



LG

Life's Good

OWNER'S MANUAL

Network Dome Camera

Please read this manual carefully before operating your set and retain it for future reference.

MODELS

LW9228 Series

LW9228I Series

LW9226 Series

LW9226I Series

1

Safety Information



CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK
DO NOT REMOVE COVER (OR BACK)
NO USER-SERVICEABLE PARTS INSIDE
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



This lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated dangerous voltage within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

FCC WARNING: This equipment may generate or use radio frequency energy. Changes or modifications to this equipment may cause harmful interference unless the modifications are expressly approved in the instruction manual. The user could lose the authority to operate this equipment if an unauthorized change or modification is made.

REGULATORY INFORMATION: FCC Part 15

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.

- A suitable conduit entries, knock-outs or glands shall be provided in the cable entries of this product in the end user.
- Caution: Danger of explosion if battery is incorrectly replaced. Replaced only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.
- Holes in metal, through which insulated wires pass, shall have smooth well rounded surfaces or shall be provided with brushings.

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

Warning: Do not install this equipment in a confined space such as a bookcase or similar unit.

Warning: Wiring methods shall be in accordance with the National Electric Code, ANSI/NFPA 70.

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.

Warning: To reduce a risk of fire or electric shock, do not expose this product to rain or moisture.

Caution: This installation should be made by a qualified service person and should conform to all local codes.

Caution: To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.

Caution: The apparatus should not be exposed to water (dripping or splashing) and no objects filled with liquids, such as vases, should be placed on the apparatus.

To disconnect power from mains, pull out the mains cord plug. When installing the product, ensure that the plug is easily accessible.



LG Electronics hereby declares that this/ these product(s) is/are in compliance with the essential requirements and other relevant provisions of Directive 2004/108/EC, 2006/95/EC, and 2009/125/EC.

European representative :

LG Electronics Service Europe B.V.
Veluwezoom 15, 1327
AE Almere. The Netherlands
(Tel : +31-(0)36-547-8888)

Disposal of your old appliance



1. When this crossed-out wheeled bin symbol is attached to a product it means the product is covered by the European Directive 2002/96/EC.
2. All electrical and electronic products should be disposed of separately from the municipal waste stream via designated collection facilities appointed by the government or the local authorities.
3. The correct disposal of your old appliance will help prevent potential negative consequences for the environment and human health.
4. For more detailed information about disposal of your old appliance, please contact your city office, waste disposal service or the shop where you purchased the product.

EEE Compliance with Directive. (for Turkey only)

IMPORTANT SAFETY INSTRUCTIONS

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.



13. Unplug this apparatus during lightning storms or when unused for long periods of time.

14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

Safety Precautions

- Do not attempt to disassemble the camera
To prevent electric shock, do not remove screws or covers. There are no user serviceable parts inside. Ask a qualified service personnel for servicing.
- Avoid the camera with direct sunlight
Do not aim the camera at bright objects. Whether the camera is in use or not, never face it with direct sunlight or other extremely bright objects. Otherwise blooming or smear may be caused.
- Handle the camera with care
Do not abuse the camera. Avoid striking, shaking, etc. The camera could be damaged by improper handling or storage.
- Do not use strong solvents or detergents
Use a dry cloth to the camera when it is dirty. If it is hard to remove the dirt on the camera, use a mild detergent and wipe it gently.
- Do not install this camera upside down
This camera is designed for mounting on the ceiling or wall. If you install this camera upside down, for example, mounted on the floor, it may cause malfunction.
- Do not use the camera in such places as shown below. The lens may become cloudy due to condensation if the camera is used under the following conditions.
 - › Rapid temperature fluctuation by switching an air conditioner on and off.
 - › Rapid temperature fluctuation due to frequent door opening and closing.
 - › Use in an environment where eyeglasses become foggy.
 - › Use in a room filled with cigarette smoke or dust.
 If the lens becomes cloudy due to condensation, remove the dome cover and wipe all moist surfaces with a soft cloth.

- Before operating, please check proper temperature, humidity and power source ratings. Use the camera under conditions where temperature is from -10 °C to 50 °C and humidity is below 80 %. The input power source is AC 24 V.
- Consumables
Parts having contacts such as the lens-drive motors, cooling fan built inside the camera are subject to wear with time. About replacement and maintenance of such parts, please ask the nearest service center.

Camera Installation Location

Discuss the installation location for the camera with your retailer, and select a place that is strong enough for the installation.

- Install the camera on a ceiling (concrete, etc.) at a location that is sufficiently strong to support it.
- Install the camera body on the foundation section of the building or sections having sufficient bearing strength.

Never install or use the camera in the following locations

- Do not install it in areas exposed to direct sunlight or rain.
- Do not install the camera near the air outlet of an air conditioner.
- Near a swimming pool or other areas where chemicals are used.
- Food preparation areas and other locations where there are large amounts of steam vapor and oil, in flammable atmospheres, other special environments.
- Areas where radiation, X-rays, strong electric waves, or magnetism is generated.
- At sea, in coastal areas, or in areas where corrosive gas is being generated.
- Areas outside of the allowable ambient operating temperature range.

About Static Electricity Removal

Before installing the camera, touch a metal case or other metallic parts with your hand to remove static electricity from your body.

Do not install in areas subjected to high amounts of humidity or dust.

Doing so may cause internal components to damage more easily or malfunction.

Do not wire cables near power lines.

Tightening the Screws

Screws should be tightened sufficiently in accordance with the materials and structure of the installation location. After tightening the screws, visually inspect them to make sure there is no unevenness and that each screw is tight.

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2 Preparation

Introduction

The LG Network Camera is designed to use on an Ethernet network and must be assigned an IP address to make it accessible.

This manual contains instructions on how to install and manage the LG Network Camera in your networking environment. Some knowledge of networking environments would be beneficial to the reader.

Should you require any technical assistance, please contact authorized service center.

Features

- **High Sensitivity Support**
The camera provides the high quality picture with 4.5 mm EX-view HAD CCD.
- **Preset Position**
Preset position is the function to register camera monitoring positions (preset positions). Maximum 128 Preset Positions are available. By entering the position numbers, you can move cameras to the preset positions. The moving speed and holding time are adjustable.
- **Preset Tour**
Preset Tour is the function to go through all the registered camera monitoring positions (preset positions). During the working PRESET TOUR, The FOCUS could not be operated properly under -10 °C (for LW9226(l) series only)
- **Group Tour**
Maximum 9 group tours are able to compose the group of preset, pattern, auto pan that the operator can program to be linked together in a sequence.
- **Pattern recording function**
A routine of manual operations can be stored and reproduced repeatedly. The Pan, Tilt and Zoom controls are available for pattern recording.



NOTE

The available total time of pattern differs depending on camera's operation. When the pattern recording is full, the pattern recording will automatically stop.

- **Privacy Mask**
Privacy zone feature enables users to veil unwanted zones. This setting is used for masking unwanted zones, hiding them from display on the monitor screen. Up to 8 zones can be registered.
- **Auto Pan**
The camera has an Auto Pan function that enables to keep surveillance on every detail occurring around the specific area, which is preset to watch in advance. The camera can pan among the maximum 8 points you will set. The moving speed and holding time are adjustable.
- **Auto Flip**
When the camera is operated to tilt through the 90°, it can be watched the opposite side of the locations by Auto Flip of a 180° horizontally.
- **Optical Zoom**
 - LW9228(l) series: The optical zoom range is 1x to 37x.
 - LW9226(l) series: The optical zoom range is 1x to 27x.
- **Digital Zoom**
Digital zoom enhances the systems zoom range to 12 times beyond the optical zoom limit. Total system zoom range is below.
 - LW9228(l) series: 37x (1x digital zoom) to 444x (12x digital zoom)

- LW9226(l) series: 27x (1x digital zoom) to 324x (12x digital zoom)

- **Alarm In function (4 channels)**

Alarm input signals are supplied from external devices through the ALARM IN connector.

- **Alarm Out function (2 channels)**

When an event occurs, the camera sends output signals via the alarm output connector on the camera.

- **Day & Night Function**

This camera can be selected Color or Black & White. You can set Color in the daytime and Black & White at night due to the low illumination. (Filter Conversion type)

- **DSS (Digital Slow Shutter) function**

It is possible to highly sensitive surveillance because of DSS(Digital Slow Shutter) function.

- **WDR (Wide Dynamic Range) function**

The camera can be best condition to watch easily inside or outside in the strong back light.

- **Power Supply**


This camera must always be operated a AC 24 V. Certified/Listed, class 2 power supply only.

- **Auto Tracking**

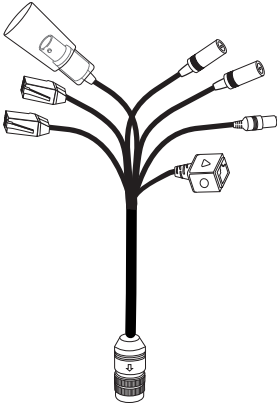


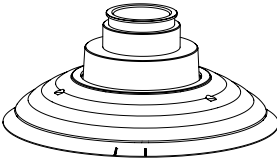
This feature enables the camera to detect a moving object and track its movement automatically. Based on the configuration, it is possible to zoom in the object to identify it clearly.

Accessories

For LW9226I/LW9228I series

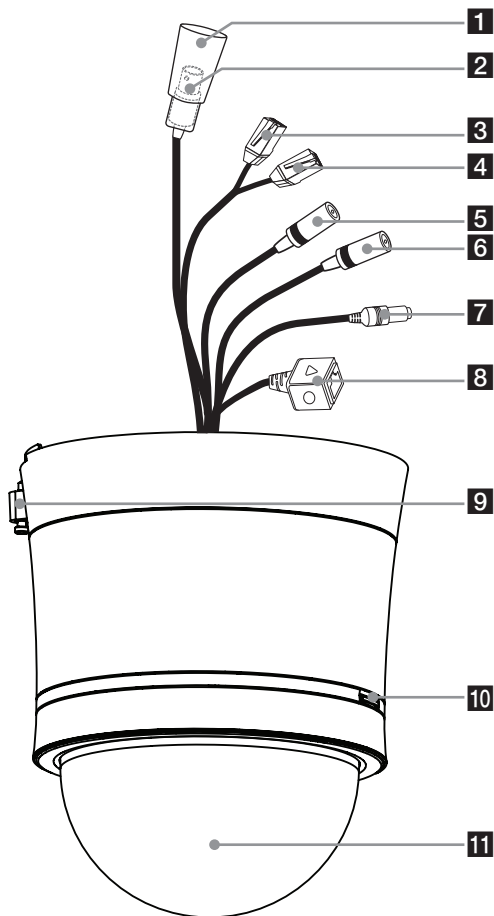
RJ-45 Adapter cable	
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For LW9226/LW9228 series

Camera main cable	
RJ-45 adapter cable	
Wrench	
PIPE Installation Bracket	

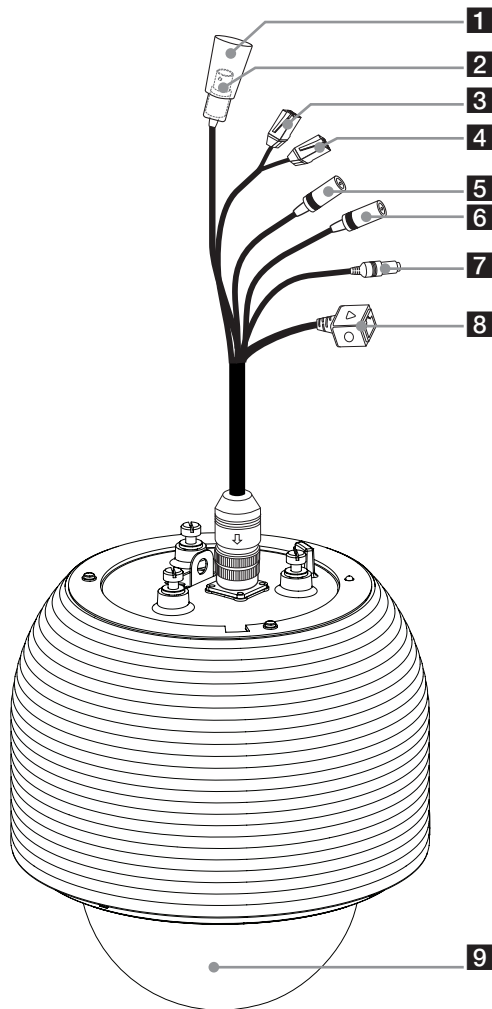
Part Names and Functions

LW9228I/LW9226I series for Indoor



- 1 BNC connector cover cap**
- 2 Video output BNC connector**
Supplies analog video signal (composite) to the connected device.
- 3 Data Port A (RJ-45)**
Input data port for alarm (relay) signal. RS-485 data communication is not available.
- 4 Data Port B (RJ-45)**
Output data port for alarm (relay) signal.
- 5 AUDIO IN (Line Level Input)**
Input for a mono microphone, or a line-in mono signal.
- 6 AUDIO OUT (Line Level Output)**
Connect to an active speaker with a built-in amplifier.
- 7 Power input jack**
Connects to a AC 24 V power supply using proper cables.
- 8 ETHERNET Port**
Connects to a PC or a network via a hub with a 10 BASE-T/100 BASE-TX cable attached RJ-45 connector.
- 9 Locking screw**
Tighten this screw to fixing the Ceiling Mount Assembly with camera body.
- 10 Dome Cover open button.**
- 11 Dome Cover**

LW9228/LW9226 series for Outdoor



- 1 BNC connector cover cap**
- 2 Video output BNC connector**
Supplies analog video signal (composite) to the connected device.
- 3 Data Port A (RJ-45)**
Input data port for alarm (relay) signal. RS-485 data communication is not available.
- 4 Data Port B (RJ-45)**
Output data port for alarm (relay) signal.
- 5 AUDIO IN (Line Level Input)**
Input for a mono microphone, or a line-in mono signal.
- 6 AUDIO OUT (Line Level Output)**
Connect to an active speaker with a built-in amplifier.
- 7 Power input jack**
Connects to a AC 24 V power supply using proper cables.
- 8 ETHERNET Port**
Connects to a PC or a network via a hub with a 10 BASE-T/100 BASE-TX cable attached RJ-45 connector.
- 9 Dome Cover**

