

# CHRONOLUX®

## Light Therapy Systems

### User and operating manual

## Greater well-being, vitality and zest for life

Before using the light therapy unit, please read this manual carefully.



Dear Chronolux customer,

We are pleased that you have chosen a Chronolux® light therapy unit. You have made a good choice. Our products are made in Germany with great care using the most up-to-date manufacturing methods.

Our products are ISO certified which means that you also get the high level of quality associated with products that are Made in Germany.

Thousands of people successfully use our devices at home every year during the autumn and winter months, and benefit from the healing and preventative effect of light.

Our device can also help you to eradicate the unpleasant effects of a lack of light, thereby enabling you to return to the level of energy and productivity you are used to.

This small brochure should help you to determine how and when you can use light therapy most effectively for you to boost your well-being and zest for life.

We would also like to wish you health and success. If you have any questions, we will be happy to spend time to talk them through thoroughly. Please let us know if we can help you in any way at all.

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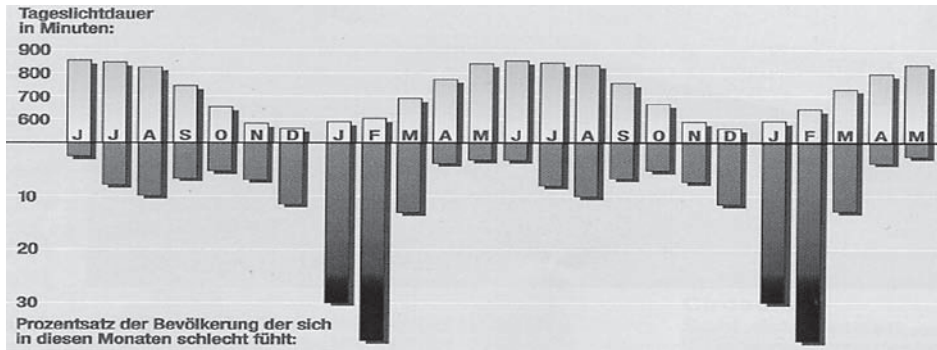
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## 1. Indications for use

Chronolux light therapy units are specially developed devices to treat seasonal affective disorder (SAD), as well as to treat problems relating to our "inner clock" (shift work, sleep disturbances). The units are medicinal devices that are covered by Directive MDD 93/42 EEC, and bear the CE label. The official body designated for monitoring our production is:  
The treatment is carried out using bright, white light without UV and infra-red to a high level of illuminance up to 10,000 lux depending on the chosen distance from the device

## 2. Greater well-being and zest for life by compensating for a lack of light

During the dark season during the autumn and winter months, many people repeatedly complain of a lack of energy and reduced performance. Everybody goes through mood swings that depend among other things on the seasons and the weather; this is in no way unusual, and is part of our nature.



Every year, we go through ups and downs. Every year, during autumn and winter, the grey drab weather becomes oppressive, and people lapse into a lack of well-being, lethargy, melancholy and even depression, combined with a craving for carbohydrates, which is often accompanied by weight gain. During spring and summer, the mood always improves, with increased activity and a sense of well-being:  
People brim with energy, get by with less sleep, and effortlessly get rid of any excess weight.

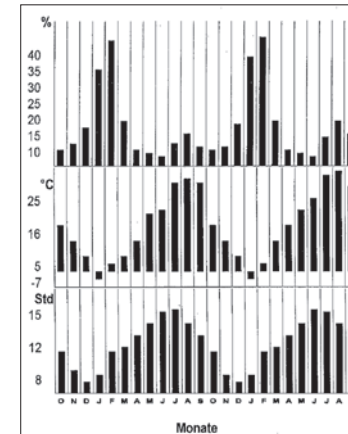
Our forebears spent most of their time outside; if we leave home today on a winter's morning in the dark, take the underground to a badly-lit office, only see with the light of a desk lamp, and then don't go home until it's dark in the evening, we spend our lives almost completely without any natural daylight.

The brightest thing we are exposed to during the day is almost always artificial light of a maximum of 300-500 lux, which is considerably lower than if we were outdoors, even on a dull day during the autumn or winter months.

In today's industrial society, we therefore get too little essential natural light, especially during the dark season, and our body reacts to these shorter periods of natural daylight.

This is not harmful to most people, but a large part (about 10 %) of our population suffers more from these shorter, darker days than others - during the autumn and winter months, people in this group repeatedly experience the following symptoms which have a negative effect on their quality of life:

- We are moodier, less enthusiastic and weaker than normal, and we often avoid social contact with friends, colleagues and family.
- We sleep more, and yet still don't feel refreshed, and find it harder to concentrate.
- We feel that our motivation is falling, that our overall ability to cope with stress is dropping, and the tendency towards depression increases.



