

NeoEyes Series

Edge AI Camera

Powerful and Flexible for Industrial Edge

Powered by the STM32N6 (Cortex-M55) processor with the Neural-ART™ NPU, the NE301 delivers real-time AI inference and professional-grade image processing with ultra-low power consumption. With Arm® Helium™ vector processing, it combines robust industrial connectivity, flexible hardware interfaces, and an open-source ecosystem – offering a scalable, modular platform for edge AI vision applications.

NE301



Key Features



Edge AI Processing

STM32N6 (Cortex-M55) with the Neural-ART™ NPU, delivering 0.6 TOPS of computing power and 256MB RAM. Supports real-time visual and audio AI, including YOLO-based vision models.



Real-time Imaging Pipeline

Built-in ISP supports H.264 1080p@30fps encoding, JPEG compression, and MIPI-CSI2 / USB camera interfaces, enabling high-fidelity real-time imaging.



Modular & Connected

16-pin GPIO, UART, RS485, SPI, I²C, optional Cat.1 module, and flexible mounting options for versatile deployments.



Developer-First SDK

Open SDK supporting STM32Cube.AI, TensorFlow Lite, and ONNX (PyTorch/MATLAB) for fast, seamless AI deployment.



Rugged & Reliable

IP67-rated and -20°C to 50°C operating range for harsh industrial and outdoor use.

Highlights

Open-Source Ready, Industrial-Grade Performance

▶ Instant On

ms Wake-up with real-time AI inference up to 25 fps

▶ Ultra-Low Power

Independent STM32U073Kx power controller for efficiency

▶ High Efficiency

3 TOPS/W NPU with optimized thermal design for performance

▶ Plug & Play AI

Pre-trained STM32 models, supporting TensorFlow Lite, Keras, ONNX (PyTorch/MATLAB), and YOLO examples

▶ Flexible Deployment

Operates via battery, USB-C, or PoE, adaptable to varied edge AI applications

▶ Modular Expansion

16-pin GPIO, UART, RS485, SPI, and Wafer interfaces for easy integration

Application Scenarios



Smart Retail



Smart Agriculture



Smart Building



Smart Factory

NeoEyes NE301



Model		NE301
MCU	Core	Cortex-M55 @ 800 MHz, Arm Helium (M-Profile Vector Extension)
	NPU	Neural-ART™ accelerator @1GHz, up to 0.6 TOPS AI inference
	SRAM	4.2 MB
	ISP	On-Chip ISP with demosaicing, AWB
	Video Codec	H.264 Hardware encoder, JPEG codec, supports 1080p@30fps
	NPU Efficiency	3 TOPS/W, fanless
	Boot / Wake Time	Microsecond boot, Millisecond wake-up
Mainboard	Power Ctrl Unit	The STM32U073Kx further reduces N6 power consumption through independent, refined power management.
	HyperFlash	128 MB
	PSRAM	64 MB
	Buttons (On-board)	1x Reset、1x Boot、1x Snapshot / Recording
	Indicators (On-board)	1x Power LED (PWR)、1x Status LED (STS)、1x Debug LED
	Communication	WiFi6 / Bluetooth 5.4
	Lens Module	1x 4-Pin USB、1x MIPI CSI-2
	I/O Interfaces	1x UART、1x RS485、1x I2C、2x GPIO、2x GND、1x 3.3V / 5V (controllable)
	Debug/Power	1x USB Type-C、1x 4-Pin UART
	Audio I/O	1x Audio-IN、1x Audio-OUT
	Communication Expansion	12-Pin + 16-Pin expansion IOs for communication modules
	Power Interface	4MP OS04C10 / USB Camera Module
Sensor	Camera Module	4MP OS04C10 Camera Module or USB Camera Module
	Sensor Expansion	Supports various sensors (PIR, radar, temperature/humidity) via motherboard I/O
Modular Expansion	Communication Module	Cat-1
	Power Module	1. POE support 2. RJ45 Ethernet with status LEDs 3. Solar power via Type-C 4. Alarm/GND/RS485/Wafer port 5. 16-Pin GPIO header
Power		5V DC-In
Operating Temperature		-20°C to 50°C
Ambient Humidity		0~95% RH (non-condensing)
Dimension		77 x 77 x 48 mm
Certification		CE / FCC / RoHS / SRRC