



HD-TVI, Analogue & IP CCTV Test Monitor

The LCD390 professional CCTV test monitor is capable of testing, configuring and controlling HD-TVI, analogue and IP cameras.

It features a full Qwerty keyboard, ONVIF 2 compatibility, a 1080p HD 4 inch screen and up the coax control.

• LCD390 Instruction • Manual

Introduction

The comprehensive LCD390 all-in-one CCTV test monitor has been designed with CCTV installers in mind so that it is as useful and user friendly as possible.

It's compatible with HD-TVI, IP and analogue equipment so you only need one device for all installs. It has a full fold out Qwerty keyboard so networking and IP addressing is a breeze. The built-in high power LED torch comes in handy when working in dark loft spaces and the 12V DC and POE outputs allow you to power cameras when testing.



Safety Information

1. To obtain the maximum benefits from the CCTVmate LCD test monitor, it is recommended that you read this manual before use.
2. To ensure product longevity please do not use the monitor outside of the following operating conditions:
 - Operating temperature: -10 to 55°C
 - Humidity: 30 to 90%
3. **When** in use avoid unnecessary exposure to heat, damp or dirt particularly around the connection sockets.
4. Recharge this unit using adaptor supplied to ensure overcharging does not occur and reduce the life of the battery.
5. Do not disassemble this product or its parts.
6. In the event of an issue with this product, please return to the outlet where it was purchased or seek further advice at www.cctvmate.com

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Key Features

TVI, IP & Analogue

The comprehensive LCD390 is capable of testing TVI, IP and analogue equipment.

ONVIF 2 Compatible

Compatible with all the latest IP Cameras.

Coaxitron & RS485 Control

Configure and control compatible cameras via the coax cable or an RS485 connection.

Network & Cable Testing

Easily troubleshoot problems and identify faults.

12V DC Output & POE

Power cameras during testing via a 2.1mm DC connection or POE.

Full Qwerty Keyboard

Quick and easy IP addressing and networking.

Built-in Torch

Handy when working in dark environments such as loft spaces.

Internal Storage For Saving Recordings

Store test recordings and images which can then be transferred to a PC via USB.

1080p & 720p

Supports 720p and full 1080p HD images.

Lithium Ion Battery

Built-in high power rechargeable battery for extended use.



Carry Case & Shoulder Strap



Lanyard



Phono - BNC Connectors



BNC - BNC Lead



USB - Mini USB Lead



Audio Test Lead



2.1mm DC Power Lead



RS485 Test Lead



Network (Patch) Lead



Spare Terminal Block

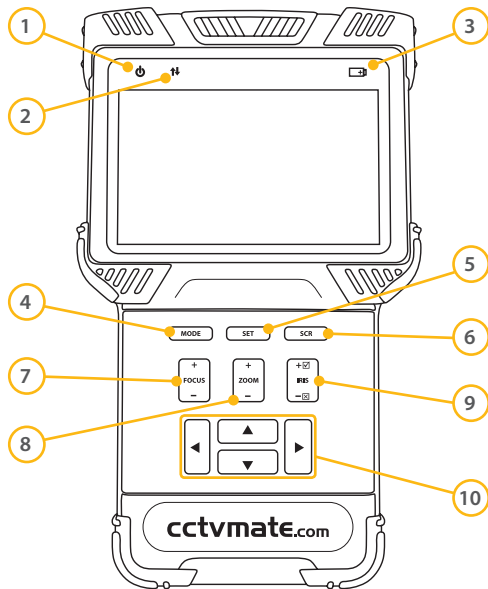


Power Supply Lead



POE Power Injector

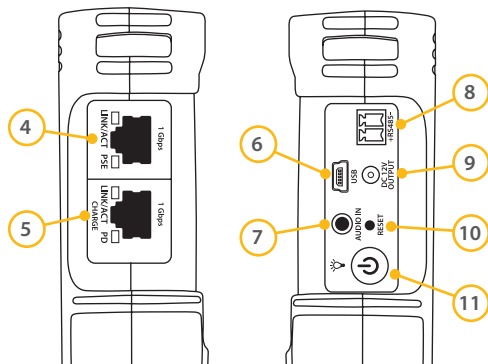
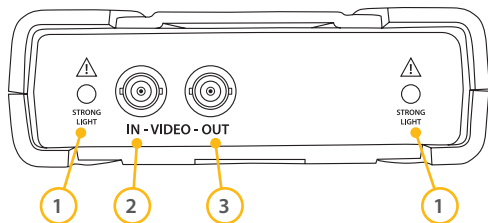
Connections & Controls



No.	Feature	Primary Function
1	Power Indicator	Lights green when on
2	Data Indicator	Flashes red when data is being transmitted
3	Charge Indicator	Lights red when charging / Off when fully charged
4	MODE	Displays main menu
5	SET	Display/Edit settings for current operation
6	SCR	Enter/Exit full screen mode
7	FOCUS	PTZ focus + and - adjustment
8	ZOOM	PTZ zoom + and - adjustment
9	IRIS	PTZ iris + and - adjustment + Confirm / - Cancel changes
10	Arrow Keys	PTZ movement / Navigation

Secondary functions

Some keys have various secondary functions. Specific secondary functions are indicated on screen depending on which operation is currently being performed.



