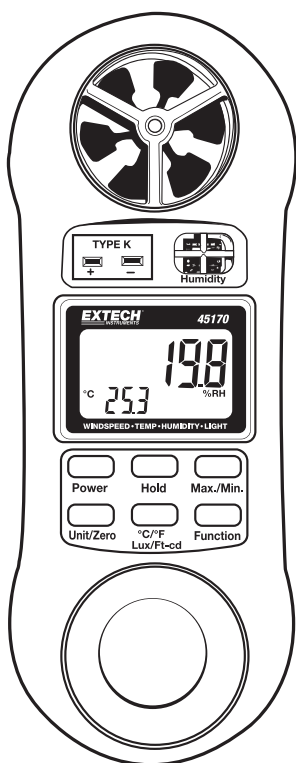


User's Guide

EXTECH[®]
INSTRUMENTS
A FLIR COMPANY

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

Model 45170

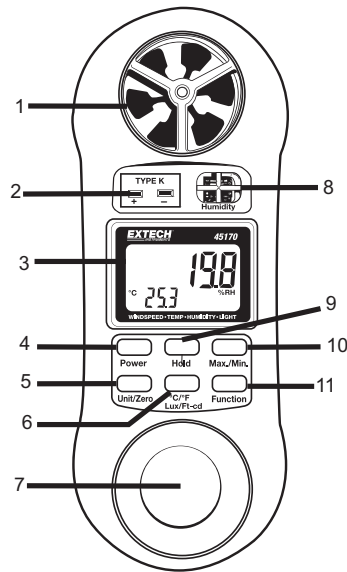


Introduction

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



Warranty

EXTECH INSTRUMENTS CORPORATION (A FLIR COMPANY) warrants this instrument to be free of defects in parts and workmanship for **one year** from date of shipment (a six month limited warranty applies to sensors and cables). If it should become necessary to return the instrument for service during or beyond the warranty period, contact the Customer Service Department at (781) 890-7440 ext. 210 for authorization or visit our website www.extech.com for contact information. A Return Authorization (RA) number must be issued before any product is returned to Extech. The sender is responsible for shipping charges, freight, insurance and proper packaging to prevent damage in transit. This warranty does not apply to defects resulting from action of the user such as misuse, improper wiring, operation outside of specification, improper maintenance or repair, or unauthorized modification. Extech specifically disclaims any implied warranties or merchantability or fitness for a specific purpose and will not be liable for any direct, indirect, incidental or consequential damages. Extech's total liability is limited to repair or replacement of the product. The warranty set forth above is inclusive and no other warranty, whether written or oral, is expressed or implied.

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

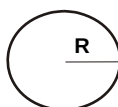
Extech offers repair and calibration services for the products we sell. Extech also provides NIST certification for most products. Call the Customer Care Department for information on calibration services available for this product. Extech recommends that annual calibrations be performed to verify meter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

Useful Equations

Area equations



$$A = W \times H$$



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

Cubic equations

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

Range Specifications

Measurement	Range	Resolution	Accuracy
MPH (Miles per hour)	0.9 to 67.0MPH	0.1MPH	$\leq 3937 \text{ ft/min: } \pm 3\% \text{ F.S.}$ $> 3937 \text{ ft/min: } \pm 4\% \text{ F.S}$
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%	$\pm 4\% \text{ RH (from 10\% to 70\%RH)}$ $\pm 4\% \text{rdg} + 1.2\% \text{ RH } (> 70\% \text{ RH})$
Light (Auto Ranging)	0 to 2,200 Lux	1 Lux	$\pm 5\% \text{ rdg} + 8 \text{ digits}$
	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)



Support line (781) 890-7440

Technical Support: Extension 200; E-mail: support@extech.com

Repair & Returns: Extension 210; E-mail: repair@extech.com

Product specifications subject to change without notice

For the latest version of this User Guide, Software updates, and other up-to-the-minute product information, visit our website: www.extech.com
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