

## UNITED ELECTRIC

### 12 Series: Pressure, Diff. Pressure & Temp. Switches

Explosion Proof, Adjustable Ranges 30" Vac to 12,500 PSI, -130 to 650°F

#### DESCRIPTION

12 Series hazardous location switches are ideal for operation in tough applications where space is at a premium. A snap-action Belleville spring assembly is used in most models to provide vibration resistance and prolonged switch life. The 316 stainless steel enclosure and hermetically sealed switch provide rugged protection from the environment. Approved for use in hazardous locations worldwide, the 12 Series is installed within applications ranging from offshore oil rigs to rotating equipment, and more.

Quadruple approvals (UL, cUL, ATEX and IECEx) mean the 12 Series meets the demanding requirements of critical applications within hazardous locations. Additionally, the 12 Series complies with ANSI/ISA 12.27.01, "secondary seal requirements for process sealing between electrical systems and flammable or combustible process fluids," and NEC 501.17, "process sealing." It can be used in a variety of applications where space is at a premium. Metal wetted parts comply with NACE MR-0175 and the 316 stainless steel, type 4X enclosure rating assure long-term performance in the harshest environments.

#### SPECIFICATIONS

##### GENERAL

**STORAGE TEMPERATURE:** -58° to 176°F (-50 to 80°C)

**OPERATING AMBIENT TEMPERATURE:** -58 to 176°F (-50 to 80°C). Set point shifts less than 1% of range for a 50°F (28°C) ambient temperature change. Slight ambient effects for 25-50' extracapillary length on temperature switch models, consult factory.

**MEDIA TEMPERATURE:** Pressure models: Sensor types 2, 7, 9: -50 to 400°F (-45 to 204°C)

Sensor types 3, 4, 8: -20 to 200°F (-28 to 93°C)

Sensor types 5, 6: 0 to 320°F (-18 to 160°C)

Sensor type P, W: 0 to 200°F (-18 to 93°C), 20 to 250°F (-7 to 121°C) for optional Viton sensor.

Differential pressure models: Sensor type K: 0 to 180°F (-18 to 82°C), 20 to 250°F (-7 to 121°C) for optional Viton sensor

Temperature models: See model chart.

##### SET POINT REPEATABILITY:

Temperature models: ±1% of adjustable range

Pressure models: Sensor types 2, P: ±1.5% of adjustable range

Sensor types 3-9, W: ±1% of adjustable range

Differential pressure models: K1 to K3: ±1%, K4 to K6: ±1.5% of adjustable range

**SHOCK:** Differential pressure and temperature models: set point repeats after 15 G's, 10 millisecond duration

Pressure models: Set point repeats after 75 G's, 10 milliseconds

**VIBRATION:** Differential pressure and temperature models: Set point repeats after 2.5 G's, 10-2000 Hz.

Pressure models: Set point repeats after 15 G's, 10-2000 Hz

**ENCLOSURE:** 316 series stainless steel

**ENCLOSURE CLASSIFICATION:** Certified to Enclosure Type 4X

Class I, Division 1 product meets enclosure Type 7;

Class II, Division I product meets enclosure type 9.

Certified to IP66 requirements

**SWITCH OUTPUT:** Code S: One SPDT, hermetically sealed.

Code D: Two SPDT for DPDT action, hermetically sealed. Available for pressure models only.

**ELECTRICAL RATINGS:** Code H: 5 A at 250 VAC, 5 A resistive and 3 A inductive at 28 VDC Silver contacts

Code L: 1 A at 125 VAC, 1 A resistive and 0.5 A inductive at 28 VDC, Bifurcated gold contacts

**ELECTRICAL CONNECTION:** Code N: 1/2" NPT (male) with 72" leadwires

Code M: M20 metric threads, 72" leads

Option M515, 4 terminal DIN connector (DIN 43650 Form A) available SPDT only (does not meet Div. 1 or 2, or ATEX requirements.)



**WEIGHT:** Temperature models: approximately 1 lb 14 oz. (0,85 kg)

Pressure models: approximately 12 ounces (0,34 kg)

Vacuum, "WC models: Approximately 1 lb 12 oz (0,79 kg)

Differential models: K1-K3: approximately 6 lb (2,72 kg)

4-K6: approximately 4 lb (1,81 kg)

K1-K3 w/ option M480: approximately 10 lb (4,55 kg)

K4-K6 w/ option M480: approximately 5.5 lb (2,5 kg)

**TEMPERATURE ASSEMBLY:** Bulb and capillary: Non-toxic oil fill; 6 feet 304 stainless steel. Optional lengths available Immersion Stem: 316 stainless steel

**TEMPERATURE DEADBAND:** Typically 2% of range under laboratory conditions (70°F ambient circulating bath at a rate of 1/2°F per minute change)

**PRESSURE CONNECTION:** 1/2" NPT (female) or 1/4" NPT (female). Differential pressure: 1/8" NPT (female) Optional pressure connection materials available-

**MOUNTING:** Pressure: May be pipe mounted or bracket mounted using kit 62169-13

Differential Pressure: Should be mounted using 2 mounting holes on attached mounting bracket

