



This instrument was produced under rigorous factory production control and documented standard procedures. It was individually visually inspected, leak tested and function tested for display, backlight, button and software performance. The accuracy of each of its primary measurements was individually calibrated and/or tested against standards traceable to the National Institute of Standards and Technology ("NIST") or calibrated intermediary standards. This instrument is certified to have performed at the time of manufacture in compliance with the following specifications as they apply to this meter's specific model, measurements and features.

Methods Used in Calibration and Testing

Wind Speed:

The Kestrel Pocket Weather Meter impeller installed in this unit was individually tested in a subsonic wind tunnel operating at approximately 300 fpm (1.5 m/s) and 1200 fpm (6.1 m/s) monitored by a Gill Instruments Model 1350 ultrasonic time-of-flight anemometer. The Standard's maximum combined uncertainty is $\pm 1.04\%$ within the airspeed range 706.6 to 3923.9 fpm (3.59 to 19.93 m/s), and $\pm 1.66\%$ within the airspeed range 166.6 to 706.6 fpm (0.85 to 3.59 m/s).

Temperature:

Temperature response is verified in comparison with a Eutechnics 4600 Precision Thermometer or a standard Kestrel 4000 Pocket Weather Tracker calibrated weekly against the Eutechnics 4600. The Eutechnics 4600 is calibrated annually and is traceable to NIST with a maximum relative expanded uncertainty of ±0.020°C.

Direction / Heading

The sensitivity of the magnetic directional sensor is verfied at the component level by applying a magnetic field to the sensor and measuring the signal output at 4 points, as well as after assembly by orienting the unit to the cardinal directions and measuring the magnetic field output. In both cases the compass output must be accurate to within +/- 5 degrees.

Relative Humidity:

Relative humity receives a two-point calibration in humidity and temperature controlled chambers at 75.3% RH and 32.8% RH at 25° C. The calibration tanks are monitored with an Edgetech Model 2002 DewPrime II Standard Chilled Mirror Hygrometer. Following calibration, performance is further verified at an RH of approximately 43.2% against the Edgetech Hygrometer. The Edgetech Hygrometer is calibrated annually and is traceable to NIST with a maximum relative expanded uncertainty of +/- 0.5 %RH.

Barometric Pressure:

Pressure response is verified against a Mensor Series 6000 Digital Barometer or a standard Kestrel 4000 Pocket Weather Tracker calibrated weekly against the Mensor Barometer. The Mensor Barometer is calibrated annually and is traceable to NIST with a maximum relative expanded uncertainty of +/- 0.2 hPa.

Approved By:

