PD6600 Series

Loop Leader Loop-Powered Process Meter

PD6602/6 Decimal Display

PD6604/8 Decimal Display with Bargraph



PD6603/7 Feet & Inches Display

IECEx

PD6606 & PD6607, PD6608 only

Loop Leader Series

LOOP-POWERED PROCESS

- 4-20 mA Input
- Loop-Powered Process Meter
- 1.5 Volt Drop (4.5 Volt Drop with Backlight)
- Loop-Powered Backlight with Red Backlight for Alarm Conditions
- NEMA 4X, IP65 Front
- -40 to 167°F (-40 to 75°C) Safe Area Operating Temperature Range
- Free PC-Based USB Programming Software
- 5-Digit Alphanumeric Top Line
- 8-Digit Alphanumeric Bottom Line
- Displays Level in Feet & Inches up to 999 Feet, 11 & 15/16 Inches
- 20-Segment Bargraph with Numeric Percent Indication
- Conformal Coated PCBs for Dust & Humidity Protection
- Two Open Collector Outputs Standard
- Optional Loop-Powered Solid-State Relays
- Optional 4-20 mA Analog Output
- Relay Pump Alternation Based on Level and Runtime
- Display Relay Runtime and Cycle Count
- UL & C-UL 61010 Listed for Electrical Safety
- UL & C-UL Listed as Intrinsically Safe and Nonincendive
- ATEX and IECEx Certified as Intrinsically Safe

PD6600 Series Loop Leader Loop-Powered Process Meter



INTRODUCTION

These loop-powered 1/8 DIN digital panel meters can be installed virtually anywhere to provide convenient and informative display of any 4-20 mA signal. One of the most convenient features of these instruments is their dual line display which is typically used to display the process variable on the 5-digit alphanumeric top line and the units or a tag on the 8-digit alphanumeric bottom line. Another common setup is to display the input in one scale on the top line (such as feet) and another scale on the bottom line (such as gallons). Both of these lines use 14-segment, alphanumeric characters for clear indication of tags, units or alarm messages.

Further enhancing the display on these instruments is a 20-segment bargraph available on the PD6604/8 that also includes a numeric value of the percentage the bargraph represents.

There is even a model that displays level in feet and inches for customers who prefer to see their levels represented that way rather than in decimal format.

These loop-powered meters can be installed virtually anywhere because they get their power from the 4-20 mA loop and therefore require no separate power source. And they only drop 1.5 V (4.7 V with backlight), so they add very little burden to the loop. Additional features that allow these instruments to be installed virtually anywhere include a NEMA 4X, IP65 front panel, an operating temperature range of -40 to 167°F (-40 to 75°C) (for safe area products), conformally coated PCBs, and a backlit LCD that can be read in bright sunlight or dimly lit areas. Finally, there are intrinsically safe and nonincendive versions of these instruments that can be installed in hazardous areas.

Free, PC-based, software that connects to the meter via a micro USB cable is available for programming and setup of the meters. In addition, the meter can be programmed, setup and operated via the four front panel buttons. Three of these buttons can be used as function keys. In addition, a digital input is standard and is particularly useful for remote reset of the alarms or to trigger an alarm.

All models come equipped with two open collector outputs and are available with two solid state relays and 4-20 mA analog output options. The open collector outputs are useful for alarm indication or pulse output. The relays can be programmed for alarm indication, on/off control, or pump alternation.

THREE DIFFERENT DISPLAY TYPES

There are three different models of Loop Leaders that differ only in their display:

PD6602 & PD6606 Decimal Display



- 5-Digit Alphanumeric Top Line
- 8-Digit Alphanumeric Bottom Line

PD6604 & PD6608 Decimal Display with Bargraph

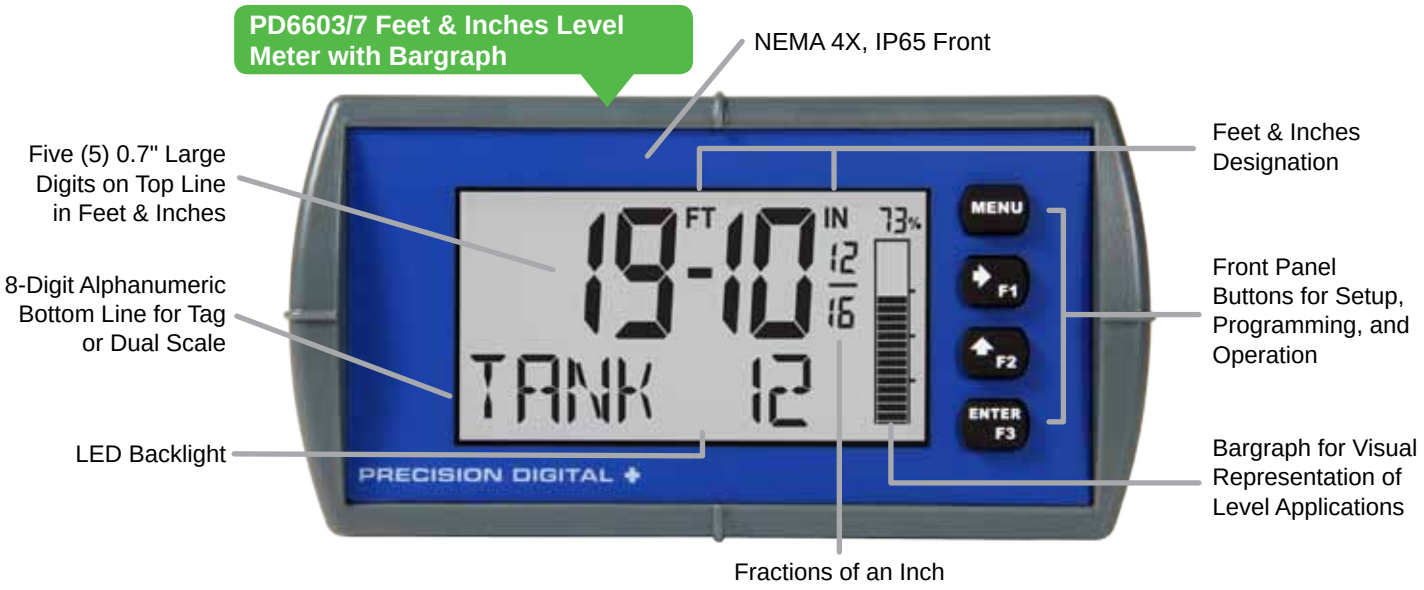


- 5-Digit Alphanumeric Top Line
- 8-Digit Alphanumeric Bottom Line
- 20-Segment Bargraph with Numeric Percentage

