PURGE/PRESSURIZATION SYSTEM
SERIES 2000
DATA SHEETS
Type X Systems (2000 Series)

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Description

Model 2001A is a 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. In addition, the system includes an electrical power control unit (EPCU) that monitors system operation and controls enclosure power. All start-up requirements must be satisfied before the EPCU will energize power to the enclosure(s). 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.

Basic Operation

In accordance with system instructions, start-up requires the air supply to be engaged and EPCU power to be energized. In Class II areas, all dust must be removed from the enclosure(s). The enclosure protection vent (if used) must be tested and enclosure(s) must be sealed. The EPCU power control switch must be activated and the system will self-test. The enclosure pressure control regulator is then used to set a safe reading on the enclosure pressure gauge. In Class II areas, power will energize shortly after safe pressure is stable. In Class I areas, the system must perform an exchange cycle (determined by the safe pressure flow rate—five minutes minimum) before power can be energized. Loss of safe pressure causes the EPCU to deenergize power to the protected enclosure(s). All systems include form “C” contacts for audible or visual alarm systems.

Model 2001A

STD Style
(Standard)

Class I (≤ 2 ft³) and Class II (≤ 10 ft³)

Standard Model Applications

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Designation</th>
<th>Enclosure Volume</th>
<th>UL &amp; FM Certified</th>
<th>Rating Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001A-CI Type X</td>
<td>Purging System</td>
<td>2 ft³ max.</td>
<td>Cl. I, Div. 1, Group C&amp;D*</td>
<td>Div. 1 to Nonhazardous</td>
</tr>
<tr>
<td>2001A-CII Type X</td>
<td>Pressurization System</td>
<td>10 ft³ max.</td>
<td>Cl. II, Div. 1, Group E-G</td>
<td>Div. 1 to Nonhazardous</td>
</tr>
</tbody>
</table>

*Only FM Certified Group B System Available
**TYPE X**

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**System Specifications**

- **System Dimensions:** See page 6
- **Shipping Weight:** 38 lb
- **Temp. Range:** -20 °F to +120 °F
- **Supply Pressure Range:** * 5 - 120 psi max.
- **Supply Requirements:** Clean air or inert gas
- **Safe Press. Setpoint (CI/CII):** 0.25”/1.0”
- **Safe Press. Flow Rate:** ** 0.1 - 3.5 SCFH
- **Class I Exchange Time:** *** As required
- **Supply Port:** 1/4” Tube Fitting
- **Enclosure Supply Fitting:** 1/4” Tube Fitting
- **Enclosure Reference Fitting:** 1/4” Tube Fitting
- **EPCU Conduit Port Size:** 1/2” FPT
- **EPCU Power Requirements:**
  - 120 VAC 60 Hz 10
  - 240 VAC 50 Hz 10
- **EPCU Power Consumption:** 500 mA
- **Power Relay Contacts:** 20 A @ 240 VAC
  - 20 A @ 28 VDC
  - **** 20 A @ 48 VDC
- **Alarm Relay N.O. Contact:** 15 A @ 240 VAC
- **Alarm Relay N.C. Contact:** 10 A @ 2 VDC

---

**Simplified EPCU Redundant Logic Diagram**

![Diagram](image)

**OPERATION**

Signal (1) from SPS is sent to µP, GAL and SPCR coil. During start-up, GAL verifies all µP functions. GAL & µP must receive uninterrupted signal from SPS to prevent logic resetting. After GAL verifies all start-up procedures, it sends "power enabled" signal (2) to PER coil. Then, µP sends "power request" signal (3) through the SPCR and PER contacts to EPR coils.

---

**Electrical Wiring Diagram**

![Diagram](image)

**Basic EPCU Operation**

When power is "off", the EPCU is at rest, alarm and power relays are deenergized, and the LED display is off. When power is switched "on", the EPCU performs a self-test of LED display and logic functions. The unit will then start-up. Class II units must detect a 0.50” pressure to energize the alarm relay. The enclosure power relays energize after a brief delay. Class I units must detect a 0.25” pressure to energize the alarm relay and begin an exchange cycle. When the cycle stops, the power relays will energize. Loss of safe pressure on either unit causes alarm and power relays to deenergize (see power control options for more information regarding EPCU operation).

---

**Material Specifications**

- **Regulator Body:** Zinc w/Enamel Finish
- **Regulator Handle:** Polycarbonate
- **Enclosure Pressure Gauge:** Alum. w/Enamel Finish
- **System Nameplates:** 316 SS Forged Body
- **Tubing:** 316 SS 1/4” .035 Welded
- **Fastener Hardware:** SS Screws & Bolts
- **Mounting Plate:** 316 14 Ga #3 Brush SS
- **EPCU Enclosure Body:** Bead Blast Cast Alum.
- **Enclosure Warning Nameplate:** Silkscreened SS

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**EPCU Description**

The Pepperl+Fuchs 2000 Series EPCU is a factory programmed, field adjustable, microprocessor controlled unit featuring full status indication, redundant gate array logic and electromechanical relays. The EPCU is constructed from four major items: (1) a power module, (2) a pressure switch module, (3) a logic module and (4) a power mode selector switch. The sections are linked with polarized cable, and the boards are stacked in the EPCU enclosure on standoffss.
EPCU Logic Module

- Barrier Fault & Active Status Indicators
- Primary Microprocessor
- Redundant Controller (GAL)
- Factory Programming Header
- Power Module Cable Header
- EDT, SLT & RET Timers
- LED Status Display
- Pressure Switch Calibration Access

EPCU Pressure Switch Module

- Primary Safe Pressure Switch
- Space for Optional Redundant Safe Pressure Switch

120/240 VAC EPCU Power Module

- Isolated Coil Voltage Transformer
- Power Control Switch Cable Header
- Voltage Regulators
- Pressure Switch Cable Header
- Logic Module Cable Header
- Redundant Safe Pressure Relay
- 20 A Alarm Relay
- 20 A Enclosure Power Relays
- 20 A Enclosure Power Fuse
- Power Module Wiring Terminal

Assembled Electrical Power Control Unit

EPCU Features

LED DISPLAY INDICATORS

- Power Off: Red
- Power On: Green
- Safe Pressure: Blue
- Timer Running: Yellow
- Alarm Active: Red
- Bypass Engaged: Green

Enclosure Power Relays Deenergized
Enclosure Power Relays Energized
Enclosure Pressure > 0.15" or 0.50" w.c.
Exchange Timer Active - Class I Only
Enclosure Pressure < 0.15" or 0.50" w.c.
Control Bypass Active - CB Modes

Class I LED Displays

- Alarm Only
- Alarm & Bypass

Class II LED Displays

- Alarm Only
- Alarm & Bypass

FIELD ADJUSTABLE TIMER FUNCTIONS

RET (Rapid Exchange Timer) provides a time delay after safe pressure is detected, to allow four volume exchanges prior to energizing the enclosure power relays. In Class I areas only, if safe pressure is lost during time delay cycle, EPCU will reset.

NOTE: EDT & SLT timers not functional on Series 2001 Systems

Power Control Options

NORMAL RUNNING (NR) MODE

EPCU features an on-off pushbutton power control switch to activate control functions. Switch must be depressed to initiate start-up. After completion of start-up, safe pressure must be lost or switch must be depressed to deenergize enclosure power relays.

CONDITIONAL BYPASS (CB) MODE

EPCU features an off-on bypass power control switch to activate control functions. Switch must be set to "on" position to initiate start-up. After enclosure power is energized, safe pressure must be lost or switch must be set to "off" position to deenergize enclosure power. After enclosure power is energized, switch may be set to "bypass" position to temporarily latch enclosure power relays. A flashing LED then indicates bypass engaged, and the enclosure can then be accessed without deenergizing power (performed under specific conditions). Following access, safe pressure must be reestablished to resume normal operation. At that time, the switch may be reset to the "on" position without disruption of enclosure power. Alarm relay normally deenergizes only upon loss of safe pressure, but can be programmed to deenergize when bypass is engaged, if specified at time of order.
**System Accessories Diagram**

- **1/4" Supply Tubing**
- **1/4" Tubing Reference**
- **Enclosure Supply Fitting** EBC-4
- **Enclosure Reference Fitting** EFC-4
- **Mounting Kit**
- **Warning Nameplate** EWN-___
  (Included with Panel)

**Pressurized Protected Enclosure**

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

(EPV vent not required when using the TR-10G tamper proof regulator as redundancy)

---

**Model Number Designations**

<table>
<thead>
<tr>
<th>Series Model Number</th>
<th>System Style</th>
<th>Area Classification</th>
<th>Power Control Mode</th>
<th>Mounting Configuration</th>
<th>System Model Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001A</td>
<td>STD</td>
<td>CI</td>
<td>NR</td>
<td>LH #</td>
<td></td>
</tr>
</tbody>
</table>

**System Style**
- STD - Standard

**Area Classification**
- CI - Class I, Group C & D Area
- CII - Class II, Group E, F & G Area
- IB - Class I, Group B Area

**Power Control Mode**
- NR - Normal Running
- CB - Conditional Bypass

**Mounting Configuration**
- LH - left side of enclosure
- RH - right side of enclosure
- TM - top mount
- BM - bottom mount
- WM - wall mount
- FM* - frame mount
- PM* - panel mount

* FM & PM configurations feature flush mount EPCU.
Flush mount EPCU is not suitable for Group B Area.

## - See Accessories Page 132 for additional factory installed accessories

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**OPTIONAL INTRINSIC SAFETY BARRIERS**

**DESCRIPTION & OPERATION**

The EPCU Logic Module can accommodate up to three intrinsic safety barriers to interact with remote devices and affect operation of the EPCU. The barriers are installed and programmed by the factory at time of order, and are designed to function either in conjunction with a customer furnished switch and a Pepperl+Fuchs furnished resistor network cable, or a Pepperl+Fuchs furnished proximity detector. Each barrier develops a low power signal to create a two-wire closed-loop circuit. Operational status of each barrier is indicated by a green LED to show active (closed switch) status, and by a red LED to show faulted (line breakage) cable status. All barriers can be reprogrammed to duplicate other barrier functions as required, upon specific request.

