

AXIS T99A11 Positioning Unit 24 V AC/DC

ENGLISH

Installation Guide

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Read this first

Read through this Installation Guide carefully before installing the product. Keep the Installation Guide for future reference.

Liability

Every care has been taken in the preparation of this document. Please inform your local Axis office of any inaccuracies or omissions. Axis Communications AB cannot be held responsible for any technical or typographical errors and reserves the right to make changes to the product and manuals without prior notice. Axis Communications AB makes no warranty of any kind with regard to the material contained within this document, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. Axis Communications AB shall not be liable nor responsible for incidental or consequential damages in connection with the furnishing, performance or use of this material. This product is only to be used for its intended purpose.

Intellectual property rights

Axis AB has intellectual property rights relating to technology embodied in the product described in this document. In particular, and without limitation, these intellectual property rights may include one or more of the patents listed at axis.com/patent.htm and one or more additional patents or pending patent applications in the US and other countries.

This product contains licensed third-party software. See the menu item "About" in the product's user interface for more information.

This product contains source code copyright Apple Computer, Inc., under the terms of Apple Public Source License 2.0 (see opensource.apple.com/apsl/). The source code is available from developer.apple.com/bonjour/

Equipment modifications

This equipment must be installed and used in strict accordance with the instructions given in the user documentation. This equipment contains no user-serviceable components. Unauthorized equipment changes or modifications will invalidate all applicable regulatory certifications and approvals.

Trademark acknowledgements

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Regulatory information

Europe

CE This product complies with the applicable CE marking directives and harmonized standards:

- Electromagnetic Compatibility (EMC) Directive 2014/30/EU. See *Electromagnetic compatibility (EMC) on page 3*.
- Low Voltage (LVD) Directive 2014/35/EU. See *Safety on page 4*.
- Restrictions of Hazardous Substances (RoHS) Directive 2011/65/EU. See *Disposal and recycling on page 4*.

A copy of the original declaration of conformity may be obtained from Axis Communications AB. See *Contact information on page 4*.

Electromagnetic compatibility (EMC)

This equipment has been designed and tested to fulfill applicable standards for:

- Radio frequency emission when installed according to the instructions and used in its intended environment.
- Immunity to electrical and electromagnetic phenomena when installed according to the instructions and used in its intended environment.

USA

This equipment has been tested using a shielded network cable (STP) and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. The product shall be connected using a shielded network cable (STP) that is properly grounded.

Canada

This digital apparatus complies with CAN ICES-3 (Class A). The product shall be connected using a shielded network cable (STP) that is properly grounded. Cet appareil numérique est conforme à la norme CAN NMB-3 (classe A). Le produit doit être connecté à l'aide d'un câble réseau blindé (STP) qui est correctement mis à la terre.

Europe

This digital equipment fulfills the requirements for RF emission according to the Class A limit of EN 55032. The product shall be connected using a shielded network cable (STP) that is properly grounded. Notice! This is a Class A product. In a domestic environment this product may cause RF interference, in which case the user may be required to take adequate measures.

Australia/New Zealand

This digital equipment fulfills the requirements for RF emission according to the Class A limit of AS/NZS CISPR 32. The product shall be connected using a shielded network cable (STP) that is properly grounded. Notice! This is a Class A product. In a domestic environment this product may cause RF interference, in which case the user may be required to take adequate measures.

Japan

この装置は、クラスA 情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対


策を講ずるよう要求されることがあります。本製品は、シールドネットワークケーブル(STP)を使用して接続してください。また適切に接地してください。

Korea
이 기기는 업무용 환경에서 사용할 목적으로 적합성 평가를 받은 기기로서 가정용 환경에서 사용하는 경우 전파간섭의 우려가 있습니다. 적절히 접지된 STP (shielded twisted pair) 케이블을 사용하여 제품을 연결 하십시오.


Safety
This product complies with IEC/EN/UL 62368-1, safety of audio/video and IT equipment and IEC/EN/UL 60950-22, Safety of Information Technology Equipment. The product shall be grounded using both the protective earth wire in the power cable and the grounding braid. Make sure both ends of the protective earth wire and the grounding braid are in contact with their respective grounding surfaces.

The power supply used with this product shall fulfill the requirements for Safety Extra Low Voltage (SELV) according to clause 2.2 of IEC/UL 60950-1 or CEC/NEC Class 2 source of supply as defined in the Canadian Electrical Code, CSA C22.1 and National Electrical Code, ANSI/NFPA 70.

Disposal and recycling
When this product has reached the end of its useful life, dispose of it according to local laws and regulations. For information about your nearest designated collection point, contact your local authority responsible for waste disposal. In accordance with local legislation, penalties may be applicable for incorrect disposal of this waste.

Europe
 This symbol means that the product shall not be disposed of together with household or commercial waste. Directive 2012/19/EU on waste electrical and electronic equipment (WEEE) is applicable in the European Union member states. To prevent potential harm to human health and the environment, the product must be disposed of in an approved and environmentally safe recycling process. For information about your nearest designated collection point, contact your local authority responsible for waste disposal. Businesses should contact the product supplier for information about how to dispose of this product correctly.

This product complies with the requirements of Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS).

China
 This product complies with the requirements of SJ/T 11364-2014, Marking for the restriction of hazardous substances in electrical and electronic products.