Temperature: Mounting kit 62169-13 should be specified for new installations

##### APPROVALS

United States & Canada

UL Listed, cUL Certified

Class I, Division 1 and 2, Groups A, B, C & D

Class II, Division 1 and 2, Groups E, F & G

Class III

Class I, Zone 1, Group IIC

Enclosure Type 4X

Pressure: UL 508 & 1203; CSA C22.2 No. 14, 25 & 30

File # E40857

Dual seal certified to ANSI/ISA 12.27.01 (meets CEC & NEC secondary seal requirements) standard on straight pressure models only

Temperature: UL 873, 1203; CSA C22.2 No. 24, 25 & 30 -File # E43374

European Union

ATEX Directive (94/9/EC)

II 2 G EEx d IIC T6

II 2 D T+85°C

Tamb = -50°C to +80°C

IP 66

UL International DEMKO A/S (N.B.# 0539)

Certificate # DEMKO 03 ATEX 0252466X

EN 60079-0, 60079-1, 60079-31

II 1 G Ex ia IIC T6 Ga (OPTIONAL – code M405)

Tamb = -50°C to +60°C

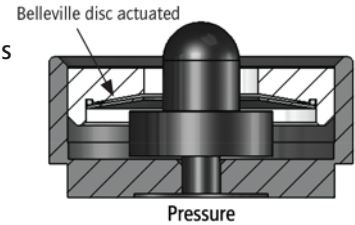
UL International DEMKO A/S (N.B.# 0539)

Certificate # DEMKO 11 ATEX 1105261X

EN 60079-0, 60079-11, 60079-26

## TECHNOLOGY

At the heart of the 12 Series is a Belleville spring assembly. The spring is a small conical washer that transfers motion to a hermetically sealed 1 or 5 amp microswitch. Its 'snap-action' provides fast, positive contact transfer. The Belleville spring 'snaps over' when pressure is applied and 'snaps back' upon pressure release.



### ADVANTAGES:

- Set point stability: The switch performs under challenging environmental conditions such as vibration and temperature changes. In addition, minimal movement of components reduces sensor fatigue thereby increasing life and accuracy.
- Resistance to vibration: Preloading of the electrical switch helps reduce contact chatter.
- Maximum life: The Belleville spring enhances cycle life with a short stroke movement to minimize fatigue.
- Deadbands: The Belleville is a negative-rate snap acting device, so on-off deadband values are wider at the low end of the range. To minimize deadbands, select a model with a set point at the higher end of the range whenever possible.

