



Apache M611-02 Low Light Level Camera

The Apache camera incorporates Intevac's proprietary ISIE11 Electron Bombarded Active Pixel Sensor (EBAPS®). Designed for a variety of nighttime and extreme low light imaging conditions, the sensor enables the camera to provide clear imagery from extreme darkness through the twilight transition period. The camera was specifically designed for the U.S. Army's Apache Arrowhead Modernized Target Acquisition Designation Sight/Pilot Night Vision Sensor (M-TADS/PNVS) Program. Intevac is the prime contractor for the program's PNVS digital image intensifier.

In addition to the ISIE11, the Apache camera integrates a high voltage power supply (HVPS), temperature sensor, FLASH memory for image correcting parameters and support electronics. The camera's optical window transfers input to the sensor from the external lens. The optical image is focused onto the photocathode and the resulting photoelectrons are accelerated across a vacuum gap and proximity-focused on the back-illuminated CMOS anode.

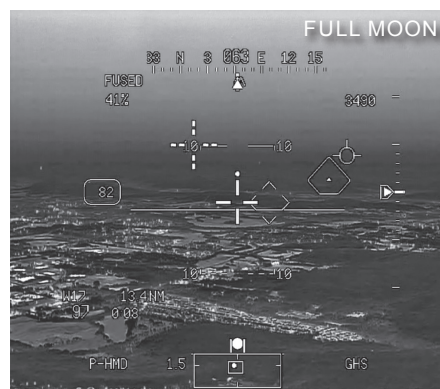
Gain is achieved by the electron multiplication that results when the high-velocity electrons dissipate their energy in the silicon chip, which creates electron-hole pairs in the back surface of the CMOS Focal Plane Array (FPA). The pixels are read out, sampled and converted to 10-bit LVTTTL digital data inside the camera. The pixel data is framed and sent to the digital video bus for output from the camera in the form of a high speed serial interface.

APPLICATIONS

- Day or night reconnaissance
- Ground, maritime and avionics

FEATURES / BENEFITS

- Blended low-light TV and thermal imagery
- Eliminates night vision goggle requirement
- Identifies light from laser pointers
- Improved acuity and resolution



APACHE M611-02 SPECIFICATIONS

Output Format	1280 x 960 pixel, 30 fps interlaced Native format: 1600 x 1200 pixels, 60 fps, progressive
Field of View (FOV)	40° x 30° nominal
High Speed Serial Link Video Interface	Per ANSI X3.230-1994 at 1062.5 Mb/s
TCCL Command and Control	RS-485 per ICD
Test Pattern Output	Multiple patterns including overlay of patterns onto the image
Low-Glare Lens and Sensor	AR-coated and darkened sensor edges, low-halo sensor
Sensor Protection	Integrated light sensor and shutter
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
Extended Dynamic Range (XDR)	Greater than 80 dB intra-scene dynamic range
Automatic Gain Control (AGC)	In-camera f/10 flip-in aperture for bright scenes > 110 dB inter-scene dynamic range
Blending Option	Bright-light fusion with FLIR imagery
Power Input	+28 VDC regulated to +/- 1.5 V
Power Consumption	< 42W (average) or 53W (peak)
Operating Temperature	-40°C to +60°C
Non-Operating Temperature	-55°C to +71°C
Shock Operating	20 g's peak value, 11 ms duration, 3 axes
Vibration Operating	Per MIL-STD-810
MTBF	7,000 hrs per MIL-HDBK-217

NOTE: This product 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 to any destination outside of the United States without the knowledge and consent of the Office of Defense Trade Controls is strictly prohibited.

ORDERING INFORMATION

Apache M611-02 Camera	300330-01
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