TruVision Panoramic Wi-Fi Wedge IP Camera Installation Guide

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Copyright

Trademarks and patents

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Manufacturer

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UTC Fire and Security Inc.

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Authorized EU manufacturing representative:
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Certification

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of 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:

1. Reorient or relocate the receiving antenna.
2. Increase the separation between the equipment and receiver.
3. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
4. Consult the dealer or an experienced radio technician for help.

CC Caution

To assure continued compliance, use only shielded interface cables when connecting to computer or peripheral devices. Any changes or modifications not expressly approved by the party responsible for compliance could void the user's

authority to operate the equipment.

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

(1) This device may not cause harmful interference

(2) This Device must accept any interference received, including interference that may cause undesired operation.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

F**ederal Communication Commission (FCC) Radiation Exposure Statement**

This equipment complies with FCC radiation exposure set forth for an uncontrolled environment. In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antenna shall not be less than 20 cm (8 inches) during normal operation.

CAN ICES-3 (B)/NMB-3(B)

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions:
(1) this device may not cause interference, and
(2) this device must accept any interference, including interference that may cause undesired operation of the device.
Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radioexempts de licence. L'exploitation est autorisée aux deux conditions suivantes :
(1) l'appareil ne doit pas produire de brouillage, et
(2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.
Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut
fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

R&TTE Compliance Statement

This equipment complies with all the requirements of DIRECTIVE 1999/5/CE OF THE EUROPEAN PARLIAMENT AND THE COUNCIL OF 9 March 1999 on radio equipment and telecommunication terminal Equipment and the mutual recognition of their conformity (R&TTE). The R&TTE Directive repeals and replaces in the directive 98/13/EEC (Telecommunications Terminal Equipment and Satellite Earth Station Equipment) as of April 8, 2000.

Safety

This equipment is designed with the utmost care for the safety of those who install and use it. However, special attention must be paid to the dangers of electric shock and static electricity when working with electrical equipment. All guidelines of this and of the computer manufacture must therefore be allowed at all times to ensure the safe use of the equipment.

National Restrictions

This device is intended for home and office use in all EU countries (and other countries following the EU directive 1999/5/EC) without any limitation except for the countries mentioned below:

Country	Restriction	Reasons/remarks
Bulgaria	None	General authorization required for outdoor use and public service
France	Outdoor use; limited to 10 mW e.i.r.p. within the band 2454-2483.5 MHz.	Military Radiolocation use. Refarming of the 2.4 GHz band has been ongoing in recent years to allow current relaxed regulation. Full implementation planned 2012
Luxembourg	None	General authorization required for network and service supply(not for spectrum).

Annex 3 B and A Wideband Data Transmission systems 2400.0-2483.5 MHz:

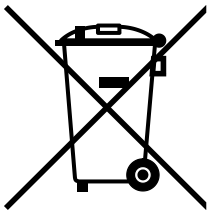
Country	Restriction	Reasons/remarks
Norway	Implemented	This subsection does not apply for the geographical area within a radius of 20 km from the centre of Ny-Ålesund.
Italy	Implemented	The public use is subject to general authorization by the respective service provider.
Russian Federation	Limited implementation	**1. SRD with FHSS modulation** 1.1. Maximum 2.5 mW e.i.r.p.

		1.2. Maximum 100 mW e.i.r.p. Permitted for use SRD for outdoor applications without restriction on installation height only for purposes of gathering telemetry information for automated monitoring and resources accounting systems. Permitted to use SRD for other purposes for outdoor applications only when the installation height is not exceeding 10 m above the ground surface. 1.3 maximum 100 mW e.i.r.p. indoor applications. **2. SRD with DSSS and other than FHSS wideband modulation** 2.1. Maximum mean e.i.r.p. density is 2 mW/MHz. Maximum 100 mW e.i.r.p. 2.2. Maximum mean e.i.r.p. density is 20 mW/MHz. Maximum 100 mW e.i.r.p. It is permitted to use SRD for outdoor applications only for purposes of gathering telemetry information for automated monitoring and resources accounting systems or security systems. 2.3. Maximum mean e.i.r.p. density is 10 mW/MHz. Maximum 100 mW e.i.r.p. indoor applications.
Ukraine	Limited implementation	e.i.r.p. ≤100 mW with built-in antenna with amplification factor up to 6 dBi.

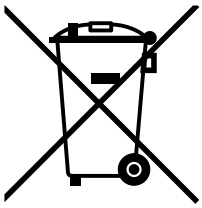
The following information shall also be included in the case of radio equipment intentionally emitting radio waves:

(a) frequency band(s) in which the radio equipment operates;

(b) maximum radio-frequency power transmitted in the frequency band(s) in which the radio equipment operates.



2012/19/EU (WEEE directive): Products marked with this symbol cannot be disposed of as unsorted municipal waste in the European Union. For proper recycling, return this product to your local supplier upon the purchase of equivalent new equipment, or dispose of it at designated collection points. For more information see: www.recyclethis.info.



2006/66/EC (battery directive): This product contains a battery that cannot be disposed of as unsorted municipal waste in the European Union. See the product documentation for specific battery information. The battery is marked with this symbol, which may include lettering to indicate cadmium (Cd), lead (Pb), or mercury (Hg). For proper recycling, return the battery to your supplier or to a designated collection point. For more information see: www.recyclethis.info.

Contact information

For contact information, see www.interlogix.com or www.utcfssecurityproducts.eu.

Content

Introduction

Product overview

This is the installation guide for TruVision Panoramic wedge camera models:

- TVW-1130 (3MPX Panoramic, 1.6 mm lens, Gray, Wi-Fi, PAL)
- TVW-3130 (3MPX Panoramic, 1.6 mm lens, Gray, Wi-Fi, NTSC)

Note:

The camera has a horizontal viewing angle range of between 127 to 160 degrees, depending on the resolution ratio settings.

Installation

This section provides information on how to install the cameras.

Installation environment

When installing your product, consider these factors:

- **Electrical**: Install electrical wiring carefully. It should be done by qualified service personnel. Always use a proper PoE switch or a 12 VDC UL listed Class 2 or CE certified power supply to power the camera. Do not overload the power cord or adapter.
- **Ventilation**: Ensure that the location planned for the installation of the camera is well ventilated.
- **Temperature:** Do not operate the camera beyond the specified temperature, humidity or power source ratings.

The operating temperature of the camera is between -30 to +60°C (-22 to 140°F). Humidity is below 90%.

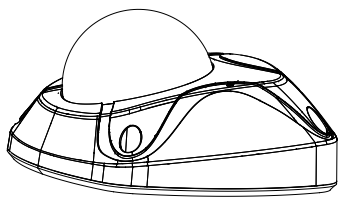
- **Moisture:** Do not expose the camera to rain or moisture, or try to operate it in wet areas. Turn the power off immediately if the camera is wet and ask a qualified service person for servicing. Moisture can damage the camera and also create the danger of electric shock.
- **Servicing**: Do not attempt to service this camera yourself. Any attempt to dismantle or remove the covers from this product will invalidate the warranty and may also result in serious injury. Refer all servicing to qualified service personnel.
- **Cleaning**: Do not touch the sensor modules with fingers. If cleaning is necessary, use a clean cloth with some ethanol and wipe the camera gently. If the camera will not be used for an extended period of time, put on the lens cap to protect the sensors from dirt.

Package contents

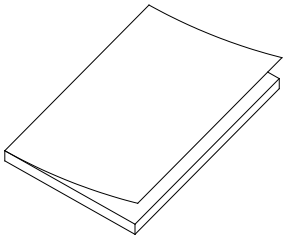
Check the package and contents for visible damage. If any components are damaged or missing, do not attempt to use the unit; contact the supplier immediately. If the unit is returned, it must be shipped back in its original packaging.

IP wedge camera

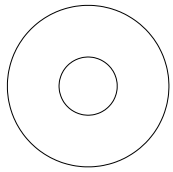
Camera:



Installation manual:

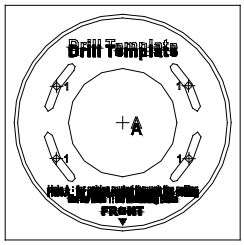


CD with Configuration Manual and TruVision Device manager:

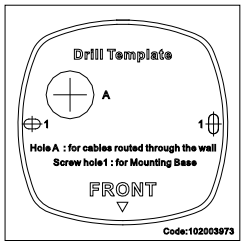


Template to mount with the converter pan:

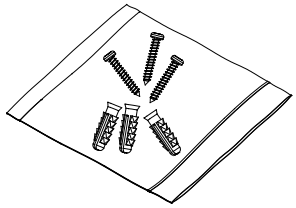
Template A:



Template B:

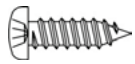


Screws:

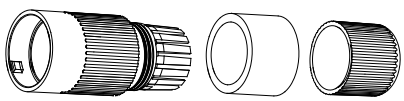


Drywall anchor
Φ7.5 x 24.5mm (3 pcs)

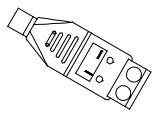
Screw M4
(4 x 25mm (3 pcs)



Water joint: provides water resistance to network connection.

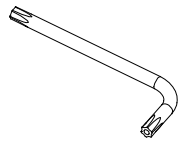


12 VDC connector: DC jack socket to terminal connectors with positive and negative indicators.

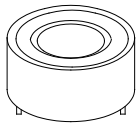


Screws C: M4×8, 2pcs

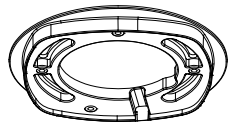
Tamper-resistant hex wrench:



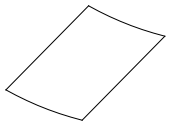
Lens alignment tool:



Converter pan:



WEEE and battery disposal instructions:



CAUTION: Use direct plug-in UL listed power supplies marked Class 2/CE certified or LPS (limited power source) of the required output rating as listed on the unit.

