

## KANOMAX USA, INC.

219 Route 206 PO Box 372

Andover, NJ 07821

Tel: 1-800-247-8887, +1-973-786-6386 (from outside of US)

Fax: 973-786-7586

www.kanomax-usa.com





JQA 2790

2<sup>nd</sup> Edition

#### **Kanomax Group**

Since our inception more than 50 years ago, Kanomax has been the most promising manufacturer of a broad range of precision measuring instruments for fluid mechanics research, environmental, aerosol research, particles measurement, and customized system applications. As a company that prides itself in technology, product quality, and service, we have been enjoying an unsurpassed reputation in the Japanese industrial and academic fields. Japanese customer demand for high quality has driven us to produce the finest manufactured products in the industry. We are pleased to introduce our quality products to the global market. To further benefit our customers worldwide, we have launched our global operations aiming to introduce our dependable technology and to provide our wide range of measuring solutions and services.









Kanomax USA, Inc. (NJ)

Kanomax Holdings, Inc. (NY)

Kanomax Japan, Inc.

Shenyang Kanomax Instrument Co., Ltd. (China)

#### Kanomax FEASibility

Kanomax makes your idea feasible and realizes your needs.

#### varioniax makes your idea le

Fluid Measurement Instruments

Having established worldwide brand recognition and product loyalty, Kanomax Fluid Measurement Instruments have become the measurement standard in Japan. Our Fluid Velocity Systems have wide-ranging industrial applications to include Elimination of Locomotive Wheel Noise, Research to Increasing Energy Efficiency, Architectural Research and Development, Civil Engineering, Chemistry, and Medical Science Research to name a few.

#### Aerosol Measurement Instruments

Kanomax has developed Particle Measurement Technologies to address a variety of applications from Semiconductor Production Facilities requiring rigorous air cleanliness to general office work environments. Particle Measurement Technology is generally divided into Environmental three areas. Comfort Monitoring, Cleanroom Environment Monitoring, and Aerosol Research Instruments.

#### Environmental Measurement Instruments

Ever increasing public awareness for air quality is driving the demand for improved monitoring and control of air temperature, humidity, flow and particulates. Kanomax produces a number of Air Measurement and Control Instruments currently utilized by industry professionals. These devices are vital tools for maintaining Constant Air Quality and Comfort in critical locations that include public and private offices, factories, and medical facilities. Kanomax Anemometers currently enjoy a 67.9% market share among top 10 Japanese subcontractors.

#### **System** Application

Kanomax has developed custom Wind Tunnel, Environmental Test and Performance Test systems for a variety of areas that include Aviation, Environmental Assessment, and Automotive. As an example, during the development of an intercontinental rapid transit scramjet engine, Kanomax tested flame stabilization, air inlet shape, and many other effects using Kanomax supersonic wind tunnels.

#### **Customer Services**

At Kanomax, we fully understand service to be an essential part of the total solution provided to our valued customers. Having already established a worldwide service network, we continuously strive to improve our support services.



## NIST (National Institute of Standards and Technology) Traceable Calibration Services

Our Calibration Laboratory in New Jersey maintains the longest and most accurate wind tunnel of its kind. Kanomax provides the highest quality of service available with a quick turnaround time. Our service specialists are well trained and will calibrate your instruments to the highest standards. We recommend that all instruments be calibrated on an annual basis.

#### **Kanomax Global Calibration Facility**

Kanomax's global (Japan and US) calibration facilities are directly traceable to the national standards and ensure the highest precision measurements for our valued customers. We are fully committed to providing the best calibration services possible utilizing our global facilities.

#### **Kanomax Anemometer Calibration Facility**

Calibration facility	Temperature Variable Wind Tunnel	Low Velocity Wind Tunnel	High Velocity Wind Tunnel	High Temperature Wind Tunnel	Open Jet Wind Tunnel	Humidity Calibrator	Pressure Generator
Туре	GÖTTINGEN (closed-circuit)	EIFFEL (open-circuit)	GÖTTINGEN (closed-circuit)	GÖTTINGEN (closed-circuit)	Centrifugal fan	<ul><li>a) Two</li><li>temperature type</li><li>b) shunt type</li></ul>	Pump type
Specifications	59 to 9840fpm (0.3 to 50m/s) 41 to 176°F (5 to 80°C)	10 to 492fpm (0.05 to 2.5m/s)	590 to 9840fpm (3 to 50m/s)	Room temperature to 752°F (400°C) 20 to 9840fpm (0.1 to 50m/s)	50 to 6000fpm (0.25 to 30.5m/s)	a) 3 to 100%, 41 to 104°F (5 to 40°C) b) 0 to 100%, 41 to 140°F (5 to 60°C)	±0 to 10kPA
Applications	Temperature compensating calibration	Low velocity range air velocity calibration	High velocity range air velocity calibration	High temperature range air velocity calibration	Anemometers and Pitot tubes calibration	Humidity calibration	Pressure calibration



Low-velocity Test Wind Tunnel



Open Jet Wind Tunnel

#### **Anemometers Selection Guide**

Area	Application	A003	A004	A031	A531	A533	A541	A542	A543	6113	6162	6312	1550	1560	1570	6802	6803	6804	6805
Indoor	Air environmental measurement in residence and office buildings	0	0	0	0	0	0	0	0	0						0	0	0	0
Environment	Air-condition and environmental measurement in buildings and factories	0	0	0	0		0	0		0						0	0	0	0
A :-	Air-conditioning capacity test and maintenance check	0	0	0	0	L	0	0		0		_		_			0	0	0
Air- conditioning Equipment	Air velocity measurement in cleanroom	0	0	0	0	0	0	0	0										
4.1	Performance check for HEPA filter, etc.				0	0	0	0	0			0							
High- temperature	Stack gas and combustion air measurement for incinerator, electric furnace, boiler, etc.										0								
Environment	Hot air measurement for drying air, sterilization, etc										0								
	Air velocity measurement in tight quarters (e.g. inside PCs) for cooling efficiency, etc.				0		0	0											
Inspection, Control	Product performance check for cooling efficiency, drying efficiency, etc.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Air velocity control for blowers					L				_		0		_					
Automotivo	Automobile velocity measurement	0	0	0	0		0	0											
	Air velocity measurement for engine compartment and vehicle interior	0	0	0	0		0	0			0		0	0	0				
Multipoint	Air velocity distribution measurement in indoor and inside ducts	0	0	0	0	L	0	0					0	0	0				
measurement	Air velocity monitoring in cleanroom and indoor											0	0	0	0				

#### Solution Technologies for Automotive R&D

R&D competition is increasingly keen in the modern day automobile industry. Kanomax continually monitors trends and user needs of collective automobile technologies.

Kanomax designs and produces testing equipment utilizing state of the art technologies. We offer customized engineering systems and products, applying our many competitive technologies. These include fluid mechanics research instruments, particle measurement devices, optical measurement systems and control technology for the automobile, aeronautics, shipbuilding, and architectural industries. Kanomax optimizes system applications to meet each customer's individual needs, drawing on our solid product knowledge, years of experience and many successful engagements.

## CONTENTS Air Velocity, Air Temperature, Relative Humidity, Differential Pressure Thermohygrometer, 12 Sounds / Noise Measurement IAQ Monitor, Gas Monitor 15 Particle / Dust Monitor 19 **Cleanroom Facility Monitoring** 23 Aerosol Research Instrumentation 27 Fluid Mechanics Research Instrumentation 29 R & D / Test Instrument and System 33

## **Anemomaster Model A004**

NIST Traceable

#### **Palm-Size Hot-Wire Anemometer**



# HVAC Testing IAQ Investigation Industrial Hygiene Cleanrooms

#### Features:

- Probe Compatibility feature allows utilization of a spare probe
- Detachable probe
- •Compact, light-weight, and affordable
- Simple operation
- •Wide ranges of measurement
- •Built-in temperature compensation circuit

#### Benefits:

- •Palm-size and feather-weight main body is hardly noticeable
- •Accuracy of +/- 3% is maintained to suit your needs
- •Soft keys and large display make it a breeze to conduct measurement
- Temperature compensation maintains accuracy at any temperature in the range

N	Model	A004				
	Range	20 to 3940 fpm (0.10 to 20.0m/s)				
	Accuracy	+/-3% of reading or +/-3 fpm (+/-0.015m/s) whichever is greater				
Air Velocity	Response Time	Less than 1second at 196 fpm (1m/sec), 90% response				
	Resolution	0 to 9.99 m/sec: 0.01 m/sec (minimum)				
		10.0 to 20.0 m/sec: 0.1 m/sec				
	Range	32 - 122°F (0-50°C)				
Air	Accuracy	+/-0.2°F (1°C)				
Temperature	Response Time	Less than 30 seconds at 196 fpm (1 m/sec), 90% response				
	Resolution	1°F (0.1°C)				
Dower Cumply		4 x 1.5V AA cells Mn battery, alkaline battery, or Ni-Cd battery				
Power Supply		(An appropriate charger to be used for the Ni-Cd battery)				
Battery Life		Approx. 4 hrs. Continuous at air velocity 196 fpm (1 m/s) with Mn batteries				
Operating	Main Unit	41 to 104°F (5 to 40°C)				
Environment	Probe	32 to 122°F (0 to 50°C)				
Storage Enviror	nment	14-122°F (-10 to 50°C)				
		Probe: approx. 0.24" or 0.40" (6 or 10 mm) in diameter x 7.9" (200 mm) in length				
Dimensions		Probe cable: 0.13" (3.3 mm) in diameter x 59" (1500 mm) in length				
		Main body: 2.4" (60 mm) x 4.7" (120 mm) x 1.2" (30 mm)				
Weight		Approx. 0.4lbs (180g) including batteries				
Standard Kit		Operation Manual, AA Batteries				
Optional Access	sories	Spare Probe, Extension Rod (Telescopic 6.5" - 35.8" / 166mm to 909mm)				

## **Anemomaster Model A031 Series**

NIST Traceable



# HVAC Testing IAQ Investigations Filter Face Velocity Measurements Cleanroom Studies Industrial Hygiene

#### Features:

- Single probe capable of measuring air velocity and temperature simultaneously
- Built-in memory allows storage of measured data
- Highly- visible LCD is capable of displaying air velocity and temperature simultaneously
- RS232 and Analog (option) outputs are available



#### Benefits:

- •Data can be reviewed on-screen, printed, or downloaded to a computer
- Articulating probe for various applications
- Etched length increments on the telescopic probe make duct traverse measurements easier
- Telescopic probe for hard-to-reach areas and in-duct measurements

