

- DS-2CE56H0T-AVPIT3ZF
 - DS-2CE56H0T-AITZF
- DS-2CE5AH0T-AVPIT3ZF

TurboHD H0T Series Dome Camera User Manual

Thank you for purchasing our product. If there are any questions or requests, do not hesitate to contact the dealer.

This manual applies to the models below:

Type	Model
Type I Camera	DS-2CE56H0T-AVPIT3ZF
Type II Camera	DS-2CE56H0T-AITZF
Type III Camera	DS-2CE5AH0T-AVPIT3ZF

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1 Preface

1.1 Regulatory Information

1.1.1 FCC Information

Please take attention that changes or modification not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.


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

1.1.2 FCC Conditions

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.

1.1.3 EU Conformity Statement

 This product and, if applicable, the supplied accessories too are marked with "CE" and comply therefore with the applicable harmonized European standards listed under the Low Voltage Directive 2014/35/EU, the EMC Directive



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.

1.1.4 Industry Canada ICES-003 Compliance

This device meets the CAN ICES-3 (A)/NMB-3(A) standards requirements.



1.1.5 Safety Instruction

These instructions are intended to ensure that the user can use the product correctly to avoid danger or property loss.

The precaution measure is divided into “Warnings” and “Cautions.”

Warnings: Serious injury or death may occur if any of the warnings are neglected.

Cautions: Injury or equipment damage may occur if any of the cautions are neglected.

	
Warnings Follow these safeguards to prevent serious injury or death.	Cautions Follow these precautions to prevent potential injury or material damage.



1.1.6 Warnings

- In the use of the device, you must be in strict compliance with the electrical safety regulations of the nation and region.
- Input voltage should meet both the SELV (Safety Extra Low Voltage) and the Limited Power Source with 12 VDC according to the IEC60950-1 standard. Refer to technical specifications for detailed information.
- The camera is powered by the external DC power supply (12 VDC, 1 A) that complies with the LPS, and the output current of this external DC power supply must be no more than 6 A.
- Do not connect multiple devices to one power adapter to avoid overheating or a fire hazard caused by overload.
- Make sure that the plug is firmly connected to the power socket.
- Make sure that the device is firmly fixed if wall mounting or ceiling mounting is adopted.
- If smoke, odor, or noise rise from the device, turn off the power at once and unplug the power cord, and then contact the service center.
- Never attempt to disassemble the camera by unprofessional personal.



1.1.7 Cautions

- Do not drop the camera or subject it to physical shock.
- Do not touch sensor modules with fingers.

- Do not place the camera in extremely hot, cold (the operating temperature shall be -40° to 60° C), dusty or damp locations, and do not expose it to high electromagnetic radiation.
- If cleaning is necessary, use a clean cloth with a bit of ethanol, and wipe it gently.
- Do not aim the camera at the sun or extra bright places.
- The sensor may be burned out by a laser beam, so when any laser equipment is in using, make sure that the sensor surface will not be exposed to the laser beam.
- Do not expose the device to high electromagnetic radiation or extremely hot, cold, dusty, or damp environments.
- To avoid heat accumulation, good ventilation is required for the operating environment.
- Keep the camera away from liquid while in use for non-waterproof devices.
- While in delivery, the camera shall be packed in its original packing, or packing of the same material.

1.1.8 Mark Description

Table 0-1 Mark Description

Mark	Description
— — —	DC Voltage
~	AC Voltage

2 Introduction

2.1 Product Features

The main features are as follows:

- High performance CMOS sensor
- IR cut filter with auto switch
- OSD menu with configurable parameters
- Auto white balance
- Internal synchronization
- SMART IR mode
- 3-axis adjustment

2.2 Overview

2.2.1 Overview of Type I Camera

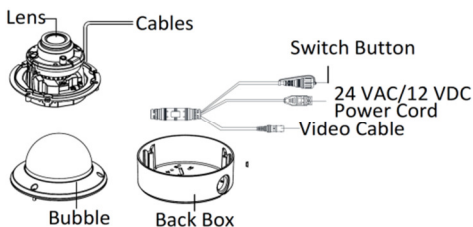


Figure 1 Overview of Type I Camera

Note:

To switch the video output, press and hold the switch button until the image turns black, then release. Cycle through available types to return to the default HD-TVI output. Four kinds of video outputs are available: TVI, AHD, CVI, and CVBS.

