KAIJO

WA-590
" MICROSONIC", CLEAN ROOM-USE 3 DIMENSIONAL ANEMOMETER

KAIJO SONIC CORPORATION

MICROSONIC WA-590

Measurement of 3-Dimensional Wind Velocity Components

Capable of measuring 3 dimensions by setting of 3 axes.WA-590,sole equipment available for the measurement of 3-dimensional wind velocities.

Measurement of 0m/ sec Wind Velocities

Free from self heating, capable of measuring true 0m/sec.

Fluctuating Tempefature/ Humidty Effect Free Observation

Theoretically zero error, free from the change in temperature.

Compact in Design, Small in Size and Light in Weight

No need of a large space for installation. Easy to move to the measurig location.
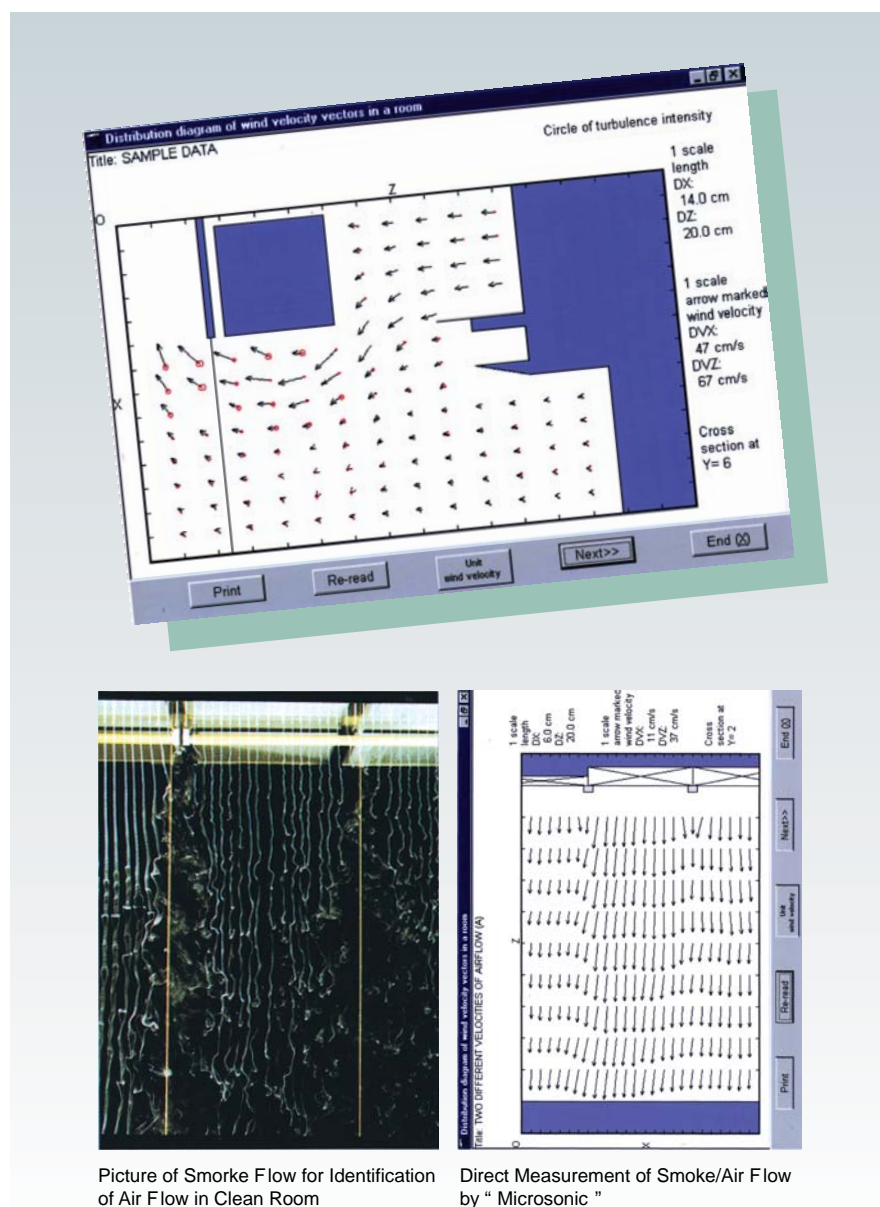
0.5 sec. in Response

5cm-span measurement at 0.5 sec response speed.

