AXIS T99A12 Positioning Unit 24 V AC/DC

Installation guide

Read this first . . . 3
Legal considerations . . . 3
Liability . . . 3
Intellectual property rights . . . 3
Equipment modifications . . . 3
Trademark acknowledgements . . . 3
Regulatory information . . . 3
Contact information . . . 4
Warranty information . . . 4
Support . . . 4
Learn more! . . . 4
Safety information . . . 5
Safety instructions . . . 5
Package contents . . . 7
Product overview . . . 8
How to install the product . . . 10
Mount the base unit . . . 10
Route the cables . . . 12
Install the network link . . . 17
Install the camera . . . 18
Connect the cables . . . 21
Select the PTZ driver . . . 22
Specifications . . . 24
Connectors . . . 24
Cables . . . 27

Read this first

Read through this installation guide carefully before you install the product. Keep the installation guide for future reference.

Legal considerations

Video and audio surveillance can be regulated by laws that vary from country to country. Check the laws in your local region before using this product for surveillance purposes.

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* and one or more additional patents or pending patent applications in the US and other countries.

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

AXIS COMMUNICATIONS, AXIS, ARTPEC and VAPIX are registered trademarks of Axis AB in various jurisdictions. All other trademarks are the property of their respective owners.

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 Directive (LVD) 2014/35/EU. See *Safety on page 4* .
- Restriction of Hazardous Substances (RoHS) Directive 2011/65/EU and 2015/863, including any amendments, updates or replacements. See .

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 device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. this device must accept any interference received, including interference that may cause undesired operation.

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.

Contact information

Axis Communications Inc.
300 Apollo Drive
Chelmsford, MA 01824
United States of America
Tel: +1 978 614 2000

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機器です。この装置を住宅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。 VCCI – A
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。
本製品は電気通信事業者（移動通信会社、固定通信会社、インターネットプロバイダ等）の通信回線（公衆無線 LAN を含む）に直接接続することができません。本製品をインターネットに接続する場合は、必ずルータ等を経由し接続してください。

Korea
이 기기는 업무용 환경에서 사용할 목적으로 적합성평가를 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 have a rated output voltage within voltage range of 20-28 V AC/DC, and a max current rating of 10.5 A.

The power supply used with this product shall fulfill one of the following requirements:

- Safety Extra Low Voltage (SELV) according to clause 2.2 of IEC/EN/UL 60950-1
- Class 1 electrical energy source (ES1) according to IEC/EN/UL 62368-1

We recommend the use of Axis power supply DIN PS24 480 W.

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 and 2015/863 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.

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)
电气实装部分	X	0	0	0	0	0

0: 表示该有毒有害物质在该部件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
Gränden 1
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:

- 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/learning* for useful trainings, webinars, tutorials and guides.

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.

Safety instructions

⚠DANGER

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

⚠CAUTION

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

⚠CAUTION

Hot surface. Risk of injury. Don't touch the product when it's 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.
- Use a yellow/green colored grounding cable of at least 0.5 mm^2 or 20 AWG.

Transportation

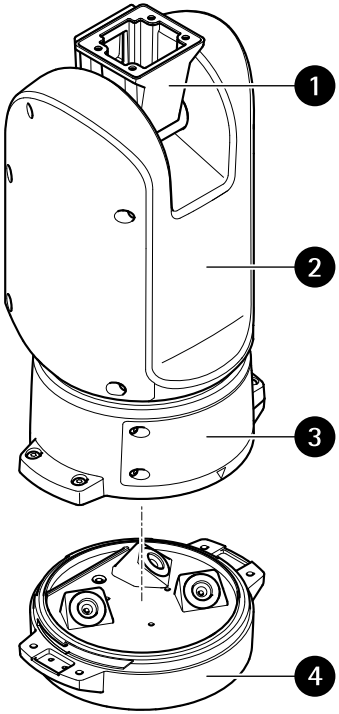
NOTICE

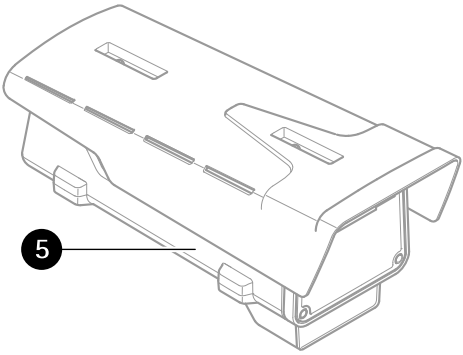
- When transporting the Axis product, use the original packaging or equivalent to prevent damage to the product.

