

## NiteDevil WDR Hi-Res Dome

The *NiteDevil* Dome Camera produces high quality images and works in very low light conditions down to 0.00019 Lux. It has many features including a solid aluminium waterproof base, 3D axis mounting inner bracket for wall mounting, a SONY SuperHad CCD and a 2.8mm ~ 12mm varifocal lens. An OSD facility provides options for wide dynamic, High Sensitivity BLC, motion detection, privacy masking and other camera functions.

### Models Available

**CAM751 540TVL, 12VDC**

**CAM752 540TVL, 12VDC/24VAC**

### Electronic Features

- ✓ 1/3" SONY SUPER HAD CCD II
- ✓ Low illumination down to 0.0008 Lux
- ✓ Menu for Motion Detection & camera setup
- ✓ Wide Dynamic Range Function.
- ✓ High Sensitivity Backlight Compensation



### Mechanical Features

- ✓ Vandalproof & Weatherproof
- ✓ 3 Axis 3D built-in bracket
- ✓ Vari-focal 2.8 ~ 12mm Auto DC Iris Lens
- ✓ Aluminium housing with Polycarbonate Smoked Cover
- ✓ Two Allen screws to stop tampering

### Mounting the Camera

The camera is for mounting on a wall, ceiling or outdoor fascia board. Note that this camera has a 3D gimble allowing wall mounting or ceiling mounting. Note that fitting the screws into a ceiling will require support for the screws. N.B Please be aware that when refitting camera, the dome cowling does not obscure the lens.

### Powering the Camera

#### CAM751

The dome requires a 12V DC regulated power supply. Connections are polarity sensitive so therefore ensure that the positive and negative cables are connected correctly. The camera is provided with a fly lead with a 2.1 jack connector for power. This camera draws a maximum of 140mA at 12v DC. Ensure that a regulated power supply is used if using 12vDC and allow adequate headroom i.e only use a power supply with a minimum rating of 200mA.

#### CAM752

This dome is dual voltage. It will work on 12vDC or 24vAC. Connections are not polarity sensitive so therefore power connections can be either way round. The camera is provided with a fly lead with a 2.1 jack connector for power. This camera draws a maximum of 230mA at 12v DC or 110mA at 24vAC. Ensure that a regulated power supply is used if using 12vDC and allow adequate headroom i.e only use a power supply with a minimum rating of 300mA.

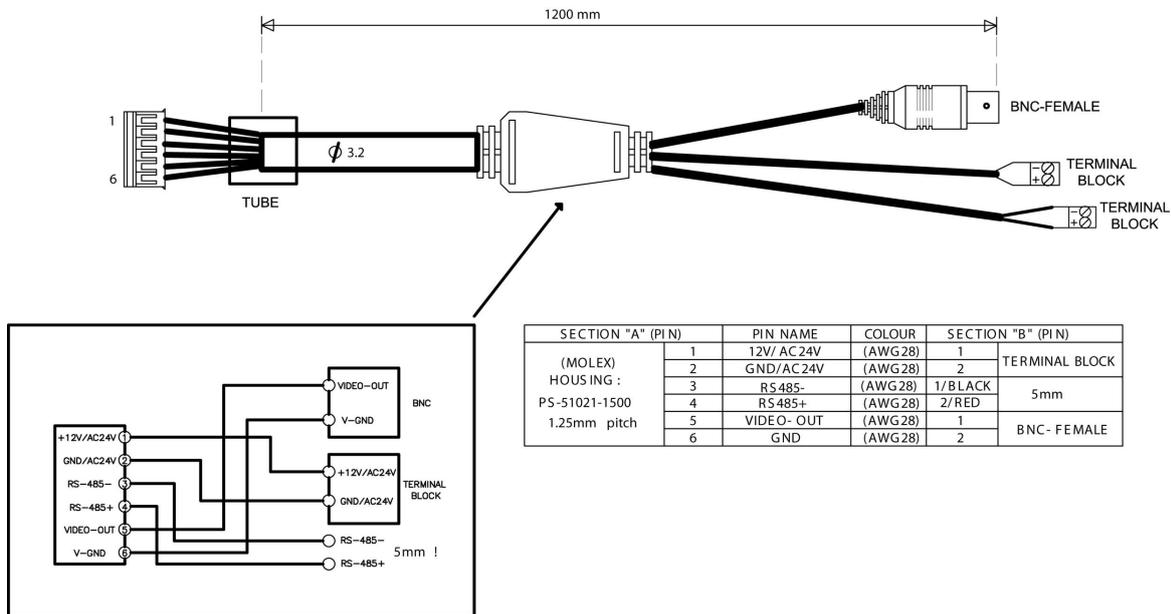
### Connecting the camera to control equipment.

