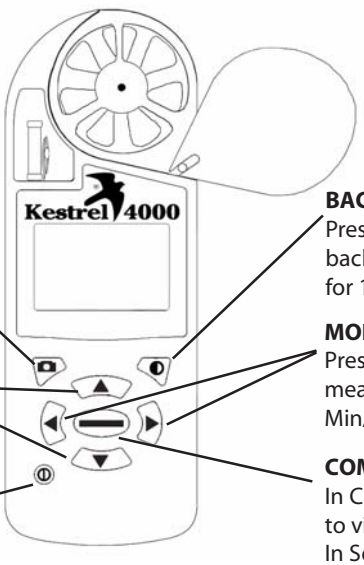
Kestrel® 4000
Pocket Weather™ Tracker™

Instruction Manual
NK

Kestrel® 4000 Pocket Weather™ Tracker™
FRONT



MANUAL MEMORY BUTTON
Press to manually store current conditions to memory.

MEASUREMENT BUTTONS
Press to scroll between screens: Date/Time, Measurements, User Defined Screens

POWER/SETUP BUTTON
Hold to turn power on or off. Press to enter and exit Main Setup Menu.

BACKLIGHT BUTTON
Press to activate backlight for 1 minute.

MODE BUTTONS
Press to change mode of measurements: Current, Min/Max/Avg, Chart.

COMMAND BUTTON
In Chart Screens, press to view data points.
In Setup Menus, press to make selection.

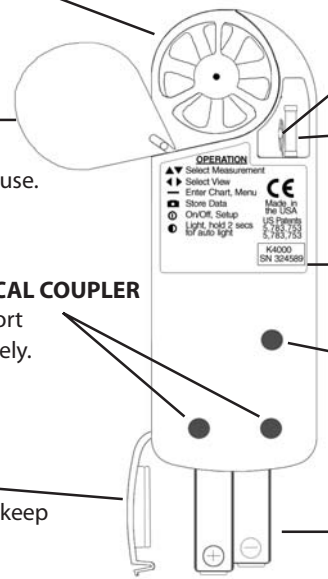
Kestrel® 4000 Pocket Weather™ Tracker™
BACK

IMPELLER
Sapphire jewel bearings on a user-replaceable impeller.

IMPELLER COVER
Swivel cover protects impeller when not in use.

DATA UPLOAD OPTICAL COUPLER
Software and serial port interface sold separately.

BATTERY DOOR
Sealed with o-ring to keep product watertight.



TEMPERATURE SENSOR
Hermetically sealed precision thermistor.

HUMIDITY SENSOR
Capacitive sensor.

SERIAL NUMBER

PRESSURE SENSOR
Monolithic silicon piezoresistive sensor.

2 AAA BATTERIES

Congratulations on the purchase of your Kestrel 4000 Pocket Weather Tracker! The Kestrel 4000 is the next generation of weather monitoring. Now, you can instantly measure EVERY major environmental condition easily, accurately, and right in the palm of your hand.
While the Kestrel 4000 is user-friendly and simple to use (and the Quick Start Card will help get you started), reading the instruction manual is recommended in order to use the Kestrel 4000 to its fullest potential.
NK, manufacturer of Kestrel Pocket Weather Meters, is available to answer questions and provide support. Contact NK by phone: 610.447.1555, fax: 610.447.1577, email: info@nkhome.com, or web: www.nkhome.com.

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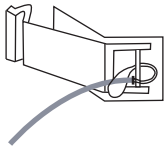
Getting Started

Pouch and Lanyards
Wrist and neck lanyards and a small pouch have been provided. To install the lanyard, feed the thin end of the lanyard around the metal post on the battery door (as shown in diagram). Feed the thick end of the lanyard through the loop on the thin end. Using tweezers can help.



Battery Installation
Use only AAA batteries. Install batteries as indicated on the battery door. After installing the batteries, the Kestrel 4000 will automatically start in the Date and Time Setting mode. (See Date and Time Setup below.) Custom settings and chart data will be saved during a battery change; only the date/time and MMA values will be lost.

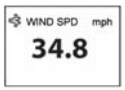
Turning the Kestrel 4000 ON and OFF
ON: Press the ⏻ button.
OFF: Hold the ⏻ button for two seconds. Or, press the ⏻ button, then press the ▬ button with the word OFF highlighted. (Note: your unit will continue to automatically store data when the power is turned off.)

