Kestrel®

Instruction Manual
Kestrel 5700 Ballistics Weather Meter and Kestrel 5700 Elite Weather Meter with Applied Ballistics

ELITE BALLISTICS

Display showing:
E 16.40U MIL A
W 2.25/3.37L
Tgt... 000° 1280yd
Wind... 9:00 5mph

LiNK

⚠ CAUTION

Your Kestrel Weather/Environmental Meter is designed to provide accurate measurement of current conditions only. Depending on your location and environment, conditions may change rapidly.

Rapid temperature and humidity changes (i.e., moving your meter from indoors to outdoors) may cause inaccurate readings of temperature and humidity as well as all readings that rely on either of these values. Before relying on readings from your Kestrel Meter, be sure to either a) force air flow over the sensors by waving or slinging your meter through the air; or b) wait until your unit's readings have stabilized, indicating it has equilibrated to its new environment.

To maximize the accuracy and reliability of your readings:
- *Ensure that your Kestrel Meter is in good repair and within factory calibration.*
- *Take readings frequently and carefully according to the guidelines above.*
- *Allow your meter's readings to stabilize after significant changes in temperature or humidity (i.e., changing location from indoors to outdoors).*
- *Allow a margin of safety for changing conditions and reading errors (2-3% of reading is recommended).*

Use care and good judgment when referring to your Kestrel Meter to make any decisions regarding safety, health or property protection.

⚠ WARNING

To reduce the risk of injury or death to persons, read and follow these guidelines!

Your Kestrel Weather/Environmental Weather Meter may provide one or more of these measurements relating to estimation of danger of injury to people or animals from heat or cold: Heat Stress Index, Wind Chill Index, Wet Bulb Globe Temperature ("WBGT"), Thermal Work Limit ("TWL"). Note that guidance tables based on these values are based on typical physiological response. Certain individuals or animals may be more susceptible to harm relating to environmental conditions and require additional precautions. For example, very young or elderly individuals, individuals with asthma, and individuals who have not become acclimatized to hot conditions are likely to be more prone to heat injury.

- *Know yourself and the individuals and items you are responsible for.*
- *Where appropriate, seek the guidance of a medical professional.*
- *Know what to do in the event of heat or cold injury and be prepared with supplies.*
- *In the case of heat illness, remember the rule – "Cool first, transport second." An inexpensive ice bath can mean the difference between life and death.*

Your Kestrel Weather/Environmental Meter is not a medical device. It is only one source of information and must be employed with care and good judgment.

BATTERIES

We recommend that ONLY Lithium AA batteries be used in your Kestrel Ballistics Weather Meter to provide the widest operating temperature range and to avoid damage caused by leaking batteries. If you must use conventional AA batteries, please do not store your Kestrel Meter with the batteries in place. Damage caused by battery corrosion is not covered under warranty.

⚠ **WARNING:** Lithium is a toxic substance and ingestion may cause serious injury or death. Keep lithium batteries out of the reach of children. If swallowed, immediately seek medical help. Have doctor phone 24-hour hotline at (202) 625-3333, call collect if necessary. Dispose of batteries properly and according to local regulations. Do not puncture or burn batteries. If the battery compartment does not close securely, stop using the product and keep it away from children.

⚠ **WARNING:** This product and/or its included or branded accessories can expose you to chemicals, including lead and lead compounds and phthalate DEHP, which are known to the State of California to cause cancer and lead and lead compounds, bisphenol A (BPA), and phthalate DnHP, which are known to the State of California to cause birth defects or other reproductive harm. For more information, go to **www.P65Warnings.**
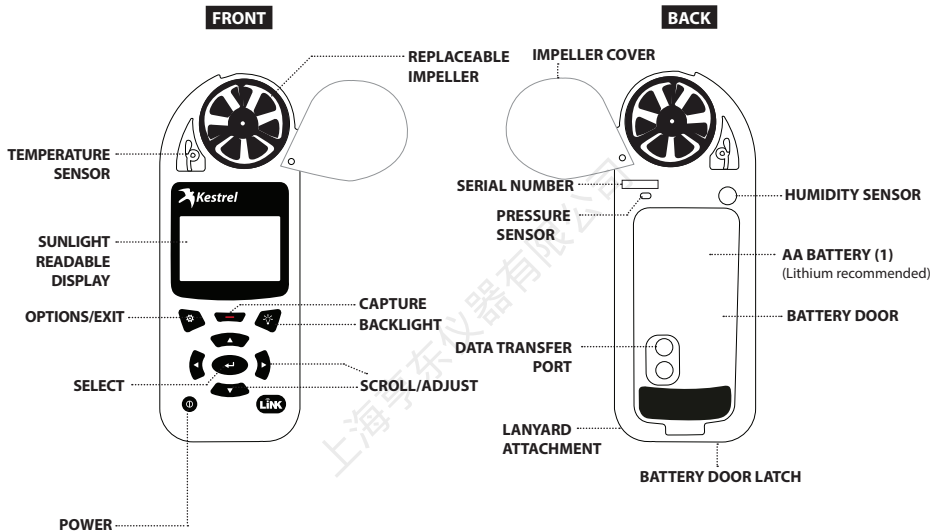
This User Guide contains only the information you need to get started using your Kestrel meter. For FAQ's, chat and e-mail support, visit

CONTENTS

Measurements	Icon	5700	Elite
Wind Speed | Air Speed (mph | fpm | m/s | km/h | kt)	✁	•	•
Temperature (°F | °C)	🌡	•	•
Wind Chill (°F | °C)	❄	•	•
Relative Humidity (%)	◊	•	•
Heat Stress Index (°F | °C) .	HI◊	•	•
Dewpoint Temp (°F | °C)	DP◊	•	•
Wet Bulb Temp (°F | °C)	WB🌡	•	•
Station Pressure (Absolute Pressure)	↓	•	•
Barometric Pressure (inHg | hPA | psi | mb)	↘	•	•
Altitude, m | ft	▲	•	•
Density Altitude, m | ft	D▲	•	•

