LOOP-POWERED FLOW RATE/TOTALIZERS

PD697 NEMA 4X

- Impact Resistant Enclosure
- NEMA 4X & IP67
- ½" Conduit Hole in Base

PD698 EXPLOSION-PROOF

- PD698-N-EX & PD698-B-EX are FM Approved & CSA Certified Explosion-Proof

General

- 5.6 V drop (7.0 V with backlight)
- 0.5" (12.7 mm) LCD
- Rate: 4½ digits; Total: 6 digits
- Operating temperature: 0 to 65°C
- Linear or square root function
- Non-volatile memory – no battery needed
- Isolated open collector pulse output

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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 two types of enclosures to choose from: 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

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
CAL ib	Calibrate	Calibrates for linear or square root input
CUtoFF	Low-Flow	Any input Cutoff below this number will display zero and not add to the total.
FiLtEr	Filter	Display unsteady inputs with 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
dSPLAY	Display	Select rate only, total only, or auto toggle between rate and total

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 the lockout jumper on JP1.

When installed the Lockout Jumper disables the user's ability to program the following functions: CAL ib, CUtoFF, FiLtEr, tbASE, tot CF, tot dP, and PULSE.

In addition the following menu titles can be toggled On/Off when the lockout jumper is installed: dSPY t, dSPY r, and rSEt t.

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.
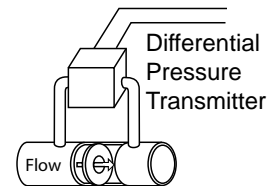
Square Root Extraction

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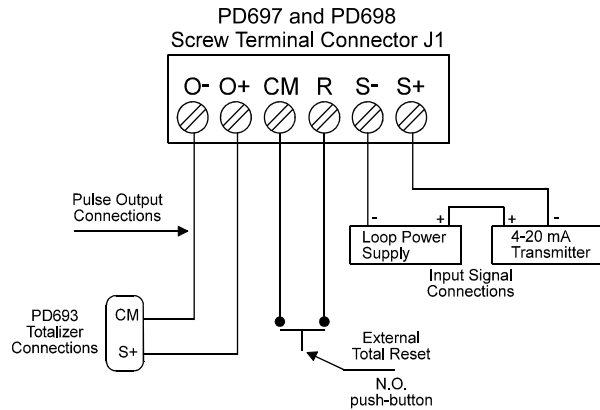
- Displays Flow Rates
- User Selectable Low-Flow Cutoff
- Only 2 Calibration Points Required

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.
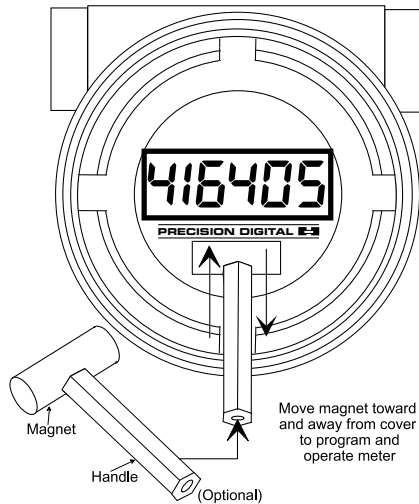
Differential Pressure Transmitter

Flow

SIGNAL CONNECTIONS

PD697 and PD698
Screw Terminal Connector J1

NOTE: When using a four-wire connect the transmitter's positive terminal to S+ and the negative to S-
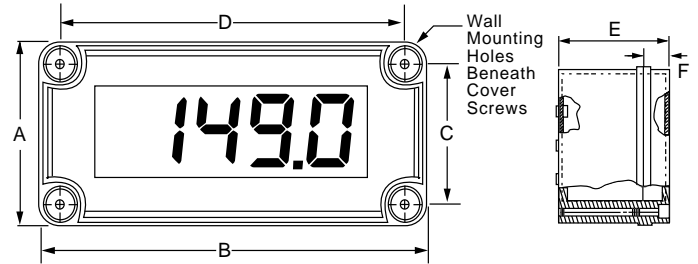
Magnetic Reed Switch Operation

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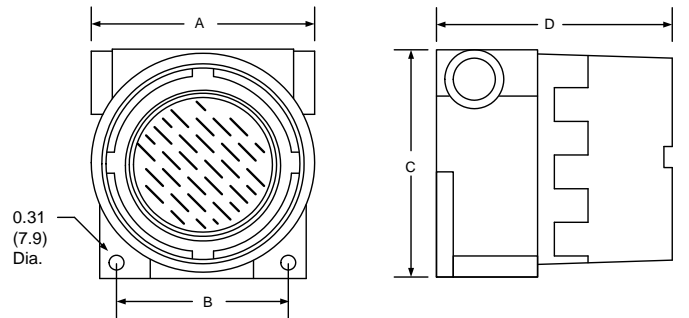

DIMENSIONS
Units: Inch (mm)

PD697

A: 3.15 (80)   C: 2.36 (60)   E: 2.56 (65)
B: 5.51 (140)   D: 4.72 (120)   F: 0.79 (20)

PD698

A: 5.44 (138)   B: 4.06 (103)   C: 5.63 (143)   D: 5.63 (143)

