



# MIC IP starlight 7000i

MIC-7502-Z30B | MIC-7502-Z30W | MIC-7502-Z30G



**BOSCH**

en Installation Manual



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# 1 Safety

## 1.1 About this Manual

This manual has been compiled with great care and the information it contains has been thoroughly verified. The text was complete and correct at the time of printing. Because of the ongoing development of products, the content of the manual may change without notice. Bosch Security Systems accepts no liability for damage resulting directly or indirectly from faults, incompleteness, or discrepancies between the manual and the product described.

## 1.2 Legal Information

### Copyright

This manual is the intellectual property of Bosch Security Systems, Inc. and is protected by copyright. All rights reserved.

### Trademarks

All hardware and software product names used in this document are likely to be registered trademarks and must be treated accordingly.

## 1.3 Safety Precautions

In this manual, the following symbols and notations are used to draw attention to special situations:



### Danger!

High risk: This symbol indicates an imminently hazardous situation such as “Dangerous Voltage” inside the product. If not avoided, this will result in an electrical shock, serious bodily injury, or death.

---



### Warning!

Medium risk: Indicates a potentially hazardous situation. If not avoided, this may result in minor or moderate injury.

---



### Caution!

Low risk: Indicates a potentially hazardous situation. If not avoided, this may result in property damage or risk of damage to the unit.

---



### Notice!

This symbol indicates information or a company policy that relates directly or indirectly to the safety of personnel or protection of property.

---

## 1.4 Important Safety Instructions

Read, follow, and retain all of the following safety instructions. Heed all warnings on the unit and in the operating instructions before operation.

**Caution!**

TO REDUCE THE RISK OF ELECTRIC SHOCK, DISCONNECT THE POWER SOURCE WHILE INSTALLING THE DEVICE.

**Caution!**

Installation must be made by qualified personnel and conform to ANSI/NFPA 70 (the National Electrical Code® (NEC)), Canadian Electrical Code, Part I (also called CE Code or CSA C22.1), and all applicable local codes. Bosch Security Systems, Inc. accepts no liability for any damages or losses caused by incorrect or improper installation.

**Warning!**

INSTALL EXTERNAL INTERCONNECTING CABLES IN ACCORDANCE TO NEC, ANSI/NFPA70 (FOR US APPLICATION) AND CANADIAN ELECTRICAL CODE, PART I, CSA C22.1 (FOR CAN APPLICATION) AND IN ACCORDANCE TO LOCAL COUNTRY CODES FOR ALL OTHER COUNTRIES. BRANCH CIRCUIT PROTECTION INCORPORATING A 20 A, 2-POLE LISTED CIRCUIT BREAKER OR BRANCH RATED FUSES ARE REQUIRED AS PART OF THE BUILDING INSTALLATION. A READILY ACCESSIBLE 2-POLE DISCONNECT DEVICE WITH A CONTACT SEPARATION OF AT LEAST 3 mm MUST BE INCORPORATED.

**Warning!**

ROUTING OF EXTERNAL WIRING MUST BE DONE THROUGH A PERMANENTLY EARTHED METAL CONDUIT.

**Warning!**

THE CAMERA MUST BE MOUNTED DIRECTLY AND PERMANENTLY TO A NON-COMBUSTIBLE SURFACE.

- Do not place a canted (45°) camera upright; it can fall over easily. Place the canted camera on its side.
  - Do not open the camera unit. Doing so will invalidate the warranty.
- Use common-sense safety precautions, especially in situations where there could be risk of injury if any part of the assembly becomes detached and falls. Bosch recommends using the hinged DCA, which allows installers to “hang” the MIC camera temporarily on the DCA to make electrical connections, before bolting the camera to the DCA.
- Ensure that the unit case is properly earthed. If the product is at risk of being struck by lightning, ensure that earth bonding connections are made correctly to the mounting of the base of the unit.
  - Do not point the camera at the sun. Bosch Security Systems will not be liable for any damage to cameras that have been pointed directly at the sun.
  - Before transporting, supply power to the camera and rotate the ball so that the window points toward the base. This will help to protect the wiper and the window during transit.



**Warning!**

Do not manually back drive the camera

The motor/gear head combinations used in the MIC cameras were designed to provide smooth pan/tilt movement of the camera during powered operation. The gear heads were not specifically designed to be manually “back-driven” under any circumstance.

Although it might be possible to do so on unpowered units, there is no guarantee that “back-driving” will be possible on every unit. Some units may even enter a “locked-up” mechanical state.

If the camera becomes “locked-up,” simply apply power to the camera. The pan/tilt functions of the camera should now operate properly.



**Warning!**

Moving parts!

Moving parts may result in risk of injury, therefore, the device should be mounted so that it is accessible only to the technician/installer.



**Notice!**

Always use a shielded twisted pair (STP) connection cable and a shielded RJ45 network cable connector where the camera is used outdoors or the network cable is routed outdoors.

Always use shielded cables/connectors in demanding indoor electrical environments where the network cable is located in parallel with electrical mains supply cables, or where large inductive loads such as motors or contactors are near the camera or its cable.



**Notice!**

Bosch recommends the use of surge/lightning protection devices (sourced locally) to protect network and power cables and the camera installation site. Refer to NFPA 780, Class 1 & 2, UL96A, or the equivalent code appropriate for your country/region, and to local building codes. Refer also to the installation instructions of each device (surge protector where the cable enters the building, midspan, and camera).

## 1.5

### Important Notices

For use in China: CHINA ROHS DISCLOSURE TABLE

**Moving cameras**

Hazardous substance table according to SJ/T 11364-2014						
	Pb (Pb)	Hg (Hg)	Cd (Cd)	Cr 6+ (Cr 6+)	PBB (PBB)	PBDE (PBDE)
Housing & enclosures	X	O	O	O	O	O
PCBA with connectors	X	O	X	O	O	O
Cable assemblies	O	O	O	O	O	O
Image sensor assembly	X	O	X	O	O	O
Lens assembly	X	O	X	O	O	O
PT Motor control assembly	X	O	X	O	O	O
Fan assembly	X	O	X	O	O	O

**Hazardous substance table according to SJ/T 11364-2014**

This table was created according to the provisions of SJ/T 11364

O: The content of such hazardous substance in all homogeneous materials of such component is below the limit defined in GB/T 26572

X: The content of such hazardous substance in a certain homogeneous material is above the limit defined in GB/T 26572

The manufacturing datecodes of the products are explained in:

<http://www.boschsecurity.com/datecodes/>

**Notice!**

This device is intended for use in public areas only.

U.S. federal law strictly prohibits surreptitious recording of oral communications.



**Accessories** - Do not place this unit on an unstable stand, tripod, bracket, or mount. The unit may fall, causing serious injury and/or serious damage to the unit. Use only with mounting solutions specified by the manufacturer. When a cart is used, use caution and care when moving the cart/unit combination to avoid injury from tip-over. Quick stops, excessive force, or uneven surfaces may cause the cart/unit combination to overturn. Mount the unit per the installation instructions.

**Adjustment of controls** - Adjust only those controls specified in the operating instructions. Improper adjustment of other controls may cause damage to the unit.

**All-pole power switch** - Incorporate an all-pole power switch, with a contact separation of at least 3 mm, into the electrical installation of the building. If the camera requires service, use this all-pole switch as the main disconnect device for switching off the voltage to the unit.

**Camera signal** - Protect the cable with a primary protector if the camera signal is beyond 140 feet, in accordance with *NEC800 (CEC Section 60)*.

**Environmental statement** - Bosch has a strong commitment towards the environment. This unit has been designed to respect the environment as much as possible.

**Electrostatic-sensitive device** - Use proper ESD safety precautions when handling the camera to avoid electrostatic discharge.

**Fuse rating** - For security protection of the device, the branch circuit protection must be secured with a maximum fuse rating of 16A. This must be in accordance with *NEC800 (CEC Section 60)*.

**Grounding:**

- Connect outdoor equipment to the unit's inputs only after this unit has had its ground terminal connected properly to a ground source.
- Disconnect the unit's input connectors from outdoor equipment before disconnecting the grounding terminal.
- Follow proper safety precautions such as grounding for any outdoor device connected to this unit.

U.S.A. models only - *Section 810 of the National Electrical Code, ANSI/NFPA No.70*, provides information regarding proper grounding of the mount and supporting structure, size of grounding conductors, location of discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.

**Heat sources** - Do not install unit near any heat sources such as radiators, heaters, or other equipment (including amplifiers) that produce heat.

**Moving** - Before moving the unit, disconnect both the 24 VAC connection and the Ethernet cable connection (if using PoE).

**Outdoor signals** - The installation for outdoor signals, especially regarding clearance from power and lightning conductors and transient protection, must be in accordance with *NEC725* and *NEC800 (CEC Rule 16-224 and CEC Section 60)*.

Refer to the "Best Practices for Outdoor Installation, page 37" section of the manual for more information on outdoor installations.

**Permanently connected equipment** - Incorporate a readily accessible disconnect device in the building installation wiring.

**Power lines** - Do not locate the camera near overhead power lines, power circuits, or electrical lights, nor where it may contact such power lines, circuits, or lights.

**Damage requiring service** – Unplug the devices from the main AC power source and refer servicing to qualified service personnel whenever any damage to the device has occurred, such as:

- the power supply cable is damaged;
- an object has fallen on the device;
- the device has been dropped, or its enclosure has been damaged;
- the device does not operate normally when the user follows the operating instructions correctly.

**Servicing** - Do not attempt to service this device yourself. Refer all servicing to qualified service personnel.

This device has no user-serviceable parts.



**Notice!**

This is a **class A** product. In a domestic environment this product may cause radio interference, in which case the user may be required to take adequate measures.



**Notice!**

Ce produit est un appareil de **Classe A**. Son utilisation dans une zone résidentielle risque de provoquer des interférences. Le cas échéant, l'utilisateur devra prendre les mesures nécessaires pour y remédier.

**FCC & ICES Information**

*(U.S.A. and Canadian Models Only)*

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

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

NOTE: This equipment has been tested and found to comply with the limits for a **Class A** digital device, pursuant to Part 15 of the FCC Rules and ICES-003 of Industry Canada. 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 radiates 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 expense.

Intentional or unintentional modifications, not expressly approved by the party responsible for compliance, shall not be made. Any such modifications could void the user's authority to operate the equipment. If necessary, the user should consult the dealer or an experienced radio/television technician for corrective action.

The user may find the following booklet, prepared by the Federal Communications Commission, helpful: How to Identify and Resolve Radio-TV Interference Problems. This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4.

### **Informations FCC et ICES**

*(modèles utilisés aux États-Unis et au Canada uniquement)*

Ce produit est conforme aux normes FCC partie 15. La mise en service est soumise aux deux conditions suivantes :

- cet appareil ne peut pas provoquer d'interférence nuisible et
- cet appareil doit pouvoir tolérer toutes les interférences auxquelles il est soumis, y compris les interférences qui pourraient influencer sur son bon fonctionnement.