PD6603 & PD6607 Feet & Inches Display with Bargraph



- Feet & Inches on Top Line
- 8-Digit Alphanumeric Bottom Line
- 20-Segment Bargraph with Numeric Percentage

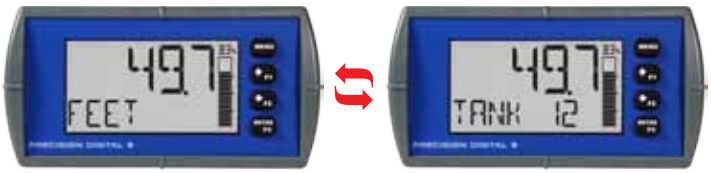


DISPLAY FEATURES

The Loop Leader's display provides multiple ways to help users understand and keep track of their processes. The most obvious is the dual line which typically allows the user to display a numeric value of the process variable on the top line and units and/or a tag on the bottom line. There is also a bargraph that includes a numeric value of the percentage the bargraph represents. Finally, to alert users to an alarm condition, the display can turn red and flash an alarm message.

Dual-Line Display with PV/Units/Tag/Bargraph

One of the most common configurations of these instruments is displaying the process variable on the top line and units and a tag toggling on the bottom line with a bargraph for additional clarity:



PV on the top line; units and tag toggling on the bottom line

To help users get a quick understanding of where their process is at, certain Loop Leader models are available with a 20-segment bargraph. This bargraph also includes a numeric value of the percentage the bargraph represents.

Dual-Scale Display Feature

Users can use the Loop Leader's dual-scale feature when they want to show the same input in two different scales. For instance, the following example shows an application where the Loop Leader displays the input in feet and gallons:

Display Feet & Gallons and Toggle Between Units



Feet Value on Top
Gallons Value on Bottom

Height Units on Top
Volume Units on Bottom

Feet & Inches Display with Bargraph

There are Loop Leader models available for users that prefer to see their level displayed in feet & inches instead of decimal format. These versions can display level to 999^{FT} 11^{IN} & 15/16 on the top line. The bottom line can toggle between a tag and units or if dual scale mode is used, can display the input in a different scale such as volume.



Level in Feet & Inches with tag and bargraph



Same Meter with Bottom Line toggling between tag, volume (62,346), and units (Gallons)

Alarms Indicated by Flashing Red Messages

When an alarm occurs, the Loop Leader's display can be programmed to turn red and flash an alarm message along with the process variable and an alarm indicator (!). *(Alarm indicator symbols are not available on bargraph models)* The Loop Leader's flashing red alarm message can be activated even if no relay or open collector is connected.



Bargraph Provides Quick Understanding

To help users get a quick understanding of where their process is at, certain Loop Leader models are available with a 20-segment bargraph. This bargraph also includes a numeric value of the percentage the bargraph represents. The bargraph can be programmed to represent the percent of PV1 or PV2 or it can be scaled to any range within the scale.



Bargraph indicating a 200 gallon tank is just about full

Max/Min Display

The max & min readings (peak & valley) reached by the process can be displayed either continuously or momentarily:

1. Display momentarily by pressing the F1 key (default) or assigning to any of the other function keys or to the digital input in the User menu. Press Enter to lock/unlock max/min display.
2. Display continuously by assigning either display line to max/min through the Display menu.

Any of the F1-F3 function keys (buttons) and the digital input can be programmed to reset the max & min readings.

Predefined and Custom Units

The meter has six available preprogrammed unit classes, *volume*, *height*, *temperature*, *pressure*, *weight*, and *rate*. When the desired unit class or unit of measure within a class is not available, a custom unit may be programmed by using the (CUSTOM) menu.

Change Between Units without Needing to Re-Scale the Meter

It is possible to change the display units within the selected unit class without the need to re-scale the meter. When selecting a new unit from within the DISPLAY menu (e.g. changing from gallons (GAL) to liters (L)), the meter will automatically convert the display values to display the new unit. If entering a custom unit (CUSTM), a custom conversion factor will need to be entered.

Tare

The tare function zeroes out the display. In the case of scale weight, tare is used to eliminate container weight and provide net weight readings. The captured tare may be reset manually with any function key or digital input.

OUTPUTS

Loop Leaders are available with two open collector outputs as standard and two solid state relays and 4-20 mA output as options. The open collector outputs and relays generally operate in the same manner, with the major exception being the open collectors are not available for pump alternation and the relays are not available with pulse features. The open collectors and relays can be controlled either automatically or manually. The alarm status (with flashing red message) will show on the display even with no output wired.

Two Open Collector Outputs

The Loop Leader is equipped with two NPN open collector outputs that may be set up for pulse outputs, alarms, timed pulses, stopwatch on/off, or disabled. Pulse outputs can be set to transmit the PV value (PV1 or PV2 if meter is in dual-scale mode). Output 2 may be used to generate a quadrature output based on the other open collector output. An output test mode is also selectable to generate pulses at a constant programmable frequency.

Two Optional Solid State Relays

The meter is optionally equipped with two solid state relays that may be set up for alarms, timer, stopwatch on/off, or pump alternation. The relays are rated at 250 VAC/DC @ 1 A for resistive loads and 75 VA @ 0.6 A, 250 VAC/DC max (Safe Area only) for inductive loads. Alarms are available based on the PV value or the digital input.

