



LINOP U 400 Operating Instructions

Control Unit for Cyberbond UV Curing Systems



Manual

LINOP U 400

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General information on LINOP U 400

From January 2012 on the new LINOP U 400 is offered. It has got all features of the former LINOP U 400 and LINOP U 400 S.

The company Cyberbond GmbH will neither supervise the observance of this manual nor the conditions and methods of instalment, operation, usage and maintenance of the electronic devices and their components. Thus, we do not bear responsibility nor liability for loss, damages or other costs that arise from incorrect instalment and improper usage or any other damages connected with these.

The arrangement of information for this document is to the best of our knowledge and belief. However, as mistakes can be made despite all efforts we would be grateful for any hints concerning this manual.

LINOP U 400

1 Important introductory information

1.1 LINOP U 400

LINOP U 400 can be chosen as a table unit or is taken when directly used in a PLC controlled production line. Sensor technique helps exact fault finding in the range of lighting. LINOP U 400 is optional equipped with a flexible arm.

1.2 Cyberlite4, Cyberlite4 S and CyberFlood 400 S LED lamps

LINOP U 400 is designed to use Cyberbond LED lights:

- ▼ Cyberlite4
- ▼ Cyberlite4 S
- ▼ CyberFlood 400 S

To connect the Cyberlites with the LINOP U 400 one each cable is needed, for the connection of the CyberFlood you need two cables.

For the connection of different lights we assume no liabilities.

Cyberbond LED lights are equipped with the following warning.
[see right column]



Attention!

Dangerous ultraviolet radiation
Avoid irradiation of eyes and skin
At-risk group 3 (high risk)
Classified according to IEC 62471

1.3 Technical data of Cyberlite4 and Cyberlite4 S

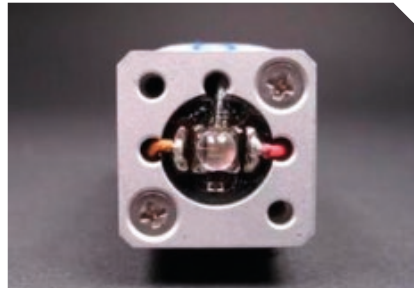
LINOP Cyberlite4 and Cyberlite4 S

| | |
|---|---|
| Peak wave length | approx. 395 nm |
| Light spectrum | approx. 380 to 440 nm |
| Intensity of light, distance 10 mm | approx. 350 mW / cm ² |
| Intensity of light, area approx. 20 x 20 mm | approx. 270 mW / cm ² |
| Intensity of light, area approx. 60 x 60 mm | approx. 14 mW / cm ² |
| - of that in UVA range (380 bis 400 nm) | approx. 1/3 |
| - of that in visible light range (> 400nm) | approx. 2/3 |
| Working temperature | - 25 °C to + 60 °C |
| Power input | 5 W |
| Limits | max. 700 mA constant respectively 1.000 mA Peak |
| Control unit LINOP U 400, 1 exit | 4,6 V / 600 mA – 2,76 W |
| Life expectancy | > 15.000 hours |
| Housing material | Aluminium |
| Weight Cyberlite4 | approx. 60 g |
| Weight Cyberlite4 S | approx. 65 g |
| Measurements Cyberlite4 | approx. 63 x 20 x 20 mm |
| Measurements Cyberlite4 S | approx. 70 x 20 x 20 mm |

LINOP U 400



Cyberlite4 with basic lens attachment

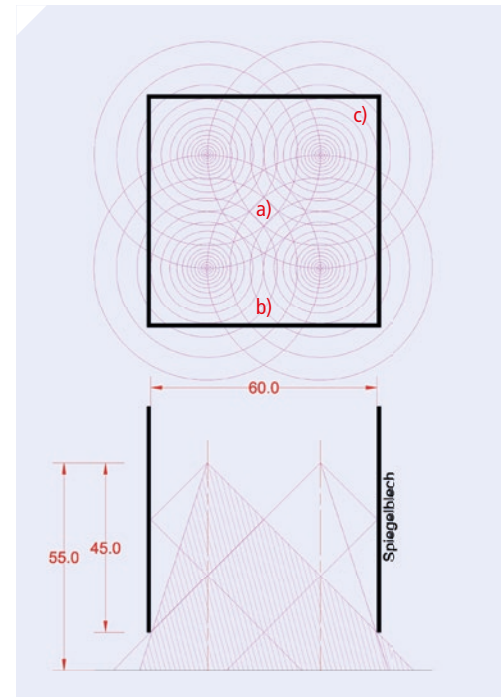


Cyberlite4 S (Sensor) View without attachment of lens

1.4 Technical data of CyberFlood 400 S

LINOP CyberFlood 400 S

| | |
|---|---------------------------------|
| Peak wavelength | approx. 395 nm |
| Approximate spectrum | approx. 380 to 440 nm |
| 4 Cluster LED lamps | with each 9 chips |
| Aspheric lenses | |
| Very consistent distribution of light | approx. 60 mW / cm ² |
| Intensity of light, distance approx. 55 mm, area approx. 60 x 60 mm | |
| a) center | 63 mW / cm ² |
| b) middle / edge | 55 mW / cm ² |
| c) corner / edge | 48 mW / cm ² |
| Distance lenses to surface, due to side mirrors | approx. 45 mm |
| Working temperature | - 25 °C to + 60 °C |
| Power input | 4 x 10 W (lamps) |
| Limits | max. 10 V / 1.000 mA constant |
| Control unit LINOP U 400, 2 exits | 2 x 20 V / 600 mA – 24 W |
| Life expectancy | > 15.000 hours |
| Additional equipment | cooling fan |
| Housing material | Metal |
| Weight | approx. 450 g |
| Measurements | approx. 116 x 64 x 64 mm |



