OUTDOOR CAMERA HOUSINGS

HS9384 SERIES
This page contains safety precautions and unpacking instructions for the Aigis Mechtronics product. It is recommended to read the instructions carefully before using the device. The safety precautions cover important points such as cleaning, accessories, ventilation, power sources, and grounding. The unpacking section outlines the necessary steps to take when unpacking the product, including verifying parts and checking for any issues in transit.
3  CARE AND MAINTENANCE
Clean the viewing window as needed with a mild, nonabrasive detergent in water and a soft cloth.

4  DESCRIPTION
The HS9384 Series of environmental housings are attractive aluminum enclosures designed for outdoor CCTV camera installations.

4.1  Enclosure Rating
4.1.1  NEMA-3R and IP54
The HS9384 Series housings include a "breather" hole in the front end cap. The "breather" hole prevents the accumulation of moisture inside the housing when installed in areas of high humidity. With the "breather" hole open, the HS9384 Series housings meet the enclosure rating requirements of NEMA-3R and IP54.

4.1.2  NEMA-6P and IP68
For installations requiring an enclosure rating of NEMA-6P or IP68, the breather hole must be plugged using the pull seal provided in the hardware kit. Refer to Final Assembly under INSTALLATION for proper installation.

5  INSTALLATION
This installation should be made by a qualified service person and conform to all local codes.

5.1  Model Designation

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Rated Input</th>
<th>Voltage Range</th>
<th>Voltage Output</th>
<th>Nominal Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>HS9384-2H</td>
<td>24 VAC, 50/60 Hz</td>
<td>21.6 to 26.4</td>
<td>——</td>
<td>30 W</td>
</tr>
<tr>
<td>HS9384-2H-9</td>
<td>24 VAC, 50/60 Hz</td>
<td>21.6 to 26.4</td>
<td>——</td>
<td>30 W</td>
</tr>
<tr>
<td>HS9384-5H</td>
<td>230 VAC, 50/60 Hz</td>
<td>207 to 253</td>
<td>24 VAC, 50/60 Hz</td>
<td>30 W</td>
</tr>
<tr>
<td>HS9384-6H</td>
<td>115 VAC, 50/60 Hz</td>
<td>108 to 132</td>
<td>24 VAC, 50/60 Hz</td>
<td>30 W</td>
</tr>
</tbody>
</table>
1. The power transformers included with these housings are used to provide heater power and can be used to provide isolated camera power.
2. Heater requires 10 watts.

Do Not Exceed 30 VAC Input on 24 VAC models. Operation above 30 VAC violates low voltage operation (Class 2 Specifications). Normal operation is 24 VAC.

Maximum Camera/Lens Size:
HS9384-2H: Accepts cameras up to 64 W x 54 H mm (2.5 x 2.1 in), lenses up to 67 W x 75 H mm (2.6 x 2.9 in), and camera/lens combinations up to 355 mm (14.0 in).
HS9384-2H-9: Accepts cameras up to 64 W x 54 H mm (2.5 x 2.1 in), lenses up to 67 W x 75 H mm (2.6 x 2.9 in), and camera/lens combinations up to 146 mm (5.75 in).
HS9384-5H & HS9384-6H: Accepts cameras up to 64 W x 54 H mm (2.5 x 2.1 in), lenses up to 67 W x 75 H mm (2.6 x 2.9 in), and camera/lens combinations up to 292 mm

5.2  Tools Required
- Flat blade screwdriver
- Phillips head screwdriver
- 3⁄32-inch (or 4 mm) hex wrench
- 5⁄16-inch (or 8 mm) hex wrench
- Adjustable wrench
- Wire cutter/stripper/crimper tool

