



MIC IP starlight 7000 HD

MIC-7130-PB4 | MIC-7130-PW4 | MIC-7130-PG4 | MIC-7230-B5
| MIC-7230-W5 | MIC-7230-G5



BOSCH

en Operation 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!**

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 likely to be 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!**

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.

1.5 Important Notices

**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 in each pole, into the electrical installation of the building. If it is needed to open the housing for servicing and/or other activities, 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 CMOS/MOS-FET handling precautions to avoid electrostatic discharge. NOTE: Wear required grounded wrist straps and observe proper ESD safety precautions when handling the electrostatic-sensitive printed circuit boards.

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 - Disconnect the power before moving the unit. Move the unit with care. Excessive force or shock may damage the unit.

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)*.

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 internal 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.

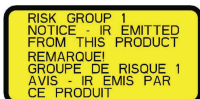
UL Disclaimer

Underwriter Laboratories Inc. ("UL") has not tested the performance or reliability of the security or signaling aspects of this product. UL has only tested fire, shock and/or casualty hazards as outlined in Standard(s) for Safety for Information Technology Equipment, UL 60950-1 . UL Certification does not cover the performance or reliability of the security or signaling aspects of this product.

UL MAKES NO REPRESENTATIONS, WARRANTIES, OR CERTIFICATIONS WHATSOEVER REGARDING THE PERFORMANCE OR RELIABILITY OF ANY SECURITY OR SIGNALING-RELATED FUNCTIONS OF THIS PRODUCT.

1.6 Important Notices - Illumination Safety

The text in this section applies only to cameras which have the optional illuminator accessory.



Notice!

This product has been tested according to standard IEC62471:2006 “Photobiological safety of lamps and lamp systems”. The product emissions exceed the EXEMPT Group limit for both Retinal Blue Light and Cornea/Lens infrared hazard as defined by IEC 62471:2006. The product was found to meet the Risk Group 1 exposure limits for IR and White LEDs.

The IEC 62471 provides the methods to determine the risk group of any lamp or any product incorporating a lamp. The risk groups in IEC 62471 indicate the degree of risk from potential optical radiation hazards. The risk groups were developed based upon decades of lamp use experience and the analysis of accidental injuries related to optical radiation emission.

EXEMPT Group – no optical hazard is considered reasonably foreseeable, even for continuous, unrestricted use. Typical examples are most frosted incandescent lamps and fluorescent lamps used in domestic applications.

Risk Group 1 – products are safe for most use applications, except for very prolonged exposures where direct ocular exposures may be expected. An example of Risk Group 1 is a domestic battery operated torch (flashlight).

Exposure Hazard Value (EHV) is a ratio of the Exposure Level (distance, exposure time) to Exposure Limit Value (ELV). When EHV is greater than 1, the device has exceeded the Exposure Limit Values for a particular Risk Group. The ELV is the level where optical radiation to the eye or skin is not expected to result in adverse biological effects.

The **Hazard Distance (HD)** is the distance from the source at which the Exposure Level equals the appropriate ELV. In other words, when $EHV=1$ for a particular Risk Group.

Regarding the Cornea / Lens infrared hazard of this product, the Exposure Hazard Value (EHV) at a test distance of 200mm is 2.19 based on EXEMPT Group exposure limits. The EHV based on Risk Group 1 limits is 0.386. The HD for the Exempt Group is 297 mm.

Regarding the Retinal Blue Light hazard, the EHV is 22.9 based on the EXEMPT Group exposure limits and a test distance of 200 mm. The EHV based on Risk Group 1 limits is 0.266. The HD for the Exempt Group is 2675 mm.

These values have been summarized in the table below:

Hazard	EXEMPT Group Limits			Risk Group 1 Limits		
	t, duration	d, distance	EHV	t, duration	d, distance	EHV
Cornea / Lens Infrared Hazard	1000 s Hazard Distance	200 mm 279 mm	2.19	100 s	200 mm	0.386
Retinal Blue Light Hazard	10,000 s Hazard Distance	200 mm 2675 mm	22.9	100s	200 mm	0.266

1.7 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

Customer Service

Telephone: 888-289-0096

Fax: 585-223-9180

Email: 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

Repair Center

Telephone: 585-421-4220

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

Email: 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

More Information

For more information please contact the nearest Bosch Security Systems location or visit 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.

MIC7000 packaging is designed:

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



Caution!

Take extra care lifting or moving MIC7000 cameras because of their weight (6.7 kg (14.7 lb)).

2.1 Parts List - Camera

One (1) MIC IP starlight 7000 HD Camera
One (1) Quick Installation Guide
One (1) spanner tool [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)]
One (1) base gasket
One (1) RJ45 coupler
Four (4) MAC address labels
One (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
1 Torque wrench with 1/4 in. drive to use the supplied spanner tool for removing yoke caps and blanking plugs if necessary
For <i>canting</i> cameras with Hex head screws: 1 Torque wrench with a 5 mm Hex bit (or T30 Torx bit) to remove/install bolts in the yoke arms
For <i>canting</i> cameras with Torx head screws: 1 Torque wrench with a Torx bit (T30 or T27) to remove/install bolts in the yoke arms

3 Product Description

The MIC7000 camera is a high-performance, weatherproof, ruggedized, fully functional day/night PTZ camera that has been designed to offer a reliable, robust, and high-quality surveillance solution for extreme security applications.

Image control and quality are integral aspects of any PTZ camera, and the MIC7000 camera delivers outstanding clarity and image detail. The camera has a professional-grade imaging platform capable of delivering HD resolution (720p50/60 for 7130 models or maximum 1080p25/30 for 7230 models) in environments with ambient light extremes.

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.

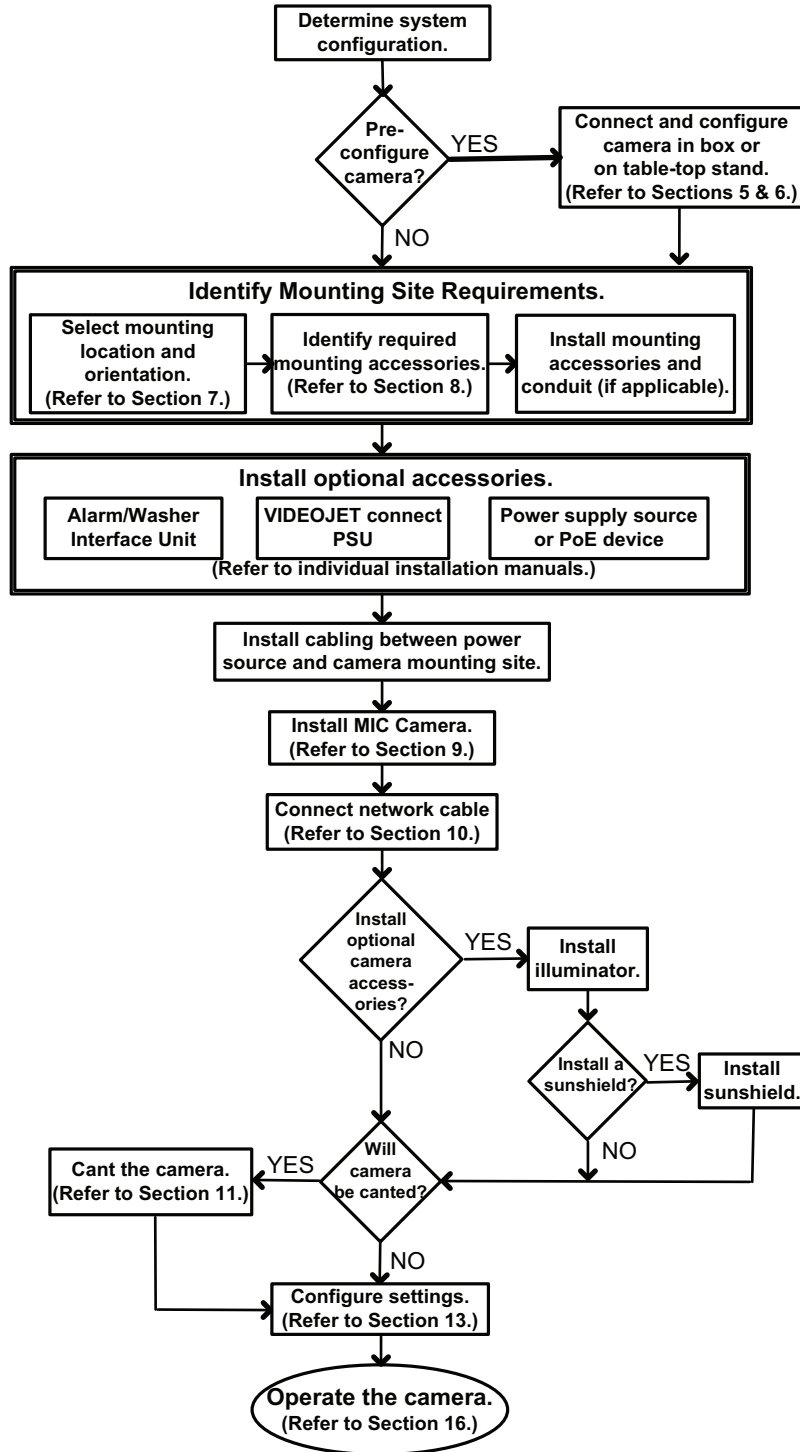
The following table identifies the optional accessories for MIC cameras. Refer to the datasheets of each accessory for details. Some accessories may not be available in all regions.

Accessories	Description	Accessories	Description
MIC-DCA-H - MIC-DCA-HB - MIC-DCA-HW - MIC-DCA-HG	Hinged Deep Conduit Adapter in Black White Grey	MIC-SCA - MIC-SCA-BD - MIC-SCA-WD - MIC-SCA-GD	Shallow Conduit Adapter in Black White Grey
MIC-CMB - MIC-CMB-BD - MIC-CMB-WD - MIC-CMB-GD	Corner Mount Bracket in Black White Grey	MIC-SPR - MIC-SPR-BD - MIC-SPR-WD - MIC-SPR-GD	Spreader Plate in Black White Grey
MIC-WMB - MIC-WMB-BD - MIC-WMB-WD - MIC-WMB-GD	Wall Mount Bracket in Black White Grey	MIC-ILx-100 - MIC-ILB-100 - MIC-ILW-100 - MIC-ILG-100	User-installable illuminator accessory designed specifically for MIC7000 cameras, in Black White Grey
MIC-PMB	Pole Mount Bracket (stainless steel only)	MICIP67-5PK	MIC7000 IP67 Connector Kit
VJC-7000-90	VIDEOJET connect (Full-featured network interface unit/power supply)	NPD-6001A	60 W midspan [Not for use with the illuminator accessory.]
VG4-A-PSU1, VG4-A-PSU2	24 VAC (96 W) power supply	NPD-9501A	95 W midspan
MIC-ALM-WAS-24	Alarm and washer interface accessory unit	MIC-67SUNSHLD	Sunshield (white only)

4 Overview of Installation Steps

To install your MIC camera, follow these steps in sequence.

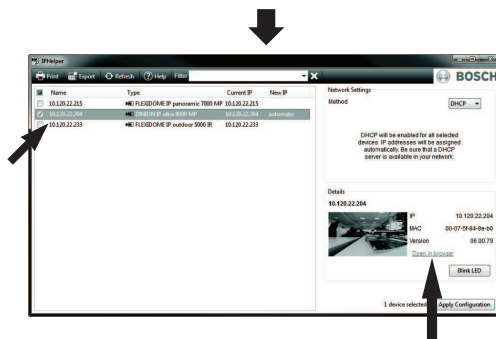
Note: Depending on your model of camera, your desired mounting location and orientation, as well as your mounting brackets and chosen camera accessories, you may not need to complete every step.



IPHelper



<http://downloadstore.boschsecurity.com/>



5 Configuration Programming in the Shipping Box

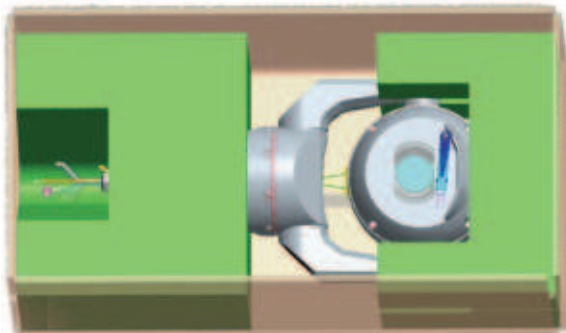


Caution!

Take extra care lifting or moving MIC7000 cameras because of their weight (6.7 kg (14.7 lb)).

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 time across the camera window, and then returns to parked position.
3. Configure the camera. Refer to *Configuration, page 39* for details.

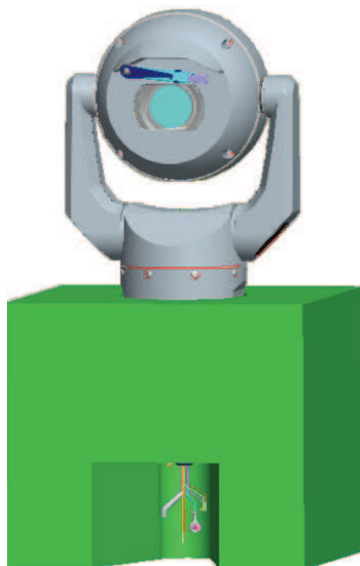
Note: Do not change the camera orientation to “Inverted” while the camera is still in the box. The camera head must be free to rotate. If you must change the camera’s orientation to “Inverted,” remove the camera from the box and configure it by following the steps in *Configuration Programming on a Temporary Table-top Stand, page 18*.

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

6 Configuration Programming on a Temporary Table-top Stand

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 camera, still in the foam, from the box. Place the camera upright on a flat, horizontal surface.
3. Remove the foam covering the head of the camera.



4. Supply power to the camera and *Connect the Camera to the Network*, page 29. Note that the wiper moves one time across the camera window, and then returns to parked position.
5. Configure the camera. Refer to *Configuration*, page 39 for details.



Notice!

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

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

7 Mounting Location and Mounting Orientation

7.1 Select the Mounting Location

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.



Notice!

MIC cameras must be secured to one of the following surfaces:

- Concrete (Solid/Cast)
- Concrete Masonry Unit (Concrete Block)
- Brick (all types)
- Metal (Steel/Aluminum, minimum 1/8-in. thick)



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.

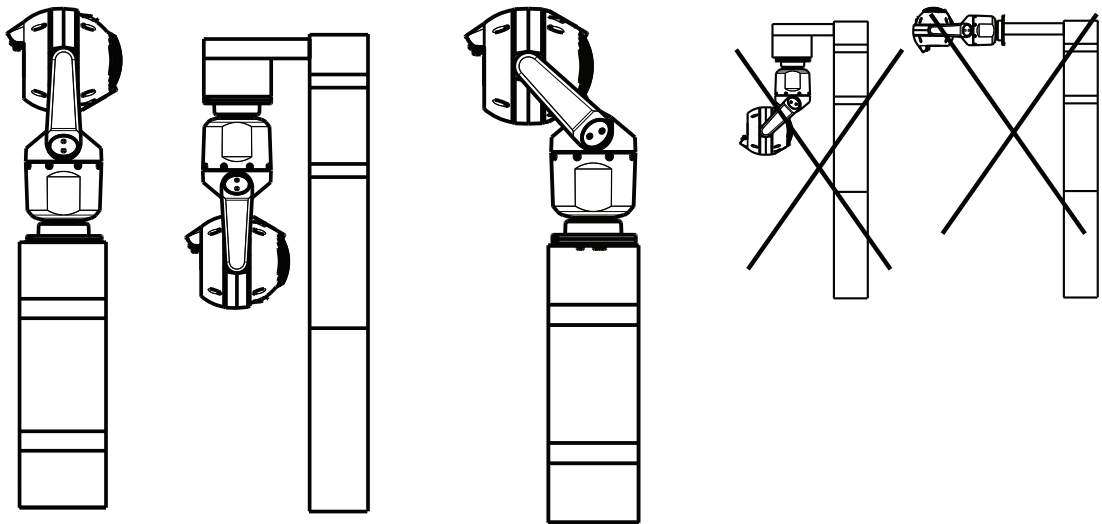
The camera head has three (3) plastic screws that are factory-installed to prevent corrosion in units which do not have accessories installed on the camera head. If you install a sunshield or an illuminator accessory, you will remove those screws and replace them with the screws that ship with each accessory.

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 Select the Mounting Orientation

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

Note the position of the visor when the camera is installed in inverted orientation. The visor is close to the top of the pan shaft (the body of the MIC), instead of at the bottom of the inverted 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.

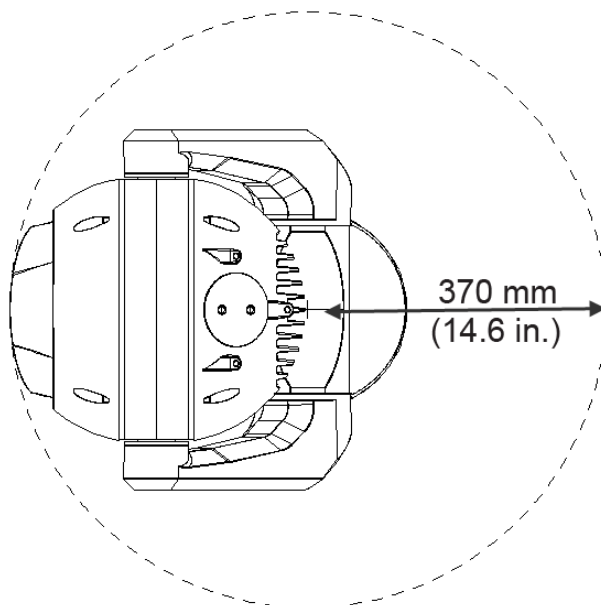


Figure 7.1: Top view of canted MIC7000 illustrating distance of pan clearance

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

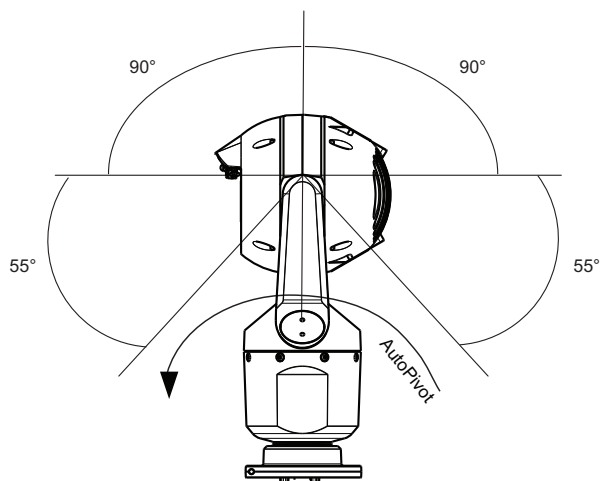


Figure 7.2: MIC7000 Tilt Range: 145° each direction; 290° if AutoPivot enabled

8 Overview of Mounting Options

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

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

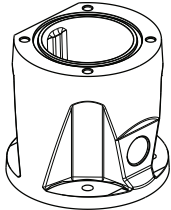
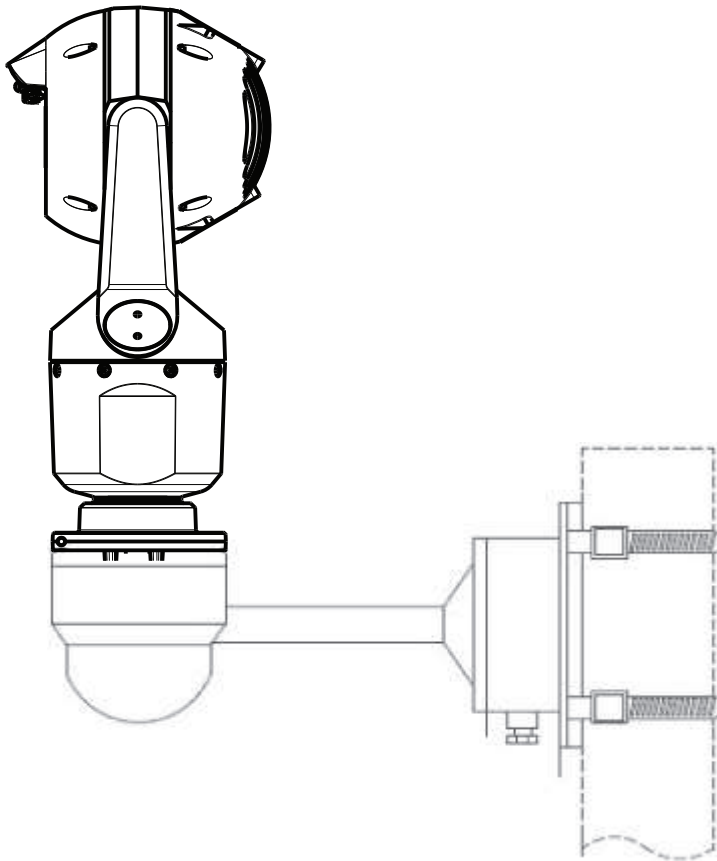


Figure 8.3: Typical hinged DCA mount configuration

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 brackets (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 GD for grey) of each mounting bracket.

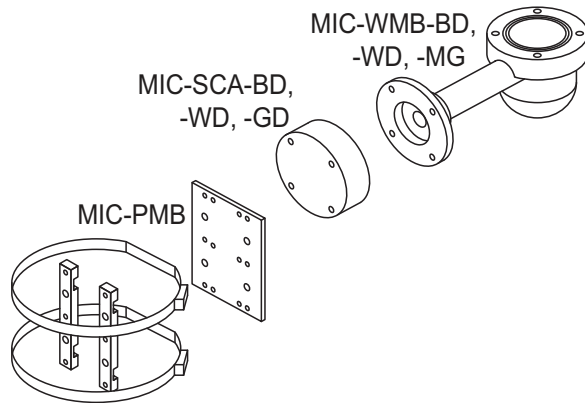


Figure 8.4: Typical Pole mount configuration

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.

