

FOR A GOOD **REASON** **GRUNDIG**

en

Owner's Manual

IP Cameras

GCI-F1576V	3 MP Full HD VF Dome IP-Camera 3~9mm AFZ Modul/P-Iris Lens ICR IR 24LED
GCI-F1576VH	3 MP Full HD VF Dome IP-Camera 3~9mm AFZ Modul/P-Iris Lens ICR IR 24LED

GCI-F1576V.149.1.12.11.2014
© ASP AG



Content:			
1. Introduction	2	10. Streaming Settings	76
2. Important Safety Instructions	2	1. Video Format	76
3. Package Contents	2	2. Video Compression	78
4. Installation	2	3. Video Text Overlay	79
1. Camera's Connectors	3	4. Video ROI	80
2. System Requirements	3	5. Video OCX Protocol	81
3. Power Connection	4	6. Video Frame Rate	82
4. Ethernet Cable Connection	4	7. Video Mask	83
5. Hard Ceiling Installation	4	8. Audio (Audio and Bit Rate Settings)	84
6. Detach / Attach the Dome Cover	7	11. Camera Settings	85
7. Cable Gland Installation	7	1. Exposure Setting	85
5. Accessing the Camera	10	2. White Balance Setting	87
6. Video Resolution Setup	14	3. Picture Adjustment	88
7. Browser-based Viewer Introduction	15	4. IR Function	88
8. Home Page	16	5. Noise Reduction	89
9. System Related Settings	19	6. Profile	90
1. Host Name & System Time Setting	19	7. Backlight Setting	92
2. Security	20	8. Digital Zoom Setting	92
3. Network	30	9. WDR Function	92
4. DDNS	37	10. TV System Setup	92
5. Mail	38	12. Logout	93
6. FTP	39	13. CMS Software Introduction	93
7. HTTP	40	14. Internet Security Settings	94
8. Events	41	15. GRUNDIG Viewer Download Procedure	97
9. Storage Management	64	16. Install UPnP Components	99
10. Recording	68	17. Deleting the Existing GRUNDIG Viewer	101
11. Schedule	69		
12. File Location (on PC)	70		
13. View Information	71		
14. Factory Default	72		
15. Software Version	73		
16. Software Upgrade	73		
17. Maintenance	74		

1. Introduction

Supported with both H.264 and MJPEG standard, this GRUNDIG camera series not only features a superior Full HD resolution for streaming at 25 fps, but also supplies a D1 720p streaming. With more computing power, these IP Cameras can provide more flexibility for users and system managers.

With a compact and sophisticated mechanical design, this IP Dome Camera is easily installed and aesthetic. Additionally, the IP Dome Camera's vandal proof cover (IK10) can protect the camera from heavy damage.

2. Important Safety Instructions

Be sure to use only the standard adapter that is specified in the specification sheet. Using any other adapter could cause fire, electrical shock, or damage to the product. Incorrectly connecting the power supply may cause explosion, fire, electric shock, or damage to the product. Do not connect multiple products to one single adapter. Exceeding the capacity may cause abnormal heat generation or fire.

Do not place conductive objects (e.g. screwdrivers, coins or any metal items) or containers filled with water on top of the product. Doing so may cause personal injury due to fire, electric shock, or falling objects.

If any unusual smells or smoke comes out of the unit, stop using the product. In this case, immediately disconnect the power source and contact the service center. Continued use in such a condition may cause fire or electric shock.

If this product fails to operate normally, contact the nearest service center. Never disassemble or modify this product in any way. (GRUNDIG is not liable for problems caused by unauthorised modifications or attempted repair.)

To prevent fire or electric shock, do not expose the inside of this device to rain or moisture.

3. Package Contents

These parts are included:



Camera



Alignment
Template



Self Tapping Screws
(x2)



Plastic Anchors
(x2)



Rubber
Washers
(x2)



Security Torx



DC Jack Cable



Power Terminal
Block



Cable Gland



Silicone
Rubber Ring



Quick Guide



CD (Software
and Manuals)

4. Installation

Do not install this product in a location subject to high temperature (over 55°C), low temperature (below -25°C), or high humidity. Doing so may cause fire or electric shock. Keep out of direct sunlight and heat radiation sources. This may cause fire.

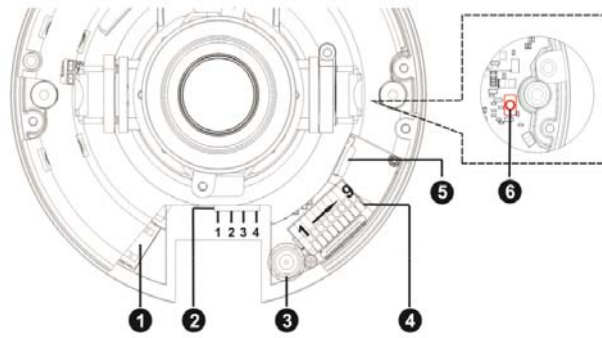
Do not install the unit in humid, dusty or sooty locations. Doing so may cause fire or electric shock. Install it in a place with good ventilation.

When installing the unit, fasten it securely and firmly. A falling unit may cause personal injury.

If you want to relocate the already installed product, be sure to turn the power off and then move or reinstall it.

4.1. Camera's Connectors

The diagram below shows the IP Dome Camera's reset button and various connectors. Definition for each connector will be given as follows.



No.	Connector	Pin	Definition	Remarks
1	RJ-45	-	For network and PoE connections	
2	Power (DC 12V / AC 24V)	1	AC 24V 1	Power connection
		2	AC 24V 2	
		3	GND	
		4	DC 12V +	
3	BNC	-	For analogue video output	
4	Alarm & Audio I/O	1	Alarm In -	Alarm connection
		2	Alarm In +	
		3	Alarm Out -	
		4	Alarm Out +	Audio Out
		5	Audio Out R	
		6	Audio Out L	
		7	Audio GND	Audio In
		8	Audio In R	
		9	Audio In L	
5	microSD Card Slot	-	Insert the microSD card into the card slot to store videos and snapshots. Do not remove the microSD card when the camera is powered on.	
6	Default Button	-	Press the button with one finger for at least 20 seconds to restore the system.	

4.2. System Requirements

To perform the IP Camera via web browser, please ensure your PC is in good network connection, and meets the system requirements as described below.

Personal Computer :

- 1.) Intel Pentium M, 2.16 GHz or Intel Core 2 Duo, 2.0 GHz
- 2.) 2 GB RAM or more

Operating System :

Windows XP / Windows VISTA / Windows 7 / Windows 8

Web Browser :

Microsoft Internet Explorer 6.0 or later

Firefox

Chrome

Safari

Network Card :

10Base-T (10 Mbps) or 100Base-TX (100 Mbps) operation

Viewer :

ActiveX control plug-in for Microsoft IE

4.3. Power Connection

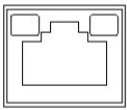
Make sure the camera's power cable is correctly and firmly connected, please refer to the pin definition table in section 4.1. Camera's Connectors. If using Power over Ethernet (PoE), make sure the Power Sourcing Equipment (PSE) is in use in the network.

4.4. Ethernet Cable Connection

Use of Category 5 Ethernet cable is recommended for network connection. To have the best transmission quality, the cable length shall not exceed 100 meters. Connect one end of the Ethernet cable to the RJ45 connector of the IP Camera, and the other end of the cable to the network switch or PC.

NOTE: In some cases, you may need to use an Ethernet crossover cable when connecting the IP Camera directly to the PC.

Check the status of the link indicator and the activity indicator LEDs. If the LEDs are unlit, please check the LAN connection.



Green Link Light indicates good network connection.
Orange Activity Light flashes for network activity indication.

4.5. Hard Ceiling Installation

This IP Dome Camera can be directly installed on a wall or a ceiling. Please note that the wall or ceiling must have enough strength to support the IP Dome Camera.

Follow the steps below to install the Dome Camera:

Items Needed:

- Ethernet Cable
- Power Cable (supplied) (necessary if PSE is not available)
- Alarm Cable (optional)
- Audio Cable (optional)
- Alignment Template (supplied)
- Rubber Washer (supplied) x2
- Plastic Screw Anchor (supplied) x2
- M4x50 Self-tapping Screw (supplied) x2

Tools Needed:

- Tools for drilling
- (+,-) Screwdriver
- Security Torx (supplied)



Step 1:

Use a Security Torx to unscrew the two Torx screws on both sides of the Dome Cover, as shown in the figure, and open the Dome Cover. The Security Torx is included in the package.

NOTE: The dome cover is attached to the camera housing with an anti-drop cable. Users can choose whether to separate the cover from the housing. In later installation steps, the dome cover is detached from the housing. If users you would like to detach the cover, please see Chapter 4.6. "Detach / Attach the Dome Cover".

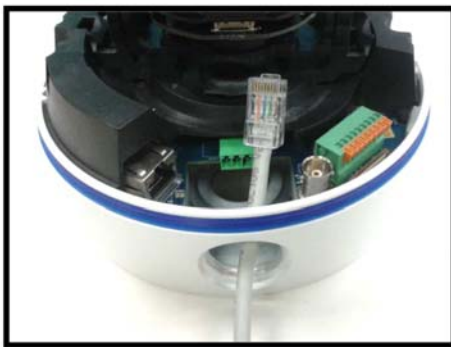


Step 2:
Choose a suitable conduit entry on the camera for cable connection (Side Conduit Entry or Back Conduit Entry). If users are using the back conduit entry for cable connection, please use a coin to open the conduit entry block (shown in the figure) and put the block on the side conduit entry.

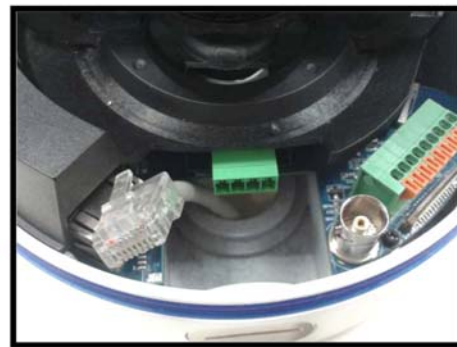


Step 3:
Place the supplied rubber washers on the camera housing (as shown in the figure).

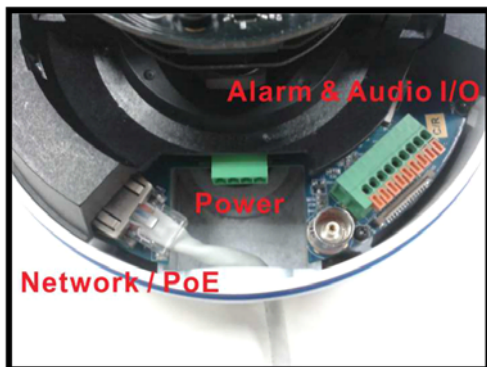
Step 4:
Thread the Ethernet cable through the chosen conduit entry hole. If there are other cables, such as a power cable, alarm I/O cable or audio I/O cable, please also insert them through the conduit entry.



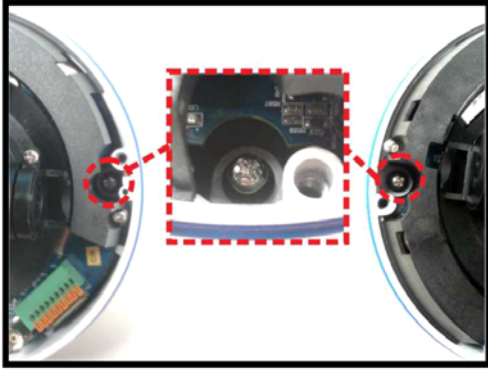
Side Conduit Entry



Back Conduit Entry

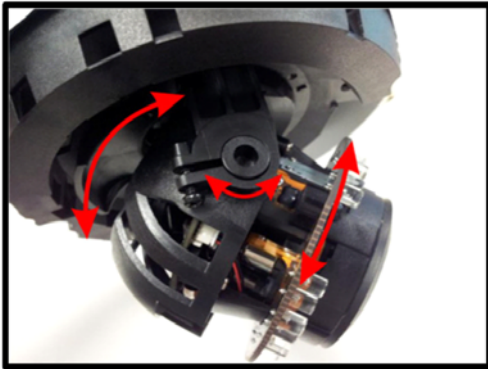


Step 5:
Connect the cable(s) to the camera. For alarm I/O and audio I/O connections, please refer to Chapter 4.1. for further details. If the back conduit entry is used, please thread the other end of the cable(s) through the cable entry hole at the installation location.



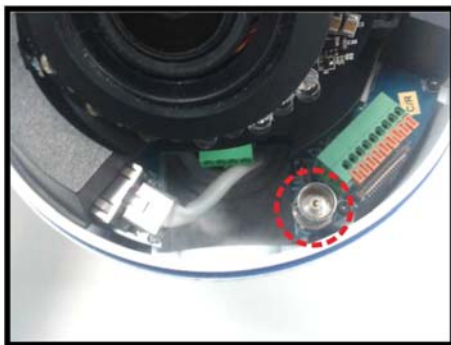
Step 6:

Place the camera where the installation location is and align the screw holes with the drilled holes. Tighten the two supplied M4x50 self-tapping screws at the spot shown in the figure to fix the camera to the wall / ceiling.

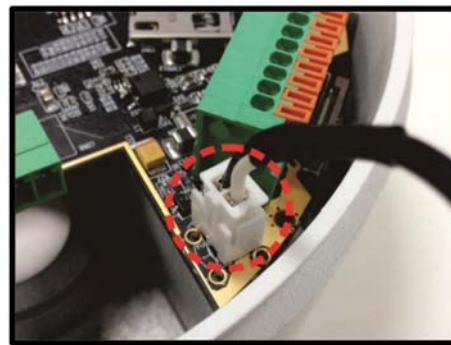


Step 7:

Adjust the pan / tilt / spin holders of the camera to point the lens at a desired camera view. Users can see the camera view by accessing the Camera's Browser-viewer (please refer to Chapter 6 for further details). Alternatively, users can also check the camera view via connecting a BNC monitor. Please refer to the figures below for the corresponding type of BNC connector. Please note that the extending type BNC connector needs an extension cable.



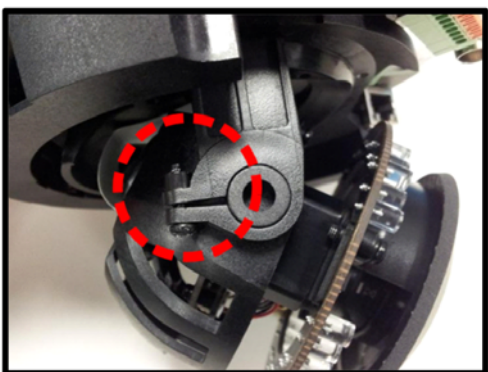
Built-In BNC Connector



Extended BNC Connector

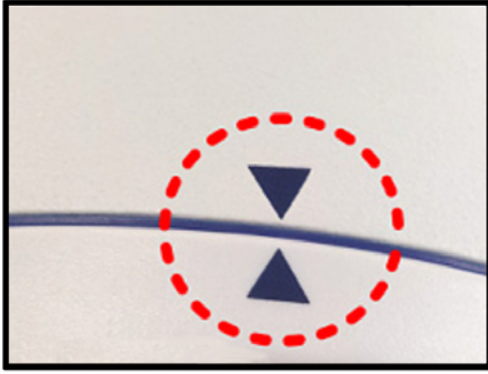
NOTE: The pan adjustment angle is nearly 360°. The tilt angle is adjustable between 0° ~ 80°. The spin adjustment angle is adjustable between -100° ~ 100°.

NOTE: If the BNC cable is connected, it must be disconnected for camera lens adjustment. Otherwise the dome cover cannot be installed.



Step 8:

Fasten the tilt screw as in the picture to fix the tilt angle of the camera.



Step 9:

Place the inner cover back onto the camera. If the dome cover is separated from the camera housing, please fasten the anti-drop cable back to the housing by referring to Chapter 4.6. "Detach / Attach the Dome Cover". Then align the arrow mark on the dome cover with the one on the camera housing and fasten the two security screws.

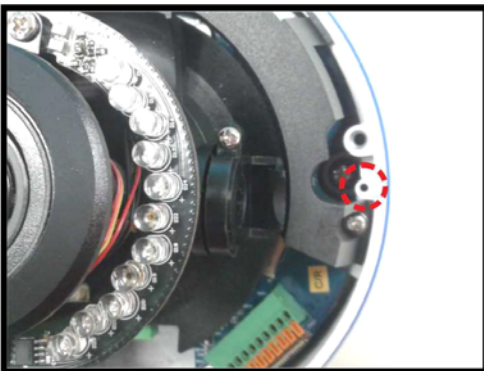
4.6. Detach / Attach the Dome Cover

The dome cover is attached to the camera housing with an anti-drop cable. Follow the instructions below to detach / attach the dome cover.



Detach the Dome Cover :

To detach the dome cover from the camera housing, please loosen the screw indicated in the figure on the left.

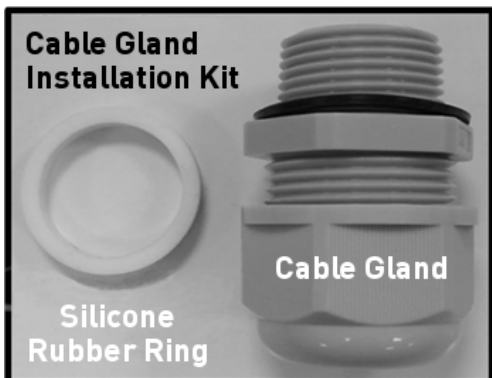


Attach the Dome Cover :

To attach the dome cover to the camera housing, fasten the anti-drop cable to the housing at the spot indicated in the figure on the left.

4.7. Cable Gland Installation

For the Vandal Proof Dome-Indoor housing, the cable connection can be protected from water damages by installing the cable with a cable gland.



Cable Gland Installation Kit:

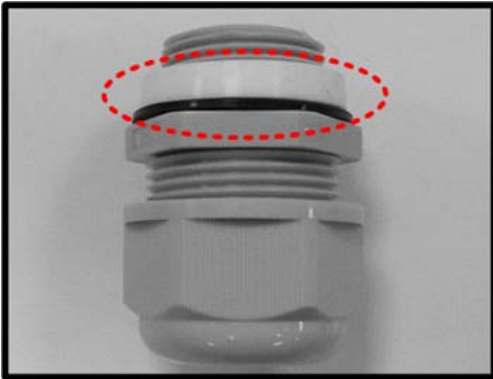
- 1. Silicone Rubber Ring
- 2. Cable Gland
- 2a. Black Rubber Ring (on the Cable Gland)

Items Needed:

- Ethernet Cable
- Power Cable (supplied) (necessary if PSE is not available)
- Alarm Cable (optional)
- Audio Cable (optional)

Tools Needed:

- (+,-) Screwdrivers
- Hot Glue Gun
- Hot Glue
- Security Torx (supplied)



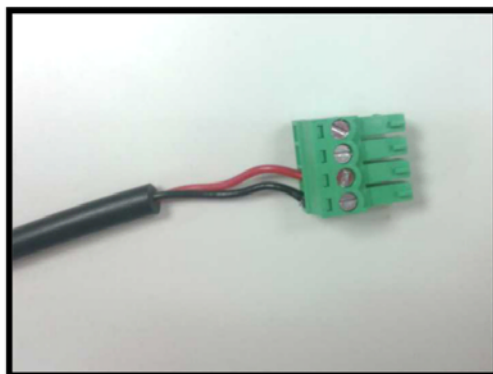
Step 1:

First put the silicone rubber ring on the cable gland body from the top, as shown on the left, for later use.



Step 2:

Loosen the thread-lock sealing nut of the cable gland. Then thread the Ethernet cable through the sealing nut and the gland body. If there are other cables, such as the power cable, alarm I/O cable or audio I/O cable, please also insert them through the sealing nut and the gland body.



NOTE: The terminal block of the power cable needs to be loosened before threading the cable through the sealing nut and the gland body. After threading through, attach the terminal block back to the cable as shown in the figure.



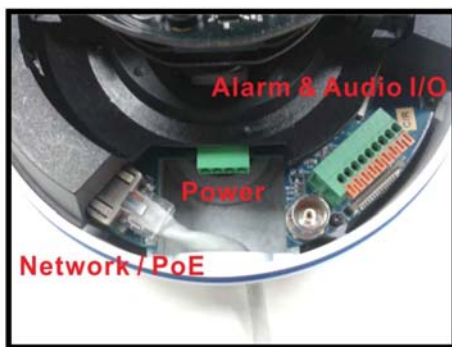
Step 3:
Loosen the two security screws indicated in the figure with the supplied security torx and open the dome cover.

NOTE: The dome cover is attached to the camera housing with an anti-drop cable. Users can choose whether to separate the cover from the housing. In later installation steps, the dome cover is detached from the housing. If you would like to detach the cover, please see Chapter 4.6. "Detach / Attach the Dome Cover".



Step 4:
Choose a suitable conduit entry on the camera for cable connection (Side Conduit Entry or Back Conduit Entry). If you are using the back conduit entry for cable connection, please use a coin to open the conduit entry block (shown in the figure) and put the block on the side conduit entry.

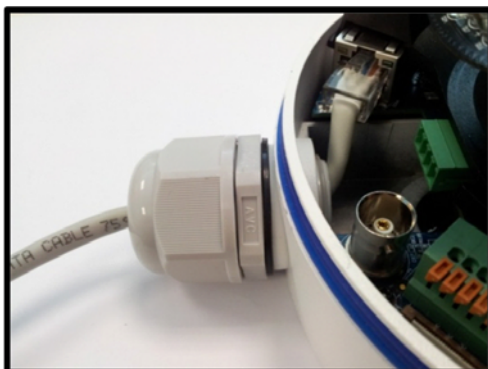
Step 5:
Thread the cables through the chosen conduit entry and connect them to the camera. For alarm I/O and audio I/O connections, please refer to Chapter 4.1.



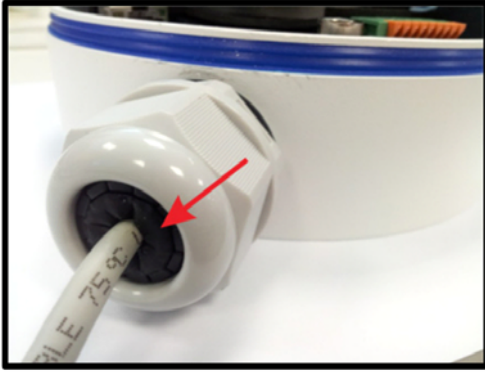
Side Conduit Entry



Back Conduit Entry

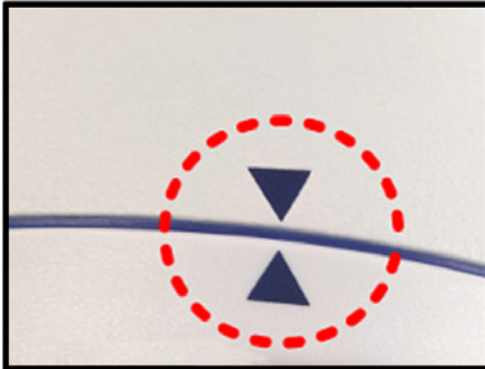


Step 6:
Fasten the gland body to the side conduit entry / back conduit entry. Then tighten the thread-lock sealing nut to the gland body.



Step 7:

Seal the end of the thread-lock sealing nut with hot glue by using a hot glue gun. Make sure there is no gap between the sealing rubber and the cables, otherwise the waterproof function cannot be guaranteed.



Step 8:

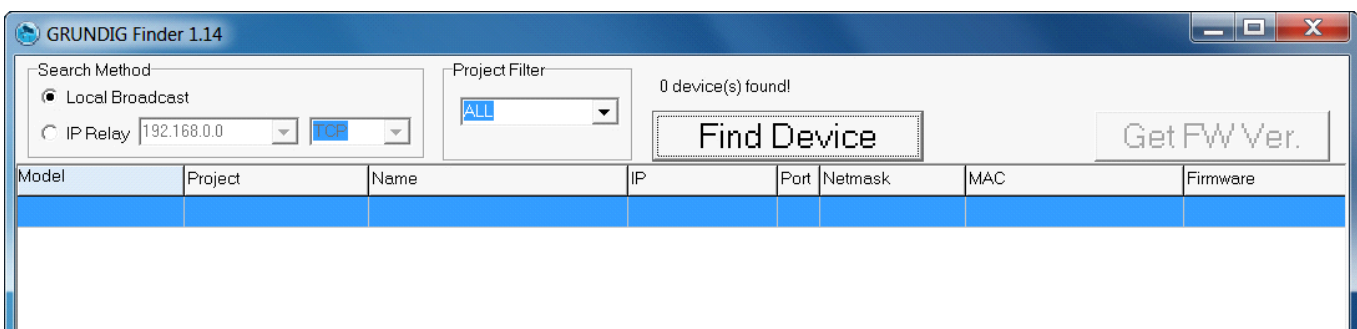
If the dome cover is separated from the camera housing, please fasten the anti-drop cable back to the housing by referring to Chapter 4.6. "Detach / Attach the Dome Cover". Then align the arrow mark on the dome cover with the one on the camera housing and fasten the two security screws.

5. Accessing the Camera

For initial access to the IP Camera, users can search the camera through the installer program: GRUNDIG Finder.exe, which can be found on the supplied CD.

GRUNDIG Finder Software Setup :

Step 1: Double-click on the program GRUNDIG Finder.exe (see the desktop icon below). Its window will appear as shown below. Then click on the "Find Device" button.

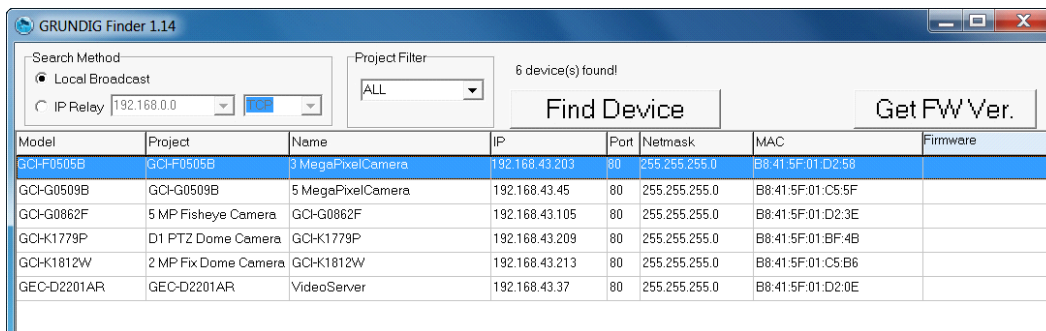


Step 2: The security alert window will pop up. Click “Unlock” to continue.

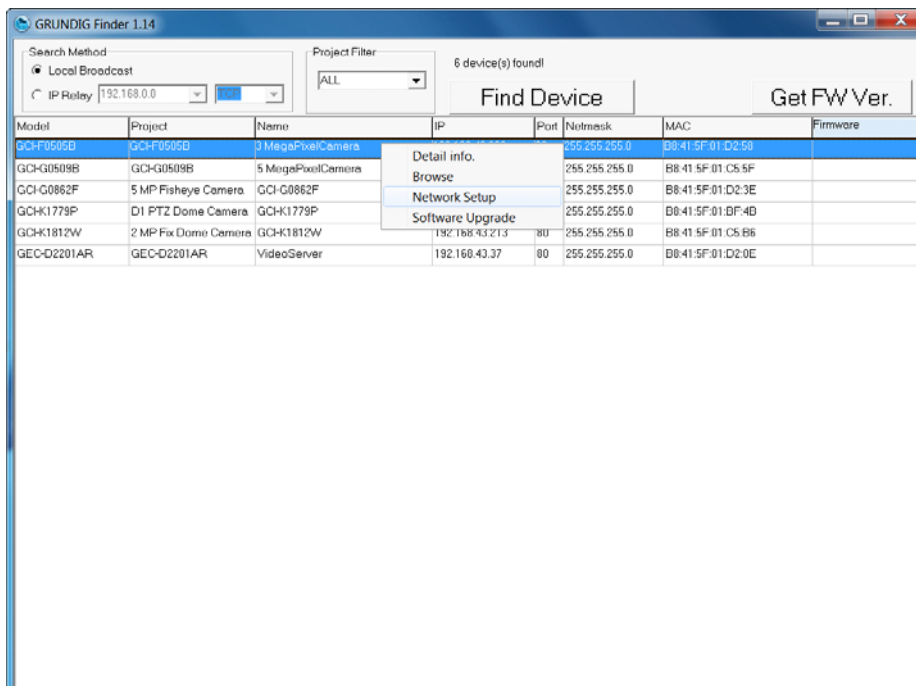


Device Search :

Step 3: Click “Find Device” again, afterwards all IP devices found will be listed on the page, as shown in the picture below. The IP Camera’s default IP address is: 192.168.1.1.



Step 4: Double-click or right-click and select “Browse” to access the camera directly via the web browser.



Step 5: Then the dialogue box for entering the default user name and password (as shown below) will appear for login to the IP Dome Camera.



The default login ID and password for the Administrator are:

Login ID: admin
Password: 1234

NOTE: ID and password are case sensitive.

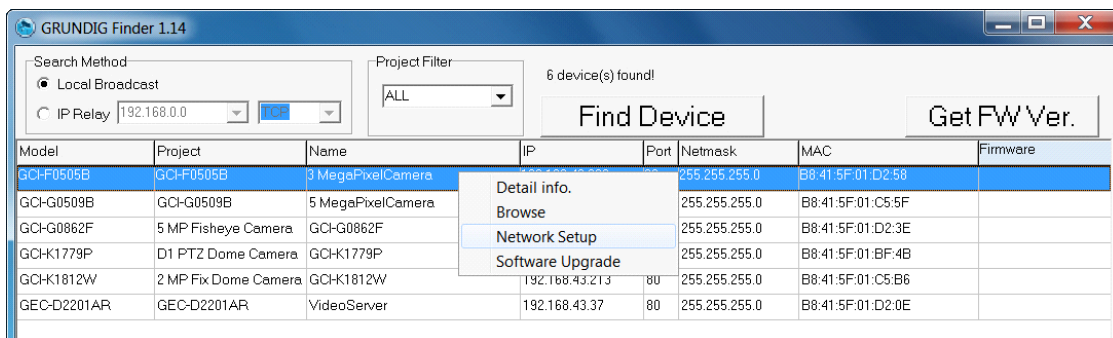
It is strongly advised to alter the administrator's password due to security concerns. Please refer to section 9.2. Security for further details.

Additionally, users can change the IP Camera's network property, either to DHCP or Static IP, directly in the device finding list. Please refer to the following section for changing the IP Camera's network property.

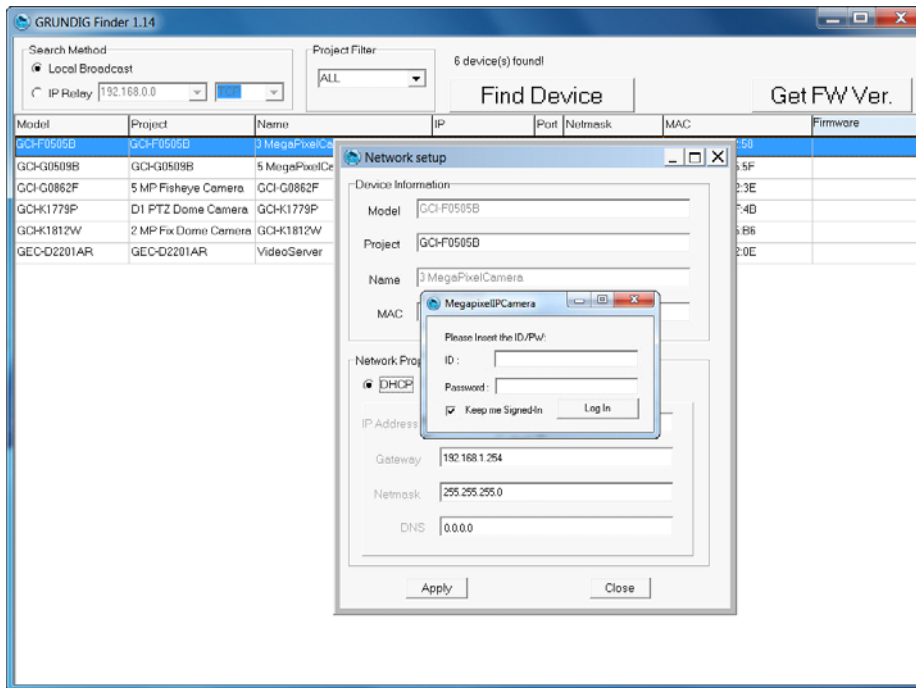
Example of changing the network property of the IP Camera :

Users can directly change an IP Camera's network property, e.g. from static IP to DHCP, in the finding device list. The procedure to change the IP Camera's network property is explained below:

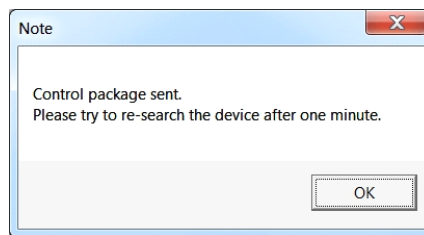
Step 1: In the finding device list, click on the IP Camera of which you would like to change the network property. Right-click on the selected item, and select "Network Setup". Meanwhile, record the IP Camera's MAC address for future identification.



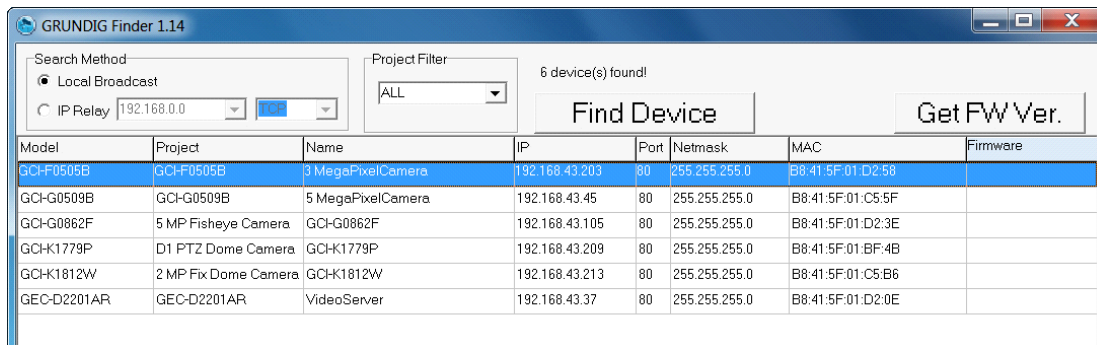
Step 2: The “Network Setup” page will come out. Select “DHCP,” and click on the “Apply” button at the bottom of the page.



Step 3: Click on “OK” in the Note of setting the change. Wait for one minute to search again for the IP Camera.



Step 4: Click on the “Find Device” button to search all the devices. Then select the IP Camera with the correct MAC address. After double-clicking on the IP Camera, the login window will appear.



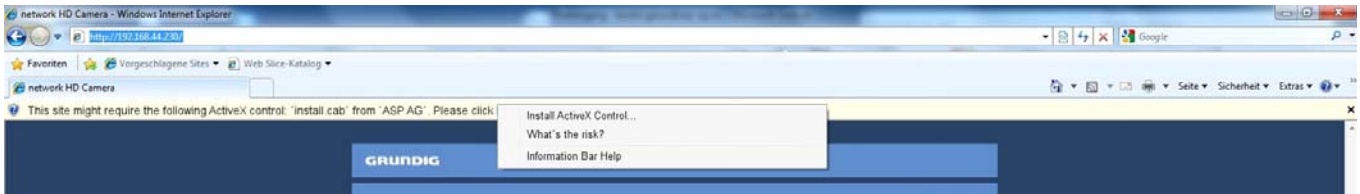
Step 5: Enter User name and Password to access the IP Camera.

Installing the GRUNDIG Viewer Software Online :

For initial access to the IP Camera, a client program, GRUNDIG Viewer, will be automatically installed to your PC when connecting to the IP Camera.

If the Web browser does not allow the GRUNDIG Viewer installation, please check the Internet security settings or ActiveX controls and plug-ins settings (see 14. Internet Security Settings) to continue the process.

The Information Bar (just below the URL bar) may come out and ask for permission to install the ActiveX Control for displaying video in browser (see the picture below). Right-click on the Information Bar and select "Install ActiveX Control..." to allow the installation.

