

# BR3000 Series

## Field Mount Rate and Total Display

### Description

Battery or DC power and a compact size make the BR3000 Series Rate/Totalizer a versatile local indicator. It accepts magnetic pickup and DC pulse inputs. Rate and total are shown simultaneously on the easy-to-read, two-line, LCD display. Twenty-point linearization is a standard feature, allowing correction for K-factor variation, thus 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. The BR3000 is available in an explosion-proof or NEMA 4X enclosure and can be directly mounted on Flow Technology flowmeters or remotely mounted.

### 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 displayed on the ratemeter and totalizer. A lockout code option keeps the total from being reset and prevents the settings from being changed. When purchased with a Flow Technology flowmeter, the BR3000 will be programmed and scaled prior to shipment. In Run Mode the BR3000 will continuously display flow rate and total. The total can be reset from the front panel or from a remote location using the reset terminal.



### BR3000 Series

Battery Powered Rate/Totalizer

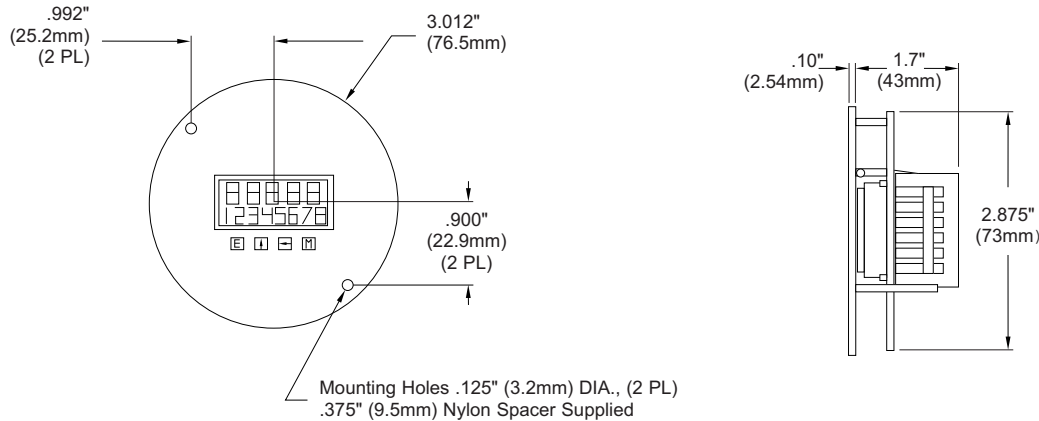
### Features

- Magnetic pickup and DC pulse (optically isolated) input
- Displays rate and 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
- 5-digit rate display
- 20-point linearization
- Low battery indicator
- Lockout code
- Explosion-proof, waterproof, and panel mounting options

