BINDER
Best conditions for your success

Operating Manual

Translation of the original operating manual

BINDER LED Plant Light Module

Accessory for cooling incubators and climate chambers

Art. no. 8012-2439

BINDER GmbH

▶ Address: Post office box 102, 78502 Tuttlingen, Germany ▶ Tel.: +49 7462 2005 0
▶ Fax: +49 7462 2005 100 ▶ Internet: http://www.binder-world.com
▶ Service Hotline: +49 7462 2005 555 ▶ Service Fax +49 7462 2005 93 555
▶ Service Hotline USA: +1 866 885 9794 or +1 631 224 4340 x3
▶ Service Hotline Asia Pacific: +852 390 705 04 or +852 390 705 03

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Content

Dear customer,

For the correct operation of the chambers, it is important that you read this operating manual completely and carefully and observe all instructions as indicated. Failure to read, understand and follow the instructions may result in personal injury. It can also lead to damage to the chamber and/or poor equipment performance.

1. Safety

1.1 Personnel Qualification

The chamber must only be installed, tested, and started up by personnel qualified for assembly, startup, and operation of the chamber. Qualified personnel are persons whose professional education, knowledge, experience and knowledge of relevant standards allow them to assess, carry out, and identify any potential hazards in the work assigned to them. They must have been trained and instructed, and be authorized, to work on the chamber.

The chamber should only be operated by laboratory personnel especially trained for this purpose and familiar with all precautionary measures required for working in a laboratory. Observe the national regulations on minimum age of laboratory personnel.

1.2 Operating manual

This operating manual is part of the components of delivery. Always keep it handy for reference in the vicinity of the chamber. If selling the unit, hand over the operating manual to the purchaser.

To avoid injuries and damage observe the safety instructions of the operating manual. Failure to follow instructions and safety precautions can lead to significant risks.

DANGER

Dangers due to failure to observe the instructions and safety precautions.

Serious injuries and chamber damage. Risk of death.

- Observe the safety instructions in this Operating Manual.
- Follow the operating procedures in this Operating Manual.
- Carefully read the complete operating instructions of the chamber prior to installing and using the chamber.
- Keep the operating manual for future reference

Make sure that all persons who use the chamber and its associated work equipment have read and understood the Operating Manual.

This Operating Manual is supplemented and updated as needed. Always use the most recent version of the Operating Manual. When in doubt, call the BINDER Service Hotline for information on the up-to-dateness and validity of this Operating Manual.

1.3 Legal considerations

This operating manual is for informational purposes only. It contains information for correct and safe installing, start-up, operation, decommissioning, cleaning and maintenance of the product. Note: the contents and the product described are subject to change without notice.

Understanding and observing the instructions in this operating manual are prerequisites for hazard-free use and safety during operation and maintenance. Images are to provide basic understanding. They may deviate from the actual version of the chamber. The actual scope of delivery can, due to optional or special design, or due to recent technical changes, deviate from the information and illustrations in these instructions this operating manual. In no event shall BINDER be held liable for any damages, direct or incidental arising out of or related to the use of this manual.

This operating manual cannot cover all conceivable applications. If you would like additional information, or if special problems arise that are not sufficiently addressed in this manual, please ask your dealer or contact us directly, e.g. by phone at the number located on page one of this manual

Furthermore, we emphasize that the contents of this operating manual are not part of an earlier or existing agreement, description, or legal relationship, nor do they modify such a relationship. All obligations on the part of BINDER derive from the respective purchase contract, which also contains the entire and exclusively valid statement of warranty administration and the general terms and conditions, as well as the legal regulations valid at the time the contract is concluded. The statements in this manual neither augment nor restrict the contractual warranty provisions.

1.3.1 Intellectual property

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Please visit www.binder-world.com for more information.

1.4 Structure of the safety instructions in the operating manual

In this operating manual, the following safety definitions and symbols indicate dangerous situations following the harmonization of ISO 3864-2 and ANSI Z535.6.

1.4.1 Signal word panel

Depending on the probability of serious consequences, potential dangers are identified with a signal word, the corresponding safety color, and if appropriate, the safety alert symbol.

 **DANGER**
Indicates an imminently hazardous situation that, if not avoided, will result in death or serious (irreversible) injury.

 **WARNING**
Indicates a potentially hazardous situation which, if not avoided, could result in death or serious (irreversible) injury.

 **CAUTION**
Indicates a potentially hazardous situation which, if not avoided, may result in moderate or minor (reversible) injury.

NOTICE
Indicates a potentially hazardous situation which, if not avoided, may result in damage to the product and/or its functions or of a property in its proximity.

1.4.2 Safety alert symbol

Use of the safety alert symbol indicates a **risk of injury**.

Observe all measures that are marked with the safety alert symbol in order to avoid death or injury.

1.4.3 Pictograms

Warning signs			
 Electrical hazard	 Hot surface	 Explosive atmosphere	 Risk of corrosion and / or chemical burns
 Harmful substances	 Biohazard	 Pollution Hazard	
Mandatory action signs			
 Mandatory regulation	 Read operating instructions	 Disconnect the power plug	 Environment protection
 Wear protective gloves	 Wear safety goggles		
Prohibition signs			
 Do NOT touch	 Do NOT spray with water		

	**Information** to be observed in order to ensure optimum function of the product.

1.4.4 Word message panel structure

Type / cause of hazard. **Possible consequences.** ∅ Instruction how to avoid the hazard: prohibition ➢ Instruction how to avoid the hazard: mandatory action.

Observe all other notes and information not necessarily emphasized in the same way, in order to avoid disruptions that could result in direct or indirect injury or property damage.

1.5 Localization / position of safety labels on the accessory

The following labels are located on the chamber:

Information	
BINDER My Support Center MySupport.binder-world.com	QR-Code and URL to contact the BINDER Support Center
Nicht im Betrieb ein- oder ausstecken. Do not plug or unplug while operating. Ne pas brancher ou débrancher pendant le fonctionnement.	Do not plug or unplug the light connectors during operation

	Keep safety labels complete and legible.

Replace safety labels that are no longer legible. Contact BINDER Service for these replacements.

1.6 Type plate

The type plate is located bottom right-hand on the front of the plant light box.

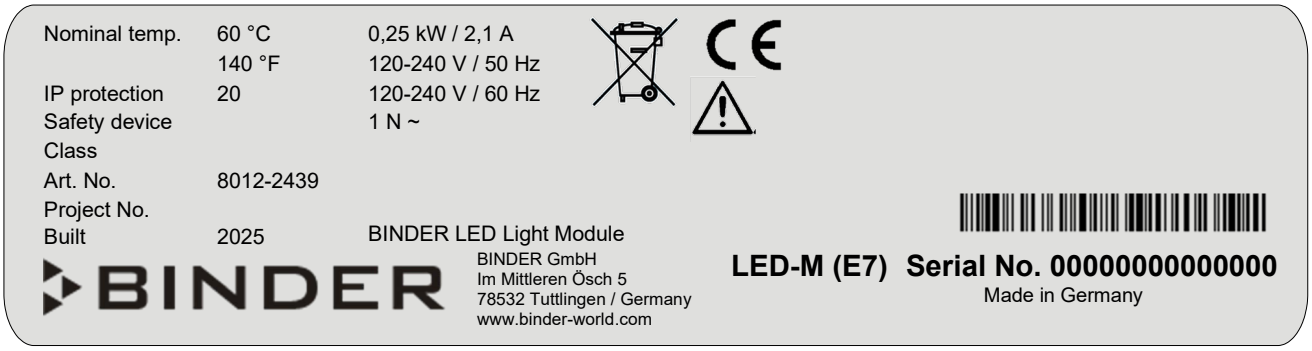


Figure 1: Type plate of the LED Plant Light Module

Indications of the type plate (example)

Indication		Information
BINDER		Manufacturer: BINDER GmbH
LED-M		Model
BINDER LED Light Module		Model designation: BINDER LED Plant Light Module
Serial No.	00000000000000	Serial no. of the device
Built	2025	Year of construction
Nominal temperature	60 °C / *140 °F*	Nominal temperature
IP protection	20	IP type of protection acc. to standard EN 60529
Temp. safety device	---	Temperature safety device acc. to standard DIN 12880:2007
Class	---	Class of temperature safety device
Art. No.	8012-2439	Art. no. of the device
Project No.	---	Optional: Special application acc. to project no.
0,25 kW		Nominal power
2,1 A		Nominal current
120-240 V, 50 Hz		Nominal voltage range +/-10% at the indicated power frequency
120-240 V, 60 Hz		
1 N ~		Current type

Symbols on the type plate

Symbol	Information
CE	CE conformity marking
	Electrical and electronic equipment manufactured / placed on the market in the EU after 13 August 2005 and be disposed of in separate collection according to Directive 2012/19/EU on waste electrical and electronic equipment (WEEE).
	Observe the safety instructions in the operating manual

1.7 UKCA Label

The sticker with UKCA Authorised Representative details sticks next to the type plate on the front of the plant light box.

Figure 2: UKCA Label

Symbol on the sticker

Symbol	Information
UK CA	UKCA conformity marking

1.8 General safety instructions on installing and operating the BINDER LED plant light module accessory

With regard to operating the LED plant light module and to the installation location, please observe the local and national regulations relevant for your country (for Germany: DGUV guidelines 213-850 on safe working in laboratories, issued by the employers' liability insurance association).

BINDER GmbH is only responsible for the safety features of the LED plant light module provided skilled electricians or qualified personnel authorized by BINDER perform all maintenance and repair, and if components relating to chamber safety are replaced in the event of failure with original spare parts.

NOTICE

Danger of overheating due to lack of ventilation.

Damage to the device.

∅ Do NOT install the cooling incubator/climate chamber with accessory in unventilated recesses.

➢ Ensure sufficient ventilation for dispersal of the heat.

➢ Observe the prescribed minimum distances when installing the cooling incubators/climate chambers.

Do not install or operate the accessory in hazardous locations. The device does not dispose of any measures of explosion protection.

DANGER

Danger of explosion due to combustible dusts or explosive mixtures in the vicinity of the chamber.

Serious injury or death from burns and / or explosion pressure.

∅ Do NOT operate the chamber in potentially explosive areas.

∅ Make sure that there are NO combustible dust or air-solvent mixtures in the vicinity of the accessory. This includes the inner chamber of the cooling incubator/climate chamber.

DANGER

Electrical hazard by water entering the accessory.

Deadly electric shock.

∅ The accessory must NOT become wet during operation, cleaning, or maintenance.

∅ Do NOT install the accessory in damp areas or in puddles.

➢ Set up the accessory so that it is splash-proof.

The BINDER LED plant light module accessory was produced in accordance with VDE regulations and were routinely tested in accordance to VDE 0411-1 (IEC 61010-1).

1.9 Intended use

	Following the instructions in this operating manual and conducting regular maintenance work (chap. 7) are part of the intended use.

Any use of the accessory that does not comply with the requirements specified in this Operating Manual shall be considered improper use.

Other applications than those described in this chapter are not approved.

It is also not permitted to make any modifications to the accessory yourself, as this would be contrary to the intended use.

Use

The “BINDER LED plant light module” accessory is primarily intended for use with BINDER cooling incubators series KB PRO (E7) and BINDER constant climate chambers series KBF PRO (E7).

As a stand-alone solution, it can also be used with other chamber types (cooling incubators/constant climate chambers), provided that suitable placement and cable routing are possible, and the heat generated by the plant light module can be compensated by the chamber. Please observe the permissible ambient conditions.

The operating manuals for the chamber in which the “BINDER LED plant light module” accessory is used, in particular the safety instructions and the intended use, must be observed when using the accessory.

Requirements for the load in chambers in which the “BINDER LED plant light module” accessory is used:

Any solvent must not be explosive and flammable. A mixture of any component of the loading material with air must NOT be explosive. The operating temperature must lie below the flash point or below the sublimation point of the loading material. Any component of the loading material must NOT be able to release toxic gases. The loading material shall not contain any corrosive ingredients that may damage the machine components made of stainless steel, aluminum, and copper. Such ingredients include in particular acids and halides. Any corrosive damage caused by such ingredients is excluded from liability by BINDER GmbH.

The accessory does not dispose of any measures of explosion protection.

	**DANGER**
	Explosion or implosion hazard and danger of poisoning through the introduction of unsuitable loading material. **Poisoning. Serious injury or death from burns and / or explosion pressure.** ∅ Do NOT introduce any substance combustible or explosive at working temperature into the chamber in which the accessory is used, in particular no energy sources such as batteries or lithium-ion batteries. ∅ NO explosive dust or air-solvent mixture into the chamber in which the accessory is used.

Contamination of the accessory by toxic, infectious or radioactive substances must be prevented.

WARNING

Danger of intoxication and infection through contamination of the chamber with toxic, infectious or radioactive substances.

Damages to health.

- ➢ Protect the accessory from contamination by toxic, infectious or radioactive substances.
- ➢ Take suitable protective measures when introducing and removing toxic, infectious or radioactive material

In case of foreseeable use of the chamber there is no risk for the user through the integration of the chamber into systems or by special environmental or operating conditions in the sense of EN 61010-1:2010. For this, the intended use of the chamber and all its connections must be observed.

Medical devices

The accessory is not classified as medical devices as defined by the Medical Device Directive 93/42/EEC and Regulation (EU) No 2017/745.

Personnel Requirements

Only trained personnel with knowledge of the Operating Manual can set up and install the accessory, start it up, operate, clean, and take it out of operation. Service and repairs call for further technical requirements (e.g. electrical know-how), as well as knowledge of the service manual.

Installation site requirements

BINDER chambers and accessories are designed for setting up inside a building (indoor use).

The requirements described in the Operating Manual for installation site and ambient conditions (chap. 3.4) must be met.

	WARNING: If customer should use chambers and accessories running in non-supervised continuous operation, we strongly recommend in case of inclusion of irrecoverable specimen or samples to split such specimen or samples and store them in at least two chambers, if this is feasible.

1.10 Foreseeable Misuse

Other applications of the accessory than those described in chap. 1.9 are not approved.

