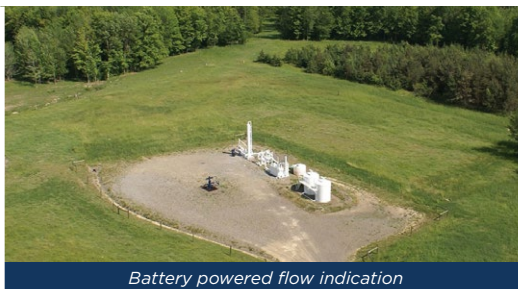
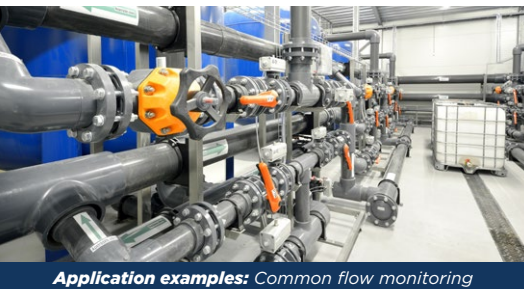


Built to last since 1948

Basic Flow rate Indicator / Totalizer

with analog and pulse signal outputs



The basic indicators of the B-Series have all the benefits you may expect from a Macnaught product: It's durable, reliable and very easy to operate. For more advanced functionality we recommend our D-, E-, F- and N-Series.

Advantages

- Durable IP65 (Type 4X) field, wall or meter mount enclosure.
- Intuitive "Know one, know them all!" configuration menu, saving time, cost and aggravation.
- Compact design.
- Competitive pricing.

Features

- Displays instantaneous flow rate, total and accumulated total.
- Clear 12mm(0.5") numeric and 7mm(0.3") alphanumeric digits.
- All info at a glance with clear alphanumeric display.
- Bright LED backlight.
- The B-Smart accepts the basic sensor input signals: Reed-switch, Namur, NPN, PNP, Sine wave (coil).
- Loop powered 4 - 20mA output according to flow rate.
- Scaled pulse output according to accumulated total.
- Power requirements: Lithium AA battery, output loop powered or 10 - 30V DC.
- Sensor supply: 8.2V DC.
- Auto backup of settings and running totals.
- One 20mm (0.79") and two 16mm (0.63") knock-out hole cable entries.
- Easy configurable via PC with free downloadable remote configuration tool.

Introduction

The B-Smart flow transmitter is the most advanced model in our B-Series, complete with pulse and analog output signals. The display shows flow rate, total and accumulated total. On-screen engineering units are easily configured from a comprehensive selection.

Display

The main process information is displayed with 7 digits (12mm, 0.47") to show flow rate, total or accumulated total. The 7 alpha-numeric digits (7mm, 0.28") are used for the flow rate measurement units and the clear setup menu messages. For good readings in full sunlight and darkness, the B-Smart is provided with a bright backlight.

Analog output

The flow rate is transmitted with the 4 - 20mA output signal. The B-Smart can even be powered via the loop-current.

Configuration

The B-Series uses the same highly appreciated configuration structure of our Macnaught product series. Each setting is clearly indicated with an alphanumeric description, which avoids confusing abbreviations. Once familiar with one B-series product, you will be able to program all models in all series without a manual. In other words: know one, know them all.

Remote configuration

Even more user-friendly is the remote configuration via a PC using the free downloadable Configuration Software.

Connect the B-Series service connector with the special Configuration Cable (ACE02) to the USB port of your PC.



Pulse outputs

A scaled pulse output is available according the accumulated total. The pulse length can be set to 5msec, 15msec or 100msec. The output is a passive NPN signal.

Power requirements

Several power inputs are available to supply the B-Series and sensor. The B-Smart can be powered with a single 3.6V lithium AA battery or loop powered via the analog output. The basic 10 - 30V DC power supply can supply the B-Smart including the backlight and offers an 8.2V DC sensor supply.



All info at a glance



Easy to install



Easy to program



Know one know them all!



