



# UHI/UHO Series Camera Housing

UHx (UHI, UHO)



**BOSCH**

**en** Operation Manual



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# 1 Safety

## 1.1 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. It is generally sufficient to use a dry cloth for cleaning, but a moist lint-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 devices (including amplifiers) that produce heat.
3. **Ventilation** - Any openings in the unit housing 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. **Water** - Do not use this unit near water, for example near a bathtub, washbowl, sink, laundry basket, in a damp or wet basement, near a swimming pool, in an outdoor installation, or in any area classified as a wet location. To reduce the risk of fire or electrical shock, do not expose this unit to rain or moisture.
5. **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, which 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.
6. **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.
7. **Control 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.
8. **Overloading** - Do not overload outlets and extension cords. This can cause fire or electrical shock.
9. **Power disconnect** - Units with or without ON/OFF switches have power supplied whenever the power cord is inserted into the power source; however, 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.
10. **Power sources** - Operate the unit only via the type of power source indicated on the label. Before proceeding, be sure to disconnect the power from the cable being connected to the unit.
  - For battery powered units, refer to the operating instructions.
  - For units supplied by an external power source, 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 +/- 10% or 21.6-26.4 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, for example if:
    - 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
    - the unit has been dropped or the unit cabinet is damaged
    - the unit exhibits a distinct change in performance
    - the 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 they 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 on completion of service or repairs to the unit, to ensure that the unit is in 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 to 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.

## 1.2 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.



### **Caution!**

Medium risk: Indicates a potentially hazardous situation. If not avoided, this may result in minor or moderate injury. Alerts the user to important instructions accompanying the unit.



### **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.

## 1.3 Important Notices

**Accessories** - Do not place this unit on an unstable stand, tripod, bracket, or mount. The unit may fall, causing serious injury to persons and/or severe damage to the unit. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer. When a cart is used, exercise caution and care when moving the cart/apparatus combination to avoid tipping it over, which could result in injury. Quick stops, excessive force, or uneven surfaces may cause the cart/unit combination to overturn. Mount the unit in line with the manufacturer's instructions.

**All-pole power switch** - Incorporate an all-pole power switch, with a contact separation of at least 3 mm in each pole, into the electrical installation of the building. If it is needed to open the housing for servicing and/or other activities, use this all-pole switch as the main disconnect device for switching off the voltage to the unit.

**Camera grounding** - When mounting the camera in potentially damp environments, ensure the system is grounded through the metal housing of the unit (see section: Connecting the Power).

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

**Coax grounding:**

- Ground the cable system if connecting an outside cable system to the unit.
- Connect outdoor equipment to the unit's inputs only after this unit has had its grounding plug connected to a grounded outlet or its ground terminal is properly connected to a ground source.
- Disconnect the unit's input connectors from outdoor equipment before disconnecting the grounding plug or 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, grounding of the coax to a discharge unit, size of grounding conductors, location of discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. Your Bosch product was developed and manufactured with high-quality material and components that can be recycled and reused. This symbol means that electronic and electrical appliances that have reached the end of their service life must be collected and disposed of separately from household waste material. Separate collecting systems are usually in place for disused electronic and electrical products. Please dispose of these units at an environmentally compatible recycling facility, in line with *European Directive 2002/96/EC*.

**Environmental statement** - Bosch has a strong commitment to the environment. This unit has been designed to respect the environment as much as possible.

**Electrostatic-sensitive device** - Take proper CMOS/MOS-FET handling precautions to avoid electrostatic discharge. NOTE: You must wear 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 16 A. This must be in accordance with *NEC800 (CEC Section 60)*.

**Grounding and polarization** - This unit may be fitted with a polarized alternating current line plug (a plug with one blade wider than the other blade). This safety feature allows the plug to fit into the power outlet in only one way. If unable to insert the plug fully into the outlet, contact a locally certified electrician to replace the obsolete outlet. Do not defeat the safety purpose of the polarized plug.

Alternatively, this unit may be fitted with a 3-pole grounding plug (a plug with a third pin for earth grounding). This safety feature allows the plug to fit into a grounded power outlet only. If unable to insert the plug into the outlet, contact a locally certified electrician to replace the obsolete outlet. Do not defeat the safety purpose of the grounding plug.

**Moving** - Disconnect the power before moving the unit. Move the unit with care.

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

Pluggable equipment - Install the socket outlet near the equipment so it is easily accessible.

**Power disconnect** - Units have power supplied whenever the power cord is inserted into the power source. The power cord is the main power disconnect for all units.

**Power lines** - Do not locate the camera near overhead power lines, power circuits, electrical lights, or anywhere where it might come into contact with power lines, circuits, or lights.

#### **SELV**

All the input/output ports are Safety Extra Low Voltage (SELV) circuits. SELV circuits should only be connected to other SELV circuits.

Because the ISDN circuits are treated like telephone-network voltage, avoid connecting the SELV circuit to the Telephone Network Voltage (TNV) circuits.

**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 lost digital information, Bosch Security Systems recommends 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.

#### **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/IEC 60950-1*. UL Certification does not cover the performance or reliability of the security or signaling aspects of this product.

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**Notice!**

This user guide 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. The ongoing development of the products may mean that the content of the user guide can change without notice. Bosch Security Systems accepts no liability for damage resulting directly or indirectly from faults, incompleteness or discrepancies between the user guide and the product described.

**FCC & ICES Information**

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

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

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

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

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

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

**Informations FCC et ICES**

*(modèles utilisés aux États-Unis et au Canada uniquement)*

Ce produit est conforme aux normes FCC partie 15. la mise en service est soumise aux deux conditions suivantes :

- cet appareil ne peut pas provoquer d'interférence nuisible et
- cet appareil doit pouvoir tolérer toutes les interférences auxquelles il est soumis, y compris les interférences qui pourraient influencer sur son bon fonctionnement.