In various studies by university hospitals, the participants were repeatedly asked about their sensitivity to seasonal changes.

The graph to the left shows the months during which parts of the population feel worst.

A connection between temperature and the duration of daylight is evident.

(Quelle: Kasper et al.)

**Light therapy can help to eradicate these symptoms and to recreate the level of energy and performance the person normally feels.**

## 2.1. What happens in our body if we don't get enough light?

We need light to synchronise our organism with the days and seasons - for shift workers this problem is connected with their work, and for those crossing the Atlantic, this is known as jet-lag.

The lack of natural daylight - with its intensity and light spectrum - can alter many biological processes in our body.

Sunlight is received by the retina and passed on to the hypothalamus as a nerve impulse, and has an influence on the duration of sleep and sleep patterns, hormone balance and other autonomic functions, and also has a great influence on the immune system.

The pineal body as the "interface" between natural daylight and the human body forms the hormone called melatonin; it is released when it is dark, and promotes sleep - bright light is therefore not only "seen" - it also controls a specific hormonal message that is sent to the whole organism:

If all the body's cells receive the message "it is night-time" from the neurotransmitter melatonin found in the blood, the organism switches to "night mode".

The hormone melatonin tells the body chemically that it is night-time, and a sufficiently large dose of bright light can affect this signal and suppress the release of melatonin.

Chronolux® - light therapy systems are able to control the release of melatonin thanks to their bright light similar to daylight, thereby eliminating the symptoms brought about by the lack of light.

Experience to date describes light therapy as effective and safe in over 80 % of users, and it became clear that the Chronolux® light therapy system produces a level of light that can otherwise not be achieved in the autumn and winter months.

Based on experience, the light therapy system should be used during the entire period when light levels are lower (autumn/winter), because if the light treatment is stopped, the low feeling can come back.

## 3. Using the light therapy unit

A general lack of drive, a temporary lack of enthusiasm or reduced motivation, along with a greater need for sleep are characteristic of seasonal affective disorders (SAD).

In our part of the world, these affective disorders occur in about 20 % of the population, and this group of people can to a large extent benefit from light therapy. A very short light exposure time 2 to 3 times a week is often sufficient in such cases to bring back a general feeling of well-being.

Every person reacts differently to light, and, especially at the beginning, some people find it hard to get used to the high levels of illuminance of 2,500 to 10,000 lux, and can only look into the light for a short time - in order to keep the stress on the eye as low as possible, please ensure that you leave the normal room lighting switched on during the light therapy session - operating the device in a dark environment considerably increases the contrast in the room, which can cause stress to the eyes, depending on which direction you are looking in.

### 3.1. Setting up and starting up the device

The light therapy device is designed to be a table-top device - you should therefore choose a flat, stable surface to place it on.

Please make sure that the ventilation slit is kept free and never operate the device with a defective filter screen or without the filter screen!

Please do not use the device in a damp environment (shower or bathroom). Do not leave the device unattended, and remove the plug from the socket after use.

The device has a 3 m long power cable with a moulded European-format plug.

Before switching the device on, the switch on the rear of the housing must be set to "0" - you can then switch on the power supply.

To switch the device on, move the switch to "1" - the device will start to light up.

After about 5 minutes, the tubes will reach their maximum brightness - please seat yourself at the prescribed distance, in front of or slightly diagonally to the lamp so that the middle of the illuminated surface is about at eye level.

The recommended duration of the light therapy session depends on the distance from the device:

- **half an hour at 10,000 Lux → 45 – 50 cm distance**

You do not have to stare at the light source for the whole time - it's sufficient to look at the light directly about once a minute. You can read, watch television etc. at the same time. It is just important that your face is within the prescribed distance of the lamp, that the eyes are not closed, and you are not wearing any goggles - if you do not follow these instructions, no therapeutic effect will be achieved.

### 3.2. Dose and length of treatment

Based on experience, we recommend the following light therapy doses to treat Seasonal Affective Disorders (SAD):

If desired, a one-off light therapy session of 30 minutes at 10,000 lux can be taken, and we recommend using the device during the day, or at the latest in the early part of the evening, between 8 am and 8 pm. Please do not use the light therapy device after 8 pm - this could affect your internal clock and lead to sleep problems. This of course does not apply if you use the light therapy device to affect your time pattern (sleep problems, shift worker syndrome etc.) - in this case, discuss the matter with your doctor to decide on treatment times that will achieve the therapeutic aim.

