GSEVEN BR2

BALLISTIC RANGEFINDER

OWNER'S MANUAL

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Precautions

Avoid staring directly at the laser beam for prolonged periods.

The G7 BR2 is designed to meet FDA eye safety requirements and is classified as eye-safe to Class 1 limits, which means that virtually no hazard is associated with directly viewing the laser output under normal conditions. As with any laser device, however, reasonable precautions should be taken in its operation. It is recommended that you avoid staring into the transmit aperture while firing the laser.

Never point the unit directly at the sun.

Exposing the lens system to direct sunlight, even for a brief period, may permanently damage the internal components and may cause permanent eye damage.

Avoid direct sun exposure on the eyepiece.

Exposing the eyepiece to direct sunlight can damage the internal display. The eyepiece cover should be in place when unit is not in use.

Do not expose the instrument to extreme temperatures.

G7 BR2 components are rated for a temperature range of -20° to 158° F.

Section 1 - Introducing the G7 BR2

Congratulations on the purchase of your G7 BR2, the first rangefinder to feature a real-time ballistic calculation based on your unique ballistic input parameters. By using your specific inputs to build a custom ballistic profile, a real-time ballistic solution is calculated based on measured environmental and sighting conditions.

Every time the FIRE button is pressed, on-board sensors measure distance, incline angle, barometric pressure and temperature to provide a drop solution. Ballistic calculations are powered by the G7 ballistic engine that uses precise algorithms configured to provide ultra-fast corrections displayed as a Shoot-To-Range in BDC Mode, angular values in MOA or Mrad, or in Inches at the measured distance. Wind corrections in 5mph increments are also provided in MOA, MRAD or Inches for each drop solution.

For shooters that only want distance data, a Range Only Measurement mode provides a horizontal distance correction based on the up or downhill angle from 10 to 2,500 yards.

The G7 BR2 is completely programmable and will store up to five different profiles. Specific inputs include: ballistic coefficient, muzzle velocity, zero range and sight height above bore. When using BDC Mode, the calibration data from a BDC turret or ballistic reticle, including Altitude and Temperature, can be entered.

Understanding How the G7 BR2 Works

LCD Display

A backlit liquid crystal display (LCD) is mounted within the optical system and projects information into the field of view via a beamsplitter. Inherent in the manufacturing process are small black spots that appear in the optical system and cannot be fully eliminated. These small black spots do not affect the ranging performance of the unit.

Laser Range Sensor

The laser range sensor emits invisible, eye safe, infrared energy pulses. The G7 BR2 determines distance by measuring the time it takes for each pulse to travel from the rangefinder to the target and back. The laser indicator () is displayed whenever the laser is being transmitted. The laser may be active for a maximum of 5 seconds.

TruTargeting

The G7 BR2 automatically provides the best accuracy and acquisition distance to a given target. Maximum measurement distance varies with target quality and environmental conditions. The maximum measurement distance is approximately 2,500 yards. When performing ballistic calculations, the distance is limited to 1,400 yards. When selecting a target, you should consider the following for better ranging results:

- Reflectivity: Lighter colors and shiny surfaces provide better reflection.
- Angle: Shooting perpendicular to a target versus

shooting at an angle.

- Lighting Conditions: Overcast skies will increase the unit's maximum range, and sunny skies will decrease the unit's maximum range.

Altimeter

Your ballistic rangefinder is instrumented with a barometric pressure sensor that is mounted inside the housing. A Gore-Tex® membrane allows accurate sampling of barometric pressure while maintaining a weatherproof seal. This device measures relative pressure uncorrected to sea level - this is station pressure. A simple calculation converts the station pressure reading to an equivalent altitude for standard conditions. Both the station pressure reading and equivalent altitude are available under the Measured Values Menu.

Temperature Sensor

The temperature sensor is located at the front of the unit and is exposed to ambient conditions, but the device housing temperature can affect the accuracy of a ballistic calculation. Therefore, expect a slight response time delay as the unit reaches outside temperature.

Inclination Sensor

The inclination sensor is located inside the housing of the G7 BR2 rangefinder. When the rangefinder is aimed at an object, and the range is obtained by pressing the Fire button, the inclination angle to the target is determined.

Section 2 - Quick Start

1. The G7 BR2 Rangefinder is powered by a 3 Volt Lithium battery, commonly referred to as CR123A or CR123. To install:
   a. Remove the battery compartment cover by lifting up the hinged tab and turning counter clockwise,
   b. Insert the battery, negative end (-) first.
   c. Re-insert the battery compartment cover and use the hinged tab to turn clockwise.
   d. Press down on the hinged tab to secure.

