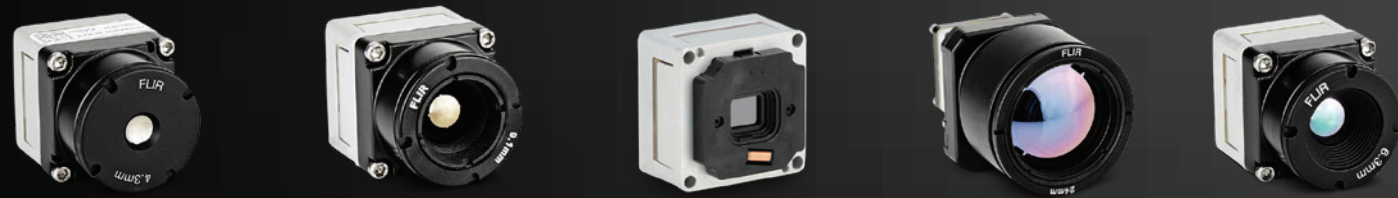


BOSON[®]

High-Performance LWIR Thermal Camera Modules

SEE FURTHER, FASTER & MORE CLEARLY



With nearly **sixty models** the Boson family represents the most **dynamic, highest-performing** uncooled thermal imaging technology in the Teledyne FLIR portfolio. The **small, lightweight, and low-power** OEM package features multiple configurations and onboard image processing for qualitative and quantitative thermal imaging applications.

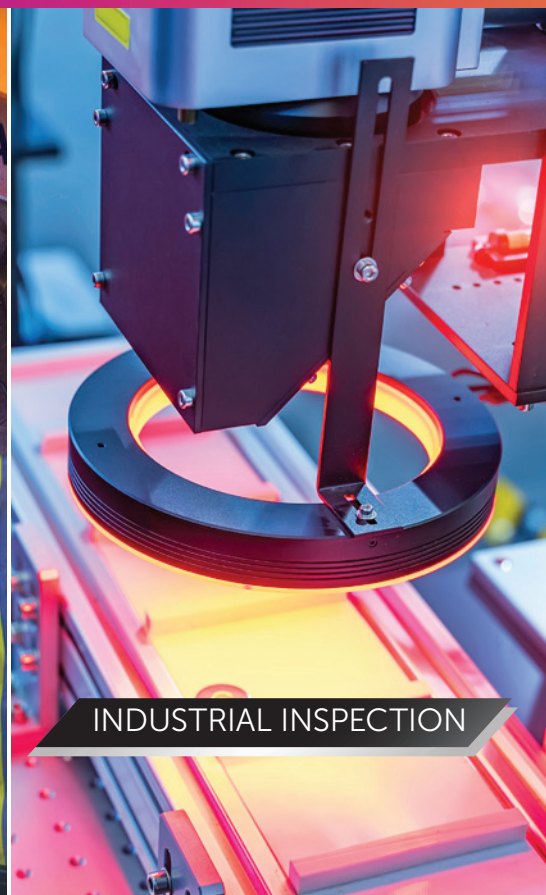
See what solution is best for you.



SECURITY



FIREFIGHTING



INDUSTRIAL INSPECTION



SURVEILLANCE



UNMANNED SYSTEMS



ASSET MONITORING

MEET THE BOSON FAMILY



BOSON+

High Performance, Uncooled, LWIR Thermal Camera Module

Made in the USA, 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**. 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.

BOSON

Uncooled, LWIR Thermal Camera Module

The Boson sets the standard for SWaP. Utilizing Teledyne FLIR's **advanced image processing** and several **industry-standard communication interfaces**, Boson enables applications from firefighting to unmanned aircraft systems (UAS), security, and automotive development kits, all for as little as **600 mW**.

The 12 μ m uncooled detector comes in two resolutions – **640 x 512 or 320 x 256** – and multiple frame rate options. Radiometric models offer absolute **temperature measurement**. With multiple lens configurations, the easy-to-use Boson SDK, user-friendly GUI, and comprehensive integration documentation to further simplify integration into higher-level systems.

