

CamThink

NeoEyes

NE302

Compact AI Vision Node

1080p video and 4 MP still capture on STM32N6.
Local INT8 inference for indoor powered devices.



Think Beyond Vision

Build Vision AI Faster

0.6 TOPS

INT8 Neural-ART acceleration

4 MP

still capture; 1080p video stream

Compact AI Vision Node

NE302 is an STM32N6-based vision node for developers, OEM teams and system integrators. It integrates 1080p video, 4 MP still capture and local INT8 inference, with a Web console for configuration and model validation.

01 Local AI Compute

An 800 MHz Cortex-M55 and 1 GHz Neural-ART accelerator provide up to 0.6 TOPS INT8 on the STM32N6 platform.

02 1080p Video and 4 MP Capture

Stream H.264 video up to 1920 x 1080 @ 30 fps and capture still images up to 4 MP with JPEG hardware encoding.

03 Open Development Path

Validate the application on the complete device, then integrate the 38 x 38 mm Main Board with DC power for product engineering.

04 Compact Hardware

The 42 x 42 x 20 mm enclosure supports magnetic or 3M adhesive mounting. The 38 x 38 mm PCBA supports board-level integration.



Self-service Terminals

Detect approaching users, read terminal operating states, and decode barcodes and QR codes.



Access and Entry Terminals

Detect people at the gate, track passage events, and drive pose-based interactions.



Desktop and Workstation Terminals

Count objects, recognize workstation states, and read meter displays and equipment panels.

0.6
TOPS

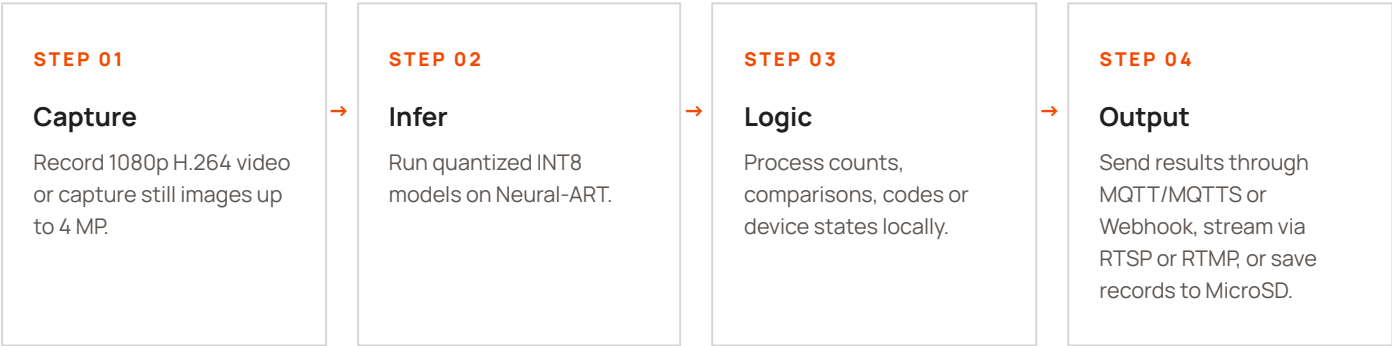
Neural-ART acceleration for INT8
workloads on the STM32N6 platform.

Local Vision Processing

With USB Type-C (5 V) power, NE302 runs capture, INT8 inference and result output on the device. A dedicated STM32U0 always-on domain handles low-power sleep and wake-up from an Alarm I/O trigger, MQTT remote command or schedule.

Processing pipeline

CAPTURE → OUTPUT



Detection and Classification

Build object-detection and image-classification workflows with NE302-compatible INT8 model packages.

People Analytics

Develop person and head detection, counting, dwell-time analysis and pose estimation for indoor devices.

Codes and Panels

Add barcode and QR code reading, meter-display and equipment-state recognition for fixed indoor installations.

Custom INT8 Models

Prepare NE302 model packages from quantized INT8 models through the BYOM packaging flow.

MODEL ASSETS

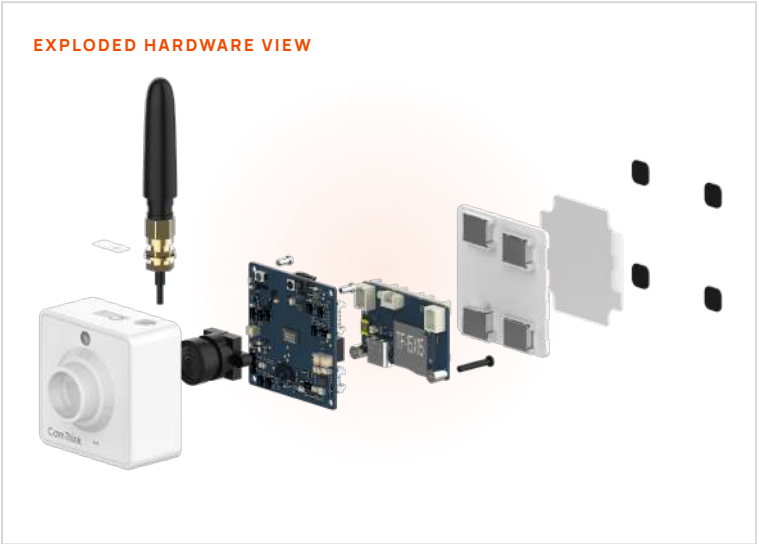
NE302 model packages, JSON configuration, pre-processing steps and post-processing logic prepared for STM32N6.

