# METRA-640-19UT

## Compact 640×512 Radiometric LWIR Module

## Overview

The Metra series packs a complete radiometric LWIR imaging chain into a 20×20mm cross-section core built for UAV pods, helmets and smart-equipment integration. The METRA-640-19UT pairs a 640×512/12μm VOx uncooled detector (≤40 mK NETD) with a 19 mm F1.0 lens (22.8°×18.4° FOV) and streams standard UVC video over USB 2.0 at 30 Hz. Dual-range radiometry covers -20~150℃ and 100~550℃ at ±2℃/±2% accuracy with full-screen per-pixel temperature output; measuring distance reaches 30 m for a 0.1×0.1m target. At ≤32 g and ≤0.7 W, it drops straight into size- and power-constrained devices.



| 640×512 | -20~550℃ | ±2℃ / ±2% | ≤32 g |
|---|---|---|---|
| RESOLUTION | MEASURING RANGE | ACCURACY | WEIGHT |

## Key Features

### Full-Field Radiometry

- Dual measuring ranges: -20℃~150℃ and 100℃~550℃, ±2℃ or ±2% of reading (whichever is greater)
- Full-screen per-pixel temperature data output for analytics and alarms
- 10 areas + 10 points + 1 line

### UVC Plug-and-Play over USB 2.0

- Standard UVC protocol — no driver development on the host side
- USB 2.0 via 25-pin FPC or 30-pin board-to-board connector (functionally identical)

### Compact, Low-Power Integration

- 37.04 × 20 × 20 mm body at ≤32 g, ≤0.7 W from a 5 V rail
- -40℃ ~ +70℃ operating range; M1.6 mounting points on the body

## Typical Applications



**UAV Pods & Gimbals**



**Smart Equipment Integration**



**Industrial Temperature Monitoring**

# Technical Specifications

## Thermal Imaging

| | |
|---|---|
| **Sensor Type** | Vanadium Oxide (VOx) uncooled microbolometer |
| **Resolution** | 640×512 |
| **Pixel Pitch** | 12 μm |
| **Spectral Band** | 8~14 μm |
| **NETD** | ≤40 mK (@25℃, F1.0) |
| **Spatial Resolution** | 0.6 mrad |
| **Frame Rate** | 30 Hz (configurable) |

## Optics

| | |
|---|---|
| **Focal Length** | 19 mm |
| **Field of View** | 22.8°(H) × 18.4°(V), 29.0°(D) |
| **F-number** | F1.0 |
| **Minimum Focus Distance** | 7 m |

## Radiometric Measurement

| | |
|---|---|
| **Measurement Rules** | 10 areas + 10 points + 1 line |
| **Data Output** | Full-screen temperature data output |
| **Measuring Range** | -20℃~150℃ and 100℃~550℃ |
| **Measuring Distance** | 30 m (0.1×0.1 m target) |
| **Accuracy** | ±2℃ or ±2% of reading (whichever is greater) |

## Image & Display

| | |
|---|---|
| **Display Resolution** | 640×512 |
| **Palettes** | 15 modes: white hot, black hot, fusion 1, rainbow, fusion 2, iron red 1/2, etc. |
| **Brightness / Contrast** | Supported |

## Interface & Electrical

| | |
|---|---|
| **Interface** | USB 2.0 (FPC) |
| **Protocol** | UVC |
| **Connector** | 25-pin FPC or 30-pin board-to-board |
| **Supply Voltage** | DC 5 V |
| **Power Consumption** | ≤0.7 W |

## Physical & Environmental

| | |
|---|---|
| **Dimensions** | 37.04 × 20 × 20 mm |
| **Weight** | ≤32 g |
| **Operating Temperature** | -40℃ ~ +70℃ (accurate measurement -20℃ ~ +60℃) |
| **Storage Temperature** | -45℃ ~ +75℃ |
| **Humidity** | <90% RH |
| **Vibration / Shock** | Sine 20 m/s², 3 axes / half-sine 30 g, 11 ms, 6 directions |

Specifications subject to change without notice.
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