

MOTION-PROOF MONOCULAR

Fraser Optics' Gyro-Stabilized Monolite helps operators "steady the ship" while in hot pursuit!



BY PHILLIP NULL <<<

» Hostile targets don't remain stationary for long if they have any desire to keep their freedom and stay alive. They move in aircraft, cars, boats and on foot, constantly endeavoring to dodge surveillance and the crosshairs of those committed to battling them. Their pursuers suffer several disadvantages in the chase, namely that observation and target identification become difficult, as the optics intended for such purposes don't perform well when subjected to the movement of a vehicle on an unpaved roadway, a vessel rising and falling with the waves, or a helicopter hovering in the sky. An option exists to regain the edge, however, in the form of the Gyro-Stabilized Monolite monocular, an optic that's gained the attention of every branch of the U.S. armed forces and many domestic law enforcement agencies.

CAPTURING MOTION

Developed and produced by Fraser Optics, a defense company based in Warminster, Pennsylvania, the 14x40mm Gyro-Stabilized Monolite is the first optic of its kind, an advanced electro-optical monocular purpose-built for long-range observation from unstable platforms. Using a gyro-stabilization technology known as Stedi-Eye, the Monolite corrects up to 98 percent of image motion as seen through its lens and suffers

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few of the negative effects expected of traditional optics. The system functions by using the angular momentum generated by a gyro to compensate for movement of the optical housing. In other words, when the housing moves in one direction, the gyro mechanism moves in the opposite direction to reorient the optic's internal prisms and stabilize the image transmitted to the eye. This stabilization technique happens in real time, as opposed to electronic stabilization, and corrects pitch and roll motion within 8 degrees without delay.

The mechanics of the Monolite may read as complicated, but to the end-user, they mean simply that a stable image can be seen through the glass regardless of what's happening underfoot. With the Monolite, maintaining view of a target from the cab of a Humvee bouncing along on a mountain path or from the pilothouse of a patrol vessel crashing through choppy seas becomes a possibility. The frustrations of trying to find and observe a target in these environments only to reorient every time the optic is jostled are gone. For those unaccustomed to working in such conditions, be sure that the capability will be appreciated by those who routinely do.

MONO FOR MAYHEM

To shore up its value, the Monolite boasts a wide 4.3-degree field of view that allows scanning of football-field-size areas at distances out to 1,000 yards. Coupled with a scan rate of 8 degrees per second, users are able to localize targets quickly before using the optic's 14X magnification to zero in. A



Fraser Optics' Gyro-Stabilized Monolite allows users to maintain a constant watch in fast-moving environments while also keeping the surroundings in view.



Tested on the deck of a U.S. government fast-boat, the Monolite monocular proved to work as advertised, countering swells and constant movement to deliver a clear, steady and highly detailed target picture.



DOD Photos

focus adjustment of 4 diopters gives the image clarity whether scanning at long distance or noting details when zoomed in. To keep the user's eye engaged on the image, the exit pupil is covered with an eyecup and measures just 3mm, while the monocular design allows the remaining eye an unobstructed view of the immediate area surrounding the user for constant situational awareness. This last feature was demanded by the military and law enforcement customers Fraser Optics

targets as a critical safety issue necessary to prevent the tunnel vision experienced when both eyes are employed with a binocular-style optic.

Measuring just over 8 inches long by 5 inches wide by 2 inches thick and weighing only 2 pounds, the Monolite is designed for portability, and it can easily be carried in a pack or stored in one's preferred mode of transportation with a minimal footprint. A shockproof and ruggedized housing that is both submersible and buoyant solves con-

cerns of damage during punishing sorties or treks, and an operational temperature range of -25.6 to 120 degrees Fahrenheit allows use regardless of the latitude or elevation. To ensure users can maintain a solid grip in extreme conditions, a non-slip neoprene cover and nylon retention strap are included. A single CR123 battery powers the optic for up to eight hours of continuous use, and a built-in regulator provides the option of connecting an external power source for extended use. Though there is

no internal recording capability, the optic is easily married with an iPhone to give options for still photos and video.

HIGH-SEAS REPORT

Tested on the deck of a 33-foot U.S. government fast-boat, the Monolite performed exactly as advertised to the surprise of a skeptical boat crew. Finding a small structure on land a few hundred yards away from the boat, I first tried looking through the Monolite without turning on the gyro stabilization. Through the monocular I was able to acquire a clear picture of the target easily, but as swells passed underneath the boat, I would lose sight of the building and was forced to reposition the optic and scan the area again to reacquire. Powering on the Monolite, I could hear a low hum as its gyro stabilization spooled up, and within 30 seconds the image had completely leveled out. Despite motion created by the movements of my hand and body as I shifted my weight in response to the ocean swells, the optic maintained a stable image with a constant view of the target building in the center of the field of view. Maxing out the 14X magnification allowed me to make out specific details of the structure, including the lines of the individual concrete blocks it was constructed from. Using stadia lines imposed on the glass, I was also able to estimate the range or distance to the target and confirm its accuracy with the boat's radar.

Using any optic from the deck of a boat floating on open water is a challenge for even the most seasoned crewmen, but the level of performance experienced with the Monolite brought praise from all on board following the test sortie. Everyone even went so far as to proclaim that with the Monolite they had finally found a solution to end their frustrations with standard-issue

ADVANCED OPTICS



SPECIFICATIONS

FRASER GYRO-STABILIZED MONOLITE

MAGNIFICATION:	14X
OBJECTIVE DIAMETER:	40mm
LENGTH:	8.25 inches
WEIGHT:	2 pounds
FIELD OF VIEW:	4.3 degrees
SCAN RATE:	8 degrees per second
POWER:	1 CR123 battery

binoculars and scopes. Not only could they now maintain a constant watch of a target through the glass in a dynamic environment, but they could also do so while remaining aware of their immediate surroundings. Fraser Optics has absolutely solved real-world problems with its Monolite design, overcoming external forces to allow effective and constant surveillance, reconnaissance and observation regardless of where the user is positioned or the conveyance in which they're riding. Beyond simply developing an effective operational technology, the company also made its product portable and, most importantly, affordable. For around \$2,000, any law enforcement agency, military unit or even a civilian can procure the monocular for their own applications. The performance and low price tag of the Monolite have not gone unnoticed—it's even been recognized by the nation's most elite, including U.S. Army special operations forces and the U.S. Navy SEALs, as both have procured the monoculars for their teams to use while deployed on missions. The fact that these groups see the Monolite as necessary equipment for their operations is another telling testament of its capabilities. If you work in dynamic environments and expect the need for an optic, get your hands on a Monolite. For more information, visit fraser-optics.com or call 215-443-5240.