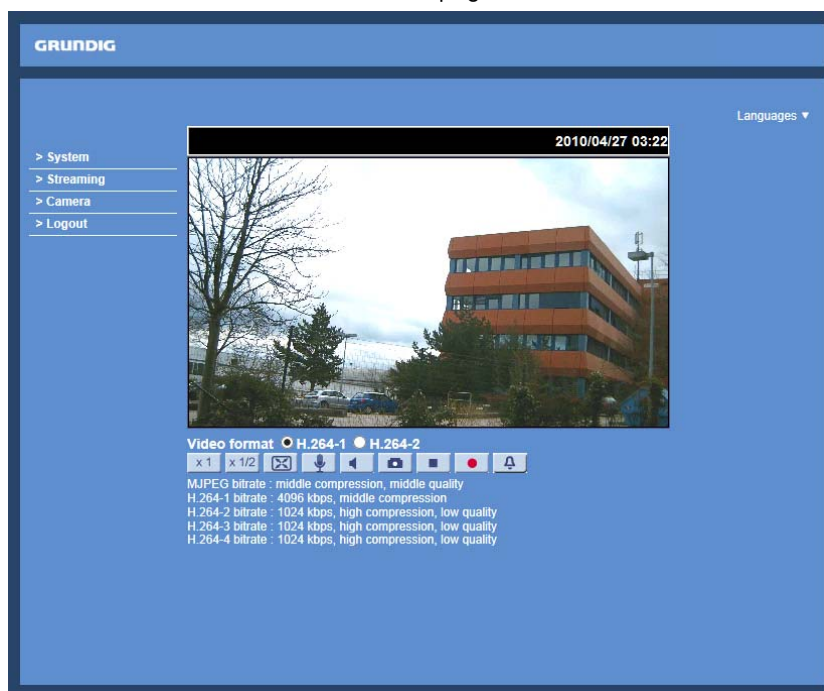


Then the security warning window will pop up. Click "Install" to carry on with the software installation.

Click on "Finish" to close the GRUNDIG Viewer window when download is finished. For detailed software download procedure, please refer to chapter 15. GRUNDIG Viewer Download Procedure.

NOTE: If the Live Video Pane on the Home Page cannot be shown to the users who have installed the GRUNDIG Viewer on the PC previously, please refer to the procedure in chapter 17. Deleting the Existing GRUNDIG Viewer.

Once logged in to the IP Camera, users will see the Home page as shown below:



Administrator/User Privileges :

"Administrator" represents the person who can configure the IP Camera and who authorises users to have access to the camera; "User" refers to someone who has access to the camera with limited authority, i.e. to enter the Home and Camera setting pages.

Image and Focus Adjustment :

Adjust zoom and focus of the lens as necessary to produce a clear image. To set the correct angle of view and focus, you can use the BNC output on the camera. For this, please connect a PAL monitor to the BNC output.

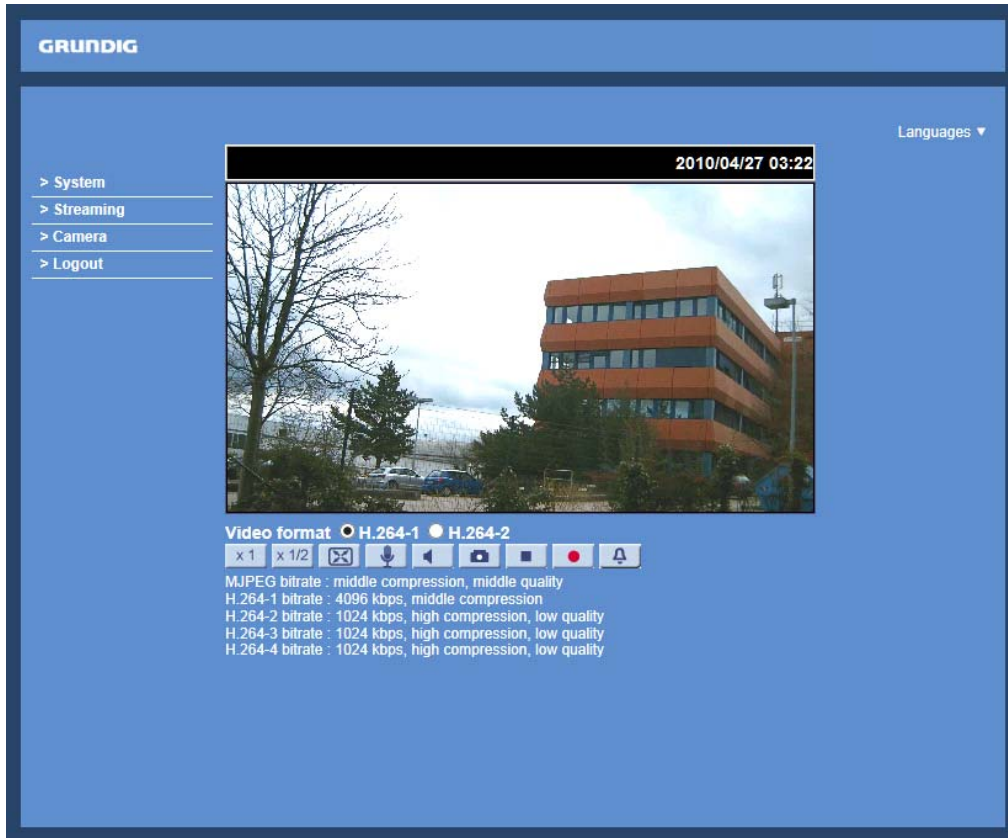
6. Video Resolution Setup

Users can set up the Video Resolution on the Video Format page of the user-friendly browser-based configuration interface. The page "Video Format" can be found in the IP camera menu under the path: Streaming > Video Format.

Under the Video Resolution section in the menu page "Video Format", please select your preferred resolution setting.

7. Browser-based Viewer Introduction

The picture below shows the Home page of the IP Camera's viewer window.



There are four tabs on the left (System, Streaming, Camera and Logout) and one tab on the right (Languages).

System setting :

The administrator can set host name, system time, admin password, network related settings, etc. Further details will be interpreted in chapter 9. System Related Settings.

Streaming setting :

The Administrator can configure a specific video resolution, video compression mode, video protocol, audio transmission mode, etc. in this page. Further details will be interpreted in chapter 10. Streaming Settings.

Camera setting :

Users can adjust various camera parameters. Further details will be interpreted in chapter 11. Camera Settings.

Logout :

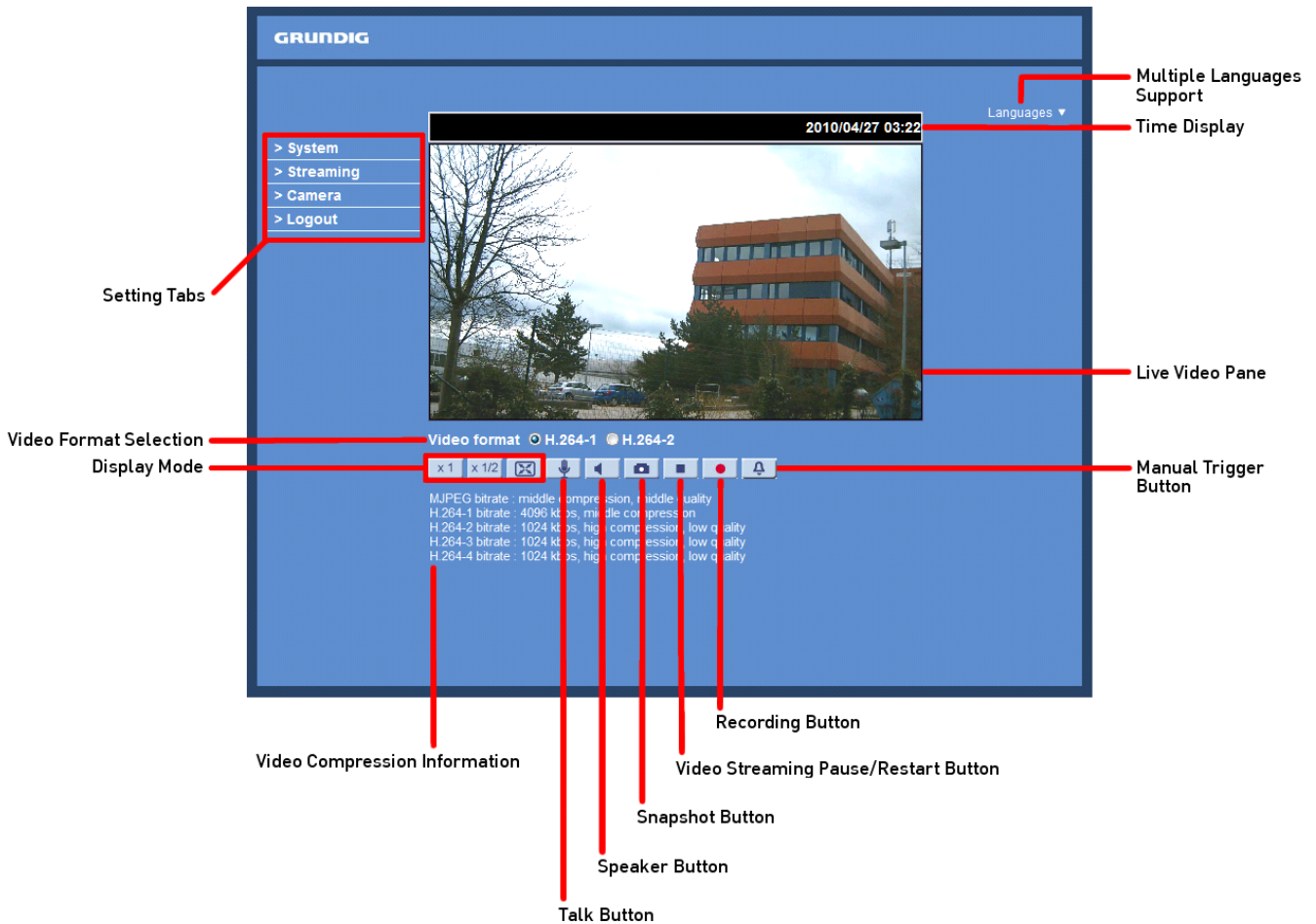
Click on this tab to re-login to the IP Camera with another user name and password. Further details will be interpreted in chapter 12. Logout.

Languages :

Please choose one of the supported languages (German, English, French, Italian or Russian).

8. Home Page

In the Home page, there are several function buttons that are specified below.



Display Mode (Screen Size Adjustment) :

The display size of the image can be adjusted to x1/2 and full screen.

Talk Button (on/off) :

Talk function allows the local site to talk to the remote site. Click on this button to switch it on/off. Please refer to section 9.2. Security: User >> Add user >> Talk/Listen for further details. This function is only open to the "User" who has been granted this privilege by the Administrator.

Please note that additional equipment will be necessary.

NOTE: This function is only open to the "User" who has been granted this privilege by the administrator.

Speaker Button (on/off) :

Click on the Speaker button to mute/activate the audio.

NOTE: This function is only open to the "User" who has been granted this privilege by the administrator.

Snapshot Button :

After clicking this button, the JPEG snapshots will be automatically saved in the appointed place. The default place of saving snapshots is: C:\. For changing the storage location, please refer to section 9.12. 'File Location (on PC)' for further details.

NOTE: Users with the Windows 7 or Windows 8 operating system on their PC need to follow the following procedure to be able to use the Snapshot function. First you need to log on to your computer as an Administrator. Then please go to Windows Start menu, click with the right mouse button on your Internet Browser and select in the appearing pop-up window "Run as Administrator". Afterwards you can log in to your camera as usual (as an administrator or user).

Video Streaming Pause/Restart Button (pause/restart) :

If you click on the stop button to disable video streaming, the live video will be displayed as black. Click on the restart button to show the live video again.

Recording Button (on/off) :

When you click on this button, the recordings from the Live View will be saved to the location specified in the "File Location" page. The default storage location for the recordings is: C:/. See section 9.12. 'File Location (on PC)' for further details.

NOTE: Users with the Windows 7 or Windows 8 operating system on their PC who want to use the Recording function, need to follow the procedure in the NOTE below the "Snapshot button" section in this chapter.

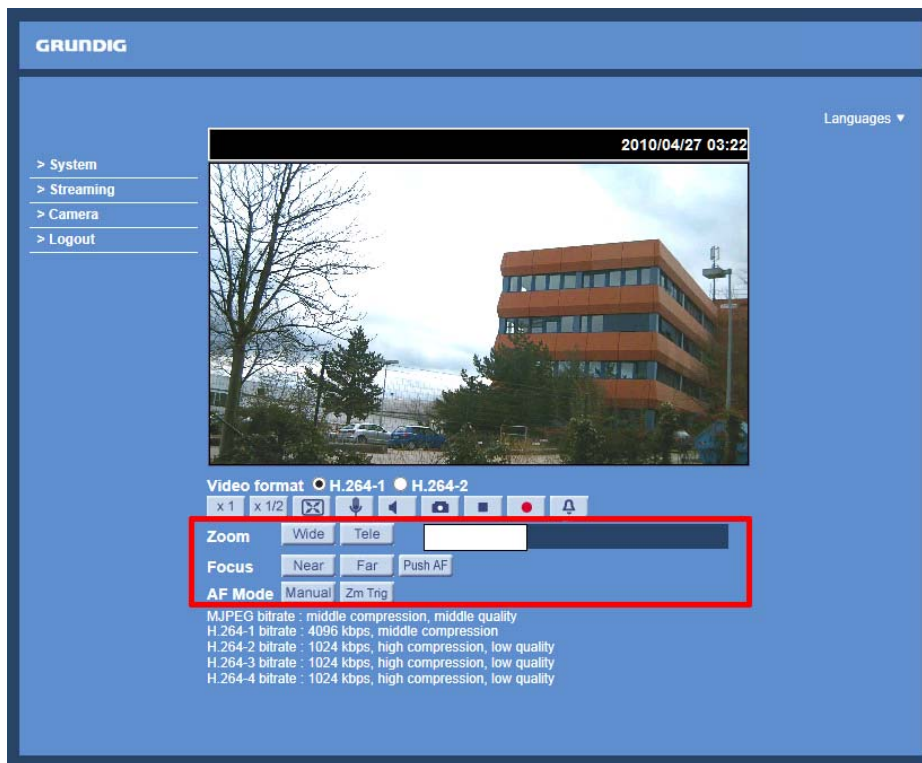
Manual Trigger Button :

Click on the <Manual Trigger > button to turn the manual trigger on or off.

Multiple Languages Support :

Multiple languages are supported for the viewer window interface.

The following functions are additional in the camera models GCI-F1576V and GCI-F1576VH:



Optical/Digital Zoom Control :

In Normal View display mode, users can implement zoom in/out by clicking in the zoom setting bar and adjusting the zoom manually or by clicking on the "Wide" / "Tele" buttons. In Full Screen mode, users can rotate the mouse wheel to zoom in/out on the image. When the camera reaches the limit of its optical range, it will automatically switch to digital zoom.

Zoom Adjustment :

Click on the buttons "Wide"/ "Tele" to control zoom in/out.

Focus Adjustment :

Users can adjust the focus manually via the "Near" and "Far" buttons.

- Push AF:

The one-push AF function is for fixing the focus on the target using Auto Focus (AF). After one click on the button, AF will be implemented.

AF Mode:

- Manual (Manual Focus):

After clicking on the "Manual" button, users can adjust the focus manually via the "Near" and "Far" buttons. This status will be displayed above the live screen.

- Zm Trig:

The Zoom Trigger function is for fixing the focus everytime the Zoom is adjusted.

9. System Related Settings

The picture below shows all categories under the “System” tab. Each category in the left column will be explained in the following sections.

NOTE: The “System” configuration page is only accessible by the Administrator.

The screenshot shows the Grundig System configuration page. On the left is a navigation menu with categories: >System, System, Security, Network, DDNS, Mail, FTP, HTTP, Events, Storage management, Recording, Schedule, File Location, View Information, Factory Default, Software Version, Software Upgrade, Maintenance, and < Back. The main content area is titled 'System' and contains the following settings:

- Host name:** Camera
- Time zone:** GMT+00:00 Gambia, Liberia, Morocco, England
- Enable daylight saving time**
 - Time offset: 01:00:00
 - Start date: Jan 1st Sun Start time: 00:00:00
 - End date: Jan 1st Sun End time: 00:00:00
- Time format:** dd/mm/yyyy
- Sync with computer time**
 - PC date: 12/11/2014 [dd/mm/yyyy]
 - PC time: 16:18:15 [hh:mm:ss]
- Manual**
 - Date: 01/04/2010 [dd/mm/yyyy]
 - Time: 00:00:00 [hh:mm:ss]
- Sync with NTP server**
 - NTP server: 0.0.0.0 [host name or IP address]
 - Update interval: Every hour
- Save** button

9.1. Host Name & System Time Setting

Click on the first category <System> in the left column; the page is shown below.

This screenshot is identical to the one above, showing the Grundig System configuration page with the same settings and navigation menu.

Host Name :

The name is for camera identification (max. 30 characters). If the alarm function (see section 9.8.1. 'Application (Alarm Settings)') is enabled and is set to send an alarm message by Mail/FTP, the host name entered here will be displayed in the alarm message.

Time Zone :

Select the time zone you are in from the drop-down menu.

Enable Daylight Saving Time :

To enable DST, please check the item and then specify the time offset and DST duration. The format for time offset is [hh:mm:ss]; for instance, if the amount of time offset is one hour, please enter "01:00:00" into the field.

Time format:

Choose a time format (yyyy/mm/dd or dd/mm/yyyy) from the drop-down menu.

The time format for "PC date" and "Date" under <Sync with Computer Time> and <Manual> will be changed according to the selected format.

Sync with Computer Time :

After selecting this item, the video date and time display will be synchronised with the PC.

Manual :

The Administrator can set the date, time and day manually. Entry format should be identical with the format shown next to the enter fields.

Sync with NTP server :

Network Time Protocol (NTP) is an alternative way to synchronise your camera's clock with a NTP server. Please specify the server you wish to synchronise the camera with in the enter field. Then select an update interval from the drop-down menu. For further information about NTP, please see the web site: www.ntp.org.

NOTE: Click on < Save > to confirm the new setting.

9.2. Security

When you click on the category <Security>, there will be a drop-down menu with several tabs including <User>, <HTTPS>, <IP Filter>, and <IEEE 802.1X>.

Enable IEEE 802.1X :

Check the box to enable IEEE 802.1X.

Click "Save" to save the IEEE 802.1X/ EAP—TLS setting.

9.2.1. User

When you click on the <User> tab under the category <Security>, the <User> page will be shown as in the picture below.

The screenshot shows the Grundig web interface for user management. On the left is a navigation menu with categories: >System, System, Security (expanded), Network, Mail, FTP, HTTP, Events, Storage management, Recording, Schedule, File Location, View Information, Factory Default, Software Version, Software Upgrade, Maintenance, and < Back. The main content area is titled 'User' and contains three sections: 'Admin password' with input fields for 'Admin account' (pre-filled with 'admin'), 'Admin password', and 'Confirm password', and a 'Save' button; 'Add user' with input fields for 'User name' and 'User password', and checkboxes for 'I/O access' (checked), 'Camera control', 'Talk', and 'Listen', and an 'Add' button; and 'Manage user' with a 'User name' dropdown menu showing '-- no user --' and 'Delete' and 'Edit' buttons. At the bottom, there is a 'Streaming Authentication Setting' section with a 'Type' dropdown menu set to 'disable' and a 'Save' button.

NOTE: The following characters are valid: A-Z, a-z, 0-9, !#\$%&'-.@^_~.

Admin Password :

Change the administrator's password by putting in the new password in the "Admin password" and "Confirm password" text boxes. The input characters/numbers will be displayed as dots for security purposes. After clicking <Save>, the web browser will ask the Administrator for the new password for access. The maximum length of the password is 14 digits.

Add User :

Type in the new user name and password and click <Add> to add the new user. The user name can have up to 16 characters, the password up to 14 characters. The new user will be displayed in the user name list. A maximum of 20 user accounts can be set. To each user the privileges "Camera control", "Talk" and "Listen" can be assigned

- I/O access:

This item supports fundamental functions that enable users to view the video when accessing the camera.

- Camera control:

This item allows the specified User to change the camera's parameters on the Camera Setting page.

- Talk/Listen:

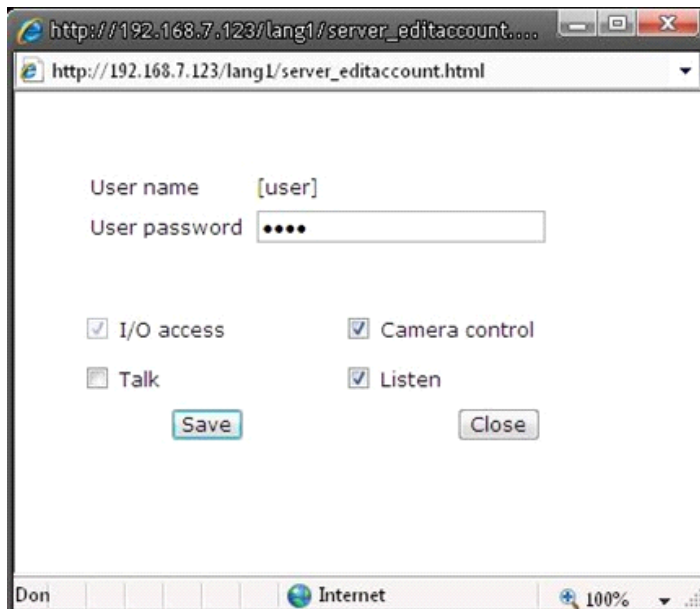
Talk and Listen functions allow the appointed user on the local site (PC site) to communicate, for instance, with the administrator on the remote site.

Manage User :

To delete a user, pull down the user list, and select the user name you wish to delete. Then click <Delete> to remove it.

To edit a user, pull down the user list and select a user name. Click <Edit> to edit the user's password and privileges.

NOTE: It is required to enter the User password and to select the functions that will be open to the user. When finished, click <Save> to modify the account authority.



Streaming Authentication Setting :

The Network Camera provides two types of security settings for an HTTP transaction: basic and digest. Please choose the one that meets your network security requirements.

- Disable: To inactivate the function.

- Basic: In this mode, the password is sent in plain text format and there can be potential risks of the password being intercepted.

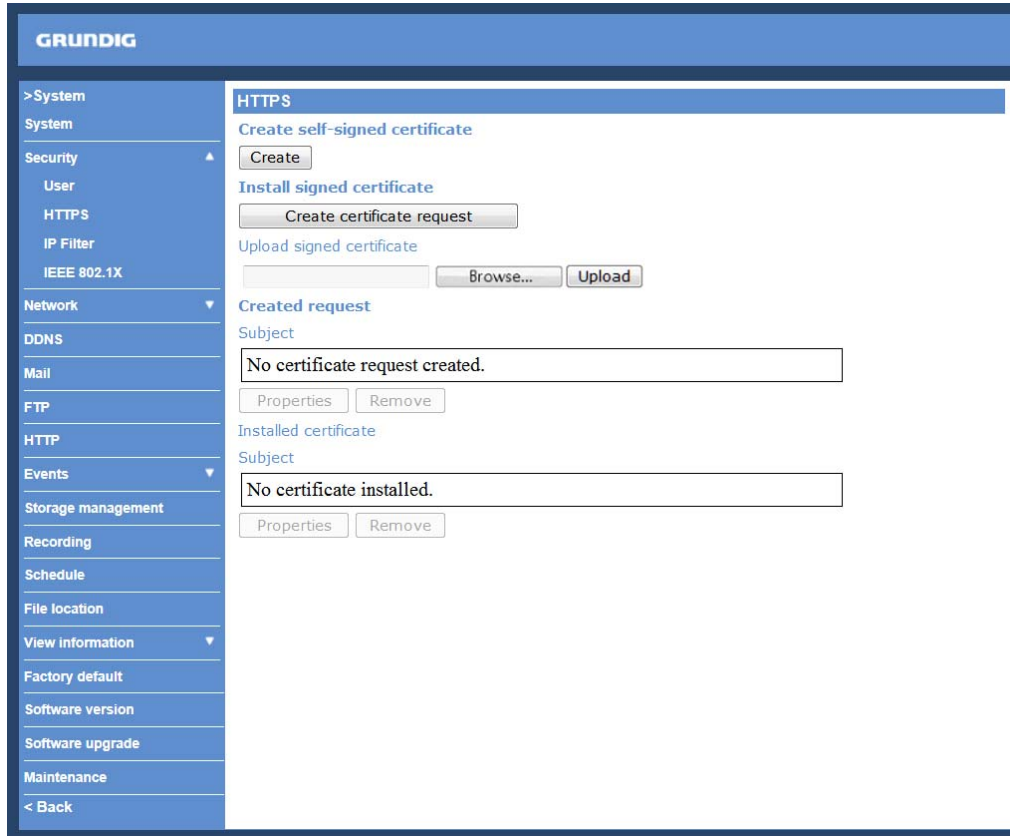
- Digest: User credentials are encrypted using an MD5 algorithm and thus provide better protection against unauthorised accesses.

Click on the <Save> button to confirm the settings.

9.2.2. HTTPS

<HTTPS> allows secure connections between the IP Camera and the web browser using the <Secure Socket Layer (SSL)> or the <Transport Layer Security (TLS)>, which prevent others from snooping on your camera settings or Username/Password. It is required to install a self-signed certificate or a CA-signed certificate for implementation of <HTTPS>.

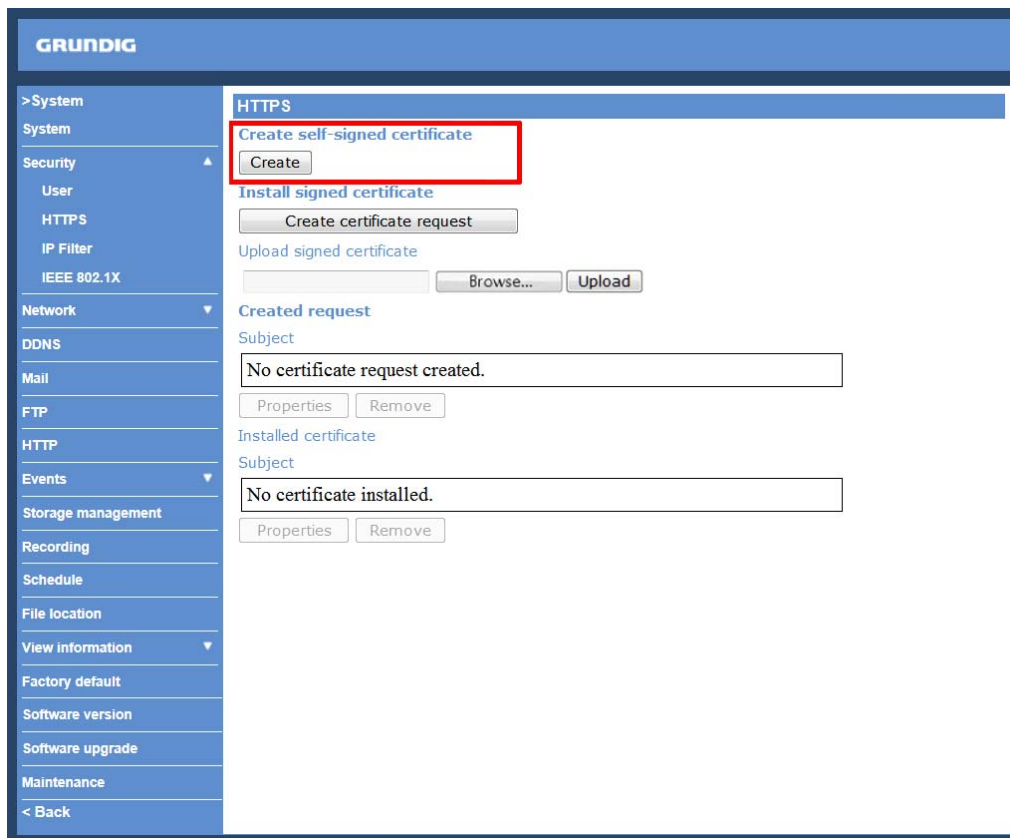
After clicking on the <HTTPS> tab, the HTTPS setting page will be shown as in the figure below.



To use HTTPS on the IP Camera, a HTTPS certificate must be installed. The HTTPS certificate can be obtained by either creating and sending a certificate request to a Certificate Authority (CA) or creating a self-signed HTTPS certificate, as described below.

Create self-signed certificate :

Before a CA-issued certificate is obtained, users can create and install a self-signed certificate first.



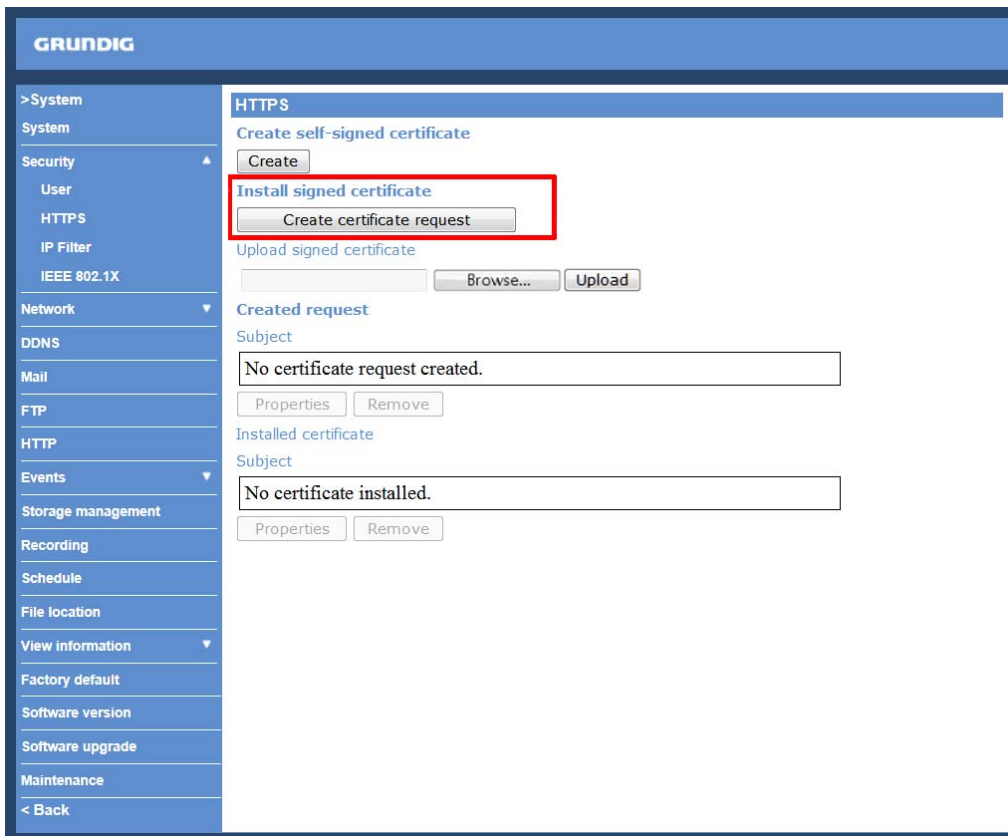
Click on the <Create> button under “Create self-signed certificate” and provide the requested information to install a self-signed certificate for the IP Camera. Please refer to the last part of this section: “Provide the Certificate Information” for more details.

NOTE: The self-signed certificate does not provide the same high level of security as when using a CA-issued certificate.

Provide the requested information in the Create Dialog. Please refer to the section “Provide the Certificate Information” for more details.

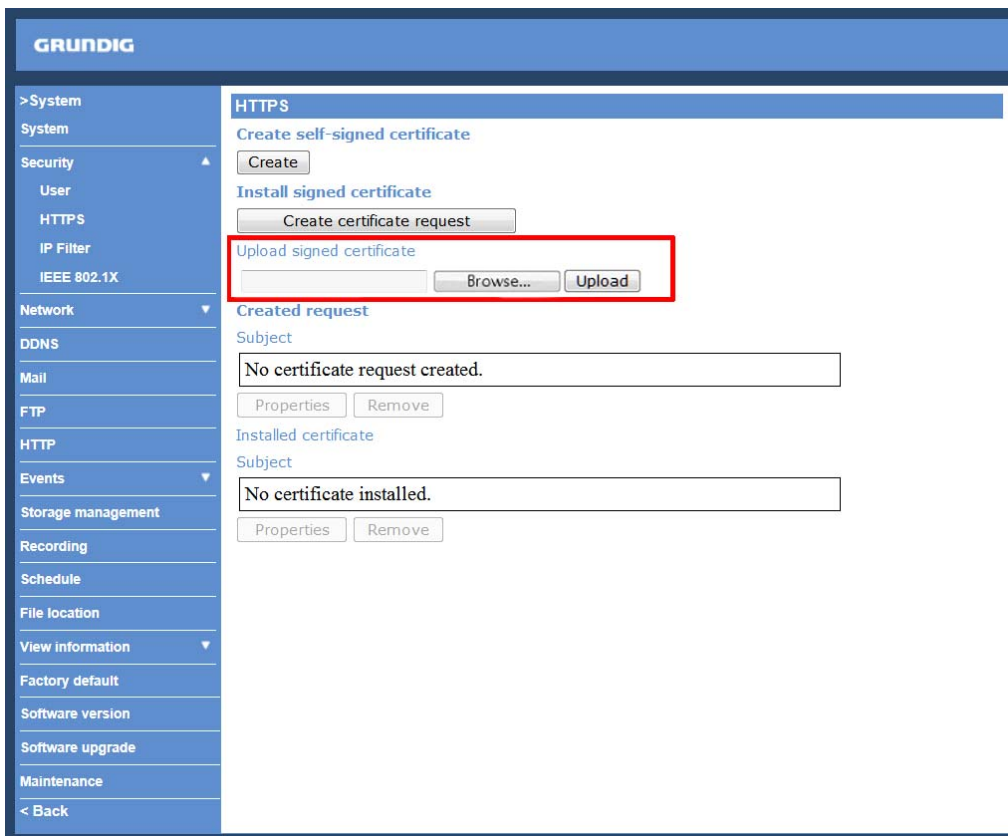
Install signed certificate :

Click on the “Create Certificate Request” button to create and submit a certificate request in order to obtain a signed certificate from the CA (Certificate Authority).



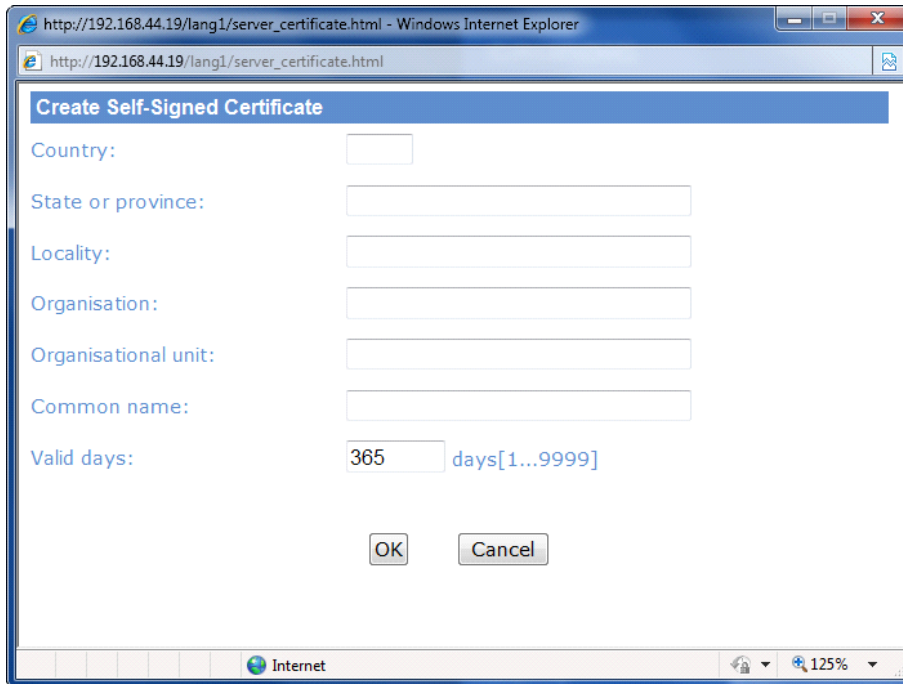
When the request is complete, the subject of the Created Request will be shown in the field. Click “Properties” below the Subject field, copy the PEM-formatted request and send it to your selected CA.

When the signed certificate is returned, install it by uploading the signed certificate.

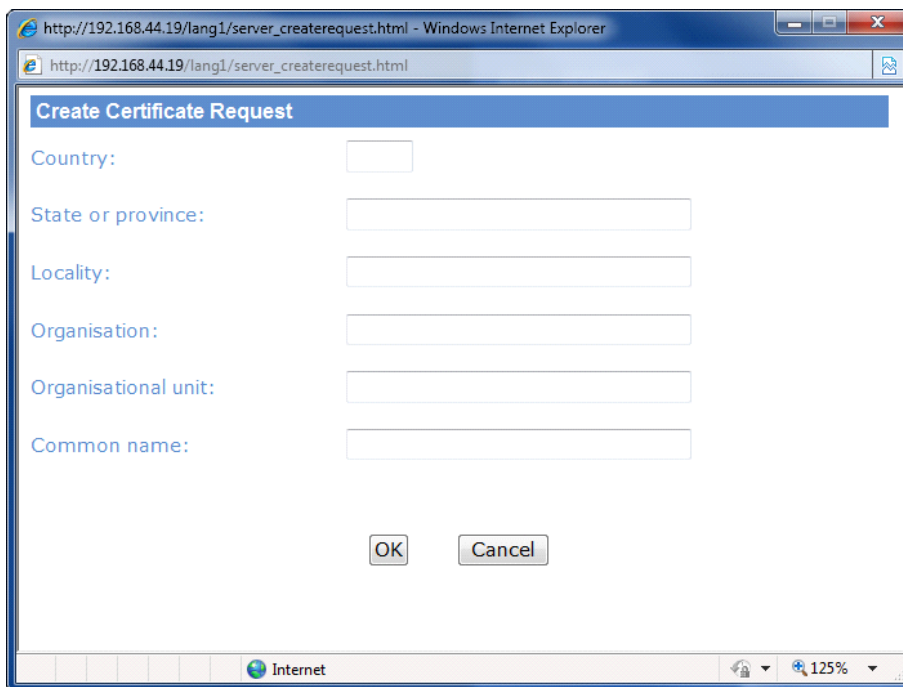


Provide the Certificate Information :

To create a Self-signed HTTPS Certificate or a Certificate Request to CA, please enter the information as requested:



The screenshot shows a web browser window titled "http://192.168.44.19/lang1/server_certificate.html - Windows Internet Explorer". The page content is a form titled "Create Self-Signed Certificate". The form includes the following fields: "Country:" (a small text box), "State or province:" (a larger text box), "Locality:" (a larger text box), "Organisation:" (a larger text box), "Organisational unit:" (a larger text box), "Common name:" (a larger text box), and "Valid days:" (a text box containing "365" followed by "days[1...9999]"). At the bottom of the form are "OK" and "Cancel" buttons. The browser's status bar shows "Internet" and a zoom level of "125%".



