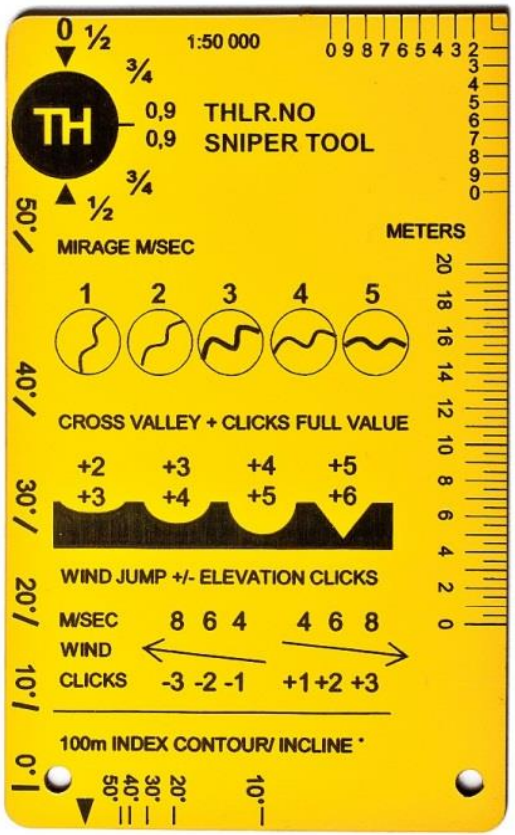
THLR SNIPERTOOL

Instruction pdf (ver 1)



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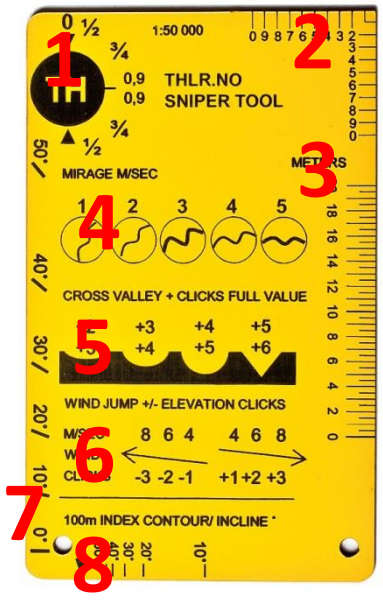
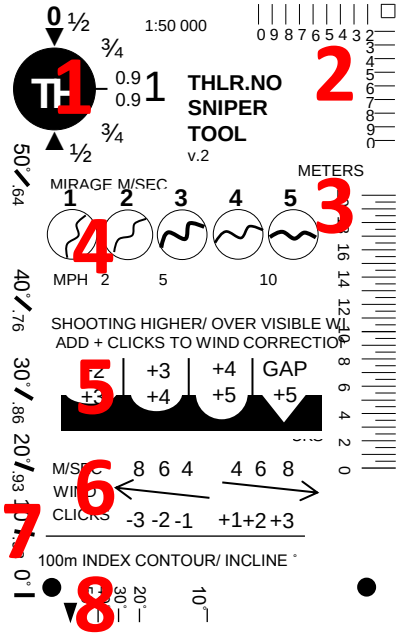
Main features





1. Factors for crosswind component
2. Map grid plotter
3. Map range ruler
4. Mirage angle/ wind velocity illustration
5. Windage corrections for shooting high over visible wind
6. Elevation corrections for windage jump
7. Tool for measuring shooting angle
8. Map ruler for terrain incline/ angle

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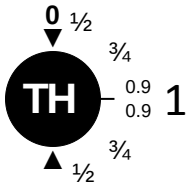
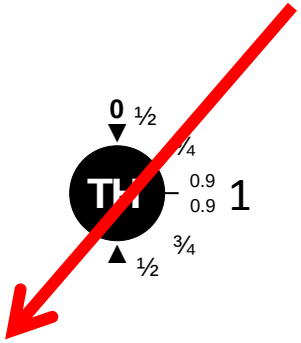
2. Factors for crosswind component



- Determine wind velocity
- Determine wind angle
- Multiply wind velocity with wind angle
- The result is crosswind component. Crosswind component is the effective wind that moves your bullet impact.

Example:
You determine wind to be 4 m/sec and it
Comes in from this angle.
4 m/sec by approximately ¾ value is 3 m/sec. 3 m/sec is the value you use to read data from your rangecard.



Note:
We say «approximately» because wind direction have a normal variation that is invisible to the shooter. Therefore it is perfectly ok to round off values to easy numbers.