2.2.2 Overview of Type II Camera

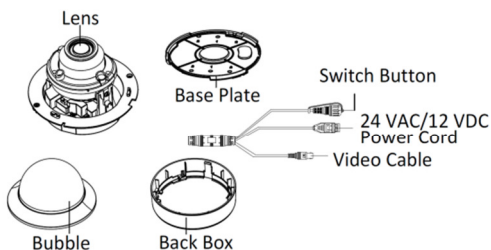


Figure 2 Overview of Type II Camera

Note:

To switch the video output, press and hold the switch button until the image turns black, then release. Cycle through available types to return to the default HD-TVI output. Four kinds of video outputs are available: TVI, AHD, CVI, and CVBS.

2.2.3 Overview of Type III Camera

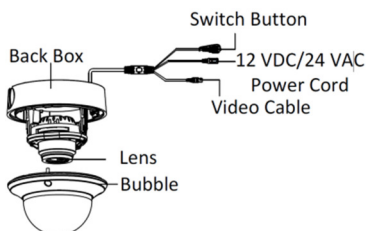


Figure 3 Overview of Type III Camera

Note:

To switch the video output, press and hold the switch button until the image turns black, then release. Cycle through available types to return to the default HD-TVI output. Four kinds of video outputs are available: TVI, AHD, CVI, and CVBS.

3 Installation

Before you start:

- Make sure that the device in the package is in good condition and all the assembly parts are included.
- Make sure that all the related equipment is powered off during the installation.
- Check the specification of the products for the installation environment.
- Check whether the power supply matches your power output to avoid damage.

- Make sure the wall is strong enough to withstand three times the weight of the camera and the mount.
- If the wall is cement, insert expansion bolts before you install the camera. If the wall is wooden, use self-tapping screws to secure the camera.
- If the product does not function properly, contact your dealer or the nearest service center. Do NOT disassemble the camera for repair or maintenance yourself.

3.1 Type I and Type II Camera Ceiling Mounting

Before you start:

Both wall mounting and ceiling mounting are suitable for the dome camera. Ceiling mounting will be taken as an example in this section. You can take the ceiling mounting steps as a reference for wall mounting.

Steps:

1. Paste the drill template to the ceiling.
2. Drill screw holes and the cable hole (optional) on the ceiling according to the supplied drill template.

Note:

Drill the cable hole if using the ceiling outlet to route the cable.

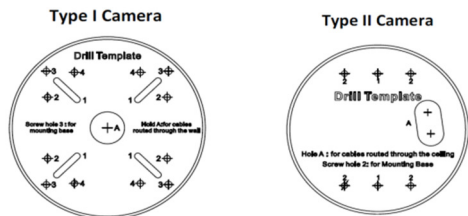


Figure 4 The Drill Template

3. Loosen the screws on the bubble of the dome camera to remove the bubble and the blackliner.
4. Attach the back box of type I camera/base plate of type II camera to the ceiling and secure them with supplied screws.

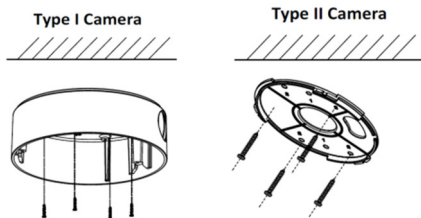


Figure 5 Attach the Back Box/Base Plate

Note:

- The supplied screw package contains self-tapping screws and expansion bolts.

- For a cement ceiling, expansion bolts are required to fix the camera. For a wooden ceiling, self-tapping screws are required.
5. Route the cables through the cable hole or the side opening.
 6. Align the camera with the back box/base plate, and tighten the screws to secure the camera with the back box/base plate.

