

ProVu PD6060 Dual Analog Input Process Meter

Quick Start Guide



This quick start guide briefly describes some of the common setup procedures for this meter. The Guide describes how to use the front panel buttons and MeterView Pro software to program and setup the meter. We recommend the following sequence as the easiest method for getting the meter into service:

- Connect MeterView Pro Software (with no other connections) and program the meter.
- Install the meter.
- Make input, output and power connections.
- Make any programming adjustments with the front panel buttons.

For additional information about this meter not covered in this quick start guide, please consult the instruction manual available at www.predig.com.

Front Panel Buttons Operation

Button Symbol	Description
	Menu: Press the Menu button to enter or exit the Programming Mode at any time.
	Right Arrow: Press the Right arrow button to move to the next digit during digit or decimal point programming.
	Up Arrow: Press or hold the Up arrow button to scroll through the menus, decimal point, or to increment the value of a digit.
	Enter: Press the Enter button to access a menu or to accept a setting.

Safety Information

CAUTION

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

WARNINGS

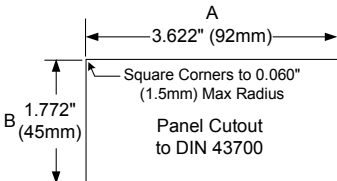
- Risk of electric shock or personal injury. Hazardous voltages exist within enclosure.
- Installation and service should be performed only by trained service personnel.
- This product is not recommended for life support applications or applications where malfunctioning could result in personal injury or property loss. Anyone using this product for such applications does so at their own risk. Precision Digital Corporation shall not be held liable for damages resulting from such improper use.

Installation

There is no need to remove the meter from its case to complete the installation, wiring, and setup of the meter for most applications. Instructions are provided for changing the transmitter power supply to output 5 or 10 VDC instead of 24 VDC.

Panel Mounting Instructions

- Prepare a standard 1/8 DIN panel cutout - 3.622" x 1.772" (92 mm x 45 mm). Refer to Figure 1. 1/8 DIN Panel Cutout Dimensions below for more details.
- Clearance: allow at least 6.0" (152 mm) behind the panel for wiring.
- Panel thickness: 0.04" - 0.25" (1.0 mm - 6.4 mm). Recommended minimum panel thickness to maintain Type 4X rating: 0.06" (1.5 mm) steel panel, 0.16" (4.1 mm) plastic panel.
- Remove the two mounting brackets provided with the meter (back-off the two screws so that there is 1/4" (6.4 mm) or less through the bracket. Slide the bracket toward the front of the case and remove).
- Insert meter into the panel cutout.
- Install mounting brackets and tighten the screws against the panel. To achieve a proper seal, tighten the mounting bracket screws evenly until meter is snug to the panel along its short side. DO NOT OVER TIGHTEN, as the rear of the panel may be damaged.



Tolerances:
A: +0.032 (+0.8mm)
-0.000 (-0.0mm)
B: +0.024 (+0.6mm)
-0.000 (-0.0mm)

Figure 1. 1/8 DIN Panel Cutout Dimensions

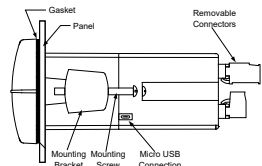


Figure 2. Panel Mounting Details

DO NOT apply AC or DC power to the meter when using the Micro USB connection.

Mounting Dimensions

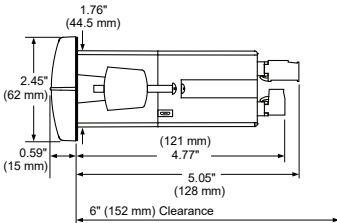


Figure 3. Meter Dimensions - Side View

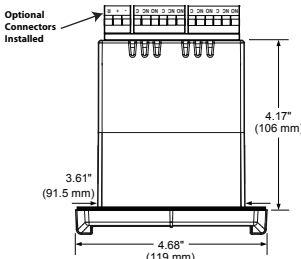


Figure 4. Meter Dimensions - Top View



Connections

All connections are made to removable screw terminal connectors located at the rear of the meter. These accept wire between 12 to 24 AWG.

CAUTION

- Use copper wire with 60°C or 60/75°C insulation for all line voltage connections. Observe all safety regulations. Electrical wiring should be performed in accordance with all applicable national, state, and local codes to prevent damage to the meter and ensure personnel safety.

