Flow Monitor

B3150 Series

DESCRIPTION

The B3150 Series flow monitor is a flexible, durable, easy-to-use platform for your flow metering applications. Our trusted flow metering technology now offers a new flow monitor with more options and features than ever before with the B3150 Series.

APPLICATIONS

The B3150 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
- Semiconductor manufacturing
- Fertilizer production and dispensing
- Pesticide manufacture
- Liquid batching and water cooling

FEATURES

- Explosion-proof according ATEX, IECEx, FM and CSA c-us
- Integrated HART 7 communications protocol
- Rugged 1 in. NPT thread for flow meter mounting
- USB communication for configuration using a programming cable
- Modbus RS485 communication option.
- Easy configuration via PC with free downloadable software
- Easy K-factor and engineering unit configuration for volumetric or mass readings
- Display shows flow rate, total, measuring units and a flow rate indicating speedometer
- Seven-digit flow rate/total and 11-digit accumulated total
- Easy configuration with clear alphanumerical display
- Bright LED backlight
- Auto backup of settings and running totals
- Power requirements: Loop powered or battery
- Operational temperature – 40…158° F (– 40…70° C)

- Sixteen-point linearization of the flow curve, with interpolation
- Field operation via through-the-glass keypad

PART NUMBER CONSTRUCTION

Blancett B3150 Display [ ][ ][ ][ ] - [ ]

Model		
Blancett B3150 Display	**B31**	
Model		
Explosion Proof* – Battery and Loop Power With HART	**5**	
Mounting		
Meter		**M**
Units of Measure		
Customer Selectable		**CS**

*For hazardous locations, the monitor must be installed on an explosion-proof rated meter. To maintain compliance, kit P/N B280-757 for meter mounting is required.

HART
COMMUNICATION PROTOCOL

Badger Meter

Product Data Sheet

SPECIFICATIONS

Display	Dimensions	Ø 2.56 × 1.77 in. (65 × 45 mm)
	Digits	Seven 0.47 in. (12 mm) and eleven 0.28 in. (7 mm) digits. Various symbols and measuring units
	Refresh rate	User definable: 8 times/sec – 30 sec
	Speedometer	To indicate the actual flow rate, the bar graph range is 0…100% in 20 blocks, each block is 5%
Ambient Operating Temperature	– 40…158° F (– 40…70° C)	
Enclosure	Sealing	Silicone
	Control keys	Three infra-red keys with operation through-the-glass front window
	Rating	NEMA 4×, NEMA 7, NEMA 8, NEMA 9, IP66, IP67
	Type	Die-cast aluminum Ex d enclosure
	Dimensions	4.41 × 5.24 × 5.83 in. (112 × 133 × 148 mm) W × H × D
	Entry thread	2 × 3/4 in. NPT (T1), 1 × 1 in. NPT (T2)
Power Requirements	Battery powered	Long life Lithium battery; lifetime depends on settings and configuration; Up to approx. 3 years **NOTE:** The battery can power the backlight for a short time after a keypad touch
	Power supply	9…27V DC; Consumption max. 3W
Sensor Excitation	All power sources	Terminal S3: 3V DC for pulse signals and 1.2 V DC for coil pickup, I_{out} max. 100 μA
Terminal Connections	Removable plug-in terminal strip; Wire max. 1.5 mm^2 and 2.5 mm^2	
Data Protection	EEPROM backup of all settings; Backup of running totals every minute; Data retention is 10 years	
	Configuration settings can be password protected	
Hazardous Area	CSA c-us / FM	Class I, Division 1, Grps A, B, C, D
		Class II/III, Division 1, Grps E, F, G
		Class I, Zone 1, AEx d IIC T6/T5 Gb
		Zone 21, Aex tb IIIC T85° C/T100° C Db
Directives and Standards	EMC	EN 61326-1; FCC 47 CFR part 15
	LVD	EN/IEC 61010-1
	ATEX / IECEx	EN/IEC 60079-0; EN/IEC 60079-1; EN/IEC 60079-31
	CSA	CSA 22.2 No. 25, CSA 22.2 No. 30, No. 61010-1-12
	RoHS	EN 50581
	IP and TYPE	EN 60529; NEMA 250
	FM	Class 3600, 3615, 3616, 3810
	UL	UL 61010-1
Input	Pulse Flow Meter	Coil / sine wave (COIL-HI: 20 mVpp or COIL-LO: 90 mVpp sensitivity selectable), NPN, PNP, reed switch, NAMUR, active pulse signals 8 or 24V DC
	Frequency	Min. 0 Hz, max. 10k Hz for total and flow rate; Maximum frequency depends on signal type and internal low-pass filter; For example, a reed switch with low-pass filter: max. frequency 120 Hz
	K-Factor	0.000010…9,999,999 with variable decimal position
	Low-pass filter	Available for all pulse signals
	External reset total	
Digital Output	Pulse	Transmitting linearized accumulated total
	Frequency	500 Hz max; Pulse length user-definable from 1 msec to 10 sec
	One passive transistor output (NPN), not isolated; 300 mA to 50V @ 77° F (25° C)	
Analog Output	General	Transmitting linearized flow rate
	Galvanically isolated, loop powered 4…20 mA output	
	Accuracy	12 bit; Error 0.03% @ 68° F (typical 25 ppm/° F); analog output signal can be scaled to any desired range
Communication	Reading display information, reading/writing all configuration settings	
	HART Communication protocol, Revision 7.0	
	Addressing	Selectable 0…63
	Loop resistance	250 Ω
	Liftoff Voltage	11V

