

TURBO HD Varifocal Dome & Turret & Bullet Camera User Manual

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	DS-2CE19H0T-AIT3ZF(C)
	DS-2CE19H0T-IT3ZE(C)
Type II	DS-2CE5AH0T-AVPIT3ZF(C)
	DS-2CE5AH0T-VPIT3ZE(C)
Type III	DS-2CE79H0T-IT3ZF(C)
	DS-2CE79H0T-IT3ZE(C)

This manual may contain several technical mistakes or printing errors, and the content is subject to change without notice. The updates will be added to the new version of this manual. We will readily improve or update the products or procedures described in the manual.

About this Manual

The Manual includes instructions for using and managing the Product. Pictures, charts, images and all other information hereinafter are for description and explanation only. The information contained in the Manual is subject to change, without notice, due to firmware updates or other reasons. Please find the latest version of this Manual at the Hikvision website (<https://www.hikvision.com/>).

Please use this Manual with the guidance and assistance of professionals trained in supporting the Product.

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Regulatory Information

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.

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.

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 2014/30/EU, the RoHS Directive 2011/65/EU.



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.

Industry Canada ICES-003 Compliance

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

Warning

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.



Safety Instruction

These instructions are intended to ensure that 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.




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 and IEC62368-1 standard. Refer to technical specifications for detailed information.
- The socket-outlet shall be installed near the equipment and shall be easily accessible.
- An all-pole mains switch shall be incorporated in the electrical installation of the building.
- Do not connect multiple devices to one power adapter to avoid over-heating 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.



Cautions

- **CAUTION:** Hot parts! Burned fingers when handling the parts. Wait one-half hour after switching off before handling parts. This sticker is to indicate that the marked item can be hot and should not be touched without taking care. For device with this sticker, this device is intended for installation in a restricted access location, access can only be gained by service persons or by users who have been instructed about the reasons for the restrictions applied to the location and about any precautions that shall be taken.

- The equipment shall not be exposed to dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on the equipment.
- Shock hazard! Disconnect all power sources before maintenance.

- No naked flame sources, such as lighted candles, should be placed on the equipment.
- Install the equipment according to the instructions in this manual.
- To prevent injury, this equipment must be securely attached to the wall in accordance with the installation instructions.
- 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°C to 60°C), dusty or damp locations, and do not expose it to high electromagnetic radiation.
- If cleaning is necessary, use 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 surface of sensor will not be exposed to the laser beam.
- Do not expose the device to high electromagnetic radiation or extremely hot, cold, dusty or damp environment.
- To avoid heat accumulation, good ventilation is required for the operating environment.
- Keep the camera away from liquid while in use for non-water-proof device.
- While in delivery, the camera shall be packed in its original packing, or packing of the same texture.

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1 Introduction

1.1 Product Features

The main features are as follows:

- High performance CMOS sensor
- Smart IR
- Varifocal lens
- IR cut filter with auto switch
- OSD menu with configurable parameters
- Auto white balance
- 3-axis adjustment

