

VORTEX[®]

G4-BDC

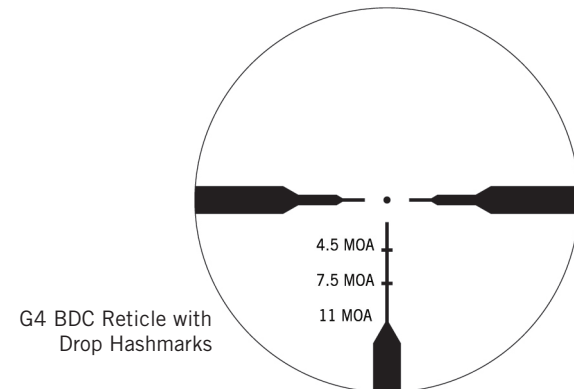
RETICLE MANUAL



Vortex® G4 BDC Reticle

You have purchased a Vortex riflescope equipped with the G4 BDC reticle. This exclusive reticle has been designed to minimize the need for guessing bullet hold-over at long distances. By selecting the appropriate reticle markings, a shooter will have a reliable bullet-drop reference for all reasonable distances.

The G4 BDC reticle can be used effectively with a variety of firearms, including high powered rifles, rimfire rifles, black powder rifles and slug shotguns. This reticle also provides reference marks which can be used to compensate for bullet drift in windy conditions or to range distances.



This model of Vortex riflescope uses the second focal plane design—the listed BDC yardages will only be valid with the riflescope set at the highest magnification.

RIFLESCOPE ADJUSTMENTS

Using the Reticle for Bullet Drop Compensation

STANDARD TECHNIQUE

Rifle/ammo combinations are put into ballistic classes where bullet drops will be predictable within 2–4 inches (there will still be a slight variation between individual rifle and load ballistics and the G4 BDC reticle).

Begin by choosing one of the listed Firearm/Range classes. If your firearm/range doesn't fall exactly into one of these classes, select the class which is most similar. The Vortex on-line Long Range Ballistic Calculator (LRBC) is a handy tool to compare your bullet drop numbers to the ones listed for each class. Find it at www.vortexoptics.com.

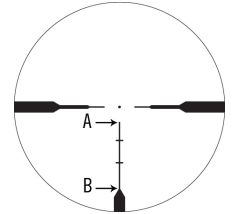
After selecting a class, sight in the main center dot to the recommended zero range for that class. (Consult the main riflescope owner's manual for information on sighting in the center dot.) Once the rifle has been sighted in, the lower hashmarks can then be used as aiming points at the corresponding distances listed. For most popular rifles and loads, the hashmarks will provide accuracy within 0–4 inches of your aiming point (depending on the range). If you require greater accuracy from the G4 BDC reticle, use the Precision Technique detailed in the next section.

Each of these classes will use a different corresponding range to each crosshair hashmark depending on ballistic performance.

Remember the listed ranges will only apply with the scope set at the highest magnification. The center dot and its corresponding zero distance can always be used at ANY magnification.

Class A

High Power Big Game Rifle | Moderate Ranges (100–400 yards) Use 100 yard zero on center dot.



Bullet Drop

Tip of Fine Vertical Post (A): 200 yards | 4-inch drop
 1st Hashmark: 300 yards | 13.5-inch drop
 2nd Hashmark: 400 yards | 30-inch drop
 Tip of Heavy Vertical Post (B): 500 yards | 55-inch drop

Class B

High Power Big Game and Magnum Rifle | Extended Ranges (100–600 yards) Use 200 yard zero on center dot.

Bullet Drop

Tip of Fine Vertical Post (A): 300 yards | 6-inch drop
 1st Hashmark: 400 yards | 18-inch drop
 2nd Hashmark: 500 yards | 37.5-inch drop
 Tip of Heavy Vertical Post (B): 600 yards | 66-inch drop

Class C

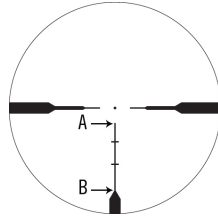
High Velocity, Small Caliber Varmint Rifle | Extended Ranges (100–600 yards) Use 200 yard zero on center dot.

Bullet Drop

Tip of Fine Vertical Post (A): 300 yards | 6-inch drop
 1st Hashmark: 450 yards | 18-inch drop
 2nd Hashmark: 550 yards | 37.5-inch drop
 Tip of Heavy Vertical Post (B): 650 yards | 66-inch drop

Class D

Modern Black Powder Rifle | *See note below.* (50–200 yards) Use 100 yard zero on center dot.

Bullet Drop

Tip of Fine Vertical Post (A): 125 yards | 2.5-inch drop
1st Hashmark: 200 yards | 9-inch drop
2nd Hashmark: 225 yards | 17-inch drop

Class E

.22 LR Rimfire Rifle | Extended Ranges
(25–140 yards) Use 50 yard zero on center dot.

Bullet Drop

Tip of Fine Vertical Post (A): 60 yards | 1.2-inch drop
1st Hashmark: 90 yards | 4-inch drop
2nd Hashmark: 120 yards | 9-inch drop
Tip of Heavy Vertical Post (B): 140 yards | 16-inch drop

Class F

Slug Shotgun and Traditional Black Powder Rifle | *See note*
(25–150 yards) Use 50 yard zero on center dot.

