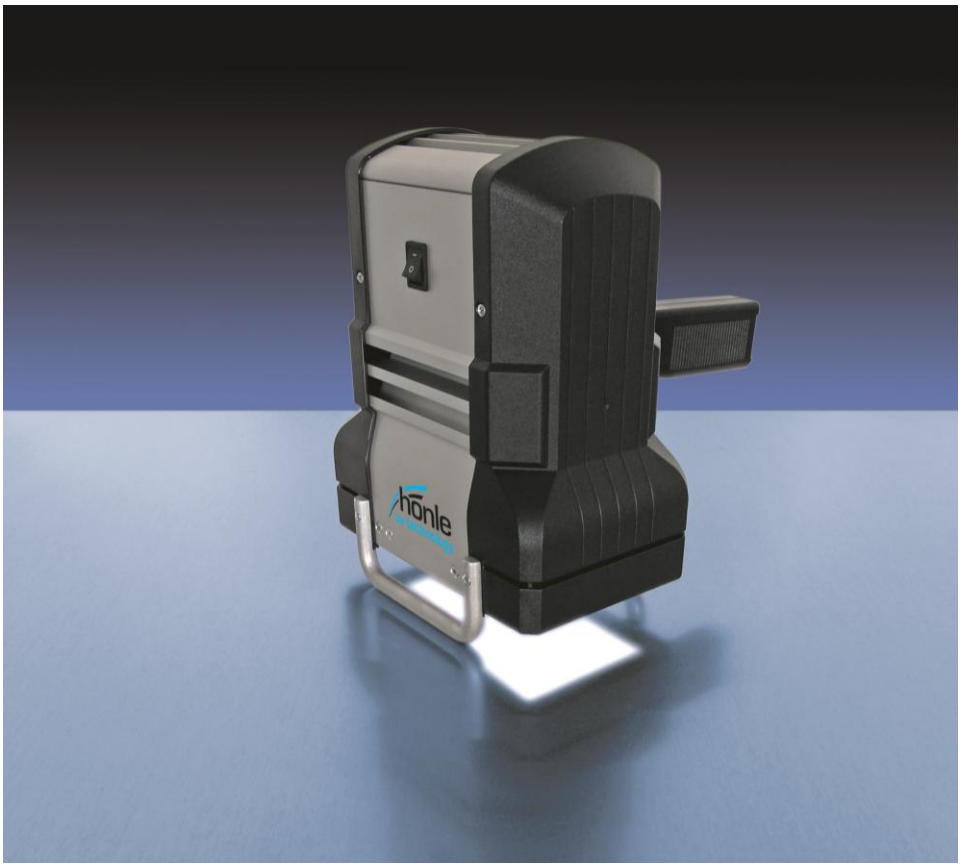

Operating Instructions

UVAHAND LED

Masthead

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Table of contents

Warnings and symbols in these operating instructions

These Operating Instructions describe the UVAHAND LED, its operation and possible applications. They contain safety information and information on danger points to ensure safe and correct handling of the unit.

You will find the following symbols next to all safety notes/warnings in these Operating Instructions which indicate a danger to persons. An additional signal word is used to indicate the severity of the potential injury.

Pay close attention to this information and take particular care in these circumstances to avoid accidents.

DANGER! refers to an immediate threat of danger. Failure to avoid this will result in death or serious injury.
Material damage is also possible.

WARNING! refers to a potentially dangerous situation. Failure to avoid this may result in death or serious injury. Material damage is also possible.

CAUTION! refers to a potentially dangerous situation. Failure to avoid this situation may result in minor injuries.
Material damage is also possible.

The symbols have the following meanings:

This symbol indicates a danger area

This symbol indicates a hot surface

This symbol indicates dangerous electrical voltage

This symbol indicates UV radiation

The two symbols below appear next to information about how best to operate the unit and/or prevent damage to the unit. There is no risk of personal injury. In addition, the signal words **ATTENTION!** and **Note!** are also used.

ATTENTION!

This symbol and the accompanying signal word appear in the Operating Instructions in sections where particular attention should be paid in order to prevent the unit being damaged or destroyed.

NOTE!

This symbol and the accompanying signal word appear next to notes, tips on usage and helpful information.

1. Description

The UVAHAND LED is a high-intensity, mobile UV LED hand-held lamp. Its high-intensity radiation ensures reliable production results in a matter of seconds. At the same time, the arrangement of the LEDs guarantees homogenous intensity distribution.

