See What's New on the ProtEX Explosion-Proof and Intrinsically Safe Indicators

Presenter

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Joe brings 20 years of process industry experience in the design, support, manufacturing, marketing, and sales of process measurement and control devices. Joe has extensive field and support experience with process displays and controls, and a strong technical background including a bachelor's degree in Electromechanical Engineering and a master's degree in Computer & Electrical Engineering.

Agenda and Takeaways

01   Overview of UL Listed Explosion-Proof Products and Approvals

02   Products Include Loop-Powered Meters, Feet & Inches Level Meters, and Pulse Input Flow Rate/Totalizers

03   Precision Digital Explosion-Proof Products Provide Great Display and Control Solutions in Hazardous Locations

04   Learn About All the Great Features this Fully Approved Explosion-Proof Product Line Has to Offer

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Explosion-Proof Approvals Overview

Approvals for All Precision Digital UL Listed Explosion-Proof Products

Explosion-Proof for use in:

For 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 db IIC T6 Gb
Zone 21, AEx tb IIIC T85°C Db
Tamb = -55°C to 75°C
UL Type 4X, IP66 / IP68
UL File Number: E494837

Explosion-Proof for use in:

Class I, Division 1, Groups B, C and D

Dust Ignition-Proof for use in:

Class II/III, Division 1, Groups E, F and G; T6

Flame-Proof for use in:

Zone 1, Ex d IIC T6
Ta = -55 to 75°C
Enclosure: Type 4X & IP66/IP68
Certificate Number: CSA 11 2325749UL

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Approvals for All Precision Digital UL Listed Explosion-Proof Products

Explosion-Proof for use in:

II 2 G D
Ex db IIC T6 Gb
Ex tb IIIC T85°C Db IP68
Ta = -55 to 75°C
Certificate Number: Sira 10ATEX1116X

Intrinsically Safe for use in:

II 1 G D
Ex ia IIC T4 Ga
Ex ia IIIC T200°C Da
Ta = -55 to 75°C
Enclosure: Type 4X & IP66/IP68
Install per Control Drawing DW2636 (contained within LIM6908-2)
Certificate Number: CML 18ATEX2089X

Explosion-Proof for use in:

Ex db IIC T6 Gb
Ex tb IIIC T85°C Db IP68
Ta = -55 to 75°C
Certificate Number: IECEx SIR 10.0056X

Intrinsically Safe for use in:

Ex ia IIC T4 Ga
Ex ia IIIC T200°C Da
Ta = -55 to 75°C
Enclosure: Type 4X & IP66/IP68
Install per Control Drawing DW2636 (contained within LIM6908-2)
Certificate Number: IECEx CML 18.0050X

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Fully Approved
Explosion-Proof Product Lines

Fully Approved Explosion-Proof Product Lines

IN STOCK & SHIPPING NOW

PD6907-HA-SS
Feet & Inches
Level Meter

PD6908-HA-AL
Loop-Powered
Process Meter

PD6928-HA-SS
Loop-Powered
Rate/Totalizer

PD6938-HA-AL
Pulse Input Flow
Rate/Totalizer

PD6870
Large 1" Display
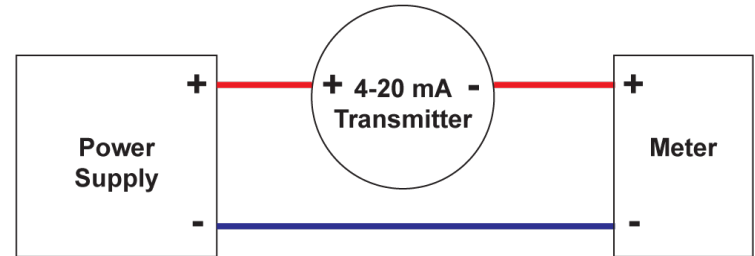Loop-Powered Meter

PD663
Low-Cost
Loop-Powered
Meter

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Why Use Loop-Powered Meters?

The most basic decision to make if you want to display a 4-20 mA signal on a digital display is:

- Should the meter be powered by line voltage or off the 4-20 mA loop?

The three main benefits of Loop-Powered Meters are:

- No additional power required

- Easy wiring

- Additional digital displays can easily be added in the same loop

The above illustrates how a loop-powered meter is wired. Notice there are only two connections made to the meter.

