

LUMINYS

HD Analog Camera

User Manual

Rev. 1

Foreword

General

This manual provides an overview of the functions, configuration, general operation, and system maintenance of the HD analog camera. Please read it carefully before using the platform and store it safely for future reference.

Revision History

Revision	Content	Release Date
1	Initial Release	September 2026

Privacy Protection Notice

As a device user or data controller, you may collect personal data such as facial images, fingerprints, and license plate numbers. It's essential to comply with local privacy laws to safeguard individuals' rights. This includes providing clear identification of surveillance areas and necessary contact information.

Disclaimer

While we strive to ensure the accuracy and completeness of this document, we do not provide any formal guarantees. The use and results derived from this document are the sole responsibility of the user. We also reserve the right to modify its contents without prior notice.

About the Manual

- This manual is for reference only and may have minor discrepancies with the actual product.
- We are not liable for damages resulting from improper operation contrary to this manual.
- The manual will be updated to align with the latest laws and regulations. For more information, refer to the paper manual, scan the QR code, use our CD-ROM, or visit our official website. Minor differences may exist between electronic and paper versions.
- All designs and specifications are subject to change without notice. Product updates may lead to discrepancies between the manual and the actual product. Contact customer service for the latest information and documentation.
- There may be errors or inaccuracies in the descriptions of functions, operations, and technical data. We reserve the right of final interpretation in case of questions or disputes.
- If the manual cannot be opened, please update your reader software or try another compatible reader.
- All trademarks and company names mentioned are the properties of their respective owners.
- For assistance, visit our website or contact your supplier or customer service.
- We reserve the right of final interpretation in case of questions or disputes.

Safety Instructions

The following symbols might appear in the manual.

Symbol	Definition
⚠	Indicates a risk hazard that, if not avoided, may result in death, injury, property damage, data loss, decreased performance, or unpredictable outcomes.

Symbol	Definition
	Offers methods to help you troubleshoot issues or save time.
	Provides more context and information.

Important Safeguards and Warnings

Transportation and Storage Requirements

- Only transport and store the device under the allowed humidity and temperature conditions.
- Use the original manufacturer-provided packaging or equivalent high-quality packaging for safe transportation.
- Avoid applying excessive pressure, exposing the device to strong vibrations, or immersing it in liquid during transit.
- Keep the device away from humid, dusty, extremely hot or cold environments, as well as areas with strong electromagnetic radiation or unstable lighting conditions.
- Avoid placing heavy pressure on the device, exposing it to strong vibrations, or immersing it in liquid during storage.

Installation Requirements

- Adhere to local electrical safety codes and standards, verifying the correct power supply before operating the device.
- Ensure the power supply meets **ES1 in IEC 62368-1** standards and does not exceed PS2. Verify power requirements on the device label.
- It is recommended to use the power adapter provided with the device.
- Do not connect the device to multiple power sources unless explicitly stated, as this may cause damage.
- Install the device in a location accessible only to trained professionals to prevent potential injury to unauthorized individuals. Professionals must be fully aware of all safety precautions and warnings associated with the device.
- Avoid applying excessive pressure, exposing the device to strong vibrations, or submerging it in liquid during installation.
- Ensure an emergency disconnect device is installed in an easily accessible location to allow for immediate power shutoff when necessary
- For enhanced lightning protection, use the device with a lightning protection device. In outdoor environments, strictly follow lightning protection regulations.
- Ground the functional earthing section of the device to enhance reliability. As a Class I electrical appliance, ensure the device is connected to a power socket with protective grounding.

  ⓘ Some models may not have designated earthing holes
- The dome cover is an optical component; avoid direct contact or wiping the surface during installation to prevent damage.

Operation Requirements

- Never open the device cover while the device is powered on.
- Avoid touching the heat dissipation components to prevent the risk of burns.
- Use the device within the specified humidity and temperature ranges.
- Do not aim the device at strong light sources (e.g., lamps, sunlight) when focusing, as this may shorten the lifespan of the CMOS sensor and cause overbrightness or flickering.
- Do not expose the device to laser radiation.
- Do not allow liquid to enter the device.
- Protect indoor devices from rain and moisture to reduce the risk of electric shock or fire.
- Do not obstruct the ventilation openings near the device to prevent heat buildup.