The unit is available in the wavelengths 365 and 405 nm +- 10 nm. This allows adaptation of the hand-held lamp to suit the respective application.

Applications

1.1. Applications

The following are some of the possible applications of the UVAHAND LED:

- Curing of UV adhesives when joining glass, plastics and metals
- Curing of UV potting compounds on electrical and electronic components
- Production and repair of plastic parts with UV-curable polyester resin
- Particulate control in cleanrooms
- Authentication testing
- Fluorescence testing during quality control in mechanical engineering and in the aviation, textile and printing industries

1.2. View of the unit

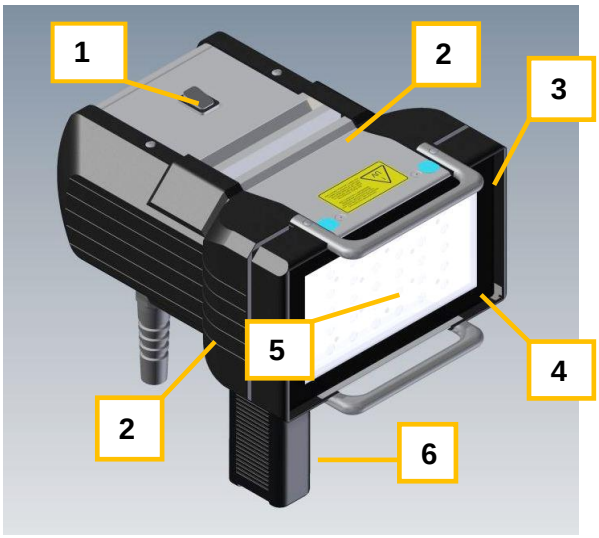


Fig. 1: UVAHAND LED - view of the unit

(1) ON-OFF switch

(2) Ventilation openings (top side and underside of the housing)

(3) Spacer bar

(4) LED light emitting surface (incl. safety glass unit)1

(5) Reflector surface (behind the safety glass plate)

(6) Handle
adjustable through 90°; handle can be removed for operation using a tripod or with the unit firmly installed.

[1] Safety glass unit = safety glass plate and safety glass frame

2. Safety information

General notes

2.1. General notes

- A knowledge of all basic safety regulations is essential to ensure safe handling and fault-free operation of the UVAHAND LED.
- These Operating Instructions contain the most important notes for operating the unit in a safe manner.
- The Operating Instructions, especially the safety notes, must be observed by everyone that works with the unit.
- In addition, all rules and regulations on accident prevention that apply to the usage area must also be observed.
- The operator must check at regular intervals that the staff are working with a safety-conscious attitude.
- Under workplace health and safety regulations, operators are required to carry out a suitable and sufficient assessment of the risks arising from the use of the UVAHAND LED.
- The assessment must ensure that adequate control measurements are maintained in order to eliminate or minimise these risks. You can use the information contained in these Operating Instructions when making the risk assessment.

Intended use

2.2. Intended purpose of use

- The UVAHAND LED is a high-intensity, mobile UV LED lamp for the irradiation of surfaces (see also section Applications, p. 5).
- Any other use or use above and beyond these terms is defined as inappropriate and is thus dangerous.
- The UVAHAND LED must not be used for medical or therapeutic purposes, for skin-tanning or in any other medical equipment.
- The operator may only operate the equipment as stipulated by the operating instructions in this manual.
- The user is obliged to carry out the prescribed service and maintenance work and to replace components which are subject to wear.

There are International and UK guidelines for restriction of occupational UV exposures.

Useful references:

- ICNIRP Guidelines on limiting exposure (www.icnirp.de)
- NRPB Advice on protection (www.nrpb.org)

The following are further conditions for appropriate use:

- observance of all notes in these Operating Instructions,
- the execution of all servicing and maintenance work
- compliance with all general and specific safety instructions in these Operating Instructions,
- compliance with the relevant accident prevention regulations.

Note
Dr. Hönle AG accepts no liability for damage which occurs due to improper use of the unit.

