**Model 1001A**

**Description**

Model 1001A is an enclosure pressurization or purging system that operates on a supply of compressed instrument air or inert gas. It regulates and monitors pressure within sealed (protected) enclosure(s), in order to prevent combustible dust accumulation or remove and prevent flammable gas or vapor accumulations. In Class II areas, the system maintains a "safe" (1.0") pressure. In Class I areas, the system accomplishes four air exchanges and maintains a "safe" (0.25") pressure. These processes reduce the hazardous (classified) area rating within the enclosure(s), in accordance with the NEC - NFPA 70, Article 500, NFPA 496 and ISA 12.4.

**System Specifications**

<table>
<thead>
<tr>
<th>System Dimensions:</th>
<th>See page 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipping Weight:</td>
<td>LPS - 5 lb / WPS - 10 lb</td>
</tr>
<tr>
<td>Temp. Range:</td>
<td>-20°F to +120°F</td>
</tr>
<tr>
<td>Supply Pressure Range:</td>
<td>*5 - 120 psi</td>
</tr>
<tr>
<td>Supply Requirements:</td>
<td>Clean air or inert gas</td>
</tr>
<tr>
<td>Safe Press. (CI/CII):</td>
<td>0.25&quot;/1.0&quot;</td>
</tr>
<tr>
<td>Safe Press. Flow Rate:</td>
<td>**0.1 - 3.5 SCFH</td>
</tr>
<tr>
<td>System Supply Fitting:</td>
<td>1/4&quot; tube fitting</td>
</tr>
<tr>
<td>Enclosure Supply Fitting:</td>
<td>1/4&quot; tube fitting</td>
</tr>
<tr>
<td>Enclosure Reference Fitting:</td>
<td>1/4&quot; tube fitting</td>
</tr>
<tr>
<td>Switch Setting (CI/Cl, Decr):</td>
<td>0.15&quot;/0.5&quot; ± 0.02&quot;</td>
</tr>
<tr>
<td>Switch Conduit Port Size:</td>
<td>1/2&quot; FPT</td>
</tr>
<tr>
<td>WPS Style:</td>
<td>120 VAC, 15 A</td>
</tr>
<tr>
<td>WPSA Style:</td>
<td>***120 VAC, 10 A, 28 - 125 VDC</td>
</tr>
</tbody>
</table>

* With EPV-1 Vent - 120 psi max. to 5 psi min. Systems installed without Vent must be equipped with redundant regulator set to 5 psi max.

**Standard Model Applications**

<table>
<thead>
<tr>
<th>Model Number: 1001A-CI Type Y</th>
<th>Designation: Purging System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model Number:</td>
<td>Enclosure Volume: 2 ft³ max.</td>
</tr>
<tr>
<td>Model Number: 1001A-CII Type Y</td>
<td>Designation: Pressurization System</td>
</tr>
<tr>
<td>Model Number:</td>
<td>Enclosure Volume: 10 ft³ max.</td>
</tr>
</tbody>
</table>

**UL & FM Certified**

<table>
<thead>
<tr>
<th>LPS Style</th>
<th>WPS Style</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cl. I, Div. 1, Group A-D</td>
<td>Cl. I, Div. 1, Group C&amp;D</td>
</tr>
<tr>
<td>Cl. I, Div. 2, Group C&amp;D</td>
<td>Cl. I, Div. 2, Group A-D</td>
</tr>
</tbody>
</table>

**Rating Reduction**

<table>
<thead>
<tr>
<th>LPS Style</th>
<th>WPS Style</th>
</tr>
</thead>
<tbody>
<tr>
<td>Div. 1 to Div. 2</td>
<td>Div. 1 to Div. 2</td>
</tr>
<tr>
<td>Div. 2 to Nonhazardous</td>
<td>Div. 2 to Nonhazardous</td>
</tr>
</tbody>
</table>

**Special Considerations**

- **LPS Style**
  - UL & FM Certified: Cl. I, Div. 2, Group F & G
  - Rating Reduction: Div. 2 to Nonhazardous

- **WPS Style**
  - UL & FM Certified: Cl. I, Div. 2, Group F & G
  - Rating Reduction: Div. 2 to Nonhazardous

- **WPSA Style**
  - UL & FM Certified: Cl. I, Div. 2, Group F & G
  - Rating Reduction: Div. 2 to Nonhazardous

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[Protected under U.S. Patent #5,101,710]
**Type Y & Z**

**System Accessories Diagram**

- **LPS Style (Less Pressure Switch)**
- **WPS Style (With Pressure Switch)**

**Material Specifications**

- **Regulator Body:** Zinc w/Enamel Finish
- **Regulator Handle:** Polycarbonate
- **Enclosure Pressure Gauge:** Alum. w/Enamel Finish
- **Tube Fittings:** 316 SS Forged Body
- **Tubing:** 316 SS 1/4" OD/0.035 Welded
- **System Nameplates:** Silk screened Lexan® & SS
- **Fastener Hardware:** Alum. & Stainless Steel
- **Mounting Plate:** 316 SS 14 Ga #3 Brush SS
- **EXP Pressure Switch Body:** Anodized Cast Alum.
- **Enclosure Warning Nameplate:** Silk screened SS Lexan®

Lexan® is a registered trademark of the General Electric Company.

**Model Number Designations**

- **Series Model Number:** 1001A - LPS - CI - YZ - LH - ##

**System Style**

- LPS - less pressure switch
- WPS - with pressure switch
- WPSA - with pressure switch

**Area Classification**

- CI - Class I Area
- CII - Class II Area

**System Type**

- YZ - Div. 1 to Div. 2, Div. 2 to Nonhazardous

**Mounting Configuration**

- LH - left hand
- RH - right hand
- BM - bottom mount
- WM - wall mount
- FM - frame mount
- PM - panel mount

- **Note:** ECK-1001A, Enclosure Connection Kit includes (2) EFC-4, and tubing mounted to panel

- **Warning Nameplate EWN-**

- **Enclosure Protection Vent EPV-1-SA...**

- **Factory installed accessories**

**Warning Nameplates**

- EWN-1 Class I Enclosure Warning
- EWN-2 Class II Enclosure Warning
- ETW Enclosure Temperature Warning

**INSTALLATION & OPERATION MANUAL**

- 129-0197 Inst. & Operation Manual

**One (1) Enclosure Warning Nameplate & One (1) Installation & Operation Manual are provided with each System**

**Overall System Dimensions**

<table>
<thead>
<tr>
<th></th>
<th>LPS / WPS</th>
<th>Height</th>
<th>Width</th>
<th>Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>LH</td>
<td>7 / 12</td>
<td>5.5 / 7.25</td>
<td>8 / 8</td>
<td>5.5 / 7.25</td>
</tr>
<tr>
<td>RH</td>
<td>7 / 12</td>
<td>5.5 / 7.25</td>
<td>8 / 8</td>
<td>5.5 / 7.25</td>
</tr>
<tr>
<td>TM</td>
<td>7 / 8</td>
<td>5.5 / 7.25</td>
<td>8 / 13.375</td>
<td>5.5 / 7.25</td>
</tr>
<tr>
<td>BM</td>
<td>7 / 12</td>
<td>5.5 / 7.25</td>
<td>8 / 13.375</td>
<td>7.5 / 9.25</td>
</tr>
<tr>
<td>WM</td>
<td>7 / 12</td>
<td>5.5 / 7.25</td>
<td>8 / 13.375</td>
<td>7.5 / 9.25</td>
</tr>
<tr>
<td>WM</td>
<td>9 / 14</td>
<td>5.5 / 7.25</td>
<td>8 / 13.375</td>
<td>5 / 6.5</td>
</tr>
</tbody>
</table>

Dimensions in inches. Mounting dimensions available upon request. FM & PM panel cutout dimensions: LPS - 8 x 9w WPS - 13h x 9w Height & Width dimensions reflect mounting plate measurements. Depth dimension reflects overall measurement of system, including components.

Protected under U.S. Patent #5,101,710
**Description**

Model 1002 is a Rapid Exchange® purging system that operates on a supply of compressed instrument air or inert gas. It regulates and monitors pressure within sealed (protected) enclosure(s), in order to remove and prevent flammable gas or vapor accumulations. The system accomplishes four air exchanges and maintains a "safe" (0.25") pressure. A Pepperl+Fuchs Model EPV-2 Enclosure Protection Vent is required for proper operation. This process reduces the hazardous (classified) area rating within the enclosure(s), in accordance with the NEC - NFPA 70, Article 500, NFPA 496 and ISA 12.4.

**Operation**

In accordance with system instructions, start-up requires air supply to be engaged and enclosure power to be deenergized. The enclosure protection vent must be tested and the enclosure(s) must be sealed. The enclosure pressure control valve is then used to set a safe reading on the enclosure pressure indicator. When safe pressure is stable, the Rapid Exchange® control valve must be fully engaged. Upon completion of the Rapid Exchange® cycle, (five minutes minimum) the Rapid Exchange® control valve must be disengaged to return to a safe enclosure pressure. Power can then be energized to the protected enclosure(s). Loss of safe pressure requires immediate attention, unless power is deenergized. WPS style systems include an explosion proof differential pressure switch with form "C" contacts for audible or visual alarm systems.

