OCTAVUE®

BY GSD GROUP

Securing Your World.

USER MANUAL

MULTI-TEST MONITOR

Cautions for Use of This Product

- If you give excessive shock to this product or drop it, LCD may be damaged. Therefore, have a special care not to break it. (The damaged LCD is not available for free A/S even in warranty.)

- Do not spray water directly and wipe this product gently with a dry towel when you clean it. Have a special care for LCD shock during cleaning.

- When using outdoors, be careful to prevent water or other foreign objects from entering this product. (It may cause fire or malfunction of the product. In this case, free A/S is not available even in warranty.)

- Do not use this device in close proximity to a device that produces strong waves such as radio set(TRANCEIVER, Walkie-talkie, etc.) or repeater. It may affect HD-SDI and EX-SDI image signal, or cause disorders such as noise or crack on the screen.

- Use exclusive charger only for recharging the built-in batteries. Otherwise, it may cause fire or explosion.

- If this product is left unused or uncharged for a long time, the performance of battery may degrade. Regular charging is recommended.

- If you use any function while charging this monitor, the charging speed will be slower. Terminate the operating function and charge.

- LI-Polymer Batteries (11.1v / 5,680mAh) are built in this product. Do not disassemble or short-circuit the batteries. (Free A/S is not available in this case)

- If the charger terminal is short-circuited or has the polarity in opposite way, the batteries may be damaged.

- Do not keep this device in the vehicle because there is a risk of explosion due to high temperature inside the car.

- Do not put any conductive materials such as screwdrivers, coins, metal parts, etc.

- Do not place this product to where water is falling or splashing and where has water inside such as flower vases.

- Stop using this product immediately and contact where you purchased this product when any smoke or smell is produced.

- Do not disassemble this product on your own and contact where you purchase this product when it does not work properly. (You do not have free A/S for any failure caused by your own decomposition)

- When this product is left for a long time and discharged, connect to WI-FI. When WI-FI is connected, the time is set automatically.

- When Micro SD Card is bent or cracked, it may cause some problems.

Cautions for Use of This Product

- Do not supply power to video input port.

- When PoE is ON, do not connect UTP camera as the product may be damaged.

- When connecting non-PoE supported Network devices, please set PoE as OFF.

- Reset it to factory defaults if the product is paused frequently or does not work properly. All the saved data will be deleted.

- Press and hold the power button for about 7 seconds to shut down this product forcibly when it is paused during use or the touch pad or D-pad does not work properly. After then, please turn it on again for use.

- Press and hold the power button for about 7 seconds to shut down this product forcibly when it is paused during use or just after resetting to factory defaults. After then, please turn it on again for use.

- All video of 1920x1080 or higher resolution will be recorded in 1920x1080 and ones of 1920x1080 or less resolution will be recorded in 1280x720.

- Video in 1920x1080 will be played back properly. However, video in higher resolution may cut off during its playback.

- The built-in battery life depends on your working condition and environment and its discharge duration may get shorter depending on your number of uses.

- If the provided exclusive charger's LED turns to green, the battery is recharged completely. Then, please remove the charger from your test monitor.

- A test monitor that was not used for a long time may be discharged and require recharging prior to use. If it is discharged, the time will be reset to the factory default settings.

- This product life may get shorter if you do not follow this instructions. The warranty does not cover any damage caused by a user's negligence.

**Video Surveillance Products
(Installation and management)**

- This product is for CCTV system installation and management. Some problems may occur with inappropriate use.

- Please read the instructions prior to its use and keep it with the warranty certificate.

Cautions for Use of External Devices

Checklist for External Device Selection

- Micro SD/SDHC/SDXC memory cards are compatible with this test monitor.

- Compatibility between memory cards and this test monitor depends on the brand and type of memory cards.

- Memory cards from the following brands are recommended for use with this test monitor.
  Micro SD/SDHD/SDXC Memory Card: Sandisk, Transcend, Samsung

- The recommended capacity of Micro SD card is 4GB~64GB.

- When the frame rate is 30fps or lower in saving video, a memory card of class 6 or higher is recommended. When the frame rate is 31fps or higher, a memory card of class 10 or UHS-1 is recommended.

- Android supports the FAT32 method only. A SD memory card must be formatted prior to its use, and a separate program is required to use a memory card with 64GB or higher capacity as it is unavailable to format it in FAT32 method in the window.

Micro SD Card Type and Capacity

- Please check the memory card logo (SD, SDHC, SDXC) on the label of the memory card.

Type	Capacity
Micro SD card	2GB Memory Card
Micro SDHC card	4~32GB Memory Card
Micro SDXC card	64GB Memory Card

Micro SD Card Classes

- You can find a number marked in a circle on the memory card. It is called 'Class'.

- The classes of memory cards indicate the transmission speed per second and a high-class memory card is required for high quality video transmission.

Type	Capacity
Class 2	The class 2 can transmit 2MB per second and is not appropriate for video and/or voice storage.
Class 4	The class 4 can transmit 4MB per second and is not appropriate for video and/or voice storage.
Class 6	The class 6 can transmit 6MB per second and is appropriate for low- quality video and/or voice storage.
Class 10	The class 10 can transmit 10MB per second and is appropriate for high- quality video and/or voice storage.
Class UHS	The class UHS can transmit 50MB per second and is appropriate for high- quality video and/or voice storage.

Cautions for Use of External Devices

Removal of the Memory Card in Main Home

- Errors may occur in the saved file if you remove the memory card during use.

- Please refer to the following instructions to remove external devices.

Main Home

■ How to remove external device

① When the external device is inserted, Remove External Device icon is activated.

② Select Remove External Device icon and the selection popup is output.

③ Select OK in the popup to unmount external device.
  - The priority of the external device is the order of insertion first.

! If the button is not activated after inserting external device

- If the Remove External Device icon is not activated in the Main Home even though the external device is inserted, it is able to remove in Settings → Storage menu.

Overview

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IP MONITOR

Overview

Introduction

This IP test monitor is a multifunctional test monitor based on Android system for convenient monitoring and maintenance for video surveillance systems. It is able to monitor cameras with various input signals, and apps are available to help installing CCTV.

7" IPS capacitance-type touch screen in 1920 X 1200 resolution is applied on the front side, and D-pad(directional keys) and other function buttons are added on the right side for the user's convenience. Also, optical bonding is applied for visibility in outside work to provide the screen with clear image.

Features

- 1920 x 1200 High resolution IPS 7 inch TFT-LCD panel with capacitance-type touch screen
- LED Back light for clear image
- Optical bonding applied for outdoor environment
- Power supply to camera (DC12V / 1A) by using DC Jack
- USB Port (2.0) with 5V / 1A power out
- Micro SD card port for internal capacity expansion
- Dual speaker for sound play
- Sleep mode to save the battery
- 5,680mAH Li-polymer battery
- Exclusive charger for this test monitor
- Portable bag with the strap for hands-free use and convenient installation
- LED indicators for D-pad(directional keys) and other function buttons
- HDMI output and Miracast to connect with external monitor

IP App. Functions

- **IP camera search**

  Discover the IP address of your network camera connected to this test monitor or all network cameras on your LAN by Auto Discovery function.

- **Live video checking**

  Real-time video monitoring of your connected IP camera.

- **IP camera settings**

  Change media profile, network information of standard ONVIF camera.

- **Support various types of devices**

  Check the video by connecting ONVIF or by inputting RTSP/MJPEG address of camera.

- **Auto-complete feature for camera setting information**

  Easy camera settings by the auto-complete feature once the camera setting information is saved.

- **Support various transport protocols**

  Support HTTP, TCP and UDP.

- **Camera configuration storage**

  Save network camera configuration to the IP App. main page.

Overview

- **Ping test for network status check**

  Send/receive ping to the network camera connected to check the network connection status.

- **PoE Voltage check**

  Check the voltage of the PoE supplied from an item.

- **PoE Output**

  PoE output to PoE camera without seperate power source.

- **Video recording and snapshot**

  Video recording and snapshot for each signal and real-time playback.

- **PTZ function**

  Pan/Tilt/Zoom/Preset the connected PTZ camera.

- **G.711 Audio playback**

  Playback of the audio for the connected camera.

- **Real-time video information checking**

  Check data/frame transmission rates.

- **Camera initialization**

  Reset a camera to factory defaults.

Viewer App. Functions

- **Various Input**

  Support various Input. Please refer to page 75 for more information on the supported resolution.

- **RS-485 Communication**

  Data transmission in RS-485 Tx. mode and data analysis in RS-485 Rx. mode.

- **Video recording & Snapshot**

  Video recording and snapshot function.

- **PTZ /OSD Settings**

  Camera OSD menu setting and PTZ (Pan/Tilt/Zoom) function implementation by RS-485 communication.

- **Level meter (SDI / AHD / TVI / CVI / CVBS Support)**

  Show the current status of the input signal in numerical values on the screen. This function is especially useful when any problem occurs in your system such as cables and it must be figured out.

- **Focus meter (SDI / AHD / TVI / CVI / CVBS Support)**

  Show the current status of the camera focus in numerical values on the screen to adjust camera focus more easily and accurately.

- **CRC Error count (SDI Support)**

  Built-in CRC error count function to check data loss transmitted through cables.

- **UTC (Up The Coaxial Communication / AHD, TVI, CVI, CVBS Support)**

  Camera OSD menu setting and PTZ (Pan/Tilt/Zoom) function implementation through a coaxial cable without wiring data lines by UTC function.

- **UCC (Up The Coaxial Communication / EX-SDI Support)**

  Camera OSD menu setting and PTZ (Pan/Tilt/Zoom) function implementation through a coaxial cable without wiring data lines by UTC function.

Overview

TDRC App. Functions

- **Coaxial cable length measurement**
  Measure the length of coaxial cable by connecting to VIDEO BNC.

- **Coaxial cable status measurement**
  Check Open, Short status of coaxial cable.

- **Coaxial cable loop resistance measurement**
  Measure loop resistance value of coaxial cable by connecting to TG-01.

- **Select manufacturer & Type**
  Select the cable manufacturer and type to measure more accurate length.

TDRU App. Functions

- **UTP cable length measurement**
  Measure the length of UTP cable by connecting to IP CAM/Network RJ45 port.

- **UTP cable status measurement**
  Check Open, Short status of coaxial cable.

- **UTP cable return loss measurement**
  Check whether the signal loss is caused or not by measured return loss value.

Network Test Tools App. Functions

- **Read PCAP files**
  Read packet files in PCAP format.

- **PCAP file analysis**
  Check the heather and contents of packet data in detail.

- **Bandwidth analysis**
  Analyze the amount of packet data and displays the used bandwidth to graph.

- **Real time packet monitoring**
  Monitor packet in real time after setting network mode and filter.

- **Packet capture mode**
  Capture packet in Single or Repeat capture mode.

- **Maximum bandwidth measurement**
  Configure server and client and measure the maximum bandwidth in the network line.

- **Packet send and receive**
  Generate UDP packet to transmit or receive.

Overview

Components

- Please check if the following components are all included in your package when you receive this item.

- All standard accessories included in this package are available for purchase separately.

Item	Name	Description
	Professional IP Test Monitor	Charge the battery prior to its use. It may be discharged at the time of delivery.
	Exclusive bag with strap	Keep the test monitor in this bag for its storage or use. Otherwise, the LCD and main body may be scratched.
	Exclusive Charger	This charger is exclusive for this test monitor. If any other charger is used to recharge this device, it may generate some problems.
	Power output leads	Use this cable for DC12V power output from this test monitor through DC12V IN/OUT port.
	Coaxial Cable	Use this cable for SDI or Analog video signal input.
	Power input leads	Use this cable for DC power input.
	User's Manual	The manual is provided in a booklet and a separate quick guide is provided.
	USB LAN Card	Wi-Fi is available to use only when the USB LAN card is mounted on this test monitor.
	TG01	BNC to TB(2P) connector to check the Loop resistance and status of coaxial cable.
	TG02	BNC to RJ45 connector to check long distance of UTP cable by BNC.
	BNC-A-JJ	Connect to cable when using TG01, TG02.

Product Parts and Descriptions

Top Interface

No.	Name	Description
①	Power Connector	The exclusive charger included in this package is only allowed to recharge this test monitor. DC12V power supply for camera operation is also available through this port by using the power output lead. There are 5,680 mAH Li-Polymer batteries built in this monitor.
②	RS-485 Communication	Camera PTZ and OSD menu settings are available by RS-485 communication function. In addition, data reception and analysis are possible in RS-485 Rx. and Analysis modes.
③	HDMI Input/Output	HDMI input up to 1080p 60Hz resolution is possible, which is received from external devices such as NVR or DVR. HDMI output in 1080p 60Hz resolution is also possible.
④	HD-SDI(~3G) Input	HD/EX/3G-SDI video input is available Camera PTZ and OSD menu settings are available by UCC function.
⑤	IP Camera Port	It is able to input network data from IP camera or HUB and connect to camera, and supply power to PoE camera. Also, this port is used for measuring Ethernet cable distance with TDRU app.
⑥	NETWORK Port	Same usage as IP CAM port, but does not support PoE.
⑦	VIDEO Input	Able to input AHD, TVI, CVI and CVBS video signals and camera PTZ and OSD menu settings are available by UTC function. Also, this port is used for measuring coaxial cable distance with TDRC app.
⑧	USB Port	Support FAT32 USB storage device.
⑨	SFP Port	Mount standard SFP module to receive network data.
⑩	Micro SD Input	Support FAT32 Micro SD card.
⑪	Power Switch	Hold the power switch to this monitor. While operating, press the power switch to change to sleep mode.

Product Parts and Descriptions

Front Interface

No.	Name	Description
①	D-Pad (Directional Keys)	Select up, donw, left, right in App.
②	Mode button	Change mode in App.
③	Home button	Press this button to move to home screen.
④	Menu button	Open menu in App.
⑤	BACK button	Press this button to terminate the App. or move to the previous screen.
⑥	Screenshot	Capture and save the current screen.
⑦	Volume control	Adjust the volume of the product.

Product Parts and Descriptions

Backside Interface

No.	Name	Description
①	Monitor Stand	Test monitor stand for convenient monitoring. Adjust the angle of this test monitor.
②	Speaker	Dual speakers are mounted. Adjust volume.

Product Parts and Descriptions

Launcher

- The following launcher screen will be shown once this test monitor is turned on.

| No.	Name	Description
①	Network Camera	This App. is for IP camera connection. Tap the icon to open the IP App.
②	SDI Camera	This App. is for HD/EX/3G-SDI Video. Tap the icon to open the SDI Viewer App.
③	HD Analog Camera	This App. is for AHD, TVI, CVI, CVBS Video. Tap the icon to open the HD Analog Viewer App.
④	HDMI Viewer	This App. is for HDMI Video. Tap the icon to open the HDMI Viewer App.
⑤	Coaxial cable measurement	This App. is for coaxial cable legnth and status measurement. Tap the icon to open the TDRC App.
⑥	UTP cable measurement	This App. is for UTP cable legnth and status measurement. Tap the icon to open the TDRU App.
⑦	My Apps	Show all installed apps.
⑧	Network Test Tools	This App. is for analyzing packet file, monitoring packet and measuring maximum bandwidth. Tap the icon to open the Network Test Tools App.
⑨	App Update	Update to the latest Apps.
⑩	Quick Menu	Use Gallery, File Manager or Setting function

IP App. Functions

Launch IP App.
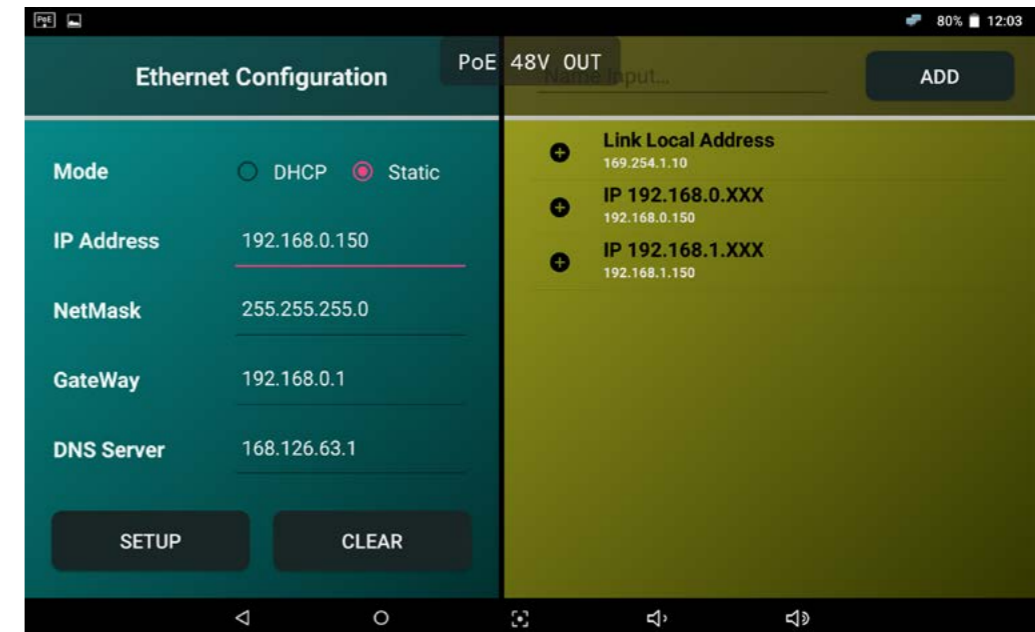

① Select IP Camera App. to connect a network camera.
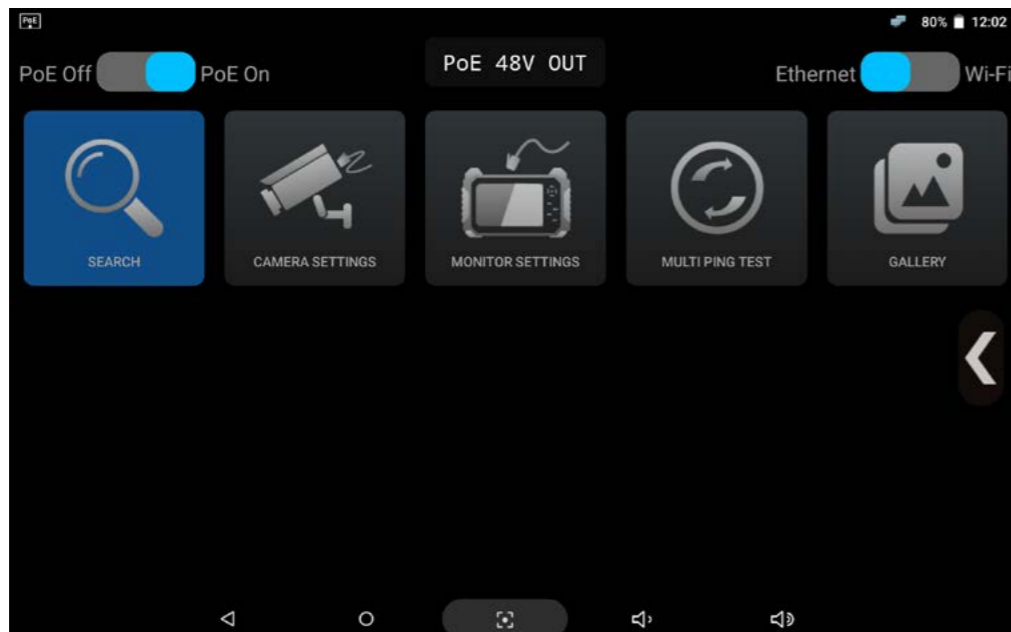
② Monitor network setup is required to connect camera. Select Monitor Setting to move to network settings page.
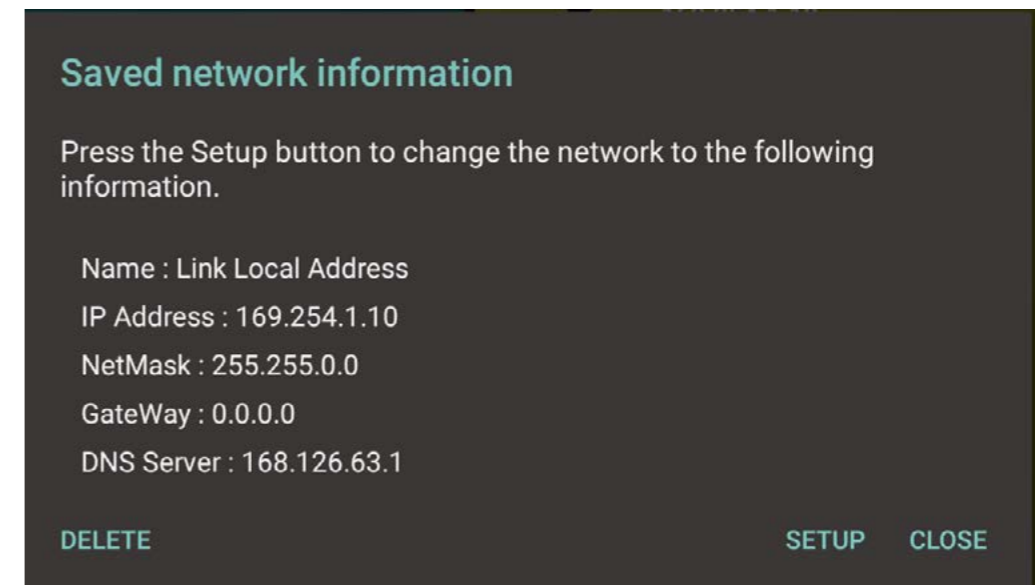
IP App. Functions

IP Camera Connection by LAN

- # 1) is available when the camera's Zero configuration function is activated. If you know the camera IP address, use # 2).

