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Kestrel 5400 Fire Weather Weather Meter Pro WBGT with LiNK

\$629.00 USD



★★★★★ 1 Reviews



KESTREL 5400FW FIRE WEATHER METER PRO WBGT WITH LINK

Models & SKUs:

- Kestrel 5400FW Fire Weather Pro WBGT Heat Stress with Compass and LiNK + Vane Mount: 0854FWLVCORA \$609

What's new with the Kestrel 5400FW over the Kestrel 5400:

You'll get all the features and benefits of the lightweight waterless [5400 Heat Stress Meter](https://kestrelmeters.com/products/kestrel-5400-heat-stress-meter) (<https://kestrelmeters.com/products/kestrel-5400-heat-stress-tracker>) with a few added benefits for \$10 more.

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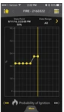
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PRODUCT

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VIDEOS, SPECS, &

DESCRIPTION

BOX?

TECH

KESTREL 5400FW FIRE WEATHER METER PRO WBGT WITH LINK

Models & SKUs:

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REVIEWS

What's new with the Kestrel 5400FW over the Kestrel 5400:

You'll get all the features and benefits of the lightweight waterless [5400 Heat Stress Meter](https://kestrelmeters.com/products/kestrel-5400-heat-stress-meter) (<https://kestrelmeters.com/products/kestrel-5400-heat-stress-tracker>) with a few added benefits for \$10 more.

- PIG Screen (Probability of Ignition)

- FDFM (Fine Dead Fuel Moisture)

* Note the PIG Screen will show the FDFM at the bottom.

Advantage over the Kestrel 3000 (<https://kestrelmeters.com/products/kestrel-3000-wind-meter>) & Kestrel 3500FW (<https://kestrelmeters.com/products/kestrel-3500-fire-weather-meter>) models: You won't need to calibrate this meter! NK/Kestrel stand by this and other 5000 series models to hold calibration within drift for 5 years.

Replacing a Sling Psychrometer with a Kestrel is a huge step in time saving and accuracy. Some have struggled to take this leap and we wrote this quick Kestrel vs. Sling article (<https://kestrelmeters.com/blogs/news/kestrel-meter-vs-sling-psychrometer>) that may answer questions of accuracy.

RH (Relative Humidity): See Chart (https://cdn.shopify.com/s/files/1/0084/9012/files/5400_Spec_Sheet.pdf?2821576595617866659) for more detail.

- Accuracy: +/- 2%RH
- Sensors: 10 to 90% 25°C non-condensing
- Calibration Drift: Typically less than +/- 0.25% per year!

Calibration:

With the new 5000 series (any) technology, the need to calibrate the RH is highly unlikely.

Kestrel will stand by the RH for 5 years, and will adjust it within that 5 years if needed.

Kestrel will repair, recalibrate or replace any defective product within the warranty period. "Defective" includes measurements outside of our accuracy spec plus stated drift.

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.

The Kestrel 5400 Fire Weather Pro WBGT is an all in one heat safety meter and weather station. Lightweight, waterless, and easy to use, the unit offers quick set-up with the included vane mount to become a complete weather station capable of logging weather conditions and critical heat safety information. The Kestrel 5400FW also provides WBGT monitoring for training exercises, helping to prevent personnel injury or fatalities from heat exposure. With the use of LiNK wireless connectivity, the Fire Weather Pro WBGT with LiNK seamlessly sends current and logged weather conditions and heat safety alerts directly to your mobile device, keeping you and your crew informed, prepared and safe. Works with iPhone/iPad and Android/Tablets.

Note 2 alarm options set to your own parameters:

1. Flashing LED Light

2. Loud Beeping Alarm

The Kestrel 5400 is revolutionary in size, cost and capability for those in need of measuring Heat Stress.

Along with having a Wet Bulb Globe Temperature reading, the Kestrel 5400 displays thermal work limit ("TWL"), another recognized composite heat stress prediction tool. For both WBGT and TWL, the Kestrel 5400 provides on-screen alarms when conditions enter the caution and danger zones, providing clear and immediate guidance that heat illness prevention steps must be taken. Clothing levels can also be customized, making the Kestrel 4400 particularly useful in activities requiring heavy protective gear which worsens heat stress. The Kestrel 5400 also displays natural wet bulb temperature, and black globe temperature.

How Does the Kestrel 5400 Work?

The Kestrel 5400 uses a 1-inch black globe to gather information about the environment, which isn't possible with current Kestrels. As is true with the original Wet Bulb Globe Temperature apparatus, a temperature sensor is installed inside the globe that will measure the temperature inside. The temperature inside the globe is a function of the ambient air temperature, solar insolation and wind speed.

As one can imagine, a sunny day will make the globe hotter because it's painted black, and colder ambient temperatures will have a tendency to cool off the globe. Lastly, the wind will cause the globe to get closer to the ambient air temperature because it will carry heat away from the globe when the air is cooler, or increase heat transfer to the globe if the air is warmer than the globe.

