

PD662 Survivor NEMA 4X Loop-Powered Process Meter

Instruction Manual



Survivor



- NEMA 4X, IP66 Loop-Powered Field-Mount Process Meter
- 4-20 mA Input
- 1.7 Volt Drop (3.7 Volt Drop with Backlight)
- Easy Field Scaling in Engineering Units without Applying an Input
- 0.6" (15.2 mm) 3½+ Digits LCD Display; -1999 to 2999
- HART® Protocol Transparent
- Loop-Powered Backlight
- CSA Certified Operating Temperature Range: -40 to 75°C (-40 to 167°F)
- Four Internal Buttons for Easy Field Scaling
- Max/Min Display
- Programmable Noise Filter
- 32-Point Linearization & Square Root Extraction
- Plastic NEMA 4X, IP66 Enclosure
- Conformal Coated PCBs for Dust and Humidity Protection
- One 1/2" Conduit Hole in Enclosure
- Stainless Steel Pipe & Panel Mounting Kits Available
- Stainless Steel Tag Available
- 3-Year Warranty

PRECISION DIGITAL CORPORATION

233 South Street • Hopkinton MA 01748 USA
Tel (800) 343-1001 • (508) 655-7300

www.predig.com

**PRECISION
DIGITAL**

Disclaimer

The information contained in this document is subject to change without notice. Precision Digital Corporation makes no representations or warranties with respect to the contents hereof; and specifically disclaims any implied warranties of merchantability or fitness for a particular purpose.

CAUTION

- Read complete instructions prior to installation and operation of the meter.

WARNINGS

- Risk of electric shock or personal injury
- This product is not recommended for life support applications or applications where malfunctioning could result in personal injury or property loss. Anyone using this product for such applications does so at his/her own risk. Precision Digital Corporation shall not be held liable for damages resulting from such improper use.
- Failure to follow installation guidelines could result in death or serious injury. Make sure only qualified personnel perform the installation.

WARNING

Cancer and Reproductive Harm - www.P65Warnings.ca.gov

Limited Warranty

Precision Digital Corporation warrants this product against defects in material or workmanship for the specified period under "Specifications" from the date of shipment from the factory. Precision Digital's liability under this limited warranty shall not exceed the purchase value, repair, or replacement of the defective unit. See Warranty Information and Terms & Conditions on www.prediq.com for complete details.

© 2024 Precision Digital Corporation.
All rights reserved.

Introduction

The PD662 NEMA 4X, CSA Certified loop-powered meter is perfect for applications where a simple, inexpensive display is required, and AC power is not available. The PD662 derives all its power from the 4-20 mA loop, including its backlight feature. It can be easily scaled in the field using four push buttons; with or without applying an actual calibration signal. The PD662's display will read up to 2999; we call this 3½+ digits! The PD662 is housed in a rugged NEMA 4X enclosure and is provided with one ½" NPT pipe conduit hole.

Ordering Information

Model	Description
PD662-0K0-00	Field-Mount Loop-Powered Process Meter with Backlight

Accessories

Model	Description
PDA1024-01	24 VDC Power Supply for DIN Rail
PDA6624	Panel Mounting Kit. (1) Plastic Mounting Plate, (4) Self-Tapping Screws, (4) Mounting Brackets, (12) Washers
PDA6845-SS	Stainless Steel 2" Pipe Mounting Kit. All Material: Stainless Steel; (1) 13 Gauge Mounting Plate, (2 each) Bolts, Washers, Lock Washers & Nuts to Mount Meter to Plate, (1) U-Bolt and (2 each) Washers, Lock Washers & Nuts to Mount Plate to Pipe.
PDA-SSTAG	Custom Stainless Steel Tag (see website for convenient ordering form)

Accessories

PDA1024-01 24 VDC Power Supply



The [PDA1024-01](#) is a DIN rail mounted 1.5 A, 24 VDC power supply that can be used to power the 4-20 mA transmitter.

PDA6845-SS 2" Pipe Mounting Kit



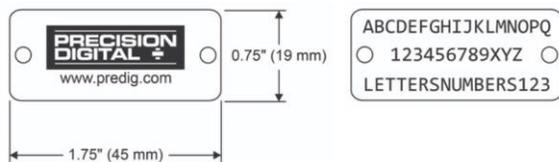
The [PDA6845-SS](#) 2" Stainless Steel Pipe Mounting Kit provides a convenient way to mount the PD662 to 1.5" or 2" pipes.

PDA-SSTAG Stainless Steel Tag

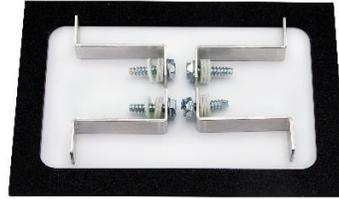


The [PDA-SSTAG](#) is a laser etched stainless steel tag that can be customized with three lines of text. Each tag comes with a stainless steel wire and lead seal for easy mounting wherever you need.

Dimensions



PDA6624 Panel Mounting Kit



The [PDA6624](#) Panel Mounting Kit provides a convenient way to mount Precision Digital's model PD662 in a panel. All the necessary hardware is provided, and installation is a quick and easy process. It is important to note that this panel mounting kit does not provide a NEMA 4X seal to the panel.

Useful Tools

PD9501 Multi-Function Calibrator



This [PD9501](#) Multi-Function Calibrator has a variety of signal measurement and output functions, including voltage, current, thermocouple, and RTD.

PD9502 Low-Cost Signal Generator



The [PD9502](#) is a low-cost, compact, simple to use 4-20 mA or 0-10 VDC signal generator. It can easily be set for 0-20 mA, 4-20 mA, 0-10 V or 2-10 V ranges. Signal adjustment is made with a one-turn knob. A 15-27 VDC wall plug is provided with the instrument. Optional USB power bank is available.

