

AUTODOME 4000 Mini PTZ Dome

VEZ-400 Series



BOSCH

en Installation Manual

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1 Safety EN

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



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 Safety Instructions

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

1. **Cleaning** - Unplug the unit from the outlet before cleaning. Follow any instructions provided with the unit. Generally, using a dry cloth for cleaning is sufficient, but a moist fluff-free cloth or leather shammy may also be used. Do not use liquid cleaners or aerosol cleaners.
2. **Heat Sources** - Do not install the unit near any heat sources such as radiators, heaters, stoves, or other equipment (including amplifiers) that produce heat.

3. **Ventilation** - Any openings in the unit enclosure are provided for ventilation to prevent overheating and ensure reliable operation. Do not block or cover these openings. Do not place the unit in an enclosure unless proper ventilation is provided, or the manufacturer's instructions have been adhered to.
4. **Object and liquid entry** - Never push objects of any kind into this unit through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electrical shock. Never spill liquid of any kind on the unit. Do not place objects filled with liquids, such as vases or cups, on the unit.
5. **Lightning** - For added protection during a lightning storm, or when leaving this unit unattended and unused for long periods, unplug the unit from the wall outlet and disconnect the cable system. This will prevent damage to the unit from lightning and power line surges.
6. **Controls adjustment** - Adjust only those controls specified in the operating instructions. Improper adjustment of other controls may cause damage to the unit. Use of controls or adjustments, or performance of procedures other than those specified, may result in hazardous radiation exposure.
7. **Overloading** - Do not overload outlets and extension cords. This can cause fire or electrical shock.
8. **Power cord and plug protection** - Protect the plug and power cord from foot traffic, being pinched by items placed upon or against them at electrical outlets, and its exit from the unit. For units intended to operate with 230 VAC, 50 Hz, the input and output power cord must comply with the latest versions of *IEC Publication 227* or *IEC Publication 245*.
9. **Power disconnect** - Units have power supplied to the unit whenever the power cord is inserted into the power source, or when High Power-over-Ethernet (High PoE) power is provided over the Ethernet CAT 5E/6 cable. The unit is operational only when the ON/OFF switch is in the ON position. The power cord is the main power disconnect device for switching off the voltage for all units. When High PoE or PoE+ (820.3at) is used to power the unit, the power is provided over the Ethernet cable, which is then the main power disconnect device for switching off the voltage for all units.
10. **Power sources** - Operate the unit only from the type of power source indicated on the label. Before proceeding, be sure to disconnect the power from the cable to be installed into the unit.

For battery powered units, refer to the operating instructions.


For external power supplied units, use only the recommended or approved power supplies.

For limited power source units, this power source must comply with *EN60950*. Substitutions may damage the unit or cause fire or shock.


For 24 VAC units, voltage applied to the unit's power input should not exceed $\pm 10\%$, or 28 VAC. User-supplied wiring must comply with local electrical codes (Class 2 power levels). Do not ground the supply at the terminals or at the unit's power supply terminals. If unsure of the type of power supply to use, contact your dealer or local power company.
11. **Servicing** - Do not attempt to service this unit yourself. Opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.
12. **Damage requiring service** - Unplug the unit from the main AC power source and refer servicing to qualified service personnel when any damage to the equipment has occurred, such as:
 - the power supply cord or plug is damaged;
 - exposure to moisture, water, and/or inclement weather (rain, snow, etc.);
 - liquid has been spilled in or on the equipment;

- an object has fallen into the unit;
 unit has been dropped or the unit cabinet is damaged;
 unit exhibits a distinct change in performance;
 unit does not operate normally when the user correctly follows the operating instructions.
13. **Replacement parts** - Be sure the service technician uses replacement parts specified by the manufacturer, or that have the same characteristics as the original parts. Unauthorized substitutions may cause fire, electrical shock, or other hazards.
 14. **Safety check** - Safety checks should be performed upon completion of service or repairs to the unit to ensure proper operating condition.
 15. **Installation** - Install in accordance with the manufacturer's instructions and in accordance with applicable local codes.
 16. **Attachments, changes or modifications** - Only use attachments/accessories specified by the manufacturer. Any change or modification of the equipment, not expressly approved by Bosch, could void the warranty or, in the case of an authorization agreement, authority to operate the equipment.

1.5 Important Notices

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

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

Electrostatic-sensitive device - Use proper CMOS/MOS-FET handling precautions to avoid electrostatic discharge. NOTE: Wear required grounded wrist straps and observe proper ESD safety precautions when handling the electrostatic-sensitive printed circuit boards.

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

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

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

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

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

Video loss - Video loss is inherent to digital video recording; therefore, Bosch Security Systems cannot be held liable for any damage that results from missing video information. To minimize the risk of losing information, we recommend multiple, redundant recording systems, and a procedure to back up all analog and digital 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 & ICES Information

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

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

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

NOTE: This equipment has been tested and found to comply with the limits for a **Class A** digital device, pursuant to Part 15 of the FCC Rules and ICES-003 of Industry Canada. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a **commercial environment**. This equipment generates, uses, and radiates radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his expense.

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

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

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 UL's *Standard(s) for Safety for Information Technology Equipment, UL 60950-1*. UL Certification does not cover the performance or reliability of the security or signaling aspects of this product.

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

1.6 Customer Support and Service

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

Service Centers

USA

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

Fax: 800-366-1329

Email: cctv.repair@us.bosch.com

Customer Service

Telephone: 888-289-0096

Fax: 585-223-9180

Email: security.sales@us.bosch.com

Technical Support

Telephone: 800-326-1450

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

Email: technical.support@us.bosch.com

Repair Center

Telephone: 585-421-4220

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

Email: security.repair@us.bosch.com

Canada

Telephone: 514-738-2434

Fax: 514-738-8480

Europe, Middle East & Africa Region

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

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

Asia Pacific Region

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

http://www.boschsecurity.com/startpage/html/asia_pacific.htm

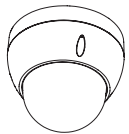




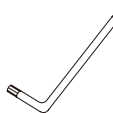

More Information

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

2 Unpacking

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

2.1 Parts List

	Qty	Description
	1	AUTODOME 4000 Mini PTZ Dome camera
	1	Drilling Template
	4	6 x 30 mm plastic anchors
	4	#8 x 32 screws and attached O-rings
	4	M4 x 12 Torx screws and attached O-rings
	1	T20 Security Torx wrench
	1	User Manual (this booklet)



Warning!