2.3. Warranty and liability

Warranty and liability

The "General Conditions of Sale and Delivery" of Dr. Hönle AG apply in all cases. They are available to the user upon signing the contract, at the latest. No warranty or liability claims may be made in the event of injury to persons or damage to property if this has arisen from one or more of the following:

- improper use of the UVAHAND LED,
- incorrect assembly, startup and operation of the UVAHAND LED,
- operation of the UVAHAND LED with defective and/or inoperable safety and protective equipment,
- failure to observe the information in the Operating Instructions regarding the safety, transport, storage, assembly, startup, operation and servicing of the unit,
- unauthorised structural modifications to the UVAHAND LED,
- inadequate monitoring of unit components which are subject to wear,
- incorrectly performed repairs,
- catastrophes, the effect of foreign bodies or force majeure.

Risk group

2.4. Risk group

DANGER!

Improper use can endanger the health of the user or of third parties (severe skin or eye damage)!

The UVAHAND LED falls under the scope of standard DIN EN 62471:2008 ("Photobiological safety of lamps and lamp systems").

It is classified as belonging to Risk Group 2, which requires special safety measures to be observed during its operation.

For more detailed information, please see the DIN EN standard referred to above.

The unit is labelled with the corresponding classification and risk group.

However, in specific installation situations, e.g. with corresponding housings or if the unit is used at a distance >200 mm, the risk group may be significantly lower.

As for all equipment falling under the scope of DIN EN 62471:2008, the operator must carry out corresponding classification in accordance with the standard for each individual use.

Safety label on the unit

2.5. Safety label on the unit

Located on the top side of the housing of the UVAHAND LED there is a UV warning label (see Fig. below). If this label is concealed or not visible to the user for some other reason, the operator is responsible for ensuring that a suitable safety notice is posted in the work area.

2.6. Organisational measures

Organisational Measures

The functions of all the existing safety equipment must be inspected regularly before the start of work or of each new shift. Look for outwardly visible damage.

2.7. Informal safety measures

Informal safety measures

In addition to this user's manual, the generally and locally applicable accident prevention and environmental protection regulations must be made available and observed.

2.8. Duties of personnel

Obligation of personnel

Persons who are assigned the task of working on and with the UVAHAND LED undertake to do the following before starting work:

- to observe the occupational safety and accident prevention regulations
- to read the chapter on safety and the warnings printed in this manual and to observe them at all times while using the equipment.
- In particular, the safety measures in DIN EN 62471: 2008 ("Photobiological safety of lamps and lamp systems") must be observed.

2.9. Dangers from Handling the Unit

Dangers from handling the unit

The UVAHAND LED is constructed in accordance with the technological state of the art and generally accepted safety engineering practice.

Nevertheless, certain hazards may arise when handling the unit, for example:

- Danger from electrical current
- Danger from UV radiation
- Thermal hazards

The equipment may only be used under the following conditions:

- The device must always be held in such a manner that no direct radiation can strike the user or other persons.
- In order to protect against indirect scattered radiation, if necessary (in case of strongly reflective surfaces) personal protective equipment must be worn to protect the eyes and skin.
- All points in the chapter on intended use must be complied with.
- With regard to safety, the device is in flawless condition

DANGER!
Improper use may endanger the health of the user or third parties (severe skin or eye damage)!
It may also cause damage to the device or other material damage.

WARNING!
The radiation source of the UVAHAND LED emits UV radiation, see also "Danger from irradiation," p. 11.

Danger from electrical power

2.10. Danger from electrical power

The electrical equipment of the UVAHAND LED must be inspected regularly.

Inspection before starting work:

- Check all components of the unit for outwardly visible damage
- Check that all electric cables are in flawless condition

Loose cable connections must be repaired immediately, and damaged cables must be replaced.

DANGER!
There is danger of direct or indirect contact with electricity!

WARNING!
The UVAHAND LED may only be connected to properly installed power sockets with a protective ground conductor. Furthermore, the UVAHAND LED may only operated with the mains voltage specified in the technical data.

Thermal hazards

2.11. Thermal hazards

The following safety precautions must be observed when operating the UVAHAND LED:

- Never touch the safety glass plate when operating the unit.
- There must be a safe surface available on which to place the switched-on hand-held lamp.
- The hand-held lamp is fitted with spacer bars to prevent destruction of the safety glass plate as a result of heat build-up. However, it must never be placed on a temperature-sensitive or combustible surface.
- There must be a distance of at least 1m between the unit and flammable objects.
- The LED light-emitting surface may not be directly covered.
- The UVAHAND LED must not be used inside explosion-protected areas!

