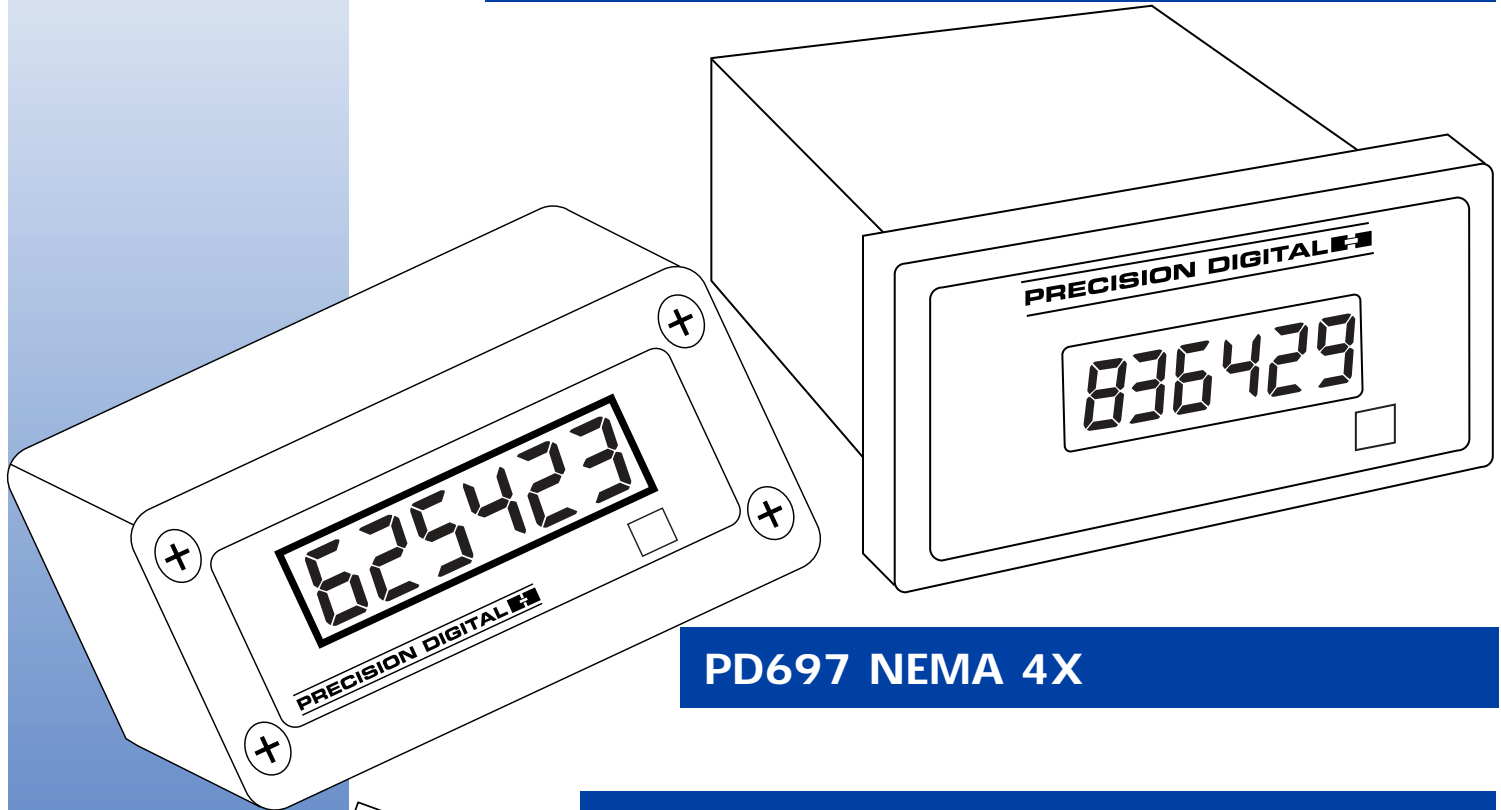


LOOP-POWERED FLOW RATE/TOTALIZERS

PD696 1/8 DIN PANEL MOUNT



PD697 NEMA 4X

PD698 EXPLOSION-PROOF

(FM Approved, CSA Certified & CENELEC Versions Available)



