PD6800
ProtEX-Pro Explosion-Proof Process & Level Meter

- 4-20 mA Input Loop-Powered
- Modern, Sleek and Practical Enclosure for Hazardous Locations
- 5-Digit, 0.7” (17.8 mm) Upper Display (0.6” for -0L1 Models)
- Optional Level Indicator Bar Graph
- 7 Alphanumeric Character, 0.4” (10.2 mm) Lower Display
- SafeTouch® Through-Glass Button Programming
- Password Protection
- 32-Point, Square Root, or Exponential Linearization
- Loop or External DC-Powered Backlight Standard
- 3.0 V Drop (6.0 V with Backlight)
- Explosion-Proof, IP68, NEMA 4X Enclosure
- Flanges for Wall or Pipe Mounting
- HART® Protocol Transparent
- Operates from -40 to 75°C
OVERVIEW

The new ProtEX-Pro PD6800 explosion-proof process meter brings modern design, easy readability, and enhanced functionality to hazardous areas around the world in a way never seen before. Competitors have lost sight of the fact that the primary thing customers do with meters is look at them. They want a reliable meter with a display that provides the important information about their process, can be seen under varied lighting conditions, from wide angles, and from a distance. The PD6800 delivers all these and more, plus it boasts an optional segmented bar graph level display. Spend a few minutes reviewing the features described in the graphic above and you will see how!

KEY FEATURES

Informative & Easy to Read Display

The high contrast, backlight LCD display is easy to read from far away and under various lighting conditions. The upper display is 0.7” high and shows 5 digits of flow rate. The PD6800-0L1 models have a segmented bar graph level indicator included with 5 digits 0.6” in height. The lower display is 0.4” high and shows either flow total or a tag with 7 alphanumeric characters. And best of all, the display is mounted right up against the glass so it can be seen from a wide viewing angle.

Modern, Sleek and Practical Enclosure

The first thing customers notice about a product is its enclosure and the ProtEX-Pro really shines here. The copper-free (0.30%), smooth, die-cast aluminum NEMA 4X (IP68) enclosure is finished with a corrosion resistant epoxy coating that literally does make the ProtEX-Pro shine. The built-in mounting flanges make for convenient wall or pipe mounting and there is even a slot on the back of the enclosure for centering on the pipe. There are two ¾” NPT conduit holes for wiring.

Wide Viewing Angle

Customers can’t always look at the display from straight on, so the window and display module have been optimized to provide a wide viewing angle of approximately +/- 40°; nearly twice that of the competition! Remember, the PD6800 is designed to be looked at.

Environmentally Tough

ProtEX™ Series meters not only look great with their modern, smooth die cast aluminum enclosures, but they can be installed virtually anywhere. The NEMA 4X / IP68 enclosure provides serious protection from the elements, high impact, corrosion and electrical interference and the extensive, worldwide agency approvals means they can be installed virtually anywhere.
**Perfect & Secure Fit Every Time**
The internal cast rails ensure the ProtEX assembles together perfectly, quickly and securely; and everything lines up for optimal viewing every time. There are no standoffs to worry about breaking or getting out of alignment. Two spring-loaded, self-retaining, thumbscrews make the assembly a snap, while pressing the LCD as close to the glass as possible to improve wide angle viewing.

**INPUT SIGNAL CONDITIONING**

**Live Input Calibration**
In lieu of meter scaling, the meter can be calibrated with a precision signal source. While applying a precision signal, the relative scale value is entered via the front panel. This is done at any two points along the scale. Using this method, the operator can set a “best fit straight line” for non-linear input spans.

**Multi-Point Linearizer**
Up to 32 linearization points can be selected under the Linear function. The multi-point linearization can be used to linearize the display for non-linear signals such as those from level transmitters used to measure volume in odd-shaped tanks or to convert level to flow using weirs and flumes that require a complex exponent. These points are established via direct entry (SCALE) or with an external calibration signal (CAL).

