Knowledge Beyond Measure.

# TSI OmniTrak™ Solution

**IAQ Modules**


Smart Station and two modules are shown

**Efficiency Meets Intelligence.**
**Customizable, Scalable, and Affordable Monitoring.**

The TSI OmniTrak™ Solution is a modular monitoring platform designed to support environmental and occupational exposure assessments. The TSI OmniTrak™ Indoor Air Quality (IAQ) Modules pair seamlessly with the Smart Station to collect, visualize, and report time-stamped measurement data during on-site studies. The TSI OmniTrak™ ecosystem also includes ultrafine particle counting with the TSI OmniCount™ Portable Water-based Condensation Particle Counter (PWCPC) Models 3001 and 3002 and a Sound Level Meter (SLM) Class 2 module, enabling a unified approach to managing air quality, particle, and noise data within a single system.

**Modules**

- Smart Station
- VOC-PID (ppb)
- CO
- Cl
- HCHO
- $O_3$
- $NH_3$
- VOC-PID (ppm)
- PM
- PM + VOC-PID (ppm)
- Core Module (PM, VOC-EC (ppb), $CO_2$, RH, BP, Temp)

**Features and Benefits**

- Wireless connection for up to 10 modules simultaneously to a single Smart Station within 100m BLE range
- The Smart Station's intuitive touchscreen interface makes it easy to start studies, visualize live data and trends, and manage results all in one place
- Download data directly from the device onto your PC or upload data to our TSI Link™ cloud platform for easy accessibility
- Unique laser-based light scattering particle sensors – outputs mass concentration data and particle number concentration data separated into 5 distinct bins
- Precise 10.6 eV PID (photo ionization detector) for monitoring various VOCs (volatile organic compounds)
- VOC detection at low concentrations with the Core Module's electrochemical VOC Sensor
- The Core module includes onboard data-logging capability for independent operation and supports in-field calibration of VOC and $CO_2$ sensors for greater confidence in up to 24 hour studies and remote assessments. (Data-logging and in-field calibration are exclusive to the Core module.)

**Applications**

- Indoor Air Quality and Ventilation: Evaluate air quality in schools, offices, healthcare, and residential buildings. Assess ventilation performance, identify pollutant sources, and verify improvements after remediation or filtration upgrades.
- Occupational and Environmental Health: Monitor worker exposure to gases, particles, and sound in manufacturing, laboratory, and construction environments. Pair TSI OmniTrak™ modules with the TSI OmniTrak™ Sound Level Meter (SLM) for integrated health and safety assessments.
- Industrial Process and Quality Control: Track temperature, humidity, $CO_2$, and particulate levels that impact production consistency and product quality. Pair with TSI OmniCount™ system for applications where ultrafine particle monitoring is needed.
- Field and Multi-Zone Studies: Deploy multiple modules to map conditions across rooms or facilities. Generate time-synchronized data using TSI Link™ Report Creator for visual comparisons, spatial mapping, and trend analysis.

## IAQ Module Sensor Specifications

| Sensor Model | | Sensor Type | Range | Accuracy | Resolution | *Response Time |
|---|---|---|---|---|---|---|
| Core Module **Model 7591-05** | Carbon Dioxide ($CO_2$) | NDIR (non-dispersive infrared) | 400 - 10,000 ppm | +/- 3% of reading + 30 ppm (typical) | 1 ppm | 45 seconds |
| | Barometric Pressure (BP) | Piezoresistive | 7.7 - 37.2 in Hg (260 - 1260 hPa) | ± 0.12 in Hg (+/- 4.1 hPa) | 0.01 in Hg (0.1 hPa) | — |
| | Relative Humidity (RH) | — | 5 - 95% RH | +/- 5% RH | 0.1% RH | — |
| | Temperature (T) | — | 0 - 60 °C<br>32 - 140 °F | +/- 0.5°C<br>+/- 0.9°F | 0.10°C<br>0.18°F | — |
| | PM Sensor | See separate PM Sensor Specifications | | | | |
| | VOC-EC (ppb) Sensor | Electrochemical | 0-10,000 ppb | — | 1 ppb | 315 seconds |
| VOC-PID (PPB) Module **Model 7591-03** | | 10.6 eV PID<br>PID (Photo Ionization Detector) | 0 - 20,000 ppb | — | 1 ppb | 15 seconds |
| VOC-PID (ppm) Module **Model 7591-02** | | 10.6 eV PID<br>PID (Photo Ionization Detector) | 0 - 2,000 ppm | — | 0.1 ppm | 10 seconds |
| PM + VOC-PID (ppm) Module **Model 7591-04** | VOC-PID (ppm) | 10.6 eV PID<br>PID (Photo Ionization Detector) | 0 - 2,000 ppm | — | 0.1 ppm | 10 seconds |
| | PM Sensor | See separate PM Sensor Specifications | | | | |
| Ammonia (NH3) Module **Model 7591-11** | | Electrochemical | 0 - 100 ppm | +/- 10 ppm | 0.1 ppm | 300 seconds |
| Carbon Monoxide (CO) Module **Model 7591-06** | | Electrochemical | 0 - 400 ppm | 15% + 2 ppm | 0.1 ppm | 30 seconds |
| Chlorine (Cl2) Module **Model 7591-10** | | Electrochemical | 0 - 20 ppm | 5% + 0.8 ppm | 0.01 ppm | 50 seconds |
| Formaldehyde (HCHO) Module **Model 7591-07** | | Electrochemical | 0 - 10 ppm | 2% + 1 ppm | 0.01 ppm | 300 seconds |
| Ozone (O3) Module **Model 7591-08** | | Electrochemical | 0 - 20 ppm | 15% + 1.5 ppm | 0.01 ppm | 50 seconds |

