

VVRDE 700 Manual



Set up and user manual for the
VVRDE4V9CM-700
VVRDE4V9DN-700
VVRDE4V9DNLED-700
cameras



Before You Begin

Read these instructions before installing or operating this product.

Note: This installation should be made by a qualified service person and should conform to local codes.

This manual provides installation and operation information. To use this document, you must have the following minimum qualifications:

- A basic knowledge of CCTV systems and components
- A basic knowledge of electrical wiring and low-voltage electrical connections

Intended use

Only use this product for its designated purpose; refer to the product specification and user documentation.

Customer Support

For assistance in installing, operating, maintaining and troubleshooting this product refer to this document and any other documentation provided. If you still have questions, please contact Norbain Technical Support and Sales:

- Norbain Ltd
210 Wharfedale Road, IQ Winnersh, Wokingham, Berks
RG41 5TP
+44 118 912 5000

Note: You should be at the equipment and ready with details before calling Technical Support.

Conventions Used in this Manual

Boldface or button icons highlight command entries. The following **WARNING**, **CAUTION** and **Note** statements identify potential hazards that can occur if the equipment is not handled properly:



*** WARNING:**

Improper use of this equipment can cause severe bodily injury or equipment damage.



**** Caution:**

Improper use of this equipment can cause equipment damage.

Note: Notes contain important information about a product or procedure.

RoHS Announcement



All lead-free products offered by the company comply with the requirements of the European law on the Restriction of Hazardous Substances (RoHS) directive, which means our manufacture processes and products are strictly “lead-free” and without the hazardous substances cited in the directive.



The crossed-out wheeled bin mark symbolizes that within the European Union the product must be collected separately at the product end-of-life. This applies to your product and any peripherals marked with this symbol. Do not dispose of these products as unsorted municipal waste.

CE Mark



This apparatus is manufactured to comply with the radio interference. A Declaration of Conformity in accordance with the following EU standards has been made. The manufacturer declares that the product supplied with this document is compliant the provisions of the EMC Directive 2004/108/ EC, the CE Marking Directive 93/68 EEC and all associated amendments.

* This symbol indicates electrical warnings and cautions.

** This symbol indicates general warnings and cautions.

NORBAIN SD LTD reserves the right to make changes to the product and specification of the product from time to time without prior notice.

WARNINGS AND CAUTIONS:

To reduce the risk of fire or electric shock, do not insert any metallic objects through the ventilation grills or other openings on the equipment.

CAUTION

	CAUTION RISK OF ELECTRIC SHOCK DO NOT OPEN	
WARNING: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.		

IMPORTANT SAFEGUARDS

1. READ AND RETAIN INSTRUCTIONS

Read the instruction manual before operating the equipment.
Retain the manual for future reference.

2. CLEANING

Turn the unit off and unplug from the power outlet before cleaning. Use a damp cloth for cleaning. Do not use harsh cleansers or aerosol cleaners.

3. ATTACHMENTS

Do not use attachments unless recommended by manufacturer as they may affect the functionality of the unit and result in the risk of fire, electric shock or injury.

4. MOISTURE

Do not use equipment near water or other liquids.

5. ACCESSORIES

Equipment should be installed in a safe, stable location. Any wall or shelf mounting accessory equipment should be installed using the manufacturer's Instructions. Care should be used when moving heavy equipment. Quick stops, excessive force, and uneven surfaces may cause the equipment to fall causing serious injury to persons and objects.

6. VENTILATION

Openings in the equipment, if any, are provided for ventilation to ensure reliable operation of the unit and to protect it from overheating. These openings must not be blocked or covered.

7. POWER SOURCES

The equipment should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supplied at the installation location, contact your dealer. For equipment designed to operate from battery power, refer to the operating instructions.

8. GROUNDING OR POLARIZATION

Equipment that is powered through a polarized plug (a plug with one blade wider than the other) will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. Do not defeat the safety purpose of the polarized plug.

Alternate Warning: If the equipment is powered through a three-way grounding-type plug, a plug having a third (grounding) pin, the plug will only fit into a grounding-type power outlet. This is a safety feature. Do not defeat the safety purpose of the grounding-type plug.

If your outlet does not have the grounding plug receptacle, contact your local electrician.

9. CORD AND CABLE PROTECTION

Route power cords and cables in a manner so to protect them from damage by being walked on or pinched by items placed upon or against them.

10. LIGHTNING

For protection of the equipment during a lightning storm or when it is left unattended and unused for long periods of time, unplug the unit from the wall outlet. Disconnect any antennas or cable systems that may be connected to the equipment.

This will prevent damage to the equipment due to Lightning or power-line surges.

11. OVERLOADING

Do not overload wall outlets and extension cords as this can result in a risk of fire or electric shock.

