The 45APE Series Swichgage instrument is a mechanical gage for pressure indication. It includes 2 adjustable SPDT switches. These snap-acting switches can be used for start and stop, to trip alarms and to shut down equipment. Ranges are available from 30" vac (-100 kPa) [-1 bar] thru 10,000 psi (138 MPa) [1379 bar], see back page.

**Features**
- Combination Indicating Gage with Independent Low and High Snap-Acting Switches
- Field-Adjustable and Highly Visible Low and High Pressure Trip Point Indicators
- Dual-Sector Geared Movement Allows for Full-Scale Indication and Set Point Control
- Panel and Surface Mount Versions Available
- Latching Control Relay Versions Available

**Basic Operation**

The 45APE Series utilizes a bourdon tube sensing unit with a stainless steel dual-sector geared movement. Each of the sectors drive separate pointers when pressure is applied to the bourdon tube. The indicating pointer (visible pointer) shows actual pressure reading, including below and beyond the low and high trip points. The low and high trip points are adjustable independently on the gage front lens. The switch operator pointer (behind the dial) is calibrated to follow the indicating pointer. The low and high trip point indicators “arrest” the switch operator pointer, and as pressure decreases or increases, through “the principal of lost motion” the respective snapswitch is tripped.

**Basic Models**

- **45APE Series Swichgage instrument**
  - Surface mount (square case) version.

- **45APEF Series Swichgage instrument**
  - Panel mount (round case) version.

- **45APEBP Latching Control Relay Series**
  - These models have a latching control relay for automatic ON/OFF control. They are designed to start and stop electric motor driven equipment.

- **45APEE and 45APEBPE**
  - These models (square case) have the same features as the 45APE/45APEBP, but suitable for panel mounting.

**Applications**

The 45APE Series models are widely used in applications requiring pressure indication and Form “C” low and high pressure switches.

**Specifications**

- **Dial:** White on black, dual scale, psi and kPa standard, 4-1/2 in. (114 mm) diameter.
- **Case:** Die cast aluminum, surface or panel mount.
- **Overrange:** Do not exceed 10% FS above full range.
- **Process Connection:** 1/4 NPTM thru 1000 psi; 1/2 NPTM 1500 - 10,000 psi; back connection optional.
- **Sensing Element:** Bronze or 316 stainless steel bourdon tube.
- **Gage Accuracy:** Indicating pointer within switch points with hysteresis of <1%; ±2% for first and last quarters of scale; middle half of scale is ±1%.
- **Indicating pointer above or below trip point:**
  - Range Accuracy (+/-) above & below trip point only
    - < 100 (except 15 psi) 10
    - 15 15
    - 100-300 4
    - 400-1000 2
    - 1500-2000 12
    - 3000-5000 8
- **Reading based on testing performed with switch point at mid scale which represents worst case. Switch accuracy ±1.5%.

- **Pressure Relief Disc:** Back of case (except EX models).
- **Switch Reset Deadband:** Approximately 10% FS.
- **Snap-Acting Switches:** 2-SPDT; 2 A @ 250 VAC.
- **Dry Relay Contact (“BP” Models):** 10 A @ 28 VDC or 10 A @ 120 VAC.

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How to Order

Specify model number. **NOTE:** No designator is required for **Standard** configurations. List options in alphabetical order (A to Z). Place a dash (–) between each option. See example below.

**Base Model**

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>45APEF</td>
<td></td>
<td>45APEF</td>
</tr>
<tr>
<td>45APEBF</td>
<td></td>
<td>45APEBF</td>
</tr>
</tbody>
</table>

* Not covered by CSA.

