

DPM-200 Dual-Line 6-Digit 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 software to program and setup the meter. We recommend the following sequence as the easiest method for getting the meter into service:

- Connect MeterView Software (using the USB serial adapter) 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 binmaster.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. BinMaster shall not be held liable for damages resulting from such improper use.

Stainless Steel Sun Hood

The PDA18DINSH Sun Hood improves the readability of 1/8 DIN digital panel meters when they are mounted in direct sunlight by shading the instrument from the sun.

The Sun Hood is made from 18 gauge 316 stainless steel and mounts between the 1/8 DIN digital panel meter and the panel. In addition, a gasket is provided that installs between the Sun Hood and the panel to provide a NEMA 4X seal to the panel. The whole assembly is held in place by the front meter's mounting brackets.



MeterView Software



Note: The DPM-200 meter is not powered from USB connection and requires external power to be programmed. The easiest and quickest way to program your meter is to use the FREE MeterView software and the PDA8006 USB adapter.

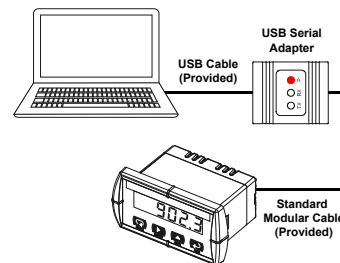
Remote Programming

MeterView software allows all setup parameters to be programmed remotely from a PC and saved to a file for reporting or programming other meters. A USB to serial adapter, model PDA8006 (sold separately) is required to use MeterView software.

PDA8006 Meter to USB Serial Adapter



The PDA8006 Meter to USB Serial Adapter allows for direct connection of a DPM-200 meter to the USB port of a PC. It is intended only for programming the meter.



Installation

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.

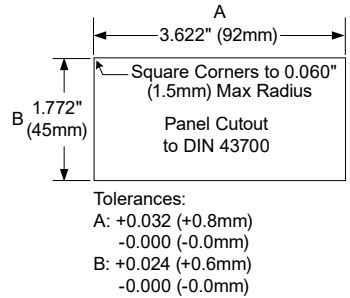


Figure 1. 1/8 DIN Panel Cutout Dimensions

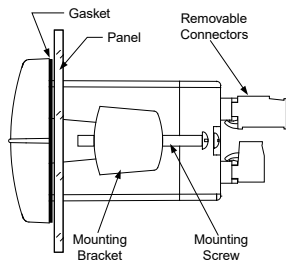


Figure 2. Panel Mounting Details

Mounting Dimensions

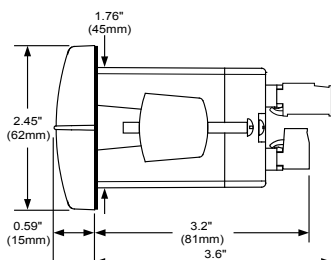


Figure 3. Meter Dimensions - Side View

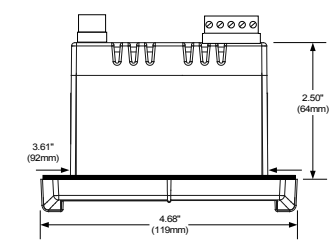


Figure 4. Meter Dimensions - Top View

Connections

All connections are made to removable screw terminal connectors located at the rear of the meter.

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.

Connectors Labeling

The connectors label, affixed to the meter, shows the location of all connectors available with requested configuration. It also identifies the location of the RTD/TC selector switch.

