



# Tau SWIR

Miniature High-Performance Shortwave Infrared Camera



The Tau SWIR joins FLIR's Tau family of best-in-class miniature camera cores. Designed for a variety of OEM applications, including electro optical payloads, weapon sights, night vision, and UAV/UGV sensor sockets; Tau SWIR delivers superior shortwave infrared imaging performance in the 900 nm – 1.7  $\mu\text{m}$  waveband (extended spectral range also available). Our team of designers focused on providing outstanding imaging performance, reducing the camera's size and weight, and lowering power consumption; and, they delivered.

Tau SWIR incorporates a high-resolution (640 x 512) Indium Gallium Arsenide (InGaAs) 25-micron pixel pitch focal plane array that features variable exposure control, high frame rates (in sub-windowing mode), nearly zero image lag, and high quantum efficiency. The camera delivers exceptional image quality in all light levels and features advance automatic gain control and non-uniformity correction.

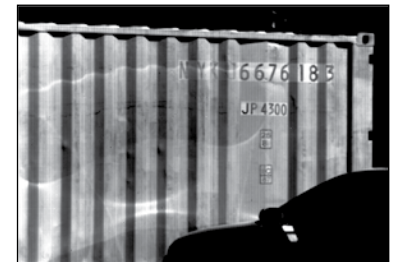
Weighing only 4.5 oz and measuring only 1.5" x 1.5" x 1.9" Tau SWIR is ideal for small UAV/UGV and battery-powered viewers. The camera features Camera Link and analog video outputs, as well as an SDK to facilitate successful integration.

As the world's largest commercial infrared camera supplier, FLIR delivers the quality and reliability that you demand at the quantities and pricing that you need.

Features	Benefits
<b>120 Electron Noise (typical)</b>	High sensitivity enables operation in low light
<b>&lt;1% Image Lag Frame-to-Frame</b>	Eliminates smear
<b>Low Power</b>	Smaller batteries and longer run times
<b>Compact Size and Lightweight</b>	Fits into a wide range of systems
<b>&gt;1,400 Hz Frame Rate (sub window)</b>	Works in specialized applications
<b>Affordable SWIR Solution</b>	Meet your cost targets in high volume products
<b>Digital and Analog Video Outputs</b>	Flexible integration
<b>Custom Engineering Services Available</b>	FLIR wants to be your SWIR technology partner



Detect Camouflage



See through many paints to visualize hidden details



Cut through haze for improved long range image quality



Passive night vision

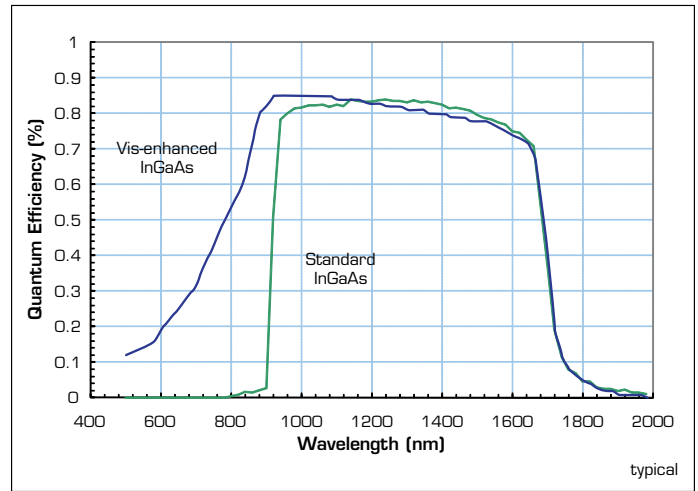
Contact FLIR at 719.598.6006 to speak with a lowlight imaging expert about your requirements.



