



**BOSCH**

# **AUTODOME IP 4000i**

NDP-4502-Z12 | NDP-4502-Z12C | NDP-45A2-Z12C | NDP-45A2-Z1  
2CY

**en**

Installation Manual



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# 1 Safety

## 1.1 About this manual

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

## 1.2 Legal information

### Copyright

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

### Trademarks

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

## 1.3 Safety precautions

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



### Danger!

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

---



### Warning!

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

---



### Caution!

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

---



### Notice!

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

---

## 1.4 Connection in applications

**24 VAC power source:** This unit is intended to operate with a limited power source. The unit is intended to operate at 24 VAC (if PoE+ is not available). User supplied wiring must be in compliance with electrical codes (Class 2 power levels).

**PoE:** Use only approved PoE+ devices. Power-over-Ethernet can be connected at the same time as a 24 VAC power supply.

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

## 1.5 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

Telephone: 800-366-2283

Fax: 800-366-1329

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

### Customer Service

Telephone: 888-289-0096

Fax: 585-223-9180

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

### Technical Support

Telephone: 800-326-1450

Fax: 717-735-6560

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

### Canada

Telephone: 514-738-2434

Fax: 514-738-8480

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

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

<https://www.boschsecurity.com/corporate/where-to-buy/index.html>

### More Information

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

[www.boschsecurity.com](http://www.boschsecurity.com).

## 2 Introduction

- 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 Sales or Customer Service Representative from Bosch Security Systems.
- 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 (if undamaged) 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.

### 3 **Product Description**

The AUTODOME IP 4000i is a compact, indoor PTZ dome camera with a high-resolution 1080p60 HD sensor and a 12x optical zoom that allows operators to monitor wide scenes without losing any details. The camera's aesthetic design and flexible mounting options allow unobtrusive surveillance of large halls, reception areas, or waiting areas that would otherwise require multiple cameras for effective surveillance.



## 4 Preparing Wiring

- ▶ Prepare and install all wiring for 24 VAC, PoE+ (Cat5e/Cat6), alarms, and audio as necessary. For 24 VAC, follow the recommendations for maximum cable distance and wire gage.

### Maximum cable distance in meters (feet) per minimum cable diameter

The following table identifies the recommended transmission distance (maximum) in meters (feet), based on the specified wattage, per the minimum cable diameter (in mm<sup>2</sup>), when the cable diameter is fixed and the maximum permitted power consumption for 24 VAC is 10%. For example, for a device of 20 W and a minimum cable diameter of 1.0 mm<sup>2</sup>, the recommended transmission distance is 42 m (141 feet) from the transformer.

Models	Watts	1.0 mm <sup>2</sup>	1.5 mm <sup>2</sup>	2.5 mm <sup>2</sup>	4.0 mm <sup>2</sup>
Indoor (ceiling)	20	42 m (141 ft)	68 m (225 ft)	109 m (358 ft)	275 m (905 ft)
Outdoor	30	28 m (94 ft)	45 m (150 ft)	72 m (238 ft)	183 m (603 ft)

### Wire Gage

Note: Metric wire sizes are standard DIN sizes, ISO6722, mm<sup>2</sup>.

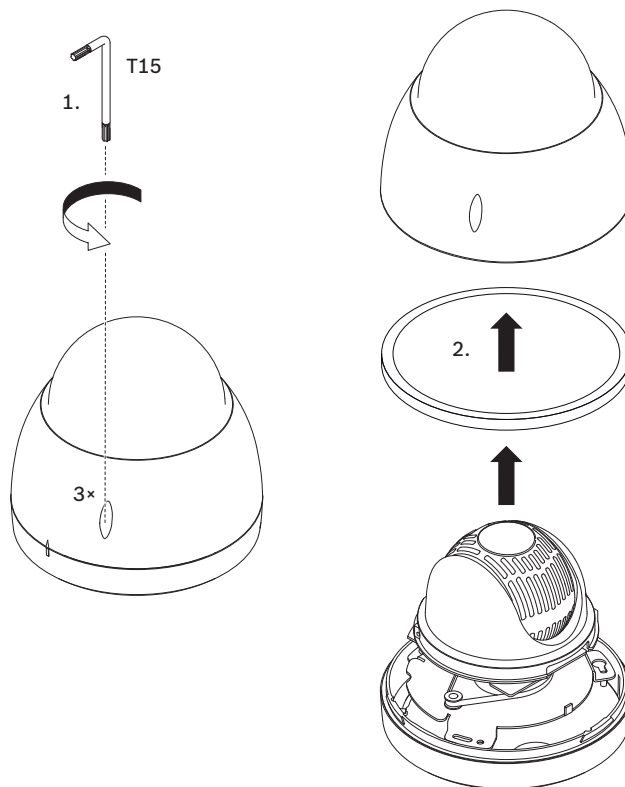
Wire diameter (mm <sup>2</sup> )	AWG
1.0	18
1.5	16
2.5	14
4.0	12

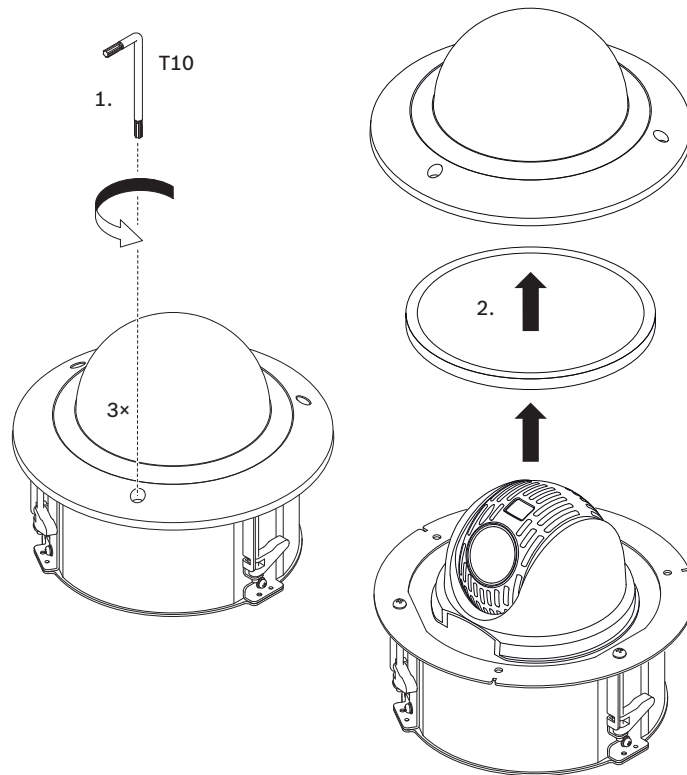
## 5 Preparing the Camera

**Note:** For pendant models, use T15.

For in-ceiling models, use T10.

1. Loosen the three (3) Hex screws in the trim ring / bubble enclosure with the appropriate Torx screwdriver.
2. Remove the trim ring / bubble enclosure.