WARNING

- DO NOT** connect any equipment other than Precision Digital's expansion modules, cables, or meters to the RJ45 M-LINK connector. Otherwise damage will occur to the equipment and the meter.

Connectors Labeling

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

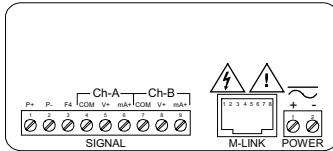


Figure 5. PD6060-6R0 Connectors Label

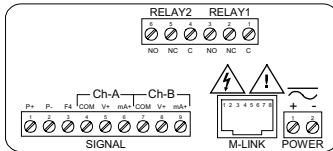


Figure 6. PD6060-6R2 Connectors Label

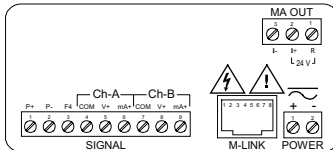


Figure 7. PD6060-6R3 Connectors Label

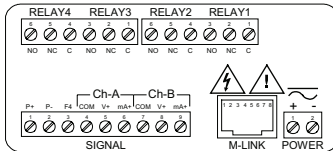


Figure 8. PD6060-6R4 Connectors Label

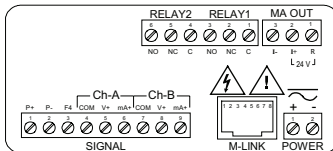


Figure 9. PD6060-6R5 Connectors Label

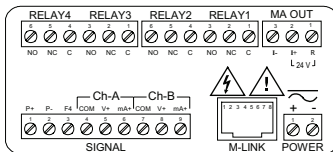
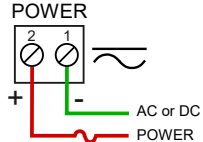


Figure 10. PD6060-6R7 Connectors Label

Power Connection



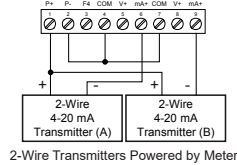
Notes:

- "AC" Powered meters accept 85-265 VAC or 90-265 VDC and "DC" powered meters accept 12-24 VDC/VAC
- Required External Fuse: 5 A max. Slow Blow.
- Consult the PD6060 instruction manual located at www.predig.com for additional wiring diagrams.

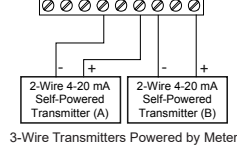
Signal Connections

Signal connections are made to a nine-terminal connector labeled SIGNAL. The COM (common) terminals are the return for the 4-20 mA and the ±10 V input signals. The two COM terminals connect to the same common return, and are not isolated.

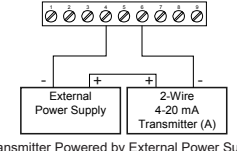
4-20 mA Input Wiring



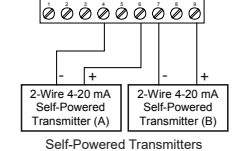
2-Wire Transmitters Powered by Meter



3-Wire Transmitters Powered by Meter

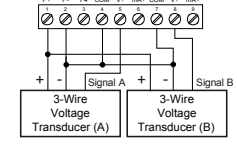
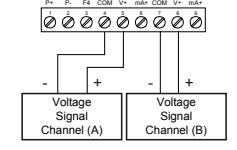


Transmitter Powered by External Power Supply

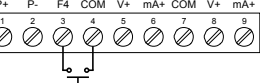


Self-Powered Transmitters

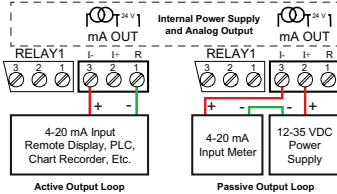
0-10 V Input Wiring



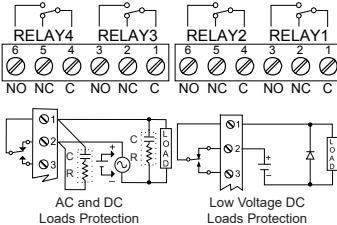
F4 Digital Input Connection



4-20 mA Output Wiring



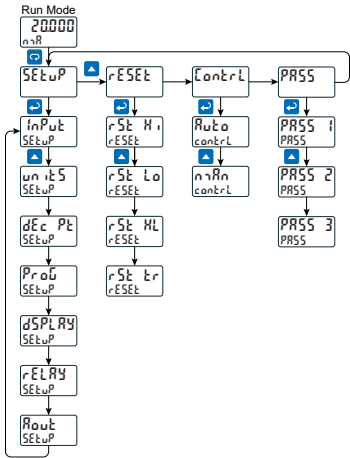
Relay Connections



Main Menu

The main menu consists of the most commonly used functions: Setup, Reset, Control, and Password.