CyberFlood 400 S



CyberFlood 400 S

LINOP U 400

2 Safety precautions and warning notice

- ▼ The unit must always be operated according to the manufacturer's instructions for use.
- ▼ The unit must be operated by, staff who have been trained and who are authorised. They must know the operating instructions and operate the unit accordingly.
- ▼ The operation manual must be kept in a safe place easily accessible to each user.
- ▼ Illegal changes and the use of spare parts as well as accessories that have not been sold or recommended by the manufacturer of this unit can cause fires, electric shocks and injuries. These measures lead to an exclusion of liability and the manufacturer assumes no liability.
- ▼ Basis for the guarantee of the manufacturer is the version of the warranty policy for the unit at the time of purchase. We assume no liability for unsuitable or an incorrect manual or automatic adjustment of parameters of the unit. We also assume no liability for an improper use of the unit.
- ▼ Repairs must be carried out by the manufacturer
- ▼ The user is responsible for placing and installing the dosing unit according to the approved technical regulations of the country or area concerned.

3 General information

3.1 Use

LINOP U 400 unit is a system for curing UV- and light curing adhesives used in industry. In combination with up to four UV light units the system is especially suitable for a fast curing of small surfaces.

The system can be used as a separate table unit or can be integrated into a line of production. The line of LINOP series consists of various, similar-looking devices with different functions and options for connections. Please check which unit is to be used before commissioning.

3.2 Symbol information

The hazard and safety symbols used in this document are illustrated as follows.
[see right column]



Attention!

Safety precaution for device:
Disregard can lead to material damage and affect the reliable functioning of the device.



Danger!

Safety precaution for health:
Disregard can lead to personal and material damage and affect the reliable functioning of the device.



Note!

Important information:
This symbol points to additional information that describes the instructions in a more detailed manner. This allows for a better understanding of the operating procedure of the device

LINOP U 400

4 Product content

The following parts belong to the standard product content:

- ▼ 1 LINOP U 400
- ▼ 1 operating instructions for LINOP U 400

Please check the content of the packaging for any damage that may have been caused by improper transport or storage.

We recommend keeping the original packaging in case the product needs to be sent back for maintenance or repair.

In order to operate your LINOP M 600 additional components may be necessary. These can be obtained from Cyberbond Europe GmbH upon request.

Dependent on the particular purchase order placed, the following components and/or accessories may be enclosed in the delivery contents, in separate packing units:

- ▼ Power supply unit Deutronic 24V / 3A (Type: ETC70-24)
- ▼ Mains cable with plug and IEC power connector (sw 3 x 0,75 mm², l = 2 m) (Various lengths and types available)
- ▼ LED lamps (Cyberbond LINOP Cyberlite4 oder Cyberlite4 S)
- ▼ Footswitch
- ▼ And much more

Due to the wide range of variants the (optional) components can partly differ from each other in their versions. Please see information on your delivery note and check the relevant order.

5 Installation

LINOP U 400 is a tabletop unit and must be placed on a suitable work surface. Please pay attention to the following safety suggestions when installing the unit:

- ▼ Ensure the unit is placed on a safe, sturdy work surface and in a safe upright / standing position! The unit must be placed in a way so that it cannot drop or fall from the work surface.
- ▼ Only operate the unit when it is clearly not damaged in any way.
- ▼ Only operate the unit when all connections and accessories are not damaged.
- ▼ Do not operate the unit out in the open.
- ▼ Do not operate the unit in areas that have the potential for explosions!
- ▼ Avoid additional warming of the unit by sunlight or other sources of heat such as radiators etc. This ensures the safety and life expectancy of the unit.
- ▼ Connectors are not to be left slack, nor running along or over sharp corners, moving or hot / warm parts.
- ▼ Fix cables well to avoid a trip hazard and damage to the cables.



Danger!

Safety precaution for health:
Should the product be damaged this may cause unsafe use. Therefore the product must not be used!

These would be the actual order options including item numbers:

| | |
|---|-------|
| LINOP U 400..... | 10400 |
| power supply unit..... | 10190 |
| cord for power supply unit (EU standard)..... | 10191 |
| flexible arm | 10192 |
| plate (to hold Cyberlite) | 10193 |
| electrical footswitch with plug (FOT) | 40100 |
| Cyberlite4 | 80100 |
| lens Block Cyberlite4..... | 80150 |
| electrical cord 0,46 m (with rectangular connector) | 80190 |
| electrical cord 2,00 m (with straight connectors) | 80192 |
| Cyberlite4 S..... | 80200 |
| lens Block Cyberlite4 S..... | 80250 |
| Splitter | 80300 |
| liquide fibre light guide | 80400 |
| block keeping light guide | 80450 |

LINOP U 400

When using the unit within a production line, please pay attention to the following:

- ▾ Pay attention to specifications of the interfaces in chapter 6 and 7.
- ▾ Bear in mind any interactions with other connected systems and controls.
- ▾ Create a common connecting potential by earthing the LINOP U 400 and its surroundings.

