DPM-100

Dual-Line On-Board Serial Modbus Display

SCANVIEW
USB Install

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LISTED

C E

SUPER-BRIGHT LEDs
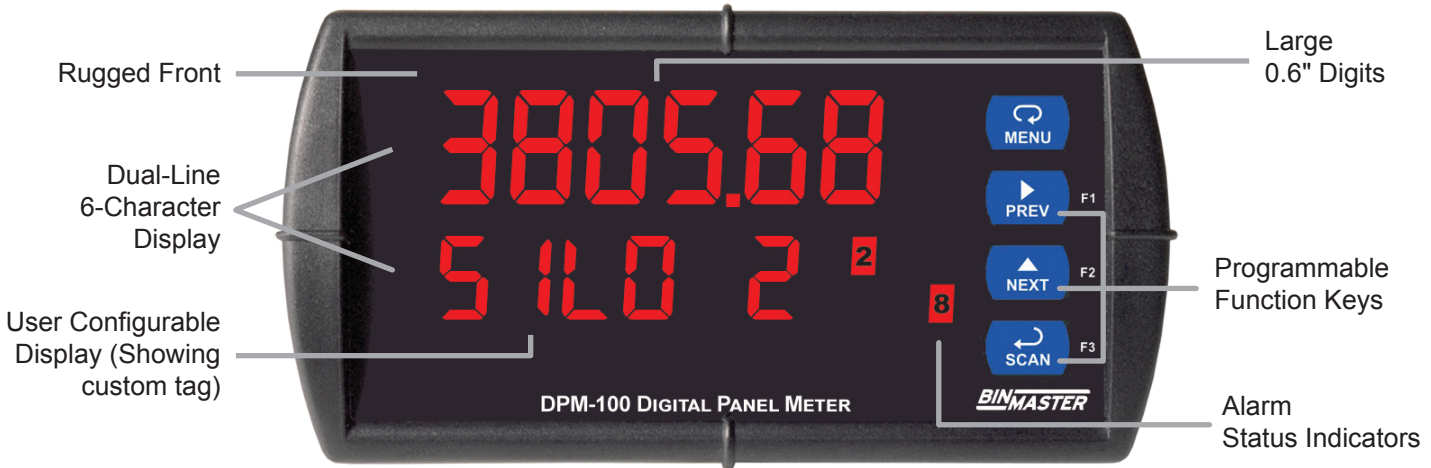Our Brightest Display Ever

FEATURES

- Modbus® RS-485 RTU Serial Communications as Master, Slave, or Snooper
- RS-485 Serial Communications Standard
- Scan up to 16 Modbus Process Variable
- Addition, Difference, Average, Multiplication, Division, Min, Max, Weighted Average, Ratio, Concentration, & More
- Large Dual-Line 6-Digit Display, 0.60" & 0.46"
- Optional SunBright Display Models for Outdoor Applications

- NEMA 4X, IP65 Front
- Input Power Options Include 85-265 VAC or 12-24 VDC
- Programmable Display & Function Keys
- 32-Point, Square Root, or Exponential Linearization
- Multi-Pump Alternation Control
- 2 or 4 Relays + Isolated 4-20 mA Output Options
- External 4-Relay & Digital I/O Expansion Modules
- Onboard USB and ScanView Programming Software

Dual-Line On-Board Serial Modbus Display

DPM-100

UV Resistant
Sunlight Readable

Front Panel
NEMA 4X Rated

SCANVIEW
USB Install

Rugged Front

Large
0.6" Digits

Dual-Line
6-Character
Display

3805.68
SILO 2

Programmable
Function Keys

User Configurable
Display (Showing
custom tag)

DPM-100 DIGITAL PANEL METER

BINMASTER

Alarm
Status Indicators

TAKE ADVANTAGE OF YOUR MODBUS ENABLED TRANSMITTERS

By using the Modbus signal from your existing level sensors, you will open up a whole new dimension of display possibilities. Paired with a BinMaster DPM-100 Modbus Display, you can display multiple variables including level, interface level, density, temperature, and more.

The DPM-100 Modbus Displays are multi-purpose, easy-to-use devices that can be programmed as Modbus RTU Masters, Slaves, or Snoopers. They are capable of scanning up to 16 process variables (PVs), which make them ideal for multiple tank level monitoring and control. Plus, they combine these capabilities with powerful math functions that may be applied to the PVs including addition, difference, average, multiplication, division, ratio, and more.

KEY FEATURES

The DPM-100 can be programmed as a Modbus RTU Master, Slave, or Snooper. Its Modbus communications capabilities and math functions make it unique, while still maintaining the great features and quality of the DPM-100 family.

Modbus RTU Serial Communications

As a **Master**, the DPM-100 Modbus Display reads up to 16 slave de-vices, scales the data from each, and displays each on an alternating display. The DPM-100 in **Master** mode is capable of polling up to 16 process variables (PVs). It displays each PV (PV1-PV16) alternately on the top and/or bottom display.

