

## FUNCTIONS

- Wind Speed
- Temperature
- Wind Chill
- Relative humidity
- Heat index
- Dew point
- Wet bulb temperature
- Evaporation rate
- Barometric pressure
- Altitude
- Density altitude
- Time & Date

## FEATURES

- High accuracy
- Wide operating range
- Compact, rugged design
- User-replaceable, precision Zytel®-mounted impeller
- Fast response temperature sensor
- Easy to read back-lit display
- Min/max/average values or graphical data
- User selectable units and language
- User customisable screens
- Data logging - up to 3200 readings
- Data upload (with optional PC interface or integrated Bluetooth® wireless technology)
- Runs from 2 AAA batteries
- Available in lime green



actual size  
(A4 page)

The Kestrel 4300 Construction Weather Tracker has been developed in conjunction with construction industry experts to provide a specialised Kestrel instrument for construction professionals who lay concrete.

The Kestrel 4300 measures and displays evaporation rate in addition to a multitude of other environmental conditions. The user simply enters the concrete temperature (obtained via an IR or probe thermometer \*) and the evaporation rate is instantly calculated and displayed.

Evaporation rate is a function of relative humidity, temperature and wind speed. It is a critical environmental indicator that concrete contractors use to ensure they avoid plastic shrinkage cracks in concrete installations especially concrete flatwork. Plastic shrinkage cracks occur when the surface of the concrete dries too quickly and shrinks before the bed has cured enough to resist cracking. This is especially relevant in specialty applications like decorative concrete, Ready Mix Concrete (RCM) and Tilt-up concrete.

Individual functions can be displayed in three different formats: current, minimum/maximum/average and graphical. There are also three user screens, which can be customised to simultaneously display the three most appropriate functions for the application.

The Kestrel 4300 can be set up to log data automatically (as well as manually) at programmable intervals, in order to display a history of weather information. Graphs display up to 3200 data points and the value, time and date of capture point can be shown. The stored data can also be uploaded to a PC, for analysis/storage with the optional Kestrel Interface and Communicator software.

High precision Zytel® bearings and a lightweight impeller provide accurate air flow measurements (+/-3% of reading) and the ability to operate at speeds as low as 0.6 m/s. The impeller is user-replaceable in case of damage, also ensuring high accuracy levels are maintained for life. An integral flip-open hard cover protects the impeller when not in use.

A precision external thermistor sensor provides fast response temperature readings and accuracy of +/- 1°C. The 0.1 degree resolution of the display aids in determining when a consistent reading has been reached. A special housing protects the relative humidity sensor from contamination providing an accuracy of +/-3%. A monolithic silicon based pressure sensor enables barometric pressure and altitude to be calculated, with a resolution of 0.1mbar and 1m respectively.

The combination of the Kestrel 4300's multiple sensors result in the following derived functions: wind chill, heat index, dew point, wet bulb temperature, evaporation rate and density altitude. Wind chill is the combination of wind speed and air temperature, so the stronger the wind speed the colder it feels. Heat index is the combined effect of air temperature and relative humidity. Hot, humid air actually feels hotter than hot, dry air. Dew point is the temperature at which moisture forms on a surface. Density altitude is the density of the air expressed as an altitude.

The Kestrel 4300 is powered by two easily replaceable, AAA batteries and has two power saving modes to prolong battery life. All text can be displayed in one of five languages: English, French, Italian, Spanish or German.

\* IR or probe thermometer not included. For maximum accuracy when measuring the evaporation rate, measure the concrete temperature via an infrared or probe thermometer, enter the concrete temperature into the Kestrel, and position the unit facing into the wind, 50cm above the concrete. Shade the Kestrel's thermistor (temperature sensor) so it is not in direct sunlight. For the best accuracy, use the Kestrel's convenient averaging mode to average the evaporation rate over the recommended 6-10 seconds.



Richard Paul Russell Ltd  
New Harbour Building, Bath Road, Lymington, SO41 3SE, UK  
Tel +44 (0) 1590 679755 Fax +44 (0) 1590 688577  
e-mail: sales@r-p-r.co.uk www.r-p-r.co.uk



