deffner & Johann

Supplies for RESTORATION | CONSERVATION | ART HANDLING – SINCE 1880

TECHNICAL DATA SHEET

5555 290 | 5555 295 | UV-Flood Light LED

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1 Product Description

UV LED flood lamps have 15 LEDs and are designed for the following applications:

UV light fluorescent inspection, UV light curing of materials, UV light exposure

To help prevent accidents or ill health all operators and maintenance personnel must read, fully understand and follow all the instructions and warnings contained in this manual **BEFORE** operation or maintenance. It should always be readily available and prominently located in the area of usage.

Due to our policy of continuous product development, we reserve the right to amend specifications and technical data, therefore information in this manual may be subject to change without prior notice.

1.1 Options

No. of LEDS	Input Power	Length	Lens	Accessories
15	30W	180 mm	Flood	Pistol handle, bridge handle, adjustable bracket, angle poise (desk or wall mount)

Pistol handle

Adjustable bracket

2 Health and Safety

Under the Health and Safety at Work etc. Act 1974 and the Management of Health and Safety at Work Regulations 1999, it is necessary to assess the health and safety risks associated with work activities affecting employees and non-employees and take measures to control these risks as far as is reasonably practicable.

The following health and safety hazards should be assessed: UV Light Exposure, Fire, Explosion and Electrical. Details are provided in sections 3.1 to 3.4.

2.1 UV light exposure

Safety Classification in accordance with BS EN 62471:2008

Risk Group 3

Warning - UV emitted from this product

Over exposure to UV light can cause adverse health effects, such as erythema (sunburn), photo-conjunctivitis and photokeratitis (arc eye) in the short term (acute effects) and can be attributed to premature skin ageing, skin cancer and cataracts as a result of repeated exposure in the long term (chronic effects).

The risk for adverse health effects to unprotected skin and eyes from UV light exposure depends on the wavelengths, irradiance levels and personal exposure time.

Occupational UV light exposure in Great Britain is subject to the Control of Artificial Optical Radiation at Work Regulations 2010, which brought into law on 27th April 2010, the European Physical Agents (Artificial Optical Radiation 2006/25/EC) Directive. This incorporates statutory UV light Exposure Limit Values (ELV's). The Regulations define:

- Minimum health and safety requirements for the protection of employees from the risks arising from UV light exposure.
- Employers must determine personal UV light exposure levels and compare with the ELVs as a means of assessing risk and necessary controls.
- Employees **must not** be exposed above the statutory ELVs and **must** be provided with protection and UV hazard awareness training.

The ELVs define a level of UV light exposure, below which it is believed that nearly all individuals may be repeatedly exposed without adverse health effects.

The ELVs – within an 8 hour period per day are as follows:

Maximum permissible effective radiant exposure to UV light in the spectral region 180nm-400nm (UV-A, UV-B and UV-C) for unprotected skin and eyes = 30 J/m^2 $_{eff}$

Maximum permissible radiant exposure to UV light in the spectral region 315nm-400nm (UV-A) for unprotected eyes = 10,000 J/m^2

The ELVs take into account the daily 24 hour light/dark cycle where cellular repair can take place after the exposure is discontinued. Therefore, in cases where continuous exposure for longer than 8 hours is possible, for example 10-12 hour extended shifts or even double shifts, special care needs to be taken.

Where personal UV light exposure levels comply with the ELVs, the risk can be considered low for the majority of the population and adequately controlled so far as is reasonably practicable.

Where personal UV light exposure exceeds the ELVs this constitutes a regulatory offence and additional control measures must be implemented which decrease exposure to below the ELVs.

Control measures

The objective is to ensure that the ELVs for unprotected skin and eyes are not exceeded by any person. This should be achieved by a combination of the following control measures: administrative, engineering, personal protective equipment. Emphasis should be placed on administrative and engineering control measures to minimize the need for personal protective equipment.

All persons who could be exposed to levels of UV light exceeding the ELVs or significant personal exposure must be provided with sufficient information and training to understand the associated risks to their health and precautions which should be taken to adequately manage the risk.

Engineering control measures

Mount below eye height of operators to ensure UV light output is not in their line of sight and irradiates only the desired working area. Switch off UV LEDs when not in use.

Reduction of reflected UV light – Many surfaces, especially smooth, highly reflective or light coloured, are good reflectors of UV light. To reduce reflected UV light some surrounding area surfaces could be painted in a dark matt colour.

Administrative control measures

All persons must avoid direct UV light exposure of unprotected skin and eyes. Operators must always point hand held UV LEDs away from their body.

Any person who notices any unusual or adverse reaction thought to be due to UV light exposure should not be further exposed until after consulting with a suitably qualified person.

Compliance with UV light exposure limit values for unprotected skin and eyes defined by The Control of Artificial Optical Radiation at Work Regulations 2010

The ELVs, combined with UV light spectral irradiance measurements for the UV LED flood lamps have be used to calculate maximum permissible UV light personal exposure times (MPEs) at defined positions. These are known has hazard values.

