



# FIT-1003-DZV

*Air Volume/Velocity Transducer  
with Digital Indication and  
Manual Zeroing Valve*

*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.

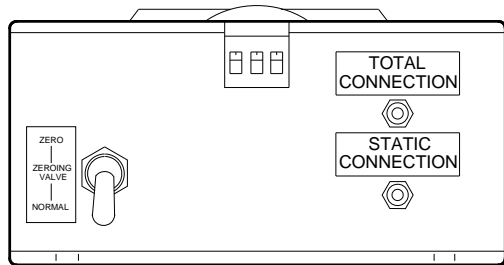
## 1.1. DESCRIPTION

The **FIT-1003DZV** 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 FIT-1003DZV transducer includes local indication of the measured process air velocity or volume on a 3 ½ digit LCD display. The FIT-1003DZV is supplied with a manual zeroing valve for easy verification of zero output. An integral red LED indicator verifies proper power supply wiring orientation.

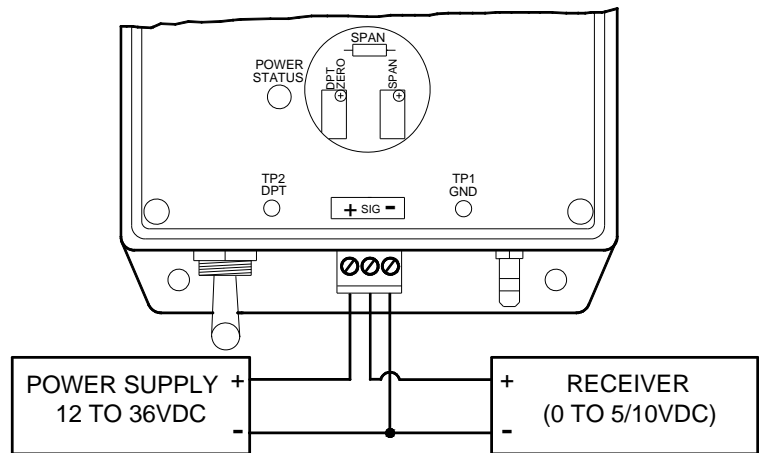
### 1.1.1. Installation Setup

Refer to figures below for pressure and electrical connections.

#### PRESSURE CONNECTION



#### ELECTRICAL CONNECTION



## 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 section 1.1.1.**

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 black rubber plug.
- Step 2. Apply power to the transducer and verify Power Status LED is illuminated.
- Step 3. Set Zeroing Valve to the Zero position.
- Step 4. Using a DMM set to voltage mode, monitor between TP1 (GND) and TP2 (DPT).
- Step 5. 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. Set Zeroing Valve to the Normal position.
- Step 3. 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 4. Reinstall the black rubber plug.

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

- Step 1. Using a DMM set to voltage mode, monitor between (**SIG**) and (-) terminal.
- Step 2. Set Zeroing Valve to Normal position.
- Step 3. 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  $10 \pm .01$  vdc.
- Step 4. Reinstall the black rubber plug.

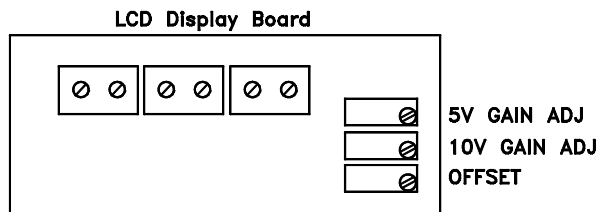
## **2.3. DISPLAY CALIBRATION**

### **2.3.1. Display Zero Calibration**

- Step 1. Remove the 4 mounting screws and cover.
- Step 2. Apply power to the transducer.
- Step 3. With Zeroing Valve in the Zero position, verify LCD Display reads 000  $\forall$ 1 count. If not, adjust the **OFFSET** potentiometer located on the backside of the LCD Display for a reading of 000.

### **2.3.2. Display Span Calibration**

- Step 1. Set Zeroing Valve to the Normal position.
- Step 2. Apply full scale pressure (Value shown on the transducer label) to the Total (High) Pressure port and if needed, adjust the **5V GAIN ADJ** (0-5vdc output) or **10V GAIN ADJ.** (0-10vdc output) potentiometer located on the backside of the LCD Display for the calibrated full scale value shown on the transducer label.
- Step 3. Due to ZERO and SPAN interaction, repeat ZERO and SPAN calibration as required.
- Step 4. Reinstall the cover and 4 mounting screws.



### 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 Zeroing Valve is in the Normal position.
	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.