Table of Contents

Introduction.....	2
Ordering Information.....	2
Accessories	3
Useful Tools	3
Specifications	6
General.....	6
Input	6
Compliance Information.....	7
Safety	7
Electromagnetic Compatibility.....	7
EU Declaration of Conformity.....	7
Safety Information	8
PDA-SSTAG Stainless Steel Tag.....	8
Installation.....	9
Unpacking.....	9
Dimensions.....	9
Mounting.....	10
PDA6845-SS Pipe Mounting Kit.....	10
Mounting Instructions.....	10
Contents	10
PDA6624 Panel Mounting Kit.....	10
Mounting Instructions.....	10
Contents	10
Connections	11
Wiring Diagrams.....	11
Setup and Programming.....	12
Overview	12
Front Panel Buttons	12
Setting Numeric Values	12
Programming the Meter	12
Main Menu.....	12
Main Menu Display Functions & Messages	13
Minimum Input Span	13
Setting the Decimal Point (dP)	13
Number of Points (nPt)	13
Scaling the Meter (SL).....	14
Calibrating the Meter (RL)	14
Advanced Features Menu.....	15
Advanced Features Menu & Display Messages.....	15
Input Signal Conditioning Function (Fnc)	15
Linear (Lnr)	15
Square Root (Sqr)	15
Information Menu (Inf).....	15
Input Signal Filter (FIL).....	15
Internal Calibration (IRL).....	16
Error Message (Err).....	16
Operation.....	16
Front Panel Buttons Operation	16
Maximum & Minimum Readings (Hl & Ll).....	17
Reset Meter to Factory Defaults.....	17
Factory Default & User Settings.....	18
Troubleshooting	18
Troubleshooting Tips.....	18
Quick User Interface Reference Guide	19

Table of Figures

Figure 1. Case Dimensions – Front View.....	9
Figure 2. Case Dimensions – Side View	9
Figure 3. Case Dimensions – Bottom View	9
Figure 4. Location of Captive Screws and Programming Buttons.....	11
Figure 5. PD662-0K0-00 Mounting Board Rear View	11
Figure 6. PD662 Input Connections Without Backlight Enabled	11
Figure 7. PD662 Input Connections With Backlight Enabled.....	11

Specifications

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

General

Display	0.6" (15.2 mm) LCD, 3½+ digits; -1999 to 2999
Display Update Rate	2 Updates/Second
Backlight	Orange; Loop-powered. Backlight can be enabled or disabled via alternative wiring of terminal block. Loop-powered backlight brightness will increase as the input signal current increases.
Display Overrange	Display flashes 2999
Display Underrange	Display flashes - 1999
Programming Method	Four internal pushbuttons
Noise Filter	Programmable H I, LO, 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.
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
Environmental	Operating temperature for CSA certification: -40 to 75°C Functional temperature range: -40 to 85°C Storage temperature range: -40 to 85°C Relative humidity: 0 to 90% non-condensing Printed circuit boards are conformally coated.
Connections	Removable screw terminals accept 12 to 22 AWG wire
Enclosure	Impact resistant polyester plastic, body gray, cover clear with blue faceplate; NEMA 4X, IP66; ½" conduit hole provided at base.
Mounting	½" NPT pipe (0.865 in, 12.7 mm) conduit hole on bottom of enclosure. 0.166 in (4.2 mm) wall mounting holes located behind front cover screws. See <i>Dimensions</i> on page 9.
Tightening Torque	Screw terminal connectors: 4.5 lb-in (0.5 Nm)
Overall Dimensions	4.33" x 3.15" x 2.76" (110 mm x 80 mm x 70 mm) (W x H x D)
Weight	10.4 oz (295 g)
Warranty	3 years parts and labor. See Warranty Information and Terms & Conditions on www.predig.com for complete details.

Input

Input	4-20 mA	
Accuracy	±1 count	
Maximum Voltage Drop & Equivalent Resistance	Without Backlight	With Loop-Powered Backlight
	1.7 VDC @ 20 mA 85 Ω @ 20 mA	3.7 VDC @ 20 mA 185 Ω @ 20 mA
Function	Linear (2 to 32 points) or square root	
Temperature Drift	50 PPM/°C from -40 to 85°C ambient	
Decimal Point	User selectable decimal point	
Minimum Span	Input 1 & Input 2: 0.40 mA	
Calibration Range	An <i>Error</i> message will appear if input 1 and input 2 signals are too close together.	
	Input Range	Minimum Span Input 1 & Input 2
	4-20 mA	0.40 mA
Input Overload	Over current protection to 2 A max.	
HART Transparency	The meter does not interfere with existing HART communications; it displays the 4-20 mA primary variable and it allows the HART communications to pass through without interruption. The meter is not affected if a HART communicator is connected to the loop. The meter does not display secondary HART variables	

Compliance Information

Safety

CSA Certified	U.S. & Canada 2252 05 – Process Control Equipment 2252 85 – Process Control Equipment, U.S. Standards
CSA File Number	2282691
CSA Applicable Requirements	CAN/CSA C22.2 No. 61010-1-04 Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use – Part 1: General Requirements UL 61010-1 Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use – Part 1: General Requirements
Low Voltage Directive	EN 61010-1 Safety requirements for measurement, control, and laboratory use IEC 61010-1 Safety requirements for measurement, control, and laboratory use

Electromagnetic Compatibility

EMC Emissions & Immunity	EN 61326-1 EMC requirements for Electrical equipment for measurement, control, and laboratory use – Industrial
-------------------------------------	---

EU Declaration of Conformity

For shipments to the EU and UK, a Declaration of Conformity was printed and included with the product. For reference, a Declaration of Conformity is also available on our website www.predig.com/docs.