AVERTISSEMENT: Suite à différents tests, cet appareil s'est révélé conforme aux exigences imposées aux appareils numériques de **Classe A** en vertu de la section 15 du règlement de la Commission fédérale des communications des États-Unis (FCC). Ces contraintes sont destinées à fournir une protection raisonnable contre les interférences nuisibles quand l'appareil est utilisé dans une **installation commerciale**. Cette appareil génère, utilise et émet de l'énergie de fréquence radio, et peut, en cas d'installation ou d'utilisation non conforme aux instructions, générer des interférences nuisibles aux communications radio. L'utilisation de ce produit dans une zone résidentielle peut provoquer des interférences nuisibles. Le cas échéant, l'utilisateur devra remédier à ces interférences à ses propres frais.



Au besoin, l'utilisateur consultera son revendeur ou un technicien qualifié en radio/télévision, qui procédera à une opération corrective. La brochure suivante, publiée par la Commission fédérale des communications (FCC), peut s'avérer utile : How to Identify and Resolve Radio-TV Interference Problems (Comment identifier et résoudre les problèmes d'interférences de radio et de télévision). Cette brochure est disponible auprès du U.S. Government Printing Office, Washington, DC 20402, États-Unis, sous la référence n° 004-000-00345-4.

## 1.4 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

##### Repair Center

Telephone: 800-566-2283

Fax: 800-366-1329

E-mail: [repair@us.bosch.com](mailto:repair@us.bosch.com)

##### Customer Service

Telephone: 888-289-0096

Fax: 585-223-9180

E-mail: [security.sales@us.bosch.com](mailto:security.sales@us.bosch.com)

##### Technical Support

Telephone: 800-326-1450

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

E-mail: [technical.support@us.bosch.com](mailto:technical.support@us.bosch.com)

#### Canada

Telephone: 514-738-2434

Fax: 514-738-8480

#### Europe, Middle East, Africa Region

##### Repair Center

Telephone: 31 (0) 76-5721500

Fax: 31 (0) 76-5721413

E-mail: [RMADesk.STService@nl.bosch.com](mailto:RMADesk.STService@nl.bosch.com)

#### Asia Region

##### Repair Center

Telephone: 65 63522776

Fax: 65 63521776

E-mail: [rmahelpdesk@sg.bosch.com](mailto:rmahelpdesk@sg.bosch.com)

##### Warranty and additional information

For additional information and warranty queries, please contact your Bosch Security Systems representative or visit our website at [www.boschsecurity.com](http://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.	Item	Part
1	Housing (with correct model number)	ABS
1	Spacer, 4 mm	ABS
1	Spacer, 9 mm	ABS
2	Screw, 1/4-20 x 1/4 in.	SS
2	Screw, 1/4-20 x 3/8 in.	SS
2	Screw, 1/4-20 x 3/4 in.	SS
2	Screw, 1/4-20 x 5/8 in.	SS
2	Screw, 1/4-20 x 7/16 in.	SS
2	Screw, 1/4-20 x 1/2 in.	SS
3	Screw, tamper-resistant	M3.5 T15
1	Wrench, tamper-resistant	M3.5 T15
1	Camera tray, part A	PS
1	Camera clamp	SS
2	Large washer, flat (camera to tray)	SS
3	Washer, flat	M6 SS
3	Washer, lock	M6 SS
3	Washer, flat	M6 SS
Models: UHI-OG-0, UHI-OGS-0, UHO-HGS-11, UHO-HBGS-11, UHO-HGS-51, UHO-HBGS-51, UHO-HBGS-61		
2	Fittings, 3/8-in. NPT with locking nut	
2	Fittings, 1/2-in. NPT with locking nut	

	UHO-HBPS-11	UHO-HGS-51, UHO-HBPS-51
1	4-pin mating connector, Male	4-pin mating connector, Female

## 2.2

### Tools required

- Small flat blade screwdriver
- Phillips screwdriver (#1)
- Adjustable wrench
- Wire cutter/stripper/crimper tool

### 3 Description

The UHI/UHO series are attractively styled housings for indoor and outdoor use. These housings meet customer demand for appearance, cost competitiveness, and easy installation. Heaters and blowers for all models operate at 50/60Hz. The 4-pin models have a 4-pin connector and a BNC connector instead of feed-through fittings.

The maximum camera/lens size (H x W x D) for all units is 91 x 81 x 262 mm (3.6 x 3.2 x 10.3 in.).

Key to installed accessory: Htr = heater; Blr = blower; SS = sun shield

	UHI-OG-O	UHI-OGS-O
Installed accessory	N/A	
Voltage range / power	N/A	
Camera voltage ratings	24/120/230 VAC	

**Table 3.1: Indoor units**

	UHO-HGS-11	UHO-HBGS-11	UHO-HBPS-11
Installed accessory	Htr, SS	Htr, Blr, SS	Htr, Blr, SS, 4-pin
Voltage range / power	21.6 to 25.4 VAC / 40 W		
Camera voltage ratings	24 VAC		

**Table 3.2: Outdoor 24 volt units**

	UHO-HBGS-61
Installed accessory	Htr, Blr, SS
Voltage range / power	108 to 132 VAC / 45 W
Camera voltage ratings	120 V

**Table 3.3: Outdoor 120 volt unit**

	UHO-HGS-51	UHO-HPS-51	UHO-HBGS-51	UHO-HBPS-51
Installed accessory	Htr, SS	Htr, SS, 4-pin	Htr, Blr, SS	Htr, Blr, SS, 4-pin
Voltage range / power	198 to 254 VAC / 40 W		198 to 254 VAC / 45 W	
Camera voltage ratings	230 VAC			

**Table 3.4: Outdoor 230 volt units**

## 4 Installation



### Caution!

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



### Caution!

These units must be properly and securely mounted to a supporting structure capable of sustaining the unit weight. Use care when selecting mounts or pan/tilts (not supplied) for installation; the mounting surface and unit's weight should be carefully considered.

### 4.1 Camera requirements

The cameras to be built into the housing must meet the requirements specified below.