The dome camera comes with a fly lead for video out. To reduce installation time the video out lead is terminated into a male BNC connector. This allows the installer to effortlessly connect the camera to control equipment via a female BNC-BNC lead. A special setup joystick controller is located on the side of the PCB board and this allows access to the OSD menu. A special socket is located to the right of the joystick controller to connect an optional test video monitor lead.

### RS485 Connection

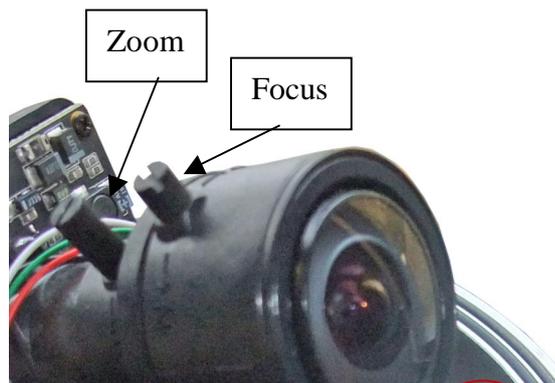
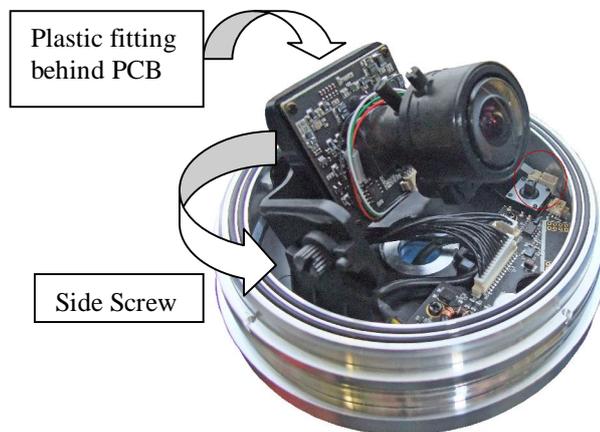
The RS485 connection allows access to the menu using a keyboard or DVR PTZ operation using an IRIS OPEN to open menu and select options using near, far, open and closed. Red needs to be connected to Transmit + and Black to Transmit -.

