HIKVISION

• DS-2CE78U8T-IT3
• DS-2CE57U8T-VPIT

TurboHD
4K Series
Turret and 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-2CE78U8T-IT3
Type II Camera	DS-2CE57U8T-VPIT

Hikvision USA Inc., 18639 Railroad St., City of Industry, CA 91748, USA • Hikvision Canada, 4848 rue Levy, Saint Laurent, Quebec, Canada, H4R 2P1

Telephone: +1-909-895-0400 • Toll Free in USA: +1-866-200-6690 • E-Mail: sales.usa@hikvision.com • www.hikvision.com

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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

$C\epsilon$ 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 an 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

2 Introduction

2.1 Product Features

The camera is applicable for both indoor and outdoor conditions. Application scenarios include roads, warehouses, underground parking lots, bars, etc.

The main features are as follows:

- 8 MP 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
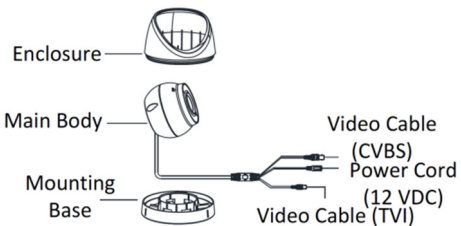
2.2 Overview

2.2.1 Overview of Type I Camera

Figure 1 Overview of Type I Camera
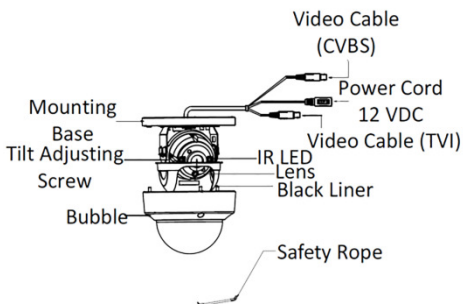
2.2.2 Overview of Type II Camera

Figure 2 Overview of Type II Camera

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 is matched with your required 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 screws before installing the camera. If the wall is wooden, use self-tapping screw to secure the camera.

- If the product does not work properly, contact your dealer or the nearest service center. Do NOT disassemble the camera for repair or maintenance yourself.

3.1 Type I Camera Installation

Before you start

Both wall mounting and ceiling mounting are suitable for the turret camera. Ceiling mounting will be taken as an example in this section. You can take steps of ceiling mounting as the reference, when adopting the wall mounting.

Steps

1. Disassemble the camera.

   1). Rotate the camera to align the notch to one of the marks.

   2). Pry the mounting base to remove the mounting base from the camera body with a flat object, e.g., a coin.
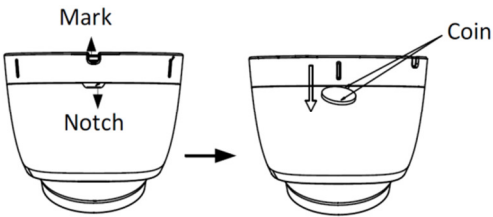
Figure 3 Disassemble the Camera

2. Paste the drill template (supplied) onto the spot you want to install the camera.

3. Drill the screw holes according to the drill template and the cable hole (optional) on the ceiling.
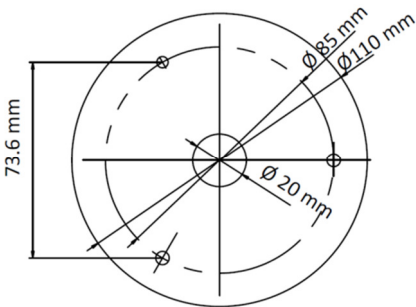

Figure 4 Drill Template

Note:

Drill the cable hole in the center of the drill template, when adopting the ceiling outlet to route the cable.

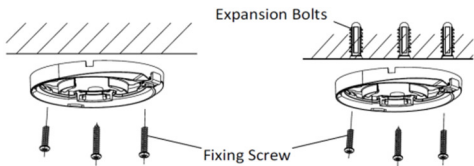4. Secure the mounting base to the ceiling with the supplied screws.

