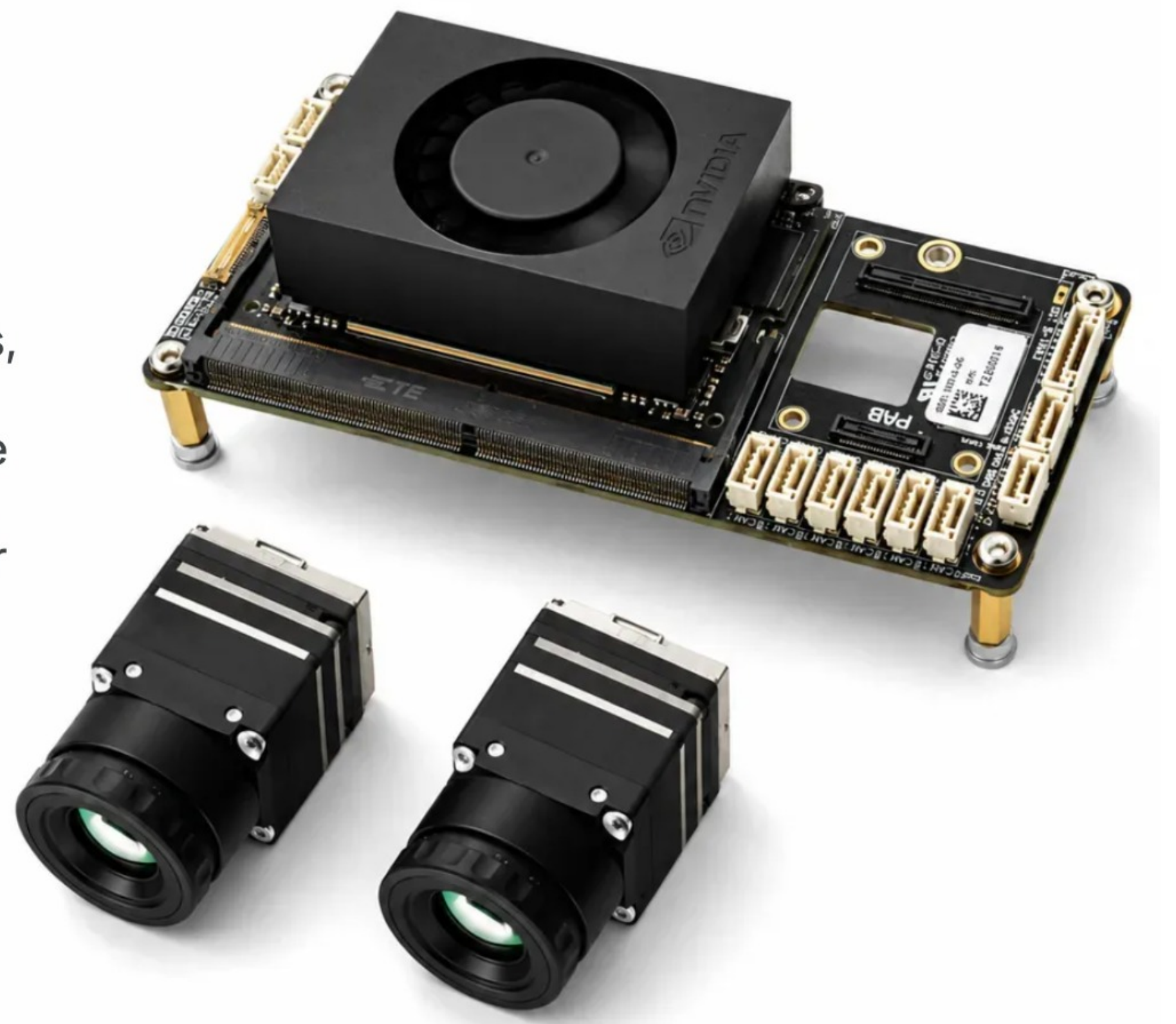


TECHNICAL DATASHEET

BLADE

Vision & Thermal AI for Autonomous System

BLADE is a complete, flight-ready thermal AI system for drones, machines and humanoids. It pairs the smallest Jetson drone carrier board — with an NVIDIA Jetson Orin NX module and the REBOTNIX RB Thermal CSI camera, delivered pre-flashed with JetPack 6.2 and the REBOTNIX software stack. Mount it, power it from 12–24 V, and enhanced thermal video streams to the network.



