

AXIS D2050-VE Network Radar Detector

Installation Guide

Read this first

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

Legal considerations

Radar 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.htm 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 and VAPIX are registered trademarks or trademark applications of Axis AB in various jurisdictions. All other company names and products are trademarks or registered trademarks of their respective companies.

Regulatory information

Europe

CE0682

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 2*.
- Radio Equipment Directive (RED) 2014/53/EU. See *Radio transmission on page 2*.
- Low Voltage (LVD) Directive 2014/35/EU. See *Safety on page 3*.
- Restrictions of Hazardous Substances (RoHS) Directive 2011/65/EU. See *Disposal and recycling on page 3*.

A copy of the original declaration of conformity may be obtained from Axis Communications AB. See *Contact information on page 3*.

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.

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.

Radio transmission

This equipment may generate or use radio frequency energy. The user could lose the authority to operate this equipment if an unauthorized change or modification is made.

USA

This equipment complies with the limits for a Class A digital device, pursuant to 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 undesirable operation.

This product complies with FCC radiation exposure limits for an uncontrolled environment. This equipment shall be installed and operated with a minimum distance of 20 cm (7.9 in) between the user and the device.

Canada

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

This product complies with IC radiation exposure limits for an uncontrolled environment. This equipment shall be installed and operated with a minimum distance of 20 cm (7.9 in) between the user and the device. Transmitter

carrier frequency is 24.050 – 24.250 GHz, and field strength is 95.0 dBµV/m measured at 3 m distance.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Ce produit est conforme aux limites d'exposition aux radiations IC pour un environnement non contrôlé. L'équipement doit être installé et fonctionné à une distance minimum de 20 cm (7,9 po) entre l'utilisateur et le dispositif. La fréquence porteuse du transmetteur est de 24,050 - 24,250 GHz, et l'intensité du champ est de 95,0 dBµV/m mesurée à 3 m de distance.

Europe

Hereby, Axis Communications AB declares that this product is in compliance with the essential requirements and other relevant provisions of Directive 2014/53/EC.

FR

Par la présente Axis Communications AB déclare que l'appareil ce produit est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 2014/53/CE.

DE

Hiermit erklärt Axis Communications AB, dass sich dieses Produkt in Übereinstimmung mit den grundlegenden Anforderungen und den anderen relevanten Vorschriften der Richtlinie 2014/53/EG befindet.

IT

Con la presente Axis Communications AB dichiara che questo prodotto è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 2014/53/CE.

ES

Por medio de la presente Axis Communications AB declara que el este producto cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 2014/53/CE.

FI

Axis Communications AB vakuuttaa täten että tämä tuote tyyppinen laite on direktiivin 2014/53/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.

NL

Hierbij verklaart Axis Communications AB dat het toestel in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 2014/53/EG.

SV

Härmed intygar Axis Communications AB att denna produkt står i överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 2014/53/EG.

DA

Undertegnede Axis Communications AB erklærer herved, at følgende udstyr overholder de væsentlige krav og øvrige relevante krav i direktiv 2014/53/EF.

PT

Axis Communications AB declara que este produto está conforme com os requisitos essenciais e outras disposições da Directiva 2014/53/CE.

EL

ΜΕ ΤΗΝ ΠΑΡΟΥΣΑ Axis Communications AB ΔΗΛΩΝΕΙ ΟΤΙ αυτό το προϊόν ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ

ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 2014/53/ΕΚ.

This equipment can be used in the following countries:

AT, BE, BG, CH, CY, CZ, DE, DK, EE, EL, ES, FI, FR, HR, HU, IE, IS, IT, LI, LT, LU, LV, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR, UK

Safety

If its connecting cables are routed outdoors, the product shall be grounded either through a shielded network cable (STP) or other appropriate method.

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 either through a shielded network cable (STP) or other appropriate method.

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).

Contact information

Axis Communications AB
Emdalavägen 14
223 69 Lund
Sweden

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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!