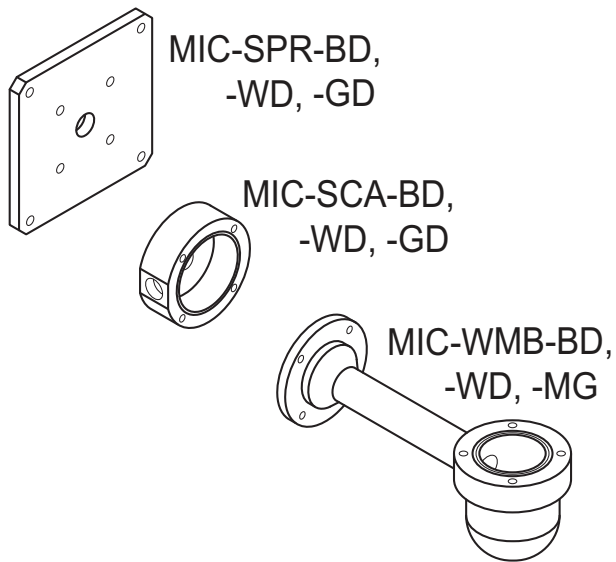


Figure 8.5: Typical Wall mount configuration

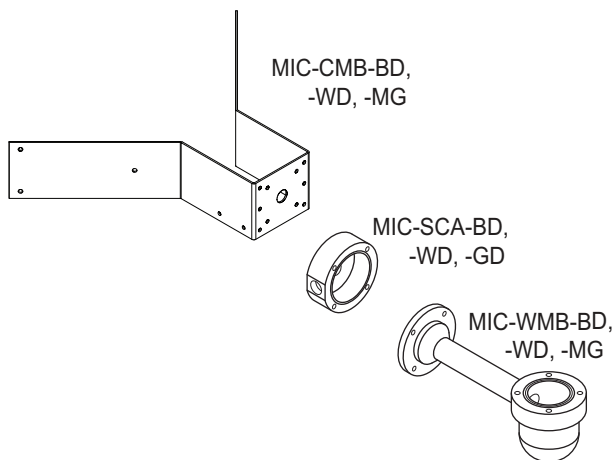


Figure 8.6: Typical Corner mount configuration

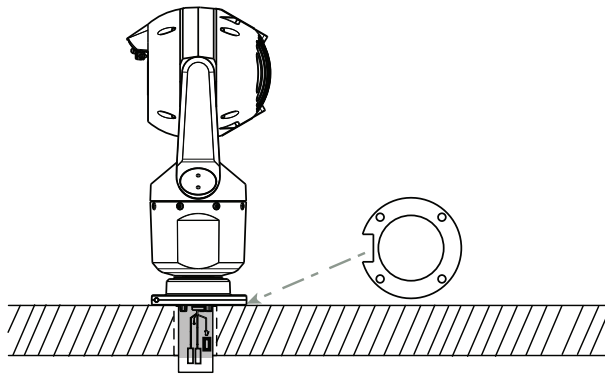


Figure 8.7: Direct surface mount – camera upright (MIC + base gasket)

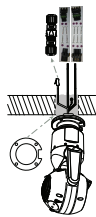


Figure 8.8: Direct surface mount – camera inverted (MIC + base gasket + IP67 Weatherization/Connector Kit)



Notice!

Observe all appropriate safety precautions and local building regulations.

Refer to the MIC Series Mounting Brackets Installation Guide for installation instructions.

9 Install the Camera

**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.

**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.

You can install the camera:

- onto a MIC-DCA or a MIC wall mount
- or
- directly to a mounting surface using the MIC7000 IP67 Connector Kit (MICIP67-5pk, sold separately).

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

**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.

10 Make Connections - Power and Control

10.1 About Camera Power and Control

The camera transmits PTZ control commands and images over a TCP/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 network. With its H.264 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 simultaneously received on several receivers.

10.2 Power Source Options

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

The camera can also accept a standard 24 VAC power source if a High PoE network interface will not be used. User-supplied wiring must be in compliance with electrical codes (Class 2 power levels).

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 auxiliary input (24 VAC) and will draw minimal power from the High PoE Midspan. If the 24 VAC power source fails, the camera switches power input seamlessly to High PoE. After the 24 VAC power source is restored, the camera switches power input again to 24 VAC.



Warning!

Bosch's version of High PoE:

If supplying power to the camera by HPoE or a midspan device, you must install additional surge protection.

In the table below, an "X" identifies the power source options for MIC7000 camera models.

CAMERA MODELS	60 W midspan	95 W midspan	VIDEOJET connect	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, VG4-A-PSU2)
95 W midspan (NPD-9501A)	
VIDEOJET connect (VJC-7000-90)	

**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.

10.3**Ethernet Connections****Caution!**

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

Note: Consult the National Electrical Code (NEC) for cable bundling requirements and limitations.

Cable Type	Cat5e/Cat6e Ethernet (directly to the camera, or to a network switch between the camera and the network)
Maximum Distance	100 m (330 ft)
Bandwidth	10BASE-T/100BASE-TX, auto-sensing, half/full duplex
High PoE (95W required for models with illuminators)	Use the 95 W midspan sold by Bosch.
High PoE (60W only for models without illuminators)	Use the 60 W midspan sold by Bosch, or a midspan that is compliant to the IEEE 802.3at, class 4 standard.
Terminal Connector	RJ45, Male

10.4 Camera Connections

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

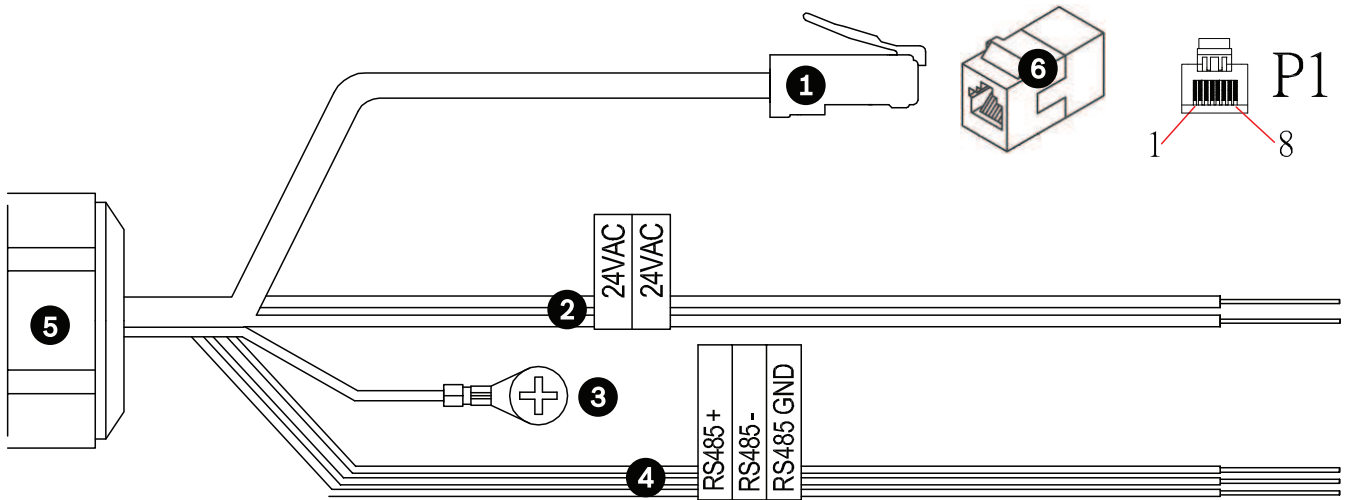


Figure 10.9: MIC7000 connectors

	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 GND = Brown
5	Liquid-tight cordgrip in the base of the camera	
6	RJ45 coupler (female to female)	

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 MIC7000 IP67 Connector Kit (MICIP67-5pk, sold separately) to protect the connections against moisture and dust particles. Each kit provides components for connecting as many as 5 MIC7000 cameras.

10.5 Connect the Camera to the Network

Note: Refer to the following figure for an illustration of both options.

Option A:

1. Connect an Ethernet cable (Cat5e/Cat6) from the RJ45 connector of the camera to a network switch attached to the Local Area Network (LAN).
2. Connect the dedicated network switch to the RJ45 connector on the computer.
3. Connect the 24 VAC wires to the power source.
4. Connect the RS-485 wires to the MIC-ALM-WAS-24 (optional).
5. Attach the green ground wire (item 3 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.

Option B:

1. Connect an Ethernet **crossover** cable from the RJ45 connector of the camera directly to a networking device such as a computer, a DVR/NVR, etc.
2. Attach the green ground wire (item 3 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.

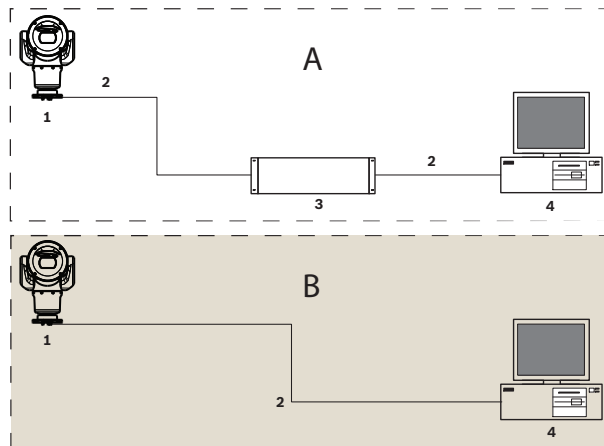


Figure 10.10: MIC7000 IP System Configuration

1	MIC7000 camera
2	IP connection
3	Network switch
4	Networking device (computer, DVR/NVR, etc.)

11 Cant 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 cameras feature 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. Ensure that the head is supported so that it doesn't tilt downward unexpectedly after the Torx screws are removed from the yoke arms 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.

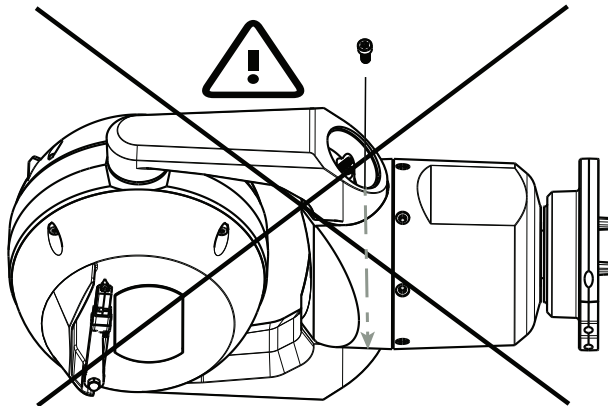


Figure 11.11: Do NOT allow screws or other objects to fall inside camera!



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 a torque wrench with ¼ in. drive (item 1, user-supplied) and the supplied spanner tool (item 2). Repeat for the second arm.

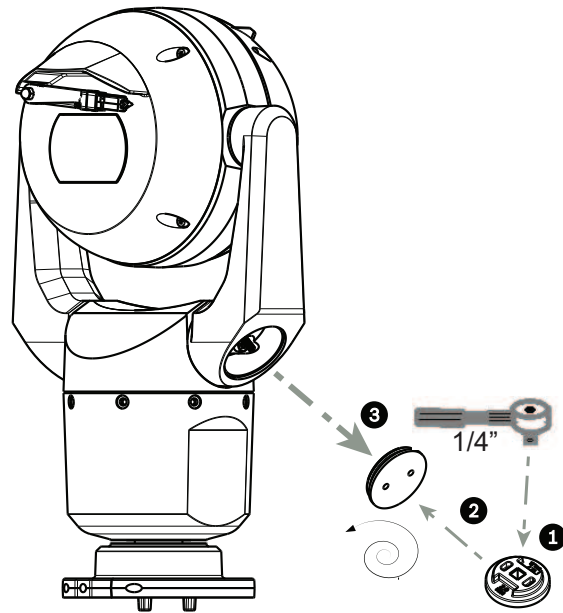


Figure 11.12: Remove yoke caps with spanner tool

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

**Notice!**

At the end of 2014, the 4 screws that attach the yoke arms to the base of the camera were changed from Torx head screws to 5 mm Hex head screws. Both head types accommodate a T30 Torx bit.

Be sure to note which screw head type is on your MIC 7000 camera since there are different torque requirements as shown in *Torque requirements for yoke arm screws*, page 34.

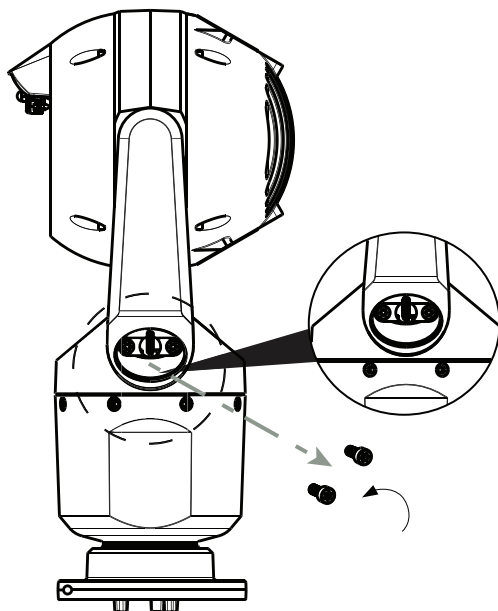


Figure 11.13: Remove screws from yoke arms

**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.

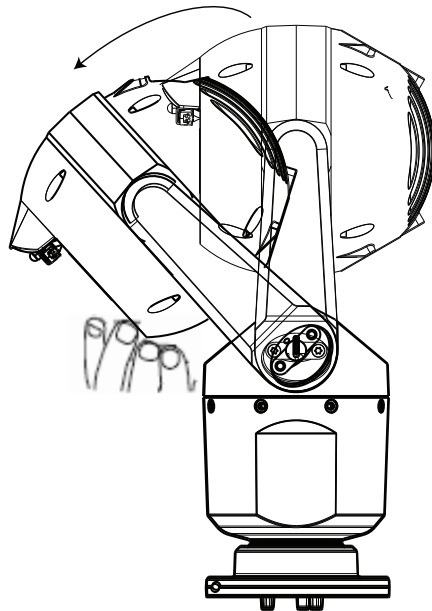


Figure 11.14: Cant the camera head

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.

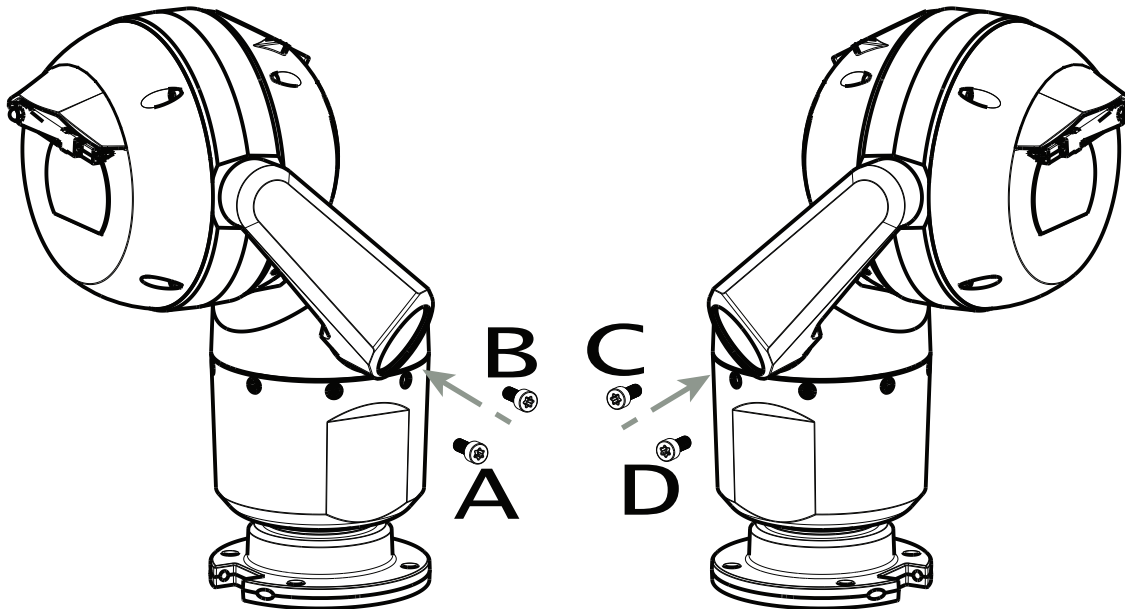

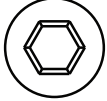










Figure 11.15: Reinsert yoke arm screws (ABCD)

- 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 ≤ xxxxxxx46028xxxxxx (≤ Dec. 2014)	SN ≥ xxxxxxx46029xxxxxx (> Dec. 2014)
	 T30/T27 Torx	 5 mm Hex (T30 Torx)
1  	≈ 7.5 N m (≈ 5.5 ft lb)	≈ 7.5 N m (≈ 5.5 ft lb)
2  	≈ 15 N m (≈ 11 ft lb)	≈ 17 N m (≈ 12.5 ft lb)
3  	≈ 15 N m (≈ 11 ft lb)	≈ 17 N m (≈ 12.5 ft lb)
4  	≈ 15 N m (≈ 11 ft lb)	≈ 17 N m (≈ 12.5 ft lb)

9. Attach the yoke caps using a torque wrench with ¼ in. drive and the supplied spanner tool.

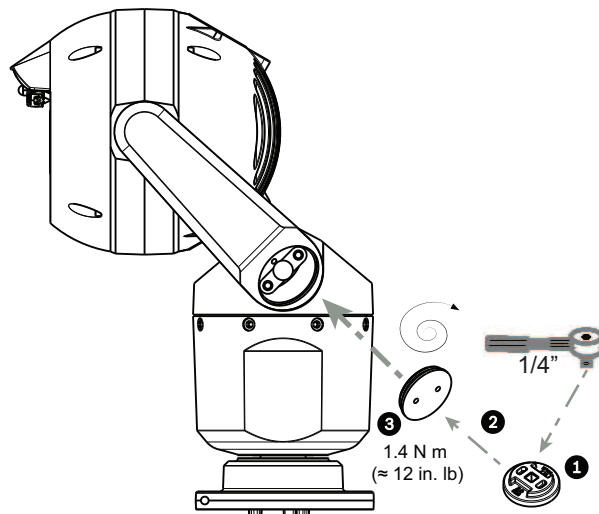
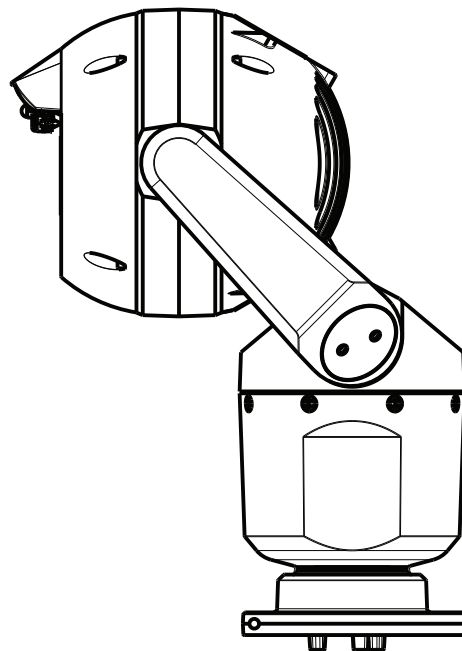


Figure 11.16: Attach yoke caps

10. Canting is complete.



12

Typical System Configurations

12.1

Typical IP Configuration with 95 W midspan (no I/O connections)



Figure 12.17: Typical IP configuration with 95 W midspan (no I/O connections)

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

Note: The total length of Cat5e/Cat6 cable must be less than 100 m (328 ft) between the camera and the head-end system.

12.2 Typical Configuration with MIC-ALM-WAS-24

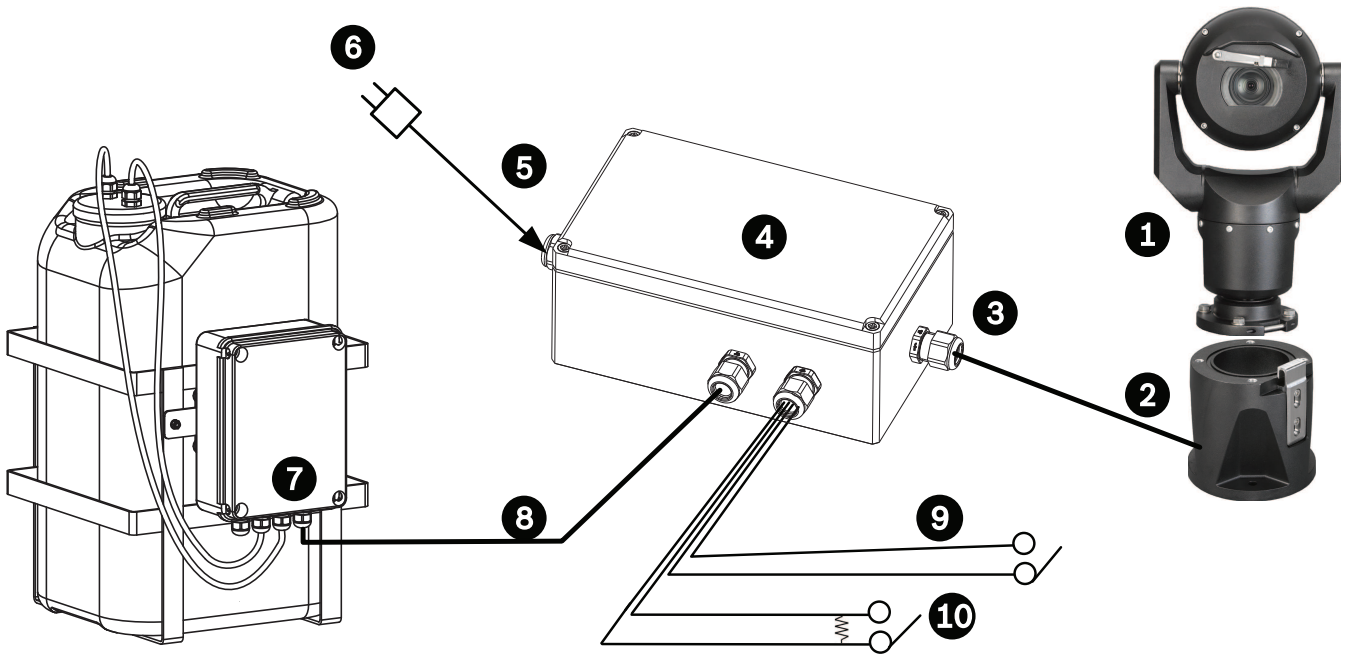


Figure 12.18: Typical configuration with MIC-ALM-WAS-24

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)

12.3 Typical IP Configuration with VJC-7000-90

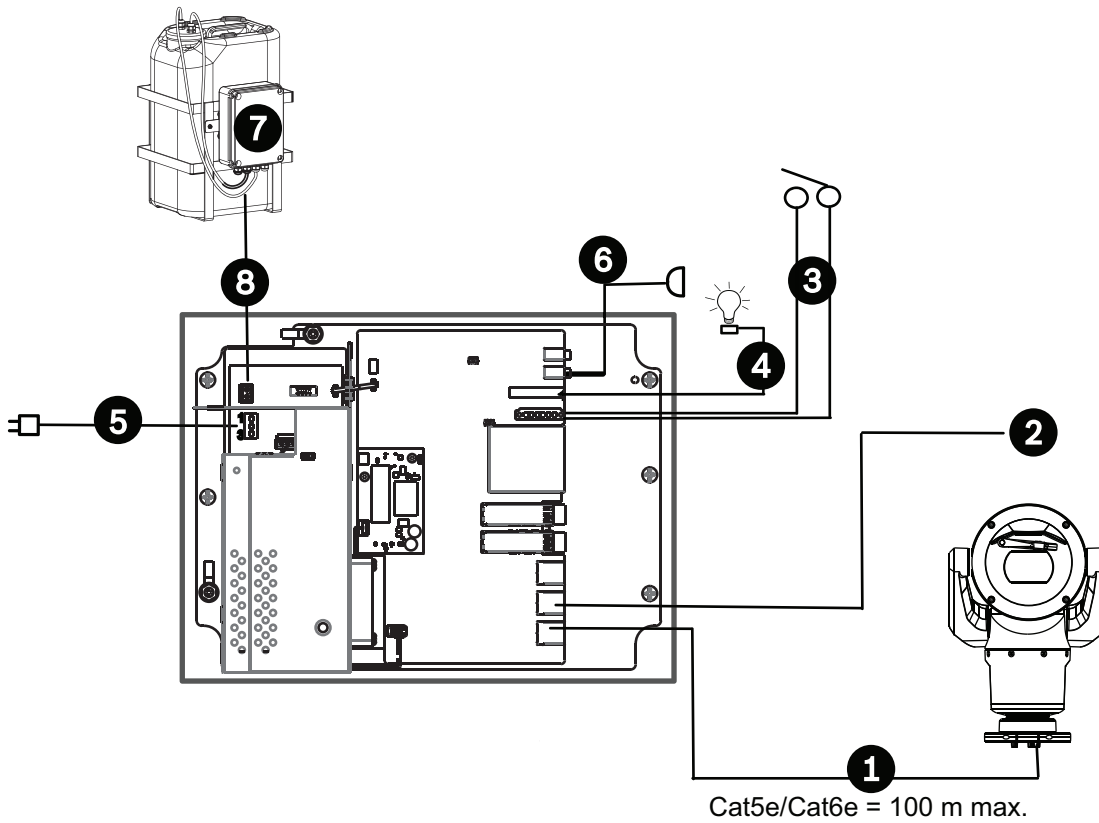


Figure 12.19: Basic configuration with VIDEOJET connect 7000

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 Note: 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/Cat6 cable must be less than 100 m (328 ft) between the camera and the head-end system.