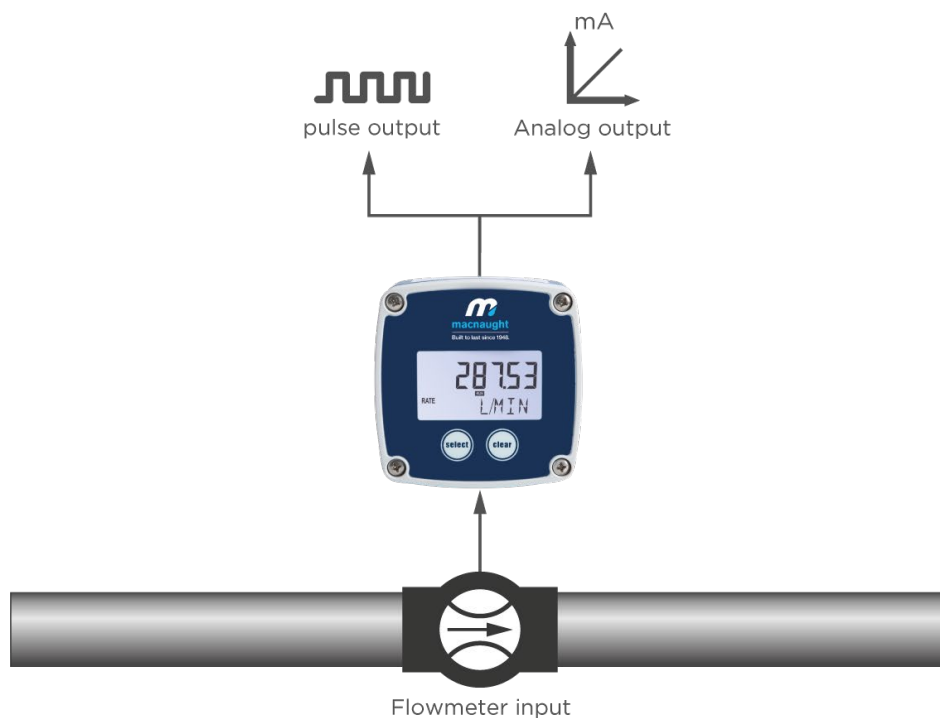
Reliable



User-friendly

Overview application B-Smart

Basic flow measurement where re-transmission of the flow rate and/or totalizer functions is required. The B-series offers you an economical solution for common industrial applications. Nothing more, nothing less. For intrinsically safe applications we offer our rugged, field mount F-Series indicators, for explosion proof applications we offer our E-Series indicators and for panel mount applications we offer our D-Series indicators.



Signal input

The B-Smart accepts the basic flowmeter input signals: Namur, Reed-switch, NPN, PNP and Sine wave (coil). The input signal type can easily be selected in the configuration menu

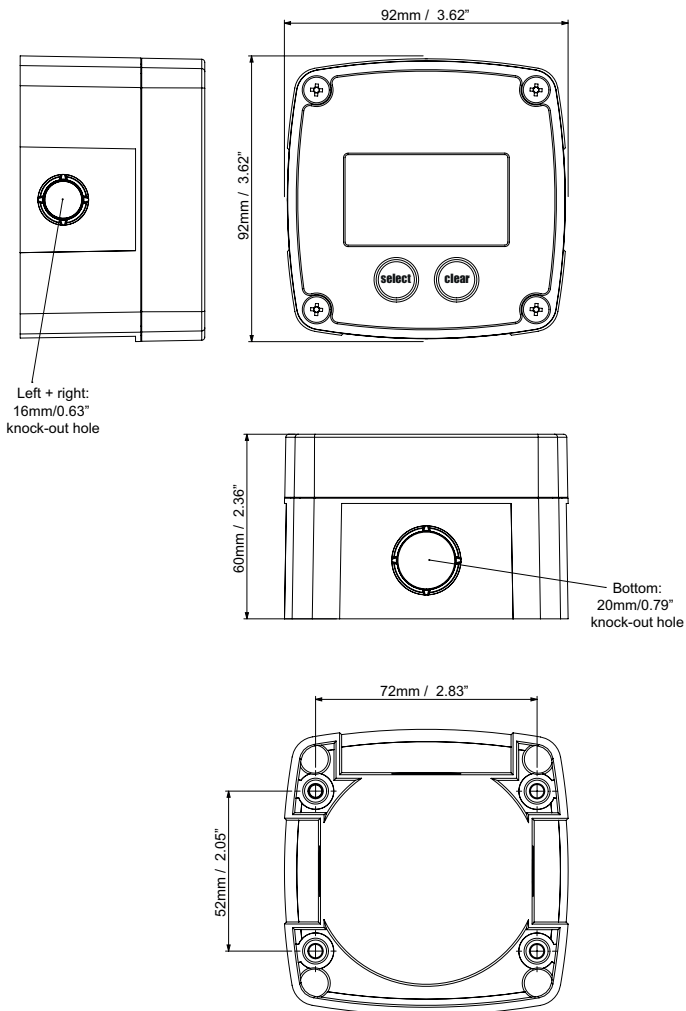
Type of signal	Resistance	Low Pass filter (LP)	Max. frequency	Max. frequency Low Pass filter (LP)	Min. amplitude p-p	Remark
NPN	100kΩ pull-up		6 kHz Threshold 1.2V			Open collector
REED		1MΩ pull-up		120Hz		
PNP	47KΩ pull-down		6kHz Threshold 1.2V			
NAMUR	715Ω pull-down		4kHz	-		External power required
COIL	-	-		-	30mV _{pp}	

