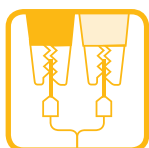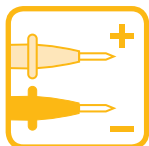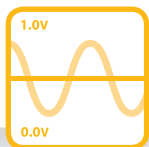**PTZ Control Testing**

RS485 Data Test Function

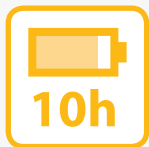**Monitor Output Testing**

Built-in Multimeter

Video Signal Meter

Network Cable Tester

Up To 10 Hour Battery Life

LCD330

Essential CCTV Camera Test Monitor

The feature packed LCD330 CCTV test monitor kit comes with voltage probes for use with the built-in multimeter, an RS485 data test cable, a 12V DC power cable so that cameras can be powered by the test monitor during configuration, a short BNC cable for connecting test monitor to cameras or monitors, sturdy nylon carry case with optional shoulder strap, neck strap, PSU for charging the LCD330 and a network cable tester.

• LCD330 Instruction Book •

cctvmate.com

Safety Information

Precautions Before Using The LCD330

1. Read and understand the User Manual before using this product.

2. Ensure the CCTV test monitor is used within each specified range to avoid damaging the unit.

3. The LCD330 should only be used under the following conditions:

   A. Temperature: -30° ~ 70°

   B. Relative humidity: 30% ~ 90%

   C. Recharging voltage: 9V DC 2.0A

Precautions When Using The LCD330

1. Do not use the test monitor in damp, humid or leaking gas environments.

2. Do not touch the LCD330 with moist or wet hands.

3. Measurements may be incorrect when the CCTV test monitor is used in places subjected to strong magnetic fields or electromagnetic waves.

4. Be careful not to expose the ports or joints to dirt or liquid.

5. Do not disassemble the CCTV test monitor. If the unit requires any repairs return the unit to the retail outlet you purchased it from. Attempting to repair the unit yourself will void the warranty.

6. Do not connect this unit to other Input/Output devices when using the multimeter function.

Precautions When Charging The Battery

1. Only ever use the original battery supplied with the test monitor, when charging the battery you should only use the original power adapter provided.

2. Do not short-circuit or disassemble the battery.

3. Do not use the multimeter function when charging the battery.

Contents

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Getting Started

Before taking the CCTVmate out on its first job, please ensure that the unit is fully charged by using the charger supplied. For more information on charging the device see the '**Battery & Power**' section on **page 6**.

Connections & Controls

Front

Receiving Indicator

Flashes when data is being received.

Transmitting Indicator

Flashes when data is being transmitted.

Charging Indicator

Solid light when charging, flashing when fully charged.

Power Indicator

Solid light when the test monitor is on.

Open Iris & Select

Open Iris in PTZ control mode or '**Confirm**' current selection or input.

2.5" LCD Screen

960 x 240 Resolution.

Close Iris & Exit

Close Iris in PTZ control mode or '**Cancel**' current selection or input.

Menu

Long press returns to main menu. Quick press displays and hides sub menu.

Tele

Zoom in PTZ or start video test signal.

0 - 9

Input menu or preset number.

Direction Buttons

Move PTZ and select menu options.

Wide

Zoom out PTZ or close video test signal.

Address

Input the address of the PTZ you wish to control.

Far

Adjusts PTZ to focus on far away objects.

Set Preset

Set preset in PTZ control mode.

Call Preset

Call preset in PTZ control mode.

Near

Adjusts PTZ to focus on near by objects.

Side 1

Power On / Off
Power switch.

Power Input
9V DC jack input.

UTP (RJ45) Socket
UTP socket for network cable testing.

Side 2

RS232 Port
For configuration and operation via RS232.

12V DC Output
For powering 12V DC cameras when testing.

Fold-out Stand
Optional fold-away stand.

Top

RS485 / RS422 Port
For testing, configuration and control.

Video Input
BNC connection for video input from the camera.

Video Output
BNC connection for video output to monitor.

Bottom

+ Probe Connection
Connection for '**Positive**' probe when using the multimeter.

- Probe Connection
Connection for '**Ground**' probe when using the multimeter.

Kit Contents

The LCD330 is supplied with all the cables and tools needed for testing the key aspects of a CCTV installation.

Carry Case

Sturdy nylon carry case with optional shoulder strap.

Neck Strap

For practicality and security whilst up a ladder.

9V DC PSU

For charging the LCD330 test monitor.

Network Cable Tester

Used to detect faults in UTP network cables.

Voltage Probes

Allows the test monitor to be used as a multimeter.

RS485 Data Test Cable

For connecting RS485 & RS422 wires to the LCD330.

12V DC Power Cable

For powering cameras with the LCD330 test monitor.

BNC Cable

Used connect the LCD330 to camera, DVR or monitor.

