

# Bright Light at Night



with VTQ's IR-Illuminators

## IR-Illuminator

**You know the problem: as soon as it gets dark the images of your surveillance camera are useless. That your camera can provide you with clear images you require a light source. Solution: An infrared illuminator supplies your camera with light, inconspicuously and in absolute darkness. Thus IR-Illuminators are especially suitable for security relevant applications, where the presence of surveillance cameras should not be noticeable.**

No standard camera provides you with a good picture without sufficient light source. The application of bright and large-area spotlights is not always preferable as some applications require **inconspicuous, discrete surveillance** – even at night.

VTQ's IR-Illuminator are the ideal solution for this problem. As an IR-Illuminator is a light source that emits light in spectrum that is invisible for the human eye. The light is generated by a modern diode that is characterised by **very high light power** and **low power consumption**, despite the small size. Another advantage of this technique is the **extreme long durability** of the diode.

Our IR-Illuminator **with up to 10 high-performance diode** ensures the optimal illumination of the area monitored in the darkness and due to **different wavelengths (850 or 940nm)** they are suitable for almost all day/night – and black/white cameras. The coverage varies depending on the angle of radiation but also on the light sensitivity of the camera. Illumination between 15 and 70m are achieved by standard with a **radiation angle between 17° to 120°**.

All VTQ IR Illuminator feature a **controllable twilight switch**. It switches the Illuminator on if the light strength is below an adjustable value. The adjustment is made by rotary switch. That saves energy and extends the durability of the LEDs. The Illuminator may even switch to permanent operation. An optional **synchronisation output** for day/night-cameras ensures that the camera simultaneously switches to night mode when switching on the Illuminator.

The Illuminators are power supplied by a 12V voltage. Due to the optional **integrated mains adapter** the device may also be directly power supplied with 230V. All IR Illuminator are splash water protected and dustproof. The Illuminators of our "Professional Line" include mounting sets, so that they can be installed at walls or masts without problems. You may install it without hesitation in temperatures between  $-25^{\circ}\text{C}$  to  $+50^{\circ}\text{C}$



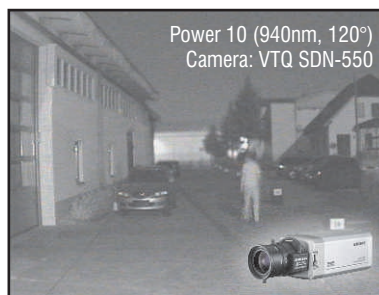
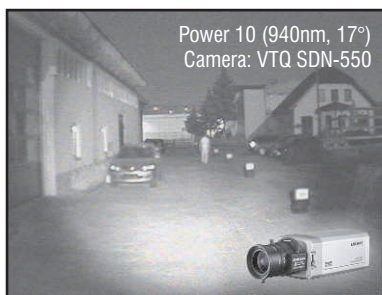
IR-Illuminator (Standard Line)



IR-Illuminator (Professional Line)

## Surveillance with IR-Illuminator

The success of your nightly surveillance is besides the IR Illuminator dependend on numerous factors. Please choose your IR Illuminator with its angle of aperture and wave length according to the local conditions. The applied camera also plays a decisive role for the success of usefull pictures: while most cameras give regular results at 870nm only a few cameras are sensitive at 940nm.



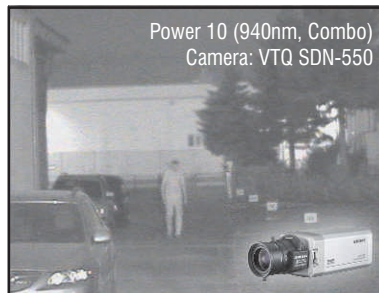
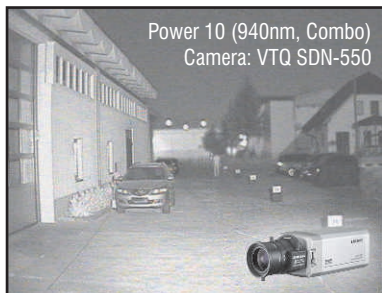
### Angle of aperture

Clear differences: directional illumination of the long-range with 17° and fully illuminated in close-up range with 120° illuminator.



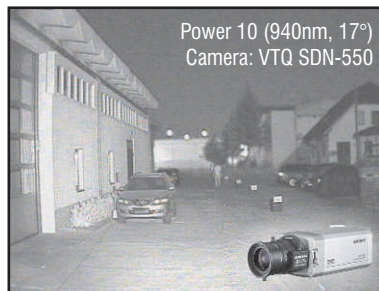
### Wave length

Cameras differ strongly in their spectral sensitivity: not every model is sensitive towards wave length of 940nm.



