

2004 Edition



# night-time handbook

[www.DerwentCCTV.com](http://www.DerwentCCTV.com)

## Features:

- New Technical Articles
- Updated Datasheets
- Revised IR Matrix
- New Loyalty Scheme



SuperLED™ Solid State  
Illumination up to 175 meters

# Why choose Derwent Infra Red?



- A** Designed for Even Illumination
- B** Long Bulb Life
- C** Low Electricity Consumption

**FACT :** If there is no light there can be no picture

**FACT :** Your camera needs even illumination

**FACT :** Derwent bulbs last up to 3 times longer on average

## UNIFLOOD 500/300\*



- High Performance
- Long bulb life
- Even illumination

## MINIFLOOD 100



- IR up to 50 metres
- 2 year bulb life
- 10°,30°,60° options

## UNIFLOOD LED



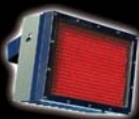
- IR up to 50 metres
- Solid state
- >5 years normal operation

## MINIFLOOD LED



- IR up to 20 metres
- Solid state
- >5 years normal operation

## SUPER LED



- IR up to 175 metres
- Ultra Long Life
- >5 Years Normal Operation

## MICRO LED



- IR up to 10 metres
- Short Range
- Ideal for Retro Fit

**REG** ADVANCED NUMBER PLATE CAPTURE CAMERAS



- Day & Night 24/7 Capture
- Longlife IR Source
- Very High Reliability & Capture

**DERWENT**

For further information visit our web site

[www.DerwentCCTV.com](http://www.DerwentCCTV.com)

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\* Savings calculated on consumption and bulb life. Uniflood consumes up to 60% less electricity and delivers up to 3 times the bulb life. Patent No. 6158879

# Cost Saving - How Much Money Could You Save?

With the pressure on both financial and environmental factors, low voltage IR illumination can provide major advantages. The significant factor originates from the low power consumption required to achieve a high Infra-Red power output on scene. Both the Uniflood and Miniflood products achieve significant output from a de-rated low voltage aviation bulb. The result is lower electricity costs, meaning significant financial savings for the end-user and more environmentally friendly IR illumination.

It should also be noted that the alternative to IR lamps, white illumination systems, require numerous points of installation and can require up to ten times more light to achieve the same effect

The following table highlights the significance of the savings:

Uniflood 500	Uniflood 500	Traditional 500W mains IR Lamp	Derwent Saving
IR Power on Scene	500W	500W	
Consumption	220W	500W	50%
Average Bulb life	8 months	5 months	30%
Bulb changes per year	1.5	2.2	30%
Cost of Bulb	List £54	List £75	35%
Type of illumination	Cosec <sup>2</sup> Even illumination	Standard	

## ANNUAL SAVINGS

**Min £200**

Miniflood 100	Miniflood 100	Traditional 75W mains IR Lamp	Derwent Saving
IR Power on Scene	100W	75W	
Consumption	70W	75W	
Average Bulb life	21 months	5 months	>300%
Bulb changes per year	0.6	2.2	>260%
Cost of Bulb	List £30	List £19	
Type of illumination	3 choices	2 choices	

## ANNUAL SAVINGS

**Min £90**

**Note:** Both Uniflood and Miniflood IR lamps are low voltage and utilise a unique thick filament LV Bulb. This means a large saving in electricity costs and bulb life cost.

SuperLED	SuperLED	Traditional 500W mains IR Lamp	Derwent Saving
IR Power on Scene	500W	500W	
Consumption	160W	500W	Significant
Average life	>5 years	5 months	Significant
Bulb changes per year	N/A	2.2	Significant
Cost of Bulb	N/A	List £75	Significant
Type of illumination	Solid State LED	Standard	

## ANNUAL SAVINGS

**Min £340**

Calculations based on the following formula and assumptions:

Electricity 5p kw/hr

Labour charge per bulb change £40

Bulbs at manufacturer's list prices

Derwent can provide a "cost saving" quotation for your individual scheme. Please call or e-mail ([Sales@DerwentCCTV.com](mailto:Sales@DerwentCCTV.com)).

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# Product Specifier Matrix

Reference guide only. Final distances will vary depend upon camera, lens and lighting products. All distances in metres.

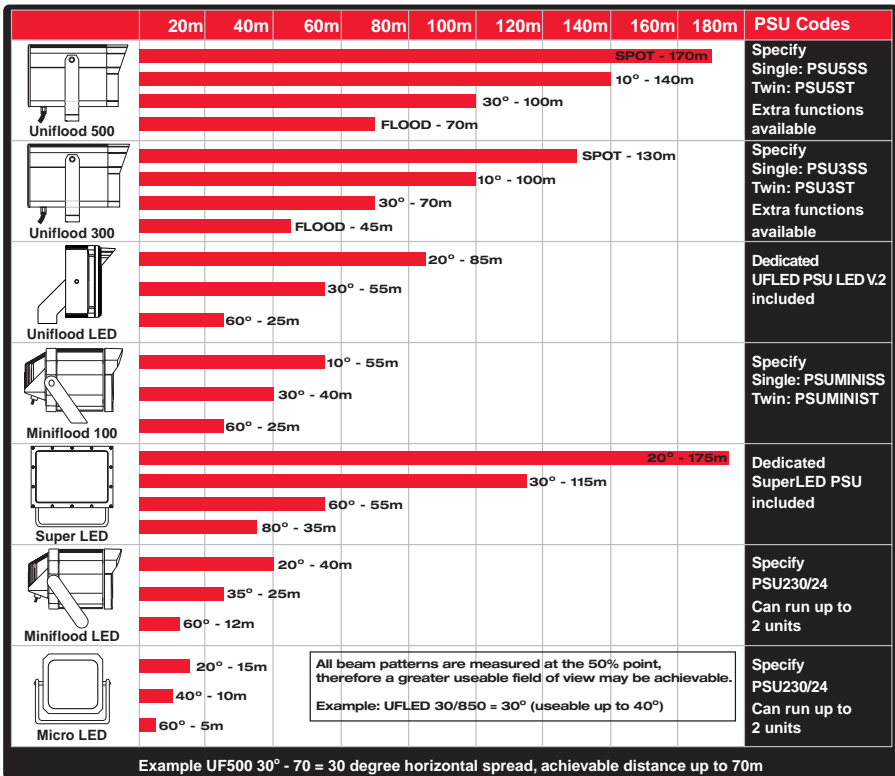
## Uniflood 500, Uniflood 300 (in brackets), Uniflood LED & SuperLED

Camera / Lens Performance	Super LED	LED 30/850	Single Flood	Single 30°	Twin 30°	Single 10°	Twin 10°	Single Spot
High	170	50	70 (45)	100 (70)	140 (100)	140 (100)	200 (145)	170 (130)
Medium	120	35	55 (35)	75 (60)	105 (80)	105 (80)	150 (115)	130 (100)
Low	85	25	35 (25)	50 (40)	70 (55)	70 (55)	100 (75)	85 (65)

## Miniflood 100 & Miniflood LED (in brackets)

Camera / Lens Performance	Single Narrow	Twin Narrow	Single Medium	Twin Medium	Single Wide	Twin Wide
High	55	75	40 (25)	55 (35)	25 (20)	35 (30)
Medium	40	55	30 (20)	40 (30)	20 (15)	30 (20)
Low	30	40	20 (15)	30 (20)	15 (10)	20 (15)

## Products Vs. Achievable Distances



**TECHNICAL TIP:** Ranges shown indicate the maximum useable range of a single lamp with a high performance camera and 730nm filter (850nm for LED products) 2 units provide 1.4 x distance. 730nm to 830nm reduces distance by up to 45%: 830nm to 940nm can reduce distance by up to a further 45%. Refer to Derwent for different filter options

All Derwent IR products are low voltage and require a dedicated mains low voltage PSU. This low voltage combination provides major advantages in both bulb life and running costs

# Introduction

The Derwent Night-time Handbook is designed to showcase Derwent's full product range and to help you select the right illumination solution for any CCTV application, short range or long range, internal or external.

In addition, this updated edition includes information on REG™, Derwent's unique range of number plate capture units which are designed to work on a 24/7 basis.

Over the past decade the Derwent Infra-Red product range has improved and expanded making it the market-leading choice. Derwent products are renowned throughout the security industry for their high performance, high quality and low running costs. Derwent continues to work hard to support installers and the industry as whole in designing and implementing leading night time CCTV schemes.

## What is Infra-Red?

Infra-Red, for CCTV purposes, is light which the human eye cannot see but which mono cameras can, sometimes called black light, it lies approximately between 700nm and 1,000nm (1 micron).

Infra-Red illumination is essential in a 24-hour digital World. Without Infra-Red, dark night-time scenes can remain dark to CCTV cameras, pictures may suffer from shadows, signal noise and loss of focus.

Derwent are regarded as technical leaders in

the use of IR illumination for night-time CCTV applications. The diagrams below compare what the human eye is capable of seeing (photopic curve approx. 400-700nm) and what a normal monochrome camera can see.

Graph B, demonstrates the increased sensitivity of more specialised IR-sensitive monochrome cameras.

## Camera Sensitivity

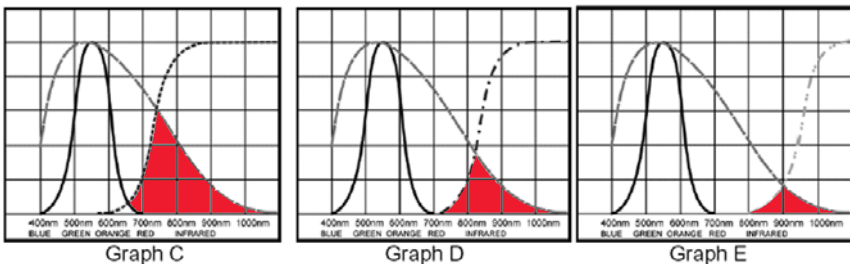
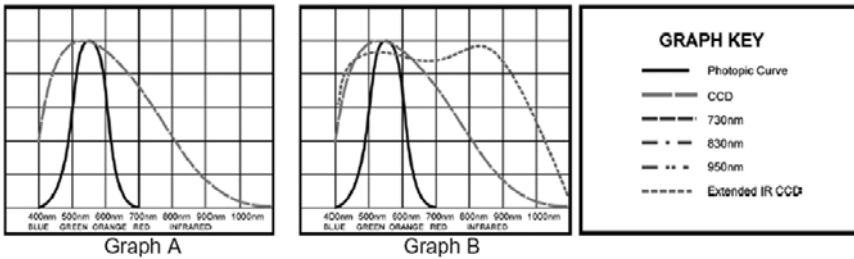
It is important to notice that the camera sensitivity drops as the wavelength increases. This means that the camera sees less of the light distributed on the scene.

## Infra-Red Filters

Often a CCTV end-user requires semi-covert or covert illumination for their CCTV installations. Graphs C, D and E demonstrate a 730nm filter, 830nm and 950nm filter.

Generally speaking, a 730nm filter will have a glow similar to that of a traffic light, an 830nm filter will give off a dull red glow, only just visible to the human eye, the 950nm filter however will appear totally covert to the human eye, no glow is visible.

Key factors to take into account when choosing an Infra-Red lamp include the required viewing distance and scene, the sensitivity of the camera and the type and sensitivity of the lens.



# Product Range

## Uniflood 500 : High Performance

Page 12

Uniflood 500: High power Infra-Red illumination system, high efficiency, gold optics, Patented even-illumination Cossec<sup>2</sup> beam patterns and low power consumption. Choice of lens and filters. Requires Derwent PSU.



- IR up to 200 metres
- Low running costs, less than 50% of ordinary 500W
- Average bulb life 3,000 hours\*
- Even illumination Cossec<sup>2</sup> beam patterns

### Product Codes

UF500/10/730 Uniflood 500, 10° Cossec lens, 730nm filter  
UF500/30/730 Uniflood 500, 30° Cossec lens, 730nm filter  
\* Spot & Flood lenses are available  
\* 830nm & 950nm filters are available

### Accessories

PSU5SS Single Power Supply Unit for the Uniflood 500  
PSU5ST Twin Power Supply Unit for the Uniflood 500

## Uniflood Spectrum

Uniflood 500 SPECTRUM: High power white light illuminator, uses 'mired shift' colour corrected filter technology to provide a balanced white light. Requires Derwent PSU. For colour CCTV systems.



