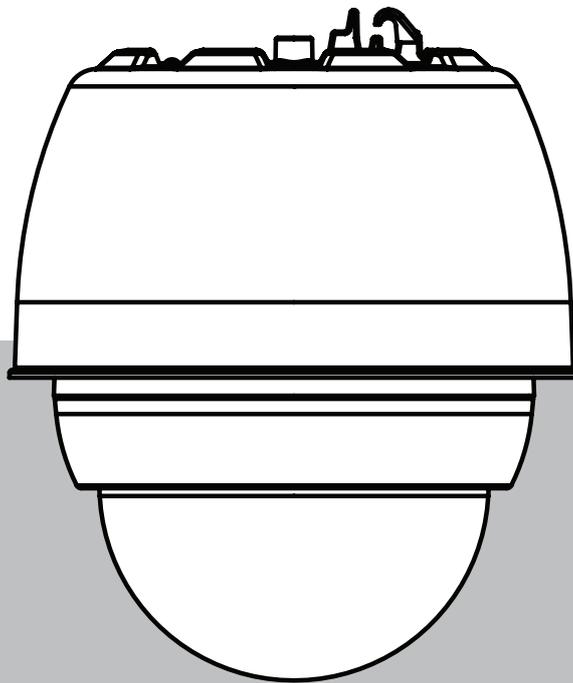


# AUTODOME IP starlight 7000i

NDP-7512-Z30 | NDP-7512-Z30K





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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, 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



### Danger!

Indicates a hazardous situation which, if not avoided, will result in death or serious injury.



### Warning!

Indicates a hazardous situation which, if not avoided, could result in death or serious injury.



### Caution!

Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.



### Notice!

Indicates a situation which, if not avoided, could result in damage to the equipment or environment, or data loss.

## 1.4 Important Notices



**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.

**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 device has been designed to respect the environment as much as possible.

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

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

### **Grounding:**

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

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

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

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

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

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

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

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

This device has no user-serviceable internal parts.

### FCC information



#### 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.

### FCC suppliers Declaration of Conformity

MIC IP ultra 7100i	High-definition 4K PTZ camera
MIC IP starlight 7100i	High-definition PTZ camera

#### Responsible party

Bosch Security Systems, Inc.  
130 Perinton Parkway  
14450 Fairport, NY, USA  
[www.boschsecurity.us](http://www.boschsecurity.us)

#### 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 62368-1. 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.

## 1.5

### Use latest software

Before operating the device for the first time, make sure that you install the latest applicable release of your software version. For consistent functionality, compatibility, performance, and security, regularly update the software throughout the operational life of the device. Follow the instructions in the product documentation regarding software updates.

The following links provide more information:

- General information: <https://www.boschsecurity.com/xc/en/support/product-security/>
- Security advisories, that is a list of identified vulnerabilities and proposed solutions: <https://www.boschsecurity.com/xc/en/support/product-security/security-advisories.html>

Bosch assumes no liability whatsoever for any damage caused by operating its products with outdated software components.



#### Notice!

Bosch strongly recommends upgrading to the latest firmware for the best possible functionality, compatibility, performance and security.

Check <http://downloadstore.boschsecurity.com/> regularly to see if there is a new firmware version available.

## 1.6 Customer Support and Service

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

### **USA and Canada**

Telephone: 800-289-0096, option 5

Fax: 800-366-1329

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

### **Customer Service**

Telephone: 800-289-0096, option 3

Fax: 800-315-0470

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

### **Technical Support**

Telephone: 800-289-0096, option 4

Fax: 800-315-0470

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

### **Europe, Middle East, Africa, and Asia Pacific Regions**

Contact your local distributor or Bosch sales office. Use this link: <https://www.boschsecurity.com/xc/en/where-to-buy/>

### **More Information**

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

## 2 Unpacking

### 2.1 Parts List

Quantity	Component
1	AUTODOME IP starlight 7000i <b>pendant</b> camera
1	Desiccant silica gel bag
1	ESD zip bag
1	Safety and Unpacking Guide
4	<b>MAC address</b> labels

### 2.2 Tools Required

Quantity	Item	For Mount Type	Supplied by Bosch?
1	Allen wrench, 5 mm	Pendant Arm to: <ul style="list-style-type: none"> <li>– Wall Mount</li> <li>– Corner Mount</li> <li>– Mast (pole) Mount</li> <li>– Roof parapet Mount</li> <li>– Pipe Mount</li> </ul>	Yes
1	Screwdriver, straight-blade, 2.5 mm (0.1 in.)	– Pendant Arm to: <ul style="list-style-type: none"> <li>– Wall Mount</li> <li>– Corner Mount</li> <li>– Mast (pole) Mount</li> <li>– Roof parapet Mount</li> <li>– Pipe Mount</li> </ul> – In-ceiling Mount	No
1	Screwdriver, straight-blade, 3.1 mm (1/8 in.)	– Pendant Arm to: <ul style="list-style-type: none"> <li>– Wall Mount</li> <li>– Corner Mount</li> <li>– Mast (pole) Mount</li> <li>– Roof parapet Mount</li> <li>– Pipe Mount</li> </ul> – In-ceiling Mount	No
1	Screwdriver, No. 2 Phillips	– Pendant Arm to: <ul style="list-style-type: none"> <li>– Wall Mount</li> <li>– Corner Mount</li> <li>– Mast (pole) Mount</li> <li>– Roof parapet Mount</li> <li>– Pipe Mount</li> </ul> – In-ceiling Mount	No
1	Socket wrench	Pendant Arm to: <ul style="list-style-type: none"> <li>– Wall Mount</li> <li>– Corner Mount</li> <li>– Mast (pole) Mount</li> </ul>	No

		<ul style="list-style-type: none"> <li>- Roof parapet Mount</li> <li>- Pipe Mount</li> </ul>	
1	Socket, 9/16-in.	Pendant Arm to: <ul style="list-style-type: none"> <li>- Wall Mount</li> <li>- Corner Mount</li> <li>- Mast (pole) Mount</li> <li>- Roof parapet Mount</li> <li>- Pipe Mount</li> </ul>	No
1	Banding tool (Bosch P/N TC9311PM3T)	Mast (pole) mount	Yes, but sold separately from mount
1	Right angle NPS conduit connector, 3/4 in. (20-mm)	Mast (pole) mount with VGA-PEND-WPLATE	No
1	Screwdriver, medium straight blade	<ul style="list-style-type: none"> <li>- Roof parapet Mount</li> <li>- Pipe Mount</li> </ul>	No
1	Screwdriver, No. 1 Phillips	<ul style="list-style-type: none"> <li>- Roof parapet Mount</li> <li>- Pipe Mount</li> </ul>	No
1	Pipe wrench	<ul style="list-style-type: none"> <li>- Roof parapet Mount</li> <li>- Pipe Mount</li> </ul>	No
1	Barrel connector	<ul style="list-style-type: none"> <li>- Roof parapet Mount</li> <li>- Pipe Mount</li> </ul> <b>Only if installing a fiber optic model</b>	No

The table that follows is a list of additional products, sold separately by Bosch or other manufacturers, necessary to install AUTODOME cameras.

Quantity	Product	Size	Part Number
1	SD card	Full SD card	(user-supplied)
---	Watertight, grounded metal conduit	20 mm (0.75 in.)	(user-supplied)
--	UL-listed liquid-tight strain reliefs		(user-supplied)
--	Weatherproof sealant (for example, PTFE thread seal tape)		(user-supplied)
4	Studs, stainless steel, corrosion-resistant	6.4 mm (0.25 in.) to 8 mm (5/16 in.)	(user-supplied)

### 3 Product description

The AUTODOME inteox 7100i camera is based on an open operating system. With technology for excellent low-light sensitivity, Intelligent Video Analytics, and video streaming, the camera supports superior intelligence and imaging at the edge. The design gives undistorted, high-resolution video above the horizon, which is helpful in city landscapes that are not flat.

The AUTODOME IP starlight 7000i camera incorporates the latest in Video Analytics, starlight technology, and video streaming. With starlight imaging technology for excellent low-light sensitivity and the most robust Intelligent Video Analytics on the market, the camera delivers unmatched picture quality. Even under the most challenging light conditions, the 30x PTZ dome camera delivers high-definition (HD) 1080p video. Easy to install, the camera is available in either a field-proven, outdoor pendant housing or an indoor, in-ceiling housing.

The camera has been designed for quick and easy installation, a key feature from Bosch IP video security products.

All housings feature recessed screws and latches for increased tamper resistance.

In an enclosed installation area, still air can cause the operating temperature of the camera to go above the maximum. If you install a camera in an enclosed area, make sure that the operating temperature of the camera does not go above the maximum temperature. The maximum operating temperature is:

- +55 °C (+131 °F) for pendant models

Make sure that air circulates around the camera to supply cooling.

The following table lists the optional parts, sold separately, that you may need to attach a Pendant to the Arm Wall, Corner, or Mast mount packages.

Mounting Options	Part Numbers
Pendant Arm (Only)	VGA-PEND-ARM
Mounting Plate for VGA-PEND-ARM (24 V models only, no power supply box)	VGA-PEND-WPLATE
Pendant Arm with one of the following Power Supply Boxes:	
– Power Box without transformer (24 VAC)	VG4-A-PA0
– Power Box with 120 VAC transformer or with 230 VAC transformer	VG4-A-PA1 VG4-A-PA2
Power Supply Box and cover with 120 VAC transformer or with 230 VAC transformer	VG4-A-PSU1 VG4-A-PSU2
Bosch 60W midspan	NPD-6001B
Corner Mount Kit	
– Corner Mount Plate	VG4-A-9542
Mast (Pole) Mount Kit	
– Mast Mount Plate	VG4-A-9541
– Fiber Optic Ethernet Media Converter Kit	VG4-SFPSCKT

The following table lists the mandatory parts, sold separately, that you will need for attaching a Pendant to the Roof Parapet and Pipe mount packages:

<b>Mounting Options</b>	<b>Part Numbers</b>
Parapet (Roof) Mount with one of the following Power Supply Boxes:	VGA-ROOF-MOUNT
– Power Supply Box and cover with 120 VAC transformer or with 230 VAC transformer	VG4-A-PSU1 VG4-A-PSU2
Pipe Mount with one of the following Power Supply Boxes:	VG4-A-9543
– Power Supply Box and cover with 120 VAC transformer or with 230 VAC transformer	VG4-A-PSU1 VG4-A-PSU2

The following table lists the optional parts, sold separately, that you may need for attaching a Pendant to the Roof Parapet and Pipe mount packages:

<b>Mounting Options</b>	<b>Part Numbers</b>
Optional Flat Roof Mount Adapter for VGA-ROOF-MOUNT	LTC 9230/01

## 4 Pre-installation Checklist

1. Determine the location and distance for the power supply box based on its voltage and current consumption.  
You may choose to route the main power supply through an intermediate power supply box (VG4-PSU1 or VG4-PSU2) before connecting the power to the pendant arm power supply box (VG4-PA0).

**Caution!**

Select a rigid mounting location to prevent excessive vibration to the camera.

2. Use only UL-listed liquid tight strain reliefs for conduits to the Power Supply Box to ensure that water cannot enter the box. You must use water tight conduits and fittings to meet NEMA 4 standards.
3. Purchase the appropriate mounting hardware to use, depending on the location of the camera, either wall mount, corner mount, or mast (pole) mount.  
If your application contains a Power Supply Box, refer to *Mount Power Supply Box (Wall, Mast (Pole), and Corner Mounts)*, page 23.  
If you are using the Mounting Plate with a 24 V AUTODOME camera, refer to *Installing the VGA-PEND-WPLATE*, page 35.

**Warning!**

For units intended to be installed outdoors: All wiring (power and I/O cabling) connecting to the unit must be routed separately inside different permanently earthed metal conduits (not supplied).

**Warning!**

To minimize the potential for corrosion on the housing, use only Bosch hardware and mounts. See number 5 (Installation in a corrosive environment) in the section Recommended Use of Your Camera for more information.

4. Install all external wiring including power, control, video coax, alarms I/O, relay I/O, and fiber optic cabling. Refer to the *Connection*, page 55 chapter for required cable types and allowed lengths.

**Warning!**

Install external interconnecting cables in accordance to NEC, ANSI/NFPA70 (for US application) and Canadian Electrical Code, Part I, CSA C22.1 (for CAN application) and in accordance to local country codes for all other countries.

Branch circuit protection incorporating a 20 A, 2-pole Listed Circuit Breaker or Branch Rated Fuses are required as part of the building installation. A readily accessible 2-pole disconnect device with a contact separation of at least 3 mm must be incorporated.

24 VAC Class 2 power supply only.

5. If you plan to use the Intelligent Tracking feature, refer to *Configuring and Implementing Intelligent Tracking*, page 13 before mounting the camera.

## 4.1 Stabilization

Surveillance cameras are susceptible to vibrations caused by wind or vibrations emanating from the medium to which the camera is attached. Cameras attached to a pole, roof, or to a bridge are especially vulnerable. Bosch offers the following recommendations to stabilize an AUTODOME camera and to decrease the affects of vibration on transmitted images, privacy masks, and Intelligent Tracking.

### Pole and Mast Mounts

- Use a pendant arm with the Pole Mount Adapter (VG4-A-9541).
  - Do not attach a parapet mount to a pole or mast.
- Use a pole designed specifically for CCTV cameras:
  - Do not use a tapered pole.
  - Do not use a pole that has signs or other equipment attached.
- Consult EPA rating / Wind load data to select an appropriate pole.

### Roof Mounts

- Mount the camera in the most stable location on the roof.
- Avoid locations affected by vibrations such as those caused by a rooftop air conditioner.
- Use guy wires to stabilize the AUTODOME against strong winds.
- Use the LTC 9230/01 Flat Roof Mount Adapter where appropriate. This adapter is made specifically for AUTODOME roof applications.

### Extreme Mount Applications

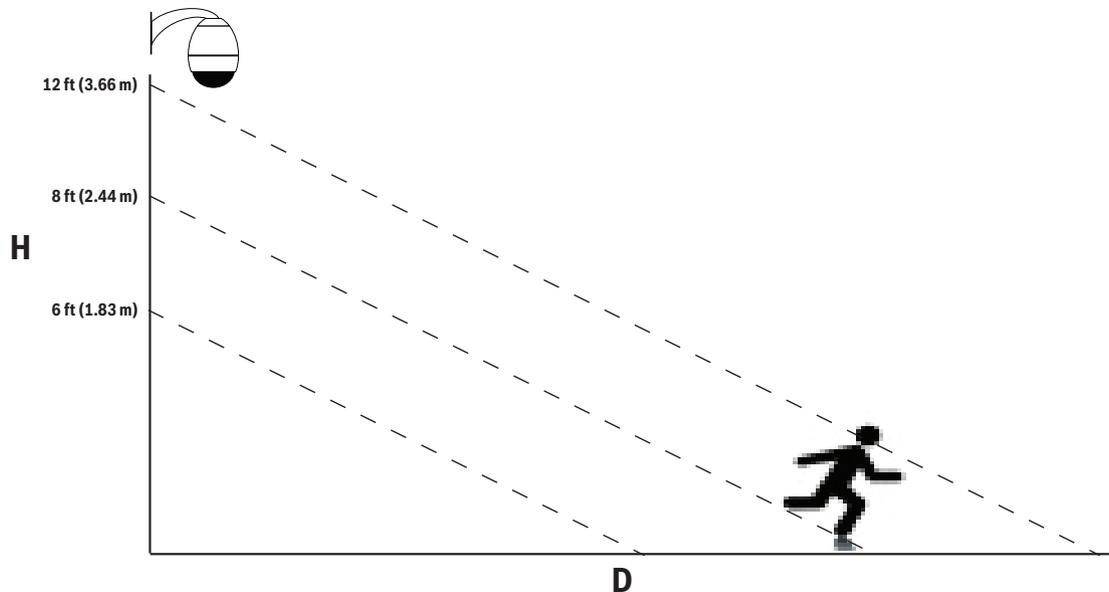
Unique camera mounting applications that are impacted by extreme high winds, heavy traffic, or other conditions may require additional measures to stabilize the camera. Contact a manufacturer that specializes in passive vibration suppression using either damping or isolation.