Safety Information

⚠ CAUTION

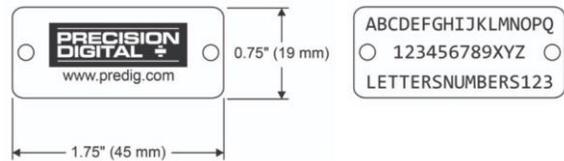
- The equipment shall be installed by qualified personnel in accordance with applicable local and national regulations (e.g. CEC, NEC, FCC, SCC, etc).
- Follow all safety and operation guidelines in this manual. If the meter is used in a manner not recommended by the manufacturer, the overall safety will be impaired.
- Installation and service should be performed only by trained service personnel.
- This unit is not suitable for hazardous locations such as potentially explosive zones or locations.
- No user replaceable parts inside. All service shall be performed at the factory.
- Do not disconnect and reconnect cables during a lightning storm.
- Suitable surge suppressor (e.g. lightning protection) shall be provided in end application installation.

PDA-SSTAG Stainless Steel Tag



The PDA-SSTAG is a laser etched stainless steel tag that can be customized with three lines of text. Each tag comes with a stainless steel wire and lead seal for easy mounting wherever you need.

Dimensions



Ordering Guide

PDA-SSTAG	Custom Stainless Steel Tag (see website for convenient ordering form)
---------------------------	--

When ordering custom tags, enter your custom text in the available form located at predig.com/PDA-SSTAG or [click here to download the Stainless Steel Tag Order Form](#).

Installation

All pushbuttons and wiring connectors are accessed by opening the NEMA 4X enclosure by removing the four captive screws that secure the cover.

The four holes to mount the PD662 to either a wall or the pipe-mounting kit are accessed by removing the four captive screws that secure the cover.

CAUTION

- The unit shall be installed in a way that will prevent any accidental contact of the internal meter circuits and power supply lines.
- Cable suitable for outdoor use and a CSA Approved gland rated 4X, or a suitable conduit and a CSA Approved connector rated 4X, is intended to be used in final installation.
- Metallic conduit shall be reliably bonded to protective earth/ground without creating any ground loop.

Unpacking

Remove the meter from box. Inspect the packaging and contents for damage. Report damages, if any, to the carrier.

If any part is missing or the meter malfunctions, please contact your supplier or the factory for assistance.

Dimensions

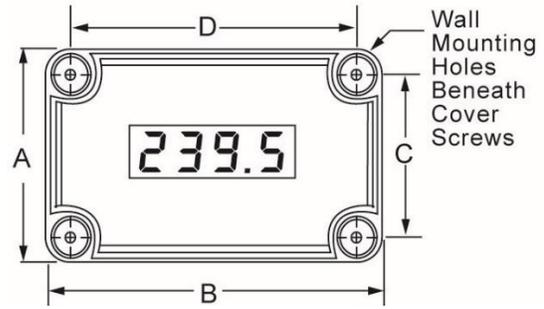


Figure 1. Case Dimensions – Front View

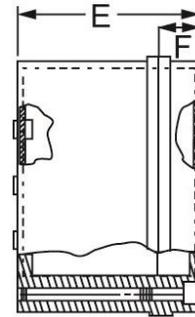


Figure 2. Case Dimensions – Side View

A: 3.15 in (80 mm)	B: 4.33 in (110 mm)	C: 2.44 in (62 mm)
D: 3.62 in (92 mm)	E: 2.76 in (70 mm)	F: 0.79 in (20 mm)

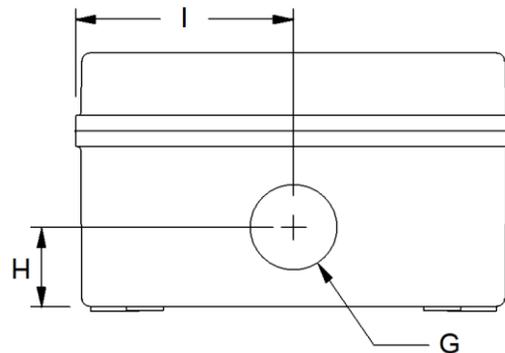


Figure 3. Case Dimensions – Bottom View

G: 0.87 in (22 mm)	H: 0.80 in (20 mm)	I: 2.17 in (55 mm)
------------------------------	------------------------------	------------------------------



Download free 3-D CAD files of these instruments to simplify your drawings!

predig.com/documentation-cad

Mounting

The PD662 can be wall-mounted, panel-mounted, or attached to a 1.5" or 2" pipe. A 1/2" NPT pipe conduit hole is provided for bringing in field wiring. The PD662 is wall-mounted using the mounting holes beneath the cover screws. It is panel-mounted using the PDA6624 panel mounting kit. The PDA6624 does not provide a NEMA 4X seal to the panel. The PD662 is mounted to 1.5" and 2" pipes using the PDA6845-SS pipe-mount kit.

Refer to *Figure 1* and *Figure 2* for details on wall or panel space requirements.

PDA6845-SS Pipe Mounting Kit



The PDA6845-SS pipe mounting kit may be used to mount a PD662 to a 1.5" or 2" pipe. The kit includes a mounting panel with a 2" U-bolt and all necessary mounting hardware.

Mounting Instructions

1. Attach the mounting plate to the PD662 with the provided hardware. The holes for the enclosure or meter mounting bolts are accessed by removing the enclosure lid.
2. Mount the plate to the pipe with the provided U-bolt and hardware.