Package contents

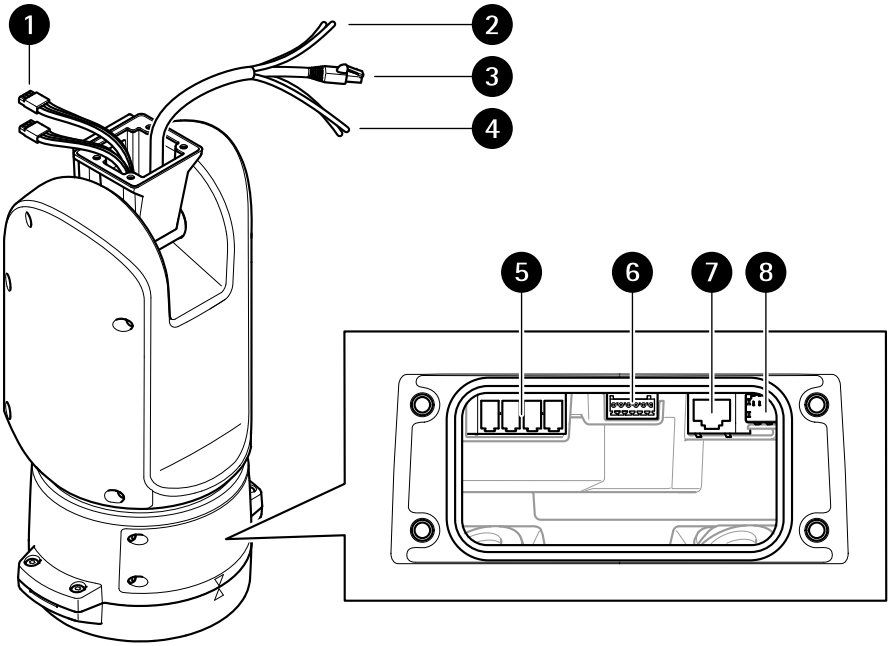
- Positioning unit
- Power connector
- I/O connector
- Torx® bit T20 (long) and T30

Product overview





1 *Positioning unit (tilt)*
2 *Positioning unit (pan)*
3 *Lid*
4 *Base unit*
5 *Camera (not included)*



1 *Illuminator cables (not to be used)*
2 *Camera power cable*
3 *Camera network cable*
4 *Camera serial interface cable*
5 *Input power connector*
6 *I/O connector*
7 *RJ45 connector*
8 *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.

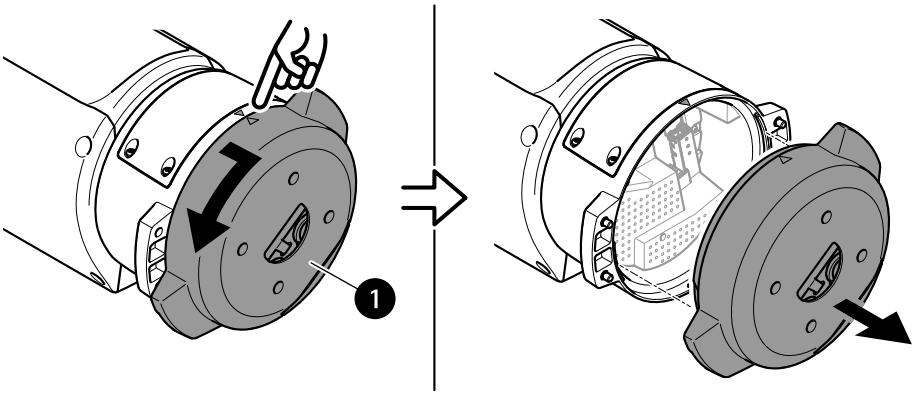
⚠CAUTION

⚠ 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.

