

VPM8030
VPM8032
VPM8130
VPM8132
VPM8120
VPM8122
VPC9030
VPC9032
VPC9130
VPC9132
VPC9032/CM
VPC9132/CM



**Protos 3 Series Cameras
Installation Instructions**

Read these instructions first!

Read all of these instructions. Use them to install your camera and have them available for its lifetime. If you have any problems, contact your agent. Note that not all cameras have all of the features described in this manual. Refer to the table below for the features of individual cameras. All cameras are fitted with a Direct Drive (DD) lens connector, an Auto Iris (AI) connector, have adjustable back focus and accept C and CS lenses.

VPC9032/CM and VPC9132/CM series cameras are designed to give a good image over a broad range of scene illumination. To achieve this, the camera operates in colour mode where the scene illumination is bright and automatically switches to monochrome where the scene illumination is low. Typically, the switchover occurs at approximately 2.0 lux.

TABLE 1

Option	VPM8030	VPM8032	VPM8130	VPM8132	VPM8120	VPM8122	VPC9032	VPC9032/CM	VPC9132	VPC9132/CM
Mono	●	●	●	●	●	●				
Color							●	●	●	●
Color/Mono										● ●
Resolution (TVL)	380	380	570	570	570	570	330	330	480	480
Sensitivity (lux @ f1.2)	0.1	0.1	0.1	0.1	0.1	0.1	0.9	0.9	1.0	1.0
CCD Sensor size	1/3"	1/3"	1/3"	1/3"	1/2"	1/2"	1/3"	1/3"	1/3"	1/3"
Sony SuperHAD™ CCD	●	●	●	●	●	●	●	●	●	●
DSP Digital Signal Processing							●	●	●	●
Adjustable Gamma (0.45 and 1.0)	●	●	●	●	●	●			●	●
Automatic Gain Control (AGC)	●	●	●	●	●	●	●	●	●	●
Backlight Compensation (BLC)	●	●	●	●	●	●	●	●	●	●
BLC on/off	●	●	●	●	●	●	●	●	●	●
Electronic Iris (EI)	●	●	●	●	●	●	●	●	●	●
EI on/off	●	●	●	●	●	●	●	●	●	●
Auto Iris connection	●	●	●	●	●	●	●	●	●	●
Line lock with phase adjust (AC only)	●	●	●	●	●	●	●	●	●	●
Internal Sync.	●	●	●	●	●	●	●	●	●	●
Supply										
11 - 40 VDC; 14 - 30 VAC		●		●		●		●		● ●
98 - 260 VAC	●		●		●		●		●	

Note: NTSC and EIA camera models have suffixes /N and /E respectively. These variants are also covered by Table 1.

⚠ WARNING

- **Installation and servicing is only to be carried out by suitably qualified and experienced personnel.**
- **Mains cameras contain hazardous voltages.**
- **Do not remove covers as there is a risk of injury or death by electric shock.**
- **Cameras connected to mains supplies must be earthed.**
- **Only power low voltage cameras from a class 2 isolated power supply.**

This camera range is designed for use in general purpose CCTV applications and has no other purpose. Only operate your camera between the temperatures of -10°C and +50°C. Do not operate your camera outside its specified power supply range. Cameras must only be used in clean, dry, dust-free environments unless housed in suitable protective housings to IP65 or better.

ELECTROMAGNETIC COMPATIBILITY (EMC)**⚠ CAUTION**

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.

This product is intended solely for use in general CCTV applications.

The product must be installed and maintained in accordance with good installation practice to enable the product to function as intended and to prevent problems. Refer to Norbain SD Limited for installation guidance.

MANUFACTURER'S DECLARATION OF CONFORMANCE

The manufacturer declares that the equipment supplied with this manual is compliant with the essential protection requirements of the EMC directive 89/336 and the Low Voltage Directive LVD 73/23 EEC. Conforming to the requirements of standards EN 55022 for emissions, IEC801 parts 2, 3 and 4 for immunity and EN 60950 for Electrical Equipment safety.