5.3  Cable Requirements

**Video Transmission (Coaxial)**
- **Cable Type:**  RG-59/U (Runs < 1000 ft)  RG-11/U (Runs < 2000 ft)
- **Cable Size:**  Outside diameter between 4.6 mm (0.181 in) & 7.9 mm (0.312 in)
- **Cable Shape:**  Round
- **Shield:**  ≥ 93% Braided Copper Shield
- **Center Conductor:**  Stranded Copper Center
- **DC Resistance:**  ≤ 15 Ohms/1000 ft (RG-59/U)  ≤ 6 Ohms/1000 ft (RG-11/U)
- **Agency Rating:**  UL
- **Environmental:**  Outdoor rated
- **Temperature Rating:**  ≥ 80 °C

**Sources:**  Belden 9259  Belden 9238

**Input Power Cord - North American**
- **Cable Type:**  SJTOW-A rated
- **Cable Size:**  Outside diameter between 4.3 mm (0.170 in) & 11.9 mm (0.470 in)
- **Cable Shape:**  Round
- **Conductors:**  3 conductor version and 2 conductor version
- **Agency Rating:**  UL/C.S.A., UL VW-I
- **Environmental:**  Outdoor rated
- **Temperature Rating:**  105 °C
- **Voltage Rating:**  300 V

**Sources:**  Belden 19506  Belden 19509  Northwire 573939

**Input Power Cord - European**
- **Cable Type:**  H05RN-F3G0.75 and H05RN-F3G1.00
- **Cable Size:**  Outside diameter between 4.3 mm (0.170 in) & 11.9 mm (0.470 in)
- **Cable Shape:**  Round
- **Conductors:**  3 conductor version and 2 conductor version
- **Agency Rating:**  VDE
- **Environmental:**  Outdoor rated
- **Voltage Rating:**  300 V

**Sources:**  Olflex 1600252  Olflex 1600253
5.6.1 General

1. The dual male threaded portion of the three liquid tight fittings, two NPT 1/2-inch, and one NPT 3/8-inch, located in the rear of the cradle, are provided preinstalled. Do not remove or loosen these parts. They have been installed to a specified torque to prevent entrance of water. The two large fittings are supplied with seal glands for cables with diameters from 4.3 mm (0.17-inch) to 11.9 mm (0.47-inch). The small fitting will accept cables with diameters from 4.6 mm (0.181-inch) to 7.9 mm (0.312-inch) (see Figure 3).

Be sure to 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.

5.6 Camera/Lens Wiring

**WARNING:** Only use the cables specified under INSTALLATION, Cable Requirements for wiring of all cameras and lenses.

5.6.2 Zoom Lens Cameras: Allow 3/16-inch (5 mm) clearance from the front face of the lens to the front faceplate of the cradle during the camera/lens assembly. This clearance provides the necessary space for the lens to extend outward when zooming. Secure both the camera and the lens to the cradle with the 1/4-20 BHCS and appropriate plastic spacer.

5.4 Cradle Removal

1. Remove the cradle from the housing by lowering the retaining screw completely on the bottom rear of the housing (see Figure 1).

2. Remove the cradle assembly by simultaneously grasping the rear handle and housing shell, and then pulling the cradle assembly out of the housing. Be sure to keep the edges of the end caps clean and free of scratches.

**Note:** Do not push against the front glass to remove the cradle.

5.5 Camera/Lens Installation

With the cradle removed from the housing, follow all of the steps below.

1. Place the camera/lens combination into the cradle assembly.

   1.1 Fixed Lens Cameras: Position the camera/lens 1 mm (0.04-inch) away from the faceplate. The camera/lens is secured to the cradle with a 1/4-20 button head cap screw (BHCS) and the appropriate plastic spacer (see Figure 2).

   1.2 Zoom Lens Cameras: Allow 3/16-inch (5 mm) clearance from the front face of the lens to the front faceplate of the cradle during the camera/lens assembly. This clearance provides the necessary space for the lens to extend outward when zooming. Secure both the camera and the lens to the cradle with the 1/4-20 BHCS and appropriate plastic spacer.