Ambient temperature	0 °C to +50 °C (+32 °F to +122 °F)
Power consumption	10 W (max)
Voltage for low voltage units	12 VAC to 28 VAC; +12 VDC to +30 VDC
Voltage for high voltage units	100 VAC to 240 VAC
Weight without lens	450 g max
Weight with lens	1 kg max
Temperature under operating conditions	-20 °C to +50 °C (-4 °F to +122 °F)

**Table 4.1: Specifications for cameras**

### 4.2 Cable requirements

#### 4.2.1 Video transmission (coaxial)

Cable type runs < 300m (1000 ft) runs < 600m (2000 ft)	RG-59/U RG-11/U
Cable diameter (outer)	4.6 mm to 7.9 mm (0.18 in to 0.31 in)
Cable shape	Round
Cable shield	>93% braided copper
Center conductor	Stranded or solid copper
DC resistance RG-59/U RG-11/U	<15 ohm/1000 m <6 ohm/1000 m
Cable impedance	75 ohm
Certificating authority	UL
Environmental	Outdoor rated

Temperature rating	+80 °C (+176 °F) or greater
Reference type	Belden 9259

**Table 4.2: Video cable specifications**

### 4.2.2 Input power cord

Cable type	3 x 18 AWG
Cable diameter (outer)	4.6 mm to 7.9 mm (0.18 in. to 0.31 in.)
Cable shape	Round
Conductors	3 or 2
Voltage rating	300 V
Certificating authority	UL/C.S.A., UL VW-1
Environmental	Outdoor rated
Temperature rating	+105° C (+221° F) or greater
Reference type	Belden 19509, 3-conductor; Northwire FSJT183-81K, 3-conductor

**Table 4.3: Power cord specifications for North America**

Cable type	H05RN-F 3 G 0.75; H05RN-F 3 G 1.00
Cable diameter (outer)	4.6 mm to 7.9 mm (0.18 in. to 0.31 in.)
Cable shape	Round
Conductors	3 or 2
Voltage rating	300 V
Certificating authority	VDE
Environmental	Outdoor rated
Reference type	Olflex rubber cable 1600 252; Olflex rubber cable 1600 253

**Table 4.4: Power cord specifications for Europe**

### 4.2.3 Lens control cable

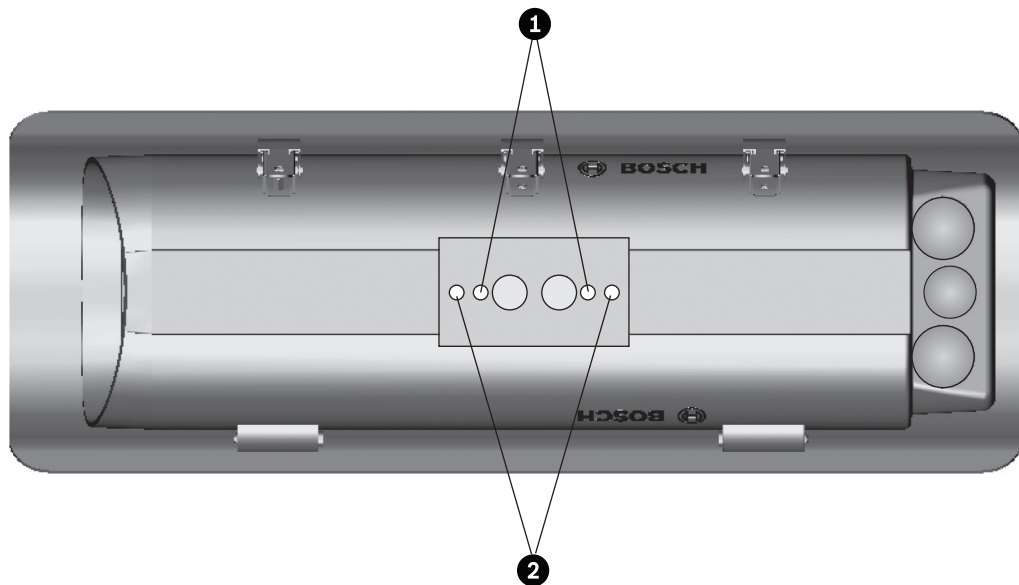
Cable type	Jacketed multiconductor cable
Cable diameter (outer)	4.6 mm to 7.9 mm (0.18 in. to 0.31 in.)
Cable shape	Round
Cable shield	Overall
Conductors	4 and 8

Conductor type	Stranded 20 to 16 AWG
Conductor insulation	Color-coded

**Table 4.5: Lens control cable specifications**

### 4.3 Housing mounting

1. Use two 1/4-20 x 0.50 in. screws and 1/4 in. spring washers to mount the housing to a mount or a pan/tilt. The spring washers must be used for the screws to thread properly.
2. The outermost set of 1/4-20 threaded holes are for mounting to feed-through mounts, and the innermost 1/4-20 holes are for mounting to all other mounts and pan/tilts.



**Figure 4.1: Thread holes for mounting with rear connections, or for feed through wiring**

1	For mounting with rear connections
2	For mounting with feed-through wiring

### 4.4 Opening the cover



#### **Warning!**

The heater will be HOT when in operation - DO NOT TOUCH. Always switch heater OFF when working on the camera.

Open the cover by unlatching the three latches on the side of the housing. If the optional tamper-resistant screws have been installed, use the supplied wrench to remove the screws before opening the latches.



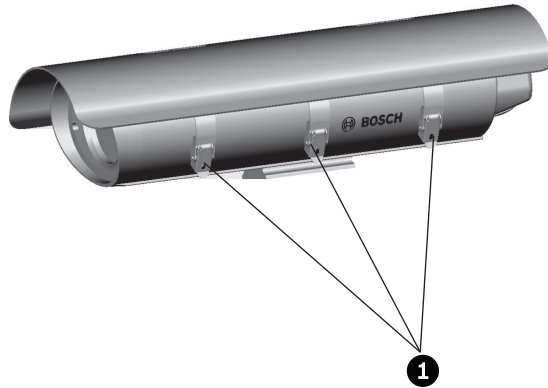


Figure 4.2: Unlatching the cover

## 4.5 Camera/Lens installation

1. Remove the two screws holding the camera tray to the housing. Remove tray from the housing.
2. If using the feed-through feature, refer to *Feed-through Wiring, page 19*.
3. For installation of zoom lens cameras:
  - Attach the lens to the camera.
  - Use the various 1/4-20 screws and appropriate 4 mm and/or 9 mm spacers provided to mount the camera and the lens to the camera tray. This camera tray is already pre-installed.
- ▶ Mounting fixed lens cameras in all housings:
  - Attach the lens to the camera.
  - Combine the 4 mm and the 9 mm spacers provided to mount the camera to the optional camera tray type A (use different combinations of the spacers to ensure that the camera lens is in the middle of the window). Use the 1/4-20 x 5/8 in. screw and large flat washer to secure the camera and spacer to the camera tray, as shown in the figure below.