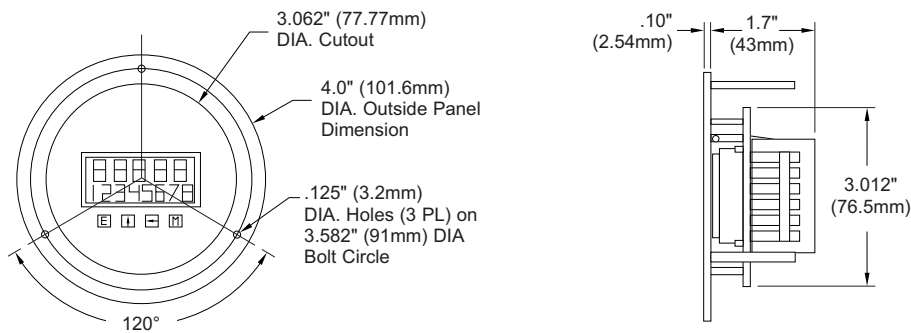


## Dimensions

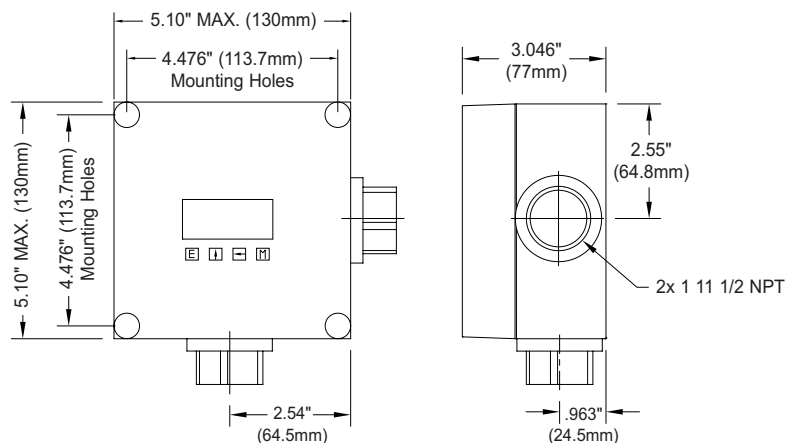
### BR30-0-X (no enclosure or mounting)



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

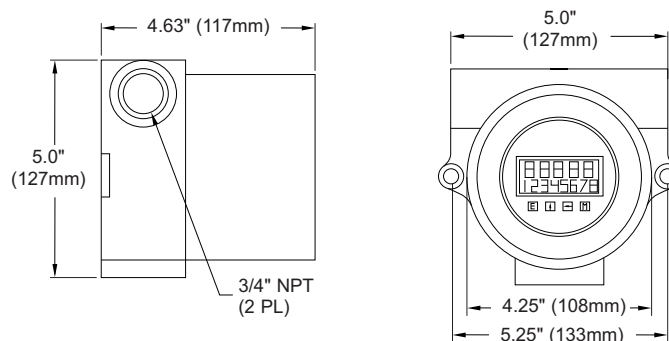


### BR30-5-X (Waterproof Enclosure NEMA 4X)



### BR30-3-X

CSA Explosion-Proof Approved  
 Certificate #1120094 (LR 91109-12)  
 CSA Standard C22.2-25/30  
 Class I, Div 1, Groups B, C & D  
 Class II, Div 1, Groups E, F & G  
 NEMA 4X and IP66 rated



## Specifications

**Operating Temperature** -4°F (-20°C) to +158°F (70°C)

**Humidity** 0 – 90% Noncondensing

### Accuracy (Other than Analog Output)

0.01% Reading, ±1 count

Temperature Drift 50 ppm/°C Worst Case

### K-factor

Range 0.001 to 99999999

Decimal Point Locations XXXX.XXXX to XXXXXXXX

### 20-Point Linearization Option

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

### Displays

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 Display Low battery warning

### Power Input

External Power

Voltage: 8.5 to 30 VDC

Current: Less than 5 mA

Battery: Supplied with 1 C-size lithium  
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 to 30 VDC

Battery: Supplied with 1 C-size lithium  
battery

Protection: Reverse Polarity Protection  
on Current Loop

Loop Burden: 8.5 V maximum

### Magnetic Pickup Input

Frequency Range 0.01 Hz to 3.5 KHz

Trigger Sensitivity 15 mV p-p

Over Voltage Protected ±30 VDC

### DC Pulse Input

High (logic 1) 4–30 VDC

Low (logic 0) Less than 1 VDC

Minimum Current 0.5 mA

Hysteresis 0.4 VDC

Frequency Range 0.01 Hz to 5 KHz

Min. Pulse Width 0.1 msec

### Contact Closure Input (Contact Closure to Common)

Internal Pullup Resistor 100 KW to +3.6 VDC

High (logic 1) Open or 4–30 VDC

Low (logic 0) Less than .5 VDC

Internal Debounce Filter 0 to 40 Hz

Note: Sustained contact closure will shorten battery life.

### Reset Input (Contact Closure to Common)

Internal Pullup Resistor 100 KW 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.

"R" version is not CSA approved.

### Input Signal Transient to Output

**Response Time** 2 sec minimum

### Pulse Output

The pulse output advances with the least significant digit of the totalizer or decimal multiples thereof (see Pulse Scale Divider).

Type Isolated photomos relay

Max. Voltage (off state) 30 VDC

Current (on state) 100 mA

Pulse Duration Selectable: 0.5, 0.25, 0.125  
or 0.0625 seconds

Pulse Scale Divider User-selectable: 1, 10, 100  
or OFF

Note: Select OFF for maximum battery life.

### 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 BR30 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.

### Setup Software Option

Setup software is available as an option, for easy programming using a PC. The software will also allow monitoring of rate and total from a PC. A special cable is required and supplied with the setup software.