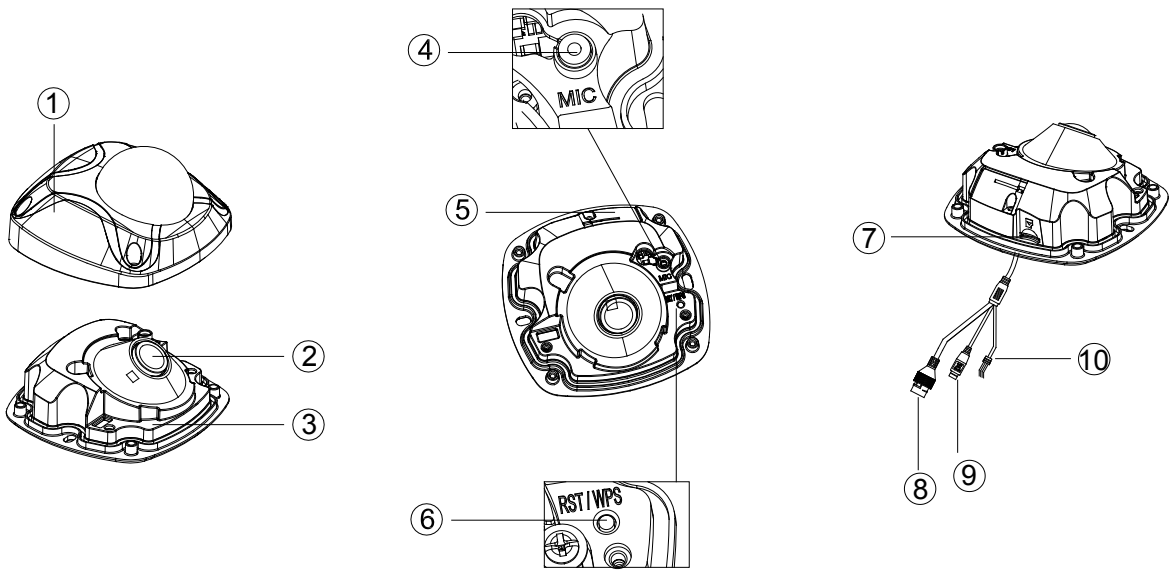
CAUTION: Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.

Cable requirements

For proper operation, adhere to the following cable and power requirements for the cameras. Category 5 cabling or better is recommended. All network cabling must be installed according to applicable codes and regulations.

Camera description

Figure 1: IP wedge camera



1. Cover
2. Lens
3. Base
4. Microphone
5. Wi-Fi antenna
6. Reset button/WPS
7. SD card slot
8. PoE and network cable
9. DC power cable
10. Alarm I/O and audio out

Setting up the camera

Note: If the light source where the camera is installed experiences rapid, wide variations in lighting, the camera may not operate as intended.

To quickly put the camera into operation:

1. Prepare the mounting surface.
2 Mount the camera using the appropriate fasteners. See “Mounting the wedge camera” on page 23.
3. Set up the camera’s network and streaming parameters so that the camera can be controlled over the network.
4. Program the camera to suit its location. For further information, please refer to the “TruVision Panoramic Wi-Fi Wedge IP Camera Configuration Manual”.

Setting up Wi-Fi transmission

For setting up the Wi-Fi transmission, please refer to the “TruVision Panoramic Wi-Fi Wedge IP Camera Configuration Manual” for details.

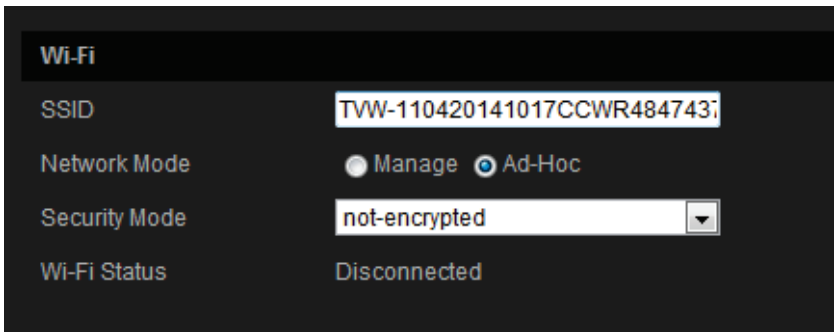
Wi-Fi transmission distance

The Wi-Fi transmission distance/range of the camera is approximately 50 m (164 ft.) in open air applications.

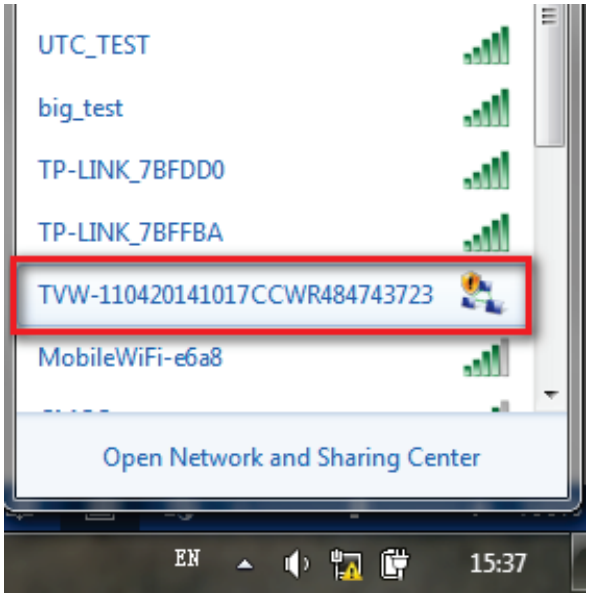
Note: The transmission distance may vary due to the presence of physical obstacles, such as trees, walls, elevators, fire doors, furniture, etc. Avoid very solid walls and metallic objects in the transmission path. Other Wi-Fi networks (for example Wi-Fi, WiMAX) operating on 2.4 GHz and certain types of devices (e.g., microwave oven, point-to-point Wi-Fi transmission) can cause interference with your network. The result would lead to a reduction in transmission distance/range.

Access the camera via a Wi-Fi network (Ad-Hoc mode)

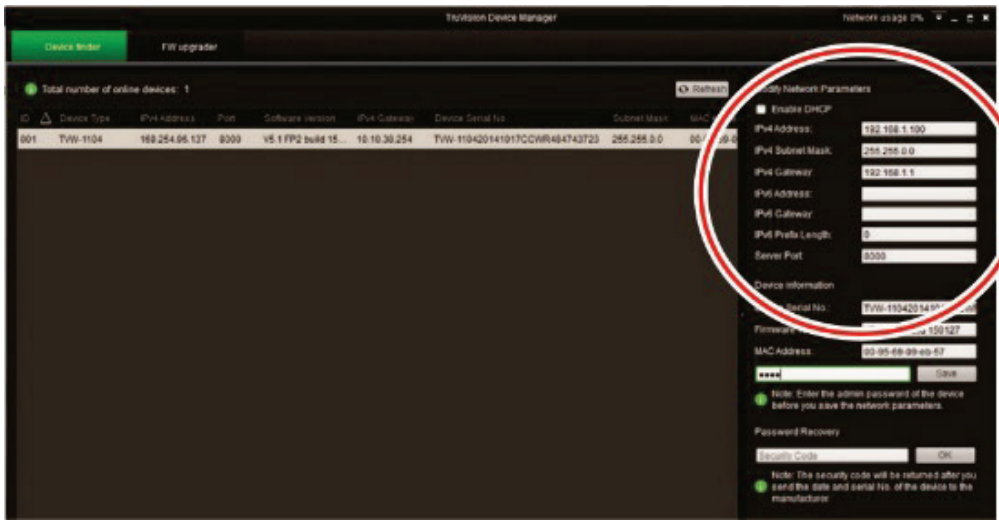
Note: The camera is in Ad-Hoc mode by default. The SSID is the serial number.



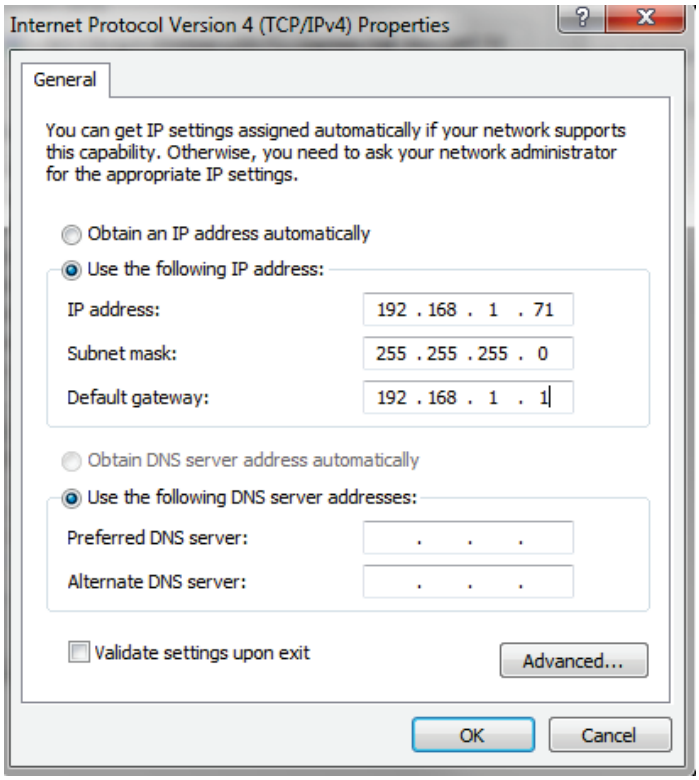
1. Power up the camera.
2. From your computer, search for the SSID that was set up for the camera for Ad-Hoc mode. Select the SSID to connect the camera.



