

# MULTI-FUNCTION INSTRUMENTS MODEL TA465 SERIES

The Airflow Model TA465 series are portable, handheld, Multi-Function Ventilation Test Instruments featuring a menu-driven user interface for easy operation in your local language. On-screen prompts and step-by-step instructions guide the user through instrument setup, operation, and field calibration. The TA465 also features an ergonomic, overmolded case design with probe holder and a keypad lockout to prevent tampering during unattended use. These instruments are available with or without a differential pressure sensor and are designed to work with a wide range of plug-in probes.



Model TA465

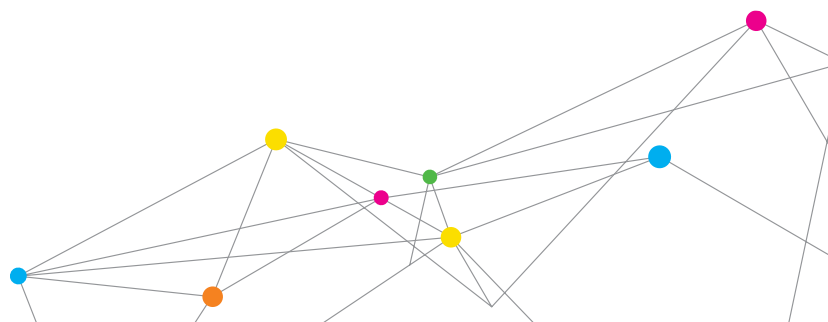
## Features and Benefits

- + Best-in-class air velocity accuracy
- + Optional "smart" plug-in probes, including VOC, CO<sub>2</sub>, and rotating vane probes
- + Accommodates up to two K-alloy thermocouples
- + Large graphic display
  - Displays up to five measurements simultaneously
  - On-screen messages and instructions
  - Program for local language
- + Intuitive menu structure allows for ease of use and setup
- + Multiple data logging formats
- + Bluetooth communications for transferring data or remote polling\*
- + Includes LogDat2™ downloading software with USB cable

## Applications

- + HVAC testing and balancing
- + Clean room testing
- + Biological safety cabinet and laboratory fume hood testing
- + HVAC commissioning and troubleshooting
- + IAQ investigations
- + Thermal comfort studies
- + Ventilation evaluations
- + Process air flow testing

\* Models available with or without Bluetooth



### Airflow Model TA465 Plug-In Probes

The plug-in probes allow users to make various measurements by simply plugging in a different probe that has the features and functions best suited for a particular application.

Plug-in probes for the TA465 series can be ordered at any time and include a data sheet with certificate of traceability. When it's time for servicing, only the probe needs to be returned since all the calibration data is stored within the probe.

### Thermoanemometer Air Velocity Probes

Airflow Instruments offers four models featuring multiple measurements in a compact, robust probe design. These telescopic probes are available in straight or articulating construction, and with or without a relative humidity sensor. Models with a relative humidity sensor can also calculate wet bulb and dewpoint temperature.

Common applications include duct traversing, face velocity testing of chemical fume hoods, biological safety cabinets and HEPA filters. When combined with the TA465, advanced measurement applications can be performed including heat flow, draft rate and turbulence intensity.

### Rotating Vane Anemometer Probes

The 100 mm (4 in.) rotating vane probe measures air velocity and temperature with flow calculation. Measurement applications include face velocity as well as air velocity in turbulent airstreams. An optional telescopic articulating probe and an Aircone kit are also available.

### Pitot Probes and Airflow Probe 800187

Pitot probes are used to obtain air velocity and air volume measurements within ductwork by performing a duct traverse. Consult factory for sizes and part numbers.

The Airflow Probe Model 800187 is an 46 cm (18 in.) straight Pitot probe that can be used to perform duct traverses and are ideally suited for measuring in small diameter ductwork.

### LogDat2™ Downloading Software

The Airflow Model TA465 Series includes downloading software called LogDat2. LogDat2

software transfers the stored data from the Model TA465 to a computer as a spreadsheet file. This software is useful for applications such as duct traverses, fume hood, and filter face velocity testing.

