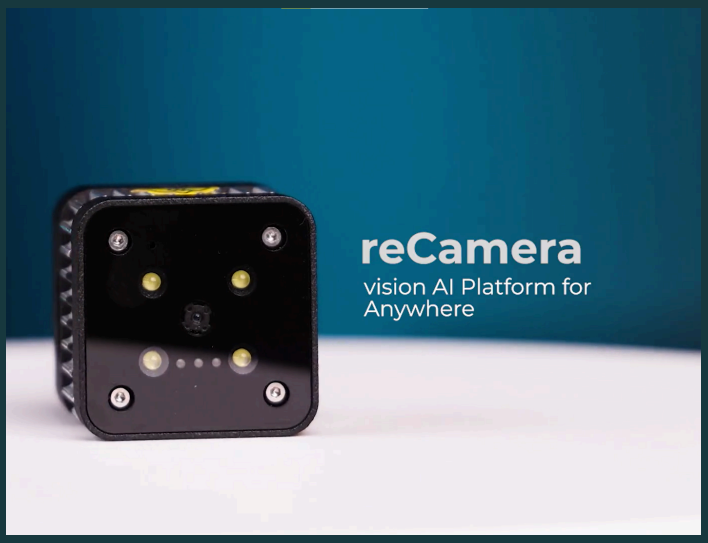
seeed studio

INDUSTRIAL PRODUCT DATASHEET

reCamera 2002w 8GB - Open Source AI Camera

Open-source AI camera with 1TOPS NPU, pre-installed YOLO11 models, and modular design for fast edge AI prototyping.

SKU	UPDATED	PRICE
102991896	2026-07-28 10:30:15	$89.90(Excl. VAT)



Overview

The reCamera 2002w 8GB is an open-source AI camera featuring a 1TOPS NPU with built-in YOLO11 models for object classification, detection, pose estimation, and instance segmentation. Its modular design with interchangeable sensor, core, and base boards, combined with Node-RED visual programming, enables rapid development and deployment of edge AI applications.

Key Features

Feature 1: Built-in YOLO11 AI Models & 1TOPS NPU Computing Power

4 YOLO models pre-installed:

- **Object Classification**
- **Objection Detection**
- **Pose Detection**
- **Instance Segmentation**

reCamera includes an Ultralytics commercial license, you can directly use the **built-in YOLO models** for commercial or personal projects.

Feature 2: Modular Design

reCamera adopts a modular design. You can choose the components based on your needs.

Sensor Board features a swappable and interchangeable camera module design. The current version comes with the OV5647 sensor. If you need higher imaging performance, we also offer a version with a sensor board with GC2053 **reCamera 2002 Sensor Board GC2053**which has a 1/2.9'' CMOS sensor and **supports changing lenses**. We also offer M12 lens options for different FOV requirements. More sensor boards are on the way - feel free to share your needs at **GitHub · Where software is built**

Core Board provides system control and computing power. It has a RISC-V SoC and a 1Tops@Int8 NPU. Also, the Core Board provides Wifi capability. We offer individual Core Boards allowing users to purchase the core board separately and build their own custom reCamera:

reCamera 2002w Core Board 64GB with Aluminium Frame

reCamera 2002 Core Board 64GB with Aluminium Frame

reCamera 2002w Core Board 8GB with Aluminium Frame

reCamera 2002 Core Board 8GB with Aluminium Frame

Base Board provides connectivity. It offers interfaces including USB, Ethernet and debug serial ports enabling easy integration with external devices and systems. We also offer a version with PoE and 3 GPIOs extension. Alternative Base Board for PoE and GPIO extension: **reCamera 2002 Base Board with PoE**

Feature 3: Fast Development/Deployment with Node-RED

Node-RED enables low-code, visual workflow building. This allows users to build and manage application logic quickly with minimal coding.

Based on Node-RED, we provide product-specific nodes that let you deploy a model and see results immediately. For example, simply drag in a Camera, Model, and Preview node to complete the application flow.

Feature 4: Fully Open-sourced Hardware/Software

reCamera is fully open-sourced so users can modify software and AI pipelines without limitation. **You can train your own YOLO model and deploy it on reCamera.**

- **Hardware:** module board documentation is fully open, including 3D files, schematic, PCB files

- **AI Functions**: inference pipeline, NPU runtime integration, YOLO11n models, and Node-RED AI nodes are fully open.
- **Applications**: Node-RED flows, C++ SDK, RTSP examples, and Web UI resources are openly provided.

