degreeC™

DEGREE CONTROLS,INC.

Your Partner for Airflow Sensing & Controls

UAS1000 LP, PC, Wand

Features

- UAS1000 measures air velocity & airflow temperature simultaneously
- Sensors connect to the °C Port data acquisition instruments
- Easy to use – just plug in & start measuring
- Validate thermal and airflow models quickly & accurately
- Small sensors to reach distant & compact locations
- Fully interchangeable with one another
- Multiple sensor head options

Overview

The UAS1000 Series is an air velocity and air temperature sensor used with the °C Port3600/ °C Port1200 Multipoint Measuring Instruments. The advanced, high accuracy, UAS1000 Low Profile (LP), Plastic Cap (PC) and Wand sensor heads are capable of measuring with ± 3% accuracy, in accordance with the ANSI/ASHRAE 110 and NSF 49 standards for laboratory fume hood and biosafety cabinet testing. These are the first, multi-point air velocity sensors to meet the stringent 3% requirement, to answer the demand of measuring face velocity and downflow velocity points in one experimental setup.

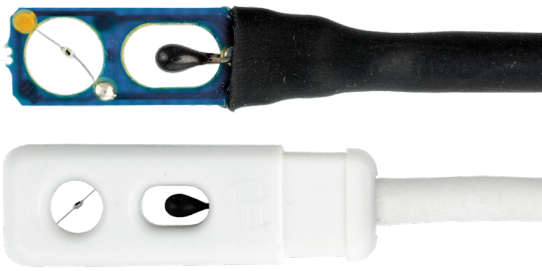
With a variety of sensor ranges from 0.15 m/s to 20 m/s (30-4000 fpm), the UAS1000 Series offers such features as unimpaired access to tight locations, improved measurement accuracy, ease of installation, multipoint measurement, rugged construction, and probe interchangeability. Clients use the advanced high accuracy UAS1000 Low Profile (LP), Plastic Cap (PC) and Wand sensor heads as an integral part of the compliance (ANSI/ASHRAE 110, NSF 49 & OSHA), performance, and research testing they do.

The UAS1000 LP, PC and Wand sensor head styles are remotely located on a 5 meter shielded cable to provide access to distant and compact locations such as between semiconductor devices, heat sinks, and inside ducts and plenums. These small heads cause minimal distortion of the true airflow profile, and air velocity and airflow temperature measurements are obtained at the same time. The UAS1000 Series LP, PC and Wand sensors are also fully interchangeable with one another, since each sensor has its own onboard circuitry normalizing the performance of each sensor. Should your application require a different sensor head outline, other styles are available from Degree Controls. Please refer to the UAS1000 XS (Extra Small) Blade and UAS1000 Series, Board Mount datasheets.

Simultaneous use of up to 36 UAS sensors with the °C Port3600/ °C Port1200 data acquisition systems allows the user to have a snapshot of the airflow environment at any given time. Multiple °C Port3600s/°C Port1200s can be connected together to obtain up to 100 data points.

For surface temperature measurement, please refer to the UTS1000 Thermocouple Sensor datasheet. Humidity sensing is available with the UHS1000, UAS1000, UTS1000, and UHS1000 sensors can be used simultaneously with the °C Port3600/°C Port1200 to obtain airflow, air and surface temperature, and humidity in one instrument.

°C Port3600 Data Acquisition Instrument for USB Sensors



Additional Sensor Head Options for UAS1000

Order from top to bottom:
Low Profile (LP) & Plastic Cap (PC)

Please also refer to the UAS1000 XS (Extra Small) Blade datasheet and the UAS1000 Series, Board Mount datasheet for other sensor head options.

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is an ISO-9001 certified, world-class designer and manufacturer of airflow sensing, monitoring, and control solutions. With over 20 years of proven experience, we pride ourselves on delivering solutions which provide the value, differentiation, and service required by our customers, to meet the rapidly changing competitive landscape that they face.