Make sure that appropriate mounting screws, rubber O-rings, and anchors are used for the surface to which the camera is mounted. The supplied plastic anchors and mounting screws are only suitable for mounting the camera on a concrete ceiling.

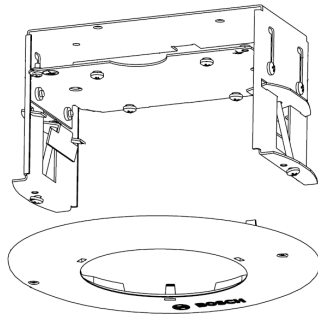
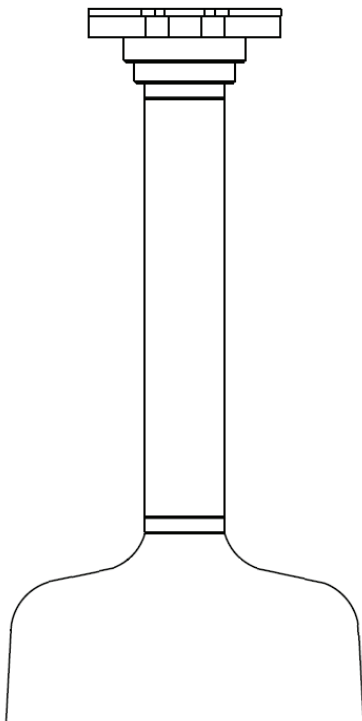
2.2 Additional Tools Required

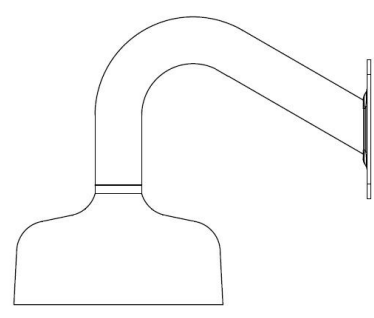
- No. 2 Phillips screwdriver
- Drill with appropriate bit for pre-drilling anchor holes
- Appropriate tool for cutting a hole in drywall or ceiling tile (if applicable)

3 Installation Overview

The AUTODOME 4000 camera comes with the hardware and installation instructions necessary to mount the camera to a concrete ceiling.

The following mounting accessories are available (and are supplied with separate mounting instructions):

Model Number	Description	Application	Drawing
VEZ-A4-IC	AUTODOME 4000 In-ceiling Mount (Charcoal color and white color ceiling plate included)	where the camera is mounted into a recessed ceiling	
VEZ-A4-PC	AUTODOME 4000 Pipe mount (Charcoal color)	where the camera is mounted to a horizontal (high) ceiling	
VEZ-A4-PW	AUTODOME 4000 Pipe mount (White color)		

Model Number	Description	Application	Drawing
VEZ-A4-WC	AUTODOME 4000 Wall mount (Charcoal color)	where the camera is mounted to a vertical wall	
VEZ-A4-WW	AUTODOME 4000 Wall mount (White color)		



Caution!

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

3.1

Dimensions

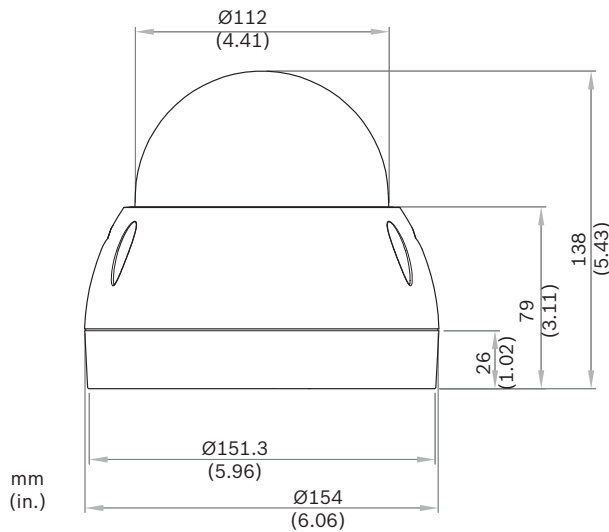


Figure 3.1: Dimensions - Camera

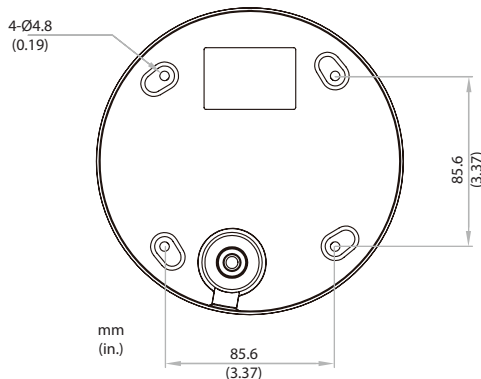


Figure 3.2: Dimensions - Mounting Holes

4 Installing a Wall Mount (AUTODOME 4000)

4.1 Overview

This chapter details how to mount the AUTODOME 4000 camera to a wall.

For an outdoor installation, you must obtain the mounting screws with rubber sealing rings supplied with the camera to ensure a water-tight environment inside the unit and to maintain an IP Environmental Protection Rating.



Notice!

The image sensors in modern cameras are highly sensitive and require special care for proper performance and extended lifetime. Follow the guidelines for optimum results with your camera:

Do not expose to direct sunlight or bright spotlights in operating and nonoperating conditions.

Avoid bright lights in the field of view of the camera. Bright lights cause a “smearing” effect, which is visible as white lines above and below the highlight. Prolonged exposure to bright lights may cause bleaching of the sensor's color filters. This will be visible as colored spots in the picture and is irreversible.

4.2 Parts List

The following table lists the parts included in the Wall mount (VEZ-A4-WW (white) or VEZ-A4-WC (charcoal)):

Quantity	Part
1	Wall mount: VEZ-A4-WW (white) or VEZ-A4-WC (charcoal)
1	Dome mounting cap
1	Rubber pad
1	Roll of Teflon tape
1	Tube of Silicone grease
1	Installation manual (this booklet)

4.3 Installing the Wall Mount with a Metal Single-gang Junction Box

Use the following instructions for applications using a metal single-gang junction box. To mount directly onto a mounting surface, refer to *Installing the Wall Mount directly onto a Mounting Surface, page 15*.

