

TECHNICAL BRIEF

The Key Piece of Equipment that Gives Snipers The Tactical Edge



Technology is making a big difference when it comes to enhancing the capability of precision shooters. When one thinks of the tools of the trade that the typical sniper or marksmen use, the list is normally comprised of a precision rifle, specialized ammunition, optical scope, suppressor, sniper data book, field glasses and camouflage or concealing gear. What usually gets left off the list is the fire control system. A fire control system, or FCS, is the key piece of equipment that gives the sniper the tactical edge. These devices were historically used on larger weapons like ships or tanks. With the advancement of technology and shrinking electronics, they can now be found in ground based, hand-held weaponry. The small device usually sits on top of the shooter's scope or side-mounted on a Picatinny Rail mounting system. It is the least mentioned piece of gear but essential technology in long range precision shooting; improving speed, efficiency, and increasing first round hit capability.



To view additional technical information [download the RAPTAR-S datasheet](#).

The Wilcox Rapid Targeting and Ranging System (RAPTAR-S™) is the fire control technology or piece of gear that gives long range shooters the advantage. The RAPTAR-S is a small, versatile, lightweight weapon or scope mounted device. It incorporates a visible laser, Infra-red (IR) laser, IR flood and laser range finder (LRF). A processor in the unit reads environmental sensor data including temperature, pressure, humidity, inclination, cant, heading to the target. Wind data can be entered manually or input wirelessly from a third party weather meter. This data, along with the range to target, is fed to a ballistic calculator or solver. The solver's computations achieve nearly the accuracy of a full 6 degree of freedom model using a 3 degree of freedom modified point mass numerical solver. The solver considers all major and minor trajectory variables and uses custom drag curves that produces accuracy to within .1 mils through the range of flight. The output of the solver tells the shooter how much adjustment is needed to the aimpoint in Windage (side to side) and Elevation (up/

down). This adjustment shows up on the system's display in either MILs or MOAs. All this happens in about a second after the shooter ranges to the target.



Working with Kestrel, Wilcox developed two-way data transmission adding the ability to load all data directly into the RAPTAR-S or vice versa including the ability to stream windage.

To make the RAPTAR-S even more effective, the unit can be paired with several third-party sights such as BAE thermal sights or UTC SWIR HWH-SMS system. The pairing sends the same ballistic solution information on the RAPTAR-S display directly into the optic so the shooter can maintain sight on target through the optic. Some scopes take the RAPTAR-S data and modify the aimpoint based on the solution. If that was not enough, The Wilcox RAPTAR-S works with 3rd party BTAC software by Blueforce Development, which allows sharing of sensor and target data (on a need to know basis) over tactical networks to other elements involved in the operation.

Every year, snipers test their skills in a series of events designed to push their tactical skills at the US Army Special Operations Command International Sniper Competition. The competitors work in small teams and compete in speed and accuracy in environments that are built around



A shooter in the U.S. Army Special Operations Command International Sniper Competition takes aim during an event at Fort Bragg, North Carolina. *[Source](#)



The RAPTAR-S can also be mounted on other weapon systems giving a tremendous range advantage with fast, precise, lethal rounds on target.

realistic scenarios. Nowadays, shooters would not even show up without a fire control system. The sniper tables of the past, now just used as backup, are no match for these digital sniper assistants. How widely used and effective are these systems? For reference, in the last four years the RAPTAR-S has consistently been selected as the sight of choice at the world renowned USASOC Sniper Competition. Teams using the RAPTAR-S have won the top three positions several years in a row.

From the ground up the RAPTAR-S was designed to be critically focused on reinforcing the elite warfighter's situational awareness and enhance his or her mission authority by extending the tactical edge.



For additional information, [view the RAPTAR-S product page](#) or [download the technical datasheet](#). For general information about Wilcox and our products [contact us directly](#) or [download our Product Catalog](#).



SENSOR TO SHOOTER ADVANTAGE

- Decentralized fusion and sharing of data from diverse sensors, processed with advanced third party AI.
- Share target data on a need to know basis over tactical networks to other elements involved in an operation.
- Orthogonal sensor cueing allows the Wilcox RAPTAR-S Plugin for BTAC to communicate with other BTAC plugins allowing image capture enabled sights to pass images to BTAC Cognitive Services Plugin for identification and real-time sharing.
- HyperLocal alerting capabilities can inform operators of relevant tactical information based on their location, competencies, and available resources.
- Connects shooters to sensors and artificial intelligence to assist operators in complex targeting scenarios that span acquisition and surveillance, identification, engagement, and handoff.



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