NiteDevil CAM190/192/194

These **NiteDevil Cameras** have Digital WDR functionality allowing improved picture quality in mixed lighting conditions. They are complimented with an OSD menu, allowing access via camera or RS485, privacy masking, digital zoom to 32x and adjustable NiteDevil settings. The cameras are supplied in three versions:

Lens supplied separately
3 fitted lens options

CAM190 12v DC only
CAM192 Dual voltage 12vDC/24vAC
CAM194 240v AC

All 3 cameras provide a resolution of **600TVL** in colour and **700TVL** in b/w. These cameras come with many of the NiteDevil features including an OSD menu, the SENS-UP feature allowing minimum illumination down to an incredible **0.00019 Lux** and a **WDR** option.

Features

- ✓ 1/3" Sony Super HAD CCD 600/700 TVL
- ✓ Wide Dynamic Range setting
- ✓ 3 Lens Options
- ✓ Built-in OSD menu
- ✓ Privacy Masking
- ✓ Electronic Shutter
- ✓ Digital Zoom up to 32x

- ✓ Low Light 0.00019Lux
- ✓ Maximum 2watts power consumption
- ✓ SENS-UP auto function 2x – 256x
- ✓ Built-in 3DNR function
- ✓ RS485 menu control
- ✓ Motion Detection Alarm Function
- ✓ Contrast & Sharpness adjustments

Powering the Camera

CAM190

The CAM190 requires a 12v DC regulated power supply providing a minimum of 140mA. 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 140mA or higher per camera. It is recommended that you allow 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.

CAM190

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. We offer no technical support or warranty with the camera if you use a 13.8V intruder alarm PSU as it is contrary to the installation & usage instructions of the camera. The terminal strip will facilitate easier and faster power connection without the hassle of soldering. The terminal connection can be seen in the picture above. 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 will need to cut this off and use the bare wires to connect to the terminal strip. Note that the 12V positive is the wire that was connected to the centre pin of the jack plug and the 0V wire was connected to the outer case.

CAM192

The CAM192 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. The 12V DC cameras require a power supply that has a continuous rating of 140mA or higher per camera. It is recommended that you allow 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.

CAM192

CAM194

The CAM194 is a mains 240vAC controlled camera and a mains power cable is supplied.

CAM194

Fitting the Camera Lens

Fit the Auto Iris Direct Drive Lens connector to connection shown.

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 you bought the lens from SystemQ and it's a direct drive lens, this will be pre-wired and you can simply plug the lens into the camera.

Auto Iris Direct Drive Connections
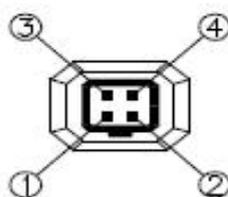
P1 DAMPING –
P2 DAMPING+
P3 DRIVE
P4 GND

C or CS Mount Lenses

Most lenses are available in 2 different mounting options - C mount and CS mount. CS mount lenses are now the most popular size as they are shorter and more compact than C mount lenses. Most cameras are now manufactured to accept CS mount lenses. Before fitting the lens you need to verify that you are using a CS mount lens with the camera. You can confirm this with your lens supplier or the literature that came with your lens, check the instructions or packaging to see if your lens is a C or a CS mount version. If your lens is a C mount type you can still fit it to the camera by following the instructions under the heading **Using a C Mount lens.**

Using a CS Mount lens

If you are using a standard CS mount lens you can screw the lens straight into the camera without the need for the C-CS adapter ring (supplied).

Adjusting the inner focus ring - Once you have fitted the lens, if you have a picture on the monitor but cannot correctly focus the lens by the fine focal adjust on the lens itself, you may need to alter the inner adjusting ring that is screwed into the end of the camera. To do this you will need a small Allen key.

This ring enables the lens to either "sit" a little closer or a little further away from the camera to get a sharp focused image when using lenses from different manufacturers. To adjust the inner focus ring you will need to slacken the ring by loosening the grub screw(s) with an Allen key. This is a trial and error process by moving the ring in or out say ½ turn then locking it again and trying to refocus the lens. It is possible (with common sense!) to work out whether the lens needs to be nearer or further away from the camera by watching for improvements in focus at each attempt.

