



# DINION imager 9000 HD

NAI-90022



**BOSCH**

**en** Installation Manual



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# 1 Safety

## 1.1 Safety precautions

**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 minor or moderate bodily injury.

**CAUTION!**

Low risk: Indicates a potentially hazardous situation. If not avoided, this could 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.

## 1.2 Important safety instructions

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

1. Clean only with dry cloth.
2. Do not block any ventilation openings. Install in accordance with manufacturer's instructions.
3. Do not install near any heat sources such as radiators, heat registers, stoves or other apparatus (including amplifiers) that produce heat.

4. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the power where they exit from the apparatus.
5. Use only attachments/accessories specified by the manufacturer.
6. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in a way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, does not operate normally, or has dropped. When servicing, power shall be disconnected.

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

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**CAUTION!**

This product has been tested according to standard CIE/IEC 62471:2006 "Photobiological safety of lamps and lamp systems" and found to meet Risk Group 2 for exposure limit 4.3.7 "Infrared radiation hazard exposure limits for the eye." For other hazard exposure limits, the product was found to be exempt. Risk Group 2 is characterized in the standard as "products generally do not pose a realistic optical hazard if aversion responses limit the exposure duration or where lengthy exposures are unrealistic." Since there is no aversion response for IR, avoid eye exposure. Risk Group 2 sources do not pose an infrared radiation hazard for the eye within 10 s at distances beyond 200 mm or 8 inches.



The Exposure Hazard Value for the product (ratio of the Exposure level to the Exposure limit) is up to 10 at a test distance of 200 mm (8 inches). The Hazard Distance (distance beyond which the product falls into the exempt/safe group) is at most 640 mm (25 inches). Note that typical use cases are well beyond the Hazard Distance.

When servicing the unit, physically disconnect the power supply to avoid possible IR exposure to the eyes. If physical disconnection is not possible, use appropriate shielding to block the LED panel or use eye protection with a transmission of 10% or less at a wavelength of 850 nm.

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**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*.

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

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

**Fuse rating** - For 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 and the hard disk drives.

**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 external to the equipment.

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

**Power resupply** - If the unit is forced to power down due to exceeding the specified operating temperatures, disconnect the power cord, wait for at least 30 seconds, and then reconnect the power cord.

**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.

**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.

## 1.4 FCC & ICES compliance

### **FCC Information** (*U.S.A. and Canada*)

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.

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.

## 1.5 FCC Information

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

Suite à différents tests, cet appareil s'est révélé conforme aux exigences imposées aux appareils numériques de **classe B**, en vertu de la *section 15 du règlement de la Commission fédérale des communications des États-Unis (FCC)*, et en vertu de la norme *ICES-003 d'Industrie Canada*. Ces exigences visent à fournir une protection raisonnable contre les interférences nuisibles lorsque l'appareil est utilisé dans le cadre d'une **installation résidentielle**. Cet appareil génère, utilise et émet de l'énergie de radiofréquences et peut, en cas d'installation ou d'utilisation non conforme aux instructions, engendrer des

interférences nuisibles au niveau des radiocommunications. Toutefois, rien ne garantit l'absence d'interférences dans une installation particulière. Il est possible de déterminer la production d'interférences en mettant l'appareil successivement hors et sous tension, tout en contrôlant la réception radio ou télévision. L'utilisateur peut parvenir à éliminer les interférences éventuelles en prenant une ou plusieurs des mesures suivantes:

- Modifier l'orientation ou l'emplacement de l'antenne réceptrice;
- Éloigner l'appareil du récepteur;
- Brancher l'appareil sur une prise située sur un circuit différent de celui du récepteur;
- Consulter le revendeur ou un technicien qualifié en radio/télévision pour obtenir de l'aide.

Toute modification apportée au produit, non expressément approuvée par la partie responsable de l'appareil, est strictement interdite. Une telle modification est susceptible d'entraîner la révocation du droit d'utilisation de l'appareil. 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.