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### Lens Control Cable

- **Cable Type:** Jacketed multiconductor cable
- **Cable Size:** Outside diameter between 4.3 mm (0.170 in) & 11.9 mm (0.470 in)
- **Cable Shape:** Round
- **Shield:** Overall shielding
- **Conductors:** Stranded 20 to 16 AWG wire
- **No. of Conductors:** 4 and 8
- **Conductor Insulation:** Color coded
- **Sources:** Belden 9552, Belden 9554
If a sealant is to be used, be sure it is a neutral cure type. Sealants that release acetic acid may harm camera electronics. If it is necessary to use a PG type conduit, an NPT to PG conversion kit (HS9384NPT) can be purchased separately.

⚠️ Use of drip loops is recommended on the wiring outside of the rear end cap.

### 5.6.2 Plug Insertion

If no lens control or feed-through wiring will be used, remove the preinstalled $\frac{3}{8}$-inch liquid-tight fitting from the small bottom center hole and install the $\frac{3}{8}$-inch NPT plug provided. Use a $\frac{3}{8}$-inch (or 8 mm) hex wrench to tighten. Failure to do so will allow water to enter and cause damage to all electronic parts (see Figure 4).

![Figure 4 3/8-inch NPT Plug Insertion](image)

### 5.6.3 Power Connections

The HS9384-5H, and the HS9384-6H housings allow the use of 24 VAC cameras, regardless of the supply voltage to the housing. This is achieved through the use of a transformer in the housing. The transformer’s primary supply power will vary, depending on the model of housing, see Section 5.1 Model Designation. In the 115 volt and 230 volt models, the transformer also supplies 24 VAC power to the integral window heater/defogger.

Refer to the following model housing sections for your model's wiring procedure.

1. Use the left liquid-tight fitting of the housing to route the power wire into the housing (see Figure 5).

![Figure 5 Power Connections](image)

2. A screw/terminal lug is provided for securing a safety ground. Attach the terminal lug to the cradle using the M4 x 10 screw provided (see Figure 6).

### 5.6.4 HS9384-6H Housings

The HS9384-6H housings can easily be used with either 115 volt or 24 volt cameras. The internal transformer provides 24 VAC for both the heater/defogger and 24 volt camera power (see Figure 5).

For 115 volt cameras:

1. Installing a 115 volt camera into the HS9384-6H housing requires inserting both the field supply wires (115 VAC) and a section of hook-up wire (not included, minimum 20 AWG wire) into the unused side of the Wago connectors (provided), then connecting the other end of the hook-up wire to the camera’s 110 VAC input. Repeat for pins 1 and 6 (see Figure 7).

2. The secondary flying leads (white/black striped) will not be used in this application and should be taped to prevent shorting. See wiring diagram Figure 7 for clarification and Figure 5 for power connection drawings.

![Figure 7 HS9384-6H Transformer Wired for 115 Volt Camera](image)
For 24 volt cameras:
1. Installing a 24 volt camera into the HS9384-6H housing utilizes the internal transformer for camera power.
2. Connect the supply (115 VAC) to the primary flying leads of the transformer (white wire/pin 1, black wire/pin 6). Use the wago connectors provided for this connection.
3. Connect the secondary flying leads (white/black striped wires/pins 7 and 12) to the camera’s 24 volt input. See wiring diagram Figure 8 for clarification and Figure 5 for power connection drawings.

5.6.5 HS9384-2H Housings
These housings are to be connected to 24 VAC only and are designed to be used where site power is 24 volts. The HS9384-2H housings are designed to be used with 24 volt cameras only.
1. Connect the supply (24 VAC) to the unoccupied sides of the gray Wago connectors.
2. Connect the flying leads (white and black) to the camera’s 24 volt input.

5.6.6 HS9384-5H Housings
These housings require connection to 230 VAC and are designed to be used where site power is 230 volts. The HS9384-5H housings can easily be used with either 230 volt or 24 volt cameras. The internal transformer provides 24 VAC for both the heater and 24 volt camera power.

