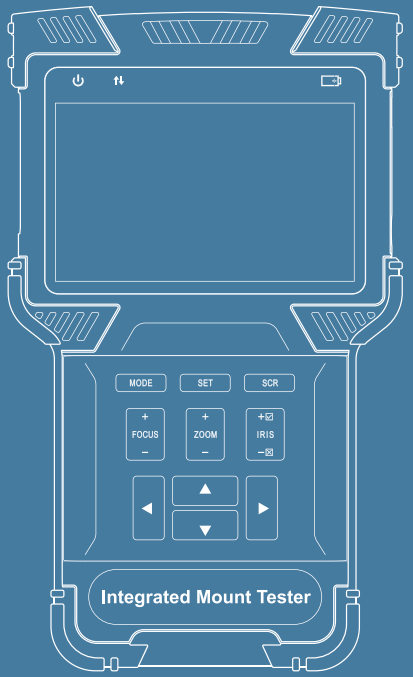
Integrated Mount Tester User Manual



- Thank you for purchasing the Integrated Mount Tester. Please read this manual before using the Integrated Mount Tester, and use it properly.
- Before using the Integrated Mount Tester, please first read the safety information carefully.
- The manual should be kept in a safe place for future reference.
- Keep the S/N label for post-sale service within the warranty period. Products without S/N labels will be charged for repair services.
- If you have any questions or problems while using the Integrated Mount Tester, or if damages occur to the product, then please contact our technical department.

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Table of Contents

1. Safety Information

- When using the instrument, be sure to comply with local electrical rules. Avoid hospitals, gas stations, and other places where electrical use is not allowed.
- When using the instrument, please use the original accessories to avoid damage caused by the use of unauthorized accessories.
- Supplied accessories are only for usage by the intended equipment. Please do not use them for other purposes to avoiding malfunctions or unpredictable accidents.
- Do not expose the product to rain or moisture. This can cause performance degradation or damage.
- Do not allow the instrument to be exposed to or come in direct contact with dust or liquid.
- During the transportation and usage of the device, avoid violent collision and shock. Otherwise, the product may not work properly due to damage of the components.
- While charging the device, please do not leave it unattended. If the battery becomes too hot, users should cut off power immediately. Charging time should be no more than 8 hours.
- Do not use in high humidity areas. If the equipment gets wet, the battery, power cable, and all other cables should be disconnected immediately.
- Do not use in environments containing flammable gases.
- Do not attempt to disassemble the instrument. There are no user-serviceable parts inside. If users feel that disassembly is necessary, they should contact our technical department.
- Do not use in environments with strong electromagnetic interference.
- Do not touch the instrument with wet hands or wet objects.
- Do not use detergent for cleaning. Use a dry cloth to wipe off dirt. If the dirt is difficult to remove, then use a soft cloth moistened with water or a neutral detergent and fully wring it out before use.

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2. Integrated Mount Tester Introductions

2.1 General Introduction

This device is designed for video surveillance installation and maintenance. It can be applied to analog SD video, analog HD video, HD IP CCTV systems, RS485 PTZ control testing, IP camera testing, Ethernet testing, TDR cable testing*, video screen shots, video recording, playback, and other functions, and combined with analog camera testing. This device is powerful, easy to carry, very suitable for video security engineering installation and the maintenance of front-end camera equipment. It greatly improves engineering and installation efficiency, reducing the cost of maintenance.

2.2 Product Highlights

- ◇ Support for traditional analog SD video systems, analog HD video systems, and IP HD systems in one device.
- ◇ Step-by-step testing guide allows you to locate faults quickly.
- ◇ Highly compatible with ONVIF protocols.
- ◇ Ergonomic, portable design and single-handed operation.
- ◇ On-screen operation tips.
- ◇ POE power supply, PD power accept, and 12V/2A power output.
- ◇ Dual 1000M network ports, supports packet loss detection, data flow monitor, etc.
- ◇ 4.0 inch IPS Display with 800*480 resolution and 16.7M Colors.
- ◇ Flip keyboard input.
- ◇ Replaceable lithium-ion polymer battery, battery life of 10 hours.
- ◇ Rubber protection layer.
- ◇ Dual LED torch light.

*Available on certain models

2.3 Product Functions

2.3.1 ONVIF Test

This function is a step-by-step guide for network camera testing.
Step 1. Testing Ethernet connection, IP settings, DHCP request, and DHCP service
Step 2. Discovering camera, and showing a snapshot from selected camera
Step 3. Display camera video and controlling PTZ
The user can continue to adjust camera settings, take snapshots of videos or record video.

2.3.2 Analog Video Test and RS485 PTZ Control

This function allows the display of video input from a BNC connector. It can automatically detect analog video formats, including SD and HD* signals.
The PTZ controller supports over 30 PTZ protocols.

2.3.3 Analog Video Generator

This function generates analog video signals. It can be used to test analog transmission routes, recorders, etc. The input video signal is also showed on the screen, allowing users to compare the input video to the output video. The generated video can be PAL/NTSC format and support the EBU color bar, PM5544.

2.3.4 POE Power Supply, POE Power Accept, 12V 2A Power Output

The device can supply temporary POE/12V power to cameras when testing. The device can also accept power from a POE switch.

2.3.5 Audio Test

This function allows users to test front end microphones or other audio sources.

2.3.6 Network Cable TDR Test*

Both network port supports TDR cable test. Test method is Time Domain Reflection analysis. It can measure cable length with just one end connecting to the device.