## **1.6 CSA certification - Disclaimer**

CSA has not tested the performance or reliability of the security or signaling aspects of this product. CSA has only tested fire, shock and/or casualty hazards as outlined in CSA's *Standard(s) for Safety for Closed Circuit Television Equipment, UL 2044*. CSA Certification does not cover the performance or reliability of

the security or signaling aspects of this product.  
CSA MAKES NO REPRESENTATIONS, WARRANTIES, OR  
CERTIFICATIONS WHATSOEVER REGARDING THE  
PERFORMANCE OR RELIABILITY OF ANY SECURITY OR  
SIGNALING RELATED FUNCTIONS OF THIS PRODUCT.

## **1.7 Bosch notices**

### **Copyright**

This manual is the intellectual property of Bosch Security Systems 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.

### **NOTE:**

This manual has been compiled with great care and the information it contains has been verified thoroughly. The text was complete and correct at the time of printing. The ongoing development of products means 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.

### **More information**

For more information, please contact the nearest Bosch Security Systems location or visit [www.boschsecurity.com](http://www.boschsecurity.com)

## 2 Planning

This equipment should be unpacked and handled carefully. 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.

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.

### Parts Included with the Product

Quantity	Item
1	IR Imager camera
1	Cable-managed pan/tilt bracket
1	Junction box
1	Sunshield
1	3D Diffuser
3	Hex keys (1x 5 mm; 1x 2.5 mm; 1x 4 mm)
2	Screws for adjusting the LED tilt (1x 25 mm; 1x 31 mm)
1	Corner mount kit (optional)
1	Mast mount kit (optional)
1	Quick Install Guide (this booklet)
1	Product CD with complete User Manual

### User-Supplied Parts

Quantity	Item
4	Lag bolts, 1/4-9 x 2 (M7-0.35 x 50) with 1/2 in. head
4	12 mm (1/2 in.) washers
2	20 mm (3/4 in.) NPS watertight pipe fittings OR 15 mm (1/2 in.) NPS watertight pipe fittings
--	Stranded wire (AWG 16 to 22) OR Solid wire (AWG 16 - 26)
--	Metal conduit (for protection of power cables and input/output cables)
--	Mounting hardware (such as a corner mount adapter or pole mount adapter, available separately from Bosch)

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**Required Tools (User-supplied)**

- 2.5 mm (0.1 in.) straight-blade screwdriver
- Socket wrench; 14 mm (9/16 in.) socket
- Drill; 5.5 mm (7/32 in.) drill bit

**WARNING!**

Important mounting instructions

This apparatus must be securely attached to the wall in accordance with these installation instructions. Failure to follow installation instructions may result in injury or death.

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**CAUTION!**

Ensure that the selected location is protected from falling objects, accidental contact with moving objects, and unintentional interference from personnel. Follow all applicable building codes.

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**CAUTION!**

The camera is designed to be installed on static structures using the specified mounting adapters. It should not be installed in dynamic environments or on moving objects such as vehicles, ships or elevators.

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Select a suitable location that protects the camera from accidental damage, tampering and environmental conditions exceeding the specifications of the camera.

Follow these mounting guidelines:

1. Locate the camera such that it cannot be easily interfered with, either intentionally or accidentally.
2. Select a smooth, flat mounting surface that can support the combined weight of the camera and mounting hardware under all expected conditions of vibration and temperature. Recommended mounting height is at least 4 m (13 ft); however, optimal conditions will vary with the specific installation environment.

## 2.1 Pre-installation Checklist

**WARNING!**

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

**WARNING!**

CSA Certified / UL Listed CLASS 2 (or Certified PoE+ rated 42.5 VDC to 57 VDC, 600 mA, 34.20 W (max), for IP models) power adapters must be used in order to comply with electrical safety standards.

**WARNING!**

Power and I/O cabling must be routed separately inside different permanently earthed metal conduits.

**WARNING!**

Install external interconnecting cables in accordance with NEC, ANSI/NFPA70 (for US application) and Canadian Electrical Code, Part I, CSA C22.1 (for CAN application), and in accordance with local country codes for all other countries. CSA Certified / UL Listed CLASS 2 power adapters must be used in order to comply with electrical safety standards. Branch circuit protection incorporating a 20 A, 2-pole Listed Circuit Breaker or Branch Rated Fuses are required as part of the building installation. A readily-accessible 2-pole disconnect device with a contact separation of at least 3 mm must be incorporated.

