

# BR3000 Series

## Battery Powered Rate/Totalizer

### Description

Battery power and a compact size make the BR3000 Series Rate/Totalizer a versatile local indicator. It accepts magnetic pickup, DC pulse, and switch closure inputs. Rate and total are shown simultaneously on the easy-to-read, two-line, LCD display. When the input frequency varies, linearization compensates for changing K-factors, thereby increasing the accuracy. Scaled pulse and 4-20 mA output options allow the unit to send data to other devices. Batteries can provide all of the unit's power or serve as a back-up when DC or 4-20 mA loop power is used. When mounted in its explosion-proof enclosure, the BR3000 can be attached directly to the conduit connection on the side of Flow Technology industrial flowmeters. Other mounting configurations allow the BR3000 to be used in many different applications.

### Operation

Once the BR3000 is properly wired and programmed, operation is automatic. Prompts at each step simplify the process of programming. In addition to K-factors, the BR3000 allows users to program the units of measurement that will be displayed on the ratemeter and totalizer. A lockout code option keeps the total from being reset and prevents the settings from being changed. Once the BR3000 is in Run Mode, then the flow rate and total will be displayed continuously. The total can be reset from the front panel or from a remote location using the reset terminal.



### BR3000 Series

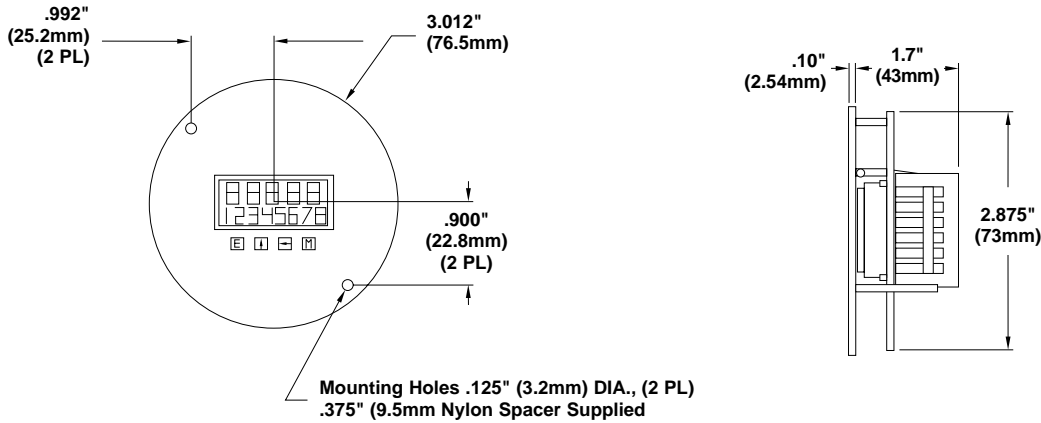
Battery Powered Rate/Totalizer

### Features

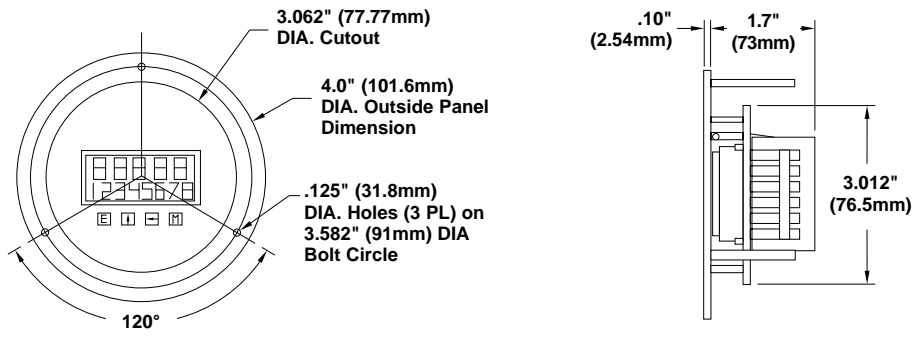
- Magnetic pickup, DC pulse (optically isolated), and contact closure input
- Displays rate & total simultaneously
- Internal battery, external DC, or 4–20 mA loop-power supply
- Isolated scaled pulse or 4–20 mA analog output
- 8-digit totalizer display
- 4-1/2 digit rate display
- 10-point linearization
- Low battery indicator
- Lockout code
- Explosion-proof, waterproof, and panel mounting options

# Dimensions

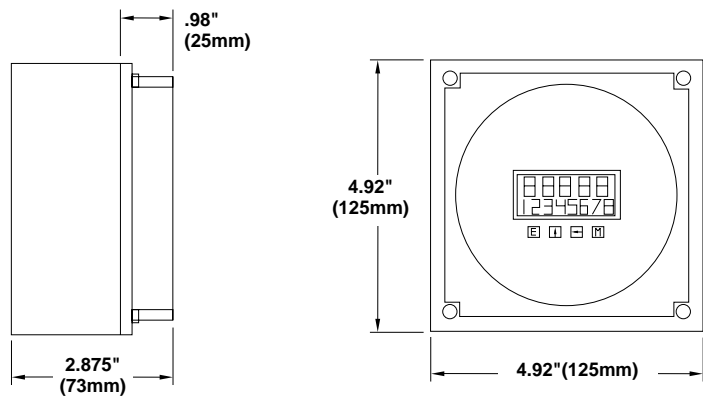
## BR30-0-X (no enclosure or mounting)