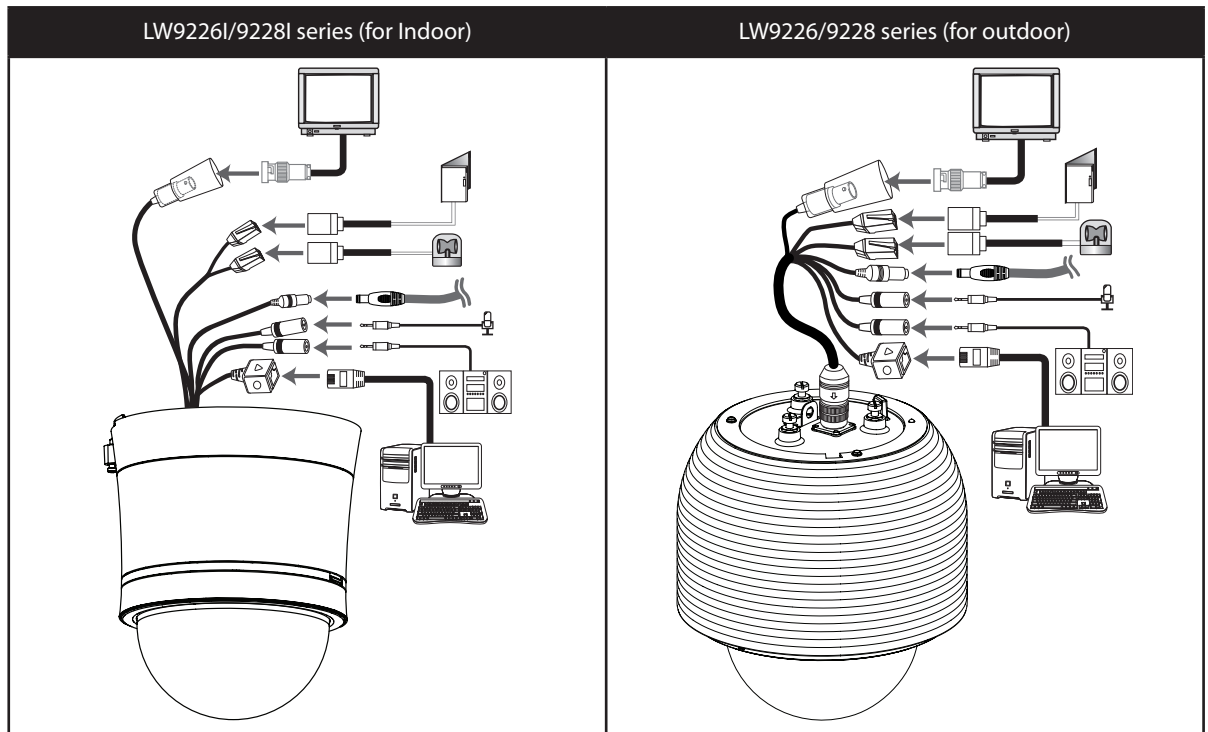
3 Installation

Connections

Precautions

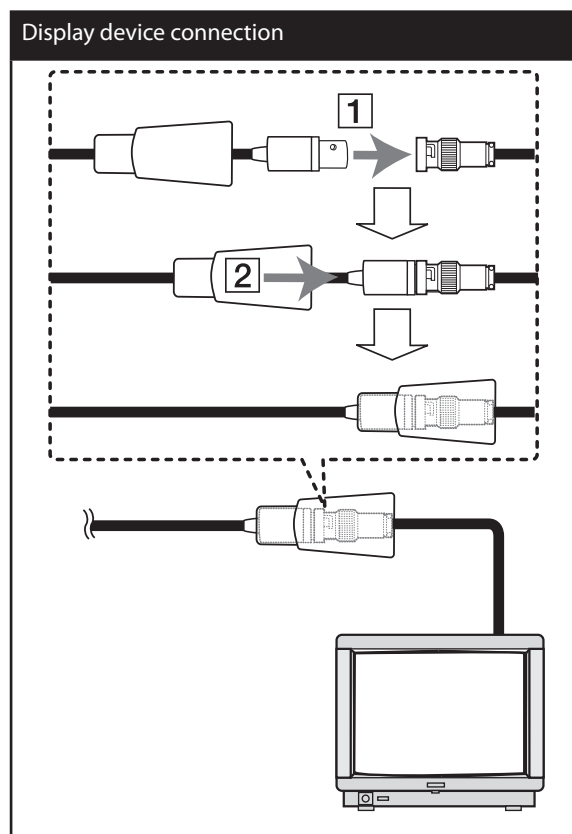
- The following steps of installation and connection work should be done by qualified service personnel or system installers and should conform to all local codes.
- Before you install and connect the camera, check and prepare the required peripheral devices and cables.
- Before you connect the camera, turn off all devices to be connected, such as this camera and DVR.
- Do not touch the dome cover's window.

Basic Connection Overview



Connecting Display device

The video signal connection between the camera and the monitor.



ALARM input connection

You can connect up to 4 alarm sensors to the camera. Each alarm sensor should be connected with Alarm IN COM. You can adjust the signal state to NO (normally open) or NC (normally closed) through the setup menu.

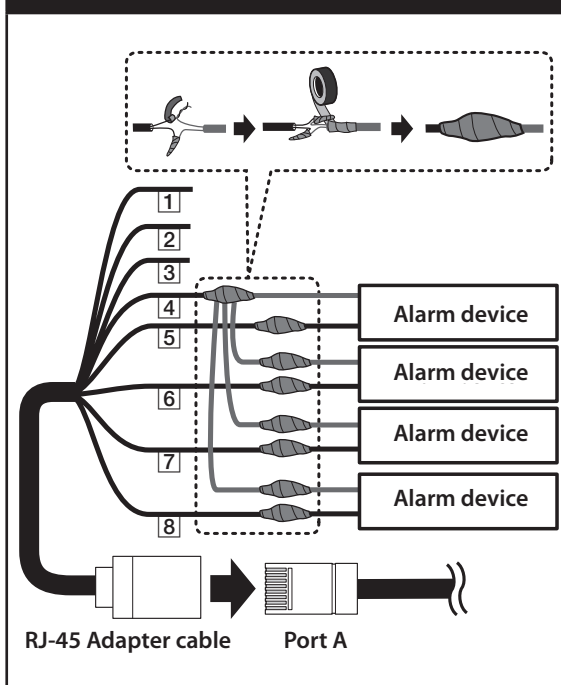
1. Connect the RJ-45 Adapter cable to the PORT A (RJ-45) cable of the camera.
2. Connect the alarm device to the RJ-45 Adapter cable. When connecting lines, check and connect the color lines of the each device correctly. Refer to the below tables for color line information.



CAUTION

Do not connect one alarm sensor to the several camera's alarm input connector.

Alarm input connection



RJ-45 Adapter cable

No	Description	Color
1	RS-485 +	White
2	RS-485 -	Orange
3	NC	Black
4	ALARM IN COM	Red
5	ALARM IN 1	Green
6	ALARM IN 2	Yellow
7	ALARM IN 3	Blue
8	ALARM IN 4	Brown

PORT A of the LW9228I/9226I series	
Description	Color
RS-485 +	Red/White
RS-485 -	Black/White
NC	
ALARM IN COM	Red
ALARM IN 1	White
ALARM IN 2	Light Green
ALARM IN 3	Yellow
ALARM IN 4	Pink

PORT A of the LW9228/9226 series	
Description	Color
RS-485 +	Green
RS-485 -	Blue
NC	
ALARM IN COM	Yellow
ALARM IN 1	Pink
ALARM IN 2	Gray
ALARM IN 3	White
ALARM IN 4	Violet

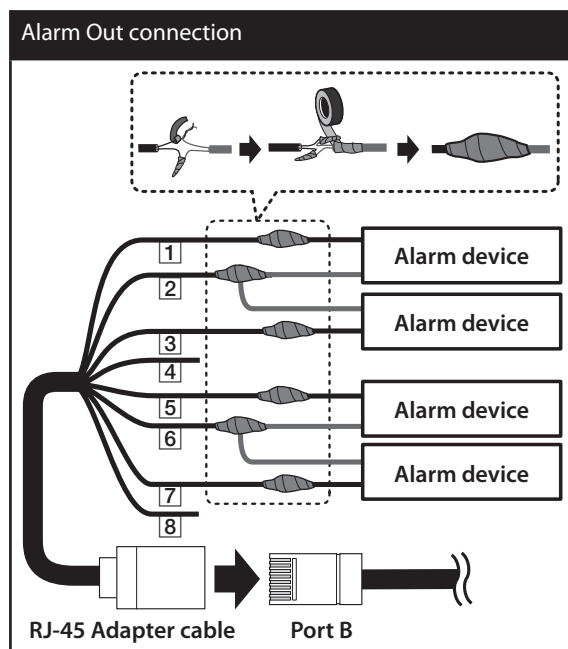
**NOTE**

RS-485 data communication is not available.

ALARM output connections

Connect the alarm device to the alarm output data port. Alarm signal output at an event occurrence. You can set the Alarm Output to the normal open or normal close mode.

1. Connect the RJ-45 Adapter cable to the PORT B (RJ-45) cable of the camera.
2. Connect the alarm device to the RJ-45 Adapter cable. When connecting lines, check and connect the color lines of the each device correctly. Refer to the below tables for color line information.



RJ-45 Adapter cable

No	Description	Color
1	ALARM OUT [NO1]	White
2	ALARM OUT [COM1]	Orange
3	ALARM OUT [NC1]	Black
4	NC	Red
5	ALARM OUT [NO2]	Green
6	ALARM OUT [COM2]	Yellow

7	ALARM OUT [NC2]	Blue
8	NC	Brown

PORT B of the LW9228I/9226I series

Description	Color
ALARM OUT [NC1]	Blue
ALARM OUT [COM1]	Violet
ALARM OUT [NO1]	Brown
NC	
ALARM OUT [NC2]	Gray
ALARM OUT [COM2]	Orange
ALARM OUT [NO2]	Black
NC	

PORT B of the LW9228/9226 series

Description	Color
ALARM OUT [NO1]	White Blue
ALARM OUT [COM1]	Beige
ALARM OUT [NC1]	Black
NC	
ALARM OUT [NO2]	Brown
ALARM OUT [COM2]	Red
ALARM OUT [NC2]	Orange
NC	



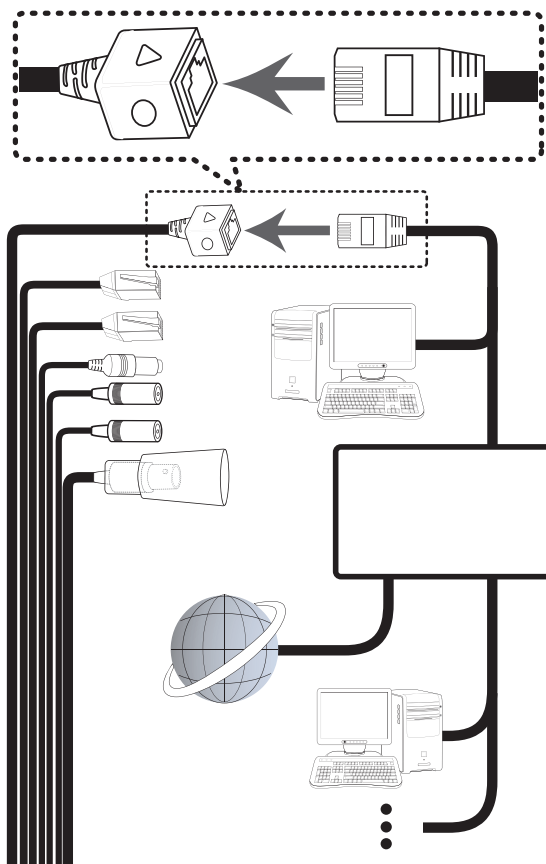
CAUTION

Output specifications are lowactive, open-collector and a drive capacity of 30 V DC 0.5 A maximum. Connecting the alarm out incorrectly may cause damaging the camera.

Connecting Network

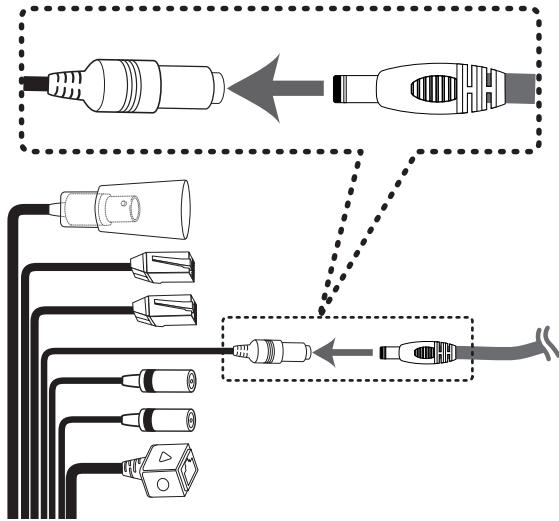
You can control and monitor the system via network. With the remote control (monitoring), you can change the system configuration or monitor the image via network. After the installation, check the network settings for the remote control and monitoring work.

Connect the IP camera to your network using a standard RJ-45 network cable as shown below.



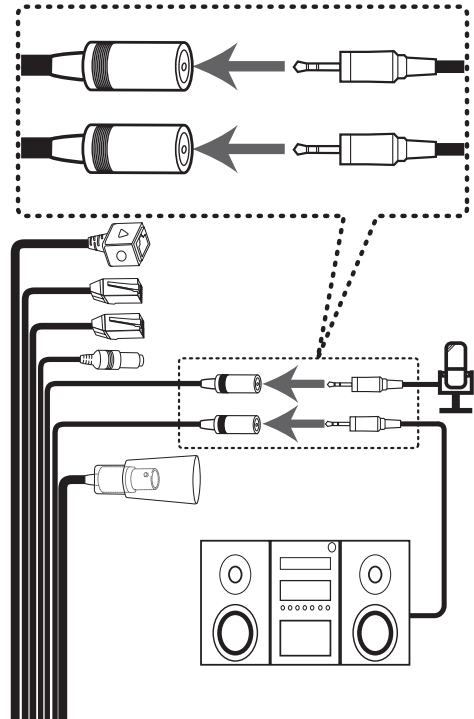
Connecting power source

Connect a AC 24 V power source to the power input terminal as shown below.



Connecting Microphone and Speaker Device

Optionally connect an active speaker and/or external microphone with a built-in amplifier.



NOTE

Keep the microphone away from the speaker to avoid howling.

Mounting the camera

You can mount the camera on the ceiling or wall.

Removing the Protection Tape

You should remove the protection tape before installing the camera.

Remove the protection tape carefully.

For LW9226/9228 series models.

1. Loosen the screws using the wrench and remove the dome cover.
2. Remove the protection tape and attach the dome cover.

For LW9226I/9228I series models.

1. Press the Dome Cover open button and then disassemble the dome cover by using ALIGN mark.
2. Remove the protection tape and attach the dome cover.



CAUTION

You must align the OPEN and LOCK mark correctly when you turn the dome cover to open or close.
If you do not align the mark, it causes a malfunction.

Surface mount (optional)

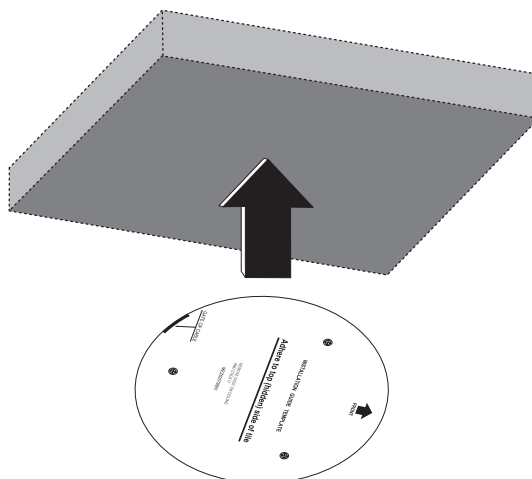
Follow the instructions below to surface mount the camera.



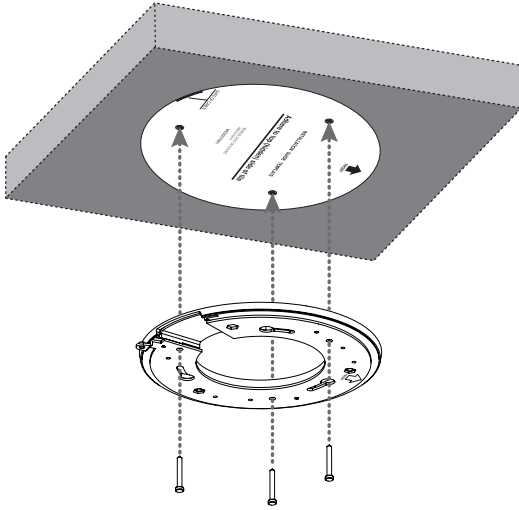
CAUTION

The building structure must be able to support 8 kg.