- 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.



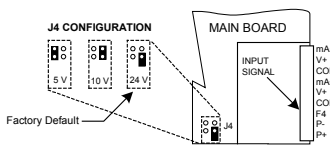
Transmitter Supply Voltage Selection (P+, P-)

All meters, including models equipped with the 12-24 VDC power option, are shipped from the factory configured to provide 24 VDC power for the transmitter or sensor.

If the transmitter requires 5 or 10 VDC excitation, the internal jumper J4 must be configured accordingly.

To access the voltage selection jumper:

- Remove all the wiring connectors.
- Unscrew the back cover.
- Slide out the back cover by about 1 inch.
- Configure the J4 jumper, located behind the input signal connector, for the desired excitation voltage as shown.



Program and Scale the Input

These instructions illustrate how to program the ProVu to accept a 4-20 mA or 0-10 VDC input and scale it to display the desired range. When the input to the meter is 4 mA or 0 V, it displays the low end of the programmed display range. When the input is 20 mA or 10 V, it displays the high end of the programmed display range. The input values (InP 1 & InP 2) can be changed if needed, but the steps to do this have been omitted for this quick start guide.

For example: If the meter is used to display the level of a 100 foot tall tank, the transmitter should send a 4 mA signal when the tank is empty and a 20 mA signal when the tank is full. The meter should be programmed to interpret these inputs on a display range of 0.0-100.0, so that at 4 mA the meter will display 0.0 and at 20 mA the meter will display 100.0.

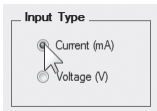
IMPORTANT

Reverse Scaling

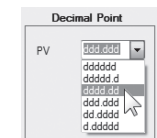
The meter can be scaled so that 4 mA represents the high end of the process value range being measured by the transmitter and 20 mA represents the low end of the process value range.

MeterView Pro Software

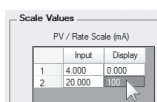
1 On the *Setup* tab, under *Input Type*, select the desired input.



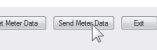
2 On the *Programming* tab, select the desired decimal point location.



3 Under *Scale Values*, enter the desired low and high display values in the *Display* column.



4 Click the *Send Meter Data* button to send your programmed settings to the meter.



Meter Configuration Menus

1 Press to enter *Programming Mode*, press to access the *SEtUP* (Setup) menu.



2 Press to access the *InP tS* (Input) menu.



3 Press to select either mA or Voltage (nA or Volt) and press to accept the input type.



4 The units menu is displayed. Press to skip and go to the *dEc Pt* menu.



Note: See page 2 for *un tS* menu.

5 Press to access the *dEc Pt* (Decimal Point) menu.



6 Press until the desired decimal point location is displayed and press to accept.



7 Press to access the *PRoG* (Program) menu.



8 Press to access the *SEtLE* (Scale) menu.



9 Press three times, until *d 5 1* (Low Display Value) is displayed. Use to change which digit is selected and to increment the selected digit. Press when done.



10 Press three times, until *d 5 2* (High Display Value) is displayed. Use to change which digit is selected and to increment the selected digit. Press when done. Press to return to *Run Mode*.



WARNING

Cancer and Reproductive Harm
www.P65Warnings.ca.gov

Setting the Display
Parameter & Intensity

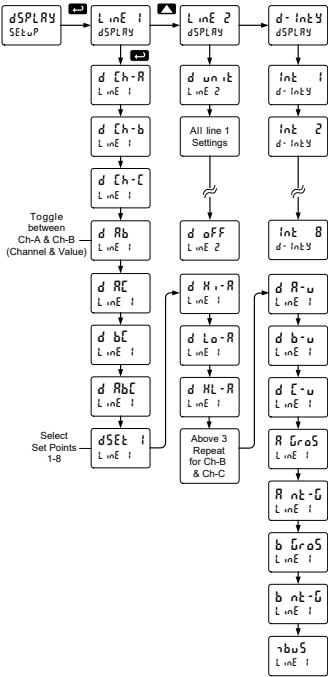
To access the Display (dSPLY) menu press the Menu button and then Enter when Setup (SEtUP) appears. Press the Up Arrow until dSPLY appears and then follow the menu tree below.