No.	Feature	Primary Function
1	High Power LED	LED torch
2	BNC Video In	HD-TVI & analogue video in
3	BNC Video Out	HD-TVI & analogue video out
4	Network Port 1 (Blue)	Network port with POE output Orange LED - POE indicator Green LED - Data indicator
5	Network Port 2 (Green)	Network port with POE input Orange LED - POE indicator Green LED - Data indicator
6	Mini USB Port	For connecting to PC
7	Audio Socket	For audio testing
8	RS485 Output	For RS485 testing & control
9	12V DC Output	12V / 2A Output for powering CCTV cameras
10	Reset Button	Push to factory reset device
11	Power Button / Torch	Hold to turn device On/Off Quick double press to turn torch On/Off

Keyboard



The full fold out Qwerty keyboard is one of the LCD390s most useful features and one which sets it apart from most other CCTV test monitors on the market.

Having a full keyboard as opposed to a reduced or on screen keyboard makes text input much easier saving you time and effort.

Useful Keys & Indicators

Feature	Function
	Digital zoom + and - in live view and playback
	Navigate around image during live view or playback

Feature	Function
	Take snapshot during live view or playback
	Video clipping Start & Stop during live view
	Space bar
	Cancel text input
	Backspace / Delete
	Move to next text field
	Switch between upper and lower case letters
	Switch to symbol input (Symbols indicated in red)
	Lights up when Caps lock is on
	Lights up when Symbol lock is on

Turning The Device On/Off

1. To turn the device **On** press and hold the **Power Button** until the **Power Indicator** lights up.
2. To turn the device **Off** press and hold the **Power Button** until the screen turns off.

Selecting Functions

1. To display the main menu press the '**Mode**' button.
2. Use the **Up** and **Down** arrow keys to highlight the desired function.
3. Use the **Right** arrow key to select function.

Connecting The Lanyard

1. Slide one plastic buckle roughly 6 inches onto either end of the lanyard.
2. Pass one end of the lanyard through the hole in the top left side of the test monitor, loop over and pass back through the buckle. Repeat for the right side.

Audio Testing

1. Turn the test monitor on and plug the **Audio Test Lead** into the 3.5mm **Audio socket** on the side of the device.
2. Connect the **Black** clip of the Audio Test Lead to the **earth** of the audio device and the **Red** clip to the **signal**.
3. Any audio input will then play through the built-in speaker on the rear of the test monitor.

Using The LED Torch

1. The LED torch can be turned on when the device is switched On and Off. To turn the LED torch **On** or **Off** quickly press the **Power Button** twice.

Note: *The LED torch uses two ultra bright LEDs. Never look directly at the LEDs as this may cause damage to the eyes.*

To conserve energy the torch automatically turns Off when the device is switched On or Off.

Battery & Recharging

Installation

The LCD390 is supplied with a high capacity Lithium-ion Polymer battery. For safety reasons the battery is packaged separate to the test monitor.

To install the battery first remove the battery cover on the rear of the device. Insert the top of the battery with the gold connectors pointing downwards and the bottom of the battery should then drop into place.

Note: *When the battery is inserted the test monitor will turn on automatically.*

Recharging

To recharge the battery you will need to connect the power supply lead, POE injector and network lead supplied with the test monitor as described below.

1. Connect the power supply lead to the POE injector.
2. Connect one end of the network lead to 'Data + POE output' RJ45 socket on the POE injector.

3. Connect the other end of the network lead to the green RJ45 socket labelled '**Charge**' on the side of the test monitor.
4. Plug the power supply lead into a wall socket and turn the socket on.
5. The orange light on the RJ45 socket and the red battery light on the front of the device will light up when charging.



As the LCD390 is recharged via POE you can recharge the device from any RJ45 socket with a POE output such as a network switch or an network socket on a NVR.

Battery Indicators

Icon	Function
	Displays the current battery level
	Lights up red when charging
	Flashes three times when battery is empty

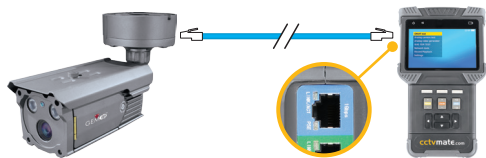
One of the most convenient features of the LCD390 is the power output which allows you to power cameras using the test monitor itself.

This is great when testing cameras where power cables have not yet been installed or if you wish to take a camera down so you're not testing up a ladder.

There are two options available for powering cameras, either using the 12V DC output or via POE.

Powering Cameras Using POE

To power a POE compatible camera simply connect an RJ45 patch lead such as the one supplied from the camera to Network Port 1 (Blue).



Note: *The maximum POE output is 25.5W. If this is exceeded the output will be terminated automatically.*

Powering Cameras Using The 12V Output

To power a 12V DC camera connect the supplied 2.1mm DC Power Lead from the 12V DC output of the LCD390 to the 12V DC input of the camera.



Note: *The maximum 12V output is 2A. If this is exceeded the output will be terminated automatically.*

If a POE device is connected to Network Port 1 the 12V DC output will be disabled.

ONVIF Test

The ONVIF Test is a three step process designed for troubleshooting, configuring and controlling ONVIF compatible cameras.

The comprehensive test allows you to view and amend IP settings, perform Ethernet tests, discover and configure IP cameras, view live images, control PTZs and much more.

Connecting To Cameras & Networks

All connections for ONVIF testing are made using an RJ45 patch lead.

When testing individual cameras these can be connected to either network port 1 or 2 but only port 1 provides a POE output.

Note: For more information on powering cameras using the LCD390 see page 11 - Powering Cameras.