## 4.2 Configuring and Implementing 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.



### 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.

## 5 Installing the camera outdoors

Cameras installed outdoors are typically exposed to surges, transients, and lightning. The details for wiring and installation are based on common practices for proper surge and lightning suppression.

The figure that follows is an illustration of the best practices for installing IP cameras outdoors with surge and lightning suppression.

Note that the illustration has an AUTODOME camera and a MIC camera and does not include representations of all models of IP cameras, including AUTODOME and MIC.

The illustration can represent any IP camera. Mounting hardware varies between units.

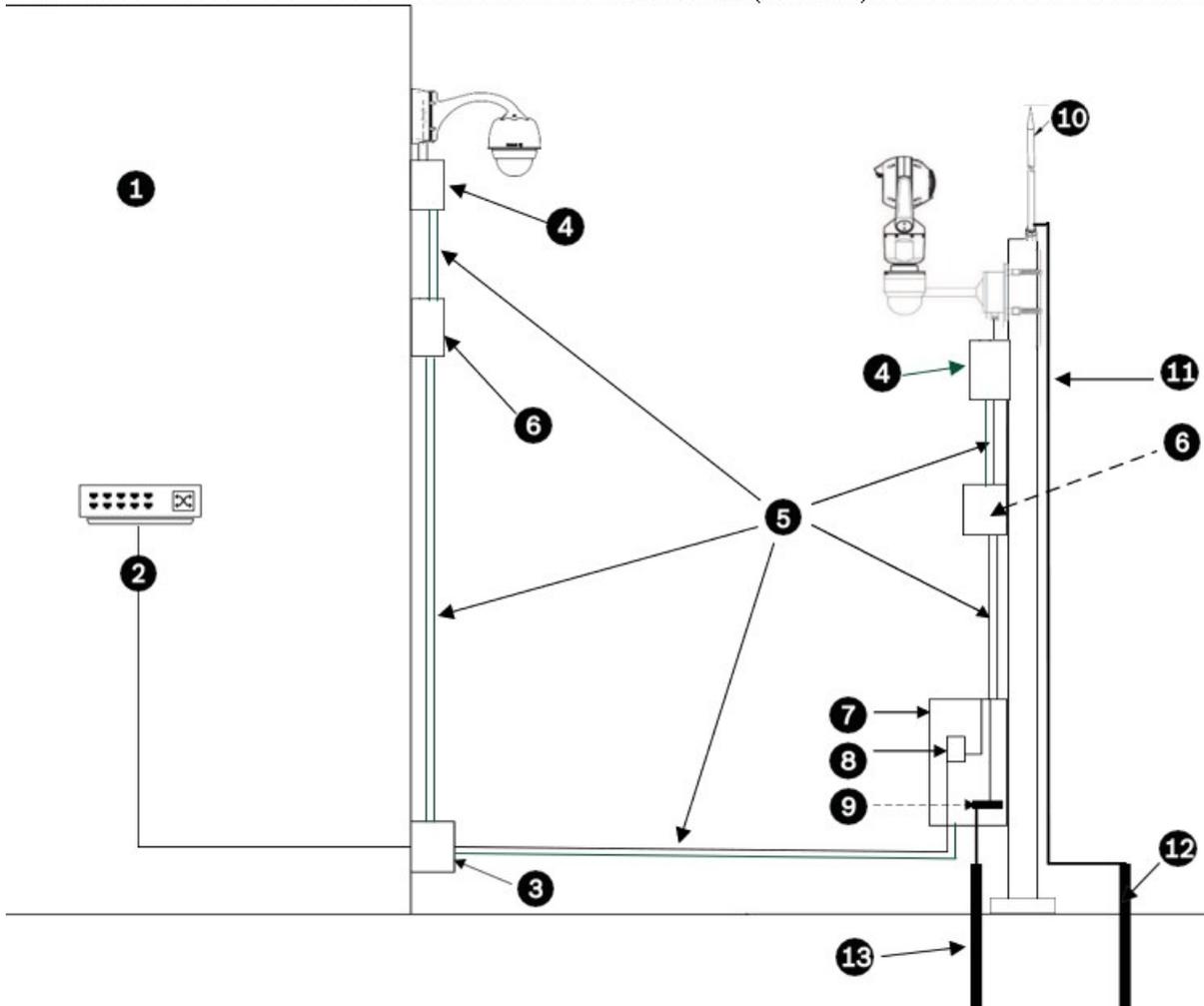


Figure 5.1: Correct outdoor installation with proper surge/lightning suppression

1	Indoor main building	2	Network switch with shielded ports and grounding as recommended by the manufacturer. All network cables must be terminated with shielded RJ45 connectors.
3	Surge suppression for indoor equipment at cable entry	4	Outdoor rated surge suppressor with shielded RJ45 connections that must be mounted as close to the camera as possible. Connect the ground per the manufacturer’s installation manual.
5	Install Cat5e/Cat6 shielded Ethernet cable such as F/UTP shielded cable with twisted pairs (often referred to as FTP) or S/UTP braided shield with twisted pairs (often referred to as STP) with shielded RJ45 connectors. The cable must be routed through a permanently earthed metal conduit that is Earth-grounded across the entire span. The cables must be a maximum length of 100 m (328 ft). Power and signal cables must be in separate conduits with the correct physical separation distance between them. (Refer to the section <b>Additional wiring guidelines</b> .)		
6	Outdoor rated midspan with shielded RJ45 connections	7	Equipment enclosure with AC power source for the midspan
8	Optional outdoor rated network switch or patch panel	9	Connect the Bus Bar to the Equipment Grounding Electrode.
10	Lightning Rod (Refer to the section <b>Lightning rod and electrode</b> .)	11	Down Conductor (Refer to the section <b>Lightning rod and electrode</b> .)
12	Lightning Rod Grounding Electrode (Refer to the section <b>Lightning rod and electrode</b> .)	13	Equipment Grounding Electrode

**Additional wiring guidelines**

Maintain the physical separation distance between the Ethernet cable and high voltage/EMF sources. These are typical recommendations, but also refer to local electrical codes.

Voltage range	Minimum separation distance
For <600 VAC	50 mm (2 in.)
For >600 VAC and <3 kV	1.5 m (5 ft)
For >3 kV	3 m (10 ft)

Also use shielded cables for alarms, audio, or any other connections when applicable.

**Lightning rod and electrode**

- Refer to NFPA 780, Class 1 & 2, UL96A, or follow the equivalent code appropriate for the country/region.
- Follow the manufacturer’s installation instructions.

**Camera Housings and Mounts**

- Use only Bosch mounts listed on the specific camera’s data sheet.
- Follow all grounding for the camera housings and mounts per the installation manual.

**How to ground the parapet mount**

1. Install the parapet mount per Section 2.5 of the installation mount, except for the 3/8 inch bolt at the bottom of the mount.
2. Attach the grounded metal conduit to the parapet and connected to an outdoor rated metal junction box. Install the junction box as close as possible to the opening at the bottom of the parapet mount. Note: If you can connect the suppressor to grounded metal conduit, you can replace the junction box with an outdoor rated surge suppressor.
3. Attach the ground wire (solid conductor, 8 AWG; labeled 3a in the figure that follows) to a grounding clamp conduit fitting that is connected to the metal conduit.
4. Stack the following onto one of the 3/8 inch bolts included with the pendant arm, using the sequence in the figure that follows (4a - 4c):
  - 3/8 inch split washer (labeled 4a in the figure that follows),
  - 3/8 inch ring terminal with the other end of the ground conductor crimped in it (labeled 4b in the figure that follows),
  - 3/8 inch flat washer (labeled 4c in the figure that follows)
5. Attach this stack to the bottom hole of the parapet mount. Do not tighten the bolt completely.
6. Install a surge suppressor if you did not already install one.
7. Put the Cat5e/Cat6 shielded Ethernet cable through a waterproof cable gland of the junction box (or the outdoor rated surge suppressor from step 2) to the sealed, shielded RJ45 connection of the surge suppressor.
8. Connect the ground of the surge suppressor per the manufacturer's installation manual.
9. Put the Ethernet cable from the output side of the surge suppressor through the parapet pipe.
10. Complete the installation of the AUTODOME pipe mount kit per sections 2.6 and 2.7 of the parapet mount installation guide.

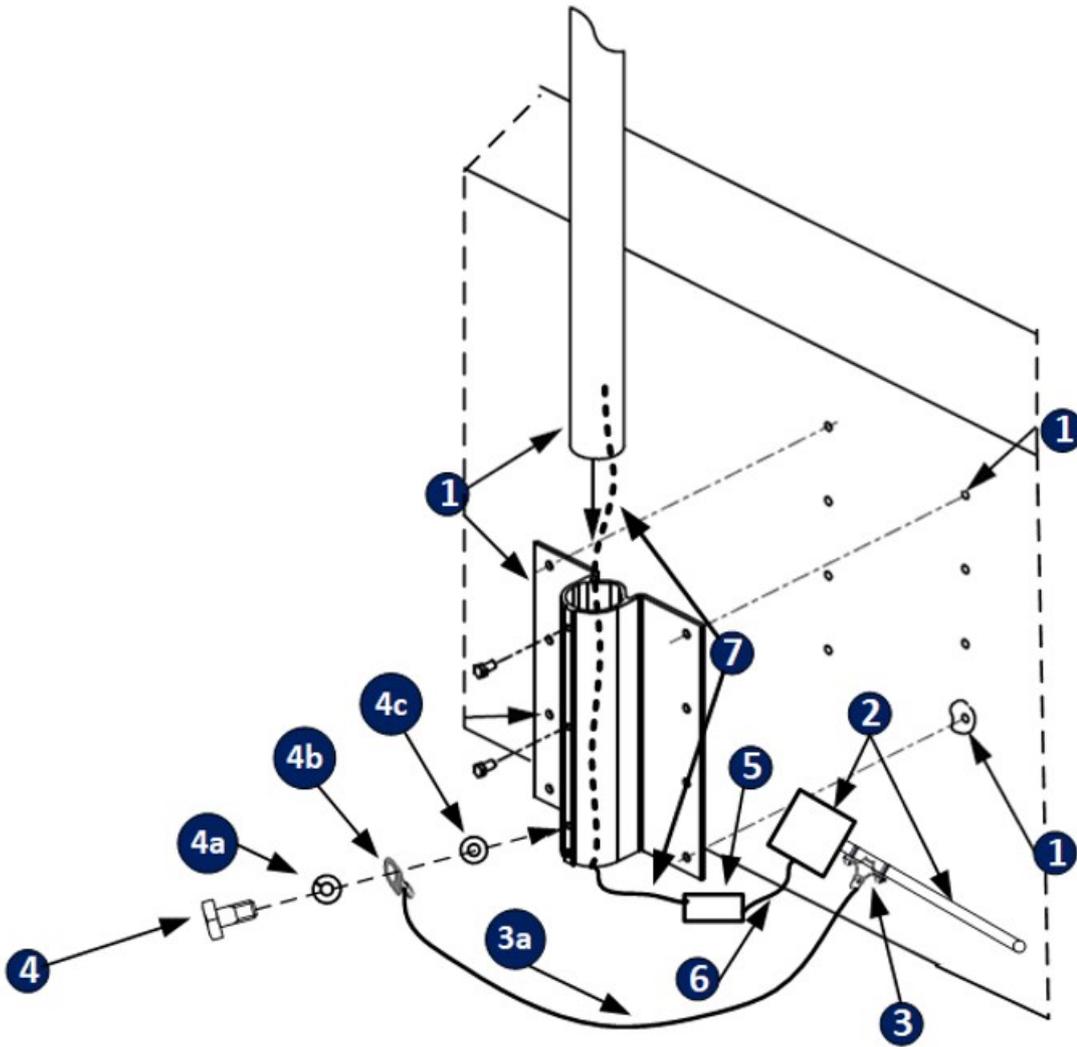


Figure 5.2: Grounding a parapet mount

## 6 Preparing the bubble

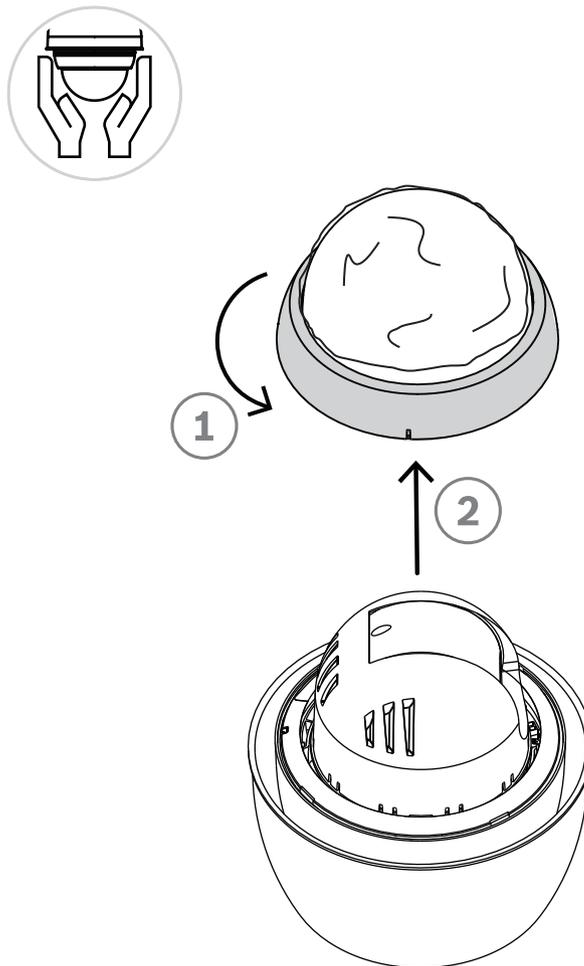


### Notice!

To avoid excessive moisture saturation inside the housing, limit the amount of time that the bubble is disconnected from the housing. Bosch recommends that the bubble be removed from the housing for no more than five (5) minutes.

### Remove the bubble from a pendant housing

1. Using both hands, apply a firm counterclockwise (looking up at the dome) rotational force on the pendant bubble assembly to set the bubble latch.
2. Insert a small (2 mm) straight blade screw driver into the release opening in the bubble trim-ring to release the lock, and then remove the screwdriver.



**Figure 6.1:** Remove the bubble

- ▶ Firmly rotate the bubble counterclockwise approximately 20 degrees until the bubble assembly releases from the pendant housing.

### After you remove the bubble

- ▶ Visually examine the inner and the external surfaces of the bubble for debris, dirt, or residue. If you must clean the bubble, refer to the steps that follow for instructions.

**Bubble Cleaning**

If cleaning the bubble is required, use the following procedures and comply with all the warnings listed below.

**Cleaning the Bubble Interior**

The extremely soft interior surface should not be cleaned by rubbing or dusting with a cloth. Use clean dry compressed air, preferably from a spray can, to remove any dust from the interior surface.

**Warning!**

Do not use alcohol-based solutions to clean the bubble. This will cause the surface to cloud and, over time, cause stress aging, which makes the bubble brittle.

**Cleaning the Bubble Exterior**

The exterior of the bubble is hard-coated for extra protection. If cleaning becomes necessary, only use cleaning solutions and cloths suitable for cleaning safety glass lenses. Dry the bubble thoroughly with a dry nonabrasive cloth to prevent water spots. Never scrub the bubble with any abrasive material or cleaners.

Bosch recommends cleaning the exterior of the bubble with NOVUS “No. 1” Plastic Clean & Shine (or equivalent), according to manufacturer’s instructions. Refer to [www.novuspolish.com](http://www.novuspolish.com) to order or to find a local distributor.