2.12. Danger from irradiation

The radiation source of the UVAHAND LED emits UVA radiation and visible light.

DANGER!

If improperly handled, UV radiation can damage skin and eyes! It can lead to severe sunburn, premature ageing of the skin, inflammation of the retina and conjunctiva, and possibly to skin cancer.

The instructions below must be observed when working with the unit:

- The UVAHAND LED must always be held or installed in such a manner that neither the user nor other persons are exposed to direct radiation.
- UV-absorbent plastics or metal plates may be used for screening.
- Depending on the surface of the objects to be irradiated, personal protective equipment must be worn if necessary to protect the eyes and skin against indirect radiation.
- Protective goggles for the eyes should be to standard BS EN 170 (max. spectral transmittance (313 nm) 0.0003%, (365 nm) 0.3 %) and should be for direct and peripheral exposure (side shielding).
- Protective gloves should have a Clothing Protection Factor (CPF) of 30+. The CPF corresponds to the protection factor offered by sun creams.
- UV radiation accelerates the ageing of materials. Consequently, any protective equipment that is damaged or which exhibits signs of ageing must be replaced.
- Never look directly into the lamp when it is switched on.
- The UVAHAND LED must never be operated without the safety glass plate or with a damaged safety glass plate.

CAUTION!

UV radiation can cause material damage to electronic components. When processing, for example, EPROMs in the vicinity of the UVAHAND LED, they must be protected against UV radiation.

CAUTION!

UV radiation accelerates the ageing of materials. UV-sensitive objects and surfaces must therefore be protected from radiation.

NOTE!

Protective equipment is listed in the chapter "Ordering data for units, replacement parts and accessories."

2.13. Danger from gases

Danger from gases

Under certain circumstances, chemical vapours may be released when irradiating materials with the UVAHAND LED.

- The safety data sheets for the materials being irradiated must be observed.
- Also observe the rules on harmful substances in the workplace.
- Upon beginning operation, the air contamination of the workspace is to be measured. In the event of increased air contamination, it is necessary to set up an air extraction and exhaust system.
- If necessary, respiratory protection must be worn.
- The most commonly used UV-curable adhesives do not emit vapours when irradiated with the UVAHAND LED.

2.14. Service, maintenance, remedying faults

Servicing, maintenance, remedying faults

All necessary servicing work is described in the chapter "Servicing, maintenance and cleaning; Service." Carrying out these tasks ensures reliable operation.

If faults occur in the UVAHAND LED, the chapter "Faults" provides information on the causes of faults and possible remedial action.

If a fault which cannot be remedied using these instructions arises on the unit, contact the Hönle customer service.
Parts that are not in flawless condition must be exchanged immediately.

Use only original replacement and wear parts.
There is no guarantee that parts from other manufacturers are designed and manufactured to meet the required standards of robustness and safety.

No changes, additions or conversions may be made to the UVAHAND LED without the permission of Dr. Hönle AG.

Contact address for claims under warranty, repair and replacement part service:

Dr. Hönle AG
UV-Technologie
Lochhamer Schlag 1
D-82166 Gräfelfing / Munich, Germany

Phone: +49 (0)89 / 856 08-0
Fax: +49 (0)89 / 856 08-148
E-Mail: uv@hoenle.com
Website: www.hoenle.de

WARNING!

No repairs or changes may be made to the unit other than those described in these Operating Instructions.

3. Transport, Storage, Delivery

Scope of delivery:

- UVAHAND LED
- Protective goggles
- Protective gloves
- Operating Instructions

The delivered parts must be inspected for completeness and damage or other issues.

Any damage that has been ascertained must be documented at once, and reported to the dealer or to Dr. Hönle AG without delay.

NOTE!
Please dispose of the packaging material in an environmentally responsible manner.
It may be possible to reuse it.
It is recommended to keep the packaging material, in case the unit has to be sent by post or otherwise transported.

4. Setup, assembly, startup and operation

4.1. General

General information

- When setting up the unit, make sure that there are no fingerprints on the reflector or safety glass plate.
- The reflector and the LEDs may under no circumstances be touched or allowed to come into contact with other objects. Otherwise this would immediate destroy the delicate LED surface.
- If necessary, clean the safety glass plate when it is cold using a clean cloth and isopropanol.
- Before switching on, check the supply air and discharge air openings in the housing. The openings must not be covered or blocked by any foreign bodies.
- Only operate the UVAHAND LED in dry rooms.
- The unit must be protected against chemical vapours.
- Never place the switched-on hand-held lamp on a temperature-sensitive or combustible surface with the safety glass plate facing downwards.
- The LED light-emitting surface may not be directly covered.

