



Hidden Camera Surveillance

Tel 1300 763235



Number Plate Recognition (NPR) Cameras

The **NPR-80RL12** Number Plate Recognition Camera is quite different when compared to a standard security CCTV or IR type Camera. Our 12V NPR Cameras are designed for one main purpose, to see and therefore record a Number Plate day or night and regardless whether the vehicle headlights or tail lights are on or off . The special built-in illuminators highlight the actual plate and lower the intensity of the headlights to achieve the desired result, Number Plate identity.

NPR Colour Camera- How does it work?

An NPR or Number Plate Recognition Camera is a high-resolution colour camera by day however, by night it will auto switch to B/W mode which is necessary for the built in IR illuminators to function.

A standard CCTV Camera or IR camera **cannot** see a number plate at night. With headlights or taillights on, its simply too bright for the camera to see, so in most cases the number plate will be unreadable. Even if the plate is semi readable under certain conditions, the quality is often poor as a standard camera cannot compensate for bright light changes. Yes the headlights will be in view but not the number plate.

Our NPR Camera on the other hand is designed to have the opposite effect to a standard CCTV camera. By day our NPR camera will be colour and tantamount to a CCTV camera however, by night or in darkness, this camera switches to B/W mode and the area under surveillance is highlighted with an illumination similar in many respects to a night club "black light" which illuminates white to make it stand out above all other colours.

To standard cameras, headlights and taillights are too bright but to our NPR camera, the head lights or tail lights brightness is automatically dimmed and at the same time, the actual number plate is illuminated by the special IR to makes the plate stand out like a beacon so to speak. It's equally important to realize that the NPR is not designed to see people at night, especially if they are standing in the dark. This is NOT a night vision surveillance camera; it is designed primarily to see number plates.

To see and read a number plate at night, it's important the NPR camera is mounted within a reasonable range of the vehicle; say 5-15m at most and not mounted too high or low. Ideally the NPR camera should be no higher than 2-3m high and aimed as much as possible toward the front of rear of the approaching or leaving vehicle.

Digital Video Recording System

Whilst any camera can be cabled to a TV monitor for a live view, in most cases the customer will need the event to be recorded along with the number plate. Its critical in NPR recording and identity that the recorder is equally high specification and at the very least H.264 D1 real time.

If for any reason the number plate becomes obscured, provided the DVR recorded the event, to see the plate clearly simply advance forward or backward frame by frame up to 25 times per second to capture to review the number plate. If the recorder is low quality and not real time then the ability to enhance and zoom in on the plate could potentially fail.

Hidden Camera Surveillance offers a range of suitable DVR systems in H.264 codec from D1 through to the newer HD and IP systems. Call for more information or see our website www.hiddencamera.com.au

Behaviour of Reflected Light

To explain some further technology behind successful NPR capture we need to look at the behaviour of light. A basic law of light is that the angle of incidence equals the angle of reflection. However, number plates have a special characteristic known as RETRO-REFLECTIVE.

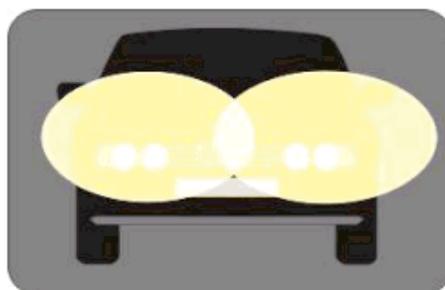
The surface is covered in hundreds of tiny hemispheres that cause light to be reflected back to the source. This is the same technology used in safety clothing and signs. No matter from which direction the light is directed, it always reflects back and makes them very visible.

