



**CDR Series Cameras
Installation Instructions**

Please read these instructions first!

IMPORTANT

The first few pages of these instructions contain important information on safety and product conformity. Please read, and ensure that you understand this information before continuing.

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INTRODUCTION

These instructions cover Baxall CDR series cameras. Read all of these instructions. Use them to install your camera and have them available for its lifetime. If you have any problems, contact Baxall Limited. All CDR series cameras are fitted with a Direct Drive (DD) lens connector, have adjustable back focus and accept C and CS lenses.

Option	CDR2233	CDR2235	CDR3223	CDR3225	CDR4233	CDR4235	CDR5223	CDR5225
Mono	●	●	●	●				
Color					●	●	●	●
Resolution (TVL)	580	580	580	580	480	480	480	480
Sensitivity (lux @ f1.2)	0.1	0.1	0.04	0.04	0.9	0.9	0.4	0.4
CCD Sensor size	1/3"	1/3"	1/2"	1/2"	1/3"	1/3"	1/2"	1/2"
Sony HyperHAD™ CCD	●	●			●	●		
Sony ExviewHAD™ CCD			●	●			●	●
Supply								
11 - 40 VDC; 12 - 30 VAC	●		●		●		●	
98 - 260 V AC 50Hz		●		●		●		●

PRODUCT SAFETY

⚠ WARNING

- Installation and servicing is only to be carried out by suitably qualified and experienced personnel to local or national wiring standards.
- Good engineering practice must be carried out at all times and all servicing and repairs carried out indoors.
- All CDR series cameras are to be powered with a class 2 power supply.
- Your CDR series camera is fitted with a 1 Amp time-lag fuse located on the rear board assembly. Replacement must be with an identical type of fuse.
- Under no circumstances must the power consumption of the rear Auto Iris connector exceed 50mA or the Direct Drive connector exceed 25mA.
- The CDR series range is designed for use in general purpose CCTV applications and has no other purpose. Only operate your camera between the temperatures of -10°C and +50°C.

REGULATORY NOTICES

Federal Communications Commission Part 15 - Digital devices

This Device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

- (1) this device may not cause harmful interference, and
- (2) this device must accept any interference that may cause undesired operation.

CERTIFICATIONS

This product meets the requirements of the following standards:

Electromagnetic Compatibility

EN55022: 1995 limits and methods of measurement of radio disturbance characteristics of information technology

EN50082-1: 1992 Generic immunity standard

Comprising:

IEC 1000-4-2:1995 Electrostatic discharge

IEC 1000-4-3:1995 Radiated electromagnetic fields

IEC 1000-4-6: Immunity to conducted disturbances, induced by radio-frequency fields

IEC 1000-4-4:1995 Fast transient bursts

Safety

EN 60950: 1992 Safety of information technology equipment, including electrical business equipment

DECLARATIONS

The manufacturer declares that the equipment supplied with this manual is compliant with the EMC directive 89/336 EEC and the low voltage directive 73/23 EEC and CE marked accordingly.

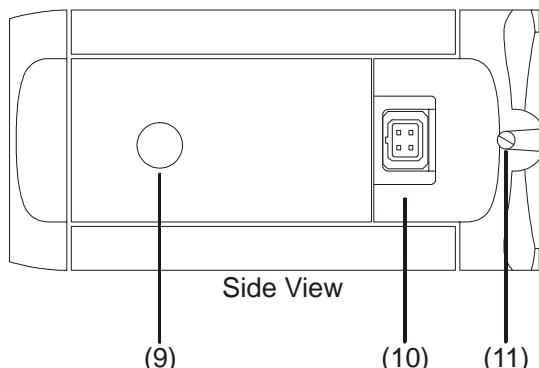
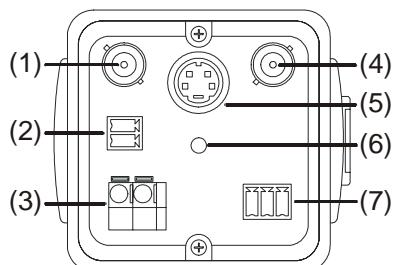
CAUTIONS**△CAUTION**

In order to avoid damaging the camera note the following points.

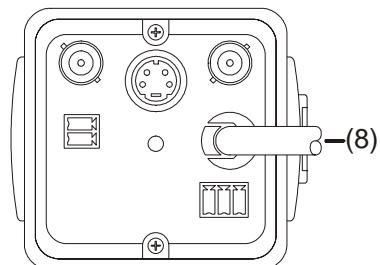
- 1) The camera has threaded mounting points on the top and bottom of the case. Only use a standard, photographic, mounting-bolt with a 1/4-20 UNC thread.
- 2) Before fitting the lens make sure that its back will not touch the CCD sensor or associated components when screwed fully home.
- 3) Do not touch the image-surface of the sensor. If the sensor is accidentally touched, only clean it using ethyl alcohol.
- 4) Do not expose the sensor to direct sunlight as this may impair the performance of the camera.
- 5) The weight of your camera is 0.55kg.
- 6) Only use your camera in a clean, dust-free environment.
- 7) For outdoor use, an appropriate protective housing conforming to IP65 or UL50 or better must be used.

CONNECTORS AND CONTROLS

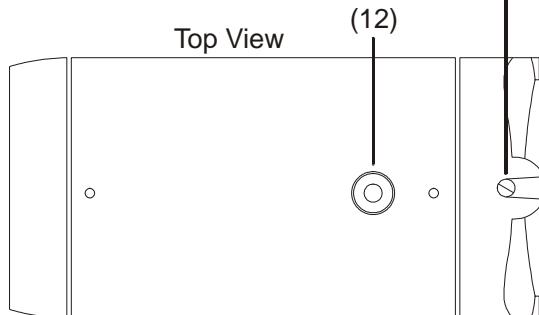
11-40V DC; 12 - 30V AC



230V AC



Top View



- | | |
|--|---|
| 1. External sync input (genlock) BNC | 7. Video iris lens connector |
| 2. 20 mA output for connection to receiver (ZR3M, ZR4M, ZR-DC) | 8. AC power supply cable |
| 3. Low-voltage power supply terminals (12 VDC/24 VAC) | 9. Joystick (under side flap) |
| 4. Composite video output BNC | 10. DD Lens connector |
| 5. S-VHS video output connector | 11. Back-focus adjustment screws |
| 6. Power LED | 12. 1/4-20 UNC mounting bush (fitted at top and bottom) |

POWER SUPPLY CONNECTION

CDR2235, CDR3225, CDR4235 and CDR5225 (98 - 260 V AC 50Hz)

These cameras are fitted with a non-detachable power supply cord. REFER TO THE WIRING INSTRUCTION LABEL ATTACHED TO THE SUPPLY CORD and terminate the cord with the appropriate circuit. **THESE CAMERAS MUST BE CONNECTED TO A PROTECTIVE EARTH.** Ensure that a secure means of isolation from the AC supply is provided for the camera in accordance with the national and local wiring regulations/codes of the country of installation. The green POWER LED on the rear panel indicates when power is connected.

CDR2233, CDR3223, CDR4233 and CDR5223 (11-40V DC; 12- 30V AC)

These cameras are fitted with a power supply that operates between 11-40V DC and 12-30V AC. Connections and polarity are indicated adjacent to the terminals on the rear panel. **The power supply must be a class 2 isolated type.** The green POWER LED on the rear panel indicates when power is connected.

VIDEO CONNECTIONS

Composite Video

To obtain a video output connect a video coaxial-cable terminated by a 75 Ohm BNC connector to the BNC socket marked VIDEO OUT on the rear of the camera.

S-VHS

An S-VHS video output is provided giving a Y/C separated video signal. The 4-pin mini-DIN connector has the following specification: Y=1V pk-pk, 75 Ohm; C=0.3V, 75 Ohm

Genlock (external synchronisation)

For external synchronisation, connect a video coaxial cable, terminated with a 75 Ohm BNC connector, to the socket marked GENLOCK on the rear of the camera. The GENLOCK facility synchronises to either a 1V pk-pk video signal or a standard sync plus blanking signal. A signal connected to the GENLOCK input automatically overrides all other synchronisation settings.

Note

When using a master signal to synchronise multiple cameras, only one of the cameras should have the genlock termination switched on, all the other cameras should have it switched off. See SYNC MENU page 20.

LENS CONNECTION

Fixed and Manual Iris Lenses (for indoor use only) require no wiring connections.

Auto-Iris Lenses

Connections for auto-iris lenses are located on the rear of the camera. Connect auto-iris lenses to the 3 terminal connector according to the diagram below.

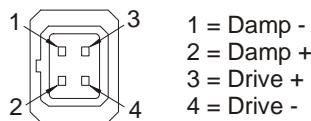


+ = Lens positive supply
= Lens ground
V = Video drive signal

Auto-Iris Lens Connections

LENS CONNECTION**Direct-Drive**

Connect DD lenses to the female 4 pin socket on the side of the camera. If the lens does not have a DD plug fitted then wire the lens to a suitable plug in accordance with the diagram below.