Date and Time Setup
The first time that you turn on your Kestrel 4000, as well as after a battery change, you will need to set the date and time. The Introduction Screen will appear for 3 seconds, followed by the Date/Time Setup Screen. Press the ▲ and ▼ buttons to scroll through the settings. Press the ◀ and ▶ buttons to scroll through the setting options. After entering the date and time, press the ⏻ button to exit the Date/Time Setup. Then press the ⏻ button again to exit the Main Setup Menu.

Measurement Navigation

Starting on the Date & Time Screen…

…Press the ▼ button to scroll to the Current Wind Speed Screen.

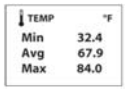


Press the ▼ button again to scroll to the Current Temperature Screen.

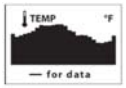
Continue pressing the ▼ button to scroll through the Current Measurement Screens, listed on the previous page, followed by the 3 User Screens. Press the ▲ button to scroll through these screens in reverse order.

Mode Navigation

While in a Current Screen, press the ▶ button to view the Min/Max/Avg for a measurement. If there is no stored data, the values will be displayed as --.-

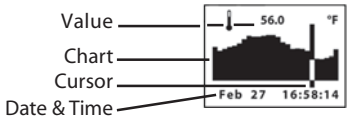


Press the ▶ button again to view a chart for the measurement. If there is no stored data, the axis will appear, but the chart will be blank.



Press the ◀ button to return to the Min/Max/Avg and Current Screens. From either Min/Max/Avg or Chart Screen, press the ▼ or ▲ button to scroll through the Min/Max/Avg or Chart Screen for the other measurements.

Navigation of Charts
The Kestrel 4000 is capable of storing up to 480 data points. To review the data, press the ▬ button while viewing a chart. A cursor will appear on the most recent data point. Press the ◀ button to scroll through older data points and the ▶ button to scroll through more recent data points. The date and time at which the data was stored will be displayed at the bottom of the screen. The data value will be displayed at the top of the screen. Hold down the ◀ or ▶ button to scroll quickly through the data points.



Press the ▲ or ▼ button to review the data for the other measurements. Please note that the cursor will remain at the same date and time. If new data is stored while viewing chart data, the entire chart will shift left with the new data point charted on the right. The cursor will not shift with the chart.

Press the ▬ button to return to the Chart Mode.

Navigation

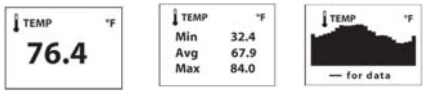
The Kestrel 4000 is set up to display *10 Measurements* (some are actually calculations) in *3 Modes.*

The *Measurements* are listed to the right with their corresponding screen icon. Use the ▲and ▼ buttons to scroll through the various Measurements.

The *Modes* are:
Current - displays the instantaneous reading
Min/Max/Avg - displays the Minimum/Maximum/Average readings from stored data
Chart - displays a graphical representation of up to 480 stored data points

Examples of each of these screens are shown below. Use the ◀ and ▶ buttons to scroll through the various Modes.

Modes use ◀▶



Current **Min/Max/Avg** **Chart**

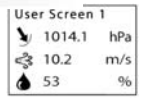
Measurements use ▲▼

- Wind Speed
- Temperature
- Wind Chill
- Humidity
- HI Heat Index
- DP Dew Point
- WB Wet Bulb
- Barometric Pressure
- Altitude
- D Density Altitude

In addition to these Measurements and Modes, there are also 3 User Screens, which simultaneously show 3 current measurements (see pages 8 and 11 for more information); and the Date & Time Screen, which gives the current date and time.

Special Functions

User Screens
The Kestrel 4000 has three User Screens which can be customized to display three current measurements simultaneously. (See page 11 for setup instructions.)



Min/Max/Avg for Wind Speed and Wind Chill
The Min/Max/Avg values for Wind Speed and Wind Chill are measured independently from the stored and charted data. While viewing the Min/Max/Avg screen for either Wind Speed or Wind Chill, press the ▬ button when the screen displays "--average" to begin collecting data for both measurements. Press the ▬ button when the screen displays "--stop" to stop collecting data and hold the values on the display. Press the ▬ button when the screen displays "--clear" to clear the data. This routine will work simultaneously for both measurements, regardless of which one is displayed while the routine is run. The Min/Max/Avg for Wind Speed and Wind Chill will not affect any other Min/Max/Avg or stored data.