**System Specifications**

<table>
<thead>
<tr>
<th>Specification</th>
<th>LPS Style</th>
<th>WPS/WPSA Style</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Dimensions:</td>
<td>See page 16</td>
<td></td>
</tr>
<tr>
<td>Shipping Weight:</td>
<td>LPS - 10 lb / WPS - 15 lb</td>
<td></td>
</tr>
<tr>
<td>Temp. Range:</td>
<td>-20°F to +120°F</td>
<td></td>
</tr>
<tr>
<td>Supply Pressure Range:</td>
<td>80 - 120 psi</td>
<td></td>
</tr>
<tr>
<td>Capacity &amp; Filtration:</td>
<td>1.5 oz @ 20 Micron</td>
<td></td>
</tr>
<tr>
<td>Supply Requirements:</td>
<td>clean air or inert gas</td>
<td></td>
</tr>
<tr>
<td>Safe Press. Setpoint:</td>
<td>0.25&quot;</td>
<td></td>
</tr>
<tr>
<td>Safe Press. Flow Rate:</td>
<td>* 0.1 - 3.5 SCFH</td>
<td></td>
</tr>
<tr>
<td>Exchange Pressure:</td>
<td>** 3&quot; - 5&quot;</td>
<td></td>
</tr>
<tr>
<td>Exchange Flow Rate:</td>
<td>** 4 SCFM / 240 SCFH</td>
<td></td>
</tr>
<tr>
<td>Exchange Time:</td>
<td>1 min/ft³</td>
<td></td>
</tr>
<tr>
<td>System Supply Port:</td>
<td>1/4&quot; FPT</td>
<td></td>
</tr>
<tr>
<td>Enclosure Supply Fitting:</td>
<td>1/4&quot; tube fitting</td>
<td></td>
</tr>
<tr>
<td>Enclosure Reference Fitting:</td>
<td>1/4&quot; tube fitting</td>
<td></td>
</tr>
<tr>
<td>Switch Setting (Decr):</td>
<td>0.15&quot; ± 0.02&quot;</td>
<td></td>
</tr>
<tr>
<td>Switch Conduit Port Size:</td>
<td>1/2&quot; FPT</td>
<td></td>
</tr>
<tr>
<td>Switch Contact Rating:</td>
<td>***</td>
<td></td>
</tr>
<tr>
<td>WPS Style:</td>
<td>120 VAC, 15 A</td>
<td></td>
</tr>
<tr>
<td>WPSA Style:</td>
<td>*** 120 VAC, 10 A, 28 - 125 VDC</td>
<td></td>
</tr>
</tbody>
</table>

* Enclosure integrity determines actual flow rate
** With regulator set to 60 psi min. during exchange Rapid Exchange® is a Registered Trademark of Pepperl+Fuchs, Inc.
*** Supply voltages 24 VDC and 240 VAC available upon request.
### System Accessories Diagram

- **Enclosure Protection Vent:** EPV-2-SA...
- **Pressurized Protected Enclosure:**
- **Supply Inlet Fitting:** SC-4 or NC-4
- **1/4" Supply Tubing:**
- **Enclosure Supply Fitting:** EBC-4
- **Enclosure Reference Fitting:** EFC-4
- **Mounting Kit:** SMK-2

### Model Number Designations

- **Series Model Number:**
- **System Style:**
  - **LPS:** less pressure switch
  - **WPS:** with pressure switch
  - **WPSA:** with pressure switch
- **Area Classification:**
  - **CI:** Class I Area
- **System Type:**
  - **YZ:** Div. 1 to Div. 2, Div. 2 to Nonhazardous
- **Mounting Configuration:**
  - **LH:** left hand
  - **RH:** right hand
  - **TM:** top mount
  - **BM:** bottom mount
  - **WM:** wall mount
  - **FM:** frame mount
  - **PM:** panel mount

### Model 1002 System Accessories (See accessories page for complete details)

- **Connection Points:**
  - **NC-4:** 1/4" Ninety Connector
  - **SC-4:** 1/4" Straight Connector
  - **EFC-4:** 1/4" Flush Connector
  - **EBC-4:** 1/4" Bulkhead Connector
  - **EPC-12:** 3/4" Pipe Connector
- **Additional Items:**
  - **SMK-2 or -8:** System Mounting Kit
  - **EPSK-1:** Explosion Proof Switch Kit
  - **GPSK-1:** General Purpose Switch Kit

### Enclosure Protection Vents

- **ONE VENT REQUIRED WITH EACH SYSTEM**
  - **EPV-2-SA-00:** Straight w/Spark Arrester
  - **EPV-2-SA-90:** Rt Angle w/Spark Arrester

### Overall System Dimensions

<table>
<thead>
<tr>
<th></th>
<th>LPS / WPS</th>
<th>LH - left hand</th>
<th>RH - right hand</th>
<th>TM - top mount</th>
<th>BM - bottom mount</th>
<th>WM - wall mount</th>
<th>FM or PM - flat panel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td></td>
<td>10 / 15</td>
<td>10 / 15</td>
<td>10 / 10</td>
<td>10 / 10</td>
<td>10 / 15</td>
<td>12 / 17</td>
</tr>
<tr>
<td>Depth</td>
<td></td>
<td>6 / 7.5</td>
<td>6 / 7.5</td>
<td>6 / 7.5</td>
<td>6 / 7.5</td>
<td>7.75 / 9.25</td>
<td>5 / 6.5</td>
</tr>
</tbody>
</table>

Dimensions in inches. Mounting dimensions available upon request. FM & PM panel cutout dimensions: LPS - 11h x 12w, WPS - 16h x 12w. Height & Width dimensions reflect mounting plate measurements. Depth dimension reflects overall measurement of system, including components.

Protected under U.S. Patent #5,101,710

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**Material Specifications**

- **Filter Regulator Body:** Zinc w/Enamel Finish
- **Regulator Handle & Bowl:** Polycarbonate
- **Enclosure Pressure Gauge:** Alum. w/Enamel Finish
- **Rapid Exchange Gauge:** Poly Case & Brass Tube
- **Tube Fittings & Valves:** 316 SS Forged Body
- **Tubing:** 316 SS 1/4" .035 Welded
- **System Nameplates:** Silk screened Lexan® & SS
- **Fastener Hardware:** Alum. & Stainless Steel
- **Mounting Plate:** 316 14 Ga #3 Brush SS
- **EXP Pressure Switch Body:** Anodized Cast Alum.
- **Enclosure Warning Nameplate:** Silk screened SS

Lexan® is a registered trademark of the General Electric Company

**Model 1002 System Accessories (See accessories page for complete details)**

**Connection Points:**

- **NC-4:** 1/4" Ninety Connector
- **SC-4:** 1/4" Straight Connector
- **EFC-4:** 1/4" Flush Connector
- **EBC-4:** 1/4" Bulkhead Connector
- **EPC-12:** 3/4" Pipe Connector

**Additional Items:**

- **SMK-2 or -8:** System Mounting Kit
- **EPSK-1:** Explosion Proof Switch Kit
- **GPSK-1:** General Purpose Switch Kit

**Enclosure Protection Vents:**

- **ONE VENT REQUIRED WITH EACH SYSTEM**
  - **EPV-2-SA-00:** Straight w/Spark Arrester
  - **EPV-2-SA-90:** Rt Angle w/Spark Arrester

**Overall System Dimensions**

<table>
<thead>
<tr>
<th></th>
<th>LPS / WPS</th>
<th>LH - left hand</th>
<th>RH - right hand</th>
<th>TM - top mount</th>
<th>BM - bottom mount</th>
<th>WM - wall mount</th>
<th>FM or PM - flat panel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td></td>
<td>10 / 15</td>
<td>10 / 15</td>
<td>10 / 10</td>
<td>10 / 10</td>
<td>10 / 15</td>
<td>12 / 17</td>
</tr>
<tr>
<td>Depth</td>
<td></td>
<td>6 / 7.5</td>
<td>6 / 7.5</td>
<td>6 / 7.5</td>
<td>6 / 7.5</td>
<td>7.75 / 9.25</td>
<td>5 / 6.5</td>
</tr>
</tbody>
</table>

Dimensions in inches. Mounting dimensions available upon request. FM & PM panel cutout dimensions: LPS - 11h x 12w, WPS - 16h x 12w. Height & Width dimensions reflect mounting plate measurements. Depth dimension reflects overall measurement of system, including components.

Protected under U.S. Patent #5,101,710
**Description**

Model 1003 is a Rapid Exchange® purging system that operates on a supply of compressed instrument air or inert gas. It regulates and monitors pressure within sealed (protected) enclosure(s), in order to remove and prevent flammable gas or vapor accumulations. The system accomplishes four air exchanges and maintains a "safe" (0.25") pressure. A Pepperl+Fuchs Model EPV-3 Enclosure Protection Vent is required for proper operation. This process reduces the hazardous (classified) area rating within the enclosure(s), in accordance with the NEC - NFPA 70, Article 500, NFPA 496 and ISA 12.4.

