TENMA™

The world leader in affordable test equipment

Security Camera Test Monitor User Manual

72-13160

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1 .Safety information

◆ The tester is intended to use in compliance with the local rules for electrical usage and avoid use at places which are inapplicable such as hospital, gas station etc.

◆ When using electrical appliances basic safety precautions should always be followed.

◆ Please operate according to this manual, otherwise the protection provided by the device will be impaired or fail.

◆Check the test leads for damage, and case insulation condition before using. If you find any breakage, damage or abnormality, or you consider the device is broken, stop using the device immediately.

◆ There are no user-serviceable parts in this product. Refer servicing to qualified personnel.

◆ Do not operate or store in an environment of high humidity or where moisture may enter the product.

◆ Do not use the meter around explosive gas or vapour.

◆ Do not use the product for any purpose other than that for which it is designed.

◆ Don't leave the tester unattended while charging and recharging. If the battery gets hot, the tester should be powered off from the electric source at once.

◆ The tester should not be charged over 8 hours.

◆ Clean the meter with a clean, soft cloth.

◆ Do not use any chemicals, abrasives or solvents that could damage the meter.

About Digital Multi-meter

◆ Disconnect circuit power and discharge all high voltage capacitors before testing continuity, diode, resistance, capacitance or current.

◆ Before measuring current, check the fuses and turn the power to the circuit off before connecting the meter to the circuit.

◆ Do not connect the meter to voltage signals when the range selector is on current, resistance, diode or continuity range.

◆ Select appropriate test range for measurements.

◆ Do not change the mode selector options during tests or measurements.

◆ Ensure all inputs are less than the range selected otherwise it may cause electrical shock or damage.

◆ Take caution when voltages are above 60V DC and 30V AC rms.

◆ To avoid electrical shock and personal injury, do not attempt to measure voltage higher than 600V AC/DC, although the readings may be obtained.

◆ When using the test leads, keep your fingers behind the finger guards.

Visual laser sources

◆ Do not point laser sources directly into your eyes or indirectly off reflective surfaces.

◆ When not in use turn off and replace the protective cap.

2. IP Camera Tester Introduction

2.1 General

The 7 inch touch screen IP camera monitor is designed for maintenance and installation of IP cameras, analog cameras, TVI, CVI AHD, SDI/EX-SDI cameras, as well as testing 4K H.264 /4K H.265 cameras by mainstream. The 1920x1200 resolution enables it to display network HD cameras and analog cameras in high resolution. The unit supports many ONVIF PTZ and analog PTZ controls. The combination of touch screen and key buttons make the IP camera tester very user- friendly.

The tester is also a great tool for Ethernet network testing. It can test PoE power voltage, PING, and search for an IP address. You can also use the blue cable tracer probe to locate individual connected cables from a bundle of cables, and the tester can be used to test LAN cables for proper connection termination. Other functions include providing 24W PoE power to your camera, HDMI IN and out, CVBS loop test, testing IP and analog at the same time, an LED Flashlight, DC 12V 2A power output and much more. Its portability, user-friendly design and many other functions make the IP tester an essential tool for all installers or technicians.

2.2 Packing list

1). Tester

2). DC12V 2A power adapter

3) Network cable tracer/probe

4) Polymer lithium ion battery (7.4V DC 5000mAh)

5). BNC and RS485 cables

6). SC, ST Connector (Only for optical power meter）

7). Multi-meter test leads; one pair of red/black (only for the Multi-meter models)

8). Output Power cable

9). Audio cable

10). TDR alligator clamp (only for TDR models)

11). Safety cord

12). Tool bag

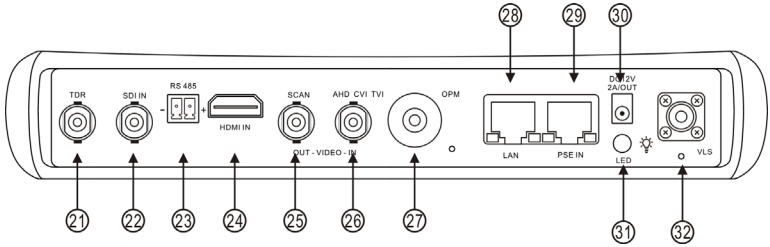
13). Manual

14).8GB SD card

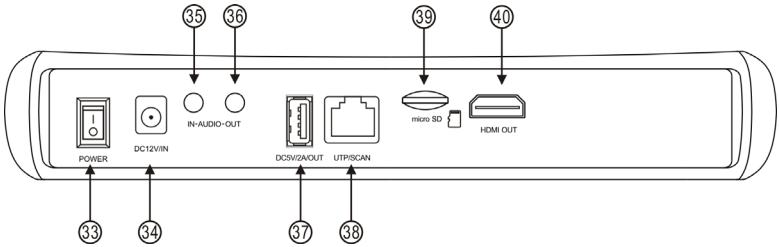
2.3 Function interface

1		Press 2 seconds or more to turn on or off the device. Short press to illuminate the menu display
2		Menu key; press to call shortcut menu
3		4xzoom image display
4		Far focus: Focus the image faraway
5		Near focus: Focus the image nearby
6		TELE: zoom in the image
7		WIDE: zoom out the image
8		Open/set ,Confirm the setting of parameters, open or enlarge the aperture
9		Close/Return: Return of cancel; close or decrease aperture.
10		Upward, set function or add parameter. Tilt the PTZ upward
11		Rightward, select the parameter whose value will be changed. Add the value of the parameter. Pan the PTZ right
12		Leftward, select the parameter whose value will be changed
13		Downward, set function or reduce the value of the parameter. Tilt the PTZ downward
14		Confirm key (Long press it to capture screen interface)
15		Return/Close : Return or close
16		Multimeter interface **(Optional)**
17		The charge indicator: it lights red while the battery is being charged. As the charging is complete, the indicator turns off automatically
18		The RS485 data transmission indicator: it lights red while the data is being transmitted
19		The data received indicator: it lights red while the data is being received
20		The power indicator: it lights green while the tester is powered on by the adapter

Top interface



Bottom interface



21	TDR cable test interface (Optional)
22	SDI input (BNC interface) (Optional)
23	RS485 Interface: RS485communication for the PTZ
24	HDMI IN
25	Video signal output（BNC interface） / cable tracer interface
26	CVBS input /AHD /TVI/CVI Coaxial interface (AHD /TVI/CVI Optional)
27	Optical power meter interface (Optional)
28	PoE power supply output or LAN test port (Use to test PoE or non-PoE IP camera)
29	PSE power sourcing equipment. Tests PoE voltage
30	DC 12V 2A power output , for provisional DC power supply
31	LED lamp
32	Visible red laser source emits Interface **(Optional)**
33	Power battery switch

34	DC 12V 2A charging interface
35	Audio input
36	Audio output and earphone interface
37	USB 5V 2A power output (used only for power, not data)
38	UTP cable port: UTP cable tester port/ Cable tracer port
39	Micro SD card moveable,(comes with 8GB, supports up to 32GB)
40	HDMI output interface

3. Operation

3.1 Installing the Battery

The battery main switch at the right-bottom corner of tester bottom。

“0”: Battery power off

“1”: Battery power on

The tester has a built-in lithium-ion polymer rechargeable battery. The tester’s bottom power should be turned to “0” for safety during transportation (the factory default is “0”).

When using the instrument, switch power button to “1”, press the ⏻ several seconds to turn on/off tester. In general, the user does not need to turn on battery switch. When not in use for an extended period, turn off the switch.

⚠ Notice: Use the original adaptor and connected cable of the device!

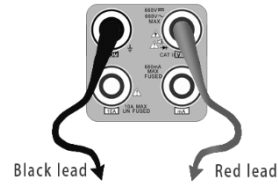
When the battery icon is full, or the charge indicator turns off automatically, it indicates the battery charging is completed.

⚠ Notice: When the Charge Indicator ⊟+ turns off, the battery is approximately 90% charged. The charging time can be extended for about 1 hour and the charging time within 12 hours will not damage the battery.

⚠ **Notice: Press** the key ⏻ several seconds to restore the default settings when the Instrument works abnormally.

Multi-meter: the red and black multi-meter probes must insert the correct corresponding port.

⚠ Warning: Do not insert a 6V source load into the Instrument communication port, or you could damage the tester.



⚠ Warnings: Do not insert multi-meter probes in the current terminal to measure voltage.

3.2 Instrument connection

3.2.1 IP camera connection

Power an IP camera with an independent power supply, then connect the IP camera to the IPC tester's LAN port, if the link indicator of the tester's LAN port is green and the data indicator flickers, it means the IP camera and the IPC tester are communicating. If the two indicators don't flicker, check if the IP camera is powered on or the network cable is not functioning properly.

Note: 1) When the IP camera requires PoE power, the test can supply power through the IP tester's LAN port. Turn on or off the PoE power by clicking the icon "POE power output" in Normal mode, or from the IP Camera Test app in Lite mode.

2) A PoE switch or PSE (power sourcing equipment) may be connected to the tester's PSE port to supply PoE power to the IP camera through the tester's LAN port. A POE switch or PSE can on be used when the tester's PoE power is turned off. On this condition, the tester cannot receive data from IP camera, but the computer connected to the PoE switch can receive the data via the tester.

Warning: PoE switch or PSE (power sourcing equipment) can only be connected to tester "PSE IN" port; otherwise it will damage the tester.

3.2.2 Analog camera connection

(1)) Connect the camera's video output to the IP tester's VIDEO IN. The image will display on the tester after pushing the PTZ icon.

(2) CCTV IP Tester "VIDEO OUT" interface connect to the Video input of monitor and optical video transmitter and receiver, the image display on the tester and monitor.

(3) Connect the camera or the speed dome RS485 controller cable to the tester RS485 interface ,(Note: positive and negative connection of the cable).

3.2.3 HD Coaxial camera connection

* SDI/EX-SDI, CVI, TVI, AHD camera are classified as HD coaxial cameras. Hereby the following instruction of how to connect SDI camera to the tester is also applied to CVI, TVI, and AHD camera.

(1) Connect the SDI camera's video output to the IP tester's "SDI IN" interface and the image will display on the tester when choosing the "SDI" icon on the tester.

(2) Connect the SDI camera or the speed dome RS485 controller cable to the tester RS485 interface, (Note: positive and negative connection of the cable).

3.2.4 HDMI IN

Attach a DVR or other device's HDMI out port connect to tester's HDMI in port and the tester will display the input image.

3.3 OSD menu

Press the key (⏻) 2 seconds to turn on

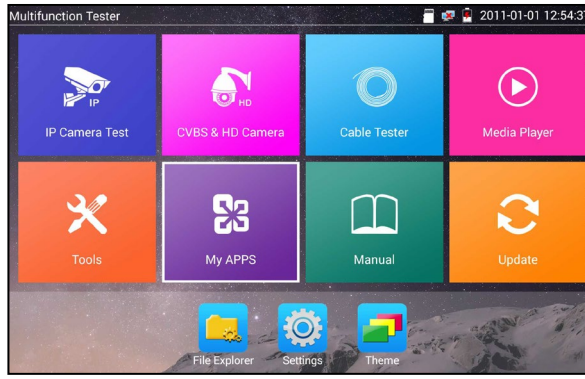
Press the key (⏻) again to turn off

Short press the key (⏻) to enter sleep mode, press it again to test.

If tester works abnormally and cannot be turned off, Press the key (⏻) several seconds to turn off and the tester will reset.

3.3.1 Lite mode & Normal mode

- **Lite mode: Easily** find corresponding apps



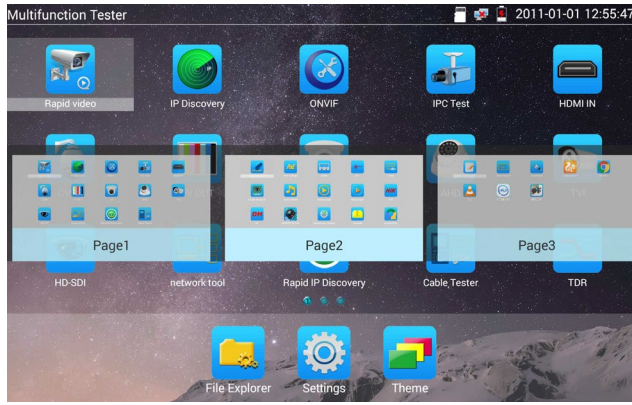
- In Lite mode, Press the icon several seconds, can move the icon to other apps.

- In Lite mode, click the finger icon in the lower right corner to release locked icons, move icons and change sequence of icons.

Normal mode

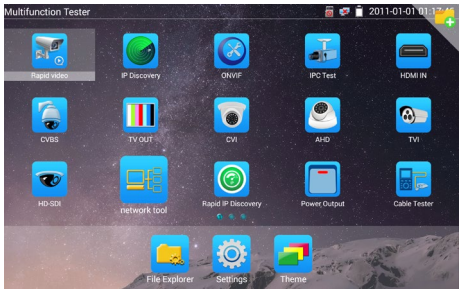
- To change to Normal mode, choose the “Theme” tab and then press “Desktop style” to toggle between Normal mode and Lite mode.

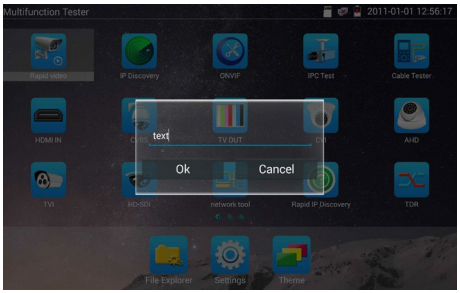
In Normal mode, press icon several seconds so icon can be dragged within a page or moved to other pages.



This allows the user to individualize the tester to specific requirements.

Create New Folder: Drag the icon to the folder in top right corner, enter the folder name. Icon will be auto placed in the new named folder.

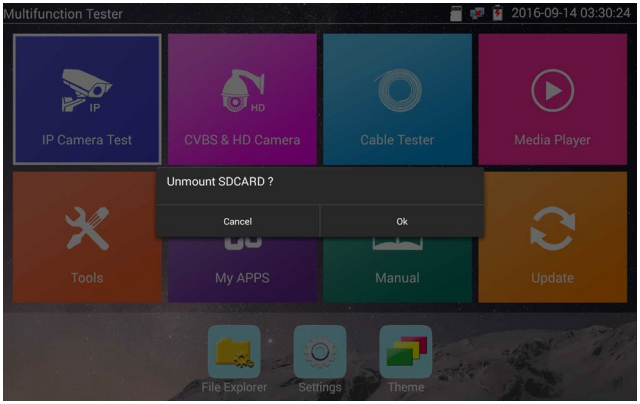




Press the folder several seconds, to change the folder name, you can move the icon out of folder, the folder will be auto deleted until move out all icons.

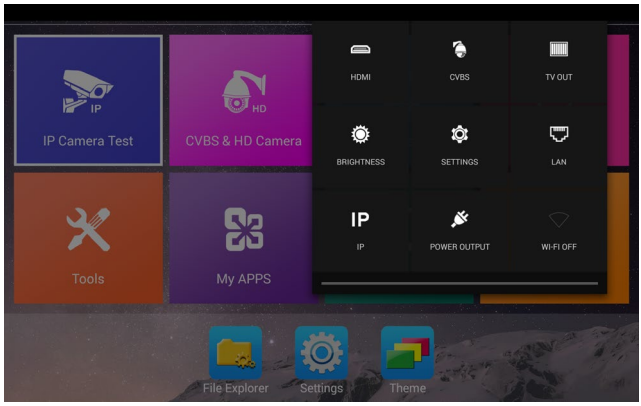
Select Icons to enter, if quit, please click

Click “SD card” from “Settings” menu to install or remove SD card.



3.3.2 Drop-down Menu

Press and slide at top of screen twice to open shortcut menu. The shortcut menu includes POE power output, IP settings, HDMI IN, CVBS, LAN info, Settings, etc.



HDMI: Click HDMI IN to enter the HDMI input mode, where the tester can display a dual test window (picture in picture) with IP & HDMI inputs or Analog & HDMI inputs.

CVBS: Click icon "CVBS" to enter CVBS input mode where the tester can display both an IP and analog camera at the same time.

TV OUT: Click "TV out" to enter floating window (picture-in-picture) of the color-bar generator to send through the BNC/CVBS output to a video monitor for color bar testing of monitor and cable.

LAN: Display network port or WIFI connection real-time upload and download speeds and other network parameters.

Brightness: Set brightness

Settings: Enter settings interface.

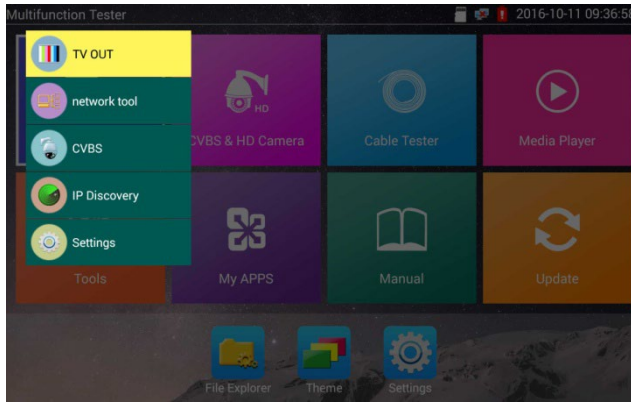
IP: Enter IP Settings interface.

POE OUTPUT: Turn on or off the tester's POE power output to the LAN port.

WLAN: Turn on WLAN net and displays current WLAN status.

3.3.3 Short cut-menu

The shortcut menu can be accessed by pressing the tester's "menu" key.

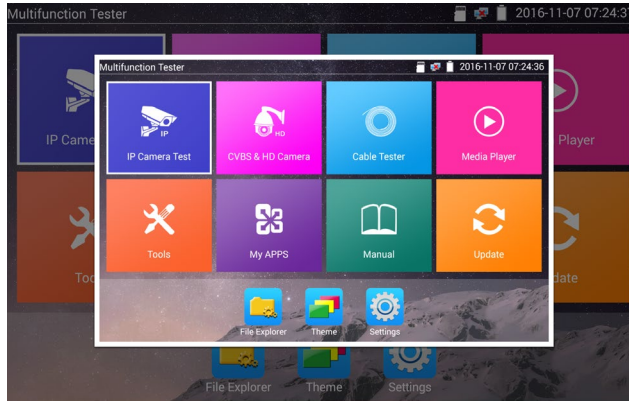


Press the MENU key to turn it on, arrow keys to switch functions, and to enter app; tap outside the menu to exit.

The shortcut menu can be modified from the "Settings" icon. Enter the Short cut setting and long press any app in the "All applications" list and it will auto move to shortcut menu. To delete any app in the short cut menu, press the app for several seconds and it will be deleted.

3.3.4 Screen capture

Long press the “enter” key to capture screen interface and save it at any time.



User can go to “File Explorer” to view documents, pictures, videos and screenshots.

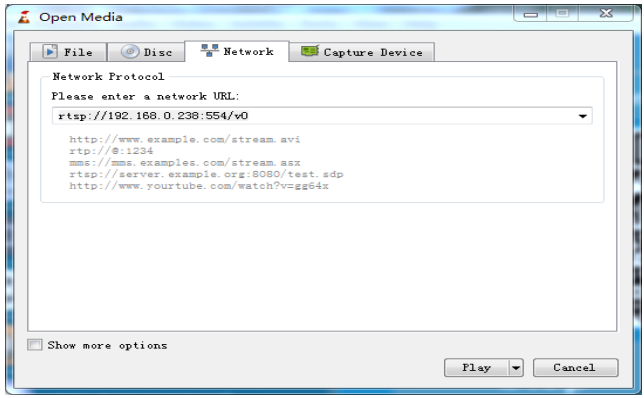
3.3.5 TesterPlay

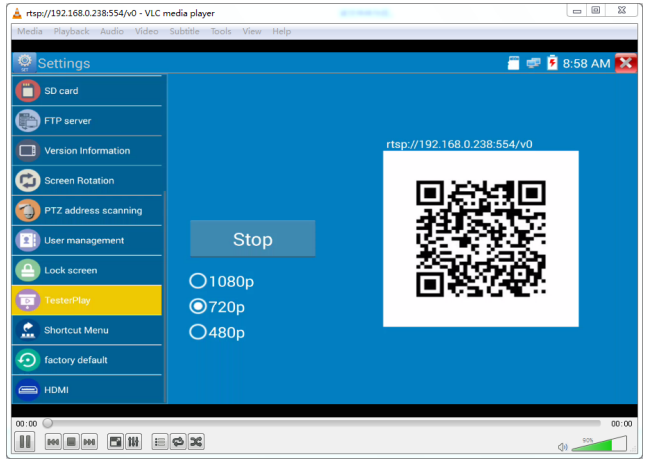
TesterPlay is a mobile screen projection (for android versions only).

The tester creates a WIFI hotspot to connect mobile phone to the tester’s WIFI hotspot, or the tester and mobile phone connect to the same WiFi network. Tap icon “ ”, then select “TesterPlay” app to enter where the meter generates two-dimensional code. Scan the code with mobile phone and download and install the client software. The tester’s screen can be viewed in real-time projection.

PC screen projection：

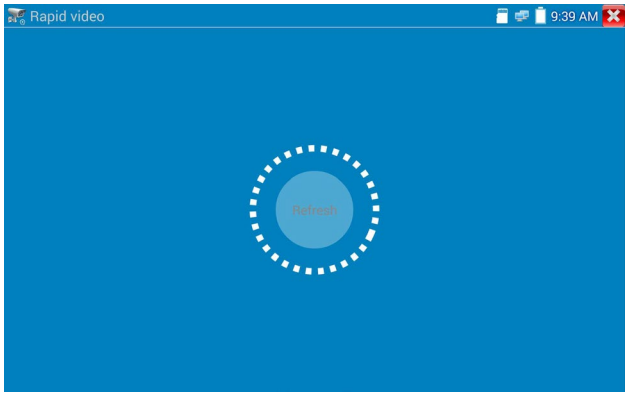
Install VLC player in the PC, turn on the VLC player, go to "Media", “Open Network Streaming", and input the RTSP address of on the top instrument two-dimensional code, click "play" to view the screen real-time projection.



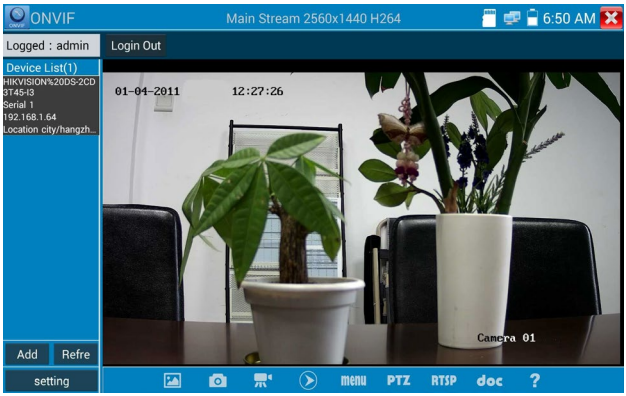


3.3.6 Rapid video

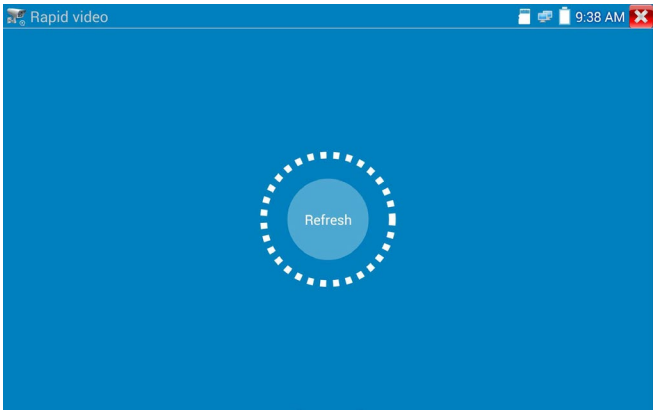
In Normal Mode, press the Rapid video icon, for one key detection of all network cameras and auto play the images.



Auto log in and display camera image (for detailed operation refer to ONVIF function).

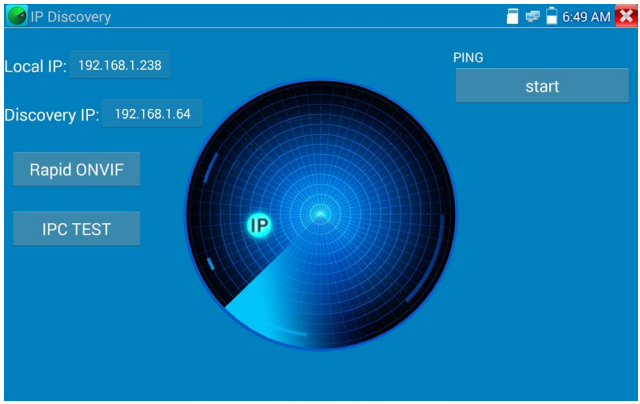


After entering the ONVIF app, click Refresh to search ip address.



3.3.7 IP discovery

Press IP discovery for tester to auto-scan the whole network segment IP, as well as auto-modify the tester‘s IP to the same network segment with the scanned camera's IP.



Local IP： Tester’s IP address where the tester can auto-modify the tester‘s IP to the same network segment with the scanned camera's IP

Discovery IP： Discovers connected equipment’s (usually camera) IP address. If the camera is connected to the tester directly, tester will display the camera’s IP address; if tester is connected **to** Local Area Network, it displays the current IP address.

Temp IP： after searching IP address, the modified tester's IP address will not be saved, if you do not select "Temp IP," the modified tester's IP address will auto-save after searching.

Start： To start the PING function click "Start" to PING camera's IP

Rapid ONVIF: Rapid ONVIF Quick link

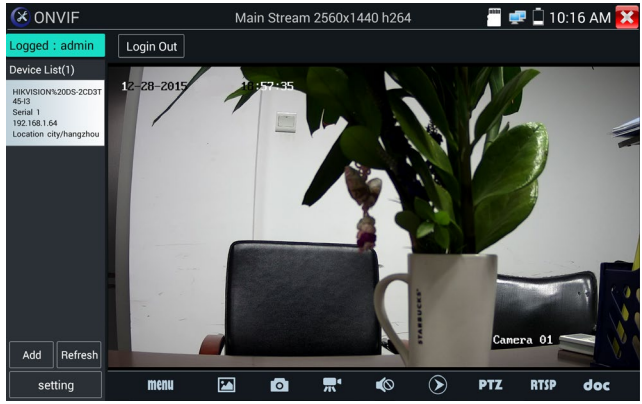
IPC TEST: IPC TEST Quick link

Applicability： Using IP discovery app ,you don't need to know the first two digits of camera's IP address , it can auto-scan the whole network segment IP, and auto-modify tester's IP address , greatly improving engineering efficiency.