*Available on certain models

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2.4 Accessories

1. Tester device x1
2. Lanyard x1
3. Battery x1
4. Battery Cover x1
5. Tool Bag x1
6. POE Power Injector x1
7. Network Cable x1
8. BNC Cable x1
9. RS485 Cable x1
10. 12V Power Output Cable x1
11. Audio Cable x1
12. USB Cable x1
13. Screen Protector Film x1

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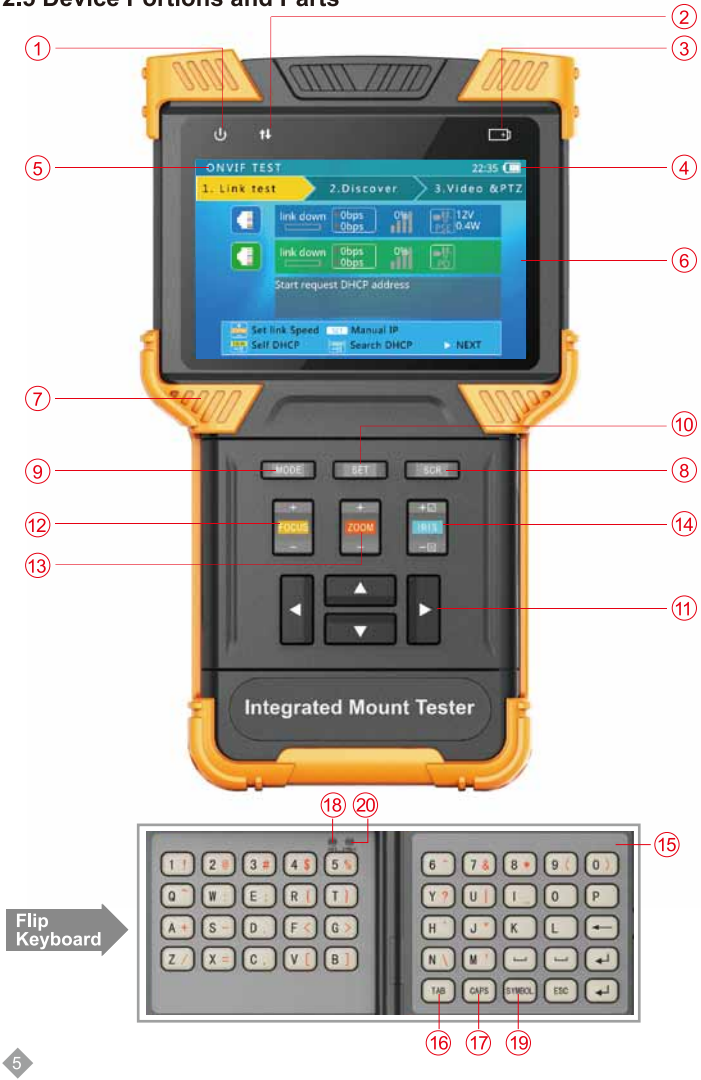
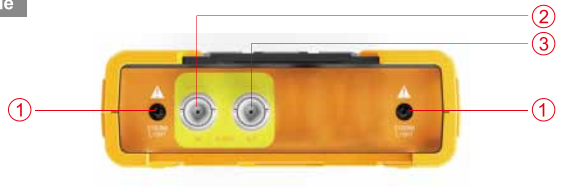
2.5 Device Portions and Parts



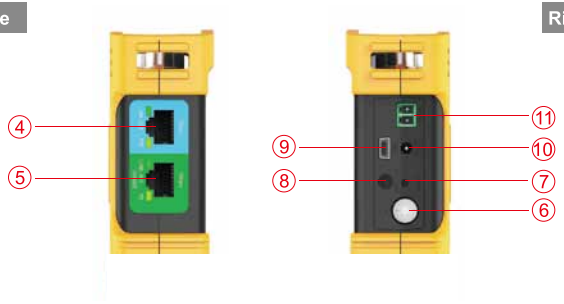
①	⏻	Power Indicator: Lights up when power on
②	⇅	Data Transmission Indicator: Red light flashes when data is being transferred
③		Charge Indicator: Red when charging, off when fully charged
④		Battery Level Icon: Indicates battery level
⑤	Title Bar	Displays current function mode and system time
⑥	Display Area	Displays various user interface menus or videos
⑦	Rubber Protection Layer	Provides improved handling and extra protection when dropping the device (non-replaceable)
⑧	SCR	Switches on/off full screen video display
⑨	MODE	Function Select Key: Click to bring up function select menu. Click multiple times or use ▲ ▼ arrow keys to select desired function
⑩	SET	Setting Button: Brings up settings menu for various functions
⑪	◄ ▲ ▼ ►	Arrow Keys: Navigating menus, altering settings, pan/tilt cameras.
⑫	FOCUS	Controls PTZ focus and other functions according to on screen tips
⑬	ZOOM	Controls PTZ zoom and other function according to on screen tips
⑭	IRIS	Controls PTZ Iris and other function according to on screen tips. When altering settings, use √ to confirm changes and × to cancel.
Flip Keyboard		
⑮	Internal Flip Keyboard	Open the internal flip keyboard to input characters numbers or symbols.
⑯	TAB Key	Switches between input areas
⑰	CAPS	Switch character capitalization lock
⑱	CAPS Indicator	Lights up green when caps lock is on
⑲	SYMBOL Key	Switches between letters and symbols
⑳	SYMBOL Indicator	Lights up red when in symbol mode

