

917-BATRAT-M

Battery Powered Ratemeter & Totalizer with Alarm Output

Features

- Accepts Inputs From: Magnetic Pickups, Contact Closures, DC Pulses (Optically Isolated) from Pulse Producing Flowmeters
- Displays Rate & Total Simultaneously
 5 Digit Rate Display, 8 Digit Totalizer Display
- 4-20mA Analog Output Option (8 updates/sec)
- Powered From Internal Battery, External DC Supply or 4-20 mA Output Loop
- 20 Point Linearization (optional);
 10 Point Linearization with Data Logger option
- Isolated Scaled Pulse Output
- Nonvolatile Flash Memory of Setup Data



- RS485 Modbus RTU Communications and Data Logger (optional)
- Setup Software Available for Easy Programming and Monitoring Using a PC and Special Serial Cable
- Extended Battery Life

Description

Featuring 5 digits of rate and 8 digits of total, the 917-BATRAT-M is a battery powered indicator with flow rate alarm output. It is capable of accepting magnetic pickup, DC pulse and switch closure inputs from pulse producing flowmeters. The unit can be ordered with an optional 4-20mA output. The 917-BATRAT-M uses the 4-20mA loop to provide power when this output is used.

Specifications

Power:

BATTERY POWERED

Supplied with 2 C size Lithium battery pack.

EXTERNAL POWER INPUT

Voltage: 8.5 to 30 VDC

Current: Less than 5 mA

Supplied with 1 C size lithium battery for standby operation

Protection: Reverse Polarity Protection on DC Power Input

LOOP POWERED

Voltage: 8.5 to 30 VDC

Supplied with 1 C size lithium battery for standby operation

Protection: Reverse Polarity Protection on Current Loop

Loop Burden: 8.5V maximum

BATTERY LIFE EXPECTANCY:

Expected Years of Operation for 917-BATRAT-M of various powering options at equipment duty cycles

MODEL	RUN TIME			
	Idle	2hrs/day	8hrs/day	24hrs/day
917-BATRAT-M-A	10 yrs	10 yrs	10 yrs	9.1 yrs
917-BATRAT-M-A-4	10 yrs	10 yrs	10 yrs	8.4 yrs
917-BATRAT-M-B/C	10 yrs	10 yrs	10 yrs	10 yrs
standby-operation				
917-BATRAT-M -B/C	Indefinite operation when externally powered			
External or loop power				

NOTE: Battery shelf life is rated at 10 years by manufacturer. Life expectancy based on rated battery capacity at 20°C. The above table is shown with pulse output inactive. Use of pulse output shortens battery life. Example: A pulse output of 0.06 sec. duration, once per second, would derate the battery life by 20%.

Display:

Rate Display: (selectable decimal)

5 Digits (99999), 0.35" High, Display updates once per second with battery power, 8X per second with DC or Loop power

Rate Descriptors: /SEC, /MIN, /HR

/MIN, /HR, /DAY with "D" option

Min. Input Frequency: 0.01 Hz to 10 Hz (selectable delay of 0.1 to 99.9 seconds)*

Selectable Rate Display Damping

Totalizer Display: (selectable decimal)

8 Digits (99999999), 0.2" High

Totalizer Descriptors: GAL, LIT, FT3, M3, "blank"

GAL, BBL, MCF, M3, "blank" with "D" option

Warning Displays: Low battery warning

Alarm Output:

Combination High-Low flow rate alarm output activates when flow rate is less than low set point or greater than high set point.

Type: Opto-isolated photomos relay

Max. voltage (off state): 30 VDC

Current (on state): 100 mA

Mounting Styles:

- 1- Panel Mount - NEMA 4X Front
- 3- Explosion Proof - Class I, Division I, Groups B, C & D
 Class II, Division I, Groups E, F & G
- 5- Wall Mount - NEMA 4X Enclosure
 (keypad mounted on cover)
- 6- Double Ended Explosion Proof - Class I, Division I, Groups B, C & D
 Class II, Division I, Groups E, F & G
 (contact factory for details)

Environmental:

OPERATING TEMPERATURE

-4°F (-20°C) to + 158°F (70°C)

Extended Temp: -22°F (-30°C) to + 158°F (70°C)

HUMIDITY

0 - 90% Noncondensing

ACCURACY:

0.01% Reading, ±1 count

Temperature Drift: 50 ppm/°C Worst Case

*Slow input pulse rates, large delay setting and internal math operations may delay the update rate.