This expressly includes the following misuses (the list is not exhaustive), which pose risks despite the inherently safe construction and existing technical safety equipment:

- Non-observance of Operating Manual
- Non-observance of information and warnings on the cooling incubator/climate chamber (e.g. control unit messages, safety identifiers, warning signals)
- Installation, startup, operation, maintenance and repair of the cooling incubator/climate chamber and the accessory by untrained, insufficiently qualified, or unauthorized personnel
- Missed or delayed maintenance and testing
- Non-observance of traces of wear and tear
- Insertion of materials excluded or not permitted by this Operating Manual into the chamber in which the accessory is used
- Non-compliance with the admissible parameters for processing the respective material.
- Installation, testing, service or repair in the presence of solvents

- Installation of replacement parts and use of accessories and operating resources not specified and authorized by the manufacturer
- Installation, startup, operation, maintenance or repair of the accessory in absence of operating instructions
- Bypassing or changing protective systems, operation of the accessory without the designated protective systems
- Non-observance of messages regarding cleaning and disinfection of the accessory.
- Spilling water or cleaning agent on the accessory, water penetrating into the chamber during operation, cleaning or maintenance.
- Cleaning activity while the cooling incubator/climate chamber or accessory is turned on.
- Operation of the accessory with a damaged housing or damaged power cord
- Continued operation of the accessory during an obvious malfunction
- Insertion of objects, particularly metallic objects, in louvers or other openings or slots on the accessory
- Human error (e.g. insufficient experience, qualification, stress, exhaustion, laziness)

To prevent these and other risks from incorrect operation, the operator shall issue operating instructions. Standard operating procedures (SOPs) are recommended.

1.11 Residual Risks

The unavoidable design features of a chamber or accessory, as well as its proper field of application, can also pose risks, even during correct operation. These residual risks include hazards which, despite the inherently safe design, existing technical protective equipment, safety precautions and supplementary protective measures, cannot be ruled out.

Messages on the chamber and accessory and in the Operating Manual warn of residual risks. The consequences of these residual risks and the measures required to prevent them are listed in the Operating Manual. Moreover, the operator must take measures to minimize hazards from unavoidable residual risks. This includes, in particular, issuing operating instructions.

The following list summarizes the hazards against which this Operating Manual warn, and specifies protective measures at the appropriate spots:

Unpacking, Transport, Installation

- Sliding or tilting of the accessory
- Setup of the accessory in unauthorized areas
- Installation of a damaged accessory
- Installation of an accessory with damaged power cord
- Inappropriate site of installation
- Missing protective conductor connection

Normal operation

- Assembly errors
- Emission of non-ionizing radiation from electrical operating resources
- Contact with live parts in normal state

Cleaning and Decontamination

- Penetration of water into the LED plant light box
- Inappropriate cleaning and decontamination agents

Malfunction and Damage

- Continued operation of the accessory during an obvious malfunction
- Contact with live parts during error status

Operation of the accessory with damaged power cord

Maintenance

- Maintenance work on live parts.
- Execution of maintenance work by untrained/insufficiently qualified personnel
- Electrical safety analysis during annual maintenance not performed

Trouble-shooting and Repairs

- Trouble-shooting of live parts without specified safety measures
- Absence of a plausibility check to rule out erroneous inscription of electrical components
- Performance of repair work by untrained/insufficiently qualified personnel
- Inappropriate repairs which do not meet the quality standard specified by BINDER
- Use of replacement parts other than BINDER original replacement parts
- Electrical safety analysis not performed after repairs

1.12 Operating instructions

Depending on the application and location of the chamber, the operator of the chamber must provide the relevant information for safe operation of the cooling incubator/climate chamber with accessory in a set of operating instructions.

	Keep these operating instructions with the chamber at all times in a place where they are clearly visible. They must be comprehensible and written in the language of the employees.

1.13 Measures to prevent accidents

The operator of the cooling incubator/climate chamber with the “BINDER LED Plant Light Module” accessory must observe the local and national regulations (for Germany: the rule “Operation of work equipment. Operation of refrigeration systems, heat pumps and refrigeration equipment”, GUV-R 500 chap. 2.35) and take precautions to prevent accidents

The manufacturer took the following measures to prevent ignition and explosions:

- **Indications on the type plate**

  See operating manual chap. 1.6.

- **Operating manual**

  An operating manual is available for each BINDER chamber and accessory.

- **Safety, measurement, and control equipment**

  The safety, measuring, and control equipment is easily accessible.

- **Electrostatic charge**

  The interior parts are grounded.

- **Non-ionizing radiation**

  Non-ionizing radiation is not intentionally produced, but released only for technical reasons by electrical equipment (e.g. electric motors, power cables, solenoids). The accessory has no permanent magnets. If persons with active implants (e.g. pacemakers, defibrillators) keep a safe distance (distance of field source to implant) of 30 cm, an influence of these implants can be excluded with high probability.

- **Protection against touchable surfaces**

  Tested according to EN ISO 13732-1:2008.

- **Cleaning**

  See operating manual chap. 6.

2. Device description

2.1 Extension of the functionality of cooling incubators / constant climate chambers with the LED plant light module accessory

The “BINDER LED plant light module” accessory is a stand-alone solution with its own light control. In addition to the parameters of temperature and – depending on the basic chamber – humidity, it also allows the use of different light spectra to simulate natural conditions. This makes the chambers suitable for conditioning a wide variety of loads – even under long-term conditions.

The LED light bars contain three different channels (cool white, warm white, and far red), which can be independently adjusted via the module's own control system. By programming the controller accordingly, an automatic day/night simulation can be performed.

	The BINDER LED plant light module accessory can be used simultaneously with the BINDER CO_2 control module accessory.

2.2 Description of the BINDER LED Plant Light module accessory

The BINDER LED plant light module consists of the plant light box with connections and 16 freely positionable LED bars, which are attached to the standard racks in the chamber with clips. An independent controller in the plant light box allows precise light control inside the cooling incubator/constant climate chamber. This control is independent of the chamber controller. Cool white, warm white, and far red are available in any desired ratio. LEDs whose emission closely resembles the atmospherically filtered solar spectrum are used for the white channels.

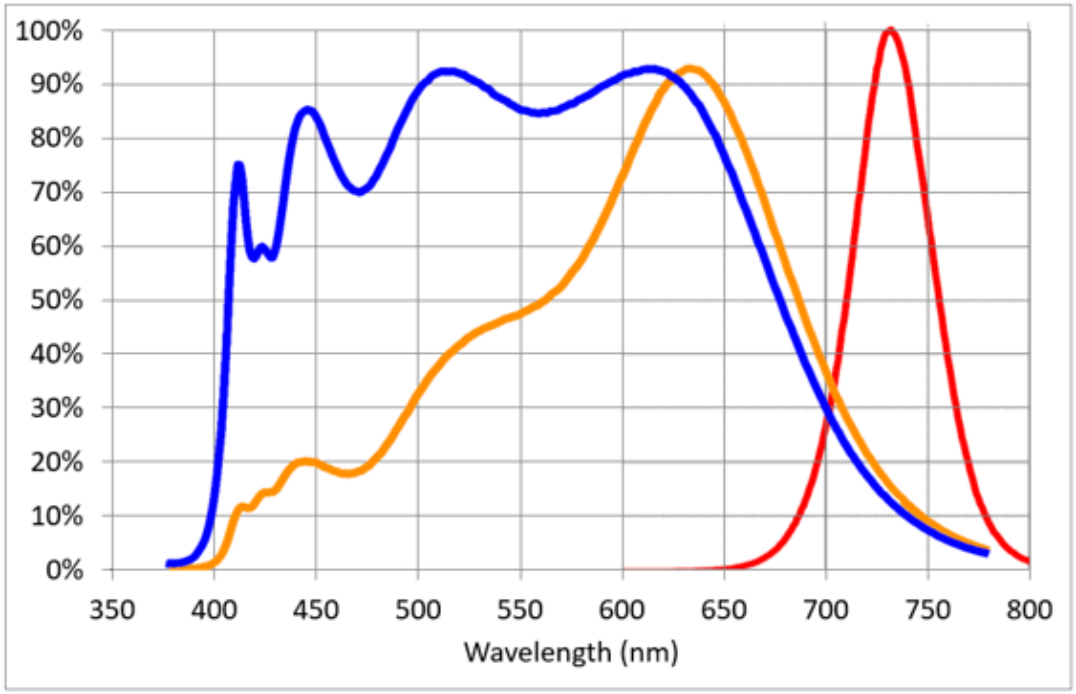


Figure 3: Cool white (6.500 K), warm white (2.700 K), far red (730 nm) light spectra

The BINDER cooling incubators / constant climate chambers of the new E7 generation are highly gas-tight. To prevent a drop in CO_2 concentration due to plant photosynthesis, the LED plant light module features a ventilation system.

A diaphragm pump in the plant light box provides ventilation in the cooling incubator/ constant climate chamber with 8 liters / min of ambient air via a hose connection.

All necessary connection and fastening material as well as the power supply cable are included (scope of delivery chap. 3.1).

The LED bars can be flexibly positioned on one, two or four levels.

Material of the plant light box: The housing is RAL 9003 powder-coated. All corners and edges are also completely coated.

Controller: The independent controller with touch display (resistive touchscreen) is used to control the light channels with timer and dusk functions, as well as ventilation control.

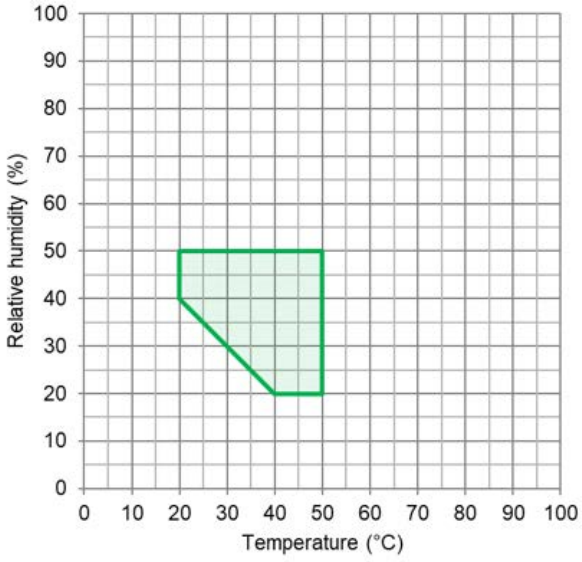
The on/off switch illuminates during operation. This serves as a function check, as the screen switches to standby mode after 5 minutes of inactivity.

The accessory is powered by line voltage: 120-240 V wide voltage, 50/60 Hz

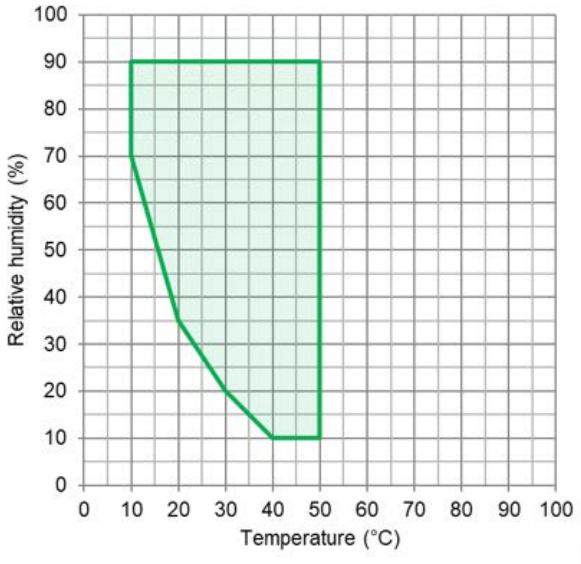
Connections and control elements on the plant light box:

- Connection for IEC connector plug with country-specific plug
- On/Off switch
- Controller with touch display
- 4 connectors, each for 4 LED bars (each one with 3 light channels: cold white / warm white / far red)
- Connection “Out” for fresh air hose

KBF/KBF PRO: The waste heat from the LED bars leads to a change in the temperature-humidity diagram.



KBF/KBF-UL temperature-humidity diagram



KBF PRO temperature-humidity diagram

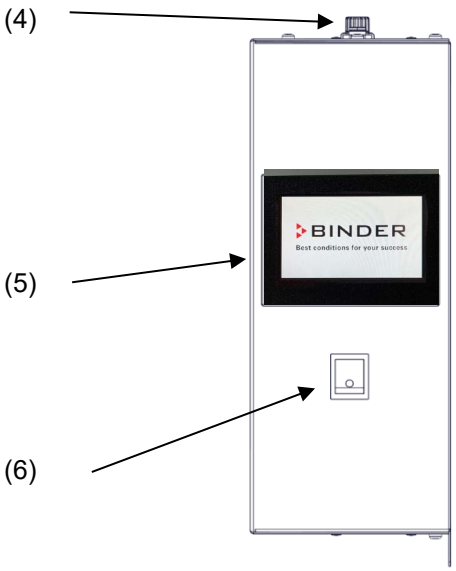
Figure 4: Modified temperature-humidity diagrams with LED plant light module

2.3 Chamber overview: Cooling incubator/climate chamber with LED plant light module

Figure 5: Plant light box, mounted on the cooling incubator/climate chamber (example KBF PRO 720)

(1)	Plant light box	(E)	Outer chamber door(s)
(2)	Elongated access port	(C)	Ergonomically adjustable control terminal (chamber sizes from 470)
(3)	Mounting rails	(G)	Refrigerating machine and humidity generation module

2.4 Chamber overview: Plant light box

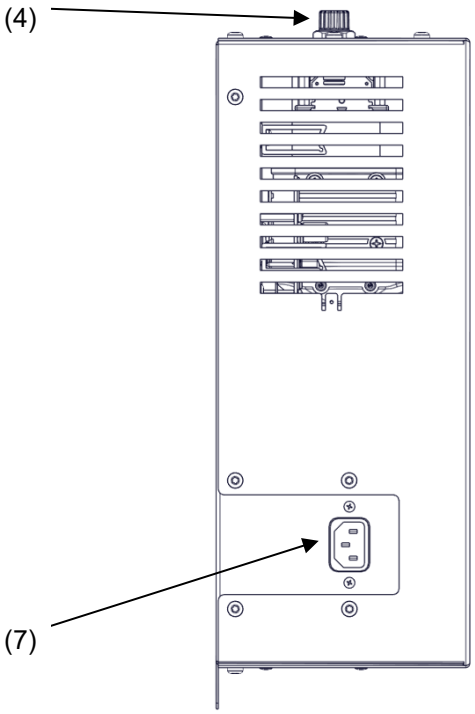


(4) Connections

(5) Controller for light control

(6) On/Off switch

Figure 6: Plant light box, right front side



(4) Connections

(7) Power connection / IEC connector plug

Figure 7: Plant light box, left side

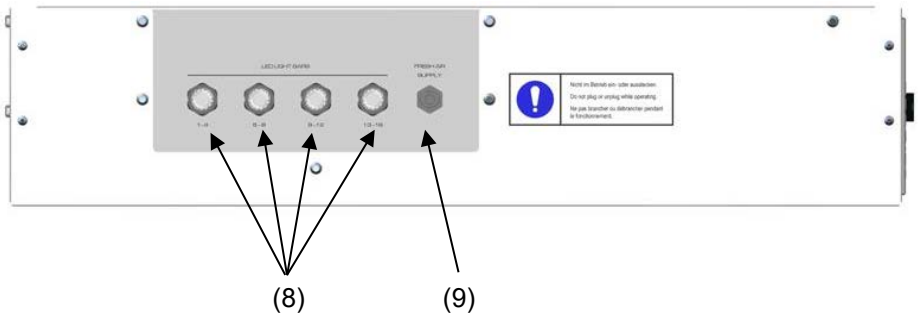


Figure 8: Plant light box, view from top

(8) Connections for LED bars

(9) Connection for ventilation hose

3. Scope of delivery, transportation, storage, and installation

3.1 Scope of delivery

- Plant light box
- 16 LED light bars with clips for fastening
- 4 connection cables, 2m
- 4 distributors for the LED light bars
- Ventilation hose
- Power supply cable
- Operating manual art. no. 7001-0610
- 2 mounting rails with screws (4 x M8, 2 x M5)
- 2 silicone foam plugs for elongated access port

3.2 Unpacking, and checking the equipment

Unpack the accessories carefully to avoid damaging the sensitive light sources. After unpacking, please check the accessory based on the delivery receipt for completeness and for transportation damage. Inform the carrier immediately if transportation damage has occurred.