**Cable Diagram**

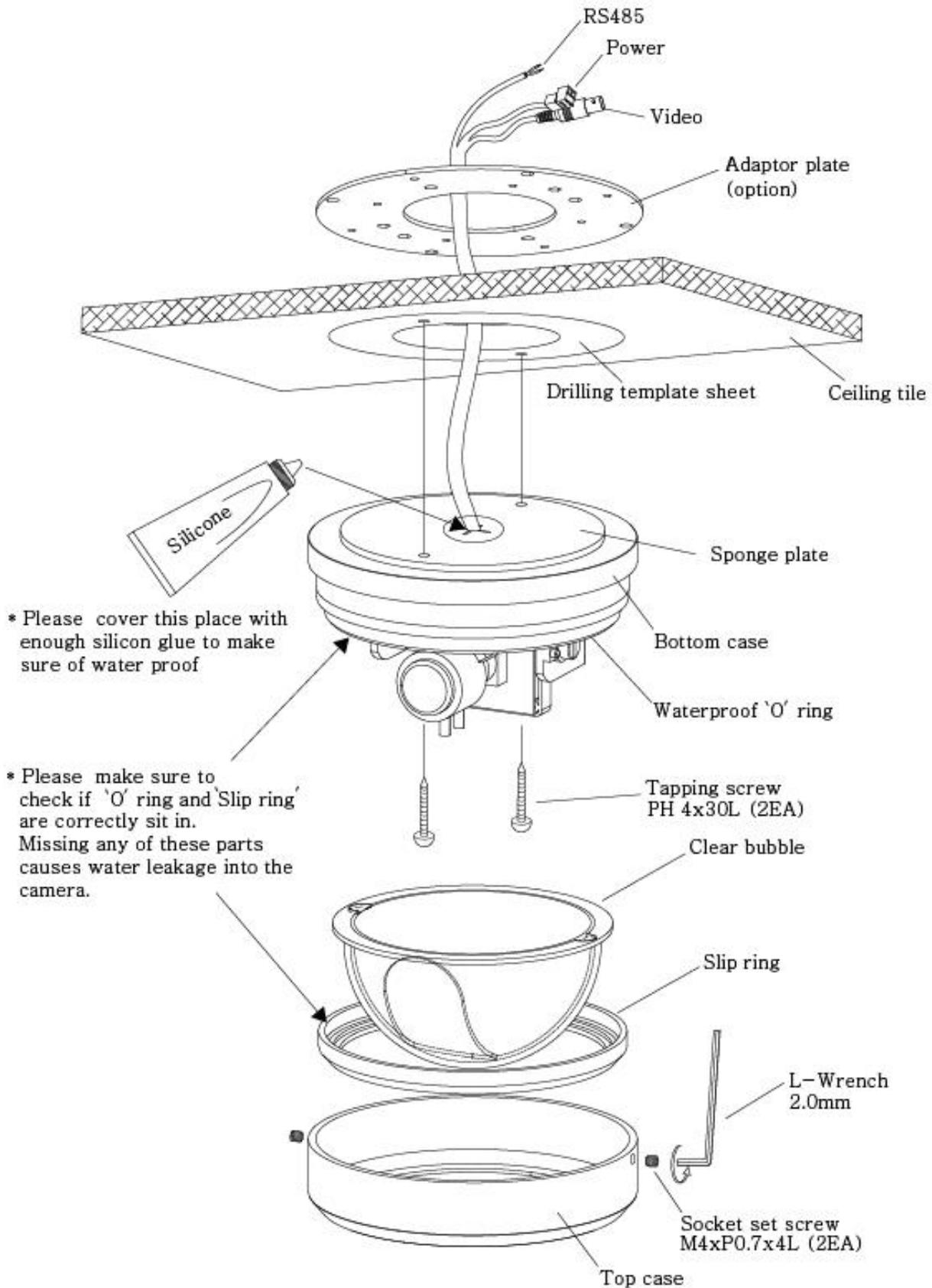


**Setup Instructions**

1. First adjust the camera position using the 3 way gimble. The complete camera can be moved in the metal housing. Hold the camera at either side of the camera bracket where the locking screws are located. **Do not grip the camera lens.**
2. Adjust the vertical angle by releasing the two side screws and the moving the camera up or down.
3. Re-tighten these screws when the adjustment has been made.
4. A separate small adjustment can be made holding either side of the plastic fitting behind PCB and moving sideways.
5. Now adjust the zoom and focus settings using the controls shown.
6. Loosen the controls using a small screwdriver. You may find it easier to set the Zoom control first and then adjust the Focus.
7. Retighten the Zoom and Focus controls.

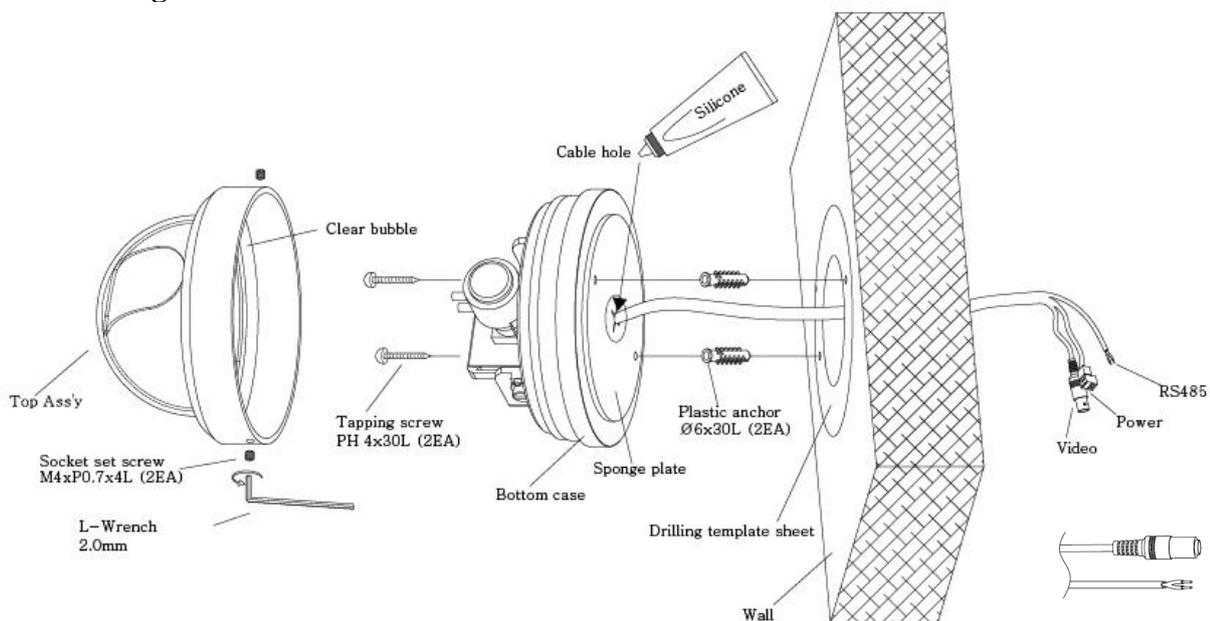


**Ceiling Mount**



1. Place drilling template sheet onto a ceiling surface and drill holes through the marked positions.
2. Put a sponge plate onto the bottom surface of the Dome. This prevents the camera from water or dust ingress. Please put sufficient silicon onto the cable hole to cover gaps between cable and sponge plate.
3. Fix the Dome base with tapping screws.
4. Set up camera functions.
5. Fix the dome cover /slip ring /top case with 'L' wrench and screws.