- Visible colour corrected white light
- Low running costs
- Even illumination

### Product Codes

UF500/10/Col Uniflood 500, 10° Cossec lens, Colour filter  
UF500/30/Col Uniflood 500, 30° Cossec lens, Colour filter  
\* Spot & Flood lenses are available

## Uniflood 300 : Long Life

Page 14

Uniflood 300: Long life version of Derwent's unique concept in night-time illumination for CCTV schemes. High efficiency, even illumination and low power consumption. Choice of lens and filter. Requires Derwent PSU.



- IR up to 150 metres
- Long bulb life – Average 1 Year
- Low running costs, less than 60% of ordinary 300W
- Even illumination Cossec<sup>2</sup> beam patterns

### Product Codes

UF300/10/730 Uniflood 300, 10° Cossec lens, 730nm filter  
UF300/30/730 Uniflood 300, 10° Cossec lens, 730nm filter  
\* Spot & Flood lenses are available  
\* 830nm & 950nm filters are available

### Accessories

PSU3SS Single Power Supply Unit for the Uniflood 300  
PSU3ST Twin Power Supply Unit for the Uniflood 300

## Uniflood LED : Solid State

Page 16

Uniflood LED: Ultra long life, high reliability IR illuminator using solid state, high efficiency LED's. The lower power consumption of the LED's result in very low running costs. Includes PSU with photocell.



- IR up to 50 metres
- Low running costs
- >5 years normal operation

### Product Codes

UFLED/20/850 Uniflood LED, 20° Lens, 850nm LED's  
UFLED/30/850 Uniflood LED, 30° Lens, 850nm LED's  
UFLED/20/940 Uniflood LED, 20° Lens, 940nm LED's

# Product Range

Miniflood 100 : Short Range, Long Life

Page 18

**Miniflood 100:** Designed for short range CCTV schemes up to 60 metres; medium to short range, long life (average 8000 hrs) with small, attractive, robust construction. Requires Derwent Power Supply (PSU).



- IR up to 50 metres
- Long bulb life
- Bulb life - 2 years normal operation

#### Product Codes

MF100/10/730	Miniflood 100, 10° Cossec lens, 730nm filter
MF100/30/730	Miniflood 100, 30° Cossec lens, 730nm filter
MF100/60/730	Miniflood 100, 60° Cossec lens, 730nm filter <i>*830nm &amp; 950nm filters are available</i>

#### Accessories

PSU MINISS	Single Power Supply Unit for the Miniflood 100
PSU MINIST	Twin Power Supply Unit for the Miniflood 100

SuperLED : Long Range, Long Life

Page 20

**SuperLED:** High power, high performance Infra-Red using high efficiency solid state LED illuminators. Industry first, Infra-Red up to 175 metres. Significant cost savings.



- IR up to 175 metres
- Ultra long life
- >5 years normal operation
- Outdoor and indoor applications

#### Product Codes

SuperLED 20/850	SuperLED, 20°, 850nm (includes PSU)
SuperLED 30/850	SuperLED, 30°, 850nm (includes PSU)
SuperLED 20/940	SuperLED, 20°, 940nm (includes PSU) <i>Note: Other beam widths available on request</i>

#### Accessories

PSU Included

Miniflood LED : Short Range, Ultra Long Life

Page 22

**Miniflood LED:** Ultra long life, high reliability Infra-Red illuminator using solid state high efficiency LED's. Versatile input voltage allowing 12 to 24VAC/VDC.



- IR up to 20 metres
- Ultra long life
- >5 years normal operation

#### Product Codes

MFLED/30/850	MFLED, 30°, 850nm Filter
MFLED/60/850	MFLED, 60°, 850nm Filter

#### Accessories

PSU230/24	Power Supply Unit for the MFLED
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MicroLED : Short Range, Ultra Long Life

Page 24

**MicroLED:** Short range, ultra long life, high reliability IR illuminator using solid state high efficiency LED's.



- IR up to 10 metres
- Short range
- Ideal for Retro fit installations
- Ultra long life
- >5 years normal operation

#### Product Codes

MicroLED.850W	42 LEDs, 850nm, Wide 60°, 12/24 VRB
MicroLED.850M	42 LEDs, 850nm, Medium 30°, 12/24 VRB
MicroLED.950W	42 LEDs, 950nm, Wide 60°, 12/24 VRB
MicroLED.950M	42 LEDs, 950nm, Medium 30°, 12/24 VRB



# Product Range - REG™ Number Plate Capture

REG™ is the complete integrated solution for consistent, reliable number plate capture. The unit combines the latest camera, optics, illumination and filter technology to provide clear images of number plates during both day and night. REG™ overcomes all issues related to speed, daytime highlights, reflectivity of number plate, accurate focus day and night and car headlights.



- High reliability, low maintenance
- Long life IR source
- Optimised camera, filter and lens technology
- Day and Night 24/7

#### Product Codes

REG 12 Number plate Capture optimised at 12m  
REG 18 Number plate Capture optimised at 18m  
REG 25 Number plate Capture optimised at 25m  
REG 35 Number plate Capture optimised at 35m

#### Accessories

Call

#### Brackets

Standard Wall Mount. Options Top & Side Pole Mount.

## REG™ Dual: Twin Camera Mono and Colour overview

REG DUAL: Twin optimised camera set-up, overview colour camera and monochrome. Ex-view high-resolution number plate capture camera.



- Twin cameras Mono and Colour
- Mono camera captures number plate 24/7
- Colour camera captures overview scene
- Optimised camera, filter and lens technology

#### Product Codes

REG Dual 12 Number plate capture optimised at 12m  
REG Dual 18 Number plate capture optimised at 18m  
REG Dual 25 Number plate capture optimised at 25m  
REG Dual 35 Number plate capture optimised at 35m

#### Accessories

Call

#### Brackets

Standard Wall Mount. Options Top & Side Pole Mount.

## REG™ LED Compact Solid State Advanced Number Plate Capture

REG™ LED: Solid state long life IR illumination. Compact, attractive single cable managed unit



- Compact single capture unit
- Long life LED
- Integrated cable management and bracketry

#### Product Codes

REG LED 07 Number plate capture optimised at 7m  
REG LED 12 Number plate capture optimised at 12m

#### Accessories

Call

#### Brackets

Standard Wall Mount. Options Top & Side Pole Mount.

## REG™ Wedge

REG™ Wedge: Solid state long life IR illumination. Compact, attractive wedge housing. Supplied in grey as standard



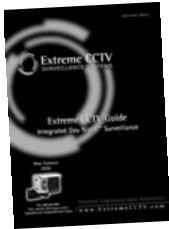
- Designed for car park entrances
- Long life LED
- Wedge housing

#### Product Codes

REG WDG 07 Number plate capture optimised at 7m  
REG WDG 12 Number plate capture optimised at 12m

*Note: Derwent manufactures a range of unique number plate capture cameras – due to the complex nature of projects not all products are displayed. For large, specialized or mobile projects please contact Derwent. Units are supplied in black as standard, yellow optional, and are available in other colours (min. order 10 units). Insert a "Y" for yellow or "B" for Black at the end of the standard code. Patent Pending*

## Day Night Surveillance:



This guide introduces the technology and concept of integration within surveillance, with a range of cameras that cleverly integrate and calibrate camera, lens, housing and illumination into a single unit. IDN™ cameras deliver low noise, high signal images on a 24/7 basis.



**ZX55**

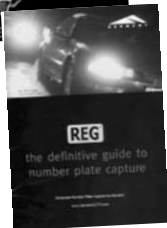
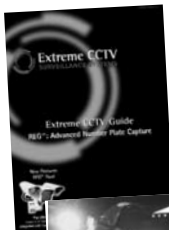
- Twin Camera Mono and Colour
- Accurate Daytime Colour
- Outstanding IR Night-time surveillance
- Easy Specification and Installation



**EX82**

- Twin Camera Mono and Colour
- 84 LED array
- No Focus shift
- Accurate Colour Capture
- Outstanding IR performance

## REG™ Advanced Number plate Capture\*



The complete solution for consistent, reliable number plate capture. REG™ combines the latest camera, optics, illumination and filter technology to provide clear images of car number plates day and night. REG™ overcomes all issues related to speed, daytime highlights, reflectivity, accurate focus day and night and car headlights.



**REG™**

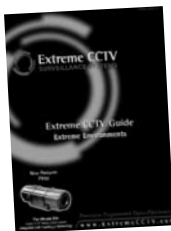
- High Reliability, low Maintenance
- Long Life IR Source
- Day and Night 24/7



**REG™ Dual**

- Twin Cameras Mono and Colour
- Mono captures number plate 24/7
- Colour captures overview scene

## Extreme Environments



A guide to a range of cameras designed to work in the most challenging of conditions, from vandal prone premises to projects requiring explosion protected camera solutions



**EX48**

- Hospital/Prison cell applications
- Slick, anodised aluminium base
- Virtually impossible to grip



**EX70**

- Explosion proof housing
- IDifferent camera options
- Infra-Red illuminator version available

\* Derwent is a wholly owned UK subsidiary of Extreme CCTV Inc. and are regarded as the world leader in Infra-Red illumination technology. Derwent Infra-Red illumination and number plate capture products are available from Extreme CCTV in North America and from Derwent in Europe.

# CCTV in a Spin?

## How to improve low light performance of your Fully Functional Dome Camera System

Security systems relying on speed-domes during the hours of darkness may be at risk from fatal design weaknesses which mean incidents are missed and alarm conditions not triggered. Due to the way that speed-domes are being installed essential video functions are compromised in the dark. The problem is set to become more widespread as tools such as Video Motion Detection, Intelligent Scene Analysis, Frame Integration and similar software is increasingly adopted. All of these functions can be undermined by poor low light performance.

The real danger is that speed domes may appear to be successfully working during the day, but poor night-time and low light performance means that the overall system is not working during the most vulnerable hours of darkness.

Most speed dome systems are required to work day and night and all too often the installation may not be up to the job.

This is a problem that no security planner or installer can afford to ignore – and it's a problem that experienced system designers are now starting to address.

In this article we explain the techniques which will ensure reliable and accurate CCTV operations for speed domes under crucial night time conditions.

Dome cameras are a popular specification choice because of benefits including their

*In this article we explain the techniques which will ensure reliable and accurate CCTV operations for speed domes under crucial night time conditions.*



ease of installation, aesthetics, speed of movement and discreet appearance. The downside is that these advantages can also reduce the low light performance of the cameras. Many domes are based on smaller CCDs with integral lenses, yet these do not provide the most sensitive low light performance.

### Illumination issues

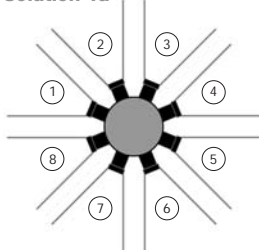
The traditional pan and tilt approach to CCTV will remain a crucial part of many security systems as it offers several technical advantages. However, the flexibility and aesthetic appeal of dome cameras has seen them make significant inroads into the market.

Today, one of the most commonly asked questions from both installers and end users is:

"How do I provide useful illumination on the scene to enable my dome camera to operate effectively at night?"

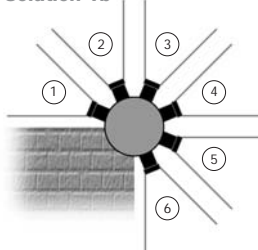
### Diagram 1

Solution 1a



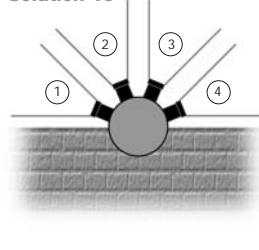
Fully functional Dome with 360 degree coverage

Solution 1b



Fully functional Dome with 270 degree coverage

Solution 1c



Fully functional Dome with 180 degree coverage

## Basic Solutions:

### Fixed Domes

Dome cameras can be divided into two categories, fixed domes and fully functional domes.

Fixed domes are often vandal resistant and used for short-range surveillance purposes, because the unit is fixed, the low light issues involved are similar to those of other standard

cameras. In low light or zero lux conditions, fixed domes will require additional lighting. Typically, Infra-Red provides the best, most practical and cost-effective solution.

