High Performance, Uncooled, LWIR OEM Thermal Camera Module

BOSON®+ CZ 14-75

Made in the USA, and ITAR-free, the Boson+ CZ 14-75 combines Teledyne FLIR's Boson+ world-class longwave infrared (LWIR) OEM camera module and 5x continuous zoom (CZ) lens offering a high–performance imaging solution. It features an industry-leading thermal sensitivity of ≤20 mK and an upgraded automatic gain control (AGC) filter delivering dramatically enhanced scene contrast and sharpness. The high-performance lens and control electronics maintain focus through zoom and provide real-time thermal gradient compensation as well as flexibility for user-defined command syntax and expansion for additional features.

The Boson+ camera module and 14 mm to 75 mm CZ lens are designed for each other, providing optimal performance and a single system warranty only achievable from a single source. The factory-integrated system lowers development and manufacturing risk and improves time-to-market, making the reliable Boson+ CZ 14-75 ideal for unmanned aerial vehicles, perimeter surveillance, light armored vehicle situational awareness and targeting, and soldier sighting systems.
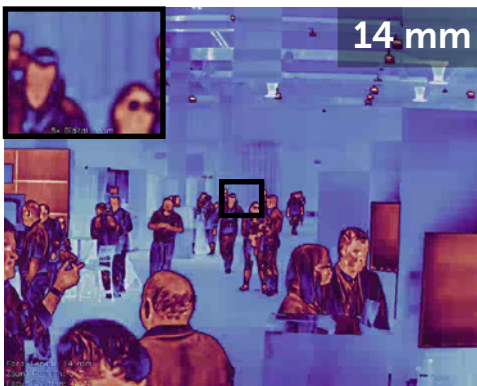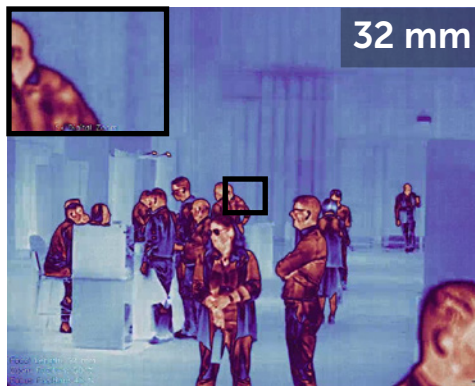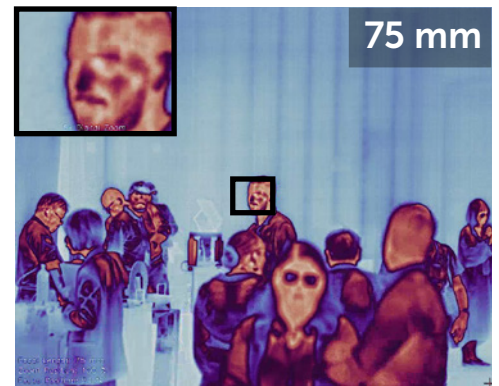
MARKET-LEADING THERMAL SENSITIVITY, CONTRAST, AND LATENCY

NEDT of ≤20 mK extends detection, recognition, and identification (DRI) performance

- 640x512 resolution, 12 μm pixel pitch LWIR microbolometer
- ≤20 mK thermal sensitivity
- Rugged construction with an operating temperature rating of -40 °C to 80 °C
- Upgraded AGC provides blacker blacks and whiter whites

SEAMLESS OPTO-MECHANICAL INTEGRATION

Camera and lens factory-designed to optimize performance and cost

- Factory alignment eliminates boresight wander through zoom
- Calibrated for maximum performance and MTF
- Object focus range compensation for near targets
- Thermal gradient compensation provides focus through full temperature range