ProtEX+ Series Common Features

- 4-20 mA Input Loop-Powered Indicators
- Loop-Powered and Pulse Input Flow Rate/Totalizers
- 1.5 Volt Drop (4.7 Volt Drop with Backlight)
- Dual-Line Informative Display with 20-Segment Bargraph
- Display Mountable at 0°, 90°, 180°, & 270° (No Tools Required)
- CapTouch Through-Window Button Programming
- Loop-Powered Backlight with Red Backlight for Alarm Conditions
- (2) Open Collector Outputs Standard
- (2) Optional Loop-Powered Solid-State Relays
- Optional Isolated 4-20 mA Analog Output
- Free PC-Based MeterView XL USB Programming Software
- Operating Temperature Range: -40 to 75°C (-40 to 167°F)
- Installation Temperature Range: -55 to 75°C (-67 to 167°F)
- Available in Aluminum & Stainless Steel Enclosures

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CapTouch Through-Glass Button Programming

Capacitive Touch Technology

More Reliable & Responsive

Two Modes of Operation

Operate Meter without Removing the Cover

ProtEX+ Physical Features

- Grounding Screw
- Optional PDA-SSTAG Stainless Steel Tag
- Cover Jam Screw
- Aluminum NEMA 4X / IP68 Explosion-Proof OR Stainless Steel NEMA 4X / IP68 Explosion-Proof
- Stainless Steel Tag Attaching Loop
- Tamper-Proof Protection
- Glass Window
- 4 CapTouch Through-Glass Buttons
- Built-In Flange for Pipe Mounting
- Slotted Back for Easier Pipe Mounting
- Two ¾" NPT threaded conduit openings

ProtEX+

ProtEX+ Display Features

Process Meters

Feet & Inches Level Meters

Rate/Totalizers

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Easy-to-Read 14-Segment Alphanumeric Characters and Commas
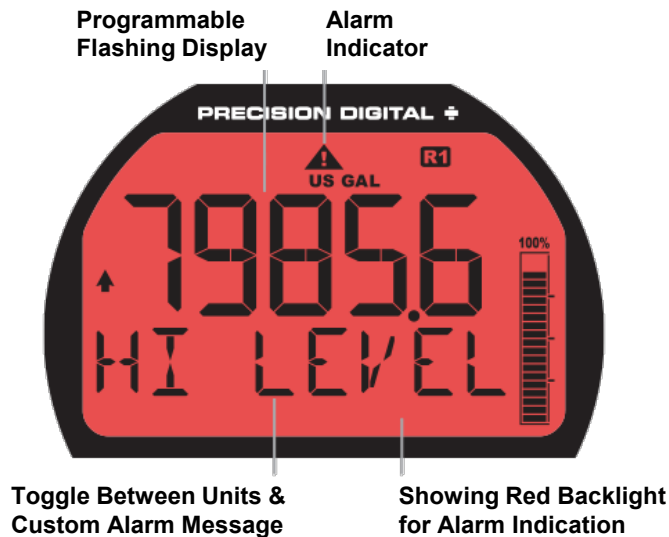

7-Segment **14-Segment**

- Notice how much better letters like "T", "N", and "K" appear as 14-segment characters vs 7-segment characters found on many other meters.

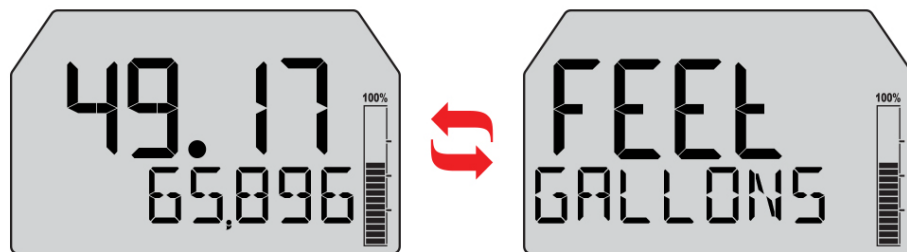- 14-Segment characters are used on the bottom display of all the loop-powered meters in this product line.

- All totalizers in this product line include commas on the bottom 8-digit display.

- Seems like a simple thing, but adding commas makes an 8-digit number easier to read.