电气安装部分	X	0	0	0	0	0
0: 表示该有毒有害物质在该部件所有均质材料中的含量均在GB/T 26572标准规定的限量要求以下。 X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出GB/T 26572标准规定的限量要求。						

Contact information
Axis Communications AB
Emdälavägen 14
223 69 Lund
Sweden
Tel: +46 46 272 18 00
Fax: +46 46 13 61 30
axis.com

Warranty information
For information about Axis' product warranty and thereto related information, go to axis.com/warranty

Support
Should you require any technical assistance, please contact your Axis reseller. If your questions cannot be answered immediately, your reseller will forward your queries through the appropriate channels to ensure a rapid response. If you are connected to the Internet, you can:

- download user documentation and software updates
- find answers to resolved problems in the FAQ database. Search by product, category, or phrase
- report problems to Axis support staff by logging in to your private support area
- chat with Axis support staff
- visit Axis Support at axis.com/support

Learn more!
Visit Axis learning center axis.com/academy for useful trainings, webinars, tutorials and guides.

有毒有害物质或元素						
部件名称	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr-(VI))	多溴联苯 (PB-B)	多溴二苯醚 (PB-DE)

Safety information

Hazard levels

⚠DANGER

Indicates a hazardous situation which, if not avoided, will result in death or serious injury.

⚠WARNING

Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

⚠CAUTION

Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE

Indicates a situation which, if not avoided, could result in damage to property.

Other message levels

Important

Indicates significant information which is essential for the product to function correctly.

Note

Indicates useful information which helps in getting the most out of the product.

AXIS T99A11 Positioning Unit 24 V AC/DC

Safety instructions

⚠DANGER

Risk of electric shock. All cables shall be de-energized before installing or performing maintenance on the product.

⚠WARNING

The Axis product shall be installed by a trained professional, and in compliance with local laws and regulations.

⚠CAUTION



Risk of injury. Moving parts. Keep your body parts away from the product when in operation. Disconnect from power supply before installing or performing maintenance on the product.

⚠CAUTION



Risk of injury. Hot surface. Do not touch the product when in operation. Disconnect from power supply and allow the surfaces to cool before performing maintenance on the product.

NOTICE

- The Axis product shall be used in compliance with local laws and regulations.
- Store the Axis product in a dry and ventilated environment.
- Avoid exposing the Axis product to shocks or heavy pressure.
- Do not install the product on unstable poles, brackets, surfaces or walls.
- Use only applicable tools when installing the Axis product. Using excessive force with power tools could cause damage to the product.
- Do not use chemicals, caustic agents, or aerosol cleaners.
- Use a clean cloth dampened with pure water for cleaning.
- Use only accessories that comply with the technical specification of your product. These can be provided by Axis or a third party. Axis recommends using Axis power source equipment compatible with your product.
- Use only spare parts provided by or recommended by Axis.
- Do not attempt to repair the product yourself. Contact Axis support or your Axis reseller for service matters.
- Do not point the camera lens toward the sun or other high-intensity radiation sources because this could cause damage to the camera.

Transportation

NOTICE

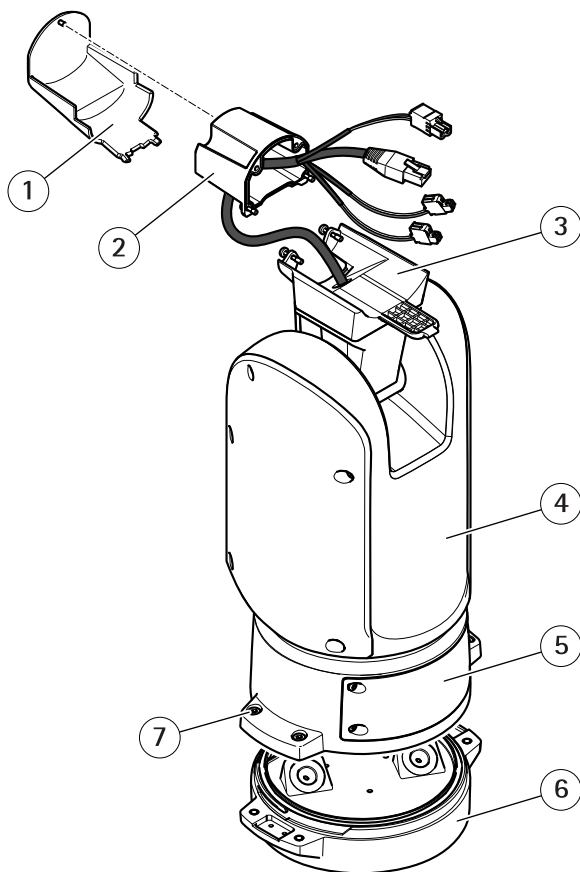
- When transporting the Axis product, use the original packaging or equivalent to prevent damage to the product.

Package contents

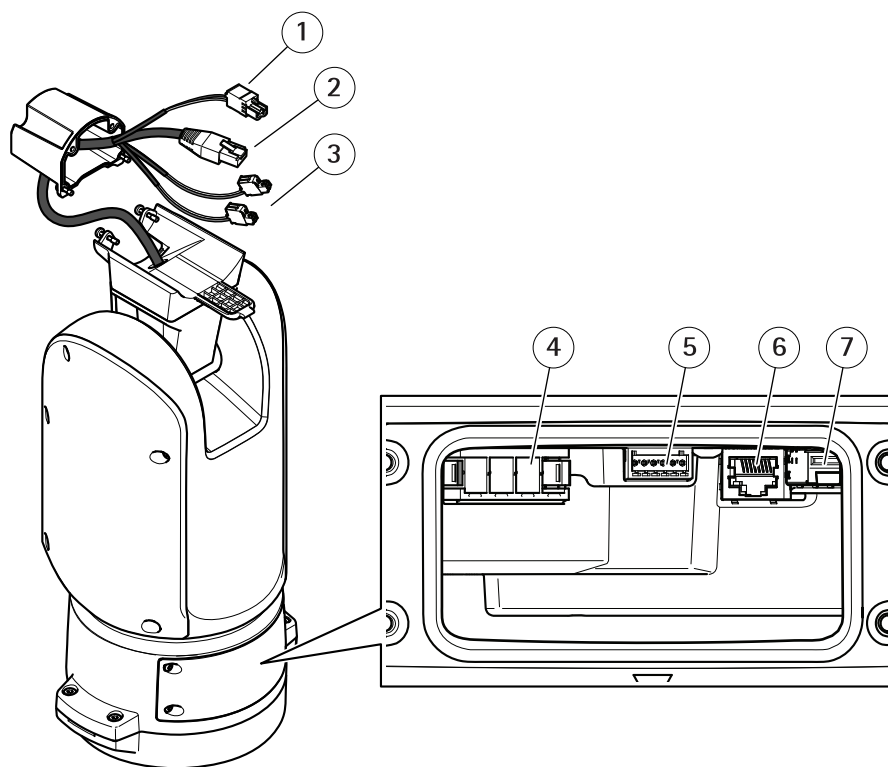
- Positioning unit
- Back lid
- Power connector
- I/O connector
- Torx® bit T20 and T30
- Printed materials
 - Installation Guide (this document)
 - Extra serial number label (2x)
 - AVHS Authentication key