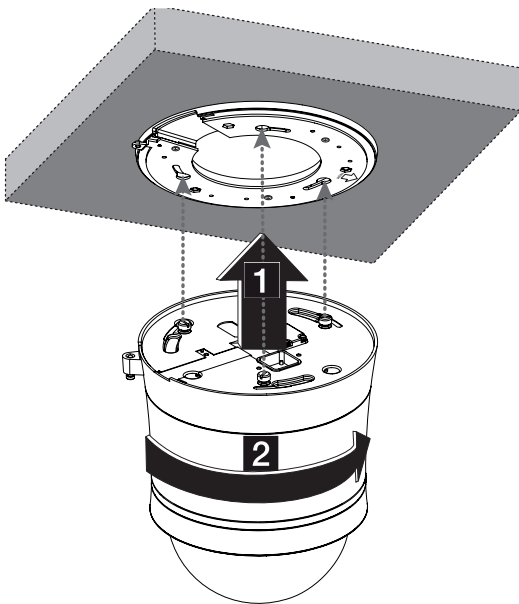
1. Use the installation guide template to check the mounting location. Face the front of the label toward the area of interest.



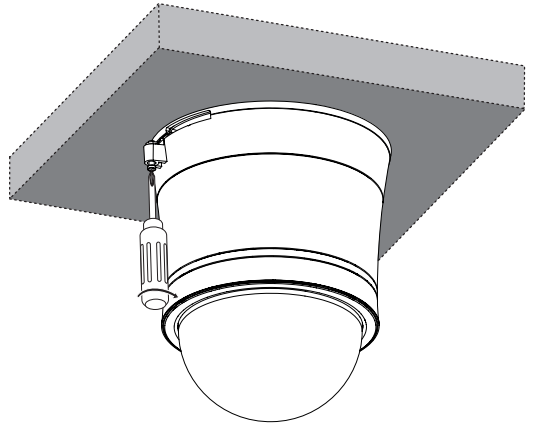
2. Install the surface mounting bracket on the ceiling.



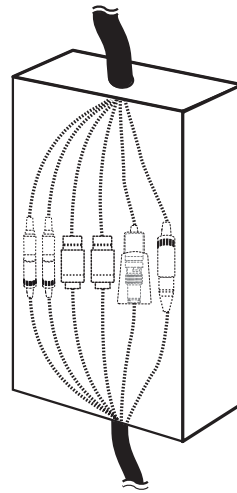
3. Assemble the camera and the surface mounting bracket by following step **1** and **2**. Align the locking point of the surface mounting bracket and the camera.



4. Tighten the locking screw.



5. Connect the cables to the cable jacks of the camera body. After installing the camera, you should arrange the cables using the outlet box to protect the cables.



Ceiling mount (optional)

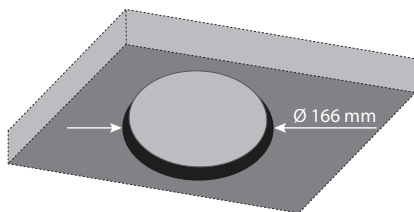
Follow the instructions below to mount the camera on the ceiling.



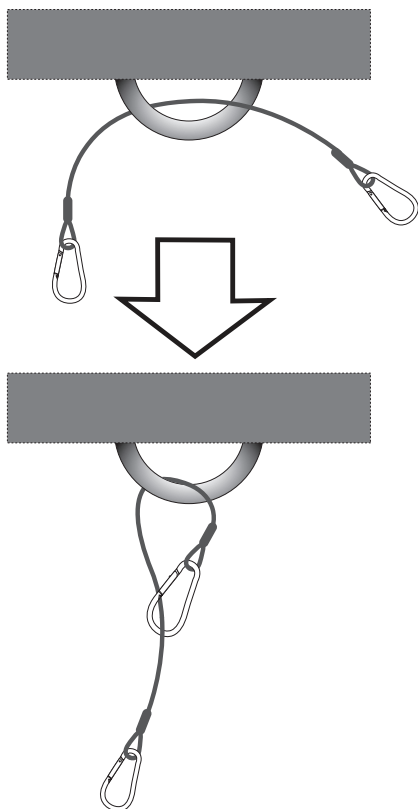
CAUTION

The building structure must be able to support 8 kg.

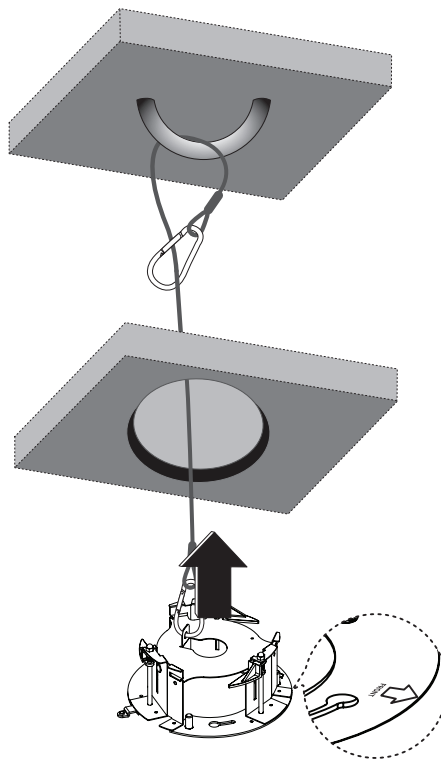
1. Make a hole through the ceiling as shown below.



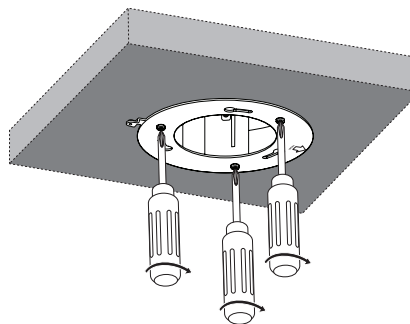
2. Fasten the safety cable to the building superstructure. The building superstructure can vary depending on your installation environment.



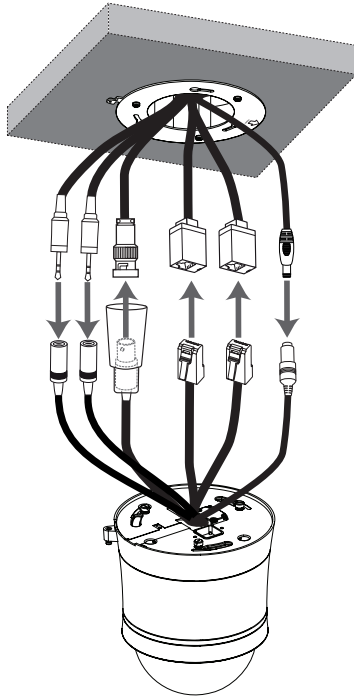
3. Install the ceiling mounting bracket on the ceiling. Face the front of the ceiling mounting bracket toward the area of interest.



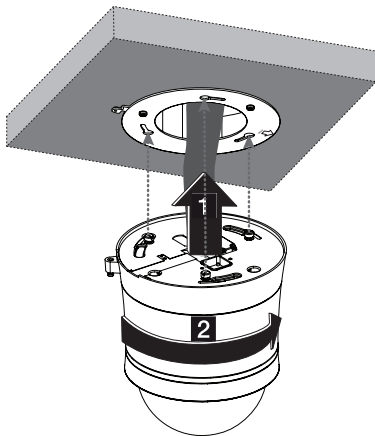
4. Tighten the screws until the ceiling mounting bracket holds the ceiling firmly.



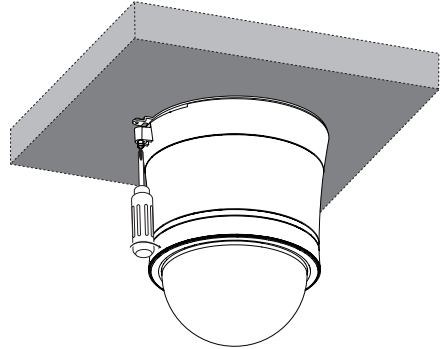
5. Pass the connection cable through the inner side of the ceiling. Connect the cables to the cable jacks of the camera body.



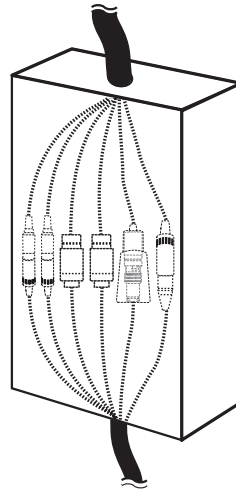
6. Assemble the camera and ceiling mounting bracket by following step **1** and **2**. Align the locking point of the surface mounting bracket and the camera.



7. Tighten the locking screw.



8. Connect the cables to the cable jacks of the camera body. After installing the camera, you should arrange the cables using the outlet box to protect the cables.



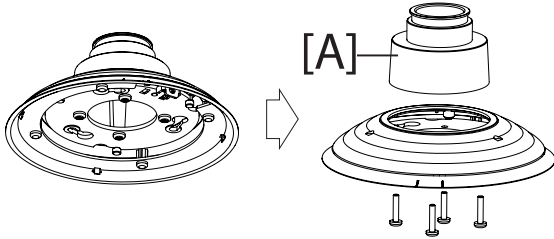
CAUTION

Do not expose the connected part of the camera cable jacks in the rain or moisture.

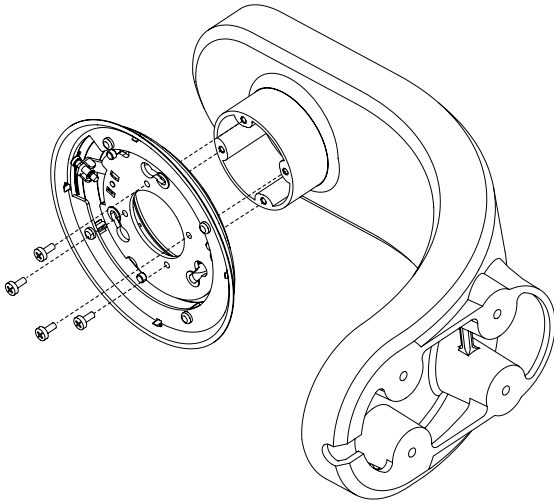
Wall mount (optional)

Install the camera by the following order.

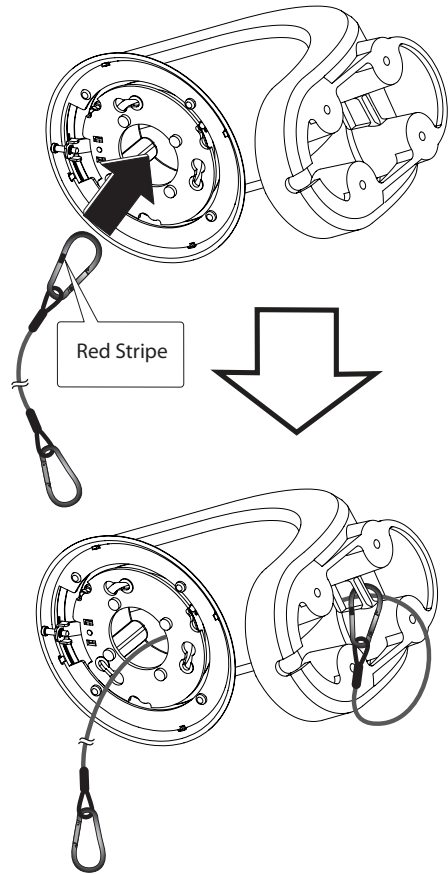
1. Disassemble the PIPE Installation Bracket to remove the [A] part.



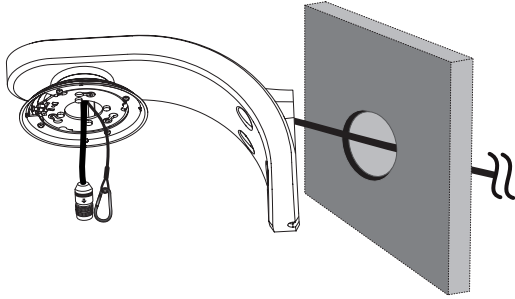
2. Install the PIPE Installation Bracket to the Wall Mount assembly.



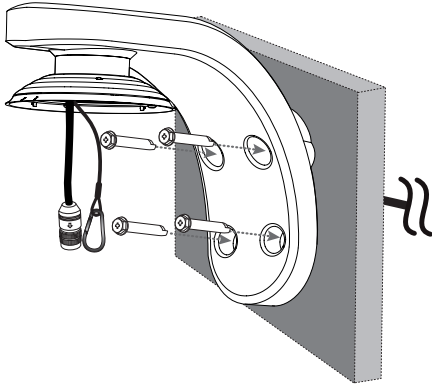
3. Connect the safety cable to the wall mount assembly.



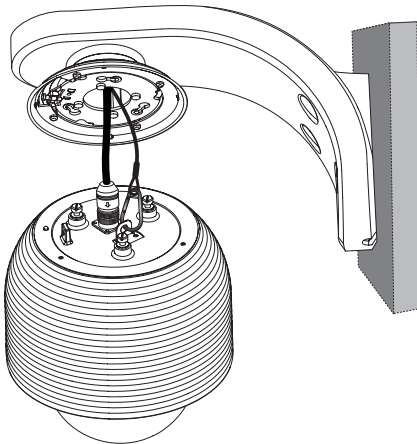
4. Drill a hole on the wall where you want to install the pipe. Pass the connection cable through the wall mount assembly so that they hang down.



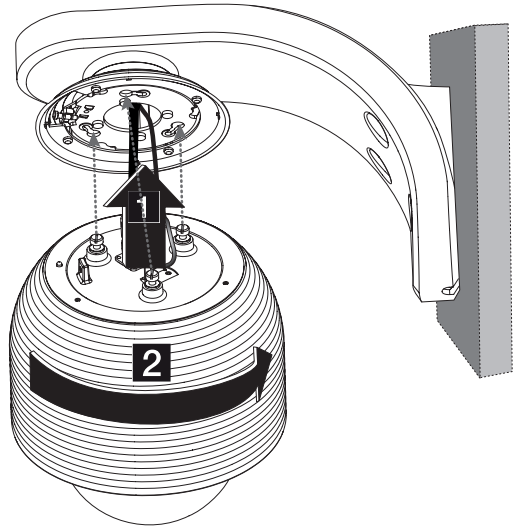
5. Install the wall mount assembly.



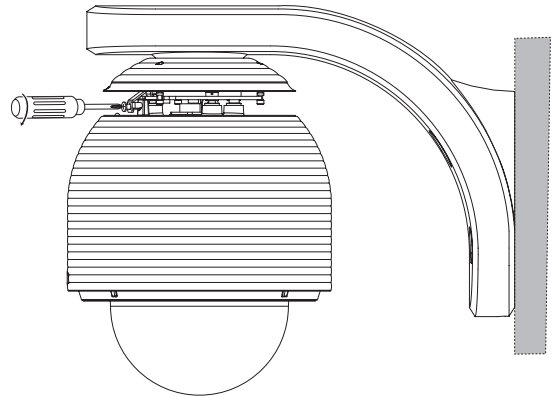
6. Connect the connection cable and the safety cable to the camera body.



