EXTECH®

4-in-1 Meter
Humidity, Temperature, Air Velocity, and Light

Model 45170


Additional translations available on www.extech.com
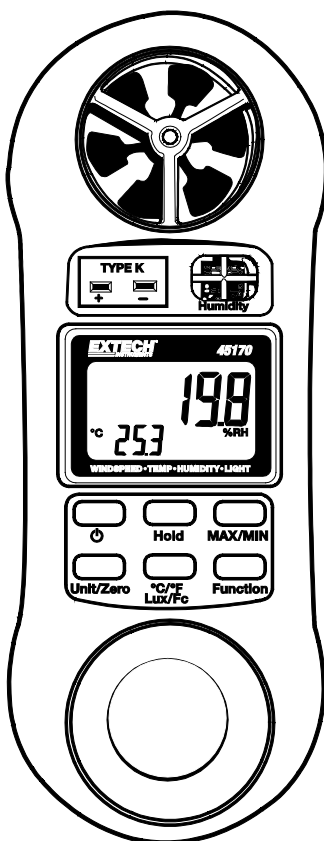
Introduction

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

Meter Description

1. Vane air velocity 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 record button

11. Function button
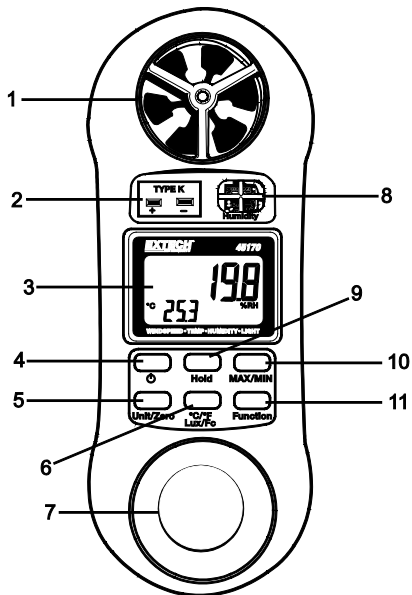
Operation

Power ON

Press the power button to switch ON the meter. The meter will perform a short self-test.

A. Air Velocity Measurements

1. Press the **Function** button to select the Anemometer mode. In Air Velocity mode, the display indicates 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 into the source of air flow.
3. Allow time for the reading to stabilize, the velocity may fluctuate slightly.

B. Humidity and Ambient Air Temperature Measurements

1. Press the **Function** button to select the RH mode. In RH mode, the display indicates Relative Humidity (%) and Temperature units.
2. Press the °**C/°F** button to select the 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 indicates 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 dashes.

D. Light Measurements

1. Press the **Function** button to select the Light Meter mode. For convenience, the Light measurement display is oriented 180° from the other functions.
2. Press the **Lux/Ft-cd** to select Lux or Foot candles.
3. Before making measurements 'zero' the display. Cover the light sensor completely and press the **Unit/Zero** button.
4. Hold the sensor toward the light source and note reading.

MAX-MIN Recording

1. Press the **MAX/MIN** button to start recording. The **RECORD** symbol will appear**.**
2. Press the **MAX/MIN** again, the **MAX** symbol will appear, and the highest reading will be displayed.
3. Press the **MAX/MIN** again and the **MIN** symbol will appear. The lowest reading will now be indicated.
4. To reset (clear) the recorded **MAX/MIN** values, short press the **HOLD** button.
5. Long press the **MAX/MIN** button to exit this mode, the **RECORD** symbol will switch OFF.

Data Hold

Press the **HOLD** button to freeze the reading on 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** icon will switch OFF).

Auto Power OFF

The meter will automatically switch OFF after 10 minutes of inactivity. Auto power OFF is disabled when the MAX/MIN function is enabled.

Power OFF

Press the power button to switch OFF the meter.

Calculating Air Volume

To calculate the air volume in an air duct, calculate the area of the duct, and multiply it by the air velocity measurement, per the cubic equations below. Be sure to convert area measurements, made in inches or centimeters, to feet or meters before performing the calculation.

Area equations for rectangular and circular ducts

H

W

R

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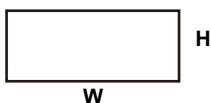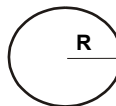
$A = pi \times R^2$

Cubic equations

CFM (ft^3/min) = Air Velocity (ft/min) x Area (ft^2)
CMM (m^3/min) = Air Velocity (m/sec) x Area (m^2) x 60

Specifications

Range Specifications

Measurement	Range	Resolution	Accuracy
MPH (Miles per hour)	0.9 to 67.0MPH	0.1MPH	$\leq$ 3937 ft/min: ±3% F.S.
km/hr (kilometers per hour)	1.4 to 108.0 km/h	0.1km/h	$\leq$ 3937 ft/min: ±3% F.S.
Knots (nautical miles per hour)	0.8 to 58.3 knots	0.1knots	> 3937 ft/min: ±4% F.S
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 122oF (-0 to 50oC)	0.1oF/C	± 2.5oF (± 1.2oC)
Temperature (Thermocouple)	-148 to 2372°F	0.1°F	± (1% + 2°F)
	-100 to 1300°C	0.1°C	± (1% + 1°C)
Relative Humidity	10.0 to 95.0%	0.1%	±4% RH (from 10% to 70%RH)
			±4%rdg +1.2% RH (> 70% RH)
Light (Auto Range)	0 to 2,200 Lux	1 Lux	±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 LCD
Humidity sensor	Thin film capacitor
MAX/MIN recording	Record and recall the highest and lowest readings
Data Hold	Measurement freezes on the display
Operating conditions	32 to 122oF (0 to 50oC) / < 80% RH
Power supply	9 V battery (rear compartment)
Dimensions / Weight	Instrument: 6.14 x 2.36 x 1.29 in. (156 x 60 x 33 mm) Vane: 1 in. (24 mm) diameter / 5.7 oz. (160 g)

Two-year Warranty

Teledyne FLIR warrants this Extech brand instrument to be free of defects in parts and workmanship for **two years** from date of shipment. To view the full warranty text please visit: *https://www.flir.com/support-center/warranty/instruments/extech-product-warranty/*

Calibration and Repair Services

Teledyne FLIR offers calibration and repair services for the Extech brand products we sell. We offer NIST traceable calibration for most of our products.

Customer Support

Local Telephone Support List: *https://support.flir.com/contact*

Return Material Authorization (RMA): *https://customer.flir.com/Home*

Customer Service: *https://support.flir.com/ContactService*

Technical Support: *https://support.flir.com*