**Cautions**

- Do not clean bubbles in the hot sun or on very hot days.
- Do not use abrasive or highly alkaline cleaners on the bubble.
- Do not scrape the bubble with razor blades or other sharp instruments.
- Do not use Benzene, Gasoline, Acetone, or Carbon Tetrachloride on the bubble.

**Refer to**

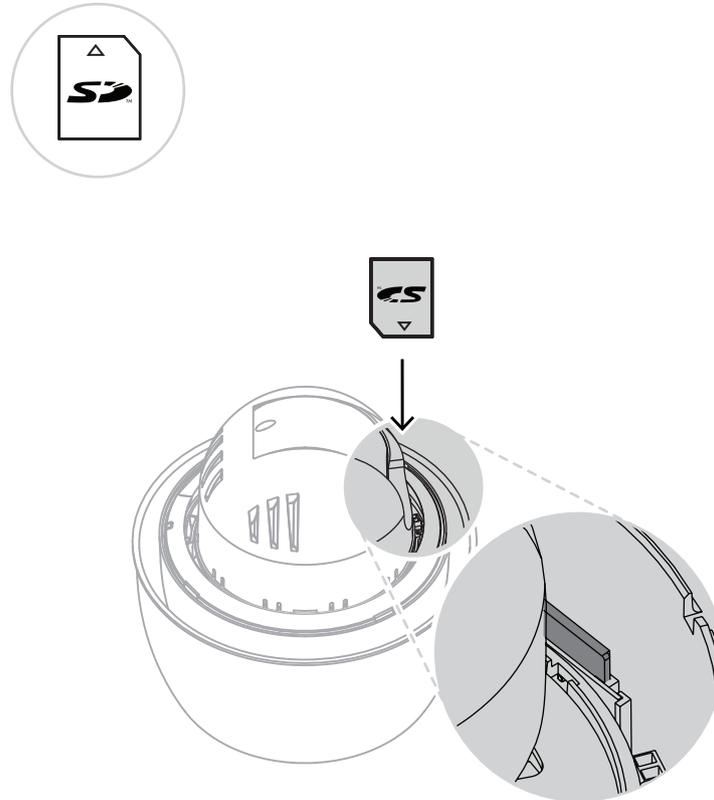
- *Maintenance, page 66*

## 7 (Optional) Installing an SD Card

The camera can accept a customer-supplied **SDHC** or **SDXC** memory card (hereafter referred to as “SD card”) for local storage. (The camera will not accept MicroSD cards.) Using an **SD** card is optional.

**Note:** Disconnect power to the camera while adding or removing an **SD** card.

1. Follow the steps in one of these sections (depending on the type of camera mount):  
Remove bubble from in-ceiling housing or Remove bubble from pendant housing.
2. Locate the SD card slot (highlighted in the figure below).



3. Orient the card so that the side with the golden contacts faces away from the dome and towards the housing. The contacts should be at the bottom as you hold the SD card.
4. Slide the SD card into the slot. Press down the end of the SD cards until you hear a click and the card locks into place.
5. Follow the steps in one of these sections (depending on the type of camera mount):  
Replace the bubble in an in-ceiling housing or Replace the bubble in a pendant housing.

## 8 Replacing the trim ring and bubble

### Replace the bubble in a pendant housing

1. Insert the bubble and trim ring assembly into the pendant housing.
2. Rotate the assembly clockwise until it locks. The latch mechanism makes a click when it locks.

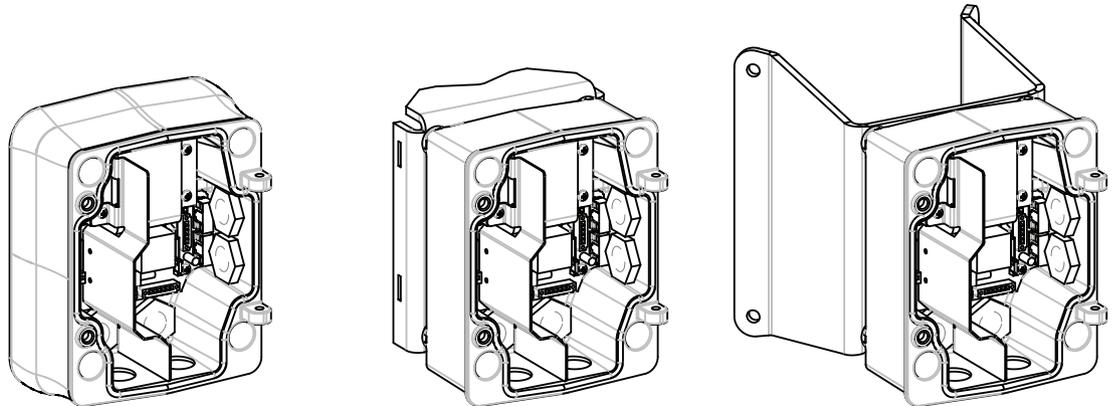
## 9 Mount Power Supply Box (Wall, Mast (Pole), and Corner Mounts)

Before mounting the Power Supply Box, decide if you should wire the box through the holes in the bottom or back of the box. If wiring the box through the back, move the two (2) seal plugs to the bottom through the holes before mounting.



### Notice!

Use 3/4-inch (20-mm) NPS fittings for the holes on the bottom and back of the box. Use 1/2-inch (15-mm) NPS fittings for the side holes.



**Figure 9.1:** Power Supply Wall, Mast (Pole), and Corner Mounts

1. Use the wall mount template supplied in the packaging box to locate the four (4) mounting holes for the Power Supply Box.
2. Drill four (4) holes for the mounting anchors. If installing outdoors, apply a weatherproof sealant around each hole at the mounting surface.



### Warning!

A stud diameter of 6.4 mm (1/4 inch) to 8 mm (5/16 inch) able to withstand a 120 kg (265 lb) pull-out force is recommended. The mounting material must be able to withstand this pull out force. For example, 19-mm (3/4-inch) minimum for plywood.

3. Secure the Power Supply Box to the mounting surface.
  - For a Wall installation: Use four (4) corrosion-resistant, stainless steel studs (not supplied). Then proceed to Step 5 below.
  - For a Corner installation: Secure the Corner Plate to the wall corner using four (4) studs (not included). Then proceed to Step 5 below.
  - For a Mast or a pole installation: The metal straps included with the Mast mount accommodate a pole with a diameter of 100-380 mm (4-15 in.). You must use a banding tool (sold separately) for a mast or pole installation. Follow the instructions provided with the banding tool to securely mount the Mast Plate to the pole. Contact your Bosch Sales Representative to order Banding Tool P/N TC9311PM3T.
4. Secure the Power Supply Box to the Corner Plate or Mast Plate using the four (4) 3/8 x 1-3/4-inch bolts and split lock washers (supplied).
5. Attach 3/4-inch (20-mm) NPS watertight, earth-grounded conduit pipe fittings (not supplied) to the bottom or back holes of the Power Supply Box through which you will run the power, video, and control data wires.



**Warning!**

For units intended to be installed outdoors: All wiring (power and I/O cabling) connecting to the unit must be routed separately inside different permanently earthed metal conduits (not supplied).

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## 10 Installing the Pendant Arm Wall, Corner, and Mast (Pole) Mounts

### 10.1 Description

This chapter details how to install an AUTODOME to a Wall, Corner, or Mast (pole) mount. Any differences to the installation between these two mounting systems are noted.

### 10.2 Route Wires and Attach Connectors

**Notice!**

If you plan to route the power through an intermediate power supply box, refer to *Route Power through Intermediate Power Supply Box*, page 29.

Power wires must be routed to the left (front) side of the Power Supply Box through a separate electrically earth-grounded conduit. All video, control, and alarm wires must be routed through a second electrically earth-grounded conduit to the right side of the box.

**Warning!**

External interconnecting cables are to be installed in accordance to NEC, ANSI/NFPA70 (for US application) and Canadian Electrical Code, Part I, CSA C22.1 (for CAN application) and in accordance to local country codes for all other countries.

Branch circuit protection incorporating a 20 A, 2-pole Listed Circuit Breaker or Branch Rated Fuses are required as part of the building installation. A readily accessible 2-pole disconnect device with a contact separation of at least 3 mm (0.12 in.) must be incorporated.

#### Making the Connections

**Notice!**

Refer to the *Connection*, page 55 chapter for wire specifications and distances.

1. Route all video, control, and alarm wires through the earth-grounded conduit fitting on the right side of the power box.
2. Route the high voltage 115/230 VAC lines through the earth-grounded conduit fitting on the left side of the box. The Power Supply Box with a transformer comes with a barrier that separates the high voltage side on the left, from the low voltage 24 VAC side on the right.
3. Cut and trim all wires with sufficient slack to reach their connector terminals in the box, but not so long as to be pinched by or to obstruct closing the Pendant Arm. Refer to the image above for the connector locations.
4. Attach the supplied 3-pin Power Plug to the incoming power wires. Refer to connector P101 for wire connections.
5. If audio input and/or audio output is required, attach the supplied 6-pin SERIAL COMMUNICATIONS to P106 in the Power Supply Box. Refer to connector P106 in the Power Supply Box Connections section below.
6. Attach an RJ45 plug to the incoming Ethernet cable.

**Connecting Alarm Inputs and Outputs**

- ▶ To connect alarm inputs and outputs, attach the supplied 6-pin Alarms In and the 4-pin Alarms Out connector plugs with flying lead wires to the appropriate incoming alarm wires. Alarm Out 4 is a relay.

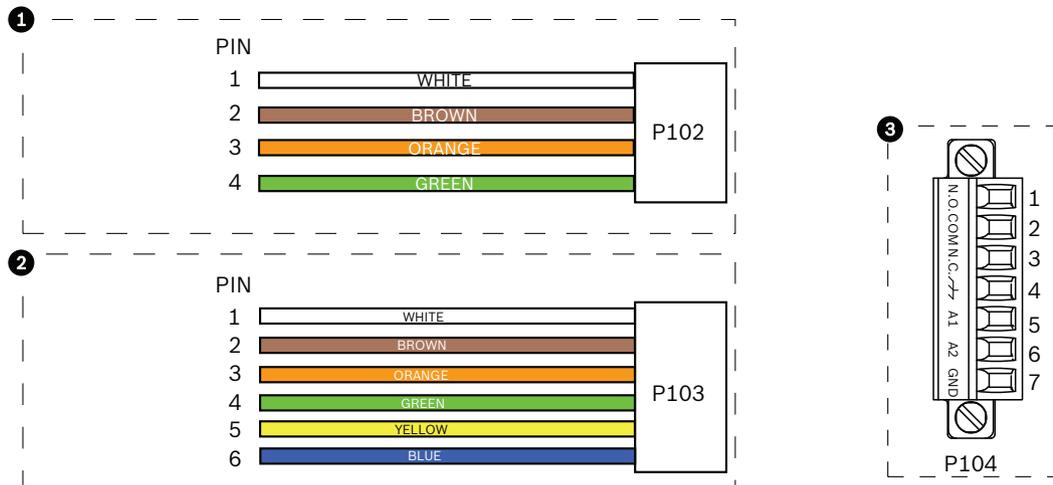


Figure 10.1: Alarm and relay connectors

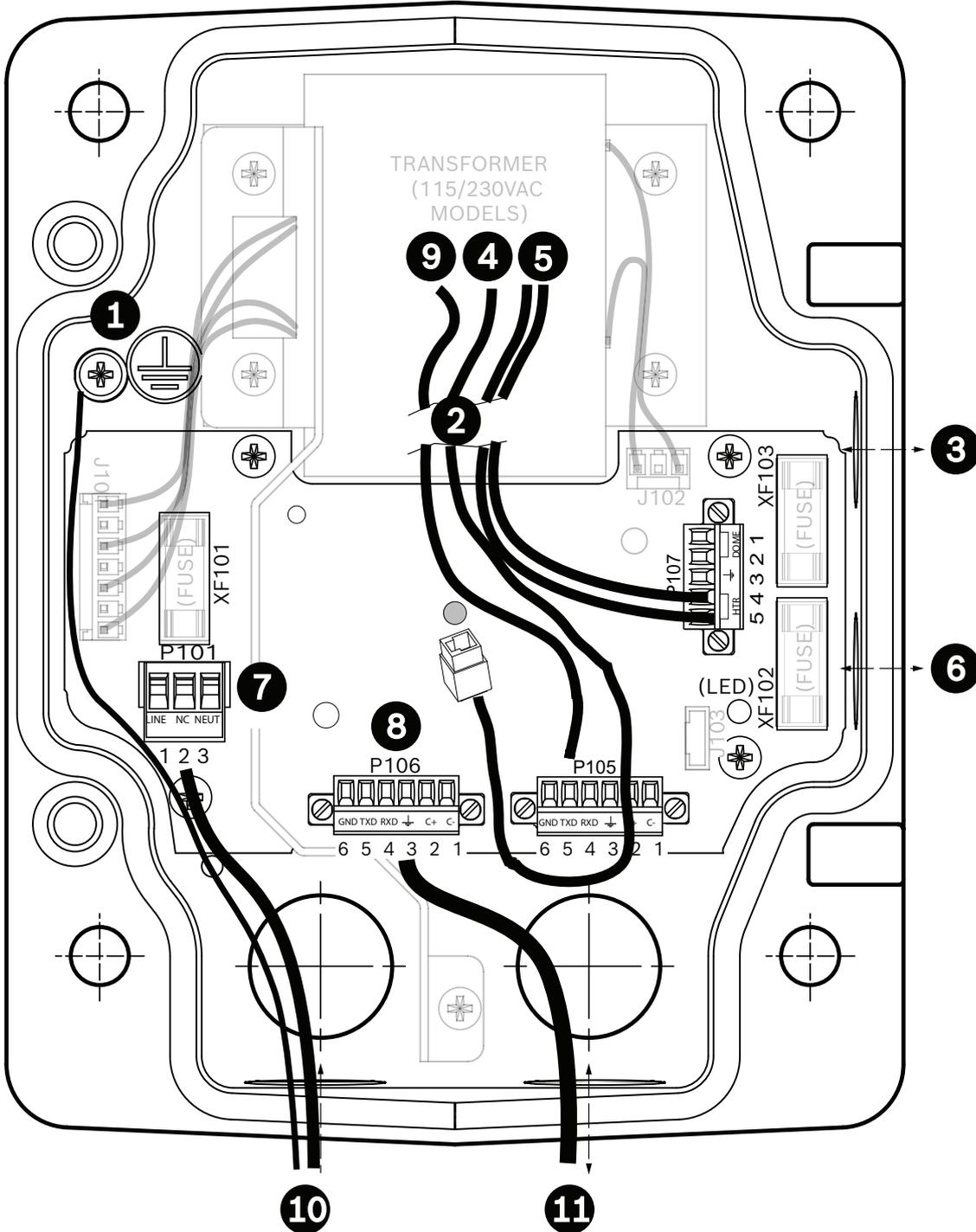
1	4-pin Alarm Connector (P102)	2	6-pin Alarm In Connector (P103)	3	7-pin Relay Connector (P104)
Pin	Description	Pin	Description	Pin	Description
1	Alarm Out 1	1	Alarm in 3	1	Alarm Out 4 Normally Open
2	Alarm Out 2	2	Alarm in 4	2	Alarm Out 4 COM
3	Alarm Out 3	3	Alarm in 5	3	Alarm Out 4 Normally Closed
4	Alarm Ground	4	Alarm in 6	4	Earth Ground
		5	Alarm in 7	5	Analog Alarm 1
		6	Alarm Ground	6	Analog Alarm 2
				7	Ground

For in-ceiling mount only: Low Voltage TTL (3.3V) can also be used.

- ▶ If you are connecting supervised alarms and relays, attach the supplied 7-pin Relay Connector to the appropriate incoming wires. Refer to *Make Connections in the Power Supply Box, page 34* for additional information.

**Power Supply Box Connections**

The following figure is a detailed illustration of the Pendant Arm Power Supply Box, which includes the fuse specifications.