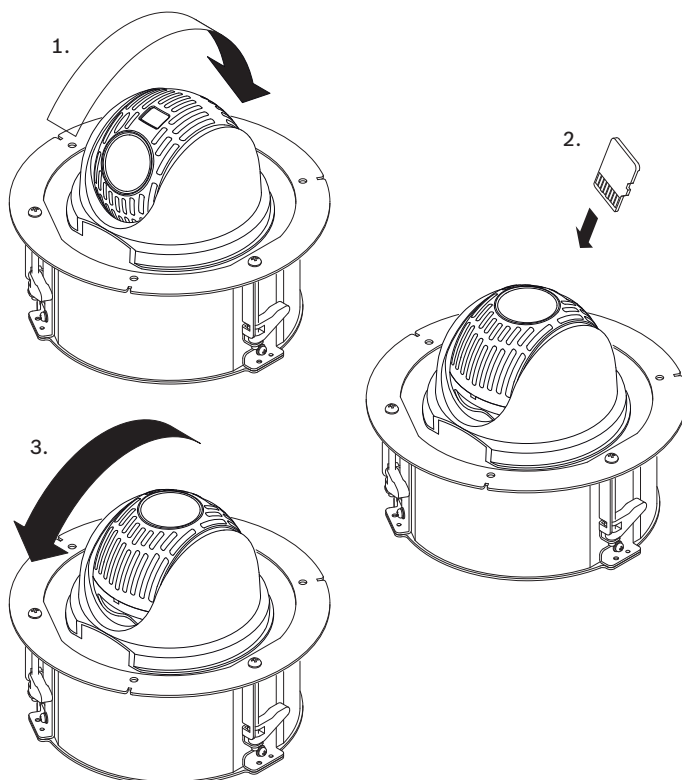
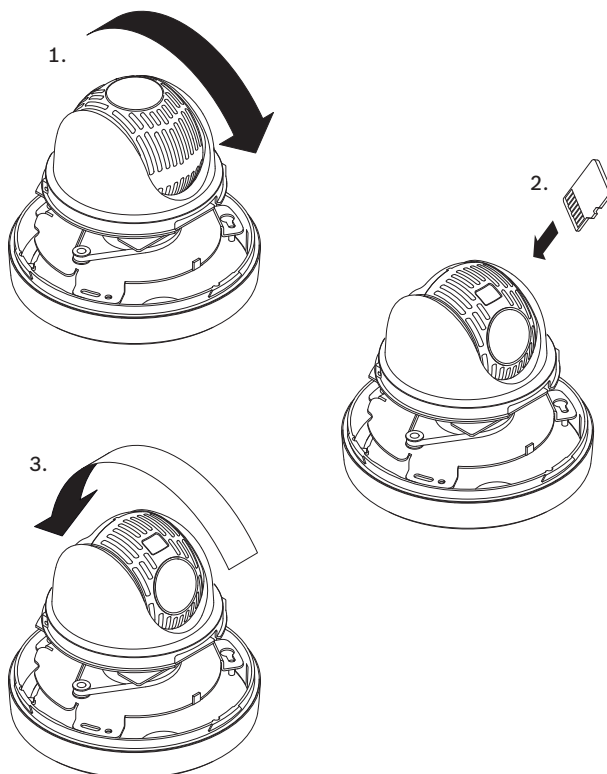




3. Remove the foam insert that protects the camera block.
4. Remove the tape holding the plastic lens protector; remove the lens protector.

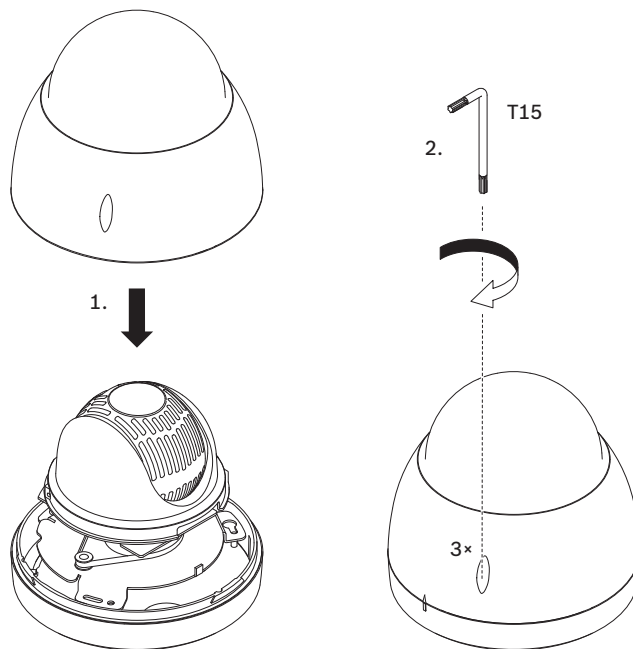
## 6 Installing a microSD card (optional)

1. Push the camera block until you see the card slot (item 1 in the following figure).
2. Insert the card into the slot (item 2 in the following figure).
3. Push the camera block into its original position (item 3 in the following figure).



**Note:** The next two steps are for pendant models only.

1. Replace the trim ring / bubble enclosure.
2. Tighten the screws with the T15 Torx screwdriver.



## 7 Installing a Surface Mount and Camera

### 7.1 Tools Required

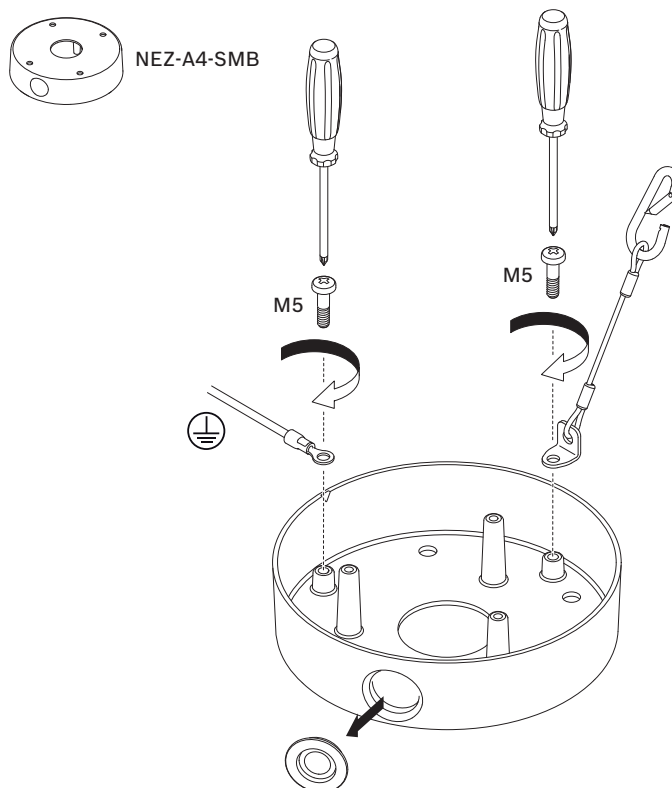
- Appropriate screwdriver (Phillips head)
- Appropriate tool for cutting a hole in drywall or ceiling tile (if applicable)
- One (1) ground

### 7.2 Installation Requirements

- The ceiling is thick enough to install the mounting screws.
- The ceiling can sustain at least eight (8) times the weight of the camera (1.88 kg (4.14 lb)): > 15 kg (33 lb).