---

**CONNECTION FITTINGS**

- **EFC-4** 1/4" Flush Connector
- **EBC-4** 1/4" Bulkhead Connector
- **EPC-10** 1/2" Pipe Connector

**ADDITIONAL ITEMS**

- **LLF** 1/4" Filter
- **SMK-2**, -3 or -10 System Mounting Kit
- **RAH** Remote Alarm Horn
- **RAB-1** Div. 1 Remote Alarm Beacon
- **LCK** L Fitting Conduit Kit
- **TCK** T Fitting Conduit Kit

**SRM-4000** Switch Resistor Module

**INSTALLATION & OPERATION MANUAL**

**129-0208** Inst. & Operation Manual

**OPTIONAL ENCLOSURE PROTECTION VENTS**

- **EPV-1-SA-00** Straight w/Spark Arrester
- **EPV-1-SA-90** Rt Angle w/Spark Arrester

**OPTIONAL HEX KEY REGULATOR HANDLE**

**TR-10G** Tamper Proof Regulator

---

**BARRIER PROGRAMMING OPTIONS**

**Barrier A Function** - when switch opens
- Disables start-up cycle
- Deenergizes enclosure power and alarm relay
- Functions parallel to safe pressure switch

**Barrier B Function** - when switch opens
- Not programmed - custom applications only

**Barrier C Function** - when switch closes
- Energizes RESV relay - custom applications only

---

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

**Overall System Dimensions**

<table>
<thead>
<tr>
<th>Overall System Dimensions</th>
<th>STD</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>20</td>
<td>11</td>
<td>11</td>
<td>10.50</td>
<td>10.50</td>
<td>10.50</td>
<td>12.50</td>
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<td>10.50</td>
<td>10.50</td>
<td>10.50</td>
<td>10.50</td>
<td>11.25</td>
</tr>
</tbody>
</table>

Dimensions in inches. Mounting dimensions available upon request. FM & PM panel cutout dimensions: 21h x 12w. Height & width dimensions reflect mounting plate measurements. Depth dimension reflects overall measurement of system, including components.

---

**WARNING NAMEPLATES**

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

**FACTOR INSTALLED ACCESSORIES**

- **IS1** Channel A Barrier
- **IS2** Channel B Barrier
- **IS3** Channel C Barrier
- **RP1** Redundant Safe Pressure Switch

---

**INSTALLATION & OPERATION MANUAL**

**129-0208** Inst. & Operation Manual

**OPTIONAL ENCLOSURE PROTECTION VENTS**

- **EPV-1-SA-00** Straight w/Spark Arrester
- **EPV-1-SA-90** Rt Angle w/Spark Arrester

---

**OPTIONAL HX KEY REGULATOR HANDLE**

**TR-10G** Tamper Proof Regulator

---

**EPCU Logic Module**

The EPCU Logic Module can accommodate up to three intrinsic safety barriers to interact with remote devices and affect operation of the EPCU. The barriers are installed and programmed by the factory at time of order, and are designed to function either in conjunction with a customer furnished switch and a Pepperl+Fuchs furnished resistor network cable, or a Pepperl+Fuchs furnished proximity detector. Each barrier develops a low power signal to create a two-wire closed-loop circuit. Operational status of each barrier is indicated by a green LED to show active (closed switch) status, and by a red LED to show faulted (line breakage) cable status. All barriers can be reprogrammed to duplicate other barrier functions as required, upon specific request.
Description

Model 2001B is a pressurization 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. Intended exclusively for Class II areas, the system is designed to maintain a “safe” (1.0”) pressure. In addition, the system includes an electrical power control unit (EPCU) that monitors system operation and controls enclosure power. All start-up requirements must be satisfied before the EPCU will energize power to the enclosure(s). 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.

Basic Operation

In accordance with system instructions, start-up requires the air supply to be engaged and EPCU power to be energized. The operator is then required to remove all dust from the protected enclosure(s). The enclosure protection vent (if used) must be tested and enclosure(s) must be sealed. The EPCU power control switch must be activated and the system will self-test. The enclosure pressure control regulator is used to set a safe reading on the enclosure pressure gauge. The enclosure power will energize after a brief pause, when safe pressure is stable. Loss of safe pressure causes the EPCU to deenergize power to the protected enclosure(s). The system includes form “C” contacts for audible or visual alarm systems.

Standard Model Applications

| Model Number: | 2001B-CII Type X |
| Designation: | Pressurization System |
| Enclosure Volume: | 50 ft³ max. |
| UL & FM Certified: | Cl. II, Div. 1, Group E-G |
| Rating Reduction: | Div. 1 to Nonhazardous |
**System Specifications**

- **System Dimensions:** See page 10
- **Shipping Weight:** 38 lb
- **Temp. Range:** -20 °F to +120 °F
- **Supply Pressure Range:** *5 - 120 psi max.*
- **Supply Requirements:** Clean air or inert gas
- **Safe Press. Setpoint:** 1.0" @ Safe Press.
- **Safe Press. Flow Rate:** "0.1 - 3.5 SCFH
- **System Supply Port:** 3/8" Tube Fitting
- **Enclosure Supply Fitting:** 3/8" Tube Fitting
- **Enclosure Reference Fitting:** 1/4" Tube Fitting
- **EPCU Conduit Port Size:** 1/2" FPT
- **EPCU Power Requirements:**
  - 120 VAC 60 Hz 1Ø (European 220 voltage only)
  - 240 VAC 50 Hz 1Ø
- **EPCU Power Consumption:** 500 mA
- **Power Relay Contacts:**
  - 20 A @ 240 VDC
  - 20 A @ 28 VDC
  - **20 A @ 48 VDC**
- **Alarm Relay N.O. Contact:**
  - 20 A @ 240 VAC
  - 15 A @ 240 VAC
  - 10 A @ 28 VDC
- **EPCU Description**

The Pepperl+Fuchs 2000 Series EPCU is a factory programmed, field adjustable, microprocessor controlled unit featuring full status indication, redundant gate array logic and electromechanical relays. The EPCU is constructed from four major items: (1) a power module, (2) a pressure switch module, (3) a logic module and (4) a power mode selector switch. The sections are linked with polarized cable, and the boards are stacked in the EPCU enclosure on standoffs.

**Basic EPCU Operation**

When power is "off", the EPCU is at rest, alarm and power relays are deenergized, and the LED display is off. When power is switched "on", the EPCU performs a self-test of LED display and logic functions. The unit will then start-up. Class II units must detect a 0.50" pressure to energize the alarm relay. The enclosure power relays energize after a brief delay. Loss of safe pressure on the unit causes alarm and power relays to deenergize (see power control options for more information regarding EPCU operation).
**Type X**

**EPCU Logic Module**

- Barrier Fault & Active Status Indicators
- Primary Microprocessor
- Redundant Controller (GAL)

**Barrier C Socket**

**Barrier B Socket**

**Barrier A Socket**

**Barrier Wiring Terminal**

- Pressure Switch Calibration Access
- LED Status Display

**EPCU Pressure Switch Module**

- Primary Safe Pressure Switch

**120/240 VAC EPCU Power Module**

- Isolated Coil Voltage Transformer
- Power Control Switch Cable Header
- Voltage Regulators
- Pressure Switch Cable Header
- Logic Module Cable Header
- Redundant Safe Pressure Relay
- 20 A Alarm Relay
- 20 A Enclosure Power Relays

**Assembled Electrical Power Control Unit**

---

**EPCU Features**

**LED DISPLAY INDICATORS**

- **Power Off:** Red
- **Power On:** Green
- **Safe Pressure:** Blue
- **Alarm Active:** Red
- **Bypass Engaged:** Green

**Enclosure Power Relays Deenergized**

- Enclosure Power Relays Energized
- Enclosure Pressure > 0.50" w.c.
- Enclosure Pressure < 0.50" w.c.

**Control Bypass Active - CB Modes**

---

**Class II LED Displays**

- **Alarm Only**
- **Alarm & Bypass**

---

**FIELD ADJUSTABLE TIMER FUNCTIONS**

- RET, SLT & SLT timers not functional on Model 2001B Systems

---

**Power Control Options**

**NORMAL RUNNING (NR) MODE**

- EPCU features an on-off pushbutton power control switch to activate control functions. Switch must be depressed to initiate start-up. After completion of start-up, safe pressure must be lost or switch must be depressed to deenergize enclosure power relays.

**CONDITIONAL BYPASS (CB) MODE**

- EPCU features an off-on-bypass power control switch to activate control functions. Switch must be set to "on" position to initiate start-up. After enclosure power is energized, safe pressure must be lost or switch must be set to "off" position to deenergize enclosure power. After enclosure power is energized, switch may be set to "bypass" position to temporarily latch enclosure power relays. A flashing LED then indicates bypass engaged, and the enclosure can be accessed without deenergizing power (performed under specific conditions). Following access, safe pressure must be reestablished to resume normal operation. At that time, the switch may be reset to the "on" position without disruption of enclosure power. Alarm relay normally deenergizes only upon loss of safe pressure, but can be programmed to deenergize when bypass is engaged, if specified at time of order.
**Type X**

**System Accessories Diagram**

- 3/8" Supply Tubing
- 1/4" Tubing Reference
- Enclosure Supply Fitting EBC-6
- Enclosure Reference Fitting EFC-4
- Pressurized Protected Enclosure
- Mounting Kit
  - SMK-2
  - SMK-3
- Warning Nameplate
  - EWN-2 (Included with Panel)

**Model Number Designations**

- **2001B - STD - CII - NR - LH - ##**
  - **Series Model Number**
  - **System Style**
    - STD - Standard
  - **Area Classification**
    - CII - Class II, Group E, F & G Area
  - **Power Control Mode**
    - NR - Normal Running
    - CB - Conditional Bypass
  - **Mounting Configuration**
    - LH - left hand
    - RH - right hand
    - TM - top mount
    - BM - bottom mount
    - WM - wall mount
    - FM* - frame mount
    - PM* - panel mount
  - **Dimensions in inches. Mounting dimensions available upon request. FM & PM panel cutout dimensions: 21h x 12w**
  - **Depth dimension reflects overall measurement of system, including components.**

---

**OPTIONAL INTRINSIC SAFETY BARRIERS**

**DESCRIPTION & OPERATION**

The EPCU Logic Module can accommodate up to three intrinsic safety barriers to interact with remote devices and affect operation of the EPCU. The barriers are installed and programmed by the factory at time of order, and they are designed to function either in conjunction with a customer furnished switch and a Pepperl+Fuchs furnished resistor network cable, or a Pepperl+Fuchs furnished proximity detector. Each barrier develops a low power signal to create a two-wire closed-loop circuit. Operational status of each barrier is indicated by a green LED to show active (closed switch) status, and by a red LED to show faulted (line breakage) cable status. All barriers can be reprogrammed to duplicate other barrier functions as required, upon specific request.