Red Backlight for Enhanced Alarm Indication

Programmable Flashing Display

Alarm Indicator

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US GAL

R1

7985.6

HI LEVEL

100%

Toggle Between Units & Custom Alarm Message

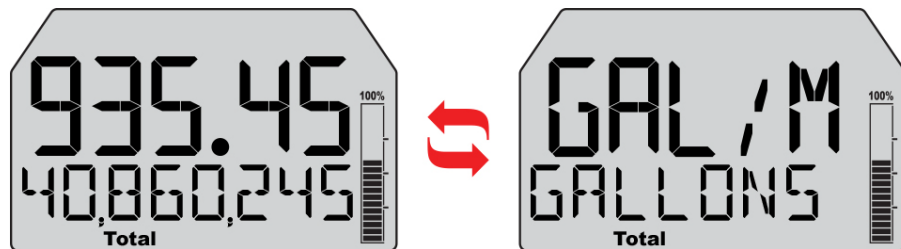**Showing Red Backlight for Alarm Indication**

- Can be programmed to turn the display red for alarm conditions

- Can be programmed to flash a message along with the process variable

- Flashing red alarm message can be activated even if no relay or open collector is connected

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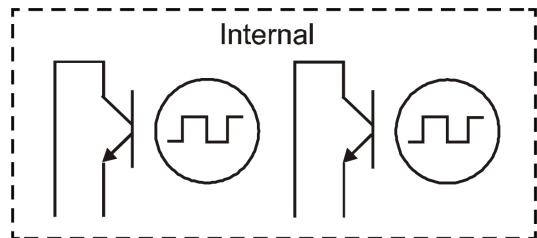# Dual-Line Display with Dual-Scale Feature

PD6908 Process Meter Showing Input in Feet & Gallons and Toggling Between Process Values and Units.
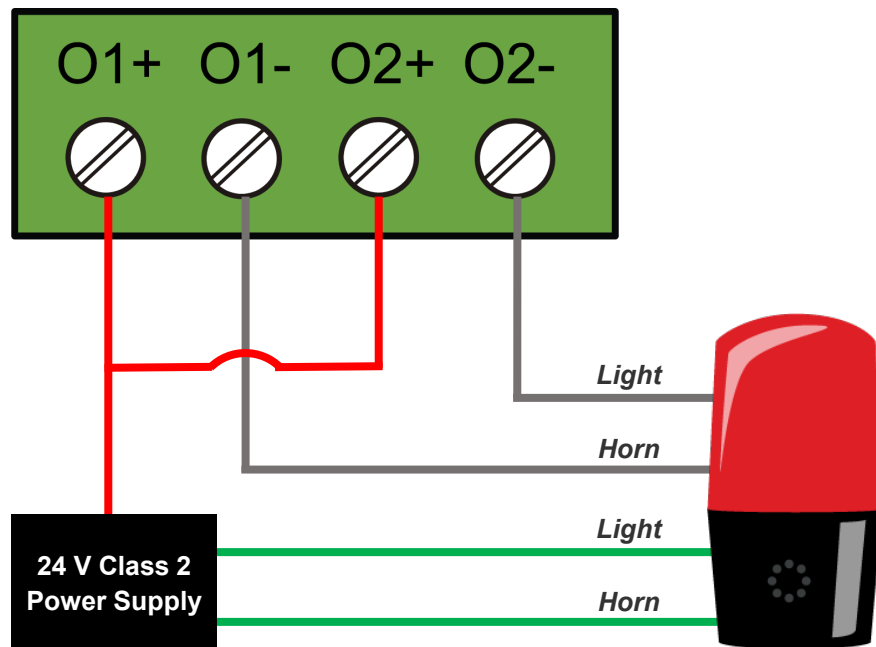

PD6928 Rate/Totalizer Showing Rate and Total at the Same Time and Toggling Between Process Values and Units

- All loop-powered process meters in this product line can display the input in two different scales

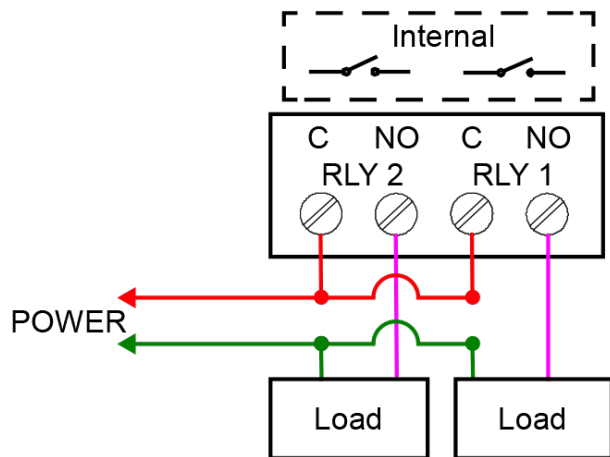- The rate/totalizers can display rate and total at the same time