	BOSON+	BOSON
Array Format	VGA - 640 x 512 VOx Microbolometer QVGA - 336 x 256 VOx Microbolometer	
Pixel Pixel	12 μ m	
Thermal Spectral Band	Longwave infrared; 8 μ m – 14 μ m	
Thermal Sensitivity (NE Δ T)	Industrial: <20 mK Professional: <30 mK	Industrial: <30 mK, Professional: <40 mK Consumer: <50 mK
Frame Rate Options	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	Integral
Digital Zoom	1x to 8x zoom	
f/number	1.0	
Image Orientation	Adjustable (vertical flip and/or horizontal flip)	
Symbol Overlay	Re-writable each frame; alpha blending for translucent overlay	

RADIOMETRY				
Temperature Measurement	Yes, select models			
Scene Dynamic Range	320 x 256 to 150 °C (high gain) to 350 °C (low gain)	640 x 512 to 140 °C (high gain)	320 x 256 to 140 °C (high gain)	640 x 512 to 500 °C (low gain)
Temperature Accuracy	\pm 5 °C accuracy or less, depending upon operating conditions			

LENS OPTIONS				
Array Format	320 x 256	640 x 512	320 x 256	640 x 512
Horizontal Field of View (HFOV); Effective Focal Length	92°; 2.3 mm 50°; 4.5 mm 50°; 4.3 mm 34°; 6.3 mm 24°; 9.1 mm 16°; 13.8 mm 12°; 18 mm 6°; 36 mm 4°; 55 mm	95°; 4.9 mm 50°; 9.2 mm 32°; 14 mm 24°; 18 mm 18°; 24 mm 12°; 36 mm 8°; 55 mm 6°; 73 mm	92°; 2.3 mm 50°; 4.3 mm 34°; 6.3 mm 24°; 9.1 mm 16°; 14 mm 12°; 18 mm 6°; 36 mm 4°; 55 mm	95°; 4.9 mm 50°; 8.7 mm 50°; 9.2 mm 32°; 13.6 mm 32°; 14 mm 24°; 18 mm 18°; 24 mm 12°; 36 mm 8°; 55 mm 6°; 73 mm
	Available without lens			6°; 73 mm

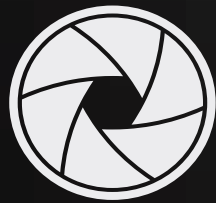
PHYSICAL ATTRIBUTES	
Size	21 x 21 x 11 mm (0.83 x 0.83 x 0.43 in) without lens
Weight	7.5 g (0.26 oz) without lens
Precision Mounting Holes	Four tapped M16x0.35 (rear cover)

INTERFACING		
Input Voltage	3.3 VDC	
Power Dissipation	320+ as low as 500 mW 640+ as low as 1000 mW	Varies by configuration; as low as 600 mW
Video Channels	CMOS, MIPI or USB3	CMOS or USB2
Peripheral Channels	I2C, SPI, SDIO	
Control Channels	UART, USB or I2C	UART or USB
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)

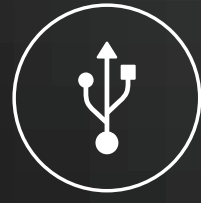
THERMAL INTEGRATION MADE EASY

Common interfaces and access to US-based Technical Services team reduce development risk and shorten your time to market.



OPTICS

The simple optical interface accommodates integrator-designed optics and the industry's widest variety of lens options available.



INTERFACES

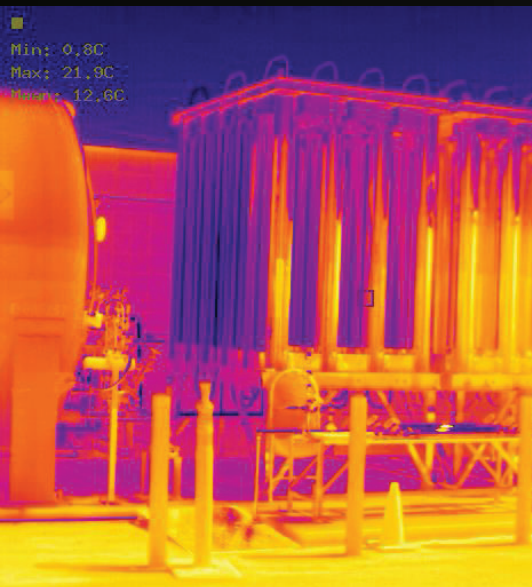
Commercial interfaces including MIPI (Boson+ only), USB and, CMOS, are all available with the Boson family.