1. Determine a secure location for the wall mount.



Warning!

The mounting surface, mounting screws/plugs, and junction box must be stable and capable of supporting a maximum load of 15 kg (33 pounds). Mounting to an improper surface or using improper mounting material can cause camera malfunction and is a potential safety hazard.

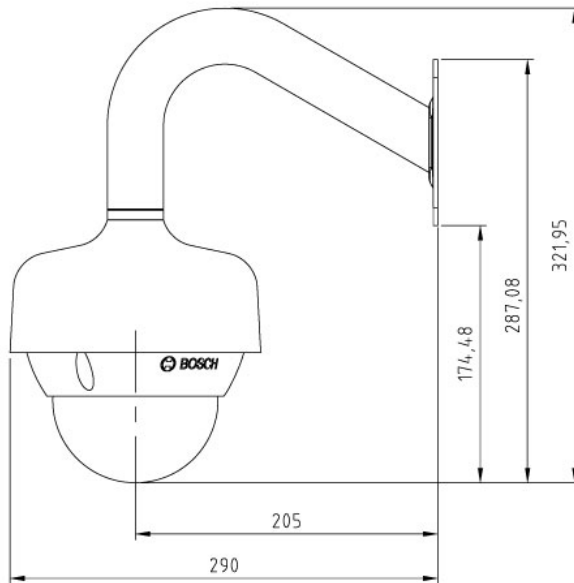


Figure 4.1: Wall Mount Dimensions

2. Fit a user-provided metal single-gang junction box to the wall. In moist, wet, or outdoor applications, ensure that the junction box is rated accordingly.
3. Attach a grounded metal conduit to the junction box clamp.

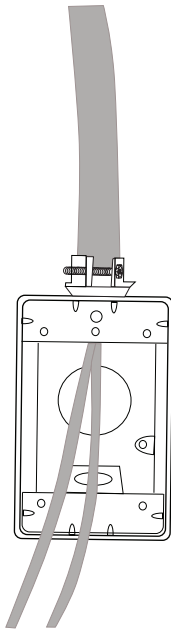


Figure 4.2: Metal Conduit

4. Feed the wires through the conduit.
5. Attach the mounting cap to the arm of the wall mount. In moist, wet or outdoor applications, make sure that the thread on the arm is sufficiently taped with Teflon tape before the mounting cap is attached.
6. Feed all wires from the camera through the arm into the metal conduit using a wire puller tool. In moist, wet, or outdoor applications, make sure that the rubber seal is placed between the arm and the junction box or mounting surface before the connections are made.

7. Make all necessary connections inside of the junction box. In moist locations, make sure that all connections and loose connectors are sealed against water/moist (even if the connection is not used).
8. Fit the arm to the mounting surface or to a junction box. In wet, moist, or outdoor applications, make sure that the rubber seal is in place and pressed firmly between the arm and mounting surface on all sides.

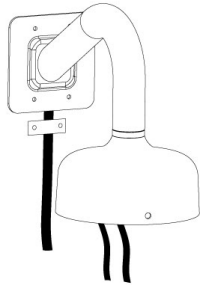


Figure 4.3: Fit to Gang Junction Box

9. Secure with the appropriate user-provided SEMS screws that have an integral lock washer to dig through the paint and ensure an electrical ground connection to the arm housing or ground lug.
10. Skip to *Installing the Camera to the Mounting Cap*, page 16, to continue the installation.

4.4 Installing the Wall Mount directly onto a Mounting Surface

The following instructions detail the surface preparations and the steps to install the Wall Mount for an outdoor application.

1. Determine a secure location for the wall mount.



Warning!

The mounting surface and mounting screws/plugs must be stable and capable of supporting a maximum load of 15 kg (33 pounds). Mounting to an improper surface or using improper mounting material can cause camera malfunction and is a potential safety hazard.

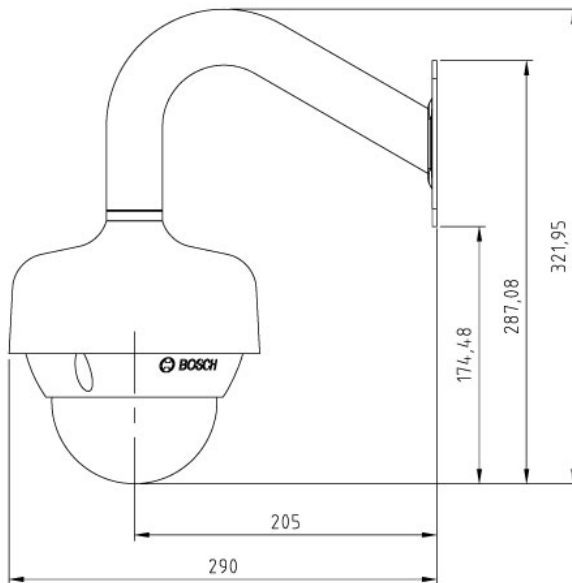


Figure 4.4: Wall Mount Dimensions

2. Use the four (4) holes at the end of the Wall Mount as a template to mark the position where the holes should be drilled to secure the mount.
3. Drill the four (4) holes in the installation location, screws not supplied. Use a minimum screw length of 10 mm (.39 in.).
4. Drill a fifth hole (maximum of 20 mm) in the center of the four-hole pattern used to mount the arm.
5. Feed all wires from the camera through the arm using a wire puller tool, and make the necessary connections.
6. In moist, wet, or outdoor applications, place the flat gasket (item 1, below), between the surface and Wall Mount, and make sure that the wires go through the gasket into the wall.
7. Secure the mount using four (4) appropriate user-provided fasteners such as Moly or Toggle bolts.
8. Attach the mounting cap to the arm. In moist, wet, or outdoor applications, make sure that the thread on the arm is sufficiently taped with Teflon tape before the mounting cap is attached.
9. Skip to *Installing the Camera to the Mounting Cap*, page 16, to continue the installation.