3.3.8 Rapid ONVIF test

Rapid ONVIF can display 4K H.265/H.264 camera image by tester mainstream and one key to activate Hikvision camera.

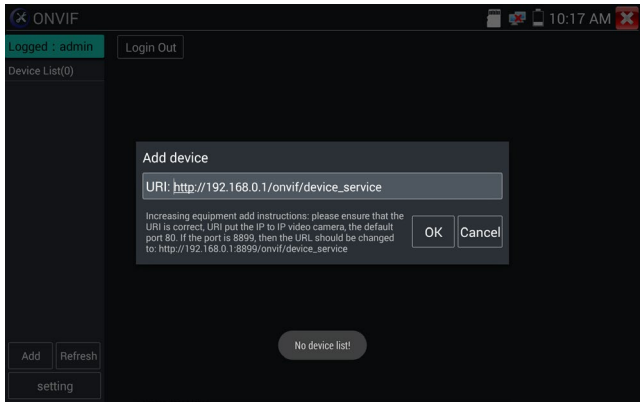
Press enter ONVIF function and the tester will auto scan all ONVIF cameras in different network segments.



Tester can auto login camera and display camera image. Factory default use admin password to auto login, if you modified the password, then default use the modified password to log in.

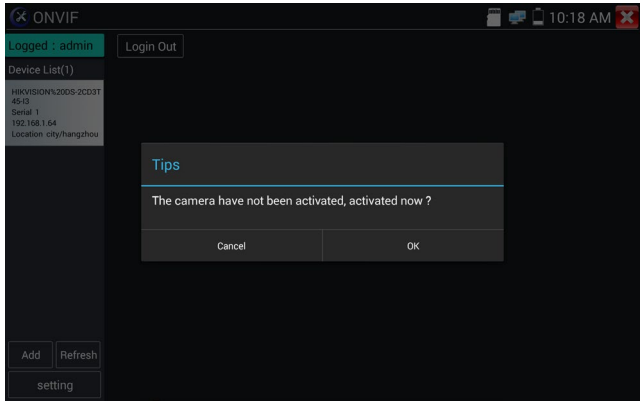
If you select ONVIF Rapid mode, the meter automatically scan different network segments for ONVIF

cameras. It lists the camera name and IP address on the Device List. Tester can auto login camera and display camera image.

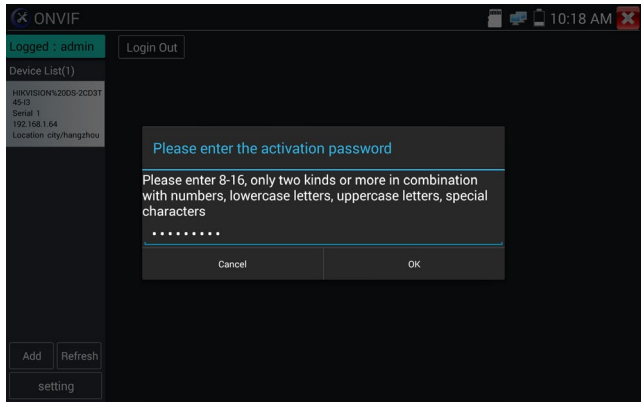


Click the button “Refresh”; tester will scan the ONVIF camera again. Click the newly displayed ONVIF camera on the “Device List“. The tester will show the IP camera’s relative information and settings.

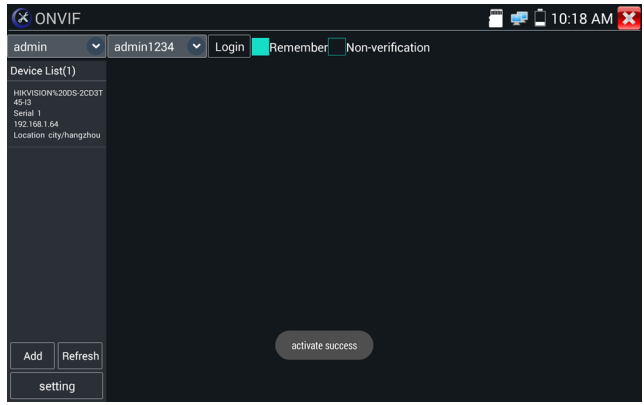
Activate HIKVISION Camera: When connected unactivated HIKVISION Camera, tester can auto recognized and prompt "The camera is not active, you need to activate it", click "OK" to start activation.



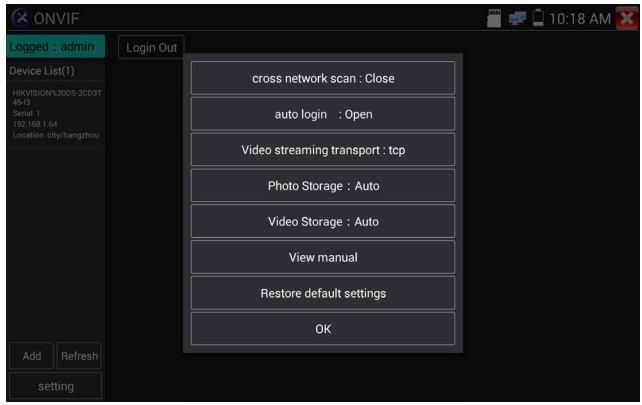
Enter a new password for the camera.



When tester displays “activate success” prompt, click login to display camera image.



Pop-up settings menu when click the “ONVIF” icon in the upper left corner



Across network segments scan: After open this function, enter “Settings,” “ IP Settings” and “Advanced” to add other network segments IP so Rapid ONVIF function can cross network segments to scan camera’s IP.

Auto Login: After open this function, tester can auto login camera and display camera image. (The login password is the same with last time, the first time using password is the default password "admin")

Video transmission protocol: UTP and TCP protocol.

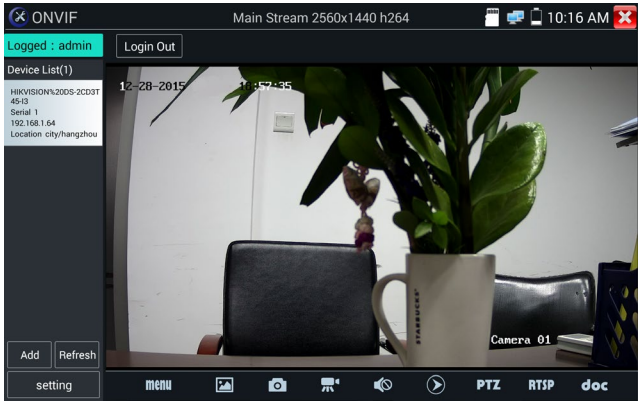
Open password cracker: Cracks password of cameras.

View manual: Open Manual.

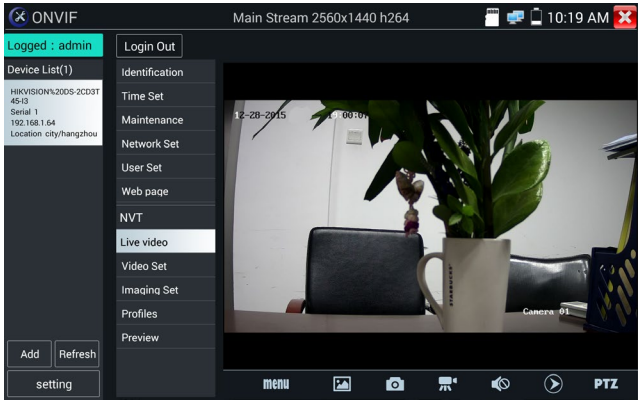
Restore Defaults: Revert “Rapid ONVIF” to default settings.

OK: Save the modified parameters.

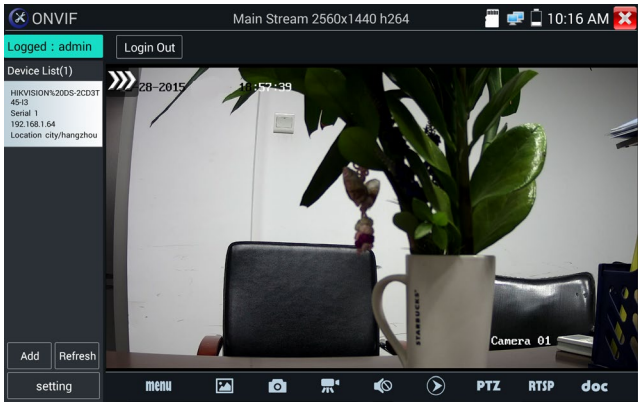
Click the “MENU” icon, at the bottom of the screen, to open camera settings.



While in the live video, the Video Menu is across the bottom of the screen and provides access to the following tools: Snapshot, Record, Photo, Playback, PTZ, RTSP and docs.



ONVIF PTZ control: Tap the image in the direction you want the PTZ camera to move. For example, tap the left side of the image to move left, right to go right, up to go up and down to go down. Compatible IP PTZ cameras will rotate accordingly. PTZ rotation direction is displayed on top left corner of the image.



IP camera video settings: Click “Menu” and click “Video Set” to enter the IP camera’s encoder and resolution settings. Make the desired changes and click “OK “to save.

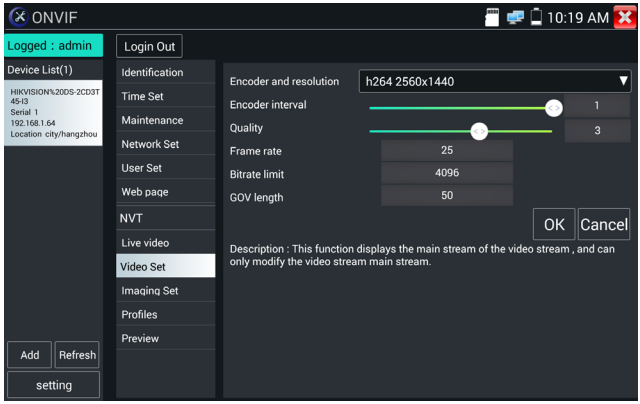
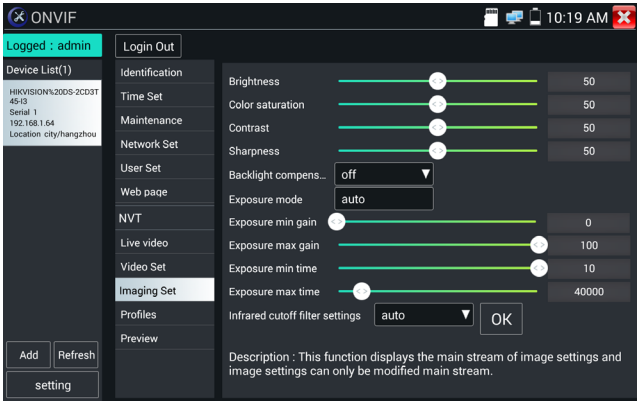
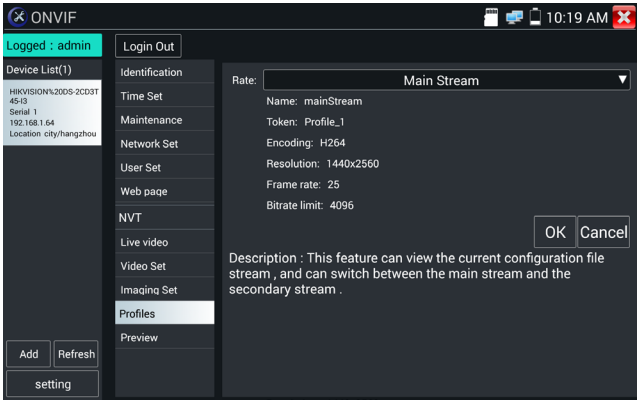


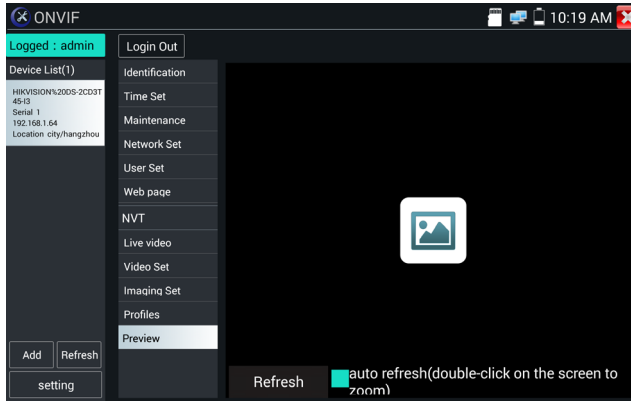
Image setting: Click “Imaging Set” to adjust image brightness, saturation, contrast, sharpness and backlight compensation mode.



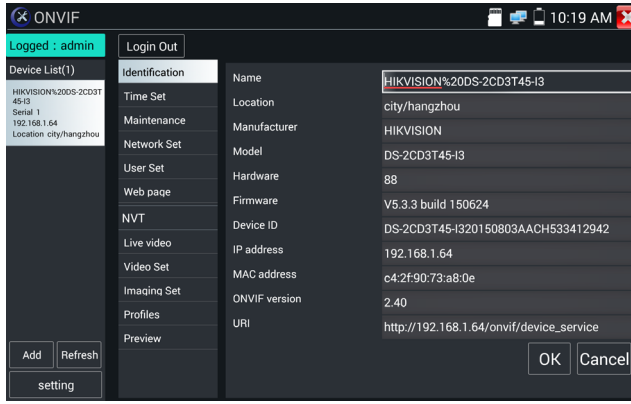
Profiles: Click “Profiles" to view video streaming current configuration files, as well as switch between Major stream and minor stream.



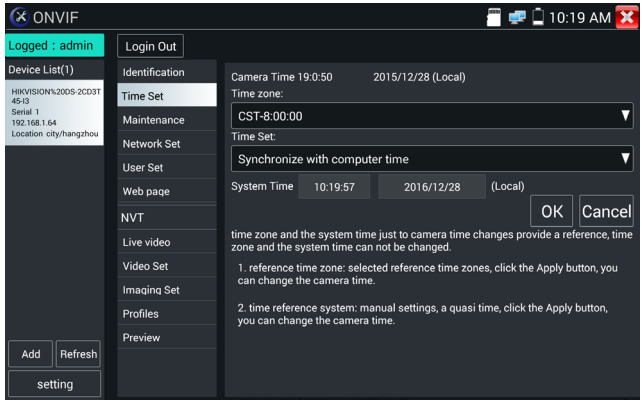
Preview pictures: Quickly preview and zoom in or out pictures; automatically and manually refresh.



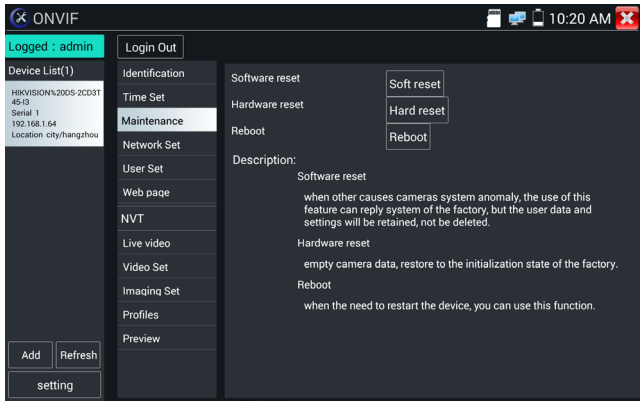
Identification: click "Identification" to view information of the camera.



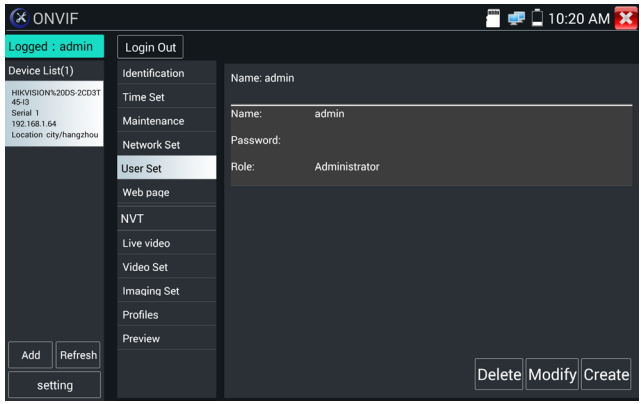
Time set: Click “Time set” and select “Manual set" to set up the time of camera.



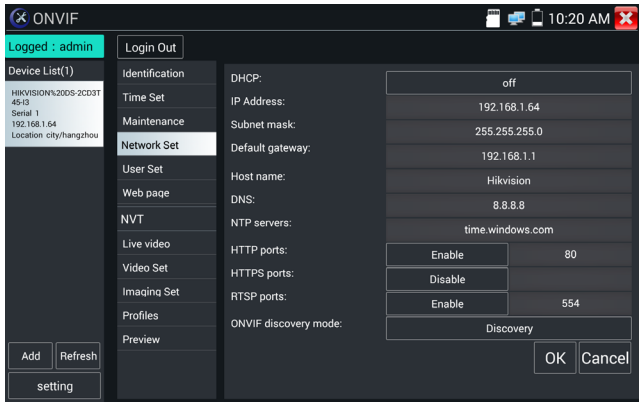
Maintenance: For camera software reset or restore to factory settings.



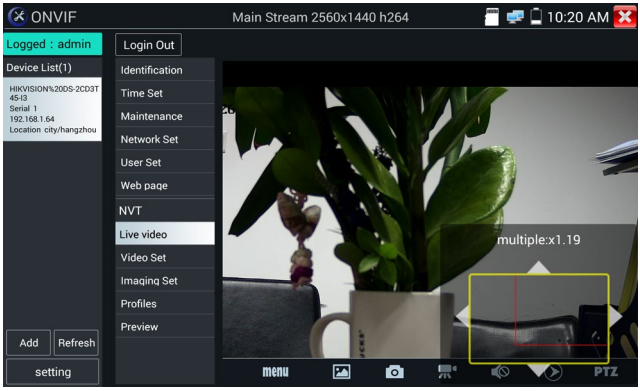
User Set: Modify camera user name and password parameters.



Network setting: Click “Network Set “to change the IP address. Some cameras cannot support change of IP address, so there is no change after saving.



Zoom in image: Press the key to enter the zoom mode. Press it again to exit zoom mode. When the image is enlarged tap left, right, up or down on the image to move the whole image on the screen.

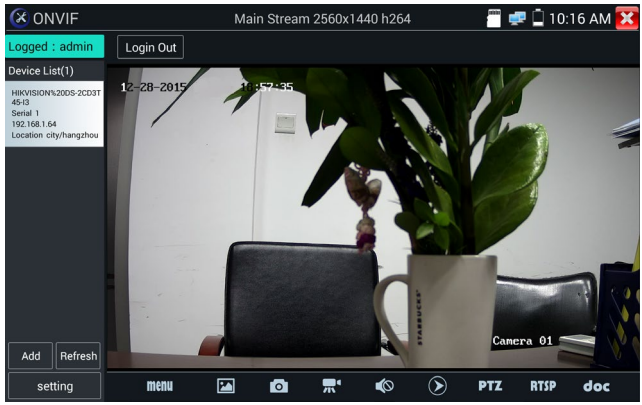


When the image is enlarged zoom can also be operated by the keyboard by pressing the key TELE+ to zoom in and press the key WIDE- to zoom out; press upward and downward key to move image.

If it is network video input to the tester, as the tester supports resolution up to 1080p, the input image will be very clear after it is enlarged. This is very helpful for the installer to ensure the IP camera's video coverage and decide the IP camera's install site.

Image can only be enlarged in ONVIF mode.

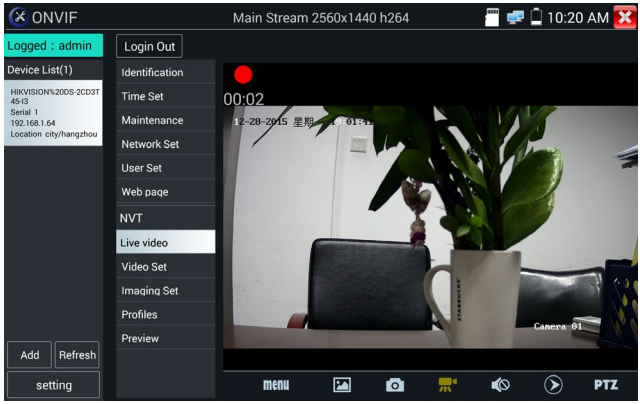
Select relative function on the bottom Toolbar to operate, "Snapshot" , "Record", "Photos ", "Video playback", "Storage set", "PTZ control" etc.



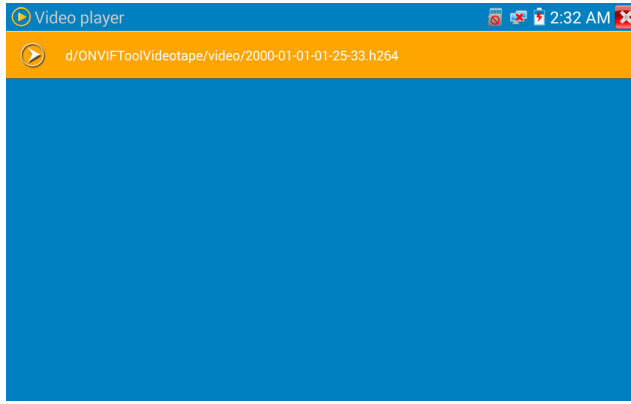
Snapshot: Click bottom “snapshot” to screenshot the image and store it to SD card.

If manual storage has been set, a dialog box appears with “Input Name” ” (only one character can be used as a file name) to save in SD card,; if “Auto storage” selected, the tester auto stores the files after snapshot.

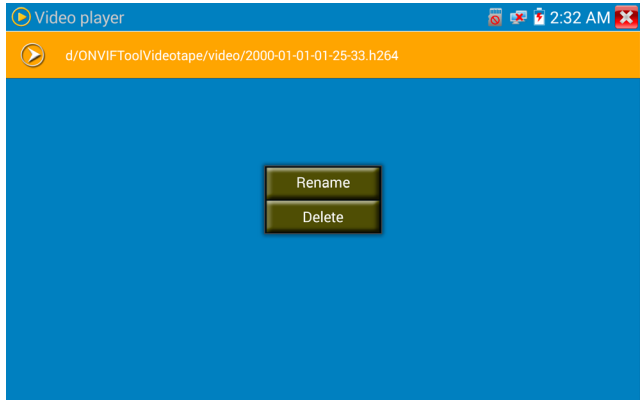
Record: When clicking the bottom “Record” icon, video starts recording. A red recording icon appears on the screen and begins to flash and a timer appears indicating the time elapsed for the video. Click on the “Record” icon again to stop recording and save the video file to the SD card.



Playback: Click the “Playback” icon to view saved videos. Double click the video you want to play. Tap screen to return to the last menu.



To rename or delete video files, click and hold on the file until this screen appears:

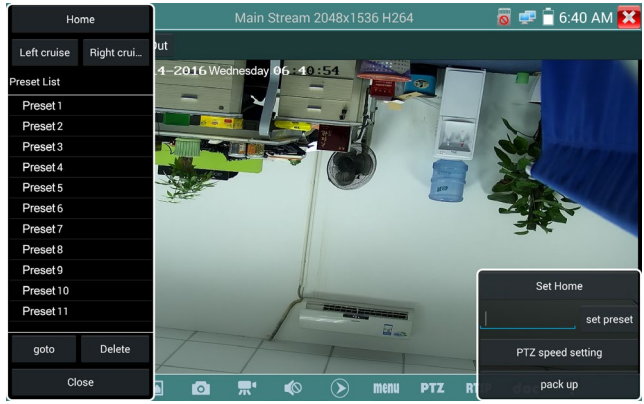


Video files can play in the Video player on the main menu.

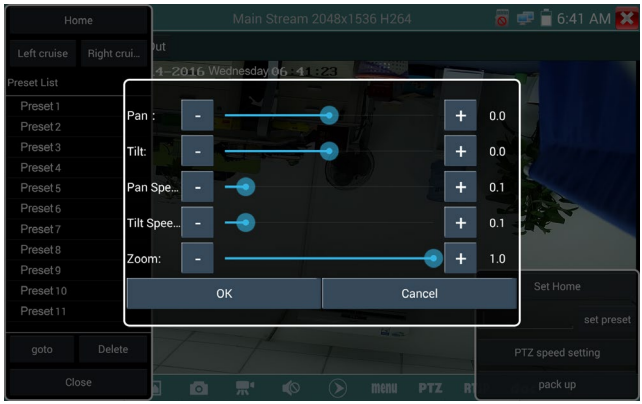
PTZ

Set preset position: Move the camera to preset position, enter the preset number on the bottom right corner to complete position preset.

Call the preset position: Select the preset number on the left, click "Call “ to call preset.

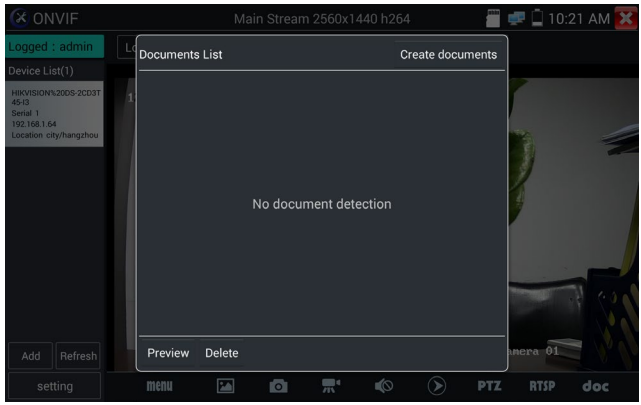


PTZ Speed set: Horizontal and Vertical Speed set.

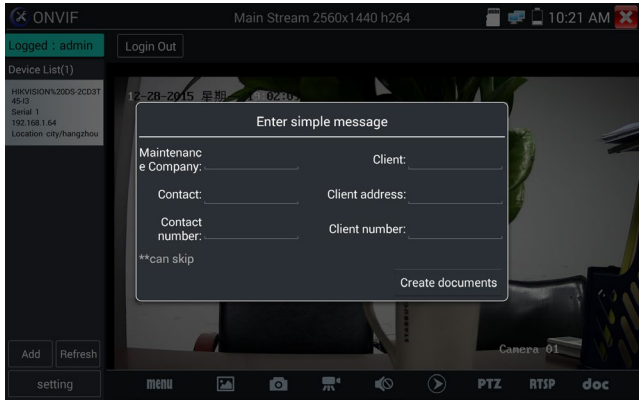


RTSP: Get RTSP address of the current camera.