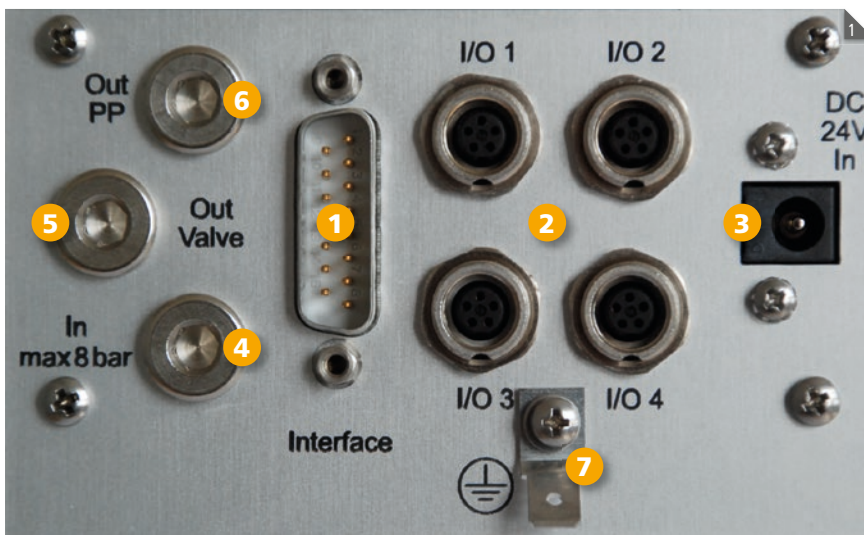
For the assembly of accessories, please read the details in the respective documents enclosed. Due to the vast variety we are unable to give extra information on these in this manual.

Assembly of Lamps, Splitters, Footswitch:

There are 4 ports for e.g. the connection of 4 Cyberlite LED lamps via an electrical cable available [also see drawing in chapter 6]. This means that the LINOP U 400 can manage 1 to 4 lamps. If you also want to use a footswitch as a starting impulse, the number of ports left for the lamps reduces itself to 3.

The ports can also be connected with splitters. In this case each splitter has to be assembled with 3 Cyberlites. In maximum you can run the system with 12 lights.

6 Connections



Connections LINOP U 400 (Rear view)

- 1 **Interface** for the remote control of the unit in a super coordinated system (externally controlled and supervised)
- 2 **[I/O 1 ... I/O 4]** 4 in and out ports for connecting up to 4 dosing valves (only M 2000), a foot switch, a sensor for monitoring adhesive level or a hand pen
- 3 **DC 24V In** Connecting plug for power supply
- 4 (In max 8 bar: Connection not used)
- 5 (Out Valve: Connection not used)
- 6 (Out PP: Connection not used)
- 7 **Potential equalisation conductor (PE)**



Attention!

Safety precaution for device:
When used in a production line system, the units must have an equalizer that needs to be earthed and fixed in the determined place (PE).



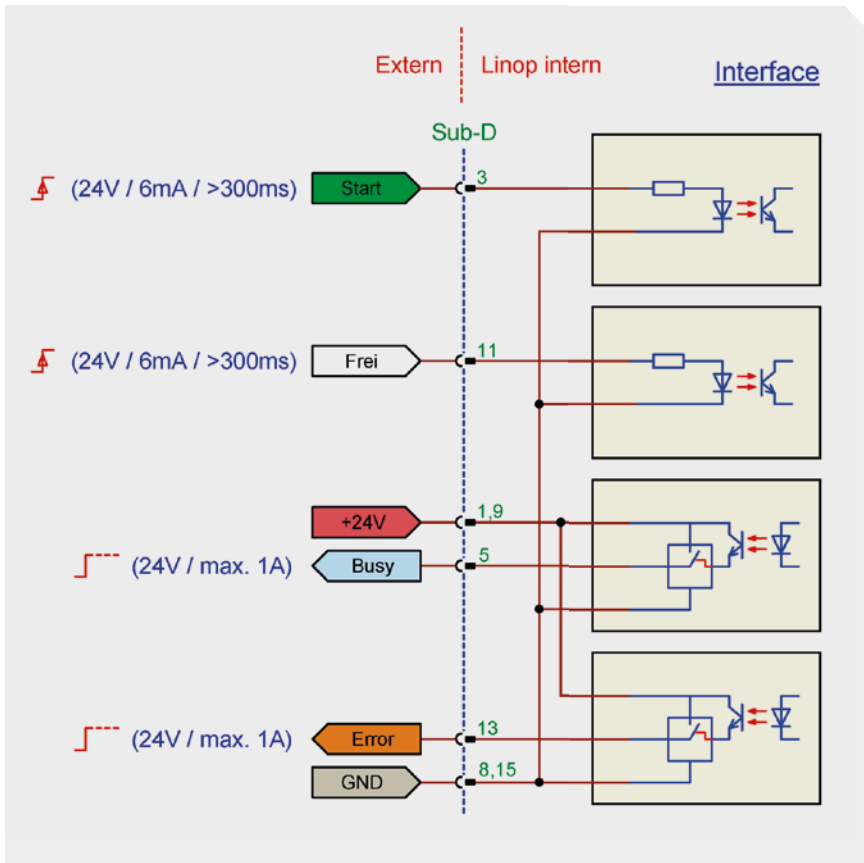
Note!

Important information:
The signals of the interface are completely isolated, electrically. In order to function the trip, voltage must be added externally!

