MIC IP starlight 7000 HD, MIC IP dynamic 7000 HD

MIC-71xx, MIC-72xx

BOSCH

en Installation Manual

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1 Safety

1.1 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

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) MIC71xx or MIC72xx Camera
One (1) Quick Installation Guide
One (1) Document DVD
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 *canting* 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 *canting* 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 720p50/60 or 1080p25/30 HD resolution in environments with ambient light extremes.

Both camera variants--MIC IP starlight 7000 HD (MIC71xx) and MIC IP dynamic 7000 HD (MIC72xx)--have a 30x optical zoom (12x digital) and flexible, field-selectable mounting orientations (upright, inverted, or canted) to achieve the perfect field of view.

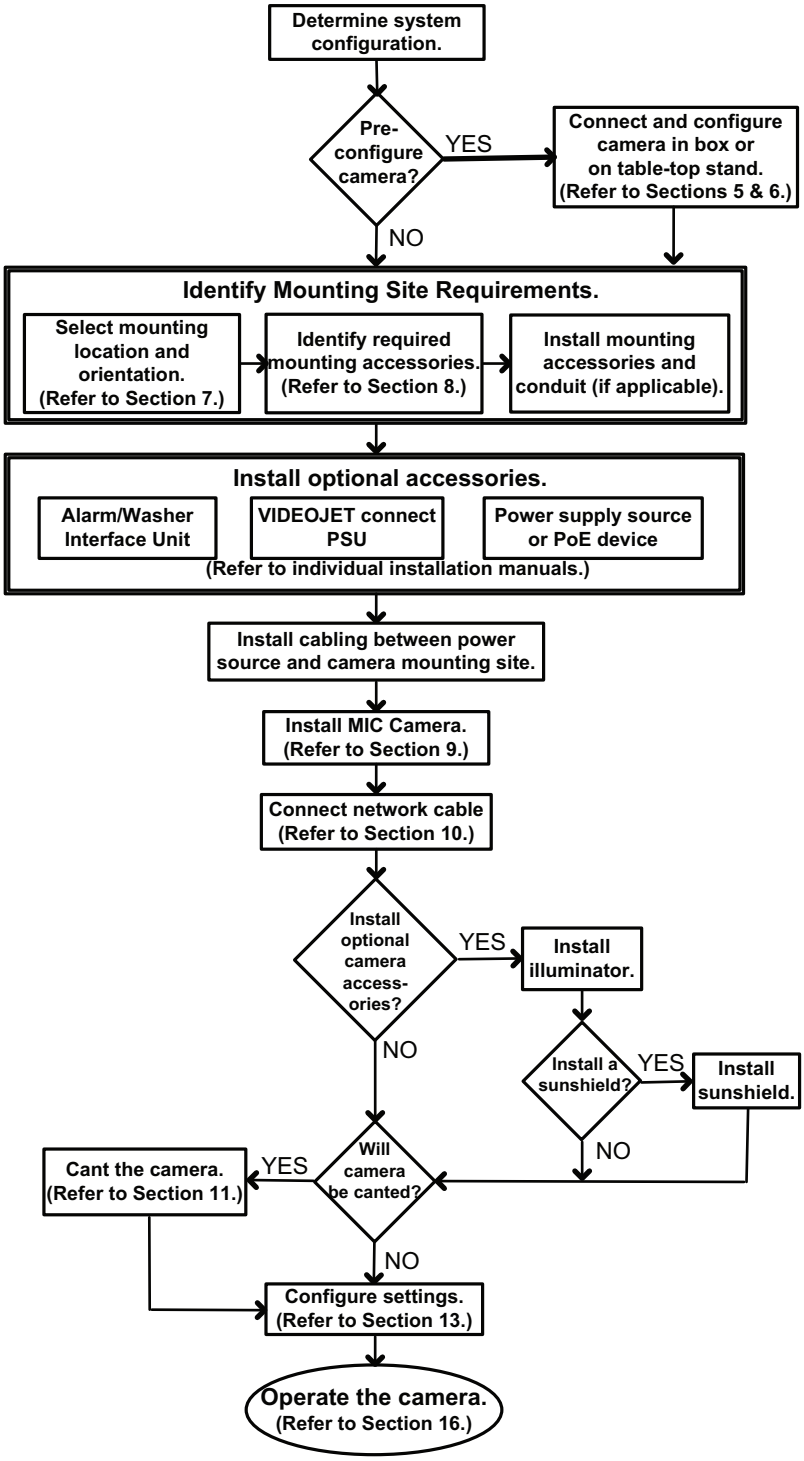
A long-life silicone wiper blade mounted on a spring-loaded arm is standard on all MIC cameras.

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

The following figure identifies the steps to install a MIC7000 camera.
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.