### 7.3 Preparing the Surface Mount for Installation

1. Determine the side of the surface mount adapter (NEZ-A4-SMB) from which the external cables are to be routed. Remove the plug from the appropriate hole in the side of the adapter.
2. Attach a ground wire (user-supplied) to the stand-off on the inside of the adapter with the ground symbol with one M5 screw.
3. Attach the L-shaped end of the safety tether (supplied with the camera) to the stand-off on the inside of the adapter with the other M5 screw.

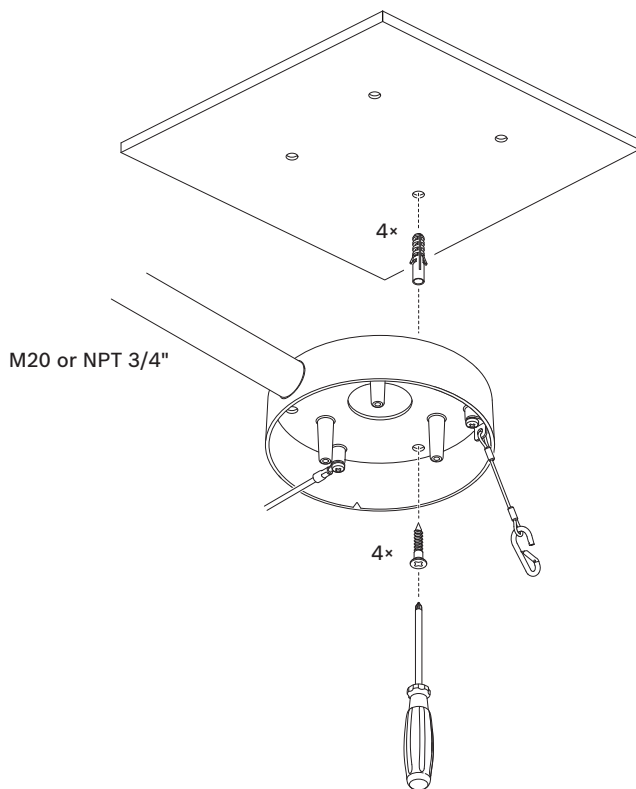


### 7.4 Installing the Surface Mount Adapter

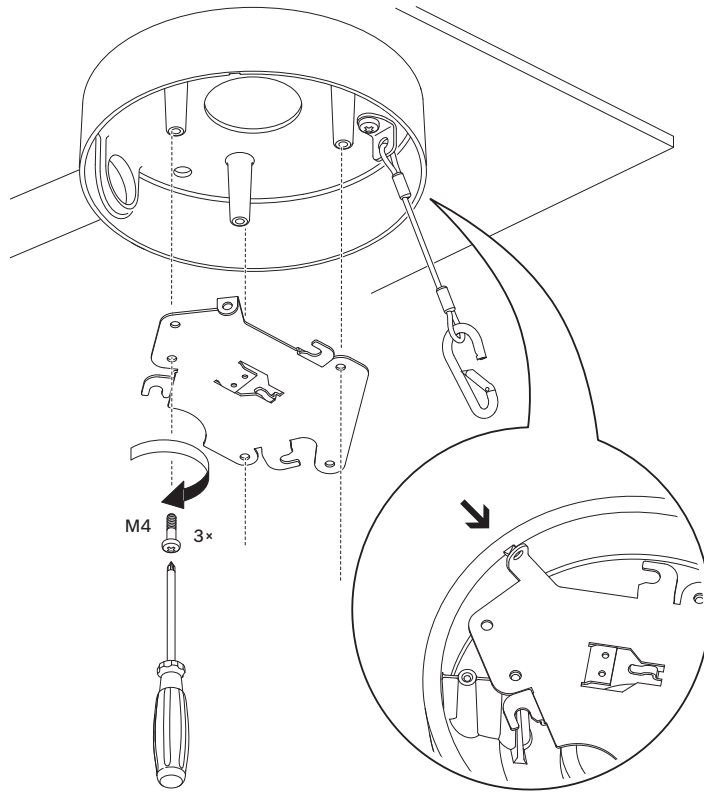
1. Determine a secure location for mounting the surface mount adapter (NEZ-A4-SMB) and the camera.
2. Use the adapter as a template to mark on the mounting surface the locations of the four holes in which to insert the screws for mounting the adapter.
3. Drill the four (4) holes in the installation location.
4. Attach the surface mount adapter to the surface using the four screws.

5. Attach conduit to the side of the adapter from which you removed the plug (the side from which the external cables are to be routed).

**Note:** The conduit should have M20 or NPT ¾ inch threads.



1. Route the external cables (24 VAC, CAT 5/CAT6, alarm and/or audio as needed) through the conduit and into the surface mount adapter.
2. Attach the mounting plate (supplied with the camera) to the surface mount adapter with the three (3) M4 – .7 x 8 Phillips pan head machine screws (supplied with the surface mount adapter).





# 8 Installing an In-ceiling Camera in a Suspended Ceiling

## 8.1 Tools Required

- Appropriate screwdriver (Phillips head)
- Appropriate tool for cutting a hole in drywall or ceiling tile (if applicable)

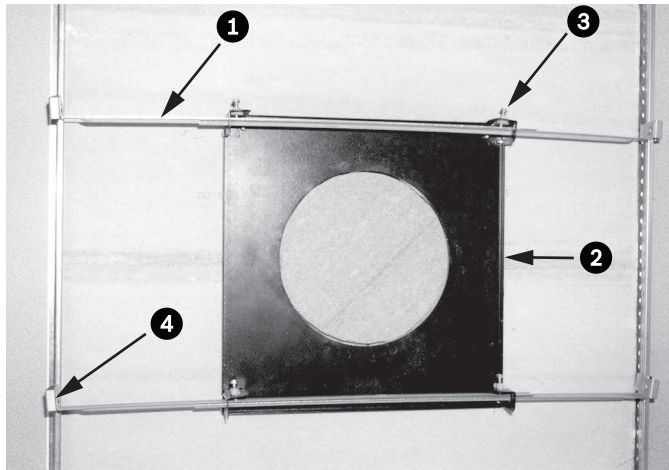
## 8.2 Installation Requirements

- The ceiling thickness ranges from 10 - 40 mm.
- The ceiling can sustain at least eight (8) times the weight of the camera (1.81 kg (4 lb)): > 14.5 kg (32 lb).

## 8.3 Preparing the Suspension Ceiling for Installation

You must use the VGA-IC-SP In-ceiling Support Kit to install the camera In-ceiling housing into a suspended or drop ceiling. This kit requires a separate purchase.

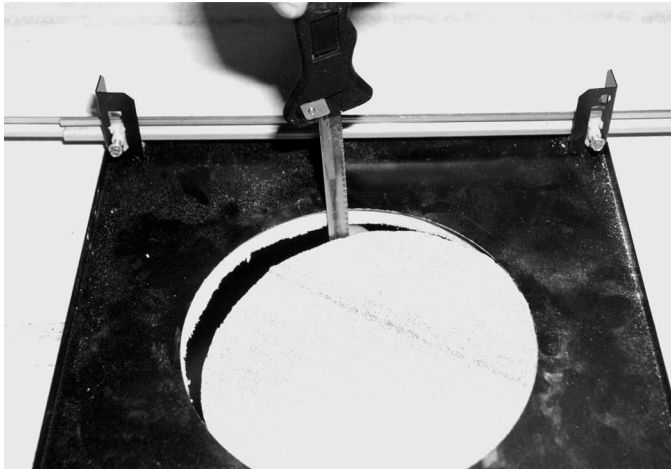
1. Choose the desired location to mount the camera.
2. Remove an adjacent ceiling tile.
3. Loosen the four (4) securing screws, located in the corners of the Bracket Assembly, enough to hold the suspension bars but still allowing adjustment during installation.
4. Place the Bracket Assembly over the ceiling tile, which is used to mount the camera.
5. Snap the Bar Clips of the bracket to the ceiling rails.