NOTE – If it appears that the lens will never be in focus then it is possible that you are trying to fit a **C-mount** lens on the camera, not a **CS- mount** lens. If this is the case you will have to add the spacer ring to the lens that was provided free with the camera.

The spacer ring looks something like this:

Using a C Mount Lens
If you are using a C mount lens you will need to add the C-CS mount adapter ring. This ring effectively moves the C mount lens an extra 5mm away from the camera body to achieve the correct focusing of the lens. Once you have fitted the adapter ring you can carefully screw the lens to the camera. If the picture is out of focus, try focusing it in using the focus adjust on the lens itself. If you can nearly get the focus right but not quite (because the lens runs out of adjustment) then you probably need to adjust the inner focus ring with the Allen key. See **Adjusting the inner focus ring** above.

It is important that you never force a lens when it becomes tight on the camera or you may damage one or the other device. A **C-mount** lens fitted on a **CS-mount** camera may protrude too far into the camera and cause irreparable damage.

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.

To do this, follow these steps:
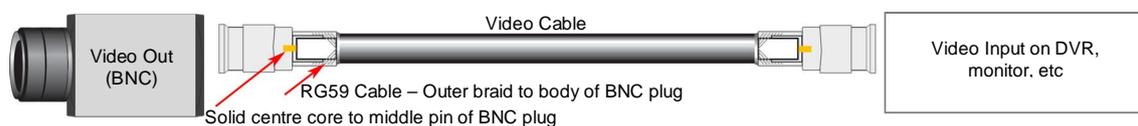With the camera in the brightest light conditions that it will be expected to work,
1- Enter the LENS menu and set to MANUAL. The enter EXPOSURE menu, increase to 100% and then reduce level until the picture is okay. Do not adjust further. This will ensure that the iris is set to its widest setting.
2- Now return to the LENS menu and select DC. Then exit the menu. Once you have done the above the lens will restrict the light sufficiently in bright sunlight but open up to its maximum in low light giving the best night time performance.
Further details on the menu setup and operation are covered below.

Connecting Video
The video out from the camera is provided from the BNC connector located at the rear of the camera. The camera's video signal is carried by a suitable cable (usually RG59 or similar) to the monitor or other video input, ie, of a switcher, quad, DVR etc. Remember that the Video out from the camera is like any other electrical circuit and requires two wires to complete the circuit. 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. A typical connection is shown as follows:

Video Out (BNC) — Video Cable — RG59 Cable – Outer braid to body of BNC plug — Solid centre core to middle pin of BNC plug — Video Input on DVR, monitor, etc

It is recommended that when you are first setting up the cameras that you use a short BNC-BNC cable to link the camera directly to the monitor and to set it up at the same time. This allows you to both understand the camera and get the very best out of this great product, as you will be able to adjust the camera whilst looking at the monitor screen. Obviously whilst you are setting up the camera, it does need to be powered!

This camera has an RS485 terminal connection on the rear of the camera to allow the camera menu to be updated using an RS485 keyboard or using the PTZ option in a DVR. You will need to use the direction keys, Zoom and Focus controls to edit the menu. Alternatively you can change the menu settings using the menu control buttons on the rear of the camera.

Precautions

Do not install the camera in extreme temperature conditions. Only use the camera where temperatures are between –20 degrees centigrade and +50 degrees centigrade.
Never install the camera in damp or humid conditions. This can affect image quality.
This camera requires stable lighting conditions to operate effectively.
Do not touch the front lens of the camera. Fingerprints can stain the lens glass.
The camera must not be placed directly facing the sun or strong light. This may damage the camera CCD.
Never expose the camera to rain or liquids. These will corrode the camera electronics.
Do not subject the camera to vibration as it may cause camera malfunctions.
Only use this camera in a housing if used externally.

To display the OSD menu press the SET button.
Menu closes when no operation.