**Figure 10.2:** Pendant arm power supply box

1	Ground Screw	7	P101 Connector; Power In (120 VAC / 220 VAC)
2	From Harness (Nexus cable bundle)	8	P106 Connector; Control In/Out for external audio input and output

3	In/Out; 1/2 in. (15 mm) NPS Fitting	9	P105 Connector; Audio to camera
4	Ethernet connector	10	Power In; 3/4 in. (20 mm) NPS Fitting
5	P107 Connector; 24 VAC to camera	11	Audio Input/Output; 3/4 in. (20 mm) NPS Fitting (labeled “SERIAL COMMUNICATIONS”)
6	In/Out; 1/2 in. (15 mm) NPS Fitting		

**Warning!**



In earlier Bosch AUTODOME cameras, cable 8 in the ARM mount is labeled “Control In/Out” and was used for external RxD/TxD and Biphase communications. In the AUTODOME 7000 Series cameras: If you are mounting an AUTODOME 7000 Series camera to an ARM mount that was wired for an earlier model of Bosch AUTODOME, you must either re-wire cable 8 to be audio input and output, or disconnected it from the power supply.

Cables/wires that are routed through number 2 in the illustration above come from the Nexus cable bundle that is in the pendant Arm.

Fuse Specifications			
Volts	XF101 Mains	XF102 Camera	XF103 Heater
24 V	T 5.0 A	T 2.0 A	T 3.15 A
115 V	T 1.6 A	T 2.0 A	T 3.15 A
230 V	T 0.8A	T 2.0 A	T 3.15 A

**Warning!**



Fuse replacement by qualified service personnel only. Replace with same type fuse.

Fuse Specifications			
Volts	XF101 Mains	XF102 Camera	XF103 Heater
24 V	T 5.0 A	T 2.0 A	T 3.15 A
115 V	T 1.6 A	T 2.0 A	T 3.15 A
230 V	T 0.8A	T 2.0 A	T 3.15 A

The following table lists the Power Supply Box connectors:

No.	Connector	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6
	Ground	Grounding Screw					
P101	115/230 VAC or 24 VAC Power In	Line	NC	Neutral			

No.	Connector	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6
P106	SERIAL COMMUNICATIONS	CODE- (Audio IN-, Audio in signal ground)	CODE+ (Audio IN+)	Earth GND (Ground) (Audio)	RXD (Audio OUT+)	TXD (Audio OUT-, Audio out signal ground)	Signal GND (Ground)
P107	24 VAC Power (Arm Harness)	Camera 24 VAC	Camera 24 VAC	Earth Ground	Heater (24 VAC)	Heater (24 VAC)	

**Table 10.1:** Power Supply Box Connections



**Notice!**

Pins for P106 1, 2, 4, and 5 are used for audio input and output for AUTODOME 7000 Series cameras; however, their labels are still those of previous versions of analog AUTODOME cameras.



**Warning!**

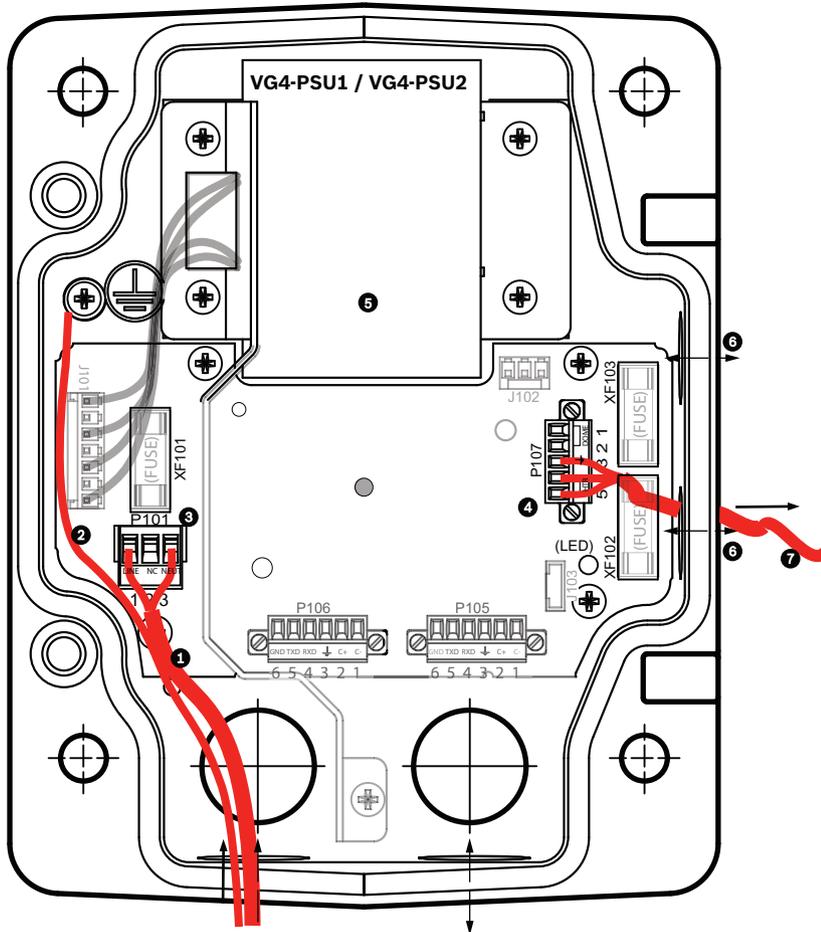
For units intended to be installed outdoors: All wiring (power and I/O cabling) connecting to the unit must be routed separately inside different permanently earthed metal conduits (not supplied).

### 10.3

## Route Power through Intermediate Power Supply Box

You may route the main power supply through a VG4-PSU1 (120 V transformer) or through a VG4-PSU2 (230 V transformer) Power Supply Box before connecting the power to a VG4-PA0 (24 V, no transformer) Power Supply Box. The main issue with this configuration is that the 5-pin power out connector from the VG4-PSU1 or VG4-PSU2 does not match to the 3-pin power input of the VG4-PA0 power supply. The illustration below depicts:

- A VG4-PSU1/VG4-PSU2 Power Supply Box.
- The main power supply connected to the P101 connector and to the grounding screw.
- The 24 VAC power out wire connected to the P107 heater power connectors.



**Figure 10.3:** VG4-PSU1/VG4-PSU2

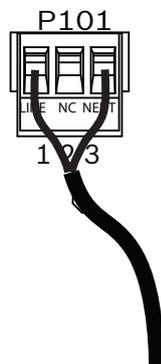
1	120/230 VAC Power In	5	Transformer
2	Ground Wire	6	In/Out Conduit (1/2 in. [15 mm] NPS Fitting)
3	P101 Connector	7	24 VAC Power Out to VG4-PA0
4	P107 Connector		

To properly wire the incoming high voltage and the outgoing low voltage lines, refer to this table:

No.	Connector	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6
	Ground	Grounding Screw					
P101	120/230 VAC Power In	Line	NC	Neutral			
P107	24 VAC Power Out			Earth Ground	Heater (24 VAC)	Heater (24 VAC)	

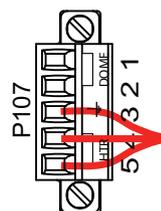
**Table 10.2:** VG4-PSU1/VG4-PSU2 Power Supply Box Connections

1. Route the high voltage 120/230 VAC lines through the earth-grounded conduit fitting on the left side of the box. The Power Supply Box with a transformer comes with a barrier that separates the high voltage side on the left, from the low voltage 24 VAC side on the right.
2. Cut and trim the high voltage 120/230 VAC power and ground wires with sufficient slack to reach their connector terminal in the box, but not so long as to be pinched by or to obstruct closing the cover door.
3. Attach the supplied 3-pin power plug to the incoming high voltage power wires in the box. Refer to connector P101 in the table above and to the image below for an illustration of these connections:



**Figure 10.4:** Incoming 115/230 VAC power supply

4. Attach the ground wire to the grounding screw.
5. Connect three wires to the P107 Power Out connector to route the 24 VAC power supply to the VG4-PA0 Power Supply Box.  
 Connect the first wire to pin 5 (HN: Heater Neutral) connector.  
 Connect the second wire to pin 4 (HL: Heater Line) connector.  
 Connect the third wire to pin 3 (Earth Ground) connector.  
 Refer to connector P107 in the table above and to the image below for an illustration of these connections:



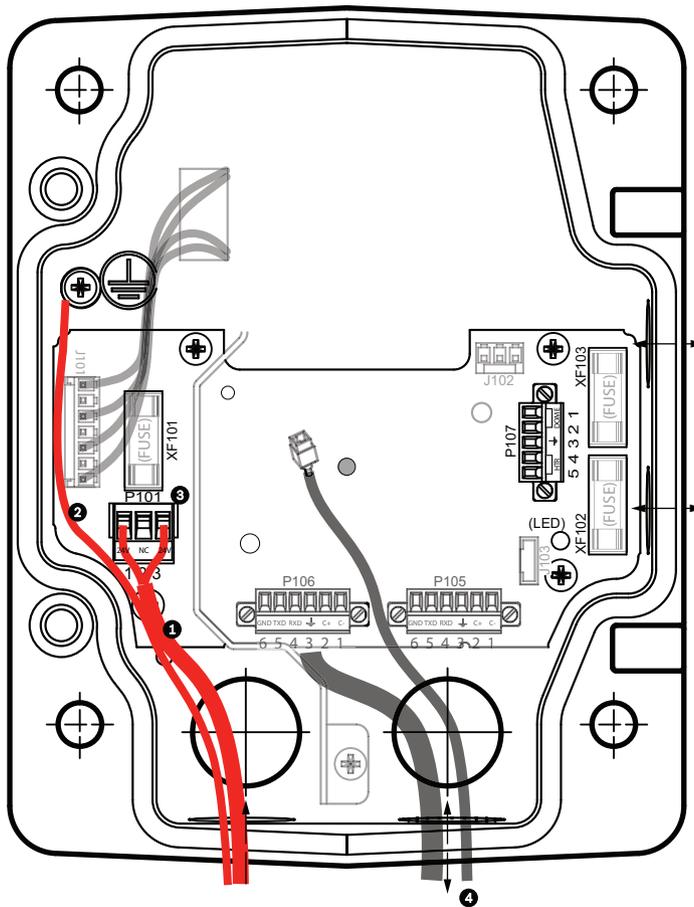
**Figure 10.5:** Outgoing 24 VAC power supply



### Warning!

Ensure that you connect the outgoing power supply wires to the P107 heater connectors (HN and HL). The heater power (XF103) fuse can handle a higher amperage (3.15 A) than the camera power (XF102) fuse (2.0 A).

6. Route the 24 VAC outgoing power supply wires into the VG4-PA0 power supply box through the conduit fitting on the left side of the box.
7. Cut and trim the 24 VAC power and ground wires with sufficient slack to reach their connector terminal in the box, but not so long as to be pinched by or to obstruct closing the cover door.
8. Attach the supplied 3-pin power plug to the incoming 24 VAC power wires in the box, as illustrated below.



**Figure 10.6:** VG4-PA0 Power Supply Box

1	Incoming 24 VAC Power Supply Wires (from VG4-PSU1/VG4-PSU2 power supply box)
2	Ground Wire
3	P101 Connector
4	Control Data and Video In/Out Wires (analog models only)

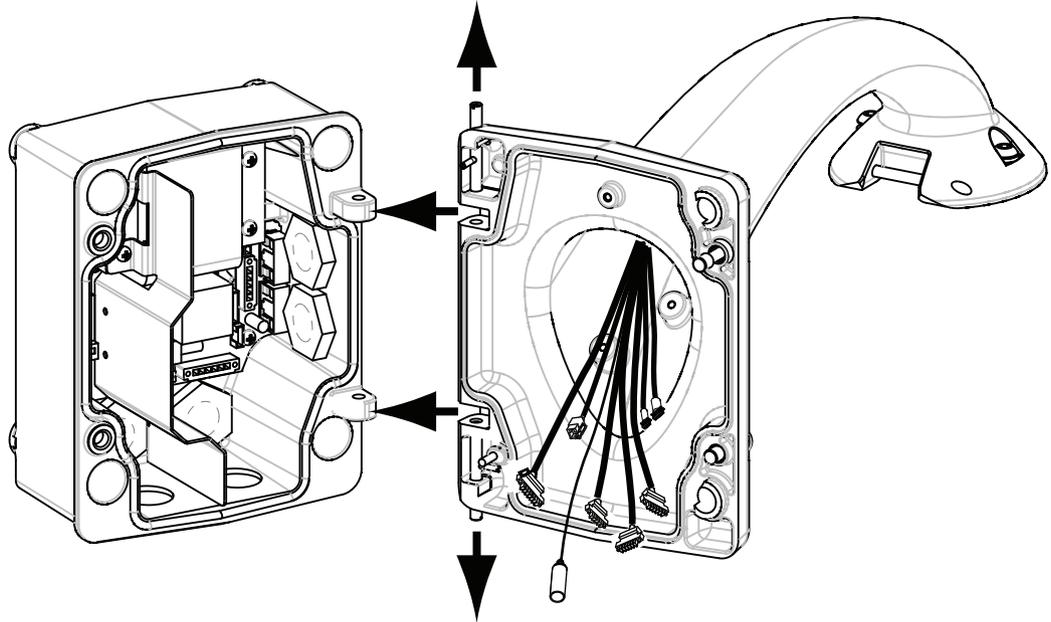
9. Follow the instructions in *Attach Pendant Arm to Power Supply Box*, page 33 to continue the installation.

## 10.4

### Attach Pendant Arm to Power Supply Box

The bottom hinge pin of the Pendant Arm is provided with a Hinge Pin Stop to hold the hinge open while attaching the arm to the Power Supply Box.

1. Compress the bottom hinge pin by pushing the pin lever downward and rotating it behind the Hinge Pin Stop.



**Figure 10.7:** Pendant Arm to Power Box Hinge Alignment

2. Open the top hinge by pushing its pin lever up and holding it.



#### Notice!

Both Hinge Pins must be fully compressed to open (unlock) the hinges of the Pendant Arm and before proceeding to the next step.

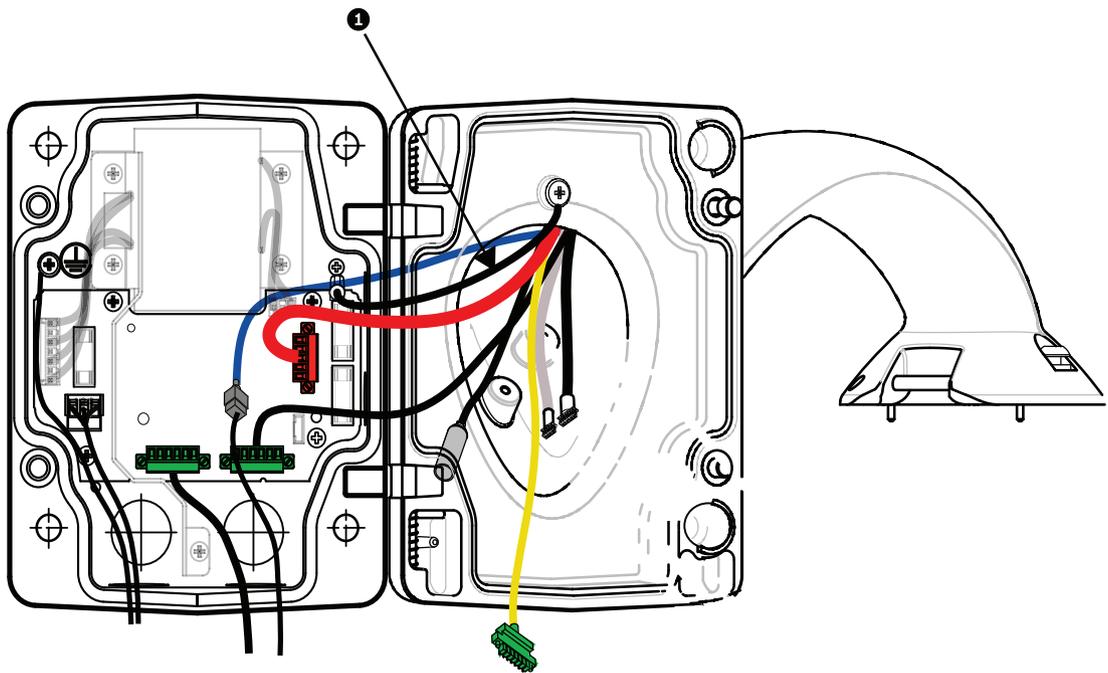
3. While continuing to hold the top hinge pin open and align the top and bottom hinges of the Pendant Arm to their mating points on the Power Supply Box. See the illustration above.
4. Once you have aligned the hinges, release the top hinge pin to engage its mating hinge on the power box. Then release the bottom hinge pin from the Hinge Pin Stop to lock the Pendant Arm to the Power Supply Box.