AXIS T99A11 Positioning Unit 24 V AC/DC

Product overview



- 1 Back lid
- 2 Positioning unit back cover
- 3 Adapter
- 4 Positioning unit
- 5 Lid
- 6 Base unit
- 7 Base unit screws



- 1 Camera power cable
- 2 Camera network cable
- 3 Camera serial interface cables
- 4 Input power connector
- 5 I/O connector
- 6 RJ45 connector
- 7 SFP slot for SFP module (SFP module not included)

How to install the product

⚠DANGER

Risk of electric shock. All cables shall be de-energized before installing the product.

⚠CAUTION

The electrical connections and conduit installations shall be made by a certified electrician and in compliance with local regulations.

⚠CAUTION



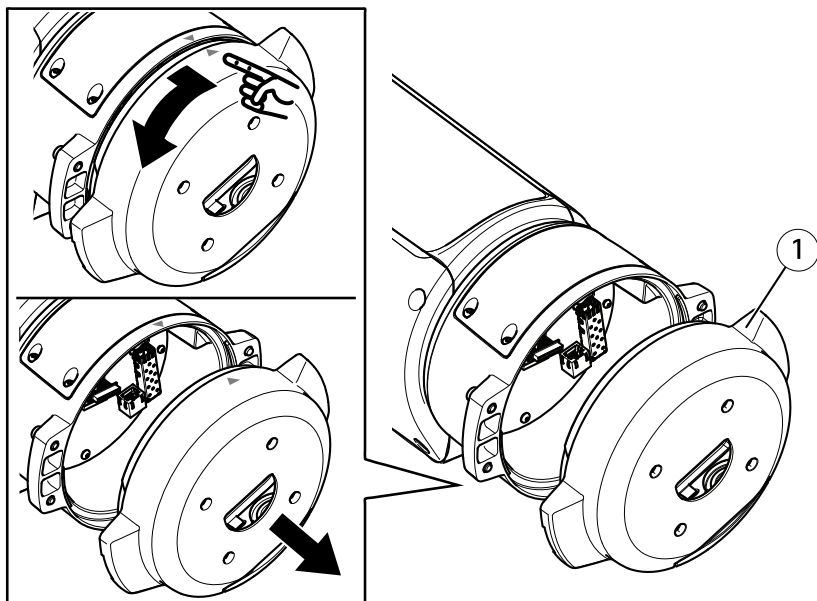
Risk of injury. Moving parts. Keep your body parts away from the product when in operation. Disconnect from power supply before installing or performing maintenance on the product.

⚠CAUTION



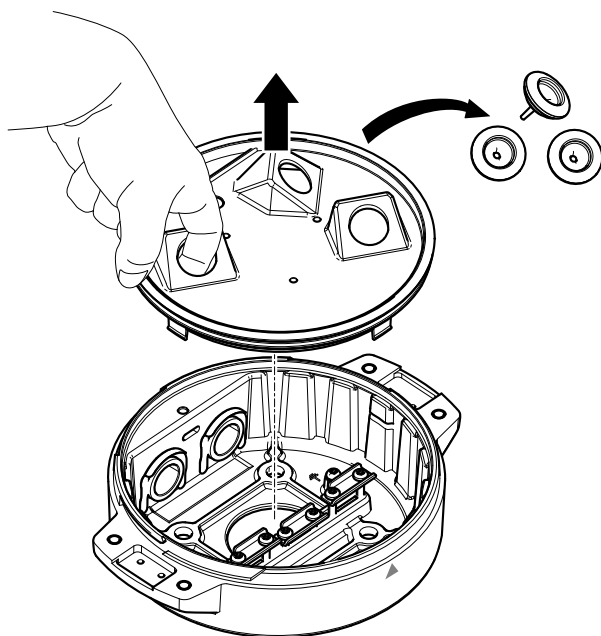
Risk of injury. Hot surface. Do not touch the product when in operation. Disconnect from power supply and allow the surfaces to cool before performing maintenance on the product.

Mount the base unit



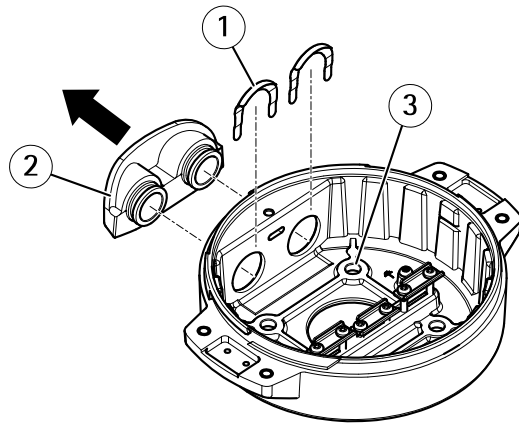
1 Base unit

1. Remove the four base unit screws (T30).
2. Simultaneously pull and turn the base unit counterclockwise until the arrows on the base unit and the rest of the unit are aligned.
3. Remove the base unit.

