A-Series Miniature Watertight Pressure Switches

FEATURES
- Compact size
- 316 Stainless steel construction
- Pressure ranges from vacuum to 15,000 psi
- Factory set or field adjustable setpoints
- Wide operating temperature range (-40 °C to 100 °C)
- Precision snap-acting micro switch
- SPDT or DPDT switching
- UL, CSA listed models
- CE/UKCA and ROHS compliant
- CRN models available (up to 10,000 psi)
- SIL 3 capable

TYPICAL USES
- Offshore oil rigs
- Chemical and petrochemical plants
- Pulp and papermills
- Autoclaves and sterilizers
- Rail and heavy vehicles
- Specialty machinery and equipment

SPECIFICATIONS

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Setpoint:</td>
<td>Single setpoint – Factory set or field adjustable</td>
</tr>
<tr>
<td>Setpoint Repeatability</td>
<td>±2% of span. For ranges 200 through 15,000 psi  ±5% of span. For ranges -15/15 through 100 psi</td>
</tr>
<tr>
<td>Vibration:</td>
<td>Passed Mil-STD-202G</td>
</tr>
<tr>
<td>Shock:</td>
<td>75G's 10 milliseconds 3 axis</td>
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<tr>
<td>Piston:</td>
<td>Stainless steel with Viton™ or Buna-N O-ring</td>
</tr>
<tr>
<td>Mechanical life piston design:</td>
<td>&gt;1,000,000 operations typical</td>
</tr>
<tr>
<td>Diaphragm:</td>
<td>316L Stainless steel</td>
</tr>
<tr>
<td>Mechanical life diaphragm design:</td>
<td>&gt;400,000 operations typical</td>
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<tr>
<td>Switch Type:</td>
<td>SPDT or DPDT</td>
</tr>
<tr>
<td>Deadband:</td>
<td>Fixed</td>
</tr>
<tr>
<td>Enclosure Ratings:</td>
<td>NEMA 6, IP67</td>
</tr>
<tr>
<td>Enclosure material:</td>
<td>316L Stainless steel</td>
</tr>
<tr>
<td>Pressure Connection:</td>
<td>¼ NPTF, ¼ NPTF, ¼ NPTM, ¼ NPTM, ½ MNPT, ½ FNPT, ½ NPTF, ¾ NPTM, ¾ NPTM, ¾ NPTM, 1/4 Male Fixed compatible with VCR® and VCO® fittings, ¾” Tri-Clamp®, 1.5” Tri-Clover®, 2” Tri-Clover, G1/4 B, G3/4 A Type E Stub end</td>
</tr>
<tr>
<td>Electrical output:</td>
<td>SPDT, or DPDT 5 A or 3 A 120 Vac, 2 A @ 30 Vdc, gold contacts available</td>
</tr>
<tr>
<td>Approvals:</td>
<td>UL, CSA, CE/UKCA, CRN, SIL 3 capable, RoHS</td>
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</tbody>
</table>

KEY BENEFITS
- High performance
- Small size
- Special connections
- Easily configurable to meet your application requirements
- SIL 3 capable
## A-Series Miniature Watertight Pressure Switches

### CHARACTERISTICS AND RATINGS

#### A SERIES SWITCH PERFORMANCE CHARACTERISTICS

<table>
<thead>
<tr>
<th>RANGE (Ordering Code)</th>
<th>BAR (BAR)</th>
<th>kPa (KPa)</th>
<th>psi</th>
<th>bar, kg/cm²</th>
<th>kPa</th>
<th>psi</th>
<th>bar, kg/cm²</th>
<th>kPa</th>
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<tbody>
<tr>
<td>-15/15</td>
<td>-1/1</td>
<td>100/100</td>
<td>±1.5</td>
<td>±10</td>
<td>±10</td>
<td>±15/15</td>
<td>-1/1</td>
<td>±100/100</td>
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<tr>
<td>30</td>
<td>2</td>
<td>200</td>
<td>±1.5</td>
<td>±10</td>
<td>±10</td>
<td>6-30</td>
<td>0.4-2</td>
<td>6-200</td>
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<tr>
<td>60</td>
<td>4</td>
<td>400</td>
<td>±3.0</td>
<td>±21</td>
<td>±21</td>
<td>8-60</td>
<td>0.6-4</td>
<td>60-400</td>
</tr>
<tr>
<td>100</td>
<td>7</td>
<td>700</td>
<td>±5.0</td>
<td>±34</td>
<td>±34</td>
<td>10-100</td>
<td>0.7-7</td>
<td>70-700</td>
</tr>
<tr>
<td>200</td>
<td>14</td>
<td>1400</td>
<td>±4</td>
<td>±0.28</td>
<td>±28</td>
<td>20-200</td>
<td>1.4-14</td>
<td>140-1400</td>
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#### PRESSURE RATINGS