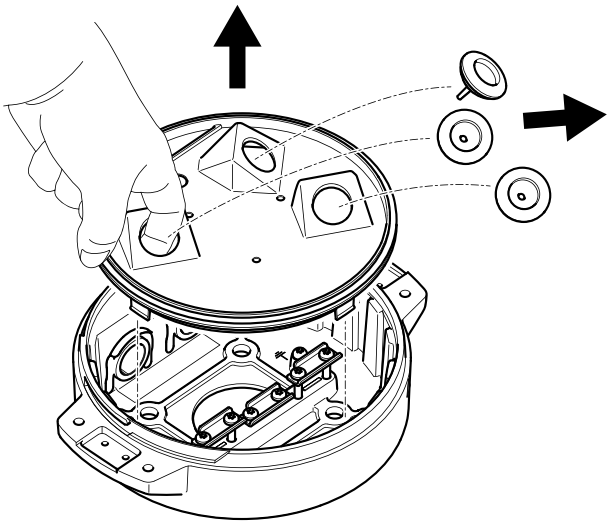
Mount the base unit



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 positioning unit align.

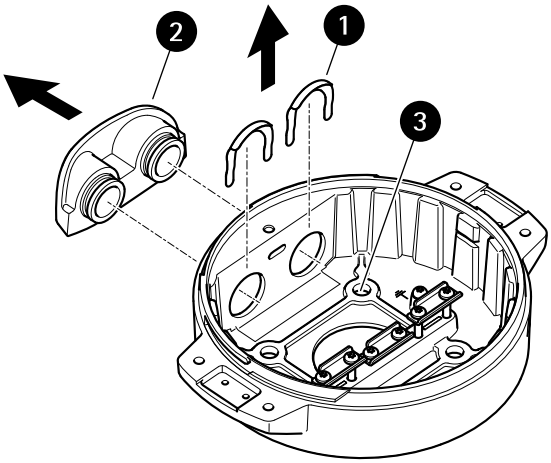
3. Remove the base unit.



NOTICE

Do not use sharp tools when you remove 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 with appropriate fasteners in the four screw holes.

