

a2A2600-20gmBAS

The a2A2600-20gmBAS [Basler ace 2 GigE camera](#) with a Gpixel GMAX2505 mono CMOS sensor delivers 20 frames per second at 5 MP resolution.



Specifications

General Specifications

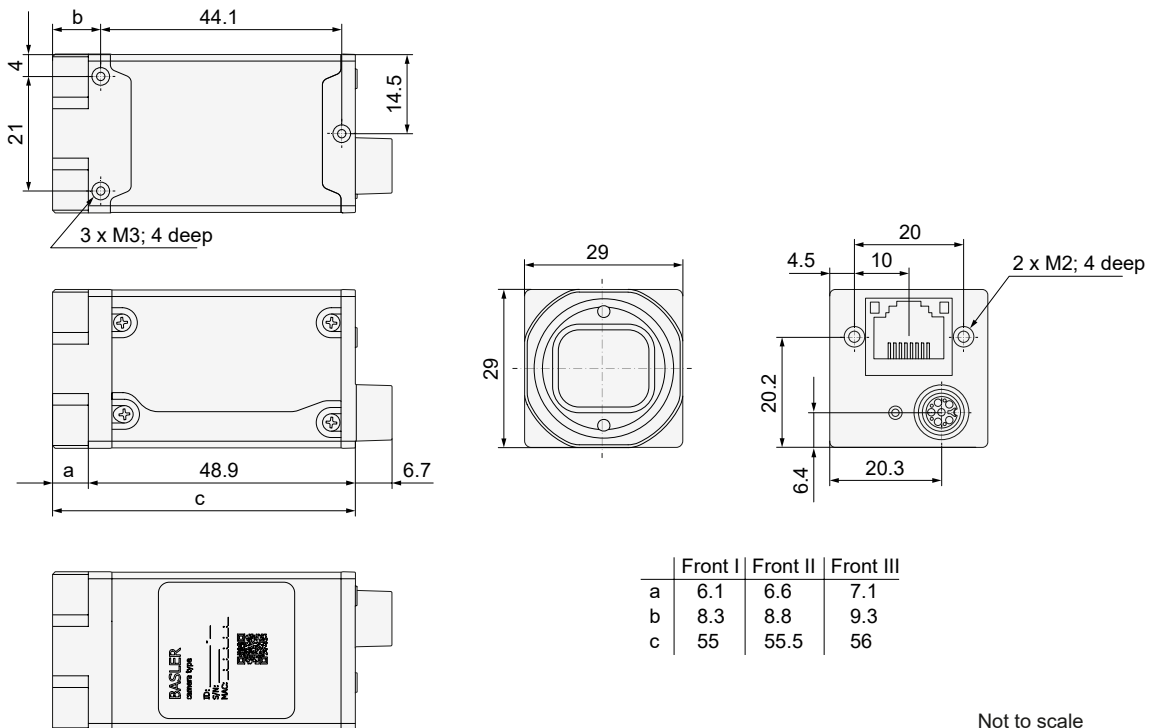
| | a2A2600-20gmBAS |
|---------------------------|---------------------------------------------------------------------------------|
| Resolution (H x V Pixels) | 2600 x 2160 |
| Sensor Type | GMAX2505-BVM-NLT-AU1 Progressive scan CMOS Global shutter |
| Sensor Format | 1/1.1" |
| Effective Sensor Diagonal | 8.94 mm |

| | a2A2600-20gmBAS |
|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| Pixel Size (H x V) | 2.5 μm x 2.5 μm |
| Frame Rate (at Default Settings) | 18.3 fps 20.8 fps (with Bandwidth Reserve mode set to Performance and packet size set to 4000) |
| Mono / Color | Mono |
| Image Data Interface | Fast Ethernet (100 Mbit/s) Gigabit Ethernet (1000 Mbit/s) |
| Pixel Formats | See Pixel Format . |
| Synchronization | Via hardware trigger Via software trigger Via free run |
| Exposure Time Control | Via hardware trigger Programmable via the camera API |
| Camera Power Requirements | \approx tbd W (typical) when using Power over Ethernet \approx tbd W (typical) @ 12–24 VDC when supplied via I/O connector |
| I/O Lines | 1 opto-coupled input line 2 general purpose I/O (GPIO) lines |
| Lens Mount | C-mount |
| Size (L x W x H) | 48.9 mm x 29 mm x 29 mm (without lens mount or connectors) 62.2 mm x 29 mm x 29 mm (with lens mount and connectors) |
| Weight | <100 g |