### Wall Fitting



- 1) Place a drilling template sheet onto wall surface and drill holes through the marked positions.
- 2) Put a sponge plate onto the bottom surface of the Dome. This prevents the camera from water or dust ingress. Please put enough silicon onto the cable hole to cover gaps between cable and sponge plate.
- 3) Fix the Dome base with Tapping screws.
- 4) Rotate the camera using 3-Axis mechanism in order to capture objects in upright position and setup function.
- 5) Fix the Dome cover with screws by using 'L' wrench supplied

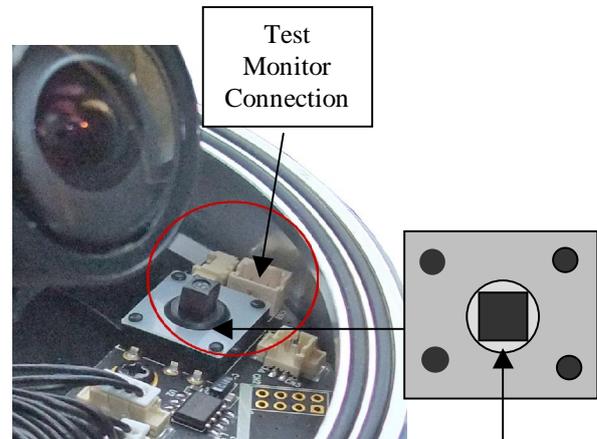
**OSD (On Screen Display) Function.**

Remove the dome cover using the Allen key supplied to access the PCB board for entering the menu.

1. If you want to use the test monitor lead supplied, plug it into the Test Monitor Connection shown in diagram. The spare short lead is a spare extension.

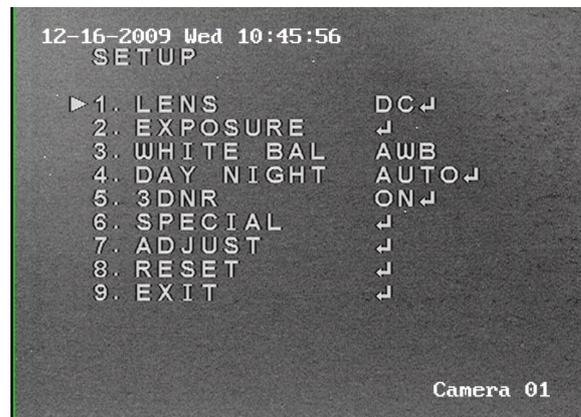
2. The OSD menu is accessed by first pressing down the centre button (SET Button).

- 3. Move button upwards to move down menu
- Move button downwards to move up menu
- Move button right to move right
- Move button left to move left
- Press button down to Enter change



**Menu Set  
Button  
Press  
Down**

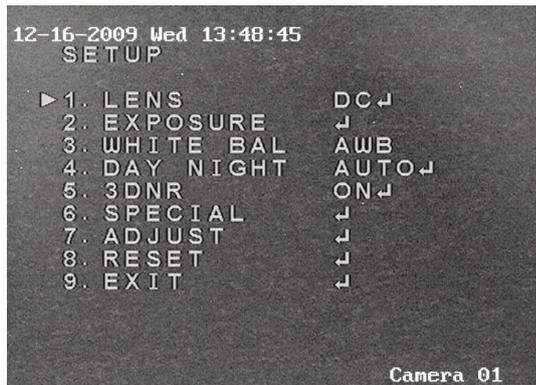
The following menu will be displayed on your monitor on pressing SET button (Joystick controller):



**Menu Structure Functions**

LENS	DC			
EXPOSURE	SHUTTER SENSE-UP	BRIGHTNESS BLC / HSBL	AGC D-WDR	
WHITE BAL	AWB INDOOR	AWC-SET OUTDOOR	MANUAL ATW	
DAY NIGHT	COLOUR	AUTO	EXT	B/W
3 DNR	ON	OFF		
SPECIAL	CAM TITLE PRIVACY	D-EFFECT SYNC	RS485 (N/A) LANGUAGE	MOTION
ADJUST	SHARPNESS	BLUE	RED	
RESET	FACTORY			
EXIT				

**NOTE:** All items with the icon allow you to access a submenu by pressing the SET button down. Any item showing - - - icon functionality is not available on this camera.



**LENS**

This option allows the screen brightness to be adjusted. Range of brightness setting is 0 ~ 100.

