



## 2140 COUNTER METER

This extraordinarily versatile dual channel Counter Meter can perform a wide variety of functions, particularly when it is equipped with the “R” OPTION (“EXTENDED DUAL-CHANNEL COUNTER”). Each of the **2140 / 2140R** functions listed below is described separately on the following pages. General **2140** Specifications (applying to all modes of operation) are given below.

- Dual-Channel Up/Down Totalizing** with independently scalable channels and presets
- Ratio and Draw Measurement** with arithmetic functions applicable to rate or total
- Time Interval Measurement and “Stopwatch” Operation** for periodic time measurement and one-time events
- Measurement of Phase Angle and Duty Cycle** for offset in degrees and ON/OFF period in percent
- Pulse-Input Batching** with three relay outputs for automated batch control

In general, the **2140's** two channels can accept PNP or NPN outputs from proximity switches and other pulse-generating industrial transducers; TTL or CMOS logic signals; magnetic pickup pulses down to 12 mV; contact closures; low-level outputs from all types of turbine flowmeters; or AC line inputs of up to 250 V-AC. The inverse period technique is used to calculate frequency or rate up to six places, and with an update as high as 25/s (see General Counter Meter Specifications). Nine hysteresis pairs are jumper selectable for reliable triggering with different signal levels. Low-pass filtering for noise reduction and contact debounce times are also selectable (see Specifications, below).

In addition to the “R” OPTION (discussed, where applicable, on the following pages), 2000 Series options applying to the Model **2140** Counter Meter include

- Isolated Relay Outputs: Dual 10-Amp Contact Relays or Dual Solid-State Relays**
- Isolated Analog Output: Isolated 0-20 mA and 0-10 mV**
- RS232 or RS485 Interface: Communication via 4 or 6 conductor phone cable RJ-11**
- Low AC/DC Power: 9-32 VDC, 8-28 VAC**

# PANEL METER

## COUNTER METER

### [2000 SERIES]

## SPECIFICATIONS

**Inputs:** AC, pulses from NPN or PNP transistors, contact closures, magnetic pickups

**Isolation:** Common ground for Channels A and B

**Channel A & B Frequency Ranges:** Vary with the 2140(R) mode of operation; see individual mode descriptions

**Selectable Hysteresis:** -12 mV to +12 mV; +30 mV to +60 mV; -30 mV to -20 mV; -150 mV to +150 mV; +350 mV to +600 mV; -600 mV to -350 mV; -1.15 V to + 1.15 V; +1.25 V to +2.1 V; -2.1 V to -1.25 V

**Rolloff Filter:** Selectable none or 1600 Hz

**Debounce Time:** Selectable 0, 3, or 50 ms

**Time Base Accuracy:** Crystal calibrated to  $\pm 2$  ppm

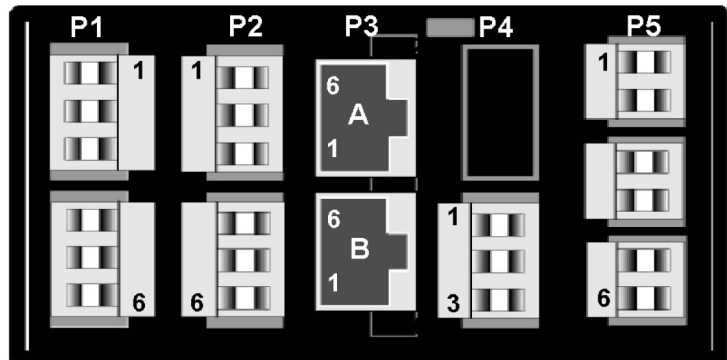
**Span Temperature Coefficient:**  $\pm 1$  ppm/ $^{\circ}$ C (typical)

**Long-Term Drift:**  $\pm 5$  ppm/year

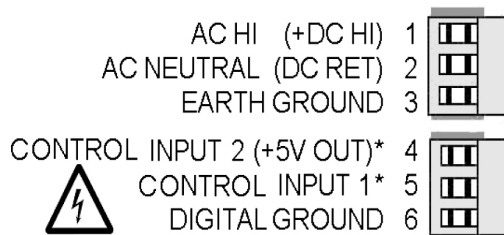
\* The 2140's ability to output an isolated 4-20 mA signal which tracks a total may be unique among totalizers.

## CONNECTORS

Connectors for signal and power are U/L rated screw-clamp terminal blocks that plug into mating jacks on the printed circuit board. Communication connectors are a single RJ11 plug for RS232, dual RJ11 plugs for RS485, dual RJ45 plugs for RS485 Modbus, and a 30-pin, mass termination connector for parallel BCD.



### P1 - POWER AND DIGITAL CONTROLS



### DUAL CHANNEL PULSE INPUT