Contents

- One 13 gauge stainless steel mounting plate
- Two (each) bolts, washers, lock washers & nuts to mount PD662 to plate
- One U-bolt and two (each) washers, lock washers & nuts to mount plate to pipe



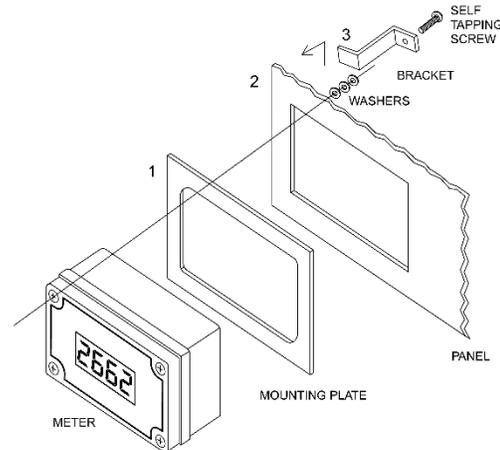
PDA6624 Panel Mounting Kit



The PDA6624 Panel Mounting Kit provides a convenient way to mount Precision Digital's model PD662 in a panel. All the necessary hardware is provided, and installation is a quick and easy process. It is important to note that this panel mounting kit does not provide a NEMA 4X seal to the panel.

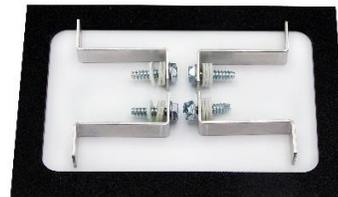
Mounting Instructions

1. Prepare panel cutout per dimensions: 4.25" x 3.07" (108 x 78)
2. Insert the meter through the mounting plate.
3. Insert assembly through panel cutout.
4. Secure with four brackets and four screws at corners of the meter. Use washers as needed to allow for panel thickness.



Contents

- One plastic mounting plate
- Four self-tapping screws
- Four mounting brackets
- Twelve washers



Connections

To access the wiring connector, remove the enclosure cover and unscrew the two captive thumb-screws on the standoff mounting board. See *Figure 4* for location of these screws. Remove the meter assembly from the enclosure.

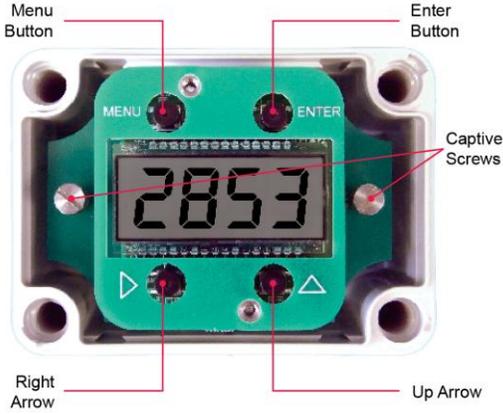


Figure 4. Location of Captive Screws and Programming Buttons

Signal connections are made to a three-terminal removable connector. The signal wiring terminal block is on the rear of the meter assembly.

S+	4-20 mA signal positive terminal connection
S-	4-20 mA signal return/negative terminal connection
B-	4-20 mA signal return/negative terminal when using the installed loop powered backlight.

Refer to *Figure 5* for terminal positions on the rear of the mounting board inside the meter enclosure.

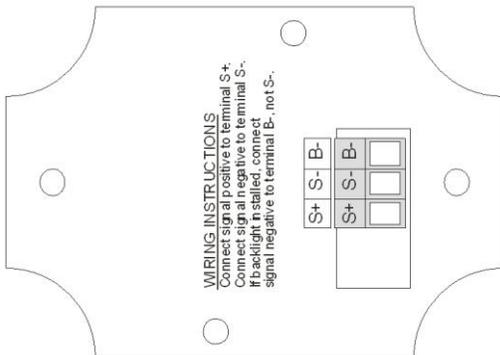


Figure 5. PD662-0K0-00 Mounting Board Rear View

Wiring Diagrams

Input Signal connections are made to a three-terminal connector labeled S+|S-|B-. The 4-20 mA input with no backlight has a maximum voltage drop of 1.7 V and is wired as shown in *Figure 6*.

The loop-powered backlight configuration requires a total maximum voltage drop of 3.7 V. The backlight is recommended for dim lighting conditions and is enabled when wired as shown in *Figure 7*.

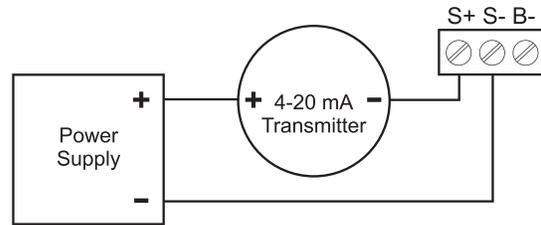


Figure 6. PD662 Input Connections Without Backlight Enabled

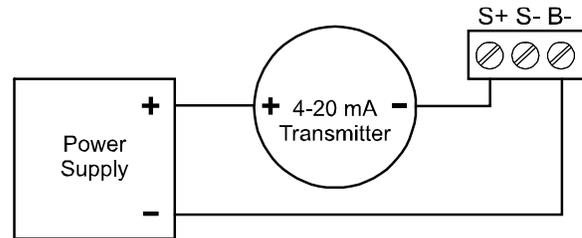


Figure 7. PD662 Input Connections With Backlight Enabled

Setup and Programming

- There is **no need to recalibrate** the meter for milliamps when first received from the factory.
- The meter is **factory calibrated** for milliamps prior to shipment. The calibration equipment is certified to NIST standards.

Overview

There are no jumpers involved in the setup process of the meter. Setup and programming is done through the front panel buttons. After all connections have been completed and verified, apply power to the loop.

For a *Quick User Interface Reference Guide* see page 19.

Front Panel Buttons



Button/Symbol	Description
MENU	Menu button to enter programming mode. Press and hold for 5 seconds to access the <i>Advanced Features</i> of the meter.
ENTER	Enter button to access a menu or accept a setting.
▶	Right arrow to scroll through the menus or move to the next digit or decimal position during programming. Displays the Max then Min display values when pressed during normal run mode.
▲	Up arrow to scroll through the menus, decimal point, or to increment the value of a digit. Resets the Max and Min display value when pressed during normal run mode.