In **Snooper** mode, the DPM-100 is able to to read any of the variables being polled by the master by listening to the bus traffic. It picks up specific register or registers being polled by a master device from a specific slave device and processes the data being read. No oth-er device on the Modbus network needs to be reprogrammed for the Snooper mode DPM-100 to display data polled by the Modbus master.

As a **Slave**, the DPM-100 is controlled by a master device. The data sent to it by the master is scaled, displayed, and used to operate the internal relays and 4-20 mA output.

Standard LED and Optional SunBright LED Display Models

The DPM-100's standard and SunBright display models feature extraordinarily bright LED displays. They are perfect for indoor and outdoor applications where visibility may be impaired by smoke, fog, dust, or distance. The intensity on the SunBright display model is so high it can be read even in the brightest sunlight.

Function Keys

There are three function keys available to the user. These keys can be programmed to trigger certain events (i.e. acknowledge alarms, reset max and/or min, disable/enable output relays, or hold current relay states), provide direct menu access points, and more.

Free USB Programming Software & Cable

The DPM-100 comes preloaded with free ScanView programming software that connects and installs directly to your PC with a standard USB cable, also provided free with each instrument. This eliminates the need to insert CDs, install drivers, or download software from the internet. The software will allow you to configure, monitor, and datalog a DPM-100 using your PC. Just simply connect the meter to your PC with the USB cable and within minutes you will be programming it.

Free USB Cable Included
for Easy Software Installation

SCANVIEW
USB Install
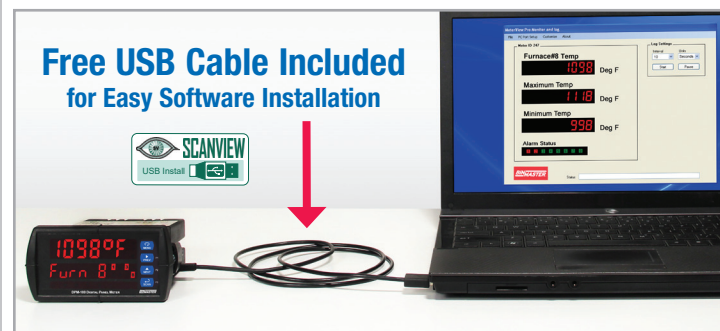
Modbus Application Capabilities

The BinMaster DPM-100 Displays can communicate with any Modbus device using the ever-popular Modbus communications protocol. Take advantage of the Modbus capabilities in the level and flow transmitters you already have by using Master Mode to read more data, more accurately. Possible applications include:

- Use Master Mode to scan the top level, interface level, and temperature from Modbus multivariable level transmitters.
- Use Master Mode to display the flow rate, tag, and units, for multiple Modbus-enabled flow meters.
- Use Snooper Mode to add a tank side indicator at eye-level for a Modbus level transmitter being polled by a master in the control room.
- Use Snooper Mode to add additional remote displays to a network with a Modbus scanner acting as the master, and display the data at all operator locations.
- Use Slave Mode to display data sent to the scanner by a Modbus master in the control room.

These are just a few capabilities of using the DPM-100 Modbus Displays in a Modbus process network.

Powerful Math Functions

The DPM-100 uses up to 16 process variables in a variety of powerful math functions designed for process applications. Programmable Adder (P) and Factor (F) constants allow each formula to be customized as needed for a specific application. The Math Channels (C1-C4) may be displayed in many useful combinations. Most math functions may be applied to all PVs: for example, it is possible to add up to 16 PVs and calculate the total volume of all the tanks in a field. The Math2 function allows for further calculations on the results of other math channels (e.g. C4= C2/C1).

Name	Function	Setting
Addition	C1=(PV1+PV2+P)*F	Sum
Difference	C1=(PV1-PV2+P)*F	diF
Absolute Difference	C1=((Abs(PV1- PV2)+P)*F	diFAbS
Average	C1=(((PV1+PV2)/2)+P)*F	AUG
Multiplication	C1=((PV1*PV2)+P)*F	mulEi
Division	C1=((PV1/PV2)+P)*F	diUidE
Maximum PV	Maximum value of all selected PVs	Hi-PU
Minimum PV	Minimum value of all selected PVs	Lo-PU
Draw	C1=((PV1/PV2)-1)*F	drAw
Weighted Average	C1=((PV2-PV1)*F)+PV1	wAUG
Ratio	C1=(PV1/PV2)*F	rAEio
Concentration	C1=(PV1/(PV1+PV2))*F	ConcEn
Resultant Math Channel	Math on all other math channels	mAEh2
Addition	C3=(C1+C2+P)*F	Sum
Difference	C4=(C1-C2+P)*F	diF
Absolute Difference	C3=((Abs(C1- C2)+P)*F	diFAbS
Average	C4=(((C1+C2)/2)+P)*F	AUG
Multiplication	C3=((C1*C2)+P)*F	mulEi
Division	C4=((C1/C2)+P)*F	diUidE

*Note: The F constant can be any value from 0.00001 to 999999. If the value is less than 1, it will have the same effect as a divider. For example, the average could also be derived by using (A+B)*F, where F = 0.500.*

Customizable Displays

The DPM-100 has two red LED displays, an Upper display 0.60" (15 mm) high, and a Lower display 0.46" (12 mm) high. Each display is a full 6 digits (-99999 to 999999). The display assignment is programmable, allowing for various one line or two line PV configurations.