Loop-Powered Relay Alarm Trip for General Purpose & Hazardous Areas

The Loop Leader, with its two solid state relays, can be used as a loop-powered relay alarm trip in both general purpose and hazardous areas. The Loop Leader's two relays can be programmed for two different kinds of latching operation: Reset via momentary contact closure at any time or reset via momentary contact closure only after the alarm has cleared. And the Loop Leader's display can be programmed to turn red and flash an alarm message – something not found on most loop powered alarm trips.

Resetting the Open Collectors and Relays

The open collectors and relays (alarms) may be programmed to reset in the following ways:

- **Automatic** (AUTO): Alarm will reset automatically once the alarm condition has cleared.
- **Automatic/Manual** (AUTOMAN): Alarm will reset automatically once the alarm condition has cleared but can also be reset using the Enter button (or whichever function key is set to acknowledge) at any time.
- **Latching** (LATCH): Alarm must be reset manually and can be done so at any time. Press the Enter (ACK) button at any time to clear the alarm.
- **Latching with Reset after Cleared** (L--CLEAR): Alarm must be reset manually and can only be done so after the alarm condition has cleared. Press the Enter (ACK) button after the alarm condition has cleared to reset the alarm.

Timer Function Application

Application Timers are used in everyday life; one of the most common examples is the microwave oven. Industrial timers are used in process control applications where certain events or actions need to be controlled by time. Examples include automatic and batch control applications, where the relay needs to be energized for a specific length of time.

The timer fuction is available on the open collector and relay outputs; which means that you can have up to four timers per meter. The start and stop actions can be triggered from the setup menu or by the function keys and digital input. The meter can be setup to display the off/on timer count down.

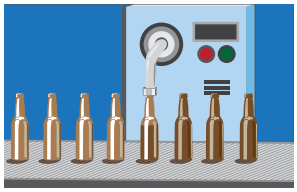
There are two modes of operation:

1. Continuous Timer (Interval)

At the start of the timer the output is off and turns on after the Off Delay elapses. The output remains on for the duration of the On Time. The cycle repeats until the user stops the timer either from the menu or a function key.

2. One-Shot Timer

At the start of the timer the output is off and turns on after the Off Delay elapses. The output remains on for the duration of the On Time. The timer stops and the cycle does not repeat.



a. A sensor detects the bottle is in place and triggers the digital input to start the timer

b. The timer output controls the filling pump

c. The On Time is set according to the time needed to fill the bottle

Optional Isolated 4-20 mA Output

The isolated analog output signal can be configured to represent the process variable (PV1, PV2, or retransmit). While the output is nominally 4-20 mA, the signal will accurately accommodate under- and over-ranges from 1 to 23 mA. The output can be reverse scaled such that the meter's high calibration value outputs 4 mA and the meter's low calibration outputs 20 mA.

PUMP CONTROL

Loop Leaders, when ordered with the two solid state relays, have several features that make them ideal for simple duplex pump control. The relays can be programmed to alternate the pumps based on level and runtime thus ensuring even wear on both pumps. If the level remains constant (within on/off points), alternation is based on runtime. If the level cycles the on/off points, alternation is based on level and runtime. If the run time is set to 0, alternation is based on level. The meter also keeps track of runtime for both pumps and the number of times they have cycled.

Display Pump Runtime & Cycle Count



The meter can display pump runtime for both pumps

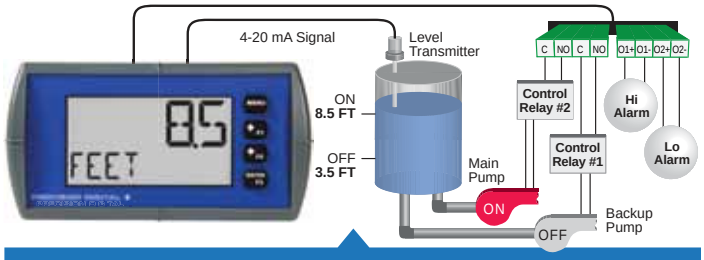


The meter can display the number of times the relays have cycled

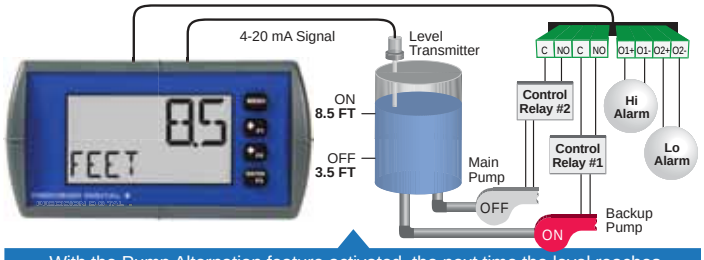
In addition to the two solid state relays for controlling pumps, the Loop Leaders two open collectors could be used to indicate high or low level alarm conditions.

Pump Alternation Application

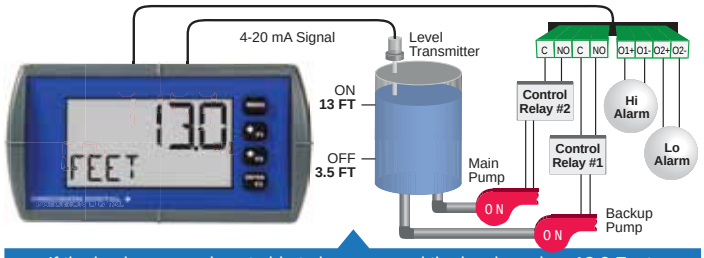
The Loop Leader can be used as a pump controller to alternate two pumps and provide high and low level alarm indication. The pumps can be programmed to alternate on level and run time and the meter can display the pump run times and the number of times they have cycled. The PD6606–L2N can be used as an intrinsically safe pump controller.



