

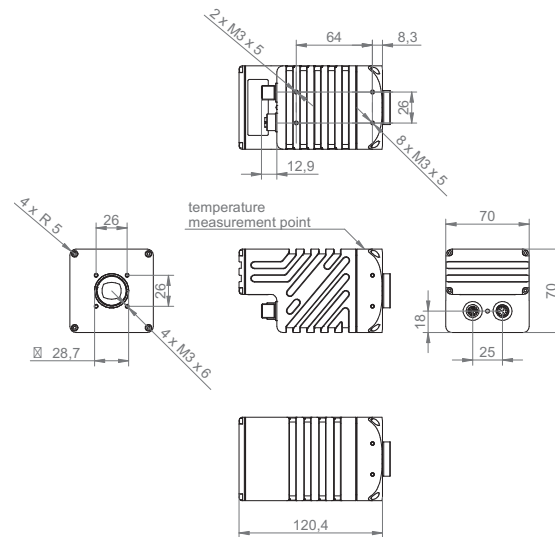
Quickstart



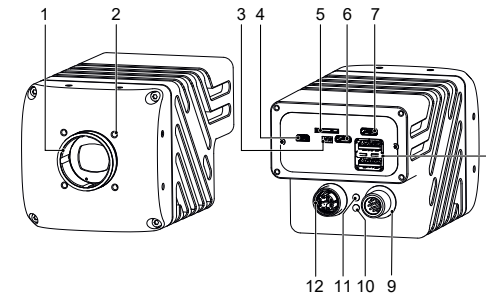
VAX

Smart Camera

Dimensions



General Description



1	Lens mount (C-mount)	2	4 x Tube adapter / front mounting threads
3	Recovery mode jumper	4	Micro HDMI
5	Slot for micro SD card	6	Debug UART
7	Recovery mode (Micro USB)	8	2 x USB3.0 (Type A)
9	Power supply / Digital-IO / RS232	10	Status LED
11	Ethernet LED	12	Gigabit Ethernet Port

LED Signaling

Description	Signal	Meaning
Ethernet LED	green static	Link active
	orange flash	Data traffic
Status LED	off	Power off / Booting error
	green static	Power on

EN

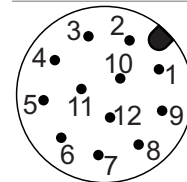
Baumer Optronic GmbH

Badstrasse 30
DE-01454 Radeberg, Germany
☎ Tel: +49 (0)3528 4386 0
www.baumer.com

For further Baumer contacts go to:
www.baumer.com

Right of modifications reserved
12/13/2021, SAP 11217718, V2
ID 195941643

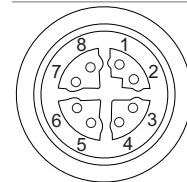
Power and Process Interface



1	Power Vcc	brown	7	OUT3	black
2	GND (Power)	blue	8	RS232 TxD	grey
3	IN1 (Camera Line1)	white	9	OUT4	red
4	OUT1 (Camera Line2)	green	10	RS232 RxD	violet
5	IN2	pink	11	GND (IO)	grey-pink
6	OUT2	yellow	12	Power (IO)	red-blue

Connector: M12 / 12-pin / a-coded (SACC-CI-M12MS-12CON-L180)
Shielded cable needs to be used. Cable ordered separately.

Data Interface (Ethernet)



1	MX1+	5	MX4+
2	MX1-	6	MX4-
3	MX2+	7	MX3-
4	MX2-	8	MX3+

Connector: M12 / 8-pol / x-coded (SACC-CI-M12FS-8CON-L180-10G)

Power Supply

Power Vcc	24 V (± 20 %)
Power IO	12 V (- 20 %) ... 48 V (+ 10 %)
Class 2 per NEC / Protection Class III	
The device is intended to be supplied from an isolated Limited Energy Source per UL61010-1, 3rd ed cl. 9.4 or Limited Power Source per UL60950-1 or Class 2 per NEC.	

Applicable documents

- Download at www.baumer.com:
 - Operating manual
 - Data sheet
 - EU conformity declaration
 - Approval certificates
- As a product insert:
 - General information insert (11042373)

Intended use

The Baumer AX Smart Camera is a user programmable, Linux based, all-in-one image processing system for many different applications. It has a compact housing suitable for industrial use and is designed exclusively for indoor use. The use in wet locations is permissible under consideration of the IP protection class.

CAUTION

Use the camera only for its intended purpose!

Any use that is not described in the technical documentation poses dangers and will void the warranty. The risk has to be borne solely by the unit's owner.

Lens mounting

Avoid contamination of the sensor and the lens by dust and airborne particles when mounting the lens to the device!

Therefore the following points are very important:

- Install the camera in an environment that is as dust free as possible!
- Keep the C-Mount covered if no lens is attached
- Hold the camera downwards with unprotected sensor.
- Avoid contact with any optical surface of the camera!