**WARNING:** Many dome systems are sold with smoked domes which can reduce the IR illumination that reaches the camera by as much as 70%, thus, further degrading the low light performance. Bear this in mind when considering the claimed low light performance of the camera. Increased IR illumination levels may be required to compensate for the dome's IR attenuation.

**TIP:** To maximise low light performance it is best to use clear domes.

To ensure full coverage of the scene, the Infra-Red illumination must be matched to the field of view of the camera/lens combination. Narrow beam illumination should be used to match narrow field of camera view, wide beam illumination should be selected to match wide field of view. Failure to match camera field of view and IR beam can dramatically reduce system performance.

**TIP:** Make sure that you match the camera's field of view with that of the Infra-Red.

## Advanced Solutions:

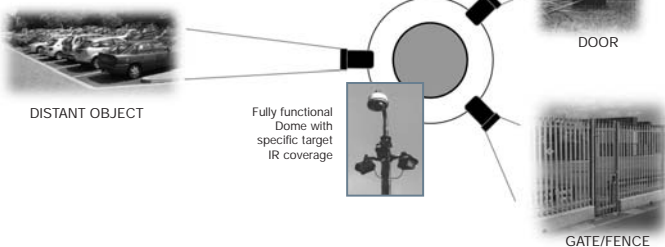
### Fully Functional Domes

The big challenge with fully functional dome cameras lies in the inability to mount Infra-Red illuminators on the moving part of the dome.

## Diagram 2

### Solution 2

#### Specific Target Illumination



### Solution One:

#### 360° wide area illumination

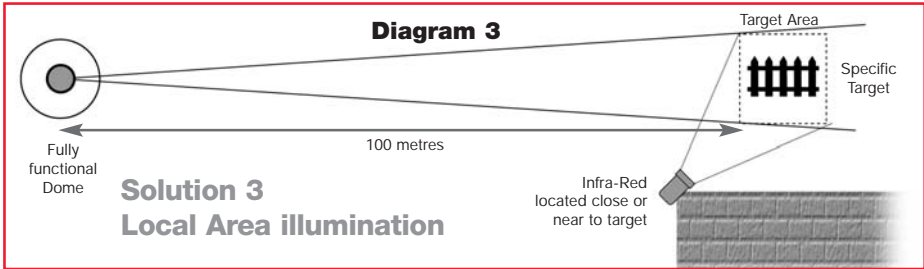
One answer is to provide up to 360° coverage, so that no matter where the camera moves there is sufficient Infra-Red illumination to enable the camera to see the scene effectively. But as Diagram 1 illustrates this requires a high level of investment to achieve, since full 360° coverage would require location of approximately eight 45° spread Uniflood IR lamps. Domes mounted on the corner of a building may only require 270° IR coverage, and domes mounted on walls may require only 180° IR coverage (see Diagram 1).

### Solution Two:

#### Specific Target Illumination

An alternative solution to the above can be achieved by using "specific target" illumination. This is a method of providing illumination in and around the scene, to illuminate specific areas of risk rather than the whole area being viewed by the dome camera. The technique, involving the strategic positioning of Infra-Red illuminators to illuminate targeted locations, matches the illumination to the vulnerable areas within the scene. These can be gates, doorways or pathways where intruders are likely to enter or anywhere the security manager perceives there is exposure to risk.

During the full 360° rotation of the dome camera, there may be only two or three specific targets that need to be viewed. IR units may be mounted on and around the camera pole to continuously illuminate these targets, allowing the camera to effectively monitor all key areas of the scene (see Diagram 2).



### Solution Three:

#### Local Area illumination

Locate the IR illumination above or near the specific target. Once again the clever matching of the camera angle of view and IR illumination is essential for maximum performance.

Approach with care, angle of illumination and camera field of view are critical to success. However, if you successfully match field of view and illumination, Local Area Illumination (LAI) is a viable alternative to locating illumination with the dome (see Diagram 3).

For both specific target illumination and local area illumination it may be possible to trigger the IR ON/OFF via a pre-set on the dome. In addition, when locating the IR above or near the subject a PIR detector may be used to activate the IR lamp upon entry into the defined zone.

**TIP:** Using dome pre-sets or PIRs to activate specific target or local area illumination will reduce running costs of the system.

#### Frame Integration

Some dome cameras include frame integration techniques in an attempt to overcome the problems of obtaining clear images in dark scenes. A slow shutter speed is used to capture enough light in dark areas of the overall scene.

**WARNING:** This may be acceptable only in a limited number of applications due to the inability of these systems to work with moving objects. If an intruder moves through these areas during the dome's 'tour' he will only be recorded as a blur and vital information and detail will be missed. The net result will be a large and potentially serious gap in the surveillance system's total coverage.

**TIP:** Frame Integration will naturally tend to miss vital information and detail, especially where the scene is moving.

### IR and Video Motion Detection (VMD)

PTZ speed domes are often integrated with computer-driven digital video recorders using a 'video follow' or video motion detection (VMD) systems. The VMD works by actively analysing pixel changes occurring in the video picture. However a person walking through a dark scene is unlikely to cause any pixel changes if there is insufficient illumination to detect pixel changes, thereby defeating the system.

**TIP:** Infra-Red illumination will dramatically increase the effectiveness of VMD systems & intelligent video analysis systems.

### Summary

Designers of CCTV systems need to consider some fundamental issues involved in achieving effective 24/7 pictures using dome cameras, particularly in low light conditions:

- Without light there can be no picture
- Smoked and semi-smoked dome covers dramatically reduce the night-time performance of dome camera systems
- Because of their size, dome cameras often use smaller camera chips & integrated lenses, both of which can reduce their low light capabilities
- Illuminating the field of view of the camera with sufficient Infra-Red light is essential.

In this article Derwent has outlined three ways of achieving this:

- 1) 360° Wide Area Illumination.
- 2) Specific Target Illumination.
- 3) Local Area Illumination (LAI).

Infra-Red is a crucial element in ensuring the success of Video Motion Detection, Intelligent Video Analysis & other sophisticated software functions.

## High Performance

# Uniflood 500

### Night-time illumination for CCTV



Derwent's High Power solution to night-time illumination for CCTV schemes.

Small, light and efficient, this high-power illumination system can be used to illuminate scenes of up to 200 metres long and up to 60° wide

High efficiency, Infra-Red radiation, achieved with combined gold optics and matched quartz halogen bulb source to reduce power consumption and prolong average bulb life.

Colour version with mired shift filter for balanced, visible white light output.



IR OFF



IR ON (Zoom)

Scene at 200m

The unique Derwent Cossec<sup>2</sup>, 10° and 30° lenses offer even illumination over large scene areas, to provide foreground to background video for today's CCTV cameras

For achievable distances please refer to the Matrix



### Uniflood 500 High Performance

High output radiation through high efficiency gold optics and high output bulb

Range of beam patterns with narrow and wide Cossec<sup>2</sup> even-illumination lenses and traditional spot and flood

Overt filters (730nm) & semi-covert (830nm) as standard. Covert or colour-balanced filters as options

Small, robust construction with toughened lens

Low power consumption at less than 50% of ordinary 500W lamp achieved with high efficiency optics. Saves on running and electrical installation costs

Long bulb life on average 3000 hours

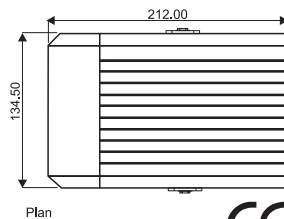
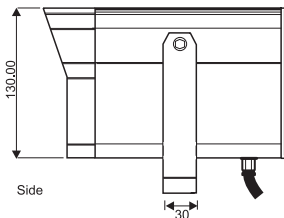
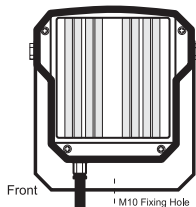
Low voltage at the camera head

Derwent provide specialised technical advice and support for your night-time illumination CCTV projects and can arrange on-site demonstrations of our products

Uniflood 500 – Night-time illumination for CCTV

# Uniflood 500 (Technical)

Uniflood **500** High Performance



## Illuminator Specification

### General

Radiated Output Similar to ordinary 500W  
 Optics Optimised focus, gold optics system  
 Consumption 220W  
 Bulb Life Average 3000 hours  
 Construction Robust aluminium casting/extrusion  
 Weight 1.9Kg  
 Colour Black as standard.  
 Other RAL colours available as options  
 Cable Length Supplied with a 4m lead

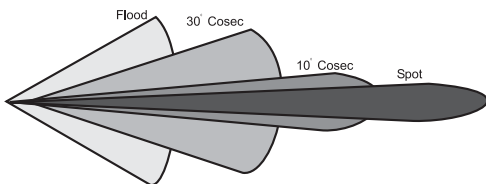
### Filter Specification

Standard Filters 730nm Specials to order 950nm  
 830nm  
 Colour

### Beam Patterns

Standard Lenses 10° Cossec Spot  
 30° Cossec Flood

NOTE: Range, video signal, signal/noise ratio and field of view will depend on the sensitivity and spectral response of the camera/lens combination



## Power Supply Specification

### Standard Range (SS & ST)

Mains Supply 230V, 50Hz  
 Protected by 3.15AT slow blow fuse  
 Output Nominal 28V adjustable by internal taps  
 Single lamp system PSU5SS - 220VA  
 Twin lamp system PSU5ST - 420VA  
 Photocell Adjustable dusk/dawn automatic switching  
 Remote Control ON/OFF volt-free contact switching from telemetry system  
 Auxiliary Output 12VDC to operate camera, PIR etc.  
 24VDC Auxiliary camera supply.  
 Physical IP66 Enclosure  
 Dimensions 250mm x 160mm x 95mm  
 Weight PSU5SS 3.4Kg  
 PSU5ST 4.2Kg

### Xtra Functions Range (XS & XT)

Extra Functions See table

For more information contact Derwent

Features	PSU5SS Universal Single PSU	PSU5ST Universal Twin PSU	PSU5XS Xtra-Function Single PSU	PSU5XT Xtra-Function Twin PSU
Single lamp system	●		●	
Twin lamp system		●		●
Photocell	●	●	●	●
Remote Switch	●	●	●	●
12 VDC supply	●	●	●	●
24 VAC supply			●	●
Timer & reset			●	●
Photocell activated contact			●	●
Adjustible photocell	●	●	●	●

Replacement bulb type: UNIPF

## Ordering information

Specify as separate items:

1. Specify lamp(s) including lens and filter Order: Uniflood 500/10/730
2. Specify power supply including single or twin system PSU5SS
3. Specify bracketry requirement, single or twin brackets SB5270

## Agent/Distributor

Europe:  
 Derwent Systems Limited  
 Derwent House, Colbourne Crescent  
 Nelson Park Industrial Estate  
 Cramlington, Northumberland  
 NE23 1WB  
 United Kingdom  
 Tel: +44 (0) 1670 730187  
 Fax: +44 (0) 1670 730188

North America:  
 3021 Underhill Avenue  
 Burnaby  
 Vancouver  
 V5A 3C2  
 Canada  
 Tel: +001 604 420 7711  
 Fax: +001 604 420 3300

The performance figures given are typical. In view of the company policy of continuous product development these specifications may be changed without notice.

Long life

Uniflood **300**

Night-time illumination for CCTV



The long bulb life version of Derwent's unique concept in night-time illumination for CCTV schemes.

The quartz-halogen bulb provides an average life of 3,500 hours normal operation, allowing for longer intervals between service schedules and the end-user a more reliable system with reduced maintenance costs

With a radiated output equivalent to normal 300W lamps, achieved through high efficiency optics, the Uniflood 300 is the modern, high performance successor to traditional 300W lamps.

Colour version incorporates a mired shift colour-corrected filter for balanced, visible, white light output

Uniflood 300 has been designed and tested to provide an average bulb life of approximately 3,500 hours normal night-time operation.