TOP side

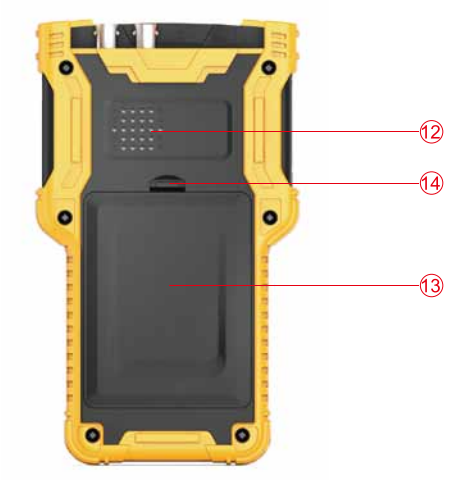


Left side

Right side



Back side



TOP side	
①	LED Torch Light
②	Analog Video Input BNC Connector
③	Analog Video Output BNC Connector
Left side	
④	Network Port 1 (Blue) with POE Power Supply
	POE Power Supply Indicator (Orange)
	Network Port 1 Link and Data Indicator (Green)
⑤	Network Port 2 (Green), with POE Power Accept; Also Device Charging Connector
	POE Power Accept Indicator (Orange)
	Network Port 2 Link and Data Indicator (Green)
Right side	
⑥	Power Switch: Press and hold for 2 seconds to turn on/off the tester device. When the device is on or off, double clicking on this button will turn on/off the LED Torch Light.
⑦	Reset Button: Use a small tool, like a pen, to press the button inside the small hole to reboot the device when necessary.
⑧	Audio Input: 3.5mm audio connector
⑨	Mini USB Connector: Used to connect the device to a computer
⑩	12V/2A Output Connector: Diameter 4mm, internal pin diameter 1.65mm
⑪	RS485 Output: Used to control PTZ
Back side	
⑫	Internal Speaker
⑬	Battery Cover
⑭	Battery Cover Buckle

3. Operation Instructions

3.1 Installing Battery and Recharging

The tester device uses a rechargeable lithium-ion polymer battery. To ensure safety when transporting, ensure the battery is disconnected from the tester deice. The device may leave the factory with one of the following two battery placements:

1. The battery is placed inside tester and insulated from the circuit with a thin, plastic sheet. In this case, the user should open the battery cover, take out the battery, remove the plastic sheet, then put the battery back in, and put the battery cover back on.
2. The battery is placed outside the tester. In this case, the user should open the battery cover, put in battery, and put the battery cover back on.

When the battery is properly placed in the device for the first time, the tester will automatically turn on.

If battery level is too low, the charge indicator will flash 3 times, and the device won't turn on.

When recharging internal battery, please use the provided POE injector and RJ45 cable. Connect the POE injector data/power-out connector to network port 2 (green) using the RJ45 cable, then plug in city power. Network port 2 (orange) lights up when the internal battery is recharging.

The tester uses a lithium-ion polymer battery, which does not have a memory effect. Users can recharge the battery whenever they want.

When recharging, the red battery icon ( ) lights up. When the battery is fully charged, the light turns off.

The battery can also be charged using a POE switch or other POE power sources that meet the 802.3af/802.3at standard.

Due to calculation deviation or other reason, the battery level can be as low as 90% when the charge light turns off. Users can ensure their battery is fully charged by extending the charge time for up to 60 minutes.

Do not use a non-standard POE power supply to charge the battery. This can destroy the tester.

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3.2 Lanyard Wearing

Users can choose to install the lanyard. The lanyard can help handling the device, prevent dropping the device, avoid damage to the device, and prevent loss.

To install lanyard, put one end of the lanyard through the hole at the head of the device, turn back and go through the tri-glide button. Tighten the lanyard and confirm that it is locked.

3.3 Basic Starting Instruction

3.3.1 Turning the Device On and Off

- To turn on the device, press ⏻ and hold for more than 2 seconds. The power icon ⏻ will light up green when the device is turned on.
- To turn off the device, press ⏻ and hold more than 2 seconds. When the device is turned off, the green light will turn off after the device is fully shut down. Users can also setup the idle auto power off function.

3.3.2 Selecting Function Mode

- When the device is on, press the MODE key to switch to the function select menu. Press MODE multiple times or use the ▲▼ arrow keys to select a function.
- Wait 2 seconds or press the ▸ arrow key to enter the selected function.

3.3.3 Using the Head Side Torch Light

On either on or off status, click ⏻ twice quickly to turn on and off LED torch light.

The LED torch light will turn off when the device is turned off. To continue to use the LED torch light when the device is off, users can simply turn it on.

The LED torch will turn off every time the device turned on. This is to avoid consuming all of the battery if LED is turned on accidentally.

The head side LED is high brightness LED light. When the LED torch is on, never look straight it. Looking directly into the LED torch can cause eye burns or other accidents.

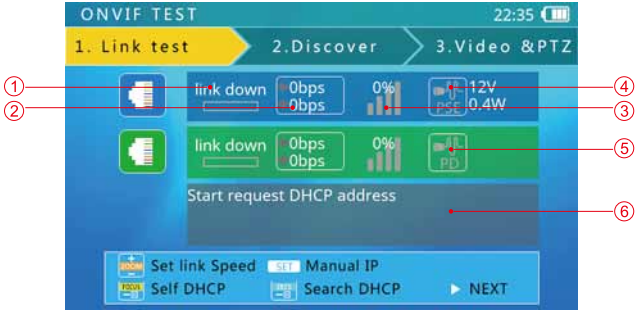
3.4 ONVIF Test

The ONVIF test function is designed to act as a 3 step trouble shooting guide. It combines Ethernet tests, IP settings, camera discovery, camera authorization, video display, PTZ control, camera settings, and more.

Press the mode key to enter function select and select the ONVIF TEST function. Wait 2 seconds or press the right arrow key (->). This will enter ONVIF Test Step 1.

3.4.1 ONVIF Test Step 1: Ethernet and IP Test

A. User Interface



On this interface, blue bar is for network port 1 status information; green bar is for network port 2. The gray bar is IP test information.

The bottom light blue bar is the operate tips.

Within the network port status bar:

① Link Speed of Corresponding Port

When it is gray and the text reads “link down”, means no network connection.

When this icon is white, and the text is digits and characters, 10M/100M/1000M is the link speed, “FD” means full duplex mode, “HD” means half duplex mode.

