

DELO



User Manual
DELOLUXcontrol

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1 General

1.1 Information regarding these instructions

These operating instructions provide important information on how to work with the device. Strict compliance with the safety instructions, and installing and operating instructions is a prerequisite for safe and proper operation of the device.

Furthermore, the accident prevention regulations and general safety regulations applicable at the place of use must also be complied with.

Read the instructions, especially chapter 2 Safety, page 10 et seq., and the respective safety instructions, carefully before using the device. The operating instructions are a product component and must be kept in the immediate vicinity of the device and accessible to personnel at all times. The reader must understand what he or she has read. Should there be any queries or questions, do not hesitate to contact the manufacturer at any time.

This document is a translation of the original operating instructions.

Revision: R4.3 05/15

1.2 Company address and service

DELO Industrial Adhesives

DELO-Allee 1
86949 Windach
Germany

Phone +49 8193 9900-0
Fax +49 8193 9900-144

service@DELO.de
www.DELO.de

1.3 Explanation of symbols

Warnings

Warnings in these operating instructions are identified by symbols. These warnings are introduced by signal words, which express the severity of a danger.

Comply with these warnings and act cautiously in order to avoid accidents, physical injury and damage to property.

**DANGER!**

... indicates an imminently hazardous situation which, if not avoided, will result in serious injury or death.

**WARNING!**

... indicates a potentially hazardous situation which, if not avoided, could result in serious injury or death.

**CAUTION!**

... indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

**ATTENTION!**

... indicates a potentially hazardous situation which, if not avoided, may result in property damage.

**NOTE!**

... emphasizes useful hints and recommendations as well as information for efficient and trouble-free operation.

1.4 Limitation of liability

All information and notes in these operating instructions were compiled under due consideration of valid standards and regulations, the present state of technology and our years of knowledge and experience.

The manufacturer cannot be held liable for damage or injury resulting from:

- Disregarding these operating instructions
- Use in a manner not intended by the manufacturer
- Use by untrained personnel
- Disregarding error messages or malfunctions
- Operation of faulty modules
- Unauthorized alterations
- Unauthorized modifications
- Improper installation and connection
- Disasters and force majeure

In case of customized versions, utilization of additional order options or due to recent technical changes, the actual scope of supply can vary from the explanations and illustrations in these instructions.

1.5 Copyright

The operating instructions are to be treated confidentially. They are intended only for persons working with or on the device. Passing these operating instructions to third parties without the written consent of the manufacturer is not permitted.



NOTE!

The reproduction, distribution and utilization of this document as well as the communication of its contents to others without express authorization is prohibited. Offenders will be held liable for the payment of damages. All rights reserved in the event of the grant of a patent, utility model or design.

1.6 Spare parts



WARNING!

Risk of injury from the use of incorrect spare parts!

Incorrect or defective spare parts can cause damage, malfunctions or complete failure, and can impair safety.

Therefore:

- Use only original parts by the manufacturer.

Order spare parts (see chapter 10 Spare parts and accessories, page 30) from authorized dealers or directly from the manufacturer.

1.7 Disposal

If no return or disposal agreement has been made, recycle the device after proper disassembly:

- Scrap metal material
- Dispose of electric components as electronic waste

The customer assumes the duty (§10 para. 2 ElektroG – Electrical and Electronic Equipment Act) to dispose of the goods delivered in proper form according to the statutory provisions at his own expense upon end of use (WEEE reg. no. DE 31546579).

Disposal by the manufacturer is possible on request.

1.8 Warranty terms and liability

Refer to the sales documents for the warranty terms.

The technical data relate to measurements at the point of time of goods issue within the scope of general quality assurance. The values measured were determined under laboratory conditions and may deviate depending on the conditions of use.

It is the user's responsibility to test the suitability of the device for the intended purpose by considering all specific requirements.

1.9 CE conformity

The declaration of conformity is provided in the appendix of these operating instructions (see chapter 11.1 CE conformity, page 31).

2 Safety

This chapter gives an overview of all important safety aspects for protection of personnel as well as safe and trouble-free operation.

2.1 Intended use

The device is exclusively conceived and designed for the use described herein.



NOTE!

DELOLUXcontrol, in combination with the corresponding detector heads, serves to measure and control the intensity of the polymerization-effective radiation of a curing lamp. The detector heads are subject to calibration. Comply with the manufacturer's instructions and operating instructions of the lamps to be measured/controlled under any circumstances.



WARNING!

Danger from inappropriate use!

Any application beyond the scope of these operating instructions and/or use other than intended can lead to dangerous situations.

Therefore:

- Use the module for its intended purpose only.
- Strictly follow all safety and handling instructions of the adhesives used.
- Strictly follow all safety instructions in chapter 6 Installation and connection, page 21, chapter 7 Operation, page 22, and chapter 8 Maintenance, page 27.