The screenshot shows a web browser window titled "http://192.168.44.19/lang1/server_createrequest.html - Windows Internet Explorer". The page content is a form titled "Create Certificate Request". The form includes the following fields: "Country:" (a small text box), "State or province:" (a larger text box), "Locality:" (a larger text box), "Organisation:" (a larger text box), "Organisational unit:" (a larger text box), and "Common name:" (a larger text box). At the bottom of the form are "OK" and "Cancel" buttons. The browser's status bar shows "Internet" and a zoom level of "125%".

- Country:

Enter a 2-letter combination code to indicate the country the certificate will be used in. For instance, type in "GB" to indicate Great Britain.

- State or province:

Enter the local administrative region.

- Locality:

Enter other geographical information.

- Organisation:

Enter the name of the organisation to which the entity identified in "Common Name" belongs.

- Organisation Unit:

Enter the name of the organisational unit to which the entity identified in "Common Name" belongs.

- Common Name:

Indicate the name of the person or other entity that the certificate identifies (often used to identify the website).

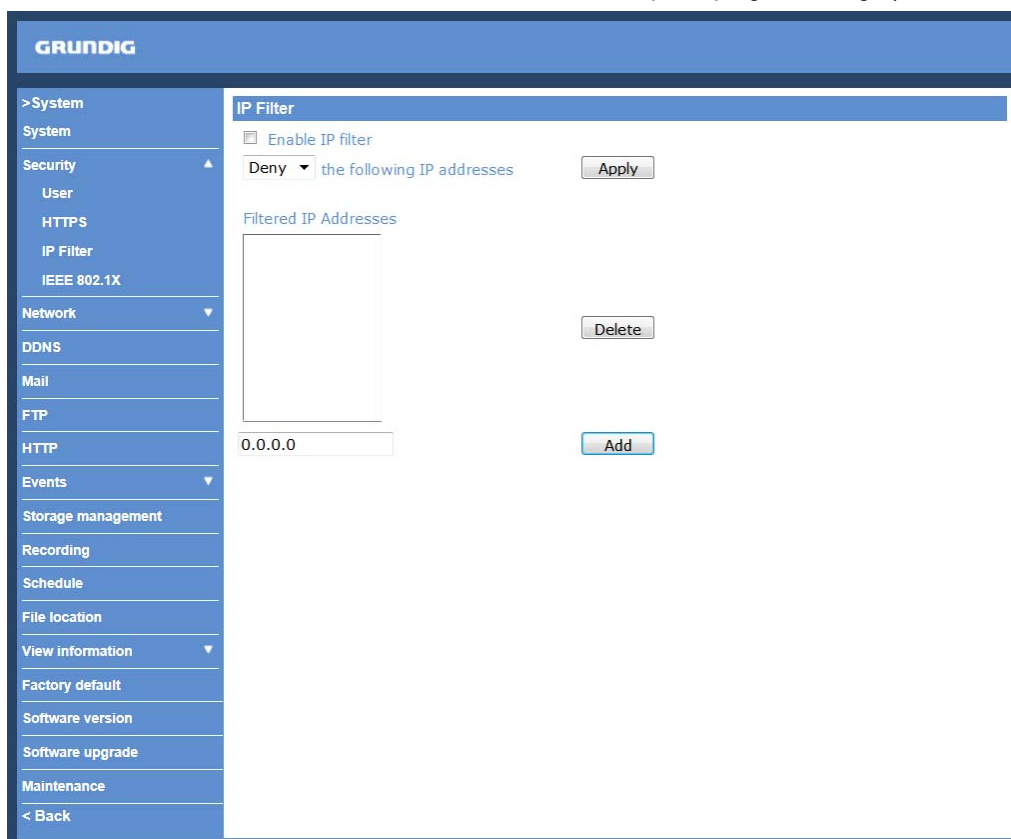
- Valid days (Self-signed Certificate Only):

Enter the period in days (1~9999) to indicate the valid period of the certificate.

Click "OK" to save the Certificate Information after completing.

9.2.3. IP Filter

When using the IP filter, access to the IP Camera can be restricted by denying/allowing specific IP addresses.



General :

- Enable IP Filter:

Check the box to enable the IP Filter function. Once enabled, access to the IP Camera will be allowed/denied for the listed IP addresses (IPv4).

Select "Allow" or "Deny" from the drop-down list and click the <Apply> button to determine the IP Filter behaviour.

- Add/Delete IP Address:

Input the IP address and click the <Add> button to add a new filtered address.

The Filtered IP Addresses list box shows the currently configured IP addresses. Up to 256 IP address entries may be specified.

To remove an IP address from the list, please select the IP and then click the <Delete> button.

In addition, to filter a group of IP addresses, enter an address in the blank space followed by a slash and a number ranging from 1 to 31, e.g. 192.168.2.81/30. The number after the slash can define how many IP addresses will be filtered. For details, please refer to the following example.

Example: Filtering a group of consecutive IP addresses

The steps below show what will be filtered when 192.168.2.81/30 is entered.

Step 1: Convert 192.168.2.81 to binary numbers. The binary numbers for the decimal number 192.168.2.81 are: 11000000.10101000.00000010.01010001.

(For conversion, you can use the calculator of Windows. For Windows XP and Windows Vista, click <View> on the calculator and click <Scientific>. For Windows 7 and Windows 8, click <View> on the calculator and click <Programmer>. Then select first <Dec> and enter the decimal number, for example "2", and select <Bin> to calculate the according binary number. You will receive "10". In the example above, 6 zeros were added before the number 10 because every binary number must consist of 8 digits.)

The number "30" after the slash is referring to the first 30 digits of the binary numbers.

Step 2: Convert a few IP addresses before and after 192.168.2.81 to binary numbers. Then compare their first 30 digits to the binary numbers of 192.168.2.81.

a. Convert 192.168.2.80 to binary numbers. The binary numbers are 11000000.10101000.00000010.01010000. The first 30 digits are the same with the binary numbers of 192.168.2.81, thus 192.168.2.80 will be filtered.

b. Convert 192.168.2.79 to binary numbers. The binary numbers are 11000000.10101000.00000010.01001111. The first 30 digits are different with the binary numbers of 192.168.2.81, thus 192.168.2.79 will not be filtered. This also means the IP addresses before 192.168.2.79 will not be filtered. Therefore, users can stop converting the IP addresses before 192.168.2.79 to binary numbers.

c. Repeat the same procedure in "a" with the IP addresses after 192.168.2.81. Stop when the situation explained in "b" happens. Namely, the 30th digit of the binary numbers of IP address 192.168.2.84 is different, and will not be filtered.

As a result, the IP addresses 192.168.2.80 to 192.168.2.83 will be filtered when entering 192.168.2.81/30. But IP addresses 192.168.79 and 192.168.84 will not be filtered when entering 192.168.2.81/30.

9.2.4. IEEE 802.1X

The IP Camera can access a network protected by 802.1X/EAPOL (Extensible Authentication Protocol over LAN). To do this, users need to contact the network administrator to receive certificates, user Ids and passwords.

The screenshot shows the Grundig web interface for configuring IEEE 802.1X/EAP-TLS. The left sidebar contains a navigation menu with the following items: >System, System, Security (with a sub-menu arrow), User, HTTPS, IP Filter, IEEE 802.1X (highlighted), Network (with a sub-menu arrow), DDNS, Mail, FTP, HTTP, Events (with a sub-menu arrow), Storage management, Recording, Schedule, File location, View information (with a sub-menu arrow), Factory default, Software version, Software upgrade, Maintenance, and < Back. The main content area is titled 'IEEE 802.1X/EAP-TLS' and contains the following sections: 'CA certificate' with a file input field, a 'Browse...' button, and an 'Upload' button; 'Client certificate' with a file input field, a 'Browse...' button, and an 'Upload' button; 'Private key' with a file input field, a 'Browse...' button, and an 'Upload' button; and 'Settings' which includes an 'Identity' field with the value 'admin', a 'Private key password' field with masked characters, an unchecked checkbox for 'Enable IEEE 802.1X', and a 'Save' button.

CA Certificate :

The CA certificate is created by the Certification Authority for the purpose of validating itself. Upload the certificate for checking the server's identity.

Client Certificate/Private Key :

Upload the Client Certificate and Private Key for authenticating the IP Camera itself.

Settings :

- Identity:

Enter the user identity associated with the certificate. Up to 16 characters can be used.

- Private Key Password:

Enter the password (maximum 16 characters) for your user identification.

9.3. Network

When you click on the category <Network>, there will be a drop-down menu with several tabs including <Basic>, <QoS>, <SNMP>, and <UPnP>.

The screenshot shows the Grundig Network configuration interface. On the left is a navigation menu with categories like System, Security, Network, DDNS, Mail, FTP, HTTP, Events, Storage management, Recording, Schedule, File location, View information, Factory default, Software version, Software upgrade, Maintenance, and < Back. The main content area is titled 'Network' and has a 'General' tab selected. Under 'General', there are two radio button options: 'Get IP address automatically' (selected) and 'Use fixed IP address'. The fixed IP address fields are filled with 192.168.1.1, 255.255.255.0, 0.0.0.0, 0.0.0.0, and 0.0.0.0. Below these are fields for 'User name' and 'Password' for PPPoE. An 'Advanced' section contains numeric input fields for 'Web server port' (80), 'RTSP port' (554), 'MJPEG over HTTP port' (8008), and 'HTTPS port' (443). An 'IPv6 address configuration' section has an unchecked 'Enable IPv6' checkbox and an 'Address' field. The MAC address is displayed as B8:41:5F:09:07:91. 'Save' buttons are present for the PPPoE, Advanced, and IPv6 sections.

9.3.1. Basic

Users can choose to connect to the IP Camera through a fixed or dynamic (DHCP) IP address. The IP Camera also provides PPPoE (Point-to-Point Protocol over Ethernet) support for users who connect to the network via PPPoE.

This screenshot is identical to the one above, showing the Grundig Network configuration page with the 'General' tab selected. It displays the same configuration options for IP addressing, PPPoE, advanced ports, and IPv6.

Get IP address automatically (DHCP):

The camera's default setting is "Use fixed IP address". Please refer to the previous section 5. Accessing the Camera for login with the default IP address.

If "Get IP address automatically" is selected, after the IP Camera restarts, users can search the IP address through the installer program "GRUNDIG Finder.exe", that is on the supplied CD.

NOTE: The DHCP function can only be used if you have a DHCP server in the used network.

NOTE: Please make a record of the IP Camera's MAC address, which can be found on the label of the camera, for identification in the future.

Use a fixed IP address :

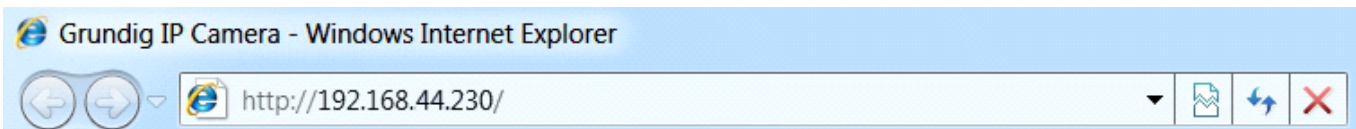
To set up a static IP address, select "Use fixed IP address" and move the cursor to the IP address blank (as indicated below) and insert the new IP address, e.g. 192.168.44.230; then go to Default Gateway (explained later) and type in the appropriate setting, e.g. 192.168.44.1.

Click on "Save" to confirm the new setting.

The screenshot shows the Grundig web interface for network configuration. The left sidebar contains a menu with options: >System, System, Security, Network (selected), Basic, QoS, SNMP, UPnP, DDNS, Mail, FTP, HTTP, Events, Storage management, Recording, Schedule, File location, View information, Factory default, Software version, Software upgrade, Maintenance, and < Back. The main content area is titled "Network" and has a "General" sub-section. Under "General", there are two radio buttons: "Get IP address automatically" (selected) and "Use fixed IP address". The "Use fixed IP address" section has several input fields: "IP address" (192.168.44.230), "Subnet mask" (255.255.255.0), "Default gateway" (192.168.44.1), "Primary DNS" (0.0.0.0), and "Secondary DNS" (0.0.0.0). Below these are fields for "User name" and "Password" under the "Use PPPoE" section, and a "Save" button. The "Advanced" section has fields for "Web server port" (80), "RTSP port" (554), "MJPEG over HTTP port" (8008), and "HTTPS port" (443), with a "Save" button. The "IPv6 address configuration" section has a checkbox for "Enable IPv6" and an "Address" field with a "Save" button. At the bottom, the "MAC address" is listed as B8:41:5F:09:07:91.

When a note for system restart appears, click on <OK> and the system will restart. Wait for 15 seconds. The camera's IP address in the URL bar will be changed, and users have to login again.

When using a static IP address to login to the IP Camera, users can access it either through the "GRUNDIG Finder" software (see 5. Accessing the Camera) or input the IP address in the URL bar and click on "Enter".



- IP address:

This is necessary for network identification.

- Subnet mask:

It is used to determine if the destination is in the same subnet. The default value is "255.255.255.0".

- Default gateway:

This is the gateway used to forward frames to destinations in different subnets. An invalid gateway setting will fail in the transmission to destinations in different subnets.

- Primary DNS:

Primary DNS is the primary domain name server that translates hostnames into IP addresses.

- Secondary DNS:

Secondary DNS is a secondary domain name server that backs up the primary DNS.

Use PPPoE :

The PPPoE users need to enter the PPPoE Username and Password into the fields, and need to click on the "Save" button to complete the setting.

Advanced :

- Web Server port:

The default web server port is 80. Once the port is changed, all users must be informed about the change for the connection to be successful. For instance, when the Administrator changes the HTTP port of the IP Camera which has the IP address "192.168.0.100" from 80 to 8080, the users must type in in the web browser "http://192.168.0.100:8080" instead of "http://192.168.0.100".

- RTSP port:

The default setting of the RTSP Port is 554; the setting range is from 1024 to 65535.

- MJPEG over HTTP port:

The default setting of the MJPEG over HTTP Port is 8008; the setting range is from 1024 to 65535.

- HTTPS port:

The default setting of the HTTPS Port is 443; the setting range is from 1024 to 65535.

NOTE: Be aware to assign a different port number for each separate service mentioned above.

IPv6 Address Configuration :

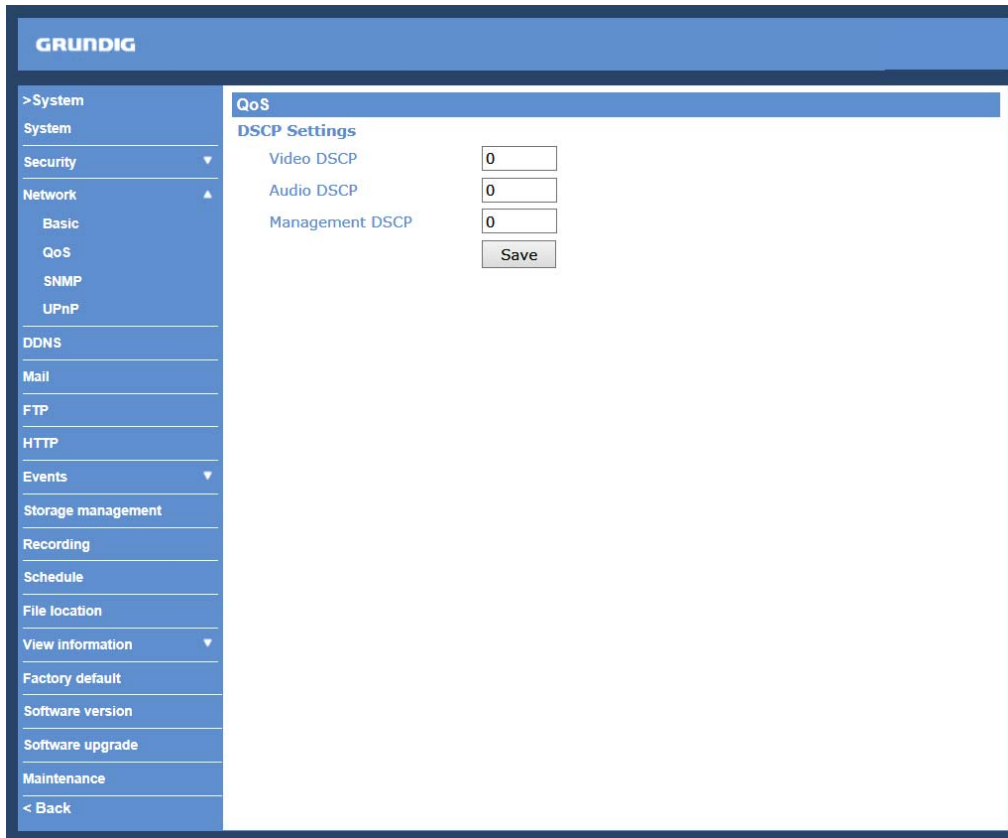
With IPv6 support, users can use the corresponding IPv6 address for browsing. Enable IPv6 by checking the box and click "Save" to complete the setting.

MAC address :

This is the MAC number of this camera.

9.3.2. QoS

QoS allows providing differentiated service levels for different types of traffic packets which guarantees delivery of priority services especially when network congestion occurs. Adapting the Differentiated Services (DiffServ) model, traffic flows are classified and marked with DSCP (DiffServ Codepoint) values, and thus receive the corresponding forwarding treatment from DiffServ capable routers.



DSCP Settings :

The DSCP value range is from 0 to 63. The default DSCP value is 0, which means that DSCP is disabled.

The IP Camera uses the following QoS Classes: Video, Audio and Management.

- Video DSCP:

This class consists of applications such as MJPEG over HTTP, RTP/RTSP and RTSP/HTTP.

- Audio DSCP:

This setting is only available for the IP Cameras which support audio.

- Management DSCP:

This class consists of the HTTP traffic: Web browsing.

Click the "Save" button to complete the setting.

NOTE: To enable this function, please make sure the switches/routers in the network support QoS.

9.3.3. SNMP

With Simple Network Management Protocol (SNMP) support, the IP Camera can be monitored and managed remotely by the network management system.

The screenshot shows the Grundig web interface for configuring SNMP settings. The left sidebar lists various system settings, with 'SNMP' selected. The main content area is titled 'SNMP Settings' and is divided into three sections:

- SNMP v1/v2:** Includes checkboxes for 'Enable SNMP v1' and 'Enable SNMP v2'. Below these are text input fields for 'Read community' (containing 'public') and 'Write community' (containing 'private').
- SNMP v3:** Includes a checkbox for 'Enable SNMP v3'. Below it are fields for 'Security name', 'Authentication type' (set to 'MD5'), 'Authentication password', 'Encryption type' (set to 'DES'), and 'Encryption password'.
- Traps for SNMP v1/v2/v3:** Includes a checkbox for 'Enable traps'. Below it are fields for 'Trap address' and 'Trap community' (set to 'public').

At the bottom of the main content area is a 'Save' button.

SNMP v1/v2 :

- Enable SNMP:

Select the version of SNMP to use by checking the corresponding box.

- Read Community:

Specify the community name which has read-only access to all supported SNMP objects. The default value is "public".

- Write Community:

Specify the community name which has read/write access to all supported SNMP objects (except read-only objects). The default value is "private".

SNMP v3 :

This option contains cryptographic security, a higher security level, which allows users to set the Authentication password and the Encryption password.

- Enable SNMP v3: Check the corresponding box to activate SNMP v3.

- Initial User Password (=Security Name): The community name set on NMS(Network-management station). The maximum length of the string is 32 alphanumeric characters.

- Authentication type: Select MD5 or SHA as the authentication method.

- Authentication password: Enter the password for authentication (at least 8 characters).

- Encryption type: Select DES or AES as the encryption method.

- Encryption password: Enter a password for encryption (at least 8 characters).

Traps for SNMP v1/v2/v3 :

Traps are used by the IP Camera to send messages to a management system about important events or status changes.

- Enable Traps:

Check the box to activate trap reporting.

- Trap address:

Enter the IP address of the management server.

Trap option :

- Warm start:

A Warm start SNMP trap signifies that the SNMP device, i.e. the IP Camera, performs a software reload.

Click the "Save" button to complete the setting.

9.3.4. UPnP

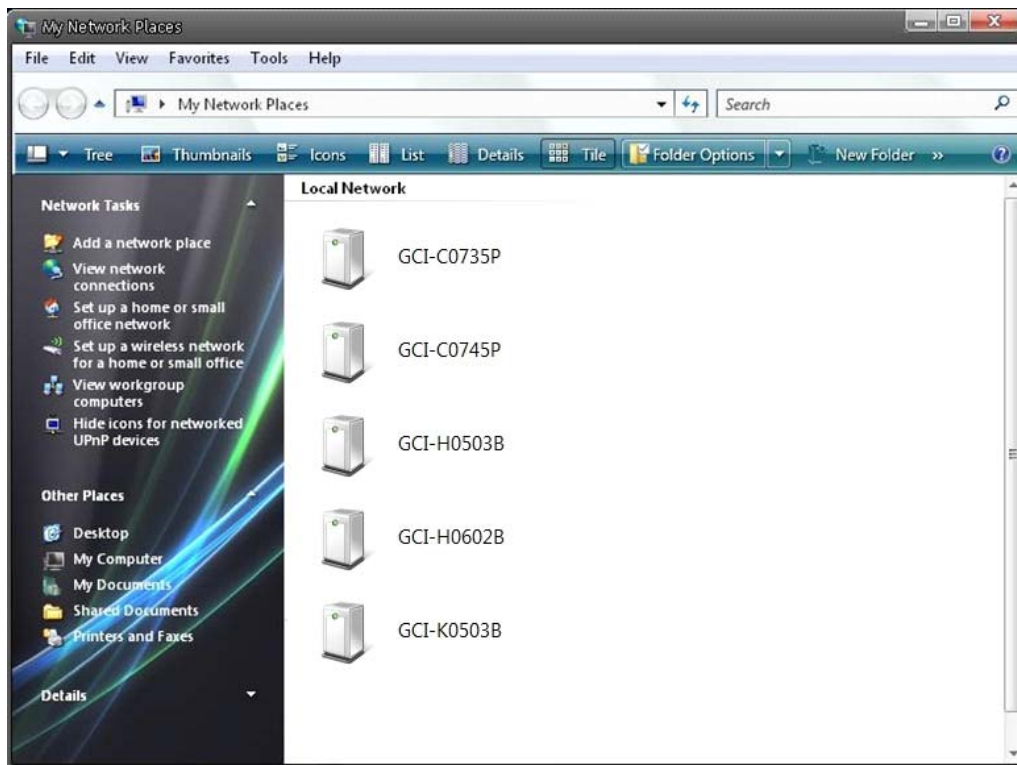
The screenshot displays the Grundig web interface for configuring UPnP settings. The interface includes a blue header with the 'GRUNDIG' logo and a left sidebar menu. The main content area is titled 'UPnP' and 'UPnP Setting'. It contains the following elements:

- Enable UPnP
- Enable UPnP port forwarding
- Friendly name:
-

UPnP Setting :

- Enable UPnP:

When UPnP is enabled, whenever the IP Camera is presented to LAN, the icon of the connected IP Cameras will appear in My Network Places to allow for direct access as shown below.



NOTE: To enable this function, please make sure the UPnP component is installed on your computer. Please refer to chapter 17. Install UPnP Components for UPnP component installation procedure.

- Enable UPnP port forwarding:

When UPnP port forwarding is enabled, the IP Camera is allowed to open the web server port on the router automatically.

NOTE: To enable this function, please make sure that your router supports UPnP and is activated.

- Friendly name:

Set the name of the IP Camera for identification.

9.3.9. SNMP

- Trap community:

Enter the community to use when sending a trap message to the management system.

9.4. DDNS

The Dynamic Domain Name System (DDNS) allows a host name to be constantly synchronised with a dynamic IP address. In other words, it allows those using a dynamic IP address to be associated to a static domain name so that others can connect to it through this name.

The screenshot shows the DDNS configuration interface. The left sidebar lists various system settings, with 'DDNS' selected. The main panel is titled 'DDNS' and includes a sub-header 'Dynamic DNS Use dynamic DNS if you want to use your DDNS account.' Below this, there is a checkbox for 'Enable DDNS'. The configuration fields include a dropdown for 'Provider' (set to 'DynDNS.org(Dynamic)'), text boxes for 'Host name', 'Username/E-mail', and 'Password/Key', and a 'Save' button.

Enable DDNS :

Check the item to enable DDNS.

Provider :

Select one DDNS host from the provider list.

Host name :

Enter the registered domain name in the field.

Username/E-mail :

Enter the user name or e-mail required by the DDNS provider for authentication.

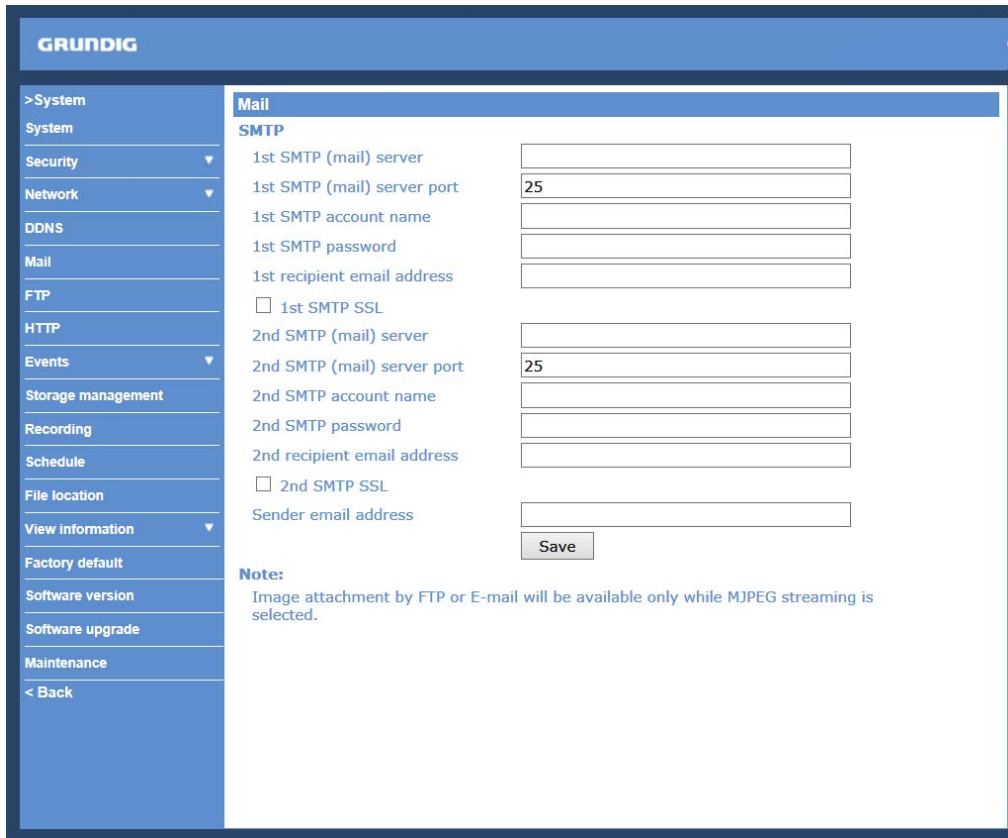
Password/Key :

Enter the password or key required by the DDNS provider for authentication.

9.5. Mail

The Administrator can set up the sending of an e-mail via Simple Mail Transfer Protocol (SMTP) when an event is triggered. SMTP is a protocol for sending e-mail messages from server to server. SMTP is a relatively simple, text-based protocol, where one or more recipients of a message are specified and to whom the message text is transferred.

The configuration page is shown below:



The screenshot shows the GRUNDIG web interface for configuring mail. On the left is a navigation menu with categories like System, Security, Network, DDNS, Mail, FTP, HTTP, Events, Storage management, Recording, Schedule, File location, View information, Factory default, Software version, Software upgrade, Maintenance, and a Back button. The main content area is titled 'Mail' and contains an 'SMTP' section. It lists settings for two SMTP servers. The first server has a port of 25. The second server also has a port of 25. There are checkboxes for '1st SMTP SSL' and '2nd SMTP SSL'. A 'Sender email address' field is at the bottom. A 'Save' button is located below the sender address field. A note at the bottom states: 'Image attachment by FTP or E-mail will be available only while MJPEG streaming is selected.'

SMTP Server	1st SMTP (mail) server	1st SMTP (mail) server port	1st SMTP account name	1st SMTP password	1st recipient email address	1st SMTP SSL	2nd SMTP (mail) server	2nd SMTP (mail) server port	2nd SMTP account name	2nd SMTP password	2nd recipient email address	2nd SMTP SSL	Sender email address
1		25				<input type="checkbox"/>		25				<input type="checkbox"/>	
2						<input type="checkbox"/>						<input type="checkbox"/>	

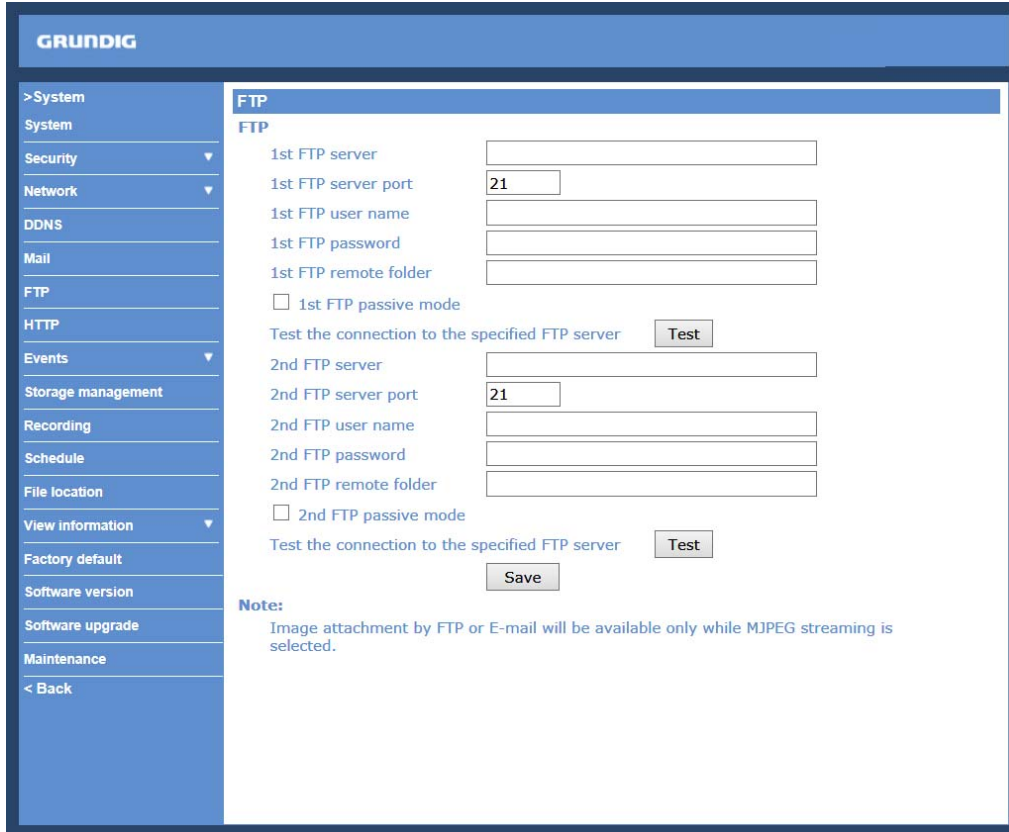
Two sets of SMTP can be configured. Each set includes the SMTP Server, Server Port, Account Name, Password and E-mail Address settings. Check the box "SMTP SSL" to send emails via encrypted transmission. Concerning the SMTP server, contact your network service provider for more specific information.

Click the "Save" button to save the changes.

9.6. FTP

The Administrator can set the sending of alarm messages to a specific File Transfer Protocol (FTP) site when an event is detected. Users can assign an alarm message to up to two FTP sites. The FTP setting page is shown below. Enter the FTP details, which include server, server port, user name, password and remote folder, into the fields. Check the box "passive mode" to be connected to the FTP server by passively receiving the FTP server's IP address through a dynamic port. Alternatively, uncheck the box to directly connect with the FTP server via active mode. You can also test whether the designated FTP is connected properly by pressing "Test".

Click "Save" when the setting is finished.



GRUNDIG

>System
System
Security
Network
DDNS
Mail
FTP
HTTP
Events
Storage management
Recording
Schedule
File location
View information
Factory default
Software version
Software upgrade
Maintenance
< Back

FTP

1st FTP server
1st FTP server port: 21
1st FTP user name
1st FTP password
1st FTP remote folder
 1st FTP passive mode
Test the connection to the specified FTP server: Test

2nd FTP server
2nd FTP server port: 21
2nd FTP user name
2nd FTP password
2nd FTP remote folder
 2nd FTP passive mode
Test the connection to the specified FTP server: Test

Save

Note:
Image attachment by FTP or E-mail will be available only while MJPEG streaming is selected.

9.7. HTTP

A HTTP Notification server can listen for notification messages from IP Cameras by triggered events. The HTTP setting page is shown below. Enter the HTTP details, which include the server name (for instance, http://192.168.1.1/admin.php), user name, and password into the fields. <Alarm> triggered and <Motion Detection> notifications can then be sent to the specified <HTTP> server.

Click "Save" when the setting is finished.

HTTP	
1st HTTP server	<input type="text"/>
1st HTTP user name	<input type="text"/>
1st HTTP password	<input type="text"/>
2nd HTTP server	<input type="text"/>
2nd HTTP user name	<input type="text"/>
2nd HTTP password	<input type="text"/>
<input type="button" value="Save"/>	

Please also refer to: 9.8.1. Application (Alarm Settings): Send HTTP notification / 9.8.2. Motion Detection for HTTP Notification settings.

9.8. Events

9.8.1. Application (Alarm Settings)

The IP Camera is equipped with one alarm input and one relay output for cooperation with the alarm system to catch event images. Please refer to the alarm pin definition below to connect alarm devices to the IP Camera if needed. The alarm configuration page is also shown below.

The screenshot shows the 'Application' settings page for an alarm system. The left sidebar lists various system settings. The main content area is divided into several sections: 'Alarm Switch' (radio buttons for Off, On, By schedule), 'Alarm Type' (radio buttons for Normal close, Normal open), 'Alarm Output' (radio buttons for Output high, Output low), 'Triggered Action' (checkboxes for Enable alarm output, Send message by FTP, Upload image by FTP, Send HTTP notification, IR cut filter, Send message by E-Mail, Upload image by E-Mail, Record video clip), and 'File Name' (text input for file name, radio buttons for Add date/time suffix, Add sequence number suffix, and Overwrite). A 'Save' button is located at the bottom of the 'File Name' section.

For details on how to connect the alarm input/output, please refer to the Chapter 4.1. Camera Overview.

Alarm Switch :

The default setting for the Alarm Switch function is <Off>. Enable this function by selecting <On>. Users can also activate the function according to the schedule previously set in the <Schedule> setting page. Select <By schedule> and click <Please select...> to choose the desired schedule from the drop-down menu.

Alarm Type :

Select an alarm type, "Normal close" or "Normal open", that corresponds with the alarm application.

Alarm Output :

Define the alarm output signal as "high" or "low" for the normal alarm output status according to the current alarm application.

Triggered Action (Multi-option) :

The Administrator can specify alarm actions that will take place when the alarm is triggered. All options are listed as follows:

- Enable Alarm Output:

Select this item to enable alarm relay output.

- IR Cut Filter:

If you select this item, the camera's IR cut filter (ICR) will be removed (on) or blocked (off) when the alarm input is triggered.

NOTE: The IR Function (Refer to IR Function) cannot be set to <Auto> mode when this trigger action is enabled.

