



ANEMOMASTER

MODEL A003/A004

INSTRUCTION MANUAL



Read carefully and understand the warnings described in the main text of the manual before using this instrument.

KANOMAX USA, INC.

Please keep this manual in a safe place so you can refer to it at any time.



No.600302
May 2005

Thank you for purchasing this Kanomax product.

Please use this instrument properly by reading the instruction manual and following the warning instructions.

Before you use

We set following kinds and meanings of warnings in our manual.

[Explanation of indication]



Danger : To prevent accidents.

Indicate “Danger” when misuse can cause accidents.



Caution : To prevent damages to products.

If you use this product ignoring this caution, it may damage the product and our warranty may not be applied.

[Explanation of pictorial symbols]



△Symbols show you to be careful when in use. You will find meanings below.

(On the left : Caution, hot surface)



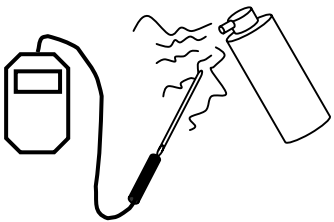


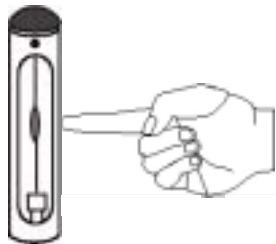


⊘shows you that action is prohibited.

(On the left : Do not disassemble.)



●symbol request or instruct you to take a certain action. Individual instructions are given beside this symbol.

 DANGER	
<p>○ Never put the probe into the atmosphere of flammable gas.</p> <p>..... The heated section of the probe may cause a fire and/or explosion.</p>	<p style="text-align: center;"> Do not use near flammable gas</p> 
<p>○ Never touch sensor.</p> <p>..... The sensor will be heated to the temperature where you can burn yourself.</p>	<p style="text-align: center;">  Hot surface Don't touch</p> 

 **DANGER**

- Do not take apart or heat batteries, or throw them into a fire.
- It may explode batteries.



Explosive



Use properly



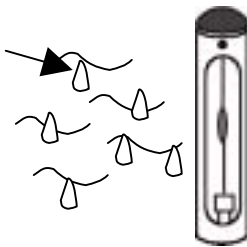
 **CAUTION**

- Do not use in the atmosphere of water drops.
- Radiated heat changes and can not be measured correctly. It may damage sensor.



Forbidden

Water drops

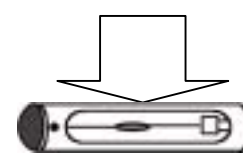


- Do not put forces on sensor.
- If the sensor is deformed, the accuracy of the sensor cannot be maintained.



Forbidden

Force



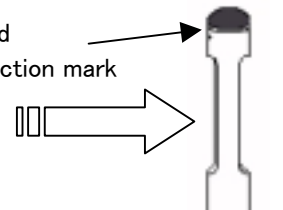
- When you measure, make sure that the wind direction mark facing the wind.
- Can not get correct result.



Set up properly

Wind direction mark

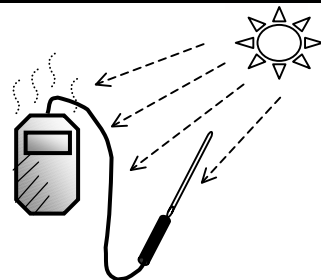
Wind



- Do not store the instrument in dusty and humid condition.
- Storing in such condition may cause malfunction in next use.



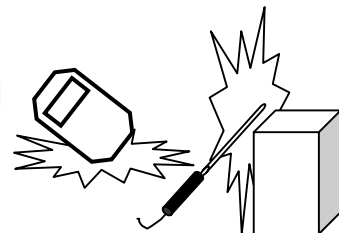
Do not set up







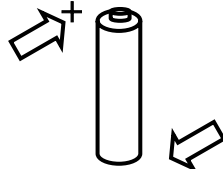



- Do not drop or give shock to the instrument.
- It may damage the instrument.