Note: # on the following figures refers to power options. (Example: PD765-6R0-00-BM)

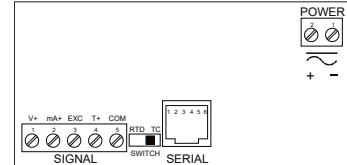


Figure 5. Connector Labeling for PD765-#R0-00-BM

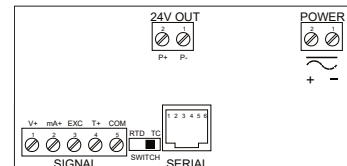


Figure 6. Connector Labeling for PD765-6R0-10-BM

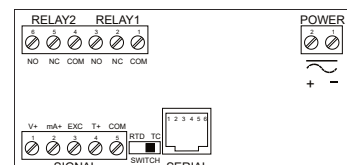


Figure 7. Connector Labeling for PD765-#R2-00-BM

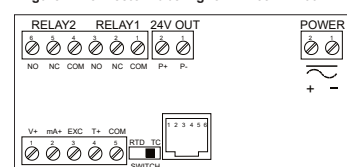


Figure 8. Connector Labeling for PD765-6R2-10-BM

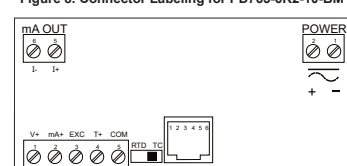


Figure 9. Connector Labeling for PD765-#R3-00-BM

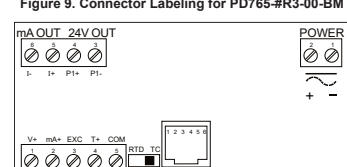


Figure 10. Connector Labeling for PD765-6R3-10-BM

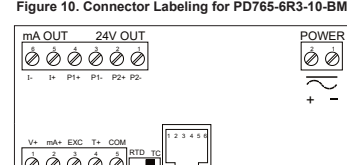


Figure 11. Connector Labeling for PD765-6R3-20-BM

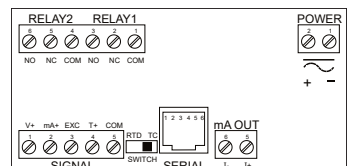


Figure 12. Connector Labeling for PD765-7R5-00-BM

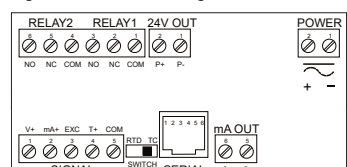


Figure 13. Connector Labeling for PD765-6R5-10-BM

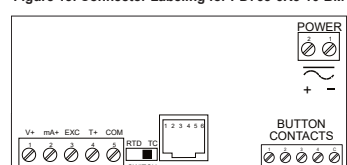


Figure 14. Connector Labeling for PD765-#X0-00-BM

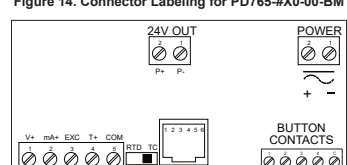


Figure 15. Connector Labeling for PD765-6X0-10-BM

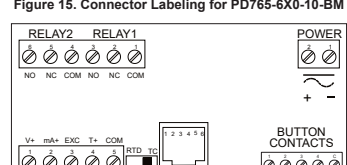


Figure 16. Connector Labeling for PD765-#X2-00-BM

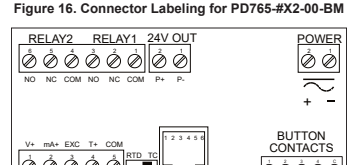


Figure 17. Connector Labeling for PD765-6X2-10-BM

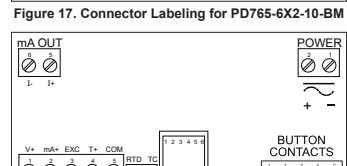


Figure 18. Connector Labeling for PD765-#X3-00-BM

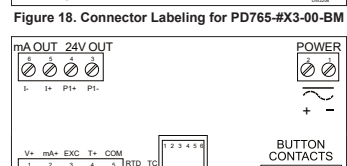


Figure 19. Connector Labeling for PD765-6X3-10-BM

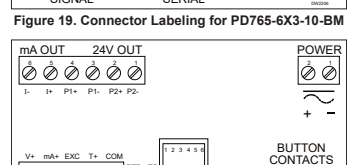


Figure 20. Connector Labeling for PD765-6X3-20-BM

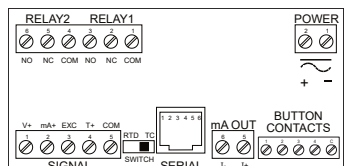


Figure 21. Connector Labeling for PD765-7X5-00-BM

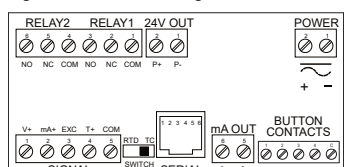
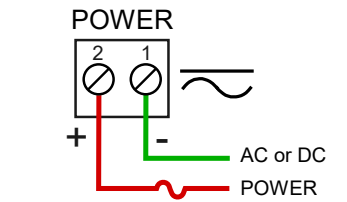