Relative Humidity
The Kestrel 4000 is capable of measuring RH very accurately (+/- 3% RH). However, there are a number of circumstances that can reduce the Kestrel 4000's ability to perform within these specifications:

• Direct sun will heat the air inside the humidity sensor enclosure and cause inaccurate readings. Keep the Kestrel 4000 in the shade when taking RH measurements.

• Rapid large temperature changes, such as when taking a Kestrel stored inside at 70°F outside to a temperature of 40°F, can require as long as 30 minutes to for the temperature inside the RH enclosure to match the temperature outside, permitting the unit to provide accurate RH readings. Any air flow over the RH sensor enclosure, even as low as 2 mph, significantly speeds up the response time.

When taking measurements under conditions where there is a significant change in temperature (more than 2C or 4F) be sure to allow enough time for the RH value to stabilize. The greater the temperature change, the greater the time. You can use the logging capability of the K4000 to confirm that the unit has stabilized to a correct reading: Set the memory options to a relatively short logging interval (20 seconds works well, see page 10 for instructions), select the graphical display of RH, and you can see when the value is no longer changing significantly. At that point, the RH value is stable and can be relied upon to be within the accuracy specifications.

Barometric Pressure and Altitude Adjustment
The Kestrel 4000 will measure station pressure in order to calculate barometric pressure and altitude. Changes in either air pressure or altitude will affect these readings, so it's important to make adjustments as necessary.

First, you will need to obtain either (a) the current barometric pressure or (b) the altitude of your location. You can obtain your current barometric pressure by contacting a local airport or weather service. Set this value as your reference pressure on the ALTITUDE screen to determine your altitude. Otherwise, you can obtain your altitude from a topographical map or local landmark. Set this value as your reference altitude on the BARO screen to determine your barometric pressure.

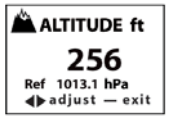
There are two basic examples for when and how to use the BARO and ALTITUDE screens. First, assume that you know the altitude from one of the sources above. Set the reference altitude on the BARO screen to this elevation. As long as you remain at home, you can accurately track changes in the barometric pressure. However, the measurement on the ALTITUDE screen also changes. This value will fluctuate as pressure fronts pass through your location. Since you know your house is not changing elevation, you can ignore this screen.

Now let's assume that you are planning a day hike, and you'd like to track your altitude. Before starting, you'll need to adjust the reference pressure on the ALTITUDE screen. You can do this by simply adjusting the reference pressure until you reach the elevation of your house. The reference pressure will be the same as the pressure reading on the BARO screen. You can now track the altitude changes as you hike. You can ignore the values on the BARO screen, since the pressure changes are predominantly due to changes in elevation.

As with all altimeters, it must be assumed that any change in pressure due to weather is small over the course of one day. If you were to encounter an elevation landmark, you can adjust the reference pressure until the altitude matches the landmark elevation. This will correct the altitude for any pressure changes due to the weather.

Altitude Adjustment

Obtain a barometric pressure reading from a local weather source to use as your reference pressure. From the Current Altitude Screen, press the − button to enter the adjustment mode. Press the ▶ button to increase the reference pressure or the ◀ button to decrease the reference pressure. You will notice that the Altitude will change with changes in the reference pressure. Press the − button to exit the adjustment mode.



Pressure Adjustment

Obtain your altitude from a topographical map or landmark to use as your reference altitude. From the Current Barometric Pressure Screen, press the − button to enter the adjustment mode. Press the ▶ button to increase the reference altitude or the ◀ button to decrease the reference altitude. You will notice that the Barometric Pressure will change with changes in the reference altitude. Press the − button to exit the adjustment mode.

Manual Data Storage

To manually store data, press the 📷 button. One of the following will appear: Data Stored (data has been captured and will appear on chart), Full (Overwrite is off and data log is full), or Off (Manual Store button has been disabled). See page 10 for more information on Memory.

Backlight

Press the ◐ button to activate the backlight. The light will remain activated for one minute. Press the ◐ button within one minute to deactivate the light manually.

Main Setup Menu

You can customize your Kestrel 4000 in multiple ways. Press the ⏻ button to access the Main Setup Menu. Press the − button to select the highlighted setting.

