



UNDERSTANDING, ACCELERATED



THE LEADER IN  
HIGH-PERFORMANCE  
INDOOR AIR QUALITY  
MEASUREMENTS



# BREATHE A LITTLE EASIER WITH TSI

## PROFESSIONAL MEASUREMENT SOLUTIONS THAT HELP YOU SAVE ENERGY, INCREASE OCCUPANT COMFORT AND ASSURE A HEALTHY ENVIRONMENT

Indoor air quality (IAQ) is a growing concern. With the increasing amount of time we spend indoors—over 90% according to a U.S. Environmental Protection Agency study—the problems associated with tighter building construction in the interest of conserving energy are exacerbated. In response, building owners, facility personnel, industrial hygienists and others are increasingly focused on IAQ for both comfort and health.

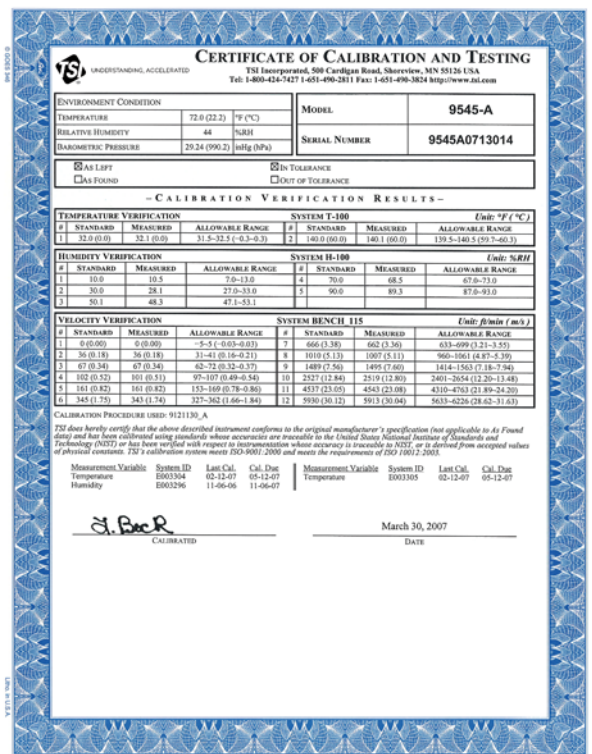
### **Comfort**

Measures of comfort typically include temperature, humidity, ventilation and draft. TSI offers several instruments that help you quickly and accurately assess basic IAQ parameters. Maintaining comfort levels can significantly improve occupant satisfaction, as shown through increased concentration and productivity, and help reduce absenteeism.

### **Health Matters**

Health and safety concerns are a growing part of air quality assessment. Airborne biological substances, gases, vapors and particles can cause adverse reactions in certain individuals, depending on their sensitivity to particular substances and concentrations. Some of these ever-present unwanted contaminants are potentially toxic, infectious, allergenic, irritating or otherwise harmful. Poor IAQ is listed as a top five health concern by most major associations and agencies worldwide. Recent studies claim that over one-third of the buildings in the United States have air quality problems. Now more than ever, it is increasingly important to be proactive, to identify and resolve potential problems before they get out of control. TSI Indoor Air Quality instruments are designed to help you identify and manage these tough problems.

Features	Benefits
TrakPro™ Data Analysis Software easily creates graphs and reports to document results (available with certain models)	Improved performance on critical applications results in reliable information that reduces typical operating costs
Real-time measurement of key IAQ parameters	Seeing results on the spot allows you to make fast decisions on IAQ and corrective actions
Fast turnaround calibration and repair service and exceptional customer support	Efficiency: The faster you get your instrument back, the greater your effectiveness
Certified Excellence: A Calibration Certificate is included with each instrument	Peace of mind: our promise that each instrument we manufacture meets the highest standard and is guaranteed accurate



## CERTIFIED ACCURACY WITH RELIABLE RESULTS

Your TSI calibration certificate ensures that you are reading and obtaining the most accurate and reliable data for a range of indoor air quality needs.

