TwïnLux / m3

invicon
chemical solutions

Operating Instructions

TwïnLux / m3

Date information prepared:
10/2007

Manufacturer

Invicon chemical solutions GmbH
Millennium Park 9
A 6890 Lustenau
Austria
Tel: +43 (5577) 625 76-22
Fax:+43 (5577) 625 76-10
office@invicon.at
www.invicon.at

Table of Contents

1 Safety 3
1.1 General information 3
1.2 Signs and symbols 3
1.3 Safety notes 4
1.4 Intended use 5
1.5 Applicabable standards and classifications 5
1.6 Identification data of the light unit 5

2 Product description 5

3 First time start-up 8
3.1 TwinLux and m3 8
3.2 Charging the battery 9

4 Operation 10
4.1 Carrying out light-curing cycles 10
4.2 Extending the duration of curing cycles during operation 11

5 Maintenance and cleaning 11

6 Troubleshooting 11

7 Technical data 12
7.1 Light unit 12
7.2 Battery 12
7.3 Power supply 12
7.4 Ambient conditions 12
7.5 Storage conditions 12
7.6 Weight 12

8 Delivery range and spare parts 12

9 Warranty 13
9.1 Warranty terms and conditions 13
9.2 What is not covered by the warranty 13
9.3 Procedure in case of a claim under warranty 13

1 Safety

1.1 General information

Please read these Operating Instructions carefully before installing and starting up the light unit. The Instructions contain important information for your safety as well as on the correct use of the device and its accompanying components.

1.2 Signs and symbols

The Operating Instructions contain special warning symbols next to working steps that may involve a certain degree of danger. These symbols are classified into the following categories:

DANGER!

This symbol identifies a condition or action which may result in severe injury or death to an individual.

WARNING!

This symbol identifies a condition or action which may result in severe injury to an individual or severe damage to equipment or other property.

CAUTION!

This symbol identifies a condition or action which may result in injury to an individual or damage to equipment or other property.

CAUTION!

This symbol identifies a condition or action which may result in damage to equipment or other property.

In addition to these warning symbols, the Instructions also contain a sign for useful additional information on the usage of the light unit:

NOTE!

This symbol identifies important information on the usage of the device.

1.3 Safety notes

DANGER!

Light emission of LED source

Danger of explosion in rooms with explosive atmosphere

> Do not operate the light unit in rooms with explosive mixtures of ignitable substances and air.

DANGER!

Electromagnetic interference

Electromagnetic radiation may interfere with pacemakers or other implanted electronic medical devices.

> Do not use the light unit if you or somebody in your vicinity is fitted with a pacemaker or other implanted electronic medical device.

WARNING!

Light emission of LED source

Direct exposure to the light of the LED light source may cause damage to the eyes.

> Do not look directly into the LED light source.
> Use the light unit only with a properly mounted and fully functioning light protection shield.
> Always check if the light protection shield is correctly mounted on the light unit.
> Do not point the light beam of the LED light source directly into the eyes.
> Always direct the light beam of the LED light source directly towards the surface to be polymerized.

WARNING!

Defective device

Malfunctioning devices or components may cause injury.

> Before each use, check the device for the following:
  – The light unit and its accompanying components are in proper working condition.
  – The light protection shield is mounted properly.
  – The air vents are free of obstruction.

CAUTION!

Exposure to water

Exposure to water may cause damage to the device.

> Do not hold the light unit under running water. Do not dip the light unit into water.

> Store the apparatus out of the reach of children.
> Use only original accessories and spare parts.
> In case of malfunction, immediately ask for support from an authorized customer support centre or directly from Invicon chemical solutions.

1.4 Intended use

The light unit has been designed for the polymerization of light-curing materials used in the crafts and industry sector.

> The light unit must only be used by specialized personnel.

> The light unit must only be used with the light protection shield properly in place.