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Two NPN Open Collectors Standard

Internal

O1+   O1-   O2+   O2-

- Can be set up for a variety of pulse or alarm outputs
- Great way to run simple digital signals or small devices like lights and horns
- Rating: 5-30 VDC @ 150 mA maximum

24 V Class 2 Power Supply

Light
Horn
Light
Horn

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Two Solid-State Relays Option

Connections for two solid-state relays

- Models available with two solid-state relays

- Relays can be assigned to pump alternation, alarm, timer, stopwatch, on/off, or disable
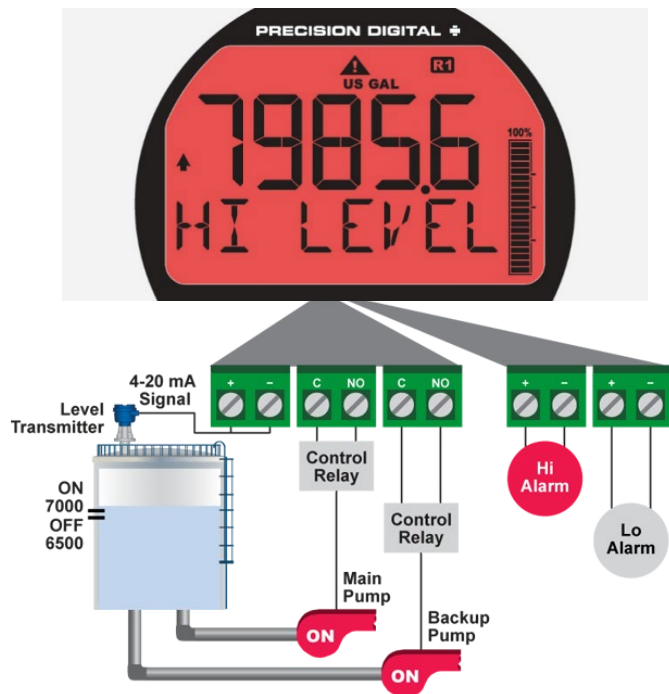
SPECIFICATIONS	
Rating	**ProtEX+:** 250 VAC/VDC @ 0.5A resistive 38 VA; 250 VAC; 0.3 A pilot duty (inductive) 13 VA; 250 VDC; 0.3 A pilot duty (inductive)

Great For Pump Alternation and Alarm Control

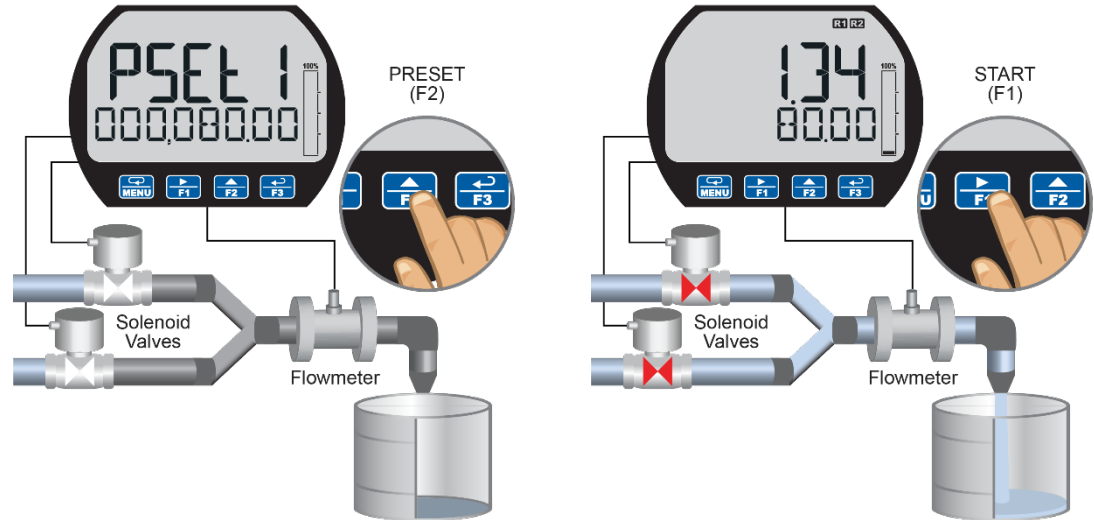Note: ProtEX+ PD6908-HA display is shown in the pump control example.