Menu Settings

1. LENS   DC
2. EXPOSURE   ⬅
3. WHITE BAL   AWB
4. DAY NIGHT   AUTO
5. 3DNR   ON ⬅
6. SPECIAL   ⬅
7. ADJUST   ⬅
8. RESET   ⬅
9. EXIT   ⬅

SET BUTTON: Displays menu on the screen. Press button down to confirm status or after changing a selected item.

UP/ DOWN BUTTON: Used to move cursor up and down to select a menu item.

LEFT & RIGHT BUTTONS: Moves cursor left and right or change the value of a selected item.

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

NOTE: All menu items with the ⬅ icon require the SET button to be depressed.

If - - - is displayed then feature is unavailable on this camera.

```
        Menu Settings

1. LENS              MANUAL
                        ⬅
2. EXPOSURE
3. WHITE BAL         AWB
4. DAY NIGHT         AUTO
5. 3DNR              ON  ⬅
6. SPECIAL              ⬅
7. ADJUST              ⬅
8. RESET               ⬅
9. EXIT                ⬅
```

LENS

When the SETUP menu screen is displayed, select LENS by using the UP & DOWN buttons so that the arrow selects LENS.

Select the connected type by using the LEFT & RIGHT buttons.

Selecting MANUAL selects manual lens

Selecting DC selects Auto Iris Lens. When MANUAL is selected you can select the brightness control by pressing the SET button. Set range between 0 ~ 100. Then select DC.

```
        MENU SETTINGS

1. LENS              MANUAL
                        ⬅
2. EXPOSURE
3. WHITE BAL         AWB
4. DAY NIGHT         AUTO
5. 3DNR              ON  ⬅
6. SPECIAL              ⬅
7. ADJUST              ⬅
8. RESET               ⬅
9. EXIT                ⬅
```

```
          EXPOSURE

SHUTTER            1/250
BRIGHTNESS         - - -
AGC               MIDDLE
SENSE-UP          OFF
BLC               OFF
D-WDR             INDOOR
RETURN            RET ⬅
```

SHUTTER AUTO, 1/50, FLK, 1/250, 1/500, 1/2000, 1/5000, 1/10000, 1/100000, x256, x128, x64, x32, x16, x8, x4, x2
Select EXPOSURE by using UP & DOWN buttons and then select desired mode.
AUTO Select this mode to control the shutter speed automatically.
FLK Select this mode if flickering occurs on screen.

BRIGHTNESS (1 – 100) You can control the brightness by using the LEFT & RIGHT buttons in Manual lens mode. If using a DC lens, switch LENS to manual, adjust brightness, then return to LENS and select DC.

AGC OFF / LOW / MIDDLE / HIGH
Set AGC from low to high gain. Note that the higher the gain level, the brighter the screen but the higher noise level.
Note that if AGC shows - - - then RESET the camera.

SENSE-UP OFF / AUTO ⬅ x2 / x4 / x8 / x16 / x32 / x64 / x128 / x256
When it is dark the camera automatically detects the light level and tries to compensate by maintaining a clear picture.
OFF The option is deactivated when the OFF option is selected or when AGC is OFF or DAY&NIGHT is OFF.
AUTO You can adjust brightness by increasing/decreasing the shutter speed (x2 ~ x256)
Note that noise can be amplified as SENSE-UP in increased.

BLC OFF / BLC ⬅ / HSBLC ⬅

Backlight compensation allows you to get a clear picture even when objects are in a strong backlight.

BLC ⬅

Selecting BLC and pressing SET button enters the BLC menu.

BLC / HSBLC MENUS

GAIN	LOW
DEFAULT	⬅
LEFT/RIGHT	____I____
WIDTH	____I____
TOP/BOTTOM	_____I____
HEIGHT	___I_____
RETURN	

This menu allows a selected area of the picture to be viewed more clearly in varying light conditions.

GAIN LOW / MIDDLE / HIGH
Select the level of gain by selecting low, middle or high.

DEFAULT Press SET button to select default option.

The **LEFT/RIGHT, WIDTH, TOP/BOTTOM** and **HEIGHT** are used to create a window and place it in the picture view using BLC. When there is a bright light e.g headlights on a car, using the **HSBLC** menu may compensate for this condition so allowing you to view a car number plate that would otherwise be obliterated by the light level.

