

OWNER'S MANUAL
**Network
Dome
Camera**

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

MODELS

LW9422 series
LNP2810 series

LNP2810T series
LNP3020T series

LNP3022 series



Contents

Introduction 3

Operation and settings 4

- Before using the system4
- Recommended PC Requirements4
- Accessing the LG IP device.....5
- LG Smart Web Viewer Overview6
 - Configuration menu overview7
- Configuring the LG Network Camera Device.....7
 - Accessing the Configuration menu.....7
 - System settings.....8
 - Audio & Video settings..... 11
 - Network settings..... 19
 - User settings22
 - Event settings.....23
- OSD Menu Setup.....26
 - General Operation27
 - Focus setting27
 - Exposure settings.....28
 - White Balance settings.....28
 - Day/Night settings29
 - Privacy setting.....29
 - 3D-DNR setting.....29
 - Special menu settings30
 - Reset setting31

Reference 32

- Troubleshooting32
- Open source software notice.....33
- Specifications.....34

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.

Note that design and specification of this unit may change from the manual as quality and improvement without prior notice. Should you require any technical assistance, please contact authorized service center.

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 Ipsolute VMS 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. Please set your browser zoom level to 100%.
- 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.
- When you set on 60 fps in mobile applications, may be degraded the frame rate depending on mobile performance.

Recommended PC Requirements

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

Items	Requirements
Operating System	Windows XP Professional, Windows VISTA, Windows 7
CPU	Intel Core2 Quad Q6700 (2.66 GHz) or above
Web Browser	Microsoft Internet Explorer (32 bit) above the version 7.0 and below the version 9.0.
DirectX	DirectX 9.0c(Windows XP), DirectX 11(Windows Vista/7) or above
Memory	2 GB or above RAM
Graphics Card	256 MB or above Video RAM
Resolution	2048 x 1536 (with 32 bit color) or higher

Note:

For Windows 7, please download & install 'DirectX End-User Runtime Web Installer':

"<http://www.microsoft.com/en-us/download/details.aspx?id=35>"

Accessing the LG IP device

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

1. Install LG Ipsolute VMS Program

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

- 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".)

Note:

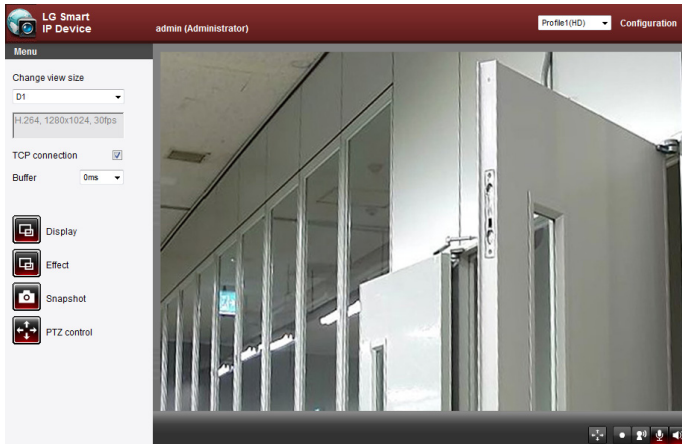
Default password must be changed for security after initial connection.

- 3.4 Click the [OK] button and then the LG Smart Web Viewer is displayed in your browser.

Note:

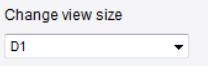
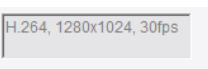
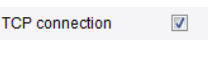
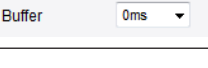
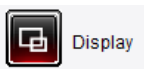
- You can also access the LG Smart Web Viewer as shown below.
 - 3.1 Start your Web browser.
 - 3.2 Enter the IP address of the LG IP device in the address bar of the browser.
 - 3.3 Enter the user name and password set by the administrator.
 - 3.4 Click the [OK] button and then the LG Smart Web Viewer 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.


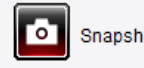
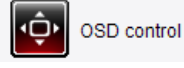
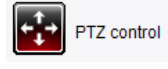
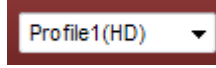

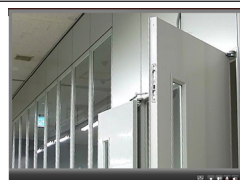

LG Smart Web Viewer Overview







Note:

The language displayed on the screen may differ by models.

Item	Description
	<p>Select the video image size from the drop-down list. (FULL SCREEN / AUTO RESIZE / 1920x1080 / 1280x720 / D1 / CIF)</p> <p>Note:</p> <ul style="list-style-type: none"> Select [FULL SCREEN] to enlarge full screen of monitor. To return previous screen, press ESC key or double click. When you select [AUTO RESIZE], size of live view screen fit to window. Ratio imaging is fixed by width based. When you change view size option larger on high resolution image, browser function may not work smoothly.
	<p>It displays Video Codec, Resolution and FPS of the selected video stream.</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>Select buffering time of live stream.</p>
	<p>Click to display the check box of [Hostname], [Framerate] and [Bitrate] options. [Display] is displayed on left top of the live view window in order of selecting options.</p> <p><u>Video Analysis</u></p> <ul style="list-style-type: none"> > Hide: Video Analysis display function is not in use. > MD: Displays the Motion Detection function to the live view window. <p>Note:</p> <p>When you use the DPTZ function, all of Display function is deactivated for a while.</p>

	<p>Click to effect and then check the check box of [Edge Enhancement] option. The user gets more sharp reception on the live view window.</p> <p>Note:</p> <p>This feature only affects the live view window.</p>
	<p>Click to save the current image in JPEG format on your computer.</p> <ol style="list-style-type: none"> Click the [Snapshot] button and then the Snapshot window is displayed. Click the [Save] button in the Snapshot window. Enter the file name (JPEG format) and select the folder to save it. Click the [Save] button to confirm it. Click the [Cancel] button in the Snapshot window to close it.
	<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. (LW9422 model only)</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.</p> <p>Profile1(HD), Profile2(SD), Profile3(JPEG), Profile4(ROI-1), Profile5(ROI-2), Profile6(ROI-3), Profile7(ROI-4)</p> <p>Note:</p> <p>You can set the stream configurations independently. This would facilitate the user to set the live view at his comfort.</p>
	<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:</p> <p>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. You can monitor the camera image on the live view window of the LG Smart Web Viewer.</p>
	<p>Click this button and drag the area to use digital PTZ function. Right-clicking the screen will bring up the previous magnification. (Color icon: On, Gray scale icon: Off.)</p>

	<ol style="list-style-type: none"> 1. Click this button to open the folder browse window. Click the button again in next time, video is recorded automatically without selection of folder. Note: If you want to change the folder, move to other pages or press therefresh button. 2. Recording button is activated and recording will be started. Note: If recording exceed the time(1 hour) or size limit (1 GB), recording is stopped automatically with warning. 3. To stop the recording, click this button during the recording.
	<p>Click this button to connect or disconnect the audio communication between the LG IP device and the connected PC. (Color icon: On, Gray scale icon: Off.)</p>
	<p>Click this button to switch the microphone off and on for the computer. (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. (Color icon: On, Gray scale icon: Off.)</p>

Configuration menu overview

The following table shows the list of menu items.
The configuration images are different from each model.

Main Menu	Sub Menu	Note
System	Version	
	Date & Time	
	Maintenance	
	Storage	
	Text Overlay	
	Log & Report	
	Language	
Audio & Video	Camera	
	Stream	
	Audio	
	PTZ Configuration	
	Preset	
	Auto Tracking	Option
Network	Basic	
	RTP stream	
	TCP/IP	
	DDNS	
	IP filtering	
	SNMP	
	QoS	
	802.1x	
	SIP	Option
User	Basic	
Event	Event server	
	Sensor & Relay	
	Motion detect	
	Triggered Event	
	Scheduled Event	

Configuring the LG Network Camera Device

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 Model Name and Software version.

Menu	Version
System	Version list
> Version	Model Name: LNP3022
> Date & Time	Software version: 1893.0.0.1407020
> Maintenance	Copyright
> Storage	Copyright 2009 LG Electronics. All Rights Reserved.
> Text Overlay	
> Log & Report	
> Language	
Audio & Video	
Network	
User	
Event	

Date & Time

Menu	Date & Time
System	Time zone
> Version	(GMT+0:00) GMT
> Date & Time	Time mode
> Maintenance	<input checked="" type="radio"/> Synchronize with NTP server: pool.ntp.org
> Storage	Time will be synchronized with NTP server every: 1 hour
> Text Overlay	Click button to test this server: [Test]
> Log & Report	<input type="radio"/> Synchronize with personal computer: 2013-03-22 11:05:48
> Language	<input type="radio"/> Synchronize manually
Audio & Video	Date: 2013-03-22 [Calendar] Time: 11 : 05 : 47
Network	Server time
User	Server time: 2013-03-22 02:05:47
Event	[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.

Note:

- When system reboot after time setting, time of system could be delayed. If you set the time correctly, set the [Synchronize with NTP server] option.
- Refer to NTP configuration as operation system of the Recording Server when the Recording Server use recording function and NTP server.

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
> Version	Click button to reboot this system. [Reboot]
> Date & Time	Backup & Restore
> Maintenance	Click button to backup current configuration. [Backup]
> Storage	Click button to restore configuration from backup file. [Restore]
> Text Overlay	[Browse...] [ex: c:\backup.config]
> Log & Report	
> Language	
Audio & Video	Firmware
Network	Click button to upgrade firmware. [Upgrade]
User	[Browse...] [ex: c:\firmware.dat]
Event	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.

Backup and restore

- > Backup: To take a backup all of the settings. If necessary, it make possible to return to a backedup configuration.
 1. Click the [Backup] button.
 2. Click the [Save] button.
 3. Follow the instructions on the browser to specify the folder.
 4. Click the [Save] button to save the settings.
- > Restore:
 1. Click the [Browse] button.
 2. Find and open the file in which the configuration setting data is stored.
 3. Click the [Restore] button and 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.

