PPM Pulse Panel Meter
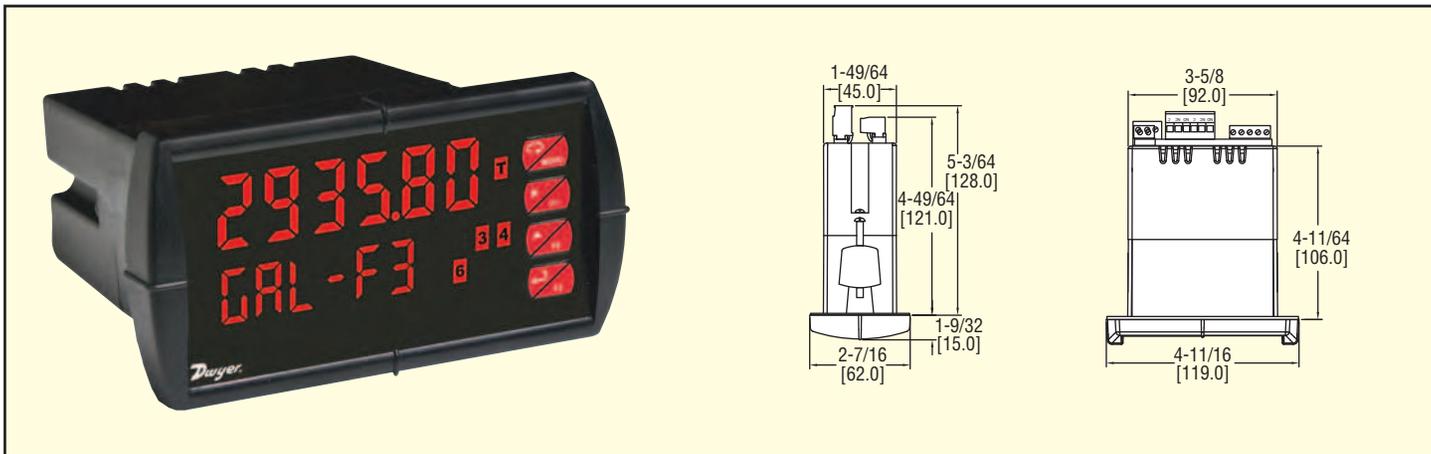## 1/8 DIN, Dual-Line 6-Digit Display, Flow Rate and Totalizer

CE RoHS LISTED

The Series PPM has a unique, rugged, NEMA 4X front panel design that makes it nearly impenetrable in typical applications. The weatherproof, UV resistant, large, dual line display allows for more information, making it easier to read and simpler to program. The intensity of the display can be adjusted allowing this meter to be utilized in dark rooms as well as outdoors, due to its sunlight readable display. It features up to eight visual alarm set points to trigger certain events and three function keys which can be programmed to provide direct menu access. With up to four relays available, the PPM features latching, non-latching, sampling, pump alteration control, and a failsafe action. Offering programmable delay time, this meter prevents recognition of false maximum or minimum reading which may be caused by the start-up or unusual process events. The PPM provides three security passwords that restrict modification of programmed settings. This unit has the ability to obtain non-linear input signals and linearize them with a general purpose 32-point linearizer. Choose from RS-232, RS-422/485 serial communication options or any available expansion modules, accessories, and enclosures.

The PPM displays flow rate and total simultaneously, with a programmable relay and 4 to 20 mA option for flow rate or flow total. The PPM is a 1/8 DIN digital panel meter specifically designed for displaying flow rate and total from a pulsed input provided by open collector, NPN, PNP, TTL, switch contact, sine wave, or square wave.

FEATURES
• Three levels of password protection
• Gate function for rate display of slow pulse rates
• Rate displayed as units per second, minute, hour, or day
• K-factor calibration or scale with up to 32-point linearization
• Total, grand total or non-re-settable grand total
• Two or four relays & isolated 4 to 20 mA output options
• External 4-relay & digital I/O expansion modules
• RS-232, RS-422/485 serial communication options

FLOW RATE
The PPM is particularly well-suited for flow applications because its six-digit, dual-line display can be programmed for a wide variety of display configurations. For instance, the upper line can display either flow rate, total or grand total, and the lower line can display flow rate, total, grand total, or engineering units. Among other things, this makes it possible to display either flow rate and total, or total and grand total at the same time, a very unique feature on 1/8 DIN digital panel meters.

