NiteDevil SEE240 / SEE243 range

These stylish 1080p HD Multi-Format **NiteDevil Cameras** now available in a traditional style. They are complimented with an OSD menu, allowing access via camera or TVI coaxitron, privacy masking, (WDR) Wide Dynamic Range, Defog and excellent night time pictures using the NiteDevil low light functionality. The cameras are supplied in 12vDC or dual voltage models each with three versions without or with, two lens options.

Model
SEE240   12v DC no lens
SEE240L 12v DC **2.8~12mm** 1/2.8" lens & 2.1 Mega Pixel sensor
SEE240P 12v DC **5 ~ 50mm** 1/2.8" lens & 2.1 Mega Pixel sensor

SEE243   Dual voltage 12vDC/24vAC no lens
SEE243L Dual Voltage 12vDC/24vAC **2.8~12mm** 1/2.8" lens & 2.1 Mega Pixel sensor
SEE243P Dual Voltage 12vDC/24vAC **5 ~ 50mm** 1/2.8" lens & 2.1 Mega Pixel sensor

Features

- ✓ 1.28" CMOS sensor
- ✓ Wide Dynamic Range setting
- ✓ True Day/Night
- ✓ Built-in OSD menu
- ✓ Privacy Masking
- ✓ Electronic Shutter
- ✓ NiteDevil low light functionality
- ✓ Contrast & Sharpness adjustments
- ✓ Low Light (Colour: 0.1 Lux / B&W: 0.001 Lux)
- ✓ Maximum 1.6 watts power consumption
- ✓ SENS-UP auto function 2x ~ 32x
- ✓ Digital Noise Reduction function
- ✓ Mirror/Flip options
- ✓ Motion Detection Function
- ✓ Auto Colour Enhancement (ACE)
- ✓ Defog option

Mounting the Cameras
These cameras can be installed indoors by using camera brackets or outdoors in housings. The cameras are fitted with ¼" UNC threads for Tripod/Camera brackets fitted above or below the camera. When using cameras outdoors in housings, ensure the housing is large enough to take the traditional camera plus the length of the lens assembly.

Powering Cameras (Do not power up camera until you have read this manual)

SEE240 12v DC ONLY

The SEE240 requires a 12v DC regulated power supply providing a minimum of 130mA. When connecting to any 12v DC power supply, always use a regulated supply. The camera has a terminal connection. This camera is polarity sensitive so ensure that the positive and negative connections are correct. If incorrectly connected, damage to the camera may result. The 12V DC cameras require a power supply that has a continuous rating of 130mA or higher per camera. It is recommended that you allow 33% headroom per camera to be on the safe side especially taking into account any extra load created by adding an auto-iris lens (typically 10mA). The power supply you choose must be a well regulated one giving a smooth regulated 12V DC output and it is recommended that it should be rated at no less than 200mA. If you are fitting the camera in a housing and using a heater, these invariably require 250mA and this needs to be added to the 200mA if same PSU is used.

WARNING - This power supply **must not** be a security type used in intruder alarms as the over voltage may damage the camera and void the warranty. The earthing arrangement of an intruder type alarm PSU may give rise to problematic "earth-loops" and poor voltage regulation can give poor/noisy image quality. The terminal strip will facilitate easier and faster power connection without the hassle of soldering.

The terminal connection can be seen in the picture on the right. The 12V+ and -0v connections from the power supply must be connected correctly. If you have a 2.1mm jack plug connected to your power supply you can use the power lead with 2.1 jack socket supplied. Note that the 12V PSU positive is the wire that is connected to the centre pin of the jack plug and the 0V wire is connected to the outer case.

SEE243 DUAL VOLTAGE 12vDC / 24vAC

The CAM243 is a dual voltage camera allowing connection of 12vDC or 24vAC power supply. This camera is not polarity sensitive so the positive or negative can be connected either way round. Using 12V DC supply requires a power supply that has a continuous rating of 177mA or higher per camera. It is recommended that you allow 33% headroom per camera to be on the safe side especially taking into account any extra load created by adding an auto-iris lens (typically 10mA). The power supply you choose must be a well-regulated one giving a smooth regulated 12V DC output and it is recommended that it should be rated at no less than 250mA. If using a 24v AC power supply it should be rated at no less than 143mA plus headroom = 200mA.

If you are fitting the camera in a housing and using a **24v AC heater**, these invariably require more than 650mA, and this needs to be added to the 200mA if same 24v AC PSU is used.