Air Velocity	Range	20-6000fpm (0.10-30.0m/s)				
	A	+/-3% of reading or +/-3fpm whichever is greater				
Accuracy		(+/-3% of reading or +/-0.015m/s whichever is greater)				
	Resolution	1fpm (0.01m/s from 0 to 9.99m/s, 0.1m/s from 10.0 to 30.3m/s)				
Valumetrie Ele	vurata	At 20 fpm: 9031 ft3/min, at 6000 fpm: 2,709,360 ft3/min				
Volumetric Flo	owrate	(At 0.1m/s: 2,341m3/s, At 30 m/s: 702,270 m3/s)				
Temperature	Range	-4 to 140.0 °F (-20 to 60.0°C)				
	Accuracy	+/-1°F (+/-0.3°C)				
	Resolution	0.1°F (0.1°C)				
Differential	Range	-5.00 to + 5.00kPa				
Pressure	Accuracy	+/- (3% of reading + 0.01)kPa				
(Option)	Resolution	0.01kPa				
Output	Digital	RS 232C (Baud rate 4800, 9600, 19200 and 38400 bps)				
	Analog	DC 0-3 V (Select from Air Velocity, Air Temperature and Pressure)				
Power Supply		6 x 1.5V AA batteries (AC adaptor: AC90-240V/Optional)				
		Timed and multipoint average calculation.				
Data Storage		Total of 800 data for Velocity and Temperature /				
	_	Volumetric Flowrate and Temperature / Pressure				
	Straight Probe Model	Length: 39.4 in. (100 cm)- Telescopic / Diameter of Tip: 0.236 in.				
Probe	A031/A041	(6.0mm), Diameter of Base: 0.472 in. (12.0 mm)				
1 TODE	Articulating Probe	Length: 39.4 in. (100 cm)- Telescopic / Diameter of Tip: 0.236 in. (6.0mm),				
	Model A034/A044	Diameter of Base: 0.472 in. (12.0 mm) Articulating section length: 3.543 in. (90.0 mm)				
Accessories		Carrying case, Operation manual, 6 x AA Batteries, RS-232C cable,				
7.0003301163		Software (for Windows), AC adaptor				
Options		Analog output, Printer, AC adaptor (for Printer)				

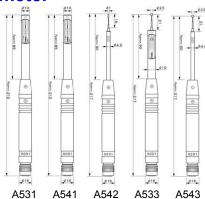
## **Climomaster Series**

NIST Traceable

#### **Multi-Function Thermal Anemometer**



Ventilation Testing Laboratory Control Cleanrooms IAQ Investigation Industrial Hygiene Quality Control



#### Features:

- Probe Compatibility feature allows utilization of a spare probe
- Detachable probe allows for easy replacement, and for compatibility with multi-function thermoanemometers
- Automatic Flow Rate Calculation function
- RS232C terminal for data logging
- Stores up to 1500 measurement data
- Differential Pressure available as an option

#### Benefits:

- If you have more than one unit, detachable probe allows you to share the main unit or the probe.
- Gives automatic flow rate readings by registering duct sizes (up to 25 duct sizes).
- •Well designed software allows you to access the data instantly.
- You can store the data or upload it to your PC via RS232C cable and software (both optional)

#### **Specifications**

Мо	del	A531	A541	A542	A533	A543		
Air Velocity Rar	nge	20 to 6	20 to 6000fpm (0.10 to 30.0m/s) 10 to 10					
Air Temperature	e Range		32.0	to 140.0°F (0.0 to 60	0.0°C)			
Relative Humid	ity Range	2.0 to 98.0%RH			2.0 to 98.0%RH			
Differential Pres	ssure (Option)			-5.00 to +5.00kPa				
Accuracy			Velocity: +/-2% of reading or +/-3fpm (+/-0.015m/s) whichever is greater Air Temperature: +/- 1 °F (+/-0.5 °C) Relative Humidity: +/-2.0%RH from 2 to 80%RH, +/-3%RH from 80 to 98%RH Differential Pressure: +/- (3% of reading +0.01)kPa					
Output	Digital		RS-232C (Baud F	Rate 4800, 9600, 192	200 and 39400bps)			
Output	Analog	DC0-1V (Se	elect from Air Veloci	ty, Air Temperature, I	Relative Humidity a	nd Pressure)		
Power Supply		6 x 1.5V AA Batteries, AC Adapter (Optional): AC100-240V						
Battery Life		Approx. 10hrs. Continuous at 984fpm (5m/s), 68°F (20°C) with alkaline batteries						
Operating	Main Unit		4	1 to 104°F (5 to 40°C	C)			
Environment	Probe		3	32 to 140°F (0 to 60°C	C)			
Storage Enviror	nment	41-104°F (5 to 40°C)						
Weight		Approx. 0.9lbs (400g)						
Standard Kit		Carrying Case, Operation Manual, AA Batteries, Probe Cable						
Optional Accessories		Spare Probe, Analog Output, Pressure Sensor, Extension Rod, Printer, Printer Cable, Communication Cable, Software (for Windows), AC Adapter: AC100-240V 50/60Hz						

#### **Selection Guide**

Model	Measuring Range	Probe Type	Directivity	Velocity & Temp.	Relative Humidity
A531	20 - 6,000 fpm	Rod	Mono	0	0
A541	20 - 6,000 fpm	Rod	Mono	0	×
A542	20 - 6,000 fpm	Needle	Omni	0	×
A533	10 - 1,000 fpm	Spherical	Omni	0	0
A543	10 - 1,000 fpm	Spherical	Omni	0	×

## **Anemomaster Model 6113**

NIST Traceable

#### **Multi-Function Thermal Anemometer**



# Built-in Printer Probe Compatibility RS-232C Terminal

#### Features:

- Probe Compatibility feature allows utilization of a spare probe
- Simultaneously measures air velocity, temperature, and pressure measurements
- · Large, easy-to-read LCD

#### Benefits:

- •Quick printing of measurements at site
- Simple operation with buttons for printing and calculation
- Easily keeps record of measurements
- Suitable for measurements inside ducts

Air Valaaitu	Range	20 to 9840 fpm (0.10 to 50.0 m/s)				
Air Velocity Accuracy		+/-(3% of reading +20fpm (0.1m/s))				
Air	Range	32 to 212°F (0 to 100°C)				
Temperature	Accuracy	+/-2.0°F (1.0°C)				
Pressure	Range	-5.00 to +5.00kPa				
(Option)	Accuracy	+/-(3% of reading +0.01)kPa				
	Settings	Display hold, time constant setting (1, 5, or 10 sec.), remaining battery life (5 steps), measuring unit setting (m/s, fpm, Celsius, Fahrenheit, kPa).				
Measuring	Data Storage	Instantaneous storage, average (over 60 sec. max.), Storage 100 max.				
Functions	Calculation	Maximum and minimum values, averaging, raw data display				
	Display	Calendar function, air velocity bar graph display.				
	Digital Output	RS-232C (4800, 9600, 19200, 38400bps) for communication with PC.				
Outputs	Printer Output	Printing calculation results and measurements.				
Outputs	Analog Output (Option)	DC 0 to 1V (1ch. Selected from air velocity, temp. and pressure)				
Power Supply		6 × 1.5 volt C cells (Mn, alkaline, or Ni-Cd)				
Battery Life		10 hours continuous operation (with alkaline batteries, at 5m/s, 20C, without printer use)				
Operating	Main Body	41 to 104°F (5 to 40°C)				
Environment	Probe	32 to 212°F (0 to 100°C)				
Storage Environ	ment	41 to 104°F (5 to 40°C)				
Weight (including batteries)		Approx. 2.2 lbs. (Approx. 1000 g)				
Dimensions		7.9" x 5.9" x 3.9" (200 x 150 x 100mm)				
Standard Kit		1 x operation manual, 6 x 1.5V Mn C cells, 1 x probe with 2-meter (6.6-feet) cable, 1 x extension rod, 1 x shoulder strap				
Optional Accessories		Spare Probe, Analog Output, Pressure Measurement, Printer Paper, Communication Cable, Data Management Software (for Windows), AC Adapter				

## **Anemomaster Model 6802, 6803, 6804, 6805**

#### **Rotating Vane Digital Anemometer**

NIST Traceable



# HVAC Testing IAQ Investigations Industrial Hygiene Cleanroom

#### Features:

- Display switchable in m/s (MPS) or ft/min (FPM) for air velocity and cubic ft/min (CFM) or cubic meter/hr (CMH) for calculated air volume flow
- Very high accuracy due to use of microprocessor
- Digital memory for Maximum and Minimum values
- Average measurements over two or sixteen seconds for air velocity
- Display hold for easy reading of measurements
- Long battery life

Model	odel		6803	6804	6805				
Air Velocity	Range	6802 6803 6804 6805 Probe AP(T)275: 40 to 7800 fpm (0.2 to 40m/s)							
7 iii 7 diodity	. tango		Probe AP(T)100: 60 to 6800fpm (0.3 to 35m/s)						
	Accuracy	±1% of reading ±1digit							
	Resolution			0.01m/s					
Temperature	Range		-22 to 212°F		-4 to 176°F				
·			(-30 to	100°C)	(-20 to 80°C)				
	Accuracy		±0.3% of reading ±1	±0.2% of reading ±1	±0.3% of reading ±1				
			digit	digit	digit				
	Resolution		0.1°F or °C	0.2°F or 0.1°C	0.1°F or °C				
			(1°F below -99.9°F)	0.2 F 01 0.1 C	(1°F below -99.9°F)				
Relative Humidity	Accuracy				±2% RH ±1 digit				
	Resolution				0.1% RH				
Operating	Instrument		32 to 125°F	(0 to 50°C)					
Temperature	Probe	-4 to 210°F		( 20 to 100°C)	-4 to 210°F				
		(-20 to 99°C)	-22 to 212°F (-30 to 100°C)		(-20 to 99°C)				
Power Supply		2 AA alkaline batteries (Eveready E91)		9V alkaline battery	2 AA alkaline				
				(Eveready 522)	batteries				
			T	(Liveready 322)	(Eveready E91)				
Battery Life		Approx. 300 hours	Approx. 200 hours	Approx. 30 hours	Approx. 200 hours				
Data Acquisition				Stores up to 1000					
				triple measurements					
				(Air Flow, RH, and					
				Temperature) with					
				manual save					
Data Link				Standard RS232C at					
				1200 baud, with CTS					
				and RTS signals					
Dimensions		7 1" v 3 0" v 0 8"	(180 x 76 x 20mm)	7.5" x 3.5" x 1.6"	7.1" x 3.0" x 0.8"				
		1.1 X 3.0 X 0.0	(100 × 70 × 20111111)	(191 x 89 x 41mm)	(180 x 76 x 20mm)				
Weight		8 Ounces (227g)	8 Ounces (227g)	18 Ounces (510g)	8 Ounces (227g)				
		with batteries	with batteries	with probe	with batteries				

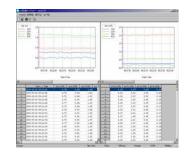
<sup>\*</sup>Please contact us for Standard Kit & Optional Accessories for those products

## **4 Channel Anemomaster Model 1570**

NIST Traceable



Product Efficiency Control
Ventilation Testing
IAQ Investigation
Cleanroom



#### Features:

- •4CH simultaneous measurement in a compact body.
- Wide probe selection available for various applications.
- Capable of taking measurements at high-time-resolution (0.1 sec)
- •RS232C terminal for data logging.

