

## PRESSURE, VACUUM, DIFFERENTIAL PRESSURE AND TEMPERATURE SWITCHES



### FEATURES

- 1, 2 & 3 switch outputs
- Epoxy-coated enclosure designed to meet enclosure type 4X
- Wide variety of pressure sensors and materials
- Setting via reference dial or hex screw adjustment
- FM approved
- Adjustable Ranges:

"WC ranges: 300 "wc vacuum to 250 "wc pressure (-746,7 to 622,3 mbar)

Pressure: 30 "Hg Vac to 6000 psi (-1,0 to 413,7 bar)

Differential Pressure: 1" wcd to 200 psid (2.5 mbar to 13,8 bar)

Temperature: -180 to 650 °F (-117.8 to 343.3 °C)





### OVERVIEW

The 400 Series is a versatile family of vacuum, pressure, differential pressure and temperature switches for applications that require single or multiple switching capabilities. Dual and triple switch versions provide multi-output for alarm and shutdown, pre-alarm and alarm, high/low limit or level staging functions.

A wide variety of microswitch and process connection options, along with a weather-tight enclosure, make the 400 Series an ideal choice for most ordinary location applications. Its worldwide use is assured with approvals and certifications to agency standards.

Widely used throughout the process industries, the 400 Series provides threshold protection and control for many critical functions. Typical installations are found in industrial gas production, energy generation including pumps, turbines and compressors, pulp and paper, and water and wastewater treatment.

### FEATURES

- UL listed and cUL certified. FM approved.
- CE compliant to low voltage directive and pressure equipment directive.
- Optional ATEX or GOST intrinsic safety compliance.
- One, two or three switch outputs may be separated up to 100% of range.
- Wide variety of available options and pressure sensor modules.
- Most models available for immediate delivery.

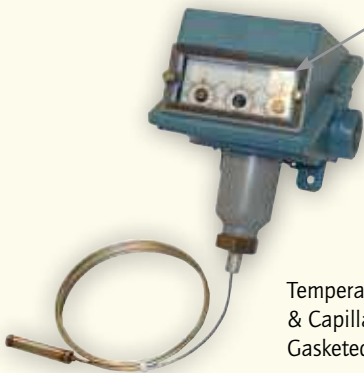


Reference scale, for types B, E & H with option M321

*Enlarged View*



Differential Pressure Model with M210 Option - Dial Indication



Temperature Model with Remote Bulb & Capillary and M321 option - Gasketed Lexan® Window



Dual Switch, Low Water Column Differential Pressure Model

## SPECIFICATIONS

|  |   |
|--|---|
| <b>STORAGE TEMPERATURE</b>                           | -65 to 160°F (-54 to 71°C)  |
| <b>AMBIENT TEMPERATURE LIMITS</b>                    | -40 to 160°F (-40 to 71°C); set point typically shifts less than 1% of range for a 50°F (28°C) ambient temperature change   |
| <b>SET POINT REPEATABILITY</b>                       | Temperature models: ± 2% of full scale range<br>Pressure: models 126-376, 520-535, 540-547, 570-572, S126B-S164B: ± 2% of full scale range; models 440-457, 550-559: ± 1% of full scale range; models 610-614: ± 3% of full scale range                               |
| <b>SHOCK</b>   | Set point repeats after 15 G, 10 millisecond duration   |
| <b>VIBRATION</b>                                     | Set point repeats after 2.5 G, 5-500 Hz   |
| <b>ENCLOSURE</b>                                     | Die cast aluminum, epoxy powder coated, gasketed, captive cover screws  |
| <b>ENCLOSURE CLASSIFICATION</b>                      | Designed to meet enclosure type 4X requirements   |
| <b>SWITCH OUTPUT</b>                                 | One, two or three SPDT switches, may be separated up to 100% of range except models 521-524, 531-534: 50%; models 520, 525, 530, 535, 570-572: 30%; switches may be wired "normally open" or "normally closed"  |
| <b>ELECTRICAL RATING</b>                             | 15 A 125/250/480 VAC resistive. Electrical switches have limited DC capabilities. Consult factory for additional information.   |
| <b>WEIGHT</b>  | Approx. 3 to 7.5 lbs.; varies with model  |
| <b>ELECTRICAL CONNECTION</b>                         | One 3/4" NPT and two 7/8" diameter knockouts  |
| <b>PRESSURE CONNECTION</b>                           | All models 1/4" NPT (female) except models S126B-S164B, 520-535: 1/2" NPT (female); models 540-547: 1/8" NPT (female)   |
| <b>TEMPERATURE ASSEMBLY</b>                          | 'E' types use the same assemblies as 'F' types, however, range spans are limited due to use of reference dials<br>Bulb and capillary: 6 feet 304 stainless steel<br>Immersion stem: models 120 & 121: nickel-plated brass; optional 316L stainless steel available    |
| <b>FILL</b>  | Temperature Models: Model 1BS: solvent filled; models 2-8: non-toxic oil filled   |
| <b>TEMPERATURE DEADBAND</b>                          | Type F typically 1% and type E, B & C typically 2% of range under laboratory conditions (70°F ambient circulating bath at rate of 1/2°F per minute change)  |
| <b>DIFFERENTIAL PRESSURE INDICATOR (OPTION M210)</b> | Differential pressure indication available J400K, J402K models 147-S157B; accuracy approximately 1-1/2% mid 50% of range, 3% at ends; window is plexiglass and gasketed; indicator may be field adjusted for approximately ±1% accuracy at any set point within range |

## APPROVALS



### **UNITED STATES AND CANADA**

#### **Type 400 & 402**

#### **UL Listed, cUL Certified**

Pressure: UL 508; CSA C22.2 No. 14, file # E42272

Temperature: UL 873; CSA C22.2 No. 24, file # E10667



#### **Type 403**

#### **UL Recognized, cUL Recognized**

Pressure: UL 508; CSA C22.2 No. 14, file # E42272

Temperature: UL 873; CSA C22.2 No. 24, file # E10667



#### **All Types**

#### **FM Approved**

Pressure: Class 3510

Temperature: Class 3545



### **EUROPE**

#### **ATEX Directive (94/9/EC)**

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 1105621X Rev. 0

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

#### **Low Voltage Directive (LVD) (2006/95/EC)**

Compliant to LVD

Products rated lower than 50 VAC and 75 VDC are outside of the scope of the LVD

#### **Pressure Equipment Directive (PED) (97/23/EC)**

Compliant to PED

Products rated below 7.5 PSI are outside the scope of PED



### **RUSSIA**

Gosgortekhnadzor Permit **(OPTIONAL – code M406)**

0ExiaIICT6

Tamb = -50°C to +60°C

NANIO CCVE Certification Center

Certificate # ROSS US.GB05.Bo2933

GOST R 51330.0, 51330.1, 51330.10 & 51330.14

**PRESSURE MODEL CHART**

Type J400, single switch output with internal hex screw adjustment  
 Type J402, dual switch output with internal hex screw adjustment  
 Type J403, triple switch output with internal hex screw adjustment