2.2 Contents of the instructions

Every person, who works with or on the device, must read the operating instructions and have understood them before working with or on the device. This also applies to persons who have already worked with such a device or a similar one or who were trained by the manufacturer.

2.3 Modifications and alterations

To avoid danger and ensure optimum performance, no modifications or changes may be made to the device unless these have been expressly approved by the manufacturer.

2.4 Responsibility of the operator

The device is used commercially. The installer/operator is responsible for the safety of the system in which the device is integrated. Therefore, the installer/operator of the device is subject to statutory requirements for occupational safety.

Besides the instructions for occupational safety contained in these operating instructions, operators must also follow general safety regulations, accident prevention regulations and environmental protection regulations.

The following requirements apply in particular:

- Read these operating instructions carefully and keep them for future consultation.
- Pass on these operating instructions to any subsequent owner or user of the device.
- The operator is responsible for staying informed of the applicable industrial safety regulations and conducting a risk assessment to determine additional risks specific to the area where the equipment is to be used. The operator company must address these risks in the form of work instructions for the operation of the device.
- These operating instructions must be kept in the immediate vicinity of the device and accessible to the persons who work with or on the device at any time.
- The directions in the operating instructions are to be followed completely and without any changes!
- The device may only be used if in technically sound and operational condition. If there are doubts about the operability of the device or signs of fracture or other damage, operation must be stopped immediately and the device must be sent to the manufacturer for inspection and repair without delay.
- The device must not be used unless the installing and operating procedure and instructions have been read and understood by the persons using it.
- The device must not be operated or connected other than in accordance with the type plate and the operating instructions!
- Comply with prescribed intervals or those specified in these operating instructions for periodic checks and inspections.

2.5 Operating personnel



WARNING!

Risk of injury if personnel are not qualified!

Improper handling of the module can cause severe injuries and damage.

Therefore:

- Special tasks must be performed only by the personnel designated in the respective chapters of these instructions.

The operating instructions specify the following qualifications for various activity areas:

▪ **Trained personnel**

have been instructed by the operator through training concerning the assigned tasks and possible hazards in the event of improper use.

▪ **Skilled personnel**

are personnel who, due to their specialized training, knowledge, and experience, as well as knowledge of applicable regulations, are capable of executing the tasks assigned to them, of recognizing possible hazards on their own and preventing them, and are also capable of training other employees accordingly.

2.6 Personal protective equipment

When operating the device, personal protective equipment must be worn in order to minimize the health risks.

- Always wear the protective equipment required for the respective task during work.



Protective clothes

Close-fitting working clothes with a low tear strength, with snug sleeves and no protruding parts. They predominantly serve to protect from getting contact with chemicals and irradiation of bare skin by UV lamps.



Safety shoes

Protect against heavy falling objects and slipping on chemical residues.



Protective gloves

Protect the hands from rubbing, abrasions, incisions or more serious injuries when touching hot surfaces and from UV light when working under curing lamps.



Safety glasses

Protect the eyes from flying parts and splashes. Furthermore, they protect the eyes from direct or indirect radiation by UV lamps.

2.7 Specific risks

This chapter describes the residual risks resulting from the risk assessment.

The safety instructions and warnings described here and in further chapters of these operating instructions must be followed to reduce health risks and prevent dangerous situations.



WARNING!

Risk of injury when the detector head heats up!

The radiation sensor and the metal attachment components may strongly heat up during measuring and can cause severe burns when directly touched.

Therefore:

- Always wear protective gloves and safety glasses when working with light sources.
- Do not leave the detector head in the ray path longer than is necessary

2.8 Labeling

The following symbols and labels are present in the work area. They apply to the direct surroundings of their location.



WARNING!

Risk of injury due to illegible symbols!

In the course of time, labels and symbols can get dirty or become illegible for other reasons.

Therefore:

- Always keep all safety, warning and operating information at the module legible.
- Labels must be replaced immediately if they get lost.



Read the operating instructions

Use the labeled object only after reading the operating instructions.

3 Technical data

Note: Detailed dimensions are found in the dimension drawing in the appendix, chapter 11.2 Dimensions, page 32.

3.1 Display unit

Dimensions L x W x H	approx. 145 x 63 x 31 mm
Weight	161 g
Display range	0.1 – 99,999 mW/cm ²
Resolution of the UV irradiance	0.1 mW/cm ²
Operating temperature	+5 °C to +40 °C
Voltage supply	2 x mignon AA 1.5 V
Interface	USB

3.2 Detector head

Dimensions	dia. 37 x 8 mm
Weight	100 g
Diameter of the detection area	9 mm (UVA, BLUE, LED 9 mm) 1 mm (LED 1 mm)
Operating temperature	+5 °C to +100 °C
Calibration	irradiance in mW/cm ² with factory calibration report
Connection line	light guide, length: 1.3 m minimum bending radius: 100 mm
Irradiation time	interval / no permanent irradiation