- Two Solid-State Relays optional feature can be used to control two pumps

- Can be programmed to alternate the pumps based on either cycle or time

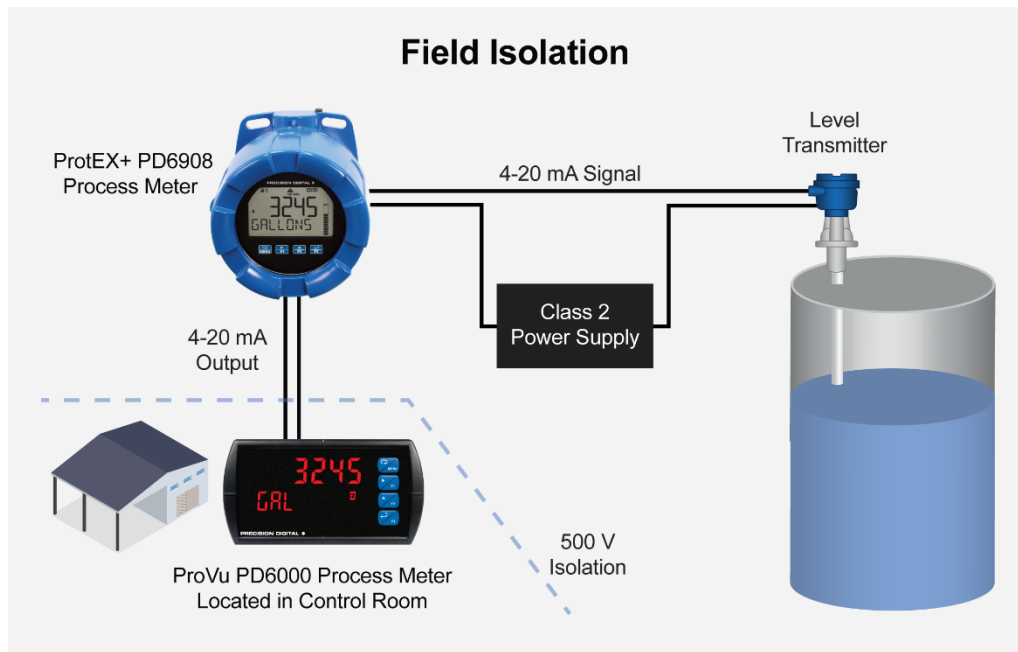- Two Open Collectors standard feature can be used to trigger high and low alarms

Rate/Totalizer Used for Batch Control

- The flow rate/totalizers can be configured as batch controllers
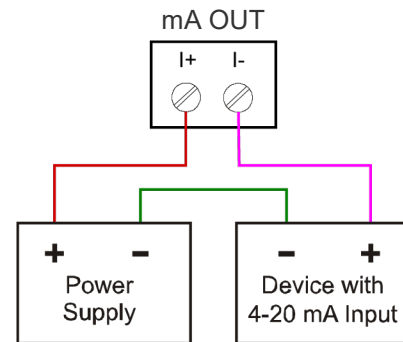- On screen presets
- Multi-stage batching

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Field Isolation

ProtEX+ PD6908 Process Meter

4-20 mA Signal

Level Transmitter

4-20 mA Output

Class 2 Power Supply

ProVu PD6000 Process Meter Located in Control Room

500 V Isolation

ProtEX+ PD6908-HA Used as a Loop-Powered Remote Indicator & Loop Isolator, Showing Volume

- Can be used for Loop Isolation
- Connections are made to terminals labeled mA OUT.
- 4-20 mA Input & Output must be powered from an external Class 2 power supply

mA OUT

I+   I-

+   −
Power Supply

−   +
Device with 4-20 mA Input

4-20 mA Output Connections

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The Easiest Way to Program The ProtEX+

ProtEX+ PD6938-HA Rate/Totalizer Connected to PC

- Free PC-Based USB Programming Software
- Easy Programming of Feature-Packed Product
- USB Connection Provides Power to the Meter During Programming
- Save & Print Configuration Files without the Meter Connected
- Micro USB Cable Provided with the Meter
- PC Data Logging for One or Multiple Variables

