



**KANOMAX**

# **ANEMOMASTER**

MODEL A003/A004

## **Operation Manual**



**Please read this operation manual carefully and  
understand the warnings described within  
before operating this instrument.  
Keep this manual handy for future reference.**



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0 7 . 0 4

## Important Safety Information

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In this manual, warning types and classifications are defined as follows.

### [Classification]



#### **WARNING: To Prevent Serious Injury or Death**

Indicates a potentially hazardous situation which, if not avoided, may result in serious injury or death.



#### **CAUTION: To Prevent Damage to the Product**

Indicates a potentially hazardous situation which, if not avoided, may result in damage to the product that may void the product warranty.

## [Description of Symbols]



- △ Indicates the condition (including danger) that requires caution. The subject of each caution is illustrated inside the triangle (e.g., the symbol shown on the left is high temperature caution).



- ⊘ Indicates prohibition. Do not take the prohibited action shown inside or near this symbol (e.g., the symbol shown on the left prohibits disassembly).



- Indicates a mandatory action. A specific action is given near the symbol.s

! WARNING			
 Do not use near flammable gas.	<p>➤ <b>Never bring the probe close to a flammable gas atmosphere.</b></p> <p>&gt;&gt;&gt; The heated sensor may cause fire or explosion.</p>		
 High Temperature  Never touch	<p>➤ <b>Never touch the sensor.</b></p> <p>&gt;&gt;&gt; The sensor is heated during operation. Touching the heated sensor may cause burns, and may also damage the sensor itself.</p>		
WARNING			
 Explosive	 Handle Properly	<p>➤ <b>Do not disassemble or heat batteries or do not throw the battery in the fire.</b></p> <p>&gt;&gt;&gt; The battery may explode.</p>	



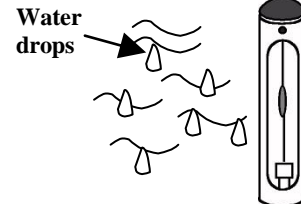
## CAUTION



Prohibition

- **Do not use the instrument in a water vapor atmosphere.**

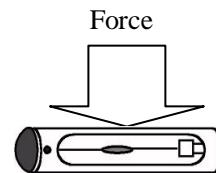
>>> Failure to observe above may cause electrical shock, fire, or damage to the sensor.



Prohibition

- **Do not apply unnecessary excess force to the sensor.**

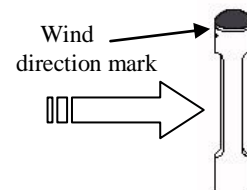
>>> If the sensor is deformed, the accuracy of the sensor cannot be maintained. Moreover, the sensor may be broken.



Set up properly

- **When measuring, make sure to direct the wind direction mark on the probe facing the wind.**

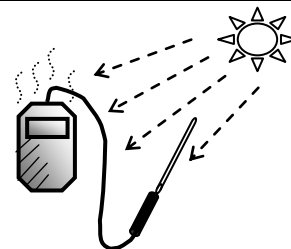
>>> Otherwise the accurate measurement cannot be performed.



Prohibited Installation

- **Do not use or leave the instrument in a high temperature / humidity environment, or in a dusty environment.**
- **Do not leave the instrument under direct sunlight for a prolonged period.**

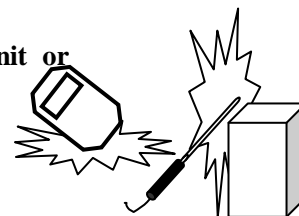
>>> The instrument may not function properly out of the specified operating conditions



Prohibition

- **Do not apply strong shock to the main unit or probe.**

>>> Failure to observe the above may cause damage or malfunction to the instrument.



## CAUTION





Do not modify /  
disassemble.

- **Never disassemble, modify or repair the product.**

>>> Failure to observe the above may cause short circuit and/or other failure that will affect the performance.



Prohibited

- **Never hang the unit down by holding the probe cable.**

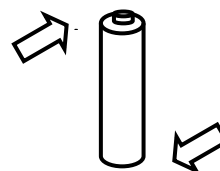
>>> Failure to observe the above may damage the instrument.



Insert correctly

- **Install the batteries observing the correct polarity.**

>>> Installing the batteries with wrong polarity may cause battery leakage or damage the instrument.