3.3 Sensor types

Sensor	Wavelength range
UVA sensor	315 – 395 nm*
BLUE sensor	390 – 480 nm*
9 mm LED sensor	365 / 400 / 460 nm
1 mm LED sensor	365 / 400 / 460 nm

* The calibration standard is a Hg bulb. The reference basis is the spectrum of DELOLUX 03 S and DELOLUX 04

4 Design and function

DELOLUXcontrol, in combination with the corresponding detector heads, serves to measure and control the intensity of the polymerization-effective radiation of a curing lamp. The detector heads are subject to calibration. Comply with the manufacturer's instructions and operating instructions of the lamps to be measured/controlled under any circumstances.

In combination with different detector heads, the intensity at the required working position can be measured. Alternatively, the intensity at the light guide outlet or the lamp head can be detected. In order to measure the intensity directly at the light guide outlet or the lamp head of a DELOLUX lamp, an adapter (aperture) must be screwed on / attached for centering.

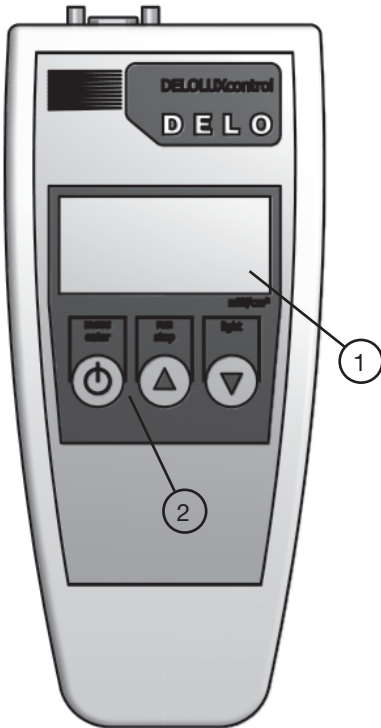
Application areas:

Sensor	Wavelength range	in combination with
UVA sensor	315 – 395 nm*	DELOLUX 03 S DELOLUX 04 (with adapter if required) DELOLUX 06
BLUE sensor	390 – 480 nm*	DELOLUX 03 S DELOLUX 04 (with adapter if required) DELOLUX 06
9 mm LED sensor	365 / 400 / 460 nm	DELOLUX 20 DELOLUX 202 DELOLUX 22 DELOLUX 80 (with adapter if required)
1 mm LED sensor	365 / 400 / 460 nm	DELOLUX 50 (with adapter if required)

* The calibration standard is a Hg bulb. The reference basis is the spectrum of DELOLUX 03 S and DELOLUX 04

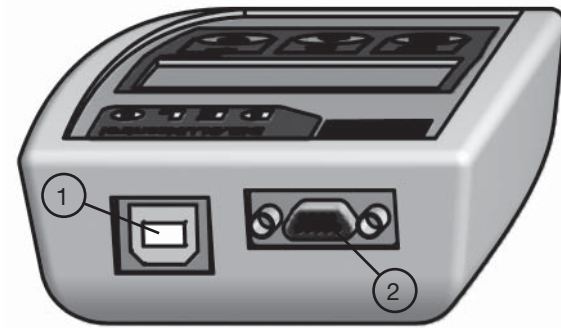
4.1 Device overview

4.1.1 Display unit



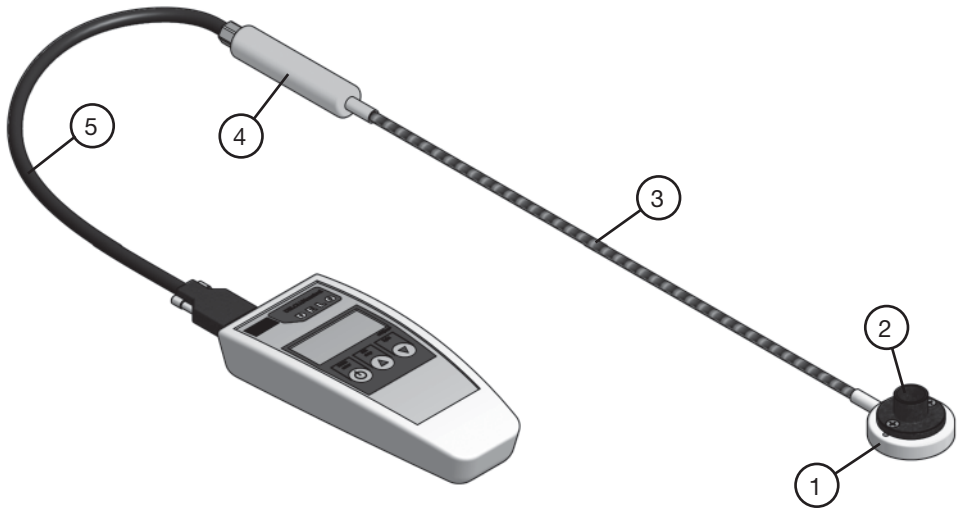
Pos.	Control element / component	Remark
1	LCD display	<p>The display indicates the currently measured value in mW/cm^2. (Exception: Display UL/OL = measuring value to high resp. too low)</p> <p>In addition, the display shows the serial number of the selected detector head, the selected adapter (aperture reduction of the measuring area) if applicable, or the specific wavelength (LED detector heads).</p>
2	Control panel	Panel for startup of DELOLUX control, menu navigation, display background lighting, measuring value hold function, switching off.

