

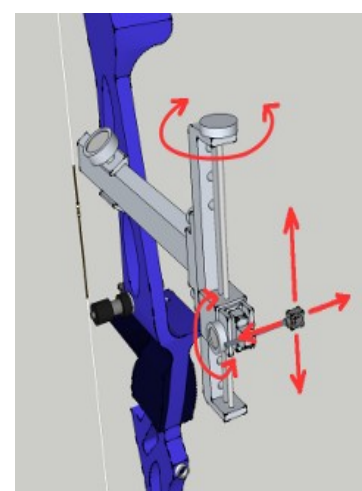
Artemis – Sight Advice

A recent study by Park and Larven¹ shows that top-archers at international tournaments lose score due to incorrectly adjusting their sights. This suggests that beginning and intermediate archers lose score as well, and perhaps even more.



To computing *absolute* sight settings based on nothing else but the parameters of the bow/arrow combination is complicated for a compound bow, but impossible for a recurve bow. But it is possible to determine *relative* sight adjustments. Adjustments based on arrow impact relative to the center of the target face.

With the position of the centre of the group, the distance and size of the target face, the geometry of the archers eye the string or peep-sight and the sight pin or scope, all at full draw, the sight adjustment can be computed. If we also know the particulars of the sight (like movement of the pin per click), a sight adjustment expressed in turn and clicks can be calculated *very accurate*. We've tested this theory with many top-archers and the results are surprising;



Most archers highly under-estimate sight corrections.

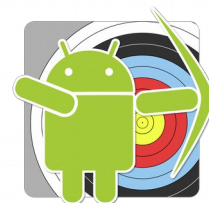
For example; a recurve setup using a Shibuya Ultima II series sight shoots a group left in the 9 ring at 70m on an 122cm target face. How many clicks are required to move the group to the centre (don't continue reading, ask yourself, how many clicks for a left 9?)

	Carbon Model	Standard Model
Mass Weight	210 g	223 g
Aperture Distance (APD)	MAX 248mm MIN 83mm	MAX 248mm MIN 96mm
Elevation	Adjustment Model	Screw Drive with No-Lock Quick Adjust Function
	Length	133mm (approx. 5.2")
	Adjustable Range	approx. 105mm
	Adjustment Increments	1/24" per revolution (approx. 1mm) 1/480" per click (approx. 0.05mm)
Windage	Tilt Adjustment	adjustable $= 1/24 * 25.4 = 1.058 \text{ mm/rev}$
	Adjustable Range	5 mm
	Adjustment Increments	1/32" per revolution (approx. 0.8mm) 1/640" per click (approx. 0.04mm)
Extension	Compatible Apertures	No. 8-32 threaded inserts $= 1/32 * 25.4 = 0.794 \text{ mm/rev}$
	Length	233mm (approx. 9") 225mm (approx. 9")
	Adjustable Range	6.5" (approx. 165mm) 6" (approx. 152mm)
	Adjustment Increments	1/2" (approx. 12.7mm) 1" (approx. 25.4mm)
Elevation: 6060 series aluminum alloy		

Let's compute the answer. Shown on the left is information from the website of Shibuya. One full turn on the windage knob equals 1/32" inch (or 0.794mm) movement of the sight pin. This means that one click moves the sight pin only 0.04mm!

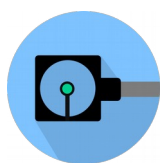
With an arrow group in the middle of the 9 ring, a typical recurve archer needs about 1.2mm of sight pin movement, which is around 1.5 full turns or **30 clicks!**

1 "Analysis of scores and arrow grouping at major international archery competitions", J.L. Park and J.E. Larven, 2014

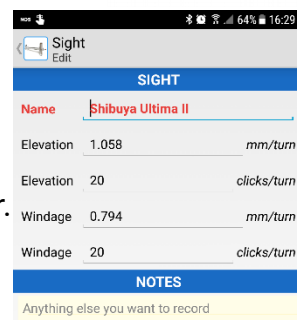


How to setup Artemis' Sight Advice?