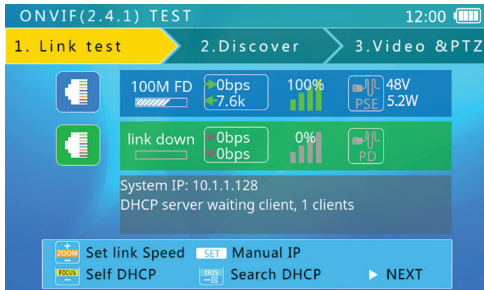
If you are connecting to a network switch this again can be connected to either network port 1 or 2.



When connecting to a POE compatible network switch, using Network Port 2 (Green) will recharge the test monitor while you are testing. The PD light will turn orange showing POE power is being received.

ONVIF Test 1: Ethernet & IP Testing

The Link Test displays various speeds, network information and IP settings for connected devices.



The blue information bar relates to Network Port 1 and the green information bar relates to Network Port 2.

The grey bar displays the IP information. There are three possible options, Static IP, DHCP request and DHCP server.

100M FD Link Speed

Shows the link speed of the connected device. IP devices have three possible link speeds 10M, 100M or 1000M. This is followed by 'FD' (Full Duplex), meaning the connected device can both send and receive information at the same time or 'HD' (Half Duplex), when the connected device can only send or receive information not both at the same time.

The message '**Link Down**' is displayed if no connection can be established.

 512bps
7.6k






Ethernet Data Flow

Shows the current incoming and outgoing Ethernet data flow in b/s, kb/s or mb/s.

100% 

Packet Loss

Displays the success rate of data packets being transmitted across the network.

Icon					
Rate	100%	99%	98 to 95%	94% or less	No link



Device Power

Shows what power is being supplied to the camera connected to Network Port 1 (Blue).

12V Indicates the camera is receiving a 12V DC input where as 48V indicates the camera is being powered by POE.



POE Input

Shows what voltage is being supplied to the test monitor via POE to Network Port 2 (Green).

ONVIF Test

ONVIF Test 1: Choosing IP Mode

The LCD390 allows you to choose between static IP, DHCP request and DHCP server. This can be set during ONVIF testing as explained below.

DHCP Request

This is the default IP mode and the mode used when connecting to and testing networks which support DHCP (Dynamic Host Configuration Protocol).

To request an IP address for the test monitor press the 'IRIS -' button on the front panel when in the 'Link Test' screen. If successful the new IP address assigned by the server will be displayed in the grey bar.

DHCP Server

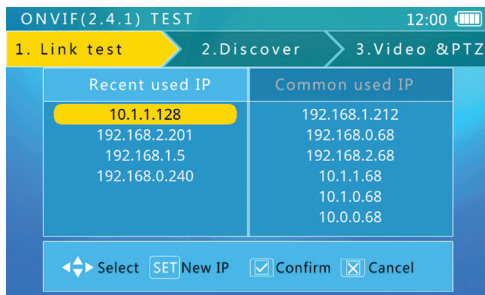
This mode enables the LCD390 to act as a DHCP server and can be used when connecting to DHCP compatible devices and networks.

When connected, any device requesting an IP address

will be assigned one by the test monitor based on its own IP address.

Static IP

To manually assign a static IP address to LCD390 press the 'SET' button at the 'Link Test' screen.



In this screen you will see a list of recently used IP addresses and a list of commonly used IP addresses.

Use the arrow keys to highlight an IP address then press 'IRIS +' to confirm your selection.

TIP You can save your own commonly used IP addresses by selecting an existing address and pressing 'SET'. A much easier alternative to repeatedly typing in the same IP address.

To create a new IP address press the 'SET' button. Input the IP address, Subnet mask and Gateway using the fold-out keyboard and then press 'IRIS +' to confirm your input.

Note: For more information on using the fold-out keyboard see page 8.

ONVIF Test 2: Discovering Cameras

The second step of the ONVIF Test is discovering and configuring compatible cameras. When entering this step the LCD390 will automatically search for ONVIF cameras connected directly to the test monitor or on connected networks.



The device list is populated if and when ONVIF devices are discovered. The IP address and/or the device name

ONVIF Test

are displayed along with a video snapshot (snapshot only displays for compatible cameras and if authorisation is not required). The **Up** and **Down** arrow key can be used to scroll through the list of discovered devices.

If a device expected to appear does not show in the list you can search again by pressing the '**FOCUS -**' button.

If a camera still doesn't appear it may not be responding to the ONVIF request or the subnet settings may not match those of the test monitor. If this happens you will need to return to the '**Static IP**' section on **page 14** to make sure the test monitor's local IP address is within the same subnet as the camera.

If this also fails you can try manually adding the camera as explained in the following section.

Adding Cameras Manually

To manually add a camera press the '**ZOOM -**' button.

When manually adding IP cameras you will need to know the camera's full IP address and ONVIF service path.



At the '**Manual Add Camera**' screen enter the camera's URL then press the '**IRIS +**' button to confirm.

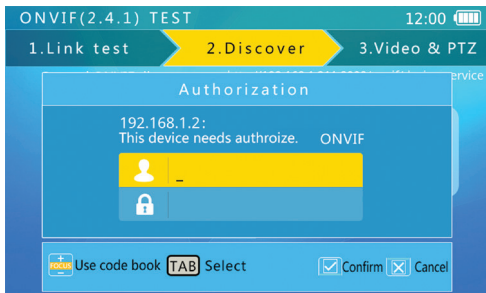


After typing the camera's IP address you can press the '**TAB**' button to automatically add '**/onvif/device_service**'.

Video Snapshot & Information

Highlight the camera you wish to view and after a few seconds a snapshot of the camera's video will be displayed to the right of the camera list if supported. Above the snapshot you will see the resolution, frame rate and compression method of the camera's video.