1.2 Overview

1.2.1 Overview of Type I Camera

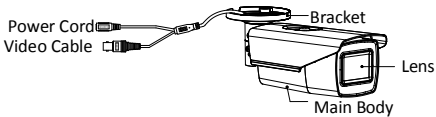


Figure 1-1 Type I Camera with Power over Coaxial Cable

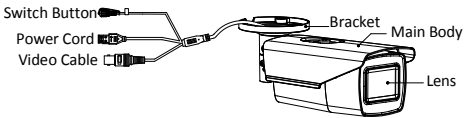


Figure 1-2 Type I Camera

1.2.2 Overview of Type II Camera

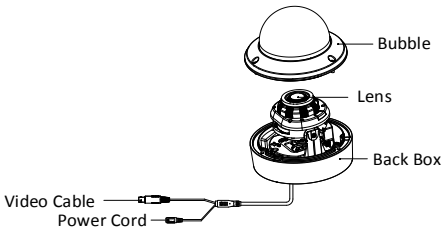


Figure 1-3 Type II Camera with Power over Coaxial Cable

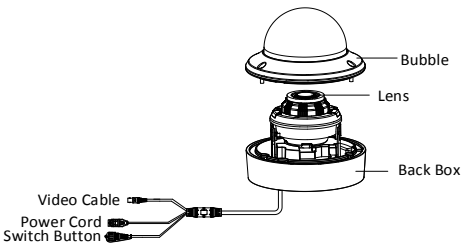


Figure 1-4 Type II Camera

1.2.3 Overview of Type III Camera

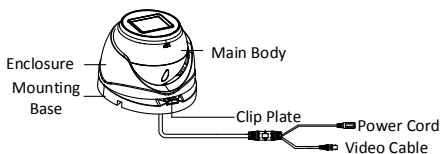


Figure 1-5 Type III Camera with Power over Coaxial Cable

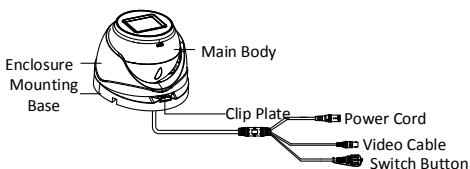


Figure 1-6 Type III Camera

2 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 power-off during the installation.
- Check the specification of the products for the installation environment.
- Check whether the power supply is matched with your power output to avoid the 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 installing 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 by yourself.

2.1 Installation of Type I Camera

2.1.1 Ceiling/Wall Mounting without Junction Box

Steps:

1. Paste the drill template on the ceiling/wall.
2. Drill screw holes and the cable hole on the ceiling/wall.

Note:

Drill the cable hole, when adopting the ceiling outlet to route the cable.

3. Attach the bracket to the ceiling/wall and secure the camera with three PA4 × 25-SUS screws.

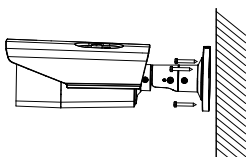


Figure 2-1 Fix the Camera to the Ceiling

Notes:

- The supplied screw package contains self-tapping screws, and expansion bolts.
 - For cement wall/ceiling, expansion bolts are required to fix the camera. For wooden wall/ceiling, self-tapping screws are required.
4. Route the cables through the cable hole, or the side opening.
 5. Connect the cables.
 6. Check whether the image on the monitor is gotten from the optimum angle. If not, adjust the camera according to the figure below to get an optimum angle.

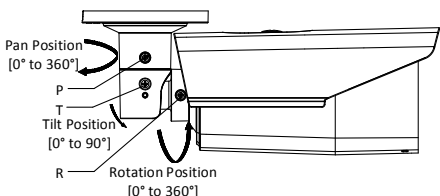


Figure 2-2 3-axis Adjustment

- 1). Loosen the T adjusting screw to adjust the tilt position [0° to 90°].
 - 2). Loosen the P adjusting screw to adjust the pan position [0° to 360°].
 - 3). Loosen the R adjusting screw to adjust the rotation position [0° to 360°].
7. Tighten screws and the trim ring to finish the installation.

2.1.2 Ceiling/Wall Mounting with Junction Box

Before you start:

You need to purchase a junction box separately.

Steps:

1. Paste the drill template of the junction box on the ceiling/wall.
2. Take apart the junction box, and align the screw holes of the camera with those on the Junction box's cover.
3. Attach the camera on the junction box's cover with three PM4 × 10 screws.

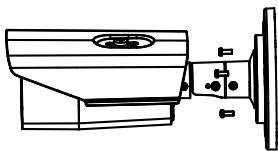


Figure 2-3 Attach the Camera on the Junction Box's Cover

4. Secure the junction box's body on the ceiling/wall with three PA4 × 25 screws.

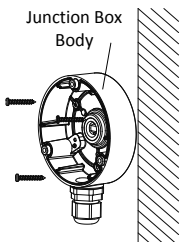


Figure 2-4 Secure the Junction Box on the Wall/Ceiling

- Route the cables through the bottom cable hole, or the side cable hole of the junction box.
- Combine the junction box cover with its body.

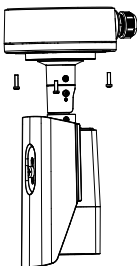


Figure 2-5 Combine the Junction Box Cover and Body

- Repeat the steps 5 to 7 of 2.1.1 *Ceiling/Wall Mounting without Junction Box* to finish the installation.