Alternating Tag and Units on the Bottom Display for Each PV

Displaying Two PVs

Custom Tag and Units for Each PV

Each process variable has an independently programmable tag and unit name. The tag must display on the line opposite the PV or alternate with the PV during scanning. The unit may be configured to display similarly. The tag and unit may be programmed as any six-digit alphanumeric value.

Automatic or Manual Scanning

The scanner may automatically or manually cycle through the PVs. The scanner can be programmed to display each PV for 1 to 99.9 seconds. The NEXT and PREV buttons can be used to manually scan to the next or previous PV display. The SCAN button will pause and resume automatic scanning.

Rugged

A unique front panel design makes the DPM-100 nearly impenetrable in typical applications. Here, the DPM-100 easily survives a direct hit on the display from a heavy 2" solid stainless steel ball dropped from a height of eight feet (approximately 2.4 meters).
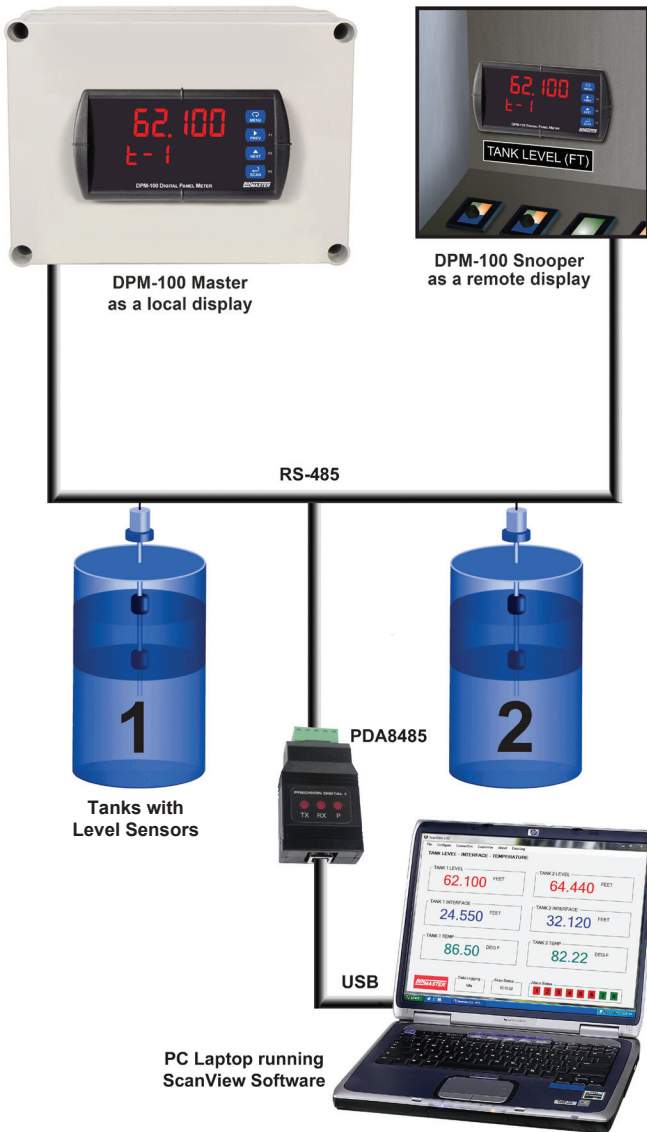
Three Tier Password Protection

The DPM-100 offers 3 levels of password protection:
- Level 1 protection allows the operator use of only the 3 pre-configured function keys on the front panel without a password.
- Level 2 protection allows the operator use of only the function keys and the ability to change set points without a password.
- Level 3 protection restricts the operator from using the function keys and all meter configuration menus without a password.

Advanced Linearization Capability

The DPM-100 includes a 32-point linearizer for PV1 & PV2. In non-linear level applications (i.e. some pumping or lift stations), it can easily compensate for submerged equipment or plumbing that displace usable volume. In addition to the 32-point linearization, the DPM-100 can perform a square root or programmable exponent function on any PV or Modbus input, or automatically calculate level in round horizontal tanks by inputting the length and height of the tank. Each input's linearization is performed independently prior to the input value being used in any math function.