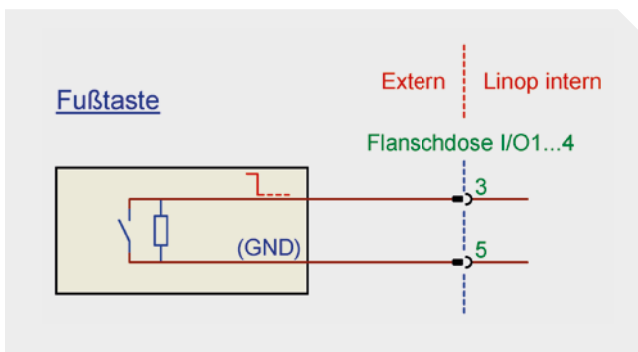
LINOP U 400

7 Pin assignment

7.1 Pin assignment of the interface

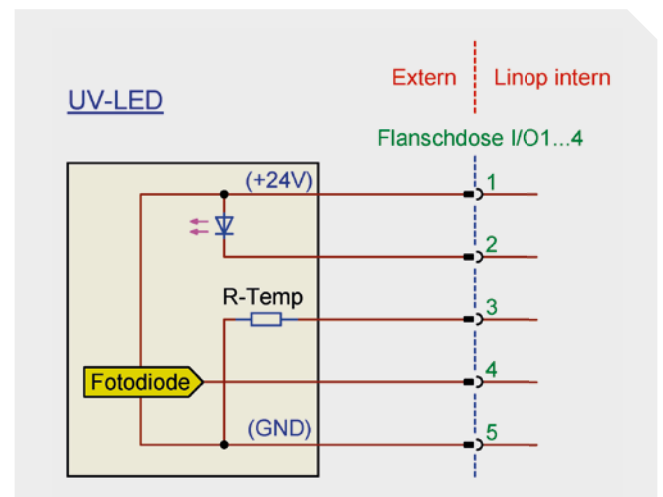


7.2 Pin assignment of the footswitch (LINOP FOT)



[Version "U 400" only]

7.3 Pin assignment of the UV-LED



LINOP U 400

8 Operation

8.1 Operating- and display panel



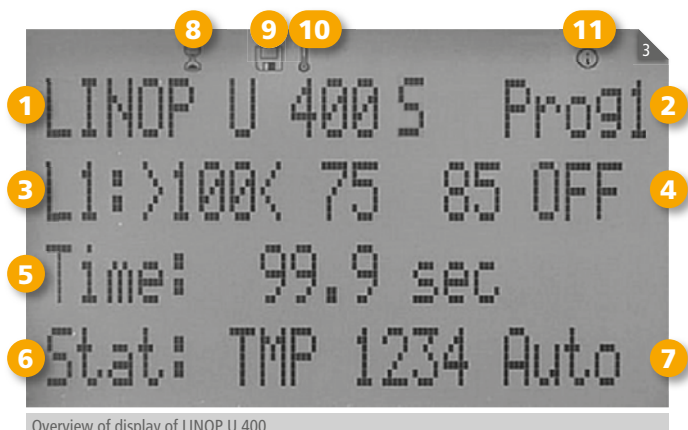
Operating- and display panel for LINOP U 400 / U 400 S (Top view)

- 1 Master switch
- 2 Programme buttons P1 - P5
- 3 Display
- 4 Cursors to choose menu command
- 5 Enter button to determine chosen values
- 6 [+] resp. [-] buttons to change values
- 7 Start button to start dispense time

LINOP U 400

8.2 Overview of display

After switching on the unit the introductory picture appears on the monitor showing the name and the software of the device for a couple of seconds. Then the display changes to the basic setting as you can see in picture 3 below.



Overview of display of LINOP U 400

- | | |
|---|---|
| <ul style="list-style-type: none"> 1 Unit type 2 Prog1 3 L1 4 OFF 5 Time 6 Status 7 Operation mode 8 Symbol hourglass 9 Symbol disk 10 Symbol thermometer 11 Symbol for light defect | <p>(see picture above: LINOP U 400)</p> <p>shows the present programme (see picture above: programme 1)</p> <p>the arrows of the cursors >...< show the presently chosen menu (Example above: L1 is set on >100< (%) and can be varied)</p> <p>Is the cursor set on >Time< or >Auto/Cont<, the third line only shows an "L" for the setting of the output power of the 4 exits.</p> <p>shows that the exit for the relevant UV light unit is switched off; this means that the output power is not supervised and that the channel is disregarded when there are fault messages</p> <p>shows elapsed time of programme in seconds (duration of lighting)</p> <p>shows the current status: "OK" or "TMP" Temperature warning in case of a threatening exceeding of a critical temperature limit. This is followed by the display of the output channel that caused the temperature fault (for example 1, 2, 3 and / or 4) "LOW" shows a loss of power of the Cyberlites "Auto" or "Cont"</p> <p>(flashes during the process of lighting)</p> <p>(flashes during saving)</p> <p>(flashes during a possible temperature fault)</p> <p>(flashes during an occurring UV-power failure)</p> |
|---|---|



Note!

