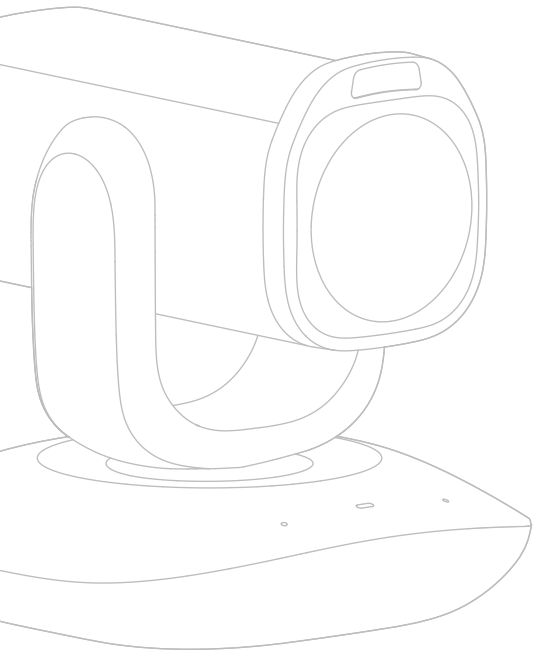
HIKVISION

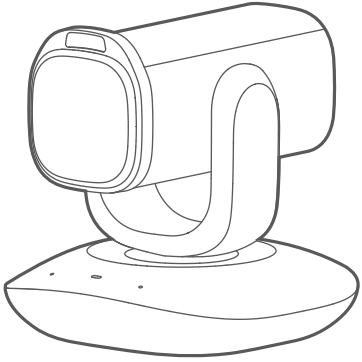
User Manual

Light PTZ Camera



Content

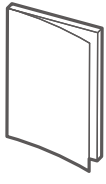
1 Packing List



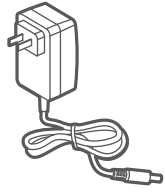
Camera

Remote Control

Battery

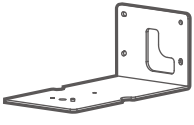


User Manual



Power Adapter

Adapter Extension Cable



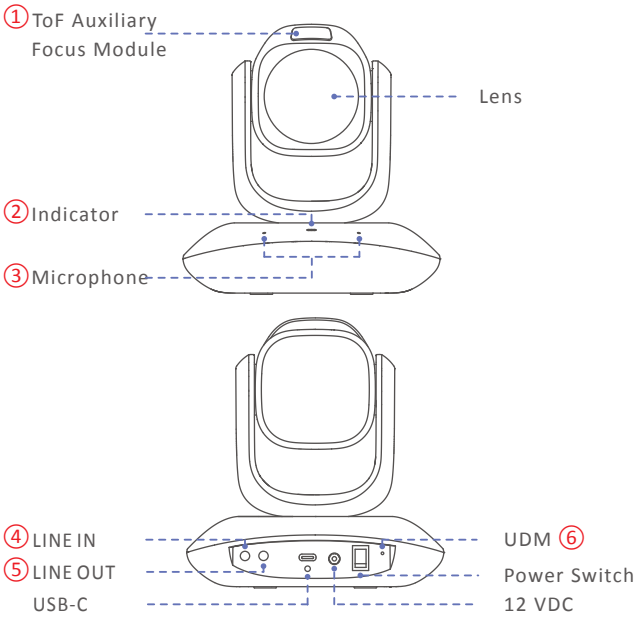
Bracket

Screws

USB Cable

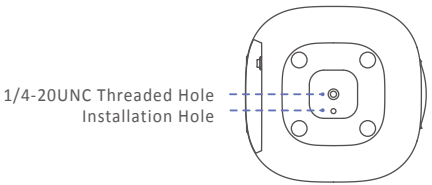
2 Camera Instruction

2.1 Appearance



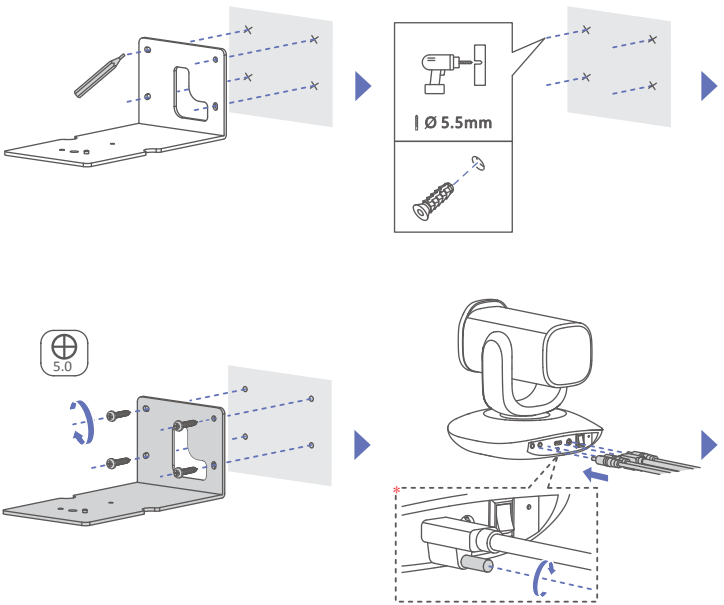
① Only certain device models support the ToF auxiliary focus module.
② Device startup: solid white -> flashing white -> solid white.
Device working: solid white.
Device mute: solid red.
Device shutdown: light off.
③ Microphone: The device has built-in dual microphones.
④ LINE IN: 1 audio input (line in), 3.5 mm three-segment TRS interface.
⑤ LINE OUT: 1 audio output (line out), 3.5 mm three-segment TRS interface.
⑥ UDM: Software upgrade mode.