Features		5700	Elite
LiNK Wireless Connectivity + LiNK Ballistics Mobile App	LiNK	• *(optional)*	• *(optional)*
Night Vision Preserving Back Light	NV	•	•

Measurements	5700	Elite
G1/G7 Ballistic Solver	•	•
Easy Mode	•	•
Muzzle Velocity Calibration	•	•
Target Range Estimator	•	•
Muzzle Velocity-Temperature Table	•	•
Spin Drift	•	•
Coriollis Correction	•	•
Aerodynamic Jump Correction	•	•
Gun Memory	3	30
Targets	1	10
Ballistics Data	Limited	Full
AB Custom Drag Models		•
Range Card		•
DSF Calibration		•
Target Card		•

FRONT

BACK

REPLACEABLE IMPELLER

IMPELLER COVER

TEMPERATURE SENSOR

Kestrel

SERIAL NUMBER

PRESSURE SENSOR

HUMIDITY SENSOR

SUNLIGHT READABLE DISPLAY

AA BATTERY (1)
(Lithium recommended)

BATTERY DOOR

OPTIONS/EXIT

CAPTURE

BACKLIGHT

DATA TRANSFER PORT

SELECT

SCROLL/ADJUST

LANYARD ATTACHMENT

BATTERY DOOR LATCH

POWER

BUTTONS

Button	Name	Function
⏻	POWER	Turns Kestrel on and off. Press for on, hold for two seconds to turn off.
⚙	OPTIONS/ EXIT	Enter the main Options menu or exit a menu.
↵	SELECT	Access Settings on any measurement screen or select a menu option to enter its submenu or confirm a task.
▲▼	UP/DOWN	Scroll up and down through measurement screens or menus. Adjust values when entering text in name menus.
◄►	LEFT/RIGHT	Scroll options left and right. Adjust values in combo menus and setting submenus.
—	CAPTURE	In Weather Mode, manually capture all environmental values. In Ballistics mode, turns on and off continuous wind capture.
☀	BACKLIGHT	Turn backlight on or off. (Also turns off automatically after one minute.)

KESTREL OPTIONS MENU

Most system-wide and weather setup options are accessed from the main Options menu by pressing the ⚙ button from any Weather Measurement Screen or the main Targeting Screen.

- MODE
- BLUETOOTH
  - » Bluetooth On/Off
  - » Conct
- DATA PORT
- MEMORY OPTIONS
  - » Clear Log
  - » Auto Store
  - » Store Rate
  - » Overwrite
- GRAPH SCALE
- DISPLAY
  - » Auto Shutdown
  - » Contrast
  - » Backlight
- SYSTEM
  - » Time & Date
  - » Compass Cal
  - » Measurements
  - » Units
  - » Lang
  - » Batt
  - » Humidity Cal
  - » Factory Restore
- ABOUT
  - » Version
  - » Legal

KESTREL OPERATING MODES

Your Kestrel Ballistics Weather Meter is both a complete weather meter AND an advanced ballistics calculator. You must select either Weather Mode, Ballistics Mode, or Easy Mode depending on the functions you desire:

- » Weather Measurements, History and Data Logs are accessed in Weather Mode.
- » The Targeting Screen and all ballistics settings (Target, Wind, Gun, Environment, Range Card, Target Card, Ballistics, Manage Guns) are accessed in Ballistics Mode.
- » Easy Mode is a simplified version of Ballistics mode with additional guidance for users new to using the Kestrel.

HOW TO SELECT THE OPERATING MODE:
- ⬚ » Select Mode under the Options Menu.
- » Set Mode to Weather, Ballistics or Easy.

NOTE! You can also "jump" between Weather and Ballistic modes by pressing the ⛯ BACKLIGHT button twice quickly. You will enter Weather Mode at the last Measurement Screen used, making it convenient to take advanced wind averaging measurements, for example.

TYPES OF MENU ITEMS

Task	Go
Submenu...	
Setting	On
Combo Field...	Yes▼
⚙ exit	◄► adjust
Locked Value	
Locked Value...	

» Tasks are executed by highlighting the field and pressing Select.

» The presence of a submenu is indicated by a "…" following a field.

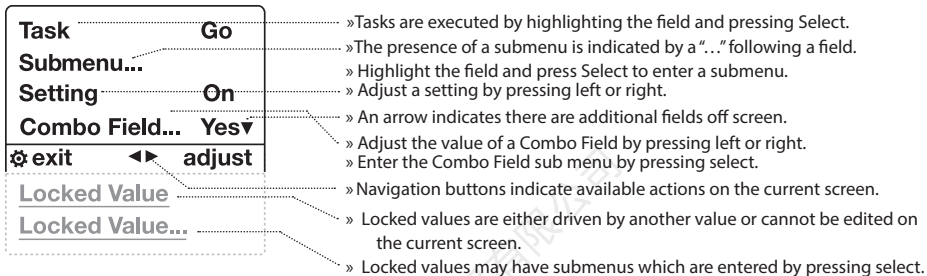» Highlight the field and press Select to enter a submenu.

» Adjust a setting by pressing left or right.

» An arrow indicates there are additional fields off screen.

» Adjust the value of a Combo Field by pressing left or right.

» Enter the Combo Field sub menu by pressing select.

» Navigation buttons indicate available actions on the current screen.

» Locked values are either driven by another value or cannot be edited on the current screen.

» Locked values may have submenus which are entered by pressing select.