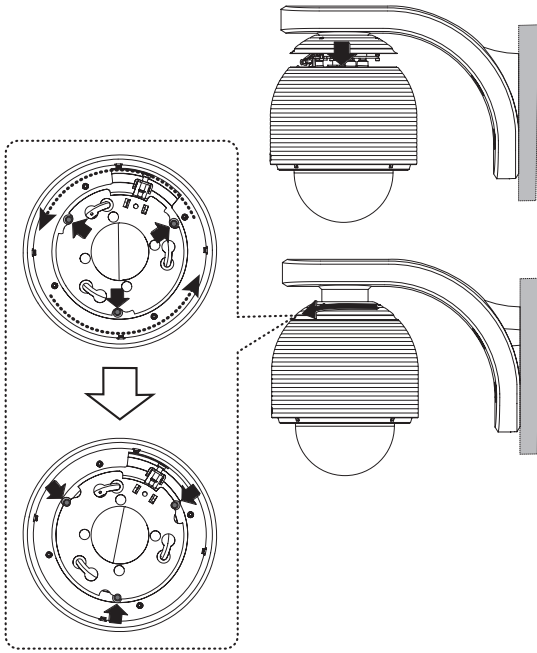
7. Attach the camera to the camera assembly bracket by following step **1** and **2**. Align the locking point of the wall mount assembly and the camera.



8. Tighten the locking screw.

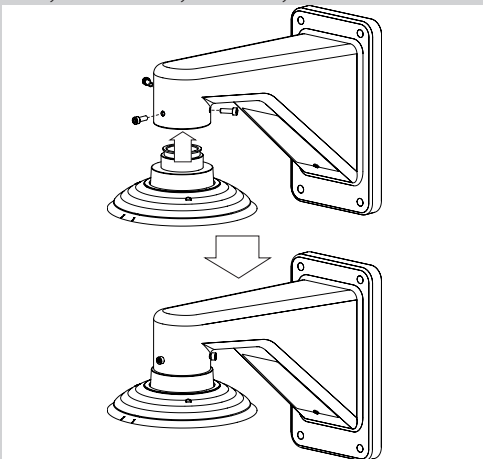


9. Assemble the camera cover as shown below.



! **NOTE**

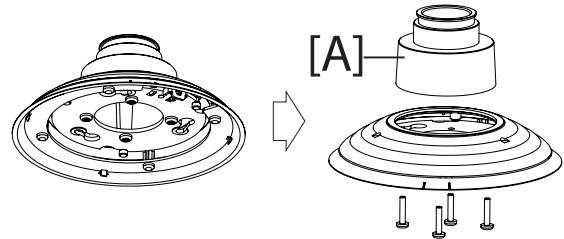
You can install the PIPE Installation Bracket direct to the other type LG Wall Mount assembly. This LG Wall Mount assembly make to easy to install your camera.



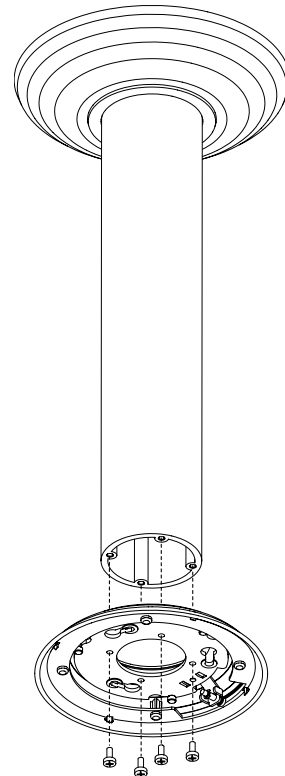
Pendant mount (optional)

Install the camera by the following order.

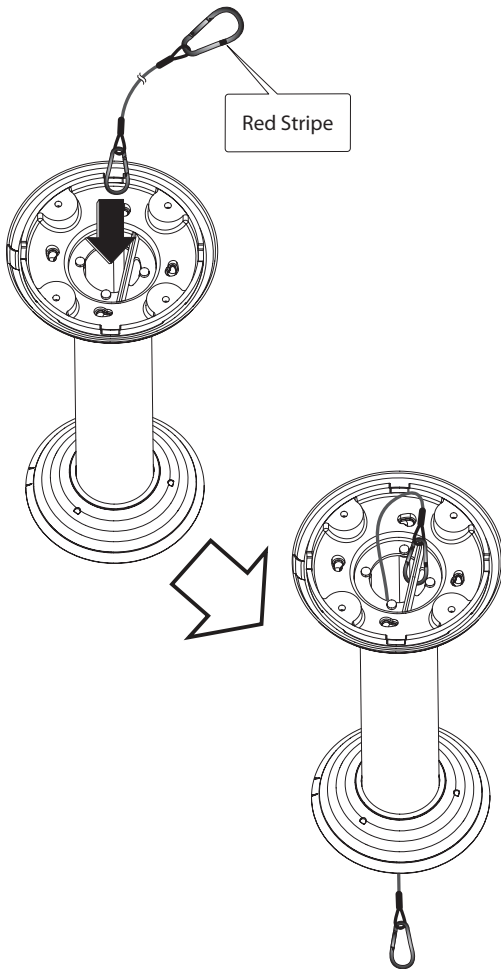
1. Disassemble the PIPE Installation Bracket to remove the [A] part.



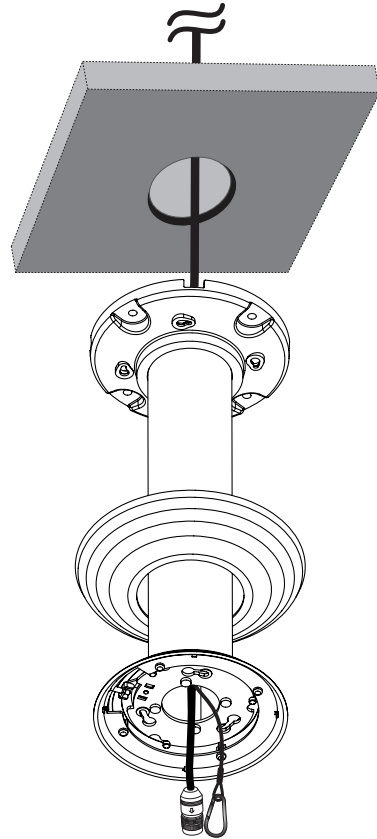
2. Install the PIPE Installation Bracket to the Pendant Mount assembly.



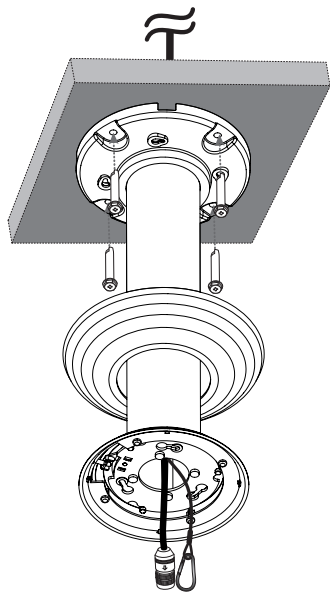
3. Connect the safety cable to the pendant mount assembly.



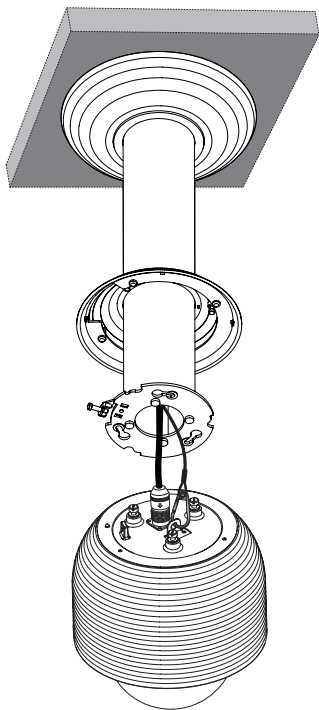
4. Drill a hole on the wall where you want to install the pipe. Pass the connection cable through the pendant mount assembly so that they hang down.



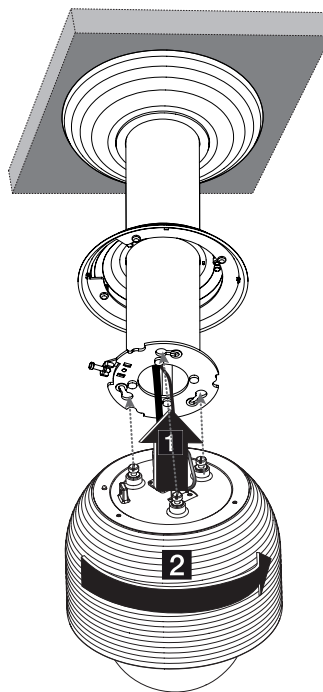
5. Install the pendant mount assembly.



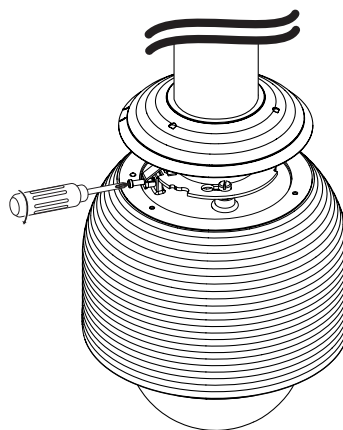
6. Connect the connection cable and the safety cable to the camera body.



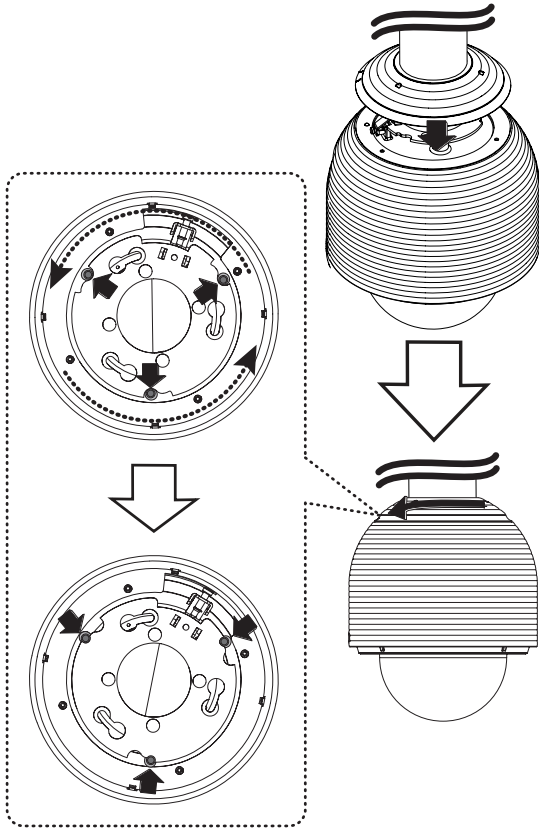
7. Attach the camera to the camera assembly bracket by following step **1** and **2**. Align the locking point of the wall mount assembly and the camera.



8. Tighten the locking screw.

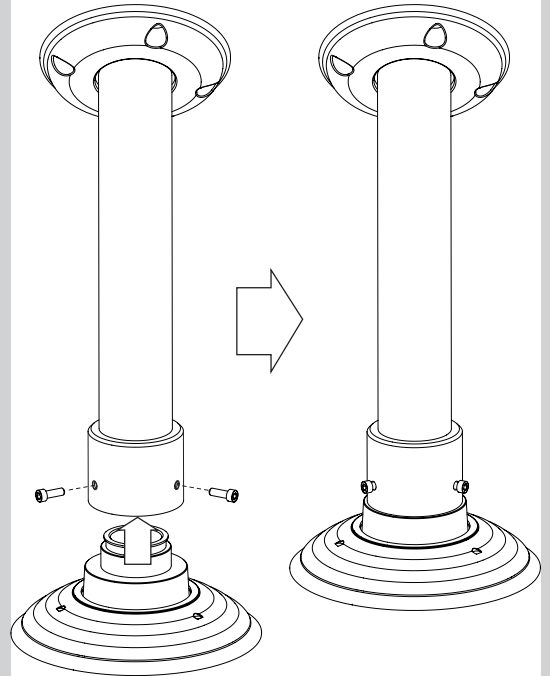


9. Assemble the camera cover as shown below.



! NOTE

You can install the PIPE Installation Bracket direct to the other type LG Wall Mount assembly. This LG Wall Mount assembly make to easy to install your camera.



4

Operation and settings

Before using the system

- Before using the LG IP device make sure the connections are correct and verify whether proper power supply is used.
- Check the connections of the LG IP device for the correct conditions.
- Check that the LG IP device is(are) connected to the network and that power is supplied.
- Once the connections are made you need to install the LG client program to the PC from which you want to access the device.
The LG Smart Web Viewer program is automatically installed when you connect the LG IP device. The LG Smart Station and the LG Smart Web Viewer program are the network program of the LG Video Server and the LG IP cameras.
- To view streaming video in Internet Explorer, set your browser to allow ActiveX controls. If you find this message "This website wants to install the following add-on: 'IPCam_Streamer.cab' from 'LG ELECTRONICS INC'", Click the yellow bar and install LG Smart Web Viewer Program on your computer.
- The Layouts and the Live view pages may differ with different OS (Operating Systems) and Web Browsers.
- Care needs to be taken not to run any other applications when the Client Program is running as it may cause memory shortage.

Recommended PC Requirements

The LG IP device can be used with most standard operating systems and browsers.

Items	Requirements
Operating System	Windows XP Professional
CPU	Intel Core2 Quad Q6700 (2.66 GHz) or above
Web Browser	Microsoft Internet Explorer 6.0 or higher
DirectX	DirectX 9.0 or above
Memory	2 GB or above RAM
Graphics Card	256 MB or above Video RAM
Resolution	1280 x1024 (with 32 bit color) or higher

Accessing the LG IP device

You can access the LG IP device by following the below steps.

1. Copy the IP Utility to your PC

- 1.1 Insert the Client Program CD.
- 1.2 Find and Copy IP Utility folder to your PC.

2. Discover the LG IP device using the IP Utility

The IP Utility can automatically discover and display LG IP devices on your network.

The IP Utility shows the MAC address, IP address, Model name and so on.



NOTE

The computer running the IP Utility must be on the same network segment (physical subnet) as the LG IP device.

- 2.1 Run the IP Utility program.
- 2.2 Click the [Search] button or select the [Search] option in the Device search menu. After a few seconds the found LG IP devices gets displayed in the IP Utility window.

3. Logging in to the LG Smart Web Viewer

The LG Smart Web Viewer can be used with most web browsers. The recommended browser is Internet Explorer with Windows.

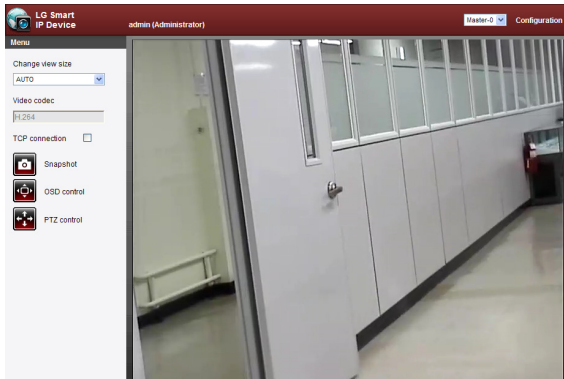
- 3.1 Run the IP Utility and find the LG IP devices.
- 3.2 When the LG IP devices appear in the IP Utility window, double-click IP address or right click on the same IP address and select "Connect to Web Page" to start the LG Smart Web Viewer. When accessing the LG Smart Web Viewer, the authentication dialog appears on the screen.

- 3.3 Enter the user name and password. (Note that the default administrator user name and password are "admin".)
- 3.4 Click the [OK] button and then the LG Smart Web Viewer is displayed in your browser.