**NOTICE**

Do not use sharp tools when removing the transparent base unit cover.

4. Remove the transparent base unit cover.



- 1 Conduit cover clip
- 2 Conduit cover
- 3 Screw hole (x4)

5. For conduit installations only: remove the two conduit cover clips followed by the conduit cover.
6. Attach the base unit to the mounting surface using the appropriate fasteners in the four screw holes.

Route the cables

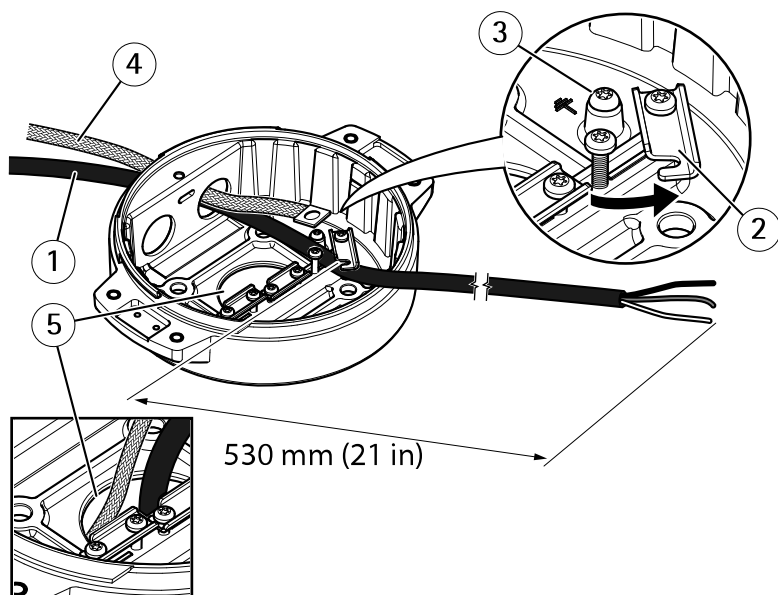
⚠WARNING

Risk of electric shock. The product shall be grounded using both the protective earth wire in the power cable and the grounding braid. Make sure both ends of the protective earth wire and the grounding braid are in contact with their respective grounding surfaces.

Important

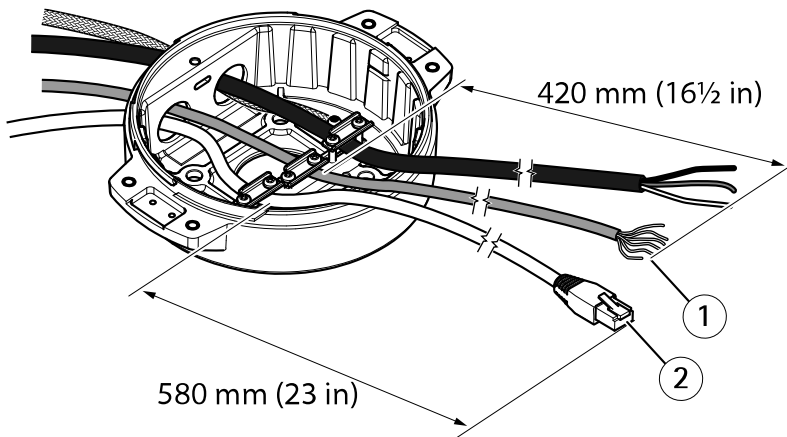
Use only cables that comply with the specified cable area. For more information, see *Cable thickness* on page 31.

AXIS T99A11 Positioning Unit 24 V AC/DC



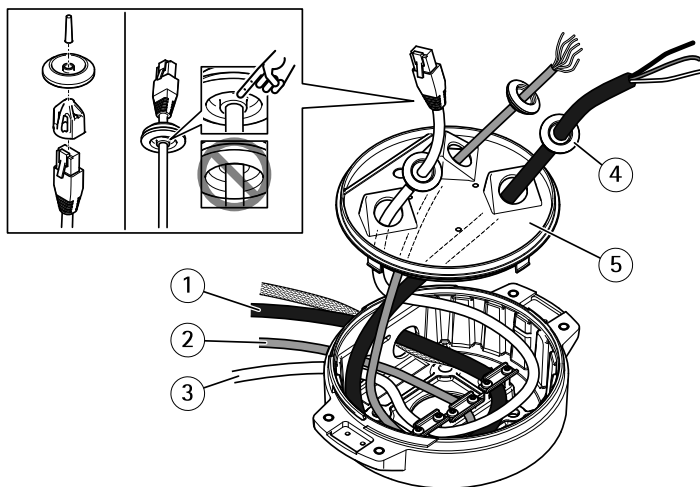
- 1 Power cable (not included)
- 2 Strain relief
- 3 Grounding screw
- 4 Grounding braid (not included)
- 5 Bottom cable hole

1. Install the optional conduit adapters (not included).
2. Connect the grounding braid to the grounding screw.
3. Insert the power cable, I/O cable and network cable through the hole in the base unit as shown in the illustration above. Alternatively insert them through the bottom cable hole.
4. Insert the power cable through the strain relief with a distance of 530 mm (21 in) from the strain relief to the end of the cable.



- 1 I/O cable (optional, not included)
- 2 Network cable (not included)

5. Insert the I/O cable (optional) through the strain relief with a distance of 420 mm (16½ in) from the strain relief to the end of the cable.
6. Insert the network cable (optical fiber cable and/or RJ45 cable) through the strain relief with a distance of 580 mm (23 in) from the strain relief to the end of the connector. For more information on different network connectivity options, see *Install the network link* on page 21.
7. Close and tighten the three strain reliefs.