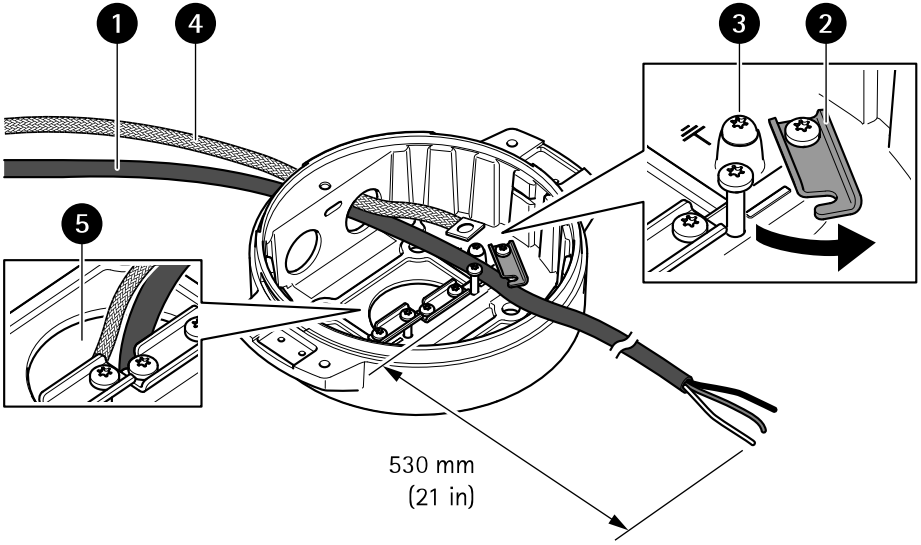
Route the cables

⚠WARNING

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

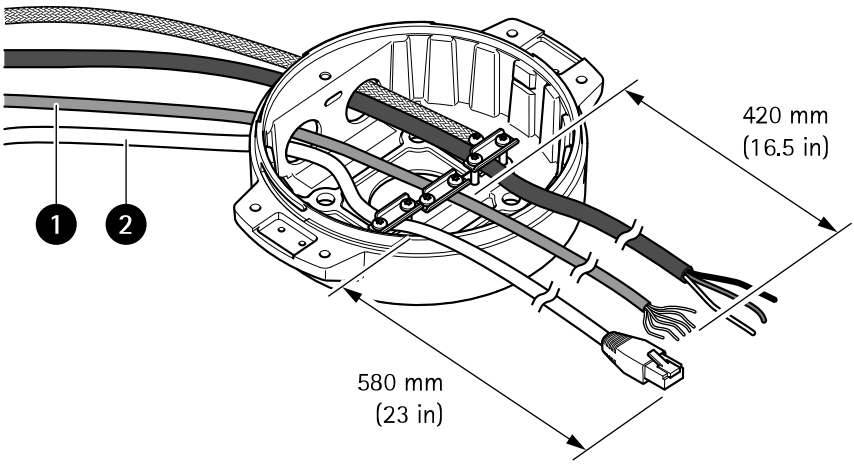
Important

Use only cables that comply with the specified cable area. For more information, see *Cable thickness on page 27*.



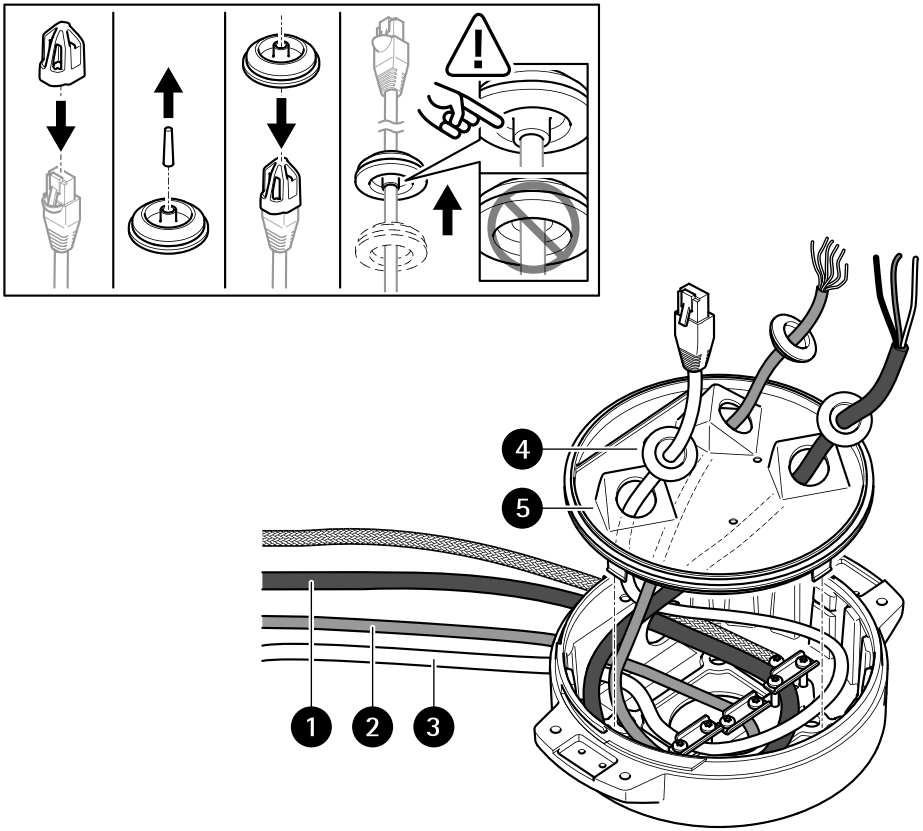
1 Power cable (not included)
2 Strain relief
3 Grounding screw
4 Grounding braid (not included)
5 Bottom cable hole

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 (16.5 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 17*.
7. Close and tighten the three strain reliefs.