Some cameras require authorisation and the message '**Authorisation Required**' will be displayed. Press the '**IRIS -**' button to enter the authorisation screen.



Enter the camera's user name and password then press the '**IRIS +**' button to confirm.



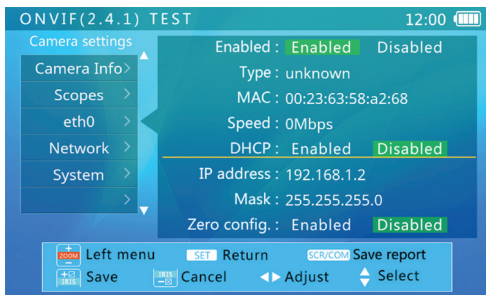
You can press the '**FOCUS +**' button to open the '**Code Book**'. The code book is a list of common user name and password combinations such as admin - admin. Use the arrow keys to highlight a combination and press '**IRIS +**' select it. You can also edit the available options and save your own commonly used user name and password combinations.

ONVIF Test

Camera Setup

The camera settings menu allows you to view and edit important information and settings which are vital for networking the camera.

To enter the camera settings menu highlight the camera you want to configure and press 'SET'.



Here you can see camera information such as firmware version, serial number and URL. Find and

change addresses, servers and ports, even reboot or factory reset the camera.

Menu Item	Available To View Or Edit
Camera Info	Manufacturer / Model / Firmware Version / Serial Number / Hardware ID / URL
Scopes	Name / Location / Hardware / Type / Profile / Other
eth0	Type / MAC / Speed / DHCP / IP Address / Mask / Zero Config
Network	Host Name / Gateway / DNS Server / NTP Server / DDNS Name / DDNS Type / DDNS TTL
System	Reboot / Factory Default / Discoverable / HTTP Port / HTTPS Port / RTSP Port

Note: *Not all settings are available for every camera. The available settings depend on the abilities of the camera connected.*

ONVIF Test 3: Video & PTZ Testing

The third and final step of the ONVIF test is video and PTZ testing. When entering 'Video & PTZ' the camera's video will be displayed automatically. You can enter full screen mode which allows for PTZ control by pressing the 'SCR' button. To enter the camera profile settings menu press the 'SET' button.



Full Screen Mode & PTZ Control

In full screen mode the camera's video is made as big as possible whilst maintaining the correct image ratio.



The larger image makes it easier to achieve the desired results when making zoom and focal adjustments.

You can also control PTZ cameras in full screen mode. Use the arrow keys to move the camera and the 'ZOOM + & -' buttons to zoom in and out.

ONVIF Test

Digital Zoom Control

When viewing the camera's video you can use keys '1' and 'Q' on the keyboard to zoom in and out respectively. You can then use the 'E', 'S', 'D' and 'F' keys to move around the image.

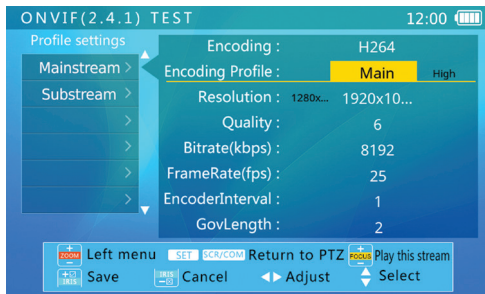
The graphic in the bottom right hand corner shows the zoom level and indicates which portion of the screen you are currently viewing.

Volume Control

You can control the camera's audio volume using the 'U' and 'I' keys on the keyboard. 'U' decreases the volume and 'I' increases the volume.

Profile Settings

The '**Profile Settings**' menu allows you to configure the camera's mainstream and substream. You can set the resolution, bitrate, framerate and more. To choose which stream is displayed simply highlight it and press '**FOCUS +/-**'.



Network Protocols

You can switch between 'TCP' and 'UDP' protocols using the '**FOCUS +/-**' button.



TCP is a slower but reliable connection ideal for slower networks. UDP produces the best images with a fast connection but could be unstable on slower networks.

The Analogue Camera Test lets you view and control analogue and HD-TVI cameras.

OSD configuration, camera movement and lens adjustments can be controlled by RS485 commands or by coaxial control on compatible HD-TVI cameras.

Connecting Cameras

Analogue and HD-TVI cameras are both connected to the 'Video In' BNC socket on the top of the device using a BNC to BNC lead.

RS485 connections are made using the RS485 test lead supplied with the LCD 390. The terminal block is plugged into the RS485 socket on the right-hand side of the test monitor and the clips are connected to the camera's RS485 data wires.

Note: *RS485 wires and sockets are polarity sensitive. The polarities of the LCD390's RS485 socket are labelled for convenience with the left terminal being positive and the right terminal being negative.*

When supplied the red clip of the RS485 test cable is positive and the black clip is negative.

12V DC cameras can also be powered by the test monitor during testing.

Note: *For more information on powering cameras using the LCD390 see page 11 - Powering Cameras.*

Analogue Camera Test



Analogue Camera Test & RS485 Control

During camera testing video information is displayed in the upper right-hand side of the screen. The video format, resolution and frame rate are all shown.

The 'SET' button opens the PTZ settings menu, the 'SCR' button enters and exits full screen mode, the 'A' button captures a screenshot and the 'Z' button is used to start and stop video recordings.