Firmware

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

Note:

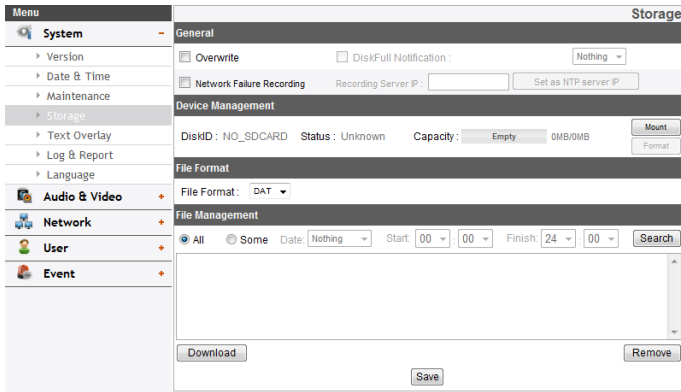
When you upgrade the system, it may take some minutes to be done. Do not close the browser while the upgrade is in progress. If you close the browser, it may cause a malfunction. You should wait until the confirmation window is displayed. When the upgrade is finished, the confirmation window will be displayed.

- > 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, PTZ Protocol and Preset settings. (The option depends on the model.)

Note:

Refer the "Clear browser's cache" of Troubleshooting.

Storage



General

- > Overwrite: If the micro SD card has insufficient space and this option will be activated. It will overwrite the oldest data.
- > DiskFull Notification: Sends an warning e-mail to the SMTP server when the micro SD card has fully recorded. Select the SMTP server from the drop-down list. You should register the SMTP server on the Event server setting to set this function.
- > Network Failure Recording: Select the check box to activate the micro SD card recording function. If the system does not work with recording server, the system will record the data to the micro SD Card. When the system connect to the recording server again, the recorded data of the micro SD card will transfer to the recording server automatically.
- > Recording Server IP: Enter the recording server IP.
- > Set as NTP server IP: Click this button to use the entered Recording Server IP as the NTP server IP.

Note:

- The recorded file name is made automatically as the "[Created date of the file]_[GMT Recording Time].DAT" type.
- If the capacity of the SD card remains less than 200 MB, stop recording or overwrite new file after delete old one as [Overwrite] setting. The overwritten file can not play or may malfunction when you download.
- Recorded file on the SD card, is recording 1 frame per second when set video codec to MJPEG.

Device Management

- > Using the micro SD card
 1. Insert the micro SD card carefully to the micro SD card slot of the camera.
 2. Click the [Mount] button. If the micro SD card is mounted to the system correctly, the [Mount] button will be changed to the [Unmount] button.
 3. Displays the information of the [Disk ID], [Status], [Capacity] options.

Note:

- When the micro SD card is mounted, you should format the micro SD card. After the micro SD card format is finished, you should click the [Mount] button to use it.
- When you use the micro SD card format function, it may not progress immediately. In this case, you should try it again after waiting a few minutes.

- > Remove the micro SD card
 1. Click the [Unmount] button. If the micro SD card is unmounted from the system correctly, the [Unmount] button will be changed to the [Mount] button.
 2. Remove the micro SD card from the micro SD card slot of the camera.

Note:

When you use the Unmount function, it may not progress immediately. Operations such as recording of the system and reading of data are required stop time before the Unmount function is activated. You should try it again after waiting a few minutes.

File Format

- > File Format: You can select the Recording File Format (AVI or DAT). Recording, Search and Download are available according to the setting.

Note:

- SD Recording or FTP (Video) Sending Format are set according to the setting. When you select to AVI, [Auto Recording function] may not be activated in case of network error.
- IP Camera's time will be appeared in players based on DirectShow such as Windows Media Player and MPlayer.

File Management

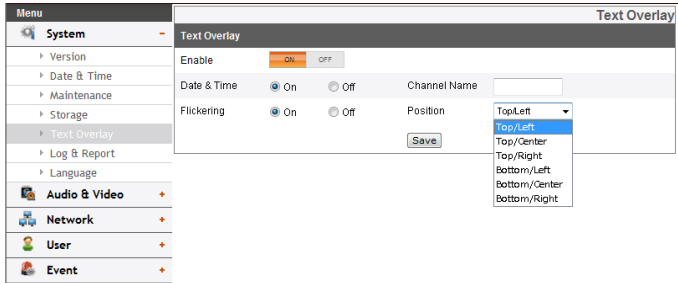
Displays the recorded file of the micro SD card on the list. Click the [Search] button to display the recorded file. The list will be updated when you click the [Search] button.

- > To view the recorded file of the micro SD card
 1. Select the search option.
 - All: Search the all recorded files in the micro SD card.
 - Some: You can set the search condition by using the date and time options.
 2. Click the [Search] button and then the search result is displayed on the list.
- > Download: You can download the recorded data of the list to your PC. Select a recorded file on the list and click the [Download] button. The two confirmation window is displayed. You should download the all files that the recorded file (*.DAT) and information file (*.INFO). You can download as AVI file according to File format.

Note:

- It is recommended to deactivate the [Overwrite] function before you download the file. When [Overwrite] function is activated, the downloading file might be overwritten, if the micro SD card has insufficient space.
- The downloaded file can be played by using the LG File player.
- > Remove: Delete file from the SD card.

Text Overlay



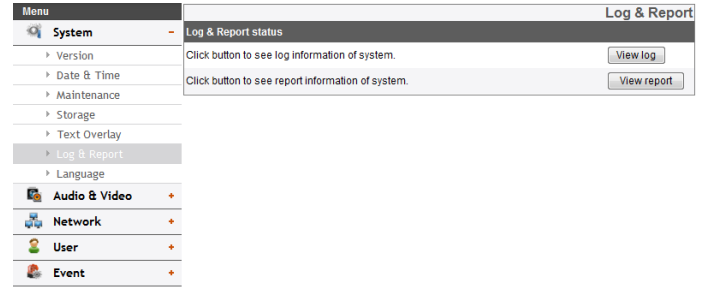
Text Overlay

- > Enable: Set to ON or OFF. Setup menu is appeared when selects ON.
- > Date & Time : Select the ON to display time and date of Client PC.
- > Channel Name: Enter the channel name you want to use. You type the Channel Name, it will be displayed whether you select the ON or OFF.
- > Flickering: Set to On or OFF.
- > Position: You can designate the position of text from drop down list.
- Save: Click this button to confirm the settings.

Note :

The text settings on [Text Overlay] is preserved, even though initialize the camera from [Maintenance] or [Factory Reset]. You can change the text settings on [Text Overlay] directly.

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.
 - Download: Click this button to see the log information of system.
- > View report: Click this button to display the report of the system.
 - Download: Click this button to see the report information of system.

Note :

The downloaded file is a UNIX type. If you open the file in Microsoft Notepad, it will display the text as if the file contained no line breaks at all.

Language



Language list

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

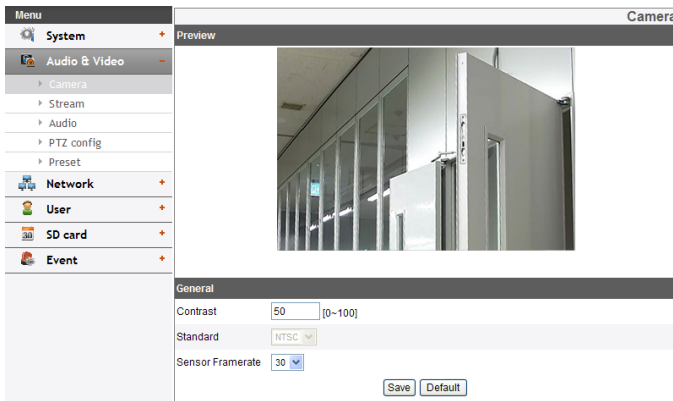
Note:

The language options may differ depending on models.

- Save: Click this button to confirm the settings.

Audio & Video settings

Camera (LW9422 series)



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.
- > Standard: Displays the video standard of the camera.
- > Sensor Framerate: You can select the Sensor Framerate value between 30 and 25.

Note:

- It is recommended to select Sensor Framerate value to 30 in 60 Hz region, 25 in 50 Hz region to reduce flicker.
- Maximum FPS is set 25 when you select Sensor Framerate value 25.
- Save: Click this button to confirm the settings.
- Default: Click this button to restore the IP device back to original factory settings.

Note:

Sensor Framerate are not initialized.

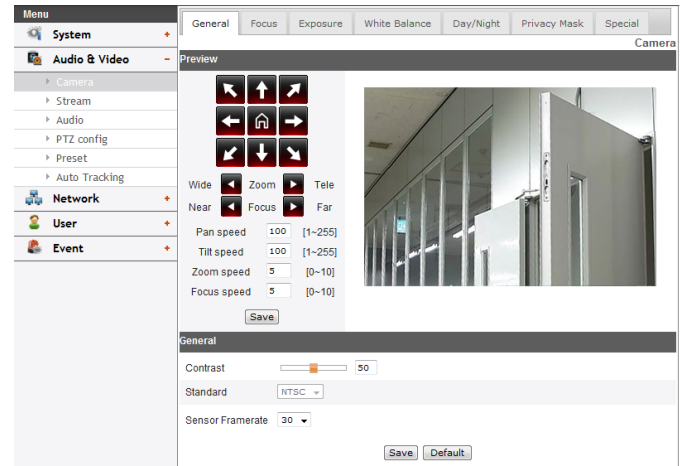
Camera (LNP2810, LNP2810T, LNP3020T, LNP3022)

Preview

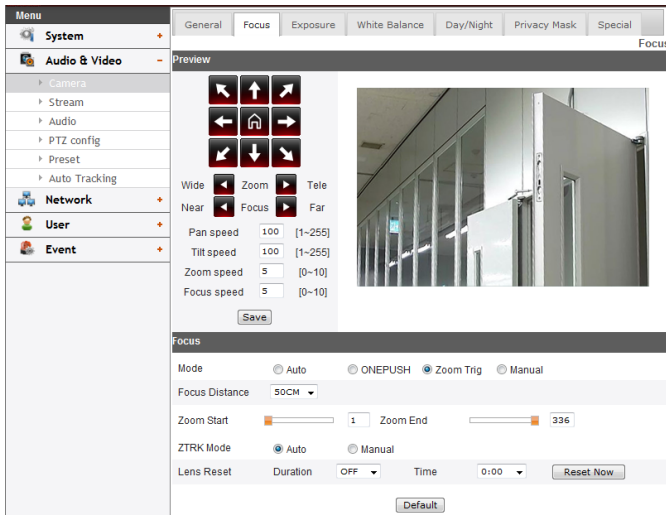
You can preview the camera image on the preview window.