AVERTISSEMENT: Suite à différents tests, cet appareil s'est révélé conforme aux exigences imposées aux appareils numériques de **Classe A** en vertu de la section 15 du règlement de la Commission fédérale des communications des États-Unis (FCC). Ces contraintes sont destinées à fournir une protection raisonnable contre les interférences nuisibles quand l'appareil est utilisé dans une **installation commerciale**. Cette appareil génère, utilise et émet de l'énergie de fréquence radio, et peut, en cas d'installation ou d'utilisation non conforme aux instructions, générer des interférences nuisibles aux communications radio. L'utilisation de ce produit dans une zone résidentielle peut provoquer des interférences nuisibles. Le cas échéant, l'utilisateur devra remédier à ces interférences à ses propres frais.

Au besoin, l'utilisateur consultera son revendeur ou un technicien qualifié en radio/télévision, qui procédera à une opération corrective. La brochure suivante, publiée par la Commission fédérale des communications (FCC), peut s'avérer utile : How to Identify and Resolve Radio-TV Interference Problems (Comment identifier et résoudre les problèmes d'interférences de radio et de télévision). Cette brochure est disponible auprès du U.S. Government Printing Office, Washington, DC 20402, États-Unis, sous la référence n° 004-000-00345-4.

## 1.6 Customer Support and Service

If this unit needs service, contact the nearest Bosch Security Systems Service Center for authorization to return and shipping instructions.

### Service Centers

#### USA

Telephone: 800-366-2283 or 585-340-4162

Fax: 800-366-1329

Email: [cctv.repair@us.bosch.com](mailto:cctv.repair@us.bosch.com)

#### Customer Service

Telephone: 888-289-0096

Fax: 585-223-9180

Email: [security.sales@us.bosch.com](mailto:security.sales@us.bosch.com)

#### Technical Support

Telephone: 800-326-1450

Fax: 585-223-3508 or 717-735-6560

Email: [technical.support@us.bosch.com](mailto:technical.support@us.bosch.com)

#### Repair Center

Telephone: 585-421-4220

Fax: 585-223-9180 or 717-735-6561

Email: [security.repair@us.bosch.com](mailto:security.repair@us.bosch.com)

#### Canada

Telephone: 514-738-2434

Fax: 514-738-8480

#### Europe, Middle East & Africa Region

Please contact your local distributor or Bosch sales office. Use this link:

<http://www.boschsecurity.com/startpage/html/europe.htm>

#### Asia Pacific Region

Please contact your local distributor or Bosch sales office. Use this link:

[http://www.boschsecurity.com/startpage/html/asia\\_pacific.htm](http://www.boschsecurity.com/startpage/html/asia_pacific.htm)

#### More Information

For more information please contact the nearest Bosch Security Systems location or visit [www.boschsecurity.com](http://www.boschsecurity.com)

## 2 Unpacking

- This equipment should be unpacked and handled with care. Check the exterior of the packaging for visible damage. If an item appears to have been damaged in shipment, notify the shipper immediately.
- Verify that all the parts listed in the Parts List below are included. If any items are missing, notify your Bosch Security Systems Sales or Customer Service Representative.
- Do not use this product if any component appears to be damaged. Please contact Bosch Security Systems in the event of damaged goods.
- The original packing carton is the safest container in which to transport the unit and must be used if returning the unit for service. Save it for possible future use.



### Caution!

Take extra care lifting or moving MIC cameras because of their weight.

The MIC packaging is designed:

- to allow installers to configure the camera inside the shipping box.
- to provide a temporary table-top or desk-top stand.

### 2.1 Parts List - Camera

Quantity	Component
1	MIC IP starlight 7000i camera
1	Safety and Unpacking Guide document
1	Spanner wrench [to remove and to attach the yoke caps in order to cant the camera if desired, and to remove the access plug from the camera head when installing the optional illuminator accessory (sold separately)]
1	Quick Installation Guide
1	base gasket
1	RJ45 coupler (attached to the RJ-45 connector of the camera)
4	MAC address labels
1	Ground screw

### 2.2 Additional Tools

The following table lists additional tools (not supplied by Bosch) that may be required to install a MIC camera or its accessories:

1 Phillips-head screwdriver to secure the ground lug of the camera
--

1 Adjustable wrench or socket set to secure the base of the camera to mounting accessories
--

For *canting* cameras:

1 Torque wrench with a 5 mm Hex bit (or T30 Torx bit) to remove/install bolts in the yoke arms
--

### 3 Product Description

The MIC IP starlight 7000i camera is an advanced PTZ surveillance platform designed to provide early detection in mission-critical applications. With starlight imaging technology and excellent low-light sensitivity, the MIC IP starlight 7000i camera is the perfect solution for robust and high-quality imaging needs.

The camera also has a 30x optical zoom (12x digital) and flexible, field-selectable mounting orientations (upright, inverted, or canted) to achieve the perfect field of view.

A long-life silicone wiper blade mounted on a spring-loaded arm is standard on all MIC cameras.

The following table identifies the optional accessories for MIC cameras. Refer to the datasheets of each accessory for details. Some accessories may not be available in all regions.

Accessories	Description	Accessories	Description
MIC-DCA-H - MIC-DCA-HB - MIC-DCA-HW - MIC-DCA-HG - MIC-DCA-HBA - MIC-DCA-HWA - MIC-DCA-HGA	Hinged Deep Conduit Adapter in Black White Grey Black with M25 to ¾" adapter White with M25 to ¾" adapter Grey with M25 to ¾" adapter	MIC-SCA - MIC-SCA-BD - MIC-SCA-WD - MIC-SCA-MG	Shallow Conduit Adapter in Black White Grey
MIC-CMB - MIC-CMB-BD - MIC-CMB-WD - MIC-CMB-MG	Corner Mount Bracket in Black White Grey	MIC-SPR - MIC-SPR-BD - MIC-SPR-WD - MIC-SPR-MG	Spreader Plate in Black White Grey
MIC-WMB - MIC-WMB-BD - MIC-WMB-WD - MIC-WMB-MG	Wall Mount Bracket in Black White Grey	MIC-PMB	Pole Mount Bracket (stainless steel only)
NPD-9501A	95 W midspan	MIC-WKT-IR	Washer Kit
VG4-A-PSU1 VG4-A-PSU2	24 VAC (96 VA) power supply	MIC-ALM-WAS-24	Alarm and washer interface accessory unit
NPD-6001A	60 W midspan [Not for use with the illuminator accessory.]	VJC-7000-90	VIDEOJET connect (Full-featured network interface unit/power supply)
MICIP67-5PK	MIC7000 IP67 Connector Kit	MIC-67SUNSHLD	Sunshield (white only)
MIC-ILx-300 - MIC-ILB-300 - MIC-ILW-300 - MIC-ILG-300	User-installable illuminator accessory specifically for MIC IP starlight 7000i cameras, in Black White Grey	MVS-FCOM-PRCL	Serial protocol license for IP cameras

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## 4 Installation Overview

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**Caution!**

Installation must be made by qualified personnel and conform to ANSI/NFPA 70 (the National Electrical Code® (NEC)), Canadian Electrical Code, Part I (also called CE Code or CSA C22.1), and all applicable local codes. Bosch Security Systems, Inc. accepts no liability for any damages or losses caused by incorrect or improper installation.

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**Caution!****ELECTRIC SHOCK HAZARD**

To reduce the risk of electric shock, disconnect power to the camera and/or to the power supply unit before moving the camera, before installing any accessories, and before mounting the camera.

---

**Notice!**

To maintain the NEMA 6P rating when the camera is mounted to a MIC-DCA, installers must ensure that the user-supplied cable glands or conduit connections have NEMA 6P ratings.

---

**Notice!****Outdoor installation**

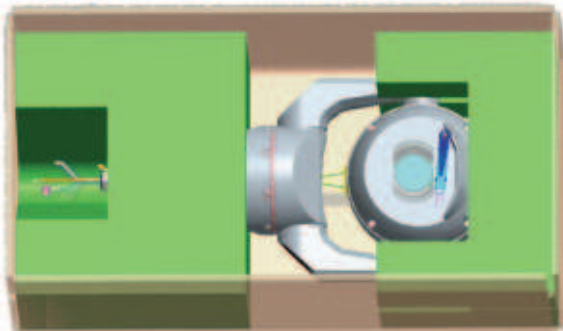
For details about the proper configuration for installing your camera outdoors with surge and lightning protection, refer to *Best Practices for Outdoor Installation*, page 37.

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## 5 Configuration Programming in the Shipping Box

The camera packaging allows installers to connect the camera to the network and configure the camera still in the box.

1. Remove the accessories box from the top, middle section of the box.



2. Supply power to the camera and *Connect the Camera to the Network, page 29*. Note that the wiper moves one to three times across the camera window, and then returns to parked position.
3. Configure the camera. Refer to Configuration for details.



---

### Caution!

Risk of damage to camera

Do not change the camera orientation to “Inverted” while the camera is still in the box. The camera head must be free to rotate. If you must change the camera’s orientation to “Inverted,” remove the camera from the box and configure it by following the steps in *Configuration Programming on a Temporary Table-top Stand, page 15*.

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4. Disconnect the wires/cables from the connectors in the base of the camera.

## 6 Configuration Programming on a Temporary Table-top Stand

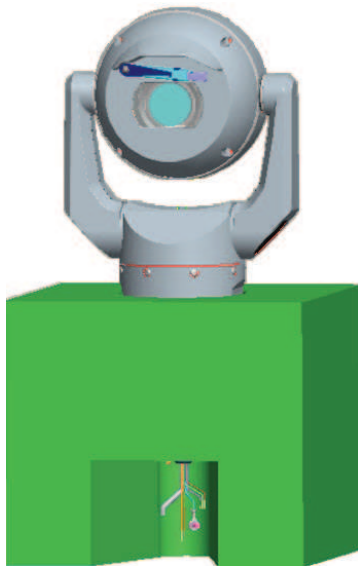


### Caution!

Take extra care lifting or moving MIC cameras because of their weight.

The camera (still in the foam) can stand temporarily on a flat, horizontal surface such as a desk or a table during initial network connection and configuration.

1. Remove the accessories box from the top, middle section of the box.
2. Remove the foam covering the head of the camera.
3. Remove the camera, still in the foam, from the box. Place the camera upright on a flat, horizontal surface.



4. Supply power to the camera and *Connect the Camera to the Network*, page 29. Note that the wiper moves one to three times across the camera window, and then returns to parked position.
5. Configure the camera. Refer to Configuration for details.



