



BLACKDIAMOND™

INSTALLATION INSTRUCTIONS

BDS INFRA-RED ILLUMINATOR & POWER SUPPLY UNIT

BLACK DIAMOND BDS INFRA-RED ILLUMINATOR

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CONTENTS OF BOX

- 1 x BLACK DIAMOND BDS LAMP INCLUDING BRACKET
- 1 x DEDICATED PSU – UF500-001 / UF500-003

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BDS IR ILLUMINATOR INSTALLATION INSTRUCTIONS

1. DESCRIPTION

These installation instructions should be read in conjunction with the installation instructions covering the PSU power supply unit.

All installation and maintenance functions should only be carried out by qualified and competent personnel.

Black Diamond BDS should only be used with the dedicated *Extreme* power supply which provides constant current regulation.

2. SYSTEMS PLANNING

Illuminator Specification.

LED Array	Current limited dedicated Extreme PSU
No. of LEDs	560
Consumption	120W nominal on full power (external) 80W nominal on low power (internal)
Average Life	>5 year
Temp. Range	+50°C [122°F] to -50°C [-58°F]
Construction	Robust aluminium extrusion with acrylic front window IP68
Dimensions	277mm x 212mm x 90mm [10.9" x 8.3" x 3-5"]
Colour	Black anodized heat sink with black front fascia
Weight	4.2Kg [9.3lbs]
Cable Length	Supplied with 4m [13ft] of connecting lead
Bracket	Wall mount bracket included

Lens/Beam Pattern.

The lamp must be matched to the scene and to the camera lens focal length. Before installation ensure that the illuminator has been correctly specified to support the CCTV system. The system planning must take into account the product achievable distances, lens/beam pattern and filter.

Achievable Distances

Illumination distance achievable will depend on the Infra-Red characteristics of the CCD camera and lens used.

Product Code	Beam Angle	Wavelength	Illumination	Achievable Distance	HOV
ZXLED850-10BD	10°	850nm	Semi-Covert	300m/985ft	42m/138ft
ZXLED850-20BD	20°	850nm	Semi-Covert	200m/660ft	70m/230ft
ZXLED850-30BD	30°	850nm	Semi-Covert	160m/525ft	85m/280ft
ZXLED850-60BD	60°	850nm	Semi-Covert	110m/360ft	130m/425ft
ZXLED850-95BD	95°	850nm	Semi-Covert	90m/295ft	200m/655ft
ZXLED850-135BD	135°	850nm	Semi-Covert	56m/185ft	270m/885ft

Note: Achievable distance based on a 20dB s/n ratio using a ½" Ex-View CCD and F1.4 lens aperture

Power Supply Unit

Black Diamond BDS requires an external mains to low voltage power supply PSU. This power supply provides the correct regulated output current and voltage. It includes High/Low power settings, a remote switching input and a telemetry interface to allow remote switching of the lamp.

A PSU is supplied as standard with a Black Diamond BDS lamp

3. INSTALLATION

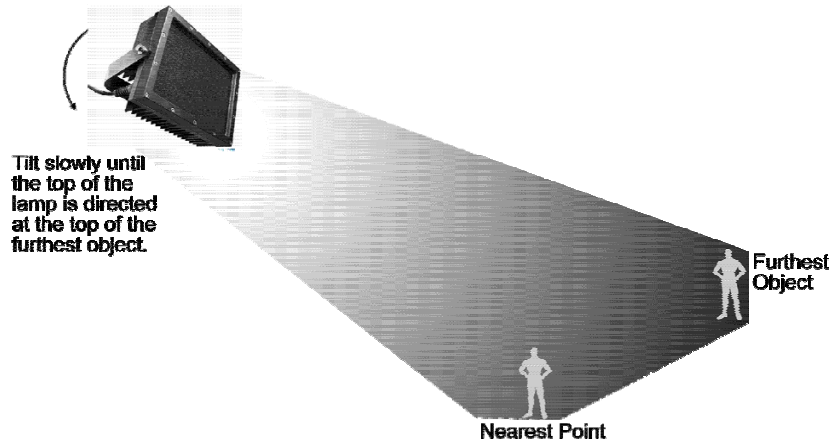


Diagram 1. Installing your Black Diamond BDS lamp

NOTE: The Black Diamond BDS is not mains driven and must be connected to the dedicated Derwent power supply. The illuminator is factory fitted with 4 m/13ft of high temperature silicone cable as standard.

Setting up is critical to obtaining the best performance from your Extreme Infra-Red lamp. Optimum results are achieved by setting up at night and viewing the results on a monitor.