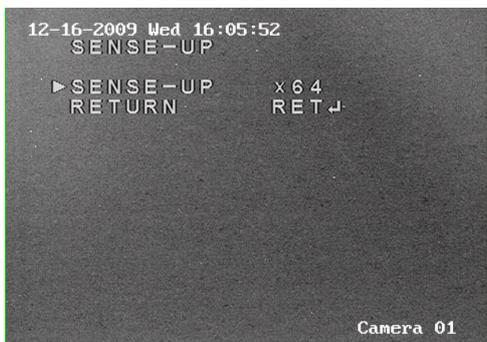
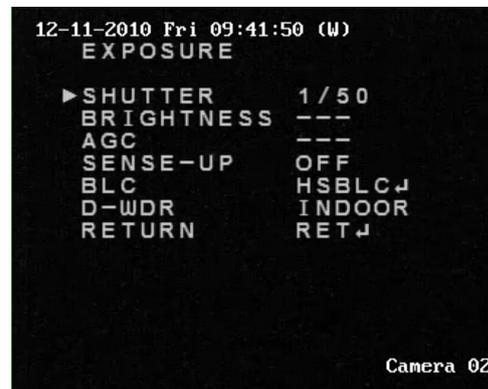
**EXPOSURE**

**SHUTTER** The shutter speed is set at 1/50, x2, X4, x8, x16, x32, x64, x128, x256, 1/100000, 1/10000, 1/5000, 1/200, 1/500, 1/250, FLK.

**NOTE:** Changing shutter speed affects brightness.

**BRIGHTNESS** Same as LENS menu setting

**AGC** Low / Middle / High / OFF  
You can adjust the gain level, but the brighter the screen the higher the noise level.



**SENSE-UP** When it is dark the camera automatically detects the light level and maintains a clear picture. The following options can be set: x256, x128, x64, x32, x16, X8, x4, x2.

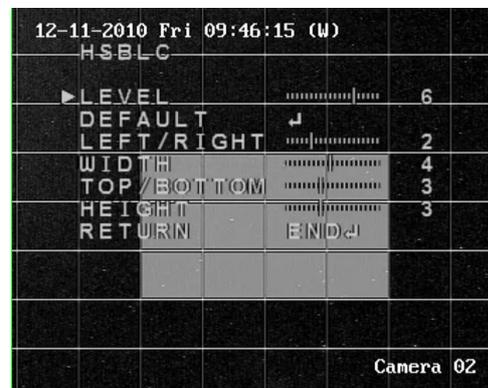
**NOTE:** This function deactivates if AGC and/or DAY/NIGHT is switched off. Also the higher the setting, ghosting increases.

**BLC** The backlight compensation balances strong Light evenly across the video image. The options are: OFF, BLC and HSBL.

The BLC option allows the desired area in a picture to be viewed more clearly.

**GAIN** Can be set to Low, Middle or High.

The other settings allow the BLC area to be defined.



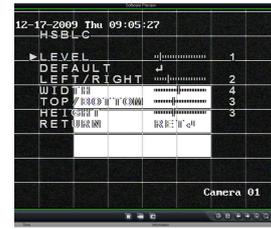
**HSBL** This where high sensitivity for light levels are required and a similar menu to BLC is used. This is shown below:



HSBLC OFF



HSBLC ON



HSBLC MENU

**NOTE:** HSBLC can be activated for both day and night conditions. When headlights for example reduce the overall light level making car number plate recognition more difficult, using the HSBLC option can help to provide more light to see the number plate.

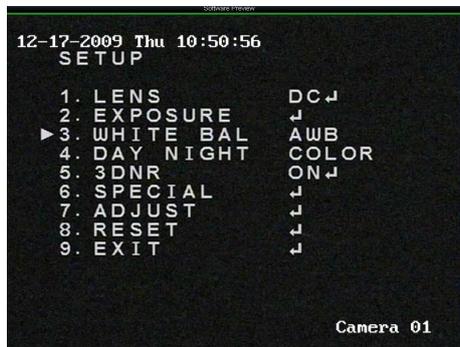
**D-WDR** Wide Dynamic Range  
If there is a bright and dark area, for example shaded area, displayed on screen, the D-WDR option can be set to even out the overall brightness. There are three options that can be selected, OFF / INDOOR / OUTDOOR



D-WDR OFF



D-WDR ON



**WHITE BALANCE** Alters the background white balance

The following options can be selected:

AWB, ATW, OUTDOOR, INDOOR, MANUAL & AWC-SET

**AWB** Select this when colour temperature is between 2000°K and 18000°K. This uses stored settings for white balance and is most suitable where there is little change in light source.

**ATW** Select this when colour temperature is between 2500°K and 9800°K. Suitable for viewing objects with changing colour temperature.

**OUTDOOR** Select this when colour temperature is around 5100°K.

**INDOOR** Select this when colour temperature is around 3100°K.

**MANUAL** Set this to fine tune the white balance manually. Set the White Balance first by using the ATW or AWC mode. After that switch to MANUAL mode. Adjust the BLUE and RED for optimum settings.

**AWC-SET** This is used to set the white level according to the current luminance level. Point the camera at a sheet of white paper and press the SET button. If the overall white level changes make adjustments using other settings.