DESIGNED FOR INTEGRATORS

Advanced control electronics, hardware, and integration support simplify integration and maximize reliability
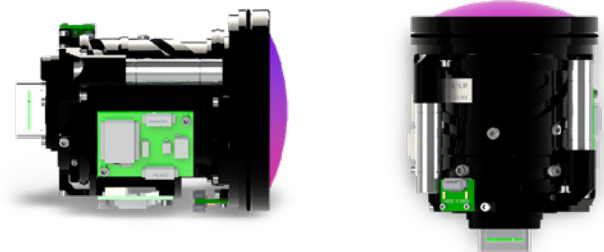
- USB, CMOS, and MIPI video output interfaces
- Flexible user-defined command aliases
- Built-in Test (BIT) provides real-time feedback
- Manufactured in the USA, dual use, and classified under US Department of Commerce jurisdiction as EAR 6A003.b.4.b

www.teledyneflir.com

SPECIFICATIONS

THERMAL IMAGER

Array Format	640 x 512
Pixel Pitch	12 µm
Thermal Spectral Range	Longwave infrared; 8 µm – 14 µm
Thermal Sensitivity	≤20 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

IMAGING & OPTICAL

f number	1.2
Image Orientation	Adjustable (vertical flip and/or horizontal flip)
Focal Length	NFOV = 75mm +4% / -0% WFOV = 14mm +0% / -4%
Lens Window Transmittance	HEAR L1: >/= 84% for band 8-12 µm DLC L1: >/= 78% for band 8-12 µm
NFOV/WFOV Co-boresight location	<0.15 mm
Boresight Drift Through Zoom	<0.10 mm
Boresight Repeatability	</= 0.025 mm
Parfocality	At 20 °C the lens shall stay in focus through zoom within 1/4-wave at 10.6µm
Minimum Focus Distance	NFOV > 18 m WFOV > 3 m
Distortion	WFOV <6%; NFOV < 1%
Relative Illumination	RI falloff < 10%; Flux change through zoom <4%
FOV Change Time	<1.5 sec
Focus Change Time	<0.5 sec

PHYSICAL ATTRIBUTES

Size	101 (l) x 77 (w) x 77 (h) mm (3.97 x 3.03 x 3.03 in)
Weight	390 g (13.75 oz)

INTERFACING

Power Supply	Nominal voltage 12V +/- 1V
Serial Communication	The following serial communications shall be set: RS232, 38400 baud, 1 stop bit, 8 data bits, no parity

Specifications are subject to change without notice.
For the most up-to-date specs, go to www.flir.com/bosonpluscz

Peripheral Channels	I2C, SPI, SDIO
Video Channels	CMOS, MIPI or USB3
Control Channels	UART, USB or I2C

ENVIRONMENTAL

Operational Temparature	-40 °C to 70 °C (-40 °F to 158 °F)
Non Operating Temperature Range	-40 °C to 80 °C (-40 °F to 176 °F)
Focus Over Temperature	Maintain focus from -35 °C to 70 °C (-31 °F to 158 °F)
IP Rating [at front of lens]	IP67
Protection and Anti-Reflection Coatings	Lens elements shall be coated with anti-reflection coatings subject to adhesion, moderate abrasion, and humidity per durability requirements of MIL-PRF-13830
DLC Option	With DLC front coating, lens to with-stand humidity, severe abrasion, and salt fog exposure
ESS Thermal	Lens assembly to be subjected to -35 °C to +70 °C temperature extremes with a maximum of 5 °C/min ramp rate and a minimum dwell of 60 min at each temperature extreme
ESS Vibration	Random vibration, from 10 Hz to 500 Hz with the following vibration profile along the optical axis for a minimum of 10 minutes: at 10 Hz, 0.01 G2/Hz at 50 Hz, 0.01 G2/Hz at 80 Hz, 0.04 G2/Hz at 350 Hz, 0.04 G2/Hz at 500 Hz, 0.01 G2/Hz
Shock	9G with 11msec half-sine pulse, minimum 3 pulses for each of 3 axes
Design and Construction	Lens assembly to meet MIL-STD-1472 and MIL-HDBK-1686
Operational Altitude	12 km (max altitude of a commercial airliner or airborne platform)

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