| Model   | Adjustable Set Point Range                             |                 | Deadband                                     |                    | Over Range Pressure* |                | Proof Pressure** |                |
|---|--|-----------------|--|--------------------|----------------------|----------------|------------------|----------------|
|   | Low end of range on fall;<br>High end of range on rise |                 | Deadband doubles for<br>2 and 3 switch types |                    | psi                  | bar            | psi              | bar            |
|   | "wc  | mbar            | "wc  | mbar               |                      |                |                  |                |
| Buna-N diaphragm and O-Ring with epoxy coated aluminum 1/2" NPT (female) pressure connection, large 0.72" orifice for clean-out purposes. Other wetted materials available, see pg. 12; Option M449 recommended |  |                 |  |                    |                      |                |                  |                |
| 520†  | 300 Vac to 0   | -746,7 to 0     | 0.2 to 12                                    | 0,5 to 29,9        | 200                  | 13,8           | 400              | 27,6           |
| 521†  | 10 Vac to 10   | -24,9 to 24,9   | 0.1 to 1                                     | 0,2 to 2,5         | 200                  | 13,8           | 400              | 27,6           |
| 522†  | 50 Vac to 50   | -124,5 to 124,5 | 0.1 to 5                                     | 0,2 to 12,4        | 200                  | 13,8           | 400              | 27,6           |
| 523†  | 0.5 to 5.0   | 1,2 to 12,4     | 0.1 to 0.3                                   | 0,2 to 0,7         | 200                  | 13,8           | 400              | 27,6           |
| 524†  | 2.5 to 50  | 6,2 to 124,5    | 0.1 to 2                                     | 0,2 to 5,0         | 200                  | 13,8           | 400              | 27,6           |
| 525†  | 10 to 250  | 24,9 to 622,3   | 0.1 to 10                                    | 0,2 to 24,9        | 200                  | 13,8           | 400              | 27,6           |
| Welded 316L stainless steel diaphragm and 1/2" NPT (female) pressure connection, large 0.72" orifice for clean-out purposes; Option M449 recommended  |  |                 |  |                    |                      |                |                  |                |
| 530†  | 300 Vac to 0   | -746,7 to 0     | 0.2 to 15                                    | 0,5 to 37,3        | 50                   | 3,4            | 100              | 6,9            |
| 531†  | 10 Vac to 10   | -24,9 to 24,9   | 0.1 to 1                                     | 0,2 to 2,5         | 50                   | 3,4            | 100              | 6,9            |
| 532†  | 50 Vac to 50   | -124,5 to 124,5 | 0.1 to 6                                     | 0,2 to 14,9        | 50                   | 3,4            | 100              | 6,9            |
| 533†  | 0.5 to 5.0   | 1,2 to 12,4     | 0.1 to 0.3                                   | 0,2 to 0,7         | 50                   | 3,4            | 100              | 6,9            |
| 534†  | 2.5 to 50  | 6,2 to 124,5    | 0.1 to 2.5                                   | 0,2 to 6,2         | 50                   | 3,4            | 100              | 6,9            |
| 535†  | 10 to 250  | 24,9 to 622,3   | 0.1 to 10                                    | 0,2 to 24,9        | 50                   | 3,4            | 100              | 6,9            |
|   | psi  | bar             | psi  | bar                | psi                  | bar            | psi              | bar            |
|   | (unless noted)   | (unless noted)  | (unless noted)                               | (unless noted)     | (unless noted)       | (unless noted) | (unless noted)   | (unless noted) |
| 316L stainless steel diaphragm and Viton® O-Ring with 316L stainless steel 1/4" NPT (female) pressure connection  |  |                 |  |                    |                      |                |                  |                |
| 570 <sup>1</sup>  | 0 to 20  | 0 to 1,4        | 0.2 to 4                                     | 13,8 to 275,8 mbar | 20                   | 1,4            | 225              | 15,5           |
| 571 <sup>1</sup>  | 0 to 50  | 0 to 3,4        | 0.7 to 6                                     | 48,3 to 413,7 mbar | 50                   | 3,4            | 225              | 15,5           |
| 572 <sup>1</sup>  | 0 to 100   | 0 to 6,9        | 1 to 7                                       | 0,1 to 0,5         | 100                  | 6,9            | 225              | 15,5           |
| Welded 316L stainless steel bellows and 1/2" NPT (female) pressure connection   |  |                 |  |                    |                      |                |                  |                |
| S126B   | 30 "Hg Vac to 0  | -1 to 0         | 0.2 to 0.9 "Hg                               | 6,8 to 30,5 mbar   | 3                    | 0,2            | 5                | 0,3            |
| S134B   | 30 "Hg Vac to 20 psi                                   | -1 to 1,4       | 0.2 to 1.2 "Hg                               | 6,8 to 40,6 mbar   | 20                   | 1,4            | 25               | 1,7            |
| S137B   | 0 to 80 "wc  | 0 to 199,1 mbar | 2 to 6 "wc                                   | 5 to 14,9 mbar     | 80 "wc               | 199,1 mbar     | 5                | 0,3            |
| S144B   | 0 to 20  | 0 to 1,4        | 0.1 to 0.5                                   | 6,9 to 34,5 mbar   | 20                   | 1,4            | 25               | 1,7            |
| S146B   | 0 to 30  | 0 to 2,1        | 0.1 to 0.6                                   | 6,9 to 41,4 mbar   | 30                   | 2,1            | 40               | 2,8            |
| S156B   | 0 to 100   | 0 to 6,9        | 0.2 to 0.8                                   | 13,8 to 55,2 mbar  | 100                  | 6,9            | 125              | 8,6            |
| S164B   | 0 to 200   | 0 to 13,8       | 0.3 to 2                                     | 20,7 to 137,9 mbar | 200                  | 13,8           | 200              | 13,8           |
| Welded 316L stainless steel bellows and 1/4" NPT (female) pressure connection   |  |                 |  |                    |                      |                |                  |                |
| 358   | 0 to 200   | 0 to 13,8       | 1.5 to 8                                     | 0,1 to 0,6         | 200                  | 13,8           | 250              | 17,2           |
| 361   | 0 to 300   | 0 to 20,7       | 2 to 9                                       | 0,1 to 0,6         | 300                  | 20,7           | 350              | 24,1           |
| 376   | 0 to 500   | 0 to 34,5       | 3 to 12                                      | 0,2 to 0,8         | 500                  | 34,5           | 575              | 39,6           |

\*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 subjected, which causes no permanent damage. The unit may require calibration (e.g. start-up, testing).

† Model not available on types J400 and J403; actual deadband shown, do not double – switch separation a maximum of 30 - 50% of range.

<sup>1</sup>Switch separation of 30% maximum for dual and triple switch units.



# 400 Series

## 400 Series

### PRESSURE MODEL CHART

Type J400, single switch output with internal hex screw adjustment  
 Type J402, dual switch output with internal hex screw adjustment  
 Type J403, triple switch output with internal hex screw adjustment