#### Warning!

Serious injury or death can occur if the hinge pins of the Pendant Arm are not fully engaged (locked) to the Power Supply Box. Exercise caution before releasing the Pendant Arm.

## 10.5 Make Connections in the Power Supply Box



**Figure 10.8:** Pendant Arm connections to Power Supply Box

1. Attach the earth ground wire (item 1 in the illustration above) to the grounding screw on the left side of the power box.
2. Connect the 6-pin Control In/Out Plug, installed previously, to its mating connector P106 in the power box.
3. Connect the 6-pin Control to Dome Plug from the Pendant Connector Harness to its mating connector P105 in the power box.
4. Connect the 5-pin, 24 VAC to Dome Plug from the Pendant Connector Harness to its corresponding color mating connector P107 on the right side of the box.
5. To connect alarm inputs and relay outputs, connect the 4-pin Alarms Out, the 6-pin Alarms In, and the 7-pin Relay connectors from the Pendant Connector Harness to their mating connectors, installed previously, to the incoming alarm wires.
6. Connect the 3-pin Power In Plug, installed previously, to its mating connector P101 on the left side of the box.
7. Connect the incoming RJ45 video connector, installed previously, to its mating connector from the Pendant Connector Harness.
8. Attach the grounding strap of the Pendant Arm to the Power Supply Box.
9. After making the harness connections to the Power Supply Box, rotate the Pendant Arm to close and seal the Power Supply Box and tighten the two (2) captive screws to 10-12 N-m (90-105 in.-lbs).
10. Refer to *Attach Pendant to Arm and Tighten*, page 38 to continue the installation procedure.



### Notice!

After all wiring is complete, close the cover door and tighten the two (2) captive screws on the cover door to 10-12 N-m (90-105 in.-lbs) to ensure the Power Supply Box is watertight.

## 10.6 Installing the VGA-PEND-WPLATE

This section provides instructions to install a wall, corner, or mast mount with the VGA-PEND-WPLATE Mounting Plate instead of a Power Supply Box.



### Caution!

You must route the main power supply through a 120/230 VAC transformer (VG4-PSU1 or VG4-PSU2 power supply box) before connecting the power to a 24 VAC AUTODOME camera.



### Warning!

A stud diameter of 6.4 mm (1/4 inch) to 8 mm (5/16 inch) able to withstand a 120 kg (265 lb) pull-out force is recommended. The mounting material must be able to withstand this pull out force. For example, 19-mm (3/4-inch) minimum for plywood.

#### 1. For a Corner installation:

Secure the Corner Plate to the wall corner using four (4) studs (not included).

Secure the Mounting Plate to the Corner Plate using the four (4) 3/8 x 1-3/4-inch bolts and split lock washers (supplied).

#### 2. For a Mast or pole installation:

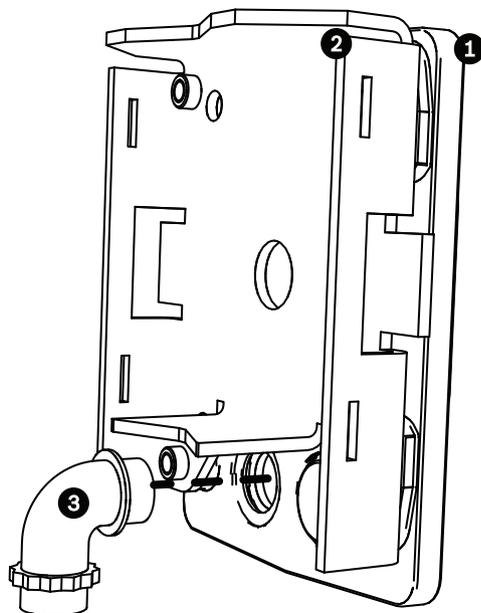
The metal straps included with the Mast mount accommodate a pole with a diameter of 100–380 mm (4–15 in.). You must use a banding tool (sold separately) for a mast or pole installation. In addition, you must obtain a 3/4 in. (20-mm) right angle conduit connector through which you route the wires that connect to the pendent arm.

Follow the instructions provided with the banding tool to securely mount the Mast Plate to the pole. Contact your Bosch Sales Representative to order Banding Tool P/N TC9311PM3T.

Secure the Mounting Plate to the Mast Plate using the four (4) 3/8 x 1-3/4-inch bolts and split lock washers (supplied).

Remove one of the rubber gaskets from the Mounting Plate.

Once the Mounting Plate (item 1, below) is attached to the Mast Plate (item 2), connect the right angle conduit (item 3) to the Mounting Plate through the empty conduit hole as shown below:

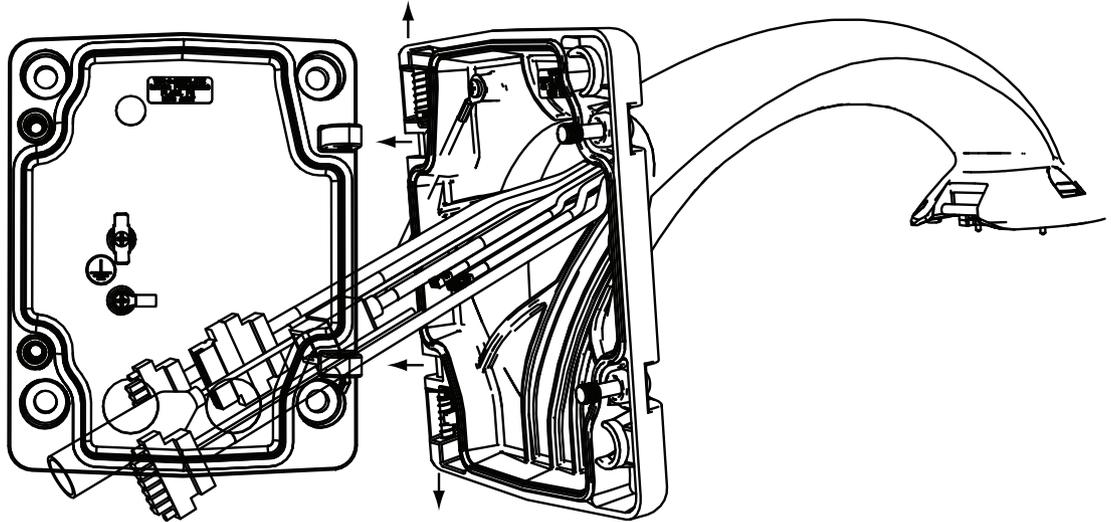


3. Ensure that the mounting plate is secure.

**Attach the Pendant Arm to the Mounting Plate**

The bottom hinge pin of the Pendant Arm is provided with a Hinge Pin Stop to hold the hinge open while attaching the arm to the Mounting Plate.

1. Compress the bottom hinge pin by pushing the pin lever downward and rotating it behind the Hinge Pin Stop.



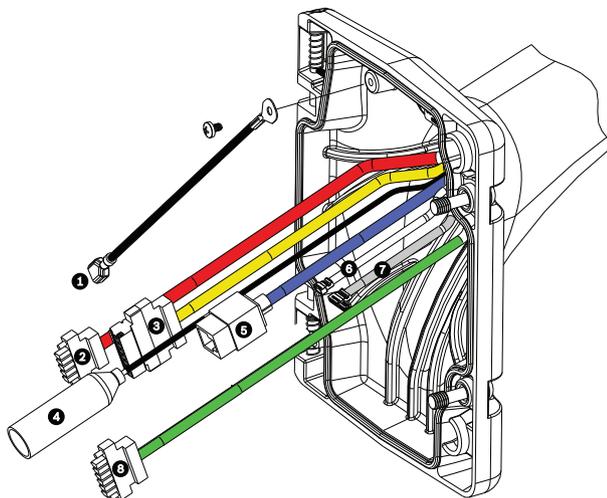
**Figure 10.9:** Connect Pendant Arm to Mounting Plate

2. Open the top hinge by pushing its pin lever up and holding it.
 

**Note:** Both Hinge Pins must be fully compressed to open (unlock) the hinges of the Pendant Arm and before proceeding to the next step.
3. While continuing to hold the top hinge pin open, align the top and bottom hinges of the Pendant Arm to their mating points on the Mounting Plate.
4. Once you have the hinges aligned, release the top hinge pin to engage its mating hinge on the Mounting Plate. Then release the bottom hinge pin from the Hinge Pin Stop to lock the Pendant Arm to the Mounting Plate.

**Route and Connect Wires to a Power Supply Box**

The illustration below depicts the power and control cables connected to the Pendant Arm:



**Figure 10.10:** Pendant Arm Cables

	Cable		Cable
1	Grounding Strap (black)	5	UTP Video/Ethernet (blue)

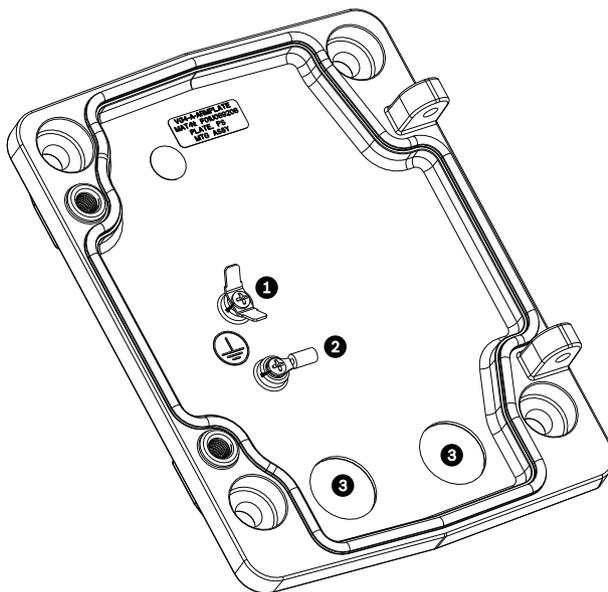
2	24 VAC Power (red)	6	Alarm Outputs (white)
3	Relay Contacts (yellow)	7	Alarm Inputs (gray)
4	Coax Video (black) (Not applicable for AUTODOME 7000 Series cameras)	8	Serial Communications (green) Used for Audio Input/Output in AUTODOME 7000 Series.



**Notice!**

Refer to the *Connection*, page 55 chapter for wire specifications and distances.

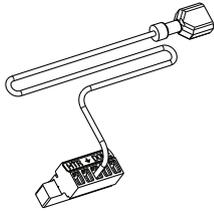
1. Route all incoming wires through one of the earth-grounded conduits at the bottom of the Mounting Plate. For a mast mount, route all wires through the right-angle conduit.
2. Attach the water-tight plug to the other conduit.
3. Attach the grounding spade terminal (item 1, below) to one of the spade terminals inside the Mounting Plate.



**Figure 10.11:** Mounting Plate - Inside Detail

Ref.	Description
1	Grounding lug with two spade terminals
2	Earth ground lug with crimp ring terminal
3	Wire input conduit holes

4. Connect the incoming 24 VAC power wires to the 5-pin, 24 VAC Power In mating connector (supplied with the Mounting Plate kit) for the camera and for the Heater.



5. Attach the grounding spade from the 5-pin mating connector to the other spade terminal inside the mounting plate.
6. Attach the 5-pin Power In mating connector to the 24 VAC Power cable (cable 2) connected to the pendant.
7. Remove the mating connector from the Relay Contacts cable (cable 3).
8. Connect the incoming relay contact wires to the mating connector. Then, reattach the mating connector to the Relay Contacts cable.
9. Attach an RJ45 plug to the incoming UTP cable.
10. Connect the incoming RJ45 video connector, installed previously, to the UTP Video/Ethernet cable (cable 5).
11. Connect the outgoing alarm wires to the flying leads coming from the 4-pin Alarm Outputs cable (cable 6).
12. Connect the incoming alarms wires to the flying leads coming from the 6-pin Alarm Inputs cable (cable 7).
13. Connect the incoming serial communication wires to the 6-pin mating connector supplied with the VGA-PEND-WPLATE kit. Refer to the Power Supply Box Connections table above for details.
14. Attach the 6-pin serial communication mating connector to the Serial Communications cable (cable 8).
15. Connect the Earth ground wire, if available, to the crimp ring terminal inside the Mounting Plate.  
**Note:** The Earth ground is not provided with the VGA-PEND-WPLATE kit; it is a ground connection made at the installed location.
16. After making the harness connections to the Mounting Plate, rotate the Pendant Arm to close and tighten the two (2) captive screws to 10-12 N-m (90-105 in.-lbs).

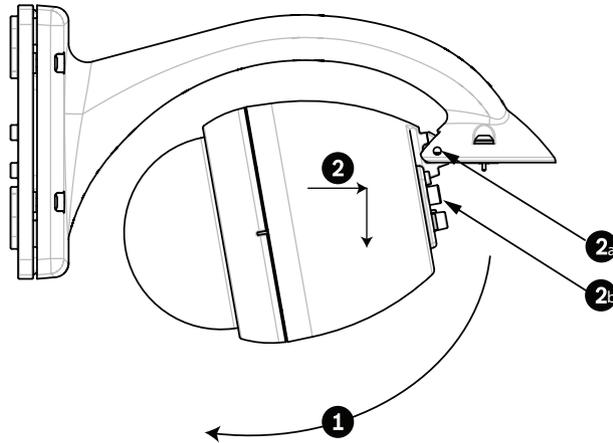
**Notice!**

After all wiring is complete, close the cover door and tighten the two (2) captive screws on the cover door to 10-12 N-m (90-105 in.-lbs).

**10.7****Attach Pendant to Arm and Tighten****Notice!**

Before attaching the AUTODOME Pendant, visually inspect the dome and arm connectors for any blocked pin holes or bent pins.

1. Tilt the bottom of the dome toward the pendant arm base and place the mounting hook, located on top of the dome housing, over the recessed hinge pin of the arm.



**Figure 10.12:** Attach Pendant to Arm

1	Tilt up.
2	Hook and drop.
2a	Recessed Hinge Pin
2b	Dome Connector
3	Rotate down to engage dome connector.
4	Tighten the two (2) mounting screws to a minimum torque of 10-12 N-m (90-105 in.-lbs).

2. Drop the dome housing down slightly to engage the dome housing hook on the Pendant Arm hinge pin, allowing the dome to rotate around the pin.
3. Rotate the dome housing down to a vertical position and gently push upward to engage the connector on top of the dome housing.



**Caution!**

If you feel any resistance when rotating the dome housing or when engaging the connector, stop immediately and start over.

4. Hold the Pendant housing in position while tightening the two (2) 5-mm Allen head mounting screws on top of the housing to **10-12 N-m (90-105 in.-lbs)**.



**Caution!**

You must tighten the two mounting screws to a minimum torque of 10-12 N-m (90-105 in.-lbs) to ensure a proper seal between the arm and the housing.