## 12 SERIES MODEL CHART

Sensor Type/Range Code	Adjustable Range Lower end of range on fall; Higher end on rise		Deadband		Over Range Pressure*		Proof Pressure**	
<b>Sensor Type 2</b> , 316 stainless steel 1/2" NPT (female) pressure connection and welded diaphragm, 23/32" orifice for clean out purposes. High proof pressure. Not recommended for high cycling applications. Belleville actuation. (NACE MR-0175 compliant)								
<b>Sensor Type 2</b> , 316 stainless steel 1/2" NPT (female) pressure connection and welded diaphragm, 23/32" orifice for clean out purposes.								
Range Code	psi	bar	psi	bar	psi	bar	psi	bar
A	10 to 25	0.7 to 1.7	2 to 7	0.1 to 0.5	1000	68.9	2500	172.4
B	15 to 45	1.0 to 3.1	3 to 10	0.2 to 0.7	1000	68.9	2500	172.4
C	25 to 85	1.7 to 5.9	5 to 20	0.3 to 1.4	1000	68.9	2500	172.4
D	50 to 130	3.4 to 9.0	7 to 25	0.5 to 1.7	1500	103.4	2500	172.4
E	100 to 210	6.9 to 14.5	8 to 30	0.6 to 2.1	1500	103.4	2500	172.4
F	160 to 400	11.0 to 27.6	10 to 50	0.7 to 3.4	1500	103.4	2500	172.4
G	275 to 850	19.0 to 58.6	40 to 125	2.8 to 8.6	1500	103.4	2500	172.4
<b>Sensor Type 3</b> , 316L stainless steel 1/2" NPT (female) pressure connection, Teflon® coated Polyimide (Kapton®) diaphragm, Buna N O-ring, 1/2" orifice for clean out purposes. Belleville actuation. (NACE MR-0175 compliant)								
<b>Sensor Type 4</b> , 316L stainless steel 1/4" NPT (female) pressure connection, Teflon® coated Polyimide (Kapton®) diaphragm, Buna N O-ring, 1/8" orifice. Belleville actuation. (NACE MR-0175 compliant)								
Range Code	psi	bar	psi	bar	psi	bar	psi	bar
A	8 to 30	0.6 to 2.1	2 to 6	0.1 to 0.4	600	41.4	1000	68.9
B	15 to 55	1.0 to 3.8	3 to 8	0.2 to 0.6	600	41.4	1000	68.9
C	30 to 170	2.1 to 11.7	5 to 15	0.3 to 1.0	600	41.4	1000	68.9
D	100 to 370	6.9 to 25.5	15 to 50	1.0 to 3.4	600	41.4	1000	68.9
E	200 to 700	13.8 to 48.3	40 to 90	2.8 to 6.2	1500	103.4	3000	206.8
F	400 to 1500	27.6 to 103.4	100 to 250	6.9 to 17.2	3000	206.8	4500	310.3
G	1000 to 3200	68.9 to 220.6	100 to 500	6.9 to 34.5	6000	413.7	10000	689.5
H	2000 to 6000	137.9 to 413.7	400 to 800	27.6 to 55.2	8000	551.6	10000	689.5
<b>Sensor Type 5</b> , 316L stainless steel 1/2" NPT (female) pressure connection and diaphragm, Viton® O-ring, 1/2" orifice for clean out purposes. Belleville actuation. (NACE MR-0175 compliant)								
<b>Sensor Type 6</b> , 316L stainless steel 1/4" NPT (female) pressure connection and diaphragm, Viton® O-ring, 1/8" orifice. Belleville actuation. (NACE MR-0175 compliant)								
Range Code	psi	bar	psi	bar	psi	bar	psi	bar
A	9 to 35	0.6 to 2.4	2 to 7	0.1 to 0.5	600	41.4	1000	68.9
B	25 to 65	1.7 to 4.5	3 to 10	0.2 to 0.7	600	41.4	1000	68.9
C	50 to 150	3.4 to 10.3	5 to 15	0.3 to 1.0	600	41.4	1000	68.9
D	100 to 350	6.9 to 24.1	15 to 50	1.0 to 3.4	600	41.4	1000	68.9
E	250 to 700	17.2 to 48.3	40 to 95	2.8 to 6.6	1500	103.4	3000	206.8
F	400 to 1500	27.6 to 103.4	100 to 300	6.9 to 20.7	3000	206.8	4500	310.3
G	1000 to 3200	68.9 to 220.6	100 to 500	6.9 to 34.5	6000	413.7	10000	689.5
H	2000 to 6000	137.9 to 413.7	400 to 1000	27.6 to 68.9	8000	551.6	10000	689.5
<b>Sensor Type 7</b> , 1/2" 316L stainless steel NPT (female) pressure connection and welded diaphragm. Large 23/32" orifice for clean out purposes. Belleville actuation. (NACE MR-0175 compliant)								
Range Code	psi	bar	psi	bar	psi	bar	psi	bar
A	3 to 15	0.2 to 1.0	1 to 4	0.1 to 0.3	300	20.7	500	34.5
B	10 to 35	0.7 to 2.4	1 to 6	0.1 to 0.4	300	20.7	500	34.5
C	25 to 85	1.7 to 5.9	3 to 11	0.2 to 0.8	300	20.7	500	34.5
D	65 to 125	4.5 to 8.6	6 to 18	0.4 to 1.2	300	20.7	500	34.5

