Blancett®
Turbine Flow Meters

K-Factor Scaler

Frequency Divider

RusAutomation

DESCRIPTION

The Blancett K-Factor Scaler converts a low level frequency output (such as that from a Blancett turbine flow meter) into a scaled square wave digital output signal. This adjustable frequency divider converts or scales the turbine meter output into units of measurement needed for a particular application and recognized by almost any data collection device. The k-factor scaler provides an amplified signal, even when a frequency conversion is not required. The signal is more immune to electrical noise and capable of transmission over longer distances than a raw turbine meter output.

FEATURES

- Scales turbine meter output to desired engineering units
- Switch-selectable or programmable versions available
- Converts frequency outputs into recognizable units for PLCs and other devices
- Amplifies turbine meter pulse output
- CSA approved

OPERATING PRINCIPLE

Fluid moving though a turbine flow meter causes the rotor to rotate in relation to the flow rate. The rotation of the rotor blades cuts through the magnetic field generated by the magnetic pick-up which in turn generates a frequency output signal that is directly proportional to the speed of the rotor.

The signal produced is received by the K-Factor Scaler input amplifier, which has an input sensitivity of 30 mV p-p to 30 V p-p. The signal is then sent to an onboard microcontroller, which acts as a divisor with a range of 1…999,999,999.

The divisor (K-factor) is user adjustable and set by programming it into the board. The microcontroller handles the dividing process by counting the input pulses and comparing it to the programmed K-factors. Once the count equals this value, an output pulse occurs for a selectable time period and the counting starts over.

MODELS

Badger Meter offers two versions of the K-Factor Scaler:

- Switch-selectable (Model B220-880 or B220-881)
- Programmable (Model B220-885)

The switch-selectable version has a set of eight rotary switches within the enclosure. The rightmost switch represents the least significant digit of the k-factor number. For example, if the desired k-factor is 4572, the switches will be set to 00004572.

The programmable version comes pre-calibrated from the factory when ordered with a Blancett Series 1100 turbine flow meter. In addition, it may be easily configured by the end-user through the use of a Windows®-based software utility kit (Model B220-900) that includes a PC serial port interface cable. See *Figure 1*.

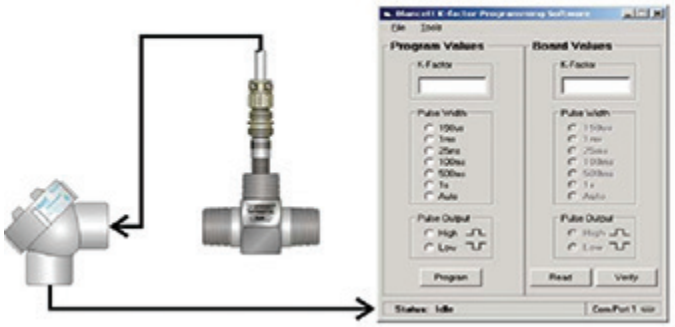


Figure 1: Programmable k-factor scaler and software

Models	B220-880	B220-881	B220-885
K-Factor Storage	Yes	Yes	Yes
No. of Digits	8	8	9
Range	1…99,999,999	1…99,999,999	1…999,999,999
K-Factor Entry	Rotary switch	Rotary switch	Electronic input

Badger Meter

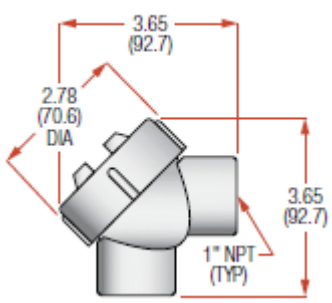
SGN-DS-00937-EN-01 (May 2014)

Product Data Sheet

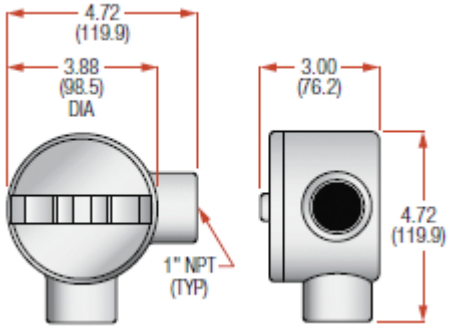
SPECIFICATIONS

External Power	Input voltage	8.5…30V DC (diode protected)
	Max current draw	18 mA (using internal resistor @ 30V DC input)
Operating Temperature	–22…158 ºF (–30…70 ºC)	
Inputs	Magnetic pickup	
	Frequency range	0…4000 Hz
	Trigger sensitivity	30 mV p-p to 30 V p-p
Output Signal	Max voltage	30V DC
	Max power	0.25 W
	Pulse type	
	Using internal pull-up resistor	V_H = Power input voltage - 0.7 VDC
		V_L = Less than 0.4 V @ max input power
	Using external pull-up resistor	V_H = Input voltage to external pull-up resistor
		V_L = (VH / Selected resistor value + 47Ω) * 47Ω
Pulse Length	150 µs, 1 ms, 25 ms, 100 ms, 500 ms, 1 s, or auto mode selectable	
Internal Pullup Resistor	Jumper disable option 3.6 KΩ	
Enclosure Ratings	Model B220-885	Killark aluminum-capped elbow, Y3 CSA approved Class I, Div 1 & 2, Groups C, D; Class II, Div 1 & 2, Groups E, F, G; and Class III
	Models B220-880 & and B220-881	Appleton GR conduit outlet box GRL100-A and GRLB100A, CSA approved Class I, Div 1, Groups B, C, D; Class II, Groups E, F, G; and Class III
Certifications	CSA ordinary locations	
	Pollution Degree 2, Overvoltage Category III	

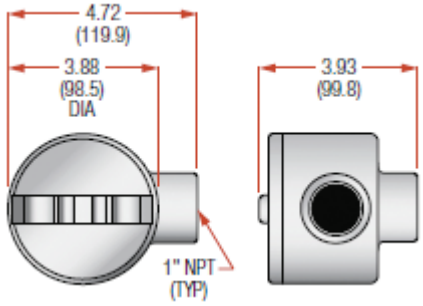
DIMENSIONS



Model B220-885



Model B220-880



Model B220-881

ООО “РусАвтоматизация”
454010 г. Челябинск, ул. Гагарина 5, оф. 507
тел. 8 800 775 09 57 (звонок бесплатный), +7(351)799 54 26, тел./факс +7(351)211 64 57
info@rusautomation.ru; русавтоматизация.рф; www.rusautomation.ru