Michael Naughton, Engineering Manager

Primary	1000	2000	2500	2000	2500	3500	4000	4200	4250	4200	4400	4500	4500	Units	Pasalutian	Accuracy (+/-)	Range:	Notes	
Measurement	1000	2000	2500	3000	3500	DT	4000	4200	4250	4300	4400	4500	HOR		Resolution	Accuracy (+/-)	Max Operational Specification (if less) 0.6 to 60.0 m/s	Notes	
														m/s	0.1		0.6 to 40.0 m/s 118 to 11,811 ft/min		
														ft/min	1		118 to 7,874 ft/min	1 inch diameter impeller with precision axle and low-friction Zytel® bearings.	
Wind Speed														km/h	0.1	Larger of 3% of reading, least	2.2 to 216.0 km/h 2.2 to 144.0 km/h	Startup 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 startup. Off-axis accuracy -1%	
or Air Velocity	-	-	_	-	_	-	_	_	_	-	_	_	-	mph	0.1	significant digit or 20 ft/min	1.3 to 134.2 mph 1.3 to 89.5 mph	@ 5° off-axis; -2% @ 10°; -3% @ 15°. Calibration drift < 1% after 100 hours use at 16 MPH 7 m/s. Replacement impeller (NK PN-0801) field installs without	
														knots	0.1		1.2 to 116.6 knots 1.2 to 77.8 knots	tools (US Patent 5,783,753).	
														Beaufort	1		0 to 12 B		
														°F	0.1	1.8 °F	-49.0 to 257.0	Air, water or snow temperature. Hermetically-sealed, precision thermistor	
Temperature		•	•	•	•	•	•	•	•	•	•	•	•				-20.0 to 158.0 -45.0 to 125.0	mounted externally and thermally isolated (US Patent 5,939,645) for rapid response. Airflow of 2.2 mph 1 m/s or greater provides fastest response and	
														°C	0.1	1.0 °C	-29.0 to 70.0	reduction of insolation effect. Calibration drift negligible.	
Relative Humidity				•	•	•	•	•	•	•	•	•	•	%RH	0.1	3.0 %RH	0.0 to 100.0% 5.0 to 95.0% non-condensing	Polymer capacitive humidity sensor mounted in thin-walled chamber external to case for rapid, accurate response (US Patent 6,257,074). To achieve stated accuracy, unit must be permitted to equilibrate to external temperature when exposed to large, rapid temperature changes and be kept out of direct sunlight. Calibration drift +/- 2% over 24 months. RH may be recalibrated at factory or in field using Kestrel Humidity Calibration Kit (NK PN-8802).	
Pressure	9		•							•				inHg	0.01	typical 0.04 inHg	0.30 to 32.48 inHg	Air pressure at the location. Adjustable reference altitude allows display of	
					•	•										max 0.07 inHg	ļ	station pressure or barometric pressure corrected to MSL. Monolithic silicon piezoresistive pressure sensor with second-order temperature correction.	
									•		•	•	•	hPa (mb)	0.1	typical 1.5 hPa max 2.5 hPa	300.0 to 1100.0 hPa 10.0 to 1100.0 hPa	Pressure sensor may be recalibrated at factory or in field. Kestrel 2500 and 3500 display continuously updating three-hour barometric pressure trend	
														PSI	0.01	typical 0.02 PSI	0.14 to 15.95 PSI	indicator: rising rapidly, rising, steady, falling, falling rapidly. Kestrel 4000	
															0.01	max 0.04 PSI	0.14 to 10.00 ! 01	series displays pressure trend through graphing function.	
												•	•	•	1	2-axis solid-state magnetoresistive sensor mounted perpendicular to unit plane to permit operation while measuring wind speed. Declination/variatio			
Wind Direction Forward Heading																		adjustable for True North readout. Accuracy of measurements dependent upon unit's vertical position. Self-calibration routine eliminates magnetic	
														Cardinal	16 Points	5°	0 to 360°	(battery removal or change).	
														cfm	1		0 to 99,999 cfm	(Sautery removal or change).	
														m³/hr	1	Larger of 3% of reading, least	0 to 99,999 m ³ /hr	Volume of air flowing through an opening. Automatically calculated from Air Velocity measurement and user-specified duct shape (circle or rectangle) and	
Air Flow								•						m³/m	1	significant digit	0 to 99,999 m ³ /m	dimensions (units: in, ft, cm or m). Maximum duct dimension input: 258.0 in	
														m³/s L/s	0.1 1	or 20 ft/min	0.0 to 9,999.9 m ³ /s 0 to 99,999 L/s	21.5 ft 655.3 cm 6.55 m.	
														mph ft/min	1	10% 10%	-	Effective wind relative to a target or travel direction. Calculated from wind	
Crosswind & Headwind/Tailwind												•	•	km/h	0.1	10%	Refer to stated ranges for wind speed.	speed, wind direction and target heading. Auto-switching headwind/tailwind	
														m/s knots	0.1 0.1	10% 10%		indication.	
														°F	0.1	1.8 °F	Refer to stated ranges	Perceived temperature resulting from combined effect of wind speed and temperature. Caclulated based on the NWS Wind Chill Temperature (WCT)	
Wind Chill		•	•	•	•	•	•	•	•	•	•	•	•				for wind speed and temp.	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.	
														°C	0.1	1.0 °C	tomp.	Specification temperature limits established by WCT Tables.	
Heat Index														°F	0.1	3.6 °F		Perceived temperature resulting from the combined effect of temperature and relative humidity. Calculated based on NWS Heat Index (HI) tables.	
Treat macx				•		•	•	_	•	•	•	•		°C	0.1	2.0 °C	humidity.	(Specification temperature limits established by HI tables.)	
Wet Bulb												_		°F	0.1	3.6 °F	Refer to stated ranges	Temperature indicated by a wet bulb psychrometer under forced aspiration.	
Temperature (Psychrometric)					•	•	•	•	_	•	_	•	•	°C	0.1	2.0 °C	for temp., relative humidity and pressure.	Calculated from temperature, relative humidity and pressure.	
D														°F	0.1	3.6 °F		Temperature to which the air must be cooled at a constant pressure for water	