Functions & Features

The LCD330 is one of the most comprehensive CCTV test monitors on the market. This feature packed device is a must have for any CCTV installer offering all the functions you would only expect to find on higher priced models.

Video Testing

Displays the camera's image so that adjustments can be made during installation in order to get the prefect picture.

PTZ Control

Functions as a standard keyboard to control the PTZ's pan tilt and zoom functions as well as configuring the camera's settings and creating or calling presets.

Powering 12V Cameras

The LCD330 features a 12V DC output so that cameras can be powered by the test monitor.

Video Signal Meter

Displays peak and average video signal strength.

Digital Multimeter

The LCD330 can be used as a digital multimeter to measure AC and DC voltage and resistance.

UTP Network Cable Tester

Check straight and crossover cables for short circuits and incorrect terminations.

Video Generator

Creates a colour bar output for checking images and colours display correctly on composite monitors.

RS485 Data Testing

Displays data from PTZ control equipment so that settings can be analysed by an engineer.

Battery & Power

Power Switch

The On/Off switch is located on the right hand side of the unit. See page 4.

Auto Off

After a period of inactivity the LCD330 will automatically turn off. To restart the device turn the power switch 'Off' and then back 'On' again. To see how to set the length of time before the device automatically turns off see page 7.

Battery Life

The LCD330 is fitted with a high capacity battery providing up to 10 hours of battery life off of a full charge.

Charging

Only charge the device with the 9V DC PSU supplied. The test monitor takes 6 hours to charge fully. The charging indicator will display a solid light when charging which will flash when the device is fully charged. As a safety feature the LCD330 will automatically stop drawing power when fully charged.
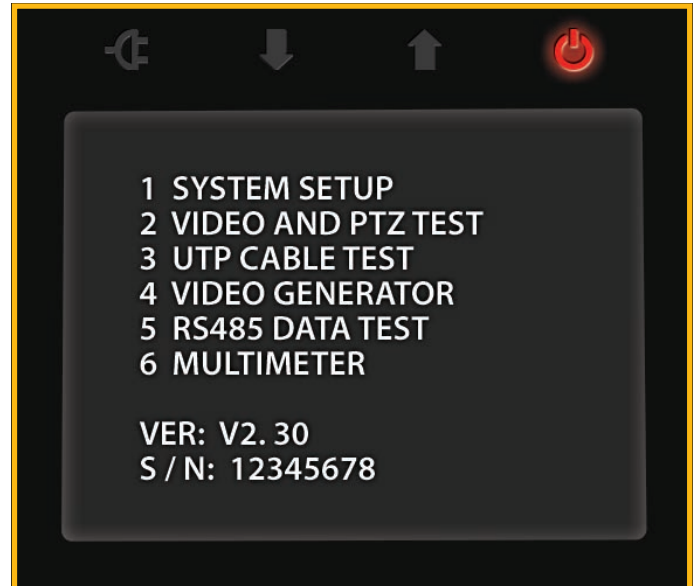
Checking Battery Level

To view the current battery level enter the 'System Setup' from the main menu (option 1). 'Battery' is the last item on the page and battery level is displayed in percent. The battery level will be displayed as 100 / 90 / 75 / 50 / 25 or 5%. It is recommended that you charge the LCD330 when the battery level drops to 25% to prevent the battery dying during an installation.

Using The LCD330 When On Charge

You can still use all the features of the LCD330 whilst it is on charge except the multimeter function.

Main Menu

When the LCD330 is turned on the main menu will be displayed as shown below.


```
1  SYSTEM SETUP
2  VIDEO AND PTZ TEST
3  UTP CABLE TEST
4  VIDEO GENERATOR
5  RS485 DATA TEST
6  MULTIMETER

VER:  V2. 30
S / N:  12345678
```

Selecting Menu Item

To select a menu item simply press they corresponding number on the keypad.

Note: *The firmware version and serial number can not be selected.*

Version & Serial Number

The firmware version and serial number of the product are displayed at the bottom of the screen.

System Setup

In the System Setup menu you can view and configure system information and PTZ control settings.

Protocol

Set the protocol of the LCD330 so that it matches that of the PTZ camera you wish to control. Available protocols:

Pelco D / Pelco P / Samsung / MinKing / VIDO / Yaam / Molynx / CSR600 / Alec / Vicon / VideoTrec / AD 485 / DynaColor / MLP1 / MLP2 / KDT KB3 / KDT 405 / KDT 304 / LGM / EVERFOCUS / FASTRAX / SANYO SSP / VCL / ADT / ERNA / SIEMENS / HEIJMANS / VISCA / VIDEOTEC / U MACRO / HONEYWELL / TG.