Forbidden



 **WARNINGS**

<p>○ Do not take apart, remodel or repair yourselves.</p> <p>..... It may cause short circuit or deteriorate functions.</p>	 <p>Do not remodel/disassemble</p>
<p>○ Do not suspend main body by gripping probe cable.</p> <p>..... It may damage the instrument.</p>	 <p>Forbidden</p> 
<p>○ Please insert the batteries observing correct polarity.</p> <p>..... If you insert the batteries in with wrong polarity, leakage may occur and damage the instrument.</p>	 <p>Insert correctly</p> 
<p>○ Do not wipe main body with volatile solvent.</p> <p>..... It can deform the case. Wipe it with dry and soft cloth. When it is dirty badly, wipe with neutral detergent. Do not use volatile solvents such as thinner, benzene.</p>	 <p>Forbidden</p>
<p>○ Check the tip of probe periodically. Dust attached to the sensor may affect the accuracy.</p> <p>..... Rinse the tip of probe in alcohol if sensor is oily, and air-dry it completely.</p> <p>..... To get rid of dust, use a blow blush for camera to blow them off. Or you can rinse it in water and air-dry it completely.</p> <p>※ Turn off power when you wash sensor.</p> <p>※ Do not dry probe with heat. (Heat may cause a permanent damage to the sensor.)</p>	 <p>Clean up</p>  <p>Do not dry by heat</p>

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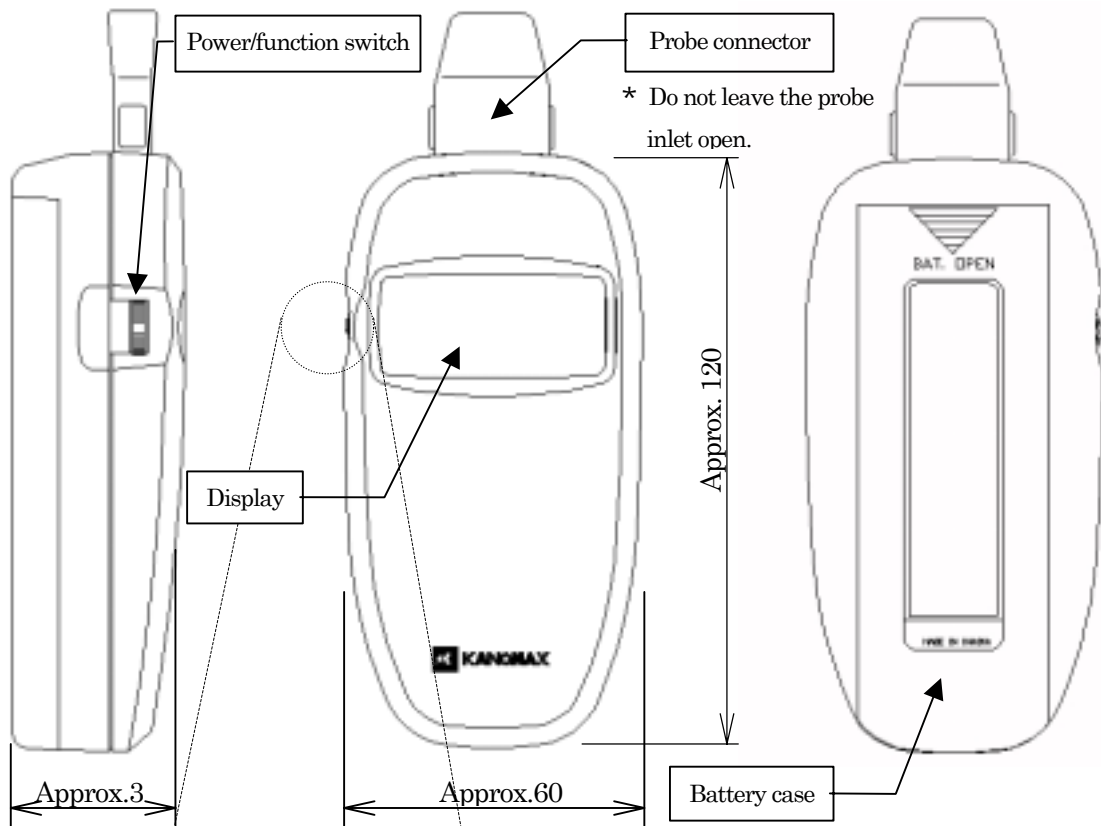
Name and function of parts (Main body)	1
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Name and function of parts (Main body)