- Ensure that the power cord and wires are not subject to pressure or walking on, especially at plugs, power sockets, and exit points from the device.
- Avoid direct contact with the photosensitive CMOS sensor. Use an air blower to clean the lens from dust or dirt.
- The dome cover is an optical component; avoid direct contact or wiping its surface.
- There may be a risk of electrostatic discharge on the dome cover. Always power off the device when installing the cover after adjusting the camera. Avoid touching the cover and ensure that it is not exposed to other equipment or individuals.
- Enhance the protection of the network, device data, and personal information. Implement necessary security measures such as using strong passwords, regularly updating passwords, keeping firmware updated, and isolating computer networks. For some older IP Camera firmware versions, the ONVIF password may not synchronize automatically after the main system password is changed; you will need to update the firmware or manually change the password.

Maintenance Requirements

- Always follow the provided instructions when disassembling the device. Non-professionals attempting to dismantle the device may cause water leakage or poor image quality. If the device requires disassembly before use, ensure that the seal ring is properly seated in the seal groove when reassembling the cover. If condensation appears on the lens or the desiccant turns green after disassembly, contact after-sales service for desiccant replacement. (Desiccants may not be provided for certain models.)
- Only use manufacturer-approved accessories.
- Only allowed qualified personnel to install, maintain, and operate the device.
- Never touch the photosensitive CMOS directly. Use an air blower to remove dust or dirt from the lens. If cleaning is necessary, slightly moisten a soft cloth with alcohol and gently wipe away dirt.
- Clean the device body with a soft, dry cloth. For stubborn stains, use a cloth lightly dampened with neutral detergent and wipe the surface dry. Avoid using volatile solvents (e.g., ethyl alcohol, benzene, or diluent) or abrasive detergents, as these may damage the coating and degrade the device's performance.
- The dome cover is an optical component. If it becomes dirty with dust, grease, or fingerprints, use degreasing cotton lightly moistened with ether or a clean, soft cloth dipped in water to gently clean it. An air blower is also effective for removing dust.
- Cameras made from stainless steel may develop rust when exposed to corrosive environments (e.g., near the seaside or in chemical plants). To remove rust, use an abrasive soft cloth moistened with a mild acid solution (vinegar is recommended) and gently wipe the rust away. Then, wipe the surface dry.

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Introduction

About the Device

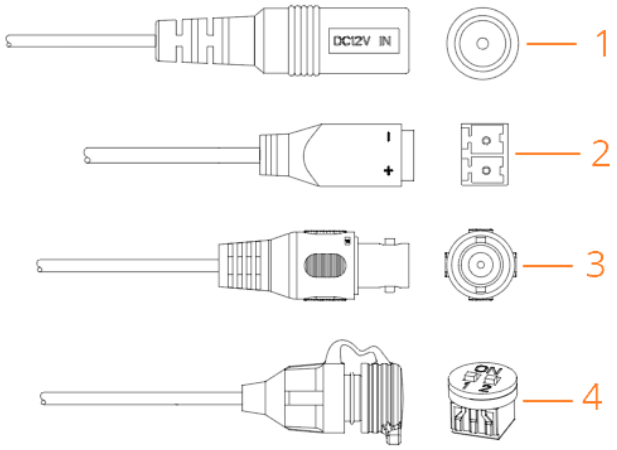
These devices support video and control signal transmission over coaxial cable. They provide megapixel-resolution video and connect to a digital video recorder (DVR) for high-speed, long-distance transmission with no signal delay. Typical applications include roads, warehouses, underground parking facilities, bars, pipelines, and gas stations.

Cable Ports

Refer to the images and table below for more details on the device's cable ports.

ⓘ

- Structural diagrams are provided for reference only and are intended to illustrate the functions of the cable ports.
- Cable configurations may vary by device model. Refer to the actual product for specific details.



Cable Ports

Number	Cable	Description
1	12 VDC Power Input Port	Input 12 VDC power.
2	24 VAC Power Input Port	Input 24 VAC power.
3	Video Output Port	Connects to the DVR to output video signal.
4	DIP Switch	Toggle the switch to change the video output mode. The letter side indicates ON, and the number side indicates OFF. The default output mode is CVI. For details, see the following table.

