NODE-640

640×512 Network (IP) LWIR Thermal Core

Overview

The NODE-640 is a network thermal core for PTZ domes, bullet cameras, UAV pods and shipboard systems: a 640×512/12 µm VOx detector (<35 mK NETD, 50 Hz) streams triple-codec H.265/H.264/MJPEG over RJ45 100M Ethernet with ONVIF / SDK / ISAPI for direct VMS integration. Motorized-lens drive, RS-485 PELCO-D control (255 presets), RS-232 passthrough, CVBS output and hardware alarm I/O cover the full surveillance integration surface, with sub-0.2 s gray-scale alarms and temperature-assist measurement.



640×512	<35 mK	H.265 · ONVIF	≤129 g
RESOLUTION	NETD	IP STREAMING	WEIGHT (W/O LENS)

Key Features

Native IP Video

- RJ45 100M Ethernet with full TCP/IP stack — RTSP streaming, web access, NTP/DDNS/SNMP and more
- Triple codec H.265 / H.264 / MJPEG at full 50 Hz frame rate

Motorized Lens & PTZ Control

- Manual, one-key and timed autofocus — focus time under 5 s; manual zoom
- 12-pin + 14-pin motorized lens interfaces (12 V±20% drive, potentiometer and magnetic-encoder lenses)

Radiometry & Fast Alarms

- Gray-scale detection with adjustable threshold; alarm response under 0.2 s via protocol upload or IO
- Temperature-assist measurement with 15/25/35/50 mm lenses: -40℃ ~ ambient+70℃, Max (±8℃, ±8%), 1~25 m

Typical Applications



Border & Coastal Surveillance



UAV Pods & Gimbals



OEM Camera Integration

Technical Specifications

Thermal Imaging

Sensor Type	Vanadium oxide (VOx) uncooled microbolometer, ceramic package
Resolution	640×512
Pixel Pitch	12 μm
Spectral Band	8~14 μm
NETD	<35 mK (@25℃, F1.0)
Frame Rate	50 Hz

Image & Display

Non-uniformity Correction	Auto (timed / temperature-difference), manual, background correction
Noise Reduction	3D DNR
Image Enhancement	Detail enhancement + target detail enhancement
Palettes	15 palettes: white hot, black hot, fusion 1, rainbow, fusion 2, iron red 1/2, sepia, color 1/2, ice fire, rain, red hot, green-blue, dark blue
E-zoom	×1 / ×2 / ×4 / ×8
AGC / Brightness / Contrast	Supported
Bad-pixel Correction / Mirror	Supported
Snapshot / Recording	Supported
Crosshair Calibration / Shield Regions	Supported
Analog Video Output	CVBS

Lens & Focus Control

Lens Mount	M34×0.75 (preinstalled) / M45×1 (adapter included)
Athermalized Lens Options	5.2 mm, 7.9 mm, 10 mm, 15 mm, 25 mm, 35 mm, 50 mm, 75 mm, 100 mm
Motorized Lens Options	75 mm, 100 mm, 150 mm, 25-75 mm, 20-150 mm
Focus Modes	Manual / one-key (assisted) / timed autofocus
Focus Time	<5 s
Zoom	Manual zoom
Motorized Lens Interface	12-pin + 14-pin headers, 12 V±20% drive, potentiometer feedback 200 Ω~5 kΩ

PTZ, Serial & Alarm I/O

PTZ Control	RS-485 with PELCO-D protocol, 255 presets
RS-232 Modes	Transparent transmission / console / custom (AFD)
Serial Passthrough	RS-232 / RS-485 passthrough supported
Alarm I/O	1× alarm input + 1× alarm output (3.3 V, 10-pin header)
Gray-scale Alarm	Protocol upload / IO alarm, settable threshold, response <0.2 s

Radiometric Functions

Measurement Type	Gray-scale detection temperature-assist measurement
Supported Lenses	15 mm / 25 mm / 35 mm / 50 mm
Measuring Range	-40℃ ~ ambient +70℃ (with 25 mm lens)
Accuracy	Max (±8℃, ±8%)
Measuring Distance	1~25 m
Operating Ambient (radiometry)	-20℃ ~ +50℃
Temperature Units	℃ / ℉ / K

Power, Physical & Environmental

Supply Voltage	DC 12 V (DC 4.5~14 V)
Power Consumption	≤2.9 W (focus/zoom off)
Overvoltage Protection	Supported
Dimensions	40 × 41 × 65 mm
Weight	≤129 g (without lens)
Operating Temperature	-40℃ ~ +70℃
Storage Temperature	-45℃ ~ +85℃
Humidity	<90% RH
Vibration	Random 6.6 grms
Shock	30 g, 11 ms
Shutter Durability	300,000 cycles

Network & Integration

Network Interface	RJ45 10/100M Ethernet
Video Compression	H.265 / H.264 / MJPEG
Network Protocols	IPv4/IPv6, HTTP, HTTPS, 802.1x, QoS, UPnP, SNMP, DNS, DDNS, NTP, RTSP, RTCP, RTP, TCP, UDP, IGMP, ICMP, DHCP, PPPoE, Bonjour
API	Open API for software integration — ONVIF, SDK and third-party platform access
System Backup	Dual backup — data survives power loss

Specifications subject to change without notice.
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