Please remove any transportation protection devices and adhesives in/on the accessory and remove the operating manuals and accessory material from the packaging.

If you need to return the accessory, please use the original packing and observe the guidelines for safe lifting and transportation (chap. 3.3).

For disposal of the transport packing, see chap. 8.1.

Note: The LED light bars can be mounted on the chamber's standard racks. No racks are included in the accessory package. If additional mounting options are required, matching racks must be ordered separately.

Note on second-hand devices (Ex-Demo-Units):

Second-hand devices are devices that were used for a short time for tests or exhibitions. They are thoroughly tested before resale. BINDER ensures that the device is technically sound and will work flawlessly.

Second-hand devices are marked with a sticker on the device. Please remove the sticker before commissioning the devices.

3.3 Guidelines for safe transportation and storage

If possible, use the original packaging for transport. You can order transport packing for mov shipping purposes from BINDER service.

Permissible ambient temperature range during transport and storage: -10 °C / *14 °F* to +60 °C / *140 °F*.

Intermediate storage of the accessory is possible in a closed and dry room. Observe the guidelines for temporary decommissioning (chap. 8.2).

When after storage in a cold location you transfer the accessory to its warmer installation site, condensation may form. Before start-up, wait at least one hour until the accessory has attained ambient temperature and is completely dry.

3.4 Location of installation and ambient conditions

The accessory is designed for setting up inside a building (indoor use).

NOTICE

Danger of overheating due to lack of ventilation.

Damage to the device.

∅ Do NOT install the accessory in unventilated recesses.

➢ Ensure sufficient ventilation for dispersal of the heat.

➢ Observe the prescribed minimum distances when installing the accessory.

Do not install or operate the accessory in potentially explosive areas.

DANGER

Danger of explosion due to combustible dusts or explosive mixtures in the vicinity of the device.

Serious injury or death from burns and / or explosion pressure.

∅ Do NOT operate the accessory in potentially explosive areas.

➢ KEEP explosive dust or air-solvent mixtures AWAY from the vicinity of the accessory.

Ambient conditions for the LED plant light box

- Permissible ambient temperature range during operation: +18 °C / *64.4 °F* to +32 °C / *89.6 °F*.

The ambient temperature should not be substantially higher than the indicated ambient temperature of +22 °C +/- 3 °C / *71.6 °F ± 5.4 °F* to which the specified technical data relate. Deviations from the indicated data are possible for other ambient conditions.

- Permissible ambient humidity: 70 % r.h. max., non-condensing
- Installation height: max. 2000 m / *6562 ft.* above sea level.

Ambient conditions for the LED light bars

- Permissible ambient temperature inside the cooling incubator/climate chamber with LED light bars: 5 °C / *41 °F* up to up to 60 °C / *140 °F.*
- Permissible humidity inside the cooling incubator/climate chamber with LED light bars: see climatic diagrams (max. 90% r.h.)

NOTICE

Danger of damage to the LED light bars by excessive inner chamber temperature.

Destruction of the LED light bars.

∅ Do NOT set a set-point above 60 °C / *140 °F* on the controller if the LED light bars are located inside the chamber.

Other requirements

To completely separate the device from the power supply, you must disconnect the power plug. Install the device in a way that the power plug is easily accessible and can be easily pulled in case of danger.

For the user there is no risk of temporary overvoltages in the sense of EN 61010-1:2010.

Avoid any conductive dust in the ambiance according to the chamber layout complying with pollution degree 2 (IEC 61010-1).

4. Installation and connections

4.1 Installation of the plant light box on the cooling incubator/climate chamber

4.1.1 Installation of the mounting rails

Note the orientation of the mounting rails.

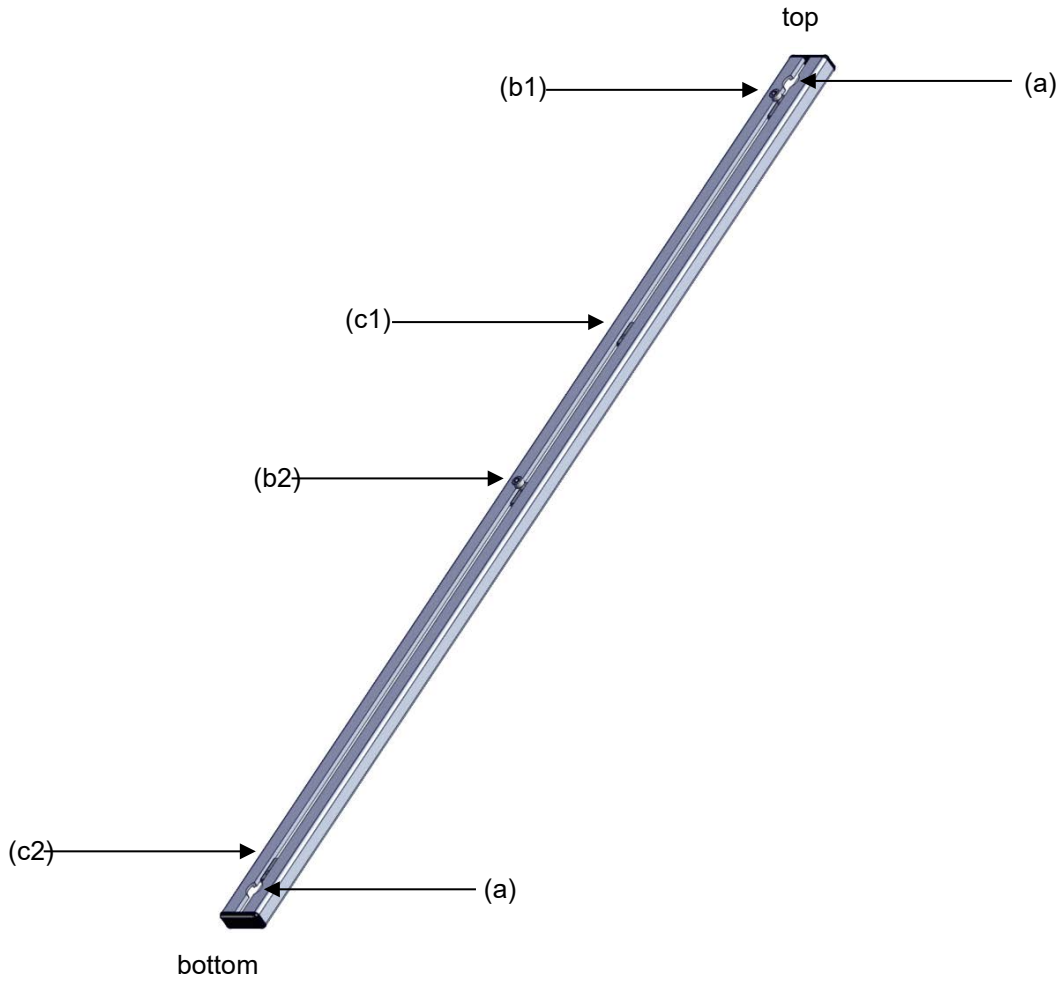
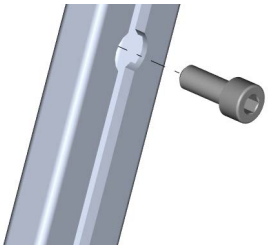


Figure 9: Mounting rail (delivery condition)

(a) Holes for M8 screws for mounting the rails on the chamber side
- (b1) for CO_2 control box (CO_2 control module accessory)
- (b2) for plant light box

(c) Movable mounts for M5 screws for attaching the accessory
- (c1) for CO_2 control box (CO_2 control module accessory)
- (c2) for plant light box



Screw the two mounting rails onto the left side of the chamber. Use 2 of the 4 supplied M8 screws for each rail at position (a) of the rail.

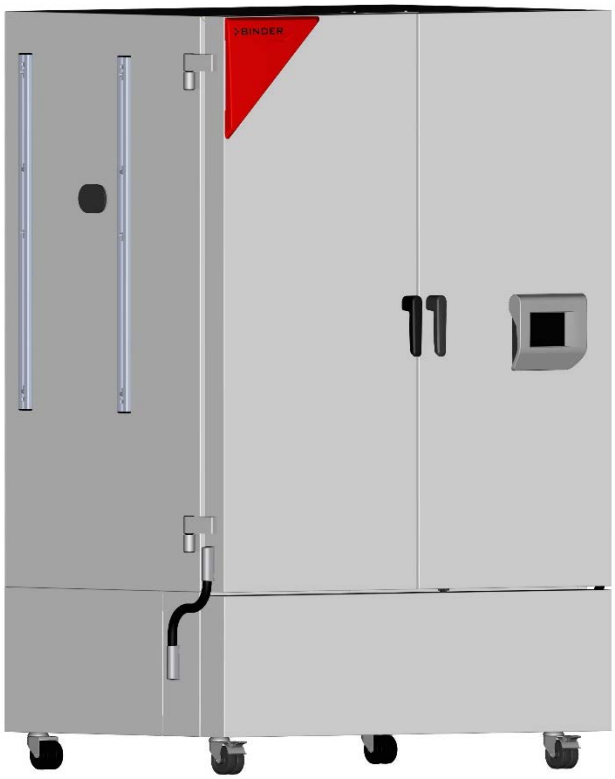


Figure 10: Cooling incubator/climate chamber with installed mounting rails

4.1.2 Installing the plant light box

- Hang the plant light box at the lower end of the mounting rails into the upper one of the pre-assembled screws (b2).
- The position of the lower mounts is determined by a small notch in the retaining rail, as the ball of the mount snaps into a notch here. Then screw the plant light box onto the two rails in position (c2) using the two M5 screws provided.

Figure 11: Screwing the plant light box

4.2 Mounting and connecting the LED light bars

4.2.1 Fastening the LED light bars on the racks

The LED light bars of the LED plant light module are optimized for the 260, 470, and 720 chamber sizes, but can also be used in the 1060 and 1600 sizes. When installing in the 1600 size, please note that the standard racks used as light bars holders must be inserted upside down, as they have additional reinforcement bars.

Note: The LED light bars can be attached to the chamber's standard racks. Racks are not included in the accessory package. If additional mounting options are required, matching racks must be ordered separately.

The LED light bars are attached to the racks using the included clips. Two clips are already attached to each light bar. The clips are adjustable and should be located at the ends of the bars.

To install an LED light bar in the desired location, position it under the rack and press each of the two clips between the grid bars from below until it clicks into place.

You can install all the LED light bars together in one level or distribute them across two to four levels. Four light bars each are connected together.

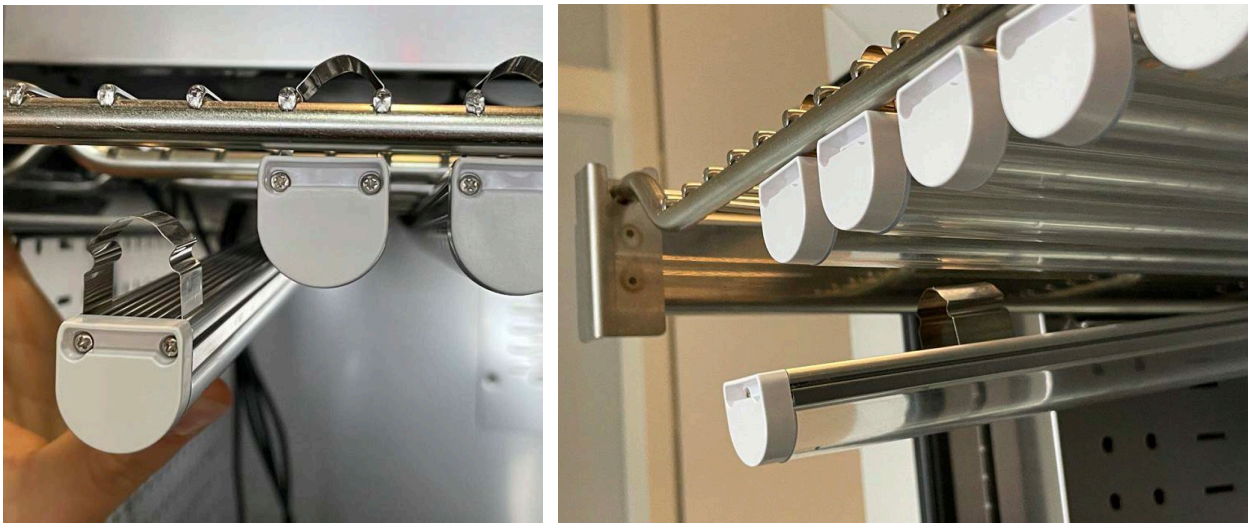


Figure 12: Fastening the LED light bars with clips

4.2.2 Connecting the LED light bar connectors to the cable distributors

A cable is connected to the rear end of each LED light bar. Connections are made in groups of four light strips. Four cables from each light bar are connected together to a cable distributor. A cable is then screwed to the distributor and routed through the elongated access port to the outside.

	NOTE
	Risk of damage to the LEDs. **Damage to the accessory.** ➢ Ensure that the plant light system is turned off before connecting or disconnecting the distributors to the LED strips.

