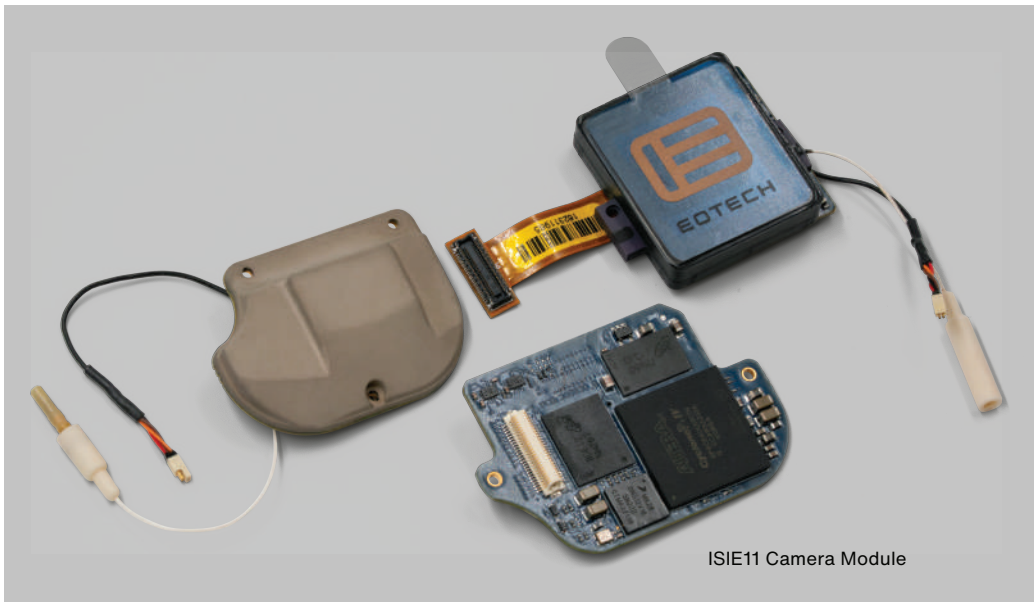# ISIE11 Camera Module

ISIE11 Camera Module

The ISIE11 Camera Module incorporates EVS's proprietary ISIE11 Electron Bombarded Active Pixel Sensor (EBAPS®) for extreme low-light imaging down to overcast starlight conditions, with an image format of 1600 x 1200 pixels and a pixel size of 10.8 µm square. The module includes the ISIE11 sensor on a headboard, a high voltage power supply (HVPS), a processor board, and the required connections between them. This unpackaged configuration makes the ISIE11 Camera Module ideal for integration into a variety of platforms such as helmets, UXV payloads, and surveillance cameras.

The ISIE11 sensor incorporates a high quantum efficiency (QE) gallium arsenide (GaAs) photocathode with responsivity between 400 – 900 nm (visible through NIR) and a backside illuminated (BSI) CMOS anode capable of up to 60 frames per second (fps) with a 10-bit extended dynamic range (XDR) digital video output, capable of windowing to provide a subset of pixels at a higher frame rate. Low light sensitivity is achieved in the sensor when the HVPS applies a high voltage across a vacuum gap between the photocathode and the CMOS anode, accelerating electrons across the gap and creating electron-hole pairs in the backside of the anode, resulting in high gain with very low noise. The sensor incorporates EVS's proprietary low halo technology and runs in snapshot shutter mode.

The processor board further enhances the acquired imagery by applying bad pixel replacement (BPR), non-uniformity correction (NUC), XDR linearization, and contrast enhancement (CE). An Interface Control Document (ICD) for the power, control, and data interfaces is available for integrators per ITAR restrictions.

APPLICATIONS

- Day or night reconnaissance
- Rotary and fixed-wing pilotage
- UXV payloads
- Helmet-mounted cameras
- Digital replacement for Gen III night vision
- Imagery export for situational awareness

FEATURES / BENEFITS

- NIR laser visibility
- Low halo technology
- Digital output
- Snapshot shutter
- High dynamic range
- Compatible with augmented reality systems

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CONTACT

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EVSKC01

03.24.2025

CAMERA & SENSOR DIVISION OF **EOTECH**

ISIE11 Camera Module

TECHNICAL SPECIFICATIONS

IMAGE FORMAT	1640 x 1240 pixels (1600 x 1200 useable)
PIXEL SIZE	10.8 µm square (100% fill factor)
SENSOR FORMAT	1" (22.2 mm diagonal)
SPECTRAL RESPONSE	Night mode (intensified): 400 nm – 900 nm Day mode (non-intensified): ~800 nm - ~1050 nm
DYNAMIC RANGE	60 dB with intensification enabled, 88 dB with multiple slope XDR operation
FRAME RATE	60 fps at full frame
SHUTTER TYPE	Snapshot
LOW LIGHT SENSITIVITY	Overcast starlight depending on mission objectives
NON-UNIFORMITY CORRECTION (NUC)	3-parameter correction on all pixels
BAD PIXEL REPLACEMENT (BPR)	All defective pixels replaced by nearby good pixel
CONTRAST ENHANCEMENT (CE)	Stretch with gamma correction
VIDEO OUTPUT	10-bit LVDS
CONTROL INTERFACE	SPI
POWER CONSUMPTION	1.2 W @ 60 fps
POWER INPUT	1.2V @ 0.45A, 2.5V @ 0.05A, 1.8V @ 0.12A, 3.0V @ 0.03A, 3.5V @ 0.09A, 1.9V @ 0.03A, 3.3V @ 0.04A
OPERATING TEMPERATURE	-40°C to +60°C
STORAGE TEMPERATURE	-55°C to +71°C
WEIGHT	42 g

NOTE: The product associated with this data sheet is under the export control of the Office of Defense Trade Controls, U.S. Department of State, and is subject to the International Traffic in Arms Regulations. Transshipment of the acquired product to any destination outside of the United States (or to a foreign person/entity within the United States) without the knowledge and written consent of the Office of Defense Trade Controls is strictly prohibited.

NOTE: Additional technical details are available upon request.

ORDER INFORMATION

ISIE11 Camera Module
300588-54

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