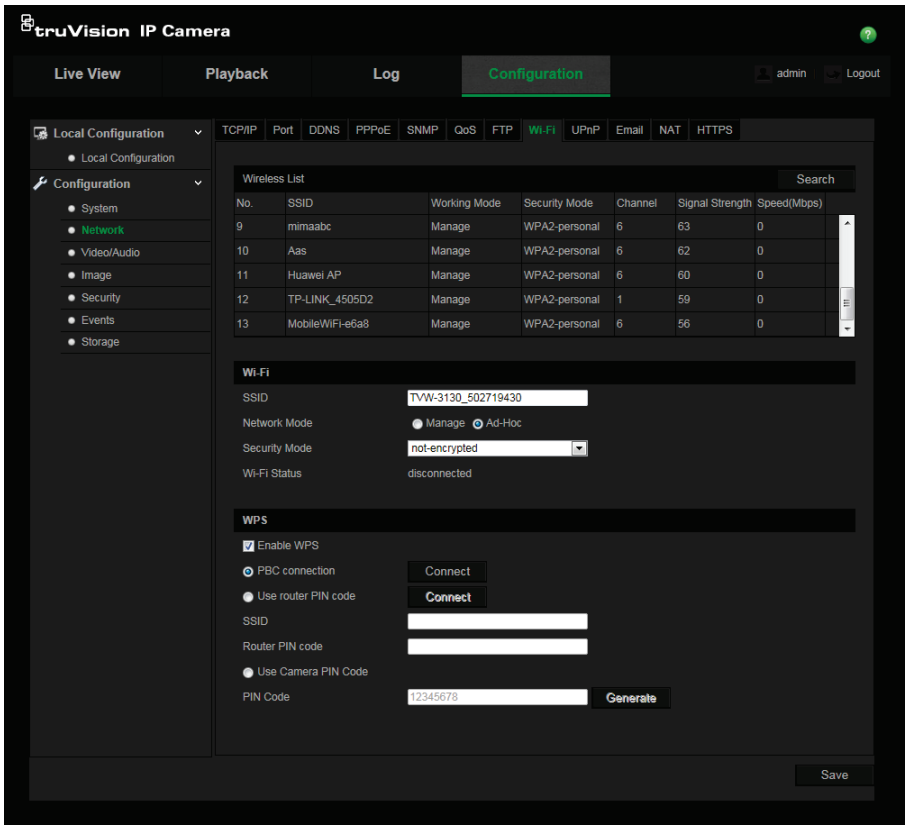
3. When connected, open *TruVision Device Finder* or *Device Manager* and change the IP address of the camera to that of the same subnet of the router.



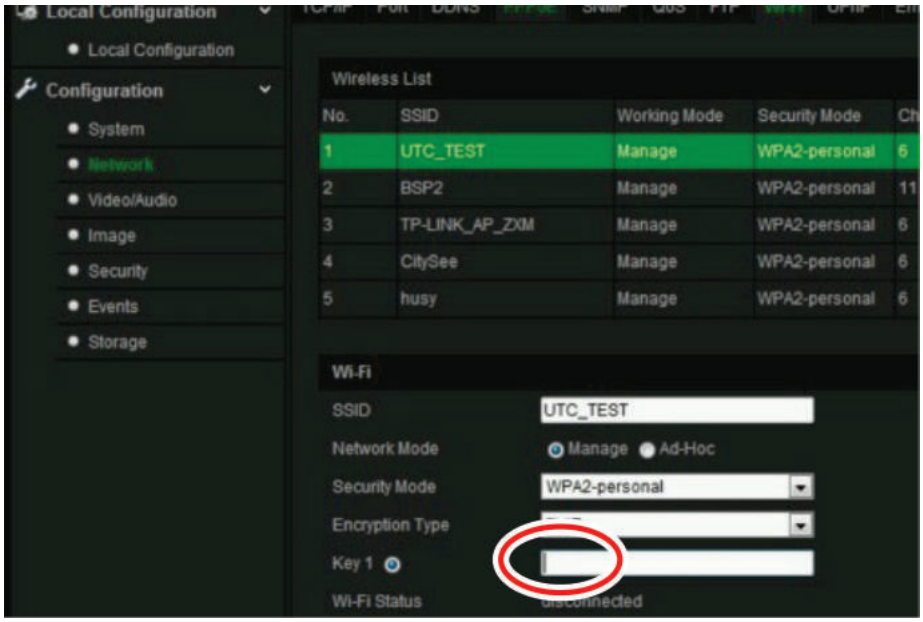
Note: The computer IP address should also be in the same subnet.



4. Log on the camera via the web browser and browse to the Wi-Fi page.

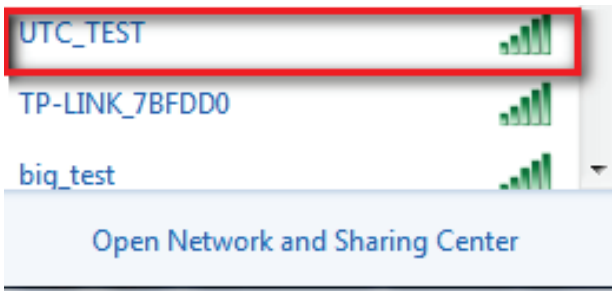


5. Select the desired Wi-Fi and enter the key, if required.

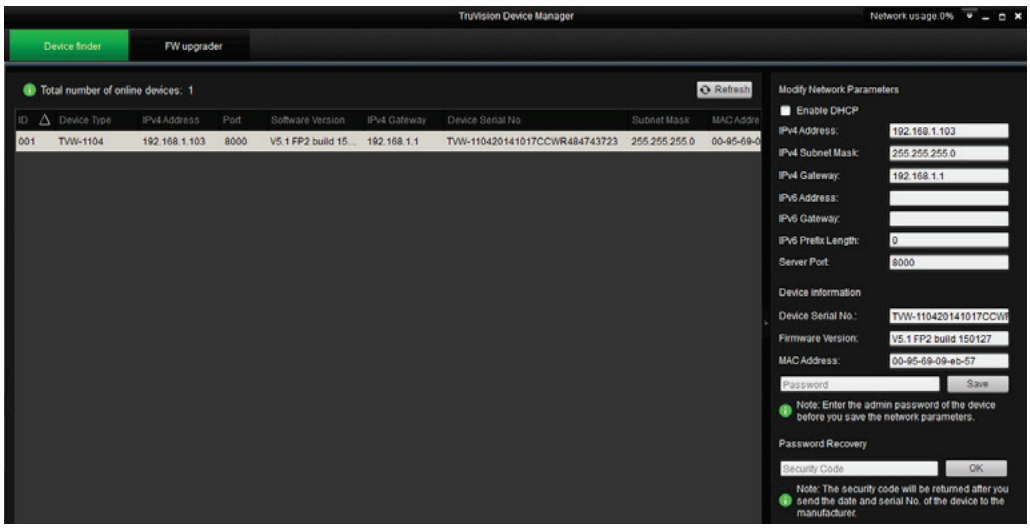


6. Click **Save** to save the settings.

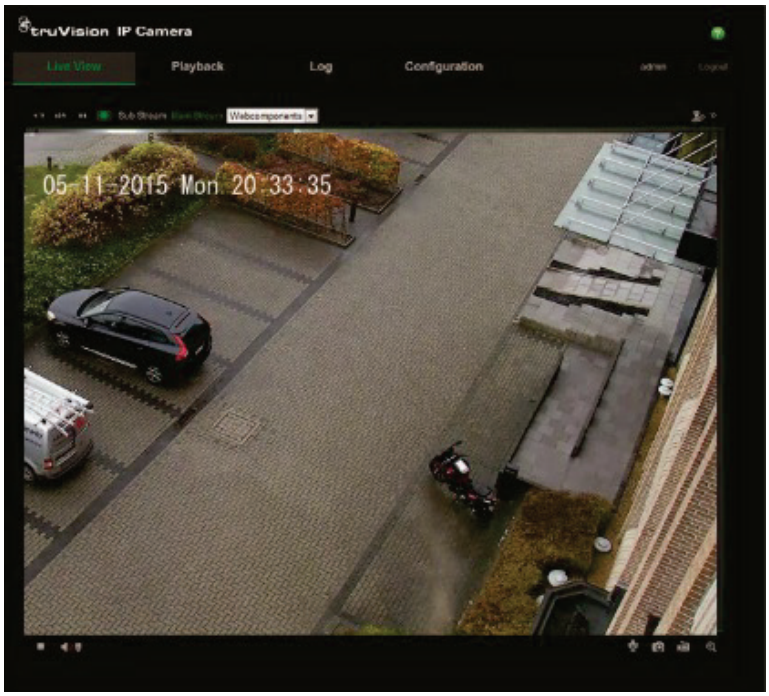
7. When the camera is connected to the router, the ad-hoc is disconnected. On your computer, select the Wi-Fi router and connect it.



8. Open the device finder to check the WLAN IP address of the camera.



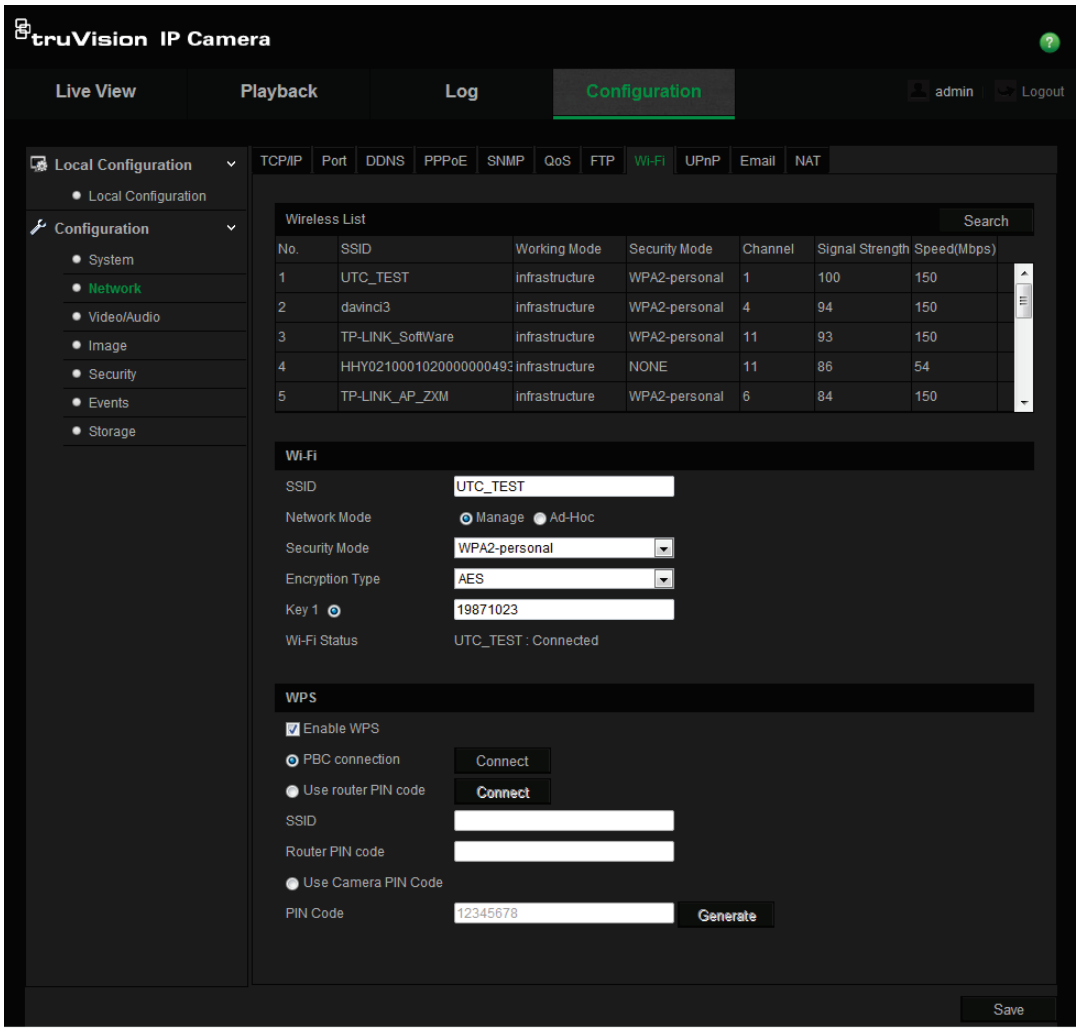
Log in to the camera to see live view.



