



# FIT-1003-M

*Air Volume/Velocity Transducer  
with Magnehelic Pressure Gauge*

*Operation & Maintenance Manual*

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*Engineered for accuracy, applicability,  
durability and simplicity*



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# 1. INTRODUCTION

This user manual provides information on product features and guides you through all basic functions.

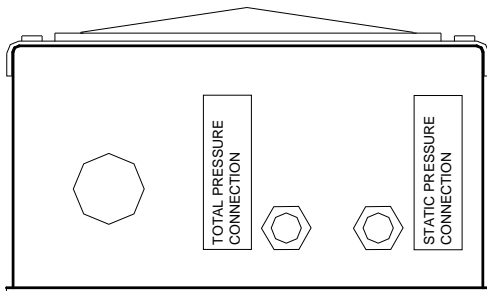
## 1.1. DESCRIPTION

The **FIT-1003M** Air Volume transducer sensor operates on the capacitance principal and is capable of sensing ultra low differential pressures. In the capacitance cell, a very lightweight, responsive diaphragm deflects a small amount when pressure is applied. This deflection results in a change in capacitance, which is then detected and processed electronically into an output signal linear to the velocity pressure. The electronic signal is then sent to the square root extractor/multiplier, which converts the velocity pressure signal into an analog output signal linear to velocity (fpm) or volume (cfm). The measured process air velocity/volume is independently indicated on a front panel mounted magnehelic pressure gauge scaled in both cfm and fpm. This independent readout allows for quick and immediate indication of Flow and Velocity and verification that the electronic transducer is operating effectively. An integral red LED indicator verifies proper power supply wiring orientation.

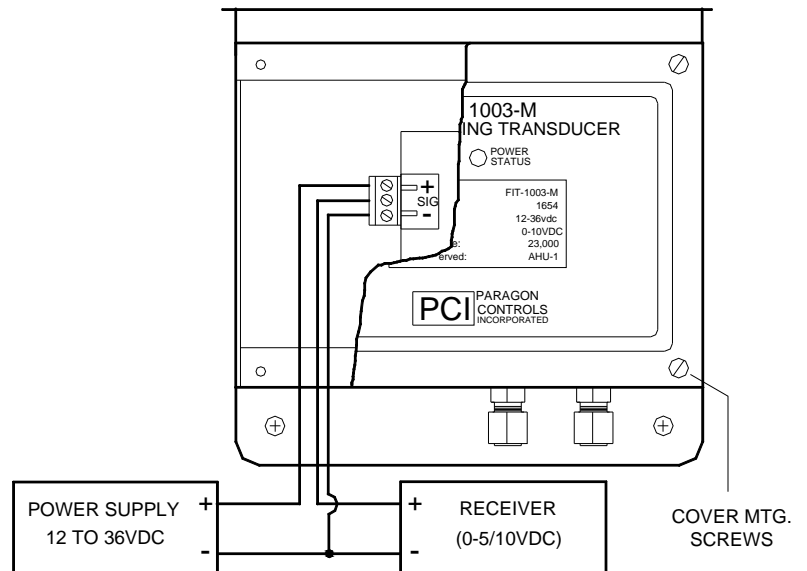
### 1.1.1. Installation Setup

Refer to figures below for pressure and electrical connections.

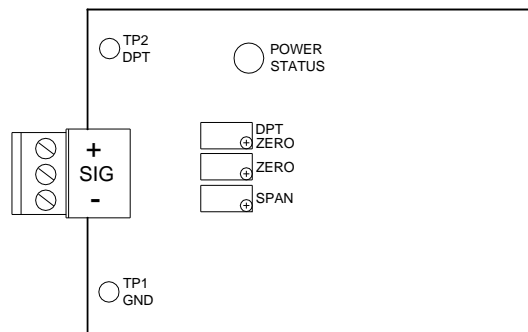
#### PRESSURE CONNECTIONS



#### ELECTRICAL CONNECTIONS



### 1.1.2. Adjustment Locations



## 2. CALIBRATION

It is recommended that the DPT ZERO Calibration be performed upon installation. Span Calibration is not affected by the Zero Calibration. The Span of the unit has been factory calibrated and should only be adjusted using high accuracy test equipment. **Refer to sections 1.1.1 and 1.1.2.**

Zero Calibration Equipment Required:

- DMM (Digital Multi Meter)

Span Calibration Equipment Required:

- Low pressure air source (Paragon PS-100 or equivalent)
- Manometer for measuring low pressure
- DMM (Digital Multi Meter)

### 2.1. DPT ZERO CALIBRATION

The following zero calibration procedure can be performed without the need to perform a span calibration.

- Step 1. Remove the cover by removing the 4 mounts screws.
- Step 2. Apply power to the transducer and verify Power Status LED is illuminated.
- Step 3. Using a DMM set to voltage mode, monitor between TP1 (GND) and TP2 (DPT).
- Step 4. With zero pressure applied, adjust **DPT ZERO** potentiometer for a reading of  $0.0 \pm .001$  vdc.

### 2.2. OUTPUT SPAN CALIBRATION

*Note: It is recommended that a zero calibration be completed before performing a span calibration.*

#### 2.2.1. 0-5VDC Output Procedure

- Step 1. Using a DMM set to voltage mode, monitor between (**SIG**) and (-) terminal.
- Step 2. Apply full scale pressure (Value shown on the transducer label) to the Total (High) Pressure port and adjust the **SPAN** potentiometer for an output reading of  $5 \pm .01$  vdc.
- Step 3. Reinstall the cover and 4 mounting screws.

#### 2.2.2. 0-10vdc Output Procedure

- Step 1. Using a DMM set to voltage mode, monitor between (**SIG**) and (-) terminal.
- Step 2. Apply full scale pressure (Value shown on the transducer label) to the High Pressure port and adjust the **SPAN** potentiometer for an output reading of  $10 \pm .01$  vdc.
- Step 3. Reinstall the cover and 4 mounting screws.

### 2.3. MAGNEHELIC GAUGE ZERO CALIBRATION

#### 2.3.1. Zero Calibration

- Step 1. With no pressure applied, verify magnehelic gauge reads zero on the meter face. If not, use a small slotted screw driver and adjust the slotted screw located at the end of the indicating needle until a zero reading is achieved.

### 3. TROUBLESHOOTING GUIDE

<b>TROUBLESHOOTING TABLE</b>	
<b>SYMPTOM</b>	<b>SOLUTION</b>
1. No output reading	1. Verify Supply voltage level (See section 1.1.1)
	2. Verify correct wire connections
	3. Verify correct pressure connections
	4. Verify input pressure differential with a manometer
	5. Contact Factory Service Department.
2. Low output reading	1. Verify Supply Voltage level (See section 1.1.1)
	2. Verify input pressure differential with a manometer
	3. Contact Factory Service Department.



