

SPECTRA L12T

1280×1024 Uncooled LWIR Module · 50 Hz · Shutterless

Overview

Spectra L12T is an uncooled infrared module with a 1280×1024 high-resolution VOx detector, the 2nd-generation in-house Asic-ISP image processor and fused shutterless algorithms, delivering fine, clear images at up to 50 Hz (30 Hz for thermometry). The module supports temperature measurement in a lightweight design — under 26 g excl. lens, ≤29×29 mm, typical USB output power under 1.3 W — for easy customer integration. Preloaded with diverse image modes for complex environments, it is widely used in UAV search missions, outdoor integration, mobile handheld devices, security monitoring systems, wildfire monitoring and driving assistance.



1280×1024

RESOLUTION



12 μm

PIXEL PITCH



≤40 mK

NETD



≤29×29 mm

DIMENSIONS

Key Features

50 Hz High Refresh Rate

- 50 Hz imaging (30 Hz thermometry) for smooth pictures
- Shutterless algorithm for fine, clean images

In-House ISP · Light and Low Power

- 2nd-gen in-house Asic-ISP processor with high performance and low power
- Under 26 g excl. lens, ≤29×29 mm, typical USB output power under 1.3 W

Thermometry + Rich Interfaces

- Thermometry from −20°C–+150°C (high image quality) and 50°C–+600°C (extended range)
- DVP / BT1120 / MIPI / USB 3.0 digital video interfaces

Typical Applications



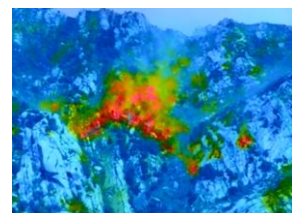
UAV Search Missions



Outdoor Integration



Mobile Handheld Devices



Wildfire Monitoring



Technical Specifications

Detector Performance

Detector Type	VOx uncooled infrared focal plane detector
Resolution	1280×1024
Pixel Pitch	12μm
Spectral Band	8~14μm
Detector Frame Rate	50 Hz imaging (30 Hz thermometry)
Typical NETD	≤40mK@25°C, F#1.0, 25Hz
Thermal Time Constant	<12ms

Image Adjustments

NUC	Shutter / Shutterless correction
Brightness / Contrast	0–100 levels
Polarity / Palettes	White-hot / black-hot / multiple pseudo-color
Digital Zoom	1.0–8.0× continuous (step 0.1)
Image Mirror	Top-bottom / left-right / diagonal
Other Functions	External sync, contour overlay

Lens Options (Fixed, Choose One)

19 mm F1.0 fixed	FOV 44.2°×35.7° · IFOV 0.63 mrad Focus 7.52 m–∞ · DRI 2100/530/260 m · Weight (lens + flange) 39 g±1g
35 mm F1.0 fixed	FOV 25.2°×20.1° · IFOV 0.34 mrad Focus 25.04 m–∞ · DRI 3900/970/490 m · Weight (lens + flange) 125 g±1g
55 mm F1.1 fixed	FOV 15.55°×12.49° · IFOV 0.22 mrad Focus 63 m–∞ · DRI 6100/1500/760 m · Weight (lens + flange) 136 g±1g

D/R/I: detection / recognition / identification range (m) for a walking person (1.8 × 0.5 × 0.3 m) per Johnson criteria; lens-optional configurations supported.

Electrical

Digital Video	DVP/BT1120/MIPI/USB3.0
Communication Interface	UART/I2C
Power Input	5V
Typical USB Power @25°C	<1.3W

Physical

Weight (excl. Lens)	<26g
Dimensions (excl. Lens)	≤29×29 mm

Thermometry

Measurement Range	High image quality: –20°C–+150°C; extended range: 50°C–+600°C
Measurement Accuracy	Target –20°C–+150°C: ±2°C or ±2% of reading (greater, @ –20–60°C ambient); target 50°C–+600°C: ±5°C or ±3% of reading (greater, @ –20–60°C ambient)

Environmental

Operating Temp.	Imaging –40°C–+80°C; thermometry –20°C–+60°C
Storage Temp.	–50°C ~ +85°C
Humidity	5%–95%, non-condensing
Vibration	6.06 g random vibration, all axes
Shock	80 g @ 4 ms sawtooth, 3 axes 6 directions

Specifications subject to change without notice.

Rev. 1.0 · September 2026