The main display (Line 1) can be programmed to display:

- 1. Process value Ch-A
- 2. Process value Ch-B
- 3. Process value Ch-C
- 4. Toggle between Ch-A & Ch-B, Ch-A & Ch-C, Ch-B & Ch-C, and Ch-A, Ch-B, & Ch-C
- 5. Relay set points
- 6. Max & min values for each channel
- 7. Toggle between Channel & units
- 8. Channel gross value (no tare) or toggle net (tare) and gross values
- 9. Modbus input

The secondary display (Line 2) can be programmed to display:

- 1. Process value Ch-A
- 2. Process value Ch-B
- 3. Process value Ch-C
- 4. Toggle between Ch-A & Ch-B, Ch-A & Ch-C, Ch-B & Ch-C, and Ch-A, Ch-B, & Ch-C
- 5. Relay set points
- 6. Max & min values for each channel
- 7. Toggle between Channel & units
- 8. Channel gross value (no tare) or toggle net (tare) and gross values
- 9. Modbus input
- 11. Engineering units or custom legends



After setting up the input and display, press the Menu button to exit programming and skip the rest of the setup menu.

The displays can be set up to read channels A, B, or C, toggle between A & B, B & C, A & C, A & B & C, toggle between channels A, B, or C & units, the max/min of any of the channels, including the math channel (C), set points, gross (without tare) or net (with tare) & gross values of channel A or B, or the Modbus input. In addition to the parameters available on the main display, the secondary display can display Engineering units or it could be turned off.

Display Intensity (d-INTY)

The meter has eight display intensity levels to give the best performance under various lighting conditions. Select intensity 8 for outdoor applications. The default intensity is 6.

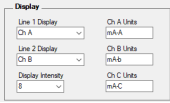
Program Custom
Unit Tags

A display unit or custom tag will be displayed if alternating process input and units is selected in the units menu, or d-INTY is selected as the lower display parameter.

Note: The custom unit tag has no bearing on the meter's operation or the process value. Displaying a custom unit tag is simply for ease of reading.

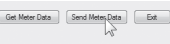
MeterView Pro Software

1 On the Setup tab, in the Display section, enter your desired units designation in the Units field. This field is limited to six characters. The letters 'm' and 'w' count as two because they require two LEDs.



Note: Delete existing text in Units field before entering new text.

2 Click the Send Meter Data button to send your programmed settings to the meter.

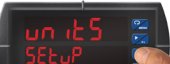


Meter Configuration Menus

1 Press [F1] to enter Programming Mode, press [F2] to access the SEtUP (Setup) menu.



2 Press [F3] until the units menu is displayed and then press [F4] to access.



3 The meter will display the default unit tag (nA). Notice here that the letter 'm' uses two 7 segment LEDs. This is true of the letter 'w' as well.



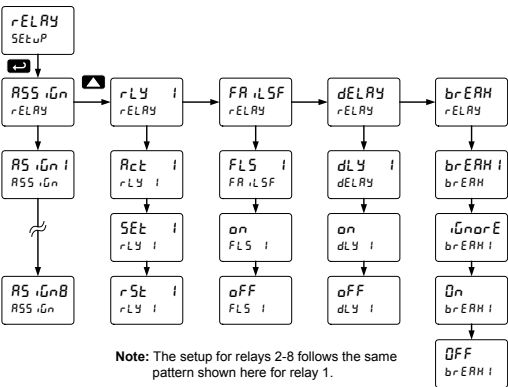
4 Use [F5] to change which letter is selected and [F6] to increment to the next letter. Press [F7] when done to accept the new custom unit tag.



Setting the Relay Operation

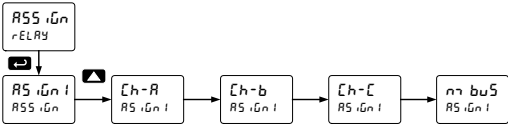
This menu is used to set up the assignment and operation of the relays.

