MINITROL-PW

Totalizer/Ratemeter for Paddle or Pelton Wheel Turbine Flowmeters

Features

- Display Rate & Total
  Flowrate Display = $\frac{\text{Input Frequency + Offset B}}{\text{Factor A}}$
- 30mV Magnetic Pickup Inputs (optional)
- RS422/RS232 Serial Communication (optional)
- NEMA 4X / IP65 Front Panel
- 4-20mA or 0-20mA Analog Output (optional)

DESCRIPTION:
The Minitrol-PW is a single input counter/ratemeter intended for use with low flow paddle or pelton wheel turbine flowmeters. Two scale factors are used to describe the flowmeter calibration characteristics. The two 5 AMP preset relay outputs can be programmed by the user to apply to the "A" total counter or the "A" ratemeter. The user can view the rate, total and grand total.

SPECIFICATIONS:
Electrical Specifications: See MINItrol-S
Dimensions: See MINItrol-S

K FACTOR/SCALING
The K-Factor is used to convert the input pulses to engineering units. The two 5 digit scale factors, with decimal keyed into any position, allow easy direct entry of any scaling factor from 0.0001 to 99999. Factor A is used to enter the linearized K-Factor and Factor B is used to enter the offset frequency.

LOW FLOW CUTOFF:
A low flow cutoff is provided to inhibit operation in low flow out of range regions.

RATEMETER
Accurate to 4 1/2 digits (±1 display digit). The rate meter can be programmed to accept almost any number of pulses per unit of measurement and auto-range up to 5 digits of significant information. The display can be programmed to read in units per Second (SEC), Minute (n min), Hour (Hour), or Day (dAY).

COUNTER
The two 6-digit totalizers can count at 10kHz speed. They share a 5-digit dividing scale factor. The totalizer performs as follows:

If Freq. In > Cutoff

$$\text{Total increment} = \frac{\text{Freq. Offset} \cdot \Delta \text{ Time}}{\text{K Factor A}} + \frac{\text{Pulses In}}{\text{K Factor A}}$$

$$\text{Rate} = \frac{(\text{Freqin} + \text{Freq offset}) \cdot \text{time base}}{\text{K Factor A}}$$

Time base: Sec =1, Min = 60, Hour = 3600, Day = 86400

If Freq. In < Cutoff
Total Increment = 0
Rate = 0

Total B (grand total) increments with Total A.

THEORY OF OPERATION
Low flow, Pelton Wheel turbine flowmeters have a transfer characteristic which can best be represented by the following equation for frequencies above the minimum usable flowrate for the device:

$$\text{frequency} = \left(\frac{K_{linearized} \cdot GPM}{60} \right) - \text{Offset Frequency}$$

Where: $K_{linearized}$ and offset frequency are scaling constants determined during flow sensor calibration.

This transfer characteristic applies within the meter manufacturers published range. Below some minimum flow meter output frequency, the flow rate should be considered as 0 and the totalization inhibited. This is called the "cutoff" frequency.

Ordering Information

Example: MRTPW A 3 1

Series:
MRTPW= 6 digit counter / 5 digit ratemeter with presets and scaling.

Operating Voltage:
A= 110 VAC ± 15% or 12 to 15 VDC
B= 220 VAC ± 15% or 12 to 15 VDC
C= 24 VAC ± 15% or 12 to 15 VDC

Count Inputs:
3 = Standard, 4-30 VDC simultaneous inputs.
3M = Mag. Input, rate/total input only, 30mV input (Inhibit input, 4-30V)

Options
1= RS232 Communications
2= RS422 Communications
A= Analog Output (4-20/0-20 mA)

NOTE: RS232/RS422 & Analog Output options can not be combined

Accessories
Separate non keyboard panel order #34235
Separate keyboard panel - order #34234
NEMA4 wall mount enclosure available see LCN4X & MS821
Explosion proof enclosure available, see XHV
Serial printer available, see P1000, P295
Ethernet Port Server available, see IEPS
RS-422/485 to RS-232 Communication Adaptor available, see CA285