Prohibition

- **Do not wipe the instrument with a volatile solvent.**

>>> The body may deform or deteriorate. Use soft dry cloth to remove stains. If stains persist, soak the cloth in a neutral detergent and wipe the instrument with the soft cloth. Never use volatile solvents such as thinner or benzene.



Clean up

- **Check tip of probe periodically and make sure it is clean. Unclean sensor may affect the accuracy.**

>>> To get rid of dust blow it away using blower brush for a camera or something similar. Or quickly rinse the probe with water and dry it well.

- \* When cleaning the air velocity sensor, make sure to turn off the power of the instrument.
- \* Never use heat to dry the probe, or the sensor will be damaged and it cannot be repaired.



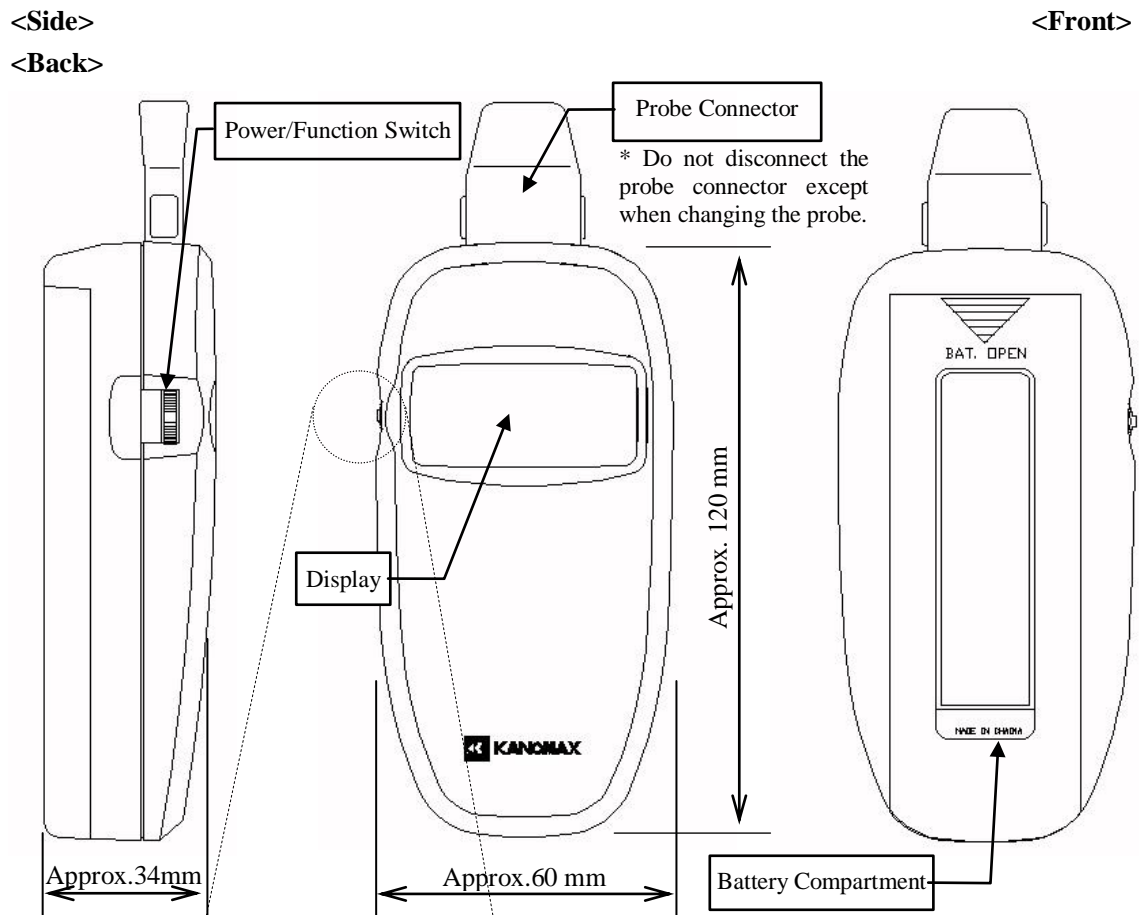
Never dry by  
heating

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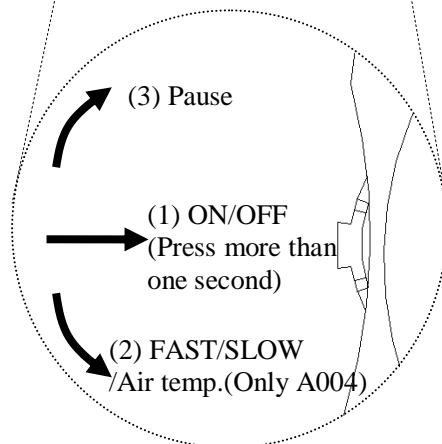
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# 1. Part Names and Functions (Main body)



## <Enlarged View of Power / function Switch>

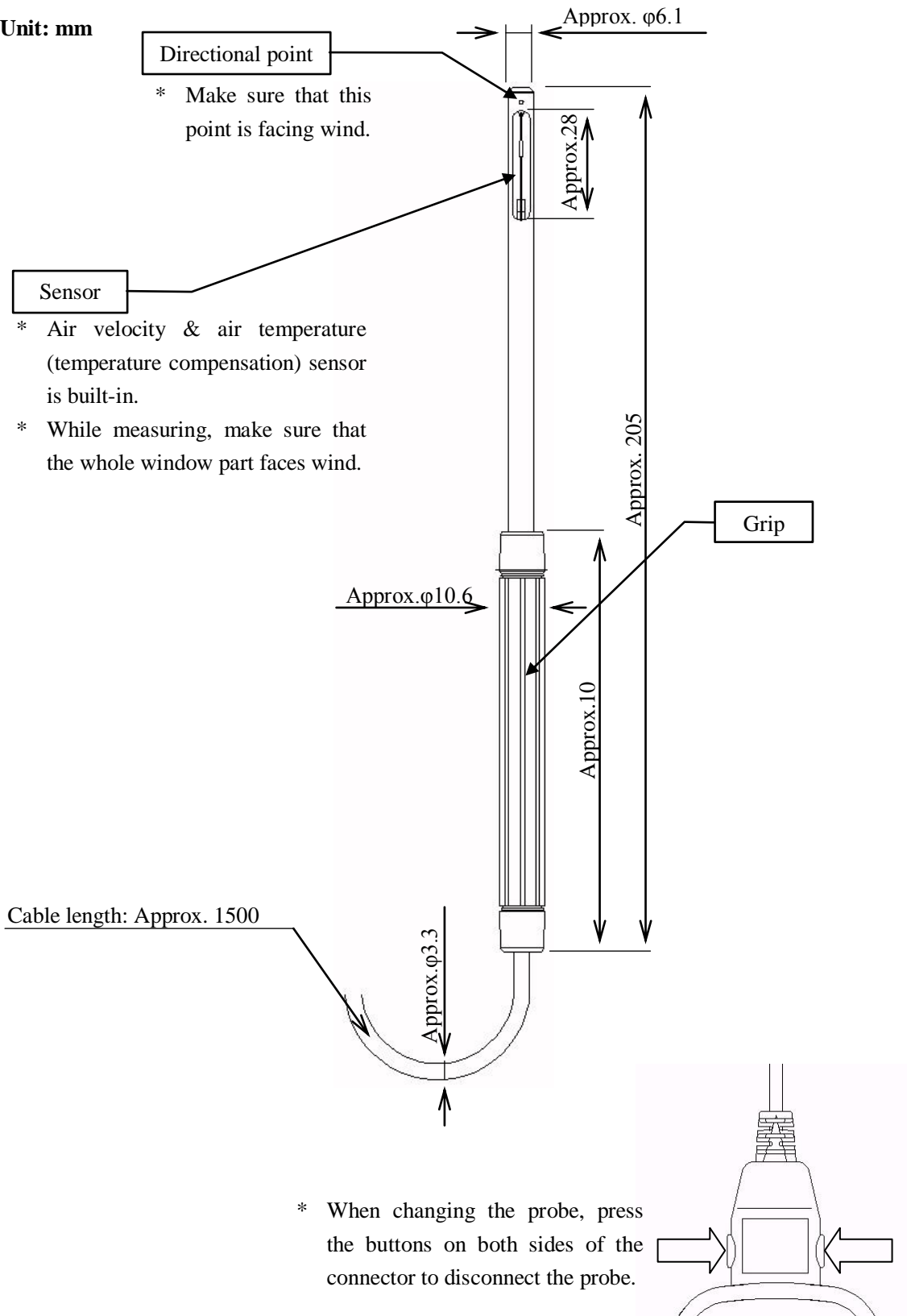


\* Power / Function switch is three-way switch; slide up & down and push.