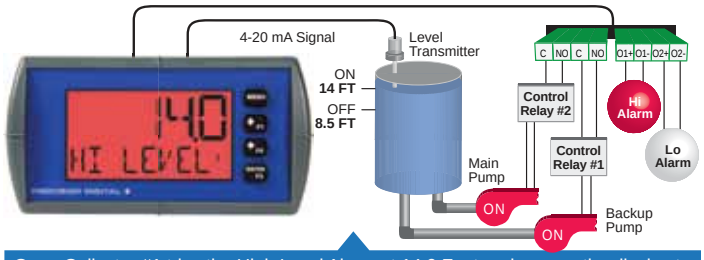
Relay #2 turns the main pump on at 8.5 Feet and turns it off at 3.5 Feet.



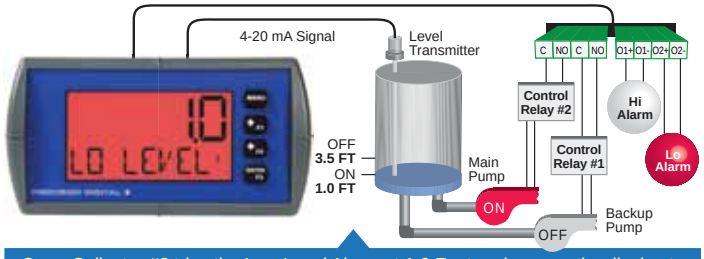
With the Pump Alternation feature activated, the next time the level reaches 8.5 Feet, relay #1 transfers and starts the backup pump.



If the backup pump is not able to keep up, and the level reaches 13.0 Feet, relay #2 transfers and starts the main pump as well.



Open Collector #1 trips the High Level Alarm at 14.0 Feet and causes the display to turn red and flash a HI LEVEL alarm message. The HI alarm resets at 8.5 Feet



Open Collector #2 trips the Low Level Alarm at 1.0 Foot and causes the display to turn red and flash a LO LEVEL alarm message. The LO alarm resets at 3.5 Feet

NEW FEATURE: Loop Leader displays pump runtime and number of cycles.

Loop-Powered Isolator for General Purpose & Hazardous Areas

The Loop Leader can be used as a loop-powered isolator for the 4-20 mA signal in both general purpose and hazardous areas with the added benefit of a digital readout to display the process variable.

EASY PROGRAMMING AND SETUP

Loop Leaders can be programmed and setup either by using the front panel buttons or free, PC-based software with USB interface.

Front Panel Buttons for Easy Setup, Programming, and Other Functions



Loop Leader process meters include four front panel buttons for setup and programming. The front panel buttons along with the dual-line display makes the Loop Leader easy to set up & program. Three of these buttons are also function keys that can be programmed to trigger certain events (i.e. acknowledge alarms, reset max and/or min, disable/enable output relays, or hold current relay states), provide direct menu access points, and more.

One feature that makes the Loop Leaders particularly easy to set up and program is that they can be scaled without applying a calibrated or known input. The user simply enters the desired values for Input 1 and Input 2 (for instance 4.000 and 20.00 mA) and the corresponding display values for these inputs (for instance 0.0 and 2000.0)



Input 1 is set to 4 mA



Display 1 is set to 0.0

Password Protection

A password can be set for programming security to prevent unauthorized changes to the programmed parameter settings.

APPROVALS

All versions of these instruments are CE marked. The hazardous area versions of these instruments are UL and C-UL Listed as intrinsically safe and nonincendive and ATEX and IECEx Certified for Intrinsic Safety in Hazardous Areas (Gas Atmospheres). These versions are also UL and C-UL Listed under the UL 61010-1 General Safety Standard.

One of the most useful aspects of the hazardous area approvals is that these instruments are approved by UL as nonincendive so they can be installed in Division 2 areas with no additional protective devices needed.

II 1G
Ex ia IIC T4 Ga
Ta = -40°C to +70°C

IECEx
Ex ia IIC T4 Ga
Tamb = -40°C to +70°C

CE 0518

c UL us LISTED

Class I, Division 1, Groups A, B, C and D T4
Class I, Division 2, Groups A, B, C and D T4
Ex ia IIC T4 (Canada); Class I Zone 0, Zone 1,
AEx ia IIC T4 (U.S.)
Class I Zone 2, Group IIC T4 (U.S.)
PROCESS CONTROL EQUIPMENT FOR USE
IN HAZARDOUS LOCATIONS

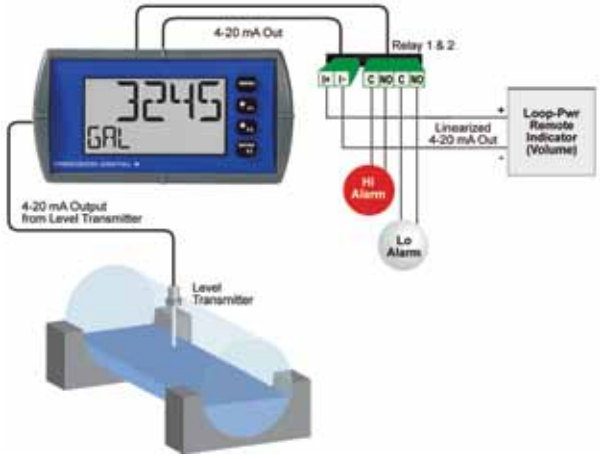
For Complete Details See Control Drawing LIM6600-2 at www.predig.com/PD6606

SIGNAL INPUT CONDITIONING

To satisfy applications that require scaling in ways other than the usual 2-point linear method, the Loop Leader can also be scaled for square root (DP flow), programmable exponent (open channel flow) or round horizontal tank volume calculation.

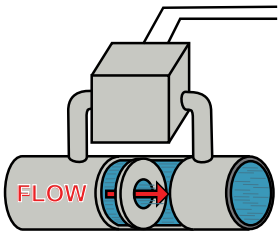
Round Horizontal Tank Linearization

This function automatically calculates the volume in a round horizontal tank with flat ends.



Square Root Linearization

The square root function can be used to linearize the signal from a differential pressure transmitter and display flow rate in engineering units.