| Model  | Adjustable Set Point Range |                       | Deadband         |                    | Over Range Pressure*  |       | Proof Pressure** |       |
|--|----------------------------|-----------------------|------------------|--------------------|-----------------------|-------|------------------|-------|
|  | psi<br>(unless noted)      | bar<br>(unless noted) | psi              | bar                | psi<br>(unless noted) | bar   | psi              | bar   |
| 303 stainless steel piston with Buna-N O-Ring and 303 stainless steel 1/4" NPT (female) pressure connection (not recommended for gas service since drying of the O-Ring seal can allow bleeding of medium into the atmosphere) |                            |                       |                  |                    |                       |       |                  |       |
| 610  | 100 to 1,000               | 6,9 to 68,9           | 30 to 150        | 2,1 to 10,3        | 6,000                 | 413,7 | 10,000           | 689,5 |
| 612  | 200 to 3,000               | 13,8 to 206,8         | 40 to 250        | 2,8 to 17,2        | 6,000                 | 413,7 | 10,000           | 689,5 |
| 614  | 500 to 6,000               | 34,5 to 413,7         | 50 to 400        | 3,4 to 27,6        | 6,000                 | 413,7 | 10,000           | 689,5 |
| Brass bellows with nickel-plated brass 1/4" NPT (female) pressure connection; Models 126 and 134 have zinc-plated steel spring exposed to media  |                            |                       |                  |                    |                       |       |                  |       |
| 126  | 30 "Hg Vac to 0            | -1 to 0               | 0.2" to 0.9 "Hg  | 6,8 to 30,5 mbar   | 3                     | 0,2   | 5                | 0,3   |
| 134  | 30 "Hg Vac to 20 psi       | -1 to 1,4             | 0.2" to 1.2 "Hg  | 6,8 to 40,6 mbar   | 20                    | 1,4   | 25               | 1,7   |
| 137  | 0 to 80 "wc                | 0 to 199,1 mbar       | 2 to 6 "wc       | 5 to 14,9 mbar     | 3                     | 0,2   | 5                | 0,3   |
| 144  | 0 to 20                    | 0 to 1,4              | 0.1 to 0.5       | 6,9 to 34,5 mbar   | 20                    | 1,4   | 25               | 1,7   |
| 146  | 0 to 30                    | 0 to 2,1              | 0.1 to 0.6       | 6,9 to 41,4 mbar   | 30                    | 2     | 40               | 2,8   |
| 156  | 0 to 100                   | 0 to 6,9              | 0.2 to 0.8       | 13,8 to 55,2 mbar  | 100                   | 6,9   | 125              | 8,6   |
| 164  | 0 to 200                   | 0 to 13,8             | 0.3 to 2         | 20,7 to 137,9 mbar | 200                   | 13,8  | 200              | 13,8  |
| Phosphor bronze bellows with nickel-plated brass 1/4" NPT (female) pressure connection   |                            |                       |                  |                    |                       |       |                  |       |
| 270  | 0 to 200                   | 0 to 13,8             | 1.5 to 8         | 0,1 to 0,6         | 200                   | 13,8  | 250              | 17,2  |
| 274  | 0 to 300                   | 0 to 20,7             | 2 to 10          | 0,1 to 0,7         | 300                   | 20,7  | 350              | 24,1  |
| Buna-N diaphragm and O-Ring with aluminum 1/4" NPT (female) pressure connection and cap; Models 448, 450 & 452 have stainless steel pressure connection and cap  |                            |                       |                  |                    |                       |       |                  |       |
| 440††  | 0 to 2 "wc                 | 0 to 5 mbar           | 0.07 to 0.25 "wc | 0,2 to 0,6 mbar    | 3                     | 0,2   | 225              | 15,5  |
| 441†††   | 0 to 10 "wc                | 0 to 24,9 mbar        | 0.15 to 0.4 "wc  | 0,4 to 1,0 mbar    | 3                     | 0,2   | 225              | 15,5  |
| 442  | 0 to 20 "wc                | 0 to 49,8 mbar        | 0.2 to 0.6 "wc   | 0,5 to 1,5 mbar    | 3                     | 0,2   | 225              | 15,5  |
| 443  | 0 to 80 "wc                | 0 to 199,1 mbar       | 0.5 to 2 "wc     | 1,2 to 5,0 mbar    | 3                     | 0,2   | 225              | 15,5  |
| 448  | 80 "wc Vac to 0            | -199,1 to 0 mbar      | 1 to 3 "wc       | 2,5 to 7,5 mbar    | 3                     | 0,2   | 225              | 15,5  |
| 449†††   | 0 to 20 "wc                | 0 to 49,8 mbar        | 1 to 2 "wc       | 2,5 to 5,0 mbar    | 3                     | 0,2   | 225              | 15,5  |
| 450  | 30 "Hg Vac to 0            | -1 to 0               | 0.1 to 0.4 "Hg   | 3,4 to 13,5 mbar   | 3                     | 0,2   | 225              | 15,5  |
| 451  | 0 to 80 "wc                | 0 to 199,1 mbar       | 1 to 3 "wc       | 2,5 to 7,5 mbar    | 3                     | 0,2   | 225              | 15,5  |
| 452  | 30 "Hg Vac to 20 psi       | -1 to 1,4             | 0.2 to 1 "Hg     | 6,8 to 33,9 mbar   | 20                    | 1,4   | 225              | 15,5  |
| 453  | 0 to 20                    | 0 to 1,4              | 0.05 to 0.2      | 3,4 to 13,8 mbar   | 20                    | 1,4   | 225              | 15,5  |
| 454  | 0 to 30                    | 0 to 2,1              | 0.05 to 0.3      | 3,4 to 20,7 mbar   | 30                    | 2,1   | 225              | 15,5  |
| Teflon® diaphragm and Viton® O-Ring with 316L stainless steel 1/4" NPT (female) pressure connection and cap  |                            |                       |                  |                    |                       |       |                  |       |
| 550  | 30 "Hg Vac to 0            | -1 to 0               | 0.1 to 0.6 "Hg   | 3,4 to 20,3 mbar   | 3                     | 0,2   | 225              | 15,5  |
| 551  | 0 to 80 "wc                | 0 to 199,1 mbar       | 1.5 to 3.5 "wc   | 3,7 to 8,7 mbar    | 3                     | 0,2   | 225              | 15,5  |
| 552  | 30 "Hg Vac to 20 psi       | -1 to 1,4             | 0.2 to 1 "Hg     | 6,8 to 33,9 mbar   | 20                    | 1,4   | 225              | 15,5  |
| 553  | 0 to 20                    | 0 to 1,4              | 0.05 to 0.3      | 3,4 to 20,7 mbar   | 20                    | 1,4   | 225              | 15,5  |
| 554  | 0 to 30                    | 0 to 2,1              | 0.1 to 0.4       | 6,9 to 27,6 mbar   | 30                    | 2,1   | 225              | 15,5  |
| 555  | 0 to 100                   | 0 to 6,9              | 0.25 to 0.75     | 17,2 to 51,7 mbar  | 100                   | 6,9   | 225              | 15,5  |