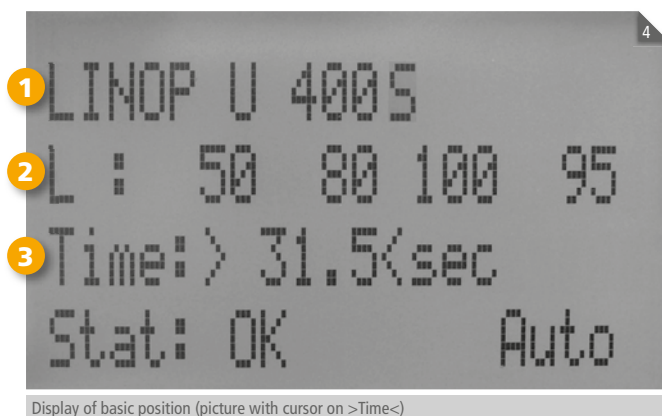
Important information:

The power of the Cyberlights4 LED lights can be shown and altered providing they are actually connected!

When running the unit on „Cont“ mode the time setting can not be changed!

LINOP U 400

Example of a display in basic position :



Display of basic position (picture with cursor on >Time<)

- 1 "LINOP U 400 S" (present model)
- 2 "L: 50 80 100 95" Means that the fixed output power is of the following percentage: for channel 1: 50 %, for channel 2: 80 %, for channel 3: 100 % and for channel 4: 95 %.
- 3 "Time: >31.5<sec" Means that the fixed duration of lighting given within the cursors can now be changed (shown above: 31, 5 seconds).

8.3 Changing of values

In order to change certain parameter, please do as follows:

- ▼ Move the cursor with the help of the arrow keys to the chosen position.
- ▼ Press the [+] resp. [-] button to change the (pre-) fixed values.
As soon as a saved value is being changed it will start flashing.
- ▼ Press the enter button to save chosen values. The new value will be saved and the flashing will stop.

8.4 Operating modes

LINOP U 400 can either run in the operation mode "Auto" or "Cont" as follows:

8.4.1 Operating mode "Auto" ("automatic")

When operating the unit in this mode the duration of lighting is pre-defined. However, it can be changed. The duration of lighting can be operated manually or can be finished prematurely.

After switching on the system the display will show the current residual time and the hourglass in the upper part of the display starts flashing. Pressing the start button or the foot switch before the chosen running time is over, the current running time will be interrupted. The stored running time of the programme re-appears on the display.

When the regular elapsed time is over, the fixed running time re-appears on the display and the device remains in the basic position.



Note!

Important information:

Moving the cursors whilst they are flashing will restore the original value. Ensure that the chosen value is actually saved!



Note!

Important information:

When operating the unit in the interface mode the dispense time can be started but not be interrupted!

LINOP U 400

8.4.2 Operating mode "Cont" ("continuous")

With this operating mode the duration of lighting is NOT prefixed. The duration of lighting is individually controlled via the Interface or by keeping the start button or the foot switch pressed.

If the duration of lighting is started via the interface or by pressing the start button or the foot switch (and keep them pressed), the display continuously shows the elapsed time since start; the hourglass in the upper part of the display starts blinking.

Releasing the start button or the foot-switch or if the signal of the interface is absent, the running time finishes automatically. The display shows the elapsed time of the lighting in seconds.

Pressing and holding the start button or the foot switch or placing a start signal for the interface leads to a restart of the duration of lighting; the recording of the running time starts again with 0 seconds.

8.5 Start of lighting

When using UV lights the following safety precaution should be minded.
[see right column]

In order to start lighting press the start button (or the connected foot-switch as an option) or put line voltage on the input ‚Start‘ of the Interface.

Depending on the chosen mode the following is in progress::

- ▼ The time runs forwards ("Cont") or backwards ("Auto").
- ▼ The hourglass flashes on the upper edge of the display.
- ▼ The connected Cyberlight LED lights are controlled by the individual chosen power (fixed in the programme)
- ▼ The exit "Busy" operates the applied potential

After duration of lighting has ended, the unit returns to basic position.

8.6 Turning off an exit / a channel for the Cyberlite4 or Cyberlite4 S LED lights

In case one does not attach a Cyberblight4 LED light to an exit or a channel, the concerned exit must be turned off.

This can be done by switching the output power to a value below "1". On the display of the particular exit the expression "OFF" is shown.

This procedure avoids that the not connected exit is not checked on the achieved output power. This also avoids that no error message is shown for a (seemingly) loss of power.



Danger!

Safety precaution for health:

- ▼ Danger of damaging eyes and skin by UV radiation!
- ▼ When using our Cyberlite4 or Cyberlite4 S LED lamp you must wear UV protective glasses (2C-1,2; according to EN 170:2002)
- ▼ Avoid radiation of the skin by working
- ▼ Ensure that no other living creatures are nearby that could be hit by radiation.
- ▼ Pay attention to further information on Cyberlight4 or Cyberlite4 S LED lights.

LINOP U 400

8.7 Programme memory

The required configuration can be stored in one of the five memories by keeping the key pressed for some time. During the storing process the disk symbol flashes on the upper edge.

As soon as the storage process has been successfully finished, a short signal can be heard and the disk symbol disappears. The current programme is shown on the display [1st upper line, right-hand side; see chapter 7.2.1 "LINOP U 400"]

To retrieve contents of the memory please press the relevant programme button for a short period only.

8.8 Temperature warning

In case of a threatening overheating of a Cyberlite4 resp. Cyberlite4 S light, a warning sign "TMP" is given when temperature exceeds a critical limit of 60 °C ($\pm 7\%$) [see chapter 6] and an I/O port is shown to trace the fault.

