

COLOUR 22x ZOOM CAMERA



Before you begin

- Please unpack the box carefully and identify that all the parts are present.
- Do not open the camera housing. This will void the warranty and break the warranty seal inside the camera.
- Make sure you use only the recommended power supply. Damage caused to the camera by incorrect voltage or wiring is not covered by the warranty.

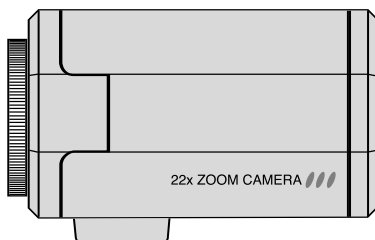
RoHS
Compliant 



EVC422

Colour 480TVL & 22X Zoom Camera

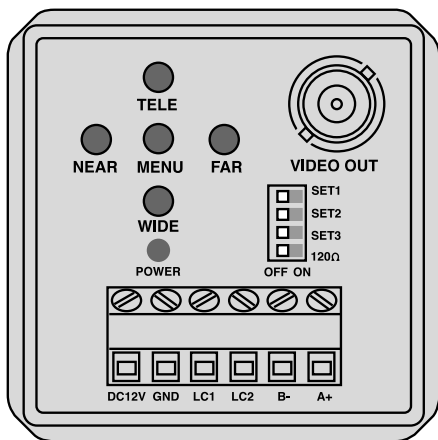
Package Contents



EVC422 Camera complete with 2° to 60° Lens

Connections

Back of EVC422 showing connections



WARNING

WARNING: Thank you for buying the colour video camera. Before operating, please be sure of camera model and that you have the recommended power supply.



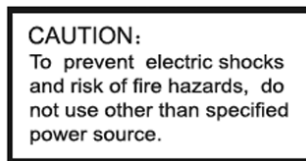
SA 1966

To prevent shock and fire hazard, do not expose the unit to rain or moisture.



SA 1965

Please take notice of the 'dangerous voltage' symbol to avoid serious accident or injury.

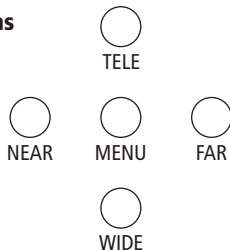


Warning: This equipment has been tested and found to comply with the guidelines for a Class A digital device, pursuant to part 15 of the FCC rules. These guidelines are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates radio frequency energy and, if not installed and used in accordance with the manual, may cause harmful interference to radio communications. Take care when operating this equipment in a residential area as it may cause interference with other electrical equipment.

Caution: Any unauthorised changes or modifications in construction of this device could void the warranty.

Function Control

1. Button Functions



- a) **TELE**- This button allows you to 'zoom in' on the picture; use the \uparrow arrow
- b) **WIDE**- This button allows you to 'zoom out' on the picture; use the \downarrow arrow
- c) **NEAR, FAR**- These buttons are used for manual focusing; use the \leftarrow arrow for 'NEAR' and the \rightarrow arrow for 'FAR'
- d) **MENU**- This button displays the menu; please refer to pages 7-16 for details

2. Video Signal Output terminal (BNC, VOUT)

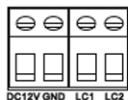
The output of this port is 1.0Vp-p, 75Ohms standard video level

3. Lamp for power supply

When the power is on, the lamp will illuminate.

Function Control

4. Function for line control (hard wired controller)



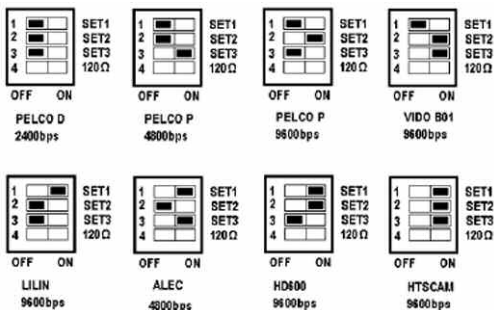
Function	Line control
WIDE	Lc1 connect GND, Lc2 connect DC12V
TELE	Lc1connect DC12V, Lc2 connect GND

5. RS485 connection terminal



Use the RS485 port to connect the camera to a keyboard controller and control it. The camera is compatible with eight different protocols.

