

HIKVISION[®]



DS-2CE37U8T-A
HD WDR Box Camera
User Manual

1 Preface

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

1.1 Manual Illustrations and Features

Graphics (screen shots, product pictures, etc.) in this document are for illustrative purposes only. Your actual product may differ in appearance. Your product might not support all features discussed in this document.

1.2 DISCLAIMER STATEMENT

Underwriters Laboratories Inc. (“UL”) has not tested the performance or reliability of the security or signaling aspects of this product. UL has tested only for fire, shock, or casualty hazards as outlined in UL’s Standard(s) for Safety, UL60950-1. UL Certification does not cover the performance or reliability of the security or signaling aspects of this product. UL MAKES NO REPRESENTATIONS, WARRANTIES, OR CERTIFICATIONS WHATSOEVER REGARDING THE PERFORMANCE OR RELIABILITY OF ANY SECURITY OR SIGNALING RELATED FUNCTIONS OF THIS PRODUCT.

1.3 Regulatory Information

1.3.1 FCC Information

FCC Compliance: This equipment has been tested and found to comply with the limits for 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 users will be required to correct the interference at their own expense.

1.3.2 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

1.3.3 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 2006/95/EC, the EMC Directive 2004/108/EC, the RoHS Directive 2011/65/EU.



Municipal waste in the European Union. For proper recycling, return this product to your local supplier upon the purchase of equivalent 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. For proper recycling, return the battery to your supplier or to a designated collection point. For more information, see: www.recyclethis.info.



1.4 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.



1.5 Warnings

- In the use of the product, you must be in strict compliance with the electrical safety regulations of the nation and region.
- Please refer to technical specifications for detailed information.
- Input voltage should meet both the SELV (Safety Extra Low Voltage) and the Limited Power Source with AC 24V or DC 12V according to the IEC60950-1 standard. Please refer to technical specifications for detailed information.

- Do not connect several devices to one power adapter as adapter overload may cause over-heating or a fire hazard.
- Please make sure that the plug is firmly connected to the power socket.
- When the product is mounted on wall or ceiling, the device shall be firmly fixed.
- If smoke, odor, or noise rise from the device, turn off the power at once, unplug the power cable, and then contact the service center.
- If the product does not work properly, please contact your dealer or the nearest service center. Never attempt to disassemble the camera yourself. (We shall not assume any responsibility for problems caused by unauthorized repair or maintenance.)



1.6 Cautions

- Make sure the power supply voltage is correct before using the camera.
- Do not drop the camera or subject it to physical shock.
- Do not touch sensor modules with fingers. If cleaning is necessary, use a clean cloth with a bit of ethanol and wipe it gently. If the camera will not be used for an extended period, replace the lens cap to protect the sensor from dirt.
- Do not aim the camera at the sun or extra bright places. Blooming or smearing may occur otherwise (which is not a malfunction), and affect the endurance of the sensor at the same time.
- The sensor may be burned out by a laser beam, so when any laser equipment is in use, make sure that the surface of the sensor will not be exposed to the laser beam.
- Do not place the camera in extremely hot or cold settings. The operating temperature shall be (-10° to +60° C), dusty or damp locations, and do not expose it to high electromagnetic radiation.
- To avoid heat accumulation, good ventilation is required for the operating environment.

- Keep the camera away from liquid while in use.
- While in delivery, the camera shall be packed in its original packing or packing of the same texture.
- Improper use or replacement of the battery may result in hazard of explosion. Replace with the same or equivalent type only. Dispose of used batteries according to the instructions provided by the battery manufacturer.

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2 Introduction

2.1 Product Features

This camera adopts a high performance sensor and advanced print circuit board design technology. It possesses high resolution, low distortion, low noise features, etc. It is extremely suitable for surveillance systems and image process systems.

Main Features:

- High performance CMOS for high definition and clear images
- Low illumination 0.01 lux @ (f/1.2, AGC On), 0 lux with IR
- ICR infrared filter auto switch
- Supports OSD menu controlling, enabling user to configure detailed parameters
- 3D NR for clear images
- Wide dynamic range function
- Defogging function
- Auto white balance, auto gain control
- Coaxial camera controller

2.2 Overview

2.1 Box Camera Overview

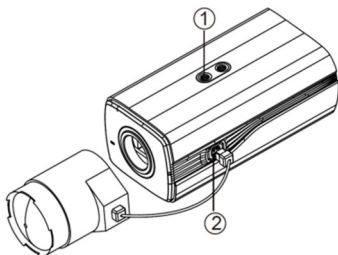


Figure 1 Box Camera Overview

Table 1-1 Description of the Box Camera

No.	Description
1	Lock screw
2	Auto-Iris Drive Interface

2.3 The Auto Iris Interface

The auto iris interface is composed of four square pins, as shown below.

Damp+, damp-, drive+, and drive- pins are used in DC driven mode.

