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 switches. The PFT-1E transmitter can be calibrated for use with different size meters simply by re-setting the 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

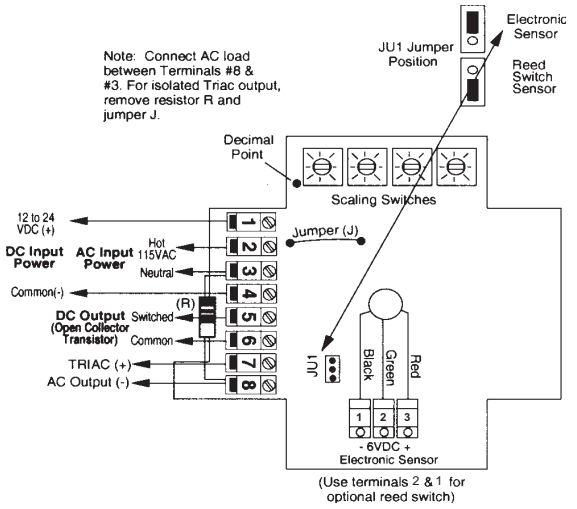
- Sensor will withstand fluid temperatures to 250° F
- Solid-state circuitry for long life
- Fast calibration with (4) switches; change gears are eliminated
- LED indicator for visual pulse detection
- Optically isolated outputs prevent false counts due to line noise
- Field retrofit available
- Rugged, 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	Magnetoresistive sensor
	Scaling & Calibration	(4) switches
	Operating Temperatures	Scaler Board: – 4…185° F Sensor: – 4…250° F
Electrical	DC Input Power	12…24V DC
	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	
IND. TURBO		X
OP	X	



SCALE FACTOR CALCULATION

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

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.)
Scale factor = 10 / 24.80 = **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.

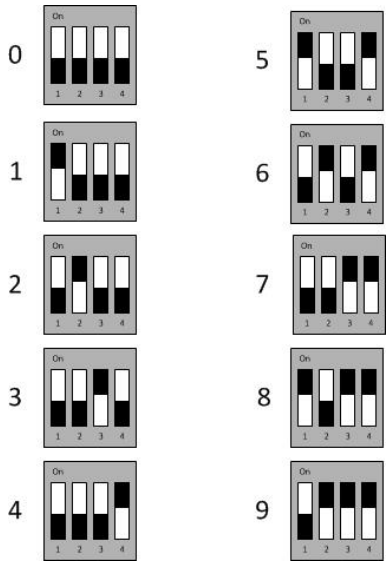
Meter	Size	Pulse/Oz.	Pulse/Gal.
RCDL-25	5/8	1.550	198.340
RCDL-35	3/4	0.989	126.671
RCDL-40	1	0.702	89.781
RCDL-70	1	0.366	46.752
RCDL-120	1-1/2	0.186	23.867
RCDL-170	2	0.114	14.565
IND. TURBO	2	0.271	34.720
IND. TURBO	3	0.194	24.800
IND. TURBO	4	0.040	5.120
IND. TURBO	6	0.017	2.160
OP	1/2	1.742	222.960
OP	1	0.599	76.640
OP	2	0.161	20.560

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)

SCALING SWITCH SETTINGS

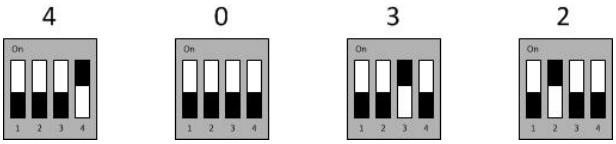
For units with PC boards that have DIP switches, use the following guide to set the scale factor:

To set the switches, move the white switches to the UP position. The values of the different switch combinations are shown below.

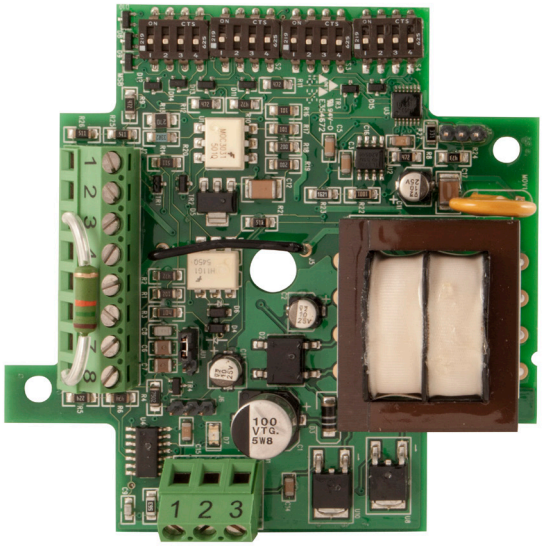


Example

This example shows the unit set at 0.4032.



CIRCUIT BOARD



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