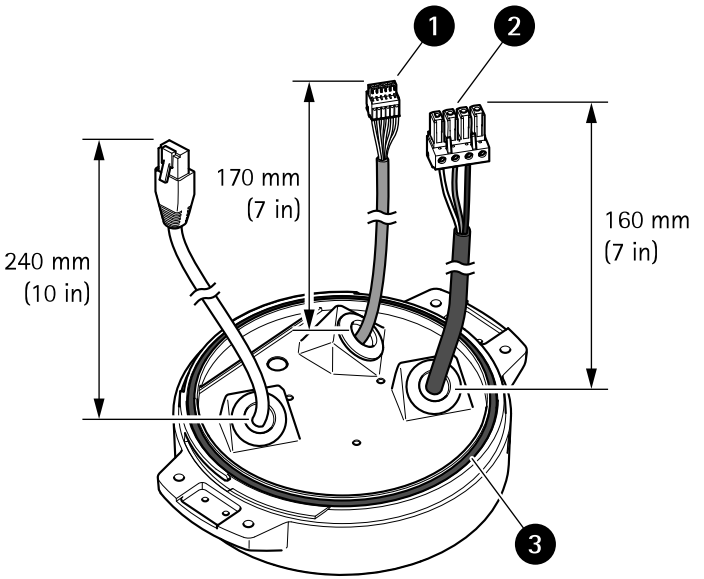
1 *Power cable (not included)*
2 *I/O cable (optional, not included)*
3 *Network cable (not included)*
4 *Cable gasket*
5 *Transparent base unit cover*

8. Fit cable gaskets on the cables. See *Cable thickness on page 27*.
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 17*.

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



1 I/O connector
2 Power connector
3 O-ring

NOTICE

To not accidentally disconnect the unit from power if the cable is pulled, let the protective grounding wire be about 10 mm (0.4 in) longer than the other two wires (in the power cable).

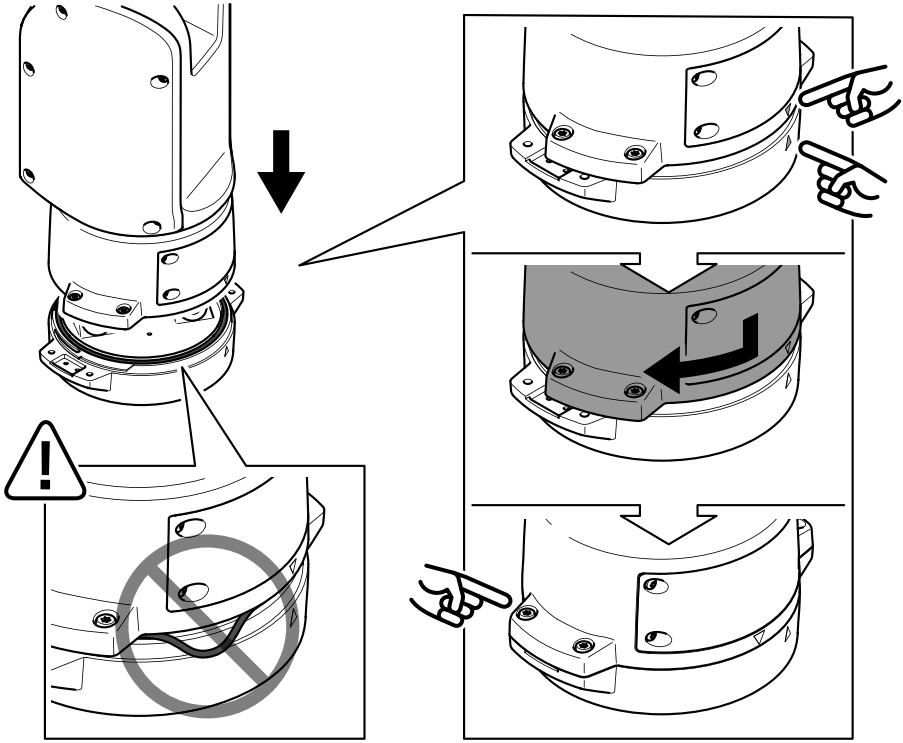
Note

To make the installation as easy as possible, we recommend you to strip approximately 90 mm (3.5 in) of the power cable jacket and 70 mm (2.8 in) of the I/O cable jacket.

