

# MINITROL-S

## Totalizer/Ratemeter with Separate Scaling of Rate/Total

### Features

- Separate Scaling Factors For Rate & Total
- Display Rate & Total
- 30mV Magnetic Pickup Inputs (optional)
- Count Inhibit Input
- Security Lockout
- RS422/RS232 Serial Communication (optional)
- NEMA 4X / IP65 Front Panel
- 4-20mA or 0-20mA Analog Output (optional)
- CSA Approved

### DESCRIPTION:

The CSA approved totalizer and ratemeter each have their own 5 digit dividing scale factor. 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. The B relay can be used to create a scaled pulse output. Magnetic pickup input, analog output and RS232 communication options are available.

### SPECIFICATIONS:

**DISPLAY:** 6 digit, 0.55" High LED

#### INPUT POWER:

110 VAC  $\pm$  15% or 12 to 15 VDC

220 VAC  $\pm$  15% or 12 to 15 VDC

24 VAC  $\pm$  15% or 12 to 15 VDC

**CURRENT:** 250 mA DC max. or 6.5 VA AC

**OUTPUT POWER** (AC powered units only)

+12 VDC @ 50 mA, unregulated -10 + 50%

#### TEMPERATURE:

Operating:

+32°F (0°C) to +130 F (+54°C)

Storage:

-40 F (-40°C) to +200°F (93°C)

**MEMORY:** EEPROM stores data for 10 years if power is lost.

#### INPUTS:

3: High Impedance DC pulse input 4-30 VDC (high), Open or 0-1 VDC (low), 10 K $\Omega$  imp. 10 kHz max. speed.

3M: Mag. Input, Rate/total input only, accepts 30mV input (50 V max. P/P) signals 10 K $\Omega$  imp. 5 kHz max. (Inhibit input, 4-30V)

**NOTE:** The Mag. input has filtering as follows: 30mV trigger level up to 300Hz, 0.25 V trigger level at 5KHz

#### RESET:

Front Panel: Resets displayed total value and control output.

Remote: 4-30 VDC (75-240 V AC/DC, Input 8) negative edge resets total and relay control output.

**NOTE:** The remote reset does not reset the grand total.

**LISTING:** CSA (File No. LR91109), CE Compliant, NRTL/C pending

#### K FACTOR/SCALING:

The K-Factors are used to convert the input pulses to engineering units. The 5 digit K-Factor dividers, with decimal keyed into any position, allow easy direct entry of any K-Factor from 0.0001 to 99999. Separate factors may be entered for rate and total.



### CONTROL OUTPUTS:

Relays:

2 each N.O. Relay; 5 Amps 120/240 VAC or 28 VDC. (N.C. relay contacts and NPN transistor output available with solder jumpers.

Analog Output:

An optional 4-20mA (0-20mA) output is available for the Minitrol series. The output can be programmed to track rate or total. This feature is available by adding suffix A to the part number. Connections are via a 2 terminal pluggable screw connector.

Programming is accomplished by using the front panel in conjunction with rear dip switches.

Accuracy:  $\pm$  0.25% FS

Compliance Voltage: 3 to 30 VDC non inductive.

### RS232/RS422 SERIAL INTERFACE:

If the serial interface option is supplied, up to 99 units can be linked together. (The terminal addressing the unit must be capable of driving all loads in the loop.) Unit status and new set points can be communicated by serial communication. Mode changes, however, must always be made on the front panel. Data is transmitted at selected baud rates using standard seven bit ASCII characters and parity with two additional bits of "Start" and "Stop" to make up the standard ten bit character.

Data is received and transmitted over standard EIA RS232 or RS422 levels. Each 10 bit character is made up of a start bit, 7 bit ASCII code, parity bit and stop bit. Unit number, baud rate and parity are entered in the "Program Setting" set up mode and remain in memory even if power is off.

Note that the input impedance of RS232 is 3K or 7K Ohm worst case. The terminal addressing the unit must be capable of driving all loads in the loop. RS422 input impedance is much higher and there is usually no problem driving 25 units. Unit serial transmit line remains in a high impedance "OFF" state until addressed. A print list can be triggered by external switch.

### PRESETS:

Two control outputs are provided. To set relay A or B's functionality, press "menu" button until "Relay" appears on the display, the A and B outputs can be assigned to the rate alarm (high/low), or for total/grand total. A 5 digit value can be entered for both presets A and B. The decimal point location is the same as the counter. The outputs can be set to energize from 0.1 to 99.9 seconds or latch (0.0). If a value other than 0.0 is entered, the corresponding totalizer will auto reset at the preset. This may be used to create a relay scaled pulse output.

**LOCKOUT:**

Unauthorized front panel changes can be prevented by entering a user selected 5 digit code, in the "LOC" mode. The front panel can be completely locked out or the presets can remain accessible.