4.1.2 Interfaces



Pos.	Control element / component	Remark
1	USB port	Data exchange with a superior control unit (PLC or PC)
2	Connector for detector head	Connection socket for a detector head assigned to the light intensity meter

4.1.3 Detector head



Pos.	Control element / component	Remark
1	Radiation sensor	With the radiation sensor, the high-intensity radiation (UVA, BLUE or LED) is absorbed and carried to the actual detector (4). The measuring intervals must be kept short to prevent aging of the sensor.
2	Adapter	If it is not the intensity value at the actual irradiation area that is to be determined, but rather the curing lamp itself is to be checked, it is recommended that the respective adapter (aperture/Apt) is used. The adapters center the light guide over the sensor, while parts of the sensor are covered. It is essential to select the adapter that reduces the sensor area (3, 5, 5 mm adapters) in the parameter set of the display unit. Otherwise, the radiation intensity is determined on the basis of the 9 mm area of the sensor, which results in faulty measuring or misinterpretation.
3	Light guide	The optical radiation is carried to the detector via the light guide. Protect the light guide against mechanical damage/impair. The minimum bending radius is 100 mm.
4	Detector	The radiation detector converts the radiation into an electrical signal. This signal is forwarded to the display via the signal line. The detector is spatially separated from the sensor as temperature fluctuations at the detector may falsify the measuring signal.
5	Signal line with plug	The detector head is connected to the display unit by means of the plug. The signal line is made of a high-quality, fail-safe coaxial cable.

5 Shipping, packaging and storage

5.1 Safety instructions for transport

Unauthorized transport



ATTENTION!

Damage from unauthorized transport!

Transport or shipping by untrained personnel can damage the device.

Therefore:

- Transport internally or return for repair and maintenance only in the original packaging (hard top case).
- Shocks should be prevented.
- Never let the device fall down onto the floor or the work bench.
- DELO cannot be held liable for damage resulting from defective packaging.
- Do not bend the metal sheathing of the detector head line (minimum bending radius 100 mm).
- Do not subject the signal line to torsional or tensile stress.

Storage

The device must be stored in a cool and dry place.

5.2 Receiving inspection

Check the shipment for completeness and shipping damage immediately upon receipt. If any external shipping damage is visible, proceed as follows:

- Accept the shipment only conditionally or not at all.
- Note down the extent of damage on the transport documents or the delivery note of the forwarding agent.
- File a complaint.

5.3 Identification and completeness

The device is identified by the designation and order number on the type plate.

Depending on the ordered combination, the complete product as delivered includes:

- One hard top case
- One DELOLUX control display unit
- One USB connection cable
- One socket wrench with 3 counter sunk screws M3x6 (not included in the package of the 9 mm LED sensor)
- Operating instructions
- One CD-ROM (LabVIEW example software, DLL USB file, operating instructions)
- Depending on the equipment: One or several detector heads, the corresponding adapters and the factory calibration report

6 Installation and connection

6.1 Safety instructions



CAUTION!

Damage or faulty measuring results through improper installation and connection!

Therefore:

- Do not position the detector head in such a way that it is permanently in the ray path.
- Do not bend the metal sheathing of the detector head line (minimum bending radius 100 mm).
- Do not subject the signal line to torsional or tensile stress.
- Pay attention to the permissible ambient temperatures.
- Prevent radiation from other light sources and solar radiation.
- Protect the device from humidity.
- Follow the safety instructions and operating instruction of the irradiation equipment used.
- Pay attention to the specific allocation of detector to DELOLUXcontrol.

Personal protective equipment

Wear protective clothing when operating the module:

- Protective clothes
- Safety glasses
- Protective gloves

6.2 Installation and connection

DELOLUXcontrol is designed for mobile use.



NOTE!

Store the light intensity meter in the supplied hard top case for optimal protection.

Only the detector heads assigned to DELOLUXcontrol can be used as the calibration data of the detector heads are saved in the calibration data memory of the light intensity meter. The detector heads are assigned via the corresponding serial numbers that are found on the back of the device, on the cylindrical part of the sensor, as well as in the supplied factory calibration report.