DD Lens Connector

LENS SELECTION

Suitable lens types are C or CS mount in fixed-iris, manual-iris, auto-iris or direct-drive versions. Sizes are shown below. Cameras are factory set for CS mount lenses. If using a C mount lens, rotate either of the back focus screws approximately 30 turns anticlockwise before fitting the lens.

Lens size	CDR2233	CDR2235	CDR3223	CDR3225	CDR4233	CDR4235	CDR5223	CDR5225
1/3"	●	●			●	●		
1/2"	●	●	●	●	●	●	●	●
2/3"	●	●	●	●	●	●	●	●
1"	●	●	●	●	●	●	●	●

FOCUS ADJUSTMENT

The back focus adjustment screws are located on the top and side of the case at the front of the camera and should be adjusted using an appropriate screwdriver. Do not 'over turn' the back focus mechanism.

Fixed Lenses

Set the lens focus to infinity and view an image greater than 2 metres away. Focus the image using the back-focus screw. Set the lens focus as required.

Manual Iris Lenses

Open the iris fully and set the lens focus to infinity. View an image greater than 2 metres away. Focus the image using the back-focus screw. Set the lens focus and iris as required.

Auto-Iris and Direct-Drive Lenses

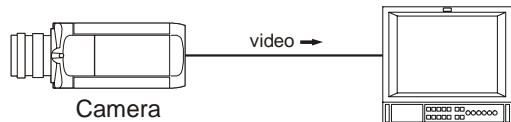
Fully open the iris by covering the lens with a suitable neutral density (ND) filter. Set the lens focus to infinity. View an image greater than 2 metres away. Focus the image using the back-focus screw. Remove the ND filter and set the lens focus as required.

Zoom Lenses

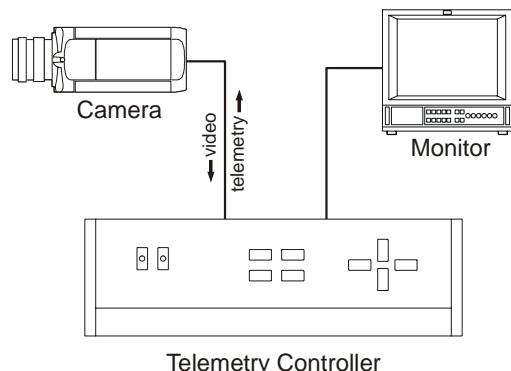
Set the lens focus to infinity and fully open the iris by covering the lens with a suitable neutral density (ND) filter. Zoom out to the widest field of vision and view a distant object. Adjust the back focus screw until the object is in focus. Next, zoom fully in and adjust the focus of the lens until the object is again focused. Repeat these steps until the full zoom range may be viewed with the minimum loss of focus.

SYSTEM CONNECTIONS

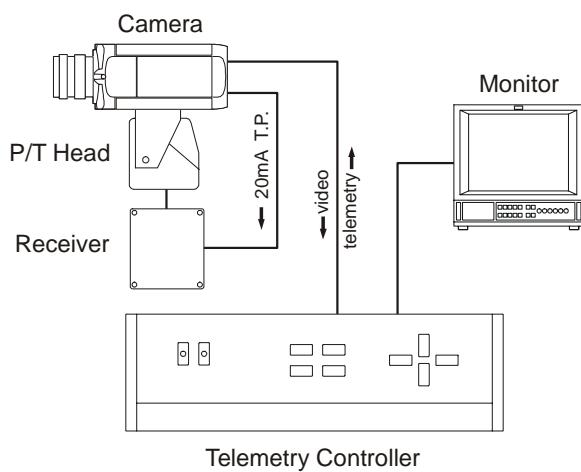
CDR series cameras receive coaxial telemetry via the Video Out BNC connector. These telemetry signals are passed to a receiver when required via a 20mA twisted pair connection. In normal operation, the camera is completely transparent to telemetry commands and simply forwards them to the receiver. However, when the camera's menu system is being accessed, telemetry commands are no longer passed to the receiver and are instead used to issue program instructions to the camera. The camera can be connected in a variety of options as shown below:



The camera is connected directly to the monitor. Camera setup must be made via the built-in joystick.

Simple direct connection

The camera is connected to the monitor via a telemetry controller (e.g. ZTX3). Camera setup can be made via the built-in joystick or remotely using the telemetry controller.

Connection via telemetry controller

This system comprises a telemetry controller, receiver and pan/tilt head. The camera is connected to the monitor via a telemetry controller (e.g. ZTX3). The receiver is connected to the camera via a 20mA twisted pair connector. The receiver controls the pan/tilt head conventionally using telemetry commands issued by the telemetry controller. Camera setup can be made via the built-in joystick or remotely using the telemetry controller.

Connection with controller, receiver and pan/tilt head**Notes**

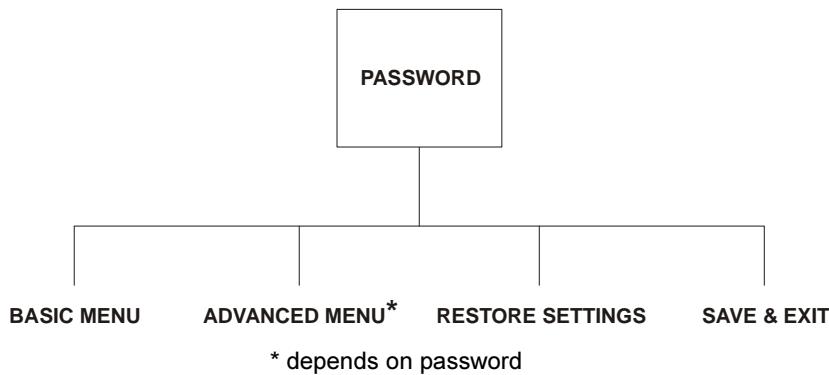
When using DC continuous rotation Pan/Tilt heads, two slip rings will be required for the 20mA twisted pair connection.

Use Belden 8723 or similar for the twisted pair cable. The screen must be earthed.

The recommended coaxial cable is RG59, copper cored. Maximum length is 500m.

MENU SYSTEM

CDR series cameras utilise a menu system to facilitate setup and adjustment. The menu system is password protected by means of a four digit number to prevent unauthorised tampering and has two levels Basic and Advanced. The password scheme provides access to one or both of these levels. The top level menu hierarchy is shown below.



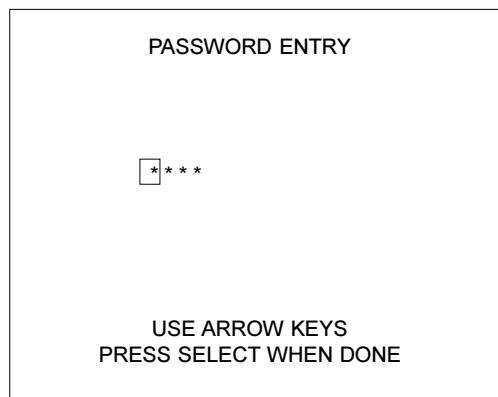
ENTERING THE MENU SYSTEM**Entering the password**

To enter the menu system, a password providing access to the Basic menu or the Advanced menu must be input by the user. Note that entering a password to access the Advanced menu will automatically provide access to the Basic menu. The manner in which the password is entered depends on whether the camera is being controlled remotely or locally using the built-in joystick.

1. **Local:** Press the joystick inwards, or,

Remote: Press the Autopan key 4 times in quick succession (i.e. within 2 seconds)

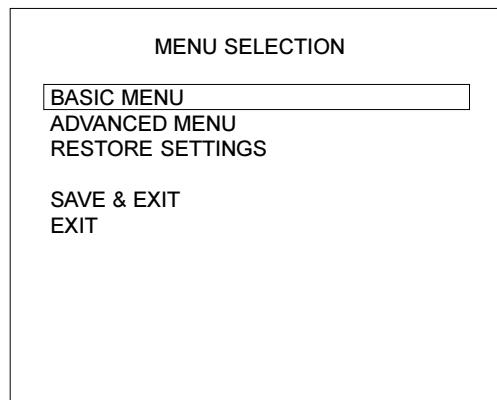
2. The screen shown below will appear:



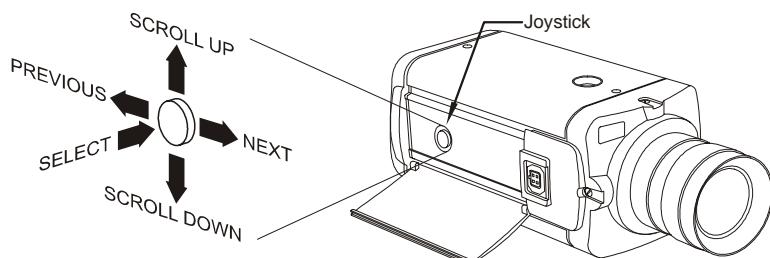
Note that the first digit of the password is selected. To enter the password, the up/down arrow keys or joystick are used to select the required number for each of the four digits in the password. An up/down movement of the arrow keys or joystick will cause the selected digit to either increment or decrement. When the digit is correct, use the left/right arrow keys or joystick to move to the next digit of the password. When all four numbers have been

ENTERING THE MENU SYSTEM

correctly set, press the select key and the screen shown below will be displayed. The system permits three attempts at entering the password before exiting menu mode.