121 × 50 mm

Smallest Jetson drone carrier board — 20 mm height incl. heat spreader

47.2 g

Carrier board weight — built for weight-critical airframes

640 × 512 @ 30 Hz or 60 Hz

RB Thermal resolution and frame rate, 8–14 μm

System components

Carrier board

Full flight-stack I/O: GbE switch, CAN, UART, PWM, PAB.

Compute

NVIDIA Jetson Orin NX 16 GB (default) or 8 GB — super mode support, NVMe SSD.

Thermal camera

RB Thermal CSI: 640 × 512 VOx detector, 8–14 μm, 30/60 Hz, 9 mm lens (46.2°).

Software

JetPack 6.2 pre-flashed plus rbcam (camera control) and rbvision (streaming).

Applications

UAVs

Detect. Inspect. Protect.

Humanoids

Navigate. Detect. Act.

Machines

Monitor. Predict. Prevent.

Delivered flashed and tested — connect 12–24 V power and a network cable and the thermal stream is live. Order at store.rebotnix.com/products/blade.

TECHNICAL DATASHEET · SPECIFICATIONS

Specifications

Blade Board Specification

Interface	Specification
Module	NVIDIA Jetson Orin NX 8/16 GB or Orin Nano — super mode support
Camera inputs	2× CSI-2 (4-lane, micro-coax) · 2× USB 2.0 (micro-coax, thermal)
Networking	5-port GbE switch — 3× external Gigabit Ethernet
Serial	3× UART (2× user + debug) · internal flight-controller UART · I2C
CAN / PWM	1× CAN (optional internal termination) · 8× PWM channels
Autopilot	PAB — Pixhawk Auto Pilot Bus slot
Storage	M.2 Key M 2230 — NVMe SSD
Expansion	M.2 Key E 2230 (Wi-Fi, USB 2.0 + PCIe x1) · M.2 Key B (LTE/5G)
Security	ATSHA204A crypto chip
Cooling	FAN connector — 4-pin PicoBlade with PWM and tachometer
Power	12–24 V DC — reverse-voltage protection, inrush current limitation
Dimensions	121 × 50 mm · 20 mm height incl. heat spreader · 47.2 g

RB Thermal camera (CSI)

Parameter	Value
Detector	Uncooled VOx microbolometer, 640 × 512
Spectral range	8–14 μm (LWIR)
Frame rate	30 Hz / 60 Hz
Lens	9 mm — 46.2° field of view
Range (person)	Detection 900 m · recognition 225 m · identification 113 m
Operating temperature	–20 °C to +60 °C
Weight	≈ 23 g (board only)

BLADE ships with one or two RB Thermal cameras on the CSI-2 interface.

TECHNICAL DATASHEET · SOFTWARE & ORDERING

Software & Ordering

Pre-flashed software stack

Every BLADE ships flashed and tested: JetPack 6.2 on the Jetson Orin NX, plus the REBOTNIX tools that own the thermal pipeline end to end. The software stack is a long life term.

rbcam — camera control

Configures the RB Thermal camera directly over I2C: color palettes, scene modes, DDE detail enhancement and the full sensor parameter set. Documented in the BLADE — RB-CAM technical manual.