Typical Modbus Application Example

DPM-100 Master as a local display

DPM-100 Snooper as a remote display

TANK LEVEL (FT)

RS-485

1

2

PDA8485

Tanks with Level Sensors

TANK LEVEL - INTERFACE / TEMPERATURE

TANK 1 LEVEL		TANK 2 LEVEL	
62.100	FEET	64.440	FEET
TANK 1 INTERFACE		TANK 2 INTERFACE	
24.550	FEET	32.120	FEET
TANK 1 TEMP		TANK 2 TEMP	
86.50	DEG F	82.22	DEG F

USB

PC Laptop running ScanView Software

On-Board Digital Input

The DPM-100 includes a digital input as a standard feature. This digital input can operate with the interlock relays feature, force relays on from a signal from a PLC or relay on other equipment, acknowledge alarms, and much more. This is ideal for installations where the meter is inaccessible behind a cover, or where an additional function key is needed for customized operation.

F4   COM   DI $\overline{DI}$ $\overline{DO}$ DO

TX   1   2   1   2   3   4   5
RX

RS-485

ACK
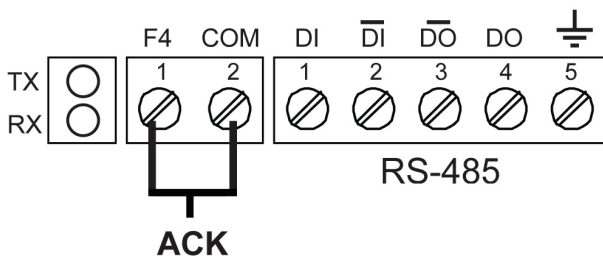
DIGITAL COMMUNICATIONS

RS-485 Serial Communications Standard

The DPM-100 includes an internal RS-485 serial communications module. This may be wired for full-duplex, 5-wire RS-485, or half-duplex 3-wire RS-485.

ScanView Software

BinMaster's free ScanView PC-based programming software allows the operator to easily configure, monitor, and datalog a DPM-100 scanner from a PC (available for download at www.binmaster.com) with a serial adapter. The software can save this data to the scanner and/or PC. ScanView greatly simplifies the construction of the linearization tables and gives operators another level of control. ScanView installation is required for tech support.

SV

SCANVIEW

- Free Modbus Scanner Software
- Configure a Modbus Scanner
- Conveniently Monitor Critical Information
- Datalog from a PC
- Easy USB Connection

Resident on DPM-100 Modbus Displays

FIELD EXPANSION MODULES

Add functionality to the DPM-100 in the field with easy-to-install external expansion modules. The menu items for these modules do not appear until the module is connected, simplifying the menu.

PDA1044 I/O Expansion Module

Four digital inputs and four digital outputs are available per expansion module. The DPM-100 will accept two of these modules. External digital inputs can function similarly to the front panel function keys or on-board digital input F4. They can be configured to trigger certain events (i.e. acknowledge/reset alarms, reset max and/or min values, disable/enable all output relays, and hold current relay states), provide direct menu access point, or mimic front panel keys. Digital outputs can be used to remotely monitor DPM-100's alarm relay output states, or the states of a variety of actions and functions executed by the scanner.

PDA1011 Dual Analog Output Module

Two additional isolated analog outputs may be added to the DPM-100. These analog outputs have the same features and functions of the on-board analog output option. Each passive output requires an isolated external DC supply.

PDA1004 Relay Expansion Module

An external module containing four 3 A Form A (SPST) relays can be added to the DPM-100 at at any time and performs identically to the on-board relays.

OUTPUTS

Each output of the DPM-100 may be assigned to any single PV, Modbus PV, or math PV. The output will reflect the state of that assigned variable at all times during scanning.

Relay Outputs

The DPM-100 has up to four 3 A Form C relays (SPDT) with multiple power loss fail-safe options. Relays can be configured for proper protective action upon input loop break. Relay ON and OFF delay times are user adjustable. Up to eight front panel indicators show alarm and/or relay state. All relays can be configured for 0-100% deadband.

Relay Operation/Configuration

There are powerful relay functions that can be configured in the DPM-100 Modbus Display, including:

• Automatic reset only (non-latching)
• Automatic + manual reset at any time (non-latching)
• Latching (manual reset only)
• Latching with clear (manual reset only after alarm condition has cleared)
• Pump alternation control (automatic reset only)
• Sampling (activated for a user-specified time)
• User selectable fail-safe operation
• Relay action for loss (break) of 4-20 mA input signal
• Time delay (on and off), independent for each relay
• Manual control mode
• Interlock relay mode

Analog Output

The isolated analog retransmission signal scales for any 4 mA and 20 mA display value. While the output is nominally 4-20 mA, the signal will accurately accommodate under- and over-ranges from 1 to 23 mA.

Manual Output Control

Take control of any output with this feature. All relays can be forced ON or OFF, and the 4-20 mA output signal can be set to any value within its range. When the relays and 4-20 mA output are controlled manually, an LED labeled "M" is turned on and the associated Alarm LEDs (1-8) flash every 10 seconds indicating that the meter is in manual control mode.

Isolated Transmitter Power Supply

A power supply (24 V @ 40 mA) is standard with the 4-20 mA output option. It can be used to power either the 4-20 mA output or the Modbus level sensor.