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<tr>
<th>RANGES (psi)</th>
<th>w/SEAL</th>
<th>psi</th>
<th>bar, kg/cm²</th>
<th>kPa</th>
<th>psi</th>
<th>bar, kg/cm²</th>
<th>kPa</th>
<th>psi</th>
<th>bar, kg/cm²</th>
<th>kPa</th>
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<tbody>
<tr>
<td>up to 200</td>
<td>S</td>
<td>800</td>
<td>55</td>
<td>5,500</td>
<td>1,000</td>
<td>70</td>
<td>7,000</td>
<td>&gt;9,500</td>
<td>&gt;655</td>
<td>&gt;65,500</td>
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<tr>
<td>100-200</td>
<td>B, V or N</td>
<td>2,000</td>
<td>140</td>
<td>14,000</td>
<td>2,000</td>
<td>140</td>
<td>14,000</td>
<td>&gt;10,000</td>
<td>&gt;700</td>
<td>&gt;70,000</td>
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<tr>
<td>500-2,000</td>
<td>B, V or N</td>
<td>5,000</td>
<td>350</td>
<td>35,000</td>
<td>8,000</td>
<td>550</td>
<td>55,000</td>
<td>&gt;30,000</td>
<td>&gt;2,100</td>
<td>&gt;210,000</td>
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<td>5,000-7,500</td>
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<td>10,000</td>
<td>700</td>
<td>70,000</td>
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<td>1,000</td>
<td>100,000</td>
<td>&gt;50,000</td>
<td>&gt;3,500</td>
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<td>B, V or N</td>
<td>15,000</td>
<td>1,000</td>
<td>100,000</td>
<td>20,000</td>
<td>1,400</td>
<td>140,000</td>
<td>&gt;45,000</td>
<td>&gt;31,000</td>
<td>&gt;310,000</td>
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### MATERIAL AND TEMPERATURE RATINGS (based on matl and switch code)

#### ACTUATOR SEAL

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<tr>
<th>MATERIAL</th>
<th>TEMPERATURE RANGE</th>
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<tr>
<td>S</td>
<td>-40 °F to 212 °F (-40 °C to 100 °C)</td>
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<tr>
<td>B (Ranges 100#, 200#)</td>
<td>316 Stainless steel, Buna-N</td>
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<tr>
<td>B (Ranges 500# to 15,000#)</td>
<td>316 Stainless steel, Buna-N</td>
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<tr>
<td>V</td>
<td>-4 °F to 212 °F (-20 °C to 100 °C)</td>
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<tr>
<td>N</td>
<td>316 Stainless steel, HNBR</td>
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#### CODES

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<tr>
<th>Option</th>
<th>Description</th>
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<td>C4</td>
<td>Traceable calibration certificate</td>
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<tr>
<td>FP</td>
<td>Fungus proofing</td>
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<tr>
<td>MQ</td>
<td>Positive Material Identification (75, 15 &amp; 20 process conn. only)</td>
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<tr>
<td>NC</td>
<td>2 wire leads w/ground wire – wired for normally closed operation</td>
</tr>
<tr>
<td>NO</td>
<td>2 wire leads w/ground wire – wired for normally open operation</td>
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<tr>
<td>HH</td>
<td>Stainless Steel tag</td>
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<tr>
<td>NN</td>
<td>Paper tag</td>
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<tr>
<td>6B</td>
<td>Cleaned for oxygen service</td>
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<tr>
<td>GO</td>
<td>No ground wire</td>
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### OPTIONS

<table>
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<th>Code</th>
<th>Description</th>
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A-Series Miniature Watertight Pressure Switches

