FLUX-640

640×512 Shutterless LWIR Thermal Core

Overview

The FLUX-640 is a 640×512 / 12 µm wafer-level-packaged (WLP) VOx uncooled LWIR core built around scene-based SFFC shutterless flat-field correction — no freeze-frame, no click, no moving parts, no lost picture. With NETD ≤20 mK, 50 Hz output and ≤0.8 W power draw, it delivers a complete sighting-ready feature set (reticles, picture-in-picture, hot-spot tracking, zeroing), drives Micro-OLED viewfinders directly, and outputs DVP / BT.656 / BT.1120 / USB 2.0 / MIPI-DSI video over a single 50-pin connector, with USB UVC+CDC and SDI / HDMI / GigE / Camera Link extension boards.



640×512	≤20 mK	Shutterless	≤0.8 W
RESOLUTION	NETD	SFFC CORRECTION	POWER DRAW

Key Features

Shutterless SFFC Correction

- Scene-based flat-field correction — no mechanical shutter, no freeze-frame, no audible click
- Continuous, uninterrupted observation: the picture never pauses for calibration

Complete Imaging Pipeline

- NUC / DRC / DNS / DDE + SFFC algorithms, plus super-resolution for finer detail
- 10 palettes: White Hot / Lava / Iron Red / Hot Iron / Medical / Arctic / Rainbow 1 / Rainbow 2 / Red Trace / Black Hot

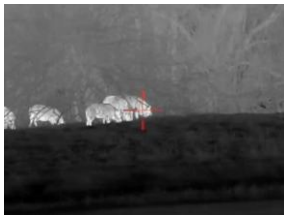
Sighting-Ready Feature Set

- 10 reticle styles × 10 brightness levels × 5 colors (red/blue/yellow/black/white), parameters saved
- Picture-in-picture (top-left / top-center / top-right) with reticle inside PiP

Typical Applications



Security Monitoring



Outdoor Night Vision



Industrial Inspection



Machine Vision

Technical Specifications

Thermal Imaging

Sensor Type	Vanadium oxide (VOx) uncooled microbolometer, wafer-level package (WLP)
Resolution	640×512
Pixel Pitch	12 μm
Spectral Band	8~14 μm
NETD	≤20 mK (@25℃, F1.0)
Frame Rate	50 Hz
Start-up Time	≤6 s

Shutterless Imaging Pipeline

Correction	Shutterless — scene-based SFFC, no mechanical shutter required
Image Algorithms	NUC / DRC / DNS / DDE / SFFC
Super-resolution	Supported
Digital Video Formats	YUV420 / YUV422 / RGB888 / RAW
Palettes	10 palettes: White Hot / Lava / Iron Red / Hot Iron / Medical / Arctic / Rainbow 1 / Rainbow 2 / Red Trace / Black Hot
E-zoom	×1 / ×2 / ×4 / ×8, centered on reticle
Mirror / Flip	Horizontal / vertical / diagonal
Brightness / Contrast	Auto / manual
Compensation Mode	Manual

Sighting & OSD Functions

Reticles	10 styles × 10 brightness levels × 5 colors (red / blue / yellow / black / white), savable
Picture-in-Picture	Top-left / top-center / top-right, reticle inside PiP
Hot-spot Tracking	Supported
Zeroing / One-key Restore	Supported
Buttons	≥4 buttons (power / menu / custom)
Menu	Custom design, CN/EN languages
Sleep Mode	Supported

Interfaces & Display

Connector	50-pin (BP040SB-50-0114-B-R0)
Recommended Mating Connector	BS040SB-50-0390-B-R0
Communication	TTL-232 / USB 2.0
Digital Video	DVP8 / BT.656 / DVP16 / BT.1120 / USB 2.0 / MIPI-DSI 4-lane
USB Video / Control	UVC video + CDC control
Extension Boards	USB 2.0 / SDI / HDMI / GigE / Camera Link / VPC / MIPI-CSI 2-lane / AHD / GMSL
OLED Drive	I2C, 16/24-bit parallel, datavalid — direct drive for MicroOLED MDP03/MDP02, SVGA060, Sony ECX334A; MIPI drive for IBOE VX039FHP-NH4
Host Software / SDK	Windows host tool; USB 2.0 SDK for Windows & Linux

Power, Physical & Environmental

Supply Voltage	DC 2.7 ~ 5.3 V
Power Consumption	≤0.8 W (@5 V, 50 Hz, 23±3℃)
Optional-shutter Transient Power	≤2.2 W for <1 s
Dimensions (bare core)	25.4 × 25.4 × 22.7 mm
Dimensions (lensed config)	≤φ36 × 24.3 mm
Weight (bare core)	≤26 g ± 1.5 g
Weight (lensed config)	≤28 g ± 1.5 g
Operating Temperature	-40℃ ~ +70℃
Storage Temperature	-45℃ ~ +85℃
Humidity	5% ~ 95% RH (non-condensing)
Vibration	5.35 g random, 3-axis
Shock	Half-sine 40 g / 11 ms (3 axes / 6 directions); 1500 g @ 0.4 ms (without lens)
Ingress Protection	IP67 (front lens)
Shutter Module	Optional
Certifications	RoHS 2.0 / REACH

Specifications subject to change without notice.
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