

WISENET

NETWORK CAMERA

User Manual

QNF-8010
QNF-9010



Network Camera

User Manual

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Disclaimer

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❖ Design and specifications are subject to change without prior notice.

❖ The initial administrator ID is "admin" and the password should be set when logging in for the first time.

Please change your password every three months to safely protect personal information and to prevent the damage of the information theft.

Please, take note that it's a user's responsibility for the security and any other problems caused by mismanaging a password.

IMPORTANT SAFETY INSTRUCTIONS

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean the contaminated area on the product surface with a soft, dry cloth or a damp cloth. (Do not use a detergent or cosmetic products that contain alcohol, solvents or surfactants or oil constituents as they may deform or cause damage to the product.)
7. Do not block any ventilation openings, Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13. Unplug this apparatus during lighting storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. This product is intended to be supplied by a Listed Power Supply Unit marked "Class 2" or "LPS" and rated from PoE(48V), 0.14A. (QNF-8010)
16. This product is intended to be supplied by a Listed Power Supply Unit marked "Class 2" or "LPS" and rated from PoE(48V), 0.17A. (QNF-9010)
17. This product is intended to be supplied by isolation power.
18. If you use excessive force when installing the product, the camera may be damaged and malfunction. If you forcibly install the product using non-compliant tools, the product may be damaged.
19. Do not install the product in a place where chemical substances or oil mist exists or may be generated. As edible oils such as soybean oil may damage or warp the product, do not install the product in the kitchen or near the kitchen table. This may cause damage to the product.
20. When installing the product, be careful not to allow the surface of the product to be stained with chemical substance. Some chemical solvents such as cleaner or adhesives may cause serious damage to the product's surface.
21. If you install/disassemble the product in a manner that has not been recommended, the production functions/performance may not be guaranteed. Install the product by referring to "Installation & connection" in the user manual.
22. Installing or using the product in water can cause serious damage to the product.



WARNING

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE. DO NOT INSERT ANY METALLIC OBJECT THROUGH THE VENTILATION GRILLS OR OTHER OPENINGS ON THE EQUIPMENT.

Apparatus shall not be exposed to dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on the apparatus.

To prevent injury, this apparatus must be securely attached to the Wall/ceiling in accordance with the installation instructions.

CAUTION



EXPLANATION OF GRAPHICAL SYMBOLS



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



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

Class I construction

An apparatus with CLASS I construction shall be connected to a MAINS socket outlet with a protective earthing connection.

Battery

Batteries(battery pack or batteries installed) shall not be exposed to excessive heat such as sunshine, fire or the like.

The battery cannot be replaced.

Disconnection Device

Disconnect the main plug from the apparatus, if it's defected. And please call a repair man in your location.

When used outside of the U.S., it may be used HAR code with fittings of an approved agency is employed.

CAUTION

RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE.
DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.

ATTENTION

IL Y A RISQUE D'EXPLOSION SI LA BATTERIE EST REMPLACÉE PAR UNE BATTERIE DE TYPE INCORRECT.
METTRE AU REBUT LES BATTERIES USAGÉES CONFORMÉMENT AUX INSTRUCTIONS.

These servicing instructions are for use by qualified service personnel only.

To reduce the risk of electric shock do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.

The VIDEO out terminal of the product is provided for easier installation, and is not recommended for monitoring purposes.

Please use the input power with just one camera and other devices must not be connected.

The ITE is to be connected only to PoE networks without routing to the outside plant.

The wired LAN hub providing power over the Ethernet (PoE) in accordance with IEEE 802-3af shall be a UL Listed device with the output evaluated as a Limited Power Source as defined in UL60950-1.

Unit is intended for installation in a Network Environment 0 as defined in IEC TR 62102. As such, associated Ethernet wiring shall be limited to inside the building.

Please read the following recommended safety precautions carefully.

- Do not place this apparatus on an uneven surface.
- Do not install on a surface where it is exposed to direct sunlight, near heating equipment or heavy cold area.
- Do not place this apparatus near conductive material.
- Do not attempt to service this apparatus yourself.
- Do not place a glass of water on the product.
- Do not install near any magnetic sources.
- Do not block any ventilation openings.
- Do not place heavy items on the product.
- Please wear protective gloves when installing/removing the camera.
The high temperature of the product surface may cause a burn.

User's Manual is a guidance book for how to use the products.

The meaning of the symbols are shown below.

- Reference : In case of providing information for helping of product's usages
 - Notice : If there's any possibility to occur any damages for the goods and human caused by not following the instruction
- ※ Please read this manual for the safety before using of goods and keep it in the safe place.

We do not guarantee the quality of third-party products (e.g. lenses, accessories) that you separately purchase.

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RECOMMENDED PC SPECIFICATIONS

- CPU : Intel(R) Core(TM) i7 3.4 GHz or higher
 - RAM : 8G or higher
 - Supported OS : Windows 7, 8.1, 10, Mac OS X 10.12, 10.13, 10.14
 - Recommended browser : Google Chrome
 - Supported browsers : MS Explore11, MS Edge, Mozilla Firefox(Window 64bit only), Apple Safari(Mac OS X only)
 - VGA : PCIe 256MB GDDR3 video graphics card or higher
- ※ Some functions may be restricted even in supported browsers.

RECOMMENDED MICRO SD/SDHC/SDXC MEMORY CARD SPECIFICATIONS

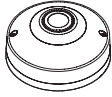




- Recommended capacity : 16GB to 256GB (MLC type)
- Recommended Manufacturers : SanDisk, Transcend
- Product Type : High endurance
- The compatibility varies depending on the card manufacturers and types.

NAS RECOMMENDED SPECS

- Recommended capacity : 200GB or higher is recommended.
- For this camera, you are recommended to use a NAS with the following manufacturer's specs.
Recommended products : QNAP NAS, Synology NAS

WHAT'S INCLUDED

Please check if your camera and accessories are all included in the product package.
(As for each sales country, accessories are not the same.)