- Send Message by FTP:

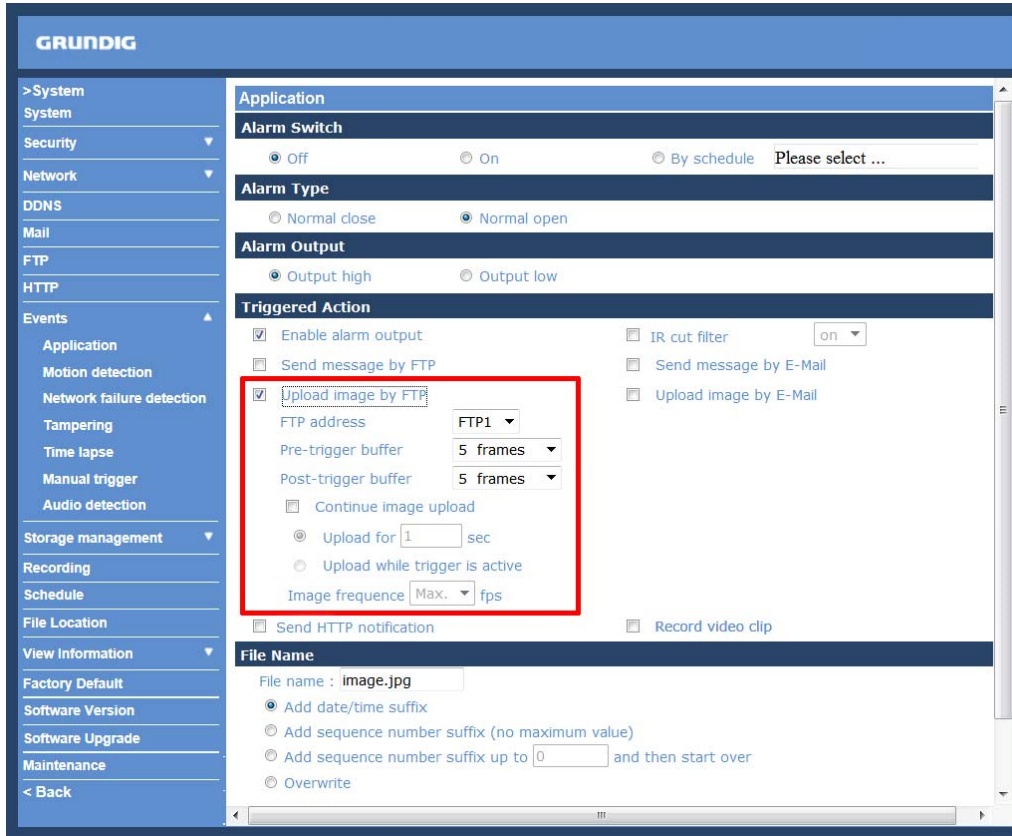
The Administrator can choose to send an alarm message by FTP when an alarm is detected.

- Send Message by E-Mail:

The Administrator can choose to send an alarm message by E-Mail when an alarm is triggered.

- Upload Image by FTP:

After selecting this item, the Administrator can assign a FTP site and configure various parameters as shown in the figure below. When the alarm is triggered, event images will be uploaded to the appointed FTP site.



The <Pre-trigger buffer> recording function allows users to check what happened to trigger the alarm. The pre-trigger buffer time range is from 1 to 20 frames.

On the other hand, the <Post-trigger buffer> is for uploading a certain amount of images after the alarm input is triggered. The post-trigger buffer time range is from 1 to 20 frames.

Check the box <Continue image upload> to upload the triggered images during a certain time or keep uploading until the trigger is off.

- Select <Upload for __sec> and enter the duration in the blank. The images of the duration will be uploaded to the FTP when the alarm input is triggered. The setting range is from 1 to 9999 seconds.

- Select <Upload while trigger is active> to keep the images being uploaded to the FTP while the trigger is active, i.e. until the alarm is stopped.

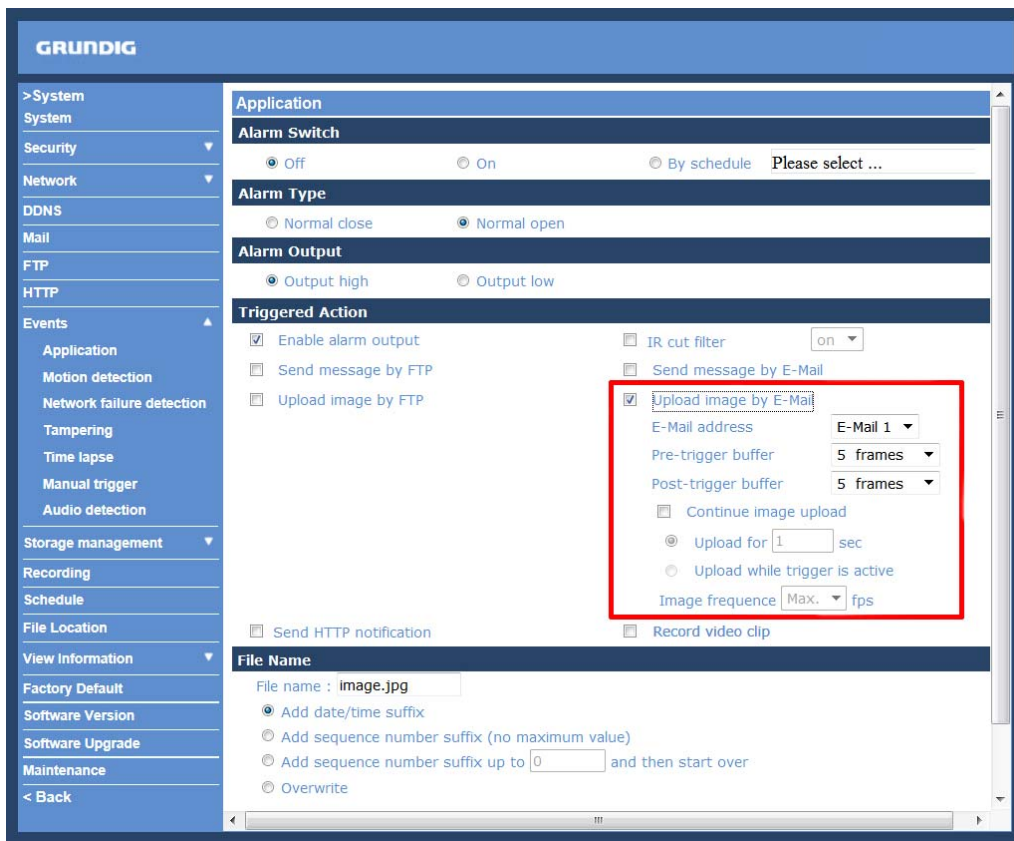
Set the Image frequency as the upload frame rate. The setting range is from 1 frame to 15 frames.

NOTE: Normally, the setting range of the <Pre-trigger buffer> is 1 to 20. However, the setting range will change accordingly if the frame rate of MJPEG on the <Video Frame Rate> setting page is 6 or smaller.

NOTE: Please make sure that local recording (with Micro SD/ SDHC card) or the remote recording (with NAS) is activated so that this function can be implemented. See section 9.10. Recording for further details.

- Upload Image by E-Mail:

After selecting this item, the Administrator can assign an e-mail address and configure various parameters as shown in the figure below. When the alarm is triggered, event images will be sent to the appointed e-mail address.



The <Pre-trigger buffer> recording function allows users to check what happened to trigger the alarm. The pre-trigger buffer time range is from 1 to 20 frames.

On the other hand, the <Post-trigger buffer> is for uploading a certain amount of images after the alarm input is triggered. The post-trigger buffer time range is from 1 to 20 frames.

Check the box <Continue image upload> to upload the triggered images during a certain time or keep uploading until the trigger is off.

- Select <Upload for __sec> and enter the duration in the blank. The images of the duration will be uploaded by E-Mail when the alarm input is triggered. The setting range is from 1 to 9999 seconds.

- Select <Upload while trigger is active> to keep the images being uploaded via E-Mail while the trigger is active, i.e. until the alarm is stopped.

Set the Image frequency as the upload frame rate. The setting range is from 1 frame to 15 frames.

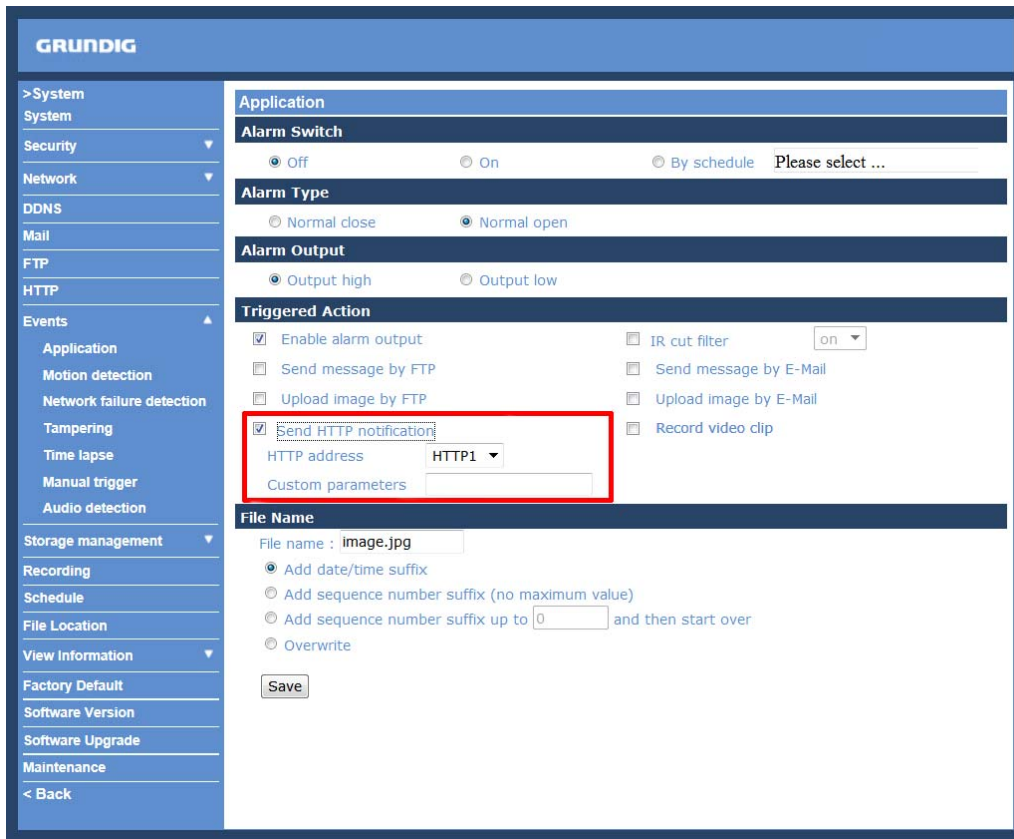
NOTE: Normally, the setting range of the <Pre-trigger buffer> is 1 to 20. However, the setting range will change accordingly if the frame rate of MJPEG on the <Video Frame Rate> setting page is 6 or smaller.

NOTE: Make sure SMTP and/or FTP configuration has been completed. See section 9.5. Mail and/or 9.6. FTP for further details.

- Send HTTP notification:

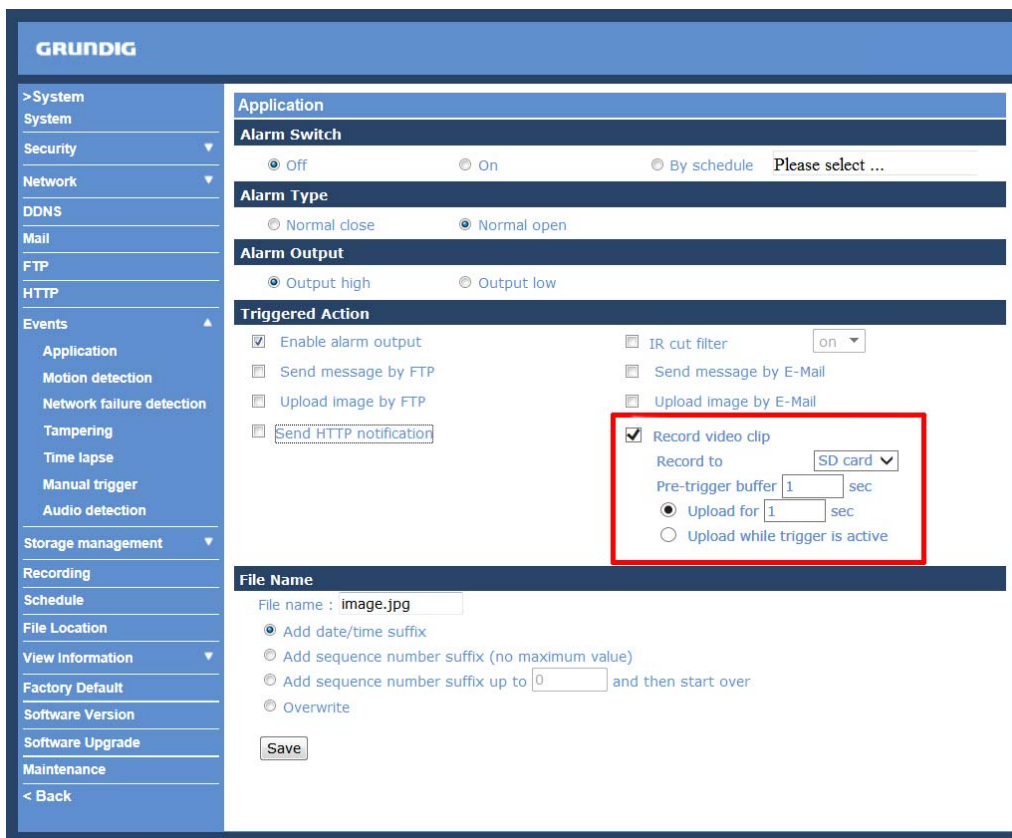
Check this item, select the destination HTTP address, and specify the parameters for event notifications when an <Alarm> is triggered. As soon as an alarm is triggered, the notification will be sent to the specified HTTP server.

For instance, if the custom parameter is set as "action=1&group=2", and the HTTP server's name is "http://192.168.1.200/admin.php", the notification will be sent to the HTTP server as "http://192.168.1.200/admin.php? Action=1&group=2" when an alarm is triggered.



- Record Video Clip:

Check this item and select a video recording storage type, <SD Card> or <NAS> (Network-Attached Storage). The alarm-triggered recording will be saved onto the microSD card or the NAS.



The pre-trigger buffer recording function allows users to check what happened to trigger the alarm. The pre-trigger buffer time range is from 1 to 3 seconds.

Select <Upload for __ sec> to set the recording duration after the alarm is triggered. The setting range is from 1 to 99999 seconds.

Select <Upload while trigger is active> to record the triggered video until the trigger is turned off.

File Name :

Enter a file name into the blank box, e.g. image.jpg. The uploaded image's file name format can be set in this section. Please select the one that meets your requirements.

- Add date/time suffix:

File name: imageYYMMDD_HHNNSS_XX.jpg

Y: Year, M: Month, D: Day

H: Hour, N: Minute, S: Second

X: Sequence Number

- Add sequence number suffix (no maximum value):

File name: imageXXXXXX.jpg

X: Sequence Number

- Add sequence number suffix up to _ and then start over:

File Name: imageXX.jpg

X: Sequence Number

The file name suffix will end at the number being set. For example, if the setting is "10", the file name will start from 00, end at 10, and then start all over again.

- Overwrite:

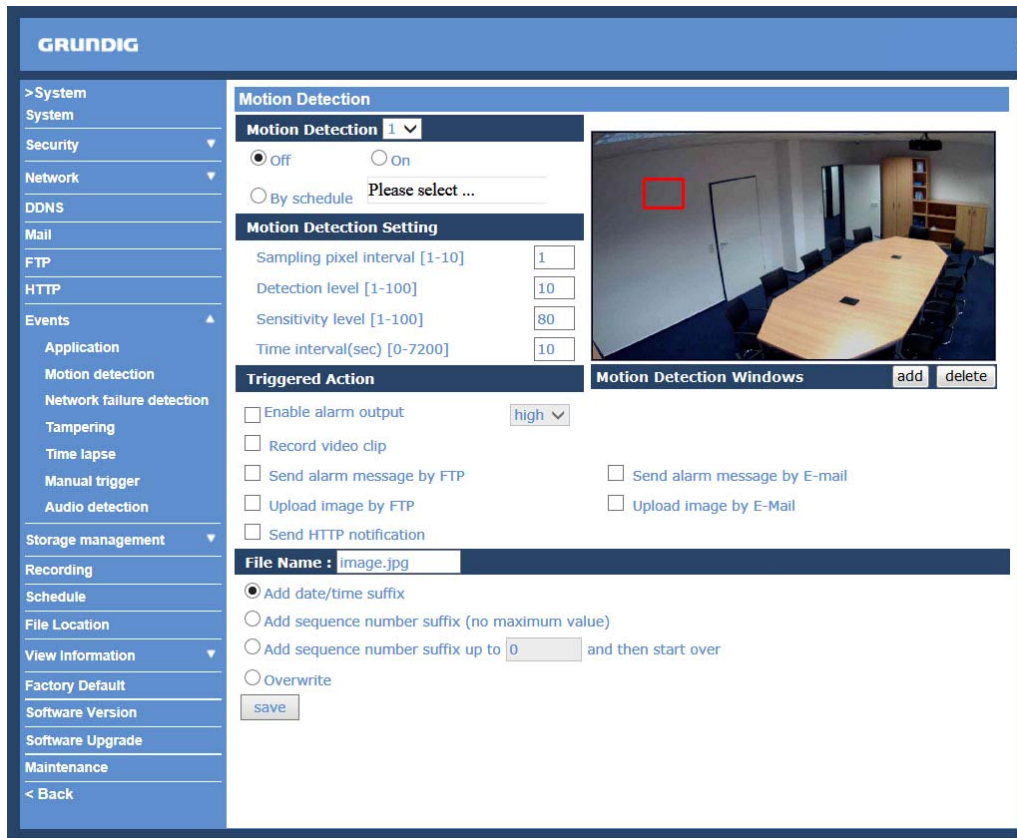
The original image in the FTP site will be overwritten with a static filename by the new uploaded file.

Save :

After completing all the settings mentioned above, please click on the <Save> button to save all the settings in this page.

9.8.2. Motion Detection

The Motion Detection function allows detecting suspicious motion and triggers alarms when motion volume in the detected area reaches/exceeds the determined sensitivity threshold value.

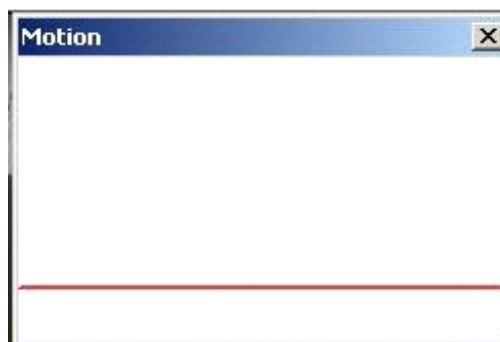


This function supports up to 4 sets of Motion Detection Settings. The settings can be chosen from the drop-down menu beside <Motion Detection>. In each set of the setting, there is a frame (Motion Detection Window) displayed on the Live Video Pane (shown in the picture below).

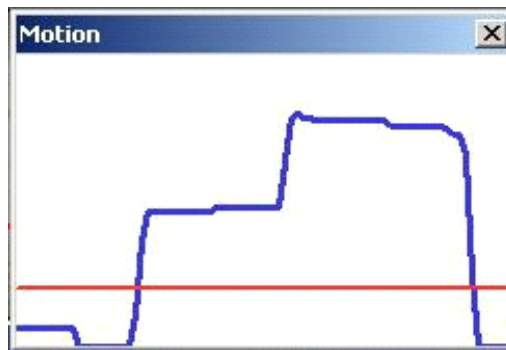
The Motion Detection Window is for defining the motion detection area. To change the size of the Motion Detection Window, move the mouse cursor to the edge of the frame and draw it outward/inward. Moving the mouse to the center of the frame can shift the frame to the intended location.

Up to 10 Motion Detection Windows can be set. Click on the “Add” button under the Live View Pane to add a Motion Detection Window. To delete a Motion Detection Window, move the mouse cursor to the selected Window, and click on the “Delete” button.

If the Motion Detection function is activated, a pop-up window (Motion) with motion indication will be shown.



When motion is detected, the signals will be displayed in the Motion window as shown below:



The detailed settings of Motion Detection are described as follows:

Motion Detection :

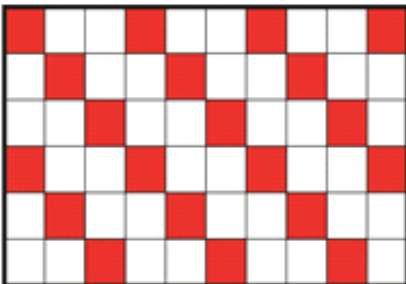
In each set of the Motion Detection Setting, the default setting for the Motion Detection function is <Off>. Enable this function by selecting <On>. Users can also activate the function according to the schedule previously set in the <Schedule> setting page. Select <By schedule> and click <Please select...> to choose the desired schedule from the drop-down menu.

Motion Detection Setting :

Users can adjust various parameters of Motion Detection in this section.

- Sampling pixel interval [1-10]:

The default value is 1. If the value is set as 3, it means that within the detection region, the system will take one sampling pixel for every 3 pixels by each row and each column (please refer to the figure below).



- Detection level [1-100]:

The default level is 10. This item is to set the detection level for each sampling pixel; the smaller the value, the more sensitive the detection is.

- Sensitivity level [1-100]:

The default level is 80, which means if 20% or more sampling pixels are detected as changing, the system will detect motion. The bigger the value, the more sensitive the detection is. Meanwhile, when the value is bigger, the red horizontal line in the motion indication window will be accordingly lower.

- Time interval (sec) [0-7200]:

The default interval is 10. This value is the interval between each detected motion.

Triggered Action (Multi-option) :

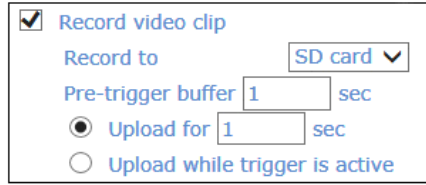
The Administrator can specify alarm actions that will take place when motion is detected. All options are listed as follows:

- Enable Alarm Output:

Check this item and select the predefined type of alarm output to enable alarm relay output when motion is detected.

- Record Video Clip:

Check this item and select a video recording storage type, <SD Card> or <NAS> (Network-Attached Storage). The alarm-triggered recording will be saved onto the microSD card or the NAS.



The pre-trigger buffer recording function allows users to check what happened to trigger the alarm. The pre-trigger buffer time range is from 1 to 3 seconds.

Select <Upload for __ sec> to set the recording duration after the alarm is triggered. The setting range is from 1 to 99999 seconds.

Select <Upload while trigger is active> to record the triggered video until the trigger is turned off.

NOTE: Please make sure that local recording (with Micro SD/ SDHC card) or the remote recording (with NAS) is activated so that this function can be implemented. See section 9.10. Recording for further details.

- Send Message by FTP:

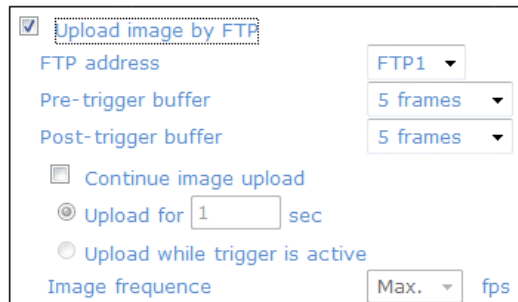
The Administrator can choose to send an alarm message by FTP when a motion is detected.

- Send Message by E-Mail:

The Administrator can choose to send an alarm message by E-Mail when a motion is detected.

- Upload Image by FTP:

After selecting this item, the Administrator can assign a FTP site and configure various parameters as shown in the picture below. When a motion is detected, event images will be uploaded to the appointed FTP site.



The <Pre-trigger buffer> recording function allows users to check what happened to trigger the alarm. The pre-trigger buffer time range is from 1 to 20 frames.

On the other hand, the <Post-trigger buffer> is for uploading a certain amount of images after the alarm input is triggered. The post-trigger buffer time range is from 1 to 20 frames.

Check the box <Continue image upload> to upload the triggered images during a certain time or keep uploading until the trigger is off.

- Select <Upload for __sec> and enter the duration in the blank. The images of the duration will be uploaded to the FTP when the alarm input is triggered. The setting range is from 1 to 9999 seconds.

- Select <Upload while trigger is active> to keep the images being uploaded to the FTP while the trigger is active, i.e. until the alarm is stopped.

Set the Image frequency as the upload frame rate. The setting range is from 1 frame to 15 frames.

NOTE: Normally, the setting range of the <Pre-trigger buffer> is 1 to 20. However, the setting range will change accordingly if the frame rate of MJPEG on the <Video Frame Rate> setting page is 6 or smaller.

- Upload Image by E-Mail:

After selecting this item, the Administrator can assign an e-mail address and configure various parameters as shown in the picture below. When a motion is detected, event images will be sent to the appointed e-mail address.

Upload image by E-Mail
E-Mail address: E-Mail 1
Pre-trigger buffer: 5 frames
Post-trigger buffer: 5 frames
 Continue image upload
 Upload for 1 sec
 Upload while trigger is active
Image frequency: Max. fps

The <Pre-trigger buffer> recording function allows users to check what happened to trigger the alarm. The pre-trigger buffer time range is from 1 to 20 frames.

On the other hand, the <Post-trigger buffer> is for uploading a certain amount of images after the alarm input is triggered. The post-trigger buffer time range is from 1 to 20 frames.

Check the box <Continue image upload> to upload the triggered images during a certain time or keep uploading until the trigger is off.

- Select <Upload for __sec> and enter the duration in the blank. The images of the duration will be uploaded via E-Mail when the alarm input is triggered. The setting range is from 1 to 9999 seconds.

- Select <Upload while trigger is active> to keep the images being uploaded via E-Mail while the trigger is active, i.e. until the alarm is stopped.

Set the Image frequency as the upload frame rate. The setting range is from 1 frame to 15 frames.

NOTE: Normally, the setting range of the <Pre-trigger buffer> is 1 to 20. However, the setting range will change accordingly if the frame rate of MJPEG on the <Video Frame Rate> setting page is 6 or smaller.

NOTE: Normally, the setting range of the <Post-trigger buffer> is 1 to 20. However, the setting range will change accordingly if the frame rate of MJPEG on the <Video Frame Rate> setting page is 6 or smaller.

NOTE: Make sure SMTP and/or FTP configuration has been completed. See section 9.5. Mail and 9.6. FTP for further details.

- Send HTTP notification:

Check this item, select the destination HTTP address, and specify the parameters for event notifications when <Motion Detection> is triggered. When an alarm is triggered, the notification can be sent to the specified HTTP server.

For instance, if the custom parameter is set as "action=1&group=2", and the HTTP server's name is "http://192.168.1.200/admin.php", the notification will be sent to the HTTP server as "http://192.168.1.200/admin.php? Action=1&group=2" when an alarm is triggered.

Send HTTP notification
HTTP address: HTTP1
Custom parameters: []

File Name :

The uploaded image's filename format can be set in this section. Please select the one that meets your requirements (please see the section "File Name" in 9.8.1. 'Application (Alarm Settings)').

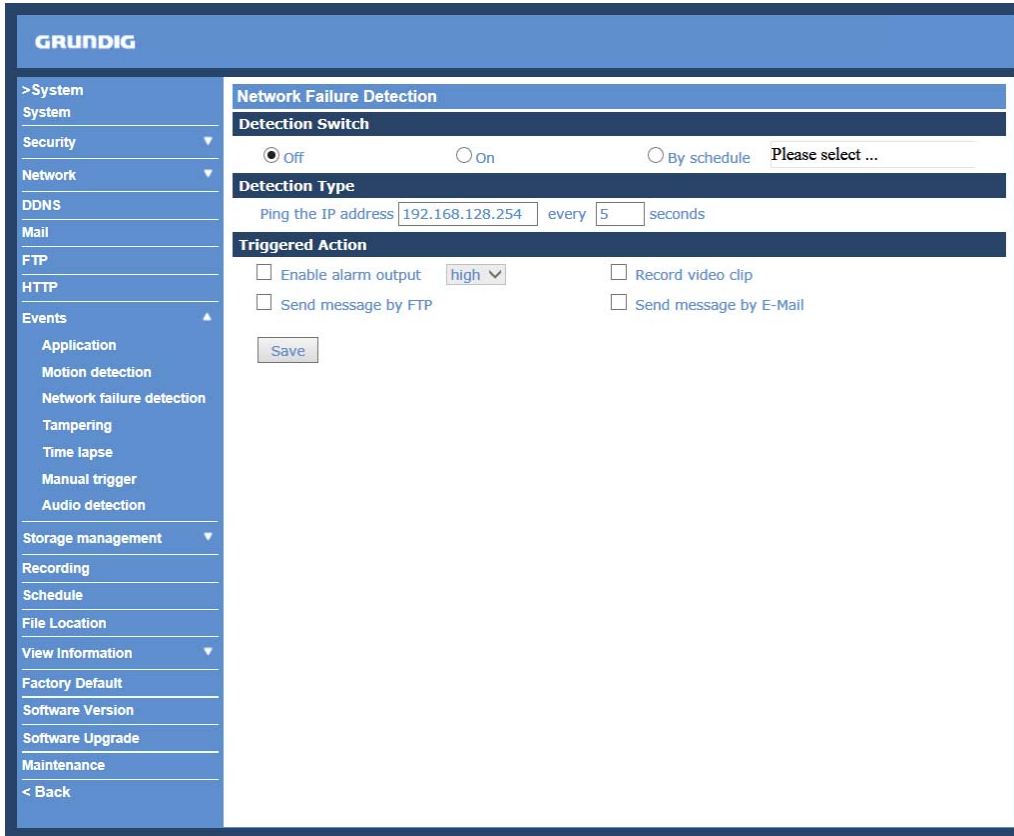
Save :

Click on the "Save" button to save all the Motion Detection alarm settings mentioned above.

9.8.3. Network failure detection

The Network Failure Detection function allows the IP Camera to ping another IP device (e.g. NVR, VSS, Video Server, etc.) within the network periodically and generates some actions in case of network failure occurrence, for instance, when a Video Server is somehow disconnected.

Being capable of implementing local recording (through Micro SD card) or the remote recording (via NAS) when a network failure happens, the IP Camera can be a backup recording device for the surveillance system.



Detection Switch :

The default setting for the Detection Switch function is <Off>. Enable this function by selecting <On>. Users can also activate the function according to the schedule time that is was previously set in the <Schedule> setting page. Select <By schedule> and click <Please select...> to choose the desired schedule from the drop-down menu.

Detection Type :

Here you can set an IP address that should be pinged in order to detect network failure. Please also set the interval (in minutes) for this ping.

The ping time setting range is from 1 to 99 minutes.

Triggered Action (Multi-option) :

The Administrator can specify alarm actions that will take place when Network Failure is detected. All options are listed as follows:

- Enable Alarm Output:

Check this item and select the predefined type of alarm output to enable alarm relay output when network failure is detected.

- Record Video Clip:

Check this item and select a video recording storage type, <SD Card> or <NAS> (Network-Attached Storage). The alarm-triggered recording will be saved onto the microSD card or the NAS.

The dialog box contains the following elements:

- A checked checkbox labeled "Record video clip".
- A "Record to" dropdown menu currently set to "SD card".
- A "Pre-trigger buffer" input field with the value "1" and the unit "sec".
- Two radio button options: "Upload for 1 sec" (which is selected) and "Upload while trigger is active".

The pre-trigger buffer recording function allows users to check what happened to trigger the alarm. The pre-trigger buffer time range is from 1 to 3 seconds.

Select <Upload for __ sec> to set the recording duration after the alarm is triggered. The setting range is from 1 to 99999 seconds.

Select <Upload while trigger is active> to record the triggered video until the trigger is turned off.

NOTE: Please make sure that local recording (with Micro SD/ SDHC card) or the remote recording (with NAS) is activated so that this function can be implemented. See section 9.10. Recording for further details.

- Send Message by FTP:

The Administrator can select whether to send an alarm message by FTP when Network Failure is detected.

- Send Message by E-Mail:

The Administrator can choose to send an alarm message by E-Mail when Network Failure is detected.

Save :

After completing all the settings mentioned above, please click on the Save button to save all the settings in this page.

9.8.4. Tampering

The Tampering Alarm function helps the IP Camera against tampering such as deliberate redirection, blocking, spray paint, lens covering, etc. through video analysis and reaction to such events by sending out notifications or uploading snapshots to the specified destination(s).

The screenshot shows the GRUNDIG web interface with the following configuration for the Tampering Alarm:

- Tampering Alarm:** Radio buttons for Off (selected), On, and By schedule. A "Please select ..." dropdown is next to "By schedule".
- Tampering Duration:** "Minimum duration" is set to 20 sec, and "Sensitivity level [1-100]" is set to 60.
- Triggered Action:** A grid of checkboxes for:
 - Enable alarm output (set to high)
 - Record video clip
 - Send message by FTP
 - Send message by E-Mail
 - Upload image by FTP
 - Upload image by E-Mail
 - Send HTTP notification
- File Name:** "File name" is set to "image.jpg". Radio buttons for:
 - Add date/time suffix (selected)
 - Add sequence number suffix (no maximum value)
 - Add sequence number suffix up to 0 and then start over
 - Overwrite
- A "Save" button is at the bottom.

Detection of camera tampering is achieved by measuring the differences between the older frames of video (which are stored in buffers) and more recent frames.

Tampering Alarm :

You will be able to turn the Tampering Alarm function on/off in the Tampering Alarm setting section. The default setting is: Off.

Tampering Duration :

The Minimum Tampering Duration is the time the video analysis will need to determine whether any camera tampering has occurred. Defining the Minimum Duration can also be interpreted as defining the Tampering threshold; longer duration represents a higher threshold. The settable Tampering Duration time range is from 10 to 3600 seconds.

Triggered Action (Multi-option) :

The Administrator can specify alarm actions that will take place when tampering is detected. All options are listed as follows:

- Enable Alarm Output:

Check this item and select the predefined type of alarm output to enable alarm relay output when tampering is detected.

- Record Video Clip:

Check this item and select a video recording storage type, <SD Card> or <NAS> (Network-Attached Storage). The alarm-triggered recording will be saved onto the microSD card or the NAS.

Record video clip
Record to SD card ▼
Pre-trigger buffer sec
 Upload for sec
 Upload while trigger is active

The pre-trigger buffer recording function allows users to check what happened to trigger the alarm. The pre-trigger buffer time range is from 1 to 3 seconds.

Select <Upload for __ sec> to set the recording duration after the alarm is triggered. The setting range is from 1 to 99999 seconds.

Select <Upload while trigger is active> to record the triggered video until the trigger is turned off.

NOTE: Please make sure that local recording (with Micro SD/ SDHC card) or the remote recording (with NAS) is activated so that this function can be implemented. See section 9.10. Recording for further details.

- Send Message by FTP:

The Administrator can select whether to send an alarm message by FTP when tampering is detected.

- Send Message by E-Mail:

The Administrator can choose to send an alarm message by E-Mail when tampering is detected.

- Upload Image by FTP:

After selecting this item, the Administrator can assign a FTP site and configure various parameters as shown in the figure below. When tampering is detected, event images will be uploaded to the appointed FTP site.

Upload image by FTP
FTP address FTP1 ▼
Pre-trigger buffer 5 frames ▼
Post-trigger buffer 5 frames ▼
 Continue image upload
 Upload for sec
 Upload while trigger is active
Image frequency Max. ▼ fps

The <Pre-trigger buffer> recording function allows users to check what happened to trigger the alarm. The pre-trigger buffer time range is from 1 to 20 frames.

On the other hand, the <Post-trigger buffer> is for uploading a certain amount of images after the alarm input is triggered. The post-trigger buffer time range is from 1 to 20 frames.

Check the box <Continue image upload> to upload the triggered images during a certain time or keep uploading until the trigger is off.

- Select <Upload for __sec> and enter the duration in the blank. The images of the duration will be uploaded to the FTP when the alarm input is triggered. The setting range is from 1 to 9999 seconds.
- Select <Upload while trigger is active> to keep the images being uploaded to the FTP while the trigger is active, i.e. until the alarm is stopped.

Set the Image frequency as the upload frame rate. The setting range is from 1 frame to 15 frames.

NOTE: Normally, the setting range of the <Pre-trigger buffer> is 1 to 20. However, the setting range will change accordingly if the frame rate of MJPEG on the <Video Frame Rate> setting page is 6 or smaller.

- Upload Image by E-Mail:

After selecting this item, the Administrator can assign an e-mail address and configure various parameters as shown in the figure below. When tampering is detected, event images will be sent to the appointed e-mail address.

The screenshot shows a configuration window for 'Upload image by E-Mail'. It includes the following fields and options:

- Upload image by E-Mail
- E-Mail address: E-Mail 1 (dropdown)
- Pre-trigger buffer: 5 frames (dropdown)
- Post-trigger buffer: 5 frames (dropdown)
- Continue image upload
- Upload for 1 sec (text input)
- Upload while trigger is active
- Image frequency: Max. (dropdown) fps

The <Pre-trigger buffer> recording function allows users to check what happened to trigger the alarm. The pre-trigger buffer time range is from 1 to 20 frames.