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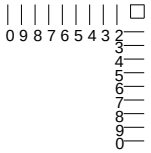
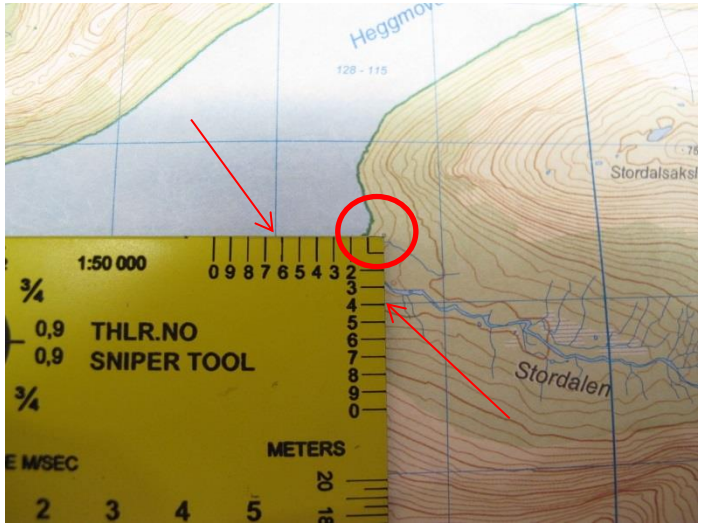
2. Map grid plotter for scale 1:50000 maps



- It is presumed you know how to use a map
- Align Snipertool with map grid and place the square point at the map feature you want to read off the grid for.
- The map grid will now intercept the scale on the Snipertool
- Read off map grid.

Example:
In this picture we want to find grid to the building.
The Snipertool is squared to the map grid.
We read the scale where the map grid intercepts the Snipertool.
The location of the building will be map grid
XX 64 XX 39.

This gives a 10 meter resolution on the building location.



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3. Map range ruler for scale 1:50000 maps

- It is presumed you know how to use a map
- Orient the map to the terrain.
- Align Snipertool map range scale. Place 0 exactly on your loaction or your target location.
- Rotate the Snipertool so that the range scale cuts through your target or your own location.
- Read off range in meters.

Example:
We are watching the building from the hill.
We place 0 at our location and rotate the Snipertool to cut through the building.

We read off range 1180-1185 meters line of sight.

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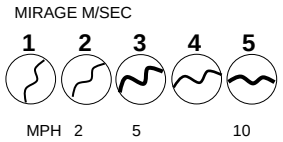
4. Mirage angle illustration



- Use this when you can see mirage through your optics
- Compare the angle you see in your optics with the angle on the Snipertool illustration.
- Read off the assosciated wind velocity.
- This wind is the crosswind component, it can be used directly for ballistic input.

Example:
You see that the mirage angle is slightly more than 45 degrees angle.
The closest match is this circle 

Use value 3 m/sec to read off your ballistic table

Note:
Reading mirage can be very difficult. Look for the straightest lines in your field of view, that is often the easiest spot to determine the mirage angle.
Reading mirage is not nearly as exact as reading the wind. The values on the Snipertool is easy to use, but after 600 meters you will find that you are slightly overcompansating on the windage.
When the mirage runs level, the crosswind component is at least 5 m/sec and you have a huge chance of error. We recommend reading wind over mirage when it approaches horisontal angle.

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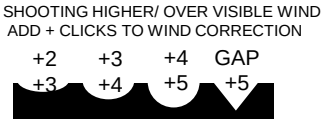
5. Windage corrections for shooting high over visible wind

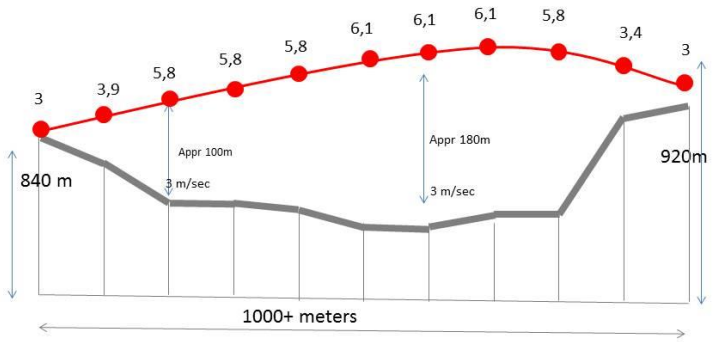


- These numbers just acknowledge that wind velocity increase with elevation above ground. These numbers are not a ballistic calculation, just a simplified an indicator to build your own experience.
- Base your windcall on visual indicators and adjust your scope windage for that.
- In cases where you are shooting the bullet far over the visual indicators you used for the windcall, add some clicks on the scope.
- Where you can see the wind along the bullets trajectory DO NOT add these clicks.
- Use the first column (+2/+3) when you shoot the bullet approximately 10 meters above your visual indicator for the windcall. The last column when your «very far» above your visual indicator.
- «GAP» is used when you have a gap that will compress and blow a very strong wind across your bullet trajectory. It is a wild guess and basically says «good luck with that shot!»

Note:
The illustration shows a grossly simplified model where we extrapolated the wind velocity along a bullet trajectory shot across a valley.
These numbers are calculated from elevation alone and does NOT represent the true spotwind, they merely illustrate a principle.
If the shooter can see the wind only at his location (3 m/sec), it is fairly evident that he will undercompensate on his windage.

In the illustrated example the bullet travels «very far» above the visual indicators and the shooter adds +4/+5 clicks to at least pull the bullet in the right direction.
If the shooter sees visual indicators along the bullet trajectory, no such corrections is added regardsless of how far above ground the bullet travels.

