Set up and use of the Kestrel 4500 Applied Ballistics system
Turn on

Defaults into AB mode at turn on

Note – Battery level defaults to 47% if in battery setting - Alkaline is set but you are using a lithium battery – change in "System"
**AB mode**

**Main operating screen**

- **Elevation** based on Range and Environment settings – MILS or MOA based on operator units selection.

- **Windage** based on Range and environmental settings – MILS or MOA based on operator units selection.

- **Tgt** = Target data – here it displays 25 deg DOF to a 1000m target is 8.81 mils elevation from zero.

- **Wind setting** – displays wind from 2 o’clock, Wind 1 of 4mph, Wind 2 is under wind settings.

- \[ W = \text{Wind 1 (0.57 mils)} / \text{Wind 2 (3.18 mils)} \]

- **W =** hold R or right for the 1000m target IF WINDS ARE AS ENTERED IN WIND SETTING.

- **0.57 =** hold Right .57 mils on the 1000m target based on a 4mph wind coming from 2 o'clock in reference to the direction of fire of 25 deg.
With Tgt is highlighted hit enter to set parameters

Range can be adjusted using the left and right arrows on this main screen but the range will move slowly as the system is calculating as you adjust. If you adjust range inside the target mode it moves quickly without calculations until you stop.

Target inputs

Enter TR to change / convert yards/meters

Hit escape – you will be prompted to save range to target range or forget range found using estimate

Set magnetic Azimuth to target – this is for Coriolis calculation

Set up or down angle (Ideg – inclination degrees) to Target – Icos – inclination cosine will populate automatically once you input angle

Set target Speed and Direction of travel

Set “O’clock” wind is coming from. Set desired wind speed 1 and 2 that will be displayed on the main screen in AB mode
Wind inputs

With Wind is highlighted hit enter to set parameters

Set “O’clock” based on where the wind is coming from. Set desired wind speed 1 and 2 that will be displayed on the main screen in AB mode.

Enter Wind when highlighted and use the arrow keys to change wind data.
Choose Coefficient – G1, G7, or custom curve
Switching a G1 to G7 converts G1 to G7

Gun inputs
With Gun highlighted hit enter to set parameters

IF you choose a custom curve profile it locks DC, BC, Bullet Weight, Bullet Length

Us the up and down arrow to Highlight the variable you want, to change use the left and right button to change to the desired data

Select unit for Scope/Reticle Elevation and Windage scale Mil/true moa/shooter moa, clicks

BW = Bullet Weight
BD = Bullet Diameter
BL = Bullet Length
ZR = Zero Range

BH = Bore Height – Center of barrel to center of scope
ZH = Zero Height – offset from zero for Sup / alt ammo
ZH = Zero Offset – offset from zero for Sup / alt ammo

RT = Rate of Twist
RTD = Rate of Twist Direction

See following page for Truing
Truing the polynomial predictive curve—make your own custom curve

**Truing Muzzle velocity**

Transonic

- Transonic threshold for this gun set up – ensure you are at this range and beyond to true Drop Scale Factor properly
- Target Range and Drop predicted based on Settings

**Truing beyond subsonic**

- Subsonic threshold for this gun set up – ensure you are at this range and beyond to true Drop Scale Factor properly
- Target Range and Drop predicted based on Settings

**Adjust to Actual Drop**
- To hit target – What the bullet did and enter Cal for calibrate

**New Muzzle velocity**
- Based on actual bullet drop

**Accept data**
- and return to AB home screen and it will show the new 10.50 elevation you hit with – system is now true. Confirm data by selecting a target at midrange and ensuring elevation is correct

**Calibrating**

- New Drop Scale Factor based on actual bullet drop

- Accept data and the new DSF for that range will be applied to the DSF table – under View DSF
Environment input

With Environment highlighted hit enter to set parameters

Enter Environment when and use the arrow keys to change data

When you select update Yes the Kestrel is reading the environment real-time and will give real-time data to the ballistic engine. To guard against Solar loading, heat or cold syncing providing bad data spin the kestrel at the end of the lanyard to expose sensors to actual air temp and then immediately turn off update. While shooting update as environment changes.

When the Environment is in update No the user can manipulate variables to see affects in different conditions. This is a good tool to answer questions on what environmental affects will do to the shooting solution. Simply change the variables and go back to the AB home screen to see how new variables affecting the shooting solution.

When Spin drift is Yes it automatically calculates in Spin drift, Coriolis, and Aerodynamic jump into the elevation and wind solution. Turn off and these variables are not calculated in to the shooting/wind solution.

There is no need to enter into the kestrel weather mode for environment information beyond reading wind speeds. All environmental necessities for shooting are located here under environment.
Under ballistics the precise range data can be found to the nearest meter vice in brackets in range card.

Range Card Function

Enter Range Card when highlighted and use the left and right buttons to scroll through – change the last column to the range cards available data.
Ballistic Data

Enter Ballistics when highlighted and use the Up and Down buttons to scroll through ballistic data for the range designated.

Truing data
True at a range between 1001m to 10% below or 900m in this case
Ensure environment is updated.

In ballistics, unlike in range card you get the exact variable for the exact range vice in range increments.
Normal use

• Turn on
• Do an environmental update – turn on and off to prevent heart or cold loading the device
• Select gun
• Find target at transonic or up to 10% below trans
• Input range to target within 1 m
• Shoot data
• Calibrate MV to true the algorithm
• Calibrate DSF for ranges beyond Subsonic
• Change DOF when shooting over 600m
• Spin drift on – calculates spin, coriolis, aerodynamic jump – turn it off and winds are pure
• When you swap batteries you do not loose your data, but Range, Latitude default to 457m and 38th parallel.
• Once trued simply range target to within 1 m and shoot the data (Ensure to conduct environmental updates as environment changes). For extreme range shots ensure you update foe shot as well as input actual DOF and Latitude