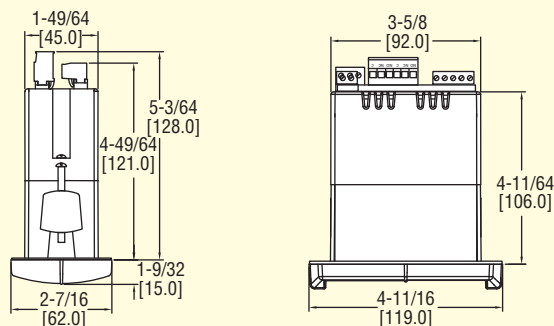


Series  
APM

# Analog Panel Meter

## Multi-Pump Alternation Control, Open-Channel Flow, Rate and Totalizer



The Series APM 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 even 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 APM 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 APM 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 simple to use math functions such as 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 5V, or  $\pm 10V$  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 APM is a 1/8 DIN digital 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 10V. The APM is particularly well-suited for flow applications and can be programmed for a wide variety of display configurations. The upper line can display either flow rate, total or grand total, and the lower line can display either flow rate, total, grand total, or engineering units. It is possible to display flow rate and total at the same time, a very unique feature on a 1/8 DIN digital panel meters.

### FEATURES

- 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

### OPEN CHANNEL FLOW CAPABILITY

Series APM when utilized with an ultrasonic level transmitter, such as the Mercoird 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 can be used as a programmable pump controller when used with a Dwyer level transmitter. The unit 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.

### SPECIFICATIONS

**Input:** 0 to 20 mA, 4 to 20 mA, 0 to 5V, or  $\pm 10V$  inputs; A 85-265 VAC or 12/24 VDC.

**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  $149^\circ\text{F}$  ( $-40$  to  $65^\circ\text{C}$ );

Storage:  $-40$  to  $185^\circ\text{F}$  ( $-40$  to  $85^\circ\text{C}$ ).

**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 3A @ 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, RoHS, UL.

Model	Power	Output 1	Output 2	Price
APM-100	85 to 265 VAC	None	None	\$320.00 <sup>(N)</sup>
APM-101	85 to 265 VAC	None	4 to 20 mA	383.00 <sup>(N)</sup>
APM-120	85 to 265 VAC	2 relays	None	363.00 <sup>(N)</sup>
APM-121	85 to 265 VAC	2 relays	4 to 20 mA	421.00 <sup>(N)</sup>
APM-140	85 to 265 VAC	4 relays	None	402.00 <sup>(N)</sup>
APM-141	85 to 265 VAC	4 relays	4 to 20 mA	465.00 <sup>(N)</sup>
APM-200	12 to 24 VDC	None	None	383.00 <sup>(N)</sup>
APM-201	12 to 24 VDC	None	4 to 20 mA	441.00 <sup>(N)</sup>
APM-220	12 to 24 VDC	2 relays	None	421.00 <sup>(N)</sup>
APM-221	12 to 24 VDC	2 relays	4 to 20 mA	485.00 <sup>(N)</sup>
APM-240	12 to 24 VDC	4 relays	None	465.00 <sup>(N)</sup>
APM-241	12 to 24 VDC	4 relays	4 to 20 mA	523.00 <sup>(N)</sup>

<sup>(N)</sup> Items are net priced and are not subject to any discount.

Accessories: See page 349 (Series PMA)  
Enclosures: See page 350 (Series PME)