DIP Switch Reference Table

Switch 1	Switch 2	Output Mode
OFF	OFF	CVI
ON	ON	CVBS
ON	OFF	AHD
OFF	ON	TVI

OSD Menu

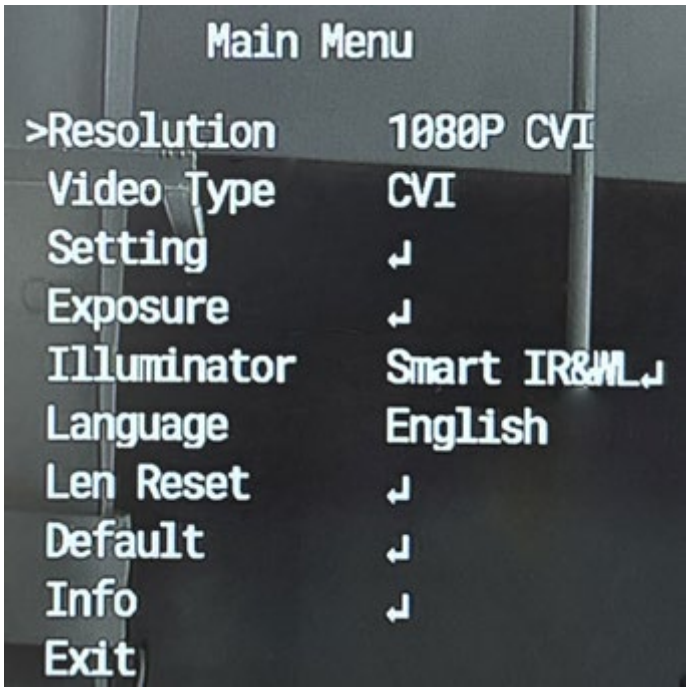
After connecting the camera to the DVR, you can configure the camera settings through the DVR. Follow the steps below to set the camera parameters.

1. Select on the live view control bar to open the PTZ control panel.
2. Select to open the OSD menu. The OSD menu for the selected camera appears on the **Live View** page.



Figure 1

Icon	Description
	• When Video Type is set to CVI, AHD, or TVI, select the icon to enable or disable Auto Focus. • When Video Type is set to CVBS, select the icon to open the OSD menu. The menu appears after approximately 10 seconds. ⓘ For analog cameras with a DIP switch that has already been used to configure Video Type, the OSD menu cannot be opened.
	• When Video Type is set to CVI, AHD, or TVI, select the icon to open the OSD menu. • Select the icon to confirm a menu selection or setting.
/	Select the applicable arrow to move up or down through the OSD menu items.
/	Select the applicable control to switch between the available values for the selected menu item.



OSD Menu

Available OSD menu items vary by camera model and configuration. The OSD menu closes automatically after 90 seconds of inactivity.

Menu Item	Description
Resolution	Displays the camera resolution and video type. Resolution can be configured on supported models.
Video Type	Configures the video output mode for the current channel. Available options include CVI (default), AHD, CVBS, and TVI. ⓘ • The analog camera output mode must match the DVR analog channel input mode. Otherwise, the camera image might not display correctly. Use the following mode mapping: CVI → CVI, AHD → AHD, CVBS → CVBS, and TVI → Others. Alternatively, set the DVR channel to AUTO for automatic compatibility. For details, see Input Mode. • For analog cameras equipped with a DIP switch, configure the output mode using either the DIP switch or the OSD menu. These methods are mutually exclusive. After the DIP switch has been used to configure the output mode, this menu item is permanently hidden. For DIP switch configuration instructions, see the DIP switch cable label or the Analog HD Camera Quick Start Guide.
Setting	Configures the camera image settings. • Mode: Selects the image display mode. Options include Standard, Soft, Vivid, Warm, and Cool. • White Balance: Adjusts the overall image hue to provide natural color reproduction. • Auto (default): Automatically adjusts white balance according to the lighting conditions. • Area WB: Adjusts white balance based on a user-defined area. The position and size of the area can be configured.

	• Sharpness: Adjusts edge definition. Higher values produce sharper edges but might increase image noise. Range: 0 – 10. Default values: Standard (7), Soft (5), Vivid (9), Warm (7), Cool (7).
	• Brightness: Adjusts the overall image brightness. Higher values produce a brighter image. Range: 0 – 10. Default value for all display modes: 7.
	• Contrast: Adjusts the difference between light and dark areas. Higher values increase contrast. Range: 0 – 10. Default values: Standard (7), Soft (7), Vivid (8), Warm (7), Cool (7).
	• Saturation: Adjusts color intensity without affecting overall image brightness. Higher values produce more vivid colors. Range: 0 – 10. Default values: Standard (7), Soft (7), Vivid (10), Warm (7), Cool (7).
	• 2DNR: Reduces image noise. Higher values increase the noise reduction effect. Range: 0 – 10. Default value for all display modes: 7.
	• 3DNR: Reduces image noise using information from consecutive frames. A minimum frame rate of 2 fps is required. Higher values increase the noise reduction effect. Range: 0 – 10. Default value for all display modes: 7.
	• Mirror: Configures the image orientation.
	  ○ H-Mirror: Flips the image horizontally. Options: Off (default) and On.
	  ○ V-Mirror: Flips the image vertically. Options: Off (default) and On.
	• Audio Mode: Adjusts the volume of the camera's built-in microphone.
	ⓘ Audio Mode is available only when Video Type is set to CVI.