## TECHNICAL SPECIFICATION

Physical	Dimensions		127mm x 45mm x 28mm
	Weight		102g
Display	Lanyards		0.2m and 0.5m (for wrist and neck)
	Case colour		Options of grey, safety orange or olive drab
	Display type		Dot matrix LCD with electro-luminescent backlighting
	Display update		1 second
	Data logging		Programmable 2 second to 12 hour intervals, 3200 data points with graphical display. Manual data capture. Data upload with optional PC interface. Bluetooth models only: Integrated Bluetooth wireless data transfer with adjustable range from 5 to 30 feet.
	Functions	Wind speed (current, maximum and average)	Wet bulb temperature
		Temperature	Evaporation rate
		Wind Chill equivalent temperature	Barometric pressure
		Relative Humidity	Altitude
		Heat Index	Density altitude
	Calculated Dew Point		
	Speed units		kt, m/s, km/h, mph, ft/min, Beaufort Force (B)
	Temperature units		°C, °F
	Pressure units		mbar, inHg, hPa, psi
	Altitude units		m, ft
	Evaporation rate units		kg/m²/hr, lb/ft²/hr
Performance	Date and time display		dd/mm/yy, mm/dd/yy, 12 hour, 24 hour
	Speed (1 sec response)	Operational range	0.6m/s to 60m/s (1.3 to 135.0mph)
		Specification range	0.6m/s to 40m/s (1.3 to 89.0mph) Start-up speed stated as lower limit, readings may be taken down to 0.4 m/s   79 ft/min   1.5 km/h   .9 mph   .8 kt after impeller start-up.
		On axis accuracy	± 3% of reading or ± 0.1 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	<1% after 100hrs operation at 7m/s
	Temperature (1 sec response)	Resolution	0.1 kt, m/s, km/h, mph. 1 FPM below 1999 FPM, 10 FPM above 2000 FPM. 1 Beaufort (0 to 12)
		Operational range	-45.0°C to +125.0°C
		Specification range	-29.0°C to +70.0°C
		Accuracy	±1°C
		Resolution	0.1°
	Relative Humidity (1 min response)	Wind chill accuracy	±1.0°C (from wind speed and temperature)
		Operational range	0% to 100%
		Specification range	5% to 95% non-condensing
		Resolution	0.1%
		Accuracy	±3% (when unit allowed to equilibrate to external temperature)
	Barometric Pressure (1 sec response)	Calibration drift	±2% over 24 months (correctable)
		Dew point accuracy	±2°C (above 20% relative humidity)
		Heat index accuracy	±2°C (between 21.1°C and 54.4°C)
		Operational range	10 to 1100 mbar at 25°C
		Specification range	750 to 1100 mbar at 25°C
	Altitude (1 sec response)	Resolution	0.1 mbar
		Accuracy	±1.5 mbar (max error over range 0°C to 70°C: ±2.0 mbar)
		Calibration drift	Typically ±1 mbar per year (correctable)
		Operational range	-2000m to +9000m (-6000 ft to +30,000 ft)
		Specification range	-2000m to +6000m at 25°C
	Wet bulb temperature accuracy	Accuracy	±15m (max error out of spec range: ±30m)
		Resolution	1m or 1ft
		Wet bulb temperature accuracy	±2°C (between 0°C and 37.8°C)
		Density altitude accuracy	±75m (between 0°C and 37.8°C)
		Operational range	0 to 5.00 kg/m²/hr
	Evaporation Rate (1 sec response)	Specification range	0 to 5.00 kg/m²/hr
		Accuracy	±0.1 kg/m²/hr Typical
		Resolution	0.01 kg/m²/hr
Sensors	Impeller		Diameter 25mm. High precision axle and low-friction Zytel® bearings. Replacement impeller field installs without tools.
	Temperature		Air, water or snow temperature. Hermetically-sealed, precision thermistor mounted externally and thermally isolated for rapid response. Airflow of 2.2 mph   1 m/s or greater provides fastest response and reduction of insulation effect. Calibration drift negligible.
	Relative Humidity		Polymer capacitive sensor, mounted externally in thin-walled chamber
	Barometric pressure		Monolithic piezo-resistive silicon based sensor with second-order temperature correction
Environmental	Sealing		Electronics enclosure IP67 and NEMA-6 [Water resistant]
	Shock		Drop tested (MIL-STD.810F - unit only)
	Temperature		Operating range: -10°C to +55°C (for LCD readability and batteries) Storage range: -30°C to +60°C
	EMC		CE marked
Miscellaneous	Battery		2 off AAA alkaline, included, user replaceable
	Battery Life		400 hours of use, average, ± depending on backlight use
	Auto switch off		Selectable to remain switched on or switch off 15 or 60 minutes after last key press
	Wind chill equivalent temperature calculation		Perceived temperature resulting from combined effect of wind speed and temperature. Utilises the (US) NWS Wind Chill Temperature (WCT) Index, revised 2001, with wind speed adjusted by a factor of 1.5 to yield equivalent results for wind speed measured at 10m above ground
	Heat Index calculation		Steadman, from temperature and relative humidity
	Certification		Wind speed, temperature, pressure and humidity measurements are tested during manufacture. A certificate of conformity (C of C) is included with each Kestrel. Calibration certificates are available for an additional fee.
	Guarantee		5 years

The manufacturer reserves the right to amend the specification and therefore the information in this document may be subject to change. Please check our website [www.r-p-r.co.uk](http://www.r-p-r.co.uk) for details