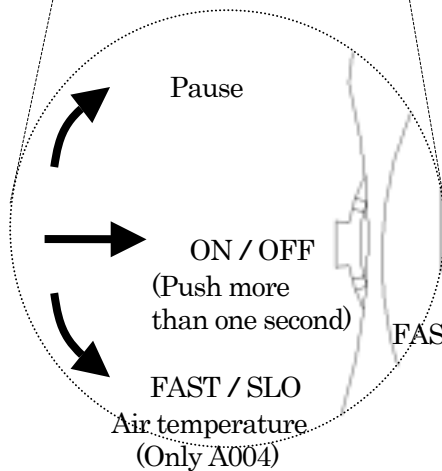
< Side >
Back >

< Front >

<



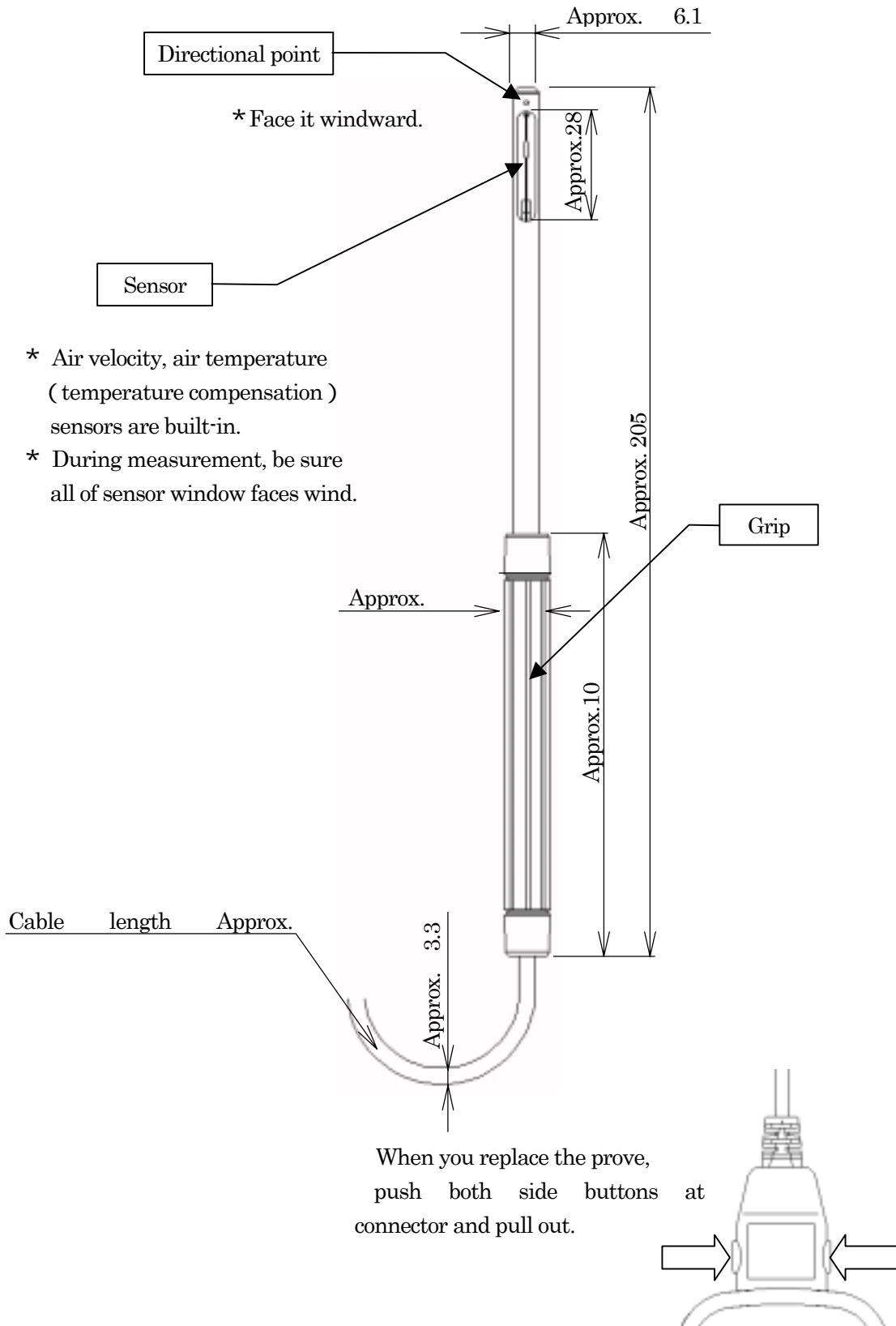
< Power/function switch enlargement >



* Power / function switch is three ways of slide up & down/push.

You can change ON/OFF by pushing switch for more than one second till LCD indicates. Measurement mode changes by sliding downward.
FAST SLOW Air temperature (Only A004)
