UHI/UHO Series

UHI-OG-0 | UHI-OGS-0 | UHO-HGS-10 | UHO-HBGS-10 | UHO-HBPS-10 | UHO-HGS-50 | UHO-HBGS-50 | UHO-HPS-50 | UHO-HBPS-50 | UHO-HBGS-60

BOSCH

en User Manual

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 you can also use a moist fluff-free cloth or leather shammy. 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. **Overloading** - Do not overload outlets and extension cords. This can cause fire or electrical shock.
7. **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*.
8. **Power disconnect** - Units with or without ON/OFF switches have power supplied to the unit 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.
9. **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 25.4 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.

10. **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.
11. **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.
12. **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.
13. **Safety check** - Safety checks should be performed upon completion of service or repairs to the unit to ensure proper operating condition.
14. **Installation** - This installation should be made by a qualified service person in accordance with the manufacturer's instructions and in accordance with applicable local codes.
15. **Attachments, changes or modifications -** Only use attachments/accessories specified by the manufacturer. Any change or modification not expressly approved by Bosch of the equipment or authorization agreement could void the user's guarantee or authority to operate the equipment.

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 could result in serious bodily injury or death.

WARNING! 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!
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.

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 the cart, stand, tripod, bracket, or table specified by the manufacturer. When a cart is used, use caution and care when moving the cart/apparatus 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 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 to disconnect the unit by switching off the voltage to the unit.

Camera grounding - For mounting the camera in potentially damp environments, ensure to ground the system using the ground connection of the power supply connector. See *Section 4.7.4 Power Connections*.

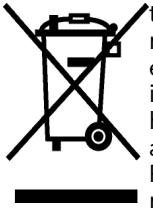
Camera lens - An assembled camera lens in the outdoor housing must comply and be tested in accordance with *UL/IEC60950*. Any output or signal lines from the camera must be SELV or Limited Power Source. For safety reasons the environmental specification of the camera lens assembly must be within the environmental specification of -10 °C (+14 °F) to +50 °C (+122 °F).

Camera signal - Protect the cable with a primary protector if the camera signal is beyond 140 feet, in accordance with *NEC 800 (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.



Disposal - 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, which have reached the end of their working 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, per *European Directive 2002/96/EC*.

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.

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.

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

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 lost digital information, Bosch Security Systems recommends multiple, redundant recording systems, and a procedure to back up all analog and digital information.

Warning - This device is intended for use in public areas only. U.S. federal law strictly prohibits surreptitious recording of oral communications.

FCC & ICES Information

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

This equipment has been tested and found to comply with the limits for a **Class B** digital device, pursuant to *part 15* of the *FCC Rules*. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- reorient or relocate the receiving antenna;
- increase the separation between the equipment and receiver;
- connect the equipment into an outlet on a circuit different from that to which the receiver is connected;
- consult the dealer or an experienced radio/TV technician for help.

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 Closed Circuit Television Equipment, UL 2044*. 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 Unpacking

This electronic equipment should be unpacked and handled carefully. Verify that the items listed in *Table 1.1* are included for the model ordered.

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-10, UHO-HBGS-10, UHO-HGS-50, UHO-HBGS-50, UHO-HBGS-60		
2	Fittings, 3/8-inch NPT with locking nut	
2	Fittings, 1/2-inch NPT with locking nut	
Models: UHO-HBPS-10		
1	4-pin mating connector	Male
Models: UHO-HPS-50, UHO-HBPS-50		
1	4-pin mating connector	Female

Table 1.1 Parts list

If an item appears to have been damaged in shipment, replace it properly in its carton and notify the shipper. If any items are missing, notify your Bosch Security Systems, Inc. sales representative or customer service representative. The shipping carton is the safest container in which the unit may be transported. Save it for possible future use.

2 Service

See: www.boschsecuritysystems.com

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. See *Table 3.1* for a description of indoor models.

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.

