Kestrel® Pocket Weather Meters Specifications

Measurement / Response Time	Model	Units	Maximum Range	Resolution	Accuracy (+/-)	Specification Range
Wind Speed (Air Velocity) *1 second*	All Models	**mph**	**0.8 to 135.0 mph**	1	3% +0.1/-0.3 mph	8.5 to 89.0 mph / 0.8 to 8.5 mph
		ft/min	59 to 11,880 ft/min	1	3% +10/-30 ft/min	750 to 7832 ft/min / 70 to 750 ft/min
		km/h	1.0 to 217.3 km/h	0.1	3% +0.1/-0.3 km/h	13.7 to 143.2 km/h / 1.3 to 13.7 km/h
		m/s	0.4 to 60.0 m/s	0.1	3% +0.1/-0.3 m/s	3.8 to 40.0 m/s / 0.4 to 3.8 m/s
		knots	0.6 to 117.3 kt	0.1	3% +0.1/-0.3 kt	7.4 to 77.0 kt / 0.6 to 7.4 kt
		Beaufort	0 to 12 B	1	1 B	0 to 12 B

1 inch diameter impeller with precision axle and sapphire bearings. Off-axis accuracy -1% @ 5⁰ off-axis; -2% @ 10⁰; -3% @ 15⁰. Calibration drift < 1% after 100 hours use at 16 MPH / 7 m/s. Sustained operation above 60 MPH / 27 m/s will wear impeller rapidly and may cause destruction of impeller. Replacement impeller (NK PN-0801) may be field-installed without tools (US Patent 5,783,753).

Measurement / Response Time	Model	Units	Maximum Range	Resolution	Accuracy (+/-)	Specification Range
Air Flow *1 second*	4100	cfm	0 to 99,999 cfm	1	Dependent upon accuracy of duct measurement.	0 to 99,999 cfm
		m³/h	0 to 99,999 m³/h	1		0 to 99,999 m³/h
		m³/m	0 to 99,999 m³/m	1		0 to 99,999 m³/m
		m³/s	0.0 to 9,999.9 m³/s	0.1		0.0 to 9,999.9 m³/s
		L/s	0 to 99,999 L/s	1		0 to 99,999 L/s

Automatically calculated from Air Velocity measurement and user-specified duct shape (circle or rectangle) and dimensions (units: in, ft, cm or m). Maximum duct dimension input: 258.0 in / 21.5 ft / 655.3 cm / 6.55 m.

Measurement / Response Time	Model	Units	Maximum Range	Resolution	Accuracy (+/-)	Specification Range
Temperature *1 second*	2000 2500 3000 3500 4000 4100	°F	-49.0 to 257.0 °F	0.1	1.8 °F	-20.0 to 158.0 °F
		°C	-45.0 to 125.0 °C	0.1	1.0 °C	-29.0 to 70.0 °C

Measures air, water and snow temperature. Thermally isolated, hermetically sealed, precision thermistor mounted externally (US Patent 5,939,645). Calibration drift negligible. **NOTE: See "Functional Temperature Limits" below for further temperature range information.**

Measurement / Response Time	Model	Units	Maximum Range	Resolution	Accuracy (+/-)	Specification Range
Relative Humidity *1 minute*	3000 3500 4000 4100	%RH	0.0 to 100.0 %	0.1	3.0 %RH	5.0 to 95.0 % non-condensing

Kestrel 1000 to 3500: Polymer capacitive humidity sensor mounted in chamber sealed with gas-permeable membrane. Second thermistor in same chamber improves RH response and accuracy (patent pending). Kestrel 4000: Polymer capacitive humidity sensor mounted in thin-walled chamber external to case for rapid, accurate response (US Patent 6,257,074). Kestrel 4000 units w/code version 4.10 or greater have second thermistor mounted in RH chamber to speed RH response (patent pending). To achieve stated relative humidity accuracy, airflow over temperature sensor must be maintained or unit must be permitted to equilibrate to external temperature when exposed to large, rapid temperature changes and must be shielded from direct sunlight. Calibration drift +/- 2% over 24 months. Relative humidity may be recalibrated at factory or in field using Kestrel Humidity Calibration Kit (NK PN-0824).