You can pause display by sliding upward and cancel by any key.

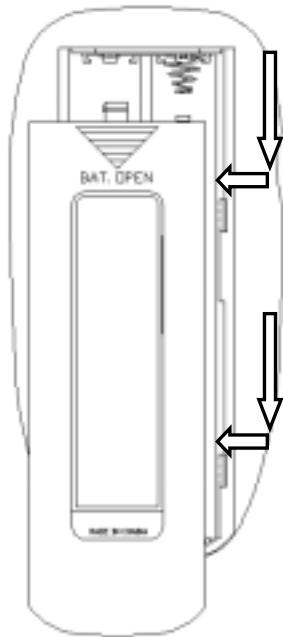
Names and functions of parts (Probe)



Preparation of measurement

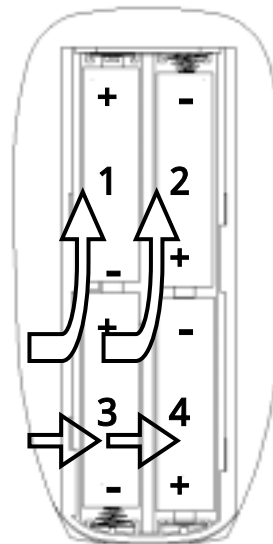
- Set batteries-

< Back (Battery case) >



Slide battery case cover downward according to the rail.

Slide till it stops and pull up cover.



Insert batteries observing correct polarity.

Close cover by reversing the procedure and .