Setting Numeric Values

The numeric values are set using the **Right** and **Up** arrow buttons. Press **Right** arrow to select next digit and **Up** arrow to increment digit.

The left-most digit on the display can show a “-1”, “0”, “1” or “2”. The digit being changed flashes.

Press the **Enter** button, at any time, to accept a setting or **Menu** button to exit without saving changes.

The decimal point is set using the **Right** or **Up** arrow button in the *Setup-decimal point* menu.

Programming the Meter

It is **very important** to read the following information, before proceeding to program the meter:

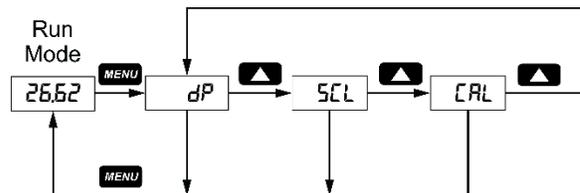
- There is **no need to recalibrate** the meter for milliamps when first received from the factory.
- The meter is **factory calibrated** for milliamps prior to shipment. The calibration equipment is certified to NIST standards.
- Use the *Scale (SCL)* menu to enter scale parameters without applying a live signal.
- Alternatively, use the *Calibrate (CRL)* menu to apply a signal from a calibrator or a 4-20 mA transmitter to calibrate the meter.

Inputs may be calibrated or scaled to any display within the range of the meter.

Additional parameters, not needed for most applications, are viewed and programmed with the *Advanced Features* menu, see *Advanced Features Menu* on page 15.

Main Menu

The main menu consists of the most commonly used functions: *Decimal Point Location*, *Scale*, and *Calibration*.



- Press **Menu** button to enter Programming Mode then press the **Up** arrow button to scroll main menu.
- Press **Menu**, at any time, to exit and return to Run Mode. Changes made to settings prior to pressing **Enter** are not saved.
- Changes to the settings are saved to memory only after pressing **Enter**.
- The display moves to the next menu every time a setting is accepted by pressing **Enter**.

Main Menu Display Functions & Messages

The meter displays various functions and messages during setup, programming, and operation. The following table shows the main menu functions and messages in the order they appear in the menu.

Display	Parameter	Action/Setting
d ^P	Decimal point	Set decimal point
5[L	Scale	Enter the Scale menu
n ^{Pt}	Number of Points	Set number of linearization points
i ¹	Scale Input 1	Input signal 1 value (mA)
d ¹	Scale Display 1	Scaled value for input 1
i ²	Scale Input 2	Input signal 2 value (mA)
d ²	Scale Display 2	Scaled value for input 2
[RL	Calibrate	Enter the Calibrate menu
n ^{Pt}	Number of Points	Set number of linearization points
i ¹	Calibrate Input 1	Read input signal 1
d ¹	Calibrate Display 1	Enter value for input 1
i ²	Calibrate Input 2	Read input signal 2
d ²	Calibrate Display 2	Enter value for input 2

Minimum Input Span

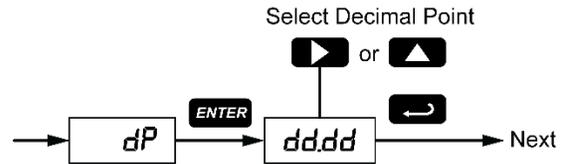
The minimum input span is the minimum difference between input 1 and input 2 signals required to complete the calibration or scaling of the meter. The minimum span is 0.40 mA.

If the minimum span is not maintained, the meter reverts to input 2, allowing the appropriate input signals to be applied.

Setting the Decimal Point (d^P)

A decimal point may be set in any of three positions: 1.999, 19.99, 199.9. It may also be turned off: 1999

Pressing the **Right** or **Up** arrow moves the decimal point one place to the right until no decimal point is displayed, then it moves to the left most position.



Number of Points (n^{Pt})

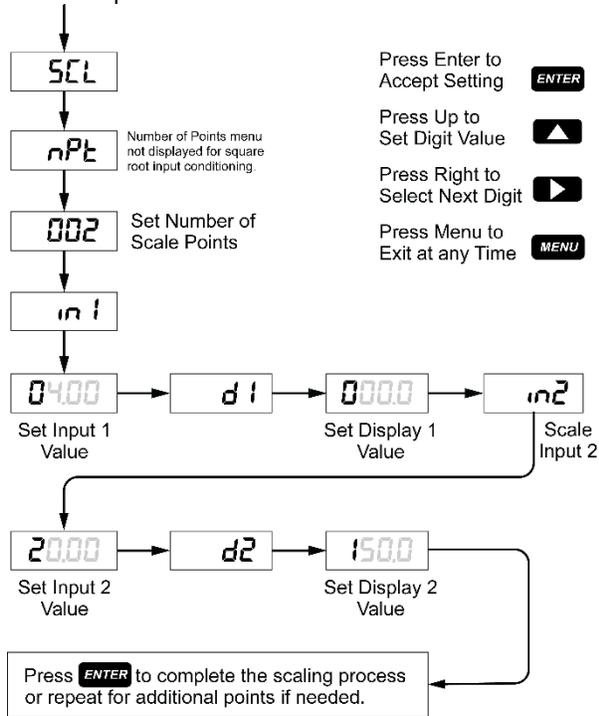
Set the number of linearization points used in the Scale menu. 2 to 32 points may be used. The Scale menu is entered after entering the number of points.

Scaling the Meter (SCL)

The 4-20 mA input can be scaled to display the process in engineering units.

A signal source is not needed to scale the meter; simply program the inputs and corresponding display values.