Sensor Type/Range Code	Adjustable Range Lower end of range on fall; Higher end of rise		Deadband		Over Range Pressure*		Proof Pressure**	
<b>Sensor Type 8</b> , 316L stainless steel 1/4" NPT (female) pressure connection, Teflon® coated Polyimide (Kapton®) diaphragm (optional Hastelloy® C or Monel®), Buna N O-ring (optional Kalrez®, Viton®, Ethylene Propylene, or Aflas®), 1/8" orifice. Non-Belleville actuation. (NACE MR-0175 compliant)								
Range Code	psi	bar	psi	bar (unless noted)	psi	bar	psi	bar
A	3 to 25	0.2 to 1.7	0.5 to 4	34.5 mbar to 0.3 bar	600	41.4	1000	68.9
B	15 to 75	1.0 to 5.2	1 to 7	0.1 to 0.5	600	41.4	1000	68.9
C	25 to 150	1.7 to 10.3	1 to 12	0.1 to 0.8	600	41.4	1000	68.9
D	50 to 450	3.4 to 31.0	3 to 28	0.2 to 1.9	2000	137.9	3000	206.8
E	100 to 900	6.9 to 62.1	10 to 60	0.7 to 4.1	2000	137.9	3000	206.8
F	500 to 2500	34.5 to 172.4	20 to 140	1.4 to 9.7	6000	413.7	7500	517.1
G	700 to 4000	48.3 to 275.8	40 to 250	2.8 to 17.2	6000	413.7	7500	517.1
<b>Sensor Type 9</b> , 316L stainless steel 1/2" NPT (female) pressure connection and welded diaphragm. Large 23/32" orifice for clean-out purposes. Non-Belleville actuation. (NACE MR-0175 compliant)								
Range Code	psi	bar	psi	mbar	psi	bar	psi	bar
A	1 to 15	0.1 to 1.0	0.5 to 2	34.5 to 137.9	300	20.7	500	34.5
B	3 to 50	0.2 to 3.4	0.5 to 4	34.5 to 275.8	300	20.7	500	34.5
C	5 to 100	0.3 to 6.9	1.0 to 8	0.1 to 0.6 bar	300	20.7	500	34.5
<b>Sensor Type P</b> , 316 stainless steel piston and Buna N O-Ring with 316 stainless steel 1/4" NPT (female) pressure connection. Non-Belleville actuation. (NACE MR-0175 compliant)								
Range Code	psi	bar	psi	bar	psi	bar	psi	bar
0	50 to 400	3.4 to 34.5	15 to 65	1.0 to 4.5	6000	413.7	10000	689.5
1	300 to 1200	20.7 to 82.7	30 to 200	2.1 to 13.8	6000	413.7	10000	689.5
2	600 to 2600	41.4 to 179.3	50 to 350	3.4 to 24.1	6000	413.7	10000	689.5
3	1200 to 5500	82.7 to 379.2	100 to 800	6.9 to 55.2	7500	517.1	10000	689.5
4	4000 to 12,500	275.8 to 861.9	300 to 1450	20.7 to 99.9	14000	965.3	16000	1103.2
<b>Sensor Type P</b> , 316 stainless steel piston and Buna N O-Ring with 316 stainless steel 1/4" NPT (female) pressure connection. Belleville actuation. (NACE MR-0175 compliant)								
Range Code	psi	bar	psi	bar	psi	bar	psi	bar
6	300 to 1200	20.7 to 82.7	30 to 200	2.1 to 13.8	6000	413.7	10000	689.5
7	600 to 2600	41.4 to 179.3	50 to 350	2.4 to 24.1	6000	413.7	10000	689.5
8	1200 to 5500	82.7 to 379.2	100 to 800	6.9 to 55.2	7500	517.1	10000	689.5
9	4000 to 12,500	275.8 to 861.9	300 to 1450	20.7 to 99.9	14000	965.3	16000	1103.2
Range Code	inches wc (unless noted)	mbar (unless noted)	inches wc (unless noted)	mbar	psi	bar	psi	bar
<b>Sensor Type W</b> , 316L stainless steel 1/2" NPT (female) pressure connection and Buna N diaphragm. Non-Belleville actuation.								
1	30" Hg Vac to 0 psi	-1 to 0 bar	0.2 to 2" Hg	6.8 to 67.7	75	5.2	100	6.9
2	-20 to 20	-49.9 to 49.8	0.5 to 3.5	1.2 to 8.7	75	5.2	100	6.9
3	2 to 50	5.0 to 125.5	0.5 to 5	1.2 to 12.4	75	5.2	100	6.9
4	10 to 200	24.9 to 497.8	1 to 10	2.5 to 24.9	75	5.2	100	6.9

## DIFFERENTIAL PRESSURE MODEL CHART

Sensor Type/Range Code	Adjustable Range Lower end of range on fall; Higher end on rise		Deadband		Working Pressure Range***		Proof Pressure**	
<b>Sensor Type K</b> , Buna N diaphragm and sealing diaphragms with epoxy coated aluminum housing and 1/8" NPT (female) pressure connections. Non-Belleville actuation. 303/304 stainless steel mounting bracket attached. SPDT Switch (single pole double throw)								
Range Code	wcd	mbar	wcd	mbar	psi	bar	psi	bar
1	0.7 to 10	1.7 to 24.9	0.2 to 1	0.5 to 2.5	30 Hg Vac to 200	-1.0 to 13.8	400	27.6
2	3 to 20	7.5 to 49.8	0.3 to 1.5	0.7 to 3.7	30 Hg Vac to 200	-1.0 to 13.8	400	27.6
3	10 to 150	24.9 to 373.4	0.3 to 5	0.7 to 12.4	30 Hg Vac to 200	-1.0 to 13.8	400	27.6
Range Code	psid	bar	psi	bar	psi	bar	psi	bar
4	2 to 20	0.1 to 1.4	0.3 to 1.5	20.7 to 103.4 mbar	30 Hg Vac to 1200	-1.0 to 82.7	2500	172.4
5	5 to 80	0.3 to 5.5	1 to 8	0.1 to 0.6	30 Hg Vac to 1200	-1.0 to 82.7	2500	172.4
6	10 to 150	0.7 to 10.3	1 to 10	0.1 to 0.7	30 Hg Vac to 1200	-1.0 to 82.7	2500	172.4
<b>Sensor Type K</b> , Buna N diaphragm and sealing diaphragms with epoxy coated aluminum housing and 1/8" NPT (female) pressure connections. Non-Belleville actuation.								
Range Code	wcd	mbar	wc	mbar	psi	bar	psi	bar
1	0.7 to 10	1.7 to 24.9	0.2 to 1.5	0.5 to 3.7	30 Hg Vac to 200	-1.0 to 13.8	400	27.6
2	3 to 20	7.5 to 49.8	0.3 to 2	0.7 to 5.0	30 Hg Vac to 200	-1.0 to 13.8	400	27.6
3	10 to 150	24.9 to 373.4	0.3 to 8	0.7 to 19.9	30 Hg Vac to 200	-1.0 to 13.8	400	27.6
Range Code	psid	bar	psi	bar	psi	bar	psi	bar
4	2 to 20	0.1 to 1.4	0.3 to 3	20.7 to 206.8 mbar	30 Hg Vac to 1200	-1.0 to 82.7	2500	172.4
5	5 to 80	0.3 to 5.5	1 to 10	0.1 to 0.7	30 Hg Vac to 1200	-1.0 to 82.7	2500	172.4
6	10 to 150	0.7 to 10.3	1 to 15	0.1 to 1.0	30 Hg Vac to 1200	-1.0 to 82.7	2500	172.4

\***Over Range Pressure:** The maximum pressure that may be applied continuously without causing damage and maintaining set point repeatability.