1) When you do not know the camera IP address
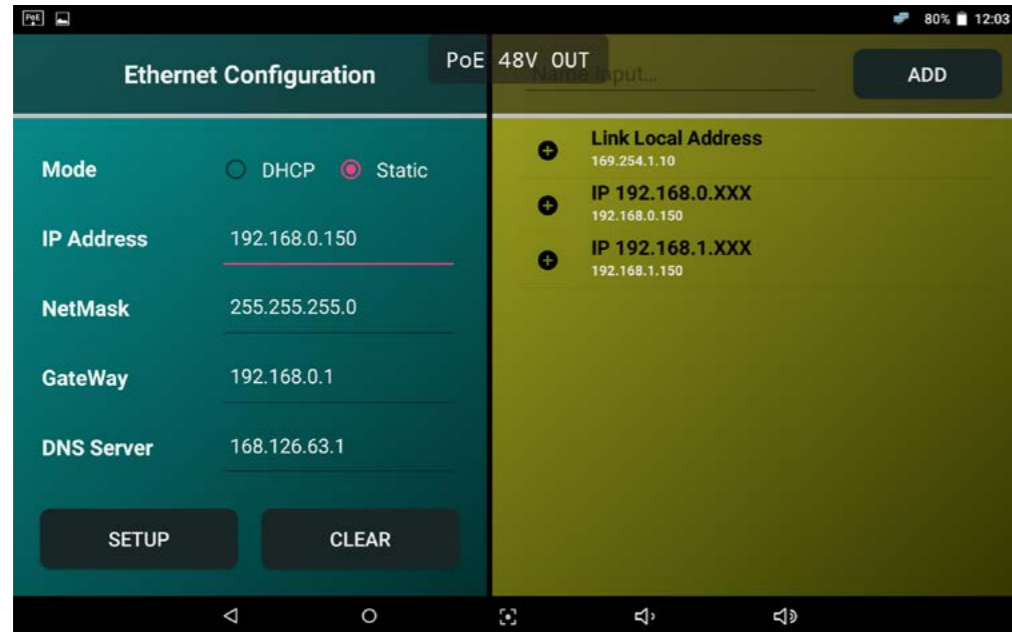

① Tap the Monitor Settings icon in the IP App. main page to see the above page.

② Select Link Local Address on the right.

③ Tap the SETUP button to set as above IP address.

- When set as above, it means the searched camera supports Zero configuration. If any camera is not searched, initialize the camera and refer to this user's manual to use the guided IP address range.

IP App. Functions

2) When you know the camera IP address

① Tap the Monitor Settings icon in the IP App. main page to see the above page.

② Enter the IP address to the same range of the camera IP address in Ethernet Configuration and press SETUP button.
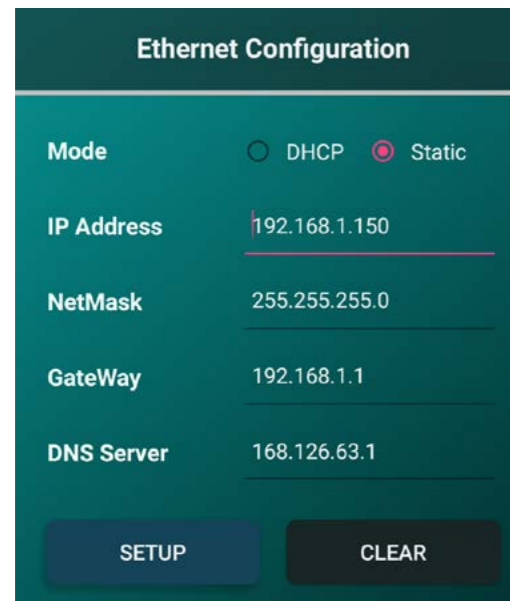

- The left image shows the IP settings that should be set on the monitor when the camera IP address is 192.168.1.100.

- Enter the Gateway value after changing the rightmost value of the IP address to 1.

- If you do not enter the DNS server value or enter it incorrectly, you may have problems using the web page.

IP App. Functions

IP Camera Connection by a DHCP Server

- The DHCP mode can be assigned an IP address from a DHCP server.
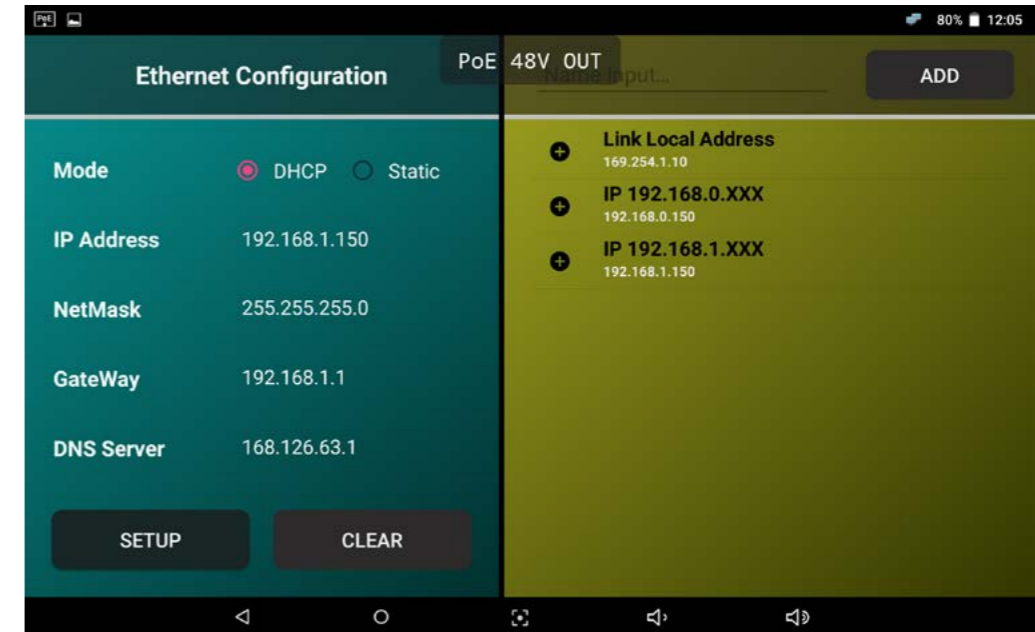
① Tap the Monitor Settings icon in the IP App. main page to see the above page.

② If you select DHCP in the mode and tap SETUP, the IP address is assigned from the server.

- This test monitor does not assign an IP address to a camera. A DHCP server or a router should be configured.

- When a DHCP server is configured, the monitor can be assigned an IP address as the camera.

- IP address, Mask address and Gateway cannot be arbitrarily modified.

IP App. Functions

Checklist Prior to the Camera Discovery and Connection

- Check the following items and move to the next step after completing the monitor settings.
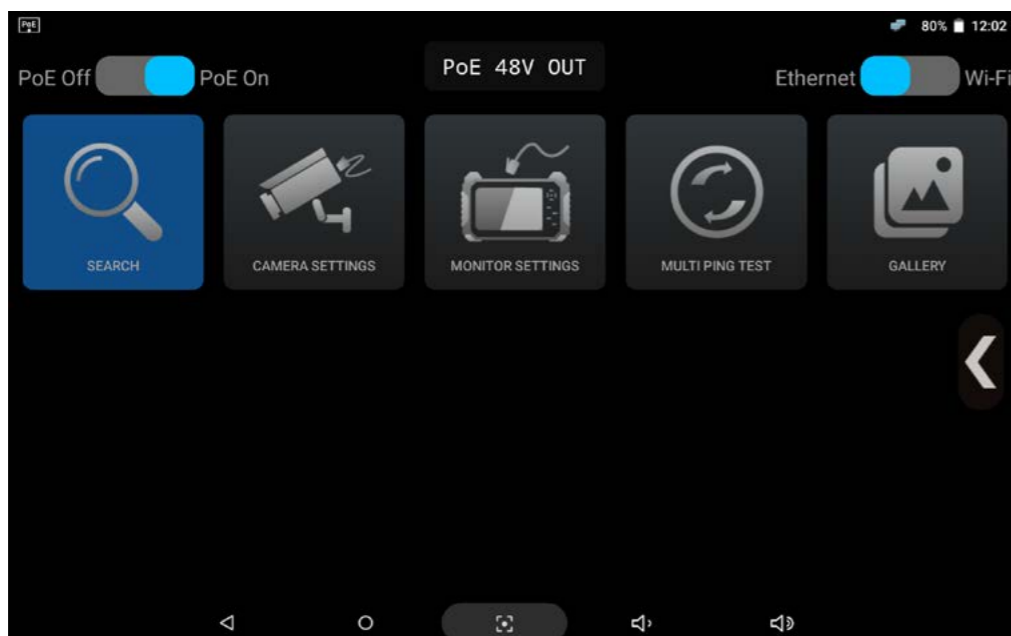
STEP 1 : Check the PoE status in the upper left corner. Turn on the PoE to supply PoE to your camera. If PoE is off, this monitor will not supply PoE to your camera.

STEP 2 : Check the Ethernet/Wi-Fi status in the upper right corner. Make sure to turn on Ethernet when connecting your camera with LAN cable and turn on Wi-Fi when connecting your camera wirelessly.

STEP 3 : Check the LAN port LED status. If the network status is normal, both LEDs must be on. If the LED is not on, the camera may still be booting or there may be a problem with communiaction.

Wireless connection :

The monitor setting is not required when connecting the product wirelessly. Connected routers and servers automatically assign IP to cameras and monitors. After the Wi-Fi connection is complete, it is able to check the searched cameras.


IP App. Functions

IP Device Discovery

① When you tap Search in the IP App. main page, IP devices are searched automatically and the discovered cameras are displayed on the right side.

- When a discovered IP camera's address is in the same range of this monitor's IP, it will be shown in dark gray with the camera's hardware, location, name and IP address like #1 or #2 cameras in the above picture. However, in case of an IP camera having different range of the monitor's IP, it will be shown in red only with the camera's name and IP address like #3 camera in the above picture.

- In case of #1 and #2 cameras in the above picture, either of the cameras can be connected immediately. But for #3 camera, the monitor's IP address must be changed to match the IP camera's IP range.

② Tap one of the discovered cameras to open the IP Camera Settings page.

! When the camera is not discovered

▪ When using unsupported protocol.

If the camera does not support ONVIF, IP search and camera connection will not work. In this case, you have to connect manually using RTSP. The RTSP address is different for each camera company and must be checked with the camera manual or manufacturer.

▪ When using a wireless router.

If you connect the camera wirelessly, you must change the monitor's network settings to Wi-Fi and then perform discovery. When the camera is in DHCP mode, the router automatically assigns the camera IP address. (IP assignment method may vary depending on the connected IP router model)

IP App. Functions

## IP Camera Connection and Settings
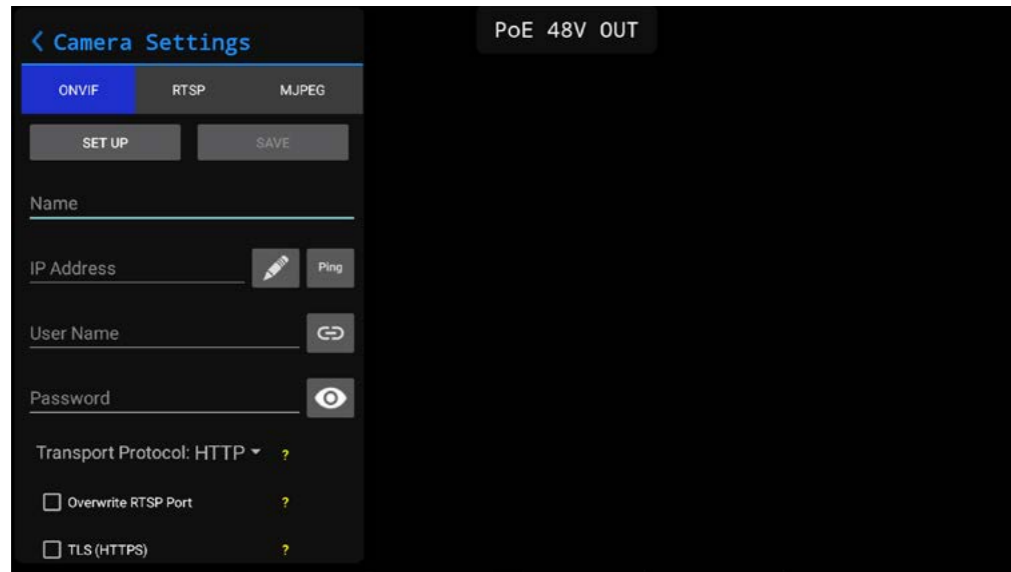
① Once you select the Camera Settings icon or one of discovered cameras in the Search page, the camera setting screen is displayed.

② Enter any word such as the camera name or installed location to identify the camera in the Name field.

③ Enter the camera IP address in the IP address field. If one of the discovered cameras is selected, the IP address is filled automatically.

④ When the camera is selected, admin is entered as the user name. If you do not know the user name, reset the camera to its default factory setting and enter the default user name. The default user name depends on the manufacturer. You can find the default information in the camera instructions.

⑤ Enter the password in the Password field. If you do not know the password, reset the camera to its default factory setting and enter the default password. The default password of each camera is normally specified in the camera instructions.

⑥ For transport protocol and RTSP port overwrite, no need to change them now. Once all values are added, tap the SETUP button to test the camera.

❗ **When the camera connection fails**

▪ **When the IP address is uncertain.**

Tap the Ping button to check the IP address after entering the IP address. Ping will fail if the address is wrong. The IP range of the monitor and camera should be same as well.

▪ **When you cannot remember the user name and password.**

When you forgot the user name and password, reset the camera to its default factory setting and enter the user name and password set by the manufacturer.

IP App. Functions

• Once the camera is connected, the preview video will be displayed as shown in the following picture.
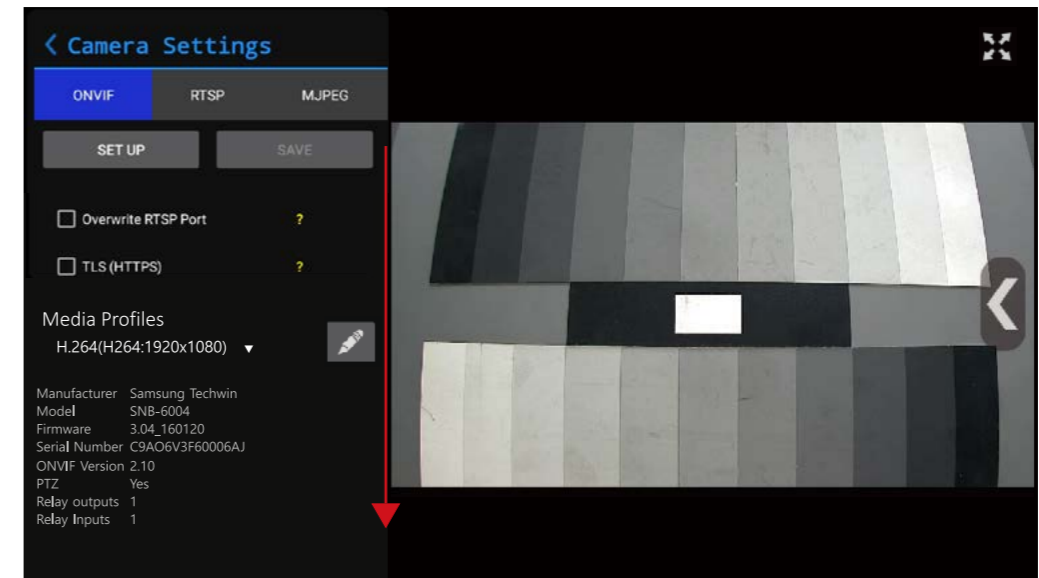
⑦ Scroll-down the left setup panel after the camera is connected. you can modify the profile settings.

⑧ After completing all the settings, tap Save to store the camera name, IP address, user name, password, media profile, transport protocol, etc. in one configuration in the IP App. main page.

⑨ To watch the live video of the connected camera, press the Full Screen ✕ at the right upper corner in the preview video mode.
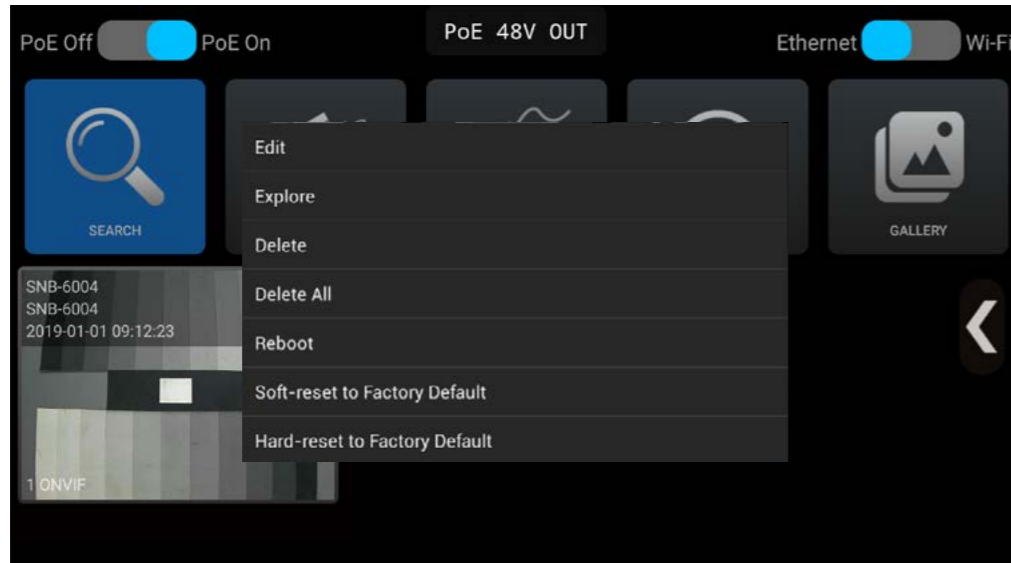

⑩ Tap the saved configuration of the camera on the IP App. main page to see the live video in full screen without the need camera search and settings.

IP App. Functions

▍Utilize Configuration

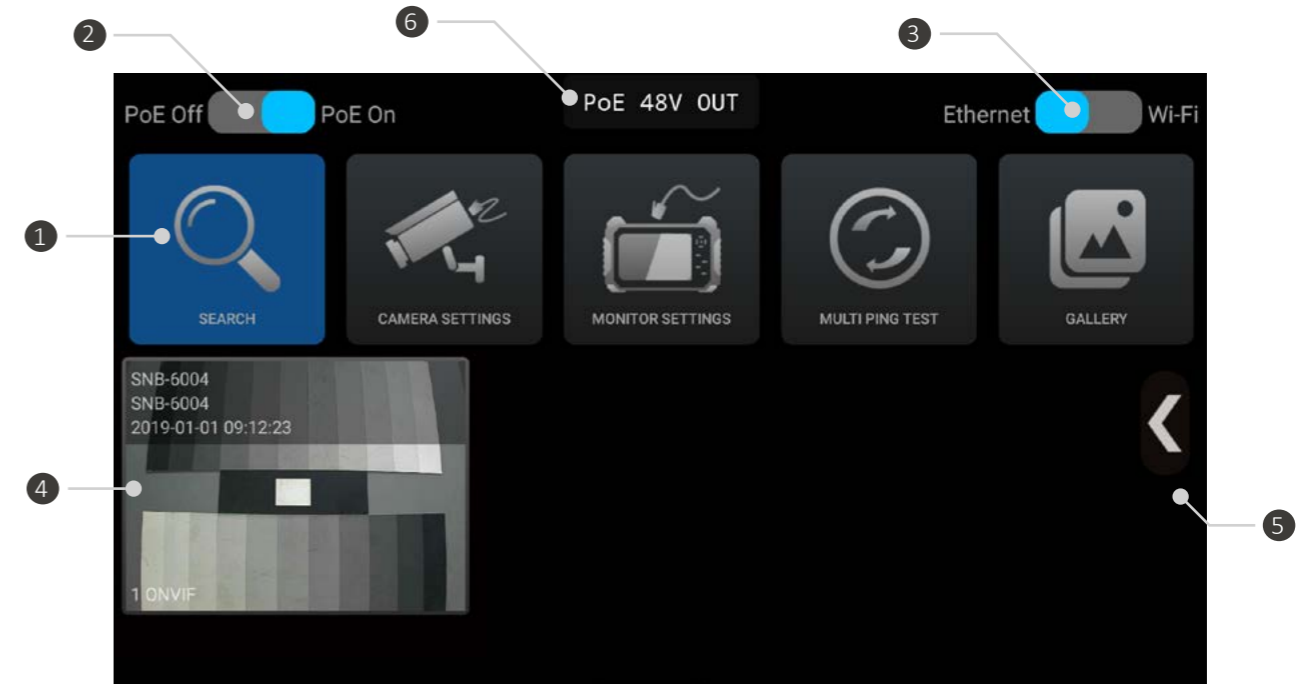- After completing the camera setup, click Save to create the configuration.

① In the IP App. main page, press and hold the saved configuration or press the SET key to display a context menu.

② Select Edit to change the configuration and select Explore to check the information of the configured camera.

③ If the camera supports resets, it is possible to initialize the camera settings to have the factory default values.

❗ How to use the configuration effectively

▪ When installing the same type of cameras

All cameras have their default IP addresses. As the saved camera configuration includes the camera IP address, ID, password, etc., you can use it for the installation of the same type of cameras. However, the same type of the camera needs to be the default mode or it must have the same IP address range.

▪ How to register the IP address used frequently for your installation

After saving the configuration of the installed camera, you can export the saved configuration and make a configuration list per installed location. During maintenance, you can import the relevant configuration and check the camera connection status without any setup process.

▍IP App. Main Page

| No.	Name	Description
①	Action Menu Icon	Use Search, Camera Settings, Monitor Settings, Multi Ping Test, Gallery.
②	PoE Setting	Set whether to use PoE (Power of Ethernet) or not. When PoE On is set, the built-in battery of the monitor is used to supply the PoE voltage and the battery is consumed more quickly. When PoE Off is set, the PoE voltage supply is stopped.
③	Network Type	Change the network settings of the product. When connecting the camera wirelessly using a router, the network must be changed to Wi-Fi and connected. When connecting the camera to a wired network, the network must be changed to Ethernet.
④	Saved Configuration List	Click Save in Camera Settings to add the configuration. If you have the same IP address, ID and password as the added configuration, it is able to check the video by selecting the saved configuration without any setting.
⑤	Menu of IP App. Main Page	Use Sort Tiles, Settings, Feedback, and About function.
⑥	PoE Voltage Check	When the PoE function is on in the PoE setting button, PoE 48V OUT will be shown on the top of the monitor screen. When the PoE function is off, it will show PoE OFF. The NETWORK port displays the PoE voltage supplied when the PoE voltage supply is connected. When the camera is connected to the CAM port, the device connected to the NETWORK port supplies the PoE voltage to the camera. You can tap and drag this voltage check sign to where you would like to put it on.

IP App. Functions

PoE Voltage Check

- When the IP app is launched, a PoE status confirmation window is displayed at the top of the home screen. When the PoE voltage supply is connected to the NETWORK port, the supplied PoE voltage is displayed.