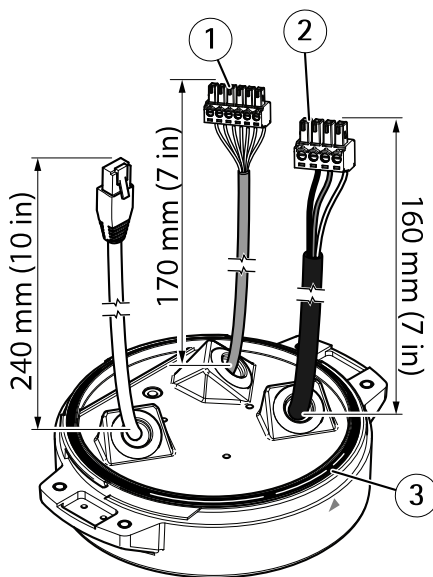
- 1 Power cable (not included)
- 2 I/O cable (optional, not included)
- 3 Network cable (not included)
- 4 Cable gasket
- 5 Transparent base unit cover

8. Fit cable gaskets on the cables. See *Cable thickness* on page 31.
9. Insert the power, I/O and network cables including the cable gaskets through the holes in the transparent base unit cover and arrange the cables as shown in the illustration above.

NOTICE

If you use both an optical fibre cable and an RJ45 cable for network connectivity, route the optical fibre cable through the same cable gasket as the I/O cable. Apply a sealant between the cables and the cable gasket to prevent leakage. For more information on different network connectivity options, see *Install the network link* on page 21.

10. Replace the transparent base unit cover on the base unit and fit the cable gaskets inside the holes.



NOTICE

Make sure the protective earth wire is about 10 mm (3/8 in) longer than the other two wires (in the power cable), so that it will not be disconnected accidentally if pulled.

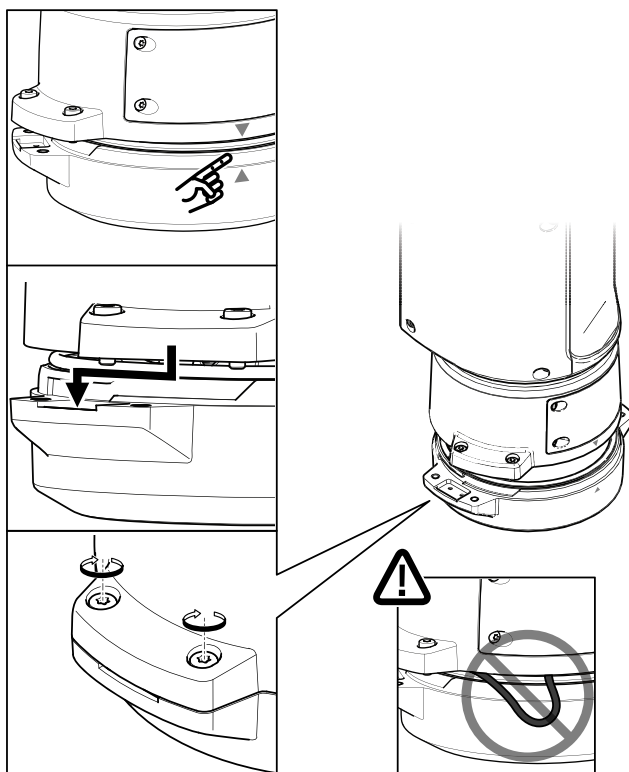
Note

We recommend that you strip approximately 90 mm (3½ in) of the power cable jacket and 70 mm (2¾ in) of the I/O cable jacket for ease of installation.

11. Install the power and I/O connectors, see *Connectors on page 29*.
12. Adjust the network, I/O and power cables so that the distance from the cable gasket to the end of the connector is 240 mm (10 in), 170 mm (7 in), and 160 mm (7 in) respectively.

NOTICE

Make sure that the O-ring is fitted correctly around the transparent base unit cover.

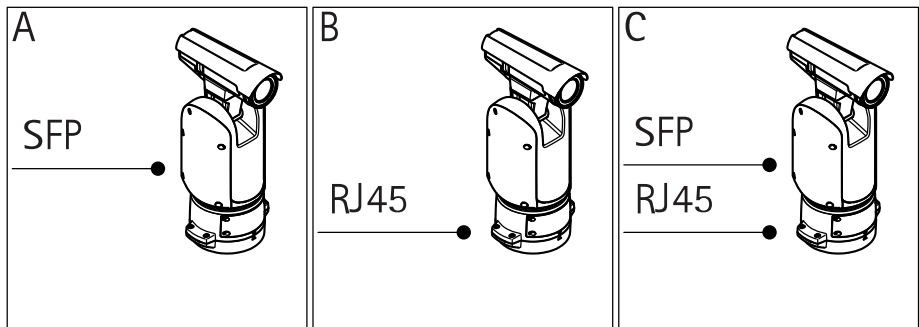


13. Replace the positioning unit on the base unit making sure that the arrows on the two units are aligned.
14. Turn the positioning unit clockwise back to its original position and tighten the four base unit screws (torque 3.0 Nm).

NOTICE

Make sure that the cables do not get not pinched when mounting the two units.

