EN

Flexible lighting for well-being

VITA MED

Patient room
Visualisation

Functional bed light with homely design

The quality of the stay in a healthcare facility contributes significantly to the healing process. Typically, however, wards and patient rooms often appear uninviting due to the technical fixtures and medical necessities. The VITA MED bedside light system has been developed by the Zweithaler design studio, in collaboration with XAL and MEDGAS-Technik, with the aim of creating a more homely environment.

It has been possible to create a pleasant room atmosphere by integrating key elements, such as the light module, standard rail unit and supply duct, in a compact, stylish design for the wall area behind the bed. This slim and flexible modular system allows lighting planners to use a wide variety of room configurations. The separate modules for lighting and mounting rails have a matching form and can be individually combined and mounted on the supply duct. Due to its compact size, the bed light is hardly noticeable and integrates harmoniously into the interior design. Separate plug-and-play light insets allow for simple cleaning and tool-free maintenance of the system. The light can be controlled via conventional light switches and the patient's hand-held device so that day-to-day life in the care facility runs smoothly.

“VITA MED meets the needs of patients, architects and medical staff in an attractive, functional and flexible manner.”

Markus and Benjamin Pernthaler
Studio zweithaler

Studio zweithaler

The design studio was founded by Benjamin and Markus Pernthaler in 2016, combining experience in product development, design and architecture. Their work covers consumer goods, furniture and lighting, and focuses on novel solutions, both in terms of manufacturing process and consumer usability.

MEDGAS-Technik

Based in Lienz / East Tyrol, MEDGAS-Technik has been manufacturing customer-focused medical products for international markets for over 20 years. The high-quality, tried and tested products conform to the high standards of international markets.

XAL

The history of XAL goes back more than 30 years. Since then, XAL has been working with lighting designers, lighting planners and architects to develop customer-specific luminaires of the highest technical standard with impressive style and aesthetics.

Design and flexibility

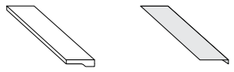
VITA MED

VITA MED is a modular lighting system that not only meets the high requirements of the hospital and healthcare sector, it also offers a high degree of freedom in planning and designing patient rooms. Radiating from the bed, the combined indirect/direct modules enable a pleasant spatial effect as well as targeted use as a reading and examination light. The indirect light component provides a pleasant illumination of the ceiling. The light insets can be controlled separately, so that the room light as well as the reading and examination light can be combined individually. The luminaire can also be used as a night light using the dimming function. This range of functions complies with medical specifications so that the lighting from VITA MED also meets the requirements of a treatment room. The cylindrical illuminance of 450 lx, required to match the circadian clock, is exceeded for both 50-year-old patients and nursing staff alike. The working environment for doctors and nurses is improved, while patients receive an optimum light intensity for healthy vital functions and a positive melanopic response. The individual light functions can be operated via conventional light switches and the patient's control device. DALI control is also available as an option, allowing predefined lighting programs to be called up. The discreet supply duct of the lighting system integrates both single or three phase power as well as medical gas fittings and can be tastefully adapted to the desired design concept with a fascia panel. The light modules can be mounted on the supply duct to achieve the appropriate and desired lighting mood. The standard rail unit, with indirect light, conforms to ÖNORM EN ISO 19054 and also allows attachment of medical equipment.

Quickinfo

3000 K, 4000 K
CRI ≥ 90, XPECTRUM CRI ≥ 98
L80 @ 50 000 h
up to 7200 lm/m
DALI-2
reflector

Modul Insets

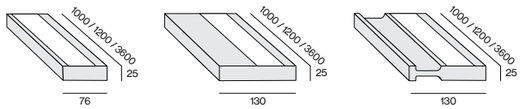


Light inset Blind cover

Light distributions

indirect direct/ indirect direct

Modules

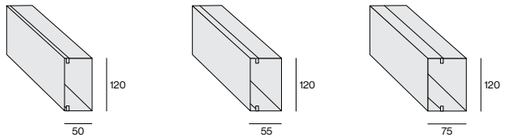


Indirect module Direct/ indirect module Mounting rail module

Colours

anodised aluminium white

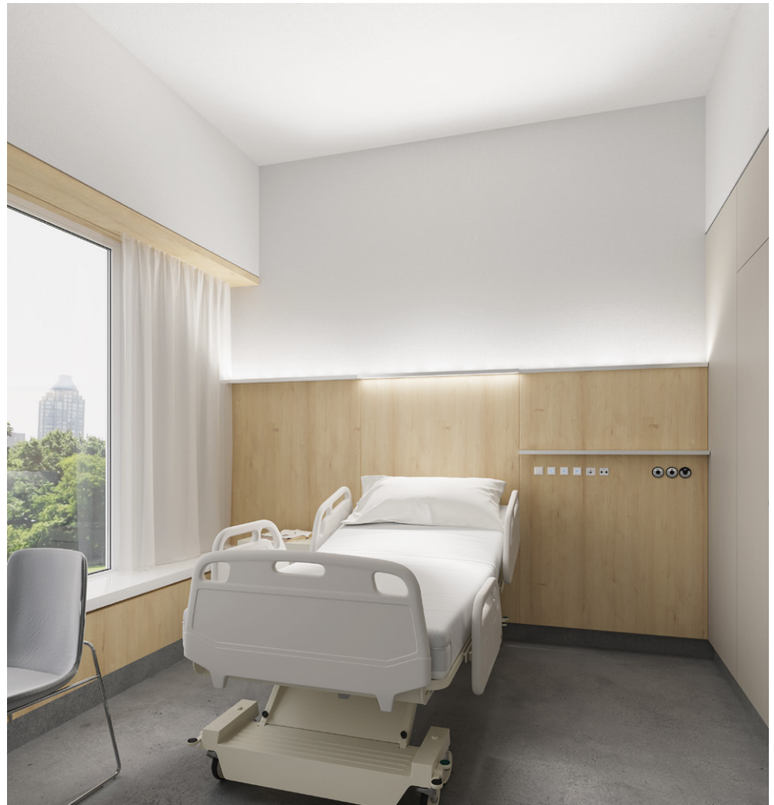
Supply channel



Supply duct cover small Supply duct cover medium Supply duct cover large

Mounting types

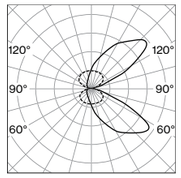
surface mounting surface mounting with decor



Pleasant, warm radiance

Radiating from behind the bed, the wide-angle indirect light component provides homogeneous ceiling illumination and a pleasant ambience. The indirect distribution of light prevents glare for patients and nursing staff. The warm colour temperature of 3000 K ensures a positive atmosphere with consistently good examination light. Alternatively, the clearer, cooler 4000 K colour scheme can be used as the examination light.