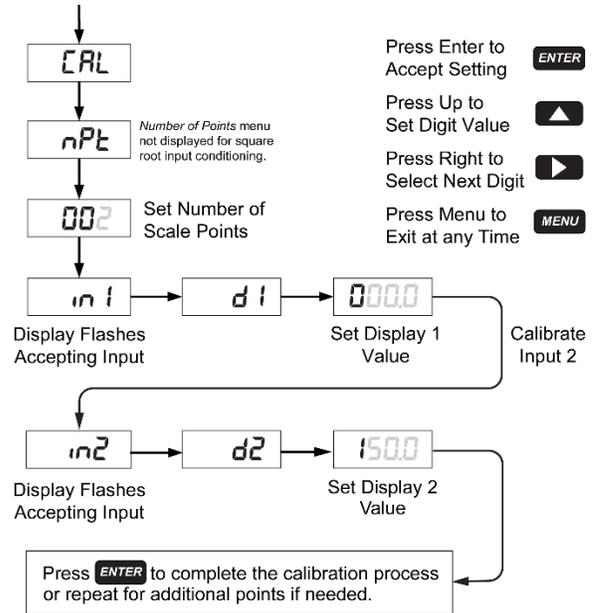
If using linear input signal conditioning, enter the number of scale points (2-32), followed by the input values and display values. If using square root input signal conditioning, the number of points input menu will not be present.



1. Press the **Up** arrow button to scroll to the *Scale* menu (SCL) and press **Enter**.
2. If using linear input signal conditioning, enter the number of scaling points (2-32).
3. The meter displays **in 1**. Enter the value for input 1 (typically 04.00) and press **Enter**.
4. When the meter displays **d 1**, press **Enter**. Enter a corresponding display value for input 1, and press **Enter** to accept.
5. The meter displays **in 2**. Enter the value for input 2 (typically 20.00) and press **Enter**.
6. When the meter displays **d 2**, press **Enter**. Enter a corresponding display value for input 2, and press **Enter** to accept.

Calibrating the Meter (CAL)

The meter can be calibrated to display the process in engineering units by applying the appropriate input signals. The use of a calibrated signal source is required.

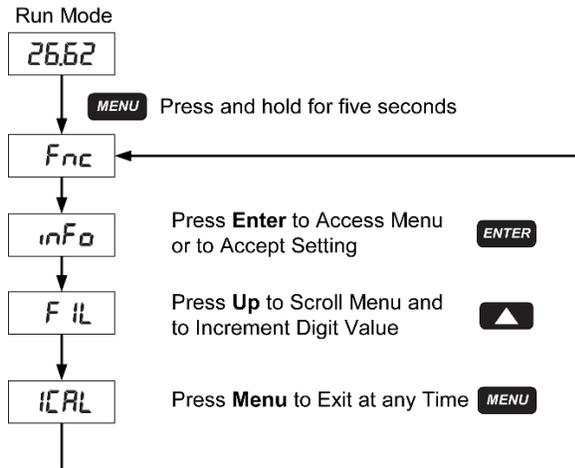


1. Press the **Up** arrow button to scroll to the *Calibration* menu (CAL) and press **Enter**.
2. If using linear input signal conditioning, enter the number of calibration points (2-32).
3. The meter displays **in 1**. Apply a known signal and press **Enter**. The display will flash while accepting the signal.
4. When the meter displays **d 1**, press **Enter**. Enter a corresponding display value for the input signal, and press **Enter** to accept.
5. The meter displays **in 2**. Apply a known signal and press **Enter**. The display will flash while accepting the signal.
6. When the meter displays **d 2**, press **Enter**. Enter a corresponding display value for the input signal, and press **Enter** to accept.

Advanced Features Menu

To simplify the setup process, functions not needed for most applications are located in the *Advanced Features* menu.

Press and hold the **Menu** button for five seconds to access the *Advanced Features* menu



Advanced Features Menu & Display Messages

The following table shows the *Advanced Features* menu functions and messages in the order they appear in the menu.

Display	Parameter	Action/Setting
<i>Fnc</i>	<i>Input Function</i>	Set linear or square root input conditioning function
<i>Lnr</i>	<i>Linear</i>	Set linear scaling
<i>Sqr</i>	<i>Square Root</i>	Set square root input conditioning function
<i>inF0</i>	<i>Information</i>	Enter the <i>Information</i> menu
<i>SFt</i>	<i>Software Information</i>	Software number
<i>UEr</i>	<i>Version</i>	Firmware version
<i>*C</i>	<i>Calibration Temp (°C)</i>	Temperature at time of I-calibration (°C)
<i>*F</i>	<i>Calibration Temp (°F)</i>	Temperature at time of I-calibration (°F)
<i>F IL</i>	<i>Filter</i>	Set filter function level
<i>I CAL</i>	<i>I-Calibration</i>	Internal master factory calibration
<i>rSt</i>	<i>Reset Defaults</i>	Restore factory default parameter settings

Input Signal Conditioning Function (FnC)

The PD662 provides linear (from 2 to 32 points) and square root input signal conditioning functions for inputs from linear, non-linear and differential pressure transmitters.

Linear (Lnr)

Meters are set up at the factory for linear function using two-point linearization. Multi-point linearization with up to 32 points may be used. The linear function provides a display that is linear with respect to the input signal between each set of input points.

Square Root (Sqr)

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

Information Menu (inF0)

The Information menu is located in the *Advanced Features* menu; to access the Information menu see *Advanced Features Menu* on page 15.

The Information Menu shows the software identification number, the version number, and the calibration temperatures. To determine the software version of a meter:

1. Go to the *Information* menu (*inF0*) and press **Enter** button.
2. The meter will automatically scroll through the software release number and software version. The meter temperatures at the time of last internal calibration in °C and °F are displayed for calibration troubleshooting. Pressing the **Enter**, **Right**, or **Up** buttons will progress the information display.
3. Following the information display, the meter will exit the *Advanced Features* menu and return to run mode.