Measurement of turbulent Airflow

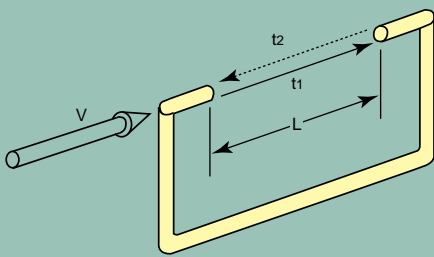Capable of measuring the tubulent airflow caused by the facilities, in the clean loom.

Digital output Capability in Standard Equipment

Picture of Smorke Flow for Identification of Air Flow in Clean Room

Direct Measurement of Smoke/Air Flow by " Microsonic"

PRINCIPLES OF ULTRASONIC WIND VELOCITY MEASUREMENT

When an ultrasonic pulse propagates in the air, its travelling time changes in proportion to the wind velocity.
The ultrasonic anemometer was manufactured in application of such principles. As per illustration, by use of 2 probe heads facing each other, sonic pulses are emitted alternatively flom these heads. The relationship between each plopagation time t1, t2 and the velocity is given by the following formula:
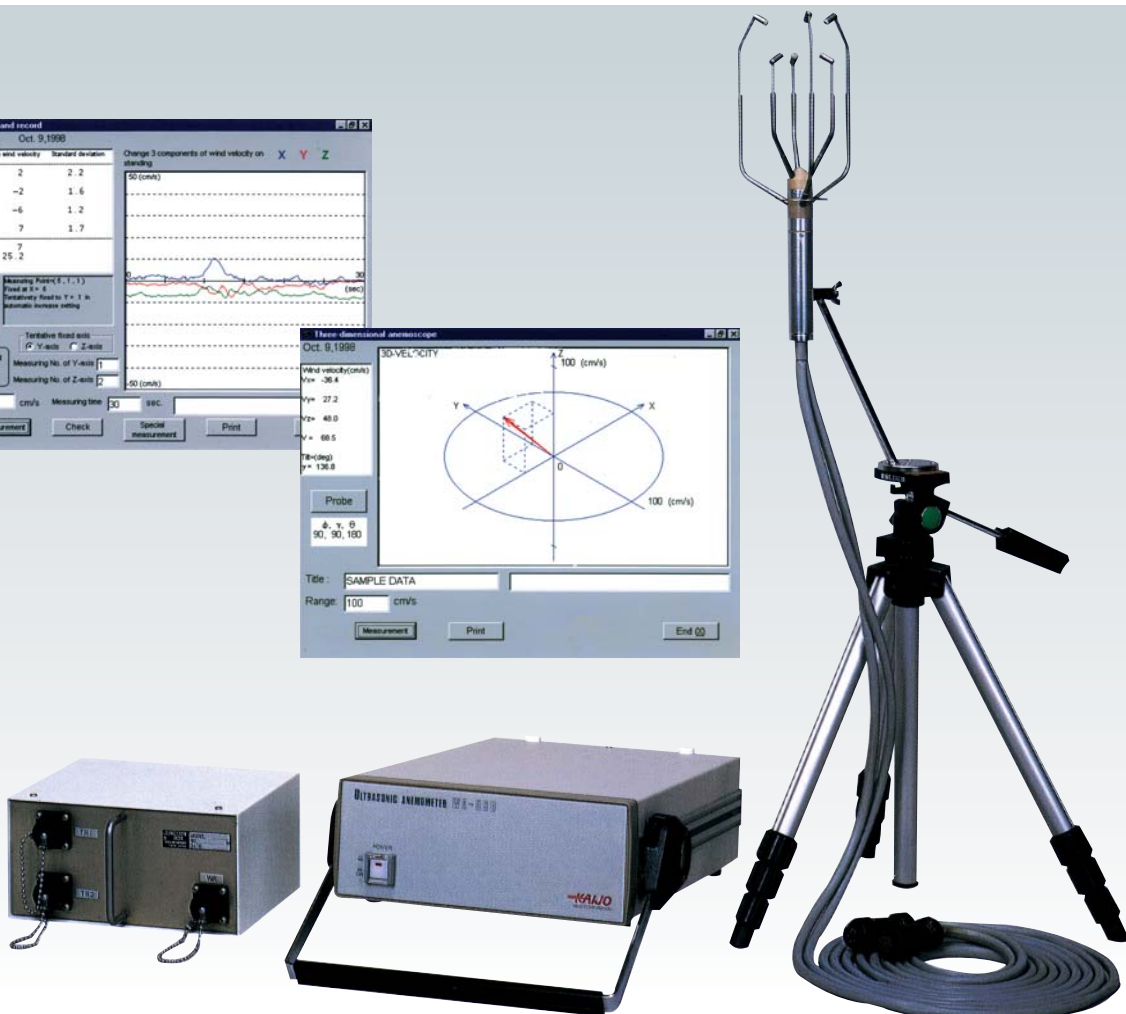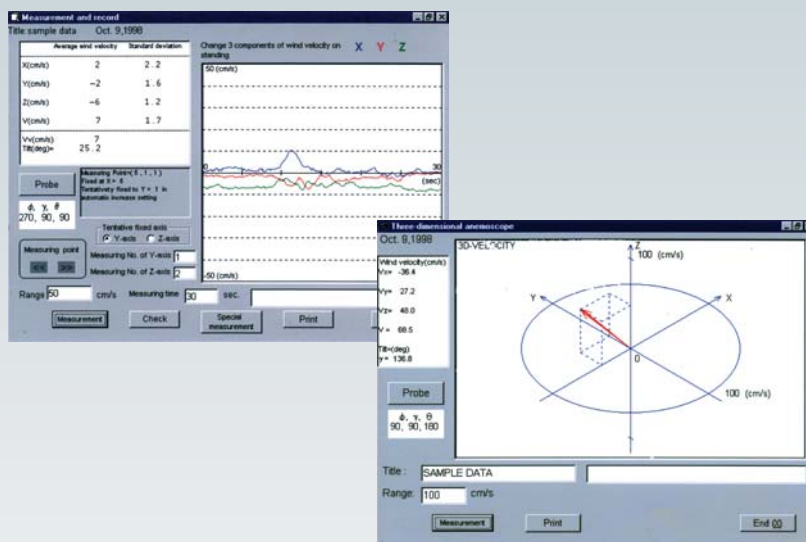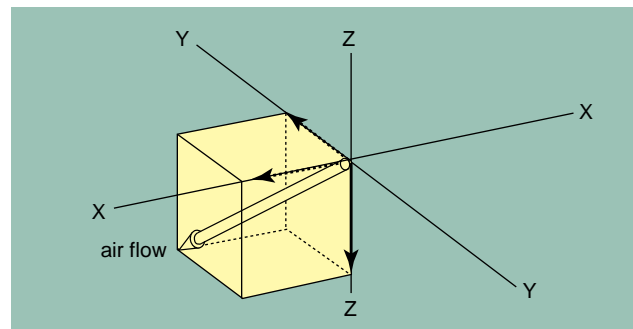
As known from the above, the wind velocity V can be obtained instantaneously from processing of t_1, t_2. Since t_1, t_2 and V are in the proportional relation, the output is completely linear. WA-590, free from the effect of the temperature and humidity because of L, only proportional constant, permist the wind velocity measurement in accuracy.