- 1. Relay assignment
 - a. Channel A
 - b. Channel B
 - c. Channel C (Math channel)
 - d. Modbus
- 2. Relay action
 - a. Automatic reset only (non-latching)
 - b. Automatic + manual reset at any time (non-latching)
 - c. Latching (manual reset only)
 - d. Latching with Clear (manual reset only after alarm condition has cleared)
 - e. Pump alternation control (automatic reset only)
 - f. Sampling (the relay is activated for a user-specified time)
 - g. Off (relay state controlled by Interlock feature)
- 3. Set point
- 4. Reset point
- 5. Fail-safe operation
 - a. On (enabled)
 - b. Off (disabled)
- 6. Time delay
 - a. On delay (0-999.9 seconds)
 - b. Off delay (0-999.9 seconds)
- 7. Relay action for loss (break) of 4-20 mA input (ignore, on, off)



Note: The setup for relays 2-8 follows the same pattern shown here for relay 1.

Setting the Relay Assignment

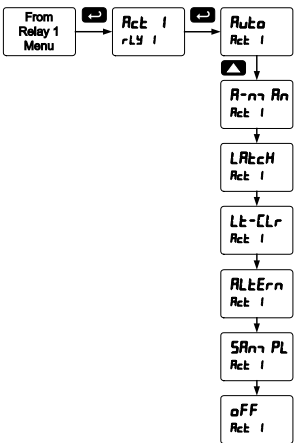


Setting the Relay Action

Operation of the relays is programmed in the Action menu. The relays may be set up for any of the following modes of operation:

- 1. Automatic reset (non-latching)
- 2. Automatic + manual reset at any time (non-latching)
- 3. Latching (manual reset only, at any time)
- 4. Latching with Clear (manual reset only after alarm condition has cleared)
- 5. Pump alternation control (automatic reset only)
- 6. Sampling (the relay is activated for a user-specified time)
- 7. Off (relay state controlled by Interlock feature)

The graphic below shows relay 1 action setup; relay 2-8 are set up in a similar fashion.

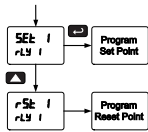


Programming Set and
Reset Points

High alarm indication: program set point above reset point.

Low alarm indication: program set point below reset point.

The deadband is determined by the difference between set and reset points. Minimum deadband is one display count. If the set and reset points are programmed with the same value, the relay will reset one count below the set point.



Meter Configuration Menus

1 Press [F1] to enter Programming Mode, press [F2] to access the SEtUP (Setup) menu.



2 Press [F3] until the rELAY (Relay) menu is displayed and then press [F4] to access.



3 Press [F5] until the appropriate relay number is displayed (rLY 1-8) and then press [F6] to access.



4 Press [F7] to access the Rct (Relay Action) menu.



5 Press [F8] to accept Auto (Automatic Reset).



6 Press [F9] to access the SEt (Relay Set Point) menu.



7 Use [F10] to change which digit is selected and [F11] to increment the selected digit. Press [F12] when done to accept the new set point value.



8 Press [F13] to access the rSt (Relay Reset Point) menu.



9 Use [F14] to change which digit is selected and [F15] to increment the selected digit. Press [F16] when done to accept the new set point value. Press [F17] to return to Run Mode.



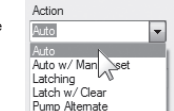
Note: Use [F18] to select a different relay during step 3. If you need to program more relays, simply repeat steps 3-9 for each additional relay. Consult the ProVu PD6060 Instruction Manual for information on additional relay action types.

On and Off time delays may be programmed for each relay between 0 and 999.9 seconds. The relays will transfer only after the condition has been maintained for the corresponding time delay. The On time delay is associated with the set point. The Off time delay is associated with the reset point.

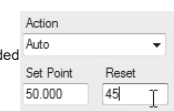
The following illustrates how to program the meter for Automatic Reset:

MeterView Pro Software

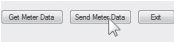
1 On the Relays tab, in the desired relay section, select "Auto" from the Action drop down list.



2 Enter the set and reset point values in the provided fields.



3 Click the Send Meter Data button to send your programmed settings to the meter.



Note: All eight relays (if installed) are programmed in this manner. It is not necessary to send your programmed settings to the meter after each relay is programmed, simply repeat steps 1 & 2 for each relay then send to the meter.

Program 4-20 mA
Analog Output

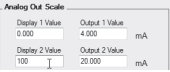
The 4-20 mA analog outputs can be scaled to provide a 4-20 mA signal for any display range selected.

No equipment is needed to scale the analog outputs; simply program the display values to the corresponding mA output signal.

The Analog Output menu is used to program the 4-20 mA outputs based on display values.