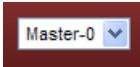
Notes:

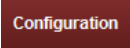




- You can also access the LG Smart Web Viewer as shown below.
 - 3.1 Start your Web browser.
 - 3.2 Enter the IP address of the LG IP device in the address bar of the browser.
 - 3.3 Enter the user name and password set by the administrator.
 - 3.4 Click the [OK] button and then the LG Smart Web Viewer is displayed in your browser.
- The LG Smart Web Viewer needs more time to display it according to the network conditions.
- If the login window is not displayed, check the pop-up blocker. If you set the pop-up blocker, the login window is not displayed. You must allow the pop-ups.
- If you connect the LG Smart Web Viewer for the first time, the Security Warning window is displayed to install the LG Smart Web Viewer program. You must install the LG Smart Web Viewer program for using the LG IP device.
- If your computer or network is protected by a proxy or firewall, the proxy or firewall settings can prevent the LG Smart Web Viewer program. Change the proxy or firewall settings to activate the LG Smart Web Viewer program.

LG Smart Web Viewer Overview



Item	Description
<p>Change view size</p> <p>AUTO</p>	<p>Select the video image size from the drop-down list. (AUTO, D1 or CIF)</p> <p>The initial view size is set to AUTO. The AUTO option sets the view size according to the Server's resolution.</p>
<p>Video codec</p> <p>H.264</p>	<p>Displays the current video codec of the selected video stream (Master or Slave).</p>
<p>TCP connection <input checked="" type="checkbox"/></p>	<p>Check this option as the network connection type (TCP or UDP). If you check it, the client connects to the server using TCP connection.</p>

 <p>Snapshot</p>	<p>Click to save the current image in JPEG format on your computer.</p> <ol style="list-style-type: none"> 1. Click the [Snapshot] button and then the Snapshot window is displayed. 2. Click the [Save] button in the Snapshot window. 3. Enter the file name (JPEG format) and select the folder to save it. 4. Click the [Save] button to confirm it. 5. Click the [Close] button in the Snapshot window to close it.
 <p>OSD control</p>	<p>Displays the Camera OSD control window. Use these buttons to setup the Camera. This button does not appear on the screen if the login is other than the administrator.</p>
 <p>PTZ control</p>	<p>Displays the PTZ control window. Use these buttons to control the PTZ unit. This button is not displayed with normal or anonymous user.</p>
	<p>Select the video stream. From the Live view drop-down list, select the desired video image source between [Master-0] and [Slave-0].</p> <div style="background-color: #f0f0f0; padding: 10px; border: 1px solid #ccc;"> <p>NOTE</p> <p>Master and Slave are output video streams. You can set the stream configurations independently for either Master or Slave stream. This would facilitate the user to set the live view at his comfort.</p> </div>

	<p>Provides all the necessary tools for setting up the device to your requirements. The user will need administrator level to do this.</p> <p>Note: If you want to exit the Configuration menu, select one of the video stream in the Live view drop-down list.</p>
	<p>Displays the current surveillance live screen.</p> <p>You can monitor the camera image on the live view window of the LG Smart Web Viewer.</p>
	<p>Click this button to connect or disconnect the audio communication between the LG IP device and the connected PC.</p> <p>(Color icon: On, Gray scale icon: Off.)</p>
	<p>Click this button to switch the microphone off and on for the computer.</p> <p>(Color icon: On, Gray scale icon: Off.)</p>
	<p>Click this button to switch the sound off and on, for the speaker of the computer.</p> <p>(Color icon: On, Gray scale icon: Off.)</p>

Configuring the LG IP camera

The features and options of the LG IP camera are configured through the Configuration menu.

Only administrator-level users have permission to access the Configuration menu.

Accessing the Configuration menu

Click the [Configuration] button to display the LG Smart Web Viewer configuration window.

Warning

The Configuration setup should be made by qualified service personnel or system installers.

System settings

Version

Displays the current version of Firmware, Hardware, Software and Web Client.

Menu	Version
System	Version list
> Version	Firmware version 09071001
> Date & Time	Hardware version 774.0.0.99
> Maintenance	Software version 774.0.0.1008150
> Log & Report	Web client version 774.0.0.192
> Language	
Audio & Video	Copyright
Network	Copyright 2009 LG Electronics. All Rights Reserved.
User	
Event	

Date & Time

Menu	Date & Time
System	Time zone GMT
Version	
Date & Time	Time mode
Maintenance	Synchronize with NTP server pool.ntp.org
Log & Report	Time will be synchronized with NTP server every 1 hour
Language	Click button to test this server. Test
Audio & Video	Synchronize with personal computer 2010-09-30 14:14:48
Network	Synchronize manually
User	Date 2010-09-30
Event	Time :14 :14 :44
	Server time 2010-09-30 05:14:45
	Save

Time zone

Set the time difference from GMT in the area where the IP device is installed.

Select the time zone in the area where the IP device is installed from the drop down list.

Time mode

- > Synchronize with NTP Server: Select if you want to synchronize the IP device's date and time with those of the time server called NTP (Network Time Protocol). Specify the NTP server's name. Click the [Test] button for connection test to the server.
- > Synchronize with personal computer: Select if you want to synchronize the IP device's date and time with your computer.
- > Synchronize manually: Select if you want to set the IP device's date and time manually. Select the year, month and date by clicking the calendar button. Set hour, minutes and seconds in the edit boxes.

Server time

- > Server time: Displays the current date and time of the IP device.
- Save: Click this button to confirm the settings.

Maintenance

Menu	Maintenance
System	System reboot Click button to reboot this system. Reboot
Version	
Date & Time	
Maintenance	Restore and backup Click button to restore this configuration. Restore
Log & Report	
Language	
Audio & Video	* Configuration file must be uploaded before restoring.
Network	Click button to backup this configuration. Backup
User	Firmware Click button to upgrade firmware. Upgrade
Event	
	* Firmware file must be uploaded before upgrading. Click button to initialize the system. Initialize

System reboot

Click the [Reboot] button to restart the IP device. It takes some minutes for the IP device to start again.

Restore and backup

- > Backup: To take a backup all of the settings. If necessary, it make possible to return to a backed up configuration. Click this button and follow the instructions on the browser to specify the folder and save the setting data of the IP device. This configuration backup can be restored whenever needed.
- > Restore:
 1. Click the [Browse] button.
 2. Find and open the file in which the configuration setting data is stored.
 3. Click the [Upload] button.
 4. Click the [Restore] button after successfully uploading the backup configuration. The system settings will be restored and reboot the system.

NOTE

- Backup and Restore can happen on IP device having the same version of firmware. This feature is not intended for multi-configurations or for firmware upgrades.
- [Backup] function is allowed in HTTP protocol but not in HTTPS protocol.

Firmware

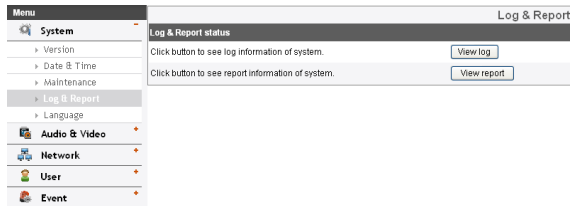
- › Upgrade
 1. Click the [Browse] button.
 2. Find and open the firmware file.
 3. Click the [Upload] button.
 4. Click the [Upgrade] button to update the firmware.

NOTE

When you upgrade the system, it may take some minutes to be done. Do not close the browser while the upgrade is in progress. If you close the browser, it may cause a malfunction.

- › Initialize: The [Initialize] button should be used with caution. Clicking it will return all of the IP device's settings to the factory default values. (Except for the Network settings - DHCP, IP address, Gateway, Subnet mask, Primary/Secondary DNS)

Log & Report

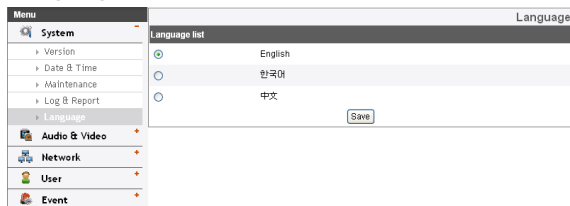


Log & Report status

The System log provides a summary of the status of the IP device. The unit records the data of the software activity in a file.

- › View Log: Click this button to display the system log information.
- › View report: Click this button to display the report of the system.

Language



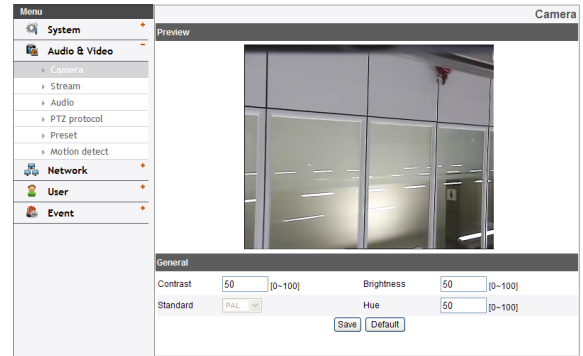
Language list

Select a language for the LG Smart Web Viewer configuration menu and information display.

- Save: Click this button to confirm the settings.

Audio & Video settings

Camera



Preview

You can preview the camera image on the preview window.

General

- › Contrast: Edit the contrast value from 0 to 100. Selecting 100 provides the image with the highest contrast.
- › Brightness: Edit the brightness of the camera. It is brighter when a large value is selected and it is darker when a small value is selected.
- › Standard: Displays the video standard of the camera.
- › Hue: Edit the video Hue of the camera from 0 to 100.
- Save: Click this button to confirm the settings.
- Default: If you want to set the Contrast, Brightness and Hue options to the default value, click the [Default] button and then click the [Save] button to confirm it.

Stream

Menu	Stream	
System	Master	
Audio & Video	Enable <input checked="" type="checkbox"/>	Deinterlacing <input checked="" type="checkbox"/>
Video codec	H264	Resolution D1
Maximum frame rate	25 [1-25 fps]	GOP size 15 [1-30]
Quality	VBR	Stream quality MEDIUM
Slave		
Enable	<input checked="" type="checkbox"/>	
Video codec	H264	Resolution CIF
Maximum frame rate	25 [1-25 fps]	GOP size 15 [1-30]
Quality	VBR	Stream quality MEDIUM
Save		

Master/Slave

- Enable: Click to activate the stream function.
- Deinterlacing: Click to enable the use of deinterlacing function.
- Video codec: Select the video mode (Codec) from the drop-down list. The viewer can choose between MJPEG and H.264.
- Resolution: Select the image size to be sent from the camera.

NTSC	D1 (704 x 480), HALF D1 (704 x 240), CIF (352 x 240) and QCIF (176 x 112)
PAL	D1 (704 x 576), HALF D1 (704 x 288), CIF (352 x 288) and QCIF (176 x 144)

- Maximum frame rate: Set the frame rate of the image. Selectable values of the frame rates are as follows.

NTSC	1 to 30 (fps)
PAL	1 to 25 (fps)

- GOP size: It means "Group of Pictures". The higher the GOP, the better is the video quality of the camera. Edit the value of GOP from 1 to 30. This setting is valid for H.264 video format only.
- Quality: Select the Quality.
 - VBR: The bit rate may vary depending on the complexity of the video to meet the selected quality.
 - CBR: The video quality may vary in order to preserve a constant bit rate.
- Stream quality: If the [Quality] option set to VBR, this option is displayed. Select the stream quality from the drop down box, the camera supports five types (Highest, High, Medium, Low and Lowest)

- Bit rate: If the [Quality] option set to CBR, this option is displayed. Edit the bit rate value from 256 kbps to 10 240 kbps.

- Save: Click this button to confirm the settings.

Audio

Menu	Audio	
System	Audio In	
Audio & Video	Enable <input type="checkbox"/>	Audio type G711 PCMA
Audio out	Enable <input type="checkbox"/>	
Save		

Audio In

- Enable: Click the check box if you want to send the audio from the microphone input connector.



NOTE

The Clients connected to the IP device remain unaffected with additional changes made in the setting.

- Audio type: Select the codec when you send the audio from the microphone input connector.

Audio Out

- Enable: Click the check box to output the audio from the speaker.
- Save: Click this button to confirm the settings.

PTZ protocol

Menu	PTZ protocol	
System	PTZ configuration	
Audio & Video	Enable <input checked="" type="checkbox"/>	
Pan speed	10	[0-127]
Tilt speed	10	[0-127]
Zoom speed	3	[0-3]
Focus speed	1	[1-3]
Preset tour park time	5	[3-100]
Save		

PTZ configuration

- › Enable: Click to use the PTZ protocol.
- › Pan speed: Enter the panning speed of the PTZ device in the edit box. Default value for the LG Multix Protocol is 60 and ranges from 0 to 127.
- › Tilt speed: Enter the tilting speed of the PTZ device in the edit box. Default value for the LG Multix Protocol is 60 and ranges from 0 to 127.
- › Zoom speed: Enter the zoom speed of the PTZ device to view the object close or at a distance. Default value for the LG Multix protocol is 0 and ranges from 0 to 3.
- › Focus speed: Enter the focus speed of the PTZ device to focus an object clearly near or far. Default value for the LG Multix protocol is 1 and ranges from 1 to 3.
- › Preset tour park time: Enter the parking time.
- Save: Click this button to confirm the settings.

Preset

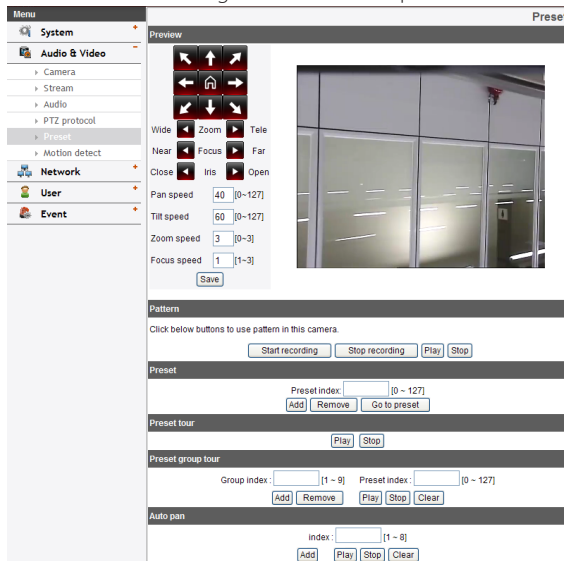


NOTE

While configuring PATTERN/PRESET/GROUP TOUR/AUTO PAN, turn off Auto Tracking feature temporarily.

Preview

You can see the settings screen from the preview window.



1. Move the camera to the point you want by using the arrow buttons.

2. Adjust the zoom, focus or iris options.
3. Set the Pan, Tilt, Zoom or Focus speed options.
4. Click the [Save] button to confirm the settings.

Pattern

You can activate the camera in a repeating pattern. The pattern is programmed by recording your manual pan, tilt, and zoom operations. The camera stores the movements you performed in memory.

» To record the pattern

1. Click the [Start recording] button to start the pattern recording.
2. Move the camera through the desired movement.
3. Click the [Stop recording] button to stop the pattern recording.



NOTE

The available total time of pattern differs depending on connected PTZ device and operation.

» To play the pattern

1. Click the [Play] button to play the programmed pattern.
2. Click the [Stop] button to stop playing.

Preset

Preset position is the function to register camera monitoring positions (preset positions) associated with position numbers. By entering the position numbers, you can move cameras to the preset positions.

» To register preset position

1. Enter the preset number you wish to register.
2. Move the camera to a point you wish.
3. Click the [Add] button.
4. Repeat the steps 1 to 3 to add other positions.

» To remove the preset position

1. Enter the memorized preset index number.
2. Click the [Remove] button. The preset will be deleted.

» Changing a picture in a preset position

1. Enter the memorized preset index number.
2. Click the [Go to preset] button. The camera moves to the preset position and the picture of the camera in that position appears on the monitor.