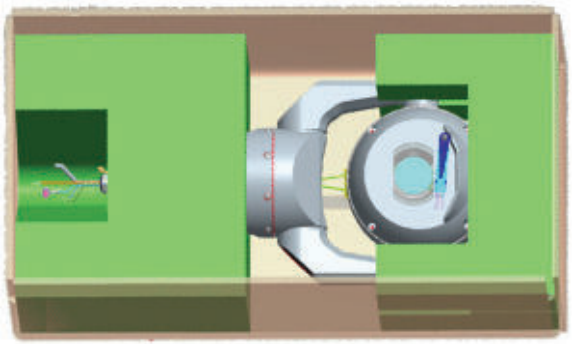


5 Configuration Programming in the Shipping Box

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 20*. Note that the wiper moves one time across the camera window, and then returns to parked position.
3. Configure the camera. Refer to Configuration 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 9*.

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 20*. Note that the wiper moves one time across the camera window, and then returns to parked position.
5. Configure the camera. Refer to Configuration for details.

Notice!

If you change the camera orientation to “Inverted” (from the 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)

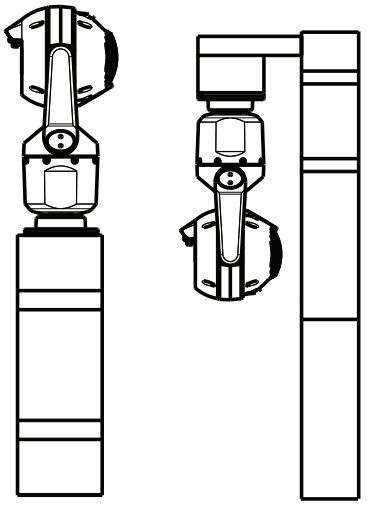
Caution!
Risk of lightning strikes
If the camera is installed in a highly exposed location where lightning strikes may occur, then Bosch recommends installing a separate lightning conductor within 0.5 m (1.6 ft) of the camera and at least 1.5 m (4.9 ft) higher than the camera. A good earth bonding connection 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.

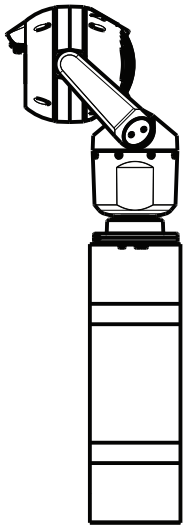
Avoid installation practices that may bring the camera's metal mountings in contact with materials such as stainless steel. Such contacts can result in galvanic corrosion and degrade the cosmetic appearance of the camera. These cosmetic damages caused by improper installation are not covered by warranty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

7.2 Select the Mounting Orientation

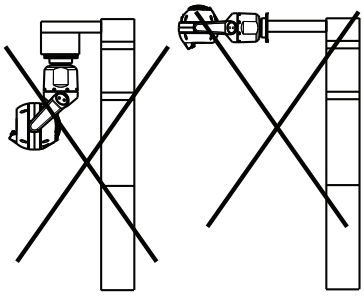
MIC Series cameras are designed to be mounted upright (straight up, 90°), inverted (straight down, 90°), or canted upright (ball up, 45°). The tilt limits for the canted unit prevent it from working properly if mounted ball down. See the figures below for illustrations of the correct and the incorrect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



Correct mounting orientation - upright, inverted



Correct mounting orientation - canted



Incorrect mounting orientation

Note the position of the visor when the camera is installed in inverted orientation. The visor 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.

