



**Badger Meter**

# Electronic Unscaled Pulse Transmitters

Models FT-1E, PFT-2E & PFT-3E

## DESCRIPTION

The models FT-1E, PFT-2E and PFT-3E are electronic transmitters which have unscaled pulse outputs for use with Badger Meter's line of industrial turbo, disc, and oscillating piston flow meters. (See transmitter selection chart below.)

These transmitters incorporate magneto resistive sensors with open collector NPN transistor outputs. They will interface with The Badger Meter PC200 controller as well as other devices that have similar operating characteristics.

This style of electronic transmitter offers improved performance over mechanical transmitters by elimination of mechanical coupling to the meter in addition to providing the higher reliability and resolution of solid-state components.

## OPERATION

The interaction between the unscaled transmitter and the 4-pole meter magnet generates four pulses for each revolution of the magnet, which will rotate a precise number of times for a given quantity of fluid passing through the meter.

Table 2 lists the transmitter output, expressed in pulses per ounce and pulses per gallon, for the various types and sizes of meters that you could use with these transmitters.

These output pulses are normally fed to a process controller that can multiply these pulses by a number between 0.0001...0.9999 (the scale factor), which will express the output pulses as standard engineering units of measure such as 1, 10 or 100 pulses per gallon, liter or quart.

The Badger Meter electronic batch controllers and registers have the ability to perform this scaling function.

Meter Type	FT-1E	PFT-2E	PFT-3E
Disc		X	
Turbine			X
OP	X		

## FEATURES

- Long-life, all solid-state components
- Rugged, high impact resistant enclosure for PFT-2E and PFT-3E
- Stainless steel cover (FT-1E only)
- High temperature rating: 250° F
- Corrosion resistant components
- Watertight - NEMA 4X housing (PFT-2E and PFT-3E)
- Sealed pickup assembly (all models)



## SPECIFICATIONS

### HOUSING

- Material: High Impact, Reinforced Nylon (PFT Series)
- Mounting: Bayonet Type with Set Screw, 360° Orientation
- Connections: Two 1/2" NPT Threaded Conduit Ports
- Protection: NEMA 4X (Watertight and Corrosion Proof)

### OPERATION

- Type: Solid State
- Pulse Generation: Open Collector NPN Transistor
- Operating Temperature: -40° to 302° F\* (-40° to 150° C)\*
- \*Limited by flow meter specifications

### ELECTRICAL

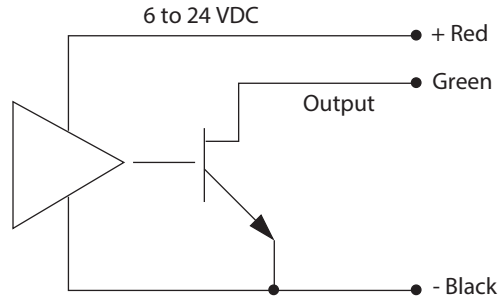
- Supply Voltage: 6.0...24V DC
- Supply Current: 13.5 mA Maximum
- Output Type: Current Sinking (NPN)
- Output Current: 20 mA Maximum

### MAGNETIC

- Magnetics Type: Omnipolar

### GAUSS CHAR.

- Typical Operate: 15
- Typical Release: 11
- Typical Differential: 4



**Magneto resistive Sensor**

## SCALE FACTOR CALCULATION

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 in the scaling function of the controller 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
TURBO	2"	0.271	34.720
TURBO	3"	0.194	24.800
TURBO	4"	0.040	5.120
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

## Control. Manage. Optimize.

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