Appearance	Item Name	Quantity	Description
	Camera	1	
	Quick Guide (Optional)	1	
	Cable for the testing monitor	1	Used to test the camera connection to a portable display device
	Template	1	Product installation guide
	L Wrench	1	To remove/fix the cover top

Optional Accessories for Installation

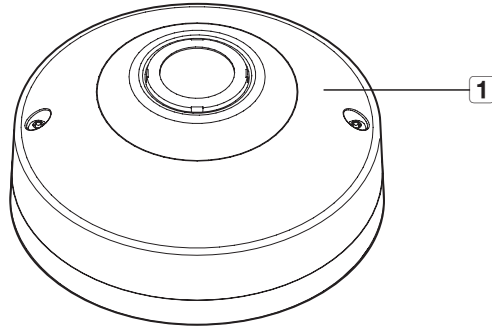
For your easier installation, you can purchase appropriate optional accessories available.



Model name	Wall Mount
QNF-8010, QNF-9010	SBP-120WMW

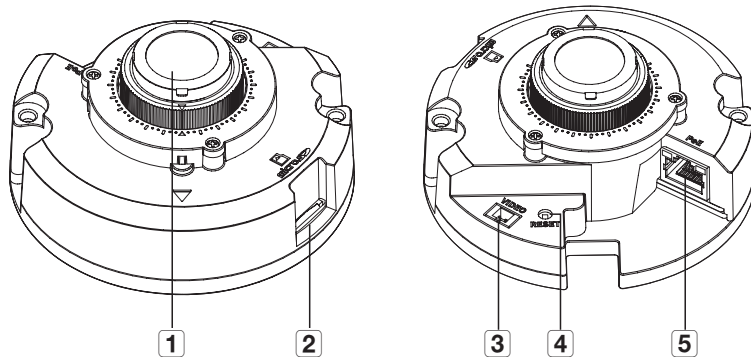
AT A GLANCE

Appearance

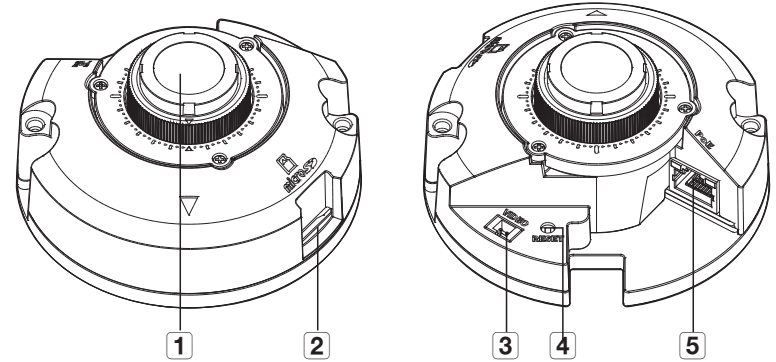


Item	Description
1 Cover top	Case cover used to protect the lens and the main unit.

Inside (QNF-8010)



(QNF-9010)



Item	Description
1 Fisheye lens	This lens has 360° vision and it can record video panoramically.
2 Micro SD Memory Card Compartment	Compartment for the Micro SD memory card.
3 Video Out	Output port for test monitoring the video output. Use the test monitor cable to connect to a mobile display and check the test video.
4 Reset Button	The button restores all camera settings to the factory default. Press and hold for about 5 seconds to reboot the system. ! If you reset the camera, the network settings will be adjusted so that DHCP can be enabled. If there is no DHCP server in the network, you must run the Device Manager program to change the basic network settings such as IP address, Subnet mask, Gateway, etc., before you can connect to the network.
5 PoE Connector	Connects to the network and supplies power through Ethernet cable.

INSTALLATION


Precautions before installation

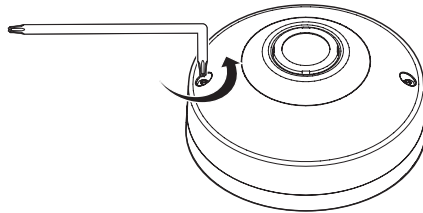
Ensure you read out the following instructions before installing the camera:

- Select an installation site that can hold at least 5 times the camera's weight.
- Stuck-in or peeled-off cables can cause damage to the product or a fire.
- For safety purposes, keep anyone else away from the installation site. And put aside personal belongings from the site, just in case.

Disassembling

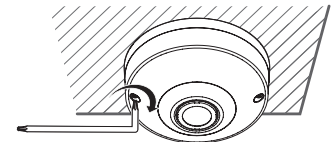
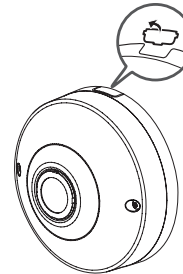
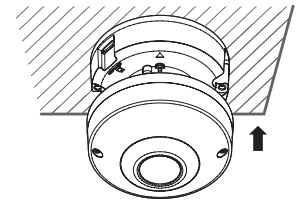
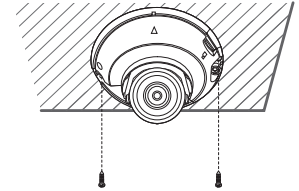
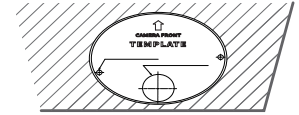
1. Peel off the protective film from the lens.
2. Using the L-wrench provided, loosen 2 screws by turning them counterclockwise and separate the cover top.
 - Note that it is not necessary to loosen the screws completely.

-  ▪ After removing the protective film, do not touch the lens.

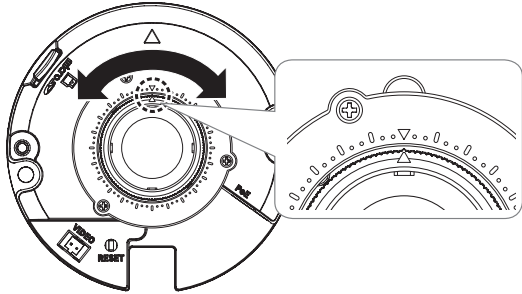


Installing the camera on the ceiling or a wall

1. Consider the direction to be monitored, attach the template, and drill holes by following the template.
 - Set the mark imprinted on the camera to face the direction of camera monitoring.
2. Using 2 tapping screws, fix the camera at 2 holes drilled with a template.
3. Connect the camera internal terminal with the corresponding cable.
4. Adjust the lens in a desired direction by referring to the "Adjusting the monitoring direction for the camera" section. (page 9)
5. Close the cover top and turn it clockwise using the L-wrench.
 - If necessary, use it after removing the wire hole cover on the side of the cover top.