Reading Type	Standard	Temperature	70.0deg F				
	Pressure	29.92inHg					
Statistics	Channel:	Vel	T	H	Dewpoint	Wetbulb	
	Units:	f/min	deg F	%rh	deg F	deg F	
	Average:	827	71.9	22.1	31.3	51.7	
	Minimum:	806	71.9	22.1	31.3	51.6	
Date	Time	Vel	T	H	Dewpoint	Wetbulb	
MM/dd/yyyy	hh:mm:ss	f/min	deg F	%rh	deg F	deg F	
3/1/2011	8:41:38	828	71.9	22.1	31.3	51.6	
3/1/2011	8:41:40	842	71.9	22.1	31.3	51.6	
3/1/2011	8:41:42	836	71.9	22.1	31.3	51.6	
3/1/2011	8:41:44	809	71.9	22.1	31.3	51.6	
3/1/2011	8:41:46	806	71.9	22.1	31.3	51.6	
3/1/2011	8:41:48	819	71.9	22.1	31.3	51.7	
3/1/2011	8:41:50	838	71.9	22.1	31.3	51.7	
3/1/2011	8:41:52	837	71.9	22.2	31.3	51.7	

### Data Collection and Reporting

Expanded data logging capacity and the inclusion of LogDat2 Downloading Software provides the capabilities to work more effectively and efficiently. The TA465 can store up to 38.9 days of data collected at one-minute log intervals. The stored data can be recalled, reviewed on screen, and downloaded for easy reporting.

- + Log multiple parameters to investigate trends.
- + Store up to 38.9 days of data collected at one-minute log intervals
- + User-selectable logging intervals
- + Download data to LogDat2 downloading software
- + Report generation



# PROBE SPECIFICATIONS

## 960 Thermoanemometer Straight Probe Velocity and Temperature

Range	0 to 50 m/s (0 to 9,999 ft/min), -18 to 93°C (0 to 200°F)
Accuracy	±0.015 m/s (±3% of reading or ±3 ft/min), whichever is greater <sup>4&amp;5</sup> ±0.3°C (±0.5°F) <sup>6</sup>
Resolution	0.01 m/s (1 ft/min), 0.1°C (0.1°F)

## 962 Thermoanemometer Articulating Probe Velocity and Temperature

Range	0 to 50 m/s (0 to 9,999 ft/min), -18 to 93°C (0 to 200°F)
Accuracy	±0.015 m/s (±3% of reading or ±3 ft/min), whichever is greater <sup>4&amp;5</sup> ±0.3°C (±0.5°F) <sup>6</sup>
Resolution	0.01 m/s (1 ft/min), 0.1°C (0.1°F)

## 964 Thermoanemometer Straight Probe Velocity, Temperature and Humidity

Range	0 to 50 m/s (0 to 9,999 ft/min), -10 to 60°C (14 to 140°F), 5 to 95% RH
Accuracy	±3% of reading or ±0.015 m/s (±3 ft/min), whichever is greater <sup>4&amp;5</sup> ±0.3°C (±0.5°F) <sup>6</sup> ±3% RH <sup>7</sup>
Resolution	0.01 m/s (1 ft/min), 0.1°C (0.1°F), 0.1% RH

## 966 Thermoanemometer Articulating Probe Velocity, Temperature and Humidity

Range	0 to 50 m/s (0 to 9,999 ft/min), -10 to 60°C (14 to 140°F), 5 to 95% RH
Accuracy	±3% of reading or ±0.015 m/s (±3 ft/min), whichever is greater <sup>4&amp;5</sup> ±0.3°C (±0.5°F) <sup>6</sup> ±3% RH <sup>7</sup>
Resolution	0.01 m/s (1 ft/min), 0.1°F (0.1°C), 0.1% RH

## 995 Rotating Vane 4 in. (100 mm) Probe Velocity and Temperature

Range	0.25 to 30 m/s (50 to 6,000 ft/min), 0 to 60°C (32 to 140°F)
Accuracy	±1% of reading ±0.02 m/s (±4 ft/min), ±1.0°C (±2.0°F)
Resolution	0.01 m/s (1 ft/min), 0.1°C (0.1°F)