INPUTS:

MAGNETIC PICKUP INPUT

Frequency Range: 0 to 3500 Hz
 Trigger Sensitivity: 10 mV p-p
 Over Voltage Protected: ± 30 VDC

OPTO-ISOLATED DC PULSE INPUT

High (logic 1): 4-30 VDC
 Low (logic 0): Less Than 1 VDC
 Minimum Current: .5 mA
 Hysteresis: 0.4 VDC
 Frequency Range: 0 to 5 kHz
 Min. Pulse Width: 0.1 msec

CONTACT CLOSURE INPUT (contact closure to common)

Internal Pullup Resistor: 100 KΩ to +3.6 VDC
 High (logic 1): Open or 4-30 VDC
 Low (logic 0): Less Than .5 VDC
 Internal Switch Debounce Filter: 0 to 40 Hz

NOTE: Sustained contact closure will shorten battery life.

RESET INPUT (contact closure to common)

Internal Pullup Resistor: 100 KΩ to +3.6 VDC
 High (logic 1): Open or 4-30 VDC
 Low (logic 0): Less Than .5 VDC
 Minimum On : 25 msec

NOTE: Sustained contact closure will shorten battery life.

K-FACTOR

Range: 0.001 to 99999999
 Decimal Point Locations: XXXX.XXXX to XXXXXXXX

20 Point Linearization Option (10 Point with S2 option)

This feature allows the user to enter 20 different frequencies with 20 different corresponding K-Factors to linearize non linear signals.

ANALOG OUTPUT OPTION:

Type: 4-20 mA follows rate display, Two wire hookup
 Accuracy: 0.025% Full Scale at 20° C
 Temperature Drift:
 50 ppm/°C Typical
 Reverse Polarity Protected
 Update Rate: 8 times/second

NOTE: The 917-BATRAT-M uses the 4-20 mA loop power as its primary power source when this option is used. The battery is still required for standby battery operation.

COMMUNICATIONS OPTION (S1):

RS232 SERIAL SETUP SOFTWARE OPTION:

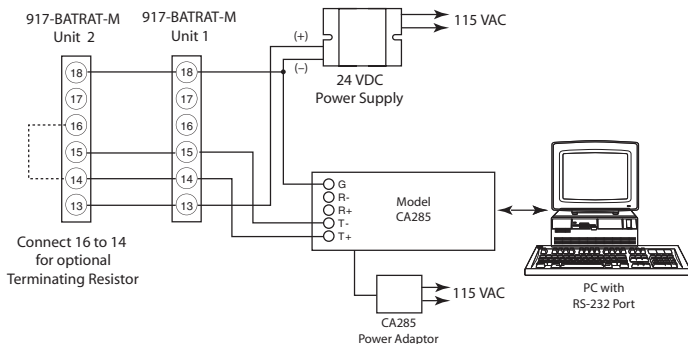
This option enables you to access a variety of process parameters through serial communications. PC compatible communications software is included with this option. With this software and a 917-BATRAT-M Serial Adapter Cable (BSAC1) you will be able to setup the 917-BATRAT-M through your PC.

DATA STORAGE:

Setup Information: Stored in flash memory
 Totalizer: Stored in battery backed RAM but can be saved to flash memory by operator for recall after battery change out.

RS-485 MODBUS and DATA LOGGER OPTION (S2):

The optional RS-485 card utilizes Modbus RTU protocol to access a variety of process parameters. The Data Logger stores the totalizer to flash memory once every 24 hours at the time you set. Requires external DC power.