| a2A2600-20gmBAS | |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Conformity | CE (includes RoHS), EAC, UL (in preparation), FCC, GenICam, GigE Vision, IP30, IEEE 802.3af (PoE) ☑ Certificates for your camera model For more information, see the ☑ Compliance section of the Basler website. |
| Software | ☑ Basler pylon Camera Software Suite (version 6.0 or higher) Available for Windows, Linux x86, Linux ARM, macOS, and Android |
| Accessories | ☑ Cables for your camera model ☑ Lenses for your camera model ☑ Additional accessories for your camera model |

Mechanical Specifications

Camera Dimensions and Mounting Points



Not to scale
 Dimensions in mm

→ Download the [CAD/technical drawing](#) for your Basler camera.

Info

This camera is equipped with Front II.

Maximum Allowed Lens Intrusion

→ See [Maximum Allowed Lens Intrusion](#).

Mounting Instructions

→ See [Mounting Instructions \(ace 2\)](#).

Stress Test Results

→ See [Stress Test Results](#).

Requirements

Environmental Requirements

Temperature and Humidity

| | |
|---------------------------------------------|-----------------------------------|
| Housing temperature during operation | -10–60 °C (14–140 °F) |
| Humidity during operation | 20–80 %, relative, non-condensing |
| Storage temperature | -20–80 °C (-4–176 °F) |
| Storage humidity | 20–80 %, relative, non-condensing |
| Housing temperature according to UL 62368-1 | max. 70 °C (158 °F) |
| Ambient temperature according to UL 62368-1 | max. 30 °C (86 °F) |

Heat Dissipation

→ See [Providing Heat Dissipation \(ace, ace 2\)](#).

Electrical Requirements

WARNING – Electric Shock and Fire Hazard / Risque de choc électrique et d'incendie

Unapproved power supplies may cause electric shock or fire or both. Serious injury or death may occur.

- You must use power supplies that meet the Safety Extra Low Voltage (SELV) and Limited Power Source (LPS) or the Electrical Source 1 (ES1) and Power Source 2 (PS2) requirements.
- If you use a powered hub or powered switch, they must meet the above requirements.

Les blocs d'alimentation non approuvés peuvent causer des décharges électriques ou des départs de feu, ou les deux. Celles-ci représentent un risque de mort ou de blessure grave.

- Vous devez utiliser un bloc d'alimentation conforme aux exigences Safety Extra Low Voltage (SELV) et Limited Power Source (LPS) ou Electrical Source 1 (ES1) et Power Source 2 (PS2).
- Si vous utilisez un hub alimenté ou un switch alimenté, ils doivent être conformes aux exigences ci-dessus.

NOTICE – Incorrect voltage can damage the camera.

You must supply camera and I/O power within the safe operating voltage ranges specified below.

Do not use negative voltage for an I/O line.

Camera Power

⚠ NOTICE – Dual camera power supply can damage the camera.

You must supply camera power **either** via Power over Ethernet (PoE) **or** via the camera's I/O connector.

Do not use both ways of supplying camera power at the same time.

- **Power supply via Power over Ethernet (PoE):** Power must comply with the IEEE 802.3af specification.
- **Power supply via I/O connector:** The operating voltage is 12–24 VDC. As a minimum, 10.8 VDC must be supplied. To avoid damaging the camera, a maximum of 30 VDC must not be exceeded.

