



## **Datasheet**

All-in-one RPI CM5, IMX500 Outdoor Security AI Camera Kit

**B0572**

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| Version | Compile | Auditing | Authorize | DATE      |
|---------|---------|----------|-----------|-----------|
| V2.0    | Terry Y | Kai Z    | Lee J     | 25.9.2025 |

# 1. Overview

## 1.1 Product Description

Arducam's embedded vision expertise transforms the IMX500 into a universal AI camera series, with its AI Model Zoo extending beyond Sony AITRIOS™ templates. By processing data directly on-device, Edge AI delivers instantaneous responses, guarantees privacy, and operates flawlessly even in zero-connectivity environments — redefining reliability for critical applications. The IMX500 integrates pixel sensing and AI computation into a single chip, bypassing traditional server dependencies to achieve unprecedented efficiency in vision AI solutions.

## 1.2 Scope

The scope of this spec, includes

- (1) SONY IMX500 Image Sensor
- (2) Raspberry Pi AI Camera
- (3) Arducam Outdoor Security AI Camera Kit
- (4) Camera Kit Dimension and Mechanical

In this scope, it does not include

- (1) Reliability-Module Level
- (2) Schematic

Above optional items can be designed by customer demand.

## 1.3 Typical Applications

Typical Outdoor Security Applications

**Note: This product can be applied to more specific cases not limited to the following applications**

### 1. Intelligent Perimeter Protection

Deploying AI cameras along fences or property boundaries to detect climbing, trespassing, or intrusion attempts in real time. IP66 protection ensures reliable operation in heavy rain, snow, or dust storms, while PoE simplifies cabling in remote areas.

### 2. Construction Site Safety Enforcement

Monitoring high-risk zones (e.g., crane areas, deep excavations) to automatically identify safety violations like missing helmets or harnesses. IP66 withstands dust/water exposure in harsh environments, and PoE enables flexible installation without dedicated power lines. Triggers instant alerts to supervisors 24/7.

### 3. Traffic Violation Monitoring

Enforcing no-parking rules on fire lanes, main roads, or emergency zones by detecting illegally parked vehicles and capturing license plates. AI distinguishes temporary stops from prolonged parking. IP66 endurance suits extreme outdoor conditions, and PoE supports >100m deployments without electrical infrastructure.

### 4. Public Space Crowd Analytics

Analyzing crowd density in plazas, stadiums, or transit hubs to flag risks (e.g., overcrowding, falls, fights). PoE allows scalable network coverage, while IP66 ensures longevity in coastal/humid regions. Provides real-time data for rapid security response during emergencies.

## 2. Disclaimer

While we have made every effort to ensure the accuracy and completeness of the information presented in this datasheet, Arducam reserves the right to make changes to product specifications, features, and documentation without notice. All information provided in this datasheet is subject to change and should be considered for reference purposes only.

