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.

**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 45APEBP**
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:
    - Ranges above & below trip point only
    - Range: Accuracy (+/-):
      - < 100 (except 15 psi): 10
      - 15: 15
      - 100-300: 4
      - 400-1500: 2
      - 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.
- **Wire Connections (Surface Mount):** 1/2 NPTF conduit/terminal block.
- **Wire Connections (Panel Mount):** Wire leads, 18 AWG (1.0 mm2) x 9 in. (229 mm) long.
- **Wire Connections (-ES, -OS):** 1/2 NPTM conduit and wire leads, 24 AWG (0.22 mm2) x 30 in. (762 mm) long.
- **Item Weight:** 5 lbs 6 oz (2.4 kg) approximately.
  - Explosion-proof models: 21 lb. (9.5 kg) approx.
- **Item Dimensions:** 10 x 9 x 6 in. (254 x 229 x 152 mm) approximately.
  - Explosion-proof models: 12 x 12 x 9 in. (305 x 305 x 229 mm) approximately.

- **CSA Certified Models:** 45APE Series models with pressure range thru 5000 psig (34.4 MPa) [344 bar] are CSA approved for Non-Hazardous locations, except options BC, ES, LC and OS. Explosion-proof “EX” models with pressure range thru 5000 psig (34.4 MPa) [344 bar] are CSA approved for Hazardous locations Class I, Groups, C & D. 45APEBP and 45APEBP models are not CSA certified.

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* Listed for non-hazardous locations Pending for hazardous location.
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.

**Options (NOTE: Not all options available for every model.)**
- **BC** = Back-Connected Bourdon Tube
- **EC** = Explosion-Proof Case
- **ES** = Explosion-proof (45APE models only)
- **EP** = Explosion-proof (45APE models only)
- **Fm** = Explosion-proof (45APE models only)
- **Fm** = Explosion-proof (45APE models only)
- **M1** = Pressure transmitter w/5 ft. capillary
- **M2** = Pressure transmitter w/5 ft. capillary

**Range**

<table>
<thead>
<tr>
<th>Code</th>
<th>Vacuum/psi</th>
<th>kPa/MPa</th>
<th>bar</th>
</tr>
</thead>
<tbody>
<tr>
<td>010V</td>
<td>30° vac - 0 psi</td>
<td>101 1/2</td>
<td>10.11</td>
</tr>
<tr>
<td>020V</td>
<td>30° vac - 20 psi</td>
<td>101 1/2</td>
<td>10.11</td>
</tr>
<tr>
<td>030V</td>
<td>30° vac - 50 psi</td>
<td>101 1/2</td>
<td>10.11</td>
</tr>
<tr>
<td>050V</td>
<td>30° vac - 100 psi</td>
<td>101 1/2</td>
<td>10.11</td>
</tr>
<tr>
<td>070V</td>
<td>30° vac - 150 psi</td>
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<td>10.11</td>
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<tr>
<td>100V</td>
<td>30° vac - 200 psi</td>
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<td>10.11</td>
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<tr>
<td>150V</td>
<td>30° vac - 300 psi</td>
<td>101 1/2</td>
<td>10.11</td>
</tr>
<tr>
<td>200V</td>
<td>30° vac - 500 psi</td>
<td>101 1/2</td>
<td>10.11</td>
</tr>
<tr>
<td>300V</td>
<td>30° vac - 750 psi</td>
<td>101 1/2</td>
<td>10.11</td>
</tr>
<tr>
<td>500V</td>
<td>30° vac - 1000 psi</td>
<td>101 1/2</td>
<td>10.11</td>
</tr>
</tbody>
</table>

**Surface Mount Models**

- **Pressure Connection**
  - **Model:** 0-100 psi, 0-500 psi, 0-1000 psi
  - **Dimensions:** 3/8 in. (10 mm) diameter, 1/8 in. (3 mm) connection

**Panel Mount Models**

- **Pressure Connection**
  - **Model:** 0-100 psi, 0-500 psi, 0-1000 psi
  - **Dimensions:** 5/8 in. (16 mm) diameter, 1/4 in. (6 mm) connection

**Warranty** - A limited warranty on materials and workmanship is given with this FW Murphy product. A copy of the warranty may be viewed or printed by going to http://www.fwmurphy.com/warranty