The Kestrel must sit out for a period of time to allow the globe to adjust to true atmospheric conditions; we recommend a minimum of 7-10 minutes. The globe temperature is then taken into account along with other measurements, such as ambient temperature, humidity and pressure, to calculate more meaningful measurements, such as Wet Bulb Globe Temperature and Thermal Work Limit.

Why Use WBGT as a Heat Stress Indicator vs. just using the Heat Index?

Wet bulb globe temperature (WBGT) is based on an equation that uses a combination of environmental elements to calculate the reading. The calculation is a measure of the heat stress in direct sunlight, which takes into account: temperature, humidity, wind speed, sun angle and cloud cover (solar radiation).

Heat index takes into consideration temperature and humidity, and is calculated for shady areas.

There is a difference.

Monitoring the WBGT of the environment is quickly becoming the accepted and preferred method of measuring heat stress. Several sports organizations use WBGT to assess the potential risk of environmental stress on athletes. These organizations include the National Athletic Trainers Association (NATA), National Collegiate Athletic Association (NCAA) and the Women's Tennis Association (WTA).

Refer to the chart below for a comparison of WBGT and heat stress index.

	WBGT	HEAT INDEX
Measured in the sun	✓	✗
Measured in the shade	✗	✓
Uses temperature	✓	✓
Uses relative humidity	✓	✓
Uses wind	✓	✗
Uses cloud cover	✓	✗
Uses sun angle	✓	✗

GUIDANCE FOR ATHLETIC TRAINERS			
WBGT	FLAG COLOR	LEVEL OF RISK	COMMENTS
<18°C (<65°F)	Green	Low	Risk low but still exists on the basis of risk factors.
18-23°C (65-73°F)	Yellow	Moderate	Risk level increases as event progresses through the day.
23-28°C (73-82°F)	Red	High	Everyone should be aware of injury potential; individuals at risk should not compete.
>28°C (82°F)	Black	Extreme or Hazardous	Consider rescheduling or delaying the event until safer conditions prevail; if the event must take place, be on high alert.



Roberts WO. Medical management and administration manual for long distance road racing.

In: Brown CH, Gudjonsson B, eds. IAAF Medical Manual for Athletics and Road Racing Competitions:

A Practical Guide. Monaco: International Amateur Athletic Federation Publications; 1998: 39-75.

Thermal Work Limit (TWL) The unit will also display a measure of human heat stress known as “Thermal Work Limit” which, is measured in terms of the heat energy a person can dissipate from their surface area in Watts per square meter (w/m²). The measurement is based upon Globe Temperature, Relative Humidity, Ambient Temperature, Barometric Pressure, Wind Speed, and four parameters specific to an individual and their clothing. 4 Settings with preset constants are pre-installed in meter however for more specific applications:

Iclo: Intrinsic Clothing Insulation Factor

See: <https://www.ashrae.org/resources--publications/bookstore/standard-55-and-user-s-manual>

Reference values: <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.258.8876&rep=rep1&type=pdf>

VPF : Vapor Permeation Factor

See <https://www.ashrae.org/resources--publications/bookstore/standard-55-and-user-s-manual>

- For reference values range between 0.37 - 0.45
- 0.37 is a Long sleeve shirt/tweed suit jacket & long, loose trousers
- 0.45 is shorts and a t shirt

Pos: Position of the body

- 1 for standing

- *o for lying down*

Area: Area of a human male

- Values are approximately $1.7m^2$ or $1.8m^2$
- Meter assumes $1.7m^2$

TWL Reference Table:

TWL (w/m ²)	> 220	140-220	115-140	< 115
Working Zone	Unrestricted	Acclimatization	Buffer	Withdrawal
Interventions	No limits on self-paced work for trained, hydrated workers.	No restriction for acclimatized workers. Workers with uncertain acclimatization status should not work alone in this zone. • Be aware of increased risk of heat illness • Dehydration test for first two shifts back from leave	Buffer zone exists to identify situations in which environmental conditions may be limiting to work. • Any practicable intervention to reduce heat stress should be implemented e.g. provide shade, improve ventilation etc. • Working alone to be avoided if possible • Unacclimatized* workers not to work in this zone • Use the technical information sheets 'Work-rest cycling - sample schedules' and 'Fluid requirements for working in heat' to prescribe maximum exposure time, work/rest cycling and fluid intakes appropriate for type of work and conditions	Work limited to essential maintenance or rescue operations. • No person to work alone • No unacclimatized* person to work • Documentation required authorising work in hostile thermal conditions for specific purpose • Specific induction required emphasizing hydration and identifying signs of heat strain • Apply 20 minutes of work - 40 minutes rest schedule • Required fluid intake exceeds 600 ML per 30 minutes • Personal water bottle (2 liter capacity) must be on the job at all times • Mandatory dehydration testing at end of shift