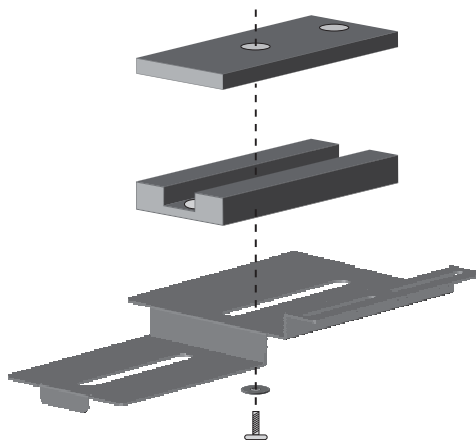
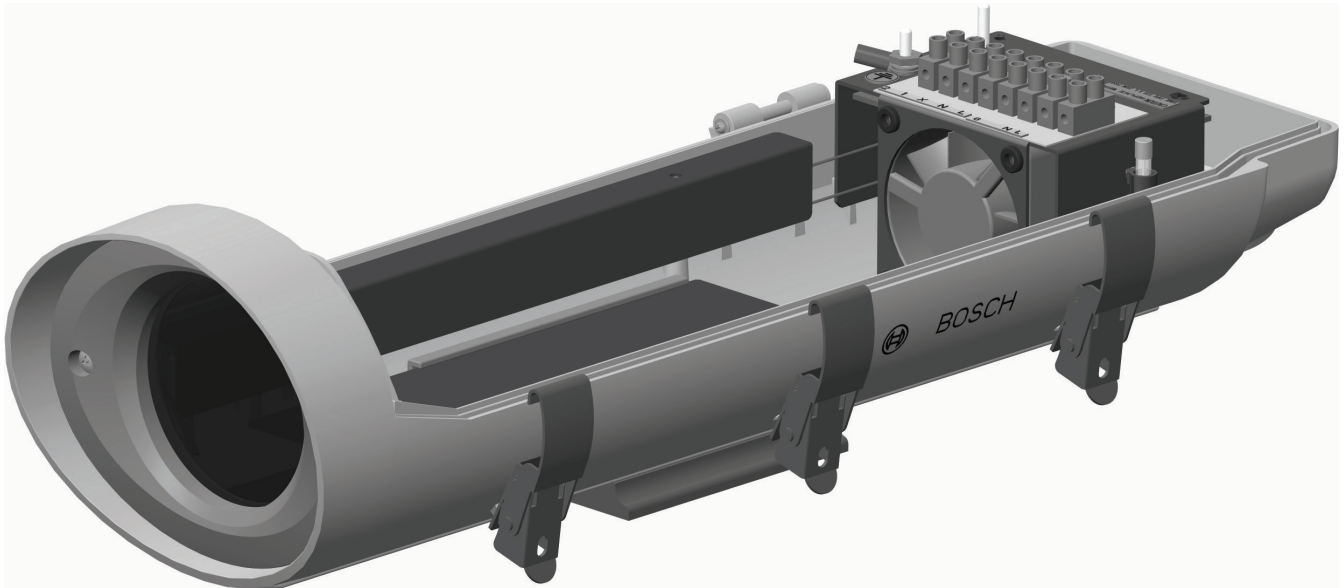


Figure 4.3: Spacers for mounting zoom lens and camera



Figure 4.4: Optional camera tray type A for fixed lens camera

- Slide the camera/lens tray in under the slot near the hinge side of the housing, as shown in the figure below. Slide the entire assembly forward approximately 5 mm (0.2 in.) from the front of the window. Install screws into the appropriate holes.



**Figure 4.5: Sliding camera/lens tray assembly into slot**

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## 5 Connection - Most Models

### 5.1 Camera/Lens wiring

See *Connection - UHO-HBPS-11, -51 | UHO-HPS-51, page 26* for UHO-HBPS-11, UHO-HPS-51, and UHO-HBPS-51 models.



#### **Warning!**

Use only cables meeting specifications in *Cable requirements, page 14* to wire cameras and lenses.

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#### 5.1.1

#### **Fittings**

The 3/8-in. NPT fitting accepts a round cable with diameter from 4.0 mm (0.16 in.) to 7.0 mm (0.28 in.).

The two larger 1/2-in. NPT fittings accept cables with diameters from 6.5 mm (0.26 in.) to 10.5 mm (0.42 in.).

---

#### **Caution!**

Always securely tighten all fittings to ensure a liquid-tight seal. Failure to do so could allow water to enter the housing and to damage the camera and lens. If a sealant is used, ensure that it is a neutral cure type. Sealants that release acetic acid may harm camera electronics. Use of drip loops is recommended on the wiring outside of the rear end cap.

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#### 5.1.2

#### **Conduit**

These housings allow direct connection of conduit.

1. Remove the rear hole plugs and attach the conduit and conduit fittings directly to the housing rear cap. The holes accept either 3/8-in. NPT or 1/2-in. NPT conduit fittings.
2. Any unused holes must be covered using the plugs provided with the housing.

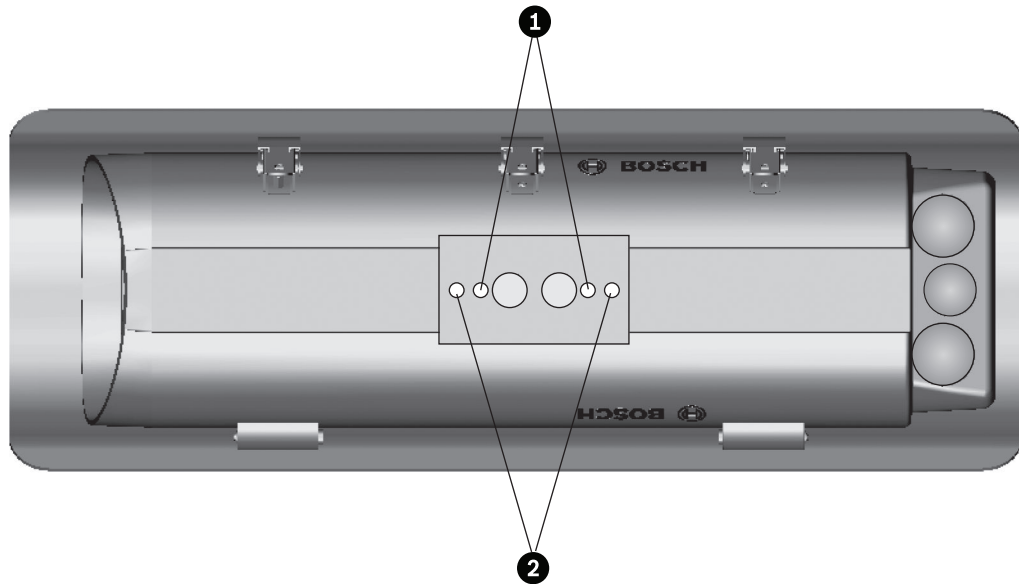
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#### 5.1.3