1. Determine the location and distance for the junction box based on its voltage and current consumption.
2. Use only UL-listed liquid tight strain reliefs for conduits to the junction box to ensure that water cannot enter the box. You must use 3/4 in. (20 mm) NPS watertight conduits and fittings.

3. Route all rough wiring including: power, audio, ethernet, and alarms I/O.
4. Select the appropriate mounting kit to use depending on the location of the camera. The camera is intended to be mounted securely to a wall using the mounting holes in the junction box.

## 3 Installation

**CAUTION!**

Installation must be made by qualified service personnel and must conform to the National Electrical Code and all applicable local codes.

**WARNING!****IMPORTANT MOUNTING INSTRUCTIONS**

The camera must be attached securely to the wall in accordance with these installation instructions. Failure to follow installation instructions may result in injury or death.



The camera has been evaluated for wall mounting, through the mounting holes in the junction box, using the following hardware secured into a 2 x 4 stud under 1/2 in. drywall:

- Four (4) Lag bolts, 1/4-9 x 2 (M7-0.35 x 50) with 1/2 in. head
- Four (4) 12 mm (1/2 in.) flat washers

The camera has not been evaluated for safety requirements using other mounting kits.

### 3.1 Overview of Installation Steps

Follow these steps in sequence to mount the camera to a wall:

1. Select tilt and width of illumination beam.
2. Unattach the junction box.
3. Mount the junction box.
4. Route wires and attach connectors.
5. Attach camera to junction box.



## 3.2 Select Tilt and Width of Illumination Beam

Before mounting the camera decide the application:

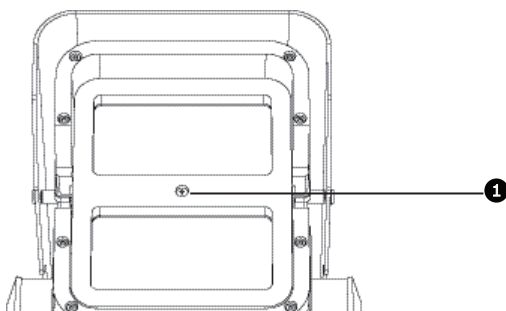
- As a general guideline, the IR LED tilt angle should be raised above the axis of the camera to reduce overexposure in the foreground.
  - Use the 31 mm screw for general area surveillance / targets closer to the camera.
  - Use the 25 mm screw for other use cases such as monitoring a perimeter. (The camera is delivered with the 25 mm screw in place, so for this type of application the screw does not have to be changed.)
- The 3D diffuser is recommended for wide-field-of-view applications.
  - With the 3D diffuser, the resulting beam angle is 42° (H) x 20° (V) to cover all the horizontal field of view (FOV) of the widest (focal length of 10 mm) application.
  - Without the 3D diffuser, the beam angle is 10° (H) x 10° (V) which provides the longest distance detection distance. (The camera is delivered with the diffuser in place, so for this type of application it does not have to be inserted.)

### 3.2.1 Changing the angle of IR LED tilt

**NOTICE!**

Do not discard the additional LED tilt set screw supplied. It may be required to adjust the angle of LED tilt.

1. Unscrew the current tilt screw located between the camera window and the IR LED window at the front of the camera.



**Figure 3.1** Slot for set screw for adjusting angle of LED tilt

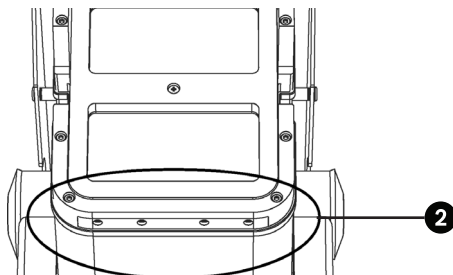
2. Screw the selected screw as far as possible into the hole. The screw must be tightened completely to obtain the desired angle.

**WARNING!**

The LED Tilt Set screw must be inserted completely so that the integrated O-ring makes a seal with the camera housing. If the screw is not completely inserted, the water tightness of the camera will be compromised.

