

5-DIGIT DUAL-LINE EXPLOSION-PROOF LOOP-POWERED PROCESS METER

ProtEX™

CE



SAFE TOUCH®
Through-Glass
Button Programming



Approvals presently apply to explosion-proof enclosure only. Complete product approvals expected soon. Contact factory for details

ProtEX™ • Model PD6800

- 4-20 mA Input Loop-Powered
- 5-Digit, 0.7" (17.8 mm) Upper Display
- 7 Alpha-Numeric Character, 0.4" (10.2 mm) Lower Display
- Loop or External DC-Powered Backlight Standard
- SafeTouch® Through-Glass Button Programming
- Password Protection
- 3.0 V Drop without Backlight
- Explosion-Proof, IP68, NEMA 4X Enclosure
- Flanges for Wall or Pipe Mounting
- Linear, Square Root, or Programmable Exponent
- Operates from -40 to 75°C

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PRECISION DIGITAL CORPORATION

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OVERVIEW

The ProtEX PD6800 is a rugged, explosion-proof loop-powered process meter is fully featured for demanding applications in hazardous areas or in the harshest environmental conditions. Users need a display to provide important process information and the display on a transmitter is often too small and mounted in a hard to see area. Our display is designed to be big, bright and easy to read from a wide variety of angles. The bright white backlight helps you see the display under any lighting condition. It is programmed using four SafeTouch® through-glass buttons, without removing the cover, and can be scaled with or without a calibration signal. The lower alpha-numeric display can be programmed to show any combination of numbers and letters up to seven characters long for use as engineering units and or the process identification tag.

KEY FEATURES

User Friendly Display

The high contrast 0.7" high 5-digit LCD on the upper display is easy to read. The 0.4" 7-character lower display is alpha-numeric and allows for more sensible looking tags, engineering units, or legends than a 7-segment display. For dark areas, the backlight (standard) can be illuminated either with loop power, or an external 9 to 30 VDC.

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.



Exceptional Enclosure

The copper-free (0.3%), smooth die-cast aluminum NEMA 4X enclosure is finished with a corrosion resistant epoxy coating. This provides a durable finish, and helps make it an attractive looking enclosure. The built-in mounting flanges are convenient for wall or pipe mounting (up to 2½" pipes). The enclosure is provided with two ¾" NPT threaded conduit holes. The window and display module on the PD6800 enclosure have been optimized to provide a wide viewing angle of approximately +/- 40°, nearly twice the competition! This makes it even easier for operators to see the display.



Wide Viewing Angle

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/ACK button.

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.

Design Simplicity

The internal cast rails within the enclosure replace fragile stand-offs. They also guide and mount the internal module. Two spring-loaded thumbscrews make the assembly a snap, while pressing the LCD as close as possible to the glass window to help with wide-angle viewing.



MATH FUNCTIONS

There are three available math functions on the PD6800. Those are: linearization, square root, and programmable exponent. The square root function is primarily for differential pressure (flow), and the programmable exponent is for open channel flow (weirs and flumes).

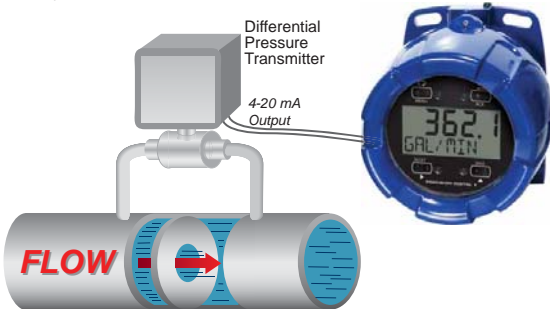
Two-Point Linearizer

The PD6800 has a linearizer which can be assigned to any two points within the input function range for best fit. The scale will follow the linearization slope to the limits of the analog input, or to its full 4-20 mA input capability. The user can also scale the meter to have an inverse relationship to the input.

Square Root Extraction

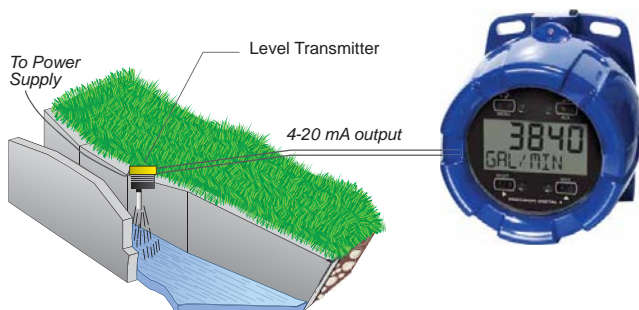
The square root extraction function displays flow rate by extracting the square root from a differential pressure transmitter signal. The user selectable low-flow cutoff feature gives a reading of zero when the flow rate drops below a user selectable value.

- Displays Flow Rate
- User Selectable Low-Flow Cutoff
- Only 2 Calibration Points Required



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.