#### Benefits:

- •Each channel display can be easily switched over by the touch of a button
- Probe compatibility saves your downtime and shipping cost
- •Windows software gives you simultaneous measurement on air velocity and flow rate
- •Measurement data saved in text format for easy processing using other software such as Excel

#### **Main Body Specifications**

Display	•	LCD display		
Burst Mode		Transfers data of all channels		
Data Transfer	Channel Mode	Transfers data of specific channel only		
Software	Instant Mode	Displays instantaneous values every specified sampling time		
Function	Average Mode	Displays average values of a specified sampling time		
0	Digital	RS 232C (Baud rate 9600bps fixed)		
Output	Analog	0-5 V		
Main Body Ope	eration Temperature	41-104°F (5-40°C)		
External Dimer	nsions	7.8" x 10.2" x 2.8" (200 x 260 x 70mm)		
Weight		5.7 lbs (Approx. 2.6 kg)		
Power Supply		AC 85V – 276V 50Hz/60Hz		
Standard Kit		RS-232 cable, Power cable, 2xFuse, Data Processing Software		

#### **Probe Specifications**

Model	0962-00 / 0963-00	0964-01 / 0964-02	0965-00/01/03/04/07/08
	20-1000fpm: +/-20fpm	20-1000fpm: +/-30fpm	20-1000fpm: +/-30fpm
	(0.1-4.99m/s: +/-0.1m/s)	(0.1-4.99m/s: +/-0.15m/s)	(0.1-4.99m/s: +/-0.15m/s)
	1000-2000fpm: +/-40fpm	1000-2000fpm: +/-60fpm	1000-2000fpm: +/-60fpm
Magazina Danga & Assurasy	(5.00-9.99m/s: +/-0.2m/s)	(5.00-9.99m/s: +/-0.3m/s)	(5.00-9.99m/s: +/-0.3m/s)
Measuring Range & Accuracy	2000-5000fpm: +/-100fpm	2000-5000fpm: +/-150fpm	2000-5000fpm: +/-120fpm
	(10.0-24.9m/s: +/-0.5m/s)	(10.0-24.9m/s: +/-0.75m/s)	(10.0-25.0m/s: +/-0.6m/s)
	5000-10000fpm:m+/-200fpm	5000-10000fpm:m+/-300fpm	
	(25.0-50.0m/s: +/-1.0m/s)	(25.0-50.0m/s: +/-1.5m/s)	
Temperature Compensation	41 – 176°F (5 – 80°C)		
Response Time (1 m/s, 90% response)	Approx. 1 sec	Approx. 3 sec	Approx. 7 sec

## **Anemomaster Model 6162**

NIST Traceable

#### **Middle and High Temperature Anemomaster**

Probe Model 0203 (Middle temp. Up to 392°F (200°C)) Model 0204 (High temp. Up to 932°F (500°C))



#### Features:

- Simultaneous display of air velocity and temperature
- Improved response time by the addition of secondary temperature compensation circuit
- Easy review of time history by graphic display
- Memory function of maximum 999 separate measurement data
- Built-in RS-232 C serial interface for connection to PC. Analog output and remote control terminal also equipped
- Probe Compatibility feature allows you to change the probe easily

Model	Probe Model 0203 (for middle temp.)	Probe Model 0204 (for high temp.)				
	32 - 392F (0 - 200°C)	32 – 752F (0 – 400°C)				
Measuring Range	40 – 9840fpm (0.2 – 50m/s): 32 – 212°F (0 – 100°C)					
	80 –9840fpm (0.4 – 50m/s): 212 – 392°F (100 – 200°C)					
		138 – 9840fpm (0.7 – 50m/s): 392 – 572°F (200 – 300°C)				
		197 – 9840fpm (1.0 – 50m/s): 572 – 752°F (300 – 400°C)				
Measuring Accuracy	Air velocity:	+/-3%F.S.				
	Air temperature	+/-(1%rdg+1°C)				
Temp. Compensation	Less than 984fpm (5m/s): +/-10%F.S.	Less than 984fpm (5m/s): +/-15%F.S.				
Accuracy (Air Velocity)	984fpm(5m/s) to 9,840fpm(50m/s): +/-6%F.S.	984fpm(5m/s) to 9,840fpm(50m/s): +/-10%F.S.				
Heat-resistance	Teflon coating (F	robe side): 392°F (200°C)				
of Cable	Vinyl code (Exter	nsion cable): 176°F (80°C)				
Langth of Cabla	Teflon coating 4.9ft (1.5m)	Teflon coating 7.5ft (2.3m)				
Length of Cable	Vinyl code 16.4ft (5m)	Vinyl code 32.8 (10m)				
Extension Rod (Option)	0.65"(MAX)x31.5" (16.5x800mm)	0.87"(MAX)x81.5" (22x2070mm)				
Probe Dimensions	Dimension: φ 0.43"x8.2" (11x208mm)	Dimension: φ 0.43"x39.4" (11x1000mm)				
Display	Digital (simultaneous disp	play of air velocity and temperature)				
Input/output Terminal	Remote terminal: START/STC	P key				
	Analog output terminal: Output volta	ge 0 – 1 V, Output impedance 47 Ω				
	Digital output terminal: RS-232C (s	serial interface)				
Power Supply	Dry battery drive: US type (1.5V	x 6 pcs = 9V), Alkaline battery, Mn battery				
	AC adapter: 12.5V, 450	0mA (AC100V +/- 10%, 50/60Hz)				
Operating Temp.	41 – 1	04°F (5 – 40°C)				
Battery Life	Ap	prox. 8 hours				
Dimensions	8.7" x 3.3" x 5.9	" 220 x 85 x 150 mm				
Weight	Main body: Approx. 4.0lbs (1.8kg), Probe M	Model 0203: 7.1oz(200g), Model 0204: 17.6oz (500g)				

## **Multi-Channel Anemomaster Model 1550 & 1560**

#### **Real-Time Air Quality Monitoring System**

**NIST Traceable** 

Main Unit Features: One unit of Model 1550 has 64 Channels for air velocity. For a larger system, connect up to 5 units in a cascade and add a computer for control. Capable of 320 channels. Flexibility in system configuration means greater freedom, simplicity, and efficiency in measurement



#### **Module Features:**

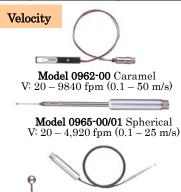
Five types of modules add more freedom to system configuration.

- · 4-channel air velocity module Model 1504
- 2-channel air velocity and temperature module Model 1511
- 1-channel air velocity, temperature, and humidity module Model 1512
- Static pressure module Model 1503
- Analog output module Model 1510

Combine these modules and design a multi-channel system freely. More modules can be added whenever necessary

#### **Specifications**

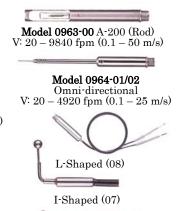
Model	1550	1560				
Display	LCD (with backlight) Simultaneously displays on a module basis					
	MAN: Select modules by operating the UP/DOWN switches					
	AUTO: Automatically selects modules every 2 seconds to display data					
Functions	Burst Mode: Transfers data of all channels at high speed					
Channel Mode: Transfers data of the specific channel only						
	Data Selection: Outputs instantaneous values ev	very specified sampling time, and outputs the average				
Interface	Data transfer: RS232C (standard), extended	ended RS232C (optional) and GP-IB (optional)				
	Baud Rate: 300, 600, 1200, 24	400, 4800, 9600, 19200bps(selectable)				
	Printer output: Centronics (the system prints data only of the module display, every 2 seconds.)					
Dimensions	16.9" x 19.6" x 5.5" (430 x 500 x 140 mm) 8.9" x 12.8" x 5.5" (226 x 325 x 140mm)					
Weight	Approx. 22lbs (Approx. 10kg) Approx. 11lbs (Approx. 5kg)					





L-Shaped (04)

I-Shaped (03)



Model 0965-07/08 Miniature with Independent Temperature Compensation V: 20 – 4920 fpm (0.1 – 25 m/s)

#### Velocity & Temperature



Model 0962-21 Caramel V: 20 – 9840 fpm (0.1 – 50 m/s) T:  $32 - 212^{\circ} F (0 - 100^{\circ} C)$ 

Model 0963-21 A-200 Rod

Model 0965-21 Spherical V: 20 – 4920 fpm (0.1 – 25 m/s) T: 32 – 212°F (0 – 100°C)

#### Velocity, Temperature, & Humidity



Model 0963-31 A-200 Rod V: 20 - 9840 fpm (0.1 - 50 m/s) T:  $32 - 140^{\circ} \text{F } (0 - 60^{\circ} \text{C})$ H: 5 – 95%RH

V: 20 – 9840 fpm (0.1 – 50 m/s) T: 32 – 212°F (0 – 100°C)

 $\begin{array}{c} \textbf{Model 0965-31} \ Spherical \\ V:\ 20-9840\ fpm\ (0.1-50\ m/s) \\ \end{array} T:\ 32-140\ ^{\circ}F\ (0-60\ ^{\circ}C) \end{array}$ H: 5 – 95%RH

#### Modules





Model 1504

V Module 4 ch.

Model 1511





Model 1512 TVH Module 1 ch.

