CamThink

NeoEyes
NE503

Edge AI Camera Platform

Built to turn video into local intelligence and system action.

Think Beyond Vision

BUILD EDGE VISION AI FASTER

From video input to AI event output.

01

20 TOPS On-Device AI

Hailo-15H supports deployment of models for detection, OCR, face analysis, ReID, pose estimation, behavior analysis and visual search workflows.

02

4K Professional Imaging

Sony IMX678, Gen2 AI-ISP, HDR, AI denoising, low-light full-color imaging and motorized 8-32 mm AF zoom support reliable model input.

03

Containerized Apps

Deploy AI models, business logic, connectors and lightweight services as OCI applications through the containerd runtime.

04

Structured Event Workflows

Inference results, device events and application events can be routed through Event Bus subscriptions, REST API and local I/O.

05

Field-Ready Hardware

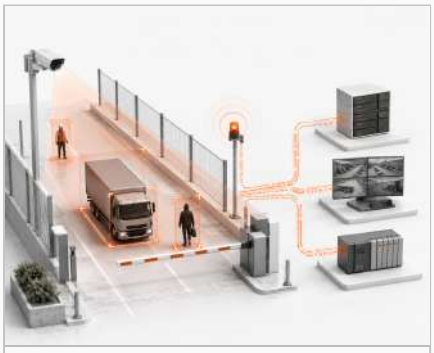
IP67 housing, PoE 802.3AT, DC 12V input, alarm I/O, RS-485 and expansion interfaces support outdoor and industrial deployments.

06

Open Integration Layer

Python, C++ and Go SDKs, REST APIs, Web console and aipc-cli help developers and integrators validate and ship faster.

Deployment Scenarios



Zone Event Response

Detect people, search visual targets, trigger alarms, and send events to existing systems.

Read Equipment States

Run OCR, safety, and inspection models near production lines, panels, meters, and assets.

Verify Access & Traffic

Connect video, I/O, RS-485, sensor expansion and events for access, parking and site linkage.

Core Compute, Imaging and Video

HAILO-15H | 20 TOPS | 8 GB LPDDR4 | 64 GB EMMC | 4K @ 30 FPS | SONY IMX678 | <8W TYPICAL

Core Platform

Product Model	NE5038-PX4
SoC	Hailo-15H
CPU	Quad-core Arm Cortex-A53 @ 1.3 GHz
NPU	Hailo NPU, 20 TOPS @ INT8, with 4-bit quantization support
Memory	8 GB LPDDR4
Storage	64 GB eMMC, with TF card and M.2 Key M SSD expansion
System Power	< 8 W typical load

AI Performance

Inference	On-device AI inference with zero cloud dependency
Latency Target	< 50 ms target inference latency
Concurrent Models	Supports multi-model simultaneous execution
Data Path	Optimized local pipeline for low-latency frame processing
Supported Tasks	Supports deployment of models for detection, OCR, face analysis, ReID, pose estimation, behavior analysis and visual search
Event Output	Structured inference results, event messages and device status data

Video Encoding

Codec	H.264 / H.265 hardware encoding
Resolution	4K @ 30 fps
Rate Control	CBR / VBR
Streaming	Main stream, sub stream and third stream with RTSP output

Imaging System

Image Sensor	Sony IMX678-AAQR1-C, 1/1.8-inch CMOS
Effective Pixels	3856(H) x 2180(V), with 3840 x 2160 4K UHD output
Pixel Size	2.0 um x 2.0 um
Sensor Output	MIPI CSI-2, RAW10 / RAW12
HDR	Digital Overlap HDR / Dual Gain HDR
ISP	Gen2 AI-ISP with 12-bit AI denoising
Low Light	< 0.01 LUX full-color night vision

Lens and Optics

Lens Model	Foctek AF0832D09.ICR1(4K)
Focal Length	8 mm wide to 32 mm telephoto
Relative Aperture	F1.6 (wide) to F1.7 (telephoto)
Field of View	H 44.5 deg (W) / 14.5 deg (T); D 52 deg (W) / 16.6 deg (T)
Zoom Range	4x optical zoom
Electromechanical	Zoom / focus motors, DC-Iris auto aperture and IR-Cut switching
Stabilization	EIS electronic image stabilization support

Runtime, console and application model.