The protocol and baud rate can be changed by using the dip switches on the rear of the camera. See the following examples to change the protocol settings:



Function Control

NOTE: The only way to change the camera ID is by using the camera menu. To ensure that the new setting is correct you should power off and on after this operation.

The following camera operations can be controlled:

(WIDE) Zoom is adjusted to a wide angle view

(TELE) Zoom is adjusted to a telescopic picture

(FAR) Focus is adjusted for far distance

(NEAR) Focus is adjusted for near distance

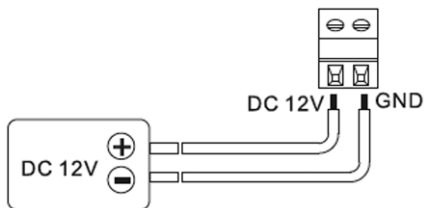
(OPEN) Opens the cameras Iris

(CLOSE) Closes the cameras Iris

When using the camera with a controller, you can browse the menu. You can move the joystick to UP, DOWN, LEFT and RIGHT. The operation is similar to the buttons on the back of the camera.

6. Input connection terminal

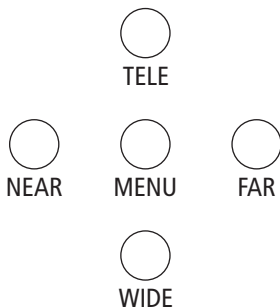
This terminal can be connected with a regulated DC power supply with more than 800mA rating.



Menus and Operation

How to set up functions

Functions can be set up using the 5 buttons on the camera rear panel



Press 'MENU' button to enter options in the menu control screen.
Press 'MENU' button to return.

Under main menu mode, press 'TELE' '↑' 'WIDE' '↓' for each sub menu; press 'NEAR' '←' 'FAR' '→' to enter sub menu mode.

Under sub menu mode press 'TELE' '↑' 'WIDE' '↓' to choose the the required settings; press 'NEAR' '←' 'FAR' '→' to change the value.

In the sub menu press the 'MENU' key to return to the main menu at any time.

Press 'MENU' button for about 3 seconds to enter.

Menus and Operation

The menu contains the MAIN MENU and sub menus.

The MAIN MENU displays 10 camera settings which can be selected.

MAIN MENU	
INITIAL SET	
LENS INITIALISE	EXEC
LENS AUTO INIT	5K
GENERAL	SEL
FOCUS MODE	ZMTR
BACKLIGHT	OFF
PRIVACY	OFF
WBC MODE	AUTO
AE MODE	AI
ANTI COLOUR ROLLING	OFF
FLICKERLESS	OFF

The selected category will blink.

MAIN MENU > **INITIAL SET**

Reset the current general settings to the default settings.

MAIN MENU > **LENS INITIALISE**

Calibrates the lens.

MAIN MENU > **LENS AUTO INIT**

Calibrates the lens automatically for 5m, 10m, 15m and 20m.

Menus and Operation

MAIN MENU > **GENERAL**

The **GENERAL** menu includes the following sub options:

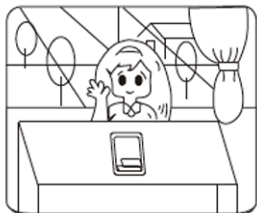
GENERAL	
CAMERA ID	001
MIRROR	OFF
HI RESOLUTION	OFF
SHARPNESS	OFF
COLOUR SUPPRESS	OFF
LUX LEVEL	LOW
APERTURE SUPPRESS	OFF
BACK TO MENU	<--

MAIN MENU > GENERAL > **CAMERA ID**

Displays the camera ID. The camera ID can be set from 001 to 255 by using the 'NEAR/FAR' buttons.

MAIN MENU > GENERAL > **MIRROR**

The video out put from the camera can be reversed (mirror image) using this function.



Menus and Operation

MAIN MENU > GENERAL > **HI-RESOLUTION**

Improve the resolution of the image

MAIN MENU > GENERAL > **SHARPNESS**

Improve the sharpness of edges

MAIN MENU > GENERAL > **COLOUR SUPPRESS**

Under some special conditions the mode can make the colour picture change to black and white and improve the S/N level.