Model 1503

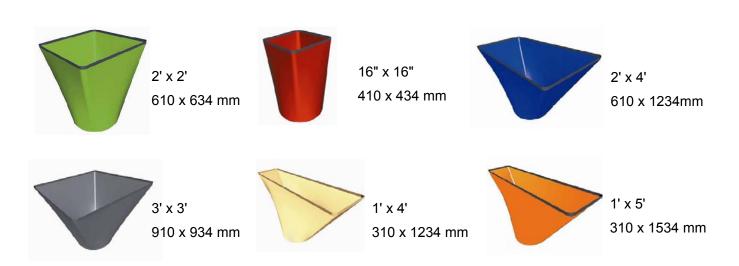
Model 1510 Pressure Module 2 ch. Analog Output Module

## **Tabmaster**



#### Features:

- Designed For Maximum Contractor Productivity
- 30 hour battery life
- · Largest selection of hoods in the industry
- Displays air volume flow, velocity and temperature in metric or imperial measurements
- Self-averaging, measuring sensor complies with ISO 3966
- Detachable meter can be used with optional 4" rotating vane kit for face velocity measurements
- Optional 4" vane head and Aircone Hood Kit
- Display indicates supply or exhaust flow-Memory, avg/max/min/sum, communication to Windows® via RS232 serial port
- Folding hood frame, no onsite assembly required
- 4 handle locations available (2 handles included)
- Measurements down to 50 cfm without a low flow screen
- Durable rubber grill seal outlasts typical foam seals.
- True ambient readout. Displays flow in actual or standard CFM with onboard conversion via user input of temperature and pressure



Volume Flow	50-2400 cfm, 85-4078 m3/hr., 24-1133 l/s
Velocity Range (using 100 mm head)	50-6000 ft/min, 0.25-30 m/sec
Display Resolution Volume	1 CFM, 1m3/hr, 1 l/sec
Temperature	1°F, 0.1°C
Weight (Instrument and 2'x2' hood)	9.7 lbs., 4.4kg
Memory Locations	99
Output	RS232
Battery Type/Life	4xAA Alkaline 35 hours
Standard	Volume flow kit with 2x2 foot hood, soft case
Options	Fabric Hood (Red, Yellow, Orange, Blue, Gray) Carrying Case, 4" vane kit

## **Airflow Transducer Model 6332 & 6332D**



#### Features:

- 10 interchangeable probe options
- Probes quickly and easily attach/detach
- Digital Display Option (model 6332D)
- Selectable Output (Output can be set to either voltage (0 to 5V) or current (4 to 20mA))

#### **Main Unit Specifications**

Measuring Object	Clean air and compatible, non-combustible gases				
Measuring Range	Maximum range 0.1 ~ 50 m/s (Range dependant on probe type*)				e*)
Measuring Accuracy			± (3% of reading + 0.1)	m/s	
Tomporatura		0.1-4.99m/s	5.00-9.99m/s	10.0-24.9m/s	25.0-50.0m/s
Temperature	5~40°C	±0.25m/s	±0.50m/s	±1.25m/s	±2.50m/s
Compensation Range	40~80°C	±0.35m/s	±0.70m/s	±1.75m/s	±3.50m/s
Selectable Output	(Set vi	a onboard Dipswitch).	Current output: DC 4~2	20mA (Max. load resista	ance: 250Ω)
Option		Voltage o	utput: DC 0~5V		
Selectable Range			(Rotary Switch selecta		
Option	0~2, 0~5, 0~10, 0~25, or 0~50 m/s				
Display Resolution	Velocity Range: 0~2, 0~5, 0~10 m/s → Display Resolution: 0.01m/s				
(Model 6332D only)	Velocity Range: 0~25, 0~50 m/s → Display Resolution: 0.1m/s				
Power Supply		DC 12~24V			
	Approx. 2.0W (U		ditions - power supply:		x. 10m/s, using a unit
Power Consumption		with a display with probe model 0965-03.)			
(Reference Value)	Power consumption rate is subject to change according to conditions such as air velocity, probe type and use of display.				
Connection Wire Size	0.5 ~ 1.5 mm <sup>2</sup>				
Temp Range	Operating Temp: 41 to 104°F (5 to 40°C), Storage Temp: 14 to 122°F (-10 to 50°C)				
Dimensions	Approx. 5" x 3.1" x 1.2" (128 × 78 × 30 mm)				
Weight	Approx. 11oz (320g)				
Standard Accessories	Operation Manual : 1, Main Unit Case: 1				
Optional Accessories	Probe Cable (33ft (10m), 66ft (20m), 98ft (30m)), Display Unit (Supplied with a case with a display window and 2 installation screws.), Dedicated AC Adapter (DC12V)				

#### **Probe Specifications**

MODEL	Measuring Range	Sensor Type
0962-00, 0963-00	0.1~50.0m/s	Uni-directional
0964-01, 0964-02	0.1~50.011/5	Omni-directional (Needle)
0965-00, 0965-01	0.1~25.0m/s	Omni-directional (Spherical)
0965-03, 0965-04	0.1~25.0m/s	Mini-temperature-compensation-sensor integrated type Omni-directional (Spherical)
0965-07, 0965-08	0.1~25.011//\$	Mini-temperature-compensation-sensor independent type Omni-directional (Spherical)

## **Airflow Transducer Model 6312**

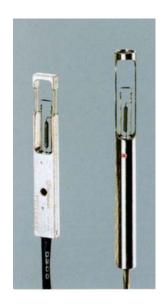


#### Features:

- Keep high quality of products by airflow control
- Maintain cleanliness by airflow control
- For creation of comfortable environment
- Optimal for various air-conditioning (air velocity and airflow rate) control equipment
- Space saving design
- Traceable certificate available
- Current output range is 4 to 20mA

#### **Main Unit Specifications**

	00 0045 (0.4 0.0 4)		
Air Velocity Measuring Range	20 – 394 fpm (0.1 – 2.0 m/s)		
All velocity weasuring rearige	Accuracy: +/-30fpm (0.15m/s)		
Temp. Compensation	64 – 82°F (18 – 28°C)		
Signal Output	4 – 20mA		
Power Supply	DC 24V		
Operational Conditions	Clean airflow with normal temperature and humidity		
Accessories	Probe Cable: 16 feet (5m)		



#### **Probe Specifications**

Model	0941	0942
Dimensions	0.2" x 0.4" x 3.0"	φ <b>0.4</b> " x <b>4.3</b> "
	(5.5 x 11 x 75mm)	( φ 11 x 108mm)
Quality of material	Molded Resin	SUS

## **Thermohygrometer Model 6841**



## Indoor Environmental Measurement Products Quality Control

#### Features:

- Ultralight and palm-size
- •Easy to use (Select temperature, humidity, or power on/off)





Measuring Object		Clean airflow	
Measuring range	Temperature	-4 to 113°F (-20 to 45°C)	
	Humidity	5 to 95%RH	
Display resolution	Temperature	0.1°F or 0.1°C	
	Humidity	0.1%RH	
Accuracy	Temperature	+/-0.9°F (+/-0.5°C)	
	Humidity	+/-3%RH	
Responsiveness		30 sec	
Measuring Function		Conversion between °F and °C	
Dimensions	Main Unit	Approx. 2.4" x 4.7" x 1.3" (60 x 120 x 34mm)	
	Probe	Approx. φ 19 x 170mm	
	Cable	Approx. φ 3.3 x 1.5m	
Power Supply		AAA Battery x 4 (Mn, Alkaline, or Ni-Cd)	
Operating Environment	Main Unit	41 to 104°F (5 to 40°C)	
	Probe	-4 to 113°F (-20 to 45°C)	
	Storage	14 to 122°F (-10 to 50°C)	
	Temperature		
Weight (including batteries)		Approx. 6.3oz (180g)	
Accessories		AAA Mn batteries x 4	

#### Thermohygrometer, Sounds / Noise Measurement

## **Digital Sound Level Meter Model 4120**



#### Features:

- · Lightweight and compact design.
- "A", "C", and "Z" weighting modes.
- Utilizes a 30 to 130 dB measurement range.
- Equipped with RS232C terminal.
- Measures Lq, Leq, LCpeak, Lmax.
- Meets IEC 651/804 Type 2 Standards
- Fast and Slow selectable response time.
- Comes complete with wind shield and carrying case

Pattern Approval  No.SLS041  Measurement Law Common Sound Level Meter IEC 606651: 1979 60804: 2000 TYPE II IEC/CDV 61672-1 CLASS2  Instantaneous value: Lq Equivalent noise level: Leq, Lmax, Lc peak Measuring function  Measuring time: 10 sec, 1, 5, 10, 15, and 30 min, 1, 8, 12, and 24 hrs Manual Max. measuring time: 199 hrs 59 min 59 sec
Applicable standards  IEC 606651 : 1979 60804 : 2000 TYPE II  IEC/CDV 61672-1 CLASS2  Instantaneous value : Lq  Equivalent noise level : Leq, Lmax, Lc peak  Measuring function  Measuring time : 10 sec, 1, 5, 10, 15, and 30 min, 1, 8, 12, and 24 hrs
IEC/CDV 61672-1 CLASS2  Instantaneous value : Lq  Equivalent noise level : Leq, Lmax, Lc peak  Measuring function  Measuring time : 10 sec, 1, 5, 10, 15, and 30 min, 1, 8, 12, and 24 hrs
Instantaneous value : Lq Equivalent noise level : Leq, Lmax, Lc peak Measuring function Measuring time : 10 sec, 1, 5, 10, 15, and 30 min, 1, 8, 12, and 24 hrs
Measuring function  Equivalent noise level : Leq, Lmax, Lc peak  Measuring time : 10 sec, 1, 5, 10, 15, and 30 min, 1, 8, 12, and 24 hrs
Measuring time: 10 sec, 1, 5, 10, 15, and 30 min, 1, 8, 12, and 24 hrs
Walidal Wax. Hedsdring time. 199 his 99 him 99 see
Measuring level A-weighting 30 - 130dB, C-weighting 36 - 130dB, Z- weighting 40 - 130dB
Self-noise level A-weighting 22dB or less, C-weighting 30dB or less, Z-weighting 32dB or less
Linearity range 75 dB or more
Range 60 - 130dB, 30 - 100dB
Frequency range 20 - 8000Hz
Microphone 7052NB 1/2" electret condenser Microphone
Frequency correction circuit A-weighting, C-weighting, and Z-weighting
Effective value detecting circuit Genuine effective detecting circuit (digital computing method)
Dynamic characteristics Fast (125ms), Slow (1s)
Sampling cycle 41kHz (24uS)
Computing Digital form
Built-in memory  Stores instantaneous values or computed values in memory
Data capacity 4KB
LCD with backlight, Numerical value: 4-digit display, Display cycle: 1 sec, Bar
display Display cycle: 0.1 sec, Warning Over: Overload signal (displayed when value exceeds a range), Under: Under-load signal, displayed when the value fa
under a range, Battery voltage: 4-level residual display
AC output: AC/DC OUT connector, Output voltage: Approx.1Vrms (FS), Output
resistance: Approx.600 $\Omega$ , Load resistance: 100k $\Omega$ or more, DC output: AC/DC C
Output Connector, Output voltage: Approx.2.5V (FS), 0.25V/10dB, Output resistance.
Approx.600 $\Omega$ , Load resistance: 100k $\Omega$ or more
Sound level meter control and data output by computer (direct output to printer
I/O terminal Interface: RS-232C (asynchronous), Data length: 8 bit, Stop bit: 2 bits, Parity: No Transmission speed: 4800, 9600, 19200
Power supply 2 AAA batteries or AC adapter, Battery life: approx. 7 hrs (alkaline AAA batterie
Opening temperature range -10-50°C, 30%-90%RH (no condensation)
Size and Weight 6.6" x 1.9" x 0.9" (168×48×23.5mm), Approx. 4.4oz (125g) (w/ batteries)