11. Install the power and I/O connectors.
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.

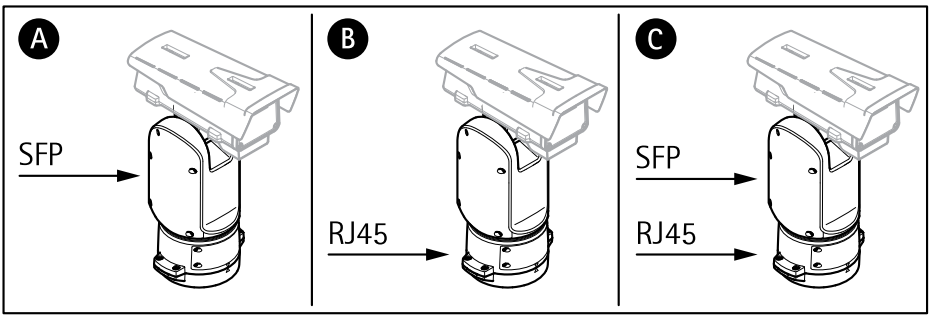


13. Place the positioning unit on the base unit. Make sure that the arrows on the two units are aligned.
14. Turn the positioning unit clockwise back to its original position and tighten the four base unit screws (torque 3.0 Nm).

NOTICE

Make sure that the cables don't get pinched when you assemble the two units.

Install the network link



You can choose between different options when you install 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 the SFP module connection functions as the primary network link, and the fixed RJ45 connection functions as the fail-over link.

For more information on network connector locations, see *Product overview on page 8*.

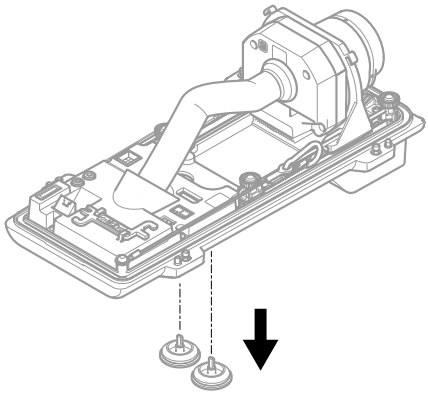
Note

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

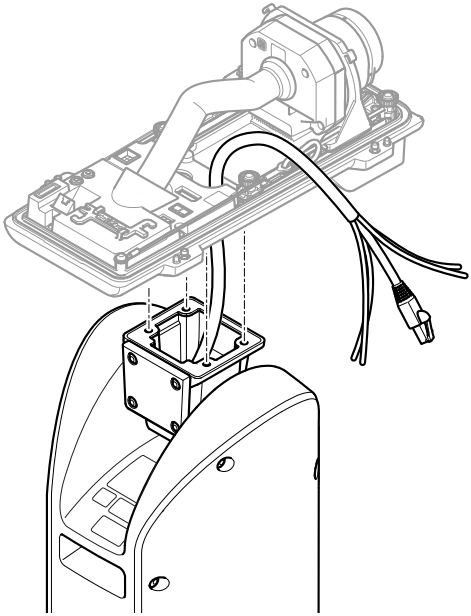
Install the camera

NOTICE

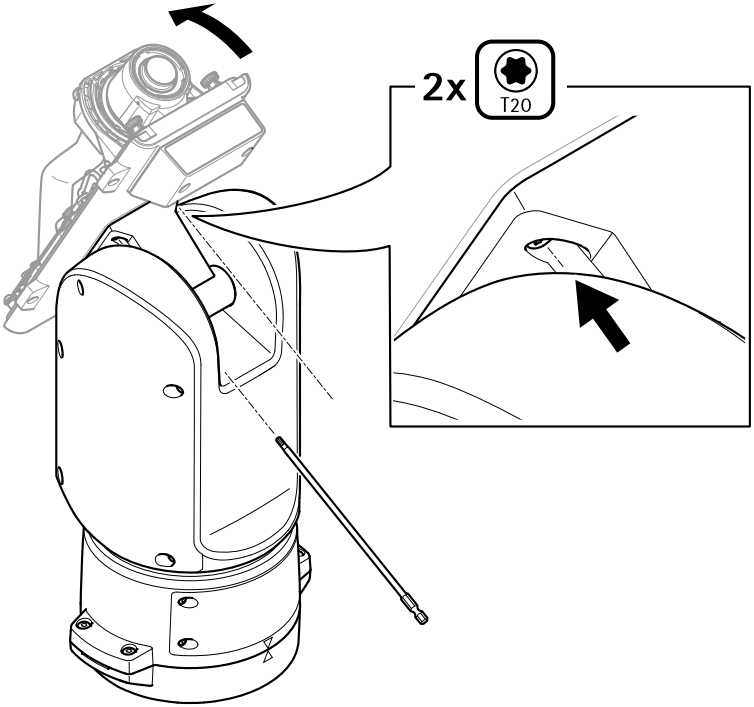
- This product supports several camera models. For a complete list of supported cameras, see the product page at *axis.com*.
- For instructions on how to open the camera cover, see the camera's installation guide.