# TSI MEETS YOUR MEASUREMENT NEEDS

WE SET THE STANDARD FOR  
FAST, ACCURATE AND RELIABLE  
IAQ TEST RESULTS

## **General Comfort**

IAQ monitors provide accurate measurement and data logging of VOC, CO<sub>2</sub>, temperature, humidity, and CO, as well as calculations of dew point, wet bulb and percentage of outside air. More than half of IAQ complaints can be attributed to comfort problems.

## **Ventilation**

Air movement or draft has a significant effect on how people perceive comfort. Too much of it and people sense that it is "drafty," too little and it is "stuffy." To ensure that the proper volumes of air are being supplied to each individual occupied area, measurements should be taken at air diffusers.

## **Aerosols and Gases**

Inhalation of aerosols (dust, particles) or gases can challenge the body's natural defenses by causing reactions ranging from relatively mild to severe. Respirable substances that need to be monitored include emissions from certain industrial processes like welding, grinding and cutting, construction, and other situations where dust, smoke, fumes and mist are produced.

INDOOR AIR  
QUALITY AFFECTS THE  
COMFORT, SAFETY AND  
HEALTH OF BUILDING  
OCCUPANTS AND  
DIRECTLY IMPACTS  
CONCENTRATION  
AND PRODUCTIVITY.

Maintaining a comfortable environment includes making measurements and taking corrective action for thermal comfort involving temperature, humidity, draft and ventilation. Providing a healthy and safe environment starts with locating and controlling sources of unwanted contamination from chemicals, biological substances and airborne particles. Be proactive in assessing air quality so that you are prepared for occupant concerns.

## Pressure

Small airborne particles and gases are transported by air movement and also migrate from areas of relatively high to low pressure. Managing differential pressure between indoors and outdoors, and between different areas of the building by regulating supply and return air volumes is a key method of controlling the migration of unwanted contaminants. This is especially critical in healthcare facilities where infectious, contagious or toxic substances need to be contained and controlled.

## Ultrafine Particles

Unless air is specially filtered, any given air sample contains many airborne particles. Many of these are classified as ultrafine or less than one-tenth of a micron in diameter. A Condensation Particle Counter (CPC) allows a user to follow pathways of particles directly to their source where they can be controlled by repair, removal or replacement of the source.

Parameter	Limit/Range	Reference	TSI Instrument
Temperature	<b>Summer</b> 73 to 79°F (23 to 26°C) <b>Winter</b> 68 to 74.5°F (20 to 23.6°C)	ASHRAE Standard 55-2010	Q-Trak IAQ-Calc TH-Calc VelociCalc
Relative Humidity	30% to 65%	ASHRAE Standard 55-2010 ISO 7730	Q-Trak IAQ-Calc TH-Calc VelociCalc
Air Movement	0.8 ft/s (0.25 m/s)	WHO ISO 7730	VelociCalc DP-Calc AccuBalance
Ventilation (outdoor air)	Recommended volume/person minimum depending on type of space and activity	ASHRAE Standard 62-2003 (Table 2)	Q-Trak IAQ-Calc TH-Calc
Ventilation (CO <sub>2</sub> )	No more than 700 ppm over outdoor ambient	ASHRAE Standard 62-2003	Q-Trak IAQ-Calc
Carbon Monoxide	<b>8 hr. TWA</b>		OSHA NIOSH EPA ASHRAE ACGIH WHO
	50 ppm	+	
	35 ppm	+	
	9 ppm	35 ppm	
	9 ppm (peak)	+	
	25 ppm	+	
Particulates (Dust)			OSHA NIOSH EPA ASHRAE ACGIH WHO
	Total PM PM10 Respirable (4µm) PM2.5		