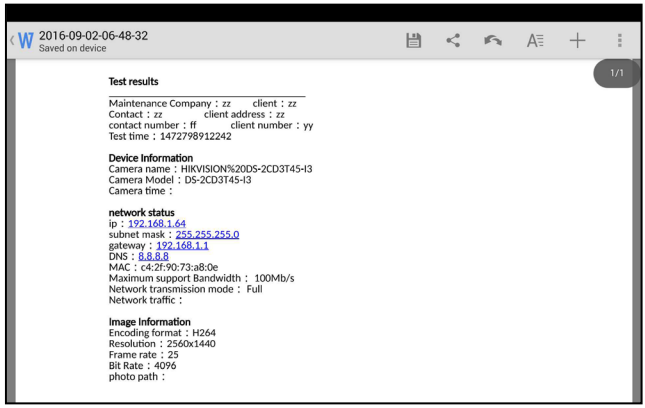
Doc: Auto create testing reports document of camera by clicking "Create documents". Click Preview to view the report document.



Enter the camera test information and click "Create Documents" to complete the report.



Click “Doc” menu again to preview the report document.



Icons description: the description of function icons on the bottom toolbar.

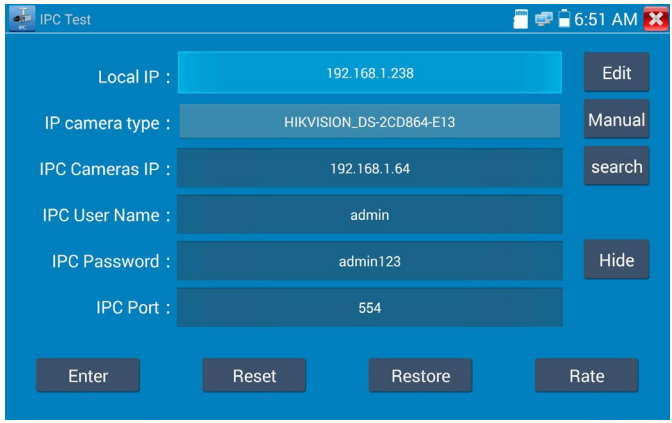
3.3.9 IP camera test

Display image from the 4K H.265 camera by main stream

Click icon to enter IP camera test

Note: Currently, the IPC Test App only supports some brands' specific IP cameras; these include specific models made by ACTI, AXIS, Dahua, Hikvision, Samsung, and many more. If the camera is not fully integrated, then use the ONVIF or RTSP apps.

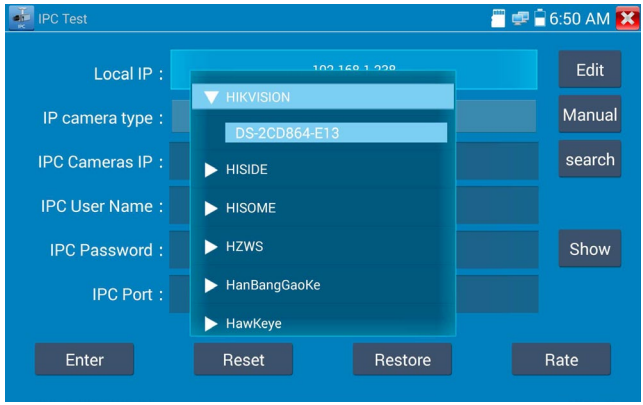
IPC test interface



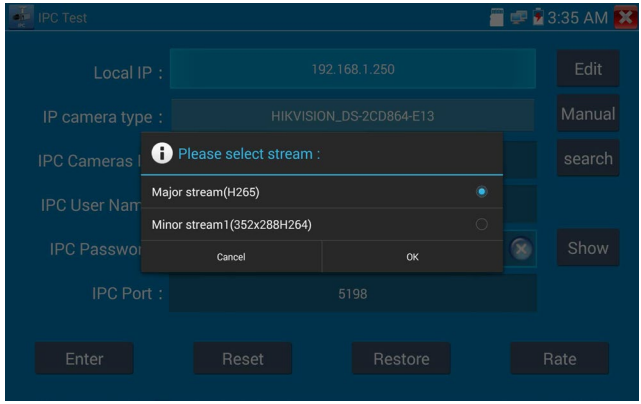
Local IP: This is the tester's IP address. Click "Edit" to enter "IP settings" and change the tester 's IP address settings.

IP camera type: Click on the IP Camera type to select the Manufacturer and model number of the integrated IP camera.

Manual: To manually enter camera type click into "IP camera type" field to list Honeywell, Kodak, Tiandy, Aipu-waton, ACTi, WoshiDA, etc. If the brand is listed, then select camera type, input IP camera address, username and password, and click "Enter" to enter the camera image display interface.



Stream code: When testing camera via RTSP, you can select mainstream or sub stream to test (if camera's RTSP has not been started will tip "auto match fail", then switch to manually selecting).



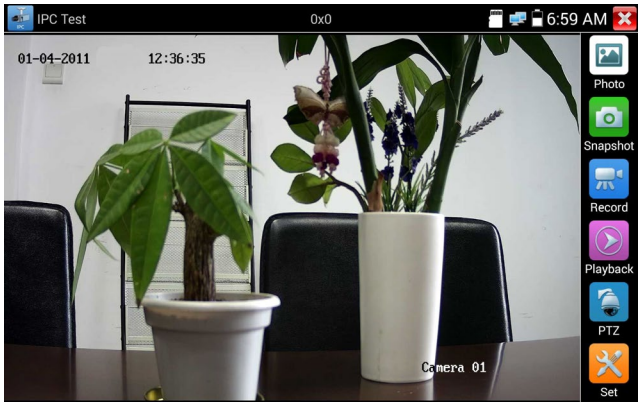
IP Camera's IP: Enter the IP camera's IP address manually or click "Search" to auto-scan for the IP camera's IP address. It is better to directly connect the IP camera to the tester so the search results will only display the camera's IP address. If the tester is connected to a PoE switch, it will find and display several IP addresses.

IPC User Name: Enter IP camera's user name.

IPC Password: Enter IP camera's login password.

IPC Port: When selecting the IP camera type, it will default the camera's port number and doesn't need to be changed.

After all settings are completed, click "Enter" to view the live video.



If IP address setting has error or IP camera is not connected, the tester prompts "Network Error".

Click to quit from image display and return to IP camera test interface.

Once you are viewing video on the IPC Test app, you will see the "Video Menu" icon on the top right. This button will give you access to Snapshot, Record, Photo, Playback, PTZ, and Set. Please refer to the ONVIF section to use these functions.

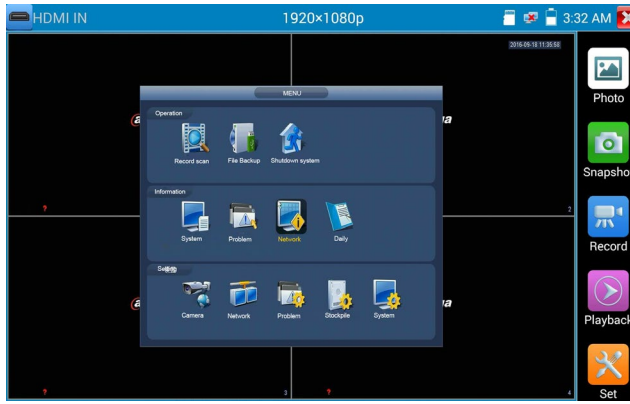
3.3.10 HDMI IN

HDMI in HD signal test, Tap icon " " to enter

When tester receives HDMI in image, the top tool bar shows the resolution of this image. You can select "resolution" to set resolution in the setting menu. For full screen display, tap screen by twice.

HDMI IN supports the following resolutions:

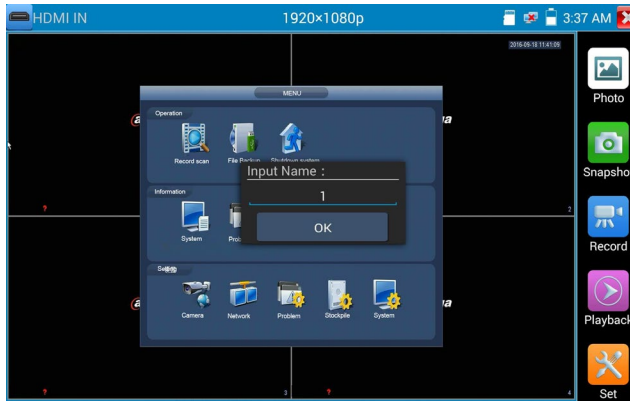
720×480p /720×576p /1280×720p /1920×1080p /1024×768p/1280×1024p /1280×900p /1440×900p



(1) Snapshot

Click the icon “Snapshot” to take a picture and save the current video frame in the SD card as JPEG file.

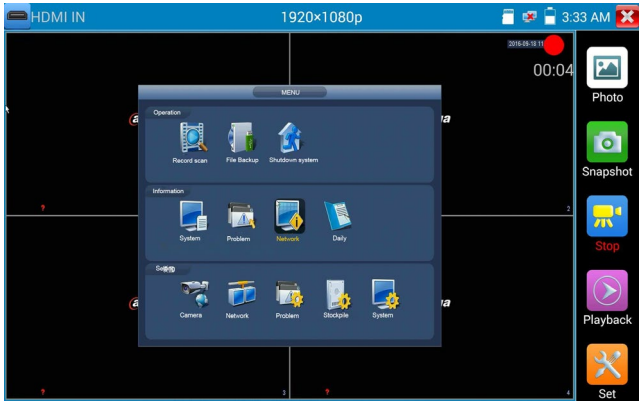
If the unit is set to the manual mode an “Input Name” pop up box will appear and you can enter a title for the snapshot. If the unit is set up to automatically set file names, this box will not pop up.



(2) Video record

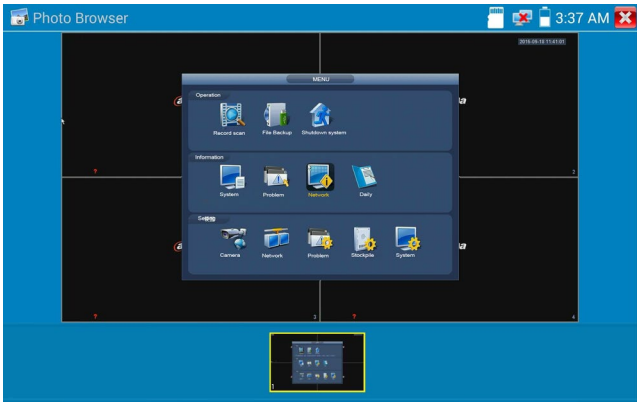
When you click the “Record” icon, video starts recording. A red recording icon appears on the screen and begins to flash and a timer appears indicating the time elapsed for the video. Click on the “Record” icon again to stop recording and save the video file to the SD card.

If manual storage was selected, a dialog box will appear asking for “Input Name”; enter a one digit fule name to store in SD card. If auto storage was selected the tester will auto store the files in SD card after recording.

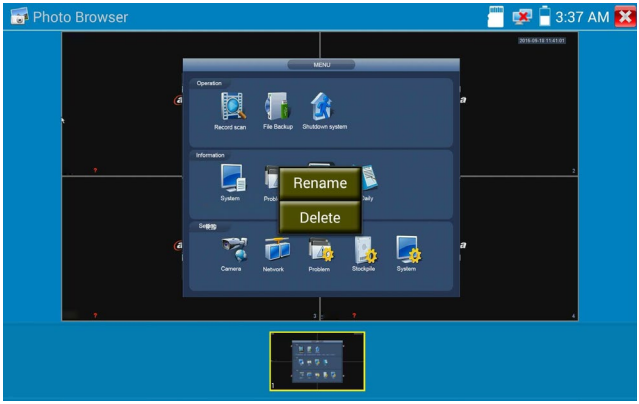


(3)Photo

Click the icon “photo” and click the selected thumbnail photo to display it on the screen. Double-tap the image to view the photo in full screen. Double-click again the photo to return.



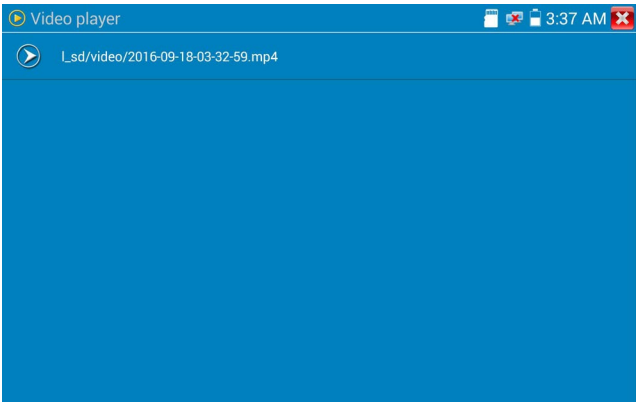
To rename or delete an image, click and hold on the file until this screen below appears



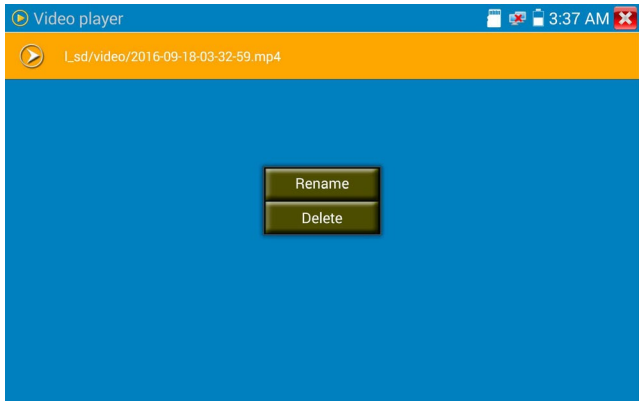
Click to close and return to PTZ controller.

(4) Recorded video playback

Click the “Playback” icon to view your recorded videos. Tap on the video file image you want to watch.



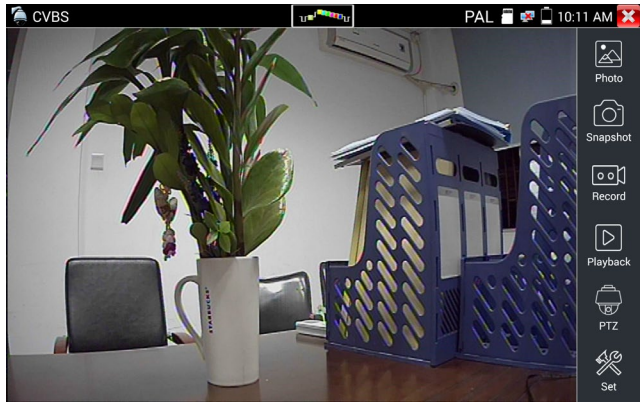
To rename or delete a video, click and hold on the file until this screen appears:



Video files also can play in the main menu “Video Player".

3.3.11 Video monitor test

For standard analog camera test and PTZ control, click CVBS icon to display the input video image.



Select relative functions on the right side toolbar to operate functions including “Photos”, “Snapshot”, “Record”, “Playback”, “PTZ”, and “Set”.

Double tap the screen for full screen image.

Click , or press MENU to quit.

(1) PTZ controller parameter setting

Select and click icon “PTZ” to enter PTZ setting:

A. **Protocol**

Use the up and down arrow keys to move the yellow cursor to the “protocol” to set the corresponding protocol. The tester supports more than thirty PTZ protocols, such as PelcoD, Samsung, Yaan, LiLin, CSR600, Panasonic, Sony-EVI etc.

B. Port

Click “port” to select the communication port for the PTZ camera controlling (RS485)

C. Baud Rate

Click “Baud Rate” to select the baud rate of the PTZ camera (150/300/600/1200/2400/4800/9600/19200/57600/115200).

D. Address: Set the ID according the ID of PTZ camera (0~254), the setting address data must be consistent the speed dome address.

E. Pan speed: Set the pan speed of PTZ camera (0~63)

F. Tilt speed: Set the tilt speed of PTZ camera (0~63)

G. Set preset position (Set Preset)

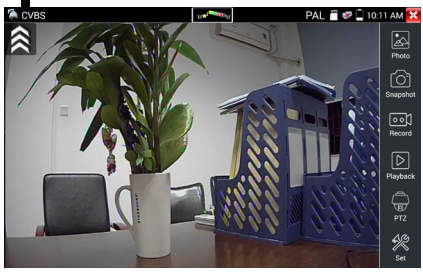
Click and select “Set Position” to set and save preset position number (1~128).

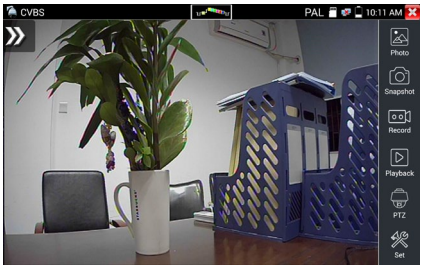
H. Call the preset position (Call Preset)

Click and select “Call Preset” to call a saved preset position number (1~128) or to call the dome camera menu (usually Preset 95).

Check and set the protocols, address, interface and baud, which must be consistent with the dome camera. After setting the parameter, the tester can control the PTZ and lens via the touchscreen:

Tap left, right, upward and downward on the touch screen to control the PTZ rotation direction. By two fingers move outward and inward on the touch screen to zoom in and out the PTZ.





PTZ Control:

Press the key control the PTZ direction of rotation

Press the key OPEN or CLOSE, to switch on or turn off the aperture.

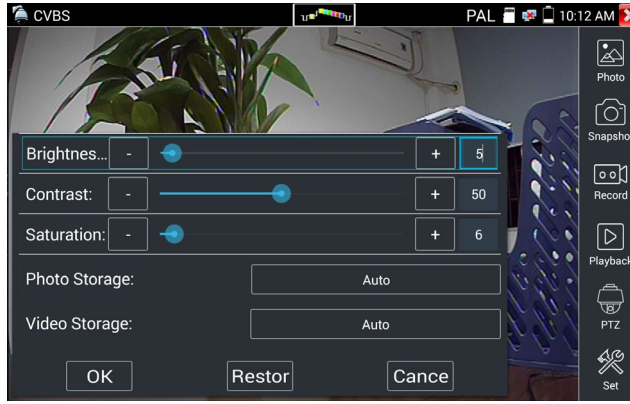
Press the key FAR+ or NEAR-, adjust the focus manually

Press the key TELE+ or WIDE-, manually adjust the zoom

(2) Video and storage setting

Click icon “set”, to enter and set analog video image brightness, contrast, color saturation, as well as the file storage type after snapshot and recording (auto or manual storage).

When manual storage is selected, user can name and store the files.



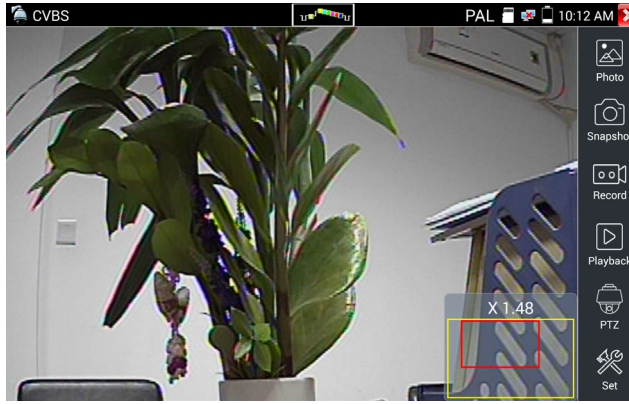
(3) 4 x zoom image display and Video out

When image input is displayed press to enter “zoom” and press it again to quit.

Using the touch screen to control PTZ camera movement:

Tap left, right, upward or downward on the video image to move the PTZ camera in a desired direction.

Stretch two fingers outward or inward on the touch screen to zoom the image in or out.



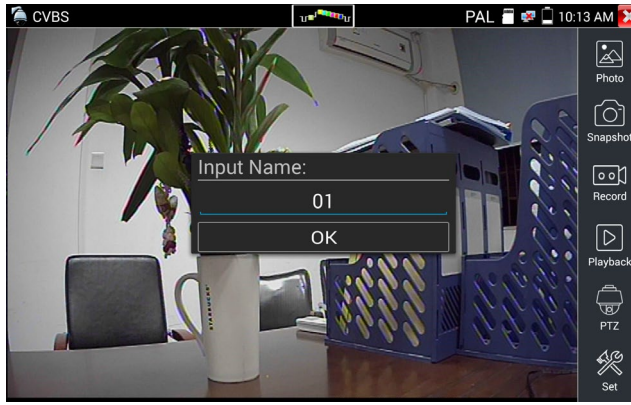
If not use touch screen to operate, press the key TELE+ to zoom out, press the key WIDE- to zoom in and press upward and downward key to move the image.

⚠ For analog video input resolutions of 720 x 480 the zoomed in image is not clear. But for digital video input (supporting resolution up to 1280 x 960), the zoom in image is still very clear.

(4) Snapshot

Click the icon “Snapshot” to save the current video frame in the SD card as JPEG file.

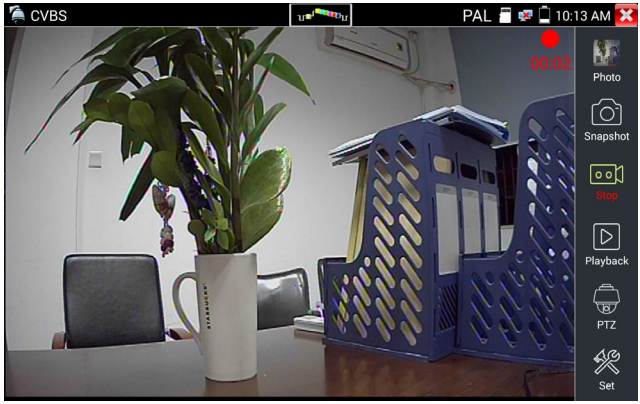
If the unit is set to the manual mode an “Input Name” pop up box will appear and you can enter a title for the snapshot. If the unit is set up to automatically set file names, this box will not pop up.



(5) Video record

When you click the “Record” icon, a red recording icon appears on the screen and begins to flash and a timer appears indicating the time elapsed for the video. Click on the “Record” icon again to stop recording and save the video file to the SD card.

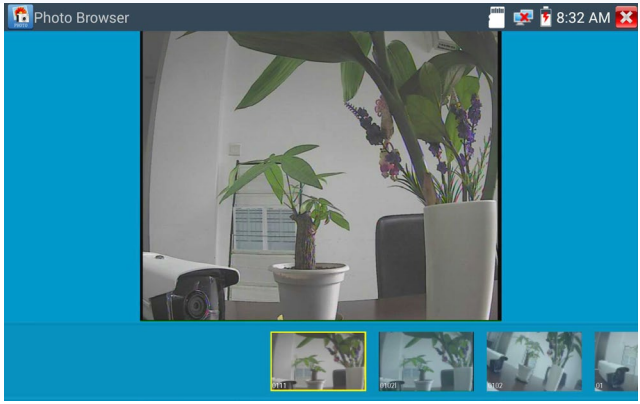
If the unit is set to manual storage an “Input Name” pop up box will appear and a one digit title can be entered and saved to the SD card. If auto storage is selected, the tester will auto store the files in SD card after recording.



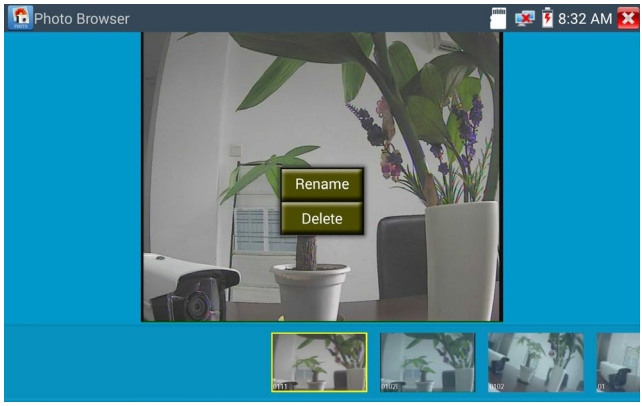
(6)Photo

Click the icon “photo” to enter and click the selected thumbnail photo to display it on the screen.

Double-tap the image you want to view to make it full screen. Double tap again the photo to return.



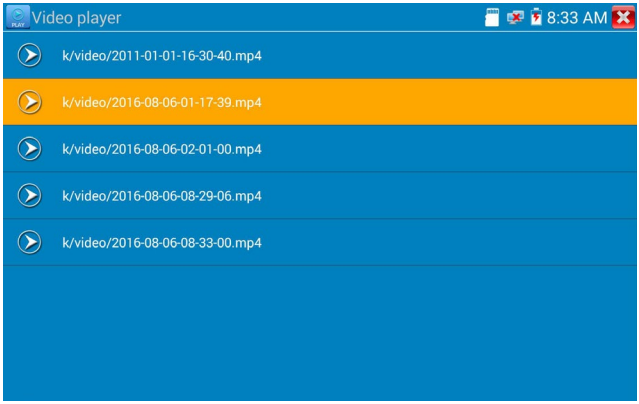
To rename or delete an image, click and hold on the file until this screen below appears



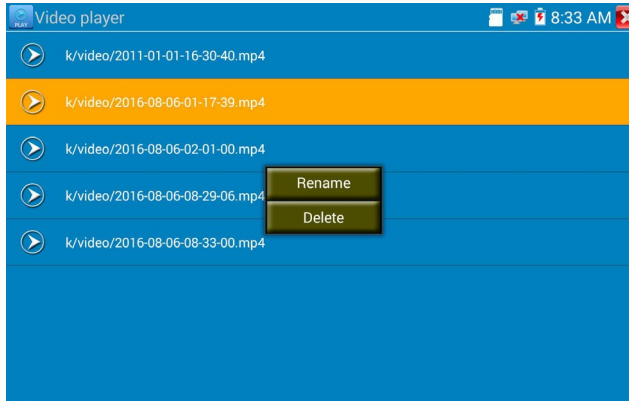
Click to close and return to PTZ controller.

(7) Recorded video playback

Click the “Playback” icon to view your recorded videos. Tap on the video file image you want to watch.