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18 Meadowbrook Dr.
Milford, NH 03055

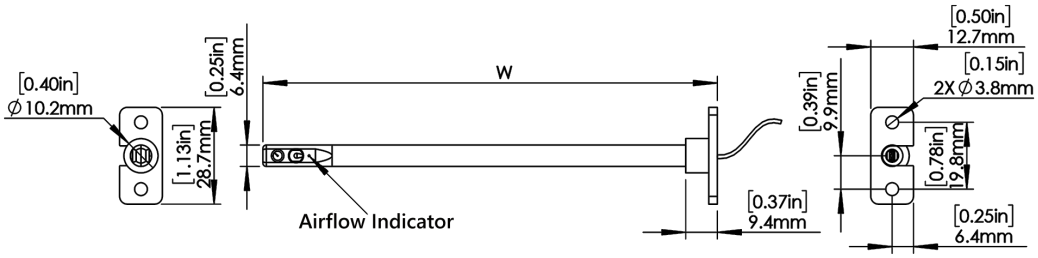
603.672.8900 or 1.877.334.7332
sales@degreeC.com
www.degreeC.com

NOVA INSTRUMENTS

Specifications

Operating Temperature	0°C to 70°C
Storage Temperature	-40°C to 85°C
Relative Humidity (non-condensing)	5-95%
Warm Up Time After Power Up	Less than 5 seconds
Supply Voltage	Supplied by USB or °C Port Instrument

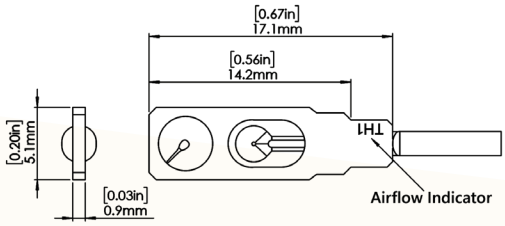
Sensor Wand



Wand Sensor Head

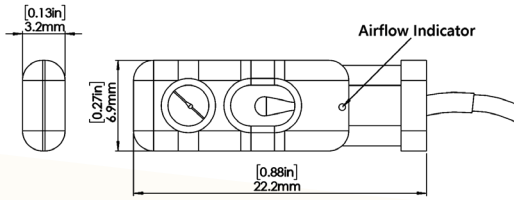
Airflow should approach the raised dot on the plastic sensor head housing.

Sensor Head Options



Low Profile (LP) Sensor Head

Airflow should approach TH1 on the white silkscreen side of the sensor head PCBA.



Plastic Cap (PC) Sensor Head

Airflow should approach the raised dot on the plastic sensor head housing.

USB Sensor Connector

Standard cable length is 5m (16') from sensor to connector, shielded. Nominal cable diameter is 2mm (0.08").

Airflow & Temperature Measurement

Air Velocity

Temperature Compensation Range: 0-70°C (32-158°F)
Accuracy (the greater of): ±0.015m/s (3fpm) or ±3% of reading
Repeatability (the greater of): 1% or ±0.01m/s (2fpm)

Temperature

Measurement Range: 0-70°C (32-158°F)
Measurement Accuracy[1]: ±1°C (1.8°F)
Resolution: ±0.1°C

Temperature Compensation Range: The UAS1000 is a thermal airflow sensor; it is sensitive to changes in air density and indicates velocity with reference to a set of standard conditions 25°C (77°F), 760mmHg (101.325kPa), and 0%RH. The UAS1000 has been designed so that when used over the stated temperature compensation range, the sensor indicates very close to actual air velocity and minimal compensation is only required to account for changes in barometric pressure or altitude.

Accuracy: Valid between 15-35°C (60-95°F), increasing by ±0.25% per degree and ±0.005m/s (1fpm) over remaining temperature compensation range.

[1]Above 0.5m/s (100fpm), ±1.5°C (2.7°F) below 0.5m/s (100fpm).

Part Number Format

UASXXXXXX

1100	0.15 – 1.0 m/s (30 – 200 fpm)	W1	1.25" Wand Head	LP	Low Profile
1200	0.5 – 5.0 m/s (100 – 1000 fpm)	W3	3" Wand Head	PC	Plastic Cap
1300	4.5 – 20.0 m/s (900 - 4000 fpm)	W5	5" Wand Head		
1500	0.15 – 20.0 m/s (30 - 4000 fpm)	W7	7" Wand Head		

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UHS1000

Applications

- Micro Environments
- Telecommunication Huts
- Electronic Cabinets
- Air Handlers
- Comfort Testing
- Datacenter Studies
- Critical Containment
- Air Compressor Ducts
- Automotive Airflow Testing
- HVAC Duct Testing
- Incubation
- Respiratory Products
- Weather Stations
- Critical Containment

Additionally, the UHS1000 can be used as the compensating sensor for °C Port multipoint airflow experiments!