\*\***Proof Pressure:** The maximum pressure to which a pressure sensor may be occasionally subjected, which causes no permanent damage. The unit may require calibration (e.g., start-up, testing).

\*\*\***Working Pressure Range:** The pressure range within which two opposing sensors can be safely operated and still maintain set point adjustability provided the difference in pressure between them does not exceed the designated adjustable range.

## TEMPERATURE MODEL CHART

Installation may require optional mounting bracket kit (P/N 62169-13)

Range Code	Adjustable Range		Max Temperature		Stem or Bulb Size
	°F	°C	°F	°C	
Sensor Type L, 316 Stainless steel immersion stem 1/2" NPT (male)					
1	0 to 225	-17.8 to 107.2	275	135	9/16" x 1-25/32" below thread
2	200 to 425	93.3 to 218.3	475	246.1	9/16" x 1-25/32" below thread
Sensor Type R, 304 Stainless steel bulb and capillary					
1	-130 to 120	-90 to 48.9	170	76.7	3/8 O.D. x 4-7 / 8"
2	0 to 150	-17.8 to 65.6	200	93.3	3/8 O.D. x 7-1 / 4"
3	50 to 300	10 to 148.9	350	176.7	3/8 O.D. x 4-7/8"
4	150 to 650	65.6 to 343.3	700	371.1	3/8 O.D. x 4"

## ORDERING INFORMATION

### BUILD PART NUMBER PER BELOW TABLE

Model Number Reference

12	S	L	S	N	2	A	M201
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12	<b>12 Designates the 12 Series</b>
S	<b>HOUSING MATERIAL</b> S Stainless Steel
L	<b>ELECTRICAL RATING</b> L 1 amp H 5 amp All switches have limited DC capabilities. Consult factory for details.
S	<b>TYPE OF SWITCHES</b> S SPDT D DPDT Available for pressure models only.
N	<b>ELECTRICAL CONDUIT</b> N 1/2" NPT male M M20 metric thread
2	<b>SENSOR TYPE (See Tables)</b> 2 Welded 316 stainless steel diaphragm, 1/2" NPT (female) pressure connection 3 Teflon® coated Polyimide (Kapton®) diaphragm, Buna N O-ring, 1/2" NPT (female) pressure connection 4 Teflon® coated Polyimide (Kapton®) diaphragm, Buna N O-ring, 1/4" NPT (female) pressure connection 5 316L stainless steel diaphragm, Viton® O-ring, 1/2" NPT (female) pressure connection 6 316L stainless steel diaphragm, Viton® O-ring, 1/4" NPT (female) pressure connection 7 Welded 316L stainless steel diaphragm, 1/2" NPT (female) pressure connection 8 Kapton® diaphragm, Buna N O-ring, 1/4" NPT (female) pressure connection, non-Belleville actuation 9 316L stainless steel welded diaphragm, 1/2" NPT (female) pressure connection, non-Belleville actuation P 303 stainless steel piston, Buna N O-ring, 1/4" NPT (female) pressure connections, non-Belleville actuation W 316 Stainless steel 1/2" NPT (female) pressure connection and Buna N diaphragm (Non-Belleville actuation) K Kapton® diaphragm, Buna N sealing diaphragm, 1/8" NPT (female) pressure connections* L Local mount, immersion stem, temperature (Non-Belleville actuated) R Remote bulb & capillary, temperature
A	<b>RANGE (See tables)</b> A, B, C, D, E, F, G, H, 1, 2, 3, 4, 5, 6, 7, 8, 9
M201	<b>OPTIONS</b> M201 Factory set switch, specify increasing or decreasing pressure M277 Range in kPa or mPa on nameplate, factory selected. NOT AVAILABLE ON TEMPERATURE VERSIONS M278 Range in kg/cm2 on nameplate. NOT AVAILABLE ON TEMPERATURE VERSIONS M404 Flameproof compliance for Ukraine per Gosnadzorohrantruda standards M405 European ATEX intrinsic safety compliance M406 Flameproof and intrinsic safety compliance per Russian Gosgortekhnadzor standards M407 CE compliance to Pressure Equipment Directive (category IV). NOT AVAILABLE ON TEMPERATURE VERSIONS M421 EAC flameproof junction box, pre-wired (not UL approved) To be ordered with M406 option. (NOT AVAILABLE ON M20 METRIC THREAD ELECTRICAL CONDUIT VERSION). THREADS TO STANDARD CONDUIT 1/2" NPT (M) M423 ATEX flameproof compliant junction box, pre-wire (not UL approved) (NOT AVAILABLE ON M20 METRIC THREAD ELECTRICAL CONDUIT VERSION). THREADS TO STANDARD CONDUIT 1/2" NPT (M) M430 Cover lock M444 Paper ID tag M446 Stainless steel ID tag and wire attachment M460 External ground screw; required for non-metallic conduit systems (ATEX installations only) M480 316 Stainless steel construction, pressure connections only; Viton® sensor material. AVAILABLE SENSOR TYPE K ONLY. M511 1/4" NPT (male) pressure connection for sensor types 3, 4, 5, 6 and 8 only M513 UL/CSA approved, explosion proof junction box, pre-wired (not approved for ATEX or as enclosure type 4X). NOT AVAILABLE ON METRIC THREAD ELECTRICAL CONDUIT VERSION

