DPM-400 Loop-Powered Process Meters
Quick Start Guide

BINMASTER

This quick start guide describes the common programming, wiring, and installation procedures for BinMaster DPM-400 meters. There are two display options: Decimal and Feet & Inches. Both include a bargraph with numeric percentage indicator. The wiring instructions are the same for both meters.

We recommend the following sequence as the easiest method for getting the meter into service:

- Connect Meterview XL Software 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 the meter not covered in this quick start guide, please consult the instruction manual available at binmaster.com.

Safety Information

⚠ CAUTION

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

⚠ WARNINGS

- Hazardous voltages exist within enclosure. Installation and service should be performed only by trained service personnel.
- Service requiring replacement of internal components must be performed at the factory.
- Control room equipment must not use or generate more than 250 VRMS or VDC.

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 panel meter's mounting brackets.

SPECIFICATIONS

Model	PDA18DINSH
Material	18 gauge 316 stainless steel
Overall Dimensions	2.99" x 5.68" x 2.99" (H x W x D) (75 mm x 144 mm x 75 mm)
Weight	0.9 lb (0.4 kg)
Gasket Material	Silicone Foam

For more information on the Stainless Steel Sun Hood, visit binmaster.com.

Program Meter with MeterView XL Software

The fastest and easiest way to program the meter is using the free Meterview XL programming software. This software greatly simplifies the programming process and allows the user to save configuration files for later use.

The meter connects to the PC via a provided micro-USB cable and is powered by the USB connection, so no additional power is needed during programming.

MeterView XL Software Installation

⚠ IMPORTANT

- Please uninstall previous versions of this software prior to downloading, installing, and running the latest version

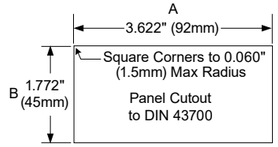
1. Download MeterView XL Installation file directly from the meter using the provided USB cable.
2. Locate the MeterView XL zipped folder on your PC and double-click to extract and open.
3. Double-click MeterView XL Windows Installer Package file to open.
4. The MeterView XL Setup Wizard window will appear. Click "Next" to start the installation process.
5. The MeterView XL License Agreement window appears next. Select "I agree" and click "Next" to continue the installation process.
6. Choose the folder location where you would like the software to be installed to and select options for use. Then click "Next" to continue.
7. Confirmation window will appear. Click "Next" to confirm the installation.
8. The User Account Control message is displayed. Click "Yes" to proceed with the installation.
9. Finally, the Installation Complete window will appear. Click "Close" to exit.

Now you are ready to open the MeterView XL software to begin programming your 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 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 ¼" (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

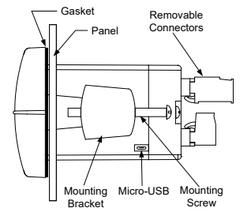


Figure 2. Panel Mounting Details

Mounting Dimensions

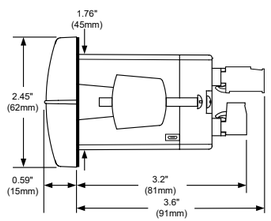


Figure 3. Meter Dimensions - Side View

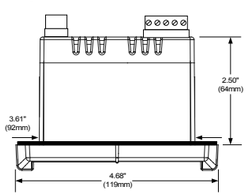


Figure 4. Meter Dimensions - Top View

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 graphics below show the location of all connectors available with requested configuration.

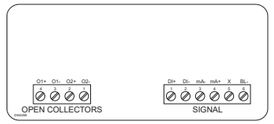


Figure 5. Base Meter, No Options (2 Open Collectors Standard)

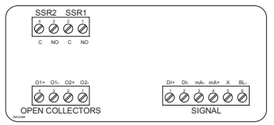


Figure 6. Option: 2 Solid-State Relays

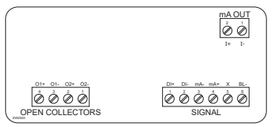


Figure 7. Option: 4-20 mA Output

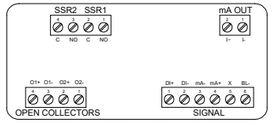


Figure 8. Options: 2 Solid-State Relays and 4-20 mA Output

Wiring Diagrams

Current Loop (4-20 mA) Connections

Signal connections are made to a six-terminal connector labeled SIGNAL. The following figures show a 4-20 mA current loop connected to the meter.

Figure 9. 4-20 mA Input Connection without Backlight

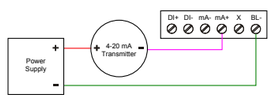


Figure 10. 4-20 mA Input Connection with Backlight

The current input is protected against current overload up to 1 amp. The display may or may not show a fault condition depending on the nature of the overload.

