KIMRAY BK3000 FLOW MONITOR

INTRODUCTION

The BK3000 Series flow meter from Kimray provides you with a flexible, durable, easy-to-use platform for your flow metering applications. The BK3000 Series makes it easy to monitor flow, with a crisp dot-matrix display capable of simultaneous display of flow rate and flow total. With a wide variety of enclosure options for both liquid and gas applications, from intrinsically safe and explosion-proof (flameproof) ratings, to an innovative solar-powered model, there's a BK3000 to suit your needs. Intrinsically safe models are housed in a UV-resistant, NEMA 4X-rated enclosure available in direct, panel, pipe, DIN-rail or swivel mounts.

OPERATION

The BK3000 Series was designed with smart management of unit power in mind. All units feature extremely low power consumption in normal operating conditions and are both 4-20mA loop and battery-powered*. You'll never have to worry about losing power, and the onboard battery will last up to 8 years.

The BK3000 Series also provides you with powerful operating features. Multi-point linearization tables are supported in all models, providing increased reading accuracy. Accessing the powerful advanced programming mode is as easy as pressing a single button. The standard communications interface is 4-20mA and total pulse, while the advanced interface adds two control alarms and Modbus RTU over RS485.

Kimray's trusted flow metering technology is now available with more options and features than ever before with the BK3000 Series.
*Solar version available as battery-powered monitor only

EXPLOSION-PROOF ENCLOSURE

APPLICATIONS

The BK3000 monitor is suitable for application in a wide variety of metering needs. A few of the more common industries are:

Secondary oil recovery applications

Remediation and reclamation

Fracture/refracture

Coal bed methane

Regulatory compliance and environmental accountability

Industrial chemicals

Aggressive chemical processing applications

Liquid batching and water cooling

KEY DESIGN FEATURES

- Flexible power options include solar, battery, and 4-20mA loop power
- Robust alarm parameters provide faster warning when something changes in the process or pipeline
- Multiple enclosure options ensure there's a BK3000 model for your operation
- Updated display provides more information at your fingertips
- Advanced connectivity options allow you to connect meters to your network for remote monitoring and process automation capabilities