- (1) Press the switch to turn ON/OFF the power. Press the button for more than one second, and release it when the LCD is lit.
- (2) Slide the switch downward to change the measurement mode as follows;  
FAST→SLOW→Air temp. (Only A004)→
- (3) Slide the switch upward to pause the screen. Press any switch to release this function.

## 2. Part Names and Functions (Probe)

Unit: mm



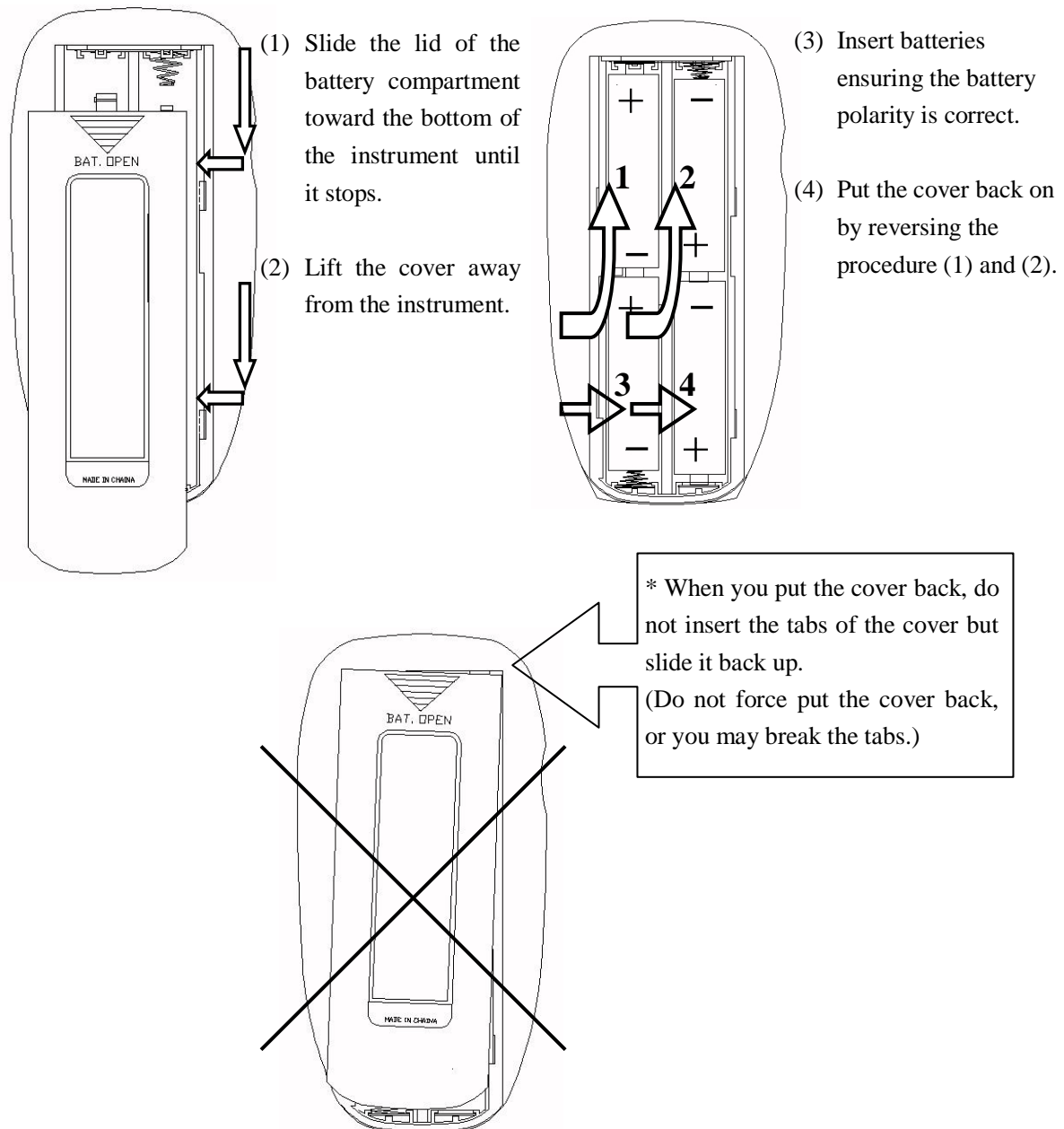


### 3. Getting Started

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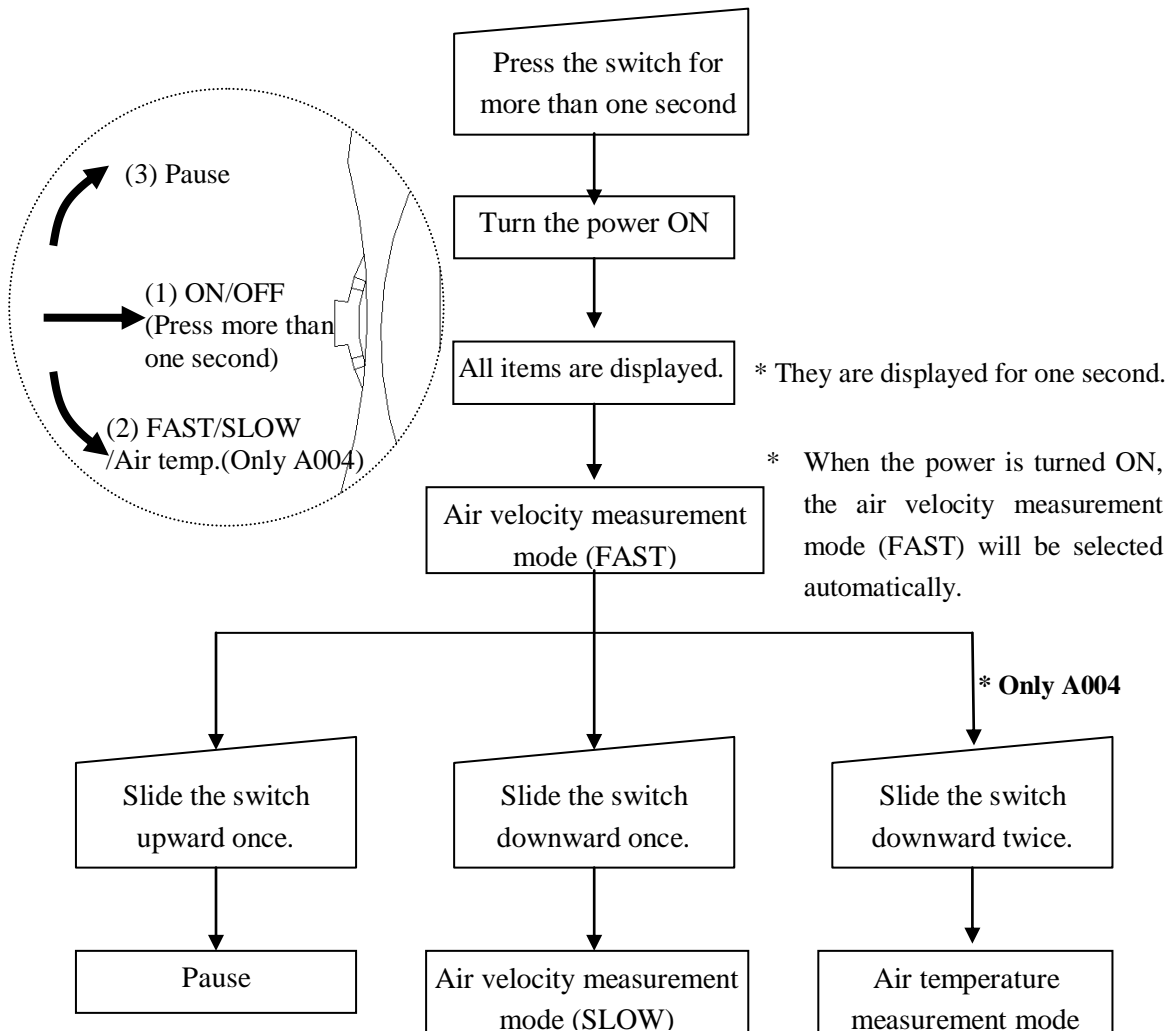
#### - How to Install Batteries-

##### <Back (Battery Compartment)>



- Use four (4) AA batteries.
- When you replace the batteries, make sure that the power is turned off.
- When you use Ni-Cd batteries, charge it using the dedicated charger.