Com

Set the communication port you wish to use. Available ports:

485 / 232 / 422

Rate (Baud Rate)

Set the baud rate used by the LCD330 so that it matches that of the PTZ camera you wish to control. Available baud rates:

2400 / 4800 / 9600 / 19200 / 5100

Speed

Set the speed at which PTZs pan and tilt when being controlled.

001 (Min) ~ 016 (Max)

Idle Time

Set the period of time in minutes the device has to be inactive before automatically turning off. To disable automatic power off set the idle time to 000.

000 ~ 030

Battery

Displays the current battery level.
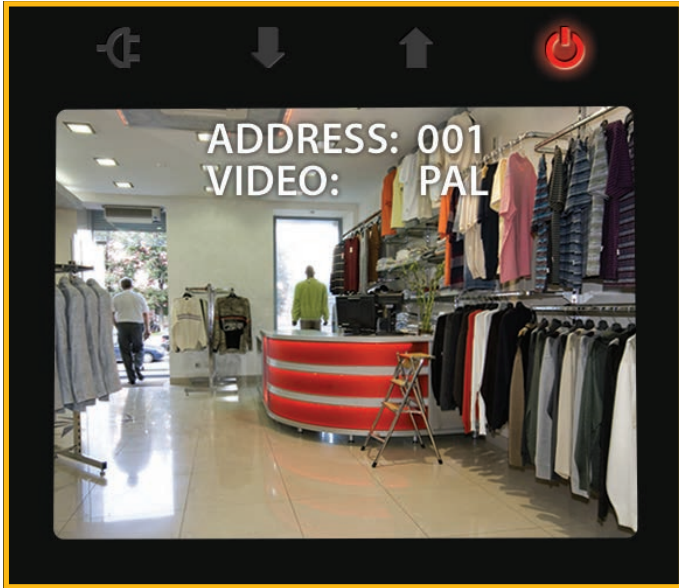
100 / 90 / 75 / 50 / 25 / 5

How To Configure System Settings

1. At the main menu press **'1'** to enter '**SYSTEM SETUP**'.

1. Press the '**OPEN/SET**' to start setup. The first menu option will begin to flash on and off.

2. Press the '**Up**' and '**Down**' key to highlight the desired menu option.

3. Press the '**Right**' arrow to switch to the parameter for selected menu item.

4. Press '**Up**' or '**Down**' to change the selected parameter.

5. Press '**Left**' to save selection and return to menu item.

6. Press '**Left**' again to finish setup. The menu items will stop flashing once setup is complete.

7. To return to the main menu press and hold the '**Menu**' button for 1 second. The device will beep twice and display the main menu.

Video Testing

Video testing allows you to view the camera's image during installation making it easier to position and configure the camera correctly. It can also be used to check the video signal at the camera end of the installation when fault finding.

Although primarily used for camera testing, other video sources such a distributors, quads and DVRs can be connected to the test monitor for testing video output.

What Information Is Displayed?

As well as the camera's image, the camera's address (only used for PTZ testing) and video format are also displayed. If no video signal is received the screen will appear black and the video will read '**NULL**'.

## Connecting Cameras To The LCD330

To view a camera's image on the test monitor use the short BNC lead provided to connect the camera's video output to the LCD330's video input.

12V DC cameras which draw **600mA or less** can be powered by the LCD330 with the 2.1mm power cable supplied. For more information on powering cameras with the LCD330 see .

The locations of the LCD330's connections are highlighted on . All of the accessories supplied with the test monitor are displayed on .

Connection Example

Using The Video Test Function

1. At the main menu press '**2**' to enter '**VIDEO AND PTZ TEST**'.

2. To hide the camera's address and video format press the '**MENU**' button.

3. The screen brightness can be adjusted using the '**BR+**' and '**BR-**' buttons.

4. To return to the main menu press and hold the '**MENU**' button for 1 second. The device will beep twice and display the main menu.

PTZ Testing & Control

The PTZ test function allows you to control and configure PTZ cameras as you would with a standard keyboard.
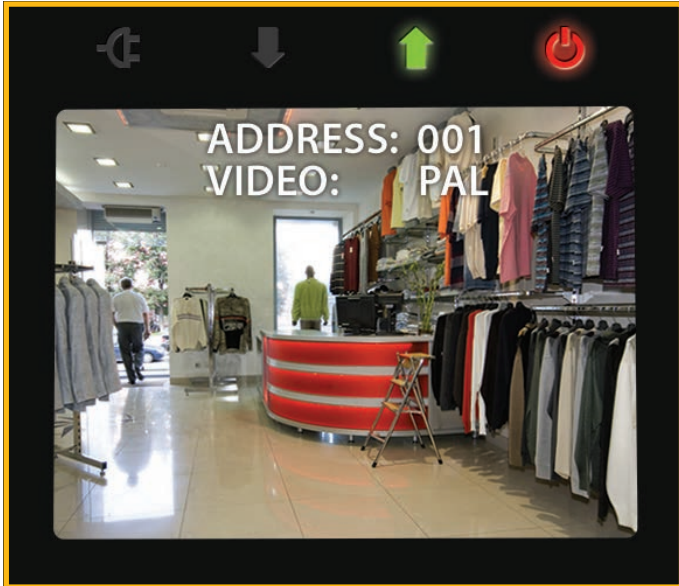
What Information Is Displayed?