Overview

The UHS1000 from Degree Controls, is an airflow humidity and temperature sensor with USB interface and works with AccuTrac™ datalogging software. Newly released with 1.9% accuracy in environments from 10% to 90% humidity, the UHS1000 is an excellent complement to the °C Port family of airflow testing and data acquisition instrumentation.

Designed to fit into tight locations, the UHS1000 is the smallest humidity and temperature sensor on the market, and is suitable for both standalone airflow testing, and multipoint testing of ducted air systems. When used with the °C Port family of Airflow Testing Instruments, the UHS1000 sensor provides high accuracy humidity input for real time compensation of the measured air velocity.

The UHS1000 features a rugged construction, shielded cable (can be extended via A-Male to A-Female USB extension cable), and up to 36 sensors can be connected together using the °C Port3600 for the most rigorous multi-point airflow experiments or datalogging activities. Typical applications include HVAC duct testing, air conditioner intake and return monitoring, vivarium monitoring, automotive airflow testing, laboratory and critical environment monitoring, weather stations, and more.

With dual channels of data (humidity and air temperature), the UHS1000 is a compact and accurate device with 100's of uses. When used as the compensating device for UAS1000 air velocity sensors and the °C Port family of data acquisition instrumentations, it becomes the most powerful multi-point airflow analysis platform on the market.

Adding thermocouple measurements to study surface or case temperatures may also be vital while conducting air velocity experimentation. The UTS1000 is a USB based thermocouple which is also part of the DegreeC airflow testing suite, and is used to study the temperature variation of surfaces during airflow testing. See the corresponding UAS1000 (air velocity and temperature sensors) and UTS (thermocouple sensors) Data Sheets for further information.

Features

- Dual channel sensor with simultaneous humidity and temperature outputs
- Includes hydrophobic filter and condensation-resistance
- 1.9% humidity accuracy and 0.6 °C temperature accuracy
- High, 14-bit humidity and temperature sensor resolution
- -40°C to 125°C operating range
- Convenience of USB connectivity
- Single point or multipoint experimentation
- Works with AccuTrac™ datalogging software
- RoHS 6 compliant
- NIST traceable

°C Port3600 Data Acquisition Instrument for USB Sensors

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NOVA INSTRUMENTS

Specifications

Operating Humidity Range	Sensor Body: 5 - 95%RH Sensor Head: 0 - 100%RH
Operating Temperature Range	Sensor Body: 0°C to 70°C Sensor Head: -40°C to 125°C
Storage Humidity Range	30-50%RH
Storage Temperature Range	-40°C to 125°C
Compensated Humidity Range	10-90%RH
Compensated Temperature Range	5 - 50°C
Humidity Accuracy[1]	1.9%RH
Temperature Accuracy	0.6°C
Hysteresis	±1.0%RH
Response Time	Humidity: t 63% - max 8 seconds Temperature: t 63% - max 30 seconds
Long Term Stability	<0.05%RH/yr

[1]Accuracy is specified at 25°C.

Mechanical Dimensions

Cable Length	1 meter (39") from connector to sensor head (A-Male to A-Female USB Extension can be used)
Sensor Head Dimensions	W - 8.3mm (.33") L - 19.4mm (.77") D - 4.2mm (.16")
Sensor USB Connector	W - 17mm (.67") L - 100mm (3.9") D - 8mm (.32")

Sensor Recalibration

Over time, exposure to elevated temperatures and low humidity conditions, will dry out the sensing element. If recalibration is not performed, your sensor may read a slight offset, and extended exposure to condensing and high humidity environments (>90%RH) may cause a revisable shift in readings. Degree Controls recommends recalibrating your sensor on an annual basis, in order to ensure full function of pre-calibrated values.

