

**Introduction**

Thank you for selecting the Extech 45168CP. This instrument measures Wind Speed, Temperature, Humidity, Dew Point, Wet Bulb, and Wind Chill. The built-in 360° Compass also provides wind direction readings. Features include Delta T (Air Temp. 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.

**Turning the meter ON and OFF**

- Press the (P) button to turn the meter ON
- Press and hold the (P) button to turn the meter OFF
- Auto Power Off (APO) turns the meter OFF after 3 minutes of inactivity. To disable APO: With power OFF, press and hold both buttons until "n" appears.
- If the meter does not switch ON, please check the battery.

**Select the Mode of Operation and the Unit of Measure**

- With the meter ON, use the MODE (M) button to stop: Wind speed > MAX wind speed > 10 sec. AVG wind speed > compass > air temperature > wind chill (WC) > relative humidity (RH) > wet bulb (WBT) > dew point (DP) > ΔT.
- 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 Measurement Notes**

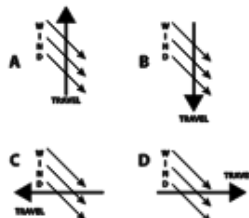
Position the meter so that the airflow enters the meter vents from the rear of the meter. A tripod mount is located on the bottom of the meter for convenience.

**Compass and Wind Direction (head/tail/cross) Modes**

- Switch the meter ON and select the Compass mode
- Point meter in the direction of travel and read the heading on the LCD
- Press and hold the UNIT button until "head/tail/cross" appears at the bottom of the LCD; the reading will then 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 head or tail 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).

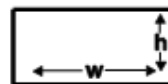
**Wind Direction Considerations**

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 sec. timer.
- Rotate the meter twice slowly in the direction shown in the diagram. Each turn should be 15 seconds in duration.
- After the two turns, the LCD will show "END" to confirm the calibration.
- Calibrate the meter before each use and always after a battery change.



$A = w * h$



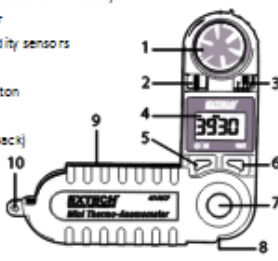
$A = \pi r^2$

CFM (ft<sup>3</sup>/min) = Air Velocity (ft/min) x Area (ft<sup>2</sup>)

CFM (m<sup>3</sup>/min) = Air Velocity (m/sec) x Area (m<sup>2</sup>) x 60

**Meter Description**

- Vane impeller (impeller setscrew on back)
- Wind direction indicator
- Temperature and Humidity sensors
- LCD Display
- ON/OFF, M (MODE) button
- UNIT button
- Battery compartment (back)
- Tripod mounting hole
- Storage case
- 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.



*Do not use any legally sound or the Battery Ordinance to return or reuse a battery to community collection points or to reuse batteries/accumulators one sold. Dispose in household trash or recycle as prohibited. Dispose: Follow the valid legal regulations in respect of the disposal of the device at the end of its life cycle.*

**Impeller Replacement**

- Remove the rear setscrew, located to the left of the impeller assembly.
- Twist the impeller assembly counter-clockwise to the OPEN (O) position and remove it.
- Install impeller by inserting & twisting the new impeller assembly clockwise to the LOCK (L) position.
- Tighten the setscrew.

**CFM Air Volume Measurements**

Measure the area of the duct using the diagrams below for rectangular or circular duct. If the duct measurements are made in inches, divide the inches by 144 to get the area in square feet. Insert the area value (in square feet) into the equations below. Note that the air velocity must also be inserted into the cubic equations.

**Specifications**

| Measurement               | Range  | Resolution    | Accuracy (% of rdg) |
|---------------------------|--|---------------|---------------------|
| MPH (miles per hour)      | 0.5-44.7 MPH   | 0.1 MPH       | ± (3%)± 0.4 mph     |
| KPH (kilometers per hour) | 0.8 to 72.0 km/h   | 0.1 km/h      | ± (3%)± 1.4 km/h    |
| KNT (knot, miles/hour)    | 0.4-39.8 knots   | 0.1 knots     | ± (3%)± 0.5 knots   |
| MPS (meters per second)   | 1.1-20.0 m/s   | 0.1 m/s       | ± (3%)± 0.2 m/s     |
| PPM (beats per minute)    | 80-3937 8/min  | 2 8/min       | ± (3%)± 40 8/min    |
| BF (Beaufort force)       | 1-8 BF   | 1 BF          | ± 1                 |
| Temperature               | -15-60°C (5-122°F)   | 0.1 °F/0.1 °C | ± 1.0°C (± 1.8°F)   |
| Relative Humidity         | 0.1-99.9%RH  | 0.1 %RH       | ± 3%/10-90%         |
| Dew Point Temperature     | -20-60°C (-4-122°F)  | 0.1 °F/0.1 °C | Calculation         |
| Wet Bulb Temperature      | -5-60°C (23-122°F)   | 0.1 °F/0.1 °C | Calculation         |
| Compass                   | 0-360°   | 1°            | ± 2°                |
| Wind Chill                | -20-60°C (-4-122°F)  | 0.1 °F/0.1 °C | ± 2%                |
| Display                   | LCD with multifunction indicators  |               |                     |
| Sensors                   | Supply re-bearing, non-corrosive vane, Precision resistor for temperature measurements, Capacitive RH sensor |               |                     |
| AVG Mode                  | 10 reading averaging for wind speed mode   |               |                     |
| MAX Mode                  | MAX recall is the highest wind speed reading   |               |                     |
| Response Time             | Air Temperature and RH: 0.0 seconds (typical)  |               |                     |
| Water and Drop Resistant  | Water resistant housing to 1m (3') / Droptested to 2m (6')   |               |                     |
| Operating conditions      | -15 to 50 °C (5 to 122 °F) / < 80 %RH  |               |                     |
| Power supply              | Lithium battery (CR-2032 or equivalent)  |               |                     |
| Dimensions / Weight       | 140 x 45 x 25mm (5.5 x 1.8 x 1.0") folded / 90g (3.2 oz.)<br>Vane diameter: 24mm (1.0")                      |               |                     |
| Safety Standard           | EN 61326-1 (2013)  |               |                     |

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