Adjusting the monitoring direction for the camera



▪ Adjusting the monitoring direction

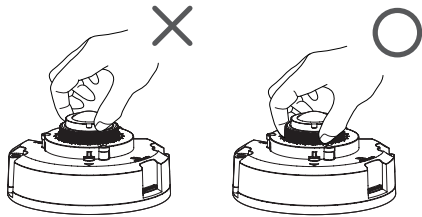
You can adjust the camera direction only when the camera is fixed on the ceiling. Where, Turning the lens on its axis is called Rotation.

- The effective range of rotation is a total of ± 180 degrees.

▪ Methods of adjustment

To adjust the camera direction, grab the lens holder and turn it while looking at the direction display.

- ! ▪ To adjust the camera monitoring direction, grab the lens holder and turn it. If you grab the lens to adjust the direction, the focus could be out or fingerprints could remain on the surface.

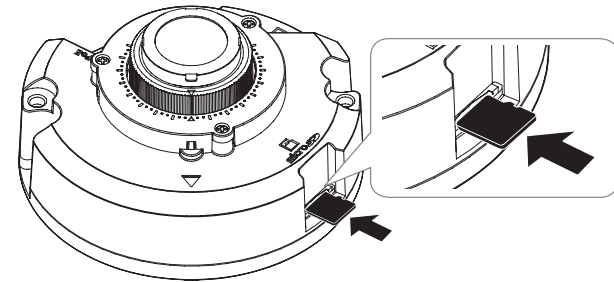


INSERTING/REMOVING A MICRO SD MEMORY CARD

- ! ▪ Disconnect the power cable from the camera before inserting the Micro SD memory card.
- Do not insert the Micro SD memory card while it's upside down by force. Otherwise, it may damage the Micro SD memory card.
- When it rains or the humidity is high, insertion or ejection of a Micro SD card is not recommended.

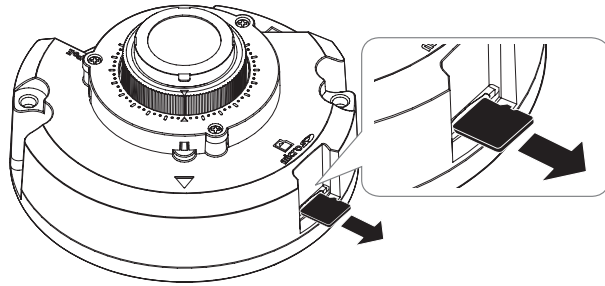
Inserting a Micro SD Memory Card

1. Separate the cover top of the camera.
2. Insert a Micro SD card in the arrow direction shown in the figure.



Removing a Micro SD Memory Card

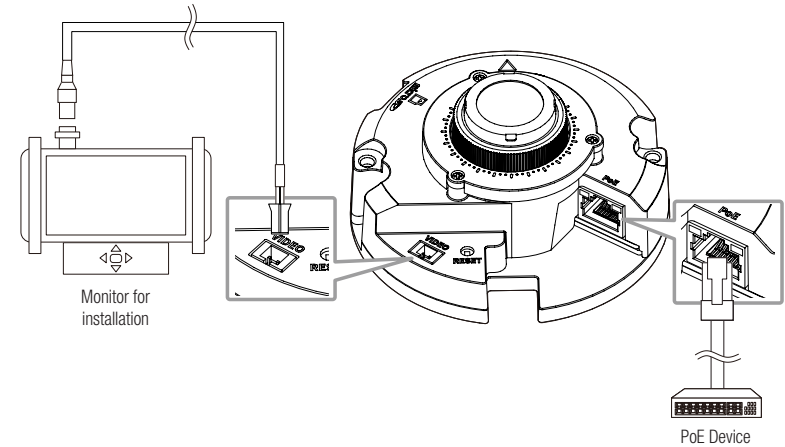
Gently press down on the exposed end of the memory card as shown in the diagram to eject the memory card from the slot.



- ! Before removing the Micro SD memory card, in <Storage>, set the device to <Off> and press the [Apply] button and turn the camera off.
- If you turn off the camera or remove the Micro SD memory card that contains data from the product, the data may be lost or damaged.

POWERING AND NETWORKING

Connect the PoE device and camera's PoE connectors.



- ! The VIDEO out terminal of the product is provided for easier installation, and is not recommended for monitoring purposes.
- Connect to a PoE (Power over Ethernet) enabled router's PoE connector.
- Use PoE (Power over Ethernet) that is compliant with the IEEE802.3af protocols.

Network Cable Specification

Item	Contents	Remark
Connector	RJ45 (10/100BASE-T)	
Ethernet	10/100BASE-T	
Cable	Category 5e	
Max Distance	100M	DC Resistance $\leq 0.125 \Omega/m$
PoE Support	IEEE 802.3af	

- ⚡ If you use a cable other than Category 5e standards, 100m of transmission distance is not guaranteed.

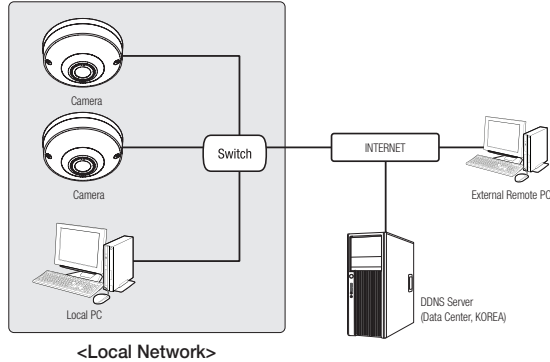
network connection and setup

You can set up the network settings according to your network configurations.