# INDOOR AIR QUALITY SOLUTIONS FROM TSI

## MICROMANOMETER

### Model EBT730

- + Accurately measures differential and static pressure
- + Wide measurement range of -15 to +15 in. H<sub>2</sub>O (-3,735 - 3,735 Pa)
- + Automatic conversion of actual and standard flows
- + Flow rate automatically calculated
- + Measures velocity with Pitot tube in high temperature and contaminated areas
- + Auto-zeroing



Model EBT730

## DUSTTRAK™ AEROSOL MONITOR

### Model 8530, 8532

- + Measures aerosol mass concentrations in real time
- + PM10, PM2.5, PM1.0 and respirable size fractions
- + Portable, battery operated
- + Long-term unattended sampling
- + Data logs and downloads to a PC for analysis and reporting



Model 8530

Model 8532

## BALOMETER® AIR CAPTURE HOOD

### Model EBT731

- + Accurate direct air flow readings from a vent, diffuser or grille
- + Automatically detects supply or return flows
- + Lightweight
- + Variety of hood sizes available



Model EBT731

## SIDEPAK™ PERSONAL AEROSOL MONITOR

### Model AM520

- + Measure aerosol mass concentrations in real time
- + STEL alarms visual alerts
- + PM10, PM2.5, PM1.0 respirable fractions and 0.8 µm DPM impactor
- + Built for taking measurements at breathing zone
- + 20 hour run time
- + Data logs and downloads to a PC for analysis and reporting



Model AM520

## VELOCICALC® AIR VELOCITY METERS

### Models 9535, 9545, 9565

- + Accurate air velocity measurements
- + Easy recording of multiple measuring points
- + Calculates valuable statistics—average, maximum and minimum values, and records the number of samples
- + Flow rate calculated automatically
- + Durable telescoping probe with etched length marks
- + Humidity measurement (Model 9545, 9565)
- + Available with optional articulating probe



Model 9545

## P-TRAK™ ULTRAFINE PARTICLE COUNTERS

### Model 8525

- + Counts ultrafine particles less than 1 micron diameter in real time
- + Tracks particles to the source
- + Portable, battery operated
- + Data logs to document results



Model 8525

## AEROTRAK™ HANDHELD PARTICLE COUNTERS

### Model 9306

- + Measures up to 6 size channels from 0.3 -10  $\mu\text{m}$
- + 0.1 CFM (2.83 LPM) flow rate
- + 10,000 sample record storage
- + 250 alphanumeric location labels
- + USB output
- + Easily configurable with Microsoft® Windows® CE interface
- + 3.7-inch color touchscreen for easy on-screen report viewing



Model 9306

## AEROTRAK™ HANDHELD PARTICLE COUNTERS

### Model 9303

- + Measures up to 3 size channels from 0.3 -10  $\mu\text{m}$
- + 0.1 CFM (2.83 LPM) flow rate
- + 1,500 sample record storage
- + 999 location labels
- + USB serial output
- + Large 3.6-inch display for easy on-screen data review
- + Weighs only 1.3 lbs (0.58 kg)



Model 9303



Model 7575



## IAQ-CALC™ INDOOR AIR QUALITY METERS

### Models 7515, 7525, 7545

- + Fast, accurate measurements in a single probe
- + Model 7515 measures carbon dioxide (CO<sub>2</sub>) only
- + Models 7525 and 7545 simultaneously measure and data log CO<sub>2</sub>, temperature, and humidity and calculate % outside air
- + Model 7545 also measures carbon monoxide (CO)
- + LogDat2 downloading software included (except Model 7515)

## Q-TRAK™ INDOOR AIR QUALITY MONITORS

### Model 7575

- + One instrument with multiple plug-in probe options including:
  - + CO<sub>2</sub>, temperature, humidity, and CO
  - + Calculate % outdoor air
  - + Calculate dew point and wet bulb temperature
  - + Thermal anemometers
  - + Rotating vanes
  - + Thermocouples
- + Draft
- + Volatile Organic Compounds (VOC)
  - + PID for ppm or ppb
- + Displays up to five measurements simultaneously
- + Data log and review statistics
- + Downloads for analysis and reporting using TrakPro™ software

# PARAMETERS AND FEATURES CHART

THE CHART BELOW IS A GUIDE FOR SELECTING AN INSTRUMENT TO BEST FIT YOUR MEASUREMENT NEEDS.

