

EXTECH®

MODEL 45168CP

USER MANUAL

Mini Thermo-Anemometer

Introduction

Thank you for selecting the Extech 45168CP. This instrument measures Wind Speed, Temperature, RH%, Dew Point, Wet Bulb, Wind Chill, and the built-in 360° Compass provides wind direction. Features include ΔT (Air Temperature minus Dew Point), MAX/AVG wind speed, Auto Power Off, and water-resistant housing.

Operation

- Opening the Meter**
- Swivel the meter out from its protective case to a maximum 180-degree angle. Use a 45-degree angle for tripod use (tripod mount on bottom of meter). Close the meter when not in use.
- Switching the meter ON and OFF**
- Press the ϕ button to switch the meter ON.
 - Long press the ϕ button to switch the meter OFF.
 - Auto Power OFF (APO) switches the meter OFF after 5 minutes of inactivity. To disable APO: With power OFF, long press both buttons until ‘n’ appears.
 - If the meter does not switch ON, please check the battery.

- Selecting Mode and Unit of Measure**
- With the meter ON, use the MODE (M) button to step: Wind speed > MAX wind speed > 10 sec. AVG wind speed > compass > air temperature > wind chill (WCI) > relative humidity (%RH) > wet bulb (WBT) > dew point (DP) > ΔT (air temperature minus dew point).
 - In the Air Temperature mode, press the UNIT button to select °F or °C.
 - In the Wind Speed mode, use the UNIT button to select unit of measure.

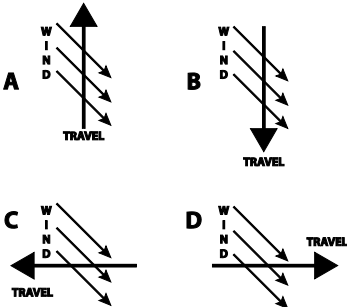
Wind Speed Measurements

Position the meter so that the airflow enters the meter vane from the rear of the meter. A tripod mount is located on the bottom of the meter for convenience.

- Compass and Wind Direction (head/tail/cross) Modes**
- Switch the meter ON and select the Compass mode (see ‘Selecting Mode’, above).
 - Point meter in the direction of travel and read the heading on the display.
 - Press and hold the UNIT button, ‘head-tail-cross’ will appear and the reading will flash 3 times. Release the UNIT button.
 - Point the meter into the wind until there is a steady compass reading. Press and hold the UNIT button until the compass reading flashes 3 times.
 - The headwind or tailwind value will display. Press UNIT to see the crosswind.
 - Press the **M** button to return to the compass-only mode.
 - Note the wind direction indicator (item 2, ‘Meter Description’ section).

Wind Direction Considerations

The head-tail-crosswind is the relationship between travel direction and wind direction. When wind direction is fixed and travel direction changes, the wind resistance changes, for example the wind resistance for **A** is stronger than **B** (see diagram) and **C** is stronger than **D**. When calculating head, tail, and crosswind, first measure the travel direction (compass).



- Compass Calibration**
- In compass mode, press and hold the two buttons to access the 30-second timer.
 - Rotate the meter twice, slowly, in the direction shown in the diagram. Each turn should be 15 seconds in duration.
 - After two turns, the display will show ‘END’ to confirm the calibration.
 - Calibrate the meter before each use and always after a battery change.



Meter Description

1

Vane impeller (impeller set screw on back)

2

Wind direction indicator

3

Temperature and Humidity sensors

4

LCD Display

5

ON/OFF, M (MODE) button

6

UNIT button

7

Battery compartment (back)

8

Tripod mounting hole

9

Storage case

10

Lanyard holder

Maintenance

Battery Replacement

Turn the meter off before opening the battery compartment. Using a coin, turn the battery compartment cover (back) CLOCKWISE to remove it. Once opened, observe the position of the battery, placing the new one in the same position. Secure the battery compartment before use. Please dispose of the battery responsibly. Remove battery if meter is to be stored for a month or longer.