1. Move the camera to the point you want by using the arrow buttons.
2. Adjust the zoom, focus options.
3. Set the Pan, Tilt, Zoom or Focus speed options.
4. Click the [Save] button to confirm the settings.

General



- > Contrast: Edit the contrast value from 0 to 100. Selecting 100 provides the image with the highest contrast.
- > Standard: Displays the video standard of the camera.
- > Sensor Framerate: You can select the Sensor Framerate value between 30 and 25.
- Save: Click this button to confirm the settings.
- Default: Click this button to restore the IP device back to original factory settings.



- > Mode: Select [Mode] option on the [Focus] menu, then select the following mode.
 - Auto: Auto-focus is activated automatically.
 - 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.
 - Manual: Focus is activated automatically after the zoom movement is finished.
- > Focus Distance: Selects the minimum shooting distance for the focus. Select [Focus Distance] option on the [Focus] menu, then select a focus distance value.
- > Zoom Start: You can set the zoom start position of the camera. When the zoom function is operated, the zoom always will start at the selected zoom start position. Select [Zoom Start] option on the [Focus] menu, then set a zoom start position.
- > Zoom End: You can set the zoom end position of the camera. If you set the zoom end position, the zoom is operated up to the selected zoom end position. Select [Zoom End] option on the [Focus] menu, then set the zoom end position.

Note:

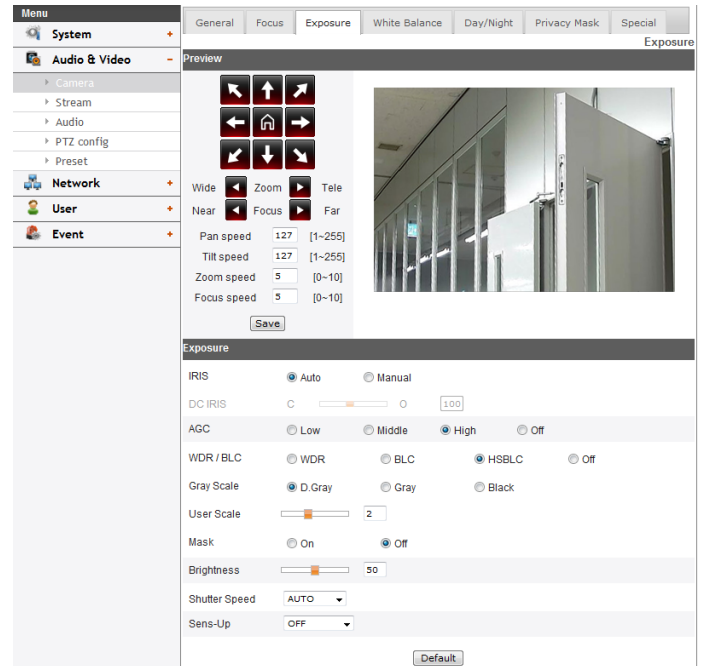
The maximum [Zoom End] value depends on the model.

- > ZTRK mode: Selects a zoom tracking mode. Zoom tracking means focused zooming state. Select [ZTRK Mode] option on the [Focus] menu, then select a zoom tracking mode. If the FOCUS MODE is set to [Auto], the [ZTRK Mode] is set to [Auto] and you can not change the [ZTRK Mode].
- > Lens Reset (Applicable Model: LNP3020T, LNP3022): Click the [Reset Now] button to reset the focus immediately. If you want to reset the focus periodically, set the desired duration and time from the drop-down list.

Note:

This function is not working, when the [Auto Tracking] is on.

- Default: Click this button to restore the IP device back to original factory settings.



- > IRIS: 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: Select this option to set the lens IRIS manually. [DC IRIS] level are set by one parameter unit.
- > DC IRIS: If you select [Manual] on the [IRIS] option, [DC IRIS] option is activated. Set the DC IRIS value.
- > AGC: If the images are too dark, change the maximum [AGC] value to make the images bright.
- > WDR/BLC: Use WDR/BLC option to view the object clearly in backlight conditions. Select [WDR/BLC] option on the [Exposure] menu.
 - WDR: 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.
 - ACE: When the [WDR/BLC] menu set to [WDR], the [ACE] menu appears. This function is used when you want to display dark areas of WDR brightly.
 - BLC: Camera's backlight compensation feature helps alleviate issues of visibility in high contrast areas.
 - HSBC (LNP3022 series only): You can see the object more clearly by covering the bright area more than specified brightness.
 - Gray Scale: When the [WDR/BLC] menu set to [HSBC], the menu appears. Select the color to cover the bright area.
 - User Scale: Select the brightness level.
 - Mask: Set the function which the area more than specified brightness hides by certain color.
- OFF: Not in use.
- > De-Fog (Applicable Model: LNP3020T, LNP3022): When the [WDR/BLC] menu set to [Off], the [De-Fog] menu appears. Set to [On] to remove the misty fog of image.
- > Brightness: 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.
- > Shutter Speed: 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.

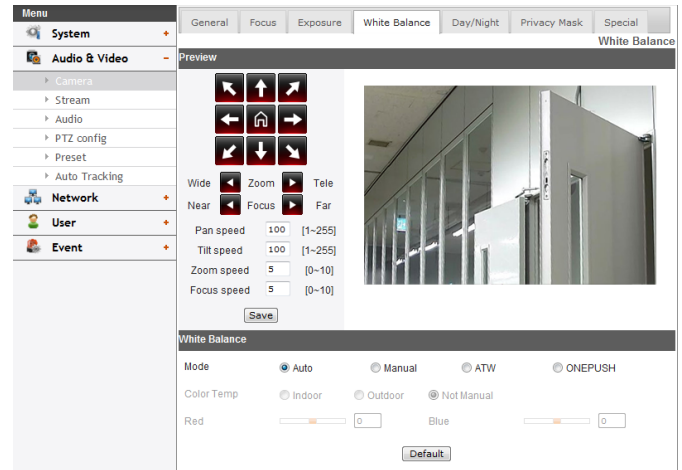
- > Sens-Up: If pictures are not clear due to darkness, this SENS-UP operation would increase the sensitivity of picture.

Note:

If you set to one of the [Shutter Speed] options except AUTO on the [Shutter Speed] menu or [AGC] to [OFF], the [SENS-UP] setting is not available.

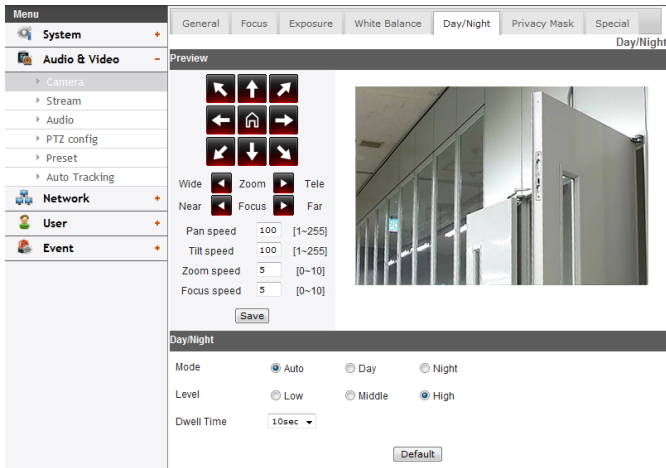
- Default: Click this button to restore the IP device back to original factory settings.

White Balance



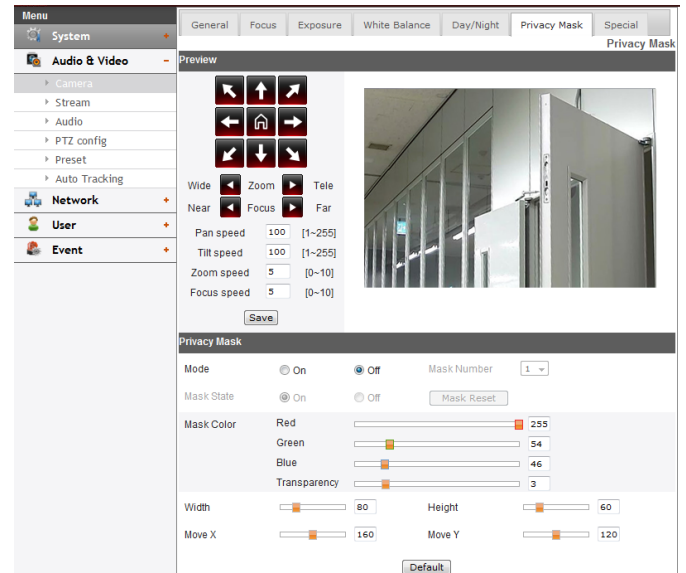
- > Mode: Select [Mode] option on the [White Balance] menu, then select the following mode.
 - Auto: You can set the white balance options automatically. When the [Mode] is set to [Auto], [Color Temp], [Red] and [Blue] option are not activated.
 - Manual: You can set the white balance options manually.
 - ATW (Auto-Tracing White Balance): In this mode, white balance has better coverage than auto. Proper white balance may not be obtained under the following conditions:
 1. When the scene contains mostly high color temperature objects, such as a blue sky or sunset.
 2. 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.
- > Color Temp: Click to select the option.
 - Indoor: The color temperature range for the proper white balance is approximately 3 200 K (LNP3022: 3 800 K).
 - Outdoor: The color temperature range for the proper white balance is approximately 5 100 K.
 - Not manual: This option is not to select the mode. It means impossible to change [Color Temp].
- > Red: Set the desired red value.
- > Blue: Set the desired blue value.
- Default: Click this button to restore the IP device back to original factory settings.

Day/Night



- > Mode: Select [Mode] option on the [Day/Night] menu, then select the following mode.
 - Auto: [Day/Night] mode changes automatically.
 - Day: Color mode enabled.
 - Night: Black-and-white mode enabled.
- > Level: Click the option to select a level.
- > Dwell Time: Click the drop-down list to select a dwell time.
- Default: Click this button to restore the IP device back to original factory settings.

