PERFORMING RAPTAR-S SETUP

1. Check battery life and install fresh batteries if necessary.
2. Zero weapon to optic(s), if not already zeroed.
3. Set Latitude for Geographical Area:
   BALLISTICS MENU > TARGET > (LAT)
4. Select ballistics ranging option:
   FUNCTION MENU > BALLISTICS >
   (FULL SOLUTION / RANGE IN METERS / RANGE IN YARDS)
5. Select Gun Profile from the pre-loaded menu, or select a User Gun and Input Custom Gun Profile data manually. The (<-) indicates this is the profile currently selected.
   BALLISTICS MENU > GUN SELECTION
6. Attach *RAPTAR-S* to weapons platform and position of choice: Top of Optic, 12, 3 or 9 O'Clock.
7. Perform Compass Calibration (see "To Perform a Compass Calibration on the *RAPTAR-S*").
8. Perform Angle Calibration (See "To Perform an Angle Calibration on the *RAPTAR-S*").
9. The *RAPTAR-S* auto senses outside air temperature (OAT), pressure and humidity. These may be verified and manually adjusted and locked using data from other sources such as a weather meter.
   BALLISTICS MENU > ENVIRONMENT
10. Manually enter wind speed and direction. Alternatively, a Kestrel weather meter may be used to stream live wind and other environmental data. If using a Kestrel weather meter, ensure that the Kestrel and *RAPTAR-S* are connected.
    BALLISTICS MENU > ENVIRONMENT
11. Co-Align system to Optic at BZO dialed. Then at 100, 800, 1000m. (Use *RAPTAR-S* nVisti LRF alignment procedure; see

CO-ALIGNING THE RAPTAR-S LASER WITH A WEAPON OPTIC

A reflective nVisti target enables rapid alignment of the *RAPTAR-S* laser range finder (LRF) to a weapon optic using the LRF's built-in visible laser. By performing both the coarse and fine alignment, all parallax is eliminated between the weapon optic and LRF, maximizing LRF performance. This procedure is possible because the LRF in the *RAPTAR-S* is co-aligned at the factory with its built-in lasers.

Setup:

- Ensure that the *RAPTAR-S* is securely mounted to the rifle and that the rifle is properly zeroed.
- Place the target at approximately 100 meters.
- Turn on the low power visible laser.

Coarse Alignment Process:

1. Scan the rifle near the target until the laser spot is visible on the target.
2. Note the offset between the laser spot and the scope's markings.
3. Use the *RAPTAR-S* Windage and Elevation Adjustment Knobs to move the laser until it aligns with the scope's crosshairs.

Fine Alignment Process:

Repeat steps 1-3 of the coarse alignment process at

RANGING A TARGET (RANGE ONLY MODES)

1. Select desired laser/illuminator mode position (laser activation not required).
2. Press ***Enter***, *RAPTAR-S* displays the determined range. If Range Finder determines multiple targets at different ranges, the status bar indicates the number of targets (e.g., "R 1 2", or "R 1 2 3") in order from the nearest to farthest. In such a case, use the ***Left/Right*** buttons to select the target range.

   If ranging returns values for obstructions to the range object, set the Range Gate value higher than the distance of the obstruction and re-range.

RANGING A TARGET (FULL BALLISTIC SOLUTION MODE)

1. Select desired laser/illuminator mode position (laser activation not required).
2. Press ***Enter*** ; *RAPTAR-S* displays the determined range. If Range Finder determines multiple targets at different ranges, the word "MULTI" briefly appears on the display. In such a case, press ***Adjust/Down*** until "R 1 2" or "R 1 2 3" displays, use the ***Left/Right*** buttons to select the target.
3. To exit the Auto Ballistics Solution Display, press and hold the ***Enter*** button.

BALLISTICS SOLUTION DISPLAY

ADJUSTING DISPLAY BRIGHTNESS

Default display brightness is '**Auto**'. If changed to "**Manual 1**" (dimmest) through "**Manual 8**" (brightest), the display will maintain a consistent brightness based upon the set value. To adjust display brightness setting, access the Brightness option on the Function Menu.