An acoustic warning signal can be heard and the symbol "thermometer" on the upper part of the display starts flashing.

Besides the fault message "TMP", the exit "Error" of the Interface produces a potential signal which can be used to pass on the temperature warning to possibly connected peripherals or other status signals within the existing production system.

As soon as the temperature is below 58 % another acoustic signal can be heard signaling the cooling.

8.9 Warning for loss of power (Cyberlite4 S only)

Should one observe a loss of power with the Cyberlite4 S LED light, a warning notice "LOW" appears if the UV intensity sags below a pre-fixed value [see chapter 6]. It is followed by information of the respective I/O-port where the loss of power occurred. Additionally an acoustic warning signal can be heard and the symbol for light / fault starts flashing on the upper edge of the display.

The unit terminates the current running time. It can be re-activated by pressing the "Start" button for instance when a cyberlite4 S had to be replaced or when the output power of the respective exit had been switched to "0" (---> "OFF"). As soon as the UV intensity reaches its fixed basic value, the signal "LOW" disappears and the PLC signal is reset.

Besides the signal "LOW" the exit "Error" of the Interface produces a potential signal. This can be used to pass the warning of a loss of power on to possibly connected peripherals or to other warning systems within the currently used production system.



Note!

Important information:

After the last alteration all determined values are stored automatically after approx 3 seconds in a further memory. If the device is switched off and on again, the last used values are saved.

LINOP U 400

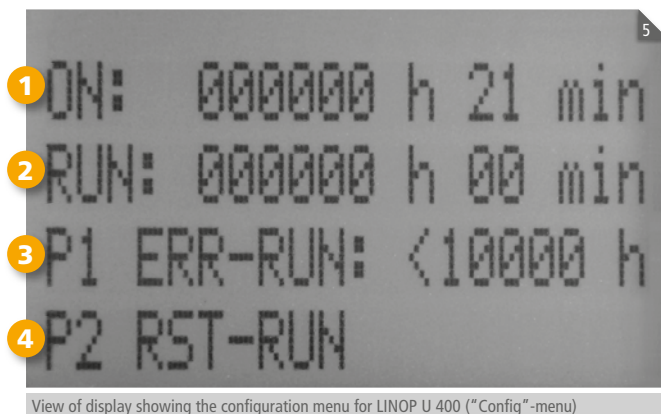
8.10 To view running time and to configure ("Config"-menu)

LINOP U 400 resp. LINOP U 400 S are equipped with an integrated hour counter for the whole life span of the unit as well as an additional counter for the life cycle of the connected UV lights.

The hour counter for the entire running time is unchangeably connected to the life span of the unit. Die hour counter of the UV lights can be reset manually for instance after UV lights were exchanged.

In order to check the entire running time or to reset the running time of the UV lights, the menu ("Config"-Menu) can be called up as follows:

- ▼ Keep the start button pressed and at the same time turn the unit on via the master switch
- ▼ Release the start button
- ▼ The following appears on the display:



View of display showing the configuration menu for LINOP U 400 ("Config"-menu)

- | | | |
|---|------------------|---|
| 1 | "ON" | Display of the entire running time of the unit in hours/minutes (h/min). |
| 2 | "RUN" | Display of running time of the UV lights in hours/minutes (h/min) |
| 3 | "ERR-RUN" | (= ERROR-RUN) The button "P1" determines the point in (running) time when a fault message should be released for a Cyberlite LED light (this should be produced via the exit "Error" of the interface; PLS signal). The setting for this warning is done in steps of 5000 hours, starting at 10000 hours and is limited to 50000 hours. Note: The set value for this warning keeps being stored even when the unit is switched off. |
| 4 | "RST-RUN" | (= RESET-RUN) The programme key "P2" can reset the hour counter for the running time of the UV lights to "0 (h/min)". The PLC control that is produced via the exit "Error" on the interface is also reset. |

In order to return to the main menu please press the Enter-key.

LINOP U 400

9 Faults / Malfunctioning

Before searching for faults of the device, please check all possible errors of connected peripherals and especially all connected leads.

Fault: Starting the unit via the interface is not possible.

Repair: Check the connectors of the interface. Please ensure that the unit is supplied externally with 24 V due to the galvanical insulation between the LINOP control unit and the external PLC control.
[see chapter ... / circuit diagram ...]

Fault: The "Error" status signal via the interface does not work.

Repair: Check the connectors of the interface. Please ensure that the unit is supplied externally with 24 V due to the galvanical insulation between the LINOP control unit and the external PLC control.
[see chapter ... / circuit diagram ...]

10 Maintenance

The device is maintenance free.