Privacy Mask



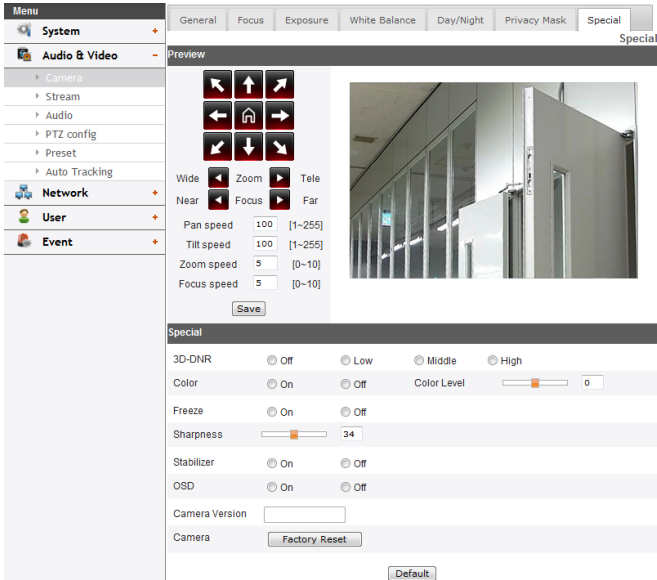
This function is aiming at the protection of personal privacy. The selected part is not displayed on the screen.

1. Select the [Privacy Mask] option.
2. Set to [On] or [Off] on the [Mode] menu.
3. Click the drop-down list to select one of the [Mask Number].
4. Set to [On] or [Off] on the [Mask State] menu. If you already registered the mask zone and [Mode] is set to [On], the mask zone box appears on the live view window and [Mask color], [Width], [Height], [Move X] and [Move Y] menu is activated.
 - > Mask Color : You can make any color by adjusting R.G.B LEVEL and adjust the transparency of MASK.
 - > Height: Increase or decrease the vertical size of the mask.
 - > Width: Increase or decrease the horizontal size of the mask.
 - > Move Y: Moves vertical position of the mask.
 - > Move X: Moves horizontal position of the mask.
- Default: Click this button to restore the IP device back to original factory settings.

Note:

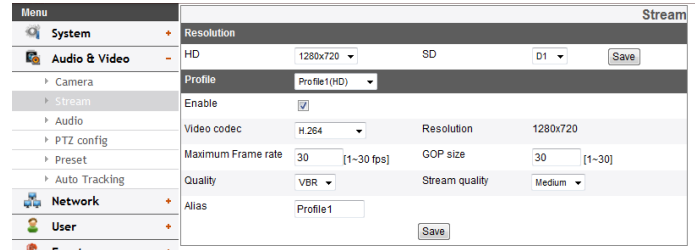
- The [Privacy Mask] size is recommended to set the size default or more.
- Adjust the size about 50 % bigger, to cover the object completely.
- Click the [Mask Reset], before you adjust the new privacy settings.
- The maximum [Transparency] value depends on the model.

Special



- > 3D-DNR: If pictures are not clear due to noise, this option would reduce the noise of picture. When you use this function, the afterimage may occur.
- > Color: You can switch the displayed picture to gray scale or color.
 - On: To display the picture with color. If you set [On], the [Color Level] option is activated. Adjust the [Color Level] value using by jog controller or enter the desired value.
 - Off: To display the picture with grayscale.
- > Freeze: Click [On] or [Off] button to set up the [Freeze] Option.
- > Sharpness: The degree to which the boundary of the two portions is clearly distinguished. Adjust the value using by jog controller enter the desired value. If you set the sharpness value to higher, the image outline becomes sharp. If you set to lower value, the image outline becomes dim.
- > Stabilizer: The image stabilizer function minimizes the appearance of shaky images caused by low-frequency vibration. This function is useful for outdoor surveillance. Select the [Stabilizer] option and set to [On] or [Off].
- > OSD: Click [On] or [Off] button to set up the [OSD] Option. If you set [On], [Function] and [Zoom MAG] option are displayed.
 - Function: Displays or removes the Function OSD on the screen. Click [On] or [Off] button to set up the [Function] Option.
 - Zoom MAG: Displays or removes the zoom OSD on the screen. Click [On] or [Off] button to set up the [Zoom MAG] Option.
- > Camera Version: Displays the software version on the monitor.
- > Camera
 - Factory Reset: Clear certain settings and information and return to factory default settings.
- Default: Click this button to restore the IP device back to original factory settings.

Stream



Resolution

- > HD: Displays the maximum image size of the camera.
- > SD: Select the output image size of the camera.

Profile

- > Enable: Click to activate the stream function.
- > Video codec: Select the video mode (Codec) from the drop-down list. The viewer can choose among MJPEG, H.264 and H.264_HIGH.
- > Maximum frame rate: Set the frame rate of the image.
- > 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)
- > Alias: Enter the profile name you want to use.
- > 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.

Note:

- If the 'Bit rate' is configured too low with high resolution, the actual frame rate will decrease because of narrow bandwidth. So you need to set or change the 'Bit rate' to high value.
- In case of LW9422 series, if you set the [Maximum Frame rate] of master stream over than 20 fps under the 1920 x 1080 [Resolution] status, all about slave stream value is deactivated.
- Save: Click this button to confirm the settings.

Region Of Interest

Profile: Profile4(ROI-1)

Enable:

Video codec: H.264

Maximum Frame rate: 30 [1~30 fps] GOP size: 30 [1~30]

Quality: VBR Stream quality: Medium

Alias: Profile4

Region Of Interest

1 x

UPSYS

Save

You can set and streaming the desired area on the live view window to use ROI(Region Of Interest) function. Select Profile4(ROI-1) to Profile7(ROI-4).

- > Enable
 1. Click to activate the [Region Of Interest] window. You can add the 4 windows maximum for ROI function.
 2. Click the edge or corner of the window box to adjust the window size.
 3. Click the [Save] button to save the settings.

Note:

ROI area can not overlap with each other.

Audio

Menu

System

Audio & Video

Audio in

Enable Audio type: G.711 PCMU

Audio out

Enable Save

Camera

Stream

Audio

PTZ config

Preset

Auto Tracking

Network

User

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 type of audio encoding. (G711 PCMA, G711 PCMU, G726 24K, G726 32K)

Audio Out

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

PTZ Configuration

Allows the user to configure different PTZ controls by using different PTZ protocols.

Menu	PTZ config
System	PTZ configuration
Audio & Video	Enable <input checked="" type="checkbox"/>
Camera	Pan speed 150 [1~255] Tilt speed 150 [1~255]
Stream	Zoom speed 10 [0~10] Focus speed 10 [0~10]
Audio	Enable Tilt Limit <input checked="" type="checkbox"/>
PTZ config	Auto Return Mode <input type="radio"/> Off <input checked="" type="radio"/> Last Tour <input type="radio"/> Home
Preset	Auto Return Time 10 [0~100 min]
Network	<input type="button" value="Save"/>
User	
Event	

PTZ configuration

- > Enable: Check to use the PTZ protocol.
 - > Pan speed: Enter the panning speed of the PTZ device in the edit box. Default value is depending on protocol.
 - > Tilt speed: Enter the tilting speed of the PTZ device in the edit box. Default value is depending on protocol.
 - > Zoom speed: Enter the zoom speed of the PTZ device to view the object wide or tele at a distance. Default value is depending on protocol.
 - > Focus speed: Enter the focus speed of the PTZ device to focus an object clearly near or far. Default value is depending on protocol.
 - > Enable Tilt Limit: Check to use the Tilt limit.
 - > Auto Return Mode: This function can be used to specify automatic return to a particular mode.
 - Off: Not in use.
 - Last Tour: After the Auto Return Time is over, the camera restarts the previous tour.
 - Home: When the touring is stopped, returns to the camera's basic position after the set time.
- Note:**
You have to set the basic position to perform this function.
- > Auto Return Time: Enter the auto return time of the PTZ device in the edit box. If you set the value to 0, auto return feature is deactivated.
 - Save: Click this button to confirm the settings.

Preset

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

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.

- > 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 [Group Remove] 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.

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.

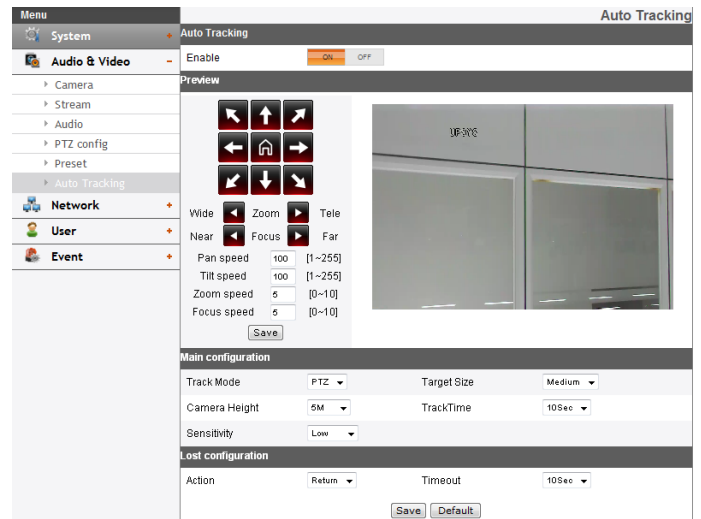
- > To record the pattern
 1. Click the [Start recording] button to start the pattern recording.
 2. Move the camera through the desired movement.
 3. Click the [Stop recording] button to stop the pattern recording.

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.

Auto tracking (LNP2810T, LNP3020T)



Auto tracking

- > Enable
 - ON: Auto tracking setup menu appears. Then you can set the values.
 - OFF: Auto tracking setup menu disappears.

Preview

You can see the settings screen from the preview window.

1. Set the camera angle to the point you want with arrow buttons.
2. Adjust the zoom, focus options.
3. Set the Pan, Tilt, Zoom or Focus speed options.
4. Click the [Save] button to confirm the settings.