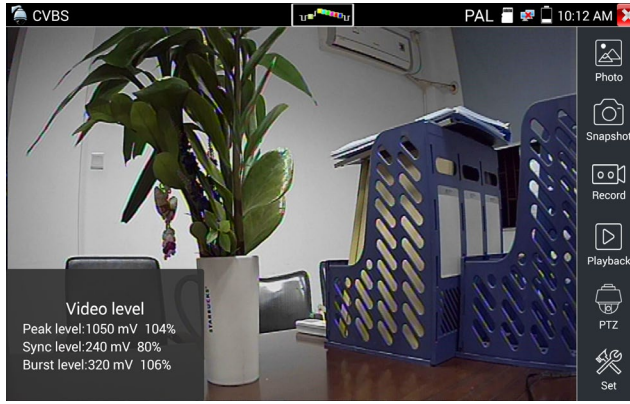
To rename or delete a video, click and hold on the file until this screen appears:



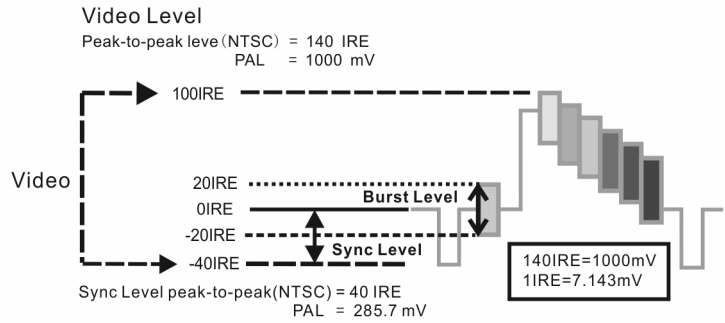
Video files also can play in the main menu “Video Player".

(8) Video level meter

Click the icon to enter the video level meter. The IP camera tester has adopted hardware high-speed sampling and processing technology which can perform both NTSC and PAL video amplitude signal measurements for PEAK to PEAK, SYNC levels and COLOR BURST Chroma level. When an analog signal is fed into the meter, the tester displays the measurements on the bottom left corner of the screen



While in PAL format, the unit will be mV; while in NTSC format, it will be IRE.



NTSC	Video signal level	140±15IRE
	Chroma level(COLOR BURST)	40±5IRE
	SYNC signal level	40±5IRE
PAL	Video signal level	1000±200mV
	Chroma level(COLOR BURST)	300±35mV
	SYNC signal level	300±35mV

Video signal PEAK to PEAK level:

For NTSC format, the video signal level is 140±15IRE

For PAL format, the video signal level is 1000±200mV

If the level is too low, it will cause the image to lose quality and limit the distance it will travel over cable. If the level is too high, it will distort the image.

SYNC level: Tests the amplitude of the video sync pulse to verify if the video level is correct.

For NTSC format, the SYNC level is 40 ± 5IRE

For PAL format, the SYNC level is 300 ± 35mV

If the level is too low, it will cause the image to not frame out properly. If the level is too high, it will lead to a poor quality image.

COLOR BURST level: Testing the color burst level will determine if the burst signal is sufficient to trigger the displays color producing circuit. Burst will diminish in amplitude over longer cable runs and can fall below the threshold for the video display to show a color image.

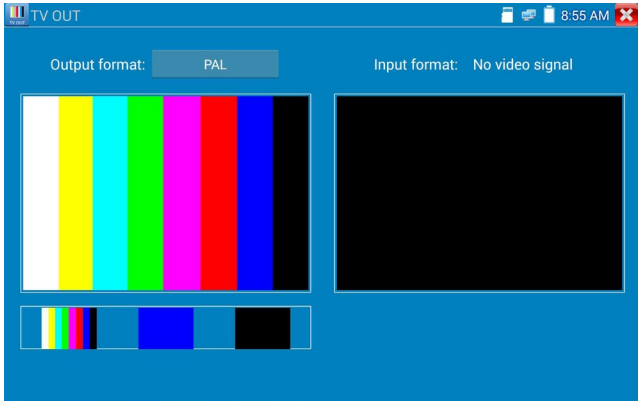
- For NTSC format, the Chroma standard level is 40 IRE
- For PAL format, the Chroma standard level is 280mV

If the Chroma level is too low, the color will not be as deep, and some details of the image will become lighter. If the Chroma level is too high, there will be distortions on the image. If the coaxial cable is too long, it will reduce the Chroma level.

Image loop test: This tests video balun transmitter and receiver and BNC video cable. Connect one end to the tester "CVBS Out" port and the other end connected to "CVBS IN" port, the signal will be sent via "CVBS OUT" port and received via "CVBS IN" port. If the testing is ok, the tester displays several gradually dwindling photos on the desktop.

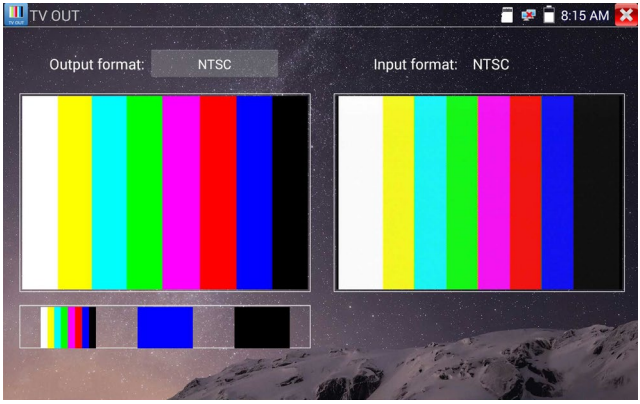
3.3.12 Color-bar generator (TV OUT)

Click to enter the color bar tester to send the color bars from the "CVBS out" port. Click the "Output format" to select "PAL/NTSC" output.



Click the selected color-bars testing image or single bar (blue or black). Double click to full display on the screen and output, click to return main menu.

Application



BNC loop test: Tester can send and receive color bar generator through the tester's "CVBS out" and "CVBS in" port for testing transmission channels, such as video balun, BNC video cables, etc. Connect the tester's "CVBS OUT" port to the balun transmitter's BNC input port and connect the tester's "CVBS IN" port to balun receiver's BNC output port. The same can be done with a single BNC cable.

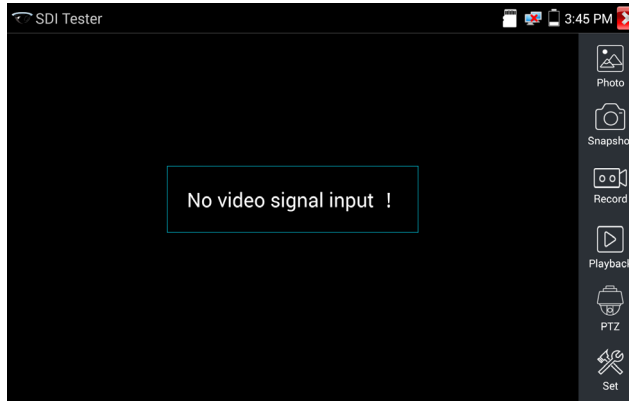
A. The tester sends out the color bar by its BNC output to the monitor at the monitoring center. If the monitor receives the color bar, it means the video transmit channel works normally. On the basis of the received color bar, the monitoring center can judge if transmission has loss or interference.

B. The tester sends out the pure color bar (such as blue or black color), to test the monitor whether has bright or black dots

C. The tester sends out video signal image to test if the image received by the monitor has excursion.

3.3.13 SDI/EX-SDI Camera Test (*Optional)

For SDI camera test and SDI PTZ control, click icon to enter.



When tester receives SDI camera image, it will display the image data.

Double-taps on the screen to make the image displayed full screen.

The tester supports resolution as follows:

1280x720P 25Hz

1280x720P 30Hz

1280x720P 50Hz

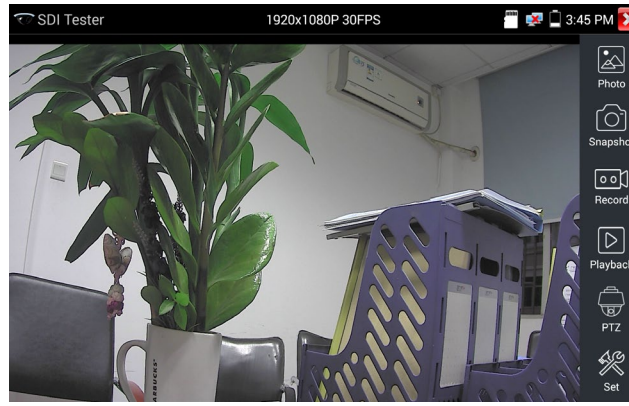
1280x720P 60Hz

1920x1080P 25Hz

1920x1080P 30Hz

1920x1080I 50Hz

1920x1080I 60Hz

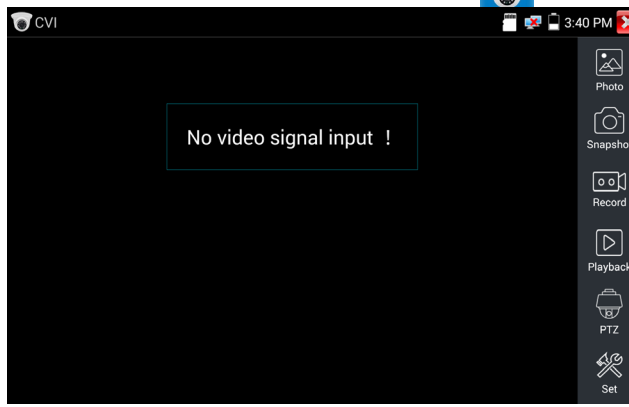


IPC tester's HDMI output port can be used as SDI to HDMI converter to output HD SDI image to HD TV monitor. Select relative functions on the right side Toolbar to operate, "Snapshot" , "Record", "Photos ", "Video playback", "PTZ control", "Video Brightness and Storage set". The operation is the same as the video monitor function; refer to the relevant instructions "3.3.1" in the manual.

Click , or press (MENU) to quit.

3.3.14 CVI camera test (*Optional)

HD CVI camera, CVI dome camera test and PTZ control, click icon to enter

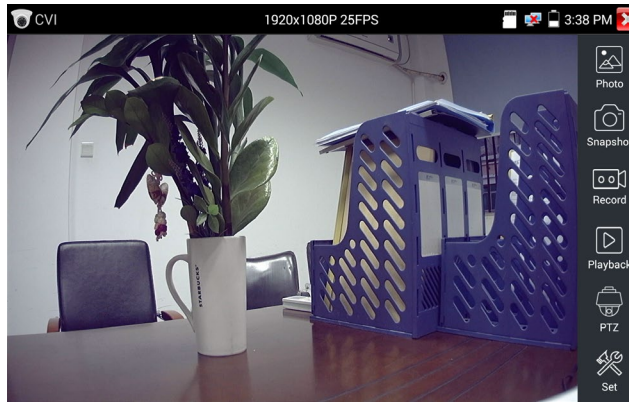


When HD CVI signal input, the tester will display the image resolution on the top bar. Double-tap on the screen to make the image displayed full screen.

The tester supports resolution as follows

1280x720P 25FPS / 1280x720P 30FPS / 1280x720P 50FPS / 1280x720P 60FPS

1920x1080P 25FPS / 1920x1080P 30FPS/2560x1440P 25FPS/2560x1440P 30FPS.

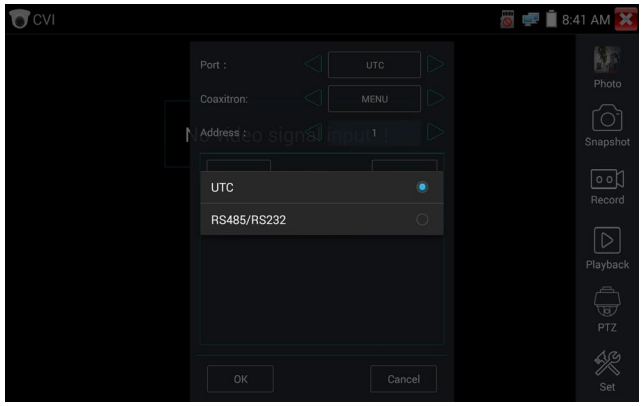


1.1 Coaxial PTZ control

(1) Coaxial PTZ Control

Click the “PTZ” icon on the right toolbar to do the corresponding setting.

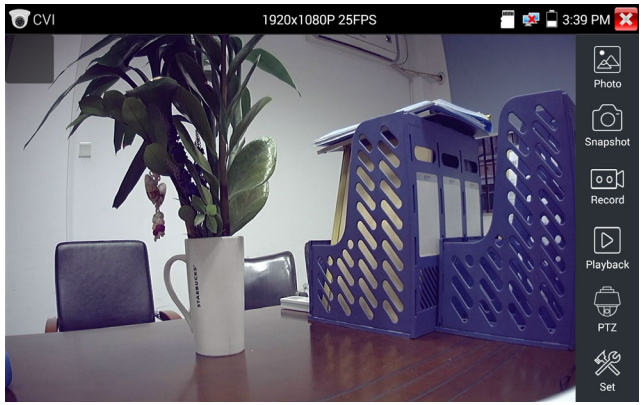
“Port”: select coaxial control(UTC)



Enter PTZ address to perform parameters setting.

Operation instructions, please refer to “3.3.11 PTZ (1) Video monitor test”.

The PTZ address in the tester must be consistent with the dome camera or decoder. After setting the correct parameters, the tester can control the PTZ and lens.



To control PTZ by screen touch:

Tap left, right, upward and downward on the touch screen to control the PTZ rotation direction, PTZ cameras will rotate accordingly. With two fingers move outward and inward on the touch screen to zoom in and out the PTZ.

To control PTZ by key buttons

Press the key control the PTZ direction of rotation

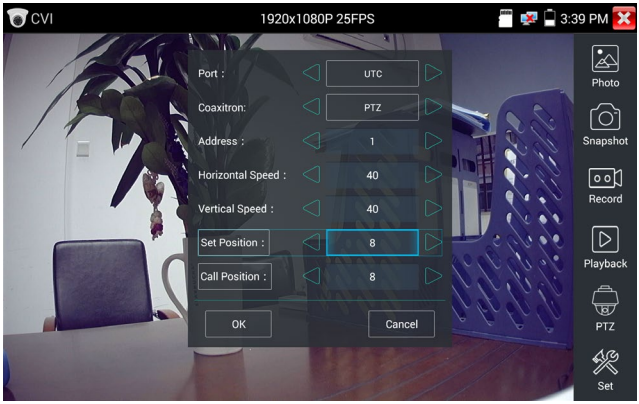
Press the key OPEN or CLOSE , to switch on or turn off the aperture.

Press the key FAR+ or NEAR- , adjust the focus manually

Press the key TELE+ or WIDE- , manually adjust the zoom

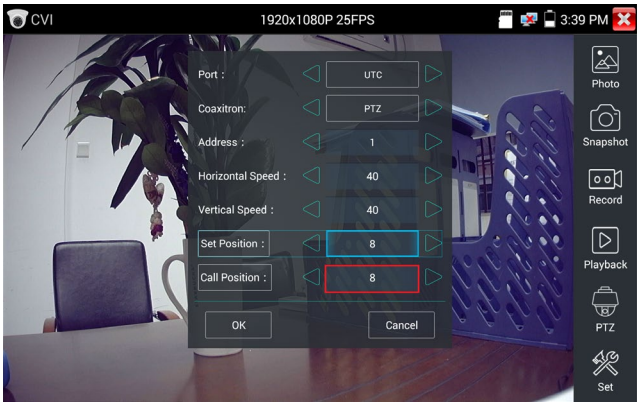
Set preset position

To setup preset position, move the PTZ camera to the preset position and then enter preset position number. Tap “Set position” to complete and save position number.



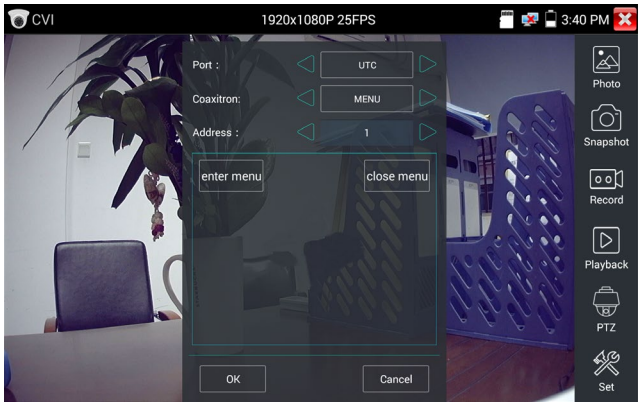
Call preset position

Click and select “Call Preset” to call a saved preset position number (1~128) or to call the dome camera menu (usually Preset 95).

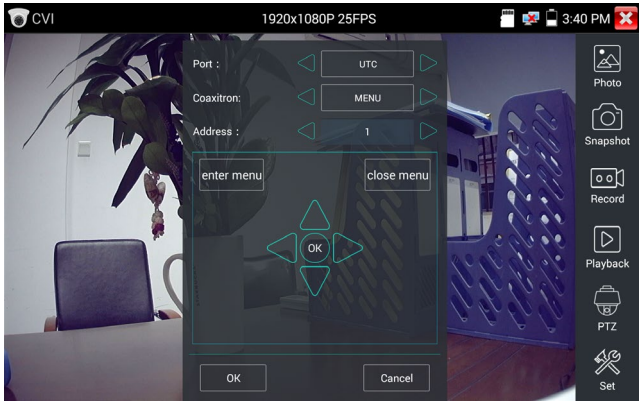


（2）Coaxial camera menu setting

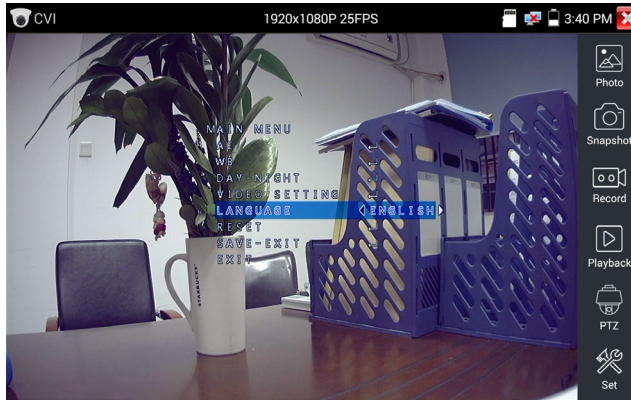
Tap icon “UTC” for the port and select “Menu” for the Coaxotron to enter the dome camera menu.



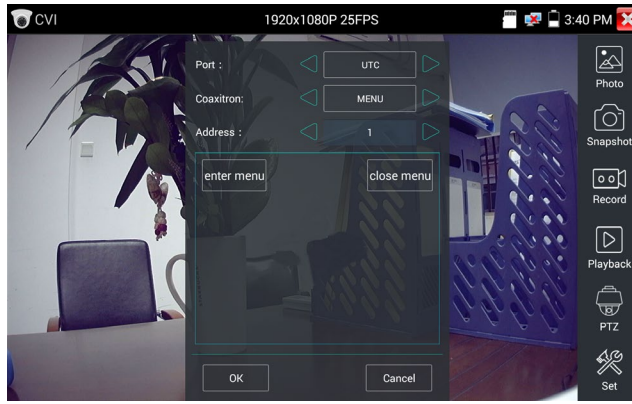
Enter address of PTZ camera; after finishing the parameter settings, you can press the key ENTER or click the icon to call the dome camera menu .



Press arrow keys to set position.



Tap “close menu” or press the key “ ENTER ”to close camera menu.



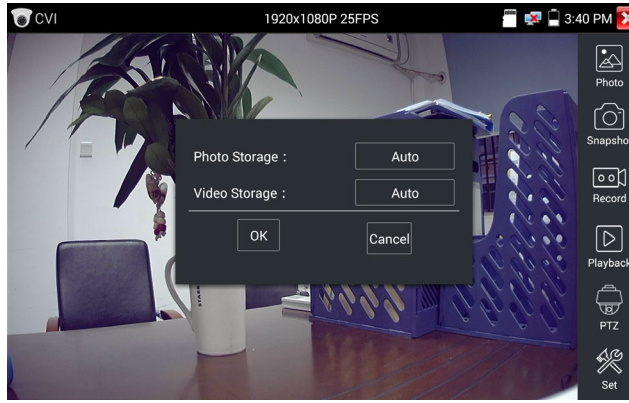
(3) For snapshot, record, photo viewer and video playback, please refer to “3.3.11” Video monitor test”

(4) Save setting

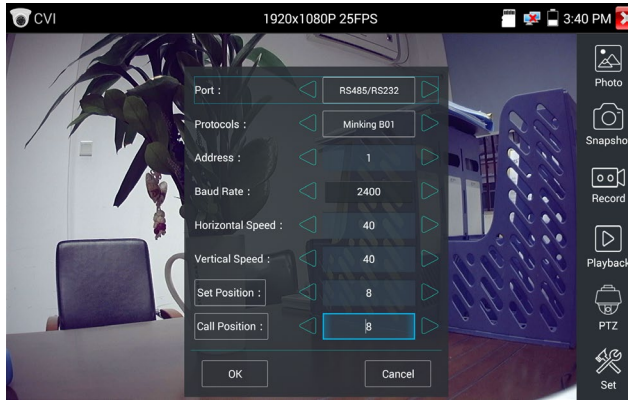
Click icon “Set” on the right toolbar to enter storage setting.

Support auto-storage and manual storage.

When select manual storage, user can name and store the files.



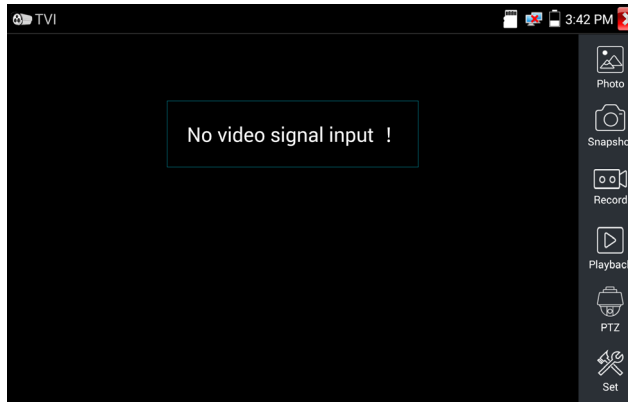
1.2 RS485 control



Operation instructions please refer to “3.3.11 PTZ (1) PTZ control parameters setting”.

3.3.15 TVI camera test (*Optional)

HD TVI camera, TVI dome camera test and PTZ control, Click icon to enter

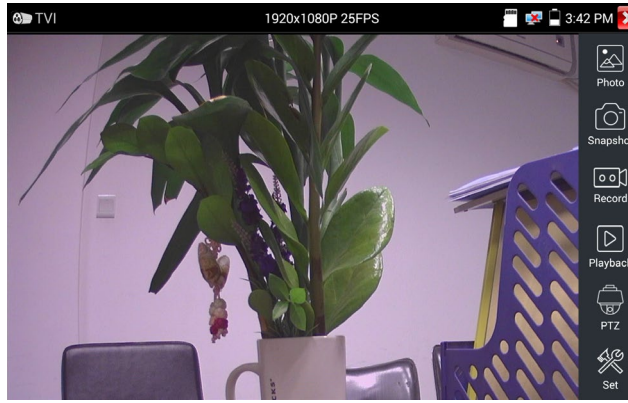


With an HD TVI signal input, the tester will display the image resolution on the top bar. Double tap on the screen to make the image display full screen.

The tester supports resolution as follows:

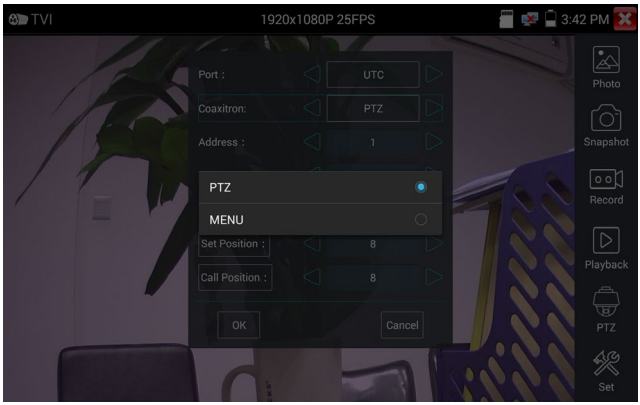
1280x720P 25FPS / 1280x720P30FPS / 1280x720P 50FPS / 1280x720P 60FPS

1920x1080P 25FPS / 1920x1080P 30FPS / 1920x1080P 50FPS / 1920x1080P 60FPS /2048x1536P 18FPS/2048x1536P 25FPS/2048x1536P 30FPS /2560x1440P 15 FPS/2560x1440P 25 FPS/2560x1440P 30 FPS/2688x1520P 15FPS/2592x1944P 12.5FPS/2592x1944P 20FPS

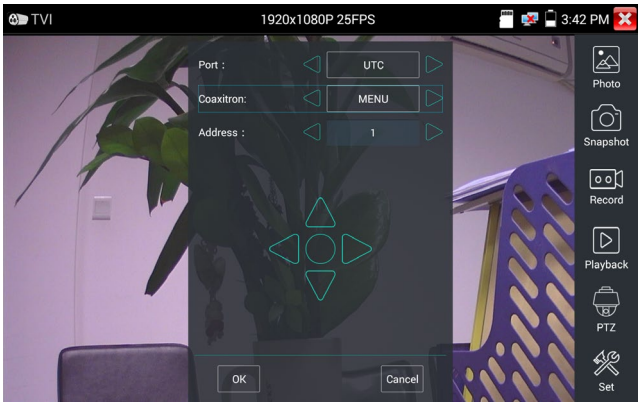


Coaxial camera menu settings

Select UTC for the Port and select “Menu “for the Coaxitron to enter the dome camera menu.



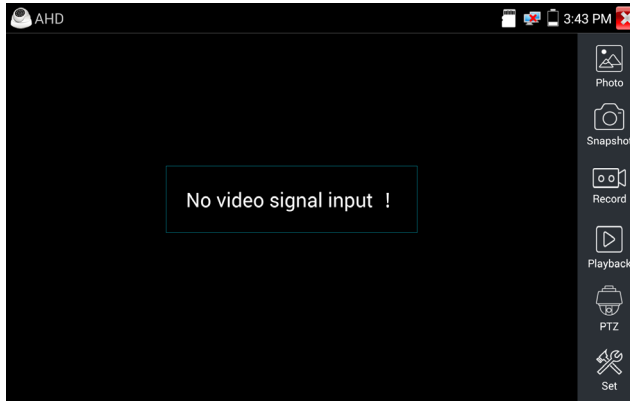
Enter address of PTZ camera; after finishing the parameter settings, you can press the key ENTER or click the icon to call the dome camera menu.



For more operation instructions (such as PTZ control, coaxial camera menu setting ,snapshot, recording and playback etc.), please refer to“3.3.6 CVI camera test”.