4.5 Installing the Camera to the Mounting Cap

Use the following instructions to install the camera to the mounting cap.

1. Remove the dome cover from the camera by loosening the three (3) dome cover mounting screws.

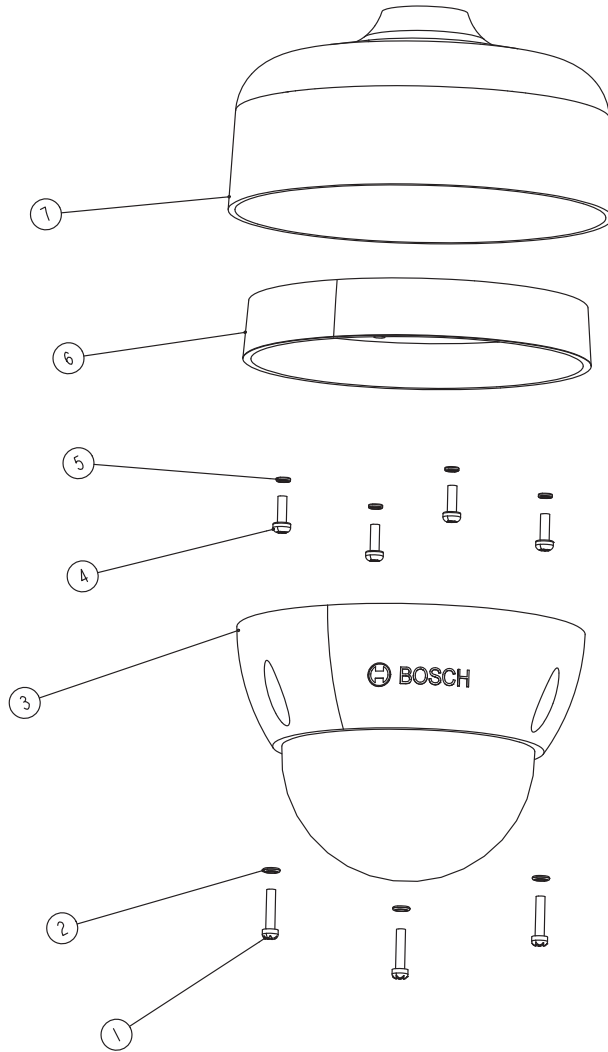


Figure 4.5: Location of parts of camera dome and mounting cap

Number	Description
1	Dome cover mounting screws
2	Rubber sealing rings for mounting screws
3	Dome cover
4	Mounting screws
5	Rubber sealing rings for mounting screws
6	Camera base
7	Mounting cap

2. Align the camera base with the mounting cap, and mount the base to the mounting cap using the four (4) mounting screws supplied with the camera. In moist, wet, or outdoor applications, make sure that all four mounting screws are equipped with a rubber seal ring, and that they are fully tightened to ensure protection against water ingress.
3. Mount the dome cover to the camera base. In moist, wet, or outdoor applications, make sure that all three mounting screws are equipped with a rubber seal ring, and that they are tightened fully to ensure protection against water ingress.

5 Installing a Pipe Mount (AUTODOME 4000)

5.1 Overview

This chapter details how to mount the AUTODOME 4000 camera to a pipe.

For an outdoor installation, you must obtain the mounting screws with rubber sealing rings supplied with the camera to ensure a water-tight environment inside the unit and to maintain an IP Environmental Protection Rating.

Notice!

The image sensors in modern cameras are highly sensitive and require special care for proper performance and extended lifetime. Follow the guidelines for optimum results with your camera:



Do not expose to direct sunlight or bright spotlights in operating and non-operating conditions.

Avoid bright lights in the field of view of the camera. Bright lights cause a “smearing” effect, which is visible as white lines above and below the highlight. Prolonged exposure to bright lights may cause bleaching of the sensor's color filters. This will be visible as colored spots in the picture and is irreversible.

5.2 Parts List

The following table lists the parts included in the Pipe mount (VEZ-A4-PW (white) or VEZ-A4-PC (charcoal)):

Quantity	Part
1	Pipe mount: VEZ-A4-PW (white) or VEZ-A4-PC (charcoal)
2	Pipe mount extension poles, 20 cm (7.9 in.) and 30 cm (11.8 in.)
1	Pipe extension coupler
1	Ceiling flange/base
1	Roll of Teflon tape
1	Tube of Silicone grease
1	Installation manual (this booklet)

5.3 Installing the Pipe Mount

Use the following instructions to install a pipe mount.

Note: Certain steps contain additional information for outdoor installations.

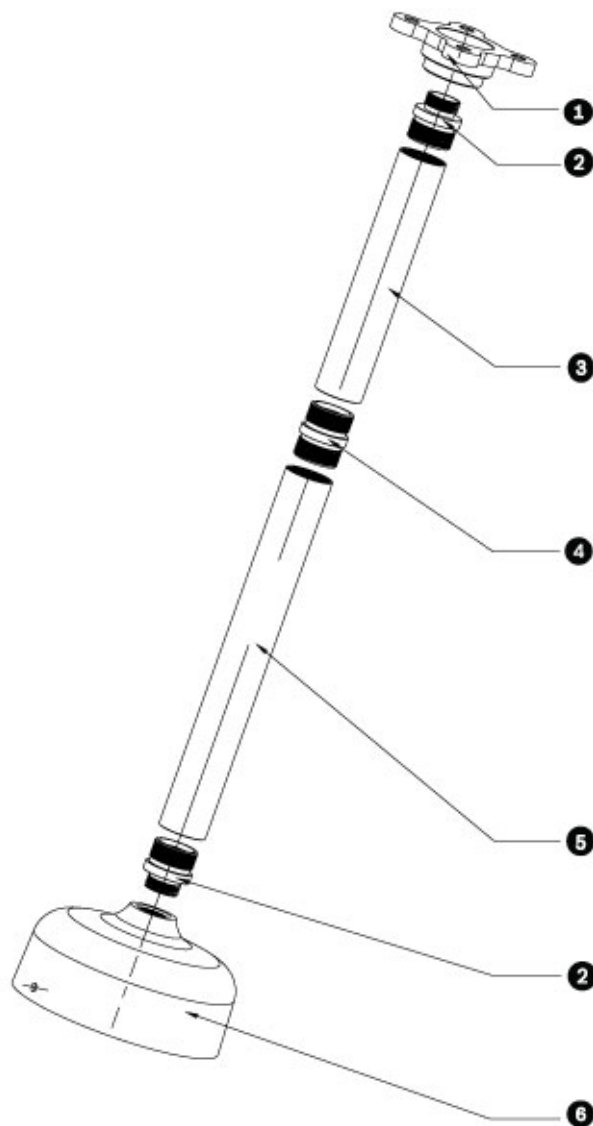


Figure 5.1: Parts of a pipe mount

1	Base
2	Coupling, white pipe to 3/4 - 14 NPS
3	Pipe, 200 mm
4	Coupling, white pipe to pipe
5	Pipe, 300 mm
6	Mounting cap

▶ Determine a secure, hard surface location for the ceiling pipe mount.