Main configuration

- > Track Mode: During perform the Auto Tracking, track the object using PT(Pan / Tilt) or PTZ(Pan / Tilt / Zoom).
- > Target Size
 - SMALL: Make images about 1/4 of the object using Zoom feature.
 - MEDIUM: Make images about 1/2 of the object using Zoom feature.
 - LARGE: Make images about 3/4 of the object using Zoom feature.
- > Camera Height: Set to the height of the camera.
- > TrackTime: Set the maximum time object tracking. The camera moved to the initial position after tracking the amount of time set.
- > Sensitivity: Set the sensitivity of detection of objects.

Note:

Low sensitivity setting value can be difficult to detect of small objects or movement.

Lost configuration

- > Action
 - Stay: When tracking is failed, the camera stays current position preparing re-tracking, does not return to the initial position.
 - Return: When tracking is failed, the camera returns to the initial position preparing re-tracking.
- > Timeout: When tracking is failed for the first time, It tries to re-check the object during set timeout. After that, set action is performed.

- Save: Click this button to confirm the settings.
- Default: Click this button to restore the IP device back to original factory settings.

Network settings

Basic

Menu	Basic
System	General
Audio & Video	MAC address: E8:5B:5B:AC:9B:79
Network	Port & Encryption
Basic	Network encryption: HTTP
RTP stream	Smart Port Setting: On
TCP/IP	UPNP Status: Loading...
DDNS	External IP: Loading...
IP filtering	Web port: 80
SNMP	RTSP port: 554
QoS	ARP ping: <input checked="" type="checkbox"/>
802.1x	Enable ARP ping to configure IP address: <input checked="" type="checkbox"/>
SIP	<input type="button" value="Save"/>
User	
Event	

General

- > MAC address: Displays the MAC address.

Port & Encryption

- > Network encryption: Select the HTTP or HTTPS option for security.
- > Smart Port Setting: Select [On] to allocate a port number automatically.

Note:

If you select [On], [UPNP Status], [External IP], [Web Port] and [RTSP Port] options are deactivated.

- > UPNP Status: When you use the router that is supported UPnP function, you can set the port forwarding automatically by using the [Smart Port Setting]. [UPnP Status] shows connected status of router.
- > External IP: When you connect the router that is supported UPnP function, this option is displayed. Displays the external IP address allocated router.
- > 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.

Note:

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

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	Profile: Profile1(HD)
Audio & Video	RTP unicast
Network	RTP multicast
Basic	IPv4 address: 239.255.214.42
RTP stream	Base RTP port: 10000
TCP/IP	Multicast: Always Multicast
DDNS	TTL: 7
IP filtering	<input type="button" value="Save"/>
SNMP	
QoS	
802.1x	
SIP	
User	
Event	

Profile

- > 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.
 - IPv4 address: Set the IP address for RTP multicast.
 - Base RTP port: Enter the port number of even number used for the multicast streaming. Each profile uses successive 6 port number which starts from [Base RTP port]. It is initially set to 10 000 and you can edit this between 10 000 and 65 530.

Note:

Each profile using multicast needs its own multicast IP address and port numbers to avoid address conflict. When more than 2 profiles use same multicast IP address, each [Base RTP port] number should be distinguished from the other port number more than 6 at least.

Multicast

- > Always Multicast: Check to enable multicast regardless of client connection.

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.
- Save: Click this button to confirm the settings.

TCP/IP

IPv4 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.
- If you select [Automatically set with DHCP], the camera obtain IP address from DHCP server after IP address is set "192.168.0.16".
- > 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.
 - IPv4 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.

IPv6 address status

- > Enable: Click the check box if you want to use the IPv6 address.
- > Mode
 - Manual: Select this option when you set a fixed IP address manually.
 - Basic: Select this option to allow IPv6 address assignment based on the Mac address. With this setting, the IP address is assigned automatically.
 - DHCPv6: Select this option when exist a DHCPv6 server in network. If DHCPv6 server is not existed or temporary disability, it requests assignment every 3 minutes.
- > IPv6 address: You can enter the IP address when you select the Manual mode. It alarms when you enter the invalid IP address.
- 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.

IPv6 address

- Add: Click this button to add the IP address.
 1. Click the [Add] button.
 2. Set the IP address option.
 - Alias: Enter the alias.
 - IPv6 address: Enter the IP address for IP filtering.
 3. Click the [Save] button.
 4. Repeat the steps 1 to 3 to add additional IPv6 address.
- Remove: Click this button to delete the IPv6 address.
 1. Select the alias from the list.
 2. Click the [Remove] button. The IPv6 address will be deleted.

SNMP

The Simple Network Management Protocol (SNMP) is an application protocol to exchange the management information of network devices.

SNMP v1/v2c

- > Enable SNMP v1/v2c: Selects when SNMP is allowed access to this device.
- > Read Community: Specifies the SNMP management community in which you want to read this system.
- > Write Community: Specifies the SNMP management community in which you want to write this system.

SNMP v3

- > Enable SNMP v3: Selects when SNMP v3 is allowed access to this device. It supports authentication and encryption.
 - > SecurityName: Type the security name for the SNMP.
 - > Password: Type the password for the SNMP.
- Save: Click this button to confirm the settings.

QoS

You can specify network Quality of Service (QoS) settings.

QoS DSCP Configuration

- > Video DSCP: Enter the priority of Video for DSCP (Differentiated Service Code Point) Quality of Service.
 - > Audio DSCP: Enter the priority of Audio for DSCP Quality of Service.
 - > Event DSCP: Enter the priority of Event for DSCP Quality of Service.
- Save: Click this button to confirm the settings.

802.1x

Specifies whether 802.1x network access is enabled.

802.1x/EAPOL using EAP-TLS

- > Enable: Select on to enable the protocol. Current authorization status of 802.1x port is displayed on buttons right.

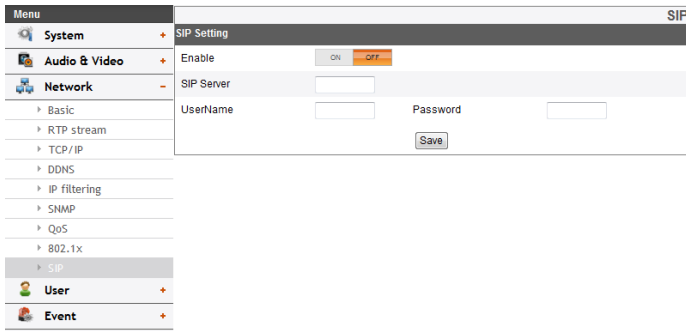
Certificates

- > To upload or remove the certificates
 1. Click the [Browse] Button.
 2. Find and open the certificates file.
 - CA Certificate: Upload the accredited certificate included public key.
 - Client Certificate: Upload the accredited certificate included client authentication key.
 - Client private key: Upload the accredited certificate included client private key.
 3. Click the [Upload] button to install certificates.
 4. Click the [Remove] button to delete certificates.

Basic Configuration

- > EAPOL Version: Select the EAPOL version.
 - > EAP ID: Enter the ID of the client certificate using up to 16 characters.
 - > Password: Enter the password of the client private key using up to 16 characters.
- Save: Click this button to confirm the settings.

SIP (LNP2810, LNP2810T, LNP3020T)



SIP Setting

- > Enable: Set to On when you use the SIP server.
- > SIP Server: Enter the hostname or IP address of the SIP register server.
- > UserName: Enter the name of the device used when making calls with SIP.
- > Password: Enter the SIP server authorization password.
- Save: Click this button to confirm the settings.

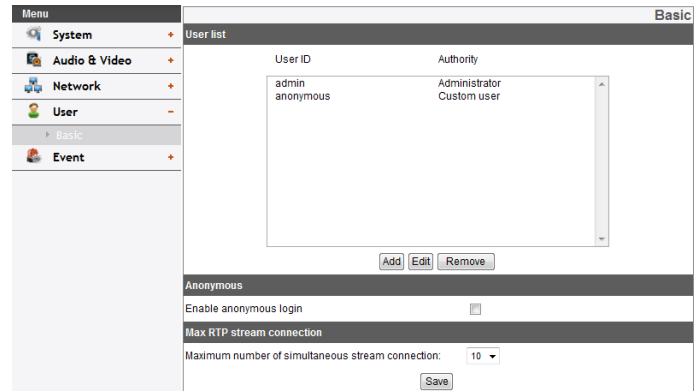
Note:

- When you set to [On] on the [Enable] option, [Enable anonymous login] option is enabled automatically.
- You should set the SIP port number not to conflict with multicast port and 5353.

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' and 'anonymous' are 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.

- LW9422, LNP3020T, LNP3022

Video Codec	Resolution	Frame Rate	Quality	Maximum RTP stream
H.264	1920 x 1080	30	HIGHEST	Up to 10
MJPEG	1920 x 1080	10	HIGHEST	Up to 7

- LNP2810(T)

Video Codec	Resolution	Frame Rate	Quality	Maximum RTP stream
H.264	1280 x 720	30	HIGHEST	Up to 10
MJPEG	1280 x 720	20	HIGHEST	Up to 7

Note:

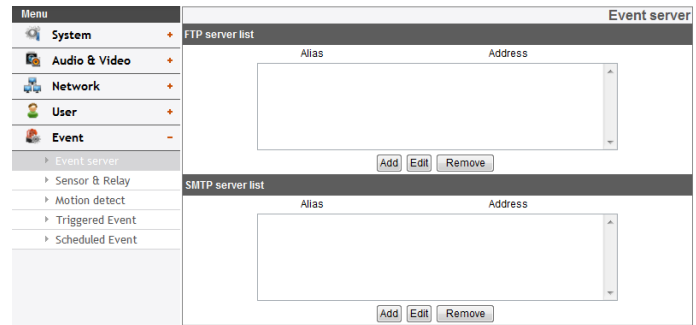
Preview window of the IP device setting and preset setting are affected by this setting.

- Save: Click this button to confirm the settings.

Event settings

Event 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

Sensor			
Enable	Alias	Type	
<input checked="" type="checkbox"/>	Sensor-0	Normal open	
<input checked="" type="checkbox"/>	Sensor-1	Normal open	
<input checked="" type="checkbox"/>	Sensor-2	Normal open	
<input checked="" type="checkbox"/>	Sensor-3	Normal open	

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

Sensor

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

Relay

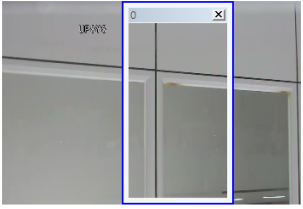
- > Control duration: Enter the relay time.
- > Alias: Displays the relay name.
- > Type: Select the relay type.
- > Control relay
 - Run: Click to activate the relay.
 - Stop: Click to stop the relay.

