

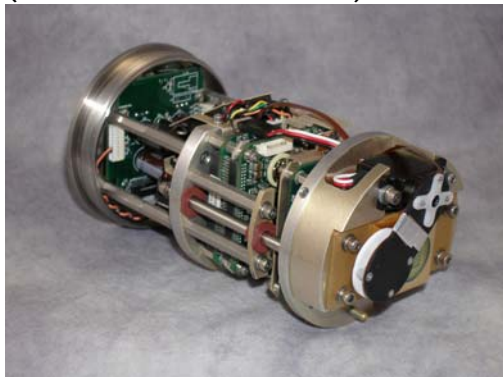


NIR320 OEM INGaAs NEAR-INFRARED CAMERA SPECIFICATION

Lumitron introduces the fully customizable OEM Indium Gallium Arsenide (InGaAs) Near-Infrared Camera Module. This product includes a baseline FPA and ECS320A camera electronics. In addition to the baseline components, the customer may select an optic (f #, focal length, motorized / manual focus, multiple FOV, etc), select a housing, select the I/O requirements and select their own product name (since this is your product). This camera will have your company's look and feel including any labeling that you desire. These options can be selected from our existing solutions, can be fully developed by the customer and integrated into the product or designed to your requirements by our engineering staff. Lumitron will also consider other "320-class" FPAs for the camera module.



The Lumitron ECS320A Embeddable Camera Electronics System provides the foundation of the camera module. The ECS320A is comprised of three primary printed circuit board assemblies (each 2 inches x 2 inches). The ECS320A architecture includes an FPA-specific FPA Support



Electronic PCB, a universal Camera Controller PCB and a universal Camera Support Electronic PCB. The ECS320A provides high-functionality imaging capabilities which include: FPA clocking / biasing / power generation, FPA analog video conditioning, FPA video analog-to-digital conversion (14-Bit), FPA non-uniformity correction (two point with ambient temperature compensation and run-time refresh), defective pixel replacement, dual 14-Bit in / 16-Bit out intensity transformation table (contrast enhancement / radiometric transforms), automatic gain and level

control (linear or histogram equalization), interpolated horizontal remapping, display freeze and 2x zoom, standard format analog video generation (NTSC or PAL), 15 color full-screen bit-mapped symbology overlay onto video output, thermoelectric cooler control, calibration flag controller, and input power conditioning / regulation. An application specific Panel I/O PCB connects the ECS320A primary electronics to the external environment.

FPA Specifications

Detector Type	Photovoltaic Indium Gallium Arsenide
Array Format	320 x 256
Readout IC	0.6 μ m CMOS, Snapshot Mode Integration
Pixel Size / Fill Factor	30 x 30 μ m / 100%
Spectral Range	0.9 – 1.7 μ m
Dynamic Range	> 1000:1 Typical
Operability	> 99.5% , > 99.7% Typical
FPA Operating Temperature	25° C
NEI (camera level)	< 1E10 ph/sq cm-sec (low gain), <5E9 ph/sq cm-sec (high gain)

Packaging / Cooler Specifications

Cooler Type	Thermoelectric Cooler (TEC) Temperature Stabilizer
TEC Stabilization Time	< 60 seconds
Package Type	Hermetically Sealed Vacuum Package
Package Window	AR Coated

Camera Performance

Analog Video	NTSC or PAL (factory set)
FPA Frame Rate	59.94 frames/sec NTSC, 50 frames/sec PAL
Digital Video	14 – Bit (uncorrected, corrected, pixel replaced); 16 – Bit (post transform)
Non-Uniformity Correction Tables	Up to 4 available
Video A/D Resolution	14 Bits
Calibration Flag	Uniform NIR Source, Automated / Periodic One Point Update
External Timing	External Sync and External Clock
Remote Control	RS232, RS422 full duplex or RS485 half duplex (factory set)
Power Input	+6 to +16 VDC, +16 to +25 VDC, or +25 to + 28 VDC (range factory set)
Power Consumption	<4 W typical @ 25°C ambient, <12 W typical during TEC stabilization

Enclosure Specifications (overall camera packaging determined by OEM Customer)

Dimensions	3.00 in H x 3.00 in W x 5.25 in L minimal (w/o manual focus lens)
Weight	2.5 lbs minimal (w/o lens)
Operating Temperature	-30 to 60° C (depending on Customer design)
Storage Temperature	-40 to 70° C
Water Resistance	NEMA 4 (depending on Customer design)
Humidity	10 to 95% non-condensing (depending on Customer design)
Connectors	Quantity and Type determined by Customer

Optics with Iris (available in other focal lengths, f #s, fixed or manual focus)

f#, Focal Length	Minimal Focus	Field of View
f/1.4, 25 mm	2 inches	21.0° x 16.8°
f/1.8, 50 mm	12 inches	10.5° x 8.4°
f/2.8, 135 mm	24 inches	3.9° x 3.1°
f/1.2, 12.5 – 75 mm (Zoom Type)	2 - 18 inches	42.0° x 33.6° - 7.0° x 5.6°

These Features and Specifications are subject to change without notice.