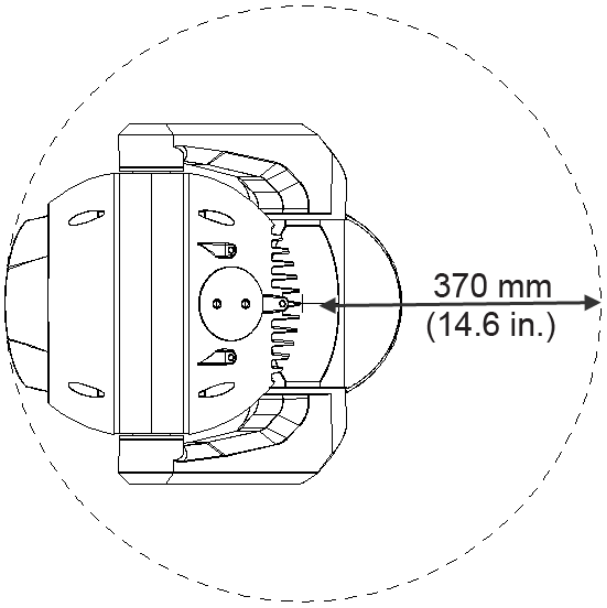


Figure 7.1: Top view of canted MIC7000 illustrating distance of pan clearance

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

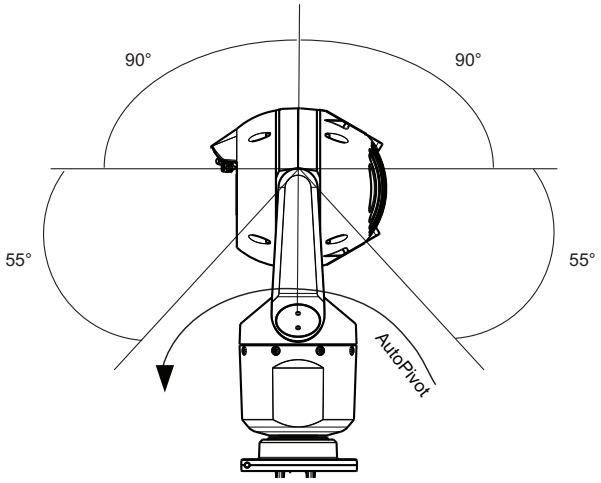


Figure 7.2: MIC7000 Tilt Range: 145° each direction; 290° if AutoPivot enabled

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.

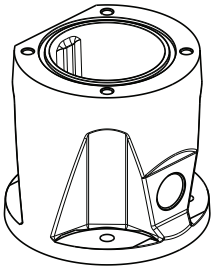
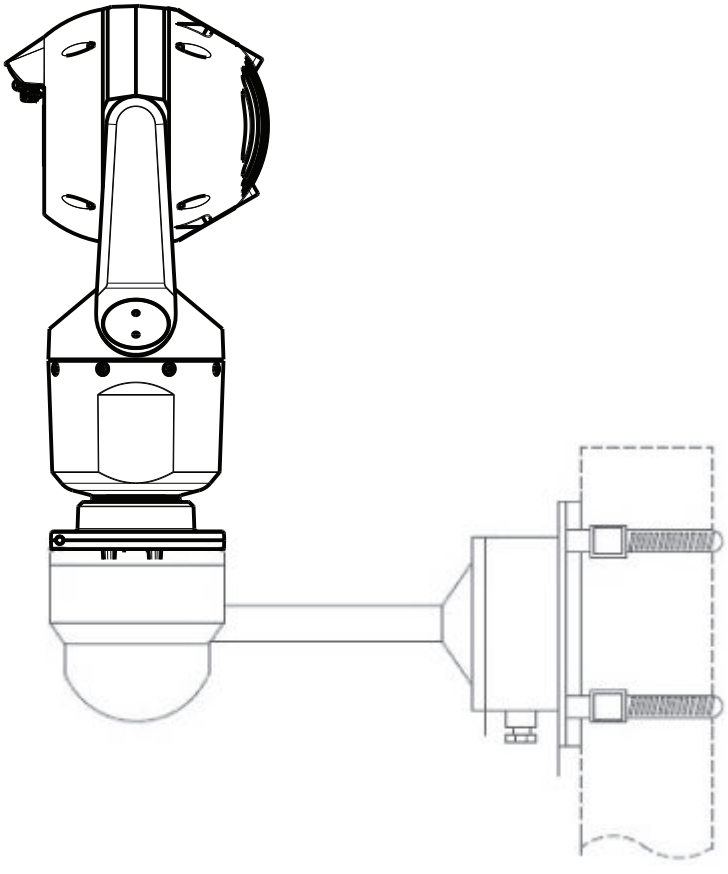


Figure 8.1: Typical hinged DCA mount configuration

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.

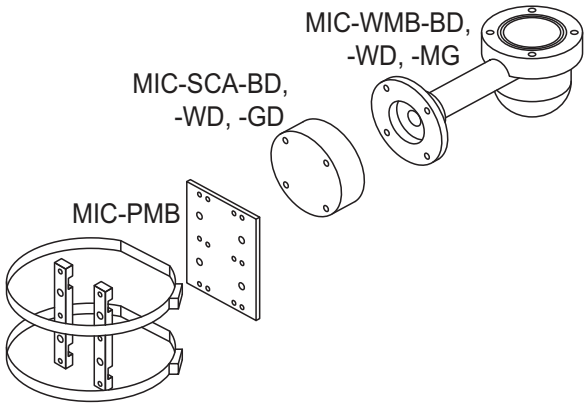


Figure 8.2: Typical Pole mount configuration

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.