**Figure 8.1:** Suspension Ceiling Bracket (Top View)

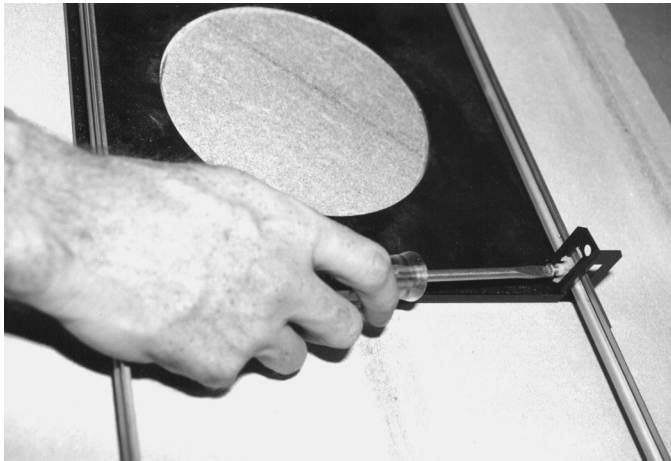
1	Suspension Bars	3	Securing Screw (4)
2	Base Plate	4	Bar Clips

1. Use the bracket Base Plate as a template or cut a hole-sized hole in the center of the ceiling tile with a drywall utility saw or jig saw.



**Figure 8.2:** Cut Hole in Ceiling Tile

2. Tighten the four (4) securing screws to the Bracket Assembly.



**Figure 8.3:** Tighten Bracket Securing Screw

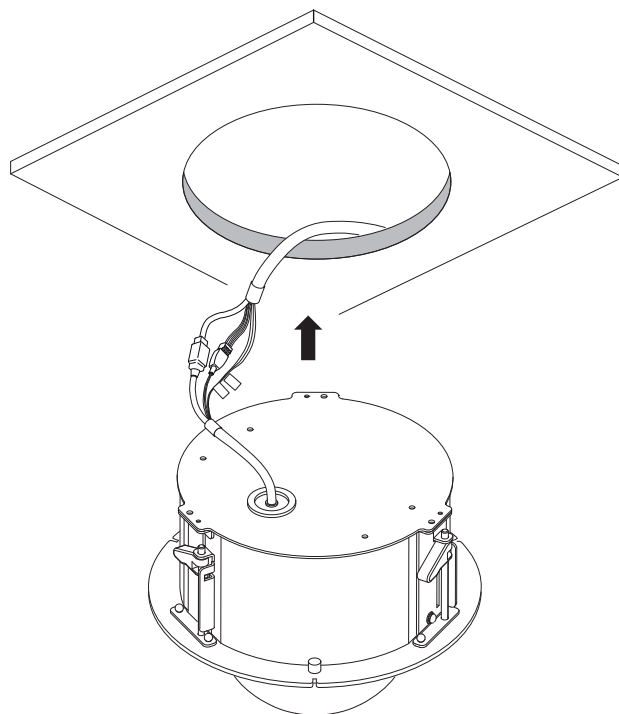
3. Secure the Bracket Assembly to an overhead securing point with a safety wire.



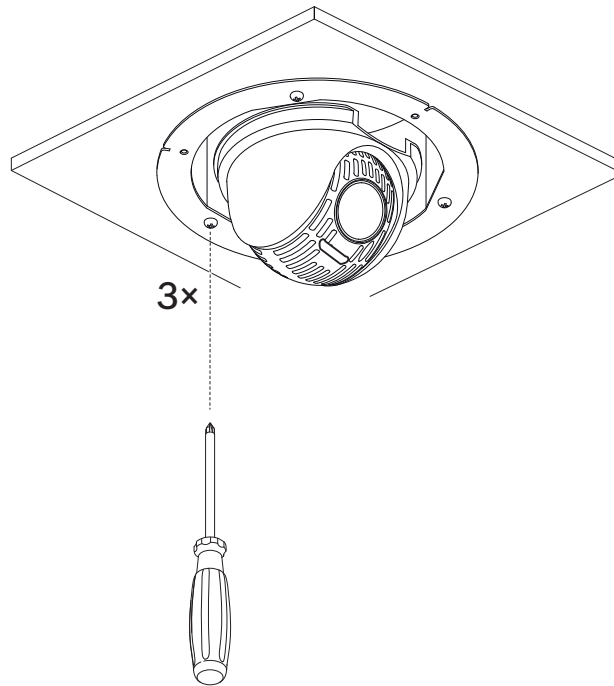
**Figure 8.4:** Secure Bracket Assembly

## 8.4 Securing the Camera to the Ceiling

1. Connect the cables from the ceiling to the cables on the camera. Refer to the chapter Connection for more information.



2. Insert the camera (without the trim ring / bubble enclosure) into the hole in the ceiling. Ensure not to pinch the cables.
3. Turn each fastening screw to secure the clamps in the ceiling.

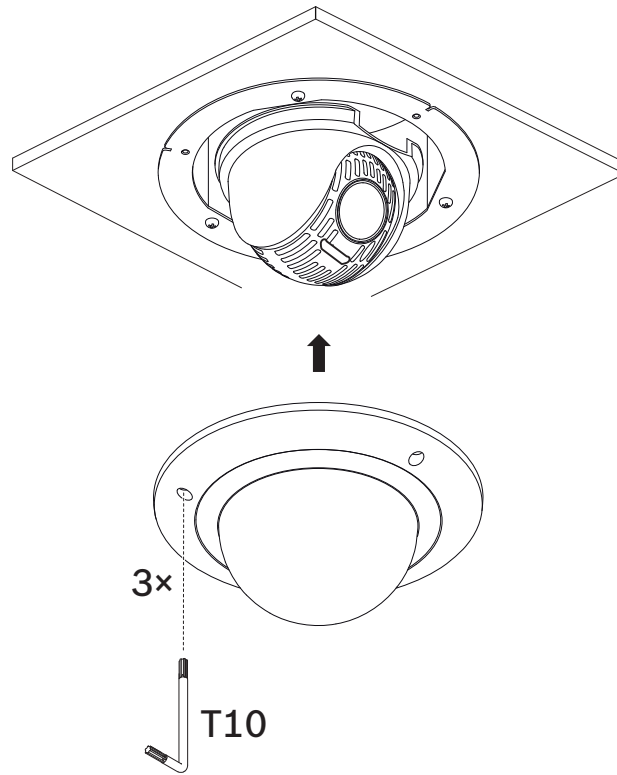


4. Tighten the clamps using the Phillips screwdriver to secure the housing to the ceiling.

**Warning!**

Over torquing the ceiling clamps can damage the clamp or ceiling. Only tighten the clamp until it contacts the ceiling and you start to feel some resistance. If using a power screwdriver, set the torque level to the lowest setting.