### 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.

### Approvals

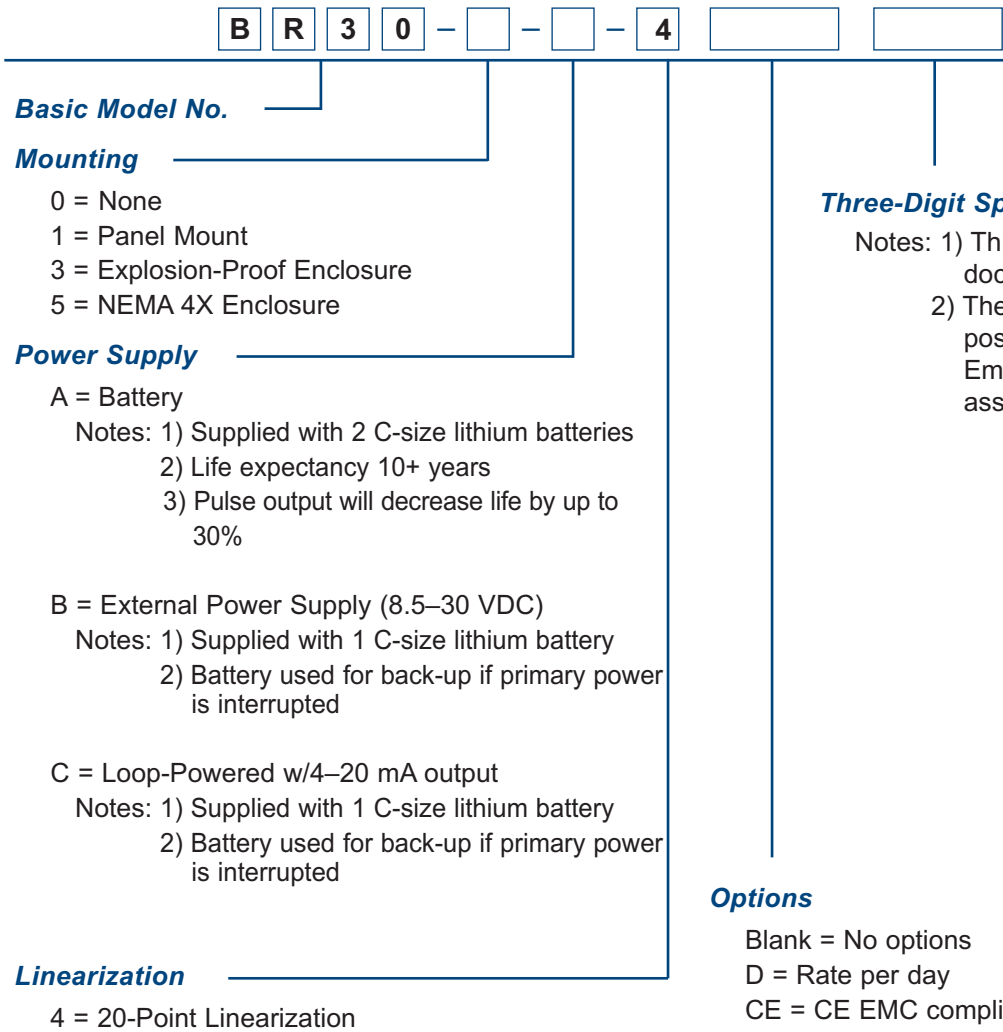
CSA

CSA approved for X-Proof  
environments, Class I, Div 1,  
Groups B, C & D

CE

Marked compliant with EMC  
Directive 89/336/EEC (1989)  
Light Industrial Class I

## Model Numbering System



### Three-Digit Special Code

- Notes: 1) This code is factory-assigned to document a non-standard configuration.  
2) The three-digit code to be located in positions 16, 17 & 18 of model number. Empty locations prior to code will be assigned a zero ("0") code.

### Options

- Blank = No options
- D = Rate per day
- CE = CE EMC compliant
- R = X-Proof reset switch  
(Note: Only available on "-3" mounting option, with "-B" or "-C" power option)  
"R" version is not CSA approved.
- RN = Magnetic reset switch  
(Note: Only available on "-3" mounting option, with "-B" or "-C" power option)

**Programming software and cable part number: 24-94493-101**

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



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