**BARRIER PROGRAMMING OPTIONS**

- **Barrier A Function - when switch opens**
  - Enables start-up cycle
  - Deenergizes enclosure power and alarm relay
  - Functions parallel to safe pressure switch
- **Barrier B Function - when switch opens**
  - Not programmed - custom applications only
- **Barrier C Function - when switch closes**
  - Energizes RESV relay - custom applications only

---

**Model 2001B System Accessories** *(See accessories page for complete details)*

<table>
<thead>
<tr>
<th>CONNECTION FITTINGS</th>
<th>EPC-3 - SA-00</th>
<th>Switch Resistor Module</th>
<th>FACTORY INSTALLED ACCESSORIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>EFC-4</td>
<td>1/4&quot; Flush Connector</td>
<td>SRM-4000</td>
<td>IS1 Channel A Barrier</td>
</tr>
<tr>
<td>EFC-6</td>
<td>3/8&quot; Flush Connector</td>
<td>NJ...</td>
<td>IS2 Channel B Barrier</td>
</tr>
<tr>
<td>EBC-6</td>
<td>3/8&quot; Bulkhead Connector</td>
<td>P+F Namur Sensor</td>
<td>IS3 Channel C Barrier</td>
</tr>
<tr>
<td>EPC-13</td>
<td>1&quot; Pipe Connector</td>
<td>INSTALLATION &amp; OPERATION MANUAL</td>
<td>RP1 Redundant Safe Pressure Switch</td>
</tr>
</tbody>
</table>

**ADDITIONAL ITEMS**

- SMK-2, -3 or -10 System Mounting Kit
- RAH Remote Alarm Horn
- RAB-1 Div. 1 Remote Alarm Beacon
- LCK L Fitting Conduit Kit
- TCK T Fitting Conduit Kit
- EPV-3-SA-00 Straight w/Spark Arrestor
- EPV-3-SA-90 Rt Angle w/Spark Arrestor
- EWN-2 Class II Enclosure Warning
- ETW Enclosure Temperature Warning

**FACTOR INSTALLED ACCESSORIES**

- IS1 Channel A Barrier
- IS2 Channel B Barrier
- IS3 Channel C Barrier
- RP1 Redundant Safe Pressure Switch
- L Power Switch Key Lock Assembly

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

---

**Overall System Dimensions**

<table>
<thead>
<tr>
<th>Overall System Dimensions</th>
<th>STD</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>20</td>
<td>20</td>
<td>10.50</td>
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<td>10.75</td>
<td>12.50</td>
<td>11.50</td>
<td></td>
</tr>
</tbody>
</table>

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Dimensions in inches. Mounting dimensions available upon request. FM & PM panel cutout dimensions: 21h x 12w

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Subject to modifications without notice

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pa-info@sg.pepperl-fuchs.com
Description

Model 2001C is a pressurization 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. Intended exclusively for Class II areas, the system is designed to maintain a "safe" (1.0") pressure. In addition, the system includes an electrical power control unit (EPCU) that monitors system operation and controls enclosure power. All start-up requirements must be satisfied before the EPCU will energize power to the enclosure(s). 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.

Basic Operation

In accordance with system instructions, start-up requires the air supply to be engaged and EPCU power to be energized. The operator is then required to remove all dust from the protected enclosure(s). The enclosure protection vent (if used) must be tested and enclosure(s) must be sealed. The EPCU power control switch must be activated and the system will self-test. The enclosure pressure control regulator is used to set a safe reading on the enclosure pressure gauge. The enclosure power will energize after a brief pause, when safe pressure is stable. Loss of safe pressure causes the EPCU to deenergize power to the protected enclosure(s). The system includes form "C" contacts for audible or visual alarm systems.

Model 2001C

Class II (≤ 250 ft³)

STD Style (Standard)

UL & FM Certified: Cl. II, Div. 1, Group E-G
Rating Reduction: Div. 1 to Nonhazardous

Model Number: 2001C-CII Type X
Designation: Pressurization System
Enclosure Volume: 250 ft³ max.

Standard Model Applications
System Specifications

System Dimensions: See page 14
Shipping Weight: 38 lb
Temp. Range: -20 °F to +120 °F
Supply Pressure Range: 5 - 120 psi max.
Supply Requirements: Clean air or inert gas
Safe Press. Setpoint: 1.0" @ Safe Press.
Safe Press. Flow Rate: ** 0.1 - 3.5 SCFH
System Supply Port: 1/2" Tube Fitting
Enclosure Supply Fitting: 1/2" Tube Fitting
Enclosure Reference Fitting: 1/4" Tube Fitting
EPCU Conduit Port Size: 1/2" FPT
EPCU Power Requirements: 120 VAC 60 Hz 1Ø
(All voltage ratings are factory set)
EPCU Power Consumption: 500 mA
Power Relay Contacts: 20 A @ 240 VAC
20 A @ 28 VDC
*** 20 A @ 48 VDC
Alarm Relay N.O. Contact: 20 A @ 240 VAC
20 A @ 28 VDC
Alarm Relay N.C. Contact: 15 A @ 240 VAC
10 A @ 28 VDC

* With EPV-4 Vent - 120 psi max. to 5 psi min.
Systems installed without Vent must be equipped with tamper proof regulator set to 5 psi max.
** Enclosure integrity determines actual flow rate

EPCU Description

The Pepperl+Fuchs 2000 Series EPCU is a factory programmed, field adjustable, microprocessor controlled unit featuring full status indication, redundant gate array logic and electromechanical relays. The EPCU is constructed from four major items: (1) a power module, (2) a pressure switch module, (3) a logic module and (4) a power mode selector switch. The sections are linked with polarized cable, and the boards are stacked in the EPCU enclosure on standoffs.

Basic EPCU Operation

When power is "off", the EPCU is at rest, alarm and power relays are deenergized, and the LED display is off. When power is switched "on", the EPCU performs a self-test of LED display and logic functions. The unit will then start-up. Class II units must detect a 0.50" pressure to energize the alarm relay. The enclosure pressure relays energize after a brief delay. Loss of safe pressure on the unit causes alarm and power relays to deenergize (see power control options for more information regarding EPCU operation).
**EPCU Logic Module**
- Barrier Fault & Active Status Indicators
- Primary Microprocessor
- Redundant Controller (GAL)
- Barrier C Socket
- Barrier B Socket
- Barrier A Socket
- Barrier Wiring Terminal
- Pressure Switch Calibration Access
- LED Status Display

**EPCU Pressure Switch Module**
- Primary Safe Pressure Switch
- Space for Optional Redundant Safe Pressure Switch

---

**EPCU Features**

**LED DISPLAY INDICATORS**
- Power Off: Red
- Power On: Green
- Safe Pressure: Blue
- Alarm Active: Red
- Bypass Engaged: Green
- Enclosure Power Relays Deenergized
- Enclosure Pressure > 0.50" w.c.
- Enclosure Pressure < 0.50" w.c.
- Control Bypass Active - CB Modes

**Class II LED Displays**
- Alarm Only
- Alarm & Bypass

**FIELD ADJUSTABLE TIMER FUNCTIONS**
- RET, EDT & SLT timers not functional on Model 2001B Systems

---

**Power Control Options**

**NORMAL RUNNING (NR) MODE**
EPCU features an on-off pushbutton power control switch to activate control functions. Switch must be depressed to initiate start-up. After completion of start-up, safe pressure must be lost or switch must be depressed to deenergize enclosure power relays.

**CONDITIONAL BYPASS (CB) MODE**
EPCU features an off-on-bypass power control switch to activate control functions. Switch must be set to "on" position to initiate start-up. After enclosure power is energized, safe pressure must be lost or switch must be set to "off" position to deenergize enclosure power. After enclosure power is energized, switch may be set to "bypass" position to temporarily latch enclosure power relays. A flashing LED then indicates bypass engaged, and the enclosure can be accessed without deenergizing power (performed under specific conditions). Following access, safe pressure must be reestablished to resume normal operation. At that time, the switch may be reset to the "on" position without disruption of enclosure power. Alarm relay normally deenergizes only upon loss of safe pressure, but can be programmed to deenergize when bypass is engaged, if specified at time of order.