1.5 Applicable standards and classifications

The light unit complies with the following standards and classifications:

• EC standard	EN 6060-1
• Classification according to IEC 60825-1:2001:	LED Product Class 2
• Classification according to CIE S009:	Risk Group 2

1.6 Identification data of the light unit

The following identification data can be found on the light unit and the power pack:

- Model type
- Serial number
- Power supply
- Power consumption

Please always provide this information whenever you contact an authorized service centre or Invicon chemical solutions. These data enable our After Sales Service to respond to your queries quickly and efficiently.

2 Product description

TwinLux and m3 have been designed for the polymerization of light-curing materials used in the crafts and industry sector.

The light unit is equipped with two high-performance monochromatic LEDs, which emit light in the wavelength range from 440nm to 480nm and have a peak wavelength of 460nm. In contrast to the spectral output of conventional halogen lights, the entire range of light emitted by TwinLux and m3 can be absorbed by the photoinitiators contained in light-curing materials; the polymerization reaction is triggered reliably. As a result, excellent polymerization results can be achieved, while power consumption is low and little heat is given off.

The light unit offers a choice of three curing settings:

TwinLux

- 30 seconds
- 60 seconds
- Continuous operation (unrestricted)

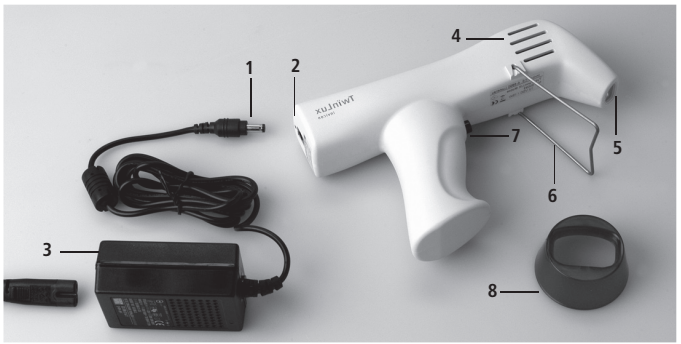
m3

- 180 seconds
- Continuous operation (unrestricted)

NOTE!

Light unit shown on the pictures of the Operating Instructions

The pictures below refer to TwinLux or m3 light unit.



TwinLux with accessories

1 Power pack plug
2 Electrical socket
3 Power pack
4 Cooling vents
5 LED light source
6 Stand
7 On/off and timer switch
8 Light protection shield

Power pack (3)

TwinLux and m3 are powered by means of the power pack (3) supplied together with the light unit. To connect the power pack to the light unit, the power pack plug (1) is connected to the electrical socket (2) at the rear of the light unit.

TwinLux and m3 are powered with a battery, which is charged by means of the power pack (3) supplied together with the light unit.

Air vents (4)

TwinLux and m3 have been designed for intensive use and continuous operation. The light unit is equipped with overheating protection including air vents (4) to protect it from overheating. The overheating protection system of TwinLux automatically switches on if the temperature of the heat dissipator rises above 40°C and additional air ventilation cools the light unit. If the temperature goes back down below 40°C, the overheating protection system automatically switches off. For m3 – due to reduced heat build-up – this additional overheating protection system is not necessary.

LED light source (5)

WARNING!

Light emission of LED source

Direct exposure to the light of the LED light source may cause damage to the eyes.

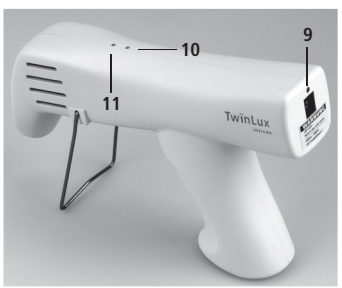
> Do not look directly into the LED light source.
> Use the light unit only with a properly mounted and fully functioning light protection shield.
> Always make sure that the light protection shield is mounted properly.
> Do not point the light beam of the LED source directly into the eyes.
> Always direct the light beam of the LED light source directly towards the surface to be polymerized.