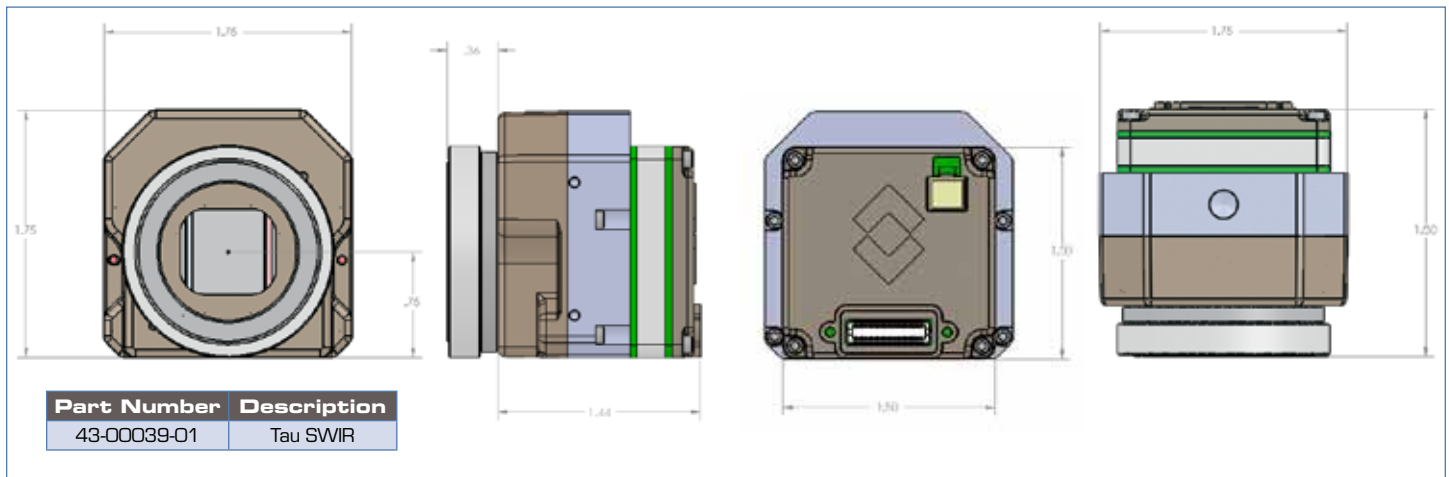
# Specifications

Camera	Tau SWIR
<b>Sensor Type</b>	InGaAs
<b>Resolution</b>	640 x 480 (analog); 640 x 512 (digital)
<b>Pixel Pitch</b>	25 microns
<b>Optical Fill Factor</b>	100%
<b>Spectral Response</b>	900 nm to 1700 nm or 700 nm to 1700 nm (see plot)
<b>Quantum Efficiency</b>	>80% from 1 to 1.6 $\mu$ m
<b>Noise Equivalent Irradiance</b>	< $7.2 \times 10^8$ photons/cm <sup>2</sup> -s @1550 nm (HG)*
<b>Noise (rms)</b>	120 electrons (HG) (typical); 400 electrons (LG)*
<b>Full Well</b>	75,000 (HG); 2,500,000 (LG)* electrons
<b>True Dynamic Range</b>	> 600:1 (HG) > 4000:1 (LG)*
<b>Operability</b>	> 99.5%
<b>Exposure Times</b>	4 $\mu$ s to 95% of frame time
<b>Image Correction</b>	2-point (offset and gain) pixel by pixel; user selectable
<b>Image Lag</b>	<1% image lag frame-to-frame
<b>Digital Output Format</b>	12/14 bit Camera Link or LVDS
<b>Analog Output</b>	NTSC Compliant
<b>Digital Output Frame Rate</b>	30 Hz (60 Hz optional)
<b>High Speed Sub Window Mode</b>	1,400 fps (64 x 64 window)
Mechanical/Environmental	
<b>Weight</b>	130 g with M24 lens mount
<b>Dimensions</b>	38 x 38 x 48.25 mm
<b>Lens Mount</b>	C-mount/M24/M42
<b>Operating Case Temperature</b>	-20°C to +55°C (-40°C to +71°C w/degraded performance)
<b>Storage Temperature</b>	-50°C to +85°C
<b>Humidity Non-Condensing</b>	95% non-condensing
Power Requirements	
<b>DC Voltage</b>	+12 VDC
<b>Typical Power @ Case Temp.</b>	1.5 W @ 20°C; <4 W @ 40°C

\*HG=High Gain  
LG=Low Gain



Applications
Night Vision
Emission Microscopy
Imaging Spectroscopy
Astronomy
Laser Beam Analysis
Hyper-Spectral Imaging
Range Phenomenology
Non-destructive Testing



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