The link speed can also be observed via the icon itself.

② Ethernet Data Flow Monitor

This icon shows the current Ethernet traffic flow.

← is the outgoing data flow in b/s, kb/s, and mb/s.

→ is the incoming data flow in b/s, kb/s, and mb/s.

③ Packet Loss Monitor

This icon is the packet transfer loss status. The displayed data shows the success rate. Normally this number is 100%.

The color of this icon color differs according to the success rate, as shown in the table below:

RATE	No Link	100%	⩾99%	≥95%	<95%
Color	gray	green	yellow	orange	red

④ POE Power Supply Status

This icon is for network port 1, indicating the POE power output status.

The first line of text is output mode:

12V: The device is outputting 12V and detecting PD at the same time.

PD. CLAS: This shows the classification of the remote POE device.

PSE 48V: The remote POE device is being powered.

The second line of text shows the output power in watts. When outputting power, the actual power consumption is decided by the remote device. The tester has a max power limit. When the remote device requires more power than max power, the output will terminate automatically.

⑤ POE Power Accept Status

This icon applies to network port 2, indicating the POE power acceptance status. The text displays the powering voltage.

⑥ IP Test Information (gray bar)

The gray bar is the IP test information.

The IP setting has 3 modes: Static IP, DHCP request, and DHCP server.

B. Operation

1. Connect to network or IP cameras. Several conditions:

① Connect to a Network Switch and 12V Power IP Cameras.

Use a standard RJ45 cable to connect the switch or camera with network port 1 or 2. The network status will show on the corresponding network port bar and icons. The tester supports MDI/MDIX connection.

The camera can be powered using its own 12V power adapter or using the tester's 12V/2A power output. When using the tester's 12V/2A output, please use the 12V output cable to connect the 12V output port and the camera's 12V power port.

The tester supports a maximum output of 12V/2A. When the camera consumes more than 2A, the power output will terminate.

Note: If there is a POE powered device connecting to network port 1, then the 12V output is disabled. The POE power output has higher priority.

② Connect to POE Switch and Charge the Internal Battery at the Same Time.

Use a RJ45 cable to connect the POE switch and tester network port 2 (green). The orange light on network port will turn on, indicating acceptance of the POE power. If the internal battery level is below 95%, the charge light will turn on.

Multiple ONVIF cameras can connect to a switch. Cameras can use their own power or POE power.

③ Connect with a POE Powered Camera.

Use a RJ45 cable to connect a POE powered camera and tester to network port 1 (blue). The tester will first detect the POE device and then supply power.

When powering POE device, 12V output of the tester is disabled.

When a POE powered device requires more power than max power, the POE power output will terminate.

The tester PSE meets the 802.3af/802.3at standard. The maximum power is 25.5W.

2. Setting IP Mode.

The tester supports 3 IP modes: static IP, DHCP request, and DHCP server. These 3 modes can be switched by pressing a key:

① DHCP Request Mode

This mode is suitable when connecting to a working network.

When entering the ONVIF test, the IP mode is set to DHCP request by default.

Users can switch to this mode by pressing IRIS.

In this mode, the tester will try to find a DHCP service in the network and get an IP.

Upon success, the server assigned IP will show in the gray bar.

② DHCP Server Mode

This mode is suitable when connecting with a single IP camera that uses DHCP.

Pressing the FOCUS key will switch to DHCP server mode.

In this mode, the tester will set the local IP to static, start the DHCP server, and wait for a remote DHCP request. Be ready to assign an IP.

Note: If connecting to a working network that already has a DHCP server, this will cause conflict because of multiple DHCP servers, causing some devices to get incompatible IPs and network interference.

③ Static IP Mode

This mode is suitable when connecting a camera or network that uses a static IP.

Press the SET key to switch to static IP mode. The IP setting screen will pop up.

Please use the flip keyboard to input the IP and use the A/S key to adjust the mask. To access internet, gateway access is also needed.

When inputting, character ‘d’ and symbol ‘.’ need no switching.

To select a commonly used IP, press ‘Z’ (the ZOOM key).

When done input or select, press the IP key to apply.

The commonly used IPs can be edited. Select an item then press the ZOOM key to edit.

3. Next Step

When the network connect information is confirmed to be normal and the tester has acquired an IP, press the arrow key (▸) to go to the next step.

3.4.2 ONVIF Test Step 2: Discovering Cameras

In this step, the tester will try to discover ONVIF cameras in the network. It will show a camera video snapshot for quick identification. Camera video information is showed as well.

3.4.2.1 Discovering Cameras

When entering this step, the tester software will broadcast ONVIF discover data, trying to discover ONVIF cameras. It will then add them to the list on the left.

The text above the list shows the number of discovered cameras.

When there are too many items on the list, then the triangle up/down prompt will show on the left. This indicates that there are more items which are not shown.

Use the up/down arrow keys to select a camera in the list. The tester will automatically initialize the link with the corresponding camera, then show the camera video snapshot on the right side of screen.

In this interface, pressing ZOOM will clear the camera list and restart the discovery process.

Some cameras may not respond the ONVIF discover request, or cannot reply due to different IP sub-net settings. In such a case, the user should first return to step 1 and set the local IP to be within the same sub-net as the camera (remember your local IP cannot be in conflict with other devices on network. They should then enter step 2 to try discovering the cameras again. If the camera(s) still cannot be discovered, then users can use the manually add function.

3.4.2.2 Manually Adding a Camera

Press the ZOOM - key to manually add an IP camera.

To manually add a camera, the must know the camera's exact IP and ONVIF service path.

In the input bar, if finished input IP address, user can press TAB key to add default path at the end (e.g., entering http://10.1.1.100/ and pressing the TAB key will automatically add "device_service" like this: http://10.1.1.100/onvif/device_service) After finished with input, press the +@ IRIS key to confirm.