Warning!

The mounting surface, mounting screws/plugs, and junction box must be stable and capable of supporting a maximum load of 15 kg (33 pounds). Mounting to an improper surface or using improper mounting material can cause camera malfunction and is a potential safety hazard.

- ▶ Use the four (4) holes in the base or in the rubber pad (supplied) as a template to mark the location on the ceiling to drill holes for the mounting screws (not supplied). Use the center of the four-hole pattern in the base to mark the location of the hole (maximum of 20 mm [.79 in.]) to feed the connection cables through the ceiling.
- ▶ Drill the screw holes. Cut the hole for the connection cables.
- ▶ Place the rubber pad between the base and the ceiling to ensure protection against water ingress. Secure the base to the ceiling using the mounting screws (minimum length of 10 mm [.39 in.]).
- ▶ Feed the cables through the ceiling and the base.

**Caution!**

All wires for installation applications must be routed through a grounded conduit.

**Notice!**

Bosch recommends removing the connectors from the cables to allow the cables to fit more easily through the pipe extensions. Reconnect the connectors to the cables after you have assembled the pipe mount completely.

- ▶ Apply Teflon tape (supplied) to both sets of threads of the coupling (white pipe to 3/4 - 14 NPS) to ensure protection against water ingress.
- ▶ Fasten the coupling to the base.
- ▶ Feed the cables through the coupling.
- ▶ Select the pipe length of 200 mm (7.9 in.), 300 mm (11.8 in.), or combine the two (2) pipes with the integral coupler for 505 mm (20 in.).

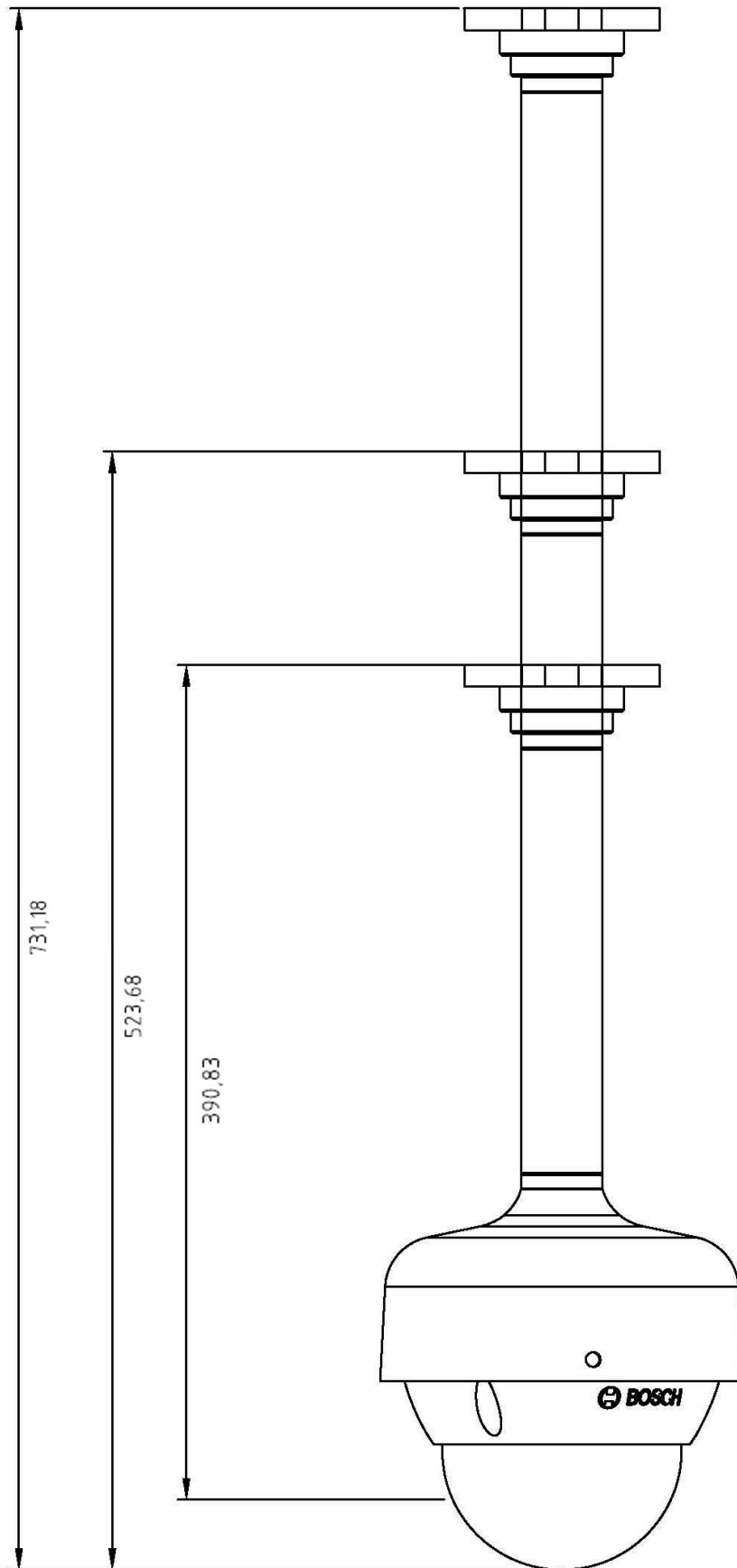


Figure 5.2: Pipe Mount Dimensions

- ▶ Fasten the selected pipe extension (200 mm or 300 mm) to the coupling.
- ▶ Feed the cables through the pipe extension.
- ▶ Apply Teflon tape (supplied) to both sets of threads of the next coupling (either white pipe to 3/4 - 14 NPS (for 200 mm or 300 mm) or white pipe to pipe (for 505 mm)).
- ▶ Fasten the coupling to the pipe extension.
- ▶ For 505 mm, fasten the next section of pipe extension to the white pipe to pipe coupling. Apply Teflon tape to the white pipe to 3/4 - 14 NPS coupling. Fasten the last pipe extension. Feed the cables through the pipe extension. Repeat for the white pipe to 3/4 - 14 NPS coupling.
- ▶ Fasten the mounting cap to the coupling.
- ▶ Feed the cables through the mounting cap.