Fitting the Camera Lens

C or CS Mount Lenses

Most lenses available now are CS mount lenses. CS mount lenses are shorter and more compact than the older C mount lenses. Whether you are using CS mount or C mount lenses, either will work with these cameras without the need for a spacer ring.
Just screw the lens into the camera and just fit it finger tight.
On the camera body you have a back focus adjuster and sliding this moves the CMOS sensor closer or further away from the lens. CS lenses are fitted closer to the sensor so set adjustment so that the sensor is at its highest position.
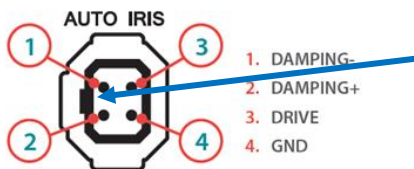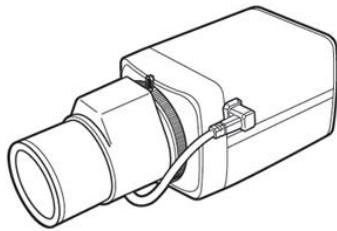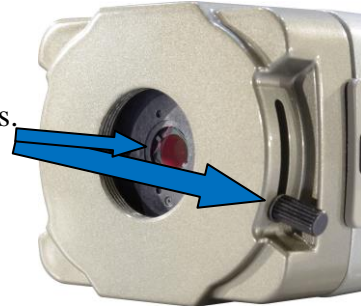
Auto-Iris Direct Drive Connections

Auto Iris type lenses require the 4-pin connector to be attached to the camera. It is important that this connector is wired correctly. If the lens is a direct drive lens, this will normally be pre-wired and you can simply plug the lens into the camera. Note that the 4 pin connector on the lens will only fit one way using the guide channel on the camera body.

AUTO IRIS

1. DAMPING-
2. DAMPING+
3. DRIVE
4. GND

Once you have fitted the lens and plugged in the 4 pin connector to the camera body you can switch on power to the camera. If you have a picture on the monitor, then adjust the zoom control first to display the view required albeit out of focus, then adjust the focus control. If you are unable to fine focus the camera you may need to alter the back focus adjuster which is described previously.

Setting Up an Auto Iris Direct Drive Lens for different Light Levels

The brightness setting in the menu determines when the IRIS of the lens opens and closes. It is important to set this correctly as if the brightness level is set too low, you may get satisfactory pictures during the day but at night not enough light can enter the camera giving poor quality pictures. The trick to setting up the brightness level is to set it up in the brightest possible conditions, i.e. midday on a sunlight day and keep the IRIS open to its maximum without a too bright picture. This means at night in low light, the IRIS will be open as much as possible and give the best results. Generally brightness levels are set at 50% by default in the Exposure menu, but from experience it is recommended to try this setting at 75% first.

Connecting the camera to other equipment

This traditional camera comes with a BNC for video and a 2 pin adapter for power. A short power lead (approx. 16cm long) is supplied that connects to a psu with a 2.1 power jack and terminal connections at other end, for connecting to terminal connector on back of camera. Ensure that cables are connected with the correct polarity if using the 12vDC model SEE240. The SEE243 12vDC/24vAC model is not polarity sensitive.
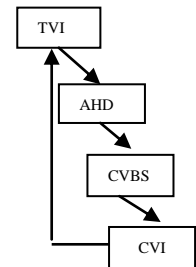
Accessing the Camera Menu

The camera video format can be selected from TVI/AHD/CVI/CVBS. CVBS is the analogue format. Connect the HD camera to control equipment using a female BNC-BNC lead. When using a co-ax type cable such as RG59 or similar, the outer braid of the co-ax provides the "0V GROUND" connection and the inner core provides the "Video" connection.

First power the camera up when it is connected to a monitor or DVR and monitor, and see if the required format displays a colour picture.

If not, press the joystick enter button for 3 seconds. The joystick is accessed by sliding the side cover back next to the 4 pin lens connection.
The enter button is shown here

Repeat until picture displays in colour and is sharp.

(Note that picture may be in b/w in low light levels or the cellophane lens cover has not been removed).

Alternatively if you use the menu, you can change the camera format in the menu:
Example - Change camera format to TVI:
<System> <Output> <MAIN OUTPUT ANALOG OUT0
<System> <Output> <ANALOG OUT0 TVI ↵
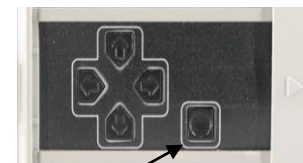
The above shows format cycle

When you are in correct format, press the joystick button in, momentarily, if you wish to access the menu.

Menu Access via TVI DVR using Coaxitron

Access to the camera menu is via the menu buttons on the camera or via the Up the Co-ax connection. Access by the menu buttons is described below. To use the **U**p **T**he **C**oax connection, this can be accessed using the PTZ menu in the MEGA TVI or MAX TVI DVRs using the AlienTVI(Coaxitron) protocol. This protocol is generally set in the PTZ Settings menu as default but if not, select using the following:

Enter the DVR **Menu**, click on **Video**, **PTZ** and **select the channel** number of the TVI camera connected to the DVR. Then click on **PTZ Settings** and select **AlienTVI(Coaxitron)** and click **OK.**
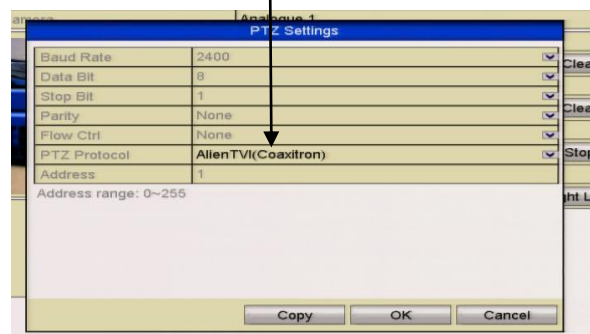
Now click on the **PTZ** button at the bottom of the screen and a full screen picture will be displayed with the PTZ control menu. Click on the **IRIS**+ button to display menu

Use the directional arrows to move up and down or left or right to select options.