UV light irradiance measurements used to produce the hazard values were taken in the centre of the beam where UV light irradiance is highest. Therefore, for exposures towards the edges of the beam, an extra safety factor is built in due to reduced UV light irradiance levels.

Where a person is located behind or outside the UV light beam shining directly at a reflective surface, determine the MPEs by using the distance from the plastic front to the reflective surface and back to the person. This method will automatically introduce an additional safety margin due to reflective losses.

Alternatively, using our UV meter, calculate a reflective loss correction factor to use with the hazard values.

The distance at which the MPE is equal to 8 hours is known as the Hazard Distance (HD), beyond which the exposure limit value cannot be exceeded.

It is necessary for duty holders to limit personal UV light exposure to below MPEs for unprotected skin and eyes.

All persons must be aware of and comply with the MPEs for the unprotected skin and eyes where less than 8 hours.

If MPEs are exceeded then UV light irradiance must be reduced by appropriate control measures. These could include containment, moving further away from the UV light source, reducing exposure time, or as a last resort provision of personal protective equipment (PPE).

Heightened individual photosensitivity

All persons must be aware that their individual susceptibility to UV light exposure can be heightened by photosensitising agents.

Check that all persons who could be exposed to significant levels of UV light are not unusually photosensitive or exposed to photosensitising agents, including:

- Individuals who are intrinsically photosensitive.
- Individuals who are exposed to photosensitising agents, either ingested, injected or externally applied.
- Very rare cases - aphakics (eye lens removed and not replaced by an artificial lens) or pseudophakics (eye lens replaced with a non UV light absorbing artificial intraocular lens). These persons should be aware that they may not be adequately protected against retinal injury from exposure to UV light within the ELVs.

The ELVs may not be adequate protection for photosensitive individuals and special precautions may be necessary. These individuals should seek medical advice with respect to additional protective measures which may be required before any exposure to UV light.

Limitation of access - Access to an area where UV LED flood lamps are operated should be limited only to persons directly concerned with its use or those necessary.

Warning labels and signs - Should be used to indicate the presence of UV light which could result in persons being exposed to levels of UV light exceeding the ELVs, or significant personal exposure.

Routine maintenance - Essential to ensure optimum performance and minimum risk. The recommended procedures and intervals should be strictly implemented.

Personal protective equipment

Protection of the skin - Areas of skin usually at risk are the backs of the hands, forearms, face and neck, as other areas are usually covered by clothing. Hands can be protected by wearing gloves and arms can be covered by long sleeves, using material with low UV light transmission. In general, darker coloured, heavier fabrics with a closed structure offer a higher level of protection than light coloured, light weight fabrics with an open structure.

Face can be protected by a UV blocking face shield, available from UV Light Technology Limited and this will also provide eye protection.

Particular attention must be paid to prevent gaps in protective clothing that commonly occur around the neck and wrist areas.

Protection of the eyes - We recommend that where personal UV light exposure could be significant, all persons affected should always wear UV blocking spectacles or faceshield.

2.2 Fire

Never operate in areas where there is a flammable atmosphere hazard.

2.3 Explosion

Never operate in areas where there is an explosive atmosphere hazard.

2.4 Electrical

Electrical equipment is potentially dangerous and may cause death or injury if sufficient precautions are not taken before operation or maintenance.
Never operate – if any visible damage to UV LED flood lamp, cables or connectors.
Only to be used in a dry environment.

Before maintenance always disconnect the power supply.

3 Operation

Operation should only be performed by suitably qualified and trained personnel.

Handle with care to avoid damage and ensure all packaging material is removed.

3.1 Installation

Connect UV LED flood lamp to power supply cable (the blue trailing socket) and plug into a 100-240V/50Hz power supply.

3.2 Switching on

Before switching on, always check the following. If in any doubt whatsoever do not switch on.

NEVER operate

a) If there is any visible damage to the UV LED flood lamp, cable or power supply unit.

b) Without the necessary control measures in place for protection against exceeding the UV light exposure limit values.

Switch on and off using the power switch on the side of the UV LED flood lamp.

Once switched on it will reach it's optimum UV light output almost instantly.

4 Assembly of Accessories

4.1 Pistol Handle

Pistol handle.

The LED flood lamp.

Place fixing plate between groove located on the side of the unit.

Place pistol handle over the fixing plate, drop screw into handle with washers and tighten.

Plug in the AC Adaptor and connect to mains supply.

The unit is now ready for use.

4.2 Adjustable Bracket

Adjustable bracket.

The LED flood lamp.

Place the lamp face down.

Place fixing plate between grooves located on the rear or side of the unit.

Place bracket over the fixing place, put shakeproof and nut over screw and tighten.

Plug in the AC Adaptor and connect to mains supply.

The unit is now ready for use.