- Save: Click this button to confirm the settings.

Note:

The number of Sensor and Relay are depending on the model.

Motion detect

Motion detect	
<ul style="list-style-type: none"> System Audio & Video Network User Event <ul style="list-style-type: none"> Event server Sensor & Relay Motion detect Triggered Event Scheduled Event 	<p>Preview</p>  <p>General</p> <p>Sensitivity [0-100] 50</p> <p><input type="button" value="Add"/> <input type="button" value="Save"/></p> <p>Motion detect is available for H.264 codec.</p>

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.

Note:

The Motion Detection function may not work depending on your installation environment.

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 at least one of channels(HD/SD) is enabled, Video codec is set to H.264 and GOP size is more than 2.

Triggered Event

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

Menu		Triggered Event						
System	+	Triggered event list						
Audio & Video	+	Trigger	Relay	FTP(VIDEO)	SMTP	Preset	SDCard Recording	FTP(JPEG)
Network	+	<input type="radio"/> Sensor-0	Relay-0					
User	+	<input type="radio"/> Sensor-1	Relay-1					
Event	-	<input type="radio"/> Sensor-2	Relay-0					
		<input type="radio"/> Sensor-3	Relay-1					
		<input type="radio"/> MotionDetect-0						

- ▶ Event server
- ▶ Sensor & Relay
- ▶ Motion detect
- ▶ Triggered Event
- ▶ Scheduled Event

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: Display the selected trigger event and the current state of trigger. Current state of trigger is Displayed to On or Off.
 - 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(Video) server/SMTP server: Uploading of images to an FTP server, or e-mail notification.
 - Control relay(Optional): The relay is activated or deactivated.
 - SDCard recording: Record on the SD card when the event runs.
 - FTP server(JPEG): Sends the JPEG Image to the FTP server. Image file and suffix setting is available. You can select Date/Time or Sequence of Suffix.
 - Move camera to: Go to the saved preset position when event runs.
 - Stream: Selects the stream of the connected camera.
 - Programmable Alarm(Optional): When the sensor event is activated, the camera will start the recording with the setting value of these options. Using this function, you can get high quality recorded image.
 1. Click the check box if you want to activate this function.
 2. Sets the options.
 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.
- Recording of event(VA/Motion detect/Sensor event) runs every 5 minutes split file.
- Used stream is profile of Master or HD resolution in case of FTP(JPEG) transmission.

Scheduled Event

Activation Time

- > Always : You can use always by using the FTP server regardless of activation time.
- > Only scheduled time: Continuously record according to the set time and the selected weekday.

Action

Set the below option.

- > SDCard recording : Record to SD Card when event occurs. Selects the camera stream for SD card recording.
- > FTP server(JPEG) : Upload the image or send the e-mail to the FTP server. Send Image per, Base File Name and Suffix setting are available.

Note:

- You can select through drag of Activation Time table that is possible to select according to weekday and time.
- Used stream is profile of Master or HD resolution in case of FTP(JPEG) transmission. If always checkbox next to FTP(JPEG) is checked, FTP(JPEG) is always enable regardless of the activation time.
- Save: Click this button to confirm the settings.

OSD Menu Setup

The following table shows the list of menu items and options.
This feature applies in LW9422 series only.


Note:

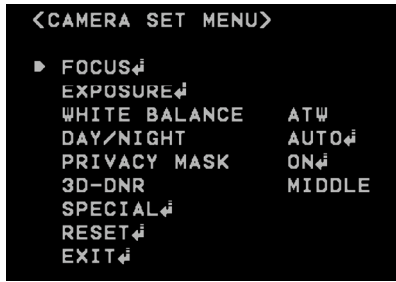
The top side of screen may be hidden by tilting range.














Main Menu	Sub Menu	Contents		
FOCUS	FOCUS MODE	AUTO / MANUAL / ONE PUSH / ZOOM TRIG		
	FOCUS DIST	50 CM, 1 M, 3 M, 5 M		
	ZOOM START	x1 to x11		
	ZOOM END	x2 to x144		
	ZTRK MODE	AUTO / MANUAL / AUTO ONLY		
	INITIAL SET	-		
	EXIT	RET/TOP/END		
EXPOSURE	IRIS	AUTO / MANUAL		
	AGC	OFF / LOW / MIDDLE / HIGH		
	WDR/BLC	OFF / WDR / BLC		
	BRIGHTNESS	0 to 100		
	SHUTTER	OFF, A.FLK, 1/160, ..., 1/10 000, X2, ..., X64, AUTO		
	SENS-UP	AUTO X2/AUTO X3/.../AUTO X64/OFF		
	INITIAL SET	-		
	EXIT	RET/TOP/END		
WHITE BALANCE	ATW	-		
	AUTO	-		
	MANUAL	COLOR TEMP	INDOOR/OUTDOOR	
		RED	-100 to 100	
		BLUE	-100 to 100	
	ONE PUSH	-		
INITIAL SET	-			
DAY/ NIGHT	AUTO	D/N LEVEL	LOW / MIDDLE / HIGH	
		DWELL TIME	5, 10, 15, 30 ,60 SEC	
		INITIAL SET	-	
	DAY	-		
	NIGHT	-		
PRIVACY MASK	OFF	-		
	ON	MASK NUMBER	1 to 8	
		MASK STATE	ON/OFF	
		MASK COLOR	RED	0 to 255
			GREEN	0 to 255
			BLUE	0 to 255
			TRANSPARENCY	0 to 16
		WIDTH	2 to 320	
		HEIGHT	2 to 240	
		GRID	ON/OFF	
		RESET MASK	-	
	INITIAL SET	-		
	EXIT	RET/TOP/END		
3D-DNR	OFF / LOW / MIDDLE / HIGH			

SPECIAL	FREEZE	ON/OFF		
	COLOR	OFF	-	
ON		COLOR LEVEL	-50 to 50	
SPECIAL	SHARPNESS	0 to 68		
	STABILIZER	ON/OFF		
	OSD	OFF	-	
		ON	USER TITLE	ON/OFF
			ZOOM MAG	ON/OFF
	FUNCTION	ON/OFF		
	LANGUAGE	ENG/CHN(SC)/KOR/RUS/JPN/CHN(TC)		
	INITIAL SET	-		
	EXIT	RET/TOP/END		
	RESET	FACTORY RESET	-	
S/W VERSION		-		
EXIT		RET/TOP/END		







General Operation

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

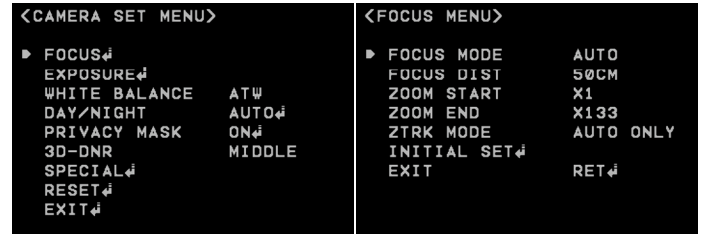


3. Use  or  button to select an option then click  button. Submenu appears.
4. Use  or  button to select a submenu option.
5. Use  or  button to select a value.
6. Select [EXIT] option then click  button to exit the setup menu. In the submenu, use  or  button to select the [EXIT] then use  or  button to select a mode and click  button to exit the setup menu.
 - RET: Return to the previous.
 - TOP: Return to the CAMERA SETTING menu screen.
 - END: Exit the setup menu.

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.



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 DIST

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

ZOOM START

You can set the zoom start position of the camera. When the zoom function is operated, the zoom always will start at the selected start position.

Select [ZOOM START] option on the [FOCUS] menu, then set a zoom start position.

ZOOM END

You can set the zoom end position of the camera. If you set the zoom end position, the zoom is operated up to the selected zoom end position.

Select [ZOOM END] option on the [FOCUS] menu, then set the zoom end position

ZTRK MODE

Selects a zoom tracking mode. Zoom tracking means focused zooming state. Select [ZTRK MODE] option on the [FOCUS] menu, then select a zoom tracking mode (AUTO or MANUAL).

If the FOCUS MODE is set to [AUTO], the ZTRK MODE is set to [AUTO ONLY] and you can not change the ZTRK MODE.

Exposure settings



IRIS

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)

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

Use WDR/BLC option to view the object clearly in backlight conditions.

1. Select [WDR/BLC] option on the [EXPOSURE] menu.
2. Use or button to select a mode then click button.
 - WDR: 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 limit.
 - > ACE (Adaptive Contrast Enhancement) : This function is used when you want to display dark areas of WDR brightly.
 - BLC: Camera's backlight compensation feature helps alleviate issues of visibility in high contrast areas. Set the BLC limit.

BRIGHTNESS

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)

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

If pictures are not clear due to darkness, this SENS-UP operation would increase the sensitivity of picture.

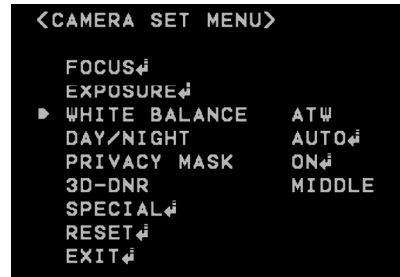
1. Select [SENS-UP] option on the [EXPOSURE] menu.
2. Use or button to select a mode.
 - AUTO: Adjust the sensitivity of the picture automatically.
 - > SENS-UP LIMIT: Use or button to set the SENS-UP limit.
 - > EXIT: Select a mode and click button to exit the menu.

Note:

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

White Balance settings

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.
2. Use or button to select a mode then click button.
 - ATW (Auto-Tracing White Balance): In this mode, white balance has better coverage than auto. Proper white balance may not be obtained under the following conditions:
 - > When the scene contains mostly high color temperature objects, such as a blue sky or sunset.
 - > When the scene is dim.
 - AUTO: You can set the white balance options automatically.
 - 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 settings



1. Select [DAY/NIGHT] option.
2. Use **←** or **→** button to select a mode for DAY/NIGHT function.
 - AUTO: DAY/NIGHT mode changes automatically.

