

The all-new **PERFORMA** range of CCTV cameras -

Features

- Excellent Picture Quality
- Mid & Hi-Res Options 420-580TVL
- Accurate Colour Rendering (Col Models)
- 3 Voltage Options 12V DC | 24V AC | 240V AC
- Low Light Options - Down To 0.005 Lux
- Attractive 2 Colour Finish
- Utilizes CS / C Mount Lens
- Video Drive & Direct Drive Compatible
- Ultra High IR Sensitivity Option.
- Installer Friendly – Very Easy To Set Up
- Auto Gain On / Off
- Intelligent Backlight Compensation (BLC)
- Digital Signal Processing (DSP)
- Low Current Consumption, less than 200ma
- Screw Terminals For Power (12V DC 24V AC Models)



The all-new range of PERFORMA CCTV cameras from System Q provide outstanding performance at ordinary prices. With a choice of colour or B&W, medium or high-resolution, and 12V DC, 24V /240V AC options there's a camera to suit any application.

Installation and set-up is easy with this installer friendly camera. With all models in the range sharing the same set up procedure once you have learnt to fit one Performa model, you have learnt the entire range!

Models covered by these instructions;

Colour

CCT533	12V	DC	High-res low light colour
CCT532	24V	AC	High-res low light colour
CCT531	240V	AC	High-res low light colour
CCT525	12V	DC	Mid-res low light colour
CCT520	12V	DC	Mid-res standard colour

Black & White

CCT515	12V	DC	High-res X-low light IR sensitive B&W
CCT514	24V	AC	High-res X-low light IR sensitive B&W
CCT513	240V	AC	High-res X-low light IR sensitive B&W
CCT511	12V	DC	Mid-res low light B&W
CCT508	12V	DC	Mid-res standard B&W

Stage 1 – Powering the camera.

POWERING 12V DC models CCT533/525/520/515/511/508.

The 12V DC cameras require a power supply that has a continuous rating of 200ma or higher per camera. It is recommended that you allow 300ma 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.

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 12V DC cameras are available with two connection options a 2.1mm DC plug and a terminal strip (available 2002).

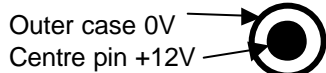
2.1mm DC socket on 12V cameras only.

The power is connected to the camera via the 2.1mm DC socket located at the rear of the camera. A 2.1mm plug is usually supplied free with the camera so please take care not to lose this before the actual installation. The power plug needs to be wired with the centre pin connected to +12V and the outer part of the plug to 0V.



DIAGRAM 1

2.1mm 12V DC Power Plug



12v 2.1mm DC power socket

12V terminal strip connector

From early 2002 the DC socket connector is to be replaced by a terminal strip, this should facilitate easier and faster power connection without the need for the DC plug or the hassle of soldering.

The 12V strip can be seen in the picture on the right. The 12V+ connects to the left hand terminal and the 0V connects to the right hand side.



If you are using the System Q Easy Connection Kit (CCT806/7) to power and connect your camera (12V models only) please proceed as per the instructions supplied with The Easy Connection Kit. You will need to cut off the DC Plug ONLY and use the bare wires to connect to the terminal strip. The 12V positive is the RED wire the 0V is the BLACK wire.

POWERING 24V AC models - CCT532/514

If you are using either of the PERFORMA CCT532 or CCT514 models you will need a 24V AC PSU to power them. If you are using the cameras externally, the external housing CCT426 is a great addition to the Performa 24V AC cameras as the combined load of the camera and heated housing are less than 500ma making any voltage drop on the supply cable low and negligible on quite lengthy runs. A suitable PSU is order code POW600, this will supply 4X Camera & Housing combinations or 8 cameras without housings.

Using a suitable cable between the 24V AC power supply and the camera you can connect the power to the cameras terminal strip either way around. As the power is 24v AC, (alternating current), the polarity is not important. You must use a separate cables for power and video. It is recommended you use a 2/4 core cable to carry the AC power to the camera and use an RG59 or twisted pair cable to bring the video signal back from the camera to the monitor / control equipment.

POWERING 240V AC models - CCT531/511

If you are using either of the PERFORMA 240V AC models you will need to power them with 240V AC.

WARNING – 240V AC MAINS VOLTAGE CAN KILL. UNDER NO CIRCUMSTANCES UNDERTAKE TO CONNECT OR INSTALL THESE MAINS OPERATED CAMERAS UNLESS YOU ARE SUFFICIENTLY QUALIFIED OR COMPETENT. YOU SHOULD

NEVER WORK ON MAINS EQUIPMENT WITHOUT FIRST ISOLATING THE SUPPLY FOR YOUR OWN AND OTHERS SAFETY.

The CCT531 and CCT511 cameras come with a mains connection lead that connects straight into the rear of the camera. This connector can be fitted in the socket either way around, which is correct. The connector has a two core flex coming out of it and this should be connected as follows;

Blue = Neutral
Brown = Live

NOTE - As the CCT531 and CCT511 are mains rated electrical equipment they should be connected in accordance with the latest IEE wiring regulations.