13 Configuration

13.1 System Requirements

The camera requires specific software and hardware to allow a user to view live images and to configure camera settings over a TCP/IP network. These requirements are:

- A computer with the Microsoft Windows XP, Vista, or Windows 7 operating system, network access, and the Microsoft Internet Explorer Web browser version 9.0 or later, or
- A computer with Microsoft Windows XP, Vista, or Windows 7 operating system, network access, and reception software such as the Bosch Video Management System or the Video Client, or other third party head-end video management software, or
- A compatible hardware decoder from Bosch Security Systems connected to a video monitor.



Notice!

The Web browser must be configured to enable Cookies to be set from the IP address of the unit.

In Windows 7, deactivate protected mode on the Security tab under Internet Options. You can find notes on using Microsoft Internet Explorer in the online Help in Internet Explorer. In Windows Vista, deactivate protected mode on the Security tab under Internet Options. You can find notes on using Microsoft Internet Explorer in the online Help in Internet Explorer.

If you choose to use a computer running Microsoft Internet Explorer or any of the Bosch software, the computer must conform to the following minimum requirements:

- Operating System: Windows XP (Service Pack 3) or Windows 7 (32 or 64 bits)
- Processor: Intel Pentium Quad Core, 3.0 GHz or comparable
- RAM: 2048 MB
- Free Hard Disk Space: 10 GB
- Video system: NVIDIA GeForce 8600 or higher display with a minimum of 16-bit color
- Network interface: 100/1000-BaseT
- Software:
 - Microsoft Internet Explorer, version 8.0 or higher
 - Video Client
 - DirectX 9.0c
 - Oracle Java Virtual Machine 1.6.0_26 or newer

The camera includes the means to decode the video via a web browser; however, for more advanced features such as local recording to PC, snapshot, and full screen display, you must obtain MPEG-ActiveX.

For the latest versions of the Video Client, DirectX, Oracle Java Virtual Machine, and MPEG-ActiveX software, go to www.boschsecurity.com, navigate to the product page for your camera, and then download the software from the Software tab.



Notice!

Ensure that the graphics card is set to 16-bit or 32-bit color. If you need further assistance, contact your PC system administrator.

13.2 Configuring the Camera

To operate the camera in your network, you must configure the camera properly for your network. You will need the following information:

- Unit IP address: An identifier for the camera on a TCP/IP network.
Default: 192.168.0.1 (if your network does not have a DHCP server)
or
the first available IP address (if your network has a DHCP server)
Note: You will likely need to change the IP address of your camera so that it does not conflict with another device on your network. Refer to the section Network > Network Access for more information.
- Subnet mask: A mask used to determine what subnet an IP address belongs to.
Default: 255.255.255.0
- Gateway IP address: A node on a network that serves as an entrance to another network.
Default: 0.0.0.0
- Port: An endpoint to a logical connection in TCP/IP and UDP networks. The port number identifies the use of the port for use through a firewall connection.

**Notice!**

Ensure that the network parameters of your camera are available before you begin configuration. Contact your local network administrator for a valid IP address, Subnet mask, and Gateway IP address.

The following sections provide instructions about installing the software necessary to view images over an IP connection, configuring the IP network settings, and accessing the camera images from a Web browser.

To change the IP address or any network settings, you can use:

- the Configuration Manager software or
- the MIC7000 Series server.

13.2.1**Using the Configuration Manager**

Configuration Manager is an optional network utility provided on the Bosch Security Systems Web site. Use the Configuration Manager Manual to make any configuration changes.

Note: Depending on the PC network security settings, the user may need to add the new IP address to the browser's trusted sites list for the controls to operate.

13.2.2**Using the Web Server of the Camera**

1. Set the **IP address** on the network device to *192.168.0.10* to ensure that the network device and the camera are on the same Subnet.
2. Launch your web browser (such as Microsoft Internet Explorer) and navigate to the following URL: <http://192.168.0.1>. The web browser opens the **Live** page for the camera; a security warning message appears.
3. Select the box **Always Trust**, and then click YES.
4. Click **Configuration** at the top right of the page.
5. Select **Network**. The menu expands.
6. Select **Network Access**. The page **Network Access** opens.
7. Configure the settings on this page based on the addresses provided by your local network administrator.

Note: The **Set** button changes to **Set and Reboot**.

- ▶ Click **Set and Reboot**. The camera will reset (go through the homing sequence, which usually takes 30 seconds to complete), and then the **Live** page appears, with updated video and the new **IP address**.

**Notice!**

Click the **Help on this page?** link if you need more information.

13.2.3**About the Configuration Page**

The **Configuration** page is used to configure the unit and the application interface.

Making Changes

Each configuration screen shows the current settings. You can change the settings by entering new values or by selecting a predefined value from a list field.

Not every page has a **Set** button. Changes to pages without a **Set** button are set immediately. If a page does show a **Set** button, you must click the **Set** button for a change to take effect.

**Notice!**

Save each change with the associated **Set** button.

Clicking the **Set** button saves the settings only in the current field. Changes in any other fields are ignored.

Some changes only take effect after the unit is rebooted. In this case, the **Set** button changes to **Set and Reboot**.

1. Make the desired changes.
2. Click the **Set and Reboot** button. The camera reboots and the changed settings are activated.

All settings are backed up in camera memory so they are not lost even if the power fails. The exception is the time settings, which are lost after 1 hour without power if no central time server is selected.

13.3**Configuring Audio (Optional)**

Note for MIC7000 cameras only: These options are available only if you have connected a VIDEOJET connect device (VJC-7000-90) to your camera.

14

14.1

General Identification

Camera name

The camera name makes it easier to identify the remote camera location, in the event of an alarm for example. It will be displayed in the video screen if configured to do so. The camera name makes the task of administering cameras in larger video monitoring systems easier, for example using the BVC or Bosch Video Management Systems Programs.

Enter a unique, unambiguous name for the camera in this field. You can use both lines for this. Do not use any special characters, for example **&**, in the name. Special characters are not supported by the system's internal management.

You can use the second line for entering additional characters; these can be selected from a table.

1. Click the icon next to the second line. A new window with the character map is opened.
2. Click the required character. The character is inserted into the **Result** field.
3. In the character map, click the **<<** and **>>** icons to move between the different pages of the table, or select a page from the list field.
4. Click the **<** icon to the right of the **Result** field to delete the last character, or click the **X** icon to delete all characters.
5. Now click the **OK** button to apply the selected characters to the second line of the **Camera 1** parameters. The window will close.

Camera ID

Each device should be assigned a unique identifier that can be entered here as an additional means of identification.

Initiator extension

Add text to an initiator name to make identification easier in large iSCSI systems. This text is added to the initiator name, separated from it by a full stop. (You can see the initiator name in the System Overview page.)

14.2

User Management

A password prevents unauthorized access to the device. You can use different authorization levels to limit access.

Proper password protection is only guaranteed when all higher authorization levels are also protected with a password. Therefore, you always have to start from the highest authorization level when assigning passwords.

You can define and change a password for each authorization level if you are logged in as service or if the unit is not password protected.

Enter the password for the appropriate authorization level here. The maximum password text length is 19 characters and no special characters are allowed.

The device has three authorization levels: service, user, and live.

- service is the highest authorization level. Entering the correct password gives access to all the functions and allows all configuration settings to be changed.
- user is the middle authorization level. At this level you can operate the device, play back recordings, and also control camera, for example, but you cannot change the configuration.
- live is the lowest authorization level. At this level you can only view the live video image and switch between the different live image displays.

To edit a password

To edit a password, click the pencil icon to the right of the column **Type** for the appropriate **User name**.

To create a new user

To create a new user, click **Add**.

In the box **User**, fill in the fields. For Group, select the appropriate authorization level. For **Type**, select either **Password** (for a new password) or **Certificate** (for a certificate that the new user is authorized to use).

Confirm password

In each case, enter the new password a second time to eliminate typing mistakes.

**Notice!**

A new password is only saved when you click the **Set** button. You should therefore click the **Set** button immediately after entering and confirming a password.

14.3**Date/Time****Date format**

Select your required date format.

Device date/Device time**Notice!**

Ensure that recording is stopped before syncing to the PC.

If there are multiple devices operating in your system or network, it is important to synchronize their internal clocks. For example, it is only possible to identify and correctly evaluate simultaneous recordings when all units are operating on the same time.

1. Enter the current date. Since the unit time is controlled by the internal clock, there is no need to enter the day of the week – it is added automatically.
2. Enter the current time or click the **Sync to PC** button to copy your computer's system time to the camera.

Note: It is important that the date/time is correct for recording. An incorrect date/time setting could prevent correct recording.

Device time zone

Select the time zone in which your system is located.

Daylight saving time

The internal clock can switch automatically between normal and daylight saving time (DST). The unit already contains the data for DST switch-overs up to the year 2018. You can use these data or create alternative time saving data if required.

**Notice!**

If you do not create a table, there will be no automatic switching. When changing and clearing individual entries, remember that two entries are usually related to each other and dependent on one another (switching to summer time and back to normal time).

1. First check whether the correct time zone is selected. If it is not correct, select the appropriate time zone for the system, and click the **Set** button.

2. Click the **Details** button. A new window will open and you will see the empty table.
3. Select the region or the city that is closest to the system's location from the list field below the table.
4. Click the **Generate** button to generate data from the database in the unit and enter it into the table.
5. Make changes by clicking an entry in the table. The entry is selected.
6. Clicking the **Delete** button will remove the entry from the table.
7. Select other values from the list fields below the table to change the entry. Changes are made immediately.
8. If there are empty lines at the bottom of the table, for example after deletions, you can add new data by marking the row and selecting required values from the list fields.
9. Now click the **OK** button to save and activate the table.

Time server IP address

The camera can receive the time signal from a time server using various time server protocols, and then use it to set the internal clock. The unit polls the time signal automatically once every minute.

Enter the IP address of a time server here.

Time server type

Select the protocol that is supported by the selected time server. Preferably, you should select the **SNTP server** as the protocol. This supports a high level of accuracy and is required for special applications and subsequent function extensions.

Select **Time server** for a time server that works with the protocol RFC 868.

14.4

Display Stamping

Various overlays or “stamps” in the video image provide important supplementary information. These overlays can be enabled individually and are arranged on the image in a clear manner. After you set all necessary parameters, click the **View Control** link to see how the stamping appears on the **LIVE** page.

Camera name stamping

This field sets the position of the camera name overlay. It can be displayed at the **Top**, at the **Bottom** or at a position of your choice that you can then specify using the **Custom** option. Or it can be set to **Off** for no overlay information.

1. Select the desired option from the list.
2. If you select the **Custom** option, additional fields are displayed where you can specify the exact position (**Position (XY)**).
3. In the **Position (XY)** fields, enter the values for the desired position.

Logo

Click **Choose File** to select a file. Heed the restrictions for file format, logo size, and color depth. **Click** Upload to load the file to the camera.

If no logo is selected, Configuration displays the message, “No file chosen.”

Logo position

Select the position for the logo on the OSD: Left or Right.

Select Off (the default value) to disable logo positioning.

Time stamping

This field sets the position of the time overlay. It can be displayed at the **Top**, at the **Bottom** or at a position of your choice that you can then specify using the **Custom** option. Or it can be set to **Off** for no overlay information.

1. Select the desired option from the list.

2. If you select the **Custom** option, additional fields are displayed where you can specify the exact position (**Position (XY)**).
3. In the **Position (XY)** fields, enter the values for the desired position.

Display milliseconds

If necessary, you can also display milliseconds. This information can be useful for recorded video images; however, it does increase the processor's computing time. Select **Off** if you do not need to display milliseconds.

Alarm mode stamping

Select **On** to display a text message overlay in the image in the event of an alarm. It can be displayed at a position of your choice that you can then specify using the **Custom** option. Or it can be set to **Off** for no overlay information.

1. Select the desired option from the list.
2. If you select the **Custom** option, additional fields are displayed where you can specify the exact position (**Position (XY)**).
3. In the **Position (XY)** fields, enter the values for the desired position.

Alarm message

Enter the message to be displayed in the image in the event of an alarm. The maximum text length is 31 characters.

Title OSD

Select **On** to continuously display sector or shot title overlays in the image. Select **Momentary** to display sector or shot title overlays for a few seconds. OSD titles can be displayed at a position of your choice, or it can be set to **Off** for no overlay information.

1. Select the desired option from the list.
2. Specify the exact position (**Position (XY)**).
3. In the **Position (XY)** fields, enter the values for the desired position.

Camera OSD

Select **On** to momentarily display camera response information, such as Digital Zoom, Iris open/close, and Focus near/far overlays in the image. Select **Off** to display no information.

1. Select the desired option from the list.
2. Specify the exact position (**Position (XY)**).
3. In the **Position (XY)** fields, enter the values for the desired position.

Transparent background

Check this box to make the stamp on the image transparent.

Video authentication

Select a method for verifying the integrity of the video in the **Video authentication** drop-down box.

If you select **Watermarking** all images are marked with an icon. The icon indicates if the sequence (live or saved) has been manipulated.

If you want to add a digital signature to the transmitted video images to ensure their integrity, select one of the cryptographic algorithms for this signature.

Enter the interval (in seconds) between insertions of the digital signature.

Signature intervals

Select the interval (in seconds) for the signature.

14.5

GB/T 28181

This page allows you to set the parameters for conformance to the GB/T 28181 national standard “Security and protection video monitoring network system for information transport, switch and control”. This standard is specifically for China.

Enable

Select this checkbox to enable the system to use the other parameters on this page in accordance with the GB/T 28181 national standard.

H.264 elementary stream

Select this checkbox to select or to enable the H.264 elementary stream.

Registration timeout

Enter a value (in milliseconds) for the registration timeout. The default is 3600.

Heartbeat timeout

Enter the value (in seconds) for the heartbeat timeout. The default is 15.

Server ID

Enter the ID of the server.

Server IP address

Enter the server IP address.

Device ID

Enter the ID of the device.

Device port

Enter the number of the device port. The default is 5060.

Password

Enter the appropriate password.

Alarm device ID

Enter the ID of the alarm device.

15 Web Interface

15.1 Appearance

On this page you can adapt the appearance of the web interface and change the website language to meet your requirements. If necessary, you can replace the manufacturer's logo (top right) and the product name (top left) in the top part of the window with individual graphics.



Notice!

You can use either GIF or JPEG images. The file paths must correspond to the access mode (for example **C:\Images\Logo.gif** for access to local files, or **http://www.mycompany.com/images/logo.gif** for access via the Internet/Intranet).

When accessing via the Internet/Intranet, ensure that a connection is always available to display the image. The image file is not stored in the camera.

Website language

Select the language for the user interface here.

Company logo

Enter the path to a suitable graphic if you want to replace the manufacturer's logo. The image file can be stored on a local computer, in the local network or at an Internet address.

Device logo

Enter the path to a suitable graphic if you want to replace the product name. The image file can be stored on a local computer, in the local network or at an Internet address.



Notice!

If you want to use the original graphics again, simply delete the entries in the **Company logo** and **Device logo** fields.

Show VCA metadata

When video content analysis (VCA) is activated, additional information is displayed in the live video stream. For example, in Motion+ mode, the sensor areas for motion detection are marked.

Show VCA trajectories

When video content analysis (VCA) is activated, check this item to show additional information that traces the path of objects.

Show overlay icons

Select this checkbox to show overlay icons on the live video image.

Latency mode

Options are: Low delay; Smooth video; Unbuffered

JPEG size

You can specify the size of the JPEG image on the **LIVE** page. Options are Small, Medium, Large, 720p, 1080p, and "Best possible" (default).

JPEG interval

You can specify the interval at which the individual images should be generated for the M-JPEG image on the **LIVE** page.

JPEG quality

You can specify the quality at which the JPEG images appear on the **LIVE** page.

15.2 LIVE Functions

On this page you can adapt the functions on the **LIVE** page to your requirements. You can choose from a variety of different options for displaying information and controls.

1. Check the box for the items that are to be made available on the **LIVE** page. The selected items are indicated by a check mark.
2. Check whether the required functions are available on the **LIVE** page.

Transmit audio

You can only select this option if audio transmission is actually switched on (see Audio). The audio signals are sent in a separate data stream parallel to the video data, and so increase the network load. The audio data are encoded according to G.711 and require an additional bandwidth of approx. 80 kbps per connection in each direction.

Lease time (s)

The lease time in seconds determines the time beyond which a different user is authorized to control the camera after no further control signals are received from the current user. After this time interval, the camera is automatically enabled.

Show alarm inputs

The alarm inputs are displayed next to the video image as icons along with their assigned names. If an alarm is active, the corresponding icon changes color.

Note: This field is available only when the field **Application variant** in *Installer Menu, page 50* is set to either of the following values:

- “[camera name] - IO“ (for a camera connected to a MIC Alarm/Washer Interface unit (MIC-ALM-WAS-24))
- “[camera name] – VJC-7000” (for a camera connected to a VIDEOJET connect 7000 unit (VJC-7000-90))

Show alarm outputs

Alarm outputs are shown next to the video image as icons, along with their assigned names. If the alarm output is active, the corresponding icon changes color.

Note: This field is available only when the field **Application variant** in *Installer Menu, page 50* is set to either of the following values:

- “[camera name] - IO“ (for a camera connected to a MIC Alarm/Washer Interface unit (MIC-ALM-WAS-24))
- “[camera name] – VJC-7000” (for a camera connected to a VIDEOJET connect 7000 unit (VJC-7000-90))

Allow snapshots

Here you can specify whether the icon for saving individual images (snapshots) should be displayed below the live image. Individual images can only be saved if this icon is visible.

Allow local recording

Here you can specify whether the icon for saving (recording) video sequences on the local memory should be displayed below the live image. Video sequences can only be saved if this icon is visible.

I-frames only stream

Here you can specify whether the **LIVE** page displays a viewing tab for an I-frame only stream.

Show preposition list

Here you can specify whether the section **Prepositions** of the **Live** page displays a drop-down box with the list of scenes set in the section **Camera > Prepositions and Tours** of the **Configuration** page.

Show 'Intelligent Tracking'

Here you can specify whether the **LIVE** page displays the controls for the Intelligent Tracking feature.

Show 'Special Functions'

Here you can specify whether the **LIVE** page displays the Special Functions section.

Path for JPEG and video files

1. Enter the path for the storage location of individual images and video sequences that you can save from the **LIVE** page.
2. If necessary, click **Browse** to find a suitable directory.

Video file format

Select a file format for the live page display. The MP4 format does not include metadata.

16

16.1

Camera

Installer Menu

Application Variant

- If you are connecting to MIC-ALM-WAS-24, select “[camera name] - IO” to allow the camera to recognize additional inputs and outputs from this device.
- If you are connecting to VJC-7000-90, select “[camera name] – VJC-7000” to allow the camera to recognize additional inputs and outputs from this device.
- Otherwise, select “[camera name].”

Base frame rate

This option allows you to set the frame rate that the camera uses to transmit video. Select either 50 fps or 60 fps. If you select 50 fps, the camera will stream video at 25 or 50 fps. If you select 60 fps, the camera will stream video at 30 or 60 fps, depending on the option selected in the field **Max. frame rate** in the menu **Encoder Streams**.



Notice!

Changing the field **Base frame rate**

A change to the parameter in the field **Base frame rate** requires approximately 10-20 seconds to complete. During this time, no changes can be made. The cameo image freezes.

The orientation of the camera. Options: Normal, Inverted, Canted.

SC settings

Click the Default button to restore all camera settings to their original defaults.

Reboot device

Click the Reboot button to reboot the camera. There is a ten (10) second pause before the camera starts its homing phase. During the homing phase, the camera will complete finding the upper and lower tilt limits.

Factory defaults

Click the **Defaults** button to restore the configuration settings defined in the camera’s web server to their default values. A confirmation screen appears. Allow 5 seconds for the camera to optimize the picture after a mode reset.

16.1.1

Positioning

Coordinate system

Select the appropriation option. Enter the appropriate additional values in the additional input fields that appear depending on the options selected. Refer to the following table.

Option	Additional Input field
Not set	
Cartesian	X [m] Y [m] Z [m] Azimuth [°]
WGS 84	Latitude Longitude Ground level [m] Azimuth [°]

16.2 Encoder Profile

For the video signal encoding, you can select a code algorithm and you can change the presets for the profiles.

You can adapt the video data transmission to the operating environment (for example network structure, bandwidth, data load). To this end, the camera simultaneously generates two data streams (Dual Streaming), which compression settings you can select individually, for example one setting for transmissions to the Internet and one for LAN connections.

Pre-programmed profiles are available, each giving priority to different perspectives.

You can change individual parameter values of a profile and you can also change the name.

You can switch between profiles by clicking the appropriate tabs.



Caution!

The profiles are rather complex. They include a large number of parameters that interact with one another, so it is generally best to use the default profiles.

Change the profiles only once you are fully familiar with all the configuration options.

Note: In the default setting, Stream 1 is transmitted for alarm connections and automatic connections.



Notice!

All parameters combine to make up a profile and are dependent on one another. If you enter a setting that is outside the permitted range for a particular parameter, the nearest permitted value will be substituted when the settings are saved.

Profile name

Profile number	Default Profile name	Description
Profile 1	HD Image Optimized	For an HD image, the video bit rate and frame quality are adjusted to ensure that the picture quality is the priority.
Profile 2	HD Balanced	For an HD image, the video bit rate and frame quality are adjusted to a median profile for everyday use.
Profile 3	HD Bit Rate Optimized	For an HD image, the video bit rate and frame quality are adjusted to ensure that the bit rate is the priority.
Profile 4	SD Image Optimized	For an SD image, the video bit rate and frame quality are adjusted to ensure that the picture quality is the priority.
Profile 5	SD Balanced	For an SD image, the video bit rate and frame quality are adjusted to a median profile for everyday use.
Profile 6	SD Bit Rate Optimized	For an SD image, the video bit rate and frame quality are adjusted to ensure that the bit rate is the priority.
Profile 7	DSL Optimized	Ideal for encoding on a DSL uplink where bit rate limitations are critical.