TARGETING SCREEN

Bluetooth ® Connection Status

Active Target *(Elite Model only)*

Targeting Screen

SCOPE ELEVATION ADJUSTMENT
(U=Up/D=Down)

SCOPE WINDAGE ADJUSTMENT
(L = Left, R = Right)

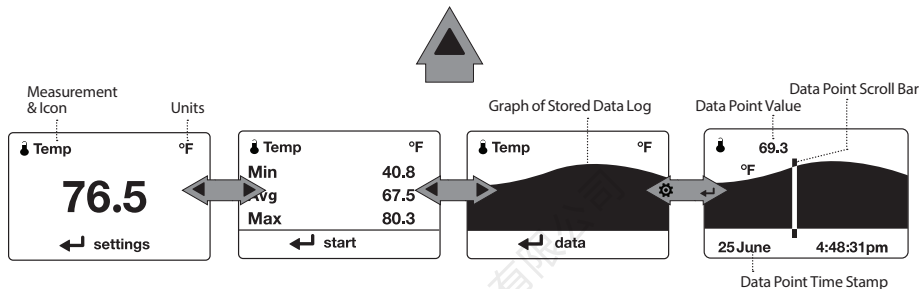|	
E 7.68 U MIL ✳ **A**	
W 2.62/4.92L	
Tgt... 067° 800yd	
Wind... 9:00 11mph	

❑ *Note! The Windage Adjustment provides two values creating a wind profile bracket based on a 5 second rolling average shown.*

Windage solution based on the average wind speed. Shown on Range Card as Wnd1.

Windage solution based on the maximum wind speed. Shown on Range Card as Wnd 2.

* Range Card available on Elite Model only.

MORE MEASUREMENTS

Measurement & Icon

Units

Graph of Stored Data Log

Data Point Scroll Bar

Data Point Value

🌡 Temp	°F
76.5	
↵ settings	

🌡 Temp	°F
Min	**40.8**
Avg	**67.5**
Max	**80.3**
↵ start	

🌡 Temp	°F
	⚙ ↵
↵ data	

🌡	**69.3**
°F	
25 June	**4:48:31pm**

Data Point Time Stamp

Current Measurement Screen

Press ↵ SELECT to enter settings menu for that measurement.

Min Ave Max Screen

Press ↵ SELECT to start, stop and clear the Min/Avg/Max tracking.

Data Graph Screen

Press ↵ SELECT to enter the Data Log Detail Screen to view logged data points.

Data Points Screen

Press LEFT/RIGHT to scroll through data points. Press OPTIONS to exit Data Log Details Screen.

MORE MEASUREMENTS

The ▲▼ UP/DOWN buttons navigate between all weather measurements set to "On" in Options|Measurements. The ◀▶ LEFT/RIGHT buttons scroll between the three display screens for the measurement.

The ⚙ OPTIONS button exits the settings submenu and Data Log Detail Screen.

GETTING STARTED

INSTALL BATTERY. Slide the battery door latch and open door. Insert the provided AA lithium battery as indicated by the label. Replace the battery door, ensuring it "clicks" fully into place.

1. **POWER ON KESTREL.** Press ⏻ to power on Kestrel.
2. **ENTER OPTIONS MENU.** Press ⚙ to enter the Options Menu.
3. **CALIBRATE THE COMPASS.** Scroll to and select **System**. Scroll to and select **Compass Cal**. Follow the on-screen instructions:

   » Place the base of the Kestrel on a flat surface at least 3 feet from any large metal objects.
   » Start the calibration routine. Rotate the Kestrel around its vertical axis 3 times, keeping the unit as vertical as possible and taking approximately 10 seconds per full rotation. You may need to restart the routine a few times until you get the timing correct.

   3x
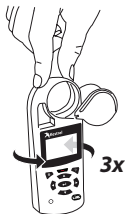
   ▢ *Note! When taking compass readings, keep the Kestrel as vertical as possible for maximum accuracy.*

4. **EXIT OPTIONS MENU.**

BUTTON QUICK KEY

Options/Exit

Select

Scroll/Adjust

ADDITIONAL SETTINGS

All additional settings are accessed from the options menu.

1. **SET AUTO SHUTDOWN.** Scroll to and select **Display**. Scroll to **Auto Shtdwn** and choose a time window after which the Kestrel will shut down without any button presses.
2. **SET BACK LIGHT.** Scroll to and select **Display**. Scroll to **Backlight** and set to either standard White or night vision preserving **Red**.
3. **SET DATE AND TIME.** Scroll to and select **System**. Scroll to and select **Time & Date**. Adjust the time and date.
4. **TURN ON/OFF MEASUREMENT SCREENS.** Scroll to and select **System**. Scroll to and select **Measurements**. Set each measurement screen to either **On or Off** as desired.
5. **SET UNITS**. Scroll to and select **System**. Scroll to and select **Units**. To change all units select **Global**, then set **Global to Imperial** or **Metric**, and then scroll to **Apply** and select **Go**. To set units individually, scroll to each measurement type in the **Units** submenu and set to the desired units. Units can also be set in the **Settings** menu for each measurement.

ALTIMETER AND BAROMETER
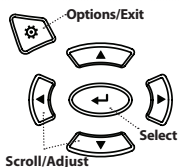
The Kestrel employs a stable, accurate pressure sensor to measure station pressure, the unadjusted air pressure in your location.

» To use your Kestrel to measure barometric pressure (station pressure adjusted for local elevation), you must enter a correct reference value for your altitude. Accurate barometric readings require that no elevation changes be made while taking measurements.

» To use your Kestrel to measure altitude changes (changes in station pressure associated with changes in elevation), you must enter a correct reference value for your starting barometric pressure. Accurate altitude readings depend on stable, weather related barometric air pressure while measurements are taken.

» Synched values between the Altitude and Barometer measurement screens allow reference value updates on either screen to automatically update reference values on the other. You cannot use your Kestrel as a barometer and altimeter simultaneously.

SETTING REFERENCE VALUES ON BARO MEASUREMENT SCREEN:

» Scroll to the **Baro** measurement screen and select Settings.

» Adjust either the Altitude or the Barometric Pressure value to a local, known value obtained from a mapping reference, GPS, or accurate weather station in the same location.