#### **Feed-through Wiring**

Use feed-through mounts to feed cabling through the foot of the housing.

1. Prior to mounting the camera, remove the two dome plugs located inside the housing.



**Figure 5.1: Location of feed through wiring holes.**

2. Screw the two (2) 3/8-in. NPT fittings into the foot of the housing.
3. Pull the cabling through the fittings into the housing. Tighten the fitting to 4.0 N m to 4.5 N m (35 in.-lb to 40 in.-lb). This torque rating is approximately 1 to 1.5 turns past the point where the fitting starts to grip the wire. Failure to do this will result in water damage to all electronic parts.
4. Attach the foot to the top bracket of the mount.
5. Ensure that the holes in the rear cap are covered with the rubber plugs provided. Push in until flush and then release.

### 5.1.4

#### Power Connections

Power into the housings is to be supplied using type UL Standard SJ cord (or better) acceptable for outdoor use. Installation must conform to NEC 400-4 CEC rule 4-010 and be marked with OUTDOOR, W, or W-A. For 24 volt cameras, use the recommended maximum cable lengths chart for selecting the proper wire size.

Wire size mm <sup>2</sup>	Wire size AWG	Distance m (ft)
0.5	20	27 (90)
1	18	42 (140)
1.5	16	67 (220)
2.5	14	108 (355)
4	12	172 (565)

**Table 5.1: Recommended maximum cable lengths for housings equipped with 24 volt cameras, heaters, and blowers**

Wire sizes larger than 2.5 mm<sup>2</sup> (14 AWG) require a splice to accommodate the terminal block.

1. If using the feed-through option, ignore this step. Install one of the large ½-in. NPT fittings into one of the holes in the rear cap.
2. Route the power cable through the fitting in the rear cap or through one of the feed-through fittings in the foot.

The terminal block accepts wire ranging from 0.5 mm<sup>2</sup> to 2.5 mm<sup>2</sup> (20 AWG to 14 AWG). When using larger wire sizes, splice to a smaller size wire at the terminal block end. The splice may need to be enclosed in a junction box if it does not pass through the fittings.

- ▶ Connect the safety (earth) ground:

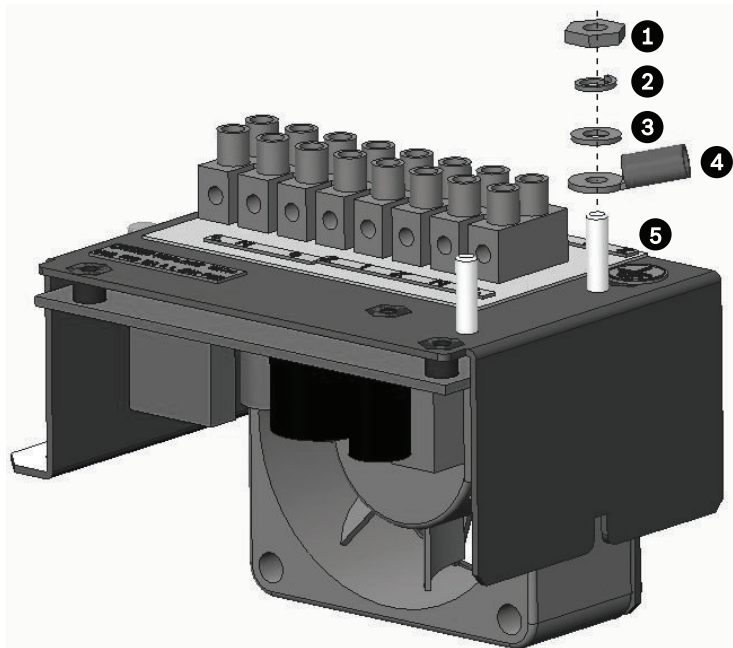
A terminal lug is provided for connecting the external safety (earth) ground to the grounding post on the PCB bracket assembly.



**Caution!**

For compliance with safety regulations, the external ground wire must always be connected to the main ground post.

- To attach the external safety ground wire, remove the nut, the washers, and the external ground wire lug from the ground post.
- Strip and crimp the external ground wire into the lug.
- Reattach the ground connections in the order shown in the figure below.



**Figure 5.2: Safety grounding**

1	Nut
2	Lock washer
3	Flat washer
4	External ground lug
5	External ground post



**Notice!**

Install the external ground in accordance with the NEC/CEC requirements.

- 
- ▶ Pull any excess wire out of the housing and tighten the fitting to 8.5 N m to 9.0 N m (75 in.-lb to 80 in.-lb). This torque rating is approximately one to one and a half turns past the point where the fitting starts to grip the wire.
- 

**Caution!**

Always securely tighten all fittings to ensure a liquid-tight seal. Failure to do so could allow water to enter the housing and to damage the camera and lens. If a sealant is used, ensure that it is a neutral cure type. Sealants that release acetic acid may harm camera electronics. Use of drip loops is recommended on the wiring outside of the rear end cap.

---

1. Connect the supply power wires to the terminal block. See the figure below. Strip no less than 6 mm (0.25 in.) and no more than 8 mm (0.31 in.) of insulation away from the wire. Ensure not to nick the wires.
2. Cut the power cord on 120 VAC and 230 VAC camera models; leave enough cable to allow connection to the terminal block. Strip no less than 6 mm (0.25 in.) and no more than 8 mm (0.31 in.) of insulation away from the wire. Ensure not to nick the wires. Connect these wires to the connectors provided on the terminal block.

