



Badger Meter

Electronic Scalable Transmitters Models PFT-1E & PFT-4E

OVERVIEW

The models PFT-1E and PFT-4E are electronic scalable pulse transmitters with AC/DC inputs and outputs. The model PFT-1E combines with the disc and OP meter lines while the model PFT-4E is used with the Industrial turbo meter line.

These electronic transmitters can be scaled to almost any pulse rate, allowing recalibration by resetting the scale factor with four rotary switches. The PFT-1E transmitter can be calibrated for use with different size meters simply by re-setting the rotary switches.

OPERATION

The flow of fluid through any of the meters results in movement of the meter measuring element which rotates an internal four pole magnet. The poles of the magnet are sensed by a magnetoresistive pickup which produces four pulses for each revolution of the magnet. These signals are sent to the electronic board where they are conditioned and scaled to the desired unit of flow, e.g., 1 pulse per ounce, per gallon, etc. The meter factor, which is the number of revolutions of the measuring element per unit of measure, rarely coincides with the desired application requirements and has to be modified or scaled to standard engineering units. This scaled pulse is then sent to secondary equipment such as a controller or remote totalizer in the form of a switched AC voltage or a DC current sinking pulse (open collector NPN transistor).

APPLICATIONS

Designed for totalizing, rate calculation or batching through direct input into a totalizer, pre-set counter or process controller which does not have scaling capabilities.



PFT-1E TRANSMITTER

FEATURES

- Sensor will withstand fluid temperatures to 250° F
- Solid-state circuitry for long life
- Fast calibration with (4) rotary switches - change gears are eliminated
- LED indicator for visual pulse detection
- Optically isolated outputs prevent false counts due to line noise
- Field retrofit available
- Rugged, high impact resistant housing
- Corrosion proof protection
- Water tight - NEMA 4X Rating
- Remote mounting available

TRANSMITTER SPECIFICATIONS

HOUSING

- Material: High impact, reinforced Nylon
- Mounting: Bayonet type with set screw, 360° orientation
- Connections: Two 1/2" NPT threaded conduit ports
- Protection: NEMA 4X (water tight & corrosion proof)

OPERATION

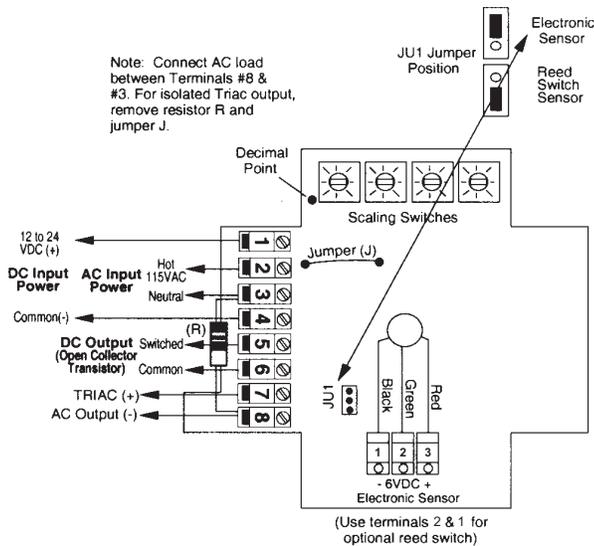
- Sensor: Magneto-resistive sensor
- Scaling & Calibration:
- (4) 10 position rotary switches
- Operating Temperatures:
- Scaler Board: - 4° to +185° F
- Sensor: - 4° to + 250° F

ELECTRICAL

- DC Input Power: 12 to 24 VDC
- DC Output: Opto-Isolated open collector NPN transistor
- Transistor Rating: 50 mA @ 24 VDC
- AC Input Power: 115 VAC ± 15%
- AC Output: Opto-isolated Zero Crossing Triac
- Triac Rating: 130 V RMS @ 500 mA
- Scaling Resolution: 0.0001 to 0.9999
- Max. Pulse Resolution: See chart

(Limit AC pulse output to 10 pulses per second due to electrical characteristics of Triac.)

TRANSMITTER SELECTION CHART		
Meter Type	PFT-1E	PFT-4E
RCDL	X	X
IND. TURBO		X
OP	X	



SCALE FACTOR CALCULATION

Pulses per Gallon Wanted

$$\text{Scale Factor} = \frac{\text{Pulses per Gallon Wanted}}{\text{Transmitter Output in Pulses per Gallon}}$$

See the chart below for the average number of output pulses per gallon for your particular meter. For more precise calculations, use the information on the transmitter data plate when figuring scale factors.

Example:

Compute the scale factor for a 3" turbo meter. (You want to measure the flow to the nearest 0.1 gallon.)

$$\text{Scale factor} = 10 / 24.80 = \mathbf{0.4032}$$

Enter 0.4032 on the scaling switches of the transmitter to read the meter flow to the nearest 0.1 of a gallon.

Meter	Size	Pulse/Oz.	Pulse/Gal.
RCDL-25	5/8	1.550	198.4
RCDL-35	3/4	0.989	126.67
RCDL-40	1	0.702	89.8
RCDL-70	1	0.366	46.8
RCDL-120	1-1/2	0.186	23.8
RCDL-170	2	0.114	14.56
IND. TURBO	2	0.217	34.72
IND. TURBO	3	0.194	24.8
IND. TURBO	4	.040	5.12
IND. TURBO	6	0.17	2.16
OP	1/2	1.742	222.96
OP	1	0.599	76.64
OP	2	0.161	20.56

CONVERSION CHART	
(Wire colors from old style board)	
Shown with pin# on new board for same function	
New Board	Wire Color/Old Board
Pin 1	Blue (Blue/Brown)
Pin 2	Black (White/Black)
Pin 3	White (White/Black)
Pin 4	Brown (Blue/Brown)
Pin 5	Orange (Orange/Brown)
Pin 6	Brown (Orange/Brown)
Pin 7	Black (Black/Red)
Pin 8	Red (Black/Red)

© 2011 Badger Meter, Inc. All rights reserved.



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.