Digital Zoom Control

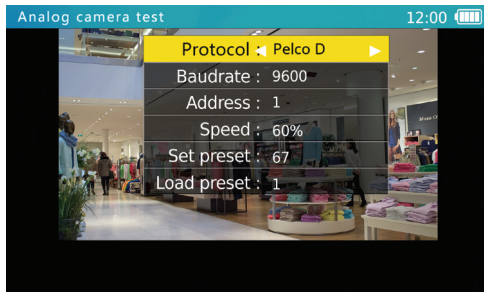
When viewing the camera's video you can use keys '1' and 'Q' on the keyboard to zoom in and out respectively. You can then use the 'E', 'S', 'D' and 'F' keys to move around the image.

The graphic in the bottom right hand corner shows the zoom level and indicates which portion of the screen you are currently viewing.

Note: *When using digital zoom the test monitor automatically enters full screen mode.*

Coaxitron/RS485 Configuration & Control

To display the PTZ settings menu press the 'SET' button. Here you can change settings plus **save and call presets**.



Use the up and down arrows to highlight parameters and the left and right arrows to change values.

When changing values you can press 'IRIS -' to cancel changes to the parameter currently selected.

Menu Item	Value / Function
Protocol	Alien TVI / Kalatel 304 / Kalatel ASC / AD 168(M-B) / AD manchest / Minking B01 / ALEC / Pelco P / Pelco D / YAAN / YANN-O / Samsung / Panasonic / Lilin-FAST / Lilin-MLP2 / Molyntx / Minking A01 / Fastrax / CBC / LC-NEW / WV-CS850 / SONY-EVI / LG-MULTIX / DAT-SD / PEARMAIN / Vicon / Vcltp / DH-YTC06 / SANYO-SSP / Santachi / BOSCH OSRD / TeleEye DM2 / HD600
Baud Rate	150 / 300 / 600 / 1200 / 2400 / 4800 / 9600 / 19200
Address	0 ~255
Speed	10% ~ 100%
Set Preset	Press 'IRIS +' to save current location as selected preset number
Load Preset	Press 'IRIS +' to load selected preset

Once settings have been configured correctly press **'SET'** or **'IRIS +'** to save changes and exit.

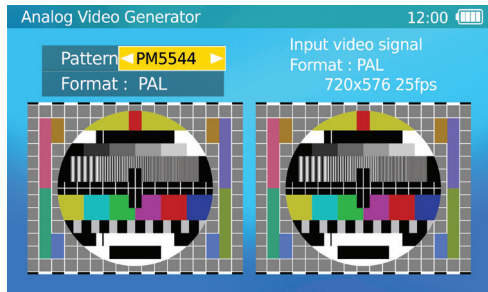
Cameras can now be configured and controlled from the LCD390 by either RS485 or coaxitron (depending on the camera's capabilities.)

Press the **'IRIS +'** button to display the camera's OSD menu. Use the arrow buttons to select and change parameters and **'IRIS +'** to confirm selections or changes.

'FOCUS +/-' and **'ZOOM +/-'** can be used to make lens adjustments on PTZ or motorised zoom cameras. The arrow keys are used to control PTZ movement.

Analogue Video Generator

The video generator produces a test image for checking cameras, cable, transmission and video equipment for faults. You can also use it when setting up monitors to ensure true colour reproduction.

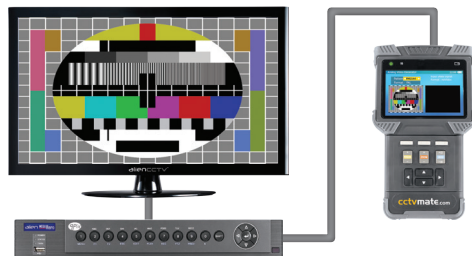


You have the option of three test images; a PM5544 test pattern, an EBU colour bar and an EIA 1956 test pattern. Each image can be generated in both PAL and NTSC video formats.

The input video signal is displayed on the right hand side of the screen. You can see the format, resolution and frame rate as well as the image itself.

Fault Finding

If a camera connected to a DVR doesn't produce an image it can be tricky to determine if the camera or the cable is the problem. By connecting the test monitor's output to the same cable and then seeing if an image is displayed it's easy to see where the fault lies.



Testing Transmission Equipment

The video generator can also be used to test wireless video transmission equipment such as the VideoMitter. Simply connect the BNC output to the transmitter unit and the receiver unit to the BNC input of the test monitor. You can then test the signal between the two by comparing the output and input images on screen.



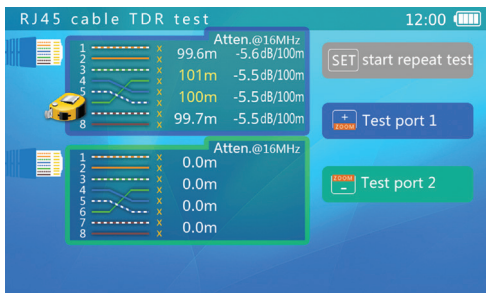
Cable Testing

The analogue video generator can also be used to test BNC cables and leads. Just connect one end of the cable to the test monitor's video output and the other end to the video input. You can then compare the output and input images and assess the cable's condition and quality.



RJ45 Cable TDR Test

With the useful RJ45 TDR (Time Domain Reflection) test function you can check the length, attenuation, and delay skew of RJ45 cables as well as break testing.



Pressing the 'SET' button will start and stop the 'Repeat Test'. While the repeat test is running the LCD390 will repeatedly test both network ports. This is a great way to test multiple cables quickly.

By pressing 'Zoom +' you can manually re-test port 1. Likewise by pressing 'Zoom -' you can re-test port 2.