Figure 22. Connector Labeling for PD765-6X5-10-BM

Power Connection

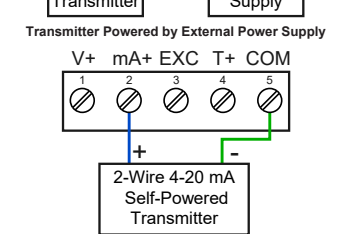
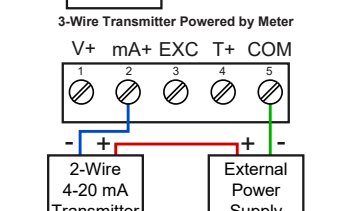
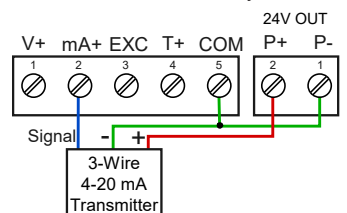
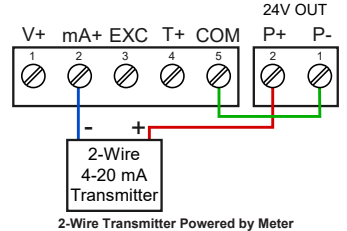


- Notes:
1. "AC" Powered meters accept 85-265 VAC or 90-265 VDC and "DC" powered meters accept 12-36 VDC or 12-24 VAC.
 2. Required External Fuse: 5 A max. Slow Blow.
 3. Consult the DPM-200 instruction manual available online at www.binmaster.com for additional wiring diagrams.

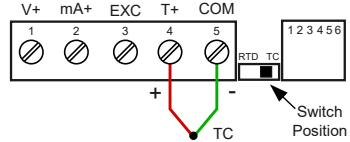
Signal Connections

The connectors label, affixed to the top of the meter, shows the location of all connectors available. It also identifies the location of the RTD/TC selector switch. Connect your wires to the provided connectors and plug into the meter as indicated.

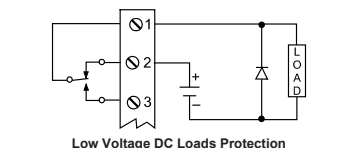
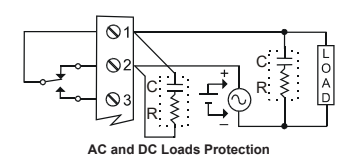
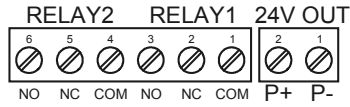
4-20 mA Input Wiring



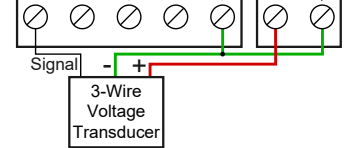
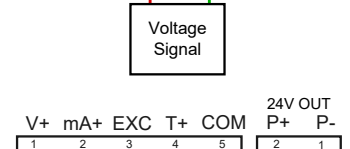
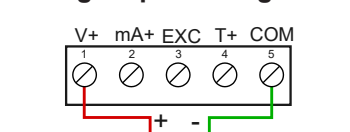
Thermocouple Wiring



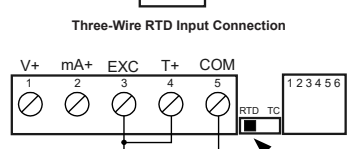
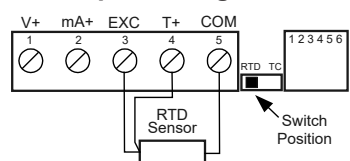
Relay Connections



