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High performance IR detector modules for army applications

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Since many years AIM delivers IR-modules for army applications like pilotage, weapon sights, UAVs or vehicle platforms. State-of-the-art 640x512, 15µm pitch detector modules are in production in manifold configurations optimized for specific key requirements on system level. This is possible due to a modular design, which is best suited to meet the diversity of system needs in army applications. Examples are optimization of detector-dewar length for gimbal applications, size weight and power reduction for UAVs or lifetime enhancement for vehicle platforms.
In 2012 AIM presented first prototypes of megapixel detectors (1280x1024, 15µm pitch) for both spectral bands MWIR and LWIR. These large format detector arrays fulfill the demand for higher spatial resolution, which is requested for applications like rotorcraft pilotage, persistent surveillance or tasks like determination of threat level in personnel targets. Recently, a new tactical dewar has been developed for the 1280x1024 detector arrays. It is designed to withstand environmental stresses and, at the same time, to quest for a compact overall package. Furthermore, the idea of a modular design will be even more emphasized. Integration of different cooler types, like AIM's SX095 or rotary integral, will be possible without modification of the dewar.

The paper will present development status of large format IR-modules at AIM as well as performance data and configuration considerations with respect to army applications.

Keywords: MCT, IR-module, Megapixel detector, large format, LWIR, MWIR, tactical dewar

Short version:

For many years AIM delivers IR-modules for army applications like pilotage, weapon sights, UAVs or platforms. Since the diversity of system needs in such applications is manifold, a modular design of the IR-modules is chosen to allow for a cost-efficient optimization of the configuration.
To fulfill the demand for superior spatial resolution AIM has developed megapixel detectors (1280x1024, 15µm pitch) in both spectral bands MWIR and LWIR. Now, a new compact tactical dewar has been designed for such large format detector arrays. Integration of different cooler types, like AIM's SX095 or rotary integral, will be possible without modification of the dewar.

The paper will present development status of large format IR-modules at AIM as well as performance data and configuration considerations with respect to army applications.