Typical Wiring:

CONTACT INPUT / ALARM OUTPUT / BATTERY POWERED

4-20mA (+)/DC In (+) **12** 1 Mag Input 1
 4-20mA (-) **11** 2 Mag Input 2
 Opto Input (+) **10** 3 Shield/GND
 Opto Input (-) **9** 4 Reset Input
 Alarm Out (+) **8** 5 Contact Input
 Alarm Out (-) **7** 6 Common/ DC In (-)

MAG INPUT / 4-20 mA LOOP POWERED
(Power option C or AC)

4-20mA (+) **12** 1 Mag Input 1
 4-20mA (-) **11** 2 Mag Input 2
 Opto Input (+) **10** 3 Shield/Common
 Opto Input (-) **9** 4 Reset Input
 Opto Out (+) **8** 5 Contact Input
 Opto Out (-) **7** 6 Common

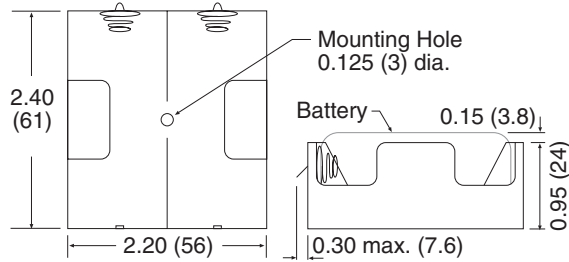
ACTIVE PICKUP / 4-20mA LOOP POWERED

4-20mA (+)/DC In (+) **12** 1 Mag Input 1
 4-20mA (-) **11** 2 Mag Input 2
 Opto Input (+) **10** 3 Shield/GND
 Opto Input (-) **9** 4 Reset Input
 Opto Out (+) **8** 5 Contact Input
 Opto Out (-) **7** 6 Common/ DC In (-)

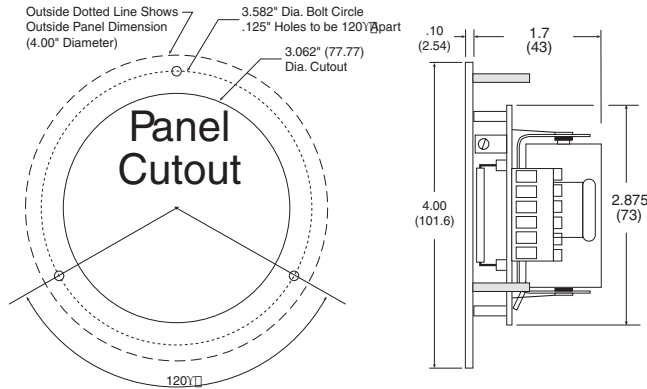
MAG INPUT / DC POWERED
(Power option A or B)

DC In (+) **12** 1 Mag Input 1
 Not Used (-) **11** 2 Mag Input 2
 Opto Input (+) **10** 3 Shield/Common
 Opto Input (-) **9** 4 Reset Input
 Opto Out (+) **8** 5 Contact Input
 Opto Out (-) **7** 6 Common/ DC In (-)