OSD Menu

The SEE240 range cameras have an on screen display menu. This can be accessed using the joystick on the camera.

Press the **ENTER** button (see arrow) to enter the menu and use Left, Right, Up and Down to move through and amend menu settings.

Alternatively use the TVI DVR PTZ menu as detailed in "Menu Access via DVR" above.

The following menu display is shown:

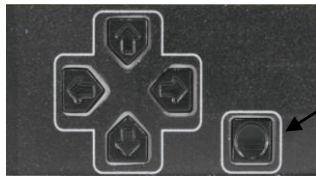| IRIS	ELC ALC	Electronic Light Control – overall brightness of picture Auto light compensation – measures peak light levels
FOCUS ADJ	OFF ON ↵	Focus Area Wide / Narrow / Middle (Def Wide) Disp Tone (Tone 0 Low, 1 Medium , 2 High) Def 0 Disp H_Pos 0 ~ 60 Horizontal Position (Def 2) Disp V_Pos 0 ~ 34 Vertical Position (Def 12) Disp H_Size 0 ~ 60 Horizontal Size (Def 12) Disp V_Size 0 ~ 34 Vertical Size (Def 14) Return

EXPOSURE ↵	BRIGHTNESS
	SHUTTER
	
	SENS-UP
	AGC
	RETURN
		0 ~ 20 (Def 10)
		Auto ↵ / Manual ↵ / Flicker
		Normal /Deblur (Def Auto)
		        Manual-
		1/25,1/50,1/100,1/200,1/400,1/800,1/1600,1/3200,
		1/6400,1/12800,1/25600 (Def 1/25)
		           Flicker
		Off /x2/x4/x8/x16/x32 (Def Off)
		0 ~ 10 (Def 10)

BACKLIGHT	OFF
	HLC ↵
	
	BLC ↵
	WDR ↵
	
	**SPECIAL NOTE:
	IF USING WDR YOU
	WILL LOSE ANY CVBS
	CONNECTION**
		
		Level 1 ~ 20 / Color –
		BLK/Customise/WHT/YEL/CYN/GRN/MAG/RED/BLU
		H-Pos – V-Pos – H-Size – V-Size - Return
		Normal / ROI ↵ (Region of Interest)
		      ROI –
		      Window Zone 0 ~ 3
		      Window Use ON / OFF
		      H-POS 320
		      V-POS 180
		      H-SIZE 512
		      V-SIZE 432
		      Return ↵
		Weight – Low / Middle / High (Def Middle)
		Return

DAY&NIGHT	AUTO ↵	IR LED Off / On **(No IRs but IR sensitive)** Anti-Sat. 1 ~ 20 Default 10 (Not used when IRs off) AGC Threshold 1 ~ 20 (Def 9) AGC Margin 1 ~ 20 (Def 13) Delay – Low / Middle / High - Return ↵
	COLOUR	
	B&W ↵	IR LED Off / On **(No IRs but IR sensitive)** Anti-Sat. (Not used) Return ↵
	EXTERNAL ↵	IR LED Off / On **(No IRs but IR sensitive)** Anti-Sat. 1 ~ 20 Default 10 (Not used when IRs off) Return Extern S/W Low / High D->N Level 1 ~ 20 Default 13 N->D Level 1 ~ 20 Default 7 Delay – Low / Middle / High - Return ↵

COLOR ↵	AWB Auto/Autoext/Preset
	    Manual
	Color Gain 1 ~ 20
	(Default 10)
	Return
		Preset (Push)
		Color Gain 1 ~ 20 Default 10
		Return
		
		MANUAL ↵
		  C-Temp 5000K / 8000K / 3000K (Def 5000K)
		  R-Gain 1 ~ 20 (Default 10)
		  B-Gain 1 ~ 20 (Default 10)
		  Return

DIGITAL NOISE REDUCTION	DNR	Off / Low / Middle / High (Default Middle)

IMAGE	SHARPNESS ↵
	GAMMA
	MIRROR
	FLIP
	ACE
	
	DEFOG
	
	PRIVACY
	
	RETURN ↵
		CVBS / CVI / TVI / AHD - 1 ~ 10 TVI Default 4
		0.55 / 0.65 /0.75 / 0.45 (Default 0.55)
		Off / On (Default Off)
		Off / On (Default Off)
		Off / Low / Middle / High (Adaptive Colour &
		    Contrast Enhancement) (Default Off)
		Off / On ↵ Mode – Auto / Manual
		       Level - Low / Middle / High
		  (Default Off)
		Off / On ↵ Zone Num (0 ~ 15) / Zone Disp Off /On
		      H-Pos / V-Pos / H-Size / V-Size /
		      Y-Level (1 ~ 20) / CR Level (1 ~ 20)
		      CB Level (1 ~ 20) / Return
		      TRANS (0 ~ 3)
		   (Default Off)
		      Return