## 980 IAQ Probes CO<sub>2</sub>, Temperature and Humidity

Range	0 to 5,000 ppm CO <sub>2</sub> , 5 to 95% RH, -10 to 60°C (14 to 140°F)
Accuracy	±3% of reading or ±50 ppm CO <sub>2</sub> , whichever is greater <sup>9</sup> ±3% RH <sup>7</sup> ±0.5°C (±1.0°F) <sup>6</sup>
Resolution	1 ppm CO <sub>2</sub> , 0.1°C (0.1°F), 0.1% RH

## 982 IAQ Probes Model CO, CO<sub>2</sub>, Temperature and Humidity

Range	0 to 500 ppm CO, 0 to 5000 ppm CO <sub>2</sub> , -10 to 60°C (14 to 140°F), 5 to 95% RH
Accuracy	±3% of reading or ±3 ppm CO, whichever is greater <sup>9</sup> ±3% of reading or ±50 ppm CO <sub>2</sub> , whichever is greater <sup>9</sup> ±0.5°C (±1.0°F) <sup>6</sup> ±3% RH <sup>7</sup>
Resolution	0.1 ppm CO, 1 ppm CO <sub>2</sub> , 0.1°C (0.1°F), 0.1% RH

## 792 Thermocouple Surface Temperature Probe

Range	-40 to 650°C (-40 to 1200°F)
Accuracy	±0.056% of reading +2.2°C (±0.1% of reading +4°F)
Resolution	0.1°C (0.1°F)

## 794 Thermocouple Air Temperature Probe

Range	-40 to 650°C (-40 to 1200°F)
Accuracy	±0.056% of reading +1.1°C (±0.1% of reading +2°F)
Resolution	0.1°C (0.1°F)

## 984 Low Concentration (ppb) VOC and Temperature

Range	10 to 20,000 ppb, -10 to 60°C (14 to 140°F)
Accuracy	±0.5°C (±1.0°F) <sup>6</sup>
Resolution	10 ppb <sup>10</sup> , 0.1°C (0.1°F)

## 985 High Concentration (ppm) VOC and Temperature

Range	1 to 2,000 ppm, -10 to 60°C (14 to 140°F)
Accuracy	±0.5°C (±1.0°F) <sup>6</sup>
Resolution	1 ppm <sup>10</sup> , 0.1°C (0.1°F)

## 986 Low Concentration (ppb) VOC, Temperature, CO<sub>2</sub> and Humidity

Range	10 to 20,000 ppb VOC, 0 to 5,000 ppm CO <sub>2</sub> , -10 to 60°C (14 to 140°F), 5 to 95% RH
Accuracy	±3% of reading or 50 ppm CO <sub>2</sub> , whichever is greater ±0.5°C (±1.0°F) <sup>6</sup> ±3% RH <sup>7</sup>
Resolution	10 ppb <sup>10</sup> VOC, 0.1 ppm CO <sub>2</sub> , 0.1°C (0.1°F), 0.1% RH

## 987 High Concentration (ppm) VOC, Temperature, CO<sub>2</sub> and Humidity

Range	1 to 2,000 ppm VOC, 0 to 5,000 ppm CO <sub>2</sub> , -10 to 60°C (14 to 140°F), 5 to 95% RH
Accuracy	±3% of reading or 50 ppm CO <sub>2</sub> , whichever is greater ±0.5°C (±1.0°F) <sup>6</sup> ±3% RH <sup>7</sup>
Resolution	1 ppm <sup>10</sup> VOC, 0.1 ppm CO <sub>2</sub> , 0.1°C (0.1°F), 0.1% RH

# SPECIFICATIONS

## AIRFLOW MULTI-FUNCTION INSTRUMENTS

### Velocity (Pitot or Airflow probe for Models TA465, TA465-NB, TA465-A, TA465-A-NB, TA465-P, TA465-P-NB)

Range <sup>1</sup>	1.27 to 78.7 m/s (250 to 15,500 ft/min)
Accuracy <sup>2</sup>	10.16 m/s ( $\pm 1.5\%$ at 2,000 ft/min)
Resolution	0.01 m/s (1 ft/min)

### Duct Size

Dimensions	2.5 to 1,270 cm in increments of 0.1 cm (1 to 500 inches in increments of 0.1 in.)
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### Volumetric Flow Rate