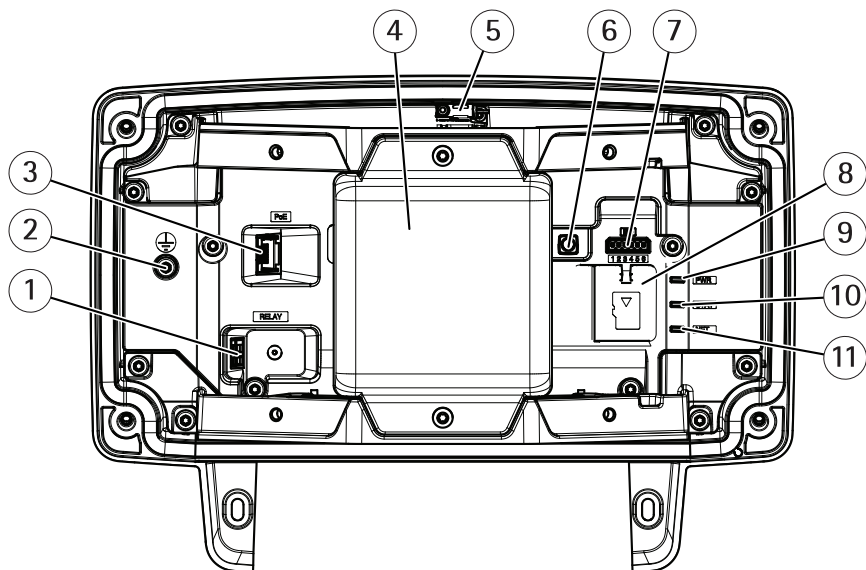
Visit Axis learning center axis.com/academy for useful trainings, webinars, tutorials and guides.

Package contents

- AXIS D2050-VE Network Radar Detector
- Mount bracket
- Pipe adapter (2x)
- Screw (2x)
- Torx screwdriver TR20
- Mounting tool for RJ45
- Cable shoe
- Lock washer
- Cable gasket, gray (2x)
- Cable gasket, black
- Cable gland
- 6-pin I/O connector block for connecting external devices
- Printed materials
 - Installation Guide (this document)
 - Extra serial number label (2x)
 - AVHS Authentication key
 - Drill template
 - Radar surveillance sticker

AXIS D2050-VE Network Radar Detector

Product overview



- 1 Relay connector
- 2 Grounding screw
- 3 Network connector
- 4 Radar module
- 5 Intrusion alarm switch
- 6 Control button
- 7 I/O connector
- 8 microSD card slot
- 9 Power LED
- 10 Status LED
- 11 Network LED

Where to install the product

The detector is intended for monitoring open areas. Any solid object (such as a tree or a bush) in the coverage area will create a blind spot (radar shadow) behind it.

Install the detector on a pole, or on a spot on a wall where there are no other objects or installations close to it.

To be able to correctly identify movement in the coverage area, the detector needs to be installed on a stable mount. Do not install the detector on a swaying pole.

If two radar detectors of are mounted close together they may interfere with each other, see *How to install multiple detectors on page 15*.

At the recommended mounting height, the near detection limit is 4.5 m (15 ft).

If there are a lot of metal objects in the field of view there will be a lot of reflections impacting the performance.

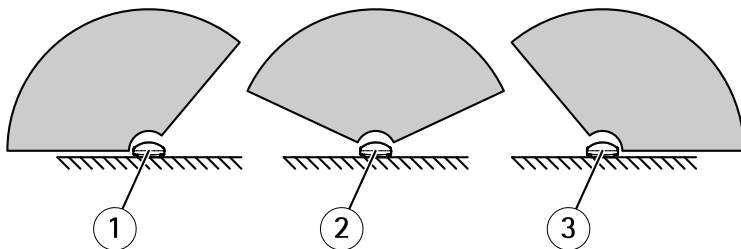
Note

Do not repaint the detector. The paint may seriously impact the detector's performance.

Mounting direction

The detector covers an angle of $\pm 60^\circ$ from its central axis. This means that if you mount it on a wall there is a blind spot to each side of the detector.