Install the network link



You have different options for installing the network link:

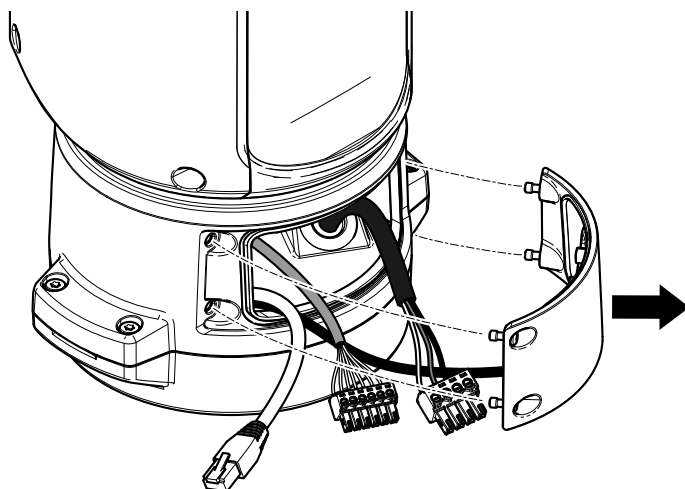
- A: via an optical fiber or RJ45 cable connected to the SFP module (with a respective connector) in the SFP slot.
- B: via an RJ45 cable connected to the fixed RJ45 connector.
- C: via both of the above, in which case connection via the SFP module functions as the primary network link and connection via the fixed RJ45 connector as the fail-over link.

For more information on network connector locations, see *Connectors on page 29*.

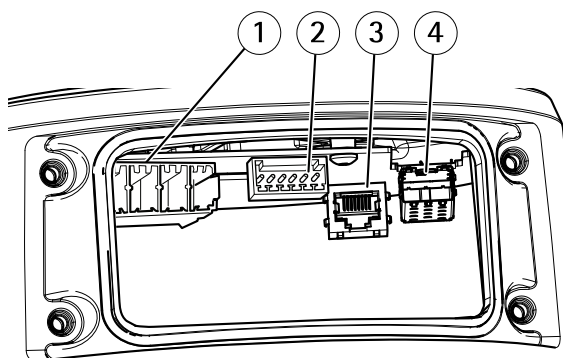
Note

- SFP module is not included. For more information on available SFP modules, see www.axis.com
- Establishing a network link only via the optical fiber cable using the respective SFP module works as a stand-alone solution for long range cabling installations.

Connect the cables



1. Loosen the four lid screws (T20) and remove the lid.



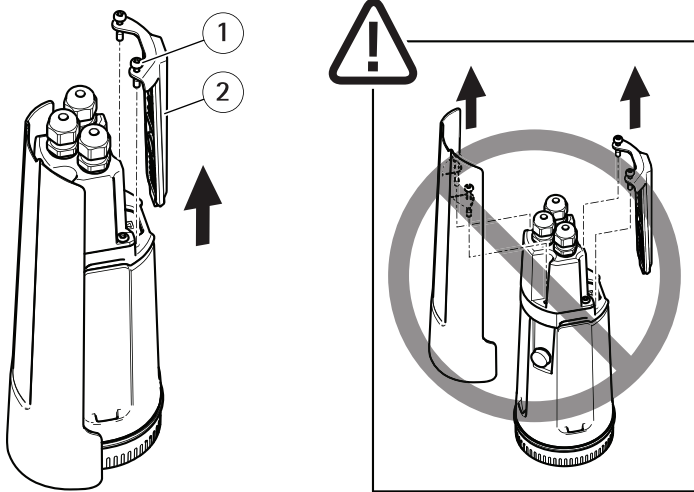
- 1 Input power connector
- 2 I/O connector
- 3 RJ45 connector
- 4 SFP slot for SFP module (SFP module not included)

2. Connect the network (optical fibre and/or RJ45), I/O and power cables. For more information on different network connectivity options, see *Install the network link* on page 21.

3. Replace the lid and tighten the four lid screws (torque 3.0 Nm).
4. Apply power to the product.

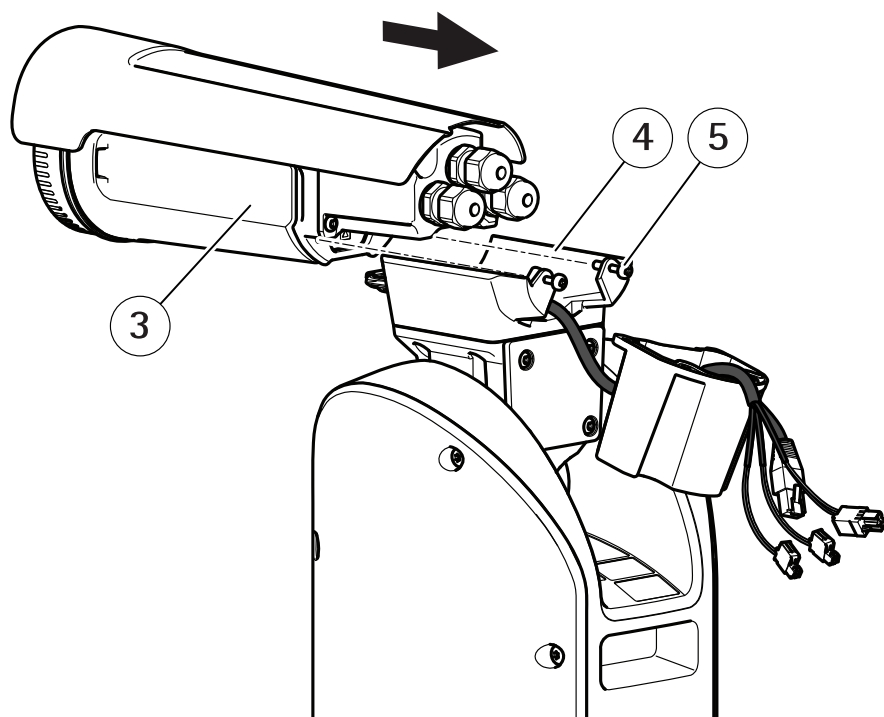
Install the camera

This product supports several network cameras. For a complete list of supported cameras, see www.axis.com.