5. Place the trim ring / bubble enclosure in position over the camera block, aligning the three (3) screws. Tighten the screws firmly to secure the trim ring / bubble enclosure to the in-ceiling bracket.



## 9 Installing an In-Ceiling Camera in a Drywall Ceiling

### 9.1 Tools Required

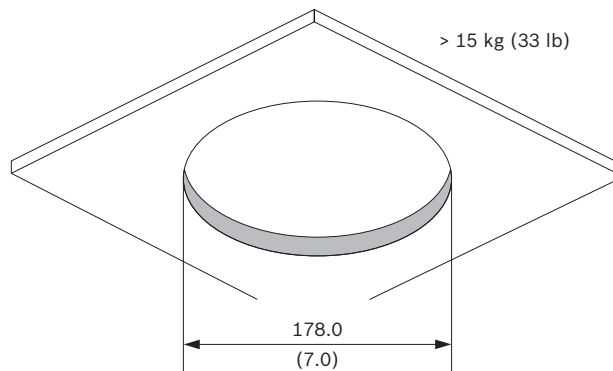
- Appropriate screwdriver (Phillips head)
- Appropriate tool for cutting a hole in drywall or ceiling tile (if applicable)

### 9.2 Installation Requirements

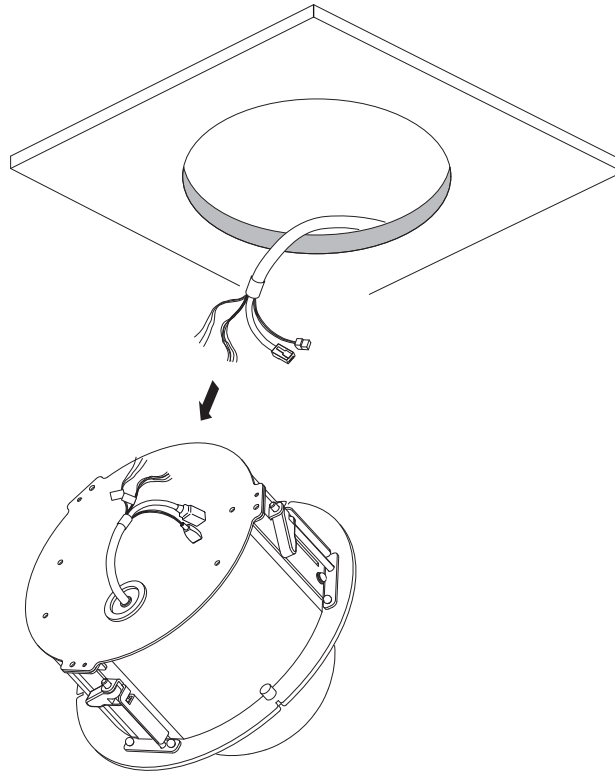
- The ceiling thickness ranges from 10 - 40 mm.
- The ceiling can sustain at least eight (8) times the weight of the camera (1.81 kg (4 lb)): > 14.5 kg (32 lb).

### 9.3 Preparing the Ceiling for Installation

1. Use the template to mark the hole in the ceiling for the camera.
2. Cut the hole in the ceiling with a drywall utility saw or jig saw.

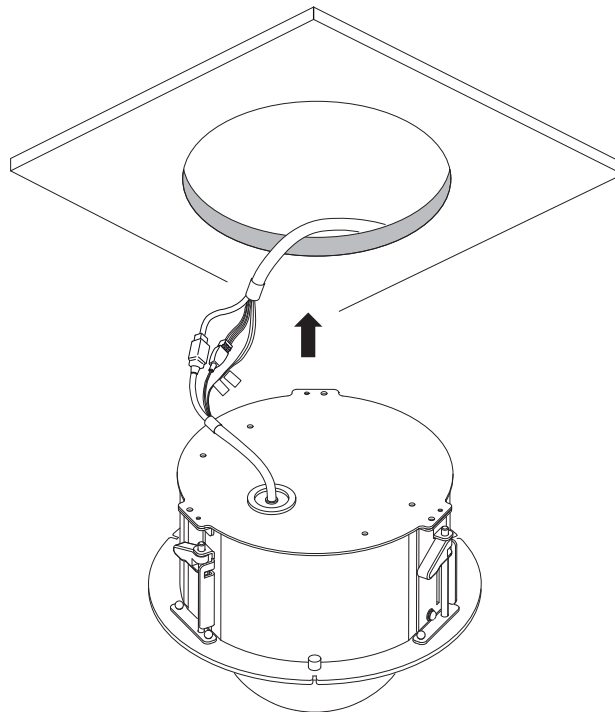


3. Pull the cables (24 VAC, CAT 5/CAT6, alarm and/or audio as needed) through the hole in the ceiling.

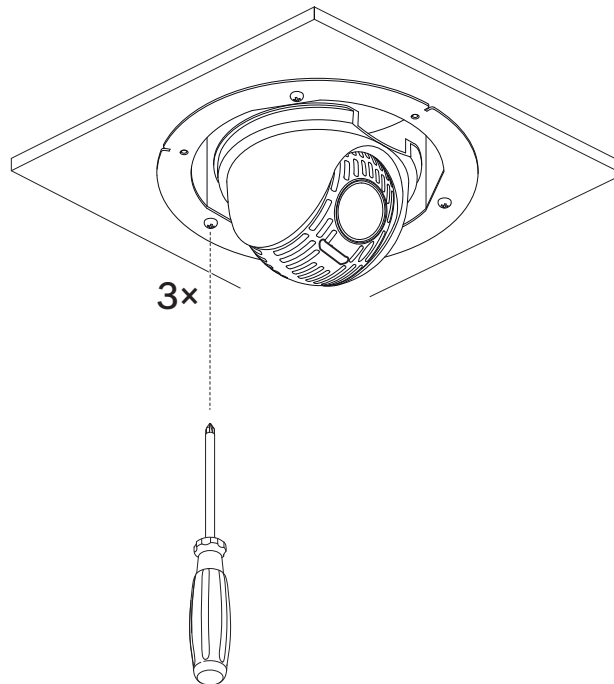


## 9.4 Securing the Camera to the Ceiling

1. Connect the cables from the ceiling to the cables on the camera. Refer to the chapter Connection for more information.



2. Insert the camera (without the trim ring / bubble enclosure) into the hole in the ceiling. Ensure not to pinch the cables.
3. Turn each fastening screw to secure the clamps in the ceiling.