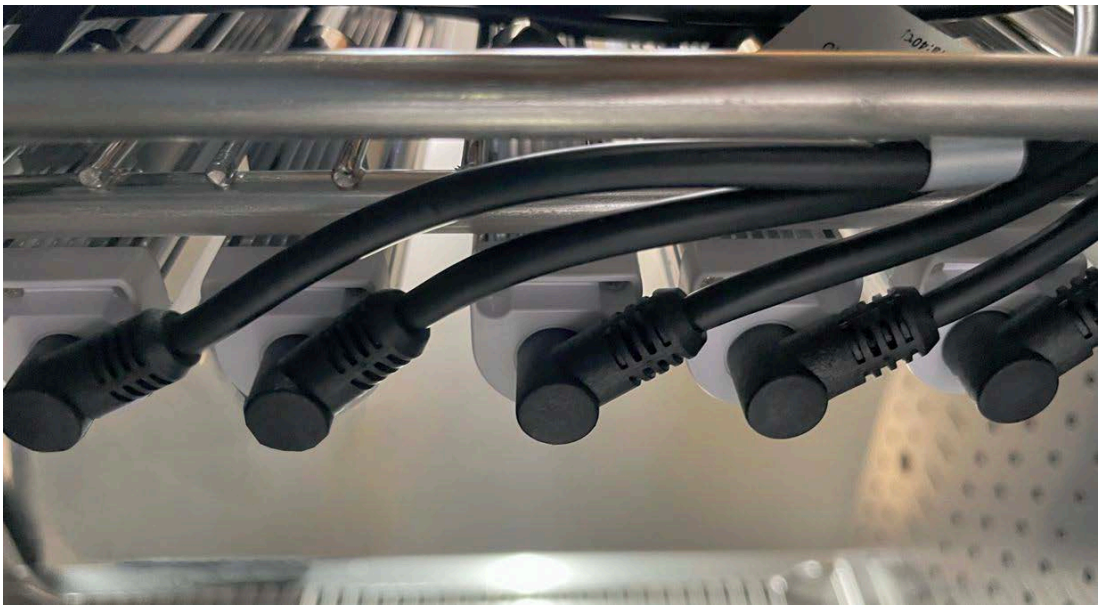


Figure 13: Cable connections to the LED light bars, view from behind

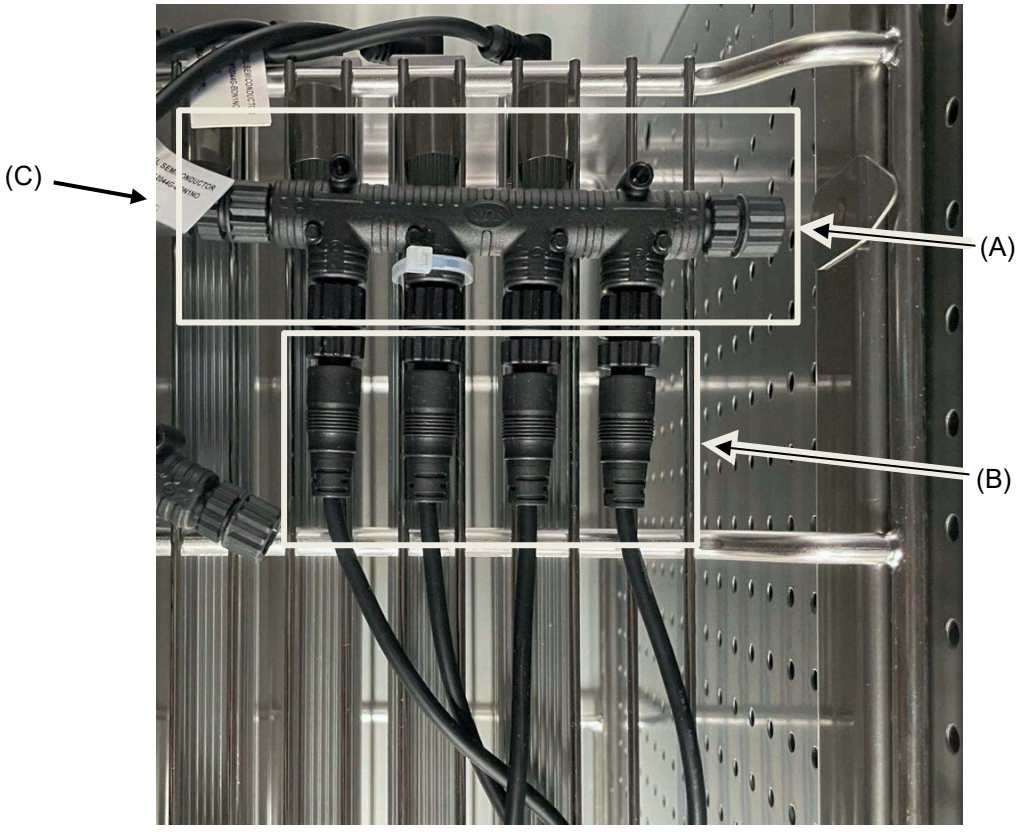


Figure 14: Connection of 4 cables of the light strips (B) to one distributor (A), view from above

- Connect every four cables of the light bars together to a distributor.

  You can group the cables of 4 connections together using cable ties. If the bars are to be left in place for an extended period, we recommend securing the cables to the racks with cable ties.

- Then screw a cable to each distributor.

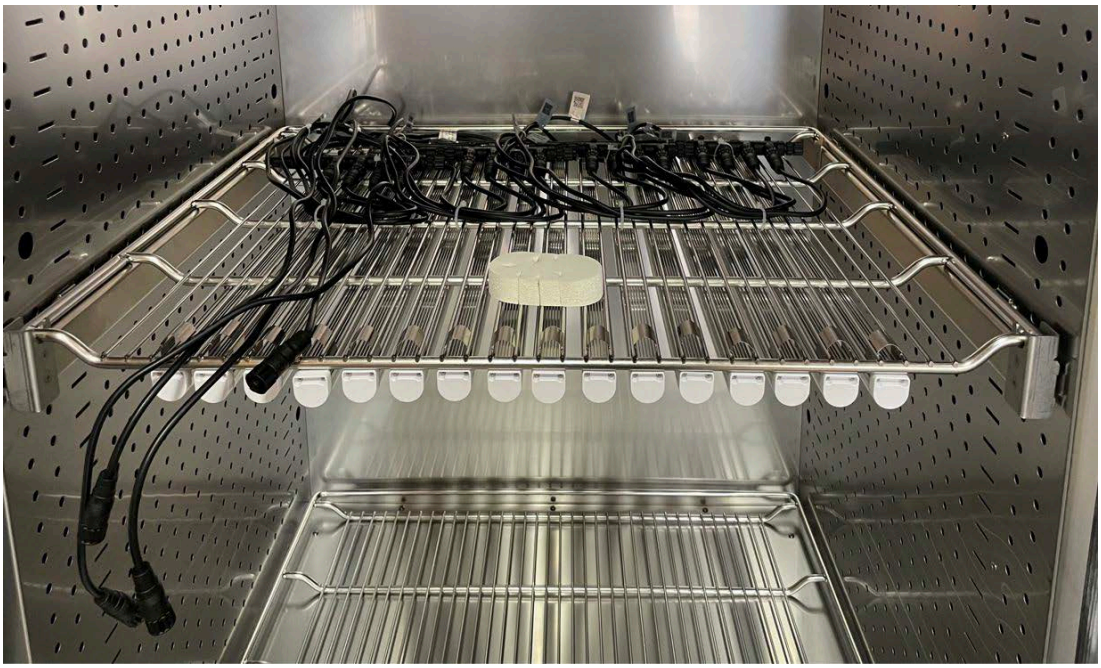


Figure 15: Connected light bars, front view (example: all in one level)

- Lead the cables from the distributors through the elongated access port to the outside

Figure 16: Cables from the distributors of the LED light bar cables,
led through the elongated access port to the outside

4.3 Connectors on the plant light box

Figure 17: Top of the plant light box with connection sockets

Screw the light connectors onto the 4 connection sockets.

	NOTE
	Risk of damage to the LEDs. **Damage to the accessory.** ➢ Ensure that the plant light system is turned off before screwing or unscrewing the light connectors.

Connect the supplied ventilation hose to the connection (9) and guide it through the elongated access port into the interior of the chamber.

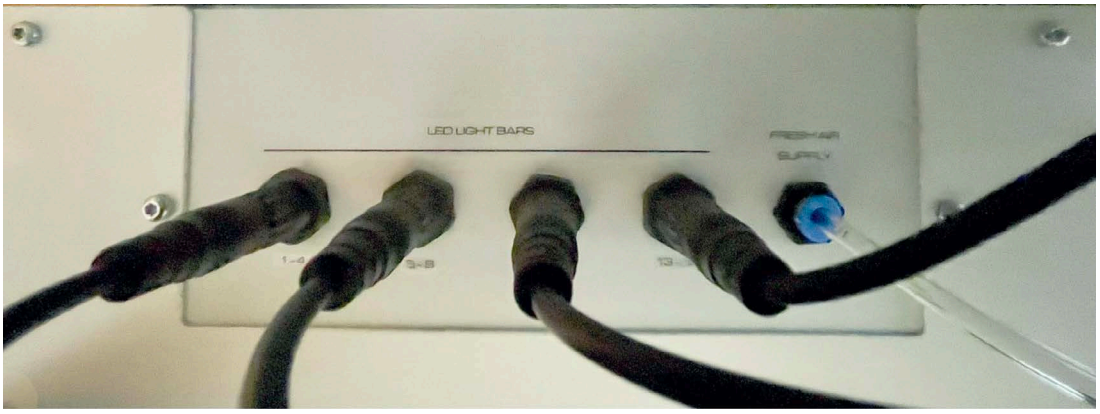


Figure 18: Connections on the top of the plant light box, mounted

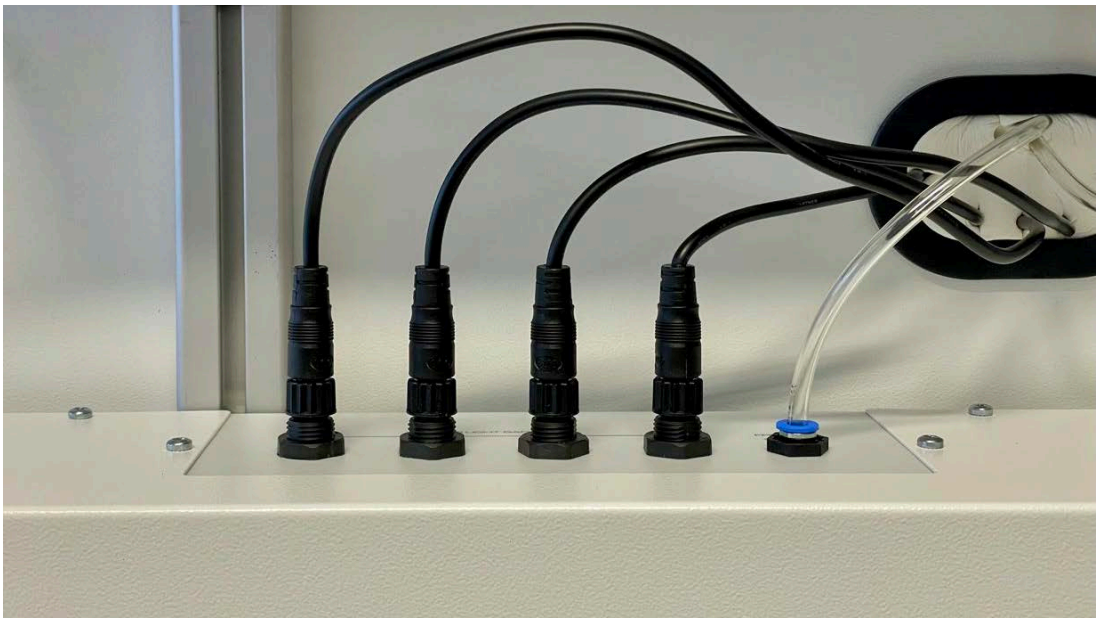


Figure 19: Top of the plant light box with connections

To release the connected ventilation hose, press the blue ring downwards, then you can pull the hose out of the connection.

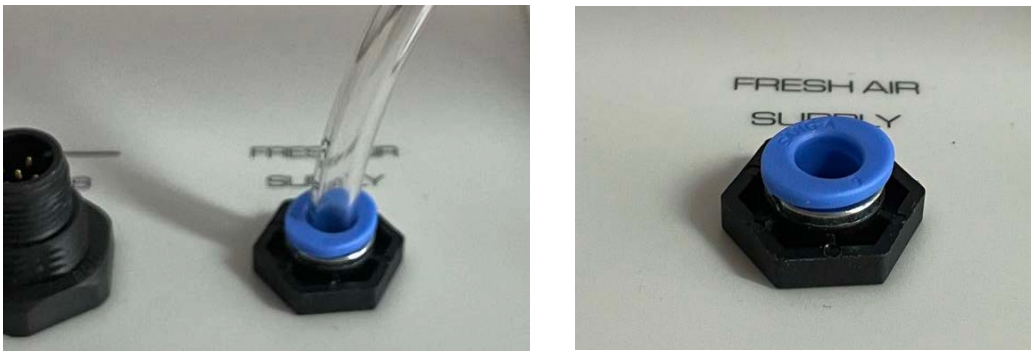
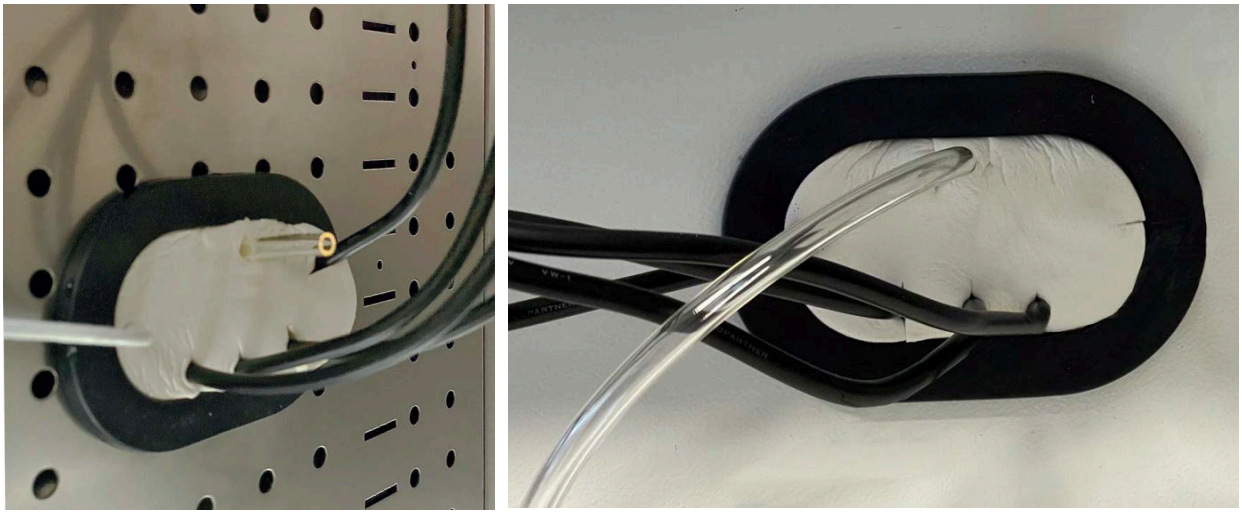


Figure 20: Connecting and disconnecting the ventilation hose

4.4 Inserting the silicone foam plugs

- Guide the cables and the ventilation hose into the provided slots through the two silicone foam plugs provided.
- Insert both silicone foam plugs into the elongated access port (one from the inside and one from the outside)



View from inside the chamber View from outside the chamber

Figure 21: Silicone foam plugs, inside and outside, installed

4.5 Electrical connection

The connection socket for the IEC connector plug is located on the rear of the plant light box.