**Operation**

In accordance with system instructions, start-up requires air supply to be engaged and enclosure power to be deenergized. The enclosure protection vent must be tested and the enclosure(s) must be sealed. The enclosure pressure control valve is then used to set a safe reading on the enclosure pressure indicator. When safe pressure is stable, the Rapid Exchange® control valve must be fully engaged. Upon completion of the Rapid Exchange® cycle, (five minutes minimum) the Rapid Exchange® control valve must be disengaged to return to a safe enclosure pressure. Power can then be energized to the protected enclosure(s). Loss of safe pressure requires immediate attention, unless power is deenergized. WPS style systems include an explosion proof differential pressure switch with form "C" contacts for audible or visual alarm systems.

**System Specifications**

<table>
<thead>
<tr>
<th>Specification</th>
<th>LPS Style</th>
<th>WPS/WPSA Style</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model Number</td>
<td>1003 Type Z</td>
<td></td>
</tr>
<tr>
<td>Designation</td>
<td>Purging System</td>
<td></td>
</tr>
<tr>
<td>Enclosure Volume</td>
<td>75 ft³ max.</td>
<td></td>
</tr>
<tr>
<td>UL &amp; FM Certified</td>
<td>Cl. I, Div. 1, Group A-D</td>
<td>Cl. I, Div. 1, Group A-D</td>
</tr>
<tr>
<td>Rating Reduction</td>
<td>Div. 1 to Div. 2</td>
<td>Div. 1 to Div. 2</td>
</tr>
<tr>
<td>UL &amp; FM Certified</td>
<td>Cl. I, Div. 1, Group C&amp;D</td>
<td>Cl. I, Div. 1, Group A-D</td>
</tr>
<tr>
<td>Rating Reduction</td>
<td>Div. 1 to Div. 2</td>
<td>Div. 2 to Nonhazardous</td>
</tr>
<tr>
<td>UL &amp; FM Certified</td>
<td>Cl. I, Div. 1, Group A-D</td>
<td>Cl. I, Div. 2, Group C&amp;D</td>
</tr>
<tr>
<td>Rating Reduction</td>
<td>Div. 1 to Div. 2</td>
<td>Div. 2 to Nonhazardous</td>
</tr>
<tr>
<td>System Supply Port</td>
<td>3/8&quot; FPT</td>
<td>1/2&quot; FPT</td>
</tr>
<tr>
<td>Enclosure Supply Fitting</td>
<td>3/8&quot; tube fitting</td>
<td>1/4&quot; tube fitting</td>
</tr>
<tr>
<td>Enclosure Reference Fitting</td>
<td>1/4&quot; tube fitting</td>
<td></td>
</tr>
<tr>
<td>Switch Setting (Decr)</td>
<td>0.15&quot; ± 0.02&quot;</td>
<td></td>
</tr>
<tr>
<td>Switch Conduit Port Size</td>
<td>1/2&quot; FPT</td>
<td></td>
</tr>
<tr>
<td>Switch Contact Rating</td>
<td>120 VAC, 15 A</td>
<td></td>
</tr>
<tr>
<td>WPSA Style</td>
<td>*** 120 VAC, 10 A, 28 - 125 VDC</td>
<td></td>
</tr>
</tbody>
</table>

* Enclosure integrity determines actual flow rate

**Standard Model Applications**

<table>
<thead>
<tr>
<th>Model Number</th>
<th>1003 Type Y</th>
<th>1003 Type Z</th>
</tr>
</thead>
<tbody>
<tr>
<td>Designation</td>
<td>Purging System</td>
<td>Purging System</td>
</tr>
<tr>
<td>Enclosure Volume</td>
<td>75 ft³ max.</td>
<td>75 ft³ max.</td>
</tr>
<tr>
<td>LPS Style</td>
<td>UL &amp; FM Certified: Cl. I, Div. 1, Group A-D</td>
<td>UL &amp; FM Certified: Cl. I, Div. 2, Group A-D</td>
</tr>
<tr>
<td></td>
<td>Rating Reduction: Div. 1 to Div. 2</td>
<td>Rating Reduction: Div. 2 to Nonhazardous</td>
</tr>
<tr>
<td>WPS Style</td>
<td>UL &amp; FM Certified: Cl. I, Div. 1, Group C&amp;D</td>
<td>UL &amp; FM Certified: Cl. I, Div. 2, Group C&amp;D</td>
</tr>
<tr>
<td></td>
<td>Rating Reduction: Div. 1 to Div. 2</td>
<td>Rating Reduction: Div. 2 to Nonhazardous</td>
</tr>
<tr>
<td>WPSA Style</td>
<td>UL &amp; FM Certified: Cl. I, Div. 1, Group A-D</td>
<td>UL &amp; FM Certified: Cl. I, Div. 2, Group A-D</td>
</tr>
<tr>
<td></td>
<td>Rating Reduction: Div. 1 to Div. 2</td>
<td>Rating Reduction: Div. 2 to Nonhazardous</td>
</tr>
</tbody>
</table>

* With regulator set to 60 psi min. during exchange Rapid Exchange® is a Registered Trademark of Pepperl+Fuchs, Inc.

*** Supply voltages 24 VDC and 240 VAC available upon request.
**Type Y & Z**

**Model Number Designations**

- **Series Model Number**: LPS - CI - YZ - LH - ##
  - LPS - less pressure switch
  - WPS - with pressure switch
  - WPSA - with pressure switch
- **System Style**: LPS / WPS / WPSA Style (With Pressure Switch), LPS Style (Less Pressure Switch)
- **Area Classification**: CI - Class I Area
- **System Type**: YZ - Div. 1 to Div. 2, Div. 2 to Nonhazardous
- **Mounting Configuration**: LH - left hand, RH - right hand, TM - top mount, BM - bottom mount, WM - wall mount, FM - frame mount, PM - panel mount

**Material Specifications**

- **Filter Regulator Body**: Zinc w/Enamel Finish
- **Regulator Handle & Bowl**: Polycarbonate
- **Enclosure Pressure Gauge**: Alum. w/Enamel Finish
- **Rapid Exchange Gauge**: Poly Case & Brass Tube
- **System Nameplates**: Silk screened Lexan® & SS
- **Fastener Hardware**: Alum. & Stainless Steel

**Model 1003 System Accessories**

- **NC-6**: 3/8” Ninety Connector
- **SC-6**: 3/8” Straight Connector
- **EFC-4**: 1/4” Flush Connector
- **EFC-6**: 3/8” Flush Connector
- **EBC-6**: 3/8” Bulkhead Connector
- **EPC-13**: 1” Pipe Connector
- **SMK-2 or -8**: System Mounting Kit
- **EPSK-1**: Explosion Proof Switch Kit
- **GPSK-1**: General Purpose Switch Kit
- **RAH**: Remote Alarm Horn
- **RAB-1**: Div. 1 Remote Alarm Beacon
- **RAB-2**: Div. 2 Remote Alarm Beacon
- **LCK**: L Fitting Conduit Kit
- **TCK**: T Fitting Conduit Kit
- **EPV-3-SA-00**: Straight w/Sparke Arrestor
- **EPV-3-SA-90**: Rt Angle w/Sparke Arrestor

**WARNING NAMEPLATES**

- **EWN-1**: Class I Enclosure Warning
- **ETW**: Enclosure Temperature Warning

**INSTALLATION & OPERATION MANUAL**

- **129-0195**: Inst. & Operation Manual

**System Accessories Diagram**

- **Supply Inlet Fitting**: SC-6 or NC-6
- **3/8” Supply Tubing**: SC-6 or NC-6
- **1/4” Tubing Reference**: EBC-6
- **Enclosure Supply Fitting**: EBC-6
- **Enclosure Reference Fitting**: EFC-4
- **Enclosure Protection Vent**: EPV-3-SA...
- **Pressurized Enclosure**: SMK-2
- **Warning Nameplate EWN-1**: Included with Panel

**Model 1003 System Accessories**

- **Connection Points**: Shown above in bold text on system diagram

**Overall System Dimensions**

<table>
<thead>
<tr>
<th>LPS / WPS</th>
<th>LH - left hand</th>
<th>RH - right hand</th>
<th>TM - top mount</th>
<th>BM - bottom mount</th>
<th>WM - wall mount</th>
<th>FM or PM - flat panel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>12 / 15</td>
<td>12 / 15</td>
<td>12 / 12</td>
<td>12 / 12</td>
<td>12 / 15</td>
<td>14 / 17</td>
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<tr>
<td>Width</td>
<td>11.5 / 11.5</td>
<td>11.5 / 11.5</td>
<td>11.5 / 15.25</td>
<td>11.5 / 15.25</td>
<td>11.5 / 11.5</td>
<td>13.5 / 13.5</td>
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<tr>
<td>Depth</td>
<td>6 / 7.5</td>
<td>6 / 7.5</td>
<td>6 / 7.5</td>
<td>6 / 7.5</td>
<td>7.75 / 9.25</td>
<td>5.75 / 7.25</td>
</tr>
</tbody>
</table>

Dimensions in inches. Mounting dimensions available upon request. FM & PM panel cutout dimensions: LPS - 13h x 12.5w WPS - 16h x 12.5w Width & Height dimensions reflect mounting plate measurements. Depth dimension reflects overall measurement of system, including components.