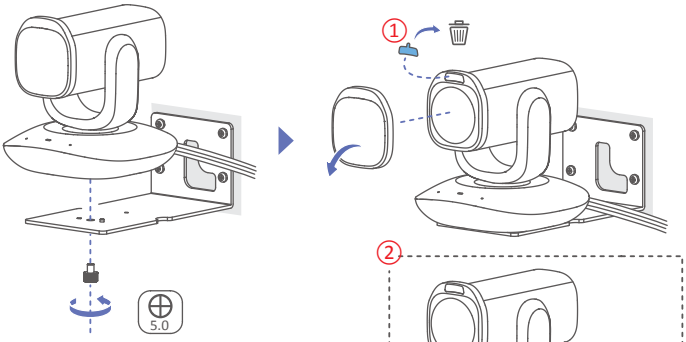
2.2 Installation



2.2.1 Mounting with Bracket

- **Wall Mounting with Included Bracket**



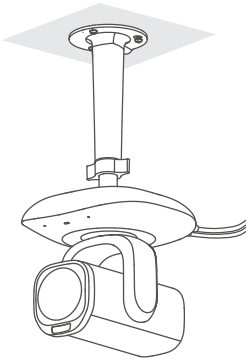


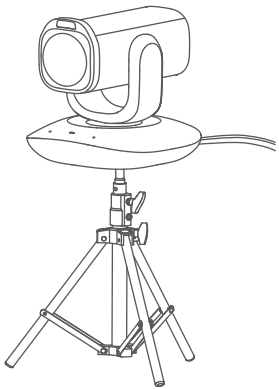
① Certain device models have the built-in ToF auxiliary focus module. The protective film should be removed after installation.

② The bracket can be mounted in reverse. The installation method is similar.

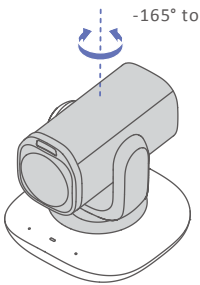
- **Mounting with Other Optional Brackets**

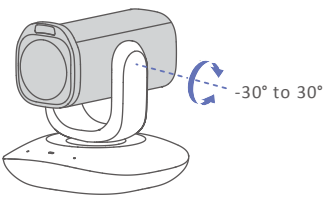
Pendant mounting bracket/Tripod: Brackets shall be purchased separately, and the thread size is 1/4-20UNC.