2. Press and release the FIRE button to power ON the unit. Each time the unit is powered on, all display segments are briefly lit after which the unit is in Ready Mode - ready to take a measurement.

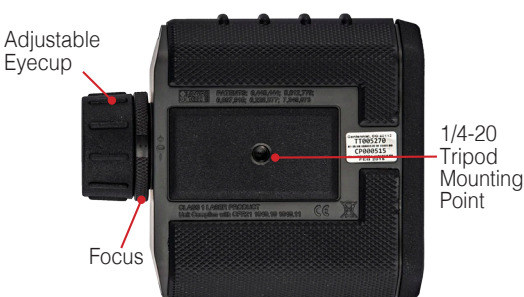
3. Select a target and look through the eyepiece and use the crosshair to aim at the target.

4. Press and hold the FIRE button. The laser status indicator is displayed while the laser is active. The laser will remain active for up to 5 seconds while acquiring data about the target. Release the FIRE button once the distance is displayed. If the distance is not displayed, release the FIRE button and repeat.

Line Of Sight (LOS) will be displayed momentarily, followed by the horizontal range. Press the FORWARD button to scroll through the Measured Values Menu and see the results acquired for each function. This is Range Only Mode and is the default measurement mode set at the factory.

Powering OFF the G7 BR2

To conserve battery power, if no button presses are detected after 8 seconds the G7 BR2 will first enter Sleep Mode and then after 45 seconds of inactivity, powers OFF automatically.



Section 3 - Basic Operations

Display Backlight Adjustment

The display's backlight intensity can be adjusted in Ready Mode, and immediately after a distance measurement is displayed, by pressing the BACK arrow. After waking from Sleep Mode or being powered on, the most recent setting is recalled.

Crosshair

A single standard crosshair is used for aiming that is dimensioned to indicate the size of the laser's beam divergence.

Eyecup

The adjustable eyecup is designed for comfort and to block extraneous light. To adjust the eyepiece, turn the eyepiece counter-clockwise while pulling up. To return the eyepiece to its original position, turn the eyepiece clockwise and push down.

Eyepiece Focus Adjustment

The eyepiece focus adjustment ring allows you to focus the LCD display for your eye. During assembly, focus is set to infinity. To adjust, press the Fire button to power the unit on and aim at a blank surface such as a wall. Then turn the adjustment ring in or out to suit your personal preference.

Buttons

The G7 BR2 has a 4-button keypad located on the top panel of the instrument. The buttons provide easy access to the instrument functions, programming and operating commands.

Fire Button

Mode	Response
Ready	Initiates measurement.
Measurement	While viewing measurement results, returns to Ready screen to take a new measurement.
Programming	When a ballistic profile or profile setting is displayed, initiates editing of a value or selection of option. If editing a value, advances cursor to next character.
Sleep	Wakes unit.
Off	Powers unit ON

Mode Button

Mode	Response
Ready	Short press selects Targeting Modes Long press enters Programming Mode
Measurement	Short press back to Ready Mode Long press enters Programming Mode
Programming	Saves and loads selected profile Saves setting and exits edit menu
Sleep	Wakes unit

Back Button

Mode	Response
Ready	Adjusts backlight intensity
Measurement	Adjusts backlight intensity
Wind Corrections	Scrolls to next increment
Measured Values	Scrolls to next value
Programming	Scrolls to next setting
Sleep	Wakes unit

Forward Button

Mode	Response
Measurement	Enter Wind Corrections menu
Wind Corrections	Scrolls to next increment
Measured Values	Scrolls to next value
Programming	Scrolls to next setting
Sleep	Wakes unit

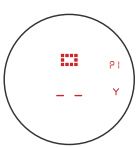
Measurement Modes

Range Only Measurement

The crosshair and yard indicator are displayed. After a distance is measured, the LOS distance will appear followed by the horizontal distance identified by an “h” in the lower left corner. Data measurements and calculated values are displayed in the Measured Values Menu.

Measurement with Ballistic Profile

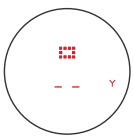
The selected ballistic profile indicator appears in the upper right displayed as P1-P5. See Sections 4 for information on ballistic profiles.



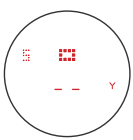
Targeting Modes

The G7 BR2 allows you to select or eliminate targets to take the most accurate measurements possible in various field conditions. In Ready Mode, before a measurement is taken, press the MODE button to increment through four targeting modes:

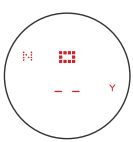
Basic
Standard, single shot strongest target mode.