2.2 Installation of Type II Camera

2.2.1 Ceiling Mounting without Junction Box

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 steps of ceiling mounting as a reference for wall mounting.

Steps:

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



Figure 2-6 Drill Template

Note:

Cable hole is required, when adopting the ceiling outlet to route cables.

- Disassemble the camera to remove the bubble.

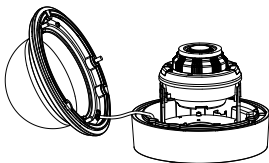


Figure 2-7 Remove the Bubble

- Attach the back box of camera to the ceiling and secure it with three PA4 × 25 screws.

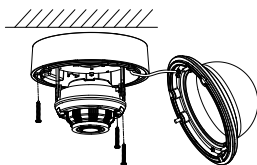


Figure 2-8 Attach the Back Box

Notes:

- The supplied screw package contains self-tapping screws, and expansion bolts.
 - For cement ceiling, expansion bolts are required to fix the camera. For wooden ceiling, self-tapping screws are required.
5. Route the cables through the cable hole, or the side opening.
 6. Connect the cables.
 7. Check whether the image on the monitor is gotten from the optimum angle. If not, adjust the camera according to the figure below to get an optimum angle.

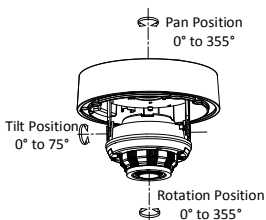


Figure 2-9 3-Axis Adjustment

8. Adjust the tilt position [0° to 75°], the pan position [0° to 355°], the rotation position [0° to 355°].
9. Install the bubble back to the camera.

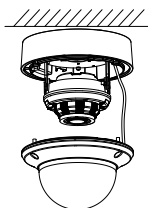


Figure 2-10 Install the Bubble Back

10. Tighten the screws on the bubble of the dome camera to finish the installation.

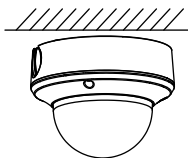


Figure 2-11 Finish Installation

2.2.2 Ceiling Mounting with Junction Box

Before you start:

You need to purchase a junction box separately.

Steps:

1. Paste the drill template to the ceiling.
2. Drill 2 screw holes and the cable hole in the ceiling according to the drill template.
3. Install the junction box to the ceiling with four PA4 × 25 screws.

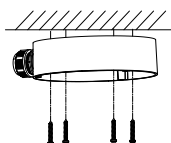


Figure 2-12 Fix the Junction Box

- Repeat the step 3 to 10 of 2.2.1 *Ceiling Mounting without Junction Box* to finish the installation.

2.2.3 Wall Mounting

Before you start:

You need to purchase a bracket separately.

Steps:

- Install the bracket on the wall with four M6 expansion bolts.

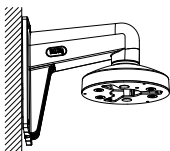


Figure 2-13 Install the Bracket

- Disassemble the camera to remove the bubble.
- Attach the back box of camera to the bracket and secure it with three PM4 × 8 screws.
- Refer to steps 5 to 10 of 2.2.1 *Ceiling Mounting without Junction Box* to fix the camera to the bracket and finish installation.

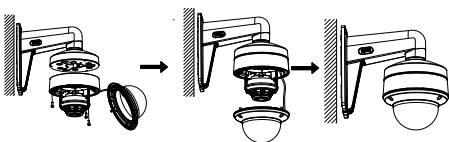


Figure 2-14 Fix the Camera to the Bracket

2.3 Installation of Type III Camera

2.3.1 Ceiling/Wall Mounting without Junction Box

Before you start:

The installation steps of ceiling mounting and wall mounting are similar and the following takes ceiling mounting as an example to describe the steps.

Steps:

- Paste the drill template (supplied) to the place where you want to install the camera.
- Drill the screw holes according to the drill template, and the cable hole (optional) on the ceiling.

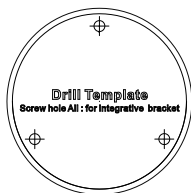


Figure 2-15 Drill Template

Note:

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

- Loosen screws to remove the clip plate, and take out the main body.