- Nominal voltage +/-10%: 120-240 V at 50 and 60 Hz
- Power plug: Grounded CEE 7/7 plug with country-specific plug
- Current type: 1N~
- Device fuse: 16 A
- The domestic socket must also provide a protective conductor. Make sure that the connection of the protective conductor of the domestic installations to the chamber's protective conductor meets the latest technology. The protective conductors of the socket and plug must be compatible!

DANGER

Electrical hazard due to missing protective conductor connection.

Deadly electric shock.

➢ Make sure that the chamber's power plug and the power socket match and securely connect the electrical protective conductors of the chamber and the house installation.

- Only use original connection cables from BINDER according to the above specification.

  UL chambers: Use only a UL Listed Power supply cord (UL category ELBZ), SJT 3x14 AWG (2.08 mm²); C13L. For outside USA use a certified power supply cord according to national requirements.

- Prior to connection and start-up, check the power supply voltage. Compare the values to the specified data located on the chamber's type plate (left chamber side, bottom right-hand, see chap. 1.6).

NOTICE

Danger of incorrect power supply voltage due to improper connection.

Damage to the chamber.

➢ Check the power supply voltage before connection and start-up.

➢ Compare the power supply voltage with the data indicated on the type plate.

- When connecting, please observe the regulations specified by the local electricity supply company as well as the local or national electrical regulations (VDE directives for Germany).
- Observe a sufficient current protection according to the number of devices that you want to operate. We recommend the use of a residual current circuit breaker.
- Pollution degree (acc. to IEC 61010-1): 2
- Installation category (acc. to IEC 61010-1): II

See also electrical data (chap. 9).

To completely separate the chamber from the power supply, you must disconnect the power plug. Install the device in a way that the power plug is easily accessible and can be easily pulled in case of danger.

When connected to a power supply, a leakage current of more than 3.5 mAmp is possible. If grounding through the power cable is insufficient or missing, the leakage current may flow through the user's body. Correct installation of the professional grade power socket provided by the user safely avoids this. Before connecting the chamber to the socket, please check its grounding contact type plug for appropriate construction and if it is undamaged.

DANGER

Electrical hazard by high leakage current.

Deadly electric shock.

➢ Earth connection is essential before connecting supply. Check socket before inserting plug.

5. Functional overview of the light controller

After switching on the plant light box using the On/Off switch (6), the start screen with BINDER logo appears for about 3 seconds. The On/Off switch (6) shows a green status light.

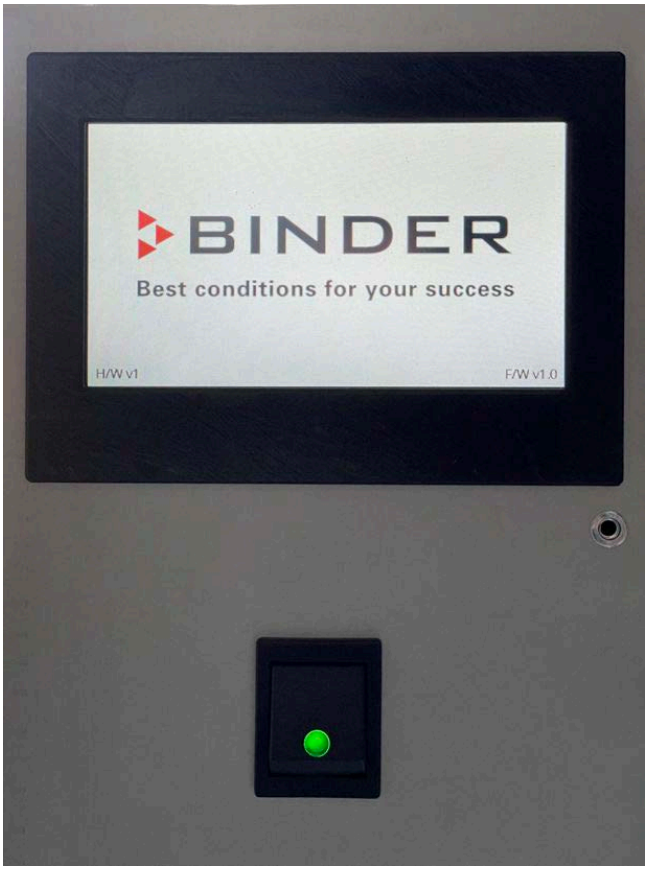


Figure 22: Start screen after switching on the plant light box

Then the normal display appears. When turning on the accessory for the first time, all functions are initially switched off. Later, the settings that were in place before turning off will be retained.

5.1 Standby mode

The controller display will turn off 5 minutes after the last operation.

All light control functions continue to operate. The active status is indicated by the green status light in the on/off switch (6).

To reactivate the controller display, touch it anywhere.

5.2 Functional overview

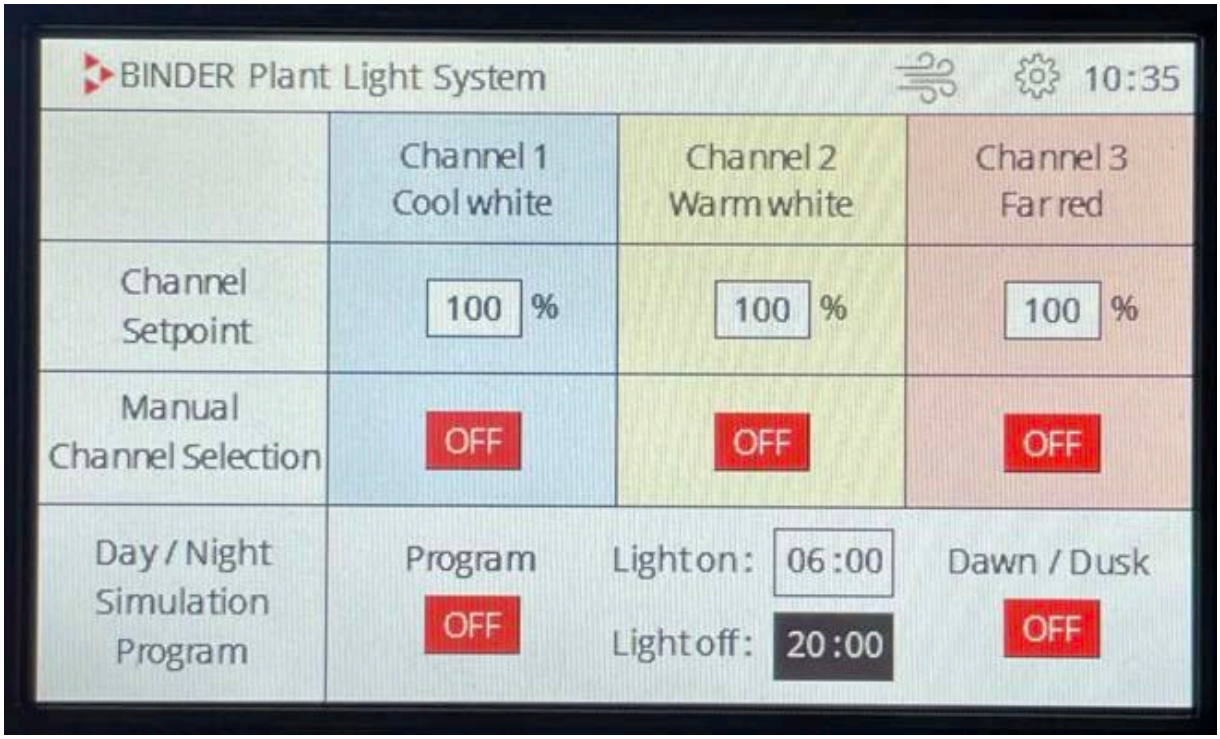


Figure 23: Normal display

Controller display	Signification
Channel	Select the desired light color(s): cool white, warm white, and far red
Channel Setpoint“	• Current intensity in % of the respective light color • Call up the light intensity settings menu
Manual Channel Selection	Turn on/off the respective light color with the selected intensity.
Day/Night Simulation Program	• Turn on/off the program function • Currently set times for turning on and off the lighting • Call up the settings menu to specify the times for turning on and off the lighting • Turn on/off the twilight function
(ventilation symbol)	Ventilation status indicator • Green = Ventilation on • Black = Ventilation off Call up the ventilation settings menu • Turn on/off the ventilation function • Adjust the intensity
(gear symbol)	Call up the time setting menu
(Battery status warning symbol)	Battery charge level below 2.5 V. Replace the battery.

5.3 Setting the system time

In Normal display, press the **gear icon** to open the menu.

Use the arrows to set the hours and minutes of the current time.

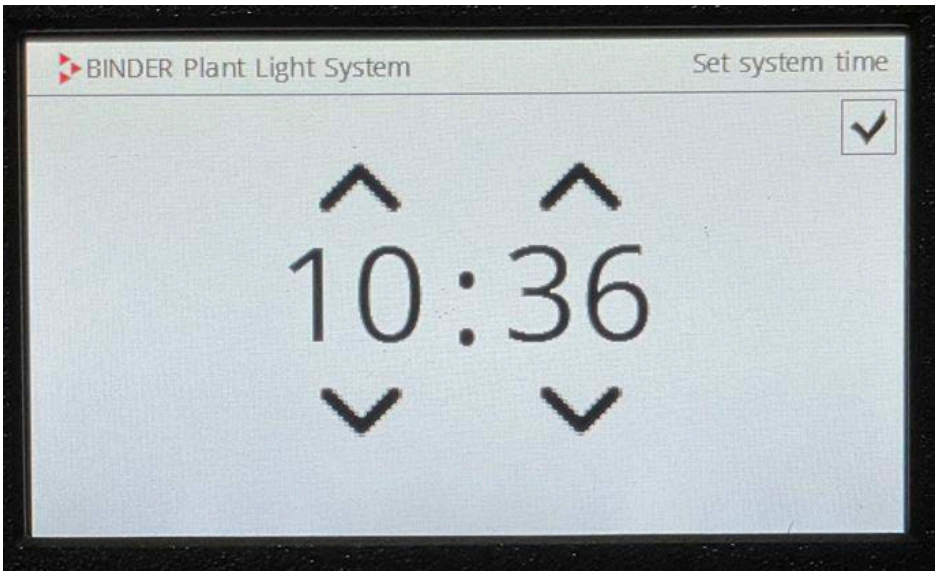


Figure 24: System time setting menu

Then confirm the setting with the check mark. Normal display will be shown again.

5.4 Adjusting fresh air supply

In Normal display, press the **ventilation icon** to open the settings menu.

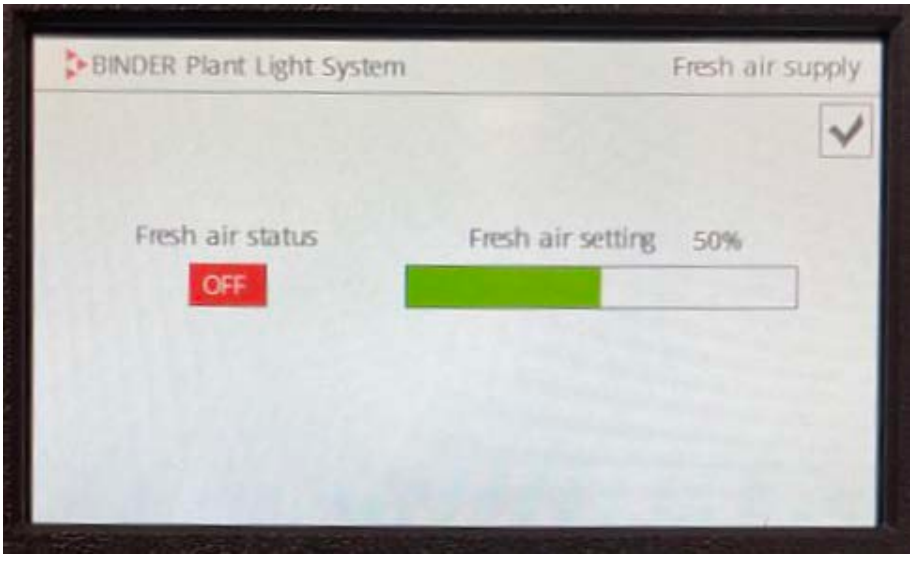


Figure 25: Setting menu for fresh air supply

“Fresh air status”: This button turns the ventilation on/off.

The button also serves as a status indicator:

- green = ventilation on
- black = ventilation off

“Fresh air setting”: Continuous adjustment of the intensity of the ventilation with a slide bar from 0-100%.

The setting always refers to a period of 5 minutes. This is repeated as long as the ventilation is switched on.

Examples:

- Setting 100%: The ventilation runs for the entire period of 5 minutes, i.e. continuously.
- Setting 80%: The ventilation runs for 4 minutes and then is off for 1 minute.
- Setting 50%: The ventilation runs for 2.5 minutes and then is off for 2.5 minutes

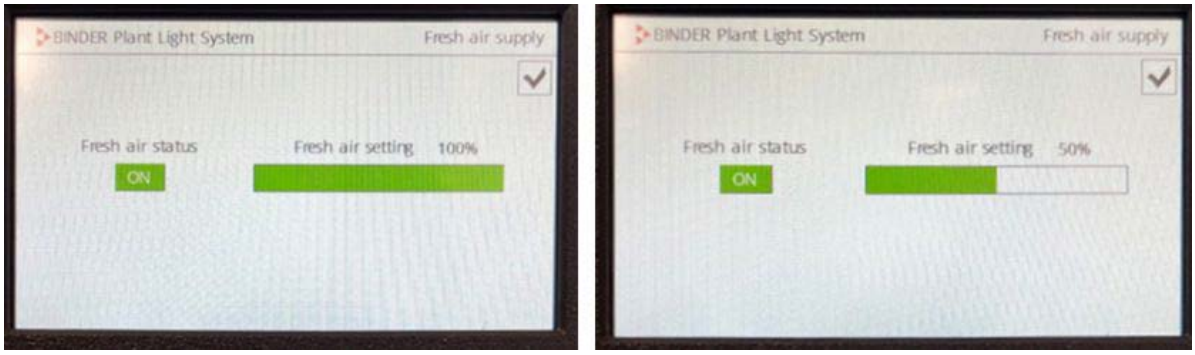


Figure 26: Settings menu for fresh air supply, example view

Then confirm the setting with the check mark. Normal display will be shown again.

5.5 Setting the light channels

You can set the light intensity for each of the three light colors: cool white, warm white, and far red, and then turn on the corresponding lighting individually or in any combination.