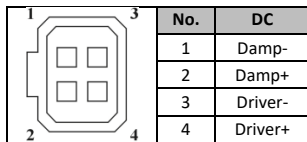


Figure 2 Auto Iris Interface Pins

2.3.1 Rear Panel

The rear panel of the box camera is shown as follows:

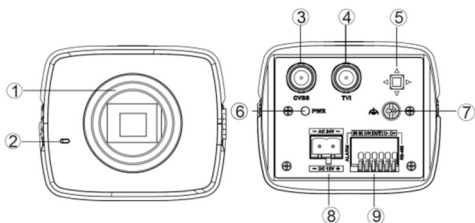


Figure 3 Box Camera Panel Description

Table 1-2 The Rear Panel Description

No.	Description	No.	Description
1	Lens	6	Power Indicator
2	Mic	7	Grounding Screw
3	Analog Video Output Interface	8	Power Interface
4	TVI Video Output Interface	9	Alarm OUT, IN, GND Interface
5	Joystick		

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 power-off during the installation.
- Check the specification of the products for the installation environment.

- Check if the power supply matches the required output, to avoid damage.
- Make sure the wall or ceiling is strong enough to withstand three times the weight of the camera and the mounting.
- If the wall or ceiling is cement, insert expansion screws before installing the camera. If the wall or ceiling is wood, use self-tapping screws to secure the camera.
- If the product does not function properly, please contact your dealer or the nearest service center. Do not disassemble the camera for repair or maintenance yourself.

3.1 Wall Mounting

Steps:

1. Rotate the lens clockwise onto the camera lens mount.
2. Plug the wire of auto iris lens to the auto iris interface of the camera.

Note:

- Prevent dust from entering between the lens mount and the lens.
- The weight of the lens must be less than 1 kg. It's better to install a lens with a CS type interface. If the lens interface is a C type, you will need to install a C adaptor between the lens and the camera.

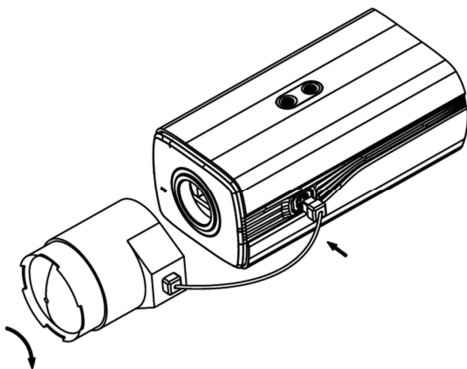


Figure 4 Fix the Camera to the Backplane

Remove the backplane from the camera housing. Attach the camera to the backplane with supplied screws, as shown below.

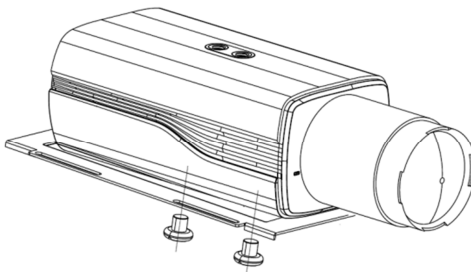


Figure 5 Fix the Backplane in the Housing

3. Fix the backplane with the camera in the camera housing, as shown below.

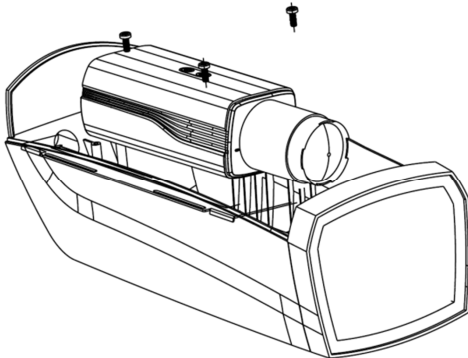


Figure 6 Fix the Camera in the Housing

4. Adjust the focal length of the lens and complete the focus adjustment.
 - Move the zoom lever between T (Telephoto) and W (Wide angle) to obtain the appropriate angle of view.
 - Move the focus lever between F (Far) and N (Near) to obtain the optimum focus.

Note:

In practical applications, you need to choose the corresponding lens according to the size of the sensor. The automatic iris lens will work at the maximum aperture mode.

5. Connect the camera with corresponding cables and route the cables through the cable hole on the bottom of the camera housing. Close and lock the camera housing.
6. Drill the screw holes on the wall according to the drill template.

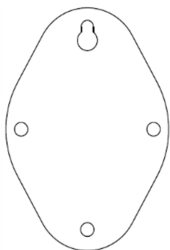


Figure 7 Mounting Template

7. Attach the wall mount to the wall and tighten the screws to fix it.

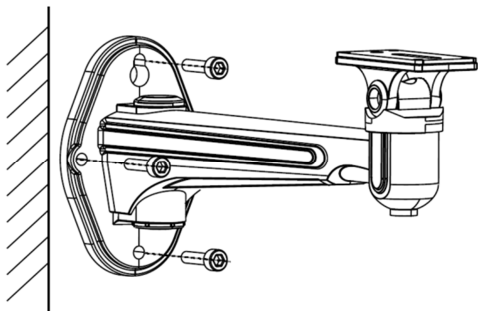


Figure 8 Install the Bracket

Note:

The wall mount (not provided) should be longer than 1/2 of the camera length.