Range	Actual range is a function of velocity, pressure, duct size, and K factor
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### Static/Differential Pressure (Models TA465, TA465-NB, TA465-A, TA465-A-NB, TA465-P, TA465-P-NB)

Range <sup>3</sup>	-28.0 to +28.0 mm Hg -3,735 to +3,735 Pa (-15 to +15 in. H <sub>2</sub> O)
Accuracy	$\pm 0.01$ mm Hg, $\pm 1$ Pa ( $\pm 1\%$ of reading $\pm 0.005$ in. H <sub>2</sub> O)
Resolution	0.1 Pa, 0.01 mm Hg (0.001 in. H <sub>2</sub> O)

### Barometric Pressure

Range	517.15 to 930.87 mm Hg (20.36 to 36.648 in. Hg)
Accuracy	$\pm 2\%$ of reading

### Instrument Temperature Range

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

### Data Storage Capabilities

Range	26,500+ samples and 100 test IDs
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### Logging Interval

1 second to 1 hour

### Time Constant

User selectable

### External Meter Dimensions

9.7 cm x 21.1 cm x 5.3 cm (3.8 in. x 8.3 in. x 2.1 in.)

### Meter Weight with Batteries

0.36 kg (0.8 lbs.)

### Power Requirements

Four AA-size batteries or AC adapter

## TO ORDER

### Multi-Function Ventilation Meter with differential pressure sensor and Thermoanemometer Probe

Specify	Description
TA465	Multi-function ventilation meter TA465-P with straight air velocity probe Model 964
TA465-NB	Multi-function ventilation meter TA465-P-NB (no Bluetooth) with straight air velocity probe Model 964
TA465-A	Multi-function ventilation meter TA465-P with articulated air velocity probe Model 966
TA465-A-NB	Multi-function ventilation meter TA465-P-NB (no Bluetooth) with articulated air velocity probe Model 966

### Multi-function Ventilation Meter Only. Choose a probe most appropriate for your measurement needs.

Specify	Description
TA465-X	Multi-function ventilation meter, no plug-in probes, no differential pressure sensor
TA465-X-NB	Multi-function ventilation meter, no plug-in probes, no differential pressure sensor, no Bluetooth
TA465-P	Multi-function ventilation meter, no plug-in probes, with differential pressure sensor, tubing and static pressure probe
TA465-P-NB	Multi-function ventilation meter, no plug-in probes, with differential pressure sensor, no Bluetooth

NOTE: All models include: Instrument, hard carrying case, 4 alkaline batteries, USB cable, universal power supply, instruction manual, calibration certificate, LogDat2 downloading software.

Models TA465, TA465-NB, TA465-A, TA465-A-NB, TA465-P and TA465-P-NB also include (1) 2.4-m (8-ft.) rubber tube and (1) static pressure tip.

<sup>1</sup> Pressure velocity measurements are not recommended below 5 m/s (1,000 ft/min) and are best suited to velocities over 10.00 m/s (2,000 ft/min). Range can vary depending on barometric pressure.

<sup>2</sup> Accuracy is a function of converting pressure to velocity. Conversion accuracy improves when actual pressure values increase.

<sup>3</sup> Overpressure range = 360 mmHg, 48 kPa (190 in. H<sub>2</sub>O).

<sup>4</sup> Temperature compensated over an air temperature range of 5 to 65°C (40 to 150°F).

<sup>5</sup> The accuracy statement begins at 0.15 m/s through 50 m/s (30 ft/min through 9,999 ft/min).

<sup>6</sup> Accuracy with instrument case at 25°C (77°F), add uncertainty of 0.03°C/°C (0.05°F/°F) for change in instrument temperature.

<sup>7</sup> Accuracy with probe at 25°C (77°F). Add uncertainty of 0.2% RH/°C (0.1% RH/°F) for change in probe temperature. Includes 1% hysteresis.

<sup>8</sup> At calibration temperature. Add uncertainty of 0.5%/°C ( $\pm 0.28\%$ /°F) for change in temperature.

<sup>9</sup> At 25°C (77°F). Add uncertainty of 0.36%/°C ( $\pm 0.2\%$ /°F) for change in temperature.

<sup>10</sup> When response factor is set to 1.00.

Specifications subject to change without notice.

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