ACCESSORIES . . . .**See Series PMA**
ENCLOSURES . . . .**See Series PME**

SPECIFICATIONS
Input: Field selectable: Pulse or square wave 0 to 5V, 0 to 12V, or 0 to 24V @ 30 kHz; TTL; open collector 4.7 kΩ pull-up to 5V @ 30 kHz; NPN or PNP transistor, switch contract 4.7 kΩ pull-up to 5V @ 40 Hz.
Input Impedance: 50 to 100 Ω.
Accuracy: ±0.03% of calibrated span ±1 count.
Power Requirements: 85 to 265 VAC 50/60 Hz, 90 to 265 VDC, 20 W max or 12 to 24 VDC ± 10%, 15 W max.
Display: Dual-line 6-digit display, 0.60″ and 0.46″.
Decimal Points: 5-positions, user selectable.
Temperature Limits:
    Operating: -40 to 149°F (-40 to 65°C);
    Storage: -40 to 185°F (-40 to 85°C).
Enclosure Rating: NEMA 4X, IP65 front.
Electrical Connections: Removable screw terminal blocks accept 12 to 22 AWG wire, RJ45 for external relays, digital I/O, and serial communication adapters.
Output Signal: 4 to 20 mA.
Switch Rating: 2 or 4 SPDT (Form C) internal and/or 4 SPST (Form A) external; rated 3A @ 30 VDC and 125/250 VAC resistive load; 1/14 HP @ 125/250 VAC for inductive loads.
Power Supply:
    85 to 265 VAC models: 200 mA @ 24 VDC;
    12 to 24 VDC models: 100 mA @ 24 VDC;
    Second supply with output 2 models: 40 mA @ 24 VDC.
Time Delay: 0 to 999.9 seconds, on & off relay time delays programmable and independent for each relay.
Shipping Weight: 9.5 oz (269 g).
Agency Approvals: CE, UL, RoHS.

Model	Power	Output 1	Output 2
PPM-100	85 to 265 VAC	None	None
PPM-101	85 to 265 VAC	None	4 to 20 mA
PPM-120	85 to 265 VAC	2 relays	None
PPM-121	85 to 265 VAC	2 relays	4 to 20 mA
PPM-140	85 to 265 VAC	4 relays	None
PPM-141	85 to 265 VAC	4 relays	4 to 20 mA
PPM-200	12 to 24 VDC	None	None
PPM-201	12 to 24 VDC	None	4 to 20 mA
PPM-220	12 to 24 VDC	2 relays	None
PPM-221	12 to 24 VDC	2 relays	4 to 20 mA
PPM-240	12 to 24 VDC	4 relays	None
PPM-241	12 to 24 VDC	4 relays	4 to 20 mA

PMA

Panel Meter Accessories
For PPM, APM, MPM, and LTI Series Panel Meters

PMA-01 RS-232 Serial Adapter

SPECIFICATIONS
Compatibility: EIA-232.
Connectors: PC compatible 9-pin D subminiature connector (DB9) and RJ11 (adapter to meter).
Cable: 3 ft (0.9 m) standard CAT5e cable provided with adapter.
Distance: Adapter to panel meter: 6 ft (1.8 m) max; Adapter to computer: 50 ft (15 m) max; Serial interface cable not provided.
Power: Powered by panel meter M-LINK connection.
Status Indication: Separate LEDs for power (P), transmit (TX), and receive (RX).

PMA-01

PMA-02 Meter Copy Cable

SPECIFICATIONS
Cable: 3 ft (0.9 m) standard modular cable.

PMA-02

PMA-03 RS-422/485 Serial Adapter

SPECIFICATIONS
Compatibility: EIA-422 and EIA-485.
Connectors: Removable screw terminal connector and RJ11 (adapter to meter).
Cable: 3 ft (0.9 m) standard CAT5e cable provided with adapter.
Distance: Adapter to panel meter: 6 ft (1.8 m) max; Adapter to computer: 3937 ft (1200 m) max.
Power: Powered by panel meter M-LINK connection.
Status Indication: Separate LEDs for power (P), transmit (TX), and receive (RX).