Spotwind m/sec extrapolated every 100m along the trajectory with surface roughness 0,2.
For simplicity, ridge to ridge and calm uniform air (not true model)



RED is trajectory
GREY is dead ground without visual indicators of windspeed along trajectory
GREEN is ground with visual indicators of windspeed along trajectory

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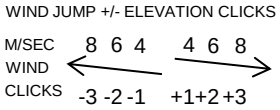
6. Elevation corrections for windage jump



- A wind blowing right-left causes the bullet impact to rise and you click less elevation.
- A wind blowing left-right causes the bullet impact to fall and you click more elevation
- If the crosswind component passes the threshold velocities 4-6-8 m/sec wind, adjust your elevation setting 1,2,3 clicks for better accuracy (time permitting).
- Nevermind at short range.

Note:
These click values are for 0.1 MRAD scopes. For ¼ MOA scopes, the values would be 1,3,4 clicks.

However, these windage jump corrections are simplified values rounded off for practical field use. For short range shooting, this effect would barely register if you're not shooting benchrest accuracy.

For very high V0 cartridges (900 m/sec) and high Bc bullets (G1 significantly over 0,5) you should expect the needed correctioon to be smaller.

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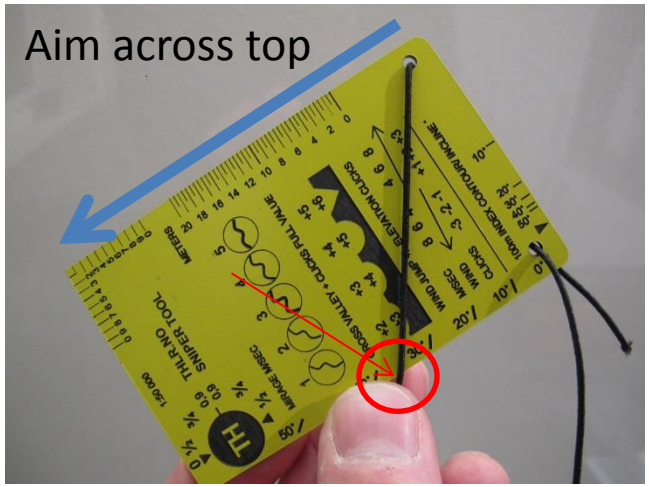
7. Shooting incline scale

50°/64 40°/76 30°/86 20°/93 10°/98 0°

- This scale is for measuring your angle when shooting uphill or downhill.
- Aim at your target across the top of the card.
- Gravity will pull the carry string down across the scale.
- Read off degrees if you use a pre-calculated ballistic table.
- Read off consine if you calculate via Riflemans Rule or similar.



Example:
We aim at the target across the top of the card.
Picture shows downhill. Aim opposite direction if uphill.
Gravity pulls the carry string down.

Read off the scale. In this example just shy of 35°.

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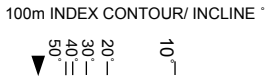
8. Terrain incline ruler for scale 1:50000 maps

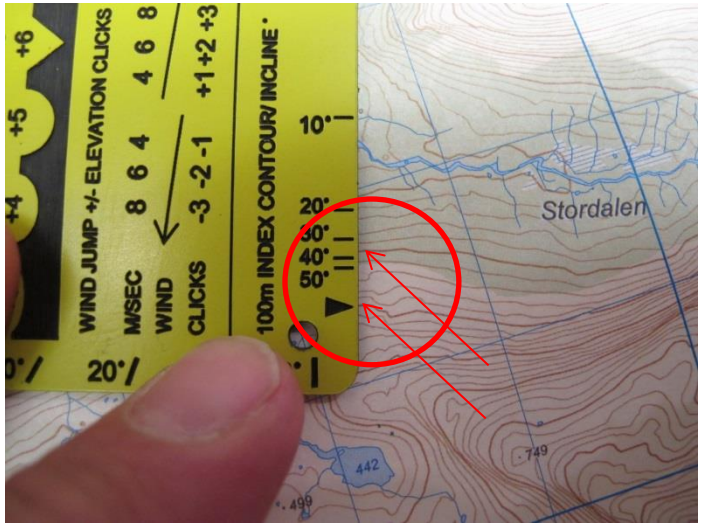


- It is presumed you know how to use a map
- Align Snipertool incline triangle on a 100m index contour line (the thick line showing the elevation in hundreds) on the slope you want to investigate.
- Read off where the next 100m index contour line crosses the scale.
- Read off the incline in degrees. Use this for planning your shot or verifying that your vehicle can handle the incline.

Example:
In this picture we investigate a slope we want to walk down.

We place the triangle on a 100m index countour line. The next line crosses the scale at slightly more than 35°.
The terrain slope is 35° which we feel confident walking down under the present conditions.

You can of course use this for pre-planning your shooting position, just find the map elevation 100m above/below your planned position.



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Our preferred carry method

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