### Notice!

If you change the camera orientation to “**Inverted**” (from the page **Configuration** of the web browser: **Camera > Installer Menu > Orientation**), then the camera head will rotate automatically into inverted position (180°). Note that the visor will now be near the body of the camera.

6. Disconnect the wires/cables from the connectors in the base of the camera.

## 7 Mounting

### 7.1 Mounting Location Options

MIC cameras are designed for easy installation in various locations such as directly onto buildings and poles suitable to support CCTV equipment.

Select a secure installation location and mounting position for the device. Ideally, this is a location where the device cannot be interfered with either intentionally or accidentally.

Ensure that the location has the appropriate clearance from power and lightning conductors, in accordance with *NEC725* and *NEC800 (CEC Rule 16-224 and CEC Section 60)*.

Do not install the device near:

- Any heat sources
- Any overhead power lines, power circuits, or electrical lights, or where the device may contact power lines, circuits, or lights
- ▶ Ensure that the selected mounting surface is capable of supporting the combined weight of the camera and mounting hardware (sold separately) under all expected conditions of load, vibration, and temperature.

#### Caution!

Risk of lightning strikes

If the camera is installed in a highly exposed location where lightning strikes may occur, then Bosch recommends installing a separate lightning conductor within 0.5 m (1.6 ft) of the camera and at least 1.5 m (4.9 ft) higher than the camera. A good earth bonding connection to the camera housing itself will provide protection against damage from secondary strikes.

The camera housing itself is constructed to cope with secondary strikes. If the correct lightning protection is applied, then no damage to the internal electronics or camera should result.



#### Installation in a damp environment (for example, near a coastline)

The fasteners and fixtures shipped with the camera help to keep the camera secure. Always use Bosch-supplied screws and other fasteners when installing or performing maintenance on the camera.

The camera head has three (3) plastic screws that are factory-installed to prevent corrosion in units which do not have accessories installed on the camera head. If you install a sunshield or an illuminator accessory, you will remove those screws and replace them with the screws that ship with each accessory.

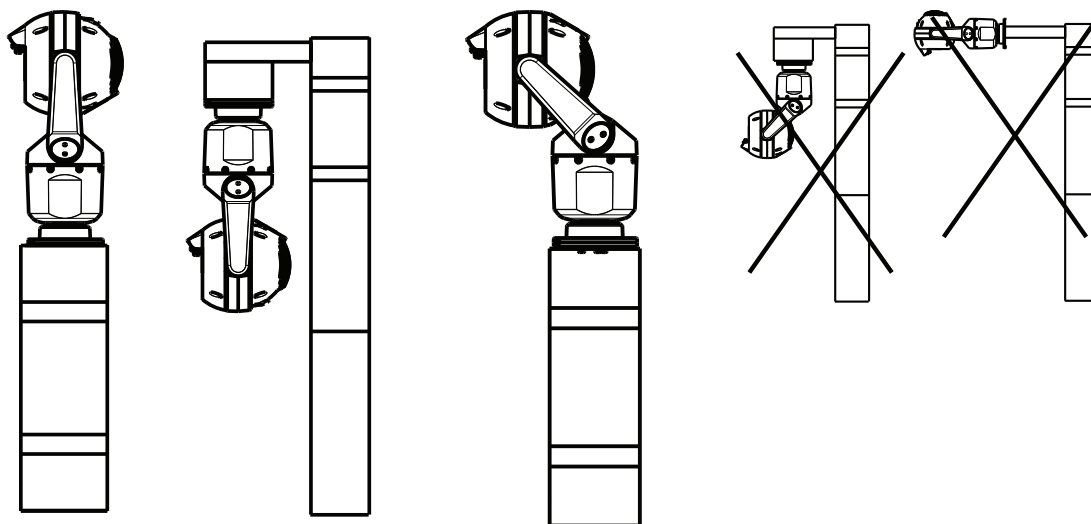
Before installation, inspect the metal parts of the camera for paint that is chipped or otherwise damaged. If you notice any paint damage, touch up the damage with locally available paint or sealants.

Avoid installation practices that may bring the camera's metal mountings in contact with materials such as stainless steel. Such contacts can result in galvanic corrosion and degrade the cosmetic appearance of the camera. These cosmetic damages caused by improper installation are not covered by warranty as they do not affect the functionality of the camera.

### 7.2 Mounting Orientation Options

MIC cameras are designed to be mounted upright (straight up, 90°), inverted (straight down, 90°), or canted upright (ball up, 45°). The tilt limits for the canted unit prevent it from working properly if mounted ball down. See the figures below for illustrations of the correct and the incorrect mounting orientations of MIC cameras.

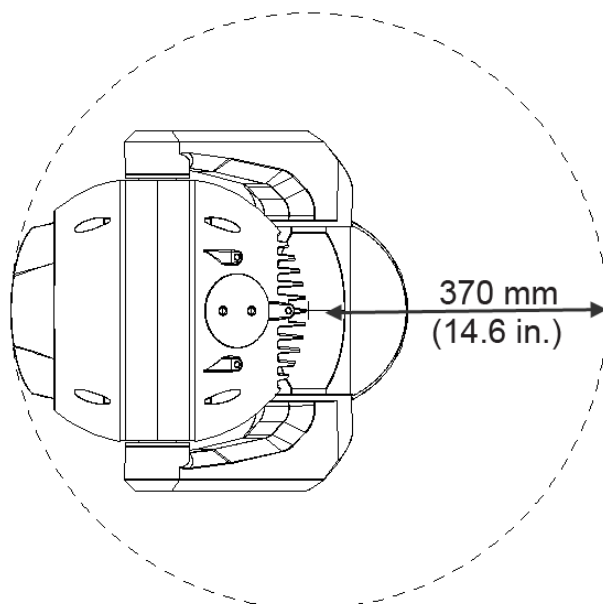




Correct mounting orientation - upright, inverted - Correct mounting orientation - canted - Incorrect mounting orientation

Note the position of the visor when the camera is installed in inverted orientation. The visor will now be near the body of the camera.

**Note:** For canted cameras, ensure that your mounting location provides the necessary clearance (370 mm (14.6 in.)) for the camera head to pan.



**Figure 7.1: Top view of canted MIC7000 illustrating distance of pan clearance**

The figure below illustrates the tilt range of the camera in upright orientation.

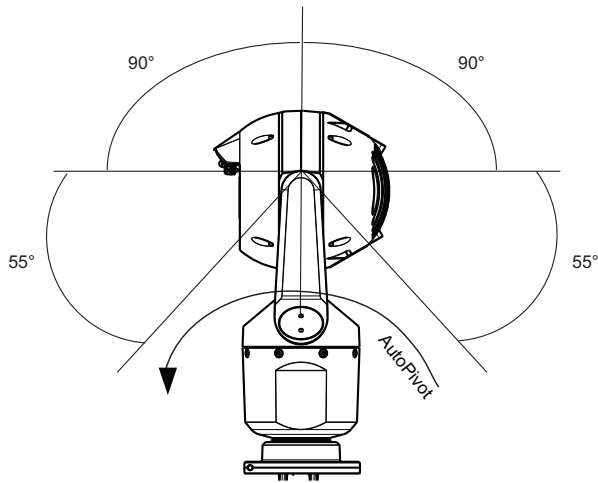


Figure 7.2: MIC7000 Tilt Range: 145° each direction; 290° if AutoPivot enabled

## 7.3 Mounting Bracket Options and Accessories

Bosch sells a complete series of mounting brackets that support multiple mounting configurations.

You can install the camera:

- onto a MIC-DCA or a MIC wall mount
- or
- directly to a mounting surface using the supplied base gasket and the appropriate connector kit (sold separately):

MIC-IP67-5PK MIC7000 IP67 Connector Kit

Refer to the manual provided with the kit for installation instructions.



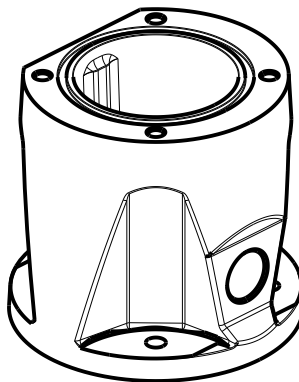
### Notice!

Observe all appropriate safety precautions and local building regulations.

The most common type of mounting location is the top of a pole suitable to support CCTV equipment and that provides a robust mounting platform to minimize camera motion and typically has a large base cabinet for mounting ancillary equipment such as power supplies. Other locations for mounting the camera include the top of a building, the side (wall) of a building, the corner of a building, and under the eave of a building. Refer to the MIC Series Mounting Brackets Installation Guide for complete installation instructions.

### Deep Conduit Adapter

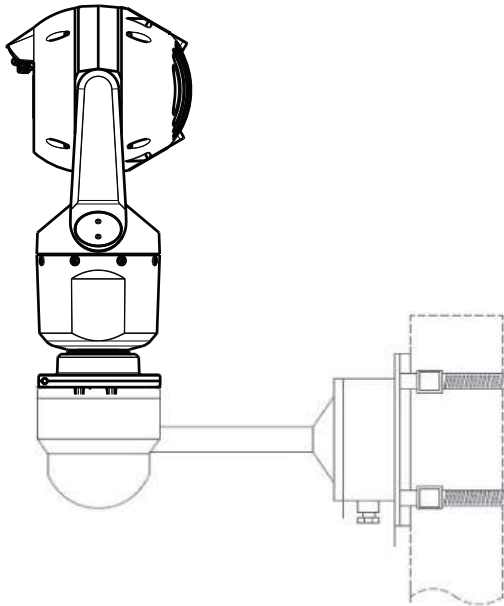
The hinged DCA is well-suited to installations on top of a pole.



Typical hinged DCA mount configuration

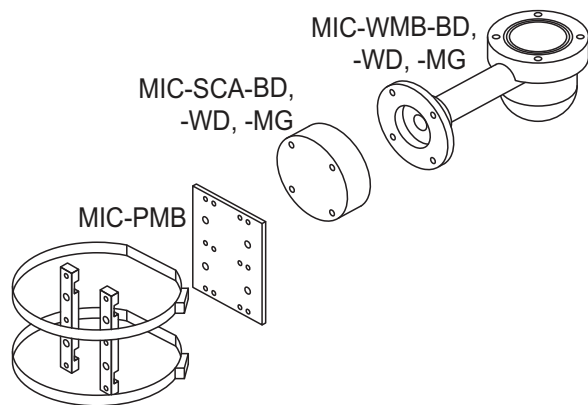
### Pole Mount

The camera can also be mounted on the side of a lamp post, pole, or similar column using the Pole Mount Bracket (MIC-PMB). Be aware that lamp posts can often be subject to movement and are not suitable platforms in all conditions or for all applications.

