

Any Rate, Total or Blending Application where Two Preset Alarms and Scaling are Required

FEATURES

- Separate Scaling Factors for A & B Inputs
- Display Rate & Total
- Pulse Input - 10kHz (max)
- RS422/RS232 Serial Communication (optional)
- Modbus RTU RS422/RS485/RS232 (optional)
- NEMA 4X / IP65 Front Panel
- Separate Add/Subtract Simultaneous Inputs
- Quadrature and Up/Down Direction Control
- Inputs (optional)
- 30mV Magnetic Pickup Inputs (optional)
- 4-20mA or 0-20mA Analog Output (9504)
- NEMA 1 Metal Enclosure



DESCRIPTION

The 9503/9504 is a 6-digit Totalizer/Ratemeter with two-level, 5-digit preset alarm control of Total or Rate. Inputs A & B have separate scaling K-factors. The Totalizer can be programmed for "A" subtract "B", "A" add "B", or "A & B" as separate Totalizers with display and control of the "net" Total and Rate of "A".

The 9503/9504 is also available in four other versions:

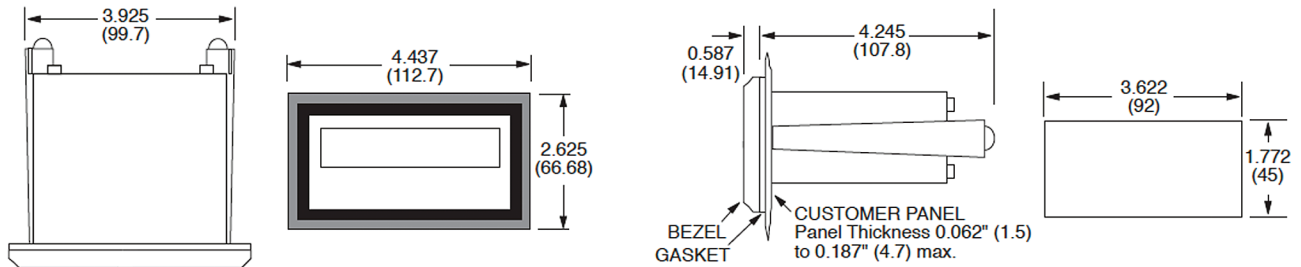
- 1) MC2 – a two preset Totalizer with scaling
- 2) MR2 – a high/low alarm Ratemeter with scaling
- 3) MC – a Totalizing counter only
- 4) MR – a Ratemeter display only

If only one input is required, the unit will display the Total and Rate from that one channel. The 9503/9504 can accept up to 10,000 pulses per second. It has a 5-digit floating decimal scale factor allowing total readout in true engineering units and rate per second, minute, or hour. Input "A" simultaneously drives a ratemeter which can be programmed to display the basic frequency (rate per second) or factored to show rate per minute or rate per hour. Simply push the "VIEW" button to see either Total or Rate without losing a count. Two separate 5A relay contacts can be set to operate at either Rate or Total presets in a latch or auto-recycle mode with output timing from 0.1 to 99.9 seconds.

Two control outputs can be assigned to either the Totalizer or Ratemeter and can automatically recycle at the batch or stay latched until reset. Up to 99 units can communicate to a host computer on a single RS232 or RS422 loop. When two inputs are received (A & B), the unit can either add or subtract the two inputs or display the two inputs as separate Totalizers.

SPECIFICATIONS

- **Display:** 6-digit, 0.55" high LED
- **Input Power:** 110V AC $\pm 15\%$, or...
12 to 15V DC 220V AC $\pm 15\%$, or...
12 to 15V DC 24V AC $\pm 15\%$, or...
12 to 15V DC
- **Current:** 250mA DC max. or 6.5VA AC
- **Output Power:** (AC powered units only) +12V DC @ 50mA, unregulated -10 +50%
- **Operating Temperature:** +32°F (0°C) to +130°F (+54°C)
- **Storage Temperature:** -40°F (-40°C) to +200°F (93°C)
- **Humidity:** 0-90% Non-condensing
- **Memory:** EEPROM stores data for 10 years if power is lost
- **Inputs:** STD – High Impedance DC pulse input 4-30V DC (high), Open 0-1V DC (low), 10 K Ω imp. 10 kHz max. speed
Accepts simultaneous inputs
OPT – Mag. Input, Input A only, accepts 30mV input (50V max. P/P) signals 10 K Ω imp. 5 kHz max. (Input B, 4-30V)
OPT – Mag. Input, Inputs A & B, accepts 30mV input (50V max. P/P) signals 10 K Ω imp. 5 kHz max. 4-30V Count pulses on Input A, 4-30V Direction Control input (level) on Input B
OPT – 30mV Count pulses on Input A (50V max. P/P) 4-30V Direction Control input (level) on Input B
OPT – Quadrature, accepts 4-30V pulses with 90° phase shift for direction detection
OPT – Quadrature, accepts 30mV (50V max. P/P) pulses with 90° phase shift for direction detection
- **Reset Front Panel:** Resets displayed value and control output
- **Reset Remote:** 4-30V DC (75-240V AC/DC, Input 8) negative edge resets Totalizer "A" and control output



