



KAHLES EAC function (Helia rangefinder)

Enhanced angle compensation (EAC)



RF 8x42, RF 10x42

Beside the display of the angle, the Helia RF offers an additional function, which is especially important for hunting in the mountains or in hilly terrain. The patent pending EAC function (enhanced angle compensation) is an advanced version of the classic rifleman's rule and determines the equivalent horizontal range of angled shots.

There is an old German hunters' saying "Schießt du bergauf/bergunter – halte drunter", which means "When shooting uphill or downhill, always aim below the target". This is because when shooting uphill or downhill, the reduced contingent of gravity on the projectile perpendicular to the line of fire results in a shallower trajectory. If we use the same ballistic correction factors as with horizontal shots as a basis for aiming, the shallower and therefore stretched trajectory results in shots which are too high. The answer to this problem is the well-known "rifleman's rule", which provides an approximate solution based on an analysis of the trajectory through a vacuum with small angles of elevation. For an angled shot, this means that the ballistic correction should be calculated as if the shot was being fired across a distance equivalent to the actual horizontal distance.

Such a calculation looks like this: Assume that the shooting angle is 40° and the distance from the target is 300 m. Horizontal distance = $300 \text{ m} \times \cos(40^\circ) = 230 \text{ m}$. This means that the hunter should correct the shot as if the target were only 230 m away rather than 300 m.

In practice, the rifleman's rule has remained in use and proven sufficiently precise for distances of 300–400 m at an angle smaller than 30° . For shots over distances greater than 400 m and/or at angles greater than 30° , this method becomes unexact. This is where the KAHLES EAC function provides a more ballistically relevant basis for calculation, since analysing the accuracy of a shot using the rifleman's rule has shown that purely applying the effective horizontal distance tends to result in shots that are too low. This means that the rifleman's rule reduces the distance too much. This analysis has led Kahles to apply an improved rifleman's rule and provide hunters with the EAC function a more precise basis for calculation.

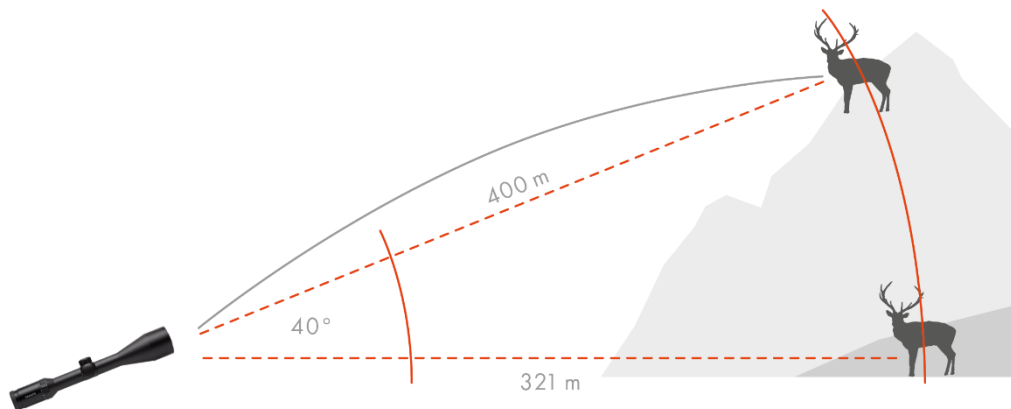
EXAMPLE

Assume the distance from the target is 400 m

Assume an angle of 40°

Rifleman's rule result: 306 m

EAC function result: 321 m



As the example shows, the distance determined by the EAC function differs from that of the rifleman's rule by 15 m, a distance which, depending on calibre, projectile, barrel length, etc. can already have a significant impact on the accuracy of a shot.