

## Micromanometer

Alnor® Model AXD610  
AIRFLOW™ Model PVM610

Operation and Service Manual



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**Address**

TSI Incorporated / 500 Cardigan Road / Shoreview, MN 55126 / USA

**Fax No.**

(651) 490-3824

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Knowing that inoperative or defective instruments are as detrimental to TSI as they are to our customers, our service policy is designed to give prompt attention to any problems. If any malfunction is discovered, please contact your nearest sales office or representative, or call Customer Service department at +44 (0) 149 4 459200 (UK), (800) 874-2811 (USA), or (1) 651-490-2811 (International).

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# Chapter 1

## **Unpacking and Parts Identification**

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Carefully unpack the instrument and accessories from the shipping container. Check the individual parts against the list of components below. If anything is missing or damaged, notify TSI immediately.

1. Carrying case
2. Instrument



## Chapter 2

### Setting-up

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#### **Supplying Power to the Alnor AXD610/AIRFLOW PVM610**

The Alnor AXD610/AIRFLOW PVM610 is powered with four size AA batteries.

#### **Installing the Batteries**

Insert four AA batteries as indicated by the diagram located on the inside of the battery compartment. The Alnor AXD610/AIRFLOW PVM610 is designed to operate with either alkaline or NiMH rechargeable batteries, although it will not recharge NiMH batteries. Battery life will be shorter if NiMH batteries are used. Carbon-zinc batteries are not recommended because of the danger of battery acid leakage.





# Chapter 3

## Operation

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### Keypad Functions

<b>ON/OFF Key</b>	Press to turn the Alnor AXD610/AIRFLOW PVM610 on and off. During the power up sequence the display will show the following: Model Number, Serial Number, Software Revision and Last Date Calibrated.
<b>ft/min / m/s Key</b>	Pressing this key changes the display to read air velocity, converted from.
<b>in H<sub>2</sub>O / Pa / hPa / kPa / mm HG Key</b>	Pressing this key changes the display to read differential pressure.
<b>0 Key</b>	Pressing the 0 key zeroes the pressure measurement.
<b>Changing Units</b>	To change units, first put the desired measurement (air velocity or temperature) on the display. Then press and hold the left, unlabelled key for five seconds. Finally, use the ▲▼ and ENTER key to select the units.



# Chapter 4

## Maintenance

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The Alnor AXD610/AIRFLOW PVM610 requires very little maintenance to keep it performing well.

### Recalibration

To maintain a high degree of accuracy in your measurements, we recommend that you return your Alnor AXD610/AIRFLOW PVM610 to TSI for annual recalibration. Please contact one of TSI's offices or your local distributor to make service arrangements and to receive a Return Material Authorization (RMA) number. To fill out an online RMA form, visit TSI's website at <http://service.tsi.com>.

### U.S. & International

TSI Incorporated  
Alnor Products  
500 Cardigan Road  
Shoreview MN 55126-3996  
Tel: (800) 874-2811  
(651) 490-2811  
Fax: (651) 490-3824

### UK

TSI Instruments Ltd.  
Lancaster Road  
Cressex Business Park  
High Wycombe  
Buckinghamshire  
HP12 3QP England  
Tel: +44 (0) 149 4 459200

### Cases

If the instrument case or storage case needs cleaning, wipe it off with a soft cloth and isopropyl alcohol or a mild detergent. Never immerse the Alnor AXD610/AIRFLOW PVM610. If the enclosure of the Alnor AXD610/AIRFLOW PVM610 becomes broken, it must be replaced immediately to prevent access to hazardous voltage.

### Storage

Remove the batteries when storing the unit for more than one month to prevent damage due to battery leakage.



# Chapter 5

## Troubleshooting

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Table 5-1 lists the symptoms, possible causes, and recommended solutions for common problems encountered with the Alnor AXD610/AIRFLOW PVM610. If your symptom is not listed, or if none of the solutions solves your problem, please contact TSI.