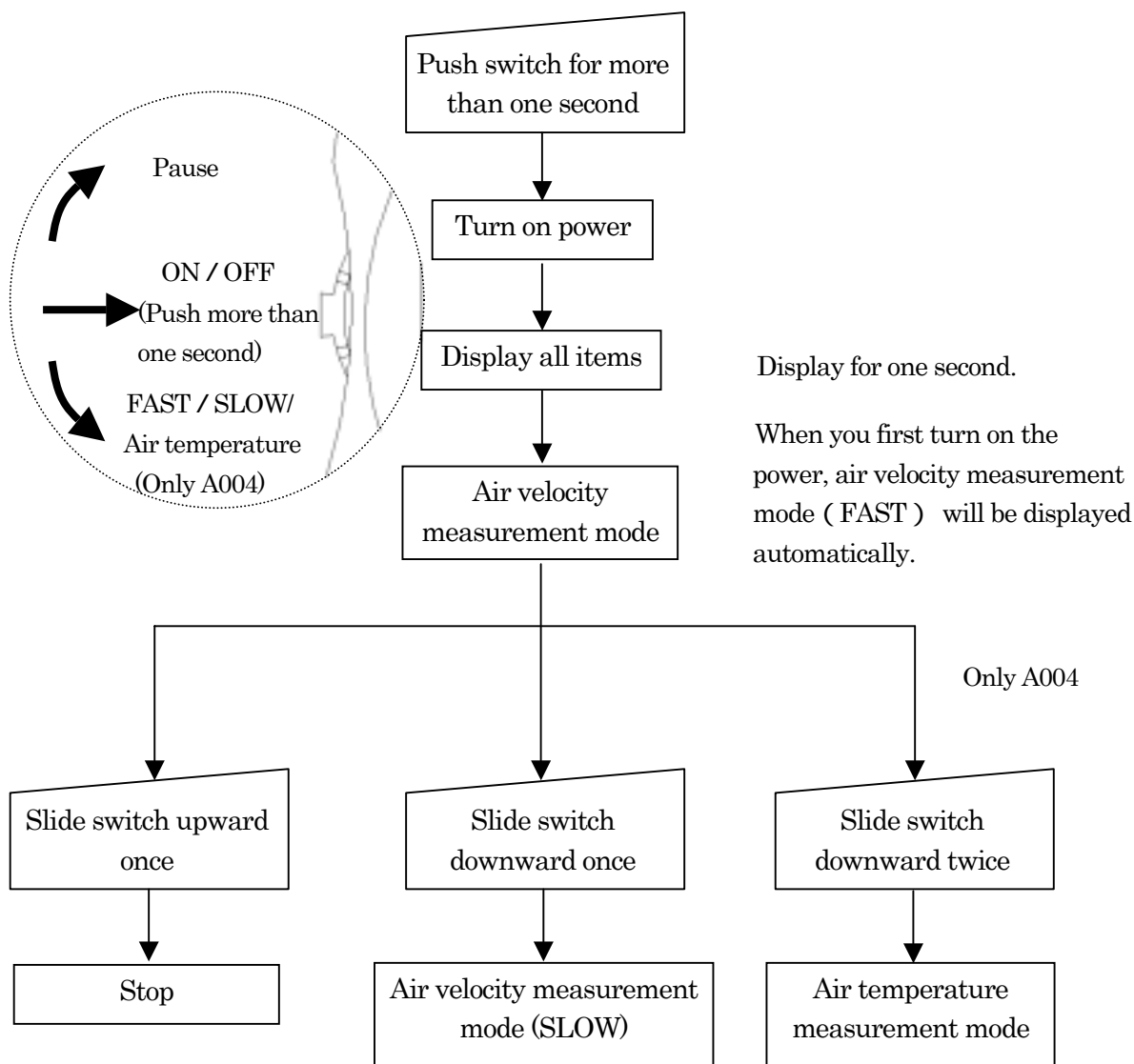
When you set cover, do not hook to projection.
Set cover by sliding it.
(If you try to set cover by force, projection may come off.)

Use 4 AA batteries.

When you replace batteries, be sure power is turned off.

When you use Ni-Cd batteries on the market, charge it by suitable charger.

How to measure



< Change response (Only air velocity measurement mode) >

By sliding switch downward, you can change response from one second (FAST) or five seconds (SLOW). (In case of MODEL A004, you can choose air temperature measurement mode as well.)

When you turn off the power, it returns to initial settings of one second (FAST).

If measuring value fluctuation is too big, you will get to read the value easier by setting to "SLOW".

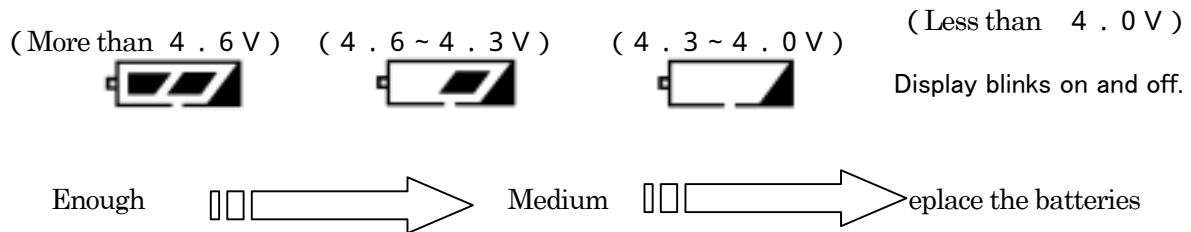
< Measurement of air temperature (MODEL A004) >

Turn the power on and slide switch downward twice, you can set air temperature measurement mode.