5.4 Installing the Camera to the Mounting Cap

Use the following instructions to install the camera to the mounting cap.

1. Remove the dome cover from the camera by loosening the three (3) dome cover mounting screws.

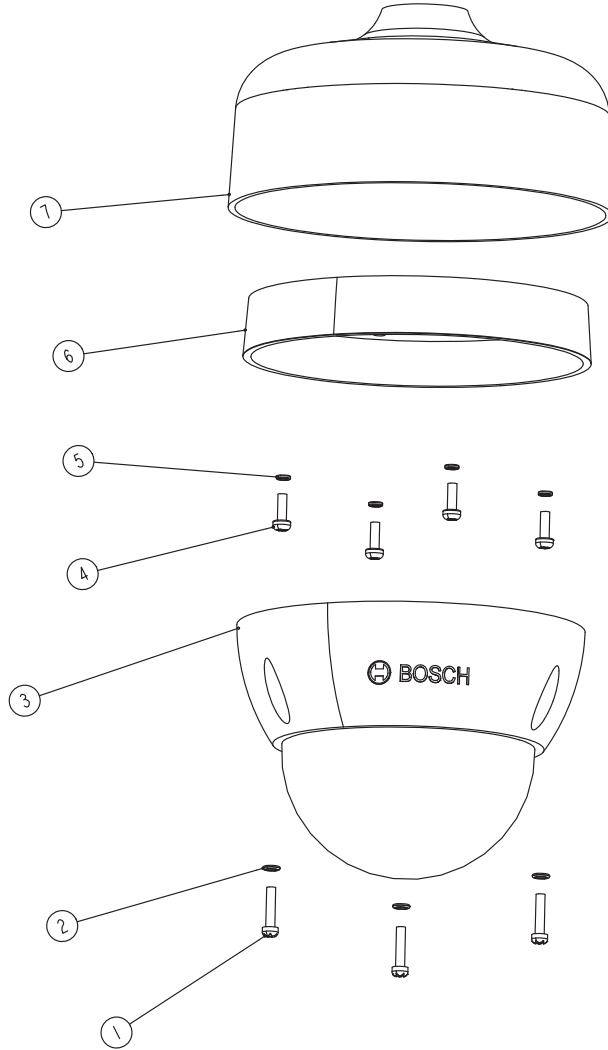


Figure 5.3: Location of parts of camera dome and mounting cap

Number	Description
1	Dome cover mounting screws
2	Rubber sealing rings for mounting screws
3	Dome cover
4	Mounting screws
5	Rubber sealing rings for mounting screws
6	Camera base
7	Mounting cap

2. Align the camera base with the mounting cap, and mount the base to the mounting cap using the four (4) mounting screws supplied with the camera. In moist, wet, or outdoor applications, make sure that all four mounting screws are equipped with a rubber seal ring, and that they are tightened fully to ensure protection against water ingress.
3. Mount the dome cover to the camera base. In moist, wet, or outdoor applications, make sure that all three mounting screws are equipped with a rubber seal ring, and that they are tightened fully to ensure protection against water ingress.
 - ▶ Make the necessary connections to the camera. See the next chapter.

6 Connection

After the camera is mounted, connect the video, control, and power cables.

**Caution!**

Do not connect power to the camera until all other connections are made.

**Caution!**

All wires for installation applications must be routed through a grounded conduit.

**Caution!**

To prevent humidity problems, the camera must be installed in dry conditions, and the cable leads should be sealed once connected.

6.1 Typical Wiring Configuration

Use the following illustration as a guide for preparing and connecting the wiring:

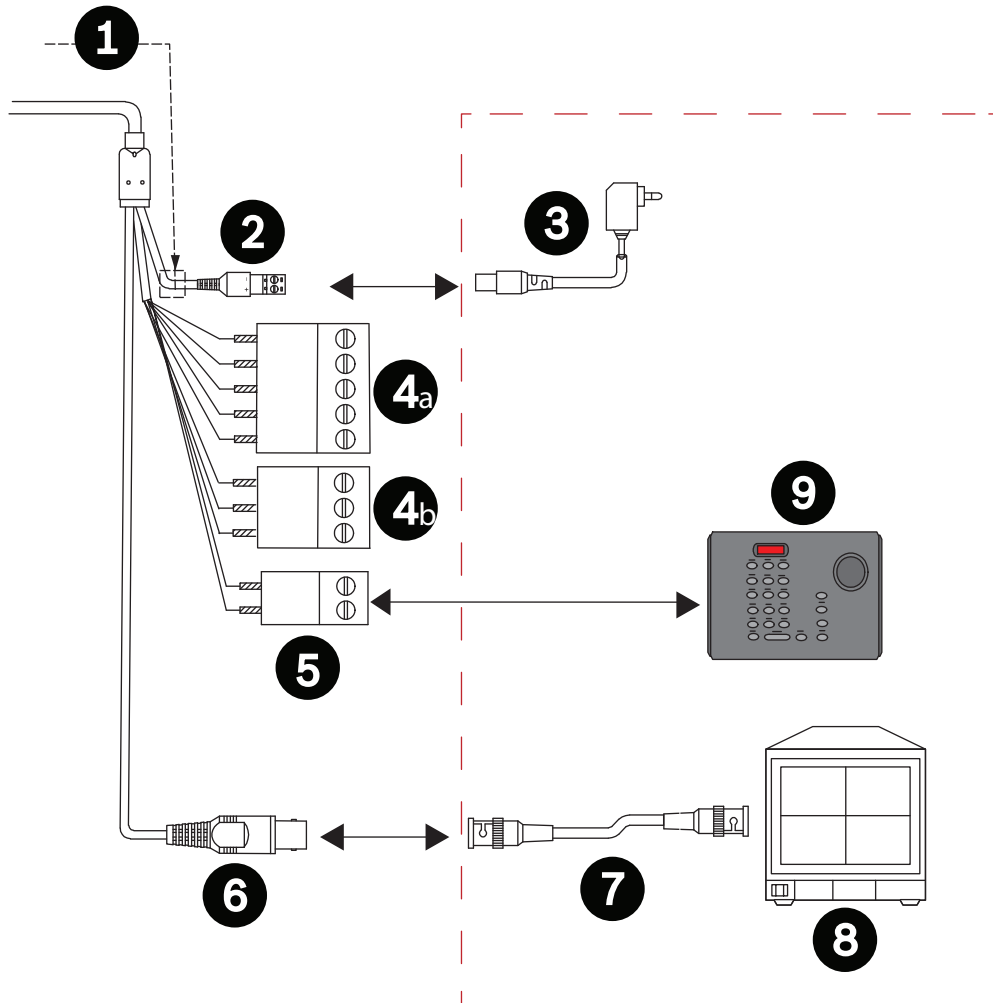


Figure 6.1: Typical wiring configuration

1	24 VAC Power In
2	Power connector with screw terminals
3	Power adapter (supplied separately) (24 VAC, Peak 2.5 A)
4a	5-pin I/O terminal (Alarms and ground)
4b	3-pin I/O terminal (Alarm NC/COM/NO)
5	2-pin data terminal (RS-485 Connection)
6	Video Out (Female BNC connector)
7	Video In to monitor (Male BNC connector)
8	CCTV Monitor
9	Bosch keyboard controller

Note: The box around several objects in the graphic above indicates that those devices are supplied separately.

6.2 RS-485 Connections

The camera can be controlled by an external device or control system using an RS-485 duplexer. The total length of the cable for communication should not exceed 1 km (3937 ft). If the distance between the camera and the control room is greater than 1 km (3937 ft), Bosch recommends using a repeater (not supplied).



Notice!

The wire shield must be tied to signal at both ends, if 2-wire twisted pair is used.



Notice!

When the RS-485 signal is looped through, ensure that (only) the last device is terminated properly. Improper RS-485 wiring or termination may result in unreliable system operation.

Use a 2-wire (shielded), half-duplex, differential, multi-drop with the following attributes:

Wire Type	2-wire Shielded Twisted Pair
Distance	1.2 Km (3937 ft)
Gauge	0.511 mm (24 AWG)
Impedance	120 Ω

Table 6.1: RS-485 Wire Specifications

The following table shows the terminal connections for the 2-pin terminal block RS-485 connections (see , page 26, item 5):

Number	Signal	Color
1	TRX +	Sky
2	TRX -	White

Table 6.2: 2-pin Terminal Block Connections



Notice!

When the camera's RS-485 port is connected to a MIC-BP3 Biphas convertor, the camera's TRX+ should be connected to the convertor's RxB, and TRX- should be connected to RxA. The camera's baud rate should be set to 9600, and the protocol should be set to Bosch OSRD. Also make sure that the camera ID is configured correctly. For further details on setting up the MIC-BP3, please refer to the separate MIC-BP3 Bi-Phase Converter Card Installation and Operation Manual.

6.3 Video Connection

Coaxial cable terminated with a male BNC connector is the most common method for transmitting composite video from the camera to a monitor. If the head end device features built in video termination then no termination connector is needed.

Size	O.D. between 4.6 mm (0.181 in.) and 7.9 mm (0.312 in.)
Shield	Copper braid: 95%
Central Conductor	Standard copper center
Terminal Connector	Male BNC

Table 6.3: Recommended Coax Specifications

Connecting the Video

To connect the video, do the following:

1. Terminate the coaxial cable from the head end system with a male BNC connector. Alternately, switch the head end system to 75 Ohm termination.
2. Connect the male BNC connector to the Video Out female BNC connector from the base of the camera.

6.4 Alarm Connections

The camera provides four alarm inputs and one alarm output. Each input can be activated by dry contact devices such as pressure pads, passive infrared detectors, door contacts, and similar devices. The alarm output can activate an external device, such as a buzzer.

Wire alarms either Normally Open (N.O.) or Normally Closed (N.C.); you must program the alarm inputs N.O. (the default) or N.C. through the on-screen display menus.

The following table summarizes the maximum distances for alarm wires:

Wire Size		Maximum Distance	
AWG	mm	Meters	Feet
22	0.644	500	152.4
18	1.024	800	243.8

Connecting the Alarms

Use the following tables to connect alarm wires to the 3-pin and to the 5-pin terminal blocks from the camera:

Number	Signal	Color
1	NC	Yellow
2	COM	Orange
3	NO	Green

Table 6.4: 3-pin Terminal Block Connections

Number	Signal	Color
1	AL3	Blue
2	GND ALM	Black
3	AL2	Violet

Number	Signal	Color
4	AL1	Gray
5	AL0	Brown

Table 6.5: 5-pin Terminal Block Connections

6.5 Power Connections



Caution!

The camera unit accepts 24 VAC power only. Do not connect 120 V or 230 V to this camera!

The recommended power cable is a 2-conductor, 14-18 gauge cable, depending on the distance.

A/W	14 AWG (2.5 mm)	16AWG (1.5 mm)	18 AWG (1.0 mm)
2 A / 43 W (with heater)	250 m (820 ft)	150 m (492 ft)	100 m (328 ft)

6.6 Camera Settings

The camera can communicate with external switching devices such as a multiplexer or a DVR by setting the Rotary and Dip switches. Refer to the tables below for setting the camera's ID and selecting the protocol. The camera's Dip switches can be accessed by removing the dome cover, and are located on a PCB attached to the camera base.



Caution!

To prevent humidity problems, the camera's dome cover must be removed only in dry conditions.



Caution!

When (re)mounting the dome cover to the camera base, ensure that each screw has a rubber O-ring, and that the large rubber O-ring is in place on the camera base. This ensures protection against water ingress.

