MMRT-II Rate Meter and Totalizer

SS09045 Issue/Rev. 0.3 (9/25)

The MMRT-II is a dual-line, five-digit, explosion-proof meter mounted rate meter and totalizer. It provides a local non resettable totalizer, a resettable totalizer, and a flow-rate indicator while providing 4 to 20 milliampere (mA) scaled output or proportional pulse and alarm outputs. This totalizer can be used on Guidant meters with direct electronic outputs.

The MMRT-II has a five-digit and a eight-digit display that are user configurable by using the through-glass buttons. Its tool-free design enables programming and totalizer reset on site. The display also provides programmable k-factor and decimal point, enabling the display of totals and rate in measurement units.

Uses

The MMRT-II accepts inputs from most Guidant meter transmitters, including:

- PRIME 4 PD Meter
- Turbine pickup
- Turbine preamplifier
- Universal pulse transmitter (UPT)
- Genesis PD Meter
- Low-resolution large numeral counter transmitter (LR-LNC)
- High-resolution large numeral counter transmitter (HR-LNC)
- Ultrasonic Meter

Features

- Explosion-proof, IP68, NEMA 4X enclosure
- Pulse, open collector, negative-positive-negative (NPN), positive-negative-positive (PNP), transistor-transistor logic (TTL), switch contact, sine wave (coil), square wave, opto-isolated inputs
- Isolated 4 to 20 mA output for rate, total, or grand total
- Two isolated open-collector pulse outputs, up to 2 kilohertz (kHz)
- Thirteen-digit totalizer with total overflow feature
- CapTouch through-glass button programming
- Password protection

Specifications

Power

- Internal battery: 3.6 volt (V) primary lithium (Li-SOCI2)
    - Life expectancy of up to seven and a half years, depending on use
- External power: 9 to 30 volts direct current (VDC), 2 watts (W) maximum

Programming

- Manually programmable using through-glass buttons without opening the enclosure
- Programmable via the free MeterView XL application firmware using provided cable

LCD Display

- Top display: five digits, leading zero blanking, 12-segment display
- Bottom display: eight digits, leading-zero blanking, 14-segment display
- Backlight: white light-emitting diode (LED), 10-second auto-off on battery power
- Display assignment options:
    - Top: Rate or total
    - Bottom: Rate, total, grand total, units, and custom tags

Totalizers

- Calculates total and grand total based on rate and k-factor to display value in engineering units
- Up to four decimal places on top; up to seven on bottom (total decimal point is independent of rate decimal point)
- Totalizer can display numbers up to 9,999,999,999,999

Inputs

- Through-glass buttons: Four sensors that enable programming and operation without removing the cover in a hazardous environment
- Can be disabled for security purposes by a mechanical switch on the display module

Pulse Input

- Field selectable: sourcing or sinking pulse or square wave 0 to 5 V, 0 to 12 V, 0 to 24 V
- Voltage threshold:
    - Active/NPN: Low (0.5 V), high (1.8 V)
    - Active/NPN High: Low (2.8 V), high (4.8 V)
- Frequency range:
    - Maximum: 100 kHz
    - Minimum pulse width: 5 microseconds (µS)
- Opto-isolated input:
    - Sourcing or sinking pulse or square wave
    - 0 to 5 V, 0 to 12 V, 0 to 24 V
- Frequency range:
    - Maximum: 100 kHz
    - Minimum pulse width: 5 µs
- Low voltage magnetic pickup input (sinusoidal):
    - Sensitivity: 10 millivolts peak-to-peak (mVpp) to 24 volts peak-to-peak (Vpp)
    - Frequency range: maximum: 40 kHz

      Note: 10 mVpp @ 300 Hz Max
- Input impedance:
    - Pulse input: >75 kiloohm at 1 kHz
- Open collector/switch input: 100 kiloohms