8. Attach the camera with the housing to the wall mount and tighten the fix screw to fix the camera.

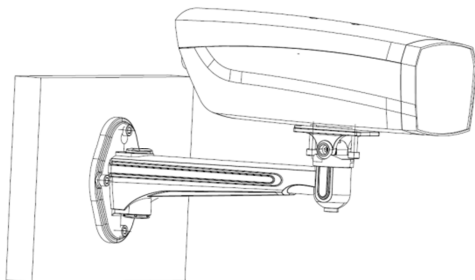


Figure 9 Fix the Camera Housing

9. Loosen the panning lock screw to adjust the panning angle of the camera.

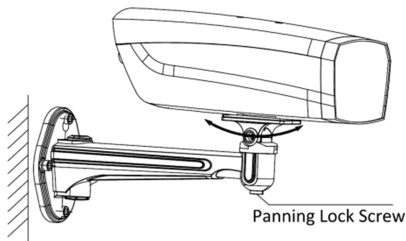


Figure 10 Adjust the Panning Angle

10. Loosen the tilting lock screw. You can adjust the tilting angle of the camera.

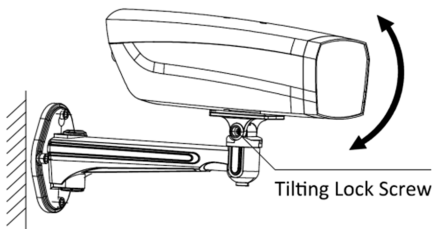


Figure 11 Adjust the Tilting Angle

3.2 Ceiling Mounting

Steps:

1. Drill the screw holes on the wall according to the drill template.

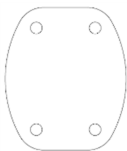


Figure 12 Mounting Template

2. Attach the ceiling mount to the wall and tighten the screws to fix it. As shown below.

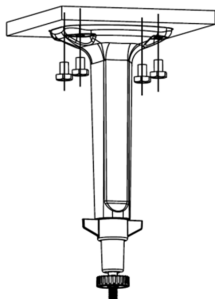


Figure 13 Install the Bracket

3. Attach the camera to the ceiling mount and tighten the fix screw to fix the camera.

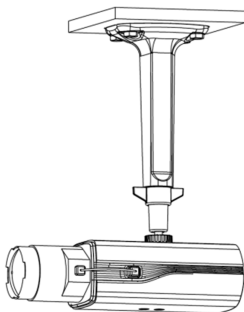


Figure 14 Fix the Camera Housing

4. Loosen the adjustable nut to adjust the panning angle and tilt angle of the camera.

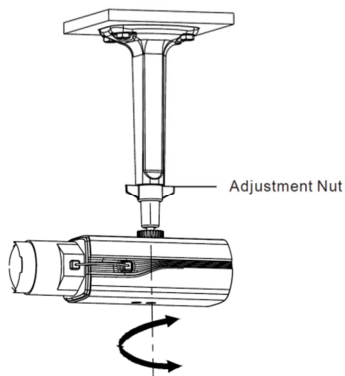


Figure 15 Angle Adjustment

4 Menu Description

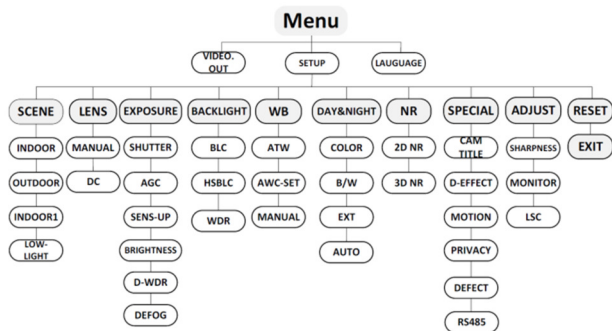


Figure 16 Main Menu Overview

Note:

- This series of cameras uses a joystick to select the menu and confirm a selection.
- Move the joystick up/down to select the menu item.
- Move the joystick left/right to adjust the value of the selected item.
- Press the joystick to confirm a selection. The menu button mentioned in the chapter below refers to the joystick.

4.1 VIDEO OUT

Phase Alternating Lines (PAL) is a color encoding system for analog television used in broadcast television systems in most countries broadcasting at 576i.

National Television System Committee (NTSC) is the analog television system that is used in most of North America, parts of South America Myanmar, South Korea, etc.

Move the joystick left/right to select the required video output standard.

4.2 LANGUAGE

This series of camera supports multiple languages. English, Japanese, CHN1, CHN2, Korean, German, French, Italian, Spanish, Polish, Russian, Portuguese, Dutch, Turkish, Hebrew, and Arabic are selectable.

4.3 SETUP

4.3.1 SMART FOCUS

After completing the focus adjustment, enter the Smart Focus menu, and check the value displayed on the screen. The larger the value, the better the focus. Press the joystick again to exit the menu.

4.3.2 SCENE

Scene option allows user to select different working environments. Indoor, outdoor, and low-light are selectable.

4.3.3 LENS

The camera lens can be set to manual or DC.

4.4 EXPOSURE

EXPOSURE	
1. SHUTTER	AUTO
2. AGC	OFF
3. SENS-UP	---
4. BRIGHTNESS	--- ----- 40
5. D-WDR	OFF
6. DEFOG	OFF
7. RETURN	RET

Figure 17 Exposure

Exposure describes the brightness-related parameters. You can adjust the image brightness by the SHUTTER, AGC, SENS-UP, BRIGHTNESS, ACCE, BACKLIGHT, etc. in different light conditions.