---

**Assembled Electrical Power Control Unit**
## System Accessories Diagram

![Diagram of system accessories](image)

### Enclosure Protection Vent
EPV-4-SA...

### Enclosure Reference Fitting
EFC-4

### Enclosure Supply Fitting
EBC-8

### 1/2" Supply Tubing

### 1/4" Tubing Reference

### Pressurized Protected Enclosure

### Warning Nameplate
EWN-2 (Included with Panel)

### Mounting Kit
SMK-3

---

## Model Number Designations

**Series Model Number**

STD - Standard

**System Style**

CII - Class II, Group E, F & G Area

**Area Classification**

STD - Standard

**Power Control Mode**

NR - Normal Running

CB - Conditional Bypass

**Mounting Configuration**

LH - left hand

RH - right hand

TM - top mount

BM - bottom mount

WM - wall mount

**Warning Nameplate**

EWN-2 - Class II Enclosure Warning

ETW - Enclosure Temperature Warning

**OPTIONAL INTRINSIC SAFETY BARRIERS**

**DESCRIPTION & OPERATION**

The EPCU Logic Module can accommodate up to three intrinsic safety barriers to interact with remote devices and affect operation of the EPCU. The barriers are installed and programmed by the factory at time of order, and they are designed to function either in conjunction with a customer furnished switch and a Pepperl+Fuchs furnished resistor network cable, or a Pepperl+Fuchs furnished proximity detector. Each barrier develops a low power signal to create a two-wire closed-loop circuit. Operational status of each barrier is indicated by a green LED to show active (closed switch) status, and by a red LED to show faulted (line breakage) cable status. All barriers can be reprogrammed to duplicate other barrier functions as required, upon specific request.

**OPTIONAL ENCLOSURE PROTECTION VENTS**

EPV-4-SA-00 - Straight w/Spark Arrestor

EPV-4-SA-90 - Rt Angle w/Spark Arrestor

**WARNING NAMEPLATES**

EWN-2 - Class II Enclosure Warning

ETW - Enclosure Temperature Warning

---

### Model 2001C System Accessories

**Connection Fittings**

- 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,-3 or -10: System Mounting Kit
- RAH: Remote Alarm Horn
- RAB-1: Div. 1 Remote Alarm Beacon
- LCK: L Fitting Conduit Kit
- TCK: T Fitting Conduit Kit

**Switch Resistor Module**

SRM-4000

**Induction & Operation Manual**

P+F Namur Sensor

**Installation & Operation Manual**

129-0210

**Optional Enclosure Protection Vents**

EPV-4-SA-00 - Straight w/Spark Arrestor

EPV-4-SA-90 - Rt Angle w/Spark Arrestor

**Factory Installed Accessories**

- IS1: Channel A Barrier
- IS2: Channel B Barrier
- IS3: Channel C Barrier
- RP1: Redundant Safe Pressure Switch
- L: Power Switch Key Lock Assembly

---

### Model 2001C System Accessories Diagram

#### System Dimensions

<table>
<thead>
<tr>
<th>Overall System Dimensions</th>
<th>STD</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>
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</thead>
<tbody>
<tr>
<td>Height</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>10.50</td>
<td>10.50</td>
<td>20</td>
<td>22</td>
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<tr>
<td>Width</td>
<td>11</td>
<td>11</td>
<td>11</td>
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<td>10.75</td>
<td>10.75</td>
<td>10.75</td>
<td>12.50</td>
<td>11.50</td>
</tr>
</tbody>
</table>

Dimensions in inches. Mounting dimensions available upon request. FM & PM panel cutout dimensions: 21h x 12w.
**Description**

Model 2002 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. In addition, the system includes an electrical power control unit (EPCU) that monitors system operation and controls enclosure power. All start-up requirements must be satisfied before the EPCU will energize power to the enclosure(s). 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.

**Basic Operation**

In accordance with system instructions, start-up requires the air supply to be engaged and EPCU power to be energized. The enclosure protection vent must be tested and the enclosure(s) must be sealed. The EPCU power control switch must be activated and the system will self-test. The enclosure pressure control valve is used to manually set a safe reading on the enclosure pressure indicator. When safe pressure is stable, the Rapid Exchange control valve is fully engaged by manual or automatic means (dependent on System Style, see below). Upon completion of the Rapid Exchange cycle, (five minutes minimum) the Rapid Exchange control valve disengages manually or automatically. Pressure returns to the safe setting and enclosure power is energized by the EPCU. Loss of safe pressure causes the EPCU to deenergize power to the protected enclosure(s). All systems include form "C" contacts for audible or visual alarm systems.

**Style Variances**

STD (Standard) Style systems require manual operation of the Rapid Exchange control valve.

SA (Semiautomatic) Style systems require manual engagement of the Rapid Exchange control valve to initiate the exchange cycle, but automatically disengages the valve upon completion of the cycle. Loss of safe pressure requires an operator to manually restart both systems above.

FA (Fully Automatic) Style systems engage and disengage the Rapid Exchange control valve automatically, after an operator manually sets a safe pressure. In addition, FA Style systems restart automatically after a power or air pressure failure.

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**Standard Model Applications**

<table>
<thead>
<tr>
<th>Model Number:</th>
<th>2002 Type X</th>
</tr>
</thead>
<tbody>
<tr>
<td>Designation:</td>
<td>Purging System</td>
</tr>
<tr>
<td>Enclosure Volume:</td>
<td>15 ft³ max.</td>
</tr>
</tbody>
</table>

**STD (Standard) Style**

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

**SA (Semiautomatic) Style**

- UL & FM Certified: Cl.I, Div. 1, Group C&D
- Rating Reduction: Div. 1 to Nonhazardous

**FA (Fully Automatic) Style**

- UL & FM Certified: Cl.I, Div. 1, Group C&D
- Rating Reduction: Div. 1 to Nonhazardous

*Only FM Certified Group B System Available in STD Style
System Specifications

**System Dimensions:**
- See page 18

**Shipping Weight (lb):**
- STD - 45 / SA & FA - 47

**Temp. Range:**
- -20 °F to +120 °F

**Supply Pressure Range:**
- 80 - 120 psi max.

**Capacity & Filtration:**
- 1.5 oz @ 20 Microns

**Supply Requirements:**
- Clean air or inert gas

**Safe Press. Setpoint:**
- 0.25" @ Safe Press.

**Safe Press. Flow Rate:**
- * 0.1 - 3.5 SCFH
- **3" - 5"

**Exchange Pressure:**
- * 3 SCF / 240 SCFH

**Exchange Flow Rate:**
- **4 SCF / 240 SCFH

**Exchange Time:**
- 1 Minute/ft²

**System Supply Port:**
- 1/4" FPT

**Enclosure Supply Fitting:**
- 1/4" Tube Fitting

**Enclosure Reference Fitting:**
- 1/4" Tube Fitting

**EPCU Conduit Port Size:**
- 1/2" FPT

**EPCU Power Requirements:**
- 120 VAC 60 Hz 10 (European 220 voltage only)
- 240 VAC 50 Hz 10

(All voltage ratings are factory set)

**EPCU Power Consumption:**
- 500 mA

**Power Relay Contacts:**
- 20 A @ 240 VAC
- 20 A @ 28 VDC
- **20 A @ 48 VDC**

**Alarm Relay N.O. Contact:**
- 20 A @ 240 VAC
- 20 A @ 28 VDC
- **15 A @ 240 VAC**
- 10 A @ 28 VDC

* Enclosure integrity determines actual flow rate

** With regulator set to 60 psi min. during exchange

---

**OPERATION**

Signal (1) from SPS is sent to µP, GAL and SPCR coil. During start-up, GAL verifies all µP functions. GAL & µP must receive uninterrupted signal from SPS to prevent logic resetting. After GAL verifies all start-up procedures, it sends “power enabled” signal (2) to PER coil. Then, µP sends “power request” signal (3) through the SPCR and PER contacts to EPR coils.

---

**Electrical Wiring Diagram**

The diagram shows the wiring connections for the EPCU, including power module terminals, EPCU power supply terminals, and remote alarm relay terminals. Connections are indicated with arrows, and labels such as “Isolated Enclosure Power Relays” and “Remote Alarm Relay Terminals” are associated with the connections.

---

**Simplified EPCU Redundant Logic Diagram**

This diagram illustrates the logic flow between the various components of the EPCU, including GAL (Gate Array Logic), µP (Microprocessor), SPCR (Safe Pressure Confirmation Relay), and EPR (Enclosure Power Relay). Arrows and labels indicate the signal flow and connections between these components.

---

**Basic EPCU Operation**

When power is “off”, the EPCU is at rest, alarm and power relays are deenergized, and the LED display is off. When power is switched “on”, the EPCU performs a self-test of LED display and logic functions. The unit will then start-up. Class I units must detect a 0.25" pressure to energize the alarm relay and begin an exchange cycle. When the cycle stops, the power relays will energize. Loss of safe pressure on either unit causes alarm and power relays to deenergize (see power control options for more information regarding EPCU operation).
**EPCU Logic Module**

Barrel Fault & Active Status Indicators
Primary Microprocessor
Redundant Controller (GAL)

Barrier C Socket
Barrier B Socket
Barrier A Socket
Barrier Wiring Terminal

Pressure Switch Calibration Access
LED Status Display

**EPCU Pressure Switch Module**

Primary Safe Pressure Switch
Space for Optional Redundant Safe Pressure Switch

**120/240 VAC EPCU Power Module**

Isolated Coil Voltage Transformer
Voltage Input Selector Header (factory set for 120 or 240 VAC power)
Input Fuse
RESV Relay
RESV Factory Wiring Terminal

20 A Enclosure Power Fuse
Power Module Wiring Terminal

**Assembled Electrical Power Control Unit**

---

**EPCU Features**

**LED DISPLAY INDICATORS**

- Power Off: Red
- Power On: Green
- Safe Pressure: Blue
- Rapid Exchange: Blue
- Timer Running: Yellow
- Alarm Active: Red
- Bypass Engaged: Green

**FIELD ADJUSTABLE TIMER FUNCTIONS**

- EDT (Exchange Delay Timer) (FA Style only) provides a time delay to prevent Rapid Exchange solenoid valve from energizing until safe pressure can be stabilized.
- SLT (Solenoid Latching Timer) (FA Style only) provides a time delay to keep the Rapid Exchange solenoid valve energized until exchange pressure is detected. If the pressure is not detected, the EPCU will reset.
- RET (Rapid Exchange Timer) provides a time delay after Rapid Exchange pressure is detected, to allow four volume exchanges prior to energizing the enclosure power relays. If safe pressure or Rapid Exchange pressure is lost or interrupted during time delay cycle, the EPCU will reset.