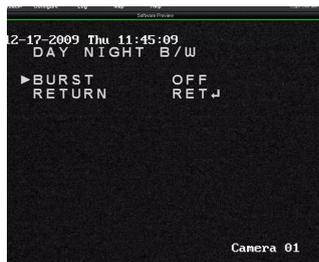
**NOTE:** Use AWC mode if you have problems settings white balance options.

**DAY / NIGHT** You can display pictures in colour or black & white. The following options are available: COLOR, B/W, EXT and AUTO.

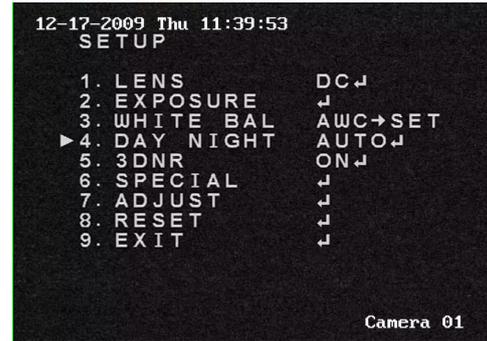
**COLOR** The picture is always displayed in colour.

**EXT** This deactivates the EXT function.

**B/W** The picture is always displayed in Black & White. You have the option to switch on BURST if required

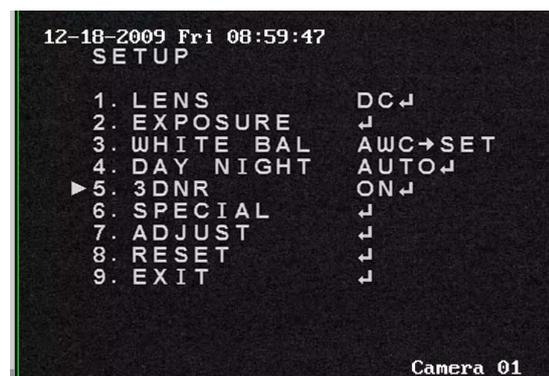


**AUTO** This option allows colour pictures during day and switches to B/W mode when ambient light levels drop. A menu is provided to smooth out switching by allowing DELAY to set seconds before switching and the S start and E end light levels for switching.



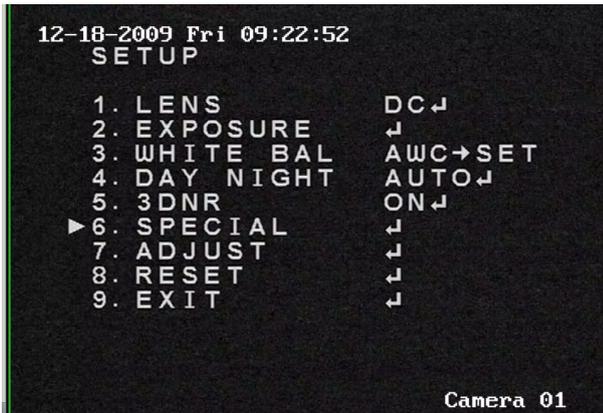
**NOTE:** You cannot control the DAY / NIGHT menu when AGC in the EXPOSURE menu is switched to OFF. Both Day and Night mode will remain in colour.

**3DNR** DIGITAL NOISE REDUCTION OFF / ON  
Digital Noise Reduction reduces the background noise in low light levels. If the SET button is pressed when switched ON, you can adjust the level of noise reduction.



**NOTE:** You cannot set 3DNR to OFF or ON when the AGC mode in the EXPOSURE menu is switched to OFF. When setting the 3DNR level, the higher the level is set, the higher the level of ghosting will be seen.

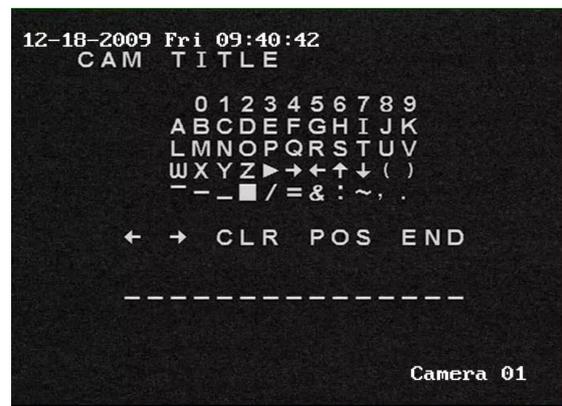
**SPECIAL**



**CAM-TITLE OFF / ON**

This is the camera title option. Set this to ON by pressing the left or right direction keys and then pressing SET button

Use the four direction buttons to move to the desired letter and select the letter by pressing the SET button. Repeat to enter up to 15 letters. If you enter a wrong title move cursor to CLR and press the SET button to clear the complete title. If you enter an incorrect letter, select the letter by clicking on the left or right arrow and press the SET button to position over the incorrect letter, then select the correct letter and press SET.



When the title is completed select POS and press SET.