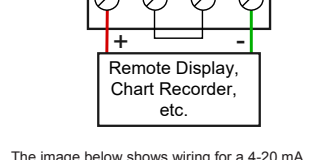
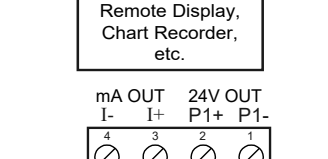
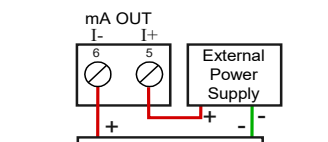
Voltage Input Wiring



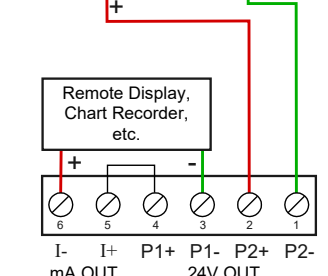
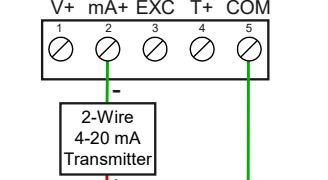
RTD Input Wiring



4-20 mA Output Wiring



The image below shows wiring for a 4-20 mA output & input signal powered by meter.



Program and Scale 4-20 mA Input

These instructions illustrate how to program the DPM-200 meter to accept a 4-20 mA input and scale it to display the desired range. When the input to the meter is 4 mA, it displays the low end of the programmed display range. When the input is 20 mA, it displays the high end of the programmed display range.

For example: If the meter were 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.

- Press **SETUP** to enter **Programming Mode**, press **INPT** to access the **5Etu** (Setup) menu.
- Press **INPT** to access the **INPT** (Input) menu.
- Select **4-20** (4-20 mA) and press **ENTER** to confirm input selection.
*Note: This should be the default option, but if it is not, press **UP** to scroll through the choices.*
- Press **DEC.P** to access the **DEC.P** (Decimal Point) menu.
- Press **DOWN** to select the decimal place, then press **ENTER**.
- Press **PROG** to enter the **PROG** (Program) menu.
- Press **SCAL** to enter the **SCAL** (Scale) menu.
- Press **INPT1** to access **INPT1** (Input 1). This is the input which represents 0% of the process variable. The default value of **4.00** (4.00 mA) should be sufficient for most applications. Press **ENTER** to accept.
Note: These instructions illustrate how to scale the meter using the factory calibrated internal signal source. It is not necessary to calibrate (CAL) a new meter.
- Press **DIS1** to access **d.51** (Display 1). This is the value that will be displayed on the meter when the current input is at 4 mA.
- Press **DOWN** to select a digit (the selected digit is brighter than the others).
- Press **UP** to increment the digit. Press **ENTER** to accept the new **d.51** value once you are done.
- Press **INPT2** to enter **Input 2**. The default input value of **20.00** for input 2 should be sufficient. Press **ENTER** to accept this value.
- Press **DIS2** to enter **d.52** (Display 2). Change the value as described in steps 10-11. Press **ENTER** to accept value.
- Press **ENTER** to return to **Run Mode**.

Note: The method for inputting numeric values described above is the same method used to input numbers in all other areas of the DPM-200 meter.

Program RTD Input

These instructions illustrate how to program the DPM-200 meter to accept an RTD input. The display value will directly represent the temperature sensed by the RTD connected to the meter. There is no need to scale the meter's display value.

- Press **SETUP** to enter **Programming Mode**, press **RTD** to access the **5Etu** (Setup) menu.
- Press **INPT** to access the **INPT** (Input) menu.
- Press **RTD** to scroll through the choices, select **RTD** (RTD) and press **ENTER** to confirm input.
- Press **RTD** to scroll through the RTD curve choices and select either **R385** or **R392** (RTD curve). Press **ENTER** to confirm curve selection.
- Press **F C** to access the **F C** (Fahrenheit/Celsius) menu.
- Press **UP** until the appropriate unit designation is displayed, press **ENTER** to confirm.
- Press **DEC.P** to access the **DEC.P** (Decimal Point) menu.
- Press **DOWN** to select the decimal place, then press **ENTER** to confirm. Press **ENTER** to exit **Programming Mode** and return to **Run Mode**.