Do not remove the transformer insulator. No user serviceable parts are underneath.

For 230 volt cameras:
1. Installing a 230 volt camera into the HS9384-5H housing requires inserting both the field supply wire (115 VAC) and a section of hook-up wire (not included, minimum 20 AWG wire) into the unused side of the Wago connectors (provided), then connecting the other end of the hook-up wire to the camera’s 230 VAC input. Repeat for pins 1 and 6. (see Figure 9).
2. The secondary flying leads (white/black striped) will not be used in this application and should be taped to prevent shorting. See wiring diagram Figure 9 for clarification and Figure 5 for power connection drawings.

Figure 8 HS9384-6H Transformer
Wired for 24 Volt Camera

Figure 9 HS9384-5H Transformer
Wired for 230 Volt Camera

Figure 10 HS9384-5H Transformer
Wired for 24 Volt Camera
5.7 Video Coax Connection

**WARNING:** Only use the cables specified under INSTALLATION. Cable Requirements for wiring of the video coax connection.

1. Install the seal cap portion of the large liquid tight fitting on the video coax cable and pull the cable through the right fitting on the rear end of the cradle.

2. Attach the BNC connector to the coax and connect it to the camera. Pull any excess wire out of the cradle assembly and tighten approximately 1 to 1 1⁄2 turns past the point where the fitting starts to grip the wire. Failure to do so will result in water damage to all electronic parts. Use a tie wrap (included) to provide strain relief on the video cable at the exit point (inside unit).

3. If lens control is used, pull cable through the small bottom fitting. If lens control is not used, install the ¾-inch NPT plug provided in the unused, small center NPT hole.

Be sure to securely tighten all fittings to ensure a liquid-tight seal. Failure to do so could allow water to enter the housing and damage all electronics.

5.8 Lens Wiring

**WARNING:** Only use the cables specified under INSTALLATION. Cable Requirements for wiring of the lens control.

1. **If installing a zoom lens**, insert the lens control cable with the installed seal cap in through the bottom fitting at the rear of the cradle. Attach the lens wiring to the lens mating connector and connect it to the lens. If the mating connector is not available, connect directly to the lens cable.

**NOTE:** See specification on lens cord for correct plug connection.

Be sure to 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.

2. **If using a pan/tilt with a feed-through cable**, insert the camera/lens function cable in through the right fitting at the rear of the cradle. Wire the functions as described above or as needed.

**NOTE:** Use of drip loops is not recommended on the wiring outside of the rear end cap.

5.9 Final Assembly

5.9.1 Pull Seal Installation

If the breather hole is open, do NOT mount the housing in a position where the front end cap is pointed upward.

To maintain enclosure protection ratings of NEMA-6P and IP68, the pull seal (provided in the hardware kit) must be installed in the front end cap. It is recommended that the pull seal be installed in a cool, dry environment to prevent trapping moisture inside the housing (see Figure 11).

**NOTE:** Pull seal installation allows the housing’s front end cap to be pointed upward.
5.9.2 Cradle Assembly

1. Position the housing vertically and replace the cradle assembly by applying pressure onto the rear cap until the retaining ring stops against the housing. (see Figure 15).

2. Tighten the retention screw, making sure it is seated into the rear cap groove. If the housing needs to be tamper-resistant, the HS9380TK (purchased separately) should be installed at this time.

3. Attach the housing to the appropriate mount or pan/tilt using the instructions provided. According to the orientation of the housing, the cradle assembly may need to be rotated. To rotate the cradle assembly (while mounted), grasp the rear handle and rotate to the desired position. View the monitor while rotating.

CAUTION: If a pull seal is installed in the breather hole, be careful not to pinch the head of the pull seal. Damage to the pull seal may allow water to enter the housing, causing damage to the camera and lens.