For achievable distances please refer to the Matrix  
Uniflood 300 – Night-time illumination for CCTV



Uniflood 300  
Long life

Average bulb life of 3500 hours for normal operation

Range of beam patterns with narrow and wide Cospec<sup>2</sup> even-illumination lenses & traditional spot and flood

Overt filters (730nm) semi-covert (830nm) and colour filters as standard.  
Covert filters as option

Small, robust construction with toughened lens

Low power consumption at less than 60% of ordinary 300W lamp achieved with high efficiency optics.  
Results in much lower running costs

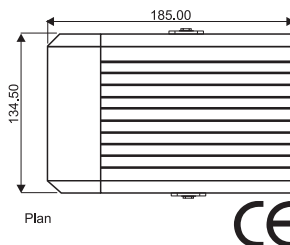
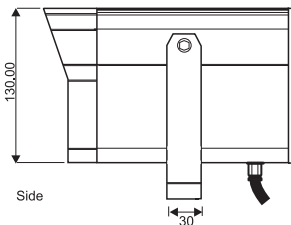
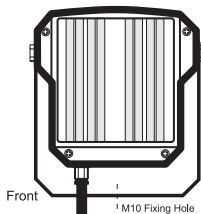
Low voltage at camera head

Derwent provide specialised technical advice and support for your night-time illumination CCTV projects and can arrange on-site demonstrations of our products



# Uniflood 300 (Technical)

Uniflood **300** Long Life



## Illumination Specification

### General

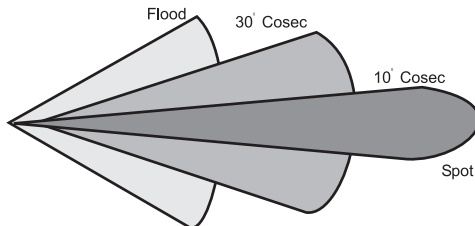
Radiated Output	Similar to ordinary 300W
Optics	Optimised focus optical system
Consumption	170W
Bulb Life	Average 3,500 hours
Construction	Robust, aluminium casting/extrusion
Weight	1.8Kg
Colour	Black as standard, other RAL colours available
Cable Length	Supplied with a 4m lead

### Filter Specification

Standard Filters	730nm	Specials to order	950nm
	830nm		
	Colour		

### Beam Patterns

Standard Lenses	10° Cosc <sup>2</sup> Spot
	30° Cosc <sup>2</sup> Flood



NOTE: Range, video signal, signal/noise ratio and field of view will depend on sensitivity and spectral response of the camera/lens combination

## Power Supply Specification

### Standard Range (SS & ST)

Mains Supply	230V, 50Hz
	Protected by 1.6AT (3SS) 3.15AT (3ST) slow blow fuse
Output	Nominal 26.5V adjustable by internal taps
	Single lamp system PSU3SS - 180VA
	Twin lamp system PSU3ST - 340VA
Photocell	Adjustable dawn/dusk automatic switching
Remote Control	ON/OFF volt-free contact switching from telemetry
Physical	IP66 Enclosure
	Dimensions: 230mm x 140mm x 95mm
	Weight: PSU3SS 3.2Kg
	PSU3ST 4.2Kg

### Xtra Functions Range (XS & XT)

Extra Functions See table  
For more information contact Derwent

Features	PSU3SS	PSU3ST	PSU3XS	PSU3XT
	Universal Single PSU	Universal Twin PSU	Xtra-Function Single PSU	Xtra-Function Twin PSU
Single lamp system	●		●	
Twin lamp system		●		●
Photocell	●	●	●	●
Remote Switch	●	●	●	●
12 VDC supply			●	●
24 VAC supply			●	●
Timer & reset			●	●
Photocell activated contact			●	●
Adjustable photocell	●	●	●	●

Replacement bulb type: UNILL

## Ordering information

Specify as separate items:

1. Specify lamp(s) including lens and filter
2. Specify power supply including single or twin system
3. Specify bracketry requirement single or twin

Order:

Uniflood 300/10/730  
PSU3SS  
SB5270

## Agent/Distributor

Europe:  
Derwent Systems Limited  
Derwent House, Colbourne Crescent  
Nelson Park Industrial Estate  
Cramlington, Northumberland  
NE23 1WB  
United Kingdom  
Tel: +44 (0) 1670 730187  
Fax: +44 (0) 1670 730188

North America:  
3021 Underhill Avenue  
Burnaby  
Vancouver  
V5A 3C2  
Canada  
Tel: +001 604 420 7711  
Fax: +001 604 420 3300

The performance figures given are typical. In view of the company policy of continuous product development these specifications may be changed without notice.

Ultra Long Life

Uniflood **LED**

Night-time Illumination for CCTV



Ultra long life, high reliability Infra-Red illuminator using solid state, high efficiency LED's. Uniflood LED is designed for night-time CCTV schemes which demand a high level of reliability with minimum maintenance costs

The inherent low power consumption of the solid state LED array results in very low running costs over the life of the system

Developed for indoor and external applications with ranges of up to 50 metres+ with IR extended cameras and lenses or up to 30 metres using mid-range cameras.



IR OFF



IR ON

For achievable illumination distances please refer to the Matrix



**Uniflood LED**  
**Ultra Long Life**

Solid State  
> 5 years life

Semi-covert (850nm) and  
covert (940nm)

Very low power  
consumption  
Low running costs

Small, robust construction

Rated for indoor and  
outdoor applications

Low voltage at camera head

Derwent provide specialised  
technical advice and  
support for your night-time  
illumination CCTV projects  
and can arrange on-site  
demonstrations of  
our products

### **Applications**

#### *Internal*

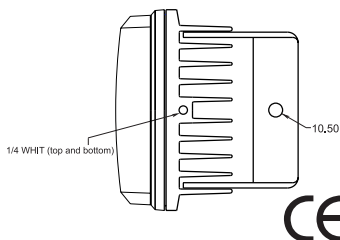
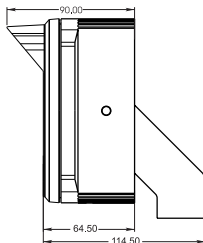
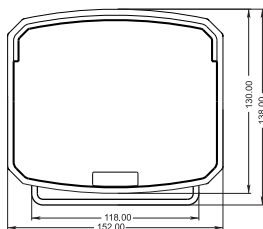
- Warehouses
- Schools
- Hospitals
- Museums & Galleries
- Reception areas
- Corridors

#### *External*

- Doorways & Entrances
- Pathways
- Car Parks
- Gardens
- Barrier gates
- Toll booths

# Uniflood LED (Technical)

Uniflood **LED** Ultra Long Life



Uniflood LED is available in three standard formats, both of which are supplied with the dedicated Derwent power supply, ref: PSU LED V2 as standard. The three standard formats are:

Part No.	Wavelength	Beam Angle	Includes power supply ref:
UFLED/20/850	850nm semi-covert	20° (useable up to 30°)	PSU LED V2
UFLED/30/850	850nm semi-covert	30° (useable up to 40°)	PSU LED V2
UFLED/20/940	940nm covert	20° (useable up to 30°)	PSU LED V2

## Illuminator Specification

### General

LED Array	Current controlled - Supplied with dedicated Derwent power supply unit
Consumption*	50W nominal on full power (external) 40W nominal on low power (internal) * <i>Switchable within Derwent dedicated power supply</i>
Power Supply	Constant current regulation to LED
Temperature Range	25°C ambient Max on full power 40°C ambient Max on low power
Weight	1.44Kg
Colour	Black
Cable length	Supplied with 4 metres of connecting lead

## Power Supply Specification

### Product ref: PSU LED V2

Mains Supply	230V, 50Hz Protected by 0.8AT slow blow fuse
Output	Constant current Full power external applications with ambient temperature Max. 25°C Low power internal applications with ambient temperature Max. 40°C
Photocell	Dusk/dawn automatic switching
Physical	Polycarbonate IP66 enclosure Dimensions 160mm x 120mm x 90mm Weight 1.6Kg includes variable photocell

## Notes on LED Illuminators:

LED's (Light Emitting Diodes) are long life devices when used within their specifications.

The Uniflood LED should be used only with the Derwent dedicated power supply.

LED's are intrinsically low power devices and are designed for short to medium range applications.

For medium and long range applications consider using the Derwent Uniflood 500, Uniflood 300 or SuperLED.

Reliability of LED's is dependant on temperature of operation, maximum ventilation should be allowed.

## Ordering information

Specify as separate items:

1. Specify lamp(s) part no: UFLED 30/850 or UFLED 20/940. All lamp types are supplied with dedicated Derwent power supply PSU LED V2 as standard
2. Specify bracketry requirement

## Agent/Distributor

Europe:  
Derwent Systems Limited  
Derwent House, Colbourne Crescent  
Nelson Park Industrial Estate  
Cramlington, Northumberland  
NE23 1WB  
United Kingdom  
Tel: +44 (0) 1670 730187  
Fax: +44 (0) 1670 730188

North America:  
3021 Underhill Avenue  
Burnaby  
Vancouver  
V5A 3C2  
Canada  
Tel: +001 604 420 7711  
Fax: +001 604 420 3300

The performance figures given are typical. In view of the company policy of continuous product development these specifications may be changed without notice.

Short Range - Long Life

**Miniflood 100**

**Night-time illumination for CCTV**



Specifically designed for short-range CCTV schemes up to 55 metres, Miniflood 100 is the latest addition to Derwent's complete range of high performance night-time illumination products.

Small, attractive and robust, Miniflood 100 is efficient and reliable with outstanding bulb life of on average 8,000 hours

A comprehensive range of lens and filter options means that Miniflood 100 is the flexible, ideal choice for all short range Infra-Red requirements.

The attractive, compact design means Miniflood 100 is ideal for all industrial and commercial applications, as well as retail and domestic CCTV schemes.

Colour version with mired shift filter for balanced, visible white light output for colour CCTV schemes

For achievable illumination distances please refer to the Matrix



**Miniflood 100  
Short Range  
Long Life**

Long bulb life  
On average over  
8000 hrs operation

High output radiation  
through high efficiency  
optics and high output bulb

Range of 3 beam patterns:  
narrow, medium and wide  
lenses to allow efficient  
coverage of all CCTV scenes

Overt filters (730nm) and  
semi-covert (830nm) as  
standard. Discreet or colour-  
balanced filters as options

Small, attractive,  
robust construction

Extensive mounting options

High efficiency optics and  
long life bulb saves on  
running, maintenance and  
installation costs

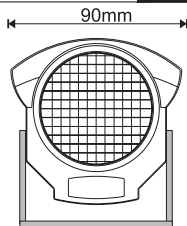
Low voltage as camera head

Derwent provide specialised  
technical advice and  
support for your night-time  
illumination CCTV projects  
and can arrange on-site  
demonstrations of  
our products

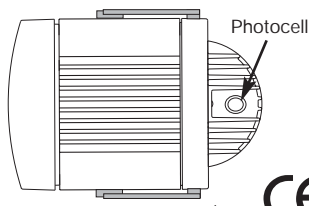
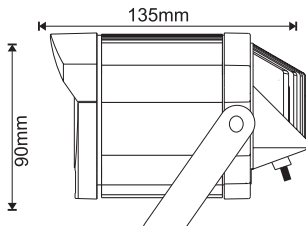
**Miniflood 100 – Night-time illumination for CCTV**

# Miniflood 100 (Technical)

Miniflood **100**



Short Range - Long life



## Illuminator Specification

### General

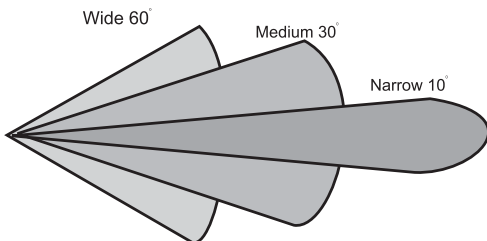
Consumption	70W
Optics	Optimised focus optical system
Bulb-life	Average 8,000 hours
Construction	Robust aluminum casting/extrusion
Weight	<800g
Colour	Black (as standard) Other RAL colours available
Cable Length	Supplied with 2m lead

### Filter Specification

Standard Filters	730nm	Special to order	950nm
	830nm		Colour

### Lens/Beam Patterns

10° Narrow	Useable up to 15° Suitable for 16mm lenses and longer*
30° Medium	Useable up to 45° Suitable for 6mm-16mm and shorter*
60° Wide	Suitable for 6mm and shorter * Calculations based on 1/3 inch CCD



## Power Supply Specification

### Standard Range

Main Supply	220 - 240V, 50Hz
Output	Nominal 12V, 5.5A
Photocell	Dusk/Dawn automatic switching
Remote Control	Volt free switching from telemetry system 12VDC 500MA (PSUMINIST Only)
Physical	IP66 Enclosure

### Twin & Single Option

Single	PSU MINI SS 120mm x 120mm x 65mm
Twin	PSU MINI ST 230mm x 140mm x 80mm

### Bracketry Specification

U-Bracket As standard

1/4" BSW tapped hole for top and bottom mounting

NOTE: Range, video signal, signal/noise ratio and field of view will depend on sensitivity and spectral response of camera/lens combination

Replacement bulb type: MINILL

Contact Derwent for advice on your proposed scheme

## Ordering information

Specify as separate items:

1. Specify lamp(s) including lens & filter
2. Specify power supply

Order:

MF100/10/730  
PSU MINI SS  
PSU MINI ST

## Agent/Distributor

Europe:  
Derwent Systems Limited  
Derwent House, Colbourne Crescent  
Nelson Park Industrial Estate  
Cramlington, Northumberland  
NE23 1WB  
United Kingdom  
Tel: +44 (0) 1670 730187  
Fax: +44 (0) 1670 730188

North America:  
3021 Underhill Avenue  
Burnaby  
Vancouver  
V5A 3C2  
Canada  
Tel: +001 604 420 7711  
Fax: +001 604 420 3300

The performance figures given are typical. In view of the company policy of continuous product development these specifications may be changed without notice.