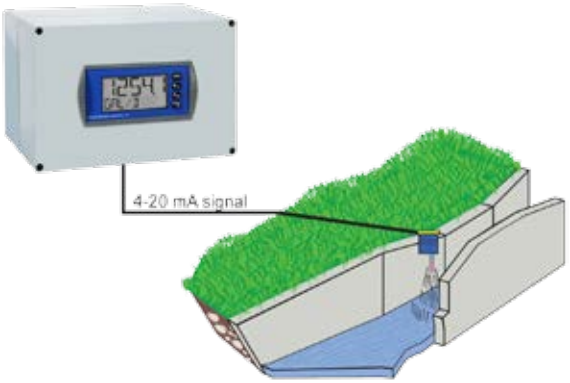


Multi-Point Linearization

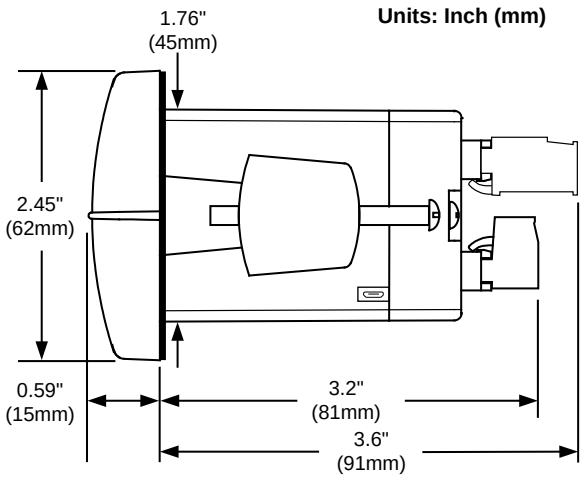
Meters are set up at the factory for linear function with 2-point linearization. Up to 32 linearization points can be selected for the scaled value under the linear function. Multi-point linearization can be used to linearize the display for non-linear signals to convert level to flow using weirs and flumes with complex exponent.

Programmable Exponent Linearization

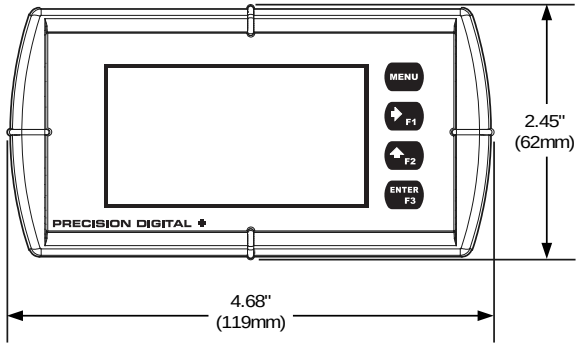
The programmable exponent can be used to linearize the signal from level transmitters in open-channel flow applications using weirs and flumes.



MOUNTING DIMENSIONS



▲ *Meter Dimensions - Side View*



▲ *Meter Dimensions - Front View*

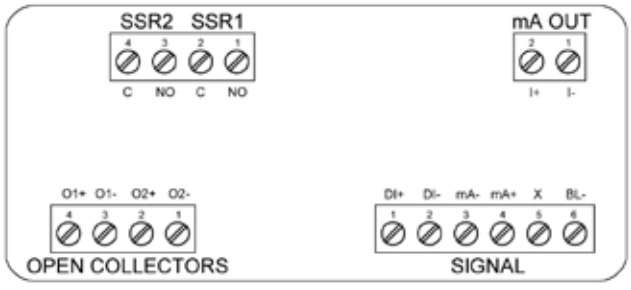
Notes:
1. Panel cutout required: 1.772" x 3.622" (45 mm x 92 mm)
2. Panel thickness: 0.040 - 0.250" (1.0 mm - 6.4 mm)
3. Mounting brackets lock in place for easy mounting
4. Clearance: Allow 6" (152 mm) behind the panel

See Website for 3D CAD Files
www.predig.com/documentation-cad

CONNECTIONS

Connectors Labeling

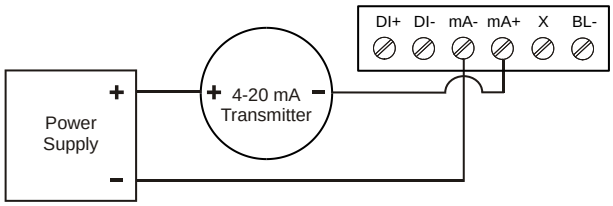
The connectors' label, affixed to the meter, shows the location of all connectors available with requested configuration.



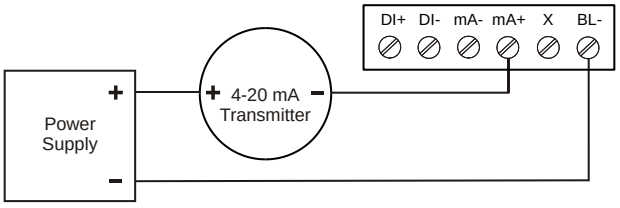
▲ *Connector Labeling for Fully Loaded Loop Leader*

Safe Area Input Loop (4-20 mA) Connections

The following figures show a 4-20 mA loop connected to the meter. The first figure shows the connection without the backlight and the second shows the connection with the backlight. The meter is powered by the 4-20 mA current loop.



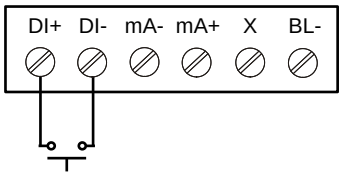
▲ *4-20 mA Input Connection without Backlight*



▲ *4-20 mA Input Connection with Backlight*

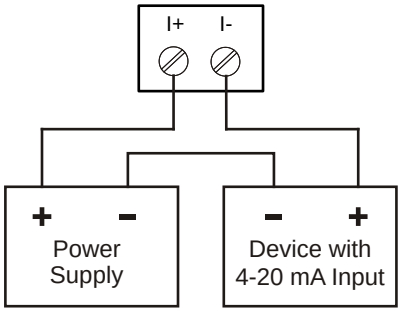
Safe Area Digital Input Connection

A digital input is standard on the meter. This digital input is connected with a normally open contact across DI+ and DI-, or with an active low signal applied to DI+.