**Square Root Extraction**
The square root extraction function displays flow rate by extracting the square root from a differential pressure transmitter signal. The user selectable low-flow cutoff feature gives a reading of zero when the flow rate drops below a user selectable value.

**Programmable Exponent**
The programmable exponent function is used to linearize the level signal in open channel flow applications using weirs and flumes and display flow rate and units of measure.

**ADDITIONAL FEATURES**

**Password Protection**
A 5-digit password prevents unauthorized changes to the programmed parameter settings. The lock symbol is displayed to show that settings are protected. If the meter is password protected, the meter will display the message LOCKED when the Menu button is pressed.

**Alarm Indication**
The PD6800 has high or low alarm indication. When in alarm, the display will flash, and a HI or LO symbol is displayed. The alarm has an adjustable deadband (the difference between the set and reset points). The alarm is acknowledged by pressing the ENTER button.

**Isolated Open Collector Output (-0L1 Models Only)**
The isolated open collector output on the PD6800-0L1 may be assigned for use with the alarm (pulse output). The rating of the output is 30 VDC @ 150 mA max.

**INSTALLATION**

**Installation Flexibility**
The PD6800’s rotatable display/meter module along with two available conduit connections provide for numerous installation options. The display can be rotated in 90° increments. Rotate it 90° for horizontal mounting. Wiring can then be routed to either the top conduit connection, or from below to the opposite conduit connection (metal conduit plug supplied). Use both conduit connections for through-wiring in any plane.

**Easy Wiring & Service**
Unscrew the two captured thumb screws and unplug a connecting cable and the display/meter module is simply and completely removed. A heavy duty terminal block is then easily accessed and wired. It is clearly marked to prevent wiring errors. The display/meter module can be removed without breaking the loop. As such, it can be serviced without the need to uninstall the entire product.

**CONNECTIONS**

See LIM6800 manual for wiring instructions
SPECIFICATIONS

Excerpt where noted all specifications apply to operation at +25°C.

General

Display: Five digits (-9999 to 99999) 0.70” (17.8 mm) high, 7-segment, automatic lead zero blanking; -0L1: 0.6” high with level bar graph. Lower: Seven characters 0.4” (10.2 mm) high, 14 segment alphanumeric. Symbols: for high & low alarm, Password Lock. Backlight: White

Decimal Point: Upper process display has up to four decimal places or none: d, dddd, dddd, d, d, or dddd

Display Update Rate: Ambient > -25°C: 2 Updates/Second. Ambient < -25°C: 1 Update/5 Seconds

Externally Powered Backlight:
Voltage Range: 9-36 VDC

<table>
<thead>
<tr>
<th>Supply Voltage</th>
<th>9 VDC</th>
<th>12 VDC</th>
<th>24 VDC</th>
<th>30 VDC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Power</td>
<td>0.2 W</td>
<td>0.25 W</td>
<td>0.5 W</td>
<td>0.75 W</td>
</tr>
</tbody>
</table>

Display Orientation: Display may be mounted at 90° increments up to 270° from default orientation.

Overrange: Display flashes 99999

Underrange: Display flashes -9999

Programming Method: Four SafeTouch® through-glass buttons when cover is installed. Four internal pushbuttons when cover is removed.

Noise Filter: Programmable - Lo, Med, Hi, or Off

Recalibration: Recalibration is recommended at least every 12 months.

Max/Min Display: Max/Min readings reached by the process are stored until reset by the user or until power to the meter is turned off.

Password: Programmable password restricts modification of programmed settings.

Advanced Functions: Live input calibration, linearization, square root, or programmable exponent

Alarm Indication: Flashing display plus H/L indicators

Non-Volatile Memory: All programmed settings are stored in non-volatile memory for a minimum of ten years if power is lost.

Normal Mode Rejection: 64 dB at 50/60 Hz

Operating Temperature Range: -40 to 75°C

Storage Temperature Range: -40 to 85°C

Relative Humidity: 0 to 90% non-condensing

Connections: Screw terminals accept 12 to 22 AWG wire

Enclosure: Explosion-proof die-cast aluminum with glass window, corrosion resistant epoxy coating, color: blue. NEMA 4X, 7, & 9, IP68. Copper-free (0.3%). Two ¾” NPT threaded conduit openings. One ¾” NPT metal conduit plug with 12 mm hex key fitting installed.