MAIN MENU > GENERAL > **LUX LEVEL**

Use the 'NEAR/FAR' to set the cameras level to high/middle/low

MAIN MENU > GENERAL > **APERTURE SUPPRESS**

Under some special conditions this mode can reduce the noise and improve the S/N level.

MAIN MENU > GENERAL > **BACK TO MENU**

Returns you to the MAIN MENU

In the main menu the next option is **FOCUS MODE**

Menus and Operation

MAIN MENU > **FOCUS MENU**

The **FOCUS MENU** includes the following sub options:

FOCUS MENU	
FOCUS MODE	ZMTR
RUNTIME	005
SENSITIVITY	NORM
NEAR FCS LIMIT	002
W/T	50cm/1m
BACK TO MENU	<--

MAIN MENU > FOCUS MENU > **FOCUS MODE**

>NORM

This mode will enable the iris to focus continuously. If you do not want the iris to focus continuously, then use the Interval Focusing setting or the Zoom Focusing setting, which will prolong the life of the iris.

>INTV

AF Interval Time- Using the 'NEAR/FAR' controls you can set interval the time that the camera focuses between from 0 and 120 seconds.

>ZMTR

The lens will focus every time the zoom is adjusted.

>MANU- Choose the mode, after exiting the menu adjust the focus by using the 'NEAR/FAR' controls.

MAIN MENU > FOCUS MENU > **RUNTIME**

Using the 'NEAR/FAR' controls you can set the time speed at which the camera zooms between 0 and 120 seconds.

Menus and Operation

MAIN MENU > FOCUS MENU > **SENSITIVITY**

This enables you to adjust the sensitivity of auto focusing.

MAIN MENU > FOCUS MENU > **NEAR FOCUS LIMIT**

It is possible to set the camera to focus on objects as close to 1cm from the lens. In this mode the camera is optimised for close up viewing only. This limit (W/T) can be set at up to 10 metres. Please see the table below for settings.

	001	002	003	004	005	006	007	008	009
W/T	1cm/1m	10cm/1m	50cm/1m	1m/1m	2m/2m	3m/3m	5m/5m	10m/10m	Infinite Far

MAIN MENU > FOCUS > **W/T**

The near focus limit selected will be shown here.

MAIN MENU > FOCUS > **BACK TO MENU**

Returns you to the MAIN MENU

In the main menu the next option is **BACKLIGHT**

MAIN MENU > **BACKLIGHT**

```
BACKLIGHT MODE SEL
BACKLIGHT MODE    OFF
BACK TO MENU      <--
AE MODE MUST BE AE
```

Backlight compensation ON/OFF switch. If the object you wish to view is poorly lit because of a bright background, set the 'BACKLIGHT MODE' to 'ON' to compensate. This function may not operate if the object is too small when compared to the area of the background.

Menus and Operation



MAIN MENU > BACKLIGHT > **SENS GAIN**

To set the sensitivity of the back light use the 'NEAR/FAR' controls to set the gain between 0 and 255.

MAIN MENU > BACKLIGHT > **AREA MODE**

(The area you wish to watch clearly should be selected as shown below).

AREA1- The middle window

AREA2- The down one-third window

AREA3- The left, middle window

AREA4- The right, middle window

AREA5- The up one-third window

MAIN MENU > BACKLIGHT > **BACK TO MENU**

Takes you back to the MAIN MENU where the next item is **PRIVACY**

MAIN MENU > **PRIVACY**

MASK SET	
MASK NUMBER	(1-8)
001	
MASK SET	OFF
H. START POSITION	
H. END POSITION	
V. START POSITION	
V. END POSITION	
MASK COLOUR	HOLD
BACK TO MENU	<--
MUST OPERATE ON MANU FCS	

Menus and Operation

MAIN MENU > PRIVACY > **MASK NUMBER**

Eight areas can be set:

MASK SET

H. START POSITION

H. END POSITION

V. START POSITION

V. END POSITION

MASK COLOUR

Hold GREY, WHIT, BLAC, RED, ORAN, YELL, GREE, BLUE, PURP

MAIN MENU > PRIVACY > **BACK TO MENU**

Takes you back to the MAIN MENU where the next item is **WBC MODE**
MUST OPERATE ON MANU FCS

MAIN MENU > **WBC MODE**

WBC MODE

WBC MODE AUTO

BACK TO MENU <--

ANTI-COLOR MUST BE OFF

MAIN MENU > WBC MODE > **PUSH**

Will auto adjust the white balance whenever the zoom or focus buttons are pressed.