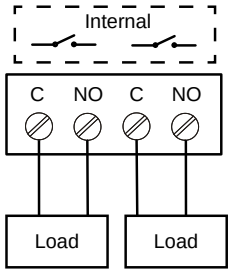
Safe Area 4-20 mA Output Connections

Connections for the 4-20 mA transmitter output are made to the connector terminals labeled mA OUT. The 4-20 mA output must be powered from an external power supply



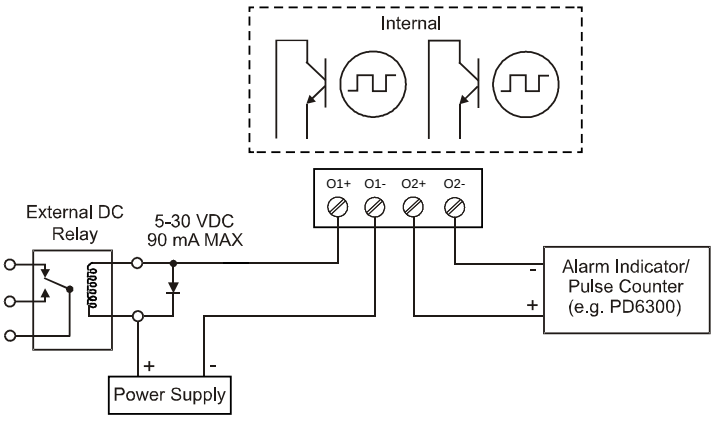
Safe Area Solid State Relay Connections

Relay connections are made to a four-terminal connector. Each relay's C terminal is common only to the normally open (NO) contact of the corresponding relay.



Safe Area Open Collector Outputs

Open collector output 1 and 2 connections are made to terminals labeled O1+ and O1-, and O2+ and O2-. Connect the alarm or pulse input device as shown below.



See Control Drawing LIM6600-2 for information on hazardous area wiring at www.predig.com/PD6606

NEMA 4 & 4X FIELD ENCLOSURES

Precision Digital offers a variety of rugged enclosures that provide a high degree of protection against harsh operating environments. Thermoplastic and stainless steel NEMA 4X, and painted steel NEMA 4 enclosures for up to 10 Loop Leader meters are available.

Low-Cost NEMA 4X Enclosures





NEMA 4X Enclosures are Available in Plastic and Stainless Steel; NEMA 4 Enclosures in Painted Steel



See Our Complete Offering and Enclosure Selection Utility at www.predig.com/esu

SPECIFICATIONS

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

Input

Input: 4-20 mA
Accuracy: ±0.02% of span ±1 count, Square root and programmable exponent: 10-100% FS
Voltage Drop: *Without Backlight:* 1.5 V maximum,
With backlight: 4.5 V maximum
Equivalent Resistance: *With backlight off:* 75 Ω @ 20 mA
With backlight on: 225 Ω @ 20 mA
Input Overload: Over current protection to 1 A maximum
Over voltage protection to 30 VDC max (mA+ and mA-/BL-)
Temperature Drift: 25 PPM/°C from -40 to 75°C ambient
Function: PV1: Linear, square root, or programmable exponent
PV2: Linear or Round Horizontal Tank
Low-Flow Cutoff: 0.0 to 999,999.9
HART Transparency: Analog input will not interfere with existing HART communications on the wired 4-20 mA signal.

Display

Display: Dual-line LCD with backlight. Both lines 14-segment alphanumeric. Top: 0.7" (17.8 mm), Bottom: 0.4" (10.2 mm). Display may be programmed to turn red and flash a user-defined message on alarm condition.
Backlight: Powered by 4-20 mA loop. Intensity varies with signal level
PD6602 & PD6606:
Top line: 5 digits (-9999 to 99999) or 5 characters (all capital & most lower case letters)
Bottom line: 8 digits (-9,999,999 to 99,999,999; separated by commas) or 8 characters (all capital & most lower case letters)
Bargraph: None
PD6603 & PD6607:
Top line: -99^{FT} 11^{IN} 15/16 to 999^{FT} 11^{IN} 15/16
Bottom line: 8 digits (-9,999,999 to 99,999,999; separated by commas) or 8 characters (all capital & most lower case letters)
Bargraph: 20 segments, numeric percent indication at top
PD6604 & PD6608:
Top line: 5 digits (-9999 to 99999) or 5 characters (all capital & most lower case letters)
Bottom line: 8 digits (-9,999,999 to 99,999,999; separated by commas) or 8 characters (all capital & most lower case letters)
Bargraph: 20 segments, numeric percent indication at top
Decimal Point & Commas:
Top line: Up to four decimal places
Bottom line: Up to seven decimal places and commas to indicate 1000s (e.g. 88,987,628)
Dual-Scale Feature: The input can be displayed in different scales on the top and bottom lines. For instance, the top line could display the input in height and the bottom line could display that same input in volume.
Alarm Indication: Red backlight, flashing display, alarm symbol (!) Symbols are not available on bargraph models. Bargraph segment flashes on alarm.
Alarm Message: On or Off; user programmable, 8 characters maximum. Displayed every 10 seconds for 1 second on bottom line.
Display Update Rate: Ambient > -10°C: 1 update/second
Ambient = -20 C: 1 update/2 seconds
From -20°C to -40°C the update rate slows down 1 second for every -2°C (e.g. at -24°C, 1 update/4 seconds).
Overrange: Top: 99999; Bottom: 99,999,999 (flashing)
Underrange: Top: -9999; Bottom: -9,999,999 (flashing)

MeterView XL Programming Software

MeterView XL System Requirements: Microsoft® Windows® 7 & 10
Communications: USB 2.0 (Standard USB A to Micro USB B)
Configuration: Configure meters one at a time
Configuration Files: Generate with or without meter connected. Save to file for later use.
USB Power Connection: Meter is powered by USB connection during programming.