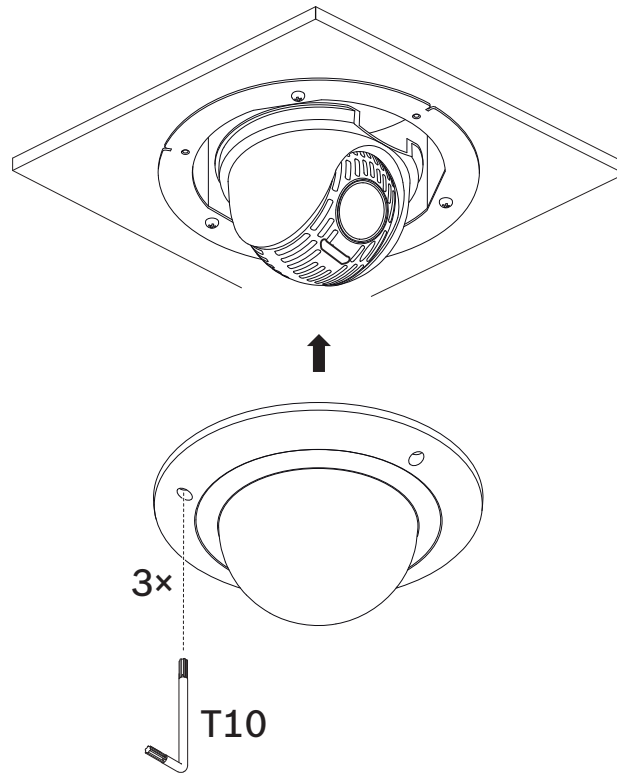
4. Tighten the clamps using the Phillips screwdriver to secure the housing to the ceiling.

**Warning!**

Over torquing the ceiling clamps can damage the clamp or ceiling. Only tighten the clamp until it contacts the ceiling and you start to feel some resistance. If using a power screwdriver, set the torque level to the lowest setting.

5. Place the trim ring / bubble enclosure in position over the camera block, aligning the three (3) screws. Tighten the screws firmly to secure the trim ring / bubble enclosure to the in-ceiling bracket.





## 10 Installing a Camera Directly to an Indoor Wall

### 10.1 Installation Requirements

- The wall is thick enough to install the mounting screws.
- The wall can sustain at least eight (8) times the weight of the camera (1.88 kg (4.14 lb)): > 15 kg (33 lb).

### 10.2 Preparing the Wall for Installation

**Notice!**

Indoor use only!

The instructions in this chapter apply to indoor installation only. For outdoor installation, use either the surveillance cabinet (NDA-U-PAx) or the mount plate (NDA-U-WMP).

1. Determine a secure location for the wall mount. Ensure there is an adequate opening in the wall for the cables to pass through.
2. Use the direct connect plate as a template to mark the location to drill holes for the four mounting screws (and anchors (user-supplied) if necessary), and to cut the hole for the cables.
3. Drill the holes.
4. Insert the wall anchors (user-supplied) (if necessary) into the wall at the locations marked in step 2.
5. Cut an appropriately-sized hole for the cables, using a drywall utility saw or jig saw.

### 10.3 Installing the Wall Mount

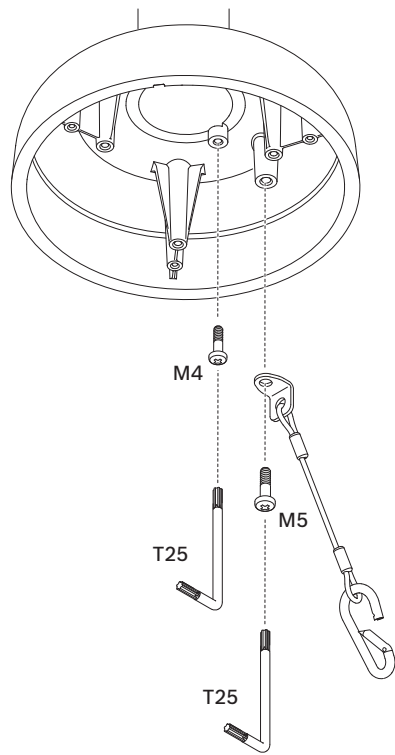
1. Attach the direct connect plate to the wall.
2. Thread the RJ45 cable and 24 VAC cables through the wall and then through the (adapter).

Ensure that the cables are long enough to reach through the mount and the camera's mounting cap to the connections from the camera.

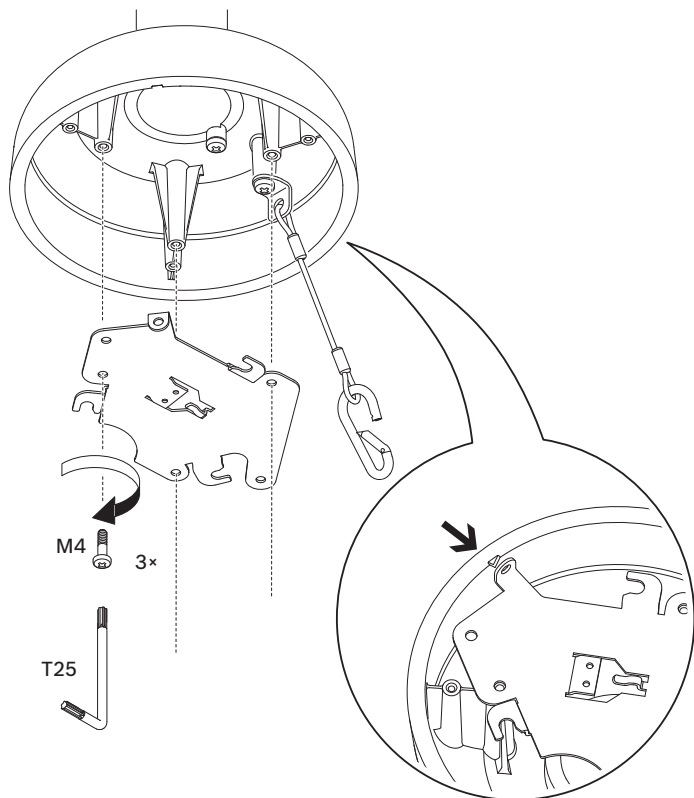
1. Slide the mounting flange over the wall mount.
2. Attach the wall mount to the mounting flange and to the direct connect plate using four M5 screws.
3. Attach the wall mount to the mounting flange and fix them on the front door of the Wall-mount Surveillance Cabinet by using four M5 screws.

### 10.4 Attaching the Camera to the Pendant Interface Plate

1. Install the pendant interface plate mount onto the end of the wall mount or the pipe mount.
2. Attach an M5 screw and the L-shaped end of the safety tether to the stand-off on the pendant interface plate mount with the T25 Torx screwdriver.
3. Attach the M4 screw to the ground point on the pendant interface plate mount with the T25 Torx screwdriver.

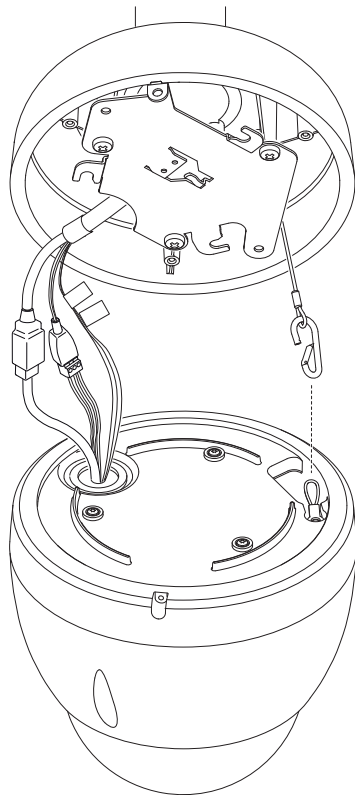


4. Route the cables from the ceiling out of the side of the mounting plate with the crescent-shaped cut-out.
5. Attach the metal mounting plate to the inside of the pendant interface plate mount with the three (3) M4 screws. Orient the plate as indicated in the following figure.