5 Maintenance

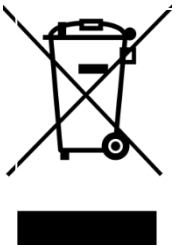
Maintenance of any kind must only be performed by an authorised distributor or suitably qualified and trained personnel. Regular cleaning is recommended to ensure optimum.

We cannot accept any responsibility for damages resulting from improper maintenance, repairs or use of replacement parts not supplied by UV Light Technology Limited.

5.1 Cleaning of plastic front

To ensure optimum performance keep the plastic front clean. Wipe over the surface of the plastic front with a soft, damp, lint free cloth or Alcowipe. Never use any soaps, detergents or abrasive materials.

6 Disposal of electrical and electronic equipment



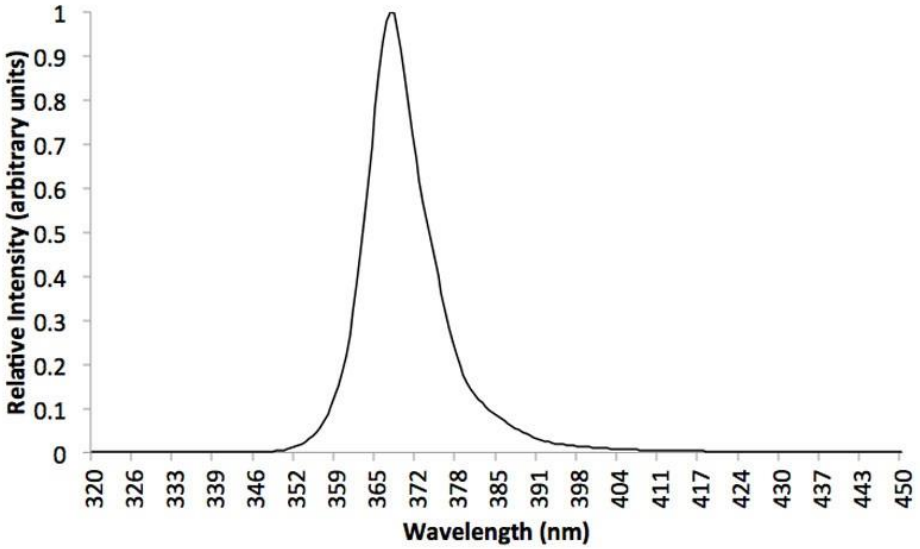
The UV LED flood lamps cannot be disposed of with normal waste. They should be taken to an appropriate collection point for the recycling of electrical and electronic equipment. This will help to conserve natural resources and prevent potential negative consequences for human health and the environment. For more information about where to drop off electrical and electronic equipment waste, please contact your local waste disposal authority.

7 TECHNICAL DATA

Due to our policy of continuous development, we reserve the right to amend technical data and therefore information may be subject to change without prior notice.

UV LEDs:	365 nm LED chips running at 2W per chip
UV LEDs lifetime:	25,000 hours (estimated)
Lens:	Flood (100°) for inspection from a distance < 1 m
UV light wavelength range:	360 nm – 370 nm (peak output 365 nm)
Reflector material:	Anodised aluminium
Weight:	1.6 Kgs
Power:	30W
Construction material (body):	Aluminium
Dimensions:	180 mm x 145 mm x 120 mm
UV Light Technology Limited products are RoHS compliant	

UV - Spectral Output



Hazard Values - UV 15 LED Flood Lamp

Distance from plastic front (mm)	Maximum permissible UV light exposure time within an 8 hour period per day	
	unprotected skin	unprotected eyes
100	4.5 minutes	31 seconds
250	12 minutes	86 seconds
500	54.5 minutes	6 minutes
750	2 hours	13.5 minutes
1000	4.5 hours	23 minutes
1250	8 hours (HD) without eye protection	36 minutes
2250		1.5 hours
3250		3.5 hours
4250		6.5 hours
4750		8 hours (HD) without eye protection

Maximum permissible UV light exposure times, at various distances within the beam of the UV LED flood lamps, for the unprotected skin and eye in an 8 hour period per day in compliance with the Control of Artificial Optical Radiation at Work Regulations 2010.

Warranty

The UV LED flood lamps are covered by our twelve (12) months back to base warranty, from the date of delivery. (All customs duties and disbursements for the return will be the responsibility of the purchaser.)

We undertake that if, within the warranty period, our equipment or any part thereof, is proved to be defective by reason only of faulty workmanship or materials, we will at our option, repair or replace the same free of charge. However, the following conditions and exclusions will apply:

Conditions:

- The equipment has been correctly supplied by an authorised distributor and used in accordance with the operating, maintenance and health and safety instructions.
- The equipment has not been serviced, maintained, repaired, taken apart, or tampered with in any way by any person not authorised.
- The equipment is still in the possession of the original user.

Exclusions:

- Damage resulting from transportation, fire, accident, abuse, misuse, improper use, neglect, or act of God.
- Damage resulting from immersion in or exposure to chemicals, liquids or dirt, extremes of climate, fungus or excessive wear and tear.

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