300K 640x512 Uncooled Compact Thermal Camera Module

Key Properties

Detector: Uncooled VOx infrared, 640 × 512 pixels

Spectral Band: 8 ~ 14 µm

Thermal Sensitivity (NETD): ≤ 40 mK @ 25 °C

Frame Rate: 25 fps (640 × 512)

Data Interface: USB 2.0 (UVC), YUY2 / MJPEG output

Lens Mount: Varies by lens option

Fixed Focus Lens Options:

- 9 mm (default)
- 13 mm / 19 mm (optional)
- Custom focal lengths available on request

FL	9 mm	13 mm	19 mm
FOV (H)	46.2°	32.9°	22.9°
FOV (V)	37.7°	26.6°	18.4°

Application

Thermography & Temperature Analysis / Outdoor Night Vision & Perimeter Monitoring / Drone Security & Aerial Inspection / Bioenergy Detection for Agriculture & Forestry

Feature

- **Radiometric Capability:** Provides full-scene temperature analysis with reliable absolute temperature output.
- **Temperature Tools:** Supports hotspot / coldspot tracking and continuous center-point monitoring.
- **Image Performance:** Offers enhanced thermal clarity through intelligent gain control, detail fusion, and noise reduction algorithms.
- **Visualization Modes:** Includes multiple pseudo-color options for easier interpretation of thermal scenes.
- **Operational Stability:** Maintains consistent radiometric accuracy across diverse environments.
- **System Integration:** Designed for effortless embedding into industrial, UAV, and smart-device applications.
- **User Support:** Professional technical assistance and customization services available.

Introduction

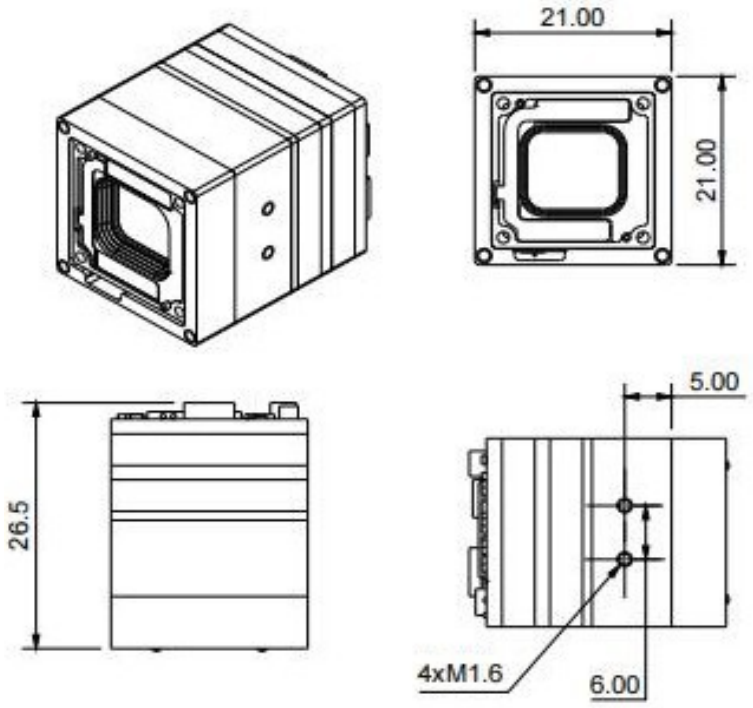
The TCM300K25URS is a compact radiometric thermal camera module designed for precise full-scene temperature measurement and reliable imaging in challenging environments. Featuring a 640×512 VOx detector and advanced processing—intelligent gain control, detail-fusion enhancement, and multi-stage noise reduction—it delivers clear, stable thermal output for professional applications. It supports multiple radiometric functions, including hotspot/coldspot detection and center-point monitoring. With its lightweight uncooled design and flexible integration options, the TCM300K25URS is ideal for drones, industrial monitoring, smart buildings, security systems, and automation platforms.

Specifications

Model	TCM300K25URS
Detector Parameter	
Sensor type	Uncooled VOx FPA Detector, ceramic package
Image Pixels & Resolution	640(W) x 512(H)
Pixel Size	12μm
Thermal Sensitivity (NETD)	≤40mK @ 25 °C
Spectral Band	8 ~ 14μm
Image Processing & Adjustment	
Image Processing	Non-uniformity correction (NUC), intelligent gain control, digital detail fusion enhancement, 3D noise reduction
Color Palette	Black Hot, White Hot, Iron Red, Rainbow, 10 in total (customizable)
Image Mirroring	X and Y directions mirroring
Frame Rate	25fps @640x512
Radiometric Accuracy	± 2°C or ± 2%
Temp. Functions	Maximum / minimum / center-point temperature display
Temp. Range (auto-switching)	-20°C to +150°C (high accuracy); -20°C to +550°C (wide range)
Power & Interafce	
Operating Voltage	DC 5 V
Power Consumption	0.8W
Port Interface	USB 2.0 (UVC)
Communcation Port Interface	8-PIN (UART)
Video Format	YUY2 (YUV422), MJPEG
Environmental Conditions	
Operating Temperature	- 30°C ~ + 60°C
Storage Temperature	- 45°C ~ + 75°C
Operating Humidity	≤90% RH
Physical Feature	
Dimensions (exclude lens)	21mm x 21mm x 26.5mm
Weight (exclude lens)	≤19.1g
Lens	
Lens Parameters	Default: FL9mm Optional: FL13 / FL19 mm
Lens Holder	Varies by lens option

Note:

Product images are for reference only. Specifications are subject to change without notice due to continuous product improvement. For the latest information, please contact us.

Dimensions

without FL