

User's Guide

EXTECH[®] INSTRUMENTS

A FLIR COMPANY

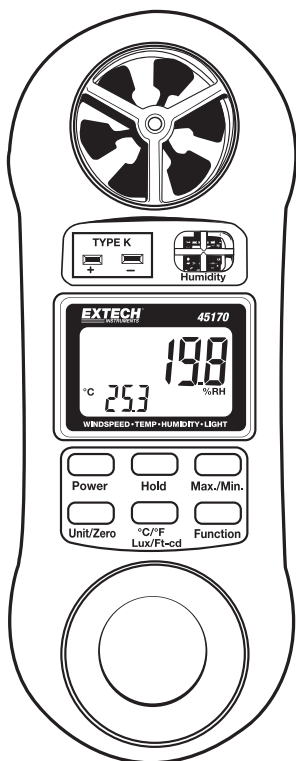
4-in-1 Humidity, Temperature Airflow and Light Meter

Model 45170

**Test Equipment
Depot**
1-800-517-8431

99 Washington Street
Melrose, MA 02176
Phone 781-665-1400
Toll Free 1-800-517-8431

Visit us at www.TestEquipmentDepot.com

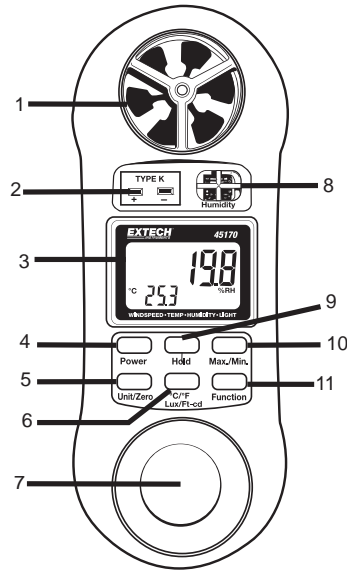


Introduction

Congratulations on your purchase of Extech's Model 45170 4-in-1 Humidity, Temperature, Airflow and Light Meter. With careful use, this meter will provide years of reliable service.

Meter Description

1. Vane Airflow Sensor
2. Type K Thermocouple Input Jack
3. Display
4. Power Button
5. Unit /Zero Button
6. C°/F° /Lux/Ft-cd Button
7. Light Sensor
8. RH and Air Temperature Sensors
9. Hold Button
10. Max/Min Button
11. Function Button



Operation

Turn Power ON

Press the power button to turn power on. The meter will perform a short self-test.

A. Air Velocity Measurements

1. Press the **Function** button to select the Anemometer mode. In Air Flow mode, the display will show Air Velocity and Temperature.
2. Press **Unit/Zero** button to select desired unit of measure (FPM, MPH, KNOT, KM/H, or M/S) and face the Air Flow Sensor towards the source of wind.
3. Allow time for the reading to stabilize and note value. From a practical point of view the velocity may fluctuate slightly.

B. Humidity and Ambient Air Temperature Measurements

1. Press the **Function** button to select RH mode.. In RH mode, the display will show %RH and Temperature.
2. Press the **°C/°F** button to select the desired temperature unit of measure.

C. Temperature Measurements Using Type K Thermocouple

1. Press the **Function** button to select the Temperature mode. In Temperature mode, the display will show only temperature.
2. Plug the thermocouple into the meter's thermocouple input jack. If no thermocouple is connected, or if the thermocouple is defective, the meter will display "-----". (Primary display temperature will only work if a thermocouple is connected).

D. Light Measurements

1. Press the **Function** button to select the Light Meter mode . The light values are displayed and orientated 180° from the other functions for easy use.
2. Press the **Lux/Ft-cd** to select Lux or Footcandle units of measure.
3. Before making measurements "Zero" the meter out by blocking the light sensor to simulate a no light condition and pressing the **Unit/Zero** button. The reading should go to Zero.
4. Hold the sensor toward the light source and note reading.