Access the camera via a network cable

When configuring the Wi-Fi settings, connect the camera to the router via a network cable and then open the web browser to complete the Wi-Fi setup by clicking **Save**. When the Wi-Fi Status changes from “Disconnected” to “Connected”, the Wi-Fi connection is set up successfully. See Figure 2 below.

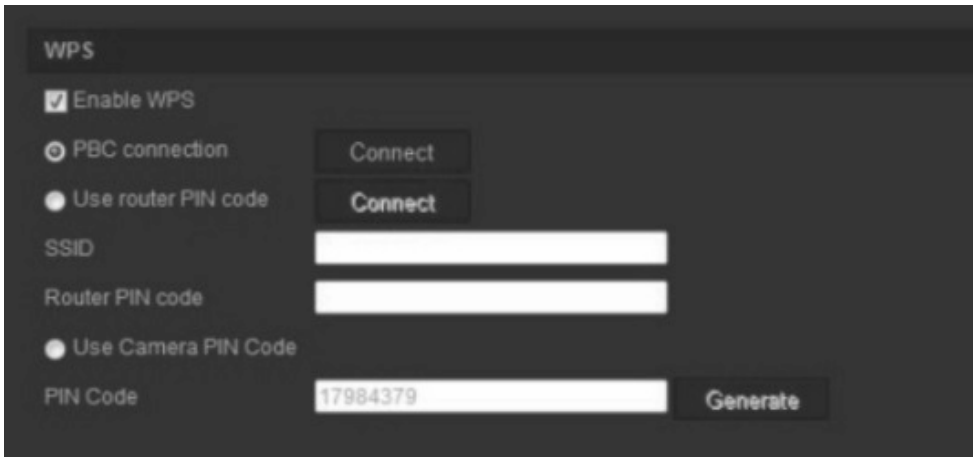
Figure 2: Camera browser Wi-Fi interface



WPS

The camera provides a WPS (Wi-Fi Protected Setup) feature to easily set up a Wi-Fi connection to a Wi-Fi router.

Figure 3: WPS options



PBC mode: Push the WPS button on the Wi-Fi router. The WPS indicator will flash. (The WPS settings may be different per device. Please refer to the Wi-Fi router user manual for details). Then check the **PBC Connection** checkbox and click the **Connect** button. The camera and the Wi-Fi router are automatically connected.

PIN mode: The PIN code is printed on the Wi-Fi router device. Enter the PIN code in the **Router PIN Code** bar and check the **Use Router PIN Code.** Then click **Connect** to connect the camera to the Wi-Fi router.

You can generate the PIN code on the camera side and configure the Wi-Fi router to finish the connection setting. (Please check the Wi-Fi router User Manual for details). Please note that the PIN code expiration time is 120 seconds.

Accessing the SD card

Insert a Micro SD card with up to 64GB for local storage as a backup in case, for example, the network fails (see Figure 1 on page 6). The SD card is not supplied with the camera.

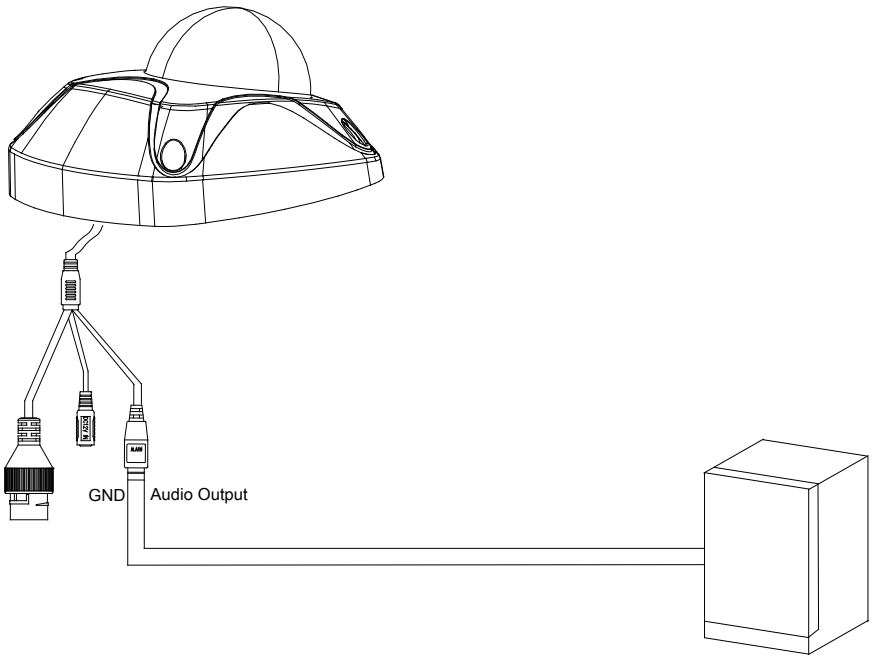
Video and log files stored on the Micro SD card can only be accessed via the web browser. You cannot access the card using TruVision Navigator or a recording device.

Connecting a speaker

The camera has a built-in microphone to collect audio signals from the surveillance area. The audio signals can be configured and transferred with video streams for live viewing and recording purposes.

For audio output, please connect an external speaker to the Audio Output and GND interface of the camera. The speaker is not supplied with the camera. See Figure 4 below.

Figure 4: Connecting a speaker to the camera

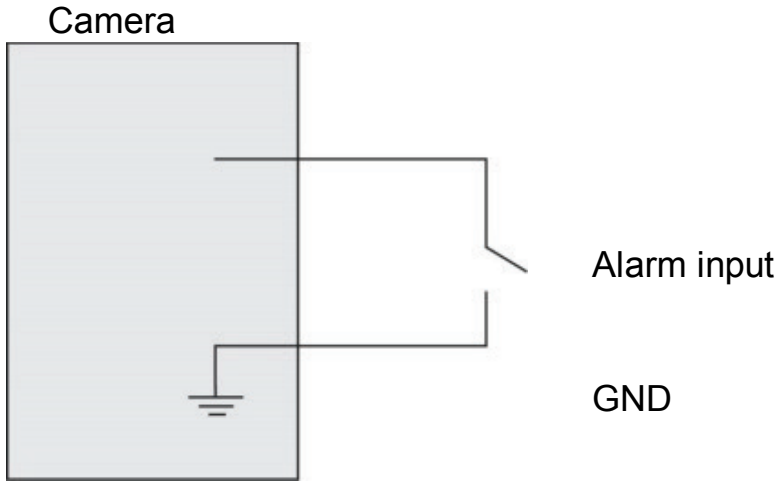


Note: The speaker must be correctly powered using a power supply. Please check the speaker specification and user manual for further details.

Using *Audio* for surveillance purpose and/or recording must comply with local applicable codes and regulations.

Alarm input connection

The camera supports the external alarm input as shown below. Both NO (Normally Open) and NC (Normally Closed) type relays are supported. Please remember to check the *Alarm* menu by selecting the NO/NC alarm type according to the connected electric relay type.

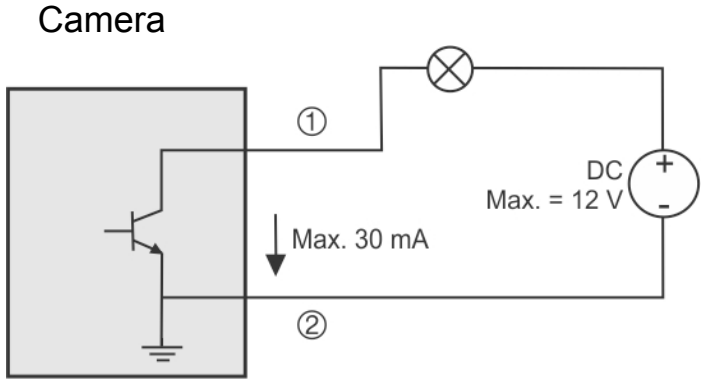


Alarm output connection

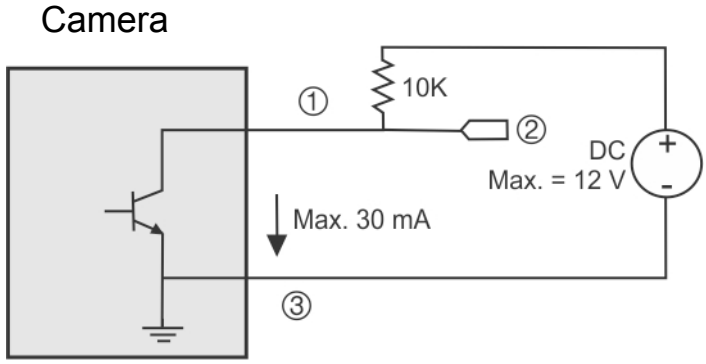
The camera can trigger an external alarm device when a motion detection event occurs.

Please note that the camera GND must be always connected to the negative power terminal. The maximum current into the camera “Alarm Output” is 30 mA at 12 VDC.