Exposure	Configures the camera exposure settings.
	• Backlight Mode: Configures backlight compensation for the image.
	  ○ Off: Disables backlight compensation.
	  ○ BLC: Compensates for overexposed or underexposed areas to maintain appropriate exposure for the subject. Range: 1–5 (default: 3).
	  ○ HLC: Reduces the effect of bright areas to improve the visibility of details such as faces and license plates under strong lighting. Suitable for locations such as toll stations and parking lot entrances or exits. Range: 1–5 (default: 3).
	  ○ WDR: Balances bright and dark areas to improve overall image visibility. Range: 1–5 (default: 3)
	• Exposure Mode: Configures how the camera controls image exposure.
	  ○ Auto: Automatically adjusts exposure according to the current lighting conditions.
	  ○ Manual: Allows manual exposure adjustment by configuring the shutter speed. Available fixed shutter speeds include 1/30, 1/60, 1/100, 1/120, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000, and 1/100000. A custom shutter range can also be configured using Shutter Max/Min from 0–33 ms.
	• Gain Max Limit: Sets the maximum gain value. Range: 0 – 15. The default value varies by camera model.
	• Gain Min Limit: Sets the minimum gain value. Range: 0 – 15 (default: 0).

	• Exposure Level: Selects a preset exposure level for quick adjustment. Range: 0 – 10 (default: 7).Saturation: Adjusts color intensity without affecting overall image brightness. Higher values produce more vivid colors. Range: 0 – 10. Default values: Standard (7), Soft (7), Vivid (10), Warm (7), Cool (7).
	• Anti-flicker: Configures the anti-flicker frequency according to the installation environment.
	  ○ 50 Hz: Automatically adjusts exposure for environments with a 50 Hz power frequency to reduce image flicker or banding.
	  ○ 60 Hz: Automatically adjusts exposure for environments with a 60 Hz power frequency to reduce image flicker or banding.
	  ○ Outdoor: Allows the exposure mode to be configured as needed for outdoor environments.

Day/Night	• Auto: Automatically switches between color and black-and-white based on ambient lighting conditions.
	  ○ Day/Night: Sets the light level at which the camera switches from color to black-and-white. Range: 1 – 19 (default: 6).
	  ○ Night/Day: Sets the light level at which the camera switches from black-and-white to color. Range: 2 – 20 (default: 12).
	  ○ Waiting Time: Sets the delay before switching modes after the ambient light level changes. Range: 1 – 15 (default: 2). This delay helps prevent frequent switching caused by temporary changes in lighting.
	• Color: Displays the image in color at all times.
	• Black/White: Displays the image in black-and-white at all times.
	ⓘ This function is available only when Illuminator is set to IR Mode.

Illuminator	Configures the camera illuminator mode. Available options include Smart IR&WL, WL Mode, and IR Mode.
	• Smart IR&WL: Automatically adjusts the use of white light and IR illumination according to ambient lighting conditions..
	  ○ WL Level: Adjusts the intensity of the white light. Higher values provide brighter illumination. Range: 1–5 (default: 5)
	  ○ IR Level: Adjusts the intensity of the IR illumination. This setting is available only when the camera is in Black/White mode to prevent IR illumination from affecting color reproduction. Range: 0–15 (default: 7).
	• WL Mode: Configures white light operation under low-light conditions.
	  ○ On: Enables the white light and switches the camera to full-color mode. The dimming level can be adjusted from 1 – 5 (default: 3).
	  ○ Auto: Automatically activates the white light according to ambient lighting conditions. When activated, the camera operates in full-color mode. Dimming level: 1 – 5 (default: 5). Sensitivity: 1 – 5 (default: 3). When the white light is not activated, the camera relies on ambient light.
	  ○ Off: Disables the white light. The camera relies on ambient light, and full-color images are not guaranteed.
	• IR Mode: Configures IR illumination under low-light conditions.