M201	<b>OPTIONS CONTINUED</b>
	<b>M515</b> DIN Connector-4 terminal; conforms to DIN 43650 Form A, (not approved for Class I Div. 1 & 2 or ATEX flame proof requirements). NOT AVAILABLE ON DPDT OR METRIC THREAD ELECTRICAL CONDUIT VERSIONS
	<b>M516</b> 316 Stainless steel 1/4" NPT (female) pressure connection and piston. AVAILABLE SENSOR TYPE P ONLY
	<b>M521</b> LF4 Medium pressure autoclave 1/4" (female); AVAILABLE SENSOR TYPES P4 & P9 ONLY
	<b>M522</b> LM4 Medium pressure autoclave 1/4" (male); AVAILABLE SENSOR TYPES P4 & P9 ONLY
	<b>M523</b> LF6 Medium pressure autoclave 3/8" (female); AVAILABLE SENSOR TYPES P4 & P9 ONLY
	<b>M524</b> LM6 Medium pressure autoclave 3/8" (male); AVAILABLE SENSOR TYPES P4 & P9 ONLY
	<b>M525</b> HF4 High pressure autoclave 1/4" (female); AVAILABLE SENSOR TYPES P4 & P9 ONLY
	<b>M526</b> HM4 High pressure autoclave 1/4" (male); AVAILABLE SENSOR TYPES P4 & P9 ONLY
	<b>M527</b> HF6 High pressure autoclave 3/8" (female); AVAILABLE SENSOR TYPES P4 & P9 ONLY
	<b>M528</b> HM6 High pressure autoclave 3/8" (male); AVAILABLE SENSOR TYPES P4 & P9 ONLY
	<b>M540</b> Viton® wetted parts with standard pressure connection. Deadband and low end of range may increase. Available sensor types 8 (O-ring), P (O-ring) & K (diaphragm, O-ring and sealing diaphragms) only.
	<b>M550</b> Oxygen service cleaned in accordance with ASTM G93, Verification type 1, tests 1 through 3. NOT AVAILABLE ON SENSOR TYPES 3 AND 4
	<b>M924</b> 7/16-20 SAE (female) stainless steel pressure connection. AVAILABLE SENSOR TYPE 6 ONLY
<b>ACCESSORIES</b>	
<b>62169-13</b> Mounting bracket kit (available with pressure and temperature models only)	
<b>62169-31</b> ATEX flameproof compliant junction box and terminal kit, not pre-wired (see option code M423 for description)	
<b>6361-694</b> Junction box and terminal kit, not pre-wired (see option code M513 for description)	
<b>OPTIONAL SENSOR MATERIALS FOR CORROSIVE MEDIA- AVAILABLE SENSOR TYPE 8 ONLY</b>	
<b>XD002</b> Hastelloy C diaphragm (NACE MR-0175 compliant)	
<b>XD003</b> Monel diaphragm (NACE MR-0175 compliant)	
<b>XP112</b> Hastelloy C pressure connection (NACE MR-0175 compliant)	
<b>XP113</b> Monel pressure connection	
<b>XP114</b> 1/4" NPT Hastelloy® pressure connection	
<b>XP115</b> 1/4" NPT Monel® pressure connection	
<b>XR211</b> Kalrez® O-ring(NACE MR-0175 compliant)	
<b>XR213</b> Ethylene propylene O-ring	
<b>XR214</b> Aflas® O-ring	
<b>XR216</b> Viton O-ring	

### OPTIONS FOR TEMPERATURE MODELS

#### UNION CONNECTORS

Option	Replacement Number	Description
	<u>304 Stainless Steel</u>	
W028	SD6213-28	1/2" NPT w/3/4" bushing
W046	SD6213-46	3/4" NPT
W050	SD6213-50	1/2" NPT

