

# KESTREL-2000

## POCKET THERMO-ANEMOMETER

### FEATURES

- **Small robust design**
- **High accuracy**
- **Precision jewel mounted impeller**
- **Fast response temperature sensor**
- **Large clear liquid crystal display**
- **Functions:**
  - Air Speed
  - Maximum Air Speed
  - Average Air Speed
  - Temperature
  - Wind Chill Equivalent Temperature
- **Choice of speed units:**
  - Knots
  - Metres per second
  - Kilometres per hour
  - Miles per hour
  - Feet per minute
  - Beaufort Force
- **Choice of temperature units**
  - Centigrade
  - Fahrenheit
- **Waterproof (IP67), floats**
- **Replaceable impeller**
- **Long life lithium battery**
- **Low cost**

### DESCRIPTION

The Kestrel 2000 Pocket Thermo-Anemometer is a small electronic rotating vane anemometer with built in temperature sensor. It uses high precision jewel bearings and a light weight impeller to provide accurate wind measurements even at low speeds. The impeller is replaceable by the user in the case of damage.

The combination of anemometer, precision temperature sensor and powerful processing enables the instrument to display the wind chill equivalent temperature, a function important to anyone going outdoors in cold conditions. Maximum speed, average speed and units selection are also provided. The liquid crystal display has large 9mm high digits for a clear readout.

Power is from an easily replaceable standard lithium coin type cell that will typically give up to 400 hours of operation. The instrument switches off automatically if no keys are pressed for 30 minutes.

The Kestrel 2000 is made from high impact injection moulded plastic and corrosion resistant materials with the electronics fully sealed. It will float if accidentally dropped into water. There is a hard cover for protection when not in use and a lanyard is provided for added security.

### OPERATION

The Kestrel 2000 has been designed to be extremely simple to use with no need for complicated set up



modes. There are two buttons on the front of the instrument. One button (ON) is used to switch on/off and the other (MODE) is used to select the display of current, maximum or average air speed, temperature and wind chill equivalent temperature. Holding the ON button down and pressing the MODE button selects the required units.

### TEMPERATURE MEASUREMENT

The Kestrel 2000 uses a precision thermistor temperature sensor and like all thermometers time must be allowed for it to obtain the same temperature as the air being measured. However the special design of the Kestrel 2000 means that if there is a good air flow over the sensor (by holding the Kestrel 2000 into the wind) this will happen quickly. The 0.1-degree resolution of the display aids in determining when a steady reading has been reached. These features will be greatly appreciated by the user when measuring wind chill on a cold windy day!

### WIND CHILL

The chilling effect of the wind can be represented by the lower temperature that would be required to produce the same chilling sensation for a person walking in calm conditions. This is known as the wind chill equivalent temperature and is an important indicator in assessing the comfort of personnel spending periods outdoors. It is not an indication that an unheated inanimate object will cool below the ambient air temperature.

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CALM DAY  
AIR TEMPERATURE 7°C



BUT IF THE WIND BLOWS 12 M/S THE WIND  
CHILL IS -6°C



THAT IS, IT FEELS AS COLD AS IT WOULD ON  
A CALM DAY WITH AN AIR TEMPERATURE OF  
-6°C

### APPLICATIONS

The small robust design, high accuracy and special functions of the Kestrel Pocket Thermo-Anemometer make it an extremely versatile instrument:

**Agriculture** - checking conditions for crop spraying or burning, checking conditions for livestock.

**Automobile** - heating and air conditioning measurements

**Aviation** - gliding, hang gliding, paragliding, micro-lights, parachuting, ballooning

**Civil engineering** - site safety, working conditions

**Coastguard** - assessing conditions for survival

**Education** - air flow measurements, assessing outdoor conditions for school sports, environmental studies

**Fire fighters** - indication of fire spreading hazard

**Heating and ventilating** - air flow and temperature measurements

**Hobbyists** - model aircraft, model boats, kite flying

**Industry** - air flow and temperature measurements

**Police** - measurement of cross-winds on roads

**Outdoor activities** - archery, cycling, shooting, fishing, golf, sailing, track and field sports, camping, walking, mountaineering.

**Outdoor workers** - assessing conditions

**Science** - aerodynamics, environmental science, meteorology

### SPECIFICATION

#### Physical

Dimensions	122mm x 42mm x 14mm
Cover Dimensions	117mm x 46mm x 19mm
Weight:	66g with cover
Impeller:	Diameter 25mm. High precision jewel bearings. User replaceable impeller assembly
Lanyard:	0.5m
Case colour:	Green
<b>Display</b>	
Display type:	Reflective LCD

Digit height:	9mm
Display update:	1 second
Operating Modes:	Current speed (3 second average), Average since power on, Maximum 3 second gust since power on, Temperature, Wind chill equivalent temperature
Speed units:	kt, m/s, kmh, mph, FPM, Beaufort Force.
Temperature units:	Centigrade, Fahrenheit
<b>Performance</b>	
Speed range:	0.3m/s to 40m/s
On axis accuracy:	greater of $\pm 3\%$ of reading or $\pm 0.1\text{m/s}$
(Some loss of accuracy from bearing wear may occur with sustained operation at or near maximum speed.)	
Off -axis response:	-1% @ 5°, -2% @ 10°, -3% at 15°
Calibration drift:	<2% after 100hrs use at 7m/s
Speed resolution:	0.1 kt, m/s, km/h, mph. 1 FPM below 1999 FPM, 10 FPM above 2000 FPM. 1 Beaufort (0 to 12)
Temperature accuracy:	$\pm 1^\circ\text{C}$
Temperature resolution:	0.1°
<b>Environmental</b>	
Sealing:	Electronics enclosure IP67 [Water resistant to 1m of water], Floats.
Shock:	Drop tested to 2m
Temperature:	Operating -15°C to 50°C Storage -20°C to 80°C
EMC:	CE marked
<b>Miscellaneous</b>	
Battery:	Lithium coin cell CR2032, user replaceable.
Battery Life:	400 hours operation, typical
Auto switch off:	30 minutes after last key press.
Wind chill equivalent temperature calculation:	Siple - Passel
Country of manufacture:	USA
Guarantee:	12 months, parts & labour