12. SERVICING

Do not attempt to service the video monitor or equipment yourself as opening or removing covers may expose you to dangerous voltage or other hazards.

Refer all servicing to qualified service personnel.

13. DAMAGE REQUIRING SERVICE

Unplug the equipment from the wall outlet and refer servicing to qualified service personnel under the Following conditions:

A. When the power supply cord or the plug has been damaged.

B. If liquid has spilled or objects have fallen into the Unit.

C. If the equipment has been exposed to water or other liquids.

D. If the equipment does not operate normally by following the operating instructions, adjust those controls that are covered by the operating instructions as Improper adjustment for other controls may result in damage to the unit.

E. If the equipment has been dropped or the casing is damaged.

F. When the equipment exhibits a distinct change in performance.

14. REPLACEMENT PARTS

When replacement parts are required, be sure the service technician uses replacement parts specified by the manufacturer or that have the same characteristics as the original part.

Unauthorized substitutions may result in fire, electric shock, or other hazards.

15. SAFETY CHECK

Upon completion of any service or repairs to the equipment, ask the service technician to perform safety checks to verify that the equipment is in proper operating condition.

16. FIELD INSTALLATION

The installation of equipment should be made by a qualified service person and should conform to all local codes.

17. CAUTION - THESE SERVICING

INSTRUCTIONS ARE FOR USE BY QUALIFIED SERVICE PERSONNEL ONLY.
TO REDUCE THE RISK OF ELECTRIC SHOCK DO NOT PERFORM ANY
SERVICING OTHER THAN THAT CONTAINED IN THE OPERATING
INSTRUCTIONS UNLESS YOU ARE QUALIFIED TO DO SO.

18. Use certified/Listed Class 2 power supply transformer only

CE COMPLIANCE STATEMENT

WARNING

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

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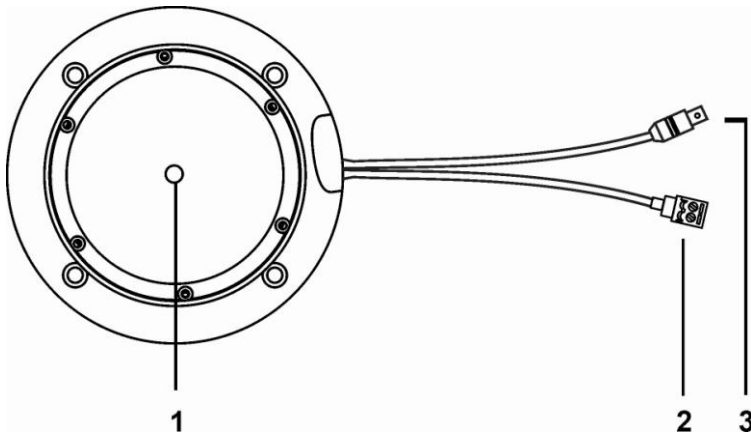
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INTRODUCTION

Features:

- 1/3" Sony EXview HAD CCD II with Effio 'e' DSP
 - 700TVL Colour & Monochrome resolutions
 - f4~9mm varifocal lens (F1.6~2.4)
 - 0.32Lux (Colour) @ F1.6 sensitivity (CM version)
0.32Lux (Colour) 0.02Lux (B/W) @ F1.6 sensitivity (DN version)
0.32Lux (Colour) 0Lux (B/W) @ F1.6 sensitivity with LEDS on (DNLED version)
 - Auto electronic shutter [1/50 ~ 1/10,000] and manual electronic shutter modes
 - Day & Night - Auto (delay) / Colour / BW
 - 23 IR LED's (850nm) provide upto 25m illumination
 - OSD - On Screen Display (via tactile switch / buttons)
 - ATR (Adaptive Tone Reproduction)
 - AGC (Auto Gain Control)
 - 2D-DNR function (Digital Noise Reduction)
 - Auto and manual white balance modes
 - BLC (Back Light Compensation)
 - HLC (Peak White Inversion)
 - 4 Privacy zones (colour / mosaic)
 - 4 Motion detection zones
 - Functions (Mirror, Brightness, Sharpness, Hue, Contrast, Gain)
 - Multi language support: English, Japanese, German, French, Russian, Portuguese, Spanish
 - Test Monitor Output
 - 12VDC or 24VAC operation
 - Use Certified Listed Class 2 power source only.
 - Internal / AC line lock
 - IP66
 - Vandal resistant casing (built to IK10)
-

CAMERA CONNECTIONS



1. Lens: 4-9mm DC Vari-focal lens for wide area monitoring

2. Power: 12vDC / 24vAC Input (please note that with 12vDC operation power terminals are polarity dependant)

If using 12vDC power input, Please use a power supply capable of supplying over 6.0 Watts (550mA).