Alarm output connection for a DC load:

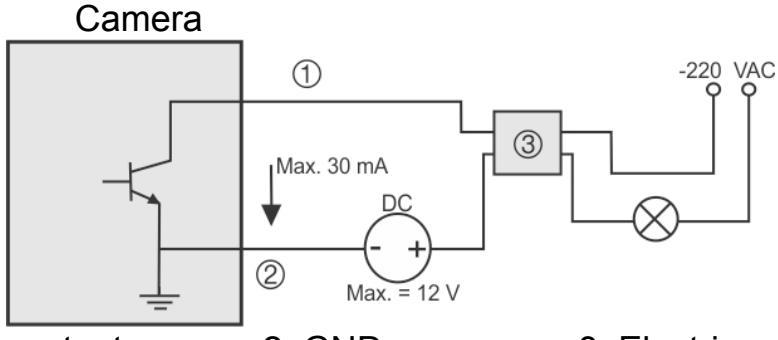


1. Alarm output 2. GND



1. Alarm output 2. Alarm 3. GND

Alarm output connection for an AC load:



1. Alarm output 2. GND 3. Electric relay

Note: In this connection, the resistance load to the camera is greater than 4.7K.

When the alarm input/output connection is complete, check the **Alarm Configuration** menu. Refer to the “TruVision Panoramic Wi-Fi Wedge IP Camera Configuration Manual” for more information.

Resolution and viewing angle

The camera provides multiple resolution options, as shown in Table 1 below. Please select the resolution and frame rate according to the required horizontal and vertical fields of view.

The multiple resolution options provide you with a lot of flexibility to position the cameras for seamless video surveillance coverage. For example, on an outside corner you could install two cameras on each side of the corner and set the resolution to 1776 × 1340 for horizontal 270° and vertical 6° to100° field of view. You could use only one camera viewing several shop gates and set the resolution to 2080 × 784.

Note: Before you set the camera resolution, please check the supported resolution options of your storage recorder or video management system (VMS). If the selected resolution is not supported, you may get a black screen or an error on the recorder and/or VMS.

Table 1: Camera resolution options

Resolution	Ratio	Horizontal FOV	Vertical FOV	Frame Rate
1280 × 960	4:3	-64° to +64°	6° to100°	PAL: 25 fps @50 Hz; NTSC: 30 fps

Resolution	Ratio	Horizontal FOV	Vertical FOV	Frame Rate
				@ 60 Hz
1776 × 1340	4:3	-64° to +64°	6° to 100°	PAL: 12.5 fps @ 50 Hz; NTSC: 15 fps @60 Hz
1280 × 720	16:9	-71° to +71°	15° to 90°	PAL: 25 fps @50 Hz; NTSC: 30 fps @60 Hz
1920 × 1080	16:9	-71° to +71°	15° to 90°	PAL: 12.5 fps @50 Hz; NTSC: 15 fps @60 Hz
2080 × 784	8:3	-77° to +77°	26° to 80°	PAL: 25 fps @50Hz; NTSC: 30 fps @60Hz
2144 × 604	32:9	-80° to +80°	33° to 75°	PAL: 25 fps @50 Hz; NTSC:

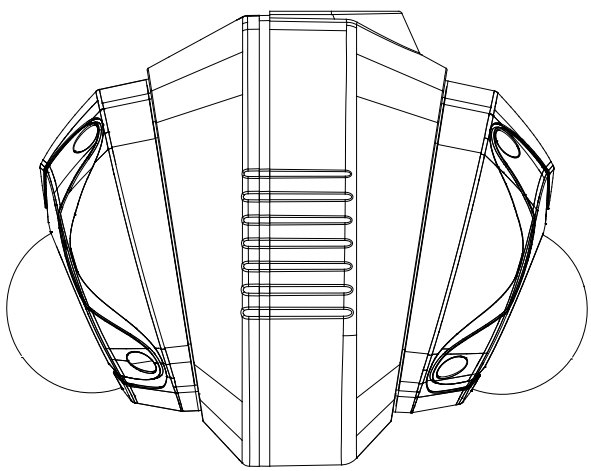
Resolution	Ratio	Horizontal FOV	Vertical FOV	Frame Rate
				30 fps @60 Hz

Mounting the accessories

Dual view mount for wedge cameras (used with TVD-PPB)

The TVW-DVM dual view mount (purchased separately) allows you to install two panoramic cameras on a single mount. You then obtain a view of the surrounding area without requiring a complex integration effort when connecting to your storage device or video management system (VMS).

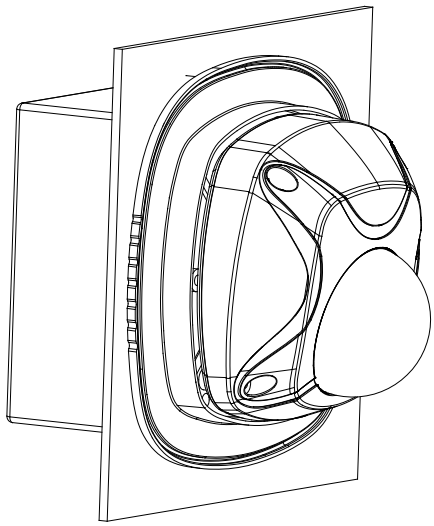
Figure 5: Cameras attached using the dual view mount



Double (2) gang box adapter plate for wedge cameras

The TVW-2G-AD adapter plate (purchased separately) allows you to attach the panoramic wedge camera to a standard 4-inch 2 gang box.

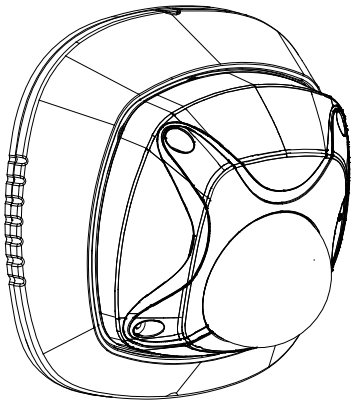
Figure 6: Panoramic wedge camera attached to a 2 gang box



Indoor angled back box for wedge cameras

The TVW-AWB-2 indoor angled back box (purchased separately) conceals the interconnected cables and eliminates the blind area below the camera when the camera is installed on a wall. See Figure 7 below.

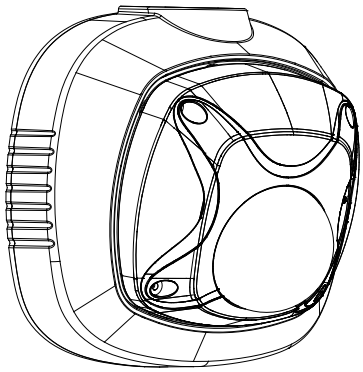
Figure 7: Camera mounted on an indoor angled back box



Outdoor angled back box for wedge cameras

The TVW-AWB-1 outdoor angled back box (purchased separately) is weather resistant and includes a G1 threaded conduit access and plug. It conceals the interconnect cables and eliminates the blind area below the camera when the camera is installed on a wall. See Figure 8 below.

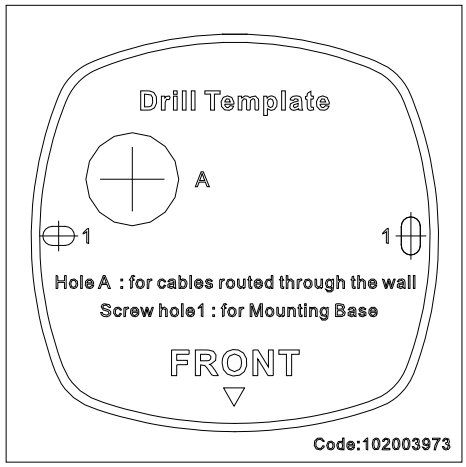
Figure 8: Camera mounted on an outdoor angled back box



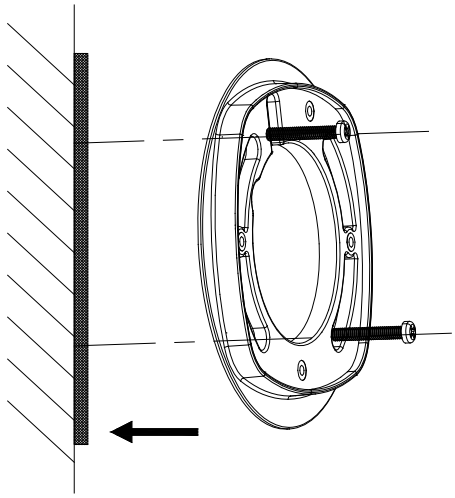
Mounting the wedge camera

To mount the wedge camera on a wall:

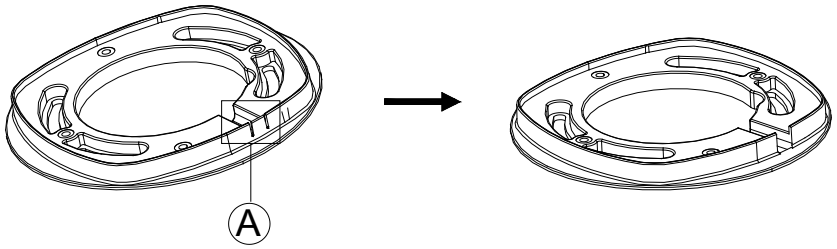
1. Drill the holes for the mounting hardware in the mounting surface using the supplied drill template. To route the cables from the base of the camera, drill a cable access hole in the mounting surface.



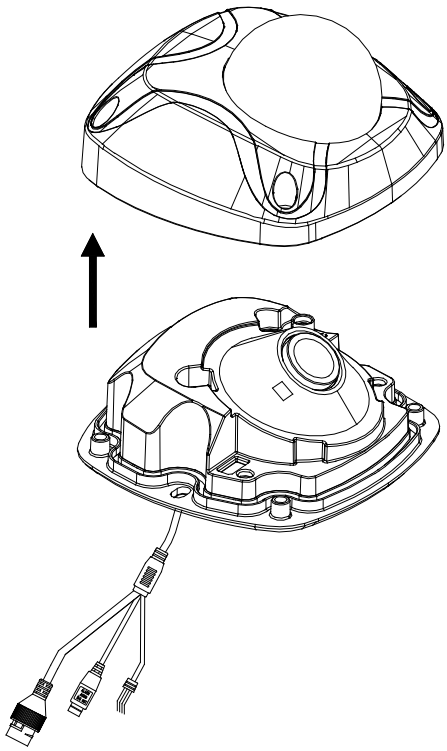
2. Mount the converter pan to the mounting surface (optional).