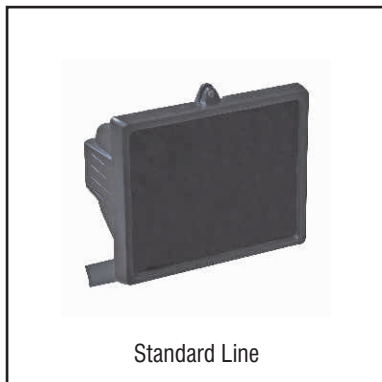
### Picture detail

Please mind the correct illumination of the adjusted picture detail when using a zoom lens.



### Camera

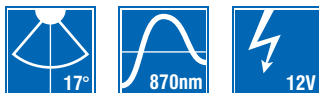
Ideal picture results are also depending on quality, sensitivity and resolution of the applied camera.



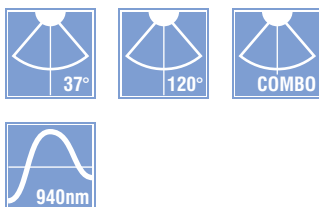
## Standard Line

The IR-Illuminator of the Standard Line are offered in two base models - the Power 5 with 5 LEDs and the Power 10 with 10 LEDs. Both illuminators may individually be configured by numerous enhancements. Besides divers apertures the wave length of the LEDs may be selected. Thus you only get the functions that you really need. The inconspicuous illuminators are protected against splash-water for indoor and outdoor application.

### + Base features



### + Optional features



### + Technical details

Light source .....	LED
Wave length .....	870nm
..... (optional 940nm)	
Aperture .....	17°
..... (optional 37°, 120°, Combo)	
Economic life-time LEDs .....	100.000h
Temperatur range .....	-25°C - +50°C
Power supply .....	12 - 30V DC
Power .....	max. 10W (Power 5)
.....	max. 20W (Power 10)
Dimensions .....	185 x 160 x 140mm
Weight .....	1100g
Housing material .....	Aluminium
Protection class .....	IP54

### Base models



#### IR-Illuminator POWER 5

7502 000806

Base model, with 5 LEDs, Aperture: 17°, Range: 50m  
Wave length: 870nm, Power supply: 12V DC, w/o mains adapter



#### IR-Illuminator POWER 10

7502 000847

Base model, with 10 LEDs, Aperture: 17°, Range: 70m  
Wave length: 870nm, Power supply: 12V DC, w/o mains adapter

### Optional features



#### Aperture 37°

7502 000824

(like base model however with 37° LEDs, Range up to 50m)



#### Aperture 120°

7502 000825

(like base model however with 120° LEDs, Range up to 30m)



#### Aperture COMBO

7502 000827

(like base model however with combined LEDs (17°/37°/120°), Range up to 50m)



#### Wave length 940nm

7502 000828

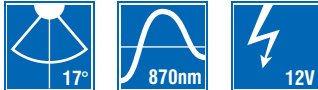
(like base model however with 940nm-LEDs)



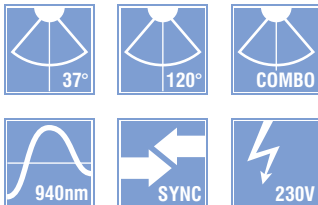
## Professional Line

The new Professional Line convinces by its robust aluminium housing and various installation possibilities. Whether mounted to walls or masts, if vertically or tilted – this illuminator may basically be mounted everywhere. The illuminators with a degree of protection of IP65 are offered in two base models, their angle of aperture and wave length may individually be configured by the customer. The devices may optionally be equipped with a synchronisation output or integrated mains adapter.

### + Base features



### + Optional features



### + Technical details

Light source .....	LED
Wave length .....	870nm
..... (optional 940nm)	
Aperture .....	17°
..... (optional 37°, 120°, Combo)	
Economic life-time LEDs .....	100.000h
Temperatur range .....	-25°C - +50°C
Power supply .....	12-30V DC
..... (optional 88-264V AC)	
Power .....	max. 10W (Power 5)
..... max. 20W (Power 10)	
Dimensions .....	226 x 144 x 96mm
Weight .....	2100g
Housing material .....	Aluminium
Protection class .....	IP65

### Base model



#### IR-Illuminator POWER 5 Pro

7502 000818

Base model, with 5 LEDs, Aperture: 17°, Range: 50m  
Wave length: 870nm, Power supply: 12V DC, w/o mains adapter



#### IR-Illuminator POWER 10 Pro

7502 000826

Base model, with 10 LEDs, Aperture: 17°, Range: 70m  
Wave length: 870nm, Power supply: 12V DC, w/o mains adapter