3. Video: BNC connector used to connect the camera to a monitor, switch, etc.



REMINDER:

Never aim the camera directly into the sun.

ADJUSTING CAMERA MODULE

Unpack and identify the following parts from the product carton:

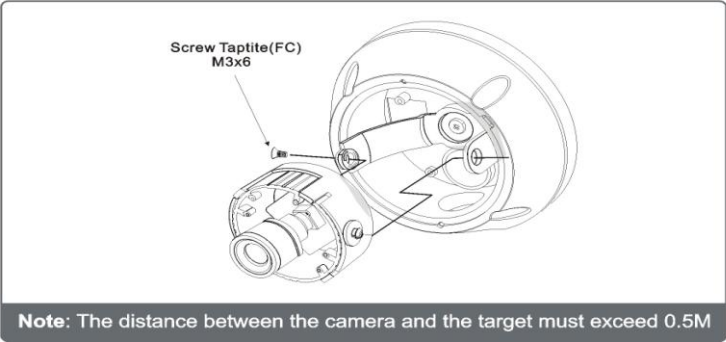
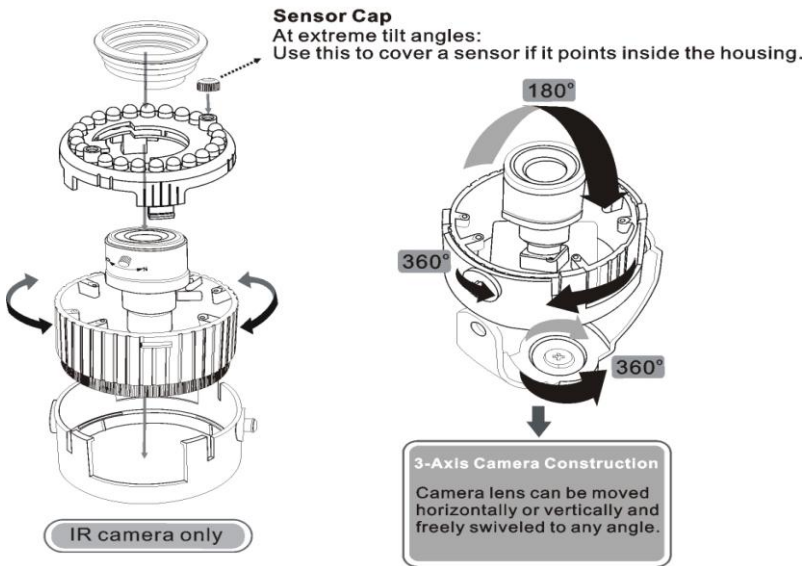
- A. Camera B. Fixing kit C. Instruction manual D. 'L' shaped Torx drive



Note : Make sure the camera PSU is turned off when connecting the power adaptor cable.

To adjust the camera module within the 3 axis gimbal, follow the directions below. Note that the arrow mark indicates the top of the camera image.

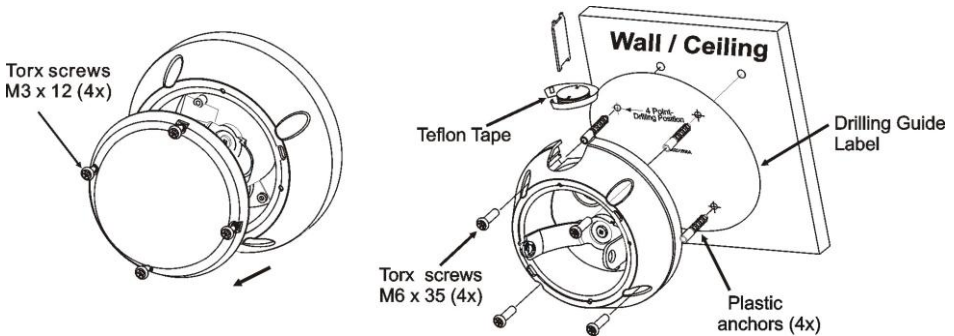
Use the following drawings to install the camera module to the housing.



INSTALLATION

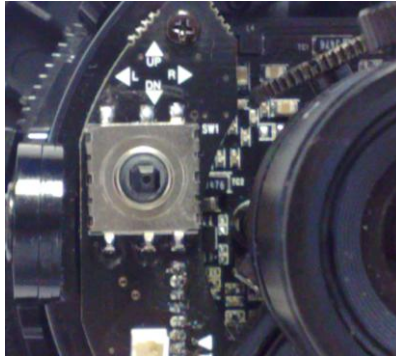
CAUTION: When installing the camera outdoors, the following instructions must be followed closely.