Off - Press the ⏻ or the − button to turn the display off. Even when the Kestrel's display is turned off, the unit will continue to automatically store data at the defined Store Rate. Wind speed will NOT be stored when the unit is off. To continously measure wind speed, turn the auto shutdown off (pg. 12). The battery life will be decreased if data is stored frequently. The only way to completely shut off the unit is to remove the batteries. Custom settings and data will be stored when the batteries are removed.

Memory Options - These settings control the data storage properties. Press the ⏻ button to return to the Main Setup Menu.

Setting	Description	Operation
Clear Log (Go/Done)	All stored data is cleared. This will also clear Min/Max/Avg data.	Press ◀ or ▶ to clear the log.
Reset MMA (Go/Done)	All Min/Max/Avg data is cleared. Chart data will remain intact.	Press ◀ or ▶ to clear the MMA.
Auto Store (On/Off)	When On, data is automatically stored at preset Store Rate. When Off, data is only stored when manually captured with the 📷 button.	Press ◀ or ▶ to toggle between On and Off.
Store Rate* (2 sec - 12 hr)	The frequency at which data sets are automatically stored. (Battery life may be shortened if data is stored frequently.)	Press ◀ or ▶ to increase or decrease Store Rate frequency.
Overwrite (On/Off)	This setting only applies when the data log is full. When On, oldest data point is discarded to allow memory for the new data point. When Off, new data points are not saved.	Press ◀ or ▶ to toggle between On and Off.
Man Store (On/Off)	When On, data is stored when the 📷 button is pressed. When off, the 📷 button is disabled.	Press ◀ or ▶ to toggle between On and Off.

* When unit is off, data is NOT stored for 2 sec and 5 sec Store Rates.

Measurements - Measurement screens can be hidden from the normal measurement navigation. For example, if wind chill is not of interest, it can be hidden. Press the ◀ or ▶ button to toggle between ON and OFF for each individual measurement. Press the ▲ or ▼ button to highlight the desired measurement. Press the ⏻ button to return to the Main Setup Menu.

Graph Scale - These settings control the chart limits of your meter. Depending on the conditions, the lower and upper limits of the chart scale may need to be adjusted in order to get the best view of the data. Highlight the desired measurement by pressing the ▲ or ▼ button. Select the highlighted measurement by pressing the − button. Press the ◀ or ▶ button to increase or decrease the value of the limits. Press the ▲ or ▼ button to change between the upper and lower limits. Press the ⏻ button to exit and return to the measurement selection screen. Press the ⏻ button to return to the Main Setup Menu.

Units - The units of measure can be adjusted to best suit the application. The following units are available:

Wind Speed		**Temperature, Dewpoint, Wet Bulb Temp, Wind Chill & Heat Index**		**Pressure**		**Altitude, Density Alt.**	
m/s	meters per second	°C	Celsius	inHg	inches mercury	m	meters
km/h	kilometers per hour	°F	Fahrenheit	hPa	hectopascals	ft	feet
kt	knots			psi	pound per square inch		
mph	miles per hour			mb	millibar		
ft/m	feet per minute						
Bft	Beaufort						

Highlight the desired measurement by pressing the ▲ or ▼ button. Press the ◀ or ▶ button to scroll through the available units. Press the ⏻ button to return to the Main Setup Menu.

User Screens - The three User Screens can be reconfigured to display the most appropriate information for the application. Only current measurements can be selected for the User Screens - Min/Max/Avg and Charts are not available.

Highlight the desired User Screen by pressing the ▲ or ▼ button. Press the − button to select the highlighted User Screen. Press the ▲ and ▼ buttons to change lines, and the ◀ or ▶ button to scroll through the available measurements for each highlighted line. Press the ⏻ button to return to the User Screen Setup Menu. Repeat above process for the other User Screens or press the ⏻ button to return to the Main Setup Menu.

System - The display Contrast and Auto Shutdown can be reconfigured as required. The relative humidity and pressure sensors can also be recalibrated. Press the ▲ and ▼ buttons to highlight the appropriate selection, and the ◀ or ▶ button to adjust or select.

The Contrast can be adjusted for better visibility depending on the ambient lighting conditions. Press the ◀ or ▶ button to increase or decrease the contrast from 0 to 20 (0 is lightest, 20 is darkest).

The display can be set to automatically turn off in order to conserve the battery life. Auto Shutdown will only occur after the preset time has elapsed without any button presses. Press the ◀ or ▶ button to scroll through the Auto Shutdown options (15 minutes, 60 minutes, Off).