**PRESSURE MODEL CHART**

Type H400, single switch output with internal adjustment via reference dial

Type H402, dual switch output with internal adjustment via reference dial

Type H403, triple switch output with internal adjustment via reference dial

| Model   | Adjustable Set Point Range  |                       | Deadband  |                       | Proof Pressure** |      | Scale Division        |
|---|---|-----------------------|---|-----------------------|------------------|------|-----------------------|
|   | High end of range on rise<br>Low end of range on fall;<br>psi<br>(unless noted) | bar<br>(unless noted) | Deadband doubles for<br>2 and 3 switch types<br>psi<br>(unless noted) | bar<br>(unless noted) | psi              | bar  | psi<br>(unless noted) |
| Welded 316L stainless steel bellows and 1/2" NPT (female) pressure connection   |   |                       |   |                       |                  |      |                       |
| S126B   | 30 "Hg Vac to 0   | -1 to 0               | 0.2 to 0.9 "Hg  | 6,8 to 30,5 mbar      | 5                | 0,3  | 2 "Hg                 |
| S134B   | 30 "Hg Vac to 20 psi  | -1 to 1,4             | 0.2 to 1.2 "Hg  | 6,8 to 40,6 mbar      | 25               | 1,7  | 2 "Hg & 2 psi         |
| S137B†  | 0 to 80 "wc   | 0 to 199,1 mbar       | 2 to 6 "wc  | 5 to 14,9 mbar        | 5                | 0,3  | 5 "wc                 |
| S144B   | 0 to 20   | 0 to 1,4              | 0.1 to 0.5  | 6,9 to 34,5 mbar      | 25               | 1,7  | 1                     |
| S146B   | 0 to 30   | 0 to 2,1              | 0.1 to 0.6  | 6,9 to 41,4 mbar      | 40               | 2,8  | 1                     |
| S156B   | 0 to 100  | 0 to 6,9              | 0.2 to 0.8  | 13,8 to 55,2 mbar     | 125              | 8,6  | 5                     |
| S164B   | 0 to 200  | 0 to 13,8             | 0.3 to 2  | 20,7 to 137,9 mbar    | 200              | 13,8 | 10                    |
| Welded 316L stainless steel bellows and 1/4" NPT (female) pressure connection   |   |                       |   |                       |                  |      |                       |
| 358   | 0 to 200  | 0 to 13,8             | 1.5 to 8  | 0,1 to 0,6            | 250              | 17,2 | 10                    |
| 361   | 0 to 300  | 0 to 20,7             | 2 to 9  | 0,1 to 0,6            | 350              | 24,1 | 10                    |
| 376   | 0 to 500  | 0 to 34,5             | 3 to 12   | 0,2 to 0,8            | 575              | 39,6 | 20                    |
| Brass bellows with nickel-plated brass 1/4" NPT (female) pressure connection; Models 126 and 134 have zinc-plated steel spring exposed to media                 |   |                       |   |                       |                  |      |                       |
| 126   | 30 "Hg Vac to 0   | -1 to 0               | 0.2 to 0.9 "Hg  | 6,8 to 30,5 mbar      | 5                | 0,3  | 2 "Hg                 |
| 134   | 30 "Hg Vac to 20 psi  | -1 to 1,4             | 0.2 to 1.2 "Hg  | 6,8 to 40,6 mbar      | 25               | 1,7  | 2 "Hg & 2 psi         |
| 137†  | 0 to 80 "wc   | 0 to 199,1 mbar       | 2 to 6 "wc  | 5 to 14,9 mbar        | 5                | 0,3  | 5 "wc                 |
| 144   | 0 to 20   | 0 to 1,4              | 0.1 to 0.5  | 6,9 to 34,5 mbar      | 25               | 1,7  | 1                     |
| 146   | 0 to 30   | 0 to 2,1              | 0.1 to 0.6  | 6,9 to 41,4 mbar      | 40               | 2,8  | 1                     |
| 156   | 0 to 100  | 0 to 6,9              | 0.2 to 0.8  | 13,8 to 55,2 mbar     | 125              | 8,6  | 5                     |
| 164   | 0 to 200  | 0 to 13,8             | 0.3 to 2  | 20,7 to 137,9 mbar    | 200              | 13,8 | 10                    |
| Phosphor bronze bellows with nickel plated brass 1/4" NPT (female) pressure connection  |   |                       |   |                       |                  |      |                       |
| 270††   | 0 to 200  | 0 to 13,8             | 1.5 to 8  | 0,1 to 0,6            | 250              | 17,2 | 10                    |
| 274††   | 0 to 300  | 0 to 20,7             | 2 to 10   | 0,1 to 0,7            | 350              | 24,1 | 10                    |
| Buna-N diaphragm and O-Ring with aluminum 1/4" NPT (female) pressure connection and cap; Models 448, 450 & 452 have stainless steel pressure connection and cap |   |                       |   |                       |                  |      |                       |
| 441†  | 0 to 10 "wc   | 0 to 24,9 mbar        | 0.15 to 0.4 "wc   | 0,4 to 1,0 mbar       | 225              | 15,5 | 0.5 "wc               |
| 442†  | 0 to 20 "wc   | 0 to 49,8 mbar        | 0.2 to 0.6 "wc  | 0,5 to 1,5 mbar       | 225              | 15,5 | 1 "wc                 |
| 443†  | 0 to 80 "wc   | 0 to 199,1 mbar       | 0.5 to 2 "wc  | 1,2 to 5,0 mbar       | 225              | 15,5 | 5 "wc                 |
| 448†  | 80 "wc Vac to 0   | -199,1 to 0 mbar      | 1 to 3 "wc  | 2,5 to 7,5 mbar       | 225              | 15,5 | 5 "wc                 |
| 450††   | 30 "Hg Vac to 0   | -1 to 0               | 0.1 to .04 "Hg  | 3,4 to 13,5 mbar      | 225              | 15,5 | 2 "Hg                 |
| 452††   | 30 "Hg Vac to 20 psi  | -1 to 1,4             | 0.1 to 1 "Hg  | 3,4 to 33,9 mbar      | 225              | 15,5 | 2 "Hg & 2 psi         |
| 453††   | 0 to 20   | 0 to 1,4              | 0.05 to 0.2   | 3,4 to 13,8 mbar      | 225              | 15,5 | 1                     |
| 454††   | 0 to 30   | 0 to 2,1              | 0.05 to 0.3   | 3,4 to 20,7 mbar      | 225              | 15,5 | 1                     |

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

† Model not available on types H402 and H403

†† Model not available on type H403



## PRESSURE MODEL CHART

Type H400, single switch output with internal adjustment via reference dial  
 Type H402, dual switch output with internal adjustment via reference dial  
 Type H403, triple switch output with internal adjustment via reference dial

| Model   | Adjustable Set Point Range |                       | Deadband              |                       | Proof Pressure** |      | Scale Division        |
|---|----------------------------|-----------------------|-----------------------|-----------------------|------------------|------|-----------------------|
|   | psi<br>(unless noted)      | bar<br>(unless noted) | psi<br>(unless noted) | bar<br>(unless noted) | psi              | bar  | psi<br>(unless noted) |
| Teflon® diaphragm and Viton® O-Ring with 316L stainless steel 1/4" NPT (female) pressure connection and cap |                            |                       |                       |                       |                  |      |                       |
| 550††   | 30 "Hg Vac to 0            | -1 to 0               | 0.1 to 0.6 "Hg        | 3,4 to 20,3 mbar      | 225              | 15,5 | 2 "Hg                 |
| 552††   | 30 "Hg Vac to 20 psi       | -1 to 1,4             | 0.2 to 1 "Hg          | 6,8 to 33,9 mbar      | 225              | 15,5 | 2 "Hg & 2 psi         |
| 553††   | 0 to 20                    | 0 to 1,4              | 0.05 to 0.3           | 3,4 to 20,7 mbar      | 225              | 15,5 | 1                     |
| 554††   | 0 to 30                    | 0 to 2,1              | 0.1 to 0.4            | 6,9 to 27,6 mbar      | 225              | 15,5 | 1                     |
| 555††   | 0 to 100                   | 0 to 6,9              | 0.25 to 0.75          | 17,2 to 51,7 mbar     | 225              | 15,5 | 5                     |