SPECIFICATIONS (CONTINUED)

Operational	Displayed information	Linearized flow rate and/or total; Linearized total and accumulated total; Indicating speedometer for flow rate; Total can be reset to zero
	Total Digits	7 digits
	Total Units	L, m³ US gal, igal, cf, il bbl, kg, ton, US ton, lb or none
	Total Decimals	0, 1, 2, or 3 **NOTE:** Total can be reset to zero.
	Accumulated Total Digits	11 digits
	Accumulated Total Units/Decimals	According to selection for total **NOTE:** Accumulated total cannot be reset to zero.
	Flow Rate Digits	7 digits
	Flow Rate Units	mL, L, m³, mg, g, kg, ton, US ton, US gal, igal, Oil bbl, lb, cf, rev, none, scf, nm³, nL or p
	Bar graph Speedometer	20 blocks,; each block is 5% of total span
	Flow Rate Decimals	0, 1, 2, or 3
	Flow Rate Time Units	sec, min, hr, day

ACCESSORIES

| Part Number	Description
B280-757	Explosion-proof Meter Mount Kit, 1 in. connections
B280-742 and B280-727	Explosion-proof Meter Mount Kit, 1/2 in. connections
B315003	B3150 USB Programming Cable
B315010	Wall Mounting Kit
B315011	Pipe Mounting Kit (requires wall mounting kit)
B315028	Replacement Battery
B315001	B3150 Electronics Module, Service