- Attach the Black Diamond BDS bracket to the pan and tilt unit, wall bracket or camera housing as required.
- Ensure that the mains supply is isolated. Connect the lead from the Black Diamond BDS to the lamp output terminals in the power supply. These are polarity dependent. Ensure that the polarity of the lamp connections is correct. Red is positive. Electrical connections must be sound
- Connect the PSU-SuperLED to the mains supply input between 85 to 264 Vac.
- Commission the mains supply, camera and monitoring control equipment.
- Adjust the pan of the illuminator to match the camera field of view.
- Adjust the vertical alignment by loosening the side bolts (one on each side of the main body) to maximise the results.

- Tilt the lamp downwards until the near part of required field of view is saturated with Infra-Red light, as viewed on the monitor. SLOWLY and GRADUALLY tilt the lamp upwards until the far part of the required field of view is illuminated correctly on the monitor screen.
- For continuous night-time operation insert a link between the telemetry terminals (factory setting) on the PSU. For remote control, link the telemetry connector to 0V with a latched volt free contact.

4. MAINTENANCE

Extreme lamps are optically precise units, there are no user repairable components within the unit.

5. SAFETY

WARNING: When the lamp is running it is hot to touch. Before touching the lamp for maintenance etc. switch off the illuminator and allow to cool for a minimum period of 10 minutes.

Do not stare directly into the lamp at a distance of less than 1.7 m.

6. DIMENSIONS

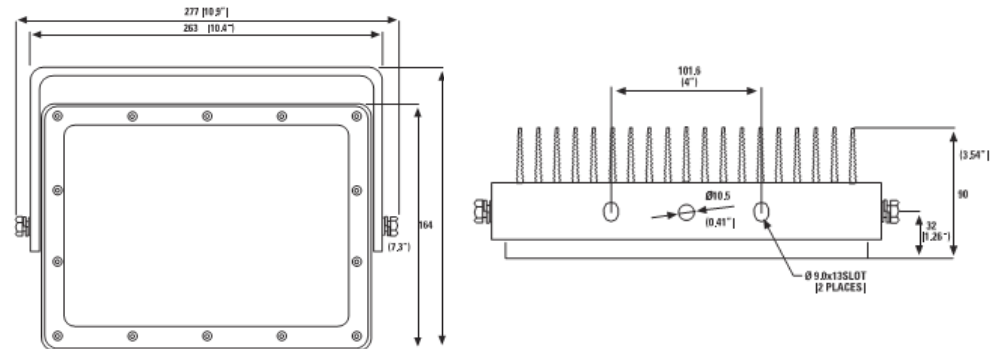
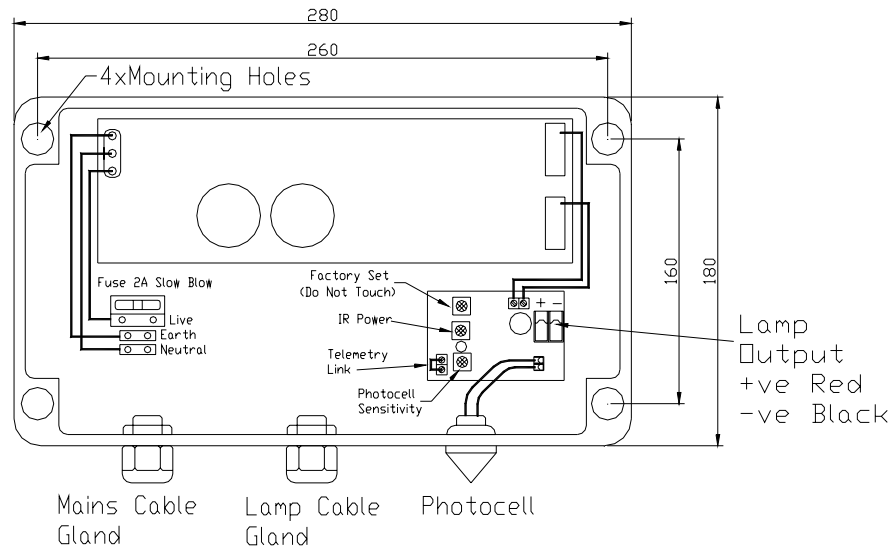


Diagram 2: All dimensions in mm

PSU ZXPS.100R

7. DESCRIPTION



Mains Input: 85-264VAC
Fuse: 2.0 AT Slow Blow Fuse
Output: 16.5V DC to lamp. (Hi power setting).
Polarity: The lamp output connections ARE polarity sensitive.

