

# Turing L640

## Uncooled Infrared Thermal Module



• Pixel Pitch 12  $\mu\text{m}$  • Resolution 640  $\times$  512

### Product Introduction

The Turing L640 is an uncooled infrared thermal module specifically designed for applications where size and power consumption are critical. It features an extremely compact form factor, lighter weight, and lower power consumption. It supports serial communication, a variety of video output interfaces, and is available with multiple lightweight infrared lenses. The imaging models of this series provide a complete infrared imaging solution for a wide range of optoelectronic applications, including small handheld monoculars, helmet-mounted night vision devices, lightweight unmanned aerial vehicle (UAV) systems, and assisted driving. The thermographic models are applicable in fields such as industrial process monitoring, electrical inspection, security thermography and machine vision.

### Product Highlights



#### SWaP<sup>3</sup> Design

- 640  $\times$  512 resolution, 21 mm  $\times$  21 mm dimensions, and 8 g weight to meet the demands of lightweight applications



#### Excellent Performance

- Employs high-quality image processing algorithms to deliver rich detail, unaffected by smoke and darkness
- Temperature measurement range of -20°C to +650°C, equipped with a precise and fast thermographic algorithm for accuracy right from power-on



#### Versatile Options

- Field of View (FoV) coverage from 10° to 100°
- Supports MIPI, USB, BT.656, and analog video interfaces
- Equipped with a leading programmable module, featuring a flexible architecture, rich functionality, and strong customizability

## Product Parameters

### Specifications

Detector Type	VOx uncooled infrared focal plane detector
Spectral Range	8 μm - 14 μm
Pixel Pitch	12μm
Resolution	640×512
NETD	≤50 mK @ 25°C (≤40 mk optional)
Detector Frame Rate	50Hz (Imaging), 25Hz (Temperature measurement)

### Image Adjustment

Brightness / Contrast Adjustment	Manual mode / Automatic mode / Linear mode
Polarity	Black hot / White hot
Pseudocolor	Supported
Crosshair	Display / Hide / Move
Image Processing	Digital filtering noise reduction / Digital detail enhancement / Histogram stretching
Nonuniformity Correction	Shutter correction / Shutterless algorithm correction
Image Mirroring	Left/Right / Up/Down / Diagonal
Focusing Method	Athermalized prime lens

### Temperature Measurement

Temperature Measurement Range	High image quality: -20°C to +150°C, wide range: 0°C to +650°C
Temperature Measurement Accuracy (Typical value)	±3°C or ±3% of the reading (whichever is greater) @ ambient temperature -20°C to 60°C (±2°C optional)
Temperature Measurement Tools	Analysis tools: spot, line, area

### Electrical Parameters

Power Supply Voltage (Typical)	3.8 V to 5.2 V DC / 1.8 V / 3.3 V
Typical Power Consumption @ 25°C	≤0.4W
Analog Video	1-channel PAL format
Digital Video	BT.656/BT.1120/LVCMOS/MIPI/USB2.0
Serial Communication Interface	UART/RS232/USB/I2C (Optional)

### Physical Characteristics (Excluding Lens and Flange)

Dimensions (W×L×H)	21×21mm
Weight	8g

### Optional Lenses

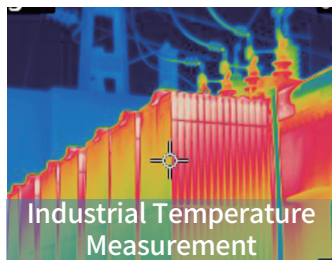
Lens (mm)	4.1/6.9/9.1/13/25/45
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### Environmental Adaptability

Operating Case Temperature	-40°C to +80°C (-20°C to 60°C Temperature measurement)
Storage Case Temperature	-45°C - +85°C
Humidity	5% to 95%, non-condensing
Vibration	6.06 g, random vibration, all axes
Shock	80 g @ 4 ms, sawtooth waveform, 3 axes / 6 directions

\*This information is for reference only. Images and technical specifications are subject to change without notice.

## Applications



## Company Profile

Raytron Microelectronics Co., Ltd. is a wholly-owned subsidiary of Raytron Technology Co., Ltd., providing global customers with infrared detectors, core modules, and industry solutions.

Our products are widely used in various fields, including infrared temperature measurement, night vision observation, machine vision, intelligent driving, Commercial Drone, smart industry, security monitoring, Internet of Things, medical epidemic prevention and gas detection.

With the mission of "to create incremental value for customers with technological advancements", we are committed to leaving a name in the history of constantly expanding human perception capabilities.



Official Website



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