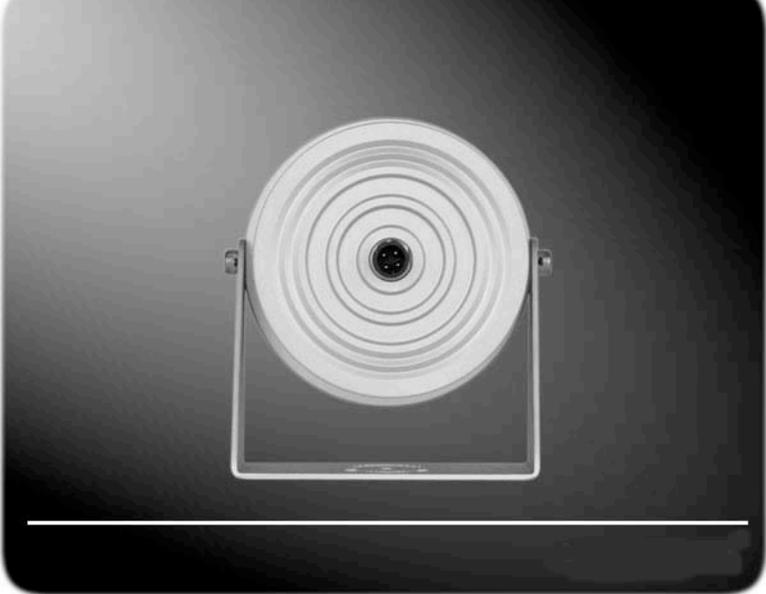
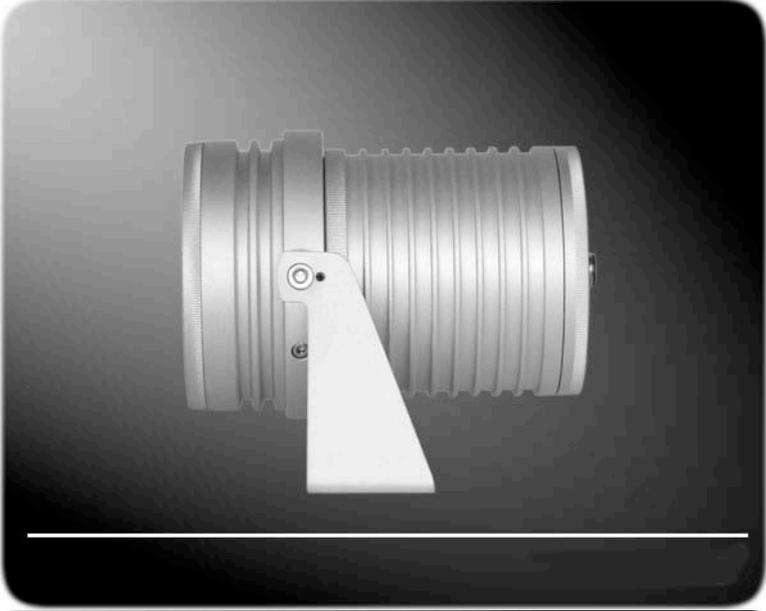
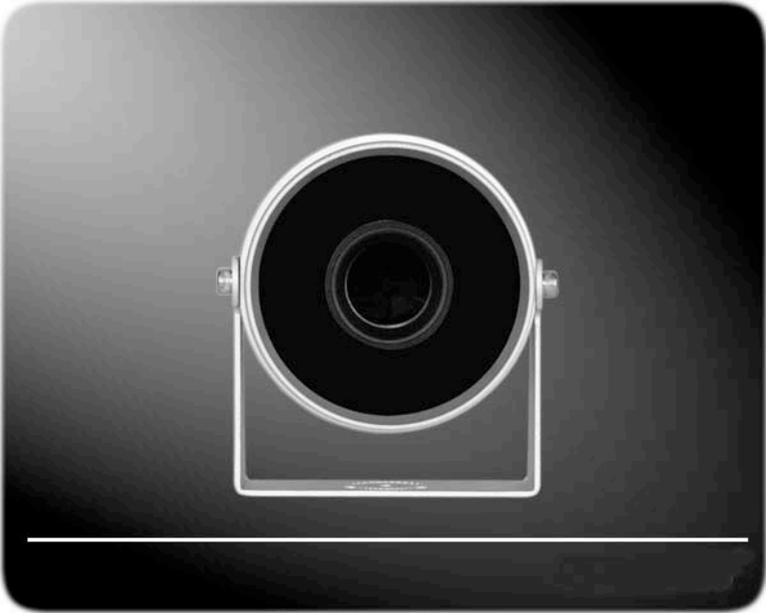
Application of Infrared Illumination to NPR

If a standard colour or monochrome camera was focused to read number plates it would have to contend with a huge variety of lighting conditions, daytime, night-time, sunlight, backlight, headlights, and so on. One configuration simply would not cope with all conditions, so there is a need to provide a constant level and direction of illumination irrespective of any other conditions. And so we come to the development of special cameras for continuous capture of number plate data.

The camera must be sensitive to the infrared part of the spectrum, to at least 850 nanometres. Then it must be fitted with a filter to restrict the visible part of the spectrum. The lens would have a manual iris set fully open and the shutter speed set to 1/1000th second. Finally an infrared source must be fitted adjacent to the camera or embedded within.

Therefore, taking advantage of the retro-reflective characteristics of number plates, the illumination from the illuminator will be reflected directly back to the camera. Thus only infrared light will be seen without any visible light or other reflections or refractions. The picture will of course be black with no detail except for the number plate.





This is an actual DVR video image of a vehicle at 60kph with headlights ON



This is an actual DVR video image of a stationary vehicle in darkness with headlights OFF



This is an actual DVR video image of a stationary vehicle in difficult shadow daylight



Specifications

NPR-80RL12

INFRARED WAVELENGTH	850nm
COLOR	Silver / Black Optional
LED QUANTITY	80
SPEED LIMIT	30 Kph / MAX 50 Kph
IR EFFECTIVE RANGE	2M ~ 10M
SYSTEM	NTSC / PAL
LENS & VIEW ANGLE	12 mm
MINIMUM ILLUMINATION	0 Lux with IR Strobe
IMAGE SENSOR	1 / 3 " Sony CCD Image Sensor
CCD TOTAL PIXELS	(N) 410K / (P) 470K
SYNC SYSTEM	Internal
RESOLUTION	540 TVL
S / N RATIO TYPICAL (MAX)	52 / 60 dB
AUTO IRIS	Auto Switched by light sensor
ELECTRONIC SHUTTER	Mode dependant
VIDEO OUTPUT	1.0V p-p composite video at 75 ohm
GAMMA CORRECTION	1 / 0.45
GAIN CONTROL	AGC
OPERATION TEMPERATURE	-20°C TO 50°C
WEATHER PROOF	IP66
OPERATIONAL HUMIDITY	Within 95%RH
POWER CONSUMPTION	6W
POWER REQUIREMENT	DC 12V



Need more information

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