# 11 Installing the Roof Parapet and Pipe Mounts

## 11.1 Description

This chapter details how to install an AUTODOME camera to a Roof Parapet or to a Pipe mount. Any differences to the installation between these two mounting systems are noted. The VGA-ROOF-MOUNT is a stationary mount intended for rooftop parapet vertical walls. It is made of light weight aluminum with a corrosion-resistant finish and is used for all Bosch AUTODOME cameras up to a rated load of 29 kg (64 lb). This mount can be fitted to the inside or outside of parapet walls and can swivel for ease of positioning and for servicing the camera. Note that customers must purchase separately the VG4-A-9543 Pipe Mount to use on the end of the VGA-ROOF-MOUNT.

The end of the Pipe Mount that is meant to terminate into an enclosure is intended to be field-installed and shall be marked or provided with instructions that identify the equipment necessary to maintain the environmental integrity of the enclosure. In order to maintain the integrity of a Type 4X environment, the connected equipment must have a Type 4X environmental rating. In order to maintain the integrity of a Type 4 environment, the connected equipment must have a Type 4, Type 4X, Type 6, or Type 6P environmental rating.

## 11.2 Route Wires and Attach Connectors

Power wires must be routed to the left (front) side of the Power Supply Box through a separate electrically earth-grounded conduit. All video, control, and alarm wires must be routed through a second electrically earth-grounded conduit to the right side of the box.

### Warning!

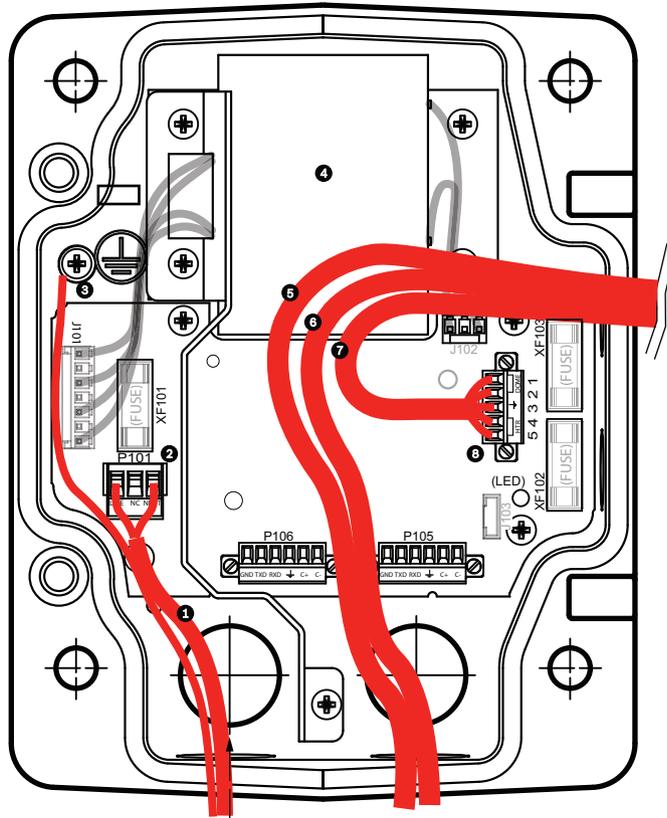


External interconnecting cables are to be installed in accordance to NEC, ANSI/NFPA70 (for US application) and Canadian Electrical Code, Part I, CSA C22.1 (for CAN application) and in accordance to local country codes for all other countries.

Branch circuit protection incorporating a 20 A, 2-pole Listed Circuit Breaker or Branch Rated Fuses are required as part of the building installation. A readily accessible 2-pole disconnect device with a contact separation of at least 3 mm (0.12 in.) must be incorporated.

There are two possible methods to route the video, control, and alarm wires:

Method One is to route the video, control, and alarm wires through the conduit fitting on the right (front) side of the Power Supply Box and out to the AUTODOME Interface Board.



**Figure 11.1:** VG4-A-PSU1 or VG4-A-PSU2 Power Supply Box

1	120 VAC/230 VAC Power In	6	Control Wire Used for Audio input and output in AUTODOME 7000 Series.
2	P101 Connector	7	24 VAC Power Out
3	Ground Connection	8	P107 Connector
4	Transformer	9	Earth-grounded conduit with power input and earth-ground connection
5	Ethernet Wire	10	Earth-grounded conduit with Ethernet video/control, audio input and output to “head-end” system
		11	Earth-grounded conduit to camera

**Wiring the Power Supply Box**



**Notice!**

Refer to the *Connection*, page 55 chapter for wire specifications and distances.

- ▶ Route the high voltage 115/230 VAC lines through the earth-grounded conduit fitting on the left side of the box.

**Notice!**

The Power Supply Box with transformer comes with a barrier that separates the high voltage side on the left from the low voltage 24 VAC side on the right.

1. Cut and trim the high voltage 115/230 VAC power and ground wires with sufficient slack to reach their connector terminal in the box, but not so long as to be pinched by or to obstruct closing the Cover Door.
2. Attach the supplied 3-pin Power Plug to the incoming high voltage power wires in the box. Refer to connector P101 in the Power Supply Box Connections section below.
3. Route the Ethernet cable out to where the camera will be mounted.
4. Route the low power 24 VAC wires from the right side of the Power Supply Box out to where the camera will be mounted. Attach the supplied 5-pin 24 VAC Dome plug to the wire ends inside the box. Refer to connector P107 in the Power Supply Box Connections section below.

**Wiring the Fiber Optic Model**

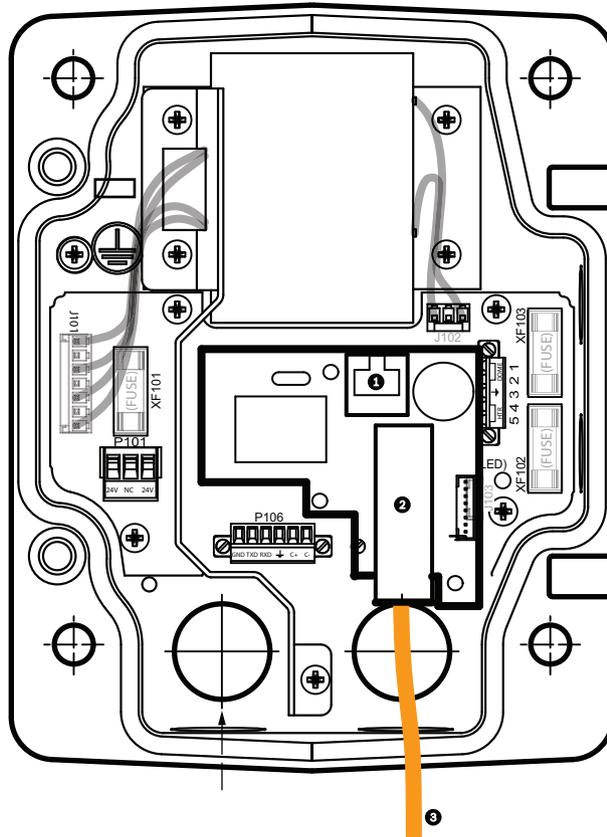
If installing a Fiber Optic model, follow these steps:

**Notice!**

Refer to the *Connection, page 55* chapter for fiber optic specifications.

For instructions on installing a fiber optic module into a power supply box, see the VG4 Fiber Optic Media Converter Installation Guide that ships with the module.

1. Bring the fiber optic cable (item 3 in the figure below) into the right side of the power supply box.
2. Connect the fiber optic cable to the port for the SFP module (item 2 in the figure below).
3. Connect the RJ45 plug of the cable to the RJ45 socket (item 1 in the figure below) on the fiber optic module in the power supply box.
4. Route the control wires from the Power Supply to the Pipe Interface Board. Then attach the supplied six (6) pin control data connector to the wires in the Power Supply Box. Refer to *Wire the Pipe Interface Board, page 47*.

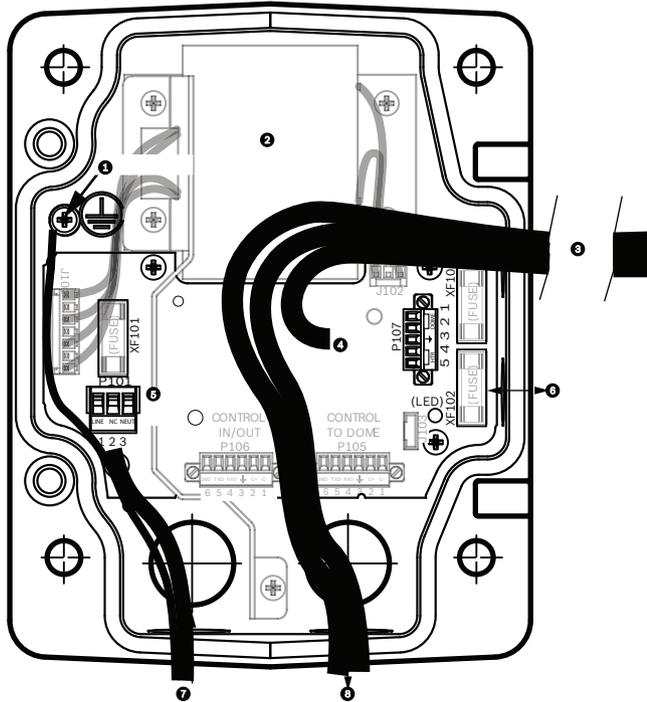


**Figure 11.2:** Fiber Optic Ethernet Module installed

1	RJ45 Ethernet socket
2	Port for SFP module (sold separately)
3	Fiber Optic cable (user-supplied)

### Power Supply Box Connections

The following figure is a detailed illustration of the Roof or Pipe Mount Power Supply Box, which includes the fuse specifications.



**Figure 11.3:** Power Supply Box Connections

1	Ground Screw	5	Power In
2	Transformer (115/230 VAC Modes)	6	In/Out; 1/2 in. (15 mm) NPS Fitting
3	In/Out to camera	7	Power In; 3/4 in. (20 mm) NPS Fitting
4	24 VAC to Dome Interface Board	8	Control Data and Video In/Out; 3/4 in. (20 mm) NPS Fitting



**Warning!**

Fuse replacement by qualified service personnel only. Replace with same type fuse.

Fuse Specifications			
Volts	XF101 Mains	XF102 Camera	XF103 Heater
24 V	T 5.0 A	T 2.0 A	T 3.15 A
115 V	T 1.6 A	T 2.0 A	T 3.15 A
230 V	T 0.8A	T 2.0 A	T 3.15 A

The following table lists the Power Supply Box connectors:

No.	Connector	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6
	Ground	Grounding Screw					

No.	Connector	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6
P101	115/230 VAC or 24 VAC Power In	Line	NC	Neutral			
P107	24 VAC Power to Dome Plug	Dome 24 VAC	Dome 24 VAC	Earth Ground	Heater (24 VAC)	Heater (24 VAC)	

### 11.3 Attach Cover Door to Power Supply Box

1. Compress the bottom hinge pin by pushing the pin lever down and then rotate it behind the Hinge Pin Stop. The power box Cover Door provides a Hinge Pin Stop to hold the bottom hinge open while attaching the door.

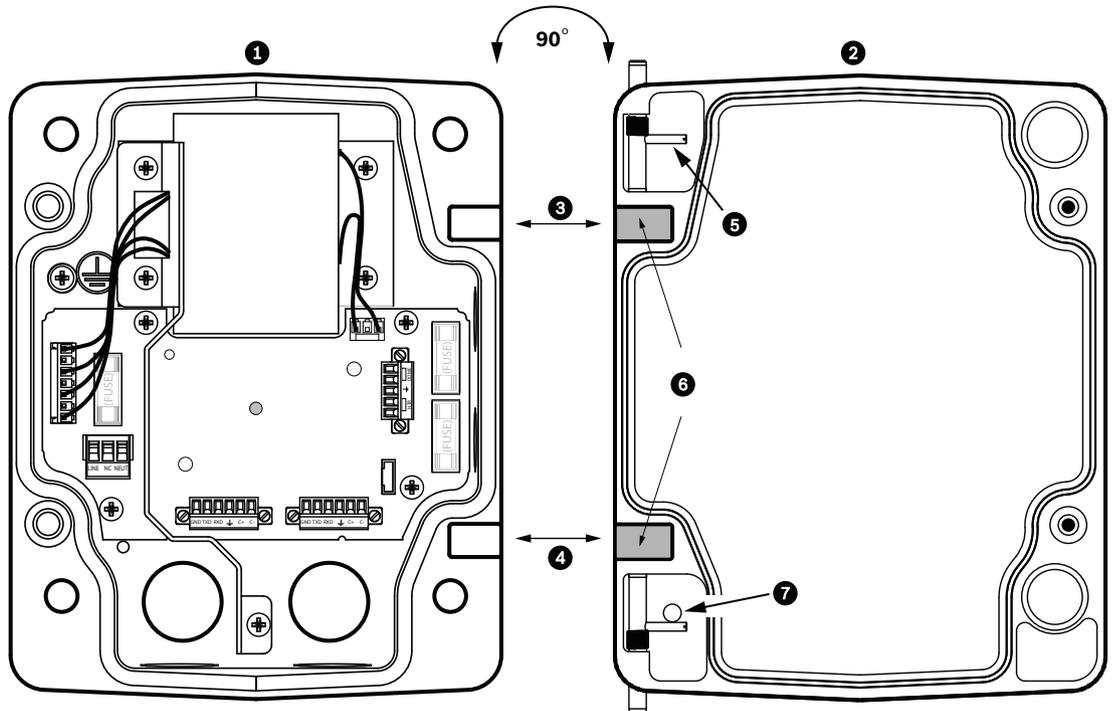


Figure 11.4: Align Cover Door Hinge to Power Box

1	Power Supply Box	5	Hold Hinge Pin Open
2	Cover Door	6	Open Position
3	Align Top Hinge	7	Hinge Pin Stop
4	Align Bottom Hinge		

2. Open the top hinge by pushing its pin lever outward and holding it open.  
**Note:** Both Hinge Pins must be fully compressed to open (unlock) the female hinges of the Cover Door before proceeding to the next step.
3. While holding the top hinge pin open, position the Cover Door to the Power Supply Box and align its hinges.
4. When the hinges are aligned, release the top hinge pin to engage its mating hinge on the power box. Then release the bottom hinge pin from the Hinge Pin Stop to complete attaching the Cover Door to the Power Supply Box.



**Notice!**

After all wiring is complete, close the cover door and tighten the two (2) captive screws on the cover door to 10-12 N-m (90-105 in.-lbs) to ensure the Power Supply Box is watertight.

## 11.4 Installing the VG4-A-9543 Pipe Mount

This section details the installation steps for the VG4-A-9543 Pipe Mount. If you are installing the Roof Parapet mount, refer to Installing the VG4-ROOF-MOUNT for instructions.

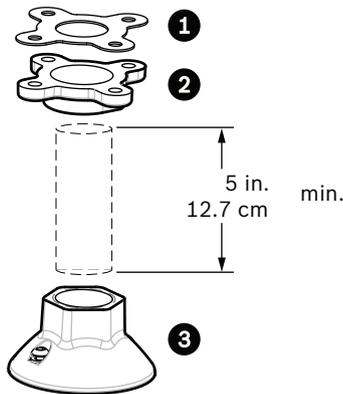


**Notice!**

Customer must supply 1-1/2 inch (NPS) pipe threaded on both ends with a minimum length of 5 inches (12.7 cm).

You must use Teflon tape for thread-sealing compound.

All screws shall be tightened securely.



**Figure 11.5:** Pipe Mount

1	Gasket
2	Flange
3	Cap

1. Before installing the Top-Mounting Flange, ensure there is an adequate opening in the ceiling or mounting structure for the wires to pass through.
2. Secure the pipe Flange with supplied gasket to the ceiling or other supporting structure using four (4) 10-mm (3/8-inch) diameter fasteners.



**Notice!**

Each fastener must have a minimum pullout strength of 275 kg (600 lbs). The mounting material must be able to withstand this pull-out force. For example, 19-mm (3/4-inch) minimum for plywood.