**Table 5-1: Troubleshooting the Alnor AXD610/AIRFLOW PVM610**

<b>Symptom</b>	<b>Possible Causes</b>	<b>Corrective Action</b>
No Display	Unit not turned on	Switch unit on.
	Low or dead batteries	Replace batteries or plug in AC adaptor.
	Dirty battery contacts	Clean the battery contacts.
Velocity reading fluctuates unstable	Fluctuating flow	Reposition probe in less-turbulent flow.
Instrument Error message appears	Fault in instrument	Factory service required on instrument.

### **WARNING!**

The pressure sensor is protected from damage up to 7 psi (48 kPa or 360 mmHg). At higher pressure it can burst!



# Appendix A

## Specifications

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Specifications are subject to change without notice.

### Static/Differential Pressure:

Range <sup>1</sup> :	-5 to +15 in. H <sub>2</sub> O (-9.3 to +28.0 mm Hg, -1245 to +3735 Pa)
Accuracy:	±1% of reading ±0.005 in. H <sub>2</sub> O (±1 Pa, ±0.01 mm Hg) ±0.02%/°F (±0.03%/°C)
Resolution:	0.001 in. H <sub>2</sub> O (1 Pa, 0.01 mm Hg)

### Velocity From a Pitot Tube:

Range <sup>2</sup> :	250 to 15500 ft/min (1.27 to 78.7 m/s)
Accuracy <sup>3</sup> :	±1.5% at 2000 ft/min (10.16 m/s)
Resolution:	1 ft/min (0.1 m/s)

### Instrument Temperature Range:

Operating (Electronics):	40 to 113°F (5 to 45°C)
Storage:	-4 to 140°F (-20 to 60°C)

### Instrument Operating Conditions:

Altitude up to 4000 meters  
Relative humidity up to 80% RH, non-condensing  
Pollution degree 1 in accordance with IEC 664  
Transient over voltage category II

### External Meter Dimensions:

4.2 in. × 7.2 in. × 1.5 in. (10.7 cm × 18.3 cm × 3.8 cm)

### Meter Weight:

Weight With Batteries: 0.6 lbs (0.27 kg)

### Meter Display Dimensions:

4-digit LCD, 0.6 inches (15 mm) digit height

### Power Requirements:

Four AA-size batteries (included)

<sup>1</sup> Overpressure range = 7 psi (190 in. H<sub>2</sub>O, 360 mmHg, 48 kPa).

<sup>2</sup> Pressure velocity measurements are not recommended below 1000 ft/min (5 m/s) and are best suited to velocities over 2000 ft/min. Range can vary depending on barometric pressure.

<sup>3</sup> Accuracy is a function of converting pressure to velocity. Conversion accuracy improves when actual pressure values increase.



TSI Incorporated  
500 Cardigan Road  
Shoreview, MN 55126 USA  
Toll Free (800) 874-2811  
Telephone (651) 490-2811  
Fax: (651) 490-3824

E-mail: [customerservice@alnor.com](mailto:customerservice@alnor.com)  
Web: [www.alnor.com](http://www.alnor.com)



TSI Instruments Ltd.  
Lancaster Road  
Cressex Business Park  
High Wycombe  
Buckinghamshire  
HP12 3QP England  
Tel: +44 (0) 149 4 459200  
Fax: +44 (0) 149 4 459700

E-mail: [info@airflowinstruments.co.uk](mailto:info@airflowinstruments.co.uk)  
Web: [www.airflowinstruments.co.uk](http://www.airflowinstruments.co.uk)

**France**    Tel: +33 491 95 21 90  
**Germany**    Tel: +49 241 523030  
**Sweden**    Tel: +46 8 595 13230

**E-mail:** [tsifrance@tsi.com](mailto:tsifrance@tsi.com)  
**E-mail:** [tsigmbh@tsi.com](mailto:tsigmbh@tsi.com)  
**E-mail:** [tsiab@tsi.com](mailto:tsiab@tsi.com)

**Website:** [www.tsiinc.fr](http://www.tsiinc.fr)  
**Website:** [www.tsiinc.de](http://www.tsiinc.de)  
**Website:** [www.tsi.se](http://www.tsi.se)

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