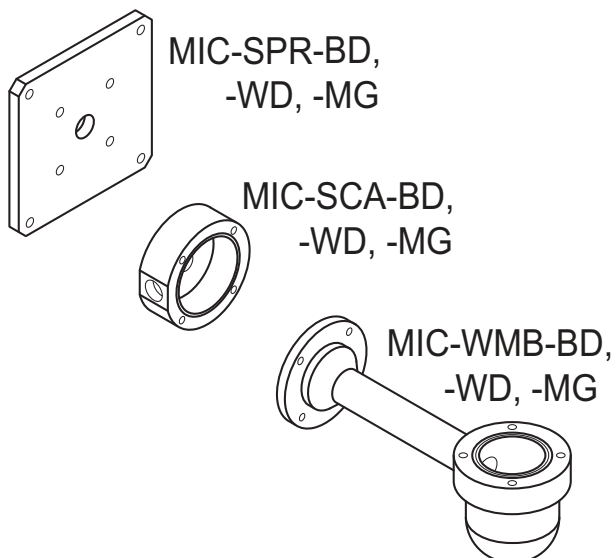


The figure below identifies the three mounting accessories (each sold separately) that are necessary to mount the MIC camera on the side of a pole.

**Note:** The figure identifies the part numbers, as well as the codes for the available colors (-BD for black, -WD for white, and -MG for grey) of each mounting accessory.

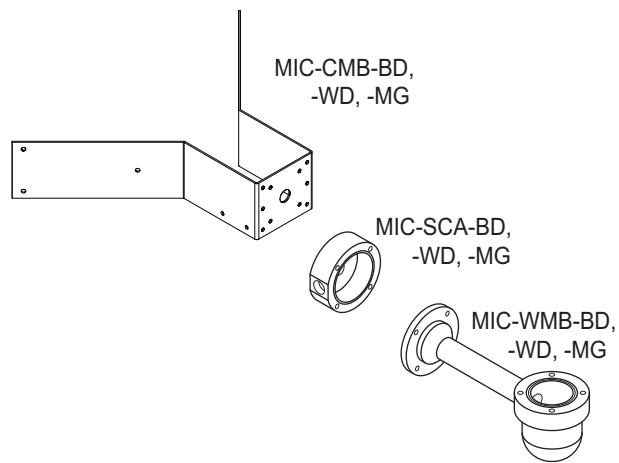


**Figure 7.3: Typical Pole mount configuration**



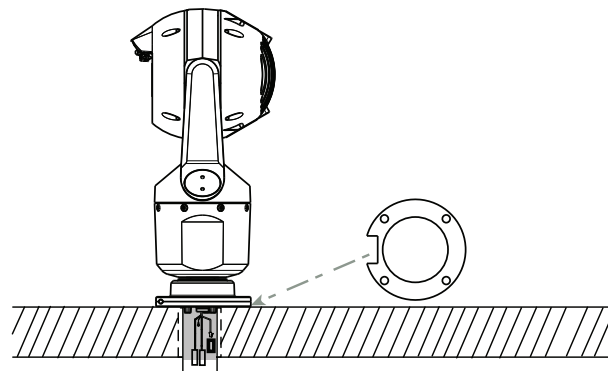
**Figure 7.4: Typical Wall mount configuration**

**Corner Mount**

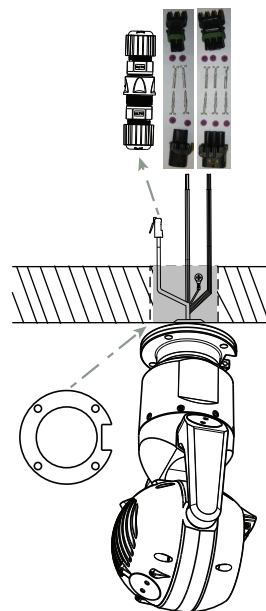


**Figure 7.5: Typical Corner mount configuration**

**Surface Mount**

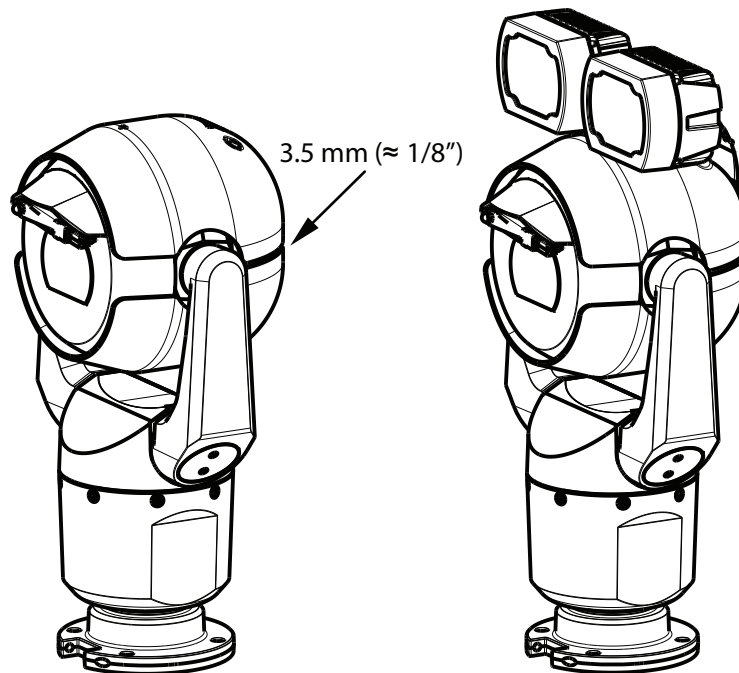


**Figure 7.6: Direct surface mount – camera upright (MIC + base gasket)**



**Figure 7.7: Direct surface mount – camera inverted (MIC + base gasket + IP67 Weatherization/Connector Kit)**

### Sunshield accessory



## 7.4 Canting the Camera

### Note:

For simplicity, the graphics in this section are only of the camera (and the specific accessory that you are installing, if applicable). The graphics do not depict other accessories that you may have installed already.

MIC7000 / MIC IP starlight 7000i cameras have on-site canting functionality.

Installers can adjust the camera from an upright position to a canted position if desired. This allows the camera to be installed at a 45° angle so that its field of view (FOV) can observe the scene directly beneath the camera.

**Note:** Canting is not applicable when the camera is installed in inverted orientation.



### Warning!

Risk of bodily injury.

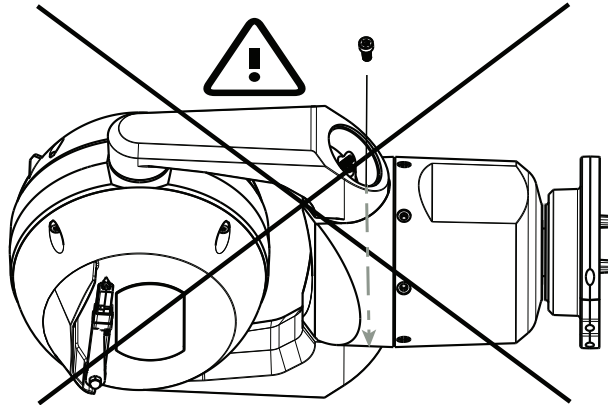
Unplug the device from its power source before canting the device. After removing the screws from the yoke arms, support the camera head so that it doesn't tilt downward unexpectedly and pinch fingers or other body parts.



### Notice!

Risk of damage to the camera

Do not, under any circumstances, cant the camera while the camera is on its side. Cant the camera from an upright position only, in order to prevent screws or other objects from falling into the open spaces in the arms when the yoke caps are removed.



**Figure 7.8: Do NOT allow screws or other objects to fall inside camera!**



**Warning!**

Risk of bodily injury.

Do not stand the canted (45°) MIC camera upright on the camera base or on an unsecured DCA, with the DCA base upright! It is unstable and might fall and cause bodily injury and/or damage to the camera. Bosch strongly recommends canting the camera after attaching it to a DCA and mounting it in the desired location.



**Notice!**

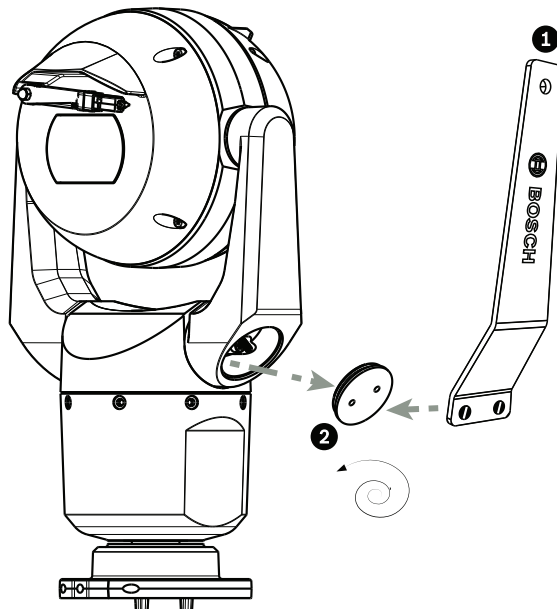
If your MIC camera will be canted, install the sunshield first.

If your MIC camera will have both illuminator and sunshield accessories, install the illuminator first.

To cant the camera, follow these steps:

1. Remove the yoke cap (item 3 in the figure below) on one yoke arm of the camera, using the supplied spanner wrench (item 2).

Repeat for the second arm.



**Figure 7.9: Remove yoke caps with spanner tool**

2. Remove the two (2) screws at the bottom of one yoke arm using a wrench (user-supplied) as described below.

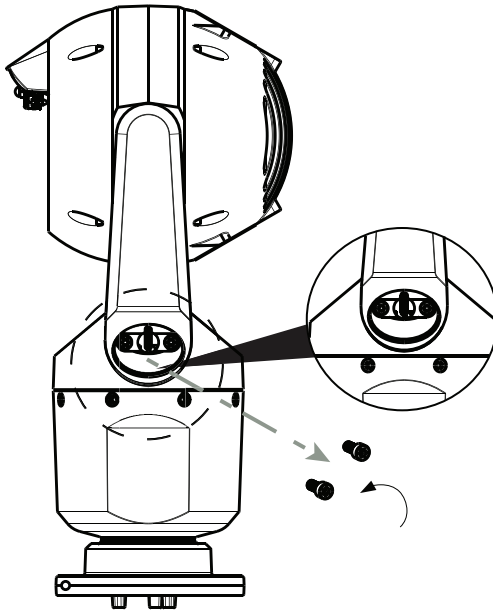


Figure 7.10: Remove screws from yoke arms



**Notice!**

Risk of damage to the device.

Carefully support the head of the camera while completing the next four (4) steps.

3. Put the screws in a safe place. You will reinstall the screws at step 6.
4. Repeat steps 2 and 3 for the second yoke arm.
5. Carefully rotate the arms and head assembly forward.



**Notice!**

Risk of damage to the device.

**Do not cant the camera, or let it fall, in the wrong direction!** The camera should cant only in the direction indicated in the figure directly below.