You must respect the distance from the device and the corresponding lux values, as stated in the technical data above, in order for the treatment to be successful.

The light therapy session may be interrupted, or carried out in two stages if so desired.

You can experiment with various distances to determine the best and most comfortable setting for you.

You can use the light therapy device as often as you like, and feel better.

### 3.3. What can you expect from a successful light therapy session?

Before starting the light therapy session, you want to know how long it will take for positive results to be obtained.

There are big differences from one user to another, because everybody reacts differently to light - some users notice after the first session that they are in a better mood, and have more drive - this is however rather unusual; in most cases, 2 to 4 days go by before the person starts to feel better.

So don't, give up before you have used the light therapy device for at least 5 consecutive days, because most people who respond to light, react in the first one to two weeks to using the device, and experience continuous improvement in their general condition as they continue with the light therapy after this period.

Most users feel the effect of the light therapy physically: there is a feeling of lightness and calm, and the lack of ability to perform gradually subsides - your vigour and energy start to come back.

In his book "Lichttherapie" (Light Therapy) Professor Kasper describes it very aptly:

*...your body feels light; the burden of living life and dragging your body from place to place melts away; the overwhelming need to sleep abates. The craving for carbohydrates and sweet things subsides. Cakes and chocolate no longer represent an irresistible temptation. Even going on a diet appears to be in the realm of the possible!  
You can think clearly and concentrate once more. Finally, the brain stops creaking like an old machine that needs lubricating. Your computer is running at full tilt again.  
You can make calculations again, and you are overflowing with new ideas. New ways of solving problems open up. Thinking of sport no longer terrifies you, and you can rouse yourself to go jogging, or to go to the gym or the swimming baths.  
Your interest in contact with the outside is aroused once more - you once more want to call friends, write letters, go to the cinema or theatre, and organise a volleyball session. Sex is no longer an obligation, but something fun again - in short, you feel human again.*

*from: Dr. N. Rosenthal – Prof. S. Kasper: Licht-Therapie (Light Therapy),  
Heyne Taschenbuch 5150*

#### 4. Undesirable effects and contraindications

No harm or side effects have been observed when the light therapy device is used correctly. Some users occasionally complain of eye irritation, headaches and dry skin. In most cases, these problems disappear a few hours after the light therapy session is over. By gradually increasing the dose (reducing the distance to the lamp every day, or increasing the treatment time), this can be counteracted.

Go to see your doctor if you regularly take medication (certain antidepressants or psychotropic drugs) - more serious side effects may occur in such cases. The same applies to hypersensitivity to light, and various eye diseases - if this is the case, please ask your ophthalmologist before using the device.

#### 5. Taking care of and maintaining the device

Chronolux® - devices are maintenance-free. The fluorescent tubes have a lifespan of around 5,000 hours according to the information provided by the manufacturer.

As light therapy depends on full brightness, we recommend changing the fluorescent tubes every 4 to 5 years as all fluorescent tubes undergo a drop in illuminance with use and age (about 10 to 15 % after 4 to 5 years).

In order to ensure the same level of performance, all tubes should be changed at once.

##### ATTENTION:

**The lamps must not be disposed of in the household waste - fluorescent tubes must sent for recycling as special waste!**

We will carry out any necessary repairs professionally, or we will send the replacement parts for the device to the specialist company of your choice.

If you want to dispose of the whole device, we will of course take it back, and sent it on to be disposed of correctly.

**If you have any queries or need technical advice, please call our service hotline:  
+41 44 918 10 11**

Please keep the packaging in case the device needs sending back, so that it can be transported safely.



The packaging is 100 % recyclable (only cardboard) and is licensed by the recycling organisation INTERSEROH.

#### 5.1. Cleaning and disinfecting the device

Before cleaning the device, the plug must be removed from the socket. The device may only be cleaned once it has cooled down with a dry or slightly damp cloth. Scouring agents or other harsh cleaning materials must not be used.

For disinfection, we recommend using Lysoformin diluted specially to 0.5 %.

#### 5.2. Changing the type of fluorescent tube

The lamps should only be changed by qualified personnel.

Before the tubes are changed, the device must be switched off, and the plug taken out.

Please only replace the fluorescent tubes with a structurally identical ones as stated on the label - the following may be used:

<b>Medic-2D</b>	<b>PL-fluorescent tubes Philips Master PL-L 4P 36W/840 2G11</b>
<b>Medic-4</b>	<b>as above</b>
<b>Medic-6</b>	<b>Philips Master PL-L 4p 80/840 2G11</b>
<b>Medic-100</b>	<b>Philips Master TL5 HO 80W/840</b>
	<b>or equivalent Osram or Sylvania products</b>

The number 36 indicates the Wattage, the number 840 states the colour temperature of the fluorescent tube - 840, according to the manufacturer, corresponds to daylight, at 4,000° Kelvin.