To cover the wall you can move the radar module inside the detector.



- 1 -25° mounting direction
- 2 0° mounting direction
- 3 25° mounting direction

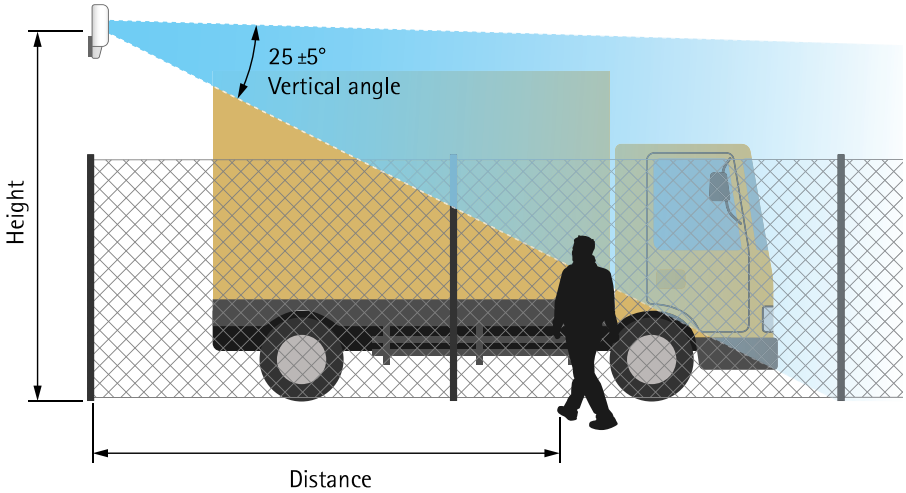
Mounting height

For optimal performance, install the detector 3.5 m (11 ft) above ground.

AXIS D2050-VE Network Radar Detector

Note

If you install the detector at a different height, enter the actual mounting height in the product's web pages before calibrating the radar.



The following table shows the detection range at different mounting heights when detecting a 1.8 m (6 ft) tall person walking.

Mounting height	3.5 m (11 ft)	4 m (13 ft)	4.5 m (15 ft)	5 m (16 ft)
Near detection limit	4.5 m (15 ft)	6 m (20 ft)	7 m (23 ft)	8.5 m (28 ft)
Far detection limit (max. values)	49 m (161 ft)	51 m (167 ft)	51 m (167 ft)	52 m (171 ft)

How to install the product

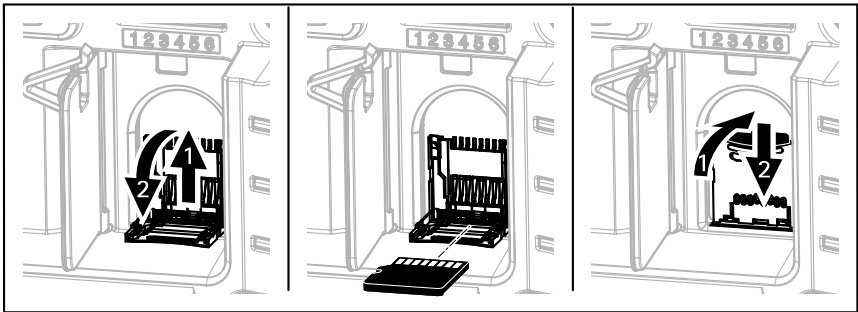
⚠WARNING

Risk of electric shock. The product shall be grounded either through a shielded network cable (STP) or using a grounding wire. If using a grounding wire, make sure both ends of the grounding wire are in contact with their respective grounding surfaces.