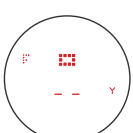
Scan
The “S” display indicator appears in the left edge of the upper display. Useful for moving targets - takes continuous distance measurements while button is pressed.



Nearest
Allows for easy acquisition of small targets without inadvertently getting background targets that have stronger signal strength. The “N” display indicator appears in the left edge of the upper display.



Farthest
Allows obstructions such as brush or fog to be ignored so that only background targets are acquired. The “F” display indicator appears in the left edge of the upper display. Brackets surround the cross hair briefly to indicate multiple targets acquired.



Section 4 – Ballistic Profiles

Selecting a Profile

Ballistic Profile Menu

1. From the Ready or Measurement Mode(s), press and hold the MODE button for 3 seconds (long press). “Profile SELEct” will briefly appear in the display.
2. Then the active profile will be displayed.
3. Press Forward or Back arrows to scroll and to select a different profile.
4. When the desired profile is displayed, you can either:
   a. Press the MODE to select and save. “Pls Wait” is shown as the profile is loaded.

   Or to review or edit that profile’s settings:
   b. Press FIRE to select and then the FORWARD or BACK arrows buttons review each profile setting.
5. When finished, press the MODE button to return to Ready Mode.

Each time the G7 BR2 is powered on, it will return to the same profile selection that was last used.

Programming a Profile

The BR2 allows you to define and store five ballistic profiles. Once in the Ballistic Profile Menu and you have selected a profile, press the arrow buttons to scroll through the settings.
To edit, press the FIRE button to select the item and:

- Edit the value
  - or -
- Press FORWARD or BACK to display the previous or next option.
- Press the MODE button to save the change and return to the profile settings
- Press MODE button again to save all changes to calculate and store the ballistic profile. “Pls Wait” is displayed for approximately 14 seconds as the profile is calculated and stored.

Description:

- A Maximum of 8 digits are available consisting of A-Z, 0-9, period, hyphen and space. A blinking cursor will appear. Press the arrow buttons to change the value and FIRE to advance to the next position.

Range Units:

- Indicates units for distance measurements. This cannot be changed.

Drop Units:

- Bullet Drop Compensator (**BDC**) - corrects the line-of-sight range to your ballistic profile and real-time field conditions to provide a shoot-to range. BDC mode can be used by entering the calibration data from a ballistic turret or reticle.
- Minutes of Angle (**MOA**) or Milliradian (**MRAD**): Standard units of angular correction to dial into the turret or hold in the reticle.
- **Inches**: linear value of the solution at the measured distance.

Drag Standard:

- G1 - The industry standard.
- G7 - Most modern long range bullets fit this model.

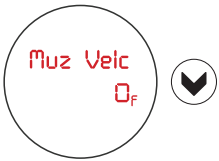
Use the G1 model unless you have an accurate ballistic coefficient based on the G7 standard. G1 and G7 are not interchangeable.

Ballistic Coefficient (BC):

- All bullet manufacturers list a BC for their bullets. This number describes the bullet's efficiency in overcoming air resistance. A higher number is better. Be sure to use the ballistic coefficient appropriate to the selected drag standard (G1 or G7).

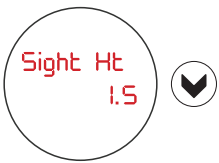
Muzzle Velocity (MV) in Feet Per Second

- This is the speed of the bullet as it leaves the barrel.



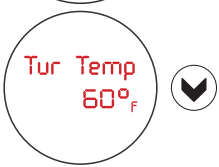
Sight Height in inches:

- The distance from the center line of the barrel to the centerline of the scope.



Turret Temperature in Fahrenheit

- The calibrated temperature of the ballistic turret or reticle if BDC is selected for drop units.

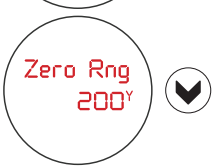


Turret Altitude:

- The calibrated altitude of the ballistic turret or reticle in feet if BDC is selected for drop units.

The Zero Range:

- The point blank range of your cartridge, 200 yards is most common, and/or the calibrated zero of your ballistic turret or reticle.



Save and Exit:

- Press FIRE button to select. This will save all changes and recalculates the profile. “Pls Wait” will display for up to 14 seconds. The unit automatically returns to Ready Mode.