Extreme CCTV has designed dedicated power supplies to operate the Extreme range of Infra-Red Lamps. All installation and maintenance functions should be carried out by qualified and competent personnel. This power supply provides the following functions:

1. Adjustable photocell switch for automatic day/night switching.
2. Regulated output current / voltage to provide correct current / voltage supply to SuperLED.
3. Hi-lo Power Setting.
4. Remote switching input. Telemetry interface to allow remote switching of lamp.

Each PSU powers and controls a single lamp.
The standard unit supplied is designed to operate between 85-264V AC.

WARNING: Ensure that the mains supply is isolated before checking that all connections are secure and correct.

The unit is supplied in an IP66 weather proof enclosure as standard. Care should be taken during installation to avoid damage to any of the components. Extra care should be taken with power tools as the control circuits incorporate sensitive components.

Ensure that all fixings are secure and the lid is correctly in place. The mains Input to the PSU should be protected by a 2AT slow blow fuse or breaker.

NOTE: The SuperLED lamp housing is not connected to mains earth.

All transformer secondary and control circuits are floating. Earthing of the 0V signal must be done at the user 'control panel' end of the circuit.

Electrical connections should be sound. Upto 7A can flow in the lamp cable

8. DAY / NIGHT PHOTOCELL

Extreme provides a photocell mounted in the PSU enclosure as standard. The PSU \ photocell should be mounted externally in order for it to monitor the prevailing light conditions.

It is mounted on the PSU enclosure as standard, but can be moved to a remote position up to 10 metres away with a light twisted two-core cable or miniature screened cable.

NOTE: The photocell is designed to monitor the average light conditions. It is important not to point the photocell at a nearby artificial light source as it will affect its performance. Also, it is important to ensure that the photocell is not blanked off. We recommend that it is mounted either horizontally or facing downwards on the enclosure (not upwards).

The photocell is designed to automatically switch the lamps ON at dusk and turn OFF at dawn. A high degree of hysteresis is incorporated to avoid on/off switching in marginal light conditions.

The unit is factory set at approximately 20 lux ON and 70 lux OFF, but can be adjusted using the blue photocell sensitivity pot (VR1).

The current controlled supply is specially designed to provide the correct current/voltage to the lamp and can accommodate voltage drops across lamp cable length between 0.5m and 4m. Only use the lamp cable supplied and do not extend beyond 4m.

The life expectancy and radiated output of the LED is highly sensitive to the running temperature.

9. POWER ADJUST

A potentiometer is provided in the power supply to allow optimum operation of the lamp in both internal and external ambient temperatures.

Hi setting – Intended for external applications and ambient operating temperatures up to 40°C.

Mid / Lo setting–Intended for internal applications and ambient operating temperatures up to 45°C.

10. REMOTE SWITCHING PHOTOCELL

The lamp may be activated remotely by a volt-free contact latched across the telemetry connector.

11. TROUBLE SHOOTING

1. **Check mains supply.** Mains input to the power supply should be 85-264V AC,
2. **Check fuse (2AT slow blow).** The mains input to the PSU should be protected by a 2AT slow-blow fuse *or* breaker.
3. **Check lamp output from PSU.** With telemetry link closed and photocell covered, check voltage at the lamp output terminal on the PCB.

Approximate voltages with lamp connected (on load):

16.5V with lamp set on Hi setting (850nm or 940nm lamp)

Check that the open/close telemetry link switches the lamp on/off when the photocell is covered *or* disconnected.

4. **Check photocell functions** by covering with black tape and having the telemetry link closed. The photocell operation has an in-built delay of up to 2 seconds.
5. **Check the Hi/Lo settings of the PSU.** Ensure that the **Lo** setting of PSU is used for **internal** applications *or* where ambient temperature is in excess of 40°C.

12. CERTIFICATION

CSA International Electrical Safety Certified to Canadian and US Requirements:	
CSA Std. C22.2 No 0-M1991 -	General Requirements, Canadian Electrical Code, Part II
CSA Std. C22.2 No 0.4-M1982 -	Bonding and Grounding of Electrical Equipment (Protective Grounding)
CSA Std. C22.2 No 66-1988 -	Specialty Transformers
CSA Std. C22.2 No 205-M1983 -	Signal Equipment
CSA Std. C22.2 No 94-M91 -	Special Purpose Enclosures
CSA Std. C22.2 No 250-00 -	Luminaires
UL Std. No 506, 12TH Ed. -	Transformers, Specialty
UL Std. No 50, 11TH Ed. -	Enclosures for Electrical Equipment
UL Std. No 1598, 1ST Ed. -	Luminaires



13. CONTACT

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