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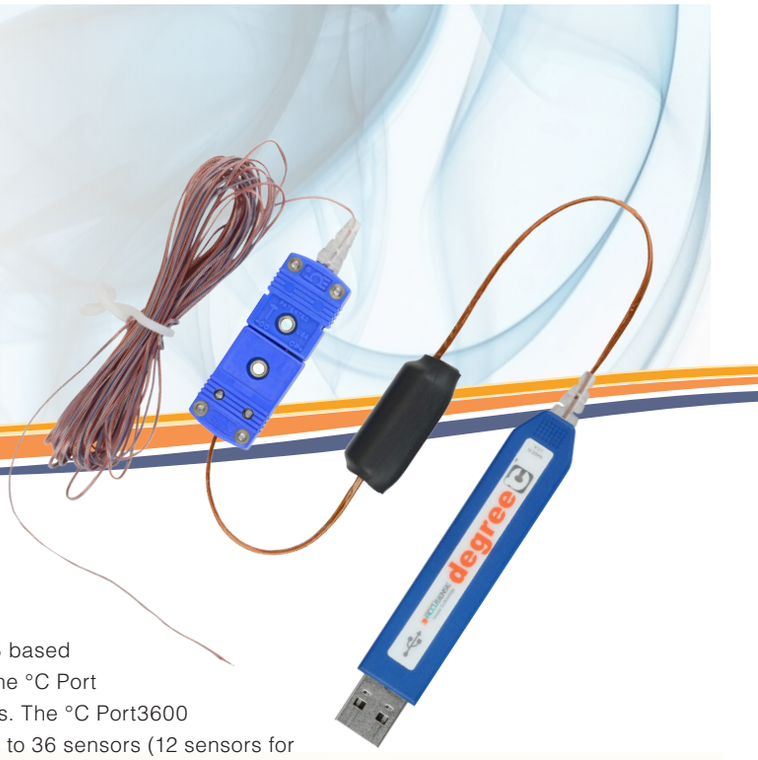
UTS1000



Features

- USB sensor offers up to ±1.5°C accuracy when used with appropriate thermocouple
- Measures surface temperatures
- Compatible with the °C Port family of instruments
- Electrically isolated up to 1500V.
- Suitable for T thermocouple wire
- Thermocouple interchangeable with sensor body
- Excellent for measuring live electronics
- Easy to use – just plug in and start measuring

Overview

The AccuSense™ UTS1000 are USB based thermocouple sensors for use with the °C Port family of data acquisition instruments. The °C Port3600 data acquisition instrument holds up to 36 sensors (12 sensors for the °C Port1200.) Users of the °C Port3600/1200 can obtain thermocouple measurements as well as airflow and airflow temperature measurements (see UAS1000 Series) in one instrument.

Users of the °C Port3600/1200 can obtain thermocouple measurements simultaneously with air velocity and air temperature measurements, (see UAS1000 Series) in one set-up. This is critical in determining relationships between air velocity and surface temperatures within the assembly under test. These types of airflow and thermocouple tests are used in heat conduction engineering, vent design, and air mover redundancy work. The UTS1000 is built with 1500 VDC of isolation, to protect the °C Port instrument, when used in these types of powered test methodologies.

The UTS1000T is equipped with standard miniature connectors and has a measurement range of –50°C to 250°C. The intrinsic accuracy is ±1.0°C, with a cumulative accuracy of ±1.5°C when used with the supplied thermocouple. The thermocouple is constructed of 5 meter 30AWG sheathed SLE (Special Limited Error) grade cable for abrasion resistance and optimum measurement accuracy.

Our AccuTrac™ software allows you to collect, analyze, and store all the data quickly and easily. Data is collected for each sensor in an Excel format, with a choice of statistical calculations of each sensor reading such as min/max, standard deviation, and averaging.

Specifications

Operating Temperature	0°C to 70°C
Storage Temperature	-40°C to 85°C
Relative Humidity (non-condensing)	5-95%
Measurement Range	-50°C to 250°C
Step Change Settling Time	4 seconds max
Response Time	2 seconds typical
Stability	±0.2°C over 1 minute period
Accuracy	±1°C (Sensor without thermocouple, ±1.5°C with supplied thermocouple)
Supply Voltage	Supplied via USB
Connector Dimensions	100 mm long X 17 mm wide X 8 mm thick

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