The entered title now appears on the screen. Select the position where the title is to be displayed using the direction keys and then press SET button. If okay press END

followed by SET to return to previous menu.

**D-EFFECT**

**FREEZE OFF / ON**

The frame can be frozen by switching to ON.

**MIRROR OFF / ROTATE / V-FLIP / MIRROR**

The image can be inverted to provide a mirror image, rotated or turned upside down.

**D-ZOOM OFF / ON**

This option allows 0 ~ 32x magnification.



**GAMMA 0.45 Standard Value**

This value can be altered between 0.05 ~ 1.00

**NEG. IMAGE OFF / ON**

Select to ON to reverse colour images to negative.

**RS485**

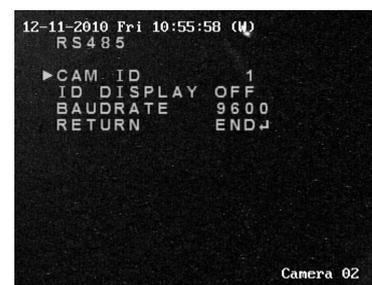
This option allows setting of the menu using the RS485 connecting lead.

If using an Alien DVR connect lead to T+ and T-. Red = T+.

Set camera ID in camera to same as in DVR PTZ menu and ensure both

are set to same baud rate. Set the Protocol to PELCO-D in DVR. Then

set Preset 95 in DVR to display menu. In the PTZ menu use the down arrow key to move to menu line and the right arrow key to alter value. Then use the IRIS+ button to enter.



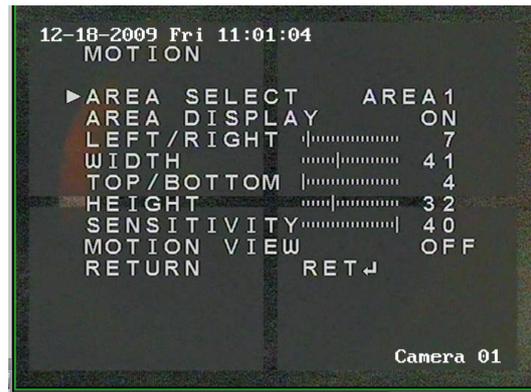
**MOTION** OFF / ON

The motion detection facility if set to ON will display the words MOTION DETECTION whenever the camera detects movement. The motion can be selected in each of the 4 areas defined in the camera picture.

The parameters available allow each of the four areas to be selected for motion and sensitivity.

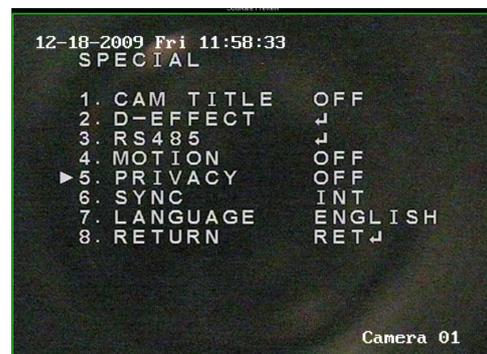
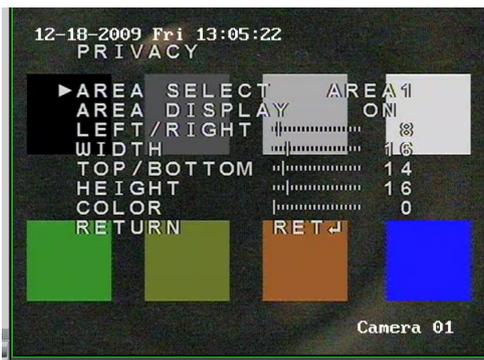
The MOTION VIEW option if selected to ON the area displaying movement will be outlined in a contrasting colour.

NOTE: As the four motion areas are not shown on the monitor, they can be displayed using the MOTION VIEW function.



**PRIVACY** OFF / ON

This function enables you to hide an area on the screen. Select this by pressing the SET button.



AREA SELECT Select an area between 01 ~ 08

AREA DISPLAY ON / OFF Switch OFF area required.

The remaining parameters allow each area size to be adjusted to requirements. To delete settings select RESET

**SYNC** In areas where the AC power is 60Hz you can synchronise the output phase of camera using the power synchronisation function (Line Lock) without using a sync generator.

When using 12v DC, the SYNC menu is fixed to the INTERNAL (INT) sync mode.