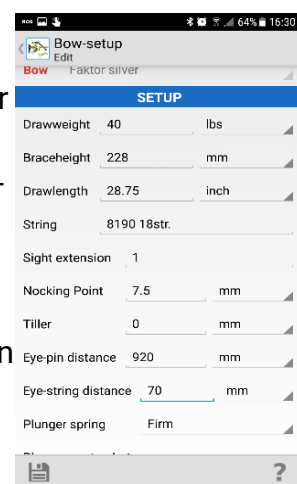
Setup Artemis with the correct data needed to calculate a sight advice!



In the sight-menu where you have created your sight. Make sure the specifications of the sight pin movements are correct. Find the data on the internet page of the manufacturer. If you cannot find the data, simply measure the distance that the sight pin moves when turning the knob 20 full revolutions, then divide the distance by 20.

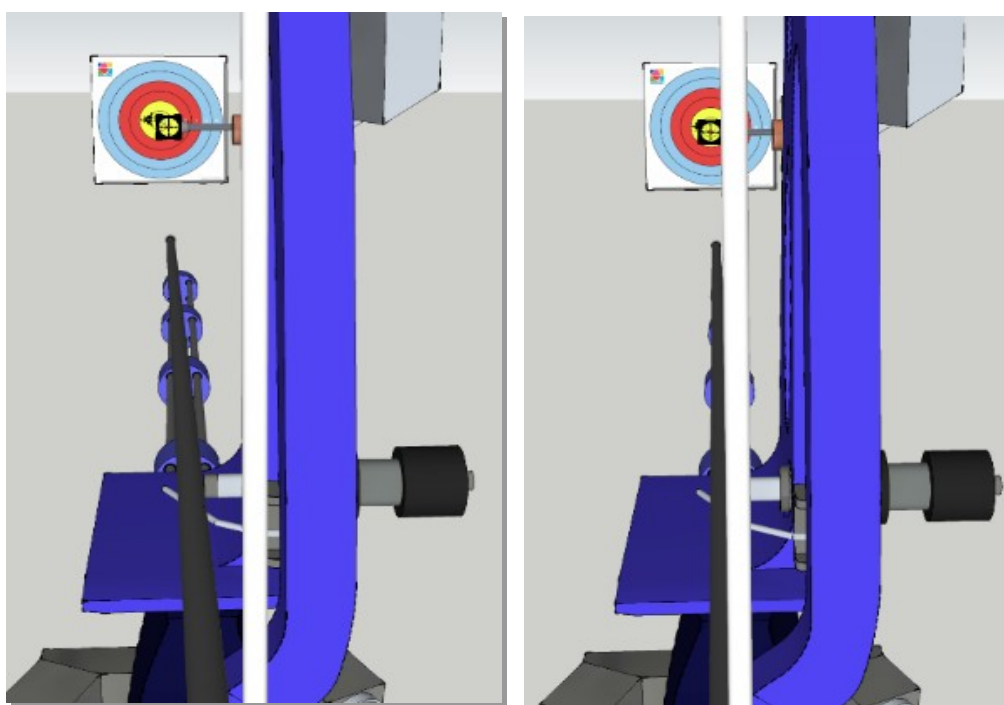


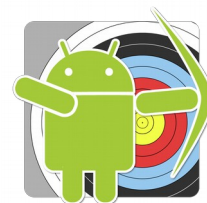
In the bow-setup, make sure both eye-pin distance and eye-string distance are set. You need to measure these when at full draw, so it's best to have someone measure it for you. For best results, these need to be accurate to within 10mm. If you're setting up a compound, there is only one value to set, named peep-scope distance.



For recurve archery, different string alignment requires slightly different sight correction calculations. Set your personal style in string alignment in the *Options* → *Analysis* section. Also make sure the sight advice is not turned off because the app is set in World-Archery compliance mode.

The two most common techniques for recurve string alignment are, on the left the string shadow aligned on the handle and on the right on the sight aperture.





Using the Artemis Sight Advice

When setup is done, you can create a match. Note that the sight advice also does not work for **competition** type of matches where World Archery rules apply².