3.3.16 AHD camera test (*Optional)

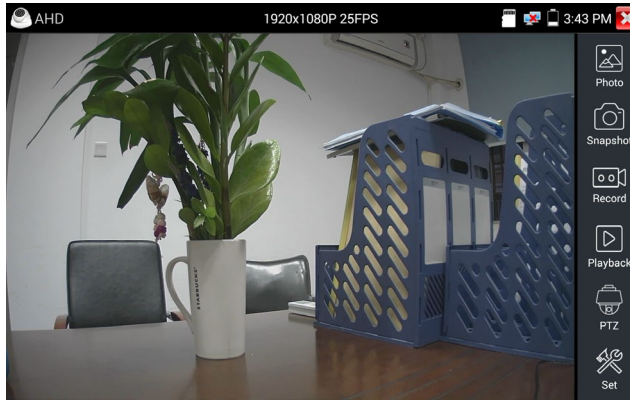
AHD camera, AHD dome camera test and PTZ control, Click icon to enter



With an AHD signal input, the tester will display the image resolution on the top bar. Double tap on the screen to make the image displayed full screen.

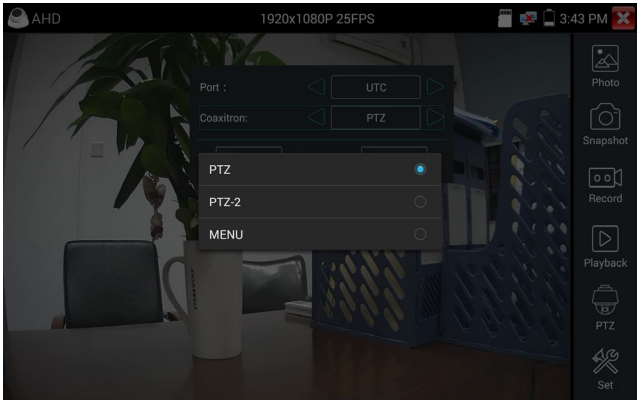
The tester supports resolution as follows:

1280x720P 25FPS / 1280x720P 30FPS / 1920x1080P 25FPS / 1920x1080P 30FPS/2048x1536P 18FPS/2048x1536P 25FPS/2048x1536P 30FPS /2560x1440P 15 FPS/2560x1440P 25 FPS/ 2560x1440P 30 FPS/2592x1944P 12.5FPS/2592x1944P 20FPS



(1) Coaxial PTZ control

UTC control: select “PTZ control or PTZ control-2” (AHD cameras have two different controls; if “PTZ” does not control camera, go “PTZ-2”)

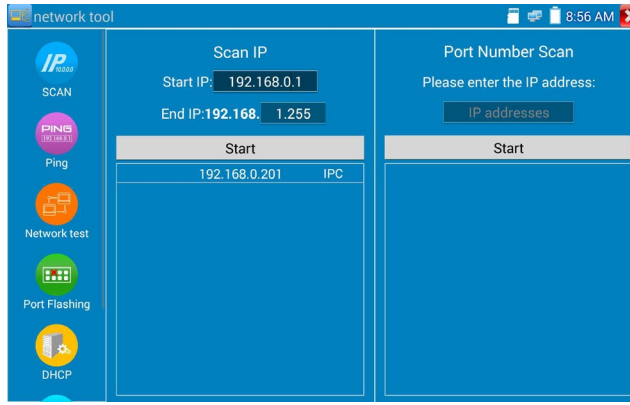


More operation instructions please refer to “3.3.6 CVI camera test”.

3.3.17 Network tool

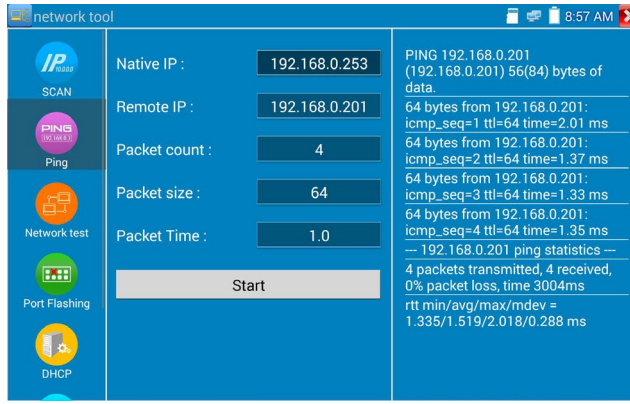
（1）IP address scan

Connect the cable to the LAN port, click icon to enter, Set your IP address search range by changing the Start and End IP addresses. Click the “Start” button to scan the IP address range. You can also input an IP address in the Port Number Scan to scan for open ports.



（2）PING Test

To operate the PING Test, connect a network cable to the LAN port and click the icon to open the PING tool. You can set your LOCAL (native) IP address, Remote IP address (e.g. IP camera), Packet count, Packet Size, Packet time and Timeout. Press “Start” to start pinging. If the IP camera or network device is not configured properly or not plugged in, it will say “Destination host unreachable,” or have 100% packet loss. The send and receive packets will have a 0% packet loss when the tester connects successfully to the device.



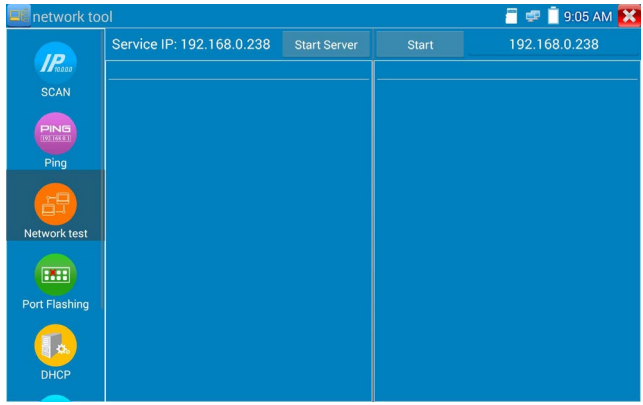
Application: PING testing is the most conventional network debugging tools. It is used for testing if the connected IP camera or other network equipment's Ethernet port is working normally and the IP address is correct.

It's normal that the first data packet will be lost when test start.

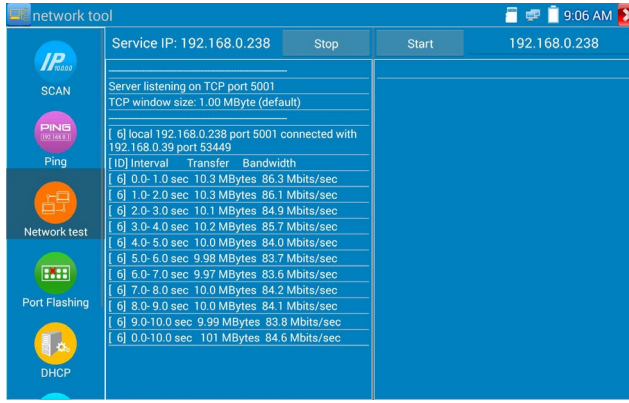
（3）Network test (Ethernet bandwidth test)

Network test (Ethernet bandwidth test)

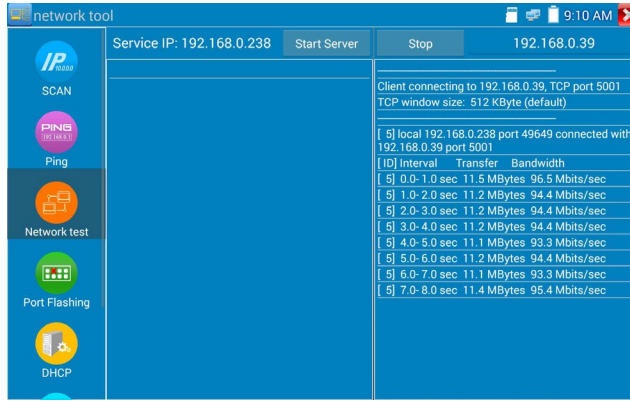
To use the Network tester, you will need two IP testers. One is used as a Server and the other as a Client. Both devices must be on the same network segment in order to communicate. Click the icon to open the Network Tester app.



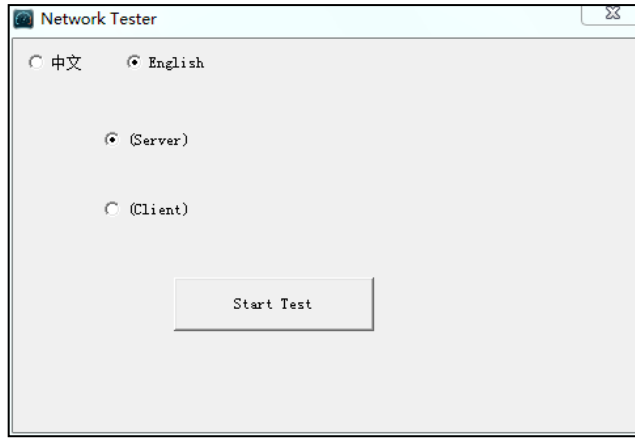
a)**. Start the server:** Click "Start Server" button to use the first tester as a Server. It will display its IP address at the top of the screen.



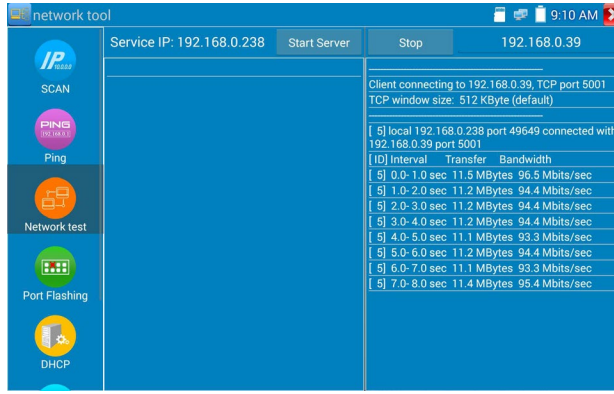
b). Start send packet test: Using the other IP tester, type in the Server's IP address at the top right corner of the screen. This app is used to send packets for network speed testing. Click the “Start” button to send the packets and start testing.



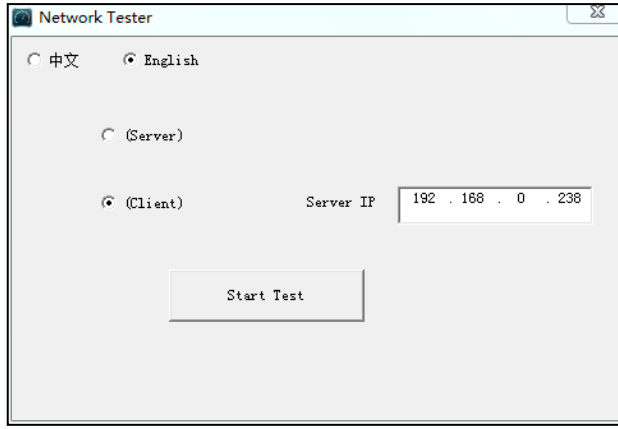
Network bandwidth testing can also be tested with a computer using compatible network bandwidth testing software. Install network bandwidth testing software on a computer, as a test Client or Server, to do the mutual testing with the tester. If using a computer as the server, the computer IP address is: 192.168.0.39



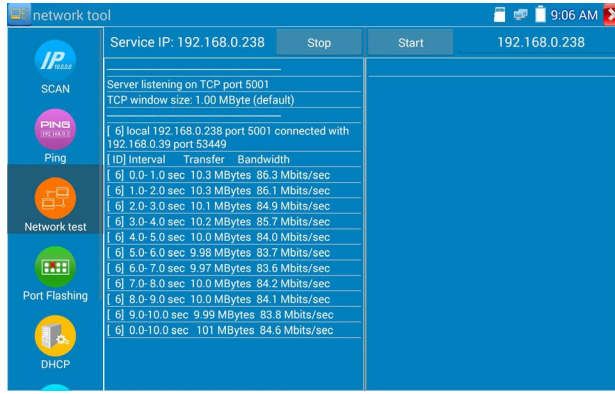
Tester as Client, tester's IP address is: 192.168.0.238. The Server and the Client are at the same network segment, but with different IP address. Input Server's IP address 192.168.0.39 in the tester and click "Start" to test network bandwidth.



Or use tester as a Server, computer as test Client（select Client, input tester's IP address to test)

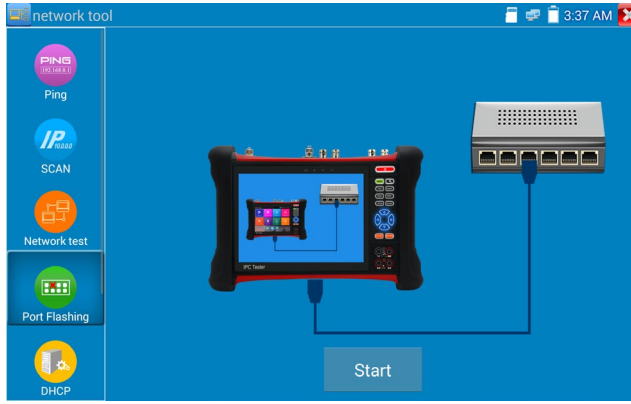


When using the tester as Server it will show results:

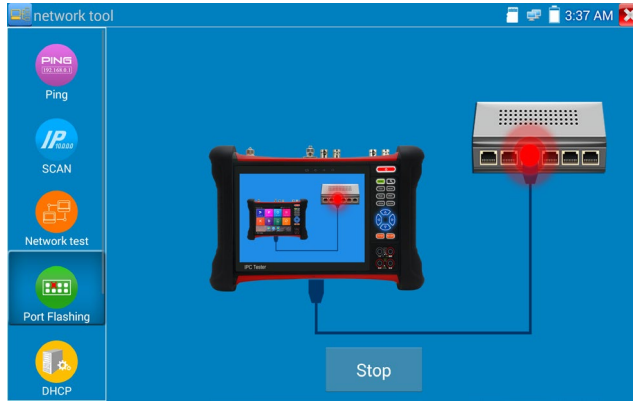


(4) Port Flashing

Connect a network cable to the meter's "LAN" port; click the icon to open the Port Flashing app. Click "Start". The IP tester sends a unique signal to make the connected LAN port of the switch flash.



If the tester and PoE switch are connected correctly, the LAN port of POE switch will flash at a special frequency, if not connected correctly, no changes will occur on the LAN port.

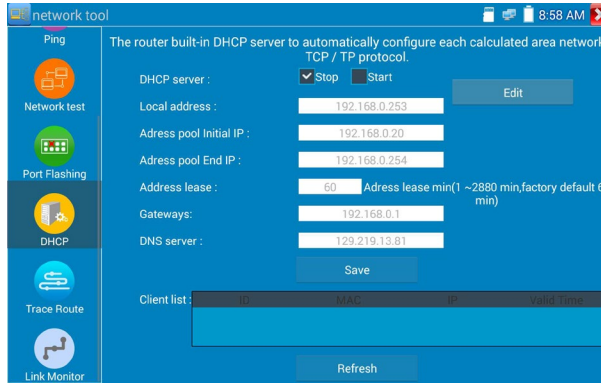


Application:

The tester will send special signals to make the connected LAN port flicker at special frequency, which will enable the installers to easily and quickly find the connected Ethernet cable. This function can prevent mistaken connections or disconnections.

（5）DHCP server

Click on the DHCP icon to open the DHCP server app. Select the “Start” check box at the top and make any desired changes to the network settings. Click “Save” to start assigning dynamic IP addresses for IP cameras and other networked devices. Click the “Refresh” button to check your Client list.

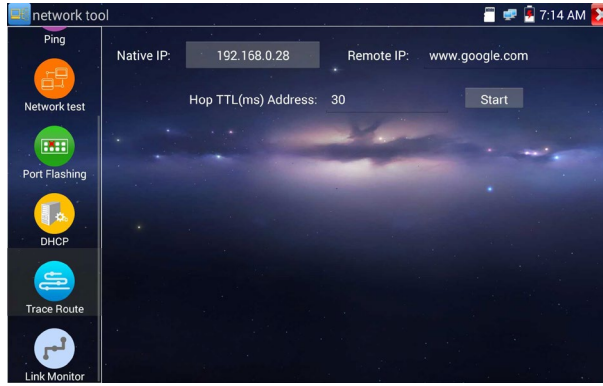


（6）Trace route

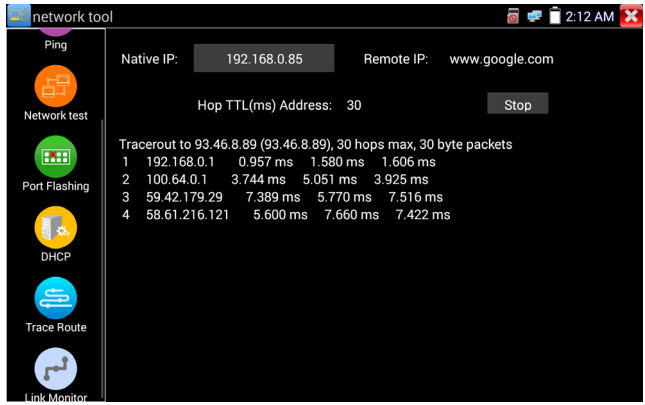
Trace route is used to determine the path of the IP packet access target.

Note: Trace route testing results only for reference, for accurate test route tracking, use professional Ethernet tester.

Click to enter trace route. Input tracking IP address or domain name in the Remote Host IP. Set maximum hop count, normally default is 30.



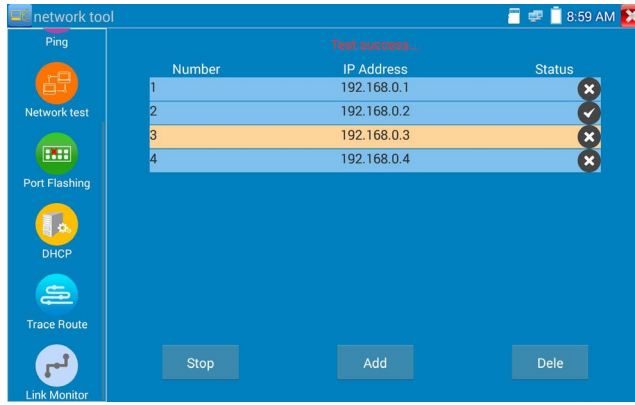
Click “start” to trace the goal address.



（7）Link monitor

Click the icon to open the Link Monitor app. This app is used to see if an IP address is occupied by other network devices. This will avoid new address conflicts.

Click “Add” and enter the desired IP address. To test different network segments, click the “Settings” icon on the main menu and go to IP Settings and make the desired changes. Once the desired IP addresses are added to the Link Monitor list, click “Start”. If the IP address status shows a check mark the IP address is occupied. If the IP address status shows an X the IP address is available. Click “Stop” to stop the testing.



Application:

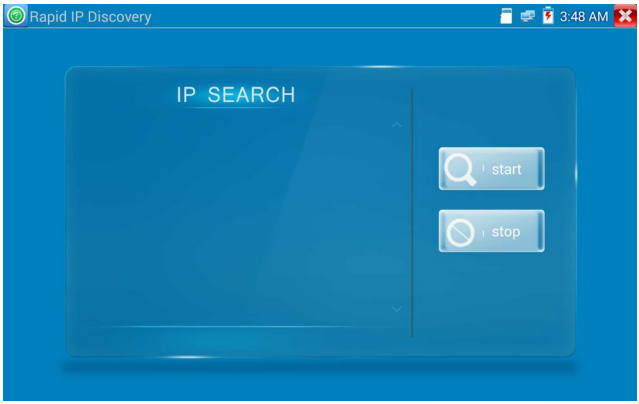
Add an IP camera or other network device to the current network group, the new IP address must not be occupied, otherwise it will cause IP conflicts and stop the equipment from operating normally. Link monitor can check if the new setting IP address is occupied.

3.3.18 Rapid IP Discovery

Connect IP equipment to tester's LAN port. Press to enter Rapid IP Discovery.

Click "Start" to search all IP address of connected equipment in whole network segment.

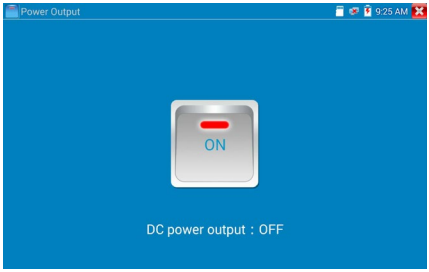
Click "Stop" to finish searching.



3.3.19 PoE power / DC12V 2A and DC 5V 2A USB power output

When the tester is turned on, the 12VDC and 5VDC power output functions are automatically turned on. If the IP tester is turned off, the 5VDC USB can still be used to power an external USB device.

To use the PoE power output function, click on the icon and change the switch "ON" or "OFF". The IP camera needs to be connected to the LAN port before you turn PoE power on. If the IP camera supports PoE, the PoE power is delivered via pins 1, 2, 3, and 6 on the LAN port. The IP tester will display "48V ON" at the top of the screen when the POE power is still on.

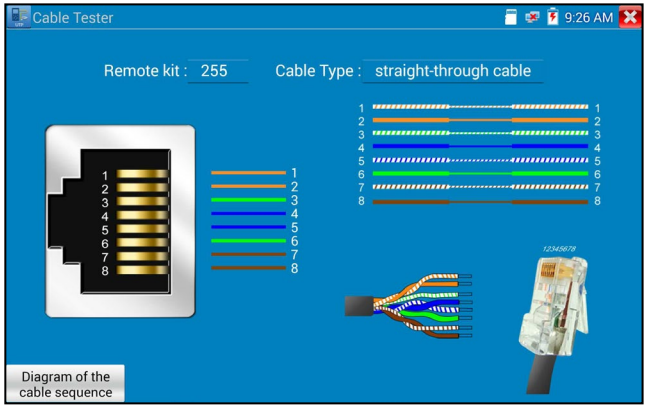


Note:

1. Don't input power into the "DC12/2A OUTPUT" port.
2. Don't output this DC12V/2A power to the DC12V/IN port of the IP camera tester.
3. The IPC tester power output is close to 2A, if the IP camera's power is over 2A, the tester will automatically enter protection mode. Disconnect all the connections of the tester and then connect the tester with power adaptor to resume testing.
4. Before turning on the PoE power output, make sure the IP camera supports PoE power; otherwise it may damage the IP camera.
5. Plug in your IP camera to the LAN port prior to turning on PoE power.
6. The tester must be at least 80% charged, otherwise the tester will shows "low power" and unable to supply power.

3.3.20 Cable Test

Click icon to enter

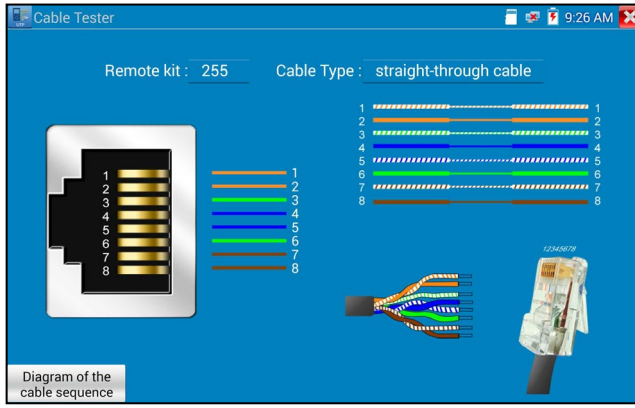


Test LAN cable or telephone cable.

Connect LAN cable or telephone cable to the UTP/SCAN port on the CCTV tester and cable tester device provided with the tester. The connecting status, cable type and the sequence of wires as well as the serial number of the cable tester kit will be displayed. The number of the cable tester provided with the tester is 255.

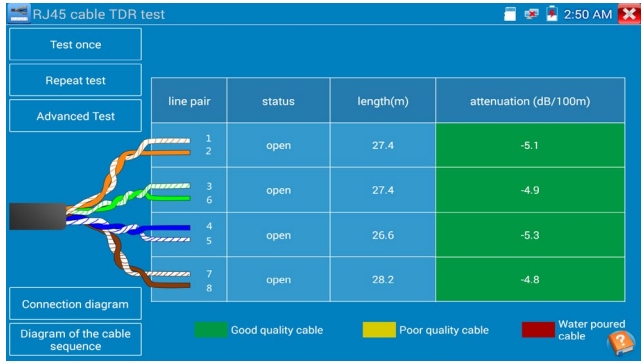
Cable test

The “Diagram of cable sequence” is a reference to determine cable type: crossover or straight-through twisted pair.



3.3.21 RJ45 cable TDR test

Connect cable to tester's LAN port, click icon to enter RJ45 cable TDR test app.



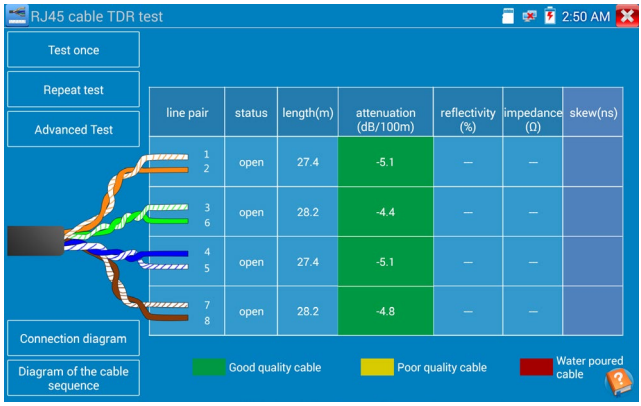
Single test: test cable status, length and attenuation.

Repeat test: continue to test cable status, length and attenuation.

Status: after link up, screen will display "online", "open circuit", "short circuit" or "cable sequence error".

Length: the max test length is 180 meters, when cable is open circuit or short circuit, tester can test the cable length; if screen display "online", the length result may be not accurate.

Cable quality test: Green is good quality cable, Yellow is poor quality cable, Red is water poured cable, while the attenuation value will be displayed when cable over 10 meters.

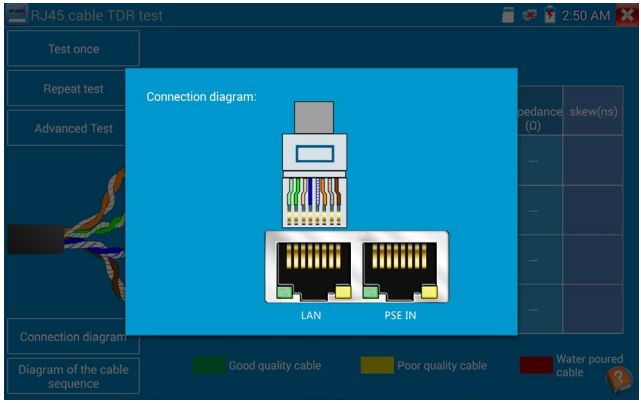


Advanced Test: tests cable pair status, length, attenuation, reflectivity, impedance, skew and other parameters.

Attenuation reflectivity: after link up, if reflectivity value is 0, it is the best quality communication

Impedance: after link up, if the impedance value is 100Ω, it is the best quality communication; the range is generally in 85-135Ω.