SETTING REFERENCE VALUES ON ALTITUDE MEASUREMENT SCREEN:

» Scroll to the **ALTITUDE** measurement screen and select **Settings**.

» Adjust either the Altitude or the Barometric Pressure value to a local, known value obtained from a mapping reference, GPS, or accurate weather station in the same location.

Note! You should enter new reference values whenever you are using the Altimeter or Barometer functions and your location or the weather conditions have changed.

Note! You do NOT need to enter Altimeter or Barometer reference values to obtain accurate ballistics targeting solutions. The ballistics calculator employs the station pressure.

CREATING GUN & BULLET PROFILES

Note! Unless specified, all ballistics related functions are to be accessed with the Kestrel in Ballistics Mode. Features found in Easy Mode are called out specifically.
For ease of access, the ballistics Targeting Screen also contains the Ballistics Menu. Simply scroll down from the Targeting Screen to access these settings and submenus:

- » Target
- » Wind
- » Gun
- » Environment
- » Range Card (Elite Model only)
- » Target Card (Elite Model only)
- » Ballistics (Limited on 5700 model, full on Elite model)
- » Manage Guns

▢ *Note! The back of this guide contains a full Glossary of the terms used. Please read these definitions!*

CREATE OR EDIT A GUN PROFILE:

- » Scroll to and select **Manage Guns**. Either select an existing gun to edit or select **New Gun**.
- » Scroll up and select **Gun** to rename the gun. Use the scroll/adjust buttons to enter a new name, then exit the naming menu.
- » Set the remaining values in the **Gun** sub menu to match your gun, bullet and scope combination.
- » Exit to the **Manage Guns** menu and ensure the new gun is set to **On**.

CREATING TARGETS

EDIT TARGET:

- » Scroll to and select **Tgt**.
- » Set range, angle, target speed, and wind values to match your target.

EDIT TARGET OR CREATE ADDITIONAL TARGETS: (Elite model only)

- » Scroll to and select **Tgt**.
- » Set range, angle, target speed, and wind values to match your target. The Elite model allows up to ten targets (A TO J).
- » Make sure **Target** is set to **Active**.
- » To enable more than one target, or edit other active targets, scroll up to the header named Target and use the left/right buttons to scroll between targets (A through E). Set a target to **Active** to enable it, then edit its values.
- » When only one target is active, its range can also be modified directly from the main Targeting Screen by highlighting **Tgt** and scrolling left or right.
- » If more than one target is set to **Active**, highlighting **Tgt** in the main Targeting screen and scrolling left or right will scroll between active targets.
- » All targets can be accessed in Target Card whether they are set to Active or not.

MEASURING WIND

An accurate crosswind measurement requires that the Kestrel "know" both the direction of fire and the wind direction and strength. You may use the Kestrel's built-in compass and wind measuring and averaging features to capture these values:

CAPTURING THE DIRECTION OF FIRE:
» Select **Tgt** to enter the Target menu, scroll down and select DoF, then scroll down and select **Capture**.
» Follow the on-screen instructions:
» While holding the Kestrel vertical, point the back of the unit directly towards the target and select **Capture**.
» **DoF** will automatically be populated in the Target menu.

CAPTURING THE WIND INPUTS:
» In the Target menu, scroll down and select **WD**, **WS1**, or **WS2**.
» Scroll down and select **Capture**.
» Follow the on-screen instructions:
    » While holding the Kestrel vertical, point the back of the unit directly into the wind and select **Capture**.
    » Continue to point the Kestrel into the wind for **at least 5 seconds** to capture a rolling 5 second average and peak value of the winds. Select **End Capture**
    » **WD**, **WS1**, **WS2** will automatically be populated in the Target menu.

Note! Selecting Wind in the Ballistics Menu jumps directly to the WD, WS1, & WS2 entries in the Target Menu.

Note! For maximum accuracy of compass readings when capturing DoF and Wind, the Kestrel must be held as vertically as possible – be careful not to tilt it away from you while taking readings.

Note! Any time you are using the Kestrel to calculate an elevation hold (including when calibrating muzzle velocity and DSF) a direction of fire plus wind direction and speeds must be input. These inputs contribute to an accurate elevation solution.

CALIBRATING MUZZLE VELOCITY

The Muzzle Velocity Calibration function allows you to obtain a more accurate muzzle velocity by combining user input data and actual shot results and calculating the actual bullet speed.

CALIBRATING MUZZLE VELOCITY:

» Scroll to and select **Gun** in the Ballistics Menu.
» After accurately inputting all other gun, bullet, and scope parameters, as well as wind values and direction of fire, scroll to **MV** and adjust to your best estimate of your gun's muzzle velocity.
» Select **Cal MV** to enter the MV sub menu. Scroll to and select **Cal MV**.
» The **Cal MV** range is the suggested target distance at which to calibrate. For best results, find a range where you can shoot to between 85% and 100% of the recommended range but no further. Calibrating at less than 85% of the recommended range will lessen accuracy at distances near the transonic boundary. If a target beyond 85% of the recommended range is not available, calibrating at a shorter distance should be accurate out to the distance used for calibration but a new MV Calibration should be performed if shooting beyond the calibration distance.
» Adjust **Range** to match the actual distance to your target where you are shooting. Accuracy here is key! Use a quality ranger finder if you are not on a measured range.
» Apply the suggested elevation hold shown in **Drop** in your scope turrets or reticle.

» Take a number of shots to determine the actual bullet drop. Adjust **Drop** to match the actual observed bullet drop of the bullet at that range. For example, if the point of impact is 1.5 Mils below the bullseye adjust the **Drop** value to be 1.5 Mils greater.
» A new **MV** will be calculated to match the actual impact of your round. (In this example, the **MV** will be decreased.) No chronograph required!
» A (+) or (-) in front of the **MV** value indicates the new **MV** has been calibrated up or down.
» Exit to accept the new **MV** value.