**NAVIGATING THE MENU SYSTEM**

The menu system is navigated either directly from the camera's built-in joystick or remotely via a telemetry controller. The camera responds to five 'commands' namely, Scroll up, Scroll down, Previous, Next and Select. These correspond to the built-in joystick as shown below



These same commands may be issued via a remote telemetry controller according to the table below.

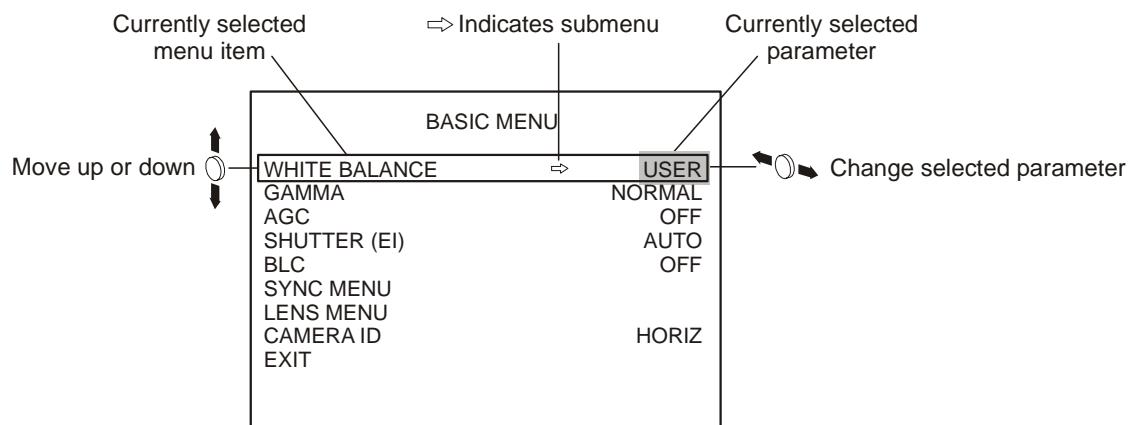
Product	Scroll Up	Scroll Down	Previous	Next	Select
ZTX3	Up key	Down key	Left key	Right key	any Zoom key
ZTX4	Up key	Down key	Left key	Right key	any Zoom key
ZTX5	Up key	Down key	Left key	Right key	any Zoom key
ZTX6 [†]	Up key/joystick	Down key/joystick	Left key/joystick	Right key/joystick	any Zoom key
ZMX-IT [‡]	Up key	Down key	Left key	Right key	any Zoom key
ZMX Storm [‡]	Up key	Down key	Left key	Right key	any Zoom key
ZMX Plus [‡]	Up key	Down key	Left key	Right key	any Zoom key
Vista Ultra MPX [‡]	Up key	Down key	Left key	Right key	any Zoom key
Vista GEM 3 MPX [‡]	Up key	Down key	Left key	Right key	any Zoom key
Vista Columbus [‡]	Up key	Down key	Left key	Right key	any Zoom key

[†] Using keyboard ZKB1, ZKX2 or similar. Telemetry must be enabled (see the keyboard manual for details).

[‡] Telemetry must be enabled for correct operation (see the product manual for details).

NAVIGATING THE MENU SYSTEM

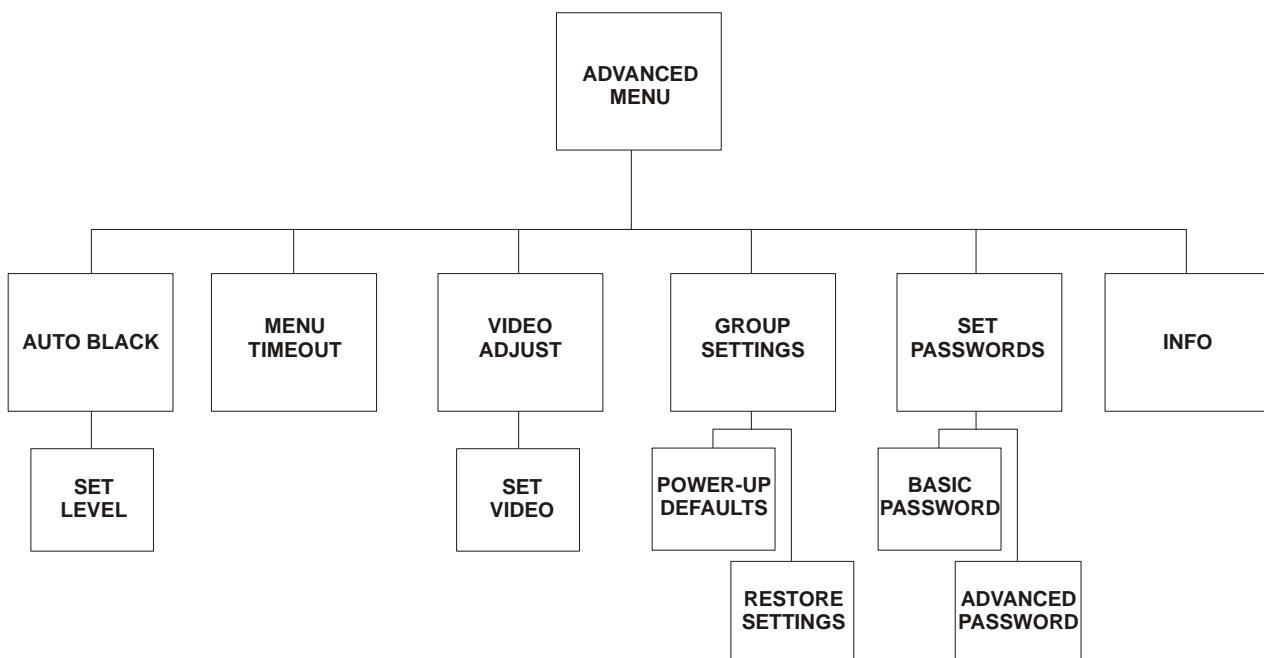
A typical menu screen is shown below. The ‘cursor’ shows the currently selected menu item and is represented by a box which is moved up or down with the up/down joystick or arrow keys. The left/right joystick or arrow keys are then used to change the selected parameter for that menu item. A menu item with an arrow (⇒), indicates that a sub-menu exists. Pressing the select key, (either the built-in joystick or any of the zoom keys for a remote telemetry controller), will reveal the submenu. Highlighting EXIT and pressing select will return to the previous menu level.