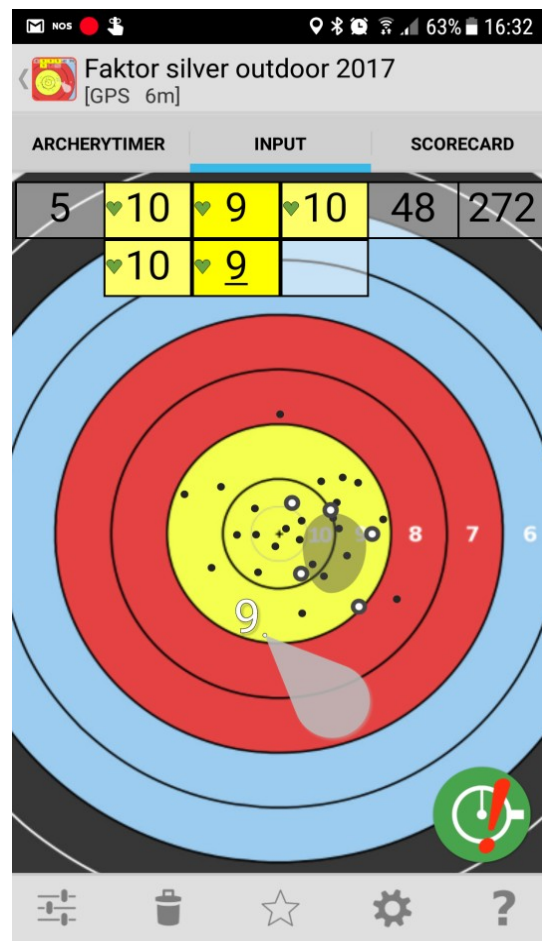
Create a *training* match for plotting arrows and start that match. When you have plotted at least a minimum number of arrows (usually 3 or 4), the sight advisor function starts its calculations.



Once the sight advice function determines a new sight adjustment is needed, the sight advice button appears on the right bottom of the screen.

Artemis takes your current shooting level into account (based on the groups you shoot) so it will not warn you for very small adjustments if your skill level would not justify these small adjustments.

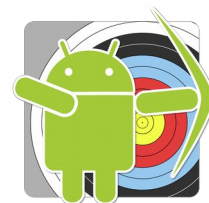
Bottom line; the sight advice button will appear when it is time to adjust your sight.



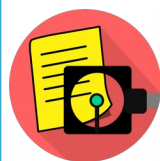
Click on the green sight advice button to display the advice. It will pop-up as shown here. You have two options; ignore the advice or apply the adjustment (move the sight).

If you click "Move sight", the sight advice resets its internal computations. If you ignore, chances are that with the next plot, the advice will be shown again...

- World Archery has banned the use of software that can actually compute sight corrections based on grouping patterns. This is why Artemis will not/never provide sight advice when a match according to World Archery rules is plot, nor will it provide sight advice (no matter what match/training/rules/etc.) when it runs in World Archery rules compliant mode



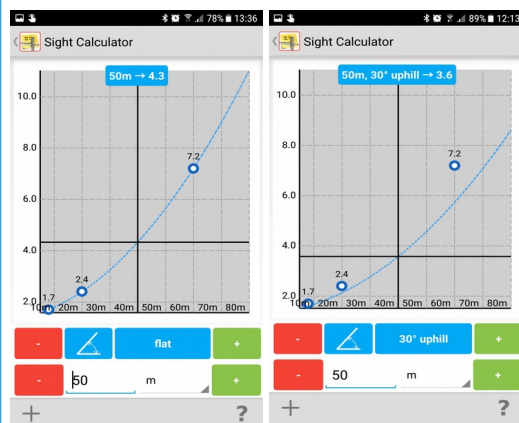
How to store your Sight Settings?



You can save your sight-settings in the Sight Settings section of Artemis. Your sight-settings depend on the bow-setup (tune) and the arrow-set you shoot, so be sure to select the combination you are actually shooting. The default combination is already selected.

You just add as many sight-settings you want. If you have 3 or more different distances (of over 15m), Artemis applies a sight calculation model and can predict all sight-settings from 15m to 90m.

Click the little looking-glass to enter the sight-settings calculator view. This view displays a graph with distance on the horizontal axis and your sight-settings on the vertical axis.



You can scroll through the distances with the red and green + and - buttons, and find the sight-setting for any given distance in the blue box at the top.

You can even apply a correction for uphill and downhill angled shots.

Increasing or decreasing the uphill/downhill angle can be done with + and - buttons.

If you're not sure about the angle, you can even measure it using the blue angle button. This will launch a camera-preview that will allow you to measure the uphill/downhill angle by pointing the camera to the target and aligning the target in the reticle and press 'Measure angle'. This uphill/downhill angle will then be used in the sight setting calculator.