▢ *Note! The suggested MV Cal range is the distance where the bullet slows to Mach 1.2 (Transonic Range). Try to calibrate MV as close to the recommended MV Cal range as possible without shooting beyond the recommended range. Ideally find a target closer than, or equal to 85% of the recommended distance. If available ranges do not permit shooting to 85% of the transonic range for your bullet, shoot as far as you can but confirm the accuracy of your initial calibration by repeating the MV Calibration process at longer range if you are able to shoot beyond the distance at which you initially calibrated MV.*

▢ *Note! If the MV-Temp table has been populated, MV values will be locked by the MV-Temp table and MV values will not be automatically adjusted by the MV Cal procedure above.*

Using Cal MV Guide

In the MV sub menu, below Cal MV, is the Cal MV Guide tool. This tool provides the user with step by step guidance through the MV Calibration process to ensure muzzle velocity is calibrated as accurately as possible. If used correctly, both the Cal MV and Cal MV Guide tool will produce the same result.

CALIBRATING DROP SCALE FACTOR (AVAILABLE ON ELITE MODELS ONLY)

The Drop Scale Factor (DSF) function allows you to calibrate the BC of your round beyond the supersonic range of the bullet and maintain accurate solutions out to transonic and subsonic ranges. DSF calibration should be performed after performing an MV calibration. DSF calibration has little to no effect on the supersonic flight path of the bullet.

CALIBRATING DSF:

» Scroll to and select **Gun** in the Ballistics Menu.
» After accurately inputting all other gun, bullet, and scope parameters, as well as **MV**, wind values and direction of fire, scroll to and select **CAL DSF**.
» The **Cal DSF** range is the suggested target distance at which to calibrate beyond. (Not closer than, as with MV Calibration). The suggested range shown when performing a Cal DSF for the first time corresponds with a bullet velocity of Mach 0.9. Subsequent uses of Cal DSF will provide a suggested ranges corresponding to a Mach value which is slower than the Mach value used in the previous DSF Calibration.
» Adjust **Range** to match the actual distance to your target where you are shooting. Accuracy here is key! Use a quality ranger finder or confirm your range using the best method available.
» Apply the suggested elevation hold shown in **Drop** in your scope turrets or reticle.

» Take a number of shots to determine the actual bullet drop. Adjust **Drop** to match the actual observed bullet drop of the bullet at that range. For example, if the point of impact is 1.5 Mils below the bullseye, adjust the **Drop** value to be 1.5 Mils greater.
» A new **DSF** value will be calculated to match the actual impact of your round in the transonic or subsonic range.
» A (+) or (-) in front of the **DSF** value indicates the **DSF** value has been calibrated up or down. A **DSF** value of 1 indicates no change to BC in the transonic or subsonic range.
» Exit to accept the new **DSF** value.
» Up to 6 DSF values can be created to calibrate BC through the transonic and subsonic range. Calibrating DSF one time can create more than one DSF Cal value.
» All DSF values can be viewed and deleted in **View DSF**.

Note! Entering DSF values at a shorter range than a previously entered DSF value will overwrite the longer range value.

ENVIRONMENT

Accurate Temperature, Humidity and Pressure measurements are critical to calculating an accurate Targeting Solution. It is important that the values measured by the Kestrel represent the ambient values, and for this the Kestrel needs continuous airflow over its sensors. When using a Kestrel in a position where airflow could be restricted, such as low to the ground or resting on a shooting mat or rock, it is better to make periodic environmental captures to avoid inaccurate measurements.

HOW TO CAPTURE ENVIRONMENTAL MEASUREMENTS:

» In the Ballistics Menu, scroll to **Enviro**.
» Adjust **Enviro** to **Live** and then wave the Kestrel rapidly through the air for 5-10 seconds. Next check the temperature shown and wave the Kestrel again. Repeat until the temperature value stops changing. If the area allows, and your lanyard is secure, you may also spin the Kestrel around by the lanyard to increase airflow over the sensors and measure ambient temperature as fast as possible.
» Once the temperature value stops changing, immediately adjust **Enviro** back to **Lock** to fix the environmental measurements you have just captured.

▢ *NOTE! Repeat this process every half hour or any time the temperature or pressure changes significantly.*

HOW TO SET THE LATITUDE:

Latitude is necessary for accurate Coriolis calculations.

» In the Ballistics Menu, scroll to and select **Enviro** then scroll to **Lat**.
» Adjust **Lat** to match your local latitude.

▢ *NOTE! Latitude default is the middle of North America if no new value is entered. Setting both DoF and Lat to 0 will effectively turn Coriolis correction off.*

CONTINUOUS WIND CAPTURE

As an alternative to the Wind Capture method described previously, you may mount your Kestrel on a tripod using the Kestrel Vane Mount. The Vane Mount ensures the Kestrel remains oriented into the wind and allows for continuous update of the windage solution. For convenience, this method works best when the firing solution is being displayed on a mobile device using Kestrel LiNK Ballistics.

HOW TO SET THE KESTREL TO CONTINUOUS WIND CAPTURE

» Select the correct **Gun** and **Target** and set the Direction of Fire.
» In the Ballistics Menu, highlight **Wind** and press the red Capture button. An arrow will appear next to the **Wind** menu item to indicate the unit is now in wind capture mode.
» While in wind capture mode, manual inputs to the unit will be locked and changes in wind speed or direction will automatically update the Targeting Screen Windage solution.
» To close wind capture press the red Capture button again.

TARGET CARD (ELITE MODELS ONLY)

Kestrel Elite units hold target data such as range, direction of fire, inclination angle and wind values for 10 separate targets. Target Card is a tool for inputting target data and then viewing solutions for all 10 targets quickly.