Protected under U.S. Patent #5,101,710
**Description**

Model 1004 is a Rapid Exchange® purging system that operates on a supply of compressed instrument air or inert gas. It regulates and monitors pressure within sealed (protected) enclosure(s), in order to remove and prevent flammable gas or vapor accumulations. The system accomplishes four air exchanges and maintains a “safe” (0.25”) pressure. A Pepperl+Fuchs Model EPV-4 Enclosure Protection Vent is required for proper operation. This process reduces the hazardous (classified) area rating within the enclosure(s), in accordance with the NEC - NFPA 70, Article 500, NFPA 496 and ISA 12.4.

**Operation**

In accordance with system instructions, start-up requires air supply to be engaged and enclosure power to be deenergized. The enclosure protection vent must be tested and the enclosure(s) must be sealed. The enclosure pressure control valve is then used to set a safe reading on the enclosure pressure indicator. When safe pressure is stable, the Rapid Exchange® control valve must be fully engaged. Upon completion of the Rapid Exchange® cycle, (five minutes minimum) the Rapid Exchange® control valve must be disengaged to return to a safe enclosure pressure. Power can then be energized to the protected enclosure(s). Loss of safe pressure requires immediate attention, unless power is deenergized. WPS style systems include an explosion proof differential pressure switch with form “C” contacts for audible or visual alarm systems.

**System Specifications**

<table>
<thead>
<tr>
<th>Specification</th>
<th>LPS Style</th>
<th>WPS/WPSA Style</th>
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</thead>
<tbody>
<tr>
<td>Model Number:</td>
<td>1004 Type Y</td>
<td>Model Number: 1004 Type Z</td>
</tr>
<tr>
<td>Designation:</td>
<td>Purging System</td>
<td>Designation: Purging System</td>
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<tr>
<td>UL &amp; FM Certified:</td>
<td>Cl. I, Div. 1, Group A-D</td>
<td>UL &amp; FM Certified: Cl. I, Div. 2</td>
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<tr>
<td>Rating Reduction:</td>
<td>Div. 1 to Div. 2</td>
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<tr>
<td>LPS Style</td>
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<tr>
<td>UL &amp; FM Certified:</td>
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<td>UL &amp; FM Certified: Cl. I, Div. 2</td>
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<tr>
<td>WPS Style</td>
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<tr>
<td>UL &amp; FM Certified:</td>
<td>Cl. I, Div. 1, Group A-D</td>
<td>UL &amp; FM Certified: Cl. I, Div. 2</td>
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<td>Rating Reduction:</td>
<td>Div. 1 to Div. 2</td>
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<tr>
<td>WPSA Style</td>
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<td>Cl. I, Div. 1, Group A-D</td>
<td>UL &amp; FM Certified: Cl. I, Div. 2</td>
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<tr>
<td>Rating Reduction:</td>
<td>Div. 1 to Div. 2</td>
<td>Rating Reduction: Div. 2 to Nonhazardous</td>
</tr>
</tbody>
</table>

**Standard Model Applications**

- **LPS Style**
  - UL & FM Certified: Cl. I, Div. 1, Group A-D
  - Rating Reduction: Div. 1 to Div. 2

- **WPS Style**
  - UL & FM Certified: Cl. I, Div. 1, Group C&D
  - Rating Reduction: Div. 1 to Div. 2

- **WPSA Style**
  - UL & FM Certified: Cl. I, Div. 1, Group A-D
  - Rating Reduction: Div. 2 to Nonhazardous

* Enclosure integrity determines actual flow rate
** With regulator set to 80 psi min. during exchange Rapid Exchange® is a Registered Trademark of Pepperl+Fuchs, Inc.
*** Supply voltages 24 VDC and 240 VAC available upon request.
Model Number Designations

**Series Model Number**
- **1004**

**System Style**
- **LPS** - less pressure switch
- **WPS** - with pressure switch
- **WPSA** - with pressure switch

**Area Classification**
- **CI** - Class I Area

**System Type**
- **YZ** - Div. 1 to Div. 2, Div. 2 to Nonhazardous

**Mounting Configuration**
- **LH** - left hand  left side of enclosure
- **RH** - right hand  right side of enclosure
- **BM** - bottom mount  bottom of enclosure
- **WM** - wall mount  wall surface
- **FM** - frame mount  external frame or rack
- **PM** - panel mount  enclosure surface cutout

---

**Model 1004 System Accessories (See accessories page for complete details)**

**Connection Points**
- **NC-8**: 1/2" Ninety Connector
- **SC-8**: 1/2" Straight Connector
- **EFC-4**: 1/4" Flush Connector
- **EFC-8**: 1/2" Flush Connector
- **EBC-8**: 1/2" Bulkhead Connector
- **EPC-14**: 1 1/2" Pipe Connector

**Additional Items**
- **SMK-2 or 8**: System Mounting Kit
- **EPSK-1**: Explosion Proof Switch Kit
- **GSK-1**: General Purpose Switch Kit
- **RAH**: Remote Alarm Horn
- **RAB-1**: Div. 1 Remote Alarm Beacon
- **RAB-2**: Div. 2 Remote Alarm Beacon
- **LCK**: L Fitting Conduit Kit
- **TCK**: T Fitting Conduit Kit

**Enclosure Protection Vents**
- **EPV-4-SA-00**: Straight w/Spark Arrestor
- **EPV-4-SA-90**: Rt Angle w/Spark Arrestor

**Model 1004 System Overall Dimensions**
- **LPS / WPS**
  - **LH** - left hand: 12 / 16.25
  - **RH** - right hand: 12 / 16.25
  - **TM** - top mount: 13.5 / 13.5
  - **BM** - bottom mount: 13.5 / 13.5
  - **WM** - wall mount: 13.5 / 13.5
  - **FM or PM** - flat panel: 14 / 18.25

**Dimensions**: Heights & Widths reflect mounting plate measurements. Depth dimension reflects overall measurement of system, including components. Dimensions in inches. Mounting dimensions available upon request. FM & PM panel cutout dimensions: **LPS** - 13h x 14.5w **WPS** - 17.25h x 14.5w

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**Accessories Listed**:
- **EWN-1**: Class I Enclosure Warning
- **ETW**: Enclosure Temperature Warning


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**Lexan® is a registered trademark of the General Electric Company**
**Description**

Model 3003 is a Rapid Exchange® purging system that operates on a supply of compressed instrument air or inert gas. It regulates and monitors pressure within sealed protected enclosure(s), in order to remove and prevent flammable gas or vapor accumulations. The Model 3003 consists of three major components: (1) a pneumatic manifold assembly, (2) a differential enclosure pressure indicator and (3) a stainless steel face plate with mounting flange, or a Lexan® system start up instruction nameplate.

Model 3003 is offered in three distinct variations, identified as “VM” (Vertical Mount), “HM” (Horizontal Mount), both available in WPS & WPSA styles, and “CK” (Component Kit) mounting configurations. The VM configuration features a filter regulator and face plate with a flange for mounting to a vertical surface. The HM configuration features a regulator and face plate with a flange for mounting on a horizontal surface. Finally, the CK configuration is a kit of parts including the pneumatic manifold assembly, the enclosure pressure indicator and a start-up instruction nameplate. The VM and HM configurations are intended for flange or frame mounting to a solid surface on or near the protected enclosure(s), while the CK configuration is intended for frame mounting through cutouts in a panel or on near the enclosure(s). With the addition of a Model GCK gauge conversion kit, all configurations can be mounted through the surface of a protected enclosure. The CK configuration provides a seal that withstands type 4 hosedown testing. Model 3003 accomplishes the required volume exchanges and maintains a safe pressure. Pepperl+Fuchs Model EPV-3 enclosure protection vent is required for proper operation. This process reduces the hazardous (classified) area rating within protected enclosure(s), in accordance with the NEC - NFPA 70, NFPA 496, ISA 12.4 and IEC 600-79-15 EN 50021.

**Operation**

In accordance with system instructions, start-up requires air supply to be engaged and enclosure power to be deenergized. The enclosure protection vent must be tested and enclosure(s) must be sealed. After transferring the valve key, locked into the pneumatic manifold’s Rapid Exchange® control valve stem, the enclosure pressure control valve is used to set a safe reading on the enclosure pressure indicator. When safe pressure is stable, the valve key is transferred and locked into the Rapid Exchange® control valve stem and the Rapid Exchange® control valve is then fully engaged. Upon completion of the Rapid Exchange® cycle, (five minutes minimum) the Rapid Exchange® control valve is disengaged to return to a safe enclosure pressure. Power can then be energized to the protected enclosure(s). Loss of safe pressure requires immediate attention, unless power to the protected enclosure(s) is deenergized. WPS and WPSA style systems include an explosion proof differential pressure switch with form “C” contacts for audible or visual alarm systems.