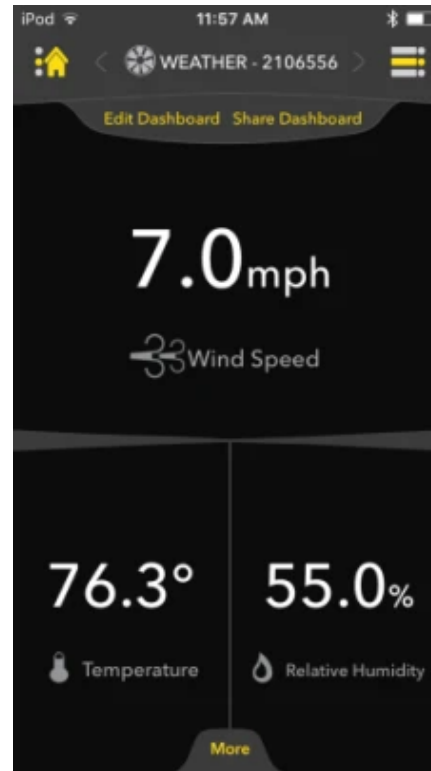
**Unacclimatized workers are defined as new workers who have been off work for more than 14 days due to illness or leave (outside the tropics).*

The Kestrel Meter 5400FW Heat Stress Meter measures/features

- PIG Screen (Probability of Ignition)
- FDFM Screen (Fine Dead Fuel Moisture)
- Wet Bulb Globe Temperature ("WBGT")
- Thermal Work Limit ("TWL")
- Waterless! Natural Wet Bulb Temperature accurately calculated from on-board digital sensors with no tedious setup or maintenance.

- Large, hi-res, hi-contrast, graphic display is perfectly readable in the brightest sunlight and is backlit for use in low-light conditions.
- Globe Temperature
- Naturally Aspirated Wet Bulb Temperature
- Wind Speed (Current, Average, & Maximum)
- Altitude
- Pressure trend
- Barometric pressure
- Relative humidity in %
 - Accuracy: +/- 2%RH
 - Sensors: 10 to 90% 25°C non-condensing
 - Calibration Drift: Typically less than +/- 0.25% per year!
- Heat stress index (<http://www.kestrelmeters.com/pages/weather-glossary>)
- Dewpoint
- Wet bulb temperature
- Density altitude
- Wind chill
- Air, water, and snow temperature °F or °C
- Waterproof
- Time and date
- Easy- to-read backlit display
- Data Logger (automatic and manual)
- Customizable data storage - 2900 data points
- Humidity sensor can be calibrated in the field with our Relative Humidity Calibration Kit.
- Customize screens to display user-selected measurements
- Graph and recall trends
- User-replaceable impeller
- Data charting
- Upload to a computer (with optional interface)
- Meets MIL-STD-810F 516.5 Procedure IV Transit Shock test - 20 drops from 5 ft. IP-67 sealed to exclude dust and water at 3 ft. submersion
- Five languages (English, French, Spanish, German, and Italian)
- US Patent Nos. 5,783,753 and 5,939,645 and 6,257,074
- Made in the USA
- 5 Year Warranty

Works with Compatible Apps: (Screen shots of Free Kestrel Connect App with customizable screens)



Kestrel LiNK for Windows & Mac

- Kestrel LiNK for Windows
- Kestrel LiNK for Mac(Coming Soon!)

Simple communication to Windows and Mac computers is provided through the optional LiNK .USB Dongle or USB Data Transfer Cable. Download your data to view, analyze and archive. Enables firmware update of Kestrel 5 series meters.

Kestrel LiNK for iOS & Android

- Kestrel LiNK for iOS
- Kestrel LiNK for Android

Wirelessly connect with iOS and Android devices. When in range, view real-time measurements, receive on-screen alerts and download your data. Logged data can be viewed, analyzed, archived and shared via e-mail, Facebook and Twitter. Enables firmware update of Kestrel 5 series meters. **NOTE:** Range up to 100' line of sight – reduced by walls and obstructions.

Includes:

- PIG (Probability of Ignition) waterproof card
- FDFM (Fine Dead Fuel Moisture) waterproof card
- Neck Lanyard
- AA Lithium Battery (Average Life 400 Hours)
- Protective Drawstring Pouch
- Certificate of Conformity (with complete specifications)
(http://www.nkhome.com/pdfs/Kestrel_5_Series_Specs.pdf) 
- Instruction Manual
- Five Year Warranty
- LiNK version also includes a sturdy zippered carry case

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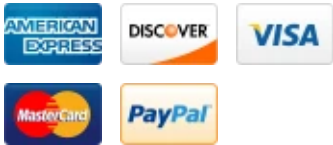
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Free shipping & free returns on KestrelMeters.com. All Kestrel Meters are Designed & Built in the USA and backed with a 5-year warranty.



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