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PD6908-HA
Full Featured
Loop-Powered Indicator

ProtEx+

**Starting Price:
$699.00**

IECEx

PD6908-HA Unique Features

- Top Display: Five 12-Segment Alphanumeric Characters, 0.7" (17.8 mm)

- Bottom Display: Eight 14-Segment Alphanumeric Characters, 0.4" (10.2 mm)

- Stopwatch & Timer Functions to Drive Relays & Open Collectors

- Relay Pump Alternation Based on Level and Runtime

- Display Relay Runtime & Cycle Count via Relay Info Menu

- Round Horizontal Tank Function; Just Enter Diameter & Length

- 32-Point Linearization, Square Root Extraction and Programmable Exponent Function

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PD6907-HA
Loop-Powered
Feet & Inches Indicator

Starting Price: $759.00

PD6907-HA Unique Features

- Top Display: Five 7-Segment Digits, FT-IN & Fractions, 0.7" (17.8 mm)

- Bottom Display: Eight 14-Segment Alphanumeric Characters, 0.4" (10.2 mm)

- Displays Level in Feet & Inches up to 999 Feet, 11 & 15/16 Inches

- Stopwatch & Timer Functions to Drive Relays & Open Collectors

- Relay Pump Alternation Based on Level and Runtime

- Display Relay Runtime & Cycle Count via Relay Info Menu

- Round Horizontal Tank Function; Just Enter Diameter & Length

- 32-Point Linearization

PD6928-HA
Loop-Powered
Rate/Totalizer

Starting Price: $719.00

PD6928-HA Unique Features

- Top Display: Five 12-Segment Alphanumeric Characters, 0.7" (17.8 mm)

- Bottom Display: Eight 14-Segment Alphanumeric Characters, 0.4" (10.2 mm)

- 8-Digit Total & Grand Total Display, Up to 13 Digits Using Both Lines

- Display Rate & Total Simultaneously

- Reset Total / Grand Total with CapTouch Button and Digital Input

- Automatic or Manual Batch Control

- Display Open Channel Flow with Programmable Exponent Feature

- 32-Point Linearization and Square Root Extraction

- (2) Open Collector Outputs Standard; Assignable to Pulse, Alarm, Timer, or Stopwatch

- (2) Optional Solid-State Relays; Assignable to Alarm, Sample, Timer, Batch Control, or Stopwatch

- Stopwatch & Timer Functions to Drive Relays & Open Collectors

- Display Relay Runtime & Cycle Count via Relay Info Menu

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PD6938-HA
Pulse Input
Rate/Totalizer

ProtEx+

Starting Price:
$869.00

PD6938-HA Unique Features

- NPN Open Collector, PNP, TTL, Switch Contact, Sine Wave (Magnetic Pickup Coil), or Active Square Wave Inputs

- 8-Digit Total & Grand Total Display, Up to 13 Digits Using Both Lines

- Display Rate & Total Simultaneously

- Bi-Directional Flow Detection via Digital Input

- Non-Resettable Grand Total

- Display Previous Total and Previous Grand Total with Time-of-Day Reset Feature

- Reset Total / Grand Total with CapTouch Button, Digital Input, or Time-of-Day Feature

- Automatic or Manual Batch Control

- K-Factor Calibration or Scaling with Up to 32-Point Linearization

- Gate Function for Rate Display of Slow Pulse Rates

- 9-30 VDC, Battery, or 4-20 mA Output Power Options

- Modbus RTU RS-485 Communications Standard on DC & Battery Powered Models

- On-Board Data Logging of up to 2,032 Records and Modbus Accessible Data

- Password Protection for Settings, Total & Grand Total

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PD6870
Large 1" Display
Loop-Powered Meter

Starting Price: $469.00

- 4-20 mA Input
- 1 Volt Drop (4 Volt Drop with Backlight)
- 1.0" (25.4 mm) 3½ Digits LCD Display
- Loop-Powered Backlight
- Available in Aluminum & Stainless Steel Enclosures

PD663
Low-Cost
Loop-Powered Meter

Starting Price: $359.00

- 4-20 mA Input
- 1.7 Volt Drop (4.7 Volt Drop with Backlight)
- 0.6" (15.2 mm) 3½+ Digits LCD Display
- Loop-Powered Backlight
- Available in Aluminum & Stainless Steel Enclosures

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Questions?

If you have any questions, then reach out to us.

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