A flashing tape measure icon next to a port indicates that port is currently being tested.

Cable Length & Attenuation

To check cable length and attenuation (signal loss) connect just one end of the cable to either one of the LCD390's network ports.

Test port 1 or 2 and after a few seconds the length and attenuation of each of the four cores will be displayed. The results should be roughly the same for all four cores. Any anomalies may indicate a fault in the cable.



The attenuation is calculated at 16MHz over 100m. Ideally the attenuation should be **-8.5dB or less**, anything higher could prove problematic. Quality cable such as anithum branded cable on **page 38** can be as low as -5.5dB!

Break Testing

If you suspect a cable has been damaged you can perform a break test. To do this simply connect one end of the cable to either network port.

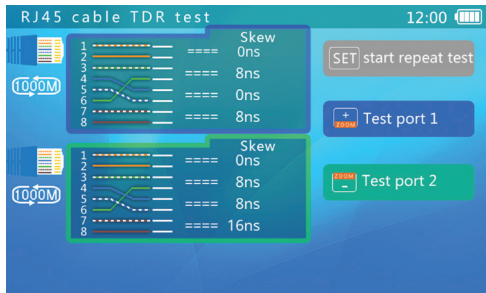
Test port 1 or 2 and after a few seconds the length of each core will be displayed. One or more cores significantly shorter than the known cable length or other cores would suggest a break in the cable at that point.

Skew Testing

Skew testing shows the delay in each core when a signal is transmitted over a network cable. When data is transmitted over network cables it is broken down into packets and sent sequentially over different cores. Large delays on one or more cores could result in data packets arriving out of sequence causing data corruption and possibly loss of video.

To perform a skew test connect one end of your network cable to network port 1 and the other end

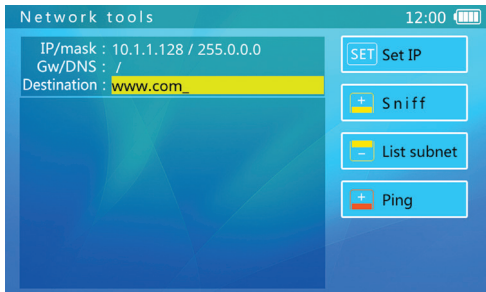
to network port 2. The test monitor will then send a signal down the cable and measure the delay at the other end. The resulting delay on each core is then displayed in nano seconds (ns).



The delay skew is usually **between 25 and 45ns**. Anything higher than 45ns and you may encounter problems. High quality cables can have delays as little as 8ns!

Network Tools

The Network Tools function is an effective way of seeing every device connected to a network and which addresses are available. There are three tests which you can perform, a network sniff test, a subnet list and device pinging.

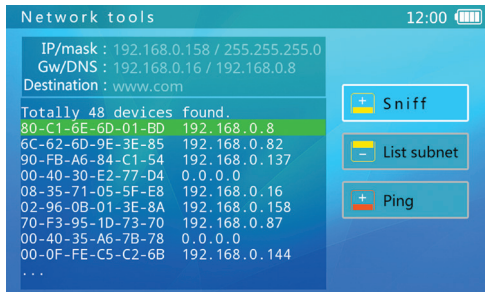


Start by connecting the test monitor to the network switch with a patch lead to either network port 1 or 2.

Network Sniff Test

A network sniff test lists all currently active devices operating on the network and displays the MAC and IP address of each device. This is a great way to discover devices when their address is not known.

To start the sniff test press the '**FOCUS +**' button. The test monitor will then continuously listen to the network and list active devices until the test is stopped. To stop the test press the '**FOCUS +**' button again.



Note: *It may take up to 60 seconds for a device to be discovered. As the test listens for any data packets it may find devices with different subnets. The test can not discover silent devices or uni-cast (point-to-point) packets.*

IP Settings

Before viewing a subnet list or pinging a device you first need to enter the IP address and mask you wish to examine (24 bit masks only). If you're pinging a domain you will also need to enter the DNS and gateway as well.

Press the **'SET'** button to display the **'IP settings'** screen. Here you can choose one of two modes, **'DHCP'** or **'Static IP'**. If the network supports DHCP the parameters will be discovered automatically when this mode is selected. If the network doesn't support DHCP choose **'Static IP'**.

With Static IP selected use the **Up** and **Down** arrow keys to highlight parameters. The **Left** and **Right** arrow keys or keyboard are then used to modify values. Press the **'IRIS +'** button to confirm the new settings.



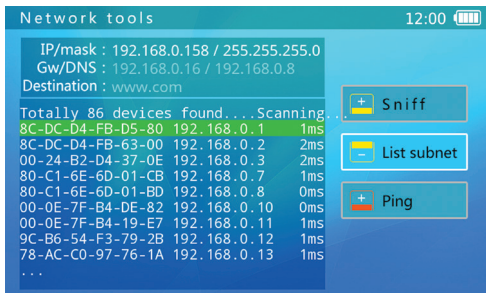
Listing Devices On Same Subnet

The **'List Subnet'** option shows all devices on the specified subnet and lists them chronologically. This is a handy tool which has two benefits, not only does it show all devices it allows you to see which addresses are free.

The IP address and mask must be defined as previously explained before you can view a subnet list.

