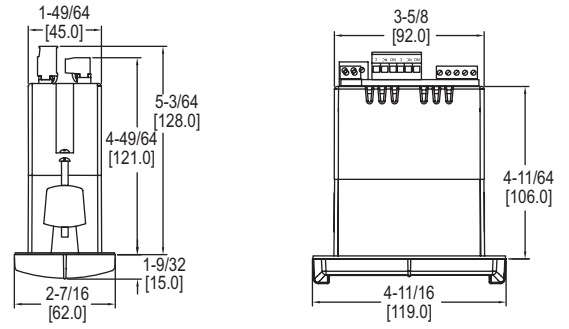




SERIES APM, MPM & PPM

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

The **Series MPM Dual Line Configurable Panel Meter** 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 0-20 mA, 4-20 mA, 0-5 V, or ±10 V inputs and requires 85-265 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 Dual Line Configurable Panel Meter** displays flow rate and total simultaneously, with a programmable relay and 4-20 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 4-20 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: 0-20 mA, 4-20 mA, 0-5 V, or ±10 V inputs; MPM: 0-20 mA, 4-20 mA, 0-5 V, or ±10 V; PPM: Field selectable: Pulse or square wave 0-5 V, 0-12 V, or 0-24 V @ 30 kHz; TTL; open collector 4.7 kΩ pull-up to 5 V @ 30 kHz; NPN or PNP transistor, switch contact 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:** 85-265 VAC 50/60 Hz, 90-265 VDC, 20 W max or 12-24 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:** 4-20 mA.  
**Power Consumption:** 85-265 VAC models: 200 mA @ 24 VDC; 12-24 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 s, 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 4-20 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, quadruplex 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       | Price    | Model   | Price    | Model   | Price    | Power      | Output 1 | Output 2 |
| APM-100     | \$351.00 | MPM-100 | \$328.00 | PPM-100 | \$361.00 | 85-265 VAC | None     | None     |
| APM-101     | 420.00   | MPM-101 | 400.00   | PPM-101 | 432.00   | 85-265 VAC | None     | 4-20 mA  |
| APM-120     | 399.00   | MPM-120 | 377.00   | PPM-120 | 410.00   | 85-265 VAC | 2 relays | None     |
| APM-121     | 461.00   | MPM-121 | 444.00   | PPM-121 | 476.00   | 85-265 VAC | 2 relays | 4-20 mA  |
| APM-140     | 441.00   | MPM-140 | 421.00   | PPM-140 | 454.00   | 85-265 VAC | 4 relays | None     |
| APM-141     | 510.00   | MPM-141 | 486.00   | PPM-141 | 525.00   | 85-265 VAC | 4 relays | 4-20 mA  |
| APM-200     | 420.00   | MPM-200 | 400.00   | PPM-200 | 432.00   | 12-24 VDC  | None     | None     |
| APM-201     | 483.00   | MPM-201 | 464.00   | PPM-201 | 498.00   | 12-24 VDC  | None     | 4-20 mA  |
| APM-220     | 461.00   | MPM-220 | 444.00   | PPM-220 | 476.00   | 12-24 VDC  | 2 relays | None     |
| APM-221     | 531.00   | MPM-221 | 514.00   | PPM-221 | 546.00   | 12-24 VDC  | 2 relays | 4-20 mA  |
| APM-240     | 510.00   | MPM-240 | 486.00   | PPM-240 | 525.00   | 12-24 VDC  | 4 relays | None     |
| APM-241     | 574.00   | MPM-241 | 558.00   | PPM-241 | 590.00   | 12-24 VDC  | 4 relays | 4-20 mA  |

(N) Items are net priced and are not subject to any discount.

| ACCESSORIES |   |          |
|-------------|---|----------|
| Model       | Description                                   | Price    |
| PMA-01      | RS-232 serial adapter                         | \$104.00 |
| PMA-02      | Meter copy cable                              | 12.75    |
| PMA-03      | RS-422/485 serial adapter                     | 104.00   |
| PMA-04      | RS-232 to RS-422/485 isolated converter       | 197.00   |
| PMA-05      | RS-232 to RS-422/485 non-isolated converter   | 159.00   |
| PMA-06      | USB to RS-232 non-isolated converter          | 65.00    |
| PMA-07      | USB to RS-422/485 isolated converter          | 248.00   |
| PMA-08      | USB to RS-422/485 non-isolated converter      | 181.00   |
| PMA-09      | Snubber                                       | 11.25    |
| PMA-10      | DIN rail mounting kit for two modules         | 16.25    |
| PMA-11      | 4 relay expansion module                      | 92.00    |
| PMA-12      | 4 digital inputs and 4 digital outputs module | 39.75    |

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