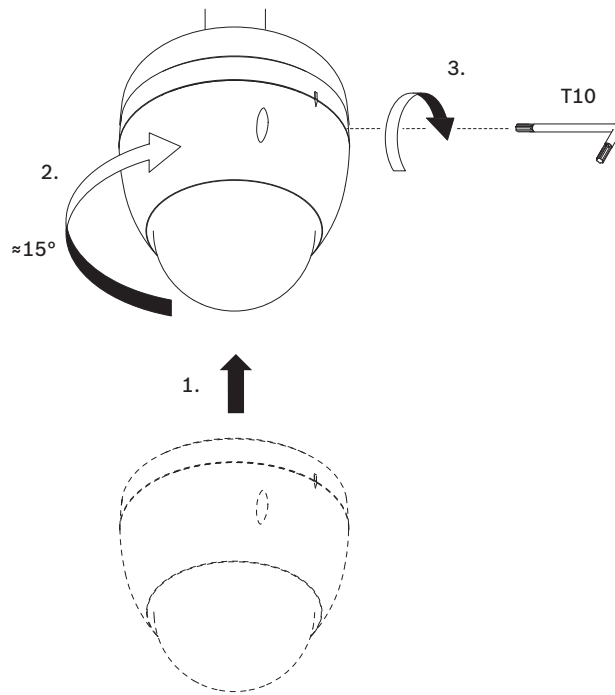


6. Attach the hook of the safety tether from the adapter to the bottom of the camera.

7. Connect the mating connectors from the user-supplied cables from the ceiling to the matching connectors from the camera. Refer to the chapter *Connection*, page 34 for more information.



8. Unlock the single safety locking screw on the base of the unit using the T10 Torx screwdriver.
9. Attach the camera to the mounting plate by inserting the vertical tab on the plate into the recessed slot on the top of the camera dome to the right of the safety locking screw.
10. Rotate the camera approximately 15 degrees in a clockwise direction to lock firmly into place.
11. Secure the safety locking screw with the T10 Torx screwdriver.



## 11 Installing a Pipe Mount and Camera

**Notice!**

Indoor use only!

This mount shall only be installed indoors. No outdoors installation is permitted.

### 11.1 Tools Required

- Appropriate tool for cutting a hole in drywall
- No. 2 Phillips screwdriver
- Torx screwdriver, T-25

### 11.2 Installation Requirements

- The ceiling is thick enough to install the mounting screws.
- The ceiling can sustain at least eight (8) times the weight of the camera (1.88 kg (4.14 lb)): > 15 kg (33 lb).

### 11.3 Preparing the Ceiling for Installation

1. Determine a secure location for the pipe mount. Ensure there is an adequate opening in the ceiling or mounting structure for the cables to pass through.

**Caution!**

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

**Notice!**

The fasteners and mounting surface must be capable of supporting a maximum load of 11.33 kg (25 pounds).

2. Use the direct connect plate as a template to mark the location to drill holes for the four mounting screws (and anchors (user-supplied) if necessary), and to cut the hole for the cables.
3. Drill the holes for the mounting screws.
4. Drill a hole (maximum of 20 mm [.79 in.]) in the center of the mounting location to feed the cables through the mount.
5. Insert the wall anchors (user-supplied), if necessary, into the ceiling at the locations marked in step 2.

### 11.4 Installing the Pipe Mount

1. Attach the direct connect plate to the ceiling or mounting surface.
2. Thread the RJ45 cable and 24 VAC cables through the ceiling and then through the (adapter).

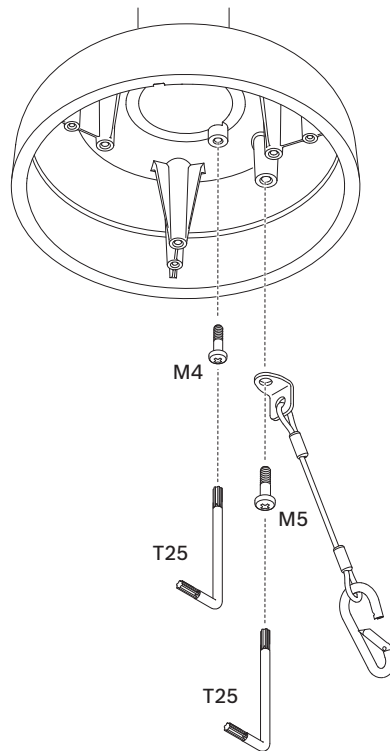
Ensure that the cables are long enough to reach through the mount and the camera's mounting cap to the connections from the camera.

1. Attach the mounting flange and (adapter) to the direct connect plate using four M5 screws.
2. Thread the cables through the pipe mount.
3. Attach the pipe mount to the mounting flange and (adapter).

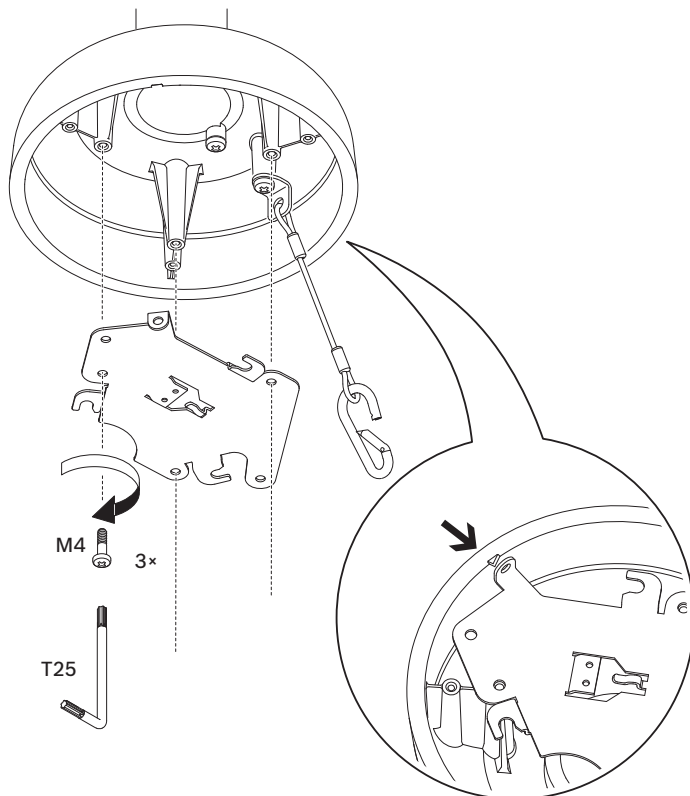
4. If you choose to install the pipe mount extension, thread the cables through the extension. Attach the pipe extension to the open end of the pipe mount.
5. Attach the hook at the end of the Safety Tether to the loop attached to the top of the camera.
6. Connect the mating connectors from the user-supplied cables from the pipe to the matching connectors from the camera. Refer to the chapter Connection for more information.
7. Place the top of the camera inside the mounting cap.
8. Rotate the camera approximately 15 degrees in a clockwise direction to lock firmly into place.
9. Secure the safety locking screw with the T15 Torx screwdriver.