Measurement / Response Time	Model	Units	Maximum Range	Resolution	Accuracy (+/-)	Specification Range
Pressure *1 second* (mb & PSI 4000 model only)	2500 3500 4000	inHg	8.86 to 32.48 inHg	0.01	0.05 inHg	At 77.0 °F, <19,700 ft
		hPa / mb	300.0 to 1100.0 hPa / mb	0.1	1.5 hPa / mb	At 25.0 °C, <6,000 m
		PSI	4.4 to 16.0 PSI	0.1	0.1 PSI	At 77.0 °F, <19,700 ft

Monolithic silicon piezoresistive pressure sensor with second-order temperature correction. Maximum error beyond specified temperature, +/- 0.09 inHg / 3.0 hPa. Calibration drift typically -0.03 inHg / -1.0 hPa per year. Pressure sensor may be recalibrated at factory or in field.

Measurement / Response Time	Model	Units	Maximum Range	Resolution	Accuracy (+/-)	Specification Range
Altitude *1 second*	2500 3500 4000	ft	-6000 to 30000 ft	1	50 ft	At 77.0 °F, <19,700 ft. Max error +/- 98 ft
		m	-2000 to 9000 m	1	15 m	At 25.0 °C, <6,000 m. Max error +/- 30 m

Temperature compensated pressure (barometric) altimeter.

Measurement / Response Time	Model	Units	Maximum Range	Resolution	Accuracy (+/-)	Specification Range
Wind Chill *1 second*	2000 2500 3000 3500 4000 4100	°F	0.7 to 135.0 MPH, -49.0 to 257.0 °F	0.1	1.8 °F	1.8 to 89.0 mph, -50.0 to 50.0 °F
		°C	0.4 to 60.0 m/s, -45.0 to 125.0 °C	0.1	1.0 °C	0.4 to 40 m/s, -45.6 to 10.0 °C

Calculated from the primary measurements of wind speed and temperature. Utilizes the NWS Wind Chill Temperature (WCT) Index, revised 2001, with wind speed adjusted by a factor of 1.5 to yield equivalent results to wind speed measured at 10 m above ground. (Specification temperature limits established by WCT Tables.)

Measurement / Response Time	Model	Units	Maximum Range	Resolution	Accuracy (+/-)	Specification Range
Heat Index *1 minute*	3000 3500 4000 4100	°F	0.0 to 100.0 %RH, -49.0 to 257.0 °F	0.1	3.6 °F	70.0 to 130.0 °F, 0 to 100% RH
		°C	0.0 to 100.0 %RH, -45.0 to 125.0 °C	0.1	2.0 °C	21.1 to 54.4 °C, 0 to 100 %RH

Calculated from the primary measurements of temperature and relative humidity. Utilizes the NWS Heat Index (HI) tables. (Specification temperature limits established by HI tables.)

Measurement / Response Time	Model	Units	Maximum Range	Resolution	Accuracy (+/-)	Specification Range
Dewpoint *1 minute*	3000 3500 4000 4100	°F	0.0 to 100.0 %RH, -49.0 to 257.0 °F	0.1	3.6 °F	-20.0 to 158.0 °F, 20.0 to 95.0% RH
		°C	0.0 to 100.0 %RH, -45.0 to 125.0 °C	0.1	2.0 °C	-29.0 to 70.0 °C, 20.0 to 95.0 %RH

Calculated from the primary measurements of temperature and relative humidity. Temperature to which the air would need to be cooled at a constant pressure to become saturated.

Measurement / Response Time	Model	Units	Maximum Range	Resolution	Accuracy (+/-)	Specification Range
Wet Bulb Temperature *1 minute*	3000 3500 4000	°F	-49.0 to 257.0 °F, 0.0 to 100.0 %RH, 8.86 to 32.48 inHg	0.1	3.6 °F	32.0 to 100.0 °F, 5.0 to 95.0% RH, 8.86 to 32.48 inHg, <19700 ft
		°C	-45.0 to 125.0 °C, 0.0 to 100.0 %RH, 300.0 to 1100.0 hPa	0.1	2.0 °C	0.0 to 37.8 °C, 5.0 to 95.0 %RH, -2000.0 to 9000.0 hPa, <6000 m

Calculated from the primary measurements of temperature, relative humidity and pressure. Equivalent to temperature indicated by a wet bulb psychrometer.