Baro Cal - The pressure sensor can be calibrated if necessary. It is extremely important to know the precise altitude and mean sea level barometricpressure at the time of calibrating the sensor. First, set the reference altitude on the BARO measurement screen to the known altitude (see Pressure Adjustment on page 9). Then adjust the calibrating setting on the Baro Cal screen to the known mean sea level barometric pressure. Recalibration of this sensor is not typically required, and it is not recommended that you recalibrate without speaking to an NK technician.

Humidity Cal - The humidity sensor can be calibrated by "teaching" it the correct humidity. Some special equipment is required for this calibration, including two hermetically sealed containers and saturated salt solutions. NK offers a calibration kit, and instructions are available on www.nkhome.com. Recalibration of this sensor is not typically required, and it is not recommended that you recalibrate without speaking to an NK technician.

Press the ⏻ button to return to the Main Setup Menu.

Date & Time - The date and time, as well as date and time formats, can be adjusted. The Time Formats available are: 12 hour and 24 hour. The Date formats available are day/month/year and month/day/year. (See page 5 for instructions on how to set the date and time.) Press the ⏻ button to return to the Main Setup Menu.

Language - Displayed text can be set in one of five languages: English, French, German, Italian or Spanish. To choose a language, use the ▲ and ▼ buttons to highlight the desired language. Press the − button to select the language and return to the Main Setup Menu. Otherwise, press the ⏻ button to return to the Main Setup Menu without changing languages.

Restore - Default settings for units of measure, date and time formats, and system settings can be restored. (See page 17 for a list of the default settings.) Press the ▲ or ▼ button to highlight the desired default setting: Metric, Imperial or Defaults. Press the ◀ or ▶ button to reset the factory setting. Press the ⏻ to return to the Main Setup Menu.

Application Examples

This section provides examples of applications where a Kestrel 4000 might be used, and the appropirate memory settings.

Weather Monitoring
Auto Store On
Store Rate 1 hr
Overwrite On
Man Store Off
These settings will allow you to track conditions for 20 days. When the memory is full, each new measurement will be stored in place of the oldest data point. The charts will provide a quick look at the recent weather conditions. Keep an eye out for falling barometric pressure, which indicates a storm is coming.

Hiking/Camping for the Weekend
Auto Store On
Store Rate 20 min
Overwrite Off
Man Store On
These settings will allow you to track the conditions for almost 7 days. Measurements will be stored every 20 minutes, and stop storing when the log is full. This will let you review the trip at your convenience when you return. You can also manually store the conditions, in case you get caught in 40 mile per hour winds or make it to the top of a mountain. For more detailed information on your trip, set the Store Rate to 2 hours overnight, and 10 minutes during the day.

Soaring/Hang Gliding
Auto Store On
Store Rate 2 min
Overwrite Off
Man Store On
These settings will allow you to track all conditions for 16 hours. Chart your altitude changes, watch how the temperature and humidity vary with altitude, and log your apparent speed. Data will no longer be stored once the log is full, in order to preserve it until it can be reviewed later. Be sure to clear the data log just before your flight.

Skydiving
Auto Store On
Store Rate 2 sec
Overwrite Off
Man Store Off
These settings will allow you to record a detailed account of your jump. Be sure to clear the data log just before jumping. As you descend toward the ground, you will be tracking the altitude every two seconds, as well as the conditions at that altitude. The chart will clearly show the point at which the parachute opens, as well as the point you get back on the ground.

HVAC - Environmental Monitoring
Auto Store On
Store Rate 5min
Overwrite On
Man Store Off
These settings will record conditions every five minutes, for a total storage of almost 2 days. You can monitor the conditions in a laboratory or manufacturing plant, both day and night, to determine if the climate control is working properly. Or you can examine the effect on the environment when employees enter and exit the building.

HVAC/R - System Balancing
Auto Store Off
Store Rate —
Overwrite Off
Man Store On
These settings will require you to press the Manual Store Button in order to store any data at a duct, hood, vent, or other air system. The meter will not store any data automatically. Be sure to record the location and date/time of storage for reference when reviewing the data. After storing the conditions at each location, simply review the data and balance the system.