3. Attach pipe (not supplied) to the Top-mounting Flange.



**Warning!**

You must thread the pipe onto the Top-mounting Flange until it is tight. Failure to do so can result in damage, serious injury or death.

4. Route the power, video, control, and alarm wires through the Top-Mounting Flange and down the pipe.
5. Wrap at least five layers of Teflon tape around the threads.

6. Apply the supplied thread sealant to the threads on the Pipe.  
 Make sure all surfaces are clean and dry.  
 Apply a bead of sealant completely around the leading threads of the male fitting.  
 Force the adhesive into the threads to thoroughly fill all voids.
7. Thread the Pipe Cap onto the down pipe and tighten securely to prevent leaks.

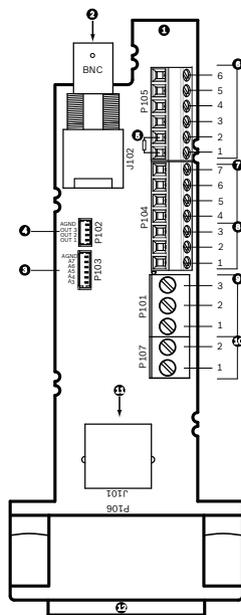


**Warning!**

You must thread the Dome Cap onto the pipe until it is tight. Failure to do so can result in damage or serious injury or death.

## 11.5 Wire the Pipe Interface Board

This section provides instructions for connecting wires and cables to the Pipe Interface Board, as illustrated below. Refer to the *Connection*, page 55 chapter for cable and wiring recommendations and specifications.



**Figure 11.6:** Pipe Interface Board Connections

Ref.	Description	Connector	Wire Gauge	Pin	Description
1	Pipe Interface Module				
2	Video Coax In	J102			
3	6-pin Connector Alarms In (3-7)	P103			
4	4-pin Connector Alarms Out (1-3)	P102			
5	100 $\Omega$ Resistor Note: When using the audio input in an AUTODOME 7000 Series camera, remove this resistor.	P105			
6	Data In/Out	P105	AWG 26-16	1	Biphase (C-) For AUTODOME 7000 Series: AUDIO IN - (Audio in signal ground)
				2	Biphase (C+) For AUTODOME 7000 Series: AUDIO IN +
				3	Earth Ground
				4	RxD + For AUTODOME 7000 Series: AUDIO OUT +
				5	TxD - For AUTODOME 7000 Series: AUDIO OUT - (Audio out signal ground)
				6	Signal Ground
7	Alarms In (EOLR Supervised, 1-2)	P104	AWG 26-16	7	Ground
				6	Alarm 2
				5	Alarm 1
				4	Earth Ground
8	Relay Output	P104	AWG 26-16	3	Normally Closed
				2	Common
				1	Normally Open
9	Dome Power	P101	AWG 18-14	3	Dome 24 VAC
				2	Earth Ground

Ref.	Description	Connector	Wire Gauge	Pin	Description
				1	Dome 24 VAC
10	Heater Power	P107	AWG 18-14	2	Heater 24 VAC
				1	Heater 24 VAC
11	RJ45 Ethernet	J101			
12	To camera				

The Pipe Interface Board contains all of the connectors for control, data, image, and power wires. Follow the procedures below to make the proper connections.



**Warning!**

Use a 24 VAC Class 2 power supply only.

1. Attach an RJ45 connector plug to the Ethernet cable and connect the plug to its mating connector J101 on the Pipe Interface Board.
2. Attach the control data in/out wires to their respective terminals on the P105 connector on the Pipe Interface Board.
3. Connect the 24 VAC power wires to the P101 connector on the Pipe Interface Board. If this model has a heater, connect the 24 VAC heater power wires to connector P107.



**Caution!**

To protect the camera from damage due to cold temperatures, ensure that you connect the 24 VAC heater power wires to the P101 connector.

**Connecting Alarm Inputs and Outputs**

- ▶ To connect alarm inputs and outputs, attach the supplied 6-pin Alarms In and the 4-pin Alarms Out connector plugs with flying lead wires to the appropriate incoming alarm wires. Alarm Out 4 is a relay.

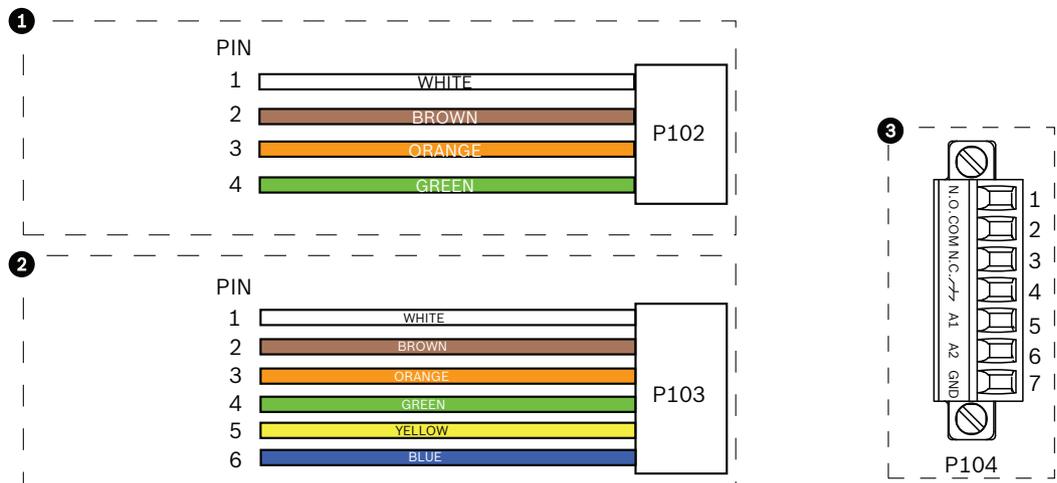


Figure 11.7: Alarm and relay connectors

1	4-pin Alarm Connector (P102)	2	6-pin Alarm In Connector (P103)	3	7-pin Relay Connector (P104)
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Pin	Description	Pin	Description	Pin	Description
1	Alarm Out 1	1	Alarm in 3	1	Alarm Out 4 Normally Open
2	Alarm Out 2	2	Alarm in 4	2	Alarm Out 4 COM
3	Alarm Out 3	3	Alarm in 5	3	Alarm Out 4 Normally Closed
4	Alarm Ground	4	Alarm in 6	4	Earth Ground
		5	Alarm in 7	5	Analog Alarm 1
		6	Alarm Ground	6	Analog Alarm 2
				7	Ground

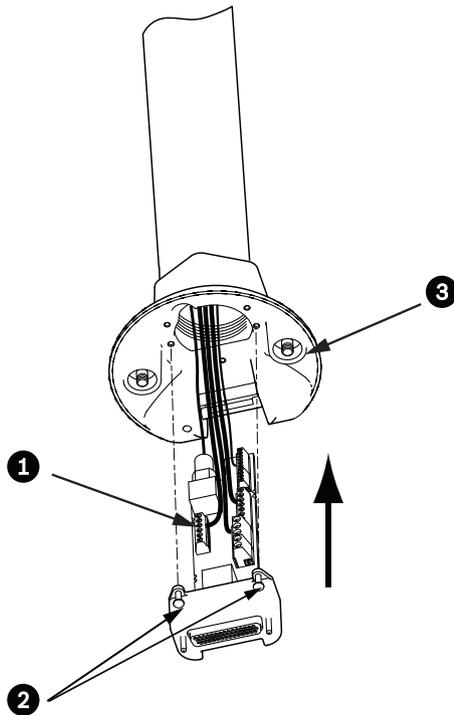
For in-ceiling mount only: Low Voltage TTL (3.3V) can also be used.

- ▶ Connect the plugs to their mating connectors P103 and P102 on the Pipe Interface Board.
1. To connect supervised alarms and relays, attach the appropriate wires to their terminals on the P104 connector on the Pipe Interface Board (see above).
  2. Insert the Pipe Interface Board into the down pipe and fasten the three (3) retaining screws to secure the board to the Dome Cap.



**Caution!**

Be careful not to strip the threads when tightening the Pipe Interface Board retaining screws.

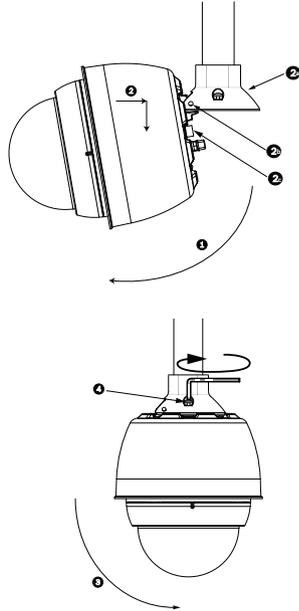


**Figure 11.8:** Pipe Interface Board to Dome Cap Assembly

1	Interface Board
2	Retaining Screws (3)
3	Pendant Mounting Screws (2)

## 11.6 Attach Pendant to Pipe and Tighten

1. Before attaching the Pendant, visually inspect the Pendant dome and the Interface Board connectors for any blocked pin holes and bent pins.
2. Tilt the Pendant enough to place its mounting hook on top of the its housing, over the recessed hinge pin of the Dome Cap.



**Figure 11.9:** Pendant to Roof / Pipe Mount Attachment

1	Tilt Dome
2	Hook and drop
2a	Dome Cap
2b	Recessed Hinge Pin
2c	Dome Connector
3	Rotate down to engage dome connector
4	Tighten the two (2) mounting screws to a minimum torque of 10-12 N-m (90-105 in.-lbs)

3. Drop the Pendant down slightly to engage the dome hook and hinge pin of the Dome Cap, allowing the dome to rotate around the hinge pin.
4. Rotate the dome housing down to a vertical position and gently push upward to engage the connector on top of the dome housing.



**Caution!**

If you feel any resistance when rotating the dome housing or when engaging the connector, stop immediately and start over.

5. Hold the housing firmly in position and alternately tighten the two (2) 5-mm Allen head mounting screws from above to a torque value of 10-12 N-m (90-105 in.-lbs).

**Caution!**

You must tighten the two mounting screws to a minimum torque of 10-12 N-m (90-105 in.-lbs) to ensure a proper seal between the arm and the housing.

- 
6. Rotate the arm to swing the camera out from the roof and into position, if installing a Parapet Roof Mount.
  7. Tighten the three (3) 10-mm (3/8-inch) stainless steel hex bolts on the bracket to lock the Parapet Arm in position.

**Caution!**

Do not over tighten the bolts. The maximum torque is 34 N-m (25 ft-lb).

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## 11.7

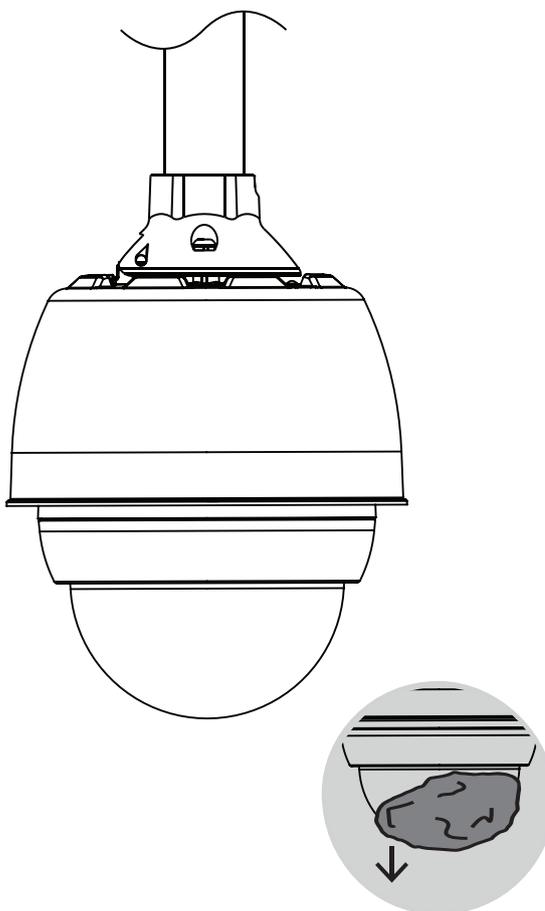
### Make Connections in the Power Supply Box

1. Attach the earth ground wire to the grounding screw on the left side of the box.
2. Connect the 24 VAC to Dome plug, installed previously, to its mating connector P107 on the right side of the box.
3. Connect the 115/230 VAC, 3-pin Power-in plug, installed previously, to its mating connector P101 on the left side of the box.

## 12 Finalizing installation

### Remove the plastic on the bubble

After you complete all other installation steps, remove the plastic material that is protection for the bubble.



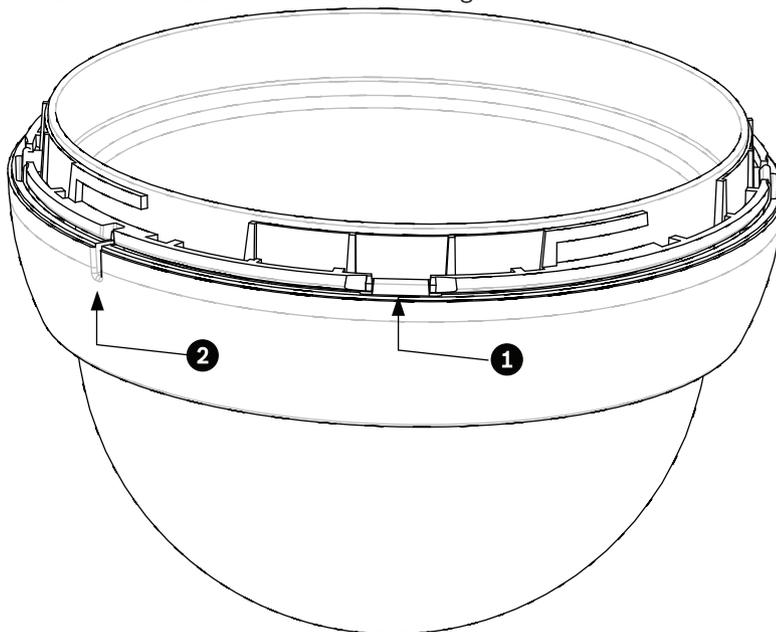
## 13 Replacing a Pendant Bubble

1. Using both hands, apply a firm counterclockwise (looking up at the dome) rotational force on the pendant bubble assembly to set the bubble latch.
2. Insert a small (2 mm) straight blade screw driver into the release opening in the bubble trim ring to release the lock, and then remove the screwdriver.



**Figure 13.1:** Pendant Bubble Release Opening

3. Firmly rotate the bubble counterclockwise approximately 20 degrees until the bubble assembly releases from the pendant housing.
4. Locate the four tabs (item 1, below) inside the trim ring that attach the trim ring to the bubble.
5. Gently push each tab out and down (away from the bubble) to disengage the tabs.
6. Remove the bubble from the trim ring.



7. Insert the replacement bubble inside the trim ring and align the release tab (item 2, above) on the trim ring with the release slot on the bubble.
8. Clean the bubble according to the instructions in the section “Maintenance.”
9. Insert the replacement bubble and trim ring assembly into the pendant housing, and rotate it clockwise until it locks. The latch mechanism makes a click when locks.

---

# 14 Connection

## 14.1 Ethernet Connections

The camera connects to a 100 Base-TX network either directly or via a hub. Video, optional audio input, optional audio output, and control are transmitted over a standard TCP/IP network using the built-in Web server. In addition, power can be supplied over the Ethernet cable using the Bosch High PoE 60W midspan (sold separately). Power can also be supplied over the Ethernet cable to in-ceiling models and indoor/outdoor pendant models used in indoor applications (where the heater is not powered) using PoE+ PSEs (midspan switches) compliant with the IEEE 802.3at, class 4 standard.

### Warning!

Use only approved PoE devices.

For outdoor pendant applications that require heater power, use only approved PoE devices to power the camera and the heaters. Indoor pendant applications that don't require heater power, standard PoE+ (802.3at) midspans or switches can be used to power the camera. When powering the camera via PoE or a midspan device, additional surge protection is required.