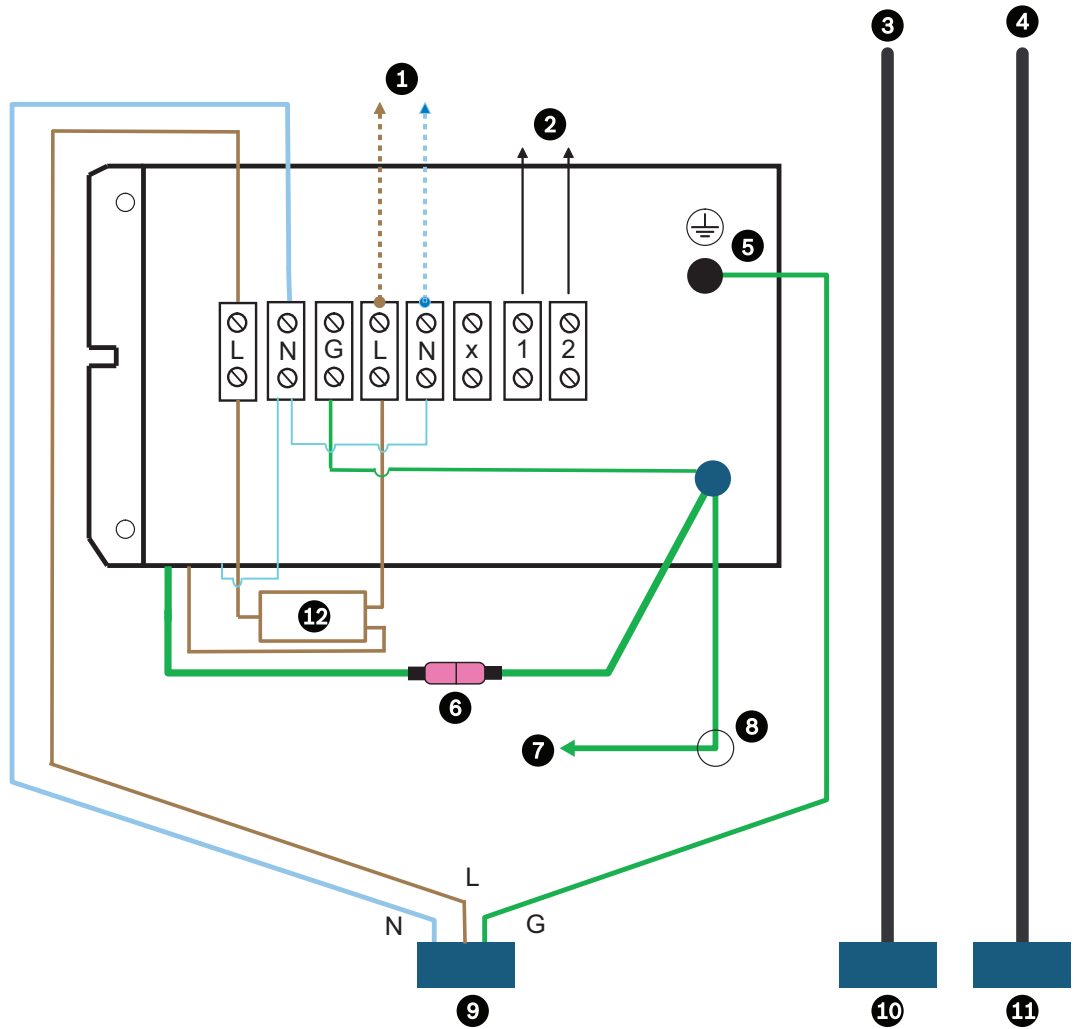


Figure 5.3: Terminal wiring diagram

1	To camera	7	Ground cable to housing top
2	To accessories	8	Ground stud housing bottom
3	BNC cable to camera	9	Power input connector
4	Lens wiring	10	Video input connector
5	Power input grounding post	11	Lens
6	Ground test connector Do NOT disconnect!	12	Fuse

Pin	Color	Connection
N	Blue	Power connection
L	Brown	Power connection
G	Green	G (safety ground)

**Note:** The drawing layout / the installation wiring diagram is in accordance with the NEC, ANSI/NFPA 70 for indicating recommended locations and wiring methods.

**Caution!**

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 NEC 800 (CEC Section 60).

1. On heater and heater/blower units, ensure that the wires for the heater and for the fan stay connected to the terminal block.
2. Ensure that the BNC cable is separated from the Mains power and from the heater.

## 5.2

### Video coax connection

See *Video coax connection*, page 28 for UHO-HBPS-11, UHO-HPS-51, and UHO-HBPS-51 models.

1. Install a ½-in. NPT fitting into the available hole in the rear cap.

**Caution!**

Use only cables meeting specifications in *Cable requirements*, page 14 for wiring video coax connections.

2. Route the video coax cable through one of the fittings installed in *Step 1*, or one of the feed-through fittings in the base.
3. Attach the BNC connector to the coax and connect it to the camera.
  - ▶ Pull any excess wire out of the housing and tighten the fitting to 8.5 N m to 9.0 N m (75 in.-lb to 80 in.-lb). This torque rating is approximately one to one and a half turns past the point where the fitting starts to grip the wire.

**Caution!**

Always securely tighten all fittings to ensure a liquid-tight seal. Failure to do so could allow water to enter the housing and to damage the camera and lens. If a sealant is used, ensure that it is a neutral cure type. Sealants that release acetic acid may harm camera electronics. Use of drip loops is recommended on the wiring outside of the rear end cap.

## 5.3

### Lens wiring

1. Install the 3/8-in. NPT fitting into the middle hole in the rear cap.

**Caution!**

Use only cables meeting specifications in *Cable requirements* for wiring cameras and lenses.

2. If installing a zoom lens, insert the lens control cable through the last fitting at the rear of the housing.
3. Attach the lens wiring to the lens mating connector and connect it to the lens. If a mating connector is not available, connect directly to the lens cable.
  - ▶ Pull any excess wire out of the housing and tighten the fitting to 8.5 N m to 9.0 N m (75 in.-lb to 80 in.-lb). This torque rating is approximately one to one and a half turns past the point where the fitting starts to grip the wire.