- 4 1/2 Digit Rate Display
- 6 Digit Total Display
- 4-20 mA Input
- Linear or Square Root Input
- Loop-Powered Backlighting
- Easy Single Button Scaling



FEATURES

Precision Digital's loop-powered flow rate totalizers allow you to display flow rate and total just about anywhere. First, there's no AC or battery power to worry about because these meters are completely loop-powered. Second, these meters operate in a wide variety of lighting conditions because LCDs work great in bright sunlight and the optional loop-powered backlighting works great in dimly lit areas. Third, there are three types of enclosures to choose from: Standard 1/8 DIN Panel Mount, NEMA 4X, and Explosion-Proof.

- Alternating Rate/Total Display
- 0.5" High LCD
- 4-20 mA Input
- Linear or Square Root Input
- Noise Filtering
- Low-Flow Cutoff
- Non-Volatile Memory, No Battery Needed
- Isolated Open Collector Pulse Output
- Loop-Powered Backlighting Option

Single Button Scaling (SBS) Makes Setup a Snap

Single Button Scaling means the meter can be completely programmed using only one button. Simply press the front panel button to initiate the automatic menu scan. When the desired menu appears press the button again. Once in a menu, press the front panel button when the display reads the desired value. It's that simple!

Push front panel button - Display scrolls through programming routine. Push front panel button to select desired routine:

Menu Title	Description	Function
dSPY r	Display Rate	Sets Rate as the default display
dSPY t	Display Total	Sets Total as the default display
rSEt t	Reset Total	Resets Total. May be removed from menu scroll with dSPLY menu.
CLL lb	Calibrate	Calibrates the meter for linear or square root input.
Cutoff	Low-Flow Cutoff	Sets low-flow cutoff. Any input below this number will display zero and not add to the total.
FILtEr	Filter	Allows meter to display unsteady inputs with greater stability.
tBASE	Time Base	Seconds, Minutes, or Hours
tot CF	Totalizer Conversion Factor	Number multiplied by the rate to compute total. May be any number between .00001 and 59999.
tot dP	Total Decimal Point	Independent of Rate decimal point.
PULSE	Pulse Output	Can be programmed to produce 1 pulse output per any accumulated total between 1 and 999.
dSPLY	Display	Select: display rate only; display total only; automatically toggle between rate and total; eliminate rSEt t from menu scroll.

Non-Volatile Memory

All programming and total values are stored in non-volatile memory. This means that the total will remain in memory for a minimum of ten years even if power is removed from the unit. Unlike some brands, these totalizers do NOT require a battery so you don't need to worry about losing valuable information when power is lost.

Totalizes All the Time

No need to worry about missing some counts. These totalizers will continue to count and totalize even while in the calibration or setup mode. So if you need to change the cutoff value and you can't stop the flow, go right ahead, the meter will still totalize in the background.

Alternating Rate/Total Display

These totalizers can be programmed so the display automatically changes between displaying rate and total every 10 seconds. This feature is particularly useful if the meters are mounted inside a NEMA 4X or an explosion-proof enclosure.

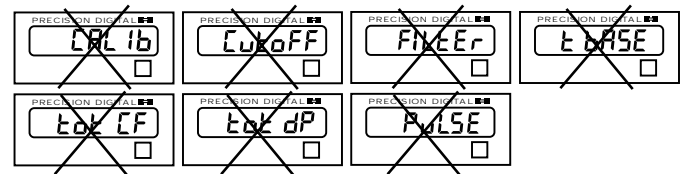
Lockout and Menu-Title Disabling

The ability to modify programming values can be restricted by installing a lockout jumper. In addition, certain menu titles can be programmed not to appear during the menu scroll with the Display menu.

Menu titles that can be excluded with dSPLY menu functions:



Functions that can be locked out with the lockout jumper:



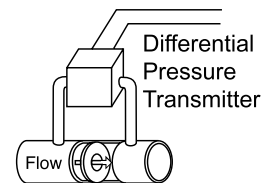
Isolated Open Collector Pulse Output

This feature will produce one pulse output per a given number of counts (user select). For example, these meters can be programmed to produce one pulse for every 500 gallons totalized. This output can be sent to a PLC or a counter.