If auxiliary power (24 VAC) and PoE are applied simultaneously, the camera selects PoE and stops auxiliary input.



Cable Type	Cat5e/Cat6 Shielded Twisted Pair (STP) Ethernet (directly to the camera, or to a network switch between the camera and the network) <b>Note:</b> Cat5e/Cat6 Shielded Twisted Pair (STP) cable is required in order to meet European regulatory EMC standards.
Maximum Distance	100 m (330 ft)
Ethernet	10BASE-T/100BASE-TX, auto-sensing, half/full duplex
Terminal Connector	RJ45, Male

### Caution!

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



## 14.2 Fiber Optic Ethernet Media Converter (Optional)

The fiber optic media converter is designed to transmit 10/100 Mbps Ethernet signals over fiber optic cable using 10/100 Mbps Small Form-factor Pluggable (SFP) modules. The SFP modules are available as multi-mode fiber (MMF) or single-mode fiber (SMF) models with a single SC connector or dual-fiber with an LC connector. Refer to the VG4-SFP SCKT Fiber Optic Media Converter Installation Guide.

Ethernet Media Converter	
Data Interface	Ethernet
Data Rate	10/100 Mbps IEEE 802.3 Compliant Full Duplex or Half Duplex Electrical Port Full Duplex Optical Port
Fiber Type, MMF	50/125 $\mu$ m MMF. For 50/125 $\mu$ m fiber, subtract 4 dB from the specified optical budget value. Must meet or exceed fiber standard ITU-T G.651.
Fiber Type, SMF	8–10/125 $\mu$ m SMF. Must meet or exceed fiber standard ITU-T G.652.
Maximum Distance	20 km (12.4 miles)
Requirement	Media converter receiver (CNFE2MC/IN) at controller end of system
Terminal Connection	Duplex LC or Single SC

## 14.3 Alarms and Relay Connections

### Alarm Inputs

The camera provides two (2) alarm inputs. Each input can be activated by dry contact devices such as pressure pads, passive infra-red detectors, door contacts, and similar devices. The table below summarizes the size and distance wires.

Wire Size		Maximum Distance	
AWG	mm	feet	meters
22	0.644	500	152.4
18	1.024	800	243.8

**Table 14.3:** Alarm wire guide

You wire alarms either Normally Open (**N.O.**) (the default) or Normally Closed (**N.C.**), and must program the alarm inputs through the page **Configuration**.

The camera incorporates two types of alarms: Non-supervised and Supervised. In addition to transmitting an alarm condition, a supervised alarm also transmits a tamper condition. Depending on how the alarm is configured, a short or a break in the alarm's circuit can trigger the tamper signal.

### Configuring Supervised Alarms (inputs 1 and 2)

To configure Alarm 1 or 2 (pin 5 or 6) for supervision, you must install a 2.2 K end-of-line resistor in the circuit. Then, you program the alarms, through **Configuration**, to either Normally Open (N.O.) or Normally Closed (N.C.).

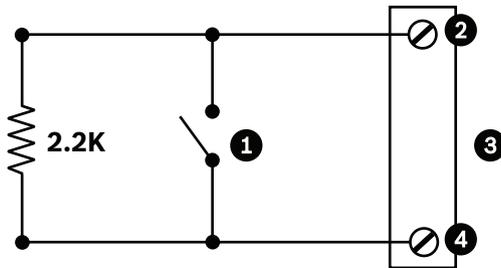


**Notice!**

Only Alarms 1 and 2 (pins 5 or 6) can be configured for supervision. Once a supervised alarm is programmed, it does not need to be enabled to indicate a tamper condition.

**Configuring a Normally Open Supervised Alarm**

1. Install a 2.2 K end-of-line resistor in the alarm circuit.
2. Connect the alarm wires to input 1 or 2 (pin 5 or 6) and to the ground (pin 7) at the camera.



**Figure 14.1:** N.O.S. - Normally Open Supervised Connections

1	Dry Contact	3	Dome Connector
2	Alarm 1 or 2 only (Pin 5 or 6)	4	Ground (Pin 7)

3. From **Configuration**, select **Alarm > Alarm Inputs**. For **Input 1**, enter a **Name** for the **Alarm input**. In the field **Active**, select **N.O.S.**. Finally, select an **Action**. See the table below for contact and condition details.

<b>AUTODOME Programmed N.O.S.</b>	
Contact	Alarm Condition
Open	Normal
Closed	Alarm
Cut or break	Tamper

### Configuring a Normally Closed Supervised Alarm

1. Install a 2.2 K end-of-line resistor in the alarm circuit.
2. Connect the alarm wires to input 1 or 2 (pin 5 or 6) and to the ground (pin 7) at the camera.

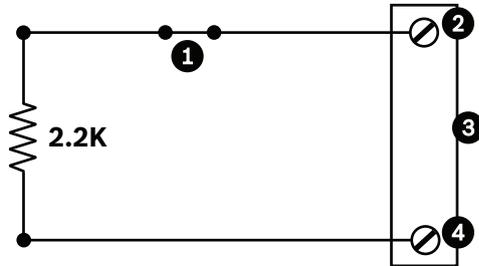


Figure 14.2: N.C.S. - Normally Closed Supervised Connections

1	Dry Contact	3	Dome Connector
2	Alarm 1 or 2 only (Pin 5 or 6)	4	Ground (Pin 7)

3. From **Configuration**, select **Alarm > Alarm Inputs**. For **Input 1**, enter a **Name** for the **Alarm input**. In the field **Active**, select **N.C.S.**. Finally, select an **Action**. See the table below for contact and condition details.

AUTODOME Programmed N.C.S.	
Contact	Alarm Condition
Open	Alarm
Closed	Normal
Short	Tamper

### Configuring Non-supervised Alarms (inputs 3 through 7)

You can configure alarms 3 through 7 as non-supervised Normally Open (N.O.) or Normally Closed (N.C.) alarms.

#### Configuring a Normally Open Non-supervised Alarm

1. Connect the alarm to the appropriate input (3 through 7) and ground at the camera.



Figure 14.3: N.O. - Normally Open Non-supervised Connections

1	Dry Contact	3	Dome Connector
2	Alarm Inputs 3 to 7	4	Ground

2. From **Configuration**, select **Alarm > Alarm Inputs**. For **Input 1**, enter a **Name** for the **Alarm input**. In the field **Active**, select **N.O.**. Finally, select an **Action**. See the table below for contact and condition details.

AUTODOME Programmed N.O.	
Circuit	Alarm Indication
Open	Normal
Closed	Alarm

**Configuring a Normally Closed Non-supervised Alarm**

1. Connect the alarm to the appropriate input (3 through 7) and ground at the camera.



**Figure 14.4:** N.C. Normally Closed Non-supervised Connections

1	Dry Contact	3	Dome Connector
2	Alarm Inputs 3 to 7	4	Ground

2. From **Configuration**, select **Alarm > Alarm Inputs**. For **Input 1**, enter a **Name** for the **Alarm input**. In the field **Active**, select **N.C.**. Finally, select an **Action**. See the table below for contact and condition details.

AUTODOME Programmed N.C.	
Circuit	Alarm Indication
Open	Alarm
Closed	Normal

**Alarm Outputs**

The camera incorporates two (2) types of alarm outputs: one dry contact relay and three (3) open collector outputs or transistor outputs.

**Configuring a Dry Contact Relay**

The dry contact relay acts like an on/off switch. It has a maximum voltage rating of 2 A @ 30 DC.

1. Connect the appropriate stripped wire to the camera’s COM connector.
2. Connect the appropriate stripped wire to the N.O. or N.C. connector, depending on your requirement.

**Configuring an Open Collector Output**

Outputs 1, 2, and 3 are open collector types. These outputs must be connected to a positive voltage between 5 and 32 V to complete the circuit, with a maximum voltage rating of 32 VDC @ 150 ma.

1. Connect the appropriate stripped wire to the open connector (1, 2, or 3) of the transistor.
2. Connect the appropriate stripped wire to the ground (GND) connector.

## 14.4 Audio Connections (Optional)

The camera is capable of receiving line level input signals and transmitting them over a network. It is also capable of receiving audio from the same network and sending it as audio output from the camera. The audio input signal is transmitted in sync with the video signals. As a result, for example, a door intercom system can be connected at the camera location.



### Notice!

The line ports of the intercom should be used for transmitting audio signals on the intercom systems.

The audio line input is not suitable for direct microphone signal connection.

The audio line output is not suitable for direct speaker connection unless using a powered/ amplified speaker with line level input.

### Audio Line Input Specifications

The following Line Input specifications should be complied with in all cases.

<b>Max. Input Voltage</b>	<b>1 Vrms</b>
Impedance	9 K $\Omega$ (typical)
Shield	Bare copper braid: 95% coverage
Internal gain level adjustment is available in case the signal level is too low.	

### Audio Line Output Specifications

The following Line Output specifications should be complied with in all cases.

<b>Typical Output Voltage</b>	<b>1 Vrms</b>
Impedance	1.5 K $\Omega$ (typical)
Shield	Bare copper braid: 95% coverage
Internal gain level adjustment is available in case the signal level is too low.	

### Wire Specifications

Wire Type	Shielded Coax (recommended)
Distance	Typically 10 m (33 ft), but depends on the signal level
Gage	Typically 22 AWG to connector (P105/P106), but depends on the style of connector used
Shield	Bare copper braid: 95% coverage
Center conductor	Stranded bare copper

Note that long distances are more susceptible to introducing noise into the signal.

### Audio Line Level Input Connections

1. Remove the 100 Ohm termination resistor from the C+ to C- terminals.
2. Connect the audio line level source to the Audio\_In+ (C+) input terminal.
3. Connect the audio signal ground to the Audio\_In- (C-) input terminal.

### Audio Line Level Output Connections

1. Connect the audio line level input of the audio output device (for example, an amplified speaker or a PC line level input) to the Audio\_Out+ (RXD) output terminal.

2. Connect the audio line level output signal ground to the Audio\_Out- (TXD) output terminal.

# 15

## 15.1 Troubleshooting

### Rebooting the unit

#### Reboot the unit

After a Factory Default or firmware update, reboot the unit if:

- You cannot connect to the unit in the Web browser.

OR

- Configuration Manager or BVMS or similar software identifies the unit as “Videojet Generic”.

- ▶ Reboot the unit using one of the following methods:

- In the web browser, type the IP address and then /reset (without any punctuation). Press the **Enter** key.

OR

- In Configuration Manager, right-click the IP address and click **Restart**.

- ▶ Wait two minutes for the process to complete.

If you cannot control the unit after the firmware upgrade, then cycle the power to the unit. If a power reset does not solve the problem, or if Configuration or video management software identifies the unit as “Videojet Generic,” then contact your Bosch Service Center for an RMA for the unit.

## 15.2 Physical reset button

Each camera has a hardware reset button. You may need to press the reset button to reset the camera to factory defaults if you encounter the following circumstances:

- You can power up the camera but cannot log on to the camera using the web browser.
- The camera doesn't start up, or fails to power up via PoE.
- The camera cannot search an IP address.
- The camera's firmware crashed.
- You forgot the password to access the camera.
- The image becomes frozen.
- You cannot update the firmware.
- The camera disconnects from the network at random and needs a reboot.
- The camera no longer finds pre-positions (preset positions).
- You cannot configure the camera using the web browser.
- The camera has no video out.



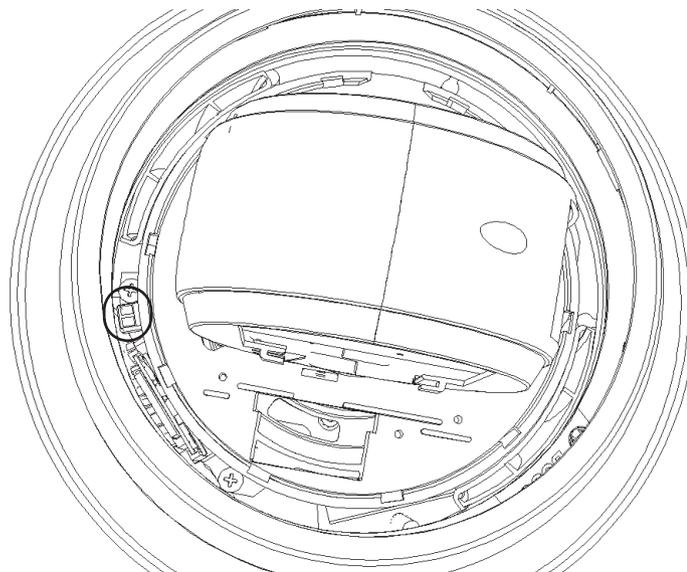
### Notice!

A factory default deletes all camera settings including passwords, network settings, and image settings.

Complete the following sequence of steps only if you have no other option to restore operation to the camera.

### Steps to complete a hardware reset for all camera models

1. Apply power to the camera.
2. Find the IP address of the camera.
3. Log on to the camera using the web browser. (**Note:** You can use Configuration Manager to identify the IP address.)
4. Find the reset terminal on the camera. (Refer to the figures that follow.)





5. Create a loop with conductive wire on the connector to cause a short circuit in the two (2) terminal pins. Hold the loop on the terminal pins for more than ten (10) seconds. The red LED indicator on the PCBA board flashes to show that the short circuit set the factory defaults of the camera.
6. Let the camera complete a self-check. When the self-check completes, the red LED will go off.
7. Find the IP address again.
8. Access the camera using the web browser.
9. Set the initial **service**-level password for the camera.

## 16 Maintenance

All bubbles require special care when handling and cleaning to avoid scratches.

**Notice!**

Risk of damage to the bubble

Handle the bubble with care. Do not scratch the inside of the bubble which doesn't have a hard coating.

**Notice!**

To avoid excessive moisture saturation inside the housing, limit the amount of time that the bubble is disconnected from the housing. Bosch recommends that the bubble be removed from the housing for no more than five (5) minutes.

**Bubble Handling**

The bubble may be packaged with a protective plastic sheet. It is recommended that the bubble remain stored this way until it is ready to install. Limit handling the bubble, as any scratches can quickly affect visibility.

**Bubble Cleaning**

If cleaning the bubble is required, use the following procedures and comply with all the warnings listed below.

**Cleaning the Bubble Interior**

The extremely soft interior surface should not be cleaned by rubbing or dusting with a cloth. Use clean dry compressed air, preferably from a spray can, to remove any dust from the interior surface.

**Warning!**

Do not use alcohol-based solutions to clean the bubble. This will cause the surface to cloud and, over time, cause stress aging, which makes the bubble brittle.

**Cleaning the Bubble Exterior**

The exterior of the bubble is hard-coated for extra protection. If cleaning becomes necessary, only use cleaning solutions and cloths suitable for cleaning safety glass lenses. Dry the bubble thoroughly with a dry nonabrasive cloth to prevent water spots. Never scrub the bubble with any abrasive material or cleaners.

Bosch recommends cleaning the exterior of the bubble with NOVUS "No. 1" Plastic Clean & Shine (or equivalent), according to manufacturer's instructions. Refer to [www.novuspolish.com](http://www.novuspolish.com) to order or to find a local distributor.

**Cautions**

- Do not clean bubbles in the hot sun or on very hot days.
- Do not use abrasive or highly alkaline cleaners on the bubble.
- Do not scrape the bubble with razor blades or other sharp instruments.
- Do not use Benzene, Gasoline, Acetone, or Carbon Tetrachloride on the bubble.

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**17****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](http://www.boschsecurity.com).

## 18

# Support services and Bosch Academy



### Support

Access our **support services** at [www.boschsecurity.com/xc/en/support/](http://www.boschsecurity.com/xc/en/support/).



### Bosch Building Technologies Academy

Visit the Bosch Building Technologies Academy website and have access to **training courses**, **video tutorials** and **documents**: [www.boschsecurity.com/xc/en/support/training/](http://www.boschsecurity.com/xc/en/support/training/)







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