Features

- Wide velocity range of 0 to 50 m/s (10,000 ft/min)
- Flow rate feature makes simple calculations of volumetric flow rate when the user inputs the duct shape and size, K factor or horn size
- Velocity measurements are made from the thermal sensor or a Pitot tube
- Automatic conversion between actual and standard velocity readings
- Direct calculation of dew point and wet bulb temperature no psychometric chart needed (Model 4386, 4387 only)
- Heat flow function calculates heat transferred after a heating or cooling element (Model 4386, 4387 only)
- Stable digital display when measuring fluctuating flows
- Back-lit display is easy to read in poor lighting conditions
- 115 cm telescoping probe with etched length marks make duct traverse measurements easier
- Optional articulating probe available
- Optional portable printer provides hard copy documentation of your measurements
- CO_2 density can measurements(Model 4387 only)

4300 Series Air Velocity Meter

Air Master®

Description

ientek Air Master® simultaneously measure and data log several ventilation parameters using a single probe with multiple sensors.
Based on the model, these hand-held instruments measure velocity, temperature, differential pressure, humidity and CO_2 density.
All versions calculate volumetric flow rate.
The Model 4386 also performs dew point, wet bulb temperature and heat flow calculations.

Performance Specifications

Velocity of Thermal Sensor (all model)

Measuring principle : Thermal Mass Flow Sensor
Measuring range : 0.1 ~ 100 m/s
Accuracy [1 & 2] : ±2% of reading or ±0.05 m/s
Response Time : < 2 S (depending on velocity and dT)
Warm up time : < 1 min (according to mounting)
Temperature range : -30 ~ +100℃ Short term to 150 ℃
Permissible humidity : 0-95% RH (no condensate)
Substrate material : Ceramic 0.15 mm
Dimension sensor : 7 x 2.4 x 0.15 mm

Velocity of Pitot Tube (Model 4385, 4386, 4387)

Range [3] : 1.27 to 78.7 m/s (250 to 15,500 ft/min)
Accuracy [4] : ±1.5% at 10.16 m/s (2,000 ft/min)
Resolution : 0.01 m/s (1 ft/min)

Volumetric Flow Meter (all models) :

Range : Actual range is a function of maximum velocity, pressure, duct size, and K factor

Duct Size (all models)

Range : 1 to 635 cm in increments of 0.1 cm
(1 to 250 in. in increments of 0.1 in.)

Static/Differential Pressure
(Models 4385(A) and 4386(A) 4387(A))

- Precisely located, burr-free static pressure holes.
- Hemispherical tip design, best for accuracy if imperfectly aligned and nearly impossible to damage.
- Long lasting 304 stainless steel construction.
- ASME design meets AMCA and ASHRAE specifications.
- 5/16" models rated to 1500°F
- Extended static connection helps guide tip within recommended 15° of air flow direction.

Range [5] : -9.3 to +28.0 mmHg, or -1245 to +3735 Pa
(-5 to +15 in. H_2O)
Accuracy [6] : ±1% of reading, ±1 Pa or ±0.01 mmHg
(±0.005 in. H_2O)
±0.03%/ °C (±0.02%/ °F)
Resolution : 1 Pa, 0.01 mmHg (0.001 in. H_2O)

Temperature & Humidity (all models)

Application of industrial CMOS processes with patented micro-machining (CMOSens® technology) ensures highest reliability and excellent long term stability.
The device includes a capacitive polymer sensing element for relative humidity and a bandgap temperature sensor.

Operating (Probe) : -30 ~ 100℃ (-22 to 212°F)
Operating (Electronics) : +5 ~ 45℃ (41 to 113°F)
Storage : -20 ~ +60℃ (-4 to 140°F)

Wet Bulb Temperature

Range : -15 to +50℃ (40 to 140°F)
Resolution : 0.1℃ (0.1°F)

Dew Point Temperature

Range : +5 to +60℃ (5 to 122°F)
Resolution : 0.1℃ (0.1°F)

Heat Flow (Models 4386, 4387)

Range : Function of Flow Rate, Temperature, Humidity and Barometric Pressure
Measurements Available : Sensible Heat Flow, Latent Heat Flow, Total Heat Flow and Sensible Factor
Units Measured : BTU/h, KW

Time Constant

Intervals : 1sec, 2sec, 5sec, 10sec, 15sec, 20sec

External Meter Dimensions (all Models)

Size Measurements : 10.6cm x 18.5cm x 3.8cm
(4.2 inch x 7.2 inch x 1.5 inch)

Meter Probe Dimensions (all Models)

Probe Length : 108.5 cm (42.7 inch)
Probe Diameter of Tip : 7.19 mm (0.283 inch)
Probe Diameter of Base : 11 mm (0.433 inch)

Probe Handle Dimensions

Articulating Section Length : 12.18 cm (4.79 inch)
Diameter of Handle : 24.35 mm (0.96 inch)

Meter Weight (all models)

Weight (with batteries) : 0.57 kg (1.25 lbs)

Power Requirements (all models)

Four AA-size batteries (included) or AC adapter (optional) 5 VDC, 1 A, 5 watts (input voltage and frequency)

Temperature & Humidity Sensor Performance Specification

Humidity	Conditions	Min.	Typ.	Max.	Units
Resolution		0.5	0.03	0.03	%RH
		8	12	2	Bit
Repeatability			±0.1		%RH
Accuracy Uncertainty	linearized	see figure 1			
Interchangeability		Fully interchangeable			
Nonlinearity	raw data		±3		%RH
	linearized		< 1		%RH
Range		0		100	%RH
Response time	1/e (63%) slowly moving air		4		S
Hysteresis			±1		%RH
Long term stability	typical		< 0.5		%RH/yr
Temperature					
Resolution		0.04	0.01	0.01	°C
		0.07	0.02	0.02	°F
		12	14	14	bit
Repeatability			±0.1		°C
			±0.2		°F
Accuracy		see figure 1			
Range		-40		123.8	°C
		-40		254.9	°F
Response time	1/e (63%)	5		30	S