PoE OFF

PoE OFF

PoE 48V OUT

PoE ON

PoE : 47.24 V
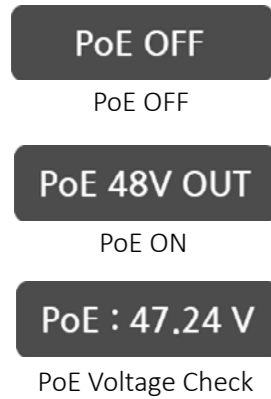
PoE Voltage Check

①   PoE OFF
- PoE function is OFF.

②   PoE ON
- When turning the PoE function on, PoE 48V OUT will be shown on the top of the screen.
- This monitor supplies PoE from its built-in battery.

③   PoE Voltage Check
- When any power supply unit is connected to the NETWORK port, the voltage of the PoE supplied from the device will be shown on the top of the screen.
- Supply PoE to a device connected to the CAM port from the power supply unit connected to the NETWORK port.

Menu in the IP App. Main Page

- In the IP App. main page, once you press the menu or mode key or touch menu icon the menu bar will be shown as follows.

Sort Tiles

Settings

Feedback

About
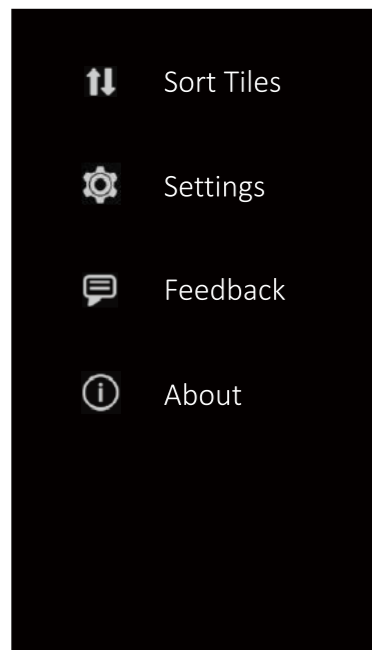
①   Sort Tiles
- You can rearrange the order of saved configurations.

②   Settings
- Import/export the device configuration.
- Select the location for saving recorded or captured images.
- Choose whether to display the time and model of the saved configuration on the device.

③   Feedback
- You can send an e-mail when there is anything to be improved.
- This function is available for use only when this monitor is connected to the Internet.
- This function is available only when the email setting is done.

④   About
- You can see the version and copyright of this test monitor.

Configuration rearrangement

Reorder
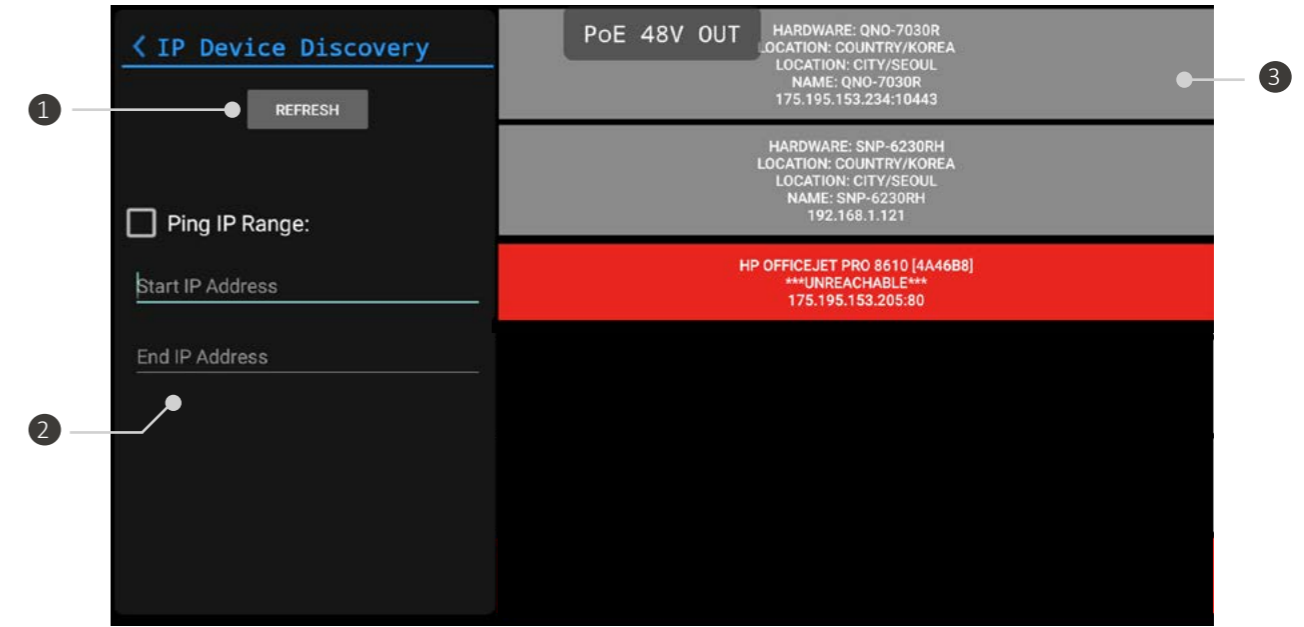(Drag & drop the star)
⭐ CCTV 1
⭐ CCTV 2
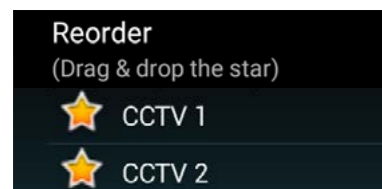
- All saved configurations will be shown.
- Drag any of the star-shaped icons to where you want to set.

IP App. Functions

IP Device Search

- Tap the search icon to start camera discovery as shown below.
- All IP cameras will be searched automatically when entering this screen.

No.	Name	Description
①	Refresh	Touch this button to try the search again.
②	Ping IP Range	This is a method to search IP devices by using Ping and available for use after entering the Start IP address and the End IP address. The greater the search range is, the longer it may take to search the IP devices.
③	Search Results	The discovered IP cameras are displayed with their names and IP addresses. The discovered information depends on the camera's brand.

!   When the camera is not searched

▪ When using unsupported protocol.

If the camera does not support ONVIF, IP search and camera connection will not work. In this case, you have to connect manually using RTSP. The RTSP address is different for each camera company and must be checked with the camera manual or manufacturer.

▪ When using a wireless router.

If you connect the camera wirelessly, you must change the monitor's network settings to Wi-Fi and then perform discovery. When the camera is in DHCP mode, the router automatically assigns the camera IP address. (IP assignment method may vary depending on the connected IP router model)

▪ When the IP address is changed manually.

When changing IP address of the camera randomly, the camera may not be discovered. If you have forgot or lost the camera IP address, initialize the camera manually to its factory default. Refer to the camera user maual to initialize.

IP App. Functions

Camera Settings

- Tap the Camera Settings icon in the IP App. main page to test an IP camera.
- Selecting one of the discovered camera in the Search page also opens Camera Settings as following.
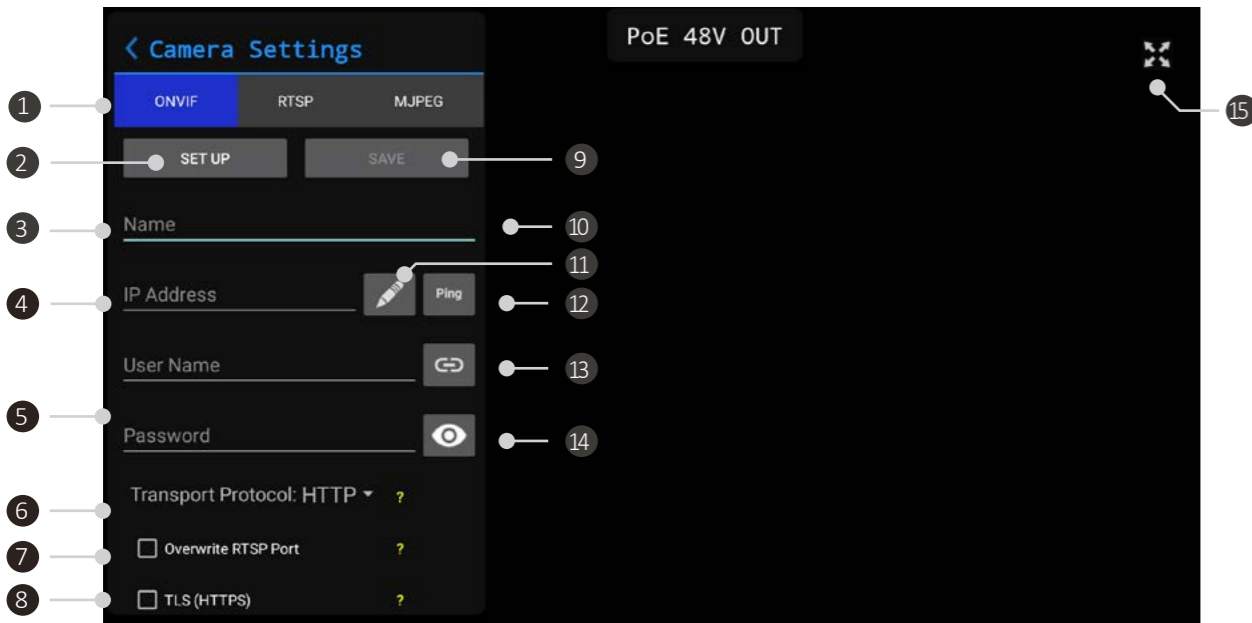

No.	Name	Description
①	Device Type	Select your device type such as ONVIF, RTSP and MJPEG.
②	Set up	Connect the camera with the setting information entered below. Press this button after completing the below setting information.
③	Camera Name	Enter a camera name as you wish.
④	Camera IP Address	Enter the IP camera address.
⑤	User Name / Password	Enter the user name and password of the credential used to connect the camera.
⑥	Transport Protocol	Select a transport protocol between HTTP, TCP and UDP. HTTP is recommended. If HTTP is not supported, this test monitor finds the appropriate protocol automatically in TCP, UDP order.
⑦	Overwrite RTSP Port	Overwrite when the camera is set to any RTSP port.
⑧	TLS(HTTPS) Setting	Use when the camera is set as HTTPS.
⑨	Save	Save the configuration to the main page of the IP App.
⑩	Import	Enabled only when there are saved configurations. Import one of the saved configurations.
⑪	Network Edit	Modify the network settings of the connected camera.
⑫	Ping Test	Ping the connected camera and check the connection status.
⑬	Website Link	Connect the web page to the entered IP address.
⑭	View Password	Display the entered password.
⑮	Full Screen	Activated when camera is connected. Display full screen mode.

IP App. Functions

Camera Network Settings

- This function is available only when the camera is connected.
- Tap the Network Setting icon to enter the following page.
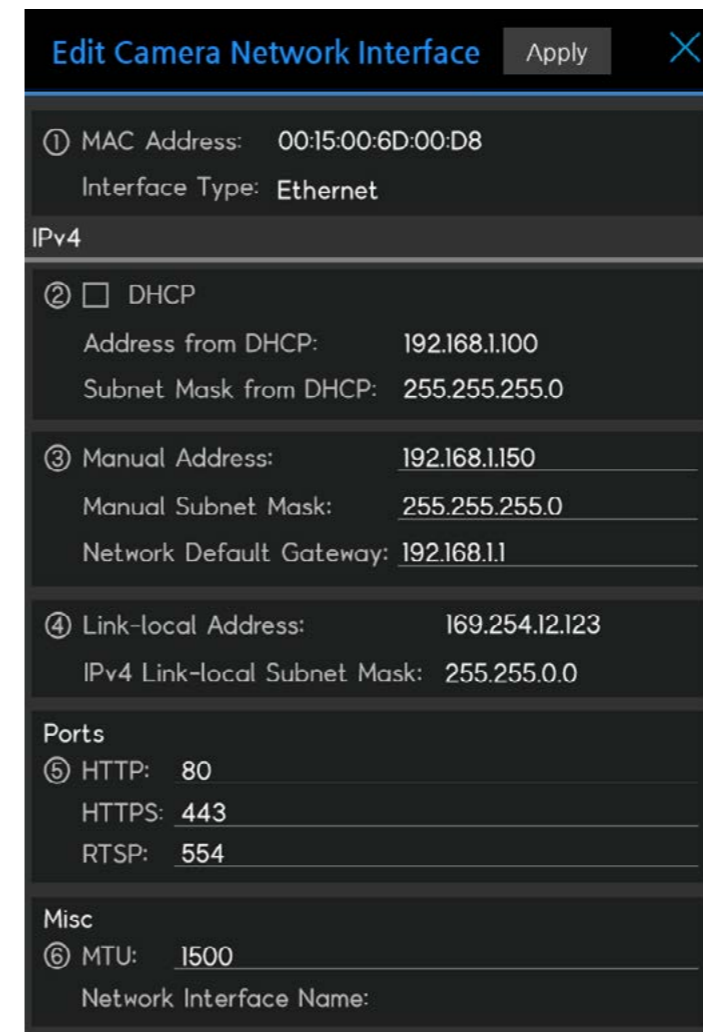
① Camera Network Information

- MAC Address is fixed for each camera and cannot be changed.
- Interface Type represents the current network type of the connected camera.

② DHCP Settings

- Check the DHCP box to enable DHCP.
- IP, Subnet mask shows the address automatically assigned by the DHCP server.

③ Manual IP Settings

- You can change the camera IP address, Subnet Mask and/or Gateway.

④ Link-local Address

- You can check the link-local address of the camera.
- Link-local address is not available for modification.

⑤ Camera Ports

- You can check the ports used for the camera's HTTP, HTTP and RTSP servers.

⑥ Misc.

- MTU: You can set the packet size for the transmission in network.

**! When the error window is displayed.**

The operation depends on camera network specifications as each manufacturer has different specifications.

- **When the IP address is not changed after modification.**
  The IP address will be changed once you reboot the camera.

- **When an error window is displayed.**
  The IP address will be changed once you reboot the camera.

IP App. Functions

Edit Media Profile

- Once a camera is connected, you can edit the media profile.
- Tap the ✏ profile edit icon to see the following image.
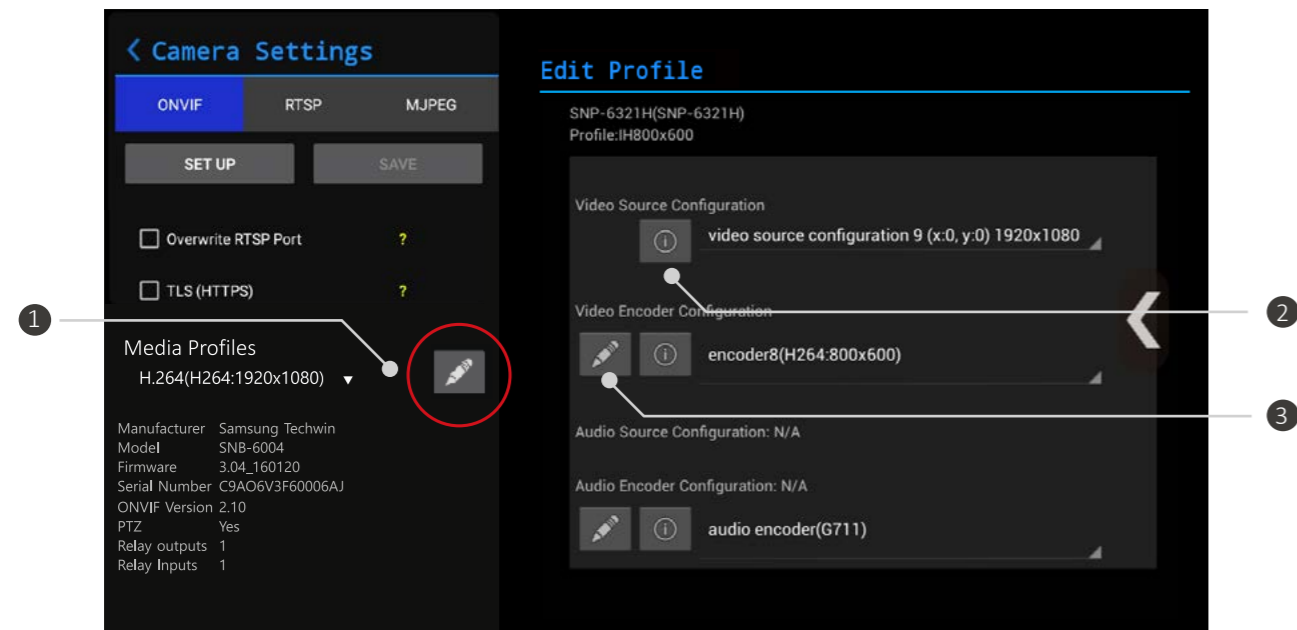
No.	Name	Description
①	Profile Edit Settings	You can set its resolution, encoding type, video quality through video encoder and also you can set bit rate, encoding type, sample rate through audio encoder.
②	View details	Tap ⓘ icon to check its source and encoder's contents in details.
③	Encoder Edit Settings	Tap the ✏ to change its video and audio encoders' configurations. In case of not supporting audio, it will be indicated as N/A.

IP App. Functions

Main Page

- If tapping the ✕ at the top right of the screen after a camera is connected, the window will be shown as the following image.

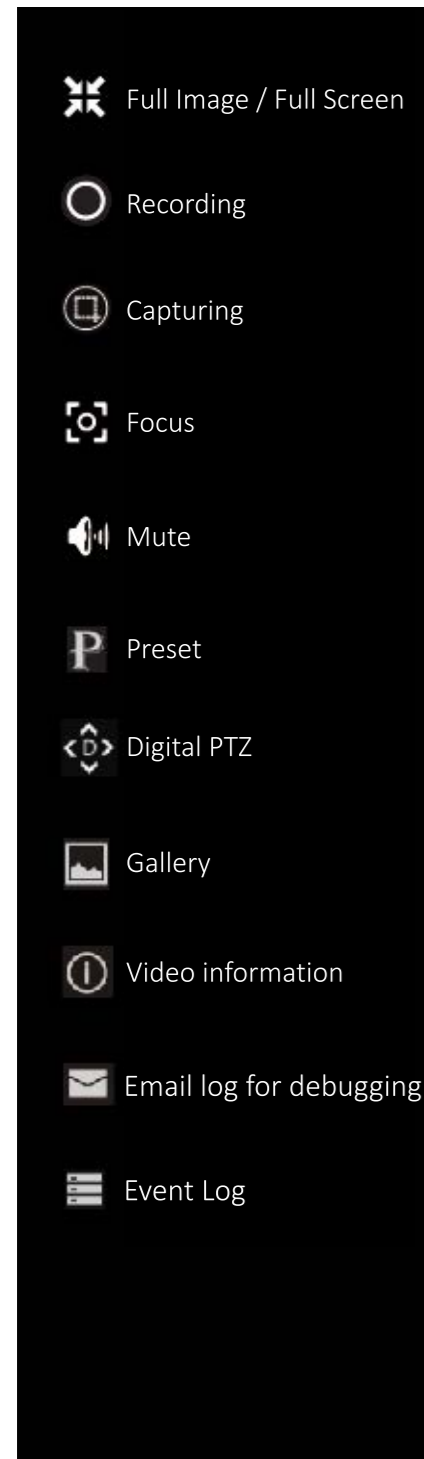| No.	Name	Description
①	PoE Status Check	The PoE voltage status sign on the top will move to the left bottom in video full screen mode. This cannot be moved by dragging.
②	Video Menu Bar	This menu includes aspect ratio settings (Full/Original images), recording, capturing, mute, presets, digital PTZ settings, gallery(playback), video information and e-mail log for debugging, event log, etc.

IP App. Functions

Live Video Menu Bar

- In the IP App. video page, tap the MENU key or touch the ◁ menu icon to show the following menu bar.

✕ Full Image / Full Screen	
○ Recording	
▣ Capturing	
◎ Focus	
◀|| Mute	
P Preset	
◁◇▷ Digital PTZ	
▦ Gallery	
① Video information	
✉ Email log for debugging	
☰ Event Log	

① Full Image / Full Screen
- In the full image mode, the full image is displayed.
- In the full screen mode, the video is scaled to fill the monitor screen completely while maintaining its aspect ratio.

② Recording
- It is for recording the input video.
- The video recording is available up to 5 minutes.
- Make sure to check the cautions for recording.

③ Capturing
- It is able to capture the input video.
- Make sure to check the cautions for capturing.

④ Focus
- It is able to adjust the focus of Hanwha Techwin zoom lens camera.
- This function is not enabled when connecting other manufacturer's cameras.

⑤ Mute
- This function is enabled on cameras that support audio input.
- Audio may be interrupted depending on the network conditions.

⑥ Preset
- This function is enabled on cameras that support presets.
- It is able to use presets stored in the camera.

⑦ Digital PTZ
- This function is enabled only for Digital PTZ cameras.
- Digital Zoom function is available for use.

⑧ Gallery
- Recorded or captured images are stored here.

⑨ Video Information
- You can check the information of the input video in real time.

⑩ Email log for debugging
- You can send the errors generated during the product operation by e-mail.
- This function is available only during Wi-Fi.

⑪ Event Log
- You can check the camera connection log.