On the other hand, the <Post-trigger buffer> is for uploading a certain amount of images after the alarm input is triggered. The post-trigger buffer time range is from 1 to 20 frames.

Check the box <Continue image upload> to upload the triggered images during a certain time or keep uploading until the trigger is off.

- Select <Upload for __sec> and enter the duration in the blank. The images of the duration will be uploaded via E-Mail when the alarm input is triggered. The setting range is from 1 to 9999 seconds.
- Select <Upload while trigger is active> to keep the images being uploaded via E-Mail while the trigger is active, i.e. until the alarm is stopped.

Set the Image frequency as the upload frame rate. The setting range is from 1 frame to 15 frames.

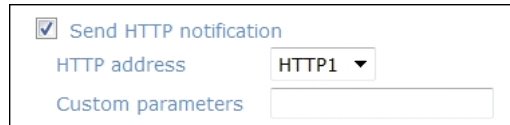
NOTE: Normally, the setting range of the <Pre-trigger buffer> is 1 to 20. However, the setting range will change accordingly if the frame rate of MJPEG on the <Video Frame Rate> setting page is 6 or smaller.

NOTE: Make sure SMTP and/or FTP configuration has been completed. See section 9.5. Mail and 9.6. FTP for further details.

- Send HTTP notification:

Check this item, select the destination HTTP address, and specify the parameters for HTTP notifications. When the Tampering Alarm is triggered, the HTTP notifications can be sent to the specified HTTP server.

For instance, if the custom parameter is set as "action=1&group=2", and the HTTP server's name is "http://192.168.1.200/admin.php", the notification will be sent to the HTTP server as "http://192.168.1.200/admin.php? Action=1&group=2" when an alarm is triggered.



File Name :

The uploaded image's filename format can be set in this section. Please select the one that meets your requirements (please see the section "File Name" in 9.8.1. 'Application (Alarm Settings)').

Save :

Click the Save button to save all the Tampering Alarm settings mentioned above.

9.8.5. Time lapse

In the Time Lapse setting, users can set the camera to upload images periodically to an FTP site or an E-Mail address. For example, if the time interval is set to 60 seconds, the camera will upload images to the assigned FTP site or E-Mail address every 60 seconds. The images to be uploaded are the images before and after the triggered moment. Users can define how many images will be uploaded in the <Triggered Action> section of this setting page.



Time Lapse :

The default setting for the Time Lapse function is <Off>. Enable the function by selecting <On>.

Time Interval :

The default value of the time interval is 60 seconds. The setting range of the time interval is from 60 to 3600 seconds.

Triggered Action (Multi-option) :

The administrator can specify alarm actions that will take place at alarm occurrence. All options are listed as follows.

Triggered Action (Multi-option) :

The administrator can specify alarm actions that will take place at alarm occurrence. All options are listed as follows.

- Upload Image by FTP:

After selecting this item, the Administrator can assign a FTP site and configure various parameters as shown in the figure below. When the alarm is triggered, event images will be uploaded to the appointed FTP site.

The screenshot shows a configuration window for 'Upload image by FTP'. It includes a checked checkbox for the title, a dropdown for 'FTP address' set to 'FTP1', dropdowns for 'Pre-trigger buffer' and 'Post-trigger buffer' both set to '5 frames', a checkbox for 'Continue image upload' which is unchecked, radio buttons for 'Upload for 1 sec' (selected) and 'Upload while trigger is active', and a dropdown for 'Image frequency' set to 'Max.' with 'fps' as a unit.

The <Pre-trigger buffer> recording function allows users to check what happened to trigger the alarm. The pre-trigger buffer time range is from 1 to 20 frames.

On the other hand, the <Post-trigger buffer> is for uploading a certain amount of images after the alarm input is triggered. The post-trigger buffer time range is from 1 to 20 frames.

Check the box <Continue image upload> to upload the triggered images during a certain time or keep uploading until the trigger is off.

- Select <Upload for __sec> and enter the duration in the blank. The images of the duration will be uploaded to the FTP when the alarm input is triggered. The setting range is from 1 to 9999 seconds.

- Select <Upload while trigger is active> to keep the images being uploaded to the FTP while the trigger is active, i.e. until the alarm is stopped.

Set the Image frequency as the upload frame rate. The setting range is from 1 frame to 15 frames.

NOTE: Normally, the setting range of the <Pre-trigger buffer> is 1 to 20. However, the setting range will change accordingly if the frame rate of MJPEG on the <Video Frame Rate> setting page is 6 or smaller.

NOTE: Please make sure that local recording (with Micro SD/ SDHC card) or the remote recording (with NAS) is activated so that this function can be implemented. See section 9.10. Recording for further details.

- Upload Image by E-Mail:

After selecting this item, the Administrator can assign an e-mail address and configure various parameters as shown in the picture below. When a motion is detected, event images will be sent to the appointed e-mail address.

The screenshot shows a configuration window for 'Upload image by E-Mail'. It includes a checked checkbox for the title, a dropdown for 'E-Mail address' set to 'E-Mail 1', dropdowns for 'Pre-trigger buffer' and 'Post-trigger buffer' both set to '5 frames', a checkbox for 'Continue image upload' which is unchecked, radio buttons for 'Upload for 1 sec' (selected) and 'Upload while trigger is active', and a dropdown for 'Image frequency' set to 'Max.' with 'fps' as a unit.

The <Pre-trigger buffer> recording function allows users to check what happened to trigger the alarm. The pre-trigger buffer time range is from 1 to 20 frames.

On the other hand, the <Post-trigger buffer> is for uploading a certain amount of images after the alarm input is triggered. The post-trigger buffer time range is from 1 to 20 frames.

Check the box <Continue image upload> to upload the triggered images during a certain time or keep uploading until the trigger is off.

- Select <Upload for __sec> and enter the duration in the blank. The images of the duration will be uploaded via E-Mail when the alarm input is triggered. The setting range is from 1 to 9999 seconds.

- Select <Upload while trigger is active> to keep the images being uploaded via E-Mail while the trigger is active, i.e. until the alarm is stopped.

Set the Image frequency as the upload frame rate. The setting range is from 1 frame to 15 frames.

NOTE: Normally, the setting range of the <Pre-trigger buffer> is 1 to 20. However, the setting range will change accordingly if the frame rate of MJPEG on the <Video Frame Rate> setting page is 6 or smaller.

NOTE: Make sure SMTP and/or FTP configuration has been completed. See section 9.5. Mail and 9.6. FTP for further details.

- Upload image to SD card:

Enable the SD card recording by ticking the box next to "Upload image to SD card".

Pre-trigger buffer: The device will send designated frame numbers before the event (1~20 frames).

Post-trigger buffer: The device will send designated frame numbers after the event (1~20 frames).

File Name :

The uploaded image's filename format can be set in this section. Please select the one that meets your requirements (please see the section "File Name" in 9.8. 'Application (Alarm Settings)').

Save :

After completing all the settings mentioned above, please click on the Save button to save all the settings in this page.

9.8.6. Manual trigger

In the Manual Trigger setting, the current image(s) or video(s) can be upload to the appointed destination, such as an FTP site or an E-mail address. The administrator can specify the triggered actions that will take place when the users switched the Manual Trigger button to <On>. All options are listed as follows.

The screenshot shows the Grundig web interface for the Manual Trigger configuration. The left sidebar contains a navigation menu with categories like System, Security, Network, DDNS, Mail, FTP, HTTP, Events, Storage management, Recording, Schedule, File Location, View Information, Factory Default, Software Version, Software Upgrade, Maintenance, and < Back. The main content area is titled 'Manual Trigger' and includes a toggle switch for 'Manual Trigger' (currently set to 'Off'). Below this is the 'Triggered Action' section with several checkboxes and dropdown menus: 'Enable alarm output' (checked), 'Send message by FTP', 'Upload image by FTP', 'Send HTTP notification', 'IR cut filter' (set to 'on'), 'Send message by E-Mail', 'Upload image by E-Mail', and 'Record video clip'. The 'File Name' section includes a text input field with 'image.jpg', a radio button selected for 'Add date/time suffix', and other options for adding sequence numbers or overwriting. A 'Save' button is located at the bottom of the configuration area.

Manual Trigger :

The default setting for the Manual Trigger function is <Off>. Enable the function by selecting <On>. After the Manual Trigger function is enabled, click on the Manual Trigger button on the Home page to start uploading data. Click again to stop uploading.

Triggered Action (Multi-option) :

The administrator can specify alarm actions that will take place at alarm occurrence. All options are listed as follows.

Triggered Action (Multi-option) :

The administrator can specify alarm actions that will take place at alarm occurrence. All options are listed as follows.

- Enable Alarm Output:

Select this item to enable the alarm relay outputs.

- IR Cut Filter:

Select the item and the IR cut filter (ICR) of the camera will be removed (on) or blocked (off) when an alarm is triggered.

Note: The IR Function (Please refer to the section "IR Function") cannot be set as <Auto> mode if this trigger action is enabled.

- Send Message by FTP:

The Administrator can choose to send an alarm message by FTP when an alarm is detected.

- Send Message by E-Mail:

The Administrator can choose to send an alarm message by E-Mail when an alarm is triggered.

- Upload Image by FTP:

After selecting this item, the Administrator can assign a FTP site and configure various parameters as shown in the figure below. When the alarm is triggered, event images will be uploaded to the appointed FTP site.

Upload image by FTP

FTP address FTP1

Pre-trigger buffer 5 frames

Post-trigger buffer 5 frames

Continue image upload

Upload for sec

Upload while trigger is active

Image frequency Max. fps

The <Pre-trigger buffer> recording function allows users to check what happened to trigger the alarm. The pre-trigger buffer time range is from 1 to 20 frames.

On the other hand, the <Post-trigger buffer> is for uploading a certain amount of images after the alarm input is triggered. The post-trigger buffer time range is from 1 to 20 frames.

Check the box <Continue image upload> to upload the triggered images during a certain time or keep uploading until the trigger is off.

- Select <Upload for __sec> and enter the duration in the blank. The images of the duration will be uploaded to the FTP when the alarm input is triggered. The setting range is from 1 to 9999 seconds.

- Select <Upload while trigger is active> to keep the images being uploaded to the FTP while the trigger is active, i.e. until the alarm is stopped.

Set the Image frequency as the upload frame rate. The setting range is from 1 frame to 15 frames.

NOTE: Please make sure that local recording (with Micro SD/ SDHC card) or the remote recording (with NAS) is activated so that this function can be implemented. See section 9.10. Recording for further details.

NOTE: Normally, the setting range of the <Pre-trigger buffer> is 1 to 20. However, the setting range will change accordingly if the frame rate of MJPEG on the <Video Frame Rate> setting page is 6 or smaller.

- Upload Image by E-Mail:

After selecting this item, the Administrator can assign an e-mail address and configure various parameters as shown in the figure below. When the alarm is triggered, event images will be sent to the appointed e-mail address.

Upload image by E-Mail

E-Mail address E-Mail 1

Pre-trigger buffer 5 frames

Post-trigger buffer 5 frames

Continue image upload

Upload for sec

Upload while trigger is active

Image frequency Max. fps

The <Pre-trigger buffer> recording function allows users to check what happened to trigger the alarm. The pre-trigger buffer time range is from 1 to 20 frames.

On the other hand, the <Post-trigger buffer> is for uploading a certain amount of images after the alarm input is triggered. The post-trigger buffer time range is from 1 to 20 frames.

Check the box <Continue image upload> to upload the triggered images during a certain time or keep uploading until the trigger is off.

- Select <Upload for __sec> and enter the duration in the blank. The images of the duration will be uploaded by E-Mail when the alarm input is triggered. The setting range is from 1 to 9999 seconds.
- Select <Upload while trigger is active> to keep the images being uploaded via E-Mail while the trigger is active, i.e. until the alarm is stopped.

Set the Image frequency as the upload frame rate. The setting range is from 1 frame to 15 frames.

NOTE: Make sure SMTP and/or FTP configuration has been completed. See section 9.5. Mail and 9.6. FTP for further details.

NOTE: Normally, the setting range of the <Pre-trigger buffer> is 1 to 20. However, the setting range will change accordingly if the frame rate of MJPEG on the <Video Frame Rate> setting page is 6 or smaller.

NOTE: Normally, the setting range of the <Pre-trigger buffer> is 1 to 20. However, the setting range will change accordingly if the frame rate of MJPEG on the <Video Frame Rate> setting page is 6 or smaller.

- Send HTTP notification:

Check this item, select the destination HTTP address, and specify the parameters for event notifications when an <Alarm> is triggered. As soon as an alarm is triggered, the notification will be sent to the specified HTTP server.

For instance, if the custom parameter is set as "action=1&group=2", and the HTTP server's name is "http://192.168.1.200/admin.php", the notification will be sent to the HTTP server as "http://192.168.1.200/admin.php? Action=1&group=2" when an alarm is triggered.

The screenshot shows a configuration form for sending HTTP notifications. It includes a checked checkbox labeled 'Send HTTP notification'. Below it, there is a label 'HTTP address' followed by a dropdown menu currently set to 'HTTP1'. Underneath that is a label 'Custom parameters' followed by an empty text input field.

- Record Video Clip:

Check this item and select a video recording storage type, <SD Card> or <NAS> (Network-Attached Storage). The alarm-triggered recording will be saved onto the microSD card or the NAS.

The screenshot shows a configuration form for recording video clips. It starts with a checked checkbox labeled 'Record video clip'. Below this, there is a label 'Record to' followed by a dropdown menu set to 'SD card'. Underneath, there is a label 'Pre-trigger buffer' followed by a text input field containing '1' and the unit 'sec'. At the bottom, there are two radio button options: 'Upload for 1 sec' (which is selected) and 'Upload while trigger is active'.

The <Pre-trigger buffer> recording function allows users to check what caused the trigger. The pre-trigger buffer time range is from 1 to 3 seconds.

Select <Upload for __ sec> to set the recording duration after an alarm is triggered. The setting range is from 1 to 99999 seconds.

Select <Upload while trigger is active> to record the triggered video until the trigger is off.

NOTE: Please make sure that the local recording (with Micro SD/ SDHC card) is activated so that this function can be implemented. See section 9.10. Recording for further details.

File Name :

Enter a file name into the blank box, e.g. image.jpg. The uploaded image's file name format can be set in this section. Please select the one that meets your requirements.

- Add date/time suffix:

File name: imageYYMMDD_HHNNSS_XX.jpg

Y: Year, M: Month, D: Day

H: Hour, N: Minute, S: Second

X: Sequence Number

- Add sequence number suffix (no maximum value):

File name: imageXXXXXX.jpg

X: Sequence Number

- Add sequence number suffix up to _ and then start over:

File Name: imageXX.jpg

X: Sequence Number

The file name suffix will end at the number being set. For example, if the setting is "10", the file name will start from 00, end at 10, and then start all over again.

- Overwrite:

The original image in the FTP site will be overwritten with a static filename by the new uploaded file.

Save :

After completing all the settings mentioned above, please click on the <Save> button to save all the settings in this page.

9.8.7. Audio detection

The Audio Detection function allows the camera to detect audio and trigger alarms when the audio volume in the detected area reaches / exceeds the determined sensitivity threshold value.

The screenshot displays the 'Audio Detection' configuration page in the Grundig camera's web interface. The left sidebar lists various system settings, with 'Audio detection' selected. The main panel is divided into several sections: 'Audio Detection' (radio buttons for 'Off' and 'On'), 'Audio Detection Setting' (input fields for 'Detection Level [1-100]' and 'Time interval(sec) [0-7200]'), 'Triggered Action' (checkboxes for 'Enable alarm output', 'Record video clip', 'Send message by FTP', 'Send message by E-Mail', 'Upload image by FTP', 'Upload image by E-Mail', and 'Send HTTP notification'), and 'File Name' (input field for 'image.jpg' and radio buttons for 'Add date/time suffix', 'Add sequence number suffix (no maximum value)', 'Add sequence number suffix up to 0 and then start over', and 'Overwrite'). A 'Save' button is positioned at the bottom of the configuration area.

Audio Detection :

In the Audio Detection Setting, the default setting for the Audio Detection function is <Off>. Enable the function by selecting <On>.

- Detection level [1-100]:

The default level is 10. This item is to set the detection level for each sampling pixel; the smaller the value, the more sensitive the detection is.

- Time interval (sec) [0-7200]:

Here you can set the interval between each detected audio occurrence. The default interval is 10.

Triggered Action (Multi-option) :

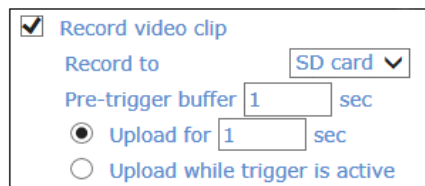
The Administrator can specify alarm actions that will take place when the alarm is triggered. All options are listed as follows:

- Enable Alarm Output:

Check this item and select the predefined type of alarm output to enable alarm relay output when a face is detected.

- Record Video Clip:

Check this item and select a video recording storage type, <SD Card> or <NAS> (Network-Attached Storage). The alarm-triggered recording will be saved onto the microSD card or the NAS.



The pre-trigger buffer recording function allows users to check what happened to trigger the alarm. The pre-trigger buffer time range is from 1 to 3 seconds.

Select <Upload for __ sec> to set the recording duration after the alarm is triggered. The setting range is from 1 to 99999 seconds.

Select <Upload while trigger is active> to record the triggered video until the trigger is turned off.

NOTE: Please make sure that local recording (with Micro SD/ SDHC card) or the remote recording (with NAS) is activated so that this function can be implemented. See section 9.10. Recording for further details.

- Send Message by FTP:

The Administrator can choose to send an alarm message by FTP when an alarm is detected.

The <Pre-trigger buffer> recording function allows users to check what happened to trigger the alarm. The pre-trigger buffer time range is from 1 to 20 frames.

On the other hand, the <Post-trigger buffer> is for uploading a certain amount of images after the alarm input is triggered. The post-trigger buffer time range is from 1 to 20 frames.

Check the box <Continue image upload> to upload the triggered images during a certain time or keep uploading until the trigger is off.

- Select <Upload for __sec> and enter the duration in the blank. The images of the duration will be uploaded to the FTP when the alarm input is triggered. The setting range is from 1 to 9999 seconds.

- Select <Upload while trigger is active> to keep the images being uploaded to the FTP while the trigger is active, i.e. until the alarm is stopped.

Set the Image frequency as the upload frame rate. The setting range is from 1 frame to 15 frames.

NOTE: Normally, the setting range of the <Pre-trigger buffer> is 1 to 20. However, the setting range will change accordingly if the frame rate of MJPEG on the <Video Frame Rate> setting page is 6 or smaller.

NOTE: Please make sure that the local recording (with Micro SD/ SDHC card) is activated so that this function can be implemented. See section 9.10. 'Recording' for further details.

- Send Message by E-Mail:

The Administrator can choose to send an alarm message by E-Mail when an alarm is triggered.

- Upload Image by FTP:

After selecting this item, the Administrator can assign a FTP site and configure various parameters as shown in the figure below. When the alarm is triggered, event images will be uploaded to the appointed FTP site.

Upload image by FTP

FTP address: FTP1

Pre-trigger buffer: 5 frames

Post-trigger buffer: 5 frames

Continue image upload

Upload for 1 sec

Upload while trigger is active

Image frequency: Max. fps

The <Pre-trigger buffer> recording function allows users to check what happened to trigger the alarm. The pre-trigger buffer time range is from 1 to 20 frames.

On the other hand, the <Post-trigger buffer> is for uploading a certain amount of images after the alarm input is triggered. The post-trigger buffer time range is from 1 to 20 frames.

Check the box <Continue image upload> to upload the triggered images during a certain time or keep uploading until the trigger is off.

- Select <Upload for __sec> and enter the duration in the blank. The images of the duration will be uploaded to the FTP when the alarm input is triggered. The setting range is from 1 to 9999 seconds.

- Select <Upload while trigger is active> to keep the images being uploaded to the FTP while the trigger is active, i.e. until the alarm is stopped.

Set the Image frequency as the upload frame rate. The setting range is from 1 frame to 15 frames.

NOTE: Please make sure that the local recording (with Micro SD/ SDHC card) or the remote recording (with NAS) is activated so that this function can be implemented. See section 9.10. Recording for further details.

NOTE: Normally, the setting range of the <Pre-trigger buffer> is 1 to 20. However, the setting range will change accordingly if the frame rate of MJPEG on the <Video Frame Rate> setting page is 6 or smaller.

- Upload Image by E-Mail:

After selecting this item, the Administrator can assign an e-mail address and configure various parameters as shown in the figure below. When the alarm is triggered, event images will be sent to the appointed e-mail address

Upload image by E-Mail

E-Mail address: E-Mail 1

Pre-trigger buffer: 5 frames

Post-trigger buffer: 5 frames

Continue image upload

Upload for 1 sec

Upload while trigger is active

Image frequency: Max. fps

The <Pre-trigger buffer> recording function allows users to check what happened to trigger the alarm. The pre-trigger buffer time range is from 1 to 20 frames.

On the other hand, the <Post-trigger buffer> is for uploading a certain amount of images after the alarm input is triggered. The post-trigger buffer time range is from 1 to 20 frames.

Check the box <Continue image upload> to upload the triggered images during a certain time or keep uploading until the trigger is off.

- Select <Upload for __sec> and enter the duration in the blank. The images of the duration will be uploaded by E-Mail when the alarm input is triggered. The setting range is from 1 to 9999 seconds.

- Select <Upload while trigger is active> to keep the images being uploaded via E-Mail while the trigger is active, i.e. until the alarm is stopped.

Set the Image frequency as the upload frame rate. The setting range is from 1 frame to 15 frames.

NOTE: Make sure SMTP and/or FTP configuration has been completed. See section 9.5. Mail and 9.6. FTP for further details.

NOTE: Normally, the setting range of the <Pre-trigger buffer> is 1 to 20. However, the setting range will change accordingly if the frame rate of MJPEG on the <Video Frame Rate> setting page is 6 or smaller.

- Send HTTP notification:

Check this item, select the destination HTTP address, and specify the parameters for event notifications when an <Alarm> is triggered. As soon as an alarm is triggered, the notification will be sent to the specified HTTP server.

For instance, if the custom parameter is set as "action=1&group=2", and the HTTP server's name is "http://192.168.1.200/admin.php", the notification will be sent to the HTTP server as "http://192.168.1.200/admin.php? Action=1&group=2" when an alarm is triggered.

<input checked="" type="checkbox"/> Send HTTP notification	
HTTP address	HTTP1 ▼
Custom parameters	<input type="text"/>

File Name :

Enter a file name into the blank box, e.g. image.jpg. The uploaded image's file name format can be set in this section. Please select the one that meets your requirements.

- Add date/time suffix:

File name: imageYYMMDD_HHNNSS_XX.jpg

Y: Year, M: Month, D: Day

H: Hour, N: Minute, S: Second

X: Sequence Number

- Add sequence number suffix (no maximum value):

File name: imageXXXXXX.jpg

X: Sequence Number

- Add sequence number suffix up to _ and then start over:

File Name: imageXX.jpg

X: Sequence Number

The file name suffix will end at the number being set. For example, if the setting is "10", the file name will start from 00, end at 10, and then start all over again.

- Overwrite:

The original image in the FTP site will be overwritten with a static filename by the new uploaded file.

Save :

After completing all the settings mentioned above, please click on the <Save> button to save all the settings in this page.

9.9. Storage Management

9.9.1. SD Card

Users can store local recordings on a Micro SD/SDHC card of up to 32 GB. This page shows the capacity information of the Micro SD card and a recording list with all the recording files saved on the memory card. Users can also format the SD card and implement automatic recording cleanup through the setting page.

To implement Micro SD card recording, please go to the "Recording" page (see 9.10. 'Recording') for activation.

NOTE: Please format the Micro SD/SDHC card when using it for the first time. Formatting will also be required when a memory card has already been used on one device and was later transferred to another device with a different software platform.

The screenshot displays the Grundig Storage Management web interface. On the left is a navigation sidebar with categories like System, Security, Network, and Storage management. The main area shows the 'Storage Management' page with sections for Device information, File Format, Device setting, Disk cleanup setting, and Recording list. The Device information section shows 'SD card - n/a' and '0KB' free space. The File Format section has a dropdown set to 'AVI'. The Device setting section has a 'Format' button. The Disk cleanup setting section has a checkbox for 'Enable automatic disk cleanup' and fields for 'Remove recordings older than: 1 day(s)' and 'Remove oldest recordings when disk is: 85 % full'. The Recording list section has date range filters (From: 2010-04-07, to: 2010-04-07), a 'Search' button, radio buttons for 'VIDEO' and 'JPEG', and a table with columns for 'FileName' and 'Size'.

NOTE: It is not recommended to record with the microSD card for 24/7 continuously as it may not be able to support long term continuous data reading/writing. Please contact the manufacturer of the microSD card for information regarding the reliability and the life expectancy.

Device Information :

When users insert the Micro SD/SDHC card, the card information such as the memory capacity and status will be shown in the Device Information section. The memory card is successfully installed if its status is shown in the "Device information" section in the Storage Management page.

Device Setting :

Click on the "Format" button to format the memory card.

Disk Cleanup Setting :

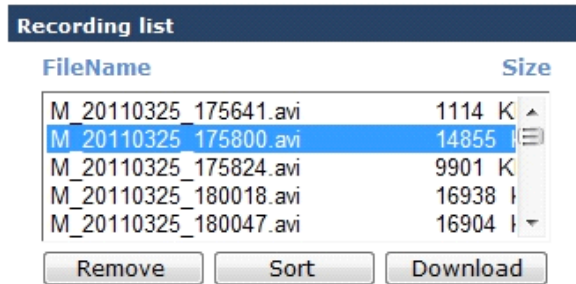
Users can enable an automatic recordings cleanup by checking this item and specifying the time and storage limits.

Recording List :

Each video file on the Micro SD/SDHC card will be listed in the Recording list as shown below. The maximum file size is 60 MB (60 MB per file).

If the recording modus is set to "Always" and at the same time the event recording (when a motion detection or an alarm takes place) is also turned on, in this case, when an event occurs, the event will be recorded first, afterwards the camera will return to normal recording mode.

When the recording mode is set to "Always" (consecutive recording) in the submenu "Recording" and the Micro SD/SDHC card recording is also allowed to be enabled when triggered by events, once the events occur, the system will immediately implement the recorded events to the memory card. After event recording, the device will return to regular recording mode.



FileName	Size
M_20110325_175641.avi	1114 K
M_20110325_175800.avi	14855 K
M_20110325_175824.avi	9901 K
M_20110325_180018.avi	16938 K
M_20110325_180047.avi	16904 K

Remove Sort Download

- Remove:

To remove a file, select the file first, and then click on the "Remove" button.

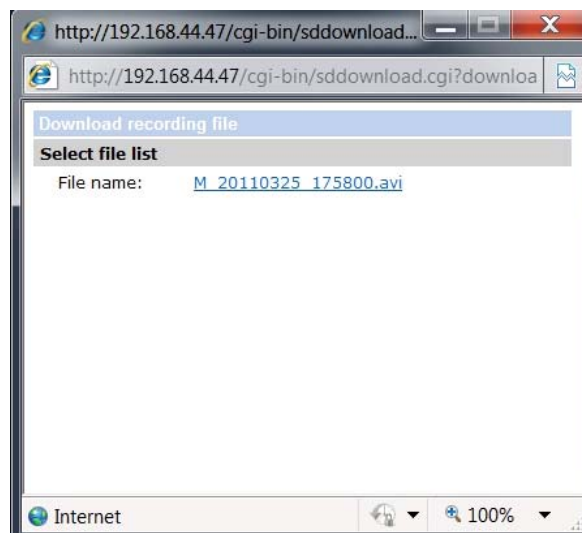
- Sort:

When you click on the "Sort" button, the files in the Recording list will be listed in name and date order.

NOTE: The capital letters (A / M / N / R / T / V) appearing in the very beginning of a name denote the sort of the recording: A stands for Alarm, M stands for Motion, N stands for Network Failure, R stands for regular recording, T stands for Tampering and V stands for Manual Trigger.

- Download:

To open/download a video clip, select the file first, and then click on the "Download" button underneath the Recording list field. The selected file window will pop up as shown below. Click on the AVI file to directly play the video in the player or download it to a specified location.



9.9.2. Network Share

Users can store the recording videos onto a network share folder, or NAS (Network-Attached Storage). A NAS device is used for data storage and data sharing via a network. This page displays the capacity information of the network device and presents a recording list with all the recording files saved on the network device. Users can also format the NAS and implement automatic recording clean-up through this setting page.

The screenshot shows the GRUNDIG Network Share configuration page. The left sidebar contains a navigation menu with the following items: >System, System, Security, Network, DDNS, Mail, FTP, HTTP, Events, Storage management (expanded to show SD Card and Network Share), Recording, Schedule, File Location, View Information, Factory Default, Software Version, Software Upgrade, Maintenance, and < Back. The main content area is titled 'Network Share' and includes the following sections:

- Device information:** Device type: Network Share; Free space: 0GB; Total size: 0GB; Status: offline; Full: No.
- Storage Settings:** Protocol: SAMBA (dropdown); Host: (text input); Share: (text input); User name: (text input); Password: (text input); Save button.
- File Format:** File Format: AVI (dropdown); Save button.
- Storage Tools:** Format device; Format button.
- Disk cleanup setting:** Enable automatic disk cleanup; Remove recordings older than: 1 (input) day(s) (dropdown); Remove oldest recordings when disk is: 85 (input) % full; Save button.
- Recording list:** From: 2010-04-07 (input) to: 2010-04-07 (input) Search button.

Device information :

When a NAS is successfully installed, the device information such as the memory capacity and status will be shown in the <Device Information> section.

Storage setting :

The administrator can set the camera to send the alarm messages to a specific NAS site when an alarm is triggered. Enter the network device details, which include the host (the IP of the NAS), share (the folder name of the NAS), username, and password, into the fields.

Click on <Save> when the setting is finished.

Storage Tools :

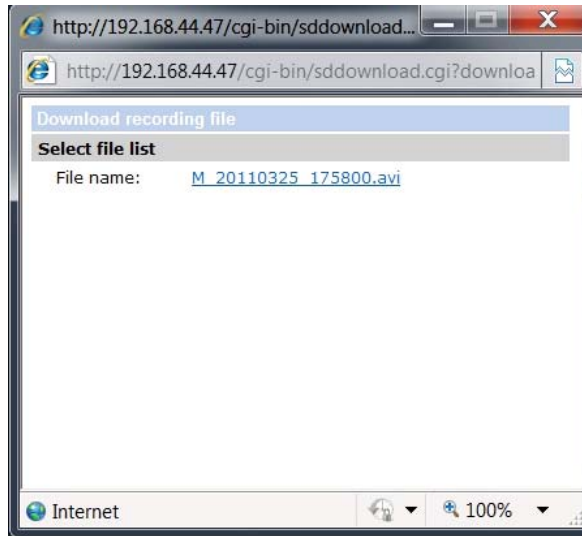
Click on the <Format> button to format the NAS.

Disk Cleanup Setting :

Users can enable an automatic recordings cleanup by checking this item and specifying the time and storage limits.

- Download:

To open/download a video clip, select the file first, and then click on the "Download" button underneath the Recording list field. The selected file window will pop up as shown below. Click on the AVI file to directly play the video in the player or download it to a specified location.



Recording List :

Each video file on the Micro SD/SDHC card will be listed in the Recording list as shown below. The maximum file size is 60 MB (60 MB per file).

If the recording modus is set to "Always" and at the same time the event recording (when a motion detection or an alarm takes place) is also turned on, in this case, when an event occurs, the event will be recorded first, afterwards the camera will return to normal recording mode.

Recording list	
FileName	Size
M_20110325_175641.avi	1114 K ▲
M_20110325_175800.avi	14855 K ☰
M_20110325_175824.avi	9901 K
M_20110325_180018.avi	16938 K ↓
M_20110325_180047.avi	16904 K ▼

Remove Sort Download

- Remove:

To remove a file, select the file first, and then click on the "Remove" button.

- Sort:

When you click on the "Sort" button, the files in the Recording list will be listed in name and date order.

NOTE: The capital letters (A / M / N / R / T / V) appearing in the very beginning of a name denote the sort of the recording: A stands for Alarm, M stands for Motion, N stands for Network Failure, R stands for regular recording, T stands for Tampering and V stands for Manual Trigger.

9.10. Recording

In the Recording setting page, the Micro SD Card recording schedule supports up to ten sets of time frames. Users can specify the recording schedule to fit their present surveillance requirements.

GRUNDIG

>System
System
Security
Network
DDNS
Mail
FTP
HTTP
Events
Storage management
Recording
Schedule
File Location
View Information
Factory Default
Software Version
Software Upgrade
Maintenance
< Back

Recording

Recording Storage

SD Card
 Network Share

Recording Schedule

Disable
 Always
 Only during time frame

	Weekday	Start time	Duration
1	- - - - -	----	----
2	- - - - -	----	----
3	- - - - -	----	----
4	- - - - -	----	----
5	- - - - -	----	----
6	- - - - -	----	----
7	- - - - -	----	----
8	- - - - -	----	----
9	- - - - -	----	----
10	- - - - -	----	----

Sun Mon Tue Wed Thu Fri Sat

Start time : 00:00 Duration : 00:00

Save Delete

Recording Storage :

Select a recording storage type, <SD Card> or <Network Share>.

Activating the Recording Schedule :

Two types of schedule mode are offered: "Always" and "Only during time frame". You can set up the time frame according to your requirements or you can choose "Always" to allow the Micro SD/SDHC Card Recording or Network Share Recording to be activated all the time. Or select a set of schedules from the time frame blank, check specific weekdays and set up the start time (hour:minute) and time period (hour:minute) to activate the recording in certain time frames. The setting range for the time period hour is from 0 to 168.

Please click on the "Save" button to confirm the schedule mode.

Select a recording schedule from the schedule list, and click "Delete" to delete the recording schedule.

Terminating the Recording Schedule :

Select "Disable" to terminate the recording function.

9.11. Schedule

This function allows the users to setup schedules for features including: <Alarm Switch>, <Motion Detection>, <Network Failure Detection> and <Profile>. This function supports up to 10 sets of time frames in the time frame list.

	Weekday	Start time	Duration
1	- - - - -	----	----
2	- - - - -	----	----
3	- - - - -	----	----
4	- - - - -	----	----
5	- - - - -	----	----
6	- - - - -	----	----
7	- - - - -	----	----
8	- - - - -	----	----
9	- - - - -	----	----
10	- - - - -	----	----

Sun Mon Tue Wed Thu Fri Sat

Day
 Night
 Time

Start time : Duration :

Schedule Setup :

First, you need to set up a schedule and select a time frame from the time frame list. Then please check the weekday boxes below to choose the specific weekdays. At last, select a time mode, Day mode, Night Mode or Time mode. Under Time mode, users can specify the start time and the duration time for activation of the schedule triggered features. The setting range for the duration time is from 00:00 to 168:59. Click on <Save> to save the setup.

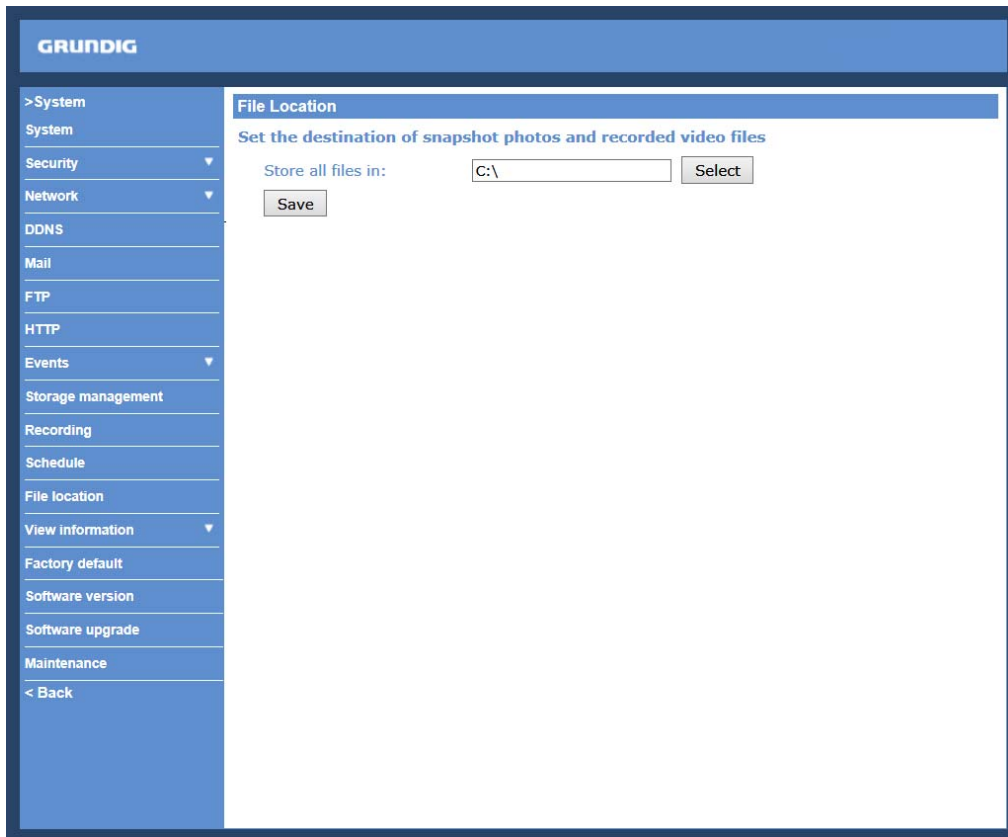
Time Mode :

- Day: this profile will be loaded when IR cut is off.
- Night: this profile will be loaded when IR cut is on.
- Time: indicates the start time and time duration for the schedule.