D-WDR   OFF / INDOOR / OUTDOOR

Digital Wide Dynamic Range allows de-saturation of light in a single pixel so providing the mean light level overall. This allows a scene that may include for example objects that show light and shade and then compensates by providing an overall balanced light view. WDR can be set to INDOOR, OUTDOOR or OFF.

MENU SETTINGS		
1. LENS	MANUAL	
2. EXPOSURE		⬅
3. **WHITE BAL**	**AWB**	
4. DAY NIGHT	AUTO	
5. 3DNR	ON	⬅
6. SPECIAL		⬅
7. ADJUST		⬅
8. RESET		⬅
9. EXIT		⬅

WHITE BAL   ATW / AWB / AWC SET / MANUAL / INDOOR / OUTDOOR

ATW   Auto Tracking White Balance. Suitable for viewing objects with changing colour temperature. Select when colour temperature between 2,500°K and 9,800°K.

AWB   Auto White Balance.   This uses stored settings for white balance and is most suitable where there is little change in light source.

AWC   SET   The auto white-balance control analyses the incoming light and estimates the best camera setting for pleasing colors.

MANUAL ⬅ This option allows the blue and red colours to be manually set.

INDOOR   Select this when the colour temperature is around 3,100°K.
OUTDOOR   Select this when the colour temperature is around 5,100°K.

SPECIAL NOTE:
In the event that problems are found with the white balance settings, it is recommended that the AWC mode is selected. These problems can be:-
(i)   When the colour temperature in the environment is beyond the control range.
(ii)   If the camera is situated close to a fluorescent light white balance may become unstable.

```
          MENU SETTINGS

    1. LENS              MANUAL
    2. EXPOSURE          ⬅
    3. WHITE BAL         AWB
    4. DAY NIGHT         AUTO
    5. 3DNR              ON  ⬅
    6. SPECIAL           ⬅
    7. ADJUST            ⬅
    8. RESET             ⬅
    9. EXIT              ⬅
```

DAY NIGHT COLOUR / AUTO ⬅ / EXT / BW

COLOUR The option will always display in colour.

AUTO ⬅ This option allows colour mode during day and b/w at night or when ambient light levels are low. To setup the switching time or speed press the SET button.

```
            DAY NIGHT AUTO

    DELAY                   |
              _____  8
                              |
    S-LEVEL        _____  63
                          |
    E-LEVEL        _____  55

    RETURN
```

DELAY The seconds before the switch from one mode to the next mode.
S-LEVEL The setting of the brightness illumination before switching from colour to b/w
E-LEVEL The setting of the brightness illumination before switching from b/w to colour

EXT This deactivates the EXT function.

BW This option will always display in black and white.

SPECIAL NOTE: You cannot control the DAY/NIGHT menu when AGC in the EXPOSURE menu is set to OFF. If it is, then DAY and NIGHT mode will operate only in COLOUR mode.

```
          MENU SETTINGS

    1. LENS              MANUAL
    2. EXPOSURE          ⬅
    3. WHITE BAL         AWB
    4. DAY NIGHT         AUTO
    5. 3DNR              ON  ⬅
    6. SPECIAL           ⬅
    7. ADJUST            ⬅
    8. RESET             ⬅
    9. EXIT              ⬅
```

3DNR OFF / ON ⬅
Digital Noise Reduction reduces the background noise in a low light environment.

Select ON and press SET button to enter 3DNR menu.

```
                3DNR

    LEVEL            _____|____  56

    RETURN                RET ⬅
```

OFF   Deactivates 3DNR. Noise is not reduced.
ON   Activates 3DNR so that noise is reduced.