Light distributions



Direct / indirect module with 2 light insets

Melanopic Response

Light and light quality are key factors for health. The correct lighting creates an atmosphere that supports patient recovery and provides nursing staff with a positive work environment. Using cylindrical illuminance, the biological support effect is 371 lx at 3000 K and 299 lx at 4000 K. For those aged over 50, these values must be increased by 50 %. VITA MED exceeds this requirement, both for patients and healthcare workers. VITA MED also meets the requirement for biological activation with 75-year-old users, even taking into account the age-specific correction factors in accordance with DIN T/S 5031-100.

Regulatory standards & specifications

The products used by VITA MED comply with the basic performance specifications of the MDR – Medical Device Regulation (EU) 2017/745 of the European Parliament and Council of April 5, 2017. VITA MED is a modular supply unit for use in medical rooms and is manufactured strictly in accordance with the latest state of the art standards (EN ISO 11197:2019). The light insets from VITA MED meet all the key lighting requirements for patient rooms. Both the modified value of 200 lx and the minimum illuminance value of 100 lx, defined at floor level (see EN 12464-1:2021), are achieved. An illuminance of 300 lx is maintained for the reading light and the light for simple examinations. The modified values of 750 lx can be achieved by adding several indirect light insets. With all light insets, the glare rating falls below the standardised limit value of UGR ≤ 19, so that VITA MED provides the best light for both nursing staff and patients.

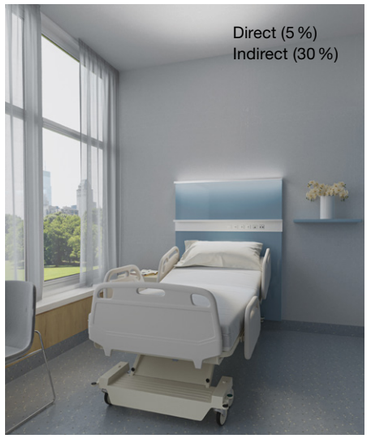
Outstanding colour fidelity and light quality

With a colour rendering value of CRI ≥ 90, VITA MED provides doctors, nurses and geriatric nurses with the ideal environment to ensure professional treatment. This allows, for example, fine colour nuances on the patient's skin to be easily differentiated. At the same time, the illuminance of 1500 lx allows for intensive medical examinations. The version with full-spectrum LEDs and colour rendering of CRI ≥ 98 offers even better colour representation and the increased cyan wavelength component makes the XPECTRUM particularly easy on the eyes.

Control light scenes automatically

In using VITA MED, the desired light intensity in the room is the result of the combination of direct and indirect light insets. Thanks to user-friendly DALI control, available as an option, up to 16 light scenes can be saved and easily called up by staff using a touch panel. One possible option would be, for example, the combination of reading and examination light with two supplementary indirect light scenes.

Up to 8 switching or dimming buttons and up to 4 dynamic light programs can be assigned on the optional master unit. One possible option is an automatic, indirect intensity curve with reading or examination light that can be switched on individually. Different daylight durations can be sequenced together to form a near-natural annual light program. Up to 8 additional lights can be dimmed or switched.



Hygiene and cleaning

VITA MED is laboratory tested and meets the hygiene requirements of hospitals. The elements are easy to disinfect and can be cleaned and maintained using common cleaning agents normally used in healthcare facilities. The compact design of the lighting system minimises the gap dimension at joining surfaces to prevent dirt deposits. Additional care was taken during the development of the luminaire to keep the number of joints as small as possible.

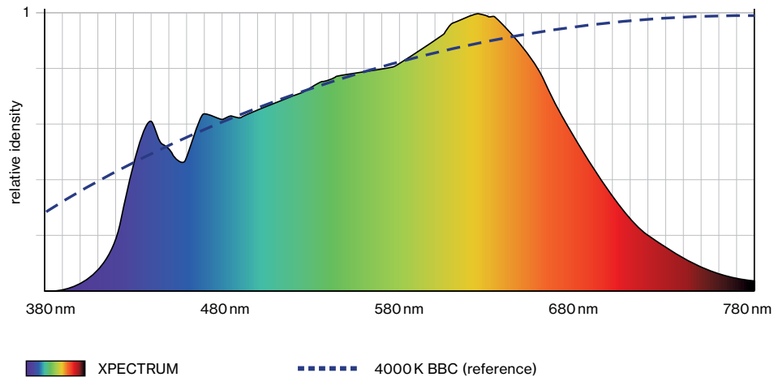
Full spectrum LED

The new XPECTRUM LED from XAL provides light with a positive biological influence on health. The reduced proportion of blue light and the increased cyan values minimise the exposure to blue light on the eye through natural frequency distribution. This stimulates the melanopic light response, which promotes concentration and improves the quality of sleep. The excellent colour rendering of CRI ≥ 98, with TM 30-15 R_f = 98 and R_g = 101, also enables improved visual comfort.