1. Loosen the four Torx screws on the housing cover. Do NOT remove the screws from the cover.
2. Use the mounting template as a drilling guide to ensure correct positioning of the screws.
3. Drill 4 holes into the mounting template. Insert the screw raw plugs (anchors) and attach the housing using the 4 x M6 Torx screws.



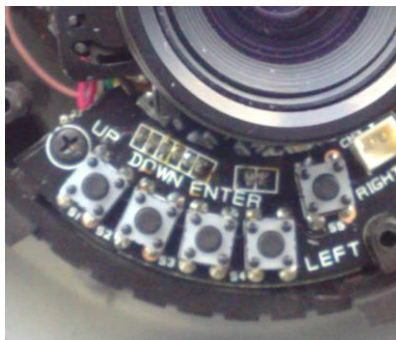
OSD ADJUSTMENT (CM & DN)

The tactile switch (under the plastic lens cover) allows both navigation and changes to the OSD Menu. To 'enter' into the OSD menu push centrally on the tactile switch and navigate using the up, down, left and right actions. If there is an arrow to the right of the menu function, this denotes that there is an accessible sub menu function and this is accessed via the 'enter' command with the tactile switch.

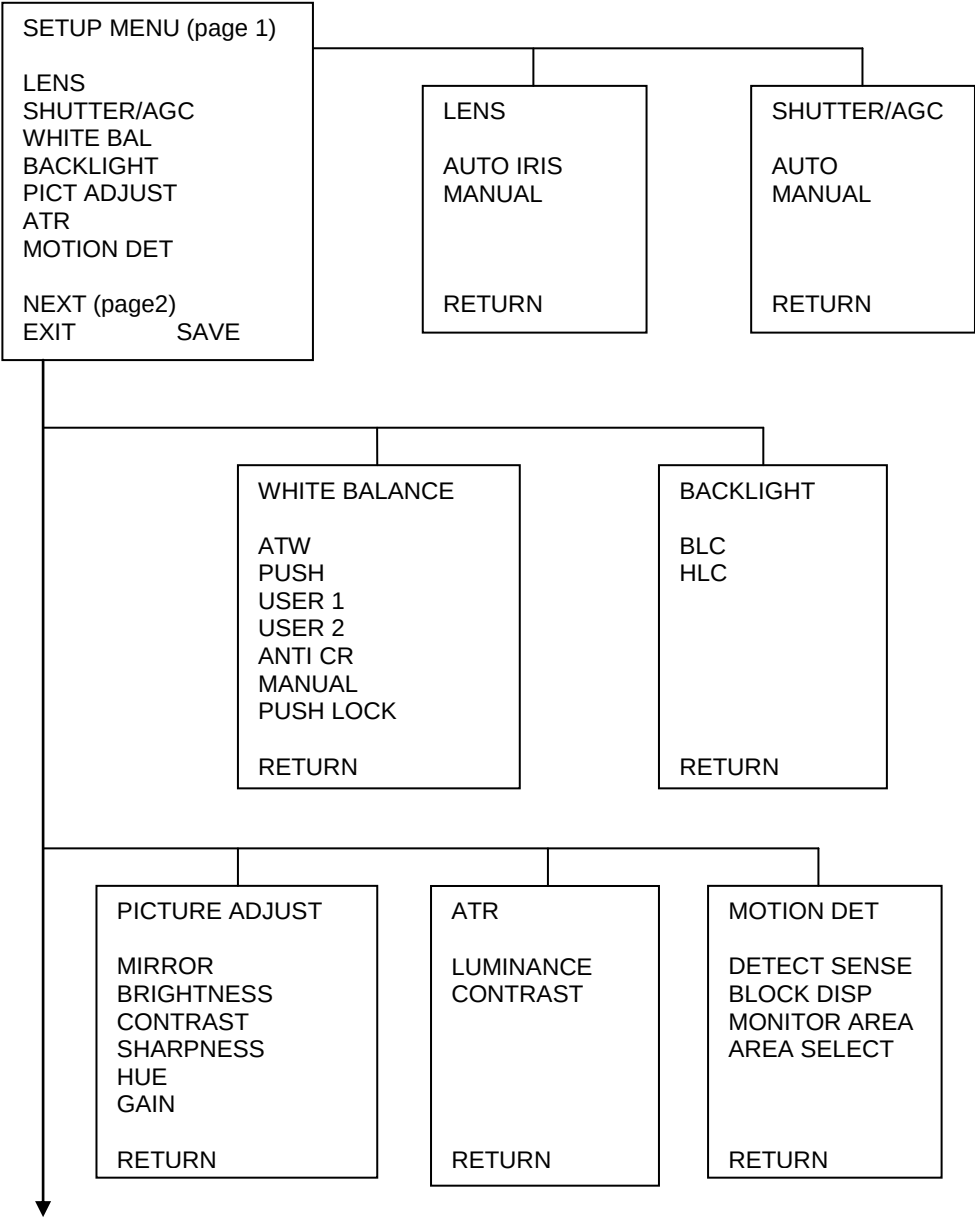


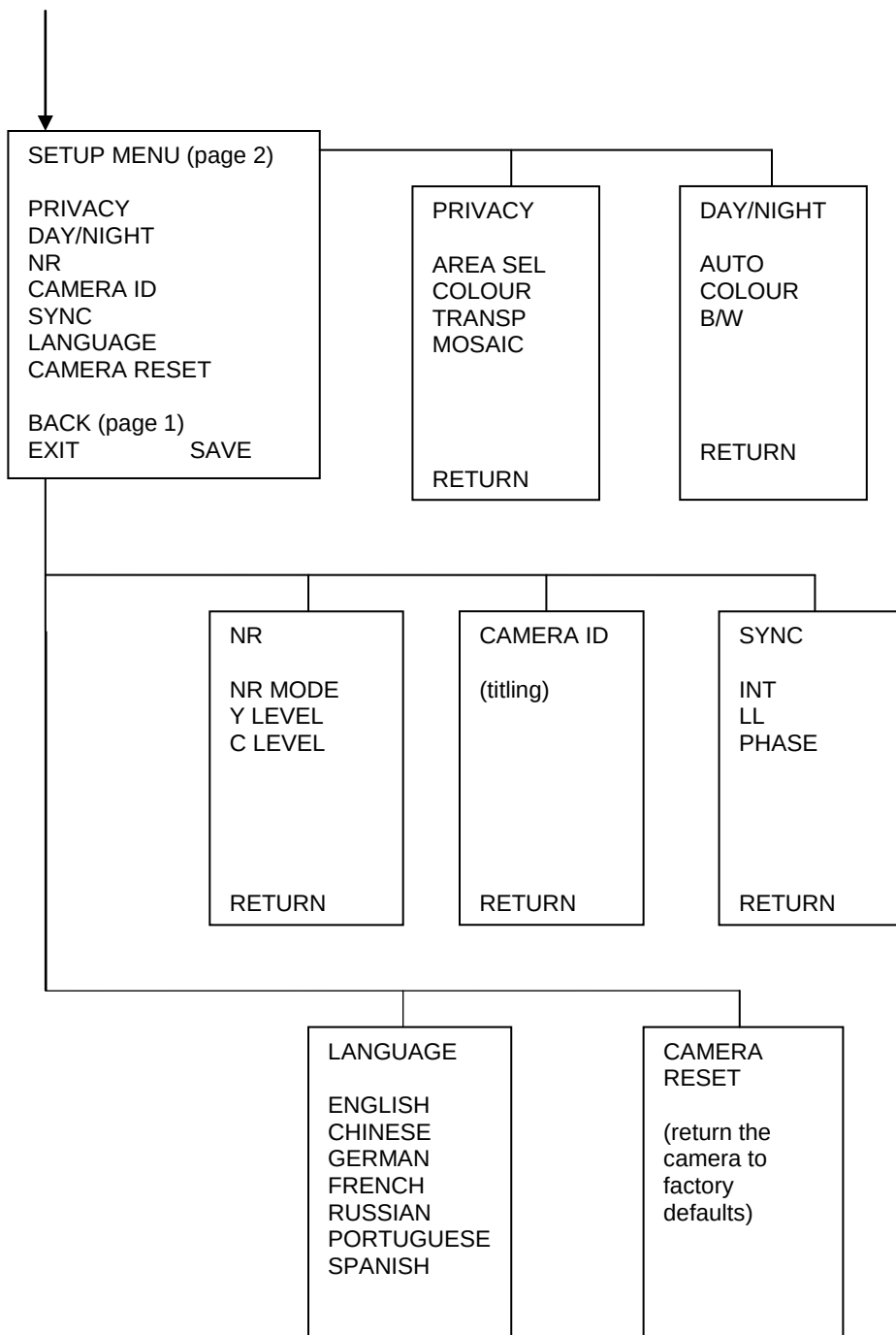
OSD ADJUSTMENT (DNLED)

The buttons (under the LED array) allows both navigation and changes to the OSD Menu. To 'enter' into the OSD menu push the 'enter' key and navigate using the up, down, left and right actions. If there is an arrow to the right of the menu function, this denotes that there is an accessible sub menu function and this is accessed via the 'enter' button.