Mounting: May be mounted directly to conduit. Two slotted flanges for wall mounting or NPS ½” to 2½” or DN 40 to 65 mm pipe mounting.

Overall Dimensions: 5.65” x 5.25” x 4.86” (W x H x D)

Weight: 5.00 lbs (80 oz, 2.27 kg)

Warranty: 3 years parts and labor

Input

Input range: 4-20 mA

Accuracy: ±0.03% of calibrated span ±1 count, square root & programmable exponent accuracy range: 10-100% of calibrated span.

Temperature Drift: 50 PPM/°C

Decimal Point: User selectable decimal point

Calibration Range: An error message will appear if input 1 and input 2 signals are too close together. Input Range: 4-20 mA. Minimum Span Input 1 & Input 2: 0.10 mA

Maximum Voltage Drop: 3.0 VDC @ 20 mA without loop-powered backlight. 6.0 VDC @ 20 mA with loop-powered backlight

Equivalent Resistance: 150 Ω @ 20 mA without loop-powered backlight. 300 Ω @ 20 mA with loop-powered backlight

Input Overload: Over current protection to 2 A max.

Open Collector Output (-0L1 Models Only)

Rating: Isolated open collector, 30 VDC @ 150 mA max.

Alarm Output: Assign to level or volume for high or low alarm trip point.

Deadband: 0-100% FS, user selectable

Acknowledge: Front panel ENTER button and external RESET terminals resets output and screen indication.

Product Ratings & Approvals


Certificate number: 3040391

ATEX: II 2 G D. Ex d IIC T6 Gb. Ex tb IIC T85°C Db IP68. Ta = -40 to 75°C.

Certificate number: Sira 10ATEX1116X

CSA: Class I, Division 1, Groups B, C, D. Class II, Division 1, Groups E, F, G. Class III, Division 1; T6. Class I, Zone 1, Ex d IIC T6. Ta = -40 to 75°C.

Enclosure: Type 4X & IP66.

Certificate number: 11 2325749

IECEX: Ex d IIC T6 Gb. Ex tb IIC T85°C Db IP68. Ta = -40 to 75°C

Certificate number: IECEx SIR 10.0056X.

Dimensions

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Width</th>
<th>Height</th>
<th>Depth</th>
</tr>
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<tbody>
<tr>
<td>3.22 (81.9)</td>
<td>4.15 (105.5)</td>
<td>5.65 (143.5)</td>
<td></td>
</tr>
<tr>
<td>0.33 (8.4)</td>
<td>3.35 (85.1)</td>
<td>3.25 (82.5)</td>
<td></td>
</tr>
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</table>

Ordering Information

ProtEX-Pro PD6800 • Process Meter

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PD6800-0K0</td>
<td>ProtEX-Pro Process Meter with Backlight</td>
</tr>
<tr>
<td>PD6800-0L1</td>
<td>ProtEX-Pro Process Meter with Level Bar Graph &amp; Backlight</td>
</tr>
</tbody>
</table>

Accessories

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PDA0001</td>
<td>3/4&quot; M-NPT to F-M20 Reducer</td>
</tr>
<tr>
<td>PDA0002</td>
<td>3/4&quot; M-NPT to 1/2&quot; F-NPT Reducer</td>
</tr>
<tr>
<td>PDA6846</td>
<td>Pipe mounting kit; includes zinc-plated u-bolt for 2&quot; pipe, (2) washers, and (2) nuts.</td>
</tr>
<tr>
<td>PDA6846-SS</td>
<td>Pipe mounting kit; includes stainless steel u-bolt for 2&quot; pipe, (2) washers, and (2) nuts.</td>
</tr>
</tbody>
</table>

Your Local Distributor is:

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