MeterView Pro Software

1 On the Setup tab, under Analog Out Scale, enter your desired display values in the provided fields.



2 Click the Send Meter Data button to send your programmed settings to the meter.



Meter Configuration Menus

1 Press [F1] to enter Programming Mode, press [F2] to access the SEtUP (Setup) menu.



2 Press [F3] until the Rout (Analog Out) menu is displayed and then press [F4] to access.



3 Press [F5] to access the d.5 1 (Display 1) menu. This is the display value at which the low range of the output will be transmitted.



4 Use [F6] to change which digit is selected and [F7] to increment the selected digit. Press [F8] when done to accept the new display value.



5 Press [F9] to access the Out 1 (Output 1) menu. This is the output signal which represents d.5 1.



6 The default value of 04000 (4.000 mA) should work for most applications. Press [F10] to accept.



7 Press [F11] to access the d.5 2 (Display 2) menu. This is the display value at which the high range of the output will be transmitted.



8 Use [F12] to change which digit is selected and [F13] to increment the digit. Press [F14] when done.



9 Press [F15] to access the Out 2 (Output 2) menu. This is the output signal which represents d.5 2.



10 The default value of 20000 (20.000 mA) should work for most applications. Press [F16] to accept the default value.



Advanced Features
Menu

For features and capabilities not commonly used during setup, see the complete instruction manual found at www.predig.com for details on the Advanced Features menu.

Setting Up the
Password

The Password menu is used for programming three levels of security to prevent unauthorized changes to the programmed parameter settings.

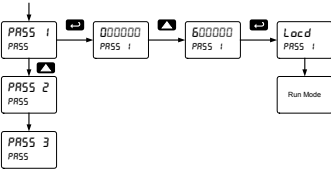
Pass 1: Allows use of function keys and digital inputs

Pass 2: Allows use of function keys, digital inputs and editing set/reset points

Pass 3: Restricts all programming, function keys, and digital inputs.

Protecting or Locking the
Meter

Enter the Password menu to program a six-digit password.

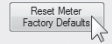


Return Meter to Factory
Defaults

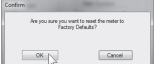
If a mistake has been made while programming the meter and it is unclear where the error occurred, the best option may be to perform a factory reset of the meter and begin again.

MeterView Pro Software

1 On the Advanced Features tab, in the bottom left-hand corner, click the Reset Meter Factory Defaults button.



2 In the confirmation window that appears, click OK. The meter will reset to factory defaults.



Meter Configuration Menus

1 Press and hold [F1] for five seconds to enter the Advanced Features menu.



2 Press [F2] until the d.IG (diagnostics) menu is displayed.



3 Press and hold [F3] until the meter flashes rESEt (reset). Immediately press [F4] to reset the meter.



4 The meter will go blank and reboot, and then display ProcES (Process).



Compliance Information
Safety

UL & C-UL Listed	USA & Canada UL 508 Industrial Control Equipment
UL File Number	E160849
Front Panel	UL Type 4X, NEMA 4X, IP65; panel gasket provided
Low Voltage Directive	EN 61010-1 Safety requirements for measurement, control, and laboratory use

Electromagnetic
Compatibility

Emissions	EN 55022 Class A ITE emissions requirements
Radiated Emissions	Class A
AC Mains Conducted Emissions	Class A
Immunity	EN 61326-1 Measurement, control, and laboratory equipment EN 61000-6-2 EMC heavy industrial generic immunity standard
RFI - Amplitude Modulated	80 - 1000 MHz 10 V/m 80% AM (1 kHz) 1.4 - 2.0 GHz 3 V/m 80% AM (1 kHz) 2.0 - 2.7 GHz 1 V/m 80% AM (1 kHz)
Electrical Fast Transients	±2kV AC mains, ±1kV other
Electrostatic Discharge	±4kV contact, ±8kV air
RFI - Conducted	10V, 0.15-80 MHz, 1kHz 80% AM
AC Surge	±2kV Common, ±1kV Differential
Surge	1KV (CM)
Power-Frequency Magnetic Field	30 A/m 70%V for 0.5 period
Voltage Dips	40%V for 5 & 50 periods 70%V for 25 periods
Voltage Interruptions	<5%V for 250 periods

Note: Testing was conducted on meters installed through the covers of grounded metal enclosures with cable shields grounded at the point of entry representing installations designed to optimize EMC performance.

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 at www.predig.com/docs.

Limited Warranty

Precision Digital Corporation warrants this product against defects in material or workmanship for the specified period as detailed in the "Specifications" section of the complete manual 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.predig.com for complete details.