CONNECTING THE CAMERA DIRECTLY TO LOCAL AREA NETWORKING

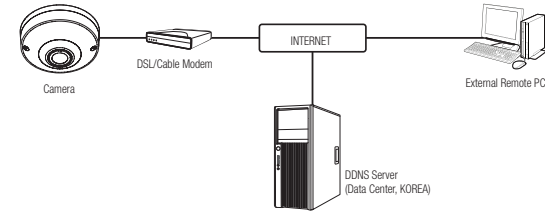
Connecting to the camera from a local PC in the LAN

1. Launch an Internet browser on the local PC.
2. Enter the IP address of the camera in the address bar of the browser.



- A remote PC in an external Internet out of the LAN network may not be able to connect to the camera installed in the intranet if the port-forwarding is not properly set or a firewall is set. In this case, to resolve the problem, contact your network administrator.
- By factory default, the IP address will be assigned from the DHCP server automatically. If there is no DHCP server available, the IP address will be set to 192.168.1.100. To change the IP address, use the Device Manager. For further details on Device Manager use, refer to "Using Device Manager". (Page 12)

CONNECTING THE CAMERA DIRECTLY TO A DHCP BASED DSL/CABLE MODEM



1. Connect the user PC directly with the network camera.
2. Run the Device Manager and change the IP address of the camera so that you can use the web browser on your desktop to connect to the Internet.
3. Use the Internet browser to connect to the web viewer.
4. Move to [Setup] page.
5. Move to [Network] – [DDNS] and configure the DDNS settings.
6. Move to [Basic] – [IP & Port], and set the IP type to [DHCP].
7. Connect the camera, which was removed from your PC, directly to the modem.
8. Restart the camera.

- For information on how to set DDNS, refer to the online help of Web Viewer.
- For information on how to set the IP format, refer to the online help of Web Viewer.

USING DEVICE MANAGER

- Device manager program can be downloaded from <Technical Guides>-<Online Tool> menu at Hanwha Techwin website (<http://www.hanwha-security.com>).
- More instructions of Device Manager can be found at <Help> menu of the main page.

AUTOMATICALLY SEARCHING CAMERA

If a camera is connected to the same network of the PC where device manager is installed, you can find network camera by using search function.

1. Click <Search> at the main page of device manager.
2. Check the camera from the list.
 - Check MAC address at the sticker attached to the camera.

CONFIGURING IP ADDRESS

If you want to change camera network setting, <Login OK> sign must be displayed at <Status>. Click <Authentication> at the main page to log in.

Configuring Static IP

Manually insert and configure IP address & port information.

1. Click the camera from the list that you want the change the IP setting.
2. Click <IP Assign> at the main page of device manager.
3. Select <Assign the following IP address>.
 - IP information of the camera will be displayed as previously set.
4. Fill in IP & Port related categories.

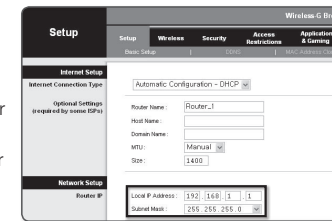
If not using a Broadband Router

For setting <IP Address>, <Subnet Mask>, and <Gateway>, contact your network administrator.

- HTTP Port : Used to access the camera using the Internet browser, defaulted to 80.
- RTSP Port: A port that controls real-time streaming. The initial value is 554.

If using a Broadband Router

- IP Address : Enter an address falling in the IP range provided by the Broadband Router.
ex) 192.168.1.2~254, 192.168.0.2~254, 192.168.XXX.2~254
- Subnet Mask : The <Subnet Mask> of the Broadband Router will be the <Subnet Mask> of the camera.
- Gateway : The <Local IP Address> of the Broadband Router will be the <Gateway> of the camera.



- The settings may differ depending on the connected Broadband Router model. For more information, refer to the user manual of the applicable router.
- For more information about port forwarding of the broadband router, refer to "Port Range Forward (Port Mapping) Setup". (Page 14)

If the Broadband Router has more than one camera connected

Configure the IP related settings and the Port related settings distinctly with each other.

ex)

	Category	Camera #1	Camera #2
IP related settings	IP Address	192.168.1.100	192.168.1.101
	Subnet Mask	255.255.255.0	255.255.255.0
	Gateway	192.168.1.1	192.168.1.1
Port related settings	HTTP Port	8080	8081
	RTSP Port	554	555

- If the <HTTP Port> is set other than 80, you must provide the <Port> number in the address bar of the Internet browser before you can access the camera.
ex) http://IP address : HTTP Port
http://192.168.1.100:8080

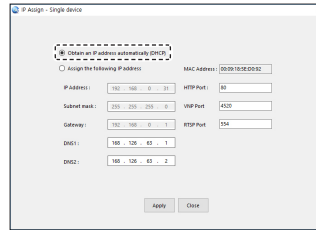
5. Click [Apply] Button.
6. If the success message is displayed, click [OK].

Configuring Dynamic IP

Receive IP address from DHCP

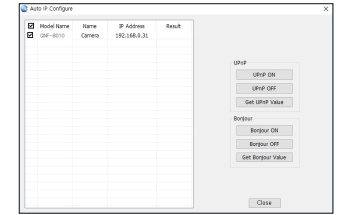
- Example of the Dynamic IP environment
 - If a Broadband Router, with cameras connected, is assigned an IP address by the DHCP server
 - If connecting the camera directly to modem using the DHCP protocols
 - If IPs are assigned by the internal DHCP server via the LAN

1. Click the camera from the list that you want to change the IP setting.
2. Click **<IP Assign>** at the main page of device manager.
3. Select **<Obtain an IP address automatically (DHCP)>**.
4. Click **[Apply]** button.
5. If the success message is displayed, click **[OK]**.



AUTOMATICALLY CONFIGURING IP

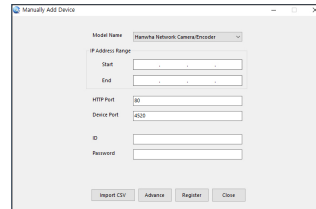
1. Click the camera from the list that you want to automatically configure the IP.
2. Click **<+ >** at the main page of device manager.
 - Equipment Setting menu appears.
3. At the menu, click **<Auto IP Configure>**.
4. Click **[Close]** button.



MANUALLY REGISTERING CAMERA

If the camera cannot be found using search function, the camera can be registered remotely by manually inserting IP information, if the camera is connected to external network.