Profile number	Default Profile name	Description
Profile 8	3G Optimized	Ideal for encoding on a 3G uplink where bit rate limitations are critical.

If required, enter a new name for the profile.

Target bit rate

To optimize use of the bandwidth in the network, limit the data rate for the device. The target data rate should be set according to the desired picture quality for typical scenes with no excessive motion.

For complex images or frequent changes of image content due to frequent movements, this limit can temporarily be exceeded up to the value entered in the **Maximum bit rate** field.

Maximum bit rate

This maximum bit rate is not exceeded under any circumstances. Depending on the video quality settings for the I- and P-frames, this fact can result in individual images being skipped. The value entered here must be at least 10% higher than the value entered in the **Target bit rate** field. If the value entered here is too low, it will be adjusted automatically.

Encoding interval

This parameter determines the interval at which images are encoded and transmitted. For example, entering or selecting 4 means that only every fourth image is encoded, while the following three are skipped. Skipping frames can be particularly advantageous for networks with low bandwidths. The image rate in frames per second (fps) appears next to the text field or slider.

Video resolution

Select the desired resolution for the video image.

Expert settings

If necessary, use the expert settings to adapt the I-frame quality and the P-frame quality to specific requirements. The setting is based on the H.264 quantization parameter (QP).

GOP structure

Select the structure that you require for the group of pictures, depending on whether you place greater priority on having the lowest possible delay (IP frames only) or using as little bandwidth as possible.

Options are IP, IBP, and IBBP.

Averaging period

Select the appropriate averaging period as a means of stabilizing the long term bit rate.

I-frame distance

This parameter allows you to set the intervals in which the I-frames will be coded. Auto means auto mode, whereby the video server inserts I-frames as necessary. Values range from 3 to 60. An entry of 3 indicates that I-frames are continuously generated. An entry of 4 indicates that only every fourth image is an I-frame, and so on; the frames in between are coded as P-frames. Note that the values supported depend on the GOP structure setting. For example, only even values are supported with IBP; if you have selected IBBP, only 3 or multiples of 3 are supported.

Min. P-frame QP

This parameter allows you to adjust the image quality of the P-frame and to define the lower limit for the quantization of the P-frames, and thus the maximum achievable quality of the P-frames. In the H.264-protocol, the Quantization Parameter (QP) specifies the degree of compression and thus the image quality for every frame. The lower the quantization of the P-

frame (QP value), the higher the encoding quality (and thus the best image quality) and the lower the frame refresh rate depending on the settings for the maximum data rate under network settings. A higher quantization value results in low image quality and lower network load. Typical QP values are between 18 and 30.

The basic setting Auto automatically adjusts the quality to the settings for the P-frame video quality.

I/P-frame delta QP

This parameter sets the ratio of the I-frame quantization (QP) to the P-frame quantization (QP). For example, you can set a lower value for I-frames by moving the slide control to a negative value. Thus, the quality of the I-frames relative to the P-frames is improved. The total data load will increase, but only by the portion of I-frames. The basic setting Auto automatically adjusts to the optimum combination of movement and image definition (focus). To obtain the highest quality at the lowest bandwidth, even in the case of increased movement in the picture, configure the quality settings as follows:

1. Observe the coverage area during normal movement in the preview images.
2. Set the value for **Min. P-frame QP** to the highest value at which the image quality still meets your needs.
3. Set the value for **I/P-frame delta QP** to the lowest possible value. This is how to save bandwidth and memory in normal scenes. The image quality is retained even in the case of increased movement since the bandwidth is then filled up to the value that is entered under **Maximum bit rate**.

Background delta QP

Select the appropriate encoding quality level for a background region defined in Encoder Regions. The lower the QP value, the higher the encoding quality.

Object delta QP

Select the appropriate encoding quality level for an object region defined in Encoder Regions. The lower the QP value, the higher the encoding quality.

Default

Click **Default** to return the profile to the factory default values.

16.3 Encoder Streams

Note: If you access this menu while the camera is recording, the following message appears at the top of the page:

Recording is currently active. Therefore, for 'Current profile' the respective stream profile selected for recording is displayed for information.

Property

Select one of the H.264 standards for each stream.

The table below identifies the options available in the field **Property** for Stream 1 and the available options in the field **Property** for Stream 2, depending on the options selected for Stream 1.

Note: In order to select the option "H.264 MP 720p50/60 fixed" here, you must first set the field **Max. frame rate** in Camera > Installer Menu to "50/60 fps (up to 1280 x 720 px)."

When the option in field "Property" for Stream 1 is:	The available options in field "Property" for Stream 2 are:
H.264 MP SD	- H.264 MP SD

When the option in field “Property” for Stream 1 is:	The available options in field “Property” for Stream 2 are:
H.264 MP 720p fixed	<ul style="list-style-type: none"> - H.264 MP SD - H.264 MP 720p fixed - H.264 MP 400x720 upright (cropped) - H.264 MP D1 4:3 (cropped) - H.264 MP 1280x960 (cropped)* - H.264 MP 640x480
H.264 MP 1080p fixed*	<ul style="list-style-type: none"> - Copy Stream 1* - H.264 MP SD* - H.264 MP 720p8/10 fixed* - H.264 MP 1080p4/5 fixed* - H.264 MP 400x720 upright (cropped)* - H.264 MP D1 4:3 (cropped)* - H.264 MP 640x480
H.264 MP 720p50/60 fixed	<ul style="list-style-type: none"> - Copy Stream 1* - H.264 MP SD* - H.264 MP 720p6/7 fixed* - H.264 MP 400x720 upright (cropped)* - H.264 MP D1 4:3 (cropped)* - H.264 MP 640x480
*This option is available for 1080p models only.	

Non-recording profile

Select one of the following profiles for each stream:

Profile number	Default Profile name	Description
Profile 1	HD Image Optimized	For an HD image, the video bit rate and frame quality are adjusted to ensure that the picture quality is the priority.
Profile 2	HD Balanced	For an HD image, the video bit rate and frame quality are adjusted to a median profile for everyday use.
Profile 3	HD Bit Rate Optimized	For an HD image, the video bit rate and frame quality are adjusted to ensure that the bit rate is the priority.
Profile 4	SD Image Optimized	For an SD image, the video bit rate and frame quality are adjusted to ensure that the picture quality is the priority.
Profile 5	SD Balanced	For an SD image, the video bit rate and frame quality are adjusted to a median profile for everyday use.
Profile 6	SD Bit Rate Optimized	For an SD image, the video bit rate and frame quality are adjusted to ensure that the bit rate is the priority.

Profile number	Default Profile name	Description
Profile 7	DSL Optimized	Ideal for encoding on a DSL uplink where bit rate limitations are critical.
Profile 8	3G Optimized	Ideal for encoding on a 3G uplink where bit rate limitations are critical.

Note: Non-recording profiles (streams) are I-frame only.

JPEG stream

Select the resolution, frame rate, and image quality parameters for the M-JPEG stream.

- **Resolution:** Select the appropriate resolution.
- **Max. frame rate:** Select one of the following frame rates to be the maximum: 5, 10, 15, 20, 25, 30, or 60 fps.
- **Picture quality:** This setting allows you to adjust the image quality. Use the slide bar to choose a quality between Low and High.

Note: The M-JPEG frame rate can vary depending on system loading.

16.4

Encoder Regions

User can configure encoding regions for every configured preset (preposition/scene), to increase or decrease the encoding quality for selectable areas of the video image. These regions give better control of the bit rate. Important parts of the scene (identified as objects in the GUI) are encoded at high resolution and therefore have an enhanced encoding quality. Less important parts (such as the sky and trees in the background, all identified as backgrounds in the GUI) are encoded at lower quality and therefore have a decreased encoding quality.

Eight encoder regions can be defined. To define encoder regions, follow these steps.

1. From the first drop-down box (the unlabeled Regions selection list), select one of the eight available regions. (The drop-down box has the default option of **Region 1**).
2. Click the + box to add an area.
3. Use the mouse to define the area (shape) that the region covers and to position the area (shape) in the preview of the video image.
 - Drag the center, corner points, or sides of the shaded area (shape).
 - Double-click a side to add additional points to the area (shape).
4. From the last drop-down box (the unlabeled Mode selection list), select the encoder quality for the defined area. (The drop-down box has the default option of *Default*). For *unimportant* parts of the video image, select **Background**. For *important* parts of the video image, select **Object**. (The quality levels for **Background** and for **Object** are defined in the **Expert Settings** section of the page **Encoder Profile**.)
5. For PTZ cameras: From the second drop-down box (the unlabeled Prepositions/Scenes selection list), select a Preposition/Scene to which to add the region. (The drop-down list is *blank* by default unless you have defined at least one scene, in which case the default is **Preposition 1** or *the custom name for the preposition*).

Note: If you have not yet defined any prepositions/scenes, refer to Prepositions and Tours.
6. If required, select another region and repeat the steps.
7. To remove a region, select the area and click the waste bin icon.
8. Click **Set** to apply the region settings.

16.5 Privacy Masks

Privacy Masking is used to block out a specific area of a scene from being viewed. Masks can be configured as a gray area with four corners. You may define a total of 24 privacy masks.

Pattern

Select the color of the mask as it will appear in live video: **Gray**

Privacy mask

Select the number of the privacy mask. A colored rectangle appears in the unlabeled video preview window above the **Set** button.

3. Navigate to the scene where the privacy mask is required.
4. Use the Zoom controls to zoom in so that the object to be covered is approximately the same size as the Mask Outline.
5. Use the Pan/Tilt controls to center the object inside the Mask Outline.

Note: Do not move the mask outline at this time. It should remain in the center of the preview window.

6. If required, place the cursor on a corner or on a vertex of the mask rectangle, and then click and drag to expand or to shrink the Mask Outline.

- To avoid hiding too much of the scene, don't expand the mask outline more than twice the default size.
- To provide the optimum mask performance, don't shrink the mask outline to less than half of the default size.

7. Click the **Enabled** check box to activate the privacy mask.

8. Move the privacy mask if desired. Place the cursor inside the privacy mask area in the preview window and then click and drag to move the privacy mask. **Note:** Keep it as close to the center of the Preview Window as possible.

9. Click SET to save the size and the position of the privacy mask.

10. The mask expands by 10% for a few seconds to illustrate how much the mask size will increase during Pan/Tilt movement.

11. To hide an individual mask, select the mask number and clear the Enabled check box.

12. To hide all masks from an image view, click the Disable Masks check box.

Note: If you choose to hide all masks, you must enable each individual mask to show the mask in the scene.

13. To display IVA behind privacy masks, click the IVA behind masks check box.



Notice!

Draw the mask 10% larger than the object to ensure that the mask completely covers the object as the camera zooms in and out. Click the check box **Zoom threshold**.

Draw the mask at 50% optical zoom or less for improved masking performance.



Notice!

The camera disables the Privacy Mask feature if the orientation of the camera is set to Inverted. Refer to Installer Menu for orientation settings.



Notice!

When MIC is canted, Privacy Masks should not be created for scene objects less than 2 m (6 feet) distance from camera.

16.6 Picture Settings

Current mode

Select one of the pre-programmed user modes, optimized with the best settings for a variety of typical applications, that best defines the environment in which the camera is installed.

- General: Default mode. Suitable for most applications.
- Motion: Optimized to minimize motion artifacts, such as when monitoring traffic or fast-moving objects.
- Low light: Optimized performance for scenes with low light level.
- Indoor: Optimized for scenes with indoor lighting, and avoids the limitations imposed by the sun or street lighting.
- Vibrant: Provides enhanced contrast, color reproduction, and sharpness.
- Illuminator: Optimized performance when using the MIC illuminator accessory.

Customize the mode, if necessary, for the specific requirements of the site by selecting different values for the fields below.

In this case, the name of the user mode changes to “Custom.”

White Balance

Adjusts the color settings to maintain the quality of the white areas of the image.

- **ATW**: allows the camera to continuously adjust color reproduction.
- **AWB Hold**: places the ATW on hold and saves the color settings.
- **Extended ATW** (default): allows the camera to constantly adjust for optimal color reproduction.
- **Manual**: Red and Blue gain can be manually set to a desired position.
- **Sodium Lamp Auto**: Automatically adjusts for sodium vapor light to restore objects to their original color.
- **Sodium Lamp**: Optimizes the sodium vapor light to restore objects to their original color.

Red Gain

The red gain adjustment offsets the factory white point alignment (reducing red introduces more cyan).

Blue Gain

The blue gain adjustment offsets the factory white point alignment (reducing blue introduces more yellow). It is only necessary to change the white point offset for special scene conditions.

Sodium red level

Adjust the level of red for sodium vapor lighting with the slider from 0 to 255.

Sodium blue level

Adjust the level of blue for sodium vapor lighting with the slider from 0 to 255.

Note: The fields **Sodium red level** and **Sodium blue level** appear only when the value in the field **White balance** is “Sodium lamp auto” or “Sodium lamp.”

Saturation

The percentage of light or color in the video image (HD only). Values range from 60% to 200%; the default is 110%.

Color hue

The degree of color in the video image (HD only). Values range from -14° to 14°; the default is 8°.

Intelligent DNR

Select **On** to activate intelligent Dynamic Noise Reduction (DNR) which reduces noise based on motion and light levels.

Gain control

Adjusts the automatic gain control (AGC).

- **AGC** (default): Automatically adjusts the gain to the lowest possible value needed to maintain a good picture.
- **Fixed**: no enhancement. This setting disables the Max. Gain Level option.

Fixed Gain

Use the slide to select the desired number for fixed gain. The default is 2.

Maximum Gain Level

Controls the maximum value the gain can have during AGC operation. To set the maximum gain level, choose from:

- **Normal**
- **Medium**
- **High** (default)

AE-response speed

Select the speed of the response of auto exposure. Options are Super slow, Slow, Medium (default), Fast.

Sharpness

Adjusts the sharpness of the picture. To set the sharpness, use the slider to select a number. The default is 12.

Shutter Mode

- **Fixed**: The shutter mode is fixed to a selectable shutter speed.
- **Automatic exposure**: increases camera sensitivity by increasing the integration time on the camera. This is accomplished by integrating the signal from a number of consecutive video frames to reduce signal noise.

If you select this option, the camera disables **Shutter** automatically.

Shutter

Adjusts the electronic shutter speed (AES). Controls the time period for which light is gathered by the collecting device. The default setting is 1/60 second for NTSC and 1/50 for PAL cameras. The range of settings is from 1/1 to 1/10000.

Maximum automatic exposure

This limits the integration time when Frame Integration is active. The default is 1/4. The range of settings is from 1/4 to 1/30.

Top shutter speed

The camera tries to hold this shutter value as long as sufficient ambient light is available in the scene.

Settings range from 1/60 to 1/10000. The default value is 1/10000 for all modes except 'Motion' (default 1/500).

Backlight compensation

Optimizes the video level for the selected area of the image. Parts outside this area may be underexposed or overexposed. Select On to optimize the video level for the central area of the image. The default setting is Off.

High Sensitivity

Adjusts the level of intensity or lux within the image (HD only). Select from Off or On.

Stabilization

Stabilization reduces camera shake in both the vertical and horizontal axis. The camera compensates for the movement of the image by up to 2% of the image size. This feature is ideal for cameras mounted on a pole or mast, or on another location that shakes frequently.

- **On** - Stabilization is always on.
- **Off** - Stabilization is disabled.
- **Auto** - Stabilization activates automatically when the camera detects vibration greater than the set threshold.

Note: This feature is not available on 20x models.

High dynamic range

Select On to activate wide dynamic range, which improves image reproduction in extreme high-contrast scenes.

Select Off to deactivate the feature.

Night mode

Selects night mode (B/W) to enhance lighting in low light scenes. Select from the following options:

- **Monochrome**: Forces the camera to stay in Night Mode and transmit monochrome images.
- **Color**: The camera does not switch to Night Mode regardless of ambient light conditions.
- **Auto** (default): The camera switches out of Night Mode after the ambient light level reaches a pre-defined threshold.

Night mode threshold

Adjusts the level of light at which the camera automatically switches out of night mode (B/W) operation. Select a value between 10 and 55 (in increments of 5; default 30). The lower the value, the earlier the camera will switch to color mode.

Night mode priority

Select the option to which the camera should give priority while in night mode:

- Motion
- Color (default)

Night mode shutter

Controls the time period for which light is gathered by the collecting device while in night mode. Values are $\frac{1}{4}$, $\frac{1}{8}$, $\frac{1}{15}$, and $\frac{1}{30}$; the default is $\frac{1}{15}$.

Noise Reduction

Turns on the 2D and 3D noise reduction feature.

Noise Reduction Level

Adjusts the noise level to the appropriate level for shooting conditions. Select a value between 1 and 5.

Intelligent Defog

With the Defog mode feature, visibility can be improved significantly when viewing foggy or other low-contrast scenes.

- **On** - Defog is always active.
- **Off** - Defog is disabled.
- **Auto** - Defog activates automatically as needed.

16.7

Lens Settings

Autofocus

Continuously adjusts the lens automatically to the correct focus for the sharpest picture.

- **One Push** (default; commonly called "Spot Focus"): activates the Auto Focus feature after the camera stops moving. Once focused, Auto Focus is inactive until the camera is moved again.
- **Auto Focus**: Auto Focus is always active.
- **Manual**: Auto Focus is inactive.

**Warning!**

For tours, save presets using One Push (“Spot Focus”).

Focus speed

Use the slider (from 1 to 8) to control how fast the Auto focus will readjust when the focus becomes blurred.

IR focus correction

Optimizes the focus for IR lighting. Options are: On, Off (default).

Auto iris

Automatically adjusts the lens to allow the correct illumination of the camera sensor. This type of lens is recommended for use where there are low light or changing light conditions.

- **Constant** (default): camera constantly adjusts to varying light conditions (default).
If you select this option, the camera makes the following changes automatically:
 - **Gain Control**: switches to AGC.
 - **Shutter Speed**: switches to default.
- **Manual**: camera must be manually adjusted to compensate for varying light conditions.

Auto iris level

Increases or decreases brightness according to the amount of light. Type a value between 1 and 15.

Maximum zoom speed

Controls the zoom speed.

Zoom limit

Select the appropriate limit for zooming the camera: 20x, 30x.

Digital zoom

Digital zoom is a method of decreasing (narrowing) the apparent angle of view of a digital video image. It is accomplished electronically, without any adjustment of the camera's optics, and no optical resolution is gained in the process. Select **Standard** (default) to enable this feature in standard mode. Select **Enhanced** to enable this feature in enhanced mode. Select **Off** to disable this feature.

16.8

PTZ Settings

Auto pan speed

Continuously pans the camera at a speed between right and left limit settings. Type a value between 1 and 60 (expressed in degrees), inclusive. The default setting is 30.

Inactivity

Selects the time period the dome must be not controlled until the inactivity event will be executed.

- **Off** (default): camera remains on a current scene indefinitely.
- **Scene 1**: camera returns to Preset 1.
- **Previous Aux**: camera returns to the previous activity.

Inactivity period

Determines the behavior of the dome when the control for dome is inactive. Select a time period from the pull-down list (3 sec. - 10 min.). The default setting is 2 minutes.

Auto pivot

The Auto pivot tilts the camera through the vertical position as the camera is rotated to maintain the correct orientation of the image. Set the Auto Pivot to On (default) to automatically rotate the camera 180° when following a subject traveling directly beneath the camera. To disable this feature, click Off.

Freeze frame

Select On to freeze the image while the camera moves to a predetermined scene position.

Azimuth

Select On to display azimuth/elevation readings.

Select Off to hide azimuth/elevation readings.

Max. PT speed [%]

Sets the maximum pan/tilt speed (in percent). Settings range from 1 to 100. The default is 100.

Tracking zoom-out limit [%]

This parameter defines the zoom ratio percentage to which the camera zooms out after Tracking idle time [s] stops tracking, or if Intelligent Tracking loses visibility of an object being tracked. This allows the camera to re-acquire the target in a new, wider FoV. Settings range from 0 to 100. The default is 50.

Tracking idle time [s]

This parameter allows the camera to stop tracking motion of certain objects, such as a tree or a flag swaying in the wind, in a confined area after the specified number of seconds. Settings range from 5 to 120. The default is 30.

Auto pan left limit

Sets the left Auto Pan limit of the camera. Use the preview window to move the camera to the left pan limit and click the button. The camera will not move past this limit when in Auto Pan Between Limits mode (AUX 2 ON).

Auto pan right limit

Sets the right Auto Pan limit of the camera. Use the preview window to move the camera to the right pan limit and click the button. The camera will not move past this limit when in Auto Pan Between Limits mode (AUX 2 ON).

**Notice!**

Possible unintended camera operation

When setting hard pan limits, ensure that you set the left limit and the right limit at least 10° apart. Pan limits of less than 10° apart could prevent the camera from operating properly.

Tilt up limit

Sets the upper tilt limit of the camera. Use the preview window to move the camera to the tilt limit and click the button.

Tour A / Tour B

Starts and stops the recording of a recorded (guard) tour.

The camera can make up to two (2) recorded tours. A recorded tour saves all manual camera movements made during the recording, including its rate of pan, tilt and zoom speeds, and other lens setting changes. The tour does not capture camera video during the recording of the tour.

Note 1: You can save a total of 15 minutes of recorded actions between the two tours.

To record a tour:

1. Click the Start Recording button. The system prompts you to overwrite the existing tour.

2. Click Yes to overwrite the existing tour movements.
3. Click the View Control link, under the image cameo, to access the directional and zoom controls.
4. Use the View Control dialog box to make the necessary camera movements.
5. Click the Stop Recording button to save all actions.

Compass

The camera allows a user to display the compass heading of the camera in the lower-right corner of the image display. The camera displays the cardinal or intercardinal (N, NE, E, SE, S, SW, W, NW) heading in which the camera is pointing.



Notice!

The compass feature is not compatible with Bosch's Intelligent Tracking feature. If Intelligent Tracking is activated, the camera automatically disables the display of the compass heading. Once Intelligent Tracking is deactivated, the camera returns the compass heading to the display.

You must first calibrate the camera to North before the camera displays accurate compass headings. The camera uses this calibration, usually set to magnetic North, as the zero degree pan position and as the North compass heading. The camera then displays the compass heading based on the number of degrees from the North calibration point.

To set the North calibration point:

1. Determine the North compass heading, then move the camera to that position.
2. Select the radio button **On** for the parameter **Compass**.
3. Click the button next to **North point** to set the calibration point.

North point

- Click the **Set** button to overwrite the existing **North point**. A dialog box appears with the message, "Overwrite **North point**?" To confirm, click **OK**. To cancel, click **Cancel**.
- Click the **Clear** button to reset the **North point** to factory defaults. A dialog box appears with the message, "Reset **North point** to factory defaults?" To confirm, click **OK**. To cancel, click **Cancel**.

16.9

Prepositions and Tours

The camera can store up to 256 preset scenes. You can define the individual scenes that comprise a **preposition tour**.

You define individual preposition scenes, then use these scenes to define the preposition tour. The tour starts from the lowest scene number in the tour and progresses sequentially to the highest scene number in the tour. The tour displays each scene for a specified dwell time before advancing to the next scene.

By default, all scenes are part of the preposition tour unless removed.

