

# ENVIRO-METER™ INSTRUCTIONS

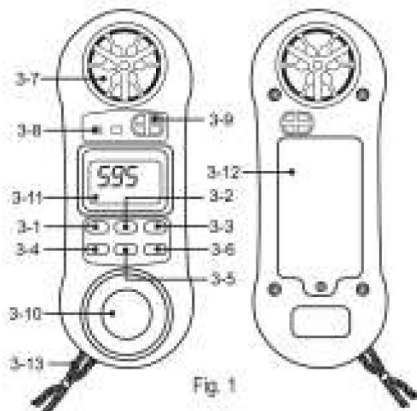
## FEATURES

- 4 in 1 professional measuring instrument: Anemometer, Hygrometer, Thermometer, and Light meter.
- Tiny bone shape with lightweight and small size case design are suitable for handling with one hand.
- Wristlet design provides extra protection to the instrument especially for user one hand operation.
- Low-friction ball bearing mounted wheel design provides high accuracy at high and low air velocity.
- Exclusive photo diode and color correction filter light sensor, spectrum meets C.I.E. photopic.
- High precision thin-film capacitance humidity sensor with fast response to the humidity changes.
- Standard type K (NiCr-NiAl) thermocouple input jack suitable for all kinds of type K probe.
- Built-in microprocessor circuit assures excellent performance and accuracy.
- Concise and compact buttons arrangement, easy operation.
- Memorize the maximum and minimum value with recall.
- °C/°F selectable by pressing button on the front panel.
- Lux-Foot-candles selectable by pressing button on the front panel.
- Air velocity measuring units selectable by pressing button on the front panel for five kinds of units.
- Multi channel display for relative humidity and temperature measured values or air velocity and temperature measured values at the same time.
- Zero button design makes light meter calibration.
- Hold function to freeze the current reading value.

## SPECIFICATIONS

|                              |                                          |
|------------------------------|------------------------------------------|
| <b>Display</b>               | 1 2/3-inch LCD display                   |
| <b>Measurement</b>           | Anemometer, Humidity, Temperature, Light |
| <b>Operating Humidity</b>    | Max. 80% RH.                             |
| <b>Operating Temperature</b> | 0 to 50 °C (32 to 122 °F)                |
| <b>Over Input Display</b>    | Indication of "----"                     |
| <b>Power Supply</b>          | 006P DC 9V battery (Heavy duty type)     |
| <b>Power Consumption</b>     | Approx. DC 6.2 mA                        |
| <b>Weight</b>                | 5 3/4 ounces (battery included)          |
| <b>Dimensions</b>            | 7 x 2 1/2 x 1 1/4 inch.                  |

- 3-1 Power Button
- 3-2 Hold Button
- 3-3 Max./Min. Button
- 3-4 Unit/Zero Button
- 3-5 °C/°F Button
- 3-6 Lux/Fc Button
- 3-7 Function Button
- 3-8 Air Flow Sensor
- 3-9 Thermocouple Input Sensor
- 3-10 R.H. Sensor
- 3-11 Light Sensor
- 3-12 LCD display
- 3-13 Battery Compartment/Cover
- 3-14 Wristlet



*ft/min*: feet per minute *MPH*: miles per hour *m/s*: meters per second *knots*: nautical miles per hour *km/h*: kilometers per hour *Fc*: foot candles

| Measurement  |                          | Range               | Resolution |
|--------------|--------------------------|---------------------|------------|
| Air Velocity | ft/min                   | 80 to 5910 ft/min   | 1 ft/min   |
|              | m/s                      | 0.4 to 30.0 m/s     | 0.1 m/s    |
|              | km.h                     | 1.4 to 108.0 km/h   | 0.1 km/h   |
|              | MPH                      | 0.9 to 67.0 mile/hr | 0.1 MPH    |
|              | knots                    | 0.8 to 58.3 knots   | 0.1 knots  |
|              | Temperature (thermistor) | 32 to 122°F         | 0.1 °F     |
|              |                          | 0 to 50°C           | 0.1°C      |

| Measurement          |                          | Range               | Resolution |
|----------------------|--------------------------|---------------------|------------|
| Humidity             | % RH                     | 10 to 95% RH        | 0.1% RH    |
|                      | Temperature (thermistor) | 32 to 122 °F        | 0.1 °F     |
|                      |                          | 0 to 50 °C          | 0.1 °C     |
| Light (auto range)   | Lux                      | 0 to 2,200 Lux      | 1 Lux      |
|                      |                          | 1,800 to 20,000 Lux | 10 Lux     |
|                      | Foot Candles             | 0 to 204.0 Fc       | 0.1 Fc     |
|                      |                          | 170 to 2,000 Fc     | 1 Fc       |
| Temperature (Type-K) |                          | −148 to 2372°F      | 0.1°F      |
|                      |                          | −100 to 1300°F      | 0.1°C      |