Measurement / Response Time	Model	Units	Maximum Range	Resolution	Accuracy (+/-)	Specification Range
Density Altitude *1 second*	4000	ft	-49.0 to 257.0 °F, 0.0 to 100.0 % RH, 8.86 to 32.48 inHg	1	246	32.0 to 100.0 °F, 5.0 to 95.0 %RH, 8.86 to 32.48 inHg, <19700 ft
		m	-45.0 to 125.0 °C, 0.0 to 100.0 %RH, 300.0 to 1100.0 hPa	1	75	0.0 - 37.8 °C, 5.0 to 95.0 %RH, -2000 to 9000 hPa, <6000 m

Calculated from the primary measurements of temperature, relative humidity and pressure. Air density converted to equivalent sea level elevation at the International Standard Atmosphere.

Feature	Model	Description
Max / Average Wind Speed (Air Velocity)	All Models	One-button clear and restart of Max Wind Gust and Average Wind measurement.
Pressure Trend	2500 3500	Continuously updating three-hour barometric pressure trend indicator: rising rapidly, rising, steady, falling, falling rapidly.
Data Storage / Display	4000 4100	Minimum, maximum and average logging for every measured value. Automatic data logger with user-settable data storage interval from 2 seconds to 12 hours. Manual data capture. Graphical display of stored data with detail review. Code versions 4.09 and lower store 480 data sets for memory capacity of 16 minutes to 240 days. Code version 4.10 and higher store 2000 data sets for memory capacity of 66 minutes to 1000 days.
Data Upload	4000 4100	Requires optional PC interface (NK PN-0830) and provided software. RS-232 connection with USB adapter available.
Display	1000 2000 3000	Reflective 3 1/2 digit LCD. Digit height 0.36 in / 9 mm.
	2500 3500	Reflective 4 digit LCD. Digit height 0.36 in / 9 mm.
	4000 4100	Multifunction, multi-digit programmable dot-matrix display.
Display Update	All Models	1 second.
Display Backlight	2000 2500 3000 3500	Choice of aviation green or red-filtered (2500/3500NV models) electroluminescent backlight.
	4000 4100	Choice of aviation green or red-filtered (4000NV model) electroluminescent backlight. Automatic or manual activation.
Clock / Calendar	2500 3500	Real-time hours:minutes clock.
	4000 4100	Real-time hours:minutes:seconds clock, calendar, automatic leap-year adjustment.
Functional Temperature Limits	All Models	The liquid crystal display and batteries will not function below 14 °F / -10 °C, and **damage to both may result if the unit temperature exceeds 131 °F / 55 °C**. Readings may be taken beyond these functional limits, to the limits of the maximum ranges listed above, by maintaining the unit within these functional limits and exposing it to temperature extremes for the minimum time necessary to take a reading (30 seconds to 1 minute).
Storage Temperature	All Models	-22 °F to 140 °F / -30 °C to 60 °C.
Auto Shutdown	2000 2500 3000 3500	After 45 minutes of no key presses.
	4000 4100	User-selectable: 15 or 60 minutes with no keypresses or disabled.
Languages	4000 4100	English, French, German, Italian, Spanish.
Certifications	All Models	CE certified. Individually tested to NIST-traceable standards (written certificate of tests available at additional charge).
Batteries	2000 2500 3000 3500	CR2032, one, included. Average life, 300 hours of use, +/-depending on backlight use.
	4000 4100	AAA Alkaline, two, included. Average life, 400 hours of use, +/-depending on backlight use.
Environmental	All Models	Waterproof (IP67 standard). Unit drop-tested to 4.2 ft / 128 cm (MIL-STD-810F). Replaceable impeller may fail before unit.
Dimensions	2000 2500 3000 3500	Unit 4.8 x 1.7 x 0.7 in / 122 x 42 x 18 mm. Case 4.8 x 1.9 x 1.1 in / 122 x 48 x 28 mm.
	4000 4100	Unit 5.0 x 1.8 x 1.1 in / 12.7 x 4.5 x 2.8 cm.
Weight	2000 2500 3000 3500	Unit 2.3 oz / 65 g. Case 1.3 oz / 37 g.
	4000 4100	Unit 3.6 oz / 102 g.