IP App. Functions

Video Recording
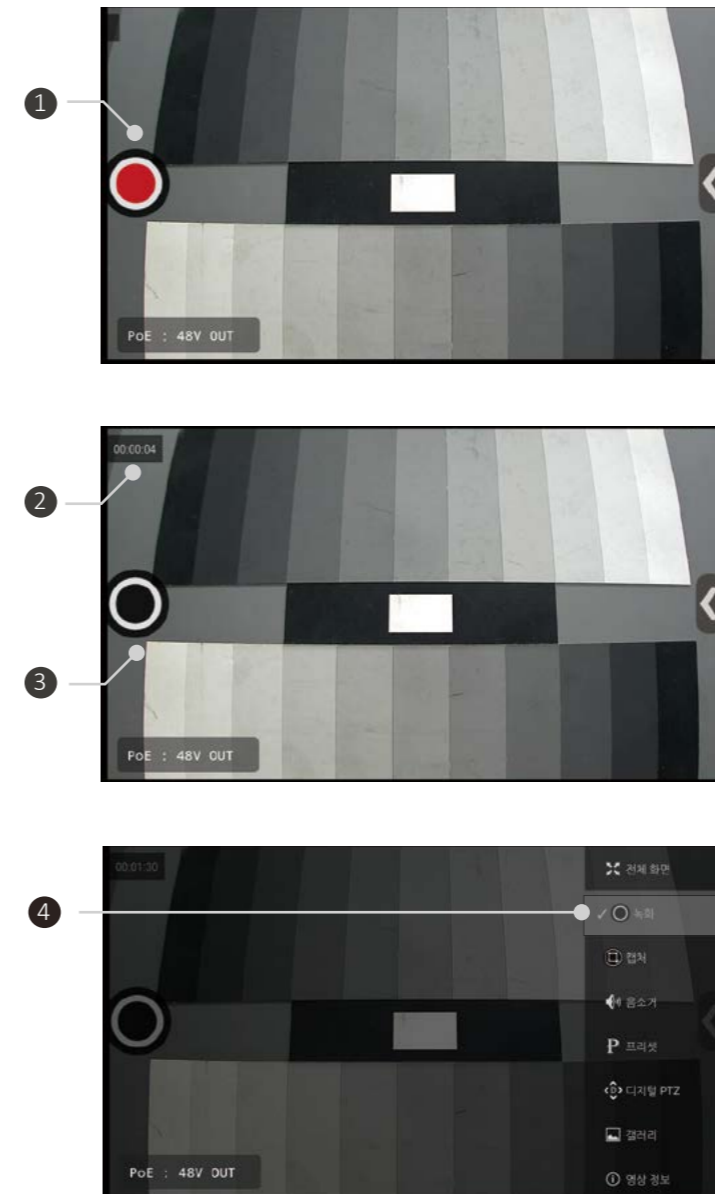
① Recording Start Button
- Start recording by tapping ⬤ button.

② Recording Status Display
- The recording time is displayed.
- The recording is available up to 5 minutes.

③ Recording End Button
- End recording and save the recorded file by tapping ⬤ button.

④ Recording Function Termination
- Select the Recording in the menu bar. Then, the "v" mark will be removed and the recording function will be terminated.
- You can also terminate the recording function and move to IP App. main page by pressing the Back key.

! Cautions for recording

- Recording specifications depend on each camera manufacturer.
- Change the media file saving location from Internal to SD Card, which is in the Settings of the menu bar in the IP App. main page.
- The recorded video is saved in MP4 format.
- The maximum recording time is 5 minutes.
- Check the storage space prior to continuous recording.

- If you take the SD card out or turn off the test monitor during recording, the recorded video file will not be saved.
- If you terminate the recording during recording preparation, the file will not be saved.
- In JPEG profile, only capturing is available.
- If the network is disconnected during recording, recording will stop automatically after 15 seconds, and the recorded video file will not be saved.

IP App. Functions

Snapshot Capturing

① Capturing Start Button

- Start capturing by tapping ⊡ button.

② Capturing Status Display

- Display the capturing status.

③ Capturing Function Termination

- Select the Capturing in the menu bar. Then, the "√" mark will be removed and the capturing function will be terminated.

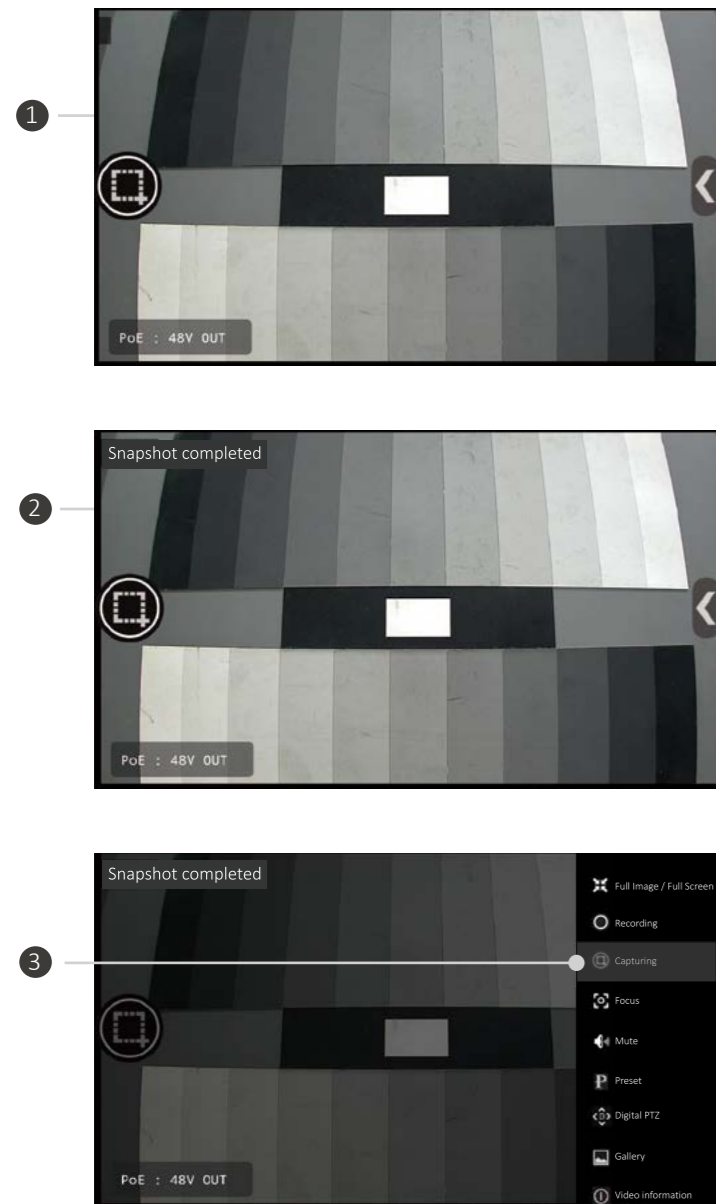- Press the BACK key to terminate the capturing function and and move to IP App. main page.

! Cautions for capturing

- Capturing specifications depend on each camera manufacturer.

- Change the media file saving location from Internal to SD Card, which is in the Settings of the menu bar in the IP App. main page. Then, the captured image will be saved in the SD card.

- The captured image is saved in JPG format.

- If you tap the capture button continuously, the image may not be saved.

IP App. Functions

Audio Input

- This monitor supports G.711 audio codec.
- When audio is input to the camera side, audio is output through the monitor speakers.
- You can control the speaker output by using the mute function.

Video Output Codec Change
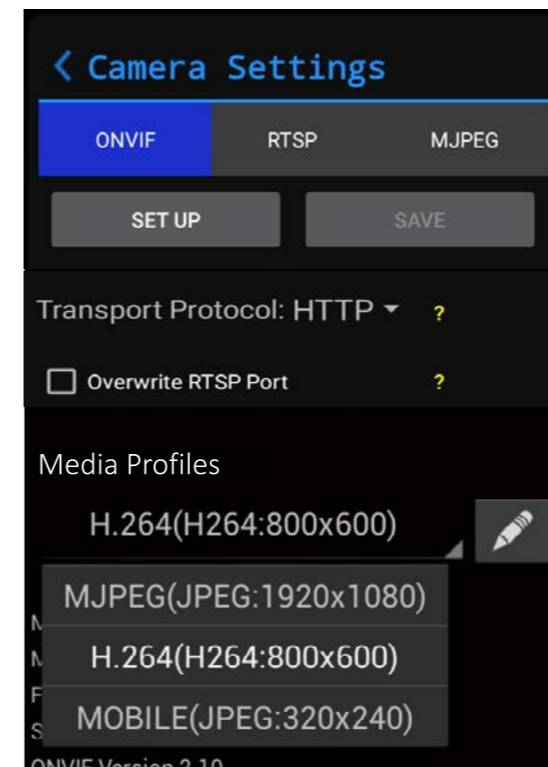
- This test monitor supports H.264, H.265 and JPEG codecs.
- You can select the video codec by choosing a Media Profile of the IP camera setting page accordingly.
- When saving the configuration or turning to full screen after selecting a profile, the new profile will be applied.

! Cautions for changing codecs

- Codec specifications depend on each camera manufacturer.
- MPEG4 is not supported.
- JPEG over 3Mega is not supported.
- Multicast method is not supported.
- H.265 supported camera may not be displayed in the media profile list when connected.

IP App. Functions

Pan/Tilt Functions
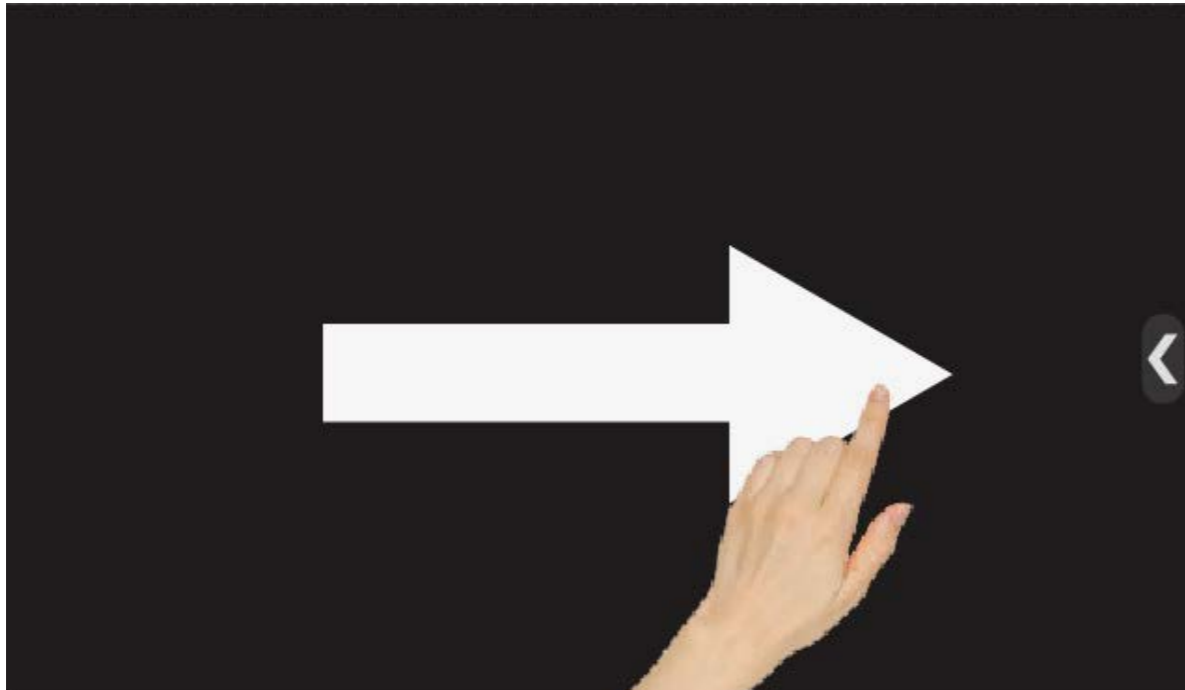
- Opto-mechanical pan/tilt functions are available for PTZ cameras only
- Pan/tilt the camera by touching the screen and wiping it.
- Pan/tilt functions are available by both touching the screen and using the arrow keys.
- The pan/tilt speed depends on each camera brand when operating by the arrow keys.

- Swipe left from right
- Press the right arrow key
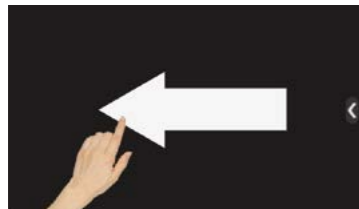
- Swipe up from down
- Press the down arrow key

- Swipe diagonally
- Unavailable to operate it by arrow keys.

IP App. Functions

Zoom Function

Flick to Pan/Tilt, Pinch to Zoom

ZOOM   Focus

- If the camera supports opto-mechanical PTZ, enable the Digital PTZ first to use Digital Zoom function. Otherwise, opto-mechanical Zoom will be applied.
- Zoom out/in the video screen by your fingers.
- Pinch two or more fingers together to zoom out.
- Stretch two or more fingers apart to zoom in.
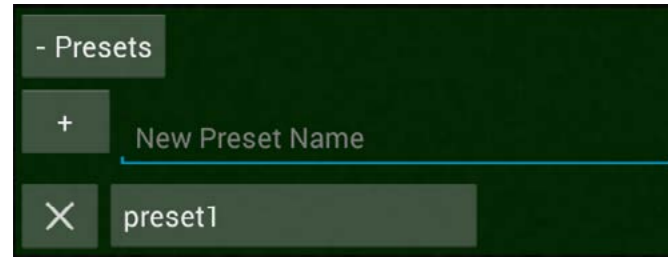- Zoom out/in available by pressing-/+ of the zoom bar at the bottom of the screen.

> ! **Cautions for Zoom Function**
> - When the screen is switched abnormally while using Digital PTZ, zoom or swipe again to return to normal.

Presets

- This function is enabled only for cameras supporting presets.
- Some characters may not be allowed in preset names by some camera brands.

- Presets function can save and load Pan/Tilt/Zoom status values.
- Type the Preset Name and press the + button to add a preset.
- Select a preset from the list to move the camera to the preset position.

Video Information

- Select the Video Information from the video menu bar. It will be shown as follows.

Network Video Transmitter (NVT) name: SNP-6321H
NVT type: ONVIF
Model: SNP-6321H
Media Profile: H.264
Resolution: 1920x1088
Encoding: H264
Transport Protocol:RTP/RTSP/TCP
H.264: High profile Level: 4.0
RTP packets received: 7002
RTP packets lost: 0
Frame rate (fps): 9.9
Audio: G.711 Mu-Law
ONVIF port: 80
RTSP port: 554
Data Rate (Mbit/s): 1.379

①	Network Video Transmitter	⑩	RTP packets lost **(Real-time)**
②	NVT type	⑪	Frame rate **(Real-time)**
③	Camera model	⑫	Audio codec (If available)
④	Media profile	⑬	ONVIF port
⑤	Video resolution	⑭	RTSP port
⑥	Video encoding	⑮	Data rate **(Real-time)**
⑦	Transport protocol		
⑧	Profile level		
⑨	RTP packets received **(Real-time)**		

- Information about the functions supported by the camera is displayed. Therefore, displayed information may differ depending on the manufacturer and specifications of the camera.

Configuration Storage

- You can save the configuration after entering all camera information required and previewing the video.
- Once you save the configuration, you can easily start its corresponding video from the IP App. main page.
- All camera settings are saved. When changing the camera settings, please save the configuration again.
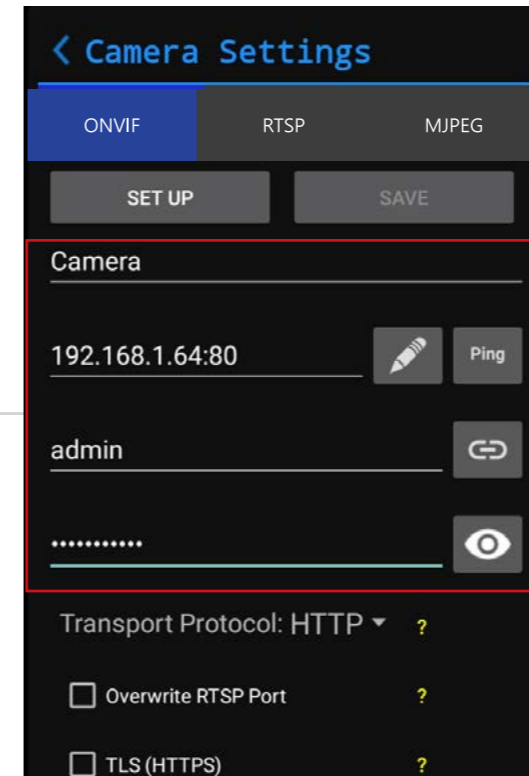

① Stored Information

- All setting information to set a camera such as Name, IP Address, ID and Password is saved.
- Configuration saving is available only when any camera has been connected successfully.
- The camera model name is not displayed in RTSP, MJPEG configuration.

② Save

- Tap the Save button in the Camera Setting page to save the configuration to the IP App. main page.

IP App. Functions

Camera Configuration Context Menu

- Press and hold a saved configuration or Set key. A menu will be shown as the following picture.
- Some functions are not available for RTSP, MJPEG configurations, which are not ONVIF.
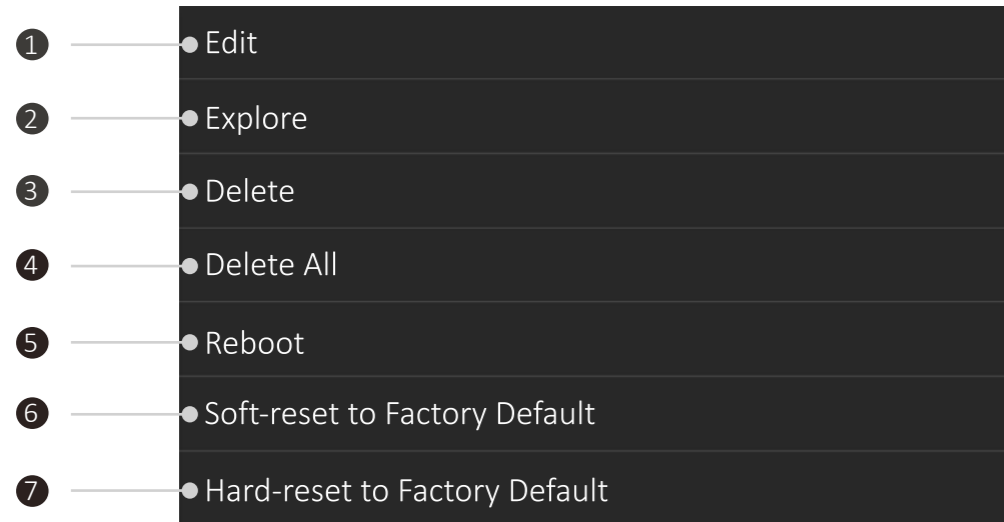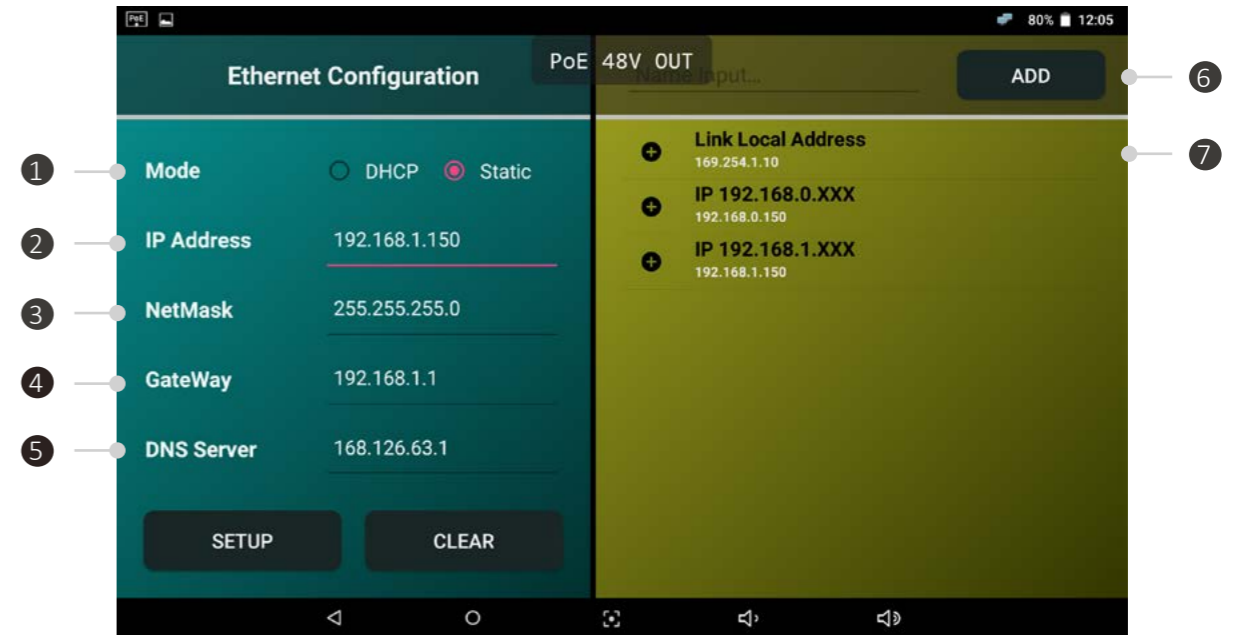

No.	Name	Description
①	Edit	Open the IP Camera Settings page to modify the configuration.
②	Explore	Check extensive ONVIF properties of the camera.
③	Delete	Delete the selected configuration.
④	Delete All	Delete all saved configurations.
⑤	Reboot	Reboot the selected camera.
⑥	Soft-reset to Factory Default	Reset the camera settings except for the network setting to the factory default.
⑦	Hard-reset to Factory Default	Reset the camera settings to the factory default.

IP App. Functions

Monitor IP Settings

- Tap the Monitor Settings icon in the main page of the IP App. to open the Monitor Network Settings page.

No.	Name	Description
①	Operation Mode	If you check DHCP, a DHCP server can assign IP to this test monitor. If there is no activated server or the server is abnormal, IP will not be set up normally. If you check Static, you can use static IP address.
②	IP Address	Enter the IP address.
③	NetMask	Enter the NetMask address.
④	Gateway	Enter the Gateway address. It has to be modified depending on the entered IP address.
⑤	DNS Address	Enter 168.126.63.1 to use website.
⑥	Name	Enter the name to save the network information entered on the left.
⑦	Saved List	Display the list of saved network information.

IP App. Functions

IP Address Selection

- IP address classes shall match each other to discover and connect network.
- The range of the numbers available for IP address is from 0 to 255. All IP address classes can be identified with the bit of the first number. With other classes, it cannot communicate with each other.

  - Class A: 1.0.0.1 ~ 127.255.255.254
  - Class B: 128.0.0.1 ~ 191.255.255.254
  - Class C: 192.0.0.1 ~ 223.255.255.254
  - Class D: 224.0.0.0 ~ 239.255.255.255
  - Class E: 240.0.0.0 ~ 254.255.255.254

Class	No. of available addresses	Subnet Mask	Private IP
Class A	16,777,216	255.0.0.0	10.0.0.0 ~ 10.255.255.255
Class B	1,048,576	255.255.0.0	172.16.0.0 ~ 172.32.255.255
Class C	65,536	255.255.255.0	**192.168.0.0 ~ 192.168.255.255**
Class D	Not available. Normally for multitasking.		
Class E	Not available. Normally for testing.		