9.12. File Location (on PC)

Users can specify a storage location for the snapshots and the live video recording. The default setting is: C:\. Once the setting is confirmed, click on "Save," and all the snapshots and recordings will be saved in the designated location.

NOTE: Please make sure the selected file path contains valid characters such as letters and numbers.



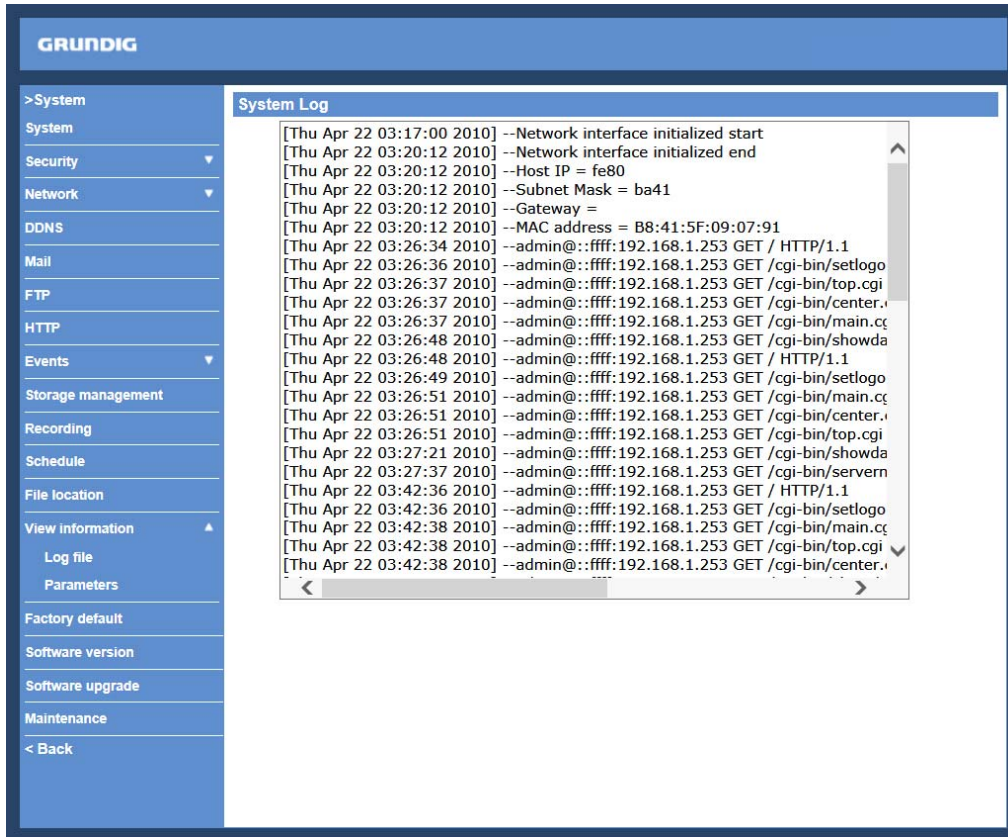
The screenshot displays the Grundig web interface. On the left is a blue sidebar menu with the following items: >System, System, Security (with a dropdown arrow), Network (with a dropdown arrow), DDNS, Mail, FTP, HTTP, Events (with a dropdown arrow), Storage management, Recording, Schedule, File location, View information (with a dropdown arrow), Factory default, Software version, Software upgrade, Maintenance, and < Back. The main content area is titled "File Location" and contains the instruction "Set the destination of snapshot photos and recorded video files". Below this, there is a label "Store all files in:" followed by a text input field containing "C:\", a "Select" button, and a "Save" button.

NOTE: Users with the Windows 7 or Windows 8 operating system on their PC need to follow the following procedure to be able to use the Snapshot and Web Recording function. First you need to log on to your computer as an Administrator. Then please go to Windows Start menu, click with the right mouse button on your Internet Browser and select in the appearing pop-up window "Run as Administrator". Afterwards you can log in to your camera as usual (as an administrator or user).

9.13. View Information

9.13.1. Log file

Click on the link to view the system log file. The content of this file provides useful information about configuration and connections after system boot-up.

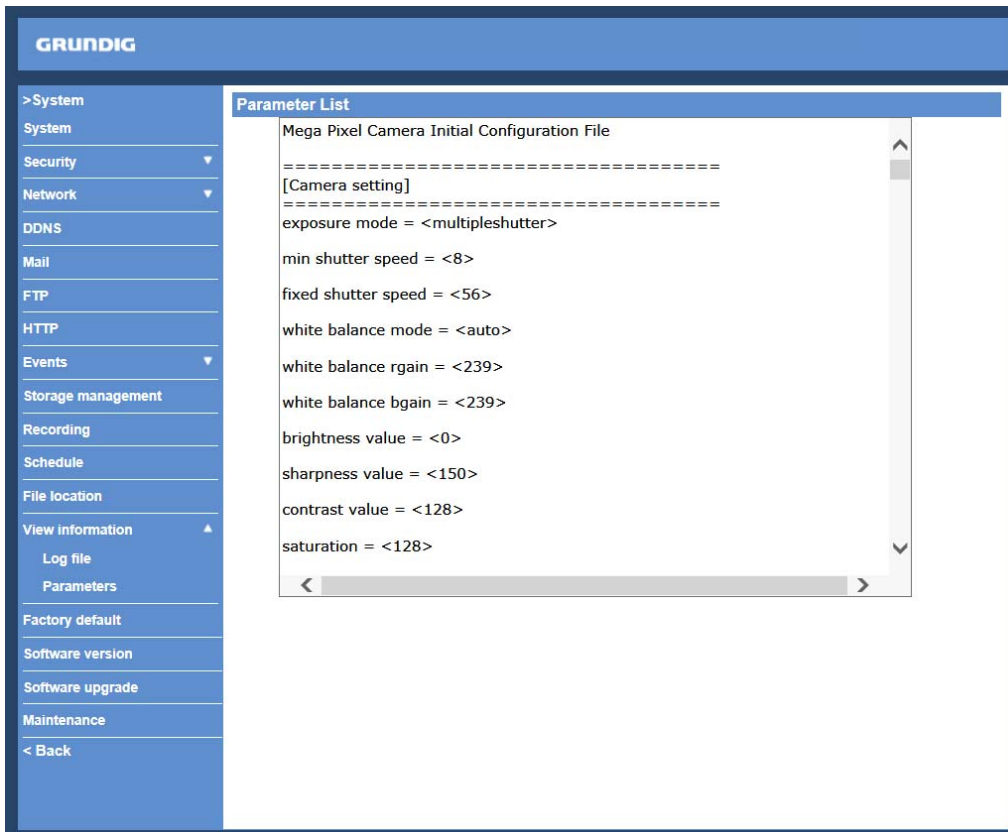


The screenshot shows the Grundig web interface with a sidebar on the left and a main content area. The sidebar contains a menu with the following items: >System, System, Security, Network, DDNS, Mail, FTP, HTTP, Events, Storage management, Recording, Schedule, File location, View information, Log file, Parameters, Factory default, Software version, Software upgrade, Maintenance, and < Back. The main content area is titled 'System Log' and displays a list of log entries. The entries are as follows:

```
[Thu Apr 22 03:17:00 2010] --Network interface initialized start
[Thu Apr 22 03:20:12 2010] --Network interface initialized end
[Thu Apr 22 03:20:12 2010] --Host IP = fe80
[Thu Apr 22 03:20:12 2010] --Subnet Mask = ba41
[Thu Apr 22 03:20:12 2010] --Gateway =
[Thu Apr 22 03:20:12 2010] --MAC address = B8:41:5F:09:07:91
[Thu Apr 22 03:26:34 2010] --admin@:ffff:192.168.1.253 GET / HTTP/1.1
[Thu Apr 22 03:26:36 2010] --admin@:ffff:192.168.1.253 GET /cgi-bin/setlogo
[Thu Apr 22 03:26:37 2010] --admin@:ffff:192.168.1.253 GET /cgi-bin/top.cgi
[Thu Apr 22 03:26:37 2010] --admin@:ffff:192.168.1.253 GET /cgi-bin/center.i
[Thu Apr 22 03:26:37 2010] --admin@:ffff:192.168.1.253 GET /cgi-bin/main.cç
[Thu Apr 22 03:26:48 2010] --admin@:ffff:192.168.1.253 GET /cgi-bin/showda
[Thu Apr 22 03:26:48 2010] --admin@:ffff:192.168.1.253 GET / HTTP/1.1
[Thu Apr 22 03:26:49 2010] --admin@:ffff:192.168.1.253 GET /cgi-bin/setlogo
[Thu Apr 22 03:26:51 2010] --admin@:ffff:192.168.1.253 GET /cgi-bin/main.cç
[Thu Apr 22 03:26:51 2010] --admin@:ffff:192.168.1.253 GET /cgi-bin/center.i
[Thu Apr 22 03:26:51 2010] --admin@:ffff:192.168.1.253 GET /cgi-bin/top.cgi
[Thu Apr 22 03:27:21 2010] --admin@:ffff:192.168.1.253 GET /cgi-bin/showda
[Thu Apr 22 03:27:37 2010] --admin@:ffff:192.168.1.253 GET /cgi-bin/servern
[Thu Apr 22 03:42:36 2010] --admin@:ffff:192.168.1.253 GET / HTTP/1.1
[Thu Apr 22 03:42:36 2010] --admin@:ffff:192.168.1.253 GET /cgi-bin/setlogo
[Thu Apr 22 03:42:38 2010] --admin@:ffff:192.168.1.253 GET /cgi-bin/main.cç
[Thu Apr 22 03:42:38 2010] --admin@:ffff:192.168.1.253 GET /cgi-bin/top.cgi
[Thu Apr 22 03:42:38 2010] --admin@:ffff:192.168.1.253 GET /cgi-bin/center.i
```

9.13.2. Parameters

Click on this item to view the entire system's parameter setting.



The screenshot shows the Grundig web interface with a sidebar on the left and a main content area. The sidebar contains a menu with the following items: >System, System, Security, Network, DDNS, Mail, FTP, HTTP, Events, Storage management, Recording, Schedule, File location, View information, Log file, Parameters, Factory default, Software version, Software upgrade, Maintenance, and < Back. The main content area is titled 'Parameter List' and displays the following configuration parameters:

```
Mega Pixel Camera Initial Configuration File
=====
[Camera setting]
=====
exposure mode = <multipleshutter>

min shutter speed = <8>

fixed shutter speed = <56>

white balance mode = <auto>

white balance rgain = <239>

white balance bgain = <239>

brightness value = <0>

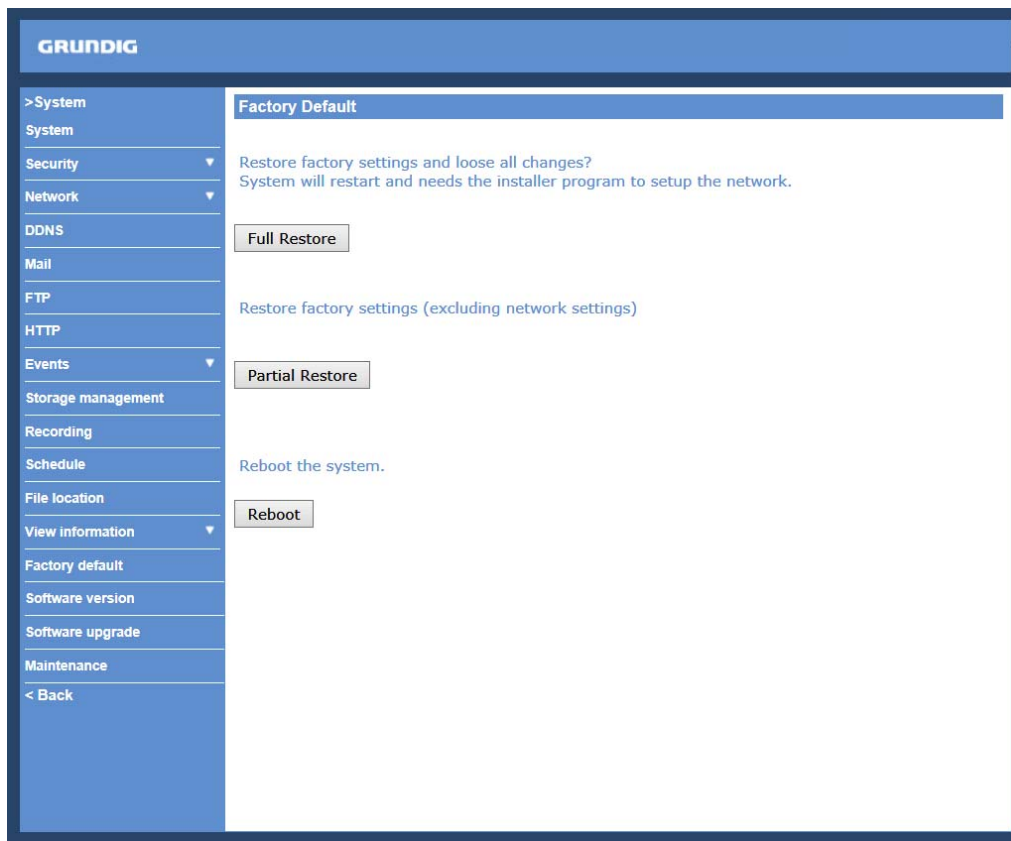
sharpness value = <150>

contrast value = <128>

saturation = <128>
```

9.14. Factory Default

The factory default setting page is shown below. Follow the instructions to reset the IP Camera to factory default setting if needed.



Full Restore :

Click on the "Full Restore" button to recall the factory default settings. After 30 seconds the system will restart.

NOTE: The IP address will also be restored to default (192.168.1.1).

Partial Restore :

Click on the "Partial Restore" button to recall the factory default settings, except for the network settings.

Reboot :

When you click on the "Reboot" button, the system will restart without changing the current settings.

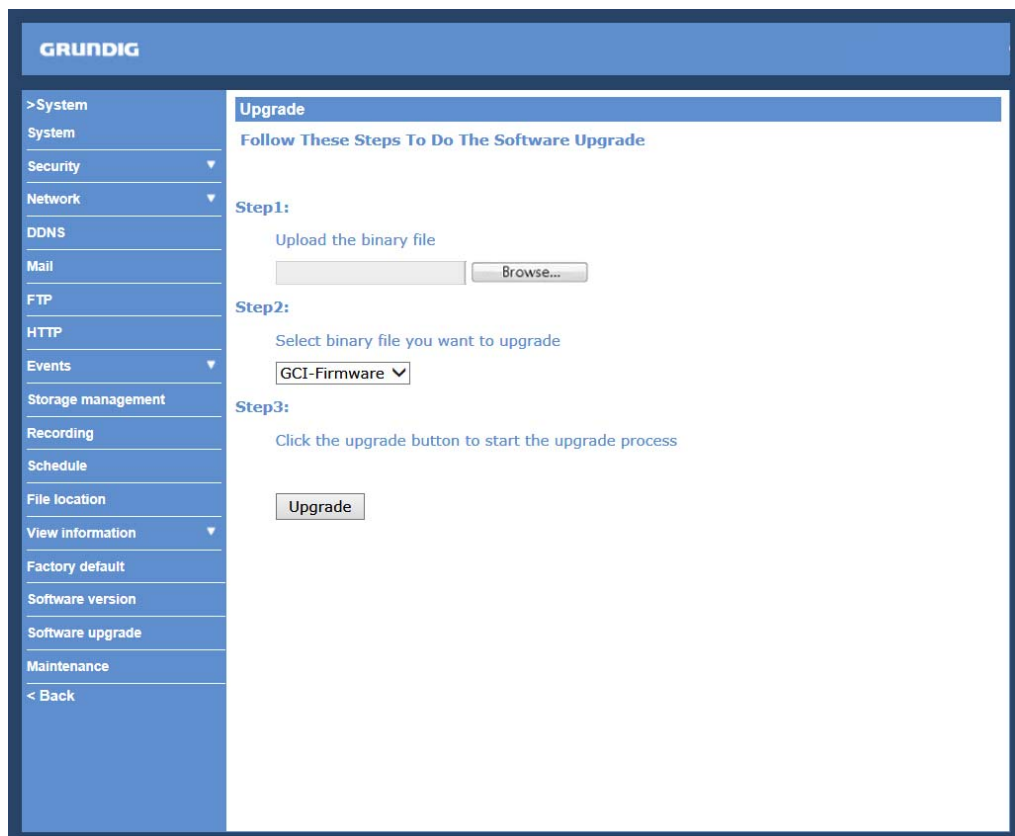
9.15. Software Version

The current software version is displayed in the software version page, which is shown in the picture below.



9.16. Software Upgrade

Software upgrade can be carried out on the "Software Upgrade" page, as shown below.



NOTE: Make sure the upgrade software file is available before carrying out the software upgrade.

The procedure of a software upgrade is as follows:

Step 1: Click on “Browse” and select the following binary file to be uploaded: GCI-Firmware.

NOTE: Do not change the upgrade file name, or the system will fail to find the file.

Step 2: Pull down the upgrade binary file list and select the file you want to upgrade; in this case, select “GCI-Firmware”.

Step 3: Click on “Upgrade”. The system will first check whether the upgrade file exists or not, and then begin to upload the upgrade file. Subsequently, the upgrade status bar will be displayed on the page. When 100% is reached, the upgrade process is finished.

After the upgrade process is finished, the Viewer will return to the Home page.

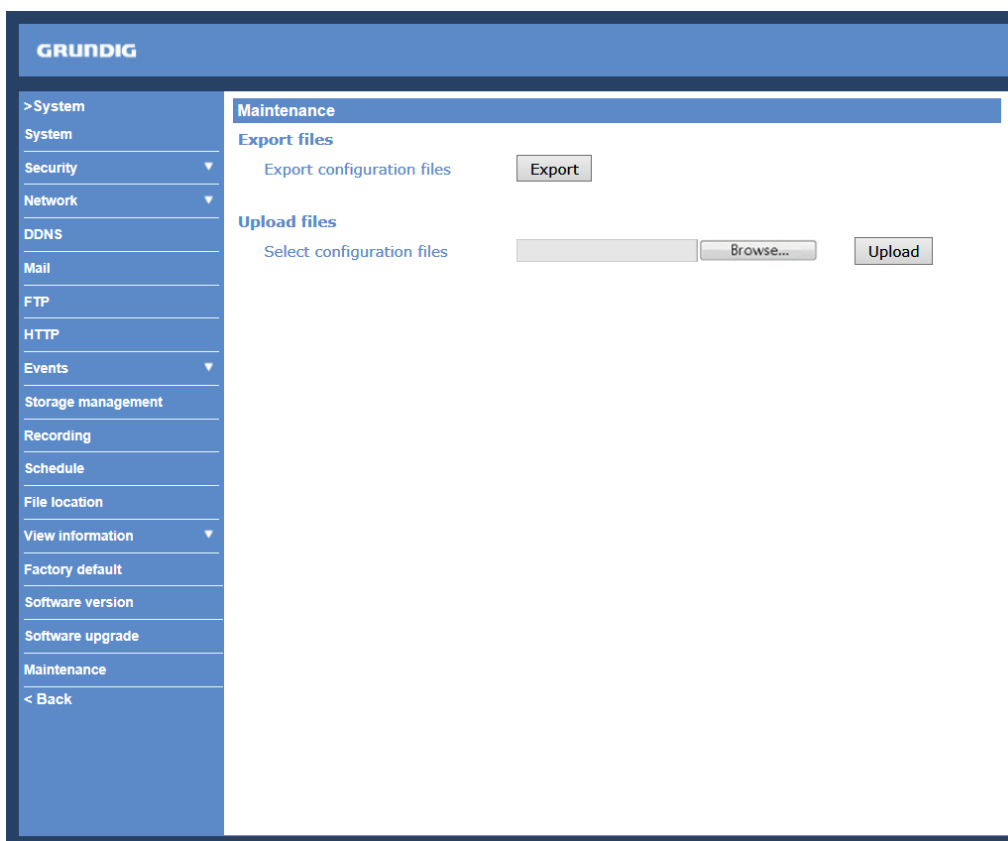
Step 4: Close the video browser.

Step 5: Go to “Start” on your Windows desktop, activate “Control Panel”, and then double-click on “Add or Remove Programs”. In the “Currently installed programs” list, select “GRUNDIG Viewer” and click on the button “Remove” to uninstall the existing GRUNDIG Viewer.

Step 6: Open a new web browser, re-login the IP Camera, and then allow the automatic download of the GRUNDIG Viewer.

9.17. Maintenance

Users can export configuration files to a specified location and retrieve data by uploading an existing configuration file to the IP Camera. This is especially convenient if you want to have the same configuration for multiple cameras.



Export:

Users can save the system settings by exporting the configuration file (.bin) to a specified location for future use. When you click on the “Export” button, the File Download window will pop up as shown below. Click “Save” and specify a desired location for saving the configuration file.



Upload:

To copy an existing configuration file to the IP Camera, please first click on “Browse” to select the configuration file, and then click on the “Upload” button for uploading.

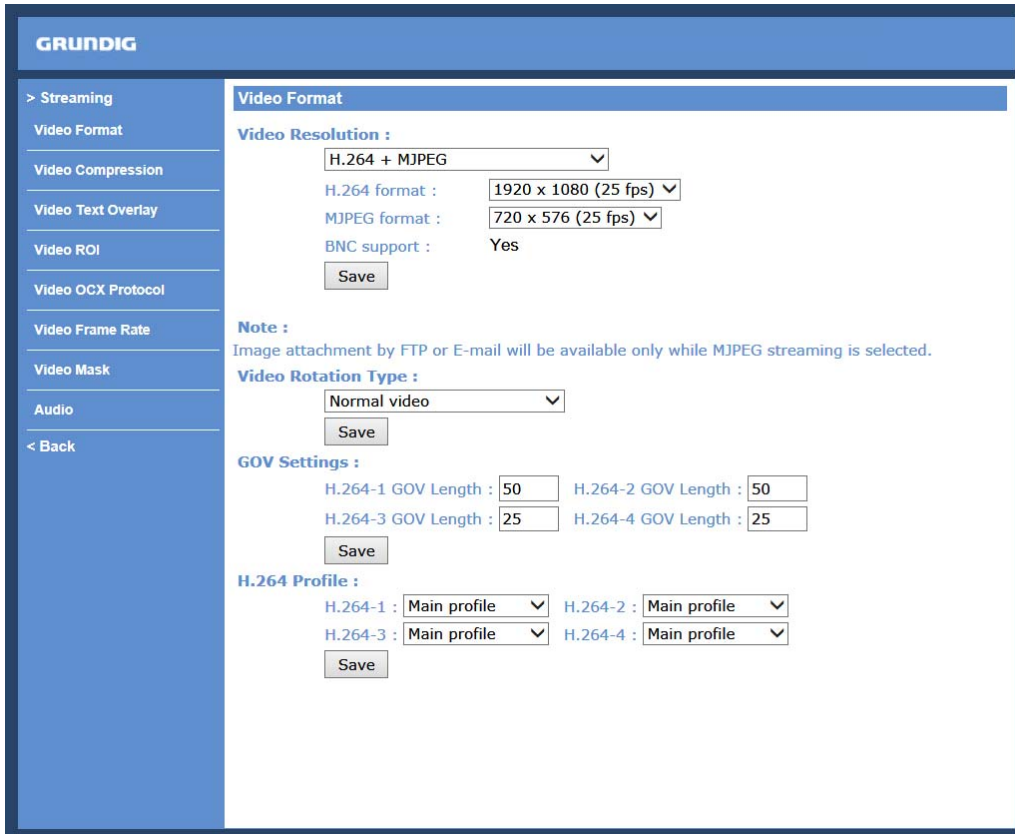
NOTE: The cameras need to have the same software version to upload the configuration file.

10. Streaming Settings

10.1. Video Format

Video Resolution :

Under the Video Resolution section, the available video resolution formats include MJPEG and H.264.



The screenshot shows the Grundig web interface for video format settings. On the left is a navigation menu with options: Streaming, Video Format, Video Compression, Video Text Overlay, Video ROI, Video OCX Protocol, Video Frame Rate, Video Mask, Audio, and Back. The main content area is titled 'Video Format' and includes the following sections:

- Video Resolution :** A dropdown menu set to 'H.264 + MJPEG'. Below it are two dropdown menus: 'H.264 format :' set to '1920 x 1080 (25 fps)' and 'MJPEG format :' set to '720 x 576 (25 fps)'. A 'BNC support :' checkbox is checked and labeled 'Yes'. A 'Save' button is present.
- Note :** A text note stating 'Image attachment by FTP or E-mail will be available only while MJPEG streaming is selected.'
- Video Rotation Type :** A dropdown menu set to 'Normal video'. A 'Save' button is present.
- GOV Settings :** Four input fields for GOV Length: 'H.264-1 GOV Length : 50', 'H.264-2 GOV Length : 50', 'H.264-3 GOV Length : 25', and 'H.264-4 GOV Length : 25'. A 'Save' button is present.
- H.264 Profile :** Four dropdown menus for profiles: 'H.264-1 : Main profile', 'H.264-2 : Main profile', 'H.264-3 : Main profile', and 'H.264-4 : Main profile'. A 'Save' button is present.

Click on "Save" to confirm the setting.

Text Overlay Settings :

Users can select these items to display data (date/time/text/subtitle) on the live video pane. The maximum length of the string for the text is 15 alphanumeric characters, and each subtitle can only be 16 characters. Users can choose the locations in which the items are to be displayed on the live pane. Please note that the items cannot be set to the same location.

Click "Save" to confirm the Text Overlay setting.

Video Rotation Type :

Users can change the video display type if necessary. The selectable video rotation types include Normal video, Flip video, Mirror video and 180 degree rotation. Differences between these types are illustrated below.

Suppose the displayed image of IP Camera is shown as the figure below.



To rotate the image, users can select “Flip video”, for instance. Then the displayed image will be reversed as shown below.



The following are descriptions of different video rotation types.

- Flip video:

If you select <Flip video>, the image will be rotated horizontally.

- Mirror video:

If you select <Mirror video>, the image will be rotated vertically.

- 90 degree counter-/clockwise:

Selecting <90 degree counter-/clockwise> will inverse the image 90° counter-/clockwise. The image will only be shown with the right proportions in "Fullscreen View". Click on the Fullscreen Button (third button from the left) on the main page to enlarge the image and double-click to go back to "Normal View".

- 180 degree rotation:

Selecting the <180 degree rotation> will inverse the image 180° counter-/clockwise.

Click “Save” to confirm the setting.

GOV Settings :

Users can set the GOV length to determine the frame structure (I-frames and P-frames) in a video stream for saving bandwidth. Longer GOV means decreasing the frequency of I-frames. The setting range for the GOV length is from 1 to 255. The default setting of GOV is 60 which means there is one I-frame every 60 seconds. The default value for H.264-1/ H.264-2/ H.264-3/ H.264-4 is 60/ 60/ 30/ 30.

Click “Save” to confirm the GOV setting.

This camera provides three H.264 streaming formats to meet the requirements from viewing devices, the surveillance system, and the network condition of the application and installation environment. Users can set each H.264 Profile to <Baseline Profile>, <Main Profile> or <High Profile> according to the compression needs. With the same bit rate, the higher the compression ratio, the better the image quality is. The default setting is <Main Profile>.

H.264 Baseline profile: Standard Efficiency Encoding Format

H.264 Main profile: Good Efficiency Encoding Format

H.264 High profile: High Efficiency Encoding Format

10.2. Video Compression

Users can specify the values for MJPEG/H.264 compression mode in the video compression page (see the picture below), depending on the application.

MJPEG compression setting (MJPEG Q (Quality) factor):

A higher value implies higher bit rates and a higher visual quality. The default setting is 35; the setting range is from 1 to 70.

Click "Save" to confirm the setting.

H.264-1 / H.264-2 / H.264-3 / H.264-4 bit rate:

The default setting of H.264-1 is 4096 kbps and of H.264-2/H.264-3/H.264-4 is 1024 kbps. The setting range for H.264-1 is from 64 to 2048 kbps and for H.264-2/H.264-3/H.264-4 it is from 64 to 2048 kbps.

Click "Save" to confirm the setting.

The screenshot shows the Grundig Video Compression settings page. The sidebar on the left contains the following menu items: > Streaming, Video Format, Video Compression, Video Text Overlay, Video ROI, Video OCX Protocol, Video Frame Rate, Video Mask, Audio, and < Back. The main content area is titled 'Video Compression' and includes the following sections:

- MJPEG Compression setting :** MJPEG Q factor : 35 (input field), Save button.
- H.264-1 Compression setting :** H264-1 bit rate : 4096 kbit/s (input field), Save button.
- H.264-2 Compression setting :** H264-2 bit rate : 1024 kbit/s (input field), Save button.
- H.264-3 Compression setting :** H264-3 bit rate : 1024 kbit/s (input field), Save button.
- H.264-4 Compression setting :** H264-4 bit rate : 1024 kbit/s (input field), Save button.
- Compression information setting :** Display compression information in the home page, Save button.
- CBR mode setting :** enable H.264-1 CBR mode, enable H.264-2 CBR mode, enable H.264-3 CBR mode, enable H.264-4 CBR mode, Save button.

Compression information setting :

Users can also decide whether to display compression information on the Home page.

Click "Save" to confirm the setting.

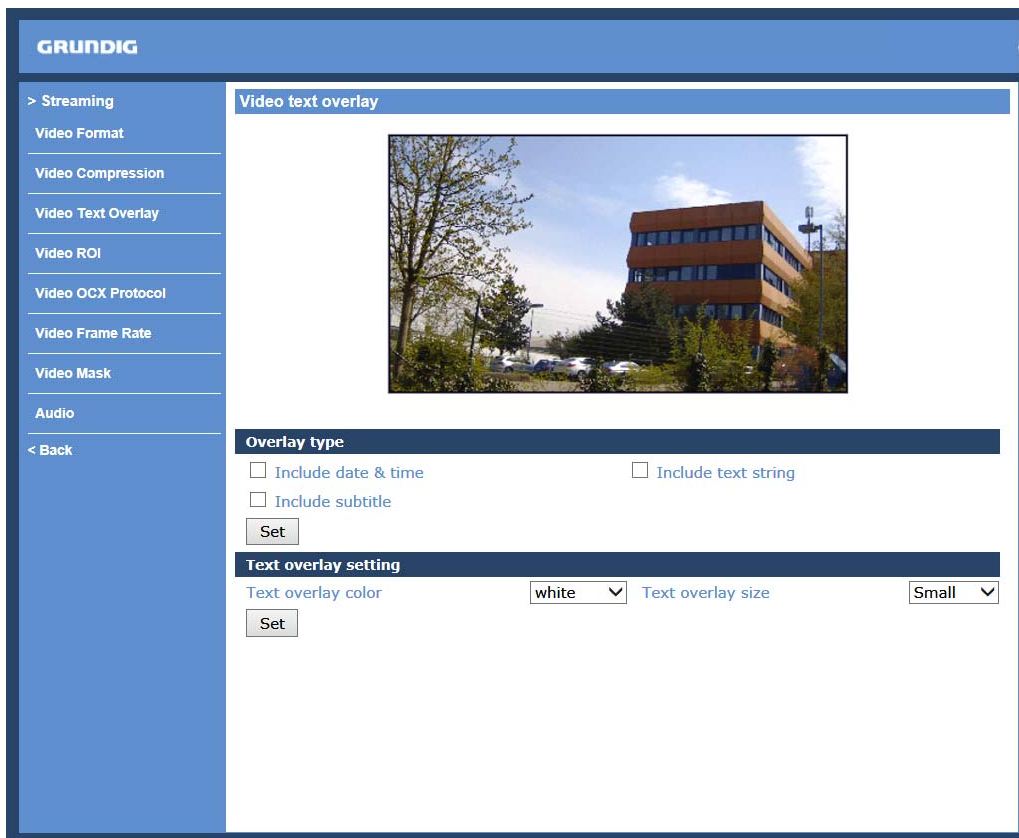
CBR mode setting :

The CBR (Constant Bit Rate) mode can become the preferred bit rate mode if the available bandwidth is limited. It is important to take into account the image quality when you choose to use CBR mode.

Click on "Save" to confirm the setting.

10.3. Video Text Overlay

In the Video Text Overlay setting page, users can select items to display data including date / time / text on the live video pane. The maximum length of the text string is 20 alphanumeric characters. Click on <Set> to confirm the chosen Video Text Overlay setting.



The Video Text Overlay setting options include:

- Overlay type:

Users can decide which data to display on the live pane.

- Text overlay setting:

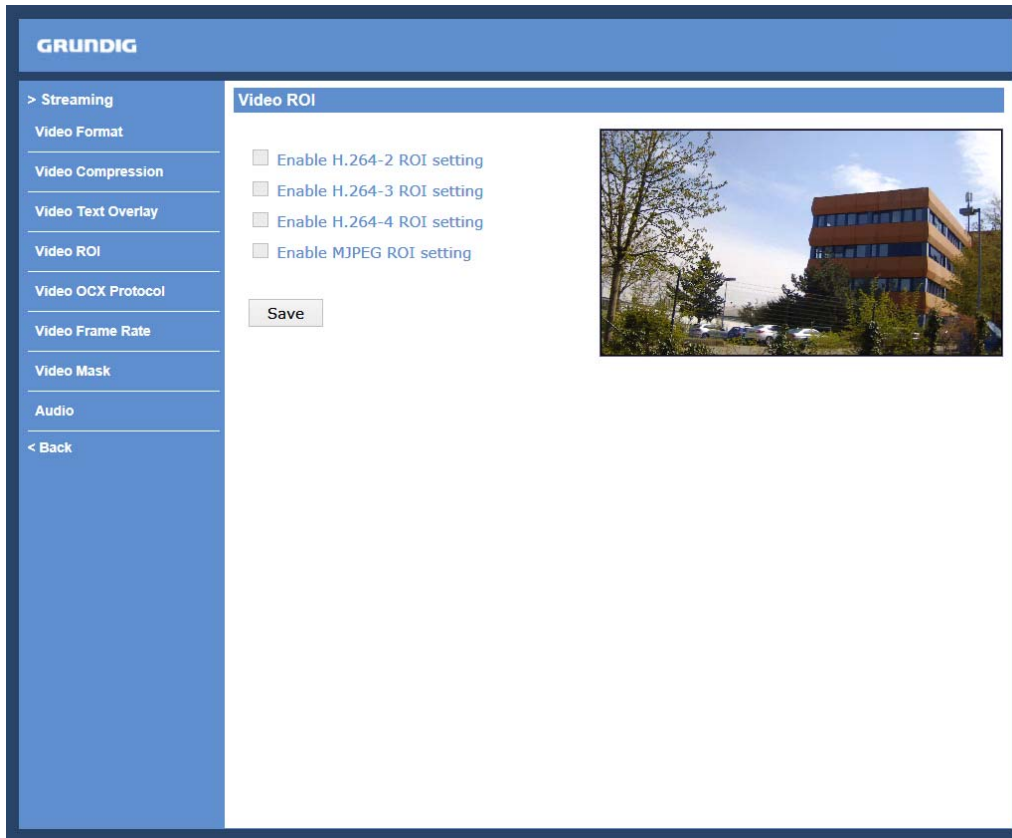
Users can decide in which colour and which size to display the text.

10.4. Video ROI

The "Video ROI" setting can be found under this path: "Streaming" > "Video ROI".

ROI stands for Region of Interest. This function allows the users to select a specific monitoring region for H.264-2, H.264-3, H.264-4 and MJPEG streams, instead of showing the full image.

NOTE: This function is only available when triple streams or above is selected under <Video Resolution> in the "Video Format" Setting.



Video ROI Setting:

- Enable the H.264-2 ROI Setting:

When you check the box, H.264-2 ROI Window will be displayed. To change the size of the H.264-2 ROI Window, move the mouse cursor to the edge of the frame and draw it outward / inward. Moving the mouse to the center of the frame can shift the frame to the intended location.

NOTE: The H.264-2 ROI setting is only available when at least H.264 + H.264 + H.264 (triple stream) is selected under <Video Resolution> in the Video Format Setting.

- Enable the H.264-3 ROI Setting:

When you check the box, the H.264-3 ROI Window will be displayed. To change the size of the H.264-3 ROI Window, move the mouse cursor to the edge of the frame and draw it outward / inward. Moving the mouse to the center of the frame can shift the frame to the intended location.

