NODE-1280

1280×1024 Network (IP) LWIR Thermal Module

Overview

NODE-1280 pairs a 1280×1024/12μm VOx uncooled core (NETD ≤30 mK at F1.0) with a network interface tail board, turning a high-resolution long-focus module into a native IP device. One channel of Ethernet RTSP video (10/100/1000M adaptive, H.264/H.265/MJPEG, ONVIF and GB28181) feeds video platforms directly, while RS-485 Modbus RTU connects industrial control systems at the same time — a fit for long-range surveillance, perimeter protection, fire detection and target observation. Three fixed athermalized lens configurations (25/35/50 mm F1.0) cover FOVs from 34.2° × 27.6° down to 17.5° × 14.0°.



1280×1024	≤30 mK	GigE · RTSP	<4 W
RESOLUTION	NETD	IP STREAMING	POWER (DC 9–24 V)

Key Features

Native IP Video over Gigabit Ethernet

- 1-channel Ethernet RTSP streaming via the network interface board, 10/100/1000M adaptive
- Main stream 1280×1024 or 1024×768; sub stream 1024×768 / 640×512 / 320×256
- H.264 / H.265 / MJPEG encoding; TCP/IP, UDP, HTTP, RTSP, DHCP, DNS, ONVIF and GB28181

RS-485 Modbus RTU for Industrial Control

- RS-485 A/B broken out on the network interface board, running Modbus RTU
- Baud rate, data/parity/stop bits and slave address defined per project protocol file
- Register map with function codes, data types and scaling frozen per project before integration

High-Resolution Long-Focus Imaging

- 1280×1024 / 12μm VOx uncooled FPA, 8–14 μm, NETD ≤30 mK (F1.0, 25℃)
- 25/50 Hz frame-rate variants (per delivery firmware); start-up ≤8 s
- NUC / 3DNR / DNS / DRC / EE image pipeline; 10 palettes (white hot, black hot, lava, iron red, medical, polar, rainbow and more)

Typical Applications



Border & Perimeter Surveillance



Fire Detection



OEM Camera Integration

Technical Specifications

Thermal Imaging

Sensor Type	Vanadium oxide (VOx) uncooled focal plane array
Resolution	1280 × 1024
Pixel Pitch	12 µm
Spectral Band	8–14 µm
NETD	≤30 mK (F1.0, 25℃)
Frame Rate	25 Hz / 50 Hz (per delivery firmware)
Video Format	YUV
Start-up Time	≤8 s

Image Processing

Image Pipeline	NUC / 3DNR / DNS / DRC / EE (non-uniformity correction, noise reduction, dynamic range and edge enhancement)
Palettes	10 palettes — white hot, black hot, lava, iron red, medical, polar, rainbow and more

Network Video

Network Video Output	1-channel Ethernet RTSP (via network interface board)
Ethernet	10/100/1000M adaptive
Main Stream	1280×1024 or 1024×768 (per delivery firmware)
Sub Stream	1024×768 / 640×512 / 320×256 (per delivery firmware)
Video Compression	H.264 / H.265 / MJPEG
Protocols	TCP/IP, UDP, HTTP, RTSP, DHCP, DNS, ONVIF, GB28181
Access Parameters	RTSP URL, port, authentication and transport mode provided with the delivery firmware package

Serial & I/O (Network Interface Board)

RS-485	RS485 A/B, Modbus RTU; parameters and register map per project protocol file
UART	1× 3.3 V UART (J5)
Alarm I/O	2× alarm input + 1× alarm output (J4)
Audio	MIC input, line out, speaker driver (J4 / J6)
Analog Video	CVBS output (J4)
USB	USB 2.0 device (J2)

Optics & Structure

Lens Type	Fixed, athermalized; 25 / 35 / 50 mm F1.0 configurations
Field of View (50 mm)	17.5° × 14.0° (H × V)
Front Element Coating	HD coating
Lens Front Protection	IP67
Lens Max Diameter	Ø55 mm
Module End Face	44.5 × 44.5 mm
Inner Body Cross-section	38 × 38 mm
Total Length (50 mm config)	93.4 mm
Mounting	4× M2, 2.5 mm deep, symmetric; 30 mm vertical hole spacing

Power, Environmental & Compliance

Supply Voltage	DC 12 V nominal; 9–24 V input range
Power Consumption	<4 W typical
Operating Temperature	-40℃ ~ +70℃
Storage Temperature	-45℃ ~ +85℃
Humidity	5%–95% RH, non-condensing
Shock	Half-sine 30 g / 11 ms, six directions
Vibration	10–150–10 Hz, 0.15 mm peak; 8 min per axis, 2 cycles
Compliance	RoHS 2.0 / REACH

Connectors (A1251AWV, 1.25 mm)

J1 — Power (4-pin)	Pin 1/2 = 12 V (9–24 V input), Pin 3/4 = GND
J2 — USB (4-pin)	Pin 1 = VBUS 5 V, Pin 2 = GND, Pin 3 = D−, Pin 4 = D+
J3 — Gigabit Ethernet (8-pin)	EPHY_MX0± / MX1± / MX2± / MX3± differential pairs
J4 — Audio / CVBS / RS-485 / Alarm (12-pin)	MIC±, LINE_OUT, DGND, VIDEO_CVBS, RS485_A/B, 2× EXT_ALARM_INPUT, ALARM_OUT±
J5 — 3.3 V UART (3-pin)	UART3_RX_3V3, UART3_TX_3V3, DGND
J6 — Speaker (2-pin)	Speaker−, Speaker+

Specifications subject to change without notice.
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