White light (marked with #)

Select this checkbox to include white light in the scene.

To define a preposition tour:

1. Create the individual prepositions.
 - By default, all scenes in the list **Prepositions** are in the preposition tour.
2. To remove a preposition from the tour, select the preposition in the list and uncheck the box **Include in standard tour (marked with *)**.
3. Select a dwell time from the drop-down list **Standard preposition tour**.
4. To start the preposition tour:
 - Return to the **Live** page.

Click **AUX Control**.

Type **8** in the input box and click **AUX on**.

5. To stop the tour, type **8** and click **AUX off**.

16.10 Preposition mapping

Preposition mapping allows you to map a function to a Show or Set action.

Action

Select the appropriate action: Show or Set.

Preposition

Enter the number of the preposition to map.

Function

Select the appropriate function from the drop-down list.

Function	Description
Start auto pan	
Start auto pan with limit	
Stop auto pan	
Start custom tour	
Stop custom tour	
Start tour	
Stop tour	
Start playback A	
Stop playback A	
Start playback B	
Stop playback B	
Compass on	
Compass off	
Azimuth on	
Azimuth off	
Stabilization auto	
Stabilization on	
Stabilization off	
WDR auto	
WDR on	
WDR off	
Night mode auto	
Night mode on	
Night mode off	

Function	Description
Gamma mode on	
Gamma mode off	
Gamma mode smart 1	
Gamma mode smart 2	
Gamma mode smart 3	
IR focus correction on	
IR focus correction off	
OSD feedback on	
OSD feedback off	
IR mode on	
IR mode off	
IR mode auto	
Visible light on	
Visible light off	
Visible light inhibit on	
Visible light inhibit off	
Auto tracker on	
Auto tracker off	
Privacy mask on	
Privacy mask off	
Acknowledge alarms	
Wiper continuous	
Wiper intermittent	
Wiper on shot	
Wiper off	

16.11

Sectors

Sector

The camera's pan capability is 360° and is divided into 16 equal sectors. This section allows you to apply a title for each sector and to designate any sectors as a Blanked Sector.

To define a title for sectors:

1. Place the cursor in the input box to the right of the sector number.
2. Type a title for the sector, up to 20 characters long.
3. To blank the sector, click the check box to the right of the sector title.

No white light

Specifically for MIC cameras using the IR/White light illuminator:

Select this check box to prevent activation of the White light illuminator in the corresponding sectors, such as those which include highways / roads where White light might create a hazardous situation such as blinding a driver.

When this check box is selected, no White lights will activate for Presets stored in the corresponding sector.

16.12**Miscellaneous****Fast address**

This parameter allows the appropriate camera to be operated via the numerical address in the control system. Enter a number between 0000 and 9999, inclusive, to identify the camera.

16.13**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 Illuminators

Controls IR illuminators. When ON, the camera gives a much better image at low light levels. Options are: On, Off, Auto.

IR intensity

Select the percentage of intensity of the infrared (IR) light.

No white light

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

Select Off to enable 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.

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 lights, after they have 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.

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.

16.14 Audio

Audio

You can set the gain of the audio signals to suit your specific requirements. The live video image is shown in the window to help you check the audio source. Your changes are effective immediately.

If you connect via Web browser, you must activate the audio transmission on the '**Live' functions** page. For other connections, the transmission depends on the audio settings of the respective system.

The audio signals are sent in a separate data stream parallel to the video data, and so increase the network load. The audio data is encoded according to the selected format and requires additional bandwidth. If you do not want any audio data to be transmitted, select **Off**.

16.15 Pixel Counter

The number of horizontal and vertical pixels covered by the highlighted area is displayed below the picture. With these values you can check whether the requirements for specific functions, for example, identification tasks, are fulfilled.

1. Click **Freeze** to freeze the camera image if the object that you want to measure is moving.
2. To reposition a zone, place the cursor over the zone, hold down the mouse button and drag into position.
3. To change the shape of a zone, place the cursor over the edge of the zone, hold down the mouse button and drag the edge of the zone to the required position.

16.16 Pelco AUX map

Pelco controller keyboards (that support Pelco protocols D and P) support 8 different auxiliaries (AUX On/OFF commands), but do not define what function each AUX should perform.

For MIC7000 cameras controlled by Pelco controller keyboards, users can remap a total of 8 common control commands to Pelco AUX commands. To accomplish this, a third-party serial protocol license is required.

Scene 99

Select Scan 360° or Auto pan.

Pelco AUX number

Select a Pelco AUX *number* field to map, and then select the appropriate command from the drop-down list.

AUX Command
Wash/wipe
Wiper one shot
Wiper continuous
Wiper intermittent
IR mode

AUX Command
BLC
AGC
Night mode
Night mode auto
Alarm output 1
Alarm output 2
Alarm output 3
Alarm output 4
White light
Intelligent defog
Intelligent tracking

Serial mode

Select Simplex or Full-duplex.

17 Recording

17.1 Storage Management

You can record the images from the camera on an appropriately configured iSCSI system. It is also possible to let the VRM Video Recording Manager control all recording with accessing an iSCSI system. This is an external program for configuring recording tasks for video servers. For further information please contact your local customer service at Bosch Security Systems Inc.

17.1.1 Device manager

An external Video Recording Manager (VRM) system for the unit is configured via the Configuration Manager. The **Managed by VRM** box is only an indicator; it cannot be changed here.

If the **Managed by VRM** box is checked, you are not able to configure any further recording settings on this page.

17.1.2 Recording media

Select a media tab to connect to the available storage media.

iSCSI Media

To use an **iSCSI system** as the storage medium, a connection to the desired iSCSI system is required to set the configuration parameters.

The storage system selected must be available on the network and completely set up. It must have an IP address and be divided into logical drives (LUNs).

1. Enter the IP address of the required iSCSI destination in the **iSCSI IP address** field.
2. If the iSCSI destination is password protected, enter the password into the **Password** field.
3. Click **Read**.
 - The connection to the IP address is established.

The **Storage overview** field displays the logical drives.

Local Media

An SD card inserted in the camera can be used for local recording (not available on some cameras).

- ▶ If the SD card is password protected, enter the password into the **Password** field.

The **Storage overview** field displays the local media.

Note:

SD card recording performance is highly dependent on the speed (class) and performance of the SD card. An SD card of Class 6 or higher is recommended.

17.1.3 Activating and configuring storage media

Available media or iSCSI drives must be transferred to the **Managed storage media** list, activated, and configured for storage.

Note:

A iSCSI target storage device can only be associated with one user. If a target is being used by another user, ensure that the current user no longer needs the target before decoupling that user.

1. In the **Storage overview** section, double-click a storage medium, an iSCSI LUN or one of the other available drives.
 - The medium is added as a target in the **Managed storage media** list.
 - Newly added media is shown as **Not active** in the **Status** column.
2. Click **Set** to activate all media in the **Managed storage media** list.
 - The **Status** column shows all media as **Online**.
3. Check the box in the **Rec. 1** or **Rec. 2** column to specify the recording tracks to be recorded on the target selected.

17.1.4 Formatting storage media

All recordings on a storage medium can be deleted at any time. Check the recordings before deleting and back-up important sequences on the computer's hard drive.

1. Click a storage medium in the **Managed storage media** list to select it.
2. Click **Edit** below the list.
3. Click **Format** in the new window to delete all recordings in the storage medium.
4. Click **OK** to close the window.

17.1.5 Deactivating storage media

A storage medium in the **Managed storage media** list can be deactivated. It is then no longer used for recordings.

1. Click a storage medium in the **Managed storage media** list to select it.
2. Click **Remove** below the list. The storage medium is deactivated and removed from the list.

17.2 Recording Profiles

A recording profile contains the characteristics of the tracks that are used for recording. These characteristics can be defined for ten different profiles. The profiles can then be assigned to days or times of day on the **Recording Scheduler** page.

Each profile is color-coded. The names of the profiles can be changed on the **Recording Scheduler** page.

To configure a profile click its tab to open its settings page.

- To copy the currently visible settings to other profiles, click **Copy Settings**. A window opens to select the target profiles for the copied settings.
- If you change a profile's settings, click **Set** to save.
- If necessary, click **Default** to return all settings to their factory defaults.

Stream profile settings

Select the encoder profile setting that is to be used with stream 1 and 2 when recording. This selection is independent of the selection for live stream transmission. (The properties of the encoder profiles are defined on the **Encoder Profile** page.)

Recording includes

You can specify whether, in addition to video data and metadata (for example alarms, VCA data and serial data) should also be recorded. Including metadata could make subsequent searches of recordings easier but it requires additional memory capacity.

**Caution!**

Without metadata, it is not possible to include video content analysis in recordings.

Standard recording

Here you can select the mode for standard recordings.

If you select **Continuous**, the recording proceeds continuously. If the maximum memory capacity is reached, older recordings will automatically be overwritten. If you select the **Pre-alarm** option, recording will only take place in the pre-alarm time, during the alarm and during the set post-alarm time.

If you select **Off**, no automatic recording takes place.

**Caution!**

You can specify limitations for overwriting older recordings in **Continuous** mode by configuring the retention time (see Retention Time).

Stream

Select the stream to be used for standard recordings:

- Stream 1
- Stream 2
- I-frames only

Alarm recording**Pre-alarm time**

You can select the required pre-alarm time from the list field.

Post-alarm time

You can select the required post-alarm time from the list field.

Alarm stream

Select the stream to be used for alarm recordings:

- Stream 1
- Stream 2
- I-frames only

Encoding interval and bit rates from profile

Select this checkbox and then select an encoder profile to set the associated encoding interval for alarm recording.

Alarm triggers**Alarm input / Analysis alarm / Video loss**

Here you can select the alarm sensor that is to trigger a recording.

Virtual alarm

Here you can select the virtual alarm sensors that are to trigger a recording, via RCP+ commands or alarm scripts, for example.

**Notice!**

For more information, please see the Alarm Task Script Language document and the RCP+ documentation. For the latest version of these documents access your Bosch product catalog on the Internet.

Export to account

Select this parameter if you want all alarm recordings to be exported to an FTP server automatically. Make sure to have inserted all relevant data for FTP posting.

17.3 Maximum Retention Time

Recordings are overwritten when the retention time entered here has expired.

- ▶ Enter the required retention time in days for each recording track.

Make sure that the retention time does not exceed the available recording capacity.

17.4 Recording Scheduler

The recording scheduler allows you to link the created recording profiles with the days and times at which the camera's images are to be recorded in the event of an alarm.

You can link any number of 15-minute intervals with the recording profiles for each day of the week. Moving the mouse cursor over the table displays the time below it. This aids orientation. In addition to the normal weekdays, you can define holidays that are not in the standard weekly schedule on which recordings are to apply. This allows you to apply a schedule for Sundays to other days with dates that fall on varying weekdays.

1. Click the profile you want to link in the **Time periods** field.
2. Click in a field in the table, hold down the mouse button and drag the cursor over all the periods to be assigned to the selected profile.
3. Use the right mouse button to deselect any of the intervals.
4. Click the **Select All** button to link all time intervals to the selected profile.
5. Click the **Clear All** button to deselect all of the intervals.
6. When you are finished, click the **Set** button to save the settings in the unit.

Holidays

You can define holidays that are not in the standard weekly schedule on which recordings are to apply. This allows you to apply a schedule for Sundays to other days with dates that fall on varying weekdays.

1. Click the **Holidays** tab. Any days that have already been selected will be shown in the table.
2. Click the **Add** button. A new window will open.
3. Select the desired date from the calendar. You can select several consecutive calendar days by holding down the mouse button. These will later be displayed as a single entry in the table.
4. Click **OK** to accept the selection. The window will close.
5. Assign the individual holidays to the recording profiles, as described above.

Deleting Holidays

You can delete holidays you have defined yourself at any time.

1. Click the **Delete** button. A new window will open.
2. Click the date you wish to delete.
3. Click **OK**. The item will be deleted from the table and the window will close.
4. The process must be repeated for deleting additional days.

Time periods

You can change the names of the recording profiles.

1. Click a profile and then the **Rename** button.
2. Enter your chosen name and then click the **Rename** button again.

Activating the Recording

After completing configuration you must activate the recording scheduler and start the recording. Once recording is underway, the **Recording Profiles** and **Recording Scheduler** pages are deactivated and the configuration cannot be modified.

You can stop the recording activity at any time and modify the settings.

1. Click the **Start** button to activate the recording scheduler.
2. Click the **Stop** button to deactivate the recording scheduler. Running recordings are interrupted and the configuration can be changed.

Recording status

The graphic indicates the recording activity of the camera. You will see an animated graphic while recording is taking place.

17.5

Recording Status

Details of the recording status are displayed here for information. These settings cannot be changed.

18

Alarm

18.1

Alarm Connections

You can select how the camera responds to an alarm. In the event of an alarm, the unit can automatically connect to a pre-defined IP address. You can enter up to ten IP addresses to which the camera will connect in sequence in the event of an alarm, until a connection is made.

Connect on alarm

Select **On** so that the camera automatically connects to a predefined IP address in the event of an alarm.

By setting **Follows input 1** the unit maintains the connection that has been automatically established for as long as an alarm exists on alarm input 1.



Notice!

In the default setting, Stream 2 is transmitted for alarm connections. Bear this fact in mind when assigning the profile (see Encoder Profile).

Number of destination IP address

Specify the numbers of the IP addresses to be contacted in the event of an alarm. The unit contacts the remote stations one after the other in the numbered sequence until a connection is made.

Destination IP address

For each number, enter the corresponding IP address for the desired remote station.

Destination password

If the remote station is password protected, enter the password here.

In this page, you can save a maximum of ten destination IP addresses and hence up to ten passwords for connecting to remote stations. If connections to more than ten remote stations are to be possible, for example when initiating connections via higher-ranking systems such as VIDOS or Bosch Video Management System, you can store a general password here. The camera can use this general password to connect to all remote stations protected with the same password. In this case, proceed as follows:

1. Select **10** from the **Number of destination IP address** list field.
2. Enter the address **0.0.0.0** in the **Destination IP address** field.
3. Enter your chosen password in the **Destination password** field.
4. Define this password as the **user** password for all remote stations to which a connection is to be possible.



Notice!

If you enter the destination IP address 0.0.0.0 for destination 10, this address will no longer be used for the tenth attempt at automatic connection in the event of an alarm. The parameter is then used only to save the general password.

Video transmission

If the unit is operated behind a firewall, select **TCP (HTTP port)** as the transfer protocol. For use in a local network, select **UDP**.

**Caution!**

Please note that in some circumstances, a larger bandwidth must be available on the network for additional video images in the event of an alarm, in case Multicast operation is not possible. To enable Multicast operation, select the **UDP** option for the **Video transmission** parameter here and on Network Access.

Stream

Select the number of the stream from the drop-down list.

Remote port

Depending on the network configuration, select a browser port here. The ports for HTTPS connections will be available only if the **On** option is selected in the **SSL encryption** parameter.

Video output

If you know which unit is being used as the receiver, you can select the analog video output to which the signal should be switched. If the destination unit is unknown, it is advisable to select the **First available** option. In this case, the image is placed on the first free video output. This is an output on which there is no signal. The connected monitor only displays images when an alarm is triggered. If you select a particular video output and a split image is set for this output on the receiver, you can also select from **Decoder** the decoder in the receiver that is to be used to display the alarm image.

**Notice!**

Refer to the destination unit documentation concerning image display options and available video outputs.

Decoder

Select a decoder of the receiver to display the alarm image. The decoder selected has an impact on the position of the image in a split screen. For example, you can specify via a VIP XD that the upper-right quadrant should be used to display the alarm image by selecting decoder 2.

SSL encryption

The data for the connection, for example the password, can be securely transmitted with SSL encryption. If you have selected the **On** option, only encrypted ports are offered in the **Remote port** parameter.

**Notice!**

Please note that the SSL encryption must be activated and configured at both ends of a connection. This requires the appropriate certificates to be uploaded onto the camera.

You can activate and configure encryption of the media data (video and metadata) on the **Encryption** page (see Encryption).

Auto-connect

Select the **On** option to automatically re-establish a connection to one of the previously specified IP addresses after each reboot, after a connection breakdown or after a network failure.

**Notice!**

In the default setting, Stream 2 is transmitted for automatic connections. Bear this fact in mind when assigning the profile (see Encoder Profile).

Audio

Select On to activate audio alarms.

18.2**VCA**

The camera has integrated Video Content Analysis (VCA), which can detect and analyze changes in the signal on the basis of image processing. Such changes can result from movements in the camera's field of view. You can select various VCA configurations and adapt these to your application as required.

Intelligent Dynamic Noise Reduction (IDNR)

IVA / VCA controls the feature called Intelligent Dynamic Noise Reduction, which reduces noise based on motion activity in the scene. When there is no motion in the preset scene, noise reduction is increased. When there is motion detected in the preset scene, noise reduction is decreased to reduce bandwidth and optimize storage space.

To disable the feature, select the OFF option in the field **VCA configuration**.

To enable the feature, select a **Profile #** (1 – 16) or Silent VCA in the field **VCA configuration**.

If you select a specific profile, you must also select MOTION+ in the field **Analysis type**.

VCA Profiles

You can configure two profiles with different VCA configurations. You can save profiles on your computer's hard drive and load saved profiles from there. This can be useful if you want to test a number of different configurations. Save a functioning configuration and test new settings. You can use the saved configuration to restore the original settings at any time.

**Notice!**

If computing power becomes short, the highest priority is always the live images and recordings. This can lead to impairment of the video content analysis. You should therefore observe the processor load and optimize the encoder settings or the video content analysis settings as necessary.

1. Select a VCA profile and enter the required settings.
2. If necessary, click the **Default** button to return all settings to their default values.
3. Click the **Save...** button to save the profile settings to another file. A new window is opened, in which you can specify where you want to save the file and what name you want to save it under.
4. Click the **Load...** button to load a saved profile. A new window opens in which you can select the profile file and specify where to save the file.

VCA configuration

Select one of the profiles here to activate it or edit it.

You can rename the profile.

1. To rename the file, click the icon to the right of the list field and enter the new profile name in the field.
2. Click the icon again. The new profile name is saved.

The Silent MOTION+ Configuration is active by default. In this configuration, metadata is created to facilitate searches of recordings; however, no alarm is triggered.

If you select the option Silent VCA, then the system creates metadata to facilitate searches of recordings but no alarm is triggered. You cannot change any parameters for this configuration.

If you want to turn off VCA, then select Off.

Preset

Select Off or Test.

Alarm status

The alarm status is displayed here for information purposes. This means you can check the effects of your settings immediately.

Aggregation times

Use the slider (from 0 (zero) to 20 (0 is the default) to select the aggregation times.

Set an aggregation time of between 0 and 20 seconds. The aggregation time always starts when an alarm event occurs. It extends the alarm event by the value set. This prevents alarm events that occur in quick succession from triggering several alarms and successive events in a rapid sequence. No further alarm is triggered during the aggregation time.

The post-alarm time set for alarm recordings only starts once the aggregation time has expired.

Analysis type

Select the required analysis algorithm. By default, only **MOTION+** is available – this offers a motion detector and essential recognition of tampering.



Notice!

Additional analysis algorithms with comprehensive functions such as IVMD and IVA are available from Bosch Security Systems Inc.

If you select one of these algorithms, you can set the corresponding parameters here directly. You can find information on this in the relevant documents on the product CD supplied.

Metadata is always created for a video content analysis, unless this was explicitly excluded. Depending on the analysis type selected and the relevant configuration, additional information overlays the video image in the preview window next to the parameter settings. Options are: MOTION+, IVA 5.6, IVA 5.6 Flow. With the **MOTION+** analysis type, for example, the sensor fields in which motion is recorded will be marked with rectangles.



Notice!

On the **LIVE Functions** page, you can also enable additional information overlays for the **LIVE** page (see *LIVE Functions*, page 48).

Motion detector (MOTION+ only)

For the detector to function, the following conditions must be met:

- Analysis must be activated.
- At least one sensor field must be activated.
- The individual parameters must be configured to suit the operating environment and the desired responses.
- The sensitivity must be set to a value greater than zero.



Caution!

Reflections of light (off glass surfaces, etc.), switching lights on or off or changes in the light level caused by cloud movement on a sunny day can trigger unintended responses from the motion detector and generate false alarms. Run a series of tests at different times of the day and night to ensure that the video sensor is operating as intended.

For indoor surveillance, ensure constant lighting of the areas during the day and at night.

Sensitivity (MOTION+ only)

The basic sensitivity of the motion detector can be adjusted for the environmental conditions to which the camera is subject.

The sensor reacts to variations in the brightness of the video image. The darker the observation area, the higher the value that must be selected.

Minimum object size (MOTION+ only)

You can specify the number of sensor fields that a moving object must cover to generate an alarm. This is to prevent objects that are too small from triggering an alarm.

A minimum value of **4** is recommended. This value corresponds to four sensor fields.

Debounce time 1 s (MOTION+ only)

The debounce time is intended to prevent very brief alarm events from triggering individual alarms. If the Debounce time 1 s option is activated, an alarm event must last at least one second to trigger an alarm.

Select Area (MOTION+ only)

The areas of the image to be monitored by the motion detector can be selected. The video image is subdivided into 858 square fields. Each of these fields can be activated or deactivated individually. If you wish to exclude particular regions of the camera's field of view from monitoring due to continuous movement (by a tree in the wind, etc.), the relevant fields can be deactivated.

- ▶ Click **Select Area** to configure the sensor fields. A new window will open.
- 1. If necessary, click **Clear All** first to clear the current selection (fields marked yellow).
- 2. Left-click the fields to be activated. Activated fields are marked yellow.
- 3. If necessary, click **Select All** to select the entire video frame for monitoring.
- 4. Right-click any fields you wish to deactivate.
- 5. Click **OK** to save the configuration.
- 6. Click the close button **X** in the window title bar to close the window without saving the changes.

Sensitivity**Notice!**

This and the following parameter are only accessible if the reference check is activated.

The basic sensitivity of the tamper detection can be adjusted for the environmental conditions to which the camera is subject.

The algorithm reacts to the differences between the reference image and the current video image. The darker the observation area, the higher the value that must be selected.

Trigger delay (s)

You can set delayed alarm triggering. The alarm is only triggered after a set time interval in seconds has elapsed and then only if the triggering condition still exists. If the original condition has been restored before this time interval elapses, the alarm is not triggered. This allows you to avoid false alarms triggered by short-term changes, for example cleaning activities in the direct field of vision of the camera.

Global change

You can set how large the global change in the video image must be for an alarm to be triggered. This setting is independent of the sensor fields selected under **Select Area**. Set a high value if fewer sensor fields need to change to trigger an alarm. With a low value, it is necessary for changes to occur simultaneously in a large number of sensor fields to trigger an alarm.

This option allows you to detect, independently of motion alarms, manipulation of the orientation or location of a camera resulting from turning the camera mount bracket, for instance.

Global change

Activate this function if the global change, as set with the **Global change** slide control, should trigger an alarm.

Scene too bright

Activate this function if tampering associated with exposure to extreme light (for instance, shining a flashlight directly on the lens) should trigger an alarm. The average brightness of the scene provides a basis for recognition.

Scene too dark

Activate this function if tampering associated with covering the lens (for instance, by spraying paint on it) should trigger an alarm. The average brightness of the scene provides a basis for recognition.