Figure 5 Fix the Mounting Base to the Ceiling

Notes:

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

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

5. Route the cables through the cable hole or the side opening.

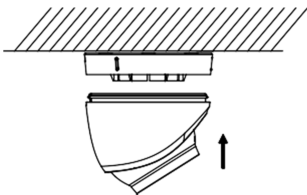6. Secure the camera to the mounting base.

Figure 6 Secure the Camera

7. Connect the corresponding cables such as power cord and video cable.

8. Power on the camera to check if 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.
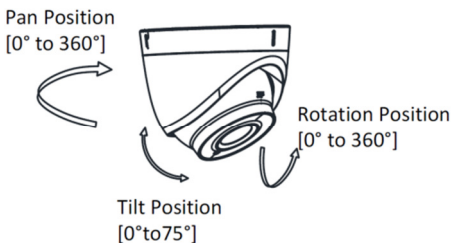

Pan Position
[0° to 360°]

Rotation Position
[0° to 360°]

Tilt Position
[0°to75°]

Figure 7 3-axis Adjustment

1). Hold the camera body and rotate the enclosure to adjust the pan position [0° to 360°].

2). Move the camera body up and down to adjust the tilt position [0° to 75°].

3). Rotate the camera body to adjust the rotation position [0° to 360°].

3.2 Type II Camera Ceiling Mounting

Steps

1. Paste the drill template to the ceiling.

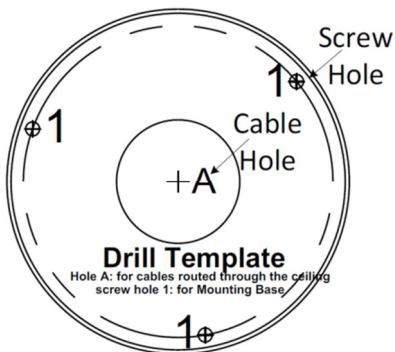2. Drill the screw holes and cable hole (optional) in the ceiling according to the drill template.

Screw Hole

Cable Hole

+A

Drill Template
Hole A: for cables routed through the ceiling
screw hole 1: for Mounting Base

Figure 8 Drill Template

A cable hole is required when using the ceiling outlet to route cables.

3. Loosen the set screws with a hex wrench (supplied) to remove the bubble.
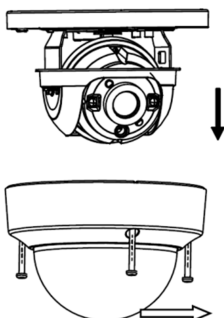

Figure 9 Remove the Bubble

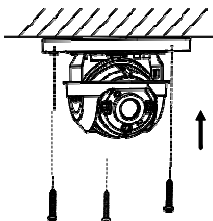4. Fix the mounting base on the ceiling with supplied screws.

Figure 10 Fix the Mounting Base

5. Route the cables through the cable hole (optional) or the side opening.

6. Connect the corresponding cables such as power cord and video cable.

7. Power on the camera to check if the monitor image is at an optimum angle. If not, adjust the camera according to the figure below to get an optimum angle.
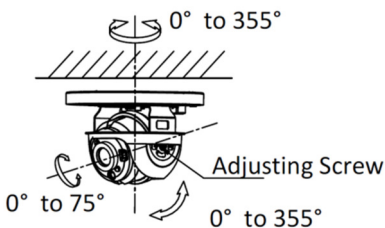

Figure 2-9 Type 11 Camera 2-Axis Adjustment

1). Loosen the tilt adjusting screw to adjust the tilt position [0° to 75°].

2). Hold the black liner to adjust the pan position [0° to 355°].

8. Reinstall the bubble, and tighten the screws.
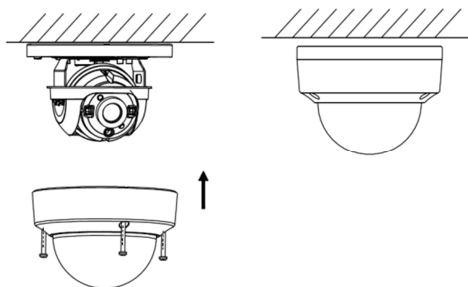
Figure 12 Bubble Reinstallation

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 to the TVI DVR and the monitor, as shown.