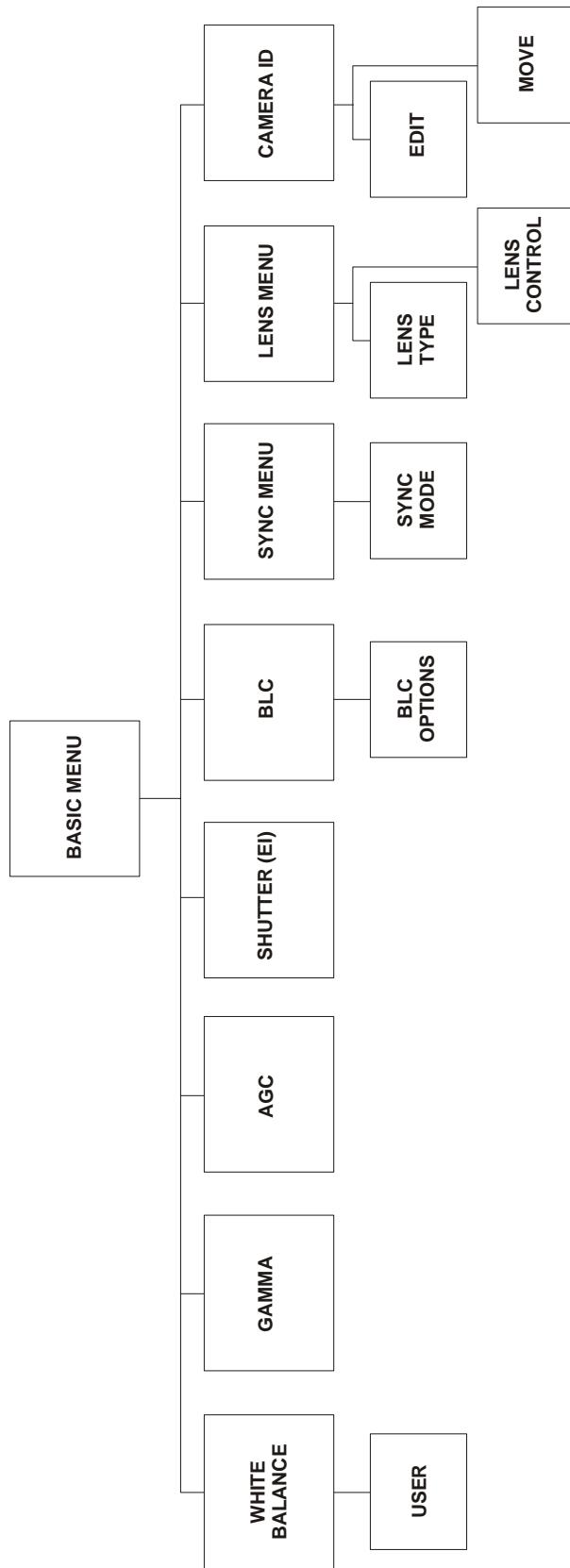
Saving changes

Any changes made whilst within the menu system must be saved before the menu system is exited. This is achieved from the MENU SELECTION screen by highlighting the SAVE & EXIT option. You are then asked to choose which group the settings are to be saved to - see Group Settings. If you do not wish to save your changes, select the EXIT option.

ADVANCED MENU MAP

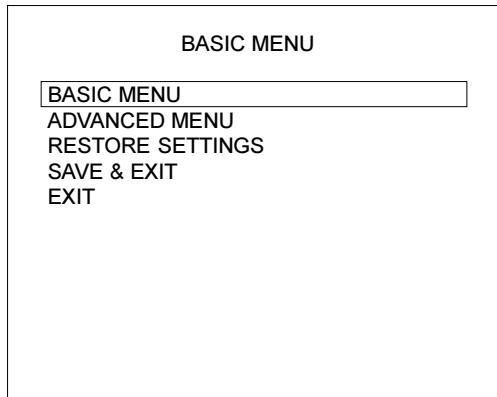


BASIC MENU MAP



MAIN MENU

This is the first menu displayed to the user when the menu system is entered.

**BASIC MENU**

Selecting this item opens the Basic Menu.

ADVANCED MENU

Selecting this item opens the Advanced Menu. Note that this item may be disabled if your password does not allow Advanced user privileges.

RESTORE SETTINGS

Changes made in the menu system may be saved to one of four groups specified when the SAVE & EXIT menu option is selected. The RESTORE SETTINGS option is used to restore the settings from a previously saved group.

SAVE & EXIT

Selecting this option allows you to save any settings you have made within the menu system. When chosen, you are asked which Group you want to save the settings to (GRP 1, GRP 2, etc.). You can use Groups to restore settings using the RESTORE SETTINGS option, or as a power-up default. See Group Settings.

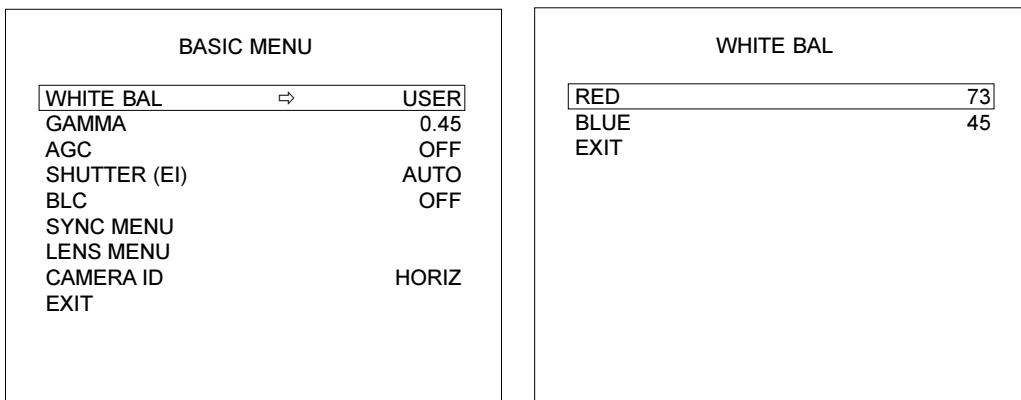
EXIT

This option allows you to exit the menu system without saving any changes.

BASIC CAMERA MENU

This section covers the Basic camera menu system

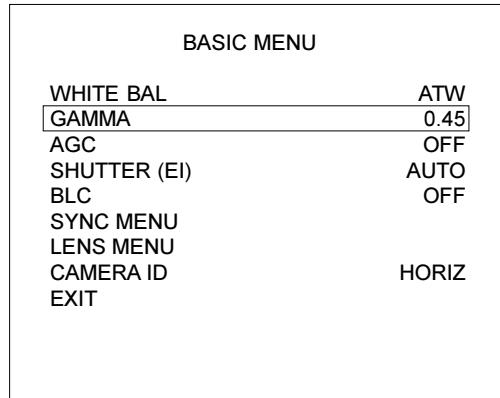
BASIC MENU		
WHITE BAL	↔	USER
GAMMA		0.45
AGC		OFF
SHUTTER (EI)		AUTO
BLC		OFF
SYNC MENU		
LENS MENU		
CAMERA ID		HORIZ
EXIT		

WHITE BALANCE**Options: ATW, INDR, OUTDR, FLUOR, USER**

There are five colour balance modes. For the majority of applications the ATW (Auto-tracing) setting will provide excellent colour rendition and is the default setting. For applications where the illumination is predominantly daylight, the OUTDR (outdoor) setting may provide improved colour rendition over ATW. Where a mixture of illuminations such as tungsten, fluorescent and daylight exist, the INDR (indoor) setting may provide the best colour rendition. Where fluorescent lighting is predominant use the FLUOR (fluorescent) setting.

The USER setting, when selected, will open the WHITE BAL menu shown above. This menu allows you to set the Red and Blue components of the scene separately.

The factory default setting is ATW

GAMMA**Options: 1.0, 0.80, 0.45**

Gamma quantifies the degree of contrast in a scene. Three different gamma settings are provided: 1.0 (linear), 0.80 and 0.45 (normal). The 0.45 setting increases the definition of objects in the darker areas of a scene.

In normal operation, the 0.45 setting should be used and is therefore the default setting. In some applications, and depending upon the scene, the other settings may produce more satisfactory results.

AGC (AUTOMATIC GAIN CONTROL)

BASIC MENU	
WHITE BAL	ATW
GAMMA	0.45
AGC	OFF
SHUTTER (EI)	AUTO
BLC	OFF
SYNC MENU	
LENS MENU	
CAMERA ID	HORIZ
EXIT	

Options: Off, 10dB, 16dB, 22dB, 28dB, TURBO

The AGC (Automatic Gain Control) parameter sets the maximum amount of gain that the camera can apply to the signal from the CCD. If there is sufficient light falling on the CCD, the AGC circuit will not apply any gain. As the light level falls, the AGC circuit increases the gain until the required video output level is achieved (or the maximum gain reached). Higher AGC settings provide increased visibility in darker areas of the scene. Note that high AGC settings may introduce noise into the displayed picture. Factory default is 22dB.

SHUTTER (EI)

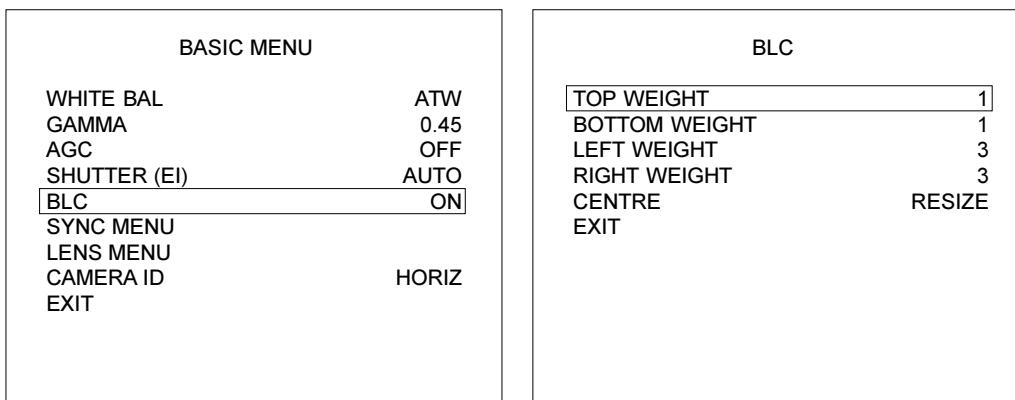
BASIC MENU	
WHITE BAL	ATW
GAMMA	0.45
AGC	OFF
SHUTTER (EI)	AUTO
BLC	OFF
SYNC MENU	
LENS MENU	
CAMERA ID	HORIZ
EXIT	

Options: AUTO, 1/50, 1/120, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000

The Shutter and EI (electronic iris) parameter controls the amount of time the CCD is allowed to charge. This is directly analogous to the shutter speed of a conventional (film) camera. Faster shutter speeds provide clearer images of moving objects but will result in a darker picture since the time allowed for the CCD to charge becomes shorter.