11 Appendix

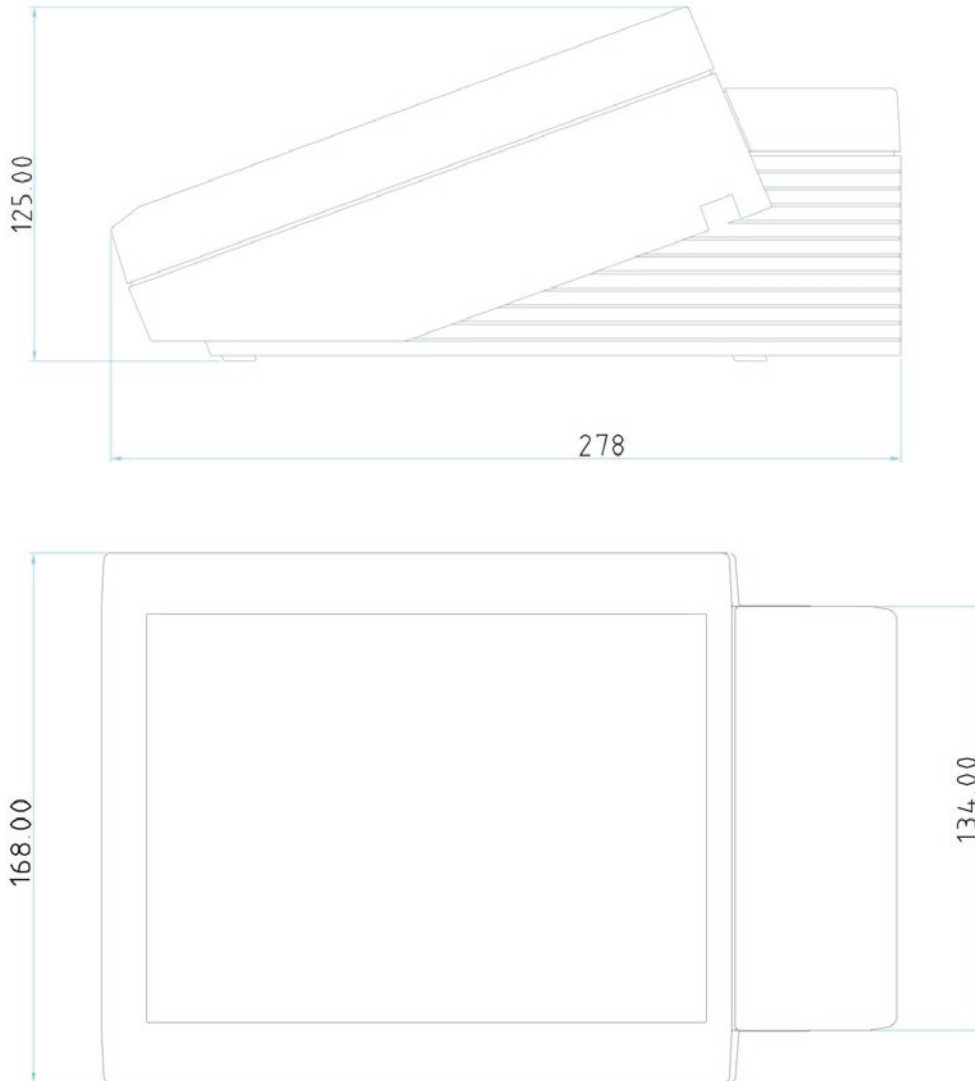
11.1 Technical data

| Technical data LINOP U 400 | | |
|----------------------------|---|------------------------------|
| Dimensions (WxHxD) | 168 x 125 x 278 mm (without flexible arm) | |
| Material of cabinet | Plastic ABS, UL classification: UL 94 HB | |
| Colour | RAL 9002 grey / white | |
| Weight | ca. 1,6 kg | |
| Type of protection | IP31 | |
| Voltage | 24 Volt / DC | |
| Electricity | max. 3 Ampere | |
| Working temperature | +10 °C to +40 °C | |
| Storage temperature | -20 °C to +60 °C | |
| Relative humidity: | 10 % to 90 %, not condensed | |
| Interfaces | DC 24V In | Potential plug 2,0 mm inside |
| | Interface | D-Sub 15-pol. pin |
| | I/O 1 ... I/O 4 | Binder Series 712 socket |
| | PE | 6,3 mm plug |

LINOP U 400

11.2 Measurements

[All dimensions in mm]



LINOP U 400

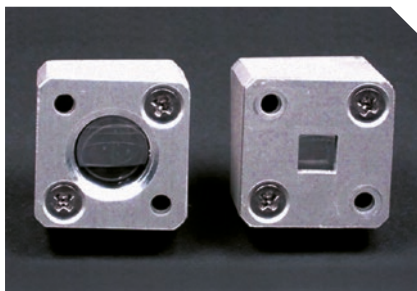
12 LINOP Equipment

12.1 LINOP Splitter

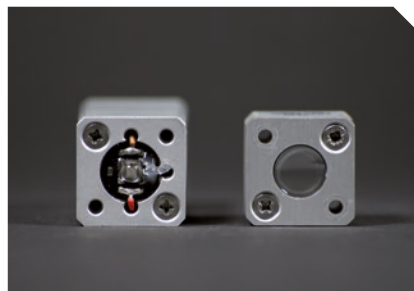


LINOP Splitter (LED light manifold)

12.2 LINOP Cyberlite Lenses



LINOP Cyberlite4 lens (round or square)



LINOP Cyberlite4 S with lens S (round)

12.3 LINOP Cyberlites



LINOP Cyberlite4 with lens (square orifice)



