

## High Performance, Uncooled, LWIR OEM Thermal Camera Module

# BOSON®+



Made in the USA, and ITAR-free, the Boson+ sets the standard for longwave infrared (LWIR) OEM thermal camera performance and size, weight, and power (SWaP). It features an industry-leading thermal sensitivity of less than or equal to ( $\leq$ )20 mK and an upgraded automatic gain control (AGC) filter delivering dramatically enhanced scene contrast and sharpness. Lower video latency enhances tracking, seeker performance, and decision support. Radiometry is available on both 640 x 512 and 320 x 256 resolution models.

Boson+ maintains the widely-deployed Boson mechanical, electrical, and optical interfaces enabling a plug-and-play upgrade. New models also include factory-integrated continuous zoom lenses to streamline development and maximize performance. With customer-selectable USB, CMOS, or MIPI video interfaces, it is easier than ever to integrate Boson+ into a wider range of embedded processors from Qualcomm, Ambarella, and more. The user-friendly Boson SDK, GUI, and comprehensive product integration documentation further simplify OEM integration. Enhanced thermal performance and industry-leading reliability provide low-risk development, making Boson+ ideal for unmanned ground vehicles (UGV), unmanned aircraft systems (UAS), wearables, security applications, handhelds, and thermal sights.



### MARKET-LEADING THERMAL SENSITIVITY, CONTRAST, AND LATENCY

NETD of  $\leq$ 20 mK extends detection, recognition, and identification (DRI) performance

- $\leq$ 20 mK thermal sensitivity
- Radiometric models provide absolute temperature
- Improved latency for faster decision support
- Upgraded AGC provides blacker blacks and whiter whites

### OPTIMIZED SIZE, WEIGHT, AND POWER (SWAP)

Full-featured LWIR thermal camera module just 7.5 grams and less than 4.9 cm<sup>3</sup>

- Low power consumption, starting at 500 mW
- Compact, 640x512 or 320x256 resolution, 12  $\mu$ m pixel pitch LWIR microbolometer
- Rugged construction and operating temperature rating of -40 °C to 80 °C
- Factory-integrated 5x continuous zoom lens available

### PLUG-AND-PLAY UPGRADE

Shared mechanical, electrical, and video interface across all Boson models

- Flexible USB, CMOS, and MIPI video output interfaces
- Comprehensive product documentation and easy-to-use GUI
- Highly-qualified Technical Services team
- Manufactured in the USA, dual use, and classified under US Department of Commerce jurisdiction as EAR 6A003.b.4.b

## SPECIFICATIONS

THERMAL IMAGER		
Array Format	640 x 512 or 320 x 256	
Pixel Pitch	12 µm	
Thermal Spectral Range	Longwave infrared; 8 µm – 14 µm	
Thermal Sensitivity	Industrial: ≤20 mK Professional: ≤30 mK	
Full Frame Rate, Slow Frame Rate	60 Hz baseline; 30 Hz runtime selectable	
Non-uniformity Correction (NUC)	Factory calibrated; updated FFCs with FLIR Silent Shutterless NUC (SSN™)	
Solar Protection	Yes, lens only	
Digital Zoom	1x to 8x zoom	
Symbol Overlay	Re-writable each frame; alpha blending for translucent overlay	
RADIOMETRY		
Temperature Measurement	Available on select models in the fourth quarter of 2023.	
Scene Dynamic Range	<b>320 x 256</b> to 150 °C (high gain) to 350 °C (low gain)	<b>640 x 512</b> to 140 °C (high gain)
Temperature Accuracy	±5 °C accuracy or less, depending upon operating conditions	
LENS OPTIONS		
Array Format	<b>320 x 256</b>	<b>640 x 512</b>
Horizontal Field of View (HFOV); Effective Focal Length	92°; 2.3 mm	95°; 4.9 mm
	50°; 4.5 mm	50°; 9.2 mm
	50°; 4.3 mm	32°; 14 mm
	34°; 6.3 mm	32°; 13.6 mm
	24°; 9.1 mm	24°; 18 mm
	16°; 13.8 mm	18°; 24 mm
	12°; 18 mm	12°; 36 mm
	6°; 36 mm	8°; 55 mm
	4°; 55 mm	6°; 73 mm
	Available without lens	
PHYSICAL ATTRIBUTES		
Size	21 x 21 x 11 mm (0.83 x 0.83 x 0.43 in) without lens	
Weight	7.5 g (0.26 oz) without lens	
Precision Mounting Holes	Four tapped M16x0.35 (rear cover)	
INTERFACING		
Input Voltage	3.3 VDC	
Power Dissipation	Varies by configuration. 320+ as low as 500 mW 640+ as low as 1000 mW	
Video Channels	CMOS, MIPI or USB3	
Control Channels	UART, USB or I2C	
Configurable GPIO	Up to 11; user configurable	
ENVIRONMENTAL		
Operating Temperature Range	-40 °C to 80 °C (-40 °F to 176 °F)	
Non-Operating Temperature Range	-50 °C to 85 °C (-58 °F to 185 °F)	
Shock	1,500 g @ 0.4 msec	
Operational Altitude	12 km (max altitude of a commercial airliner or airborne platform)	

Specifications are subject to change without notice.  
For the most up-to-date specs, go to [www.flir.com/bosonplus](http://www.flir.com/bosonplus)

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