Measurement specifications apply at ambient conditions of 21 +/- 5 °C temperature, 98.6 +/- 5 kPa pressure, and 50 +/- 10% relative humidity.
*typical time to 90% of final value unless otherwise stated

## PM Module Sensor Specifications

PM Modules

**Models: 7591-01 PM Module, 7591-04 PM + VOC-PID (ppm) Module, 7591-05 Core Module**

| | | | |
|---|---|---|---|
| **Particle Counter** | | | |
| Concentration Range | 0 to 3,000<br>(0 to 84,950,000) | — | #/cm³ (#/ft³) |
| Particle Bins and Particle Size Range (NC = Number Concentration) | NC0.5 | 0.3 to 0.5 | µm |
| | NC1.0 | 0.5 to 1.0 | µm |
| | NC2.5 | 1.0 to 2.5 | µm |
| | NC4 | 2.5 to 4.0 | µm |
| | NC10 | 4.0 to 10.0 | µm |
| Concentration Precision[1] for PM0.5, PM1, and PM2.5[2] | 0 to 1,000 #/cm³<br>(0 to 28,320,000 #/ft³) | ±100 (±2,832,000) | #/cm³ (#/ft³) |
| | 1000 to 3000 #/cm³<br>(28,320,000 to 84,950,000 #/ft³) | ±10 | % m.v. |
| Concentration Precision[1] for PM4, PM10[3] | 0 to 1000 #/cm³<br>(0 to 28,320,000 #/ft³) | ±250 (±7,080,000) | #/cm³ (#/ft³) |
| | 1000 to 3000 #/cm³<br>(28,320,000 to 84,950,000 #/ft³) | ±25 | % m.v. |
| **Particulate Mass** | | | |
| Concentration Range | 0 to 1,000 | — | µg/m³ |
| Mass Concentration Bins and Particle Size Range | PM1.0 | 0.3 to 1.0 | µm |
| | PM2.5 | 0.3 to 2.5 | µm |
| | PM4.0 | 0.3 to 4.0 | µm |
| | PM10.0 | 0.3 to 10.0 | µm |
| Mass Concentration Precision[1] for PM1, and PM2.5[2] | 0 to 100 µg/m³ | ± [5 µg/m³ + 5 % m.v.] | |
| | 100 to 1000 µg/m³ | ±10 | % m.v. |
| Mass Concentration Precision[1] for PM4, PM10[3] | 0 to 100 µg/m³ | ±25 | µg/m³ |
| | 100 to 1000 µg/m³ | ±25 | % m.v. |

Response time for both Particle Counter and Particle Mass: t90 < 13 seconds

[1] Also referred to as "between-parts variation" or "device-to-device variation".

[2] Verification Aerosol for PM2.5 is a 3% atomized KCl solution. Deviation to reference instrument is verified in end-tests for every sensor after calibration.

[3] PM4 and PM10 output values are calculated based on distribution profile of all measured particles.

**Specifications**

# TSI OmniTrak™ Solution

## IAQ Modules

| Power Requirements * | |
|---|---|
| Input Power | 10 W |
| Input Voltage | 5 VDC |
| Charging Port | USB C |
| **Environmental/Installation Requirements*** | |
| Maximum Altitude | 3,000 m (10,000 ft) |
| Pollution Degree | 2 |
| Installation Category | I |
| Operating Temperature | 5°C to 40°C |
| Storage Temperature | -20°C to 60°C |
| Humidity | 0% to 95% (non-condensing) |
| BLE Range** | up to 100 m (328 ft) |
| **Battery Life** | |
| Core Module | 15 hrs. |
| Standard Modules | 18 hrs. |
| Smart Station | 14 hrs. |
| **Weight** | |
| Core Module | 0.18kg (0.38lbs) |
| Standard Modules | .17 kg (.37 lbs) |
| Smart Station | .36 kg (.79 lbs) |
| **Dimensions** | |
| Core Module | 85 x 35 x 127 mm |
| Standard Modules | 85 x 35 x 73 mm |
| Smart Station | 85 x 35 x 175 mm |
| **Sample Interval** | |
| Standard and Core Modules | Every 1 sec |
| Core Module $CO_2$ | Every 5 sec |

* Applies to both Smart Station and Modules

** Range is dependent on many variables (i.e. wireless traffic, metal, etc.) and can not be guaranteed.

## Accessory Options

**Description**

- Small Case for Smart Station + 2 Modules (Core or Standard)
- Large Case for Smart Station + 5 Modules (Core or Standard)
- OmniTrak Kick Stand, Hand & Wrist Strap
- Core calibration shroud

Specifications are subject to change without notice.



**Knowledge Beyond Measure.**

**TSI Incorporated** - Visit our website **www.tsi.com** for more information.

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