Rapid Exchange® is a Registered Trademark of Pepperl+Fuchs, Inc. Lexan® is a registered trademark of the General Electric Company

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**Standard Model Applications**

<table>
<thead>
<tr>
<th>Model Number:</th>
<th>Model 3003</th>
<th>Model Number:</th>
<th>Model 3003</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type Y System</td>
<td>3003</td>
<td>Type Z and Ex [nP] System</td>
<td>3003</td>
</tr>
<tr>
<td>Designation:</td>
<td>Rapid Exchange® Purging</td>
<td>Designation:</td>
<td>Rapid Exchange® Purging</td>
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<tr>
<td>Enclosure Volume:</td>
<td>90 ft³ (2.54m³) max.</td>
<td>Enclosure Volume:</td>
<td>90 ft³ (2.54m³) max.</td>
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<td>Class I, Div. 1, Group A-D</td>
<td>LPS Style UL &amp; FM Certified:</td>
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<td>Rating Reduction:</td>
<td>Div. 2 to Nonhazardous Zone 2 to Nonhazardous</td>
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<td>Rating Reduction:</td>
<td>Div. 2 to Nonhazardous Zone 2 to Nonhazardous</td>
</tr>
</tbody>
</table>

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Protected under U.S. Patent #5,101,710
Model 3003 VM Configuration - The Vertical Mount System

LPS (Less Pressure Switch)

- System Model & Ratings
- System Start-Up Instructions
- Enclosure Pressure Control Valve Stem
- Valve Key
- Rapid Exchange® Control Valve Stem w/Valve Key in locked position
- Rapid Exchange® Injection Pressure Indicator
- System Face Plate
- Enclosure Pressure Indicator

WPS / WPSA (With Pressure Switch)

- System Model & Ratings
- System Start-Up Instructions
- Enclosure Pressure Control Valve Stem
- Valve Key
- Rapid Exchange® Control Valve Stem w/Valve Key in locked position
- Rapid Exchange® Injection Pressure Indicator
- System Face Plate
- Enclosure Pressure Indicator
- EXP Pressure Loss Alarm Switch

Important Notes

1) The HM configuration is supplied with a mounting flange for right-angled attachment to a horizontal surface external to the protected enclosure.
2) The VM configuration can also be frame mounted external to the protected enclosure through a 5" (127mm) W x 9" (229mm) H cutout in a suitable mounting surface.
3) Model GCK gauge conversion kit is required to panel mount the VM configuration through a 5" (127mm) W x 9" (229mm) H cutout in the protected enclosure surface.
4) See page 36 for Model GCK kit description and conversion procedure.

CONNECTION POINTS SHOWN ABOVE IN BOLD TEXT ON SYSTEM DIAGRAM
Model 3003 HM Configuration - The Horizontal Mount System

**LPS (Less Pressure Switch)**

1) The HM configuration is supplied with a mounting flange for right-angled attachment to a horizontal surface external to the protected enclosure.

2) The HM configuration can also be frame mounted external to the protected enclosure through a 10.25" (260mm) W x 5" (127mm) H cutout in a suitable mounting surface.

3) Model GCK gauge conversion kit is required to panel mount the HM configuration through a 10.25" (260mm) W x 5" (127mm) H cutout in the protected enclosure surface.

4) See page 36 for Model GCK kit description and conversion procedure.

**WPS / WPSA (With Pressure Switch)**

**Important Notes**

- System Start-Up Instructions
- System Model & Ratings
- Rapid Exchange® Control Valve Stem
- Valve Key
- Rapid Exchange® Injection Pressure Indicator

**Front View**

- Enclosure Pressure Indicator
- System Start-Up Instructions
- System Model & Ratings
- Enclosure Reference Inlet
- Rapid Exchange® Control Valve Stem w/Valve Key in locked position
- Injection Pressure Indicator
- System Supply Inlet
- Enclosure Supply Outlet
- Pressure Loss Alarm Switch
- System Face Plate
- Valve Key
- Rapid Exchange® Control Valve Stem w/Valve Key in locked position
- Enclosure Reference Inlet
- Atmospheric Reference
- Venturi Orifice

**Rear View**

- Regulator
- Pneumatic Manifold Body
- Enclosure Pressure Indicator
- Enclosure Reference Inlet
- Atmospheric Reference
- System Supply Inlet
- Enclosure Supply Outlet
- Enclosure Pressure Indicator
- Venturi Orifice
- Atmospheric Reference

**Rapid Exchange®**

- Control Valve Stem
- w/Valve Key in locked position
- Injection Pressure Indicator

**CONNECTION POINTS SHOWN ABOVE IN BOLD TEXT ON SYSTEM DIAGRAM**

Protected under U.S. Patent #5,101,710
Model 3003 CK Configuration - The Component Kit System

Important Notes

1) The CK configuration is four discrete parts suitable for mounting through a set of cutouts in a vertical surface external to the protected enclosure.
2) A Model GCK gauge conversion kit is required to panel mount the CK configuration through a set of cutouts in the protected enclosure surface.
3) See page 36 for Model GCK kit description and conversion procedure.

CK Configuration System & Optional Remote Cube Filter Dimensions in Inches (mm)

Helpful Hint

Note: Two optional Enclosure Pressure Gauge positions are shown on the Model 3003 CK System Panel Cutout Pattern to the left. The optional positions center gauge to the right or bottom side of System Nameplate. Cut only one 4.5" (114.3mm) Ø hole in panel.
Model 3003 WPS VM Configuration & Flange Dimensions in Inches (mm)

**LPS (Less Pressure Switch)**

**WPS/WPSA (With Pressure Switch)**

Model 3003 HM Configuration & Flange Dimensions in Inches (mm)

**LPS (Less Pressure Switch)**

**WPS/WPSA (With Pressure Switch)**

Protected under U.S. Patent #5,101,710
Typical Model 3003 System Installation Details

External to the Protected Enclosure

- **Flange Mount HM Configuration**
  - with Model SMK-1 Fastener Kit

- Enclosure Reference Tubing, Customer Supplied
- System Supply Inlet Fitting SC-6-4 or NC-6-4
- Enclosure Supply Inlet Fitting SC-6-8 or NC-6-8
- System Supply Tubing, Customer Supplied
- Enclosure Reference Fitting EFC-4
- Enclosure Supply Fitting EFC-6
- System Mounting Kit SMK-1
- Required Enclosure Protection Vent EPV-3

- **Pressurized (Protected) Enclosure**

Internal to the Protected Enclosure

- **Panel Mount CK Configuration**
  - with Model RCF-4 Remote Cube Filter & Model GCK Gauge Conversion Kit

- Atmospheric Reference Tubing, customer supplied
- Atmospheric Reference Bulkhead Fitting PRB-4
- System Supply Inlet Fitting SC-6-4 or NC-6-4
- Optional Accessory Remote Cube Filter Model RCF-4 shown mounted to the Protected Enclosure
- System Supply Tubing, Customer Supplied

- **Pressurized (Protected) Enclosure**

- Optional Enclosure Supply Outlet Fitting SC-6-8 or NC-6-8
- Enclosure Supply Tubing, customer supplied, used to direct protective gas to the extreme opposite corner from the enclosure protection vent

Required Enclosure Protection Vent EPV-3

- Enclosure Pressure Indicator w/GCK Installed
- Start-up Instruction Nameplate
- System Pneumatic Manifold

Standard and Panel Mount Pneumatic Installation Diagram

**Standard Pneumatic Installation Diagram**

See panel mounting conversion procedure on page 36

**Panel Mount Installation Diagram**

- System Supply
- Inlet
- Regulator
- **Warning Nameplate**
- **Rapid Exchange®**
  - Pressure Gauge
  - Control Valve
- **Sintered Vent**
- **PRB-4**
- **Supply**
- **Enclosure**
- **Enclosure Pressure Gauge**
- **Rapid Exchange®**
- **Control Valve**
- **Control Valve**
- **Regulator**

Protected under U.S. Patent #5,101,710
VM Configuration Mounting Options

Model 3003-LPS-CI-YZ-VML
Flange Mounted to Flat Vertical Surface with Model SMK-1 Fastener Kit

Model 3003-LPS-CI-YZ-VML
Flange Mounted to Vertical 2” Pipe Stand with Model PMK-1 Fastener Kit

Model 3003-LPS-CI-YZ-VM
Frame or Panel* Mounted Through Cutout in Suitable Surface with Model SMK-6m Fastener Kit

HM Configuration Mounting Options

Model 3003-LPS-CI-YZ-HMT
Flange Mounted to Flat Horizontal Surface with Model SMK-1 Fastener Kit

Model 3003-LPS-CI-YZ-HMB
Flange Mounted to Horizontal 2” Pipe Stand with Model PMK-1 Fastener Kit

Model 3003-LPS-CI-YZ-HM
Frame or Panel* Mounted Through Cutout in Suitable Surface with Model SMK-6m Fastener Kit

CK Configuration Mounting Options

Front View

Model 3003-LPS-CI-YZ-CK
Rear View of Frame or Panel* Mount
Through Cutout in Suitable Surface with supplied fasteners

Rear View

* PANEL MOUNTED SYSTEMS REQUIRE A PEPPERL+FUCHS MODEL GCK FOR PROPER OPERATION - SEE PAGE 36

Protected under U.S. Patent #5,101,710
Type Y, Z & Ex [nP]

Model 3003 Panel Mount Conversion

1. Secure one Model GCK Conversion Kit. Kit includes a PRB-4 & SC-2 Fitting & Enclosure Pressure Gauge gasket.
2. Remove venturi orifice and run tee from the high port of the gauge and discard.
3. Remove sintered vent from low port.
4. Reinstall sintered vent into high port.
5. Install Model SC-2 fitting into low port.
6. Install Gauge gasket between gauge & mounting surface.
7. Install Model PRB-4 fitting through enclosure surface (ventend out) and connect tubing (customer supplied) between SC-2 & PRB-4.