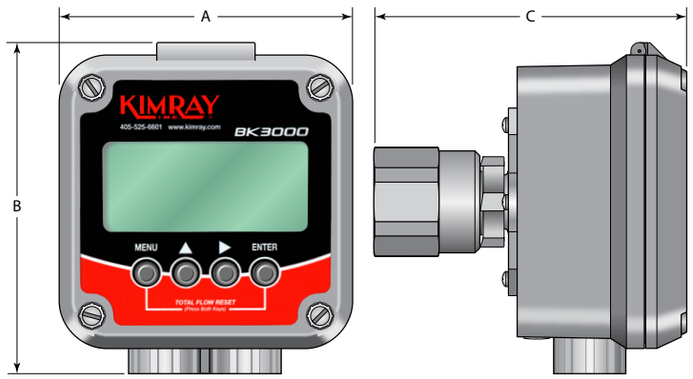
PRODUCT DATA SHEET

SPECIFICATIONS

Display	Common	Simultaneously shows Rate and Total			
		5 x 7 Dot Matrix LCD, STN Fluid			
		6 Digit Rate, 0.5 inch (12.7 mm) numeric			
		7 Digit Total, 0.5 inch (12.7 mm) numeric			
		Engineering Unit Labels 0.34 in. (8.6 mm)			
	Explosion Proof	6 Digit Rate, 0.37 inch (9.4 mm) numeric			
		7 Digit Total, 0.37 inch (13 mm) numeric			
		Engineering Unit Labels 0.24 inch (6.1 mm)			
	Annunciators	Alarm 1(A1), Alarm 2 (A2), Battery Level (▯▯▯▯), RS485 Communications (COM)			
Power	Auto switching between internal battery and external loop power; explosion proof includes isolation between loop power and other I/O				
	Battery	3.6V DC lithium D Cell gives up to 6 years of service life Note: Modbus enabled at baud rate of 19,200 or higher without loop power reduces battery life to 1 year			
	Loop	4…20 mA, two wire, 25 mA limit, reverse polarity protected, 7V DC loop loss			
	Solar Battery	Internal battery (3.6V DC Nicd) provides up to 30 days of power after 6…8 hours exposure of the integrated photovoltaic cell to direct sunlight.			
Inputs	Magnetic Pickup	Frequency Range	1…3500 Hz		
		Frequency Measurement Accuracy	±0.1%		
		Over Voltage Protection	28V DC		
		Trigger Sensitivity	30 mVp-p (High) or 60 mVp-p (Low) - (selected by circuit board jumper)		
	Amplified Pulse	Direct connection to amplified signal (pre-amp output from sensor)			
Output	Analog 4…20 mA	4…20 mA, two-wire current loop			
		25 mA current limit			
	Totalizing Pulse	One pulse for each Least Significant Digit (LSD) increment of the totalizer			
		Pulse Type (selected by circuit board jumper)	Opto-isolated (Iso) open collector transistor		
			Non-isolated open drain FET		
		Maximum Voltage	28V DC		
		Maximum Current Capacity	100 mA		
		Maximum Output Frequency	16 Hz		
		Pulse Width	30 mSec fixed		
	Status Alarms	Type	Open collector transistor		
			Adjustable flow rate with programmable dead band and phase.		
		Maximum Voltage	28V DC		
		Maximum Current	100 mA		
		Pullup Resistor	External required: 2.2 k ohm minimum, 10 k ohm maximum		
Modbus Digital Communications	Modbus RTU over RS485, 127 addressable units / 2-wire network, 9600 baud, long integer and single precision IEEE754 formats; retrieve: flow rate, job totalizer, grand totalizer, alarm status and battery level; write: reset job totalizer, reset grand totalizer.(None on Solar and Explosion Proof)				
Data Configuration and Protection	Two four-digit user selectable passwords; level one password enables job total reset only, level two password enables all configuration and totalizer reset functions				
Certifications	Safety	Class I Division 1, Groups C, D; Class II, Division 1 Groups E, F, G; Class III for US and Canada. Complies with UL 913 and CSA C22.2 No. 153			
		Explosion: Class I Division 1 Groups B, C, D; Class II, Division 1, Groups E, F, G; Class III for US and Canada Complies with UL 1203 and CSA C22.2 No. 30 ATEX II 2 G Ex d IIC T4 Gb and ATEX II D Ex tb IIIC T125 °C Db Complies with Directive 94/9/EC.			
	EMC	2004/108/EC			
Entity Parameters	Base	4…20 mA Loop: Vmax = 28V DC	Imax = 26 mA	Ci = 0.5 µF	Li = 0 mH
	Base & Solar	Pulse Output: Vmax = 28V DC	Imax = 100 mA	Ci = 0 µF	Li = 0 mH
	Base & Solar	Reset Input: Vmax = 5V DC	Imax = 5 mA	Ci = 0 µF	Li = 0 mH
	Base	RS485: Vmax = 10V DC	Imax = 60 mA	Ci = 0 µF	Li = 0 mH
	Base & Solar	Turbine Input: Voc = 2.5V	Isc = 1.8 mA	Ca = 1.5 µF	La = 1.65 H
Measurement Accuracy	Common Accuracy	0.05%			
Response Time (Damping)	Common Response Time	1…100 seconds response to a step change input, user adjustable			
Environmental Limits	Common Limits	–22…158° F (–30…70° C); 0…90% humidity, non-condensing;			
Materials and Enclosure Ratings	Polycarbonate, stainless steel, polyurethane, thermoplastic elastomer, acrylic; NEMA 4X/IP 66 meter, remote and swivel mount; NEMA/UL/CSA Type 4X (IP-66) EXPLOSION PROOF: Copper free, epoxy-coated, aluminum, buna seal, NEMA 4X/IP66				
Engineering Units	Liquid	US Gallons, Liters, Oil Barrels (42 gallon), Liquid Barrels (31.5 gallon), Cubic Meters, Million Gallons, Cubic Feet, Million Liters, Acre Feet			
	Gas	Cubic Feet, Thousand Cubic Feet, Million Cubic Feet, Standard Cubic Feet, Actual Cubic Feet, Normal Cubic Meters, Actual Cubic Meters, Liters			
	Rate Time	Seconds, minutes, hours, days			
	Totalizer Exponents	0.00, 0.0, X1, x10, x100, x1000			
	K-factor Units	Pulses/US Gallon, Pulse/Cubic Meter, Pulses/Liter, Pulses/Cubic Foot			

DIMENSIONS

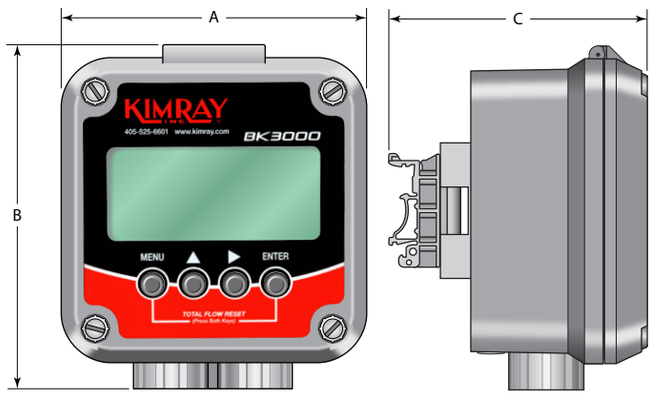
Meter Mount



Meter Mount

A	4.50 in. (114.3 mm)
B	5.08 in. (129.0 mm)
C	4.78 in. (121.4 mm)