Sampling Function (PV Triggered Timed Relay)

The sampling function allows the operator to set a set point for a "sampling" relay. When the PV reaches that set point, it will close that relay's contacts for a preset period of time (0.1 to 5999.9 seconds). An example of its use may be for beer/ale fermentation. When the batch reaches a certain pH, the relay contacts would close and alert someone or automatically take a sample of the batch. This function can be used whenever a timed relay output closure is required when the PV reaches a certain set point.

Interlock Relay(s)

This function allows a process to use one or more very low voltage input signals or simple switch contacts to control the state of one or more internal "interlock" relays. A violation (i.e. loss of input, open switch, or open circuit) forces one or more N/O interlock relay contacts to open. One input can be used in series with a number of interlock switches, or up to eight inputs can be required to force-on one (or more) internal interlock relays. Requires PDA1044 Digital I/O module or use of on-board digital input F4.
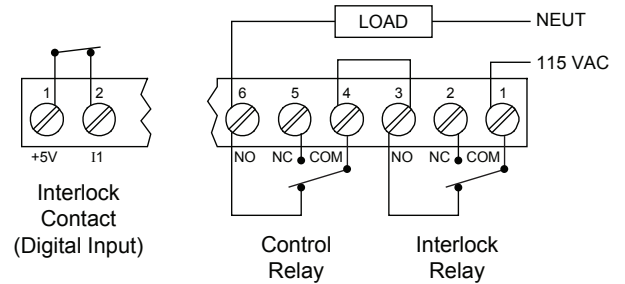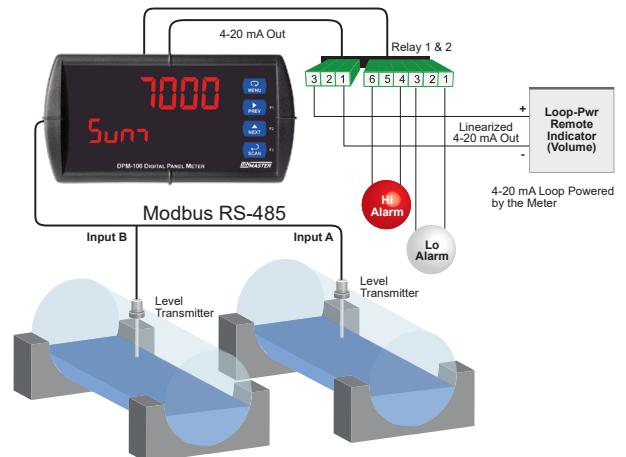

SIGNAL INPUT CONDITIONING

Non-linear input signals (i.e. weirs & flumes, differential pressure, etc.) can be linearized with the DPM-100's simple to use built-in signal input conditioning, such as: square-root extractor, exponential linearizer, round horizontal tank linearizer, or the DPM-100 powerful general purpose 32-point linearizer (32-point for for PV1 & PV2 only - all other PVs use two linearization points).
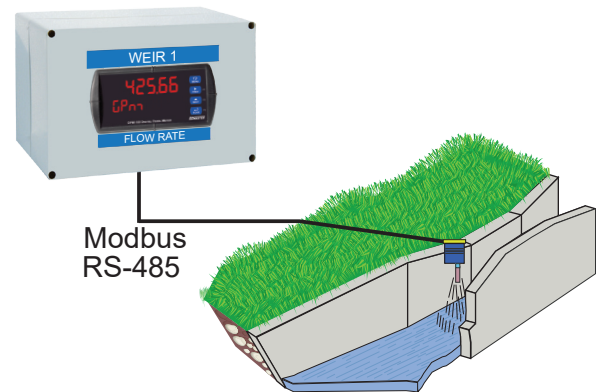
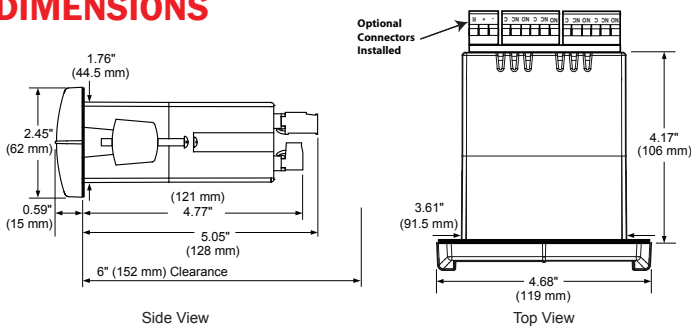**Weir Flow Calculated Using Exponential Signal Input Conditioning**

Round Horizontal Tank Signal Input Conditioning

NEMA 4 & 4X FIELD ENCLOSURES

BinMaster offers a variety of rugged enclosures that provide a high degree of protection against harsh operating environments. Thermoplastic and stainless steel NEMA 4X, and painted steel NEMA 4 enclosures for up to 10 DPM-100 meters are available.