Key to installed accessory:

Htr = heater; Blr = blower; SS = sun shield

	UHI-OG-O	UHI-OGS-O
Installed accessory	NA	
Voltage range / power	NA	
Camera voltage ratings	24/120/230 VAC	
Max camera/lens size (HWD)	91 x 81 x 262 mm (3.6 x 3.2 x 10.3 in)	

Table 3.1 Indoor units

	UHO-HGS-10	UHO-HBGS-10	UHO-HBPS-10
Installed accessory	Htr, SS	Htr, Blr, SS	Htr, Blr, SS, 4-pin
Voltage range / power	21.6 to 25.4 VAC / 40 W		
Camera ratings	24 VAC		
Max camera/lens size (HWD)	91 x 81 x 262 mm (3.6 x 3.2 x 10.3 in)		

Table 3.2 Outdoor 24 volt units

	UHO-HBGS-60
Installed accessory	Htr, Blr, SS
Voltage range / power	108 to 132 VAC / 45 W
Camera voltage ratings	120 V
Max camera/lens size (HWD)	91 x 81 x 262 mm (3.6 x 3.2 x 10.3 in)

Table 3.3 Outdoor 120 volt unit

	UHO-HGS-50	UHO-HPS-50	UHO-HBGS-50	UHO-HBPS-50
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 ratings	230 VAC			
Max camera/lens size (HWD)	91 x 81 x 262 mm (3.6 x 3.2 x 10.3 in)			

Table 3.4 Outdoor 230 volt units

4 Installation

CAUTION!
Installation should only be performed by qualified service personnel in accordance with the National Electrical Code or applicable local codes.

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 Tools required

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

4.2 Camera requirements

The cameras to be built into the housing must meet the requirements specified in *Table 4.1*.

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

4.3 Cable requirements

4.3.1 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

4.3.2 Input power cord

Cable type	3 x 18 AWG
Cable diameter (outer)	4.6 to 7.9 mm (0.18 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 to 7.9 mm (0.18 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

4.3.3 Lens control cable

Cable type	Jacketed multiconductor cable
Cable diameter (outer)	4.6 to 7.9 mm (0.18 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

4.4 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. See *Figure 4.1*.

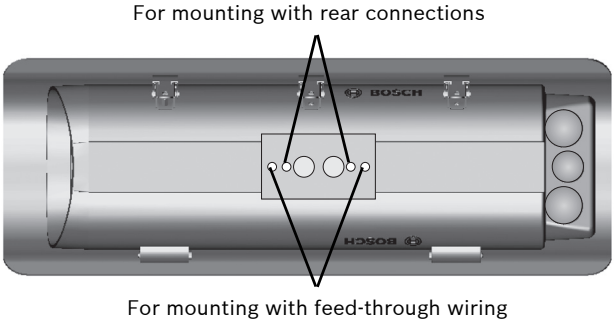


Fig. 4.1 Thread holes for mounting with rear connections, or for feed through wiring

4.5 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. See *Figure 4.2*. If the optional tamper-resistant screws have been installed, use the supplied wrench to remove the screws before opening the latches.

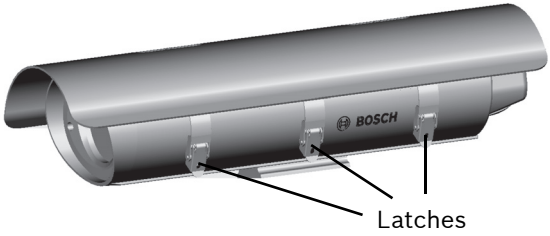


Fig. 4.2 Unlatching the cover

4.6 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 *Section 4.7.3 Feed-through Wiring*.

3. For installation of zoom lens cameras:
   a. Attach the lens to the camera.
   b. 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.

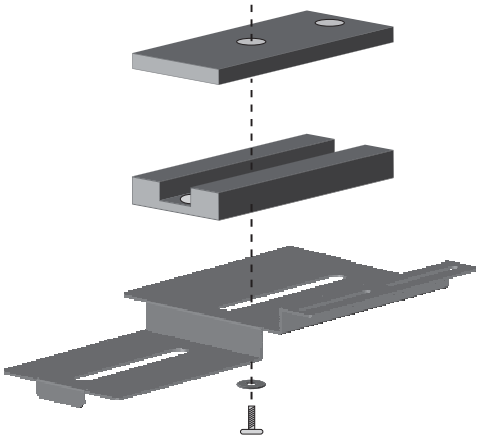


Fig. 4.3 Spacers for mounting zoom lens and camera

4. Mounting fixed lens cameras in all housings:
   c. Attach the lens to the camera.
   d. 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 *Figure 4.3*.
   e. Slide the camera/lens tray in under the slot near the hinge side of the housing, as shown in *Figure 4.5*. Slide the entire assembly forward approximately 5 mm (0.2 in) from the front of the window. Install screws into the appropriate holes.