Notes:

- Be certain to verify all entries. The program does not check values, so invalid entries do not generate an error message.
- Use the ballistics calculator at www.gseven.com to validate your ballistics data.
- If you are tuning and developing your own loads and rifle setup, the better you can resolve your BC, MV, etc., the better the performance you will get from BR2.
- To edit a profile repeat steps in Section 4.

Section 5 – Ballistic Range Measurement

After programming a ballistics profile to match your cartridge combination. The basic steps for taking a Ballistic Range Measurement are the same as taking a Range Only Measurement. While it is possible to get range measurements out to 2,500 yards, ballistic calculations are limited to 1,400 yards. Measurement results vary depending upon the drop units selection associated with the ballistic profile. To access the wind correction in MOA or Mrad, press the FORWARD arrow after the measured distance and ballistic solution are displayed. Note the wind corrections will be displayed in MOA when using BDC mode.

1. Look through the eyepiece and use the cross hair to aim at the target.
2. Press and hold the FIRE button. The Laser status indicator () is displayed while the laser is active. The laser can remain active for up to 5 seconds while acquiring target data.
   - If the target is not acquired in the 5-second period, release the FIRE button and repeat this step.
3. Once the measurement is displayed, release the FIRE button. The line-of-sight distance will briefly be displayed and then the display will be updated with the ballistic solution.

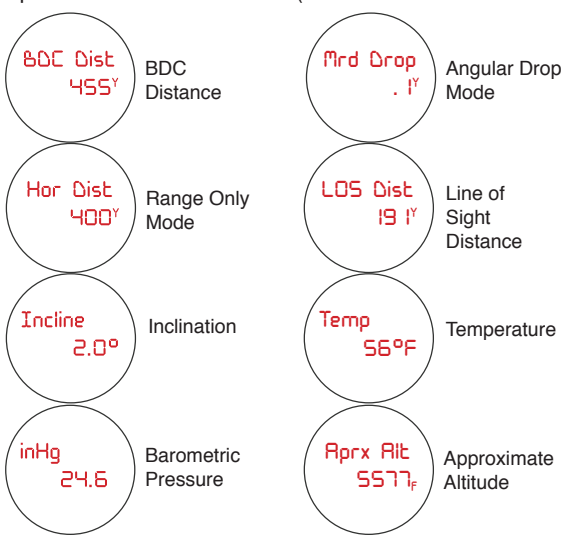
In BDC mode: 'c' will appear in the lower left hand display and BDC in the upper right, to indicate the corrected distance or Shoot-To-Range.

In MOA, Mrad or Inches mode: the correction will be displayed immediately following the line-of-sight distance measurement.

Press the FORWARD button to access the Wind Correction Menu then FORWARD or BACK arrows to view corrections in 5mph increments. Press the MODE button to view the Measured Values Menu and arrows to scroll through the values. Pressing MODE again will return to the wind corrections. Press the FIRE button to return to Ready Mode to take a new measurement

Measurement Values Menu

Sample Measured Values Menu (Ballistic Profile Measurement)



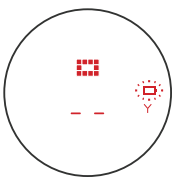
APPENDIX

Care & Maintenance

The battery is the only user-replaceable part in the G7 BR2. Do not remove any screws. To do so will affect or void the G7 limited warranty.

Low Battery Warning

The G7 BR2 monitors the incoming battery voltage. It is located on the right side of the LCD, just above the yards indicator.



- When the voltage drops below 2.6V, the battery status indicator is displayed.
  - You should replace the battery as soon as possible.
  - Although the unit still operates, it is recommended that you install a new battery before changing a ballistics profile.
- When the voltage drops below 2.4V, system operation is locked and then powers off.
  - You must replace the battery to return to normal system operation.

If the system powers off during the process of setting up or updating a ballistic profile, entered data will be lost and will have to be re-entered.

Protecting from Moisture and Dust

The G7 BR2 is sealed to provide protection from dust and rain, but will not withstand submersion.

Protecting from Shock
The G7 BR2 is a precision instrument and should be handled with care. It will withstand a reasonable drop shock.

Transporting
When transporting the G7 BR2, the unit should be secured in the provided carrying case. The eyepiece cover should be in place whenever the G7 BR2 is not in use.

Cleaning
Clean the G7 BR2 after each use, before returning it to its carrying case. Check all of the following items:

- Excess moisture. Towel off excess moisture, and air dry the instrument at room temperature with the battery removed and the battery compartment open.
- Exterior dirt. Wipe exterior surfaces clean to prevent grit buildup in the carrying case. Isopropanol may be used to remove dirt and fingerprints from the exterior.
- Transmit and receive lenses: Failure to keep the lenses clean may cause damage.