PDA2811
Plastic Low-Cost

PDA2302
Plastic Economical

PDA2604
Stainless Steel

DIMENSIONS

1.76" (44.5 mm)
2.45" (62 mm)
0.59" (15 mm)
(121 mm) 4.77"
5.05" (128 mm)
6" (152 mm) Clearance

Side View

Optional Connectors Installed

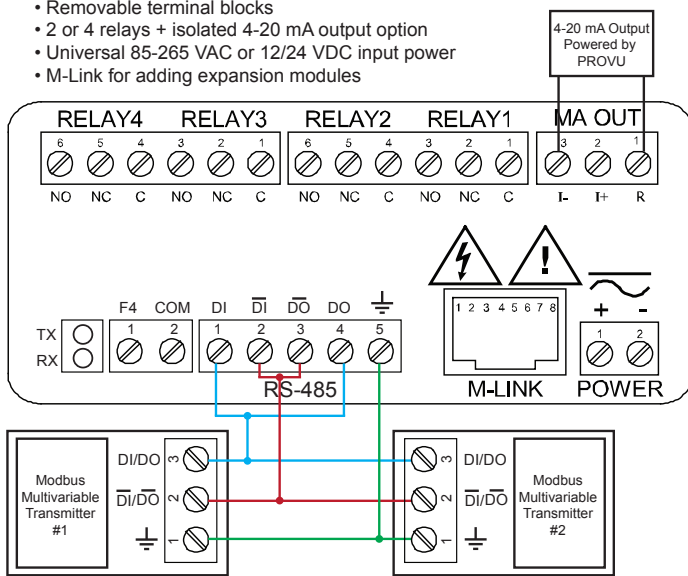4.17" (106 mm)
3.61" (91.5 mm)
4.68" (119 mm)

Top View

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

CONNECTIONS

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

- Form C (SPDT) relays
- Removable terminal blocks
- 2 or 4 relays + isolated 4-20 mA output option
- Universal 85-265 VAC or 12/24 VDC input power
- M-Link for adding expansion modules

4-20 mA Output Powered by PROVU

RELAY4   RELAY3   RELAY2   RELAY1   MA OUT

6 5 4 3 2 1   6 5 4 3 2 1   6 5 4 3 2 1   3 2 1
NO NC C NO NC C   NO NC C NO NC C   I- I+ R

F4   COM   DI   DI   DO   DO
TX   1   2   1   2   3   4   5
RX
RS-485   1 2 3 4 5 6 7 8   M-LINK   + -   1 2   POWER

Modbus Multivariable Transmitter #1
DI/DO 3
DI/DO 2
1

Modbus Multivariable Transmitter #2
DI/DO 3
DI/DO 2
1

Half Duplex RS-485

Connector Labeling for a Fully Loaded DPM-100

SPECIFICATIONS

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

General

Input/Output: Modbus RTU over RS-485
Display: Upper display: 0.60" (15 mm) high. Lower display: 0.46" (12 mm) high. Both are 6 digits (-99999 to 999999), red LEDs
Display Intensity: Eight user selectable intensity levels
Display Scan Rate: Master/Snooper: 1/second to once every 99.9 seconds. Slave: Dependent on master device (e.g. PLC)
Overrange: Display flashes 999999
Underrange: Display flashes -99999
Display Assignment: The top display may be assigned to PV (process values), Ch C (math channel), PV & units, tag & PV, tag-PV-units, C & units, tag-C-unit, Set point 1-8, max/min PV, max/min C. The bottom display may be assigned to all of the above, tag, or off. The tag and units are displayed alternately for 2 sec, when selected. Different tags & PVs may be selected to display on the top and bottom displays at the same time.
Front Panel: NEMA 4X, IP65
Programming Methods: Four front panel buttons, digital inputs, PC and ScanView software, Modbus registers, or cloning using Copy function.
F4 Digital Input Contacts: 3.3 VDC on contact. Connect normally open contacts across F4 to COM.
F4 Digital Input Logic Levels: Logic High: 3 to 5 VDC
Noise Filter: Programmable from 2 to 199 (0 will disable filter)
Filter Bypass: Programmable from 0.1 to 99.9% of calibrated span
Recalibration: All ranges are calibrated at the factory. Recalibration is recommended at least every 12 months.
Max/Min Display: Max (Peak) / min (Valley) readings reached by the process are stored until reset by the user or until power to the meter is cycled.
Password: Three programmable passwords restrict modification of programmed settings.
Non-Volatile Memory: All programmed settings are stored in non-volatile memory for a minimum of ten years if power is lost.
Power Options: 85-265 VAC 50/60 Hz, 90-265 VDC, 20 W max, or optional model with 12-24 VDC ±10%, 15 W max.
Fuse: Required external fuse: UL Recognized, 5 A max, slow blow; up to 6 meters may share one 5 A fuse.
Normal Mode Rejection: Greater than 60 dB at 50/60 Hz
Isolation: 4 kV input/output-to-power line. 500 V input-to-output.
Overvoltage Category: Installation Overvoltage Category II: Local level with smaller transient overvoltages than Installation Overvoltage Category III.
Environmental: Operating temperature range: -40 to 65°C Storage temperature range: -40 to 85°C
Relative Humidity: 0 to 90% non-condensing
Connections: Removable screw terminal blocks accept 12 to 22 AWG wire, RJ45 for external relays, digital I/O, and serial communication adapters.
Enclosure: 1/8 DIN, high impact plastic, UL 94V-0, color: black
Mounting: 1/8 DIN panel cutout required: 3.622" x 1.772" (92 mm x 45 mm). Two panel mounting bracket assemblies are provided.
Tightening Torque: Screw terminal connectors: 5 lb-in (0.56 Nm)
Overall Dimensions: 4.68" x 2.45" x 5.64" (119 mm x 62 mm x 143 mm) (W x H x D)
Weight: 9.5 oz (269 g)
UL File Number: UL & c-UL Listed. E160849; 508 Industrial Control Equipment.
Warranty: 3 years parts & labor
USB Connection: Compatibility: USB 2.0 Standard, Compliant
Connector Type: Micro-B receptacle
Cable: USB A Male to Micro-B Cable
Driver: Windows 98/SE, ME, 2000, Server 2003/2008, XP 32/64-Bit, Vista 32/64-Bit, Windows 7 32/64-Bit, Windows 10 32/64-Bit
Power: USB Port