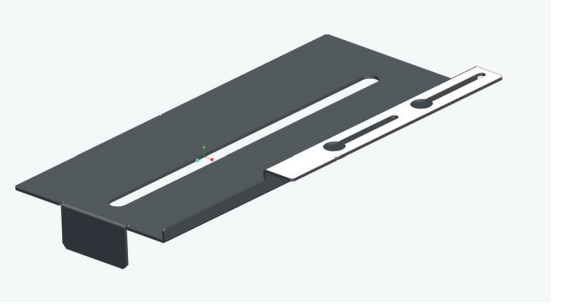


Fig. 4.4 Optional camera tray type A for fixed lens camera

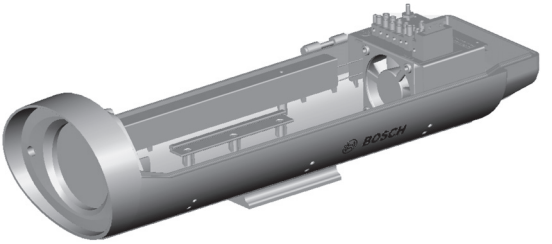


Fig. 4.5 Sliding camera/lens tray assembly into slot

4.7 Camera/Lens wiring

See *Section 3.2 Outdoor 24 volt units* and *Section 3.4 Outdoor 230 volt units* for UHO-HBPS-10, UHO-HPS-50 and UHO-HBPS-50 models.

CAUTION!
Use only cables meeting specifications in *Section 4.3 Cable requirements*,to wire cameras and lenses.

4.7.1 Fittings

The 3/8-inch 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-inch 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 damage the camera and lens. If a sealant is used, be sure 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.

4.7.2 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-inch NPT or 1/2-inch NPT conduit fittings.
2. Any unused holes must be covered using the plugs provided with the housing.

4.7.3 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 See *Figure 4.6*.

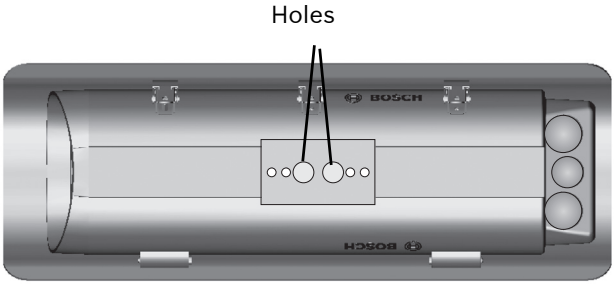


Fig. 4.6 Location of feed through wiring holes.

2. Screw the two 3/8-inch NPT fittings into the foot of the housing.
3. Pull the cabling through the fittings into the housing. Tighten the fitting to 4.0 Nm to 4.5 Nm (35 inch-lb to 40 inch-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. Be sure that the holes in the rear cap are covered with the rubber plugs provided. Push in until flush and then release.

4.7.4 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^2	**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 4.6 Recommended maximum cable lengths for housings equipped with 24-volt cameras, heaters, and blowers

Wire sizes larger than 2.5 mm^2 (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 1/2-inch NPT fittings into one of the holes in the rear cap.
2. Route the power cable through the fitting in the rear cap or one of the feed-through fittings in the foot.

   The terminal block accepts wire ranging from 0.5 mm^2 to 2.5 mm^2 (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.
3. 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. See *Figure 4.7*.

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

a. To attach the external safety ground wire, remove the nut, washers and the external ground wire lug from the ground post.

b. Strip and crimp the external ground wire into the lug.

c. Reattach the ground connections in the order shown in *Figure 4.7*.