Video Out.

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, 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 would be as follows;



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!

Fitting the lens.

The cameras can use most types of lens including manual iris, direct drive auto-iris, video drive auto-iris and zoom.

Switch settings on the rear of the camera.

The lens you are using will determine how the switches on the rear of the camera are set.

Please use the following table to ensure that you have set the switches correctly for the type of lens you are using.

Switch	Manual Lens	Direct Drive Lens	Video Drive Lens
AES	ON	OFF	OFF
BLC	ON	ON	ON
AGC	ON	ON	ON
AUTO-IRIS	DC	DC	VIDEO

“On” means the raised bit of the switch is towards the function.

AES – This means “Automatic Electronic Shutter” sometimes referred to as the “Electronic Iris”. This should only be switched ON when you are using a manual iris lens as the lens itself can’t adjust for varying light levels so the camera has to do this “electronically”. If you leave this switched ON with an auto-iris lens, the camera will still function but the picture quality will be erratic being too bright or dark with poor colour reproduction as both the lens and camera will be fighting (unsuccessfully) to compensate for varying light levels.

BLC – This means “Back light Compensation”. This is recommended as always set to ON and it helps the camera when it is looking at a bright object such as an external window. The BLC tries to compensate for the bright part of the image so that some of the surrounding area is not too dark.

AGC – This stands for “Automatic Gain Control” and should always be switched to ON allowing the camera to automatically adjust the video output to maintain the best possible picture quality in a wide range of conditions.

Auto-Iris plug connections

Auto-Iris Type lenses also require the 4pin connector to be attached to the camera. It is important that this connector is wired correctly. If you bought the lens from System Q and it’s a direct drive lens, this will be pre-wired and you can simply plug the lens into the camera. Often video drive lenses are supplied without the lens plug fitted if this is the case you will need to fit the plug as per figure b below;

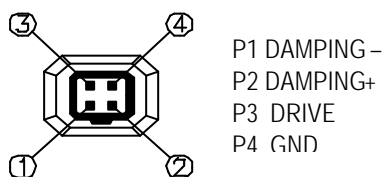


Fig a. Direct-Drive connections

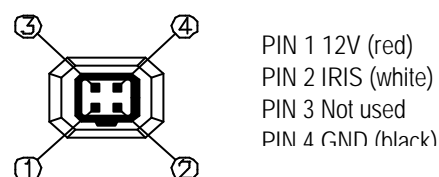


Fig b. Video-Drive connections

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, including the PERFORMA range 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 GCS 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.

Fitted with C-CS adapter fitted

Setting Up a Direct Drive lens for different Light Levels.

If you have set up the switches on the camera, fitted and focused the lens, you may wish to set up your auto-iris lens to adjust the light level at which the lens' Iris will open and close, therefore getting the best possible picture out of the camera in various light conditions. This is done by adjusting the ALC on the rear of the camera. (On a video drive lens this is located on the lens it's self).

Note if you are happy with how the camera is performing do not adjust the ALC, as the saying goes "don't fix what ain't broke"

The ALC setting determines when the IRIS of the lens opens and closes. Turn the ALC to LOW (anti-clockwise) and the IRIS opens allowing more light into the camera producing a brighter picture. Turn the ALC to HIGH (clockwise) and the IRIS starts to close producing a darker picture. The trick to setting up the ALC is to set it up in the brightest possible conditions, i.e. sunlight 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- Turn the ALC fully anti-clock wise. The picture on the monitor is probably very bright / white.
- 2- Slowly turn the ALC clockwise until the picture is OK, but as soon as it is OK do not turn it past this position.



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 good night time performance.

Trouble shooting.

The camera is built to the highest standards and every unit is fully tested prior to packing so if you experience an installation problem you need to investigate your cabling, connections, power supply and monitor. If you do fail to get a picture on a monitor you need to check the following things.

- **NO PICTURE OR A POOR PICTURE.**

The camera cannot function without the correct working power supply. The power supply **MUST** be regulated and be capable of supplying 200mA per camera **CONTINUOUSLY**.

For 12V DC camera. To check that your power supply is functioning correctly use a multimeter set on DC volts (above 12V) and connect the probes to the power supply's output plug or terminal strip (the plug polarity is previously shown). The meter should read between 12-13V. If the meter shows a negative voltage the power supply could be wired incorrectly or you may have the leads of the multimeter reversed. To make sure the multimeter is working correctly, connect it to a known voltage and polarity such as a battery. If you find that the power supply is giving out more than 13V you may be using a non-regulated power supply and must stop using it with the camera immediately or you may cause permanent damage. This rule applies to most 12V CCTV cameras.