LOOP-POWERED FLOW RATE/TOTALIZERS

SPECIFICATIONS

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

General

Input: 4-20 mA @ 24 VDC maximum, Linear or Square Root
Display: 0.5" (12.7 mm) LCD, 6 digits
Rate: 0 to 19,999. Total: 0 to 999,999
Linear Input Accuracy: ±0.05% FS ±1 count
Square Root Accuracy: ±0.1% FS ±1 count 10-100% of flow; ±1% FS (0-10% of flow)
Decimal Point: User selectable
Calibration Range: User programmable over entire range of meter
Minimum Input Span: 1.6 mA between Input 1 and Input 2. An Error message appears if Input 1 signal and Input 2 signal are too close together.
Programming Method: PD697: one front panel button; PD698: one button behind faceplate or reed switch & magnet.
Noise Filter: The field selectable noise filter allows unsteady (noisy) input to be displayed with greater stability.
Display Update Rate: 1/second
Alternating Display: Display may be programmed to alternate between rate and total every 10 seconds.
Minimum Input Current: 3.5 mA
Maximum Voltage Drop: 5.6 VDC @ 20 mA; Model with backlight option: 7.0 VDC @ 20 mA
Non-Volatile Memory: Settings stored for a minimum of 10 years.
Pulse Output Rating: Isolated open collector, 24 VDC @ 20 mA; maximum pulse output: 30 pulses/sec; pulse width: 16 ms. If the pulse output exceeds the maximum pulse output (30 pulses/sec), the total will flash and counts will be lost in the totalizer and the pulse output.
Lockout: Jumper JP1 restricts modification of programmed settings.
Totalizer: Calculates total based on rate and field programmable multiplier to display total in engineering units. Time base available in seconds, minutes, or hours. Time base must be selected according to time units in which rate is displayed.
Totalizer Conversion Factor: 0.00001 to 59999
Total Reset: Via front panel button or external contact closure
External Total Reset: Connect terminals R and CM
Low-Flow Cutoff: 0 to 100% FS, user selectable. To disable low-flow cutoff, program cutoff value to zero. Meter does not totalize below low-flow cutoff value.
Loop-Powered Backlight Option: Powered directly from the 4-20 mA loop, no batteries required. The display brightness will increase as the input current increases.
Connections: Removable screw terminals accept 12 to 22 AWG
Operating Temperature: 0 to 65°C
Storage Temperature: -30 to 80°C
Relative Humidity: 0 to 90% non-condensing
Approvals: The PD698-N-EX and PD698-B-EX are FM Approved & CSA Certified as explosion-proof for use in Class I, Division 1, Groups B, C, & D; dust-ignition proof in Class II, Division 1, Groups E, F, & G; Class III
Warranty: 2 years parts & labor
Extended Warranty: 1 or 2 years, refer to Price List for details.

PD697 Enclosure: Impact-resistant glass filled polycarbonate, color: gray, NEMA 4X, IP67; ½" conduit hole provided at base.
PD697 Weight: 10.4 oz (294 g)

PD698 Enclosure: Explosion-proof, cast aluminum with glass window, 0.3% max copper content, corrosion resistant polyester powder coating, color: safety blue. NEMA 4X, 7, & 9, IP66; FM Approved & UL/C-UL Certified: Class I, Division 1, Groups B, C, & D, Class II, Groups E, F, & G, Class III; Class I, Zone 1 AEx d IIC hazardous outdoor (Type 4X) locations. IEC rating: Ex d IIC IEC 60529 IP66. Two ¾" NPT holes provided.
PD698 Weight: 5.7 lb (2.6 kg)

ORDERING INFORMATION

Model	Description
PD697-N	NEMA 4X Loop-Powered Totalizer
PD697-B	NEMA 4X Loop-Powered Totalizer with Loop-Powered Backlight
PD698-N	Explosion-Proof Loop-Powered Totalizer
PD698-N-EX	FM Approved & CSA Certified Explosion-Proof Loop-Powered Totalizer
PD698-B	Explosion-Proof Loop-Powered Totalizer with Loop-Powered Backlight
PD698-B-EX	FM Approved & CSA Certified Explosion-Proof Loop-Powered Totalizer with Backlight
Accessories	
PDA6844	Panel Mounting Kit for PD697 (no NEMA 4X seal to panel)
PDA6845	2" Pipe Mounting Kit for PD697 & PD698
PDA-MAG	Reed Switch Magnet for PD698
PDA-SSTAG	Stainless Steel Tag
PDA2451-R	Explosion-Proof Control Station, Total Reset

Services	
PDN-CAL	Calibration with Certificate
PDN-CALDATA	Calibration with Certificate & Data
PDN-LTCAL	Lifetime Annual Recertification (shipped back same day)
PDN-LTCAL2	Lifetime Annual Recertification (shipped back next day)
PDN-LTCAL5	Lifetime Annual Recertification (shipped back within 5 days)
PDN-ONEDAYRTN	One-Day Turnaround Service
PDN-CERTCON	Certificate of Conformance
PDN-EXTWRNTY1-0	Extended Warranty 1 Year LP:$0-$299
PDN-EXTWRNTY1-1	Extended Warranty 1 Year LP:$300-$599
PDN-EXTWRNTY1-2	Extended Warranty 1 Year LP:$600-$1299
PDN-EXTWRNTY2-0	Extended Warranty 2 Years LP:$0-$299
PDN-EXTWRNTY2-1	Extended Warranty 2 Years LP:$300-$599
PDN-EXTWRNTY2-2	Extended Warranty 2 Years LP:$600-$1299

LP: List Price

YOUR LOCAL DISTRIBUTOR IS:

LDS696-8_E   04/07

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