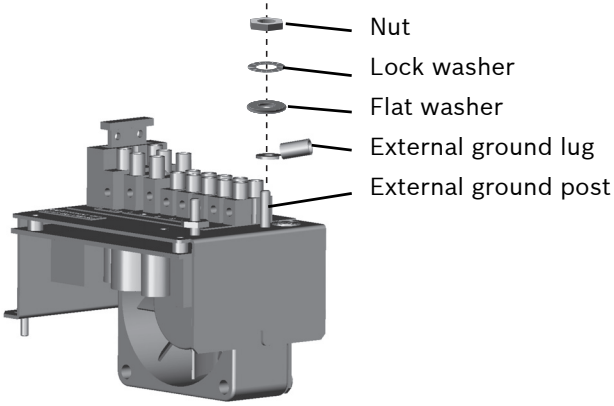


Fig. 4.7 Safety grounding

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

4. Pull any excess wire out of the housing and tighten the fitting to 8.5 Nm to 9.0 Nm (75 inch-lb to 80 inch-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!
Be sure to securely tighten all fittings to ensure a liquid-tight seal. Failure to do this could allow water to enter the housing and damage electronic parts, camera, and lens.

5. Connect the supply power wires to the terminal block. See *Figure 4.8*. Strip no less than 6 mm (0.25 in) and no more than 8mm (0.31 in) of insulation away from the wire. Be sure not to nick the wires.
6. 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. Be sure not to nick the wires. Connect these wires to the connectors provided on the terminal block. See *Figure 4.8*.

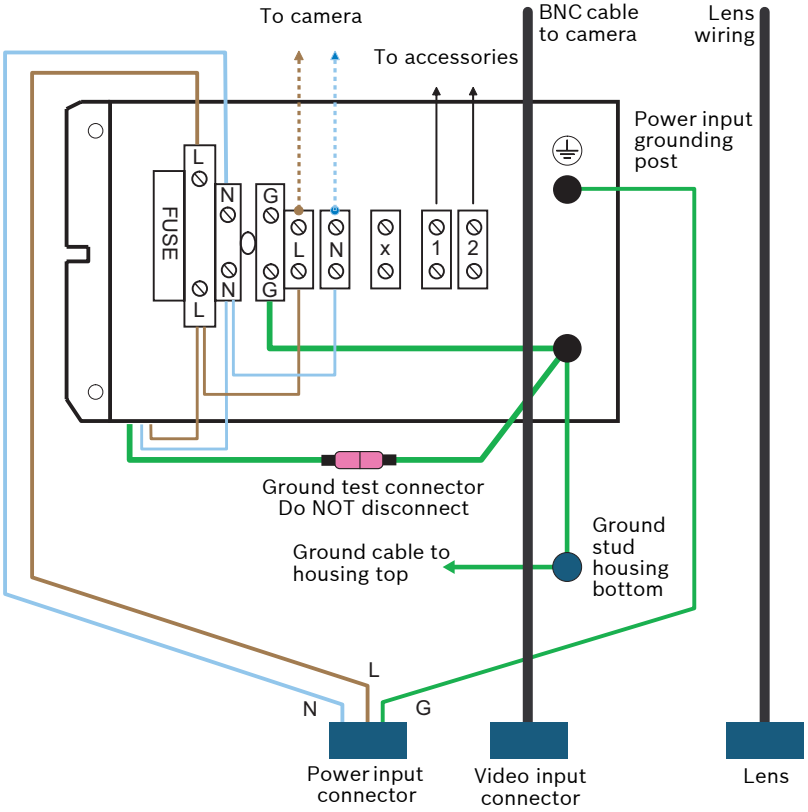


Fig. 4.8 Terminal wiring diagram

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

Table 4.7

NOTE! Drawing layout and 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).

7. On heater and heater/blower units, make sure the heater and fan wires stay connected to the terminal block.
8. Make sure the BNC cable is separated from the Mains power and heater.

4.8 Video coax connection

See *Table 3.2* and *Table 3.4* for UHO-HBPS-10, UHO-HPS-50 and UHO-HBPS-50 models.

1. Install a 1/2-inch NPT fitting into the available hole in the rear cap.

CAUTION!
Use only cables meeting specifications in *Section 4.3 Cable requirements* 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.

CAUTION! Always securely tighten all fittings to ensure a liquid-tight seal. Failure to do so could allow water to enter the housing and damage the camera and lens. If a sealant is used, be sure 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.

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

4.9 Lens wiring

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

CAUTION!
Use only cables meeting specifications in *Section 4.3 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. 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.

CAUTION! Always securely tighten all fittings to ensure a liquid-tight seal. Failure to do so could allow water to enter the housing and damage the camera and lens. If a sealant is used, be sure 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.

3. 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 1 to 1-1/2 turns past the point where the fitting starts to grip the wire.
4. 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 specification on lens cord.

