



# Tau 2

## Longwave Infrared Thermal Imaging Cameras

### Key Features:

- Multiple models, including 640, 336 & 324
- Multiple lens options available: 7.5 – 100 mm
- Proven rugged, reliable thermal imaging for UAVs, UGVs & handheld devices

		<b>19 mm f/1.25</b>
Tau 640 (17 $\mu$ 640x512)	FoV iFoV	32° x 26° 0.895 mr
Tau 336 (17 $\mu$ 336x256)	FoV iFoV	17° x 13° 0.895 mr
Tau 324 (25 $\mu$ 324x256)	FoV iFoV	24° x 18° 1.316 mr
Min Focus Distance		15.3cm
Hyperfocal Distance		9.5m
Hyperfocal Depth of Field		4.8m
Lens Mount		
Length		19mm
Diameter		29mm
Weight		<70g

# Specifications

## SYSTEM OVERVIEW

<b>System Type</b>	Uncooled LWIR Thermal Imager
<b>Tau 2 640</b>	640 x 512 VDX Microbolometer
<b>Tau 2 336</b>	336 x 256 VDX Microbolometer
<b>Tau 2 324</b>	324 x 256 VDX Microbolometer
<b>Pixel Size</b>	17 µm (Tau 2 640, 336); 25 µm (Tau 2 324)
<b>Spectral Band</b>	7.5 - 13.5 µm
<b>Performance</b>	<50 mK @ f/1.0

## OUTPUTS

<b>Analog Video</b>	Field-switchable between NTSC and PAL
<b>Tau 2 640</b>	30 Hz (NTSC); 25 Hz (PAL); <9Hz option for export (factory set)
<b>Tau 2 336, 324</b>	30/60 Hz (NTSC); 25/50 Hz (PAL); <9Hz option for export (factory set)
<b>Digital Video</b>	8- or 14-bit serial LVDS; 8- or 14-bit customer selectable parallel CMOS; 8-bit BT.656

## OPERATION & CONTROL

<b>Image Control</b>	Invert, revert, continuous digital zoom, dynamic zoom & pan, 2x & 4x digital zoom (8x in Tau 2 640), polarity, false color or monochrome, Isotherms, AGC, digital detail enhancement (DDE), Image optimization (BPR, NUC & AGC'd video), settable splash screens
<b>Camera Control</b>	Serial commands, SDK & GUI, dynamic range switching
<b>Signal Interface</b>	Camera Link (Expansion Bus Accessory Module), discrete I/O controls available, RS-232 compatible (57,600 & 921,600 baud), external sync input/output, power reduction switch (removes analog video)
<b>FFC Duration</b>	<0.5 sec

## RADIOMETRIC FEATURES

<b>Isotherms</b>	See Product Spec
<b>Spot Meter</b>	Temperatures measured in central 4x4
<b>Advanced Radiometry</b>	Improved accuracy, moveable spot meter, re-sizeable spot meter, T-Linear (digital output), linear in scene temperature (OEM part number required, additional charge)

## PHYSICAL ATTRIBUTES

<b>Size</b>	1.75" x 1.75" x 1.18"
<b>Mounting Interface</b>	6 attach points in lens mount, M2 x 0.4 on 3 sides, 2 per side (sealable bulkhead mounting feature on lens barrel (M29 x 1.0), WFOV only)

## POWER

<b>Input Voltage</b>	4.0 - 8.0 VDC
<b>Primary Electrical Connector</b>	50-pin Hirose
<b>Power Dissipation</b>	~ 1.0 W (Tau 2 324 & 336); <1.2 W (Tau 2 640)
<b>Time to Image</b>	<5 seconds (Tau 2 640); <4 seconds (Tau 2 336 and 324)

## ENVIRONMENTAL

<b>Operating Temperature Range</b>	-40° C to +80° C external temp
<b>Storage Temperature Range</b>	-55° C to +95° C external temp
<b>Scene Temp Range</b>	High gain: -40°C to +160°; Low gain: -40°C to +550°
<b>Shock</b>	200 g shock pulse with 11 msec sawtooth
<b>Temperature Shock</b>	5°/min
<b>Vibration</b>	4.3 g 3 axes, 8 hours each
<b>Humidity</b>	5 - 95% non-condensing
<b>Operational Altitude</b>	+40,000 feet
<b>ROHS, REACH, and WEEE</b>	Compliant

# Capabilities

## TAU 2

Tau 2 640, 336 & 324

Standard lens options	4 WFOV, 5 NFOV
WFOV lenses sealed to IP-67 at front surface	•
Threaded WFOV lens barrel for bulkhead mounting or external attachment options	•
Lens-less configuration offered	•
Ability to calibrate a second lens and store the calibration data in the camera via Advanced GUI function	•
Supplemental FFC feature allows users to calibrate out lens effects to improve image quality	•
Field-switchable between NTSC and PAL	•
Analog, BT .656, 8 bit & 14 bit LVDS or CMOS output	•
Camera Link digital data accessory option	•
Accessories available for backward-compatibility with Photon cameras	•
Expansion board reference design for customers to develop custom interface electronics	•
High-speed serial communications up to 921K autobaud	•
Camera Control GUI	•
Camera power and communication over USB	•
Up to 500g shock tolerance	•
Eight discrete camera input functions available to OEMs (14-bit CMOS interface limits users to one discrete function)	•
Shutterless version available for OEM customers with volume constraints	•
Field-upgradeable software/firmware	•
Support for user-defined symbology	•
Relative temperature measurement	•
Provision to load custom start-up splash screens (10-camera minimum purchase required)	•
Optional SDK for access to Tau's complete feature set	•