OSD MAIN MENU TREE





OSD MENU SETTINGS

LENS

MANUAL

Manual lens only

AUTO

TYPE (DC / VIDEO)

Sets the type of mechanical iris
(Video lens is not supported)

MODE (OPEN / CLOSE / AUTO)

Sets the type of control to be applied over the mechanical iris.

SPEED (0 – 255)

Sets the convergence speed of the mechanical iris.

SHUTTER/AGC

AUTO

HIGH LUMINANCE

MODE (SHUT / SHUT+AUTO IRIS)

(only SHUT can be selected if LENS is in MANUAL mode)

BRIGHTNESS (0 ~ 255)

Adjusts the brightness level

LOW LUMINANCE

MODE (AGC / OFF)

Auto Gain Control on or off

BRIGHTNESS (x0.25 / x0.50 / x0.75 / x1.00)

Amount of AGC applied in low lighting conditions

MANUAL

MODE (SHUT+ AGC / OFF)

Auto gain control

SHUTTER

Select the shutter speed (1/50, 1/120, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000)

AGC

Sets the AGC gain applied [dB] for ME (manual exposure)

(6, 12, 18, 24, 30, 36, 42, 44.8dB)

WHITE BAL

ATW (Auto Trace White balance)

SPEED (0~255)

Adjusts the pull-in speed of ATW.

DELAY CNT (0~255)

Sets the time-based hysteresis of ATW.

ATW FRAME (X0.5/X1/X1.5/X2)

Sets the pull-in frame magnification.

ENVIROMENT (indoor/outdoor)

Preset for either indoor or outdoor applications of the ATW

PUSH

Wide range Auto White Balance mode (AWB)

USER1 & 2

Both USER 1 & 2 can be individually set up for specific applications. The gain values for USER 1 are biased towards the camera being installed outdoors and USER 2 setting are biased towards being installed internally.

B-GAIN (0~255)

R-GAIN (0~255)

ANTI CR

Colour rolling suppression ideal for internal use when fluorescent lighting is present to reduce/eliminate the 'beat pattern' effect (flickering).

MANUAL

The B and R gain values for manual WB are set on this screen.

LEVEL (14~57)

PUSH LOCK

PUSH LOCK fixes the white balance and should only be used when there is no change in the illumination level. If there are any changes in illumination this must be reset by pushing the 'enter' button again to adjust to new illumination level.

BACKLIGHT

OFF / BLC / HLC

BLC – Reduces over illumination of back lit subject

HLC – Inverts over bright white light to black (Peak White Inversion)

PICT ADJUST

MIRROR	(ON/OFF) Inverts image horizontally.
BRIGHTNESS	(0~255) Sets the screen brightness.
CONTRAST	(0~255) Sets the screen contrast.
SHARPNESS	(0~255) Sets the screen sharpness.
HUE	(0~255) Adjusts the hue.
GAIN	(0~255) Adjusts the gain.

ATR

ATR (Adaptive Tone Reproduction) allows adjustment of the image to assist with widely contrasting scenes of view.

LUMINANCE (LOW/MID/HIGH)
Sets the extent of the luminance compression
CONTRAST (LOW/MIDLOW/MID/MIDHIGH/HIGH)
Sets the extent of the contrast enhancement

MOTION DET

DETECT SENSE (0~127)
Sets the motion detection sensitivity (0=low sensitivity, 127=high sensitivity)
BLOCK DISP (OFF / ON / ENABLE)
Applies a Motion block trace in the selected area. To define the area, select Enable and push centrally on the tactile switch. Use the tactile switch to navigate to the blocks you want to **Disable** and not include in motion trace. To return to the menu, push and hold central tactile switch for 2secs and release.
MOTION AREA (ON/OFF)
Enables/disables the motion detection
AREA SEL (1~4)
Selects the motion detection area
TOP (0~244)
0=top
BOTTOM (0~244)
244=bottom
LEFT (0~474)
0=left
RIGHT (0~474)
474=right

PRIVACY

AREA SEL (1~4)

Selects the motion detection area

TOP (0~244)

0=top

BOTTOM (0~244)

244=bottom

LEFT (0~474)

0=left

RIGHT (0~474)

474=right

COLOUR (1~8)

Sets the colours of the privacy zones.

TRANSP (0.00/0.50/0.75/1.00)

Sets the transparency of the privacy zone area if colour is selected.

MOSAIC (ON/OFF)

Sets the mosaic function as the privacy to ON or OFF.

(Note: when mosaic ON, transparency needs to be set at 0.00. Privacy zones can only be 1 colour OR mosaic and not mixed)

DAY/NIGHT

AUTO

BURST (ON/OFF)

Allows the colour burst signal in monochrome mode to be removed

DELAY CNT (0-255 secs)

Sets the hysteresis time before switching between colour/mono & mono/colour, to reduce the 'hunting' effect.