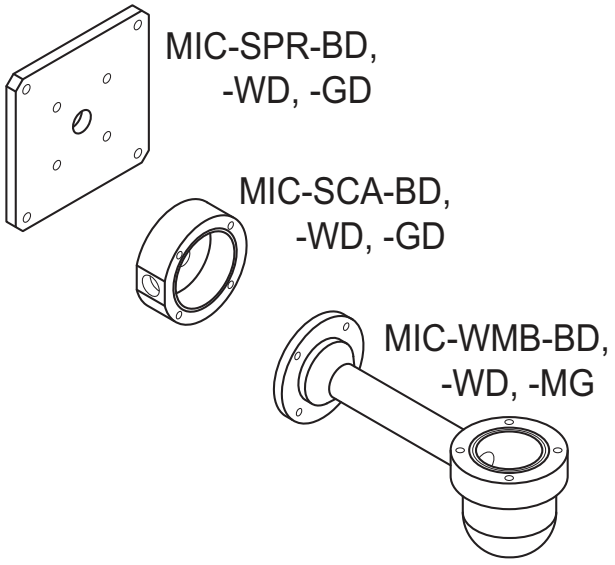


Figure 8.3: Typical Wall mount configuration

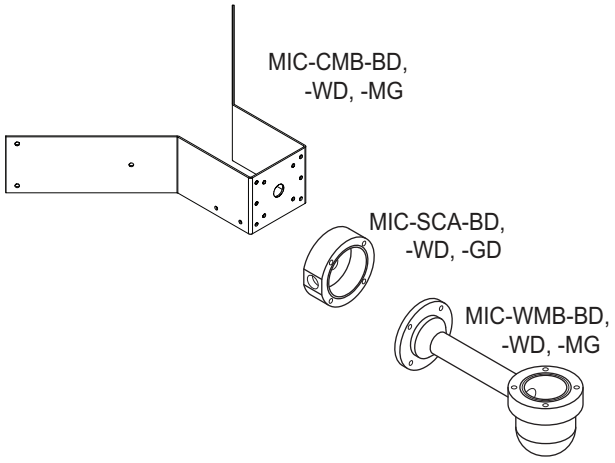


Figure 8.4: Typical Corner mount configuration

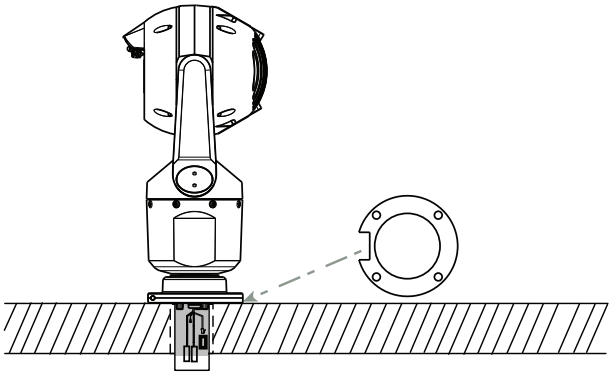


Figure 8.5: Direct surface mount – camera upright (MIC + base gasket)

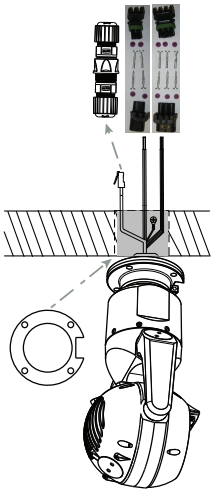


Figure 8.6: Direct surface mount – camera inverted (MIC + base gasket + IP67 Weatherization/Connector Kit)

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.