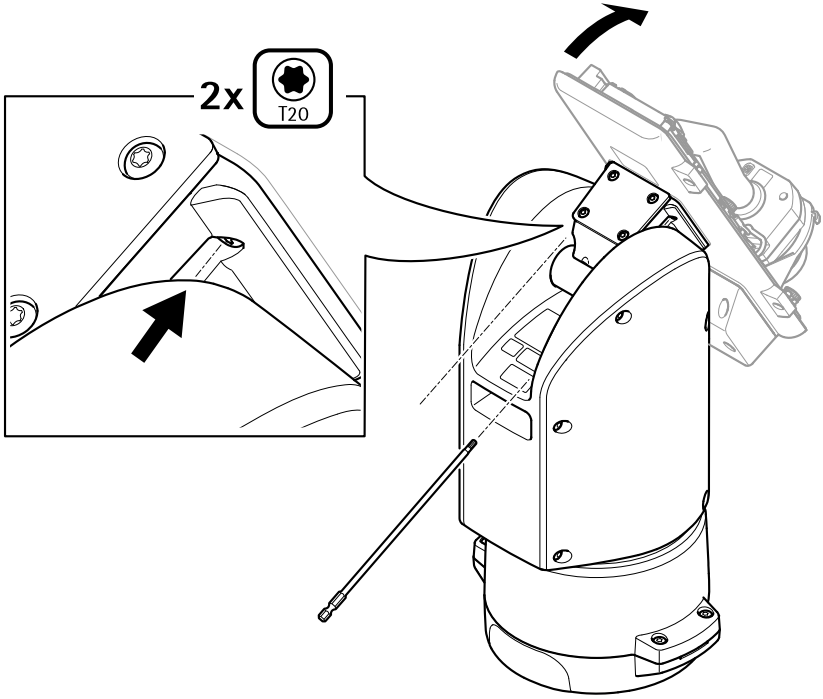
1. Remove the cable gaskets from the camera's bottom cover.



2. Insert the network/power/serial interface cable trough the holes in the bottom cover.
3. Fit the bottom cover on the positioning unit.

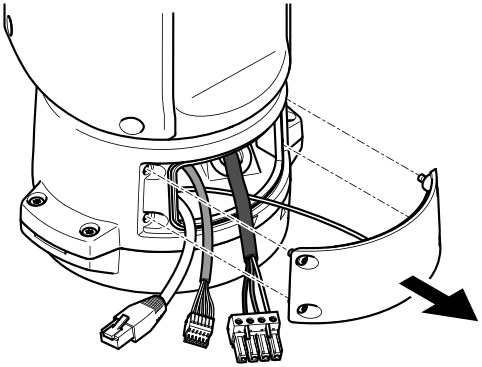


4. Tilt the bottom cover backward to its end position and tighten the two front screws of the positioning unit (T20, torque 3.0 Nm).

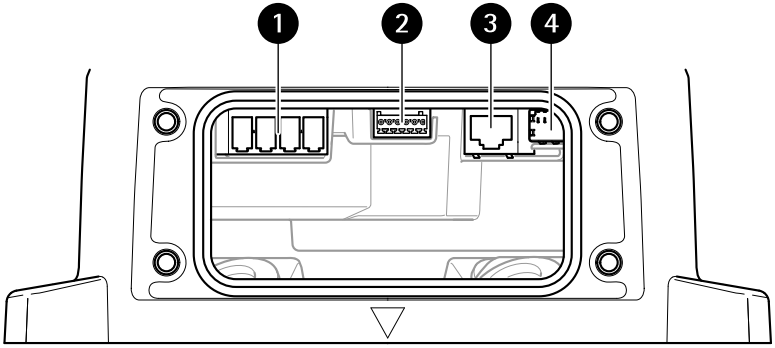


5. Tilt the bottom cover forward to its end position and tighten the two rear screws of the positioning unit (T20, torque 3.0 Nm).
6. Connect the camera network, serial interface and power cables according to the camera's installation guide. For more information on cable specifications, see *Camera power cable on page 27* and *Camera serial interface cable on page 27*.
7. Finalize the camera installation according to the camera's installation guide.