Enclosures

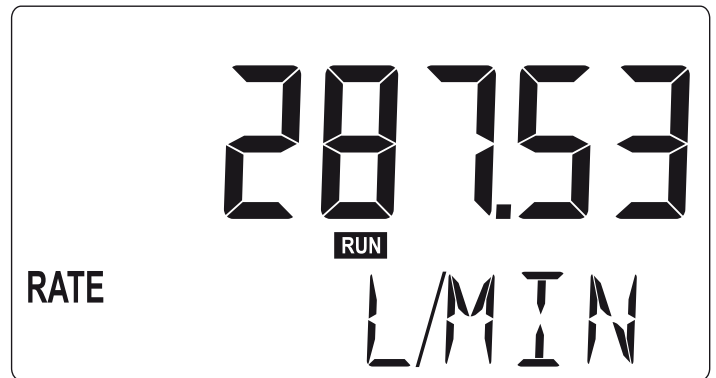
The smart design of the rugged IP65 (Type 4X) GRP enclosure ensures optimal advantages for various mounting possibilities. The B-Smart can be field or wall mounted or directly on the flowmeter. The back cover can be turned in steps of 90°, enabling cable entry from any side.

Dimensions enclosure

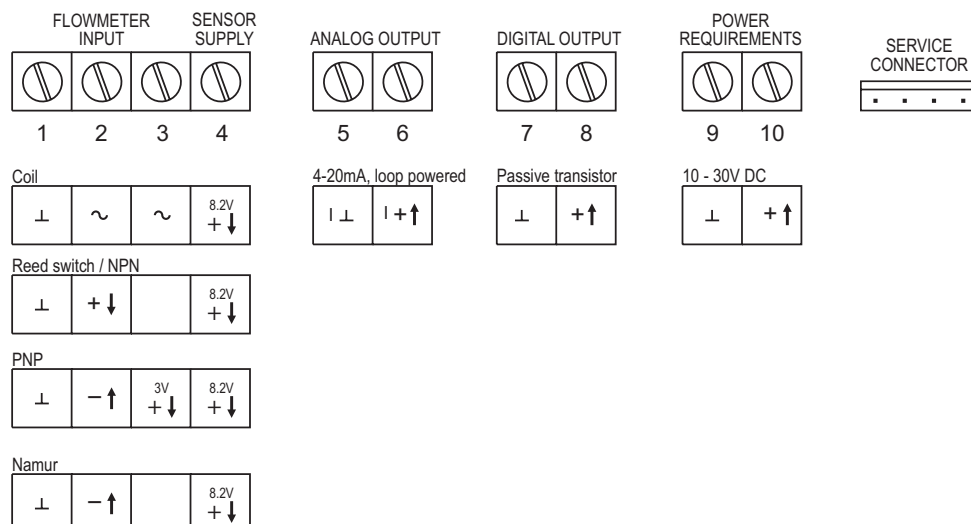
GRP field mount enclosure



B-Smart display example



Terminal connections B-Smart



Display

Type	High intensity transfective numeric and alphanumeric LCD, with white LED backlight.
Dimensions	54 x 29mm (2.13" x 1.14").
Digits	Seven 12mm (0.47") and seven 7mm (0.28") digits Various symbols and measuring units.
Refresh rate	During operation 8 times/sec, it will automatically switch to 1 time/sec after 30 sec without operation.