The AUTO option electronically compensates for excessive scene illumination by automatically adjusting the exposure time between 1/50 and 1/100,000s.

The 1/120 option provides a flickerless mode which can be used to minimise the flicker caused by certain lighting conditions. Factory default is AUTO.

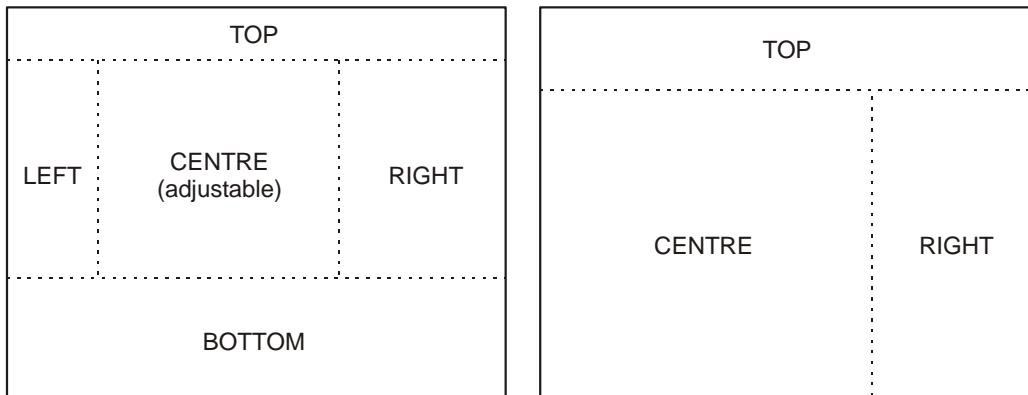
BLC (BACKLIGHT COMPENSATION)**Options: OFF, ON**

The backlight compensation feature can be used to eliminate the effect of an area of strong background lighting in a scene. If a strong background light such as a window exists in a scene, the camera will try to compensate for it by reducing the overall exposure. This would mean that the areas surrounding the window would become too dark.

By using the backlight compensation feature, it is possible to select areas of the scene which may be used to control the exposure. Typically, the object of interest lies in the centre of the scene and this is the area normally used to calculate the exposure. The edges, where strong backlighting is likely to be, are ignored.

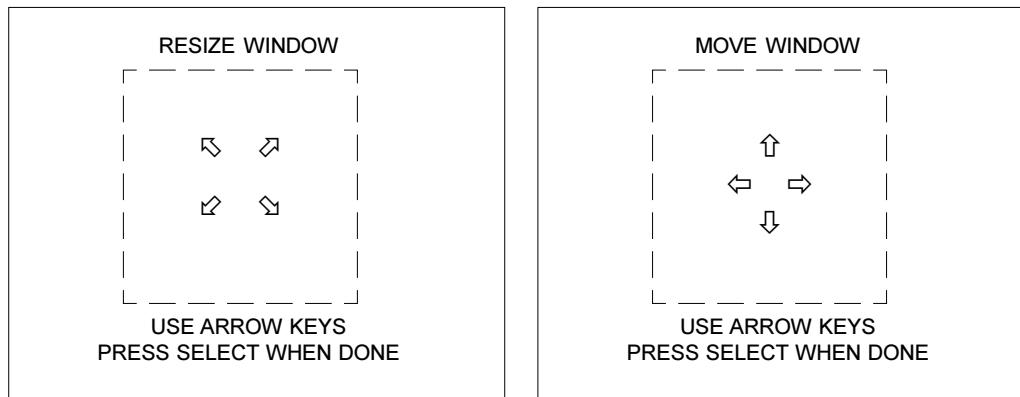
To facilitate backlight compensation, five windows are provided: Top, Left, Centre, Right and Bottom. The BLC menu allows you to alter the size and position of the centre window. The other four windows occupy positions around the centre window at the top, bottom, left and right of the scene. Their size is determined by the size and position of the centre window.

Note that these peripheral areas may not always be present. For example if the size and position of the centre window is such that its extremities include the extreme left and bottom of the scene, then the Left and Bottom windows will not be available to the user.



BLC (BACKLIGHT COMPENSATION)

The size and position of the centre window is adjusted from the BLC menu by selecting CENTRE and the RESIZE or MOVE parameter.



Each of the four peripheral windows has an adjustable weighting (0-15) used to determine its contribution in setting the overall exposure of the scene. A weight setting of 0 means that the area within the window will not be used to set the overall scene exposure. The weighting of the centre window is fixed.

The area enclosed by each window is multiplied by its weighting to give an exposure value for the window. The sum of all five windows is used to calculate an overall exposure value which is then used by the camera's exposure control circuit.

Example 1.

People entering a shop through a brightly lit doorway are to be monitored. Without backlight compensation, a person entering the shop would be seen in silhouette because the relatively bright background would cause the camera to reduce its exposure.

By carefully using the backlight compensation facility, it is possible to size and position the centre window around the area of interest, i.e. the doorway. By setting the weightings of the four peripheral windows to zero, only the centre window will be used to calculate the scene exposure. Therefore a person entering the shop will be clearly displayed.

Example 2.

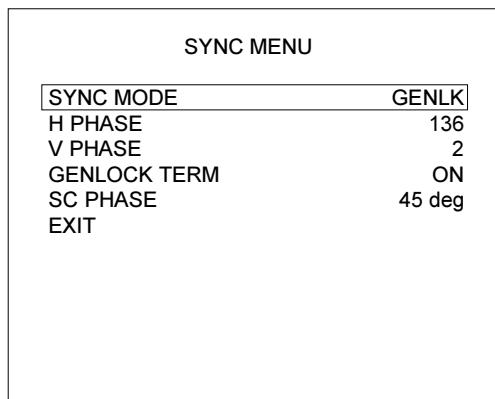
The camera is required to observe a typical street scene. The sky above the buildings in the street is very bright thus causing the camera's exposure system to adversely compensate. Using the backlight compensation feature, position the centre window such that the remaining Top window covers the sky area. The weighting of the Top window can now be set to zero so that this area does not affect the exposure. The remaining windows are set to 15. By using this method the buildings and street will be correctly exposed.

Note

The backlight compensation feature will only work with manual lenses when the shutter speed is set to AUTO. The BLC feature will work with both DC and video drive Auto-Iris lenses.

SYNC MENU

This menu is used to select the way the camera maintains frame synchronisation. The menu changes depending on the sync mode selected.

Options: GENLK, INT, LL

The GENLK option allows you to use an external signal connected to the genlock BNC connector on the rear of the camera. This option may or may not require the GENLOCK TERM parameter setting - see below.

H PHASE**Options: adjustable between 0 and 1023**

The Horizontal Phase adjust parameter provides a means of adjusting the horizontal trigger position relative to the genlock signal. Although the default value should be correct for most situations, adjustments may be needed for long cable runs.

V PHASE**Options: adjustable between 0 and 624**

The Vertical Phase parameter allows the trigger point to be adjusted to align the field synchronisation. One adjustment step is equal to one TV line.

GENLOCK TERM**Options: ON, OFF**

In order for the genlock option to operate correctly, both ends of the genlock cable need to be terminated. Cameras may be connected in one of two ways:

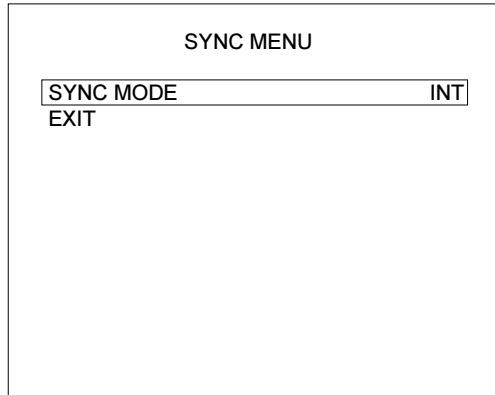
- a) The genlock signal may be sent to each camera individually. In this case, the genlock termination parameter needs to be set to ON.
- b) The genlock signal may be sent to several cameras in a daisy-chain configuration i.e. one camera feeds the next and so on. In this case, the genlock termination parameter needs to be set to OFF for all of the cameras in the system except the last in the chain which should be set to ON.