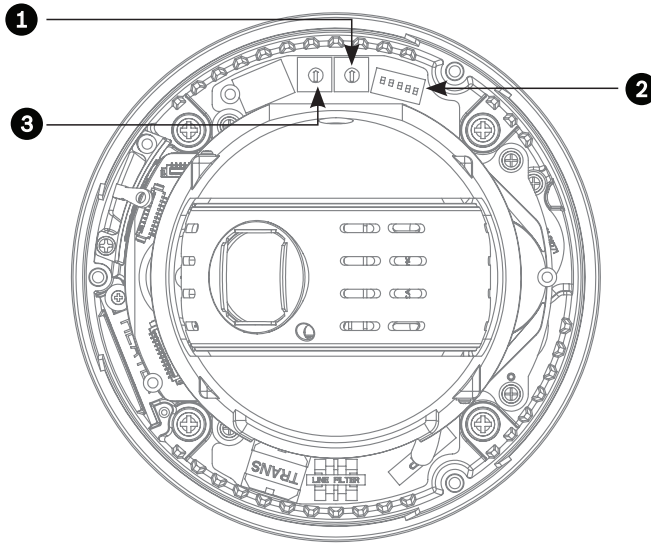


Figure 6.2: Dome Camera Switches

Number	Description
1	SW301 Rotary switch
2	SW303 Dip switches
3	SW302 Rotary switch



Figure 6.3: Close-up of Rotary Switches and Dip Switches

6.6.1 Setting the address (ID) of the camera

To prevent faulty operations and malfunctions, each camera must have a unique address (ID). The default setting is 0[ID001].

X0	X1
SW301	SW302

Table 6.6: Dome Camera ID Setting (Rotary Switches SW301, SW302)

6.6.2 Setting the protocol of the camera

Set the protocol setting, the baud rate, and the termination setting of dip switch SW303, using the data in the tables below.

Note: The value marked * is the default setting.

No1	No2	Protocol
Off	On	Bosch OSRD*
Off	Off	Pelco-D/Pelco-P

Table 6.7: Camera Protocol Setting (No. 1 & 2, Dip Switch SW303)

No3	No4	Baud Rate (bps)
Off	Off	2400
Off	On	4800
On	Off	9600*
On	On	38400

Table 6.8: Camera Baud Rate Setting (No. 3 & 4, Dip Switch SW303)

No5	Termination
Off	Off
On	On*

Table 6.9: Camera's RS-485 Termination Setting (No. 5, Dip Switch SW303)



Notice!

When the RS-485 signal is looped through, make sure that (only) the last device is properly terminated. Improper RS-485 wiring or termination may result in unreliable system operation.

7 Troubleshooting

If problems occur, check the installation of the camera with the instructions in this manual. Refer to this guide for further information.

Problem	Solution
No video on screen.	<ul style="list-style-type: none"> - Verify that the power is connected to all components in the system. - Verify that the power switch is ON. - Verify the status of cables or the connection of cables.
Poor video quality.	<ul style="list-style-type: none"> - Check the power supply voltage (normal 24 VAC) directly at the camera. - Check the camera settings. - Check the video quality directly at the camera with a service monitor. - Check the quality and length of video cables, and possible EMC interference. - Check the quality of connectors and potential moisture/corrosion. - If the lens or the dome window is dirty, clean it with a clean cloth.
Camera is not working properly (including wrong position of camera).	<ul style="list-style-type: none"> - Power-cycle the camera and power supply, or reset the camera using the configuration menu [Main > System > Reboot]. - Check the connection of the power cable and the status of the camera. - Initialize the camera [Main > System > Initialize]. - Check the power rating of the power supply. - Measure the voltage at the camera (since there could be a drop in voltage due cable length). The power consumption increases when the camera is moving (especially at high speed) and when the heater is on. The voltage at the camera should always be 24 VAC (+/- 10%).
The communication between controller and camera (via RS-485 cable) is not working properly.	<ul style="list-style-type: none"> - Check that the RS-485 cable is connected correctly. - Check the ID/Protocol/Baud rate/Termination setting.
I want to set up the camera ID via the dip switch at the back of the camera, but the dip switch is not enabled.	The value in the Setting Type menu (Installer Setup > Camera ID Setup > Setting Type) must be HW (Hardware), or the dip switch will not be enabled.
The surface of the dome case is hot.	<ul style="list-style-type: none"> - Check the voltage level of the dome camera and the status of the camera. - Check that the camera is connected to the proper power.
The image on the screen flickers.	<ul style="list-style-type: none"> - Check to see if the camera faces directly into the sun or a fluorescent lamp. If so, reposition the dome. - Check for flickers on the screen.

Problem	Solution
The camera has 20 Privacy Masking zones, but I can only set 16.	Motion Detection function is enabled. Only 16 zones can be displayed when this function is enabled.
I set Image Flip function, but it is disabled.	Privacy Masking function is enabled. When this function is enabled, Image Flip function is disabled. Both functions cannot be enabled at the same time.
I set Image Inverse function, but it is disabled.	Privacy Masking function is enabled. When this function is enabled, Image Inverse function is disabled. Both functions cannot be enabled at the same time.
I want to use Privacy Masking, but it is disabled.	Check that Image Flip function or Image Inverse Function is enabled. When either of these functions is enabled, Privacy Masking is disabled automatically.
I cannot set a new password.	Try entering the Master Password (9527) before setting a new password.
I cannot record a tour.	Check the size of the memory buffer. Once the buffer reaches 100%, the camera will not record a tour. Clear the buffer to regain memory space.
Auto SensUp Max mode does not function.	Check that Enhancement function is enabled. When this function is enabled, AutoSenUp Max does not function.
I set WDR function, but it is disabled.	Check that Enhancement function is enabled. When this function is enabled, WDR function is disabled.
Digital Zoom capability is limited.	Check that Enhancement function is enabled. When this function is enabled, Digital Zoom capability is limited.
I set multiple alarms, but I see only one triggered.	Check the priority numbers of the alarms. If two or more alarm pins with the same priority number are triggered simultaneously, the system gives higher priority to the alarm with the smaller number, and handles only that alarm.

8 Technical data

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

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