PMA-03

PMA-04, PMA-05 RS-232 to RS-422/485 Converters

SPECIFICATIONS
Compatibility: EIA-232, EIA-422, and EIA-485.
Connectors: Screw terminal connector and DB9.
Distance: RS-232 connection: 50 ft (15 m) max; RS-422/485 connection: 3937 ft (1200 m) max.
Number of Units: Up to 31 RS-485 compatible devices.
Power: 9 to 12 VDC; 115 VAC/12 VDC adapter included.
Isolation: PMA-04: 1500 VAC between data lines; 700 VDC input/output-to-power; PMA-05: 1500 VAC between data lines only.

PMA-04, Isolated
PMA-05, Non-Isolated

PMA-06 USB to RS-232 Non-Isolated Converter

SPECIFICATIONS
Compatibility: USB 1.1, USB 2.0, EIA-232.
Connectors: PC compatible 9-pin D subminiature connector (DB9) and USB type A.
Drivers: Windows® 98/2000/Me/XP operating systems.
Distance: USB connection: 10 ft (3 m) max; RS-232 connection: 50 ft (15 m) max.
Power: USB port.

PMA-06

PMA-07, PMA-08 USB to RS-422/485 Converters

SPECIFICATIONS
Compatibility: USB 1.1, USB 2.0, EIA-422, and EIA-485.
Connectors: Screw terminal connector and USB Type B.
Drivers: Windows® 98/2000/ME/XP operating systems, Linux 2.4 & greater.
Distance: USB connection: 10 ft (3 m) max; RS-422/485 connection: 3937 ft (1200 m) max.
Number of Units: Up to 31 RS-485 compatible devices.
Power: USB port.
Isolation: PMA-07: 1500 VAC between data lines, 700 VDC input/output-to-power; PMA-08: 1500 VAC between data lines only.

PMA-07, Isolated
PMA-08, Non-Isolated

PMA-09 Snubber

SPECIFICATIONS
Capacitance Value: 0.01 µF.
Resistor Value: 470 Ω.
Voltage: 250V.

PMA-09

PMA-10 DIN Rail Mounting Kit for Two Expansion Modules

SPECIFICATIONS
Rail: 6 in (15.24 cm) long.
Mounting Clips: 4 plastic mounting clips with adhesive strips.
Total Capacity: 2 expansion modules.

PMA-10

PMA-11 4 Relay Expansion Module

SPECIFICATIONS
Relays: Four form A (SPST); Rated 3 A @ 30 VDC and 125/250 VAC for resistive loads 1/14 HP @ 125/250 VAC for inductive loads.
Cable: Standard CAT5e cable; provided with module.
Connectors: RJ45.
Tightening Torque: Screw terminal connectors: 5 lb-in (0.56 Nm).
Enclosure: ABS-94HB material, UL94HB.
Overall Dimensions: 2.286 in x .924 in x 3.624 in (58.06 mm x 23.47 mm x 92.05 mm) (w x h x d).
Power: Panel meter M-LINK connection.
Weight: 2.4 oz (68 g).

PMA-11

PMA-12 4 Digital Inputs and 4 Digital Outputs Module

SPECIFICATIONS
System: Up to 2 modules for a total of 8 inputs, outputs.
Digital Input Logic: High: 3 to 5 VDC; Low: 0 to 1.25 VDC.
Digital Output Logic: High: 4.75 to 5 VDC; Low: 0 to 0.4 VDC.
Current: Source: 10 mA max.; Sink: 1.5 mA min..
Cable: Standard CAT5e cable; Provided with module.
Connectors: RJ45.
Tightening Torque: Screw terminal connectors: 5 lb-in (0.56 Nm).
Enclosure: ABS-94HB material, UL94HB.
Power: Panel meter M-LINK connection.
Weight: 2.2 oz (62 g).

PMA-12

PME Panel Meter Enclosures

For 1/8 DIN Meters

Low-Cost Plastic Enclosure

SPECIFICATIONS
Material: Thermoplastic polyester.
Ratings: NEMA 4X (IP66).
Dimensions: 5.9 in x 7.9 in x 6.3 in (150 mm x 200 mm x 160 mm).
Weight: 1.75 lb (0.79 kg).

PME-01, For 1 Meter

Low-Cost Plastic Enclosure

SPECIFICATIONS
Material: Thermoplastic polyester.
Ratings: NEMA 4X (IP66).
Dimensions: 5.9 in x 7.9 in x 6.3 in (150 mm x 200 mm x 160 mm).
Weight: 1.75 lb (0.79 kg).