**The lamps must not be disposed of in the household waste - fluorescent tubes must sent for recycling as special waste!**

## 6. Technical Data



CHRONOLUX®	MEDIC-4	MEDIC-6	MEDIC-2 D (Dimmer)
Lamp wattage:	4 x 36 W	4 x 80 W	2 x 36 W
Illuminance:	10000 lux / approx. 40 cm	10000 lux / approx. 60 cm	6000 lux / approx. 35 cm
Power consumption:	144 W	320 W	72 W
Nominal voltage:	230 V ~/ 50-60 Hz	230 V ~/ 50-60 Hz	230 V ~/ 50-60 Hz
Dimensions:	550 x 460 x 90 mm	700 x 650 x 90 mm	550 x 300 x 90 mm
Weight:	5,2 Kg	9,5 Kg	2,5 Kg

Subject to technical modifications.

For wall mounting or roller stands



CHRONOLUX®	MEDIC-100 – Clinic	MEDIC-200 P – Clinic
Lamp wattage:	6 x 80 W	6 x 80 W
Illuminance:	10000 lux / 40 cm	10000 lux / 40 cm
Power consumption:	480 W	480 W
Nominal voltage:	230 V ~/ 50-60 Hz	230 V ~/ 50-60 Hz
Dimensions:	1500 x 650 x 90 mm	1500 x 650 x 90 mm
Weight:	8 Kg / 21 Kg with roller stands	8 Kg

Subject to technical modifications.



The devices comply with the Guidelines of the Medical Device Ordinance (MPV) and ISO 9001: 2008 / ISO 13485: 2003/CE and the EC-Directive 93/42/EEC.

## 7. Further reading

*(Summary of popular scientific publications that can be understood by non-experts)*

Borbély A. (1991) **Das Geheimnis des Schlafs** (The Secret of Sleep). Ullstein Sachbuch 34761  
*Very good overview of the principles of sleep*

Haen E, Zulley J. (published) (1994) **Chronomedizin** (Light Therapy). Roderer, Regensburg  
*Only comprehensive German-language book on the principles and treatment possibilities of chronobiology*

Stiftung Warentest (1994) **Fit durch gesunden Schlaf** (Fit through healthy sleep). Reihe: Ratgeber Gesundheit (Health Guide)  
*Very good description of the principles, sleep disturbances and possibilities for treatment.*

Wegscheider Hyman J. (1993) **Licht und Gesundheit** (Light and Health), rororo Sachbuch 19358

Whybrow P, Bahr R. (1993) **Winterschlaf** (Winter Sleep). rororo Sachbuch 19131

Wirz-Justice A, Graw P. (1995) **Beeinflussung der menschlichen Psyche durch Licht** (Effect of Light on the Human Psyche).

In: Der Mensch im Strahlungsfeld der Sonne (Humans in the radiation field of the sun). Forum Davos

Zulley J, Wirz-Justice A. (published) (1999) **Lichttherapie** (Light Therapy).

2. Edition, Roderer, Regensburg

*Current knowledge of light therapy for depression and sleep disturbances.*

Rosenthal N, Kasper S. (1997) **Lichttherapie - Das Programm gegen Winterdepressionen** (Light Therapy - the programme against seasonal affective disorders). Heyne Taschenbuch 5150

## 8. Warranty

We guarantee the device for 60 months from the date of purchase.

The warranty covers manufacturing and material defects ex works, and includes the cost of repairs and replacement parts.

### **Responsibility of the manufacturer:**

We, as the manufacturer, will only be held liable for the safety, reliability and performance of the device, if:

- changes and repairs are carried out by personnel authorised by us only,
- the electrical installation in the room where the device is used meets the requirements of VDE 0107 and
- the device is used according to the user manual.

### **The warranty ceases to apply, and we will not be held liable:**

- if unauthorised work or modifications are carried out on the device
- for damage that can be attributed to faulty electrical installations, as well as lightning damage, fire, or force majeure
- if the user instructions are not followed
- if the device label is removed or has been rendered illegible
- if there is damage to the housing and in particular the filter screen
- for loss or damage that can be attributed to the device or how it is used

Guarantee service repairs by us do not extend the guarantee period.



We reserve the right to make changes to keep up with developments and to further perfect the product.

CE 1253

# CHRONOLUX®

Light Therapy Systems

Greater well-being, vitality and zest for life

**SAMARIT**  
improving patient care

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