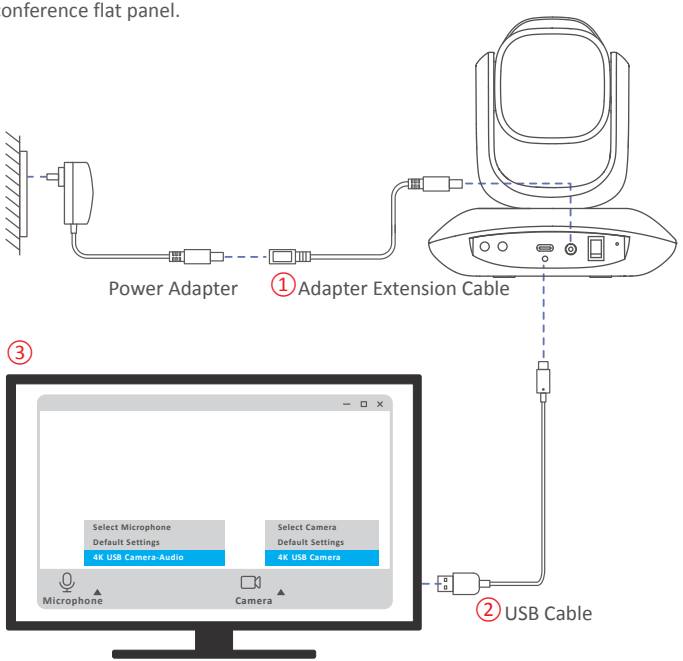
2.2.2 Angle Adjustment Range





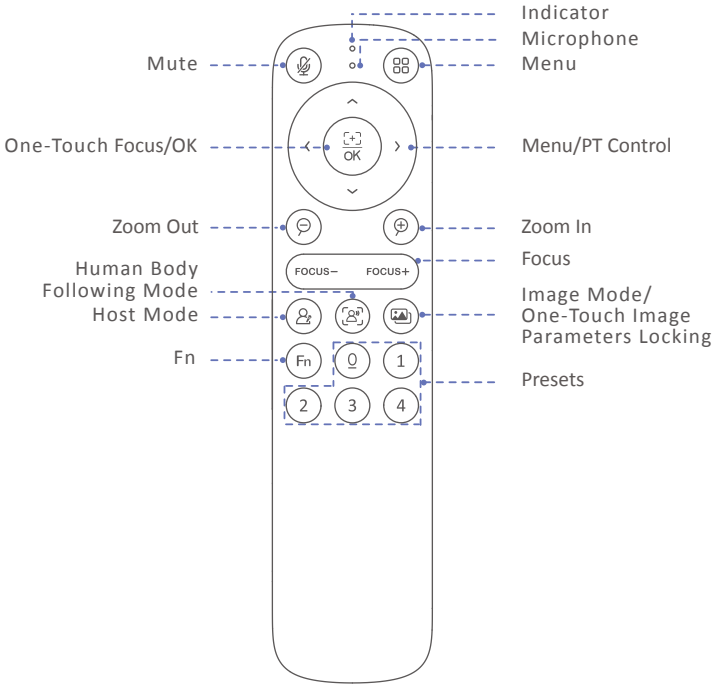
2.3 Wiring

The camera can be connected to an intelligent terminal, such as a computer or conference flat panel.



① The adapter extension cable is for long-distance power connections.
② Purchase a USB 3.0 extension cable with a signal amplifier for long-distance data connections. Please test it to ensure stability.
③ Power on the device and open the live/conference/video software. Select '4K USB Camera-Audio' for the microphone and '4K USB Camera' for the camera if you need to use the camera's microphone to collect sound. Refer to the actual device for the exact device name.

3 Remote Control Instruction



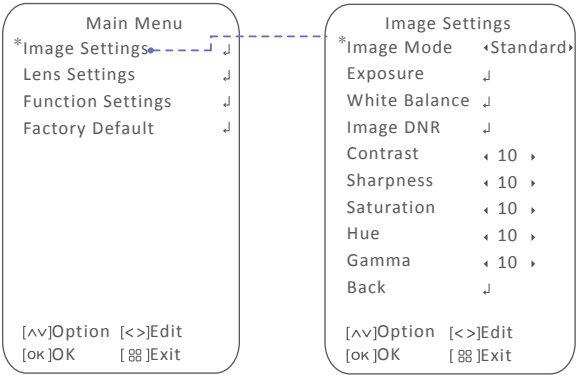
	Turn on/off pickup function of microphone, including camera, remote control, and other microphone devices (if any) accessed through line in interface. Pickup function is enabled by default.
	Press the button to enter/exit the menu adjustment page.
 OK	In the menu adjustment page, press the button to enter the submenu page/confirm parameter settings. Not in the menu adjustment page, press the button to focus the device once. Press and hold the button for 3 seconds to switch between auto focus (default)/semi-auto focus. * After long press to switch focus mode, OSD character prompt will be displayed on the upper-left corner of the image.
	In the menu adjustment page, press the button to control the menu. Not in the menu adjustment page, pan/tilt the camera. Press the button to adjust the camera by level. Press and hold the button to adjust the camera continuously. * PT control function cannot be used when adjusting menu.
	Press the button to zoom in/out by level. Press and hold the button to adjust the camera continuously.
FOCUS− /+	Press the button to adjust the focus by level. Press and hold the button to adjust the camera continuously. * Please make sure the device is in semi-focus mode before manually adjusting focus.
	Press and hold the button to enable the pickup function of the remote control. Release the button to disable the function. * The pickup function of the camera and other external devices (if any) will be disabled after enabling the remote control pickup.
	Press the button to enable/disable human body following mode. Under this mode, the lens follows the human.

	Press the button to switch image mode. Live camera (model number of which ends with "R") supports 6 types of image mode. Standard (default), Portrait, Clothing, Food, Texture and Outdoor are available. Conference Camera (model number of which ends without "R") supports 5 types of image mode. Standard (default), Portrait, Vivid, Backlight and Soft are available. Press and hold the button to lock all image parameters, including exposure, white balance, color, etc. After enabling the function, image parameters will not change with light, background, etc. Operating Instructions: • It is recommended to press and hold  to lock parameters when the image effect adjustment is completed. • To adjust parameters, press and hold  again to unlock. • Text will be displayed on the upper-left corner of the image after the operation is successful.
	Preset effects of all parameters can be saved, including image parameters, zoom parameters, etc. Operating Instructions: • After parameters are set, press and hold number key for 3 seconds to save the current effect as corresponding preset. Preset can be overwritten. • Press number key to call the preset parameters. * When one-touch image parameters locking is enabled, only the zoom parameters will be changed when switching preset.
	The remote control and camera can only be paired when they are both in pairing mode. Operating Instructions: • Power off the camera. • Press and hold ❮ and ❯ of the remote control for 3 seconds, and the indicator of the remote control flashes white quickly. It means the remote control is in pairing mode. • Power on the camera within 20 seconds. The camera will enter pairing mode. • The indicator of the remote control flashes red and white alternately twice and then remain off. It means pairing completed. * If the pairing fails, please repeat the above operations. * The remote control and camera are paired by default. * The remote control and the camera can only be paired one-to-one.