NOTE: The H.264-3 ROI setting is only available when at least H.264 + H.264 + H.264 (triple stream) is selected under <Video Resolution> in the Video Format Setting.

- Enable the H.264-4 ROI Setting:

When you check the box, the H.264-4 ROI Window will be displayed. To change the size of the H.264-4 ROI Window, move the mouse cursor to the edge of the frame and draw it outward / inward. Moving the mouse to the center of the frame can shift the frame to the intended location.

NOTE: The H.264-4 ROI setting is only available when H.264 + H.264 + H.264 + H.264 is selected under <Video Resolution> in the Video Format Setting.

- Enable the MJPEG ROI Setting:

When you check the box, the MJPEG ROI Window will be displayed. To change the size of the MJPEG ROI Window, move the mouse cursor to the edge of the frame and draw it outward / inward. Moving the mouse to the center of the frame can shift the frame to the intended location.

NOTE: The MJPEG ROI setting is only available when H.264 + H.264 + H.264 + MJPEG or H.264 + H.264 + MJPEG is selected under <Video Resolution> in Video Format Setting.

10.5. Video OCX Protocol

In the Video OCX protocol setting page, users can select RTP over UDP, RTP over TCP, RTSP over HTTP or MJPEG over HTTP, for streaming media over the network. In the case of multicast networking, users can select the Multicast mode. The Video OCX Protocol page is as follows:

The screenshot shows the Grundig Video OCX Protocol configuration interface. On the left is a blue sidebar with a menu: > Streaming, Video Format, Video Compression, Video Text Overlay, Video ROI, Video OCX Protocol (highlighted), Video Frame Rate, Video Mask, Audio, and < Back. The main content area has a blue header 'GRUNDIG' and a sub-header 'Video OCX Protocol'. Below this is the section 'Video OCX protocol setting :'. It contains five radio button options: 'RTP over UDP' (selected), 'RTP over RTSP(TCP)', 'RTSP over HTTP', 'MJPEG over HTTP', and 'Multicast mode'. Under 'Multicast mode', there are seven rows of input fields: 'Multicast H.264-1 Video Address' (0.0.0.0), 'Multicast H.264-2 Video Address' (0.0.0.0), 'Multicast H.264-3 Video Address' (0.0.0.0), 'Multicast H.264-4 Video Address' (0.0.0.0), 'Multicast MJPEG Video Address' (0.0.0.0), 'Multicast Audio Address' (0.0.0.0), and 'Multicast TTL' (1). Each address field has a 'Port 0' field to its right. A 'Save' button is located below the input fields. A 'Note:' section at the bottom states: 'This page only applies to video streams going to a GRUNDIG Viewer.'

Video OCX protocol setting options include:

- RTP over UDP / RTP over RTSP (TCP) / RTSP over HTTP / MJPEG over HTTP
(Select a mode according to your data delivery requirements.)

- Multicast Mode:

Enter all required data, including multicast H.264/MJPEG video address, H.264 video port, MJPEG video port, audio address, audio port and TTL into each blank.

Click on "Save" to confirm the setting.

10.6. Video Frame Rate

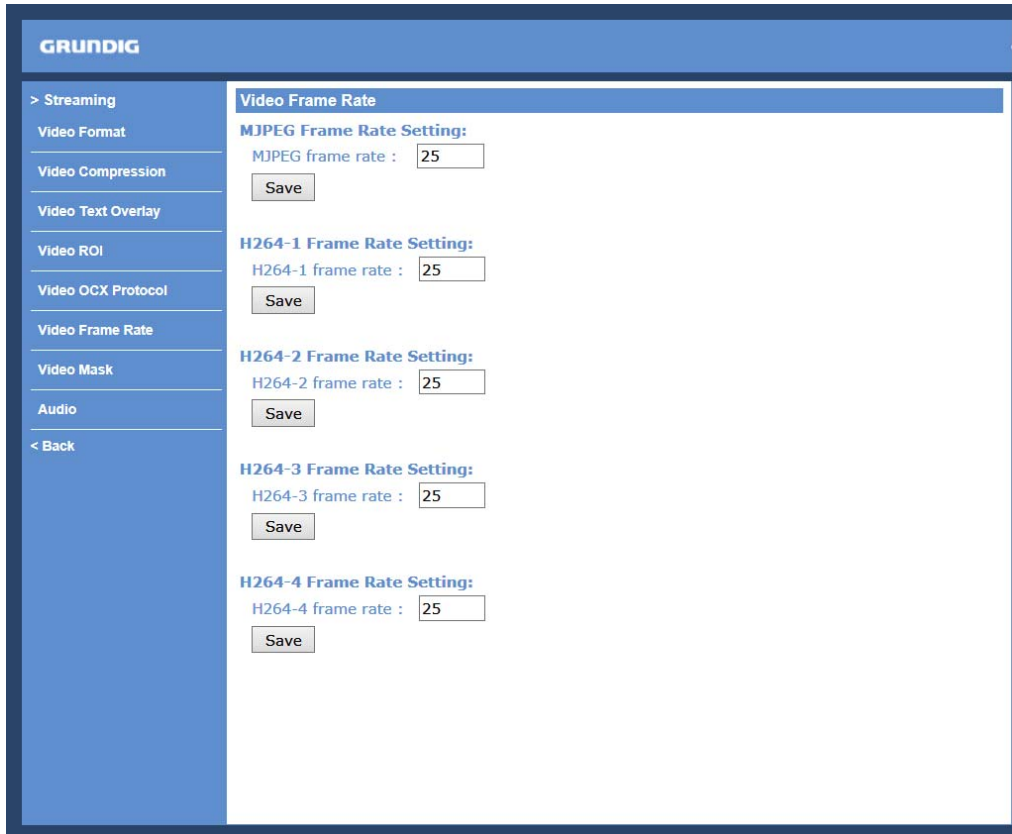
The video frame rate is for setting the frames per second (fps) if needed.

MJPEG/ H.264-1/ H.264-2 Frame Rate:

The default setting of the MJPEG Frame Rate is 25 fps; the setting range is from 1 to 25 (PAL).

Click on <Save> to confirm the setting.

NOTE: A lower frame rate will decrease the video smoothness.



H.264-1 Frame Rate:

The default setting and setting range for H.264-1 will change according to the video format selected for the <TV system> under the <Camera> menu.

For PAL, the default setting can be 25 fps or 50 fps. 50 fps is only available when a video format with "50 fps" is selected under <TV System>. The setting range is 1 to 25 or 1 to 50.

For NTSC, the default setting can be 30 fps or 60 fps. 60 fps is only available when a video format with "60 fps" is selected under <TV system>. The setting range is 1 to 30 or 1 to 60.

MJPEG / H.264-2 / H.264-3 / H.264-4 Frame Rate:

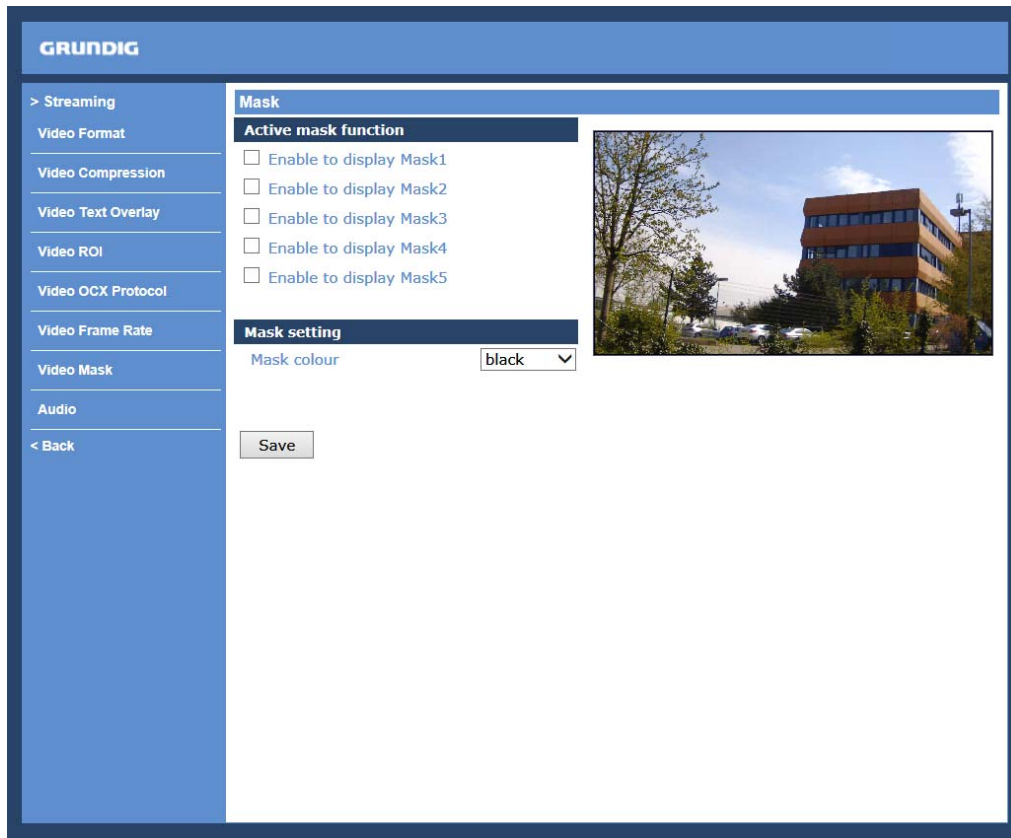
The default setting of the MJPEG / H.264-2 / H.264-3 / H.264-4 Frame Rate is 25 fps (PAL) or 30 fps (NTSC). The setting range is from 1 to 50 (PAL) or from 1 to 60 (NTSC). The maximum range of MJPEG / H.264-1 / H.264-2 / H.264-3 / H.264-4 Frame Rate will change according to the selected video resolution on the <Video Format> page.

Click on <Save> to confirm the setting.

NOTE: A lower frame rate will decrease video smoothness.

10.7. Video Mask

There are five video masks which can be set by the users.



Active Mask Function :

- How to add a mask:

When you check a Video Mask checkbox ("Enable to display Mask..."), a red frame will come out in the Live Video pane at the right side. Use the mouse to adjust the mask's size and drag and drop the frame to place it on the target zone.

NOTE: It is suggested to set the Video Mask twice as big as the object.

- How to cancel a mask:

If you uncheck the checkbox of the Video Mask that is meant to be deleted, the selected mask will disappear from the Live Video pane instantly.

Mask Setting :

- Mask colour:

The selection of Mask colours includes red, black, white, yellow, green, blue, cyan, and magenta.

Click on "Save" to confirm the setting.

10.8. Audio (Audio and Bit Rate Settings)

The audio setting page is shown below. In the Audio page, the Administrator can select one transmission mode and the audio bit rate.

The screenshot shows the Grundig Audio settings interface. The left sidebar contains a navigation menu with the following items: > Streaming, Video Format, Video Compression, Video Text Overlay, Video ROI, Video OCX Protocol, Video Frame Rate, Video Mask, Audio, and < Back. The main content area is titled 'Audio' and includes the following settings:

- Transmission mode:** Radio buttons for Full-duplex (Talk and listen simultaneously), Half-duplex (Talk or listen, not at the same time), Simplex (Talk only), Simplex (Listen only), and Disable (selected).
- Server gain setting:** Input gain: 3, Output gain: 3.
- Bit rate:** uLAW.
- Recording to Storage:** Disable.

Save buttons are present for the Bit rate and Recording to Storage sections.

Transmission Mode :

- Full-duplex (Talk and Listen simultaneously):

In the Full-duplex mode, the local and remote sites can communicate with each other simultaneously, i.e. both sites can speak and be heard at the same time.

- Half-duplex (Talk or Listen, not at the same time):

In the Half-duplex mode, the local/remote site can only talk or listen to the other site at a time.

- Simplex (Talk only):

In the Talk only Simplex mode, the local/remote site can only talk to the other site.

- Simplex (Listen only):

In the Listen only Simplex mode, the local/remote site can only listen to the other site.

- Disable:

Select this item to turn the audio transmission function off.

Server Gain Setting :

Set the audio input/output gain levels for sound amplification. The audio gain values are adjustable from 1 to 6. The sound will be turned off if the audio gain is set to "Mute".

Bit Rate :

The selectable audio transmission bit rates include 16 Kbps (G.726), 24 Kbps (G.726), 32 Kbps (G.726), 40 Kbps (G.726), uLAW (G.711) and ALAW (G.711). Both uLAW and ALAW signify 64 Kbps but in different compression formats. A higher bit rate signifies a higher audio quality and requires a bigger bandwidth.

Click on "Save" to confirm the setting.

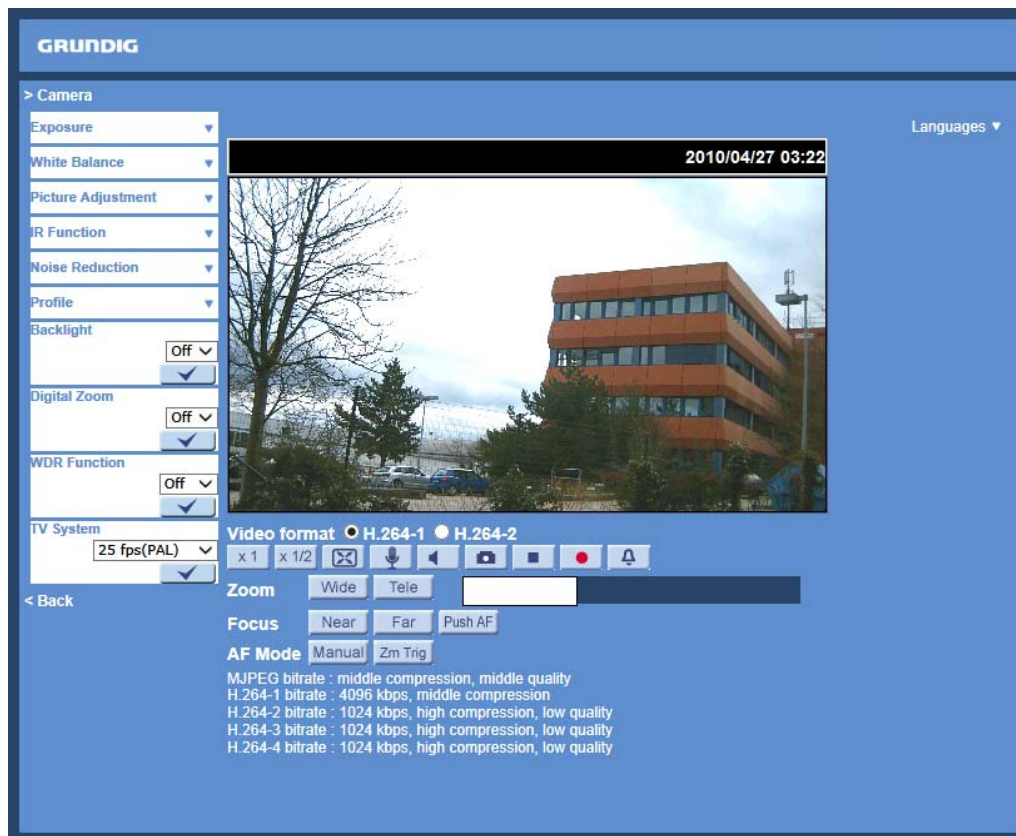
Recording to Storage :

Select <Enable> from the drop-down menu to enable the audio recording together with the videos onto an SD card or the NAS.

NOTE: If the chosen bit rate is not compatible with the player, there will be no audio and noise will be heard during playback.

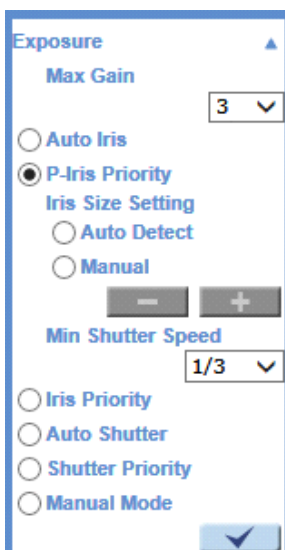
11. Camera Settings

The picture below is the camera configuration page. Details of each parameter setting are described in the following sub-sections.



11.1. Exposure Setting

Display of the Exposure pull-down menu:



The exposure is the amount of light received by the image sensor and is determined by the width of lens diaphragm opening, the amount of exposure by the sensor (shutter speed) and other exposure parameters. With this item, users can define how the Auto Exposure function works.

Auto Mode:

- Max Gain:

The maximum gain can be set to reduce the image noises. The max gain can be set from 1 to 3. The default setting is 3.

- Auto Iris Mode (Not for Fixed Focal Lens Camaras):

In this mode, the exposure gives priority to the auto iris. The minimum shutter speed can be set from 1/30 to 1 sec. (NTSC) or 1/1.5 to 1/25 sec (PAL). AGC (Auto Gain Control) will function automatically according to the light conditions of the subject.

- P-Iris Priority:

In this mode, the exposure gives priority to the p-iris. If you choose "Auto Detect", the system will calculate (auto detect) and adjust to get the best image quality. Alternatively, you can manually adjust the iris size by selecting <Manual>. Click on "-" and "+" to adjust the iris size. The minimum shutter speed can also be set here.

NOTE: This mode is only available for models with 3x Zoom Lens Models.

- Iris Priority:

In this mode, the exposure gives priority to the iris. The range of the iris size is from 0 to 9, or please select <Full open> to fully open the iris. The minimum shutter speed can be set from 1/30 sec. To 1 sec. (NTSC) or 1/25 sec. To 1/1.5 sec. (PAL).

NOTE: This mode is only available for models with 3x Zoom Lens Models.

- Auto Shutter Mode:

This function is used to control the shutter speed and to adjust the iris automatically according to the light intensity. It is also effective if a fixed iris lens is being used. The minimum shutter speed range is configurable from 1 to 1/500 (NTSC) and from 1/1.5 to 1/425 sec. (PAL).

- Shutter Priority Mode:

This function is to set the shutter speed to a specified speed. The range is configurable from 1/25 to 1/425 sec.

NOTE: This mode is not available for Fixed Focal Lens Models .

Manual Mode:

- Shutter Speed:

In this mode, a fixed shutter speed can be selected from the drop-down menu. The shutter speed range is from 1/10000 to 1/1.5 sec. With 18 options depending on the camera model. Users can choose a suitable shutter speed according to the environmental illumination.

- Iris Size:

The range of the iris size is from 0 to 9, or you can select <Full open> to fully open the iris. (The <Iris Size> setting is only available for models with 3x Zoom Lens.)

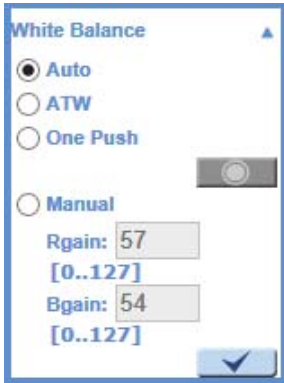
- Gain:

The gain can be set from 1 to 9. The default setting is 1.

Click on <√ > to confirm the new setting.

11.2. White Balance Setting

Display of the White Balance pull-down menu:



To display natural colours, the camera needs to know the reference colour temperature of the light source. Based on this reference colour temperature the camera will calculate the correct values for all colours. The camera can perform a measurement by itself or the user can set up the reference colour temperature manually. The scale unit of the colour temperature is Kelvin [K]. The following list shows the colour temperature of some light sources for reference.

The users can select one of the White Balance Control modes according to the operating environment.

Light Sources :

- Cloudy Sky (Colour Temperature: 6,000 to 8,000 K)
- Noon Sun and Clear Sky (Colour Temperature: 6,500 K)
- Household Lighting (Colour Temperature: 2,500 to 3,000 K)
- 75-watt Bulb (Colour Temperature: 2,820 K)
- Candle Flame (Colour Temperature: 1,200 to 1,500 K)

Auto Mode :

The Auto White Balance mode is suitable for an environment with a light source having a colour temperature range from 2700 ~ 7600K.

ATW Mode (Auto Tracking White Balance) :

With the Auto Tracking White Balance function, the white balance in a scene will be automatically adjusted while temperature colour is changing. The ATW Mode is suitable for environments with a light source having a colour temperature in the range roughly from 2450 ~ 10500K.

One Push :

With the <One Push> function, the white balance is adjusted and fixed according to the scene the camera sees at the moment. This function is best for situations with minimal scene changes and continuous lighting. This function is suitable for light sources with any kind of colour temperature. Follow the steps below to set the white balance.

- Point the camera towards the monitoring area.
- Select <One Push> in the White Balance setting menu and click <√>.
- Click on the "One Push" (Circle) button to adjust the colour tone of the live images.

NOTE: In this mode, the value of white balance will not change as the scene or the light source varies. Therefore, users might have to re-adjust the white balance by clicking the "One Push" (Circle) button again when needed.

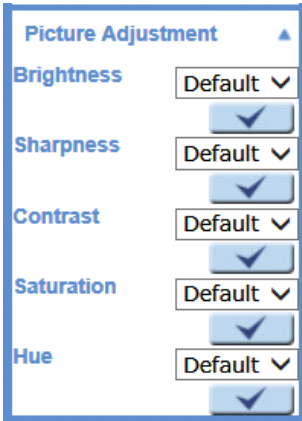
Manual Mode :

In this mode, users can change the White Balance value manually. Users can select a number between 0 ~ 127 in the "R-Gain/B-Gain" item to gain the red/blue illuminant on the Live Video Pane.

Click on <√> to confirm the new setting.

11.3. Picture Adjustment

Display of the Picture Adjustment pull-down menu:



Brightness:

The users can adjust the image's brightness by adjusting the item. Please select a number from the range of -12 to +13. To increase the video brightness, select a bigger number.

Click on < ✓ > to confirm the new setting.

Sharpness:

Increasing the sharpness level can make the image look sharper. Please select a number from the range of +0 to +15. This function especially enhances the object's edges.

Click on < ✓ > to confirm the new setting.

Contrast:

The camera image contrast level is adjustable. Please choose from a range of -6 to +19.

Click on < ✓ > to confirm the new setting.

Saturation:

The camera image saturation level is adjustable. Please select from a range of -6 to +19.

Click on < ✓ > to confirm the new setting.

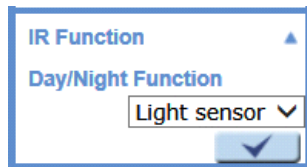
Hue:

The camera image hue level is adjustable. Please select from a range of -12 to +13.

Click on < ✓ > to confirm the new setting.

11.4. IR Function

With the IR cut filter, the Camera can still catch a clear image at night time or in low light conditions.



Day/Night Function :

This item is to define the action of the IR cut filter. Refer to the descriptions of each option below to select a suitable mode. Click on <√> to confirm the new setting.

- Auto Mode:

With this mode, the camera will decide according to the environment whether to remove the IR cut filter.

- Off (Night Mode):

Use this mode when the environment light level is low. The IR cut filter will be removed to allow the camera to deliver clear images in black and white.

- On (Day Mode):

Select this mode to turn on the IR cut filter. The IR cut filter can filter out the IR light and allows the camera to deliver high quality images in colour.

- Smart Mode:

The Smart Mode enhances the monochrome/night mode stability in ascenario where IR illumination is dominant. In this mode, when the external IR illuminator is turned on, the IR cut filter of the IP Camera will stay open (i.e. monochrome/night mode), preventing the camera from returning to colour/day mode when the IR illumination is dominant.

For cameras with a built-in IR LED module, there will be three additional IR function modes as follows:

- Light Sensor Mode :

IR LED lights will be turned on/off depending on the light sensor.

- Light On Mode :

In this mode, IR LED lights will always be on.

- Light Off Mode :

In this mode, IR LED lights will always be off.

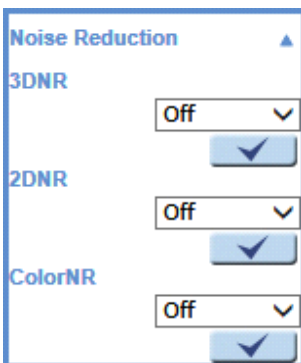
Click on <√> to confirm the new setting.

11.5. Noise Reduction

The IP Camera provides a 3DNR function for delivering an optimised image quality especially in extra low-light conditions.

Different levels of options (Low / Mid / High) for 3DNR are supported. A higher level of 3DNR generates relatively enhanced noise reduction.

Click on <√> to confirm the new setting.



This IP Camera provides a 2DNR function for delivering clear images without motion blurs in extra low-light conditions. The image will still stay quite bright with this noise reduction function.

Different levels of options (Low / Mid / High) for 2DNR are supported. A higher level of 2DNR generates relatively enhanced noise reduction.

Click on <√> to confirm the new setting.

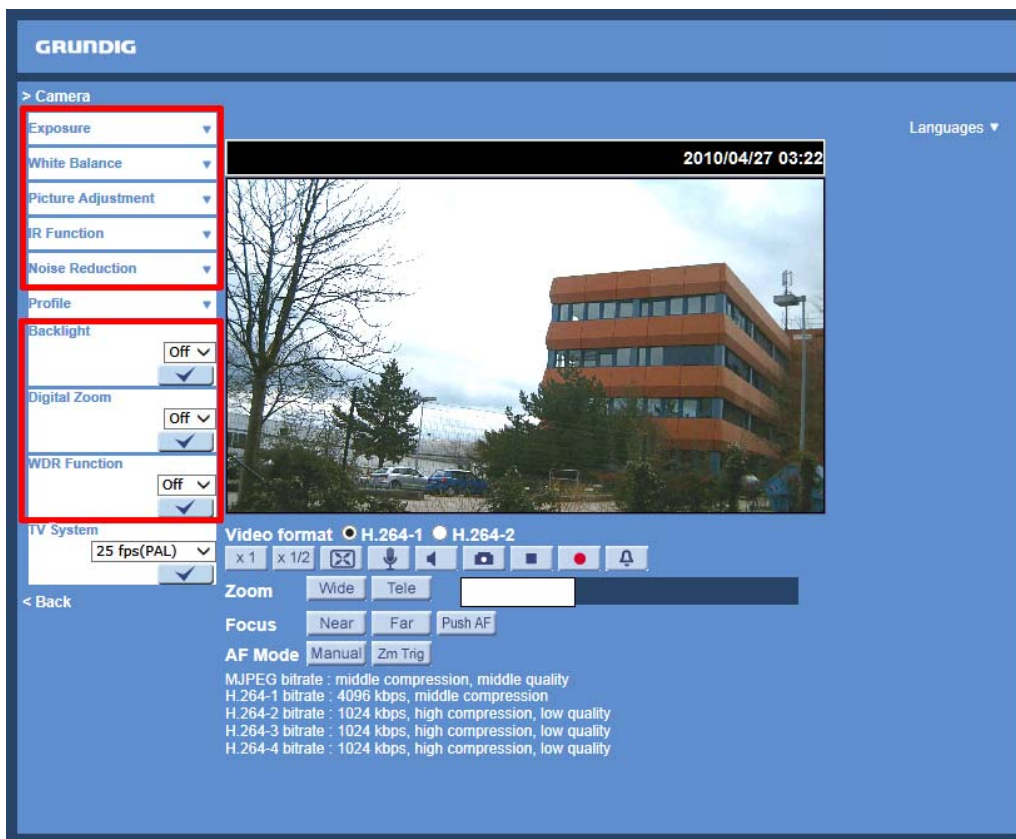
This IP Camera provides also a ColourNR function. This function can eliminate colour noise when the environment is dark but the camera is still in colour mode.

Different levels of options (Low / Mid / High) for ColourNR are supported.

Click on <√> to confirm the new setting.

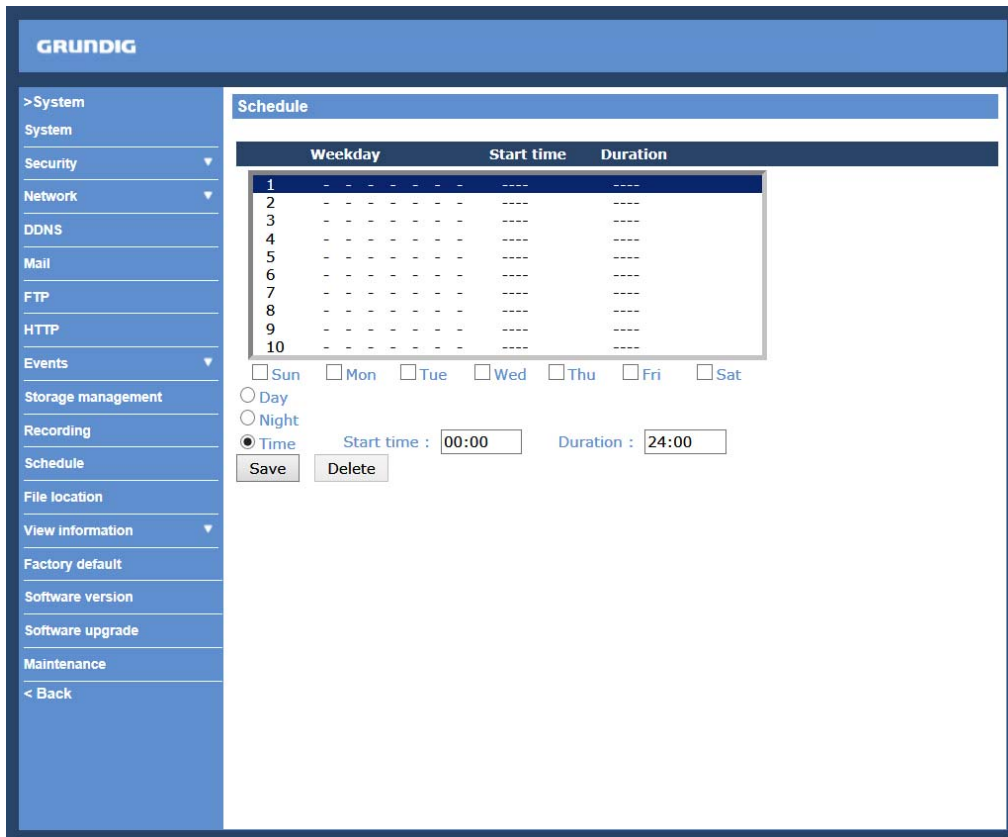
11.6. Profile

You can program up to 10 different Profiles which are specific desired camera parameters (they can be found under "Camera", see the picture below) for different environments and assign to them up to 10 schedule setups which need to be set under "System" > "Schedule". You need to set up the schedule(s) in advance. Then you can set up the camera parameters (like Exposure, White Balance, Brightness, Sharpness etc.) under "Camera" and save them as Profiles and assign to these Profiles the previously set schedule(s).



Schedule Setup :

First, you need to set up a schedule and select a time frame from the time frame list. Then please check the weekday boxes below to choose the specific weekdays. At last, select a time mode, Day mode, Night Mode or Time mode. Under Time mode, users can specify the start time and the duration time for activation of the schedule triggered features. The setting range for the duration time is from 00:00 to 168:59. Click on <Save> to save the setup.



Time Mode :

- Day: this profile will be loaded when IR cut is off.
- Night: this profile will be loaded when IR cut is on.
- Time: indicates the start time and time duration for the schedule.

Camera Profile Setup :

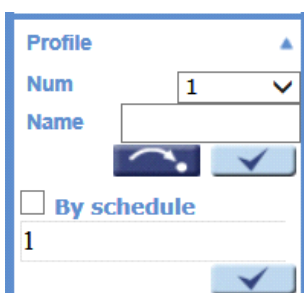
Step 1: In the "Camera" tab, set up the camera parameters, such as White Balance, Picture Adjustment, etc.

Step 2: Click on Profile under "Camera" and its setting menu will be displayed (see the picture below). Select a number from the Number drop-down list.

Step 3: Input a name for the profile in the Name field.

Step 4: Click on <√> below the Name field. The camera parameter configuration is saved and applied to the profile.

Now a camera profile is created and saved.



Step 5: Select a profile from the Number drop-down list.

Step 6: Check the box beside <By schedule>. Select and check the schedule(s) from the schedule drop-down list (From Schedule 1 to Schedule 10). You can choose several schedules and assign them to one profile.

Step 7: Click on <√ > below <By schedule>.

Now the schedule(s) are assigned to the camera profile.

Follow the steps above to set the rest of the desired profiles.

Alternatively, manually select a number from the Number drop-down list. Afterwards, click on the <Arrow/Dot > button under "Profile". Then the camera will load and apply the setting of the profile.

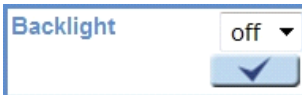
NOTE: If you wish to set the camera parameters to factory default setting, select <Normal> from the Number drop-down list. The Camera will start to load the default values.

NOTE: Users must set the camera parameter of the last profile as the default setting. Thus, if there are gaps between schedules, the camera will apply the setting of the last profile.

11.7. Backlight Setting

Based on various lighting situations, users can turn the function of Backlight Compensation on or off to optimise the video quality. The default value of Backlight is: Off.

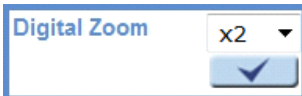
Click on <√ > to confirm the new setting.



11.8. Digital Zoom Setting

The camera's Digital Zoom is adjustable from x2 to x10.

Click on <√ > to confirm the new setting.



11.9. WDR Function

The Wide Dynamic Range (WDR) function is for solving high contrast or changing light issues to improve the video display. The WDR is adjustable from Low, Mid to Hi. A higher level of WDR represents a wider dynamic range, so that the IP Camera can catch a greater scale of brightness.

Click on <√ > to confirm the new setting.

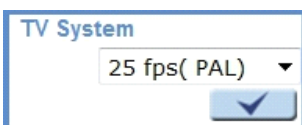


NOTE: The shutter WDR function of the 3M / 4M Real-Time models of the IP cameras can be enabled by selecting any video format with "WDR 3 shutter" under <TV System>.

11.10. TV System Setup

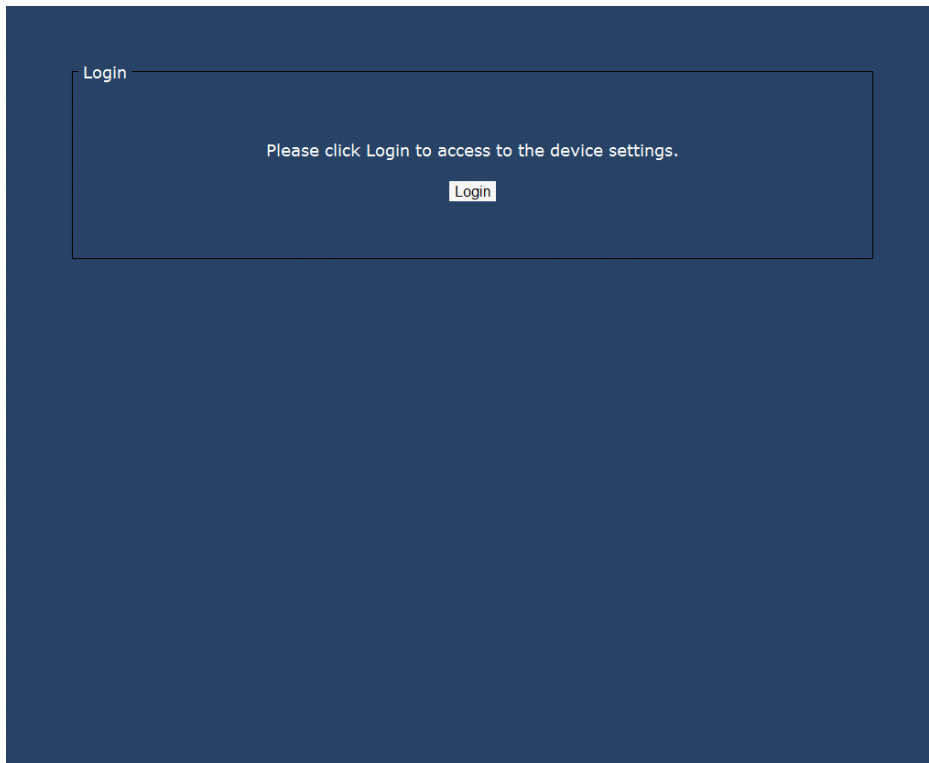
Select the video format that matches the present TV system.

Click on <√ > to confirm the new setting.



12. Logout

When you press the “Logout” tab at the top of the page, the login window will pop up. This permits login with another user name.

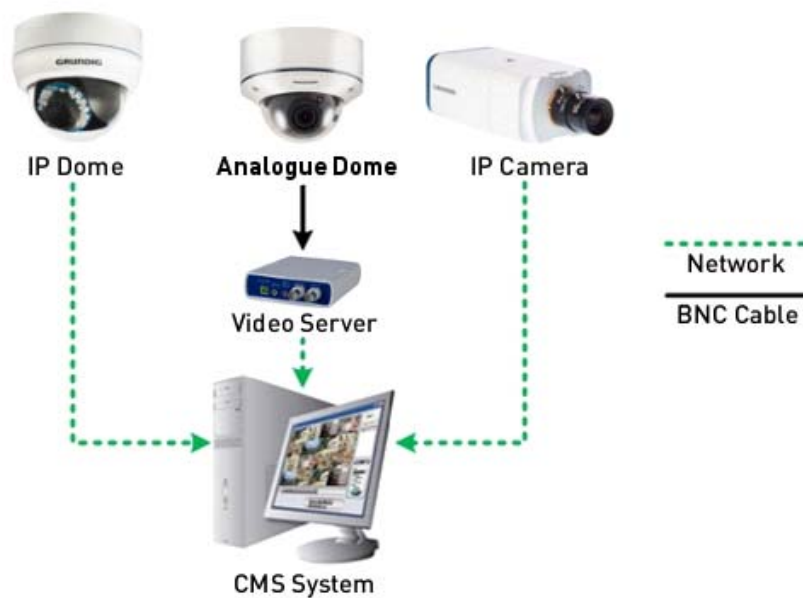


13. CMS Software Introduction

The Central Management System (CMS) software bundles IP cameras and analogue cameras that are connected to the network via the Video Server into one system. Offering powerful functionalities via intuitive interface, it is a centralised monitoring solution for your video surveillance equipments.