Start of operation

Attach the detector head to the miniature SUB-D. Secure the plug against unintended unplugging by means of the locking screws. Switch on the device and select the sensor, the adapter if applicable and/or the wavelength (see chapter 7 Operation, page 22). The device is switched off by pressing the menu / enter key over a certain period of time (approx. 2 s).

7 Operation

7.1 Safety instructions



CAUTION!

Damage or faulty measuring results through improper operation!

Improper operation can cause damage.

Therefore:

- The selection of the sensor from the parameter set of the display unit must correspond to the serial number of the detector of the detector head connected under any circumstances.
- The sensor must not be damaged or contaminated.
- Protect the detector against temperature fluctuations during measuring. Make sure that the temperature is constant according to the specification.

Personal protective equipment

Wear protective clothing when operating the module:

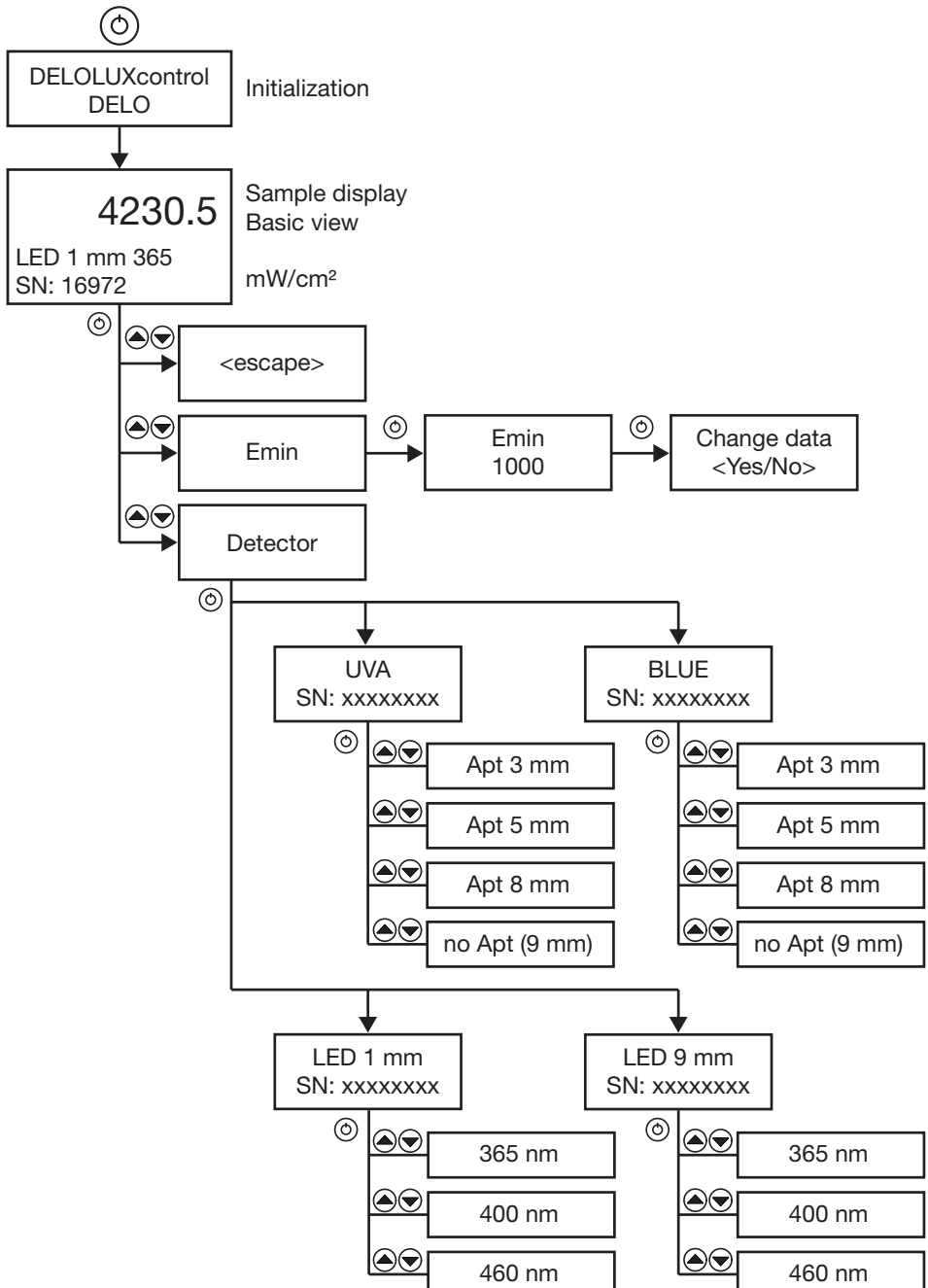
- Protective clothes
- Safety glasses
- Protective gloves

7.2 Functions of DELOLUXcontrol

7.2.1 Overview of configuration options

The manufacturer programs DELOLUXcontrol in such a way that only the detector heads supplied can be selected. If another detector head is to be included, the display unit must be sent to the manufacturer so that the respective detector head can be activated and the calibration factor can be entered. An arbitrary combination of sensors and display units is not possible due to the permanently stored calibration values.