#### Thermohygrometer, Sounds / Noise Measurement

## **Digital Sound Level Meter Model 4430**



#### Features:

- Lightweight and compact design.
- "A", "C", and "F" weighing modes.
- Utilizes a 28 to 130 dB measurement range.
- Equipped with RS232C terminal.
- Store up to 15,000 data to built-in memory.
- Meaures Lp, Leq, Le, Lmax, Lmin and Lx.
- Equipped with highly sensitive electret condenser microphone
- Meets IEC 651/804 Type 2 Standards
- Fast, Slow and Impulse selectable response time.
- Large 4 digit display with 0.1 dB resolution with backlighting and an analog bar graph.
- Comes complete with windshield and carrying case

	28 - 130 dB (A), 39 - 130 dB (C), 44 - 130 dB (F)		
	20 Hz - 8 kHz		
	Model 7052N 1/2" Electrets Condenser Microphone		
	100 dB		
g	"A", "C", and "F" Selectable		
	FAST, SLOW, and IMPULSE Selectable		
	Lq, Leq, LAe, Lmax, Lmin, Lx (L5,L10, L50, L90, L95)		
tomatic	1sec, 3sec, 5sec, 10sec, 1min, 5 min, 10min, 15min, 30min, 1hr, 8hrs, 24hrs		
anual	Maximum 199hrs 59min 59sec		
	20.8us (Leq), 10ms (Lmax, Lmin)		
	100ms		
	4 Digits, 128 x 64 dots LCD		
	Every 1 sec		
	Approximately 10,000 samples (1000 sets)		
	1 kHz Sine Wave (Built-in)		
ıtput	1Vrms (FS)		
pedance	600 Ohm, load impedance>10 kOhm		
ıtput	2.5V (FS), 0.25V/10dB		
pedance	50 Ohm, load impedance>10 kOhm		
	RS232C (Baud Rate 4800, 9800, 19200 bps)		
	4 x AA Size batteries or optional AC Adaptor		
uous)	20 hours (Alkaline batteries)		
ent	-10 - 50°C (14 - 122°F), 30% - 90% (w/o condensation)		
	3.3" x 11.2" x 1.9" (85 x 284 x 48 mm)		
cl.)	13 oz (370g)		
i i i	tomatic nual  tput pedance tput pedance ous)		

## IAQ Monitor, Gas Monitor

## **Indoor Air Quality Monitor Model 2211**

#### **Multi-Parameter Indoor Air Quality Monitor**



# IAQ Investigation Environmental Health and General Safety Thermal Comfort Measurements

#### Features:

- Simultaneously measure and log data with multiple parameters such as CO, CO2, Temperature, Relative Humidity, to monitor indoor air quality conditions
- Calculates Dew Point, Web Bulb Temperature, Absolute Humidity, Humidity Ratio and % Outside Air
- Built-in memory allows user to store multiple point measurements

#### Benefits:

- Easy user calibration with built-in calibration function
- Capable to continuously monitor parameters via PC
- Large LCD shows multiple parameters at a glance

opcomoation				
CO		0 – 500PPM		
CO	Accuracy	+/-3% of reading or 3PPM whichever is greater		
000	Range	0 – 5000PPM		
CO2	Accuracy	+/-3% of reading or +/-50PPM whichever is greater		
T	Range	-4 – 140°F (-20 – 60°C)		
Temperature	Accuracy	+/- 1°F (+/-0.5°C)		
Relative	Range	2 – 98%RH		
Humidity	Accuracy	2 – 80%RH: +/-2%RH, 80 – 98%RH: +/-3%RH		
	No and all Marile	Normal measuring: Relative humidity, CO, CO2, Dew point, Wet bulb temperature,		
	Normal Mode	Absolute humidity, and Humidity Ratio		
Functions	Calculation Mode	Store the data, and calculate the maximum, minimum and average value		
Functions	% OA Mode	Measure ventilation ratio		
С	Data Output Mode	Perform re-calculation of stored data and output of data to PC and Printer.		
C	Calibration Mode	Perform the calibration of CO and CO2.		
Outputo	Digital	RS-232C (Baud rates:4800,9600,19200,38400bps)		
Outputs	Analog (Option)	DC0~1V (Select 1 ch among CO, CO2, temperature, and relative humidity)		
Power Supply	,	AA Battery×6 (Alkaline or Ni-Cd), AC adapter:AC100~240V (50/60Hz)(Optional)		
Battery Life		Approximately 10 hours (at 77°F (25°C) with alkaline batteries, without RS232C)		
Operating	Main Body	41-104°F (5~40°C)		
Environment	Probe	- 4 - 140°F (-20∼60°C)		
Storage Envir	onment	- 4- 140°F (-20∼60°C)		
Standard Kit		Mn Battery ×6, Probe stand, Calibration cap, Connection tube		
Optional Acce	essories	Analog Output, Serial Printer, Communication Cable (For Computer and Printer),  AC Adapter		

## **Aeroqual Series 200**

#### **Multi-Sensor Handheld Gas Monitor**



The Series 200 can be hand held or fixed in position. It is a simple, easy-to-use, low-cost monitor that displays the gas concentration. The monitor is compatible with the full range of Aeroqual gas sensors

#### **Monitor Base Specification**

Measurement units	ppm
Power supply	12 VDC, 800 mA
Rechargeable battery pack (2 x options)	Standard 9.6V ( 940mA/hr Ni-Cd), Long Life 9.6V (2100mA/hr Ni-MH )
Permanently fixable	Screw fix
Enclosure rating	IP20 & NEMA 1 equivalent
Size (with sensor head)	7.6 x 4.8 x 2.1 (in); 195 x 122 x 54 (mm)
Weight (with sensor head and battery)	< 16 oz; < 460 g
Functions	Remote sensor capability , Removable / replaceable sensor head, Low battery indication, Sensor condition status, Standby mode
Approvals	Part 15 of FCC Rules, EN 50082-1: 1997, EN50081-1: 1992

#### **Sensor Head Specification**

	Ozone			VOC*	Ammonia	со
	Low	High	Leak			
Measurement range	0.000 - 0.500 ppm	0.50 - 20.00 ppm	0.00 - 50.00 ppm	0 to 400 ppm toluene	0 to 1000 ppm	0 to 2000 ppm carbon monoxide
Accuracy	< 0.008 ppm (0 - 0.100 ppm) ±10% (0.100 – 0.500 ppm)	±10% (0.20 - 2.00 ppm) ±15% (2.00 - 20.00 ppm)	±20%, 15 seconds after Reset	< ±10 ppm (0 – 200 ppm); < ±10% ( > 200 ppm)	< ±5 ppm (0 – 100 ppm); < ±10% (100 – 1000 ppm)	< ±10 ppm in the range 0 to 400 ppm
T90 response	< 60 seconds (T90)	< 35 seconds (T90)	< 10 seconds	< 60 s	< 60 s	< 150s
Sensor type	Gas-sensitive semiconductor			Gas-sensitive semiconductor	Gas-sensitive semiconductor	Gas-sensitive semiconductor
Operating temperature range	23°F to 122°F; -5°C to 50°C (sensor head and base unit)			-4°F to 140°F; -20°C to 60°C	-4°F to 140°F ; -20°C to 60°C	32°F to 158°F; 0°C to 70°C
Operating relative humidity range	95% maximum (sensor head and base unit)		5 to 95% non-condensating	5 to 95% non-condensating	5 to 95% non-condensating	
Approvals					UL 2034, BS 7860	

<sup>\*</sup> Specific Calibrations to other VOC's available - contact Kanomax Sales

## IAQ Monitor, Gas Monitor

## **Aeroqual Series 300 & 500**

#### **Multi-Sensor Handheld Gas Monitor**



The Series 300 can be hand held or fixed in position and provides a high level of functionality & monitoring capability.

The Series 500 includes the same features and functionality of the Series 300 but with the added feature of onboard and PC data logging.

#### **Monitor Base Specification**

Measurement units	ppm or mg/m3
External signal for alarms & control	Transistor output, 150 mA max
External signal functions	Low Alarm, High Alarm & Control
Analog output	0 - 5 V
Power supply	12 VDC, 800 mA
Rechargeable battery pack (optional)	9.6V Ni-MH (5 hours operation)
Permanently fixable	Screw fix
Enclosure rating	IP20 & NEMA 1 equivalent
Data interface with PC (Series 500 only)	Serial RS232
On Board Data Logging (Series 500 only)	8,000 data points
Size (with sensor head)	7.6 x 4.8 x 2.1 (in); 195 x 122 x 54 (mm)
Weight (with sensor head and battery)	< 16 oz; < 460 g
Functions	Remote sensor capability, Removable / replaceable sensor head, On-board alarm, Alarm status displayed, Low battery indication, Alarm mute function, Sensor condition status, Standby mode
	(Series 500 only): Data logging independent of PC, Data logging direct to PC, On-board real-time clock, Data logging software supplied
Approvals	Part 15 of FCC Rules, EN 50082-1: 1997, EN50081-1: 1992