4.10 Camera/Lens adjustment

Verify operation of the camera and lens before final assembly. Adjust the camera focus and iris as necessary. See camera installation manual.

4.11 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. See *Figure 4.3*.

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.

4.12 Sunshield

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.

4.13 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 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

Table 4.8 Specifications for replacement fuses

NOTE! There is a spare fuse inside the housing.

5 UHO-HBPS-10, -50, and UHO-HPS-50

5.1 Camera/lens wiring

Installation for these models is in accordance with *Section 4 Installation*, except as noted below.

CAUTION! Use only 24 VAC power for UHO-HBPS-10 models. These models have female connectors to prevent them from being connected to the mating connector that is provided with UHO-HPS-50 and UHO-HBPS-50 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 *Figure 5.1*).

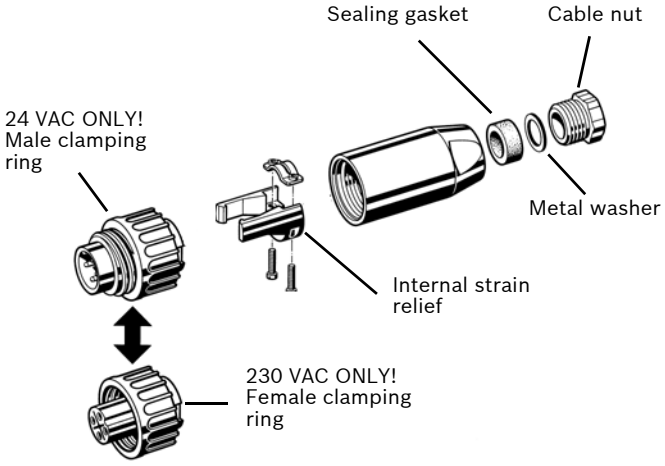


Fig. 5.1 Mating connector 4-pin assembly

3. The terminal block provided on these units accepts wire ranging from 0.5 mm^2 to 2.5 mm^2 (20 AWG to 14 AWG). When using larger wire sizes, splice to a smaller size wire at the terminal block end.
4. Connect the power input cable to the screw terminals on the provided mating connector. See *Figure 5.1* and *Table 5.1*.

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

Table 5.1 4-pin wiring connections

5.2 Video coax connection

CAUTION!
Use only cables meeting specifications in *Section 4.3 Cable requirements* for wiring video coax connections.

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.

6 Operation

These housings require no operational adjustments other than camera/lens adjustments.

7 Maintenance

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

8 Exploded view

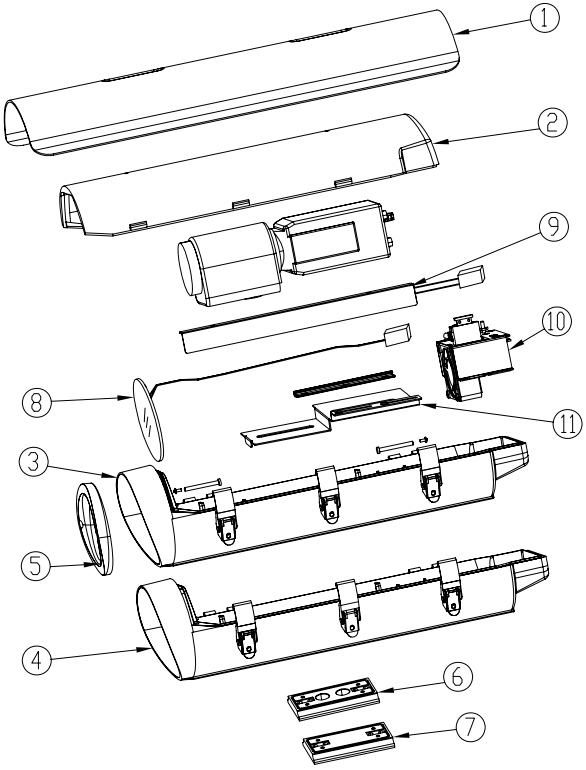


Fig. 8.1 Exploded view

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)	10.	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)	11.	Camera tray-zoom lens version, (SP001) Camera tray-type A (SP002)
6.	Feed-through base plate (DZFT1)	12.	Accessory bag (not shown) (PJB01)

Table 8.1 Parts list

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