Memory Capabilities

Store Rate	Total Memory	Store Rate	Total Memory
2 sec	16 min	10 min	3 days, 8 hr
5 sec	40 min	20 min	6 days, 16 hr
10 sec	1 hr, 20 min	30 min	10 days
20 sec	2 hr, 40 min	1 hr	20 days
30 sec	4 hr	2 hr	40 days
1 min	8 hr	5 hr	100 days
2 min	16 hr	12 hr	240 days
5 min	1 day, 16 hr		

Glossary

The below definitions have been greatly simplified in order to keep this section brief. We strongly recommend that anyone who wishes to make use of these measurements refer to one of the many excellent weather references available for a more in-depth definition. On the internet, visit www.usatoday.com or www.noaa.gov. Or, locate the USA Today publication, *The Weather Book*. Please note that any words in a definition printed in *italics* are themselves defined in this glossary.

Altitude: The distance above sea level. The Kestrel 4000 calculates altitude based on the measured *station pressure* and an assumed or known *barometric pressure*.

Barometric Pressure: The air pressure of your location reduced to sea level. Pressure will change as weather systems move into your location. Falling pressure indicates the arrival of a low pressure system and expected precipitation or storm conditions. Steady or rising pressure indicates clear weather.

Density Altitude: The *altitude* at which you would be, given the current air density. Often used by pilots in order to determine how an aircraft will perform. Also of interest to individuals who tune high performance internal combustion engines, such as race care engines.

Dewpoint: The *temperature* to which air must be cooled in order for condensation to occur. The difference between *dewpoint* and *temperature* is referred to as the "temperature/dew point spread". A low dewpoint spread indicates high *relative humidity*, while a large dewpoint spread indicates dry conditions.

Heat Index: A practical measure of how hot the current combination of *relative humidity* and *temperature* feels to a human body. Higher *relative humidity* makes it seem hotter because our ability to cool ourselves by evaporating perspiration is reduced.

Relative Humidity: The amount of water vapor actually in the air divided by the maximum amount of water vapor the air could hold at that *temperature*, expressed as a percentage.

Station Pressure: The *air pressure* of your location, NOT reduced to the sea level equivalent.

Temperature: The ambient air temperature.

Wet Bulb Temperature: The lowest *temperature* to which a thermometer can be cooled by evaporating water into the air at constant pressure. This measurement is a holdover from the use of an instrument called a sling psychrometer. To measure wet bulb temperature with a sling psychrometer, a thermometer with a wet cloth covering over the bulb is spun rapidly through the air. If the relative humidity is high, there will be little evaporative cooling and the wet bulb temperature will be quite close to the ambient temperature. Some exercise physiology guides use *wet bulb temperature*, rather than *heat index*, as a measure of the safety of exercise in hot and humid conditions.

Wind Chill: The cooling effect of combining wind and temperature. The wind chill gives a more accurate reading of how cold it really feels to the human body. The Kestrel 4000's wind chill is based on the National Weather Service standards as of November 1, 2001.

Default Settings

UNIT	METRIC	IMPERIAL
Wind Functions	m/s	mph
Temperature Functions	℃	℉
Barometric Pressure	hPa	inHg
Altitude Functions	m	ft
Time Format	24 hour	12 hour
Date Format	day/month/year	month/day/year

SETTING	FACTORY DEFAULT
Automatic Data Store	On
Data Store Rate	1 hour
Data Overwrite	On
Manual Data Store	On
User Screen1	wind speed, temperature, humidity
User Screen 2	humidity, dewpoint, wet bulb
User Screen 3	pressure, altitude, density altitdue
Display Contrast	10
Automatic Shutdown	15 minutes
Language	English

PC Upload

Stored data may be uploaded to a PC with the optional Kestrel PC Interface, NK part number 0830.

Specifications

Measurement *Response Time*	Units	Operational Range	Resolution	Accuracy (+/-)	Specification Range
Wind Speed *1 second*	**MPH**	0.8 to 135.0	0.1	3% of reading	0.8 to 89.0 MPH
	fpm	59 to 11,948	1		59 to 7877 fpm
	Knots	0.6 to 118.3	0.1		0.6 to 78 Knots
	Beaufort	0 to 12	1		0 to 12 B
	m/s	0.4 to 60.0	0.1		0.4 to 40.0 m/s
	KPH	1.0 to 218.0	0.1		1.0 to 144 KPH
Temperature *1 minute*	**°F**	-50.0 to 260.0	0.1	1.8 °F	-20 to 158 °F
	°C	-45.0 to 125.0	0.1	1°C	-2 to 70 °C
Relative Humidity *1 minute*	**%RH**	0.0 to 100.0	0.1	3.0 %RH	5 to 95 % non condensing
Pressure *1 second*	**inHg**	8.86 to 32.48	0.01	0.05 inHg	At 77°F, <19,700 ft
	hPa/mb	300.0 to 1100.0	0.1	1.5 hPa/mb	At 25 °C, <6,000 m
	PSI	4.35 to 15.95	0.1	0.02 PSI	At 77°F, <19,700 ft