| Measurement          | Range              | Accuracy                                                  |
|----------------------|--------------------|-----------------------------------------------------------|
| Air Velocity         | 80 to 5910 ft/min  | ≤ 20 m/s : ± 3% F.S.<br>> 20 m/s : ± 4% F.S.              |
|                      | 0.4 to 30.0 m/s    |                                                           |
|                      | 1.4 to 108.0 km/h  |                                                           |
|                      | 0.9 to 67.0 mile/h |                                                           |
|                      | 0.8 to 58.3 knots  |                                                           |
|                      | 32 to 122°F        | ±2.5°F                                                    |
| Humidity             | 0 to 50°C          | ±1.2°C                                                    |
|                      | 10 to 95% RH       | < 70% RH: ±4% RH<br>≥ 70% RH: ± (4% or reading + 1.2% RH) |
|                      | 32 to 122 °F       | ±2.5°F                                                    |
| Light                | 0 to 20,000 Lux    | ± 5% of reading + 8 digits                                |
|                      | 0 to 2,000 Fc      |                                                           |
| Temperature (Type-K) | -148 to 2372°F     | ± (1% of reading + 2°F)                                   |
|                      | -100 to 1300°F     | ± (1% of reading + 1°C)                                   |

## MEASURING PROCEDURE

### **Air Velocity Measurement**

- 1) Power on the instrument by pressing the "Power Button" (3-1, Fig. 1).
- 2) Select the Anemometer function by pressing "Function Button" (3-6, Fig. 1).
- 3) Press the "Unit/Zero Button" (3-4, Fig. 1) to select unit that you want and then face the "Air Flow Sensor" (3-7, Fig. 1) to the source of wind.
- 4) Allow time for the reading to become stable and note the value indicated. From a practical point of view the velocity may fluctuate.

### **Temperature Measurement (Thermocouple)**

- 1) Power on the instrument by pressing the "Power Button" (3-1, Fig. 1).
- 2) Plug a type-K thermocouple probe in the "Thermocouple Input Socket" (3-8, Fig. 1).
- 3) Select the Temperature function by pressing "Function Button" (3-6, Fig. 1).
- 4) Contact the Thermocouple Sensor Head with measuring object and the reading value will be displayed on the LCD display.

### **Measuring Consideration of Temperature Measurement (Thermocouple)**

- Please make sure the polarity is correct when you plug a thermocouple probe in the Temp. input socket.
- The temperature difference between thermocouple probe and thermometer will cause an inaccurate measuring result. Therefore, for the best measuring and accuracy performance, whenever change a probe or plug a new probe, thermal equivalent between probe plug and meter's input socket is a necessary condition. Thermal equivalent procedure may take few minutes and apply only when the probe has been exposed to an ambient temperature different from the meter.

### **Humidity & Ambient Temperature Measurement**

- 1) Power on the instrument by pressing the "Power Button" (3-1, Fig. 1).
- 2) Select the Relative Humidity function by pressing "Function Button" (3-6, Fig. 1).
- 3) At the mean time the reading value of relative humidity and temperature will be displayed on the LCD display.
- 4) When the meter is applied in a new environment, a few minutes are required to reach a stable condition.

### **Light Measurement**

- 1) Power on the instrument by pressing the "Power Button" (3-1, Fig. 1).
- 2) Select the Light Measurement function by pressing the "Function Button" (3-6, Fig. 1) until the light value is displayed. The light display digits are oriented 180° from the other function displays for easy exposure and output reading of the light sensor.
- 3) Press the "Lux/Fc Button" (3-5, Fig. 1) to select measuring unit "Lux" or "Fc".

### **Zero Offset Adjustment of Light Function:**

- For best results zero the light sensor prior to use in a dark environment. Placing the light sensor end of the meter under a desktop or flat surface so as to block any light can accomplish this. Then press the "Unit/Zero Button" (3-4, Fig. 1) to set the meter indication to zero.
- Zero point can drift due to environment temperature and battery power change as well as for other reasons. It is recommended that the zero be checked frequently using the above procedure.

## OTHER FUNCTIONS

### **Hold Function**

Whenever press the "Hold Button (3-2, Fig. 1)" will freeze the current reading value with a "HOLD" symbol on the display.

### **Data Record Function**

- 1) The Data Record function records & displays the maximum and minimum reading values. Start the Data Record function by pressing the "Max./Min. Button" (3-3, Fig. 1) once. There will be a "REC" symbol on the display.
- 2) With the REC symbol on the display:
  - (a) Press the "Max./Min. Button" (3-3, Fig. 1) once and the Max symbol along with the maximum value will appear on the display.

- (b) Press the "Max./Min. Button" again, the "Min" symbol along with the minimum value will appear on the display.
- (c) To exit the memory record function, press the "Max./Min. Button" continuously for at least 2 seconds. The display will revert to the current reading.
- (d) Clear the Max./Min. value recorded by pressing the "Hold Button" (3-2, Fig. 1) once. Previous recorded Max./Min. value will be given up and then revert to the REC. function keep on recording.

### **Auto Power Off Disable**

In order to prolong the battery life, the instrument has "Auto Power Off" function. The meter will switch off automatically if no buttons are pressed for around 10 minutes.

## BATTERY REPLACEMENT

- 1) When the LCD display shows " " symbol, it is necessary to replace the battery. However measurement may still be made for several hours after the low battery indicator appears.
- 2) Open the "Battery Compartment / Cover" (3-12, Fig. 1) and remove the battery.
- 3) Install a 9V battery (Alkaline or Heavy duty type) and then reinstate the cover.