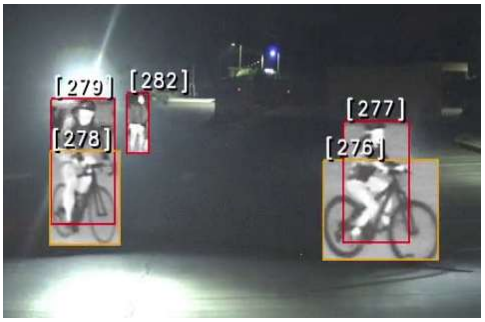
High Performance, Automotive-Qualified Thermal Camera

TURA™

Tura is the world's first Automotive Safety Integrity Level (ASIL) B longwave infrared (LWIR) thermal camera developed in compliance with ISO 26262 functional safety (FuSa) standards. Delivering high 640 × 512 resolution in a compact, fully enclosed IP6K9K-rated package, Tura is purpose-built for driver night vision systems and autonomous applications, including advanced driver assistance systems (ADAS) and self-driving vehicles. It extends perception far beyond headlights in complete darkness and through fog, smoke, sun glare, and headlight glare.

As the most sensitive far-infrared (FIR) vehicle thermal camera available, Tura enhances detection performance in life-saving applications such as pedestrian automatic emergency braking (AEB). Its shutterless design, AEC-Q qualified components, and integrated window heater ensure reliable operation 24/7/365 in all weather conditions. Integration is simplified with Teledyne FLIR OEM's training data and Prism™ perception software, trained with over 3 million annotations. Built by the global leader in thermal imaging, Tura delivers a high-performance, low supply risk, and cost-effective solution for vehicle platforms requiring ISO 26262 compliance.



IMPROVE PEDESTRIAN AUTOMATIC EMERGENCY BRAKING SYSTEMS

Passive thermal sensor detects and classifies pedestrians, animals, and roadway objects regardless of lighting conditions

- See through darkness, most fog, smoke, and sun and headlight glare
- Detect and classify vulnerable road users—day, night, or in poor weather
- State-of-the-art image signal pipeline optimized for AI processing with <1 ms video latency
- Active alignment ensures focus and performance across the entire field of view

DESIGNED IN ACCORDANCE WITH ASPICE AND ISO 26262 FOR ASIL-B FUSA APPLICATIONS

Most sensitive size, weight, and power (SWaP)-optimized 640 × 512-resolution automotive-qualified thermal camera

- Shutterless design maximizes reliability, uptime, power efficiency, and affordability
- IP6K9K enclosure with heated window ensures operation in all-weather conditions
- AEC-Q qualified components (including sensor) for maximum reliability

BUILT FOR INTEGRATORS BY THE WORLD LEADER IN THERMAL CAMERA PRODUCTION

Reduce cost and risk with a single, reliable supplier that has produced more than one million automotive-qualified thermal sensors

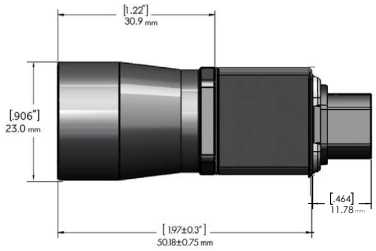
- GMSL or FPD-Link interfaces for flexible integration
- Dual-use classification under U.S. Department of Commerce jurisdiction ECCN 6A003.b.4.b or 6A993.a (authentication)
- Experienced technical services team supports integration
- Compatible with annotated training data and Prism perception software

For more information visit:
oem.flir.com/TURA

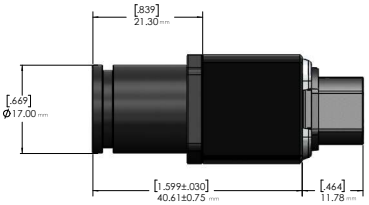
SPECIFICATIONS

IMAGING & OPTICAL	
Sensor Technology	Uncooled Microbolometer
Resolution	640 x 512
Pixel Pitch	12 µm
HFOV	24°, 42°, and 70°
Spectral Band	Longwave infrared; 8 µm – 14 µm
Sensitivity [NEdT]	40 mK After Filters Normalized ƒ/1 Clear Aperture @ 60 Hz
Frame Rate	Selectable 60 Hz, 30 Hz, 20 Hz, 15 Hz, 12 Hz, 10 Hz, or 8.6 Hz
Non-Uniformity Correction (NUC)	Per Pixel Factory Calibrated with Dynamic Shutterless Denoising
ELECTRICAL	
Input Voltage	6V - 15V Over Coax
Power Consumption	~1.5 W at 25 °C (77 °F) Ambient and ~2.3 W at 85 °C (185 °F) Ambient
Internal Heater Power Consumption	2 W Maximum (Deicing or Defogging)
Electromagnetic Compatibility (EMC)	ECE Regulation 10 CISPR 25 Class 4 Limits for Peak and Average (150 kHz to 108 MHz)
CONNECTIONS & COMMUNICATIONS	
Camera Interface	Mini FAKRA with GMSL2 using MAX96717 or with FPD-Link using DS90UB935-Q1
Control Channel	I2C over SERDES
Video Data Format	MIPI Over SERDES with 16-bit or 8-bit Streams Selectable
MECHANICAL	
Size (L x W x H)	24° HFOV: 62 mm x 34 mm x 22 mm, 42° HFOV: 53 mm x 34 mm x 20 mm, 70° HFOV: 52 mm x 34 mm x 20 mm
Weight	24° HFOV: 46.5 g, 42° HFOV: 23.2 g, 70° HFOV: 25.6 g
ENVIRONMENTAL & APPROVALS	
Environmental Protection	IP6K9K IP with Cable Mated
ISO Compliance	ISO26262 Requirements up to ASIL-B
Operating Temperature Range	-40 °C to 85 °C (-40 °F to 185 °F)
Non-Operating Temperature Range	-40 °C to 105 °C (-40 °F to 221 °F)
Shock	50 g, 11.0 ms Half-Sine Pulse, 6 Axes (+X, -X, +Y, -Y, +Z, -Z) per IEC60068-2-27
Solar Protection	Yes
EXPORT DESIGNATIONS	
Export Classification (ECCN)	6A993.a (with authentication feature) 6A003b.4.b (without authentication feature)

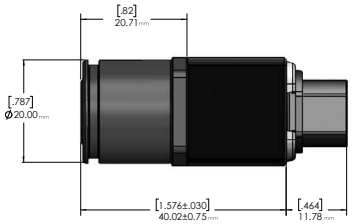
*Specifications subject to change without notice.



24° SIDE VIEW



42° SIDE VIEW



70° SIDE VIEW

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For more information visit:
oem.flir.com/TURA