By the said formula "Microsonic" allows to measure componental wind velocities of 3 dimensional axes A, B and C, and produce outputs of 3 dimensional wind velocity components of vertical coordinates X, Y and Z by conversion of the coordinates.

$$t_1 = \frac{L}{C-V} \quad t_2 = \frac{L}{C+V} \quad V = \frac{L}{2}\cdot\frac{t_2-t_1}{t_1 t_2}$$

Where; V = sonic pulse propagating axial component of wind velocity
C = sonic speed in the air
L = span between probe heads

Configuration

Anemometer main body:	Model WA-590	1 set
Accessories:	AC power source	1 piece
	Power cord	1 piece
	Glass tube fuse 5A	2 pieces
Probe:	TR-90T type	1 set
Probe case:	Aluminum trank	1 set
Junction box:	0A-60T c type	1 set
Connection cable:	JCW-90 type	1 roll
Attached software:	WAS P-008	1 set

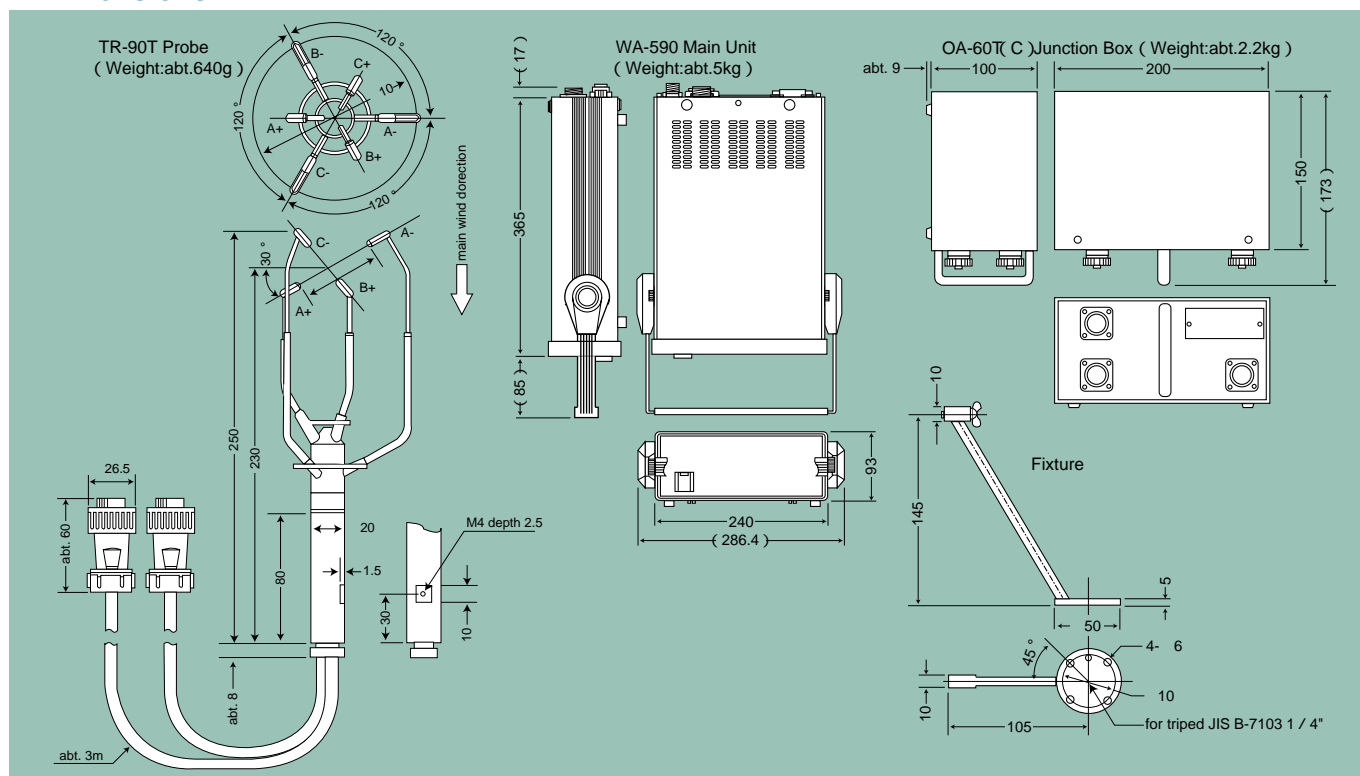## Basic Specifications

Measurement mode:	Time sharing transmission/reception switching type ultrasonic pulse emission
Operation mode:	Ultrasonic propagation reciprocal difference method
Measurement range:	10 m/s
Accuracy of operation:	± 2 +0.02m/s of absolute value of indicated value At main wind direction after measure zero adjustment
Resolution:	0.005m/s or less
Response speed:	0.5 sec.

Repetition of measurement:	10 times per second	
Digital output:	Output mode:	RS-232C
	Transfer speed:	9600 bps
	Transfer rate:	10 times per second
	Data form:	ASCII (6 bytes/measured component)
	Transfer data:	A,B,C
Environment Main unit	0 to 40 0% to 85% RH Without dew condensation	
Power source:	AC100V to 240V ± 10% 24VA, DC12V 9W	

Operating environment

model:	IBM PC/AT compatible models and PC-9821 series
OS:	Windows 95,98,NT4.0,2000.XP
CPU:	Pentium 75MHz or faster Pentium 100MHz or faster is recommended.
Memory:	16 Mbyt or more 32 Mbyt or more is recommended.
COM port:	Use COM 1 port

Windows 95,98,NT4.0,2000,XP is a trademark of Microsoft, U.S.A.

Dimensions

⚠**CAUTION FOR SAFE: Please read surely INSTRUCTION MANUAL before operate**
Specification is subject to change without prior notic for improvement.