### 3.2.2 Inserting the 3D diffuser

1. Unscrew the four captive screws beneath the illuminator at the front of the unit (item 2).



**Figure 3.2** 3D Diffuser

2. Using the captive screws, remove the 3D diffuser holder.
3. Insert the 3D diffuser into the slit in the gasket on the 3D diffuser holder.

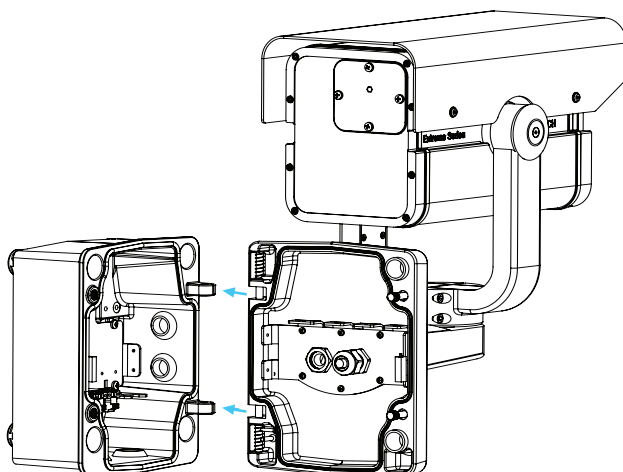
Ensure that the diffuser is inserted into the camera housing with the sticker side facing the LED array. It is important that the diffuser is oriented with the sticker side facing the LED array or IR performance will be lost.

4. Insert the diffuser and holder assembly securely into the camera housing.
5. Tighten the four captive screws to seal the unit.

### 3.3 Unattach Junction Box

Before mounting the junction box, remove it from the camera assembly.

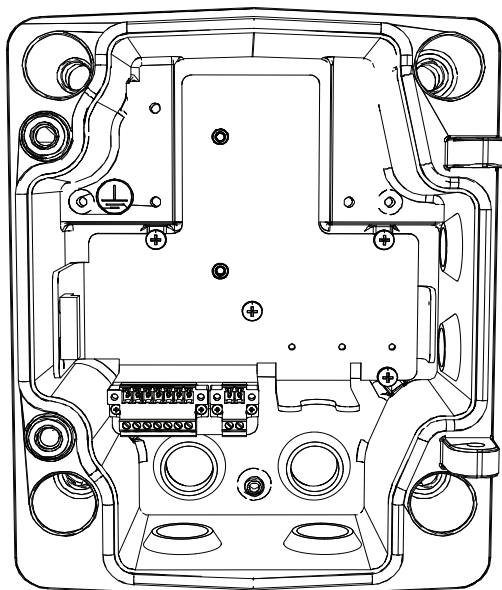
1. Use an allen key to loosen the two screws and open the junction box.
2. Loosen the slotted screws of the input/ output terminal block (7-pin) and the slotted screws of the power terminal block (2-pins).
3. Use two wrenches to remove the BNC connector from the bracket.
4. Disconnect the Ethernet connection.
5. Compress the bottom hinge pin by pushing the pin lever downward and rotating it behind the hinge pin stop.



**Figure 3.3** Camera Box Hinge Alignment

6. Push and hold the top hinge and remove the junction box.

## 3.4 Mount the Junction Box



**Figure 3.4** Interior of the Junction Box

1. Decide which holes in the junction box to use to insert the cables: the holes in the bottom of the box, the holes in the back of the box, or the holes in the side of the box.
2. Remove the seals from the holes you will be using.
3. Using the wall mount bracket as a template, mark the mounting holes.
4. Drill pilot holes at each marked point.
5. Align the mounting holes of the wall mount bracket with the holes drilled in the wall.
6. Using a socket wrench and a 14 mm (9/16 in.) socket (not supplied), screw the first 1/4-9 x 2 (M7-0.35 x 50) lag bolt (not supplied) with 12 mm (1/2 in.) washer (not supplied) into the stud.
7. Repeat step 8 to attach the three remaining lag bolts.
8. Attach the appropriate NPS watertight pipe fittings (not supplied) to the bottom or back holes of the junction box through which to run the cables.

**NOTICE!**

You must use the appropriate UL-listed / NPS watertight conduits and fittings to ensure that water cannot enter the junction box.