High Power - Long Life

## Super LED

Night-time Illumination for CCTV



Long life, high reliability Infra-Red illuminator using solid state high efficiency LED's. SuperLED is designed for night-time CCTV schemes which demand a high level of reliability and minimum maintenance costs.

SuperLED reliably achieves illumination distances not yet seen in the LED market and is manufactured by Derwent, World leaders in the field of Infra-Red technology.

Developed for external applications with ranges up to 175 metres with IR extended cameras and lenses, or up to 100 metres using mid-range cameras.

For achievable illumination distances please refer to the Matrix



**SuperLED**  
High Power Long Life

Solid State  
> 5 years life

Semi-covert 850nm  
and covert 940nm

Achievable distances  
up to 175m

Robust construction

Outdoor & indoor  
applications

Low voltage at camera head

Derwent provide specialised technical advice and support for your night-time illumination CCTV projects and can arrange on-site demonstrations of our products

**Applications:**

*External*

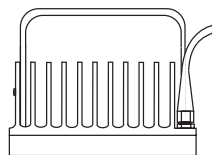
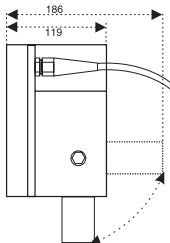
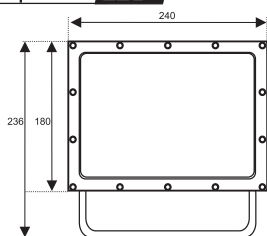
- Long range, wide area
- City Centre
- Perimeter
- Car Park
- Barrier gate
- Toll booth
- Airports
- Military

*Internal*

- Warehouse
- Factory
- Large Office Complex
- Sports Hall/Arena
- Leisure Centre

# SuperLED (Technical)

Super **LED** High Power - Long Life



SuperLED is available in three standard formats, both of which are supplied with a dedicated power supply as standard. The three standard formats are:

Part No	Wavelength	Beam Angle	
SuperLED 20/850	850nm semi-covert	20° (useable up to 30°)	<i>Other beam angles are available on request</i>
SuperLED 30/850	850nm semi-covert	30° (useable up to 45°)	
SuperLED 20/940	940nm covert	20° (useable up to 30°)	

## Illuminator Specification

### General

LED Array	Current controlled - Supplied with a dedicated Derwent power supply unit
Consumption*	140W nominal on full power (external) 80W nominal on low power (internal)
Power Supply	Constant current regulation to LED
Temperature Range	45°C ambient Max. on full power
Construction	Robust aluminium casting/extrusion
Weight	5.85Kg
Colour	Black
Cable Length	Supplied with 4 metre connecting lead
No. of LEDs	560

## Power Supply Specification

Please contact Derwent for information about the dedicated power supply unit, IP66 rated with dusk/dawn automatic switching

## Note On LED Illuminators

LED's (Light Emitting Diodes) are long life devices when used within their specifications. The SuperLED should be used only with the Derwent dedicated power supply.

The SuperLED is designed for medium to long range applications where long life is required

Reliability of LED's is dependant on temperature of operation and maximum ventilation should be allowed

## Ordering information

Specify as separate items:

1. Specify lamp(s) part no: SuperLED 20/850, SuperLED 20/940 or SuperLED 30/850. All lamp types are supplied with dedicated power supply as standard

## Agent/Distributor

Europe:  
Derwent Systems Limited  
Derwent House, Colbourne Crescent  
Nelson Park Industrial Estate  
Cramlington, Northumberland  
NE23 1WB  
United Kingdom  
Tel: +44 (0) 1670 730187  
Fax: +44 (0) 1670 730188

North America:  
3021 Underhill Avenue  
Burnaby  
Vancouver  
V5A 3C2  
Canada  
Tel: +001 604 420 7711  
Fax: +001 604 420 3300

The performance figures given are typical. In view of the company policy of continuous product development these specifications may be changed without notice.

## Short Range - Ultra Long Life

Miniflood **LED**

Night-time illumination for CCTV



Ultra long life, high reliability Infra-Red illuminator using solid state, high efficiency LED's. Versatile input voltage 12 to 24VAC or DC

The inherent low power consumption of the solid-state array results in very low running costs over the life of the system.

Specifically designed for short-range CCTV schemes, Miniflood LED compliments Derwent's range of high performance, night-time illumination products and can be adapted to many short-range scenes with adjustable power settings.

Developed for indoor and external applications with ranges up to 20 metres using IR sensitive cameras and lenses

Small attractive and robust Miniflood LED has all the benefits of the Derwent range, being efficient and reliable

The attractive compact design means Miniflood LED is appropriate for all industrial and commercial applications as well as being suitable for domestic CCTV schemes

For achievable illumination distances please refer to the Matrix



**MFLED Series**  
Ultra long life  
with photocell

Solid State  
>5 years life

Semi-covert 850nm  
& covert 940nm

Low power consumption  
Low running costs

Adjustable power settings to  
match scene requirements

Small, attractive,  
robust construction

Extensive mounting options

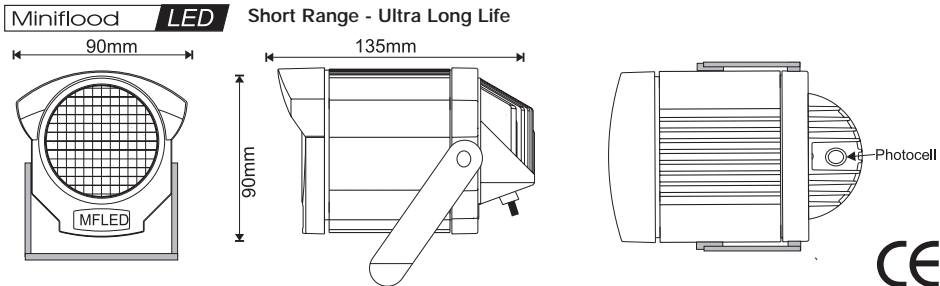
Low voltage at camera head

Rated for internal  
& external applications

Derwent provide specialised  
technical advice and  
support for your night-time  
illumination CCTV projects  
and can arrange on-site  
demonstrations of  
our products



# Miniflood LED (Technical)



## Illuminator Specification

### General

Input	12 to 24VAC or DC
LED Array	850nm semi-covert 950nm covert
Power Consumption*	15VA Max on High High/Medium/Low Settings Adjustable via potentiometer
Temperature Range	30°C ambient max on Hi power 35°C ambient max on Med power 40°C ambient max on Lo power
Construction	Robust aluminium casting/extrusion
Weight	0.8 Kg
Colour	Black
Cable	Supplied with 2 metre connecting lead
Photocell	Fully adjustable dawn/dusk automatic switching

### Mains to low voltage PSU

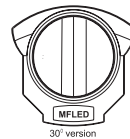
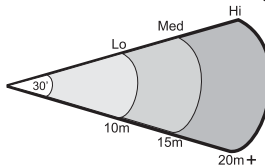
MFLED requires an external mains to low voltage power supply. Derwent manufactures a dedicated power supply, specify PSU230/24 which can run up to 2 MFLED's.

### Product Ref: PSU230/15

Input	230V, 50Hz
Output	2x 15V @ 1.5amp
Construction	Polycarbonate IP66 Enclosure
Dimensions	160mm x 120mm x 90mm
Weight:	1Kg

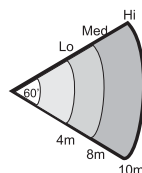
## Beam Patterns

**Angle 30° (Usable to 45°) Medium suitable for 6mm lenses and longer**



Distances as a guide only based on 850nm version with an IR sensitive camera

**Angle 60° - Wide suitable for 2.8mm ~ 6mm lenses**



Distances as a guide only based on 850nm version with an IR sensitive camera

**NOTE:** Range, video signal, signal noise ratio and field of view will depend on sensitivity and spectral response of the camera/lens combination.

Contact Derwent for advise on your proposed scheme

## Bracketry Specification

U-Bracket Standard  
1/4" BSW Top and bottom mounting

## Ordering information

Specify as separate items:  
1. 850nm LED with 30 degree spread:  
2. 850nm LED with 60 degree spread:  
3. 940nm LED with 20 degree spread:  
4. 940nm LED with 50 degree spread:  
5. PSU230/24:

Order:  
MFLED 30/850  
MFLED 60/850  
MFLED 20/940  
MFLED 50/940  
PSU230/24

## Agent/Distributor

Europe:  
Derwent Systems Limited  
Derwent House, Colbourne Crescent  
Nelson Park Industrial Estate  
Cramlington, Northumberland  
NE23 1WB  
United Kingdom  
Tel: +44 (0) 1670 730187  
Fax: +44 (0) 1670 730188

North America:  
3021 Underhill Avenue  
Burnaby  
Vancouver  
V5A 3C2  
Canada  
Tel: +001 604 420 7711  
Fax: +001 604 420 3300

The performance figures given are typical. In view of the company policy of continuous product development these specifications may be changed without notice.

## Short Range - Ultra Long Life

# Micro LED

## Night-time illumination for CCTV

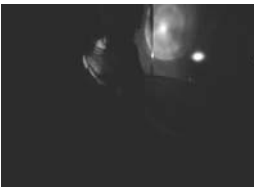


The MicroLED is a versatile, effective and economical Infra-Red illuminator which provides night-time, covert lighting control for short range, indoor and outdoor surveillance.

The compact cube is designed to be located in the dark areas of a surveillance site, to enhance night-time performance of existing and new cameras.

The discreet and aesthetic design ensures that MicroLED is ideal for all short-range Infra-Red requirements.

With 1/4 mounts located at its bottom and rear, the MicroLED can be installed to ceilings and walls, discreetly enhancing the night-time lighting for covert surveillance.



Above: The difference is like night versus day. Left, a dark scene is illuminated with only a torch, on the right, the totally dark scene is revealed in full using MicroLED.