Opto-Coupled I/O Input Line

| Voltage | Description |
|--------------|---------------------------------------------------------------------------------------------------------------|
| 30 VDC | Absolute maximum. This voltage must never be exceeded. Doing so may damage the camera and voids the warranty. |
| 0–24 VDC | Safe operating range. |
| 0–1.4 VDC | Indicates a logical 0 (with inverter disabled). |
| >1.4–2.2 VDC | Region where the logic level transition occurs; the logical state is not defined in this region. |
| >2.2 VDC | Indicates a logical 1 (with inverter disabled). |

- **Input current (high-level):** <15 mA internally limited
- **Input current (high-level):** >5 mA required to drive the opto-coupler

General Purpose I/O Lines

⚠ NOTICE: Applying incorrect electrical signals to the camera's GPIO line can severely damage the camera.

Before you connect any external circuitry to the GPIO line, use the [Line Mode](#) feature to configure the line for input or output.

Make sure to apply appropriate input or output signal voltages as specified below.

Operation as Input

| Voltage | Description |
|--------------|---------------------------------------------------------------------------------------------------------------|
| 30 VDC | Absolute maximum. This voltage must never be exceeded. Doing so may damage the camera and voids the warranty. |
| 0–5 VDC | Safe operating range. The minimum external pull-up voltage is 3.3 VDC. |
| 0–0.8 VDC | Indicates a logical 0 (with inverter disabled). |
| >0.8–2.0 VDC | Region where the logic level transition occurs; the logical state is not defined in this region. |
| >2.0 VDC | Indicates a logical 1 (with inverter disabled). |

- **Input current (high-level):** <100 μ A
- **Input current (low-level):** <5 mA sink current from the GPIO input line without exceeding 0.8 VDC.

Operation as Output

| Voltage | Description |
|---------|---------------------------------------------------------------------------------------------------------------|
| 30 VDC | Absolute maximum. This voltage must never be exceeded. Doing so may damage the camera and voids the warranty. |

| Voltage | Description |
|----------------|-------------------------|
| 3.3– 24 VDC | Safe operating range. |
| <3.3 VDC | Unreliable GPIO output. |

- **Internal pull-up resistor:** $\approx 650 \Omega$, with open collector. Many applications will have to provide an additional pull-up resistor.
- **Residual voltage ("on" state):** $\approx 0.4 \text{ V}$ at 50 mA and 25 °C (77 °F) housing temperature. Actual residual voltage depends on operating temperature, load current, and production spread of electronic components.
- **Leakage current:** $< 60 \mu\text{A}$. Actual leakage depends on operating temperature and production spread of electronic components.
- **Maximum load current:** 50 mA
- **Minimum load current:** Not specified. Consider the following:
 - Leakage current will have a stronger effect when load currents are low.
 - Propagation delay of the output increases as load currents decrease.
 - Higher-impedance circuits tend to be more susceptible to EMI.
 - Higher currents cause higher voltage drops in long cables.

For more information about the I/O lines, see the [I/O Control](#) section.

Circuit Diagrams

→ See [Circuit Diagrams \(ace 2, boost\)](#).

Cable Requirements

Ethernet Cable

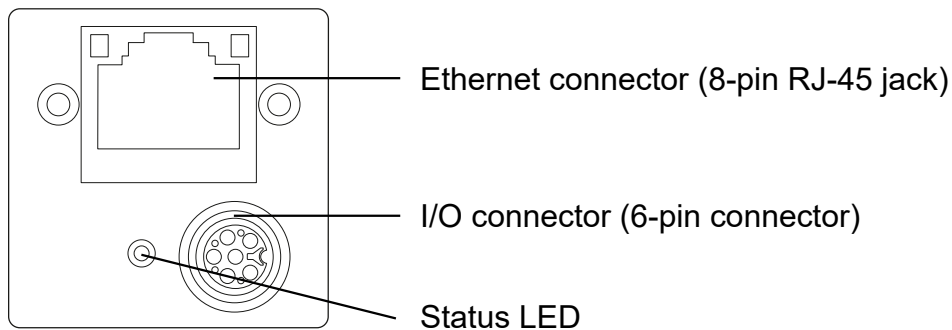
- Use a high-quality Ethernet cable. Use of shielded CAT 5E or better cables with S/STP shielding is recommended.
- Use either a straight-through (patch) or a cross-over Ethernet cable.
- As a general rule, applications with longer cables or applications in harsh EMI conditions require higher category cables.
- Proximity to strong magnetic fields should be avoided.
- Basler recommends using Ethernet cables from the [Basler Vision Components](#) range.