MOTION	OFF / ON ⏎	Det Window ⏎
		    Window Zone 0 ~ 3 (Default 0)
		    Window Use On/Off
		    Det H-Pos \<nn> \<nn> value = position (Def 1)
		    Det V-Pos \<nn> \<nn> value = position (Def 1)
		    Det H-Size \<nn> \<nn> value = size (Def 58)
		    Det V-Size \<nn> \<nn> value = size (Def 32)
		    Return
		Det Tone 0 ~ 4 (Def 2)
		MDRect Fill On/Off (Default On)
		Sensitivity 0 ~ 10 (Default 5)
		Motion OSD On/Off (Default On)
		Text Alarm On/Off (Default On)
		Signal Out Off/On (Default Off)
		Return

SYSTEM	OUTPUT ⏎
	
	FRAME RATE
	FREQUENCY
	COM. ⏎
	
	IMAGE RANGE
	FULL / COMP / USER ⏎
	
	COLOR SPACE
	AUDIO MIC
	COLOR BAR
	LANGUAGE
	CAM TITLE
	
	RESET ON(Push)
	Return
		Main Output Analog Out 0 ⏎ / Out 1 ⏎
		 Analog Out 0 TVI/AHD/CVI / Analog Out1 CVBS
		 Y Gain 0 ~ 32 Def 16 / Y Gain not used
		 CB Gain 0 ~ 32 Def 119 / CB Gain not used
		 CR Gain 0 ~ 32 Def 119 / CR Gain not used
		 Position 0 ~ 256 Def 128 / Position not used
		 Burst Freq 0 ~ 256 Def 128 / Burst Freq not used
		 Burst Gain 0 ~ 128 Def 79 / Burst Gain not used
		 UCC Select0 8 Byte (**Do not change this**)
		 720 EX Off/ On
		 UCC Select1 not used
		 Exit
		1080 25P
		50Hz / 60Hz
		COM
		    Cam ID 1 ~ 255 Default 0
		    Baudrate 2400 / 4800 / 9600 / 57600 / **115200**
		    Set Done On (push)
		    Return
		    FULL / COMP / USER ⏎
		                    Offset 0 ~ 32 (Default 16)
		                    Return
		
		IMAGE RANGE
		    Offset 0 ~ 32 (Default 16)
		    Return
		HD-CbCr / YUV / SD-CbCr
		(Not Used)
		Off / On
		ENG / CHN / CHN(S) / JPN / KOR
		Off / Right Up ⏎ / Left Down ⏎
		    (Use up or down to select character and
		     left or right to select position)
		Hold down Iris+ button for 3 seconds

EXIT	Press IRIS + to exit	

Menu Description

The following menu description gives more in depth information about the menu options. In some instances recommendations are made to hopefully enhance the results. However every installation will be different and there will occasions when alternative solutions may be more suitable.

IRIS	ELC	Electronic Light Control – measures overall brightness
	ALC	Auto light compensation – measures peak light levels

ELC   Electronic Light Control – measures overall brightness of picture and applies to manual iris lens
ALC   Auto light compensation – measures peak light levels and applies to auto iris lens which this camera has.
Recommendation is to set ELC

FOCUS ADJ	OFF ON ↵	Focus Area Wide / Narrow / Middle (Def Wide) Disp Tone (Tone 0 Low, 1 Medium , 2 High) Def 0 Disp H_Pos 0 ~ 60 Horizontal Position (Def 2) Disp V_Pos 0 ~ 34 Vertical Position (Def 12) Disp H_Size 0 ~ 60 Horizontal Size (Def 12) Disp V_Size 0 ~ 34 Vertical Size (Def 14) Return

This camera has a fixed lens and therefore focus is not adjustable. This option is N/A.

Focus Area Middle / Wide / Narrow Select to create a focus box
In the camera menu you can enter the Focus Adjust option and select and area for best focus result by creating a box (Wide, Middle or Narrow) to select the required area for focusing. These 3 bars means sharpness, from left to right means from low frequency to high frequency, or from wide range to narrow range sharpness. Green stands for the former highest sharpness, Yellow stands for the present highest sharpness. Note that this is a setup aid for manual focusing and only applies when manual vari-focal lenses are used . Ensure option is switched off after setup.

Disp Tone 0 / 1 / 2   (Alter brightness of focus aid)

Disp H _ Pos   (Set horizontal position of Focus Box)

Disp V _ Pos   (Set vertical position of Focus Box)

Disp H _ Size   (Set horizontal size of Focus Box)

Disp V _ Size   (Set vertical size of Focus Box)

RETURN
Return to Main Menu

EXPOSURE ↵	BRIGHTNESS	0 ~ 20 (Def 10)
	SHUTTER	Auto ↵ / Manual ↵ / Flicker
		Normal /Deblur (Def Auto)
		Manual-
		1/25,1/50,1/100,1/200,1/400,1/800,1/1600,1/3200,
		1/6400,1/12800,1/25600 (Def 1/25)
		Flicker
	SENS-UP	Off /x2/x4/x8/x16/x32 (Def Off)
	AGC	0 ~ 10 (Def 10)
	RETURN	

BRIGHTNESS   **1 ~ 20** (Default = 10)
Use this setting to increase brightness by opening camera iris. Useful for improving night time viewing by using in conjunction with the Sens-Up option. However be aware to consider possible effects when there is strong sunlight in summer that if setting brightness to high it may cause the picture to white out.
Recommendation is to set brightness to 15.