SUPPORT

When developers need assistance, our highly qualified Technical Services team are available to support integration wherever you need it.

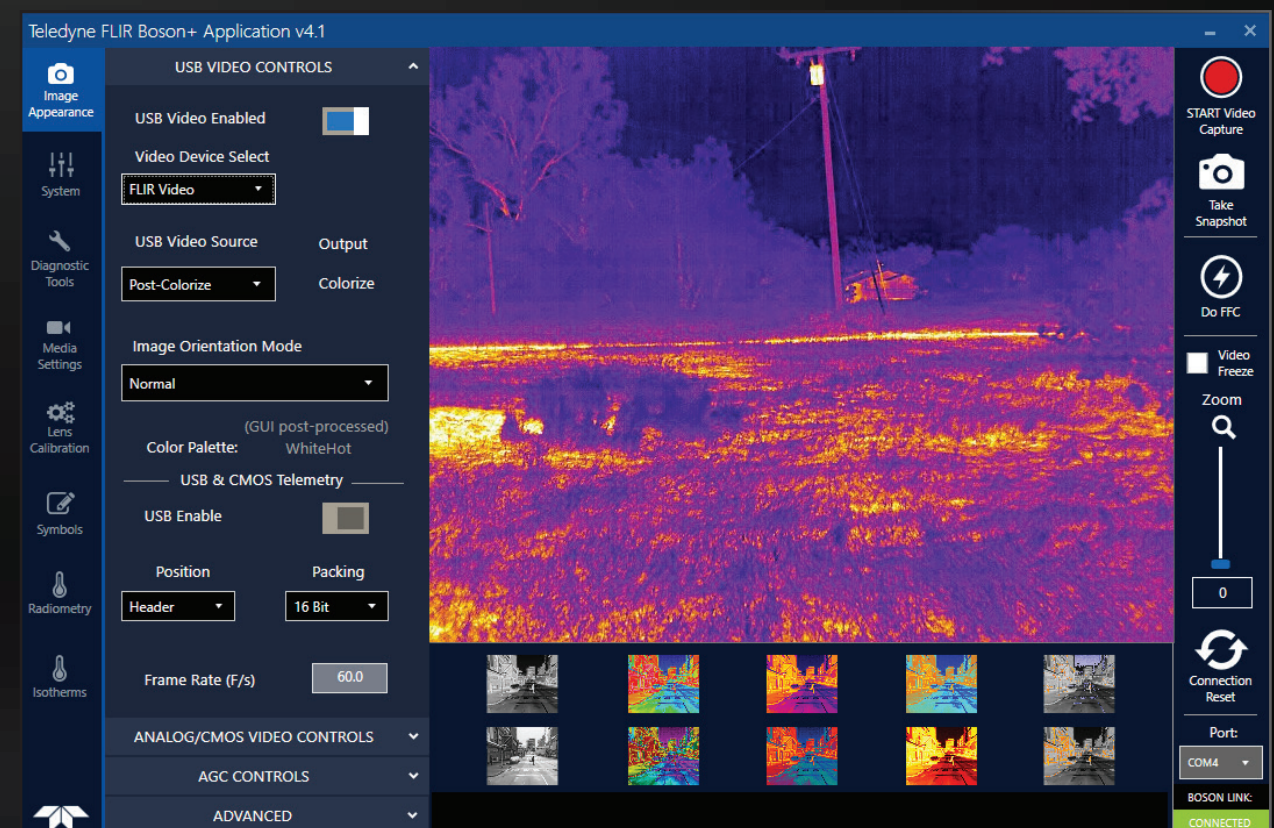
Please visit www.flir.com/BOSON to connect with a representative and access integration support material.