The LED light source (5) comprises two LEDs, which are positioned behind a protective plexiglass window.

Stand (6)
The integrated stand (6) is used to position the light source at an appropriate distance to the polymerization surface during the curing procedure.

On/off and timer switch (7)
The LED light source (5) is switched on and off by means of the on/off and timer switch (7). The individual curing times are chosen by applying varying degrees of pressure to the on/off and timer switch. As soon as the on/off switch is pressed down and the LED source starts emitting light, the curing time indicator (11) lights up or starts blinking.

Light protection shield (8)
The light protection shield prevents uncontrolled light emission from the LED source (5).



LED indicators

9 Power on indicator

10 Battery charge indicator

11 Curing time indicator

Power on indicator (9)
The red light emitting LED (9) on the rear of the light shows whether the unit is connected to the power supply:

Power supply	TwinLux	m3
LED is off	No power supply	No power supply
Continuously illuminated	Battery is being charged with power	Battery is being charged with power

Battery charge indicator (10)
The red light emitting LED (10) on top of the light shows the amount of power left in the battery (see also Section 3.2).

NOTE!

Exact indication of the amount of power left
You are given a more precise indication of the amount of power left in the battery after having carried out two to three curing cycles.

Curing time indicator (11)
The green light emitting LED (11) on top of the unit shows which curing setting has been selected. The unit switches off automatically after the curing time has elapsed (except for continuous operation).

Curing time indicator (11)	TwinLux	m3
Fast blinking	30 seconds	–
Slow blinking	60 seconds	180 seconds
Continuously illuminated	Continuous light	Continuous light

3 First time start-up

3.1 TwinLux and m3

Checking the battery charge

> Check the amount of power left in the battery.

NOTE!

Accuracy of the remaining time available

The remaining time indications are only valid at room temperatures (approx. 18 – 25 °C) and after the device has been used in continuous operation for approximately five minutes.

Indication on the light unit	Battery charge	Time remaining on the battery
Battery charge indicator (10) blinks 1 time	Full	Approx. 30 minutes left
Battery charge indicator (10) blinks 2 to 3 times	2/3 full	Approx. 20 minutes left
Battery charge indicator (10) blinks 4 to 5 times	1/3 full	Approx. 15 minutes left
Battery charge indicator (10) blinks continuously	Battery low	Approx. 10 minutes left There is enough power left in the battery to carry out the following light-curing cycles: > 10 to 20 curing cycles of 30 seconds each > 5 to 10 curing cycles of 60 seconds each
The light does not switch on when the on/off switch is pressed	Battery empty	Connect the power pack to the light unit and the mains and charge the battery for 7 to 12 hours
The light switches off automatically	Battery defective	Have the light unit checked by an authorized service centre or directly by Invicon chemical solutions

3.3 Charging the battery

NOTE!

Prolonging the life of the battery
Carrying out a full charge and discharge cycle prolongs the life of the battery.

NOTE!

Battery charge level at delivery
The battery is not fully charged upon delivery.

> Charge the battery for 12 to 14 hours before using it for the first time.
> Always re-charge the battery to its full capacity (charging time: 7 to 12 hours) after it has been discharged.

> Place the light unit on a flat, horizontal surface.
> Connect the plug (1) of the power pack to electrical socket (2) of the light unit.
> Connect the power pack (3) to the mains.

4 Operation

WARNING!

Light emission of LED source

Direct exposure to the light of the LED light source may cause damage to the eyes.

> Do not look directly into the LED light source.
> Use the light unit only with a properly mounted and fully functioning light protection shield.
> Always make sure that the light protection shield is mounted properly.
> Do not point the light beam of the LED source directly into the eyes.
> Always direct the light beam of the LED light source towards the surface to be polymerized.

WARNING!

Defective device

Malfunctioning devices or components may cause injury.