Scene too noisy

Activate this function if tampering associated with EMC interference (noisy scene as the result of a strong interference signal in the vicinity of the video lines), as an example, should trigger an alarm.

Reference Check

You can save a reference image that is continuously compared with the current video image. If the current video image in the marked areas differs from the reference image, an alarm is triggered. This allows you to detect tampering that would otherwise not be detected, for example if the camera is turned.

1. Click **Reference** to save the currently visible video image as a reference.
2. Click **Select Area** and select the areas in the reference image that are to be monitored.
3. Check the box **Reference check** to activate on-going matching. The stored reference image is displayed in black and white below the current video image, and the selected areas are marked in yellow.
4. Select the **Disappearing edges** or **Appearing edges** option to specify the reference check once again.

Disappearing edges

The area selected in the reference image should contain a prominent structure. If this structure is concealed or moved, the reference check triggers an alarm. If the selected area is too homogenous, so that concealing and moving the structure would not trigger an alarm, then an alarm is triggered immediately to indicate the inadequate reference image.

Appearing edges

Select this option if the selected area of the reference image includes a largely homogenous surface. If structures appear in this area, then an alarm is triggered.

Select Area

You can select the image areas in the reference image that are to be monitored. The video image is subdivided into 858 square fields. Each of these fields can be activated or deactivated individually.



Notice!

Select only those areas for reference monitoring in which no movement takes place and that are always evenly lit, as false alarms could otherwise be triggered.

1. Click **Select Area** to configure the sensor fields. A new window will open.
2. If necessary, click **Clear All** first to clear the current selection (fields marked yellow).
3. Left-click the fields to be activated. Activated fields are marked yellow.
4. If necessary, click **Select All** to select the entire video frame for monitoring.
5. Right-click any fields you wish to deactivate.
6. Click **OK** to save the configuration.
7. Click the close button **X** in the window title bar to close the window without saving the changes.

18.3

Virtual Masks

Virtual masks allow users to mask parts of the scene which should not be considered for flow analysis to trigger Intelligent Tracking. This allows users to mask background motion in the scene such as moving trees, pulsating lights, busy roads, etc.

To create a virtual mask:

1. Select the number of the Virtual mask. In the video preview window, a dark grey rectangle appears with the text “Mask x,” where ‘x’ is the number of the mask.
2. Select the mask with your mouse. Move the mouse to position the mask over the area of the view that you want to mask, and then click “Set.” The text “VM Configuration active!” appears in the View Control window.
3. Click Enabled to enable the virtual mask. The rectangle that represents the mask in the preview window becomes red. The text “Virtual Masks: ENABLED” appears in the View Control window.

To disable virtual masks:

Click the Disable masks checkbox. The text “Virtual Masks: DISABLED” appears in the View Control window.

18.4

Audio Alarm

Note for MIC7000 cameras only: These options are available only if you have connected a VIDEOJET connect device (VJC-7000-90) to your camera.

The camera can create alarms on the basis of audio signals. You can configure signal strengths and frequency ranges in such a way that false alarms, for example due to machine noise or background noise, are avoided.



Notice!

First set up normal audio transmission before you configure the audio alarm here (see Audio).

Audio alarm

Select **On** if you want the device to generate audio alarms.

Do not use any special characters, for example **&**, in the name. Special characters are not supported by the system's internal management.

Signal Ranges

You can exclude particular signal ranges in order to avoid false alarms. For this reason the total signal is divided into 13 tonal ranges (mel scale). Check or uncheck the boxes below the graphic to include or exclude individual ranges.

Threshold

Set up the threshold on the basis of the signal visible in the graphic. You can set the threshold using the slide control or, alternately, you can move the white line directly in the graphic using the mouse.

Sensitivity

You can use this setting to adapt the sensitivity to the sound environment. You can effectively suppress individual signal peaks. A high value represents a high level of sensitivity.

18.5

Alarm E-Mail

As an alternative to automatic connecting, alarm states can also be documented by e-mail. In this way it is possible to notify a recipient who does not have a video receiver. In this case, the camera automatically sends an e-mail to a previously defined e-mail address.

Send alarm e-mail

Select **On** if you want the unit to automatically send an alarm e-mail in the event of an alarm.

Mail server IP address

Enter the IP address of a mail server that operates on the SMTP standard (Simple Mail Transfer Protocol). Outgoing e-mails are sent to the mail server via the address you entered. Otherwise leave the box blank (**0.0.0.0**).

SMTP user name

Enter a registered user name for the chosen mailserver here.

SMTP password

Enter the required password for the registered user name here.

Format

You can select the data format of the alarm message.

- **Standard (with JPEG)** E-mail with attached JPEG image file.
- **SMS** E-mail in SMS format to an e-mail-to-SMS gateway (for example to send an alarm by cellphone) without an image attachment.



Caution!

When a cellphone is used as the receiver, make sure to activate the e-mail or SMS function, depending on the format, so that these messages can be received.

You can obtain information on operating your cellphone from your cellphone provider.

Image size

Select the appropriate image size: Small, Medium, Large, 720p, 1080p.

Attach JPEG from camera

Click the checkbox to specify that JPEG images are sent from the camera. An enabled video input is indicated by a check mark.

Destination address

Enter the e-mail address for alarm e-mails here. The maximum address length is 49 characters.

Sender address

Enter a unique name for the e-mail sender, for example the location of the device. This will make it easier to identify the origin of the e-mail.

Note: The name must include at least two character groups separated by a blank (for example, Parking Garage) in order for the system to generate an email from that name, as in “From Parking Garage”. Text with only one group of characters (for example, Lobby) will not generate an email.

Test e-mail

You can test the e-mail function by clicking the **Send Now** button. An alarm e-mail is immediately created and sent.

18.6**Alarm Task Editor****Caution!**

Editing scripts on this page overwrites all settings and entries on the other alarm pages. This procedure cannot be reversed.

In order to edit this page, you must have programming knowledge and be familiar with the information in the Alarm Task Script Language document.

As an alternative to the alarm settings on the various alarm pages, you can enter your desired alarm functions in script form here. This will overwrite all settings and entries on the other alarm pages.

1. Click the **Examples** link under the Alarm Task Editor field to see some script examples. A new window will open.
2. Enter new scripts in the Alarm Task Editor field or change existing scripts in line with your requirements.
3. When you are finished, click the **Set** button to transmit the scripts to the unit. If the transfer was successful, the message **Script successfully parsed** is displayed over the text field. If it was not successful, an error message will be displayed with further information.

18.7**Alarm Rules**

An alarm rule can define which input(s) activate which output(s). Basically, an alarm rule allows you to customize the camera to respond automatically to different alarm inputs. To configure an alarm rule, specify one input from a physical connection, from a motion detection trigger, or from a connection to the camera’s LIVE page. The physical input connection can be activated by dry contact devices such as pressure pads, door contacts, and similar devices.

Next, specify up to two (2) rule outputs, or the camera’s response to the input. Outputs include a physical alarm output, an AUX command, or a preposition scene.

1. Click the check box **Enabled** to activate the alarm.
2. Click Input 1 (a physical alarm connection).
3. Select the appropriate input:
 - Alarm input: If you select this option, then a second Input field (a physical alarm connection) appears to the right, with a list of input options (for example, *1: Input 1*).
 - IVA/MOTION+: If you select this option, then an alarm will begin when IVA or motion detection is activated.
 - Connection: If you select this option, then an alarm will begin when an attempt is made to access the camera’s IP address.

- Time: If you select this option, then an input field appears to the right. In this field, enter the time for the activation of the alarm in hours and minutes. (The default value is 00:00.)
- Time range: If you select this option, then two input fields appear to the right. In these fields, enter the time range for the activation of the alarm in hours and minutes. (The default values are 00:00 and 00:00.)
- Manipulation alarm: If you select this option, then an alarm will begin when the camera detects anyone manipulating it (for example, if the housing of the device is opened).

4. Choose one of the following output commands for both Output 1 and Output 2 settings:

Note: Not all options are available for all cameras.

- None: no defined command.
- Alarm Output: defines a physical connection from the open collector alarm output.
- AUX On: defines a standard or custom keyboard ON command.
- AUX Off: defines a standard or custom keyboard OFF command.
- Scene: defines a preset scene from shot 1-256.
- Monochrome: switches the camera video to monochrome mode.

5. Click Set to save. The camera's system activates the alarm rules.

Note for MIC7000 cameras only:

Alarm Output is available only when the field **Application Variant** in the *Application Variant*, page 50 is set to either of the following values:)

- "[camera name] - IO" (for a camera connected to MIC-ALM-WAS-24)
- "[camera name] - VJC-7000" (for a camera connected to VJC-7000-90)

19

Interfaces

19.1

Alarm Inputs

Alarm input

Select **N.O.** if the alarm is to be triggered when the contact closes. Select **N.C.** if the alarm is to be triggered when the contact opens.

Name

You can enter a name for each alarm input. If the **Live** functions are configured accordingly, this name is displayed below the icon for the alarm input. You can also use the name in the Forensic Search program function as a filter option for quick search in recordings. Enter a unique and clear name here.



Caution!

Do not use any special characters, for example **&**, in the name. Special characters are not supported by the system's internal management.

19.2

Alarm Outputs

Idle state

Select **Open** if you want the relay to operate as an NO contact, or select **Closed** if the relay is to operate as an NC contact.

Operating mode

Select an operating mode for the relay.

For example, if you want an alarm-activated lamp to stay on after the alarm ends, select

Bistable. If you wish an alarm-activated siren to sound for ten seconds, for example, select **10 s**.

Output name

Enter a name for the alarm output.

Toggle

Click the button to test the relay / output connection.

20

20.1

Network

Network Access

The settings on this page are used to integrate the camera into an existing network.

Automatic IP assignment

If a DHCP server is employed in the network for the dynamic assignment of IP addresses, you can activate acceptance of IP addresses automatically assigned to the camera.

Certain applications (Bosch Video Management System, Archive Player, Configuration Manager) use the IP address for the unique assignment of the unit. If you use these applications, the DHCP server must support the fixed assignment between IP address and MAC address, and must be appropriately set up so that, once an IP address is assigned, it is retained each time the system is rebooted.

IPv4

Fill in the 3 fields in this section of the screen.

IP address

Enter the desired IP address for the camera in this field. The IP address must be valid for the network.

Subnet mask

Enter the appropriate subnet mask for the selected IP address here.

Gateway address

If you want the unit to establish a connection to a remote location in a different subnet, enter the IP address of the gateway here. Otherwise leave the box blank (**0.0.0.0**).



Caution!

If you change the IP address, subnet mask or gateway address, the camera is only available under the new addresses after the reboot.

IPv6

Consult with the network administrator before making changes to this section.

IP address

Enter the desired IP address for the camera in this field. The IP address must be valid for the network. A typical IPv6 address may resemble the following example:

2001:db8: :52:1:1

Consult the network administrator for valid IPv6 address construction.

Prefix length

A typical IPv6 node address consists of a prefix and an interface identifier (total 128 bits). The prefix is the part of the address where the bits have fixed values or are the bits that define a subnet.

Gateway address

If you want the unit to establish a connection to a remote location in a different subnet, enter the IP address of the gateway here. Otherwise leave the box blank (**0.0.0.0**).

DNS server address 1 / DNS server address 2

The camera is easier to access if the unit is listed on a DNS server. If you wish, for example, to establish an Internet connection to the camera, it is sufficient to enter the name given to the unit on the DNS server as a URL in the browser. Enter the IP address of the DNS server here. Servers are supported for secure and dynamic DNS.

Video transmission

If the unit is operated behind a firewall, select **TCP (HTTP port)** as the transfer protocol. For use in a local network, select **UDP**.



Notice!

Multicast operation is only possible with the UDP protocol. The TCP protocol does not support multicast connections. The MTU value in UDP mode is 1,514 bytes.

TCP rate control

Select On to control the rate of transmission control protocol. Select Off if you do not want to control the TCP rate.

HTTP browser port

Select a different HTTP browser port from the list if required. The default HTTP port is 80. If you want to allow only secure connections via HTTPS, you must deactivate the HTTP port. In this case, select **Off**.

HTTPS browser port

If you wish to allow browser access on the network via a secure connection, select an HTTPS browser port from the list if necessary. The default HTTPS port is 443. Select the **Off** option to deactivate HTTPS ports; only unsecured connections will now be possible.

The camera uses the TLS 1.0 encryption protocol. You may have to activate this protocol via your browser configuration. You must also activate the protocol for the Java applications (via the Java control panel in the Windows control panel).



Notice!

If you want to allow only secure connections with SSL encryption, you must select the **Off** option for each of the parameters **HTTP browser port**, **RCP+ port 1756** and **Telnet support**. This deactivates all unsecured connections. Connections will then only be possible via the HTTPS port.

You can activate and configure encryption of the media data (video and metadata) on the **Encryption** page (see Encryption).

HSTS

Select this option to use the web security policy HTTP Strict Transport Security (HSTS) to provide secure connections.

RCP+ port 1756

To exchange connection data, you can activate the unsecured RCP+ port 1756. If you want connection data to be transmitted only when encrypted, select the **Off** option to deactivate the port.

Telnet support

If you want to allow only secure connections with encrypted data transmission, you must select the **Off** option to deactivate Telnet support. The unit will then no longer be accessible using the Telnet protocol.

Interface mode ETH

Select the Ethernet link type for the ETH interface.

Options are:

- Auto
- 10 Mbps HD (half duplex)
- 10 Mbps FD (full duplex)
- 100 Mbps HD (half duplex)

- 100 Mbps FD (full duplex)

Network MSS (Byte)

You can set the maximum segment size for the IP packet's user data. This gives you the option to adjust the size of the data packets to the network environment and to optimize data transmission. Please comply with the MTU value of 1,514 bytes in UDP mode.

iSCSI MSS (Byte)

You can specify a higher MSS value for a connection to the iSCSI system than for the other data traffic via the network. The potential value depends on the network structure. A higher value is only useful if the iSCSI system is located in the same subnet as the camera.

Network MTU (Byte)

The value in the field defaults to 1514.

20.2

DynDNS

Enable DynDNS

DynDNS.org is a DNS hosting service that stores IP addresses in a database ready for use. It allows you to select the camera via the Internet using a host name, without having to know the current IP address of the unit. You can enable this service here. To do this, you must have an account with DynDNS.org and you must have registered the required host name for the unit on that site.



Notice!

Information about the service, registration process and available host names can be found at DynDNS.org.

Provider

The value in this field defaults to `dyndns.org`. Select another option as necessary.

Host name

Enter the host name registered on DynDNS.org for the camera here.

User name

Enter the user name you registered at DynDNS.org here.

Password

Enter the password you registered at DynDNS.org here.

Force registration now

You can force the registration by transferring the IP address to the DynDNS server. Entries that change frequently are not provided in the Domain Name System. It is a good idea to force the registration when you are setting up the device for the first time. Only use this function when necessary and no more than once a day, to avoid the possibility of being blocked by the service provider. To transfer the IP address of the camera, click the **Register** button.

Status

The status of the DynDNS function is displayed here for information purposes. You cannot change any of these settings.

20.3

Advanced

The settings on this page are used to implement advanced settings for the network.

Operation

The operation mode determines how the camera communicates with Cloud-based Security and Services.

- Select **Auto** to allow the camera to poll the server a few times; if no contact is made, it stops polling.
- Select **On** to constantly poll the server.
- Select **Off** to block polling.

RTSP port

If necessary, select a different port for the exchange of the RTSP data from the list. The standard RTSP port is 554. Select **Off** to deactivate the RTSP function.

Authentication

If a RADIUS server is employed in the network for managing access rights, authentication must be activated here to allow communication with the unit. The RADIUS server must also contain the corresponding data.

To configure the unit, you must connect the camera directly to a computer using a network cable. This is because communication via the network is not enabled until the **Identity** and **Password** parameters have been set and successfully authenticated.

Identity

Enter the name that the RADIUS server is to use for identifying the camera.

Password

Enter the password that is stored in the RADIUS server.

NTCIP

Specifies a set of rules and protocols for organizing, describing and exchanging transportation management information between transportation management applications and transportation equipment such that they interoperate with each other.

Select a port for **NTCIP** and the **Address** from the appropriate drop-down lists.

Note: The NTCIP section appears only for cameras with an NTCIP license.

TCP port

The device can receive data from an external TCP sender, for example an ATM or POS device, and store it as metadata. Select the port for TCP communication. Select Off to deactivate the TCP metadata function.

Sender IP address

Enter the IP address of the TCP metadata sender here.

20.4 Network Management

SNMP

The camera supports the SNMP V1 (Simple Network Management Protocol) for managing and monitoring network components, and can send SNMP messages (traps) to IP addresses. The unit supports SNMP MIB II in the unified code. If you wish to send SNMP traps, enter the IP addresses of one or two required target devices here.

If you select **On** for the **SNMP** parameter and do not enter an SNMP host address, the camera does not send them automatically, but only replies to SNMP requests. If you enter one or two SNMP host addresses, SNMP traps are sent automatically. Select **Off** to deactivate the SNMP function.

1. SNMP host address / 2. SNMP host address

If you wish to send SNMP traps automatically, enter the IP addresses of one or two required target units here.

SNMP traps

You can select which traps are to be sent.

1. Click **Select**. A list is opened.

2. Click the checkboxes to select the required traps. All the checked traps will be sent.
3. Click **Set** to accept the selection.

UPnP

You can activate the Universal Plug and Play (UPnP) function. If the function is turned on, the unit responds to requests from the network and is automatically registered on the requesting computers as a new network device. For example, access to the unit can then be made using Windows Explorer without knowledge of the IP address of the unit.



Notice!

To use the UPnP function on a computer, both the Universal Plug and Play Device Host and SSDP Discovery Service must be active in Windows XP and Windows 7.

Quality of service

The camera offers Quality of Service (QoS) configuration options to ensure fast network response to PTZ data and images. Quality of Service (QoS) is the set of techniques to manage network resources. QoS manages the delay, delay variation (jitter), bandwidth, and packet loss parameters to guarantee the ability of a network to deliver predictable results. QoS identifies the type of data in a data packet and divides the packets into traffic classes that can be prioritized for forwarding.

Consult with your network administrator for assistance configuring the **Audio, Video, Control**, and the **Alarm video** settings, and to select the appropriate **Post-alarm time**.

The priority of the different data channels can be set by defining the DiffServ Code Point (DSCP). Enter a number between 0 and 252 as a multiple of four. For alarm video you can set a higher priority than for regular video and you can define a Post Alarm Time over which this priority is maintained.

20.5

Multicast

In addition to a 1:1 connection between an encoder and a single receiver (unicast), the camera can enable multiple receivers to receive the video signal from an encoder simultaneously. The device either duplicates the data stream itself and then distributes it to multiple receivers (Multi-unicast) or it sends a single data stream to the network, where the data stream is simultaneously distributed to multiple receivers in a defined group (Multicast). You can enter a dedicated multicast address and port for each stream. You can switch between the streams by clicking the appropriate tabs.



Notice!

Multicast operation requires a multicast-enabled network that uses the UDP and the Internet Group Management IGMP protocols. Other group management protocols are not supported. The TCP protocol does not support multicast connections.

A special IP address (class D address) must be configured for multicast operation in a multicast-enabled network.

The network must support group IP addresses and the Internet Group Management Protocol (IGMP V2). The address range is from 225.0.0.0 to 239.255.255.255.

The multicast address can be the same for multiple streams. However, it will be necessary to use a different port in each case so that multiple data streams are not sent simultaneously using the same port and multicast address.

**Notice!**

The settings must be made individually for each stream.

Enable

To enable simultaneous data reception on several receivers you need to activate the multicast function. To do this, check the box. You can then enter the multicast address.

Multicast Address

Enter a valid multicast address for each stream to be operated in multicast mode (duplication of the data streams in the network).

With the setting **0.0.0.0** the encoder for the relevant stream operates in multi-unicast mode (copying of data streams in the unit). The camera supports multi-unicast connections for up to five simultaneously connected receivers.

**Notice!**

Duplication of data places a heavy demand on the unit and can lead to impairment of the image quality under certain circumstances.

Port

Assign a different port to each data stream if there are simultaneous data streams at the same multicast address.

Enter the port address of the required stream here.

Streaming

Click the checkbox to activate multicast streaming mode for the relevant stream. An enabled stream is indicated by a check mark.

Multicast packet TTL

You can enter a value to specify how long the multicast data packets are active on the network. This value must be greater than one if multicast is to be run via a router.

20.6

Image Posting

You can save individual JPEG images on an FTP server at specific intervals. You can then retrieve these images at a later date to reconstruct alarm events if required. In order to configure image posting, and to save and retrieve JPEG images, you must create an Account in which to save and access them. If you have not configured an account, the following error message appears at the top of this page: "No configured account. Configure accounts." Click the link to access the Accounts page.

Image size

Select the size of the images that you want to save:

- Small
- Medium
- Large
- 720p
- 1080p

File name

You can select how file names will be created for the individual images that are transmitted.

- **Overwrite** The same file name is always used and any existing file will be overwritten with the current file.

- **Increment** A number from 000 to 255 is added to the file name and automatically incremented by 1. When it reaches 255 it starts again from 000.
- **Date/time suffix** The date and time are automatically added to the file name. When setting this parameter, ensure that the unit's date and time are always correctly set. Example: the file snap011005_114530.jpg was stored on October 1, 2005 at 11:45 and 30 seconds.

Posting interval

Enter the interval in seconds at which the images will be sent to an FTP server. Enter 0 (zero) if you do not want any images to be sent.

Target

Select the target—the name of the account on the server—to which to save images. When face recognition is available, selected images of the face can be sent to a target account.

Enable

Click this checkbox to enable face detection.

File format

Select the file format in which to save images. Options are JPEG (default), YUV420, TIFF.

Target

Select the target—the name of the account on the server—to which to save images.

Timeout [s]

Enter the number of seconds after which image posting will time out. The default is 0 (no timeout).

Maximum image width [px]

Enter a number for the maximum width, in pixels, for the saved images. For automatic width selection, use value "0."

20.7

Accounts

Four separate accounts can be defined for posting and recording export.

Type

Select either FTP or Dropbox for the account type.

Before using a Dropbox account ensure that the time settings of the device have been correctly synchronized.

Account name

Enter an account name to be shown as the target name.

IP address

Enter the IP address of the server on which you wish to save the JPEG images.

Login

Enter the login ID for the server.

Password

Enter the password that gives you access to the server. To verify the password, click the Check button to the right.

Path

Enter the exact path on which you wish to post the images on the server. To browse for the correct path, click the Browse button to the right.

Maximum bit rate

Enter the maximum bit rate for the JPEG images (in kbps).

20.8

IPv4 Filter

Use this setting to configure a filter that allows or blocks network traffic that matches a specified address or protocol.

IP Address 1 / 2

Enter the IPv4 address that you want to allow or block

Mask 1 / 2

Enter the subnet mask for the appropriate IPv4 address.

21

21.1

Service

Maintenance

Update server

The address of the update server appears in the address box.

1. Click Check to make a connection to this server.
2. Select the appropriate version for your camera to download the firmware from the server.

