

HOT WIRE ANEMOMETER

Model : AVM-714

TECPEL®

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1. FEATURES

- * Thermal anemometer, available for very low air velocity measurement.
- * Slim probe, ideal for grilles & diffusers.
- * Combination of hot wire and standard thermistor, deliver rapid and precise measurements even at low air velocity value.
- * Microprocessor circuit assures maximum possible accuracy, provides special functions and features.
- * Super large LCD with dual function meter's display, read the air velocity & temp. at the same time.
- * Heavy duty & compact housing case.
- * Records Maximum and Minimum readings with recall.
- * Data hold.
- * Power supply by 1.5 V AAA (UM-4) battery x 6 PCs.
- * RS 232 PC serial interface.
- * The portable anemometer provides fast, accurate readings, with digital readability and the convenience of a remote probe separately.
- * Multi-functions for air flow measurement : m/s, km/h, ft/min, knots. mile/h.
- * Build in temperature 蠕, 蚌 measurement.
- * Thermistor sensor for Temp. measurement, fast response time.
- * Used the durable, long-lasting components, including a strong, light weight ABS-plastic housing case.
- * Deluxe hard carrying case.
- * Applications : Environmental testing, Air conveyors, Flow hoods, Clean rooms, Air velocity, Air balancing, Fans/motors/blowers, Furnace velocity, Refrigerated case, Paint spray booths.

2. SPECIFICATIONS

2-1 General Specifications

Circuit	Custom one-chip of micro-processor LSI circuit.
Display	* 13 mm(0.5") Super large LCD display. * Dual function meter's display.
Measurement	m/s (meters per second) km/h (kilometers per hour) ft/min (feet/per minute) knots (nautical miles per hour) mile/h(miles per hour) Temp.- deg C. deg F. Data hold.
Sensor Structure	<i>Air velocity :</i> Tiny glass bead thermistor. <i>Temperature :</i> Precision thermistor.
Memory	Maximum and Minimum with recall.
Sampling Time	Approx. 0.8 sec.
Data Output	RS 232 PC serial interface.
Operating Temperature	0~50degC(0~ 122 degF).
Operating Humidity	Less than 80% RH.
Power Supply	1.5 V AAA (UM-4) battery x 6 PCs. (Alkaline or heavy duty type).

Power Current	Approx. DC 30 mA.
Weight	355 g/0.78 LB.
Dimension	Main instrument: 180 x 72 x 32 mm (7.1 x 2.8 x1.3 inch). Telescope Probe : Round, 12 mm Dia x 280 mm (min. length). Round, 12 mm Dia x 940 mm (max. length).
Accessories Included	Instruction manual..... 1 PC. Telescope Probe.....1 PC. Hard carrying case..... 1 PC.

2-2 Electrical Specifications (23 .5degC)

A. Air velocity			
Measurement	Range	Resolution	Accuracy
m/s	0.2-20.0 m/s	0.1 m/s	(5% + 1d) reading or
km/h	0.7-72.0 km/h	0.1 km/h	
ft/min	40-3940 ft/min	1 ft/min	(1% + 1d) full scale
mile/h	0.5-44.7 mile/h	0.1 mile/h	
knots	0.4-38.8 knots	0.1 knots	
Note: m/s - meters per second km/h - kilometers per hour ft/min - feet/per minute knots - nautical miles per hour mile/h - miles per hour (international knot)			

B. Temperature	
Measuring Range	0 ~ 50 C/32 to 122 F
Resolution	0.1C/0.1 F
Accuracy	0.8 C/1.5 F

Remark :

Spec. tested under the environment RF Field Strength less than 3 V/M & frequency less than the 30 MHz only.