#### **Sensor Head Specification**

	Ozone			VOC*	Ammonia	со
	Low	High	Leak			
Measurement range	0.000 - 0.500 ppm	0.50 - 20.00 ppm	0.00 - 50.00 ppm	0 to 400 ppm toluene	0 to 1000 ppm	0 to 2000 ppm carbon monoxide
Accuracy	< 0.008 ppm (0 - 0.100 ppm) ±10% (0.100 – 0.500 ppm)	±10% (0.20 - 2.00 ppm) ±15% (2.00 - 20.00 ppm)	±20%, 15 seconds after Reset	< ±10 ppm (0 – 200 ppm); < ±10% ( > 200 ppm)	< ±5 ppm (0 – 100 ppm); < ±10% (100 – 1000 ppm)	< ±10 ppm in the range 0 to 400 ppm
T90 response	< 60 seconds (T90)	< 35 seconds (T90)	< 10 seconds	< 60 s	< 60 s	< 150s
Sensor type	Gas-sensitive semiconductor		Gas-sensitive semiconductor	Gas-sensitive semiconductor	Gas-sensitive semiconductor	
Operating temperature range	23°F to 122°F ; -5°	°C to 50°C (sensor h	ead and base unit)	-4°F to 140°F; -20°C to 60°C	-4°F to 140°F ; -20°C to 60°C	32°F to 158°F; 0°C to 70°C
Operating relative humidity range	95% maxim	um (sensor head ar	nd base unit)	5 to 95% non-condensating	5 to 95% non-condensating	5 to 95% non-condensating
Approvals						UL 2034, BS 7860

<sup>\*</sup> Specific Calibrations to other VOC's available - contact Kanomax Sales



## **Tracer Gas Hardware**

#### As Per ANSI/ASHRAE Standard 110-1995



## IAQ Investigation Industrial Hygiene Quality Control

#### Features:

The Kanomax tracer gas diffuser is for use in performing the Tracer Gas test in accordance with ANSI/ASHRAE Standard 110-1995. Our diffuser is an improved design and meets the specifications of Standard drawing #110-83M. The diffuser is placed in the fume hood and sulfur hexafloride gas is injected at a supply pressure of 30 psig. The internal critical orifice ensures a flow rate of 4 liters per minute. Other orifice sizes can be inserted. Also available is the Kanomax model **Dif-Kit**.

The Dif-Kit supplies all the required hardware from the cylinder regulator to the diffuser. This includes the diffuser, tank regulator, in-line flow meter, shut-off valve, pressure gage, and 25 ft. of tubing. The in-line flow meter provides a secondary verification of flow rate to the critical orifice, as required by the Standard, so as to alert the user to any clogging or wear of the orifice. The orifice and other components are serviceable by Kanomax.

Critical Orifice	4 or 8 Liter Per Minute (4Lpm Standard)
Regulator	Dual Stage, Specialty Gas
Flow Meter	Calibrated 150mm/200psi, Glass Tube
Pressure Gage	Large Dial, 0 to 60psi
Out the real	Rebuild Kit (includes new Critical Orifice, washers, Bronze Sinter Filter)
Options	8Lpm Swappable Ejector Base

## **Piezobalance Dust Monitor Model 3521**

**Respirable Aerosol Mass Monitor** 

NIST Traceable



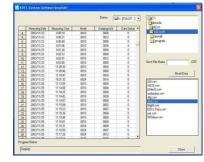
# IAQ Investigations Environmental Measurements Product Quality Control Laboratory Research

#### Features:

- Data logging ability allows user to log 500 samples
- Simple cleaning mechanism for easy maintenance
- RS232C port available as standard
- Back-lit display is easy to read in poor lighting conditions

#### Benefits:

- While conventional dust meters "count" particulates, the Piezobalance dust meter "weighs" mass concentration of particulates
- Data can be reviewed on-screen, printed or downloaded to a computer
- Software included for easy data download and processing
- · Easy operation requires no special training



Measuring Object	Airborn Particulate Matter < φ 10 μm	
Measuring Range	0.02-10mg/m3	
Sampling Flow Rate	1liter/min	
Managemin at Times	Preset: 120 sec or 24 sec	
Measuring Time	Manual: 10sec to 3600sec	
Accuracy	+/-10% of rdg +/-1 digit	
	Cleaning is required after every 10-20 measurements.	
Cleaning Frequency	"CLEANING" will appear on the display when it needs to be cleaned.	
Data Logging	Max 500 date and time stamped samples	
Digital Output	DC222C (Paud Pates 4000, 0000, and 40200)	
(To PC or printer)	RS232C (Baud Rates 4800, 9600, and 19200)	
Power Supply	AC (85V-240V) or DC Ni-MH battery	
<u> </u>	2.6" x 5.9" x 7.1"	
Dimensions	(65 x 150 x 180mm)	
Weight	Approx. 4.4lbs. (Approx. 2kg)	

## **Digital Aerosol Monitor Model 3431**

**Compact Dust/Aerosol Monitor** 

NIST Traceable



Indoor Air Quality Investigation Industrial Hygiene Health & Safety Applications Exposure Monitoring Manufacturing Process Control

#### Features:

- State-of-the-art components based on advanced light-scattering technology
- Compact and Light Weight
- · Easy operation

#### Benefits:

- · Accuracy is ensured to meet the latest needs of dust measuring in extremely clean indoor environments
- All measurements can be made with a touch of a button on the front panel.
- Allows the user to pre-enter the known concentration conversion value and let the unit automatically convert the dust count into mass concentration

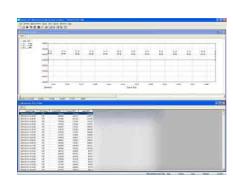
Measuring Method	Light Scattering Method
Measuring Object	Aerosol particles, φ 10μm or smaller
Measuring Range	$0.001-9.999$ mg/m3 (1 $-9999$ cpm, 1cpm= $0.001$ mg/m3 for $\phi$ $0.3$ µm stearic acid particles)
Accuracy	+/-10% of reading +/-1cpm (or 0.001mg/m3)
Linear Characteristics	+/- 5% of reading
Measuring Time	1 minute / 3 minutes / 10 minutes with built-in timer, and continuous mode
Light Source	Laser diode
Detector	Photo diode
Operationing Environment	35 – 104°F (5 – 40°C) under 85%RH
Display	4-digit LCD, dust count value (cpm), relative mass concentration value
In dia atawa	Cleaning, measuring mode, battery status, concentration conversion operation, zero point
Indicators	confirmation
Output	Analog output, 0 − 10,000cpm = 0 − 2.5V
Power Supply	AC 100V adapter and dry cell batteries (6 x AA batteries)
Dimensions	6.4" x 2.4" x 39" (162 x 62 x 100mm) not including the nozzles
Weight	2.2 Lbs. (1kg) not including batteries
Accessories	AC adapter, micro-screwdriver, alkaline dry cell batteries (6 x AA) shoulder strap
Options	Carrying case, Soft case, Analog output cable

## **Handheld Laser Particle Counter MODEL 3887**

NIST Traceable



Cleanrooms
IAQ investigations
Food Industry
Filter Testing
Aerospace
Hospital Surgical Rooms
Paint Spray Booths



#### Features:

- Displays 3 particle sizes simultaneously (0.3, 0.5, 5.0 um) in cf or m3
- Built-in flow sensor (0.1 CFM +/- 10%)
- User can log up to 8,000 measurements with easy transmission to PC or Printer.
- Fits in your palm

#### Benefits:

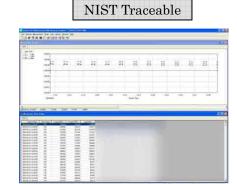
- Batteries can be altered with regular AA alkaline batteries
- Comes with a network capable of up to 8 units using optional Windows software as a standard accessory

•	
Measuring Particle Size	0.3, 0.5, 5.0um
Light Source	Laser Diode
Counting Efficiency	50% @ 0.3 um; 100% for particles > 0.45 um (per JIS B9921: 1997)
Zero Count	≤1 count / 5 minutes (per JIS B9921: 1997)
Coincidence Loss	<5% @ 2,000,000 particles/cf
Flow Rate	0.1 cfm (2.83l/min)
Sampling Time	1 sec to 99 minutes 59 sec (1 sec increments)
Sampling Frequency	1 to 99 times or Continuous
Count Alarm	1 - 70,000,000 counts
Mode of Measurements	Single / Repeat / Continuous / Calculation / Remote / ISO <c4< td=""></c4<>
Display	20 letters, 4 lines
Error	Max. concentration, Laser Power, Flow Rate and Battery
Interface	RS232C or RS485
Baud Rate	9600bps
Buffer Memory	8000 measurements
Power Supply	4 x AA NiMH battery or Alkaline, AC Adapter (100 - 240V)
Operating Hours	Approximately 3 hours (NiMH)
Dimensions	4.3" x 7.7" x 2.7" (108 x 196 x 68 mm)
Weight	1.5 lbs (680g)
Operating Conditions	50 - 95°F (10 - 35°C)
Accessories	AC Adapter, Zero Filter, Software, Communication Cable, 4xAA NiMH, Battery Charger
Options	Printer, Printer Cable, Carrying Case, Tripod

# Handheld Laser Particle Counter MODEL 3886 GEO- $\alpha$



Cleanrooms
IAQ investigations
Food Industry
Filter Testing
Aerospace
Hospital Surgical Rooms
Paint Spray Booths



#### Features:.

- Measures 5 particle sizes simultaneously (0.3, 0.5, 1.0, 3.0 and 5.0 um) in cf or m3, displaying 2 channels
- Built-in flow sensor (0.1 CFM +/- 10%)
- Temp./RH and Air Velocity probes available as an option
- Capable of measuring up to 4 parameters in one instrument.

