



ChromaZenit

Circadian lighting

Ensures sleep, health, and well-being



Comprehensive circadian solution with blue-free night lighting.

Chroma Zenit Evidence-based Circadian Rhythm Lighting is automatically controlled lighting that changes throughout the day, mimicking natural outdoor light. It is based on a clinically documented light protocol tailored to specific diagnoses, behaviors, and departmental needs, developed in collaboration with sleep experts, physicians, and researchers. The circadian lighting supports different situations throughout the day, including blue-free night lighting and therapeutic light settings.

Supported by research and practical evidence

clinical studies and practical evidence in somatics, psychiatry, and healthcare have documented the effects of this lighting solution on depression, sleep, fatigue, and circadian rhythm synchronization. The circadian lighting has a behavior-regulating effect, creating calmness, reducing disturbances and noise during the night, and improving the working environment with reduced stress and anxiety for the staff.

Chromaviso is a leading expert in circadian rhythm lighting, and our solutions are based on deep insights into users' daily lives, the impact of light on people, and expertise in lighting technologies and services. We have in-house expertise for all functions.

Advantages of the Chroma Zenit lighting solution

- Documented effectiveness in clinical studies and practical evidence
- Diagnosis-specific light protocol with blue-free Chromaviso night lighting - recommended by physicians and researchers
- Consultation on optimal, customized circadian rhythm design and setup
- Specially designed circadian rhythm luminaires of the highest light quality - enhancing the sense of time and place, as well as high color rendering
- Focus on implementation with follow-up to ensure high user satisfaction
- Turnkey solution with consultation, planning, technical delivery, user training, and follow-up.

92%

User satisfaction

+130

hospitals, psychiatry,
and nursing homes

+2500

Solutions



The light undergoes smooth transitions, ranging from gentle sunrise to bright daylight. In the afternoon, the light becomes warmer and gradually dimmed. During the night, the patient rooms are dark, but common areas and corridors have blue-free night lighting.

Evidence

Studies conducted in elderly care, psychiatry, and hospital settings document the effects of Chroma Zenit Evidence-based Circadian Rhythm Lighting.

PATIENTS/RESIDENTS



- Better sleep
- Alleviates depression
- Improved circadian rhythm
- Reduced fatigue
- Increased calmness and fewer disturbances during the night
- Less physical and mental restlessness, reduced anxiety, and increased sense of security
- Reduced medication

STAFF



- Improved sleep
- Counteracts depression
- Feeling more rested and alert during the day
- Reduced fatigue and less dizziness after night shifts
- Quieter conversations in subdued lighting, better consideration for residents
- Reduced sick leave and improved working environment

100%

less stress

89%

less depression

80%

more sense of security

78%

better sleep

21%

reduced sick leave



Evidence project with Chromaviso lighting

| LEVEL OF EVIDENCE | PROJECT | MEASUREMENT |
|-----------------------------------|---|--|
| <p>Clinical studies</p> | <ul style="list-style-type: none"> • Apoplexy Unit, Rigshospitalet Glostrup, Anders West • Neurosurgical Intensive Care, Aarhus University Hospital, Leanne Langhorn • Psychiatric Center Copenhagen, DTU, CTU, Klaus Martiny • Clinical Research Center, Hvidovre Hospital, Albertslund Municipality, and Aalborg University • Lund University, Hillevi Hemphälä | <ul style="list-style-type: none"> • 90 Patients: Reduced depression, fatigue, anxiety, and improved circadian rhythm and well-being. • 20 Patients: Sleep, agitation, memory, length of stay. • 150 Patients: Length of stay, medication use, faster recovery, depression. • 20 Residents: Improved sleep, health, well-being, rhythm, and behavior. • Lighting during surgery, glare, light quality, and visual ability. |
| <p>Qualitative studies</p> | <ul style="list-style-type: none"> • Aarhus University Hospital and Rigshospitalet • Occupational PhD, Aalborg University • Dementia Center Aarhus, Aarhus Municipality • VIA University College • Aarhus Municipality -Center for Assistive Technology, Sønderkovhus Local Center • Herluf Trolle Care Center, Odense Municipality | <ul style="list-style-type: none"> • Pilot study with 26 nurses: Improved sleep, feeling more rested, improved working environment, and quicker adjustment to circadian rhythm. • Implementation and impact on staff. • 46 Residents: Improved attention/memory, mood, reduced outbursts, reduced physical and mental restlessness. • Observation of implementation, usage, business case. • Residents and staff: Reduced outbursts and sick leave. |
| <p>User surveys</p> | <ul style="list-style-type: none"> • Scandinavian study, Ergonomic Lighting • Aabenraa Psychiatry, CoLab Recovery & Rehab, Region of Southern Denmark • Malmö Neuro-OBS • Hudiksvall Hospital • Sønderkovhus Local Center / Aarhus Municipality • Skovgården Dementia Care Home, Hadsund • Klinkby Residential and Day Center, Lemvig Municipality • Lundtofte Care Center, Vejen Municipality • Quistgaarden, Slagelse Municipality | <ul style="list-style-type: none"> • 30 hospitals: Improved screen display, reduced fatigue, increased concentration and quality. • 116 patients/staff: Medication use, coercion, calmness, energy level, sleep, well-being, working environment. Usage, user satisfaction, and implementation. • User surveys involving +500 staff members - perceived effects on staff and patients/residents such as well-being, sleep, quality of life, stress, user satisfaction. |
| <p>Practical evidence</p> | <p>+130 hospitals, nursing homes, psychiatric facilities over +16 years</p> <ul style="list-style-type: none"> • Intensive care units, neurorehabilitation • Recovery, intermediate care units • Nursing homes, dementia, psychiatry • Surgery, radiology, imaging, and radiography | <ul style="list-style-type: none"> • User experiences, impact on patients/residents, staff, working environment. Usage, user satisfaction, and implementation. • Experiences: adaptations and dialogue. |