4 Menu Instruction

Press ⊞ to enter/exit the menu adjustment page to debug the image, exit the menu or save parameters automatically. (The menu will automatically exit if there is no operation for 2 minutes.)

4.1 Image Settings



4.1.1 Image Mode

Image mode refers to preset image settings for different scenes. Live camera (model number of which ends with "R") supports 6 types of image mode. Standard, Portrait, Clothing, Food, Texture and Outdoor are available. Conference camera (model number of which ends without "R") supports 5 types of image mode. Standard, Portrait, Vivid, Backlight and Soft are available. The image parameters can be adjusted in the selected mode to get better image effects.

Standard: The preset image mode is suitable for general scenes. For live camera (model number of which ends with "R"), the mode is suitable for most live streaming. For conference camera (model number of which ends without "R"), the mode is suitable for most conference rooms.

Portrait: For live camera (model number of which ends with "R"), the preset image mode is suitable for live streaming, such as seated live streaming. For conference camera (model number of which ends without "R"), the preset image mode is suitable for conference room with large number of faces. The main strategy is to improve the brightness and uniformity of the skin tone.

Clothing: The preset image mode is suitable for live streaming of clothing. The main strategy is to improve color accuracy of clothing.

Food: The preset image mode is suitable for live streaming of food. The main strategy is to improve the food texture by adjusting contrast, sharpness, etc.

Texture: The preset image mode is suitable for live streaming of jewelry and cultural products. The main strategy is to improve the depth and shine of the products by adjusting brightness, contrast, sharpness, etc.

Outdoor: The preset image mode is suitable for outdoor scenes.

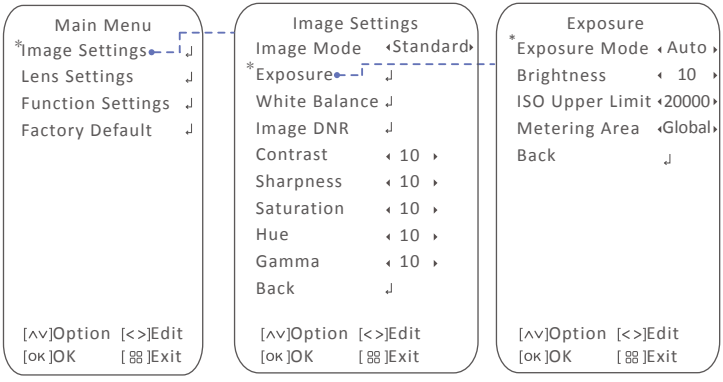
Vivid: The preset image mode is suitable for conference scenes with rich colors. The main strategy is to improve brightness and image saturation.

Backlight: The preset image mode is suitable for conference scenes by the window. The main strategy is to improve the brightness to ensure the visualization of indoor images.

Soft: The preset image mode is suitable for conference scenes with strong light and shadow contrast. The main strategy is to reduce the brightness, image saturation, contrast, etc.

4.1.2 Exposure

Exposure is the direct cause affecting the image brightness. The camera supports 4 types of exposure modes. Auto, Manual, Shutter, and Aperture are available.



Auto: The camera automatically adjusts the parameters such as shutter and aperture according to the brightness of the environment to achieve a suitable exposure level. Auto exposure mode can be automatically adapted to most scenes, but if there is a large area of dark object in the scene, other areas of the scene may become overexposed. Conversely, if there is a large area of bright area in the scene, other areas of the scene may become darker. In auto exposure mode, the ISO is set to the maximum value that can be achieved, and the camera will automatically adjust the ISO size according to the environment.

Manual: You can adjust the parameters such as shutter, aperture, and ISO to achieve the desired effects. If environment light is changed after manual exposure parameters are set, the image will correspondingly be overexposed or underexposed. If the light is disabled in manual mode, the image will be darker. In environments with stable lighting, or when displaying large areas of black, white, or other objects (such as completely white or completely black clothing), it is recommended to choose manual exposure mode for a more stable image.

Aperture: The aperture can be manually fixed in this mode, and the rest of the parameters will be adjusted automatically. The size of the aperture affects not only brightness but also the depth of field in the image. For scenes which you have a specified range of depth of field, such as wanting both the foreground and background in focus, or the subject in focus with a blurred background, it is recommended to choose aperture priority exposure mode to achieve images with a fixed depth of field.

