

# PD6800

ProtEX-Pro Explosion-Proof Process & Level Meter

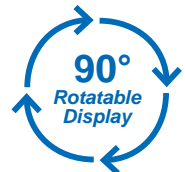
**ProtEX**<sup>TM</sup>  
Pro



PROCESS & LEVEL

- 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<sup>®</sup> 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<sup>®</sup> Protocol Transparent
- Operates from -40 to 75°C

**SAFE TOUCH**<sup>®</sup>  
Through-Glass  
Button Programming



**PRECISION  
DIGITAL**

## PD6800 Process & Level Meter

Displays clear alphanumeric tag names



### Process Displays



Level in Liters



Level in Feet



Pressure Indication

### Easy to Setup



Programming



## 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.

### Through-Glass SafeTouch® Buttons

The PD6800 is equipped with four sensors that operate as through-glass buttons so that it can be programmed and operated without removing the cover (and exposing the electronics) in a hazardous area. These buttons can be disabled for security by selecting the LOCK setting on the switch located on the connector board in the base of the enclosure. To actuate a button, press one finger to the glass directly over the marked button area. When the cover is removed, four mechanical buttons located next to the sensors are used.

## 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**

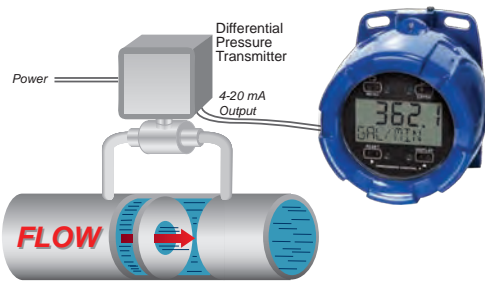
In lieu of meter scaling, the meter can be calibrated with a precision signal source. While applying a precision signal, the relative scale value is entered via the front panel. This is done at any two points along the scale. Using this method, the operator can set a “best fit straight line” for non-linear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

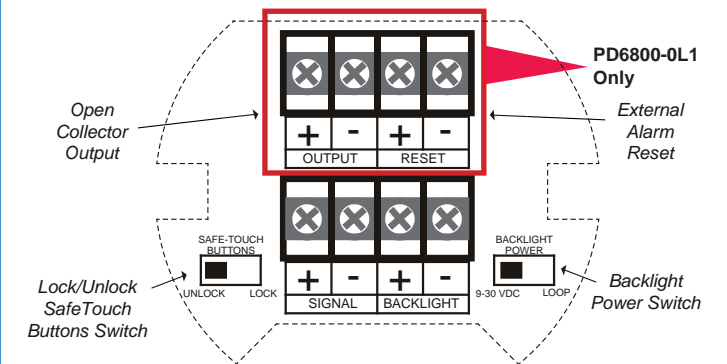


**Easy Wiring & Service**

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

Except 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 d.ddd, d.dd, d.d, or ddddd

**Display Update Rate:** Ambient > -25°C: 2 Updates/Second.

Ambient < -25°C: 1 Update/5 Seconds

**Externally Powered Backlight:**

Voltage Range: 9-36 VDC

<b>Supply Voltage</b>	9 VDC	12 VDC	24 VDC	30 VDC
<b>Maximum Power</b>	0.2 W	0.25 W	0.5 W	0.75 W

**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 HI/LO 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 3/4" NPT threaded conduit openings.

One 3/4" 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 1 1/2" to 2 1/2" or DN 40 to 65 mm pipe mounting.

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

(144 mm x 133 mm x 124 mm)

**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

**FM:** Explosion-proof for use in 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, AEx d IIC T6 Gb. Zone 21, AEx tb IIIC T85°C.

Ta = -40 to 75°C. Enclosure: Type 4X & IP66.

Certificate number: 3040391

**ATEX:** II 2 G D. Ex d IIC T6 Gb. Ex tb IIIC 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.

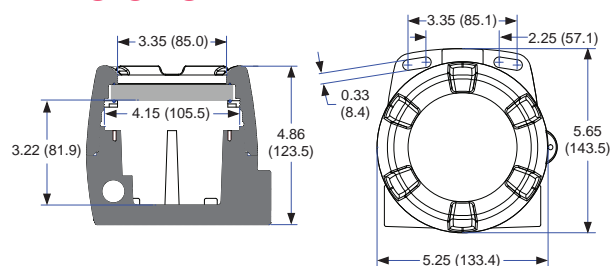
Certificate number: 11 2325749

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

Certificate number: IECEX SIR 10.0056X.

### DIMENSIONS

Units: Inch (mm)



### ORDERING INFORMATION

ProtEX-Pro PD6800 • Process Meter	
Model	Description
PD6800-0K0	ProtEX-Pro Process Meter with Backlight
PD6800-0L1	ProtEX-Pro Process Meter with Level Bar Graph & Backlight

Accessories	
Model	Description
PDA0001	3/4" M-NPT to F-M20 Reducer
PDA0002	3/4" M-NPT to 1/2" F-NPT Reducer
PDA6846	Pipe mounting kit; includes zinc-plated u-bolt for 2" pipe, (2) washers, and (2) nuts.
PDA6846-SS	Pipe mounting kit; includes stainless steel u-bolt for 2" pipe, (2) washers, and (2) nuts.

### Your Local Distributor is:

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