Product Gallery

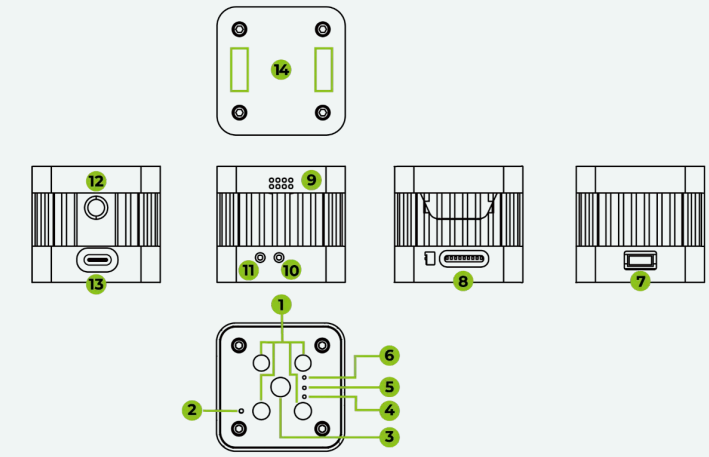
Specification

reCamera 200x Series		reCamera 2002	reCamera 2002w	reCamera Gimbal	reCamera HQ PoE
Processor System	AI Performance	ni1TOPS@Int8			
	SOC	SG2002			
	CPU	C906@1GHz + C906@700MHz			
	MCU	8051@8KB SRAM			
	Memory	256MB			
	Video Encode	5MP @ 30Fps			

Camera	Sensor	OV5647	GC2053
	Resolution	5M(2592*1944) Pixels	2MPixels
	Chip	1/4" CMOS Sensor	1/2.9'' CMOS Sensor
	Pixel Size	1.4μm	2.7μm
	Output Format	RAW 10	
	Maximum Frame Rate	full size: 15fps	full size: 30fps
	Aperture	F2.8	
	Equivalent Focal Length	3.46mm	2.9mm
	Field of View	65°	DFOV 93° HFOV 84° VFOV 54°

	Distortion	<1%			
	Lens structure	5P			
Storage	eMMC	8GB/64GB			
	Expansion	removable TF card (up to 2TB, not included)			
I/O	Ethernet	100Mbps			100Mbps with PoE
	Wireless	/	WIFI2.4G/5G BT4.2/5.0	WIFI2.4G/5G BT4.2/5.0	/
	USB	USB Type-C(2.0)			
	Button	1x Reset Button, 1x Boot Button			
	Fill Light	0.3w White Light			/
	LED Indicator	1x Power indicator, 1x eMMC status indicator, 1x CPU status(User LED)			
	I/O Port	/		3 I/O Ports487,488,490	
Audio	Mic	On-board Mic			
	Speaker	External Speaker			
Motor		/		MS3008/MS3506	/
Dimension		40x40x36.5mm		68x112x71mm	40x40x45.8mm40x40x53.1mm with lens
Power		5V/1A USB Type C			
Operation Temperature		-20～50°C			
Operation Humidity		95%			

Hardware Overview



1 White LEDs
2 Mic
3 Camera
4 User(R)
5 Power(G)
6 Disk(B)
7 Ethernet
8 TF Card Slot
9 Speaker
10 User
11 Reboot
12 1/4" Screw Hole
13 USB Type-C
14 Magnet built-in

Applications

- **Integration of Real-time Heatmap with Grafana Data Dashboard:** The project conducts target detection using the YOLO11n model built into reCamera. It performs fuzzy processing on personnel targets and displays a heat map effect. All of this is handled locally within reCamera! And reCamera will send the detected data to the locally running Influxdb database. Then, Grafana reads the data from the Influxdb database to display real-time data dashboards.
- **AI Remote Wireless Monitoring System Based on reCamera and Wifi Halow:** An AI-based remote wireless monitoring system using Wi-Fi HaLow. It combines edge AI vision with long-range, low-power wireless communication to enable real-time detection, data transmission, and monitoring in remote or infrastructure-limited environments such as farms, factories, and outdoor sites.
- **AI Parking Management with reCamera:** This project uses Seeed's reCamera to detect parking slot occupancy in real-time. It features multi-frame stabilization to avoid flickering and displays results (free/occupied counts) directly on the video stream. The entire workflow runs automatically on the device via a pre-configured Node-RED setup.
- **Play Subway Surfers with reCamera HQ PoE:** Using its built-in pose detection model, reCamera can recognize your hand and body movements in real time and convert them into game actions, no controllers, no wearables, just pure gesture play. Wave your hand to jump, raise your arm to attack, or lean left and right to dodge obstacles.

Part List

reCamera 2002w 8GB	x1
USB type-c Cable	x1
Ethernet Cable	x1

Compliance & Logistics

HSCODE	9031809090
USHSCODE	9031808085
UPC	
EUHSCODE	8517180000
COO	CHINA

FCC Requirement

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) this device may not cause harmful interference, and

(2) this device must accept any interference received, including interference that may cause undesired operation.

15.21

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses, and can radiate radio frequency energy.

If not installed and used in accordance with the instructions, it may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Resource Links

- https://www.seeedstudio.com/reCamera-2002w-8GB-p-6250.html
- User Manual
- Data Sheet
- reCamera Github
- reCamera OS Github
- reCamera Flyer
- reCamera Flyer - CN

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