Input Signal Filter (F IL)

The noise filter is available for unusually noisy signals that cause an unstable process variable display. The noise filter averages the input signal over a certain period. The filter level can be set to low (*L0*), high (*H1*), or off (*OFF*). The higher the filter setting, the longer the averaging time and so the longer the display will take to settle on its final value.

The filter contains a noise filter bypass feature so that while small variations in the signal will be filtered out, large, abrupt changes to the input signal are displayed immediately.

Internal Calibration (*iCRL*)

- There is **no need to recalibrate** the meter for milliamps when first received from the factory.
- The meter is **factory calibrated** for milliamps prior to shipment. The calibration equipment is certified to NIST standards.

The internal calibration allows the user to scale the meter without applying a signal. The use of a calibrated signal source is necessary to perform the internal calibration of the meter. Check calibration of the meter at least every 12 months.

- Notes:
- The signal source must have a full-scale accuracy of 0.01% or better between 4 and 20 mA in order to maintain the specified accuracy of the meter.
 - Allow the meter to warm up for at least 15 minutes before performing the internal calibration procedure.

The *Internal Calibration* menu is part of the *Advanced Features* menu.

1. Press and hold the **Menu** button for 5 seconds to enter the *Advanced Features* menu.
2. Press the **Up** arrow button to scroll to the *Internal Calibration* menu (*iCRL*) and press **Enter**.
3. The meter displays 4.00 mA. Apply a 4.00 mA signal and press **Enter**. The display flashes for a moment while the meter is accepting the signal.
4. After the signal is accepted, the meter displays 20.00 mA. Apply a 20.00 mA signal and press **Enter**. The display flashes for a moment while the meter is accepting the signal.

Error Message (Err)

An error message indicates that the calibration process was not successful. After the error message is displayed, the meter will revert to input 2 calibration settings. The error message might be caused by inadvertently leaving the signal at the previous level or not maintaining a 0.40 mA minimum span. Press the Menu button to cancel the current calibration process if necessary.

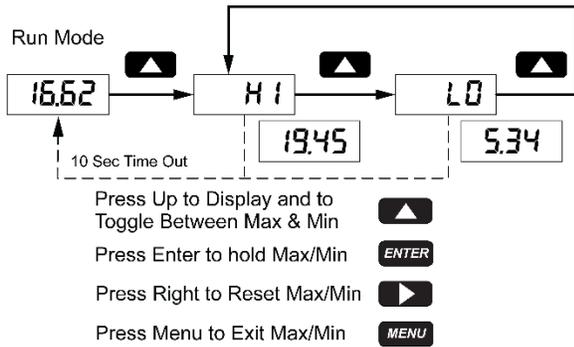
Operation

Front Panel Buttons Operation

Button Symbol	Description
MENU	Press to enter or exit Programming Mode or exit Max/Min readings
▶	Press to reset Max/Min readings
▲	Press to alternate between Max and Min readings. Times out after 10 seconds.
ENTER	Continue displaying either the Max or Min reading indefinitely by pressing Enter while on the desired reading. Return to Run Mode by pressing Menu.

Maximum & Minimum Readings (HI & LO)

The maximum and minimum (peak & valley) readings reached by the process are stored in the meter since the last reset or power-up. The meter flashes HI or LO to differentiate between run mode and max/min display.



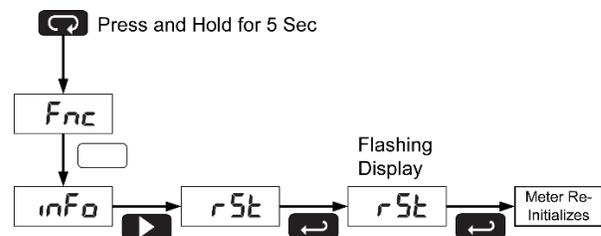
1. Press **Up** arrow button to display maximum reading since the last reset/power-up.
2. Press **Up** arrow again to display the minimum reading since the last reset/power-up.
3. Press **Enter** to continue to display the Max or Min display reading by disabling the Max/Min timeout. The meter will continue to track new Max/Min readings. Press **Menu** to exit the Max/Min reading.
4. If **Enter** is not pressed, the Max/Min display reading will continue to flash and time out after ten seconds. The meter will return to display the actual reading.
5. Press **Right** arrow button while in Max/Min Mode to reset both Max and Min. Max/Min display readings are reset to the current reading.

Reset Meter to Factory Defaults

If the meter has inadvertently been programmed to behave in some undesirable manner, the best course of action might be to reset the meter to factory defaults and re-program it from scratch.

Instructions to load factory defaults:

1. Enter the *Advanced Features* menu. See *Advanced Features Menu*, page 15.
2. Press **Up** arrow button to display *inFo* menu.
3. Press **Right** arrow button when *inFo* is shown.
4. Press **Enter** button when *rSt* is shown. Press **Enter** again when display flashes *rSt*.
Note: If **Enter** is not pressed a second time within three seconds, *rSt* will stop flashing and the last **Enter** press cancelled.
5. The meter goes through an initialization sequence (same as on power-up), and loads the factory default settings.



Factory Default & User Settings

The following table shows the factory setting for most of the programmable parameters on the meter. Next to the factory setting, the user may record the new setting for the particular application.

Model: _____

S/N: _____

Date: _____

Parameter	Display	Default Setting	User Setting
<i>Decimal point</i>	<i>ddd</i>	2 places	
<i>Scale</i>	<i>5LL</i>		
<i>Number of Points</i>	<i>nPt</i>	2	
<i>Input 1</i>	<i>m1</i>	4.00 mA	
<i>Display 1</i>	<i>d1</i>	4.00	
<i>Input 2</i>	<i>m2</i>	20.00 mA	
<i>Display 2</i>	<i>d2</i>	20.00	
<i>Advanced Features</i>			
<i>Input Conditioning Function</i>	<i>Fnc</i>	Linear	
<i>Filter</i>	<i>Fil</i>	Off	

Troubleshooting

Due to the many features and functions of the meter, it's possible that the setup of the meter does not agree with what an operator expects to see. If the meter is not working as expected, refer to the recommendations described below.