TVI DVR

Figure 13 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 ▤ button, or call preset No. 95.
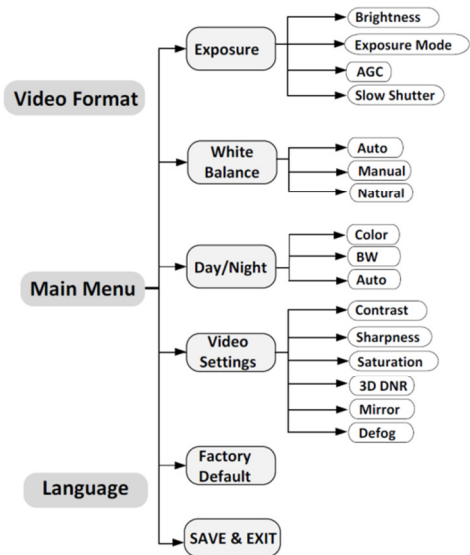
Figure 14 Main Menu Overview

5. Click the direction arrow to control the camera.

   1). Click up/down direction button to select the item.

   2). Click Iris + to confirm the selection.

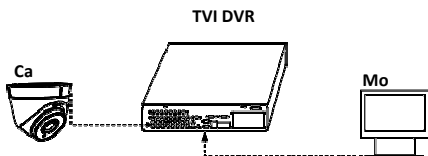   3). Click left/right direction button to adjust the value of the selected item.

4.1 Video Format

You can set frame rate as 8 MP @ 12.5 fps, 8 MP @ 15 fps, 5 MP @ 20 fps, 4 MP @ 25 fps, 4 MP @ 30 fps, 1080p @ 25 fps, or 1080p @ 30 fps.

4.2 Language

Supports English.

4.3 Settings

4.3.1 Exposure

Exposure describes the brightness-related parameters, which can be adjusted by **Brightness**, **Exposure Mode**, **AGC**, and **Slow Shutter**.

Figure 15 Exposure

- **Brightness**

  Brightness refers to the brightness of the image.

  You can set the brightness value from 1 to 10 to darken or brighten the image. The higher the value, the brighter the image.

- **Exposure Mode**

  You can set the **Exposure Mode** as **Global**, **BLC**, **HLC**, and **WDR**.

  – **Global**

    Refers to the normal exposure mode, which adjusts lighting distribution, variations, and non-standard processing.
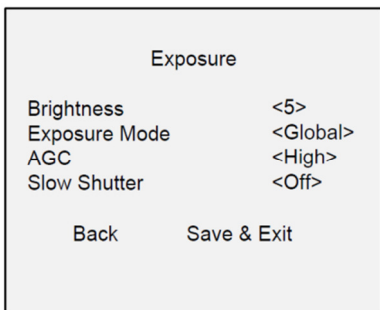
  – **BLC (Backlight Compensation)**

    BLC compensates light to the object in the front to make it clear, but may cause the over-exposure of the background where the light is strong.

  – **HLC (High Light Compensation)**

    HLC masks strong light sources that usually flare across a scene. This makes it possible to see image details that would normally be hidden.

  – **WDR (Wide Dynamic Range)**

    Wide dynamic range helps the camera provide clear images even under backlit circumstances. WDR balances the brightness level of the whole image and provides clear images with details.

    When WDR is selected as the exposure mode, you can set it as low, medium, high or off.

- **AGC (Automatic Gain Control)**

  Optimizes the clarity of the image in poor light conditions. The **AGC** level can be set to **High**, **Medium**, or **Low**. Select **Off** to disable the **AGC** function.

Note:

The noise will be amplified when AGC is on.

- **Slow Shutter**

  Slow Shutter increases the exposure time per frame, which makes a camera more sensitive to light. Therefore, it can produce images even under low lux conditions. You can set the **Slow Shutter** as Off, x2, x4 under 8 MP @ 15 fps, or 8 MP @ 12.5 fps mode, and as Off, x2, x4, x6, x8, or x16 under other modes according to different light

4.3.2 WB (White Balance)

White balance, the white rendition function of the camera, is to adjust the color temperature according to the environment. It can remove unrealistic color casts in the image. You can set WB mode as **Auto**, **Manual**, or **Natural**.