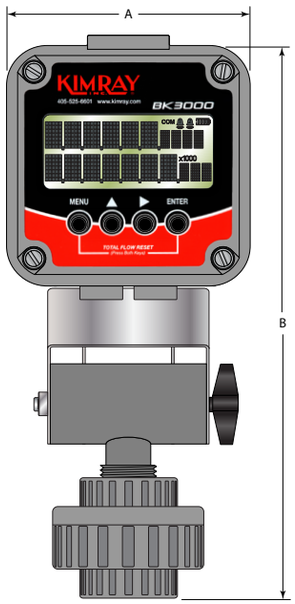
Remote Mount

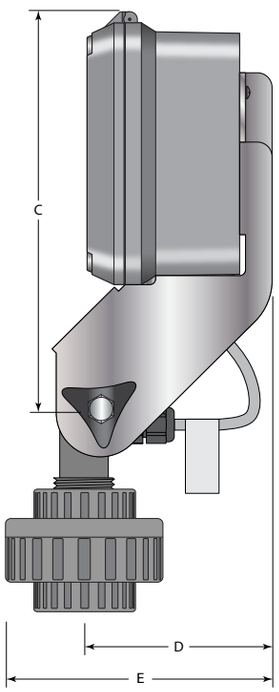


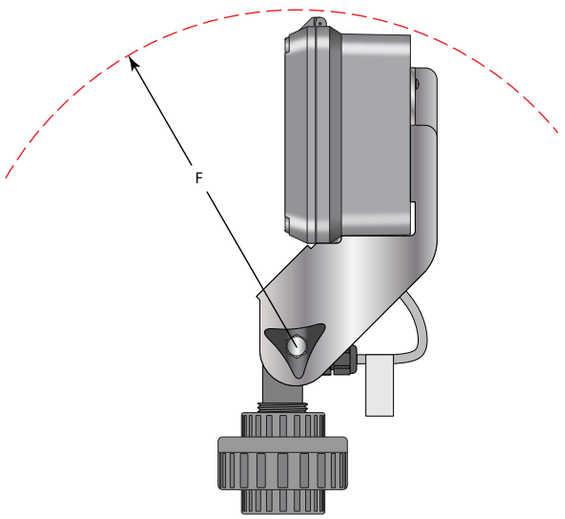
Remote Mount

A	4.50 in. (114.3 mm)
B	5.08 in. (129.0 mm)
C	3.80 in. (96.5 mm)

Swivel Mount





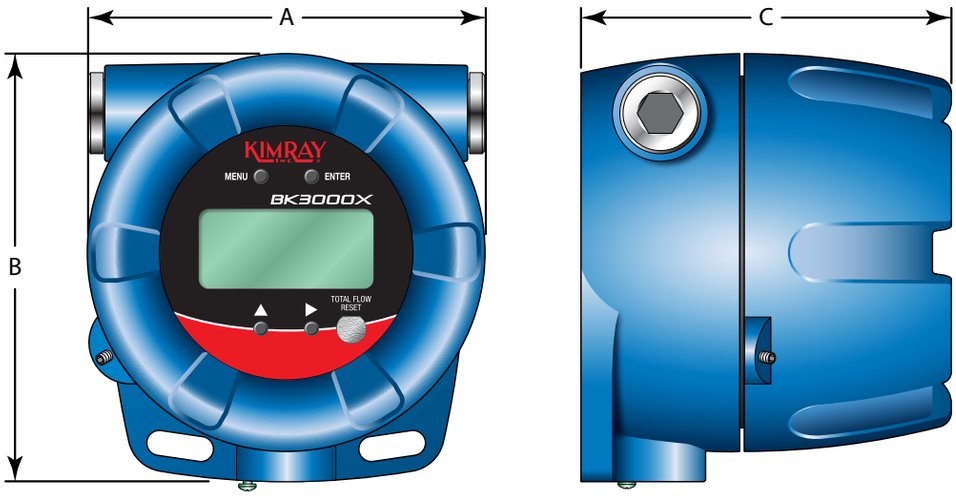


Swivel Mount

A	4.50 in. (114.3 mm)
B	10.9 in. (276.9 mm)
C	6.90 in. (175.4 mm)
D	3.21 in. (81.5 mm)
E	4.25 in. (107.9 mm)
F	7.00 in. (177.8 mm)

DIMENSIONS

Explosion Proof



Explosion Proof

A	5.25 in. (133.4 mm)
B	5.65 in. (143.5 mm)
C	4.86 in. (123.4 mm)

ORDER CODE	DESCRIPTION
KSB30AM-CS	KSB BK3000 Advance Meter Mount
KSB30AR-CS	KSB BK3000 Advance Remote Mount
KSB30AS-CS	KSB BK3000 Advance Swivel Mount
KSB30BM-CS	Monitor BK3000 Base BP MM
KSB30BR-CS	KSB BK3000 Base Remote Mount
KSB30BS-CS	KSB BK3000 Base Swivel Mount
KSB30SM-CS	KSB BK3000 Solar Meter Mount
KSB30SR-CS	KSB BK3000 Solar Remote Mount
KSB30SS-CS	KSB BK3000 Solar Swivel Mount
KSB30XR-CS	KSB BK3000 Base Exp Remote Mount
KSB30YR-CS	Monitor BK3000 ADV XP RM
KSB30ZRCS	Monitor BK3000 ADV BP RM XP

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