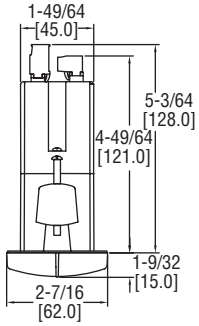
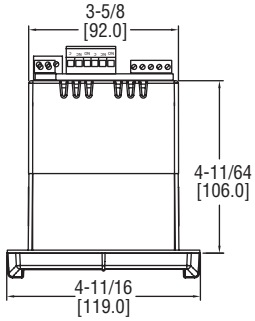
# DUAL LINE CONFIGURABLE PANEL METERS

## 1/8 DIN Multi-Pump Alternation Control, Open-Channel Flow, Rate and Totalizer




The Series PM's are a series of 1/8 DIN digital panel meters engineered to take in multiple inputs from a variety of instrumentation for the purpose of displaying or controlling a process parameter.

The **SERIES APM** is a panel meter specifically designed for displaying flow rate and total from a flow meter with an analog output such as 4 to 20 mA or 0 to 10 V. The APM is particularly well-suited for flow applications and can display flow rate and total at simultaneously.

The **SERIES MPM** has the ability to obtain non-linear input signals and linearize them with simple to use math functions such square-root extractor, weirs and flumes exponential linearizer, horizontal round tank linearizer or general purpose 32-point linearizer. Unit accepts 0 to 20 mA, 4 to 20 mA, 0 to 5 V, or ±10 V inputs and requires 85 to 265 VAC or 12/24 VDC power supply. Choose from RS-232, RS-422/485 serial communication options or any available expansion modules, accessories and enclosures.

The **SERIES PPM** displays flow rate and total simultaneously, with a programmable relay and 4 to 20 mA options for flow rate or flow total. The PPM is 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/BENEFITS

- Three levels of password protection
- Math functions for flow & round horizontal tanks
- 32-point linearization, square root or programmable exponent
- Multi-pump alternation control
- Rate displayed as units per second, minute, hour, or day
- Total, grand total or non-resettable 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

### APPLICATIONS

- Level monitoring
- Pump control
- Flow rate indication
- Flow totalization
- Open channel flow monitoring
- Process control

### SPECIFICATIONS

**Input:** APM: 0 to 20 mA, 4 to 20 mA, 0 to 5 V, or ±10 V inputs; MPM: 0 to 20 mA, 4 to 20 mA, 0 to 5 V, or ±10 V; PPM: Field selectable: Pulse or square wave 0 to 5 V, 0 to 12 V, or 0 to 24 V @ 30 kHz; TTL; open collector 4.7 kΩ pull-up to 5 V @ 30 kHz; NPN or PNP transistor, switch contract 4.7 kΩ pull-up to 5 V @ 40 Hz.
**Input Impedance:** 50 to 100 Ω.
**Accuracy:** ±0.03% of calibrated span ±1 count, square root & programmable exponent accuracy range: 10-100% of calibrated span.
**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 in and 0.46 in.
**Decimal Points:** Five 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.
**Power Consumption:** 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.
**Switch 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 @ 125/250 VAC for inductive loads.
**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.

### OPEN CHANNEL FLOW CAPABILITY

Series APM when utilized with an ultrasonic level transmitter, such as the Mercoid Series ULT, provides an economical way to measure open channel flow.

### DIFFERENTIAL PRESSURE FLOW

The APM can display flow rate and total by extracting the square root from the 4 to 20 mA signal from a differential pressure transmitter, such as the Dwyer 629, that is being used with a flow element such as Dwyer orifice plate Series OP or TE. The user-selectable, low-flow cut-off feature gives a reading of zero when the rate is below a user selectable value.

### PUMP CONTROL

With the two or four contact output option the APM or MPM can be used as a programmable pump controller when used with a Dwyer level transmitter. The APM also has programmable on and off points for up to four pumps, quadraplex pumping systems with alternation capability. When using the 4-relay model with the four external relay accessory, the APM can do 8 contacts for any combination of pump control and 8 programmable alarms.

**MODEL CHART**

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