- Use 20 mm (3/4 in.) NPS fittings for the holes on the bottom and back of the box.
- Use 15 mm (1/2 in.) NPS fittings for the side holes.

## 3.5 Route Wires and Attach Connectors

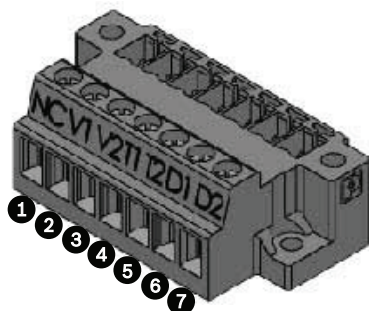
1. Route all video, control, and alarm wires through the conduit fitting to the junction box. These wires must be routed through a permanently earthed metal conduit.
2. Route the power lines (24 VAC / 12 VDC) through the conduit fitting to the junction box. Use stranded wire (AWG 16 to 22) or solid wire (AWG 16 to 26). These wires must be routed through a permanently earthed metal conduit.
3. Cut and trim all wires with sufficient slack to reach their connector terminals in the box, but not so long as to be pinched (about 5 mm (0.2 in.) of insulation).
4. Loosen the screws of the 2-pin terminal block and attach the incoming power wires.
5. Tighten the screws of the 2-pin terminal block.
6. Loosen the slotted screws of the 7-pin input/ output terminal block, attach the wires according to the pin definition table and retighten the screws.

**NOTICE!**

For a DC supply the polarity is important. Incorrect polarity does not damage the camera, but will not allow the camera to switch on. If input voltage is not within the specified range or has incorrect polarity (DC only), the voltage indicator (a yellow LED in the front window) turns on to indicate this condition.

7. Connect the incoming Ethernet cable to the RJ45 connector supplied in the camera junction box.

### 3.5.1 Input/Output Connections



**Figure 3.5** Terminal Block for Input/Output Connections

#	Label	Description	Wire Color
1	NC	Not connected	
2	V1	Alarm output 2	Yellow
3	V2	Alarm output 1	White
4	T1	Audio output	Gray
5	T2	Audio input	Brown
6	D1	Alarm input 1	Orange
7	D2	GND	Black
8	+	+12 VDC / 24 VAC	Red
9	-	GND DC / 24 VAC	Green

## 3.6 Attach Camera to Junction Box

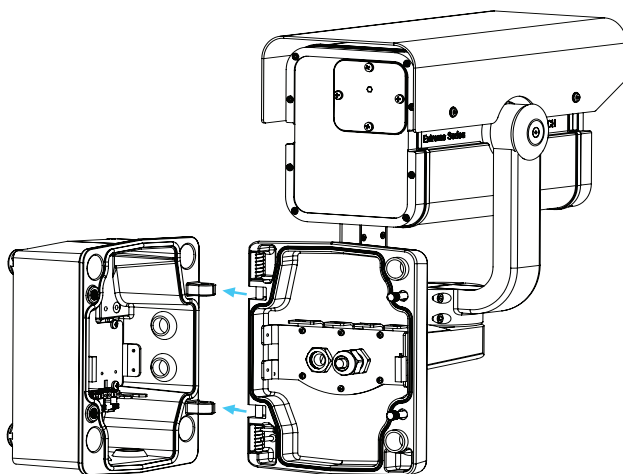
The bottom hinge pin of the camera arm has a stop to hold the hinge open while attaching the arm to the junction box.



### **DANGER!**

Serious injury or death can occur if the hinge pins of the camera arm are not fully engaged (locked) to the junction box. Use caution before releasing the camera arm.

1. Compress the bottom hinge pin by pushing the pin lever downward and rotating it behind the hinge pin stop.



**Figure 3.6** Camera Box Hinge Alignment

2. Open the top hinge by pushing and holding up the pin lever.



### **NOTICE!**

Both hinge pins must be fully compressed to open (unlock) the hinges of the camera arm and before proceeding to step 3.

3. While continuing to hold the top hinge pin, open and align the top and bottom hinges of the camera arm to their mating points on the junction box.
4. Once you have aligned the hinges, release the top hinge pin to engage its mating hinge on the junction box, and



then release the bottom hinge pin from the hinge pin stop to lock the camera arm to the junction box.