- Private IP address in the above table is available for communication on the same network, but cannot pass through the router. It is used for LAN only.
- If you connect an IP camera with an IP address except for private IP addresses, it may be disclosed on the Internet and be in danger of being hacked.
- Specific IP addresses such as Class D/E are not available for use. These IP addresses are normally used for specific purposes such as multicasting or broadcasting. If you use this kind of IP addresses in general, it may cause some problem in network.
- Network specifications depend on each camera manufacturer. Class C is used in common and for large/medium-sized network, Class B is generally used.

Link-local Address

- All devices using network are able to have one or more link-local addresses.
- The range of the link-local address is from 169.254.0.0 to 169.254.255.254
- All network cameras have link-local address and can be discovered and connected with this test monitor.

IP App. Functions

Multi Ping Test

- You can check the connection status of the camera by Ping test.
- For Ping test, the camera's IP address is used only.
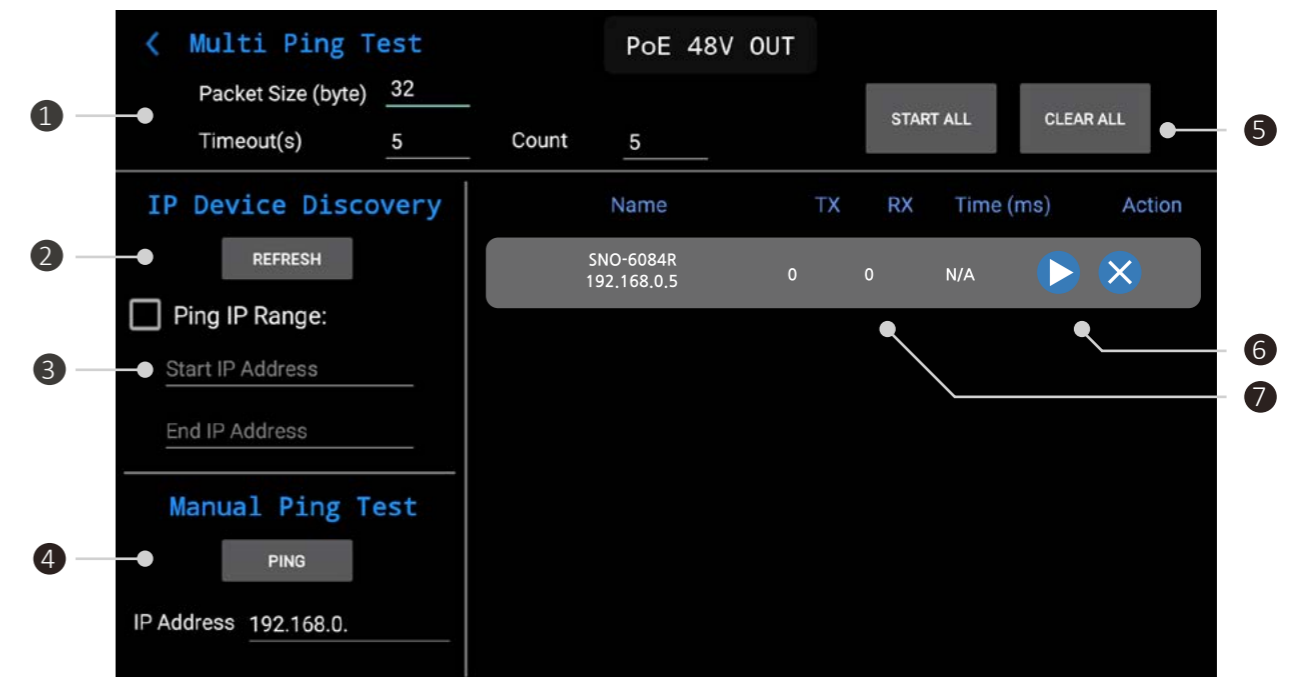
No.	Name	Description
①	Packet Setting	Set the size, response time and number of packets to be sent.
②	Refresh Button	Rediscover the connected IP camera.
③	IP Device Range Search	Discover manually connected IP camera.
④	Single Ping Test	Ping the input IP address.
⑤	Start All Button	Ping or initialize all discovered cameras.
⑥	Operating Button	Ping or initialize the selected camera.
⑦	Status Window	Check the number and time of packet transmission / reception.

Viewer App. Functions

Main Page

- Viewer App. can check SDI, HDMI, AHD, CVI, TVI, CVBS signals.
- SDI products should be connected to SDI Input BNC port and HD analog/CVBS products shall be connected to Video Input BNC port for the relevant video signal input.
- Wi-Fi should be off for SDI input. It may generate some video noise in a long-distance transmission.

SDI

No signal

S. LVL : 000%
FOCUS : 000 /000
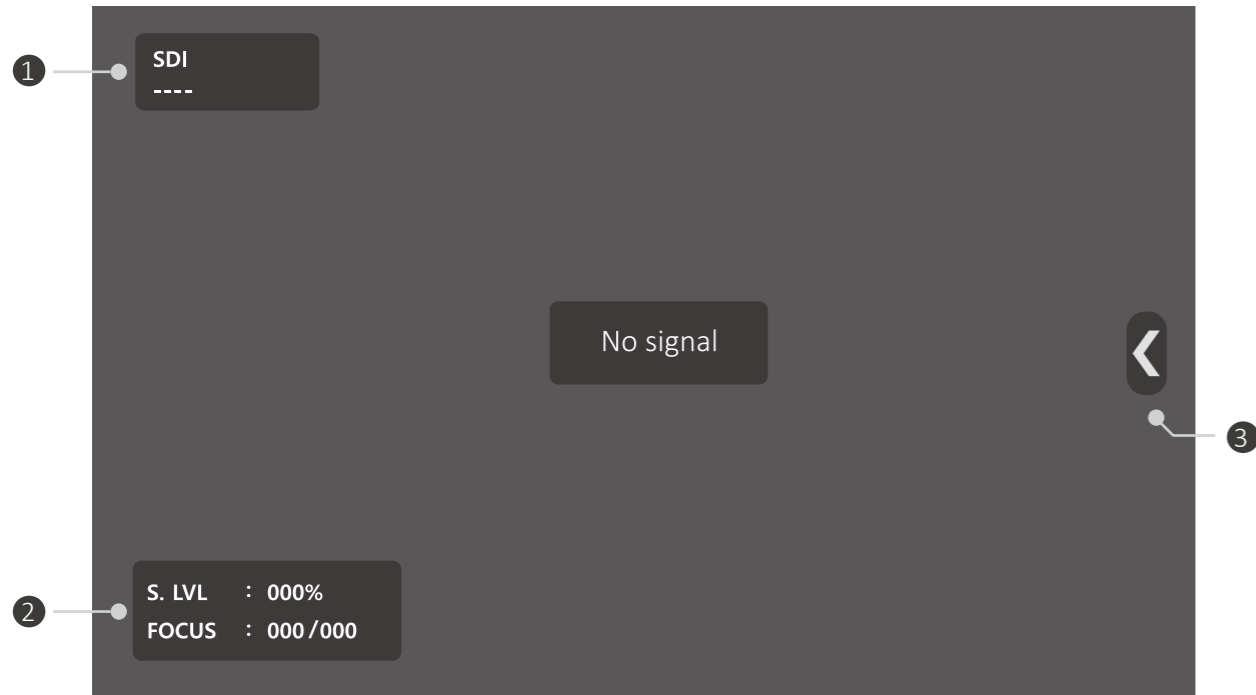
No.	Name	Description
①	Video Input Status	When no video is entered, it displays "----" as shown in the above picture. The resolution of the input video is shown just after entering video and the window will be closed in 10 seconds.
②	Level Meter/ Focus Meter	SDI mode has S. Level meter and AHD/CVI/TVI/CVBS modes have A. Level and F. Level meters. Focus Meter function is to adjust the camera focus more easily and accurately in numerical values. This function is shows the optimum and current focus status(depth) in real time.
③	Video Menu	This menu includes PTZ/OSD/UTC, Record, Capture, Gallery(Playback), PoC functions and Settings, etc.

❗ Cautions for SDI Input

- When a specific SDI signal is input, abnormal audio may be output. It is not possible to solve this compatibility problem, so please adjust the sound.

Viewer App. Functions

Supported Resolution

SDI
1920X1080p30

① HD-SDI Input
- Displayed as SDI.
- Input signal resolution is displayed.
- Support standard SDI input.

EX-SDI
1920X1080p30

② EX-SDI Input
- Displayed as EX-SDI.
- Input signal resolution is displayed.
- Support EX-SDI 1.0, 2.0.

3G-SDI
1920X1080p60

③ 3G-SDI Input
- Displayed as 3G-SDI.
- Input signal resolution is displayed.
- Support standard 3G-SDI input.

AHD
1920X1080p30

④ HD Analog Input
- Displayed as AHD, TVI, CVI.
- Input signal resolution is displayed.
- For AHD, TVI, CVI cameras, signal formats are not standardized so the video may not be displayed depending on the manufacturer.

CVBS
NTSC

⑤ CVBS Inptu
- Displayed as NTSC/PAL.
- Support standard CVBS input.

HDMI
1920X1080p60

⑥ HDMI Input
- Displayed as HDMI.
- Support up to 2160p 30Hz input.

Viewer App. Functions

Signal Level Meter Function

1. SDI Level Meter

- SDI Level Meter represents the current SDI signal status signal size in percentage.
- 100% means the most optimum signal status (the biggest signal size) and the lowest value is 0%.

```
S. LVL  : 015% NG
FOCUS : 100/100
```

① No Good
  - NG displayed in 0~29%
  - Severe signal attenuation

```
S. LVL  : 045% Normal
FOCUS : 100/100
```

② Normal
  - Normal displayed in 30~59%
  - Normal-state signal

```
S. LVL  : 090% Good
FOCUS : 100/100
```

③ Good
  - Good displayed in 60~100%
  - Signal in good condition

2. Analog Level Meter

- Analog Level Meter represents the current Analog signal status (signal size and brightness) in percentage.
- The Level Meter can measure signal attenuation rate and adjust the level of the UTP receivers.

```
A. LVL  : 100%
F. LVL  : 100%
FOCUS : 100/100
```

① A. Level
  - A. Level represents the signal brightness size (Sync.) and the standard value is 100%. Lower value means more signal loss, that is, decreased brightness and increased noise.

② F. Level
  - F. Level represents the video color size (Burst) and the standard value is 100%. Lower value means lower resolution and worse color reproduction.

! How to adjust the level value of UTP receivers

  - It is possible to adjust the level value accurately in case of the UTP receivers.
  - Set both A. Level and F. Level close to 100% and adjust it by checking the actual video.

Viewer App. Functions

Focus Meter Function

- Focus Meter represents the optimum and current focus status(depth) in numerical values.
- The focus depth is represented in numerical values between 255 and 0. Adjust the optimum and current focus depth to be matched.
- Focus meter value differs depending on the subject. Use SET button to reset the focus value in initial operation.


```
A. LVL  : 100%
F. LVL  : 100%
FOCUS : 098/225
```
Current Value — Optimum Value

```
A. LVL  : 100%
F. LVL  : 100%
FOCUS : 225/225
```

CRC Error Count Function

- CRC Error Count measures the number of CRC errors in HD/EX/3G-SDI mode.
- When HD/3G-SDI is entered, CCRC and YCRC values will be displayed. For EX-SDI input, XCRC value will be displayed.

```
CCRC : 000
YCRC : 000
TIME : 00 : 00 : 00
```
HD/3G-SDI Mode

```
XCRC : 000
TIME : 00 : 00 : 00
```
EX-SDI Mode

① To activate this function, press the Set button once after connecting the camera.

② To initialize the values, press the Set button for two seconds during CRC measurement.

③ To terminate this function, press the Back button.

Viewer App. Functions

Video Menu Bar

- Only activated menus are available for each video mode : SDI, HD Analog, HDMI.
- Press the Menu button or Menu icon ⟨. The Menu bar will be popped up as shown as follows.
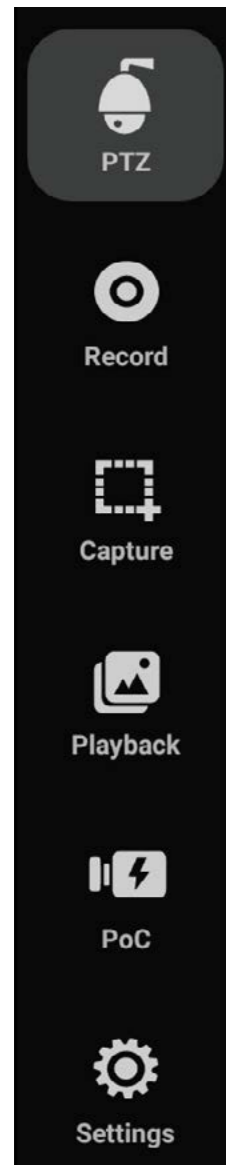
① **PTZ**
- Camera PTZ or OSD settings are available through RS-485 TX function.
- It is possible to receive or analyze data by using RS-485 RX, Analyzer function.
- Camera PTZ or OSD settings are available through UTC/UCC function.
    - Deactivated in HDMI mode.

② **Record**
- It is possible to record the input video.
- Other Capacity is not available during recording.
- The maximum recording time is 5 minutes.

③ **Capture**
- It is possible to capture the input video.
- The recorded or captured images are saved in Gallery.

④ **Playback (Gallery)**
- Recorded or captured images are stored here.

⑤ **Settings**
- Set where to save the recorded or captured images.
- Turn on/off the Level and Focus Meter functions.

Viewer App. Functions

PTZ

- To implement PTZ function, the Mode, Protocol, Address and Baudrate must be set.
- UTC function is activated in HD Analog and CVBS modes and by this function, camera control via coaxial cable is available.
- UCC function is activated in SDI mode and by this function, EX-SDI camera that supports UCC control is available.
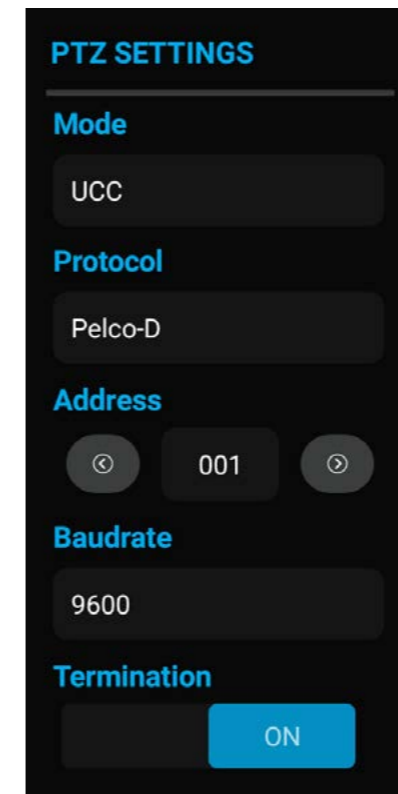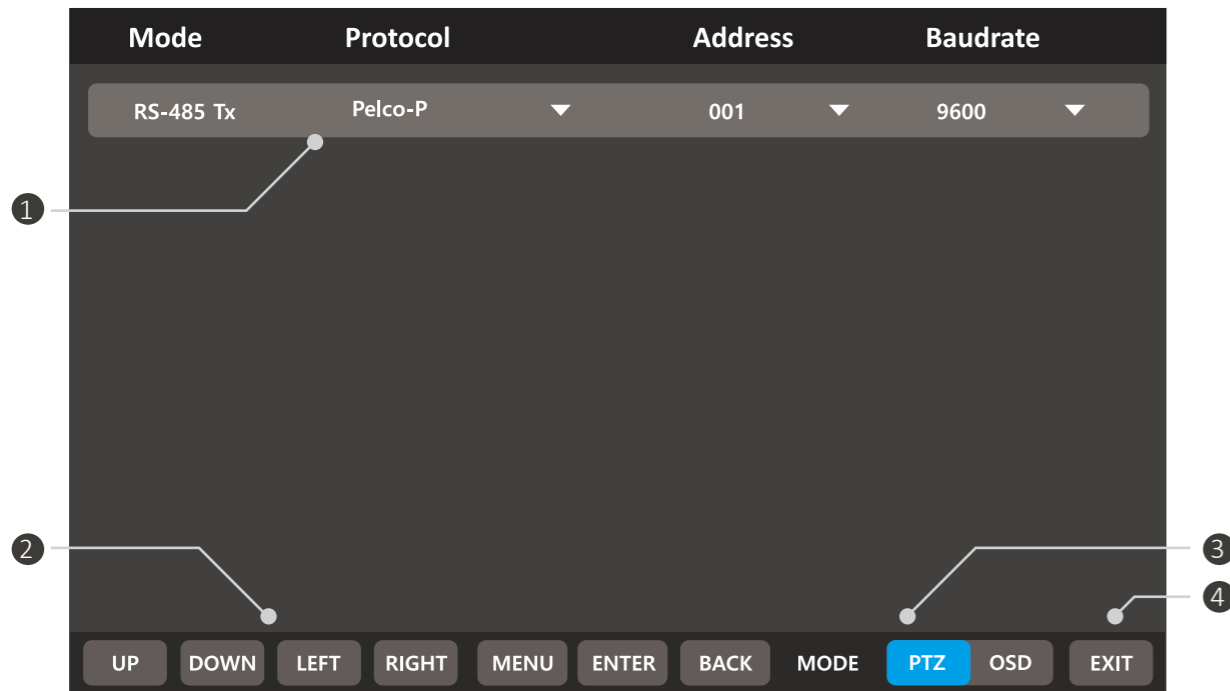
① **Mode Settings**
- This part includes RS-485 TX, RS-485 RX, Analyze, UTC, UCCA and UCCB.
- RS-485 TX mode is for PTZ and OSD control of connected camera.
- RS-485 RX mode receives PTZ control and displays as Hex value.
- Analyze mode analyzes protocols received through RS-485 port and confirms the command and Hex values at the same time.
- UTC/UCC modes are to control a camera over coaxial cable.

② **Protocol Settings**
- The protocol must be set same as the device to control.

③ **Address Settings**
- The address must be set same as the device to control.

④ **Baudrate Settings**
- The baudrate must be set same as the device to control.
- The available baudrate is 2400, 4800, 9600, 19200.

⑤ **Termination Resistance Settings**
- 75Ω termination resistance is available.
- Termination resistance is used to avoid of reflection effects which is generated by the impedance of transmitters.

❗ Cautions for RS-485 Settings

- Make sure to check the polarity in RS-485 connection.
- Protocol and Address settings are not required for use of RS 485 Rx.
- Address settings are not required to use Analyze function.
- Address and Baudrate settings are not required for UTC.
- Make sure to check the camera specifications before using UCC. There may be a difference between protocol and baudrate by each manufacturer.

Viewer App. Functions

RS-485 Tx.

| No.	Name	Description
①	Setting Status	All setting values such as mode, protocol, address, baudrate are displayed. It is able to change the setting value by pressing the triangle button on the right except the operation mode.
②	Touch Button	Use operation keys by touching the buttons.
③	Operating Mode	Change as PTZ or OSD mode. The function of the SET part changes according to the mode.
④	Exit Button	Terminate the PTZ operating mode.

❗ Cautions for setting protocols

- ▪ Protocol commands depend on camera manufacturer.
- ▪ Appropriate protocol for camera shall be used.
- ▪ BACK button may not work in OSD mode depending on protocol.
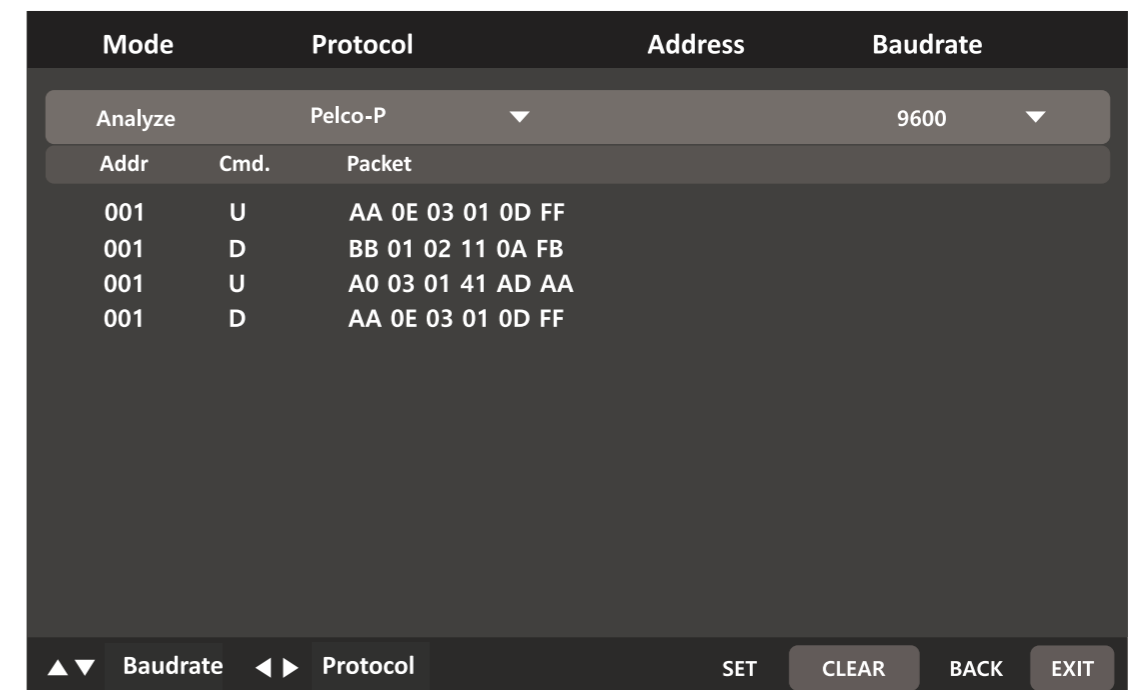
Viewer App. Functions

RS-485 Rx.