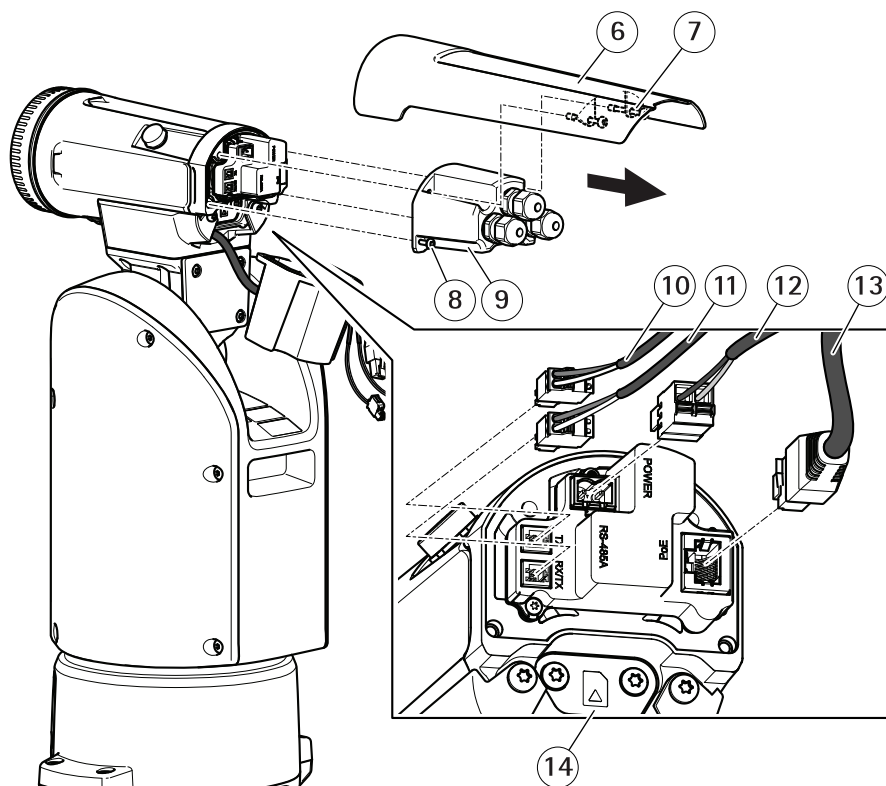
- 1 PT mount bracket screws (2x, T20)
- 2 PT mount bracket

1. Remove the PT mount bracket from the camera by loosening the screws. Discard the bracket.



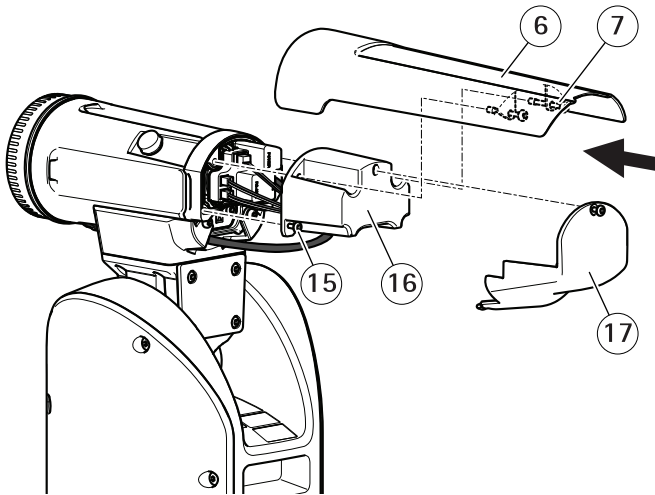
- 3 Camera
- 4 Adapter
- 5 Adapter screws (2x, T20)

2. Slide the camera backwards into the adapter. Fasten it with the adapter screws (torque 1.0 Nm) in the back.



- 6 Sunshield
- 7 Sunshield screws (2x, T20)
- 8 Camera back cover screws (2x, T20)
- 9 Camera back cover
- 10 Camera serial interface cable (TX)
- 11 Camera serial interface cable (RX/TX)
- 12 Camera power cable
- 13 Camera network cable
- 14 SD card lid

3. Remove the sunshield from the camera by loosening the screws.
4. Remove the camera back cover by loosening the screws. Discard the back cover.
5. Connect the camera network, serial interface and power cables. For more information on cable specifications see *Cables on page 31*



- 6 Sunshield
- 7 Sunshield screws (2x, T20)
- 15 Positioning unit back cover screws (2x, T20)
- 16 Positioning unit back cover
- 17 Back lid

6. Fasten the positioning unit back cover on the camera with the screws (torque 1.0 Nm).
7. Fasten the sunshield using the screws (torque 1.0 Nm).
8. Remove the SD card lid and insert the microSD card (optional) into the SD card slot in the camera. Fasten the SD card lid.
9. Fasten the back lid with the screw (T20, torque 1.0 Nm).

Install the PTZ driver

This product supports several PTZ devices. For a complete list of supported devices, see www.axis.com.

A PTZ driver is required to use this product with a PTZ device.

Some PTZ devices come with a pre-installed driver. In that case you only need to activate it.

To install the PTZ driver from the live view of your camera:

1. Go to **PTZ > Driver Selection**.
2. To find the driver (e.g. driver.ptz), click **Browse**, and then click **Upload**.
3. Select the uploaded driver from the **Select driver to use** drop-down list.

4. To enable PTZ, select **Activate PTZ**.
5. Choose the **Device type** from the drop-down list. To decide which device type to use, see the documentation supplied with the PTZ driver.

Further information

- For the latest version of this document, see axis.com
- The user manual is available at axis.com
- To check if there is updated firmware available for your product, see axis.com/support
- For useful online trainings and webinars, see axis.com/academy

Optional accessories

For a complete list of available accessories for this product, go to the product's page on axis.com and select Software & Accessories.