Operating temperature

Ambient	-20°C to +60°C (-4°F to +140°F).
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Power requirements

Basic supply	10 - 30V DC. Max. 25mA.
Note	The basic power supply will also supply the backlight and the 8.2V DC sensor supply.
Battery	1 x 3.6V AA Lithium battery - life-time depends upon settings and configuration - up to approx. 2 years.
Loop powered	Loop powered, analog output. 12 - 30V DC. 3.3 - 21.7mA according Namur NE45. I _{max} = 22mA. Consumption max. 660mW @ 0 Ohm (22mA @ 30VDC).

Sensor excitation

Terminal 3	3V DC for pulse signals and 1.2V DC for coil pick-up, I _{out} max. 100µA.
Note	This is not a real sensor supply. Only suitable for sensors with a very low power consumption like coil.
Terminal 4	8.2V DC, I _{out} max. 10mA, requires 10-30V DC supply.

Data protection

Type	Non-volatile backup of all settings. Backup of running totals every minute. Data retention at least 10 years.
Password	Configuration settings can be password protected.

Directives & Standards

EMC	Directive 2014/30/EU, FCC 47 CFR part 15.
Low voltage	Directive 2014/35/EU
RoHS	Directive 2011/65/EU
IP & NEMA	EN 60529 & NEMA 250

Enclosure

Material	GRP, IP65 (Type 4X), UV-resistant & flame retardant.
Window	Polyester foil window.
Sealing	EPDM gasket.
Control keys	Two industrial micro-switch keys.
Dimensions	92 x 92 x 60mm (3.62" x 3.62" x 2.36") - W x H x D.
Weight	200 gram / 0.44 lbs.
Cable entries	Knock out holes Side: 2 x 16mm / 0.63" Bottom: 1 x 20mm / 0.73"

Terminal connections

Type	Fixed. Wire max. 1.5mm ²
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Signal inputs - Flowmeter

Pulse inputs	Coil / sine wave (sensitivity: 30mVpp), NPN, PNP, reed-switch, Namur.
Frequency	Minimum 0Hz - maximum 6kHz for total and flow rate. Maximum frequency depends on signal type and internal low-pass filter.
K-Factor	0.000010 - 9,999,999 with variable decimal position.

Signal outputs - Digital output

Function	Pulse output - transmitting accumulated total.
Frequency	User selectable: Off, Long (5Hz/100msec), Intermediate (33Hz/15ms), Short (100Hz/5msec).
Output type	One passive transistor output (NPN) - not isolated. 300mA, max. 30V.

Signal outputs - Analog output

Function	Transmitting flow rate.
Output type	Loop powered, analog output. 12 - 30V DC. Range: 3.3 - 22mA.
Accuracy	10 bit. Error 0.5% of full scale and temperature range. Analog output signal can be scaled to any desired range.
Liftoff voltage	12V.
Loop resistance	Typical 500 Ohm @ 24V. Max. 800 Ohm

Operator functions

Displayed info	<ul style="list-style-type: none"> • Flow rate. • Total. • Accumulated total. • Reset total by pressing the CLEAR-key twice.
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Total

Digits	7 digits.
Units	L, m ³ , US gal, gal, bbl, kg, lb or none.
Decimals	0 - 1 - 2 or 3.
Note	Total can be reset to zero.

Accumulated total

Digits	7 digits.
Units / decimals	According to selection for total.
Note	Can not be reset to zero.

Flow rate

Digits	7 digits.
Units	mL, L, m ³ , g, kg, ton, gal, bbl, lb, cf or none.
Decimals	0 - 1 - 2 or 3.
Time units	/sec - /min - /hr - /day.