

# Sparrow-HD

The Sparrow-HD is a cutting-edge, low-SWaP 5 $\mu$ m MWIR sensor module engineered to meet the stringent demands of the defense wide distribution market. Its innovative design ensures exceptional performance while minimizing size, weight and power consumption, making it a game-changer in the industry.

Sparrow-HD is based on two mature sensing material technologies:

- XBN with 4.2 $\mu$ m cut-off, operating at 150K and enabling minimal power consumption
- Hot Full-Mid-Wave (HFM) with 4.85 $\mu$ m cut-off, operating at 120K and supporting up to 200Hz

## Main Features

- Excellent image quality: Low readout noise  
low dark current, low RNU
- Time to image (typical) < 5 minutes
- All-in-one electronics: FPA drive & control,  
cooler drive & control, image processing  
(NUC, BPR, Noise Reduction, AEC, DRC,  
Zoom, Symbology & Pseudo-Color)
- Simple electrical interface-industry-standard  
base camera link or MIPI CSI-2
- Fully digital Readout Integrate Circuit (ROIC)  
@ up to 200Hz, or 60Hz in Low-power mode
- Two module configurations - horizontal and vertical,  
with the FPA long axis either parallel or perpendicular  
to the module's long axis

## Applications

- Handheld thermal imaging cameras
- Drone & tactical UAV IR cameras
- Perimeter security systems
- Armored vehicle weapon stations
- Mini and micro tactical payloads
- Sniper long-range thermal weapon sights



	<b>XBn</b>	<b>HFM</b>
Detector type*	XBn 2D array operating at 150K	HFM 2D array operating at 120K
Format	1280×1024 matrix, 5µm pixel	
Cooler	Split linear cooler	
Cold shield	F/1.8, 12mm height	
Cold filter	3.6÷4.15 µm	3.6÷4.85 µm
Integration modes	ITR, IWR	
Gain options	0.9Me	0.9Me / 2.6Me
Maximal frame rate	Up to 60Hz	Up to 200 Hz
Video output	Camera-Link or MIPI CSI-2	
Digital signal resolution	12 / 13 bit	
Readout mode	Normal / 2×2 Binning / 4×4 Binning	
Readout direction	Bottom-up / Left-Right	
Windowing	Flexible: at 8 row steps	
NETD	40mK at 70% of 0.9Me capacitor	25mK at 70% of 2.6Me capacitor
Residual non-uniformity	< 0.05% STD/DR at 20-80% well fill	
Power consumption @ 23°C	< 4W	< 6W at 60Hz, 0.9Me-
Weight	< 350 Gr	< 380 Gr
Dimensions	< 70 x 53 x 58mm (Opt. Axis)	< 72 x 53 x 62mm (Opt. Axis)
Cooler reliability - MTTF	> 22,000 hours For GM (Ground Mobile) @ 35°C	

**\* Optional configuration**  
**Integrated video processing key features**

- Operates at 60Hz
- Non-Uniformity Correction (NUC)
- Bad-Pixel Replacement (BPR)
- Image Enhancement and Dynamic Range Compression (DRC)
- Temporal and Spatial Noise Reduction
- AEC-Automatic Exposure Control
- Digital Zoom X2, X4
- Embedded User Interface and Overlay Graphic



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