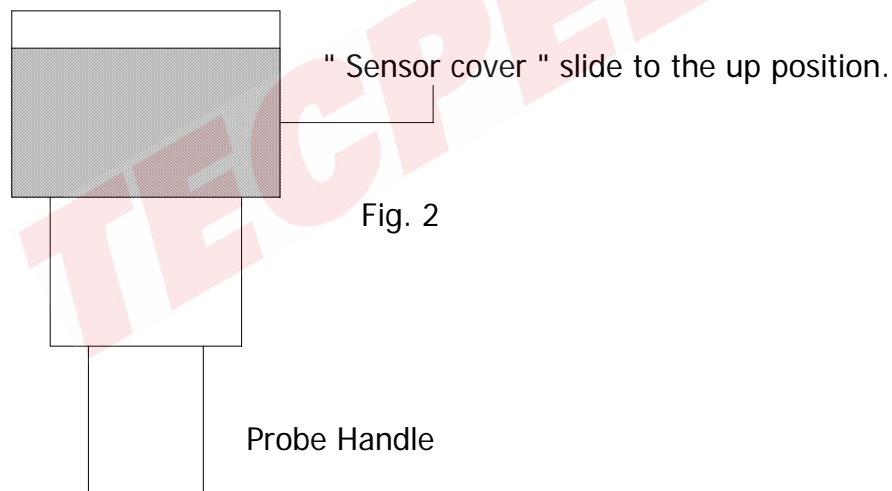
3. FRONT PANEL DESCRIPTION

Fig. 1

- 3-1 Display
- 3-2 Power Off/On Button
- 3-3 Data Hold Button
- 3-4 蛎/蚌 Button
- 3-5 Memory "Record" Button
- 3-6 Memory "CALL" Button
- 3-7 Zero Button
- 3-8 Unit Button
- 3-9 Battery Compartment/Cover
- 3-10 RS232 Output Socket
- 3-11 Probe Input Socket
- 3-12 Sensing Head
- 3-13 Probe Handle
- 3-14 Probe Plug

4. MEASURING PROCEDURE

- 1) Connect the " Probe's Plug " (3-14, Fig. 1) to the " Probe Input Socket " (3-11, Fig.1).
- 2) Power on the meter by push the " Power On/Off Button " (3-2, Fig.1) once a while.
- 3) Select the desired temperature units, using the " 蛭/蚌 Button " (3-4, Fig. 1).
- 4) Select the desired air velocity units, m/s, km/h, ft/min, knots, mile/h, using the " Unit Button " (3-8, Fig. 1).
- 5) Zero setting :
 - a. On the " Sensing Head " (3-12, Fig. 1), slide the sensor cover to the up position to let the air velocity sensor isolated from the environment, refer Fig. 2.
 - b. Push the " Zero Button " (3-7, Fig. 1) to let the reading value of air velocity show zero value.



- 6) a. Slide the sensor cover to the down position, let the air velocity sensor to contact the air, refer Fig. 3.
b. Extend the telescope probe to the convenient length, refer Fig. 4

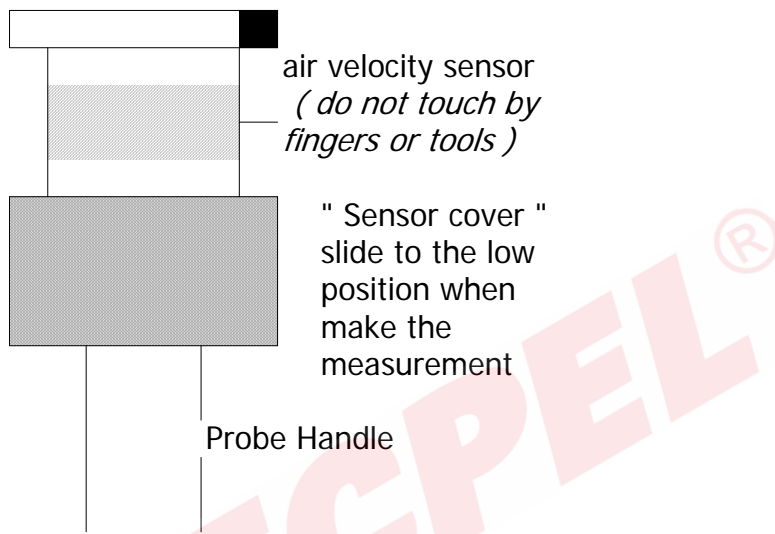


Fig. 3

Fig. 4

Caution !!!

Do not use the fingers or any tools to touch the air velocity sensor, otherwise the meter may happen the permanent damage.

7) Direction of the sensor head :

There is a mark on the top of the " Sensor Head ", When make the measurement, then this mark should against the measured wind, refer Fig. 6, Fig. 7. When sensor head face against the measurement air, then the upper display will show the air velocity value. The lower display will show the temperature value.

sensor head (side view)

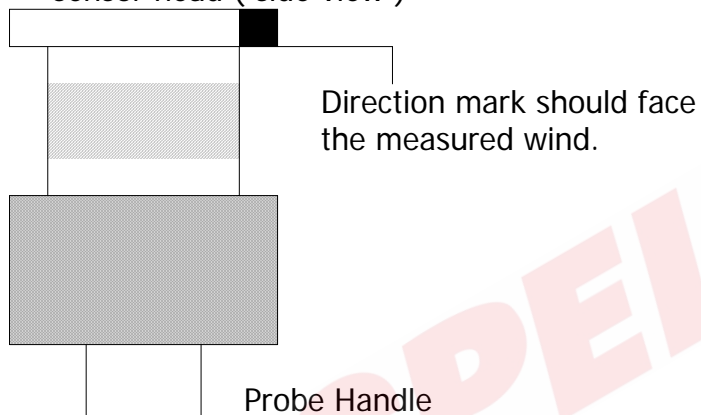


Fig. 6

sensor head (top view)

————— Direction mark should face the measured wind.