Warranty information

For information about Axis' product warranty and thereto related information, go to axis.com/warranty

Specifications

To find the latest version of the product's datasheet, go to axis.com > [product] > Support & Documentation.

Connectors

Network connector

RJ45 Ethernet connector.

SFP connector.

NOTICE

The product shall be connected using a shielded network cable (STP) or an optical fiber cable. All cables connecting the product to the network shall be intended for their specific use. Make sure that the network devices are installed in accordance with the manufacturer's instructions. For information about regulatory requirements, see *Electromagnetic compatibility (EMC) on page 3*.

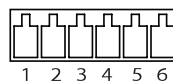
I/O connectors

Use the I/O connector with external devices in combination with, for example, tampering alarms, motion detection, event triggering, and alarm notifications. In addition to the 0 V DC reference point and power (DC output), the I/O connector provides the interface to:

Digital output – For connecting external devices such as relays and LEDs. Connected devices can be activated by the VAPIX® Application Programming Interface or in the product's webpage.

Digital input – For connecting devices that can toggle between an open and closed circuit, for example PIR sensors, door/window contacts, and glass break detectors.

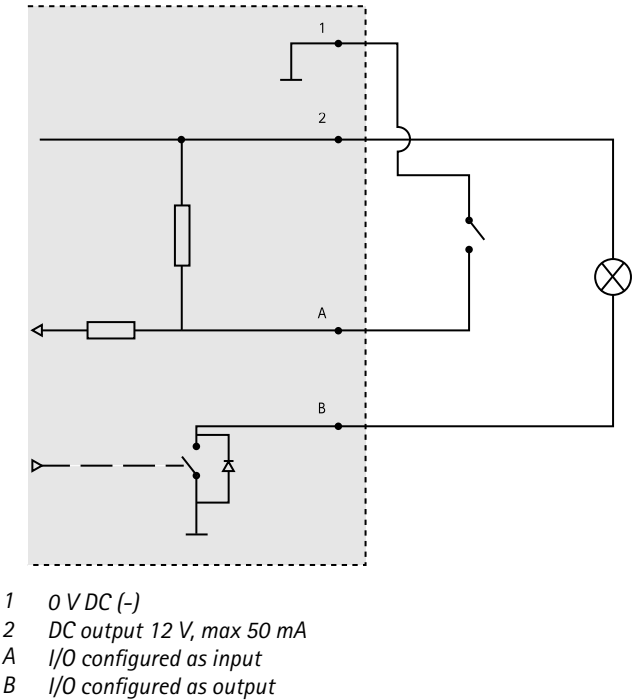
6-pin configurable terminal block



Function	Pin	Notes	Specifications
0 V DC (-)	1	DC ground	0 V DC
DC output	2	Can be used to power auxiliary equipment. Note: This pin can only be used as power out.	12 V DC Max load = 50 mA

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Configurable (Input or Output)	3–6	Digital input – Connect to pin 1 to activate, or leave floating (unconnected) to deactivate.	0 to max 30 V DC
		Digital output – Connect to pin 1 to activate, or leave floating (unconnected) to deactivate. If used with an inductive load, e.g., a relay, connect a diode in parallel with the load, to protect against voltage transients.	0 to max 30 V DC, open drain, 100 mA



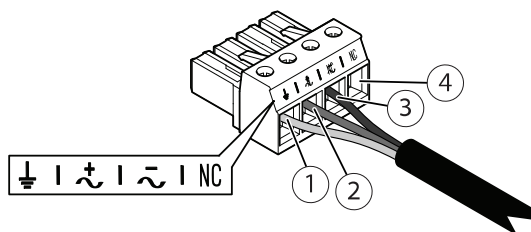
Power connector

4-pin terminal block for power input.

24 V AC/DC power connector

NOTICE

This section is valid for products powered by 24 V AC and 24 V DC only.



Position	24 V AC	24 V DC
1	Protective earth	Protective earth
2	24 V AC Phase	+ 24 V
3	24 V AC Neutral	0 V
4	Not connected	Not connected

Cables

Cable thickness

The cable diameter, when using cable gaskets provided with the product, should be in the range of 5 to 11 mm (0.2 to 0.4 in).

NOTICE

- Use cables that keep within the specified cable area
- Select cables in compliance with your local regulations
- Make sure all cable holes are properly sealed
- Use cable gaskets or cable glands that match both the cable hole and the cable area

For information about accessories, such as cable gaskets and cable glands that allow for other cable areas, see www.axis.com

Camera serial interface cable

Cable color	Specification
White	RS485A
Green	RS485B

AXIS T99A11 Positioning Unit 24 V AC/DC

Camera power cable

Cable color	Specification
Red	+ 24 V DC
Black	0 V

Operating conditions

This Axis product is intended for indoor and outdoor use.

Temperature	Humidity
Normal: -50 °C to 60 °C (-58 °F to 140 °F) Maximum (intermittent): 65 °C (149 °F) Cold start: -40 °C to 60 °C (-40 °F to 140 °F)	10–100% RH (non-condensing)

The start-up time is 2 minutes at 0 °C to 50 °C (32 °F to 122 °F).

Power consumption

Typical consumption	Max consumption
10 W	169 W

Important

When using the 22 m (72 ft) AXIS Cable 24 V DC/24–240 V AC with AXIS T99A 24 V AC/DC, a power supply capable of delivering 220 W is required to compensate for the power loss in the cable.

NOTICE

The typical power consumption values are based on the following:

- Any losses in the power cable disregarded
- No positioning active
- Temperature at 25 °C / 77 °F (all heaters off)
- One H.264 stream at maximum resolution
- MJPEG stream recorded to SD card

Installation Guide

AXIS T99A11 Positioning Unit 24 V AC/DC

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