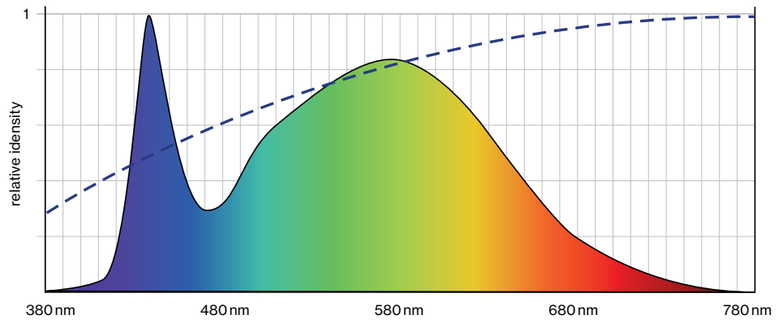
Advantages

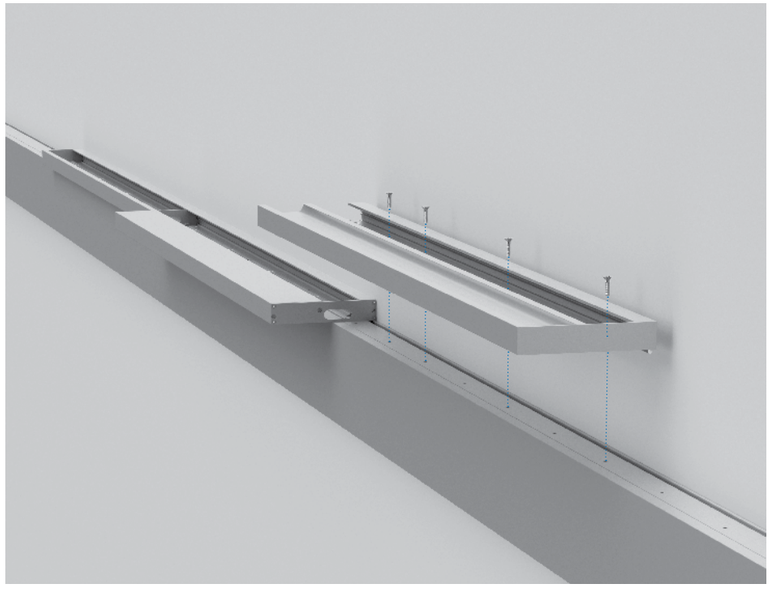
- High melanopic response factor – highly efficient with biologically effective light planning
- Increased well-being and better sleep
- Increased ability to concentrate
- Minimised risk of blue light, as the pupil size adapts to the natural incidence of light
- Visual comfort thanks to high colour fidelity – improved contrast vision when reading

XPECTRUM LED



Commercially available LED 4000 K

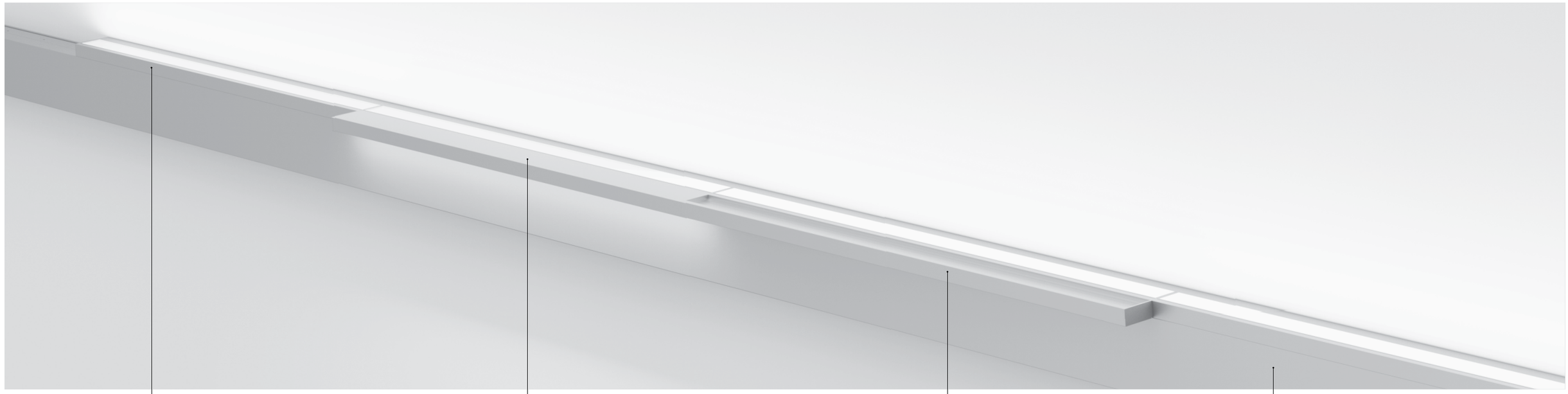


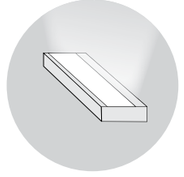


Flexible luminaire positioning

The VITA MED system is a modular lighting system that enables flexibly adjustable lighting in care rooms. The modules, which are easy to mount on the supply duct, can be repositioned at any time or supplemented with additional lighting elements. A blind cover can also be replaced by a light insets and vice versa. As a result, VITA MED enables sustainable lighting with an ideal room atmosphere, even when the bed is moved or the general conditions change.

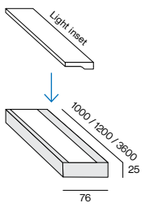
Modular system for every design need



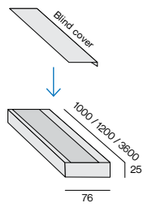


Indirect module

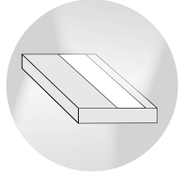
The indirect module, with light inset, ensures even ceiling illumination and general lighting in the room. Where required, a blind cover can be used instead of the light inset.