Dewpoint				•	•	•	•	•	•	•	•	•	•	°C	0.1	2.0 °C	for temp. and relative humidity.	vapor to condense into water. Calculated from temperature and relative humidity.	
														°F	0.1	5.4 °F		Difference between dry bulb temperature and wet bulb temperature. When	
Delta T						•								°C	0.1	3.0 °C	for temp., relative humidity and pressure.	spraying, indicates evaporation rate and droplet lifetime. Safe range for pesticide spraying is 4 to 16 °F / 2 to 9 °C.	
																typical 0.02			
Evaporation Rate										•				lb/ft ² /hr kg/m ² /hr	0.01	lb/ft²/hr typical 0.06 lb/ft²/hr typical 0.1 kg/m²/hr	0.00 to 1.00 lb/ft²/hr	The rate at which moisture is lost from the surface of curing concrete. Calculated from wind speed, temperature, relative humidity and concrete temperature. Requires user measurement and entry of concrete temperature obtained with an accurate IR or probe thermometer ("F or "C, not included). Readings should be taken 20 inches above pour surface with the thermistor	
														kg/iii /iii	0.01	max 0.1 kg/m²/hr	0.00 to 5.00 kg/m²/hr	shaded, and averaged for 6-10 seconds using built-in averaging function.	
														ft	1	typical 50 ft max 98 ft	-2,300 to 85,000 ft	Height above Mean Sea Level ("MSL"). Temperature compensated pressure	
Altitude			•		•	•	•	•	•	•	•	•	•	m	1	typical 15 m	-700 to 25,900 m	(barometric) altimeter requires accurate reference barometric pressure to produce maximum absolute accuracy.	
																max 30 m			
Density Altitude							•	•	•	•	•	•	•	ft	1	246	for temp., relative	Air density converted to equivalent sea level elevation at the International Standard Atmosphere. Calculated from temperature, pressure and relative	
														m	1	75	humidity and pressure.		
M	•	•	•	•	•	•								One-button	clear and re	estart of Max Wind	Gust and Average Wind	measurement by powering down and restarting unit.	
Max/Avg Wind							•	•	•	•	•	•	•					ependently of data logging of other values, along with all other wind-related //BGT, TWL, evaporation rate.	
Data Storage &								_	_	_	_			Minimum, n	naximum, av	erage and logged	history stored and displa	ayed for every measured value. Large capacity data logger with graphical	
Graphical Display, Min/Max/Avg History							4000	3600	3600	3200	2400		2500	overwrite o				be reset independently. Auto-store interval settable from 2 seconds to 12 hours, second intervals (code version 4.18 and later). Data set capacity by model	
Data Upload							•	•	•	•	•	•	•	snown.	otional PC in	nterface (USB or B	S-232) or Rivetooth enab	oled model and provided software.	
Available Bluetooth®							Ť	Ť	Ť					Adjustable	power cons	umption and radio	range from up to 30 ft 9	meters. Individual unit ID and 4-digit PIN code preprogrammed for easy	
Data Connect							•	•	•	•	•	•	•	identification	n and data	security when pair	ing and transmitting. En	ploys Bluetooth Serial Port Protocol for data transmission.	
	•	•		•										Reflective 3 with auto-or		D. Digit height 0.3	66 in / 9 mm. Aviation gre	en electroluminescent backlight (except in Kestrel 1000). Manual activation	
Display & Backlight			•		•	•								Reflective 5	digit LCD.		/ 9 mm. Choice of aviat	ion green or visible red (NV models only) electroluminescent backlight. Manual	
J												•	•	Multifunction		it monochrome do	t-matrix display. Choice	of aviation green or visible red (NV models only) electroluminescent backlight.	
							_	•	•	_	•	_	_	Automatic	or manual a	ctivation.			
Response Time & Display Update		•	•	•	•	•	•	•	•	•	•	•	•	include RH	in their calc	ulation may requir	relative numidity respon e as long as 1 minute to	d accurately within 1 second. Relative humidity and all measurements which fully equilibrate to a large change in the measurement environment. Display	
Display Opudle			•		•	•								updates ev	ery 1 second	d.			
Clock / Calendar					<u> </u>	<u> </u>	•	•	•	•	•	•	•	Real-time hours:minutes clock. Real-time hours:minutes:seconds clock, calendar, automatic leap-year adjustment.					
Operational & Storage Temperature	_	_					_	_		_				The operational temperature range of the liquid crystal display and batteries is 14° F to 131° F / -10 °C to 55 °C. Measurements beyond the operational range can be taken by briefly exposing unit to extreme conditions such that the display and batteries remain within the operational					
Range	Ľ	Ľ	_			Ľ	Ľ	Ľ	Ľ	Ľ	Ĺ	Ľ	Ľ	range. Storage range -22 °F to 140 °F / -30 °C to 60 °C.					
Auto Shutdown	•-	•												After 45 minutes of no key presses. User-selectable ~ 15 or 60 minutes with no key presses or disabled.					
Languages							•	•	•	•	•	·	•	English, French, German, Italian, Spanish.					
Certifications	•	•	•	•	•	•	•	•	•	•	•	•	•	CE cartified PAHS and WEEE compliant, Individually tasted to NIST traceable standards (written cartificate of tasts available at additional					
	•	•	•	•	•	•									e, included.	Average life, 300 h	ours. Battery life reduce	d by backlight use in 2000 to 3500 models.	
Battery							•	•	•	•	•	•	•					d by backlight or Bluetooth radio transmission use.	
Environmental	•	•	•	•	•	•	•	•	•	•	•	•	•	Waterproof	(IP67 and N	EMA-6). MIL-STD-8	110F, Transit Shock, Meth	od 516.5 Procedure IV; unit only; impact may damage replaceable impeller.	
	•	•	•	•	•	•								4.8 x 1.9 x 1	.1 in / 12.2 x	4.8 x 2.8 cm, 3.6 c	z / 102 g (including slip-	on cover).	
Size & Weight					ļ		•	•	•	•		•	•	5.0 x 1.8 x 1	.1 in / 12.7 x	4.5 x 2.8 cm, 3.6 c	z / 102 g.		
											•			6.5 x 2.3 x 1	.1 in / 16.5 x	5.9 x 2.8 cm, 4.4 c	z / 125 g.		