OCI APPLICATIONS | WEB CONSOLE | REST API | EVENT BUS | PYTHON / C++ / GO SDK | ON-CAMERA DEPLOYMENT

Software Platform

Operating System	Embedded Linux platform
Application Runtime	OCI-compatible application deployment
Console	Web-based device and application management console
Management	System operations, service access and device integration through SSH and REST API
SDK	Python / C++ / Go SDKs
Security	Application isolation, permission control and managed runtime resources

App Manager
Install, start, stop and update applications from central repositories or approved local packages.

AI Runtime
Load models, schedule inference and coordinate on-camera execution.

Event Bus
Route AI results, application events and device signals to local or upstream systems.

Platform Architecture

LAYER 01
Applications
Customer AI applications, business logic and connectors.

LAYER 02
Platform Services
Camera control, AI runtime, app management, event routing and APIs.

LAYER 03
Hardware Foundation
Compute, imaging, encoding and peripheral control for field deployment.

Capture
Acquire video and sensor input at the device edge.

Process
Run one or more AI models on live frames.

Decide
Apply local logic and application rules on the device.

Trigger
Drive events, local I/O or stream overlays in real time.

Integrate
Send structured outputs to upstream systems and workflows.

Hardware I/O, power and deployment.

POE 802.3AT | DC 12V | IP67 | ALARM I/O | RS-485 | SENSOR EXPANSION

Network and Protocols

Ethernet	100M LAN
Power over Ethernet	PoE 802.3AT supported
Video Protocol	RTSP
Data Protocol	Event messaging and platform integration interfaces
API Gateway	REST API for device and application integration
Discovery	Device discovery and onboarding support

External Interfaces

Alarm In	2 inputs, MCU PB13 / PB14
Alarm Out	2 outputs, relay output and level output
RS-485	MCU UART3, PC4 / PC5 with enable PB1
Audio	Line-In / Line-Out support for voice and site interaction workflows
Radar	Selectable radar power and UART interface for sensor expansion
Fill Light	IR dual-channel PWM; enhanced white + IR PWM version
IR-CUT	Auto / day / night modes

Dual-Board Architecture

Core Board	Hailo-15H SoC, NPU, memory, eMMC, sensor interface, encoder and high-speed data paths
AI-PC Board	STM32G0B0RET6 independent MCU for external I/O, power and peripheral control
MCU	Independent control MCU communicating with the processor board
MCU Scope	Motorized lens, fill light, IR-CUT, heater, fan, Alarm I/O, RS-485 and light sensor
RTC	MCU VBAT with external supercapacitor; MCU maintains RTC and syncs to processor board
Service Access	Engineering and maintenance access for integration and support

Deployment Environment

Power Supply	DC 12V adapter or PoE 802.3AT
Protection Rating	IP67
Impact Protection	IK10
Certifications	CE / FCC
Operating Temp.	-40°C to +60°C
Humidity	0 to 95% non-condensing
Thermal Control	Reserved 12V fan and heater drivers with temperature sensor support

Field Inputs
Alarm, RS-485, light sensor and radar expansion support multi-system linkage.

Peripheral Control
Independent MCU manages lens, fill light, IR-CUT, heater and fan even when applications change.

Installation
One-camera endpoint for outdoor and industrial sites where power, vision and control need to live together.

Deploy intelligence, control and integration.

What runs on the device, how it triggers actions, and how it fits into larger systems.

ON-CAMERA AI | APPLICATION LOGIC | PERIPHERAL CONTROL | STRUCTURED EVENT OUTPUT | PLATFORM INTEGRATION

CAPABILITY 01

On-Camera Intelligence

Support deployment of detection, OCR, recognition and custom AI models directly on the device for low-latency edge decisions.

CAPABILITY 02

Local Decision and Control

Combine AI results with application rules to drive local alarms, relay outputs, lighting and peripheral control.

CAPABILITY 03

Platform Integration

Deliver video, AI events and device signals into VMS, IoT, industrial or enterprise software workflows.

From Application Package to Field Behavior

Package
Combine model, logic and connector services into one deployable application.

Install
Deploy through the management console or approved package source.

Bind
Assign the video, events and controls required by the application.

Run
Execute AI and business logic on live site data at the edge.

Link
Drive outputs locally or send structured results to external systems.

Integrators
Use one endpoint for capture, AI, control and upstream system linkage.

Algorithm Teams
Deploy models together with practical site logic and outputs.

OEM Teams
Build repeatable offerings on one hardware and software platform.

Operations Teams
Keep intelligence and device control closer to the field site.