BATPACK

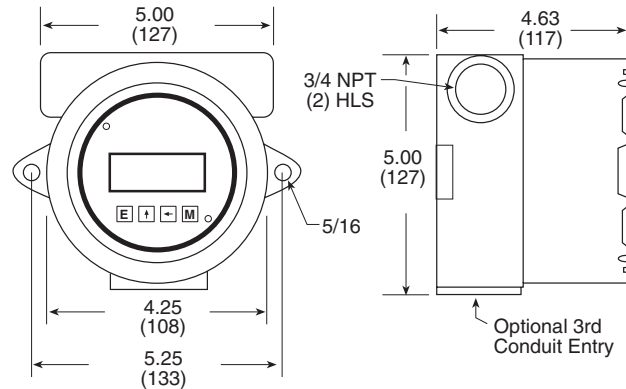


917-BATRAT-M-1

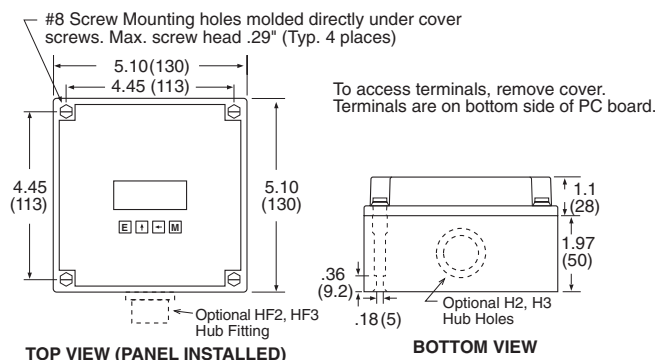


917-BATRAT-M-3

To access terminals, unscrew cover and loosen 2 panel screws. Terminals are on bottom side of PC board.



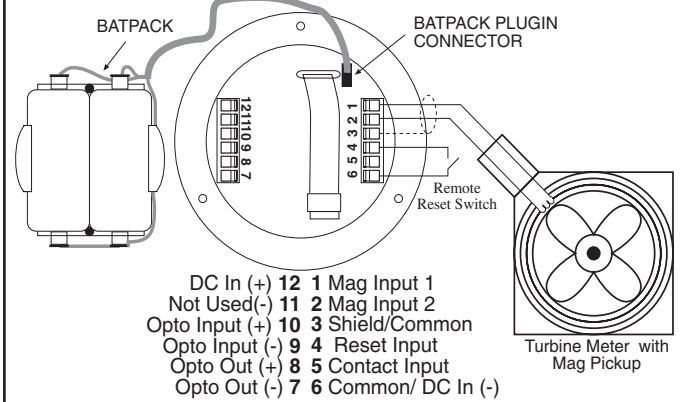
917-BATRAT-M-5



NOTE: Additional entry holes may be provided on style 5.

MAG INPUT / BATPACK POWERED

(Power option A or B)



DC In (+) 12 1 Mag Input 1
Not Used (-) 11 2 Mag Input 2
Opto Input (+) 10 3 Shield/Common
Opto Input (-) 9 4 Reset Input
Opto Out (+) 8 5 Contact Input
Opto Out (-) 7 6 Common/ DC In (-)

Ordering Information

EXAMPLE: 917-BATRAT-M 3 A 4 ET

Series: _____

Mounting: _____

- * 1 = Panel Mount
- 3 = Explosion Proof Housing
- 5 = NEMA 4X Box (917-BATRAT-M outside opaque cover)
- 6 = Double Ended Explosion Proof Housing (consult factory)

Power Supply: _____

- * A = Battery (2 supplied)
- B = External Power Supply (8.5 to 30 VDC)
- C = Loop Powered with 4-20 mA Output
- AC = Loop Powered with 4-20 mA Output and 2 Batteries

Options (Multiple Options Available)

- S1 = Serial Setup Software for use with BSAC1
- S2 = RS485/Modbus/Data Logger - Isolated (power options B, C only)
- 4 = 20 Point Linearization (10 point with S2 option)
- D = Rate per Day, Hour or Minute
- ET = Extended Temp.: -22°F to 158°F (-30°C to 70°C)
- CE** = CE Compliant
- CSA** = CSA Listed Explosion Proof
- IS** = UL Listed IS (planned)
- TRX = NEMA7 Explosion Proof Reset Switch (mounting style 3 and 6)
- RN = External Magnetic Reset
- T = Third Conduit Entry in Ex-Proof Housing (mounting style 3 and 6)
- H2 = 0.875" Hole for mounting style 5
- HF2 = 0.5" Female NPT Hub fitting for mounting style 5
- H3 = 1.125" Hole for mounting style 5
- HF3 = 0.75" Female NPT Hub fitting for mounting style 5

Accessories:

- BATPACK= External Batt. Pack with 2 C Size Batteries & 12" leads
- BATC = Single Battery: Tadiran P/N TL2200/S 3.6V 7200mAh or equal
- 115-24 = 115 VAC to 24 VDC power supply
- BSAC1 = RS232 Serial Adapter Cable with setup software

* External battery pack supplied with model 917-BATRAT-M1A

** Contact factory for latest information

917-BATRAT-M-6