⚠CAUTION

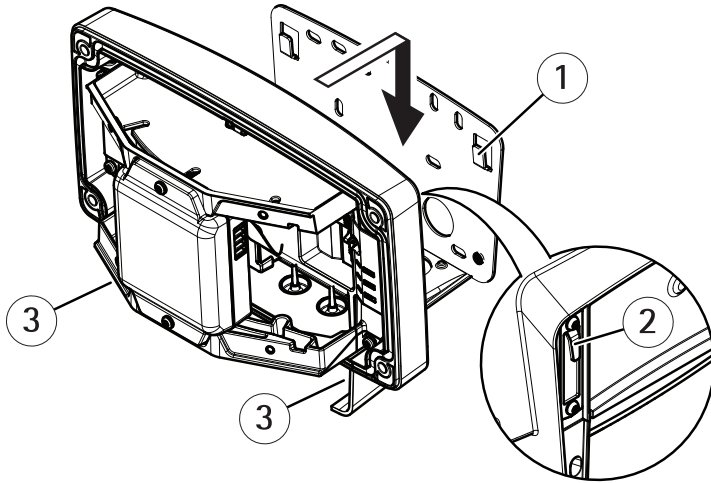
Make sure that the screws and plugs are appropriate for the material (e.g. wood, metal, drywall, stone) and that the material is strong enough to support the weight of the detector.

1. Use the drill template and mark the holes before drilling.
2. Fasten the mounting bracket to the wall.
3. Route the network cable through the mounting bracket. Leave approximately 30 cm (12 in) of cable for connecting the detector.
4. If connecting an auxiliary device, for example an I/O, repeat the step above as applicable to the specific device.
5. Remove the front cover from the detector.
6. If using a microSD card for local storage, insert the card into the detector's microSD card slot.



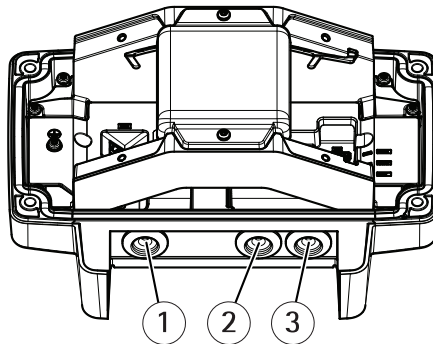
7. Attach the detector to the mounting bracket with the hooks and fasten with the screws.

AXIS D2050-VE Network Radar Detector



- 1 Hook, bracket side
- 2 Hook, detector side
- 3 Screw (2x)

8. Remove the right hand cable gasket and pull the tab to open a hole for the network cable.

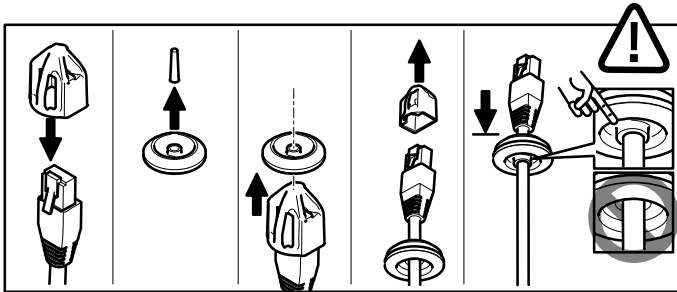


- 1 Ground/Relay
- 2 I/O
- 3 Network

NOTICE

- If more than one cable is used, each cable must be routed through a separate cable gasket.
- Only open a hole in cable gaskets that will be used and if a cable gasket is torn, replace it with a new cable gasket. Leaving a cable gasket open or using a torn cable gasket could cause water to seep in and damage the product.

9. Push the network cable through the cable gasket.



NOTICE

If the network cable has a premounted network connector, remove the cable gasket and use the connector guard to prevent tearing of the cable gasket. Avoid using network cables with capped network connectors because they could cause tearing of the cable gasket despite using the connector guard.

10. Pull the network cable back slightly so that the cable gasket adjusts itself on the cable.

NOTICE

Not pulling the cable back could cause water to seep in and damage the product.