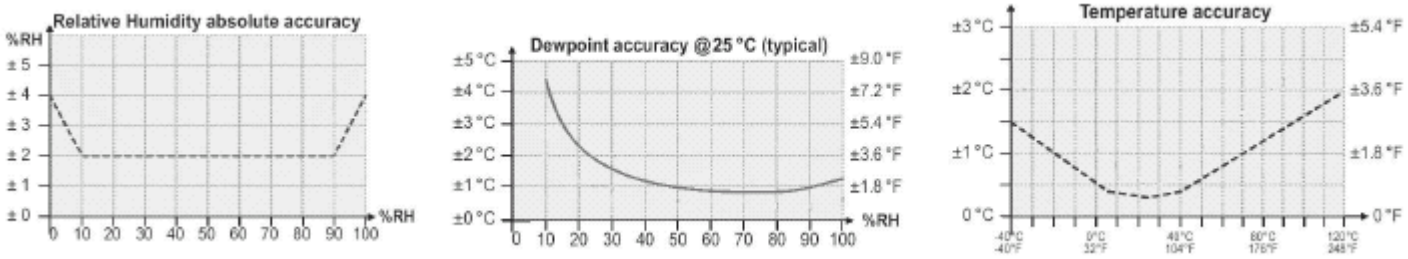

Figure 1 Rel. Humidity, Temperature and Dew point accuracies

Where 43XX(A) is listed, the specifications apply to both the 43XX (straight probe) and 43XX A (articulating probe) models.

1. Temperature compensated over an air temperature range of 5 to 65℃ (40 to 150°F)
2. The accuracy statement of ±3.0% of reading or ±0.015 m/s (±3 ft/min), whichever is greater, begins at 30 ft/min through 9,999 ft/min.
3. Pressure velocity measurements are not recommended below 1,000 ft/min and are best suited to velocities over 2,000 ft/min. Range can vary depending on barometric pressure.
4. Accuracy is a function of converting pressure to velocity. Conversion accuracy improves when actual pressure values increase.
5. Overpressure range = 520 mmHg, 69 kPa (275 in H_2O)
6. Accuracy with instrument case at 25℃ (77°F), add uncertainty of 0.03%/℃ (0.02 %/°F) for change in instrument temperature.
7. Accuracy with instrument case at 25℃ (77°F), add uncertainty of 0.03%/℃ (0.05℃/°F) for change in instrument temperature.
8. Accuracy with probe at 25℃ (77°F). Add uncertainty of 0.2%RH/℃ (0.1%RH/°F) for change in probe temperature. Includes 1% hysteresis.

Specifications are subject to change without notice.

Data Logging Capabilities

- Data logging ability allows user to log 1394 samples with a time and date stamp
- Simultaneously records all parameters available in each model
- Single point and continuous data logging modes to fit your application
- Data can be reviewed on-screen, printed or downloaded to a computer spreadsheet program
- ientek downloading software permits easy transfer of data to a computer
- Statistics function displays average, maximum and minimum values, and the number of recorded samples

Parts Identification

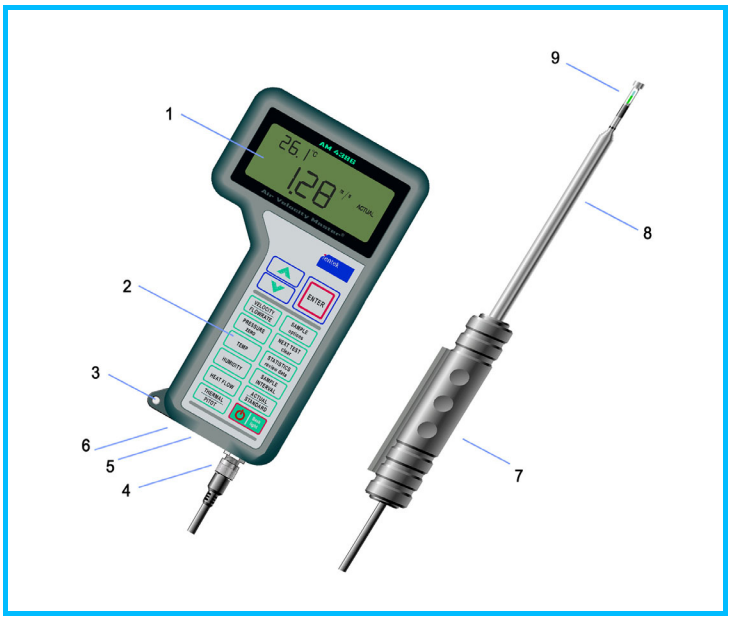

Figure 1-2 Air Master® 4300 Series

1. Display
2. Keypad
3. Linking
4. Sensor Connector
5. RS-232C port
6. AC Adapter Port
7. Sensor Handle
8. Sensor Probe
9. Sensor

	4384	4385	4386	4387
Velocity	●	●	●	●
Volumetric Flow Meter	●	●	●	●
Temperature	●	●	●	●
Differential Pressure		●	●	●
Thermal/Pitot		●	●	●
Humidity			●	●
Dew Point			●	●
Wet Bulb Temperature			●	●
Heat Flow Calculations			●	●
CO_2				●
Data Logging/Downloading	●	●	●	●
Statistics/Review Data	●	●	●	●
Density Correction Factor	●	●	●	●
Variable Time Constant	●	●	●	●
Printer Output	●	●	●	●

All models are available with either a straight or articulating probe.