Material Specifications

Regulator Body:
Regulator Handle & Bowl:
Enclosure Pressure Gauge:
Rapid Exchange® Gauge:
Enclosure Warning Nameplate:
EXP Pressure Switch Body:

Zinc w/Enamel Finish
Polycarbonate
Alum. w/Enamel Finish
Poly & Nickel Plated
316 SS Forged Body
316 SS 1/4" .035 Welded
Alum. & Stainless Steel
314 Ga #3 Brush SS
316 SS Tumble Finish
Anodized Aluminum
Silkscreen Lexan®
Anodized Cast Aluminum

* Refers to filter bowl supplied with VM mounting configuration.

Lexan® is a registered trademark of the General Electric Company

System Specifications

System Dimensions: See pages 32-33
Shipping Weight:
LPS - 10 lb (4.5 kg)
WPS - 15 lb (6.8 kg)
Temp. Range: -20°F to +120°F (-29°C to +49°C)
Supply Pressure Range: 80 - 120 psi (5.5 - 8.3 bar)
Capacity & Filtration: 1.5 oz @ 20 Micron
Supply Requirements: clean air or inert gas
Safe Press. Setpoint: 0.25" (6.35mm)
Safe Press. Flow Rate: * 0.1 - 3.5 SCFH (2.8 - 99 l/hr)
Exchange Pressure: * 3" - 5" (76.2 mm - 127 mm)
Exchange Flow Rate: ** 12 SCFM /720 SCFH (340 l/m / 20390 l/hr)

Exchange Time:
4 Volume Exchange Rate: 1 min / 3.0 ft³ (85 l/min)
5 Volume Exchange Rate: 1 min / 2.4 ft³ (68 l/min)

System Supply Port:
1/2" FPT
Enclosure Supply Port:
1/2" FPT

Switch Setting (WPS & WPSA Only): 0.15" ± 0.02" 3.81mm ± 0.51mm
Switch Contact Ratings:
WPS Style: 120 VAC, 10 A, 28 - 125 VDC
WPSA Style: *** 120 VAC, 15 A

Model Number Designations

3003 - LPS - CI - YZ - VM - ##

Series Model Number
System Style
LPS - less pressure switch
WPS - with pressure switch
WPSA - with pressure switch

Area Classification
CI - Class 1 Area

System Type
YZ - Div. 1 to Div. 2
Div. 2 / Zone 2 to Nonhazardous

Mounting Configuration
VML - vertical mount left
VMR - vertical mount right
HMT - horizontal mount top
HMB - horizontal mount bottom
CK - Component Kit - LPS style only

## - See Accessories Page 117 for additional factory installed accessories
† Does not have ATEX certification

Model 3003 System Accessories (See accessories page for complete details)

**Connection Fittings**

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
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<tbody>
<tr>
<td>NC-6-4</td>
<td>3/8&quot; T x 1/4&quot; P Ninety Connector</td>
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<tr>
<td>SC-6-4</td>
<td>3/8&quot; T x 1/4&quot; P Straight Connector</td>
</tr>
<tr>
<td>NC-6-8</td>
<td>3/8&quot; T x 1/2&quot; P Ninety Connector</td>
</tr>
<tr>
<td>SC-6-8</td>
<td>3/8&quot; T x 1/2&quot; P Straight Connector</td>
</tr>
<tr>
<td>EFC-4</td>
<td>1/4&quot; Flush Connector</td>
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<tr>
<td>EBC-4</td>
<td>1/4&quot; Bulkhead Connector</td>
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<tr>
<td>EFC-6</td>
<td>3/8&quot; Flush Connector</td>
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<tr>
<td>EBC-6</td>
<td>3/8&quot; Bulkhead Connector</td>
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<tr>
<td>EPC-13</td>
<td>1 1/4&quot; Pipe Connector</td>
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**Additional Items**

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<tr>
<th>Type</th>
<th>Description</th>
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<tr>
<td>SMK-1</td>
<td>System Mounting Kit - Flange</td>
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<tr>
<td>SMK-6m</td>
<td>System Mounting Kit - Frame/Panel</td>
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<tr>
<td>PMK-1</td>
<td>Pipe Mounting Kit</td>
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<tr>
<td>GCK</td>
<td>Gauge Conversion Kit</td>
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<tr>
<td>ILF-4</td>
<td>1/4&quot; In-Line Filter Kit</td>
</tr>
<tr>
<td>RCF-4</td>
<td>1/4&quot; Remote Cube Filter</td>
</tr>
<tr>
<td>EPSK-1</td>
<td>Explosion Proof Switch Kit (GRP C, D)</td>
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<tr>
<td>EPSK-1A</td>
<td>Explosion Proof Switch Kit (GRP A-D)</td>
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<tr>
<td>GPSK-1</td>
<td>General Purpose Switch Kit</td>
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**Enclosure Protection Vents**

**Warning Nameplates**

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<tr>
<th>Type</th>
<th>Description</th>
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<tbody>
<tr>
<td>RAH</td>
<td>Remote Alarm Horn</td>
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<tr>
<td>RAB-1</td>
<td>Div. 1 Remote Alarm Beacon</td>
</tr>
<tr>
<td>RAB-2</td>
<td>Div. 2 Remote Alarm Beacon</td>
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**Installation & Operation Manual**

129-0198 Inst. & Operation Manual

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ONE (1) ENCLOSURE WARNING NAMEPLATE & ONE (1) INSTALLATION & OPERATION MANUAL ARE PROVIDED WITH EACH SYSTEM

Protected under U.S. Patent #5,101,710
Description

Model 3004 is a Rapid Exchange® purging system that operates on a supply of compressed instrument air or inert gas. It regulates and monitors pressure within sealed protected enclosure(s), in order to remove and prevent flammable gas or vapor accumulations. The Model 3004 consists of three major components: (1) a pneumatic manifold assembly, (2) a differential enclosure pressure indicator and (3) a stainless steel face plate with mounting flange, or a Lexan® system start-up instruction nameplate. Model 3003 is offered in three distinct variations, identified as “VM” (Vertical Mount), “HM” (Horizontal Mount), both available in WPS & WPSA styles, and “CK” (Component Kit) mounting configurations. The VM configuration features a filter regulator and face plate with a flange for mounting to a vertical surface. The HM configuration features a regulator and face plate with a flange for mounting on a horizontal surface. Finally, the CK configuration is a kit of parts including the pneumatic manifold assembly, the enclosure pressure indicator and a start-up instruction nameplate. The VM and HM configurations are intended for flange or frame mounting to a solid surface on or near the protected enclosure(s), while the CK configuration is intended for frame mounting through cutouts in a panel on or near the enclosure(s). With the addition of a Model GCK gauge conversion kit, all configurations can be mounted through the surface of a protected enclosure. The CK configuration provides a seal that withstands type 4 hoses down testing. Model 3004 accomplishes the required volume exchanges and maintains a safe pressure. Pepperl+Fuchs Model EPV-3 enclosure protection vent is required for proper operation. This process reduces the hazardous (classified) area rating within protected enclosure(s), in accordance with the NEC - NFPA 70, NFPA 496, ISA 12.4 and IEC 600-79-15 EN 50021.

Operation

In accordance with system instructions, start-up requires air supply to be engaged and enclosure power to be deenergized. The enclosure protection vent must be tested and enclosure(s) must be sealed. After transferring the valve key, locked into the pneumatic manifold’s Rapid Exchange® control valve stem, the enclosure pressure control valve is used to set a safe reading on the enclosure pressure indicator. When safe pressure is stable, the valve key is transferred and locked into the Rapid Exchange® control valve stem and the Rapid Exchange® control valve is then fully engaged. Upon completion of the Rapid Exchange® cycle, (five minutes minimum) the Rapid Exchange® control valve is disengaged to return to a safe enclosure pressure. Power can then be energized to the protected enclosure(s). Loss of safe pressure requires immediate attention, unless power to the protected enclosure(s) is deenergized. WPS and WPSA style systems include an explosion proof differential pressure switch with form “C” contacts for audible or visual alarm systems.