Shutter: The shutter can be fixed manually in this mode, and the rest of the parameters will be adjusted automatically. If you need to capture moving object and reduce trailing, you can choose this mode and adjust the shutter speed to a larger denominator.

Note:

Brightness: It refers to the target brightness, which can be adjusted to brighten or darken the image (for some cameras with older software versions, the brightness option may be in the image settings page. The location is different but the function is the same).

ISO: It refers to the gain, which can be understood as the magnification factor for brightness. The higher the ISO, the brighter the image, and excessively high ISO may result in image noise.

ISO Upper Limit: It refers to the maximum value that ISO can reach during automatic adjustment.

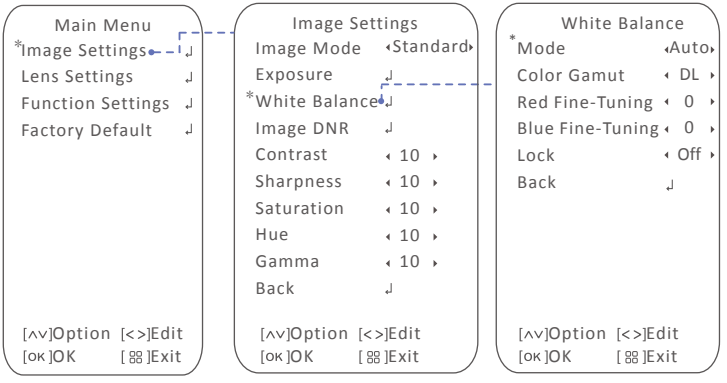
Metering Area: Set the metering area of interest to avoid influence from scenes outside the interest area on the exposure.

Shutter: It refers to the shutter speed of the camera. The higher the denominator value, the faster the speed, and the darker the corresponding image.

Aperture: It refers to the aperture of the lens. The actual lens aperture size can be set manually. The smaller the aperture value, the larger the aperture, the more light enters, and the more blurred the background. The larger the aperture value, the less light enters, the less blurred the background, and the greater the depth of field.

4.1.3 White Balance

White balance is the ability of the camera to restore white color. If the white balance correction is incorrect, the whole image may have color cast. Currently, the camera supports 3 types of white balance modes. Auto, Manual, and Quick Calibration are available.



Auto: The camera adjusts automatically according to the current environment light. In the auto mode, you can select different color gamut ranges to expand or reduce the correctable white balance range. After adjusting the color gamut range, red fine-tuning, and blue fine-tuning, the lock function can be enabled to lock the parameters.

Manual: You can manually adjust the color temperature value of the camera to match the environment light. Press for fine-tuning, press and hold for continuous adjustment.

Quick Calibration: In this mode, the camera will be manually triggered to perform a white balance calculation calibration. After the calibration is completed, the white balance will be fixed at the current value. Before calibration, you should prepare a non-transparent, non-reflective, white or gray color card or panel (such as an A4 printer paper). Zoom the camera via the remote control to make the color card fill the calibration prompt box. After the calibration is completed, zoom back to the target image.

Note:

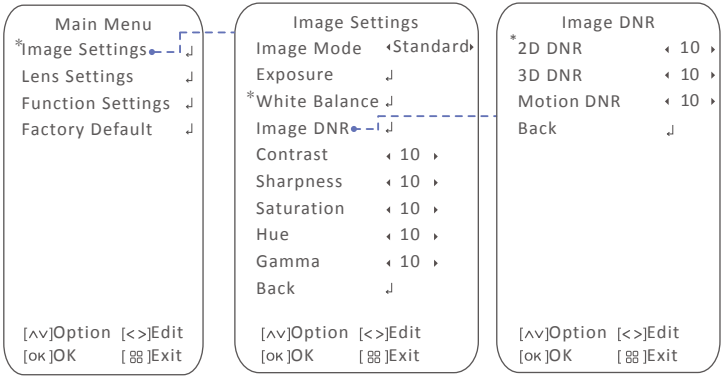
Color Temperature: The unit of measurement for the color components in the current environment. The more yellow the environment, the lower the color temperature. The more blue the environment, the higher the color temperature.

Red Fine-Tuning: Add or reduce the red component in the image. When adding the component, the whole image will tend to warmer colors.

Blue Fine-Tuning: Add or reduce the blue component in the image. When adding the component, the whole image will tend to colder colors.

4.1.4 Image DNR

Image DNR refers to preserving clarity while removing noise from data collected by image sensors.



2D DNR: It is used to handle single image frame and reduce noise by analyzing and processing the relationship between each pixel and its surrounding pixels in the image. Since it operates only in the spatial domain, 2D DNR may result in the blurring of image details, especially when dealing with edge and texture areas, as the pixel variations in these regions are more complex, and simply averaging the surrounding pixels can lead to detail loss.