**Power Control Options**

**NORMAL RUNNING (NR) MODE**

EPCU features an on-off pushbutton power control switch to activate control functions. Switch must be depressed to initiate start-up. After completion of start-up, safe pressure must be lost or switch must be depressed to deenergize enclosure power relays.

**CONDITIONAL BYPASS (CB) MODE**

EPCU features an off-on-bypass power control switch to activate control functions. Switch must be set to "on" position to initiate start-up. After enclosure power is energized, safe pressure must be lost or switch must be set to "off" position to deenergize enclosure power. After enclosure power is energized, switch may be set to "bypass" position to temporarily latch enclosure power relays. A flashing LED then indicates bypass engaged, and the enclosure can be accessed without deenergizing power (performed under specific conditions). Following access, safe pressure must be reestablished to resume normal operation. At that time, the switch may be reset to the "on" position without disruption of enclosure power. Alarm relay normally deenergizes only upon loss of safe pressure, but can be programmed to deenergize when bypass is engaged, if specified at time of order.
System Accessories Diagram

Model Number Designations

Optional Intrinsic Safety Barriers

The EPCU Logic Module can accommodate up to three intrinsic safety barriers to interact with remote devices and affect operation of the EPCU. The barriers are installed and programmed by the factory at time of order, and they are designed to function either in conjunction with a customer furnished switch and a Pepperl+Fuchs furnished resistor network cable, or a Pepperl+Fuchs furnished proximity detector. Each barrier develops a low power signal to create a two-wire closed-loop circuit. Operational status of each barrier is indicated by a green LED to show active (closed switch) status, and by a red LED to show faulted (line breakage) status. All barriers can be reprogrammed to duplicate other barrier functions as required, upon specific request.

Barrier Programming Options

Barrier A Function - when switch opens
Disables start-up cycle
Deenergizes enclosure power and alarm relay
Functions parallel to safe pressure switch

Barrier B Function - when switch opens
Not programmed - custom applications only

Barrier C Function - when switch closes
Energizes RESV relay - custom applications only

Model 2002 System Accessories (See accessories page for complete details)

Connection Fittings

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, -3 or -10 System Mounting Kit
RAH Remote Alarm Horn
RAB-1 Div. 1 Remote Alarm Beacon
LCK L Fitting Conduit Kit

TCK T Fitting Conduit Kit
SRM-4000 Switch Resistor Module
NJ... P+F Namur Sensor

Installation & Operation Manual

129-0211 Inst. & Operation Manual

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

Warning Nameplates

EWN-1 Class I Enclosure Warning
ETW Enclosure Temperature Warning

Factory Installed Accessories

IS1 Channel A Barrier
IS2* Channel B Barrier
IS3* Channel C Barrier
RP1 Redundant Safe Pressure Switch
RP2 Redundant Rapid Exchange Switch
L Power Switch Key Lock Assembly

*Requires custom programming information

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

Overall System Dimensions

<table>
<thead>
<tr>
<th>Series Model Number</th>
<th>System Style</th>
<th>Area Classification</th>
<th>Power Control Mode</th>
<th>Mounting Configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002 - STD - CI - NR - LH - ##</td>
<td>STD - Standard</td>
<td>CI - Class I; Group C &amp; D Area</td>
<td>NR - Normal Running</td>
<td>LH - left hand</td>
</tr>
</tbody>
</table>

Dimensions in inches. Mounting dimensions available upon request. FM & PM panel cutout dimensions: 23h x 12w

Height & width dimensions reflect mounting plate measurements. Depth dimension reflects overall measurement of system, including components.
Model 2003 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. In addition, the system includes an electrical power control unit (EPCU) that monitors system operation and controls enclosure power. All start-up requirements must be satisfied before the EPCU will energize power to the enclosure(s). 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.

Basic Operation

In accordance with system instructions, start-up requires the air supply to be engaged and EPCU power to be energized. The enclosure protection vent must be tested and the enclosure(s) must be sealed. The EPCU power control switch must be activated and the system will self-test. The enclosure pressure control valve is used to manually set a safe reading on the enclosure pressure indicator. When safe pressure is stable, the Rapid Exchange control valve is fully engaged by manual or automatic means (dependent on System Style, see below). Upon completion of the Rapid Exchange cycle, (five minutes minimum) the Rapid Exchange control valve disengages manually or automatically. Pressure returns to the safe setting and enclosure power is energized by the EPCU. Loss of safe pressure causes the EPCU to deenergize power to the protected enclosure(s). All systems include form “C” contacts for audible or visual alarm systems.

Style Variances

STD (Standard) Style systems require manual operation of the Rapid Exchange control valve.

SA (Semiautomatic) Style systems require manual engagement of the Rapid Exchange control valve to initiate the exchange cycle, but automatically disengages the valve upon completion of the cycle. Loss of safe pressure requires an operator to manually restart both systems above.

FA (Fully Automatic) Style systems engage and disengage the Rapid Exchange control valve automatically, after an operator manually sets a safe pressure. In addition, FA Style systems restart automatically after a power or air pressure failure.

Rapid Exchange® is a Registered Trademark of Pepperl+Fuchs.
The Pepperl+Fuchs 2000 Series EPCU is a factory programmed, field adjustable, microprocessor controlled unit featuring full status indication, redundant gate array logic and electromechanical relays. The EPCU is constructed from four major items: (1) a power module, (2) a pressure switch module, (3) a logic module and (4) a power mode selector switch. The sections are linked with polarized cable, and the boards are stacked in the EPCU enclosure on standoffs.

**Basic EPCU Operation**

When power is "off", the EPCU is at rest, alarm and power relays are deenergized, and the LED display is off. When power is switched "on", the EPCU performs a self-test of LED display and logic functions. The unit will then start-up. Class I units must detect a 0.25" pressure to energize the alarm relay and begin an exchange cycle. When the cycle stops, the power relays will energize. Loss of safe pressure on either unit causes alarm and power relays to deenergize (see power control options for more information regarding EPCU operation).
**EPCU Features**

**LED DISPLAY INDICATORS**
- **Power Off:** Red
- **Enclosure Power Relays Deenergized**
- **Power On:** Green
- **Enclosure Power Relays Energized**
- **Safe Pressure:** Blue
- **Enclosure Pressure > 0.15” w.c.**
- **Rapid Exchange:** Blue
- **Enclosure Pressure > 2.0” w.c.**
- **Alarm Active:** Red
- **Safe Pressure:** Blue
- **Alarm Active:** Red
- **Bypass Engaged:** Green
- **Control Bypass Active - CB**

**FIELD ADJUSTABLE TIMER FUNCTIONS**

- **EDT (Exchange Delay Timer) (FA Style only):**
  - Provides a time delay to prevent Rapid Exchange solenoid valve from energizing until safe pressure can be stabilized.

- **SLT (Solenoid Latching Timer) (FA Style only):**
  - Provides a time delay to keep the Rapid Exchange solenoid valve energized until exchange pressure is detected. If the pressure is not detected, the EPCU will reset.

- **RET (Rapid Exchange Timer):**
  - Provides a time delay after Rapid Exchange pressure is detected, to allow four volume exchanges prior to energizing the enclosure power relays. If safe pressure or Rapid Exchange pressure is lost or interrupted during time delay cycle, the EPCU will reset.

**Power Control Options**

- **NORMAL RUNNING (NR) MODE:**
  - EPCU features an on-off pushbutton power control switch to activate control functions. Switch must be depressed to initiate start-up. After completion of start-up, safe pressure must be lost or switch must be depressed to deenergize enclosure power relays.

- **CONDITIONAL BYPASS (CB) MODE:**
  - EPCU features an off-on-bypass power control switch to activate control functions. Switch must be set to "on" position to initiate start-up. After enclosure power is energized, safe pressure must be lost or switch must be set to "off" position to deenergize enclosure power. After enclosure power is energized, switch may be set to "bypass" position to temporarily latch enclosure power relays. A flashing LED then indicates bypass engaged, and the enclosure can be accessed without deenergizing power (performed under specific conditions). Following access, safe pressure must be reestablished to resume normal operation. At that time, the switch may be reset to the "on" position without disruption of enclosure power. Alarm relay normally deenergizes only upon loss of safe pressure, but can be programmed to deenergize when bypass is engaged, if specified at time of order.
The EPCU Logic Module can accommodate up to three intrinsic safety barriers to interact with remote devices and affect operation of the EPCU. The barriers are installed and programmed by the factory at time of order, and they are designed to function either in conjunction with a customer furnished switch and a Pepperl+Fuchs furnished resistor network cable, or a Pepperl+Fuchs furnished proximity detector. Each barrier develops a low power signal to create a two-wire switch and a Pepperl+Fuchs furnished resistor network cable, or a Pepperl+Fuchs closed-loop circuit. Operational status of each barrier is indicated by a green LED to show active (closed switch) status, and by a red LED to show faulted (line breakage) cable status. All barriers can be reprogrammed to duplicate other barrier functions as required, upon specific request.