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 17*.
3. Return the lid to its position and tighten the four lid screws (torque 3.0 Nm).
4. Remove the protective cover.
5. Apply power to the product.

Select the PTZ driver

1. Go to the camera's webpage.
2. Go to **System > Accessories > PTZ**.
3. If your camera supports both PTZ drivers and digital PTZ, select PTZ mode **Mechanical**.
4. Select the driver **APTP** and click **Save**.
5. Go to the **PTZ** tab and check that the pan-tilt settings are available.

Specifications

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*.

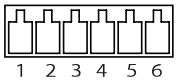
I/O connector

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.

Digital output – For connecting external devices such as relays and LEDs. Connected devices can be activated by the VAPIX® Application Programming Interface, through an event or from the device's web interface.

A digital light sensor – For receiving a value of the ambient light intensity from an external light sensor. This is used to control the device's day and night functionality.

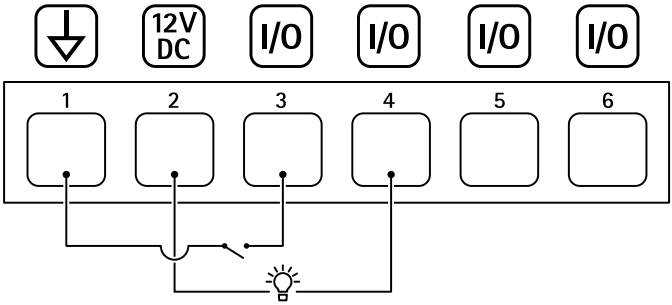
6-pin configurable terminal block



Function	Pin	Notes	Specifications
DC ground	1		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

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 – Internally connected to pin 1 (DC ground) when active, and floating (unconnected) when inactive. 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

Example



1 *DC ground*
2 *DC output 12 V, max 50 mA*
3 *I/O configured as input*
4 *I/O configured as output*
5 *Configurable I/O*
6 *Configurable I/O*

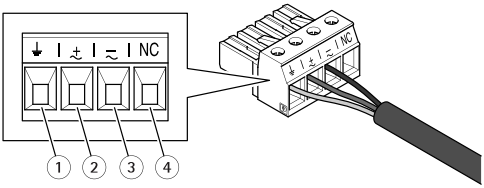
Power connector

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.



This table is only valid for the 24 V AC and the 24 V DC power connectors.

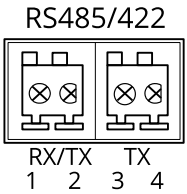
Position	24 V AC	24 V DC
1	Protective earth	Protective earth
2	24 V AC Phase	+ 24 V
3	24 V AC Neutral	0 V
4	Not connected	Not connected

RS485/RS422 connector

Two 2-pin terminal blocks for RS485/RS422 serial interface used to control auxiliary equipment such as pan-tilt devices.

The serial port can be configured to support:

- Two-wire RS485 half duplex
- Four-wire RS485 full duplex
- Two-wire RS422 simplex
- Four-wire RS422 full duplex point to point communication



Function	Pin	Notes
RS485/RS422 RX/TX A	1	(RX) For full duplex RS485/RS422 (RX/TX) For half duplex RS485
RS485/RS422 RX/TX B	2	

RS485/RS422 TX A	3	(TX) For full duplex RS485/RS422
RS485/RS422 TX B	4	

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	RS485 RX/TX A
Green	RS485 RX/TX B

Camera power cable

Cable color	Specification
Red	+ 24 V DC
Black	0 V

Installation guide
AXIS T99A12 Positioning Unit 24 V AC/DC
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Ver. M4.2
Date: September 2023
Part no. 2734730