



# FLOW

## UNIVERSAL FLOW TRANSMITTER MODEL UFT-1

### DESCRIPTION

The **Model UFT-1 Universal Flow Transmitter** is a solid-state, digital signal converter designed to operate with Data Industrial 200 Series flow sensors. Both analog (4-20 mA) and pulse outputs are available. The **Model UFT-1** may be mounted in an optional NEMA 4X enclosure or with digital display of gpm or totalized flow (in a non-watertight enclosure).

### FEATURES

- **Analog and pulse outputs**
- **Optional watertight (NEMA 4X) enclosure**
- **Optional displays for flow rate and totalization**
- **Low cost**
- **Excitation voltage for flow sensors**
- **LED indication of pulse activity**

### APPLICATION

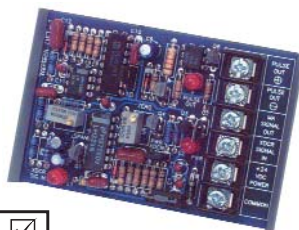
#### Analog Output (rate)

The **Model UFT-1** analog transmitter converts a Data Industrial digital flow signal into a precalibrated 4-20 mA signal. It must be calibrated for each Data Industrial flow sensor installation. The pipe type, size, and maximum flow rate must be specified at the time of order if 4-20 mA output is to be used.

#### Pulse Output (totalization)

The **Model UFT-1** pulse output divides the Data Industrial digital flow signal by a jumper-selectable 10 or 100 position to provide a more usable digital pulse. The pulse output is normally used where flow totalization is required. A simple conversion formula, using the flow factors for Data Industrial flow sensors on the next page, can convert the digital pulses to totalized gallons.

The pulse output is an optoisolated transistor switch that can be wired to source or sink pulses to totalizer equipment.



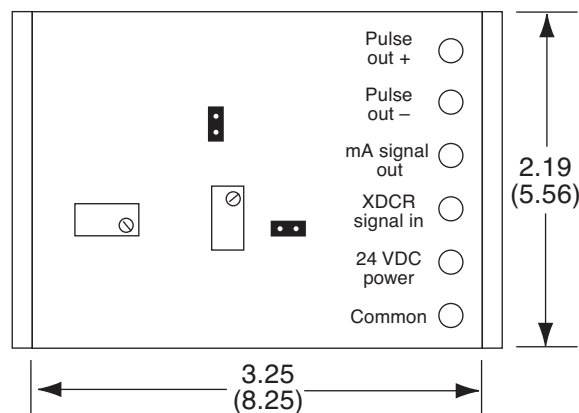
UFT-1



UFT-1E-1

### DIMENSIONS

in  
(cm)



Note: This unit is not intended for field setup or field calibration.

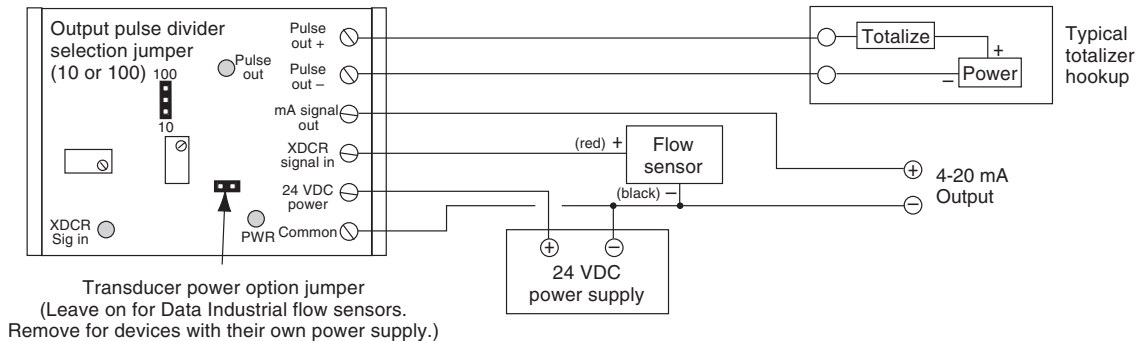
### SPECIFICATIONS

Supply voltage	24 VDC @ 60 mA
Operating temperature	32° to 140°F (0° to 60°C)
Operating humidity	5% to 95% noncondensing
Output	4-20 mA and solid-state switch
Input	15-150 Hz FS (dry or electronic contact)

Maximum loop resistance	4-20 mA output 750Ω @ 24 VDC
Output switch rating	40 VDC @ 200 mA
Accuracy	±0.5%
Step response	5 seconds from 10% to 90%
Warranty	18 months



### WIRING



### INSTALLATION AND CALIBRATION

The **UFT-1** transmitter can be mounted in any position. The optional watertight enclosure provides a watertight seal against contaminants. While field calibration is not required with the **UFT-1**, flow conversion must be accomplished at the monitoring computer. The information below is provided for making the conversion calculations.