Modbus Serial Communications

Protocol: Modbus RTU

Meter Address/Scanner ID: 1 - 247

Baud Rate: 300 - 19,200 bps

Transmit Time Delay: Programmable between 0 and 199 ms

Data: 8 bit (1 start bit, 1 or 2 stop bits)

Parity: Even, odd, or none with 1 or 2 stop bits

Byte-to-Byte Timeout: 0.01 - 2.54 seconds

Turn Around Delay: Less than 2 ms (fixed)

Operating Modes: MASTER: Processes data read from Modbus RTU slave devices. It polls up to 16 process variables from 1 to 16 slave devices. The Master is capable of scanning the selected PVs, scale the data, trigger relays, perform math operations, and drive the analog outputs.

SNOOPER: Listens to the Modbus traffic and picks up a specific register or registers being polled by a master device from a specific slave device and processes the data being read. The Snooper mode handles the data the same way as the Master.

SLAVE: Processes data sent to it from a Modbus RTU master device.

PV Number: PV1–PV16 Enable or disable the process variables to be polled by the Master.

Slave ID: Assign the slave ID or address (1-247) containing the process variables to be displayed by the selected PV.

Function Code: Select which Modbus function code (03, 04, or 65) to use in reading the slave device.

Register Number: 5 digit: 30001-39999, 40001-49999, or 1-65,536
6 digit: 300001-365536 or 400001-465536 (Function Code 65 N/A here)
Specifies which register(s) to read in the slave device. Range is dependent on Function Code selection (65, 04, or 03) and digits selection (5 or 6).

Data Type: Select the data format that the slave device uses. Select between Short integer (2 byte), Long integer (4 byte), or floating point (4 byte), Signed or Unsigned (integer only) and byte order: 1234, 4321, 2143, or 3412 (big-endian vs. little-endian, or swapped).

Poll Time: 1.0 to 99.9 sec. Time between read-commands (Master mode).

Slave Response Timeout: 0.0 to 99.9 seconds: Time allowed for the slave to respond before the scanner generates a communication break condition. The master polls the slave 3 times before starting the response timeout timer. **Slave/Snooper mode:** Time the scanner will wait for new data before going into break condition. Slave mode: Programming 0 disables the timeout; the last value received will be displayed indefinitely.

Communication Breakdown: Displays "brEAK" after the Master has polled the slave device 3 times and the response timeout has elapsed. The Snooper and Slave modes go into break condition after no new data is received within the response timeout window. Relays can be programmed to go on, off, or ignore the break condition. The analog outputs can be setup to generate a fixed mA current when a break condition is detected.

Programmable Constants: Constant P (Adder): -99999 to 999999, default: 0.000; Constant F (Factor): 0.00001 to 999999, default: 1.000

Math Functions: Addition, difference, absolute difference, average, multiplication, division, max of A or B, min of A or B, draw, weighted average, ratio, concentration. See instruction manual for details.

Tag & Units: 6-character, independent tag and units for each PV and math channel.

PV Format: Decimal format (default) or FT & IN, 1/8th or 1/16th; decimal format may be selected for line 2 indication.

Display Decimal Point: Up to five decimal places or none: d.ddddd, dd.dddd, ddd.ddd, dddd.dd, ddddd.d, or dddddd

Float Decimal Point: Select the number of decimals to use for the floating point data expected from the slave or master device (this is independent from the display decimal point selection).