Digital Input Connections

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

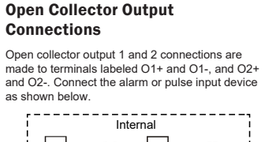


Figure 11. Digital Input Connections

4-20 mA Output Connections

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

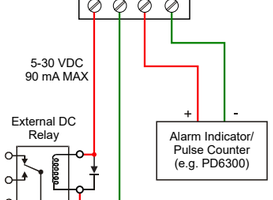


Figure 12. 4-20 mA Output Connections

Solid-State Relay Connections

Relay connections are made to a four-terminal connector labeled SSR1 and SSR2 on Figure 6 and Figure 8. Each relay's C terminal is common only to the normally open (NO) contact of the corresponding relay.

Figure 13. Solid State Relay Connections

Open Collector Output Connections

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

Figure 14. Open Collector Output Connections

Setup and Programming

The meter may be powered via the micro-USB connection located on the right side of the meter for the purposes of programming only. The backlight will not work while the meter is powered via the USB connection.

Front Panel Buttons and LCD Indicators

Feet & Inches Display with Bargraph

Decimal Display with Bargraph

1. Press the Menu button to enter or exit the Programming Mode at any time.
2. Press or hold the Right-Arrow button to scroll forward through the menus, select digits during numeric programming, select characters during text programming, or decrement the value of a digit or character selected with the Up-Arrow button.
3. Press and hold the Right-Arrow button to zero or clear digits/characters while in data-entry mode.
4. Press or hold the Up-Arrow button to scroll backwards through the menus or to increment the value of a digit or character.
5. Press the Enter button to access a menu or to accept a setting or programmed digit/character value.

Feet & Inches Display

LCD	Status
FT	**Feet Designation**
IN	**Inches Designation**
	**PV Bargraph**

Decimal and Bargraph Display

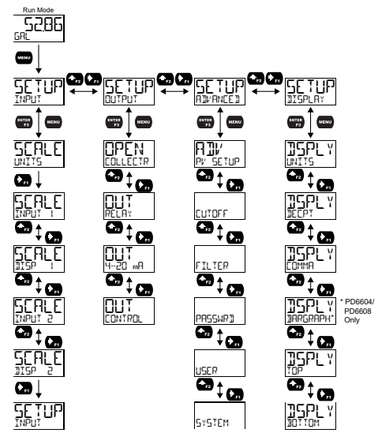
LCD	Status
	**PV Bargraph**

Main Menu

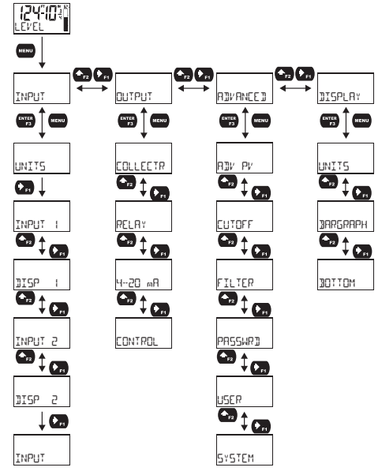
The main menu consists of all the meter's programmable functions: *Input*, *Output*, *Advanced*, and *Display*.

- Press ***Menu*** button to enter *Programming Mode* then press the ***Right-Arrow*** button to move forward through the menu and the ***Up-Arrow*** button to move back.
- Press ***Menu*** at any time to go back one level or press & hold 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/F3*** to confirm the setting or pressing ***Enter/F3*** at the SAVE? screen when available.

Decimal Display Main Menu Tree



Feet & Inches Display Main Menu Tree

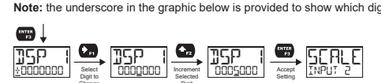


Setting Numeric Values

The numeric values are set using the ***Right*** and ***Up-Arrow*** buttons.

1. Press ***Right-Arrow*** to select next digit and ***Up-Arrow*** to increment digit value. The selected digit will flash.
2. Press and hold ***Up-Arrow*** to auto-increment the display value. If you have made a mistake or would like to enter a new value, select the left-most digit, and press and hold the ***Right-Arrow*** button until all digits reset to zero.
3. Press the ***Enter*** button at any time to accept a setting or ***Menu*** button to exit without saving changes.