Square Root Extraction

The square root extraction feature 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 set point.

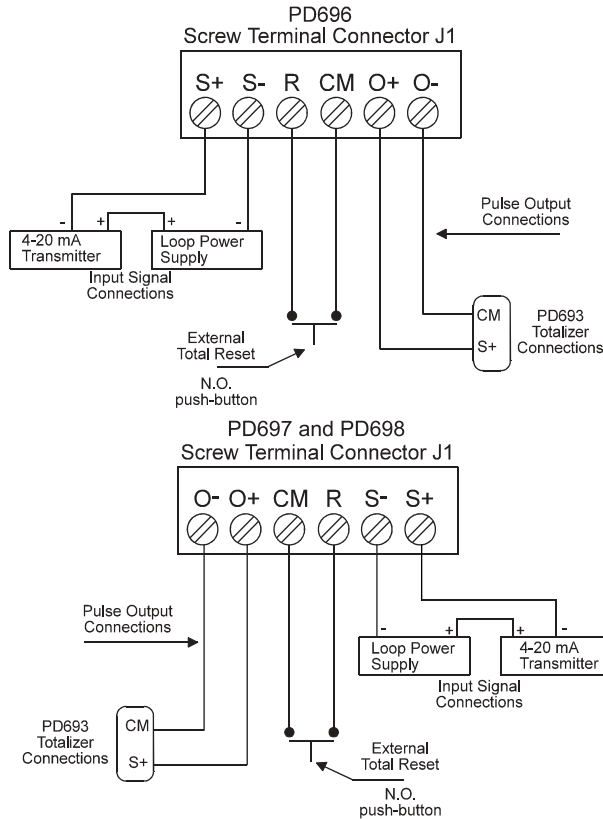
- Displays Flow Rates
- User Selectable Low-Flow Cutoff
- Only 2 Calibration Points Required



Totalizer Conversion Factor

The totalizer conversion factor is a number which is multiplied by the rate to compute total. For example, if the rate display is gallons per hour and total is desired in liters, a factor of 3.785 should be used. If the rate display is gallons per hour and total is desired in gallons, a factor of 1 should be used.

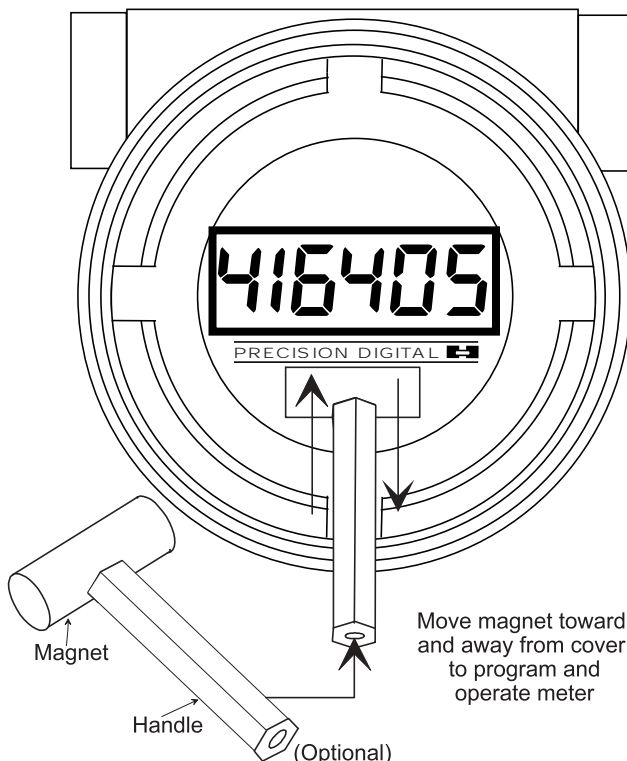
Signal Connections



NOTE: When using a four-wire transmitter, connect the transmitter's positive terminal to S+ and the negative to S-.

Magnetic Reed Switch Operation

The PD698 has a magnetic reed switch that allows the user to program and operate the meter without having to remove the enclosure cover.



SPECIFICATIONS

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

INPUT: 4-20 mADC @ 24 VDC maximum, Linear or Square Root.