RESULT INTERFACE

Structured results can be sent over MQTT/MQTTS or Webhook, with selected records saved to MicroSD for host or cloud integration.

BOARD INTEGRATION

Validate on the complete device, then integrate the 38 x 38 mm Main Board with DC power into host equipment.



Integrated Hardware Platform

The 38 x 38 mm Main Board integrates STM32N657 compute, 4 MP image input, 1080p H.264 video, JPEG still capture, white LED illumination and the selected wireless SKU. The Interface Board provides USB Type-C 5 V power, MicroSD storage, debug/flash access and service interfaces within a 42 x 42 x 20 mm enclosure.

STM32N657	32 MB	64 MB
Cortex-M55 @ 800 MHz	External PSRAM	SPI Flash

COMPUTE

STM32N6 AI MCU

STM32N657 Cortex-M55 @ 800 MHz, Arm Helium and 1 GHz Neural-ART; up to 0.6 TOPS INT8.

IMAGING

1080p Video + 4 MP Capture

4 MP CMOS input; H.264 video up to 1920 x 1080 @ 30 fps; JPEG still capture.

WIRELESS

Wi-Fi 6 or Wi-Fi HaLow

Wi-Fi 6 SKU: 2.4 GHz 802.11ax + BLE 5.3.
Wi-Fi HaLow SKU: Sub-GHz 868/915 MHz with matching antenna.

STORAGE AND CONTROLS

MicroSD + Remote Control

MicroSD storage, Trigger / Reset buttons, dual-color indicators, Alarm I/O trigger, low-power mode and MQTT/MQTTS remote control.

Power Input

Complete device: USB Type-C 5 V continuous or compatible battery-pack input; Main Board integration: DC input per delivery record.

Optics

M12 lens interface; HFOV 88° / 137° lens options.

Mounting

Standard enclosure: rear magnetic pads or 3M adhesive mounting for indoor installations.

Technical Specifications

STM32N6 | 0.6 TOPS INT8 | 1080P30 VIDEO | 4 MP CAPTURE | WI-FI 6 / HALOW | 64 MB SPI FLASH

Core Platform

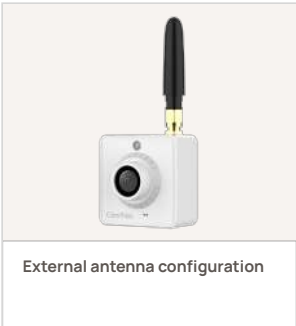
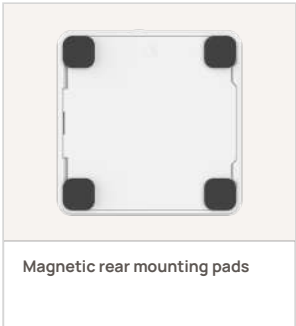
Primary MCU	STM32N657L0H3; Cortex-M55 @ 800 MHz; Arm Helium
AI Accelerator	Neural-ART @ 1 GHz; up to 0.6 TOPS INT8
Memory	4.2 MB on-chip SRAM / NPU RAM; 32 MB external PSRAM
Flash	64 MB SPI Flash

Imaging and Sensing

Image Sensor	OS04C10-A43A, 4 MP CMOS
Video Stream	H.264, up to 1920 x 1080 @ 30 fps
Still Capture	Up to 4 MP; JPEG hardware encoding
Lens Mount	M12 lens interface; HFOV 88° / 137° options
Illumination	Onboard white LED

Wireless, Interfaces and Power

Wireless	Wi-Fi 6 SKU: 2.4 GHz 802.11ax + BLE 5.3; Wi-Fi HaLow SKU: Sub-GHz 868/915 MHz
Antenna	External SMA antenna, 3-4 dBi; antenna form follows SKU
Storage / Controls	MicroSD slot; Trigger / Reset buttons; dual-color indicators
Data Channels	MQTT/MQTTS, Webhook (structured results); RTSP, RTMP (video stream)
Wake Sources	Alarm I/O trigger; MQTT/MQTTS remote wake and capture; scheduled capture
Power	Complete device: USB Type-C 5 V continuous or compatible battery-pack input; Main Board integration: DC input per delivery record
Dimensions	Main Board: 38.0 x 38.0 mm; Enclosure: 42.0 x 42.0 x 20.0 mm



Deployment Profile

Environment	Indoor installation
Mounting	Rear magnetic pads or 3M adhesive mounting
Temperature	-20 °C to +50 °C
Power Mode	USB Type-C 5 V operation; STM32U0 always-on low-power domain



Antenna design and regional radio configuration follow the delivered Wi-Fi 6 or Wi-Fi HaLow 868/915 MHz SKU.

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