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

† Model not available on types H402 and H403

†† Model not available on type H403

## DIFFERENTIAL PRESSURE MODEL CHART

Type J400K, single switch output with internal hex screw adjustment  
 Type J402K, dual switch output with internal hex screw adjustment

| Model  | Adjustable Set Point Range |                       | Deadband              |               | Working Pressure*** |            | Proof Pressure** |      |
|--|----------------------------|-----------------------|-----------------------|---------------|---------------------|------------|------------------|------|
|  | psid<br>(unless noted)     | bar<br>(unless noted) | psi<br>(unless noted) | mbar          | psi                 | bar        | psi              | bar  |
| Welded 316L stainless steel bellows and 1/2" NPT (female) pressure connections   |                            |                       |                       |               |                     |            |                  |      |
| S147B  | 3 to 30                    | 0,2 to 2,1            | 0.5 to 2              | 34,5 to 137,9 | 30 "Hg Vac to 100   | -1 to 6,9  | 300              | 20,7 |
| S157B  | 10 to 100                  | 0,7 to 6,9            | 0.5 to 3              | 34,5 to 206,8 | 30 "Hg Vac to 180   | -1 to 12,4 | 300              | 20,7 |
| Brass bellows with nickel-plated brass 1/4" NPT (female) pressure connections    |                            |                       |                       |               |                     |            |                  |      |
| 147  | 3 to 30                    | 0,2 to 2,1            | 0.5 to 2              | 34,5 to 137,9 | 30 "Hg Vac to 100   | -1 to 6,9  | 180              | 12,4 |
| 157  | 10 to 100                  | 0,7 to 6,9            | 0.5 to 3              | 34,5 to 206,8 | 30 "Hg Vac to 150   | -1 to 10,3 | 180              | 12,4 |
| Buna-N diaphragm and O-Ring with aluminum 1/4" NPT (female) pressure connections |                            |                       |                       |               |                     |            |                  |      |
| 455  | 5 to 80 "wcd               | 12,4 to 199,1 mbar    | 1 to 4 "wc            | 2,5 to 10     | 30 "Hg Vac to 225   | -1 to 15,5 | 225              | 15,5 |
| 456  | 2 to 20                    | 0,1 to 1,4            | 0.1 to 0.3            | 6,9 to 20,7   | 30 "Hg Vac to 225   | -1 to 15,5 | 225              | 15,5 |
| 457  | 3 to 30                    | 0,2 to 2,1            | 0.1 to 0.4            | 6,9 to 27,6   | 30 "Hg Vac to 225   | -1 to 15,5 | 225              | 15,5 |

\*\*\*Working Pressure Range: The pressure range within which two opposing sensors can be safely operated and still maintain set point adjustability.



**DIFFERENTIAL PRESSURE MODEL CHART**

Type J400K, single switch output with internal hex screw adjustment  
 Type J402K, dual switch output with internal hex screw adjustment

| Model  | Adjustable Set Point Range |                       | Deadband              |                       | Working Pressure*** |            | Proof Pressure** |       |
|--|----------------------------|-----------------------|-----------------------|-----------------------|---------------------|------------|------------------|-------|
|  | psid<br>(unless noted)     | bar<br>(unless noted) | psi<br>(unless noted) | bar<br>(unless noted) | psi                 | bar        | psi              | bar   |
| Buna-N diaphragms and o-ring with epoxy coated aluminum 1/8" NPT (female) pressure connections (J402K only); Option M449 recommended                       |                            |                       |                       |                       |                     |            |                  |       |
| 540†   | 1 to 7 "wcd                | 2.5 to 17,4 mbar      | 0.1 to 0.5"wc         | 0,2 to 1,2 mbar       | 30 "Hg Vac to 200   | -1 to 13,8 | 400              | 27,6  |
| 541†   | 2 to 20 "wcd               | 5 to 49,8 mbar        | 0.5 to 2 "wc          | 1,2 to 5 mbar         | 30 "Hg Vac to 200   | -1 to 13,8 | 400              | 27,6  |
| 542†   | 5 to 50 "wcd               | 12,4 to 124,5 mbar    | 0.5 to 5 "wc          | 1,2 to 12,4 mbar      | 30 "Hg Vac to 200   | -1 to 13,8 | 400              | 27,6  |
| 543†   | 15 to 100 "wcd             | 37,3 to 248,9 mbar    | 0.5 to 7 "wc          | 1,2 to 17,4 mbar      | 30 "Hg Vac to 200   | -1 to 13,8 | 400              | 27,6  |
| 544†   | 2 to 20                    | 0,1 to 1,4            | 1 to 2.5              | 0,1 to 0,2            | 30 "Hg Vac to 1200  | -1 to 82,7 | 2500             | 172,4 |
| 545†   | 5 to 50                    | 0,3 to 3,4            | 1 to 3                | 0,1 to 0,2            | 30 "Hg Vac to 1200  | -1 to 82,7 | 2500             | 172,4 |
| 546†   | 10 to 100                  | 0,7 to 6,9            | 1 to 5                | 0,1 to 0,3            | 30 "Hg Vac to 1200  | -1 to 82,7 | 2500             | 172,4 |
| 547†   | 20 to 200                  | 1,4 to 13,8           | 1 to 7                | 0,1 to 0,5            | 30 "Hg Vac to 1200  | -1 to 82,7 | 2500             | 172,4 |
| Teflon® and Buna-N diaphragms, Buna-N O-Ring with aluminum 1/4" NPT (female) pressure connections  |                            |                       |                       |                       |                     |            |                  |       |
| 559  | 10 to 100                  | 0,7 to 6,9            | 0.2 to 1              | 13,8 to 68,9 mbar     | 30 "Hg Vac to 225   | -1 to 15,5 | 225              | 15,5  |
| Type H400K, single switch output with internal adjustment via reference dial<br>Type H402K, dual switch output with internal adjustment via reference dial |                            |                       |                       |                       |                     |            |                  |       |
| Buna-N diaphragm and O-Ring with 1/4" NPT (female) aluminum pressure connections   |                            |                       |                       |                       |                     |            |                  |       |
| 455  | 5 to 80 "wcd               | 12,4 to 199,1 mbar    | 1 to 4 "wc            | 2,5 to 10 mbar        | 30 "Hg Vac to 225   | -1 to 15,5 | 225              | 15,5  |
| 456  | 2 to 20                    | 0,1 to 1,4            | 0.1 to 0.3            | 6,9 to 20,7 mbar      | 30 "Hg Vac to 225   | -1 to 15,5 | 225              | 15,5  |
| 457  | 3 to 30                    | 0,2 to 2,1            | 0.1 to 0.4            | 6,9 to 27,6 mbar      | 30 "Hg Vac to 225   | -1 to 15,5 | 225              | 15,5  |
| Teflon and Buna-N diaphragms, Buna-N O-Ring with 1/4" NPT (female) aluminum pressure connections   |                            |                       |                       |                       |                     |            |                  |       |
| 559  | 10 to 100                  | 0,7 to 6,9            | 0.2 to 1              | 13,8 to 68,9 mbar     | 30 "Hg Vac to 225   | -1 to 15,5 | 225              | 15,5  |

\*\*\*Working Pressure Range: The pressure range within which two opposing sensors can be safely operated and still maintain set point adjustability.  
 † Model not available on type J400K; actual deadband shown, do not double