Network Tools

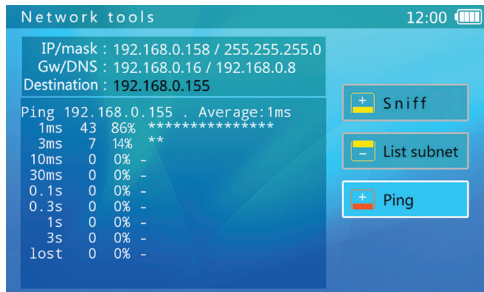
To build the subnet list press the 'FOCUS -' button. The LCD390 will then start searching and listing all devices on the user defined subnet. The MAC address, IP address and network latency (measured in milliseconds) will be displayed for each discovered device.



You can use the **Up** and **Down** arrows to scroll through the list or the **Left** and **Right** arrows to scroll one page at a time. To exit the subnet list press the 'FOCUS -' button.

Pinging A Device

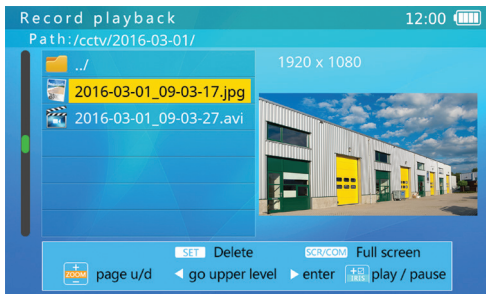
First you need to configure the IP settings as explained on **page 29**. Then input the IP address or URL into the 'Destination' field and press 'Zoom +' to ping the device.



The first column is the latency time bracket. The second shows how many pings returned in that time bracket followed by the percentage of overall pings and then a visual representation. To stop pinging press 'Zoom +'.

Record Playback

One of the most useful features the LCD390 has to offer is the ability to save test recordings and snapshots onto the test monitor itself. There's a handy 8GB of internal storage available and test files can be reviewed on the device or transferred to a PC.



Use the **Up** and **Down** arrow keys to highlight the folder you wish to open. Folders are automatically named with the date on which the files were captured.

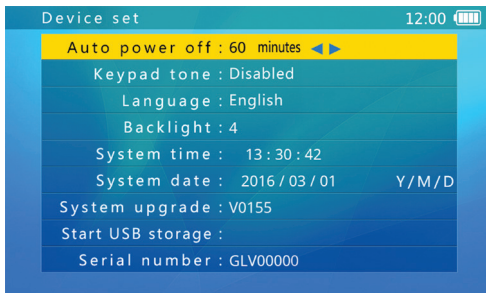
Use the **Right** arrow to select a folder and the **Left** arrow to return to the previous folder. To view a file press the '**SCR**' button to enter full screen view and press '**SCR**' again to exit. To delete a file press the '**SET**' button.



Playback controls are displayed at the bottom of the screen including play/pause, digital zoom and frame by frame playback.

Settings

In the Settings menu you can configure all of the key system information for the test monitor. Firmware updates and USB connections are also initiated from here.



To change settings use the **Up** and **Down** arrow keys to highlight the parameter you wish to configure. Use the **Left** and **Right** arrows to alter the value and then press 'IRIS +' to save changes.

Auto Power Off

Determines how long the tester has to be left inactive before it automatically switches off. Use the **Left** and **Right** arrows to change the duration and press 'IRIS +' to confirm. To disable automatic power off press the **Left** arrow until '**Disabled**' is displayed. The power off timer can be set between 5 and 60 minutes.

Keypad Tone

Allows you to enable or disable an audible tone on button press. Use the **Left** and **Right** arrows to choose your preference and press 'IRIS +' to confirm selection.

Language

For ease of use you can set the text language of the test monitor to the language you are most comfortable with. By default the language is set to English but you can also choose Chinese (simplified), Spanish, French, German, Turkish, Russian, Hebrew or Czech.

Backlight

Set the brightness of the LCD390's backlit display. Brighter backlights are easier to view however they will also reduce battery run time as they require more power. The backlight brightness can be set between 1 and 10 with 1 being the dimmest and 10 being the brightest.

System Time

To adjust the system time simply use '**FOCUS +**' and '**FOCUS -**' to adjust the hour, '**ZOOM +**' and '**ZOOM -**' to change the minutes and the **Left** and **Right** arrows to change the seconds.

System Date

The system date is set using a similar method to the system time. '**FOCUS +**' and '**FOCUS -**' are used to change the year. '**ZOOM +**' and '**ZOOM -**' are used to adjust the month and the **Left** and **Right** arrows change the day. The test monitor's date is displayed in Year/Month/Day (YYYY/MM/DD) format.

System Upgrade

Used to update the firmware on the LCD390. For a full step by step guide on updating firmware see **page 34**.

Start USB Storage

This option allows you to connect the test monitor to a PC to retrieve snapshots and captured footage.

Use the mini USB cable supplied to connect the test monitor to a spare USB socket on your PC.

Highlight '**Start USB Storage**' and press the **Left** or **Right** arrow key. '**USB Connecting**' will be displayed on the LCD390's screen and after a few seconds the Removable Disk autoplay will pop-up on your PC. Select '**Open folder To View Files**' to see the files saved on the test monitor. Snapshots and recordings are saved in the '**cctv**' folder.

Serial Number

Displays the unique serial number of the device.

Upgrading Firmware

We sometimes add new features to the LCD390 in a continued effort to make the test monitor as great a tool as possible.