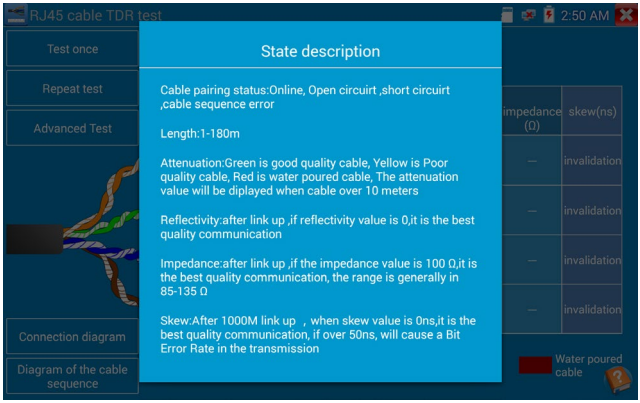
Skew: After 1000M link up, when skew value is 0ns, it is the best quality communication; if over 50ns, it will cause a Bit Error Rate in the transmission.



Connection diagram:

Cable sequence diagram: (For reference only:

A straight-through and cross-over cable diagram)

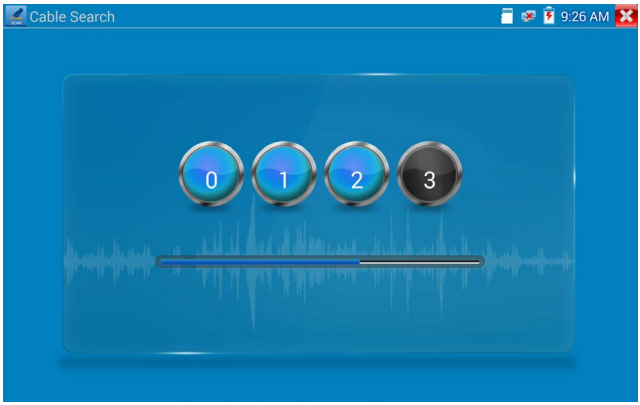


Click “Help” (?) to check the instruction of all parameters.

3.3.22 Cable Tracer

Connect test cable to the UTP port or the BNC cable to the SCAN OUT port on the tester.

Click icon to enter cable tracer and click the Number on the screen to adjust audio level.



Use the blue Combination cable identifier and network cable tester's copper pointer to touch all the cables in the bundle when searching for the other end of the cable. The cable that gives off the loudest tone is the cable connected to the tester. Press the + or – buttons on your blue cable identifier to adjust the volume.

Note: Install two AAA batteries in your blue Cable Identifier.

Note: While the cable tracer is receiving the audio signal from the tester, it may be induced into adjacent or crossing cables; however, the cable that makes the loudest noise is the one that is connected to the meter.

Application

It's convenient to find out the other end of the cable from the large number of cables in security maintenance and network engineering. While searching BNC cable, connect one port of the alligator clips to the copper core or copper net of the BNC cable, the other one to connect the earth wire (barred windows).

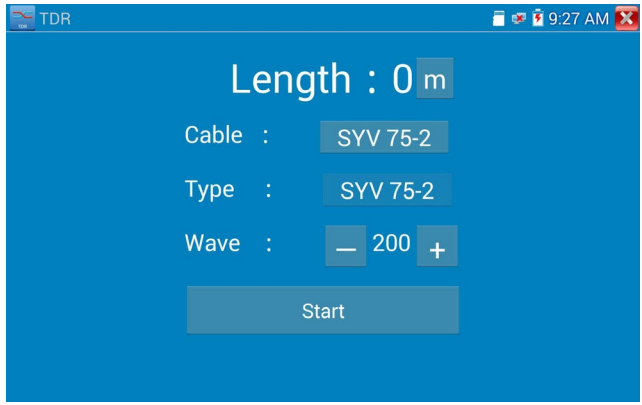
Note: The battery of the cable tracer must be oriented correctly to positive pole + and negative pole -, otherwise the tester may be damaged.

Note: While the cable tracer tester is receiving the audio signal from the tester, it may be influenced by other signals and make some noise.

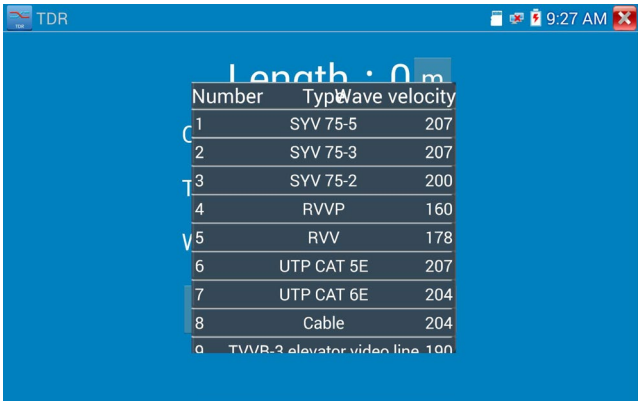
3.3.23 TDR cable test (*Optional)

Note: The testing cable can't be connected to any equipment; otherwise it will damage the tester!

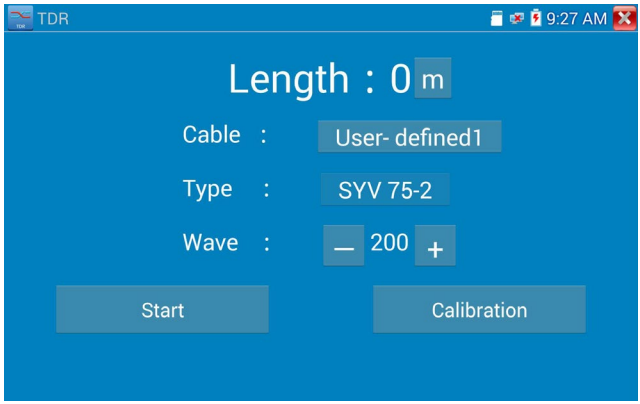
Before testing, connect Alligator clip cable to the TDR port on the tester. Click to enter and click "Start" to test



BNC cable, network cable, RVV control cable, Telephone line and TVVB cable etc. can be tested with the TDR cable tester. Eleven groups of user-defined cables can be saved. Click "Cable" and "Type" to select cable and tap "Start" to start testing. If selecting built in cable type for testing, click "+" and"-" to adjust the wave speed.

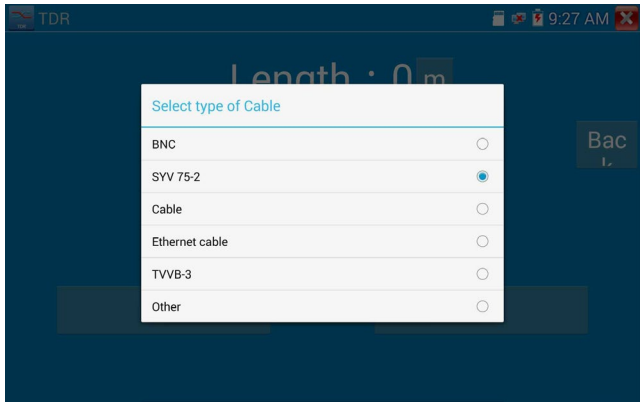


User-defined calibration: Choose the cable 100 meters to 200 meters (more than 50 meters); click "Cable" and "Type" to select user-defined 1 for calibration. Eleven groups can be set.

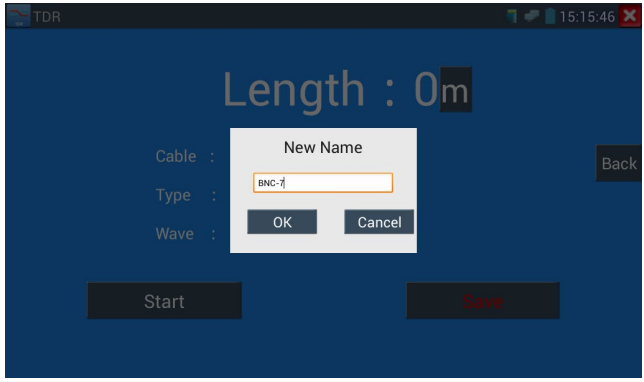


1. Select user-defined and click "Calibration" to enter test , click "user-defined 1" and can define cable name, such as: AiPu BNC-5

2. Click "Cable", "Type" to select cable, and corresponding type, for example, if testing BNC cable, select "BNC", if testing communication cable 75-2, select SYV 75-2.



3. Click “+”or “-” to adjust wave speed, while display length is the same with the actual Length. Click “Save” to save calibration data and then it can be used for the same cable testing next time.

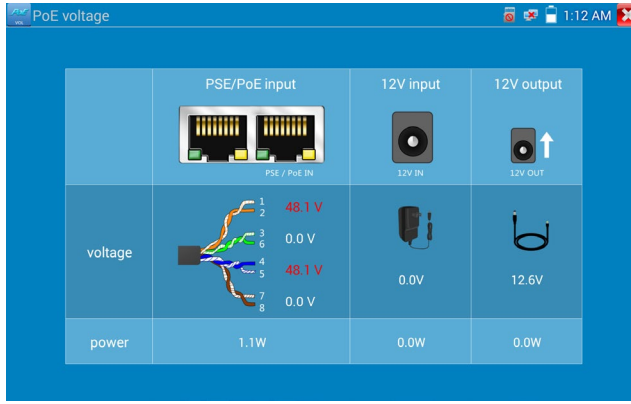


Application: TDR test is used for pulse reflection method to transmit pulse signal for testing cable. When cable is open or short-circuit, a reflected pulse is generated and the tester receives and processes the reflected wave and measurement results are displayed on the screen. TDR can test cable open circuit and short circuit, help engineer quickly find the cable’s problem location.

Note: **The TDR reflected signal could be affected by cable quality and connection issues and to cause the different TDR measurement. The TDR measurement is for reference only.**

3.3.24 PoE Voltage test

Click icon to enter PoE voltage measurement



Connect a network cable from a PoE switch to the IP tester's PSE IN port. Connect an IP camera or other PoE device to the tester's LAN port. The PoE voltage and the cable's pin connection status show on the screen.

Note: This test if for measuring the voltage being drawn by the PoE device, therefore the IP tester must be between the PoE switch and the PoE device for test to work.

Note: The PoE switch must be connected to the PSE IN port. The powered device such as IP camera or other PoE device must be connected to the LAN port.

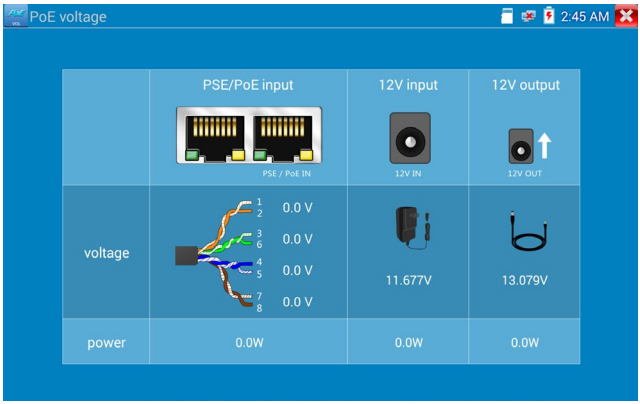
Note: Do not connect PoE power supply equipment (such as a PoE switch) to the tester's UTP/SCAN port; otherwise it will damage the tester.

PSE transmission

When PoE / PSE voltage testing, the tester not only can transmit voltage to supply power for camera, but also transmits data at the same time, therefore a computer connected to the PSE port can log into the camera connected to tester's LAN port.

3.3.25 12V power input test

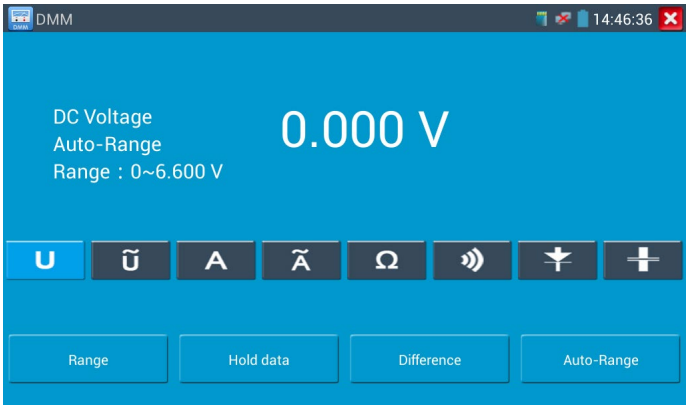
Connect 12V power adaptor to tester's charging port, then click icon "PoE" (POE Power Info) to enter voltage measurement app. The screen will display the current adaptor input voltage and power. Note: the displayed 12V input power is the battery charging power and the device working power. The measured power will vary depending on current charging power and backlight brightness.



Warning: Do not connect a device with input power over 17V to tester "12V IN" port; otherwise it will damage the tester.

3.3.26 Digital Multi-meter (*Optional)

Click icon to enter



1) SYMBOLS:

U: DC Voltage Measuring A: DC Current Measuring

Ω: Resistance Measuring : Diode Testing

Ũ: AC Voltage Measuring Ã: AC Current Measuring

: Continuity Testing : Capacitance Measuring

AC/DC	Voltage and current measurement state display
Auto- range	The Multimeter auto adjusts the range by input signal or tested components
Data hold	Hold data
Relative measurement	Display the relative measurement value Press the key to change display state
10A socket	Indicates the use of 10A socket in 10A current measurement state
Over range	The current measurement value over the range, if in the Auto range state, to switch Auto.

2) OPERATING INSTRUCTION

A. DC Voltage Measuring

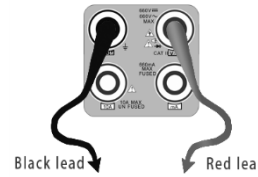
WARNING! The voltage input cannot exceed 660V DC, it's possible to show higher voltage, but it's may destroy the inner circuit.

Be aware of possible electric shock when measuring high voltage.

a. Connect the black test lead to the "COM" jack and the red test lead to the "V/Ω" jack.

b. Select U, enter the DC voltage measurement.

c. The tester defaults to Auto range status. Click "DC auto range" key to select manual range or restore auto range.



Manual range: 0.000V → 6.600V range

00.00V → 66.00V range

000.0V → 660.0V range

000.0mV → 660.0mV rang

B. AC Voltage Measuring

WARNING! The voltage input cannot exceed 660V A, it's possible to show higher current, but it's may destroy the inner circuit.

Be aware of possible electric shock when measuring high voltage.

a. Connect the black test lead to the "COM" jack and the red test lead to the "V/Ω" jack.

b. Select U ~ to enter the AC voltage measurement.

c. The tester defaults to Auto range status. Click the "AC auto range" key to select manual range or restore auto range.

d. Manual range: 0.000V → 6.600V range

00.00V → 66.00V range

000.0V → 660.0V range

000.0mV → 660.0mV range

C. DC Current Measuring (manual range only)

WARNING!

Disconnect power to the circuit to be tested before connecting meter to circuit. Reapply power after meter is connected with the circuit for measurement.

a. Connect the black test lead to the "COM" jack and the red test lead to the "mA" jack for a maximum of 660mA current. For a maximum of 10A, move the red lead to the 10A jack.

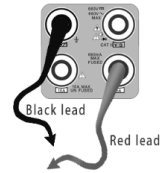
b. Select A to enter the DC current measurement and the screen will display "DC current " will read in manual range;

c. Manual range: 0.000mA → 6.6mA range

00.00mA → 66.00mA range

000.0mA → 660.0mA range

00.00A → 10.00A range（use 10A socket）



d. Select the appropriate range to enter current measurement

NOTE:

◆ When "OL" is displayed, it indicates over range situation and the higher range has to be selected.

◆ When the value scale to be measured is unknown beforehand, set the range selector at the highest position.

◆ The maximum current of mA socket is 660mA; over-current will destroy the fuse and will damage the meter.

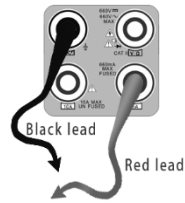
◆ The maximum current of 10A socket is 10A; over-current will destroy the meter and harm the operator.

D. **AC Current Measuring (Manual range only)**

WARNING!

Disconnect power to the circuit to be tested before connecting meter to circuit. Reapply power after meter is connected with the circuit for measurement.

a. Connect the black test lead to the “COM” jack and the red test lead to the “mA” jack for a maximum of 660mA current. For a maximum of 10A, move the red lead to the 10A jack.



b. select $\tilde{A}$ to enter the AC current measurement and manually select the range

c. Manual range: 0.000mA → 6.600mA range
00.00mA → 66.00mA range
000.0mA → 660.0mA range
00.00A → 10.00A range（use 10A socket）

Note:

◆ When “OL” is displayed, it indicates over range situation and the higher range has to be selected.

◆ When the value scale to be measured is unknown beforehand, set the range selector at the highest position.

◆ The maximum current of mA socket is 660mA; over-current will destroy the fuse, and will damage the meter.

◆ The maximum current of 10A socket is 10A; over-current will destroy the meter and harm the operator.

◆ Only input alternating current when in “AC” mode.

E. Resistance Measuring

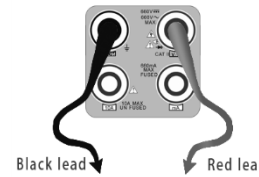
WARNING!

When measuring in-circuit resistance, be sure the circuit under test has all power removed and that all capacitors have discharged fully.

a. Connect the black test lead to the "COM" jack and the red test lead to the "V/Ω" jack.

b. to select Ω, enter the Ω measurement

c. the tester defaults to Auto range status. Press the key manually, select range and press "Auto Range" to restore Auto range



Manual range: (Connect the red lead to black leads, will display the measure range)

000.0Ω → 660Ω range

0.000 KΩ → 6.600KΩ range

00.00 KΩ → 66.00KΩ range

000.0 KΩ → 660.0KΩ range

0.000 MΩ → 6.600MΩ range

00.00 MΩ → 66.00MΩ range

F. Continuity Testing

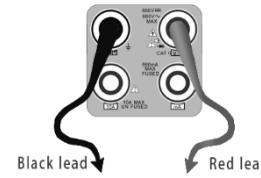
WARNING!

When testing the circuit continuity, be sure that the power of the circuit has been shut down and all capacitors have been discharged fully.

a. Connect the black test lead to the "COM" jack and the red test lead to the "V/Ω" jack.

b. Select))) to enter the continuity test. Connect test leads across two point of the circuit under testing.

c. If continuity exists (i.e., resistance less than about 50Ω), built-in buzzer will sound.



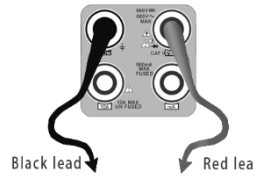
G. Diode Testing

WARNING!

When measuring in-circuit diodes, be sure the circuit under test has all power removed and that all capacitors have discharged fully.

a. Connect the black test lead to the "COM" jack and the red test lead to the "V/Ω" jack (the red lead being the anode "+")

b. to select ⊣◁ , enter the diode testing.



c. To test forward bias, connect red test lead across to the anode and the black lead to the cathode of the diode under testing.

d. To test reverse bias, connect test red lead across to the cathode, the black lead to the anode of the diode under testing.

e .Tested diode forward voltage should read between 0.5 and 0.8 volts. Reverse bias should bead "OL" for infinite reading.

H. Capacitance Measuring

WARNING!

To avoid electric shock, be sure the capacitors have been discharged fully before measuring the capacitance of a capacitor.

a. Connect the black test lead to the "COM" jack and the red test lead to the "V/Ω" jack.

b. Select "⊣⊢" to enter the capacitance measurement.

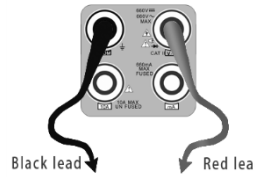
c. The tester default auto range status; choose manual range by pressing upward and downward key; Auto range by press the key "Auto Range"

Manual range: 0.000nF → 6.600nF range

00.00nF → 66.00nF range

000.0nF → 660.0nF range

0.000uF → 6.600μF range



00.00uF → 66.00μF range

000.0uF → 660.0μF range

0.000mF → 6.600mF range

00.00mF → 66.00mF range

Note:

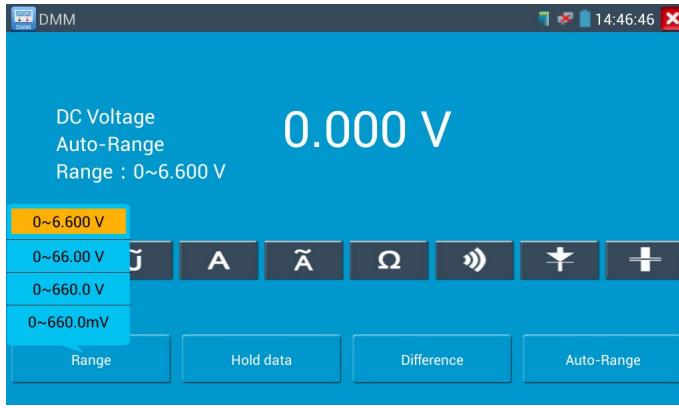
a. The capacitance of a capacitor should be tested separately out of the circuit.

b. To avoid electric shock, be sure the capacitors have been discharged fully before measuring the ca pacitance of a capacitor.

c. While testing the capacitance of a capacitor to 660uF, the Max time will be 6.6 seconds, if the capacitor is leaked or damaged, the data can't be read. The tester will be normal after disconnecting the capacitor.

Manual range and Auto range

When testing, click "Range select" to change the value, click "Auto range" to enter Auto measurement.



Data hold

Click “Hold data” to capture the display reading; the data value displays green. Press it again to quit.

Relative value measurement

Click “Relative” (Difference) to enter relative value measurement. The tester will Auto-save the data and the displayed new displayed measurement/ relative value is red color. Press it again to quit.

The value displayed in yellow is the hold function and the relative value combined.

The meter protection

- **Voltage protection**

  Voltage input cannot exceed 660V DC or AC; it’s possible to show higher voltage, but may destroy the inner circuit.

- **Resistance, Continuity, Diode, PTC component Protection**

  Wrong input voltage will automatically enter protection state and only suitable for short limited time work. If input voltage over 600V, will damage the meter.

- **mA current fuse range: 250V 1A**

  If the current is over the rated range the fuse will blow to protect the meter. Use the same fuse type and rating when changing the fuse. The fuse can be accessed under the battery cover.

Note: 10A socket without fuse protection. Using 10A socket for measuring voltage can damage the meter.

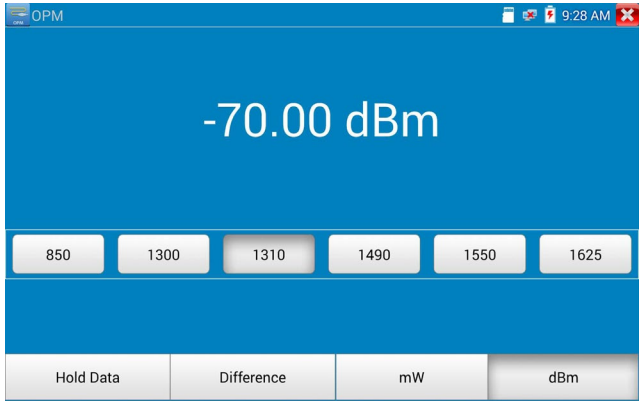
3.3.27 Optical power meter (*Optional)

Click icon to enter optical power meter which contains five wavelengths (1625nm,1550nm , 1490nm , 1310nm ,1300nm , 850nm), linear or nonlinear optical power display (both for optical power testing and Fiber link loss relative measurement).

Note: Keep the fiber connector and the dust cap be clean and clean the detector with the special alcohol.

Data hold

While testing click “Hold” to data hold, the data will not change. Press “Hold” again to quit.



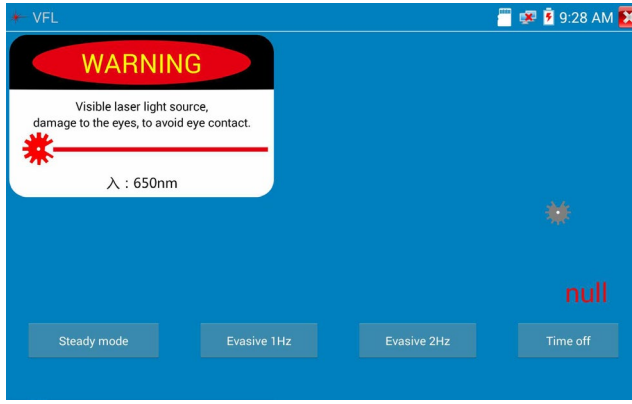
Relative power value (optical link loss) measurement

While testing, set the wavelength for measurement. Click “relative” (difference) to test, the tester Auto save current fiber power value as the base reference value. Input another optical fiber to be measured, the displayed new measurement and relative value is red color. Press it again to quit.

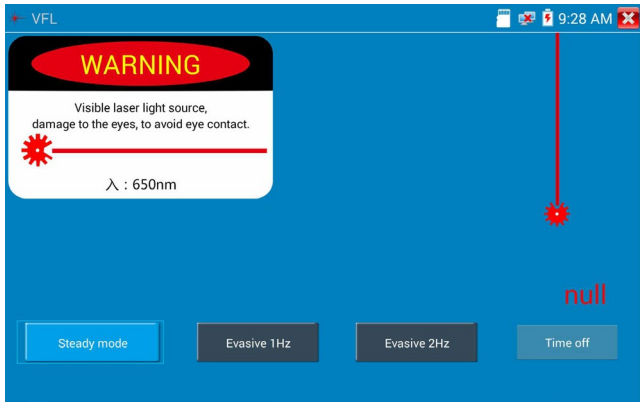
Data hold and Relative measuring use together, the data is yellow while the function is in effect.

3.3.28 Visual Fault Locator (*Optional)

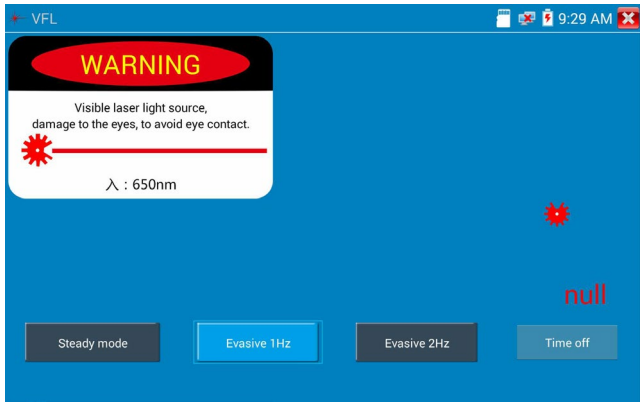
Click icon to enter the visual fault locator.