# 400 Series

## 400 Series

### TEMPERATURE MODEL CHART

- Type B400, single switch output, immersion stem, internal adjustment via reference dial
- Type B402, dual switch output, immersion stem, internal adjustment via reference dial
- Type B403, triple switch output, immersion stem, internal adjustment via reference dial
- Type C400, single switch output, immersion stem, internal hex screw adjustment
- Type C402, dual switch output, immersion stem, internal hex screw adjustment
- Type C403, triple switch output, immersion stem, internal hex screw adjustment
- Type E400, single switch output, bulb & capillary\*\*\*, internal adjustment via reference dial
- Type E402, dual switch output, bulb & capillary\*\*\*, internal adjustment via reference dial
- Type E403, triple switch output, bulb & capillary\*\*\*, internal adjustment via reference dial
- Type F400, single switch output, bulb & capillary\*\*\*, internal hex screw adjustment
- Type F402, dual switch output, bulb & capillary\*\*\*, internal hex screw adjustment
- Type F403, triple switch output, bulb & capillary\*\*\*, internal hex screw adjustment

| Model   | Adjustable Set Point Range |                | Max. Temp. |       | Scale Division†† |    | Stem or Bulb Size*/Finish**        |
|---|----------------------------|----------------|------------|-------|------------------|----|------------------------------------|
|   | °F                         | °C             | °F         | °C    | °F               | °C |                                    |
| Type B400, B402, B403, single, dual, or triple switch output, immersion stem, internal adjustment via reference dial.     |                            |                |            |       |                  |    |                                    |
| Type C400, C402, C403, single, dual, or triple switch output, immersion stem, internal hex screw adjustment               |                            |                |            |       |                  |    |                                    |
| 120   | 0 to 225                   | -17.8 to 107.2 | 275        | 135   | 5                | 5  | 9/16" x 1-7/8" nickel-plated brass |
| 121   | 200 to 425                 | 93.3 to 218.3  | 475        | 246.1 | 5                | 5  | 9/16" x 1-7/8" nickel-plated brass |
| Type E400, E402, E403, single, dual, or triple switch output, bulb & capillary***, internal adjustment via reference dial |                            |                |            |       |                  |    |                                    |
| 2BSA  | -120 to 100                | -84.4 to 37.8  | 150        | 65.6  | 10               | 5  | 3/8 x 2-5/8"                       |
| 2BSB  | 30 to 250                  | -1.1 to 121.1  | 300        | 148.9 | 10               | 5  | 3/8 x 2-5/8"                       |
| 3BS   | 100 to 400                 | 37.8 to 204.4  | 450        | 232.2 | 10               | 10 | 3/8 x 2-1/8"                       |
| 4BS   | 25 to 100                  | -3.9 to 37.8   | 150        | 65.6  | 5                | 2  | 3/8 x 6-3/4"                       |
| 5BS   | -20 to 80                  | -28.9 to 26.7  | 130        | 54.4  | 5                | 2  | 3/8 x 5"                           |
| 8BS   | 350 to 640                 | 176.7 to 337.8 | 690        | 365.6 | 10               | 10 | 3/8 x 3-1/4"                       |
| Type F400, F402, F403, single, dual, or triple switch output, bulb & capillary***, internal hex screw adjustment          |                            |                |            |       |                  |    |                                    |
| 1BS†  | -180 to 120                | -117.8 to 48.9 | 170        | 76.7  | N/A              |    | 3/8 x 3-3/4"                       |
| 2BS   | -125 to 350                | -87.2 to 176.7 | 400        | 204.4 | N/A              |    | 3/8 x 2-5/8"                       |
| 3BS   | -125 to 500                | -87.2 to 260   | 550        | 287.8 | N/A              |    | 3/8 x 2-1/8"                       |
| 4BS   | -40 to 120                 | -40 to 48.9    | 170        | 76.7  | N/A              |    | 3/8 x 6-3/4"                       |
| 5BS   | -40 to 180                 | -40 to 82.2    | 230        | 110   | N/A              |    | 3/8 x 5"                           |
| 6BS   | 0 to 250                   | -17.8 to 121.1 | 300        | 148.9 | N/A              |    | 3/8 x 4-1/2"                       |
| 7BS   | 0 to 400                   | -17.8 to 204.4 | 450        | 232.2 | N/A              |    | 3/8 x 3"                           |
| 8BS   | 50 to 650                  | 10 to 343.3    | 700        | 371.1 | N/A              |    | 3/8 x 3-1/4"                       |

† Model not available on type F403  
 †† Only applies to types B400, B402, B403, E400, E402 and E403  
 \* Optional immersion stem lengths and capillary lengths are available  
 \*\* Optional stainless steel immersion stem and capillary covering available  
 \*\*\* Standard capillary lengths are 6ft

**HOW TO ORDER**

**BUILDING A PART NUMBER**

Select a **Type**

Refer to the "Type" section below.

Determine type number based on switch output, enclosure, adjustment and reference.

Fill in the type portion of your part number with the corresponding number.

Select a **Model**

Refer to the "Model Charts".

Determine model based on adjustable range, deadband and proof pressure.

Fill in the model portion of your part number with the corresponding number.

Select an **Option**

Refer to the "Options" section.

Determine option number based on switch output, optional materials or other product enhancements.

Fill in the option portion of your part number with the corresponding number.

Leave "option" portion blank if no options are needed.

*FOR MULTIPLE OPTIONS:* Call United Electric Controls.

**TYPE**

**DESCRIPTION**

**PRESSURE**

- Type J400 - One SPDT output; internal hex screw adjustment
- Type J402 - Two SPDT outputs; internal hex screw adjustment
- Type J403 - Three SPDT outputs; internal hex screw adjustment
- Type H400 - One SPDT output; internal adjustment with reference dial
- Type H402 - Two SPDT outputs; internal adjustment with reference dial
- Type H403 - Three SPDT outputs; internal adjustment with reference dial

**DIFFERENTIAL PRESSURE**

- Type J400K - One SPDT output; internal hex screw adjustment
- Type J402K - Two SPDT outputs; internal hex screw adjustment
- Type H400K - One SPDT output; internal adjustment with reference dial
- Type H402K - Two SPDT outputs; internal adjustment with reference dial

**TEMPERATURE**

- Type B400 - Immersion stem; one SPDT output; internal adjustment with reference dial
- Type B402 - Immersion stem; two SPDT outputs; internal adjustment with reference dial
- Type B403 - Immersion stem; three SPDT outputs; internal adjustment with reference dial
- Type C400 - Immersion stem; one SPDT output; internal hex screw adjustment
- Type C402 - Immersion stem; two SPDT outputs; internal hex screw adjustment
- Type C403 - Immersion stem; three SPDT outputs; internal hex screw adjustment
- Type E400 - Bulb and capillary; one SPDT output; internal adjustment with reference dial
- Type E402 - Bulb and capillary; two SPDT outputs; internal adjustment with reference dial
- Type E403 - Bulb and capillary; three SPDT outputs; internal adjustment with reference dial
- Type F400 - Bulb and capillary; one SPDT output; internal hex screw adjustment
- Type F402 - Bulb and capillary; two SPDT outputs; internal hex screw adjustment
- Type F403 - Bulb and capillary; three SPDT outputs; internal hex screw adjustment



## HOW TO ORDER OPTIONS

### SWITCH OPTIONS\* DESCRIPTION

|      |   |
|------|---|
| 0140 | Gold contacts, 1 A 125 VAC resistive. NOT AVAILABLE MODELS 440-443  |
| 0500 | Close deadband, 5 A 125/250 VAC resistive. NOT AVAILABLE MODELS 440-443, 520-535 & 540-547  |
| 1010 | DPDT switch, 10 A 125/250 VAC resistive; deadband and minimum set point will increase. NOT AVAILABLE TEMPERATURE VERSIONS, TYPE J403, TYPE H403 AND MODELS 440-449, 520-535, 540-547, 570-572   |
| 1070 | 10 A 125 VDC resistive; deadband and minimum set point will increase. NOT AVAILABLE TYPES B, E AND MODELS 440-449, 520-535, 540-547, 570-572  |
| 1520 | Adjustable deadband, 15 A 125/250/480 VAC resistive. Adjustment wheel changes rise setting only if adjustment on fall setting is required, use primary adjustment (see product Installation & Maintenance instructions for additional information or consult UE). NOTE: NOT AVAILABLE ON MIDDLE SWITCH FOR TYPE J403, C403 AND F403. NOT AVAILABLE TYPES B, E, H, OR MODELS 440-443, 520-535, 540-547, 570-572, 610-614 |
| 1530 | External manual reset, 15 A 125/250/480 VAC resistive, latches on rise only. NOT AVAILABLE TRIPLE SWITCH VERSIONS, OR MODELS 440-443, 520-535, 570-572  |
| 1535 | High ambient, 15 A 125/250/480 VAC resistive; temperatures up to 250°F/145°C. NOT AVAILABLE MODELS 440-443, 520-535   |
| 1537 | Vapor-sealed 15 A 125/250 VAC resistive. NOT AVAILABLE MODELS 440-443, 520-535  |
| 1539 | Fungus resistant case, 15 A 125/250 VAC resistive. NOT AVAILABLE MODELS 440-443, 520-535  |
| 2000 | 20 A 125/250/480 VAC resistive. NOT AVAILABLE MODELS 440-443, 520-535, 540-547, 570-572   |