Approvals (Select Models)

ATEX: II 1G, Ex ia IIC T4 Ga, Ta = -40°C to +70°C
Certificate number: CML 17ATEX2015X
IECEx: Ex ia IIC T4 Ga, Tamb = -40°C to +70°C
Certificate number: IECEx CML 17.0008X
UL & C-UL Listed as Intrinsically Safe and Nonincendive:
Class I, Division 1, Groups A, B, C and D T4
Class I, Division 2, Groups A, B, C and D T4
Ex ia IIC T4 (Canada); Class I Zone 0, Zone 1,
AEx ia IIC T4 (U.S.)
Class I Zone 2, Group IIC T4 (U.S.)
PROCESS CONTROL EQUIPMENT FOR USE IN HAZARDOUS LOCATIONS
UL & C-UL 61010 Listed for Electrical Safety and Type 4X Environmental:
Standards for Safety:
IEC 61010-1:2010 (3rd Edition);
UL 61010-1, 3rd Edition;
CAN/CSA-C22.2 No. 61010-1-12, 3rd Edition;
Additional Standards:
UL 50E

General

Environmental: *Operating temperature range:*
-40 to 75°C for safe area products
-40 to 70°C for hazardous area products
Storage temperature range: -40 to 85°C
Relative humidity: 0 to 90% non-condensing. Printed circuit boards are conformally coated.
Programming Method: Front panel & Free PC-based USB programming software
Enclosure & Materials: Enclosure: 1/8 DIN, IP65, NEMA 4X front panel, high impact plastic, NORYL® polyphenylene ether & polystyrene blend (PPE PS) resin, UL 94V-0, Color: gray, Gasket: silicone rubber, Faceplate: LEXAN® polycarbonate (PC) film, Buttons: silicone rubber
Noise Filter: Averages the input signal over a period of time between 1 and 16 seconds to dampen the effects of a noisy signal that causes a jumpy display.
Filter Bypass: 0.0 to 99.9% of full scale. Input signal changes greater than bypass value are displayed immediately.
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.
Tare: Zeros out display
Password: Programmable password restricts modification of programmed settings.
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
Connections: Removable screw terminals accept 12 to 22 AWG wire.
DI Digital Input Contacts: 2.1 VDC on contact. Connect normally open contacts across DI+ and DI-
DI Digital Input Logic Levels: Logic High: 2.4 to 30 VDC (max)
Logic Low: 0 to 0.9 VDC
Tightening Torque: *Screw terminal connectors:* 4.5 lb-in (0.5 Nm)
Mounting screws: 8.0 lb-in max. (0.9 Nm)
Overall Dimensions: 4.68" x 2.45" x 3.79"
(119 mm x 62 mm x 96 mm) (W x H x D)
Weight: 8.7 oz (247g) with option board
Warranty: 3 years parts and labor



Try our convenient meter selection utility for all models at www.predig.com/msu

Common Open Collector & Relay (Alarm) Specifications

High or Low Alarm: User programmable for high or low alarm
Alarm Deadband: 0-100% FS, user programmable
On & Off Time Delay: 0 to 9,999 seconds
Fail-Safe Operation: Independent for each open collector and relay
Fail-safe: on, the output is on under normal conditions
Fail-safe: off, the output is on under alarm conditions
Alarm Operation: Automatic, Automatic with manual override, Latching (manual reset anytime), Latching with reset after cleared (manual reset only after alarm has cleared)
Alarm Indication: Red backlight, flashing display, alarm symbol (!) (symbols not available on bargraph models) Bargraph segment flashes on alarm.
Alarm Message: On or Off; User programmable, 8 characters maximum. Displayed every 10 seconds for 1 second on bottom line
Alarm Acknowledge: Front panel ACK button or external digital input resets output and screen indication
Auto Initialization: When power is applied to the meter, open collectors and relays will reflect the state of the input to the meter
Timer Output: One-shot or Continuous
Off Time Delay: 1 sec to 99:59:59 (hrs:min:sec)
On Time: 1 sec to 99:59:59 (hrs:min:sec)
Stopwatch: Output turns on when started and off when stopped

Open Collector Outputs

Rating: Two NPN, Isolated open collector, 5-30 VDC @ 150mA max
Output Assignment: Pulse, Alarm, Timer, Stopwatch on/off, or Disable
Pulse Output Source: PV (PV1, PV2) or Test Frequency
Pulse Output Factor: 0.000001 to 999,999.9
Pulse Width: 0.5 ms @ 1 kHz; 500 ms @ 1 Hz; 50% duty cycle
Pulse Output Frequency: 1,000 Hz maximum
Quadrature Pulse Output: Available for Output 2 (90° behind Output 1)
Alarm Output Source: Assign to PV (PV1, PV2) or Digital Input

Solid State Relays

Rating: 250 VAC/VDC @ 1A resistive
75VA; 250VAC; 0.6A pilot duty (inductive) – UL Code D300
25VA; 250VDC; 0.6A pilot duty (inductive) – UL Code R300
Noise Suppression: Metal oxide varistors across outputs
Relay Assignment: Pump Alternation, Alarm, Timer, Stopwatch on/off, or Disable
Alarm Output Source: Assign to PV (PV1, PV2) or Digital Input
Pump Alternation: Relays will alternate with each pump cycle and alternation can be based on elapsed time. Pump alternation time can be programed for: 0 to 999:59 (hrs:min)
Relay (Pump) Runtime: Meter will keep track of how long each relay (pump) has operated and display this information
Relay (Pump) Cycles: Meter will keep track of how many times the relays (pumps) have cycled and display this information