- **Shutter**

Shutter denotes the speed of the shutter.

AUTO, 1/30, 1/60, FLK, 1/240, 1/480, 1/1k, 1/2k, 1/5k, 1/10k and 1/50k are selectable if you select shutter as **AUTO** or **1/30**, the SENS-UP is adjustable (**OFF/AUTO**), and the SENS-UP is disabled if any other shutter speed is selected.

- **AGC**

A form of amplification where the camera will automatically boost the image received in much lower light conditions than standard in order to optimize the clarity of image in poor light scene. You can set the AGC value from **1** to **15**.

Note:

The noise will be amplified if the AGC is on.

- **SENS-UP**

If you select shutter as **AUTO** or **1/30**, the SENS-UP is adjustable (**OFF/AUTO**), and the SENS-UP is disabled if any other shutter speed is selected.

SENS-UP increases the exposure on a signal frame, which makes a camera more sensitive to light so it can produce images even in low lux conditions. You can set the SENS-UP to **OFF** or **AUTO** according to different light conditions.

- **OFF:** SENS-UP function is disabled.
- **AUTO:** The SENS-UP function will automatically adjust itself to x2, x4, x6, x8, x10, x15, x20, x25, and x30 according to the different light conditions.

- **Brightness**

Brightness refers to the brightness of the image. You can set the brightness value from 1 to 100 to darken or brighten the image. The higher the value is, the brighter the image is.

- **D-WDR**

The digital wide dynamic range (D-WDR) function helps the camera provide clear images even under back light circumstances. When there are both very bright and very dark areas simultaneously in the field of view, D-WDR balances the brightness level of the whole image and provide clear images with details.

Set the D-WDR to **ON** to improve the image quality under the backlight environment.

Set the D-WDR to **OFF** to disable the function.

- **Defog**

DEFOG is used in special environments such as the foggy or rainy weather or in high illumination where the dynamic range is lower than in an ordinary environment and the image appears hazy. Enabling the defog function can enhance subtle details so that the image appears clearer.

Set the defog function to **ON** to enable the function. Position, size, and defog gradation are configurable.

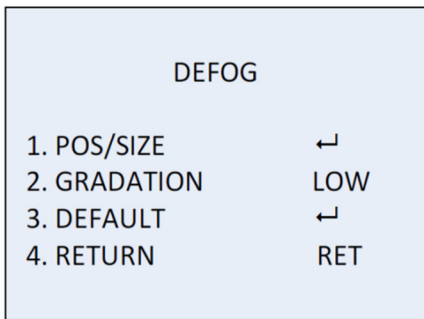


Figure 18 Defog

Steps:

1. Move the cursor to **POS/SIZE**, and press **OK** to enter the position and size configuration interface.
2. Select **Low**, **Middle**, or **High** defog gradation.
3. Move the joystick up/down/right/left to define the position of the defog area.
4. Press **OK** again to switch the position configuration to the size configuration.
5. Move the joystick up/down/right/left to define the size of the defog area.
6. Press **OK** and select **RET** to return to the defog menu or select **AGAIN** to re-define the position and size.
7. (Optional) Move the cursor to **DEFAULT** and press **OK** to restore the defog settings to the default.

Note:

Enabling the defog function will increase the image contrast. It is recommended that the defog function be set to OFF in normal environments.

4.5 Backlight

Backlight is applicable for backlit or high luminance environment; you can set the Backlight to **OFF**, **BLC**, **WDR**, or **HSBLC**.

- **Backlight Compensation (BLC)**

If there's a strong backlight, the object in front of the backlight will appear silhouetted or dark. BLC is based on the back area to enhance the brightness of the whole image, which makes it possible to see the area before the strong backlight clearly, but the backlight area will be overexposed.

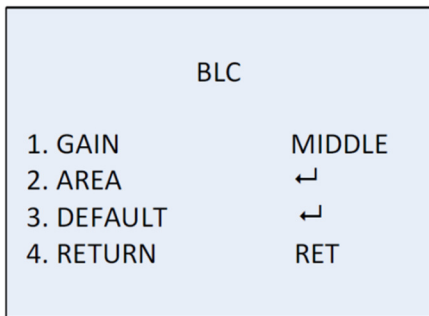


Figure 19 BLC

The BLC gain can be set to **High**, **Middle**, or **Low**; the higher the gain, the clearer the image. Follow the steps below to set a BLC area.

Steps:

1. Move the cursor **AREA**, and press **OK** to enter the area edit interface.
2. Move the joystick up/down/left/right to define the BLC position.
3. Press **OK** to enter the area size edit interface.
4. Move the joystick up/down/left/right to define the BLC size.
5. Press **OK** to confirm the selection, and select **RET** to go back the BLC menu, or select **AGAIN** to re-define the BLC area.
6. (Optional) Move the cursor to **DEFAULT** and press **OK** to restore the BLC settings to the default.

