

**Raspberry**  
Pi AI  
Camera



## Raspberry Pi AI Camera Instructions

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# Raspberry

**Raspberry Pi AI Camera**



## Overview



The Raspberry Pi AI Camera is a compact camera module from Raspberry Pi, based on the Sony IMX500 Intelligent Vision Sensor. IMX500 combines a 12-megapixel CMOS image sensor with on-board inferencing acceleration for a variety of common neural network models, enabling users to develop sophisticated vision-based AI applications without the need for a separate accelerator.

The AI Camera transparently augments captured still images or video with tensor metadata, leaving the processor in the host Raspberry Pi free to perform other operations. Support for tensor metadata in the libcamera and

Picamera2 libraries, and in the rpical-apps application suite, make it easy for beginners to use, while offering advanced users unparalleled power and flexibility.

The Raspberry Pi AI Camera is compatible with all Raspberry Pi computers. The PCB outline and mounting hole locations are identical to those of Raspberry Pi Camera Module 3, while the overall depth is greater to accommodate the larger IMX500 sensor and optical subassembly.

- **Sensor:** Sony IMX500
- **Resolution:** 12.3 megapixels
- **Sensor size:** 7.857 mm (type 1/2.3)
- **Pixel size:** 1.55  $\mu\text{m}$   $\times$  1.55  $\mu\text{m}$
- **Horizontal/vertical:** 4056  $\times$  3040 pixels
- **IR cut filter:** Integrated
- **Autofocus system:** Manual adjustable focus
- **Focus range:** 20 cm –  $\infty$
- **Focal length:** 4.74 mm
- **Horizontal field of view:** 66  $\pm$ 3 degrees
- **Vertical field of view:** 52.3  $\pm$ 3 degrees
- **Focal ratio (F-stop):** F1.79
- **Infrared sensitive:** No
- **Output:** Image (Bayer RAW10), ISP output (YUV/RGB), ROI, metadata
- **Input tensor maximum size:** 640(H)  $\times$  640(V)
- **Input data type:** 'int8' or 'uint8'
- **Memory size:** 8388480 bytes for firmware, network weight file, and working memory
- **Framerate:** 2 $\times$ 2 binned: 2028 $\times$ 1520 10-bit 30fps
- **Full resolution:** 4056 $\times$ 3040 10-bit 10fps
- **Dimensions:** 25  $\times$  24  $\times$  11.9 mm
- **Ribbon cable length:** 200 mm
- **Cable connector:** 15  $\times$  1 mm FPC or 22  $\times$  0.5 mm FPC
- **Operating temperature:** 0°C to 50°C
- **Compliance:** For a full list of local and regional product approvals, please visit [pip.raspberrypi.com](http://pip.raspberrypi.com)
- **Production lifetime:** The Raspberry Pi AI Camera will remain in production until at least January 2028
- **List price:** \$ 70 US

## Physical specification

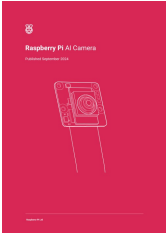


mechanism back into place.

- This device should be operated in a dry environment at normal ambient temperatures.
- Do not expose to water or moisture, or place on a conductive surface whilst in operation.
- Do not expose to heat from any source; Raspberry Pi AI Camera is designed for reliable operation at normal ambient temperatures.
- Store in a cool, dry location.
- Avoid rapid changes of temperature, which can cause moisture to build up in the device, affecting image quality.
- Take care not to fold or strain the ribbon cable.
- Take care whilst handling to avoid mechanical or electrical damage to the printed circuit board and connectors.
- Whilst it is powered, avoid handling the printed circuit board, or handle it only by the edges, to minimise the risk of electrostatic discharge damage.V

## Raspberry Pi AI Camera – Raspberry Pi Ltd

### Documents / Resources

	<p><a href="#">Raspberry Pi AI Camera</a> [pdf] Instructions AI Camera, AI, Camera</p>
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### References

-  [Documents - Product Information Portal - Raspberry Pi](#)
- [User Manual](#)

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