The GRUNDIG CMS Software gives the user access to monitor multiple IP Cameras and Video Servers, and allows the user to monitor simultaneously 16 sites per group (up to 10 groups) within several clicks.

For further information on the CMS software, please refer to the supplied CD.



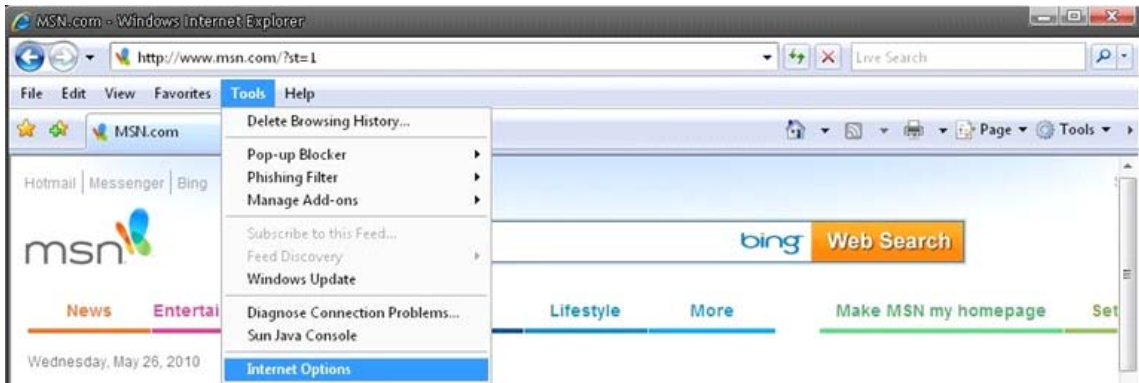
14. Internet Security Settings

If the ActiveX control installation is blocked, please either set the Internet security level to default or change ActiveX controls and plug-in settings.

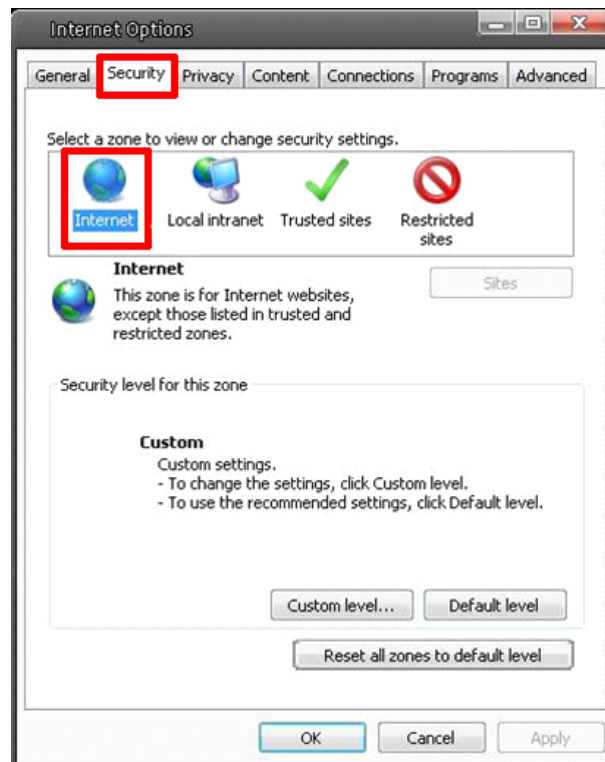
Internet Security Level : Default

Step 1: Start the Internet Explorer.

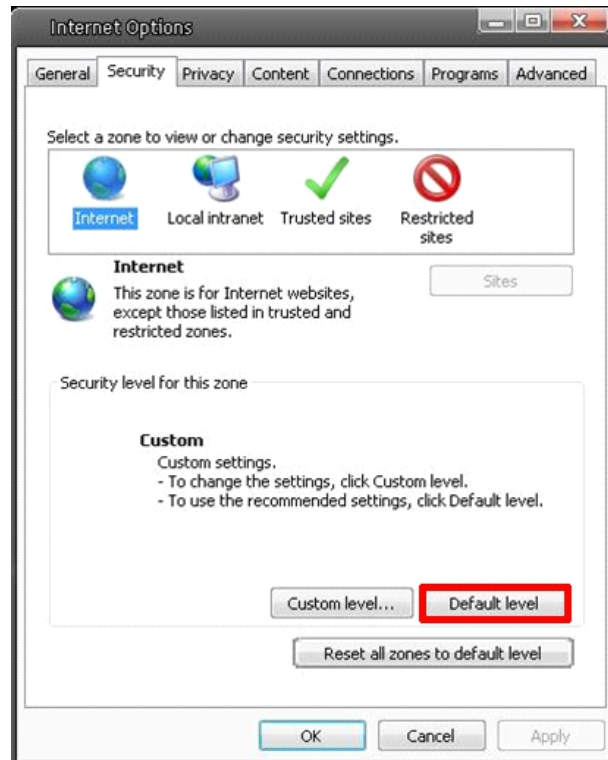
Step 2: Select <Tools> from the main menu of the browser. Then click on <Internet Options>.



Step 3: Click on the <Security> tab, and select <Internet>.



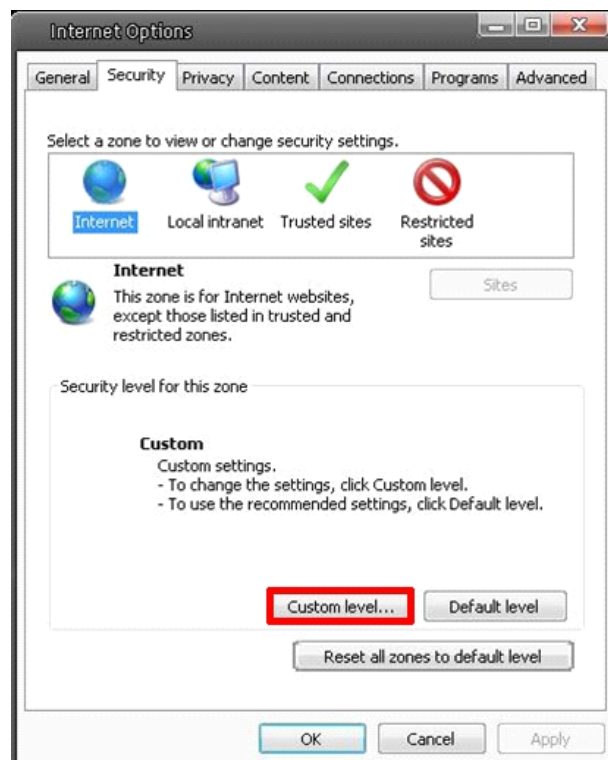
Step 4: Down the page, click on “Default level...” and then click “OK” to confirm the setting. Close the browser window, and open a new one later when accessing the IP Camera.



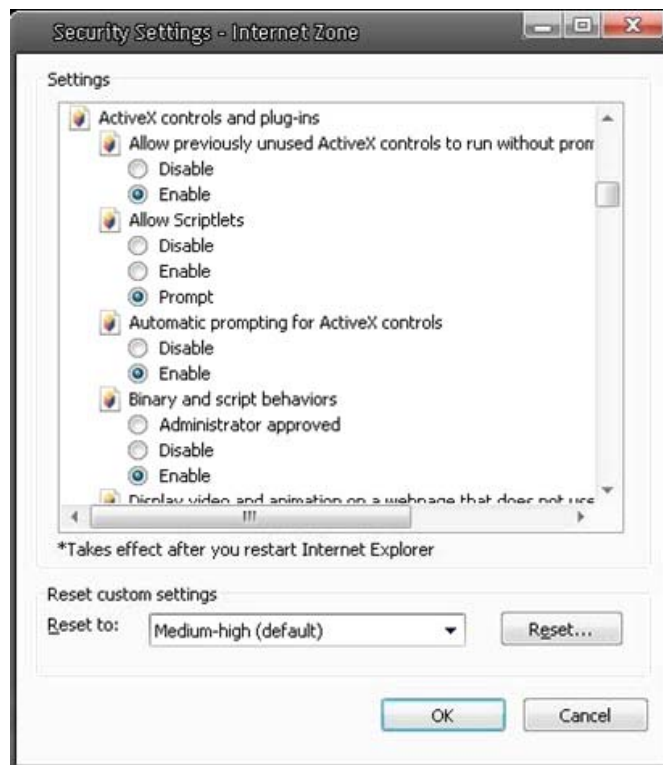
ActiveX Controls and Plug-in Settings :

Step 1~3: Please refer to the previous section above.

Step 4: Down the page, click on “Custom level...” (see the picture below) to change ActiveX controls and plug-in settings.



The Security Settings screen is displayed as shown below:



Step 5: Under "ActiveX controls and plug-ins", set ALL items (as listed below) to <Enable> or <Prompt>. Please note that the items may vary depending on the Internet Explorer version you are using.

ActiveX controls and plug-in settings:

1. Allow previously unused ActiveX controls to run without prompt
2. Allow Scriptlets
3. Automatic prompting for ActiveX controls
4. Binary and script behaviors
5. Display video and animation on a webpage that does not use external media player
6. Download signed ActiveX controls
7. Download unsigned ActiveX controls
8. Initialize and script ActiveX controls not marked as safe for scripting
9. Run ActiveX controls and plug-ins
10. Script ActiveX controls marked as safe for scripting

Step 6: Click on <OK> to accept the settings and to close the Security screen.

Step 7: Click on <OK> to close the Internet Options screen.

Step 8: Close the browser window, and open a new one later for accessing the IP Camera.

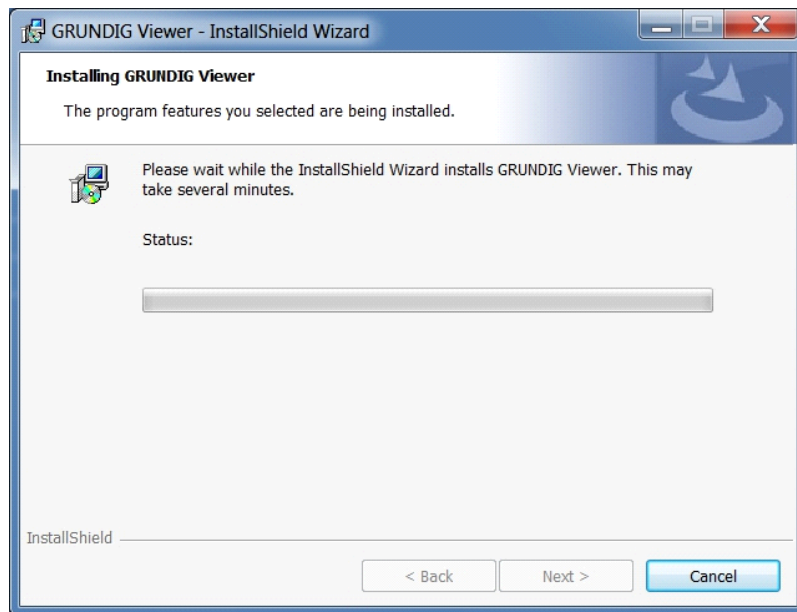
15. GRUNDIG Viewer Download Procedure

The procedure of the GRUNDIG Viewer software download is specified as follows:

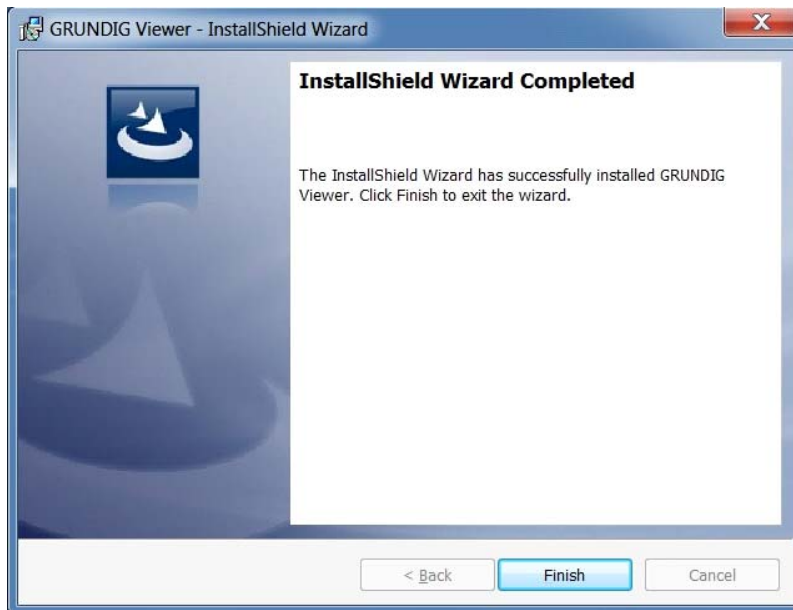
Step 1: In the GRUNDIG Viewer installation page, click “Next” to start the installation.



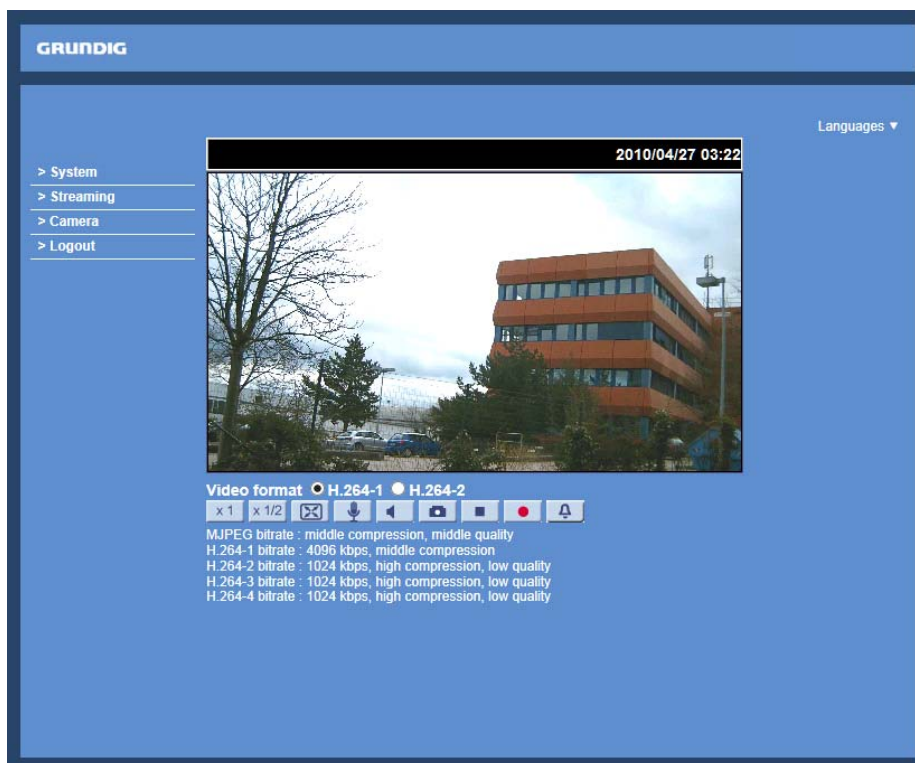
Step 2: Setup starts. Please wait for a while until the loading bar runs out.



Step 3: Click on "Finish" to close the GRUNDIG Viewer installation page.



Then, the IP Camera's Home page will be displayed as follows:



NOTE: Please note that the function buttons may vary depending on the camera model.

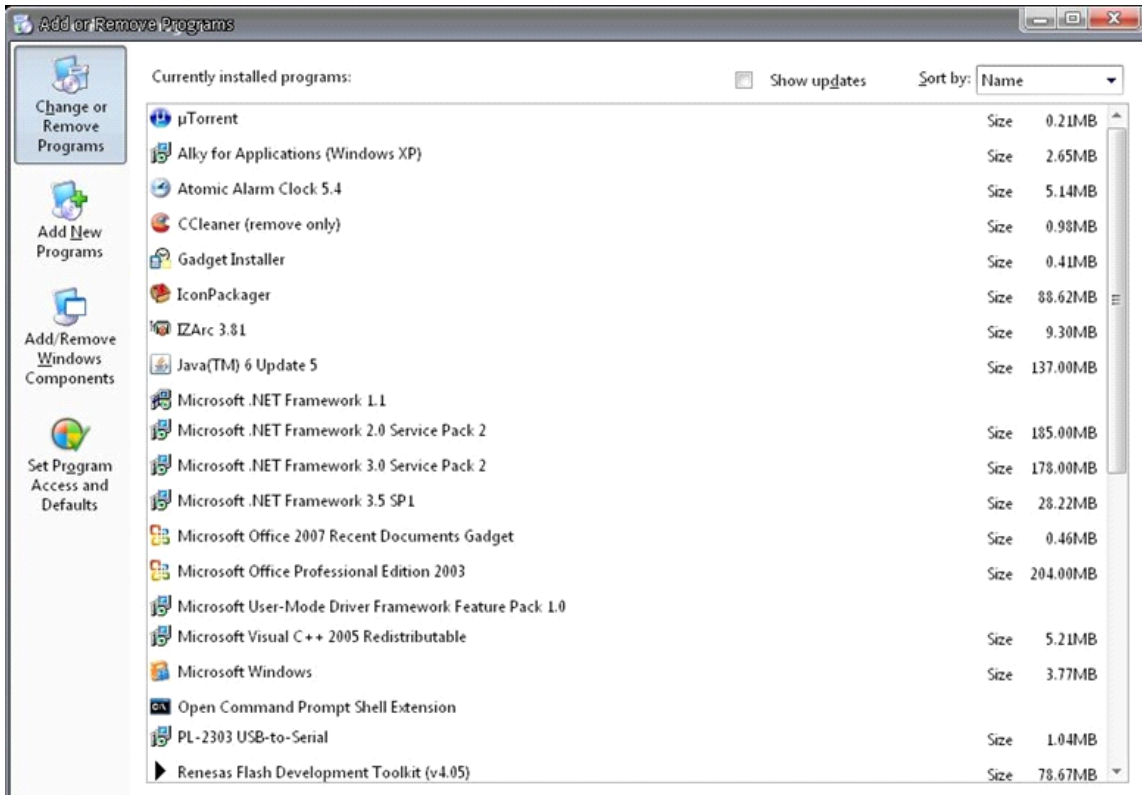
16. Install UPnP Components

Please follow the instructions below to install UPnP components. (The procedure is for Windows XP, for other systems please refer to the corresponding manuals.)

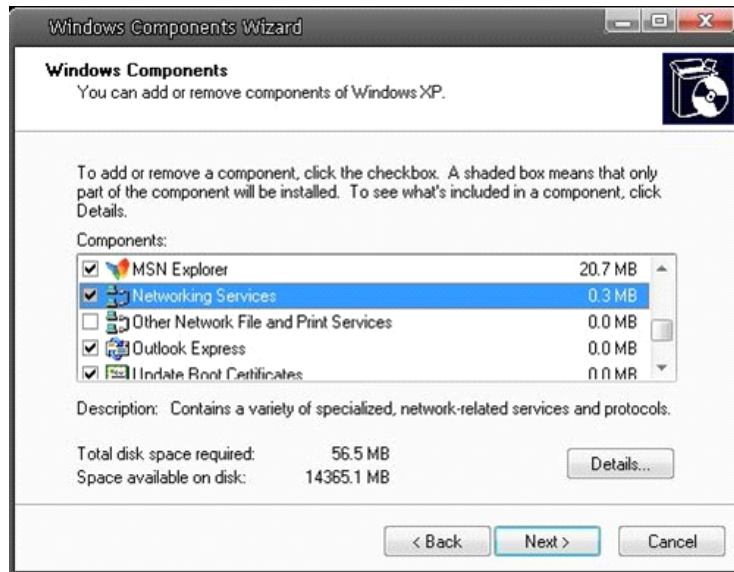
Step 1: Go to “Start”, click on “Control Panel”, and then double-click on “Add or Remove Programs”.



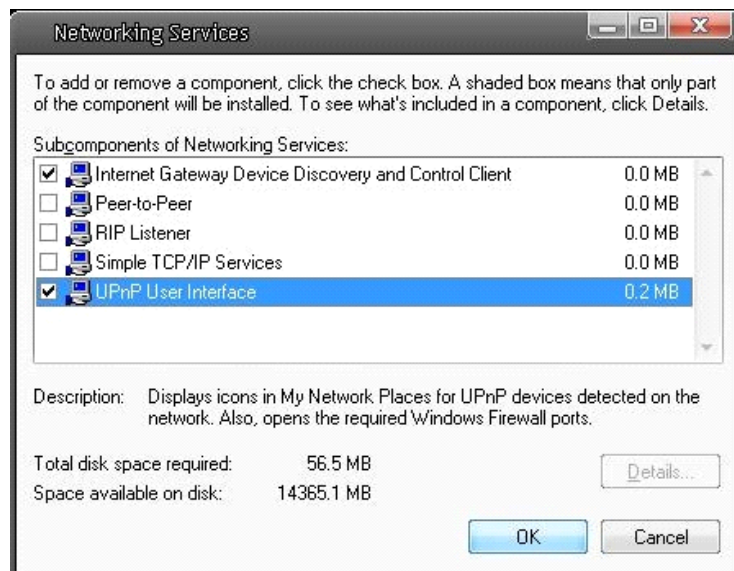
Step 2: Click on “Add/Remove Windows Components” in the Add or Remove Programs page.



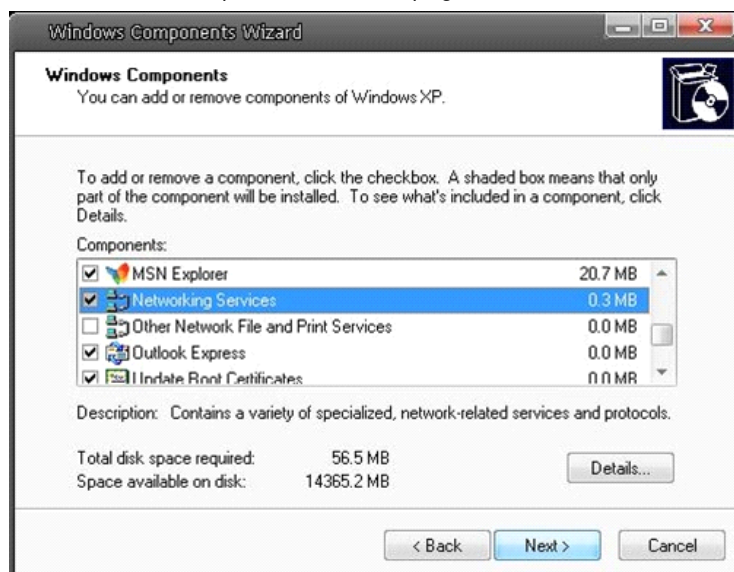
Step 3: Select "Networking Services" from the Components list in the Windows Components Wizard window, and then click on "Details".



Step 4: Select "UPnP User Interface" in the Networking Services' subcomponents list and then click on "OK".



Step 5: Click on "Next" in the Windows Components Wizard page.



Step 6: Click on "Finish" to complete the installation.

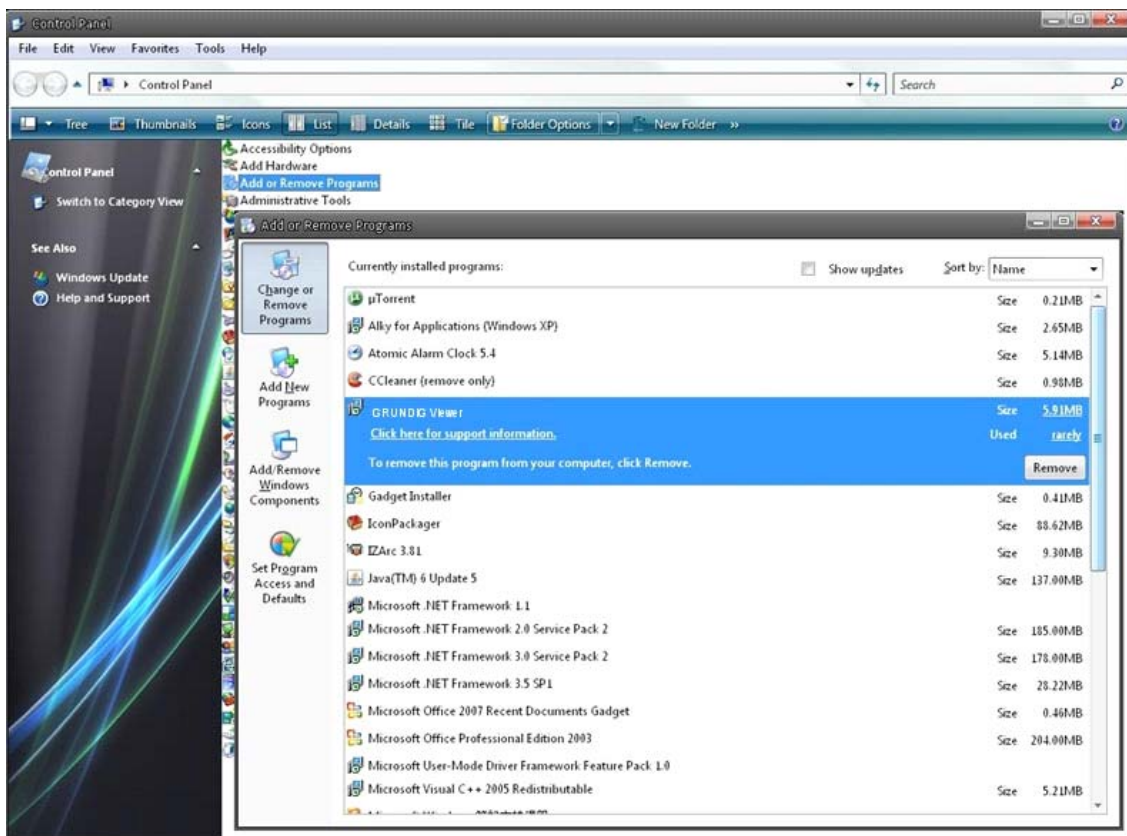


17. Deleting the Existing GRUNDIG Viewer

Users who have installed the GRUNDIG Viewer for 1.3 Megapixel Series IP Cameras on the PC need to delete the existing GRUNDIG Viewer first from the PC before accessing this IP Camera.

Deleting the GRUNDIG Viewer :

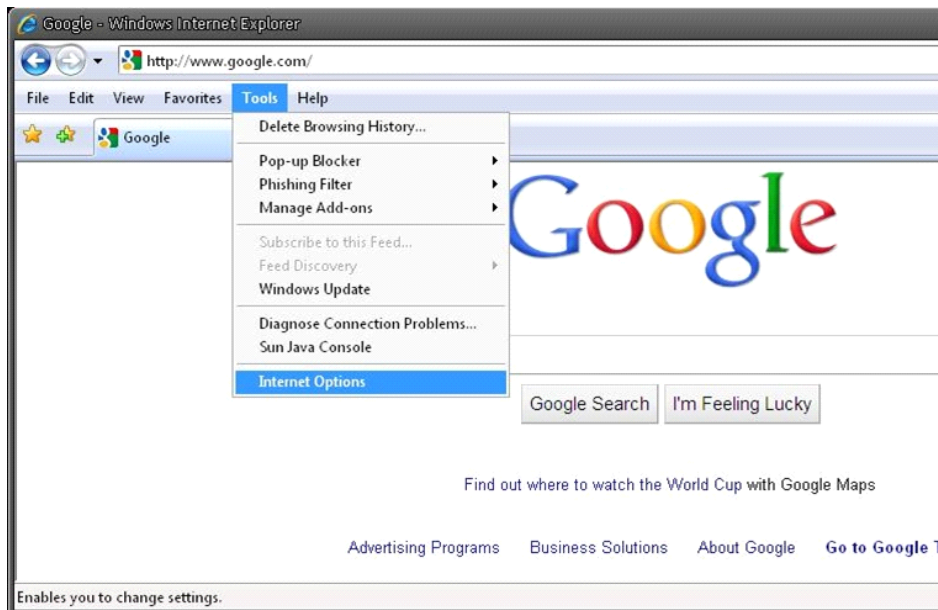
Click on "Control Panel", and then click on "Add or Remove Programs". In the "Currently installed programs" list, select "GRUNDIG Viewer" and click the button "Remove" to uninstall the existing GRUNDIG Viewer as shown in the figure below.



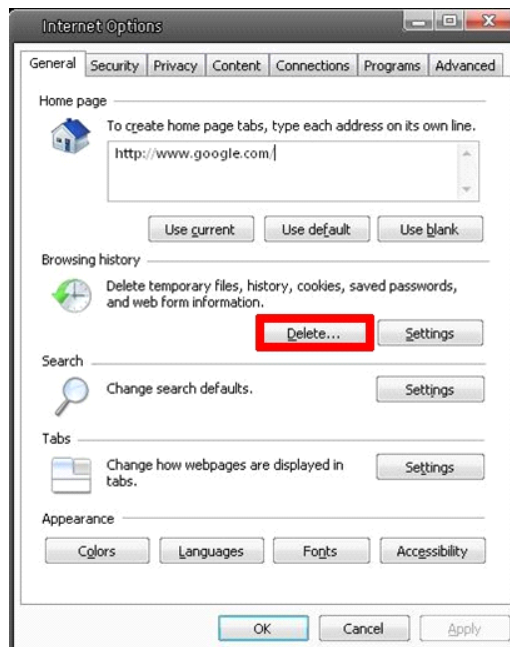
Deleting Temporary Internet Files :

To improve the browser performance, it is suggested to clean up all the files in the Temporary Internet Files. The procedure is as follows (for other web browsers please read the corresponding manuals):

STEP 1: Click on the "Tools" tab and select the option "Internet Options".



STEP 2: Click on "Delete" in the first pop-up window. Then tap "Delete Files" in the "Temporary Internet files" section in the next pop-up window.



Specifications GCI-F1576V

Image Sensor	1/2.8" Sony Exmor™ CMOS, 3 Megapixels
Pixels - Total	2048 (H) x 1536 (V)
Digital Signal Processor (DSP)	Ambarella A5S
Sensitivity Colour	0.5 Lux@F1.2 (IRE50), 0.2 Lux@F1.2 (IRE30)
Sensitivity B&W	0.1 Lux@F1.2 (IRE50), 0.02 Lux@ F1.2 (IRE30)
Col/B&W	On/Off/Auto, IR-cut filter removable (ICR)
Lens Focal Length	3 ~ 9 mm
Optical Zoom	3x
Digital Zoom	Off ~ 8x
Iris F-Number	F= 1.2 ~ 360
Lens Drive Type	Tamron® Auto-Focus-Zoom Module, P-Iris
Focus Adjustment	Auto, Manual
Wavelength	850nm
Shutter Speed	1 ~ 1/10.000 sec
WDR	75dB (Digital Wide Dynamic Range) Off/Low/Middle/High
BLC: Back Light	On/Off
White Balance	ATW, AWB, Manual
Digital Noise Reduction (DNR)	On/off 2D/3D Noise Filter
D&N Switching Mode:	Light Sensor (Auto with LED), Light ON, Light OFF, SMART, Auto, Night, Day
Alarm Input	On, Off, by Schedule
Motion Detection	On, Off, by Schedule
Tampering Alarm	On, Off, by Schedule
Time Lapse:	Off, On (60~3600s)
Manual Trigger:	On, Off
Audio detection	Off, On
Schedule:	Daily, Weekly, Start Time and Duration
Camera ID	20 character
Reverse	Flip, Mirror, Vertical Mode (90°clockwise,90° counter clockwise), 180°
Privacy zones	5
Privacy Zone Typ:	rectangle, Color selection
Network	10/100Mbps
Alarm Event	Alarm Input, Motion Detection or Schedule: Image Transfer or Alarm Message by FTP, Image Transfer or Alarm Message by E-mail, Recording on SD-Card, enable Alarm Output and send HTTP Notification
Video Compression	H.264 (MPEG-4Part 10/AVC), MJPEG
ONVIF compliant	Profile S
Video Streaming	Quad stream: 4xH.264 or 3xH.264+MJPEG Triple: 3xH.264 or 2xH.264+MJPEG Dual: 2xH.264 or H.264+MJPEG Single: H.264 or MJPEG
Video Resolution	H.264:3MP(2048x1536)/Full HD 1080p/SXGA/HD 720p/XGA/SVGA/4CIF/VGA/CIF MJPEG: Full HD 1080p/SXGA/HD 720p/XGA/SVGA/4CIF/VGA/CIF
Frame Rate (Max@Resolution):	15fps@3MP, 25fps@2MP, 25fps@1,3MP, etc.
Streaming Method:	Unicast, Multicast
Audio Compression	G.726, G.711
Audio Communication	Bi-directional
Audio Input/Output	Line In/Line Out (two way Audio)
Alarm Inputs	1 (5V, 10KΩ)
Alarm Outputs	1 (max.300VDC/AC, 39W)
Access protection	By log-in and Password, IP filter, IEEE802.1x
Number of Clients	Up to 20 simultaneously

Micro SDHC memory:	Supports up to 32GB
Recording Types:	on Micro SD/SDHC CARD: Single Image Recording (JPEG), Video(AVI, LCK) on NAS: Video (AVI)
NAS Recording:	Yes
Web Browser	MS Internet Explorer 6.0 (or higher), Firefox, Google Chrome, Safari, Access over Mobile Devices
Network Protocol	IPv4/v6, TCP/IP, UDP, RTP, RTSP, HTTP, HTTPS, DHCP, PPPoE, UPnP, SMTP, ICMP, IGMP, SNMP, IEEE802.1x, QoS, ONVIF, FTP, ARP
Firmware Upgrade	by Web Browser or Grundig finder from ver.1.17
Configuration	Over Remote PC
Multi Language Webpage:	English, German, French, Italian, Russian, Turkish
LED Indicator	Power, link, active
Video Outputs	1Vpp, BNC
Input/Output sockets	Video Out(BNC), Power 4-Pin Terminal Block (2 Pin VDC, 2 Pin VAC), RJ-45, Micro SDHC Card Slot, Terminal 9 Pin(Alarm IN 2Pin, Alarm OUT 2Pin, Audio IN L/R 2 PIN, AUDIO OUT 2 PIN L/R, Audio GND 1 PIN)
Network Security	User/password, IP-Filter, https, IEEE802.1x
Protection Rating	IP66 / IK10
Operating Temperature	-25°C ~ +55°C
Humidity	10 ~ 90% no condensation
Regulation	CE, FCC, RoHS Compliant
Supply Voltage	12 VDC / 24 VAC / PoE IEEE 802.3af
Power Consumption	12 (LED on) W
Weight	1 kg
Dimensions (wxhxd)	Ø 151 x 131 mm

Specifications GCI-F1576VH

Operating Temperature	-40°C ~ +55°C
Humidity	10 ~ 90% no condensation
Regulation	CE, FCC, RoHS Compliant
Supply Voltage	12 VDC / 24 VAC / PoE IEEE 802.3at
Power Consumption	20 (LED on) W
Weight	0.8 kg
Dimensions (wxhxd)	Ø 151 x 131 mm

EC Declaration of Conformity



GCI-F1576V 3 MP Full HD VF Dome IP-Camera 3~9mm
AFZ Modul/P-Iris Lens ICR IR 24LED
GCI-F1576VH 3 MP Full HD VF Dome IP-Camera 3~9mm
AFZ Modul/P-Iris Lens ICR IR 24LED

It is hereby certified that the products meet the standards in
the following relevant provisions:
EC EMC Directive 2004/108/EC

Applied harmonised standards and technical specifications:
Measurement Procedure EMI:
AS/NZS CISPR 22: 2009, EN55022 CLASS A: 2010,
EN61000-3-2: 2006 + A1: 2009 + A2: 2009, EN61000-3-3: 2008
Measurement Procedure EMS:
AS/NZS CISPR 24: 2009, EN 50130-4: 1995 + A1: 1998 + A2:
2003, IEC/EN 61000-4-2: 2008, IEC/EN 61000-4-3: 2006 + A1:
2008 + A2: 2010, IEC/EN 61000-4-4: 2004 + A1: 2010, IEC/EN
61000-4-5: 2005, IEC/EN 61000-4-6: 2008, IEC/EN 61000-4-8:
2009, IEC/EN 61000-4-11: 2004

ASP AG

Lüttringhauser Str. 9
42897 Remscheid
Germany

GRUNDIG

Remscheid, 13.11.2014

Ludwig Bergschneider
CEO