CARE AND MAINTENANCE

Dismount the *RAPTAR-S* from the weapon rail and inspect the unit for dirt, rust, and corrosion. Ensure that the Battery Compartment Cover and o–ring are tightly sealed and that the area is free of sand and dirt particles. Replace if a lens is broken or cloudy, or a Battery Compartment Cover o–ring becomes cut, nicked or torn.

Gently blow lenses free of any residual dirt or dust, then wipe with the clean Lens Cloth provided. Do not use high pressure air to blow away dirt, dust or debris while cleaning. Using the brush, remove dirt and debris from the mounting interface and controls only; do not use the brush for cleaning lenses. If exposed to sand or salt water, rinse exterior with water to remove debris. Cleaning should be done on a

PRODUCT IDENTIFICATION

NOTE: G01 features one (1) 20" cable and one (1) 12" cable. G02 model features one (1) 12" cable. Additional cables can be purchased individually or under separate configurations.

PRODUCT IDENTIFICATION (CONT'D)

SAFETY WARNINGS

WARNING

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Lasers are activated during the RAPTAR-S system test. Follow safety precautions for laser eye safety and operational cover.

Due to the high reflectivity of the nVisti target, the infrared (IR) laser should never be used to perform alignments. Such usage could result in eyesight damage. Operate the RAPTAR-S in the visible low power mode when performing this procedure.

CAUTION

Wilcox strongly recommends reviewing the operational procedures outlined in the Operator's and Maintainer's Manual prior to operating the device. Customers can obtain a copy of the Operator's and Maintainer's Manual by contacting Wilcox Customer Service at 603-431-1331.

To ensure aiming accuracy, store the RAPTAR-S with ammo. This ensures that the RAPTAR-S and ammo are at the same temperature.

Manufactured by:

WILCOX®

Wilcox Industries, Corp.
One Wilcox Way
Newington, NH 03801-7816

Phone: 888-8WILCOX
603-431-1331
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WWW.WILCOXIND.COM

For troubleshooting service questions, contact Wilcox between 8am and 5pm EST.

QUICK REFERENCE FOR THE

WILCOX®

Rapid Targeting and Ranging Module (RAPTAR-S™)

Line of Products

CAGE: 004F1

CONTAINS:
FCC ID: A8TBM77SPPSYC2A
IC ID : 12246A-BM77SPPSYC2

Top of Primary Scope Mounting Configuration

RAPTAR-S	*PN 57300G01-XX*
RAPTAR-S ES	*PN 57300G02-XX*

21 February, 2020 57300QR02 Rev. A-7

MENU STRUCTURE

To Access the *RAPTAR-S* Menus:

1. Turn Mode Selection Knob to position 2 (Function) or position 1 (Ballistics).
2. Press ***Enter*** to display the desired submenu option.
3. Press the ***Adjust/Down*** *or* ***Fire/Up*** buttons to select from menu options; ***Right*** to enter a menu, or ***Left*** to exit a menu.
4. Press ***Right*** to save.

TABLE 1 - Function Menu Options

OPTION	DESCRIPTION
Battery	Displays the currently remaining battery percentage
Brightness	Display Brightness **Auto** *[Default]* **"Manual 1" (Dimmest) through "Manual 8" (Brightest)**
ID Pattern	Selects the Laser ID (Blink) Pattern **Off** *[Default]* **"Pattern 1" through "Pattern 6"**
Range Gate	Selects the Range Gate **"10"** *[Default]* **"0" to "200" Meters in 10 Meter Increments;**
LRF Config	Select LRF Maximum Measurement Time **Normal** - Range Events Complete in Less than 1 Second *[Default]* **Enhanced** - Range Events Complete in Less than 1.5 Seconds with Increased Accuracy at Longer Distances
Ballistics	Set Ballistic Mode **Full Solution** - Elevation / Windage Holds *[Default]* **Range in Meters** - Only Range in Meters **Range in Yards** - Only Range in Yards
Compass Cal	Perform Compass Calibration
Self Test	Perform Unit Self Test Operations
Set Defaults	Set Factory Defaults
About...	Display software version and hardware configuration.