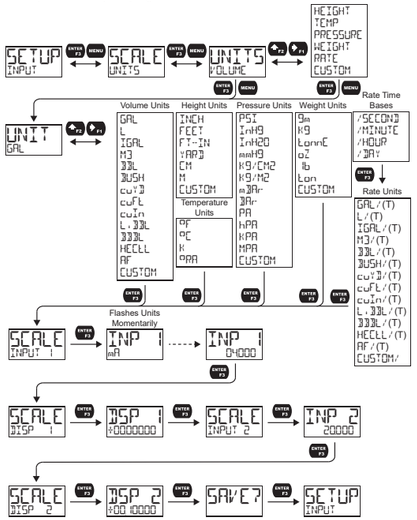
Note: the underscore in the graphic below is provided to show which digit would be flashing.



⚠ WARNING
Cancer and Reproductive Harm
www.P65Warnings.ca.gov

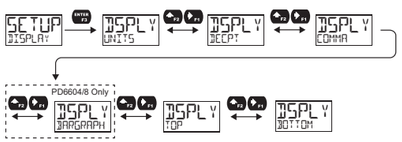
Scaling the 4-20 mA Input

Enter the *Input* menu to scale the meter to display the 4-20 mA input. The input can accept any signal from 4 to 20 mA.



Setting the Display Features

The meter's display functions may be programmed using the *Display* menu. This menu consists of the following submenus: *Units, Decimal Point, Comma, Bargraph, Top,* and *Bottom.*



Changing the Engineering Units

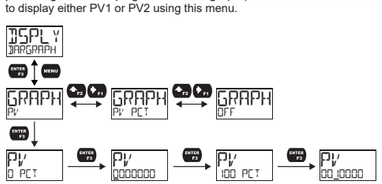
It is possible to change the engineering units within the selected unit class without the need to re-scale the meter. *(Feet and Inches model must be in dual-scale mode to enable.)* When selecting a new unit from within the *Display* menu (e.g. changing from gallons (GAL) to liters (L)), the meter will automatically convert the display values to display the new unit. Enter the *Units* menu, select a new unit of measure from the list of predefined units, and press the ***Enter*** button. If entering a custom unit (CUSTOM), the input must be scaled using the custom unit.

Feet & Inches Display

The *Units* menu is used to change how fractional inches are represented. The options are automatically reducing, 1/16, 1/8, 1/4, 1/2 of an inch, or no fractions. The default setting (FT-IN/16) automatically reduces the fraction to the lowest denominator.

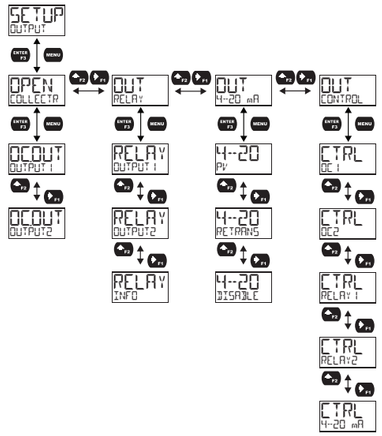
Programming the Bargraph

The DPM-400 comes equipped with a bargraph display for applications where a visual representation of the process variable's percentage of full scale is desirable. This feature can be enabled or disabled using the Bargraph menu (BARGRAPH). The value displayed on the bargraph can be the percentage of full scale (PV PCT) or the percentage of a user-programmable range (PV). If the meter is in dual-scale mode, the bargraph can be assigned to display either PV1 or PV2 using this menu.



Programming the Outputs

Depending on the model purchased, the meter may be available with two open collector outputs, two solid state relays, and one 4-20 mA output. The Output menu will only show options for the available outputs.



Open Collector Outputs

The meter is equipped with two NPN open collector outputs as a standard feature that may be set up for pulse outputs, alarms, timed pulses, or disabled.

Pulse outputs can be set to transmit the PV value (PV1 or PV2 if meter is in dual-scale mode). Output 2 may be used to generate a quadrature output based on the other open collector output. An output test mode is also selectable to generate pulses at a constant programmable frequency.

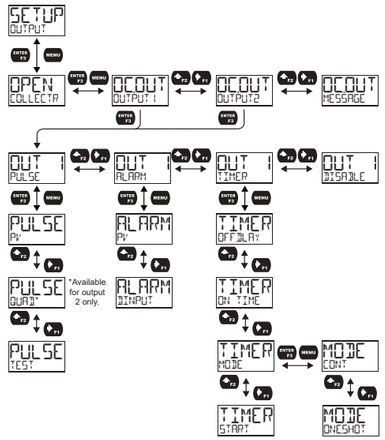
Alarms are available based on the PV value or the digital input. The alarm status will show on the display even if the output is not wired.

A timer output (TIMER) turns the open collector on and off at the specified time intervals. The timer can be set as single-shot or continuous timer.