#### THERMOWELLS

For all bulb & capillary switches

#### 316 Stainless Steel

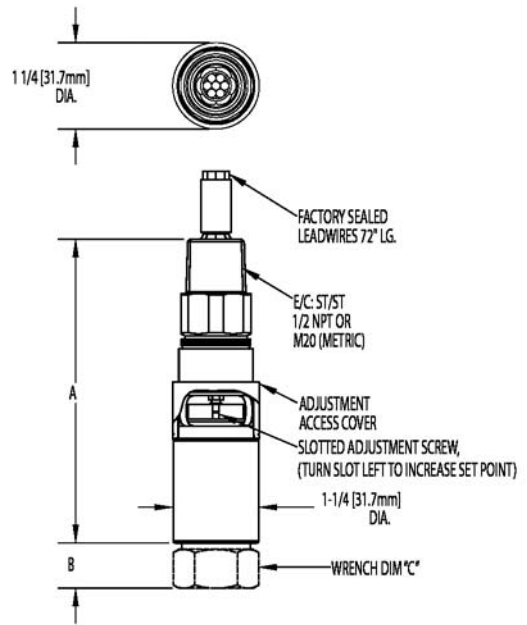
W076	SD6225-76	3/4" NPT, 4.5" BT
W193	SD6225-193	1/2" NPT, 4.5" BT
W119	SD6225-119	3/4" NPT, 7.5" BT
W177	SD6225-177	1/2" NPT, 7.5" BT
For all immersion stem switches		
W140	SD6225-140	3/4" NPT X 1 23/32" BT, 316 SS

#### OPTIONAL LENGTHS:

Optional capillary length to 50' may be available in 304 st/st. Consult Clark for availability, and regarding repeatability and ambient effects on capillary lengths over 30'. 304 stainless steel armor capillary protection is available to lengths less than or equal to capillary length.

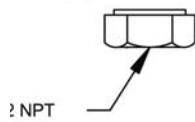
# DIMENSIONS INCHES (MM)

PRESSURE & TEMPERATURE SWITCH / CONNECTION CHART							
Type	Description	Dimension A		Dimension B		Dimension C	
		inches	mm	inches	mm	inches	mm
2	1/2" NPT (female)	4.4	111.1	0.7	16.5	1-1/16	27.0
3.5	1/2" NPT (female)	4.4	111.1	0.6	15.2	1-1/16	27.0
4,6,8	1/4" NPT (female)	4.4	111.1	0.6	15.2	1-1/16	27.0
7,9	1/2" NPT (female)	4.0	100.3	4.6	40.6	1-1/8	28.6
P1-P9	1/4" NPT (female)	4.4	111.1	1.0	25.4	1-1/16	27.0
W1-W2	1/2" NPT (female)	4.0	100.3	2.2	55.9	1-1/16	27.0
W2-W3	1/2" NPT (female)	4.0	100.3	1.7	42.9	1-1/16	27.0
K1-K3	1/8" NPT (female)	4.4	111.1	1.7	42.9	N/A	N/A
K4-K6	1/8" NPT (female)	4.4	111.1	1.8	44.5	N/A	N/A
L1-L2	Local Temperature	4.4	111.1	2.9	73.7	1-1/16	27.0
R1-R4	Remote Temperature	4.4	111.1	0.6	15.2	N/A	N/A
M521	LF4 Autoclave 1/4" (female)	4.4	111.1	1.2	29.7	1-1/16	27.0
M522	LM4 Autoclave 1/4" (male)	4.4	111.1	1.4	34.8	1-1/16	27.0
M523	LF6 Autoclave 3/8" (female)	4.4	111.1	1.4	36.1	1-1/16	27.0
M524	LM6 Autoclave 3/8" (male)	4.4	111.1	1.5	38.4	1-1/16	27.0
M525	HF4 Autoclave 1/4" (female)	4.4	111.1	1.2	29.7	1-1/16	27.0
M526	HM4 Autoclave 1/4" (male)	4.4	111.1	1.3	32.8	1-1/16	27.0
M527	HF6 Autoclave 3/8" (female)	4.4	111.1	1.4	36.1	1-1/16	27.0
M528	HF6 Autoclave 3/8" (male)	4.4	111.1	1.5	37.6	1-1/16	27.0