Firmware

The camera functions and parameters can be updated by uploading new firmware. To do this, the latest firmware package is transferred to the device via the network. The firmware is installed there automatically. Thus, a camera can be serviced and updated remotely without requiring a technician to make changes to the device on site. The latest firmware can be obtained from your customer service center or from the download area.



Notice!

Before starting a firmware update, make sure to select the correct upload file.

Do not interrupt the firmware installation. Even changing to another page or closing the browser window leads to interruption.

Uploading the wrong files or interrupting the upload can result in the device no longer being addressable, requiring it to be replaced.

Progress

The progress bar displays the progress of the firmware upload.

Note: Once the progress bar reaches 100%, a reset page may appear. If this page appears, allow the reset page to complete its action.

Upload history

Click **Show** to view the firmware upload history.

Configuration

Click **Choose File** to navigate to the required firmware file (*.fw).

Note: Ensure that the file to be loaded comes from the same unit type as the unit that you want to configure.

Click **Upload** to begin transferring the file to the unit. Click OK to the warning message to continue the firmware upload, or Cancel to stop the upload.

Click **Download** to save the camera settings to a file to upload to the same camera or to a similar camera in the future.

Maintenance log

You can download an internal maintenance log from the unit to send it to Customer Service for support purposes. Click **Download** and select a storage location for the file.

21.2

Licenses

This window is for the activation of additional functions by entering activation codes. An overview of installed licenses is shown. The installation code of the unit is also displayed here.

21.3

Certificates

Usage list

HTTPS server

Select the default certificate for the HTTPS server.

EAP-TLS client

Select the client for Extensible Authentication Protocol-Transport Layer Security (EAP-TLS).

Note: The only option may be “None.”

EAP-TLS trusted

Select the trusted certificate for Extensible Authentication Protocol-Transport Layer Security (EAP-TLS).

To add a certificate, click the plus sign.

To delete a certificate, click the trashcan icon to the right of the certificate. **Note:** You can delete only certificates that you have added; you cannot delete the default certificate.

TLS-DATE trusted

Select the trusted certificate for TTLS-DATE.

To add a certificate, click the plus sign.

To delete a certificate, click the trashcan icon to the right of the certificate. **Note:** You can delete only certificates that you have added; you cannot delete the default certificate.

ADFS CA trusted

Select the trusted certificate for Active Directory Federation Services Certification Authority (ADFS CA).

To add a certificate, click the plus sign.

To delete a certificate, click the trashcan icon to the right of the certificate. **Note:** You can delete only certificates that you have added; you cannot delete the default certificate.

File list**Add a certificate/file to the file list**

1. Click **Add**. The Add certificate window appears.
2. Click **Choose File** to navigate to the required file.
3. Click **Upload**.

Delete a certificate from the file list

Click the trashcan icon. The Delete Trusted certificate window appears. To confirm deletion, click OK. To cancel deletion, click Cancel.

Download a certificate

Click the disk icon.

21.4

Diagnostics

Accesses the Built-in Self Test (BIST). The BIST displays a Pass or Fail status on the most recent homing event, not a counter. For the other items, a counter is maintained.

Click the **Start Self test** button to display the number of times the camera:

- performed a homing event.
- failed to home properly.
- restarted.
- lost video.

Logs

This section updates automatically with the history of the camera and maintains a log of all events such as those listed below. Click the REFRESH button to reload log data.

21.5

System Overview

This window is for information only and cannot be modified. Keep this information at hand when seeking technical support.

Select the text on this page with a mouse and copy it so that it can be pasted into an e-mail if required.

22 Operation via the browser

22.1 Live page

After the connection is established, the **Live** page is initially displayed. It shows the live video image on the right of the browser window. Depending on the configuration, various text overlays may be visible on the live video image.

Other information may also be shown next to the live video image. The items shown depend on the settings on the **'Live' functions** page.

22.1.1 Prepositions

The camera displays Preposition 1 through Preposition 6. Select the appropriate preposition to view the video image for that preposition/scene. In the lower left of the video image, the OSD displays the Camera number (title), the Preposition/Scene number, and the Preposition/Scene number stored.

Below the list of prepositions/scenes is a drop-down list showing the stored prepositions/scenes.

Select the appropriate preposition (1 through 6). Click  to store the preposition.

Note: If the preposition is already stored, a dialog box displays the message, **“Overwrite current preposition?”** Click OK to overwrite, or click Cancel to cancel the operation.

Click  to display the selected preposition in the video image.

22.1.2 AUX Control

Show preposition

Click this button to display a preposition.

Set preposition

Click this button to set a preposition.

AUX on


Click this button to activate an AUX command.

AUX off

Click this button to deactivate an AUX command.

22.1.3 Intelligent Tracking

For cameras with the ability to track movement, options for tracking objects within the region of interest are displayed in the **Intelligent tracking** panel.

When on, the tracking icon  is displayed on the image together with the lines that track moving objects.

Select **Off**, **Auto** or **Click**. If **Click** is selected, use the mouse to click on an object to track it.

22.1.4 Special Functions

Scan 360°

Click this button to start a continuous 360° pan. To stop the continuous pan, click a directional control in the View Control tab.

Tour A / Tour B

Click one of these buttons to start the continuous playback of a recorded (guard) tour. A recorded tour saves all manual camera movements made during the recording, including its rate of pan, tilt and zoom speeds, and other lens setting changes.

To stop a tour, click a directional control in the View Control tab.

Focus

Click this button to activate the Auto Focus mode on the camera.

The OSD displays the message, "OSD: Camera [number] / Auto Focus: ONE PUSH."

IR light

Click this button to turn on the infrared (IR) light of the illuminator accessory (if available on your camera).


Click this button again to turn off the IR light.

White light

Click this button to turn on the White light of the illuminator accessory (if available on your camera).

Click this button again to turn off the White light.

22.1.5 Recording status

The hard drive icon  below the live camera image changes during an automatic recording. The icon lights up and displays a moving graphic to indicate a running recording. If no recording is taking place, a static icon is displayed.

22.1.6 Saving snapshots

Individual images from the displayed live video stream can be saved locally in JPEG format on the computer's hard drive.



- Click the photo camera icon to save a single image.
- The storage location depends on the configuration of the camera.

22.1.7 Recording live video

Video sequences from the displayed live video stream can be saved locally on the computer's hard drive. The sequences are recorded at the resolution specified in the encoder configuration. The storage location depends on the configuration of the camera.



1. Click the recording icon to record video sequences.
 - Saving begins immediately. The red dot on the icon indicates that a recording is in progress.
2. Click the recording icon again to stop recording.

22.1.8 Full-screen display



Click the full-screen icon to view the selected stream in full-screen mode; press **Esc** on the keyboard to return to the normal viewing window.

22.1.9 Audio communication

Audio can be sent and received via the **Live** page if the unit and the computer support audio.

1. Press and hold the F12 key on the keyboard to send an audio signal to the unit.
2. Release the key to stop sending audio.

All connected users receive audio signals sent from the unit but only the user who first pressed the F12 key can send audio signals; others must wait for the first user to release the key.

22.1.10 Storage, CPU and network status



When accessing the unit with a browser, the local storage, processor and network status icons are shown in the upper right of the window.

When a local storage card is available, the memory card icon changes color (green, orange or red) to indicate the local storage activity. If you hover over this icon with the mouse the storage activity is shown as a percentage.

If you hover over the middle icon, the CPU load is shown.

If you hover over the right-hand icon, the network load is shown.

This information can help with problem solving or when fine tuning the unit. For example:

- if the storage activity is too high, change the recording profile,
- if the CPU load is too big, change the VCA settings,
- if the network load is too big, change the encoder profile to reduce bitrate.

22.2 Playback

22.2.1 Selecting the recording stream

On the left side of the browser, expand the **Connection** group if necessary.

To view a recording stream:

1. Click the **Recording** drop-down arrow to see the options.
2. Select recording stream 1 or 2.

22.2.2 Searching for recorded video

On the left side of the browser, expand the **Search** group if necessary.

1. To limit the search to a particular time range, enter the start and stop date and times.
2. Select an option from the drop-down box to define a search parameter.
3. Click **Start Search**.
4. The results are shown.
5. Click a result to play it back.
6. Click **Back** to define a new search.

22.2.3 Exporting recorded video

On the left side of the browser, expand the **Export** group if necessary.

1. Select a track in the track list or in the search results.
2. The start and stop date and time are filled-in for the selected track. If required, change the times.
3. In the **Time lapse** drop-down box, select the original or a condensed speed.
4. In the **Location** drop-down box, select a target.
5. Click **Export** to save the video track.

Note:

The target server address is set on the **Network / Accounts** page.

22.2.4 Controlling playback

The time bar below the video image allows quick orientation. The time interval associated with the sequence is displayed in the bar in gray. Arrows indicate the position of the image currently being played back within the sequence.

The time bar offers various options for navigation in and between sequences.

- If required, click in the bar at the point in time at which the playback should begin.
- Change the time interval displayed by clicking the plus or minus icons. The display can span a range from two months to a few seconds.
- Click the alarm jump buttons to go from one alarm event to the next or to the previous one. Red bars indicate the points in time where alarms were triggered.

Controls

Control playback by means of the buttons below the video image.

The time code is displayed on the left above the full-screen icon.

The buttons have the following functions:

- Start/Pause playback
- Select the playback speed using the speed regulator
- Jump to start of active sequence or to previous sequence
- Jump to start of the next video sequence in the list

23

Operation

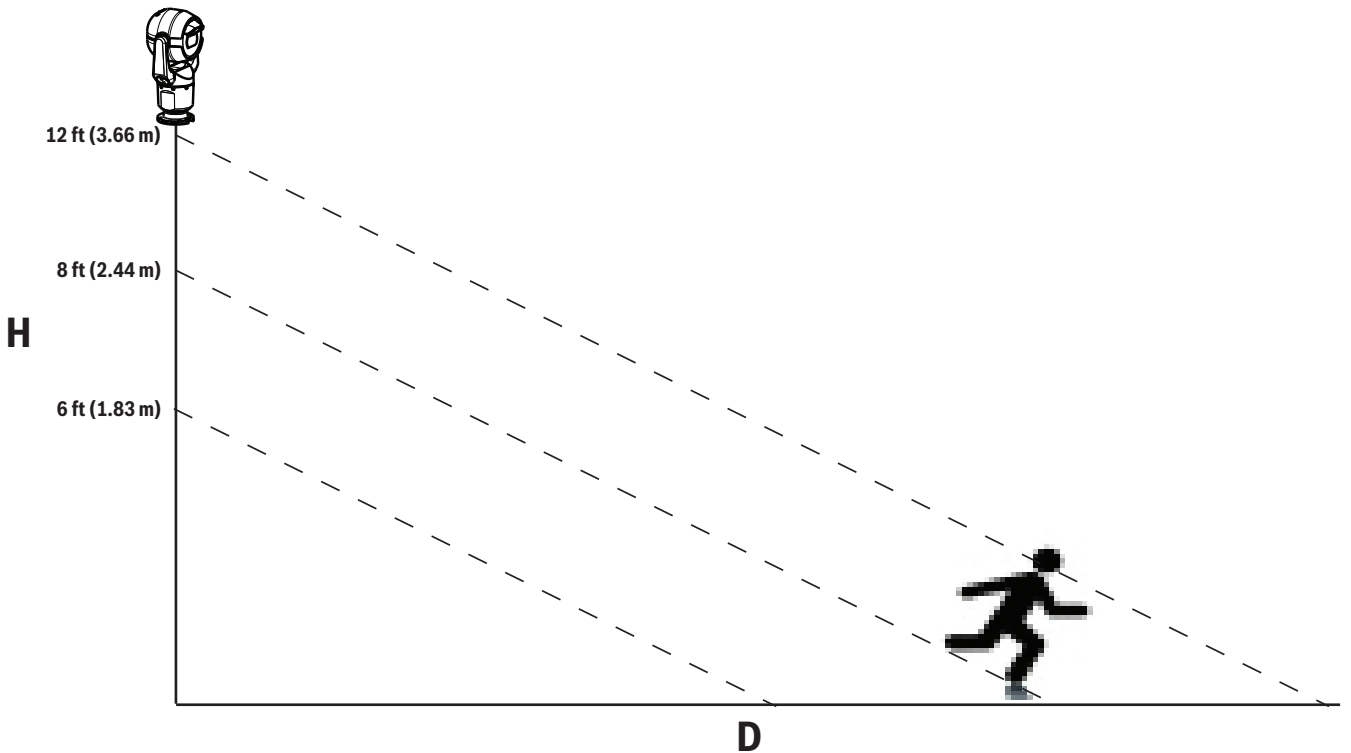
23.1

Using Intelligent Tracking

Configuring Intelligent Tracking

The camera utilizes the built-in Intelligent Video Analytics (IVA) to continuously follow an individual or object even if it passes behind a Privacy Mask or a stationary object. The camera uses objects detected by IVA in a stationary preset position to activate the Intelligent Tracking feature.

The Intelligent Tracking feature allows continuous on-screen following of an individual or an object. This feature operates by recognizing an object in motion and zooms in to approximately 50% (default Tracker zoom threshold) of the field of view for an average target height of six feet. This feature controls the pan/tilt/zoom actions of the camera to keep the selected object in the scene.



To activate the Intelligent Tracking feature, one of the following conditions must be met:

- The Silent IVA option must be selected in the VCA page on the Settings tab. Refer to *VCA, page 75*.
- IVA must be active for at least one preset scene in the VCA page on the Settings tab. If IVA is configured for one scene, then all other scenes have Intelligent Tracking enabled by default. If a scene has Motion+ or IVA Flow activated, however, then Intelligent Tracking is disabled for these scenes.



Notice!

The following actions occur if Intelligent Tracking is active:

All other IVA objects are disabled in scenes with Intelligent Tracking.

The camera automatically disables the display of compass headings. Once Intelligent Tracking is set to Off, the camera resumes display of the compass heading. Refer to *PTZ Settings, page 60* for details of the Compass feature.

Guidelines for Implementing Intelligent Tracking

Factors such as the viewing angle and unwanted motion (from trees, for example) may interfere with Intelligent Tracking operation. Use the following recommendations to ensure smooth Intelligent Tracking operation:

- **Mount/Mounting Surface Stability**
 - Mount the camera in the most stable position. Avoid locations affected by vibrations, such as those caused by a roof-top air conditioner. These vibrations may cause complications when the camera zooms-in on a target.
 - Use the pendant arm mount, if possible. This mount option provides the most stability for the camera.
 - Use guy wires to protect against strong winds if using the parapet mount.
- **Field of View**
 - Select a location and viewing angle that allows the flow of people to move across the camera's field of view.
 - Avoid motion that moves directly towards the camera.
 - Avoid locations that attract large numbers of people, such as retail stores or intersections. Intelligent Tracking is optimized for scenes with very few moving objects.
- **Unwanted Motion**
 - Avoid neon lights, flashing lights, night time lights, and reflected light (from a window or mirror, for example). The flickering of these lights can affect the Intelligent Tracking operation.
 - Avoid motion from moving leaves/branches that present a persistent fixed motion.

Operation of Intelligent Tracking

The Intelligent Tracking feature behaves in one of the following ways:

- **Camera detects an object in motion and automatically tracks the object**
User actions always take precedence over Intelligent Tracking. If the camera is actively tracking an object and a user takes control, the camera will attempt to track the object after a period of inactivity.
- **An IVA alarm can trigger Intelligent Tracking to track a detected object**
A rule that triggers an IVA event must be set. The following standard tasks can be set: Object in field, Crossing Line, Loitering, Condition change, Following route, Entering field, and Leaving field. Refer to the *IVA 5.60 Operation Manual* for specific information.
- **A user manually selects an object in the live image area to track**
The Intelligent Tracking feature allows a user to click a moving object in the live image display inside the **LIVE** page to identify an object to track.
- **Use AUX Command 78 to activate/deactivate Intelligent Tracking**
Use AUX ON 78 to enable the Intelligent Tracking Auto mode. This command can be used in conjunction with the rules engine.

Using Intelligent Tracking

Use the following options on the **LIVE** page to control Intelligent Tracking:





Note: If you do not see these controls on the **LIVE** page, ensure that the **Show 'Tracking'** option is enabled on the **LIVE Functions** page. Refer to *LIVE Functions*, page 48.



- **Off:** Disables Intelligent Tracking.

- **Auto:** In this mode, the camera actively analyzes the video to detect any moving object. If it detects movement, the camera begins to track the moving object. This mode is most useful for scenarios where no motion is expected in the scene.
- **Click:** In this mode, users can click an object moving in the live video image to enable the camera to track the movement of the selected object. This mode is most useful for scenarios where normal scene activity is expected.

If the Intelligent Tracking feature is set to Auto or Click, the live video image displays an eye icon with a symbol that conveys the state of Intelligent Tracking activity:

Graphic	Description	Explanation
	White eye, flashing	Intelligent Tracking is actively following a target.
	Gray eye with a red "X"	Intelligent Tracking lost the selected target and will wait for the target to reappear using the last known trajectory. During the IDLE state, the camera will not seek other objects in motion.
	Gray eye without a symbol	Intelligent Tracking is idle, waiting to track a target.
	Gray eye with a "pause" symbol	Intelligent Tracking attempts to track a target passively while a user has camera control.

Tracking triggered by IVA rules

In this mode, the camera continuously analyzes the scene for IVA alarms or IVA rule violations. If an IVA rule is violated, it triggers the advanced tracking feature of the camera to start following the object / person that triggered the alarm. This allows the camera to track moving objects of interest without getting distracted by other moving objects in the scene.

To activate this mode, you must enable IVA by selecting either *IVA [number]* or *IVA [number] Flow* in the field **Analysis type** of the page **VCA** (from the page **Configuration**, select **Alarm > VCA**). Refer to the current *Operation Manual for IVA Intelligent Video Analysis* for specific information.

If the option **Show VCA metadata** is selected in **'Live' functions** (from the page **Configuration**, select **Web Interface > 'Live' functions**), the live view will show the following metadata objects in the **Live** page view:

- Objects in motion are initially identified in the video.
- Actively tracked object in motion are identified in the video.
- When an object in motion is lost, a diamond appears designating the area where the target was lost.

Several reasons may cause the Intelligent Tracking to stop tracking a target:

- The target has stopped moving while being followed by Intelligent Tracking.
- The target has moved behind a static object in the scene.

In these instances, Intelligent Tracking switches to the IDLE mode (pink eye icon) and waits for the target to reappear in the scene. The camera will restart tracking if a target starts moving in the same area where the initial target stopped moving or if the camera detects an object moving along the last known trajectory.

23.2 Recommended Use of Your MIC Camera

Bosch recommends that you consider the following in order to optimize the life of your Bosch camera.

1. Guard Tours and Preset Tours

With your camera, you can cover a full 360° view using continuous Guard Tours or Preset Tours. Depending on the type of camera tour selected, your camera might be either in continuous motion (pan, tilt, or both) or moving between selected preset positions.

Continuous Guard Tours

Guard Tours are a very effective way of monitoring the entire scene; however, if not configured properly, continuous Guard Tours can reduce the service life of your camera considerably. Continuous Guard Tours should be used in applications where the tours are required to run for a fixed duration during the day (not more than twelve hours/day). Additionally, for best results, the continuous guard tour should be used in scenes with sufficient illumination levels (50 lux or better), should be at least 60 seconds in duration, and should have a smooth pan/tilt path (without erratic stops and starts), with the lens set at a wide angle (infinity focus). The tour should also include at least 10° of tilt movement.

Preset Tours

For scenarios that require the camera to be in continuous motion for most of the day, Bosch recommends that you set the camera in Preset Tour mode, moving between a desired set of presets. For best results, always ensure that each preset has a dwell time of at least 5 seconds.

2. Scene Illumination and Focus Settings

Your camera uses a high-sensitivity image sensor and a high-quality lens with a precise drive train control to maintain the best focus of the image. The Autofocus mechanism tries continuously to make the image details appear sharp. Under low light and low contrast scenarios, the Autofocus algorithm may not be able to find the correct focus points because of the lack of detail in the scene. In this case, it will keep driving the focus motor to find the best focus. If this state continues for long, the focus mechanism of your camera could be damaged beyond repair.

For best results, maintain the scene illumination (visible light and/or IR illumination) to a level that allows the camera to easily resolve the details in the scene. The illumination requirements are site-specific and should be verified during camera installation and configuration. For best camera performance, the scene should have at least 50 lux of illumination.

For scenes where sufficient lux level cannot be maintained, the camera should be used with One Push (“Spot Focus”), and you should avoid using continuous Guard Tours.

3. Power-over-Ethernet (PoE)

Use only approved High PoE devices – those that Bosch recommends, or those that Bosch offers, such as a High PoE Midspan midspan or the VIDEOJET connect power supply - between the camera and your PoE network. Improper network connection can result in intermittent camera reboots. If the camera reboots frequently, test your camera with another power supply.

23.3 Using the Wiper/Washer (Bosch Protocol)

The "predefined position" for the wash/wipe function is preset 62. The installer must define preset 62 (preferably where the washer nozzle is located and can direct washer fluid towards the camera window) before using the wiper/washer function.

To activate the washer/wiper function, press ON-105-ENTER and confirm this sequence:

1. The wiper moves to a predefined position.
2. The washer turns on for five seconds. Simultaneously, the wiper turns on and wipes five times.
3. The washer turns off. The wiper turns off.
4. The camera returns to its previous PTZ position (and to inactive mode if applicable).

To activate the wiper manually (or if the corresponding alarm was activated or deactivated):

Press **ON-102-ENTER**.

Note: The wiper will turn off automatically after 5 minutes of use.

To activate intermittent wipe:

Press **ON-103-ENTER**. The wiper wipes twice, then returns to parked position, and then turns off 15 seconds later.

To activate the wiper to wipe five (5) times:

Press **ON-104-ENTER**. The wiper wipes five times, then returns to parked position and turns off.



Notice!

If the power fails while the wiper is activated, the wiper will return to parked position, after power is restored, before turning off. The wiper will not stop in front of the camera window.

23.4 Using the Wiper/Washer (Pelco Protocol)

To activate the washer/wiper in Pelco protocol, follow these steps:

1. From the **SETTINGS** page > Illumination/Wiper > Wiper/washer, click Start, and then exit the menu.
2. Position the camera so that the nozzle of the washer will spray the camera window.
3. Press 62 and then Preset. Press and hold "Preset" for 2 seconds until the text "Scene 62 Stored" appears on the OSD.

Note: If you already have a preset stored at that position, the system prompts you to overwrite the current scene.

4. Activate the wash/wiper function. Press 1 and then press AUX-ON on the keyboard. The camera moves to preset 62. The nozzle sprays cleaner onto the camera window, and then the wiper wipes the window. The camera then returns to where it was positioned previously, or it continues to perform the tour that it was performing when you activated the wash/wipe function.



Notice!

Depending on your camera settings, your monitor may display a freeze frame image of the wiper during or at the end of the wipe cycle. If you prefer not to see this freeze frame, you can turn off the Freeze Frame on Preposition in the PTZ Setup menu.

23.5 Configuring Settings for IR Illumination

The following table provides the valid combinations of settings for activating IR illumination. To activate IR illumination, set the menus Night Mode, IR Illuminator, and IR Focus Correction to the values identified in the table below, depending on your desired results.