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5 Size Channels		0.3 um; 0.5 um; 1.0 um; 3.0 um; 5.0um	
Flow Rate		0.1 cfm (2.83 l/min)	
Light So	urce	Laser Diode	
Calibrati	on	PSL particles in air	
Counting	g Efficiency	50% @ 0.3 um; 100% for particles > 0.45 um (per JIS B9921: 1997)	
Zero Co	unt	≤1 count / 5 minutes (per JIS B9921: 1997)	
Coincide	ental Loss	<5% @ 2,000,000 particles/cf	
Sampling	g Time	1 sec - 99 min 59 sec, 1 second increment	
Sampling	g Frequency	1 - 99 or continuous	
Count M	odes	Single, Repeat, Continuous, Calculation and Remote	
Display		20 letters, 4 line LCD	
Interface	;	RS232C or RS485	
Baud Ra	ite	9600 bps	
Buffer M	emory	500 sample records	
	AC Adapter	5VDC at 2.5A, 100 - 240VAC, 50 to 60 Hz	
Power	Rechargeable	4 x AA NiMH	
	Battery	3.5 hrs with 1600mAh batteries	
Vacuum	Source	Internal pump, flow controlled	
Dimensions		4.5" x 2.8" x 8.5" (115 mm x 70 mm x 211 mm)	
Weight		2.2 lbs (1 kg)	
Accessories		AC Adapter, Zero Filter	
Ontions		Isokinetic Probe, Air Velocity Probe, Thermal Printer,	
Options		Temperature/Relative Humidity Probe, Carrying Case	



# Cleanroom Monitoring IC Production HDD Testing MEMS

#### Features:.

- Condensation Nucleus Counter for continuous multi-point monitoring in cleanroom.
- $0.01 \mu$  m sensitivity.
- Less downtime by less alcohol replacement.
- Easy checking of the current status on the LEDs

#### Benefits:.

- Ideal for ultrafine particle detection
- Easy maintenance
- No more headaches in cleanroom using Propylene Glycol

Sensor-Counter Isolated Type
Vapor/Air Mixing Type Condensation Particle Counting
3×106 Particles/cf (100 Particles/cc)
0.01μm (50% Counting Efficiency)
0.02µm: 100% ± 10%
Less than 5% at 3,000,000 Particles/cf
0.1CFM (2.83L/min) ± 10%
4.2 ± 0.4L/min (Requires external vacuum source)
Propylene Glycol
Ready, Liquid Level, Flow, Optics, Particle
RS - 232C and RS - 485
Output for M/P or Analog Output
Temperature: 20~30°C ( 68~86°F )
Clean Air Environments (e.g. Clean Rooms)
9.8" x 9.8" x 11" (250 × 250 × 280mm) ( Excludes alcohol bottle )
Approx. 22lbs (10Kg)
AC100 ~ 240 V
AC Cable, Operation Manual, Alcohol Bottle ( 200cc ), Bottle Holder
Alcohol Bottle ( 1000cc ), Bottle Holder ( for 1000cc )

## Cleanroom Facility Monitoring

## Facility Monitoring Laser Particle Sensor MODEL 3792 NIST Traceable



# Cleanroom monitoring Pharmaceutical, Aerospace/ Defense Electronics, MEMS, Semiconductor Food processing Medical / Hospitals

#### Features:.

- 0.2um/0.3um sensitivity
- Built-in sonic nozzle for accurate and consistent flow
- Built-in LEDs for sensor status at a glance
- Compact stainless body
- Temperature/Relative Humidity sensors available as option
- Status LED shows Particle, LD Status, and Flow

Model		3792-01	3792-03	
Sampling A	Air Flow	2.83 l/min	1 l/min	
Sensitivity		0.2 μm, 0.3 μm	0.2 μm, 0.3 μm	
Condensat	ion Range	1,000,000 pieces / cf	3,000,000 pieces / cf	
	Type A	RS-485 Output Connector Type RS-485 IN Modular Connector 8-pin (rear panel) RS-485 OUT Modular Connector 8-pin (rear panel) Transmission Setting: DIP switch 8-pin (front panel) Address Setting(0-999): Rotary DIP switch, 10 positions x 3 (front panel) Multiplexer Output Connector Type: BNC Connector		
Output	Type B	4-20mAOutput Output: Data for 2 particle size ranges and Sensor Status Connector Type: D-sub Connector 9-pin (rear panel) Indicative Resolution: 1/1000 of the full scale Full Scale: 3 levels (100、10,000、1,000,000 pieces / cf) Full Scale Selection: Sliding DIP switch 8-pin (front panel) Multiplexer Output Connector type: BNC Connector		
Display		5-Digit LCD Optional Display unit available (needs to be a Condensation Display (Running Average for SIZE key gives selection of Particle size range)	r pre-set time) ge to monitor	
Status LED		PARTICLE: Turns Red when picking the sign STATUS: Steady Green when Optics are of FLOW: Turns to Green when Sampling	operating normally.	
Power Supply		AC 100V-240V		
Dimensions		4.6" x 5.3" x 6.7" (118×135×170 mm)  (Excluding sampling air nozzle on the upper surface and other interface outfit.  Also excludes rubber feet.)		
Weight		Approx. 6.6lbs	(Approx. 3kg)	

## Cleanroom Facility Monitoring

## **Facility Monitoring Laser Particle Sensor MODEL 3714/3715**

NIST Traceable





CR Facility Monitoring
Pharmaceutical
Aerospace/ Defense
Electronics
MEMS
Semiconductor
Food Processing
Medical / Hospitals

#### Features:

- 0.3um/0.5um for Model 3714 & 0.5 um /5.0 um for Model 3715 sensitivity
- Built-in sonic nozzle for accurate and consistent flow
- Built-in LEDs for sensor status at a glance

#### Benefits:

- Compact stainless body
- Temperature/Relative Humidity sensors available as option
- Status LED shows Particle, Status (LD), and Flow (Optional)

Model	3714	3715	
Particle Sizes	0.3um / 0.5um	0.5um/5.0um	
Flow Rate	0.1CMF	( 2.83 L/min )	
Concentration Range	0~1,000,	000 particles / cf	
Flow Control	Sonic nozzle (Requi	res external vacuum source )	
Light Collection	Laser-light-scattering, wide-	ange light collection by side mirror	
Light Source	780nm Las	780nm Laser diode (LD)	
Light Detector	Photodiode		
Status LED	PARTICLE, STATUS (LD), FLOW (Optional)		
Measuring Accuracy	+/-10% of reading		
Interface	RS-485		
Connector Type	RJ45 connector		
Power Supply	Supplied from the Distributor or Power Unit		
Dimensions	2.8" x 5.0" x 1.6"		
	(72 × 1	126 × 40mm)	
Weight	Approx. 2.2	Plbs (Approx. 1kg)	

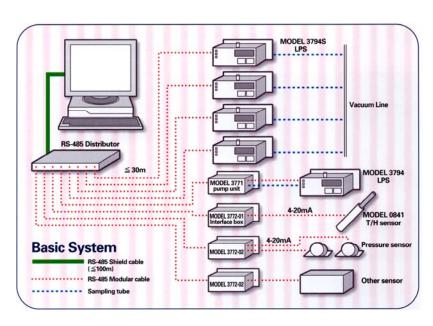
## Cleanroom Facility Monitoring

## **Cleanroom Monitoring System**



#### Features:.

- On-site monitoring of condensation by built-in LCD
- Light and compact body does not require large space
- · CPU loaded and RS485 output
- Steel stand and attachment plate for various installation needs
- Quick connect cabling via modular connection
- Simple vacuum tubing/pressure connected



- Compact laser particle sensor (LPS) with built-in LCD for continuous monitoring of aerosol level
- Multi-function, use-friendly monitoring software
- Reduced piping & wiring using a single compact pump for entire system
- Interface unit for environmental sensors such as temperature, relative humidity, differential pressure, etc.

#### **Distributor (Model 3770)**



Supplies power to a maximum of 8 sensors or interface units.

Input	8 channel RS-485	
Interface	Baud: 4800/9600/19200bps	
Power	AC 85-132V/170-264V	
	11.8" x 3.9" x 7.9"	
Dimensions	(300 x 100 x 200mm)	
Weight	Approx. 6.6lbs (Approx. 3kg)	

## Aerosol Research Instrumentation

## **Hand-held Condensation Particle Counter Model 3800**

NIST Traceable



Indoor Air Quality Investigation
Aerosol Research
Filter Tests
Environmental Monitoring for
Electronics
Food Processing
Pharmaceutical
Medical / Hospital, etc.

#### Features:

- 0.015 µm sensitivity
- Concentration range of 0 to 100,000 particles/cm3
- Programmable data-logging capabilities
- Power Supply can be selected from alkaline/Ni-MH battery or AC adapter
- Simple to download the data to your computer via USB

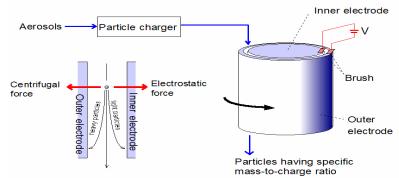
•			
Measuring Particle Size		0.015 to > 1μm	
Concentration Range		0 to 100,000 particles/cm <sup>3</sup>	
Counting Efficie	ncy	50nm: 100±20% (15nm: More than 50%)	
Zero Count		Less than 1 particle/ cm <sup>3</sup>	
Flow Rate		Aerosol Flow: 100cc/min	
		Total Flow: 700cc/min	
Alcohol	Туре	100% reagent-grade isopropyl alcohol	
Supply	Hours per Fill	Approx. 5 hours at 23°C (73° F)	
Absolute Pressi	ure Sensor	150 to 1150 hPa	
Mode of Measu	rements	Repeat / Program / Counter	
Display		Built-in LCD ( 128 x 64 dots)	
Interface		USB	
Buffer Memory		Max. 10,000 measurements	
Power Supply	Туре	6 pieces of AA-size Alkaline / Ni-MH battery or AC adapter (Input 100 – 240V)	
	Operating hours	Approx. 5 hours (By Alkaline batteries); Approx. 8 hours (By Ni-MH batteries)	
Environmental (	Operating	Ambient temperature range: 10 to 35°C ( 50 to 95° F)	
Condition			
Dimensions		4.7"(W) x 11"(H) x 5.1"(D) (120 x 280 x 130mm)	
Weight		Approx. 3.3lbs (1.5kg) ( without batteries )	
Standard Accessories		AC adapter, Zero filter , Alkaline battery×6, Operation manual,	
		Software(for Windows), PC Communication Cable, Carrying Case	
Options		Ni-MH battery(1.2V-2500mA) x 6, Charger x 2,	
·		Printer, Printer cable, Printer AC adapter	

## **Aerosol Particle Mass Analyzer Model APM-10**

This analyzer classifies the mass of a single aerosol based on the balance between centrifugal force and electrostatic power



## Diesel Exhaust Aerosol Research Nano-Particle Aerosol Research Atmospheric Aerosol Research Bio-Chemical Applications



#### Features:

The APM-10 classifiers particles for each particle size, based on the aerodynamic movement of the particles. This analyzer uses our own rotating mechanism and seal technologies, as well as taking into consideration the static effects and flow of the fluid.