Indirect module with light inset

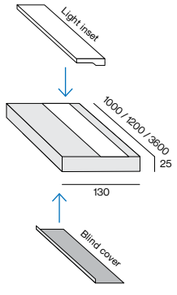


Indirect module with blind cover

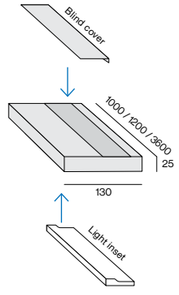


Direct / indirect module

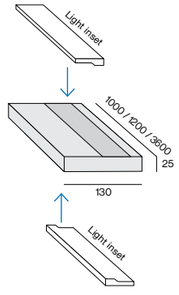
This module can be fitted with two light insets. Positioned above the bed, it provides ideal conditions for patient examinations due to the direct light component. Patients can use the direct module as a reading light, while the indirect light component ensures that the ceiling is evenly illuminated in the room. Where required, the light insets can be replaced with blind covers.



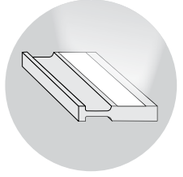
Direct / indirect module with light inset & blind cover



Direct / indirect module with blind cover & light inset

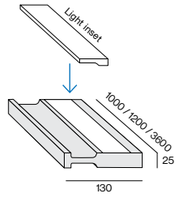


Direct / indirect module with light insets

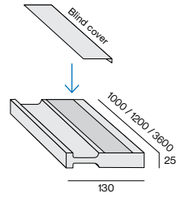


Mounting rail module

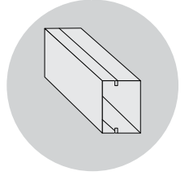
This module consists of a standard mounting rail unit that can be fitted with an indirect light inset. The two elements, which till now were managed separately, are combined both visually and functionally. The standard mounting rail provides space for attaching medical examination and supply devices, while the indirect light component contributes to the uniform illumination of the ceiling and general room lighting. A blind cover can be used, as an option, instead of the light insets.



Mounting rail module with light inset

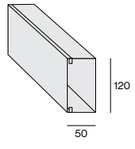


Mounting rail module with blind cover

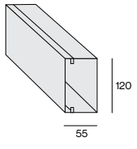


Supply duct

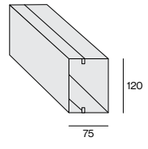
The supply duct offers a choice of three different depths and can be fitted, as required, for integration of single phase or three phase power as well as medical gas fittings. The size of the supply duct can be selected depending on the space required within the duct and to match the planned fascia panel. The wall rail integrated in the supply duct is the same for all three depths, the corresponding cover can be easily positioned and locked into the mounting duct using a snap mechanism.



Supply duct cover small



Supply duct cover medium



Supply duct cover large

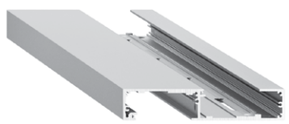
Easy to assemble and maintain

VITA MED is based on a modular system that is easy to assemble and flexible, allowing it to adapt to current needs at any time. Due to the simple mounting, light insets of the corresponding module can be mounted, adjusted or maintained quickly and easily. The converter is also installed directly on the light insets and makes mounting easier. In addition, two terminals are fitted on each light insets, which electrically connect the individual modules to each other. The adaptability of the system also allows beds to be moved around flexibly, as the light insets or blind covers can be readily replaced or retrofitted.