**ORDERING CODE**

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<tr>
<th>Function</th>
<th>Example:</th>
<th>APS</th>
<th>N4</th>
<th>1</th>
<th>H</th>
<th>012C</th>
<th>S</th>
<th>02</th>
<th>30#-</th>
<th>15</th>
<th>R</th>
<th>X6B</th>
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<td>APA - Pressure switch, single setpoint, fixed deadband, factory set, field adjustable</td>
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<td>N4 - Watertight 316 stainless steel body</td>
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<td>Micro Switch, First Character</td>
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<td>1 - Single switch, SPDT</td>
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<tr>
<td>2 - Dual switch - DPDT (Not available with “S” actuator &lt; 100 psi, range)</td>
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<tr>
<td>Micro Switch, Second Character</td>
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<tr>
<td>G - Gold contact - 0.1 A @ 125 Vac, 0.1 A @ 30 Vdc</td>
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<tr>
<td>H - High current - 5 A @ 125/250 Vac, 5 A @ 28 Vdc resistive, 3 A @ 28 Vdc inductive</td>
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<tr>
<td>L - High current, gold contact - 1 A @ 125 Vac, 1 A @ 28 Vdc resistive, 0.5 A @ 28 Vdc inductive</td>
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<tr>
<td>P - General purpose - 3 A @ 125 Vac, 2 A @ 30 Vdc</td>
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<td>Electrical Connection</td>
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<tr>
<td>000H - Micro DIN connector - Watertight DIN 43650 Form C cable socket without mating connector, not available with DPDT switching, not UL approved</td>
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<tr>
<td>000H - Micro DIN connector - Watertight DIN 43650 Form C cable socket with mating connector, not available with DPDT switching, (not UL approved)</td>
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<tr>
<td>00AP - AMP® Supersep® 3-Pin connector without male, not available with DPDT switching</td>
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<tr>
<td>00GN - Metri-Pack® 3-Pin connector without male, not available with DPDT switching</td>
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<tr>
<td>00DT - Deutsch® DT04-3P connector without male, not available with DPDT switching</td>
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<tr>
<td>00EW - M12 Hirschmann® 993-172-100 connector without male, not available with DPDT switching</td>
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<tr>
<td>00DC - EN 175301-803 Form C(DIN 43650, Form C) connector without male, not available with DPDT switching</td>
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<tr>
<td>00DN - EN 175301-803 Form A (DIN 43650, Form A) connector without male, not available with DPDT switching</td>
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<td>000N - Nonstandard, customer specified, see # variation</td>
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<tr>
<td>000T - Spade Terminals, 4 - 0.187” male spade - not available with DPDT switching</td>
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<tr>
<td>___C - ½ NPT Male conduit with 18 AWG wires (Note ___ e.g. 012C = 12” lead wires, Specify wire length in inches)</td>
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<tr>
<td>___L - Wire leads, 3-16 AWG PVC insulated wires (Note ___ e.g. 012L = 12” lead wires, Specify wire length in inches)</td>
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<tr>
<td>___M - 4 conductor jacketed cable with 18 AWG wires without conduit</td>
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<tr>
<td>___G - M20 X 1.5 male conduit connection with 18 AWG wires</td>
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<tr>
<td>___J - ½ NPT Male conduit connection with 4 conductor jacketed cable with 18 AWG wires</td>
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<tr>
<td>Actuator Seal (see page 6 for more information)</td>
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<tr>
<td>B - 316 Stainless steel piston &amp; Buna-N O-ring, ranges ≥ 100 psi</td>
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<tr>
<td>V - 316 Stainless steel piston &amp; Viton® O-ring, ranges ≥ 100 psi</td>
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<td>S - 316 Stainless steel welded diaphragm, ranges ≤ 200 psi</td>
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<tr>
<td>N - 316 Stainless steel piston &amp; HNBR O-ring, ranges ≥ 100 psi</td>
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<td>01 - ½ NPT Male</td>
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<tr>
<td>03 - ½ NPT Female (not available for B, V, N actuators)</td>
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<td>04 - ¼ NPT Male</td>
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<td>05 - ¼-20 SAE Male</td>
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<tr>
<td>06 - ¼ Male Fixed compatible with VCR® fittings (not available for B, V, N actuators)</td>
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</tr>
<tr>
<td>07 - ½ Male Fixed compatible with VCR® fittings (not available for B, V, N actuators)</td>
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<tr>
<td>08 - ½-20 SAE Female</td>
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<tr>
<td>12 - G ½ A (Type E Stud End)</td>
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<tr>
<td>13 - G ½ B</td>
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<tr>
<td>25 - ¼ NPT Female (not available for B, V, N actuators)</td>
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<tr>
<td>50 - ½ NPT Female</td>
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<tr>
<td>46 - ¾-SAE Female</td>
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</tr>
<tr>
<td>76 - ¾-20 SAE w/37° flare end</td>
<td></td>
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</tr>
<tr>
<td>75 - ¾ Tri-Clamp® connection (includes 3-A approval), range ≤ 1,000 psi</td>
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<tr>
<td>15 - ⅞ Tri-Clamp® connection (includes 3-A approval), range ≤ 1,000 psi</td>
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<tr>
<td>Ranges (See table on page 2 for additional ranges)</td>
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<td>30 psi</td>
<td>308-</td>
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<tr>
<td>Setpoint</td>
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</tr>
<tr>
<td>5 Characters maximum representing setpoint of the switch in the same units as the ranges of the switch. For setpoints in vacuum specify as “-” pressure. If no set point is required on an APA switch use either “NSR” or NSD”. If direction is not known use “NSR” as default</td>
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<tr>
<td>Note: Negative setpoints should be designated by placing an N in front of the setpoint value (Example -5 psi should be designated as N5)</td>
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<tr>
<td>Setpoint Direction</td>
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<tr>
<td>R - Rising pressure (increasing pressure, decreasing vacuum)</td>
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<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>D - Decreasing pressure (decreasing pressure, increasing vacuum)</td>
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</tr>
<tr>
<td>Options - Select from table on page 2 (if choosing an option(s) must include an X”</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6B - Cleaned for oxygen service</td>
<td></td>
<td></td>
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<td></td>
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<td></td>
</tr>
</tbody>
</table>