				RESULTS	Notes
Menu	Night Mode	IR Illuminator	IR Focus Correction		
Model: MIC camera <i>with</i> IR					
Setting	Auto	Auto	Auto (or ON if Auto not available)	Within 10 seconds of switching to Night Mode, the IR lamps turn on.	This is the recommended configuration.
	Auto	Off	Auto (or ON if Auto not available)	IR lamps turn on with Aux 54 or alarms.	Use this for manual control of the IR lamps.
	Off	Auto	Auto (or ON if Auto not available)	Camera enters Night Mode with Aux 57 or alarms.	Use this for manual control of Night Mode.
Model: MIC camera <i>without</i> IR					
Setting	Auto	--	On	When using external IR lamps, user must control the IR Focus Correction using Aux 67 or alarms.	For control of IR Focus Correction with a MIC camera (non-IR).

There are no other valid combinations. Any other combination can cause the camera to have problems focusing ("focus issues"). An example of an invalid combination is:

- Night Mode = Auto
- IR Illuminator = Auto
- IR Focus Correction = Off

This combination of settings causes a blurred view at *wide* angle. (When zoomed in (at TELE angle), the view is focused.)

23.6 Uploading a User Logo

Customers have the option to upload custom logos that display on the web browser of the device.

All user logo images must comply with the following requirements:

- The file format must be a bitmap (.bmp).
- Height and width must not exceed 128 pixels.
- Color depth must be 8 bit (256 color bitmap).

Upload the Logo File

1. If necessary, open the browser. Click **Configuration**.
2. Click **General**. Select **Display Stamping**.

3. Select the field **Camera name stamping**. Select the position of the logo: *Bottom*, *Top*, or *Custom*.
Note: If you select *Custom*, then additional fields (**Position (XY)**) appear where you can specify the exact position of the logo. In the fields **Position (XY)**, enter the values for the desired position (0 - 255).
4. Click **Logo Browse** to open a file-search dialog. Select the image file (.bmp).
5. Click **Upload** to transfer the file to the camera.
The message "Upload successful" should appear.
The new logo, if applicable, replaces the previous one.
6. Select the field **Logo position**. Select the position of the logo on either side of the camera name: *Left*, *Right*, or *Logo only*. (The default value is *Off*.)
7. Click Set to save.

Set Logo Transparency (Optional)

1. Click the check box **Transparent background**.
2. Click Set to save.
3. Note that the color of the entire first line of the logo is the color that will be changed to transparent in the remainder of the logo. For example, if the first line is white, then all of the identical white colors of the logo image will become transparent.

Change the Camera Title

1. Click **General**. Select **Identification**.
2. Delete all of the text in the field **Camera name**.
3. Rename the camera if desired.
4. Click Set to save.

23.7

Two-line and Three-line Camera Titles

There are two options to display camera titles, but these should not be used together. Choose one of the following modes.

- Mode 1: Azimuth/Elevation/Compass/Zoom Options
- Mode 2: Camera Title combined with Compass

Mode 1: Azimuth/Elevation/Compass/Zoom Options

Select one of the following options:

- Display Azimuth/Elevation and ZOOM value (Optical/Digital) at the bottom of the screen. Use the command AUX ON-95-ENTER.
- Display Azimuth/Elevation/Compass at the bottom of the screen. Use the command AUX ON-96-ENTER.

Mode 2: Camera Title combined with Compass

Select one of the following options. Users can toggle between the two options.

- Display two (2) lines of text at the top of the video. Use the command AUX ON-75-ENTER.
- Display three (3) lines of text at the top of the video. Use the command AUX ON-76-ENTER.

About Fonts for Camera Titles

- The default font style is white text with a clear background. The font size cannot be changed.
- Using the command AUX ON-77-ENTER, users can change the font color manually when the camera is in Day Mode. Toggle the text colors in the following sequence: White->Yellow->Violet->Red->Cyan->Green->Blue->White.
- Using the command AUX OFF-77-ENTER, users can set the color again to the default white.

- The font color changes automatically to white when the camera enters Night Mode.
- When the camera returns to Day Mode, the camera will use the selected font color automatically.

Available Character Set

Characters permitted:

- A-Z (upper case only)
- 0-9
- Miscellaneous characters such as - [SPACE]! " \$ & ' , . / : ?

Characters not permitted:

- Lower case characters (a-z)
- Underscores (_)
- Save these settings so that, in case of a power failure, the system will recover and then restore the user values.

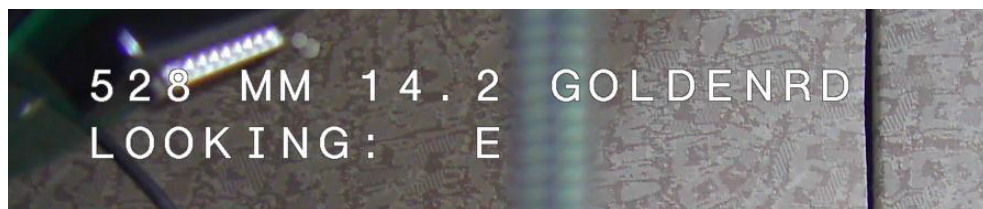
Two-line Camera Title

At the top of the video, there are two lines of text.

Line 1 displays the first 20 characters of the Camera Name/ID. Users can edit this text to enter a highway name, camera location, etc.

Line 2 displays the text, "LOOKING: X" or "LOOKING: XX" (without quotation marks), where "X" or "XX" is the compass direction. This line cannot be edited by the end user.

- LOOKING will always appear in English and will be at a fixed location on the OSD.
- The X or XX designates the compass direction that updates automatically as the camera pans. A identifies "North," "South," "East," or West." AA identifies "Northeast," "Northwest," "Southeast," or "Southwest."



Three-line Camera Title

Lines 1 and 2 display the first 20 characters of both lines of the Camera Name/ID. Users can edit both of these lines to enter a highway name, camera location, etc.

Line 3 displays the text, "LOOKING: X" or "LOOKING: XX" (without quotation marks), where "X" or "XX" is the compass direction. This line cannot be edited by the end user.



- LOOKING will always appear in English and will be at a fixed location on the OSD.
- The X or XX designates the compass direction that updates automatically as the camera pans. A identifies "North," "South," "East," or West." AA identifies "Northeast," "Northwest," "Southeast," or "Southwest."

23.8 Azimuth, Elevation, and Compass Directions

The camera can display the following data in the lower-right corner of the image display:

- **Azimuth** - The pan angle from zero to 359 degrees in one-degree increments. An azimuth of zero degrees corresponds to North.
- **Elevation** - The tilt position from zero (horizon) to -90 degrees (camera pointing straight down) in one-degree increments.
- **Compass** - The cardinal or intercardinal (N, NE, E, SE, S, SW, W, NW) heading in which the camera is pointing.

The camera allows users to display only the azimuth/elevation readings or only the compass reading, or both readings at the same time. The camera displays the azimuth/ elevation readings and the compass heading in a format such as “180 / -45 S,” where:

- 180 is the Azimuth or the pan location in degrees.
- -45 is the Elevation or the tilt location in degrees.
- S is the compass direction (cardinal or intercardinal).

The camera uses the azimuth to determine the compass direction. The following table shows the azimuth range and its corresponding compass heading:

Azimuth Range	Compass Direction
21° to 65° NE (Northeast)	66° to 110° E (East)
111° to 155° SE (Southeast)	156° to 200° S (South)
201° to 245° SW (Southwest)	246° to 290° W (West)
291° to 335° NW (Northwest)	336° to 20° N (North)
21° to 65° NE (Northeast)	66° to 110° E (East)
111° to 155° SE (Southeast)	156° to 200° S (South)
201° to 245° SW (Southwest)	246° to 290° W (West)
291° to 335° NW (Northwest)	336° to 20° N (North)

The camera uses the Azimuth Zero point, usually set to magnetic North, as the zero degree pan position and as the North compass heading. The camera then displays the azimuth reading and the compass heading based on the number of degrees from the Azimuth Zero point.



Notice!

Bosch recommends that only the installer calibrate the Azimuth Zero point. A recalibration to the Azimuth Zero point may cause inaccurate compass headings.

Set the Azimuth Zero point:

1. Determine the North compass heading, then move the camera to that position.
2. Use the command AUX OFF-90-ENTER to turn off the command lock (if active).
3. Use the command AUX ON-94-ENTER to set the Azimuth Zero point.

Display/hide the azimuth/elevation reading:

- Use the command AUX ON-95-ENTER to display the azimuth/elevation reading.
- Use the command AUX OFF-95-ENTER to hide the azimuth/elevation reading.

Display/hide the compass heading:

- Use the command AUX ON-96-ENTER to display the compass heading.
- Use the command AUX OFF-96-ENTER to hide the compass heading.

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Troubleshooting

Table of Troubleshooting Issues

The table below identifies issues that could occur with the camera, and how to resolve them.

Problem	Questions to Ask/Actions to Resolve the Problem
No camera control.	<ul style="list-style-type: none"> – Ensure that the LAN cable has good connection and is secured. – Refresh the browser and ensure that video is updated. – Cycle the camera's power off and on.
Video is rolling, noisy, or distorted.	<ul style="list-style-type: none"> – Check the integrity of all connectors and splices of the Ethernet cable. If O.K., then: <ul style="list-style-type: none"> – Contact Bosch Technical Support.
Camera moves when attempting to move other cameras.	<ul style="list-style-type: none"> – Check that the camera's IP address is properly set. If camera's IP address is not set, then: <ul style="list-style-type: none"> – Use Configuration Manager to confirm that two cameras do not have the same IP address. If they do, change the address of one of the cameras.
No Network Connection.	<ul style="list-style-type: none"> – Check all network connections. – Ensure that the maximum distance between any two Ethernet connections is 100 m (328 ft) or less. If O.K., then: <ul style="list-style-type: none"> – If you are behind a firewall, ensure that the Video Transmission mode is set to UDP.
Camera does not operate at all, or does not operate as expected, after being subjected to extreme low temperatures (below -40 ° (-40 °F)).	<ul style="list-style-type: none"> - Allow the camera to warm up. The camera requires a 60-minute warm-up prior to PTZ operations. - If camera does not operate after this warm-up period, then reset the camera. In the URL line of your web browser, type "/reset" at the end of the IP address of the camera.
Camera reboots frequently or intermittently	Test your camera with another power supply.
No OSD messages appear.	Bosch's Video SDK is required. Video management software from third parties does not use the SDK.
Nothing appears on the screen.	Are the power cord and line connection between the camera and monitor made properly?
The image on the screen is dim.	Is the lens dirty? If so, clean the lens with a soft, clean cloth.
The contrast on the screen is too weak.	Adjust the contrast feature of the monitor. Is the camera exposed to strong light? If so, change the camera position.

<p>The image on the screen flickers.</p>	<p>Does the camera face directly into the sun or fluorescent lighting? If so, reposition camera.</p>
<p>The image on the screen is distorted.</p>	<p>Is the power frequency set properly in sync? If the power frequency is not set correctly, the line lock synchronization mode cannot be used. Set the synchronization mode to INT. (NTSC Model power frequency in LL mode: 60 Hz.)</p>
<p>No video.</p>	<ul style="list-style-type: none"> – Check that the mains power to the power supply is on. – For IP-enabled cameras: Check to see if you have a web page. If you do, then try cycling the camera’s power off and on. If you do not, then you may have the wrong IP address. Use Configuration Manager to identify the correct IP address. If O.K., then: <ul style="list-style-type: none"> – Check that there is 24 V output from the transformer. If O.K., then: <ul style="list-style-type: none"> – Check the integrity of all wires and mating connectors to the camera.
<p>Picture is dark.</p>	<ul style="list-style-type: none"> – Check that the Gain Control is set to High. If O.K., then: <ul style="list-style-type: none"> – Check that the Auto Iris Level is set to the appropriate level. If O.K., then: <ul style="list-style-type: none"> – Check that the camera lens cover is removed. If O.K., then: <ul style="list-style-type: none"> – Check that the maximum Ethernet cable distance has not been exceeded. If O.K., then: <ul style="list-style-type: none"> – Restore all camera settings.
<p>Background is too bright to see subject.</p>	<p>Turn on backlight compensation.</p>

<p>“High Shock Event” appears in English in the middle of the OSD until the camera is reset.</p>	<p>The camera experienced a high shock event.</p> <ul style="list-style-type: none">- Check the integrity of the mechanical parts and the screws (especially on the yoke arms).- If there is obvious and severe damage, stop using the camera and contact your Bosch Service Center for assistance.- If no damage is evident, complete one of the following steps:<ul style="list-style-type: none">a) Cycle the power on the camera.b) Send command AUX OFF 65 to remove the OSD message.- If IVA is configured on your camera, the OSD message may interfere with IVA operation.
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25 Maintenance

Cleaning - Unplug 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.

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 Torx 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.)
3. **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.

26 Decommissioning

26.1 Transfer

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

26.2 Disposal

	<p>Disposal</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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Technical data

For product specifications, see the datasheet for your camera, available on the appropriate product pages of the Online Product Catalog at www.boschsecurity.com.

28 Keyboard Commands

28.1 Bosch Protocol

AUX Keyboard Commands (Bosch Protocol)

Note: * denotes a Locked command.

Function Key	Command No.	Command	Description
On/Off	1	Scan 360° / Auto Pan (Continuous)	Activates /deactivates Autopan without limits.
On/Off	2	Autopan (within Limits)	Activates /deactivates Autopan between limits.
On/Off	3*	Iris Control	Enters the menu (auto, manual) for iris control.
On/Off	4*	Focus Control	Enters the menu (spot, auto, manual) for focus control.
On/Off	7	Play Custom Pre-position Tour	Activates /deactivates the playback of a custom, pre-position tour.
On/Off	8	Play Pre-position Tour	Activates /deactivates the playback of a pre-position tour.
On/Off	9*	Inactivity Mode	Enters the inactivity menu (Off, Return to Scene 1, Recall Previous PTZ Command).
On/Off	11*	Auto Iris Level Adjust	Enters the Iris Level Adjustment menu.
On/Off	14	Set Autopan and Scan Speed	Enters the speed adjustment slide bar.
On/Off	15	Set Pre-position Tour Period (dwell)	Enters the dwell adjustment slide bar.
On/Off	18*	AutoPivot Enable	Enables/disables AutoPivot.
On/Off	20	Backlight Comp	Turns Backlight Compensation (BLC) on or off.
On/Off	23*	Electronic Shutter	Enters the Shutter Speed slide bar.
On/Off	24	Stabilization	Turns Electronic Stabilization on or off.
On/Off	26	Wide Dynamic Range / High Dynamic Range	Activates /deactivates Wide Dynamic Range (WDR) / High Dynamic Range (HDR).
On/Off	35*	White Balance Mode	Enters the White Balance menu.
On	40*	Restore Camera Settings	Restores all settings to their original defaults.
On/Off	43*	Auto Gain Control	Switches AGC modes (On, Auto, Off).
On/Off	44*	Aperture Correction (Sharpness)	Enters the Sharpness menu.
On	46*	Advanced Menu	Enters the Main Setup menu.
On	47	View Factory Settings	Displays all menu default settings.
On/Off	50	Playback Tour A	Activates /deactivates continuous Playback A.
On/Off	51	Playback Tour A	Activates /deactivates single Playback A.

Function Key	Command No.	Command	Description
On/Off	52	Playback Tour B	Activates /deactivates continuous Playback B.
On/Off	53	Playback Tour B	Activates /deactivates single Playback B.
On/Off	54	IR Illuminator	Controls IR Illuminators (On/Off).
On/Off/ Auto	56	Night Mode Menu	Enter the Night Mode menu (On, Off, Auto (Day/Night only)).
On/Off	57	Night Mode Control (IR Filter In/Out)	Enables/disables Night Mode (Day = Off /Night = On).
On/Off	58*	Day/Night Threshold	Enables/disables the day/night threshold (On-menu (Day/Night only)).
On/Off	59	Night Mode Priority	Motion–Activates Night Mode before slow shutter, preserving full-frame integration as light is reduced. Color–Activates slow shutter before Night Mode, preserving color longer as light is reduced.
On/Off	60*	On Screen Display	On–Enables on-screen display. Off–Disables on-screen display.
On	61*	OSD Display Adjust	Adjust the view of the On-screen Display.
On	62	Pre-position (Scene) Title menu	Enters the Pre-position Title menu. Refer to Specifying a Shot or a Sector Title.
On	63*	Zone/Sector Title Menu	Enters the Zone Title menu. Refer to Specifying a Shot or a Sector Title.
On	64	Alarm Status	Enters the Alarm Status menu.
Off	65	Alarm Acknowledge	Acknowledges alarm or deactivates physical outputs.
On	66	Display Software Version	Displays the number of the software version. Issue Once: presents basic information. Issue Twice (while basic info displayed): presents expanded information.
On/Off/ Auto	67	IR Focus Correction	On (two times)–Activates focus compensation when using IR illuminators. Off–Deactivates focus compensation when using normal lighting. Auto–Automatically activates/deactivates IR Focus Correction when IR illuminators turn on/off.
On/Off	68	White light illumination	On–Turns on White lights. Off–Turns off White lights.
On/Off	69*	Alarm Rule Activation/ Deactivation	On–Enables all alarm rules. Off–Disables all alarm rules.

Function Key	Command No.	Command	Description
On/Off	75	1 Line Camera Title	Displays the first 20 characters of the first line of the Camera Name/ID. It may take 5 to 10 seconds for the title to appear.
On/Off	76	2 Line Camera Title	Displays the first 20 characters of both lines of the Camera Name/ID. It may take 5 to 10 seconds for the title to appear.
On/Off	77	OSD Camera Title Colors	When AUX 75/76 is enabled, this toggles through the different colors. It may take 5 to 10 seconds for the color to change.
On/Off	78	Intelligent Tracking	On–Turns on Intelligent Tracking. Off–Turns off Intelligent Tracking.
On/Off	80*	Digital Zoom Lock	Turns digital zoom on and off.
On/Off	81	Alarm Output 1 Open Collector	On–Activates output. Off–Deactivates output.
On/Off	82	Alarm Output 2 Open Collector	On–Activates output. Off–Deactivates output.
On/Off	83	Alarm Output 3 Open Collector	On–Activates output. Off–Deactivates output.
On/Off	84	Alarm Output 4 Relay	On–Activates output. Off–Deactivates output.
On/Off	86*	Sector Blanking / Masking	Enters/exits the Sector Blanking menu.
On/Off	87*	Privacy Masking	Enters/exits the Privacy Masking menu.
On/Off	89	Preposition Overwrite Confirmation (toggle)	On–Issues a message that prompts for approval to overwrite a preposition. Off–No confirmation message issued.
On/Off	90	Command Lock/Unlock	On–Lock on Off–Lock off
On/Off	91*	Zoom Polarity	On–Reverse Off–Normal
On/Off	92*	Focus Polarity	On–Reverse Off–Normal
On/Off	93*	Iris Polarity	On–Reverse Off–Normal
On/Off	94*	Set Azimuth Zero Point / Recalibrate Azimuth Compass	Sets the zero degree pan position. Refer to Azimuth, Elevation, and Compass Directions.

Function Key	Command No.	Command	Description
On/Off	95	Display Azimuth/Elevation Readings	On–Displays azimuth/elevation readings. Off–Hides azimuth/elevation readings. Refer to Azimuth, Elevation, and Compass Directions.
On/Off	96	Display Compass (Point) Readings	On–Displays compass heading. Off–Hides compass heading. Refer to Azimuth, Elevation, and Compass Directions.
On	99	Factory P/T Home Position	Recalibrates home position; can be used as an Alarm Output.
On/Off	100	Record Tour A	Starts/stops recording Tour A.
On/Off	101	Record Tour B	Starts/stops recording Tour B.
On/Off	102	Wiper On/Off	On: Continuous wiper mode, stops automatically after five minutes.
On/Off	103	Wiper On/Off	On: Intermittent; wipes twice, then turns off after 15 seconds. This cycle repeats until turned OFF.
On/Off	104	Wiper On/Off	On: One-shot; wipes five times, then turns off.
On/Off	105	Wash/Wipe On/Off	On: Camera moves to designated washer preset 62, wiper & washer automatically start.
On/--	149	Reset Position Correction Counters	On: Reset position correction counters.
On	606	Power Mode	Temporarily displays current power mode “24 VAC:”, “POE+”, “POE++”, or “Unknown”).
On/Off	700	Proportional Speed Control adjustment	On – Increase Proportional Speed Off – Decrease Proportional Speed Overlay feedback provided. Speeds cycle through Super Slow, Slow, Medium, and Fast.
On/Off	804	Mask Calibration Procedure	Manual procedure to calibrate masks (privacy and virtual).
On/Off	908	Privacy Mask Enlargement	Turns privacy mask enlargement on/off during PTZ movement.
On	911	Camera Reboot	Forces the camera to complete the power on boot sequence. AUTODOME cameras will complete “Finding Home”.
Set	62	Washer	Activate washer.
Set	“1-99”	Pre-position Programming	Set ##–Programs a preset view.
Shot	“1-99”	Pre-position Recall	Shot ##–Recall programmed preset.

Function Key	Command No.	Command	Description
Set	“1-256”	Pre-position Programming	Set ###. Saves the current PTZ values as a preset view.
Shot	“1-256”	Pre-position Recall	Shot ###. Recalls the previously-saved PTZ preset position.
Set	100	Pre-position Menu	Enters the Pre-position menu.
Set	110	Factory P/T Home Position	Set–Recalibrate home position.
Set	802*	Edit Password	Enters the Edit Password menu.
Set	899*	Reset ALL	Restores all settings to original defaults and clears all user-programmed settings (except for custom camera titles).
Set	900	Edit Tour 1 (Standard)	Enters the Standard Tour Scene menu.
Shot	900	Edit Tour 2 (Custom)	Enters the Custom Tour Scene menu.
Set/Shot	901-999	Adds/Removes a Preposition Shot from Tour 1	Set ###–Adds preset. Shot ###–Removes preset.

28.2 Pelco Protocol

Pelco P/D PTZ Commands

The following PTZ commands in Pelco P/D protocols are supported by the Pelco 300 keyboard.

Command
Pan Right
Pan Left
Tilt Down
Tilt Up
ZOOM In
ZOOM Out
Focus Far
Focus Near
Auto Iris
Manual Iris
Auto Pan

NON-PTZ Pelco D Commands

Command	Description
33 – Preset	Action = Press Pans the AutoDome 180° (Flip)

Command	Description
34 – Preset	Action=Press Goes to Zero Pan (original home position)
81 – Preset	Action=Press Initiates the AutoDome standard preset tour (Tour 1)
82 – Preset	Action=Press Initiates the AutoDome custom preset tour (Tour 2)
92 – Preset	Action=Press and hold (for 2 seconds) Sets the Left pan limit for an AutoScan with Limit Stops enabled
93 – Preset	Action=Press and hold (for 2 seconds) Sets the Right pan limit for an AutoScan with Limit Stops enabled
95 – Preset	Action=Press Enables or disables Limit Stops in the Setup Menu for AutoScan. Action=Press and hold (for 2 seconds)
96 – Preset	Action=Press Stops a scan
97 – Preset	Action =Press Initiates FastAddress process (Pelco Random Scan)
99 – Preset	Action=Press Initiates an AutoScan

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