- **Auto**

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

- **Manual**

  Click **Iris+** to enter the submenu. Set the **R Gain**/**B Gain** value from 1 to 255 to adjust the shades of red/blue color of the image.

  ```
                    White Balance

        R Gain                    <52>
        B Gain                    <68>

                 Back   Save & Exit
  ```
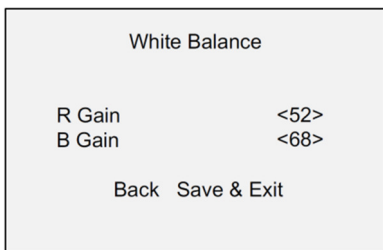
  Figure 16 White Balance

- **Natural**

  Set the white balance to **Natural** mode when large parts of the monitoring scene is monochrome.

4.3.3 Day Night

Color, **BW** (Black White), and **AUTO** are selectable for DAY and NIGHT switches.

- **Color**

  The image is color in day mode all the time.

- **B/W**

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

- **Auto**

  The image switches from color to B/W, or from B/W to color, automatically according to the lighting conditions.

  Click **Iris+** to enter the submenu, you can turn on/off the **IR Light** and set the value of **Smart IR** in this menu.

  ```
                      Day Night

        IR Light                  <On>
        Smart IR                  <Off>
        D → N  Threshold          <4>
        N → D  Threshold          <4>

                 Back   Save & Exit
  ```
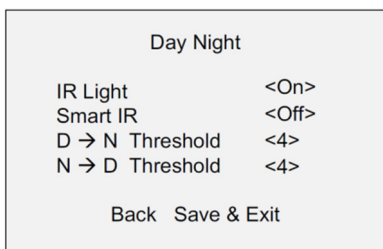
  Figure 17 Day Night

  – **IR Light**

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

  – **Smart IR**

    The **Smart IR** function adjusts the light to its most suitable intensity and prevents overexposure. You can turn on/off this function.

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

  Day to Night Threshold controls 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 controls 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.

4.3.4 Video Settings

Move the cursor to **Video Settings** and click **Iris+** to enter the submenu. **Contrast**, **Sharpness, Saturation**, **3D DNR**, **Mirror**, and **Defog** are adjustable.

```
               Video Settings
   Contrast
                              <5>
   Sharpness
                              <5>
   Saturation
                              <5>
   3D DNR
                              <5>
   Mirror
                            <Off>
   Defog
                              <0>

          Back    Save & Exit
```
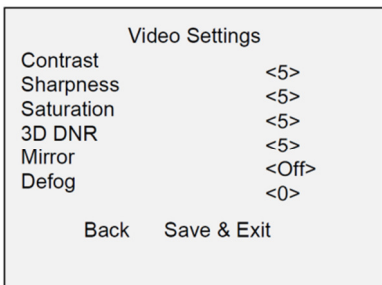
Figure 18 Video Settings

- **Contrast**

  This feature enhances the difference in color and light between parts of an image. You can set the **Contrast** value from 1 to 10.

- **Sharpness**

  Determines the amount of detail an imaging system can reproduce. You can set the **Sharpness** value from 1 to 10.

- **Saturation**

  Adjust this feature to change the saturation of the color. The value ranges from 1 to 10.

- **3D DNR (Digital Noise Reduction)**

  The 3D DNR function can decrease the noise effect, especially when capturing moving images in poor light conditions, and deliver more accurate and sharper image quality. You can set the **3D DNR** value from 1 to 10.

- **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.

- **Defog**

  This is used in special environments such as foggy or rainy weather, or in high illumination conditions, when the dynamic range is lower than that in an ordinary environment and the image appears hazy.
  Enabling the defog function can enhance the subtle details to display clear images.

4.3.5 Factory Default

Click Iris+ to enter the submenu, and click **OK** to reset all the settings to the factory default. Click **Cancel** to disregard the reset settings.

4.3.6 Save & Exit

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