SPECIAL NOTE:
You cannot set the 3DNR to ON or OFF when the AGC mode in the EXPOSURE menu is set to OFF.
When adjusting the noise reduction level in this mode, the higher the setting the more the noise level will be reduced but the more likely ghosting will occur.

```
                MENU SETTINGS

1.  LENS                    MANUAL
2.  EXPOSURE                ↵
3.  WHITE BAL               AWB
4.  DAY NIGHT               AUTO
5.  3DNR                    ON  ↵
6.  SPECIAL                 ↵
7.  ADJUST                  ↵
8.  RESET                   ↵
9.  EXIT                    ↵
```

```
                   SPECIAL

1.  CAM TITLE           OFF / ON  ↵
2.  D-EFFECT                       ↵
3.  RS485                          ↵
4.  MOTION              OFF
5.  PRIVACY             OFF
6.  SYNC                INT
7.  LANGUAGE            ENGLISH
8.  RETURN                         ↵
```

CAM TITLE Allow the display of a 15 character camera title displayed on the monitor.

```
                 CAM TITLE

        0 1 2 3 4 5 6 7 8 9
        A B C D E F G H I J K
        L M N O P Q R S T U V
        W X Y Z | > ► ◄ ▲ ▼ ( )
            ‾
              ‾ □ / = & " ~ , ..
            ‾
        ←      →    CLR   POS   END

        — — — — — — — — — — — — — — —
```

CAM TITLE

If you wish to display the camera title you must switch camera title to ON.
Note that if the CAM TITLE is OFF no title is displayed on the monitor even if one is entered.
Move up and down buttons to select CAM TITLE and switch it ON. Then press the SET button and move to the required character using the direction buttons and press the SET button to select. Repeat to select up to 15 characters. If you move to CLR and press the SET button all characters are cleared.
To edit a character select the character bottom left arrow and press SET button, move the cursor over the character to be edited, then select the character required and press the SET button. Then select POS to position cam title, press SET, move to the position required and select END. Press SET again to return to SPECIAL menu.

```
                   SPECIAL

1.  CAM TITLE           OFF / ON  ↵
2.  D-EFFECT                       ↵
3.  RS485                          ↵
4.  MOTION              OFF
5.  PRIVACY             OFF
6.  SYNC                INT
7.  LANGUAGE            ENGLISH
8.  RETURN                         ↵
```

```
                  D-EFFECT

FREEZE          OFF / ON
MIRROR          MIRROR / V-FLIP / ROTATE
                OFF
D-ZOOM          OFF / ON  ↵
GAMMA           0.45
NEG IMAGE       OFF / ON
RETURN          RET  ↵
```

D-EFFECT
This option covers the display effects that can be selected.

FREEZE   OFF / ON
This option if set to ON will freeze current picture. Select OFF to revert to normal video

MIRROR   MIRROR / ROTATE / V-FLIP / OFF
This option allows the normal video displayed to be switched to vertical flip, horizontal flip, both or none.

MIRROR   This flips the camera view vertically on the screen.

ROTATE   This flips the camera view horizontally on the screen.

V-FLIP   This flips the camera horizontally and vertically on the screen.

D-ZOOM   **OFF / ON**   This option switches on digital zoom

GAMMA   The standard value is O.45 The values 0.05 ~ 1.00 can be set.

NEG IMAGE   **OFF / ON**   A colour negative image can be set.

RETURN   Returns to the SPECIAL menu.

```
                            D-ZOOM

        DZOOM        x1 ~ x32
        PAN          ——|—— 0
        TILT         ——|—— 0
        RETURN       RET
```

```
                     SPECIAL

        1. CAM TITLE      OFF / ON
        2. D-EFFECT
        3. RS485
        4. MOTION         OFF
        5. PRIVACY        OFF
        6. SYNC           INT
        7. LANGUAGE       ENGLISH
        8. RETURN
```

```
                     RS485

        ►  CAM ID         1
           ID DISPLAY

           BAUDRATE       2400
           RETURN
```

The RS485 option allows you to control these menu settings by connecting a CAT5 matched pair to the RS485 connections on the back of the camera and the other end of the cable to an RS485 keyboard controller or a DVR that has PTZ functionality. Ensure that the polarity is correct to the control device. On the DVR you will need to connect to the T+ and T- RS485 transmit connections.
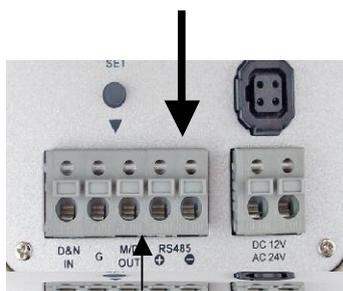
In order to see the camera menu it will be necessary to set the camera ID number and the baud rate. The camera is set to the Pelco-D protocol and this cannot be changed. The baud rate is usually set to 2400 baud. This will give the longest distance coverage. These settings will have to be reflected in the control device, whether it is a keyboard or a DVR.