This prevents a heat build-up which may lead to destruction of the safety glass plate and the LEDs.
This is automatically prevented if spacer bars are fitted. For this reason, do not remove the spacer bars.

DANGER!

When operating the UVAHAND LED, make sure that there is sufficient cooling. There is acute danger of fire if the equipment is not sufficiently cooled!

Neither the ambient temperature nor the cooling air temperature may exceed 35 °C.

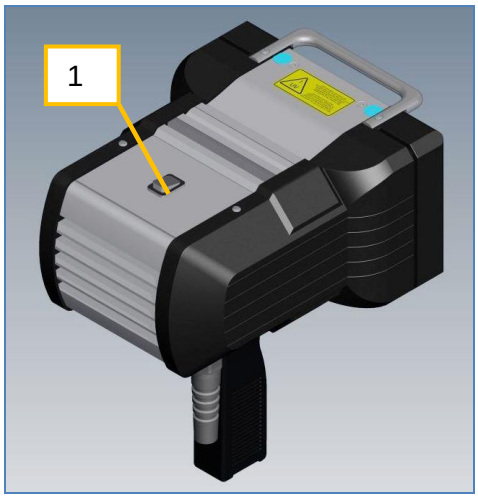
4.2. Startup

- Insert the mains power plug into the power socket and position the UVAHAND LED so that it is pointing away from your body before switching it on.
- Also check the vicinity to ensure that there are no other persons nearby.

It must be ensured at all times that nobody can be exposed to direct radiation from the UVA HAND LED. In addition, the safety information in these Operating Instructions must be read and strictly observed.

DANGER!
The UVAHAND LED may only be connected to properly installed power sockets with a protective ground conductor. Furthermore, the UVAHAND LED may only operated with the mains voltage specified in the technical data.

4.3. Switching the UVAHAND LED on and off



Switch the UVAHAND LED on and off at the ON / OFF switch (1) on the unit itself.

DANGER!
After the UVAHAND LED has been switched on it emits high-intensity UV radiation. **In the case of improper handling**, this can damage skin and eyes! It can lead to severe sunburn, premature ageing of the skin, inflammation of the retina and conjunctiva, and possibly to skin cancer.

5. Servicing, Maintenance and Cleaning

Service

5.1. Service

The following servicing tasks must be carried out on the UVAHAND LED:

Regularly (depending on the operating conditions):

- Check the safety glass plate for dust and other contamination.
- Clean the safety glass plate as necessary and replace the safety glass unit if it is damaged.

Replacing the safety glass unit

5.2. Servicing

Replacing the safety glass unit

The safety glass unit consists of the safety glass plate and the safety glass frame.
The safety glass unit must be replaced immediately if the safety glass plate is damaged.

DANGER!
Under no circumstances may the unit be operated with a damaged safety glass plate or without a safety glass plate. Failure to follow these instructions can result in damage to the skin and eyes caused by the UV radiation emitted!

DANGER!
Before opening the equipment, switch it off and disconnect from the mains. There is danger of direct or indirect contact with electricity!

WARNING!
The UVAHAND LED emits high-intensity radiation. There is a danger of both fire and burns. Wear corresponding protective equipment.
Allow the unit to cool down for 10 min.

WARNING!
Use only spare parts manufactured by the Dr. Hönle AG. Safe operation of the UVAHAND LED cannot be guaranteed if parts from other manufacturers are used.

NOTE!
To order replacement parts, see "Ordering data for units, replacement parts and accessories; Replacement Parts."