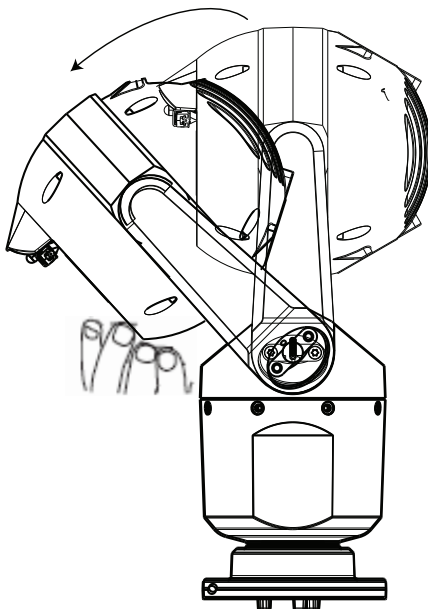


Figure 7.11: Cant the camera head



6. Reinsert the screws into both yoke arms. Note the letter assigned to each screw in the figure below. You will tighten the screws in a specific sequence that references each letter.

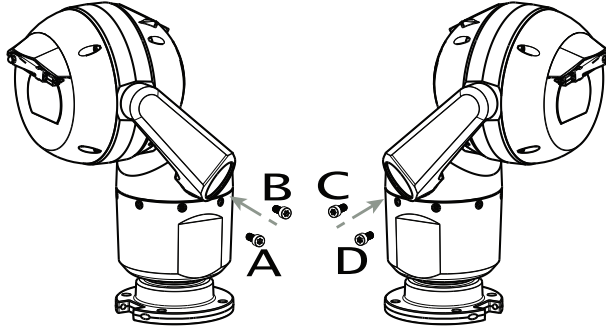


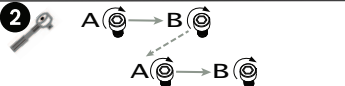
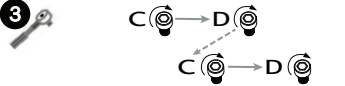



Figure 7.12: Reinsert yoke arm screws (ABCD)

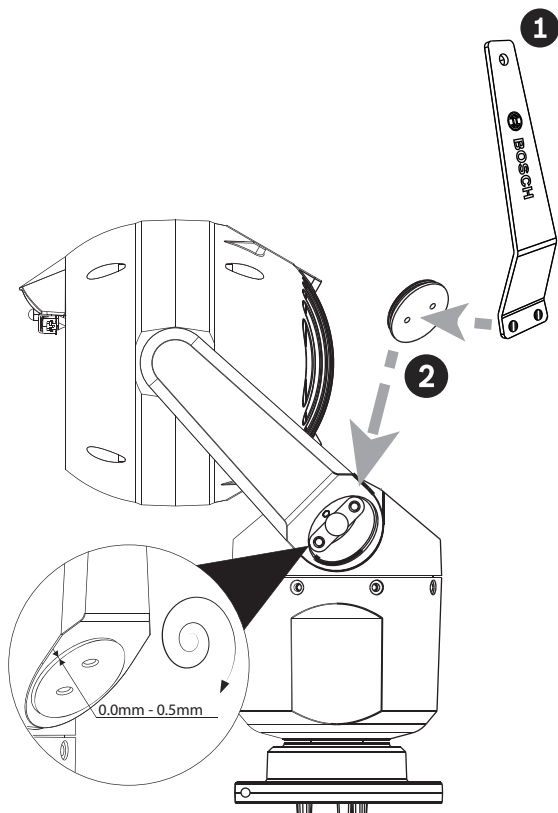
7. Using a torque wrench (user-supplied), tighten the screws to the proper torque using the sequence described in the table below.

8. Recheck all four screws to ensure the proper torque value.

**Torque requirements for yoke arm screws**

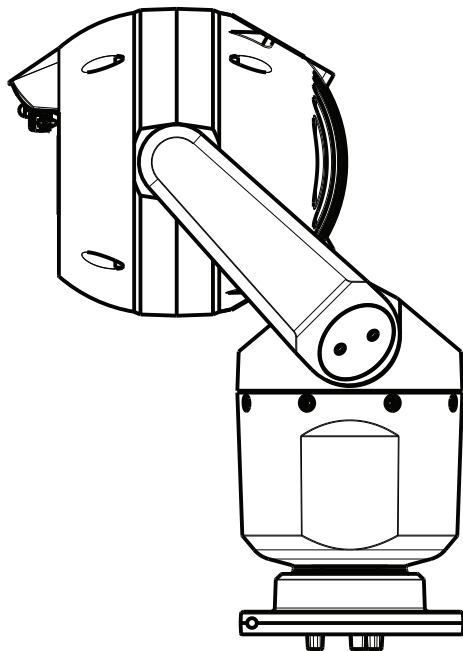
		SN ≥ xxxxxxx46029xxxxxx (> Dec. 2014)
		
		5 mm Hex (T30 Torx)
<b>1</b>		≈ 7.5 N m (≈ 5.5 ft lb)
<b>2</b>		≈ 17 N m (≈ 12.5 ft lb)
<b>3</b>		≈ 17 N m (≈ 12.5 ft lb)
<b>4</b>		≈ 17 N m (≈ 12.5 ft lb)

9. Attach the yoke caps using the supplied spanner wrench.



**Figure 7.13: Attach yoke caps**

10. Canting is complete.



## 8 Connections

### 8.1 About Camera Power and Control

The camera transmits PTZ control commands and images over a TCP/IP or UDP/IP network. It also allows users to configure the camera display settings, camera operating settings, and to configure the network parameters.

The camera incorporates a network video server in the IP module. The primary function of the server is to encode video and control data for transmission over a TCP/IP or UDP/IP network. With its H.264 or H2.65 encoding, it is ideally suited for IP communication and for remote access to digital video recorders and multiplexers. The use of existing networks means that integration with CCTV systems or local networks can be achieved quickly and easily. Video images from a single camera can be received on several receivers simultaneously.

### 8.2 Power Source Options

The camera can be powered by a network compliant to High Power-over-Ethernet using a Bosch model of High PoE Midspan (sold separately) or other device known to be compatible. With this configuration, only a single (Cat5e/Cat6e) cable connection is required to view, to power, and to control the camera.

For maximum reliability, the camera can be connected simultaneously to a High PoE Midspan and a separate 24 VAC power source. If High PoE and 24 VAC are applied simultaneously, the camera usually selects the High PoE Midspan and will draw minimal power from the auxiliary input (24 VAC). If the High PoE Midspan power source fails, the camera switches power input seamlessly to 24 VAC. After the High PoE Midspan power source is restored, the camera switches power input again to the High PoE Midspan.

In the table below, an "X" identifies the power source options for MIC IP camera models.

CAMERA MODELS	60 W midspan	95 W midspan	VIDEOJET connect 7000	24 VAC PSU
Models with illuminator		X	X	X
Models without illuminator	X	X	X	X

The table below identifies the power devices that can be connected simultaneously to the camera.

If power is supplied from:	Camera can receive power simultaneously from:
60 W midspan (NPD-6001A)	24 VAC PSU: VG4-A-PSU1 or VG4-A-PSU2
95 W midspan (NPD-9501A)	
VIDEOJET connect 7000 (VJC-7000-90)	



**Notice!**

Connect the 24 VAC connections from the MIC camera to the *heater* output of the power supply (VG4-A-PSU1 or VG4-A-PSU2).



**Caution!**

Compliance with EN50130-4 Alarm Standard – CCTV for Security Applications  
 To meet the requirements of the EN50130-4 Alarm Standard, an ancillary uninterruptable power (UPS) supply is necessary. The UPS must have a **Transfer Time** between 2–6 ms and a **Backup Runtime** of greater than 5 seconds for the power level as specified on the product datasheet.

### 8.3 Ethernet Connections



**Caution!**

Ethernet cables must be routed through earth-grounded conduit capable of withstanding the outdoor environment.

Cable Type	Cat5e/Cat6e Ethernet (Shielded Twisted Pair (STP)) (directly to the camera, or to a network switch between the camera and the network) <b>Note:</b> Cat5e/Cat6e Shielded Twisted Pair (STP) cable is required in order to meet European regulatory EMC standards.
Maximum Distance	100 m (330 ft)
Ethernet	10BASE-T/100BASE-TX, auto-sensing, half/full duplex
Terminal Connector	RJ45, Male
High PoE	For models with attached illuminators: Use the 95 W midspan sold by Bosch. For models <i>without</i> illuminators: Use the 60 W midspan sold by Bosch, or a midspan that is compliant to the IEEE 802.3at, class 4 standard.

**Note:** Consult the National Electrical Code (NEC) or other regional standards for cable bundling requirements and limitations.

### 8.4 Camera Connections

All electrical and data connections from the camera are made from the connectors in the base of the camera.

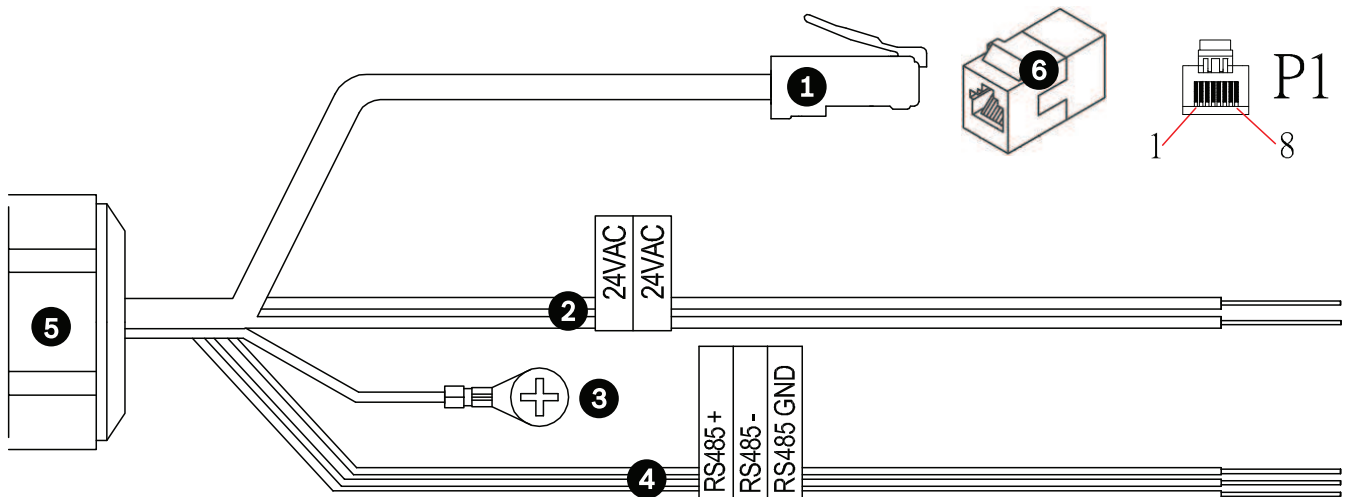


Figure 8.1: MIC7000 connectors

	Description	Wire Color
1	RJ45 (Cat5e/Cat6e) connector (male) (supporting High PoE) for power and communication between a Bosch model of High PoE Midspan or a VJC-7000-90	
2	24 VAC power wires (24 gage) to VG4-A-PSU1 or VG4-A-PSU2 (if not using a PoE network)	Line (L) = Black Neutral (N) = White
3	Chassis (Earth) ground wire (18 gage) with connector lug	Green
4	RS-485 connections for communication to / from the MIC-ALM-WAS-24	+ = Purple - = Yellow <b>GND</b> = Brown
5	Liquid-tight cordgrip in the base of the camera	
6	RJ45 coupler (female to female)	

\* For more information, refer to the installation manual *Power Supply Units (AUTODOME VG5- and MIC IP Camera Models)* (shipped with VG4-A-PSU1 and VG4-A-PSU2).

