



Ballistic Turret (BT) - Instruction Manual

Welcome to the Swarovski Optik ballistics program. The following instructions provide you with a few tips which will make it easier to use.

Long-range turret/reticle systems enable an exact aiming point even for distant shots. They provide the hunter with a simple means of achieving the necessary sighting correction for precisely hitting distant targets without having to make any other adjustments to the rifle scope. Nothing, however, can take the place of a good and careful shooting technique, discipline and practice.

Please enter your exact ballistic data for the program to provide you with accurate output values. Try, therefore, to provide the most accurate information possible for your weapon and the type of bullet used, as well as for the resulting combinations, e.g. muzzle velocity.

The following instructions will guide you through the program with brief explanations for each of the input items.

If you have any other questions about the program, please contact us and we will be pleased to help you further (info@swarovskioptik.at).

Language

You have the opportunity to run through the program in German or English, please select your language.

Units of measurement

You can work in metric units (mm, cm, m, grams) or imperial units (inches, feet, yards, grains). Please click on the system you prefer.

Database

There are approximately 1,500 common hunting loads in our ammunition database. Please click on "Hand load" if you are using a hand load. You can then specify your bullet weight, muzzle velocity, BC, etc. yourself.

Hand load

Please click on "Hand load" if you are using a hand load. All fields will be cleaned for your specific values of your used components.

Manufacturer

Select the manufacturer here if you are using factory ammunition.

Bullet

Select your load from the database provided once you have selected the ammunition manufacturer in the "Manufacturer" field. If your load is not listed, you can find out the data from the manufacturer yourself (homepage, catalogues) and then enter your data under "Hand load".

Rifle scope

Select your Swarovski Optik rifle scope. Pay attention to the exact designation of your rifle scope model.

Magnification settings

Once you have selected your rifle scope, this rifle scope's maximum possible magnification will be displayed in this field.

The following rules of magnification will apply if you have a long range reticle such as the Swarovski Optik BR or BRX in your Ballistic Turret rifle scope.

You will best achieve absolute precision at long range with the highest magnification. If you still desire a different magnification, you can enter the desired magnification in this field and must adjust the aiming points accordingly!

Please note that when changing the magnification, you are also changing the corresponding aiming points for the relevant bars! The central aiming point - the first sight-in distance - remains unaffected by a change of magnification, it always remains the same.
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If your BT scope is equipped with a 4, Plex, 4A or 4A-I reticle, magnification setting will have NO effect on downrange bullet impact while utilizing the central crosshair. You can use your BT rifle scope with these standard type reticles at any magnification.

Weight of bullet

If you have selected your load from the database, the bullet weight listed will automatically be displayed here. You can enter the hand load or a load not contained in the database manually.

Muzzle velocity

The muzzle velocity is a very important factor for precise output data. You can find the relevant muzzle velocity from the tables provided by the ammunition manufacturers. The information provided relates, however, to manufacturer's production runs and specifications.

We still recommend chronographing your rifle (if possible) to obtain "actual" velocity for the most accurate results of your combination of firearm and ammunition.