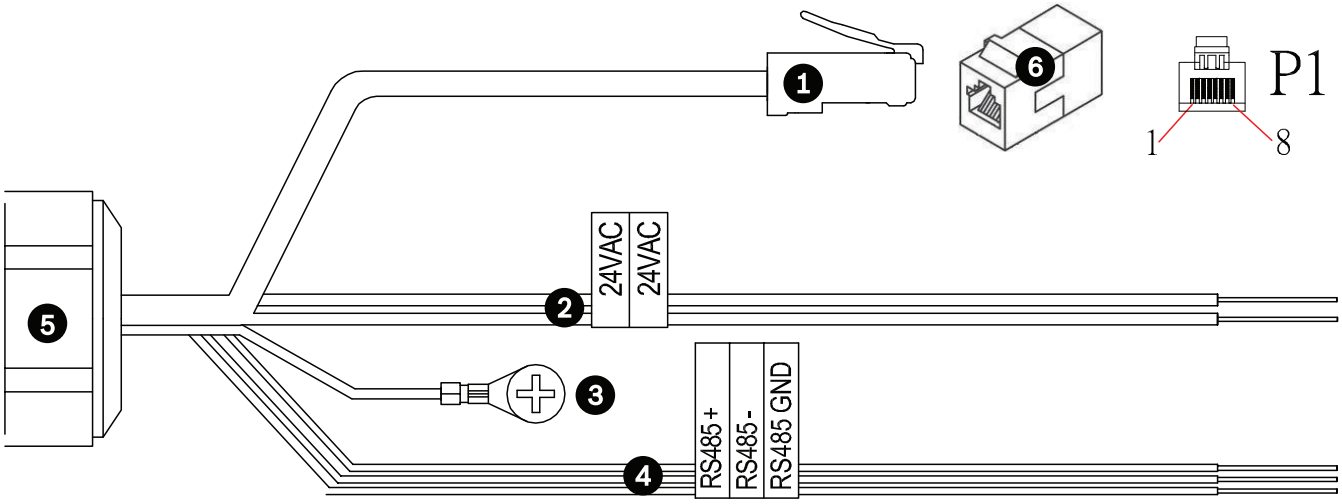


Figure 10.1: MIC7000 connectors

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

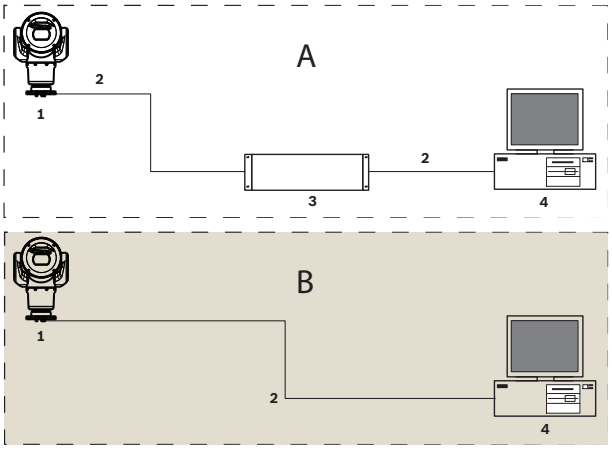


Figure 10.2: MIC7000 IP System Configuration

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 45º 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.

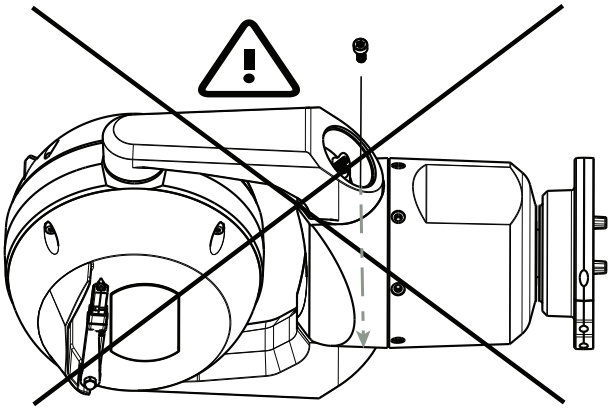


Figure 11.1: Do NOT allow screws or other objects to fall inside camera!

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.

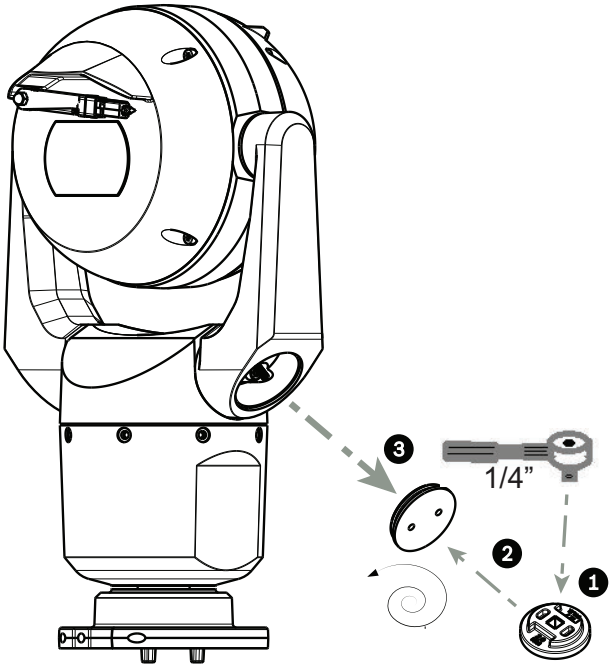


Figure 11.2: Remove yoke caps with spanner tool

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 25*.

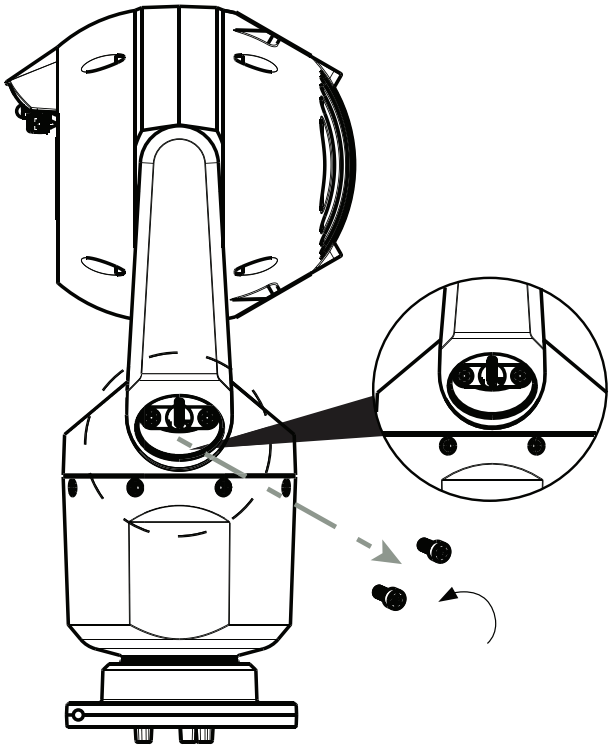


Figure 11.3: Remove screws from yoke arms

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.