### FLOW RATE

$$\text{Flow (gpm)} = \frac{(\text{mA measured} - 4 \text{ mA}) \times \text{Maximum gpm}}{16 \text{ mA}}$$

Maximum gpm is the flow rate at 20 mA output on the transmitter and must be specified at the time the **UFT-1** is ordered for proper calibration.

### TOTALIZED FLOW

$$\text{Totalized gallons} = (\text{Flow factor}) \times (\text{Output divider}) \times (\text{Total pulses})$$

For totalized m<sup>3</sup>, multiply the above by 0.00379.

Output divider = 10 or 100 depending on jumper-selection. Flow factors per pulse are shown in the table at the right.

**TABLE 1. FLOW FACTORS FOR DATA INDUSTRIAL FLOW SENSORS**

MODEL	PIPE SIZE in (cm)	FLOW FACTOR	GALLONS/PULSE	
			JUMPER IN 10 POSITION	JUMPER IN 100 POSITION
<b>228PV-1.5</b>	1-1/2 (3.81)	0.03118	0.3118	3.118
<b>228PV-2</b>	2 (5.08)	0.04611	0.4611	4.611
<b>228B-2</b>	2 (5.08)	0.04579	0.4579	4.579
<b>* 228C-2</b>	2 (5.08)	0.04731	0.4731	4.731
<b>250B-0.5</b>	1/2 (1.27)	0.005646	0.05646	0.5646
<b>250B-0.75</b>	3/4 (1.91)	0.007514	0.07514	0.7514
<b>250B-1</b>	1 (2.54)	0.007015	0.07015	0.7015
<b>250B-1.25</b>	1-1/4 (3.18)	0.01280	0.1280	1.280
<b>250B-1.5</b>	1-1/2 (3.81)	0.01780	0.1780	1.780
<b>220B-2.5</b>	2-1/2 (6.35)	0.03800	0.3800	3.800
<b>220B</b>	3 (7.62)	0.07280	0.7280	7.280
<b>220B</b>	4 (10.16)	0.1396	1.396	13.96
<b>220B</b>	5 (12.7)	0.2457	2.457	24.57
<b>220B</b>	6 (15.24)	0.3611	3.611	36.11
<b>220B</b>	8 (20.32)	0.6710	6.710	67.10
<b>220B</b>	10 (25.40)	1.080	10.80	108.0
<b>220B</b>	12 (30.48)	1.630	16.30	163.0
<b>220B</b>	14 (35.56)	1.944	19.44	194.4
<b>220B</b>	16 (40.64)	2.502	25.02	250.2
<b>220B</b>	18 (45.72)	3.158	31.58	315.8

#### Notes

- Flow factors for a **Model 225** and **226** are the same as **Model 220**.
- Flow factor for **Model 228S** is the same as **228C**.
- PV Series** is sized for schedule 80 PVC pipe. All other series are sized for schedule 40 black iron pipe.

### ORDERING INFORMATION

MODEL	DESCRIPTION
<b>UFT-1</b>	Universal flow transmitter pulse output only
<b>UFT-1A</b>	Universal flow transmitter with pulse and calibrated 4-20 mA output*
<b>UFT-1E</b>	Universal flow transmitter pulse output in NEMA 4X enclosure
<b>UFT-1AE</b>	Universal flow transmitter with pulse and calibrated 4-20 mA output* in NEMA 4X enclosure
<b>DISPLAY OPTION (enclosed models only)</b>	
<b>1</b>	Flow totalization only
<b>2</b>	Flow rate only
<b>3</b>	Flow totalization and flow rate**

**UFT-1 - 1** **Example:** **UFT-1A-E-2** Basic transmitter with calibrated 4-20 mA flow rate output (4 mA = no flow; 20 mA = max flow), enclosed with LCD flow rate indication

\* Pipe size, schedule, and maximum flow rate must be specified at time of order.

\*\* When a **UFT-1AE3** is ordered the **UFT-1A** will be in one enclosure and the totalizer and rate display will be in a separate enclosure.