△ CAUTION

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

- 1) The camera has threaded mounting points on the top and bottom of the case. Only use a standard, photographic, mounting-bolt with a 1/4" 20 UNC thread.
- 2) Before fitting the lens make sure that its back will not touch the CCD sensor or associated components when screwed fully home.
- 3) Do not touch the image-surface of the sensor. If the sensor is accidentally touched, only clean it using ethyl alcohol.
- 4) Do not expose the camera sensor to very bright light over a long period of time as this may cause damage to the CCD. The camera and lens set-up must be correct to avoid continual over exposure by bright light.
- 5) The weight of your camera is 0.5kg (0.35kg for low voltage versions).
- 6) Only use your camera in a clean, dust-free environment.
- 7) For outdoor use, an appropriate protective housing conforming to IP65 or UL50 or better must be used.

POWER SUPPLY

Cameras are available in AC mains and AC and DC low voltage types. **The voltage required to operate the camera is clearly marked on the rear panel of the camera. Only power low voltage cameras from a class 2 isolated power supply.** The typical power consumption of a VP... series camera is less than 5 Watts.

Mains Power Supply

Cameras that are intended to operate directly from the mains supply are fitted with a non-detachable power supply cord. The voltage of operation is clearly marked on the rear panel of the camera. Generally this is 98 to 260 VAC at 50 Hz for CCIR/PAL (60Hz for EIA/NTSC).

REFER TO THE WIRING INSTRUCTION LABEL ATTACHED TO THE SUPPLY CORD and terminate the cord with the appropriate circuit fitted with a 3A fuse.

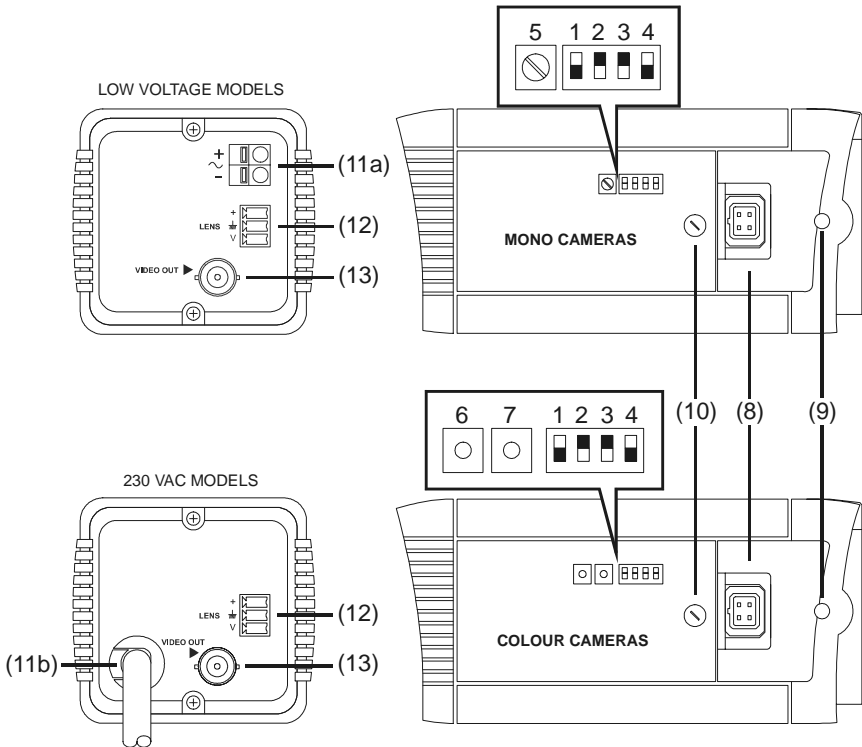
MAINS CAMERAS MUST BE CONNECTED TO A PROTECTIVE EARTH GROUND. Ensure that a secure means of isolation from the mains is provided for the camera in accordance with the national wiring regulations of the country of installation.

Auto-Switching Power Supply

Cameras fitted with an automatic selecting power supply operate between 11-40 VDC and 14-30 VAC. Connections and polarity are indicated above the screw terminals on the rear panel. **The power supply must be a class 2 isolated type.**

CONTROLS AND SWITCHES

On the side of the camera is a hinged flap. The hinged flap covers various adjustment controls and function switches.



Default switch positions shown (white represents switch position)

(1) Synchronisation Selection (LL/INT)

This switch is used to select the camera synchronisation mode. When the camera is connected to an AC supply the Line-lock (LL) mode can be used. This locks the camera frame rate to the mains frequency so that cameras in a system are triggered at the same point on the mains AC cycle. Also see 5, 6 and 7 Line Lock Phase Adjustment.