LINOP Cyberlite4 S

LINOP U 400

13 LINOP Item Numbers

| LINOP Dosing and Curing Equipment | | |
|---|---|-----------------------|
| Dosing & Curing Units | LINOP M 600 | 10100 |
| | LINOP M 1500 | 10200 |
| | LINOP M 2000 | 10300 |
| | LINOP U 400 | 10400 |
| | power supply unit | 10190 |
| | cord for power supply unit (EU standard) | 10191 |
| | flexible arm | 10192 |
| | valve plate (to hold valve M 1500 / M 2000 & Cyberlite) | 10193 |
| | syringe plate (to hold 30 ml syringe / M 600) | 10194 |
| VCA and VAN Valves | LINOP VCA Valve for CA | 20100 |
| | LINOP VAN Valve for AN | 20200 |
| | adapters product flow into the valve | |
| | product adapter (rectangular) AA 4/6 | 20194 |
| | product adapter (rectangular) AA 4/6 (for UV) | 20195 |
| | product adapter (rectangular) AA 6/8 | 20196 |
| | product adapter (rectangular) AA 6/8 (for UV) | 20197 |
| | adapters product flow out of the valve | |
| | dosing tip adapter (Fine Thread (in) / Luer Lock (out)) 1/8 | 20150 |
| | UV dosing tip adapter (Fine Thread (in) / Luer Lock (out)) 1/8 | 20151 |
| | adapter as tube connector (Fine Thread (in)) 1/8-2,5 (for 2,5 mm tube) | 20152 |
| | adapter as tube connector (Fine Thread (in)) 1/8-4,0 (for 4 mm tube) | 20154 |
| | UV adapter as tube connector (Fine Thread (in)) 1/8-4,0 (for 4 mm tube) | 20155 |
| | adapter as tube connector (Fine Thread (in)) 1/8-6,0 (for 6 mm tube) | 20156 |
| | UV adapter as tube connector (Fine Thread (in)) 1/8-6,0 (for 6 mm tube) | 20157 |
| | EM 24 Valves | EM 24 Valve with plug |
| EM 24 Valve without plug | | 30150 |
| EM 24 R Valve with plug | | 30200 |
| EM 24 R Valve without plug | | 30250 |
| adapters product flow into and out of the the valve | | |
| adapter Fine Thread (in) / Luer Lock male (out) (former A1) | | 30190 |
| UV adapter Fine Thread (in) / Luer Lock male (out) (former A4) | | 30191 |
| Impuls Devices | electrical footswitch with plug (FOT) | 40100 |
| | Hand Pen | 40200 |
| | Hand Pen electric | 40300 |
| | adapter tube fixing hand pen for 2,5 mm tube | 40392 |
| | adapter tube fixing hand pen for 4,0 mm tube | 40394 |
| Druckbehälter | PP 505 Pressure Pot with air pressure nipple | 50100 |
| | empty alarm with plug | 50150 |
| | adapter for pressure pot lid / 1/4" for 2,5 product tube | 50192 |
| | adapter for pressure pot lid / 1/4" for 4 product tube | 50194 |
| | adapter for pressure pot lid / 1/4" for 6 product tube | 50196 |
| | adapter for pressure pot lid / 1/4" for 8 product tube | 50198 |

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| | | |
|---|---|----------------|
| Tubes and Tube Connectors | product tube PTFE, 2,5 mm outside (per meter) | 60200 |
| | adapter as tube connection / Luer Lock for 2,5 mm tube | 60250 |
| | product tube PTFE, 4 mm outside (per meter) | 60400 |
| | adapter as tube connection / Luer Lock for 4 mm tube | 60450 |
| | UV product tube PTFE, 4 mm outside (per meter) | 60401 |
| | UV adapter as tube connection / Luer Lock 4 mm tube | 60451 |
| | product tube PTFE, 6 mm outside (per meter) | 60600 |
| | adapter tube connection / Luer Lock (former A2) for 6 mm tube | 60650 |
| | UV product tube PTFE, 6 mm outside (per meter) | 60601 |
| | UV adapter tube connection / Luer Lock for 6 mm tube | 60651 |
| | product tube PTFE, 8 mm outside (per meter) | 60700 |
| | UV product tube PTFE, 8 mm outside (per meter) | 60701 |
| | | |
| | blue air supplying tube (per meter) | 60800 |
| Syringes for M 600 | 10 ml syringe black | 70110 |
| | 30 ml syringe black | 70130 |
| | | |
| | piston 10 ml syringe UV | 70111 |
| | piston 30 ml syringe UV | 70131 |
| | | |
| | closure cap for 10 and 30 ml syringes) | 70141 |
| | | |
| | Adapter for air supply to syringe 10 ml | 70115 |
| Adapter for air supply to syringe 30 ml | 70135 | |
| | | |
| Reducer from 30 to 10 ml syringe | 70200 | |
| Cyberlites | electrical cord 0,46 m (with rectangular connector) | 80190 |
| | electrical cord 2,00 m (with straight connectors) | 80192 |
| | | |
| | Cyberlite4 S | 80200 |
| | lens Block Cyberlite4 S | 80250 |
| | | |
| | Splitter | 80300 |
| | | |
| | liquide fibre light guide | 80400 |
| block keeping light guide | 80450 | |
| | | |
| Cyberflood 400 S | 80600 | |
| Dosing Tips | Dosing Tips plastic (only DT 1 with Luer Lock) | |
| | 10 pieces | DT „0“ |
| | 10 pieces | DT „0,5“ |
| | 10 pieces | DT „1“ |
| | 10 pieces | DT „0“ UV |
| | | |
| | Dosing Tips metal, LL | |
| | 10 pieces DS 1,0" - 1,37 brown | DS 1,0" - 1,37 |
| | 10 pieces DS 0,5" - 0,33 orange | DS 0,5" - 0,33 |
| | 10 pieces DS 0,5" - 0,61 rose | DS 0,5" - 0,61 |

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Wunstorf, 30.05.2013

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