As well as the camera's image, the address (ID) of the PTZ currently being controlled and video format are also displayed. If no video signal is received the screen will appear black and the video will read '**NULL**'.

Connecting PTZ Cameras To The LCD330

Connect the PTZ's video output to the LCD330's video input using the BNC to BNC lead provided.

The RS485 test cable supplied is used for connecting the PTZ's RS485 contacts to the test monitor. Connect the '**Red**' spring clamp to the PTZ's '**RS485 +**' contact and the '**Black**' clamp to the '**RS485 -**'. On the LCD330 the '**RS485 +**' is connected to terminal '**A**' and the '**RS485 -**' is connected to terminal '**B**'.

PTZs which use **RS422** are connected in the same way as those which use RS485.

PTZs which communicate using **RS232** are connected to the RS232 serial port on the left hand side of the test monitor.

The locations of the LCD330's connections are highlighted on **page 4**. All of the accessories supplied with the test monitor are displayed on **page 5**.

Connection Example

The **RS485 +** must be connected to terminal '**A**' on the LCD330. The RS485 - must be connected to terminal '**B**'.
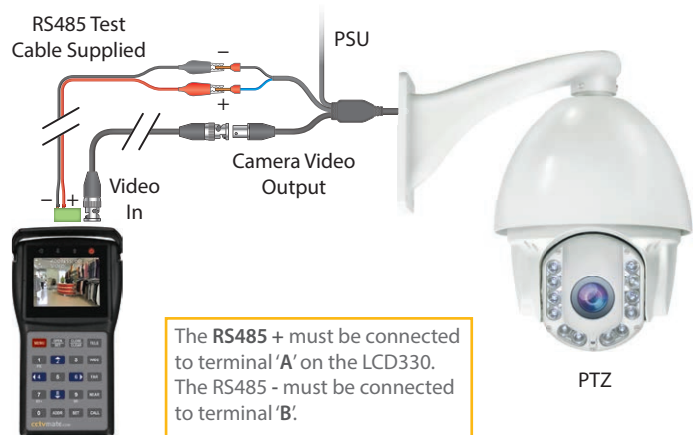
First Things First

Before you can control or configure a PTZ you will need to set the protocol, communication method and baud rate of the LCD330 so that they match those of the target PTZ.

The protocol, communication method and baud rate can be adjusted in the '**System Setup**' menu as explained on **page 7**.

Using The PTZ Test Function

1. At the main menu press '**2**' to enter '**VIDEO AND PTZ TEST**'.

2. To hide the camera's address and video format press the '**MENU**' button.

3. The screen brightness can be adjusted using the '**BR+**' and '**BR-**' buttons.

4. To return to the main menu press and hold the '**MENU**' button for 1 second. The device will beep twice and display the main menu.

PTZ Address

2. To change the address to that of the PTZ you wish to control press the '**ADDR**' button.

3. '**NEW ADDRESS**' will now be displayed on screen. Use the numeric keypad to enter the address of the desired PTZ.

4. Press the '**OPEN/SET**' button to confirm the new address or '**CLOSE/CLEAR**' to cancel.

PTZ Testing & Control Continued

PTZ Control

1. To **Pan** and **Tilt** the PTZ simply use the '**UP**', '**DOWN**', '**LEFT**', and '**RIGHT**' arrow buttons.

2. To adjust the **Iris** use the '**OPEN/SET**' button to open the iris and the '**CLOSE/CLEAR**' button to close the iris.

3. To manually adjust the **Focus**, press the '**FAR**' button to focus on objects in the distance and the '**NEAR**' button to focus on objects close to the PTZ.

4. To adjust the **Zoom** press the '**TELE**' button to zoom in and the '**WIDE**' button to zoom out.

Settings Presets

1. Position, focus and zoom the PTZ on the desired location as described on above.

2. Once the PTZ had been position press the '**SET**' button.

3. '**SAVE PRESET**' will now be displayed on screen. Use the numeric keypad to enter the preset number you wish to assign to the current position the current position.

4. Press the '**OPEN/SET**' button to confirm the new preset or '**CLOSE/CLEAR**' to cancel.

Calling Presets

1. To recall a save preset press the '**CALL**' button.

2. '**CALL PRESET**' will now be displayed on screen. Use the numeric keypad to enter the preset number you wish to recall.