The following menu selection results from the maximum equipment (4 detector heads):




7.2.2 Menu navigation


After initialization of DELOLUXcontrol, the basic view/start screen is displayed. The sensor selection depends on the last selected detector head. The current measuring value, the detector head type incl. serial number as well as the selected adapter (in case of UVA or BLUE) resp. the wavelength (LED detector head) are displayed.


When interchanging a detector head, the head is to be selected according to the above menu structure. The sensor is not automatically recognized when it is plugged into the display unit.

Every key is occupied with a dual function.

Key	Description	Functions / modes
	menu / enter:	<p>Mode 1 – Measuring view</p> <p>Starting point: Switched off device or start screen</p> <p>The device is switched on or off. When switching off, the key must be pressed for a certain period of time (approx. 2 s) until the display goes out.</p> <p>Mode 2 – Configuration view</p> <p>Starting point: Submenu of start screen</p> <p>Another function of this key is the confirmation of the menu selection or the parameter setting, or the navigation to the submenu.</p>

Further menu points as well as sensor, adapter size or wavelength are selected by the arrow keys:

Key	Description	Functions / modes
	run / stop	<p>Mode 1 – Measuring view</p> <p>Starting point: Start screen</p> <p>With this key, the displayed value can be kept (Hold). The current measuring value is frozen. The value display is activated again (RUN) by pressing the key again.</p> <p>Mode 2 – Configuration view</p> <p>Starting point: Submenu (e. g., detector selection)</p> <p>The key arrow is activated in the submenu. That means that it is possible to navigate between the menu points. With this key, you can navigate upwards.</p>

Key	Description	Functions / modes
	light	<p>Mode 1 – Measuring view</p> <p>Starting point: Start screen</p> <p>The display background lighting can be switched on and off.</p> <p>Mode 2 – Configuration view</p> <p>Starting point: Submenu (e. g., detector selection)</p> <p>The key arrow is activated in the submenu. That means that it is possible to navigate between the menu points. With this key, you can navigate downwards.</p>

7.2.3 Measuring without adapter

To determine the intensity at an irradiated area of $d \geq 9$ mm, the setting „no Apt (9 mm)“ must be selected. In this case, the complete sensor area ($d = 9$ mm) is considered for displaying the intensity value. This setting is normally used when controlling area lamps (e. g., DELOLUX 03 S, DELOLUX 20), or when measuring in the working position, provided that the radiation source illuminates the sensor area.

Example: UVA head without adapter:

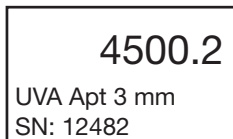
<p>75.5</p> <p>UVA no Apt (9 mm) SN: 12482</p>

7.2.4 Measuring with adapter

When controlling intensity values, for example, at the light guide exit, an adapter must be used. Furthermore, the adapter selection in the parameter set of the display unit must be selected. This ensures adjustment and centering of the light guide. In addition, the detection area is reduced accordingly when selecting the adapter size in the parameter set.

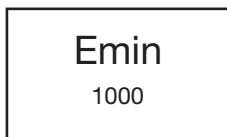
Exception are LED sensors. The enclosed adapters do not reduce the respective sensor area. Therefore, only the wavelength range must be selected when using LED sensors.

Example: UVA head with 3 mm adapter:



7.2.5 Limiting value Emin

In special cases, it must be visually displayed in the scope of process monitoring if the intensity value measured is underrun. An intensity value in mW/cm^2 can be set in the menu point „Emin“ by means of the arrow key. If the specified value is underrun, the display starts blinking. If the value is overrun, the value is permanently displayed. If the Emin function is to be suppressed, the limiting value must be reduced to zero. When delivered, the device has a limiting value of $1000 \text{ mW}/\text{cm}^2$.



7.2.6 USB interface

DELOLUXcontrol has a USB interface as standard. With it, the current measuring data can be transferred to another system (e. g., PLC or PC). The necessary DLL data are stored on the CD-ROM enclosed in the shipment. In addition, the CD-ROM includes an example software (created in LabVIEW Vers. 8.20) to visualize the measuring values.

8 Maintenance

8.1 Safety instructions



CAUTION!

Damage or faulty measuring results through improper maintenance!

Therefore:

- Ensure that the workplace is tidy and clean!
- Always switch off the device before cleaning.
- Use the batteries provided for operation.
- Remove the batteries if the device is not used for a longer period of time.
- Do not perform any own repair work or modifications on the device.
- Always keep the sensor area clean.
- Protect the sensor area from mechanical influences.
- When exchanging batteries, pay attention to voltage range and polarity.