DISPLAY: 6 digit, 0.5" (12.7mm) high LCD.

Rate: 0 to 19,999. Total: 0 to 999,999.

Automatic lead zero blanking, user selectable decimal point.

DISPLAY UPDATE RATE: 1 per second.

ALTERNATING DISPLAY: Display may be programmed to alternate between rate and total every 10 seconds.

MINIMUM INPUT CURRENT: 3.5 mADC.

MAXIMUM VOLTAGE DROP: 5.6 VDC @ 20 mA.

Model with Backlighting: 7.0 VDC @ 20 mA.

CALIBRATION RANGE: Single Button Scaling. 4 mA input may be set anywhere in range of the meter. The 20 mA input may be set anywhere in range of the meter, above or below 4 mA input. An Error message will appear if Input 1 signal and Input 2 signal are too close together.

MINIMUM INPUT SPAN: 1.6 mA between Input 1 and Input 2.

LINEAR INPUT ACCURACY: $\pm 0.05\%$ of calibrated span, ± 1 count.

SQUARE ROOT EXTRACTION ACCURACY: $\pm 0.1\%$ F.S. ± 1 count from 10-100% of flow; $\pm 1\%$ (0-10% flow).

NOISE FILTER: The field selectable noise filter allows the meter to be programmed so that an unsteady (noisy) input can be displayed with greater stability.

NON-VOLATILE MEMORY: All programming values are stored in non-volatile memory for a minimum of ten years if power is lost. No battery required.

PULSE OUTPUT RATING: Isolated open collector, 24 VDC @ 20 mA; maximum pulse output, 30 pulses per second; pulse width: 16 ms. If the pulse output exceeds the maximum pulse output (30 pulses per second), the total will flash and counts will be lost in the totalizer and the output.

LOCKOUT: Jumper JP1 restricts modification of calibration values.

TOTALIZER: Calculates total based on rate and field programmable totalizer conversion factor to display total in any engineering units.

TOTALIZER CONVERSION FACTOR: Any number between .00001 and 59999.

TOTAL RESET: Via front panel button, or external contact closure.

EXTERNAL TOTAL RESET: Connect terminals R and CM.

LOW-FLOW CUTOFF: 1 count to 100% F.S., user selectable. To disable low-flow cutoff, program cutoff value to zero. Meter does not totalize below low-flow cutoff value.

LOOP-POWERED BACKLIGHTING OPTION: Powered directly off the 4-20 mA loop, no batteries required. The display brightness will increase as the input signal current increases.

ENVIRONMENTAL:

Operating temperature range: 0 to +65°C.

Storage temperature range: -30 to +80°C.

Relative humidity: 0 to 90% non-condensing.

PD696 ENCLOSURE: 1/8 DIN, high impact plastic, UL 94V-0;

color: black; Front panel, NEMA 4X, panel gasket provided.

PD697 ENCLOSURE: High impact-resistant glass filled polycarbonate, color: gray, NEMA 4X, IP 67; 1/2" conduit hole provided at base. May be provided on back for panel mounting applications, call factory for details.

PD698 ENCLOSURE: Explosion-proof, cast aluminum, corrosion resistant, color: "safety blue" polyester powder coating. FM Approved and CSA Certified; NEMA 4X, 7 & 9; Class I, Division 1, Groups B, C, & D and Class II, Groups E, F, & G, Class III hazardous outdoor (Type 4X) locations. CENELEC: EEx d IIC + H2 IP 66. Two 3/4" NPT holes provided.

APPROVALS: The PD698-N-EX and PD698-B-EX are FM Approved and CSA Certified as explosion-proof for use in Class I, Division 1, Groups B,C, and D; Dust-ignition proof in Class II, Division 1, Groups E, F, and G; Class III. LCIE (CENELEC), EEx d IIC T6.

CONNECTIONS: Removable screw terminal block, accepts 22 to 12 AWG wire.