SC PHASE**Options: 0, 45, 90, 135, 180, 225, 270 and 315 degrees**

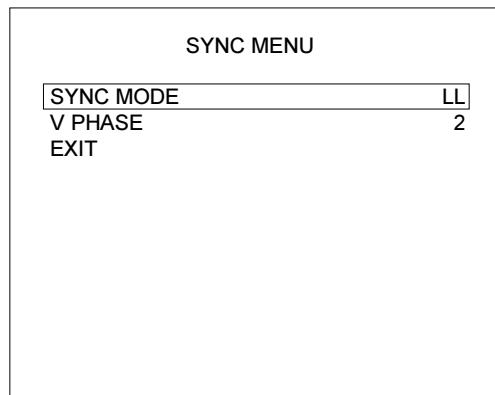
The Sub Carrier Phase adjustment parameter is used when an external genlock signal is being used to synchronise a colour camera. It is used to adjust the sub carrier phase with respect to the genlock signal. Select the setting that gives the strongest hues for the viewed scene.

SYNC MENU

Selecting the INT option locks the camera frame rate to a frequency generated by an internal crystal.



The LL (line lock) option locks the camera frame rate to the AC mains frequency ensuring that the camera is triggered at the same point on the AC cycle.



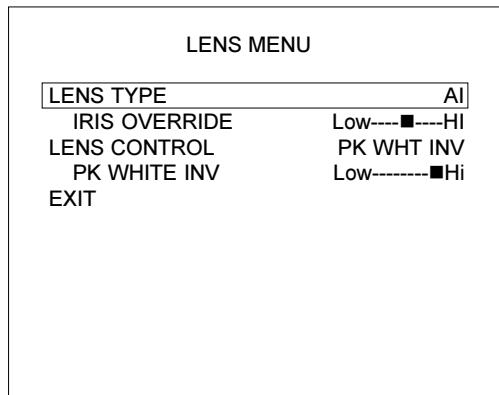
V PHASE

Options: adjustable between 0 and 624

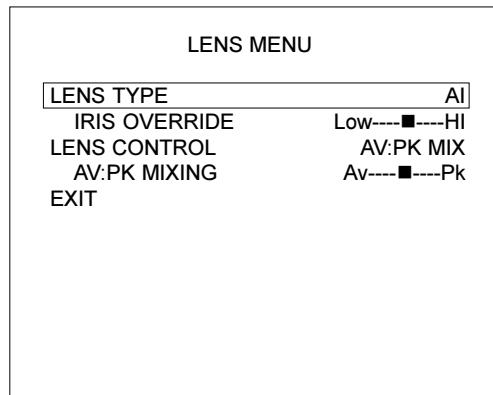
When in Line Lock mode, the camera frame rate is referenced to the AC supply. The Vertical Phase parameter allows the trigger point to be adjusted between 0 and 360°. This should be used when the cameras are connected to different AC supply phases.

LENS MENU**Options: AI, DD**

This menu item allows you to set parameters specific to Auto-iris (AI) and Direct Drive (DD) lenses. The menu will change depending on the type of lens selected. Selecting AI reveals the following menu:



Lens menu with Peak
White Inversion selected



Lens menu with Average:Peak
Mixing selected

IRIS OVERRIDE**Options: Low to Hi over eight steps**

The Iris Override parameter allows you to remotely open or close the iris of an auto-iris lens by a small amount as an aid to setting up the lens.

LENS CONTROL

This parameter may be set to Peak White Inversion or Average:Peak Mixing.

PK WHITE INV**Options: Low to Off over eight steps**

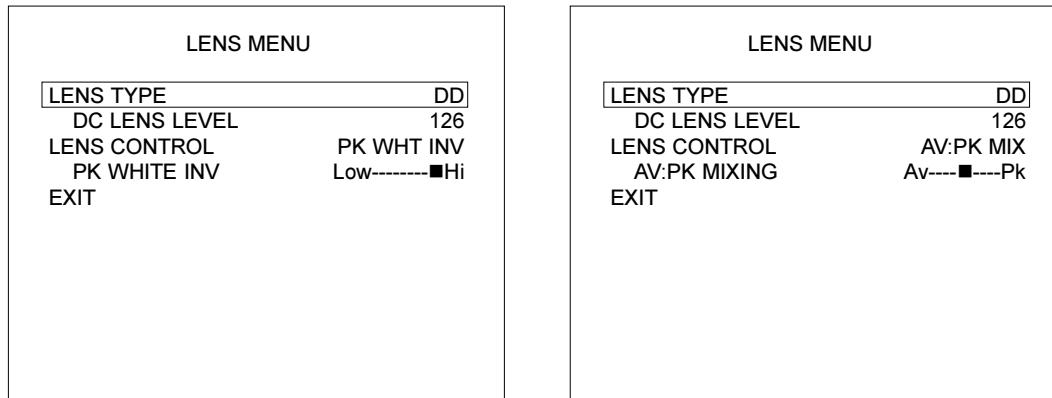
Excessively bright or peak white areas in a scene can cause auto-iris lenses (Direct Drive and Video Drive types) to react and close down thereby losing the detail in darker areas of the scene. The Peak White Inversion feature is designed to overcome this. It allows you to render any part of the scene over a certain brightness threshold as black. A typical usage of this may occur in a highway surveillance role. Car headlamps would normally cause an auto-iris lens to close. By using peak white inversion to render the headlamps as black, the lens will not react to them and therefore correctly expose the rest of the scene.

AV:PK MIXING**Options: Av to Pk over eight steps**

Certain scenes contain high-contrast objects and are better compensated for by setting the auto-iris lens control to Peak so that the lens responds to these bright areas and highlights. Other scenes have little or no contrast and a better response from the lens can be achieved by setting the lens control to Average. The AV:PK MIXING setting allows you to choose the best setting for the scene/lens combination.

LENS MENU

Selecting DD reveals the following menu:

**DC LENS LEVEL****Options: Adjustable between 0 and 255**

This parameter sets the DC reference signal used to control the lens iris.

LENS CONTROL

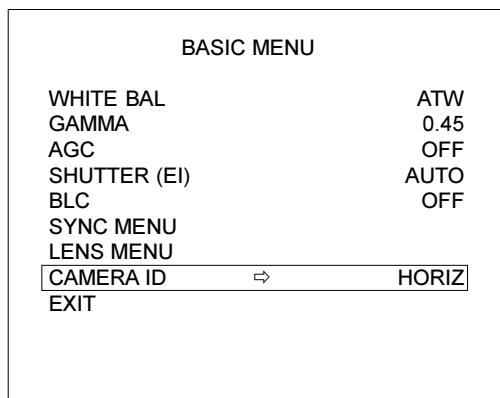
This parameter may be set to Peak White Inversion or Average:Peak Mixing.

PK WHITE INV**Options: Low to Off over eight steps**

Excessively bright or peak white areas in a scene can cause auto-iris lenses (Direct Drive and Video Drive types) to react and close down thereby losing the detail in darker areas of the scene. The Peak White Inversion feature is designed to overcome this. It allows you to render any part of the scene over a certain brightness threshold as black. A typical usage of this may occur in a highway surveillance role. Car headlamps would normally cause an auto-iris lens to close. By using peak white inversion to render the headlamps as black, the lens will not react to them and correctly expose the rest of the scene.

AV:PK MIXING**Options: Av to Pk over eight steps**

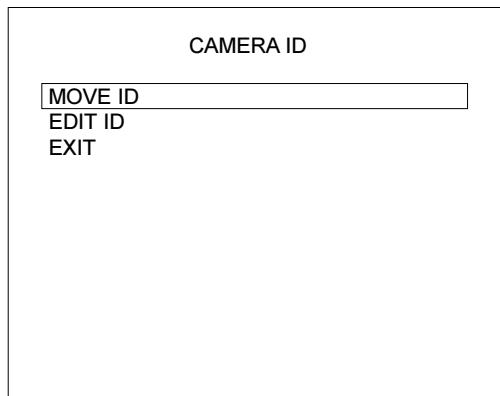
Certain scenes contain high-contrast objects and are better compensated for by setting the auto-iris lens control to Peak so that the lens responds to these bright areas and highlights. Other scenes have little or no contrast and a better response from the lens can be achieved by setting the lens control to Average. The AV:PK MIXING setting allows you to choose the best setting for the scene/lens combination.

CAMERA ID**Options: HORIZ, VERT, OFF**

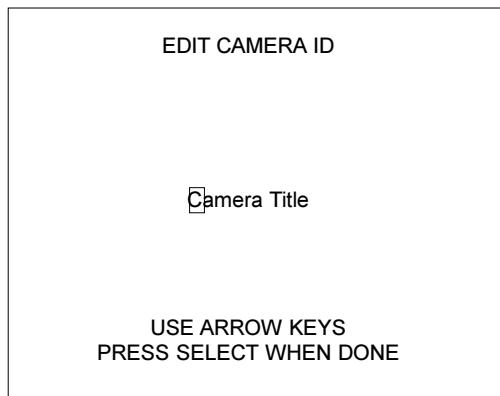
The Camera ID menu item allows you to select whether the on-screen camera title is displayed, and whether in a horizontal or vertical format.