HOW TO USE TARGET CARD

- » In the main ballistics menu, scroll to Target Card and press Select.
- » Scroll up or down to view the 10 different target solutions. Scrolling left or right will change the solution data columns shown.
- » To input target data, enter the Target Card sub menu by pressing Select while the Target Card screen is showing.
- » To input target range, direction of fire (DoF) or inclination angle (Ideg), highlight Target Inputs and press select.
  - » The first option is to capture one direction of fire and apply it to all targets. This is used if all targets are in roughly the same direction and exact accuracy is not essential. After pressing select, follow the on-screen instructions and point the back of the unit at the targets and then press Select to capture the DoF value shown.
  - » If a unique DoF is desired for each target, scroll down to the target and press the capture button twice to capture the DoF for that target.
  - » Target range can be input by highlighting the desired target and scrolling left or right till the correct target range is shown.

- » Ideg and target speed can be input by highlighting the desired target and pressing select to enter that target's submenu where Ideg and TS values can be set manually.
- » If using a LiNK connected range finder, simply highlight the desired target and range the target to input any values the range finder can measure.
- » To input wind information, highlight Wind Inputs and press select.
  - » The first option is to capture values for WD, WS1 and WS2 and apply them to all targets. This is used if the wind profile for all targets is roughly similar. After pressing select, hold the back of the Kestrel into the wind and after measuring at least 5 seconds of representative wind, press select to end the capture.
  - » Next you can either continue and accept the captured wind values or edit them according to what you see down range and then continue. These values will then be applied to all 10 targets. While capturing, the wind direction value shown will be in relation to target A (or 1). Once Continue is pressed, the wind direction will be applied to each target in relation to that target's direction of fire.

» If a unique wind profile is desired for each target, scroll down to the desired target and press the capture button to start a wind capture. After measuring at least 5 seconds of representative wind, press the capture button again.

» The target designator (either ABC or 123) can be changed in the Target Card sub menu by scrolling to Designator and toggling right or left.

» To clear target data for all 10 targets, scroll to Clear All Tgts in the Target Card sub menu and press Select and then confirm your choice. This will reset Target Range to the selected gun's zero range, DoF to 12:00 and Ideg, TS, WD, WS1 and WS2 to zero.

If your Kestrel is marked LiNK on the bottom front label, it can be connected wirelessly to other LiNK-compatible devices. LiNK is powered by Bluetooth Smart®, also known as Bluetooth® LE, which is available in most iOS devices released after 2014 and Android devices released after 2015, as well as in a USB Dongle available from Kestrel that supports connectivity to Windows and Mac OS devices. LiNK-enabled Kestrel units can connect to mobile devices running Kestrel LiNK Ballistics allowing you to view your targeting solutions remotely, build and manage gun profiles, access the Applied Ballistics custom drag models and install firmware updates. LiNK-enabled units can be connected wirelessly to computers using the Kestrel Dongle. On Windows PC's use the Applied Ballistics Profile Loader to create and install gun profiles and access the Applied Ballistics custom drag model library. (Applied Ballistics custom drag models can only be used in Elite model Kestrel meters.)

USING PRIVACY PIN MODE

» To prevent unauthorized apps from connecting to your Kestrel, enter the Bluetooth menu and set Conct to PC/Mobile , then turn Privacy PIN to On.

» When connecting for the first consecutive time to a Privacy PIN compatible app, copy the PIN from the Kestrel's Bluetooth menu screen to the app.

» If Privacy PIN is set to ON, any apps or computer programs which connect without being able to provide the correct Privacy PIN number will be disconnected.

CONNECTING TO A COMPUTER, MOBILE PHONE OR TABLET:

» On your phone or tablet, follow the links at **kestrelinstruments.com/link-connectivity** to locate Kestrel LiNK Ballistics for iOS or Android in the App or Play store and install on your mobile device.

OR

» On your computer, follow the links at **kestrelinstruments.com/link-connectivity** to locate the Applied Ballistics Profile Loader for Windows and install on your computer. Insert your Kestrel USB Dongle (available separately) into an open USB port.

» On the Kestrel, open the Options Menu and select **Bluetooth**. Set **Bluetooth** to **On**. Set **Conct** to **PC/Mobile mode**, the Kestrel's Status will change to **Available**, indicating that it is available for pairing with a computer or mobile device.

» Ensure the computer or mobile device is searching and in range. When **Status** changes from **Available** to **Connected**, the pairing is active and your Kestrel is ready to communicate.

CONNECTING TO A NEW LINK-COMPATIBLE DEVICE: (SUCH AS A RANGE FINDER)

» Follow directions for your LiNK-compatible Device to power it on and put it in pairing mode.

» On the Kestrel, open the Options Menu and select **Bluetooth**. Set **Bluetooth** to On.

- » Set **Conct** to **Device.**
- » Scroll to **Name** and select **New**, then wait for the list of available devices in range to populate.
- » Select a device from the available list. Once connected, the settings menu for that device will open, allowing you to manage the device's settings.
- » Exit to the Bluetooth menu. **Status** should indicate **Connected**, meaning the pairing is active and your Kestrel is ready to communicate.

PAIRING TO A PREVIOUSLY PAIRED DEVICE
- » Follow the directions for connecting to a new device except instead of selecting **New** in the **Name** field, scroll left or right to find the desired device.
- » **Status** will change to **Searching**. If the device is in range and in active pairing mode, a connection will be made and **Searching** will change to **Connected**, indicating that the pairing is active and your Kestrel is ready to communicate.

BLUETOOTH CONNECTION INDICATOR:
- » When connected to any LiNK compatible device, a ⚡ icon will appear in the Targeting screen in the upper right.
- » If the paired device goes to sleep or if the connection is lost, the ⚡ icon may disappear but waking the device up or returning within range should automatically reestablish the connection and the icon should reappear.