PV & Math Scaling: All PVs and math channels may be scaled to represent the input data in any engineering unit.
Example: Level transmitter = 999.999 inches; to display in Ft-In-1/16th scale input 2 to display 83 Ft – 4 In – 0/16th.

Scan Mode: Automatic: 1.0 to 99.9 seconds.
Manual: Front panel or digital inputs
Go on alarm: Continues scanning after an alarm is detected
Stop on alarm: Goes to the alarmed PV and stops scanning; press Scan to resume scanning.

Relays

Rating: 2 or 4 SPDT (Form C) internal and/or 4 SPST (Form A) external; rated 3 A @ 30 VDC and 125/250 VAC resistive load; 1/14 HP ($\approx$ 50 W) @ 125/250 VAC for inductive loads.

Noise Suppression: Noise suppression is recommended for each relay contact switching inductive loads.

Electrical Noise Suppression: A suppressor (snubber) should be connected to each relay contact switching inductive loads to prevent disruption to the microprocessor's operation. Recommended suppressor value: 0.01 µF/470 Ω, 250 VAC (PDX6901).

Deadband: 0-100% of span, user programmable

High or Low Alarm: User may program any alarm for high or low trip point. Unused alarm LEDs and relays may be disabled (turned off).

Relay Operation: automatic (non-latching), latching (requires manual acknowledge), sampling (based on time), pump alternation control (2 to 8 relays), Off (disable unused relays and enable interlock feature, manual on/off control mode).

Relay Reset: User selectable via front panel buttons, digital inputs, or PC.
1. Automatic reset only (non-latching), when input passes the reset point.
2. Automatic + manual reset at any time (non-latching).
3. Manual reset only, at any time (latching).
4. Manual reset only after alarm condition has cleared (latching).
Note: Front panel button or digital input may be assigned to acknowledge relays programmed for manual reset.

Time Delay: 0 to 999.9 seconds, on & off relay time delays. Programmable and independent for each relay.

Fail-Safe Operation: Programmable and independent for each relay.
Note: Relay coil is energized in non-alarm condition. In case of power failure, relay will go to alarm state.

Auto Initialization: When power is applied to the scanner, relays will reflect the state of the input to the scanner.

Isolated 4-20 mA Transmitter Output

Output Source: Process Variable 1-16, math channels C1-C4, set points 1-8, or manual control mode

Scaling Range: 1.000 to 23.000 mA for any display range

Calibration: Factory calibrated: 4.000 to 20.000 = 4-20 mA output

Analog Output Programming: 23.000 mA maximum for all parameters: Overrange, underrange, max, min, and break

Communications Break: Programmable mA output when a slave device does not reply within the response timeout

Accuracy: ± 0.1% of span ± 0.004 mA

Temperature Drift: 0.4 µA/°C max from 0 to 65°C ambient, 0.8 µA/°C max from -40 to 0°C ambient
Note: Analog output drift is separate from input drift.

Isolated Transmitter Power Supply: Terminals I+ & R: 24 VDC ± 10%. Isolated from the input at >500 V. May be used to power the 4-20 mA output or other devices. All models rated @ 40 mA max.

External Loop Power Supply: 35 VDC maximum

Output Loop Resistance:

Power Supply	Minimum	Maximum
24 VDC	10 Ω	700 Ω
35 VDC (external)	100 Ω	1200 Ω

ORDERING INFORMATION

DPM-100 Decimal Modbus Scanner Models		
85-265 VAC Model	**Reorder Number**	**Options Installed**
PD6088-6H0-BM	348-0029	None
PD6088-6H2-BM	348-0026	2 Relays
PD6088-6H3-BM	348-0024	4-20 mA Output
PD6088-6H4-BM	348-0035	4 Relays
PD6088-6H5-BM	348-0027	2 Relays & 4-20 mA Output
PD6088-6H7-BM	348-0025	4 Relays & 4-20 mA Output
12-24 VDC Model	**Reorder Number**	**Options Installed**
PD6088-7H0-BM	348-0028	None
PD6088-7H2-BM	348-0031	2 Relays
PD6088-7H3-BM	348-0032	4-20 mA Output
PD6088-7H4-BM	348-0036	4 Relays
PD6088-7H5-BM	348-0033	2 Relays & 4-20 mA Output
PD6088-7H7-BM	348-0034	4 Relays & 4-20 mA Output

Accessories	
Model	**Description**
PDA1002	DIN Rail Mounting Kit for Two Expansion Modules
PDA1004	4-Relay Expansion Module
PDA1011	Dual 4-20 mA Output Module
PDA1044	4 Digital Inputs & 4 Digital Outputs Module
PDA7485-I	RS-232 to RS-422/485 Isolated Converter
PDA7485-N	RS-232 to RS-422/485 Non-Isolated Converter
PDA8485-I	USB to RS-422/485 Isolated Converter
PDA8485-N	USB to RS-422/485 Non-Isolated Converter
PDX6901	Suppressor (snubber): 0.01 µF/470 Ω, 250 VAC

Disclaimer