Storing
If you won't be using the G7 BR2 again soon, remove the battery before storing the instrument.

Warranty and Service

Gunwerks LLC warranties this G7 product to be free from defects in material or workmanship for a period of two (2) years from the date of purchase. This limited warranty does not cover failures resulting from abuse, negligence or unauthorized repairs. During this period, if the product is found to have defects in material or workmanship, Gunwerks LLC will at its option and without charge, repair or replace such product.

To complete the warranty registration process for your G7 product please visit www.gseven.com

Should you require assistance or service, please send your request to service@gseven.com

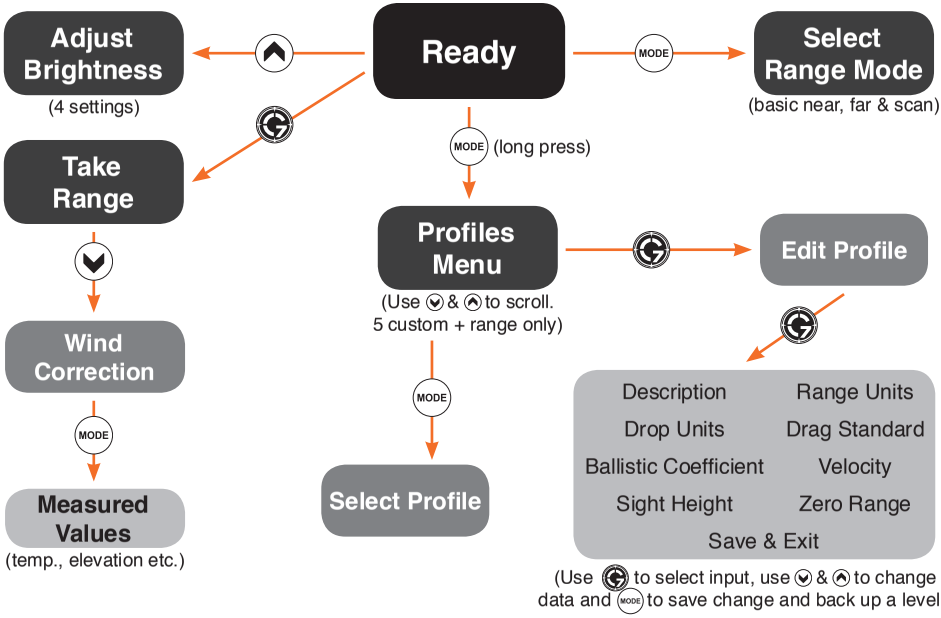
Legal

This product is covered by patents pending and the following US Patents: 6,445,444; 5,612,779; 6,057,910; 6,226,077, 7,349,073

Specifications

SPECIFICATION	VALUE	ACCURACY
Measurement Range	10 to 2500yds	± 1yd
Maximum Ballistic Calculation Range	1400yds	± 1yd
Tilt Sensor Range	± 90°	± 1° within ± 60°
Temperature Sensor Range	0 to 122° F	± 2° F
Pressure Sensor Range	4 to 36 inHg	± 0.5 inHg

Optical (monocular)	7x26mm
Eye Relief	20mm
Field of View	330ft @ 1000yds
Weight	14.4oz
Dimensions (LxWxH)	5.2 x 4.5 x 2.1in
Environmental Protection	IP55
Operating Temperature	0 to 122° F
Storage Temperature	-20 to 158° F
Battery	CR123
Battery Life (continuous use)	8 hours
Laser Type	Class 1, 905nm
Beam Divergence	1.5 x 3 mrad
Ballistic Output Units	inches, MOA, MRAD, BDC
Measurement/Ballistic Solution Time	≤ 4sec
TruPulse Targeting Modes	Basic, Near, Far, Scan


Adjust Brightness
(4 settings)
Ready
MODE
Select Range Mode
(basic near, far & scan)
Take Range
MODE (long press)
Profiles Menu
(Use & to scroll.
5 custom + range only)
Edit Profile
Wind Correction
MODE
Measured Values
(temp., elevation etc.)
MODE
Select Profile
Description
Range Units
Drop Units
Drag Standard
Ballistic Coefficient
Velocity
Sight Height
Zero Range
Save & Exit
(Use to select input, use & to change data and MODE to save change and back up a level.)

	Profile Number				
	1	2	3	4	5
Description					
Drop Units					
Drag Standard					
Ballistic Coefficient					
Muzzle Velocity					
Sight Height					
Turret Temperature					
Turret Altitude					
Zero Range					

Notes

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