1. Click **<Add Devices>** - **<Manually Add Device>** at the main page of device manager.
2. Insert the range of IP address that you search.
3. Select the **<Model Name>** of the camera that you register, and insert HTTP port, ID, and password.
4. Click **[Register]** button.
5. Check if camera is registered.
 - Check MAC address at the sticker attached to the camera.

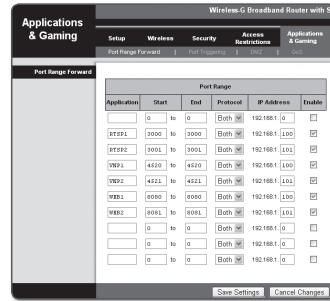


PORT RANGE FORWARD (PORT MAPPING) SETUP

If you have installed a Broadband Router with a camera connected, you must set the port range forwarding on the Broadband Router so that a remote PC can access the camera in it.

Manual Port Range Forwarding

- From the Setup menu of the Broadband Router, select <Applications & Gaming> - <Port Range Forward>. For setting the port range forward for a third-party Broadband Router, refer to the user guide of that Broadband Router.
- Select <TCP> and <UDP Port> for each connected camera to the Broadband Router.
The number of each port to be configured to the IP router should be set according to the port number designated in <Setup> - <Basic> - <IP & Port> on the camera web viewer.
- When done, click [Save Settings].
Your settings will be saved.

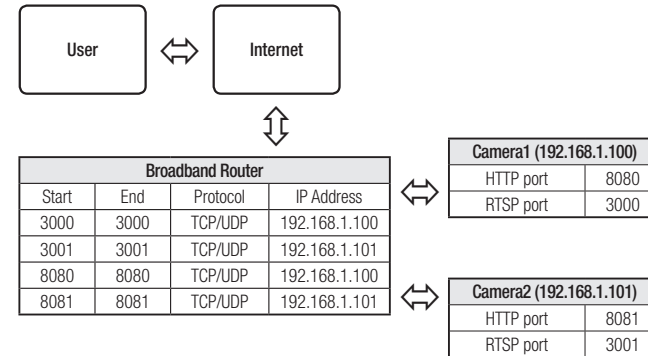


- Port forwarding setting is an example of setting CISCO IP router.
- The settings may differ depending on the connected Broadband Router model.
For more information, refer to the user manual of the applicable router.

Setting up Port Range Forward for several network cameras

- You can set a rule of Port Forwarding on the Broadband Router device through its configuration web page.
- A user can change each port using the camera setting screen.

When Camera1 and Camera2 are connected to a router :



- Port forwarding can be done without additional router setup if the router supports the UPnP (Universal Plug and Play) function.
After connecting the network camera, select the checkbox from the menu <Quick connect> in <Wisenet DDNS> in "Settings -> Network -> DDNS".

CONNECTING TO THE CAMERA FROM A SHARED LOCAL PC

1. Run device manager.
It will scan for connected cameras and display them as a list.
2. Double-click a camera to access.
The Internet browser starts and connects to the camera.



- Access to the camera can also be gained by typing the camera's IP address in the address bar of the Internet browser.

CONNECTING TO THE CAMERA FROM A REMOTE PC VIA THE INTERNET

On a remote computer that is not in the Broadband Router's network cluster is not allowed, users can access cameras within a Broadband Router's network by using the camera's DDNS URL.

1. Before you can access a camera in the Broadband Router network, you should have set the port range forward for the Broadband Router.
2. From the remote PC, launch the Internet browser and type the DDNS URL address of the camera, or the IP address of the Broadband Router in the address bar.
ex) <http://ddns.hanwha-security.com/ID>

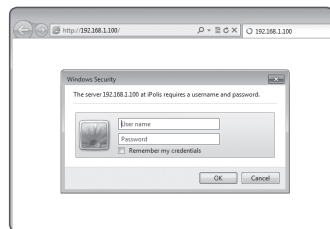


- To use Wisenet DDNS, sign up at the Wisenet DDNS homepage (<http://ddns.hanwha-security.com>) and register the product at **[My DDNS]>[Register Product]**.

CONNECTING TO THE CAMERA

Normally, you would

1. Launch the Internet browser.
2. Type the IP address of the camera in the address bar.
 - ex) • IP address (IPv4) : 192.168.1.100 → http://192.168.1.100
 - the Login dialog should appear.
 - IP address (IPv6) : 2001:230:abcd:ffff:0000:0000:ffff:1111 → http://[2001:230:abcd:ffff:0000:0000:ffff:1111] - the Login dialog should appear.



If the HTTP port is other than 80

1. Launch the Internet browser.
2. Type the IP address and HTTP port number of the camera in the address bar.
 - ex) IP address : 192.168.1.100:HTTP Port number(8080)
 - http://192.168.1.100:8080 - the Login dialog should appear.

Using URL

1. Launch the Internet browser.
2. Type the DDNS URL of the camera in the address bar.
 - ex) URL address : http://ddns.hanwha-security.com/ID
 - the Login dialog should appear.



- Network connection is disabled in the LAN only environment.

Connecting via UPnP

1. Run the client or operating system in support of the UPnP protocol.
2. Click the camera name for search.
 - In the Windows operating system, click the camera name searched from the network menu.
 - The login window is displayed.

Connecting via Bonjour

1. Run the client or operating system in support of the Bonjour protocol.
2. Click the camera name for search.
 - In the Mac operating system, click the camera name searched from the Bonjour tab of Safari.
 - The login window is displayed.

To check the DDNS address

If the camera is connected directly to the DHCP cable modem, DSL modem, the IP address of your network will be changed each time you try to connect to the ISP (Internet Service Provider) server. If this is the case, you will not be informed of the IP address changed by DDNS.

Once you register a dynamic IP-based device with the DDNS server, you can easily check the changed IP when you try to access the device.

To register your device to the <DDNS> server, visit <http://ddns.hanwha-security.com> and register your device first, and then set the Web Viewer's <Network> - <DDNS> to <Wisenet DDNS>, as well as providing <Product ID> that had been used for DDNS registration.

PASSWORD SETTING

When you access the product for the first time, you must register the login password.