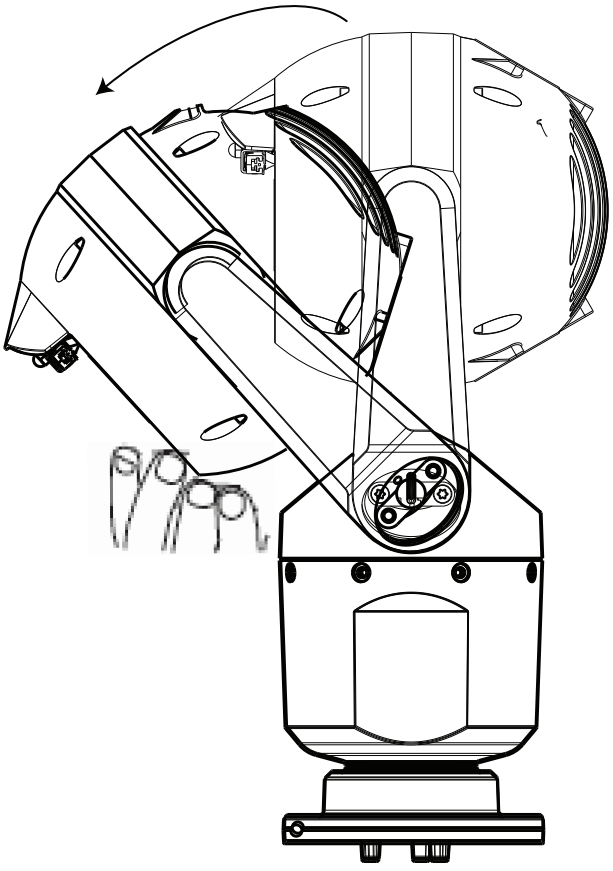


Figure 11.4: Cant the camera head

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.

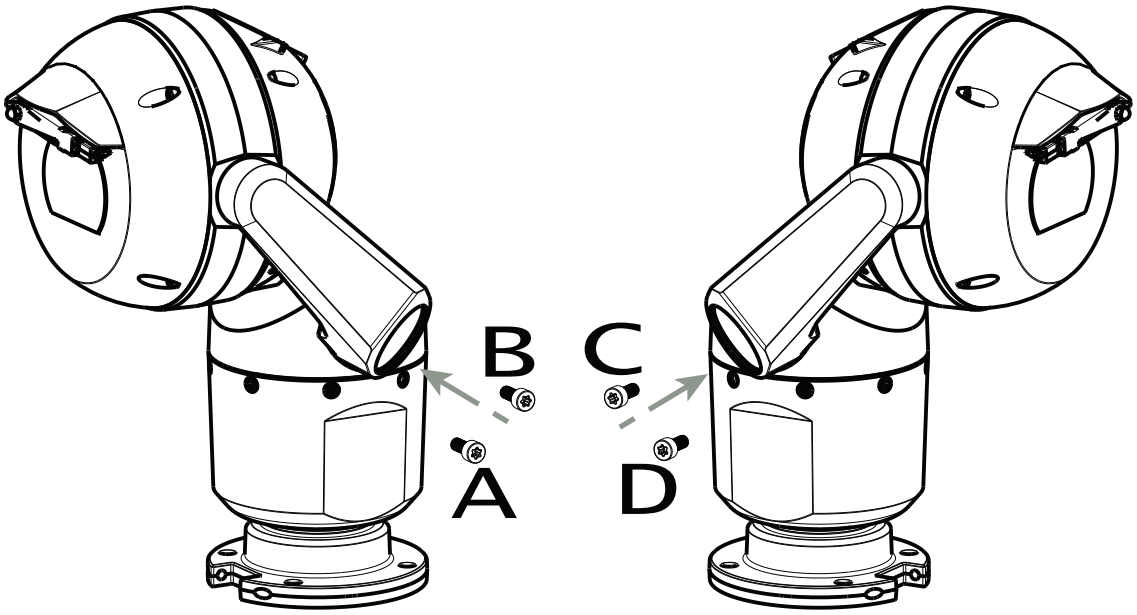


Figure 11.5: Reinsert yoke arm screws (ABCD)

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) T30/T27 Torx	SN ≥ xxxxxxx46029xxxxxx (> Dec. 2014) 5 mm Hex (T30 Torx)
1 A → B → C → D	≈ 7.5 N m (≈ 5.5 ft lb)	≈ 7.5 N m (≈ 5.5 ft lb)
2 A → B, A → B	≈ 15 N m (≈ 11 ft lb)	≈ 17 N m (≈ 12.5 ft lb)
3 C → D, C → D	≈ 15 N m (≈ 11 ft lb)	≈ 17 N m (≈ 12.5 ft lb)
4 A → B → C → D	≈ 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.