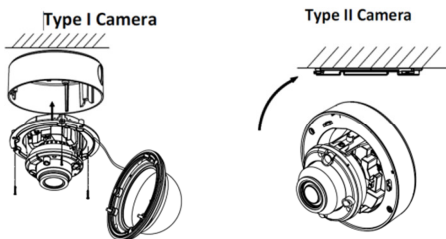


Figure 6 Fix the camera to the Ceiling

7. Connect the corresponding cables such as power cord and video cable.
8. Power on the camera to check whether the image on the monitor is at an optimum angle. If not, adjust the camera according to the figure below to get an optimum angle.

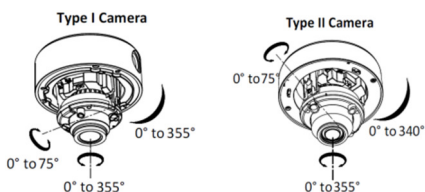


Figure 7 3-Axis Adjustment

9. Fit the black liner back to the camera and tighten the screws on dome camera bubble to finish the installation.

3.2 Type I and Type II Camera Wall Mounting

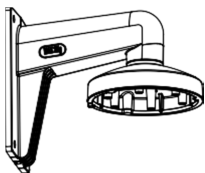
Before you start:

You must purchase a wall mount.

Steps:

1. Drill four screw holes in the wall according to the holes of the mount.
2. Attach the mount to the wall by aligning the four screw holes of the mount with expansion screws on the wall.
3. Secure the mount with four hex nuts and washers.

Type I Camera



Type II Camera

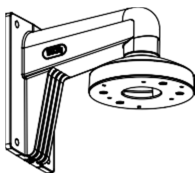
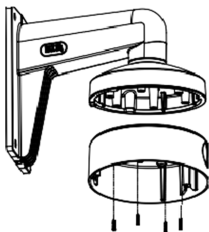


Figure 8 Install Wall Mounting Mount

4. Refer to step 3 of 2.1 *Ceiling Mounting of Type I and Type II Camera* to remove dome camera's bubble and the black liner.
5. Attach the dome camera back box/base plate to the wall mount and secure with supplied screws.

Type I Camera



Type II Camera

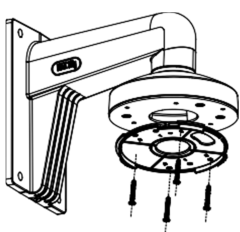


Figure 9 Attach the Base Plate to the Mount

6. Route the cables through the mount.
7. Repeat steps 6 to 9 of the 2.1 *Ceiling Mounting of Type I and Type II Camera* to complete the installation.

3.3 Type III Camera Ceiling Mounting

Before you start:

Both wall mounting and ceiling mounting are suitable for the dome camera. Ceiling mounting will be taken as an example in this section. Use the ceiling mounting steps as a reference for wall mounting.

Steps:

1. Paste the drill template to the ceiling.
2. Drill screw holes and the cable hole (optional) on the ceiling according to the supplied drill template.



Figure 10 The Drill Template

Note:

Drill the cable hole (hole A) when using the ceiling outlet to route the cable.

3. Loosen the bubble screws and remove the

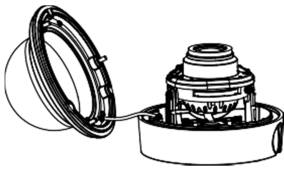


Figure 11 Remove the Bubble and the Black Liner

4. Attach the back box of the camera to the ceiling and secure with supplied screws.

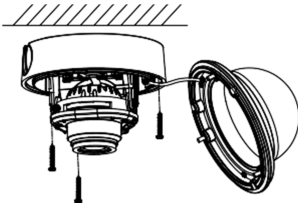


Figure 12 Attach the Back Box

Note:

The supplied screw package contains self-tapping screws and expansion bolts.

For a cement ceiling, expansion bolts are required to fix the camera. For a wooden ceiling, self-tapping screws are required.