▢ *Note! LiNK range is typically 100 ft/30M line of sight. Shorter distances should be expected if there are obstacles such as walls or metal enclosures. Range is also impacted by the signal strength of the other device.*

CONNECTING TO COMPUTERS USING USB CABLE
All Kestrel 5 Series units can connect to a computer via the Data Transfer Port using the USB Data Transfer Cable available separately. Kestrel LiNK software is available for Windows and Mac for downloading logged weather data and installing firmware updates. Applied Ballistics Profile Loader is available for Windows only and can be used to create and install gun profiles and access the Applied Ballistics Custom Drag Model Library. (Applied Ballistics Custom Drag Models can only be used in Elite units.)

CONNECT YOUR KESTREL METER TO YOUR COMPUTER USING THE DATA TRANSFER CABLE:
- » On your computer, follow the links at **kestrelinstruments.com/link-connectivity** to download Kestrel LiNK for PC or Mac. Install.
  OR (Windows only)
- » Follow the links at **kestrelinstruments.com/link-connectivity** to download the Applied Ballistics Profile Loader to a PC. Install.
- » On your Kestrel in the main Options menu, scroll to and select **Data Port** and set to **On**.
- » Insert the USB Data Transfer Cable into a USB port and plug into the Data Transfer Port on the back of the Kestrel unit.
- » Follow the directions in the Kestrel LiNK or Applied Ballistics Profile Loader program to confirm the connection and perform program actions.

WEATHER GLOSSARY

DIRECTION – Compass heading in true or magnetic North.

WIND SPD – Wind Speed is the measurement of the wind passing through the impeller. For greatest accuracy, point the back of the Kestrel directly into the wind.

CROSWND – Crosswind uses the internal compass and a user selected heading to calculate the crosswind component of the full wind.

HEADWND – Headwind uses the internal compass and a user selected heading or target direction to calculate the headwind component of the full wind.

TEMP – Ambient Temperature is the temperature measured at the thermistor. For best results, ensure the thermistor is not exposed to direct sunlight and is exposed to good airflow.

CHILL – Wind Chill is a calculated value of the perceived temperature based on temperature and wind speed.

HUMIDITY – Relative Humidity is the amount of moisture currently held by the air as a percentage of the total possible moisture that the air could hold.

HEAT INDEX – Heat Index is a calculated value of the perceived temperature based on temperature and relative humidity.

DEW POINT – Dew Point is the temperature at which water vapor will begin to condense out of the air.

WET BULB – Wet Bulb is the lowest temperature that can be reached in the existing environment by cooling through evaporation. Wet Bulb is always equal to or lower than ambient temperature.

BARO – Barometric Pressure is the local station (or absolute) pressure adjusted to mean pressure. An accurate reading depends on a correct altitude input and unchanging altitude while measuring.

ALTITUDE – Altitude is the vertical distance associated with given atmospheric pressure. An accurate reading depends on correct initial barometric pressure input and stable barometric pressure while measuring.

STATION – Station Pressure (Absolute Pressure) is the pressure exerted by the atmosphere at the location.

DENS ALT – Density Altitude is the altitude at which the density of the theoretical standard atmospheric conditions (ISA) would match the actual local air density.

TARGET MENU

Active – Setting a target to active makes it selectable in the main target screen.(Not available in Sportsman models)

TR – Target Range is the distance from the muzzle of the rifle to the target.

DoF – Direction of fire is the direction from the position of the shooter to the target.

Ideg – Inclination is the angle above or below horizontal from the position of the shooter to the target.

Icos – Inclination Cosine is the cosine of the angle above or below horizontal from the position of the shooter to the target.

TS – Target Speed is the speed of the target perpendicular to the direction of fire.

TD – Target Direction is the direction of travel of the target perpendicular to the direction of fire.

WD – Wind Direction is the direction the wind is coming from in relation to the direction of fire.

WS1 – Wind Speed 1 is a five second rolling average wind speed.

WS2 – Wind Speed 2 is a five second rolling maximum wind speed.

GUN MENU

MV – Muzzle Velocity is the speed of the bullet as it leaves the muzzle. MV can be measured with a chronograph or calculated using the MV Cal function. An MV estimate is often provided by cartridge manufacturers or in reloading manuals.

DM – A Drag Model is the known aerodynamic drag profile of a standard projectile against which an actual bullet is referenced. Ballistics coefficients based on G1 drag models are more widely available but ballistic coefficients based on G7 drag models are more representative of a typical hollow tip, boat tail bullet.

Applied Ballistics Custom Drag Models - Using one of the Applied Ballistics custom drag models replaces the use of a G1 or G7 drag model and its associated BC. When a custom drag model is used, the BC value appears as a 1. Applied Ballistics custom drag models can only be used in Elite units.)

BC – A Ballistic Coefficient is a ratio that represents the ability of the bullet to overcome air resistance and maintain velocity while in flight in comparison to a standard projectile. Be sure to match the G1/G7 drag model setting to the BC value you are using. G1 BCs can not be used with G7 drag models and vice-versa.

BW – Bullet Weight is the weight of the bullet measured in grains or grams.

BD – Bullet Diameter is the diameter of the bullet measured in inches or millimeters. (Note! Ensure bullet diameter is correct. The given name of a bullet's caliber does not always match its actual diameter, for example 300WM is actually .308", not .300")

BL – Bullet Length (found in the Bullet Diameter sub menu) is the length of the bullet measured in inches or millimeters. Bullet Length will be estimated using Bullet Diameter when Auto Calculate is set to On in the BL sub menu. If a different bullet length is desired, Auto Calculate can be turned off and a value can be input manually.

ZR – Zero Range is the distance from the muzzle to the target at which the rifle was zeroed.

BH – Bore Hight (Scope Height) is the distance from the center axis of the rifle barrel to the center axis of the scope. This can be measured from the top of the bolt to the middle of the windage turret plus half the diameter of the bolt.