DAY->NIGHT (0-255)

Sets the threshold for switching from day to night operation.

NIGHT->DAY (0-255)

Sets the threshold for switching from night to day operation.

COLOUR (colour only operation)

B/W (monochrome only operation – not available on DNLED model)

BURST (ON/OFF)

Allows the colour burst signal in monochrome mode to be removed.

NR (2D-DNR)

This is used to remove noise from the image in low light conditions when AGC is applied.

NR MODE (OFF, Y, C, Y/C)

Sets the 2D NR filter mode.

Y LEVEL (0-15)

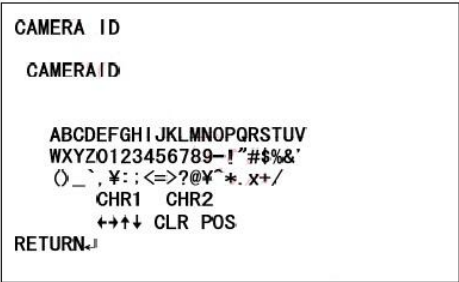
Sets the Y filter (Luminance) strength.

C LEVEL (0-15)

Sets the C filter (Chrominance) strength.

CAMERA ID

Sets the camera ID to ON or OFF. A title of 26 characters per line can be applied.



Use the tactile switch to navigate the cursor. Pushing centrally on the tactile switch will allow selection of that character.

The arrows at the bottom allow you to move the cursor without changing the character.

CHR1

Allows you to edit line 1

CHR2

Allows you to edit line 2

CLR

Inserts a space

POS

Allows you adjust the location of the camera ID title display.

SYNC

INT - This mode is necessary for using the internal synchronization.

L/L - This mode is necessary for the operation of multi camera because it synchronizes the camera phase by using the external signal (AC Signal).

PHASE - Sync phase is adjustable in L/L mode (only when using 24vAC).

LANGUAGE

LANGUAGE select between:
English, Japanese, German, French, Russian, Portuguese & Spanish.

CAMERA RESET

CAMERA RESET - Returns the camera to the factory default settings.

SAVE ALL

SAVE ALL - Saves all the changes made in the menu.

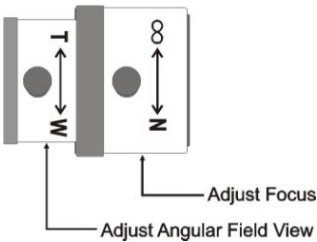
EXIT

EXIT – Exits the menu and does not save changes made.

LENS ADJUSTMENT

Field of view: Adjust setting from Tele (T) to Wide (W) field of View.

Focus: Adjust lens focus from near (N) to infinity (∞).



Lens	4 ~ 9mm
Image Size	1/3" CCD
Focal Length	f4.0 ~ 9.0mm ± 5% F1.6~2.4
Angular Field of View	HORIZONTAL
	4mm : 70.8°
	9mm : 31.4°

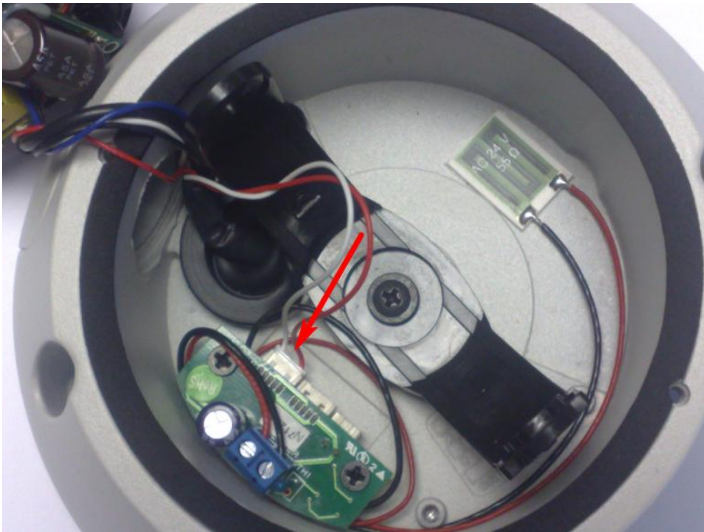
HEATER INSTALLATION (optional part)

As standard the VVRD will work down to -10°C without the heater being fitted. If the heater is fitted the VVRD will work down to -20°C (please note that the heater does not come with the VVRD and needs to be purchased separately).

1 – Down power the camera.

2 – Undo the screw holding the camera module in place and remove the camera module taking care not to snag or disconnect any of the cables going to the camera module PCB.

3 – Connect the spare plug from the VVRD lead into the heater PCB (as per red arrow in image taking care to get the plug right way up).