- The current settings are displayed on the top of the screen.
- Data transmitted through RS-485 cable is displayed in HEX value on the screen.
- When the data is more than 264 Byte, the previous data will be deleted.
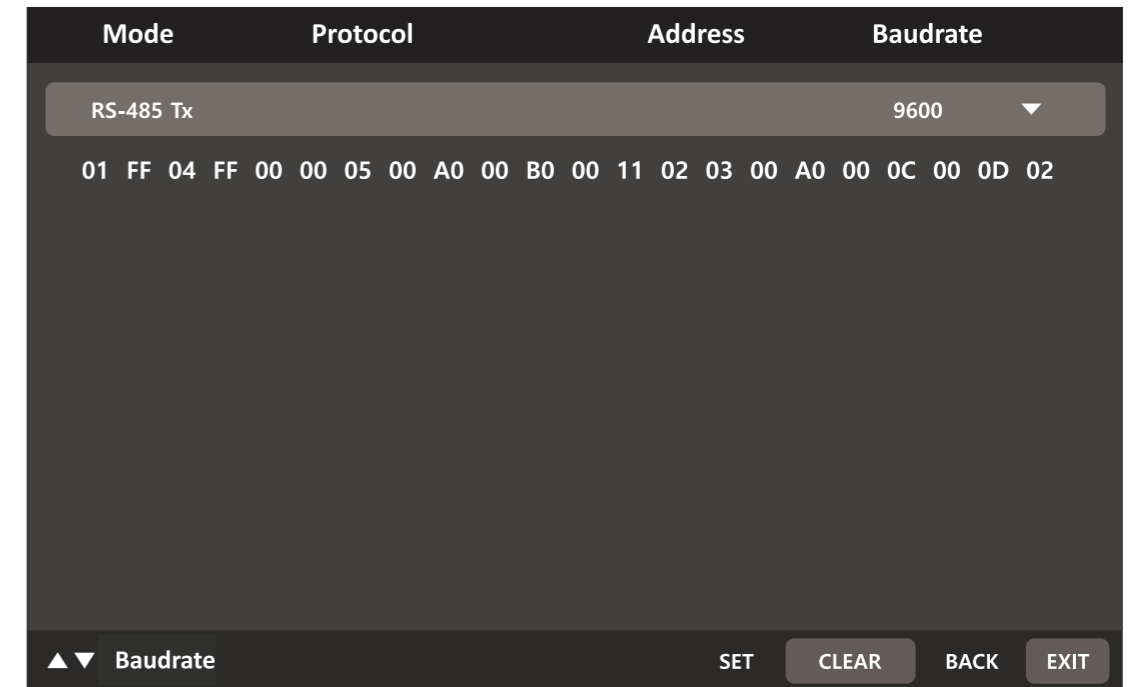

Analyze Function

- RS-485 commands received from CCTV controller or external devices are displayed.

Viewer App. Functions

UCC, UTC

- UCC is a function that can set PTZ and OSD of cameras that supports 3G/HD/EX-SDI UCC.through coaxial cable.
- UTC is a function that can set PTZ and OSD of analog cameras through coaxial cable.

Mode	Protocol	Address	Baudrate
UCC	Pelco-P ▼		

Mode	Protocol	Address	Baudrate
UTC	TVI UTC1 ▼		
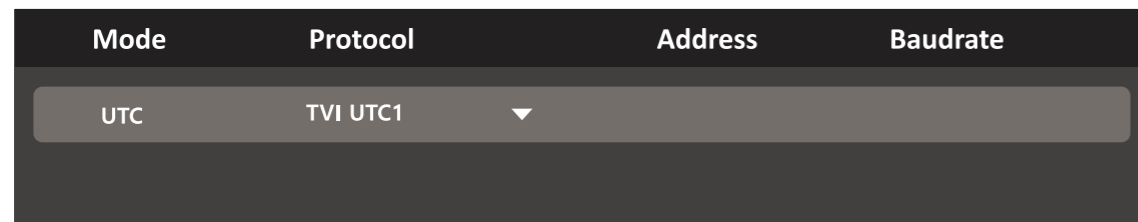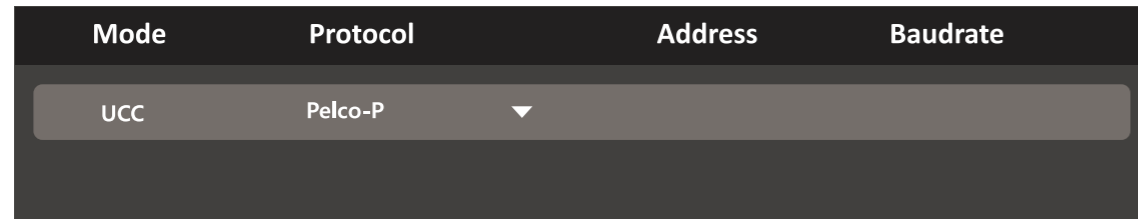
| Mode	Input Signal	Supported Items
UCC	EX-SDI	Support Coaxial communication of cameras that support EX-SDI UCC
UTC	CVBS	Support Coaxial communication of cameras from Hanwha(Samsumg) Techwin (Winner 5), Pelco, D-Max(PIXIM)
	AHD	Support Coaxial communication of cameras that support AHD UCC
	TVI	Support Coaxial communication of cameras that support TVI UCC
	CVI	Support Coaxial communication of cameras that support CVI UCC

❗ Cautions for using UTC function

- UTC function for HD Analog may not work properly in a long distance
- Video may be flickering during UTC operation.
- UTC function for 3MP or higher-resolution cameras may not work properly, depending on the camera's brand.

Viewer App. Functions

Video Recording

- It is not recommended to record for a long time.
- If the internal storage capacity is not sufficient, mount external storage device.
- You can set the storage location in Settings after mounting external storage device.
- When recording video, it is saved in MP4 format.
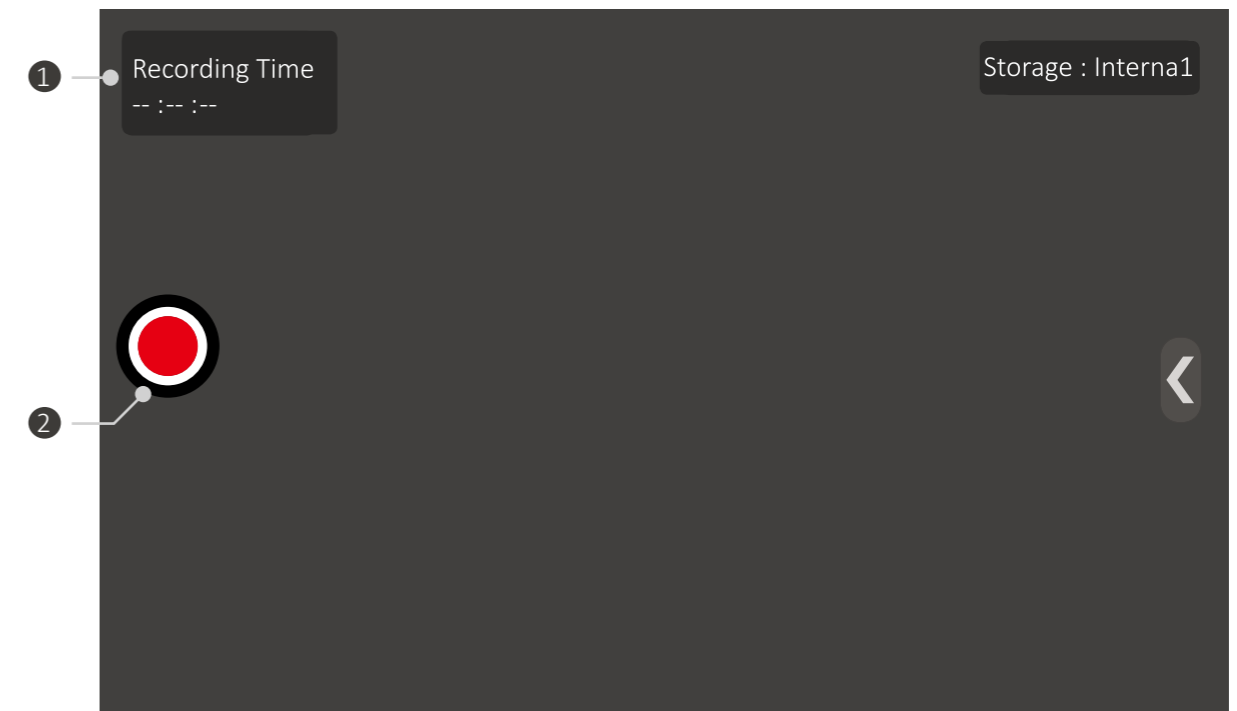
| No.	Name	Description
①	Recording Status	When recording is started, the time will increase and it is able to know the recording progress time. When recording is stopped, the time stpos and the video is saved. You can see saved video in Gallery.
②	Recording Button	Start/End recording by pressing the recording button.

❗ Cautions for recording and capturing

- When the internal capacity is full, recording is terminated and recorded video is saved automatically.
- If the recording file capacity is 3.5G or more, recording is stopped and recorded video is saved automatically.
- There are differenced in recording quality depending on the video transmission quality.
- All video of 1920x1080 or higher resolution will be recorded in 1920x1080 and ones of 1920x1080 or less resolution will be recorded in 1280x720.

Viewer App. Functions

Video Capturing

- It is available to capture the video and save as an image.
- If the internal storage capacity is not sufficient, mount external storage device.
- You can set the storage location in Settings after mounting external storage device.


Storage : Internal
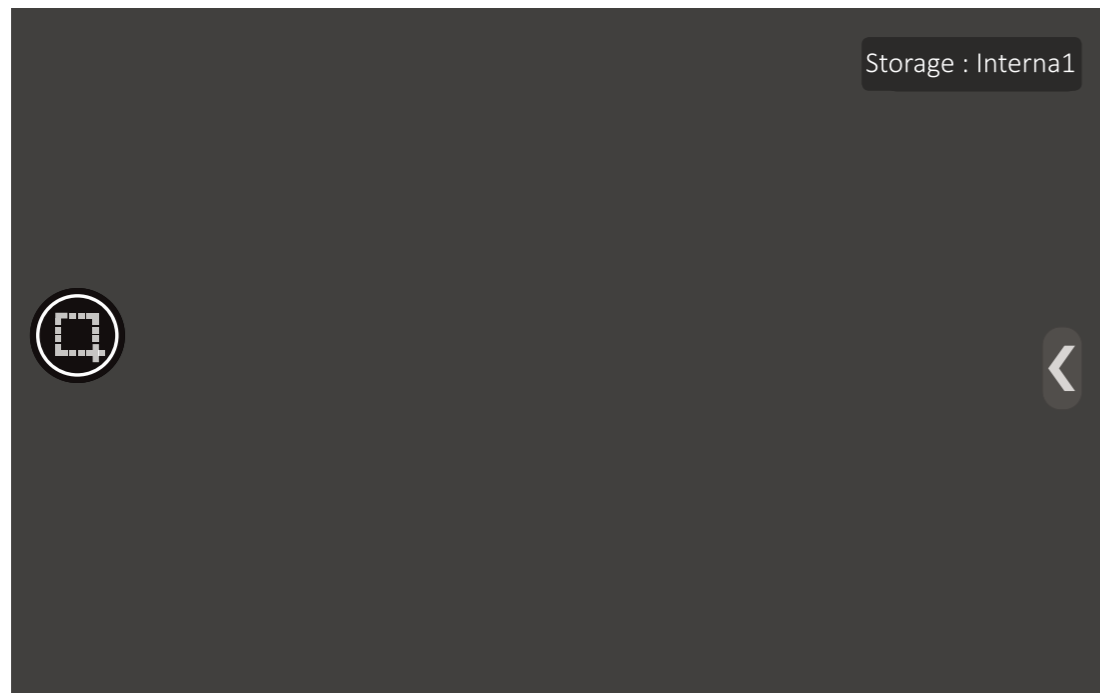
How to Use Gallery

- The recorded or captured images are saved in Gallery.
- The routes for video generated in the IP App. and Viewer App. are displayed differently.
- If you unmount the Micro SD card during using Gallery App., some problems may occur in the stored files.

Viewer App. Functions

User Settings

- This menu is to set the storage location, or turn on/off the Level/Focus meter functions.
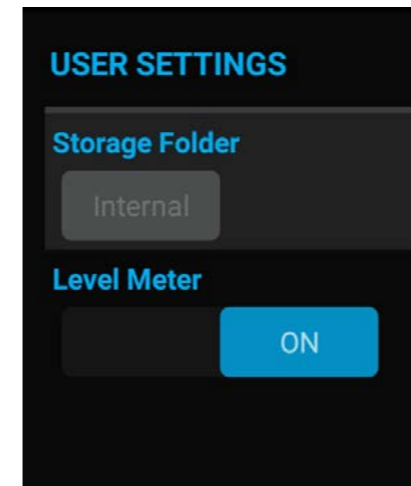
① Storage Folder
- Set where to save the recorded or captured images.
- Activated only when Micro SD Card is mounted.

② Level/Focus Meter
- Turn on/off the Level/Focus meter functions.
- The level meter will not be displayed in HDMI mode.
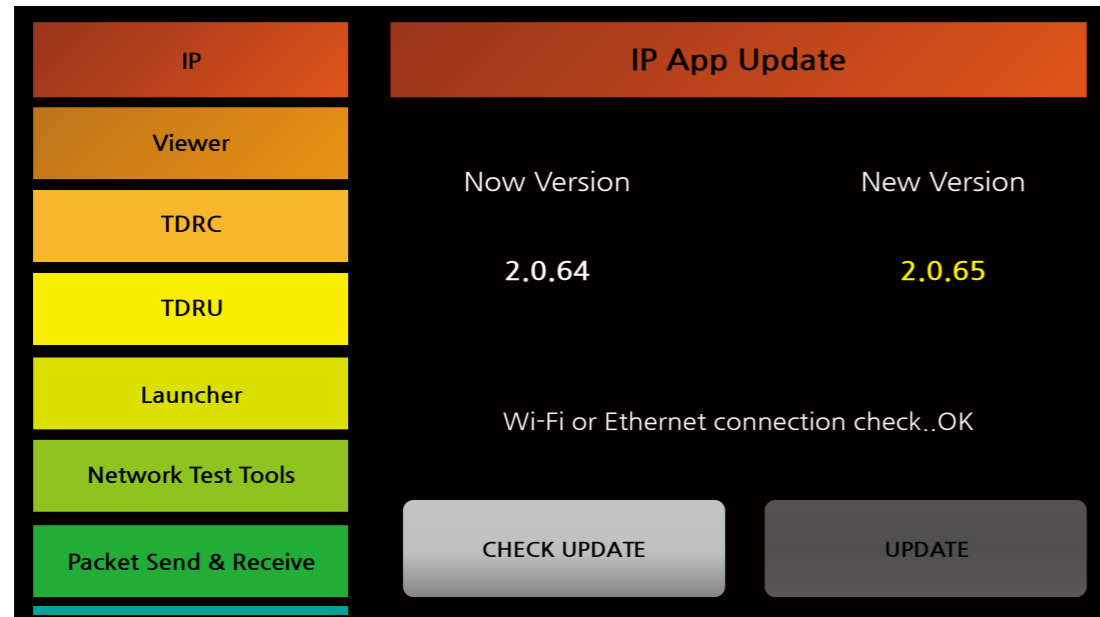
How to Use USB LAN card

- You must use a USB LAN card that is supplied with the components. Other USB LAN cards may not work.
- Insert a USB LAN card into the USB port and select Wi-Fi in the setting to use.

Update App.

How to Use Update App.

- It is able to update to the latest Apps.
- Ethernet or Wi-Fi must be connected to use Update App.

①   Check Update

- With Wi-Fi connected, tap CHECK UPDATE button to see the current version installed.
- If the installed Apps are the latest version, CHECK UPDATE button is not activated.

②   Update

- After checking the version and the installed Apps are not the latest version, the UPDATE button will be activated.
- Tap the UPDATE button to update each App. There may a difference in update speed depending on the Wi-Fi environment.

! When the update is not working

- If an error occurs during the update, delete the App. and run again.
- If the installation is interrupted, restart the Update App.
- If a parsing error message popped up, check if the internal storage is enough.
- Make sure that the Internet is connected properly.

TDRC App.

Operating Specifications

- Measurable cable length is 10m ~ 1km based on KumKang 5C-HFBT coaxial cable.
- It is not able to measure the cable if the cable length is too short or too long.
- If the other side of the cable is connected to a camera or other devices, it is not possible to get accurate value or measurement may not be done.
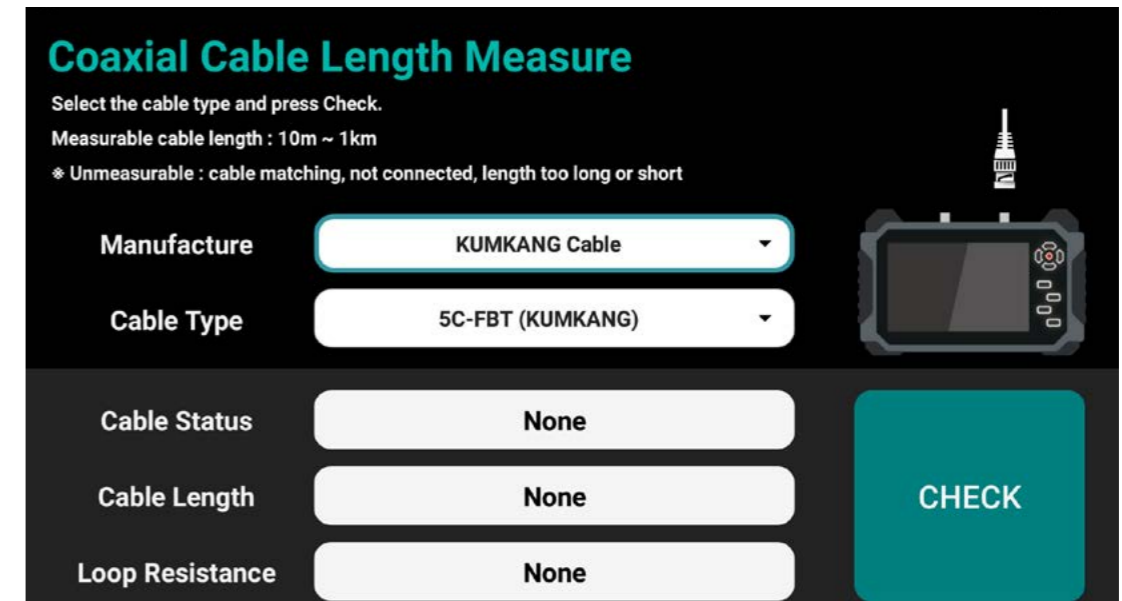

①   Manufacturer and Cable Type

- Select the manufacturer and cable type for accurate measurement.
- If you do not know the cable manufacturer, you can select random cable to measure, but it is not possible to get accurate value.

②   Cable Status

- Displayed as Open, Short, Unmeasurable.
- Open is displayed when nothing is connected to the other side of the cable.
- Short is displayed when there is a Short on the other side of the cable or when there is a severe pressing in the middle of the cable.
- Unmeasurable is displayed when the cable is matched, or the length is too long or too short.

③   Cable Length

- Displayed in meter(m) and feet(ft).

④   Loop Resistance

- Set the switch of TG01 to Loop and connect it to the end of coaxial cable to measure.
- If the loop resistance value is abnormal, check the connection status of TG01.

TDRC App.

How to Use TG01

- This BNC to TB(2P) connector is for measuring loop resistance of coaxial cable.
- Connect BNC-A-JJ to the end of coaxial cable and connect TG01.
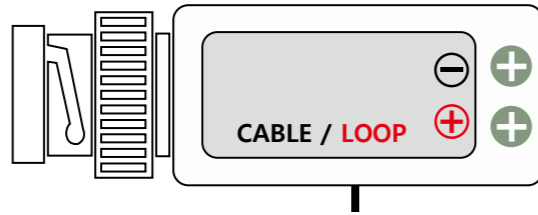
① Operating Switch

- CABLE: Displayed as OPEN in Cable Status.
- LOOP: Displayed as SHORT in Cable Status, and loop resistance value is displayed.

② Terminal Block

- Measure UTP cable length that RJ45 is not connected.
- The switch must be set to CABLE to measure cable length.

How to Use TG02

- This BNC to RG45 connector is for measuring UTP cable length between 200m ~ 500m.
- Only the length of UTP cable #1 and #2 (1 pair) are measured.
- Select UTP Cable- TG02 in Manufacturer, and set the Cable Type to match the UTP cable.

TDRU App.

Operating Specifications

- Measurable cable length is 10m ~ 200m based on CAT 5E UTP cable.
- It is not able to measure the cable if the cable length is too short or too long.
- If the other side of the cable is connected to a camera or other devices, it is not possible to get accurate value or measurement may not be done.
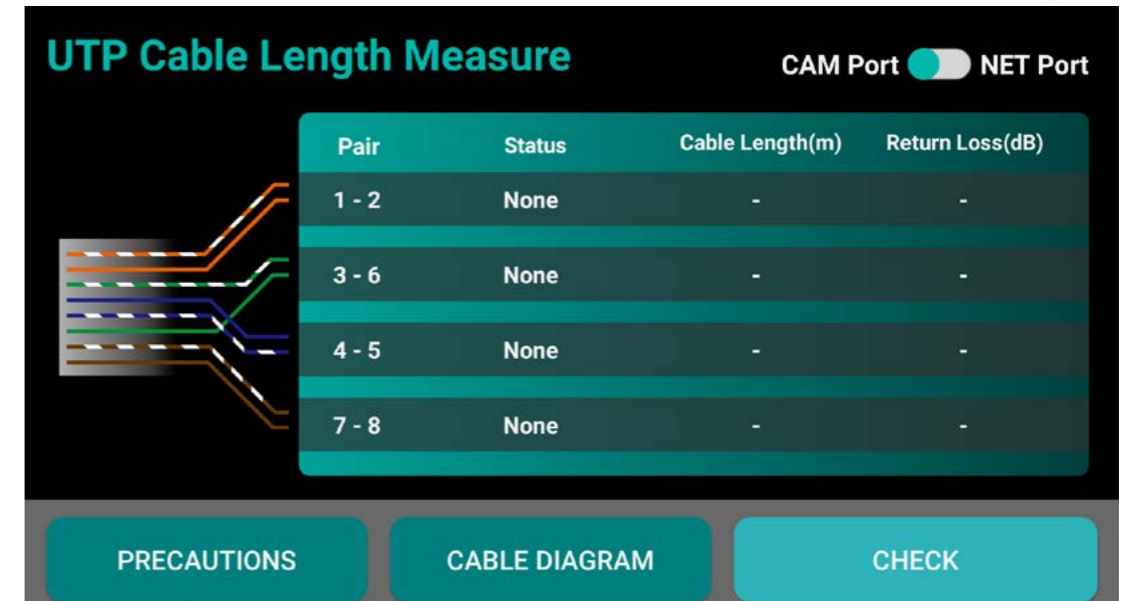
① Cable Diagram

- Check the image of standard cable specifications.
- Pairs are displayed differently according to 568A, 568B.

