



# **Raspberry Pi Al Camera Instructions**

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Raspberry Pi Al Camera



## Overview



The Raspberry Pi Al 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 Al 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 rpicam-apps application suite, make it easy for beginners to use, while offering advanced users unparallelled power and flexibility.

The Raspberry Pi Al 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 μm × 1.55 μm

• Horizontal/vertical: 4056 × 3040 pixels

• IR cut filter: Integrated

• Autofocus system: Manual adjustable focus

Focus range: 20 cm - ∞
 Focal length: 4.74 mm

Horizontal field of view: 66 ±3 degrees
Vertical field of view: 52.3 ±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) × 640(V)

• Input data type: 'int8' or 'uint8'

• Memory size: 8388480 bytes for firmware, network weight file, and working memory

• Framerate: 2×2 binned: 2028×1520 10-bit 30fps

• Full resolution: 4056×3040 10-bit 10fps

Dimensions: 25 × 24 × 11.9 mm
Ribbon cable length: 200 mm

• Cable connector: 15 × 1 mm FPC or 22 × 0.5 mm FPC

• Operating temperature: 0°C to 50°C

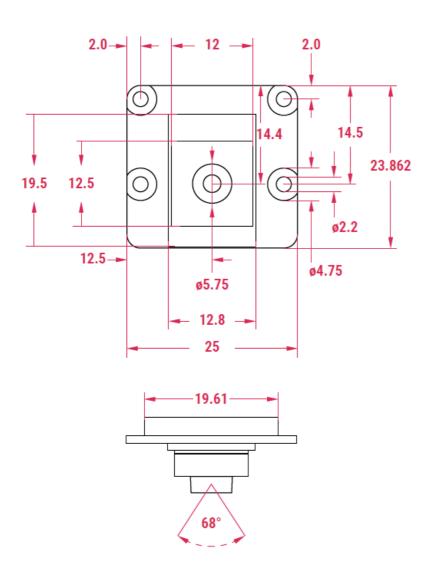
• Compliance: For a full list of local and regional product approvals,

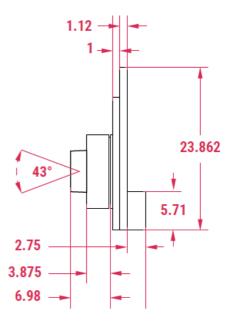
• please visit pip.raspberrypi.com

• Production lifetime: The Raspberry Pi Al Camera will remain in production until at least January 2028

• List price: \$ 70 US

# Physical specification





#### Note:

### All dimensions in mm

All dimensions are approximate and for reference purposes only. The dimensions shown should not be used for producing production data

The dimensions are subject to part and manufacturing tolerances

Dimensions may be subject to change

## **WARNINGS**

- This product should be operated in a well ventilated environment, and if used inside a case, the case should not be covered.
- Whilst in use, this product should be firmly secured or should be placed on a stable, flat, non-conductive surface, and should not be contacted by conductive items.
- The connection of incompatible devices to Raspberry Al Camera may affect compliance, result in damage to the unit, and invalidate the warranty.
- All peripherals used with this product should comply with relevant standards for the country of use and be marked accordingly to ensure that safety and performance requirements are met.

# **SAFETY INSTRUCTIONS**

To avoid malfunction or damage to this product, please observe the following:

- Important: Before connecting this device, shut down your Raspberry Pi computer and disconnect it from external power.
- If the cable becomes detached, first pull forward the locking mechanism on the connector, then insert the ribbon cable ensuring that the metal contacts face towards the circuit board, and finally push the locking

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 Al 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 Al Camera – Raspberry Pi Ltd

#### **Documents / Resources**



Raspberry Pi Al Camera [pdf] Instructions Al Camera, Al, Camera

# References

- <u>Socuments Product Information Portal Raspberry Pi</u>
- User Manual

#### Manuals+, Privacy Policy

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