- **Control Outputs: Relays:** 2 each N.O. Relay; 5 Amps 120/240V AC or 28V DC. (N.C. relay contacts and NPN transistor output available with solder jumpers. Transistor output is internally pulled up to 10V DC through relay coil, sinks from 10V DC to 0.5V @ 100mA)
- **Analog Output:** A 4-20mA (0-20mA) output is available for the 9504 series. The output can be programmed to track rate or total. This feature is available by the 9504 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 worst case.
- **Compliance Voltage:** 3 to 30V DC non inductive.
- **Scaling Factor (K-Factor):** In the standard unit, a user programmable K-Factor is 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 the two separate input channels.
- **Presets:** Two control outputs are provided. To set relay values, press "menu" button until "Relay" appears on the display, the A and B outputs can be assigned to the Rate-meter (high/low), one preset for rate and one for total, or two presets on the A and B Totalizers. A 5-digit value can be entered for both presets and 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 totalizers will auto reset at the preset. In the "A-B" or "A+B" versions, the relays will be assigned to either net total or A rate.
- **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.
- **Ratometer:** Accuracy: 0.01% FS (± 1 display digit). The rate display updates once per second. The rate meter can be programmed to accept almost any number of pulses per unit of measurement, sample from 2 to 24 seconds maximum, and auto-range up to 5 digits of significant information. In the "RPS" mode, the Ratemeter displays in units per second, and in the "scale" mode, units per hour or per minute. The unit will display the rate of the A Input only.
- **Totalizer:** The two 6-digit Totalizers can count at 10kHz max. Each can have a 5-digit dividing scale factor. The Totalizer advances on the positive edge of each pulse. Count up or down modes available, as are quadrature inputs from encoders for position or flow measurement. The unit can be programmed to view the net value of "A+B" or "A-B", or "A and B" as separate Totalizers.
- **RS232/RS422 Protocol:** If the serial interface option is supplied, multiple 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 received and transmitted over standard EIA RS232 or RS422 levels. Unit number, baud rate and parity are entered in the "Program Setting" setup mode and remain in memory even if power is off.
- **RS232/RS422/RS485 with Modbus RTU Protocol:** The serial port can be used for serial printing or also for data acquisition. The unit can assign addresses up to 247 units (The terminal addressing the unit must be capable of driving all loads in the loop.) The unit can communicate with a master device through a Modbus-RTU protocol. The data given for each parameter is in IEEE float format comprising of two words. The unit can be connected in a network.
- **Device ID:** 01-247
- **Baud Rates:** 300, 600, 1200, 2400, 4800, 9600
- **Parity:** None, Odd, Even
- **Protocol:** Modbus RTU (Half Duplex)

- Termination:

- 1 – Common
 - 2 – N.O. (N.C./NPN)
 - 3 – Common
 - 4 – N.O. (N.C./NON)
 - 5 – A Input
 - 6 – B Input
 - 7 – 12V DC Out/+DC In
 - 8 – DC (Ground)
 - 9 – Reset Input
 - 10 – Not Used
 - 11 – AC Input
 - 12 – AC Input
 - 13 – V+
 - 14 – I Sink
- } Relay A
} Relay B
} Analog Output

- Ordering Information:

NOTE: RS232/RS422/RS485 & Analog Output options cannot be combined

- Accessories:

- Separate Non-keyboard Panel – Order #34235
- Separate Keyboard Panel – Order #34234
- NEMA4 Wall Mount Enclosure – available
- Explosion-proof Enclosure – available