- For a new password with 8 to 9 digits, you must use at least 3 of the following: uppercase/lowercase letters, numbers and special characters. For a password with 10 to 15 digits, you must use at least 2 types of those mentioned.
 - Special characters that are allowed: ~!@#\$\$%^&*()_+={}|[]?/
- For higher security, you are not recommended to repeat the same characters or consecutive keyboard inputs for your passwords.
- If you lost your password, you can press the **[RESET]** button to initialize the product. So, don't lose your password by using a memo pad or memorizing it.

LOGIN

Whenever you access the camera, the login window appears. Enter the User ID and password to access the camera.

- Enter "admin" in the <User name> input box. The administrator ID, "admin", is fixed and can not be changed.
- Enter the password in the <Password> input field.
- Click **[OK]**.
If you have logged in successfully, you will the Live Viewer screen.



- When you access the camera web viewer, pay special attention to the security by checking whether the image data is encrypted.



- If you check the "Remember my credentials" option when your input is done, in future you will be logged in automatically without being prompted to enter the login information.
- You will experience the best video quality if the screen size is 100%. Reducing the ratio may cut the image on the borders.

CAMERA WEB VIEWER SETUP

- Click the **[Setup (⚙️)]** icon.
- The Settings window appears.
- You can configure settings for the camera's basic information, video, audio, network, event, analysis, and system over the network.
- Click **<Help (🔗)>** to view detailed descriptions of each function.

SPECIFICATION

Items		Description
		QNF-8010
Video	Imaging Device	1/1.8" 6M CMOS
	Effective Pixels	2048(H) x 2048(V)
	Min. Illumination	Color : 0.2 Lux (F2.5, 1/30sec)
	Video Out	CVBS : 1.0 Vp-p / 75Ω composite, 720x480(N), 720x576(P), for Installation
Lens	Focal Length (Zoom Ratio)	1.14mm fixed focal
	Max. Aperture Ratio	F2.5
	Angular Field of View	H: 187° / V: 187° / D: 187°
	Min. Object Distance	0.3 m(0.98 ft)
Operational	Camera Title	Displayed up to 85 characters
	Day & Night	Auto (Electrical)
	Backlight Compensation	BLC, HLC, WDR, SDR
	Wide Dynamic Range	120 dB
	Digital Noise Reduction	SSNR V
	Motion Detection	8ea, polygonal zones
	Privacy Masking	6ea, Rectangle zones - Color : Gray / Green / Red / Blue / Black / White - Mosaic
	Gain Control	Low / Middle / High
	White Balance	ATW / AWC / Manual / Indoor / Outdoor
	Electronic Shutter Speed	Minimum / Maximum / Anti flicker(2~1/12,000sec)
	Digital PTZ	Support (Preset, Group)
	Video Rotation	Flip, Mirror
	Analytics	Defocus detection, Motion detection, Tampering

Items		Description
		QNF-8010
Operational	Business Intelligence	People counting, Heatmap
	Alarm Triggers	Analytics, Network disconnect
	Alarm events	<ul style="list-style-type: none"> File upload via FTP, E-Mail Notification via E-Mail SD/SDHC/SDXC or NAS recording at event triggers
Network	Ethernet	RJ-45 (10/100BASE-T)
	Video Compression	H.265/H.264: Main/Baseline/High, MJPEG
	Resolution	Original view : 2048x2048, 1280x1280, 1080x1080, 960x960, 768x768, 720x720, 640x640, 480x480 Single panorama : 2048x512, 1920x480, 1280x320, 640x160, 704x176 Double panorama : 2048x1024, 1920x960, 1280x640, 640x320, 704x352 Quad view : 2048x1536, 1600x1200, 1280x960, 1024x768, 800x600, 640x480, 704x576 Q1/2/3/4 : 1024x768, 800x600, 640x480
	Max. Framerate	H.264/H.265 : 30fps/25fps@2048x2048(60Hz/50Hz) MJPEG : Max 15fps
	Smart Codec	WiseStream II
	Video Quality Adjustment	H.264/H.265 : Target Bitrate Level Control MJPEG : Quality Level Control
	Bitrate Control	H.264/H.265 : CBR or VBR MJPEG : VBR
	Streaming	Multiple Streaming (Up to 3 Profiles)

Items	Description	
	QNF-8010	
Network	Protocol	IPv4, IPv6, TCP/IP, UDP/IP, RTP(UDP), RTP(TCP), RTCP, RTSP, NTP, HTTP, HTTPS, SSL/TLS, DHCP, FTP, SMTP, ICMP, IGMP, SNMPv1/v2c/v3(MIB-2), ARP, DNS, DDNS, QoS, PIM-SM, UPnP, Bonjour
	Security	HTTPS(SSL) Login Authentication Digest Login Authentication IP Address Filtering User access Log 802.1x Authentication (EAP-TLS, EAP-LEAP)
	Edge Storage	Micro SD/SDHC/SDXC 1slot 256 GB
	Application Programming Interface	ONVIF Profile S/G SUNAPI(HTTP API) Wisenet open platform
	Webpage Language	English, French, German, Spanish, Italian, Chinese, Korean, Russian, Japanese, Swedish, Portuguese, Czech, Polish, Turkish, Dutch, Hungarian, Greek
	Web Viewer	Supported OS: Windows 7, 8.1, 10, Mac OS X 10.12, 10.13, 10.14 Recommended Browser: Google Chrome Supported Browser: MS Explorer11, MS Edge, Mozilla Firefox(Window 64bit only), Apple Safari(Mac OS X only)
	Memory	1024 MB RAM, 256 MB Flash

Items	Description	
	QNF-8010	
Environmental	Operating Temperature / Humidity	-10°C ~ +55°C (+14°F ~ +131°F) / Less than 90% RH
	Storage Temperature / Humidity	-50°C ~ +60°C (-58°F ~ +140°F) / Less than 90% RH
	Certification	IP42
Electrical	Input Voltage	PoE(IEEE802.3af, Class3)
	Power Consumption	PoE: Max 6.4 W, Typical 4.6 W
Mechanical	Color / Material	White / Plastic
	RAL code	RAL9003
	Product dimensions / weight	Ø99x49 mm (Ø3.9x1.93"), 320 g (0.705 lb)