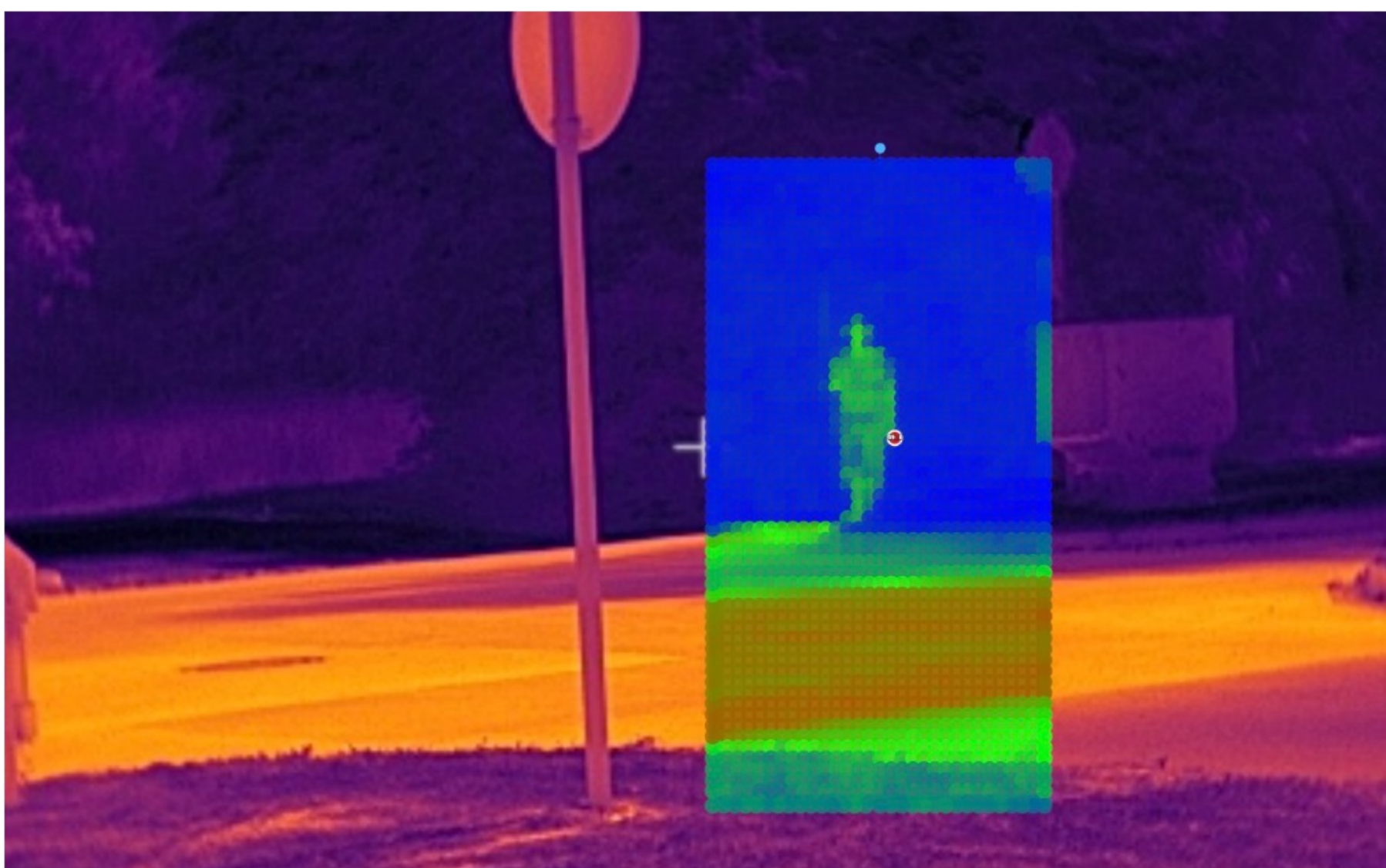
rbvision — processing & streaming

Owens the video device: PVA-accelerated denoise & sharpen (GPU stays free), hardware H.264/H.265 encode, TCP/SRT/pipe outputs for up to 8 simultaneous clients — zero external dependencies. Documented in the RB-VISION technical manual.

Thermal AI in the field



Industrial monitoring — radiometric overlays



Person detection — thermal AI at night

Ordering

Item	Detail
Base system	JNX120X carrier + Jetson Orin NX 16 GB + RB Thermal CSI camera, flashed & tested
Module options	Jetson Orin NX 8 GB or 16 GB
Storage options	128 GB / 256 GB / 1 TB NVMe M.2 2280 SSD
Availability	In production

LEGAL NOTICE

Disclaimer

1. General

The information in this datasheet is provided “as is” and is believed to be accurate at the time of publication. Specifications, features, pricing and availability of the hardware and software described here may change without notice. REBOTNIX GmbH assumes no liability for errors or omissions in this document, nor for any damage resulting from the use of the information contained herein.

2. Intended use

BLADE is a compute and sensing system intended for professional integration into drones, machines and robotic platforms. It is NOT designed, tested or approved for use in safety-critical applications, life-support systems, medical diagnosis, fire detection or any application where a failure could cause personal injury or loss of life. Temperature readouts are estimated and uncalibrated — the system is not a certified measuring instrument. The operation of unmanned aircraft is subject to national and international aviation regulations; compliance, airworthiness of the overall aircraft and safe operation are the sole responsibility of the integrator and operator.

3. Warranty & liability

To the maximum extent permitted by applicable law, REBOTNIX GmbH disclaims all warranties, express or implied, including implied warranties of merchantability and fitness for a particular purpose. In no event shall REBOTNIX GmbH be liable for any indirect, incidental, special or consequential damages arising out of the use of, or the inability to use, the product — even if advised of the possibility of such damages.

4. Software & licensing

The pre-installed software (NVIDIA JetPack, rbcam, rbvision) is protected by copyright and licensed, not sold. Operation of the REBOTNIX tools requires a valid REBOTNIX license token bound to the camera serial number. Reverse engineering, decompilation, unauthorized redistribution or circumvention of the license mechanism is prohibited.

5. Trademarks

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