**Note:** If the MIC camera will be installed directly to a mounting surface, instead of onto a MIC DCA or a MIC wall mount bracket, Bosch recommends using the connector kit for your model of camera to protect the connections against moisture and dust particles. Each kit provides components for connecting as many as 5 MIC cameras.

MIC-IP67-5PK MIC7000 IP67 Connector Kit

**Note:** The PoE connection is not intended to be connected to exposed (outside plant) networks.

## 8.5 Connect the Camera to the Network

**Note:** The total length of Cat5e/Cat6e cable must be less than 100 m (328 ft) between the camera and the head-end system.

1. Make the appropriate network connections depending on the power source of your IP network:
  - If using a High PoE **midspan** power source:
    - a. Connect one end of a standard Ethernet cable (Cat5e/Cat6e Shielded Twisted Pair (STP)) to the RJ45 connector of the camera.
    - b. Connect the other end of the Ethernet cable to the DATA + POWER OUT port on the midspan. **Note:** You must ground cable at both ends!
    - c. Connect a standard Ethernet cable from the DATA port of the midspan device to the Local Area Network (LAN).
  - If **not using** High PoE: Connect a standard Ethernet cable from the RJ45 connector of the camera to the Local Area Network (LAN).
  - If **not using PoE and if connecting directly** to a computer, DVR/NVR, or other related network device: Connect either a standard Ethernet cable or a **crossover** Ethernet cable between the RJ45 connector of the camera and the network device. **Note:** You must ground cable at both ends!
2. If applicable, connect the 24 VAC wires to the power source.
3. If applicable, connect the RS-485 wires to the MIC-ALM-WAS-24 (optional).
4. Attach the green ground wire (item 1 in the figure above) from the camera to an earth-ground connection on the mounting surface using the supplied screw or a suitable user-supplied fastener.

## 9 Typical System Configurations

### 9.1 Typical IP Configuration with High PoE midspan (no I/O connections)



**Figure 9.1:** Typical IP configuration with High PoE Midspan (no I/O connections)

1	MIC7000 o/ MIC IP starlight 7000i camera
2	MIC Hinged DCA (MIC-DCA-Hx)
3	High PoE (Network) cable (Cat5e/Cat6e) (user-supplied) between camera and High PoE Midspan
4	95 W midspan (NPD-9501A) or 60 W midspan (NPD-6001A)
5	Data-only IP cable (Cat5e/Cat6e) (user-supplied) between midspan and head-end network

**Note:** The total length of Cat5e/Cat6e cable must be less than 100 m (328 ft) between the camera and the head-end system.

## 9.2 Typical Configuration with MIC-ALM-WAS-24

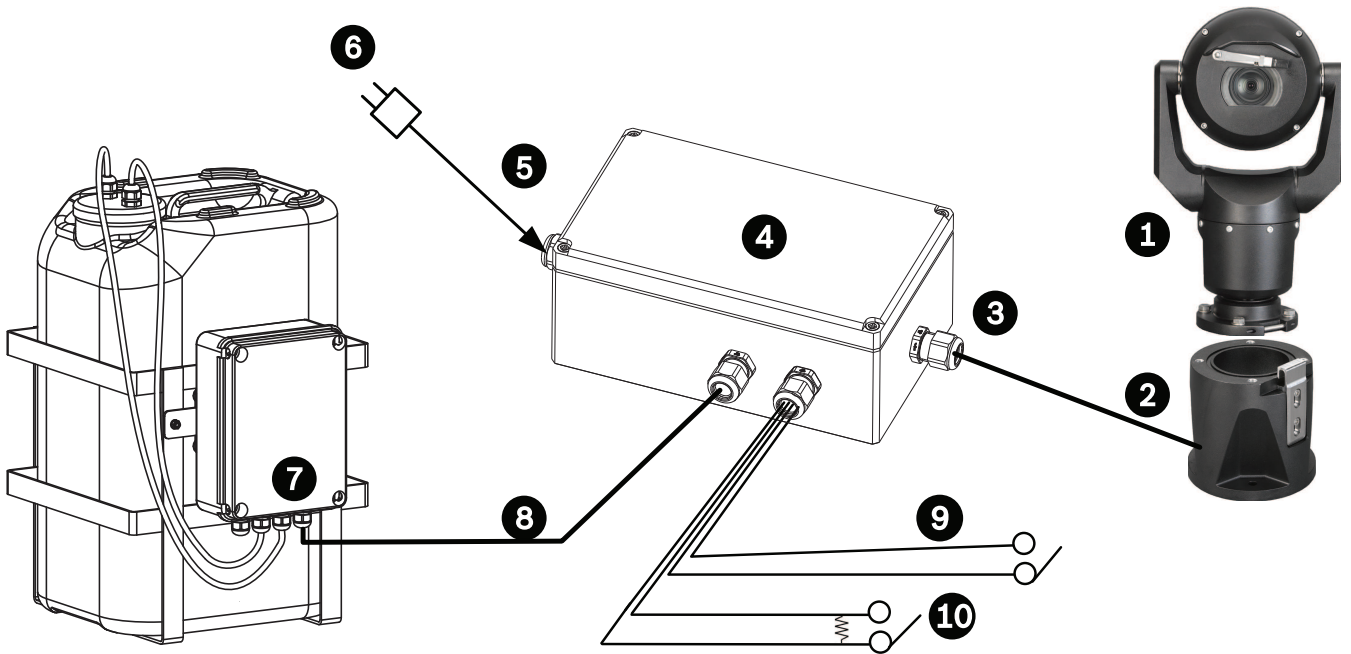


Figure 9.2: Typical configuration with MIC-ALM-WAS-24

1	MIC7000 camera	6	24 VAC Power pack, 1A, 50/60 Hz (user-supplied)
2	MIC Hinged DCA (MIC-DCA-Hx)	7	Washer pump accessory
3	RS-485 cable, 3-conductor (user-supplied)	8	Interface cable for washer control (user-supplied)
4	MIC-ALM-WAS-24 enclosure	9	Alarm input / output interface cables (user-supplied)
5	Interface cable for 24 VAC (user-supplied) for MIC-ALM-WAS-24	10	Monitored Normally Open switch for Supervised Alarm (user-supplied)

### 9.3 Typical IP Configuration with VJC-7000-90

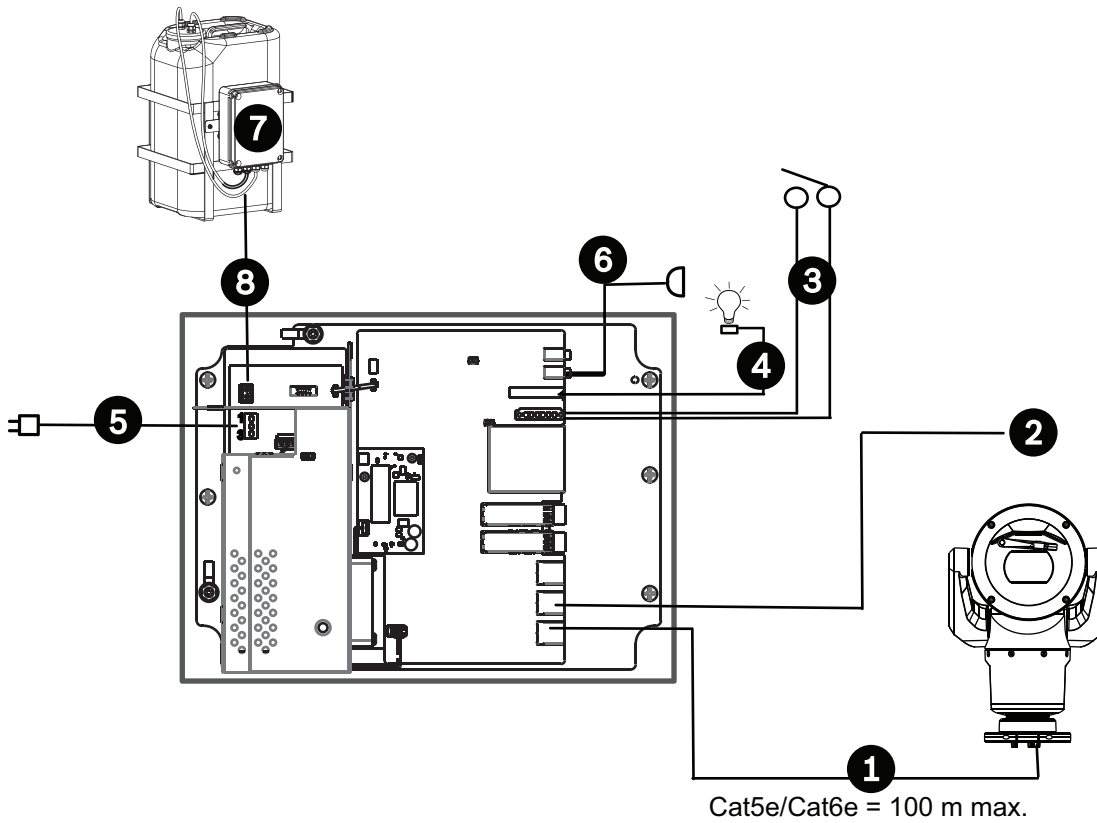


Figure 9.3: Basic configuration with VIDEOJET connect 7000

1	Ethernet (network) cable (Cat5e/Cat6e) (user-supplied) between a Bosch camera and the port labeled <i>PoE</i> on VIDEOJET connect 7000
2	Data-only IP cable (Cat5e/Cat6e) to the head-end network <b>Note:</b> The cable to the head-end also can be fiber optic cable from one of the two SFP slots.
3	Alarm input / output interface cables (user-supplied)
4	Alarm output cables (user-supplied)
5	120 / 230 VAC, 50/60 Hz
6	Audio input interface cable (user-supplied)
7	External washer pump (user-supplied)
8	Washer output, 2-conductor (user-supplied)

**Note:** The total length of Cat5e/Cat6e cable must be less than 100 m (328 ft) between the camera and the head-end system.