## 4. Measuring



### <How to Change Response (Only for air velocity measurement mode)>

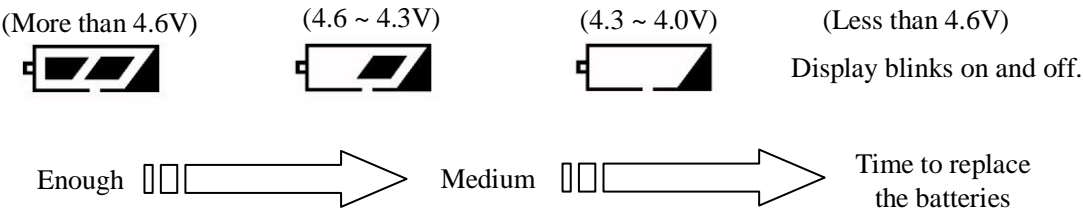
- Every time you slide the switch downward, the response time will be switched over; 1 sec (FAST) or 5 sec (SLOW). (If you are using MODEL A004, Air Temperature Measurement mode is added between 1 sec and 5sec.)
- Once you turn the power OFF, it will return to the initial setting of one second (FAST).
- If the fluctuation in a measurement value is relatively big, select “SLOW” to make the reading easier.

### <How to Measure Air Temperature (MODEL A004)>

- After you turn the power ON, slide the switch downward twice to select the Air Temperature mode.
- Do not perform a measurement right after you switch to the Air Temperature mode. Especially where there is hardly wind (air velocity is 0.1m/s or lower), make sure to wait for at least 30 seconds before starting a measurement.

# 5. Battery Level Indicator

➤ Remaining battery level is indicated as follows.



- The operation is guaranteed when the battery voltage is more than 4V.
- When the battery voltage level becomes less than 4V, the display starts blinking. After a while, the power goes off automatically.
- When using Ni-Cd battery, charge the battery earlier (before the remaining battery level indicator indicates 4.3 ~4.0V).

# 6. Changing unit

- You can change the unit used in the value by DIP switch.
- The DIP switch is located inside the battery compartment.

SW No.	1
Unit	OFF (before shipping)
m/s °C	ON
FPM °F	

## 7. Specifications

Model	A003		A004
Measurement Object	Clean air of normal pressure/normal humidity		
Range	Air velocity	0.1 ~ 20.0m/s (20 ~ 3940 FPM)	
	Air temp.	-	0 ~ 50.0 °C (32 ~ 122 °F)
Accuracy	Air velocity	±3% of reading or 0.015m/sec (3 fpm) whichever is greater	
	Air temp.	-	± 1 °C (± 2 °F)
Temp. compensation accuracy	Air velocity	Between 10 ~ 40 °C (50 ~ 104 °F)	
Display resolution	Air velocity	0 ~ 9.99 m/s : 0.01 m/s (Minimum) 10.0 ~ 20.0 m/s : 0.1 m/s { 0 ~ 1958 FPM : 2 FPM (Minimum) } { 1960 ~ 3940 FPM : 20 FPM }	
	Air temp.	-	0.1 °C (0.2 °F)
Response	Air velocity	Less than one second (Air velocity 1 m/s (196 FPM): 90 % Response)	
	Air temp.	-	Less than 30 seconds (Air velocity 1m/s (196 FPM) 90 % )
Function	(1) Battery level indicator (4 levels) (2) FAST / SLOW (moving average for 1 or 5 sec.) (3) Changing unit by DIP switch (m/s, °C → FPM °F) (4) Pausing display		
Dimensions	Probe: Approx. φ6.1 (φ10.6) × 200 mm (Cable: φ3.3 × 1.5 m) Main body: Approx. 60 (W) × 120 (L) × 30 (D) mm		
Power source	Four (4) AA batteries: Manganese battery, Alkaline battery, Ni-Cd battery (Use the dedicated charger for Ni-Cd battery.)		
Battery life	Approx. 4 hours (When performing a continuous measurement at the air velocity of 1 m/s (196FPM) operated by manganese batteries)		
Operating temp. limit for probe	0 ~ 50 °C (32 ~ 122 °F)		
Operating temp. limit for main unit	5 ~ 40 °C (41 ~ 104 °F)		
Temperature limit for storage	-10 ~ 50 °C (14 ~ 122 °F)		
Weight	Approx. 180 g (including batteries)		
Standard accessories	AA size battery: 4 Operation Manual: 1		
Options	Telescopic Extension rod, Spare probe, Carrying Case		
Degree of protection	IP40		