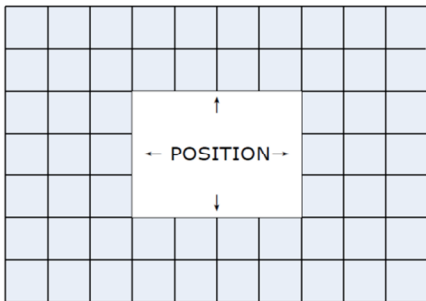


Figure 20 Define a BLC Area

- **HSBLC**

HSBLC	
1. SELECT	AREA 1
2. DISPLAY	ON ↵
3. LEVEL	--- ----- 40
4. MODE	ALL DAY
5. BLACK MASK	ON
6. DEFAULT	↵
7. RETURN	RET

Figure 21 HSBLC

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

Steps:

1. Set the cursor right/left to select **HSBLC** and press **OK** to enter the edit interface.
2. Move the cursor to **SELECT** and select the area by setting the joystick to left/right. Four areas are selectable.
3. Set the DISPLAY to **ON /OFF** to enable/disable the HSBLC area.
4. Press **OK** to enter the position/size edit interface.
5. Move the joystick up/down/left/right to define the position of the HSBLC area.
6. Press **OK** to switch to the size edit interface.
7. Move the joystick up/down/left/right to define the size of the HSBLC area.
8. Press **OK** to confirm the configuration and select **RET** to return to the HSBLC menu, or select **AGAIN** to re-define the HSBLC area.

• **LEVEL**

It is adjustable from 0 to 100. If the brightness is higher than the level you set, the HSBLC will take effect.

• **MODE**

ALL DAY refers to the HSBLC works all day; **Night** refers to the HSBLC only works in night.

• **BLACK MASK**

ON and **OFF** are selectable. Only when the **Black Mask** is set as ON, the HSBLC takes effect. If you the set black mask as OFF, the HSBLC function is disabled.

- **DEFAULT**

Selecting DEFAULT will restore all the HSBC settings to the default value.

4.6 WDR

The wide dynamic range (WDR) function helps the camera provide clear images even under backlight circumstances. When there are very bright and very dark areas simultaneously in the field of view, WDR balances the brightness level of the whole image and provides clear images with details.

You can set the Gain level as low, middle, or high.

You can set the WDR Bright and offset value from 0 to 60.

4.7 White Balance (WB)

White balance is the white rendition function of the camera to adjust the color temperature according to the environment. It can remove the unrealistic color casts in the image.

MANUAL, ATW (Auto-tracking White Balance), or AWC→SET are selectable.

- **MANUAL**

Manual mode allows you to adjust the white balance by customizing the Blue and Red value, which range from 1 to 100.

- **ATW**

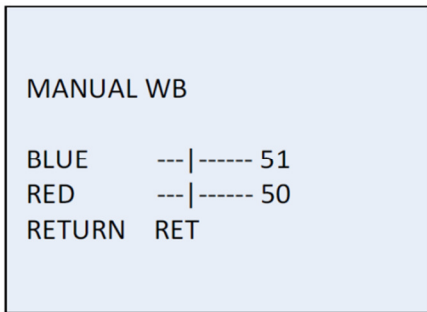


Figure 22 Manual White Balance

ATW mode refers to the white balance is continuously being adjusted in real-time according to the color temperature of the scene illumination.

- **AWC→SET**

Similar with ATW, the white balance is continuously being adjusted in real-time according the scene if AWC→SET is selected, however, if the scene changed, you have to go to AWC→SET to get another proper white balance for the new scene.

Note:

The white balance is not adjustable if B/W mode is selected.

4.8 Day/Night

Color, **B/W**, **EXT**, and **AUTO** are selectable for **DAY/NIGHT** switches.

- **COLOR**

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

- **B/W**

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

- **EXT**

The image switches from color to B/W or from B/W to color automatically according to the light condition.

- **AUTO**

The image switches from color to B/W or from B/W to color automatically by comparing the configured threshold value with actual light condition.

- **Delay:** You can set the latency duration before camera implementing the switch operation after the threshold intensity being reached.

This function can effectively prevent meaningless switches caused by sudden illumination change and lens blocking.

- **D->N (AGC):** The threshold value is configurable from 0 to 100 for determining whether to switch the image from color to B/W in current light condition.
- **N->D (AGC):** The threshold value is configurable from 0 to 100 for determining whether to switch the image from B/W to color in current light condition.

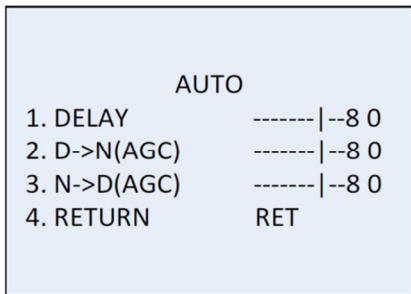


Figure 23 Auto

4.9 NR

NR (Noise Reduction) is used to reduce the noise in the video stream.

Move the cursor to **NR**, and press **OK** to enter the **NR** submenu.

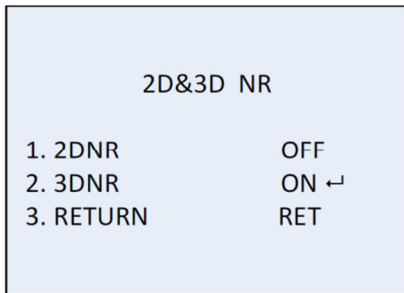


Figure 24 NR

- **2D NR**

2D NR reduces the noise in a single frame to get a gentle image. You can set it **ON** or **OFF** by setting the joystick to left/right.