I/O Cable

- The I/O cable must be shielded.
- The I/O cable must have a cross-section of at least 0.25 mm² (close to AWG24).
- Maximum recommended cable length: 10 m
- Camera-side connector: M8 6-pin male, coding A-standard, according to IEC 61076-2-104
- Close proximity to strong magnetic fields should be avoided.
- If you are supplying power to the camera via Power over Ethernet, the I/O cable will not be used to supply power. However, you can still use the cable to connect to the I/O lines.
- Basler recommends using I/O cables from the [Basler Vision Components](#) range:
 - [Power-I/O Cable M8 6p/open, 5 m](#)
 - [Power-I/O Cable M8 6p/open, 10 m](#)

Physical Interface

Camera Connectors



Ethernet Connector

- 100/1000 Mbit/s Ethernet connection to the camera
- If power is not supplied via I/O connector: Power over Ethernet (PoE)
- 8-pin RJ-45 jack
- Recommended mating connector: 8-pin RJ-45 plug (snap-in or with locking screws)
- When using locking screws, note the horizontal orientation of the screws.

I/O Connector

- If power is not supplied via Power over Ethernet (PoE): Power supply

- M8 6-pin female connector
- Recommended mating connector: M8 6-pin male, coding A-standard, according to IEC 61076-2-104

Status LED

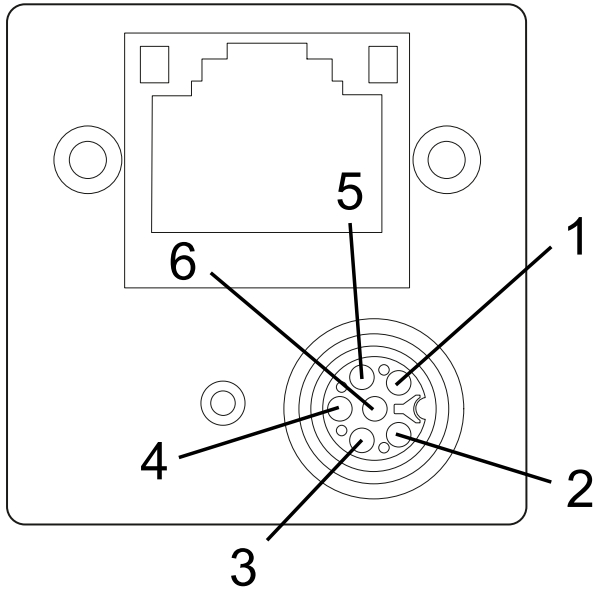
Indicates camera operation (LED lit = camera operating).

The LED can be turned off permanently by setting the `DeviceIndicatorMode` parameter to `Inactive`.

LED States

| LED State | Meaning |
|------------------------------------------------------------------------------------|---------------------------------------------|
| Off | No power |
| Solid green | Powered, network connection established |
| Flashing green (3x short – 3x long – 3x short) repeatedly until error is corrected | System error (e.g., internal error) |
| Flashing green (3x long) repeatedly until error is corrected | User error (e.g., temperature error) |
| Alternating: Bright green / off | Link down (powered, but no GigE connection) |
| Alternating: Bright green / dark green | Allocating IP address |
| Solid green with a periodical, short dark phase | Network conflict |

Connector Pin Numbering and Assignments



| Pin | Line | Function |
|-----|--------|--------------------------------------------------------------|
| 1 | - | 12 VDC camera power |
| 2 | Line 1 | Opto-coupled I/O input line |
| 3 | - | Ground for opto-coupled I/O lines |
| 4 | Line 2 | General purpose I/O (GPIO) line |
| 5 | Line 3 | General purpose I/O (GPIO) line |
| 6 | - | Ground for camera power and General Purpose I/O (GPIO) lines |

Precautions

→ See [Safety Instructions \(ace, ace 2\)](#).

Installation

→ See [Camera Installation](#).

Features

→ See [Features](#).