3. Press the '**OPEN/SET**' button to confirm input or '**CLOSE/CLEAR**' to cancel.

Configuring PTZ Settings

1. To configure the PTZ's internal settings you will need to call the preset which displays the PTZ's OSD. e.g. Call 95.

2. Use the **arrow** buttons to navigate the menu system and alter parameters.

3. Press the '**OPEN/SET**' button to confirm selection and the '**CLOSE/CLEAR**' button to cancel or exit current menu.

Exiting PTZ Test

1. To return to the main menu press and hold the '**MENU**' button for 1 second. The device will beep twice and display the main menu.

Video Signal Analysis

Video signal analysis allows you to check the strength of the video signal along the cable run in an attempt to find any possible faults.

What Information Is Displayed?

When using the video signal analysis function the max peak to peak voltage of the video signal (MAX Vpp), the average peak to peak voltage (AVERAGE Vpp) and the sync signal will be displayed.

Drops in the video or sync signal could result in no image at the DVR end of the cable run. By testing the video and signal strength at both the camera and DVR ends of the installation then comparing the results could highlight any possible faults. Differences in sync signals can be used calculate the impedance of the co-ax cable.

You are likely to encounter problems if the video peak to peak voltage **drops below 0.7V** or the sync signal **drops below 0.3V**. If no signal is being received '**NO VIDEO**' will be displayed.

Connecting Cameras For Video Analysis

To achieve true readings the LCD330 must be connected in-line with a 75Ω load or a DVR on the cable.

When checking the signal at the **camera end**, connect the camera to the '**VIDEO IN**' socket using the short BNC lead provided. Connect the LCD330's '**VIDEO OUT**' socket to the start of the cable run with the DVR connected at the far end. 12V DC cameras which draw **600mA or less** can be powered by the LCD330 with the 2.1mm power cable supplied.

Video Signal Analysis Continued

For checking the signal at the **DVR end**, connect the LCD330's '**Video Out**' socket to the DVR with the short BNC lead provided. Connect the end of the cable run to the LCD330's '**Video In**' socket with the camera connected at the start.

The locations of the LCD330's connections are highlighted on **page 4**. All of the accessories supplied with the test monitor are displayed on **page 5**.

Connection Example

75Ω Load Of DVR   BNC To BNC Cable   PSU

Video Out   Video In   Camera Video Output

Using The PTZ Test Function

1. At the main menu press **'2'** to enter '**VIDEO AND PTZ TEST**'.

2. Press '**1**' to display the video signal analysis.

3. If you wish to refresh the results press '**1**' again.

4. To return to the main menu press and hold the '**MENU**' button for 1 second. The device will beep twice and display the main menu.

UTP Cable Testing

The UTP cable test function can be used to check straight and crossover network cables for shorts and open circuits.
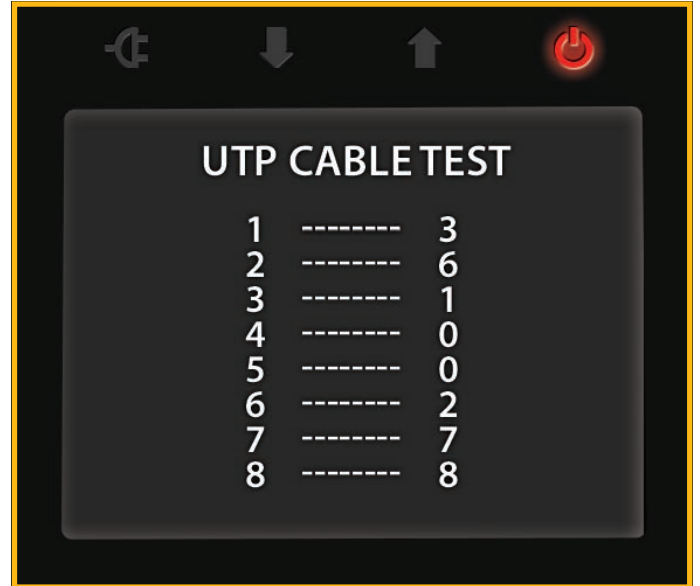
What Information Is Displayed?

The '**UTP CABLE TEST**' screen shows the termination of each wire of the CAT5 at both ends of the network cable.

The first column shows the 8 terminations in order from 1 to 8 in the end of the cable which is plugged into the LCD330. The second column shows the corresponding terminations at the opposite end of the network cable.

If a termination in the second column displays a '**0**' there may be an open circuit in that specific wire. **If two terminations show '0'** they may both be open circuits or they could be short circuiting to each other

The tables below show the correct terminations for both types of network cable.

Straight (Patch) Cable		
1	----------	1
2	----------	2
3	----------	3
4	----------	4
5	----------	5
6	----------	6
7	----------	7
8	----------	8

| Crossover Cable		
1	----------	3
2	----------	6
3	----------	1
4	----------	4
5	----------	5
6	----------	2
7	----------	7
8	----------	8

UTP Cable Testing Continued

Connecting The Network Cable Tester

To preform a network cable test you will need the small Network Cable Tester supplied with the LCD330.