5. Route the cables through the cable hole or the side opening.
6. Connect the corresponding cables such as power cord and video cable.
7. Power on the camera to check whether the image on the monitor is at an optimum angle. If not, adjust the camera according to the figure below to get an optimum angle.

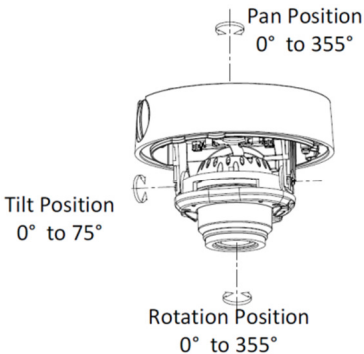


Figure 13 3-Axis Adjustment

8. Fit the bubble back onto the camera.



Figure 14 Fit the Black Liner Back

9. Tighten the screws on the dome camera bubble to finish the installation.

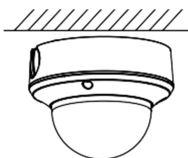


Figure 15 Finish Installation

3.4 Type III Camera Wall Mounting

Before you start:

You must purchase a wall mount.

Steps:

1. Drill four screw holes in the wall according to the holes of the mount.
2. Attach the mount to the wall by aligning the four screw holes of the mount with expansion screws on the wall.
3. Secure the mount with four hex nuts and washers.

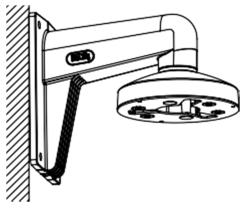


Figure 16 Install Wall Mount

4. Refer to step 3 of 2.3 *Ceiling Mounting of Type III Camera* to remove dome camera's bubble.
5. Attach the back box of the dome camera to the wall mount, and secure them with supplied screws.

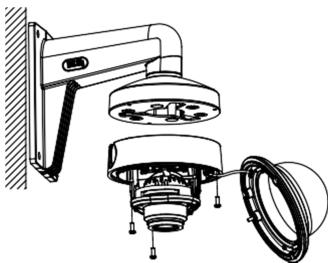



Figure 17 Attach the Back Box to the Mount

6. Route the cables through the mount.
7. Repeat steps 6 to 9 of the *2.1 Ceiling Mounting of Type III Camera* to complete the installation.

4 Menu Description

Purpose:

Call the menu by clicking the  button on the PTZ Control interface, or call preset No.95.

Steps:

1. Connect the camera with the TVI DVR and the monitor, shown as figure 3-1.

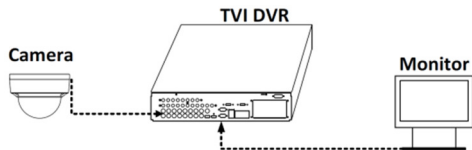



Figure 18 Connection

2. Power on the analog camera, TVI DVR, and the monitor to view the image on the monitor.
3. Click PTZ Control to enter the PTZ Control interface.
4. Call the camera menu by clicking the  button, or call preset No. 95.