INSTALLATION

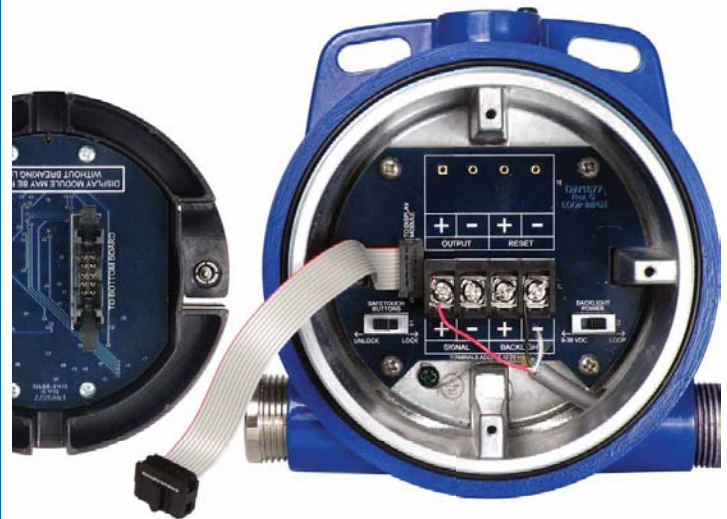
Installation Flexibility

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.

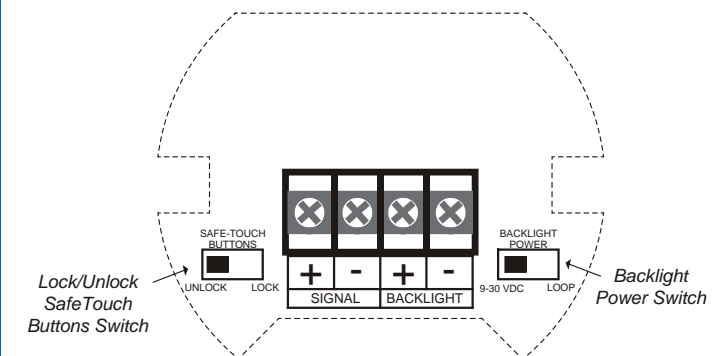


Easy Wiring & Service

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: Upper: Five digits (-9999 to 99999) 0.70" (17.8 mm) high, 7-segment, automatic lead zero blanking. Lower: Seven characters 0.4" (10.2 mm) high, 14 segment alpha-numeric. 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 d.dddd

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

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.

Math Functions: Linear, 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 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 1½" 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)
(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.

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.

Externally Powered Backlight:

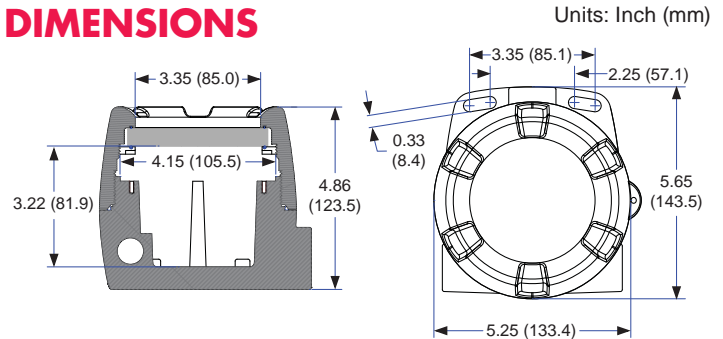
Voltage Range	Maximum Power			
	9 VDC	12 VDC	24 VDC	30 VDC
	0.2 W	0.25 W	0.5 W	0.75 W

Enclosure Ratings & Approvals

FM & CSA: FM Approved & CSA Certified. Explosion-proof for use in Class I, Division 1, Groups B, C, and D; Dust-Ignition-proof for Class II, Division 1, Groups E, F, and G, Class III; hazardous (classified) locations, USA: Indoor and outdoor (Type 4X and IP66); Ta = -40°F to +185°F
FM Certificate: 3032880
Canada: Indoor and outdoor (Type 4X); Ta = -40°C to +85°C
CSA Certificate: 2210414

ATEX & IECEX: ATEX Certified: Group 2, Category 1 (Zone 1), Gases, Vapors, Mists, or Dusts: II 2 G D, Ex d IIC Gb, Ex tb Db IIIC IP68.
Ta = -40°C to +85°C. ATEX Certificate: Sira 08ATEX1325U
IECEX Certified: Flameproof, Gas Group IIC, Ex d IIC Gb, Ex tb IIIC IP68.
Ta = -40°C to +85°C. IECEX Certificate: IECEX SIR 08.0126U

DIMENSIONS



ORDERING INFORMATION

ProtEX™ PD6800 • Explosion-Proof Loop-Powered Meter	
Model	Description
PD6800-0K0	Explosion-Proof Loop-Powered Process Meter with Backlight



Your Local Distributor is:

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