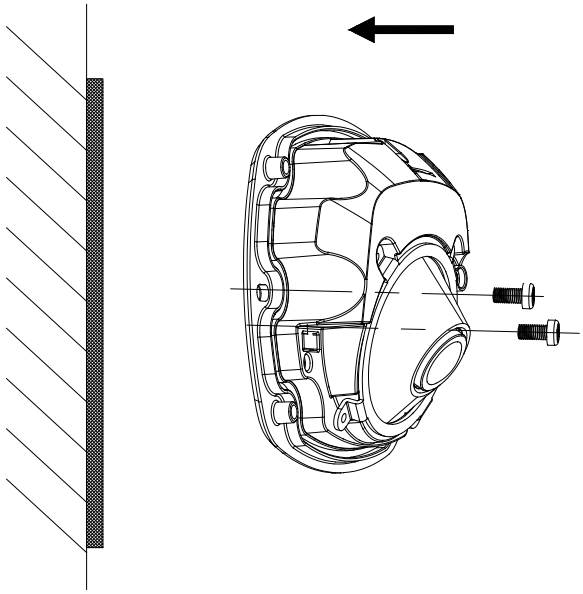
Note: If required, you can remove the knockout tab (A) on the side of the converter pan to pass the cables through.



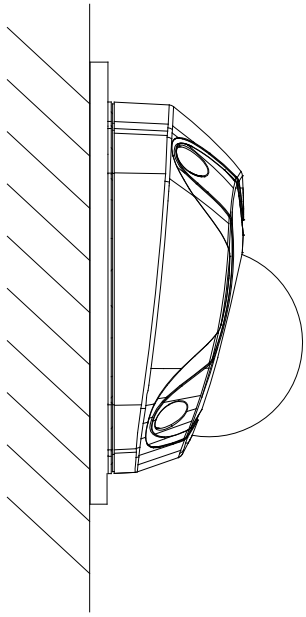
3. Loosen the screws with the tamper-resistant hex wrench (supplied) to remove the camera cover.



4. Connect the cables and mount the camera base to the converter pan or mounting surface, depending on the installation.

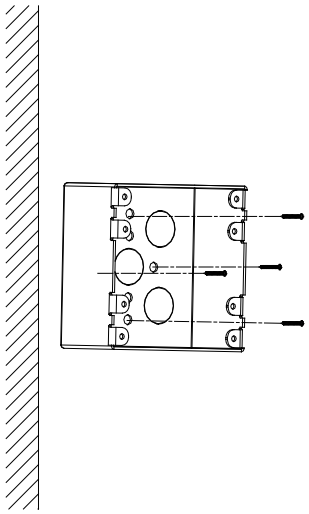


5. Re-attach the camera cover to the camera.

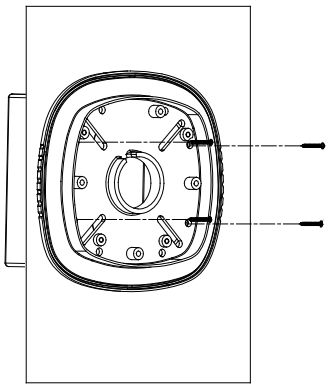


To mount the wedge camera on a wall or ceiling using a 2 gang box:

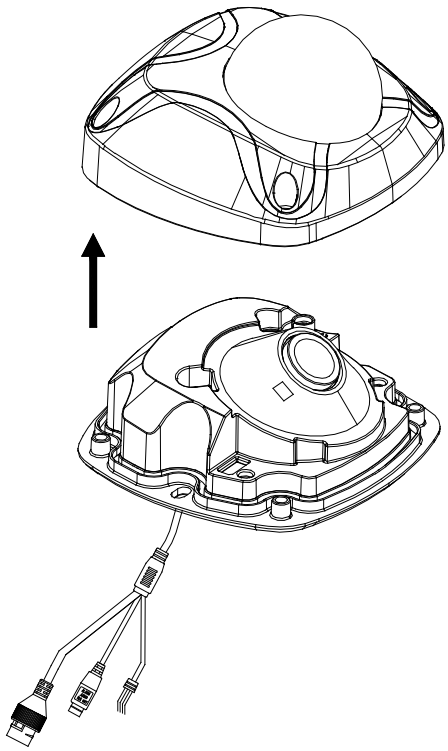
1. Install the gang box in the wall or ceiling.



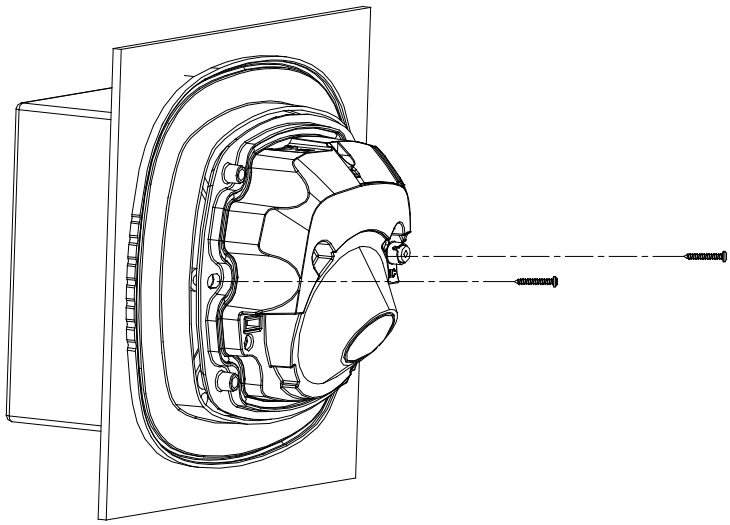
2. Attach the TVW-2G-AD double gang box adapter plate (purchased separately) to a pre-installed 2 gang box in the wall or ceiling.



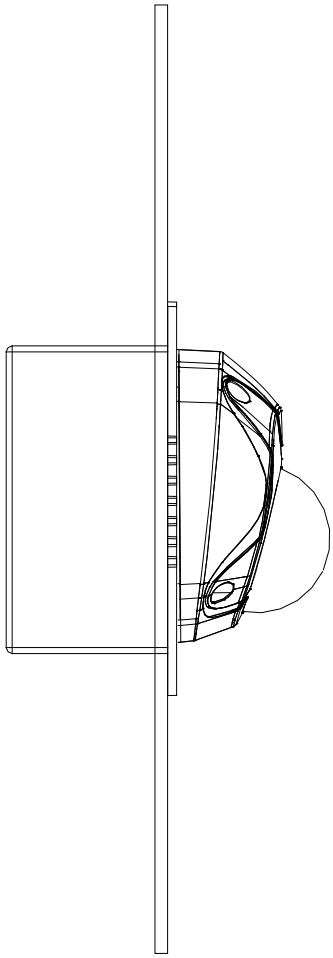
3. Loosen the screws with the tamper-resistant hex wrench (supplied) to remove the camera cover.



4. Connect the cables and mount the camera base to the TVW-2G-AD double gang box adapter plate.

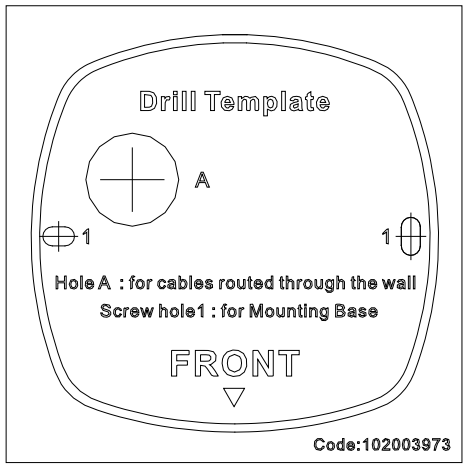


5. Re-attach the camera cover to the camera.

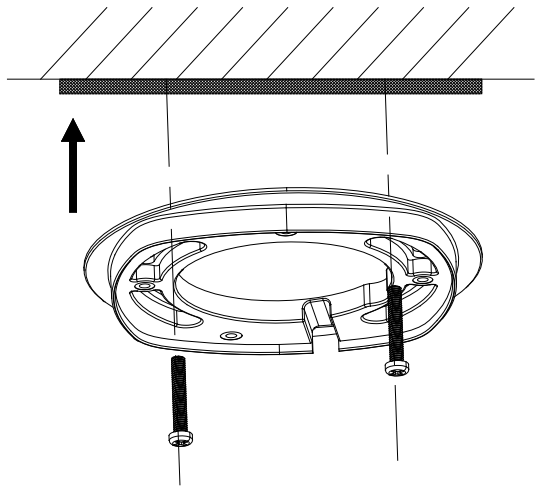


To mount the wedge camera on a ceiling:

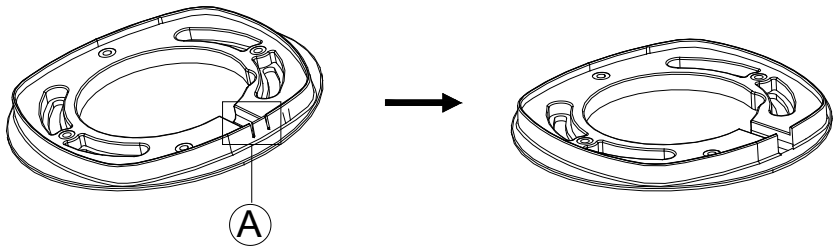
1. Drill the holes for the mounting hardware in the mounting surface using the supplied drill template. To route the cables from the base of the camera, drill a cable access hole in the mounting surface.



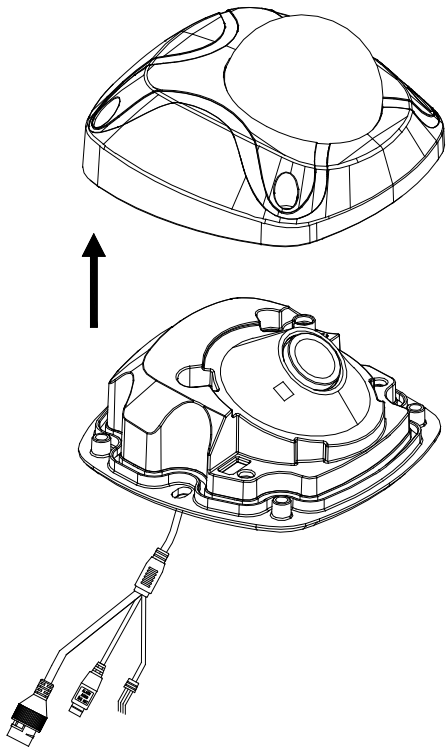
2. Mount the converter pan to the mounting surface (optional).