- **3D NR**

Compared to traditional general 2D NR technology, 3D NR processes the noise reduction between two frames instead of in one frame. It can decrease the noise effect, especially when capturing moving images in low light conditions and delivering more accurate and sharp image quality.

3D NR	
1. SMART NR	ON ←
2. LEVEL	----- --8 0
3. START. AGC	- -----10
4. END. AGC	- -----10
5. RETURN	RET

Figure 25 3D NR

- **Smart NR** usually takes effect in cooperation with 3D NR. You can set it to **ON** to improve the image fluency. Set it to **OFF** to disable the SMART NR. The 3D SMART NR sensitivity ranges from 0 to 100.

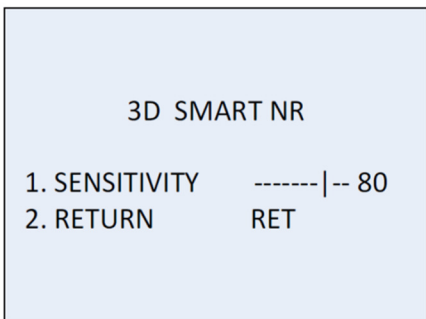


Figure 26 Smart NR

The 3D NR level ranges from 0 to 100.

You can set a threshold to enable AGC from Start. AGC, and set a threshold to disable AGC from End.AGC.

4.10 SPECIAL

In the SPECIAL sub-menu, you can set the camera name, the digital effect of the image, the motion detection, privacy task, language, dead pixel correction, and check the camera version.

SPECIAL	
1. CAM TITLE	ON ↵
2. D-EFFECT	↵
3. MOTION	OFF
4. PRIVACY	OFF
5. DEFECT	↵
6. RS485	↵
7. RETURN	RET

Figure 27 Special

- **Camera Title**

You can name your camera by configuring the CAM TITLE. Move the cursor to **CAM TITLE**, set it to **ON**, and press **OK** to enter the edit interface. Up to 15 characters can be selected.

- **ON**: Display the camera title.
- **OFF**: Do not display the camera title.

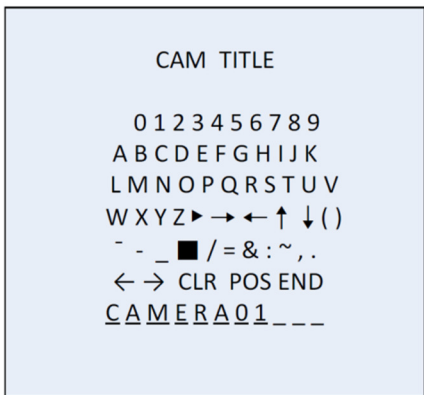


Figure 28 CAM Title

Steps:

1. Move the cursor to ← or →, and press **OK** to decide the character position on the dotted line.
2. Move the cursor to select the needed characters, numbers, and symbols.
3. Press **OK** to confirm. The selected character will be displayed on the dotted line below.
4. Move the cursor to **POS** to edit the camera title position on the screen.
5. Move the cursor to **POS**.
 - 1). Press **OK** to enter the CAM TITLE position setting interface.
 - 2). Move the joystick up/down/left/right to change the position of camera title.

- 3). Press **OK** to exit the CAM TITLE position setting interface, and return to the CAM TITLE menu.
6. (Optional) Move the cursor to **CLR** to clear all the selected characters.
7. Move the cursor to **END** and press **OK** to save the settings and return to the previous menu.

- **D-EFFECT**

- **FREEZE**

D-EFFECT	
1. FREEZE	OFF
2. MIRROR	OFF
3. D-ZOOM	OFF
4. SMART D-ZOOM	OFF
5. NEG. IMAGE	OFF
6. RETURN	RET

Figure 29 D-effect

Note:

You can set the freeze function to **ON** or **OFF**. When you set it to ON, the image is frozen as a still. The live view will stay on the moment you set the freeze to ON.

The mirror function will be disabled if FREEZE is ON.

- **MIRROR**

OFF, **MIRROR**, **V-FLIP**, and **ROTATE** are selectable for mirror.

* **OFF**: The mirror function is disabled.

- * **MIRROR:** The image flips 180 degrees horizontally.
- * **V-FLIP:** The image flips 180 degrees vertically.
- * **ROTATE:** The image flips 180 degrees both horizontally and vertically.

- **D-ZOOM**

You can set the D-ZOOM as **ON** to zoom in the image. When digital zoom is processed, the image will be enlarged without gaining the actual pixel.

D-ZOOM	
1. D-ZOOM	x 2.0
2. PAN & TILT	←↵
3. DEFAULT	←↵
4. RETURN	RET

Figure 30 D-Zoom

The minimum magnification is x2, and the maximum magnification is x62.

You can define the zoom area by configuring the position from PAN & TILT, and restore the D-Zoom settings to the default.

- SMART D-ZOOM

The Smart D-Zoom enlarges the motion object detected in the pre-defined area. The D-Zoom area, the sensitivity, and the time are configurable from the Smart D-Zoom edit interface.

