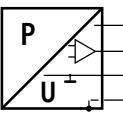
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\*DSTC75 ONLY

Note: Height is subject to change based on the adapter required to fit instrument to seal.

## TSTP SANITARY PRESSURE TRANSMITTER

### TSTP2 Electrical Connection

		Protection / electrical connection			
		IP65 <sup>*) **)</sup>	IP67 <sup>*) ***)</sup>	IP68 max. 3 m	IP65 <sup>*) **)</sup>
		Industrial standard EN175301-803A	M12x1 5-pole	Cable <sup>**</sup>	Industrial std. Contact distance 9.4 mm
		<b>Hirschmann DIN A</b>	<b>M12</b>	<b>Cable Out PVC or PUR</b>	<b>Mini-Hirschmann DIN C</b>
					
Output signal	 <p>4-20mA</p>	Standard			
	 <p>0/5 VDC, 1/6 VDC, 0/10VDC</p>	Standard			
	<p>U<sub>S</sub> (pos. Supply) ⊕</p> <p>U<sub>S</sub> (neg. Supply) ⊖</p> <p>Earth (housing) ⊕</p> <p>Shield<sup>***)</sup> ⊖</p>	<p>2</p> <p>1</p> <p>⊕</p>	<p>4</p> <p>1</p> <p>5</p>	<p>white</p> <p>brown</p> <p>yellow</p>	<p>2</p> <p>1</p> <p>⊕</p>
	<p>for DC</p> <p>Supply ⊕</p> <p>Output ⊕</p> <p>Common ⊖</p> <p>Earth (housing) ⊕</p> <p>Shield<sup>***)</sup> ⊖</p>	<p>2</p> <p>3</p> <p>1</p> <p>⊕</p>	<p>2</p> <p>4</p> <p>3</p> <p>5</p>	<p>white</p> <p>green</p> <p>brown</p> <p>yellow</p>	<p>1</p> <p>2</p> <p>3</p> <p>⊕</p>

\*) Provided female connector is mounted according to instructions

\*\*) Ventilation via male electric plug/cable end

\*\*\*) Only cable versions or female electrical plug with shield connection

## TRANSMITTER TECHNICAL REFERENCE

SERIES		TA	TSTA	TSA	TSB	TSC	TSTP	TSTDS	TSTC	TG1	TP	TDS	TC	TE	TH1	THX	TL1
Code	Range			VACUUM													
P01	-14.7/0 psi	✓	✓	✓	✓	✓				✓				✓	✓	✓	
P01R	-14.5/0 psi								✓				✓				
Code	Range			COMPOUND RANGES													
P02	-14.7 psi/0/15psi	✓	✓	✓	✓	✓				✓					✓	✓	
P03	-14.7/0/30 psi	✓	✓	✓	✓	✓				✓				✓	✓		
P04	-14.7/0/60 psi	✓	✓	✓	✓	✓				✓							
P05	-14.7/0/100 psi	✓	✓	✓	✓	✓				✓				✓			
P06	-14.7/0/150 psi	✓	✓	✓	✓	✓				✓						✓	
P07	-14.7/0/200 psi	✓	✓											✓			
P08	-14.7/0/300 psi	✓	✓	✓	✓	✓				✓							
P02R	-14.5/0/15 psi								✓				✓				
P03R	-14.5/0/30 psi						✓	✓	✓		✓	✓	✓				
P04R	-14.5/0/60 psi						✓	✓	✓		✓	✓	✓				
P05R	-14.5/0/100 psi						✓	✓	✓		✓	✓	✓				
P06R	-14.5/0/150 psi						✓	✓	✓		✓	✓	✓				
P07R	-14.5/0/200 psi						✓	✓	✓		✓	✓	✓				
P08R	-14.5/0/300 psi						✓	✓	✓		✓	✓	✓				
Code	Range			PRESSURE RANGES													
IN50	0/50 inH <sub>2</sub> O	✓	✓						✓				✓		✓		✓
IN100	0/100 inH <sub>2</sub> O	✓	✓						✓	✓			✓		✓		✓
IN200	0/200 inH <sub>2</sub> O	✓	✓						✓				✓		✓		✓
L11	0/55 INWC	✓	✓			✓			✓				✓		✓		
L12	0/80 INWC	✓	✓			✓			✓				✓		✓		
L13	0/140 INWC	✓	✓	✓	✓	✓			✓	✓			✓		✓		
L14	0/280 INWC	✓	✓	✓	✓	✓			✓	✓			✓		✓		
P11	0/2 psi	✓	✓			✓			✓				✓		✓	✓	✓
P12	0/3 psi	✓	✓			✓			✓				✓		✓	✓	✓
P13	0/5 psi	✓	✓	✓	✓	✓			✓	✓			✓		✓	✓	✓
P14	0/10 psi	✓	✓	✓	✓	✓			✓	✓			✓		✓	✓	✓
P15	0/15 psi	✓	✓	✓	✓	✓			✓	✓			✓	✓	✓	✓	✓
P16	0/30 psi	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
P175	0/50psi	✓	✓				✓	✓	✓	✓	✓	✓	✓				
P17	0/60 psi	✓	✓	✓	✓	✓			✓				✓	✓	✓	✓	✓
P18	0/100 psi	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
P195	0/150 psi	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
P20	0/200 psi	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
P21	0/300 psi	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
P26	0/500 psi	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
P23	0/600 psi	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
P27	0/750 psi	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
P25	0/1000 psi	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
P30	0/1500 psi	✓								✓	✓	✓			✓		
P31	0/2000 psi	✓								✓	✓	✓			✓		
P32	0/3000 psi	✓								✓	✓	✓			✓		
P34	0/5000 psi	✓								✓	✓	✓			✓	✓	
P35	0/6000 psi	✓								✓					✓	✓	
P28	0/7500 psi	✓								✓	✓	✓			✓	✓	
P37	0/10000 psi	✓								✓					✓	✓	
P38	0/15000 psi									✓					✓	✓	✓
P39	0/20000 psi														✓		
P40	0/30000 psi														✓		
P41	0/40000 psi														✓		
P42	0/50000 psi														✓		
P43	0/60000 psi														✓		
Code	Range			ABSOLUTE RANGES													
P15A	0/15 psia	✓	✓	✓	✓					✓			✓				
P16A	0/30 psia	✓	✓	✓	✓					✓			✓				
P17A	0/60 psia	✓	✓	✓	✓					✓			✓				
P18A	0/100 psia	✓	✓	✓	✓					✓			✓				
P19A	0/150 psia	✓	✓	✓	✓					✓			✓				
P20A	0/200 psia	✓	✓	✓	✓					✓			✓				
P21A	0/300 psia	✓	✓	✓	✓					✓			✓				

TRANSMITTERS

**Don't See the Range You Need?**  
Other ranges may be available, contact REOTEMP customer service for more information.

✓ Indicates that the option is available  
Note: Specifications are subject to change.