The light colors are referred to as “Channel”.

5.5.1 Adjusting light intensity

The current light intensity is shown in Normal display as a percentage next to “**Channel Setpoint**” below the corresponding light color

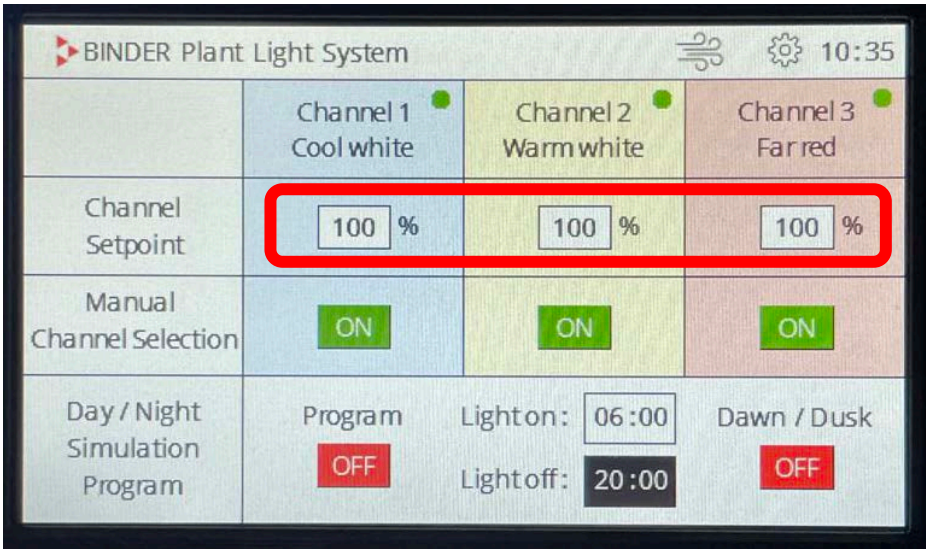


Figure 27: Display of the current light intensity in Normal display (example values)

To adjust the light intensity, tap this percentage in Normal display to open the settings menu.

"**Channel Setpoint**": Continuous adjustment of the light intensity with a slider bar from 0-100%.

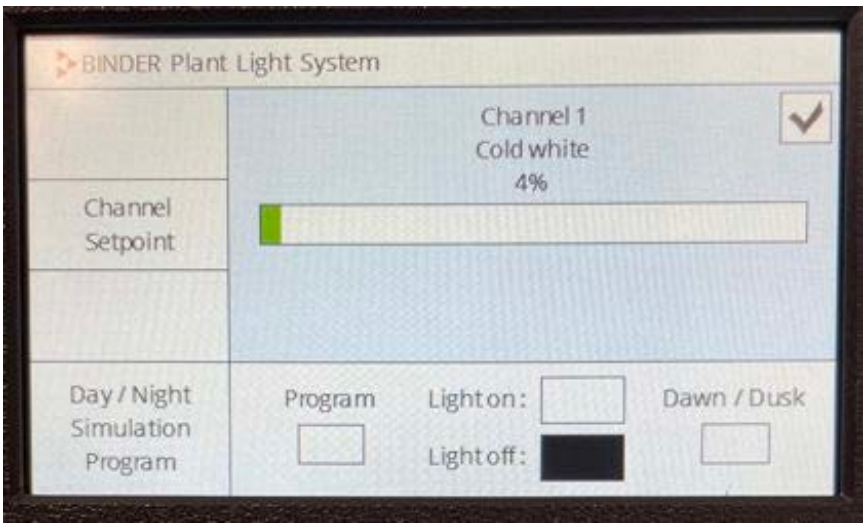


Figure 28: Setting the light intensity of Channel 1 (light color cold white), example view

Then confirm the setting with the check mark. Normal display will be shown again.

Repeat this process for other light colors if necessary.

5.5.2 Display of the current lighting status

The current status of the lighting is displayed for each channel by a green dot in the top right corner next to the name of the corresponding light color:

	
Channel 2 (cool white): LEDs off	Channel 2 (cool white): LEDs lit

Figure 29: Display of the current status of the lighting in Normal display

5.5.3 Activating the lighting

The activation of the lighting is shown in Normal display with “**ON**” (switched on) or “**OFF**” (switched off) next to “Manual Channel Selection” below the corresponding light color.

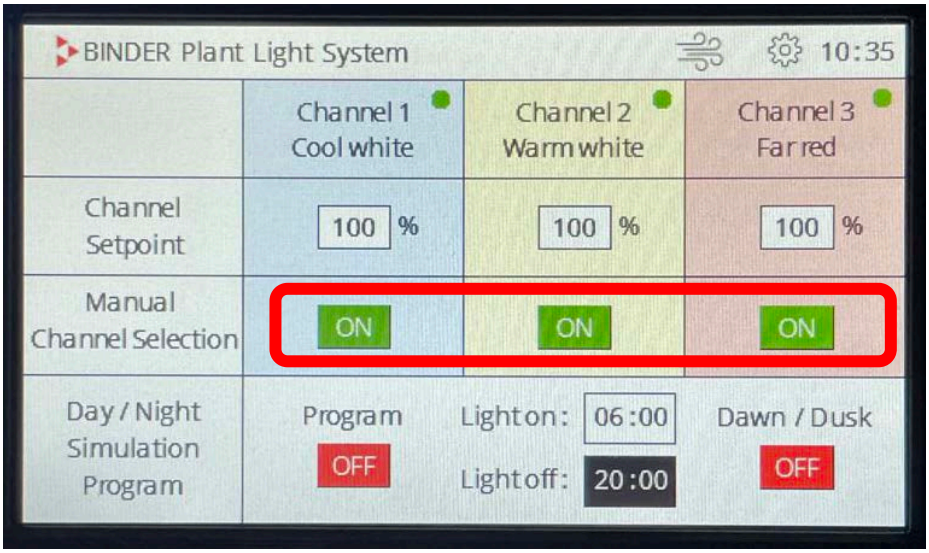


Figure 30: Representation of the activation of the lighting in Normal display (example values

Note: In the example shown, program control is disabled. This means that the LEDs light up as soon as the channels are activated under "Manual Channel Selection," which is indicated by the green dots at the top.

In the normal display, tap the desired icon to toggle between ON and OFF.

The respective light color will be activated or deactivated at the set intensity.

Repeat this process for additional light colors if necessary.

5.6 Program control of the lighting

In the lower part of Normal display, the settings for program control are compiled next to **Day/Night Simulation Program**.

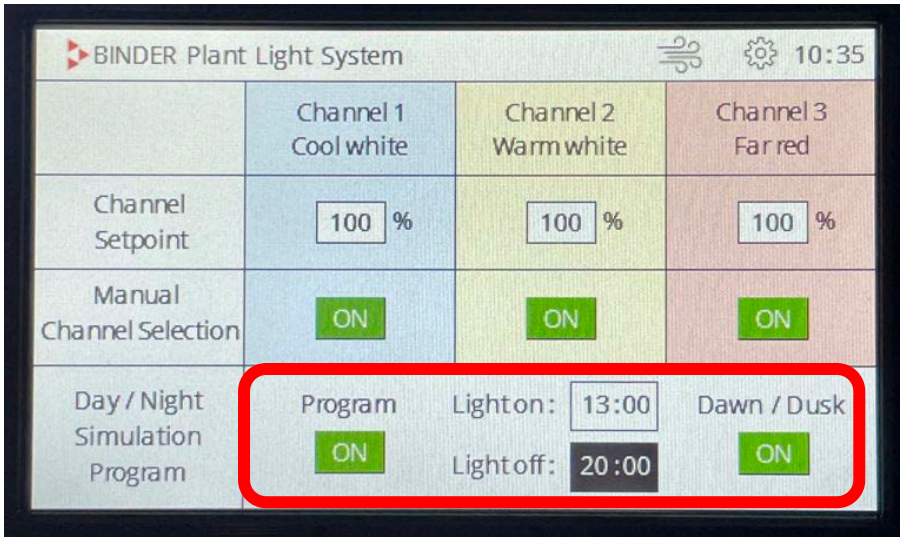


Figure 31: Program control settings (example values)

Note: In the example shown, the program control is enabled. The current time (top right of the display) is outside the programmed lighting time. This means that the LEDs are currently off, even though all channels are activated under "Manual Channel Selection," as indicated by the missing green dots next to the channel names. As soon as the programmed time for switching on is reached, the LEDs light up.

If the program control is activated, the lighting is switched on or off at the selected times.

This is based on the light intensity settings and the selected light colors.

This means that only those light colors that are also set to "ON" under "Manual Channel Selection" will be activated.

5.6.1 Entering day/night times

The currently set times are shown in normal display as "**Light on**" (time to switch on the light) and "**Light off**" (time to switch off the light).

To adjust the times, tap the respective time to open the settings menu.

Use the arrows to set the hours and minutes.

Then confirm the setting with the check mark. The normal display will be shown again.

5.6.2 Switching on / off the program function

The current status of the program function is indicated in the normal display by “ON” (switched on) or “OFF” (switched off) next to “Day/Night Simulation Program”.

Tap the button to toggle between ON and OFF.

The program control is switched on or off according to the set parameters.

5.6.3 Twilight function

The twilight function allows a gradual transition between light and darkness.

When the twilight function is activated, the light will turn on or off gradually over a period of one hour.

The current status of the twilight function is shown in the normal display as “**ON**” (switched on) or “**OFF**” (switched off) under “**Dawn / Dusk**”.

Tap the button to toggle between ON and OFF.

The twilight function will be turned on or off.

6. Cleaning and decontamination

Clean the chamber and accessory after each use in order to prevent potential corrosion damage by ingredients of the loading material.

Prior to renewed startup, allow the chamber and accessory to completely dry after all cleaning and decontamination measures.

DANGER

Electrical hazard by water entering the chamber.

Deadly electric shock.

- ∅ Do NOT spill water or cleaning agents over the inner and outer chamber surfaces.
- ∅ Do NOT put ANY cleaning aids (cloth or brush) into slots or openings on the chamber.
- ➢ Before cleaning, turn off the cooling incubator/climate chamber and the plant light box and disconnect the power plugs. Let the chamber cool down to ambient temperature.
- ➢ Completely dry the chamber and accessory before turning it on again.

6.1 Cleaning

Disconnect the chamber and accessory from the power supply before cleaning. Pull the power plug.

	The interior of the chamber must be kept clean. Thoroughly remove any residues of test material.

Wipe the surfaces with a moistened towel. In addition, you can use the following cleaning agents:

Exterior surfaces of the plant light box	Standard commercial cleaning detergents free from acid or halides. Alcohol-based solutions. We recommend using the neutral cleaning agent Art. No. 1002-0016.
Instrument panel	Standard commercial cleaning detergents free from acid or halides. We recommend using the neutral cleaning agent Art. No. 1002-0016.
LED light bars	Wipe with a soft, if desired moistened towel. Do not mechanically strain the LED light bars during cleaning and take care not to scratch them

Do not use cleaning agents that may cause a hazard due to reaction with components of the device or the loading material. If there is doubt regarding the suitability of cleaning products, please contact BINDER service.

	We recommend using the neutral cleaning agent Art. No. 1002-0016 for a thorough cleaning. Any corrosive damage that may arise following use of other cleaning agents is excluded from liability by BINDER GmbH. Any corrosive damage caused by a lack of cleaning, is excluded from liability by BINDER GmbH.

NOTICE

Danger of corrosion by using unsuitable cleaners.

Damage to the accessory.

∅ Do NOT use acidic or chlorine cleaning detergents.

∅ Do NOT use a neutral cleaning agent on other kind of surfaces (e.g., light sensors, LED lighting).

For surface protection, perform cleaning as quickly as possible.

After cleaning completely remove cleaning agents from the surfaces with a moistened towel. Let the chamber dry.

Soapsuds may contain chlorides and must therefore NOT be used for cleaning.

With every cleaning method, always use adequate personal safety controls.

Following cleaning, leave the chamber door open or remove the access port plugs.

The neutral cleaning agent may cause health problems in contact with skin and if ingested. Follow the operating instructions and safety hints labeled on the bottle of the neutral cleaning agent.

Recommended precautions: To protect the eyes use sealed protective goggles. Wear gloves. Suitable protective gloves in full contact with media: butyl or nitrile rubber, penetration time >480 minutes.

CAUTION

Danger of chemical burns through contact with skin or ingestion of the neutral cleaning agent.

Skin and eye damage. Environmental damage.

∅ Do not ingest the neutral cleaning agent. Keep it away from food and beverages.

∅ Do NOT empty the neutral cleaning agent into drains.

➢ Wear protective gloves and goggles.

➢ Avoid skin contact with the neutral cleaning agent.

6.2 Decontamination / chemical disinfection

The operator must ensure that proper decontamination is performed in case a contamination of the chamber by hazardous substances has occurred.

Disconnect the chamber and accessory from the power supply prior to chemical decontamination. Pull the power plug.

Do not use decontamination agents that may cause a hazard due to reaction with components of the device or the loading material. If there is doubt regarding the suitability of cleaning products, please contact BINDER service.

You can use the following disinfectants:

Exterior surfaces of the plant light box	Standard commercial surface disinfectants free from acid or halides. Alcohol-based solutions. We recommend using the disinfectant spray Art. No. 1002-0022.

	For chemical disinfection, we recommend using the disinfectant spray Art. No. 1002-0022. Any corrosive damage that may arise following use of other disinfectants is excluded from liability by BINDER GmbH.

	With every decontamination / disinfection method, always use adequate personal safety controls.

In case of contamination of the interior by biologically or chemically hazardous material, there are two possible procedures depending on the type of contamination and loading material:

1. Spray the inner chamber with an appropriate disinfectant.

   Before start-up, the chamber must be absolutely dry and ventilated, as explosive gases may form during the decontamination process.

2. If necessary, have strongly contaminated inner chamber parts removed by an engineer for cleaning, or have them exchanged. Sterilize the inner chamber parts in a sterilizer or autoclave.

	In case of eye contact, the disinfectant spray may cause eye damage due to chemical burns. Follow the operating instructions and safety hints labeled on the bottle of the disinfectant spray.

Recommended precautions: To protect the eyes use sealed protective goggles.

	**CAUTION** **Danger of chemical burns through eye contact with the disinfectant spray.** **Eye damage. Environmental damage** ∅ Do NOT empty the disinfectant into drains. ➢ Wear protective goggles.

	After using the disinfectant spray, allow the device to dry thoroughly, and aerate it sufficiently.

7. Maintenance and service, troubleshooting, repair, testing

7.1 General information, personnel qualification

- **Maintenance**

  See chap. 7.2

- **Simple troubleshooting**

  Chap. 7.3 describes troubleshooting by operating personnel. It does not require technical intervention into the chamber, nor disassembly of chamber parts.

  For personnel requirements please refer to chap. 1.1.