SIMPLIFY & STREAMLINE DEVELOPMENT

The Boson GUI provides developers key command capabilities that simplify and streamline development and testing with the Boson thermal camera modules. Integrators with the original Boson models require GUI 3.X & older, while Boson+ models require GUI 4.0 & newer.

- Operates on Windows 10 64-Bit or newer
- Isotherms with colorization bar and highly-configurable settings
- Spot meter with statistics and temperature bar
- External sync with additional sensors to enable data fusion
- Radiometry settings including t-linear, environmental parameters, emissivity, and more.



BOSON ACCESSORIES



Boson VPC (PN: 500-0869-00)

The USB Video Power Connector (VPC) kit turns the Neutrino LC camera into a webcam. Power, digital video, and comm are all via USB2. The kit includes a USB-A to USB-C cable.



Boson USB/Analog VPC Kit (PN: 421-0062-00)

The Boson video/power/control (VPC) is an accessory that adapts the native high-density electrical connector to a simpler USB-C interface. The Kit includes a VPC adapter, as well as a biurcated cable with USB-A (power/control) and BNC (video) connectors.



Boson VPC Cable (PN: 308-0271-00)

Biurcated cable with USB-A (power/control) and BNC (video) connectors.



Boson VPC w/Cables (PN: 421-0061-00)

Provides all output options on a single PCB and easy access to the full 80-pin camera interface for development. Includes a flex cable between the board and the camera and a wire harness to the cooler interface.



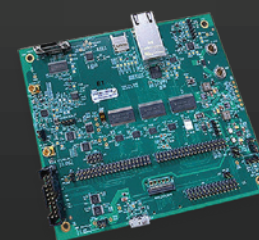
Boson Lens Focus Tool (PN: 261-2609-00)

A Boson lens focus tool is an accessory needed to change the focus of wide field of view lenses.



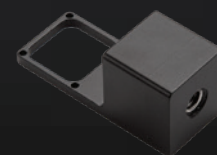
Boson Camera Link Accessory Kit (PN: 421-0063-00)

Expansion board for Boson cameras that matches the functionality of the VPC module, and enables the camera to be interfaced to a Camera Link frame grabber, allowing the capture of digital 16-bit video data. (Does not include Camera Link cable, frame grab board, or data capture software.)



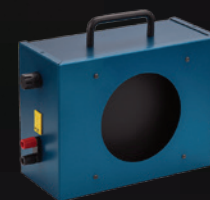
Boson Development Board (PN: 250-0705-00)

A breakout board is available for Boson users and integrators that need easy access to the Boson I/O and interfaces. This board is designed for development purposes, and is not intended or rated for long-term reliability over temperature. Improvements from the original breakout board (SKU 250-0593-00) include exposing the data_valid signal for CMOS video, selection for the power input while using USB (USB or externally supplied power through banana plug), and external sync input/output.



Boson Tripod Mount Adapter (PN: 261-2608-00)

Black-anodized aluminum accessory that provisions for standard 1/4" x 20 tripod mounting.



12V 4" Blackbody for Gain Cal & Supplemental FFC (PN: 285-0029-02)

Teledyne FLIR offers 4-inch blackbody sources for customers that need a low-cost, uniform temperature source when using FLIR's Alt Lens Cal software to field-calibrate lens-less Photon or Tau cameras with third-party lenses, or to take advantage of the Supplemental Flat Field Correction (FFC) option available in the Tau camera models.

SANTA BARBARA
Teledyne FLIR LLC
6769 Hollister Ave.
Goleta, CA 93117

EUROPE
Teledyne FLIR LLC
Luxemburgstraat 2
2321 Meer
Belgium



Equipment described herein is subject to US export regulations and may require a license prior to export. Diversion contrary to US law is prohibited. Imagery for illustration purposes only. Specifications are subject to change without notice.

©2023 Teledyne FLIR LLC, Inc.

All rights reserved. 04/27/2023

23-0307-OEM-COR-BOSON-Series-Brochure-LTR