3.4.2.3 Viewing Camera Video Snapshot and Video Information

Use the up/down arrow keys to select a camera in the left side list. After 1 to 3 seconds, a video snapshot from the corresponding camera will show on the right for quick user identification.

Video information is also displayed above the snapshot, Showing resolution, framerate, and compression method.

Some cameras need ONVIF authorization. If the video information says "need password," press the IRIS -@ key to jump to the authorization screen.

Type in the user name and password then press the +@ IRIS key to submit.

3.4.2.4 Entering ONVIF Video Tes

Select a camera to test then press the ▸ arrow key to enter the ONVIF video test.

Some cameras need RTSP authorization, and the tester will jump to the authorization screen. The RTSP authorize screen operation is same as the ONVIF authorization screen.

3.4.3 ONVIF Video Test

In this step, the tester displays camera video, controls PTZ, and camera setup settings.

3.4.3.1 Displaying Camera Real-Time Video

When entering step 3, the tester displays camera video automatically.

Video image will re-size to reserved area of the screen.

To switch to full screen video display and control PTZ, press the SCR key.

To setup camera settings, press the SET key.

3.4.3.2 ONVIF PTZ Control

Pressing the SCR key will switch to full screen video display mode, and all display information will be hidden. The video image will cover most of the screen area. Due to width to high ratio differences, part of the screen could be black with nothing to display.

In full screen mode, use the ZOOM and ◂ ▲▼ ▸ keys to control PTZ.

3.4.3.3 Camera Settings

Press the SET key to enter the camera settings screen.

The left side of the display shows the settings class, and the right shows the settings details:

The settings classes and details are as follows:

Class	Contents
Camera_info	Camera model, serial, brand, and other information This information cannot be altered.
Network	Camera network settings, like host name and DNS
System	Reset camera, factory default, service ports, ONVIF discover enable
MainStream	Camera main stream setting
SubStream	Camera sub-stream setting. If the camera has more than one sub-stream, the name of sub-stream may change.
Eth0	Camera network port settings, including IP, gateway, etc. For a multi-port camera, there may be more than one port setting, and the name of port may also differ.

To select class on the left, use the ZOOM keys.

To select right side items, use the ▲▼ arrow keys.

For setting of selection, use the ◂ ▸ keys to adjust.

For setting of input data, use flip keyboard to input.

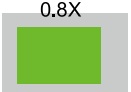
When finished setting, press the IRIS key to confirm. The tester will send new settings to the camera. If the camera accepts the new settings, the setup successful prompt will show. Otherwise, failure information will show.

Some cameras must be rebooted to apply new settings; this is decided by the camera.

3.4.3.4 ONVIF Video Digital Zoom

On video display screen, pressing the 1 key will digitally zoom in, while pressing the Q key will zoom out.

When the image is partly shown, a chart will be displayed on the lower right corner, showing the display ratio.



When the image is partly shown, pressing the E, S, D, and F keys will move the viewing window to inspect different portions of the image.

3.5 Analog Video Test and RS485 PTZ Control

This function is used to display an analog video image, showing the video format and signal level. It is also used to send commands though the RS485 cable to control the PTZ.

3.5.1 Connecting to Analog Camera

Analog cameras are connected using the BNC connector. Use a BNC cable to connect the camera to the tester via the video input connector on the top side of the tester.

The camera can be self-powered using its own power adapter or use the tester's 12V/2A power output.

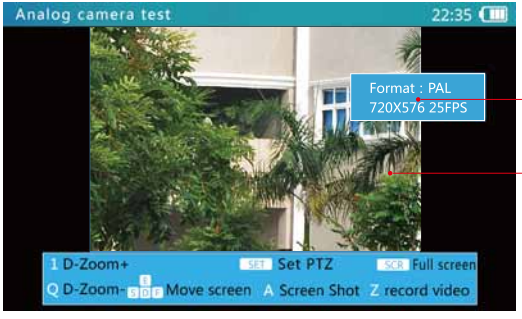
Note:

The tester's maximum output power is 12V/2A. When the current exceeds the limit, power output will automatically stop. Be cautious when using cameras with high power IR lights.

When network port 1 is connected to a POE powered device, 12V output is disabled.

3.5.2 Analog Video Test

Press the MODE key to select analog video test. Wait 2 seconds, or press the ▸ arrow key to enter the analog video test.



A. Video Display Area

Due to varying image width to height ratios, the displayed image may not be full screen. Some parts of the screen may be black.

B. Signal Information

This area displays the video format, resolution, framerate, and signal level.

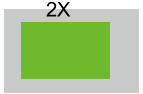
The signal format can be PAL/NTSC/HD-CVI*.

3.5.3 Full Screen and Portion Display of Analog Video Image

After entered the analog video test function, press the SCR key to enter or exit full screen mode. In full screen mode, the user interface is hidden.

To digitally zoom, press the "1" or the "Q" key to zoom in or out.

In digital zoom mode, a zoom chart will be displayed on the lower right corner, showing the display ratio:



In digital zoom mode, pressing E, S, D, and F will move the viewing window around the image to inspect different portions of the image.

*Available on certain models

3.5.4 RS485 PTZ Control

On the analog video screen, pressing the SET key will bring up the RS485 PTZ setting menu:

Use the up and down arrow keys to select an item, and the left and right arrow keys to adjust it.

The settings are as follows:

Protocol	Select RS485 PTZ protocol The tester supports many PTZ protocols.
Baud Rate	RS485 communication baud rate
Address	Address of PTZ to control. Due to different camera vendor settings, the address may be offset by +/-1. Address range is dependent on the protocol.
Speed	Expected PTZ speed, 1%-100%
Set Preset	Adjust this value, and then press the IRIS key to save the camera's current position to its internal storage. This function is provided by the camera. Refer to the camera manual.
Go Preset	Adjust this value, and then press the IRIS key. The camera will go to the corresponding pre-saved position at maximum speed. This function is provided by the camera, please refer to the camera manual.