Changing the Camera ID

The on-screen camera title is changed by selecting the CAMERA ID menu item and pressing the select key. The CAMERA ID menu will be opened as shown below. This menu is used to change the on-screen position of the ID and to edit it. Select EDIT ID and press the select key.



This will open the EDIT CAMERA ID menu shown below. The current camera title will be displayed with the first character selected.



CAMERA ID

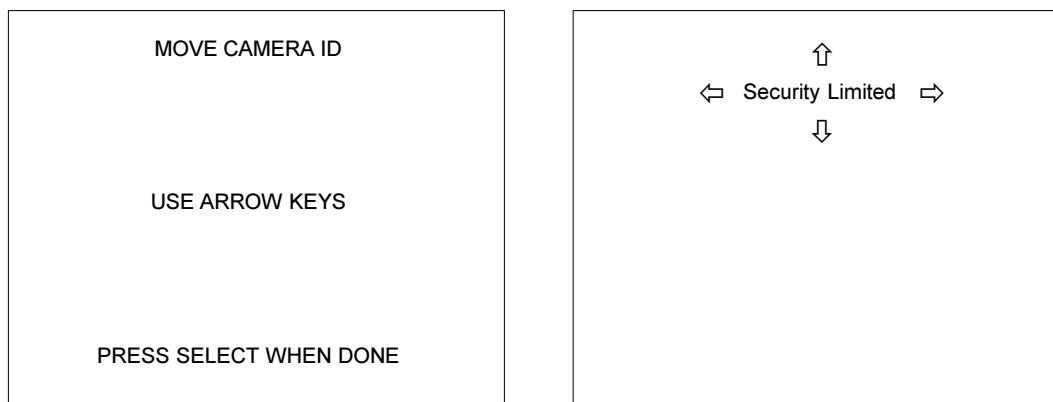
To change the selected character, use the up/down joystick or arrow keys to scroll through a list of alphanumeric characters until the desired character has been selected. Move to the next character using the left/right joystick or arrow keys and repeat the process. The list of available characters is shown below (a ‘space’ character is provided between the **z** and **0** characters).

ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz <space> 0123456789

When the desired camera title has been assembled, press the select key to return to the CAMERA ID menu.

Moving the Camera ID

The position of the on-screen camera title is changed by selecting the CAMERA ID menu item and pressing the select key. From the CAMERA ID menu, select MOVE ID and press the select key. The MOVE CAMERA ID screen will be displayed as shown below, left, for a few seconds, followed by the current camera title.



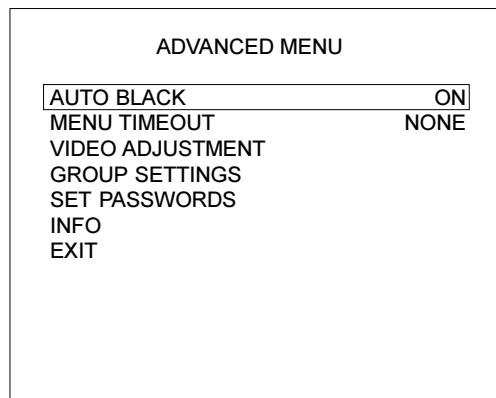
Use the joystick or arrow keys to move the on-screen title to the desired position then press the select key to return to the CAMERA ID menu.

Changing the Camera ID Orientation

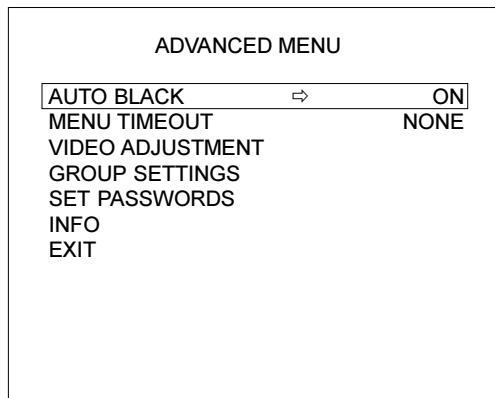
The Camera ID menu item allows you to select whether the on-screen camera title is displayed in a horizontal or vertical format. Use the left/right joystick or arrow keys to select HORIZ or VERT and press the select key.

ADVANCED CAMERA MENU

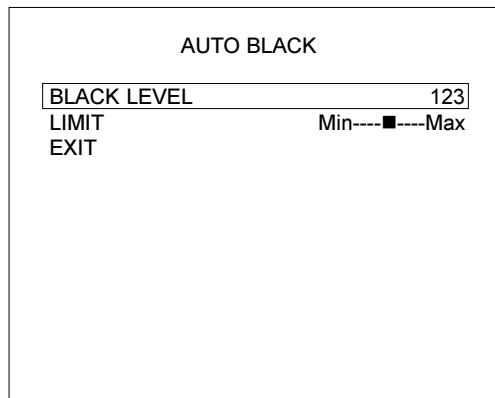
This section covers the Advanced camera menu system



AUTO BLACK

**Options: ON, OFF**

The Auto Black setting can improve the contrast range of the camera by 'clamping' the darkest part of the scene to black. When ON is selected, the following menu will appear:

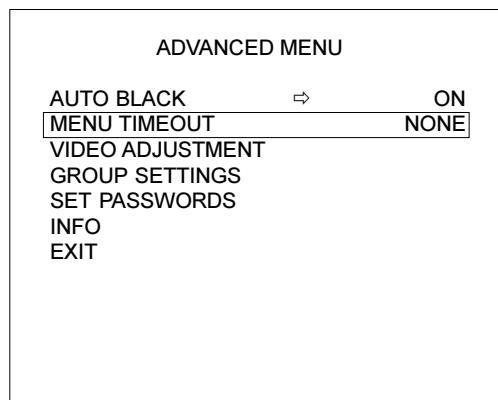
**BLACK LEVEL****Options: adjustable between 0 and 255**

In normal operation, the black level of the video signal is set at 50mV. When the Auto Black feature is used, the black level (or pedestal) must be set by the user to a value between 0 and 255. The factory default is for the black level to be set at 50mV.

LIMIT**Options: Min to Max over eight steps**

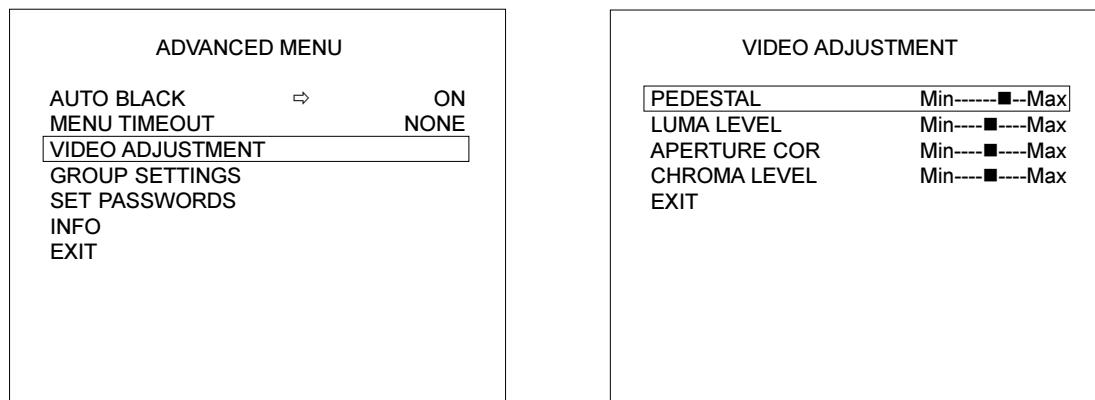
If the scene does not contain any significantly dark areas, for example, a view of part of a room with light coloured walls, it would be inappropriate to clamp a bright part of the scene to black. The limit parameter is used to set the scene content which can be clamped to black.

MENU TIMEOUT

**Options: NONE, 30sec, 90sec, 5min, 20min**

This parameter allows you to set a time interval after which the menu system will automatically exit if no user input is made. This will ensure that menus are not inadvertently recorded to tape.

VIDEO ADJUSTMENT



The Video Adjustment menu item opens a menu allowing various video settings to be made as detailed below.

PEDESTAL**Options: Min to Max over eight steps**

This parameter sets the black level. The pedestal level is factory set to 50mV. Adjustment is provided if needed due to cable attenuation, etc.

APERTURE COR**Options: Min to Max over eight steps**

This parameter adjusts the Aperture Correction (picture/edge sharpness/enhancement) of the camera.

LUMA LEVEL**Options: Min to Max over eight steps**

The Luma (Luminance) Level parameter is used to set the brightness information of the signal. The luma level is factory set to 700mV. Adjustment is provided if needed due to cable attenuation, etc.