Outputs

- 4-20 mA transmitter output:
    - Scaling range: 1.00 to 23 mA
    - Under-range: 1.0mA, 3.5mA, or 3.8mA, or Off; user selectable
    - Over-range: 20.5mA, 20.8mA, 23.0mA, or Off; user selectable
    - Accuracy: +/-0.05% of full scale +/- 0.001 mA
    - External loop power supply: 30 VDC maximum
    - Loop resistance:
        - 24 VDC: 10 to 750 ohm
        - 30 VDC: 100 to 1100 ohm

- Open collector output:
    - Two isolated outputs available
    - Individually programmable for rate, alarms, and totalizer
    - Pulse output maximum frequency: 2 kHz (50% duty cycle)
    - Pulse rate retransmit output: Output generates 100 to 130 µS pulses at the falling edge of every input pulse
    - Quadrature output: Output set to quadrature lags the other pulse by 90 electrical degrees at the given output frequency

Environmental

- Ambient operating temperature: -40 to 167 °F (-40 to 75 °C)
- Humidity: 90% non-condensing

Mechanical

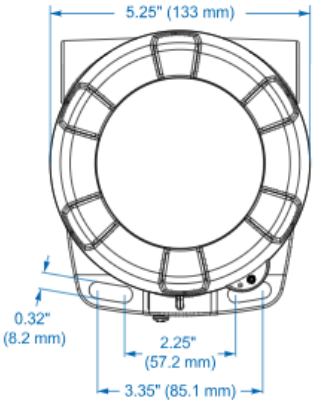
- Explosion-proof, die-cast aluminum with glass window, corrosion-resistant epoxy coating
- Three 3/4-inch national pipe thread (NPT) threaded conduit openings
- Weight: 5.00 pounds (lb) (80 ounces (oz)); 2.27 kilograms (kg))

Ratings and Approvals

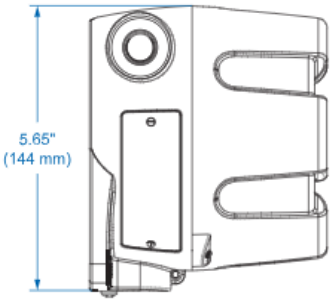
- UL: Class I, Division 1, Groups B, C, D; Class II, Division 1, Groups E, F, G; Class III, Division 1; T6; Class I, Zone 1, AEx db IIC T6 Gb; Zone 21, AEx tb IIIC T85°C Db; Tamb = -55°C to 75°C
    - Enclosure Type 4X, IP66 / IP68
    - UL E494837
- CSA: Class I, Division 1, Groups B, C and D; Class II/III, Division 1, Groups E, F and G; T6; Zone 1, Ex d IIC T6 ; Tamb = -55 to 75°C
    - Enclosure: Type 4X & IP66/IP68
    - CSA 11 2325749
- ATEX: II 2 G D; Ex db IIC T6 Gb; Ex tb IIIC T85°C Db IP68; Tamb = -55 to 75°C
    - SIRA 10ATEX1116X
- IECEx: Ex db IIC T6 Gb; Ex tb IIIC T85°C Db IP68; Tamb = -55 to 75°C
    - IECEx SIR 10.0056X

Mounting Dimensions

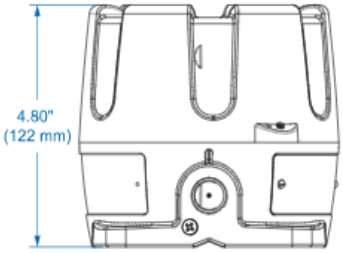
The dimensions in the following drawings are shown in inches (") to the nearest hundredth (millimeters (mm) to the nearest tenth), each independently dimensioned from respective engineering drawings.



Front View



Side View



Bottom View

The specifications contained herein are subject to change without notice and any user of said specifications should verify from the manufacture that the specifications are currently in effect. Otherwise, the manufacturer assumes no responsibility for the use of specifications which may have been changed and are no longer in effect.

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