Data Sheet

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A-Series Miniature Watertight Pressure Switches

**DIMENSIONS**
For reference only, consult Ashcroft for specific dimensional drawings.

**ELECTRICAL CONNECTIONS**

### SPADE PIN FUNCTIONS

<table>
<thead>
<tr>
<th>PIN #</th>
<th>FUNCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>C</td>
</tr>
<tr>
<td>2</td>
<td>NO</td>
</tr>
<tr>
<td>3</td>
<td>NC</td>
</tr>
<tr>
<td>4</td>
<td>GROUND</td>
</tr>
</tbody>
</table>

### MICRO-DIN FUNCTIONS

<table>
<thead>
<tr>
<th>PIN #</th>
<th>FUNCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>C</td>
</tr>
<tr>
<td>2</td>
<td>NO</td>
</tr>
<tr>
<td>3</td>
<td>NC</td>
</tr>
<tr>
<td>4</td>
<td>GROUND</td>
</tr>
</tbody>
</table>

### DEUTSCH® DT04-3P PIN FUNCTIONS

<table>
<thead>
<tr>
<th>PIN #</th>
<th>FUNCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>C</td>
</tr>
<tr>
<td>B</td>
<td>NO</td>
</tr>
<tr>
<td>C</td>
<td>NC</td>
</tr>
</tbody>
</table>

### AMP® SUPERSEAL® PIN FUNCTIONS

<table>
<thead>
<tr>
<th>PIN #</th>
<th>FUNCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>C</td>
</tr>
<tr>
<td>2</td>
<td>NO</td>
</tr>
<tr>
<td>3</td>
<td>NC</td>
</tr>
</tbody>
</table>

### METRI-PACK® PIN FUNCTIONS

<table>
<thead>
<tr>
<th>PIN #</th>
<th>FUNCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>C</td>
</tr>
<tr>
<td>B</td>
<td>NO</td>
</tr>
<tr>
<td>C</td>
<td>NC</td>
</tr>
</tbody>
</table>

### M12 PIN FUNCTIONS

<table>
<thead>
<tr>
<th>PIN #</th>
<th>FUNCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>C</td>
</tr>
<tr>
<td>2</td>
<td>NO</td>
</tr>
<tr>
<td>3</td>
<td>NC</td>
</tr>
<tr>
<td>4</td>
<td>GROUND</td>
</tr>
</tbody>
</table>