Note that you need to check that the DVR used has this functionality.

Note if using the Alien DVR then by selecting the PTZ option and clicking on ZOOM+ this will display the menu.
Use the up and down arrow keys to locate an option and use the right arrow key or ZOOM+ to select option.

```
            SPECIAL

1. CAM TITLE        OFF / ON    ⬅
2. D-EFFECT                     ⬅
3. RS485                        ⬅
4. MOTION           OFF
5. PRIVACY          OFF
6. SYNC             INT
7. LANGUAGE         ENGLISH
8. RETURN                       ⬅
```

MOTION This option allows motion detection to be set and to display MOTION DETECTION on the monitor.
An output on the camera allows a closed contact to be made by using the M/D OUT and ground.

```
            MOTION

AREA SELECT         AREA 1 ~ 4
AREA DISPLAY        ON / OFF
LEFT / RIGHT        _____|__ 51
WIDTH               _____|____ 42
TOP / BOTTOM        _____|  38
HEIGHT              _____|_  30
SENSITIVITY         _____|_ 34
MOTION VIEW         OFF / ON
RETURN              END  ⬅
```

MOTION

Motion can be detected in 1 – 4 areas. You can select 1-4 areas in SENSITIVITY setting. To see the MOTION DETECTION message displayed on the monitor, MOTION VIEW must be set.

AREA SELECT   1 ~ 4   Select the area required.
AREA DISPLAY ON / OFF   Determines whether to use the motion area selected in SENSITIVITY.

LEFT/RIGHT   Determines the vertical axis for area.
**WIDTH**   Adjusts the selected vertical area.
TOP/BOTTOM   Determines the horizontal axis for area.
HEIGHT   Adjusts the selected horizontal area.
SENSITIVITY   You can select up to 4 areas. The higher the sensitivity the smaller the change to initiate motion detection.

MOTION VIEW   If you set this option to ON you can select an area colour and display MOTION DETECTION on the monitor.
RETURN   Return to SPECIAL menu.
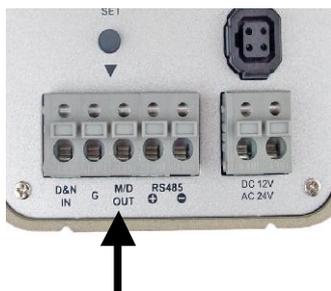
Use the M/D (Motion Detection) and G (Ground) connection if you wish to use the motion alarm switch.

```
            SPECIAL

  1. CAM TITLE        OFF / ON  ⬅
  2. D-EFFECT                   ⬅
  3. RS485                      ⬅
  4. MOTION           OFF
  5. PRIVACY          OFF
  6. SYNC             INT
  7. LANGUAGE         ENGLISH
  8. RETURN                     ⬅
```

PRIVACY   ON / OFF
Allows an area on screen to be hidden.

```
            PRIVACY

  AREA SELECT        AREA 1 ~ 8
  AREA DISPLAY       ON / OFF
  LEFT / RIGHT       _____ 51
  WIDTH              _____ 42
  TOP / BOTTOM       _____ 38
  HEIGHT        _____ 30
  COLOUR             _____ 34
  RETURN             END  ⬅
```

AREA SELECT   1 ~ 8   Select the area required.
AREA DISPLAY ON / OFF   Determines whether to use the area selected in AREA SELECT.

LEFT/RIGHT   Determines the vertical axis for area.
WIDTH   Adjusts the selected vertical area.
TOP/BOTTOM   Determines the horizontal axis for area.
HEIGHT   Adjusts the selected horizontal area.
COLOUR   You can select area colour from 0 ~ 15.