3D DNR: Compared with 2D DNR, 3D DNR not only takes into account the information in the spatial domain but also incorporates processing in the temporal domain, that is, it considers the relationships between consecutive frames of images. In video sequences, if the scene is relatively stationary, changes in most pixels between adjacent frames can be considered as noise. 3D DNR identifies and reduces this time-varying noise by analyzing the differences between consecutive frames, improves image quality without significantly blurring the image details and effectively suppresses noise while maintaining image clarity.

Motion DNR: Targeted noise reduction algorithm for moving objects.

4.1.5 Contrast

Contrast is used to adjust the difference between bright and dark areas in the image, that is the difference between the brightest and darkest grayscale levels. By changing the stretching intensity between adjacent grayscale levels, the brightness difference between pixels is changed. Images with higher contrast levels appear more transparent and have higher color saturation, but dark areas become darker, making details harder to distinguish. Images with lower contrast levels appear softer and have lower color saturation, the images might seem foggy, but more details are revealed. This function can be debugged in conjunction with Gamma.

4.1.6 Sharpness

Sharpness is used to adjust the sharpness and clarity of the image. The lower the sharpness value, the softer the image. The higher the sharpness value, the sharper the image, but it may also increase jagged edges and image noise.

4.1.7 Saturation

Saturation is used to adjust the vividness of color, increasing saturation makes the color more vivid.

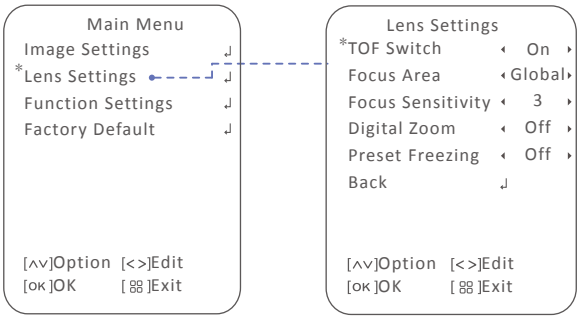
4.1.8 Hue

Hue is used to adjust the color offset in the image. For example, red can be turned into purplish red or orangish red by adjusting the hue.

4.1.9 Gamma

Gamma is a non-linear operation of grayscale distribution. It describes the mapping relationship between the brightness of the real world and the subjective vision of the human eye, and it is used to adjust the brightness and contrast of the image. It is often used to adjust brightness/contrast. The higher the Gamma level, the clearer the contrast between bright and dark in the image, the brighter the bright areas, and the darker the dark areas. The lower the Gamma level, the more blurred the contrast between bright and dark in the image.

4.2 Lens Settings



4.2.1 ToF Switch

TOF is a distance measurement device. TOF auxiliary focus can help the camera quickly obtain the distance from the object to be focused to the camera, so that the camera can be quickly adjusted to the correct focus position. After enabling this function, the camera will prioritize focusing on the subject closest to the camera within the detection area.

Note: ToF switch is only supported for live camera (model number of which ends with "R").

4.2.2 Focus Area

The focus area will take effect only in auto focus mode. It is used to set the region of interest for focusing to avoid other areas affecting the focus effect. Only the information in the selected area will be counted when counting focus information. When TOF is enabled, the focus area can be set to Global or Face. When TOF is disabled, the focus area can be set to Center, Top, Bottom, Global, or Face.

Top: Only the upper half of the image is included. If objects that frequently require focus are in the upper half of the image, it is recommended to select focus area as top.

Bottom: Only the lower half of the image is included. If objects that frequently require focus are in the lower half of the image, it is recommended to select focus area to bottom.

Center: Only half of the central area of the image is included, excluding the influence of the edge areas. It is suitable for most scenes that the subject is in the center of the image.

Global: The whole image is included.

Face: Prioritize focusing on the face position, maintaining clarity of the face position.

4.2.3 Focus Sensitivity

The focus sensitivity is used to adjust the sensitivity of focus triggering. The higher the sensitivity, the easier it is to trigger the focus. If the sensitivity is set too high, the possibility of false triggering may increase. If the sensitivity is set too low, the focus triggering rate may decrease.

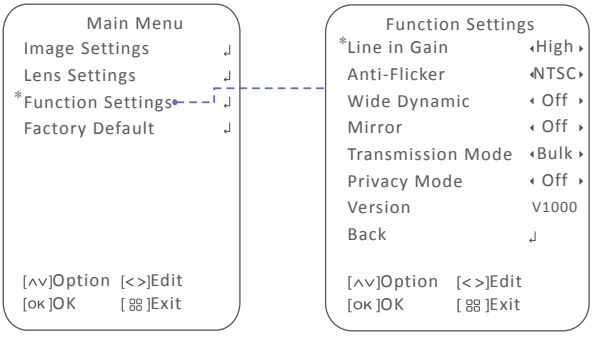
4.2.4 Digital Zoom

Digital zoom achieves a zoom effect by adjusting the cropping area of the image without changing the optical zoom of the lens. Digital zoom only takes effect after the optical zoom reaches its maximum value. It is mainly used in scenes that optical zoom cannot meet the requirements of further zooming in, but it lowers the resolution to a certain extent. Digital zoom is disabled by default.