TABLE 2 - Ballistics Menu Tree

OPTION	DEFINITION
Gun Selection	Allows the operator to choose from up to five custom user gun profiles and numerous additional preconfigured profiles and to change configuration settings. Alternatively, "Kestrel 5700" may be selected to stream the ballistic solution from the Kestrel. **UserGun01** **UserGun02** **...** **M7-M855** **Kestrel 5700**
Environment	Allows the operator to review and manually adjust environmental variables *. These include: **Temp** (Air Temperature - C or F) **Pres** (Air Pressure - mbar or inHg) **Hum** (Humidity %) **WS** (Wind Speed - m/s or mph) **WD** (Wind Direction)
Target	Allows the operator to adjust determined target values, including: **Rng** (Range to Target) **Inc** (Inclination) **DoF** (Direction of Fire) **Lat** (Latitude)
Options	Allows the operator to set the displayed format for Ballistic parameters. **In Units** - Input Units (English, Mixed *(Default)* or Metric) **Out Units** - Output Units (MILS *(Default)*, Inches, ACOG * *, MOA)
Angle Cal	Allows the operator to perform a Cant Angle Calibration. See "To Perform an Angle Calibration on the *RAPTAR-S"* for details.
Manage Guns	Allows the operator to send or receive gun configurations between the *RAPTAR-S* and Kestrel **Send All Guns** - (*RAPTAR-S* to the Kestrel) **Receive All Guns** - (Kestrel to *RAPTAR-S*)

KEY DISPLAY INDICATORS

INDICATOR	DESCRIPTION
LP	Laser Low Power Indicator: - Low Power Laser (when lit) - High Power Laser (when unlit) *(HP Model Only)*
	Low Battery Indicator (No Bluetooth Connection)
B	Full Battery Indicator; Bluetooth Connected
K	Full Battery Indicator; Kestrel Connected and Streaming

KEYPAD BUTTONS

KEY	DESCRIPTION
Fire/Up	Tap once to momentarily activate Laser. Double tap to activate or deactivate selected laser.
Left Button	Enter/Exit menu items, saving changed settings. Decrease values in the ballistic display.
Adjust/ Down	Enter, select or exit adjust modes. Scroll down in menus.
Right Button	Enter and exit submenus or parameters. Increase values on the ballistic display. Increase values in the ballistic display.
Enter	Perform range operations. Display and exit the ballistic solution. Operation within menus varies by menu option.

GUN SELECTION / EDIT SCREEN ITEM DESCRIPTIONS

(<-) - Indicates selected Gun Profile.
(*) - Indicates that Gun Profile has been modified.
MV - Muzzle Velocity
DC - Drag Curve Custom
BC - Ballistic Coefficient. (Auto or provided by manufacturers).
BD - Bullet Diameter
BL - Bullet Length
BW - Bullet Weight (gr)
ZR - Zero Range (BZO)
BH - Bore Height (measured from center of bore to center of optic)
ZH - Zero Height. Vertical difference between point of aim and point of impact.
ZO - Zero Offset. Horizontal difference between point of aim and point of impact.
RT - Rifle Twist
RTd - Rifle Twist Direction
Cal MV - Field expedient way to find MV when unknown.
Cal DSF - Drop Scale Factor. Same procedure as MV True but advanced for longer range shooting.
View DSF - View the Drop Scale Factor.
Clear DSF - Clear the Drop Scale Factor.
Reset Gun - Restores original set up numbers in gun profile.

CALIBRATING THE RAPTAR-S

The *RAPTAR-S* is calibrated both for compass direction and orientation angle. Compass calibration is more accurate when performed while the *RAPTAR-S* is mounted to the weapon in its fully configured form.

To Perform a Compass Calibration on the *RAPTAR-S*:

1. Access the "**Compass Cal**" option on the Config menu.
2. Slowly rotate the weapon 360º horizontally, vertically, and longitudinally, as illustrated. NOTE: If the procedure is performed in less than 20 seconds, the message "CAL FAILED Rotated too fast. Using defaults." displays.
3. Press ***Right*** to stop calibration, then validate calibration to known headings.