VFL contains four status modes: Steady mode", "Evasive 1Hz","Evasive 2Hz"and"Time off". Click button "Steady mode" to enter steady status; click button "Evasive 1Hz" and "Evasive 2Hz to enter pulse mode; click button "Time off" and VFL is turned off for selected time intervals: may select (5 mins, 10 mins, 30 mins, 60 mins and 120 mins).



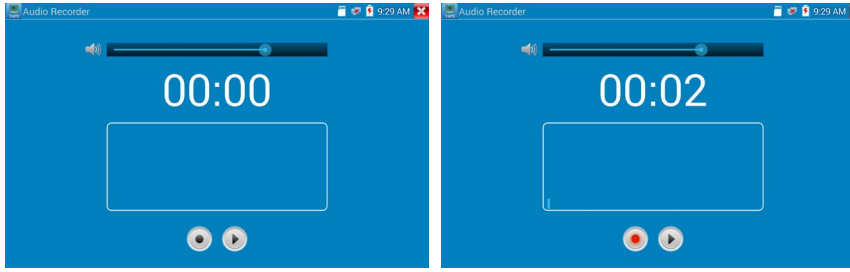
Click" Steady mode" for red laser source to emit a steady stream; click again to quit.



Click icons "Evasive 1Hz"or"Evasive 2Hz"to enter pulse mode, the red laser source is emitted by a certain frequency; press it again to quit.

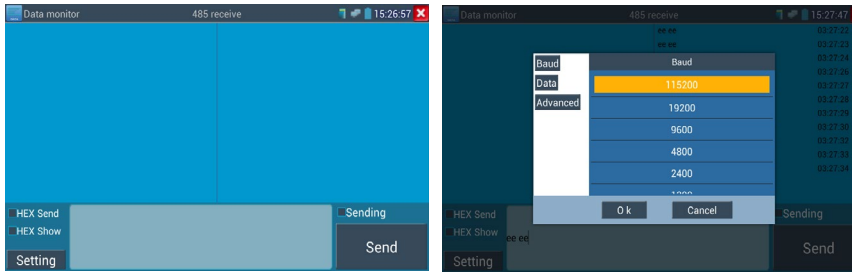
3.3.29 Audio Record

Connect an audio device to the IP tester's audio input port. Click the icon to enter the Audio Recorder app. Click the red button to stop and the unit will prompt you to save the recording.



3.3.30 Data monitor

Click icon to enter data monitor for receiving RS485 data from an RS485 DVR or controller.



Click "Setting" to choose the baud rate of RS485; it must be the same as the DVR or the Control keyboard. The DVR or Control keyboard will send the code to the tester, if it can be read, the protocol will shown on the upper right, such as PelcoD.

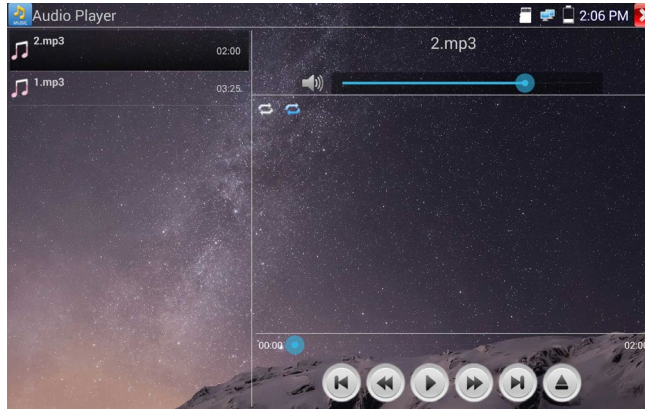
While the tester receives the code, press the CLOSE RETURN **key to empty.**

Though the RS485 port, display the PTZ control code of the multifunctional keyboard or the DVR. Controller can check the status of the RS485 transmission through the code on the display. (The RS485 communication rate must be the same.)

Application: Check the RS485 communication states of the video optical transmitter whether normal. Engineer can analyze the protocol and check the data through the displayed code.

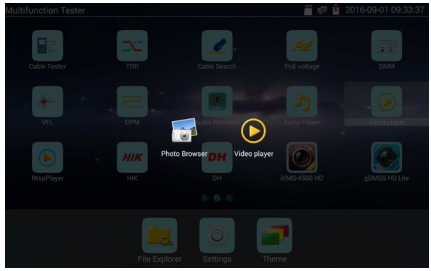
3.3.31 Audio player

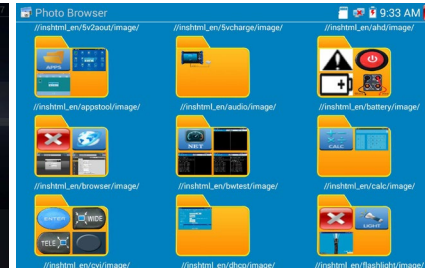
Click the icon to enter. The audio player only supports MP3 format Audio files.



3.3.32 Media Player

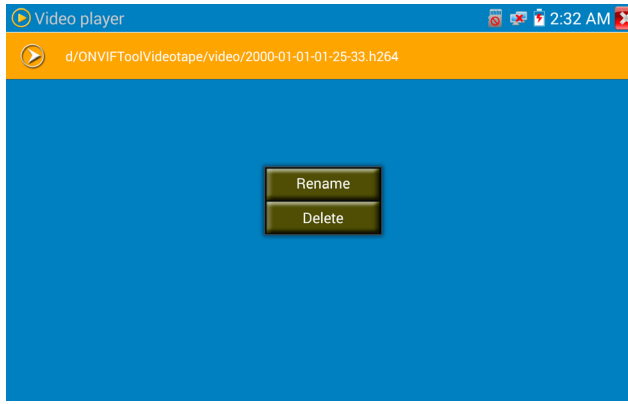
Click the icon to enter





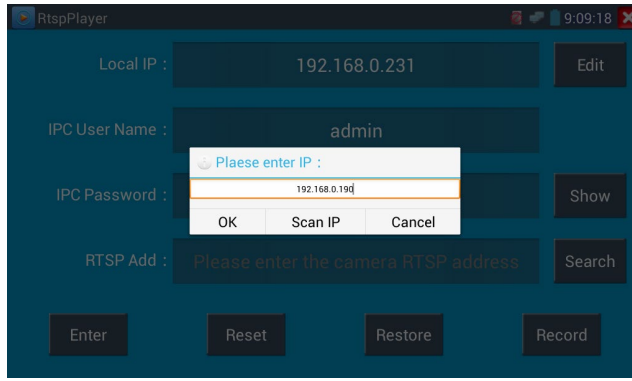
The Media player can browse video and image files. It supports the video formats of MP4, H.264, MPEG4, and MKV. The IP tester recorded files can play directly via the Media player. The Media player will automatically display the video files from the SD card. Click on the desired file to play. Click RETURN to exit.

To rename or delete an existing file, press the file name for a few seconds until the screen below appears. You can then rename or delete the file by pressing the desired option.



3.3.33 RTSP Player

The RTSP Player app will allow you to view the RTSP video stream from an IP camera. If you were unable to view your camera via the ONVIF or IPC Test apps, it is possible your camera will have an RTSP stream and you can view live video. From the Lite Mode menu, select the Media Player folder and then select the “RTSP Player” to open the app.



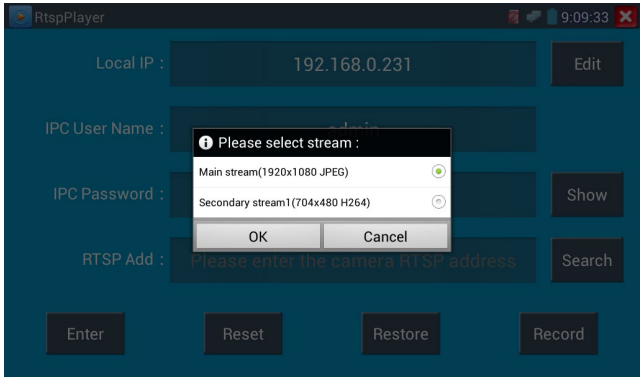
Local IP: This is the IP testers IP address.

RTSP Add: This is where you can manually enter the IP camera's RTSP URL or click on Search to search the network for cameras that use an RTSP stream. Once found, an IP address will pop up and clicking on it will allow selection of a stream.

IPC Username: Enter the IP camera's user name.

IPC Password: Enter the IP camera's password.

Once you have entered all the necessary information, select Enter at the bottom left to view the RTSP stream.



Note: In the event the ip tester does not auto detect the RTSP stream, refer to the specific camera manufacturer for the specific RTSP stream URL. You may find this on line with a search of the camera model number and the word RTSP.

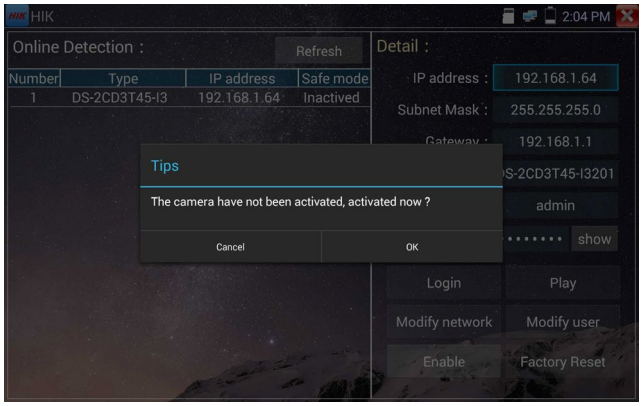
3.3.34 Hik test tool

Hik test tool app is designed for activating and debugging Hikvision cameras; the app can auto-identify

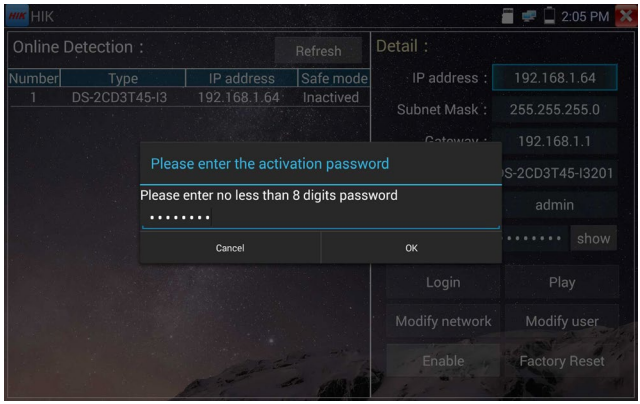
Unactivated Hikvision cameras and display an image from the Hikvision camera.

Tap icon to enter

1. Hikvision activation: When connect the unactivated Hikvision camera to the tester, it will auto identify and display “Unactivated” at safety mode. Select needed activate the camera by clicking bottom right corner button “Enable”, then pop-up “the camera is not activate, activate now”?

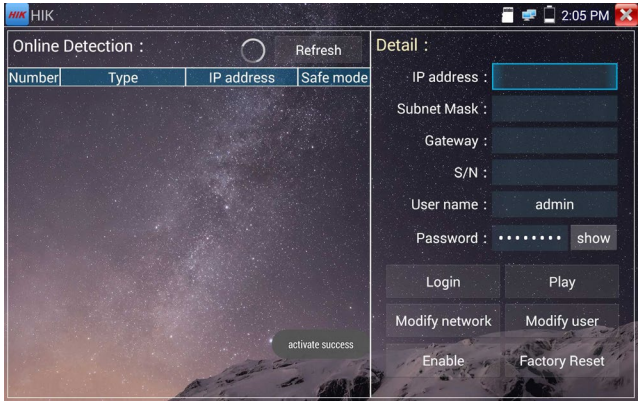


2. Input password: Input new password and tap “ok” to activate.



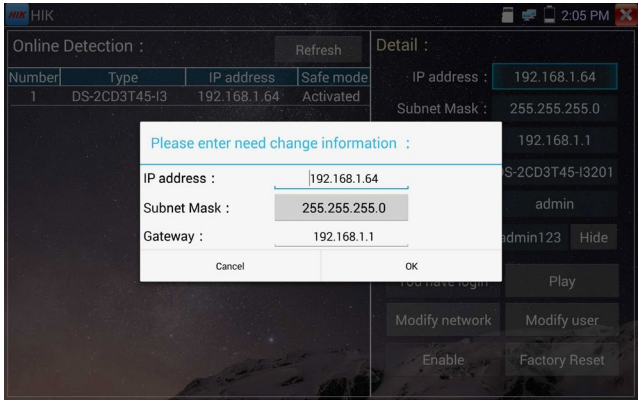
3. Confirm activation

After activating the camera, the program default modifies the camera IP. It can activate multiple cameras in the local area Network and pop-up menu to modify IP to improve project efficiency.

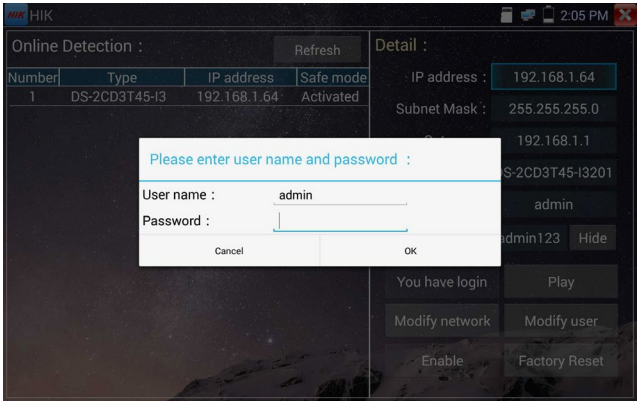


Play: Display image from the camera.

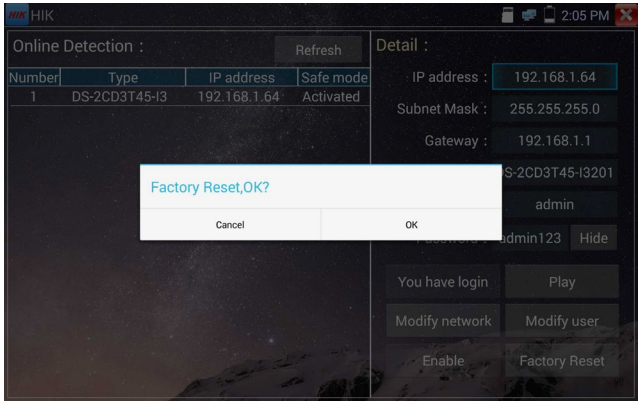
Modify network information: Change the camera IP address, sub-net mask and gateway etc.



Modify user information: Modify the camera's user name and password.



Factory Reset：Camera factory reset

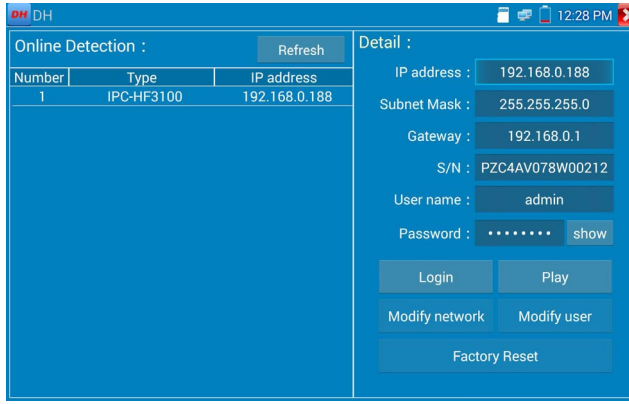


3.3.35 Dahua test tool

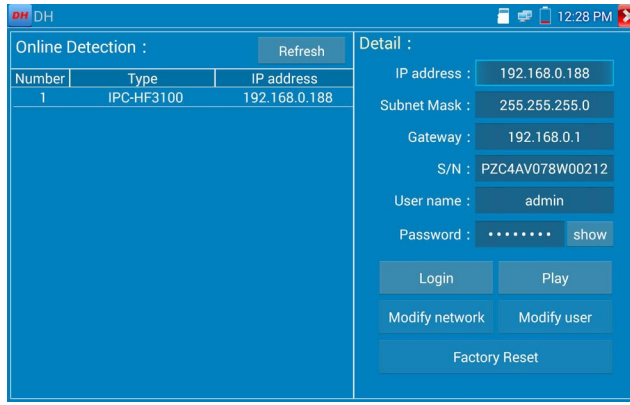
Dahua test tool is developed for installation and debugging of the Dahua IP camera, it can display image, and modify IP, user name and password etc. Making Dahua camera test more convenient and quickly.

Click “DH” icon

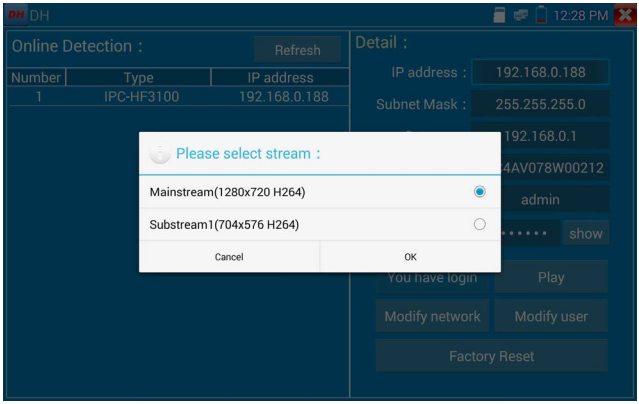
, to enter Dahua test tool.



Select the camera of the online detection menu. If the camera supports non-verification login, click “play” directly and view the image.

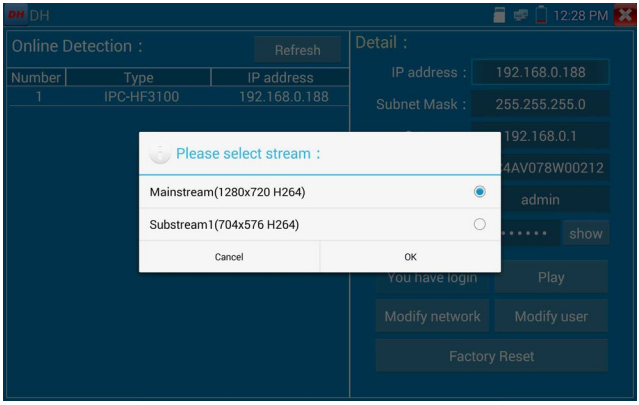


From the Pop up stream menu, select mainstream or second stream to test.

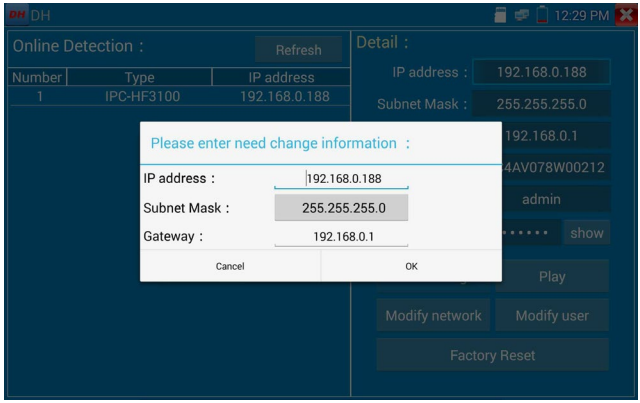


If the camera not supports non-verification login, select “camera” from online detection menu, and input correct user name and password, then click “log in”. After logging successful, you can test it.

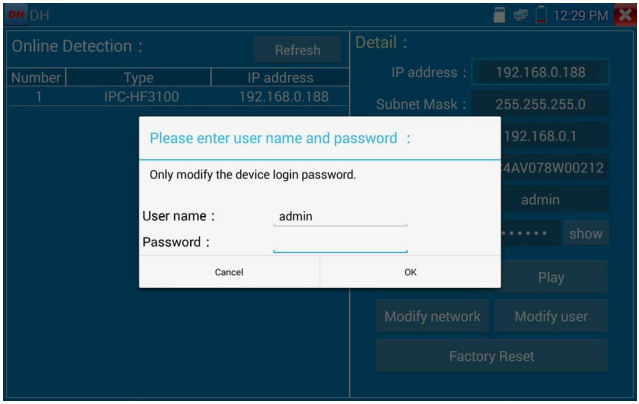
Play: select mainstream or secondary substream live video display.



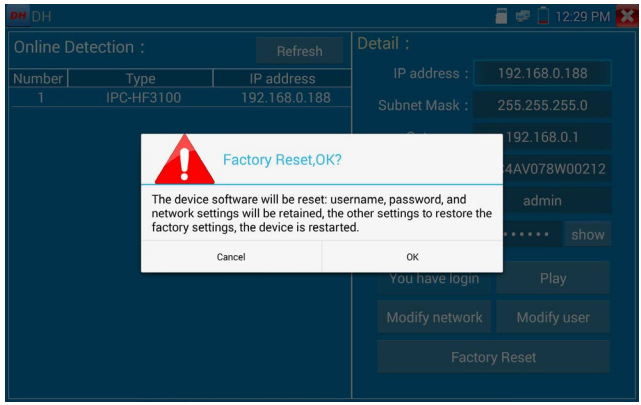
Modify network information: modify camera parameters such as ip address, subnet mask, gateway etc.



Modify user information: modify camera user name and password, but not web user name and password.



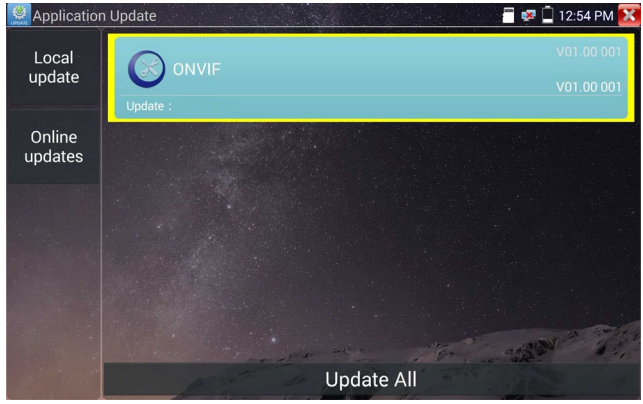
Factory reset: camera will be soft reset and the device's user name, password and network settings will be saved; other settings information will return to factory reset values.



3.3.36 Update

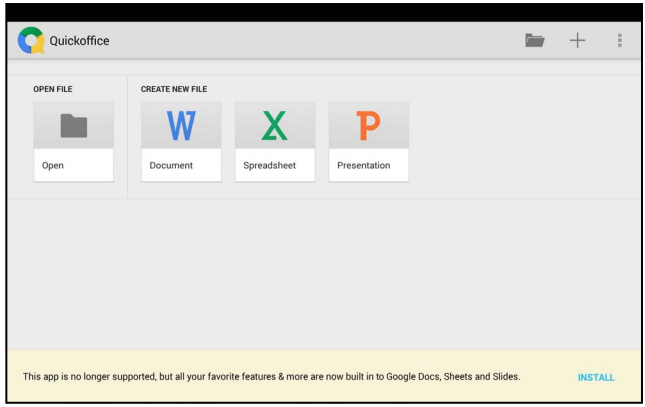
Copy the downloaded update file to SD card "update" directory, if no directory, please create one.

Click the icon to open the Update menu. Select “Local Update” to update via the SD card or select “Online Update” to check for updates on the internet. If there are applications that need updating, the applications will be displayed on the screen.



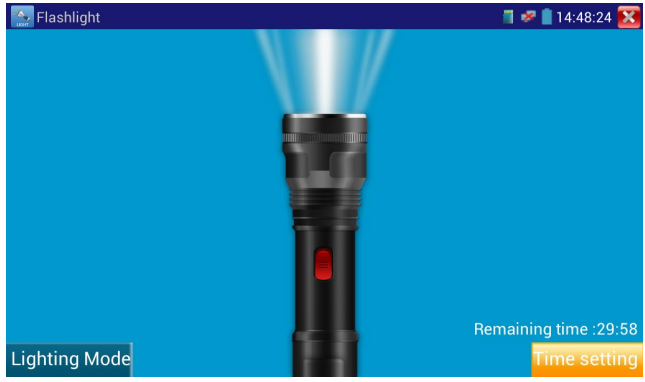
3.3.37 Office

Quick office app (supports Excel, Word, and PowerPoint formats)



3.3.38 LED Flashlight

Click icon to enter the LED flashlight.



While in the flashlight app, click the red button to turn on the LED lamp. Press it again to turn it off. If you don't press the red button to shut off the lamp and press the button to exit the app, the lamp will stay on. Click the Time Setting button to set a timer that will shut off the lamp.

3.3.39 Browser

Click icon to enter the browser.

Type in the camera's IP address and press "Go" to access the IP camera's interface.

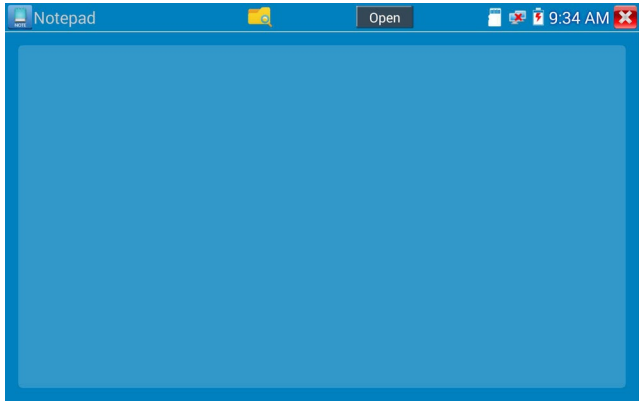
NOTE: You will not be able to view live video in the web browser. For viewing video, use the IP tester's live camera view Apps.

The IP camera and IP tester be on the same network segment for the browser to interface with the camera. If they are not in the same segment, click the button or press "RETRUN" to exit and open the "Settings" app from the main menu to change the IP tester's network settings to match those of the IP camera.

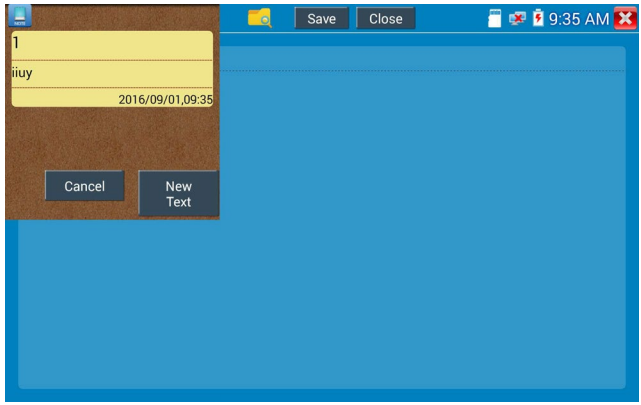
3.3.40 Notepad

Notepad can be used to record the important testing results. Click the "Save" key to save the contents. Notepad can auto record the storage date and time.