**Caution!**

Always securely tighten all fittings to ensure a liquid-tight seal. Failure to do so could allow water to enter the housing and to damage the camera and lens. If a sealant is used, ensure that it is a neutral cure type. Sealants that release acetic acid may harm camera electronics. Use of drip loops is recommended on the wiring outside of the rear end cap.



- ▶ If using a pan/tilt with a feed-through cable, insert the camera/lens function cable through the left fitting at the rear of the housing. Wire the required functions. For correct plug connection, see the specification on the lens cord.

## 6 Connection - UHO-HBPS-11, -51 | UHO-HPS-51

### 6.1 Camera/lens wiring

Installation for these models is in accordance with *Installation, page 14*, except as noted below.

**Caution!**

Use only 24 VAC power for UHO-HBPS-11 models. These models have female connectors to prevent them from being connected to the mating connector that is provided with UHO-HPS-51 and UHO-HBPS-51 models that require 230 VAC. Ensure that 230 VAC is not applied to the male mating connector.

All electrical power connections are made through the 4-pin connector. Cable Requirements for the 4-pin connector: 6.0 mm (0.24 in.) to 12.0 mm (0.47 in.).

1. Cut the power cord on 230 VAC camera models, leaving enough cable for connection to the terminal block. Strip no less than 6 mm (0.25 in.) and no more than 8 mm (0.31 in.) of insulation away from the wire. Be sure not to nick the wires.
2. Insert the power cord through the back shell assembly and strain relief. See the figure below.

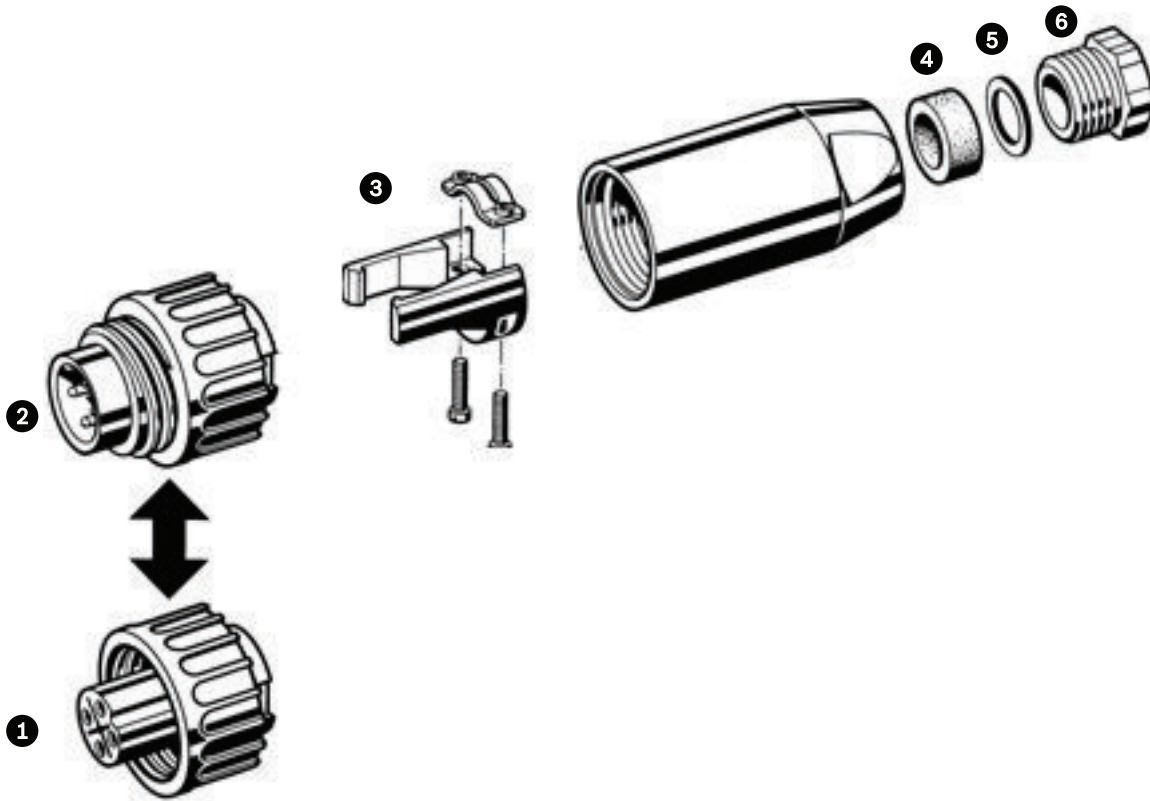


Figure 6.1: Mating connector 4-pin assembly

1	230 VAC ONLY! Female clamping ring
2	24 VAC ONLY! Male clamping ring
3	Internal strain relief
4	Sealing gasket
5	Metal washer
6	Cable nut

1. The terminal block provided on these units accepts wire ranging from 0.5 mm<sup>2</sup> to 2.5 mm<sup>2</sup> (20 AWG to 14 AWG). When using larger wire sizes, splice to a smaller size wire at the terminal block end.
2. Connect the power input cable to the screw terminals on the provided mating connector. See the table below.

Pin	Function	Harness wire color
1	AC neutral	Blue
2	AC live	Brown
3	No Connection	Do not use
4	Ground	Green/yellow

Table 6.1: 4-pin wiring connections

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## 6.2 Video coax connection

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**Caution!**

Use only cables meeting specifications in *Cable requirements, page 14* for wiring video coax connections.

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1. A video connection is provided on the rear of the housing. Connect video cable to the housing using a BNC connector.
2. An internal video connection is provided. Connect the BNC cable to the camera.

## 7

### Operation

These housings require no operational adjustments other than camera/lens adjustments. Verify operation of the camera and lens before final assembly. Adjust the camera focus and iris as necessary. See camera installation manual.