For achievable illumination distances please refer to the Matrix



**MicroLED  
Ultra Long Life  
with photocell**

Solid State  
>5 years life

Semi-covert 850nm  
& covert 940nm

Low power consumption  
Low running costs

Adjustable power settings to  
match scene requirements

Small, attractive,  
robust construction

Low Voltage  
12VAC or 24VDC

Rated for internal &  
external applications

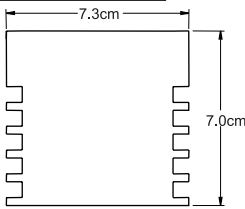
Simple safe installation

Extensive mounting options

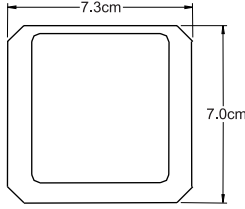
Derwent provide specialised technical advice and support for your night-time illumination CCTV projects and can arrange on-site demonstrations of our products

# MicroLED (Technical)

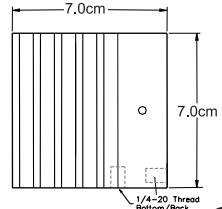
## Micro **LED** Short Range - Ultra Long Life



TOP VIEW



FRONT VIEW



SIDE VIEW



### Specification

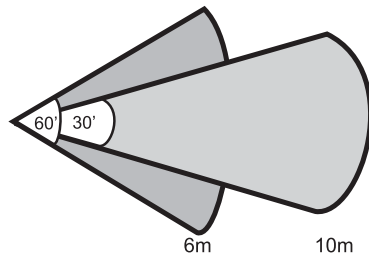
LED Array	High performance 850nm or 950nm
LED Beam Angles	60° (W), 30° (M)
Number of LEDs	42
Output Control	Variable Resistor
Photocell	Automatic ON/OFF adjustable
Operational Range	-20° C to +50° C (-4° F to 122° F)
Humidity Range	Up to 85% relative humidity
Voltage Regulator protection	Included for electronic
Input	12 VDC or 24VAC
Consumption	700 MA (Max at 12 VDC)
Enclosure:	
Housing	Aluminium
Front Window	Optical Acrylic
Back Cover	Anodized Aluminum Plate
Gasketed	
Mount	1/4 Whit thread at bottom and rear
U-Bracket	Supplied as standard
Dimensions	Width: 73mm Depth: 70mm Height: 70mm
Weight	454g

### Mains to low voltage PSU

MicroLED requires an external mains to low voltage power supply. Derwent manufacture a dedicated power supply for use with the MicroLED, specify PSU230/24

### Beam Patterns

Medium – Angle 30° – Range 10m  
Wide – Angle 60° – Range 6m



Distances above are based on 850nm versions

#### Performance Notes:

Use good Infra-Red sensitive cameras for better results.

850nm models emit a slight red visible glow.

940nm models are not visible, but require best Infra-Red sensitive cameras.

**NOTE:** Range, video signal, signal/noise ratio and field of view will depend on the sensitivity and spectral response of the camera/lens combination

Contact Derwent for advise on your proposed scheme

### Ordering information

Specify as separate items:  
EX12LED.850M 850nm  
EX12LED.850W 850nm  
EX12LED.940M 940nm  
EX12LED.940W 940nm

(includes U-Bracket)

Order:  
30° medium beam  
60° wide beam  
30° medium beam  
60° wide beam

### Agent/Distributor

Europe:  
Derwent Systems Limited  
Derwent House, Colbourne Crescent  
Nelson Park Industrial Estate  
Cramlington, Northumberland  
NE23 1WB  
United Kingdom  
Tel: +44 (0) 1670 730187  
Fax: +44 (0) 1670 730188

North America:  
3021 Underhill Avenue  
Burnaby  
Vancouver  
V5A 3C2  
Canada  
Tel: +001 604 420 7711  
Fax: +001 604 420 3300

The performance figures given are typical. In view of the company policy of continuous product development these specifications may be changed without notice.

REG™

## Numberplate Capture



REG™ is the complete solution for consistent, reliable number plate capture. The unit combines the latest camera, optics, illumination and filter technology to provide clear images of number plates in both day and night conditions, at distances of up to 35 metres.

Derwent, through its unique combination of camera and IR technology has overcome the many problems associated with accurate number plate capture.

REG™ overcomes all issues related to speed, daytime highlights, reflectivity of number plate, car headlights and accurate focus during the day and night

REG™ is a fully integrated system which captures number plates 24 hours a day, whatever the weather conditions. Camera, lamp, special PSU and bracketry are all included to ensure maximum ease of installation and immediate results.

Low maintenance and excellent reliability are assured, REG™ delivers average illuminator life of up to 10 years, depending on distances required.

REG™ has been designed to work on a stand-alone basis with VCR or digital recorders or with ANPR software.



Daytime Headlights OFF



Daytime Headlights ON

# DERWENT

Number plate Capture up to 35 metres

Easy to install "Plug & Play"  
Fit & Forget

Combined camera & matched  
IR lighting

No focus shift between  
daytime & IR operation

Discreet, compact design  
Integral bracketry & cable  
management

Hi-Resolution Ex-view Camera

24 Hour - No other  
illumination required

High reliability  
low maintenance system

Average life of illuminator up  
to 10 years

Derwent provide dedicated  
technical support & can  
provide specific advice on  
your application

**Applications:**  
Entry/Exit, Access Control,  
Car Parks, Toll Booths,  
Airports, Hotels,  
Police/Government,  
Industrial Estates

# REG™ (Technical)

## Distance/Lens Selector

Max. range	UF500	Voltage	Average bulb life	Order code
12 metres	850/30	20 volts	10 yrs	REG 12
18 metres	850/10	20 volts	10 yrs	REG 18
25 metres	850/10	20 volts	10 yrs	REG 25
35 metres	850/10	23.5 volts	2 yrs	REG 35

**NOTE:** REG™ is calibrated to ensure maximum accuracy and capture. Please select the range appropriately, taking into consideration the maximum point which capture is required. Example: For 20 metres select REG-25

### Camera

Sensor	1/2" Ex-view sensor
Resolution	High resolution 570 TVL
Construction	Robust, aluminium casting and extrusion
Environmental	Integral 6 Watt heater and sunshield
Weight	1Kg

### Illuminator

Consumption	Depends on tap selected – Max 150W
Bulb Life	Depends on tap selected - Max. 10yrs
Weight	1.9Kg
Construction	Robust aluminium casting and extrusion
Colour	REG™ is available in traffic yellow (RAL1023) or black as standard. Other RAL colours available to order. For yellow insert "Y" at the end of the product code, for black insert "B" at the end of the product code

### Bracketry

REG™ is supplied with a wall-bracket as standard.

Other bracketry options are available:

Pole Mount - Top

Pole Mount - Side

### Power Supply Specification

Mains supply	230V, 50 Hz, 2A AT fuse,
Output – Lamp	Power adjustable, according to distance required, Tap 1 - 20V, Tap 2 - 21V, Tap 3 -22V, Tap 4 - 23V. All at approx 5 Amp
Camera	12VDC @ 300 MA
Heater	12VDC @ 300 MA
Dimensions	250mm x 160mm x 95mm
Weight	3.4Kg
Construction	Polycarbonate - IP66
Colour	Light grey (RAL 7035)

### General note on number plates:

All the distances quoted on this document refer to standard UK number plates which are retro-reflective. The distances for other nationality plates may differ according to size and reflectivity of the plate.

Derwent will be happy to advise on the suitability of REG™ for your specific scheme.

Number plate capture is complex and requires a matched, system approach to achieve the quoted results. All the components of REG™ are selected to ensure compatibility and provide the highest quality images

## Other products in the REG™ range



REG™ Dual



REG™ Wedge



REG™ LED

*The performance figures given are typical. In view of the company policy of continuous product development these specifications may be changed*

Europe:  
Derwent Systems Limited  
Derwent House, Colbourne Crescent  
Nelson Park Industrial Estate  
Cramlington, Northumberland  
NE23 1WB  
United Kingdom  
Tel: +44 (0) 1670 730187  
Fax: +44 (0) 1670 730188

North America:  
3021 Underhill Avenue  
Burnaby  
Vancouver  
V5A 3C2  
Canada  
Tel: +001 604 420 7711  
Fax: +001 604 420 3300

The performance figures given are typical. In view of the company policy of continuous product development these specifications may be changed without notice.

# Lens Selector

## Lens Selector

Lens (mm)	Horizontal Field of View 1/3" Camera	Recommended Lens Combination for Horizontal Coverage		Horizontal Field of View 1/2" Camera	Recommended Lens Combination for Horizontal Coverage	
		Umflood	MiniFlood		Umflood	MiniFlood
2.8	80°	2 x Flood <b>OR</b> 2 x 30°	2 x 60° Wide	97°	2 x Flood <b>OR</b> 2 x 30°	2 x 60° Wide
3.5	68°	2 x Flood <b>OR</b> 2 x 30°	2 x 60° Wide	84°	2 x Flood <b>OR</b> 2 x 30°	2 x 60° Wide
4	63°	2 x Flood <b>OR</b> 2 x 30°	2 x 60° Wide	78°	2 x Flood <b>OR</b> 2 x 30°	2 x 60° Wide
4.8	50°	1 x 30°	1 x 60° Wide	69°	2 x 30°	2 x 60° Wide
6	42°	1 x 30°	1 x 30° Medium	57°	2 x 30°	1 x 60° Wide
8	33°	1 x 30°	1 x 30° Medium	43°	1 x 30°	1 x 30° Medium
12.5	20°	1 x 30°	1 x 30° Medium	29°	1 x 30°	1 x 30° Medium
16	16°	1 x 10°	1 x 30° Medium	22°	1 x 10°	1 x 30° Medium
25	10°	1 x 10°	1 x 10° Narrow	15°	1 x 10°	1 x 10° Narrow
50	5°	1 x 10°	1 x 10° Narrow	7°	1 x 10°	1 x 10° Narrow
75	3°	1 x 10° <b>OR</b> 1 x Spot	1 x 10° Narrow	5°	1 x 10° <b>OR</b> 1 x Spot	1 x 10° Narrow
100	2°	1 x 10° <b>OR</b> 1 x Spot	1 x 10° Narrow	3°	1 x 10° <b>OR</b> 1 x Spot	1 x 10° Narrow

## **AMBIENT LIGHT LEVEL**

Background, or general light levels of a given area. It is important to remember that any light on the scene, street lighting for example, may have a detrimental effect on CCTV picture quality. Illumination should always, where possible, be designed to work in conjunction with the CCTV system.

## **APERTURE OR F-STOP**

The 'opening' of a lens, a measure of its light gathering capability. Relative Aperture is a ratio between its focal length and effective aperture, measured in F-numbers, generally the lower the better for night-time vision.

## **COSEC<sup>2</sup>**

Cosec<sup>2</sup> is the lens formula used to achieve even illumination so that returned radiated energy to the camera is the same from wherever the subject is in the scene. This characteristic permits the camera to work within its dynamic range and avoids white out on the screen.

## **COVERT**

Concealed, done secretly. Infra-Red when emitted beyond 950nm can be considered totally covert. The lamps do not appear to be on when viewed by the human eye. It is important to ensure that camera sensitivity is sufficient at this level.

## **INFRA-RED OR IR**

Used for night-time CCTV surveillance, internally and externally. Infra-Red is light which the human eye cannot see, but when used for CCTV (700nm to 1000nm) the monochrome camera can. When IR lamps are used in conjunction with mono CCTV cameras, the camera is given the ability to see where human eyes cannot, generally accepted as wavelengths between 700nm and 1000nm

## **INVERSE SQ. LAW**

A non-linear law which refers in this instance to the relationship between distance and illumination. It is important to understand that the inverse sq. law applies to Infra-Red in the same way as it does to conventional lighting. To achieve the same level of illumination at double the distance you must square the illumination level i.e.  $2 \times 2 = 4$  times the power.

## **LED (Light Emitting Diode)**

A solid state, long life electronic component that produces light when stimulated by electricity. LED's are often used in Infra-Red night-time applications when long product life and low maintenance is required.

## **LUX**

Metric measurement of the light striking a surface. Visible light is measured in lux (a common spec) – non metric units = Foot-candles (Ftcd) Lux relates to human vision, it is not applicable when discussing Infra-Red. IR illuminators are 0 Lux by definition.

## **NANOMETRE (nm)**

10<sup>9</sup> of a metre. Usually used to measure the distance between the wavelengths of light. The distance between the wavelengths determines the colour of the light. 400nm = Blue, 590nm = Yellow, 680nm = Orange.

## **SPECTRAL RESPONSE**

The sensitivity of the imaging device to different frequencies of light. This is usually in the range of 300nm to 1000nm. Visible light is up to approx 760nm. Infra-Red lighting is between 730nm and 1000nm, IR lighting over 950nm is covert which means no glow can be seen by the human eye.

## **WHY DO I NEED AN INFRA-RED LAMP?**

Most crime takes place during the vulnerable hours of darkness; when designing a CCTV system to work at night consideration must be given to the lighting on the scene, without light there can be no picture. The human eye cannot detect Infra-Red light, most mono CCTV cameras however can. As such invisible IR light can be used to illuminate a scene, allowing for night-time surveillance without the need for additional and costly artificial lighting. Without Infra-Red dark night-time scenes can remain dark to CCTV cameras, pictures may suffer from shadows, signal noise and loss of focus.

