Models PFT420, PFT420/2 & FT420B	Analog Flow Transmitter (4 to 20 mA)	Technical Brief

GENERAL

The model PFT420, PFT420/2 and FT420B are versatile analog flow transmitters for use with Badger's complete line of flow meters. The PFT housings are plastic. The FT housing is cast bronze. These solid state units produce a 4-20 mA DC output signal through a two-wire design. They also provide a digital pulse output. The outputs are isolated from power supply negative.

The 4-20 mA output signal is directly proportional to the rate of flow through the meter. The signal has excellent linearity, accuracy and repeatability.

OPERATION

The input pulses generated by the reed switch sensor located within the transmitter assembly are converted to a standard 4-20 mA control signal. This signal is proportional to the flow of fluid passing through the flow meter. The input pulses are also converted to a square wave signal that is available as an open collector transistor. This digital pulse output is compatible with most totalizers and batch controllers. Power for the device can be obtained from a 10 to 36 VDC control loop.

APPLICATIONS

These flow transmitters will precisely condition and transmit flow meter signals for process control in the chemical, food & beverage, water conditioning, pharmaceutical and any other industry where measurement and control of fluid flow is required. The transmitter outputs are compatible with most process controllers, totalizers and flow indication devices such as chart recorders and other data logging devices.

FEATURES

- **Solid-State Circuitry, Long Life, High Reliability**
- **NEMA 4X Rating (PFT Style Housing)**

FT420B (rear) & PFT420 Transmitters

Size	Model	Max. GPM	Pulses/Gallon
1/2"	OP	6	222.96
1"	OP	30	76.64
2"	OP	100	20.56
2"	Turbo	160	17.36
3"	Turbo	350	12.40
4"	Turbo	1000	2.56
6"	Turbo	2000	1.08
5/8"	25 RCDL	25	198.40
3/4"	35 RCDL	35	126.67
1"	40 RCDL	40	89.80
1"	70 RCDL	70	46.80

Meter K Factor Chart

SPECIFICATIONS

ENVIRONMENTAL

Operating Temperature:	-40°F to 185°F
Humidity:	5% to 100% non-condensing
Enclosures:	Bronze: NEMA 4X Plastic: NEMA 4X

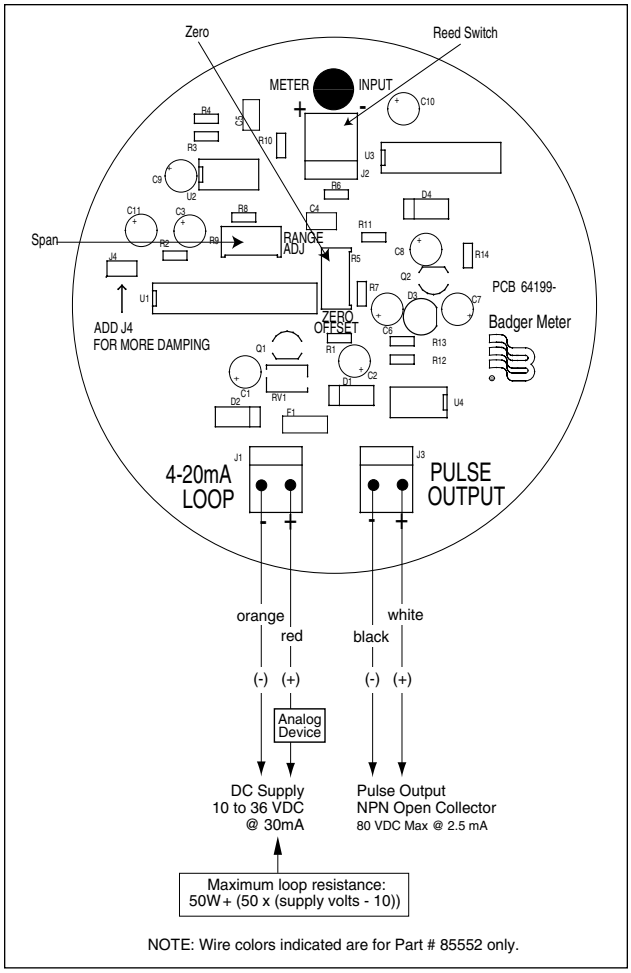
ELECTRICAL

Supply Voltage:	10 to 36 VDC
Pulse Input:	
Circuit Interface:	Schmidtt Trigger
Switch Closure:	40% to 60% duty cycle @ 100 Hz
Digital Output:	
Opto-isolator:	Open collector transistor
Max. Voltage:	80 VDC
Max. Power:	200mW
Pulse Width:	1 millisecond (± 0.1 msec.)
Pulse Rate:	Input rate
Analog Output:	Two-wire signal/power
Max. Voltage:	10 to 36 VDC supply
Current:	4 to 20 mA

Max. Load Resistance (ohms) = 50 + [50 x (VDC-10)]

PERFORMANCE

Analog Output:	Two-wire (signal/power) circuit interface with reversed polarity protection
Accuracy:	Within 0.5% of point (10:1 range)
Repeatability:	Within 0.2% of point
Max. Ripple:	0.1 mA @ 10% of span calibration
Response:	3 sec. to within 95% of total change
Operational Drift:	Less than 10 µamps
Thermal Drift:	Less than 1 µamp per ° C
Over Voltage Protection:	Resettable Fuse 100mA
Span Adjustment:	7 to 24 mA
Zero Adjustment:	3 to 9 mA
Zero Stability:	3.97 mA to 4.03 mA



NOTE: Wire colors indicated are for Part # 85552 only.

Meter Type	Bronze	Standard (Plastic)
Turbo	none	PFT420/2
RCDL	FT420B	PFT420

Transmitter Selection Guide

CALIBRATION

This transmitter is calibrated to customer specifications at the factory. Specifications must be provided at time of order placement. Recalibration generally is not necessary. However, if a particular flow rate is requred, use the following recalibration example:

This product is not intended for use in hazardous locations

First, move the cover. Connect a milliammeter in series with the red lead. Connect a rate indicator or suitable counter to the pulse output. Establish the maximum rate of flow in the system, and determine the number of pulses received per minute. Refer to the meter factor chart found in the flow meter's Installation and Operation Manual. Divide the pulses per minute by pulses per gallon for your particular meter. Using a small screwdriver, adjust the span so the milliammeter registers 20 mA.

Example:
You have a 2" Turbo meter and the pulse counter registers 2000 pulses/minute at full flow. A 2" turbo meter has a K factor of 17.36 pulses per gallon. 2000/17.36 = 115.2 GPM. Adjust the span for a reading of 20 mA.

ISO 9001

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Due to continuous research, product improvements and enhancements, Badger Meter reserves the right to change product or system specifications without notice, except to the extent an outstanding contractual obligation exists.

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