Fig. 7

8) Data Hold :

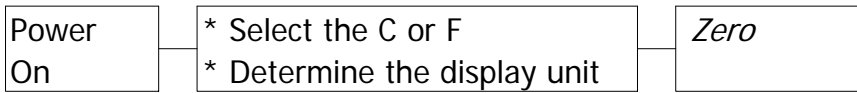
- a. During measurement, pushing the " Data Hold Button " (3-3, Fig. 1) will hold the display values & the LCD will show the " D.H " symbol.
- b. To cancel the Data Hold function, Press the Data Hold Button once more.

9) Data Record (Max. & Min. reading)

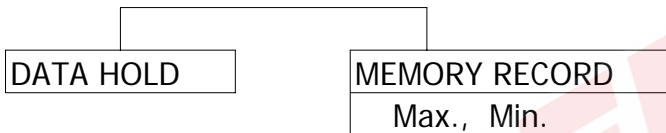
- a. The Data Record function displays the maximum & minimum readings. To start the Data Record function, press the " Record Button " (3-5, Fig. 1) once. " REC " symbol will appear on the LCD display.
- b. With the " REC " symbol indicated on the display
 - * Push the " CALL Button " (3-6, Fig. 1) once, then the " Max " symbol with the maximum values recorded will appear on the LCD display.
 - * Push the " CALL Button " once again, the " Min " symbol with the minimum values recorded will appear on the LCD display.
 - * To de-activate the Data Record function, Press the " Record Button " (3-5, Fig. 1) once again. All associated annunciators will disappear from the display.

10) For quick measurement, follow the procedures shown below :

Main procedures :



Optional measuring procedures :



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5. RS232 PC SERIAL INTERFACE

The instrument features an RS232 output via 3.5 mm " RS232 Output Socket " (3-10, Fig. 1).

The connector output is a 16 digit data stream which can be utilized to the user's specific application.

An RS232 lead with the following connection will be required to link the instrument with the PC serial input.

Meter (3.5 mm jack plug)	PC (9W 'D" Connector)
Center Pin.....	Pin 2
Ground/shield.....	Pin 5

The 16 digit data stream will be displayed in the following format :

D15 D14 D13 D12 D11 D10 D9 D8 D7 D6 D5 D4 D3 D2 D1 D0

Each digit indicate the following status :

D0	End Word
D1 to D4	Upper Display reading, D1=LSD, D4=MSD
D5 to D8	Lower Display reading, D5=LSD, D8=MSD
D9	Decimal Point(DP) for Upper display. 0 = No DP, 1= 1 DP, 2 = 2 DP, 3 = 3 DP
D10	Decimal Point (DP) for lower display 0 = No DP, 1= 1 DP, 2 = 2 DP, 3 = 3 DP

D11 & D12	Anunciator for Upper Display		
	00 = NO Symbol	07 = mg/L	14 = mS
	01 = C	08 = m/s	15 = Lux
	02 = F	09 = Knots	16 = Ft-cd
	03 = %	10 = Km/h	17 = dB
	04 = % RH	11 = Ft/min	18 = mV
	05 = % PH	12 = mile/h	
	06 = % O ₂	13 = uS	
D13	Anunciator for Lower Display 0 = No Symbol 1 = C 2 = F		
D14	Reading Polarity for the Display 0 = Both upper & lower display value are "+". 1 = Upper "-", Lower "+". 2 = Upper "+", Lower "-". 3 = Both upper & lower display value are "-".		
D15	Start Word		

6. BATTERY REPLACEMENT

- 1) When the left corner of LCD display show " LBT ", it is necessary to replace the battery. However, in-spec measurement may still be made for several hours after low battery indicator appears before the instrument become inaccurate.
- 2) Slide the " Battery Cover " (3-9, Fig. 1) away from the instrument and remove the battery.
- 3) Install the 1.5 V AAA (UM-4) battery x 6 PCs. Please use the Alkaline or heavy duty type battery. When install the batteries should be care for the battery polarity. After install the batteries, then reinstate the battery cover.