ZH – Zero Height is an adjustment designed to account for temporary changes to your gun setup that shift the point of impact in a vertical direction. Examples include the addition of a suppressor, night vision optic or change in load. For example, if adding a suppressor changes the point of impact by shifting it down 2 inches at your Zero Range, set ZH to -2. When the suppressor is removed, simply reset ZH to 0. A change in point of impact up is positive, down is negative. (Not available in 5700 models)

ZO – Zero Offset is the same as Zero Height but for the horizontal direction. If adding a suppressor changes the point of impact by shifting it left 1 inch at your Zero Range, set ZO to -1 in. A change in point of impact to the right is positive, left is negative. (Not available in 5700 models)

RT – Rifle Twist is the distance it takes for the rifling of your barrel to make one full rotation. RT is often provided by the gun or barrel manufacturer. It can also be measured by marking a tight fitting cleaning rod and measuring the insertion distance required to make one full rotation.

RTd – Rifle Twist Direction is the rotational direction of the rifle twist. A right hand twist (most common) is clockwise from behind the rifle.

Eunit – Elevation Unit is the unit of measure used in a scope and reticle for elevation and can be changed to Mil, TMOA, SMOA, inches or centimeters.

Eclck – Elevation Clicks is a user settable ratio of the number of clicks of the elevation turret required to adjust the point of aim one Mil, TMOA or SMOA. The Eclck value can be set in the Eunit sub menu when clik is selected as the Eunit.

GUN MENU CONT'D

Wunit – Windage Unit is the unit of measure used in a scope and reticle for windage, either TMOA, SMOA, or Mil.

Wclck – Windage Clicks is a user settable ratio of number of clicks of the windage turret per TMOA, SMOA, or Mil. The Wclick value can be set in the Wunit sub menu when clik is selected as the Wunit.

DSF – Drop Scale Factor is a ballistic coefficient truing feature applied at transonic and subsonic speeds. (Not available in 5700 models)

TMOA – True Minute of Angle is a measure of one actual minute of angle. 1 TMOA = 1.047" at 100 yards. Most MOA scopes are TMOA.

SMOA – Shooters Minute Of Angle is a simplified approximation of one minute of angle where 1 SMOA = 1" at 100 yards.

Mil – Milliradian is a measure of angle using the USMC definition of 6283 mils = 1 circle, or 1 mil = 3.438 MOA.

CLIK – Click is the value of each click of the turret where the user selects the number of clicks equal one TMOA, SMOA, or Mil, based on the turrets of their scope.

ENVIRONMENT MENU

Enviro - Setting Enviro to Live updates the ballistic solver with current sensor data for temperature, pressure, and relative humidity once every second. Selecting Lock for Enviro captures the current environmental inputs and makes them user editable.

Lat – Latitude. This input can be found on a map or internet search for your area.

Temp – Ambient Temperature is the temperature measured at the external temperature sensor.

SP – Station Pressure (Absolute Pressure) is the pressure exerted by the earth's atmosphere at any given point.

RH – Relative Humidity is the amount of moisture currently held by the air as a percentage of the total possible moisture that the air could hold at the current temperature.

Dalt - Density Altitude is the altitude at which the density of the theoretical standard atmospheric conditions (ISA) would match the actual local air density.

SpnDft – Spin Drift is a correction for lateral drift caused by the change to the bullets axis of rotation as it follows the arc of its trajectory.

Wcap – Wind Capture toggles between applying the wind values captured to just the currently selected target or to all targets.

TARGET CARD MENU

RANGE CARD AND TARGET CARD ARE AVAILABLE ON ELITE MODEL ONLY. NOT ALL VALUES BELOW ARE SHOWN IN THE 5700 BALLISTICS MENU.

Range – Range is the distance to target

Elv – Elevation is the vertical correction needed to hit a target at a given range.

Wnd1 – Windage 1 is the horizontal correction needed to hit a target at a given range and average measured wind speed.

Wnd2 – Windage 2 is the horizontal correction needed to hit a target at a given range and maximum measured wind speed.

Lead – Lead is the horizontal correction needed to hit a target moving left or right at a given speed and must be added or subtracted to the windage solution depending on the targets direction of motion.

RemV – Remaining Velocity is the amount of a bullet's initial velocity retained at a given distance. Transonic speeds are indicated by a small dot. Subsonic speeds are indicated by a large dot

RemE – Remaining Energy is the amount of a bullets initial energy retained at a given distance.

Rtrns – Transonic Range is the distance traveled by the bullet at which it slows to transonic speed (Mach 1.2).

Trce - Trace is the height above the Elevation solution where the trace of the bullet will be most visible. (Trace value shown in Range Card is optimized for calculation speed and may differ slightly from Trace value in Ballistics Menu which is optimized for accuracy.)

vCor – Vertical Coriolis Correction is the amount of the elevation solution attributed to the Coriolis effect.

hCor – Horizontal Coriolis Correction is the amount of the windage solution attributed to the Coriolis effect.

SpnD – Spin Drift is the amount of the windage solution attributed to the spin drift.

AerJ - Aerodynamic Jump is the amount of the elevation solution attributed to aerodynamic jump.

ToF – Time Of Flight is the time required for a bullet to reach its target at a given range.

MaxO – Max Ordinate is the highest point in the bullet's trajectory above the height it was fired from.

Drop – Drop is the total drop the bullet experiences from its highest point in flight.

Rsub – Subsonic Range is the distance traveled by the bullet at which it slows to subsonic speed (<Mach 1).

IMPELLER REPLACEMENT

▢ *Press only the sides of the impeller when removing and inserting to avoid damaging the precision hub bearing. [⊞ Figure 1]*.

» Press FIRMLY on the impeller module to remove it.
» Insert the new impeller so the side that has the small triangle (close to the perimeter) faces the front of the Kestrel when installed.

⊞ *Figure 1*

» Orient one "arm" of the module straight up . [⊞ Figure 2]. The impeller can be pushed in from either side.

⊞ *Figure 2*