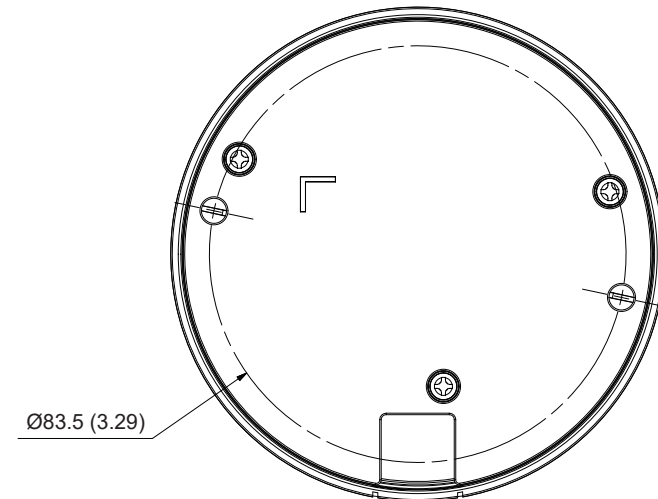
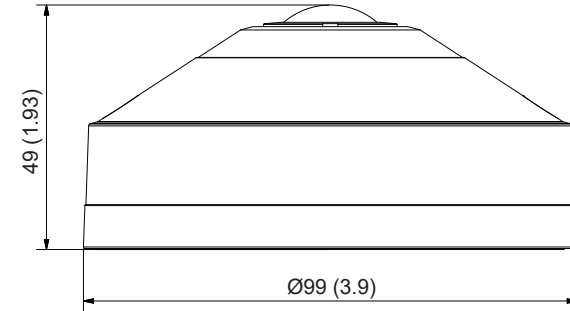
Items		Description
		QNF-9010
Video	Imaging Device	1/2.3" 12M CMOS
	Effective Pixels	3008(H) x 3008(V)
	Min. Illumination	Color: 0.39 Lux (F2.2, 1/30sec)
	Video Out	CVBS : 1.0 Vp-p / 75Ω composite, 720x480(N), 720x576(P), for Installation
Lens	Focal Length (Zoom Ratio)	1.08mm fixed focal
	Max. Aperture Ratio	F2.2
	Angular Field of View	H: 187° / V: 187° / D: 187°
	Min. Object Distance	0.5 m(1.64 ft)
Operational	Camera Title	Displayed up to 85 characters
	Day & Night	Auto (Electrical)
	Backlight Compensation	BLC, WDR, SSSDR
	Wide Dynamic Range	120 dB
	Digital Noise Reduction	SSNR V
	Motion Detection	4ea, polygonal zones
	Privacy Masking	6ea, Rectangle zones - Color : Gray / Green / Red / Blue / Black / White
	Gain Control	Low / Middle / High
	White Balance	ATW / AWC / Manual / Indoor / Outdoor
	Electronic Shutter Speed	Minimum / Maximum / Anti flicker(2~1/12,000sec)
	Digital PTZ	Support (Preset, Group)
	Video Rotation	Flip, Mirror
	Analytics	Defocus detection, Motion detection, Tampering
	Business Intelligence	People counting, Heatmap
	Alarm Triggers	Analytics, Network disconnect
	Alarm events	<ul style="list-style-type: none"> • File upload via FTP, E-Mail • Notification via E-Mail • SD/SDHC/SDXC or NAS recording at event triggers

Items		Description
		QNF-9010
Network	Ethernet	RJ-45 (10/100BASE-T)
	Video Compression	H.265/H.264: Main/High, MJPEG
	Resolution	Original view : 3008x3008, 640x640 Double panorama: 2560x1280, 1920x960, 1280x640, 1024x512, 640x320 Single panorama: 3200x800, 2560x640, 1920x480, 1280x320, 1024x256 Quad view : 2560x1920, 1920x1440, 1280x960, 1024x768, 640x480
	Max. Framerate	H.265/H.264: Original view-Max. 30 fps/25 fps@3008x3008(60 Hz/50 Hz), Double panorama-Max. 28 fps/25 fps@3200x800(60 Hz/50 Hz) Single panorama-Max. 28 fps/25 fps@2560x1280(60 Hz/50 Hz) MJPEG: Max. 5 fps(60 Hz/50 Hz)
	Smart Codec	Manual(5ea area), WiseStream II
	Video Quality Adjustment	H.264/H.265 : Target Bitrate Level Control MJPEG : Quality Level Control
	Bitrate Control	H.264/H.265 : CBR or VBR MJPEG : VBR
	Streaming	Unicast(6 users) / Multicast Multiple Streaming (Up to 3 Profiles)

Items	Description	
	QNF-9010	
Network	Protocol	IPv4, IPv6, TCP/IP, UDP/IP, RTP(UDP), RTP(TCP), RTCP, RTSP, NTP, HTTP, HTTPS, SSL/TLS, DHCP, FTP, SMTP, ICMP, IGMP, SNMPv1/v2c/v3(MIB-2), ARP, DNS, DDNS, QoS, UPnP, Bonjour
	Security	HTTPS(SSL) Login Authentication Digest Login Authentication IP Address Filtering User access Log 802.1x Authentication (EAP-TLS, EAP-LEAP) Device Certificate(Hanwha Techwin Root CA)
	Edge Storage	Micro SD/SDHC/SDXC 1slot 256 GB
	Application Programming Interface	ONVIF Profile S/G/T SUNAPI(HTTP API) Wisenet open platform
	Webpage Language	English, French, German, Spanish, Italian, Chinese, Korean, Russian, Japanese, Swedish, Portuguese, Czech, Polish, Turkish, Dutch, Hungarian, Greek
	Web Viewer	Supported OS: Windows 7, 8.1, 10, Mac OS X 10.12, 10.13, 10.14 Recommended Browser: Google Chrome Supported Browser: MS Explorer11, MS Edge, Mozilla Firefox(Window 64bit only), Apple Safari(Mac OS X only)
	Memory	2048 MB RAM, 256 MB Flash
Environmental	Operating Temperature / Humidity	-10°C ~ +40°C(+14°F ~ +104°F) / Less than 90% RH
	Storage Temperature / Humidity	-50°C ~ +60°C (-58°F ~ +140°F) / Less than 90% RH
	Certification	IP42
Electrical	Input Voltage	PoE(EEE802.3af, Class3)
	Power Consumption	PoE: Max 7.7 W, Typical 6.4 W
Mechanical	Color / Material	White / Plastic
	RAL code	RAL9003
	Product dimensions / weight	Ø99x49 mm (Ø3.9x1.93"), 370 g (0.816 lb)