### Optional Intrinsinc Safety Barriers

#### Barriers Function

- **Barrier A** Function - when switch opens
- **Barrier B** Function - when switch opens
- **Barrier C** Function - when switch opens

#### Barriers Configuration

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

#### Barriers Programming Options

- **Conditional Bypass**
- **Normal Running**
- **Class I, Group C & D Area**
- **Fully Automatic**
- **Semiautomatic**
- **Standard**

#### Barriers Features

- **Disables start-up cycle**
- **Deenergizes enclosure power and alarm relay**
- **Functions parallel to safe pressure switch**
- **Not programmed - custom applications only**
- **Energizes RESV relay - custom applications only**

### Model 2003 System Accessories

#### Connection Fittings

- **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

#### Additional Items

- **SMK-2** Div. 1 Remote Alarm Horn
- **RAH** Remote Alarm Horn
- **RAB-1** Div. 1 Remote Alarm Beacon
- **LCK** L Fitting Conduit Kit
- **TCK** T Fitting Conduit Kit
- **SMR-4000** Switch Resistor Module
- **NJ** +F Namur Sensor
- **LEW** Class I Enclosure Warning

### Warning Nameplates

- **ETW** Enclosure Temperature Warning
- **RP1** Redundant Safe Pressure Switch
- **RP2** Redundant Rapid Exchange Switch
- **L** Power Switch Key Lock Assembly

### System Accessories Diagram

![System Accessories Diagram](image)

### Model Number Designations

<table>
<thead>
<tr>
<th>Series Model Number</th>
<th>System Style</th>
<th>Area Classification</th>
<th>Power Control Mode</th>
<th>Mounting Configuration</th>
<th>Enclosure Protection Vents</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SA - Semiautomatic</td>
<td>IB - Class I, Group B Area (STD Only)</td>
<td>CB - Conditional Bypass</td>
<td>RH - right hand</td>
<td></td>
</tr>
<tr>
<td></td>
<td>FA - Fully Automatic</td>
<td></td>
<td></td>
<td>TM - top mount</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>BM - bottom mount</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>WM - wall mount</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>FM* - frame mount</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PM* - panel mount</td>
<td></td>
</tr>
</tbody>
</table>

*Requires custom programming information

---

**Dimensions in inches. Mounting dimensions available upon request. FM & PM panel cutout dimensions: 24h x 12.50w**

**Height & width dimensions reflect mounting plate measurements. Depth dimension reflects overall measurement of system, including components.**
Description

Model 2004 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. In addition, the system includes an electrical power control unit (EPCU) that monitors system operation and controls enclosure power. All start-up requirements must be satisfied before the EPCU will energize power to the enclosure(s). 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.

Basic Operation

In accordance with system instructions, start-up requires the air supply to be engaged and EPCU power to be energized. The enclosure protection vent must be tested and the enclosure(s) must be sealed. The EPCU power control switch must be activated and the system will self-test. The enclosure pressure control valve is used to manually set a safe reading on the enclosure pressure indicator. When safe pressure is stable, the Rapid Exchange control valve is fully engaged by manual or automatic means (dependent on System Style, see below). Upon completion of the Rapid Exchange cycle, (five minutes minimum) the Rapid Exchange control valve disengages manually or automatically. Pressure returns to the safe setting and enclosure power is energized by the EPCU. Loss of safe pressure causes the EPCU to deenergize power to the protected enclosure(s). All systems include form "C" contacts for audible or visual alarm systems.

Style Variances

STD (Standard) Style systems require manual operation of the Rapid Exchange control valve.

SA (Semiautomatic) Style systems require manual engagement of the Rapid Exchange control valve to initiate the exchange cycle, but automatically disengages the valve upon completion of the cycle. Loss of safe pressure requires an operator to manually restart both systems above.

FA (Fully Automatic) Style systems engage and disengage the Rapid Exchange control valve automatically, after an operator manually sets a safe pressure. In addition, FA Style systems restart automatically after a power or air pressure failure.

Rapid Exchange® is a Registered Trademark of Pepperl+Fuchs.

Standard Model Applications

<table>
<thead>
<tr>
<th>Model Number:</th>
<th>2004 Type X</th>
<th>Purging System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Designation:</td>
<td>200 ft³ max.</td>
<td></td>
</tr>
<tr>
<td>Enclosure Volume:</td>
<td>Cl. I, Div. 1, Group C&amp;D*</td>
<td></td>
</tr>
<tr>
<td>Rating Reduction:</td>
<td>Div. 1 to Nonhazardous</td>
<td></td>
</tr>
</tbody>
</table>

| STD (Standard) Style | UL & FM Certified: | Cl. I, Div. 1, Group C&D |
| Rating Reduction: | Div. 1 to Nonhazardous |

| SA (Semiautomatic) Style | UL & FM Certified: | Cl. I, Div. 1, Group C&D |
| Rating Reduction: | Div. 1 to Nonhazardous |

| FA (Fully Automatic) Style | UL & FM Certified: | Cl. I, Div. 1, Group C&D |
| Rating Reduction: | Div. 1 to Nonhazardous |

*Only FM Certified Group B System Available in STD Style
**System Specifications**

- **System Dimensions:** See page 26
- **Shipping Weight:** STD - 49 lb / SA & FA - 51 lb
- **Temp. Range:** -20 °F to +120 °F
- **Supply Pressure Range:** 80 - 120 psi max.
- **Capacity & Filtration:** 3.8 oz @ 40 Microns
- **Supply Requirements:** Clean air or inert gas
- **Safe Press. Setpoint:** 0.25" @ Safe Press.
- **Safe Press. Flow Rate:** * 0.1 - 3.5 SCFH
- **Exchange Pressure:** 3" - 5"
- **Exchange Flow Rate:** ** 30 SCFM/1800 SCFH
- **Exchange Time:** 1 Minute/7.5 ft³
- **System Supply Port:** 1/2" FPT
- **Enclosure Supply Fitting:** 1/2" Tube Fitting
- **Enclosure Reference Fitting:** 1/4" Tube Fitting
- **EPCU Conduit Port Size:** 1/2" FPT
- **EPCU Power Requirements:** 120 VAC 60 Hz 1Ø
  - **(European 220 voltage only)** 240 VAC 50 Hz 1Ø
  - **(All voltage ratings are factory set)**
- **EPCU Power Consumption:** 500 mA
- **Power Relay Contacts:**
  - 20 A @ 240 VAC
  - 20 A @ 28 VDC
  - **20 A @ 48 VDC**
- **Alarm Relay N.O. Contact:** 20 A @ 240 VAC
- **Alarm Relay N.C. Contact:** 10 A @ 28 VDC
- **Hyperlink:**
  - * Enclosure integrity determines actual flow rate
  - ** With regulator set to 80 psi min. during exchange

**EPCU Description**

The Pepperl+Fuchs 2000 Series EPCU is a factory programmed, field adjustable, microprocessor controlled unit featuring full status indication, redundant gate array logic and electromechanical relays. The EPCU is constructed from four major items: (1) a power module, (2) a pressure switch module, (3) a logic module and (4) a power mode selector switch. The sections are linked with polarized cable, and the boards are stacked in the EPCU enclosure on standoff.

**Basic EPCU Operation**

When power is "off", the EPCU is at rest, alarm and power relays are deenergized, and the LED display is off. When power is switched "on", the EPCU performs a self-test of LED display and logic functions. The unit will then start-up. Class I units must detect a 0.25" pressure to energize the alarm relay and begin an exchange cycle. When the cycle stops, the power relays will energize. Loss of safe pressure on either unit causes alarm and power relays to deenergize (see power control options for more information regarding EPCU operation).
### EPCU Features

**LED DISPLAY INDICATORS**
- **Power Off:** Red
- **Enclosure Power Relays Deenergized**
- **Power On:** Green
- **Enclosure Power Relays Energized**
- **Safe Pressure:** Blue
- **Enclosure Pressure > 0.15" w.c.**
- **Rapid Exchange:** Blue
- **Enclosure Pressure > 2.0" w.c.**
- **Timer Running:** Yellow
- **Rapid Exchange® Timer Active**
- **Alarm Active:** Red
- **Enclosure Pressure < 0.15" w.c.**
- **Bypass Engaged:** Green
- **Control Bypass Active - CB**

**FIELD ADJUSTABLE TIMER FUNCTIONS**

- **EDT (Exchange Delay Timer) (FA Style only):**
  - EDT provides a time delay to prevent Rapid Exchange solenoid valve from energizing until safe pressure can be stabilized.
- **SLT (Solenoid Latching Timer) (FA Style only):**
  - SLT provides a time delay to keep the Rapid Exchange solenoid valve energized until exchange pressure is detected. If the pressure is not detected, the EPCU will reset.
- **RET (Rapid Exchange Timer):**
  - RET provides a time delay after Rapid Exchange pressure is detected, to allow four volume exchanges prior to energizing the enclosure power relays. If safe pressure or Rapid Exchange pressure is lost or interrupted during time delay cycle, the EPCU will reset.

**Power Control Options**

### NORMAL RUNNING (NR) MODE

EPCU features an on-off pushbutton power control switch to activate control functions. Switch must be depressed to initiate start-up. After completion of start-up, safe pressure must be lost or switch must be depressed to deenergize enclosure power relays.

### CONDITIONAL BYPASS (CB) MODE

EPCU features an off-on-bypass power control switch to activate control functions. Switch must be set to "on" position to initiate start-up. After enclosure power is energized, safe pressure must be lost or switch must be set to "off" position to deenergize enclosure power. After enclosure power is energized, switch may be set to "bypass" position to temporarily latch enclosure power relays. A flashing LED then indicates bypass engaged, and the enclosure can be accessed without deenergizing power (performed under specific conditions). Following access, safe pressure must be reestablished to resume normal operation. At that time, the switch may be reset to the "on" position without disruption of enclosure power. Alarm relay normally deenergizes only upon loss of safe pressure, but can be programmed to deenergize when bypass is engaged, if specified at time of order.
OPTIONAL INTRINSIC SAFETY BARRIERS

DESCRIPTION & OPERATION

The EPCU Logic Module can accommodate up to three intrinsic safety barriers to interact with remote devices and affect operation of the EPCU. The barriers are installed and programmed by the factory at time of order, and they are designed to function either in conjunction with a customer furnished switch and a Pepperl+Fuchs furnished resistor network cable, or a Pepperl+Fuchs furnished proximity detector. Each barrier develops a low power signal to create a two-wire furnished switch and a Pepperl+Fuchs furnished resistor network cable, or a Pepperl+Fuchs closed-loop circuit. Operational status of each barrier is indicated by a green LED to show active (closed switch) status, and by a red LED to show faulted (line breakage) cable status. All barriers can be reprogrammed to duplicate other barrier functions as required, upon specific request.