## BR30-1-X (Panel Mount NEMA 4 Front)

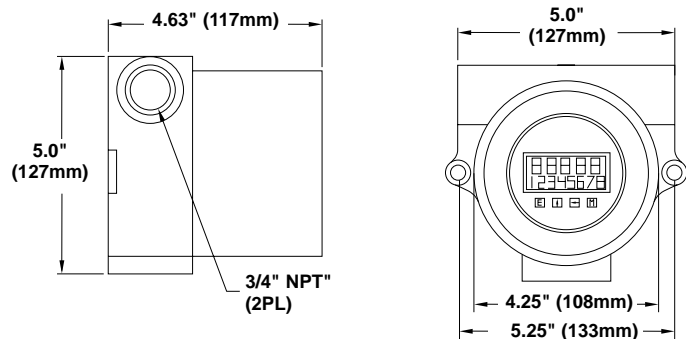


## BR30-2-X (Waterproof Enclosure NEMA 4)



## BR30-3-X

Explosion-proof Enclosure  
 NEMA 3, 4, 7BCD, 9EFG  
 NEC Class I, Groups B, C and D  
 NEC Class II, Groups E, F and G  
 UL Standard 1203  
 CSA Standard C22.2-30  
 FM Class No. 3615



## Specifications

<b>Operating Temperature</b>	-4° F to +158° F (-20° C to +70° C)
<b>Extended Temperature</b>	-22° F to +158° F (-30° C to +70° C)
<b>Humidity</b>	0 - 90% Noncondensing
<b>Accuracy (Other than Analog Output)</b>	0.01% Reading, ±1 count
Temperature Drift	50 ppm/°C worst case

### K-factor

Range	0.001 to 59999
Decimal Point Locations	XX.XXX to XXXXX

### 10-Point Linearization Option

This feature allows the user to enter 10 different frequencies with 10 different corresponding K-factors to linearize non-linear signals

### Displays

Rate Display (Selectable decimal)	4.5 Digits (19999) 0.35" (8.9mm) high Display updates once every 2–8 seconds depending on frequency
Rate Descriptors	/SEC, /MIN, / HR
Totalizer Display (Selectable decimal)	8 digits (99999999) 0.2" (4.95mm) high Display updates once every 2–8 seconds depending on frequency
Totalizer Descriptors	GAL, LIT, FT3, M3, "blank"
Warning Display	Low battery warning

### Power Input

External Power	
Voltage:	8.5–30 VDC
Current:	Less than 5mA
Battery:	Supplied with 1 C size battery
Protection:	Reverse polarity protection on DC power input
Battery Powered	Supplied with 2 C size lithium battery pack
Loop-Powered (Analog Output Option)	
Voltage:	8.5–30 VDC
Battery:	Supplied with 1 C size lithium battery
Protection:	Reverse polarity protection on current loop
Loop Burden:	8.5 V maximum

<b>Battery Life Expectancy</b>	See table last page (1-10 years depending on usage)
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### Magnetic Pickup Input

Frequency Range	.125 Hz to 3.5 KHz
Trigger Sensitivity	30 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	.125 to 5 KHz
Min. Pulse Width	0.1 msec

### Contact Closure Input

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

### Reset Input (Contact Closure to Common)

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

Caution: Sustained contact closure will shorten battery life

### Input Signal Transient to Output Response Time

2 sec minimum

### Pulse Output (Sinking)

Type	Opto-isolated open collector transistor
Max Voltage	30 VDC
Current	5 mA @ .9 V drop, .1 mA @ .7 drop
Pulse Duration	32 msec
Count Speed	10 CPS max.
Pulse Output Divider:	User-selectable, +1, +10, +100 or OFF

Note: Select OFF for maximum battery life. Pulse output to be used for totalization only. (not for rate control)

### Analog Output Option

#### (Power Source is Current Loop)

Type	4–20 mA follows rate display, two wire hookup
Accuracy	0.15% full scale at 20° C
Temperature Drift	50 ppm/°C Typ. ±200 ppm/° C worst case
	Reverse polarity protected
<b>CE</b>	Marked compliant w/ EMC directive 89/336/EEC (1989) Light Industrial Class 1

## Battery Life Expectancy

Basic Model No.	Run Time			
	Idle	2 Hrs/Day	8 Hrs/Day	24 Hrs/Day
<i>BR 30-X-A</i>	5 yrs	4.5 yrs	3.5 yrs	2.1 yrs
<i>BR 30-X-A-4</i>	5 yrs	3.7 yrs	2.7 yrs	1.5 yrs
<i>BR 30-X-B,C</i>	10 yrs	10 yrs	10 yrs	10 yrs
<i>BR 30-X-B,C*</i>	2.5 yrs	2.25 yrs	1.75 yrs	1 yr

\* Operating on battery during external power loss

Note: All of the battery life times are calculated with the pulse output ON. Turn the pulse output OFF to prolong battery life up to 30%.

## Model Numbering System

**B** **R** **3** **0** -  -  - **4**

**Basic Model No.** \_\_\_\_\_

**Mounting** \_\_\_\_\_

- 0 = None
- 1 = Panel Mount
- 2 = NEMA 4X Enclosure
- 3 = NEMA 7 Enclosure

**Power Supply** \_\_\_\_\_

- A = Battery
- B = External Power Supply
- C = Loop Powered

**Options** \_\_\_\_\_

- 4 = 10 Point Linearization

Specifications are for reference only and are subject to change without notice.

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