Meter Mounting Kits
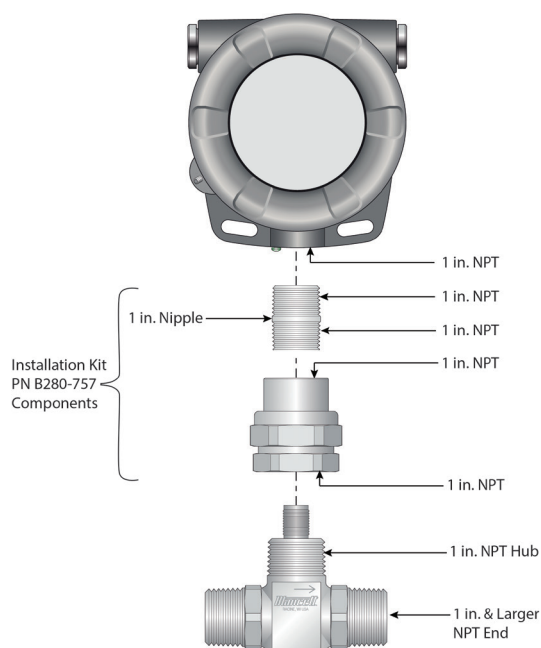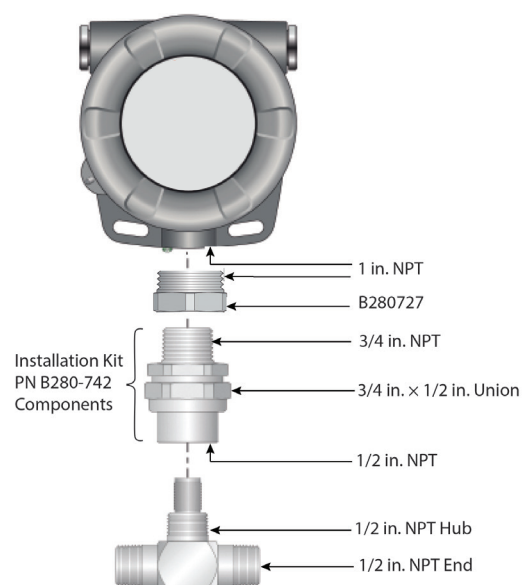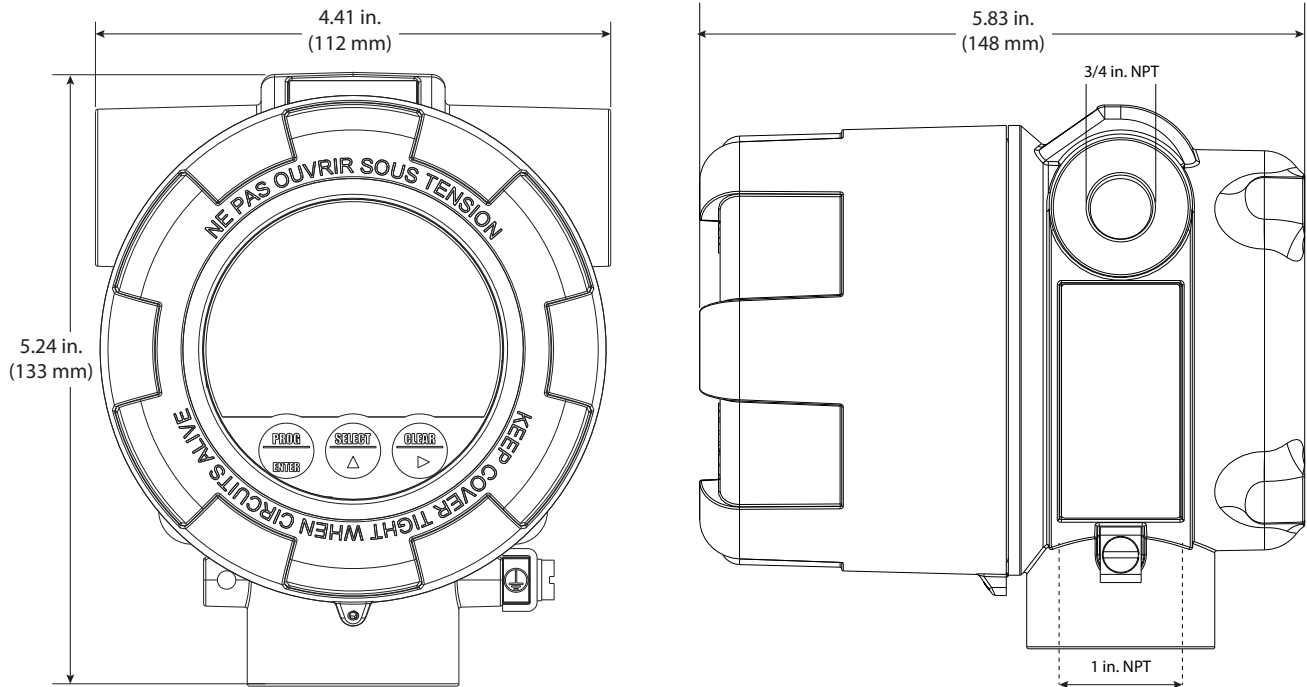

Figure 1: Turbine with 1 in. NPT hub size

Figure 2: Turbine with 1/2 in. NPT hub size

DIMENSIONS

4.41 in.
(112 mm)

5.24 in.
(133 mm)

5.83 in.
(148 mm)

3/4 in. NPT

1 in. NPT

Control. Manage. Optimize.

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