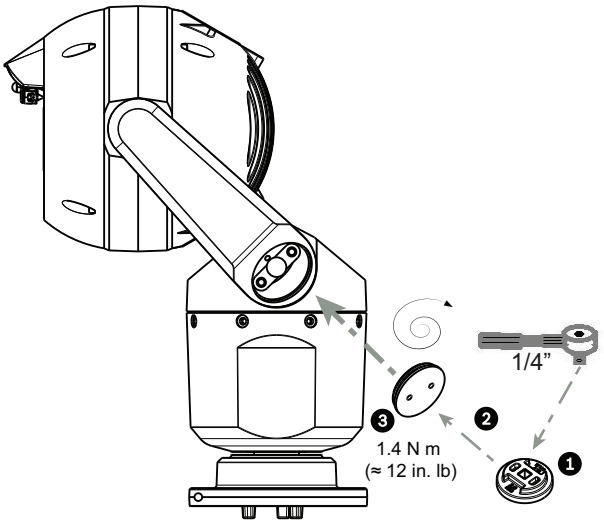
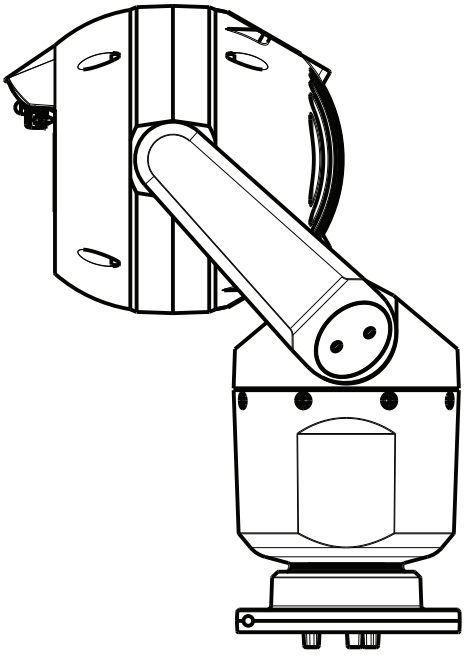