5. Put the input/output terminal block on the bracket and tighten the two slotted screws.
6. Put the power terminal block on the bracket and tighten the two slotted screws.
7. Reattach the network cable from the camera to the connector in the junction box.
8. Reattach the BNC connector from the camera to the bracket in the junction box.

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**CAUTION!**

- The ITE is to be connected only to PoE networks without routing to the outside plant.
- The camera can accept power from the 12 VDC / 24 VAC power input or from the Ethernet input. Ensure that the camera receives power from only one source.

- 
9. Attach an Ethernet cable (Cat-5e or Cat-6; maximum distance 100 m (328 ft) to the connector in the junction box.

## 4 Camera Set-up

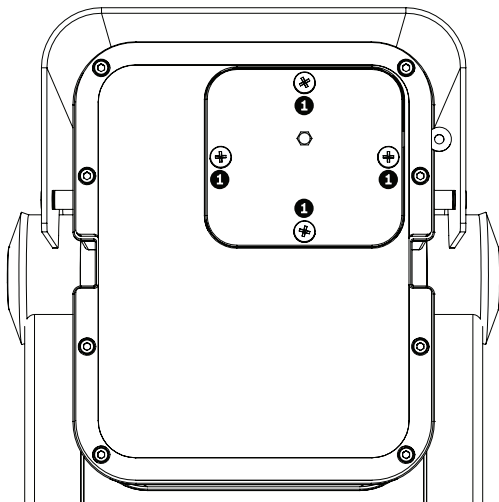
Configuration of the camera is carried out via the network using a web browser. Use the browser to configure the camera settings, including lens zoom/ focus and IR LED power intensity.

To position the camera use the controls on the rear to start the installation wizard on the CVBS service output.

### 4.1 Rear controls

#### 4.1.1 Accessing the control panel

1. Unscrew the four captive screws of the access panel on the rear of the camera housing (item 1 in the figure).



**Figure 4.1** Rear camera housing with access panel

2. Open the access panel.

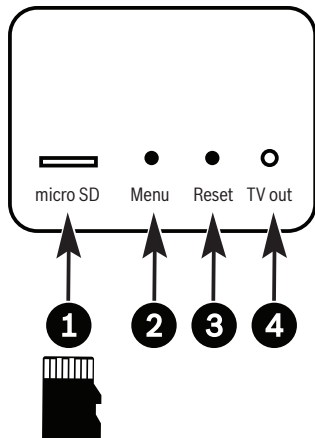


#### **NOTICE!**

Remember to tighten the captive screws on the panel when you finish the adjustments to seal the unit.

### 4.1.2 Control panel

Controls and sockets are located behind the access panel at the rear of the camera housing.



1. MicroSD card slot	Insert a microSD card into the slot.
2. Menu button	Use this button to start the field-of-view installation wizard.
3. Reset button	Restores a previous version of the firmware if uploading a new version fails. With the power on, press and hold the reset button for more than 10 seconds to restore the factory defaults.
4. Service video output	2.5 mm jack provides a CVBS signal (for installation purposes only)

## 4.2 Camera positioning and field-of-view

To help position the camera and set the field-of-view:

1. Connect a monitor to the 2.5 mm jack using the optional monitor cable (S1460) which provides a CVBS signal (for installation purposes only).
2. Apply power to the camera.
3. After power-up, wait a little (about 20 seconds).
4. Press the Menu button. This enables the service video analog output.

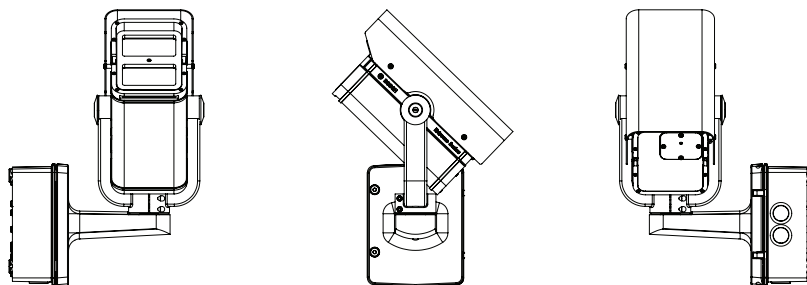
Follow the instructions in *Section 4.3 Using the install wizard, Page 30* to position the camera. While using the wizard, the pan and tilt position can be adjusted as outlined below.