MAIN MENU > WBC MODE > **MANU**

WBCADJ- Allows you to manually adjust the white balance.

MAIN MENU > WBC MODE > **INDO**

Set colour temperature to about 3200K, recommended when using the camera indoors.

Menus and Operation

MAIN MENU > WBC MODE > **FLUO**

Set colour temperature to about 4700K, recommended when using the camera under fluorescent lighting.

MAIN MENU > WBC MODE > **OUTD**

Set colour temperature to about 9500K, recommended when using the camera outdoors.

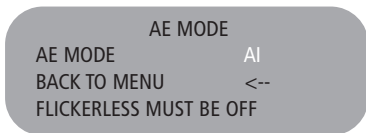
MAIN MENU > WBC MODE > **AUTO**

Automatically adjusts colour according to the light available

MAIN MENU > WBC MODE > **BACK TO MENU**

Takes you back to the MAIN MENU where the next item is **AE MODE**
ANTI-COLOUR MUST BE OFF

MAIN MENU > **AE MODE**



MAIN MENU > AE MODE > **AE**

MAIN MENU > AE MODE > **AI**

MAIN MENU > AE MODE > **MANU**

MAIN MENU > AE MODE > **SHUTTER**

Shutter speed can be changed: 1/50 (1/60), 1/120(1/100), 1/250, 1/500, 1/1K, 1/2K, 1/4K, 1/10K, 1/100K IRIS

Iris can be adjusted: CLOSE: F1.6-F16

Menus and Operation

MAIN MENU > AE MODE > **AGC**

Gain can be adjusted: 5dB/13dB/22dB/30dB

MAIN MENU > AE MODE > **BACK TO MENU**

Takes you back to the MAIN MENU where the next item is **ANTI COLOUR ROLLING** - FLICKERLESS MUST BE OFF

MAIN MENU > **ANTI COLOUR ROLLING**

When using the camera in artificial light the frequency of the light can sometimes cause colour rolling on CCTV cameras. Turning this feature on and adjusting the flickerless control can help to prevent this.

MAIN MENU > **FLICKERLESS**

You can choose NORM, LLFL, FIXS and OFF

MAIN MENU > **EXIT**

Takes you out of the menu mode

Specifications

Model:	EVC422
Image Sensor:	Sony 1/4" Super HAD CCD
TV System:	PAL
DSP:	IXC1
Resolution:	480TVL
Minimum Illumination:	0.5 Lux
Audio	No
Operating voltage:	12V DC 800mA
Suggested Power Supply	12V DC 1250mA
Mounting	Wall/Ceiling
Lens Viewing Angle	2° to 60°
IR Nightvision:	No
Weatherproofing	Optional
Dimensions	60 x 61 x 111.5mm (WxHxD)

Addendum

Appendix

1. Lightning proof and surge signal proof

The product uses TVS lightning proof technology to prevent damage from a lightning strike below 1500W and impulse surge signals. It is also necessary to take note of the following precautions to ensure electrical safety for all applications.

- Keep the communication cables at least 50 metres away from high voltage equipment or cables.
- Position outdoor cabling under the eaves wherever possible.
- In an open area shield the cables in a steel conduit and attach a single point ground to it. The use of trolley wire is not recommended in such circumstances.
- Extra strong lightning proof equipment must be installed in the event of a thunderstorm or if unit is located in close proximity to a high voltage electrical substation.
- Ensure the building has the necessary lightning proof measures in place before designing the system and choosing your cable runs. Run any cables in accordance with national and industrial standards.

Addendum

- The system must be grounded with equal potentials. The earth ground connection must satisfy the anti-interference and electrical safety requirements and must not short circuit with the high voltage electricity connection. When the system is grounded separately, the resistance of the down conductor should be <4 Ohms and the sectional area of the down conductor should be $<25\text{mm}^2$.

