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 models below:

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<tr>
<td>DS-2CE17H0T-IT1/3/5F(C)</td>
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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.

0100002001207
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 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

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.
- Do not connect multiple devices to one power adapter to avoid over-heating or a fire hazard caused by overload.
- The socket-outlet shall be installed near the equipment and shall be easily accessible.
- Make sure that the plug is firmly connected to the power socket.
- A readily accessible disconnect device shall be incorporated external to the equipment.
- An overcurrent protective device shall be incorporated external to the equipment, not exceeding the specification of the building.
- An all-pole mains switch shall be incorporated in the electrical installation of the building.
- 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

- 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 floor/wall in accordance with the installation instructions.
- Do not touch the sharp edges or corners.
- 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.
1 Introduction

1.1 Product Features
The main features are as follows:
- High performance CMOS sensor
- OSD menu with configurable parameters
- Smart IR
- 3-Axis Adjustment

1.2 Overview

Figure 1-1 Overview of the Camera

*Note:* Press and hold the switch button for 5 seconds to switch the video output. Four kinds of video outputs are available: TVI, AHD, CVI, and CVBS.

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 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 Ceiling/Wall Mounting without Junction Box

*Before you start:*
Ceiling mounting and wall mounting are similar. Following steps take ceiling mounting as an example.

*Steps:*
1. (Optional) For cement ceiling, drill the screw holes with a 5.5 mm drill and insert the supplied wall plugs.
2. (Optional) Drill the cable hole, when the cables are routed through the ceiling.
3. Align the screw holes in the bracket to the ceiling, and secure the camera with three PA4 × 25 screws (supplied).
4. Connect the power cord and video cable.

Figure 2-1 Secure the Camera on the Ceiling
5. Power on the camera to check if the image on the monitor is gotten from the optimum angle. If not, adjust the camera according to the figure below.

![3-Axis Adjustment](image)

**Figure 2-2 3-Axis Adjustment**

1. Loosen the trim ring to adjust the pan position [0° to 360°].
2. Loosen screw A to adjust the tilt position [0° to 180°].
3. Loosen screw B to adjust the rotation position [0° to 360°].
4. Turn the trim ring clockwise and tighten the screws A and B to finish installation.

### 2.2 Ceiling/Wall Mounting with Junction Box

**Before you start:**
- You need to purchase a junction box in advance.
- Ceiling mounting and wall mounting are similar. Following steps take wall mounting as an example.

**Steps:**
1. Paste the drill template for junction box to the place where you want to install the camera.
2. (Optional) For cement wall, drill the screw holes with a 5.5 mm drill and insert the supplied wall plugs.
3. (Optional) Drill the cable hole, when the cables are routed through the wall.
4. Take apart the junction box.
5. Align the screw holes of the camera with those on the junction box cover. Attach the camera to the junction box cover with three PM4 × 10 screws.
6. Secure the junction box body on the wall with three PA4 × 25 screws (supplied).
7. Route the cables through the bottom cable hole or side cable hole of the junction box and connect the cables.

8. Fix the junction box cover on its body with three PM3 × 16 L6 screws that come with the junction box.

9. Repeat steps 5 to 6 of 2.1 Ceiling/Wall Mounting without Junction Box to finish the installation.

3 Menu Description

Please 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, as shown in figure 3-1.

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 calling preset No. 95.
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 5MP@20fps, 4MP@30fps, 4MP@25fps, 2MP@30fps, or 2MP@25fps.

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

EXPOSURE MODE  GLOBAL
SHUTTER  AUTO
AGC  LOW
BACK
EXIT
SAVE & EXIT

Figure 3-3 EXPOSURE

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

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

- 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.

SHUTTER

SHUTTER is a photographic device that administers the exposure by limiting the time over which light is admitted.

AGC (Automatic 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, BW (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.
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 effects.

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.

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

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Figure 3-6 VIDEO SETTINGS

IMAGE MODE
IMAGE MODE is used to adjust the image saturation. 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 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 adjust the R-GAIN and B-GAIN value to correct colors manually.

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Figure 3-7 MANUAL MODE

BRIGHTNESS
Brightness refers to the brightness of the image. You can set the brightness value to darken or brighten the image. The higher 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. The saturation of a color is determined by a combination of light intensity and how
much it is distributed across the spectrum of different wavelengths.

**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.

**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.

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

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

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