Rapid Exchange® is a Registered Trademark of Pepperl+Fuchs, Inc.
Important Notes

1) The VM configuration is supplied with a mounting flange for right angle-attachment to a vertical surface external to the protected enclosure.

2) The VM configuration can also be frame mounted external to the protected enclosure through a 5” (127mm) W x 10.75” (273mm) H cutout in a suitable mounting surface.

3) Model GCK gauge conversion kit is required to panel mount the VM configuration through a 5” (127mm) W x 10.75” (273mm) H cutout in the protected enclosure surface.
Important Notes

1) The HM configuration is supplied with a mounting flange for right-angled attachment to a horizontal surface external to the protected enclosure.

2) The HM configuration can also be frame mounted external to the protected enclosure through a 10.25" (260mm) W x 5.5" (140mm) H cutout in a suitable mounting surface.

3) Model GCK gauge conversion kit is required to panel mount the HM configuration through a 10.25" (260mm) W x 5.5" (140mm) H cutout in the protected enclosure surface.

4) See page 44 for Model GCK kit description and conversion procedure.

WPS / WPSA (With Pressure Switch)
Model 3004 CK Configuration - The Component Kit System

1) The CK Configuration is four discrete parts suitable for mounting through a set of cutouts in a vertical surface external to the protected enclosure.
2) A Model GCK gauge conversion kit is required to panel mount the CK configuration through a set of cutouts in the protected enclosure surface.
3) See page 44 for Model GCK kit description and conversion procedure.

Important Notes

Connection Points Shown Above in Bold Text on System Diagram

CK Configuration System & Optional Remote Cube Filter Dimensions in Inches (mm)

Helpful Hint

Note: Two optional Enclosure Pressure Gauge positions are shown on the Model 3004 CK System Panel Cutout Pattern to the left. The optional positions center gauge to the right or bottom side of System Nameplate.
Cut only one 4.5" (114.3mm) Ø hole in panel.

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Model 3004 WPS VM Configuration & Flange Dimensions in Inches (mm)

LPS (Less Pressure Switch)

WPS/WPSA (With Pressure Switch)

Model 3004 HM Configuration & Flange Dimensions in Inches (mm)

LPS (Less Pressure Switch)

WPS/WPSA (With Pressure Switch)
Typical Model 3004 System Installation Details

External to the Protected Enclosure

**Flange Mount HM Configuration with Model SMK-1 Fastener Kit**

- Enclosure Reference Tubing, Customer Supplied
- System Supply Inlet Fitting SC-8 or NC-8
- Enclosure Supply Inlet Fitting SC-8 or NC-8
- System Supply Tubing, Customer Supplied
- Enclosure Reference Fitting EFC-4
- Enclosure Supply Fitting EFC-8
- System Mounting Kit SMK-1
- Required Enclosure Protection Vent EPV-4

Internal to the Protected Enclosure

**Panel Mount CK Configuration with Model RCF-8 Remote Cube Filter & Model GCK Gauge Conversion Kit**

- Atmospheric Reference Tubing, customer supplied
- Atmospheric Reference Bulkhead Fitting PRB-4
- System Supply Inlet Fitting SC-8 or NC-8
- Optional Accessory Remote Cube Filter Model RCF-8 shown mounted to the Protected Enclosure
- System Supply Tubing, Customer Supplied
- Required Enclosure Protection Vent EPV-4
- Enclosure Pressure Indicator w/GCK Installed
- Start-up Instruction Nameplate
- System Pneumatic Manifold
- Optional Enclosure Supply Outlet Fitting SC-8 or NC-8
- Enclosure Supply Tubing, customer supplied, used to direct protective gas to the extreme opposite corner from the enclosure protection vent

Standard and Panel Mount Pneumatic Installation Diagram

See panel mounting conversion procedure on page 44

**Standard Pneumatic Installation Diagram**

**Panel Mount Installation Diagram**
VM Configuration Mounting Options

Model 3004-LPS-CI-YZ-VML
Flange Mounted to Flat Vertical Surface with Model SMK-1 Fastener Kit

Model 3004-LPS-CI-YZ-VML
Flange Mounted to Vertical 2" Pipe Stand with Model PMK-1 Fastener Kit

Model 3004-LPS-CI-YZ-VM
Frame or Panel* Mounted Through Cutout in Suitable Surface with Model SMK-6m Fastener Kit

HM Configuration Mounting Options

Model 3004-LPS-CI-YZ-HMT
Flange Mounted to Flat Horizontal Surface with Model SMK-1 Fastener Kit

Model 3004-LPS-CI-YZ-HMB
Flange Mounted to Horizontal 2" Pipe Stand with Model PMK-1 Fastener Kit

Model 3004-LPS-CI-YZ-HM
Frame or Panel* Mounted Through Cutout in Suitable Surface with Model SMK-6m Fastener Kit

CK Configuration Mounting Options

Model 3004-LPS-CI-YZ-CK
Rear View of Frame or Panel* Mount Through Cutout in Suitable Surface with supplied fasteners

* PANEL MOUNTED SYSTEMS REQUIRE A PEPPERL+FUCHS MODEL GCK FOR PROPER OPERATION - SEE PAGE 44

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Type Y, Z & Ex [nP]

### Model 3004 Panel Mount Conversion

1. Secure one Model GCK Conversion Kit, kit includes a PRB-4 & SC-2 Fitting & Enclosure Pressure Gauge gasket.
2. Remove venturi orifice and run tee from the high port of the gauge and discard.
3. Remove sintered vent from low port.
4. Reinstall sintered vent into high port.
5. Install Model SC-2 fitting into low port.
6. Install Gauge gasket between gauge & mounting surface.
7. Install Model PRB-4 fitting through enclosure surface (vent end out) and connect tubing (customer supplied) between SC-2 & PRB-4.

### System Specifications

- **System Dimensions:** See pages 40-41
- **Shipping Weight:** LPS-12 lb (5.4 kg)  
  WPS-17 lb (7.7 kg)
- **Temp. Range:** -20°F to +120°F (-29ºC to +49ºC)
- **Supply Pressure Range:** 80 - 120 psi (5.5 - 8.3 bar)
- **Capacity & Filtration:** 8.5 oz @ 40 Micron
- **Supply Requirements:** clean air or inert gas
- **Safe Press. Setpoint:** 0.25" (6.35mm)
- **Safe Press. Flow Rate:** * 0.1 - 3.5 SCFH (2.8 - 99 l/hr)
- **Exchange Pressure:** * 3" - 5" (76.2mm - 127mm)
- **Exchange Flow Rate:** ** 30 SCFM /1800 SCFH
  (850 l/m / 5096 l/hr)
- **Exchange Time:**
  4 Volume Exchange Rate: 1 min / 7.5 ft³ (212.4 l/m)
  5 Volume Exchange Rate: 1 min / 6.0 ft³ (169.9 l/m)
- **System Supply Port:** 1/2" FPT
- **Enclosure Supply Port:** 1/2" FPT
- **Enclosure Reference Fitting:** 1/4" Tube
- **Switch Setting (WPS & WPSA Only):** 0.15" ± 0.02" (3.81mm ± 0.51mm)
- **Switch Conduit Port Size:** 1/2"FPT
- **Switch Contact Ratings:**
  ** With regulator set to 60 psi min. during exchange
  *** With regulator set to 60 psi min. during exchange
- **Supply voltages 24 VDC and 240 VAC available upon request.**

### Model Number Designations

- **Series Number Designations:**
  - **System Style:** LPS - less pressure switch  
  WPS - with pressure switch  
  WPSA - with pressure switch
  - **Area Classification:** CI - Class I Area
  - **System Type:** YZ - Div. 1 to Div. 2  
  - Div. 2 / Zone 2 to Nonhazardous
  - **Mounting Configuration:**
    - VM - vertical mount left
    - VMR - vertical mount right
    - HMT - horizontal mount top
    - HMB - horizontal mount bottom
  - **Component Kit - LPS style only**
  - **CK**

- **# - See Accessories Page 117 for additional factory installed accessories**
  * Does not have ATEX certification

### Material Specifications

- **Regulator Body:** Polycarbonate
- **Regulator Handle & Bowl:** Alum. w / Enamel Finish
- **Enclosure Pressure Gauge:** Alum. w / Enamel Finish
- **Tubing:** 316 SS 1/4" .035 Welded
- **System Mounting Flange:** 316 SS Tumble Finish
- **System Face Plate:** 316 14 Ga #3 Brush SS
- **Fastener Hardware:** Alum. & Stainless Steel
- **Tube Fitting:** 316 SS Forged Body
- **System Supply Port:** 1/2" FPT
- **Switch Contact Ratings:** 120 VAC, 10 A
- **Switch Setting (WPS & WPSA Only):** 0.15" ± 0.02" (3.81mm ± 0.51mm)
- **Switch Conduit Port Size:** 1/2"FPT