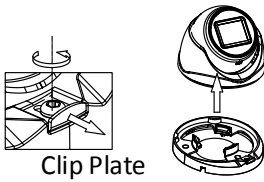


Figure 2-16 Remove the Clip Plate

4. Install the mounting base to the ceiling with three PA4 × 25 screws.

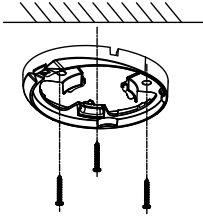


Figure 2-17 Install the Mounting Base to the Ceiling

Notes:

- The supplied screw package contains self-tapping screws, and expansion bolts.
 - For cement wall/ceiling, expansion bolts are required to install the camera. For wooden wall/ceiling, self-tapping screws are required.
5. Route the cables through the cable hole, or the side opening.
 6. Install the main body to the mounting base and insert the clip plate.

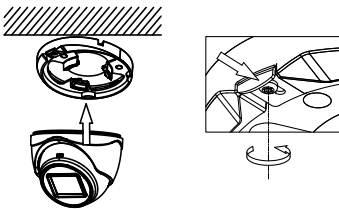


Figure 2-18 Install the Camera

7. Tighten the screws with the screw driver.
8. Connect the cables.
9. Check whether the image on the monitor is gotten from the optimum angle. If not, adjust the camera according to the figure below to get an optimum angle.

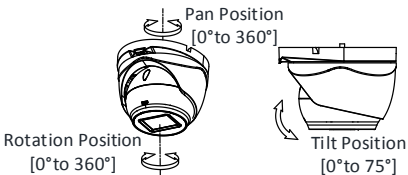


Figure 2-19 3-axis Adjustment

- 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°].

2.3.2 Ceiling/Wall Mounting with Junction Box

Before you start:

You need to purchase a junction box separately.

Steps:

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



Figure 2-20 Drill Template of the Junction Box

Note:

Drill the cable hole, when adopting ceiling outlet to route the cable.

3. Refer to step 3 of 2.3.1 *Ceiling/Wall Mounting without Junction Box* to take out the camera's main body.
4. Take apart the junction box, and align the screw holes of the camera with those on the junction box's cover.
5. Fix the camera's mounting base on the junction box's cover with three PM4 × 10 screws.

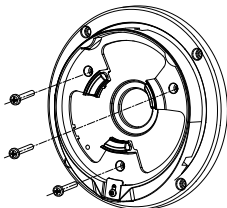


Figure 2-21 Secure Screws on Junction Box's Cover

6. Secure the junction box's body on the ceiling/wall with four PA4 × 25 screws.

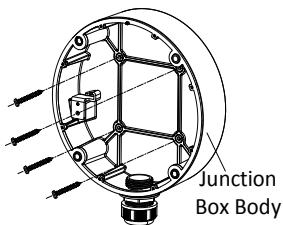


Figure 2-22 Secure the Junction Box's Body on Wall / Ceiling

7. Combine the junction box cover with its body with supplied screws on the junction box's cover.

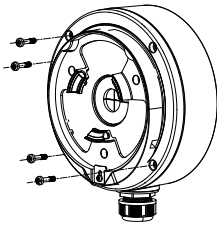


Figure 2-23 Fix the Junction Box

8. Repeat steps 5 to 9 of 2.3.1 *Ceiling/Wall Mounting without Junction Box* to complete the installation.

3 Menu Description

Follow the steps below to call the menu.

Note:

The actual display may vary with your camera model.

Steps:

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

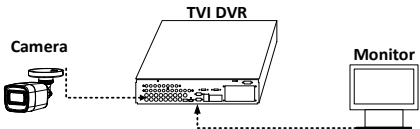



Figure 3-1 Connection

2. Power on the 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 the preset No. 95.

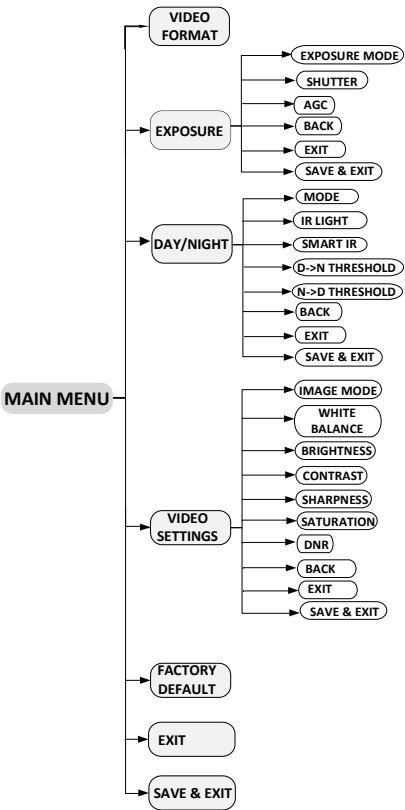


Figure 3-2 Main Menu Overview

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.

