

# NEUTRINO® IS SERIES - VGA

## HOT MWIR Neutrino LC Camera Module + Continuous Zoom Lens

Neutrino IS series combines Teledyne FLIR's world-class mid-wavelength infrared (MWIR) camera modules and continuous zoom (CZ) lenses to offer high-performance imaging solutions with various FPA resolutions and CZ zoom/FOV ranges. Neutrino IS lowers development and manufacturing risk and improves time-to-market. Cutting-edge high operating temperature (HOT) FPAs, long life and low-vibration linear coolers, common camera interfaces, and fully athermalized lenses make for the best-in-class solution. Each camera module and lens are designed for each other, providing optimal performance not achievable when buying and integrating cameras and lenses from multiple sources.

Teledyne FLIR Neutrino IS series is simply the best technical solution available. With nearly off-the-shelf delivery, industry-leading two-year warranty, real price competitiveness and well-known product support and product reliability, it offers the lowest risk solution. The Neutrino IS is an OEM camera module that is intended to be integrated into a higher level system.

## APPLICATIONS

UNMANNED AERIAL SYSTEMS (UAS)

COUNTER-UAS

AIRBORNE INTELLIGENCE,  
SURVEILLANCE, AND  
RECONNAISSANCE (ISR)

GROUND ISR & SECURITY

MILITARY DISMOUNT SYSTEMS

TARGETING



Neutrino LC  
CZ 15-300



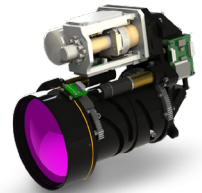
Neutrino LC  
CZ 19-290



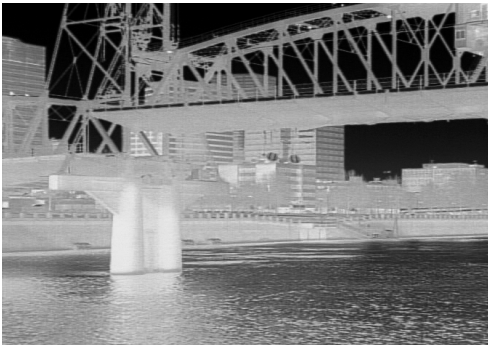
Neutrino LC  
CZF 30-600



Neutrino LC  
CZF 25-250



Neutrino LC  
CZF 25-375



### MULTIPLE MWIR IMAGING SOLUTIONS

Multiple configurations from one manufacturer simplifies product development and production, providing higher value and lower risk.

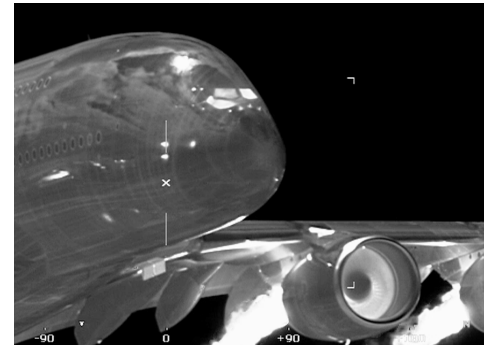
- T2SL HOT 640 x 512/15  $\mu\text{m}$  pixel pitch FPA
- Low power consumption with < 8 W cool down and < 5 W steady state at 23°C with lens
- SWaP optimized saves space, weight and power
- ITAR free



### SEAMLESS OPTO-MECHANICAL INTEGRATION

Cameras and lenses designed for each other for optimum performance and compatibility.

- Precisely aligned optical centerline to the center pixel
- Eliminate boresight wander and ensure focus through zoom
- Simplified single interface for camera and lens
- Precision aligned lens, easy to focus to the desired distance



### MARKET LEADING MWIR CZ OPTICS & CAMERAS

World class performance, industry-leading two-year warranty, and affordable MWIR solutions from the market leader.