### 4.2.1 Making pan adjustments

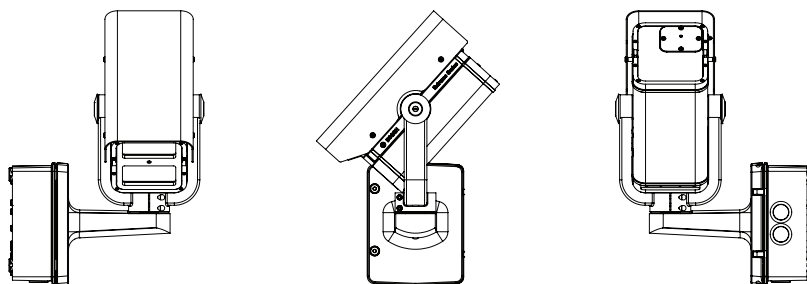
1. Using the 4 mm hex key, loosen the bolts at the base of the U-bracket to make the necessary pan adjustments.
2. When loosened, adjust the camera to the desired pan angle.
3. Tighten the bolt to secure in place.

### 4.2.2 Making tilt adjustments

1. Using the 2.5 mm hex key, unscrew the round caps where the bracket attaches to the camera housing to expose the bolts for tilt adjustment.
2. Using the 4 mm hex key, loosen the bolts.
3. Make the necessary tilt adjustments.
4. Tighten the bolts to secure the camera in place.
5. Replace the round caps when you finish the adjustments.



**Figure 4.2** Example orientation: Camera rotated 90 degrees left, pointing up 44 degrees. From left: front view, side view, back view



**Figure 4.3** Example orientation: Camera rotated 90 degrees right, pointing down 48 degrees. From left: front view, side view, back view

## 4.3 Using the install wizard

The **Menu** button on the control panel is used to access the camera install wizard. When there is a choice in the wizard, the options are selected by either a short press (less than 2 s) or a long press (more than 2 s) of the button.

The wizard handles the following functions:

- Lens identification
- Image orientation
- Zoom and focus adjustment conditions
- Auto focus
- Analog output

Run the wizard to select orientation and field-of-view (zoom).

### Note:

The zoom and focus are adjusted again later via the web browser. This optimizes picture sharpness in both bright and low-level lighting.

### 4.3.1 Adjustment procedure

If you have set up the camera and pressed the **Menu** button as described in *Section 4.2 Camera positioning and field-of-view*, page 28 then you see the following on the monitor screen:

Lens type:	State:	Focus Indicator: 0
<div></div>		
CONTINUE <press short>	180° ROTATE <press long>	Timeout: 300

- The lens type is identified and shown on the screen.
- The iris is opened to its maximum value.

1. To rotate the image 180°, press and hold the **Menu** button until the image flips.
2. Briefly press the **Menu** button to open the automatic motorized focus adjustment screen.
3. Briefly press the **Menu** button to set the focus and zoom defaults.
  - The progress is shown on the monitor.
  - When the initial focus adjustment is finished, position the camera using the pan and tilt adjustments.
4. Briefly press the **Menu** button to start the automatic motorized focus adjustment.
5. Briefly press the **Menu** button again and again to scroll through the seven preset zoom positions.
  - The selection moves back when the last position is reached.
6. When you reach the desired zoom position, use a long press of the **Menu** button to set the zoom position and to re-focus.
7. If the camera is not correctly focussed, press the **Menu** button for a longer time to restart the wizard.  
If the camera is correctly focussed, press the **Menu** button for a short time to change the analog output.
8. Briefly press the **Menu** button again and again to select **NTSC** or **PAL** with the appropriate aspect ratio for your display, or to switch the analog output **OFF** (default).
9. When the selection is made, use a long press of the **Menu** button to save the results.
  - The zoom and focus position is stored.
  - The iris is set to its original value.
  - The video service output is disabled.
  - The BNC video output is set to its selected state.

**Note:**

The wizard automatically disappears if not used for a while.

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