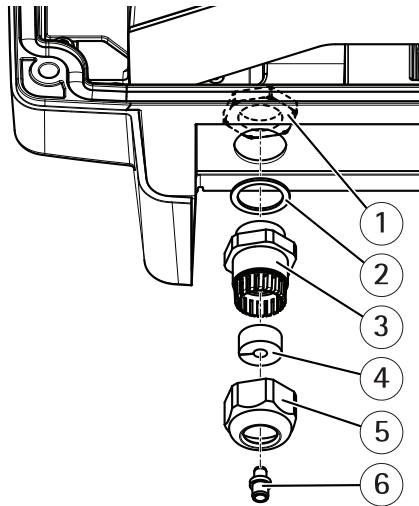
11. Put back the cable gasket.
12. If connecting an auxiliary device, for example an I/O, repeat the step above as applicable to the specific device.

NOTICE

Mount the connectors after the cables are pushed through the cable gasket.

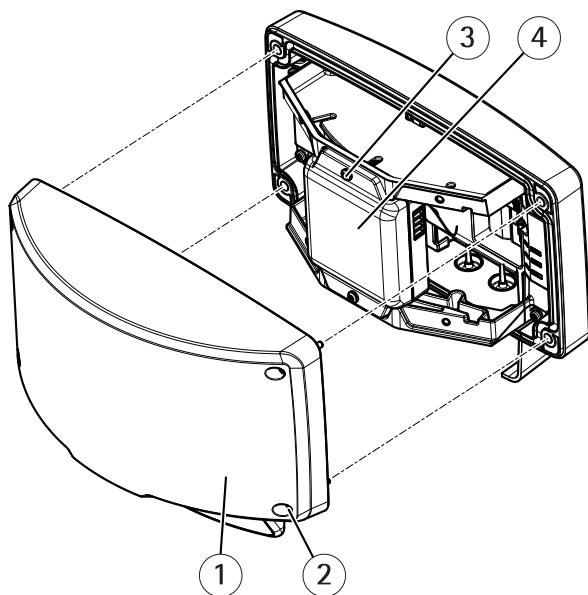
13. To use a cable gland with strain relief, assemble it as shown below. Tighten the nut and cap firmly by hand.

AXIS D2050-VE Network Radar Detector



- 1 Nut
- 2 Gasket
- 3 Body
- 4 Seal
- 5 Cap
- 6 Plug (discard)

- 14. If using a grounding wire, attach it to the cable shoe using cable shoe pliers. Attach the cable shoe to the grounding screw. Make sure the cable shoe is in contact with the grounding surface.
- 15. Connect external devices to the detector.
- 16. Connect the network cable.
- 17. Make sure that the LEDs indicate the correct condition. See *LED Indicators* on page 18.
- 18. If required, move the radar unit to one of the other mounting directions, see *Where to install the product* on page 7.



- 1 Front cover
- 2 Screw (4x)
- 3 Screw (2x)
- 4 Radar unit

19. Attach the front cover and tighten the screws.

How to access the product

AXIS IP Utility and AXIS Camera Management are recommended methods for finding Axis products on the network and assigning them IP addresses in Windows®. Both applications are free and can be downloaded from axis.com/support

The product can be used with the following browsers:

- Chrome™ (recommended), Firefox®, Edge®, or Opera® with Windows®
- Chrome™ (recommended) or Safari® with OS X®
- Chrome™ or Firefox® with other operating systems.

To find out more about how to use the product, see the User Manual available at axis.com

If you need more information about recommended browsers, go to axis.com/browser-support

AXIS D2050-VE Network Radar Detector

Configure the detector

The detector is ready to use as soon as it is installed. The default live view will show the radar coverage and any detected movement, and you can add detection zones and action rules right away.

To make it easier to see where objects are moving, you can upload a reference map, for example a ground plan or an aerial photo, that shows the area covered by the radar detector.