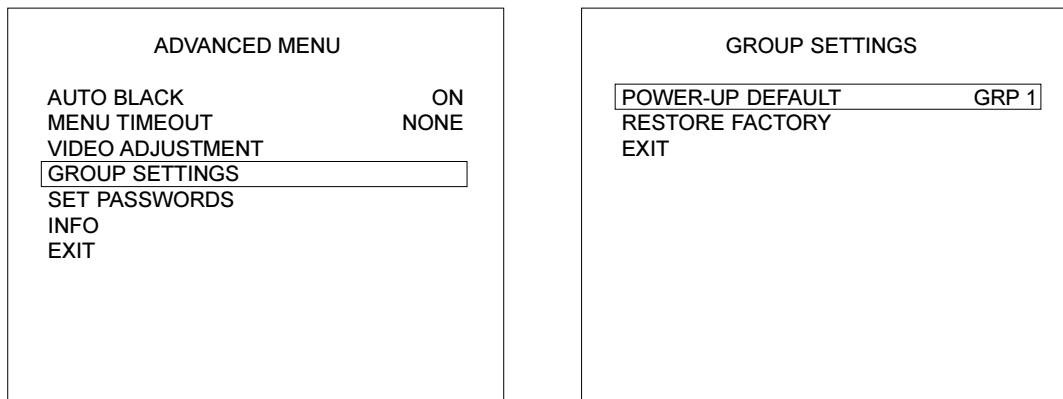
VIDEO ADJUSTMENT

CHROMA LEVEL**Options: Min to Max over eight steps**

This parameter allows you to change the reference signal used by the monitor to determine the colour information of the video signal (colour burst signal). Chroma level is factory set to 300mV. Adjustment is provided if needed due to cable attenuation, etc.

Note that adjustments made to this parameter may not always be apparent on certain monitors.

GROUP SETTINGS



You can save up to four completely different sets of camera setup information. Each set of parameters is saved as a Group (GRP1, GRP2, etc.). The Group may be recalled or used as a power-up default for the camera. Groups can be useful where a camera may need to have different settings when used at different times of the day e.g. during daylight hours and at night.

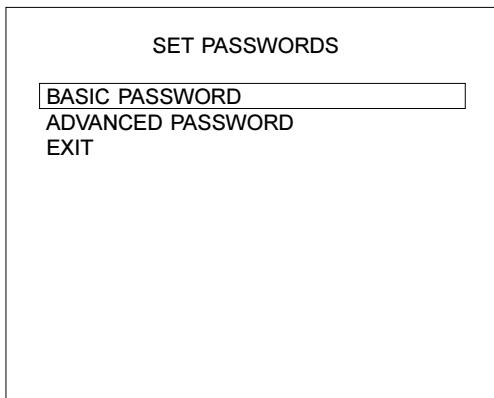
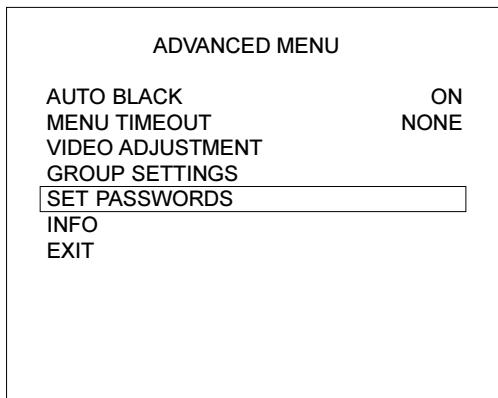
Briefly, the menu system is entered and the desired settings are made. When the SAVE & EXIT command is performed, you are asked which Group you want to save the settings to.

POWER-UP DEFAULT**Options: GRP 1, GRP 2, GRP 3, GRP 4**

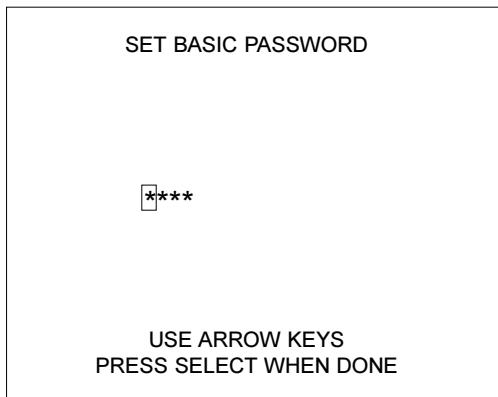
This parameter allows you to select which Group is used during power-up. The settings of this Group are then retrieved and used to set the camera accordingly. The default Group used at power-up is GRP 1.

RESTORE FACTORY

This option restores the factory settings.

SET PASSWORDS

This menu item is used to set the passwords that are used to access the Basic and Advanced menus. Select the password you want to change from the SET PASSWORDS menu. The appropriate set password screen will be opened as shown below.



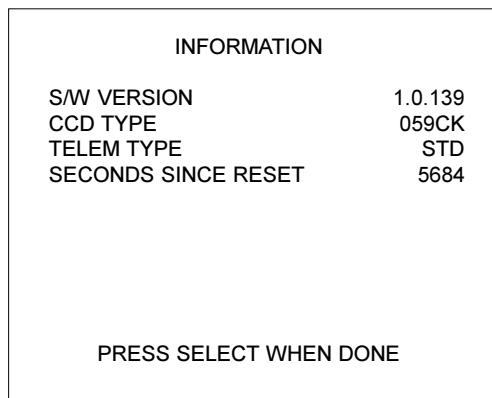
Note that the first digit of the password is selected. To change the password, the up/down arrow keys or joystick are used to select the required number for each of the four digits in the password. An up/down movement of the arrow keys or joystick will cause the selected digit to either increment or decrement. When the digit is correct, use the left/right arrow keys or joystick to move to the next digit of the password. When all four numbers have been set, press the select key.

Important Notes

The Advanced and Basic factory default password is 0 0 0 0. We strongly recommend that this password is changed by the installer as soon as possible to prevent unauthorised access to the menu system.

The password 1 1 1 1 is reserved and may not be used.

Selecting this menu item will reveal a display similar to the one below.



None of the parameters can be edited and are supplied for information purposes only.
Press the select key to exit this display.

S/W VERSION

This field shows the software version for the camera

CCD TYPE

This field shows the CCD sensor type fitted in the camera.

TELEM TYPE

This field shows the type of telemetry (standard or enhanced) being received by the camera.

SECONDS SINCE RESET

This field displays the number of seconds elapsed since the camera was reset.

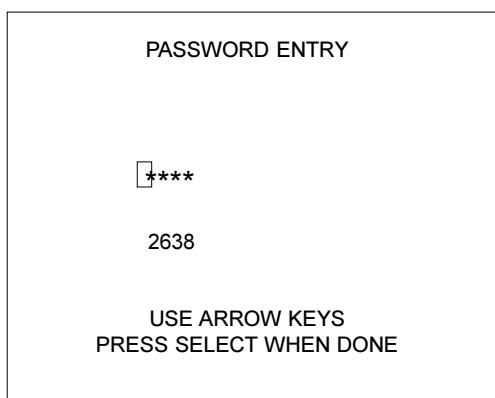
PASSWORD RECOVERY

Your camera features a password recovery system that may be used if the Advanced password is forgotten.

1. Following the directions under Entering the Menu System on page 10, enter the following password:

1 1 1 1

2. After this password has been correctly entered, a number will be generated and displayed below the password entry fields as shown below. This number is randomly generated and therefore will be different each time the 1 1 1 1 password is entered.



3. Immediately telephone Baxall Limited where you will be asked to supply this number.
4. You will be provided with a temporary password that complements the number that has been randomly generated. Enter this password and press the select key.
5. You will now have access to the Advanced menu system where you must use the SET PASSWORDS option to enter a new set of passwords.

SPECIFICATIONS

Inputs

Baxall Coaxial telemetry as defined by the Baxall Coaxial Telemetry specification

Outputs

Baxall 20mA current loop telemetry as defined by the Baxall 20mA current loop telemetry specification.

Twisted pair

Belden 8723 or equivalent. Loop resistance less than 500 Ohms. Screen must be connected to earth.

Power source

CDR2233, CDR3223, CDR4233 and CDR5223:

12 VDC ± 10%, 24 VAC ± 10%

CDR2235, CDR3225, CDR4235 and CDR5225:

98 – 260 VAC 50 Hz

Power consumption

CDR2233, CDR3223, CDR4233 and CDR5223:

7 W at 12 VDC; 7 W at 24 VAC

CDR2235, CDR3225, CDR4235 and CDR5225:

6.5 W

Weight

CDR2233, CDR3223, CDR4233 and CDR5223:

0.45 kg

CDR2235, CDR3225, CDR4235 and CDR5225:

0.55 kg (including AC supply cable)

Environmental

Operating:

Temperature: -10 to +50° C (14 to 122° F)

Humidity: 20 to 80% RH (non-condensing)

Storage:

Temperature: -10 to +70° C (14 to 158° F)

Humidity: 20 to 90% RH (non-condensing)

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