The stopwatch output (STPWATCH) allows the open collector to be manually activated by starting the stopwatch. The stopwatch count can be displayed on the top or bottom display.

The output may be disabled by selecting DISABLE.

The Open Collector Outputs are programmed in the following manner:



To program the meter for a PULSE Output, refer to the instruction manual found at predig.com.

Solid-State Relay Outputs

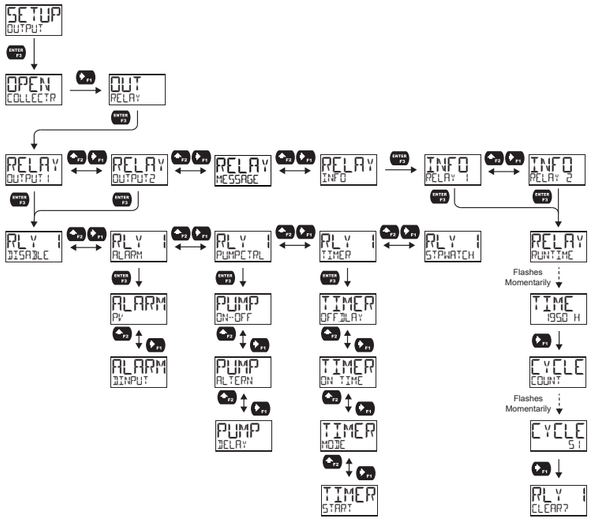
The meter can be optionally equipped with two solid-state relays that may be set up for alarms, timer, stopwatch, or pump control. Alternatively, they may be disabled.

Alarms are available based on the PV value or the digital input. The alarm status will show on the display even if the output is not wired. Pump control allows the relay to turn on and off a pump at specified on and off points. This can be done using only one of the relays to control one pump (ON-OFF) or using both relays in tandem to alternate between two pumps (ALTERN). A timer output (TIMER) turns the relay on and off at the specified time intervals. The timer can be set as single-shot or continuous timer. The stopwatch output (STPWATCH) allows the relay to be manually activated by starting the stopwatch. The stopwatch count can be displayed on the top or bottom display.

The output may be disabled by selecting DISABLE.

⚠ CAUTION

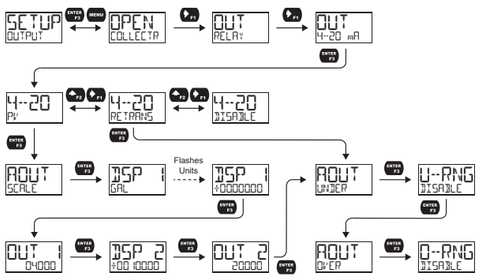
- During setup, the relays do not follow the input and they will remain in the state found prior to entering the *Relay* menu.



Isolated 4-20 mA Output

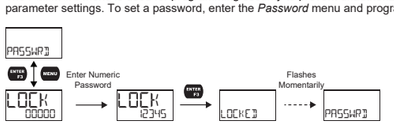
The *4-20 mA* menu is used to scale the isolated 4-20 mA output based on display values. This menu is not present on models without a 4-20 mA output option.

The 4-20 mA analog output can be scaled to provide a 4-20 mA signal for any PV display range or to simply retransmit the 4-20 mA input. The output may be disabled (DISABLE), and will only output the minimum signal. Overrange and underrange values determine what mA signal the meter will output if the mA input is underrange (<3.5 mA) or overrange (>20.5 mA). This value may be set to 1 mA, 3.5 mA, 3.8 mA, 20.5 mA, 20.8 mA, 23 mA, or disabled. No equipment is needed to scale the analog output; simply program two display values and corresponding mA output signals.



Enabling Password Protection

The *Password* menu is used for programming security to prevent unauthorized changes to the programmed parameter settings. To set a password, enter the *Password* menu and program a five-digit password.



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.

Reset Meter to Factory Defaults

When the parameters have been changed in a way that is difficult to determine what's happening, it might be better to start the setup process from the factory defaults. This can be accomplished using MeterView XL software or with the front panel buttons.

1. Press the ***Menu*** button to enter *Programming Mode*.
2. Press the ***Right-Arrow*** button twice and press ***Enter*** to access the *Advanced* menu.
3. Press the ***Up-Arrow*** button and press ***Enter*** to access the *System* menu.
4. Press the ***Right-Arrow*** button and press ***Enter*** to access the *Default* menu.
5. Press ***Enter*** twice in quick succession. The meter will load default settings and restart.

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.

927-0347 Rev 0
LIM6602BMQS_A
SFT125 Ver 1.000 & up
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