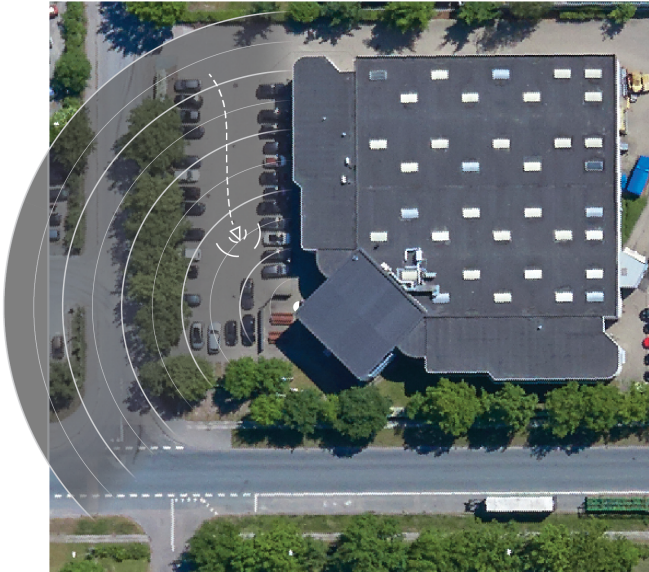


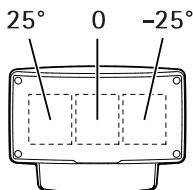
Image requirements:

- Supported file formats are jpeg and png.
- Use an image with the same proportions (16:9) or resolution (1920x1080) as the live view. If the image is smaller it will be scaled to fit the window. If the proportions are wrong, the image will not fill the entire video stream.
- Crop the image to fit the coverage of the radar as closely as possible before uploading it.
- The orientation is not important, since the radar coverage shape will be moved to adapt to the image during calibration.

After uploading the reference map you need to calibrate the radar so that the actual radar coverage fits the position, direction and scale of the reference map.

There are two methods for calibrating the reference map:

- **Calibration using pins:** The calibration is performed in the web interface by dropping pins in know locations in the reference map and setting the distance between the pins. When calibrating using pins, you need to select the mounting position of the radar module inside the detector.



- **Calibration using tracks:** The calibration method requires a person to move in front of the radar. You can do this yourself while accessing the web interface from a mobile device, or have someone else move and follow your instructions. When moving around in the different steps, move to places that are easy to find in the reference map.

How to configure the detector

1. To upload a reference map, go to **Settings > Radar > Reference map**. Select **Browse** to find an image file, and select **Upload** to place the image in the live view.
2. To calibrate the reference map, go to **Settings > Radar > Reference map calibration**. Select **Start calibration** and follow the instructions.

How to install multiple detectors

If two radar detectors of are mounted close together they may interfere with each other. To avoid problems, select different channels for the detectors.

1. Go to **Settings > Radar > General** and select **Channel**.

How to reset to factory default settings

Important

Reset to factory default should be used with caution. A reset to factory default resets all settings, including the IP address, to the factory default values.

To reset the product to the factory default settings:

1. Disconnect power from the product.
2. Press and hold the control button while reconnecting power. See *Product overview on page 6*.
3. Keep the control button pressed for 15–30 seconds until the status LED indicator flashes amber.
4. Release the control button. The process is complete when the status LED indicator turns green. The product has been reset to the factory default settings. If no DHCP server is available on the network, the default IP address is 192.168.0.90
5. Use the installation and management software tools to assign an IP address, set the password, and access the video stream.

The installation and management software tools are available from the support pages on axis.com/support

It is also possible to reset parameters to factory default via the web interface. Go to **Settings > System > Maintenance** and click **Default**.

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.

- T91A47 pole mount
- T94R01B corner bracket

AXIS D2050-VE Network Radar Detector

Specifications

To find the latest version of the product's datasheet, go to the product page on axis.com and locate **Support & Documentation**.

LED Indicators

Status LED	Indication
Green	Steady green for normal operation.
Amber	Steady during startup. Flashes when restoring settings.

Network LED	Indication
Green	Steady for connection to a 100 Mbit/s network. Flashes for network activity.
Amber	Steady for connection to a 10 Mbit/s network. Flashes for network activity.
Unlit	No network connection.

Power LED	Indication
Green	Normal operation.
Amber	Flashes green/amber during firmware upgrade.