4.2.5 Preset Freezing

After enabling the function, during the preset switching process, the last frame image will remain until the preset is switched. After the preset is switched, the current actual image will be restored. Preset freezing is disabled by default.

4.3 Function Settings



4.3.1 Line in Gain

High and Low are available. The default gain of live camera (model number of which ends with "R") is high. The default gain of conference camera (model number of which ends without "R") is low. The high gain is suitable for wireless microphones, lavalier microphones and other microphones. The low gain is suitable for analog signal professional pickups.

4.3.2 Anti-Flicker

PAL and NTSC are available, and the default setting is NTSC. If there are flickering scroll stripes in the scene due to light or screen, it is recommended to modify the PAL/NTSC settings to achieve anti-flicker.

4.3.3 Wide Dynamic

Wide dynamic is also called HDR. It can decrease the brightness of overexposed areas and increase the brightness of underexposed areas to increase the dynamic range of the image. If there are brightly reflective areas in the scene, for example, the background is a large screen and the screen image is overexposed, you can enable the wide dynamic function.

Note: If you need to switch the wide dynamic, you need to reconfigure the

sensor parameters. The image response time for the switching process is about 2 to 3 seconds.

4.3.4 Mirror

The camera supports horizontal mirror, vertical mirror, and center mirror. The menu text direction can remain in the correct reading order by adjusting mirror mode.

4.3.5 Transmission Mode

Bulk and ISOC are available, and the default setting is bulk. Bulk transmission mode can reduce the requirement of terminal interface transmission capability. ISOC transmission mode can maximally ensure low latency. After switching the transmission mode, press the OK button on the remote control, and the device will automatically restart.

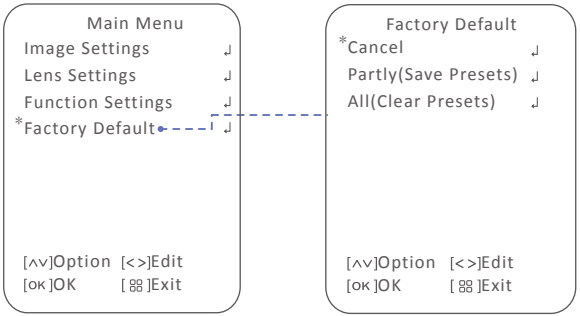
4.3.6 Privacy Mode

After enabling privacy mode, the lens will automatically tilt down if there are no PTZ or zoom operations within 30 seconds. Privacy mode is disabled by default.

4.3.7 Version

Refer to the actual interface for device version information.

4.4 Factory Default



4.4.1 Cancel

Cancel the operation to reset the settings to factory defaults.

4.4.2 Partly (Save Presets)

Reset all the settings to factory defaults except presets, anti-flicker (PAL/NTSC) and transmission mode.

4.4.3 All (Clear Presets)

The device will restart automatically and reset all the settings to factory defaults.

FAQ

Visit *https://enpinfodata.hikvision.com/analysisQR/showQR/35d08787* for frequently asked questions.

Safety Instruction

⚠ Warnings

Laws and Regulations

The device should be used in compliance with local laws, electrical safety regulations, and fire prevention regulations.

Electrical Safety

The socket-outlet shall be installed near the equipment and shall be easily accessible.

Battery

CAUTION: Risk of explosion if the battery is replaced by an incorrect type.

Improper replacement of the battery with an incorrect type may defeat a safeguard (for example, in the case of some lithium battery types).

Do not dispose of the battery into fire or a hot oven, or mechanically crush or cut the battery, which may result in an explosion.

Do not leave the battery in an extremely high temperature surrounding environment, which may result in an explosion or the leakage of flammable liquid or gas.

Do not subject the battery to extremely low air pressure, which may result in an explosion or the leakage of flammable liquid or gas.

Dispose of used batteries according to the instructions.

⚠ Cautions

Fire Prevention

No naked flame sources, such as lighted candles, should be placed on the equipment.

Installation

Install the equipment according to the instructions in this manual.

Never place the equipment in an unstable location. The equipment may fall, causing serious personal injury or death.

DO NOT touch the sharp edges or corners.

Transportation

Keep the device in original or similar packaging while transporting it.

DO NOT drop the product or subject it to physical shock.

Power Supply

The power source should meet limited power source or PS2 requirements according to IEC 60950-1 or IEC 62368-1 standard.

Refer to the device label for the standard power supply. Please make sure your power supply matches with your device.

Use a power adapter provided by qualified manufacturers. It is recommended to provide an independent power adapter for each device as adapter overload may cause over-heating or a fire hazard.

Maintenance

If the product does not work properly, please contact your dealer or the nearest service center. We shall not assume any responsibility for problems caused by unauthorized repair or maintenance.

Cleaning

Please use a soft and dry cloth to clean the interior and exterior surfaces. Do not use alkaline detergents.

Using Environment

When any laser equipment is in use, make sure that the device lens is not exposed to the laser beam, or it may burn out.