Program Thermocouple Input

These instructions illustrate how to program the DPM-200 meter to accept a thermocouple input. The display value will directly represent the temperature sensed by the thermocouple connected to the meter. There is no need to scale the meter's display value.

- Press **SETUP** to enter **Programming Mode**, press **TC** to access the **5Etu** (Setup) menu.
- Press **INPT** to access the **INPT** (Input) menu.
- Press **TC** to scroll through the choices, select **TC** (thermocouple) and press **ENTER** to confirm.
- Press **TC** to scroll through the thermocouple type choices and select the type of thermocouple you are using (i.e. J, K, T, T 0.1° Res, E). Press **ENTER** to confirm.
- Press **F C** to access the **F C** (Fahrenheit/Celsius) menu.
- Press **UP** until the right unit designation is displayed, press **ENTER** to confirm. Press **ENTER** to exit **Programming Mode** and return to **Run Mode**.

Program Relays for Automatic Reset

The relays on this meter can be programmed for a variety of operations. The following instructions illustrate how to program the relays for automatic reset and to turn them on at programmable set points and turn them off at programmable reset points. For other reset options, see the complete instruction manual.

Note: If the set point is higher than the reset point, the relay will be a high alarm. If the set point is lower than the reset point, the relay will be a low alarm.

- Press **SETUP** to enter **Programming Mode**, press **REL** to access the **5Etu** (Setup) menu.
- Press **REL** until the **REL** (Relay) menu is displayed and then press **ENTER**.
- Press **REL** to enter the **SCAL** (Scale) menu.
- Note: The meter will use an internally calibrated signal source to scale the analog output signal. There is no need for a calibrated signal source to scale the analog output.*
- Press **DIS1** to access **d.51** (Display 1). This is the display value at which the low range of the output (set in the next step, typically 4.00 mA) will be transmitted. Use the **UP** and **DOWN** buttons to change the value and press **ENTER** to accept.
- Press **DIS2** to access **d.52** (Display 2). This is the output signal which represents **d.51**. The default value of **4.00** (4.00 mA) should be sufficient for most applications. Press **ENTER** to accept.
- Press **REL** to access **REL** (Relay 1).
- Press **ACT1** to access **ACT1** (Relay 1 Action).
- Press **Auto** (if necessary) until **Auto** (Automatic Reset) is displayed and then press **ENTER**.
- Press **SET1** to access **SET1** (Set Point 1) and use the **UP** and **DOWN** buttons to change the value.
- Press **REL** to access **REL** (Relay 2), press **ACT2** to access **ACT2** (Action 2), and press **ENTER** again to access **Auto** (Automatic Reset).
- Press **SET2** to access **SET2** (Set Point 2) and use the **UP** and **DOWN** buttons to change the value.
- Press **REL** to access **REL** (Relay 3), press **ACT3** to access **ACT3** (Action 3), and press **ENTER** again to access **Auto** (Automatic Reset).
- Press **SET3** to access **SET3** (Set Point 3) and use the **UP** and **DOWN** buttons to change the value. Press **ENTER** to accept and **ENTER** to exit.

Program 4-20 mA Analog Output

These instructions illustrate how to program the DPM-200 meter to output a 4-20 mA analog signal based on its display value. This signal is commonly output to a PLC or chart recorder.

Note: The display values programmed for 4-20 mA analog output do not need to be the same as those programmed as input scale values, though they most commonly will be.