(2) Backlight Compensation (BLC)

The BLC (Back Light Compensation) facility compensates for back-lit scenes by enhancing objects in the centre of the scene which would previously have been in silhouette. Select **ON** or **OFF** using the BLC switch. Default is **OFF**. BLC will only function with a manual iris lens when the Electronic Iris facility is switched on. For direct drive and auto iris lenses, BLC will still function even though the Electronic Iris facility is switched off.

(3) Gamma

Two different gamma correction options are available. Select **Normal** (0.45) to provide increased visibility in dark areas of the scene, or **Linear** (1.0). The default setting is **Normal**.

(4) Electronic Iris (EI)

The Electronic Iris (EI) compensates for excessive light level by automatically adjusting the shutter speed. The electronic iris should be **ON** when using fixed or manual iris lenses. When using Auto Iris (AI) lenses of either the video drive or DC drive types the EI must be **OFF**. Also see (10) Electronic Iris and DC Lens Level Adjustment Potentiometer.

(5) Line Lock Phase Adjust Potentiometer

When the camera is in line-lock mode it is possible to adjust the point on the AC cycle at which the camera triggers. This facility is provided so that cameras that are connected to different mains phases may still be synchronised.

The line lock phase adjustment potentiometer allows the line lock phase trigger point to be adjusted by $\pm 120^\circ$. Rotating the potentiometer clockwise advances the trigger point and turning it anticlockwise retards the trigger point. The factory default setting is the zero crossing point. If all cameras in a system are on the same mains phase then no line lock phase adjustment should be made.

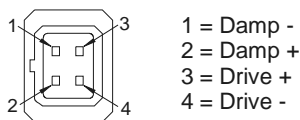
(6 and 7) Line Lock Phase Adjust Buttons (+ Advance; - Retard)

When the camera is in line-lock mode it is possible to adjust the point on the AC cycle at which the camera triggers. This facility is provided so that cameras that are connected to different mains phases may still be synchronised.

The line lock phase adjustment buttons allows the line lock phase trigger point to be adjusted by $\pm 120^\circ$. Pressing the advance button advances the trigger point and pressing the retard button retards the trigger point. The factory default setting is the zero crossing point. If all cameras in a system are on the same mains phase then no line lock phase adjustment should be made.

(8) Direct Drive/DC Drive Lens Connector

This 4-pin connector supplies the power and DC control signal for use with DC drive Auto Iris lenses. If the lens does not have a DD plug fitted then wire the lens to a suitable plug in accordance with the diagram below:



DD Lens Connector

(9) Back Focus Adjustment screws

These two adjustment points located on the camera body top and side (top not shown), are used to adjust the back focal length or picture focus. The range of adjustment allows both C and CS mount lenses to be used without the need for a spacer ring. Refer to the section on Focus Adjustment

(10) Electronic Iris and DC Lens Level Adjustment Potentiometer

If the camera is used with a direct drive (DD) lens this potentiometer varies the DC reference voltage used to control the lens. The potentiometer has the effect of increasing or decreasing the lens aperture. This potentiometer should be set to obtain a 1V pk-pk video output.

If a mono camera (VPM8030, VPM8032, VPM8130, VPM8132, VPM8120 and VPM8122) is used with a manual iris or fixed iris lens, and hence the electronic iris is switched ON, this potentiometer controls the electronic iris level. The potentiometer is factory set to give a 1V pk-pk video

CONTROLS AND SWITCHES

output for a typical scene. The level should not be adjusted unless absolutely necessary.

(11a) Supply Voltage Terminals

This terminal accepts an 11-40 VDC or 14-30 VAC at 50Hz (CCIR/PAL) or 60Hz (EIA/NTSC) power source. Ther terminals are the quick release type. To connect a cable press the appropriate release lever and insert the end of the cable fully home. Ensure that there is sufficient length of bare tinned wire to make contact with the connector. Also ensure that the cable insulation is not too thick, preventing the cable from being properly inserted.

△ CAUTION

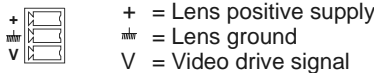
Only connect the camera to a class 2 power supply.