1 inch diameter impeller with precision axle and sapphire bearings, individually tested in NIST-traceable wind tunnel. 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, PN-0801, may be field-installed without tools (US Patent 5,783,753).

Thermally isolated, hermetically sealed, precision thermistor mounted externally (US Patent 5,939,645). Calibration drift negligible.

Polymer capacitive humidity sensor mounted in thin-walled chamber external to case for rapid, accurate response (US Patent 6,257,074). Response specification is time to achieve 95% or better of stated accuracy. Calibration drift +/- 2% over 24 months. Relative humidity may be recalibrated at factory or in field using Kestrel Humidity Calibration Kit, PN-0824.

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 (facilitated by Kestrel Computer Interface, PN-0830).

Measurement	Units	Operational Range	Resolution	Accuracy (+/-)	Specification Range
Wind Chill *1 second*	**°F**	0.7 to 135.0 MPH, -49.0 to 257.0 °F	0.1	1.8 °F	1.8 to 89 MPH, -20 to 158 °F
	°C	0.4 to 60.0 m/s, -45.0 to 125.0 °C	0.1	1 °C	0.4 to 40 m/s, -29 to 70 °C
Dewpoint *1 minute*	**°F**	0.0 to 100% RH, -49.0 to 257.0 °F	0.1	3.6 °F	-20 to 158 °F, 20 to 95% RH
	°C	0.0 to 100.0 %RH, -45.0 to 125.0 °C	0.1	2 °C	-29 to 70 °C, 20 to 95 %RH
Heat Index *1 minute*	**°F**	0.0 to 100% 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 °C	21.1 to 54.4 °C, 0 to 100% RH

The above values are calculated from the primary measurements of wind speed, temperature and relative humidity.

Wet Bulb *1 minute*	**°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 to 100 °F, 5 to 95% 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 °C	0 - 37 °C, 5 to 95 %RH, -2000 to 9000 hPa, <6000 m
Altitude *1 second*	**ft**	-6000 to 30000 ft	1	50 ft	At 77°F, <19,700 ft. Max error +/- 98 ft
	m	-2000 to 9000 m	1	15 m	At 25 °C, <6,000 m. Max error +/- 30 m
Density Altitude *1 second*	**ft**	-49.0 to 257.0 °F, 0.0 to 100.0 %RH, 8.86 to 32.48 inHg	1	246 ft	32 to 100 °F, 5-95% 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 m	0 - 37 °C, 5 to 95 %RH, -2000 to 9000 hPa, <6000 m

The above values are calculated from the primary measurements of wind speed, temperature, relative humidity and pressure.

Data Display and Storage	Minimum, maximum, average and logged history stored and displayed for every measured value. 480-point data logger with graphical display. Auto data storage; interval settable from 2 seconds to 12 hours. Manual data capture.
Display Digits	Multifunction, multi-digit programmable dot-matrix display.
Display Update	1 second
Display Languages	English, French, German, Italian, Spanish
Display Backlight	Choice of aviation green or visible red electroluminescent backlight. Automatic or manual operation.
Operational Temperature Range	The operational temperature range of the liquid crystal display and batteries is 0° F to 131° F / -18 °C to 55 °C. Beyond the limits of this range, the unit must be maintained within range and exposed for minimum time necessary to take reading.
Storage Temperature	-22 °F to 140 °F / -30 °C to 60 °C
Auto Shutdown	User-selectable: 15 minutes, 60 minutes or disabled
Batteries	AAA Alkaline, two, included. Average life, 400 hours of use, +/-depending on backlight use.
Sealing	Waterproof (IP69 standard)
Dimensions	5.0 x 1.8 x 1.1 in / 12.7 x 4.5 x 2.8 cm
Weight	3.6 oz / 102 gm
Color	Dark grey, safety orange or olive drab (FED-STD-595B, Color 34088).

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