- Press **SETUP** to enter **Programming Mode**, press **ANAL** to access the **5Etu** (Setup) menu.
- Press **ANAL** until the **ANAL** (Analog Out) menu is displayed and then press **ENTER**.
- Press **SCAL** to enter the **SCAL** (Scale) menu.
- Note: The meter will use an internally calibrated signal source to scale the analog output signal. There is no need for a calibrated signal source to scale the analog output.*
- Press **DIS1** to access **d.51** (Display 1). This is the display value at which the low range of the output (set in the next step, typically 4.00 mA) will be transmitted. Use the **UP** and **DOWN** buttons to change the value and press **ENTER** to accept.
- Press **DIS2** to access **d.52** (Display 2). This is the display value at which the high range of the output will be transmitted. Use the **UP** and **DOWN** buttons to change the value and press **ENTER** to accept.
- Press **OUT1** to access **OUT1** (Output 1). Press **ENTER** to accept the default value of **20.00** (20.00 mA).
- Press **ENTER** to return to **Run Mode**.

Setup Password Protection

The DPM-200 meter can be protected against unauthorized changes with the use of a user programmable password. These steps illustrate how to set up a password.

- Press **SETUP** to enter **Programming Mode**.
- Press **PASS** until the **PASS** (Password) menu is displayed, press **ENTER** to access and press **ENTER** again to acknowledge that the meter is unlocked.
- Use the **UP** and **DOWN** buttons to change the password.
- Press **ENTER** to accept the new password. The meter will display **LoCd** (locked) for 3 seconds.

Note: In order to unlock the meter once it has been locked, repeat these steps and enter the password. This will remove the password and allow programming of the meter. For more information, please consult the instruction manual.

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. These steps illustrate how to perform a factory reset of the DPM-200 meter.

- Press and hold **ENTER** for five (5) seconds to enter the **Advanced Features Menu**.
- Press **DIAG** until the **DIAG** (Diagnostics) menu is displayed.
- Press and hold **ENTER** for approximately five (5) seconds.
- Press **RESET** within three seconds, while the display is flashing **5Et** (reset).

*Note: If **ENTER** is not pressed within three seconds, the meter will return to the **DIAG** menu.*

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
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
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 is available at www.predig.com/docs.

Troubleshooting Tips

This meter is a highly sophisticated instrument with an extensive list of features and capabilities. If the front panel buttons are used to program the meter, it may be a difficult task to keep everything straight. That is why we strongly recommend the use of the MeterView software for all programming activities. A free USB adapter is available for programming with MeterView software if you register your meter.

Symptom	Check/Action
No display at all	Check power at power connector
Not able to change setup or programming, LoCd is displayed	Meter is password-protected, enter correct four-digit password to unlock.
Meter does not respond to input change	If a Low-Flow Cutoff Value has been programmed, the meter will display zero below that point, regardless of the input – which can appear like the meter is not responding to an input change. Check to make sure the problem is not being caused by an undesired low-flow cutoff value.
Meter displays error message during calibration (Error)	Check: 1. Signal connections 2. Input selected in Setup menu 3. Minimum input span requirements
Meter displays 1. 999999 2. -99999	Check: 1. Input selected in Setup menu 2. Corresponding signal at Signal connector
Display is unstable	Check: 1. Input signal stability and value 2. Display scaling vs. input signal 3. Filter and bypass values (increase)
Display response is too slow	Check filter and bypass values
Display reading is not accurate	Check: 1. Input signal conditioner selected: Linear, square root, etc. 2. Scaling or calibration
Display does not respond to input changes, reading a fixed number	Check: 1. Display assignment, it might be displaying max, min, or set point.
Display alternates between 1. H and a number 2. Lo and a number	Press Menu to exit max/min display readings.
Relay operation is reversed	Check: 1. Fail-safe in Setup menu 2. Wiring of relay contacts
Relay and status LED do not respond to signal	Check: 1. Relay action in Setup menu 2. Set and reset points
Flashing relay status LEDs	Relays in manual control mode or relay interlock switches opened.
Meter not communicating with application programs	Check: 1. Serial adapter and cable 2. Serial settings 3. Meter address and baud rate
If the display locks up or the meter does not respond at all	Cycle the power to reboot the microprocessor.
Other symptoms not described above	Call Technical Support for assistance.

Limited Warranty

BinMaster 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. BinMaster'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.binmaster.com for complete details.