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# A-Series Miniature Watertight Pressure Switches

## DIMENSIONS

For reference only, consult Ashcroft for specific dimensional drawings

### ELECTRICAL CONNECTIONS

- **WIRE LEAD (XXXL) CONNECTION WITH DUAL SWITCH SHOWN**
  - **XXX = WIRE LENGTH (in.)**
  - **Ø 1.13**

### PRESSURE CONNECTIONS

- **WIRE LEAD (XXXL) CONNECTION WITH DUAL SWITCH SHOWN**
  - **XXX = WIRE LENGTH (in.)**
  - **Ø 1.13**

### COVER ADJUSTMENTS

- **FIELD ADJUSTABLE**
  - SLIDE COVER DOWN TO ACCESS SETPOINT ADJUSTMENT. SLIDE COVER UP TO CLOSE AND SEAL ADJUSTMENT
- **FACTORY SET**
  - ROTATE LEFT TO DECREASE SET POINT
  - ROTATE RIGHT TO DECREASE SET POINT
  - Ø 0.05 OR SMALLER TOOL REQUIRED TO ROTATE NUT

### FUNCTION CODE DIMENSION

<table>
<thead>
<tr>
<th>Description</th>
<th>Dim.A</th>
</tr>
</thead>
<tbody>
<tr>
<td>APS (Factory Set)</td>
<td>1.06</td>
</tr>
<tr>
<td>APA (Field Adjustable)</td>
<td>1.64</td>
</tr>
</tbody>
</table>

### MICRO SWITCH DIMENSION

<table>
<thead>
<tr>
<th>Description</th>
<th>Dim.B</th>
</tr>
</thead>
<tbody>
<tr>
<td>1H, 2H, 1L, 2L</td>
<td>1.03</td>
</tr>
<tr>
<td>1P, 1G</td>
<td>0.90</td>
</tr>
</tbody>
</table>

### PRESSURE CONNECTION GENERAL DIMENSION

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Dim.C</th>
<th>Dim.D</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>½ NPT Male</td>
<td>0.45</td>
<td>0.44</td>
</tr>
<tr>
<td>02</td>
<td>¼ NPT Male</td>
<td>0.56</td>
<td>0.54</td>
</tr>
<tr>
<td>03</td>
<td>¼ NPT Female</td>
<td>0.75</td>
<td>0.65</td>
</tr>
<tr>
<td>04</td>
<td>½ NPT Male</td>
<td>0.92</td>
<td>0.75</td>
</tr>
<tr>
<td>25</td>
<td>¾ NPT Female</td>
<td>1.10</td>
<td>1.07</td>
</tr>
<tr>
<td>50</td>
<td>½ NPT Female</td>
<td>1.25</td>
<td>1.04</td>
</tr>
<tr>
<td>05</td>
<td>¼-20 SAE Male</td>
<td>0.56</td>
<td>0.44</td>
</tr>
<tr>
<td>08</td>
<td>½-20 SAE Female</td>
<td>1.10</td>
<td>0.84</td>
</tr>
<tr>
<td>06</td>
<td>¾ Male Fixed compatible with VCR® fittings</td>
<td>0.58</td>
<td>0.56</td>
</tr>
<tr>
<td>07</td>
<td>¾ Male Fixed compatible with VCO® fittings</td>
<td>0.47</td>
<td>0.56</td>
</tr>
<tr>
<td>12</td>
<td>G ¼A</td>
<td>0.47</td>
<td>0.44</td>
</tr>
<tr>
<td>13</td>
<td>G ¼B</td>
<td>0.59</td>
<td>0.37</td>
</tr>
<tr>
<td>46</td>
<td>½-18 SAE Female</td>
<td>0.39</td>
<td>0.47</td>
</tr>
<tr>
<td>76</td>
<td>½-20 SAE w/37° Flare End</td>
<td>0.55</td>
<td>0.36</td>
</tr>
<tr>
<td>75</td>
<td>¾ Tri-Clamp® Seal</td>
<td>1.10</td>
<td>0.96</td>
</tr>
<tr>
<td>15</td>
<td>1½ Tri-Clover® Seal</td>
<td>1.23</td>
<td>1.99</td>
</tr>
<tr>
<td>20</td>
<td>2.0 Tri-Clover® Seal</td>
<td>1.23</td>
<td>2.49</td>
</tr>
</tbody>
</table>