PME-02, For 2 Meter

Plastic Enclosures

SPECIFICATIONS
Material: Thermoset polyester.
Ratings: NEMA 4X (IP66).
Dimensions: PME-11: 8.8 in x 6.7 in x 4.3 in (224 mm x 170 mm x 110 mm); PME-12, -13: 11.8 in x 7.9 in x 7.0 in (300 mm x 201 mm x 178 mm).
Weight: PME-11: 1.45 lb (0.66 kg); PME-12, -13: 3.15 lb (1.43 kg).

PME-11, For 1 Meter
PME-12, For 2 Meters
PME-13, For 3 Meters

Plastic Enclosures

SPECIFICATIONS
Material: Thermoset polyester.
Ratings: NEMA 4X (IP66).
Dimensions: 15.8 in x 11.8 in x 7.0 in (400 mm x 300 mm x 178 mm).
Weight: 5.50 lb (2.49 kg).

PME-14, For 4 Meter
PME-15, For 5 Meters
PME-16, For 6 Meters

Plastic Enclosures

SPECIFICATIONS
Material: Thermoplastic.
Ratings: NEMA 4X (IP66).
Dimensions: PME-21: 7.7 in x 6.4 in x 5.1 in (196 mm x 163 mm x 130 mm); PME-22: 9.7 in x 6.4 in x 5.1 in (246 mm x 163 mm x 130 mm); PME-23: 11.7 in x 8.4 in x 5.1 in (297 mm x 213 mm x 130 mm).
Weight: PME-21: 1.60 lb (0.70 kg); PME-22: 2.20 lb (1.00 kg); PME-23: 3.00 lb (1.40 kg).

PME-21, For 1 Meter
PME-22, For 2 Meters
PME-23, For 3 Meters

Plastic Enclosures

SPECIFICATIONS
Material: Thermoplastic.
Ratings: NEMA 4X (IP66).
Dimensions: 13.7 in x 12.4 in x 7.1 in (348 mm x 315 mm x 181 mm).
Weight: 5.00 lb (2.30 kg).

PME-24, For 4 Meter
PME-25, For 5 Meters
PME-26, For 6 Meters

Stainless Steel Enclosures

SPECIFICATIONS
Material: 304 SS.
Ratings: NEMA 4X (IP66).
Dimensions: PME-31: 7.5 in x 6.9 in x 4.0 in (191 mm x 176 mm x 102 mm); PME-32: 9.5 in x 6.9 in x 3.5 in (241 mm x 176 mm x 89 mm); PME-33: 11.5 in x 8.9 in x 4.0 in (292 mm x 227 mm x 102 mm).
Weight: PME-31: 3.80 lb (1.70 kg); PME-32: 5.10 lb (2.30 kg); PME-33: 7.90 lb (3.60 kg).

PME-31, For 1 Meter
PME-32, For 2 Meters
PME-33, For 3 Meters

Stainless Steel Enclosures

SPECIFICATIONS
Material: 304 SS.
Ratings: NEMA 4X (IP66).
Dimensions: 13.5 in x 12.9 in x 6.0 in (343 mm x 329 mm x 152 mm).
Weight: 13.90 lb (6.30 kg).

PME-34, For 4 Meter
PME-35, For 5 Meters
PME-36, For 6 Meters

Steel Enclosures

SPECIFICATIONS
Material: Steel.
Ratings: NEMA 4X (IP66).
Dimensions: PME-41: 7.5 in x 6.9 in x 4.0 in (191 mm x 176 mm x 102 mm); PME-42: 9.5 in x 6.9 in x 3.5 in (241 mm x 176 mm x 89 mm); PME-43: 11.5 in x 8.9 in x 4.0 in (292 mm x 227 mm x 102 mm).
Weight: PME-41: 3.80 lb (1.70 kg); PME-42: 5.10 lb (2.30 kg); PME-43: 7.90 lb (3.60 kg).

PME-41, For 1 Meter
PME-42, For 2 Meters
PME-43, For 3 Meters

Steel Enclosures

SPECIFICATIONS
Material: Steel.
Ratings: NEMA 4X (IP66).
Dimensions: 13.5 in x 12.9 in x 6.0 in (343 mm x 329 mm x 152 mm).
Weight: 13.90 lb (6.30 kg).

PME-44, For 4 Meter
PME-45, For 5 Meters
PME-46, For 6 Meters