3.1 VIDEO FORMAT

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

3.2 EXPOSURE

EXPOSURE MODE

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

- **GLOBAL**

GLOBAL refers to the normal exposure mode which adjusts lighting distribution, variations, and non-standard processing.

- **BLC (Backlight Compensation)**

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

- **HLC (Highlight Compensation)**

HLC stands for highlight compensation. The camera detects the strong spots (the over-exposure portion of image), then reduce the brightness of the strong spots to improve the overall images.

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

Digital wide dynamic range gives the camera the ability to view dark areas of the given image as well as extremely lighted portions of the image, or areas of high contrast.

SHUTTER

Shutter is a photographic device that controls the exposure by limiting the time over which the light passes. You can select the **SHUTTER** as **AUTO** or other certain values.

AGC (Auto Gain Control)

It optimizes the clarity of the image in poor light conditions. The **AGC** level can be set to **HIGH**, **MEDIUM**, or **LOW**.

Note:

The noise will be amplified when setting the **AGC** level.

3.3 DAY/NIGHT

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

COLOR

The image is colorful 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 the poor light conditions.

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

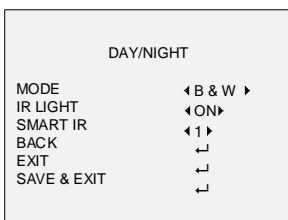


Figure 3-3 DAY/NIGHT

- **IR LIGHT**

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

- **SMART IR**

The **Smart IR** function is used to adjust the light to its most suitable intensity, and prevent the image from over exposure.

AUTO

Automatically switch **Color**, or **B&W** (Black and White) according to actual scene brightness.

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

DAY/NIGHT	
MODE	◀ AUTO ▶
IR LIGHT	◀ ON ▶
SMART IR	◀ 0 ▶
D → N THRESHOLD	◀ 7 ▶
N → D THRESHOLD	◀ 7 ▶
BACK	↵
EXIT	↵
SAVE & EXIT	↵

Figure 3-4 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 is used to adjust the light to its most suitable intensity, and prevent the image from over exposure.

- **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 is, the more sensitive the camera is.

- **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 is, the more sensitive the camera is.

3.4 VIDEO SETTINGS

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

VIDEO SETTINGS	
IMAGE MODE	◀ STD ▶
WHITE BALANCE	↵
BRIGHTNESS	◀ 5 ▶
CONTRAST	◀ 5 ▶
SHARPNESS	◀ 5 ▶
SATURATION	◀ 5 ▶
DNR	↵
BACK	↵
EXIT	↵
SAVE & EXIT	↵

Figure 3-5 VIDEO SETTINGS

IMAGE MODE

IMAGE MODE is used to adjust the image saturation, and you can set it to **STD** (Standard) or **HIGH-SAT** (High Saturation).

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 **WHITE BALANCE** 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 to adjust the shades of red/blue color of the image.

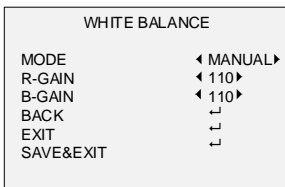


Figure 3-6 MWB MODE

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 greater the value is, the brighter the image is.

CONTRAST

This feature enhances the difference in color and light between parts of an image.

SHARPNESS

Sharpness determines the amount of detail an imaging system can reproduce.

SATURATION

Saturation is the proportion of pure chromatic color in the total color sensation. Adjust this feature to change the saturation of the color.

DNR

DNR refers to digital noise reduction. This function reduces noise in video stream.

3.5 FACTORY DEFAULT

Reset all the settings to the factory default.

3.6 EXIT

Move the cursor to **EXIT** and click Iris+ to exit the menu.

3.7 SAVE & EXIT

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