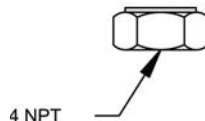


## Pressure

Types 2, 3, 5



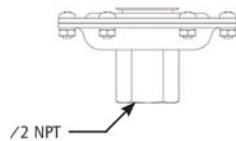
Types 4, 6, 8 P0-P9



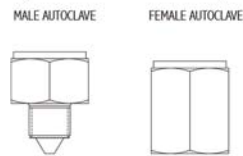
Types 7, 9



Type W

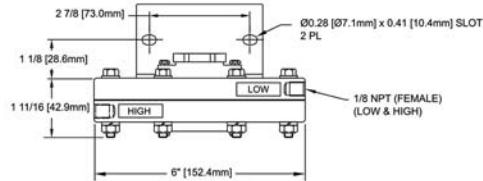


## Autoclave Option (P4 & P9 Sensor Only)

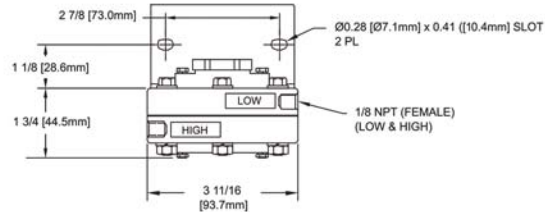


## Differential Pressure (Shown with mounting bracket attached)

TYPE K1-K3

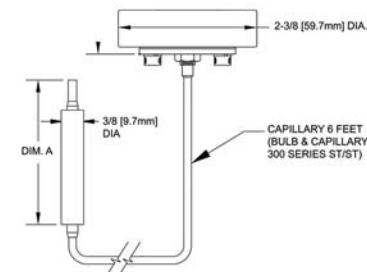


Types K4-K6

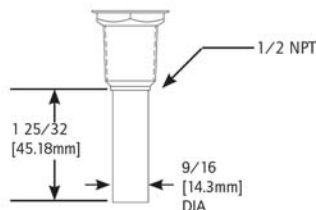


## Temperature

TYPE R



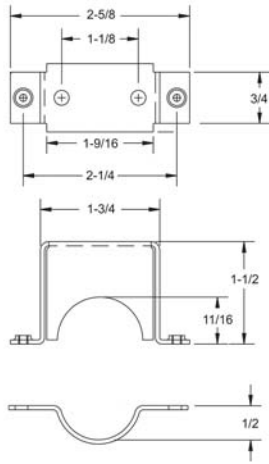
TYPE L



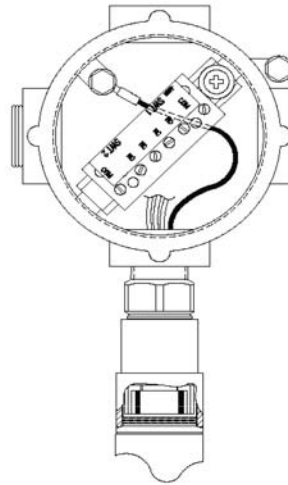
BULB DIMENSIONS		
Dimension A		
Types	Inches	mm
R1	4-7/8 "	123.8
R2	7-1/4 "	184.2
R3	4-7/8 "	123.8
R4	4 "	101.6

# DIMENSIONS INCHES (MM)

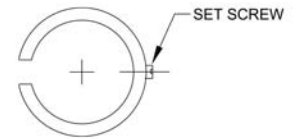
**OPTIONAL MOUNTING BRACKET KIT 62169-13**



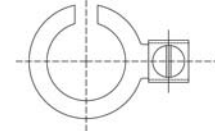
**OPTION M421 & M423 JUNCTION BOX**



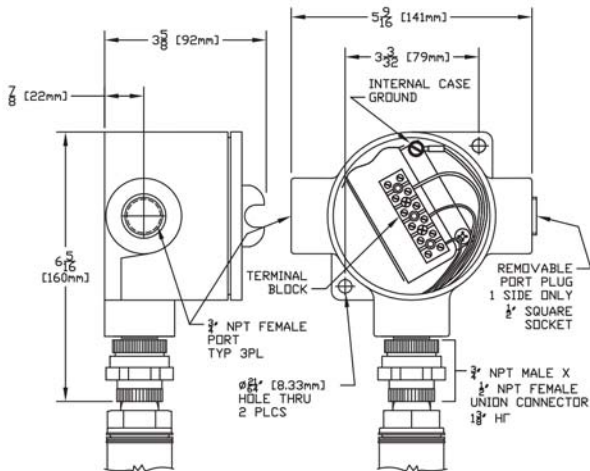
**OPTION M430 COVER LOCK**



**OPTION M460 EXTERNAL GROUNDING SCREW**

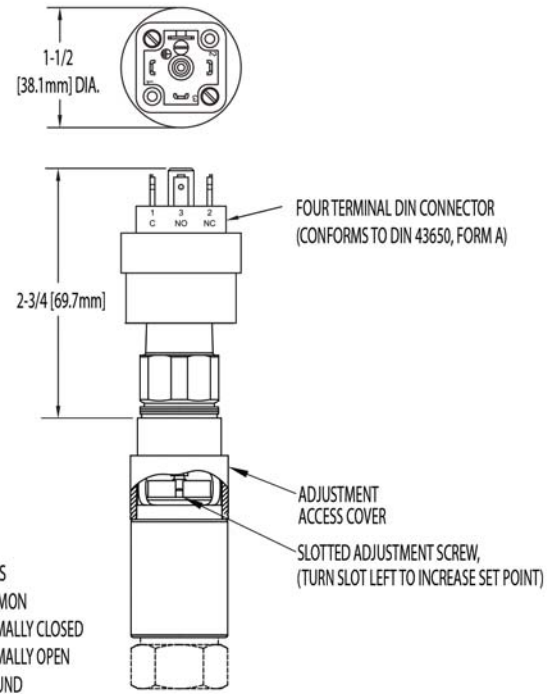


**OPTION M513 JUNCTION BOX**



Junction box meets enclosure type 4 requirements only. Not ATEX compliant (see option M423 for ATEX junction box)

**OPTION M515 DIN CONNECTOR.**



- TERMINALS
- #1 COMMON
  - #2 NORMALLY CLOSED
  - #3 NORMALLY OPEN
  - GROUND

Does not meet Div 1 or 2, or ATEX requirements.