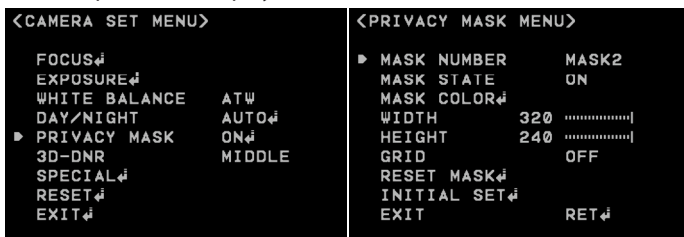
Note:

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

- > LEVEL: Use **←** or **→** button to select a level.
- > DWELL TIME: Use **←** or **→** button to select a dwell time.
- DAY: Color mode enabled.
- NIGHT: Black-and-white mode enabled.

Privacy setting

This function is aiming at the protection of personal privacy. The selected part is not displayed on the screen.

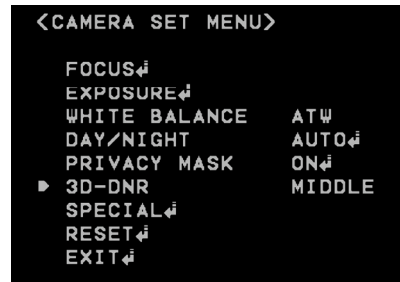


1. Select the [PRIVACY] option.
2. Use **←** or **→** button to select [ON] and press **←**. The PRIVACY SETUP menu appears.
3. Use **←** or **→** button to select a zone number (AREA1 to AREA8) on the [MASK NUMBER] option.
4. Use **←** or **→** button to set to ON or OFF on the [MASK STATE] option. If you set to ON, the mask zone box appears on the live window.
5. Use **←** or **→** button to select the color of the mask zone box on the [MASK COLOR] option.
6. Use **↑** or **↓** button to select an option then use **←** or **→** button to adjust the option.
 - WIDTH: Increase or decrease the horizontal size of the mask zone box.
 - HEIGHT: Increase or decrease the vertical size of the mask zone box.
7. Use **←** or **→** button to set to ON or OFF on the [GRID] option.

Note:

The parts with the registered mask numbers from AREA1 to AREA4 have the same color. (So do the parts with the numbers from AREA5 to AREA8.) If you change the mask color, the registered mask color will be changed automatically with the same color for each of group (AREA1 to AREA4, AREA5 to AREA8).

3D-DNR setting



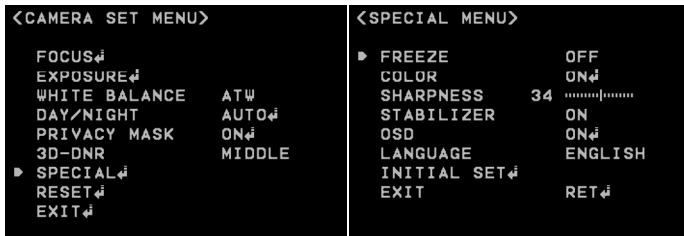
1. Select [3D-DNR] option.

If pictures are not clear due to noise, this option would 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 and [OFF] mark is displayed.
- When you use this function, the afterimage may occur.

Special menu settings



FREEZE

1. Select the [FREEZE] option on the [SPECIAL] menu.
2. Use **←** or **→** button to set up the ON or OFF.

COLOR

You can switch the displayed picture to gray scale or color.

1. Select the [COLOR] option on the [SPECIAL] menu.
2. Use **←** or **→** button to change a color effect.
 - ON: To display the picture with color.
 - OFF: To display the picture with grayscale.

SHARPNESS

The degree to which the boundary of the two portions is clearly distinguished.

1. Select the [SHARPNESS] option on the [SPECIAL] 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.

STABILIZER

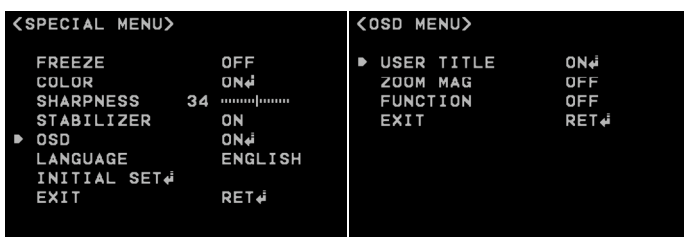
The image stabilizer function minimizes the appearance of shaky images caused by low-frequency vibration. This function is useful for outdoor surveillance.

Select the [STABILIZER] option and set to ON or OFF.

Note:

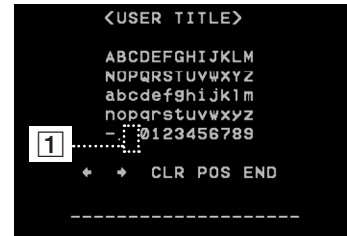
If you set the [STABILIZER] to ON, the Digital zoom is set to [x1.1] automatically.

OSD



You can set the Function On-Screen Display options using the [OSD] menu. The Function On-Screen Display of this camera can be turned on or off.

1. Select the [OSD] option on the [SPECIAL] menu.
2. Use **←** or **→** button to select a [ON] and press **↵**. The OSD menu appears.
3. Use **←** or **→** button to select an option then use **↑** or **↓** button to set the option.
 - USER TITLE: You can use the camera identification to assign a number and character to the camera. To disappear the USER TITLE, select [OFF].
 - > Select the [USER TITLE] option on the [OSD] menu.
 - > Use **←** or **→** button to select [ON] then click **↵** button. The USER TITLE menu appears.



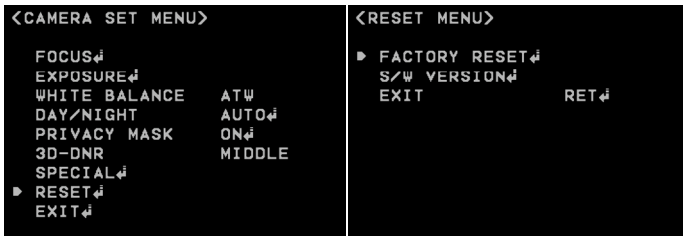
- > Use **↑**, **↓**, **←** or **→** button to select a character or number then click **↵** button.
 - CLR: Clear all entered characters and numbers.
 - POS: Move the USER TITLE position on the screen using the arrow buttons.
 - END: Confirm your selection or exit the setting.
 - **1** (Blank): Insert a space at the cursor position.
 - **←** / **→**: Moves cursor to left or right.
- ZOOM MAG: Displays or removes the zoom OSD on the screen.
- FUNCTION: Displays or removes the Function OSD on the screen.





LANGUAGE

Select the viewer language for the camera setup menu and OSD information display.

1. Select the [LANGUAGE] option on the [SPECIAL] screen.
2. Use **←** or **→** button to select the language

Reset setting



1. Select the [RESET] option.
2. Click  button and the RESET menu appears.
3. Use  or  button to select option.
 - FACTORY RESET: Clear certain settings and information and return to factory default settings.
 - S/W VERSION: Displays the software version on the monitor.
4. Click  button to confirm your selection.

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.
- If the browser you're using or a page you're viewing is displaying problems, try to clear the browser's cache. If that doesn't fix the problem, try to clear the browser's cookies.

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.
- If PoE is used check if the power is got by the network camera when connected to it.

Login Password lost

- Reset the camera by shorting IP reset and GND terminal on multi-harness for more than 3 seconds to restore default settings.
- After the factory settings login using the default user name and password.

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.

Clear browser's Cache

- If your browser is not working correctly after upgrade firmware. Please follow the below solution.
- Solution: Deleting your browser's cache may be resolved this issue.
 1. Open Internet Options in browser Tools menu and click the [Delete Files] button in the second entry (Internet temporary files).
 2. Check the other settings that should not be changed.

RCA output problem

- RCA output use to initial installation.
- Depending on the IP Camera usage scenario, RCA output video may not be smooth. It is used for initial installation only.

BNC output usage

BNC connector is for convenience of camera installation, and it is not suited to surveillance.

Power connection

- It is recommended to use the power source either AC 24 V or PoE+.
- PoE device must use PoE+. In case of the PoE, set the switcher to "PoE unused".
(PoE+(IEEE 802. at-2009) : PoE Standard Provides up to 25.5 W of Power.
PoE(IEEE 802.3af-2003) : PoE Standard Provides up to 15.4 W of Power.)

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

Open source software notice

To obtain the source code under GPL, LGPL, MPL and other open source licenses, that is contained in this product, please visit <http://opensource.lge.com>. In addition to the source code, all referred license terms, warranty disclaimers and copyright notices are available for download. LG Electronics will also provide open source code to you on CD-ROM for a charge covering the cost of performing such distribution (such as the cost of media, shipping and handling) upon email request to opensource@lge.com. This offer is valid for three (3) years from the date on which you purchased the product.