Do not measure for a while after you change over mode. Especially, in windless situation you have to wait for more than 30 seconds.

Indication of battery power left

Battery power is displayed as follows.



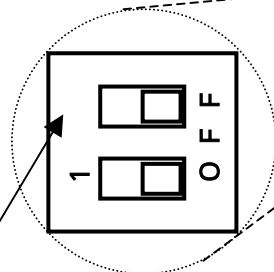
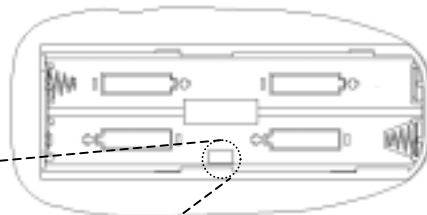
Guaranteed functional range is more than 4 V of battery voltage.

- ※ When battery voltage decrease less than 4V, display blinks on and off and then power will go off automatically.
- ※ When you use Ni-Cd battery, charge them earlier before 4.3~4.0V mark will be displayed.

Change indication units

You can change indication units by dip switch.

You will find dip switch at battery box.



We do not use SW 2.

SW No.	1
Units	OFF (Delivery)
m/s	OFF (Delivery)
FPM ° F	ON

Specifications

Model		A003	A004
Items to measure		Clean air of normal pressure/normal humidity	
Range	Air velocity	0 . 1 to 2 0 . 0 m / s (2 0 to 3 9 4 0 F P M)	
	Air temperature	-	0 to 5 0 . 0 (3 2 to 1 2 2 ° F)
Accuracy	Air velocity	± 3% of reading or 0.015m/sec (3 fpm) whichever is greater	
	Air temperature	-	± 1 (± 2 ° F)
Temperature compensation accuracy	Air velocity	Between 1 0 to 4 0 (5 0 to 1 0 4 ° F)	
Display resolution	Air velocity	0 to 9 . 9 9 m / s : 0 . 0 1 m / s (Minimum) 1 0 . 0 to 2 0 . 0 m / s : 0 . 1 m / s (0 to 1 9 5 8 F P M : 2 F P M (Minimum)) (1 9 6 0 to 3 9 4 0 F P M : 2 0 F P M)	
	Air temperature	-	0 . 1 (0 . 2 ° F)
Response	Air velocity	Less than one second (Air velocity 1 m / s (1 9 6 F P M) : 9 0 % Response)	
	Air temperature	-	Less than 30 seconds (Air velocity 1 m / s (1 9 6 F P M) : 9 0 % response)
Function	(1) Battery power indicator (2) F A S T / S L O W (one second or five seconds movement average) (3) Change indicated units by dip switch (m / s 、 F P M 、 ° F) (4) Pause display		
Dimensions	Probe : Approx. 6.1 (10.6) × 200mm (Cable is 3.3 × 1.5m) Main body : Approx. 60 (W) × 120 (L) × 30 (D) mm		
Power source	Four AA batteries...Manganese battery, Alkali battery, Ni-Cd battery (You have to use specific charger on the market for Ni-Cd battery.)		
Battery life	Approx. 4 hours (Air velocity 1 m/s (1 9 6 F P M) continuous measurement, use manganese battery)		
Temperature range for probe	0 to 5 0 (3 2 to 1 2 2 ° F)		
Temperature range for main body	5 to 4 0 (4 1 to 1 0 4 ° F)		
Temperature range for storage	- 1 0 to 5 0 (1 4 to 1 2 2 ° F)		
Weight	Approx. 1 8 0 g (Include battery)		
Standard accessories	AA size battery (For test) 4 Manual (This manual) 1		
Option	Extension rod (Telescopic type), Probe (for replacement)		
Degree of protection	IP40		

* Included batteries are for test. If the power is used up, replace it by new ones for accurate measurement.