- Battery Safety**
- Remove and immediately recycle or dispose of used batteries according to local regulations, keeping the batteries away from children. Do NOT dispose of batteries in household trash or incinerate.
 - Even used batteries can cause severe injury or death.
 - Call a local poison control center for treatment information.
 - This unit contains a CR2032, 3.0 V, lithium battery.
 - Non-rechargeable batteries are not to be recharged.
 - Do not force discharge, recharge, disassemble, heat above 122°F (50°C), or incinerate. Doing so may result in injury due to venting, leakage, or explosion resulting in chemical burns.
 - Ensure that the batteries are installed correctly according to correct polarity (+ and -).
 - Do not mix old and new batteries, different brands or types of batteries, such as Alkaline, carbon-zinc, or rechargeable batteries.
 - Always completely secure the battery compartment. If the battery compartment does not close securely, stop using the product, remove the batteries, keeping the batteries away from children.
 - Remove and immediately recycle or dispose of batteries from equipment not used for an extended period of time, according to local regulations.

! WARNING

- INGESTION HAZARD : This product contains a button cell or coin battery.
- DEATH or serious injury can occur if ingested.
- A swallowed button cell or coin battery can cause **Internal Chemical Burns in as little as 2 hours.**
- KEEP new and used batteries **OUT OF REACH of CHILDREN.**
- Seek immediate medical attention if a battery is suspected to be swallowed or inserted inside any part of the body.

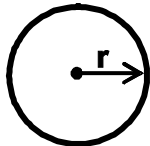
- Impeller Replacement**
- Remove the rear set screw, located to the left of the impeller assembly.
 - Twist impeller assembly counterclockwise to the OPEN (O) position and remove it.
 - Install impeller by inserting and twisting the new impeller assembly clockwise to the LOCK (L) position.
 - Tighten the set screw.

CFM Air Volume Measurements

First measure the area (A) of the duct, using the diagrams below, for rectangular and circular ducts. If the duct measurements are made in inches, divide by 144 (to convert to square feet). Air Volume is calculated by multiplying the duct area by the air velocity measurement, per the equations below.



A = w * h



A = πr²

CFM (ft³/min) = Air Velocity (ft/min) x Area (ft²)
CMM (m³/min) = Air Velocity (m/sec) x Area (m²) x 60

Measurement	Range	Resolution	Accuracy (% of reading)
MPH (miles per hour)	2.5 to 44.7 MPH	0.1 MPH	± (3% + 0.4 mph)
KPH (kilometers per hour)	4.0 to 72.0 km/h	0.1 km/h	± (3% + 1.4 km/hr)
KNT (naut. miles/hour)	2.1 to 38.9 knots	0.1 knots	± (3% + 0.6 knots)
MPS (meters per second)	1.1 to 20.0 m/s	0.1 m/s	± (3% + 0.2 m/s)
FPM (feet per minute)	216 to 3936 ft/min	2 ft/min	± (3% + 40 ft/min)
BF (Beaufort force)	1 to 8 BF	1 BF	± 1
Temperature	5 to 122°F (-15 to 50°C)	0.1°F/C	± 1.8°F (1.0°C)
Relative Humidity	0.1 to 99.9% RH	0.1% RH	± 3% (10 to 90%)
Dew Point Temperature	-4 to 122°F (-20 to 50°C)	0.1°F/C	Calculation
Wet Bulb Temperature	23 to 122°F (-5 to 50°C)	0.1°F/C	Calculation
Compass	0 to 360°	1°	± 2°
Wind Chill	-4 to 122°F (-20 to 50°C)	0.1°F/C	± 2%
Display	LCD with multifunction indicators		
Sensors	Sapphire bearing, non-corrosive vane; Precision thermistor for temperature; Capacitive sensor for humidity		
AVG Mode	10 reading averaging for wind speed		
MAX Mode	MAX recalls the highest wind speed reading		
Response time	Air Temperature and RH: 60 seconds (typical)		
Water and drop Resistant	Water resistant housing to 3 ft. (1m); Drop tested to 6 ft. (2 m)		
Operating conditions	5 to 122°F (-15 to 50°C); < 80% RH		
Power supply	Lithium battery (CR2032 or equivalent)		
Dimensions / Weight	5.5 x 1.8 x 1.0 in. (140 x 45 x 25 mm) folded; Vane diameter: 1 in. (24 mm); 3.2 oz. (90 g)		
Safety Standard	EN 61326-1 (2013)		

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>
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Customer Service: <https://support.flir.com/ContactService>
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