Plug one end of the cable into the 'UTP TEST' port on the right hand side of the LCD330. Plug the other end of the network cable into the Network Cable Tester.

The locations of the LCD330's connections are highlighted on page 4. All of the accessories supplied with the test monitor are displayed on page 5.

Connection Example

LCD330

Network Cable

Network Cable
Tester (Supplied)
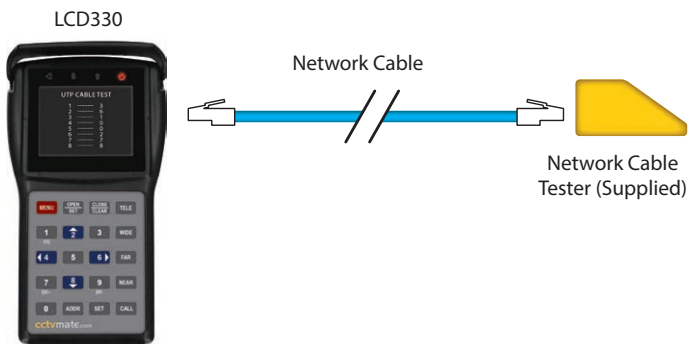
Using The UTP Test Function

1. At the main menu press '3' to enter 'UTP CABLE TEST'.

2. Press the 'OPEN/SET' button to begin cable test.

3. The test results will be displayed allowing you to diagnose any faults.

4. To return to the main menu press and hold the 'MENU' button for 1 second. The device will beep twice and display the main menu.

Video Generator

The video generator creates a composite video output to test that monitors are displaying images and colours correctly.
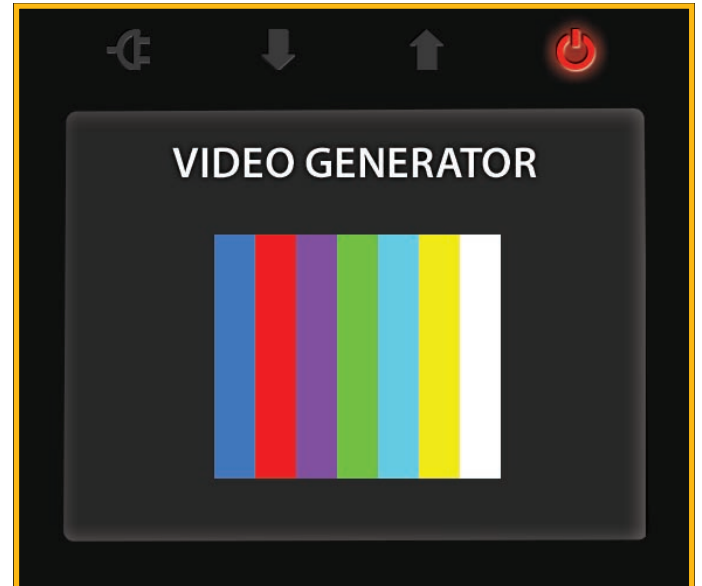
What Is Displayed?

The 'VIDEO GENERATOR' will create a colour bar made up of 7 different colours. Alternatively 1 chosen colour can be displayed full screen.

Connecting The LCD330 To A Monitor

Simply connect the LCD330's 'VIDEO OUT' socket to the monitors video input using the short BNC cable provided. If the monitor does not have a BNC input you will need to use a connector such as a BNC to Phono converter.

The locations of the LCD330's connections are highlighted on page 4. All of the accessories supplied with the test monitor are displayed on page 5.

Video Generator Continued

Connection Example

Composite Monitor

BNC To BNC Cable

Video Out
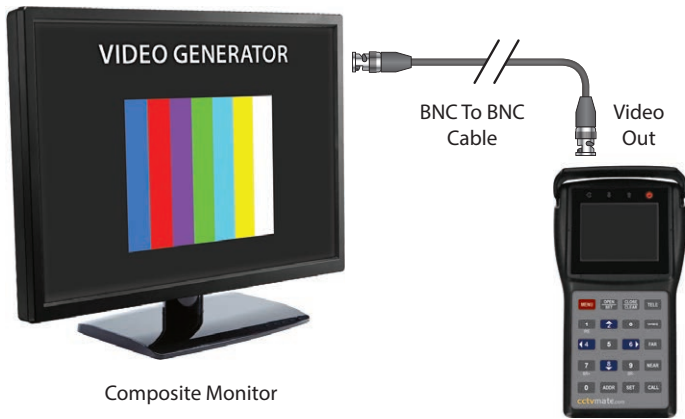
Using The Video Generator Function

1. At the main menu press '**4**' to enter '**VIDEO GENERATOR**'.

2. A colour bar will be displayed. To display a single colour full screen press the '**OPEN/SET**' button. Repeatedly pressing the '**OPEN/SET**' button will cycle through the 7 available colours and finally back to the colour bar

3. To display the generated video on the connected monitor press the '**TELE**' button. When the video is displayed on the monitor the LCD330's screen will be blank.