(11b) Supply Voltage Power Cord

The non-detachable power supply cord must be connected to a power supply of 98 - 260 VAC at 50Hz (CCIR/PAL) or 60Hz (EIA/NTSC). **CAMERAS MUST BE CONNECTED TO A PROTECTIVE EARTH GROUND.**

(12) Video Iris Lens Connector

This three way connector provides the power and video drive signal for use with video drive Auto Iris lenses. The terminal block that mates with this connector is provided in the packing kit. Connect the lens to the terminal block in accordance with the diagram below:



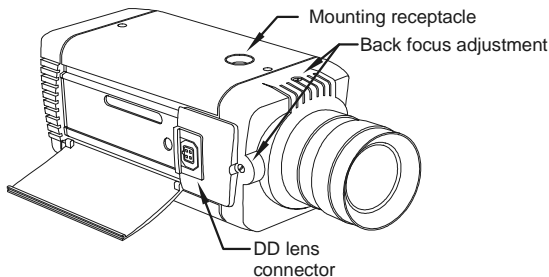
Auto Iris Lens Connections

(13) Video Output BNC Connector

To obtain a 1.0V [pk-pk] composite video signal, connect a video coaxial cable terminated with a 75 Ohm BNC connector to the BNC socket marked VIDEO OUT.

CAMERA MOUNTING

Mounting points are provided on the top and bottom of the camera and are used to mount the camera on a bracket or tripod. Only use standard, photographic 1/4" BSW (20 UNC) mounting bolts.



LENS SELECTION

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

Lens size	VPM8030	VPM8032	VPM8130	VPM8132	VPM8120	VPM8122	VPC9030	VPC9032	VPC9130	VPC9132	VPC9032/CM	VPC9132/CM
1/3"	●	●	●	●	●	●	●	●	●	●	●	●
1/2"	●	●	●	●	●	●	●	●	●	●	●	●
2/3"	●	●	●	●	●	●	●	●	●	●	●	●
1"	●	●	●	●	●	●	●	●	●	●	●	●

LENS SETUP PROCEDURES

For manual or fixed iris lenses set the EI switch to ON.

Auto Iris Lenses

Switch the EI off. Refer to the lens instructions and adjust the lens for the optimum picture (video output level of 1V peak-to-peak).

Direct Drive Lenses

Switch the EI off. Use an appropriate screwdriver to turn the lens level potentiometer (under the hinged flap) fully clockwise then back off until the optimum picture is obtained (video output level of 1V peak-to-peak).

FOCUS ADJUSTMENT

The back focus adjustment screws are located on the top and side of the case and should be adjusted using an appropriate screwdriver. If possible, always use the top screw to adjust the back focus mechanism.

Turn the adjuster screw clockwise or anticlockwise to obtain focus. When the focus is sharp, turn the back focus adjustment screw 2 or 3 turns anticlockwise. The picture will lose sharpness. Turn the back focus screw clockwise until focus is once again obtained. If you have turned the back focus screw clockwise past the point of best focus, repeat the procedure. **The last turn of the back focus adjustment screw must always be in a clockwise direction.** Do not 'over turn' the back focus mechanism.

Fixed Lenses

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

Manual Iris Lenses

Open the iris fully and set the lens focus to infinity. View an image greater than 7 feet (2 meters) away. Focus the image using the back focus screw. Set the lens focus and iris as required.

FOCUS ADJUSTMENT

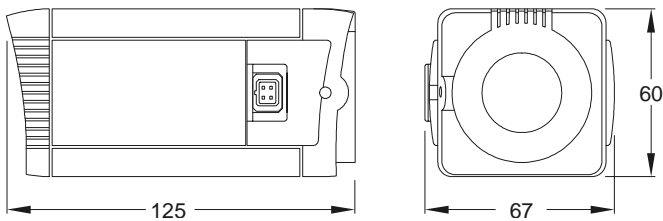
Auto Iris and Direct Drive Lenses

Fully open the iris by covering the lens with a suitable neutral density (ND) filter. Set the lens focus to infinity. View an image greater than 7 feet (2 meters) away. Focus the image using the back focus screw. Remove the ND filter and set the lens focus as required.

Zoom Lenses

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

DIMENSIONS



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