- **Detailed troubleshooting**

  If errors cannot be identified with simple troubleshooting, further troubleshooting must be performed by BINDER Service or by BINDER qualified service partners or technicians.

- **Repair**

  Repair of the chamber can be performed by BINDER Service or by BINDER qualified service partners or technicians.

  After maintenance, the chamber must be tested prior to resuming operation.

- **Electrical testing**

  To prevent the risk of electrical shock from the electrical equipment of the chamber, an annual repeat inspection as well as a test prior to initial startup and prior to resuming operation after maintenance or repair, are required. This test must meet the requirements of the competent public authorities. We recommend testing under EN 50678/VDE 0701 and EN 50699/VDE 0702.

7.2 Maintenance intervals, service

DANGER

Electrical hazard during live maintenance work.

Deadly electric shock.

∅ The chamber must NOT become wet during operation or maintenance works.

∅ Do NOT remove the rear panel of the chamber.

➢ Before cleaning, turn off the cooling incubator/climate chamber and the plant light box and disconnect the power plugs. Let the chamber cool down to ambient temperature.

➢ Make sure that general maintenance work will be conducted by licensed electricians or experts authorized by BINDER.

Ensure regular maintenance work is performed at least once a year and that the legal requirements are met regarding the qualifications of service personnel, scope of testing and documentation..

The warranty becomes void if maintenance work is conducted by non-authorized personnel.

We recommend taking out a maintenance agreement. Please consult BINDER Service:

BINDER telephone hotline:	+49 (0) 7462 2005 555
BINDER fax hotline:	+49 (0) 7462 2005 93555
BINDER service hotline USA:	+1 866 885 9794 or +1 631 224 4340 x3 (toll-free in the USA)
BINDER service hotline Asia Pacific:	+852 390 705 04 or +852 390 705 03
BINDER Internet website	http://www.binder-world.com
BINDER address	BINDER GmbH, post office box 102, 78502 Tuttlingen, Germany

International customers, please contact your local BINDER distributor.

7.2.1 Replacement of the LED light bars

We recommend replacing the light bars after approx. 25.000 operating hours and at the latest after 6 years.

Please contact BINDER Service.

7.2.2 Battery status warning

The device has a battery for the system time. When the battery is low (below 2.5 V), a flashing battery symbol appears in the upper right corner of the normal display.

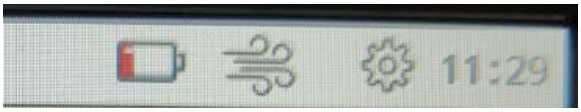


Figure 32: Low battery warning display

Replace the battery and re-enter the system time after replacing it.

Battery type: CR1225 button cell

7.3 Troubleshooting

Defects and shortcomings can compromise the operational safety of the chamber and can lead to risks and damage to equipment and persons. If there are is a technical fault or shortcoming, take the chamber out of operation and inform BINDER Service. If you are not sure whether there is a technical fault, proceed according to the following list. If you cannot clearly identify an error or there is a technical fault, please contact BINDER Service.

	Only qualified service personnel authorized by BINDER must perform repair. Repaired chambers must comply with the BINDER quality standards.

7.4 Sending the accessory back to BINDER GmbH

If you return a BINDER product to us for repair or any other reason, we will only accept the product upon presentation of an **authorization number** (RMA number) that has previously been issued to you. An authorization number will be issued after receiving your complaint either in writing or by telephone **prior** to your sending the BINDER product back to us. The authorization number will be issued following receipt of the information below:

- BINDER product type and serial number
- Date of purchase
- Name and address of the dealer from which you bought the BINDER product
- Exact description of the defect or fault
- Complete address, contact person and availability of that person
- Exact location of the BINDER product in your facility
- A contamination clearance certificate (chap. 11) must be faxed in advance

The authorization number must be applied to the packaging in such a way that it can be easily recognized or be recorded clearly in the delivery documents.

	For security reasons we cannot accept a chamber delivery if it does not carry an authorization number.

Return address: BINDER GmbH Gänsäcker 16
Abteilung Service 78502 Tuttlingen, Germany

8. Disposal

8.1 Disposal of the transport packing

Packing element	Material	Disposal
Transport box with metal clamps	Cardboard	Paper recycling
	Metal	Metal recycling
Top cover	Cardboard	Paper recycling
Edge protection	Styropor® or PE foam	Plastic recycling
Bag for operating manual	PE foil	Plastic recycling
Insulating air cushion foil	PE foil	Plastic recycling

If recycling is not possible, all packing parts can also be disposed of with normal waste.

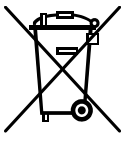
8.2 Decommissioning

- Turn off the cooling incubator/climate chamber and disconnect it from the power supply (pull the power plug).
- Turn off the ICH Q1B light box and disconnect it from the power supply (pull the power plug).
- Temporal decommissioning: See indications for appropriate storage.
- Final decommissioning: Dispose of the chamber as described in chap. 8.3 to 8.5.

8.3 Disposal of the accessory in the Federal Republic of Germany

According to Annex I of Directive 2012/19/EU of the European Parliament and of the Council on waste electrical and electronic equipment (WEEE), BINDER devices are classified as “monitoring and control instruments” (category 9) only intended for professional use”. They must not be disposed of at public collecting points.

The accessory bears the symbol for the marking of electrical and electronic equipment manufactured / placed on the market in the EU after 13 August 2005 and be disposed of in separate collection according to Directive 2012/19/EU on waste electrical and electronic equipment (WEEE) and German national law for electrical and electronic equipment (Elektro- und Elektronikgerätegesetz, ElektroG). WEEE marking: crossed-out wheeled bin. A significant part of the materials must be recycled in order to protect the environment.



At the end of the device's service life, have the accessory disposed of according to the German national law for electrical and electronic equipment (Elektro- und Elektronikgerätegesetz, ElektroG from 20 October 2015, BGBl. I p. 1739) or contact BINDER service who will organize taking back and disposal of the chamber according to the German national law for electrical and electronic equipment (Elektro- und Elektronikgerätegesetz, ElektroG from 20 October 2015, BGBl. I p. 1739).

NOTICE

Danger of violation against existing law if not disposed of properly.

Failure to comply with applicable law.

∅ Do NOT dispose of BINDER devices at public collecting points.

➢ Have the device disposed of professionally at a recycling company which is certified according to the German national law for electrical and electronic equipment (Elektro- und Elektronikgerätegesetz, ElektroG from 20 October 2015, BGBl. I p. 1739).

or

➢ Instruct BINDER Service to dispose of the device. The general terms of payment and delivery of BINDER GmbH apply, which were valid at the time of purchasing the chamber.

Certified companies disassemble waste (used) BINDER equipment in primary substances for recycling according to Directive 2012/19/EU. The devices must be free from toxic, infectious or radioactive substances in order to eliminate any health hazards to the employees of the recycling companies.

Prior to handing the chamber over to a recycling company, it is the user's responsibility that it is free from toxic, infectious or radioactive substances.

- Prior to disposal, clean all introduced or residual toxic substances from the chamber.
- Prior to disposal, disinfect the chamber from all sources of infection. Be aware that sources of infection may also be located outside the inner chamber.
- If you cannot safely remove all toxic substances and sources of infection from the chamber, dispose of it as special waste according to national law.
- Fill out the contamination clearance certificate (chap. 11) and enclose it with the chamber.

WARNING

Danger of intoxication and infection through contamination of the chamber with toxic, infectious or radioactive substances.

Damages to health.

∅ NEVER take a chamber contaminated with toxic substances or sources of infection for recycling according to Directive 2012/19/EU.

➢ Prior to disposal, remove all toxic substances and sources of infection from the chamber.

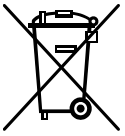
➢ A chamber from which all toxic substances or sources of infection cannot be safely removed must be considered as "special" waste according to national law. Dispose of it accordingly.

The main board of the controller includes a lithium cell. As the end user, you are legally obliged to return used batteries. Old batteries and rechargeable batteries must not be disposed of with household waste. They can be handed in free of charge at the community's public collection points and wherever batteries and accumulators of the type in question are sold.

8.4 Disposal of the accessory in the member states of the EU except for the Federal Republic of Germany

According to Annex I of Directive 2012/19/EU of the European Parliament and of the Council on waste electrical and electronic equipment (WEEE), BINDER devices are classified as "monitoring and control instruments" (category 9) only intended for professional use". They must not be disposed of at public collecting points.

The accessory bears the symbol for the marking of electrical and electronic equipment manufactured / placed on the market in the EU after 13 August 2005 and be disposed of in separate collection according to the Directive 2012/19/EU on waste electrical and electronic equipment (WEEE). WEEE marking: crossed-out wheeled bin.



At the end of the device's service life, notify the distributor who sold you the device, who will take back and dispose of the chamber according to the Directive 2012/19/EU on waste electrical and electronic equipment (WEEE).

NOTICE

Danger of violation against existing law if not disposed of properly.

Failure to comply with applicable law.

∅ Do NOT dispose of BINDER devices at public collecting points.

➢ Have the device disposed of professionally at a recycling company that is certified according to conversion of the Directive 2012/19/EU into national law.

or

➢ Instruct the distributor who sold you the device to dispose of it. The agreements apply that were agreed with the distributor when purchasing the chamber (e.g. his general terms of payment and delivery).

➢ If your distributor is not able to take back and dispose of the chamber, please contact BINDER service.

Certified companies disassemble waste (used) BINDER equipment in primary substances for recycling according to Directive 2012/19/EU. The devices must be free from toxic, infectious or radioactive substances in order to eliminate any health hazards to the employees of the recycling companies.

Prior to handing the chamber over to a recycling company, it is the user's responsibility that it is free from toxic, infectious or radioactive substances.

- Prior to disposal, clean all introduced or residual toxic substances from the chamber.
- Prior to disposal, disinfect the chamber from all sources of infection. Be aware that sources of infection may also be located outside the inner chamber.
- If you cannot safely remove all sources of infection and toxic substances from the chamber, dispose of it as special waste according to national law.
- Fill out the contamination clearance certificate (chap. 11) and enclose it with the chamber.

WARNING

Danger of intoxication and infection through contamination of the chamber with toxic, infectious or radioactive substances.

Damages to health.

∅ NEVER take a chamber contaminated with toxic substances or sources of infection for recycling according to Directive 2012/19/EU.

➢ Prior to disposal, remove all toxic substances and sources of infection from the chamber.

➢ A chamber from which all toxic substances or sources of infection cannot be safely removed must be considered as "special" waste according to national law. Dispose of it accordingly.

The main board of the controller includes a lithium cell. The disposal of batteries within the EU must be carried out in accordance with the current EU directives as well as national, regional and local environmental protection regulations.

8.5 Disposal of the accessory in non-member states of the EU

NOTICE

Danger of violation against existing law if not disposed of properly.

Failure to comply with applicable law. Alteration of the environment.

- For final decommissioning and disposal of the accessory, please contact BINDER service.
- Follow the statutory regulations for appropriate, environmentally friendly disposal.

The main board of the controller includes a lithium cell. Used batteries must be disposed of properly. Please ensure that you dispose of the battery in accordance with the regulations in force in your country.

9. Technical Data

Exterior dimensions of the plant light box		
Length	mm / *inch*	597 / *23.50*
Height	mm / *inch*	331 / *13.03*
Depth	mm / *inch*	133 / *5.24*
Weight		
Weight of the plant light box	kg / *lbs.*	10.4 / *22.93*
Weight of the plant light box with light bars	kg / *lbs.*	18 / *39.68*
Electrical data		
System of protection acc. to EN 60529	IP	20
Nominal voltage (+/-10%) at 50 Hz power frequency	V	120-240
Nominal voltage (+/-10%) at 60 Hz power frequency	V	120-240
Current type		1N~
Power plug		Grounded plug
Nominal power	kW	0.25
Installation category acc. to IEC 61010-1		II
Pollution degree acc. to IEC 61010-1		2

All indications are average values, typical for chambers produced in series. We reserve the right to change technical specifications at any time.

10. Certificates and declarations of conformity

10.1 EU Declaration of Conformity

BINDER
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EU-Konformitätserklärung / EU Declaration of Conformity / Déclaration de conformité UE / Declaración de conformidad UE / Dichiarazione di conformità UE / Декларация соответствия EU

Hersteller / Manufacturer / Fabricant / Fabricante / Fabbricante / Производитель	BINDER GmbH
Anschrift / Address / Adresse / Dirección / Indirizzo / Адрес	Im Mittleren Ösch 5, 78532 Tuttlingen, Germany
Produkt / Product / Produit / Producto / Prodotto / Продукт	BINDER LED-Pflanzenlichtmodul BINDER LED Plant Light Module BINDER Module d'éclairage LED pour plantes BINDER Módulo de luz LED para plantas BINDER Modulo luci per piante a LED BINDER Светодиодный модуль освещения растений
Typenbezeichnung / Type / Type / Tipo / Tipo / Тип	Zubehör für Kühlbrutschränke und Klimaschränke Accessories for Cooling Incubators and Climate Chambers Accessoires pour Incubateurs réfrigérés et Enceinte climatique Accesorios para Incubadoras refrigeradas y Cámara de clima Accessori per Incubatori refrigerati e Camera climatiche Аксессуары для Инкубаторы с охлаждением и климатические камеры
Art. No. / Art. no. / Réf. / Art. Nº / Art. n. / № арт.	8012-2439

Die oben beschriebenen Produkte sind konform mit folgenden EU-Richtlinien:
The products described above are in conformity with the following EU Directives:
Les produits décrits ci-dessus sont conformes aux directives UE suivantes:
Los productos descritos arriba cumplen con las siguientes directivas de la UE:
I prodotti sopra descritti sono conformi alle seguenti direttive UE:
Продукты, указанные выше, полностью соответствуют следующим EU руководствам:

- **2014/35/EU**
  Niederspannungsrichtlinie 2014/35/EU / Low voltage directive 2014/35/EU / Directive basse tension 2014/35/UE / Directiva sobre baja tensión 2014/35/UE / Direttiva Bassa tensione 2014/35/UE / Директива по низкому напряжению 2014/35/EU
- **2014/30/EU**
  EMV-Richtlinie 2014/30/EU / EMC Directive 2014/30/EU / Directive CEM 2014/30/UE / Directiva CEM 2014/30/UE / Direttiva EMC 2014/30/UE / Директива ЭМС 2014/30/EU
- **2011/65/EU, (EU) 2015/863**
  RoHS-Richtlinien 2011/65/EU und (EU) 2015/863 / RoHS Directives 2011/65/EU and (EU) 2015/863 / Directives RoHS 2011/65/UE et (UE) 2015/863 / Directivas RoHS 2011/65/UE y (UE) 2015/863 / Direttive RoHS 2011/65/UE et (UE) 2015/863 / Директивы RoHS 2011/65/EU и (EU) 2015/863

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BINDER GmbH
Im Mittleren Ösch 5
78502 Tuttlingen
Deutschland

Tel: +49 (0) 74 62 / 20 05 - 0
Fax: +49 (0) 74 62 / 20 05 - 100
info@binder-world.com
www.binder-world.com

Geschäftsführung:
Dipl.-Ing. Peter M. Binder,
Michael Binder-Pfaff, Peter Wimmer,
Benjamin Jeuthe
Amtsgericht Stuttgart, HRB 727150
Sitz der Gesellschaft: Tuttlingen
Ust.-ID.-Nr.: DE815021304

Kreissparkasse Tuttlingen
IBAN: DE05 6435 0070 0000 0022 66
SWIFT: SOLA DE S1TUT
Deutsche Bank Tuttlingen
IBAN: DE56 6537 0075 0213 8709 00
SWIFT: DEUT DE SS653

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Die oben beschriebenen Produkte tragen entsprechend die Kennzeichnung CE.
The products described above, corresponding to this, bear the CE-mark.
Les produits décrits ci-dessus, en correspondance, portent l'indication CE.
Los productos descritos arriba, en conformidad, llevan la indicación CE.
I prodotti sopra descritti, conformi a quanto sopra, portano il marchio CE.
Данные продукты в соответствии с изложенным выше маркированы знаком CE.