.



Click to view the notepad and all saved contents will display. Click each record bar to show the details. Press the record bar for several seconds to prompt whether delete it.

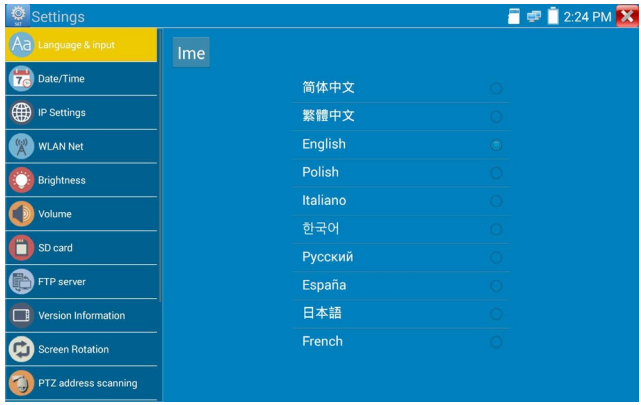


3.3.41 System Setting

Click icon to enter System Settings.

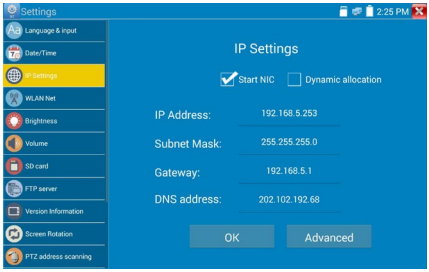
Language: Select your desired language: English, Chinese, Korean, Russian, Italian, Polish, Spanish, French or Japanese.

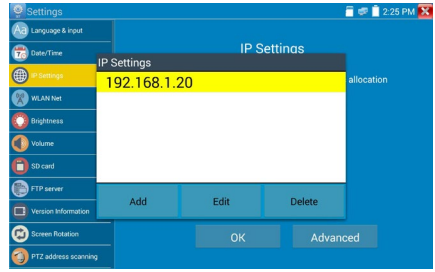
Typewriting: You can select typewriting or install other typewriting:



Date/Time: Set the Date and Time of the IP tester.

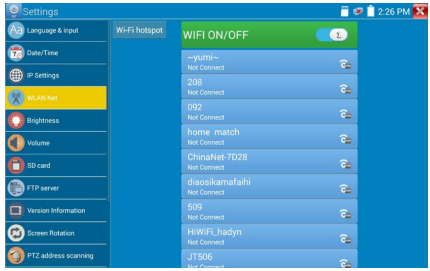
IP setting: Manually set the IP address, Subnet Mask, Default Gateway and DNS address or select "Dynamic allocation" to use DHCP. To test multiple network segments, click "Advanced" and then click "Add" to enter another IP address for the IP tester.

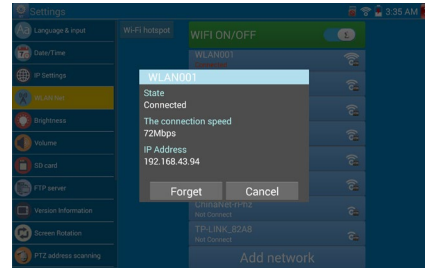




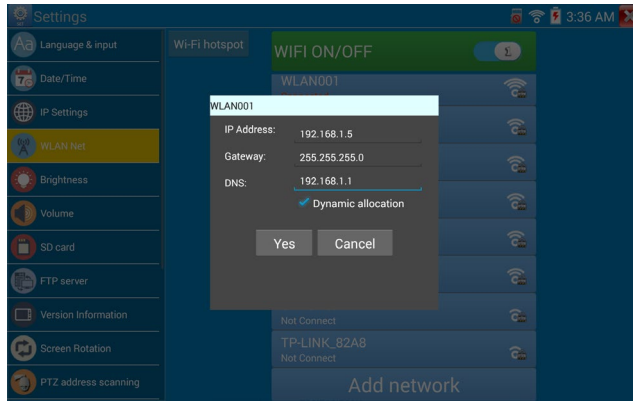
After setting an advanced IP address (refer to the photos above), the unit can test two network segments (192.168.5.0) and (192.168.1.0) at once.

WLAN Net: Turn WiFi off or on by pressing the "Open the WiFi" button. Once WiFi is turned on it will scan for wireless networks in your area.

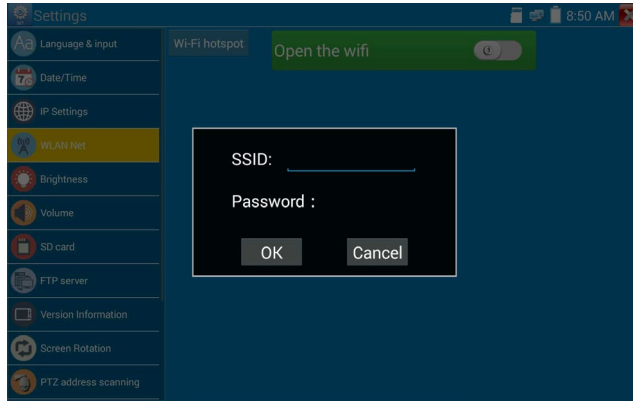




Select and press WiFi network for several seconds to set static IP address.



Wi-Fi hotspot: input “SSID” name and “password”, and then click “OK” to create Wi-Fi hotspot.

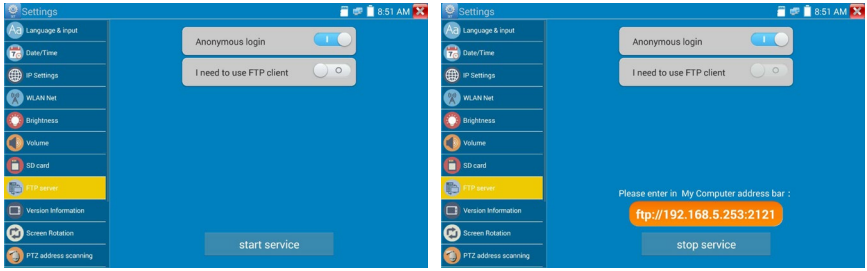


Brightness: Set the desired brightness of the IP tester and adjust the sleep time settings.

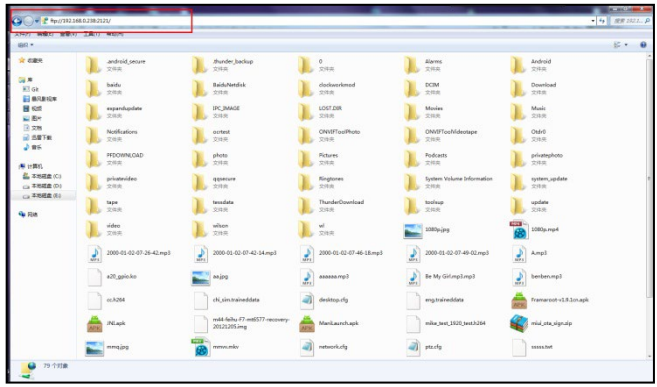
Volume: Set volume level.

SD Card: Displays SD Card Capacity. You can also format the SD card or unmount it before removing.

FTP server: Once the IP tester connects to a network, a computer can be used to read the SD card files via FTP Server.



Start the FTP server and then input the tester's FTP address in the PC's address bar. This will enable the PC to read, copy, and edit the files from the SD card without the use of SD card reader.



Version information: shows tester's and application's version information, uninstall any apps by pressing icon for several seconds.

Screen display rotation: Click on “Screen Rotation” to flip the IP tester’s display 180 degrees. This function is very convenient for the user to connect the LAN cable on the bottom of the unit without having to flip the unit itself.

PTZ address scan: Used to toggle on and off PTZ address scanning. This needs to be turned on before using the PTZ Scan feature of the PTZ controller app.

Online Registration: To use the Online Update, the user needs to register after the tester connects to network. Fill out registration information to register.

User Feedback: if you have any comments or suggestions for the tester, connect it to network and write your feedback.

Lock Screen: You can choose password Lock screen, pattern Lock screen or “NO” to choose whether or not to lock the screen. The tester’s default is not locked.

Password Lock Screen: Sets password to lock the screen and thereafter requires user to input password when the meter is in standby mode or turned on.

Pattern Lock Screen: Allows the user to define a pattern to unlock the screen thereafter requiring the user to draw a pattern to unlock when the meter is in standby mode or turned on.

To modify the locked screen password or pattern, you need input lock password/pattern again, select “Lock screen” to reset lock screen password or pattern**.**

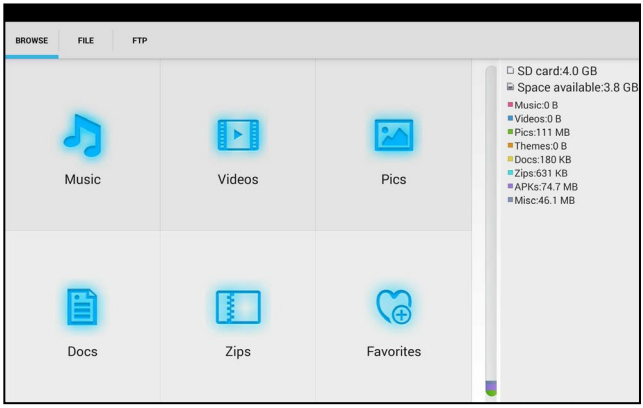
Restore Default: Used to restore tester to factory default settings; all your personal files and apps will be removed.

3.3.42 File explorer

The file explorer is located on the bottom of the screen on the tester. After entering the explorer, click “File” on the top bar tool to view internal or external storage. Click on the upper right corner Icon “...” and a pop-up menu will appear with other operations or exit.

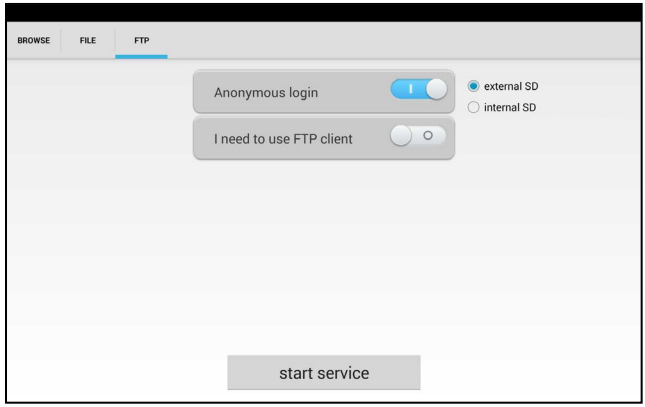
Browse

Browse includes Music, Videos, Pictures, Documents, zip files, etc.



FTP server

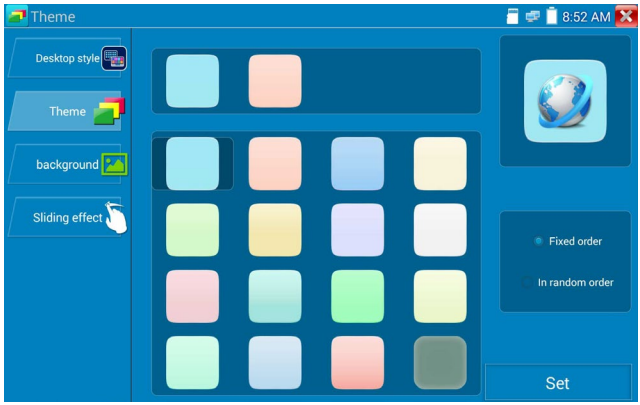
User can choose internal or external SD (see FTP Server in section 3.3.41 for instructions).



3.3.43 Theme

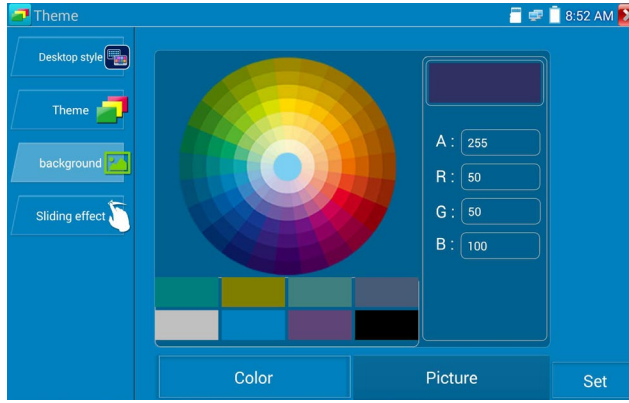
Desktop style: User can select Lite mode or Normal mode.

Theme: Theme is used to change the background color of icons. The user can select up to four colors which will display on menus in either fixed or random order. When pressing an icon in the lower area for several seconds, the selected color icon will move to the upper rectangular area; pressing on one of these icons for several seconds will remove it. User can choose fixed order or random order. Click “set” to save and change icon colors. Note: icon colors are only changed for the particular mode (Lite or Normal) the tester is in at the time.

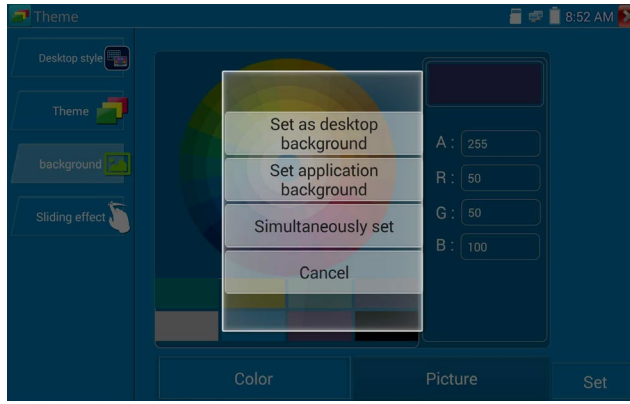


Background Color

When setting the background color, the user select colors from Color Phase and can also input color's RGB to set.



After finished color setting, click "set" to set it as desktop or application background.



Set as desktop background: Setting color as desktop background.

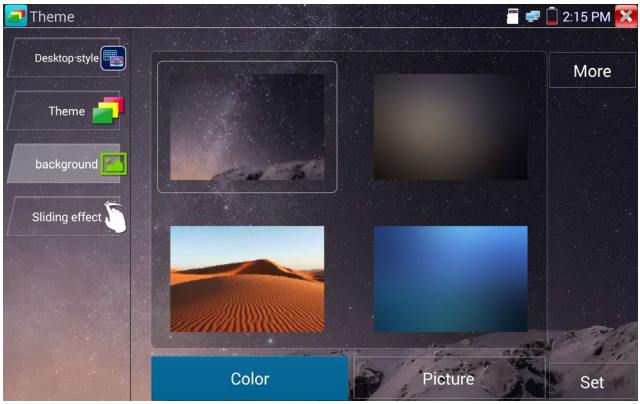
Set as application background: Set color as application background.

Set at the same time: Setting color as desktop background and application background.

Cancel: Cancel current setting.

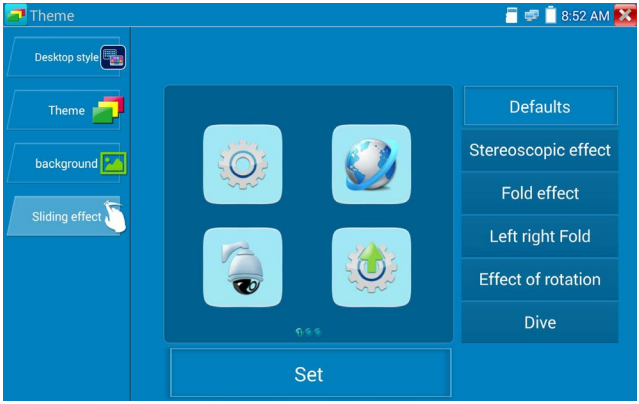
Picture:

Click Picture to select an image temporarily as a background to view setting effect. Click “more” to select pictures from local file, and click set to set picture as background.



Sliding effect:

Tester’s sliding effect includes stereo effect, fold effect, left and right fold, rotate effect, Ombre effect, etc.; select one of effects to view slide effect in the square area, and click “set” to save.



3. 4 Audio test

User can test the audio input from audio devices by connecting the device to the IP tester with the supplied audio cable.

3.5 HDMI output

The built in HDMI output port can output live video from an analog or IP camera, recorded files, media files and images to HDTV monitors. Connect an HDMI cable from the IP tester to an HDTV monitor at any time. It supports up to 1080P resolution.

3.6 PoE power output

The IP tester supports PoE (Power over Ethernet) output to an IP camera via the LAN port. Data transmission and 48VDC use the network cable's 1, 2, 3, and 6 pins to deliver power. If the IP camera supports PoE, user can directly connect to the camera without the use of an external power supply.

Notice

a. Make sure the cable connected to the tester's Lan port is straight-line cable and has no short circuit, otherwise will damage the tester

b. Before using PoE power output, check to make sure the IP camera supports POE power. Otherwise it will damage the IP camera.

c. The instrument's PoE maximum power output is 24W. If Ultra- high-power load happens, the tester will enter protection mode.

3.7 DC12V 2A power output

When the IPC tester is turned on, the DC 12V power output is ON by default. The smaller end of the supplied converter cable connects to the tester's DC12V/2A OUTPUT and the other end connects to the camera's power input.

Application

Power output function is mainly used in the camera field demonstration and testing, meanwhile, for some cameras installation sites, if there is no power outlet for the adapter to power the camera, the tester can offer temporary power for it. But we do not suggest tester supply power for an extended period.

Notice:

a. Don't input any power into the "DC12/2A OUTPUT" port of the tester.

b. User damage is not within our company's warranty.

c. The IP tester's power output capacity is 2A. If the IP camera uses more than 2A, the tester will automatically enter a protection mode.

d. Disconnect all cables from the tester and reboot it to resume using the tester.

The IPC tester power output is close to 2A, if the IP camera's power is over 2A, the tester will auto enter protection mode. Disconnect all the connections of the tester and then connect the tester with power adaptor to resume the tester.

e. Make sure the tester has a sufficient charge otherwise tester can't provide enough output power.

3.8 USB 5V 2A power output

When the tester is turned on, the DC 12V and DC 5V power output functions are automatically turned on. If the IP tester is turned off, the DC 5V USB can still be used to power an external USB device.

NOTE: The USB port is for power only and not data.

4. Specifications

4.1 General Specifications

Model	IP Camera Tester【*】models Optional
Display	New 7 inch retina touch screen CCTV tester ,1920X1200 resolution
Network port	10/100M auto adjust, RJ45
WIFI	Built in WIFI,speeds150M, allows you to connect to a wireless network and view IP cameras
H.265 Mainstream test	New hardware decoding,4K,H.265/H.264 camera image display by mainstream testing
RJ45 cable TDR test	RJ45 cable TDR test and cable quality test, to test cable pair status, length, attenuation reflectivity, impedance, skew and other parameters
HDMI IN	HDMI IN，Support 720×480p /720×576p /1280×720p /1920×1080p /1024×768p/1280×1024p /1280×900p /1440×900p
HDMI output	1 channel HDMI output, supports up to 3840X2160p □
IP discovery	auto-scan the whole network segment camera's IP
Rapid ONVIF	search camera quickly, auto log in and display image from the camera, activate Hikvision camera
Hik test tool	Activate Hikvision camera, display image from the camera, modify IP, user name and password parameters, etc.
DH test tool	Dahua camera test, modify IP, user name and password parameters, etc.
IP camera type	ONVIF,ONVIF PTZ, Dahua IPC-HFW2100P, Hikvision DS-2CD864-E13, Samsung SNZ-5200, Tiandy TD-NC9200S2, Kodak IPC120L, Honeywell HICC-2300T, RTSP Viewer □
HD/EX-SDI video signal test * (Optional)	1 channel HD-SDI/EX-SDI input（BNC interface）, resolution support : 720p 60fps / 1080p 60fps /1080i 60fps
CVI video signal test *（Optional）	1 channel CVI input（BNC interface, resolution support 720p 25,30,50 60fps/ 1080p 25,30fps/2560x1440p 25fps,30fps UTC control & OSD menu

TVI video signal test（Optional）	1 channel TVI input（BNC interfce）,resolution support 720p 25,30,50,60fps/ 1080p 25,30fps /2048x1536p 18,25,30fps , 2560x1440p 15,25,30fps/ 2688x1520p 15fps , 2592x1944p 12.5,20fps，UTC control and call OSD menu
AHD video signal test *（Optional）	1 channel AHD input（BNC interface）,resolution support 720p 25,30fps / 1080p 25,30fps/2048x1536p 18,25,30fps , 2560x1440p 15,25,30fps/ 2592x1944p 12.5,20fps，UTC control and call OSD menu
Analog video test	1 channel BNC Input & 1 channel BNC Output , NTSC/PAL (Auto adapt)
Video level meter	PEAK video signal level, SYNC signal level, COLOR BURST Chroma level measurement for CVBS camera.
Zoom Image	Supports Analog and IP camera image zooming & movement
Snapshot, Video record and playback	Capture current images and record live video as JPG file. Media player will view photos and playback video □
12V/2A power output	Output DC12V/2A power to camera
USB 5V power output	5V 2A power output only ,NO data
PoE power output	48V PoE power output, Max power 24W
Screen management	Lite mode and normal model available. Under normal mode, user can change icons sequence and self-define the number of icons in each page
Theme	Self-define icons, desktop and application interface background, modify interface sliding effect
Drop-Down menu	PoE power switch ,IP setting, WLAN switch , HDMI IN functions, screen lock, password lock screen or pattern lock
Audio test	1 channel audio signal input and 1 channel audio signal output to connect headphones
PTZ control	Support RS485 control, Baud 600-115200bps, Compatible with more than 30 protocols such as PELCO-D/P, Samsung, Panasonic, Lilin, Yaan, etc.

Color bar generator	Output one channel PAL/NTSC color bar video signal for testing monitor or video cable (red, green ,blue, white and black color).
UTP Cable tester	Test UTP cable connection status and display on the screen. Read the number on the screen
Data monitor	Captures and analyzes the command data from controlling device, also can send hexadecimal
Network test	IP address scan, link scan, and Ping test. Quickly search the for IP camera's IP address on your network
Cable tracer	Find a connected cable from a bundle of cables using audio tones
PoE /PSE voltage test	Measures PoE switch voltage and displays pin configuration □
Digital Multi-meter *(Optional)	AC/DC Voltage, AC/DC current, Resistance, Capacitance, Data hold, Relative measurement, Continuity testing. Testing speed: 3 times/ seconds, Data range -6600～+6600.
Optical power meter *(Optional)	Calibrated Wavelength(nm) :850/1300/1310/1490/1550/1625nm Power range(dBm) :-70～+10dBm
Visual fault locator *(Optional)	Test fiber's bending and breakage (SM and MM fiber)
TDR cable test *(Optional)	Cable's open circuit (Breakpoint) and short circuit measurement(BNC cable, telephone cable)
POWER	
External power supply	DC 12V 2A
Battery	Built-in 7.4V Lithium polymer battery, 5000mAh
Rechargeable	After charging 5-6 hours, normal working time 10 hours
Parameter	
Operation setting	Capacitive touch screen, OSD menu, select your desired language: English, Chinese, Korean, Russian, Italian or Polish, French, Japanese, etc.
Auto off	1-30 (mins)

General	
Working Temperature	-10℃---+50℃
Working Humidity	30%-90%
Dimension/Weight	255mm x 160mm x 46mm / 0.95Kg

4.2 Multi-meter specifications

Counts:-6600～+6600

Conversion rate: 3times/s

Current modes for clamp meter with ZERO function

Isolation: the Multi-meter connector must be isolated with the other connector.

DC voltage

Range	Accuracy	Resolution
660mV (Manual range)	±（0.3%+4）	0.1mV
6.600V		1mV
66.00V		10mV
660.0V		100mV

AC voltage

Range	Accuracy	Resolution
660.0mV (Manual range)	±（1.5%+6）	0.1mV
6.600V	±（0.8%+6）	1mV
66.00V		10mV
660.0V		100mV

DC current

Range	Accuracy	Resolution
6.600mA	±（0.5%+3）	1uA
66.00mA		10uA
660.0mA		100uA
10.00A	±（1%+5）	10mA

AC current

Range	Accuracy	Resolution
6.600mA	±（0.5%+3）	1uA
66.00mA		10uA
660.0mA		100uA
10.00A	±（1%+5）	10mA

Resistance

Range	Accuracy	Resolution
660.0Ω	±（0.8%+5）	0.1Ω
6.600KΩ	±（0.8%+2）	1Ω
66.00KΩ		10Ω
660.0KΩ		100Ω
6.600MΩ		1KΩ
66MΩ	±（1.2%+5）	10KΩ

Continuity

Range	Resolution	Function
660.0Ω	0.1Ω	The measurement value less 30Ω±3Ω,the tester will sound

Diode

Range	Resolution	Function
2.0V	1mV	Schottky diode:0.15~0.25V rectifier diode:0.6~1.0V triode PN junction:0.5~0.8V

Capacitance

Range	Accuracy	Resolution
6.600nF	±（0.5%+20）	1pF
66.00nF	±（3.5%+8）	10pF
660.0nF		100pF
6.600μF		1nF
66.00μF		10nF
660.0μF	±（5%+8）	100nF
6.600mF		1μF
66.00mF		10μF

4.3 Optical power meter specifications

Measure Range(dBm)	-70 ~ +10dBm
Wavelength(nm)	850nm,1300nm,1310nm,1490nm,1550nm,1625nm
Detector	InGaAs
Uncertainly	＜±3%dB(-10dBm,22℃) ＜±5%dB(full range,22℃)
Display Resolution	Linear:0.1% ; Nonlinear:0.01dBm
Operating Temperature(℃)	-10～+50
Storage Temperature (℃)	-20～+70
Connector type	FC/PC

4.4 Visual fault locator specifications

Laser type	LD
Wavelength Calibration	650nm
Output power	5mW（Optional 10mW,20mW）
Modulation mode	CW/1Hz/2Hz
Measurement Range	5KM（Optional 10-20KM）
Connector	FC/PC exchangeable
Working Temperature	－10℃～+50℃
Operating Temperature	-20℃～+70℃

The data above is for reference only and any changes will not be informed in advance. For more detailed technical inquiries, please feel free to call the Technical Department.

INFORMATION ON WASTE DISPOSAL FOR CONSUMERS OF ELECTRICAL & ELECTRONIC EQUIPMENT.
When this product has reached the end of its life it must be treated as Waste Electrical & Electronic Equipment (WEEE). Any WEEE marked products must not be mixed with general household waste, but kept separate for the treatment, recovery and recycling of the materials used. Contact your local authority for details of recycling schemes in your area.

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