## 8 Final assembly and Sunshield installation

### 8.1 Final assembly

1. Use the hole plugs provided to plug any unused holes in the rear cap.
2. Replace the camera and bracket back into the housing.
3. Slide the camera/lens tray into the slot near the clasp side of the housing. Refer to *Camera/Lens installation, page 17*.
4. Install screws into the appropriate holes.
5. Close the cover and secure the latches.
6. Optional tamper-resistant screws are provided with the housing. If desired, secure the latch using these three screws and the provided tamper-resistant wrench.

### 8.2 Sunshield installation

1. Loosen the two screws (M4 x 10) on the top of the housing.
2. Slide the sunshield to the desired position. It has a range of 50 mm (2 in).
3. Tighten the screws to lock the sunshade into position.
4. If the sunshield is removed or not installed, plug the two screw holes with the hole plugs supplied with the housing hardware kit.

## 9 Maintenance

No special maintenance is required other than occasional cleaning the window. The window can be cleaned with water or any non-aggressive liquid.

### 9.1 Fuse replacement

1. To replace a fuse, pull the top of the fuse holder.
2. Replace the fuse with a fuse that has the same current rating. The fuse is a 5.2 mm x 20 mm slow blow breaking capacity cartridge-type fuse.

Camera voltage	Fuse rating
24 VAC	4 A, 250 VAC
120 VAC	2 A, 250 VAC
230 VAC	2 A, 250 VAC

There is a spare fuse inside the housing.

# 10 Exploded view

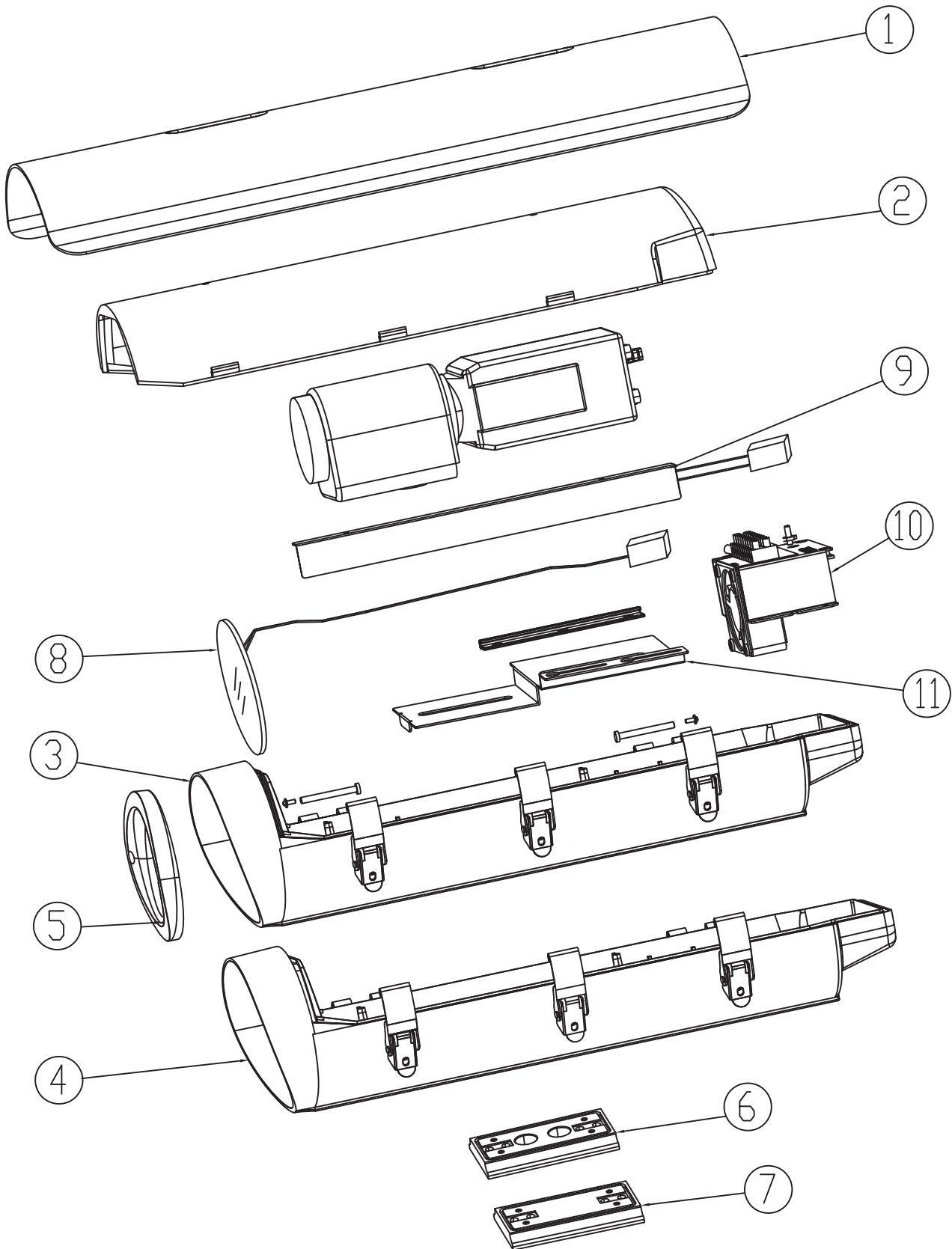


Figure 10.1: Exploded view



1	Sunshield (ZYB01)	7	Non-feed through base plate (DZ4P1)
2	Top cover (XG001)	8	Window + window defrosters: 24 VAC (BTQ24) 120 VAC (BJQ15) 23 VAC (BJQ23)
3	Bottom cover plus latches, glance version (XDF01)	9	Main heater: 24 VAC (JRP24) 120 VAC (JRP12) 230 VAC (JRP23)
4	Bottom cover plus latches, 4 pin version (XD4P1)	1 0	Bracket for UHI series (FZ001) Bracket + PCB/24 VAC heater, no blower (FZP24) Bracket + PCB/24 VAC heater, incl. blower (FPF24) Bracket + PCB/230 VAC heater, no blower (FZP23) Bracket + PCB/230 VAC heater, incl. blower (FPF23) Bracket + PCB/120 VAC heater, incl. blower (FPF12)
5	Front window holder (QG001)	1 1	Camera tray-zoom lens version, (SP001) Camera tray-type A (SP002)
6	Feed-through base plate (DZFT1)	1 2	Accessory bag (not shown) (PJB01)





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