**RATEMETER**

Accurate to 4 1/2 digits ( $\pm 1$  display digit). The rate meter can be programmed to:

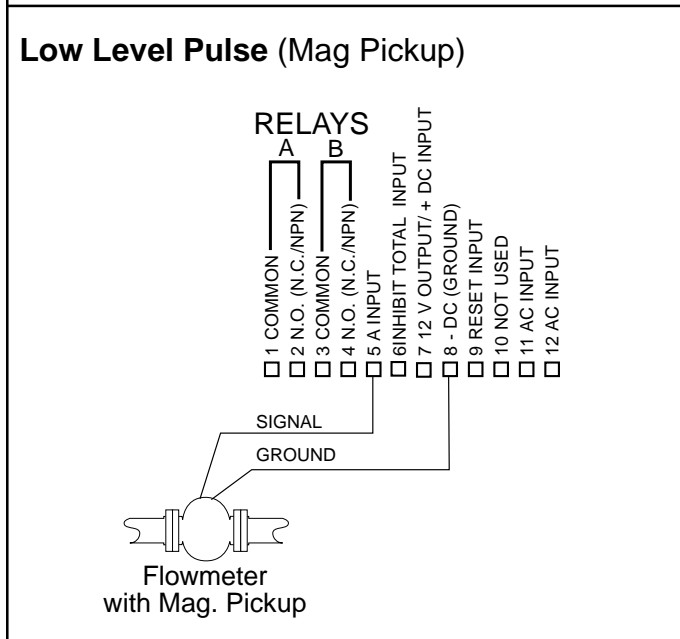
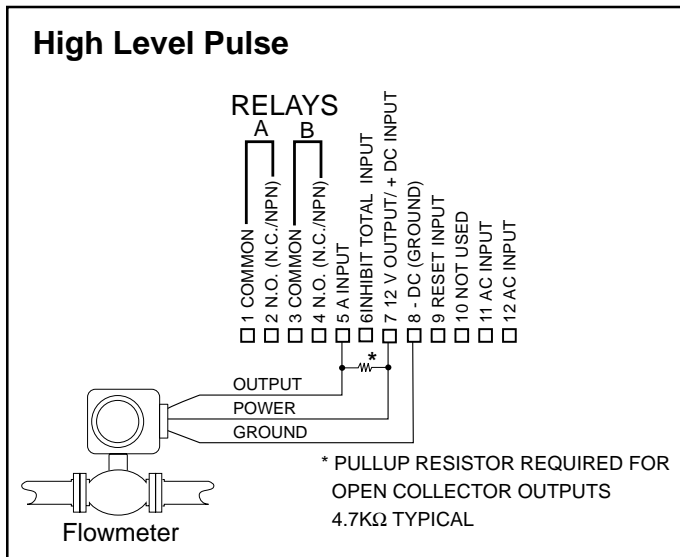
- accept almost any number of pulses per unit of measurement
- sample from 2 to 24 seconds maximum
- auto-range up to 5 digits of significant information.

The display can be programmed to read in units per Second (SEC), Minute (MIN), Hour (HOUR), or Day (DAY).

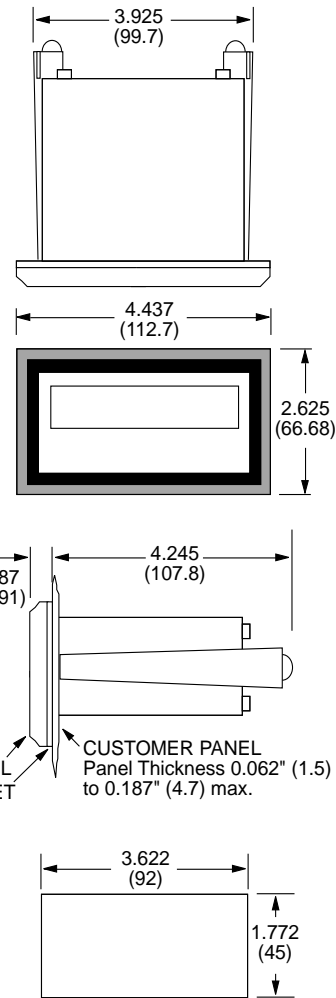
**TOTALIZER:**

The two 6-digit totalizers can count at 10kHz speed. They share a 5-digit dividing scale factor. The totalizer advances on the positive edge of each pulse.

**TYPICAL SENSOR HOOKUP:**



**Dimensions:**



**Ordering Information**

**Example:** MRTS A 3 1

**Series:** \_\_\_\_\_

MRTS= 6 digit counter / 5 digit ratemeter with presets and scaling.

**Operating Voltage:** \_\_\_\_\_

A= 110 VAC  $\pm$  15% or 12 to 15 VDC

B= 220 VAC  $\pm$  15% or 12 to 15 VDC

C= 24 VAC  $\pm$  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

3= Modbus RTU RS232

4= Modbus RTU RS422/RS485

A= Analog Output (4-20/0-20 mA)

CE = CE Compliant Version

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

**Accessories**

XHV - Explosion proof housing (see accessories section)

NEMA-1/8DIN- NEMA 4X enclosure (see accessories section)

P1000- Serial Printer (see accessories section)

Separate non keyboard panel order #34235

Separate keyboard panel - order #34234