Preset tour

A preset tour is composed of a group of preset positions that the operator can link together in a sequence.

1. Click the [Play] button to start the preset tour.
2. Click the [Stop] button to stop the preset tour.

! NOTE

If you control the PTZ, the preset tour will be stopped.

Preset group tour

You can create a group using preset positions that are registered already. A maximum of 9 groups is available.

- » *To set the group*
 1. Enter the group number in the [Group index] option.
 2. Enter the preset index number in the [Preset index] option.
 3. Click the [Add] button.
 4. Repeat the steps 2 to 3 to add other preset index number. You can set the preset index number up to 8 for the one group.
 5. Repeat the steps 1 to 4 to set the other group index.
- » *To remove the preset index from the group*
 1. Enter the group number in the [Group index] option.
 2. Enter the preset index number in the [Preset index] option.
 3. Click the [Remove] button.
 4. Repeat the steps 2 to 3 to remove other preset index number.
 5. Repeat the steps 1 to 4 to set the other group index.
- » *To tour the group*
 1. Enter the group number in the [Group index] option.
 2. Click the [Play] button to start the group tour.
 3. Click the [Stop] button to stop the group tour.
- » *To delete a group*
 1. Enter the group number in the [Group index] option.
 2. Click the [Clear] button. The group will be deleted.

Auto pan

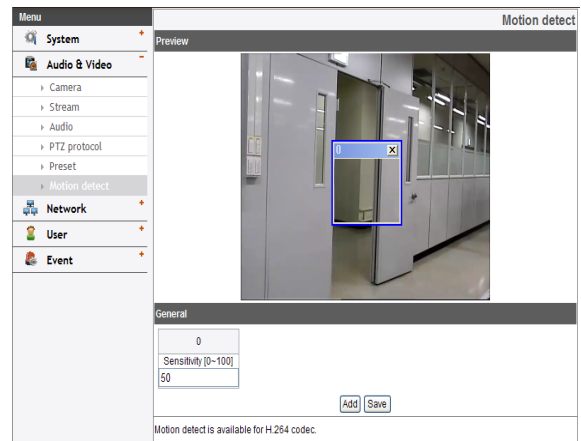
You can play the camera with auto pan function.

- » *To set the Auto Pan position*
 1. Enter the index number you wish to register.
 2. Move the camera to the desired point.
 3. Click the [Add] button.
 4. Repeat the steps 1 to 3 to add other index number. You can set the Auto pan index number up to 8.
- » *To play the auto pan*
 1. Click the [Play] button to start the Auto Pan function.
 2. Click the [Stop] button to stop the Auto Pan function.

! NOTE

If you click the [CLEAR] button, all of Auto pan position will be deleted.

Motion detect



Preview

You can preview the motion detection window on the preview window.

General

- » Sensitivity: Enter the sensitivity to detect an object in motion.
- » Save: Click this button to confirm the settings.

» *How to set the motion detect window*

1. Click the [Add] button. The motion detect window is displayed. You can add the five windows maximum for motion detection area.
2. Set the [Sensitivity] option.
3. Click the edge or corner of the window box to adjust the window size for motion detection.
4. Click the [Save] button to save the settings.

 **NOTE**

- You can reset the window size. Click one of the window edge or corner and drag & drop to reset the motion detection area.
- Motion Detection can be activated when the Master channel is enabled and Video codec is set to H.264.

 **NOTE**

The RTSP port number should not be same with the web port number.

TTL

- › TTL: This option indicates the Time-To-Live of multicast packets. The default setting is 7, and the allowed TTL range is from 1 to 255.

ARP Ping

- › Enable ARP Ping to configure IP address: Check to enable ARP ping.
- Save: Click this button to confirm the settings.

RTP stream

RTP (Real-time Transport Protocol) is an internet protocol that allows programs to manage the real-time transmission of multimedia data, via unicast or multicast.

Menu	RTP stream
System	Master
Audio & Video	<input type="radio"/> RTP unicast <input checked="" type="radio"/> RTP multicast
Network	Video RTP port: [8888] [1025-65534] Audio RTP port: [7777] [1025-65534] Data RTP port: [6666] [1025-65534] IP address: [239.255.214.42]
User	Slave
Event	<input type="radio"/> RTP unicast <input checked="" type="radio"/> RTP multicast
	Video RTP port: [8888] [1025-65534] Audio RTP port: [7777] [1025-65534] Data RTP port: [6666] [1025-65534] IP address: [239.255.214.43]

Network settings**Basic**

Menu	Basic
System	General
Audio & Video	MAC address: [08:00:2B:01:00:00]
Network	Port & Encryption Web port: [80] [80,1025-65535] RTSP port: [554] [554,1025-65535] Network encryption: [HTTP]
User	TTL
Event	ARP Ping Enable ARP Ping to configure IP address. <input checked="" type="checkbox"/>

General

- › MAC address: Displays the MAC address.

Port & Encryption

- › Web port: The default HTTP port number (80) can be changed to any port within the range 1 025 to 65 535.
- › RTSP port: Check RTSP port. The default port is 554. Other ports can be selected within the range 1 025 to 65 535.
- › Network encryption: Select the HTTP or HTTPS option for security.

Master / Slave

- › RTP unicast: When enabled the transmission of the data to the specified equipment happens on a network specifying a single address.
- › RTP multicast: When enabled it reduces the transmission load on the camera by making the computer of the same segment network receive the same transmission data. When multicast option is checked then select Video Port number, Audio Port number and Data port number.
 - Video RTP port: Specify the video transmission port number used for the multicast streaming. It is initially set to 8 888 and you can edit this between 1 025 and 65 534.

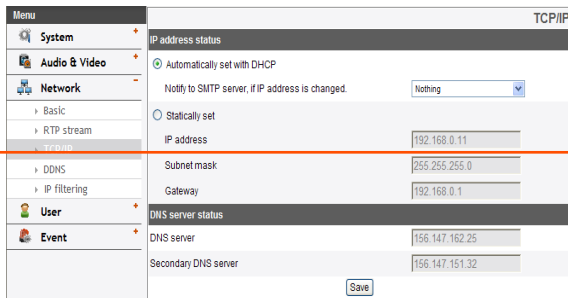
- Audio RTP port: Specify the audio port number used for the multicast streaming. It is initially set to 7 777 and you can edit this between 1 025 and 65 534.
- Data RTP port: Specify the VA data port number used for the multicast streaming. It is initially set to 6 666 and you can edit this between 1 025 and 65 534.
- IP address: Set the IP address for RTP multicast.

NOTE

Each stream using multicast needs its own a pair of multicast IP address and port numbers to avoid address conflict.

- Save: Click this button to confirm the settings.

TCP/IP



IP address status

- > Automatically set with DHCP: Select this option when a DHCP server is installed on the network to allow IP address assignment. With this setting, the IP address is assigned automatically.
- Notify to SMTP server, if IP address is changed: If you select this option, the user get a notification mail telling about changing of IP of the IP device.

NOTE

You should register the SMTP server on the Event server setting to set this function.

- > Statically set: Select this option when you set a fixed IP address, with this setting, specify the IP address, Subnet mask and default gateway manually.
- IP address: Enter an IP address.

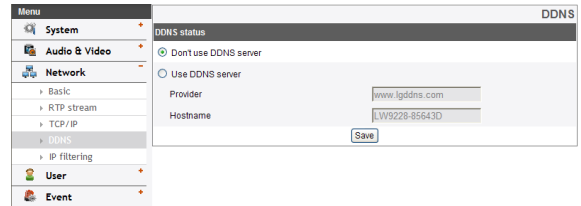
- Subnet mask: Enter a subnet mask address.
- Gateway: Enter the gateway address.

DNS server status

- > Primary DNS server: Enter the Primary domain name server that translates the hostnames into IP address.
- > Secondary DNS server: Enter the Secondary DNS server address that backups the Primary DNS.
- Save: Click this button to confirm the settings.

DDNS

This free service is very useful when combined with the LG DDNS Server. It allows the user to connect the IP device using the URL, rather than an IP Address. This also solves the problem of having a dynamic IP address.

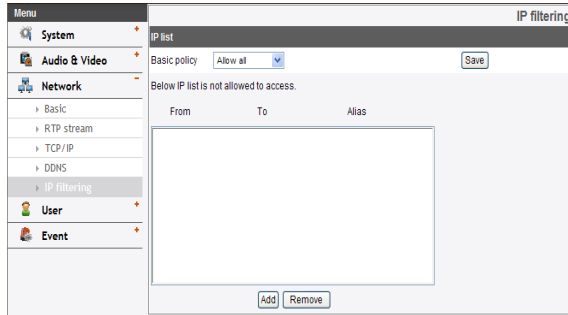


DDNS status

- > Don't use DDNS server: Disable the DDNS function.
- > Use DDNS server: Enable the DDNS function.
 - Provider: Displays the DDNS provider.
 - Hostname: Enter the hostname you want to use.
- Save: Click this button to confirm the settings.

IP filtering

The access of the IP addresses in the list are allowed or denied according to the choice made in the drop-down list of the Basic policy option. The administrator can add up to 10 IP address entries to the list (a single entry can contain multiple IP addresses). The users from these IP addresses need to be specified in the user list with the appropriate access rights. The IP list is to control the access permission of clients by checking the client IP address.



IP list

- › Basic policy: Select the basic policy type.
 - Allow all: Allow all the IP address basically, but the IP addresses in the list are denied.
 - Deny all: Deny all the IP address basically, but the IP addresses in the list are allowed. It needs at least one IP address to activate this function.
- Save: Click this button to confirm the settings.
- Add: Click this button to add the IP address.
 1. Click the [Add] button.
 2. Set the IP options.
 - Alias: Enter the alias.
 - From: Enter the start IP address for the IP filtering.
 - To: Enter the end IP address for the IP filtering.

NOTE

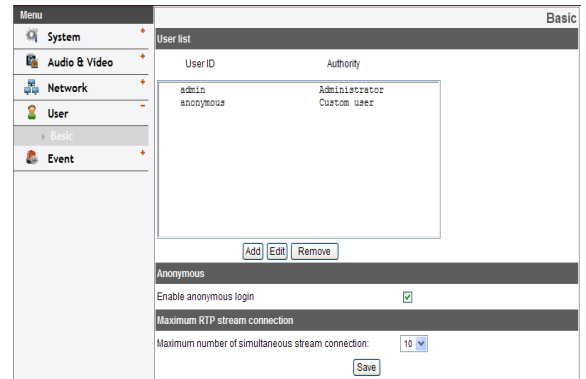
If you want to deny or to allow a range of IP addresses, enter the start IP address to "From" and the end IP address to "To". You can also add an IP address by entering the same IP address to "From" and "To".

3. Click the [Save] button.
 4. Repeat the steps 1 to 3 to add additional IP address.
- Remove: Click this button to delete the IP address.
 1. Select the alias from the list.
 2. Click the [Remove] button. The IP address will be deleted.

User settings

Basic

The IP device is shipped with the login rights of administrator only. If others need to access the IP device excluding the configuration a login with viewer rights need to be created. A maximum of 50 users can be created.



User list

- › Add the User

You can register a new user with various access rights.

 1. Click the [Add] button. User setting dialog is displayed.
 2. Enter the new User ID and Password. (Should have a minimum of 4 characters and preferably a combination of alphanumeric).
 3. To confirm the password, retype the password that you typed in the Password box.
 4. Select the authority from the drop down list to provide the access rights to each user and then click the [Save] to confirm your selection.
 - Administrator: Allows you to operate setup menus and to view live images.
 - Power user: Use of the limited functions of the system (The Configuration menu is not allowed). A power user can use the Live View, OSD control and audio functions.
 - Normal user: Provides the lowest level of access, Allows to view live images only.

- Custom user: The user can login and view the live stream image only when the "Enable anonymous login" option is checked to enable it.



NOTE

Remember the password.

- > Edit the registered user
You can change the password or authority.
 1. Choose the user ID and then click the [Edit] button.
 2. Change the Password or Authority, then click the [Save] button to confirm your selection.
- > Delete the registered user
 1. Choose the user ID you want to delete.
 2. Click the [Remove] button.



NOTE

The default administrator user ID 'admin' is permanent and cannot be deleted.

Anonymous

- > Enable anonymous login
Check the box to enable anonymous user login - allows the user access for only viewing the live stream image.

Maximum RTP stream connection

- > Maximum number of simultaneous stream connection:
Set this number to limit the number of simultaneous stream connections.
The connections depend on the stream configuration as shown in the following Maximum RTP stream connection by stream configuration.

Video Codec	Resolution	Frame Rate	Quality	Maximum RTP stream
H.264	D1	30	HIGHEST	Up to 5
H.264	D1	30	MEDIUM	Up to 10
MJPEG	D1	30	MEDIUM	Up to 1
MJPEG	Half D1	30	MEDIUM	Up to 2
MJPEG	D1	15	MEDIUM	Up to 10



NOTE

Preview window of the IP device setting and preset setting are affected by this setting.

- Save: Click this button to confirm the settings.

Event settings

Event schedule

When an event (Modtion detect/ Sensor Event) occurs, this unit records the live images and routes as configured.

Event schedule list

» *To edit the Event Schedule*

1. Select the Trigger event and click the [Edit] button. Event schedule window is displayed.
2. Set the options.
 - Trigger: Displays the selected trigger event.
 - Time: Sets the weekday, Start, Finish, Pre alarm, Post alarm and Ignore interval time options.
 - Action: Selects the options. This occurs when the event runs.
 - FTP server/SMTP server: Uploading of images to an FTP server, or e-mail notification.
 - Control relay: The relay is activated or deactivated.
 - Stream: Selects the stream of the connected camera.
 - Default: Sets to default setting value.
3. Click the [Save] button to confirm the settings.

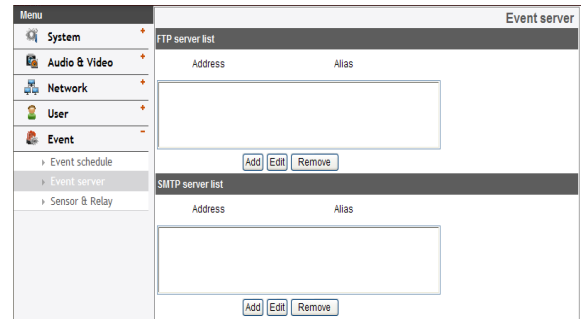


NOTE

You should register the SMTP and FTP server on the Event server setting to set this function.

Event Server

Event Servers are used to receive the recorded video clip and/or notification messages.



FTP server list

Image files can be transferred to the FTP server within the scheduled time. Image file that has been recorded linked to an external event is sent to the FTP server periodically.

» *To add the FTP server*

1. Click the [Add] button. FTP server setting window is displayed.
2. Set the FTP server options.
 - Alias: Type the FTP Server name to upload the image files.
 - Address: Enter the FTP server's IP address.
 - Port: Enter the port number. The default FTP port is 21.
 - User ID: Type the user name for the Folder shared in the FTP server.
 - Password: Type the password for the folder shared in the FTP Server.
 - Folder: Type the path with the folder that is shared in the FTP server.
 - Test: Select [Test] to test the FTP server.
3. Click the [Save] button to confirm the settings.

» *To edit the FTP server*

1. Choose the FTP server in the FTP server list.
2. Click the [Edit] button.
You can check or edit the FTP server options.

» *To delete the FTP server*

1. Choose the FTP server in the FTP server list.
2. Click the [Remove] button. This would remove the FTP server from the list.