4 – Fix the heater PCB in place to the camera chassis with the provide screws, remove the backing from the heater and stick it in place (as per above picture).

5 – Replace the camera module and holding screw.

6 – The camera can now be powered up and adjusted to suit.

Important:

This heater requires an additional power to operate and as such the power supply for the camera may need to be upgraded to cope with this additional power demand.

12vDC = 3 Watt (Max)

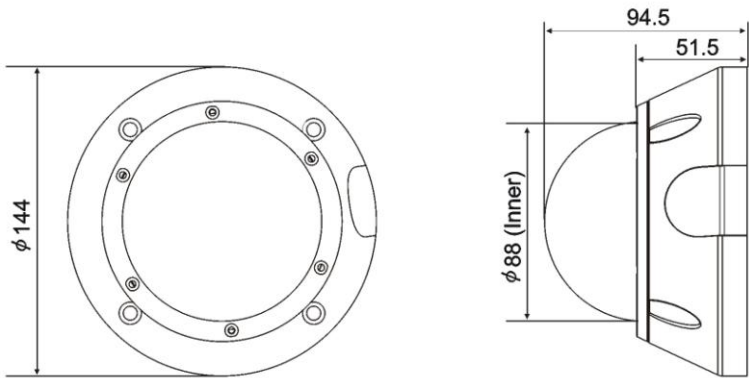
24vAC = 12 Watt (Max)

(VVRD Wattage consumption can be found on the specification table on page 15 and will need adding to the Wattage figure above).

SPECIFICATIONS

MODEL		CM	DN	DNLED	
GENERAL	Resolution	700TVL (colour and monochrome)			
	Image sensor	1/3" SONY EXview HAD CCD II			
	Total pixels	1028(H) x 596(V)			
	Effective pixels	976(H) x 582(v)			
	Scanning system	2:1 Interlace			
	Scanning frequency	PAL: 15.625KHz(H) x 50Hz(V)			
	Sync. system	Internal / Line lock			
	Electronic shutter	1/50~1 / 10,000 sec			
	Min. illumination	Colour 0.32Lux @ F1.6	Colour 0.32Lux / Mono 0.02Lux @ F1.6		
	LED's & Operation	None		23 @ 850nm via photocell (25m)	
	Video output	1.0Vp-p (75 ohm, composite)			
	S/N Ratio	50dB (AGC off)			
	Lens	f4-9mm (F1.6-2.4)			
	OSD Control	Tactile Switch		Buttons	
	FUNCTION	ATR	Luminance (L / M / H), Contrast (L / LM / M / MH / H)		
		Backlight	OFF / BLC / HLC		
		Day / Night	Auto (delay 0~255 secs) / Colour / BW (BW or BW with BURST)		Auto (delay 0~255 secs) / Colour
		Motion Detection	On / Off (4 areas)		
		Privacy	On (colour / mosaic) / Off (4 zones)		
		White Balance	ATW / PUSH / USER1 / USER2 / ANTI CR / MANUAL / PUSH LOCK		
		AGC	On / Off		
		Exposure	Auto Iris / Auto Iris + Electronic Shutter		
		Brightness	0 ~ 255 steps		
		Contrast	0 ~ 255 steps		
		Sharpness	0 ~ 255 steps		
		Hue	0 ~ 255 steps		
		Gain	0 ~ 255 steps		
		NR	OFF / Y / C / Y,C		
		Mirror	On / Off		
		Camera ID	2 x 26 characters On (edit, position) Off		
		Language	ENG / JAP / GER / FRE / RUS / POR / SPA		
POWER	Source	12VDC ± 15% / 24VAC ± 10%			
	Consumption	3.5 Watts, 0.3A		4.5W, 0.4A	
CONNECTIONS	Power input	2-pin terminal block with 2.1mm jack adapter			
	Video output	BNC connector / Spot Out			
	Operating Temp.	-10°C ~ +50°C			
	Storage Temp.	-10°C ~ +60°C			
	Operating Humidity	0 ~ 90% (non-condensing)			
	Dimensions (net)	144(Φ) x 94 (H) mm			
	Dimensions (gross)	170(W) x 170(H) x 170(D) mm			
	Weight (net)	650g			
	Weight (gross)	910g			

DIMENSIONS

Dimensions  Unit: mm	
Maximum Camera and Lens Size	2.6L x 1.65W x 1.65H in. (6.5L x 4.2W x 4.2H cm)
Window Size	0.1 in. (2.5mm thick), impact-resistant P.C (LEXAN) 3.46 in. (8.8cm) diameter
Cable Entry	Two 3/4" conduit fitting for NPT threaded pipe

MEMO

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Manual version 1.2
(This manual is subject to change without notice)