### 11.5 Attaching the Camera to the Pendant Interface Plate

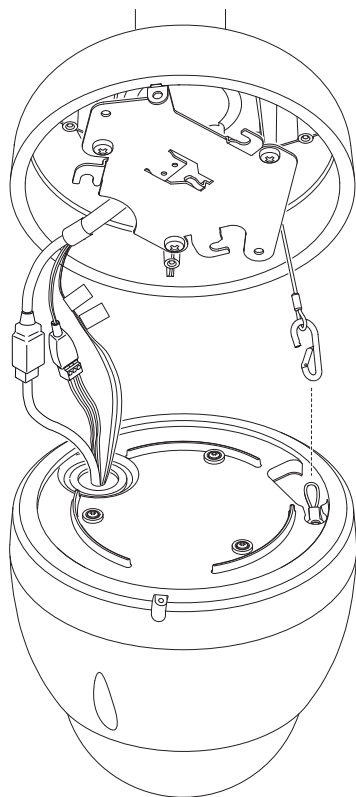
1. Install the pendant interface plate mount onto the end of the wall mount or the pipe mount.
2. Attach an M5 screw and the L-shaped end of the safety tether to the stand-off on the pendant interface plate mount with the T25 Torx screwdriver.
3. Attach the M4 screw to the ground point on the pendant interface plate mount with the T25 Torx screwdriver.



4. Route the cables from the ceiling out of the side of the mounting plate with the crescent-shaped cut-out.
5. Attach the metal mounting plate to the inside of the pendant interface plate mount with the three (3) M4 screws. Orient the plate as indicated in the following figure.

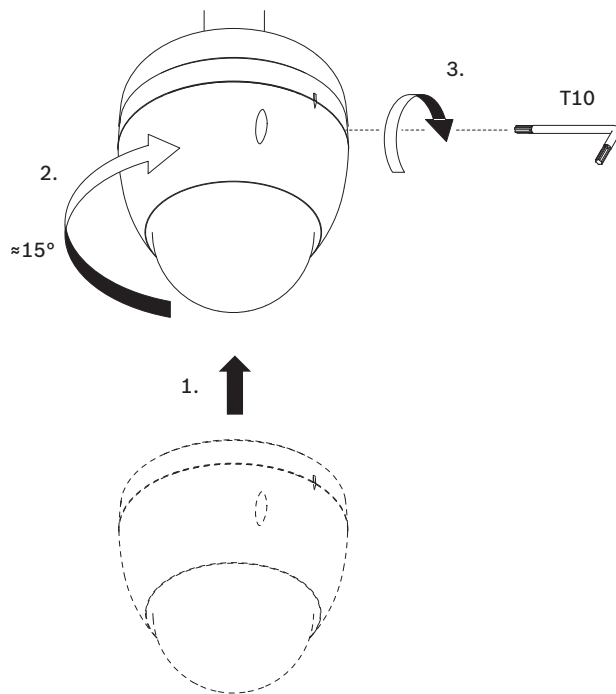


6. Attach the hook of the safety tether from the adapter to the bottom of the camera.
7. Connect the mating connectors from the user-supplied cables from the ceiling to the matching connectors from the camera. Refer to the chapter *Connection*, page 34 for more information.





8. Unlock the single safety locking screw on the base of the unit using the T10 Torx screwdriver.
9. Attach the camera to the mounting plate by inserting the vertical tab on the plate into the recessed slot on the top of the camera dome to the right of the safety locking screw.
10. Rotate the camera approximately 15 degrees in a clockwise direction to lock firmly into place.
11. Secure the safety locking screw with the T10 Torx screwdriver.



## 12 Connection



**Caution!**

Compliance with EN50130-4 Alarm Standard – CCTV for Security Applications

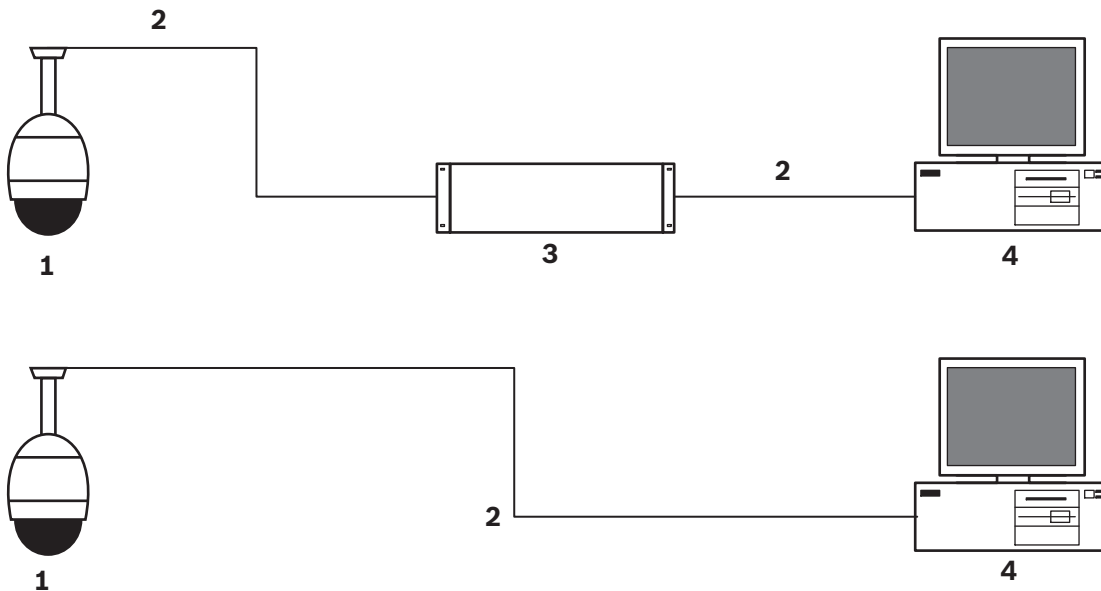
To meet the requirements of the EN50130-4 Alarm Standard, an ancillary uninterruptable power (UPS) supply is necessary. The UPS must have a **Transfer Time** between 2–6 ms and a **Backup Runtime** of greater than 5 seconds for the power level as specified on the product datasheet.

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

- ▶ Connect the cable to the 24 VAC wires from the camera.

Label ID	Description	Cable Wire Color
AC24V	24 VAC	Red
AC24V	24 VAC	Black
EARTH	Earth Ground	Yellow/Green

- ▶ Connect the Ethernet cable to the RJ45 connector of the camera. The following figure illustrates a typical system configuration.



**Figure 12.1:** AUTODOME IP System Config

1	AUTODOME camera
2	IP connection (Ethernet/CAT5/CAT6) (100 m maximum)
3	Network switch
4	Network device (computer with monitor, DVR/NVR, etc.)

- ▶ If desired, connect the alarm and/or audio wires as identified in the following table.

Label ID	Description	Cable Wire Color
ALARM_COM	Alarm Communications	Red
ALARM_OUT	Alarm Out	Brown

<b>Label ID</b>	<b>Description</b>	<b>Cable Wire Color</b>
ALARM_IN1	Alarm In 1	White
ALARM_IN2	Alarm In 2	Blue
AUDIO_OUT	Audio Out	Grey
GND	Ground	Black
AUDIO_GND	Audio Ground	Green
AUDIO_IN	Audio In	Purple

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# 13 Decommissioning









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