SMTP server list

By selecting the e-mail option, a still image of the event is captured and an e-mail with the attached image file is sent to the specified mail address.

» *To add the SMTP server*

1. Click the [Add] button. SMTP server setting window is displayed.
2. Set the SMTP server options.
 - Alias: Enter the SMTP server name.
 - User ID: Enter the user ID of the SMTP server. This would be the one who owns the mail account.
 - Password: Enter the password of the SMTP server.
 - Address: Enter the SMTP server address.
 - Port: Enter the port number. The default port is 25.
 - Enable SSL: Check when use the SSL (Secure Socket Layer) protocol. SSL protocol is cryptographic protocols that provide secure communication on a network.
 - Receiving address: Type the recipients e-mail address. You can specify only one recipient e-mail address.
 - Administrator address: Type the e-mail address of the administrator.
 - Subject: Enter the subject/title of the e-mail.
 - Message: This message can describe the information of the acquired IP address, etc.
 - Test: Select [Test] to test the SMTP server.
3. Click the [Save] button to confirm the settings.

» *To edit the SMTP server*

1. Choose the SMTP server in the SMTP server list.
2. Click the [Edit] button.
You can check or edit the SMTP server options.

» *To delete the SMTP server*

1. Choose the SMTP server in the SMTP server list.
2. Click the [Remove] button.

Sensor & Relay

Menu		Sensor & Relay			
System	Sensor	Enable	Alias	Type	
Audio & Video		<input checked="" type="checkbox"/>	Sensor-0	Normal open	
Network		<input checked="" type="checkbox"/>	Sensor-1	Normal open	
User		<input checked="" type="checkbox"/>	Sensor-2	Normal open	
Event		<input checked="" type="checkbox"/>	Sensor-3	Normal open	
Event schedule					
Event server					
Sensor & Relay	Relay	Control duration [1-86400(24hour), second]	Alias	Type	Control relay
		5	Relay-0	Normal open	Run Stop
		5	Relay-1	Normal open	Run Stop
					Save

Sensor

- » Enable: Marks up when you want to activate the sensor.
- » Alias: Displays the sensor name.
- » Type: Select the sensor type.

Relay

- » Control duration: Enter the relay time.
- » Alias: Displays the relay name.
- » Type: Select the relay type.
- » Control relay
 - Run: Click to activate the relay.
 - Stop: Click to stop the relay.
- Save: Click this button to confirm the settings.

Auto Tracking

Normal Scenario for Auto Tracking

Object detecting state

The camera starts to search a moving object. It may not start the detecting under the some conditions. See 'About Auto Tracking'.

Object tracking state

If the camera detects the object, it starts to track the object. When it uses PTZ in tracking, it'll zoom in the object if it is small. If some OSD such as USER TITLE, ZOOM MAG, FUNCTION, DOME ID, and COMPASS are enabled, they are hidden from this state.

Recovery state

When the camera is configured to PTZ mode and lost the object, it will zoom out to re-tracking the object.

Lost state

If the camera fails to re-tracking the object, it can stay its position or return to the initial position where the tracking was started. The hidden OSD is shown from this state.

While PRESET TOUR / GROUP TOUR / AUTO PAN

- When the camera is stopped at one preset position, it follows the normal scenario for the preset dwell time.
- If a moving object is detected, the camera tracks the object until the lost state.
- If a moving object is not detected for the dwell time, it goes to the next preset position. While it is moving to the next position, the Auto Tracking is stopped temporary.
- Because of the OSD, Auto Tracking might operate incorrectly while PRESET TOUR/GROUP TOUR/AUTO PAN.

About Auto Tracking

- The Auto Tracking is stopped when a user moves the camera (Pan/Tilt/Zoom) or turns on OSD Menu. It is started again whenever a user stops the control.

- The Auto Tracking is disabled temporary while the camera is moving based on some configurations: PRESET TOUR, GROUP TOUR, PATTERN TOUR, and AUTO PAN.
- When NIGHT MODE or the camera height value is configured to 2.5M, ZOOM function will be inactivated to operate Auto Tracking correctly.
- The following conditions can cause operational errors or make Auto Tracking impossible.
 - An object that is not distinguishable from background at low luminance.
 - An object that has similar color with background.
 - A lot of moving objects
 - Unsteady camera
 - Environments where a shadow is long
 - Environments where there is extreme flickering or where there is light shining and light reflection on the dome

OSD Menu Setup


The following table shows the list of menu items and options. You can adapt the camera to your requirements by setting up the respective items in these menus.

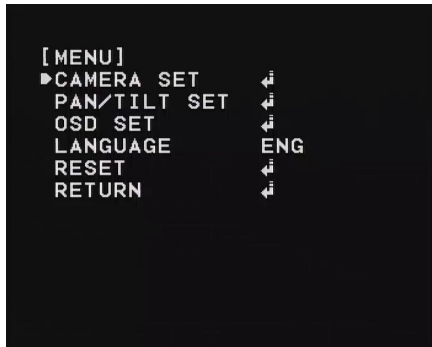
1st level	2nd level	3rd level	Contents		
CAMERA SET	FOCUS	FOCUS MODE	AUTO/MANUAL/ONE PUSH/ ZOOM TRIG		
		FOCUS DIST	LW9228 series: 50 CM, 1.8 M, 3 M, 6 M LW9226 series: 50 CM, 1 M, 3 M, 5 M		
		RETURN			
	EXPOSURE	IRIS	AUTO/MANUAL		
		AGC	OFF/LOW/MIDDLE/HIGH		
		WDR/BLC	OFF/WDR/BLC/HSBLC		
		BRIGHTNESS	0 to 100		
		SHUTTER	OFF, A.FLK, 1/160, ..., X2, AUTO		
		SENS-UP	AUTO X2/AUTO X3/.../AUTO X128/ OFF		
		RETURN			
	WHITE BALANCE	ATW			
		AUTO			
		MANUAL	COLOR TEMP	INDOOR/OUTDOOR	
			RED	- 100 to +100	
			BLUE	- 100 to +100	
		RETURN			
	ONE PUSH				
	DAY/NIGHT	AUTO	D/N LEVEL	LOW/MIDDLE/HIGH	
			DWELL TIME	5,10,15,30,60 SEC	
			RETURN		
		DAY			
NIGHT					












PAN/TILT SET	3D-DNR	OFF				
		LOW				
		MIDDLE				
		HIGH				
	COLOR	ON	COLOR	-20 to 20		
		OFF				
	SHARPNESS	0 to 68				
	RETURN					
	PRIVACY MASK	MASK NUMBER	1 to 8			
		SET MASK				
		MASK STATE	ON/OFF			
		MASK COLOR	GRAY, WHITE, BLACK			
		WIDTH	2 to 320			
		HEIGHT	3 to 240			
		RETURN				
	SPECIAL	PROPORTIONAL PT	ON/OFF			
		COMPASS	SET/ON/OFF			
		HOME POSITION	ON		SET	
					GO	
					DWELL TIME(0 to 100)	
				RETURN		
AUTO RETURN		OFF				
		ON		RETURN TIME (1 MIN to 100 MIN)		
TILT LIMIT		OFF				
		ON/OFF				
RETURN						
RETURN						
OSD SET	USER TITLE	ON/OFF				
	ZOOM MAG	ON/OFF				
	FUNCTION	ON/OFF				
	DOME ID	ON/OFF				
	RETURN					

LANGUAGE	The option depends on the model.			
RESET	INFORMATION			
	INITIALIZATION			
	FACTORY RESET			
	RETURN			
RETURN				







General operation

1. Click the [OSD control] button on the LG Smart Web Viewer.
2. Click  button.
The camera setting menu appears on the live view window.



3. Use  or  button to select an option then click  button. Submenu appears.
4. Use  or  button to select a submenu option.
5. Use  or  button to select a value.
6. Click  button to exit the setup menu.
In the submenu, use  or  button to select the [RETURN] option and click  button to return to the previous.

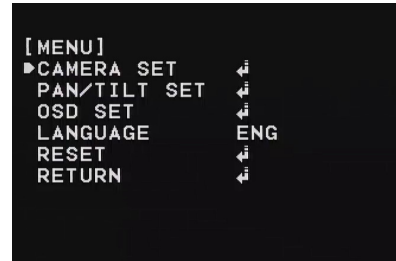
NOTE

-  button: Used to move upper direction on the menu screen.
-  button: Used to move lower direction on the menu screen.
-  button: Used to increase the value selected in the menu.
-  button: Used to decrease the value selected in the menu.
-  button: Executes selections and displays a submenu for an item with the  mark.

Camera menu settings



Focus setting

The camera adjusts the focus automatically by sensing the center of the picture.



Focus mode

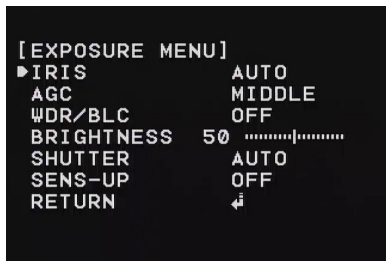
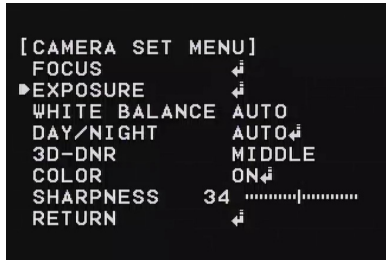
Select [FOCUS MODE] option on the [FOCUS] menu, then select the following mode.

- AUTO: Auto-focus is activated automatically.
- MANUAL: Focus is activated automatically after the zoom movement is finished. If you want to control the focus manually, press the FOCUS ( or ) buttons on the controller.
- ONE PUSH: The focus is activated manually. If the camera is received auto-focus command, the camera is activated auto-focus mode and the focus is set automatically and then the focus mode is automatically changed to manual mode.
- ZOOM TRIG: The focus is activated manually. If you change the zoom, the focus is activated automatically and then the focus mode is automatically changed to manual mode.

Focus Distance setting

Selects the minimum shooting distance for the focus. Select [FOCUS DIST] option on the [FOCUS] menu, then select a focus distance value.

Exposure settings



Iris setting

Select the desired lens iris value for camera exposure. Select [IRIS] option on the [EXPOSURE] menu, then select a value.

- AUTO: The lens iris is set automatically.
- MANUAL: Use ◀️ or ▶️ button to select the DC Iris level. DC Iris level are set by one parameter unit.

AGC (Automatic Gain Control) setting

If the images are too dark, change the maximum [AGC] value to make the images bright.

1. Select the [AGC] option on the [EXPOSURE] menu.
2. Use ◀️ or ▶️ button to select a mode.

WDR/BLC setting

Use WDR/BLC option to set the options for BLC or WDR camera.

1. Select [WDR/BLC] option on the [EXPOSURE] menu.
2. Use ◀️ or ▶️ button to select a mode then press ◀️.
 - WDR LEVEL: WDR (Wide dynamic range) feature can be very helpful to cope with very challenging lighting conditions. It is capable of capturing both of the dark part and bright part and combining the differences into a scene to generate a highly realistic image as original scene. Set the WDR level (LOW, MIDDLE, HIGH).
 - BLC LEVEL: Camera's backlight compensation feature helps alleviate issues of visibility in high contrast areas. Set the BLC level (LOW, MIDDLE, HIGH).
 - HSBL: Use for masking brightness of the specific area to view the subject more clearly.
 - HSBL LEVEL: Select the HSBL level. (LOW, MIDDLE, HIGH).
 - COLOR: Use ◀️ or ▶️ button to select a color.
 - OFF: Not used.



BRIGHTNESS setting

You can increase the brightness of the darkened video. If you set the brightness to lower value, the image gets darkened. If you set the brightness to higher value, the image gets bright.

1. Select [BRIGHTNESS] option on the [EXPOSURE] menu.
2. Use ◀️ or ▶️ button to set the bright level.



SHUTTER (Shutter Speed) setting

Select the desired shutter speed for camera exposure. You can change the shutter speed to higher speed to capture fast-moving subjects, though the image becomes darker.

1. Select [SHUTTER] option on the [EXPOSURE] menu.
2. Use  or  button to set shutter speed.

SENS-UP setting

If pictures are not clear due to darkness, use this function to increase the sensitivity of picture.

1. Select [SENS-UP] option on the [EXPOSURE] menu.
2. Use  or  button to set the SENS-UP limit. To set the SENS-UP function, select the [AUTO] on the [SHUTTER].






NOTE




If you set to one of the SHUTTER options except AUTO on the [SHUTTER] menu, the [SENS-UP] setting is not available and [---] mark is displayed.

White Balance setting

Select the method by which the camera shifts its output colors to compensate for the color of a light source.





1. Select the [WHITE BALANCE] option on the [CAMERA SET] menu.
2. Use  or  button to select a mode then press .
 - ATW (Auto-Tracing White Balance): In this mode, the color temperature range for the proper white balance is approximately from 1 800 to 10 500 K. Proper white balance may not be obtained under the following conditions:
 - When the color temperature is out of the 1 800 K to 10 500 K range.

- When the scene mostly contains high color temperature objects, such as a blue sky or sunset.
- When the scene is dim.
- AUTO: In this mode, the color temperature range for the proper white balance is approximately 2 700 K to 5 400 K. Proper white balance may not be obtained under the following conditions:
 - When the color temperature is out of the 2 700 K to 5 400 K range.
 - When the scene mostly contains high color temperature objects, such as a blue sky or sunset.
 - When the scene is dim.
- ONE PUSH: If you select the ONE PUSH mode, you will be able to set up the White Balance automatically using  button.
- MANUAL: You can set the white balance options manually.
 - COLOR TEMP: Use  or  button to select a function.
 - › INDOOR: The color temperature range for the proper white balance is approximately 3 200 K.
 - › OUTDOOR: The color temperature range for the proper white balance is approximately 5 100 K.
 - RED: Set the desired red value.
 - BLUE: Set the desired blue value.

Day/Night setting



1. Select [DAY/NIGHT] option on the [CAMERA SET] menu.
2. Use  or  button to select the mode.
 - AUTO: DAY/NIGHT mode changes automatically.

- D/N LEVEL: Use or button to select a level.
- DWELL TIME: Use or button to select a dwell time.

NOTE

If you set the AGC to [OFF] or the SHUTTER is set to one of the SHUTTER options except AUTO on the [EXPOSURE] menu, the AUTO mode of the DAY/NIGHT function is not available and [---] mark is displayed.

- DAY: Color mode enabled.
- NIGHT: Black-and-white mode enabled.

3D-DNR setting



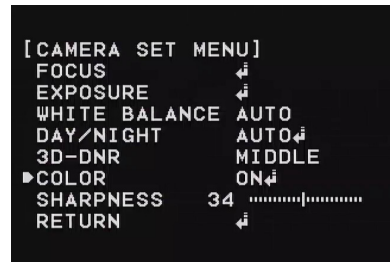
1. Select the [3D-DNR] option. If pictures are not clear due to brightness, use this function to reduce the noise of picture.
2. Use or button to select an option.

NOTE

- If you set the AGC to [OFF] on the [EXPOSURE] menu, the [3D-DNR] function is not available.
- When you use this function, the afterimage may occur.

Color setting

You can switch the displayed picture to grayscale or color.



1. Select the [COLOR] option on the [CAMERA SET] menu.
2. Use or button to change a color effect.
 - ON: To display the picture with color. Select ON and press to display the submenu. You can adjust the color level using the or button.
 - OFF: To display the picture with grayscale.

Sharpness setting

Sharpens the image outline.