	Model	CO <sub>2</sub> (Carbon Dioxide)	Temperature	Humidity, Wet Bulb, Dew Point	CO (Carbon Monoxide)	% Outside Air	VOC (Volatile Organic Compounds)	Air Velocity	Flow Rate	Differential Pressure	Particles (Dust)	Data Logging/Down-loading	Review Data	Statistics	Field Calibration	Optional Plug-In Probes
Q-Trak	7575	+	+	+	+	+	O	O	O			+	+	+	+	+
IAQ-Calc	7515	+														+
	7525	+	+	+		+						+	+	+	+	
	7545	+	+	+	+	+						+	+	+	+	
DustTrak	8530										+	+	+	+	+	
	8532										+	+	+	+	+	
SidePak	AM520										+	+	+	+	+	
P-Trak	8525										+	+	+	+		
AeroTrak	9303										+	+	+	+		
	9306										+	+	+	+		
VelociCalc	9515		+					T								
	9535		+					T	T			+	+	+	+	
	9535-A <sup>1</sup>		+					T	T			+	+	+	+	
	9545		+	+				T	T			+	+	+	+	
	9545-A <sup>1</sup>		+	+				T	T			+	+	+	+	
	9565	O	+	+	O	O	O	T, P	T, P, C	+		+	+	+	+	+
	9565-A <sup>1</sup>	O	+	+	O	O	O	T, P	T, P, C	+		+	+	+	+	+
VelociCalc Rotating Vane	5725		+					V	V			+	+	+	+	
AccuBalance	8380 <sup>2</sup>		+	O				P	D, P, C	+		+	+	+	+	+
Micro-manometer	8715		O	O				P	P, C	+		+	+	+	+	+

All instruments include a free NIST or EA traceable Certificate of Calibration. <sup>1</sup>Articulating Probe <sup>2</sup>Back Pressure Compensated

Optional Probes for VelociCalc 9565 Series and Q-Trak 7575	
Model	Probe Description
960	Air Velocity and Temperature, straight probe
962	Air Velocity and Temperature, articulating probe
964	Air Velocity, Temperature, and Humidity, straight probe
966	Air Velocity, Temperature, and Humidity, articulating probe
995	100 mm Rotating Vane probe
792	Surface Temperature probe
794	Air Temperature probe
980	Indoor Air Quality probe, CO <sub>2</sub> , Temperature, Humidity
982	Indoor Air Quality probe, CO <sub>2</sub> , Temperature, Humidity, CO
984	Low Concentration (ppb) VOC and Temperature
985	High Concentration (ppm) VOC and Temperature
986	Low Concentration (ppb) VOC, Temperature, CO <sub>2</sub> , and Humidity
987	High Concentration (ppm) VOC, Temperature, CO <sub>2</sub> , and Humidity

Balometer, TSI, the TSI logo and VelociCalc are registered trademarks, and AeroTrak, DustTrak, IAQ-Calc, P-Trak, Q-Trak, SidePak and TrakPro are trademarks of TSI Incorporated.

Microsoft and Windows are registered trademarks of Microsoft Corporation in the United States and/or other countries.



UNDERSTANDING, ACCELERATED

TSI Incorporated - Visit our website [www.tsi.com](http://www.tsi.com) for more information.

USA Tel: +1 800 874 2811 India Tel: +91 80 67877200  
 UK Tel: +44 149 4 459200 China Tel: +86 10 8219 7688  
 France Tel: +33 1 41 19 21 99 Singapore Tel: +65 6595 6388  
 Germany Tel: +49 241 523030