SD card slot

For SD card recommendations, see axis.com

Buttons

Control button

For location of the control button, see *Product overview on page 6*.

The control button is used for:

- Resetting the product to factory default settings. See *page 16*.

Connectors

Network connector

RJ45 Ethernet connector with Power over Ethernet Plus (PoE+).

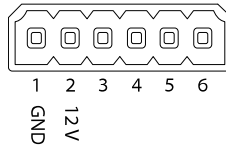
I/O connector

Use the I/O connector with external devices in combination with, for example, 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:

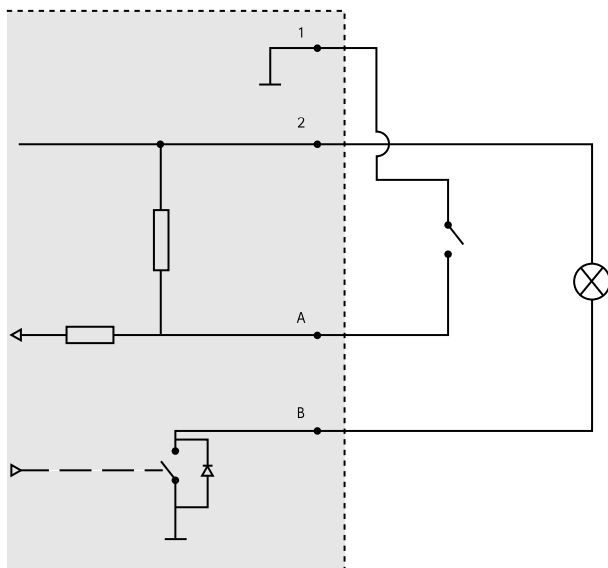
Digital input – For connecting devices that can toggle between an open and closed circuit, for example PIR sensors, door/window contacts, and glass break detectors.

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

6-pin terminal block

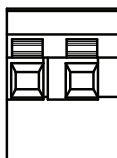


AXIS D2050-VE Network Radar Detector



- 1 0 V DC (-)
- 2 DC output 12 V, max 50 mA
- A I/O configured as input
- B I/O configured as output

Relay connector



⚠ CAUTION

Use single core wires for the relay connector.

Function	Specifications
Type	Normally open
Rating	24 V DC
Max. current	5 A

AXIS D2050-VE Network Radar Detector

Isolation from other circuitry	2.5 kV
Electrical endurance	24 V DC, 25 000 operations at +70°C (158 °F)

Operating conditions

Product	Classification	Temperature	Humidity
AXIS D2050-VE	IEC 60529 IP66 NEMA 250 Type 4X	-40 °C to 60 °C (-40 °F to 140 °F)	10–100% RH (condensing)

Power consumption

NOTICE

Use a Safety Extra Low Voltage (SELV) compliant limited power source (LPS) with either a rated output power limited to ≤ 100 W or a rated output current limited to ≤ 5 A.

Product	Power over Ethernet	Power
AXIS D2050-VE	IEEE 802.3at, Type 2 Class 4	Typical 9 W Max. 15 W

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 D2050-VE Network Radar Detector

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

Be careful of sharp metal edges. Use cut-resistant gloves during installation.

NOTICE

- The Axis product shall be used in compliance with local laws and regulations.
- Axis recommends using a shielded network cable (STP) CAT5 or higher.
- Store the Axis product in a dry and ventilated environment.
- Avoid exposing the Axis product to shocks or heavy pressure.
- Avoid exposing the Axis product to vibration.
- Do not install the product on unstable poles, brackets, surfaces or walls.
- Do not install the product on vibrating 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.

Transportation

NOTICE

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

Battery

Lithium coin cell 3.0 V batteries contain 1,2-dimethoxyethane; ethylene glycol dimethyl ether (EGDME), CAS no. 110-71-4.

⚠WARNING

- Risk of explosion if the battery is incorrectly replaced.
- Replace only with an identical battery or a battery which is recommended by Axis.
- Dispose of used batteries according to local regulations or the battery manufacturer's instructions.