② Cable Status

- Displayed as Invalid, Pair OK, Pair Open, Same Pair Short, Cross Pair Short, Pair Busy.
- Invalid, Pair Busy is displayed when the measurement is cannot be done by unknown reason. Check if the cable length is too short or too long.
- Pair OK is displayed when the cable is connected to other device. The length may be measured depending on the other device.
- Pair Open is displayed when nothing is connected to the cable. Even when the cable is connected, Pair Open may displayed to a specific pair depending on the other device.
- Same Pair Short is displayed when a Short occured to the cables in same pair.
- Cross Pair Short is displayed when a Short occured to the cables in cross pair.

Network Test Tools
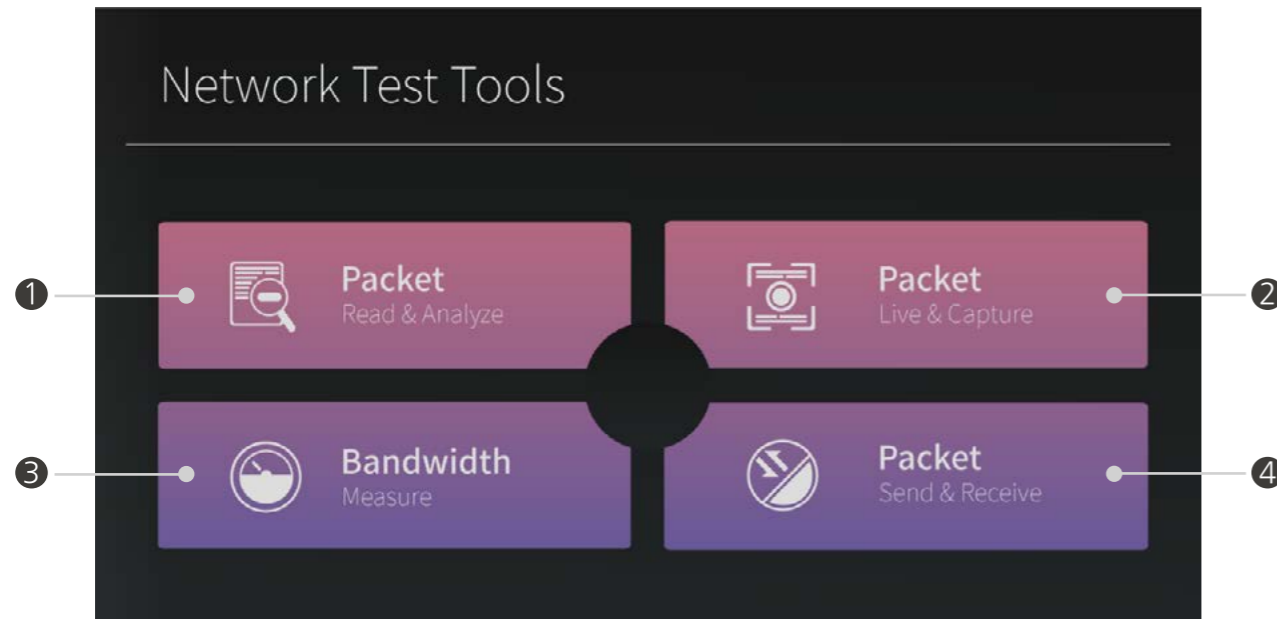
| No.	Name	Description
①	Packet Read & Analyze	Open the stored packet file to read and analyze in detail. Able to view the total bandwidth and bandwidth usage by protocol captured from the file as a graph.
②	Packet Live & Capture	Display the packet data on the Network line in real time or save as PCAP (standard packet file). Apply various filters to display the corresponding packets.
③	Bandwidth Measure	Measure the maximum available bandwidth on the network line. Use two IP monitors or one IP monitor and PC for Server and Client.
④	Packet Send & Receive	Generate UDP packet to send or receive.

Network Test Tools

▍Packet File List

- Press Packet Read & Analyze button to move to the file list.
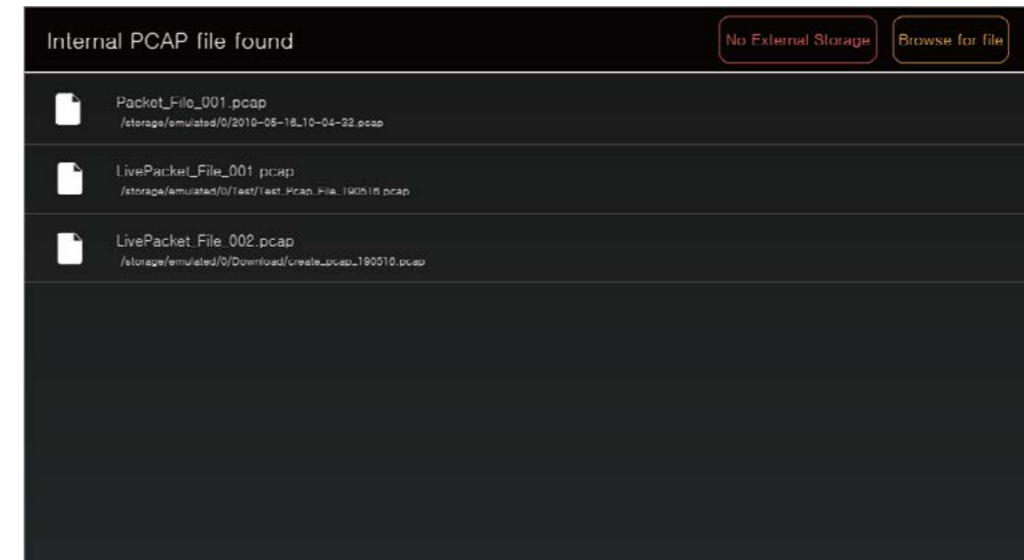
- Search PCAP file in the storage and display in the list.
- If an external storage device is inserted, No External Storage button is changes to External Storage button.
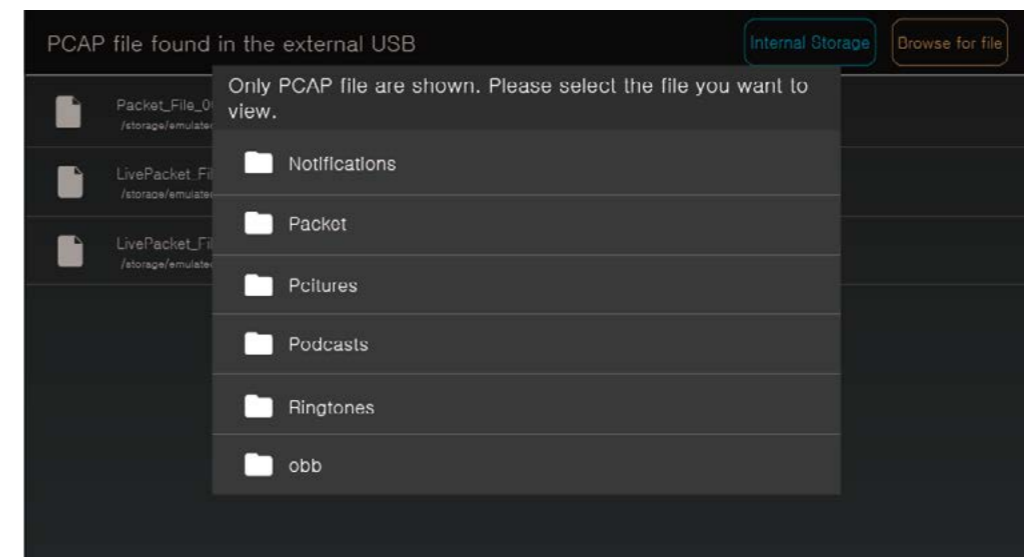
- Some packet data files may not displayed in the list. In this case, click the Browse for file button in the upper right corner to open the file manually.

❗ When the file is not opened

- ▪ If the file is not saved normally, it will not be opened.
- ▪ If you open and close the file repeatedly, the App. may stop. In this case, please try to open the file again.

Network Test Tools

Read Packet Files

- Read the selected packet file from the list and display it as a list.

Name	Description
Time	Time when packets were captured in a file.
Source	Address of the network device that sends packets on the network line. Displayed as IPv4, IPv6, and MAC address.
Destination	Address of the Network device that receives packets on the network line. Displayed as IPv4, IPv6, and MAC address.
Protocol	Protocol used to send/receive packets.
Length	Data size of the corresponding packet.

Packet Search Mode

- Press Search button to enter Search Mode.
- Select the item and search to display the corresponding packet.

Network Test Tools

Packet File Analyze

- Press Analyze button to display the measured bandwidth in the packet file as a graph.
- Select the checkbox on the left to display the bandwidth and graph of corresponding protocol.
- Only the bandwidth of the checked items is displayed as a number.
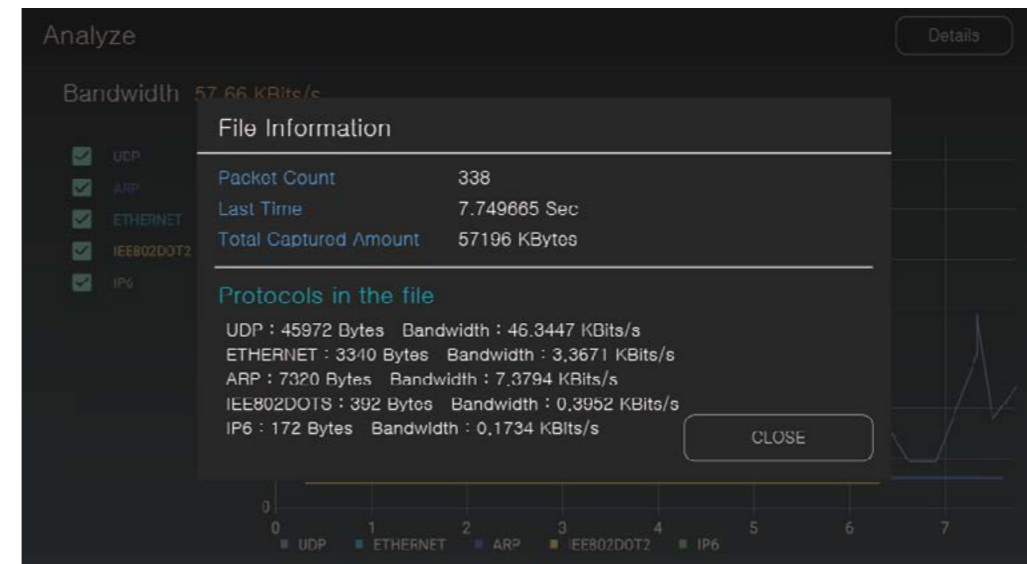
- Press Details button on the upper right to display file information.
- The protocol included in the file depends on whether the checkbox is selected or not.

Network Test Tools

Packet Filter Setting

- Press Packet Live & Capture button to move to the filter setting.
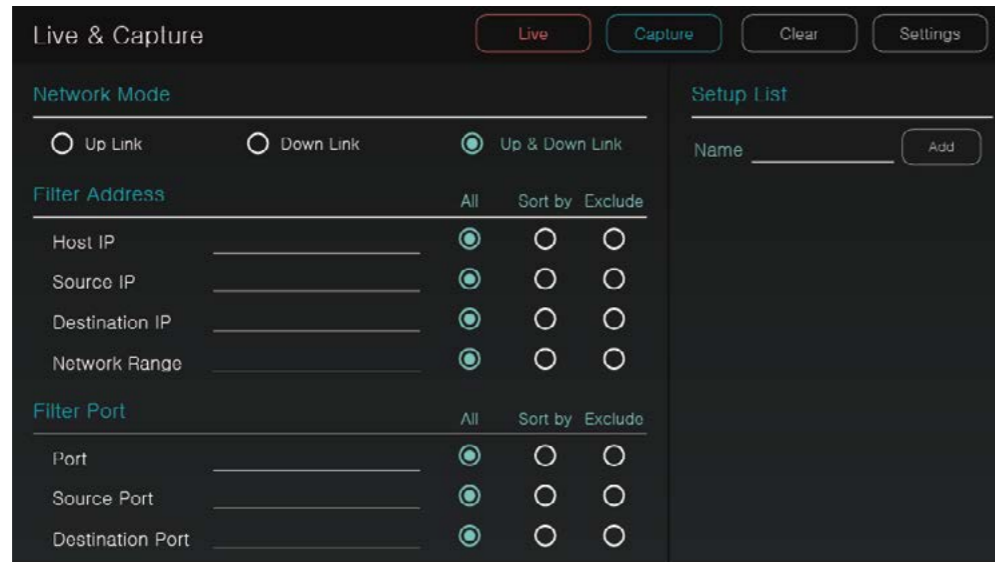
①   Network Mode
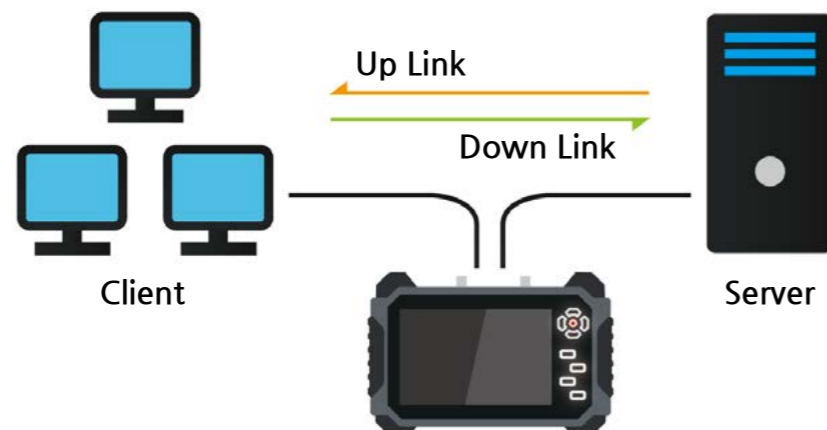
- It is able to set the direction of network packet monitoring by selecting the mode as Up Link / Down Link / Up & Down Link.

- The server must be connected directly to the client to see which packets communicate between the server and the client.

Network Test Tools

Packet Filter Setting

- After connecting the monitor to the hub where the Network is configured, it is able to check the packet data.

- In above case, packets that directly communicate with the server cannot be checked. To check them, the server and client should be connected to two ports of IP monitor as shown in figure 1.
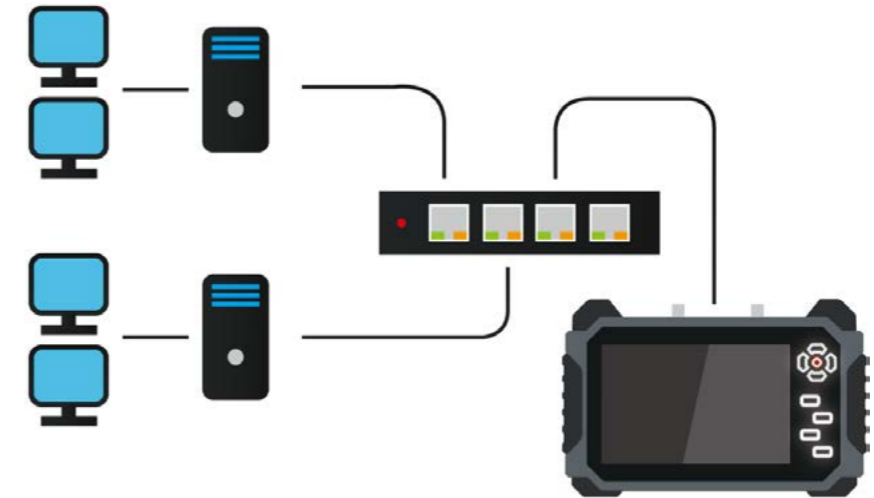
②   Filter Address

- Set filters to monitor corresponding packets, not the entire packets.
- Select All to show input value. Select Exclude to show values excluding input value.

Name	Description
Host IP	Search packets that use the entered IP address as Host.
Source IP	Search packets that use the entered IP address as Source.
Destination IP	Search packets that use the entered IP address as Destination.
Network Range	Set the entered IP address as a range, and search packets related to corresponding range. Ex) When selecting All and input 192.168.1, 192.168.1.xxx packets are displayed. When selecting Exclude and input 192.168.1, 192.168.1.xxx packets are not displayed.
Port	Search packets that use the entered Port.
Source Port	Search packets that use the entered Port as Source.
Destination Port	Search packets that use the entered Port as Destination.
Port Range	Set the entered Port as a range, and search packets related to corresponding range.
Transport	Select either TCP or UDP to search corresponding packet.
Network Layer	Select among ICMP, ARP or IPv6 to find corresponding packet.

Network Test Tools

▌Filter Setup List
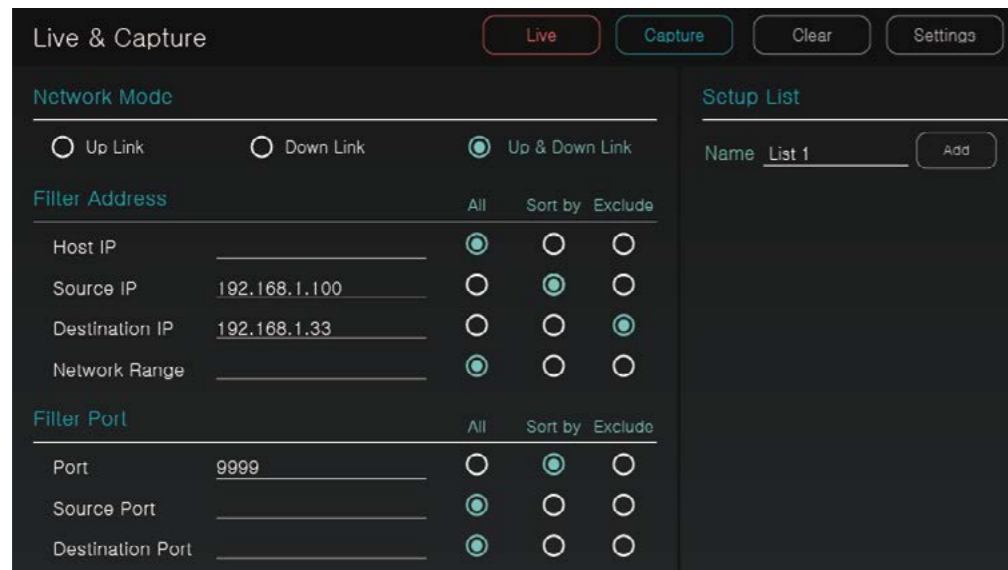
- Setup list stores the values entered in the filter.
- After entering the name to display the list, press Add button to create the list.
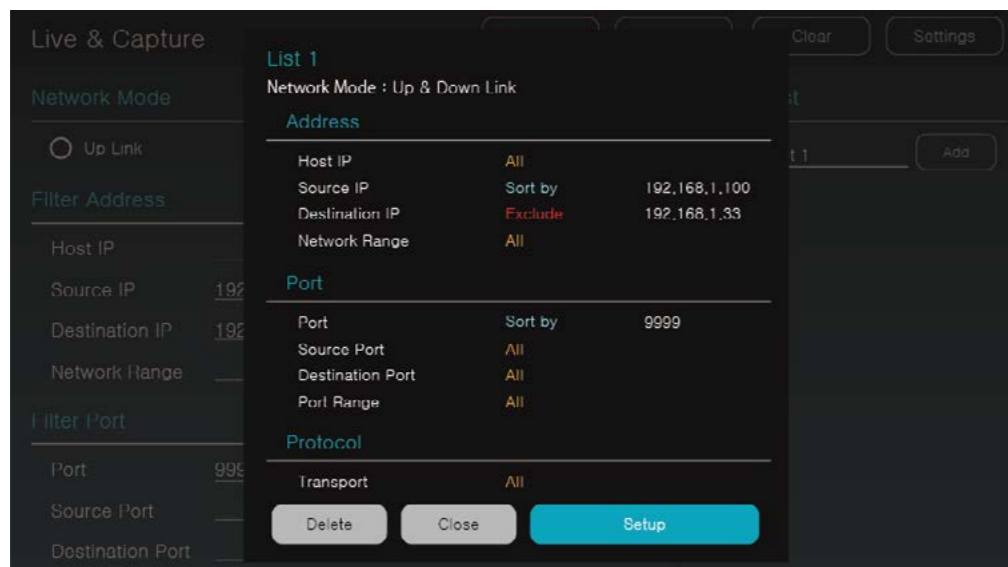
- Select the saved list and press Setup to apply saved filter values.
- Press Delete to delete the filter list.

Network Test Tools

▌Live Mode
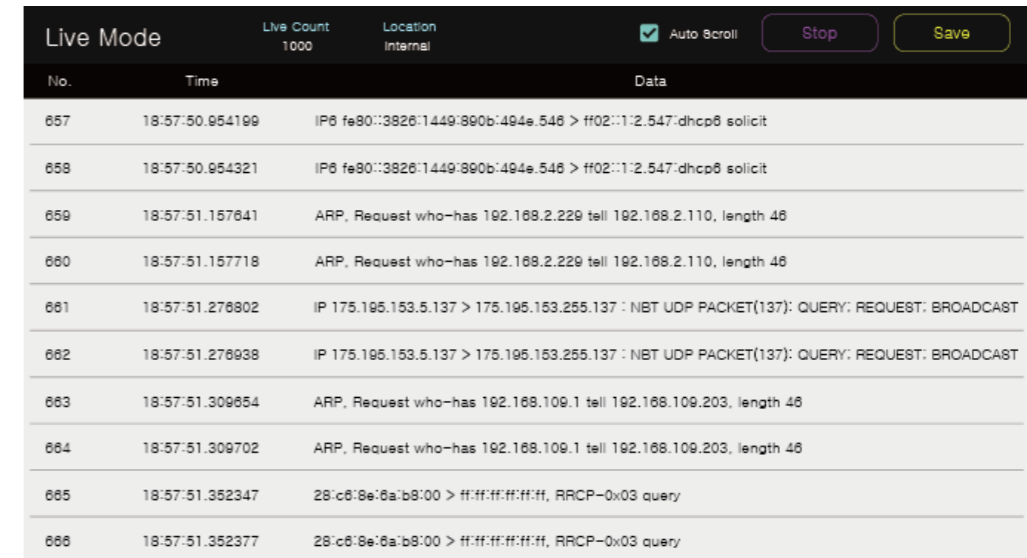
- Press Live button on the filter screen to activate Live Mode that can monitor packets in real time.
- Live Mode does not display detailed packet information. For detailed packet analysis, save the packet as a file and analyze it.
- There is a limit on the number of packets in Live Mode. The number can be changed in the Settings.
- After Live Mode is completed, the packet can be saved as a file and the specified storage location is displayed in the Settings.
- When Auto Scroll is set, the scroll automatically goes down according to the packet input.
- Packet Save is available after the Live Mode is stopped.
- During Live Mode operation, press the back key twice to move to the previous screen.