Wiring (example)

What is included:

- The AX Smart Camera
 - Cover
 - UMO/UM2 jumper
 - M12 dust cover
 - C-Mount dust cover
- preinstalled OS and software

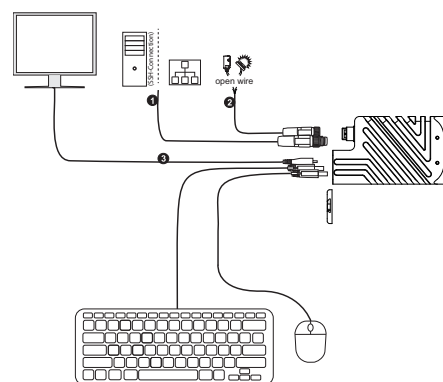
What is not included:

To use the AX Smart Camera further components are required:

- 24 V Power Supply (min. 25 W)
- M12 power / GPIO cable
- suitable C-Mount lens
- To access all features of the AX Smart Cameras we recommend also following:
 - USB keyboard and mouse
 - HDMI monitor
 - Micro HDMI adapter
 - M12 X-Coded Ethernet cable
- a computer with internet connection is required for flashing the device
- USB Type A to micro B cable

Baumer provides a large variety of optional accessories which are tested to work with AX Smart Cameras:

- IP67 Tubing System for lens protection
- larger end-lid to cover USB-License-Dongles or small USB Sticks
- Mounting Plate with tripod-thread
- M12 process and Ethernet cables with a variety of specifications and length
- various C-Mount lenses
- various lighting options



- | | |
|---------------------------------------------|--------------|
| 1 Ethernet cable (SSH-Connection / Network) | 3 HDMI cable |
| 2 Cable for power supply, Digital-IO | |

Ambient temperature / Heat transmission

CAUTION

Heat accumulation in the device

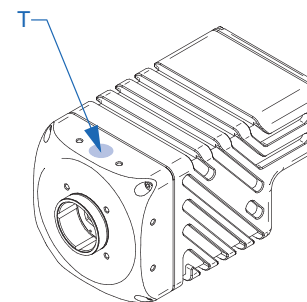
Heat can damage the device. Provide adequate dissipation of heat. As there are numerous possibilities for installation, Baumer recommends no specific method for proper heat dissipation, but suggest the following principle:

- Every form of convection around the device and mounting helps reduce temperature. Prevent heat from becoming trapped!
- Mounting in combination with forced convection may provide proper heat dissipation.
- Avoid mounting onto stainless steel. Stainless steel has a roughly 10-fold lower thermal conductivity compared to aluminum.
- Do not install the device at the end of a profile; this will allow heat to dissipate on both sides (higher temperature drops over a larger area)!
- Do not operate other devices in close proximity to the camera. Their waste heat could additionally heat the camera.

The cooling requirements of the AX Smart Cameras differ widely depending on the computing power required for the application.

Generally, it is always a good idea to mount the AX Smart Camera on a large aluminum profile or similar mounting point to aid heat dissipation.

Further, NVIDIA® provides tools to reduce the maximum power usage and tools to monitor temperatures and computing requirements.



Camera Type	Max. Temperature (T = Measurement Point)
Monochrome	
VAX-32M.I.NVN	65 °C (149 °F)
VAX-50M.I.NVX	60 °C (140 °F)
Color	
VAX-32C.I.NVN	65 °C (149 °F)
VAX-50C.I.NVX	60 °C (140 °F)

Environmental requirements

Storage temperature	-10 °C (+14 °F) ... +70 °C (+158 °F)
Humidity	10 % ... 90 % non condensing

IP Protection classes

The devices continue working in an industrial environment to meet the requirements of various protection classes.

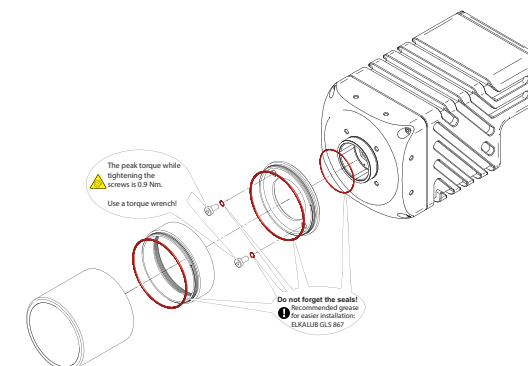
IP40 with mounted lens, cables and port cover

IP67 with mounted tube, cables and port cover

In order to achieve the mentioned IP protection level, please note the following information:

- The tube needs to be screwed on gap-free.
- The M12 connectors or caps need to be tightened with a torque value of 0.4 Nm.
- Use cables that also meets the required IP protection class.
- The cover over unused connections must be installed.

Sealing rings



Gap-free assembly