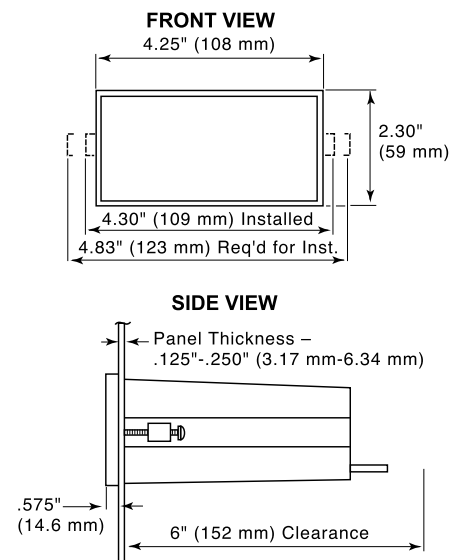
WARRANTY: 1 year parts and labor.

EXTENDED WARRANTY: Warranty may be extended an additional 12 months by returning the Product Registration Form within 2 months from date of purchase. Go to www.predig.com for online registration.

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DIMENSIONS & MOUNTING INFORMATION

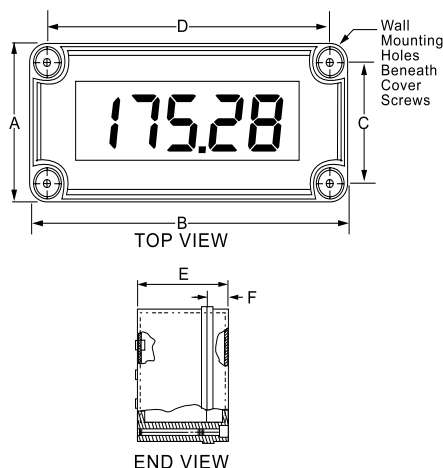
PD696



NOTES:

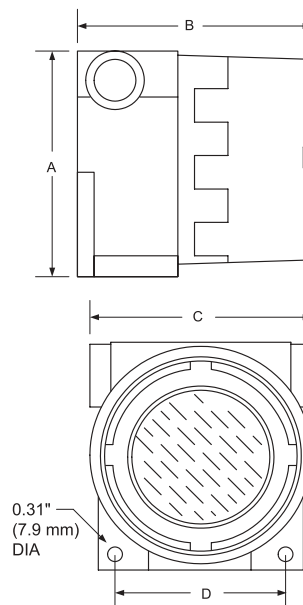
1. Panel cutout required: 1.772" X 3.622" (45 mm x 92 mm) 1/8 DIN
2. Panel thickness: 0.125" - 0.250" (3.17 mm - 6.34 mm)
3. Clearance: allow 6 inches (152 mm) behind the panel
4. Weight: 8 oz (227 g)

PD697



A: 3.15" (80 mm) D: 4.72" (120 mm)
 B: 5.51" (140 mm) E: 2.56" (65 mm)
 C: 2.36" (60 mm) F: 0.79" (20 mm)
 Weight: 12 oz (340 g)

PD698



A: 5.63" (143 mm) C: 5.44" (138 mm)
 B: 5.63" (143 mm) D: 4.06" (103 mm)
 Weight: 6 lbs (2.72 kg)

ORDERING INFORMATION	
Model	Description
PD696-N	Panel Mount Loop-Powered Totalizer
PD696-B	Panel Mount Loop-Powered Totalizer with Loop-Powered Backlighting Option
Model	Description
PD697-N	NEMA 4X Loop-Powered Totalizer
PD697-B	NEMA 4X Loop-Powered Totalizer with Loop-Powered Backlighting Option
Model	Description
PD698-N	Explosion-Proof Loop-Powered Totalizer
PD698-N-EX	FM, CSA & CENELEC Certified Explosion-Proof
PD698-B	Explosion-Proof Loop-Powered Totalizer with Loop-Powered Backlighting Option
PD698-B-EX	FM, CSA & CENELEC Certified Explosion-Proof with Loop-Powered Backlighting Option
ACCESSORIES	
Model	Description
PDA6844	Panel Mounting Kit for PD697 Panel Mounting Kit does not provide NEMA 4X seal to panel.
PDA6845	2" Pipe Mounting Kit for PD697 & PD698
PDA-MAG	Reed Switch Magnet for PD698
PDA2451-R	Explosion-Proof Control Station for 1 Total Reset Switch

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