### Technical Specifications

- **CRN:** OF 14836.5C
- **CSA:** 2454057 (LR55528)
- **UL:** E38812
- **CE**
- **ROHS**
- **UKCA:** 0518

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A-Series Miniature Watertight Pressure Switches

**AVAILABLE CONNECTIONS**

**PRESSURE CONNECTIONS**

- ¼, ⅛ or ½ MALE NPT
- ⅛ or ¼ FEMALE NPT, ⅛-20 SAE FEMALE
- ¼ MALE FIXED COMPATIBLE WITH VCR® OR VCO® fittings
- ⅛-20 SAE MALE (OPTIONAL 37° FLARE END)
- ¾˝, 1.5˝ or 2.0˝ SANITARY
- G ¼ A TYPE-E STUD END
- ½ FEMALE NPT
- G ¼ B

**ELECTRICAL CONNECTIONS**

- 18 AWG WIRE LEADS
- ½ NPT CONDUIT CONNECTOR WITH 18 AWG WIRE LEADS
- DPDT 18 AWG LEADS
- M20 X 1.5 MALE CONDUIT WITH 18 AWG WIRES
- ½ NPT MALE CONDUIT AND JACKETED CABLE WITH 18 AWG WIRES
- M20 X 1.5 MALE CONDUIT AND JACKETED CABLE WITH 18 AWG WIRES
- JACKETED CABLE WITH 18 AWG WIRES WITHOUT CONDUIT
- SPADE TERMINAL 4-0.187 MALE TERMINALS
- M12 4-PIN HIRSCHMANN® 993-172-100 CONNECTOR
- METRI-PACK® 3-PIN CONNECTOR
- AMP® SUPERSEAL® 3-PIN CONNECTOR
- DEUTSCH® DT04-3P CONNECTOR
- HIRSCHMANN® MICRO-DIN CONNECTOR 43650 FORM C
- EN 175301-803 FORM C (DIN 43650, FORM C)
- EN 175301-803 FORM A (DIN 43650, FORM A)

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A-Series Miniature Watertight Pressure Switches

**SELECTION GUIDE**

Before selecting a switch the following should be considered:

**Actuator:**

The actuator responds to changes in pressure and operates the micro switch element in response to these changes. The actuator is normally exposed to the process media and must be chemically compatible with it. There are three types of actuators available for the A-Series switches – all welded 316 SS diaphragm sealed piston; 316 SS piston with Viton™ O-ring seal; and 316 SS piston with Buna-N O-ring seal. The 316 SS diaphragm is available in ranges from −15/15 psi to 200 psi. The 316 SS piston is available in ranges from 100 psi to 15,000 psi. Switches offered in 100 psi and 200 psi can be ordered with either the piston or diaphragm design. The piston design will have a longer mechanical life, while the diaphragm design has a better operating temperature. The piston design is more reliable than a diaphragm design when subjected to frequent large pressure excursions, pressure surges and spikes associated with typical hydraulic applications. Piston designs are typically used when the switch is used as low pressure alarm or cutoff where the normal working pressure is above the nominal range of the switch.

**The Switching Function:**

Most applications for alarm, shutdown and interlock are satisfied by the standard A-Series switches which feature single setpoint fixed deadband. For pump, compressor and other control applications, the dead-band becomes a very important consideration and may require increasing the range of the switch to increase the deadband. Please consult your Ashcroft representative for assistance with special applications.

**The Micro Switch Element:**

The micro switch element must be chosen to meet the electrical load requirement to be switched. The switches are offered as either SPDT (single pole double throw) or DPDT (double pole double throw). The DPDT switch is made up of two SPDT switches which are adjusted to work together by Ashcroft’s patent pending Circuit Board Rotation Design. DPDT switching is not available on diaphragm designs below 100 psi, with Spade terminals or the Micro DIN connector.

