

Ukrainian Border Protection

The implementation of the BOMUK project utilizing VarioVIEW™ thermal cameras

European border control beyond the Schengen area

For a couple of years the European Union (EU) is upgrading its Schengen treaty borderline by the means of selective personal and technical measures. Numerous projects have improved the general border security significantly by implementing state-of-the-art technologies. This process has not been totally finished, however. Next to the protected Schengen borderlines the EU is also looking beyond. The Ukraine is one of the countries the EU selected to improve the local border protection authorities.

With 4.663 km of borderline und a coastline of 2.782 km the Ukraine ranks no. 2 in Europe – these figures impressively underline the dimension of such a task. To find proper solutions the needs and capabilities of local authorities have to be analyzed very closely. To achieve this the EU has initiated BOMUK (BOMUK = **B**Order **M**anagement Improvement: Equipment Supply to the State Border Guard Service of **U**kraïne).

The extent of its borderline and the location of the Ukraine inevitably led to illegal frontier violations, drug trafficking and weapon smuggling. To counteract the related problems handheld thermal devices for remote nighttime surveillance had been chosen. These had been expected to provide an excellent range performance, maximum portability, an intuitive user interface and a laser range-finder undetectable by tube-based night vision systems. First attempts to match the EU requirements with existing products failed, the conclusion was clear: A new product had to be designed.



The solution: VarioVIEW™ 150-Thermal camera by Jenoptik

The strategic partnership of the Thuringian optronics manufacturer Jenoptik and the Dresden-based application specialist company InfraTec has tailored a product exactly matching the requirements for the BOMUK project. The related tender had been won in October 2008, during the implementation of BOMUK about 300 thermal imagers have been supplied to the Ukrainian border guard – the VarioVIEW™ success story had been started.

Still the combination of features realized in VarioVIEW™ is unique. Essential product requirements demanded for a human detection range of 5 km and a vehicle detection range of at least 7 km - VarioVIEW™ achieved both. These requirements have been obtained by utilizing an uncooled high-resolution (640 x 480) pixel sensor and a powerful 150 mm Germanium lens. Choosing an uncooled sensor (spectral range: 7 to 14 µm) offers a preferred detection of thermal radiation emitted by humans and vehicles, additionally the VarioVIEW™ design allows a maintenance-free and noiseless observational operation – cooled devices cannot provide these two advantages. Next to the high-resolution display of thermal images the integrated laser range-finder also allows precise distance measurements up to 5 km. The Jenoptik diode laser range-finder operates at a near-infrared wavelength of 1,550 nm and is not visible to counter-intelligence tube-based night vision devices – another major advantage.

An essential component of the VarioVIEW™ product design is the integration of a totally new user interface philosophy. It offers a very straightforward and easy imager project implementation with very little training to any officer. Here VarioVIEW™ also outperforms many competing units without sacrificing performance and image quality. The body design and the high-resolution OLED displays strongly support even long-term observation sessions with a maximum of comfort and minimum of fatigue. Using any kind of eyepiece displays always includes the danger of counterintelligence detection, but using OLED displays with an enormous brightness adjustment range supersede mechanically susceptible diaphragms used in other

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systems for reducing glare. Additionally during a mission the night time observer can fully maintain his or her dark adaption permanently.

Power supply is provided by heavy-duty lithium-ion rechargeable batteries which allow a permanent operation of at least 6 hours. Alternatively VarioVIEW™ can be fed with external power connections as well. Another feature is the integration of a standard FBAS video interface for transmitting thermal images to an external monitor.

After shipping VarioVIEW™ 150 units to the Ukrainian border guard a batch of the smaller VarioVIEW™ 75 version has been supplied to the neighbor country Moldova. Both countries share a dangerous borderline with the seceded Transnistrian area. Especially due to the capabilities of the VarioVIEW™ 75 imager this region can be monitored much more efficiently than with the previously used night vision technology.

The future path

In the years 2008 and 2009 the final product design and delivery of the VarioVIEW™ units for the BOMUK project had been top priority issues. In parallel a number of field tests had been initiated with several homeland security forces in Germany, Europe and the Middle East.



The first sales realized there clearly demonstrated that VarioVIEW™ 75 and VarioVIEW™ 150 are perfect tools for police units, SWAT teams, intelligence services and customs. For these clients additional VarioVIEW™ options had been developed. The current models can be provided with SD card readers, digital FireWire interface, wireless video transmission and pan-tilt heads.

The success story continues...