Personal protective equipment

Wear protective clothing when operating the module:

- Protective clothes
- Safety glasses
- Protective gloves

8.2 Maintenance plan

Interval	Component	Tasks to be performed
Every 50 operating hours	Battery supply	Exchange the 1.5 V mignon AA batteries. Open the battery compartment on the back of the device and insert new batteries. Pay attention to the correct polarity.
Weekly	Sensor area	Clean the sensor area with an optical cleaning cloth and a residue-free cleaner (e.g., isopropanol PP)
When necessary	Housing	Clean the basic device is conventional, unaggressive plastic cleaners.
Every time the device is used	Sensor	Check the sensor for damage, bucklings and contamination.
Yearly (recommendation)	Sensor + basic device	Calibration: Confirmation by factory calibration report*

* Calibration is performed on the basis of documented calibration methods. The standards can be traced back to the national standards of the Federal Institute of Physics and Metrology (PTB) or other national standards and regulations.



CAUTION!

If the light intensity meter is not used for a longer period of time, it is recommended that the batteries are removed from the device (leakage protection).

Store the light intensity meter in the supplied hard top case for optimal protection.

8.3 Repair

If the device is damaged or worn, or in case of complaints, please contact DELO Industrial Adhesives – Equipment Technology (service@delo.de). For contact details refer to chapter 1.2 Company address and service, page 6.

9 Malfunctions

9.1 Handling of malfunctions

General



CAUTION!

Damage or faulty measuring results in the event of malfunctions!

Therefore, do not continue using the light intensity meter in the event of:

- Unusual measuring results
- Strongly fluctuating values
- No display

Personal protective equipment

Wear protective clothing when operating the module:




- Protective clothes
- Safety glasses
- Protective gloves

9.2 Possible error causes

Malfunction	Possible cause	Remedy
Unusual deviations of measuring values compared to last measured values	Contamination or wrong sensor	Check the measuring cell for contamination and clean it if necessary. Check if the selected sensor and the measuring method correspond with the attached detector head (adapter). à Switch off the device, plug in the detector head anew, switch on the device again and repeat measuring.
Light intensity meter cannot be switched on	Batteries are empty	Check if the polarity is correct. Insert new batteries if necessary.
No measuring value is displayed	Display: 0.0, UL or OL	Check if the detector head is plugged in properly. Check if the selected sensor and the measuring method correspond with the attached detector head (adapter). Check the measuring line for damage. Check by means of another detector head if the display unit is functional.

If none of the above causes apply, but the light intensity meter will still not work properly, send the device to DELO without delay.

10 Spare parts and accessories

Art. no.	Designation/description	Figure
95 201 08	DELOLUXcontrol Display unit	 A handheld electronic device with a monochrome display and several control buttons.
95 201 03 95 201 02 95 201 04 95 201 06	UVA detector head BLUE detector head 9 mm LED detector head 1 mm LED detector head Length: 1.3 m each	 A long, thin cable with a connector at one end and a circular detector head at the other.
95 200 43	Safety glasses	 Two pairs of safety glasses, one with a wrap-around design and one with a standard design.

11 Appendix

11.1 CE conformity

DELO

Declaration of Conformity

DELO Industrie Klebstoffe GmbH & Co. KGaA

herewith declares that the following device

DELOLUXcontrol

Order no.: 95 201 08

complies with the regulations of the following directive(s) – including the indicated currently applicable harmonized standards, normative references and respective amendments:

Basic directives: **2004/108/EC Electromagnetic Compatibility**
 2011/65/EU RoHS Directive

Applicable standards: **IEC 61326-1:2013-07**
 Electrical equipment for measurement, control and laboratory use – EMC requirements – Part 1: General requirements

This declaration loses its validity if the device/s is/are changed without consultation. A technical documentation can be made available to the appropriate authorities.