Trouble shooting

Before you ask for repair, check items below.

At normal condition

Symptom	Possible cause	Corrective action
Cannot turn on. (L C D does not display)	Dead batteries.	Replace by new batteries.
	Wrong battery polarity.	You have to insert them correctly.
	Contact point is dirty.	Clean contact point of battery.
" - - - - " (O V E R) is displayed.	You do not use it within measurement range.	Use within measurement range.
	Air velocity sensor was damaged.	Contact the dealer.
" E 0 1 " is displayed or " 0 . 0 0 " display cannot be changed.	Air velocity sensor was damaged.	Contact the dealer.
	Probe cable was damaged.	Contact the dealer.
" E 0 2 " is displayed	Air temperature sensor was damaged.	Contact the dealer.
Display frozen.	"Pause" displayed.	Release pause.
	Low batteries.	Replace by new batteries.
Display blinks on and off.	Low batteries.	Replace by new batteries.
	Wrong battery polarity.	You have to insert them correctly.
	Contact point is dirty.	Clean contact point of battery.
Indicated units are different.	Unit setting was changed.	Change indicated units using dip switch in battery case.

When you replace probe

Symptom	Possible cause	Corrective action
" E 0 1 " is displayed or " 0 . 0 0 " display cannot be changed.	Connector is not connected correctly.	Turn off the power and connect again.
	Replacing probe while power was on.	Turn on the power again.

When you replace battery

Symptom	Possible cause	Corrective action
Cannot turn on the power.	Replacing batteries while power was on.	Remove all batteries and insert them again.

Revision of air velocity value

Air temperature, humidity and pressure can influence accuracy of air velocity.

< Influence by air temperature >

This type of Anemometer is heat ray type Anemometer uses heat radiation. It must be calibrated by temperatures around, otherwise air temperature influences heat radiation and it changes indicated value according to air temperature even in the same air velocity. To prevent this, it measures air temperature at the same time by inner circuit called temperature compensation, it calibrates indicated value of air velocity automatically to prevent influence from air temperature in range of 10 ~ 40 .

< Influence by humidity >

Air velocity sensor is heated 40 ~ 50 above the ambient temperature. Normally, it is not influenced by relative humidity.

< Influence by atmospheric pressure >

Change of pressure influences heat radiation. Calibration of atmospheric pressure is as follows.

$$U_m = \frac{1013}{P_m} \times U_c$$

U_m : True air velocity [m/s] U_c : Indicated air velocity [m/s]

P_m : Pressure of measurement time [hPa]

Warranty and after service

<Product Warranty >

Kanomax 's products are shipped upon inspection based on the Kanomax warranty and quality standards. You can contact any of our sales offices near you or any Kanomax service center at any time if you have an instrument which has a malfunction due to production failure or which is due to any damage caused by shipping.

The production comes with a registration card, Be sure it is enclosed when you purchase the product, and fill it out as required and then send it back to us for our warranty control.

Notice

We some time can not provide you with proper service if the registration card has not been returned to us.

Further , the guarranty period of this product is usually set at 12 months from the data of delivery. We will provide free service for any problems in the instrument within this warranty period. However, the warranty is void if the damage in the instrument is due to the rough use.

<After service >

Whenever the product is malfunctioning, check with "Trouble shooting" first to find possible cause.

Storage period of repair parts

Repair parts are retained for a minimum period of five years after production cessation. This storage period of repair parts is considered as the period during which we can provide repair services. For further information, please contact our service center and at the same time, give us the following information.

When you contact us	
Product name	Anemomaster
Model No.	A003 / A004
Serial No.	
Purchase date	month year
Symptom	(as much details as possible)