Specifications

Item		LW9422 Series	
Image Sensor		6.49 mm (1/2.8 Type) CMOS Sensor	
Total Pixels		1920(H) x 1080(V), 2M	
Lens		F1.6(Wide) to F2.1(Tele), f=5.3 to 63.6mm x12 Optical Zoom, x12 Digital Zoom	
Day&Night		ICR Day & Night (Day / Night / Auto)	
Minimum Illumination (30IRE)	Color	1.0 lx (F1.6, Sens-up off), 0.03 lx (F1.6, Sens-up x64)	
	B/W	0.1 lx (F1.6, Sens-up off), 0.000 8 lx (F1.6, Sens-up x64)	
White Balance		Auto / ATW / One Push / Manual	
Shutter Speed		1/160 to 1/10 000	
Iris		Auto / Manual	
BLC		Off / WDR/ BLC	
3D-DNR		OFF / LOW / MIDDLE / HIGH	
AGC		OFF / LOW / MIDDLE / HIGH	
Privacy Mask		8 Masks	
Multi-Streaming		Dynamic Profile (Up to 7)	
ROI (Region of Interest)		Support	
Video Out		1xBNC	
Resolution (Maximum)		Up to 1920 x 1080	
Frame Rate (Maximum)		30 fps @ 1080p (1920 x 1080)	
Bit Rate		256 kbps to 10 240 kbps	
Audio Compression		G.711, G726	
Audio In/Out		1/1	
Sample Rate		8 KHz	
Audio Bit Rate		G.711: 64 kbps, G.726: 24 kbps, 32 kbps	
Ethernet		10/100 Ethernet	
Protocol	IPv4 and IPv6	TCP/IP, UDP, HTTP, HTTPS, RTP, RTSP, DHCP, ICMP	
	IPv4	FTP, SMTP, NTP, ARP, SNMP v1/v2c/v3, DDNS (LG)	
Open Protocol		ONVIF 2.2 Profile S, PSIA 1.1	
Remote S/W		LVi510, Mobile Application (iPhone, Android, iPad)	
Pan/Tilt	Travel Range		
	Speed	Preset	Pan : 360°(Endless), Tilt : 180°
		Jog	500°/second
	Preset		0.1° to 360°/second
	Preset		256
	Pattern		4 Patterns (760 command/Pattern)
	Auto Pan		2 points to 8 points
Group		10 Groups (8 presets/Group)	
Sensor / Alarm	Sensor	4 Inputs, Photo-Coupler Input	
	Alarm	2 Relay Outputs, Max Load : DC 30 V 1 A / AC 125 V 0.3 A	
	IP Module Reset Terminal	Support	
Misc.	Mount Accessory	Mount Adaptor	
	Material	Aluminum, Plastic sunshield	
	Rated Power	PoE+ / AC 24 V (49 W)	
	Waterproof	IP66, IK10	
	Fan	Always ON	
	Heater	Operation start from Internal Temperature 10°C	
	Operation Temperature	-20 °C to 50 °C	
	Weight	3.3 kg	
Dimension (Ø x H)	195 mm x 229 mm		

Item		LNP2810 Series	LNP2810T Series
Image Sensor		4.5 mm (1/4 type) CMOS	
Lens		x28 Zoom, f = 3.5 mm to 98 mm	
Resolution (Maximum)		Up to 1280 x 720	
Day&Night		ICR Day & Night (Day / Night / Auto)	
Minimum Illumination	Color	0.8 lx (F1.5, Sens-up off), 0.16 lx (F1.5, Sens-up x32)	
	B/W	0.01 lx (F1.5, Sens-up off), 0.000 1 lx (F1.5, Sens-up x32)	
White Balance		Auto / ATW / One Push / Manual	
Shutter Speed		1/160 to 1/10 000	
Iris		Auto / Manual	
BLC		Off / WDR/ BLC	
3D-DNR		OFF / LOW / MIDDLE / HIGH	
AGC		OFF / LOW / MIDDLE / HIGH	
Privacy Mask		8 Masks	
Multi-Streaming		Dynamic Profile (Up to 7)	
ROI (Region of Interest)		Support	
Video Out		1xBNC	
Frame Rate (Maximum)		30 fps @ 720p	
Bit Rate		256 kbps to 10 240 kbps	
Auto Tracking		No Support	Support
Audio Compression		G.711, G726	
Audio In/Out		1/1	
Sample Rate		8 KHz	
Audio Bit Rate		G.711: 64 kbps, G.726: 24 kbps, 32 kbps	
Ethernet		10/100 Ethernet	
Protocol	IPv4 and IPv6	TCP/IP, UDP, HTTP, HTTPS, RTP, RTSP, DHCP, ICMP	
	IPv4	FTP, SMTP, NTP, ARP, SNMP v1/v2c/v3, DDNS (LG)	
Open Protocol		ONVIF 2.2 Profile S, PSIA 1.1	
Remote S/W		LVi510, Mobile Application (iPhone, Android, iPad)	
Pan/Tilt	Travel Range	Pan : 360°(Endless), Tilt : 180°	
	Speed	Preset	500°/second
		Jog	0.1° to 360°/second
	Preset	256	
	Pattern	4 Patterns (760 command/Pattern)	
	Auto Pan	2 points to 8 points	
	Group	10 Groups (8 presets/Group)	
Sensor / Alarm	Sensor	4 Inputs, Photo-Coupler Input	
	Alarm	2 Relay Outputs, Max Load : DC 30 V 1 A / AC 125 V 0.3 A	
	IP Module Reset Terminal	Support	
Misc.	Mount Accessory	Mount Adaptor	
	Material	Aluminum, Plastic sunshield	
	Rated Power	PoE+ / AC 24 V (49 W)	
	Waterproof	IP66, IK10	
	Fan	Always ON	
	Operation Temperature	-20 °C to 50 °C	
	Weight	3.3 kg	
Dimension (Ø x H)	195 mm x 229 mm		

Item		LNP3020T Series	
Image Sensor		6.49 mm (1/2.8 type) CMOS	
Lens		x30 Zoom, f = 4.3 mm to 129 mm	
Resolution (Maximum)		Up to 1920 x 1080	
Day&Night		ICR Day & Night (Day / Night / Auto)	
Minimum Illumination	Color	1.0 lx (F1.6, Sens-up off), 0.02 lx (F1.6, Sens-up x64)	
	B/W	0.1 lx (F1.6, Sens-up off), 0.000 8 lx (F1.6, Sens-up x64)	
White Balance		Auto / ATW / One Push / Manual	
Shutter Speed		1/160 to 1/10 000	
Iris		Auto / Manual	
BLC		Off / WDR/ BLC	
3D-DNR		OFF / LOW / MIDDLE / HIGH	
AGC		OFF / LOW / MIDDLE / HIGH	
Privacy Mask		8 Masks	
Multi-Streaming		Dynamic Profile (Up to 7)	
ROI (Region of Interest)		Support	
Video Out		1xBNC	
Frame Rate (Maximum)		30 fps @ 1920 x 1080	
Bit Rate		256 kbps to 10 240 kbps	
Auto Tracking		Support	
Audio Compression		G.711, G726	
Audio In/Out		1/1	
Sample Rate		8 KHz	
Audio Bit Rate		G.711: 64 kbps, G.726: 24 kbps, 32 kbps	
Ethernet		10/100 Ethernet	
Protocol	IPv4 and IPv6	TCP/IP, UDP, HTTP, HTTPS, RTP, RTSP, DHCP, ICMP	
	IPv4	FTP, SMTP, NTP, ARP, SNMP v1/v2c/v3, DDNS (LG)	
Open Protocol		ONVIF 2.2 Profile S, PSIA 1.1	
Remote S/W		LVi510, Mobile Application (iPhone, Android, iPad)	
Pan/Tilt	Travel Range	Pan : 360°(Endless), Tilt : 180°	
	Speed	Preset	500°/second
		Jog	0.1° to 360°/second
	Preset	256	
	Pattern	4 Patterns (760 command/Pattern)	
	Auto Pan	2 points to 8 points	
	Group	10 Groups (8 presets/Group)	
Sensor / Alarm	Sensor	4 Inputs, Photo-Coupler Input	
	Alarm	2 Relay Outputs, Max Load : DC 30 V 1 A / AC 125 V 0.3 A	
	IP Module Reset Terminal	Support	
Misc.	Mount Accessory	Mount Adaptor	
	Material	Aluminum, Plastic sunshield	
	Rated Power	PoE+ / AC 24 V (25 W)	
	Waterproof	IP66, IK10	
	Fan	Always ON	
	Operation Temperature	-20 °C to 50 °C	
	Weight	3.3 kg	
Dimension (Ø x H)	195 mm x 229 mm		

Item		LNP3022 series
Camera	Image Device	6.40 mm (1/2.8 type) CMOS
	Lens Type	X30, 4.3 mm to 129 mm, F1.6-F5.0
	Minimum Illumination	Color: 0.3 lx (F1.6, AGC High, Sens-up off, 30IRE)
		B/W: 0.01 lx (F1.6, AGC High, Sens-up off, 30IRE)
	Day/Night	ICR (Auto / Day / Night)
	WDR	Support
Image Enhancement	Backlight Compensation, HSBLC, 2D+3D-DNR, Exposure Control, Sens-UP Control, AGC, White Balance, Privacy Masking, EIS, Sharpness, Auto Digital Zoom, De-fog	
PTZ	Optical Zoom	X30
	Panning Range & Speed	0° to 360°, Maximum 500° / second
	Tilting Range & Speed	0° to 180°, Maximum 500° / second
	Auto Panning	2 to 8 points
	Preset/ID	256
	Group Touring	Maximum 10 Groups
	Pattern	4
Video / Audio	Video Compression	H.264, H.264_High, MJPEG
	Resolution	1920 x 1080 / 1280 x 1024 / 1280 x 720 / D1 (704 x 480) / CIF (352 x 240)
	Maximum Frame Rate	30 fps (1920 x 1080)
	Multi-Streaming	Up to 4
	ROI (Smart-Codec)	Crop (Up to 8)
	Video Analytics	Motion detection
	Text Overlay	Support
	Audio Compression	G.711, G.726
	2-way Audio	Support
Event	Event Trigger	Video analytics, Alarm input
	Event Notification	Relay Out, Email, FTP, Go to Preset
	Pre Event Buffering	Support
Interface	Analog Out	BNC out
	Audio In/Out	1 In / 1 Out
	Alarm In/Out	4 In / 2 Out
	SD Slot	SD (Up to 32 GB)
Network	Ethernet	RJ-45 10/100BASE-T
	Security	Password protection, HTTPS (SSL, TLS), IP filtering, IEEE 802.1X
	Open Protocol	ONVIF 2.2 Profile S, PSIA 1.1
	Protocol	IPv4 and IPv6 : TCP/IP, UDP, HTTP, HTTPS, RTP, RTSP, DHCP, ICMP, QoS, UPnP
		IPv4 : FTP, SMTP, NTP, ARP, SNMP v1/v2c/v3, DDNS(LG)
	Integrated Software	LG Ipsolute VMS Suite / Mobile application (iPhone, iPad, Android)
Connections	Up to 10	
General	Power Source	AC 24 V, PoE+
	Maximum Power Consumption	25 W
	Operation Temperature/ Humidity	-20 °C to 50 °C / 0 % RH to 80 % RH
	Protection	IP66, IK10
	Dimension (Ø x H)	195 mm x 229 mm
	Weight	3.3 kg

