

K-Factor Scaler Frequency Divider

- 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



Blancett®



INTRODUCTION

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.

OPERATING PRINCIPLE

Fluid moving through 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 30mV 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 to 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

Blancett offers two versions of the K-Factor Scaler: switch-selectable (Model B220-880 or B220-881) and 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.

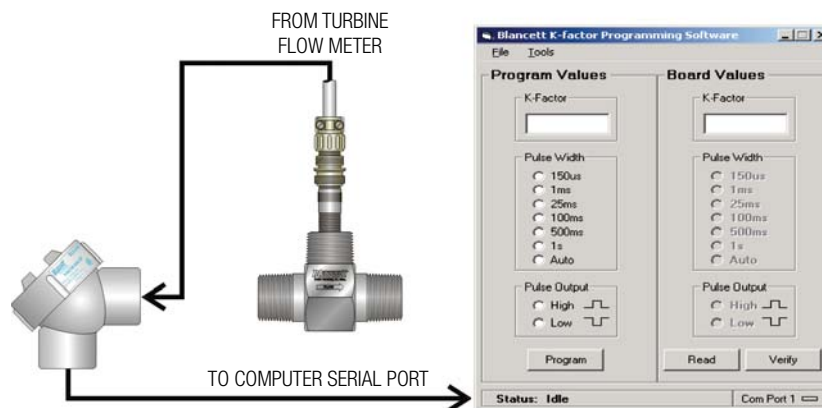


Figure 1 - Programmable K-Factor Scaler and software

FEATURES

K-Factor Scaler Frequency Divider

| Models | B220-880 | B220-881 | B220-885 |
|------------------|-----------------|-----------------|------------------|
| K-Factor Storage | ✓ | ✓ | ✓ |
| No. of Digits | 8 | 8 | 9 |
| Range | 1 to 99,999,999 | 1 to 99,999,999 | 1 to 999,999,999 |
| K-Factor Entry | Rotary Switch | Rotary Switch | Electronic Input |

SPECIFICATIONS

External Power:

Input Voltage 8.5 to 30 VDC (diode protected)
 Max Current Draw 18mA (using internal resistor @ 30 VDC input)

Operating Temperature: -22 °F to 158 °F (-30 °C to 70 °C)

Inputs:

Magnetic Pickup
 Frequency Range 0 to 4000 Hz
 Trigger Sensitivity 30mV p-p to 30 V p-p

Output Signal:

Max Voltage 30 VDC
 Max Power 0.25 W
 Pulse Type

Using internal pull-up resistor $V_H = \text{Power input voltage} - 0.7 \text{ VDC}$

$V_L = \text{Less than } 0.4 \text{ V @ max input power}$

Using external pull-up resistor $V_H = \text{Input voltage to external pull-up resistor}$

$V_L = (V_H / \text{Selected resistor value} + 47\Omega) * 47\Omega$

Pulse Length: 150µs, 1ms, 25ms, 100ms, 500ms, 1s, or auto mode selectable

Internal Pull-up Resistor: Jumper disable option
 3.6K Ω

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 & 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



Model B220-880



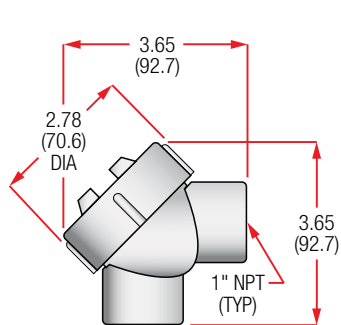
Model B220-881



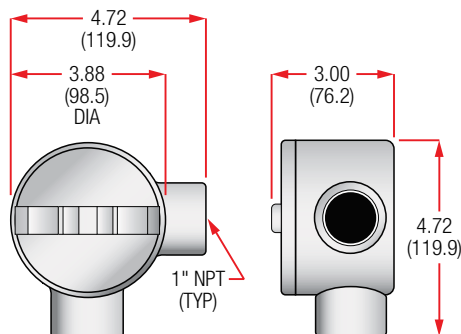
Model B220-885

DIMENSIONAL SPECIFICATIONS

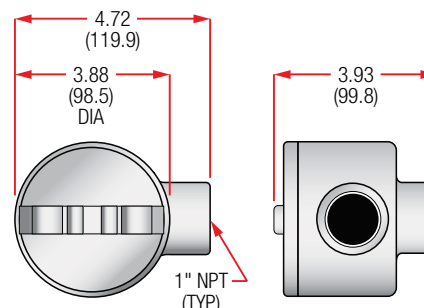
MECHANICAL DIMENSIONS: INCHES (MM)



Model B220-885



Model B220-880



Model B220-881

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RACINE FEDERATED INC.

Racine Federated Inc. is a private corporation celebrating forty years of continuous operation in Racine, Wisconsin, USA, along with a European location in Thetford, England. The Company is comprised of several divisions that serve the construction, industrial, municipal and commercial markets worldwide. This includes six flow meter divisions representing a variety of measurement technologies including turbine, variable area, hydraulic testing, differential pressure, vortex shedding, and ultrasonic flow measurement. With this unique product mix and a team of dedicated and experienced personnel, RFI offers high quality and cost-effective solutions for most flow measurement applications.

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