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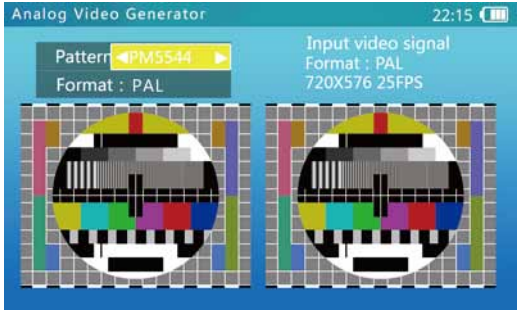
After setting, press the SET key to exit. Settings are applied immediately.

When setting parameters, press the IRIS key to restore previous values if you do not want to save the setting.

Use the RS485 cable to connect the PTZ RS485 wire then use FOCUS, ZOOM, IRIS and ◂ ▴ ▾ ▸ keys to control the PTZ.

3.6 Analog Video Generator



Press the MODE key to select analog video generator. Press the ▸ key or wait 2 seconds to enter the analog video generator function.

3.6.1 Analog Video Generator Screen

A. Test Pattern Select: Supports pm5544 and EBU color bar

B. Test Video Format: supports PAL and NTSC

C. Output Video Image: The same as output video image

D. Input Video Format, Resolution, and Framerate: Format supports PAL/NTSC/HD-CVI*

E. Input Video Level: Displayed in dB. 0dB is the standard value (1vpp@75Ω)

F. Input video Image: To be compared with the output image

*Available on certain models

3.6.2 Connection of Analog Video Generator

A. Transmit generated video to remote monitor or DVR, and judge the transmission quality by inspecting the image.

B. Generated video is transmitted through an optical video transmitter, received by an optical video receiver, and then returned to the tester though the video input connector. Transmission quality can be judged by comparing the image between the output pattern and video input image.

3.7 RJ45 Cable TDR Test*

This function is used to test an RJ45 cable using a TDR (Time Domain Reflection) analysis method. Connection status and cable length can be measured.

Connected, open, and short statuses can be detected, and cable length is displayed. The accuracy is within 1 meter. To measure a cable, only one end of the cable needs to connect to tester, and the other end should be left open.

3.7.1 Cable TDR Test Screen and Operation

Press the MODE key to select the cable TDR test function. Press the ▸ key or wait 2 seconds to enter the TDR test function:

*Available on certain models

A: Network Port 1 Icon: A tape measure icon flashes on the screen when a cable is being tested.

B: Network Port 1 Test Results Display. This area displays the test results of the last measurement. 12 36 45 78 stands for the 4 twisted wires inside the RJ45 cable. The statuses can be “normal,” “open,” or “short.”

Normal means the other end of cable is connected with a network device, and is well terminated. The number is the cable length between tester and remote network device.

Open means the other end of the cable is unconnected. The number is the cable length.

Short means the other end of wire pair is a short circuit.

When a cable is in poor condition or of other unknown reasons, the test may fail and “Test failed” will be displayed.

C: Network Port 2 Icon. Similar to A

D: Network Port 2 Test Result. Similar to B

When entering this function, the device will take a measurement automatically.

To measure again, press ZOOM − ZOOM + to start a network port 1 or network port 2 test. To activate contiguous measurement, press the SET key. When the SET key prompt changes to “Stop contiguous measure,” the current status is contiguous measure.

Note:
Test result can be affected by temperature, moisture, cable diameter, and cable dielectric. Test results are only for reference, not for formal measurement.

Contiguous measure is to help easily test multiple cables, and it will not increase test accuracy.

When a cable is perfectly terminated due to really weak reflection from the cable end and there may be stronger reflection from other cable junction, then the measurement result may be shorter than actual cable length. It is recommended to disconnect the other end of the cable and measure from that end. The TDR function is only for some device models.

3.8 Network Analysis (Network Tools)

Network analysis is a combination of several network tools, including Ethernet sniff, sub-net list, and ping test.

Press the MODE key to select network analysis. Press the ▸ key or wait 2 seconds to enter network analysis. Elements on network analysis screen:

A. IP Address and Mask Display: To change this setting, press the SET key, jump to the IP setting screen, and then change the setting. DHCP and static IP are supported.

B. Gateway and DNS Display: To change the setting, operation is the same as the IP settings.

C. Ping Destination: When the bar is yellow, use the flip keyboard to edit. IPs and domain names are both supported.

D. Tool Run-Time Information display Area.

E. Function Key Prompt. When prompt is highlighted, the corresponding function is available. When the prompt dims, this means another function is running, and the correspond functions is not available.

3.8.1 Ethernet Sniff Operation

To use the Ethernet sniff function, network parameters or destinations don't matter. Press FOCUS to start.

Once Ethernet sniff is started, the tester will keep listing to the network, waiting for broadcast data, detecting MAC and IP addresses. Unlisted MAC and IP addressed will be added to the list.

The format of the list is XX-XX-XX-XX-XX-XX I.I.I.I; where XX is a MAC address in HEX, and I is an IP address displayed in decimal.

Most network devices broadcast data packets periodically, identifying their existence. The sniff function will detected this data and discover unknown network devices.

When connecting to an unknown setting and unknown IP unknown, first try using DHCP server to distribute IP to the device. If the device is not requesting an IP address, then use this sniff function to detect the device.

Detecting a device using the sniff function may take 3 to 60 seconds, according to the device broadcasting frequency, and the tester will not detect a device if it remains silent.

The sniff function is detecting broadcasting data packets, so devices of any sub-net and any kind could be found.