**Understanding Setpoints and Reset Points:**

Pressure switches can be set to switch on either increasing (rising) or decreasing pressures. Since the switches have both Normally Open (NO) contacts and Normally Closed (NC) contacts you can wire the switch to open or close for either an increasing or decreasing pressure. To be consistent in setting the switches Ashcroft defines the setpoints as follows. For an increasing setpoint, the pressure is increased from 0 psi to the set point and then decreased to the reset point. For a decreasing setpoint, the pressure is increased to full range and then decreased to the setpoint and then increased to the resetpoint.

**Custom Applications:**

The A-series switch is designed to allow custom process connections and electrical terminations. Please consult your Ashcroft representative for assistance with custom applications.
A-Series Miniature Watertight Pressure Switches

ADDITIONAL SWITCH TERMINOLOGY

Accuracy – (See repeatability) Accuracy normally refers to conformity of an indicated value to an accepted standard value. There is no indication in switch products; thus, instead, the term repeatability is used as the key performance measure.

Automatic Reset Switch – Switch which returns to normal state when actuating variable Pressure is reduced.

Adjustable or Operating Range – That part of the nominal range over which the switch setpoint may be adjusted. Normally about 10% to 100% of the nominal range for A-Series pressure switches.

Burst Pressure – The maximum pressure that may be applied to a pressure switch without causing leakage or rupture. This is approximately 16X of nominal range for A-Series switches. Diaphragm switches subjected to pressures above the nominal range can be permanently damaged.

Deadband – The difference between the setpoint and the resetpoint, normally expressed in units of the actuating variable. Sometimes referred to as differential.

Fixed Deadband – The difference between the setpoint and the resetpoint of a pressure switch. It further signifies that this deadband is a fixed function of the pressure switch and not adjustable.

National Electrical Manufacturers Association (NEMA) – This group has defined several categories of enclosures, usually referred to as “types.” Further, they designate certain features and capabilities each type must include.

NEMA 6 – Enclosures constructed for either indoor or outdoor use to provide a degree of protection to personnel against access to hazardous parts; to provide a degree of protection of the equipment inside the enclosure against ingress of solid foreign objects (falling dirt); to provide a degree of protection with respect to harmful effects on the equipment due to the ingress of water (hose directed water and the entry of water during occasional temporary submersion at a limited depth); and that will be undamaged by the external formation of ice on the enclosure.

Normal Switch Position – Contact position before actuating pressure (or variable) is applied. Normally closed contacts open when the switch is actuated. Normally open contacts close when the switch is actuated.

Normally Closed – Refers to switch contacts that are closed in the normal switch state or position (unactuated). A pressure change opens the contacts.

Normally Open Switch – Refers to the contacts that are open in the normal switch state or position (unactuated). A pressure change closes the contacts.

Overpressure Rating(s) – A nonspecific term that could refer to either burst or proof pressure, or both.

Proof Pressure – The maximum pressure which may be applied without causing damage. This is determined under strict laboratory conditions including controlled rate of change and temperature: This value is for reference only. Consult factory for applications where switch must operate at pressures above nominal range or reference temperature (70 °F).

Repeatability (Accuracy) – The closeness of agreement among a number of consecutive measurements of the output setpoint for the same value of the input under the same operating conditions, approaching from the same direction, for full-range traverses. Note: It is usually measured as non-repeatability and expressed as repeatability in percent of span or nominal range. It does not include hysteresis or deadband.

Resetpoint – The resetpoint is the pressure value where the electrical switch contacts will return to their original or normal position after the switch has activated.

Setpoint – The setpoint is the pressure value at which the electrical circuit of a switch will change state or actuate. It should be specified either on increase or decrease of that variable.

Single Pole Double Throw (SPDT) Switching Element – A SPDT switching element has one normally open, one normally closed, and one common terminal. The switch can be wired with the circuit either normally open (N/O) or normally closed (N/C). SPDT is standard with A-series switches.

Double Pole Double Throw (DPDT) Switching Element – Two SPDT switching elements both set to actuate or de-actuate at the same set or resetpoint. Each switch one has one normally open, one normally closed, and one common terminal. The switches are independent of each other and can be wired to two independent circuits. The two circuits can either normally open (N/O) or normally closed (N/C).

Snap Action – In switch terminology, snap action generally refers to the action of contacts in the switch element. These contacts open and close quickly and snap closed with sufficient pressure to firmly establish an electrical circuit. The term distinguishes products from mercury bottle types that were subject to vibration problems.