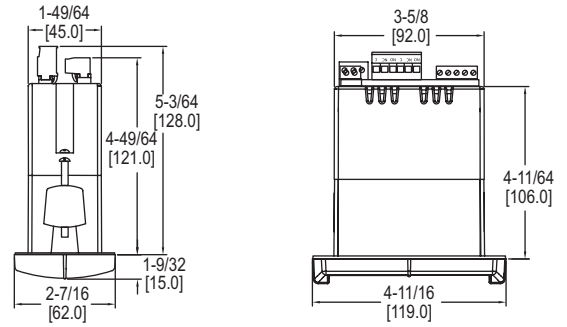




SERIES APM, MPM & PPM

# 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 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 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 to 20 mA, 4 to 20 mA, 0 to 5 V, or  $\pm 10$  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 Dual Line Configurable Panel Meter** 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

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

### SPECIFICATIONS

**Input:** APM: 0 to 20 mA, 4 to 20 mA, 0 to 5 V, or  $\pm 10$  V inputs; MPM: 0 to 20 mA, 4 to 20 mA, 0 to 5 V, or  $\pm 10$  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 k $\Omega$  pull-up to 5 V @ 30 kHz; NPN or PNP transistor, switch contract 4.7 k $\Omega$  pull-up to 5 V @ 40 Hz.  
**Input Impedance:** 50 to 100  $\Omega$ .  
**Accuracy:**  $\pm 0.03\%$  of calibrated span  $\pm 1$  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  $\pm 10\%$ , 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 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 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, 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.

### ACCESSORIES

Model	Description
PMA-01	RS-232 serial adapter
PMA-02	Meter copy cable
PMA-03	RS-422/485 serial adapter
PMA-04	RS-232 to RS-422/485 isolated converter
PMA-05	RS-232 to RS-422/485 non-isolated converter
PMA-06	USB to RS-232 non-isolated converter
PMA-07	USB to RS-422/485 isolated converter
PMA-08	USB to RS-422/485 non-isolated converter
PMA-09	Snubber
PMA-10	DIN rail mounting kit for two modules
PMA-11	4 relay expansion module
PMA-12	4 digital inputs and 4 digital outputs module