Die oben beschriebenen Produkte sind konform mit folgenden harmonisierten Normen:
The products described above are in conformity with the following harmonized standards:
Les produits décrits ci-dessus sont conformes aux normes harmonisées suivantes:
Los productos descritos arriba cumplen con las siguientes normas:
I prodotti sopra descritti sono conformi alle seguenti normative armonizzate:
Продукты, указанные выше, полностью соответствуют следующим стандартам:

2014/35/EU
• **EN 61010-1:2010+A1:2019+A1:2019/AC:2019**
2014/30/EU
• **EN IEC 61326-1:2021**
2011/65/EU, (EU) 2015/863
• **EN IEC 63000:2018**

78532 Tuttlingen, 03.03.2025
BINDER GmbH

P. Wimmer
Chief Technology Officer
Chief Technology Officer (CTO)
Directeur de la technologie
Director de la tecnología
Direttore tecnico
Главный технический директор

J. Bollaender
Leiter F & E
Director R & D
Chef de service R&D
Responsable I & D
Direttore R & D
Глава департамента R&D

2 / 2

BINDER GmbH
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Deutschland

Tel: +49 (0) 74 62 / 20 05 - 0
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10.2 UKCA Declaration of Conformity

BINDER
Best conditions for your success

UKCA Declaration of Conformity

Name and address of manufacturer	BINDER GmbH Im Mittleren Ösch 5, 78532 Tuttlingen, Germany
Name and address of UK Authorised Representative	Comply Express Ltd Unit C2, Coalport House, Stafford Park 1, Telford TF3 3BD
Object of the Declaration	BINDER LED Plant Light Module
Type Designation	Accessories for Cooling Incubators and Climate Chambers
BINDER Art. No.	8012-2439

The Objects of the Declaration described above are in conformity with the relevant UK Regulations and UK Guidelines:

- **Electrical Equipment (Safety) Regulations 2016**
  Statutory Instruments 2016 No. 1101 – Consumer Protection Health and safety
- **Electromagnetic Compatibility Regulations 2016**
  Statutory Instruments 2016 No. 1091 – Electromagnetic Compatibility
- **The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012**
  Statutory Instruments 2012 No. 3032 – Environmental Protection

References of standards and/or technical specifications applied for this Declaration of Conformity, or parts thereof:

S.I. 2016 No. 1101:	EN 61010-1:2010+A1:2019+A1:2019/AC:2019
S.I. 2016 No. 1091:	EN IEC 61326-1:2021
S.I. 2012 No. 3032:	EN IEC 63000:2018

This Declaration is issued under the sole responsibility of the manufacturer.

Tuttlingen	03.03.2025			
Place	Date	P. Wimmer Chief Technology Officer	J. Bollaender Director R & D	BINDER GmbH

BINDER GmbH
Im Mittleren Ösch 5
78502 Tuttlingen
Deutschland

Tel: +49 (0) 74 62 / 20 05 - 0
Fax: +49 (0) 74 62 / 20 05 - 100
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Deutsche Bank Tuttlingen
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SWIFT: DEUT DE SS653

11. Contamination clearance certificate

11.1 For chambers located outside USA and Canada

Declaration regarding safety and health

Erklärung zur Sicherheit und gesundheitlichen Unbedenklichkeit

The German Ordinance on Hazardous Substances (GefStofV), and the regulations regarding safety at the workplace, require that this form be filled out for all products that are returned to us, so that the safety and the health of our employees can be guaranteed

Die Sicherheit und Gesundheit unserer Mitarbeiter, die Gefahrstoffverordnung GefStofV und die Vorschriften zur Sicherheit am Arbeitsplatz machen es erforderlich, dass dieses Formblatt für alle Produkte, die an uns zurückgeschickt werden, ausgefüllt wird.

	Note: A repair is not possible without a completely filled out form. Ohne Vorliegen des vollständig ausgefüllten Formblattes ist eine Reparatur nicht möglich.

- A completely filled out form must be transmitted via Fax (+49 (0) 7462 2005 93555) or by letter in advance, so that this information is available before the equipment/component part arrives. A second copy of this form must accompany the equipment/component part. In addition, the carrier should be notified.

  Eine vollständig ausgefüllte Kopie dieses Formblattes soll per Fax unter Nr. +49 (0) 7462 2005 93555 oder Brief vorab an uns gesandt werden, so dass die Information vorliegt, bevor das Gerät/Bauteil eintrifft. Eine weitere Kopie soll dem Gerät/Bauteil beigefügt sein. Ggf. ist die Spedition zu informieren.

- Incomplete information or non-conformity with this procedure will inevitably lead to substantial delays in processing. Please understand the reason for this measure, which lies outside our area of influence, and will help us to speed up this procedure.

  Unvollständige Angaben oder Nichteinhalten dieses Ablaufs führen zwangsläufig zu beträchtlichen Verzögerungen in der Abwicklung. Bitte haben Sie Verständnis für Maßnahmen, die außerhalb unserer Einflussmöglichkeiten liegen und helfen Sie mit, den Ablauf zu beschleunigen.

- **Please print and fill out this form completely**

  Bitte unbedingt vollständig ausfüllen!

1.	**Unit/ component part / type** / Gerät / Bauteil / Typ:
2.	**Serial No. /** Serien-Nr.:
3.	**Details about utilized substances / biological substances** / Einzelheiten über die eingesetzten Substanzen/biologische Materialien:
3.1	**Designations** / Bezeichnungen:
a)	_____
b)	_____
c)	_____
3.2	**Safety measures required for handling these substances** / Vorsichtsmaßnahmen beim Umgang mit diesen Stoffen:
a)	_____
b)	_____
c)	_____

3.3 **Measures to be taken in case of skin contact or release into the atmosphere** / Maßnahmen bei Personenkontakt oder Freisetzung:

a) _____

b) _____

c) _____

d) _____

3.4 **Other important information that must be taken into account** / Weitere zu beachtende und wichtige Informationen:

a) _____

b) _____

c) _____

4. **Declaration on the risk of these substances** (please checkmark the applicable items) / Erklärung zur Gefährlichkeit der Stoffe (bitte Zutreffendes ankreuzen) :

❑ **4.1** **For non toxic, non radioactive, biologically harmless materials** / für nicht giftige, nicht radioaktive, biologisch ungefährliche Stoffe:

We hereby guarantee that the above-mentioned unit / component part… / Wir versichern, dass o.g. Gerät/Bauteil...

- ❑ Has not been exposed to or contains any toxic or otherwise hazardous substances / weder giftige noch sonstige gefährliche Stoffe enthält oder solche anhaften.
- ❑ That eventually generated reaction products are non-toxic and also do not represent a hazard / auch evtl. entstandene Reaktionsprodukte weder giftig sind noch sonst eine Gefährdung darstellen.
- ❑ Eventual residues of hazardous substances have been removed / evtl. Rückstände von Gefahrstoffen entfernt wurden.

❑ **4.2** **For toxic, radioactive, biologically harmful or hazardous substances, or any other hazard ous materials** / für giftige, radioaktive, biologisch bedenkliche bzw. gefährliche Stoffe oder anderweitig gefährliche Stoffe.

We hereby guarantee that … / Wir versichern, dass …

- ❑ The hazardous substances, which have come into contact with the above-mentioned equipment / component part, have been completely listed under item 3.1 and that all information in this regard is complete / die gefährlichen Stoffe, die mit dem o.g. Gerät/Bauteil in Kontakt kamen, in 3.1 aufgelistet sind und alle Angaben vollständig sind.
- ❑ That the unit /component part has not been in contact with radioactivity / das Gerät/Bauteil nicht mit Radioaktivität in Berührung kam

5. **Kind of transport / transporter** / Transportweg/Spediteur:

Transport by (means and name of transport company, etc.) Versendung durch (Name Spediteur o.ä.)

_____

Date of dispatch to BINDER GmbH / Tag der Absendung an BINDER GmbH:

_____

We hereby declare that the following measures have been taken / Wir erklären, dass folgende Maßnahmen getroffen wurden:

❑ Hazardous substances were removed from the unit including component parts, so that no hazard exists for any person in the handling or repair of these items / das Gerät/Bauteil wurde von Gefahrstoffen befreit, so dass bei Handhabung/Reparaturen für die betreffenden Person keinerlei Gefährdung besteht

❑ The unit was securely packaged and properly identified / das Gerät wurde sicher verpackt und vollständig gekennzeichnet.

❑ Information about the hazardousness of the shipment (if required) has been provided to the transporter / der Spediteur wurde (falls vorgeschrieben) über die Gefährlichkeit der Sendung informiert.

We hereby commit ourselves and guarantee that we will indemnify BINDER GmbH for all damages that are a consequence of incomplete or incorrect information provided by us, and that we will exempt BINDER GmbH from eventual damage claims by third parties./ Wir versichern, dass wir gegenüber BINDER für jeden Schaden, der durch unvollständige und unrichtige Angaben entsteht, haften und BINDER gegen eventuell entstehende Schadenansprüche Dritter freistellen.

We are aware that, in accordance with Article 823 of the German Civil Code (BGB), we are directly liable with regard to third parties, in this instance especially the employees of BINDER GmbH, who have been entrusted with the handling / repair of the unit / component. / Es ist uns bekannt, dass wir gegenüber Dritten – hier insbesondere mit der Handhabung/Reparatur des Geräts/des Bauteils betraute Mitarbeiter der Firma BINDER - gemäß §823 BGB direkt haften

Name: _____

Position/ Title: _____

Date / Datum: _____

Signature / Unterschrift: _____

Company stamp / Firmenstempel:

Equipment that is returned to the factory for repair must be accompanied by a completely filled out contamination clearance certificate. For service and maintenance on site, such a contamination clearance certificate must be submitted to the service technician before the start of any work. No repair or maintenance of the equipment is possible, without a properly filled out contamination clearance certificate.

11.2 For chambers located in USA and Canada

Product Return Authorization Request

Please complete this form and the Customer Decontamination Declaration (next 2 pages) and attach the required pictures. E-mail to: IDL_SalesOrderProcessing_USA@binder-world.com

After we have received and reviewed the complete information we will decide on the issue of a RMA number. Please be aware that size specifications, voltage specifications as well as performance specifications are available on the internet at www.binder-world.us at any time.

Take notice of shipping laws and regulations.

	Please fill:	
Reason for return request	○ Duplicate order	
	○ Duplicate shipment	
	○ Demo	*Page one completed by sales*
	○ Power Plug / Voltage	115V / 230 V / 208 V / 240V
	○ Size does not fit space	
	○ Transport Damage	Shock watch tripped? *(pictures)*
	○ Other (specify below)	
	_____	
Is there a replacement PO?	○ Yes ○ No	
If yes -> PO #		
If yes -> Date PO placed		
Purchase order number		
BINDER model number		
BINDER serial number		
Date unit was received		
Was the unit unboxed?	○ Yes ○ No	
Was the unit plugged in?	○ Yes ○ No	
Was the unit in operation?	○ Yes ○ No	
Pictures of unit attached? *Pictures of Packaging attached?*	○ Yes ○ No ○ Yes ○ No	Pictures have to be attached!

	Customer Contact Information	Distributor Contact Information
Name		
Company		
Address		
Phone		
E-mail		

Customer (End User) Decontamination Declaration

Health and Hazard Safety declaration

To protect the health of our employees and the safety at the workplace, we require that this form is completed by the user for all products and parts that are returned to us. (Distributors or Service Organizations cannot sign this form)

	NO RMA number will be issued without a completed form. Products or parts returned to our NY warehouse without an RMA number will be refused at the dock.

A second copy of the completed form must be attached to the outside of the shipping box.

1.	**Unit/ component part / type**:
2.	**Serial No.**
3.	**List any exposure to hazardous liquids, gasses or substances and radioactive material**
3.1	**List with MSDS sheets attached where available or needed (if there is not enough space available below, please attach a page):** a) _____ b) _____ c) _____
3.2	**Safety measures required for handling the list under 3.1** a) _____ b) _____ c) _____
3.3	**Measures to be taken in case of skin contact or release into the atmosphere**: a) _____ b) _____ c) _____ d) _____
3.4	**Other important information that must be considered**: a) _____ b) _____ c) _____

4. Declaration of Decontamination

For toxic, radioactive, biologically and chemically harmful or hazardous substances, or any other hazardous materials.

We hereby guarantee that

4.1 Any hazardous substances, which have come into contact with the above-mentioned equipment / component part, have been completely listed under item 3.1 and that all information in this regard is complete.

4.2 That the unit /component part has not been in contact with radioactivity

4.3 Any Hazardous substances were removed from the unit / component part, so that no hazard exists for a person in the shipping, handling or repair of these returned unit

4.4 The unit was securely packaged in the original undamaged packaging and properly identified on the outside of the packaging material with the unit designation, the RMA number and a copy of this declaration.

4.5 Shipping laws and regulations have not been violated.

I hereby commit and guarantee that we will indemnify BINDER Inc. for all damages that are a consequence of incomplete or incorrect information provided by us, and that we will indemnify and hold harmless BINDER Inc. from eventual damage claims by third parties.

Name: _____

Position: _____

Company: _____

Address: _____

Phone #: _____

Email: _____

Date: _____

Signature: _____

	Equipment returned to the NY warehouse for repair must be accompanied by a completed customer decontamination declaration. For service and maintenance works on site, such a customer decontamination declaration must be submitted to the service technician before the start of work. No repair or maintenance of the equipment is possible without a completed form.