BARRIER PROGRAMMING OPTIONS

Barrier A Function - when switch opens
Disables start-up cycle
Deenergizes enclosure power and alarm relay
Functions parallel to safe pressure switch
Barrier B Function - when switch opens
Not programmed - custom applications only
Barrier C Function - when switch closes
Energizes RESV relay - custom applications only

Model 2004 System Accessories (See accessories page for complete details)

### CONNECTION FITTINGS
- 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, -3 or -10 System Mounting Kit
- RAH Remote Alarm Horn
- RAB-1 Div. 1 Remote Alarm Beacon

### INSTALLATION & OPERATION MANUAL
- LCK L Fitting Conduit Kit
- TCK T Fitting Conduit Kit
- SRM-4000 Switch Resistor Module
- NJ P+F Namur Sensor

### ENCLOSURE PROTECTION VENTS
- 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
- ETW Enclosure Temperature Warning

### FACTORY INSTALLED ACCESSORIES
- IS1* Channel A Barrier
- IS2* Channel B Barrier
- IS3* Channel C Barrier
- RP1 Redundant Safe Pressure Switch
- RP2 Redundant Rapid Exchange Switch
- L Power Switch Key Lock Assembly

*Requires custom programming information

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

Overall System Dimensions

<table>
<thead>
<tr>
<th>System Style</th>
<th>STD / SA &amp; FA</th>
<th>STD</th>
<th>SA</th>
<th>FA</th>
<th>STD</th>
<th>SA</th>
<th>FA</th>
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</thead>
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<td>LH - left hand</td>
<td>Height</td>
<td>24</td>
<td>24</td>
<td>14</td>
<td>14</td>
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<td>RH - right hand</td>
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<td>24</td>
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<td>13.50</td>
<td>15.50</td>
</tr>
<tr>
<td>TM - top mount</td>
<td>Depth</td>
<td>11.75 / 15.25</td>
<td>11.75 / 15.25</td>
<td>11.75 / 15.25</td>
<td>11.75 / 15.25</td>
<td>12.50 / 16.50</td>
<td>11.50 / 15.75</td>
</tr>
<tr>
<td>BM - bottom mount</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WM - wall mount</td>
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<td></td>
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<td></td>
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</tr>
<tr>
<td>FM or PM - flat panel</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Dimensions in inches. Mounting dimensions available upon request. FM & PM panel cutout dimensions: 25h x 14.50w

Height & width dimensions reflect mounting plate measurements. Depth dimension reflects overall measurement of system, including components.

Subject to modifications without notice.

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argentina: +1 800-831-7728
www.pepperl-fuchs.com

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26
Type X

Description

Model 2005 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-5 Enclosure Protection Vent is required for proper operation. In addition, the system includes an electrical power control unit (EPCU) that monitors system operation and controls enclosure power. All start-up requirements must be satisfied before the EPCU will energize power to the enclosure(s). 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.

Basic Operation

In accordance with system instructions, start-up requires the air supply to be engaged and EPCU power to be energized. The enclosure protection vent must be tested and the enclosure(s) must be sealed. The EPCU power control switch must be activated and the system will self-test. The enclosure pressure control valve is used to manually set a safe reading on the enclosure pressure indicator. When safe pressure is stable, the Rapid Exchange control valve is fully engaged by manual or automatic means (dependent on System Style, see below). Upon completion of the Rapid Exchange cycle, (five minutes minimum) the Rapid Exchange control valve disengages manually or automatically. Pressure returns to the safe setting and enclosure power is energized by the EPCU. Loss of safe pressure causes the EPCU to deenergize power to the protected enclosure(s). All systems include form "C" contacts for audible or visual alarm systems.

Style Variances

STD (Standard) Style systems require manual operation of the Rapid Exchange control valve.

SA (Semiautomatic) Style systems require manual engagement of the Rapid Exchange control valve to initiate the exchange cycle, but automatically disengages the valve upon completion of the cycle. Loss of safe pressure requires an operator to manually restart both systems above.

FA (Fully Automatic) Style systems engage and disengage the Rapid Exchange control valve automatically, after an operator manually sets a safe pressure. In addition, FA Style systems restart automatically after a power or air pressure failure.

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Model 2005

STD Style
(Standard)

FA/SA Style
(Fully Automatic/Semiautomatic)

Model Number: 2005 Type X
Designation: Purging System
Enclosure Volume: 450 ft³ max.

UL & FM Certified:
Rating Reduction:

<table>
<thead>
<tr>
<th>STD (Standard) Style</th>
<th>SA (Semiautomatic) Style</th>
<th>FA (Fully Automatic) Style</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cl. I, Div. 1, Group C&amp;D*</td>
<td>Cl. I, Div. 1, Group C&amp;D</td>
<td>Cl. I, Div. 1, Group C&amp;D</td>
</tr>
<tr>
<td>Div. 1 to Nonhazardous</td>
<td>Div.1to Nonhazardous</td>
<td>Div. 1 to Nonhazardous</td>
</tr>
</tbody>
</table>

*Only FM Certified Group B System Available in STD Style
The Pepperl+Fuchs 2000 Series EPCU is a factory programmed, field adjustable, microprocessor controlled unit featuring full status indication, redundant gate array logic and electromechanical relays. The EPCU is constructed from four major items: (1) a power module, (2) a pressure switch module, (3) a logic module and (4) a power mode selector switch. The sections are linked with polarized cable, and the boards are stacked in the EPCU enclosure on standoffs.

**Basic EPCU Operation**

When power is "off", the EPCU is at rest, alarm and power relays are deenergized, and the LED display is off. When power is switched "on", the EPCU performs a self-test of LED display and logic functions. The unit will then start-up. Class I units must detect a 0.25" pressure to energize the alarm relay and begin an exchange cycle. When the cycle stops, the power relays will energize. Loss of safe pressure on either unit causes alarm and power relays to deenergize (see power control options for more information regarding EPCU operation).
EPCU Features

**LED DISPLAY INDICATORS**
- **Power Off:** Red
- **Power On:** Green
- **Safe Pressure:** Blue
- **Rapid Exchange:** Blue
- **Timer Running:** Yellow
- **Alarm Active:** Red
- **Bypass Engaged:** Green

**EPCU Pressure Switch Module**
- Primary Safe Pressure Switch
- Space for Optional Redundant Safe Pressure Switch

**120/240 VAC EPCU Power Module**
- Voltage Regulators
- Power Control Switch
- Logic Module
- Reservior Relay
- 20 A Enclosure Power Relay

**Assembled Electrical Power Control Unit**

**FIELD ADJUSTABLE TIMER FUNCTIONS**
- **EDT (Exchange Delay Timer) (FA Style only)** provides a time delay to prevent Rapid Exchange solenoid valve from energizing until safe pressure can be stabilized.
- **SLT (Solenoid Latching Timer) (FA Style only)** provides a time delay to keep the Rapid Exchange solenoid valve energized until exchange pressure is detected. If the pressure is not detected, the EPCU will reset.
- **RET (Rapid Exchange Timer)** provides a time delay after Rapid Exchange pressure is detected, to allow four volume exchanges prior to energizing the enclosure power relays. If safe pressure or Rapid Exchange pressure is lost or interrupted during time delay cycle, the EPCU will reset.

**Power Control Options**

**NORMAL RUNNING (NR) MODE**
- EPCU features an on-off pushbutton power control switch to activate control functions. Switch must be depressed to initiate start-up. After completion of start-up, safe pressure must be lost or switch must be depressed to deenergize enclosure power relays.

**CONDITIONAL BYPASS (CB) MODE**
- EPCU features an off-on-bypass power control switch to activate control functions. Switch must be set to "on" position to initiate start-up. After enclosure power is energized, safe pressure must be lost or switch must be set to "off" position to deenergize enclosure power. After enclosure power is energized, switch may be set to "bypass" position to temporarily latch enclosure power relays. A flashing LED then indicates bypass engaged, and the enclosure can be accessed without deenergizing power (performed under specific conditions).
- Following access, safe pressure must be reestablished to resume normal operation. At that time, the switch may be reset to the "on" position without disruption of enclosure power. Alarm relay normally deenergizes only upon loss of safe pressure, but can be programmed to deenergize when bypass is engaged, if specified at time of order.
### System Accessories Diagram

- **Supply Inlet Fitting**
- **1/2" Supply Pipe**
- **1/4" Tubing Reference**
- **Enclosure Supply Fitting** EPC-10
- **Enclosure Reference Fitting** EFC-4
- **Enclosure Protection Vent** EPV-5-SA...
- **Mounting Kit** SMK-3

**Pressurized Protected Enclosure**

**Warning Nameplate** EWN-1 (Included with Panel)

### Model Number Designations

- **Series Model Number**
- **System Style**
  - STD - Standard
  - SA - Semiautomatic
  - FA - Fully Automatic
- **Area Classification**
  - CI - Class I, Group C & D Area
  - IB - Class I, Group B Area (STD Only)
- **Power Control Mode**
  - NR - Normal Running
  - CB - Conditional Bypass
- **Mounting Configuration**
  - LH - left hand
  - RH - right hand
  - TM - top mount
  - BM - bottom mount
  - WM - wall mount
  - FM* - frame mount
  - PM* - panel mount

**2005 - STD - CI - NR - LH - ##**

* FM & PM configurations feature flush mount EPCU.

**# - See Accessories Page 132 for additional factory installed accessories**

### Optional Intrinsic Safety Barriers

**DESCRIPTION & OPERATION**

The EPCU Logic Module can accommodate up to three intrinsic safety barriers to interact with remote devices and affect operation of the EPCU. The barriers are installed and programmed by the factory at time of order, and they are designed to function either in conjunction with a customer furnished switch and a Pepperl+Fuchs furnished resistor network cable, or a Pepperl+Fuchs furnished proximity detector. Each barrier develops a low power signal to create a two-wire closed-loop circuit. Operational status of each barrier is indicated by a green LED to show active status, and by a red LED to show faulted status. All barriers can be reprogrammed to duplicate other barrier functions as required, upon specific request.