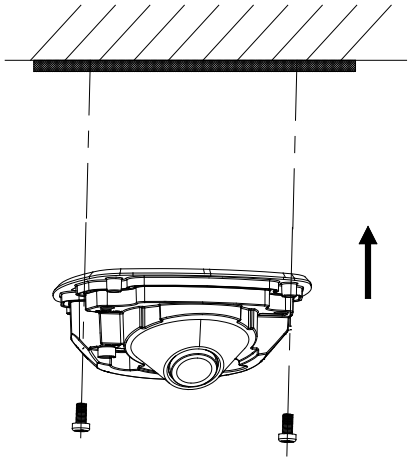
Note: If required, you can remove the knockout tab (A) on the side of the converter pan to pass the cables through.



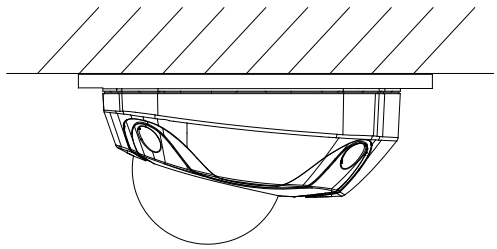
3. Loosen the screws with the tamper-resistant hex wrench (supplied) to remove the camera cover.



4. Connect the cables and mount the camera base to the converter pan or mounting surface, depending on the installation.

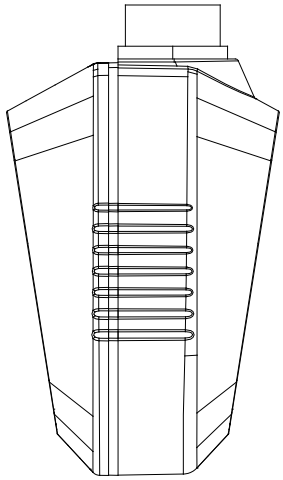


5. Re-attach the dome cover to the camera.

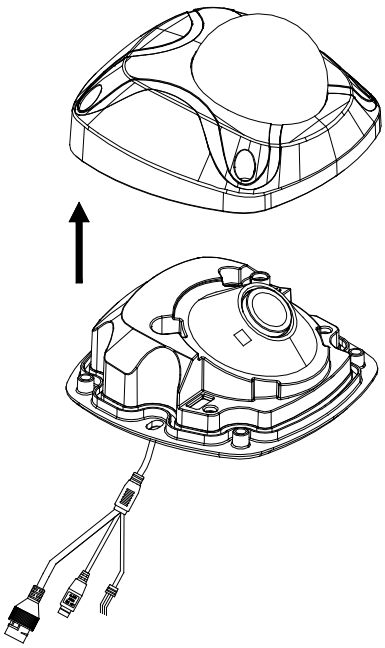


To mount two wedge cameras on dual view mount:

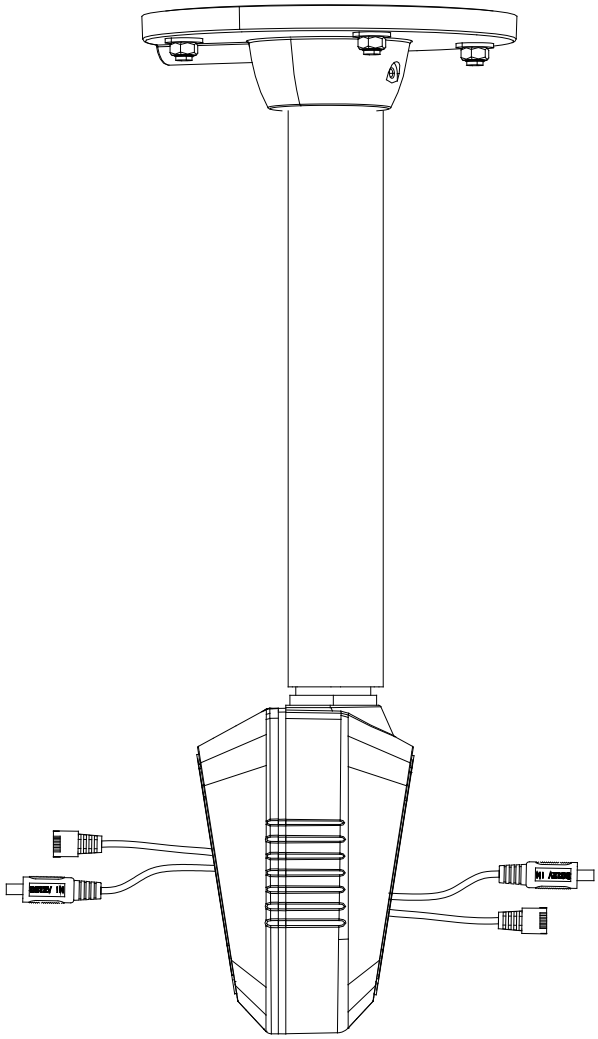
1. Attach the TVW-DVM dual view mount to an installed pendant mount tube. An adapter is included in the kit that, if required, can be used to match-up with the threading (G1 male or G1 female) of the pendant mount tube.



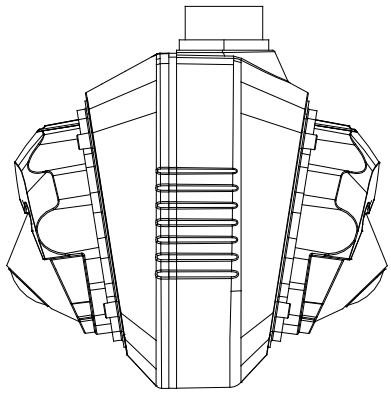
2. Loosen the screws with the tamper-resistant hex wrench (supplied) to remove the camera cover.



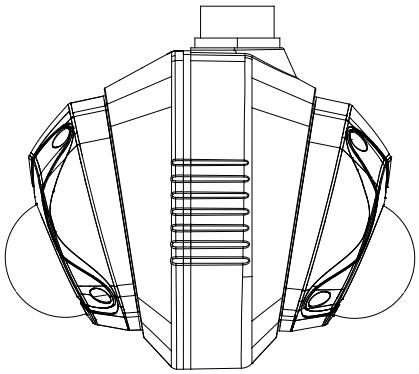
3. Pull the cables through the pendant mount tube to dual view mount back boxes. Connect the cables to the cameras and conceal the cables and connectors within the dual view mount.



4. Mount the two cameras on both sides of the TVW-DVM dual view mount.

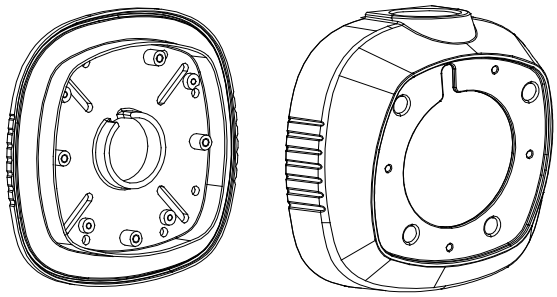


5. Re-attach the camera covers to the cameras.

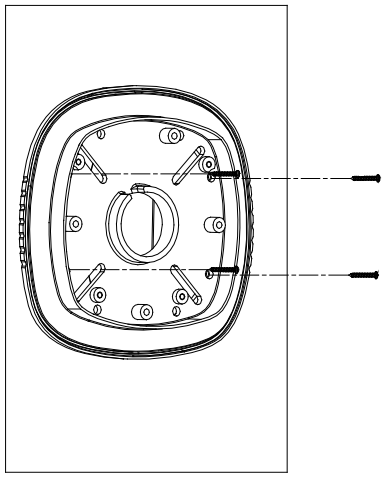


To mount the wedge camera on outdoor angled back box:

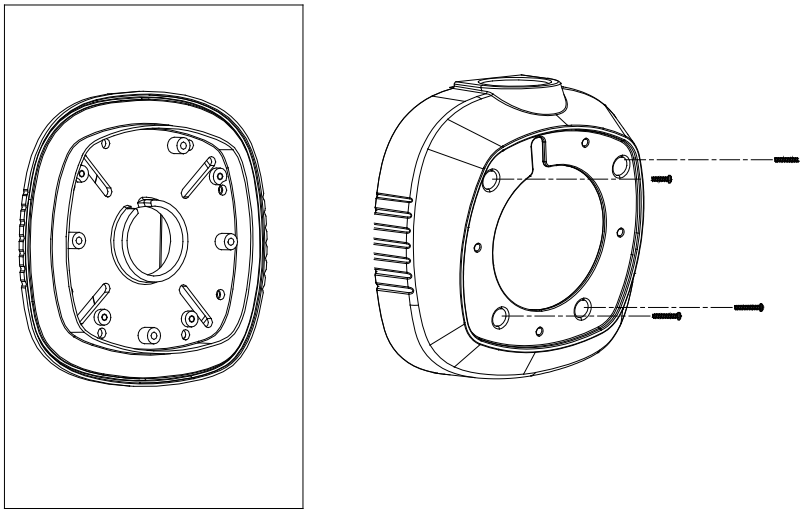
1. Drill the holes for the mounting hardware in the mounting surface using the supplied drill template.
2. Detach the TVW-2G-AD adapter plate from the back box.



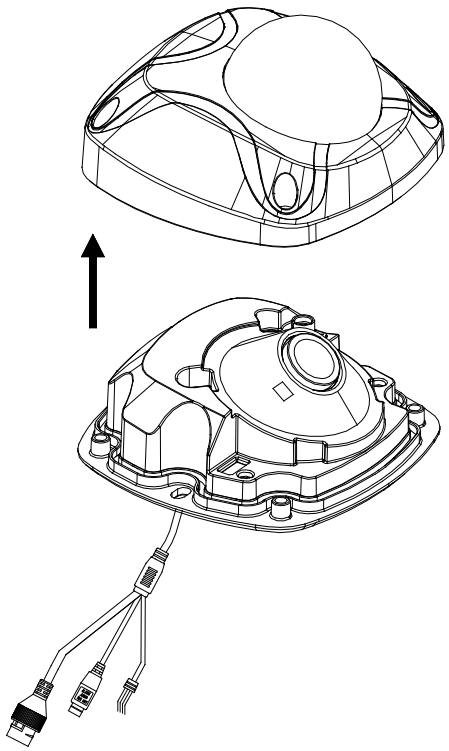
3. Mount the TVW-2G-AD adapter plate to the mounting surface using the supplied hardware.