2. RS485 bus basic knowledge

2.1 Characteristics of the RS485 Bus-

As specified by RS485 standards, the RS485 Bus consists of half duplexed data transmission cables with characteristic impedance of 120 Ohms. The maximum load capacity is 256 unit loads (including main controller and controlled equipment).

2.2 Transmission distances of RS485 Bus-

When the user selects the 0.56 (24AWG) twisted pair wires as the data transmission cable, the maximum theoretical transmitting distances areas follows:

Baud Rate	Maximum Transmitting Distance
1200 Bps	2400 metres
2400Bps	1800 metres
4800Bps	1200 metres
9600Bps	800 metres
19200Bps	200 metres

Addendum

If the user selects thinner cables or installs the camera in an environment with strong electromagnetic interference, or connects lots of equipment to the RS485 Bus, the maximum transmitting distance will be decreased. To increase the maximum transmitting distance do the opposite.

2.3 Connection and termination resistor-

The RS485 standards require a daisy chain connection between the equipment. There must be termination resistors with 120 Ohms impedance at both ends of the connection. (refer to Figure 37). Please refer to Figure 38 for simple connection. 'D' should exceed 7 metres.

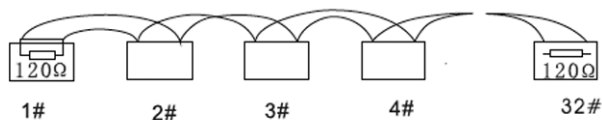


Figure37

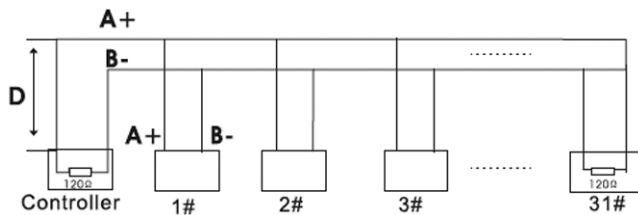


Figure38

Addendum

2.4 Problems in practical connection-

In special circumstances it may be necessary to adopt a star configuration to achieve the best connection. the termination resistors must be connected to the two items of equipment that are farthest away from each other, such as items 1 and 15 in Figure 39. As the star configuration does not conform to the RS485 standards, problems such as signal reflections and lower anti-interference performance may arise when the connecting cables are too long. The reliability of the control signals is decreased and the camera may not respond. It may respond intermittently or operate continuously without stopping (refer to Figure 40).

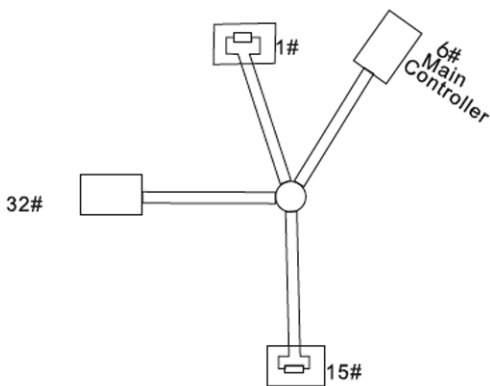


Figure39

Addendum

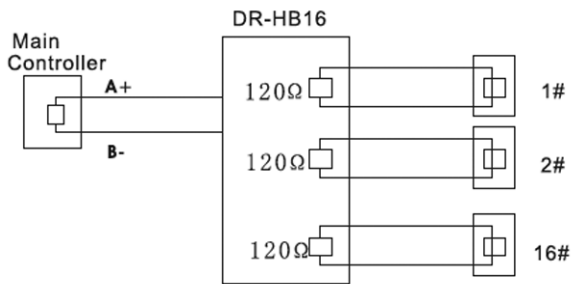


Figure40

TECHNICAL SUPPORT:

For Technical Support please contact your local distributor.

LIMITED WARRANTY:

This product is supplied with a limited 1 Year warranty. The Warranty excludes products that have been misused, (including accidental damage) and damage caused by normal wear and tear. In the unlikely event that you encounter a problem with this product, it should be returned to the place of purchase.