### Optional features



#### Aperture 37°

7502 000824

(like base model however with 37° LEDs, Range up to 50m)



#### Aperture 120°

7502 000825

(like base model however with 120° LEDs, Range up to 30m)



#### Aperture COMBO

7502 000827

(like base model however with combined LEDs (17°/37°/120°), Range up to 50m)



#### Wave length 940nm

7502 000828

(like base model however with 940nm-LEDs)



#### Synchronisation output

7502 000829

(for Day/Night-Cameras, activates the night mode when switching on the illuminator)



#### Integrated mains adapter 230V

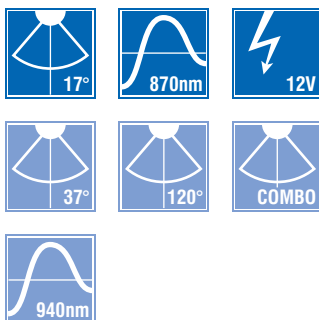
7502 000842

(enables direct operation with 230V without additional mains adapter)

Technical details are subject to change without notice!

## At a glance: Features and options

### + Base features



### + Optional features



### Base features

#### » Aperture

Choose the right aperture for your application. An illuminator with a large aperture (120°) is the right choice for larger areas in close-up range or smaller aperture (17°) for directed illumination in long range. You also have the option of our new COMBO Illuminator it combines the LEDs with different apertures and thus provides ideal illumination of the close-up and long range.

#### » Wave length

Besides the aperture the choice of the correct wave length is decisive for the result of your application. Since the perceivability for the human eye reduces with increasing wave length, the eye notices almost no glowing of the LEDs at 940nm. The cameras are also differently sensitive towards infrared light. The applied camera definitely has to be considered.

#### » Twilight switch

You choose by a small rotary switch at which level the low-light amplifier is switched on. That saves energy and extends the economic life-time of the LEDs as the illuminator is only active when required.

### Optional features

#### » SYNC-output

The optional available SYNC-connection extends the IR-Illuminator of the Professional Line by an additional "open collector"-output for a suitable day/night-camera. The illuminator switches on at dawn and it transmits a signal to the camera and switches automatically from day to night mode. Ideal images are ensured by the synchronic switching.

#### » Integrated mains adapter 230V

All IR-Illuminators are equipped with a 12V input for the power supply. Optionally we equip the illuminators of the Professional Line with integrated mains adapter that enables a direct connection to a 230V power source.

## Worth knowing: Infrared light and cameras

Natural light consists of visible and invisible parts for the human eye. The visible light is between 380nm to 750nm, the highest sensitivity is in the yellow-green range at approx. 550nm. Ranges below or above are not perceived by the human eye, they are beyond the visible spectrum. The range of the infrared light starts at the top end of the visible spectrum and features a wave length of 730nm to 1000nm. Unlike the ultraviolet light which is at the lower end of the spectrum the infrared light is not harmful for the human eye.

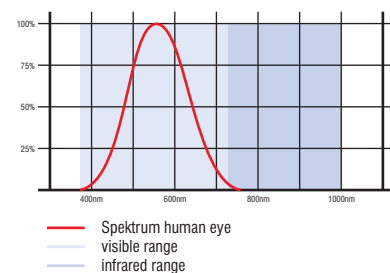
Camera sensors, so called CCD- or CMOS sensors, feature a considerably expanded spectral sensitivity than the human eye. Their sensity is compared to the human eye more positioned within the red and is for humans in the invisible range. Thus these "invisible" parts of the light may be used for the illumination of a scenery – the illumination is invisible for the human eye but visible for the camera. A faultless illuminated video image results from the camera sensor.

However why are IR-Illuminators in different wave length required? Most camera sensors are manufactured from the same base silicium. They differ in assembly and functionality. The characteristic of CCD-sensors comply with the curve of pure silicium. CMOS-sensors however feature a more flat structure than the CCDs, in which the short-waved light can't easily enter. This leads to a shift and extension of the sensitivity maximum to shorter wave lengths. Also objects or additional filter modify the sensitivity.

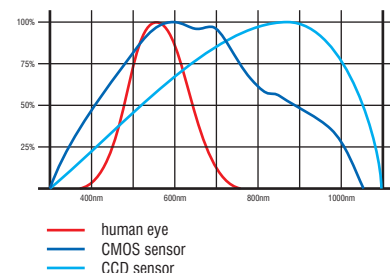
In practise this means often big differences in sensitivity of the cameras. Most camera models provide best results at 870nm. Only high-quality cameras, most with CCD sensors are sensitive within the range of 940nm. IR-Illuminator with 940nm are especially applied in discrete and inconspicuous applications, as the human eye perceives no visible light.