### OTHER OPTIONS

|           |   |
|-----------|---|
| M020      | Single red status light, 115 VAC only. Specify whether light goes on or off with increasing or decreasing pressure or temperature. NOT AVAILABLE J400K, H400K, J402K, H402K OR MODELS 440-443, 449  |
| M201      | Factory set one switch; specify set point on increasing or decreasing pressure, differential pressure or temperature. NOT AVAILABLE DUAL OR TRIPLE SWITCH VERSIONS  |
| M202      | Factory set two switches; specify set points on increasing or decreasing pressure, differential pressure or temperature. NOT AVAILABLE SINGLE OR TRIPLE SWITCH VERSIONS   |
| M203      | Factory set three switches; note: the third or middle switch must always be set to highest pressure or temperature when switches are set apart; specify set points on increasing or decreasing pressure, differential pressure or temperature. NOT AVAILABLE SINGLE OR DUAL SWITCH VERSIONS   |
| M210      | Differential pressure indication. AVAILABLE J400K AND J402K, MODELS 147, S147B, 157 & S157B   |
| M277      | Range indicated on nameplate in kPa or MPa, factory selected. NOT AVAILABLE TEMPERATURE VERSIONS  |
| M278      | Range indicated on nameplate in Kg/cm <sup>2</sup> . NOT AVAILABLE TEMPERATURE VERSIONS   |
| M321      | Gasketed Lexan® window. NOT AVAILABLE ON J, C, F TYPES  |
| M405      | Intrinsic safety compliance for European Union per ATEX standards   |
| M406      | Intrinsic safety compliance for Russia per Gosgortekhnadzor standards   |
| M444      | Paper ID tag  |
| M446      | Stainless steel ID tag & wire attachment  |
| M449      | Surface mounting hardware kit that is recommended for models 520-535 & 540-547 when surface mounting. Use option code only at time of ordering product, otherwise use surface and pipe mounting kit part number 6361-704 as a separate order or for other models.   |
| M504      | 316L Stainless steel immersion temperature stem. AVAILABLE TEMPERATURE MODELS 120, 121 ONLY   |
| M540      | Viton® construction (deadband and low end range may increase slightly); wetted parts include Viton® with standard connection material. AVAILABLE MODELS 448-454 and 540-547. TYPES J400K & J402K MODELS 455-457 include Viton® sealing diaphragms and O-rings with Teflon® main diaphragm. TYPES H400K & H402K MODELS 456-457 include Viton® sealing diaphragms and O-rings with Teflon® main diaphragm. MODELS 610-614 (Viton® O-ring only). |
| M550      | Oxygen service cleaning; alcohol cleaning to remove residue from the process connection. NOT AVAILABLE ON MODELS 440-443 OR H400K-455 AND H402K-455.  |
| M900      | Watertight conduit fitting; converts 7/8" hole to 1/2" NPT fitting. Required for product to meet NEMA 4X if using knockout holes for wiring   |
| M913      | 1/4" NPT (female) stainless steel pressure connection. AVAILABLE MODELS S126B-S146B, S156B, S164B ONLY  |
| M914      | 1/2" NPT (female) stainless steel pressure connection. AVAILABLE MODELS 358-376   |
| M921      | 1/4" NPT (female) brass pressure connection. AVAILABLE MODELS 610-614, TYPE J402 ONLY   |
| 6361-704  | Surface and pipe mount hardware kit for all models. Recommended for surface mounting needs 520-535 & 540-547, if not previously ordered with option M449.   |
| SD6286-51 | Watertight conduit fitting; connects 7/8" hole to 1/2" NPT (female) fitting, if not previously ordered with option M900   |

*\*All switches have limited DC capabilities. Consult factory for details.*

**HOW TO ORDER OPTIONS (CONTINUED)**

**OPTIONAL MATERIAL FOR "WC SENSORS: (AVAILABLE MODELS 520-525)**

|       |   |
|-------|---|
| XC001 | Aluminum pressure connection, Viton® diaphragm, Viton® O-Ring   |
| XC002 | Aluminum pressure connection, Kapton® diaphragm, Buna-N O-Ring  |
| XC003 | Aluminum pressure connection, Kapton® diaphragm, Viton® O-Ring  |
| XC004 | 316L stainless steel pressure connection, 316L stainless steel diaphragm, Viton® O-Ring (Over range pressure is limited to 100 psi) |
| XC005 | 316L stainless steel pressure connection, Viton® diaphragm, Viton® O-Ring   |
| XC007 | 316L stainless steel pressure connection, Teflon® diaphragm, Viton® O-Ring  |

**OPTIONS FOR TEMPERATURE MODELS**

**UNION CONNECTORS\*\***

*For all bulb & capillary switches, types E and F*

| Option                     | Replacement Number | Description              |
|----------------------------|--------------------|--------------------------|
| <u>Brass</u>               |                    |                          |
| W027                       | SD6213-27          | 1/2" NPT w/ 3/4" bushing |
| W045                       | SD6213-45          | 3/4" NPT                 |
| W051                       | SD6213-51          | 1/2" NPT                 |
| <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, types E and F*

|                            |            |   |
|----------------------------|------------|---|
| <u>Brass</u>               |            |   |
| W075                       | SD6225-75  | 1/2" NPT with 3/4" NPT adapter bushing, 4" BT |
| W191                       | SD6225-191 | 1/2" NPT, 4" BT                               |
| W118                       | SD6225-118 | 1/2" NPT with 3/4" NPT adapter bushing, 7" BT |
| W192                       | SD6225-192 | 1/2" NPT, 7" BT                               |
| <u>316 Stainless Steel</u> |            |   |
| 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; types B and C*

|      |            |                                   |
|------|------------|-----------------------------------|
| W139 | SD6225-139 | 3/4" NPT X 1-23/32" BT, BRASS     |
| W140 | SD6225-140 | 3/4" NPT X 1-23/32" BT, 316 ST/ST |

**W000 IMMERSION STEM AND THERMOWELLS**

**Note:** Option W000 is a special Immersion Stem construction that has no external thread. This option fits inside a special thermowell and is secured with a set-screw. Available on types B and C only.

| Option | Description  |
|--------|--|
| W000   | Immersion stem only, brass   |
| W097   | Immersion stem and thermowell. Includes W000 stem and 1/2" NPT x 1-23/32" BT brass thermowell      |
| W099   | Immersion stem and thermowell. Includes W000 stem and 1/2" NPT x 1-23/32" BT 316 st/st thermowell. |

**OPTIONAL LENGTHS:**

Optional immersion stem lengths to 15" may be available in Brass, with or without 316 ST/ST thermowell. Consult UE for additional information and availability. Optional capillary length to \*50' may be available in Copper or 304 ST/ST. Armor or Teflon® capillary protection may be available to lengths less than or equal to capillary length. Consult UE for additional information and availability.