4. To end the test on the connected monitor and return the image to the test monitor press the '**WIDE**' button.

5. To return to the main menu press and hold the '**MENU**' button for 1 second. The device will beep twice and display the main menu.

Note: *The Video Generator function is intended for testing composite monitors. Trying to display the video on anything else may result in the video signal not being recognised at all.*

RS485 Data Testing

The RS485 data function allows you to check if PTZ control equipment is sending data and how it is configured.
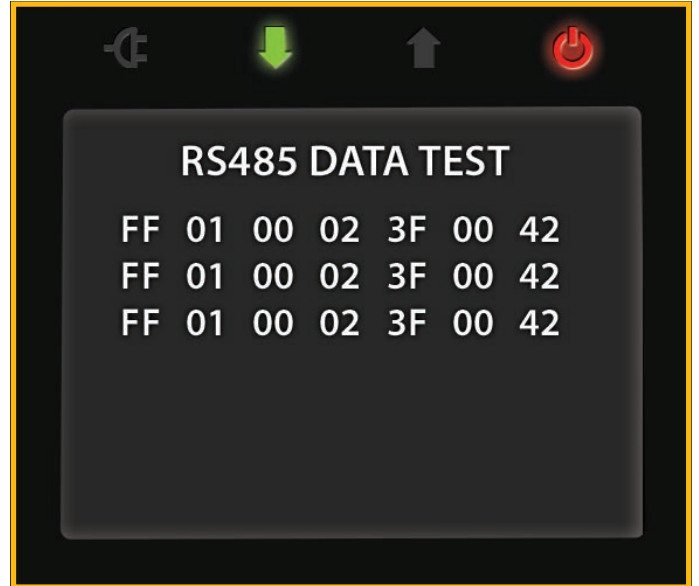
What Is Displayed?

The '**RS485 DATA TEST**' displays hexadecimal data sent from the PTZ control device so that it can be analysed by an engineer.

Connecting A PTZ Controller To The LCD330

Connect the '**RS485 +**' of the PTZ controller to terminal '**A**' of the LCD330. The '**RS485 -**' of the PTZ controller is then connected to terminal '**B**'.

The locations of the LCD330's connections are highlighted on .

Connection Example

'RS485 -' To 'B'

'RS485 +' To 'A'

PTZ Control Equipment

RS485 Data Testing Continued

Using The RS485 Data Test Function

Note: *Before the RS485 data test will function correctly the baud rate of the LCD330 needs to match that of the PTZ control equipment. For instructions on setting the baud rate of the test monitor see* .

1. At the main menu press **'5'** to enter '**RS485 DATA TEST**'.

2. On the PTZ controller send the command you wish to analyse. For example move the joystick to the right.

3. The hexadecimal values of the command will be displayed on the screen of the LCD330.

4. To return to the main menu press and hold the '**MENU**' button for 1 second. The device will beep twice and display the main menu.

Digital Multimeter

The digital multimeter function can be used to measure DC voltage, AC voltage and resistance.
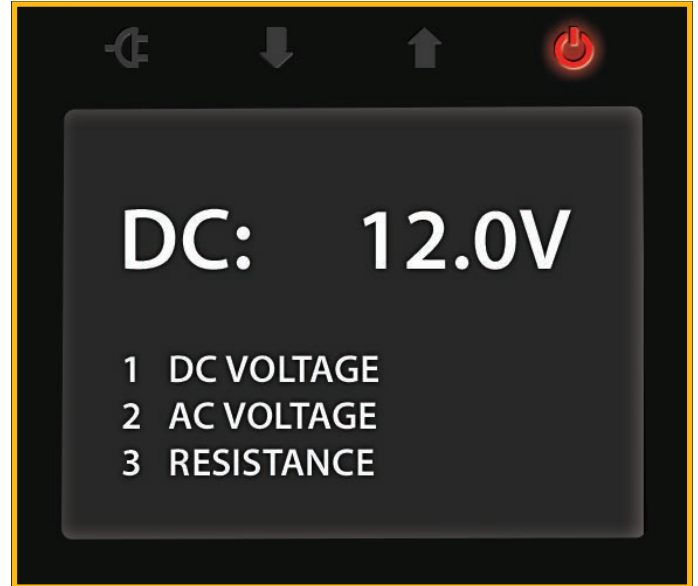
What Is Displayed?

DC and AC voltage measurements are displayed in volts and the resistance is measured in ohms. The digital multimeter has an auto range feature where the most appropriate unit is used depending on measurement. e.g. Millivolt (mV), Volt (V).