> Before each use, check the device for the following:
  – The device and its accompanying components are in proper working condition.
  – The light protection shield is correctly mounted on the light unit.
  – The air vents are free of obstruction.

4.1 Carrying out light-curing cycles

Light emission

5 LED light source
7 On/off and timer switch
8 Light protection shield

TwinLux

> Mount the light protection shield (8) over the LED light source (5).
> Select the desired curing time by pressing the on/off and timer switch (7) as follows:

On/off switch (7)	Curing time	Curing time indicator (11)
Short touch (< 1 sec)	30 seconds	Fast blinking
Short pressure (approx. 2 sec)	60 seconds	Slow blinking
Sustained pressure (> 2 sec)	Continuous light emission	Continuously illuminated

> To interrupt or stop the curing cycle, press again on the on/off switch (7).

m3

> Mount the light protection shield (8) over the LED light source (5).
> Select the desired curing time by pressing the on/off and timer switch (7) as follows:

On/off switch (7)	Curing time	Curing time indicator (11)
Short touch (< 1 sec)	180 seconds	Blinking
Sustained pressure (> 2 sec)	Continuous light emission	Continuously illuminated

> To interrupt or stop the curing cycle, press again on the on/off switch (7).

4.2 Extending the curing time during the curing cycle

The curing time can be extended to the next longer cycle during operation as follows:

TwinLux

> To increase the curing time from 30 to 60 seconds, press the on/off switch (7) for 2 seconds, while the 30-second cycle is in operation.
> To increase the illumination time from 60 seconds to continuous operation, press the on/off switch (7) for more than 2 seconds, while the 60-second cycle is in operation.

m3

> To increase the illumination time from 180 seconds to continuous operation, press the on/off switch (7) for more than 2 seconds, while the 60-second cycle is in operation.

5 Maintenance and cleaning

If the surface of the curing light or LED light source (5) has become soiled, proceed as follows:

> Switch off the light unit.
> Disconnect the plug (1) of the power pack from the light unit.

CAUTION!

Cleaning the surfaces of the device

Exposure to water may damage the light unit

> Do not hold the light unit under running water. Do not dip the light unit into water.
> Do not allow fluid to enter the air vents (4).
> Allow the device to dry for at least 5 minutes after cleaning.

> Clean surfaces with a damp cloth (methylated spirits containing detergent).

If the air vents (4) are heavily contaminated with dirt, proceed as follows:

> Switch off the light unit.
> Disconnect the plug (1) of the power pack from the light unit.
> Clean the air vents (4) with compressed air.

6 Troubleshooting

Malfunction	Possible problem	Solution
Light unit switches off prematurely	Battery is defective	Have the light unit checked by an authorized service centre or directly by Invicon chemical solutions

7 Technical data

7.1 Light unit

Light source:	2 LEDs
Wavelength:	440nm – 480nm
Emission duration:	Unrestricted

7.2 Battery

First time charging:	12 – 14 hours
Re-charging:	7 – 12 hours
Cells:	TwinLux: 6, m3: 4
Type:	NiMH, HHR-210AAB2B
Voltage:	TwinLux: 7.2V, m3: 4.8V
Power pack:	12.6A

7.3 Power supply

Power pack:	90 – 260 VAC / 50 – 60 Hz

7.4 Ambient conditions

Temperature:	+10°C – +40°C
Relative air humidity:	30% – 85%

7.5 Storage conditions

Temperature:	–10°C to +70°C
Relative air humidity:	10% – 90%
Air pressure:	500hPa – 1060hPa

7.6 Weight

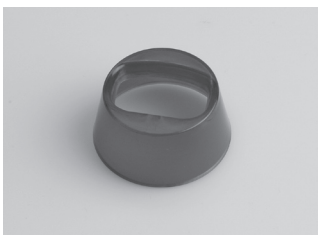
TwinLux	394 g (without power pack)
m3	334 g (without power pack)