SHUTTER   **Auto / Manual**
                      1/25,1/50,1/100,1/200,1/400,1/800,1/1600,1/3200,1/6400,1/12800,1/25600, Flicker
Shutter speed changes allow you to freeze moving objects without ghosting but reduce the amount of available light the faster the shutter operates. At night the slower the shutter speed the more light is available. The Flicker option sets the shutter speed at 1/250 that synchronises with fluorescent tubes so that the pulsing effect is minimised.
Recommendation is to leave this in Auto.

SENSUP   **Off /x2/x4/x8/x16/x32**
The SensUp option allows the shutter speed to be reduced allowing additional light to be captured. Increasing brightness helps night time viewing (see BRIGHTNESS setting above). If set too high and SensUp is slowing shutter speed down to a lower speed than any movement speed, ghosting can occur.
Recommend that SensUp is switched to x2 or greater but higher settings can cause ghosting.

AGC   **1 ~ 20** (Default = 10)
For better performance in low light conditions the AGC (Automatic Gain Control) can be increased. This has the effect of making the picture brighter but it may also add more noise as it amplifies all aspects of the video signal. Snowy pictures can be caused when SensUp levels are increased.
Recommend AGC is decreased below 10 if Sensup is set. Set to 9 if SensUp x2.

RETURN
Return to main menu.

| BACKLIGHT | OFF
HLC ⤶

BLC ⤶
WDR ⤶

SPECIAL NOTE:
IF USING WDR YOU
WILL LOSE ANY CVBS
CONNECTION | Level 1 ~ 20 / Color –
BLK/Customise/WHT/YEL/CYN/GRN/MAG/RED/BLU
H-Pos – V-Pos – H-Size – V-Size - Return
Normal / ROI ⤶ (Region of Interest)
    ROI –
    Window Zone 0 ~ 3
    Window Use   ON / OFF
    H-POS   320
    V-POS   180
    H-SIZE   512
    V-SIZE   432
    Return   ⤶
Weight – Low / Middle / High (Def Middle)
Return |

Backlight Compensation when set, can balance light levels during day and night so that light hitting objects viewed, is evenly spread across the picture. There are three options HLC, BLC and WDR that can be selected.

HLC ⤶
(High Level Backlight Compensation)
Level 1 ~ 20 / Mode – All Day / Night Only
HLC is high level backlight compensation that will darken a bright area e.g car headlights. This can be set for all day or night only. The lower the level the more compensation is applied. Note that using the night option may be best as daytime pictures generally give a more even spread of light apart from sunlight issues.
Recommend only to use on Night Only if bright lights are causing complete video loss.

BLC ⤶
(Backlight Compensation)
H-Pos – V-Pos – H-Size – V-Size
BLC is the standard setting for low level light differences. Select an area where BLC is required. Using the H-Pos (Horizontal Position) and V-Pos (Vertical Position) followed by H-Size (Horizontal Size) and V-Size (Vertical Size) create a box where light balancing is required.

WDR ⤶
(Wide Dynamic Range) Normal / ROI (Region of Interest) / Weight – Low / Middle / High
WDR is used for surveillance applications where there is a large difference in foreground and background light levels. Without the option switched on, views by cameras looking through windows may not give good reproduction outside. Also where there are areas of shadow and bright sunlight, the WDR option helps to balance light levels. ROI provides an option to create up to 4 areas using WDR rather than applying to the whole picture.
Recommend using WDR where balancing light levels in warehouses or large buildings is difficult. Also helps when light is entering a window or door entrance.

Return
Return to main menu

DAY&NIGHT	AUTO ↵	IR LED Off / On **(No IRs but IR sensitive)** Anti-Sat. 1 ~ 20 Default 10 (Not used when IRs off) AGC Threshold 1 ~ 20 (Def 9) AGC Margin 1 ~ 20 (Def 13) Delay – Low / Middle / High - Return ↵
	COLOUR	
	B&W ↵	IR LED Off / On **(No IRs but IR sensitive)** Anti-Sat. (Not used) Return ↵
	EXTERNAL ↵	IR LED Off / On **(No IRs but IR sensitive)** Anti-Sat. 1 ~ 20 Default 10 (Not used when IRs off) Return Extern S/W Low / High D->N Level 1 ~ 20 Default 13 N->D Level 1 ~ 20 Default 7 Delay – Low / Middle / High - Return ↵

Day & Night menu controls light settings and predominantly provides options for using the cameras' Infra-Red facilities. There are four sub-options namely External, Auto, Colour and Black & White. **This camera has no IR board but has a True Day Night Filter so is IR sensitive.**

EXTERNAL ↵
This option does not use the internal CDS sensor to measure the available light. With cameras using their own IR light source, this option can give the best results. Note that this option has a manual adjustment for setting IR switch on according to lux level from day to night and from night to day, plus an option for applying a delay factor. This stops switching until a pre-determined lux level remains constant. There is also the option to switch off the IRs.
Recommend to try this option as camera has no internal IRs but is IR sensitive
AUTO ↵
The standard Auto function uses the internal CDS to measure available light. This uses AGC (Automatic Gain Control) and Anti Saturation to measure picture quality before switching which is used in conjunction with a pre-determined time interval when lux levels remain constant. There is also the option to switch off the camera IRs.