## 10

# Illumination/Wiper



### Notice!

The illuminator fields are available only when an illuminator is attached to a MIC7000 camera.

The default intensity for illumination (both IR and White light) is 33%.

### IR mode

Select the appropriate IR mode to control the IR illuminators:

- **On** - This mode turns on the illuminators. The illuminators will remain active until you select another mode. In this mode, the camera provides a much better image at low light levels.
- **Off** - This mode turns off the illuminators.
- **Auto** - This mode activates the illuminators in low-light scenes (for example, at night), and deactivates the illuminators in scenes with bright light (for example, during a sunny day).
- **Auto** (converted only) -

### IR operation range

Select the appropriate range of operation for the IR illuminator:

- 1x to 30x (default)
- 5x to 30x
- 10x to 30x
- 20x to 30x

### Max. IR intensity

Select the percentage of maximum intensity of the infrared (IR) light, from 0 to 100. The default is 33.

### No white light

Select **On** to disable the field **White light illuminators**. The options in the field **White light illuminators** are disabled.

Select **Off** to enable field **White light illuminators**.

### White light illuminators

Select **On** to turn on the **White light illuminators**.

Select **Off** to turn off the **White light illuminators**.

### White light intensity

Select the degree of intensity of the White light.

**Note:** This field is active only if the White light illuminator is **On**.

### White light timeout

Select **On** to enable a timeout for the White light feature.

Select **Off** to disable the timeout.

The timeout turns OFF the White light, after the light has been ON but idle for some time, to help to retain the life of the LEDs.

### White light timeout [min]

Select the number of minutes (from 1 to 30) after which the White light will turn off after activation.

### Illuminator compensation

Select **Auto** to configure the camera to compensate automatically for the illuminator.

Select **Off** to turn off illuminator compensation.

### Wiper

Controls the wiper of the MIC cameras. Options are:

- Off: Turns off the wiper.
- On: Wiper wipes continuously until deactivated manually, or until it has been on for five minutes (after which the camera will stop the wiper automatically).
- Intermittent: Wipes twice, then stops. Every 15 seconds, this cycle repeats until users select another option in this field.
- One shot: Wipes five times, then turns off.

**Wiper/washer**

Click Start to start the wiper/washer. Click Stop to stop the wiper/washer.

# 11 Maintenance

**Cleaning** – Remove power from the device before cleaning. Generally, using a dry cloth for cleaning is sufficient, but a moist, fluff-free cloth may also be used. Do not use liquid cleaners or aerosol cleaners.

Note: Do not use water pressure greater than 14 psi to wash the unit.

## No User-serviceable Parts

Except for the external wiper blade, the device contains no user-serviceable parts. Contact your local Bosch service center for device maintenance and repair. In the event of failure, the device should be removed from site for repair.

## On-Site Inspection

It is recommended that the device be inspected on-site every six months to check mounting bolts for tightness, security, and any signs of physical damage. Inspection of this device shall only be carried out by suitably-trained personnel in accordance with the applicable code of practice (for example, EN 60097-17).

## Information about cameras with illuminators

The text in this section applies only to cameras which have the optional illuminator accessory. When servicing the device, disconnect power to the device to avoid possible exposure to the eyes. If disconnecting power to the device is not possible, use appropriate shielding to block the LED arrays or wear appropriate eye protection.

## Illuminator removal

If you must remove the illuminator because it is damaged or has failed, follow these steps:

1. Remove the three (3) M4 Hex screws.
2. Install the access plug (which may be stored in an access hole of the MIC-DCA or the wall mount accessory; if not, see the note below).


**Note:** If you do not have an access plug, **do not remove the illuminator** until you request and receive a new access plug from Bosch.

## 12 Decommissioning

### 12.1 Transfer

The unit should only be passed on together with this installation guide.

### 12.2 Disposal

	<p><b>Disposal</b></p> <p>Your Bosch product has been developed and manufactured using high-quality materials and components that can be reused.</p> <p>This symbol means that electronic and electrical devices that have reached the end of their working life must be disposed of separately from household waste.</p> <p>In the EU, separate collecting systems are already in place for used electrical and electronic products. Please dispose of these devices at your local communal waste collection point or at a recycling center.</p>
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# 13 Appendices

## 13.1 Best Practices for Outdoor Installation

Cameras installed outdoors are susceptible to surges and lightning. Always include surge and lightning protection when installing outdoor cameras.

The following figure is an illustration of the proper configuration for installing IP PTZ cameras (AUTODOME and MIC) outdoors with surge and lightning protection. Note that the illustration does not include representations of all models of AUTODOME and MIC cameras.

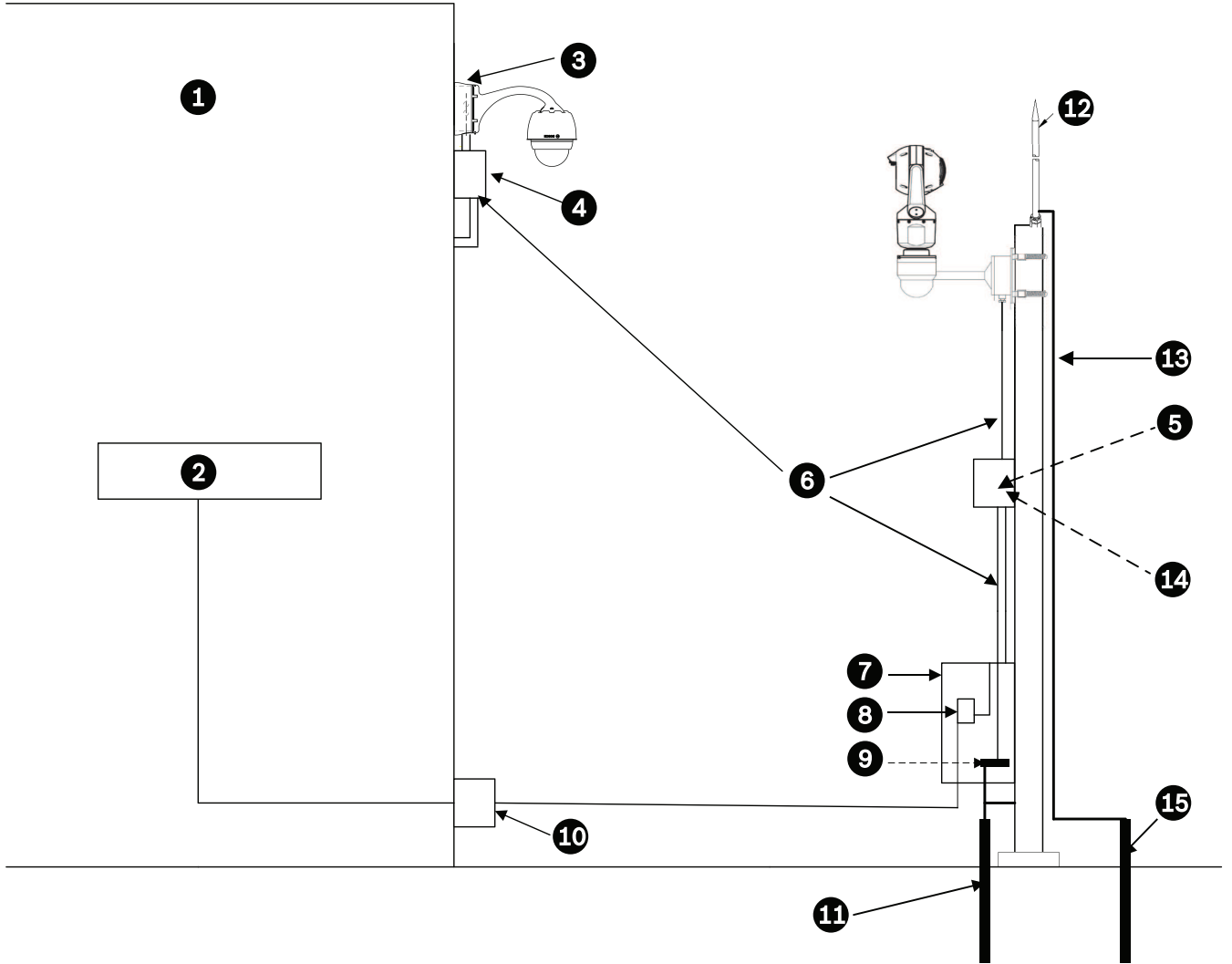


Figure 13.1: Correct outdoor installation with proper surge/lightning protection

1	Indoor main building	2	Network equipment
3	Connect the ground of the camera power supply to the building earth ground.	4	Surge protection
5	Connect the ground of the camera to the ground of the surge protector.	6	Install Cat5e/Cat6e Ethernet (Shielded Twisted Pair (STP)) cable. Route cable through grounded metal conduit.
7	Equipment enclosure	8	Outdoor rated High PoE-compatible midspan
9	Connect the Bus Bar to the Equipment Grounding Electrode.	10	Outdoor High PoE-compatible surge protection to protect indoor equipment
11	Equipment Grounding Electrode	12	Lightning Rod
13	Down Conductor; refer to NFPA 780, Class 1 and 2.	14	Install outdoor High PoE-compatible surge protection as close as possible to the camera. Connect to the Equipment Grounding Electrode.
15	Lightning Rod Grounding Electrode		

## 13.2 Error Codes

For certain conditions, MIC cameras will display status codes on the video image. The table below identifies the status codes, their descriptions, and the recommended action to resolve the condition.

Most status codes appear on the OSD until you acknowledge them. The codes identified with asterisks (\*\*) appear for approximately 10 seconds, then disappear automatically.

To clear the status code in the OSD, send the appropriate acknowledge command. If necessary, refer to the operation instructions in the Video Management System software for issuing acknowledge commands, or to the appropriate section in the User Manual for your MIC camera for details on issuing the “AUX OFF 65” command.