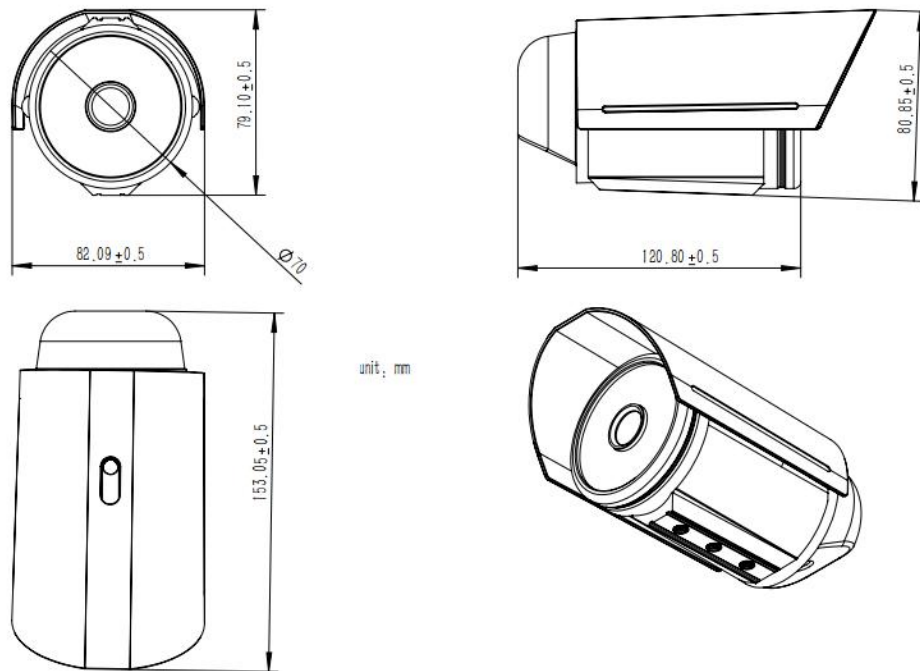
### 3. Product Specification

| Image Sensor                            |                                                                    |
|-----------------------------------------|--------------------------------------------------------------------|
| Sensor                                  | IMX500                                                             |
| Resolution                              | 12.3 Megapixels                                                    |
| Chroma                                  | Color                                                              |
| Shutter Type                            | Rolling Shutter                                                    |
| Optical Format                          | 1/2.3"                                                             |
| Output Format                           | RAW10                                                              |
| Pixel Size                              | 1.55 $\mu$ m x 1.55 $\mu$ m                                        |
| Sensor Active Area                      | 4056(H)×3040(V)                                                    |
| Sensor Image Area                       | 6.29 mm x 4.71 mm (7.86 mm diagonal)                               |
| Maximum Frame Rate                      | 2028x1520@30fps; 4056 x 3040@10fps                                 |
| Lens                                    |                                                                    |
| Focus Type                              | Fixed Focus                                                        |
| FOV                                     | 78°(D)×66.3°(H)×52.3°(V)                                           |
| Lens Mount                              | Stock Lens Mount                                                   |
| F.NO                                    | F1.9                                                               |
| E.F.L                                   | 4.74mm                                                             |
| IR Sensitivity                          | Integral 650nm IR Filter, visible light only                       |
| Focus Distance                          | 20cm-INF                                                           |
| Controller Properties                   |                                                                    |
| Controller Module                       | Raspberry Pi Compute Module 5, CM5004016                           |
| Processor                               | Broadcom BCM2712                                                   |
| RAM Memory                              | 4GB                                                                |
| Storage                                 | 16GB of eMMC Flash Storage                                         |
| Wi-Fi Connectivity                      | Not Available                                                      |
| Bluetooth Connectivity                  | Not Available                                                      |
| Functional and Compatibility            |                                                                    |
| Interface                               | PoE                                                                |
| Network Support                         | Ethernet                                                           |
| Exposure Time Range                     | 4056x3040: 0.192~201711.828 ms<br>2028x1520: 0.101~105904.344 ms   |
| Supported OS                            | Raspberry Pi OS                                                    |
| Supported Platform                      | Raspberry Pi CM5 inside                                            |
| Electrical and Mechanical               |                                                                    |
| Operating Voltage                       | USB-C: 5.1V/3.0A<br>PoE Power Input: IEEE 802.3at PoE/50-57V 600mA |
| Power Consumption<br>(Typical, Maximum) | Typical: N/A<br>Max: 15W                                           |
| Camera Board Size                       | 24×25 mm                                                           |
| Overall Weight (Net)                    | 420g                                                               |

|                               |                              |
|-------------------------------|------------------------------|
| Overall Size                  | 82.09 × 153.05 × 79.10 mm    |
| Standard and Certifications   |                              |
| Temperature range (Storage)   | -14°F-167°F (-10°C to +75°C) |
| Temperature range (Operating) | 32°F-122°F (0°C to +50°C)    |
| Certification                 | CE/RoHS                      |

## 4. Mechanical Drawing

### 4.1 2D Drawing



## 4.2 3D Drawing





## 5. Contact Us

For any product-related questions, please feel free to contact us:

- Official website: [www.arducam.com](http://www.arducam.com)
- Contact form: <https://www.arducam.com/contact-arducam/>
- Official Wiki: <https://docs.arducam.com/>
- Quick Start Guide: [Arducam IMX500 AI Camera All-in-one Kit](#)
- Support E-mail: [support@arducam.com](mailto:support@arducam.com)

## 6. Certifications