COLOUR
This option will remain in colour mode day and night. There are no sub menu settings. This will only be applicable when light levels at night allow the camera to continue working at 4 lux or higher.

B&W ↵
When this option is selected the camera will remain in black and white mode, day and night. The only sub menus available are Anti Saturation and the option to switch off the camera IRs.

Return
Return to main menu.

COLOR ↵	AWB Auto/Autoext/Preset Manual Color Gain 1 ~ 20 (Default 10) Return	Preset (Push) Color Gain 1 ~ 20 Default 10 Return MANUAL ↵ C-Temp 5000K / 8000K / 3000K (Def 5000K) R-Gain 1 ~ 20 (Default 10) B-Gain 1 ~ 20 (Default 10) Return

This feature automatically adjusts the colour settings in the camera to match the type of light available, so that white and other colours appear as natural as possible.

AUTO
This option automatically sets white balance.

AUTOext
This option is generally used to set white balance when camera is used externally.

PRESET(Push)   Press IRIS+ or joystick centre button down
This option allows you to set white balance using current light levels. Settings will only change when you press IRIS+ or joystick centre button down.

MANUAL ↵
Use this option to manually balance light levels. Note that the manual option is used for a static light environment and generally suitable for cameras installed indoors using constant artificial light.
            C-Temp 5000K / 8000K / 3000K
            R-Gain 1 ~ 20 (Default 10) Sets Red Gain
            B-Gain 1 ~ 20 (Default 10) Sets Blue Gain
            Return
RETURN
Return to main menu

DIGITAL NOISE REDUCTION	DNR	Off / Low / Middle / High (Default Middle)

DNR   **Off / Low / Middle / High**
Digital Noise Reduction is generally applied when the Sens-Up feature is used to improve night time views in low light conditions. Using the Sens-Up option slows the shutter speed but this increases noise and causes grainy picture effects. DNR helps to minimise this effect. The options low, medium and high, apply different levels of noise reduction and therefore have to be tested to gain the best result as light levels will be different at every site and location.
Recommend to leave off even when Sense-Up is on and if grainy picture is created then test starting at low, and leave camera on the best setting.

IMAGE	SHARPNESS ↵	CVBS / CVI / TVI / AHD - 1 ~ 10 TVI Default 4
	GAMMA	0.55 / 0.65 /0.75 / 0.45 (Default 0.55)
	MIRROR	Off / On (Default Off)
	FLIP	Off / On (Default Off)
	ACE	Off / Low / Middle / High (Adaptive Colour & Contrast Enhancement) (Default Off)
	DEFOG	Off / On ↵ Mode – Auto / Manual
		Level - Low / Middle / High
		(Default Off)
	PRIVACY	Off / On ↵ Zone Num (0 ~ 15) / Zone Disp Off /On
		H-Pos / V-Pos / H-Size / V-Size /
		Y-Level (1 ~ 20) / CR Level (1 ~ 20)
		CB Level (1 ~ 20) / Return
		TRANS (0 ~ 3)
		(Default Off)
	RETURN ↵	Return

IMAGE ↵

The Image menu covers a variety of options including sharpness, mirror, defog, shading and privacy masking facilities.

Sharpness ↵ (1~ 10 for CVBS / CVI / TVI / AHD)

Depending on the camera format selected, the format/s will be in dark type for adjustment.
The sharpness control is done by digital correction and the best way to set this option is to set level to maximum of 10, then flick back to 1, to see the difference. Then adjust to display sharpest picture without displaying heavy black lines around subjects.

Gamma   0.55 / 0.65 / 0.75 / 0.45 (Default 0.55)

Gamma correction controls and adjusts the overall brightness of an image.
Recommend trying each option and select best quality picture

Mirror   Off / On

This option changes a left handed view to a right handed view if switched on.

Flip   Off / On

This option turns a view upside down. This option is generally used with the Mirror function.

ACE   Off / Low / Middle / High

Adaptive Colour & Contrast Enhancement (ACE) is an automated option for adjusting colour and contrast as light levels changes through the day. Low, middle or high options are available.
Recommend setting option to Low

DEFOG   **Off / On**↵

                Mode – Auto   - Level - Low / Middle / High
                     Manual - Level - Low / Middle / High

The defog option can be used to improve the captured image in poor weather conditions such as smog, fog or smoke. Three levels of optimisation can be applied, low, middle or high. This option is useful to stabilise rapid fluctuating light levels.