Note: The sniff function does not detect uni-cast (point-to-point) packets.

To exit Ethernet sniff, press the FOCUS key.

3.8.2 List Sub-Net Function Operation

To use the list sub-net function, IP and mask should be setup, and the subnet mask should be 24bits wide (that is the sub-net size of 256 devices).

When entering the network analysis function, a section of the screen will display the current IP and mask settings. If the settings are not as wanted, press the SET key and change the settings in the IP setting screen.

After the IP and mask are set, press the ZOOM − key to start the sub-net list.

The sub-net list function will scan the whole sub-net. Devices being scanned must reply, so the discover rate is 100% if the device is operating normally. This sub-net list function will also measure the network latency, and display it in mS.

The sub-net list display format is: XX-XX-XX-XX-XX-XX I.I.I.I N ms. Where XX is the MAC address displayed in HEX, I is the IP address displayed in decimal, and N is the network latency.

Compared to the network sniff function, this function cannot detect devices with different sub-net settings, but the same sub-net detection rate is 100%.

The sub-net list will take 1-10 seconds to finish.

To exit the sub-net list function, press the ZOOM − key.

3.8.3 Ping Operation

To use the ping function, IP address, masks and destination are needed. If the destination is a domain, then DNS and gateway are also needed.

To setup IP, mask, DNS, and gateway, press the SET key, and setup on the IP setting screen.

To edit a destination, use the flip keyboard when the destination section is yellow.

When you are done setting IP, mask, and destination, press the + ZOOM key to start the ping operation.

The ping test displays result in chart form as follows:

Ping 10.1.1.1 . Average:3ms			
1ms	10	7%	**
3ms	123	91%	**********
10ms	2	1%	*
30ms	0	0%	
0.1s	0	0%	
0.3s	0	0%	
1s	0	0%	
3s	0	0%	
Lost	0	0%	

The 1st row is the latency grade; the 2nd row is corresponding reply time; the 3rd row is the respond time ratio; and the 4th row is the latency chart.

To exit the ping function, press the + ZOOM key.

3.9 Record Playback

The tester can take snapshots of or record input video and save them to internal storage. This function allows users to review saved snapshots and play recorded videos.

3.10 Device Setup

This function allows users to setup some system parameters. USB storage and software upgrade functions are included in this function.

Press the MODE key to select device setup, and press the ▸ key or wait 2 seconds to enter device setup mode:

Use the ▲▼ arrow keys to select an item to change or function to call.

After settings are changed, press IRIS to save and apply.

3.10.1 Setting Up Automatic Power Off Time

Select the auto power off item, and adjust its settings using the ◄ ► keys. Automatic power off can be set between 5 minutes (minimum) and 60 minutes (maximum).

When the selected time is at 5 minutes, press the ◄ key to turn off auto power off. “Disabled” will be displayed. Press the IRIS key to apply the setting.

When the tester is left untouched for longer than the auto power off time, the tester will automatically turn off.

3.10.2 Setting Up Key Pad Tone

Select keypad tone item, and adjust the setting using the ◄ ► keys.

The options are “enable” or “disable.” When enabled, the speaker sounds a short tone of 2-3KHZ.

To apply the setting, press the IRIS key.

The keypad tone setting does not affect the audio test function.

3.10.3 Setting Screen Language

The tester supports multiple languages.

Select the language item then select the language desired using the ◄ ► keys.

Press the IRIS key to apply your selection.

3.10.4 Changing Screen Backlight Brightness

The screen backlight has 10 selectable levels. For outdoor use, a higher brightness will have better contrast, while a lower brightness will consume less battery power.

Select the desired backlight brightness level using the ◄ ► keys. The brightness adjustment will take effect immediately.

3.10.5 Adjusting System Time and Date

When system time adjustment is needed, select “system time” to adjust time. Use the ZOOM keys to adjust the hour, the ZOOM keys to adjust the minutes, and the ◄ ► keys to adjust seconds.

To adjust system date, select the “system date” item. Use the ZOOM keys to adjust year, the ZOOM keys to adjust the month, and the ◄ ► keys to adjust the day.

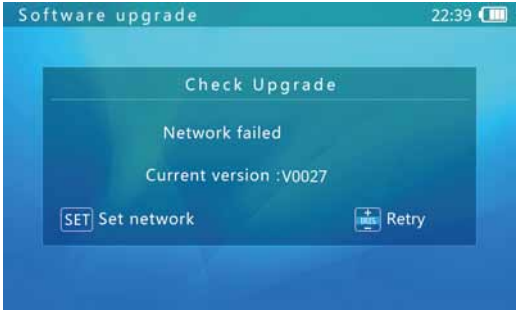
The date display format is year/month/day.

After adjusting the time and date, press the IRIS key to apply the changes.

3.10.6 System Upgrade

The tester software can be upgrade online.

In the device set screen, select “system upgrade,” the current software version will be displayed (e.g., V0027). Press the ► key to enter the system upgrade screen as shown below:



Connect to an internet router using the RJ45 cable, and press the SET key to setup network settings as shown below:

If the network is using DHCP, the tester will automatically detect the IP settings. Otherwise, the IP settings should be entered by the user. Please consult your network manager.

After IP setup is complete, press the SET key to return. The device will connect to the software upgrade server and try to find a new software version automatically.

When a new version is found, the new version number and current version number will be displayed. Press the ZOOM key to enter the download screen. The download process is fully automatic, and an integrity check is automatically executed upon download completion. After this process, the tester will return to the upgrade screen automatically.

An upgrade download may take seconds to dozens of minutes, depending on the network speed. Please use a broadband connection to upgrade. This will save you valuable time.