**Voltage** (BP models only, feature NOT covered by CSA)

Blanke 120 vac

2 = 12 VDC

4 = 24 VDC

**Bourdon Tube/Socket**

A = Bronze/Brass std. < -1,000 psi

S = 316 Stainless Steel/316 Stainless Steel

**Range**

<table>
<thead>
<tr>
<th>Code</th>
<th>Vacuum psi</th>
<th>kPa/MPa</th>
<th>bar</th>
</tr>
</thead>
<tbody>
<tr>
<td>30PV00H</td>
<td>30&quot; Vac -60° Hg/Press.</td>
<td>-101 kPa -2034 kPa</td>
<td>-1.01 - -2.03</td>
</tr>
<tr>
<td>30V</td>
<td>30&quot; vac -0 psi</td>
<td>-101 kPa -04 kPa</td>
<td>-1.01 -0</td>
</tr>
<tr>
<td>30V15</td>
<td>30&quot; vac -15 psi</td>
<td>-101 kPa -103 kPa</td>
<td>-1.01 -1.03</td>
</tr>
<tr>
<td>30V20</td>
<td>30&quot; vac -20 psi</td>
<td>-101 kPa -207 kPa</td>
<td>-1.01 -2.07</td>
</tr>
<tr>
<td>30V200</td>
<td>30&quot; vac -200 psi</td>
<td>-101 kPa -689 kPa</td>
<td>-1.01 -6.89</td>
</tr>
<tr>
<td>30V300</td>
<td>30&quot; vac -300 psi</td>
<td>-101 kPa -2034 kPa</td>
<td>-1.01 -20.68</td>
</tr>
<tr>
<td>15</td>
<td>15 psi</td>
<td>0 - 103 kPa</td>
<td>0 - 1.03</td>
</tr>
<tr>
<td>30</td>
<td>0 - 30 psi</td>
<td>0 - 207 kPa</td>
<td>0 - 2.06</td>
</tr>
<tr>
<td>60</td>
<td>0 - 60 psi</td>
<td>0 - 414 kPa</td>
<td>0 - 4.13</td>
</tr>
<tr>
<td>100</td>
<td>0 - 100 psi</td>
<td>0 - 689 kPa</td>
<td>0 - 6.89</td>
</tr>
<tr>
<td>160</td>
<td>0 - 160 psi</td>
<td>0 - 1034 kPa</td>
<td>0 - 10.34</td>
</tr>
<tr>
<td>200</td>
<td>0 - 200 psi</td>
<td>0 - 1379 kPa</td>
<td>0 - 13.79</td>
</tr>
<tr>
<td>300</td>
<td>0 - 300 psi</td>
<td>0 - 207 kPa</td>
<td>0 - 2.07</td>
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<tr>
<td>400</td>
<td>0 - 400 psi</td>
<td>0 - 2766 kPa</td>
<td>0 - 27.66</td>
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<tr>
<td>600</td>
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<td>0 - 414 kPa</td>
<td>0 - 4.14</td>
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<tr>
<td>1000</td>
<td>0 - 1000 psi</td>
<td>0 - 689 kPa</td>
<td>0 - 6.89</td>
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<tr>
<td>1500</td>
<td>0 - 1500 psi</td>
<td>0 - 1034 kPa</td>
<td>0 - 10.34</td>
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<tr>
<td>2000</td>
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<td>0 - 1379 kPa</td>
<td>0 - 13.79</td>
</tr>
<tr>
<td>3000</td>
<td>0 - 3000 psi</td>
<td>0 - 207 kPa</td>
<td>0 - 2.07</td>
</tr>
<tr>
<td>5000</td>
<td>0 - 5000 psi</td>
<td>0 - 207 kPa</td>
<td>0 - 2.07</td>
</tr>
<tr>
<td>10000</td>
<td>0 - 10,000 psi</td>
<td>0 - 1379 kPa</td>
<td>0 - 13.79</td>
</tr>
</tbody>
</table>

**Options** **(NOTE: Not all options available for every model.)**

- **BC** = Back Connected Bourdon Tube
- **ES** = Environmentally Sealed (45APEF models only)
- **EX** = Explosion proof (approved for hazardous areas Class I, Groups C & D to or 5000 pag)
- **EL** = (EXLC) Explosion Proof Less Case
- **LC** = Less Case
- **OS** = Oil Sealed (45APEF models only)
- **P4L** = (PT147) PT147 pressure transmitter w/5 ft. capillary^1^ (Pulsation damper no longer provided)
- **P6** = (PT167) PT167 Pressure transmitter direct mount \(^2\) (1) For capillary greater than 5 ft., specify in 5 ft. increment following designator, example: P4L35 option P4 with 15 ft. capillary.

(2) Available for ranges 2100-1000 psi only.

**NOTE:** for detail on P4L, P6 options see WM Murphy sales bulletin OPL-96001B in section 05 of your catalog.

**45APE Series Typical Wiring Diagram**

- **Contact Ratings:** 2-SPST snap switches; 2A @ 250 Vac

**NOTE:** Diagram shows the pointer in the at rest (shelf) position.

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