- Industry's most advanced VGA MWIR camera core
- Comprehensive product documentation
- Commercially developed, military qualified
- Highly-qualified Technical Services team available to support integration

For More Information Visit:  
[www.teledyneflir.com/neutrino](http://www.teledyneflir.com/neutrino)

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07/06/2021 REV1

## SPECIFICATIONS MODEL SPECIFIC

Overview	Neutrino LC CZ 15-300	Neutrino LC CZ 19-290	Neutrino LC CZF 25-375	Neutrino LC CZF 30-600	Neutrino LC CZF 25-250
Size (L x W x H)	19.25 x 9.91 x 10.59 cm (7.58 x 3.90 x 4.17 in)	15.8 x 7.8 x 10.0 cm (6.2 x 3.1 x 3.9 in)	15.4 x 8.5 x 12.6 cm (6.1 x 3.4 x 5.0 in)	16.9 x 13.2 x 15.0 cm (6.6 x 5.2 x 5.9 in)	11.4 x 6.9 x 11.7 cm (4.5 x 2.7 x 4.7 in)
Weight	1324 grams	741 grams	1140 grams	1980 grams	749 grams
Spectral Band	2.4 - 5.1 $\mu$ m, with co2 notch from 4.15 - 4.55 $\mu$ m	3.4 - 5.1 $\mu$ m standard	3.4 - 5.1 $\mu$ m standard	3.4 - 5.1 $\mu$ m standard	3.4 - 5.1 $\mu$ m standard
Thermal Imager	640 x 512 (15 $\mu$ m pitch) HOT MWIR				
Lens Specifications					
EFL/Zoom Range (mm)	15 to 300 mm compact, continuous zoom lens	19.5 to 290 mm (+/- 5%) compact, continuous zoom lens	25 to 375 mm ( $\pm$ 5%) compact, continuous zoom lens	30 to 600 mm ( $\pm$ 5%) compact, continuous zoom lens	25 to 250 mm (+/- 5%) compact, folded, continuous zoom lens
Horizontal Field of View (HFOV)	1.8° to 35.5° (actively athermalized over the operating temperature)	1.9° to 28.4° (actively athermalized over the operating temperature)	1.5° to 21.9° (actively athermalized over the operating temperature)	0.9° to 18.2° (actively athermalized over the operating temperature)	2.2° to 21.7° (actively athermalized over the operating temperature)

## SPECIFICATIONS ALL MODELS

Lens Specifications	
Zoom and Focus Controls	Yes
Special Features	Active athermalization and auto focus capable
Connections & Communications	
Discrete I/O Controls Available	None
Primary Electrical Connector	80-pin Hirose (camera), 4-pin Molex (cooler), 6-pin Molex (lens)
RS-232 Compatible Communication	RS-232, Nominal 38400 Baud
SDK and GUI	Yes, Camera only
Comm & Control	USB or UART (camera) RS-232, nominal 38400 Baud (lens)
Environmental	
Humidity	5% to 95% non-condensing
Non-Operating Temperature Range	-57°C to + 80°C (-70°F to + 176°F)
Operating Temperature Range	-20°C to +70°C, (-4°F to +158°F)
Operational Altitude	12 km altitude equivalent
Vibration	5.8 grams, 3-axis, 1 hr each
FPA Control	
Direct Injection Snapshot Prog operation	Yes
Programmable Integration Time	Yes (0.01 ms - 16.6 ms)
ROIC	ISC0403
ROIC Modes	Free run, readout & integration priority
Imaging & Optical	
Analog Video Display Format	Yes, accessory board required
BT656 (8-bit)	Yes, accessory board required

Camera Link (16-bit or 8-bit)	Yes, accessory board required
CMOS (16-bit or 8-bit)	CMOS (16-bit, 16-bit color encoded YCbCr, 8-bit)
Color and Monochrome Palettes (LUTs)	Yes
Continuous Zoom (digital and analog)	Optical Zoom (lens) and Electronic Zoom (camera)
f-number	f/5.5
FPA - Digital Video Display Format	640 x 512
Frame Rate	60 Hz, adjustable 1 Hz to 60 Hz
LVDS (16-bit or 8-bit)	No
NTSC/PAL (field switchable)	Yes, accessory board required
Polarity Control (black hot & white hot)	No
Sensitivity [NE $\Delta$ T]	<35 mK
Symbology	Yes
Time to Image	<4 min room temp, typical
Invert/Revert (analog and 8-bit digital)	Invert/Revert (Yes)
Image Optimization - AGC	Histogram Equalization, DDE+
Power	
Input Voltage	3.3 VDC (camera), 12 VDC (cooler) 12 VDC (lens)
Power Dissipation with Lens	<5 W Steady State at room temperature

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

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