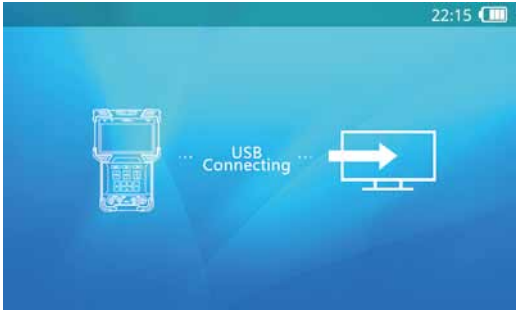
Upon download success, a “start upgrade” prompt will be displayed on the screen. Press the ZOOM key to start the upgrade. The system will reboot automatically then enter upgrade screen. Press the SET key to start. Follow on-screen prompts to continue the process.

Confirm the battery level is at least 30%. It is a good choice to connect the charger when upgrading to avoid power loss during the upgrade process.

Do not open battery cover, remove the battery, or press the reset key while upgrading. This may cause system failure, and the device may not be able to boot up again.

3.10.7 USB Storage Mode

Due to data sharing problems, the USB storage function is off by default. To enter USB storage mode, enter the device set screen then select the USB Storage function. The screen will look like this:



Use a USB mini-B cable to connect the tester to a computer. Further operation is the same as a common USB disk.

When using USB Storage, do not press the MODE key or the power key. This will cause the USB storage device to be un-plugged from host computer, and you may lose data.

To disconnect the USB connection from a computer, eject or un-mount the disk from the host system before disconnecting the cable.

3.10.8 Getting Tester Serial Number

Enter the device set screen. The device serial number is shown on the last line.

3.11 Audio Test

The tester is equipped with an audio test function. It can be used to test microphones or other audio devices.

Use 3.5MM audio cable in accessories to connect audio device. Black clamp is earth connection, red clamp is signal connection. Please connect earth first, avoid large noise during connection.

If connect successful and the tester is power on, audio is play out from internal speaker.

3.12 Powering POE Powered Devices

The tester supports POE power supply. Use a normal RJ45 cable to connect the tester network port 1 (blue) and the POE powered device. The tester will supply power to the remote device.

Note: The connected POE powered device must meet 802.3af / 802.3at standards. Otherwise, the tester will not supply power. Connecting a non-POE device to network port 1 is safe.

When using POE power supply, enter ONVIF test step 1 to see the POE's actual power.

Maximum POE power is 25.5W. Output will terminate if power exceeds the limit.

Do not connect non-standard POE power supplies to network port 1 (blue). This may damage the tester.

When using POE output, the battery's operation time may be greatly reduced due to external device's power consumption.

3.13 Powering a 12V Camera

The tester is equipped with 12V/2A output. The maximum output current is 2 amperes. The actual current is decided by the remote device.

Use the 12V output cable to connect the 12V output port and the 12V camera. The tester will supply power to the camera.

Note: If network port 1 is connecting with a standard POE powered device, the tester will supply power to the POE device because POE has a higher priority. 12V output is disabled.

Note:

Do not connect any kind of power supply to the tester's 12V/2A output port when connected to a POE powered device. This may cause damage to the tester and/or the power supply.

The 12V power output maximum current is 2A. If the current exceeds the limit, 12V output is terminated.

When using 12V output, the battery power time will be greatly reduced due to remote power consumption.

4. Specification

Model	Integrated Mount Tester
Physical Port	
Network Port	2*10/100/1000M RJ45 port, support switch mode
Function Port	2*BNC port (Video IN and Video OUT), 1*RS485, 1*Audio In, 1*USB, 1*Reset
IPC Test	
Protocol	ONVIF 2.4.1, RTSP, RTP
Ethernet Test	10/100/1000M Ethernet link test, loop detect, Ethernet traffic flow monitor, link quality test
IP Configuration	static IP/ DHCP client/ DHCP server
IPC Test	Discover camera, real time video, camera configuration, PTZ control, audio test, full screen preview and 8x digital zoom, snapshot, record video(recording original data stream)
HDCVI & Analog Test	
SD signal Format	NTSC, PAL
HD video signal	HDCVI*
Resolution	D1, 720P, 1080P
Signal Level	1Vpp
Camera Test	Real time video, PTZ control, audio test, full screen preview and 8x digital zoom, snapshot, record video(H.264)
HDCVI OSD	Camera configuration
PTZ Control	
Protocol	More than 30 protocols including Dahua, Pelco-D/P, Samsung, Panasonic, Lilin, Yaan etc.
Baud Rate	150, 300, 600, 1200, 2400, 4800, 9600, 19200bps
Detection	
TDR detection*	0~150m net cable detection, resolution 1m
POE test	PD test
	PSE test
Network Analyze	Sniff, list subnet, ping
Analog Video Generator	Generate PAL/ NTSC video signal of various test pattern
Record Playback	Support local playback

*Available on certain models

Integrated Mount Tester User Manual

Model	Integrated Mount Tester
System Specification	
Screen	4.0 inch TFT 800*RGB*480(WVGA) resolution, 16.7M color, backlight brightness adjustable
Operation Method	Power key, 12 control keys, QWERTY flip keyboard with 45 keys
Auto Power Off	Disable/ 5~60 minutes
Keyboard Tone	Enable/ Disable
Upgrade	Support online upgrade
Power	
Power Input	POE source or POE injector
POE Injector	Input AC100~230V 50~60Hz, output 48V/15w
Battery	Dedicate battery, user replaceable, 7.4V lithium-ion polymer battery, capacity 22.2Wh
Power Output	POE (802.3af, 802.3at) DC12V 2A
Time	Charging time 3~4 hours, working time 10 hours
Other	
Lnternal Storage	8GB flash
LED Light	2*35lm LED light
Working Temperature	-10℃~+55℃
Working Humidity	30%~90%
Dimensions	190x113x37mm
Weight	1.6kg