PRODUCT OVERVIEW

Unit : mm (inch)



TROUBLESHOOTING

PROBLEM	SOLUTION
No video is displayed when accessing the plug-in free webviewer on Safari via HTTPS.	<ul style="list-style-type: none"> On the authentication popup window prompted when initially accessing https, click "View Authentication Certificate" and select the "Always trust when connecting to the designated webviewer IP" check box. If the webviewer continues failing to display a video after you select "Next" on the message window below, press the command key + Q to exit the Safari browser, access again and follow the procedures stated above.
I can't access the camera from a web browser.	<ul style="list-style-type: none"> Check to make sure that the camera's Network settings are appropriate. Check to make sure that all network cables have been connected properly. If connected using DHCP, verify that the camera is able to acquire dynamic IP addresses without any problem. If the camera is connected to a Broadband Router, verify that port forwarding is properly configured.
Viewer got disconnected during monitoring.	<ul style="list-style-type: none"> Connected Viewers become disconnected upon any change to camera or network configurations. Check all network connections.
The camera connected to the network is not detected in the Device Manager program.	<ul style="list-style-type: none"> Turn off the firewall settings on your PC and then search the camera again.
Images overlap.	<ul style="list-style-type: none"> Check whether two or more cameras are set to a single multicast address instead of different addresses. If a single address is used for multiple cameras, the images may overlap.
No image appears.	<ul style="list-style-type: none"> If the transmission method is set to multicast, check whether there is a router that supports multicast in the LAN the camera is connected to.
<Motion detection> of <Analytics> is set to <Enable>, but no notification e-mail reaches me even when an analysis event had occurred.	<ul style="list-style-type: none"> Verify the settings in the following sequence: <ol style="list-style-type: none"> Check <Data & Time> settings. The <Motion detection> should be set to <Enable>. Check if the <E-mail> option of <Event setup> menu is checked to use.
Cannot record into the Micro SD memory card.	<ul style="list-style-type: none"> Check if the memory card is defective.

PROBLEM	SOLUTION
Micro SD memory card is inserted but the camera does not operate properly.	<ul style="list-style-type: none"> Check if the memory card is inserted in the proper direction. Operation of memory card that is formatted by other devices is not guaranteed with this camera unit Format the memory card again in <Setup> → <Event> → <Storage> menu.
Cannot record in the NAS.	<ul style="list-style-type: none"> Confirm that the information registered in the NAS is correct.
It reports that NAS setting has failed.	<ul style="list-style-type: none"> Confirm that the IP address of the NAS is valid. Confirm that the ID/password of the NAS is valid. Confirm that you can access the folder designated as the default folder using the ID of the NAS. Confirm that the NAS SMB/CIFS items are unchecked. Confirm that the NAS IP address and the camera IP address are in the same format. <p>ex) The NAS & camera subnet mask initial value is 255.255.255.0.</p> If the IP address is 192.168.20.32 then the NAS IP address should be in the range of 192.168.20.1~192.168.20.255. Check whether you tried to access as another user without formatting the default folder saved or used. Confirm that you used recommended NAS equipment.

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GPL SW

Component Name	License	URL
Base Kernel	GPL 2.0	
Busybox	GPL 2.0	http://www.busybox.net/downloads/snapshots
iproute2-4.3.0	GPL 2.0	
iptables-1.4.21	GPL 2.0	http://ftp.netfilter.org/pub/iptables
ethtool-4.2	GPL 2.0	
mtid-1.5.2	GPL 2.0	ftp://ftp.infradead.org/pub/mtid-utils
mi-diag-2.11	GPL 2.0	
rp-pppoe-3.11	GPL 2.0	http://www.roaringpenguin.com/pppoe/
wpa_supplicant-2.5	GPL 2.0	
bash-4.3.30	GPL 3.0	
zeroconf	GPL 2.0	

LGPL SW

Component Name	License	URL
glibc	LGPL 2.0	
inetutils	LGPL 3.0	
neon-0.29.6	LGPL 2.0	http://www.webdav.org/neon/

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Version 2, June 1991

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The IJG distribution formerly included code to read and write GIF files. To avoid entanglement with the Unisys LZW patent, GIF reading support has been removed altogether, and the GIF writer has been simplified to produce "uncompressed GIFs". This technique does not use the LZW algorithm; the resulting GIF files are larger than usual, but are readable by all standard GIF decoders.

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established by T-Engine Forum
on January 23, 2004
revised on June 17, 2004
revised on December 21, 2006
revised on March 24, 2009

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2. to develop and manufacture the Embedded Product containing the Binary Code, and, whether with or without payment, provide the End User with the same and make the Binary Code available to the End User on the Embedded Product.

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3. The Distributor of Modification shall, prior to the distribution, inform T-Engine Forum of and register a name and description of the Modified Source Code in such a way as specified by T-Engine Forum.

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2. The Header File; provided that the Header File shall be distributed together with the Binary Code of the Ported Source Code.

2. Any member of T-Engine Forum may request T-Engine Forum to register and distribute, as an original source code for T-Kernel, the Ported Source Code on the T-Engine Hardware or the Similar Hardware to T-Engine Hardware.

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2. The member shall provide T-Engine Forum with a complete set of operational environment for the object hardware and T-Kernel free of charge when requesting the distribution.
3. The member shall submit test results of the Ported Source Code to T-Engine Forum when requesting the distribution.

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5. The provision set forth in Article 3 shall apply to the Ported Source Code registered in accordance with this Article.

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The data format used by the zlib library is described by RFCs (Request for Comments) 1950 to 1952 in the files <http://www.ietf.org/rfc/rfc1950.txt> (zlib format), [rfc1951.txt](http://www.ietf.org/rfc/rfc1951.txt) (deflate format) and [rfc1952.txt](http://www.ietf.org/rfc/rfc1952.txt) (gzip format).

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