	○ On: Enables IR illumination and switches the camera to black-and-white mode. The dimming level can be adjusted from 0–15 (default: 7) when the camera is in Black/White mode. ○ Auto: Automatically activates IR illumination according to ambient lighting conditions. When activated, the camera operates in black-and-white mode. The dimming level can be adjusted from 0 – 15 (default: 7) when the camera is in Black/White mode. When IR illumination is not activated, the camera relies on ambient light. ○ Off: Disables IR illumination. The camera relies on ambient light.
Language	Select a language for the OSD menu (English, Spanish, French).
Lens Reset	This feature is only available on select camera models.
Default	Restores default configurations.
Info	See the camera firmware version.
Exit	Close the OSD menu.

Related Operations

- If the OSD item value contains the symbol, click to navigate to the next level.
- Click to select **Return**. Click to go back to the previous level.
- Click to select **Cancel**. Click to exit the OSD menu without saving changes.

Appendix: Cybersecurity Recommendations

Account Management

1. **Use complex passwords.**

Follow the guidelines below to create a strong password:

- The password should be at least 8 characters long.
- Include at least two types of characters: uppercase letters, lowercase letters, numbers, and symbols.
- Avoid using the account name or its reverse.
- Do not use consecutive characters (e.g., 123, abc).
- Do not use repeating characters (e.g., 111, aaa).

2. **Change passwords periodically.**

It's advisable to regularly change the device password to minimize the risk of it being guessed or cracked.

3. **Allocate accounts and permission appropriately.**

Add users based on service and management needs, assigning the minimum necessary permissions

4. **Enable account lockout function.**

The account lockout function is enabled by default. Keep it enabled to enhance account security; after multiple failed login attempts, the corresponding account and source IP address will be locked.

5. **Set and update password reset information in a timely manner.**

The device supports a password reset function. To reduce the risk of unauthorized access, update this information promptly if there are any changes. When setting security questions, avoid using easily guessed answers

Service Configuration

1. **Enable HTTPS.**

It’s recommended to enable HTTPS for secure access to web services

2. **Change passwords periodically.**

If your audio and video data contents are important or sensitive, use encrypted transmission function to reduce the risk of your audio and video data being eavesdropped on during transmission.

3. **Allocate accounts and permission appropriately.**

It's advisable to disable services such as SSH, SNMP, SMTP, UPnP, and AP hotspot when not in use or required to reduce attack surfaces. If these services are necessary, consider the following safe modes:

- **SNMP**: Use SNMP v3 with strong encryption and authentication passwords.
- **SMTP**: Use TLS for accessing the mailbox server.
- **FTP**: Use SFTP with complex passwords.
- **AP Hotspot**: Use WPA2-PSK encryption with complex passwords.

4. **Enable account lockout function.**

It is advisable to change the default ports for HTTP and other services to any port between 1024 and 65535 to reduce the risk of being targeted by threat actors.

Network Configuration

1. **Enable Allowlist.**

It is recommended to enable the allow list function and only permit IP addresses on the allow list to access the device. Be sure to add your computer's IP address and any supporting device IP addresses to the allow list

2. **MAC address binding.**

It is advisable to bind the gateway's IP address to the device's MAC address to mitigate the risk of ARP spoofing.

3. **Build a secure network environment.**

To enhance device security and reduce potential cyber risks, the following measures are recommended:

- **Disable Port Mapping**: Turn off the port mapping function on the router to prevent direct access to internal devices from the external network.
- **Network Partitioning**: Based on actual network needs, partition the network. If there is no communication requirement between two subnets, consider using VLANs and gateways to achieve network isolation.
- **Implement 802.1x Access Authentication:** Establish an 802.1x access authentication system to minimize the risk of unauthorized terminal access to the private network.

Security Auditing

1. **Check online users.**

Check online users regularly to identify illegal users

2. **Check device logs.**

Review logs to learn about the IP addresses attempting to log in and track key operations performed by authorized users

3. **Configure network logs.**

The device can only retain a limited number of logs. To save logs for an extended period, it's recommended to enable the network log function to synchronize critical logs to a network log server for future reference

Software Security

1. **Update firmware on time.**

It is important to update device firmware to the latest version to ensure access to the latest features and security enhancements. If the device is connected to the public network, enable the automatic detection function for online upgrades to receive timely firmware update notifications from the manufacturer

2. **Update client software on time.**

It is recommended to download and use the latest client software.

Physical Protection

It is recommended to implement physical protection for devices, especially storage devices. Consider placing them in a dedicated machine room or cabinet and establish access control and key management to prevent unauthorized personnel from damaging hardware and peripheral equipment (e.g., USB flash drives, serial ports).

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