SMART D-ZOOM	
1. SELECT	AREA1
2. DISPLAY	ON ← ↵
3. SENSITIVITY	--- ----31
4. D-ZOOM	x 2.0
5. TIME	-- -----3
6. DEFAULT	← ↵
7. RETURN	RET

Figure 31 Smart D-Zoom

Note:

D-Zoom and Smart D-Zoom cannot take effect simultaneously.

Two areas are selectable. Move the joystick up/down to select the area.

Set the display ON/OFF to display/not display the smart D-Zoom area. And if the display is set to ON, press OK to enter the position edit interface and define the smart D-Zoom area.

The sensitivity ranges from 0 to 60. The higher the sensitivity, the easier the smart D-ZOOM is triggered.

The minimum magnification is x 2.0, and the maximum magnification is x62.0.

The time refers to the duration of the magnification, and you can set it from 0 to 15.

Move the cursor to **DEFAULT** and press **OK** to restore the smart D-Zoom settings to the default.

- **NEG.IMAGE**

You can set the NEG IMAGE to **ON** or **OFF**, and if you set it to on, the bright area and the dark area of the image are reversed.

• **Motion**

In the user-defined motion detection surveillance area, the moving object can be detected and the alarm will be triggered.

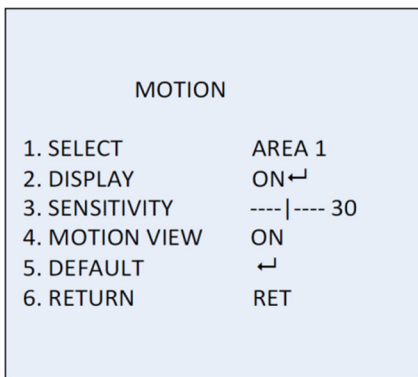


Figure 32 Motion Detection

Set a Motion Detection Area:

Steps:

1. Move the cursor to **SELECT** and select a motion area. Four areas are selectable.
2. Move the cursor to **DISPLAY**, set it **ON** and press **OK** to enter the motion detection edit interface.
3. Move the joystick up/down/left/right to define the position of the selected motion area.
4. Press **OK** to enter the area size configuration interface after the position is defined.
5. Move the joystick up/down/left/right to define the size of the selected area.
6. Press **OK** to confirm the size configuration and select **RET** to return to the motion menu, and select **AGAIN** to try again.
7. (Optional) Move the cursor to **DEFAULT** and press **OK** to restore the motion settings to the default.

- **SENSITIVITY**

It refers to the sensitivity of the motion detection, which ranges from 0 to 60. Higher sensitivity causes better detection response.

- **MOTION VIEW**

Motion view enables a better visual judgment when the motion is detected. Set the motion view ON, once motion occurred; you can see the transparent red mosaic flickering to show the exact location where the motion occurs. Or, you can set it OFF to disable the motion view.

- **Privacy**

The privacy mask allows you to cover certain areas that you don't want to be viewed or recorded. Up to eight privacy areas are configurable.

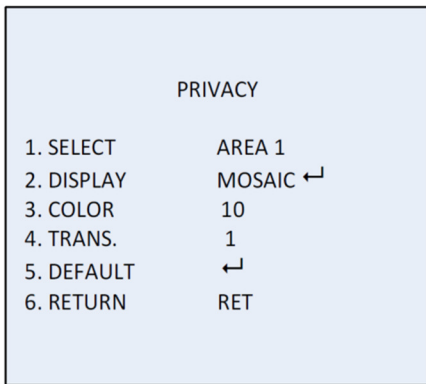


Figure 33 Privacy Mask

Set a Privacy Mask:

Steps:

1. Move the cursor to **SELECT** and select a privacy mask area. Eight areas are selectable.
2. Move the cursor to **DISPLAY**, and press **OK** to enter the privacy mask edit interface.

INV., mosaic, color and off are selectable for display.

- **INV.:** The privacy mask area converts the bright area and the dark area in the image.

- **Mosaic:** The privacy mask area displayed with the flickering mosaic.
- **Color:** The privacy mask area is displayed with selectable colors. 16 colors are selectable.

Note:

Color and TRANS [0-3] works only when the display is set to color.

1. Move the joystick up/down/left/right to define the position of the selected privacy mask area.
2. Press **OK** to enter the area size configuration interface after the position is defined. Define the size by configuring the top left, top right, bottom left, and bottom right of the selected area.
3. Press **OK** to confirm the configuration and select **RET** to return to the privacy mask menu, or select **AGAIN** to try again.
4. (Optional) Move the cursor to **DEFAULT** and press **OK** to restore the privacy mask settings to the default.

- **Defect**

Defective pixels are pixels in a CCD or CMOS image sensor in digital cameras in which certain pixels fail to sense light levels correctly. This camera series supports defective pixel correction. Move the cursor to **DEFECT** and press **OK** to enter the defective pixel correction interface.