Infra-Red also provides many other benefits above and beyond conventional lighting, IR beam-shapes can be designed to optimise CCTV camera performance, IR illumination gives extended bulb life, covert surveillance and lower running costs.

## **WHY DERWENT IR LAMPS?**

Derwent are world leaders in Infra-Red CCTV surveillance. Derwent's Infra-Red lamps provide several unique benefits including low cost of ownership, increased bulb life and reduced maintenance and bulb replacement costs. The Uniflood range also provides even-illumination via Cossec<sup>2</sup> system enabling the camera to work within its dynamic range. Derwent provide an outstanding level of technical support and can provide on-site demonstrations and support of all their product range.

## **HOW FAR CAN MY CAMERA SEE AT NIGHT WITH INFRA-RED LAMPS?**

The range that your camera will see in the dark will depend on sensitivity and spectral response of the camera and lens combination. Refer to the Matrix

## **DO INFRA-RED LAMPS WORK WITH COLOUR CAMERAS?**

Infra-Red lamps CANNOT work with colour cameras. Normal artificial light, that is sodium light, causes problems to the quality of the colour CCTV picture, not producing accurate colour quality. Derwent produce a night-time colour corrected lamp called Spectrum (this is not an IR lamp) – Please call for details. There are also a range of dual-mode cameras available, which will work with Infra-Red lamps whilst the camera is working in monochrome mode.

## **CAN INFRA-RED LAMPS BE USED FOR COVERT OPERATION?**

Yes. Infra-Red lamps come in varying wavelengths from approximately 730nm to 950nm.

The 730nm wavelengths will give off the normal red glow of the lamp, similar to the glow given off by a traffic light. The 830nm lamp will greatly reduce this visible glow and the 950nm lamp is ideal for covert use where no indication of night-time security is a requirement.

**WARNING:** A 950nm lamp will require a highly sensitive night-time camera.

## **WHAT LENS DO I NEED?**

Derwent produces a range of beam patterns throughout its product range. The lens and field of view of the camera should be matched to the lens and area of illumination of the lamp. Refer to Lens Selector chart.

## **WHAT IS THE AVERAGE BULB LIFE OF INFRA-RED LAMPS?**

Bulb life is dependent on filament ruggedness and design. Derwent bulb life is considerably greater than the industry average due to its rugged halogen quartz bulb.

Uniflood 500 for example has an average bulb life of 3000hrs. Uniflood 300, 3,500 hours normal use and Miniflood an average of 8000 hrs. LED's are Solid State devices that offer ultra long life and low power consumption.

## **CAN I USE DERWENT UNIFLOOD LAMPS WITHOUT A POWER SUPPLY?**

No. The Derwent range is powered by a dedicated power supply (PSU) which includes a dusk/dawn photocell and is specially rated to optimise life and performance of the lamp. Derwent use low voltage bulbs to increase safety and maximise on low cost of ownership



## HOW DO I SPECIFY THE TYPE OF DERWENT LAMPS I REQUIRE?

To order Derwent lamps you must specify the lamp, including lens, filter and power supply requirements, single or twin system and any bracketry required.

Example: Uniflood 500/30/730 – This denotes high performance Uniflood 500 with a 30°, Cossec<sup>2</sup> lens and a 730nm filter.

## WHAT IS COSEC<sup>2</sup>?

Cossec<sup>2</sup> is the lens formula used to achieve even illumination in the Uniflood 500 and Uniflood 300, so that returned radiated energy to the camera is the same from wherever the subject is situated in the scene. This characteristic permits the camera to work within its dynamic range and avoids white out on the screen.

## CAN DERWENT LAMPS BE SUPPLIED IN DIFFERENT COLOURS?

Yes. The Uniflood series of lamps are manufactured as standard in black. However other colours can be supplied, please contact Derwent supplying RAL or BS paint spec number.

## WHAT IS THE BEST COMBINATION OF LENS WHEN USING ZOOM LENSES?

High specification schemes, for long distance open scenes, often use a long zoom lens – 16mm-160mm, in this case specify 100 + 100 lamps. For a shorter zoom, 10mm-100mm a 100+300 is a usable twin lamp set-up.

## CAN I REDUCE OR EXTEND THE LEAD LENGTH BETWEEN THE PSU AND LAMP?

Derwent's Uniflood 500 & 300 lamps are provided with a standard 4m lead between the PSU and lamp. This gives you maximum performance and bulb life. Reducing the lead may reduce bulb life, extending the lead will reduce IR performance but extend bulb life. Derwent strongly recommend you do not shorten the lead length. There are taps in the PSU to allow for lengths up to 18m with 1.5mm<sup>2</sup> cable. Refer to Derwent for advice on your specific enquiry.

## WHAT IS THE DIFFERENCE BETWEEN 10° COSEC Vs SPOT AND A 30° COSEC Vs FLOOD?

Traditionally the industry uses spot and flood combinations to cover near and far scenes. The 10° and 30° Cossec beams are designed to replace these and give even illumination over the scene. Derwent spot lamps gives a more precise 6° spot. The flood gives wide 50-60° coverage and is intended for short-range local illumination.

## CAN INFRA-RED LAMPS FACE THE CAMERA HEAD?

Preferably not. Although the light emitted from the lamp is not visible to the human eye, the camera sees the light in much the same way as we see white light. As a result the camera will 'white out' if the lamp is situated within the cameras direct field of view.

## HOW SAFE IS INFRA-RED?

With over 20,000 Infra-Red lamps installed in Europe each year, Derwent is unaware of a single safety issue raised about IR used in CCTV. However, as a basic rule of thumb, if you can feel the heat, don't stare at the lamp. Derwent produces a paper regarding safe installation and use of its illuminators.

## CAN THE LAMPS BE OPERATED REMOTELY?

Yes, most Derwent power supplies have a built-in remote switch that allows on/off facilities via telemetry or PIR.

## AIMS

- Provide dedicated service and technical support
- Reward our customers
- Encourage feedback
- Ensure that members have the most up-to-date support tools and information

## How does the Loyalty Programme work?

The programme is open only to installers/dealers, specifiers and consultants of Extreme CCTV products and Derwent products in Europe.

Your membership status is determined by your usage of our products.

Your usage is confirmed by completing an application form and providing proof of purchase or by nomination by an authorised distributor.

## The Loyalty Levels

**CLUB =**  
Annual usage\*  
up to 50 units

**PLATINUM =**  
Annual usage\*  
50+ units

## CLUB

- FREE Infra-Red Focusing Filter. Enables accurate night-time focus to be achieved during daytime installation.
- Dedicated Technical Support Line
- Complete set of CCTV Handbooks that guide you through our technology and products
- Access to restricted areas on our Website
- Priority Access to our Training Seminars and Certified Installer/Dealer courses
- FREE Extreme Experience Voucher will be issued to Members who provide details of a prestigious project, which we can jointly promote in the trade press.
- Monthly Prize Draw

## PLATINUM

- All Club benefits plus...
- Additional Product Warranty period of 6 months \*\*
- Priority Up-dates. We will release white papers that discuss existing technology and cover some of the company's future product developments, undisclosed to the public arena.
- The chance to be part of the Extreme CCTV. annual product review forum. We will invite two Platinum members to join us at the 2005 forum in Vancouver, Canada
- Comprehensive Technical Binder which supports the technical handbooks providing further in-depth technical information and application ideas.
- Annual Prize Draw. The opportunity to take place in an Extreme CCTV experience that could include a helicopter ride, rally driving or parachuting

\* Units excludes accessories, brackets, bulbs etc.

\*\* Relates to all new products purchased AFTER valid Platinum status has been achieved and is currently valid. Product must be registered prior to installation

# The Night-Club Loyalty Programme Application Form

Completion of this form including valid proofs of purchase, or distributor nomination will give you and your company membership to the Loyalty Programme.

Company \_\_\_\_\_ What trade publications do you read?  
Name \_\_\_\_\_  
Position \_\_\_\_\_  
Address \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
Postcode/Zip \_\_\_\_\_  
Tel: \_\_\_\_\_  
Fax: \_\_\_\_\_  
E-mail \_\_\_\_\_  
Web \_\_\_\_\_

## Status applied for:

- CLUB up to 50 units per year  
 PLATINUM 50+ units per year

## **\*\*IMPORTANT\*\***

Please attach valid proof of purchase. Only purchases made in the last 12 months are valid. Alternatively call your distributor and ask them to nominate you for Night-Club membership.

Please indicate distributor who supplied your product:

\_\_\_\_\_

Last product installed or specified:

\_\_\_\_\_

## Consultants and Specifiers

We recognise that security specifiers and consultants make a significant impact to our business and would like to give you access to our loyalty membership benefits.

- Tick here if you regularly specify Extreme CCTV or Derwent products

We will contact you independently to discuss your application

## What Happens Next?

Once we receive and approve your application we will forward you a unique loyalty reference number and ensure you receive all your other loyalty benefits.

Remember that you can upgrade your application as soon as you qualify.

Please note that you are free to cover values or sensitive information on your supporting documents, our concern is with usage and not value. All commercial information will be kept strictly confidential.

Completion of this form including proof of purchase will give you and your company membership to the Night-Club Loyalty Programme.

# Key Considerations for Effective 24 hour CCTV

When designing a CCTV system for effective 24-hour surveillance, there are 3 critical factors which must be addressed to ensure the optimum night-time performance of the system:

- Camera
- Lens
- Illumination

## Camera

All cameras are not the same and some are better suited to providing effective coverage at night. Choosing the correct camera can be a minefield for installers with impressive claims made about the performance of zero/low lux use cameras, despite these claims, it is always wise to bear in mind that without light there can be no picture.

All CCD cameras offer some degree of Infra-Red response, though some have enhanced IR performance making them more suitable for longer range applications or for use with low power IR sources such like LED's.

Until recently the most IR sensitive cameras were based on frame transfer chips. Recently new chip sets have become available mainly in 1/2 inch format. These offer excellent low noise, high resolution, and low smear characteristics together with excellent IR response. These also overcome some of the drawbacks of the frame transfer cameras.

Some cameras offer integration as a method of improving night-time performance – multiplying the light available by several factors. However, the application of this technology may be limited to more fixed or static situations where there is limited movement on scene because of the jerkiness caused by the integration.

Several dual mode cameras (Day-Night, dual technology) have been launched over the last few years. These are intended to provide the best compromise for 24-hour surveillance, colour by day and monochrome/IR sensitive at night. There are different forms of dual modes with some incorporating optical filters, which are moved over the CCD sensor for daytime/colour operation and removed during night-time/monochrome to maximise the low light sensitivity. Other camera designs incorporate specialised filters, which show both good colour performance and IR sensitivity.

In summary, the key elements to consider when choosing your camera are:

- Sensitivity – Low light performance
- Signal to noise ratio – A good signal/noise ratio will provide "clean" pictures
- Spectral response – The ability of the camera to see IR wavelengths

Refer to Derwent's IR Matrix for an indication of performance of a range of cameras with Derwent products. Derwent spend as much time looking at

cameras as they do at Infra-Red and are happy to offer impartial advice on the performance of your proposed scheme.

## Lens

The night-time performance of camera lenses is a factor often overlooked; here there is a compromise to be made. At night the installer will wish to maximise the light gathering capability of the lens (have the smallest 'f' stop). This reduces the depth of field of the picture and may cause focusing problems. This obviously is less of a problem with auto iris lenses where the lens will naturally open to its maximum aperture (lowest 'f' stop) in low light operation, with fixed lens there may need to be a compromise between the low light operation and depth of field focusing.

## Focus Shift

Daylight and IR light have different focal lengths and points. This can cause a focus shift between daytime and IR operation. The degree of focus shift may depend on a variety of factors including the quality of lens and the wavelength of the IR filter (830nm and 950nm will give a more exaggerated focus shift). However, more recently some manufacturers have developed a range of lenses with zero focus shift between daytime and IR performance.

## Illumination

The key to a successful night-time scheme is ensuring there is sufficient light on the scene, the right quality of light on the scene and the right control over that light.