RETURN   Return to SPECIAL menu.

```
            SPECIAL

  1. CAM TITLE        OFF / ON  ⬅
  2. D-EFFECT                   ⬅
  3. RS485                      ⬅
  4. MOTION           OFF
  5. PRIVACY          OFF
  6. SYNC             INT
  7. LANGUAGE         ENGLISH
  8. RETURN                     ⬅
```

SYNC INT
This option is not selectable.

LANGUAGE
English, Chinese or Japanese.

If you change this you can work out how to return to English by selecting option 7.

RETURN   Returns to SPECIAL menu.

```
        MENU SETTINGS

1. LENS              MANUAL
2. EXPOSURE            ⬅
3. WHITE BAL         AWB
4. DAY NIGHT         AUTO
5. 3DNR              ON  ⬅
6. SPECIAL              ⬅
7. ADJUST               ⬅
8. RESET                ⬅
9. EXIT                 ⬅
```

```
           ADJUST

SHARPNESS      ___|___  21
BLUE           ____|__  81
RED            _____|_  88
RETURN         END  ⬅
```

ADJUST
This option is used to improve the sharpness of the picture and balance the blue and red colour.

SHARPNESS
This sets the sharpness by moving the direction keys to right or left. Parameter ranges from 0 ~ 31.

BLUE
This sets the overall blue hue. Parameter ranges from 0 ~ 100.

RED
This sets the overall red hue. Parameter ranges from 0 ~ 100.

RETURN
This returns to the main menu.

```
        MENU SETTINGS

1. LENS              MANUAL
2. EXPOSURE            ⬅
3. WHITE BAL         AWB
4. DAY NIGHT         AUTO
5. 3DNR              ON  ⬅
6. SPECIAL              ⬅
7. ADJUST               ⬅
8. RESET                ⬅
9. EXIT                 ⬅
```

```
            RESET

FACTORY        RESET  ⬅
RETURN         RET  ⬅
```

RESET
This option resets the camera to factory defaults.

RETURN
Returns to main menu

EXIT
This saves the changes made and exits the main menu.

TECHNICAL SPECIFICATIONS

FUNCTION	CAMERA MODEL		
Camera Model	**CAM190**	**CAM192**	**CAM194**
Imaging Sensor	1/3" SONY Super HAD CCD 11		
Signal System	NTSC: 525 Lines / PAL: 625 Lines		
Scanning System	2:1 Interlace		
Scanning Frequency	H:15.625Hz / V:50Hz		
S/N Ratio	More than 52dB (AGC Off)		
Horizontal Resolution	600 TVL (Colour) / 700 TVL (B/W)		
Video Output Level	1.0 vp~p (75 ohm, composite)		
Minimum Illumination	Colour: 0.03Lux(50IRE@F1.2), 0.00019(Sens-up 256x)		
Sync System	Internal		
On Screen Display	Built-in (Multi-language support)		
Electronic Shutter Speed	Auto/FLK PAL: 1/50sec ~ 1/100,000sec		
White Balance	AWB / AWC-Set / Manual / Indoor / Outdoor / ATW		
Backlight Compensation	BLC / HSBLC / Off		
D-WDR	Indoor / Outdoor / Off		
Gain Control	Low / Middle / High / Off		
Adjust	Contrast / Sharpness / CB_Gain / CR_Gain (Level Adjustable)		
Language	Korean / English / Chinese / Japanese (selectable)		
Camera Title	On / Off (Selectable)		
Day & Night	Auto / B.W / Colour (selectable) / EXT		
Digital Zoom	On / Off (0x ~ 32x)		
Motion Detection	On / Off (4 zone selectable) & external closed contact		
Privacy Masking	On / Off (8 zone selectable)		
3DNR Digital Noise Reduction	On /Off (Selectable)		
Sens-up (Frame Integration)	On / Off (Selectable limit ~ 256x)		
D-Effect	Freeze / Mirror / D-Zoom / Gamma / Neg. Image		
RS485	Menu Control		
Supplied Voltage	12vDC	12vDC / 24vAC	240vAC
Power Consumption	140mA / 2.0W		
Infra Red Sensitive	Yes		
Dimensions	65mm x 65mm x 127mm excluding lens		
Weight	Approx. 50g		