DO NOT aim the lens at the sun or any other bright light.

To avoid heat accumulation, good ventilation is required for a proper operating environment.

DO NOT expose the device to extremely hot, cold, dusty, corrosive, saline-alkali, or damp environments. For temperature and humidity requirements, see device specification.

DO NOT expose the device to high electromagnetic radiation.

Emergency

If smoke, odor, or noise arises from the device, immediately turn off the power, unplug the power cable, and contact the service center.

Legal Information

About this Document

This Document 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 Document is subject to change, without notice, due to firmware updates or other reasons. Please find the latest version of the Document at the Hikvision website (https://www.hikvision.com). Unless otherwise agreed, Hangzhou Hikvision Digital Technology Co., Ltd. or its affiliates (hereinafter referred to as "Hikvision") makes no warranties, express or implied.

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

About this Product

This product can only enjoy the after-sales service support in the country or region where the purchase is made.

Acknowledgment of Intellectual Property Rights

Hikvision owns the copyrights and/or patents related to the technology embodied in the Products described in this Document, which may include licenses obtained from third parties.

Any part of the Document, including text, pictures, graphics, etc., belongs to Hikvision. No part of this Document may be excerpted, copied, translated, or modified in whole or in part by any means without written permission.

HIKVISION and other Hikvision's trademarks and logos are the properties of Hikvision in various jurisdictions.

Other trademarks and logos mentioned are the properties of their respective owners.

LEGAL DISCLAIMER

TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, THIS DOCUMENT AND THE PRODUCT DESCRIBED, WITH ITS HARDWARE, SOFTWARE AND FIRMWARE, ARE PROVIDED "AS IS" AND "WITH ALL FAULTS AND ERRORS". HIKVISION MAKES NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING

WITHOUT LIMITATION, MERCHANTABILITY, SATISFACTORY QUALITY, OR FITNESS FOR A PARTICULAR PURPOSE. THE USE OF THE PRODUCT BY YOU IS AT YOUR OWN RISK. IN NO EVENT WILL HIKVISION BE LIABLE TO YOU FOR ANY SPECIAL, CONSEQUENTIAL, INCIDENTAL, OR INDIRECT DAMAGES,

INCLUDING, AMONG OTHERS, DAMAGES FOR LOSS OF BUSINESS PROFITS, BUSINESS INTERRUPTION, OR LOSS OF DATA, CORRUPTION OF SYSTEMS, OR LOSS OF DOCUMENTATION, WHETHER BASED ON BREACH OF CONTRACT, TORT (INCLUDING NEGLIGENCE), PRODUCT LIABILITY, OR OTHERWISE, IN CONNECTION WITH THE USE OF THE PRODUCT, EVEN IF HIKVISION HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES OR LOSS.

YOU ACKNOWLEDGE THAT THE NATURE OF THE INTERNET PROVIDES FOR INHERENT SECURITY RISKS, AND HIKVISION SHALL NOT TAKE ANY RESPONSIBILITIES FOR ABNORMAL OPERATION, PRIVACY LEAKAGE OR OTHER DAMAGES RESULTING FROM CYBER-ATTACK, HACKER ATTACK, VIRUS INFECTION, OR OTHER INTERNET SECURITY RISKS; HOWEVER, HIKVISION WILL PROVIDE TIMELY TECHNICAL SUPPORT IF REQUIRED.

YOU AGREE TO USE THIS PRODUCT IN COMPLIANCE WITH ALL APPLICABLE LAWS, AND YOU ARE SOLELY RESPONSIBLE FOR ENSURING THAT YOUR USE CONFORMS TO THE APPLICABLE LAW. ESPECIALLY, YOU ARE RESPONSIBLE, FOR USING THIS PRODUCT IN A MANNER THAT DOES NOT INFRINGE ON THE RIGHTS OF THIRD PARTIES, INCLUDING WITHOUT LIMITATION, RIGHTS OF PUBLICITY, INTELLECTUAL PROPERTY RIGHTS, OR DATA PROTECTION AND OTHER PRIVACY RIGHTS. YOU SHALL NOT USE THIS PRODUCT FOR ANY PROHIBITED END-USES, INCLUDING THE DEVELOPMENT OR PRODUCTION OF WEAPONS OF MASS DESTRUCTION, THE DEVELOPMENT OR PRODUCTION OF CHEMICAL OR BIOLOGICAL WEAPONS, ANY ACTIVITIES IN THE CONTEXT RELATED TO ANY NUCLEAR EXPLOSIVE OR UNSAFE NUCLEAR FUEL-CYCLE, OR IN SUPPORT OF HUMAN RIGHTS ABUSES.

IN THE EVENT OF ANY CONFLICTS BETWEEN THIS DOCUMENT AND THE APPLICABLE LAW, THE LATTER PREVAILS.

© Hangzhou Hikvision Digital Technology Co., Ltd. All rights reserved.


See Far, Go Further