Ballistic coefficient

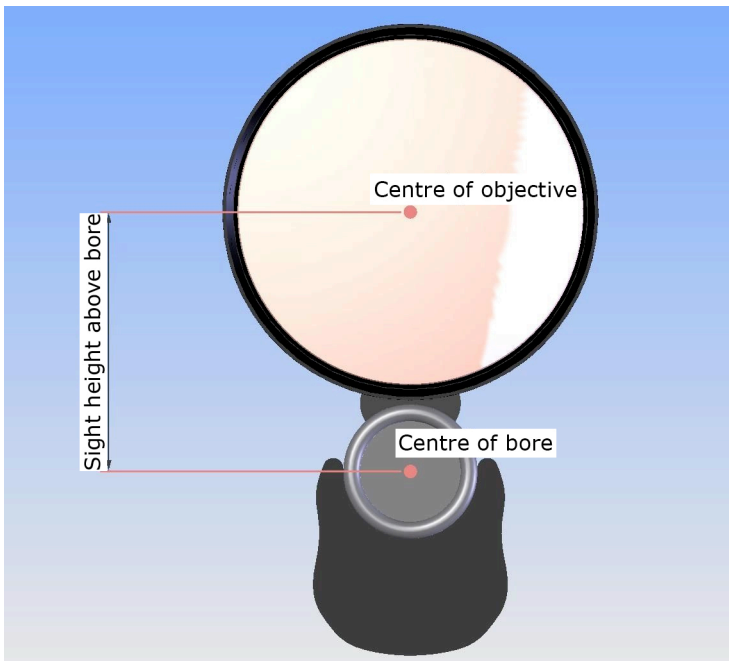
The ballistic coefficient (BC) is a crucial factor in determining your trajectory curve. This is a measure of a bullet's ability to overcome the air resistance. Data for this may be found on manufacturer's web-sites, ammunition tables of the manufacturer's catalogs or in our ammunition database.

Altitude

In this field, enter the average height above sea level in meters/feet at which you usually hunt. If you have a dramatic change in altitude, when hunting abroad for example, you can enter the new conditions and carry out a new calculation.

Sight height above bore

The sight height above bore describes the distance between the centre of the bore (rifle bore axis) and the centre of the objective (sight line). Please re-measure this distance for your combination of weapon and rifle scope.



The “standard” for this measurement is 1.5 inches (~ 4 cm). This measurement is utilized by most ammunition manufacturers for downrange ballistic calculations.

First sight-in distance

With this entry you specify your first sight-in distance. This may be selected at will in the field “zero range [yards]”. It serves as the basic zero setting for all subsequent sight-in distances.

If you have set your first sight-in or zero range distance beyond 100 y/m, the information as to how high you can zero in your weapon at 100 y/m will be shown just underneath the “Calculation” field/button.

Calculation

Click on the “Calculation” field after entering your information, only now will the data you have entered be cross-linked. If you make corrections after an initial calculation, click on the “Calculation” field again afterwards to make the calculation.

Further procedure:

Second sight-in distance: Enter your second sight-in distance (in yards/meters) in this field.

The program will calculate in the green box background (once you have pressed the “Calculation” field) the number of clicks needed in order to have a dead on hold with the reticle at this distance.

Third sight-in distance: Enter the third desired sight-in distance (in yards/meters) in this box, click on calculation. The correction value calculated is based on clicks up from the **second** sight-in distance.

Fourth sight-in distance: Enter the fourth desired sight-in distance (in yards/meters) in this box, click on calculation. The correction value calculated is based on clicks up from the **third** sight-in distance.

Further sight-in distances. Here you can have the program calculate further distances past your Fourth sight-in distance. The correction values determined (clicks) are based from the basic zero setting, that is to say the first sight-in distance. Please be aware of this!

The BT turret system is designed to have enough adjustment range for any practical hunting application, but there is a limitation. For example the Z6/Z6i 2.5-15x56 has a maximum adjustment of 45 clicks up from the first sight-in or basic/zero setting. This is enough for a maximum range 550 yards/500 meters for a .308 Win. target load with a 100 yard/meter zero, or 800 yards/700 meters for a 180 gr 300 RUM load with a 200 yard/meter zero. Please keep your maximum click adjustment in mind while calculating further sight-in distances.

Tips and Tricks for Practical Shooting

Dear Hunters,

As with every calculation, the result of the ballistics program can only be as precise as you are when entering your values. These entries must match the actual performance of your weapon and ammunition.

We recommend that you take sufficient time to determine the required values as precisely as possible.

The program also allows you to print out your calculation, the "Summary" field has been set up for this purpose. Here you will find all your data together with the output values calculated in verbal form.

You may download the program and then work with it offline at the shooting range as required.

Use the decals provided to make a note of your personal sight-in distances. The scale at the base of the ballistic turret allows you set further sight-in differences.

Together with the precisely measured distance, you will hit the target quickly and surely.

Good shooting and good hunting!

Swarovski Optik