## 8. Troubleshooting

Please check the followings once again before you contact us for service.

### (1) At normal condition

Symptom	Possible cause	Corrective action
The power cannot be turned ON. (LCD does not display anything.)	The batteries may be running low.	Replace the batteries.
	Battery polarity may not be correct.	Insert the batteries properly.
	Contact points may be dirty.	Clean the contact points of battery.
“- - -” (OVER) is displayed.	The instrument may not be being used within the measuring range.	Use the instrument within the measuring range.
	Air velocity sensor may be damaged.	Contact your distributor or to your KANOMAX service center.
“E01” is displayed or “0.00” display does not change.	Air velocity sensor may be damaged.	Contact your distributor or to your KANOMAX service center.
	Probe cable may be damaged.	Contact your distributor or to your KANOMAX service center.
“E02” is displayed	Air temperature sensor may be damaged.	Contact your distributor or to your KANOMAX service center.
Display is frozen.	The unit may be temporally paused.	Release pause.
	The batteries may be running low.	Replace the batteries.
Display blinks on and off.	The batteries may be running low.	Replace the batteries.
	Battery polarity may not be correct.	Insert the batteries properly.
	Contact points may be dirty.	Clean the contact points of battery.
Indicated units are different.	Unit setting may have been changed.	Change the unit by using the DIP switch inside battery compartment.

### (2) When you replace probe

Symptom	Possible cause	Corrective action
“E01” is displayed or “0.00” display does not change.	Connector may not be connected correctly.	Turn the power off and connect the connector again.
	The probe may have been replaced while the power was on.	Turn the power on again.

### (3) When you replace battery

Symptom	Possible cause	Corrective action
The power cannot be ON.	Batteries may have been replaced while the power was on.	Remove all the batteries and insert them again.

## 9. Correction of Air Velocity Value

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

### <Influence by air temperature>

This is a Thermal (Hot-Wire) Anemometer which measures air velocity based on the heat diffusion quantity. Therefore, if you do not correct the value based on the surrounding environment, the instrument reading will vary depending on the air temperature. Although the actual velocities are the same, the reading may not be the same depending on the air temperature because the air temperature changes the heat diffusion quantity. In order to prevent this, temperature compensation circuit is installed to measure air temperature to compensate the air velocity value to make sure that the air temperature does not influence the air velocity value in the range of 10 ~ 40 °C.

### <Influence by humidity>

Since air velocity sensor is normally heated to 40 ~ 50 °C above the ambient temperature, 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 at measuring [ hPa ]

## 10. Warranty and after service

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### Kanomax Limited Warranty

The limited warranty set below is given by KANOMAX with respect to the KANOMAX brand Anemomaster, Model A003 / A004, its attachment parts including Probe and other accessories (hereafter referred to as "PRODUCT") that you have purchased. PRODUCT you have purchased shall be the only one that the limited warranty stated herein applies to.

Your PRODUCT, when delivered to you in new condition in its original container, is warranted against defects in materials or workmanship as follows: for a period of one (1) year from the date of original purchase, defective parts or a defective PRODUCT returned to your sales representative, as applicable, and proven to be defective upon inspection, will be exchanged for a new or comparable rebuilt parts, or a refurbished PRODUCT as determined by your sales representative. Warranty for such replacements shall not extend the original warranty period of the defective PRODUCT.