MIN, MAX, Data Recording Function

1. Press the **Max/Min** button once. The RECORD symbol will appear on the display. This starts the Min/Max Data Recording Mode.
2. Press the **Max/Min** again and the **MAX** symbol along with the maximum value will appear on the display.
3. Press the **Max/Min** once more and the **MIN** symbol along with the minimum value will appear on the display.
4. To **Clear** the recorded Max/Min values press the **HOLD** button once. Press and Hold the **Max/Min** button for 3 seconds to exit Min/Max Data Record Mode and return to normal measurement mode. Record and Max/Min will disappear from the display once this is done.

Data Hold

Press the **HOLD** button to freeze the reading in the display. The 'HOLD' icon will appear on the upper right-hand side of the display. Press the HOLD button again to return to normal operation (the 'HOLD' hold icon will disappear).

Auto Power OFF

The meter will automatically turn off after 10 minutes if no keys are pressed during this period. Auto power off is disabled in the max/min recording mode.

Turning Power OFF

Press the power button to turn power off.

Calibration and Repair Services

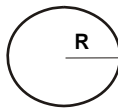
Extech offers repair and calibration services for the products we sell. Extech also provides NIST certification for most products. Call the Customer Care Department for information on calibration services available for this product. Extech recommends that annual calibrations be performed to verify meter performance and accuracy.

Useful Equations

Area equations



$$A = W \times H$$



$$A = \pi \times R^2$$

Cubic equations

| |
|--|
| $\text{CFM (ft}^3/\text{min)} = \text{Air Velocity (ft/min)} \times \text{Area (ft}^2\text{)}$ $\text{CMM (m}^3/\text{min)} = \text{Air Velocity (m/sec)} \times \text{Area (m}^2\text{)} \times 60$ |
|--|

Specifications

Range Specifications

| Measurement | Range | Resolution | Accuracy |
|---------------------------------|--------------------------|------------|---|
| MPH (Miles per hour) | 0.9 to 67.0MPH | 0.1MPH | ≤ 3937 ft/min: $\pm 3\%$ F.S. > 3937 ft/min: $\pm 4\%$ F.S. |
| km/hr (kilometers per hour) | 1.4 to 108.0 km/h | 0.1km/h | |
| Knots (nautical miles per hour) | 0.8 to 58.3 knots | 0.1knots | |
| m/sec (meters per second) | 0.4 to 30.0 m/s | 0.1 m/s | |
| ft/min (feet per minute) | 80 to 5910 ft/min | 1ft/min | |
| Temperature/Thermistor | 32 to 122°F (-0 to 50°C) | 0.1°F/C | $\pm 2.5^\circ\text{F}$ ($\pm 1.2^\circ\text{C}$) |
| Temperature /Thermocouple | -148 to 2372°F | 0.1°F | $\pm (1\% + 2^\circ\text{F})$ |
| | -100 to 1300°C | 0.1°C | $\pm (1\% + 1^\circ\text{C})$ |
| Relative Humidity | 10.0 to 95.0% | 0.1% | $\pm 4\%$ RH (from 10% to 70%RH) $\pm 4\%$ rdg +1.2% RH ($> 70\%$ RH) |
| Light (Auto Ranging) | 0 to 2,200 Lux | 1 Lux | $\pm 5\%$ rdg +8 digits |
| | 1,800 to 20,000 Lux | 10 Lux | |
| | 0 to 204.0 Fc | 0.1 Fc | |
| | 170 to 1,860 Fc | 1 Fc | |

General Specifications

| | |
|----------------------|---|
| Display | 4 digit (9999 count) Dual Display LCD |
| Sensors | Thin film capacitance humidity sensor |
| Min/Max | Min/Max recalls the highest/lowest reading |
| Data Hold | Data Hold freezes the display |
| Operating conditions | 32 to 122°F (0 to 50°C) / $< 80\%$ RH |
| Power supply | 9 Volt Battery |
| Dimensions / Weight | Instrument: 6.14 x 2.36 x 1.29" (156 x 60 x 33mm) Vane: 1" (24mm) diameter / 5.7 oz. (160 g) |