Blancett® Turbine Flow Meters

Pickups for B1750 Meter

B175420 Analog Sensor

DESCRIPTION

The B175240 pickup is a micro processor-based, meter mounted analog output sensor. Each unit has a sensor, amplifier and converter module built into an aluminum junction box. The pickup is designed to handle frequencies up to 5000 Hz. The operational frequency range is user-defined via four BCD rotary switches, where the high flow rate in frequency is set to 20 mA and the output signal is automatically scaled. End connection is a 3-pin connector.

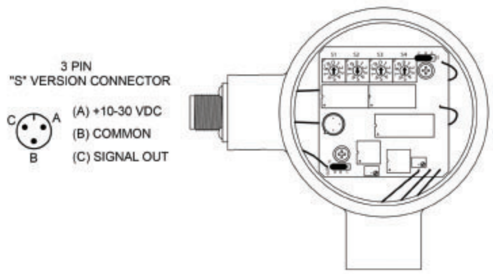

Figure 1: Connector

Jumper Settings

J1	AB: Analog output
	BC: Frequency output
J2	AB: Housing ground
	CB: Signal output
Response time	1/F + 25 msec
Frequency input	5 kHz max
Diagnostics	A glowing LED indicates the unit is working. The LED blinks to show an active frequency.

SPECIFICATIONS

Supply Voltage	10…30V DC
Supply Current	60 mA maximum
Signal Output	4…20 mA
Max Load Impedance	(Vcc/0.02) 275 Ohm (for mA out)
Min Load Impedance	500 Ohm (for Volt out)
Driving Capacity	For voltage output only 10 mA max
Temperature Range	0…185° F (–17.8…85° C)

SCALING ANALOG OUTPUT

On the front panel, there are four rotary switches that you can adjust with a small screwdriver. It is not necessary to power down the unit to change the settings. The switches are read from left to right in order of decreasing value, as shown here.

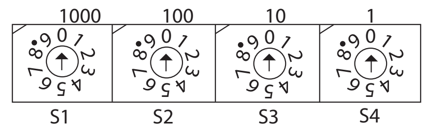

Figure 2: Rotary switches

Set the switches to the maximum frequency at which the resulting output should be 20 mA. The output automatically scales itself. If the maximum frequency is not known, the correct switch settings can be determined in two ways.

Use the following equation to determine what the switch setting should be for any particular meter and flow rate:

$$\text{Switch setting} = \frac{\text{K Factor * Max flow rate}}{60}$$

Where:

- K-Factor is the flow meter scaling factor in pulses/volume (found on calibration sheet).
- Maximum flow rate for the analog output.

NOTE: K-Factor and Max flow rate must have the same units, for example, gallon/GPM, liter/LPM

- 60 is the scaling factor when maximum flow rate is in volume/minute. Use 3600 for volume/hour.

Ex: K-Factor = 89,100 pulses/gallon (for a JVM-10KL)
Max flow rate = 0.2 GPM

$$\text{Switch setting} = \frac{89{,}100 * 0.2}{60} = 297$$

If the numerical flow rate is not known, the unit can be calibrated in systems with the following:

NOTE: Wherever this procedure refers to 20 mA, you may substitute either 5V or 10V depending up the output you have ordered.

1. Adjust system flow to the rate at which analog output should read 20 mA.
2. Set scaling switches to a value known to be above the maximum frequency (ex. 9, 49, 799, 2999). If you are unsure, use 4999.
3. If S1 is 0, go to step 4. Decrease S1 until output shows 20 mA. Then increase the setting by one unless the value is 4, in which case, the value should remain 4. If the switch value is 0 and the output is below 20 mA, leave switch at 0 and go to next switch.
4. If S2 is 0, go to step 5. Decrease S2 until output shows 20 mA. Then increase the setting by one unless the value is 9, in which case, the value should remain 9. If the switch value is 0 and the output is below 20 mA, leave switch at 0 and go to next switch.

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Installation Data

5. If S3 is 0, go to step 6. Decrease S3 until output shows 20 mA. Then increase the setting by one unless the value is 9, in which case, value should remain 9. If the switch value is 0 and the output is below 20 mA, leave the switch at 0 and go to the next switch.
6. Decrease S4 until the output shows 20 mA and leave setting. DO NOT increase this setting by one. The switches are now set at the frequency that will result in a 20 mA output.

When setting switches in step 1, try to use numbers ending in 9, for example: 9, 39, 299, and 2999. Any switch setting above 5000 Hz is read as 4999 Hz.

Ex: Actual maximum input frequency is 538 Hz. Switches are set to 0999 Hz, a value known to be above the actual maximum input frequency. The output shows 12.64 mA.

Starting with the switch of highest order, in this case S2 since S1 is 0, its value is decreased until the output shows 20 mA (S2 shows 4). The switch is then increased by 1 (S2 is set to 5). S3 is then decreased until the output shows 20 mA (S3 shows 2). The switch is then increased by 1 (S3 is set to 3). Finally, S4 is decreased until the output shows 20 mA and left as such (S4 set at 8). The switches are now set to 538 Hz, the frequency which will cause the maximum output current/voltage.

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