Light inset
direct / indirect

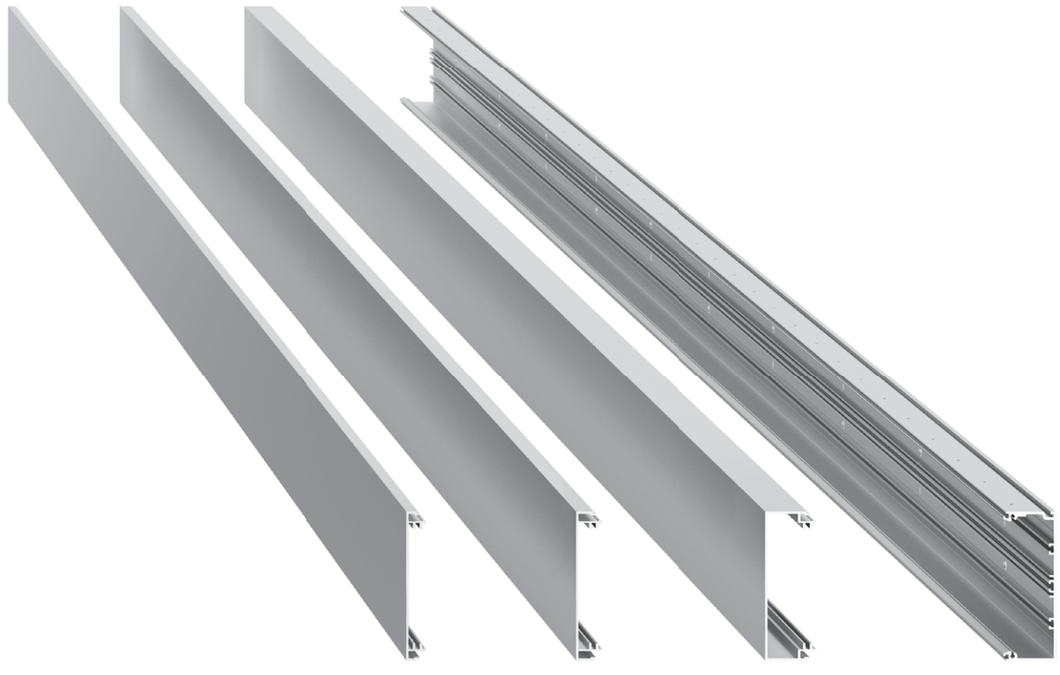
Blind cover
direct / indirect

Indirect module



Direct / indirect module

Mounting rail module



Cover small

Cover medium

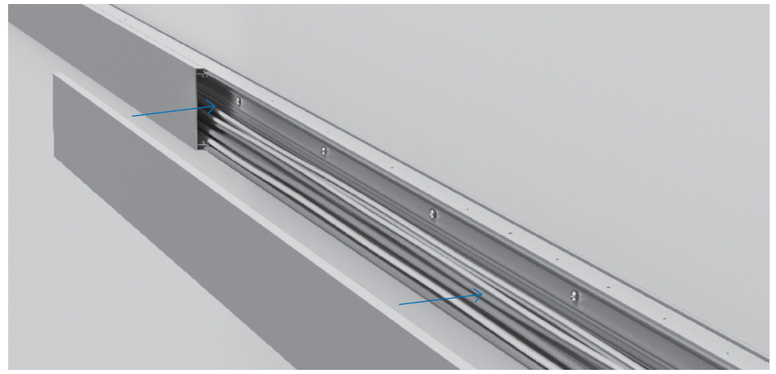
Cover large

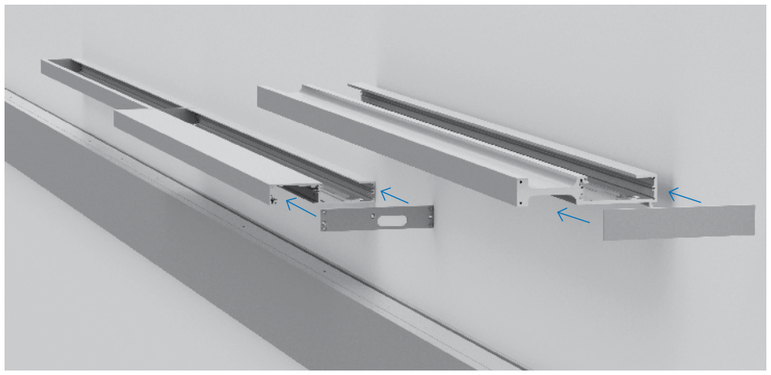
Wall rail of the supply duct

1

Supply duct

In the first step, the supply duct is installed. This consists of a wall rail and a cover. The wall rail allows integration of cables as well as single and three phase power or medical gas fittings. The duct is then closed with the cover.





2

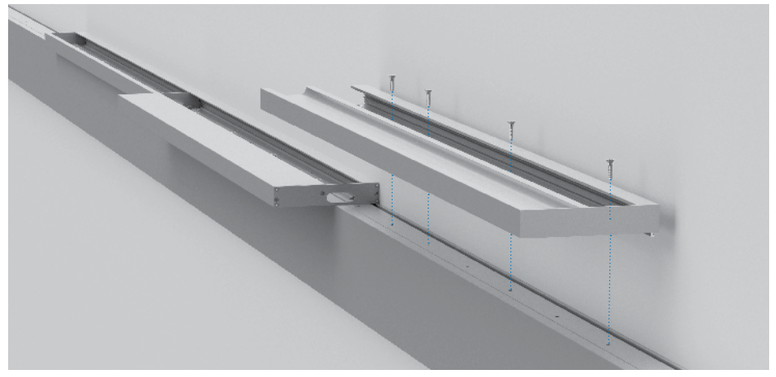
End caps & line connectors

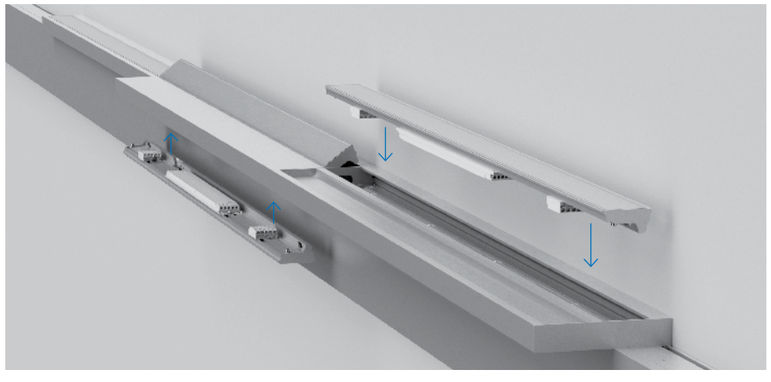
Line connectors are used for mechanical and visual linking, to blend harmoniously into the overall appearance. This creates a visually appealing and homogeneous connection between the selected VITA MED modules, which is elegantly closed off with end caps.

3

Modules

Then the selected modules (mounting rail module, direct/indirect module or indirect module) are hooked onto the mounting duct and securely twisted tight. The individual module versions can be positioned on the supply duct according to individual requirements and the desired light pattern.





4

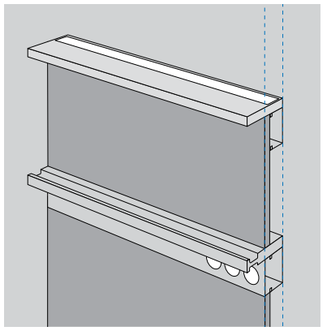
Light insets

You have the option of direct and indirect light insets. The direct light component ensures homogeneous illumination of the bed area over the entire length of the bed, while the indirect light component creates a pleasant room atmosphere with a wider beam angle. As an option, a blind cover can also be selected as an insets. A snap mechanism allows quick and practical placement of each light insets, or replacement if necessary.

Greater comfort with the correct lighting

The VITA MED lighting system fits seamlessly into any architectural design. When used in combination with fascia panels, it offers further options for decorative design to make the patient room more homely and comfortable. Depending on the type of fascia panel and the space requirement, the appropriate supply duct can be selected and fitted with modules of your choice to match the room design. The small cover offers the option of making the supply duct disappear behind the fascia panel. With the medium cover, the duct is flush with the fascia panel, and with the large cover, the supply duct is flush with the indirect module.