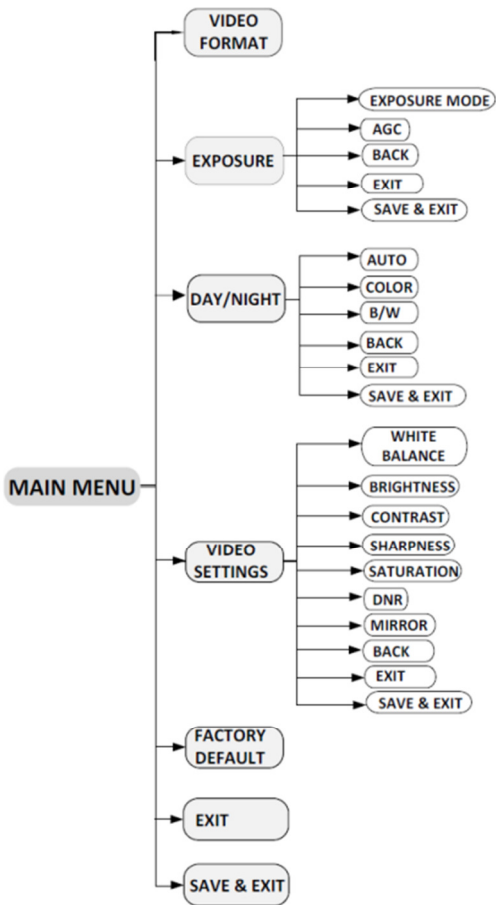


Figure 19 Main Menu Overview

5. Click the direction arrow to control the camera.
 - a. Click up/down direction button to select the item.
 - b. Click **Iris +** to confirm the selection.
 - c. Click left/right direction button to adjust the value of the selected item.

4.1 VIDEO FORMAT

You can set the video format to 5 MP @ 20 fps, 4 MP @ 25 fps, 4 MP @ 30 fps, 2 MP @ 25 fps, or 2 MP @ 30 fps.

4.2 EXPOSURE

Exposure describes the brightness-related parameters, which can be adjusted by EXPOSURE MODE and AGC.

EXPOSURE	
EXPOSURE MODE	◀ GLOBAL ▶
AGC	◀ LOW ▶
BACK	↵
EXIT	↵
SAVE & EXIT	↵

Figure 20 EXPOSURE

4.3 EXPOSURE MODE

You can set the **EXPOSURE MODE** to **GLOBAL**, **BLC**, or **DWDR**.

- **GLOBAL**

GLOBAL refers to the normal exposure mode which performs exposure according to the whole image brightness.

- **BLC (Backlight Compensation)**

BLC (Backlight Compensation) compensates light for the front object to make it clear, but this may cause the over-exposure of the background, where the light is strong.

- **DWDR (Digital Wide Dynamic Range)**

The **DWDR** helps the camera provide clear images even under backlight circumstances. When both very bright and very dark areas simultaneously exist in the image, **DWDR** balances the brightness level of the whole image to provide clear images with details.

4.3.1 AGC (Automatic Gain Control)

AGC optimizes the clarity of the image in poor light conditions. The **AGC** level can be set as **HIGH**, **MEDIUM**, or **LOW**. Select **OFF** to disable the **AGC** function.

Note:

The noise will be amplified when the **AGC** is **ON**.

4.4 DAY/NIGHT

COLOR, **BW (Black White)**, and **AUTO** are selectable for **DAY/NIGHT** switch.

- **COLOR**

The image is in color in day mode all the time.

- **B & W (Black and White)**

The image is black and white all the time, and the **IR LIGHT** turns on in poor light conditions.

You can turn on/off the **IR LIGHT** and set the **SMART IR** value in this menu. **IR LIGHT**

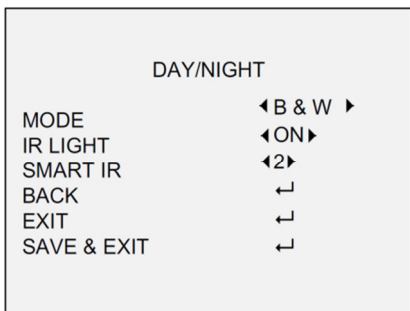


Figure 21 B&W

- **IR LIGHT**

You can turn on/off the **IR LIGHT** to meet the requirements of different circumstances.

- **SMART IR**

The **Smart IR** function is used to adjust the light to its most suitable intensity and prevent the image from over exposure. The **SMART IR** value can be adjusted from 1 to 3. The higher the value, the more obvious the effects.

4.4.1 AUTO

Automatically switch Color or BW (Black and White) according to actual scene brightness.

You can turn on/off the **IR LIGHT**, and set the **SMART IR** value in this menu.

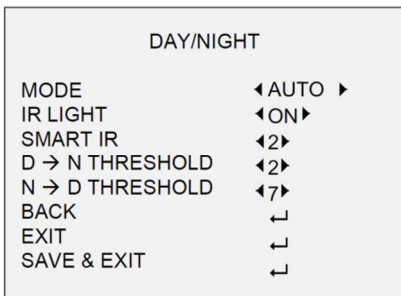


Figure 22 AUTO

- **IR LIGHT**

You can turn on/off the **IR LIGHT** to meet the requirements of different circumstances.