If you get a black or very dark picture and you are using an auto-iris lens it could well be that the lens' Iris is not opening properly. To check this, simply remove the lens from the camera. Whilst it is still connected to the monitor via a BNC to BNC lead and still powered up, on the monitor you should see a "whitish" misty screen. By placing your hand in front of the camera (where the lens would normally sit) you will stop light getting to the camera and the screen should darken. If this is the case you have proven the camera is working but the lens' Iris is not opening correctly. This could be because the lens' connecting plug is not correctly wired for the camera (applies to Video Drive lenses only) or that the switches on the rear of the camera are not set correctly.

Make sure the BNC-BNC lead you connect between the camera and the monitor has no shorts or open circuits. If you are making up your own BNC-BNC lead, don't forget the lead must have two wires connected to complete the circuit, Video AND GROUND (without both of them it will not function correctly). If in doubt swap your lead with a pre-wired commercial one, as faulty leads are the main cause of problems.

- **INTERFERENCE ON THE CAMERA PICTURE.**

This is usually caused by poor or inadequate cabling, not observing the correct wiring techniques and for 12V DC cameras the use of an unregulated or poorly regulated power supply. If you want a good picture quality and require the camera to work to its full potential, do not use an intruder alarm PSU with 12V DC cameras. If you suspect you have a PSU problem with a 12v DC camera, the best way to check this is to power your system using a fully charged 12V lead acid battery to give a 12V totally regulated supply. If this stops the problem then, you will need to change your PSU for a better quality unit.

- **UNABLE TO FOCUS THE CAMERA OR A WHITE/MISTY SCREEN.**

This means that the lens is not correctly fitted on the camera. To remedy this you need to refer back to the section on "Fitting the lens".

- **POOR PERFORMANCE IN LOW LIGHT.**

This could mean that you need to adjust the IRIS on the lens. On a manual IRIS lens this is done by turning an IRIS ring located on the lens itself. On an auto-iris lens you need to set up the lens using the correct switch combinations and repeat the section *Setting Up a Direct Drive lens for different Light Levels*.

- **TOO BRIGHT PICTURE.**

See above "Poor performance in low light". Check switch setting and Iris.

Colour Models

B&W Models

	CCT53 3	CCT53 2	CCT53 1	CCT52 5	CCT52 0	CCT51 5	CCT51 4	CCT51 3	CCT51 1	CCT50 8
Image Sensor	1/3" col	1/3" col	1/3" col	1/3" col	1/4" col	1/3" B&W	1/3" B&W	1/3" B&W	1/3" B&W	1/3" B&W
Image output	1V p-p	1V p-p	1V p-p	1V p-p	1V p-p	1V p-p	1V p-p	1V p-p	1V p-p	1V p-p
Resolution Standard	480tvl	480tvl	480tvl	420tvl	420tvl	580tvl	580tvl	580tvl	450tvl	450tvl
Resolution enhanced	550tvl	550tvl	550tvl	420tvl	420tvl	580tvl	580tvl	580tvl	500tvl	450tvl
Min illumination @ f/1.4	0.3 lux	0.3 lux	0.3 lux	0.8 lux	0.92 lux	0.005 lux	0.005 lux	0.005 lux	0.01 lux	0.02 lux
Digital Signal Processing	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Digital D/Night enhance	Yes	Yes	Yes	Yes	No	No	No	No	No	No
IR Sensitivity Low-High	Med.	Med.	Med.	Low	Low	High	High	High	Med.	Med.
Backlight Compensation	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ALC – Low-High	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Electronic Iris	On/off	On/off	On/off	On/off	On/off	On/off	On/off	On/off	On/off	On/off
White Balance	Auto	Auto	Auto	Auto	Auto	Auto	Auto	Auto	Auto	Auto
SN Ratio	+48dB	+48dB	+ 48dB	+48dB	+48dB	+48dB	+48dB	+48dB	+48dB	+48dB
V.D & D.D lens compatible	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lens mount type	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS
Voltage	12V dc	24V ac	240V ac	12V dc	12V dc	12V dc	24V ac	240V ac	12V dc	12V dc
Power/current	200mA	100mA	2.5W	200mA	200mA	200mA	100mA	2.5W	200mA	200mA
Video Connector	BNC	BNC	BNC	BNC	BNC	BNC	BNC	BNC	BNC	BNC
Power connector	T strip	T strip	Fly lead	T strip	T strip	T strip	T strip	Fly lead	T strip	T strip
Colour	Ivory	Ivory	Ivory	Ivory	Ivory	Ivory	Ivory	Ivory	Ivory	Ivory
Size	120 x 60 x 60mm	120 x 60 x 60mm	120 x 60 x 60mm	120 x 60 x 60mm	120 x 60 x 60mm	120 x 60 x 60mm	120 x 60 x 60mm	120 x 60 x 60mm	120 x 60 x 60mm	120 x 60 x 60mm

All specifications are approximate. System Q reserves the right to change any product specification or features without notice. Whilst every effort is made to ensure that these instructions are complete and accurate, System Q cannot be held responsible in any way for any losses, no matter how they arise, from errors or omissions in these instructions, or the performance or non-performance of the camera or other equipment that these instructions refer to.