This limited warranty covers all defects encountered in normal use of the PRODUCT, and does not apply to the following cases:

- (1) Use of parts or supplies other than the PRODUCT sold by your sales representative, which cause damage to the PRODUCT or cause abnormally frequent service calls or service problems.
- (2) If any PRODUCT has its serial number or date altered or removed.
- (3) Loss of damage to the PRODUCT due to abuse, mishandling, improper packaging by the owner, alteration, accident, electrical current fluctuations, failure to follow operating, maintenance or environmental instructions prescribed in the PRODUCT's instruction manual provided by KANOMAX, or service performed by other than KANOMAX.

**NO IMPLIED WARRANTY, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, APPLIES TO THE PRODUCT AFTER THE APPLICABLE PERIOD OF THE EXPRESS LIMITED WARRANTY STATED ABOVE, AND NO OTHER EXPRESS WARRANTY OR GUARANTY, EXCEPT AS MENTIONED ABOVE, GIVEN BY ANY PERSON OR ENTITY WITH RESPECT TO THE PRODUCT SHALL BIND KANOMAX. KANOMAX SHALL NOT BE LIABLE FOR LOSS OF STORAGE CHARGES, LOSS OR CORRUPTION OF DATA, OR ANY OTHER SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES CAUSED BY THE USE OR MISUSE OF, OR INABILITY TO USE, THE PRODUCT, REGARDLESS OF THE LEGAL THEORY ON WHICH THE CLAIM IS BASED, AND EVEN IF KANOMAX HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. IN NO EVENT SHALL RECOVERY OF ANY KIND AGAINST KANOMAX BE GREATER IN AMOUNT THAN THE PURCHASE PRICE OF THE PRODUCT SOLD BY KANOMAX AND CAUSING THE ALLEGED DAMAGE. WITHOUT LIMITING THE FOREGOING, THE OWNER ASSUMES ALL RISK AND LIABILITY FOR LOSS, DAMAGE OF, OR INJURY TO THE OWNER AND THE OWNER'S PROPERTY AND TO OTHERS AND THEIR PROPERTY ARISING OUT OF USE OR MISUSE OF, OR INABILITY TO USE, THE PRODUCT NOT CAUSED DIRECTLY BY THE NEGLIGENCE OF KANOMAX. THIS LIMITED WARRANTY SHALL NOT EXTEND TO ANYONE OTHER THAN THE ORIGINAL PURCHASER OF THE PRODUCT, OR THE PERSON FOR WHOM IT WAS PURCHASED AS A GIFT, AND STATES THE PURCHASER'S EXCLUSIVE REMEDY.**

## **After Service**

Whenever the PRODUCT is malfunctioning, please check with “Troubleshooting” to find possible cause first.

Repair parts are retained for a minimum period of five (5) years after production cessation of the PRODUCT. This storage period of repair parts is considered as the period during which KANOMAX can provide repair service.

For more information, please contact your sales representative. When you make a call, please have the following information of your PRODUCT at hand:

- (1) PRODUCT name;
- (2) Model number;
- (3) Serial number;
- (4) Probe number;
- (5) Description of Symptom, and;
- (6) Date of purchase



## 11. Contact Information

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### U.S.A. & Europe

#### **KANOMAX USA, INC.**

PO Box 372, 219 US Hwy 206, Andover, NJ 07821 U.S.A.

**TEL:** (800)-247-8887 / (973)-786-6386 **FAX:** (973)-786-7586

**URL:** <http://www.kanomax-usa.com/>

**E-Mail:** [info@kanomax-usa.com](mailto:info@kanomax-usa.com)

### Japan & Asia

#### **KANOMAX JAPAN, INC.**

2-1 Shimizu Suita City, Osaka 565-0805, Japan

**TEL:** 81-6-6877-0183 **FAX:** 81-6-6877-5570

**URL:** <http://www.kanomax.co.jp/>

**E-Mail:** [sales@kanomax.co.jp](mailto:sales@kanomax.co.jp)

### China

#### **Shenyang Kano Scientific Instrument Co., Ltd**

No. 12, 4 Jia Wencui Road Heping District

Shenyang City PRC

**TEL:** 86-24-23845309 **FAX:** 86-24-23898417

**URL:** <http://www.kanomax.com.cn/>

**E-mail:** [sales@kanomax.com.cn](mailto:sales@kanomax.com.cn)