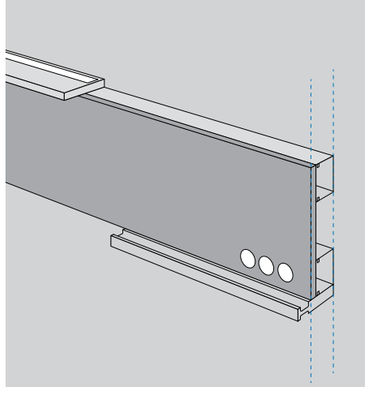
Patient room
Visualisation



Above:
Supply duct with small cover,
direct / indirect module with 2 light insets

Below:
Supply duct with medium cover,
mounting rail module with blind cover

Patient room
Visualisation

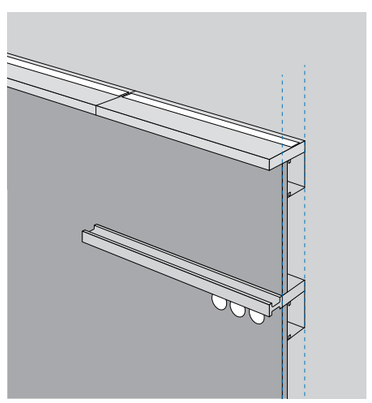


Above:
Supply duct with small cover,
direct / indirect module with 2 light insets

Below:
Supply duct with small cover, mounting
rail module with blind cover

Room design
using fascia panels

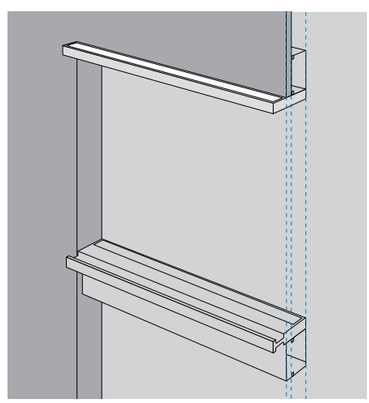
Patient room
Visualisation



Above:
Supply duct with small cover,
direct / indirect modules with 2 light insets each

Below:
Supply duct with small cover,
mounting rail module with blind cover

Patient room
Visualisation



Above:
Supply duct with small cover,
direct / indirect module with 2 light insets

Below:
Supply duct with medium cover,
mounting rail module with blind cover

Patient room
Visualisation

Well-being lighting

VITA

VITA has been developed, based on the technology of our VITA MED system luminaire, to meet the high specifications of the health and care sector. The simple design of the luminaire blends in particularly well with the interior of hospitals. The ease of installation and maintenance also make VITA highly attractive. The direct component of the light, radiating from the bed, provides a pleasant spatial effect as well as precise use as a reading and examination light. The indirect component of the light ensures pleasant illumination of the ceiling. The direct and indirect light components can also be controlled separately, allowing the room reading and examination light to be individually combined. The luminaire can also be used as a night light using the dimming function. This range of functionality means that lighting with VITA also meets the requirements for a treatment room. VITA has the further advantage that it is not coupled directly to the supply duct. This means that single phase and three phase power as well as medical gas fittings can be connected independently.

Quickinfo

3000 K, 4000 K
CRI ≥ 90, XPECTRUM CRI ≥ 98
L80 @ 50 000 h
up to 7200 lm/m
DALI-2
reflector

Light distribution

direct / indirect

Colours

anodised aluminium
white

Patient room
Visualisation

Example of patient room planning

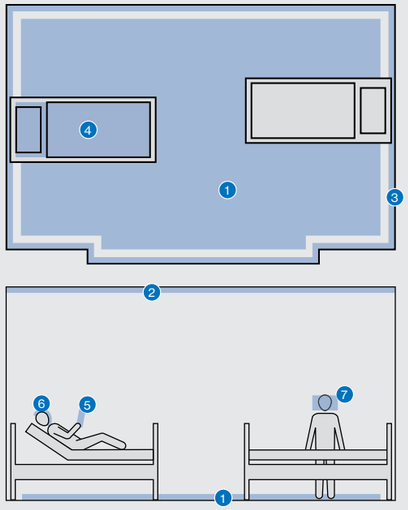
Draw inspiration for the design of comfortable patient rooms from the examples of planning options using the VITA MED bed light.

In the current floor plan of a two-bed room, the beds are placed slightly offset against opposite fascia panelled walls. The VITA MED bed light is mounted, at a height of 180 centimetres, as a continuous duct on the fascia panel. Three VITA MED light insets for each bed provide pleasant, indirect light upwards. A light insets, in the centre above the bed, provides direct light downwards.

Lighting Specifications

- Very good colour rendering CRI ≥ 90 / optional CRI ≥ 98
- Dynamic intensity gradients using the DALI light control
- No glare
- Ceilings and upper wall surfaces are brightly illuminated
- Examination light meets the requirement of < 500 lx
- Illuminance: All specifications in EN 12464-1:2021, both the minimum values and the modified values, are exceeded
- Melanopic response: The required vertical and cylindrical illuminance levels are met in accordance with the age correction factors for 75-year-old observers in accordance with DINT/S 5130-100

Specifications



Measurement area
1 Floor
2 Ceiling
3 Walls
4 Examination level / H = 85 cm
5 Reading range / H = 110 cm / 30 x 90 cm
6 Field of vision / Vertical patient head measurement area / 30 x 30 cm
7 Staff / Cylindrical nursing staff measurement area / H = 160 cm

Room dimensions
3.33 x 5.75 m
Ground surface area = 19.14 m²
Room height = 3.45 m

MEDI Lux – what is the biological requirement for vertical illuminance on a patient's eye?

MEDI Lux is the melanopic and weighted daylight-equivalent illuminance. According to DINT/S 67600, 250 MEDI Lux (Melanopic Equivalent Daylight Illuminance) must be present vertically on the eye for a number of hours in order to achieve the required biological effect.

How is this converted to visual lux? In our example 4000 K is assumed with an MDER of 0.836. The 250 MEDI Lux value is divided by the melanopic, daylight-equivalent response factor of MDER = 0.68 [250 / 0.836 = 299 lx]. This 299 lx is the biologically necessary vertical illuminance for a 32-year-old observer.

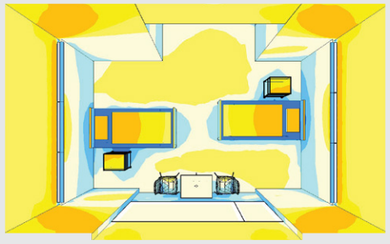
DINT/S 5031-100 lists important age-specific correction factors. For a 50-year-old observer, this results in a vertical illuminance of 450 lx [299 lx / 0.664 = 450 lx].