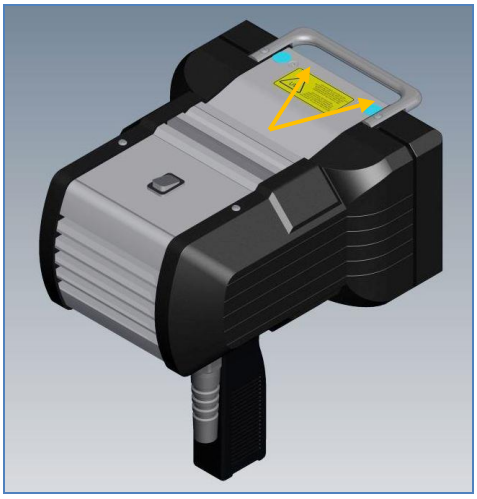


Fig. 2: Fixing screws for safety glass unit (top side and underside of the housing)

- Disconnect the equipment from the mains.
- Release the two **inner** fixing screws on both the top side and underside of the housing (see Fig. 2).

Caution: Do NOT release the two outer screws! These are protected by two green safety stickers which must not be removed.

Fig. 3: Taking out the safety glass unit

- Now carefully grip the safety glass unit by the frame and remove it (Fig. 3).
- Check the new safety glass unit for contamination.
- If necessary, clean the new safety glass unit using a clean cloth and alcohol.
- Place the new safety glass unit on the housing.
- Check that it is firmly seated and screw it tight.
- If necessary, clean the safety glass plate again.

The UVAHAND LED is ready for operation again.

WARNING!
Under no circumstances may the reflector located below or the surface of the LEDs be touch or cleaned. Any contact with the LEDs would lead to their destruction and thus render the entire lamp defective. In a case such as this, all warranty claims will be voided.

Cleaning the surface

Cleaning the surface of the unit
Do not use any harsh or abrasive cleaning agents to clean the surface of the unit. Use only mild cleaning agents containing tensides, cleaning cloths or a damp sponge. Do not allow moisture to penetrate the unit under any circumstances.

6. Ordering Data for Units, Replacement Parts and Accessories

Accessories and replacement parts can be ordered from our replacement parts service at the following address:

Dr. Hönle AG
UV-Technologie
Lochhamer Schlag 1
D-82166 Gräfelfing / Munich, Germany

Phone: +49 (0)89 / 856 08-0
Fax: +49 (0)89 / 856 08-148

Units

Units

Designation	Article/Order number
UVAHAND LED, 365 nm	73900
UVAHAND LED, 405 nm	73901

Replacement parts

Replacement parts

Designation	Article/Order number
Safety glass unit	73581

WARNING!
Only original replacement parts from Dr. Hönle AG may be used. Safe operation of the UVAHAND LED cannot be guaranteed if parts from other manufacturers are used.

Accessories

Designation	Article/Order number
Systainer transport case	30850
Protective goggles, tinted (for 405 nm)	0067
Protective goggles, clear glass (for 365 nm)	0068
Protective gloves	19754
Adapter plate for tripod	73582

7. Faults

The fault lists below contain information on faults which may occur on the UVAHAND LED, their causes and remedial action.

Should a fault occur in the unit that cannot be rectified using these instructions, Dr. Hönle AG Customer Service must be contacted.

Contact address:

Dr. Hönle AG
UV-Technologie
Lochhamer Schlag 1
D-82166 Gräfelfing / Munich, Germany

Phone: +49 (0)89 / 856 08-0
Fax: +49 (0)89 / 856 08-148

Fault	Cause of fault	Remedial action
LEDs do not light up.	Unit is not switched on.	• Switch the unit on.
	Mains power plug is not plugged in.	• Plug in the mains power plug.
	No voltage at mains power socket.	• Check the main fuse.
Housing becomes too hot and unit switches off.	Fan is not running.	• Switch the unit off immediately and send it to customer service.
	Free passage of air through fan apertures blocked by foreign bodies or cover.	• Remove foreign body or cover.

8. Technical data

Dimensions and weights

8.1. Dimensions and weights

	Width	Depth	Height	Weight
UVAHAND LED	180 mm	213 mm	112 mm	1,9 kg

Electrical data

8.2. Electrical data

Supply voltage	90 - 264 V AC
Mains frequency	47 Hz - 63 Hz
Intensity**)	365 nm: 130 mW/cm^2 405 nm: 300 mW/cm^2
Radiation output surface	approx. 137 x 75 mm
Power consumption	70 W
Maximum back-up fuse	16 A

**) measured with Hönle UV-Meter, LED surface sensor at a distance of 20 mm

Ambient conditions

8.3. Ambient conditions

Installation location	Only in closed rooms
Temperature range	+5 °C to +35 °C
Air humidity	Maximum relative humidity 80 % (non-condensing)

Dr. Hönle AG
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