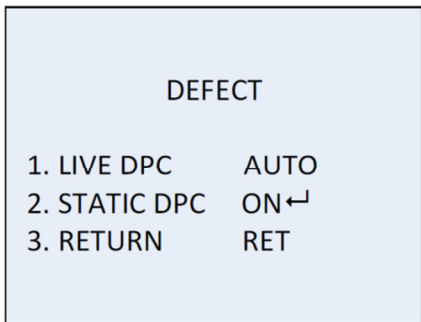


Figure 34 Defective Pixel Correction

- **LIVE DPC**

Live DPC detects and corrects the dynamic or the real-time defective pixels that occur during use. ON, OFF, or AUTO is selectable. The correction level [0-255] is configurable if the live DPC is set to ON; set to OFF to disable the live defective pixel correction. Set it to AUTO to detect and repair defective pixels automatically.

- **STATIC DPC**

Static DPC detects and corrects static or fixed defective pixels that occur during use. ON and OFF are selectable.

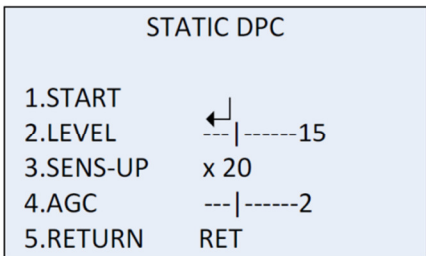


Figure 35 Static DPC

Steps:

1. Set the static DPC to **ON**, and press **OK** to enter the static DPC edit interface.
2. Move the cursor to **START**, and press **OK** to start correcting the defective pixels.
3. Press **OK** when you see the **CLOSE THE IRIS THEN PRESS ENTER KEY** message on the screen.

The STATIC DPC level ranges from 0 to 60.

Some defective pixels may appear indistinguishable for the system to detect. You can adjust the SENS-UP to X2, X4, X6, X8, X10, X15, X20, X25, or X30 to brighten the defective pixel for the system to find it. You can set the AGC level from 0 to 8.

- **RS485**

You can set the RS485 parameters in this menu, including camera ID, ID display status, and baud rate (2400/4800/9600/ 19200/38400).

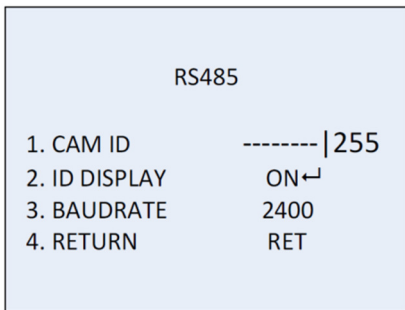


Figure 36 RS485

4.11 ADJUST

In the Adjust sub-menu, you can configure settings, including sharpness, monitor image quality, OSD settings, lens shadow compensation, video output standard, etc. Move the cursor to **ADJUST** and press **OK** to enter the adjust configuration interface.

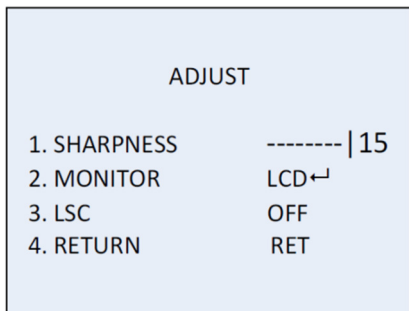


Figure 37 Adjust

- **Sharpness**

Sharpness determines the amount of detail an imaging system can reproduce. You can adjust the sharpness from 0 to 15. The higher the value, the clearer and sharper the image.

- **Monitor**

Monitor CRT and Monitor LCD are selectable.

A cathode ray tube (CRT) is a fluorescent screen used to view images. You can define the black level [-30 to +30], the blue gain [-50 to 50], and the red gain [-50 to 50].

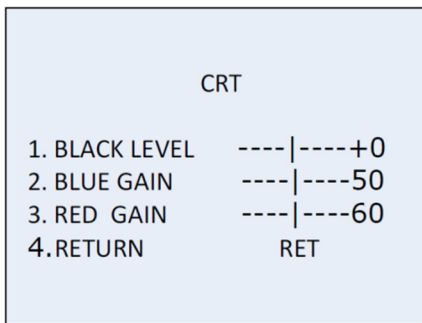


Figure 38 Monitor CRT

If liquid crystal display (LCD) is selected. You can define the gamma, blue gain [0 - 100], and red gain [0 - 100].

Gamma is a nonlinear operation used to code and decode luminance or tristimulus values in a video or still image system.

USER +Y, USER, AUTO, 1.00, 0.95, 0.90, 0.85, 0.80, 0.75, 0.70, 0.65, 0.60, 0.55, 0.50, and 0.45 are selectable.

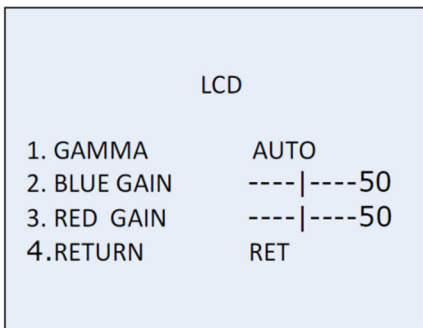


Figure 39 Monitor LCD

Lens Shading Correction (LSC) corrects the phenomenon where the image gets darkened or blurred on the periphery.

Set it ON to enable the LSC. Set it OFF to disable the LSC.

4.12 RESET

Reset all the settings to the defaults.

4.13 EXIT

Move the cursor to **EXIT**, and press **OK** to exit the menu.