### Model 2005 System Accessories (See accessories page for complete details)

**CONNECTION FITTINGS**

- **EFC-4** 1/4" Flush Connector
- **EPC-10** 1/2" Pipe Connector

**ADDITIONAL ITEMS**

- **SMK-2, -3 or -10** System Mounting Kit
- **RAH** Remote Alarm Horn
- **RAB-1** Div. 1 Remote Alarm Beacon
- **LCK** L Fitting Conduit Kit
- **TCK** T Fitting Conduit Kit
- **SRM-4000** Switch Resistor Module
- **NJ...** P+F Namur Sensor

**INSTALLATION & OPERATION MANUAL**

129-0214 Inst. & Operation Manual

**ENCLOSURE PROTECTION VENTS**

- **ONE VENT REQUIRED WITH EACH SYSTEM**
  - **EPV-5-SA-00** Straight w/Spark Arrestor
  - **EPV-5-SA-90** Rt Angle w/Spark Arrestor

**WARNING NAMEPLATES**

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

**FACTORY INSTALLED ACCESSORIES**

- **IS1** Channel A Barrier
- **IS2** Channel B Barrier
- **IS3** Channel C Barrier
- **RP1** Redundant Safe Pressure Switch
- **RP2** Redundant Rapid Exchange Switch
- **L** Power Switch Key Lock Assembly

*Requires custom programming information

### Model Number Designations

- **Series Model Number**
- **System Style**
  - STD - Standard
  - SA - Semiautomatic
  - FA - Fully Automatic
- **Area Classification**
  - CI - Class I, Group C & D Area
  - IB - Class I, Group B Area (STD Only)
- **Power Control Mode**
  - NR - Normal Running
  - CB - Conditional Bypass
- **Mounting Configuration**
  - LH - left hand
  - RH - right hand
  - TM - top mount
  - BM - bottom mount
  - WM - wall mount
  - FM* - frame mount
  - PM* - panel mount

**2005 - STD - CI - NR - LH - ##**

* FM & PM configurations feature flush mount EPCU.

**# - See Accessories Page 132 for additional factory installed accessories**

### Model 2005 System Accessories

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

### Overall System Dimensions

<table>
<thead>
<tr>
<th>STD / SA &amp; FA</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>
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<tbody>
<tr>
<td><strong>Height</strong></td>
<td>25</td>
<td>25</td>
<td>14</td>
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<td>15.50</td>
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<tr>
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<td>10.75 / 15.25</td>
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<td>10.75 / 15.25</td>
<td>12.50 / 16.50</td>
<td>11.25 / 15.75</td>
</tr>
</tbody>
</table>

Dimensions in inches. Mounting dimensions available upon request. FM & PM panel cutout dimensions: 26h x 14.50w

*Height & width dimensions reflect mounting plate measurements. Depth dimension reflects overall measurement of system, including components.*

---

**Subject to modifications without notice.**

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pa-info@sq.pepperl-fuchs.com
Pepperl+Fuchs supplies purge/pressurization systems custom built to your specifications. To ensure the integrity of your system, certain accessory items must be factory installed.

The Model Number and Accessories Guide identifies those parts that must be included on your purge/pressurization system order.

### 2000 Series — Model Number Designations and Accessories Guide

<table>
<thead>
<tr>
<th>Series Model Number</th>
<th>2000 -</th>
<th>-</th>
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<table>
<thead>
<tr>
<th>System Style</th>
<th>STD</th>
<th>SA</th>
<th>FA</th>
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<tbody>
<tr>
<td>STD</td>
<td>Standard</td>
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</tr>
<tr>
<td>SA</td>
<td>Semiautomatic</td>
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<td></td>
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<tr>
<td>FA</td>
<td>Fully Automatic</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Area Classification</th>
<th>CI</th>
<th>CII</th>
<th>IB</th>
</tr>
</thead>
<tbody>
<tr>
<td>CI</td>
<td>Class I, Group C &amp; D Area</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CII</td>
<td>Class II, Group E, F &amp; G Area</td>
<td></td>
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</tr>
<tr>
<td>IB</td>
<td>Class I, Group B Area (STD Only)</td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Power Control Mode</th>
<th>NR</th>
<th>CB</th>
</tr>
</thead>
<tbody>
<tr>
<td>NR</td>
<td>Normal Running</td>
<td></td>
</tr>
<tr>
<td>CB</td>
<td>Conditional Bypass</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mounting Configuration</th>
<th>LH</th>
<th>RH</th>
<th>TM</th>
<th>BM</th>
<th>WM</th>
<th>FM*</th>
<th>PM*</th>
</tr>
</thead>
<tbody>
<tr>
<td>LH</td>
<td>Left hand (left side of enclosure)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RH</td>
<td>Right hand (right side of enclosure)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TM</td>
<td>Top mount (top of enclosure)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BM</td>
<td>Bottom mount (bottom of enclosure)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WM</td>
<td>Wall mount (wall surface)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FM*</td>
<td>Frame mount (external frame or rack)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PM*</td>
<td>Panel mount (enclosure surface cutout)</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

* FM & PM configurations feature flush mount EPCU. Flush mount EPCU is not suitable for Group B Area.

<table>
<thead>
<tr>
<th>Cooler Indicator Gauge (see page 97)</th>
<th>VX</th>
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<tbody>
<tr>
<td>VX</td>
<td>Vortex</td>
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</table>

<table>
<thead>
<tr>
<th>Key Lock Assembly (see page 113)</th>
<th>L</th>
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<tr>
<td>L</td>
<td>Key Lock Assembly</td>
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<table>
<thead>
<tr>
<th>Intrinsic Safe Barrier (see page 112)</th>
<th>IS1</th>
<th>IS2</th>
<th>IS3</th>
<th>IS4</th>
<th>IS5</th>
<th>IS6</th>
<th>IS7</th>
</tr>
</thead>
<tbody>
<tr>
<td>IS1</td>
<td>IS Barrier, Channel A Barrier</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IS2</td>
<td>IS Barrier, Channel B Barrier</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IS3</td>
<td>IS Barrier, Channel C Barrier</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IS4</td>
<td>IS Barrier, Channels A and B Barrier</td>
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<td></td>
</tr>
<tr>
<td>IS5</td>
<td>IS Barrier, Channels B and C Barrier</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IS6</td>
<td>IS Barrier, Channels A and C Barrier</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IS7</td>
<td>IS Barrier, All Channels Barrier</td>
<td></td>
<td></td>
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<td></td>
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<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Redundant Pressure Switches (see page 113)</th>
<th>RP1</th>
<th>RP2</th>
<th>RP3</th>
</tr>
</thead>
<tbody>
<tr>
<td>RP1</td>
<td>Redundant Safe Pressure Switches</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RP2</td>
<td>Redundant Rapid Exchange® Pressure Switches</td>
<td></td>
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</tr>
<tr>
<td>RP3</td>
<td>Both Switches</td>
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<table>
<thead>
<tr>
<th>Voltage</th>
<th>24 VDC</th>
<th>240 VAC</th>
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</thead>
<tbody>
<tr>
<td>24 VDC</td>
<td>Voltage Direct Currents</td>
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</tr>
<tr>
<td>240 VAC</td>
<td>Voltage Alternating Currents</td>
<td></td>
</tr>
</tbody>
</table>
Description

The cooler indicator gauge, sometimes called the Vortex indicator gauge, is used on systems where there is cooling required after purging. Normally after the purging cycle, there is a small flow of protective gas required to compensate for leakages, and to keep a constant pressure within the enclosure so that the ingress of hazardous atmosphere cannot get inside the enclosure. This is known as pressurization. If the equipment inside the pressurized enclosure requires cooling, either a higher flow rate of protective gas is required through the pressurization valve, or a second source of cooling gas is introduced into the enclosure. The standard differential pressure gauge will indicate pressurization only up to 0.5 inches (13 mm) water, which may not be enough for cooling indication. The cooler indicator gauge is installed onto the pressurization/purge panel, and allows monitoring of the system during normal operation of the purge/pressurization system.

Special Note

TO ORDER PURGE/PRESSURIZATION UNITS EQUIPPED WITH A COOLER INDICATION GAUGE, SPECIFY ‘VX’ IN THE MODEL NUMBER DESIGNATION.

Specifications

OPERATING RANGE

Full range: 0 to 5 " (0 to 127 mm) water
Low range red: 0 to 0.5 " (0 to 13 mm) water
Safe range green: 0.5 to 1.5 " (13 to 38 mm) water
Cooler/Rapid exchange range yellow: 1.5 to 4.5 " (38 to 114 mm) water
High range red: 4.5 to 5 " (114 to 127 mm) water

BODY COMPONENTS

Cover: acrylic
Housing: die cast aluminum coated to withstand 168 hour salt spray corrosion test

TECHNICAL DATA

Maximum overload pressure: 15 psig
Accuracy: ± 2% of full scale
Weight: 1.2 lb (510 g)
Process connection: 1/8" Female NPT duplicate high and low pressure taps, one pair side, one pair back
For over a half century, Pepperl+Fuchs has provided new concepts for the world of process automation. Our company sets standards in quality and innovative technology. We develop, produce and distribute electronic interface modules, Human-Machine Interfaces and hazardous location protection equipment on a global scale, meeting the most demanding needs of industry. Resulting from our world-wide presence and our high flexibility in production and customer service, we are able to offer complete individual solutions – wherever and whenever you need us. We are the recognized experts in our technologies – Pepperl+Fuchs has earned a strong reputation by supplying the world’s largest process industry companies with the broadest line of proven components for a diverse range of applications.