4-20 mA Transmitter Output

Accuracy: ±0.05% FS ±0.001mA
Output Source: PV1, PV2, re-transmit; reverse scaling allowed
Scaling Range: 1.00 to 23.0 mA
Disable: High impedance state, less than 1 mA
Calibration: Factory calibrated 4.00 to 20.00 mA
Underrange: 1.0 mA, 3.5 mA, or 3.8 mA (If input < 3.5 mA), or Off; user selectable
Overrange: 20.5 mA, 20.8 mA, or 23.0 mA (If input > 20.5 mA), or Off; user selectable
Isolation: 500 V input-to-output
Temperature Drift: 0.5 µA/°C max from -40 to 75°C ambient
External Loop Power Supply: 7.0 VDC to 30.0 VDC maximum
Output Loop Resistance: 10-750 Ω @ 24 VDC; 100-1100 Ω @ 30 VDC

FREE SIMPLE TO USE METERVIEW XL PROGRAMMING SOFTWARE

Free, PC-based, MeterView XL software that connects to the meter via a micro USB cable is available for programming and setup of the meters. This software greatly simplifies the programming process and also allows the user to save configuration files for later use. The meter will also be powered by the USB connection so no additional power is needed during programming.

- Free PC-Based USB Programming Software
- Easy Programming of Features Packed Product
- USB Connection Provides Power During Programming
- Save & Print Configuration Files without Meter Connected
- Micro USB Cable Provided





▲ The main screen displays an image of the connected meter and includes various information about this meter, such as model number, readings, and status.



▲ The Relay Output window is used to assign a specific task to the 2 relays such as alarm, sample, timer, stopwatch, or off. A custom message that will flash every 10 seconds can also be added.



▲ The Input/Scale window is used to:

FUNCTION	THIS METER
Set the input	4-20 mA
Enable/disable the totalizer	Totalizer enabled
Enable/disable the dual-scale feature	Dual scale disabled
Scale the input	Linear input, unit is gallons, 2 cal points, 4-20 mA = 0-100 GAL



▲ The 4-20 mA Output window is used to program the isolated 4-20 mA output's source, range, and under and over range values.

PD6600 Series Loop Leader Loop-Powered Process Meter

ORDERING INFORMATION

General Purpose Instruments

Loop Leader PD6602 Standard Decimal Models – General Purpose	
Model	**Description**
PD6602–LNN*	Loop-Powered, General Purpose, No Options
PD6602–L2N	Loop-Powered, General Purpose, Two Solid State Relays
PD6602–L3N	Loop-Powered, General Purpose, 4-20 mA Analog Output
PD6602–L5N*	Loop-Powered, General Purpose, Two Solid State Relays and 4-20 mA Analog Output

Loop Leader PD6603 • Feet & Inches Models – General Purpose	
Model	**Description**
PD6603–LNN*	Loop-Powered, General Purpose, Feet & Inches, No Options
PD6603–L2N	Loop-Powered, General Purpose, Feet & Inches, Two Solid State Relays
PD6603–L3N	Loop-Powered, General Purpose, Feet & Inches, 4-20 mA Analog Output
PD6603–L5N	Loop-Powered, General Purpose, Feet & Inches, Two Solid State Relays and 4-20 mA Analog Output

Loop Leader PD6604 • Decimal/Bargraph Models – General Purpose	
Model	**Description**
PD6604–LNN*	Loop-Powered, General Purpose, Bargraph, No Options
PD6604–L2N	Loop-Powered, General Purpose, Bargraph, Two Solid State Relays
PD6604–L3N	Loop-Powered, General Purpose, Bargraph, 4-20 mA Analog Output
PD6604–L5N	Loop-Powered, General Purpose, Bargraph, Two Solid State Relays and 4-20 mA Analog Output

Hazardous Area Instruments

Loop Leader PD6606 Standard Decimal Models – Hazardous Area	
Model	**Description**
PD6606–LNN*	Loop-Powered, Hazardous Area, No Options
PD6606–L2N	Loop-Powered, Hazardous Area, Two Solid State Relays
PD6606–L3N	Loop-Powered, Hazardous Area, 4-20 mA Analog Output
PD6606–L5N*	Loop-Powered, Hazardous Area, Two Solid State Relays and 4-20 mA Analog Output

Loop Leader PD6607 • Feet & Inches Models – Hazardous Area	
Model	**Description**
PD6607–LNN*	Loop-Powered, Hazardous Area, Feet & Inches, No Options
PD6607–L2N	Loop-Powered, Hazardous Area, Feet & Inches, Two Solid State Relays
PD6607–L3N	Loop-Powered, Hazardous Area, Feet & Inches, 4-20 mA Analog Output
PD6607–L5N	Loop-Powered, Hazardous Area, Feet & Inches, Two Solid State Relays and 4-20 mA Analog Output

Loop Leader PD6608 • Decimal/Bargraph Models – Hazardous Area	
Model	**Description**
PD6608–LNN*	Loop-Powered, Hazardous Area, Bargraph, No Options
PD6608–L2N	Loop-Powered, Hazardous Area, Bargraph, Two Solid State Relays
PD6608–L3N	Loop-Powered, Hazardous Area, Bargraph, 4-20 mA Analog Output
PD6608–L5N	Loop-Powered, Hazardous Area, Bargraph, Two Solid State Relays and 4-20 mA Analog Output

Notes:
1. All models come with two open collector outputs standard.
2. *Quick Shipment Program product, typically ships within 2 working days.
3. General Purpose Instruments are CE marked only.
4. Hazardous Area Instruments are UL Listed for both hazardous areas and general electrical safety and ATEX and IECEx certified as intrinsically safe.

Enclosures	
Model	**Description**
PDA2301	NEMA 4X Plastic Enclosure
PDA2501	Plastic NEMA 4X Enclosure
PDA2601	Stainless Steel NEMA 4X Enclosure
PDA2701	Painted Steel NEMA 4 Enclosure
PDA2801	Low-Cost Plastic NEMA 4X Enclosure
PDA3407	Internally Mount NEMA 4X Plastic Enclosure

Your Local Distributor is:

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