Since sufficient illumination is definitely responsible for the image quality, you may choose between different wave lengths and apertures of VTQs IR-Illuminators. Only an ideal illuminator provides for brilliant and sharp images even at night.

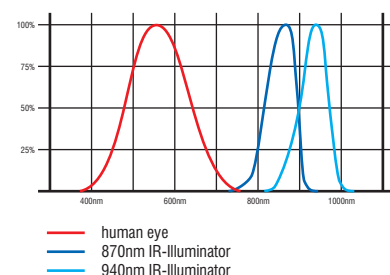
Sensitivity of the human eye



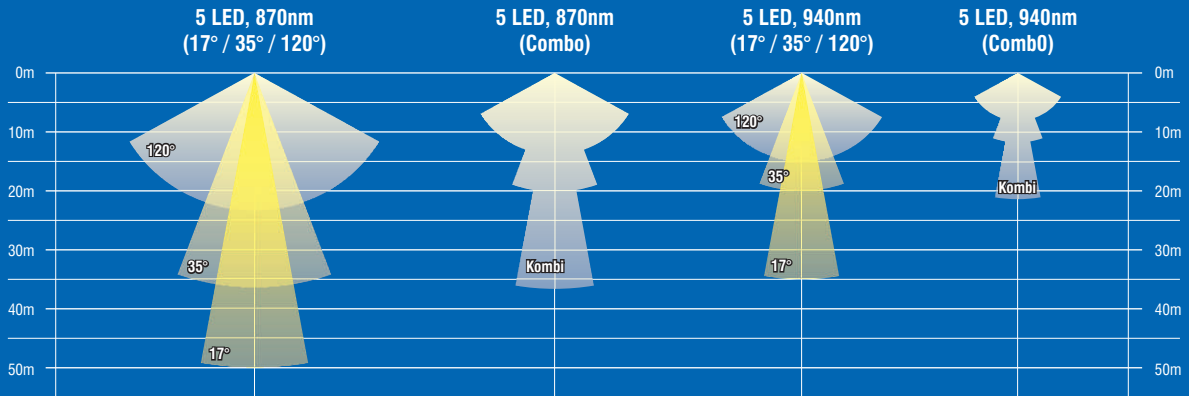
Sensitivity of camera sensors



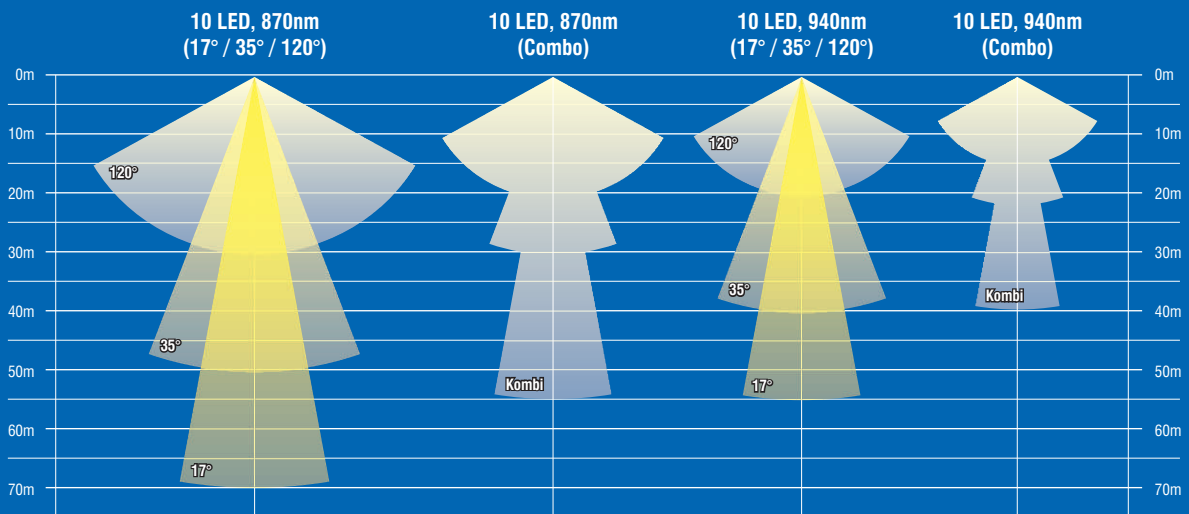
Spektrum of IR-Illuminators



## Range comparison POWER 5



## Range comparison POWER 10



Please mind, that the range of the IR illuminator depends on model and sensitivity of the used camera.

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