Status Code	Description	Recommended action (to be completed by a qualified Service Technician)
2	Capacity of external PoE device is insufficient to support operation of the camera's window defroster. <b>Note:</b> MIC IP fusion 9000i only.	An incorrect type of PoE (such as one based on IEEE 802.3af) with insufficient power output may be connected to the camera.*
3	Capacity of external PoE device is insufficient to support operation of the camera's internal heater.	An incorrect type of PoE+ or PoE++ (such as one based on IEEE 802.3af or IEEE 802.3at) with insufficient power output may be connected to the camera.*
4	Capacity of the external PoE device is insufficient to support operation of the camera's window defroster. <b>Note:</b> MIC IP fusion 9000i only.	An incorrect type of PoE+ or PoE++ (such as one based on IEEE 802.3af or IEEE 802.3at) with insufficient power output may be connected to the camera.*
5	When operating using redundant power sources, the camera is detecting insufficient voltage being provided by the external High PoE power source.	<ol style="list-style-type: none"> <li>1. Verify that the High PoE power source (midspan or switch) can provide 95 W of output power.</li> <li>2. Verify that the Cat5e/Cat6e network cable is not longer than 100 m maximum.</li> <li>3. If using the 95W High PoE Midspan (NPD-9501A), verify that both LEDs are green. If not, refer to the “Troubleshooting” section of the installation manual of the midspan.</li> </ol>
6	When operating using redundant power sources, the camera is detecting insufficient voltage being provided by the external 24 VAC power source.	<ol style="list-style-type: none"> <li>1. Verify that the 24 VAC power source can provide at least 4.0 A to the camera.</li> <li>2. Verify that the wire gauge of the power cable is sufficient for the distance between the power source and the camera and that the voltage getting to the user cable of the camera is between 21 VAC and 30 VAC.</li> </ol>

Status Code	Description	Recommended action (to be completed by a qualified Service Technician)
7	Camera may be operating in an environment where ambient temperature is below the specification of the camera.	1. Verify that the ambient temperature is not below -40 °C (-40 °F). 2. Review the diagnostic log of the camera (accessible from the <b>Service</b> menu) for errors related to the operation of the internal heaters. <b>Note:</b> Motorized zoom and focus functions of the visible camera lens will be disabled until the camera operates within the specified temperature range.
8	Camera may be operating in an environment where ambient temperature is above specification of the camera.	1. Verify that the ambient temperature is not above +65 °C (+149 °F). 2. Review the diagnostic log of the camera (accessible from the <b>Service</b> menu) for errors related to the operation of the internal fan. 3. Add the optional sunshield accessory to reduce internal heating caused by sun loading.
9	Camera has been subjected to high shock. Mechanical damage to the camera may exist.	1. Verify the integrity of the mechanical parts such as the arms and the pan body. 2. Verify the integrity/tightness of the external fasteners. Tighten where necessary. 3. If obvious damage is present, stop using the camera and contact the nearest Bosch Security Systems Service Center. 4. If no damage is evident, power the camera off and then on, and then evaluate operational performance. If the camera does not operate as expected, contact the nearest Bosch Security Systems Service Center.



Status Code	Description	Recommended action (to be completed by a qualified Service Technician)
10	Camera is detecting high humidity level inside housing. The integrity of the housing seal may be compromised.	<ol style="list-style-type: none"> <li>1. Inspect the window for any cracks or obvious damage around the edge of the window.</li> <li>2. Verify the integrity/tightness of the external fasteners. Tighten where necessary.</li> <li>3. Verify the integrity of the mechanical seals around the tilt head, pan body, and arm joints.</li> <li>4. If damage to the seals is obvious, contact the nearest Bosch Security Systems Service Center.</li> <li>5. If no obvious damage is found, power the camera off and then on. If the status code reappears, contact the nearest Bosch Security Systems Service Center.</li> </ol>
11	Wiper operation has been halted because of an obstruction.	<ol style="list-style-type: none"> <li>1. Remove any obvious materials that are obstructing operation of the wiper.</li> <li>2. If the obstruction is from ice buildup, review the diagnostic log of the camera (accessible from the <b>Service</b> menu) for errors related to operation of the internal heaters (and the window defrosters, for MIC IP fusion 9000i). If possible, tilt the camera so that the front faceplate is pointed straight up. (In this position, heat generated by the camera will help to melt ice buildup from its front faceplate area.)</li> <li>3. If the obstruction is from extreme ice buildup, temporarily avoid operating the wiper until internal heaters, combined with a rise in ambient temperature, melt the ice buildup.</li> </ol>
12	Left and Right Pan Limits have been set too close to each other.	Re-configure one camera stop limit or the other to increase the distance between limit stops to at least 10° apart.
13**	Autofocus has been turned off because of excessive focus activity.	<ol style="list-style-type: none"> <li>1. If practical, increase lighting in the scene so that the focus function stops “hunting.”</li> <li>2. Use focus in manual mode or One-Push mode.</li> </ol>
14**	Washer operation was attempted without washer pre-position being stored.	Configure the washer pre-position. If necessary, refer to the subchapter “Using the Wiper/Washer (Bosch AUX/Pre-position Commands)” in the User Manual for details on configuring washer functions.

Status Code	Description	Recommended action (to be completed by a qualified Service Technician)
15	Attempt was made to move to a pre-position that is mapped to an alternate function, so it is no longer associated with a location.	<ol style="list-style-type: none"> <li>1. Select/configure a different pre-position number for the desired location.</li> <li>2. Re-configure the pre-position assignment so that this number is no longer associated with an alternate function. Refer to the subchapter “<b>Pre-position mapping</b>” in the User Manual for details on re-mapping pre-positions.</li> </ol>
16**	Motorized zoom function is programmed to operate at a high usage level in the Playback Tour. This high rate of usage could result in premature wear of the zoom motor.	Re-configure the camera to decrease the zoom activity to less than 30% during recording.
17	Motor operation has been halted due to an obstruction.	<ol style="list-style-type: none"> <li>1. Remove any obvious materials that are obstructing operation of the camera pan/tilt function.</li> <li>2. If the obstruction is from ice buildup, review the diagnostic log of the camera (accessible from the <b>Service</b> menu) for errors related to the operation of the internal heaters (and the window defrosters, for MIC IP fusion 9000i). If the log notes heater or defroster failure, contact the nearest Bosch Security Systems Service Center.</li> <li>3. If operation is obstructed because of excessive ice buildup, temporarily avoid operating the pan/tilt functions of the camera until internal heaters, combined with a rise in ambient temperature, melt the ice buildup.</li> </ol>
18**	When operating using redundant power sources, the camera has detected a loss of power from the external High PoE power source.	<ol style="list-style-type: none"> <li>1. Verify the operating status of the external High PoE power source.</li> <li>2. Verify the integrity of the electrical connections between the power source and the camera.</li> </ol>
19**	When operating using redundant power sources, the camera has detected a loss of power from the external 24 VAC power source.	<ol style="list-style-type: none"> <li>1. Verify the operating status of the external 24 VAC power source.</li> <li>2. Verify the integrity of the electrical connections between the power source and the camera.</li> </ol>

Status Code	Description	Recommended action (to be completed by a qualified Service Technician)
20	Camera is configured to use the “Hard Pan Limits” (HPL) feature, and it has been powered-up with pan position in the forbidden zone.	<p>Temporarily remove one of the hard pan limits (as described in PTZ Settings), pan the camera out of the forbidden zone, and then restore the hard pan limit.</p> <p>Reboot the camera by powering the camera off and then on, or by clicking the button <b>Reboot</b> in the camera’s web browser (<b>Configuration &gt; Camera &gt; Installer Menu &gt; Reboot device</b>).</p> <p><b>Note:</b> If pan movement is blocked only in one direction, but possible in the other direction (as when the camera is near the HPL), then no status code appears.</p>
21	Illuminator error: IR	<p>Reboot the camera by powering the camera off and then on, or by clicking the button <b>Reboot</b> in the camera’s web browser (<b>Configuration &gt; Camera &gt; Installer Menu &gt; Reboot device</b>).</p> <p>If this action does not resolve the problem, contact the nearest Bosch Security Systems Service Center. The Service Center may request information from the diagnostics log of the camera (accessible from the <b>Service</b> menu).</p>
23	An internal error has occurred. (The optical video screen becomes blue for 1 or 2 seconds during the camera’s recovery procedure.)	<p>If this problem begins to occur on a regular basis:</p> <ol style="list-style-type: none"> <li>1. Verify that the power source to the camera is not experiencing brown-out conditions.</li> <li>2. Verify that the camera’s earth ground connection is attached per earlier instructions.</li> </ol> <p>If these actions do not resolve this problem, contact the nearest Bosch Security Systems Service Center.</p>



**Caution!**

If you choose not to use a switch or midspan with the appropriate Power Sourcing Equipment (PSE) chip, then the MIC camera will not recognize the PoE as compliant, and the camera firmware may disable some or all functionality.

## 13.3

### AUX Commands

AUX	Function	Command	Description
1	On/Off	Auto Pan without limits (Continuous)	
2	On/Off	Auto Pan between limits	
7	On/Off	Run Custom Pre-Position Tour	
8	On/Off	Run Pre-Position Tour	
18	On/Off	AutoPivot Enable	
20	On/Off	Backlight Compensation (BLC)	
40	On/Off	Restore camera settings [to factory defaults]	
43	On/Off	Auto Gain Control (AGC)	
50	On/Off	Playback A, continuous	
51	On/Off	Playback A, single	
52	On/Off	Playback B, continuous	
53	On/Off	Playback B, single	
57	On/Off	Night mode IR Filter In/Out	
60	On/Off	On-Screen Display (OSD)	
61	On/Off	Preset & Sector Titles Camera Block Overlay VDSK not required	
66	On/Off	Display Software Version	
67	On/Off	IR Focus Correction	
75	On/Off	One-Line Camera Title	
76	On/Off	Two-Line Camera Title	
77	On/Off	OSD Camera Title Colors	
78	On/Off	Intelligent Tracking	
80	On/Off	Digital Zoom lock	
86	On/Off	Sector Blanking	
87	On/Off	Privacy Masking	
88	On/Off	Proportional Speed	
94	On/-	Recalibrate Azimuth Compass	
95	On/Off	Azimuth/Elevation Display	
96	On/Off	Compass Points Display	
100	On/Off	Record Tour A	
101	On/Off	Record Tour B	

AUX	Function	Command	Description
102	On/Off	Wiper On/Off (Continuous)	
103	On/Off	Wiper On/Off (Intermittent)	
104	On/Off	Wiper On/Off (One shot)	
105	On/Off	Wash/Wipe On/Off	
121	On/Off	Left Hard Pan Limit	
122	On/Off	Right Hard Pan Limit	
123	On/Off	Clear Hard Pan Limits	
606	On/Off	Power Mode	
700	On/Off	Proportional speed control adjustment	Aux On, entered repeatedly, cycles through increasing speeds Super Slow, Slow, Medium, and Fast. Aux Off, decreases speeds through the same settings.
804	On/Off	Mask Calibration Procedure	
908		Increase Privacy Mask Size while moving	
1-256	Set/-	Pre-position Programming	
1-256	-/Shot	Pre-position Recall	

The following commands are specific to MIC7000 models, including MIC IP starlight 7000i.

AUX	Function	Command	Description
54	On/Off	IR mode	AUX ON sets IR to Auto. AUX OFF sets IR to OFF. Available for only.
57	On/Off	Night mode IR Filter In/Out	
68	On/Off	White light illumination	



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