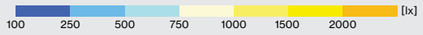
The age-specific correction factors for a 75-year-old observer result in a factor of 0.319 – this gives a vertical illuminance of 937 lx [299 lx / 0.319 = 937 lx].

This means that in our planning example for a biologically and functionally ideally illuminated patient room, an appropriate vertical illuminance is given for a 75-year-old observer.

VITA MED
Examination light (direct 100 % / indirect 100 %)


Visualisation

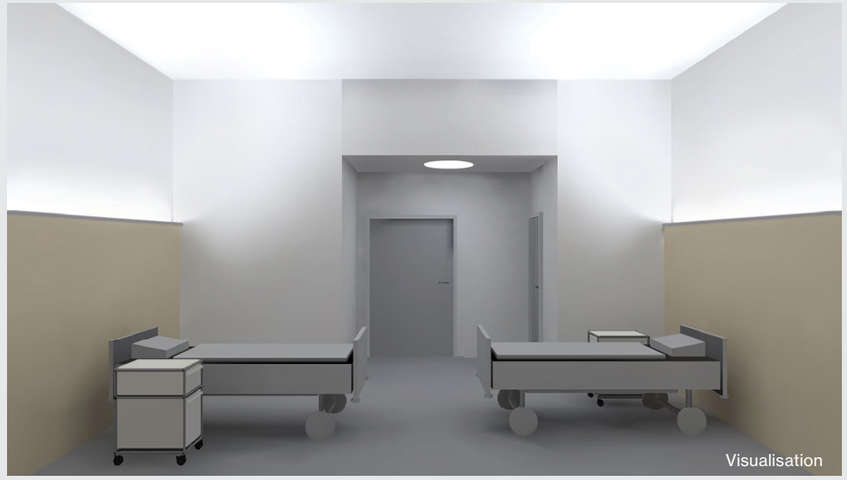




Number	Luminaires	Light output
2	Direct module 100 cm / 7200 lm	100 %
4	Indirect module 100 cm / 7200 lm	100 %
2	Indirect module 120 cm / 8640 lm	100 %

Measurement area	Standard specification E_m / U_o	Light output E_m / U_o
General lighting (H = 0.85 m)	100 - 200 lx	1750 lx / 0.7
1 **Floor**	100 - 200 lx / 0.4 - 0.6	1400 lx / 0.6
2 **Ceiling**	30 - 100 lx / 0.1	1850 lx / 0.7
3 **Walls** (ø all walls)	50 - 150 lx / 0.1	≥ 700 lx / 0.6
4 **Level of examination:**		
basic examination	300 - 500 lx / 0.6	2300 lx / 0.65
examination & treatment	1000 - 1500 lx / 0.7	2300 lx / 0.65
5 **Reading range**	300 - 750 lx / 0.7	2500 lx / 0.9
	Standard specification E_z / U_o	**Light output E_z / U_o**
6 **Field of vision patient lying:**		
for communication:	150 lx / 0.1	1700 lx / 0.9
biologically effective for:	technical specification (DINT/S 67600/5031-100)	
50-year-old observer	≥ 450 lx / 0.1	1700 lx / 0.9
75-year-old observer	≥ 937 lx / 0.1	1700 lx / 0.9
7 **Staff standing (1.6 m):**		
basic examination	100 lx / 0.1	900 lx / 0.7
examination & treatment	150 lx / 0.1	900 lx / 0.7
biologically effective for 50-year-old nursing staff	≥ 450 lx / 0.1	900 lx / 0.7

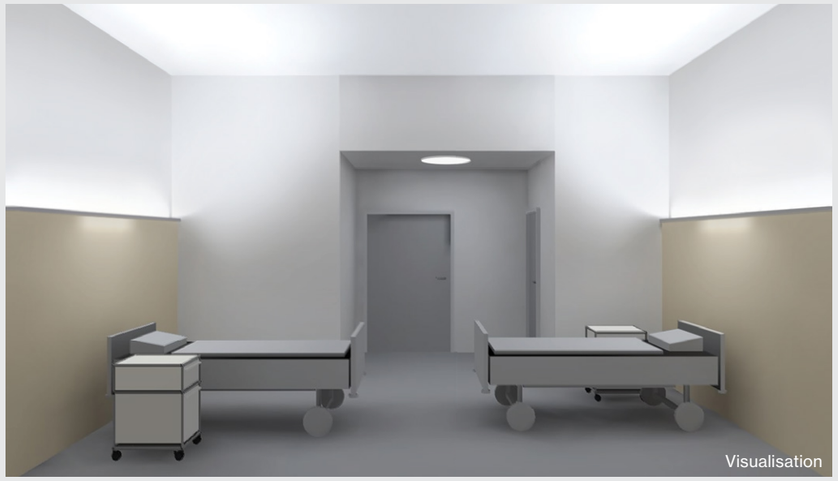
VITA MED
General room light (indirect 100 %)

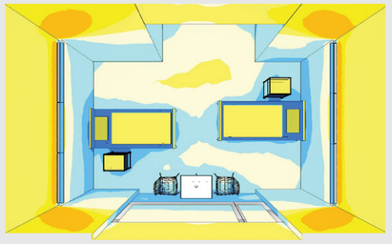


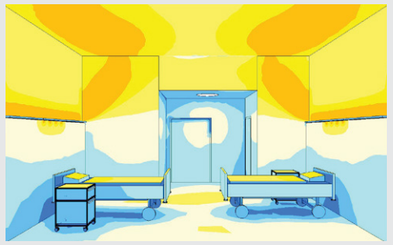
Number	Luminaires	Light output
2	Direct module 100 cm / 7200 lm	off
4	Indirect module 100 cm / 7200 lm	100 %
2	Indirect module 120 cm / 8640 lm	100 %