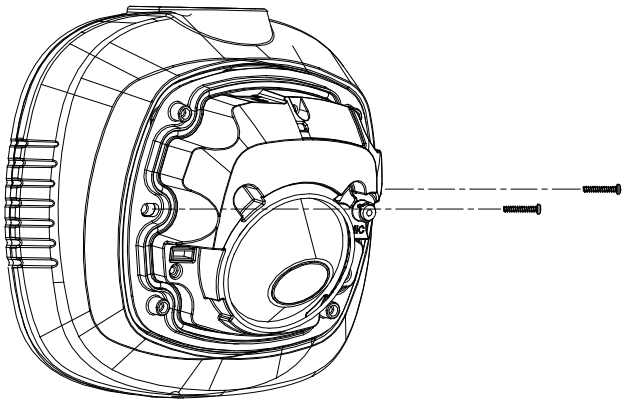
4. Mount the outdoor angled back box to the camera base using the supplied hardware.



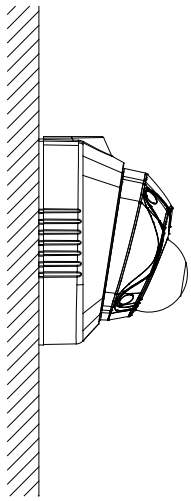
5. Loosen the screws with the tamper-resistant hex wrench (supplied) to remove the camera cover.



6. Connect the cables, conceal the cables and connectors inside the back box, and mount the camera base to the outdoor angled back box.

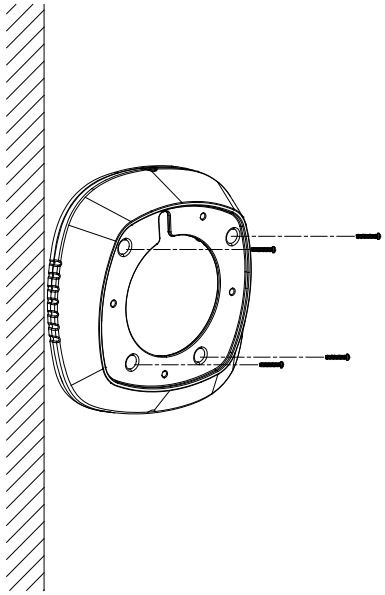


7. Re-attach the dome cover to the camera.

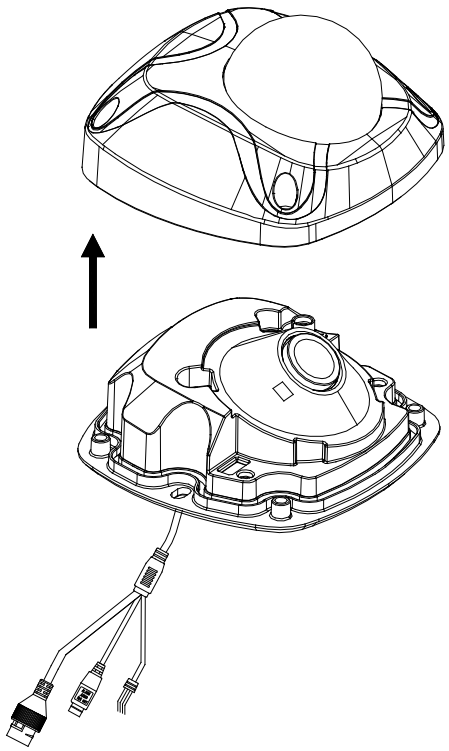


To mount the wedge camera on an indoor angled back box:

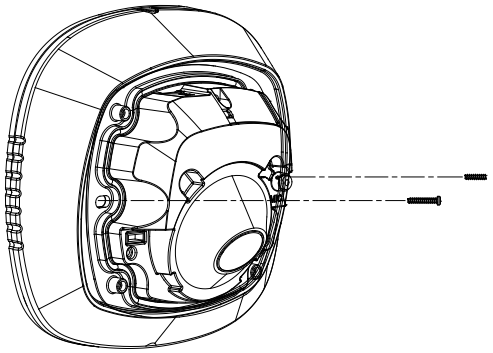
1. Drill the holes for the mounting hardware in the mounting surface using the supplied drill template.
2. Mount the indoor angled back box to the mounting surface using the supplied hardware.



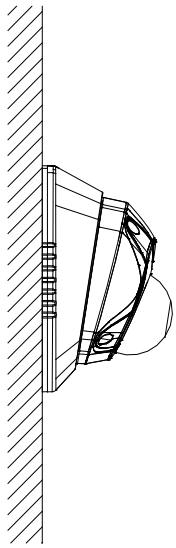
3. Loosen the screws with the tamper-resistant hex wrench (supplied) to remove the camera cover.



4. Connect the cables, conceal the cables and connectors inside the back box, and mount the camera base to the indoor angled back box.



5. Re-attach the dome cover to the camera.



Using the camera with a recorder

Please refer to the recorder user manuals for instructions on connecting and operating the camera with these systems.

Using the camera with TruVision Navigator

The camera can be connected to an Interlogix NVR or hybrid DVR or directly to TruVision Navigator. Please refer to the user manual of TruVision Navigator and/or NVR or hybrid DVR for instructions.

Specifications

TruVision IP wedge cameras

Electrical	
Voltage input	12 VDC, PoE (IEEE 802.3af)
Power consumption	Max. 5 W
Wi-Fi parameters	
Wi-Fi standard	IEEE802.11b/g/n
Frequency range	2.4 to 2.4835 GHz
Communication bandwidth	Support 20/40 MHz
Security	64/128-bit WEP, WPA/WPA2, WPA-PSK/WPA2-PSK, WPS
Transmission rate	11b: 11Mbps, 11g: 54Mbps, 11n: up to 150Mbps
Transmission range	Up to 50 m * It varies depending on the actual working environment.
Transmit output power	11b: 17±1.5 dBm @ 11Mbps 11g: 14±1.5 dBm @ 54Mbps 11n: 12.5±1.5 dBm

Miscellaneous	
Connectors	DC jack flying lead, RJ45 flying lead
Operating temperature	-30 to +60°C (-22 to +140°F)
Dimensions (L × W × H)	98 × 89 × 329 mm (3.86 ×3.49 × 12.94 in.)
Weight	260 g
Environmental rating	IP66

Pin definitions

There are eight wires on a standard UTP/STP cable and each wire is color-coded. The following graphics show the pin allocation and color of straight and crossover cable connection:

Figure 9: Straight-through cable

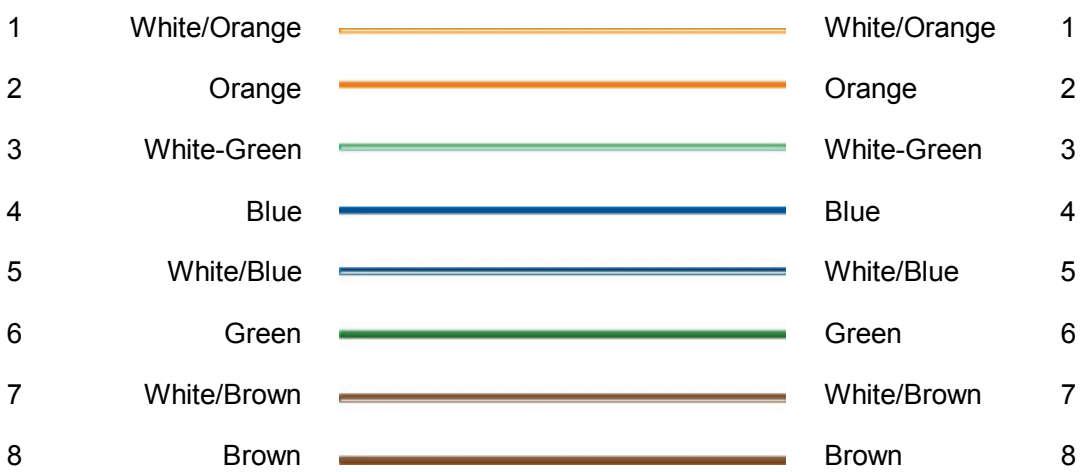
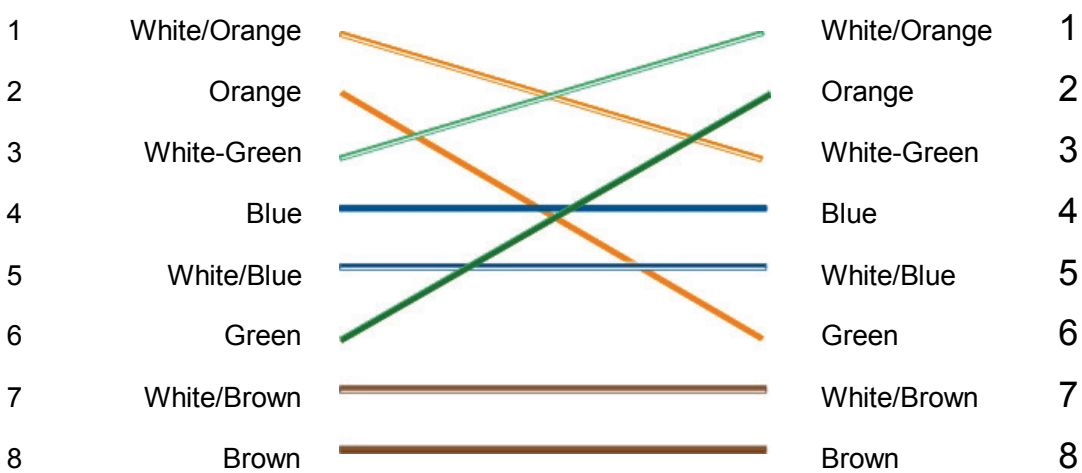


Figure 10: Cross-over cable



Please make sure your connected cables have the same pin assignment and color as above before deploying the cables in your network.