360º Horizontal **360º Vertical** **360º Longitudinal**

To Perform an Angle Calibration on the *RAPTAR-S*:

1. Mount the *RAPTAR-S* to the weapon rail on the 3, 9 or 12 o'clock position.
2. Place the weapon with mounted *RAPTAR-S* in its level operational position, shooter behind, creating weight or load into gun.
3. Access the "**Angle Cal**" adjustment option on the Ballistics Menu as illustrated in Table 2.
4. Press the ***Enter*** button to calibrate cant and inclination values. This action may be reset and repeated to achieve the closest angle degree values for the following mounted positions:

3 O'Clock:	**CNT: -90d**	**INC: 0d**
9 O'Clock	**CNT: +90d**	**INC: 0d**
12 O'Clock:	**CNT: 0d**	**INC: 0d**

5. When the angle calibration is set to your operational position, press the Left button to return to the Ballistics Menu.

To Clear the Angle Calibration Value from the *RAPTAR-S*:

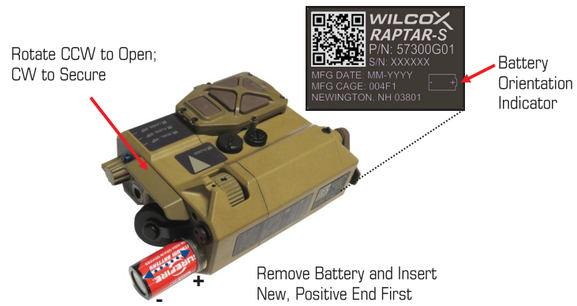
1. Press the ***Right*** button to select "CLEAR", then press the ***Enter*** button to clear values.
2. Press the ***Left*** Button to return to the Ballistics Menu.

ADJUSTING LASER INTENSITY FOR THE ACTIVE LASER POWER MODE

1. From any laser mode, press ***Fire/Up*** to turn the selected laser(s) on.
2. Press ***Adjust/Down*** to enable adjust mode.
3. Use the ***Left/Right*** buttons to adjust laser intensity for the selected Laser Power mode.
4. Press ***Adjust/Down*** to exit Laser Power Adjust mode.
   a. In IR Dual mode, the IR Flood is adjusted first. Repeat steps 3 and 4 to adjust the IR Pointer.
   b. Laser Power Adjust automatically saves and exits after 5 seconds of inactivity.
5. Press ***Fire/Up*** to turn the selected laser(s) off.

INSTALLING AND REMOVING THE RAPTAR-S BATTERY

1. Turn the Mode Selection Knob to the 'OFF' position.
2. Open the Battery Compartment by rotating the Battery Compartment Cover CCW, while ensuring that moisture will not be allowed into the compartment.
3. Remove the used battery and inspect O-Ring as described in the Operator's and Maintenance Manual
4. Ensure that the Battery Compartment is clean and dry, then install a new battery, positive end first as indicated on the Battery Orientation Indicator on the outside of the *RAPTAR-S* .
5. Resecure the Battery Compartment Cover by turning the cap CW using caution not to damage the O-Ring.
6. Dispose of the used battery in accordance with local and Federal regulations.



BATTERY ORIENTATION

CONDUCTING A RAPTAR-S SELF TEST

1. Access the Function Menu.
2. Press the ***Adjust/Down*** button to highlight the "**Self Test**" option, then press the ***Right*** button to choose the Self Test feature. The system then prompts you to confirm that you would like to perform a test by pressing the ***Enter*** button to cycle through the tests, or the ***Left*** Button to exit.
3. Press the ***Enter*** button to sequence through all tests, verifying the test results as you go along.
4. If any error appears on *RAPTAR-S* after Self Test, follow battery replacement procedure, and perform a second test. If an error is still present, contact Wilcox Customer Service between 8am and 9pm EST at 603-431-1331
5. Press the ***Left*** button to exit the test at any time.

* Select and press up or down to manually adjust the value. Asterisk (*) indicates changed and locked. (-) indicates that the sensor reading is used. Direct sunlight exposure may affect sensor readings.

** ACOG units are not compatible with Kestrel 5700 gun selection. Choose different Out Units for operation with this gun selection.