Measurement area	Standard specification E_m / U_0	Light output E_m / U_0
General lighting (H = 0.85 m)	100 - 200 lx	1100 lx / 0.9
❶ **Floor**	100 - 200 lx / 0.4 - 0.6	900 lx / 0.8
❷ **Ceiling**	30 - 100 lx / 0.1	1700 lx / 0.65
❸ **Walls** (ø all walls)	50 - 150 lx / 0.1	≥ 500 lx / 0.6
❹ **Level of examination:**		
basic examination	300 - 500 lx / 0.6	1150 lx / 0.9
examination & treatment	1000 - 1500 lx / 0.7	1150 lx / 0.9
❺ **Reading range**	300 - 750 lx / 0.7	750 lx / 0.9
	Standard specification E_z / U_0	**Light output E_z / U_0**
❻ **Field of vision patient lying:**		
for communication:	150 lx / 0.1	1100 lx / 0.95
biologically effective for:	technical specification (DINT/S 67600/5031-100)	
50-year-old observer	≥ 450 lx / 0.1	1100 lx / 0.95
❼ **Staff standing (1.6 m):**		
basic examination	100 lx / 0.1	750 lx / 0.7
examination & treatment	150 lx / 0.1	750 lx / 0.7
biologically effective for 50-year-old nursing staff	≥ 450 lx / 0.1	750 lx / 0.7

VITA MED
General room & reading light (direct 30 % / indirect 100 %)



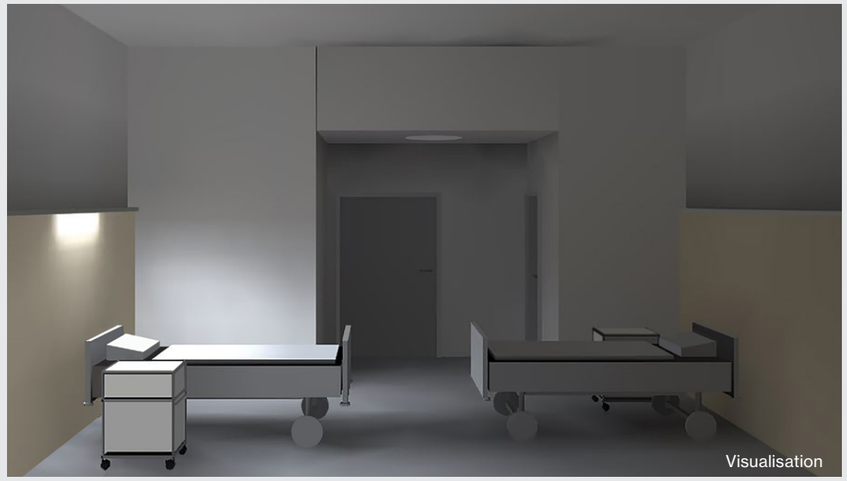


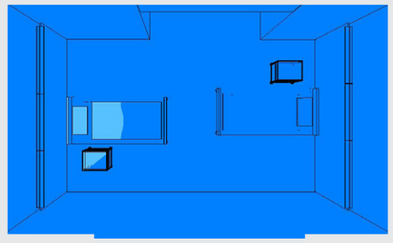


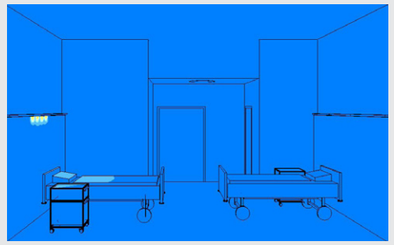
Number	Luminaires	Light output
2	Direct module 100 cm 7200 lm	30 %
2	Indirect module 100 cm 7200 lm	100 %

Measurement area	Standard specification E_m / U_0	Light output E_m / U_0
General lighting (H = 0.85 m)	100 - 200 lx	1300 lx / 0.8
❶ **Floor**	100 - 200 lx / 0.4 - 0.6	1050 lx / 0.7
❷ **Ceiling**	30 - 100 lx / 0.1	1700 lx / 0.7
❸ **Walls** (ø all walls)	50 - 150 lx / 0.1	≥ 500 lx / 0.6
❹ **Level of examination:**		
basic examination	300 - 500 lx / 0.6	≥ 1500 lx / 0.85
❺ **Reading range**	300 - 750 lx / 0.7	≥ 1350 lx / 0.9
	Standard specification E_z / U_0	**Light output E_z / U_0**
❻ **Field of vision patient lying:**		
for communication:	150 lx / 0.1	≥ 1250 lx / 0.95
biologically effective for:	technical specification (DINT/S 67600/5031-100)	
50-year-old observer	≥ 450 lx / 0.1	≥ 1250 lx / 0.95
❼ **Staff standing (1.6 m):**		
basic examination	100 lx / 0.1	750 lx / 0.7
examination & treatment	150 lx / 0.1	750 lx / 0.7

VITA MED
Reading light (direct 25 %)


Visualisation





100 250 500 750 1000 1500 2000 [lx]

Number	Luminaires	Light output
1	Direct modul 100 cm / 7200 lm	25 %

Measurement area	Standard specification E_m / U_0	Light output E_m / U_0
5 **Reading range**	300 - 750 lx / 0.7	500 lx / 0.8

Notes

A Personal Note

We have made it our mission to develop, perfect and create unique projects in collaboration with architects and planners.

We see ourselves as your partner. From planning the lighting to selecting the correct products, and from project management to commissioning and maintenance, we are available at your side through all the phases of your project.

Let's talk about your project: **health@xal.com**

XAL Headquarters

XAL GmbH
Auer-Welsbach-Gasse 36
8055 Graz
AUSTRIA
T +43.316.3170
office@xal.com

All locations:
xal.com/contakte

MEDGAS-Technik medical systems GmbH

Gries 60
9909 Leisach
AUSTRIA

T +43.4852.66665.0
info@medgas-technik.at
medgas-technik.at

Legal Notice