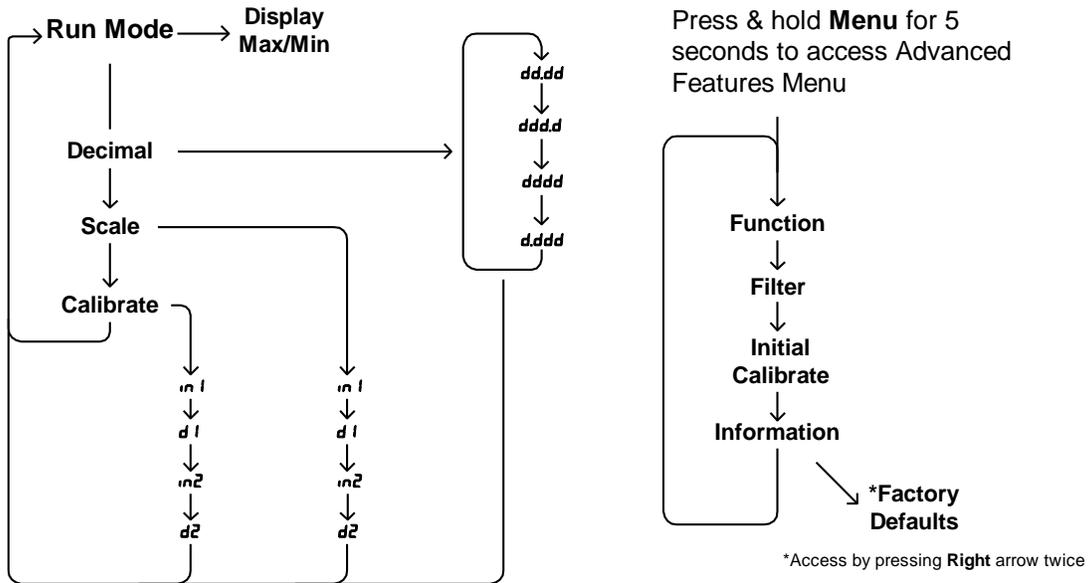
Troubleshooting Tips

Symptom	Check/Action
No display or faint display	<ol style="list-style-type: none"> 1. Check connections. 2. Perform hard reset by temporarily shorting S+ and S- terminals for a few seconds.
Display unsteady during calibration	Increase filter setting in <i>Advanced</i> menu.
Meter displays error message during calibration (<i>Err</i>)	Check: <ol style="list-style-type: none"> 1. Signal connections 2. Minimum input span requirements
Meter flashes <ul style="list-style-type: none"> • <i>2999</i> • <i>-1999</i> 	Check: <ol style="list-style-type: none"> 1. Input signal within scaled range of 2999 and -1999.
Display stuck flashing a number and <i>H1</i> or <i>L1</i>	Press Menu to exit Max/Min display readings.
Display response is too slow	Check filter setting to see if it can be lowered to <i>L1</i> or <i>OFF</i> .
If the display locks up or the meter does not respond at all	Perform hard reset by temporarily shorting S+ and S- terminals for a few seconds and then removing short.
Backlight does not appear.	Check signal connections are as shown in <i>Figure 7</i> on page 11.
Other symptoms not described above	Call Technical Support for assistance.

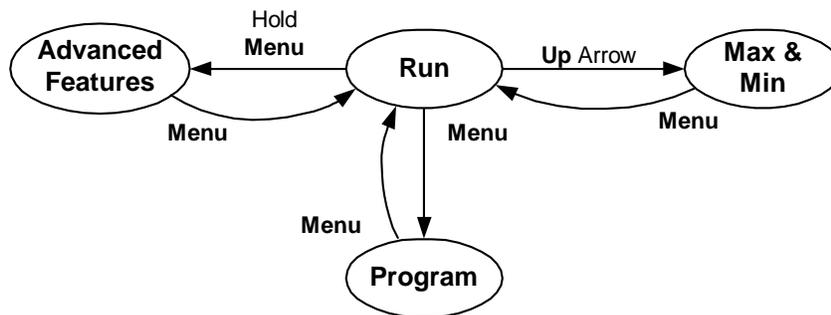
Quick User Interface Reference Guide

<u>Pushbutton</u>	<u>Function</u>
Menu	Go to Programming Mode, leave Programming Mode, and Max/Min Mode. Hold for 5 seconds to access <i>Advanced Features</i> .
Right Arrow	Move to next digit or decimal point position. Reset Min/Max.
Up Arrow	Move to next selection or increment digit. Go to Max/Min Mode.
Enter	Accept selection/value and move to next selection.

Max/Min Mode
 While in Run Mode, pressing **Up Arrow** will initiate Max/Min Mode. **Up Arrow** toggles between Max & Min displays, and **Right Arrow** resets the Max/Min to the current value. Press **Menu** or wait 10 seconds to return to Run Mode. Pressing **Enter** will disable the 10 second timeout and continuously flash Max or Min.



Operational Modes



Contact Precision Digital

Technical Support

Call: (800) 610-5239 or (508) 655-7300

Email: support@predig.com

Sales Support

Call: (800) 343-1001 or (508) 655-7300

Email: sales@predig.com

Place Orders

Email: orders@predig.com

For the latest version of this manual please visit

www.predig.com

PRECISION DIGITAL CORPORATION

233 South Street • Hopkinton MA 01748 USA
Tel (800) 343-1001 • (508) 655-7300

www.predig.com