By upgrading the firmware you can add all these new features to your existing device. To upgrade the systems firmware follow the steps below:

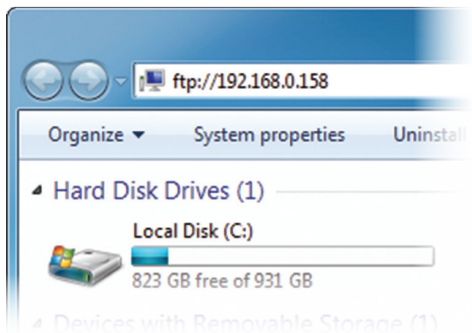
Note: *To upgrade the firmware the battery level must be at least 50% and you must be connected to a network with direct internet access.*

1. Connect the LCD390 to the network switch or router.
2. Enter the '**Settings**' menu and select '**System Upgrade**'.
3. First you need to connect the test monitor to the network. Press '**SET**' to enter the '**IP Settings**' screen.
4. Select '**DHCP**' mode to automatically acquire the network settings. If DHCP isn't supported you will have to select '**Static IP**' and enter the settings manually. Press '**IRIS +**' to confirm settings and exit.
5. One of three messages will then be displayed:
 - A. '**Found New Version Software**' - Press '**FOCUS +**' to download.
 - B. '**Already Latest Version**' - Your firmware is up to date already.
 - C. '**Communication Error**' - Check your network settings and try again.
6. The firmware is split into two packages. Once downloaded it will be checked and then '**New Firmware Is Ready To Upgrade**' will be displayed.
7. To install the upgrade press '**ZOOM +**'. The device will restart and enter the '**System Upgrade**' screen. Press '**SET**' to install the new firmware.
8. When '**Upgrade Successful**' is displayed press '**Mode**' to exit. The device will restart and show the main menu.
9. Enter '**Settings**' and the new firmware version will be displayed. To view a list of new features highlight '**System Upgrade**' and press the '**SCR**' button.

The LCD390 has a built in FTP server which is great for sharing test images.

Users can access the test monitor's internal storage to retrieve test files from any PC on the same network as the test monitor. To connect to the LCD390 as an FTP server just follow the simple steps below:

1. Connect the LCD390 to the network switch or router using a patch lead from either network port.
2. From the main menu enter the ONVIF Test and press 'IRIS -' to turn on DHCP. The server will then assign the test monitor a new IP address. If the network doesn't support DHCP you will have to enter the network settings manually by pressing the 'SET' button. When complete take note of the test monitor's new IP address.
3. On a PC connected to the same network open a new explorer window and enter 'ftp://' followed by the test monitor's IP address into the address bar and press 'Enter' e.g. 'ftp://192.168.0.158'.



4. A log on box will then appear. Enter 'ftp' (lower-case) as the user name and password then click 'Log On'.
5. All the files stored on the test monitor will now be displayed. Snapshots and recordings can be found in the 'cctv' folder. Recordings are organised into folders named with dates on which the images were captured.

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The VoiceOff is an alarm activated voice or sound warning unit that allows you to trigger up to 9999 pre recorded sounds.

Additional sounds can be download from VoiceOff.com

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TVision

HD-TVI

1080P



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- 2.8-12mm Lens
- Hi-Def Colour 1080p
- True Day/Night
- Motorised Zoom & Focus
- 2x IRs With 40m Range
- Up The Coax Control

TVI coaxitron control with motorised zoom and focus for lens adjustments via the DVR. 2 adjustable high power LEDs provide a 40m IR range.

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Other Products To Consider

High Speed IP PTZ With 20x Optical Zoom & 120m IR Range



- 2 Mega Pixel Lens
- 20x Optical Zoom
- High Speed 200°/Sec Pan
- 220 Presets & 8 Tours
- ONVIF Protocol
- 12 IRs With 120m Range
- Back Light Compensation

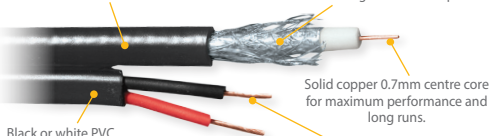
High speed PTZ pans at 200° a second. The 12 IR LEDs provide an amazing 120m IR range and the 2 Mega Pixel lens captures stunning high res images.

Order Code: **IP-PTZ645W**

RG59+2 Antihum Cable

Cables can be separated for fast, easy installation

Glued foil sheath provides maximum protection against interference and prevents "loose" foil shorting to the centre pin



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Specification

Video Inputs	x1 (HD-TVI & Analogue)
Video In Connection	BNC
Video Outputs	x1 (1080p HD)
Video Out Connection	BNC
Input Resolution	D1 / 720p / 1080p
Format	PAL / NTSC
Video Signal	1Vpp
Network Ports	x2 (1x Charge / 1x POE)
Network Connection	RJ45
IP Protocol	ONVIF 2.4.1
IP Mode	DHCP (Client) / DHCP (Server) / Static
Camera Control	RS485 / TVI Coaxitron
Protocols	Alien TVI / Pelco D / Pelco P + More

All specifications are approximate. We reserve the right to change any product specifications or features without notice. Whilst every effort is made to ensure that these instructions are complete and accurate, We cannot be held responsible in any way for any losses, no matter how they arise, from errors or omissions in these instructions, or the performance or non-performance of the equipment that these instructions refer to.

Baudrate	150 / 300 / 600 / 1200 / 4800 / 9600 / 19200
Screen	4" TFT Backlit 16.7M Colour
Resolution	800 x 480
Power Input	POE 48V 15W
Power Output	POE 48V 15W / 12V DC 2A
Battery	7.4V Lithium Ion Polymer
Charge Time	3~4 Hours
Battery Life	Up To 10 Hours
Internal Storage	8GB Flash
Torch	2x 35lm LEDs
Working Temperature	-10°C~55°C
Working Humidity	30%~90%
Weight	1.6kg
Dimensions	190 x 113 x 37mm



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