- **SMART IR**

The **Smart IR** function is used to adjust the light to its most suitable intensity, and prevent the image from over exposure. The **SMART IR** value can be adjusted from 1 to 3. The higher the value, the more obvious the effects.

- **D→N Threshold (Day to Night Threshold)**

Day to Night Threshold is used to control the sensitivity of switching the day mode to the night mode. You can set the value from 1 to 9. The larger the value, the more sensitive the camera.

- **N→D Threshold (Night to Day Threshold)**

Night to Day Threshold is used to control the sensitivity of switching the night mode to the day mode. You can set the value from 1 to 9. The larger the value, the more sensitive the camera.

4.5 VIDEO SETTINGS

Move the cursor to VIDEO SETTINGS and click Iris+ to enter the submenu. WHITE BALANCE, BRIGHTNESS, CONTRAST, SHARPNESS, SATURATION, DNR, and MIRROR are adjustable.

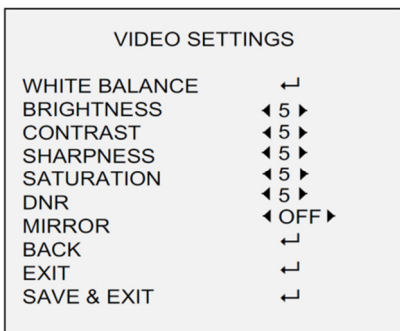


Figure 23 VIDEO SETTINGS

4.5.1 WHITE BALANCE

White balance, the camera's white rendition function, adjusts the color temperature according to the environment. It removed unrealistic color casts in the image. You can set the mode to **AUTO** or **MANUAL**.

- **AUTO**

Under **AUTO** mode, white balance is being adjusted automatically according to the color temperature of the scene illumination.

- **MANUAL**

You can set the **R GAIN/B GAIN** value from 1 to 255 to adjust the image's of red/blue color shades.

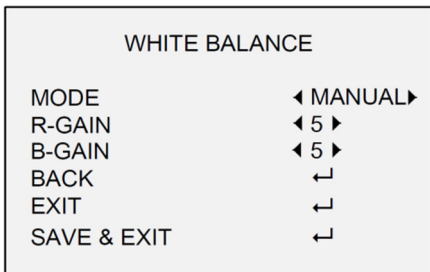


Figure 24 MANUAL MODE

4.5.2 BRIGHTNESS

Brightness refers to the brightness of the image.

You can set the brightness value from 1 to 9 to darken or brighten the image. The higher the value, the brighter the image.

4.5.3 CONTRAST

This feature enhances the difference in color and light between parts of an image. You can set the **CONTRAST** value from 1 to 9.

4.5.4 SHARPNESS

Sharpness determines the amount of detail an imaging system can reproduce. You can set the **SHARPNESS** value from 1 to 9.

4.5.5 SATURATION

Adjust this feature to change the saturation of the color. The value ranges from 1 to 9.

4.5.6 DNR (Digital Noise Reduction)

The DNR function can decrease the noise effect, especially when capturing moving images in poor light conditions and delivering more accurate and sharp image. You can set the **DNR** value from 1 to 9.

4.5.7 MIRROR

OFF, **H**, **V**, and **HV** are selectable for mirror.

OFF: The mirror function is disabled. **H**: The image flips 180° horizontally. **V**: The image flips 180° vertically.

HV: The image flips 180° both horizontally and vertically.

4.6 FACTORY DEFAULT

Move the cursor to **FACTORY DEFAULT** and click **Iris+** to reset all the settings to the factory default.

4.7 EXIT

Move the cursor to **EXIT** and click **Iris+** to exit the menu without saving.

4.8 SAVE & EXIT

Move the cursor to **SAVE & EXIT** and click **Iris+** to save the settings, and exit the menu.