### Model 3004 System Accessories

- **CONNECTION FITTINGS**
  - NC-8 1/2" T x 1/2" P Ninety Connector
  - SC-8 1/2" T x 1/2" P Straight Connector
  - EFC-4 1/4" Flush Connector
  - EBC-4 1/4" Bulkhead Connector
  - EFC-8 1/2" Flush Connector
  - EBC-8 1/2" Bulkhead Connector
  - EPC-14 1/2" Pipe Connector

- **ADDITIONAL ITEMS**
  - SMK-1 System Mounting Kit - Flange
  - SMK-6m System Mounting Kit - Frame/Panel
  - PMK-1 Pipe Mounting Kit
  - GCK Gauge Conversion Kit
  - ILF-8 1/2" In-Line Filter Kit
  - RCF-8 1/2" Remote Cube Filter
  - EPSK-1 Explosion Proof Switch Kit (GRP C, D)
  - EPSK-1A Explosion Proof Switch Kit (GRP A-D)
  - GPSK-1 General Purpose Switch Kit
  - RAH Remote Alarm Horn
  - RAB-1 Div. 1 Remote Alarm Beacon
  - RAB-2 Div. 2 Remote Alarm Beacon

### ENCLOSURE PROTECTION VENTS

- **ONE VENT REQUIRED WITH EACH SYSTEM**
  - EPV-4-SA-00 Straight w/Spark Arrestor
  - EPV-4-SA-90 Rt Angle w/Spark Arrestor

- **WARNING NAMEPLATES**
  - EWN-1 Class I Enclosure Warning

- **INSTALLATION & OPERATION MANUAL**
  - 129-0216 Inst. & Operation Manual

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ONE (1) ENCLOSURE WARNING NAMEPLATE & ONE (1) INSTALLATION & OPERATION MANUAL ARE PROVIDED WITH EACH SYSTEM

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**Features**

- Low cost, compact design, easy to use
- Universal power: AC or DC
- Touch screen display with LEDs for easy visual indication
- Easy setup with pre-set purge programs for your application
- Automatic pressure compensation with digital manifold
- Rugged, corrosion-resistant housing
- Global third-party approvals for Class I, II, Div. 2 and Zone 2/22

**Application**

The 7500 series purge and pressurization system consists of a control unit, an enclosure protection vent, and a manual or automatic manifold. The control unit’s menu-driven touch screen display makes it easy to select pre-programmed and user-selected variables. The display has 4 LED indicators that allow users to determine system condition from a distance.

A digital manifold system such as the 5500-MAN-... can be used to make the 7500 a fully automatic system. Enclosure pressure and leakage are monitored. If a loss in enclosure pressure occurs, the solenoid valve engages to restore the defined pressure settings and/or trigger a pressure drop alarm.

The 7500 series system has NEC, CEC, ATEX, and IECEx third-party certifications for Class I, II/Div. 2 Type Z and Zone 2/22 Ex pzc.

**Connection**

**Electrical Connections**
## Technical data

### 7500 Control Unit

#### General specifications
- **Equipment architecture:** max. enclosure size 450 ft³ (12.7 m³)
- **Operating mode:** fully automatic (FA)
- **Series:** 7500
- **Hazardous environment:** gas or dust

#### Supply
- **Rated voltage $U_r$:** 20 ... 30 V DC at 0.1 A
- **90 ... 250 V AC, 50 ... 60 Hz at 0.04 A without solenoid valve**
- **Supply voltage can be line-to-line or line-to-neutral, single phase**
- **OVC II**
- **Power consumption:** ≤ 2.7 W / 7.3 VA without valve

#### Electrical specifications
- **Output**: screw terminals -- see manual for specifications on wire size and torque values
  - **Output I**
    - **Connection:** K1, terminals, 1 x NO
    - **Output type:** enclosure power contacts
    - **Contact loading:** 5 A at 250 V AC, 5 A at 30 V DC, relays must be externally fused
    - **Inrush current:** 50 A
  - **Output II**
    - **Connection:** K2, terminals, 1 x NO
    - **Output type:** alarm and control contacts
    - **Contact loading:** 5 A at 250 V AC, 5 A at 30 V DC, relays must be externally fused
    - **Inrush current:** 50 A
  - **Output III**
    - **Connection:** K3, terminals, L1 powered contact
    - **Output type:** solenoid manifold, contact
    - **Inrush current:** 5 A
    - **Contact loading:** 0.5 A at 250 V AC, 0.5 A at 30 V DC, relays must be externally fused

#### Indicators/settings
- **LED indication**
  - K1: Green - Contact K1 is energized (enclosure contacts)
  - K2: Amber - Contact K2 is energized (alarm/control contacts)
  - P/SV: Blue - Safe pressure P1 (minimum enclosure pressure)
  - P/SV: Amber - Solenoid manifold is energized (purging/pressure compensation)

#### Pneumatic parameters
- **Protective gas supply:** compressed air or inert gas, 5 µm filter, free from oil
- **Pressure requirement**
  - **Supply pressure:** 20 ... 120 psig (1.4 ... 8.2 bar)
- **Safe pressure**
  - 0.25 in wc (0.63 mbar) minimum for gas
  - 0.65 in wc (1.63 mbar) minimum for dust
- **Enclosure pressure**
  - 0 ... 10 in wc (0 ... 24.8 mbar)

#### Directive conformity
- **Electromagnetic compatibility**
  - **RoHS**
    - Directive 2011/65/EU (RoHS) EN 50581:2012

#### Conformity
- **Accuracy**
  - Pressure sensing: ± 0.125 in wc (0.31 mbar)
  - Timers: ± 5 %

#### Ambient conditions
- **Ambient temperature**
  - Ambient temperature ranges depend on the T class. See the certificates.
- **Relative humidity**
  - 5 ... 90 %, non-condensing
- **Altitude**
  - ≤ 2000 m
- **Vibration resistance**
  - 5 ... 100 Hz, 1 g, 12 m/s², all axes
- **Impact resistance**
  - 30 g, 11 ms, all axes

#### Mechanical specifications
- **Connection type**
  - Electrical: 2 x 1/2 inch NPTF (open from factory)
  - 1 x M12 opening (plugged from factory)
  - Pneumatic: high-pressure port - 1/8 in NPTF, low-pressure port - 1/8 in NPTF
- **Degree of protection**
  - Type 4X , IP66
- **Material**
  - Lens: Makrolon® GP-V polycarbonate
  - Screws: AISI 316 (1.4401), 304, or 18-8 stainless steel
  - Housing: A380, A356, or 6061-T6 aluminium
  - Mounting gasket: Bisco® HT-800 medium cellular silicone
  - Mounting tabs: SAE 304 stainless steel
  - M12 plug: 6061-T6 aluminium
- **Mass**
  - 710 g (1 lb 10 oz)
Technical data

Dimensions
150 x 100 x 50 mm (5.9 x 4 x 2 in)

Data for application in connection with hazardous areas

Certificate

Marking

Directive conformity

International approvals

UL approval
cULus

Class I, Division 2, Groups A, B, C, D, T4 (-40 °C ≤ Ta ≤ 70 °C)
Class I, Division 2, Groups A, B, C, D, T5 (-40 °C ≤ Ta ≤ 65 °C)
Class I, Division 2, Groups A, B, C, D, T6 (-40 °C ≤ Ta ≤ 50 °C)
Class II, Division 2, Groups F, G, T4 (-40 °C ≤ Ta ≤ 70 °C)
Class II, Division 2, Groups F, G, T5 (-40 °C ≤ Ta ≤ 65 °C)
Class II, Division 2, Groups F, G, T6 (-40 °C ≤ Ta ≤ 50 °C)

IECEX approval

Ex ec nC [pzc] IIC T6...T4 Gc
Ex tc [pzc] IIIIC T60 °C ... T80 °C Dc

General information

Supplementary information

Type Examination Certificate, Statement of Conformity, Declaration of Conformity, Attestation of Conformity and instructions have to be observed where applicable. For information see www.pepperl-fuchs.com.

Accessories

EPV-7500-*
7500 series purge and pressurization system vent
7500-MAN-MV-01
7500 series purge and pressurization system manual manifold
5500-MAN-CDUL-*

5500-MAN-CD01-*

5500-MAN-EX01-*
Technical data

7500 Control Unit

Dimensions

1. High-pressure port 1/8-27 NPT
2. Low-pressure port 1/8-27 NPT
3. Protective earth stud, torque 12 in lb (1.35 Nm)

Type Code

| 7 | 5 | 0 | 0 | 0 | 0 | A | A | S | T | D | U | N | V | P | N | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

- **Wire connection**
- **Power requirement**
- **Housing type**
- **Housing Material**

- **PNO** Without cable glands, 2 x 1/2 inch NPT (open from factory), 1 x 12 mm (plugged from factory)
- **UNV** Universal AC or DC requirement
- **STD** Standard housing type
- **AA** Aluminum, polycarbonate lens (see data for exact material)
- **7500 series** Standard control unit

Refer to "General Notes Relating to Pepperl+Fuchs Product Information".