METRA-640-9UT

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-640-9UT pairs a 640×512/12μm VOx uncooled detector (≤40 mK NETD) with a 9.1 mm F1.0 lens (48.3°×38.6° 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 15 m for a 0.1×0.1m target. At ≤22 g and ≤0.7 W, it drops straight into size- and power-constrained devices.



640×512	-20~550℃	±2℃ / ±2%	≤22 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

- 29.8 × 20 × 20 mm body at ≤22 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	1.2 mrad
Frame Rate	30 Hz (configurable)

Optics

Focal Length	9.1 mm
Field of View	48.3°(H) × 38.6°(V), 62.4°(D)
F-number	F1.0
Minimum Focus Distance	2 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	15 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	29.8 × 20 × 20 mm
Weight	≤22 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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