#### **Main Body Specifications**

Classifying method	Classification is based on the balance between centrifugal force and static power.
Classifying mass range	Approx. $0.01 \sim 100$ Femto-gram (For particle concentration of 1g/cm3 approx. $40 \text{nm} \sim 500 \text{nm}$ , classification accuracy is within $\pm 30\%$ regarding center mass)
Double cylinder rotating	~8,000rpm
Double cylinder high voltage	~3,000V
Double cylinder dimensions	Inner cylinder diameter: 3.9" (100mm), Outer cylinder diameter: 4.1" (104mm), Cylinder length: 9.8" (250mm)
Sampling Flowrate	Above 1L/min
Dimensions	15.7" x 15.7" x 47.2" (400mm x 400mm x 1200mm)
Weight	Approx. 165lbs (75kg)

#### Control, Display

Control function	Rotation rate and applied voltage	
Display function	Applied voltage / Rotation rate / Differential pressure (Panel display)	
Control Method	Control by panel, Control by PC (By Manual / Remote Switch)	
Dimensions	16.9" x 16.9" x 11.8" (430mm x 430mm x 300mm)	
Weight	Approx. 55lbs (25kg)	
Power supply	AC100V、50/60Hz	

## **Smart LDV System**

### **High Quality and Compact LDV System**

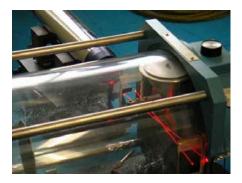
#### Features:.

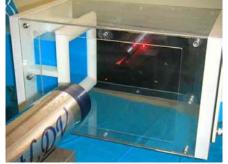
 The best device for precision PIV calibration and measurement of medium or low velocity

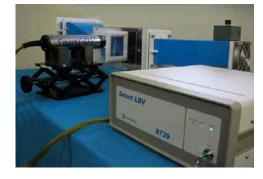
• Easy to use



Available velocity		-10m/s~30m/s (Please contact us for applications over 30 m/s.)	
	Laser	Laser Diode, $\lambda$ =635nm, 10mW	
	Focal Distance	150mm (Options: 170mm, 200mm, 250mm)	
	Measurement Volume	0.09mm×0.7mm	
Optics	Measurement Method	Back Scattering/Forward Scattering	
	weasurement wethou	(A retro reflector mirror is used with a standard model to obtain high signal quality)	
	Probe Size	60mm $\phi  imes$ 300mm	
	Shift frequency	0.01-10MHz (1-2-5step)	
	Signal Processing	8-bit FFT (512,256,128 points)	
Cianal	Frequency Range	1kHz∼40MHz (8 ranges)	
Signal	Max. Data Rate	8000 Measurements/sec	
	Effective Judgment	Burst spectrum ratio	
	Computer	IBM PC Compatible	
	Max. Number of Data	99,000	
Software	Real-time Monitor	Burst signal, Burst spectrum, Velocity histogram	
	Data Processing	Mean velocity, Turbulence intensity, Skew factor,	
		Flatness factor, Velocity histogram, Time history	
	Data Output	CSV Format	







## **Interferometric Laser Imaging Droplet Sizer (ILIDS)**



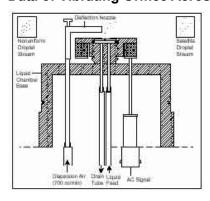
#### Features:

- Simultaneous measurement of diameter and velocity of individual droplets and bubbles
- Planer measurement
- · Applicable to high concentration sprays
- · Compatibility with PIV system

**Specifications** 

Method	Interferometric Laser Imaging		
Measuring Object	Droplets and Bubbles (spherical particles)		
Output	Diameter histogram, Velocity histogram, Relevant statistics values,		
	Droplet vector map, Diameter-velocity correlation		
Diameter Range	10 μ ~1mm (dynamic range 1:15, typical)		
Velocity Range	Up to 100m/s (typical)		
Field of View	2x2 mm~15x15mm(typical)		
Number Density	0~40,000/cm3		
Components	Dual YAG Laser(50mJ/pulse, typical), Digital CCD Camera(1Kx1K)		
	Pulse Controller, PC, Software		

#### **Data of Vibrating Orifice Aerosol Generator**



8000 80 80 80 600 200 40 50 Diameter[um]

Histogram

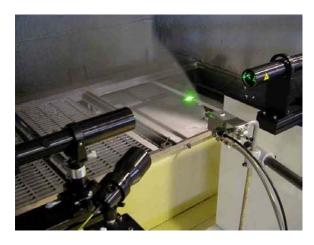
TSI-3450
Droplet Diameter=25.3mm
(calculated initial droplet diameter)

--Diameter--

D10 = 23.924mm D20 = 23.934mm D32 = 23.943mm Dia.Min = 9.998mm Dia.Max = 31.499mm Mode Dia. = 24.998mm Lower Dia. = 23.998mm 50% Dia. = 24.998mm Upper Dia. = 24.998mm

Imaging data

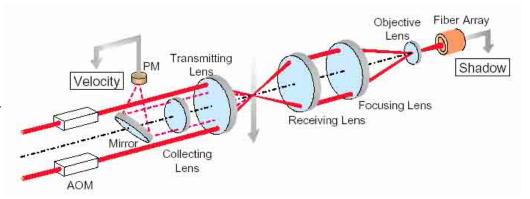
## **Shadow Doppler Particle Analyzer (SDPA)**



#### Features:

- The SDPA measures not only particle size but also shape. This
  means that the SDPA can be used for non-spherical particles.
- The measurement of particle shape is not affected by optical properties of the particles. This feature achieves greater freedom in measurement of particles in chemical reactions, paint spray, etc.
- The SDPA shows direction of the particle passage projected on the focal plane. Two dimensional velocity can be measured.
- The SDPA requires no calibration with particles of known size because all parameters necessary for measurement are obtained from the geometrical arrangement of the optical system.
- The SDPA provides accurate estimates of particle concentration from the position of particle trajectory.

Kanomax SDPA realizes simultaneous and in-situ measurement of shape and velocity of arbitrary shaped particles by combining conventional Laser Doppler Velocimetry (LDV) and the receiving optics that detect shadow images of particles with a linear fiber-array sensor.



Particle velocity is measured by the LDV (left half, above illustration). The two laser beams originating from the same source intersect each other at the focal point of the transmitting lens, forming the measuring volume for the LDV. Particles passing through the measuring volume give light scattering signals for velocity. Particle shape is measured by the receiving optics (right half, above illustration). The two laser beams cross at the secondary focal point. The image is magnified by the objective lens and projected on the linear image detector consisting of an array of 64 optical fibers, each of which is connected to an avalanche photo diode (APD). Shadow images of particles can be reconstructed from the temporal series of the "sliced" images.

Particle Concentration	103 particles/cm3	
Dynamic Size Range	15 to 1	
Particle Size Range	5 $\mu$ m to 1 mm	
Size Accuracy	4% (spherical), 10% (non-spherical)	
Particle Velocity 100 m/s (19,680 fpm) maximum		

## **Two-Dimensional FLV Optical System**

### **Laser Doppler Velocimetry (LDV)**



This system uses an Ar ion laser as a light source. You can select the probes in accordance with the focal distance.

System Component:
Ar Ion Laser, Optical Base, Optical Unit,
Two-dimensional FLV Probe

#### **Specifications**

#### Main Unit (Model 8835)

Frequency Shift		Double Brugg Cell	
Adjustment		Able to control the shift frequency, PM gain by using software	
Power Supply		AC 100V +/- 10% (Except Laser Transmitter)	
Dimensions	Optical System	n 16.5" x 5.1" x 9.1" (420 x 130 x 230mm)	
	Driver	14.3" x 6.0" x 14.3" (364 x 152 x 363mm)	
Weight	Optical System	Approx. 22lbs (10kg)	
	Driver	Approx. 15lbs (7Kg)	



Туре	B Type (Model 1892)	K Type (Model 1894)	N Type (Model 1895)
Focal Length	30mm	120mm	300mm
Output Beam Interval	5mm	30mm	50mm
Measurement Point Size	Approx. 0.1mm x 0.8mm	Approx. 0.1mm x 0.6mm	Approx. 0.1mm x 0.9mm
Size	e φ 12mm x L150mm		φ 80mm x L375mm

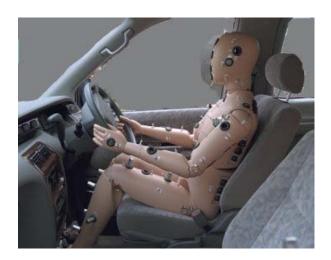
#### Signal Processor (Model 8008)



Signal Processing System	FFT	
Frequency Band	1kHz to 40MHz	
Input	Doppler signal 20mV to 1V	
Data Rate	16,000 Data/sec	
Compliance Computers	IBM PC compatible machine (DOS/V) CPU: at least Pentium III 500MHz Extended Slot: PCI full size (Correspondent amount of CH)	

## **Amenity Manikin**

#### For Automotive Interior Environmental Measurement



## R&D Design Engineering

#### Features:

The life sized Manikin is designed to accurately emulate the positioning of a driver or passengers torso, arms and legs while seated in the vehicle passenger compartment. Placement and positioning is simple and data collection can be started immediately. The Manikin deploys over 120 sensors that can be custom configured by the end-user on-sight. There are 4 sensor types to choose from that include Air Velocity, Air Temperature, Relative Humidity and Radiant Heat. The system components include the Manikin with built-in data processor, Sensors, Power and Data Transfer Unit, PC Interface, Monitoring PC and Data-Logging Software. Up to 2 Manikins can be linked to a single monitoring PC.

#### **Manikin Specifications**

Height Approx 5'7" (Approx. 170cm)	
Weight	88lbs (40kg) including data processor
Material Plastic (FRP)	

#### Sensor allocations (example)

	Air Velocity	Temperature	Relative Humidity	Radiant Heat
Head	4	12	1	3
Upper Torso	12	33	0	5
Lower Torso	20	33	1	4
Total	36	45	2	12

#### **Sensors Specifications**

Air Velocity	Range	20 – 984fpm (0.1 - 5 m/s)		
	A	20 – 394fpm (0.1-2m/s)	$\pm$ 10fpm (0.05m/s)	
	Accuracy	394 - 984fpm (2-5m/s)	$\pm$ 20fpm (0.10m/s)	
Tomporatura	Range	-22 – 212F (-30 - 100°C)		
Temperature	Accuracy	±4.6F (3°C)		
	Range	3-95%RH		
Llugaiditu	Accuracy	3-30%RH	±3%RH	
Humidity		30-75%RH	$\pm 2\% RH$	
		75-95%RH	±3%RH	
Radiant Heat	Wavelength	0.3-40µm		
	Range	0-1Kw/m2		
	Accuracy	±7%		



#### R & D / Test Instrument and System

## **Smoke Generator Model 8304**



High smoke concentration Best for Flow visualization, PIV, LDV





#### Option



Cmake Canacity	15-80 L/min	
Smoke Capacity	10 step variable	
Mist Size	0.3-1µm	
Remote Control	Heater temperature	
Liquid Non-toxic, water-soluble		