\* Consult UE regarding repeatability and ambient effects on capillary lengths over 30'.  
 \*\* Dimensional drawings for union connectors and thermowells may be found at [www.ueonline.com](http://www.ueonline.com)



# 400 Series

## 400 Series

### DIMENSIONAL DRAWINGS

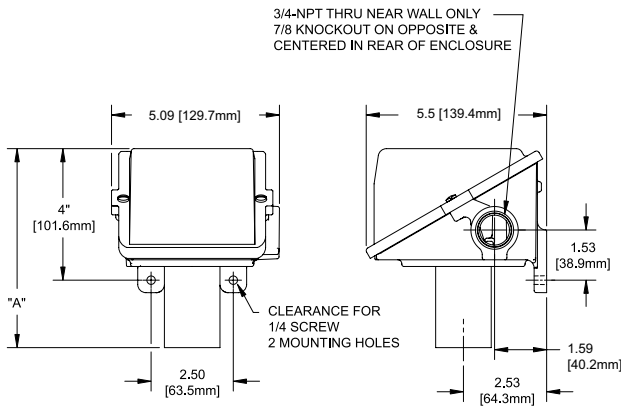
Dimensional drawings for all models may be found at [www.ueonline.com](http://www.ueonline.com)

#### Internal Hex Screw Set Point Adjustment

Types J400, J402, J403, J400K, J402K, C400, C402, C403, F400, F402, F403

#### Set Point Adjustment via Reference Dial

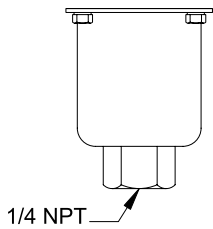
Types H400, H402, H403, H400K, H402K, B400, B402, B403, E400, E402, E403



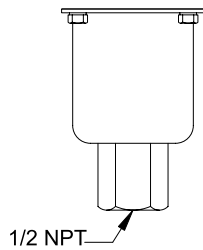
| Models                       | Dimension A |       |                  |
|------------------------------|-------------|-------|------------------|
|                              | Inches      | mm    | NPT              |
| <b>PRESSURE</b>              |             |       |                  |
| 126-164                      | 5.91        | 150.0 | 1/4              |
| S126B-S164B                  | 6.31        | 160.3 | 1/2              |
| 270-376                      | 5.50        | 139.7 | 1/4              |
| 440-443, 449                 |             |       |                  |
| 451, 453, 454                | 4.28        | 108.7 | 1/4              |
| 448, 450, 452                | 5.03        | 127.8 | 1/4              |
| 520-525                      | 8.25        | 209.6 | 1/2              |
| 530-535                      | 8.13        | 206.5 | 1/2              |
| 551, 553-555                 | 4.56        | 115.8 | 1/4              |
| 550, 552                     | 5.03        | 127.8 | 1/4              |
| 570-572                      | 4.56        | 115.8 | 1/4              |
| 610-614                      | 6.31        | 160.3 | 1/4              |
| <b>DIFFERENTIAL PRESSURE</b> |             |       |                  |
| 147-157                      | 6.13        | 155.7 | 1/4              |
| S147B-S157B                  | 6.13        | 155.7 | 1/2              |
| 455-559                      | 7.00        | 177.8 | 1/4              |
| 540-543                      | 7.97        | 202.4 | 1/8              |
| 544-547                      | 8.03        | 204.0 | 1/8              |
| <b>TEMPERATURE</b>           |             |       |                  |
| 120, 121                     | 7.38        | 187.3 | Immersion Stem   |
| 1BS-8BS                      | 6.72        | 170.7 | Bulb & Capillary |

### Pressure Sensors *All dimensions stated in inches (millimeters)*

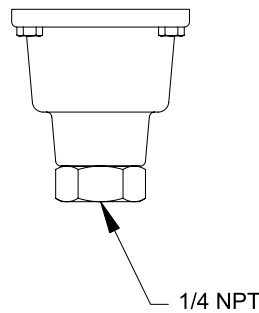
Models 126-164



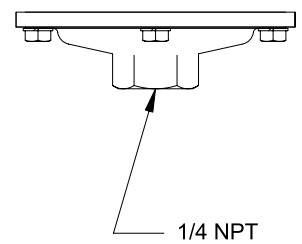
Models S126B-S164B



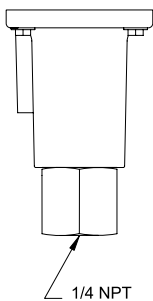
Models 270-376



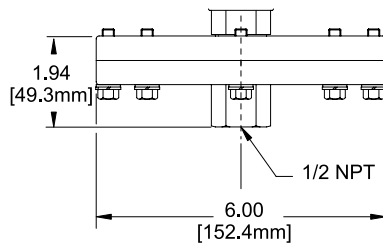
Models 440-454, 550-555, 570-572



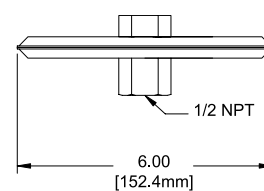
Models 610-614



Models 520-525



Models 530-535

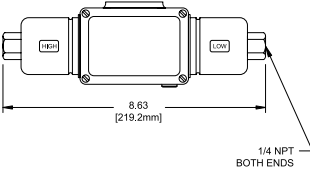


**DIMENSIONAL DRAWINGS**

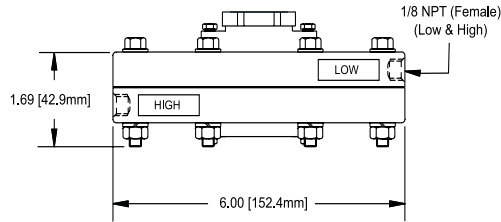
Dimensional drawings for all models may be found at [www.ueonline.com](http://www.ueonline.com)

**Differential Pressure Sensors**

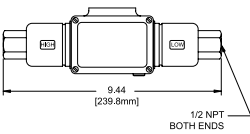
**Models 147-157**



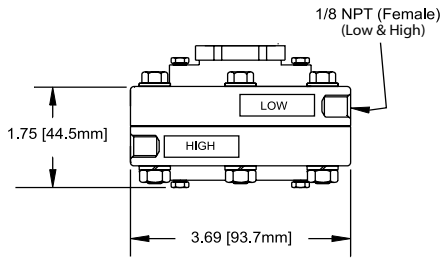
**Models 540-543**



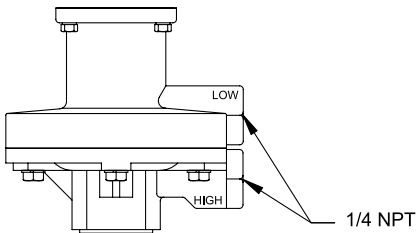
**Models S147B-S157B**



**Models 544-547**

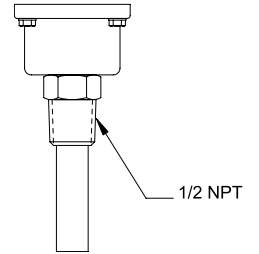


**Models 455-457, 559**



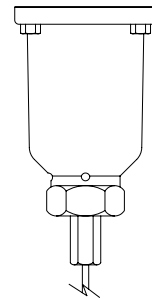
**Temperature Sensors**

**Models 120-121**



Local mount temperature version

**Models 1BS-8BS**



Remote mount temperature version