Recommend setting this option to On

PRIVACY   **Off / On** ↵

          Zone Num (0 ~ 15) This function allows the creation of up to 16 coloured areas to be created to provide privacy masking.
          Zone Disp Off /On The Zone Display allows you to switch on and off the zone number.
          H-Pos / V-Pos / H-Size / V-Size

Each area can be positioned using the H-Pos (horizontal position), VPos (vertical position) and sized using the H-Size (horizontal size) and V-Size (vertical size) options. The Zone Display allows you to switch on and off the zone number.

              Y-Level (1 ~ 20)
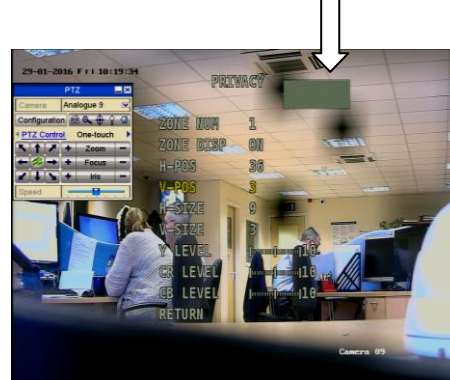   CR Level (1 ~ 20)
              CB Level (1 ~ 20)

The Y-Level is the colour hue for privacy masking and the CR Level (Chrominance Red) and CB Level (Chrominance Blue) are used to create the required colour.

The pictures below show an area that has been masked, before and after.

             TRANS (0 ~ 3) Set the transparency level of the masked areas.

RETURN
Return to main menu

MOTION	OFF / ON ↵	Det Window ↵
		    Window Zone 0 ~ 3 (Default 0)
		    Window Use On/Off
		    Det H-Pos <nn> <nn> value = position (Def 1)
		    Det V-Pos <nn> <nn> value = position (Def 1)
		    Det H-Size <nn> <nn> value = size (Def 58)
		    Det V-Size <nn> <nn> value = size (Def 32)
		    Return
		Det Tone 0 ~ 4 (Def 2)
		MDRect Fill On/Off (Default On)
		Sensitivity 0 ~ 10 (Default 5)
		Motion OSD On/Off (Default On)
		Text Alarm On/Off (Default On)
		Signal Out Off/On (Default Off)
		Return

MOTION   Off / On ↵

The motion option when switched on allows you to create up to four areas in the picture and as motion is detected in these areas, the areas will be displayed with red moving boxes.

DET WINDOW ↵   Enter to select window number

Window Zone   0 ~3
Window Use   On / Off
Det H-Pos   **<nn>** Set horizontal position
Det V-Pos   <nn> Set vertical position
Det H-Size   <nn> Set horizontal size
Det V-Size   <nn> Set vertical size
Each area can be positioned using the H-Pos (horizontal position), VPos (vertical position) and sized using the H-Size (horizontal size) and V-Size (vertical size) options.
Return

DET TONE   0 ~ 4   Sets the background tone to enable the motion detect area to be more or less prominent.

MDRECT FILL On / Off   Allows the switching on or off of the selected zone

SENSITIVITY 0 ~ 10   Sets the sensitivity of the motion detection

**MOTION OSD On / Off**   Switch Motion On Screen Display on or off

TEXT ALARM On / Off   Switch Motion Text Alarm on or off.

Return

SYSTEM	OUTPUT ↵	Main Output Analog Out 0 ↵ / Out 1 ↵
		Analog Out 0 TVI/AHD/CVI / Analog Out1 CVBS
		Y Gain 0 ~ 32 Def 16 / Y Gain not used
		CB Gain 0 ~ 32 Def 119 / CB Gain not used
		CR Gain 0 ~ 32 Def 119 / CR Gain not used
		Position 0 ~ 256 Def 128 / Position not used
		Burst Freq 0 ~ 256 Def 128 / Burst Freq not used
		Burst Gain 0 ~ 128 Def 79 / Burst Gain not used
		UCC Select0 8 Byte (**Do not change this**)
		720 EX Off/ On
		UCC Select1 not used
		Exit
	FRAME RATE	1080 25P
	FREQUENCY	50Hz / 60Hz
	COM. ↵	COM
		Cam ID 1 ~ 255 Default 0
		Baudrate 2400 / 4800 / 9600 / 57600 / **115200**
		Set Done On (push)
		Return
		FULL / COMP / USER ↵
		Offset 0 ~ 32 (Default 16)
		Return
	IMAGE RANGE	
	FULL / COMP / USER ↵	IMAGE RANGE
		Offset 0 ~ 32 (Default 16)
		Return
	COLOR SPACE	HD-CbCr / YUV / SD-CbCr
	AUDIO MIC	(Not Used)
	COLOR BAR	Off / On
	LANGUAGE	ENG / CHN / CHN(S) / JPN / KOR
	CAM TITLE	Off / Right Up ↵ / Left Down ↵
		(Use up or down to select character and
		left or right to select position)
	RESET ON(Push)	Hold down Iris+ button for 3 seconds
	Return	

The SYSTEM menu provides a number of general facilities. These include selecting the correct camera format, setting a camera identification number and baud rate for RS485 connection, resolution mode, frame rate and colour standard, language, test colour bar, camera title and camera reset option.