Bullet Drop

Tip of Fine Vertical Post (A): 75 yards | 1.5-inch drop
1st Hashmark: 100 yards | 4.5-inch drop
2nd Hashmark: 125 yards | 9.4-inch drop

Note: Due to the tremendous differences in currently available black powder and shotgun slug loads, these numbers should be viewed as only a representative sample. It is very important to learn the ballistics of the particular loads that you use and match up the correct drop MOAs and yardages.

PRECISION TECHNIQUE

If you wish to get the very best accuracy from the G4 BDC reticle, you can custom match yardages to the drop hashmarks of the reticle based on the exact ballistics of the load you are shooting. To do this, use the online Vortex Long Range Ballistic Calculator (LRBC) located at www.vortexoptics.com.



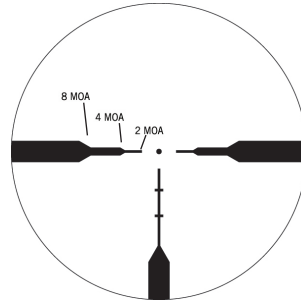
Input your load and environmental conditions data and then open the “Reticles” tab. Selecting the G4 BDC reticle will then allow you to graphically display custom yardage numbers matching your load and conditions. This graphic can also be printed as a field reference, if desired.

Follow this up with a day at the rifle range to confirm the accuracy of the yardage numbers you have obtained through the LRBC. You will then be confident in having the most accurate possible G4 BDC reticle.

Using the Reticle for Wind Drift Compensation and Ranging

The G4 BDC reticle incorporates methods for wind drift correction and range estimation on the horizontal crosshair. As in using the holdover hashmarks, the scope must be set at its highest magnification.

Correcting for wind drift can be accomplished using the line width changes on the horizontal crosshair as reference points. See image for MOA subtensions.



Shooters familiar with the wind drift numbers of particular ammunition can use these line width changes to help estimate proper windage hold-off once the correct range and wind are known or estimated. Use the online Vortex Long Range Ballistic Calculator (LRBC) to learn wind drift numbers for your loads.

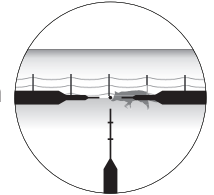
Ranging distances is done using the following simple formula:

$$\frac{\text{TARGET'S KNOWN WIDTH OR HEIGHT IN INCHES} \times 100}{\text{TARGET'S WIDTH OR HEIGHT IN MOAS MEASURED ON RETICLE}} = \text{RANGE IN YARDS}$$

A shooter can compare a target object of known dimension (at shooting distance) to either the vertical or horizontal hashmark spacing and roughly estimate the range. Remember, hashmarks on the vertical crosshair are spaced at 2 MOA, 4.5 MOA and 7.5 MOA. The top of the bottom vertical heavy crosshair is 11 MOA from center. Horizontal crosshair line width changes are 2, 4, and 8 MOA.

Example: Ranging a Coyote

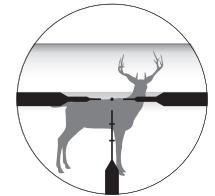
Most coyotes are about 3' long. While hunting, you see a coyote and range it with your scope set at highest power. You see the coyote's body nearly covers the distance from the center dot to the edge of the heavy part of the horizontal crosshair (8 MOA). Using the simple formula, you can estimate the coyotes distance at 450 yards.



$$\frac{36 \text{ INCHES} \times 100}{8 \text{ MOA MEASURED ON RETICLE}} = \frac{3600}{8} = 450 \text{ YARDS}$$

Example: Ranging a Deer

You spot a deer and turn your scope to its highest power and range him. While looking through the scope, you see that the distance from the top of his back to the bottom of his chest (usually about an 18-inch depth on a mature buck) spans from the center dot to the 1st hashmark down (4.5 MOA) on the reticle. Using the formula, you can then estimate the deer's distance at 400 yards.



$$\frac{18 \text{ INCHES} \times 100}{4.5 \text{ MOA MEASURED ON RETICLE}} = \frac{1800}{4.5} = 400 \text{ YARDS}$$

This formula is simplified slightly to allow faster calculations, and yield distance estimates which are 5 percent greater than actual distance. If you desire more precise estimates, use the following formula:

$$\frac{\text{TARGET'S KNOWN WIDTH OR HEIGHT IN INCHES} \times 95.5}{\text{TARGET'S WIDTH OR HEIGHT IN MOAS MEASURED ON RETICLE}} = \text{RANGE IN YARDS}$$



A NOTE ABOUT LONG-RANGE HUNTING

Vortex Optics believes strongly in responsible, ethical hunting and a word should be said about long range shooting at game. Although reticles like the Vortex G4 BDC can make long distance shots much easier, there are still many other variables, such as wind, affecting every shot. It is important for hunters shooting at long distances to learn their personal effective range, particularly in windy conditions, and to not shoot beyond those distances at game. Please be responsible—the keys are knowing your rifle, ammunition and your own abilities!

THE VIP WARRANTY

We build optics based on our commitment to your absolute satisfaction. That's why Vortex products are unconditionally guaranteed and we make this Very Important Promise to you—a Very Important Person.

Rest assured that in the event your riflescope becomes damaged or defective, Vortex Optics will repair or replace the riflescope at no charge to you. Call Vortex Optics at 800-426-0048 for prompt, professional, and friendly service.

Vortex Optics
2120 West Greenview Drive
Middleton, WI 53562
service@vortexoptics.com



Visit www.vortexoptics.com for more information. Canadian customers may visit www.vortexcanada.net for customer service information.

The VIP Warranty does not cover loss, theft, deliberate damage or cosmetic damage that does not hinder the performance of the product.

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