! Precautions

- If the number of packets increases rapidly due to the sudden increase of bandwidth usage, the packet output is paused and displayed after stabilization.
- If packets are not displayed after a certain period of time during Live Mode, the network should be checked again.
- If any traffic that cannot be processed is searched during Live Mode, Live Mode is stopped.
- The time of Live Mode is set to GMT-1, so it is displayed differently from the time of the monitor.

Network Test Tools

Save Live Packet
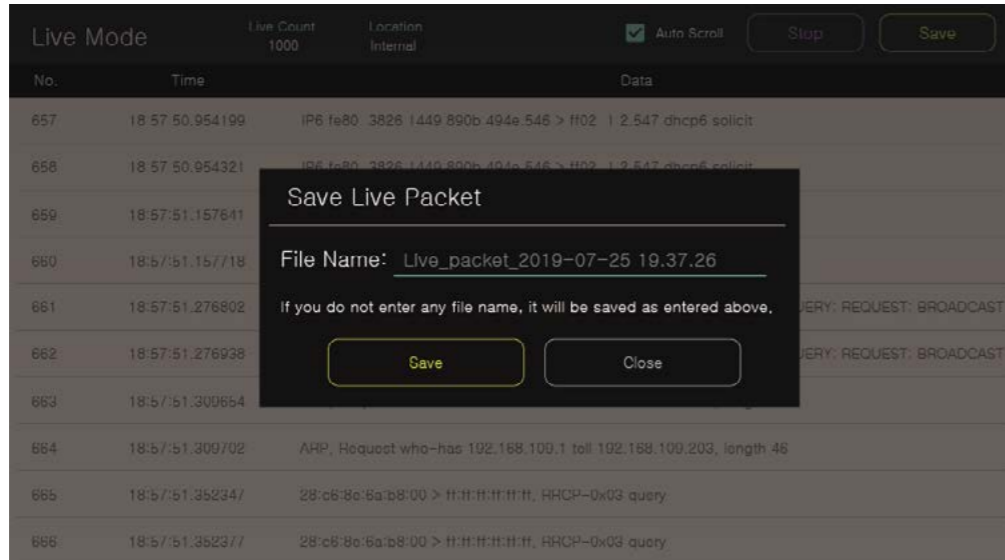
- After Live Mode is stopped, press Save button to display Save Live Packet pop-up.
- If you do not enter any thing in the File Name, the file will be saved as current time.

Capture Mode
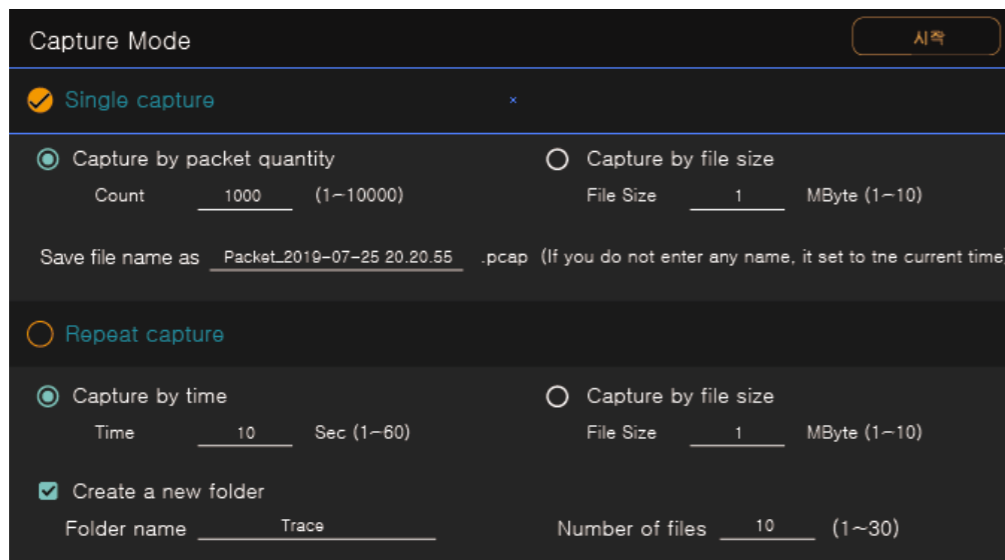
- Select between Single Capture and Repeat Capture modes.
- In Single Capture mode, it is able to select the maximum number of packets and file size, and set the file name.
- In Repeat Capture mode, it is able to capture repeatedly in capture time and file size as many times as the entered number of files.
- In Repeat Capture mode, select Create a new folder to create new folder with the name you entered, and the packet file is saved in the created folder.

Network Test Tools

Bandwidth Measure

- Press Bandwidth Measure button to move to the main page of Bandwidth Measure App.
- To measure bandwidth, two IP monitors are required to act as a server and a client.
- Measure the maximum bandwidth available on the Network.
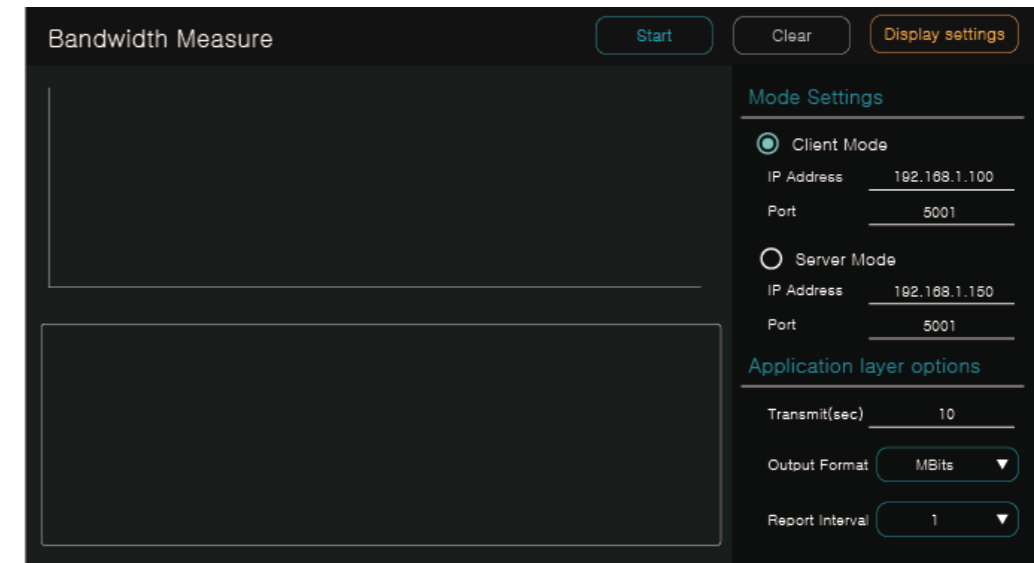
① Client Mode
- To operate in Client Mode, the IP address must be set to the same IP address as the Server IP address.
- Enter the IP address of server monitor connected to IP address and start.

② Server Mode
- Server Mode IP address is set to the IP address of this monitor.
- The server can receive data from the client continuously while it is active.

! Precautions

- Abnormal value is output if Server Mode is forcibly terminated during Bandwidth Measure.
- If the server is not active, Bandwidth Measure does not work even though you press Start in Client Mode.
- If this function is executed in operating line, it may cause network load.

Network Test Tools

Bandwidth Measure Layer Options
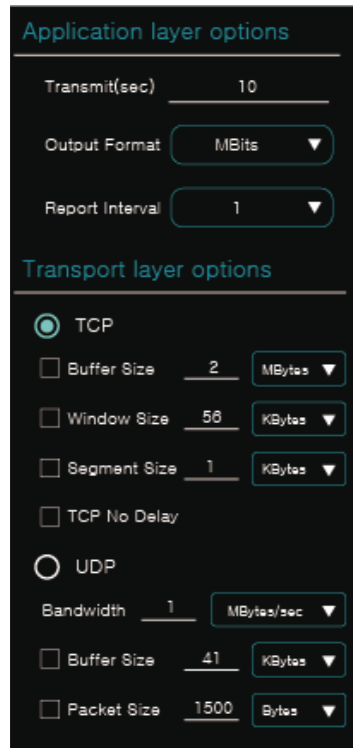
① Application Layer Options

- Transmit(sec) is used in Client Mode and sets the measurement time.
- Output Format sets the output unit of the graph and the result value.
- Report Interval sets the display interval of the graph and the result value.

② Transport Layer Options

- Set the TCP option to measure bandwidth similar to the field.
- When set as UDP, the default bandwidth is set to 1MBytes/sec.

Bandwidth Measure Configuration

- The following figure shows a configuration example. This function is available on various network lines.

Client Mode

Server Mode
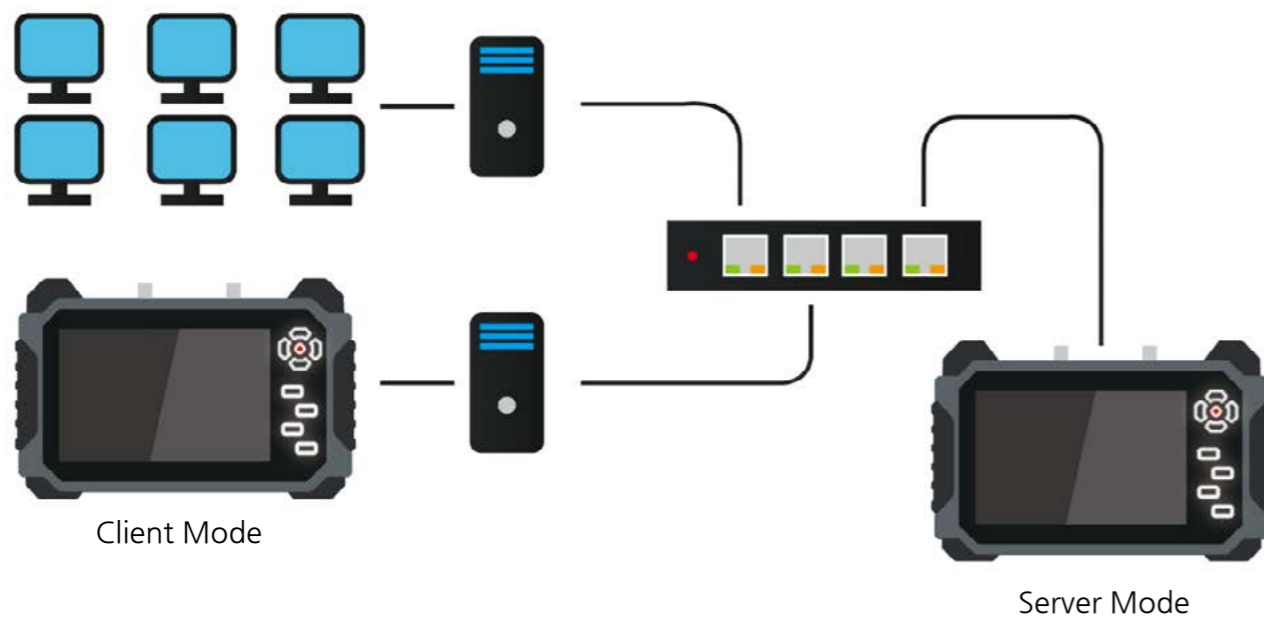
Network Test Tools

Client Mode Operation

- Select Client Mode, enter the server IP address 192.168.1.100 in IP and press Start button.
- If Transmit(sec) is set to 10, 10 points are created on the graph.
- If the Output Format is set to MBits, the unit of the left value of the graph is displayed in MBits.
- If the Report Interval value is set to 1, the measurement is performed in every second.

Server Mode Operation

- Select Server Mode and press Start button to execute the server with the address of 192.168.1.100.
- Server Mode continues to run until pressing Stop and displays the measured value in duplicate.
- The measurement time depends on the client setting values. Output Format and Report Interval are also applied in Server Mode.

Packet Test App.

Packet Send& Receive

- Check network connection status by transmitting/receiving UDP packets.
- To transmit packet, you need IP address of the destination, port and data to send.
- When transmitting packet, single packet is transmitted from the source. If you mark Repeat, the packet will be transmitted at the set interval.
- When receiving packet, Host IP address (IP of this monitor) and receiving port must be entered.

▶ How to Use Packet Receive

① Make sure to enter Host IP. If Host IP is not entered, check the network status of this monitor.

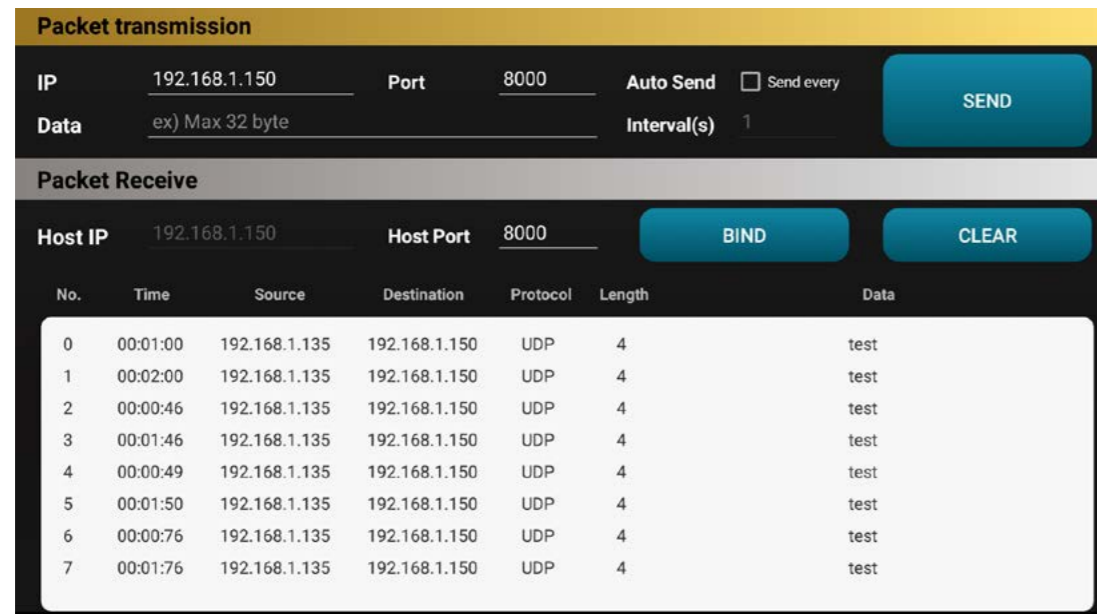② The Host port must be set the same as the port number of transmitting side.

③ Tap BIND to receive the data entered into the Host IP and Host port.

Appendix

Specifications

Function			Specification
LCD	Display Resolution		1920 X 3 (RGB) X 1200
	Size		7.0 inch (Diagonal)
	Pixel Pitch		0.07875(H) X 0.07875 (V) mm
	Brightness(cd)		450 cd/m²
	Viewing Angle		80deg (Horizontal) / 80deg (Vertical) Total: 160deg (IPS Panel)
	Response Time		11ms
Video	INPUT	HD-SDI	1.485Gbps
		3G-SDI	2.970Gbps
		EX-SDI	135 / 270Mbps
		HDMI	Up to 2160p 30Hz
		AHD	Refer to Appendix- Supported Resolution
		CVI	Refer to Appendix- Supported Resolution
		TVI	Refer to Appendix- Supported Resolution
		CVBS	NTSC, PAL
		LAN	10 / 100 / 1000Mbps- IP Cam & PoE (Power of Ethernet) Support
	OUTPUT	HDMI	1080p 60Hz
Measurement	Analog	A.LEVEL	10 ~ 118 %
		F.LEVEL	20~120 %
		Error Rate	± 2%
		FOCUS LEVEL	0 ~ 255

Appendix

Specifications

Function			Specification
Measurement	SDI	SDI LEVEL	0 ~ 100 %
		Error Rate	± 2%
		FOCUS LEVEL	0 ~ 255
Power	INPUT		DC 12.6V (Exclusive charger)
	OUTPUT		DC JACK 12V / 1A
			USB 5V / 1A
Connection Port	HDMI Input / Output		Dual HDMI C Type F
	HD-SDI Input		BNC-F
	LAN Input		RJ-45
	Analog Input		BNC-F
	USB Input		USB Dual A Type + Mini USB Type
	Micro SD Input		Micro SD Socket
	RS-485 Input		2P Terminal Block
Battery			Li-Polymer 11.1V, 5,680mAh
OSD Language			Korean, Japanese, English, Italian, German
Operating Temperature			0°C ~ + 50°C
Operating Humidity			0% ~ 80%
Storage Temperature			-10°C ~ + 50°C
Material			PCABS Flame Retarding Material
Weight			1014g
Dimensions			246(W) X 160(H) X 49.9(D)mm

Appendix

Supported Resolution

- For AHD, TVI, CVI cameras, signal formats are not standardized so the video may not be displayed depending on the manufacturer.

Signal Format	Resolution	Description
HD-SDI	1280x720p	23.97 / 25 / 29.97 / 30 / 50 / 59.94 / 60Hz
	1920x1080i	50 / 59.94 / 60Hz
	1920x1080p	23.97 / 24 / 25 / 29.97 / 30Hz
3G-SDI	1920x1080p	50 / 59.94 / 60Hz
EX-SDI 1.0 EX-SDI 2.0 EX-TDM	1280x720p	25 / 30 / 50 / 60Hz
	1920x1080i	50 / 60Hz
	1920x1080p	25 / 30 / 50 / 60Hz
	2560x1440p	30Hz
	3840x2160p	30Hz
AHD, TVI	1280x720p	25 / 30Hz
	1920x1080p	25 / 30Hz
	2048x1536p	18.75 / 20Hz
	2560x1440p	25 / 30Hz
	2688x1520p	15Hz
	2592x1944p	12.5 / 20Hz
CVI	1280x720p	25 / 30 / 50 / 60Hz
	1920x1080p	25 / 30Hz
	2048x1536p	18.75 / 20Hz
	2560x1440p	25 / 30Hz
CVBS		NTSC / PAL
HDMI	640x480p	60Hz
	720x480i	59.95 / 60Hz
	720x576i	50Hz
	720x480p	59.94 / 60Hz
	720x576p	50Hz
	1280x720p	50 / 59.94 / 60Hz
	1920x1080i	50 / 59.94 / 60Hz
	1920x1080p	23.97 / 24 / 25 / 29.97 / 30 / 50 / 59.94 / 60Hz
	3840X2160P	24 / 25 / 30Hz

Appendix

▌FAQ

Symptom		Checking Method
No video display	Viewer	Reboot this test monitor.
		Check the connected cable status. Video may not be displayed, depending on the damage or length of the cable.
		Check the connected camera status. There may be some problems with the connected camera.
		Check the signal of camera. SDI products must be connected to HD-SDI port, and HD Analog products must be connected to VIDEO port.
		Check the resolution of camera. Supported esolutions are different for each signal, so you need to check if the resolution is able to input.
	IP	Check the connected LAN cable status. There may be some problems with the video, depending on the damage of the cable or interference.
		Check the cable type. There may be some problems with the product operation, depending on cable types.
		Check the WI-FI status if connected wirelessly. The video may not be displayed if the strength of the signal is weak or the signal dies frequently.
		Check the networking settings. If setting value is different such as the camera IP address, subnet mask and gate way, the video may not be displayed.
		Check the network settings of this product. The IP range of the IP camera and this product should be same to check the video.
		Check the status of connected network devices such as routers, Hubs, etc. There may be some problems with the network settings.
		Check if the camera supports ONVIF. This product supports ONVIF protocol cameras.
		Check the supported camera codecs. This product supports H.265, H.264, JPEG codec.
		Check the camera network mode. This product does not support DHCP server and is available for connection in manual IP.

Appendix

▌FAQ

Symptom		Checking Method
Video is NOT displayed	IP	When a camera uses any separate RTSP port, it may not be connected. For camera settings, please overwrite and change the RTSP port. - The default RTSP port is 554. It may depend on each camera brand.
		If you initialize a camera after saving its configuration, it may not be able to connect the camera via the saved configuration. It may be caused due to the difference of the initialization methods per camera brands. In this case, you should search the camera and follow the other steps for its connection again.
PTZ and/or OSD are Not available	RS-485	Check the connected cable status. It is not available in different polarity.
	UTC/UCC	Check camera UTC protocols. The protocols depend on each camera manufacturer.
		Check the length of the connected cable. UTC may not work, depending on the length of the cable.
Micro SD and/or USB are NOT available		Check Micro SD/USB status. There may be some problems with the operation if the product is bent or cracked.
		Check the manufacturers of Micro SD/USB. If not certified memory cards are used, there may be some problems with the product operation.
		Unmount and mount Micro SD/USB again. Recognition errors may be generated intermittently.
		Check the USB supported version. This product supports USB 2.0
		Reboot this product. There may be some problems with the program.
The test monitor is paused		Press and hold the power button for about 7 seconds to shut down this test monitor forcibly when the touch pad or D-pad does not work properly. After then, please turn it on again for use.
		Press and hold the power button for about 7 seconds to shut down this test monitor when the monitor is paused during use . After then, please turn it on again for use.

Appendix

Warranty Certificate

Model No.		
Serial No.		
Date of Purchase		
Place of Purchase		
Purchaser	Name	
	Address & Contact No.	
Distributor	Name	
	Address & Contact No.	
Warranty Period	Two (2) years from the date of purchase	

Any failure that occurs in the normal use for only two years after purchase will be repaired free of charge.

Contact the phone number listed on the user's manual for repair.

When reporting the failure, please inform the model name and condition of the product accurately.

It is convenient to know the name and department of the person in charge.

Please check this user's manual again before reporting the failure.

Product shapes and circuits are subject to change without notice to improve performance.

Faults following will be treated as a charge:

- Failure by user's handling without care
- Not connecting the rated power
- Disassembled or repaired arbitrarily by user
- Failure caused by natural disaster (fire, flood, tsunami, lightning, etc.)
- Replacing consumables

Appendix

Memo

IP Monitor

OCTAVUE® BY GSD GROUP

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☎ 1 (866) 791-7020

✉ sales@gsdgroupinc.com

🏠 180 Boul Bellerose Ouest,
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