The best solution for illuminating a CCTV system at night is by providing Infra-Red illumination at the camera head controlled by either telemetry or photocell.

## Key System Design Considerations

730nm filters are brighter in appearance than 830nm or 950nm but provide more useable Infra-Red radiation for cameras. In certain applications the red appearance of 730nm filters may provide an additional deterrent to 830nm & 950nm applications.

When using 830nm or 950nm filters, ensure IR enhanced cameras are used for maximum performance. Match the field of view of camera/lens with lens on Infra-Red lamp – see Lens Selector.

Designers need to provide even illumination to allow a CCTV camera to work within its dynamic range.

Low cost of ownership is important to the end users. Consider the power consumption, bulb life and bulb costs when specifying Infra-Red products.

## Uniflood 500

The Infra-Red lamp shall provide even illumination over the scene by utilising the Cossec<sup>2</sup> principle of illumination. The lamp will be available in 2 Cossec<sup>2</sup> options, one providing 30° (usable to 45°) and the other 10° (usable to 25°) beam patterns.

The IR illumination should provide the equivalent of 500W radiated IR output, utilising less than 220W actual consumption, resulting in lower electricity costs.

The IR illumination systems should achieve high output radiation through high efficiency optics and high efficiency low voltage bulb output.

## Uniflood 300

The Infra-Red lamp shall provide even illumination over the scene by utilising the Cossec<sup>2</sup> principle of illumination. The lamp will be available in 2 Cossec<sup>2</sup> options, one providing 30° (usable to 45°) and the other 10° (usable to 25°) beam pattern.

The IR illumination should provide the equivalent of 300W radiated IR output utilising less than 170W actual consumption, resulting in lower electricity costs.

The IR illumination systems should achieve high output radiation through high efficiency optics and high efficiency low voltage bulb output.

## Miniflood 100

The Infra-Red lamp should be designed to provide an average of two years bulb operation, using a high efficiency, low voltage bulb.

The lamp will be available with 3 filter options: 730nm, 830nm and 950nm

The lamp will be available in 3 beam patterns: 10°, 30° and 60°

## Miniflood LED

The Infra-Red illumination system should be solid-state LED illumination providing a minimum of 5 years life. The illuminator will be required to switch during dusk/dawn conditions via an integral photocell.

The LED lamp will be able to provide IR illumination angles of 30° (usable to 45°) and 60° options for shorter-range wide-angle applications.

The lamp will have 3 user-selectable power levels.

The LED illuminator will be available in different wavelengths, 850nm and 940nm and different beam angles to match scene and camera requirements.

## Uniflood LED

The Infra-Red illumination system should be solid-state LED illumination providing a minimum of 5 years life. The LED illuminator will be required to be low voltage.

The IR illuminator will be able to provide illumination up to 50m.

The illuminator supply will incorporate 3 user-selectable power levels.

The PSU for the LED will have an integral photocell for automatic day/night switching

The LED illuminator will be available in different wavelengths, 850nm and 940nm and different beam angles to match scene and camera requirements.

## SuperLED

The Infra-Red illumination system should be solid-state LED illumination providing a minimum of 5 years life. The LED illuminator will be required to be low voltage.

The IR illuminator will be able to provide illumination up to 170m.

The PSU for the LED will have an integral photocell for automatic day/night switching

The LED illuminator will be available in different wavelengths, 850nm and 940nm and different beam angles to match scene and camera requirements.

## REG™

The number plate capture camera shall be a single integrated unit which incorporates camera, lens, housing, optics, filters, illumination, power supply and fully managed armoured conduit cable.

The capture hardware must be provided pre-focused, aligned and calibrated to provide a minimum screen to plate ratio of 18% with no focus shift.

The unit will be required to provide controlled illumination in order to provide a clear plate image under various illumination conditions including day and night (zero lux conditions).

The camera incorporated with the single integrated unit must be a minimum of 580TVL and utilises 1/4 inch CCD technology reducing the likelihood of smear from vehicle headlights.

The integrated illumination must provide a minimum average bulb life between 2 and 10 years dependant upon distance required and power setting. The power supply unit must provide various powers setting to accommodate for capture distance between 7-35m.

# Derwent Code List

## Uniflood 500 - High Performance IR Lamp

Spot Lens - 730nm	UF500/Spot/730
10° Cosec Lens - 730nm	UF500/10/730
30° Cosec Lens - 730nm	UF500/30/730
Flood Lens - 730nm	UF500/Flood/730
<i>Note: for 830nm version replace 730 with 830 in above part numbers. Example UF500/10/830</i>	
Spot Lens - 950nm	UF500/Spot/950
10° Cosec Lens - 950nm	UF500/10/950
30° Cosec Lens - 950nm	UF500/30/950
Flood Lens - 950nm	UF500/Flood/950

## Uniflood 500 SPECTRUM - High Performance Colour Corrected

Spot Lens - Colour	UF500/Spot/Colour
10o Cosec Lens - Colour	UF500/10/Colour
30o Cosec Lens - Colour	UF500/30/Colour
Flood Lens - Colour	UF500/Flood/Colour

## Power Supplies

Single PSU Standard	PSU5SS
Twin PSU Standard	PSU5ST
Single PSU Extra Function	PSU5XS
Twin PSU Extra Function	PSU5XT
<i>Note: For 110V versions add the suffix 110V to the Part No. For bulb monitoring contact add suffix SW to code.</i>	

## Accessories

Replacement Bulb Kit (UF500)	UNIPF
Replacement Bulb Kit (Old UF500)	AF200
Single OTT Bracket	SB5170 or SB5270
Double OTT Bracket	DB5170 or DB5270
Single Bracket for D2000 Pan & Tilt	SB2000
Lamp Painted to RAL Colour	Spec. Lamp & RAL Colour
Bracket Painted to RAL Colour	Spec. Bracket & RAL Colour
L-Bracket Only, Heavy Duty	EXMB.020

## Uniflood 300 - High Performance / Long life IR Lamp

Spot Lens - 730nm	UF300/Spot/730
10° Cosec Lens - 730nm	UF300/10/730
30° Cosec Lens - 730nm	UF300/30/730
Flood Lens - 730nm	UF300/Flood/730
<i>Note: for 830nm version replace 730 with 830 in above part numbers. Example UF300/10/830</i>	
Spot Lens - 950nm	UF300/Spot/950
10° Cosec Lens - 950nm	UF300/10/950
30° Cosec Lens - 950nm	UF300/30/950
Flood Lens - 950nm	UF300/Flood/950

## Uniflood SPECTRUM - High Performance / Long Life Colour Corrected

Spot Lens - Colour	UF300/Spot/Colour
10° Cosec Lens - Colour	UF300/10/Colour
30° Cosec Lens - Colour	UF300/30/Colour
Flood Lens - Colour	UF300/Flood/Colour

## Power Supplies

Single PSU Standard	PSU3SS
Twin PSU Standard	PSU3ST
Single PSU Extra Function	PSU3XS
Twin PSU Extra Function	PSU3XT
<i>Note: For 110V versions add the suffix 110V to the Part No. For bulb monitoring contact add suffix SW to code.</i>	

## Accessories

Replacement Bulb Kit	UNILL
Single OTT Bracket	SB5170 or SB5270
Double OTT Bracket	DB5170 or DB5270
Single Bracket for D2000 Pan & Tilt	SB2000
Lamp Painted to RAL Colour	Spec. Lamp & RAL Colour
Bracket Painted to RAL Colour	Spec. Bracket & RAL Colour
L-Bracket Only, Heavy Duty	EXMB.020

# Derwent Code List

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## Uniflood LED – Ultra Long Life, Solid State

30°, 850nm (includes PSU)	UFLED 30/850
20°, 940nm (includes PSU)	UFLED 20/940
60°, 850nm (includes PSU)	UFLED 60/850

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## SuperLED – Ultra Long Life, Solid State, High Power

30°, 850nm (includes PSU)	SuperLED 30/850
20°, 940nm (includes PSU)	SuperLED 20/940
60°, 850nm (includes PSU)	SuperLED 60/850

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## Miniflood 100 Med/ Short Range IR Lamp, Long Life

Narrow 10°, 730nm	MF100/10/730
Medium 30°, 730nm	MF100/30/730
Wide 60°, 730nm	MF100/60/730
<i>Note: for 830nm version replace 730 with 830 in above part numbers. Example MF100/10/830</i>	
Narrow 10°, 950nm	MF100/10/950
Medium 30°, 950nm	MF100/30/950
Wide 60°, 950nm	MF100/60/950

## Miniflood 100 SPECTRUM – Med/Short Range Colour, Long Life

Narrow 10°, colour	MF100/10/Colour
Medium 30°, colour	MF100/30/Colour
Wide 60°, colour	MF100/60/Colour

## Power Supplies (for Miniflood 100)

Single PSU Standard	PSUMINISS
Twin PSU Standard	PSUMINIST
Single PSU Standard - Toroidal 110V	PSUMINISS/110V
Twin PSU Standard - Toroidal 110V	PSUMINIST/110V

## Accessories (for Miniflood 100)

Replacement Bulb Kit	MINILL
Lamp Painted to RAL Colour	Specify Lamp & RAL colour

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## Miniflood LED – Solid State Version Of Miniflood 100

30°, 850nm LED	MFLED30/850
60°, 850nm LED	MFLED60/850
20°, 940nm LED	MFLED20/940
50°, 940nm LED	MFLED50/940

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## MicroLED - Cube, Anodized, Solid State

42 LED's, 850nm, Wide 60°, 12/24 VRB	MicroLED.850W
42 LED's, 850nm, Medium 30°, 12/24 VRB	MicroLED.850M
<i>Note: 950nm versions available</i>	

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## Low Voltage AC Power Supply

230V AC Input, 2x15V@1A Output.	PSU230/15
IP66. Suitable to power 2 x MFLED and 2 x MicroLED	

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## REG™ Advanced Number Plate Capture

The complete solution for consistent, reliable number plate capture. Combines the latest camera, optics, illumination and filter technology

REG 12	Numberplate Capture optimised at 12m
REG 18	Numberplate Capture optimised at 18m
REG 25	Numberplate Capture optimised at 25m
REG 35	Numberplate Capture optimised at 35m
REG Dual 12	Numberplate Capture optimised at 12m
REG Dual 18	Numberplate Capture optimised at 18m
REG Dual 25	Numberplate Capture optimised at 25m
REG Dual 35	Numberplate Capture optimised at 35m
REG LED 07	Numberplate Capture optimised at 7m
REG LED 12	Numberplate Capture optimised at 12m
REG WDG 07	Numberplate Capture optimised at 7m
REG WDG 12	Numberplate Capture optimised at 12m

## Solid State IR Illumination

Solid state devices like LEDs (Light Emitting Diodes) allow for major advantages in terms of lower maintenance levels and power consumption.

Derwent's LED units can provide up to ten years life, however they often provide less power on the scene than halogen IR lamps. LEDs are beginning to make a bigger impact as the CCTV industry realises the increased Infra-Red sensitivity of the emerging monochrome cameras.

New LED technology and heat dissipation methods has allowed Derwent to achieve affordable high power LED illumination. This technology is demonstrated by the industry's first high power LED, the SuperLED which has a surveillance reach of up to 175 metres.

## IR Beam Patterns

The final message is to remember you are providing illumination for CCTV schemes and not for pedestrian schemes. Remember to match the illumination with the scene and lens focal lengths, choose your camera and camera lens wisely and use our experience to help you achieve the desired picture quality.

### 10° & 30° Cosec<sup>2</sup> Beam

- Long Distance
- Wide Area
- Even Illumination



### Spot Beam Application

- Long Range
- Specific Target
- Narrow



### Flood Beam Application

- Short Range
- Local illumination









# FAX BACK

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**Derwent Night-Time Handbook:**  
If you want to know more about Infra-Red Technology this publication covers it all including data sheets.

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Derwent CD ROM:

Derwent Video:



**The Definitive Guide to Number plate Capture:**  
REG™ the complete solution for consistent, reliable number plate capture 24/7

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The image below demonstrates the real capability of Infra-Red. Infra-Red is invisible to the human eye but not to the monochrome camera. The result, a clear image of the criminal in total darkness. Derwent Infra-Red provides even illumination on scenes up to 200 metres.

*Without light there can be no picture...*



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