OUTPUT ↵   Main Output Analog Out 0 /1   (Out 0 = HD Out 1 = CVBS)
                            Analog Out 0 TVI ↵ (Select TVI / AHD / CVI)
                            Y Gain   0 ~ 32 Default 16   Yellow Gain
                            CB Gain 0 ~ 32 Default 12   Blue Gain
                            CR Gain 0 ~ 32 Default 12   Red Gain
                            Position 0 ~ 256 Default 128   Position
                            Burst Freq 0 ~ 256 Default 128   Burst Frequency
                            Burst Gain 0 ~ 128 Default 69   Burst Gain
                            UCC Select0 8 Byte (**Do not change this**)
                            720 EX Off/ On
                            UCC Select1 not used
                            Exit

	Analog Out1	CVBS / TVI↵ / Off
	Analog Out1	CVBS
	Return	

FRAME RATE   1080 25P / 720 25P / 720 (Crop) 50P   (Select camera frame rate)
Sets the camera output mode. 1080P is default.

FREQ   50Hz / 60Hz (Cycles per second)

COM. ↵
Cam ID 1	(Set ID number in camera between 0 and 255)
Baud Rate	2400 / 4800 / 9600 / 57600 /115200
Set Done	(Press Iris+ button)
Return	

IMAGE RANGE   Full **/** Comp / User ↵
                              Offset 1 ~ 32 (Default = 16)
                   Return

COLOR SPACE   HD-CbCr (High Definition Chrominance Blue and Red)
                   YUV (Allows grayscale adjustment (Y= luminance UV= colour)
                   SD-CbCr   (Standard Definition Chrominance Blue and Red)

AUDIO MIC   Not used

COLOR BAR   Off / On   (Useful for testing camera colour quality)

LANGUAGE   ENG / CHN / CHN(S) / JPN / KOR (Select language required)

CAM TITLE   Off / Right Up↵ / Left Down ↵ (Enter camera title)

(Use up or down to select character and left or right
to select position) Hold down Iris+ button for 3 seconds
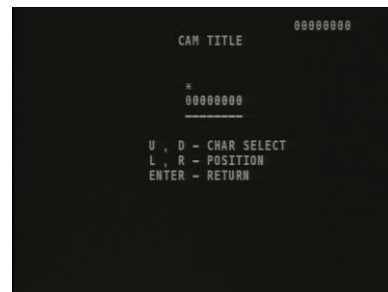
RESET ON(Push)↵   Press IRIS+ or joystick centre button down

Return

EXIT	**SAVE↵**	Press IRIS + to exit
	CANCEL↵	Press IRIS + to cancel and exit without saving

Technical Specifications

FUNCTION	CAMERA MODEL					
Camera Model	SEE240			SEE243		
Camera Options for lenses	SEE240 No Lens	SEE240L 2.8~12mm	SEE240P 5 ~ 50mm	SEE243 No Lens	SEE243L 2.8~12mm	SEE243P 5 ~ 50mm
Imaging Sensor	1/2.8" CMOS Sensor					
Back Focus Adjuster	Obviating need for C Mount spacer ring					
Effective Pixels	1945 (H) x 1097 (V) Approx 2.1 Mega Pixels					
Video Output	TVI/AHD/CVI/CVBS					
True Day Night	TDN built in IR cut filter					
IR Sensitive	No IRs but IR sensitive					
S/N Ratio	More than 52dB (AGC Off)					
HD Distance	Standard RG59 up to 500m					
Minimum Illumination	Colour: 0.1Lux @F2.0, AGC ON, B&W: 0.001Lux @F2.0, AGC ON, DSS ON					
Electronic Shutter Speed	Auto / Manual 1/25 ~ 1/25600 sec / Flicker					
AutoWhite Balance	Auto / Autoext / Preset / Manual					
Backlight Compensation	BLC / HLC / Off					
WDR	Wide Dynamic Range plus Region of Interest					
Automatic Gain Control	Selectable					
Image Adjust	Sharpness / GAMMA / Mirror / Flip / ACE / Defog					
Language	English / Chinese / Korean / Japanese					
Camera Title	On / Off (Selectable)					
Day & Night	Auto / Colour / B/W) / External					
Motion Detection	On / Off (4 zone selectable)					
Privacy Masking	On / Off (16 zone selectable)					
Digital Noise Reduction	2D/3D DNR On /Off (Selectable)					
Sens-up NiteDevil function	Off/2x/4x/6x/8x/16x/32x					
Working Temperature	-10℃ ~ +50℃, Humidity ≤90%					
Storage Temperature	-10℃ ~ +60℃					
Menu Control	Menu Control via joystick or using Coaxitron					
Supplied Voltage	12vDC			12vDC / 24vAC		
Power Consumption	130mA			12V DC 177mA / 24vAC 143mA		
Power Supply required	200mA			250mA / 200mA		
Dimensions	74mm wide x 53mm height x 140mm long inc. BNC female excluding lens					
Case	Solid metal construction sprayed Silver/Champagne					