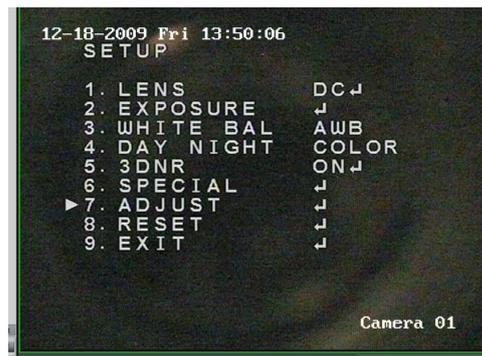
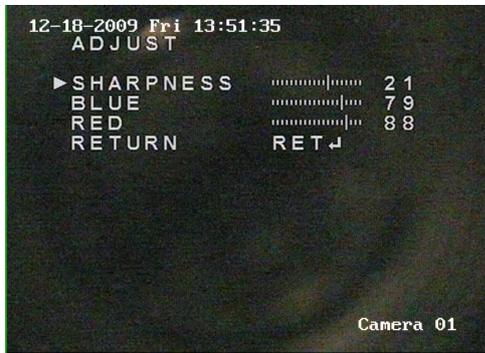


**LANGUAGE** ENGLISH / KOREAN / CHINESE / JAPANESE

You can select from the above languages which will initiate 5 seconds later.

**ADJUST**

This option allows picture sharpness adjustment plus changes to BLUE and RED colour.



**RESET**

This is the factory RESET option.

RETURN Select RET to return to main menu or END to close menu.



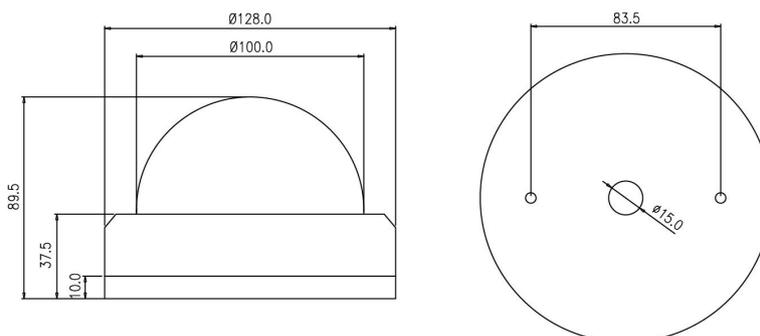
**EXIT**

Press the SET button to save the current settings and exit the MAIN menu setup.

**Troubleshooting**

- |                      |  |
|----------------------|--|
| No screen display    | * check power supply to camera                                     |
|                      | * check video line   |
|                      | * check brightness of Auto Iris Lens                               |
| Unclear video image  | * check lens is clean  |
|                      | * adjust monitor contrast  |
| Day/Night menu fault | * Check AGC switched off   |
| Sens-Up menu fault   | * Check AGC switched off, check that Shutter menu is FLK or Manual |
| Colour incorrect     | * Check White Balance setun  |

**Dimensions**



## Technical Specifications

Function	Specification	
	CAM751	CAM752
Model	<b>CAM751</b>	<b>CAM752</b>
Power Source	<b>12vDC 140mA</b>	12vDC / 24vAC Dual Power <b>12vDC 230mA / 24vAC 110mA</b>
Imaging Sensor	1/3" SONY Super HAD CCD II	
Total Pixels	PAL: 795(H) x 595(V)	
Effective Pixels	PAL: 752(H) x 582(V)	
Signal System	PAL 625 lines	
Scanning system	2:1 Interface	
Scanning Frequency	H:15.625 kHz / V:50 Hz	
S/N Ratio	More than 52 dB (AGC Off)	
Horizontal Resolution	Horizontal: 560 TVL Colour / 600 TVL Black & White	
Video Output Level	1.0 v p~p (75Ω, composite)	
Lens	Built-in DC Iris Vari-focal Lens (2.8 ~ 12mm)	
Minimum Illumination	0.0008 Lux (DSS), 0.2 Lux (DSS OFF) at F1.2	
Sync System	Internal	
OSD	Built-in(Multi-language support – English/Korean/Japanese/Chinese 1, 2)	
Electronic Shutter Speed	Auto / Manual PAL: (1/50 sec ~ 1/100,000 sec) / NTSC: (1/60 sec ~ 1/100,000 sec)	
White Balance	ATW/PUSH/AWC/Manual (2000°K ~ 20000°K)	
Backlight Compensation	ON/OFF/HSBLC	
D-WDR	Indoor / Outdoor / Off	
Gain Control	Low / Middle / High / Off	
Motion Detection	On/Off (4 zones)	
Mirror	V-Rev, H-Rev, Freeze On/Off	
Sharpness	Level Adjustable	
Day & Night	Auto / B&W / Colour	
Digital Zoom	On / Off (0x ~ 32x)	
Privacy Masking	On / Off (8 zone selectable)	
DNR (digital noise reduction)	On / Off (0~100)	
Sens-up (Frame Integration)	Auto / Off (selectable limit 2x ~ 256x)	
Operational Temperature/Humidity	-10°C ~ +50°C / 30% ~ 80% RH	
Storage Temperature/Humidity	-20°C ~ +60°C / 20% ~ 90% RH	
Dimensions	Base diameter 128mm x 89.5mm Height	
Weight	Approximately 700g	

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WEE/CG0783SS

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