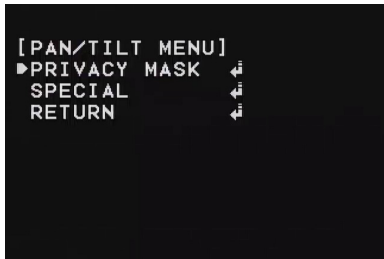
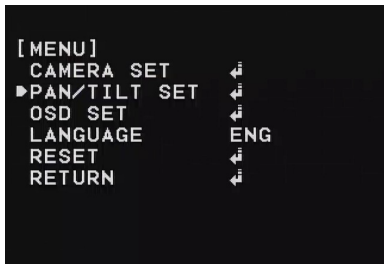


1. Select the [SHARPNESS] option on the [CAMERA SET] menu.
2. Use or button to adjust the option. If you set the sharpness value to higher, the image outline becomes sharp. If you set to lower value, the image outline becomes dim.

PAN/TILT Settings

Privacy Mask setting

This function is aiming at the protection of personal privacy, the mask zone is not displayed on the screen. Up to 8 zones can be registered.



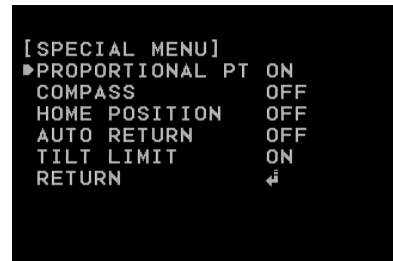
1. Select the [PRIVACY MASK] option on the [PAN/TILT MENU].
2. Press button to display the PRIVACY MASK MENU.
3. Use or button to select a zone number on the [MASK NUMBER] option.
4. Select the [SET MASK] option and press button.
5. Select the mask zone using the PTZ control buttons and then press button to save it.
6. Use or button to set to [ON] or [OFF] on the [MASK STATE] option. If you already registered the mask zone and set to ON, the mask zone box appears on the monitor.

7. Use or button to select the color of the mask zone box on the [MASK COLOR] option.
8. Select the [WIDTH] option and use or button to adjust the horizontal size of the mask zone box.
9. Select the [HEIGHT] option and use or button to adjust the vertical size of the mask zone box.
10. Repeat steps 3 to 9 to add additional positions.

NOTE

- The parts with the registered mask numbers from 1 to 4 have the same color. (So do the parts with the numbers from 5 to 8). If you change the mask color, the registered mask color will be changed automatically with the same color for each of group (1 to 4, 5 to 8).
- The initial PRIVACY MASK color is set to black. After setting, the PRIVACY MASK position on [SET MASK] option, it'll be changed to gray color. Be sure, you have to press button on the [SET MASK] option to confirm the privacy mask color.

Special setting





Proportional PT

This function optimizes the image by automatically adjusting the PAN/TILT (horizontal/vertical rotation) speed according to the zoom ratio.

1. Select [PROPORTIONAL PT] option on the [SPECIAL] menu.
2. Use or button to toggle it on and off.
 - ON : Pan/tilt speed is in inverse proportion to the zoom ratio.
 - OFF : The speed is constant at the fastest level regardless of the zoom ratio.

Compass

You can display the north, south, east and west information on the screen.











1. Select [COMPASS] option on the [SPECIAL] menu.
2. Set the [COMPASS] option to [SET] and then press  button.
3. Select north point using the PTZ control buttons and then press  button.
4. Set the [COMPASS] option to [ON].

Home position

The home position is the camera's basic position.

The camera returns to this position whenever you want.

Use the following procedure to make the home position.





1. Select [HOME POSITION] option on the [SPECIAL] menu.
 2. Use  or  button to set it ON.
 3. Press  button.
 4. Select [SET] option and then press  button.
 5. Select the home position where you want and then press  button.
 6. Select [DWELL TIME] option and then select the dwell time.
 7. Select [RETURN] option and press  button to exit the setting menu.
- » *Go to Home position*
1. Select [HOME POSITION] option on the [SPECIAL] menu.
 2. Use  or  button to set it ON.
 3. Press  button.
 4. Select [GO] option and then press  button. The camera will move to the home position.

NOTE

- If you do not want to use the home position function, set the [HOME POSITION] option to [OFF].
- If you set the [HOME POSITION] to [ON], the [AUTO RETURN] option is set to [OFF] automatically and you can not use it.

Auto return

This function can be used to specify automatic return to a particular mode if a certain amount of time elapses without any operation being performed.

1. Select [AUTO RETURN] option on the [SPECIAL] menu.
2. Use  or  button to set it [ON] and then press  button.
3. Select [RETURN TIME] option and then select the auto return time.
4. Select [RETURN] option and press  button to exit the setting menu.





NOTE

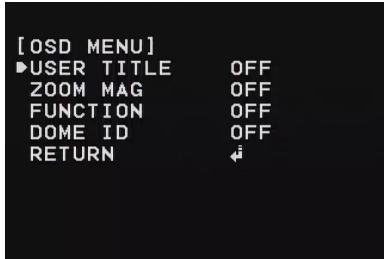
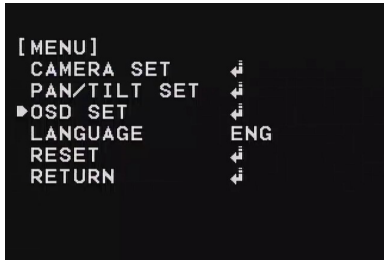
If you set [AUTO RETURN] to [ON], the [HOME POSITION] option is set to [OFF] automatically and you can not use it.

Tilt limit

You can specify the tilt range. If you set this function, the camera is able to tilt from 15° to 165°.

1. Select [TILT LIMIT] option on the [SPECIAL] menu.
2. Use  or  button to set it [ON]. If you do not want to use this function, set it to [OFF].

OSD Settings



User title setting

You can use the camera identification to assign a number and character to the camera.

1. Select [USER TITLE] option on the [OSD] menu.
2. Use **←** or **→** button to set it [ON].
3. Press **↵** button. The USER TITLE menu appears.
4. Use **↑**, **↓**, **←** or **→** button to select a character, number, symbol mark or option item.



- **</>**: Moves cursor to left or right.
- **1** (Blank): Insert a space at the cursor position.

- **CLR**: If you enter the wrong code, select [CLR] then press **↵**. All letters will be erased at once.
- **POS**: Move the USER TITLE position on the screen using the **←** or **→** buttons.
- **END**: Select this option to exit the settings.

ZOOM MAG setting

Displays or removes the zoom OSD on the screen.

1. Select [ZOOM MAG] option on the [OSD] menu.
2. Use **←** or **→** button to set it [ON] or [OFF].
3. Select [RETURN] option and press **↵** button to exit the setting menu.

FUNCTION setting

Displays or removes the Function OSD on the screen.

1. Select [FUNCTION] option on the [OSD] menu.
2. Use **←** or **→** button to set it [ON] or [OFF].
3. Select [RETURN] option and press **↵** button to exit the setting menu.

DOME ID setting

Displays or removes the Camera ID OSD on the screen.

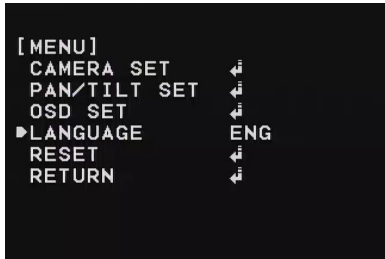
1. Select [DOME ID] option on the [OSD] menu.
2. Use **←** or **→** button to set it [ON] or [OFF].
3. Select [RETURN] option and press **↵** button to exit the setting menu.

NOTE

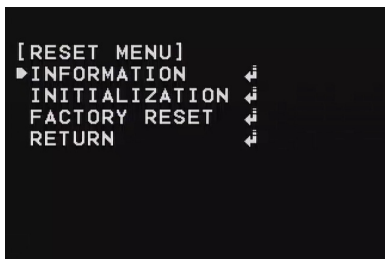
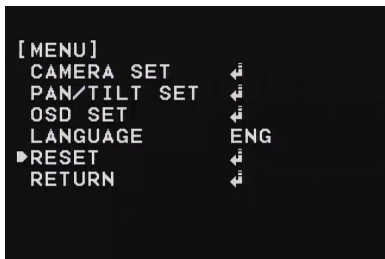
USER TITLE, ZOOM MAG, FUNCTION, DOME ID, and COMPASS are hidden when the camera starts tracking an object. When the tracking is stopped, those will be displayed as configured.

LANGUAGE Setting

Select a language for the setup menu and OSD display.



RESET Setting



Information

You can view the current camera information such as PTZ software version, camera software version, camera ID, Protocol and Baud Rate.

1. Select [INFORMATION] option on the [RESET] menu.
2. Press button to display the current camera information.

Initialization

You can initialize the camera settings.

1. Select [INITIALIZATION] option on the [RESET] menu.
2. Press button then confirmation window is displayed.
3. Select [YES] and press button.

Factory reset

Clear certain settings and information and return to factory default settings.

1. Select [FACTORY RESET] option on the [RESET] menu.
2. Press button then confirmation window is displayed.
3. Select [YES] and press button. The camera will return to the factory default settings.

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Reference

Troubleshooting

This section provides useful information to help you to resolve any difficulty you might have with your LG IP device. Fault symptoms, possible causes and remedial actions are provided here.

IP Setting problems

- ARP/Ping: Disconnect and reconnect the power to the network camera. The device should get the IP within 2 minutes.
- Ping your camera: Open the command prompt on your computer, type ping with the IP address of the network device. The reply obtained by this command provides explanation for the cause of the problem.
 1. bytes = 32 time = 2 ms indicates that the IP address is already used and cannot reuse the same. A new IP address needs to be obtained.
 2. Destination host unreachable: indicates that the network device and your computer do not fall in the same subnet hence needs to get a new IP address. Contact the system administrator for the required help.
 3. Request timed out: Indicates that the IP is free as it is not used by anyone and the network device can obtain this.
- IP Conflicts: If the LG network device is set with a static IP address and if the DHCP option is set then there may be IP's same as the network device and other network partner. Hence set the static IP address to 0.0.0.0 to resolve this conflict.

Cannot access the camera from browser:

- Reconnect the network camera with power and check the ping operation to know if the IP is used by others.
- Disable the proxy setting in the Browser if you are using a proxy server.
- Check for proper cabling and network connections, try to ping after verifying the connectivity.
- Sometimes when HTTPS is enabled, we would be checking the URL with http, in this case manually change the URL to the http/https accordingly.
- Verify the DNS and Gateway settings if the IP address is assigned statically to the network device.

Accessing camera external to the local network

- Firewall Protection: Check for the internet firewall with the system administrator, either he has to do port forwarding or modify the DMZ function on the router.
- Default router needed: Check if you need configure the router settings.

Sporadic network performance

- Network Switches or hubs used may be of the lower configuration and the load on this may not meet the required conditions of our network camera.
- Check for the RJ-45 cables that are used for the network connectivity.

Video Streaming problems

- If the video streaming does not start on the Web browser, install the LG Web Client ActiveX program on your computer following the instructions on the Web browser.
- When Windows IE browsers are used always take care to allow pop ups, check this option before we run the web client.
- Check the quality of image by referring the video settings as described in the manual.
- Sometimes there would be intermittent or very slow video streaming, this may be because of the higher resolution and frame rate that are set for the video.
- The video streaming may appear poor at times, this may be because of the network traffic, too many devices connected to the switch or hub, enabling motion detection to each of the video streams and because of other programs running on your computer.
- If the images appear to be blurred adjust the focus of the network camera to get a clear image.
- Video images if appear white and black adjust the settings in the OSD to get back the colorful image.
- Select the Night mode if the network camera is connected at a place where surrounding light is less or dark.
- If we obtain lower frame rate than set we need to check from the system administrator for sufficient bandwidth available or reduce the number of applications running on the client computer.
- If the client PC's are unable to access the multicast stream, check with the system administrator for the use of a valid multicast address or check if the router is supporting multicasting.
- If the images appear to have white or gray stripes on it, upgrade the Video graphics driver on the client PC to the latest version.
- Video images may be noisy if you are using the camera in a very low light environment or the bit rate/quality is set to very low values. Provide higher values for quality and support the surrounding environment with enough light.

Audio condition

- The client computer that is interacting with the camera needs to have a sound card that is functional to support speaker and microphone.
- The sound card needs to be checked for its support for full duplex communication.
- Ensure that the mute button of the client computer is not set and all the audio settings are correct.
- Speaker button on the web viewer should be enabled to listen the audio from the network camera.
- Ensure that the bidirectional audio button is enabled on the Web viewer and the microphone is set.
- Change the input and the output gain for microphone and the speaker respectively to set correct audio level.

For all further support please contact the supplier or forums or websites.

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6

Appendix

Specifications

Model		LW9226	LW9226I	LW9228	LW9228I
Camera	Image Sensor	4.5 mm EX-view HAD CCD			
	Lens	x27 Zoom (F1.5 (Wide End), F3.8 (Tele End)) (f = 3.25 mm to 88 mm)		x37 Zoom (F1.5(Wide End), F4.1(Tele End)) (f = 3.5 mm to 129 mm)	
	Resolution	Up to 704 x 480, 704 x 576 (N/P)			
	Min. Illumination	Color Mode :0.003 (0.6) lx (Sens-up OFF) B/W Mode : 0.000 1 (0.1) lx (Sens-up OFF)			
	True Day/Night	O			
	WDR	O			
	Image Enhancement	Backlight Compensation, Exposure Control, Sens Up Control, AGC, White Balance, Privacy Masking, EIS, Digital Zoom			
PTZ	Optical Zoom	x27		x37	
	Panning Range & Speed	0° to 360°, Maximum 400°/Second			
	Tilting Range & Speed	0° to 180°, Maximum 400°/Second			
	Auto Panning	Maximum 8 points			
	Preset	128			
	Group Touring	Maximum 9 Groups			
	Pattern	1EA			
	Auto Tracking	O			
Video/Audio	Video Compression	H.264, MJPEG			
	Frame Rate	30fps @ D1 + 30fps @ CIF (NTSC), 25fps @ D1 + 25fps @ CIF (PAL)			
	Multi-Streaming	Dual Streaming			
	Audio Compression	G.726, G.711			
	2-way Audio	O			

Event	Motion Detection	O			
	Event Notification	Relay Out, Email, FTP			
	Pre Event Buffering	O			
	Video Analytics Embedded	-			
Interface	Video In/Out	1 BNC Out			
	Audio In/Out	1/1			
	Alarm In/Out	4/2			
Network	Ethernet	10/100 Ethernet			
	Security	Password Protection, HTTPS(SSL, TLS)			
	Protocol	TCP/IP(IPv4), HTTP, HTTPS, RTP, RTSP, UDP, DHCP, FTP, SMTP, NTP, ARP, ICMP, DDNS(LG)			
	Remote S/W	LSS464 and Web Client			
	Connections	Up to 10			
Misc.	Protection	IP66, Vandal Proof	-	IP66, Vandal Proof	-
	Power Source	AC 24 V			
	Power Consumption	25 W	19 W	25 W	19 W
	Operating Temperature	-20 °C to 50 °C	-10 °C to 50 °C	-20 °C to 50 °C	-10 °C to 50 °C
		Humidity: 0 % RH to 80 % RH			
	Safekeeping Temperature	-30 °C to 60 °C (Humidity: 0 % RH to 90 % RH)			
	Weight	4.17 kg	2.5 kg	4.17 kg	2.5 kg
Dimension (Φ xH)	234.6 mm x 269.9 mm	205.8 mm x 247.4 mm	234.6 mm x 269.9 mm	205.8 mm x 247.4 mm	