8 Delivery range and spare parts

1 x TwinLux or m3 Light Unit
1 x Power Pack
1 x Light Protection Shield
1 x Power Cord
1 x Operating Instructions
1 x Warranty Form

TwinLux or m3 Light Unit

Power Pack


Light Protection Shield

Power Cord

9 Warranty

9.1 Warranty terms and conditions

Invicon chemical solutions gives a warranty of 2 (two) years on all TwinLux and m3 light units as of the date of purchase. This also applies to light units purchased from an Invicon retailer or importer. The warranty is limited to defects related to the manufacture and material of the product.
Invicon, in its sole discretion, may repair or replace the defective parts of the product free of charge within the warranty period.
In general, the „General Terms and Conditions of Sale and Delivery" shall apply.
This warranty does not provide for the replacement of entire TwinLux or m3 light units.

9.2 What is not covered by the warranty

The following will void this warranty:

- The apparatus and its components were not used in compliance with the safety instructions and directions provided in these Operating Instructions.
- The apparatus and its components were not used for the intended purpose.
- The apparatus or its components were altered by the user or other third parties.
- Assembly, settings, alterations, additions and repairs were not carried out by specialized Invicon personnel or authorized specialist.
- The electrical facilities of the room in which the apparatus was used did not comply with the current local laws and regulations.
- The conditions in the premises where the apparatus was used, kept or stored did not comply with the conditions listed in the Technical Data section of these Operating Instructions.
- Damage arising from catastrophic events, such as impact, accident, vandalism and events beyond the control of the manufacturer.

The following items are not covered by this warranty:

- LED light source
- LED indicators
- Switch
- Accompanying components/accessories

The following damage is not covered by the warranty:

- Damage caused during transportation
- Damage arising from improper use or negligence
- Damage arising from wrong usage of electrical supply and voltage

9.3 Procedure in case of a claim under warranty

The warranty is only valid if the warranty form supplied with the apparatus is fully filled in and returned together with the receipt (including the date of purchase) to Invicon chemical solutions or to an authorized Invicon dealer within fifteen (15) days as of the date of purchase.

In case of a claim under warranty, the customer shall put the light unit at the disposal of Invicon or the company's distribution partner and provide the following information:

- Name, address, telephone number, email of the owner
- Name and address of the Invicon distribution partner from whom the light unit was purchased
- Serial number of the light unit
- Receipt (delivery note)
- Detailed description of the malfunction

The data and descriptions contained in these Operating Instructions are not binding and may be varied by the manufacturer at any time without previous notice.

Information to be included on warranty form

Date of purchase _____

Serial number _____

Company _____

Contact _____

Address _____

Postal code _____

Town/City _____

Street/No. _____

Country _____

Telephone _____

Email _____

Distribution partner _____

Invicon chemical solutions GmbH
Millennium Park 9
A 6890 Lustenau
Austria
Tel: +43 (5577) 625 76-0
Fax:+43 (5577) 625 76-10
office@invicon.at
www.invicon.at

EC Declaration of Conformity

Invicon chemical solutions GmbH
Millennium Park 9
6890 Lustenau
Austria

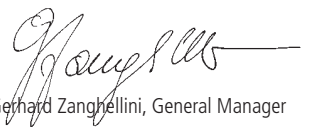
We, the undersigned, declare under our sole responsibility that the devices specified below

TwinLux
m3

have been developed, built and manufactured in compliance with the following EC Directives (as well as in compliance with the provisions of domestic law adopted in the field governed by these Directives):

- EN 61010-1
- EN 50081-2
- EN 50082-2

- 73/23 EWG
- 89/336/EWG



Lustenau, 1 October 2007

Gerhard Zanghellini, General Manager

TwïnLux / m3

Invicon chemical solutions GmbH
Millennium Park 9
A 6890 Lustenau
Austria
Tel: +43 (5577) 625 76-0
Fax:+43 (5577) 625 76-10
office@invicon.at
www.invicon.at

invicon
chemical solutions