Setting Up The Multimeter

To use the multimeter function you will need to connect the two voltage probes supplied to the bottom of the unit. The '**Red**' probe is connected to the '**VΩ**' port and the '**Black**' probe is connected to the '**COM**' port.

The locations of the LCD330's connections are highlighted on . All of the accessories supplied with the test monitor are displayed on .

Digital Multimeter Continued

Connection Example

Red To
VΩ

Black To
COM

Using The Digital Multimeter

1. At the main menu press '**6**' to enter '**Multimeter**'.

2. Select the required test option by pressing the corresponding button. Press '**1**' for '**DC VOLTAGE**', press '**2**' for '**AC VOLTAGE**' or press '**3**' for '**RESISTANCE**'.

   Voltage tests are accurate to 0.1mV and the resistance test is accurate to $0.1\Omega_o$.

   The **DC voltage** test has a test range of **0-1000V**.
   The **AC voltage** test has a test range of **0-750V**.
   The **Resistance** test has a test range of **0-40MΩ**.

3. To return to the main menu press and hold the '**MENU**' button for 1 second. The device will beep twice and display the main menu.

Note: *Do not use the multimeter function whilst the LCD330 is on charge.*

Do not test equipment outside the specified test ranges. Doing so may damage the LCD330.

12V DC Power Output

The LCD330 has a useful 12V DC power output for powering 12V CCTV cameras and equipment. The LDC330 can provide 12V DC power up to a maximum current of 600mA.

Powering Cameras With The LCD330

Connect the narrow end of the supplied 12V DC power cable to the '**DC 12V OUTPUT**' of the LCD330. The standard 2.1mm DC plug is then connected to the CCTV camera.
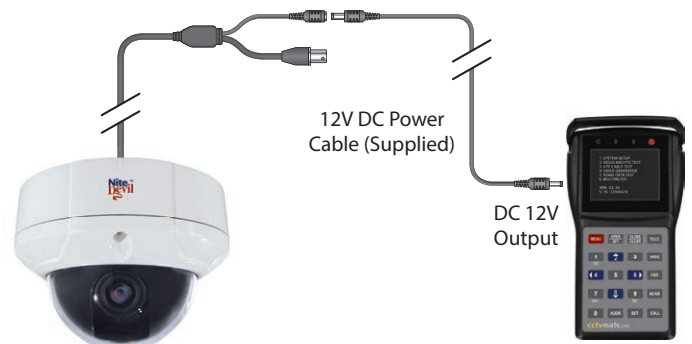
The locations of the LCD330's connections are highlighted on . All of the accessories supplied with the test monitor are displayed on .

Note: *Only use LCD330's power output to power 12V DC cameras and equipment.*

Attempting to power devices which draw more than 600mA will automatically trigger the LCD330's limiter and power output will be stopped.

Do not connect the 12V DC output to the LCD330's 9V DC input as this may damage the unit.

Connection Example

12V DC Power
Cable (Supplied)

DC 12V
Output

cctvmate.com

Specification

Feature	Function	Specification
Video	Video Input	1 Channel BNC
	Video Output	1 Channel BNC
	Format	NTSC / PAL (Automatic)
	Display	3 Inch LCD Screen / 960 x 240 Resolution
PTZ	Protocol	Pelco D / Pelco P / Samsung / MinKing / VIDO / Yaam / Molynx / CSR600 / Alec / Vicon / VideoTrec / AD 485 / DynaColor / MLP1 / MLP2 / KDT KB3 / KDT 405 / KDT 304 / LGM / EVERFOCUS / FASTRAX / SANYO SSP / VCL / ADT / ERNA / SIEMENS / HEIJMANS / VISCA / VIDEOTEC / U MACRO / HONEYWELL / TG
	Communication	RS485 / RS422 / RS232
	Baud Rate	2400 / 4800 / 5100 / 9600 / 19200
	RS485 Input	Terminal Strip
	RS422	Terminal Strip
	RS232	9 Pin RS232 Serial Port
Multimeter	DC Voltage Test	Range: 0 ~ 1000V / Accuracy: 0.1mV
	AC Voltage Test	Range: 0 ~ 750V / Accuracy: 0.1mV
	Resistance test	Range: 0 ~ 40MΩ / Accuracy: 0.1Ω
Power & Battery	Input Power	9V DC
	Battery	7.4V 1500mAh Rechargeable battery
	Recharge Time	6 Hours
	Battery Life	10 Hours
	Output Power	12V DC
	Max Current Output	600mA
	Output Power Battery Life	3 ~ 5 Hours
Other	OSD Language	English
	Working Temperature	-30ºC ~ 70ºC
	Working Humidity	30% ~ 90%
	Dimensions	166 x 91 x 48mm
	Weight	340g

Warranty

For service and support please contact the original supplier from which the LCD330 was purchased or visit www.cctvmate.com

WEE/CG0783SS