Holistic circadian rhythm solution

Chromaviso provides advice on the optimal circadian rhythm solution for staff and patients/residents.

- **Customized** to diagnosis, behavior, and the rhythm and **needs** of the department
- Light settings are **used for therapy, activities, and treatment**
- The solution **supports different situations** throughout the day
- Used in apartments, common rooms, corridors, sensory rooms, and bathrooms



92%

Users confirm that
the light is easy
to use



Intuitive and customized control panels

- Simple control panels for both staff, patients/residents, and their families
- Customized panels for each user with intuitive icons, text, and colors that promote comfort
- Multiple platforms with one-touch functionality
- Ability to integrate with other systems, sensors, and displays
- Control panels tailored to different room types and needs

“The staff should have the best conditions, and more people should want to work at Ryttershov”

Anna-Karin Asp,
Operations Manager, Ulricehamn Municipality

PUSH BUTTON

An intuitive button press with six different options



TOUCH/WIRELESS

Endless possibilities, integration, overview, and e-learning



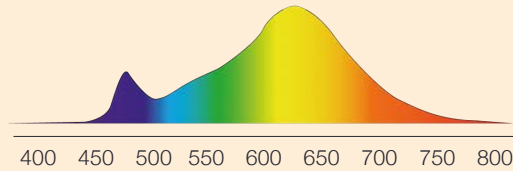
STANDARD

Individual pressure for quick changes



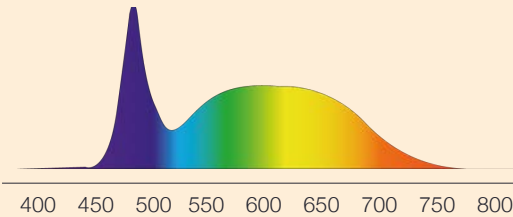
How the documented effect is achieved

Morning light 2700 kelvin



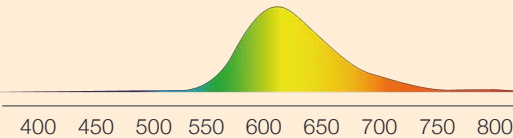
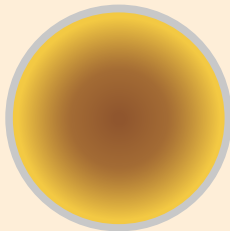
- Waking up and sleep preparation ensure that the body is ready to wake up or go to sleep
- Natural, gradual transitions with smooth dimming to and from off (darkness) require stepless dimming down to 0.1%
- The timing of color temperature and intensity in relation to the diagnosis defines the physiological effect.

Daylight: 6000 kelvin



- Intense daylight ensures circadian rhythm synchronization, daytime energy, and nighttime sleep
- The light quality should ensure 6000 Kelvin with a minimum of 40% energy at 520 nm, which is pleasant to be in
- The light should be fine-tuned and calibrated to room conditions, needs, and workflow
- Lighting design, placement of fixtures, and implementation ensure optimal effectiveness and usage.

night light: 1800 kelvin



- Nighttime lighting: Balances consideration for patients and staff
- Biological darkness at night requires 1800 Kelvin with a maximum of 1% energy at 520 nm.
- Broad-spectrum diodes require high visibility.
- Minimal disruptive settings for night light, toilet visits, and monitoring.

CONTACT US

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