Figure 11.6: Attach yoke caps

10. Canting is complete.



12 Typical System Configurations

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

Figure 12.1: 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

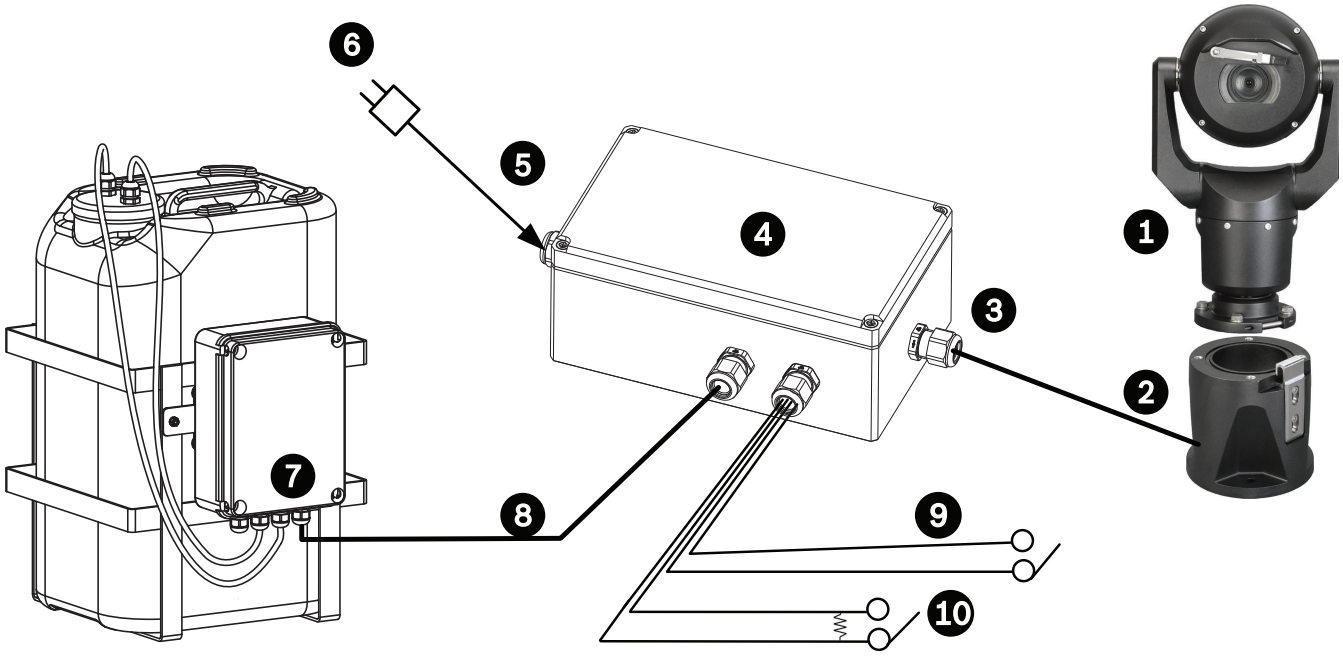


Figure 12.2: Typical configuration with MIC-ALM-WAS-24

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

12.3 Typical IP Configuration with VJC-7000-90

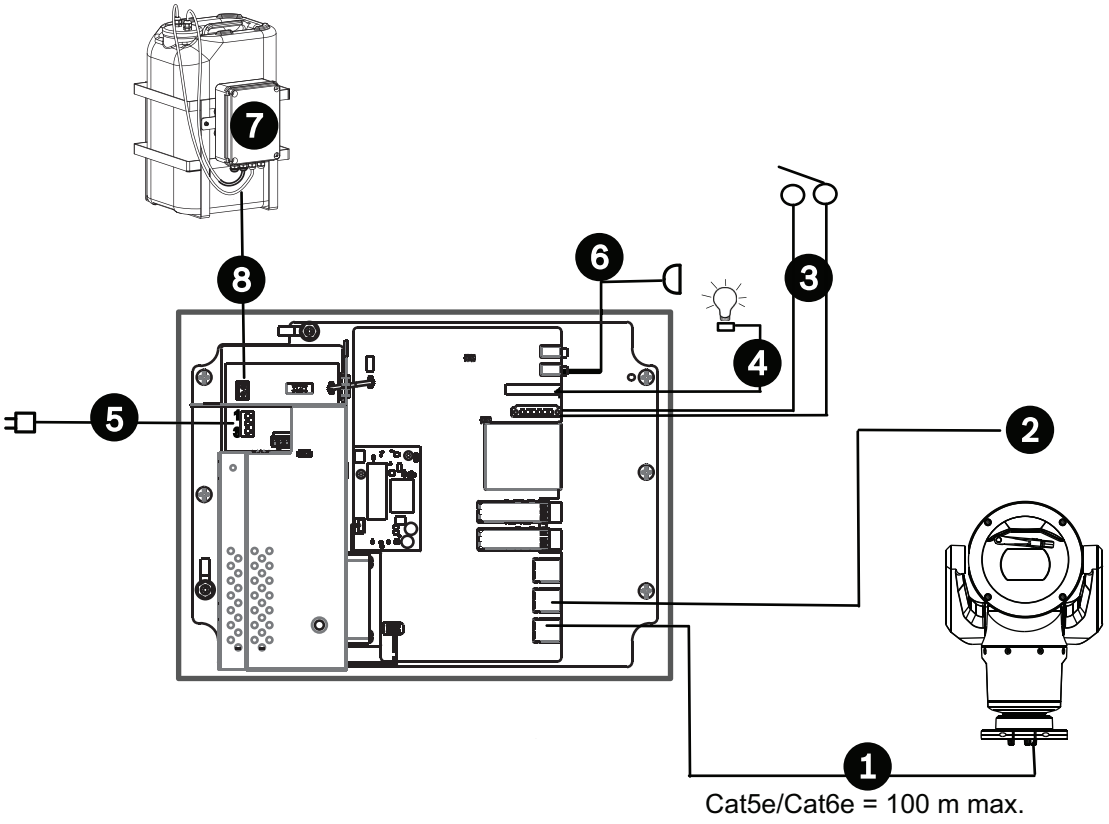


Figure 12.3: Basic configuration with VIDEOJET connect 7000

1	Ethernet (network) cable (Cat5e/Cat6e) (user-supplied) between a Bosch camera and the port labeled *PoE* 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 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.	– 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.	– Check the integrity of all connectors and splices of the Ethernet cable. If O.K., then: – Contact Bosch Technical Support.
Camera moves when attempting to move other cameras.	– Check that the camera’s IP address is properly set. If camera’s IP address is not set, then: – 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.	– 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: – 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)).	- 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.

The image on the screen flickers.	Does the camera face directly into the sun or fluorescent lighting? If so, reposition camera.
The image on the screen is distorted.	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.)
No video.	– 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: – Check that there is 24 V output from the transformer. If O.K., then: – Check the integrity of all wires and mating connectors to the camera.
Picture is dark.	– Check that the Gain Control is set to High. If O.K., then: – Check that the Auto Iris Level is set to the appropriate level. If O.K., then: – Check that the camera lens cover is removed. If O.K., then: – Check that the maximum Ethernet cable distance has not been exceeded. If O.K., then: – Restore all camera settings.
Background is too bright to see subject.	Turn on backlight compensation.

“High Shock Event” appears in English in the middle of the OSD until the camera is reset.	The camera experienced a high shock event. – 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: 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.

14 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.

15 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.

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