January 12, 2015

Date



Thomas Reiter
Head of Equipment Production



Markus Gebefe
CE Commissioner

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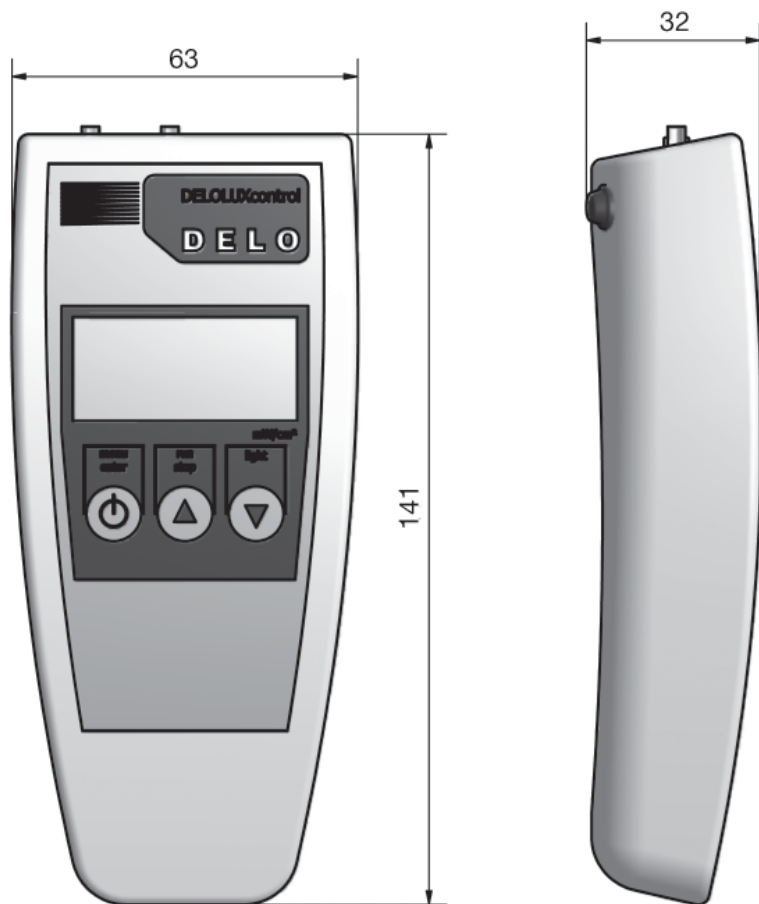
Sparkasse Leimbüding-Diefen
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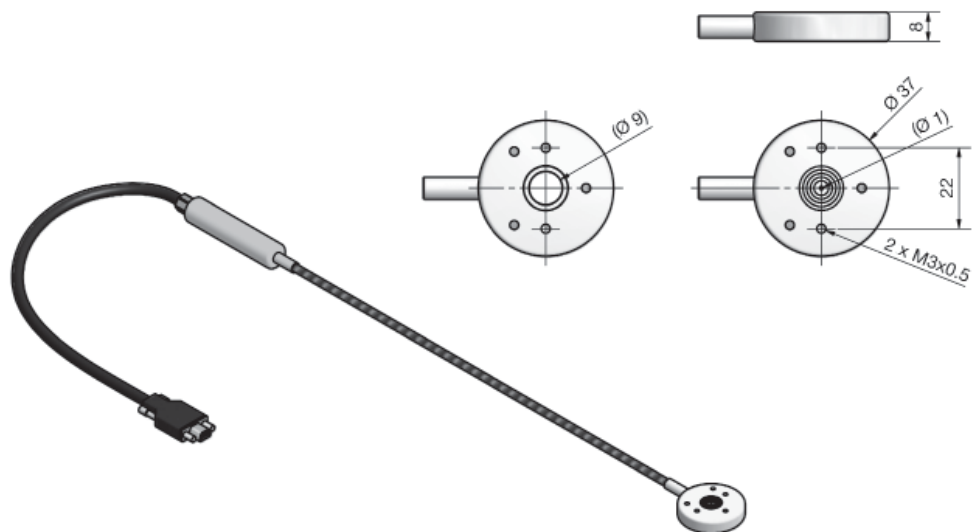
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11.2 Dimensions

11.2.1 Dimensions of DELOLUXcontrol display unit



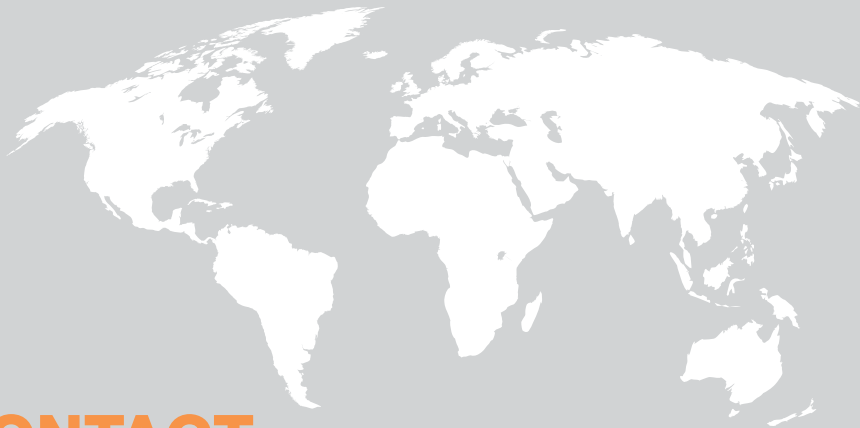
11.2.2 Dimensions of DELOLUXcontrol sensor



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Refer to the sales documents for the warranty terms.

The technical data relate to measurements at the point of time of goods issue within the scope of general quality assurance. The values measured were determined under laboratory conditions and may deviate depending on the conditions of use.

It is the user's responsibility to test the suitability of the device for the intended purpose by considering all specific requirements.

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