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# LED-systems for medical light

## OptoDrive® Medical

- Bed lights
- Examination lights
- Minor surgery
- Major surgery

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# OptoDrive® Medical Complete LED-engines for medical luminaires

With light fittings used for minor surgery, examination and other medical and veterinary purposes, quality of light is essential.

OptoDrive® Medical LED-light engines provide you with exquisite and flexible LED light sources that comply with the highest demands in medical applications\*. Tests show that OptoDrive® is suitable even for tasks compliance with the cyanosis observation index (COI)\*\*.

\* IEC 60601-1  
The harmonized standard for medical electrical equipment recognized by public health authorities in most countries as Europe, USA, Canada, Brazil, Japan etc.

\*\* COI as per AS1680.2.5:1997





# Easy to integrate

The benefits of using OptoDrive® as your light source become very evident when it comes to integration in light fittings, opening up new design possibilities. The same fixture structure can be used regardless of viewing angle, colour temperature, luminosity etc.

## **Complete, dimmable LED modules**

These are complete, dimmable LED lighting modules with correct brightness and multiple scattering angles to provide the desired light in most types of premises. In fact, the OptoDrive® LED solution is the first built-in driver package design to render a perfect white light.

The thermal performance also exceeds other power LED solutions, while energy efficiency and increased service life mean unbeatable advantages for your customers. They are highly cost-effective, and you can easily adjust the light in your light fittings to suit regulations and the needs and preferences of your customers.

Think OptoDrive when designing, producing and selling medical application lights.

- **Solid State Lighting\***
- **Low voltage VDC**
- **Dimmable with PWM (Dali, DMX, etc.)**
- **Very compact module with integrated control**
- **Easy installation (no socket, just 2-3 screws and a connector)**

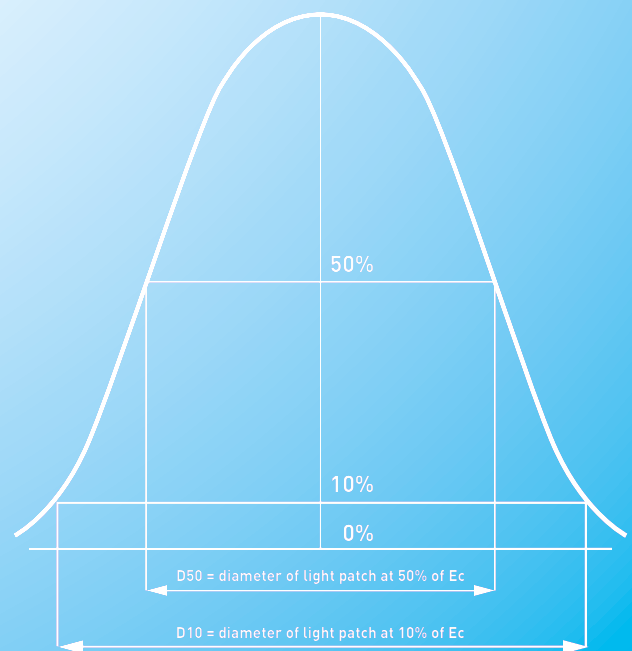
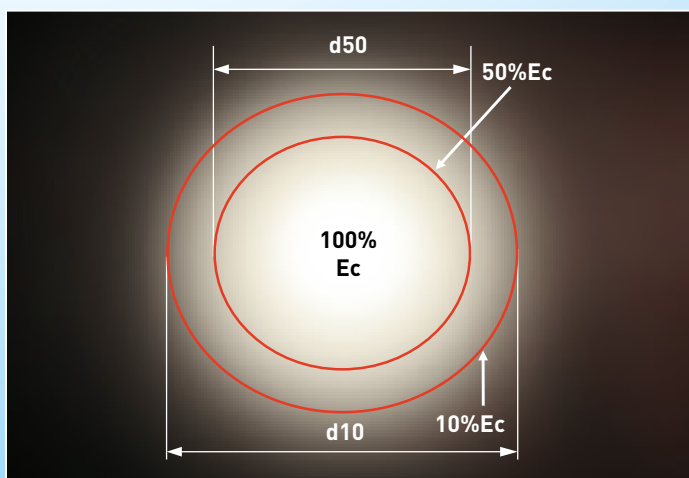
\* LEDs are a solid source, while incandescent and fluorescent lamps are containers filled with gas or a vacuum

# OptoDrive® delivers the highest light quality

OptoDrive® provides a neutral and pleasant light that works with your light fittings. According to measurements taken by SP (Swedish Technical Testing Institute), OptoDrive® LED-engines have an index above Ra95.

OptoDrive® has excellent possibilities to achieve perfect shadow control with its multi-array design and crisp white light. The colour balance and spread of light is so good that modules exceed the lighting requirements for tasks requiring highly accurate colour perception.

CLARA and SVEA have higher Ra value than can be achieved with energy saving bulbs and are available with a warm white, normal white or cool white colour temperature.



Illuminance performance SVEA.

The D10 should not exceed 2 x D50 to meet the requirements of minor surgery







# Examination and bed light fixtures

OptoDrive® CLARA is a complete lighting module with integrated control, customised to suit medical light fittings for examination and bed lights. CLARA is only 1.7 centimetres high and is very easy to integrate.

The module provides well-balanced light (~Ra97) with a powerful, even spread that makes it usable in many applications. The service life is approximately 50,000 hours.



# CLARA ID:3 Medical

<b>Power consumption</b>	4W	8W
<b>Luminous flux</b>	350lm	850lm
<b>Illuminance</b> (max lux 1.0m)	TBD	TBD
<b>Light field diameter</b>	TBD	
<b>Beam uniformity</b> (D50/D10 ratio)	TBD	
<b>Supply voltage</b>	12-36VDC	
<b>Colour rendering index</b>	Ra: 97 (R9: 96)	
<b>Correlated colour temp</b>	3,000K 4,000K	
<b>Beam spread</b>	12° 25° 40°	
<b>Dimensions</b>	50x48.5mm, h=16.5mm	

Clara ID.8.12-36.3.940-12	Ra	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
4,000K	97	97	99	94	96	98	97	99	98	96	97	94	84	98	96	96



# CLARA ID:6 Medical

<b>Power consumption</b>	12W
<b>Luminous flux</b>	850lm
<b>Illuminance</b> (max lux 1.0m)	>18,000lx
<b>Light field diameter</b>	D50 = 164mm D10 = 313mm
<b>Beam uniformity</b> (D50/D10 ratio)	0.52
<b>Supply voltage</b>	24-36VDC
<b>Colour rendering index</b>	Ra: 97 (R9: 88)
<b>Correlated colour temp</b>	4,000K
<b>Beam spread</b>	9.2°
<b>Dimensions</b>	50x48.5mm, h=16.5mm

Clara ID.12.24-36.6.940-9	Ra	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
4,000K	97	98	97	94	98	97	96	99	97	88	91	97	83	98	96	97



# Examination and minor surgery light fixtures

OptoDrive® SVEA is a complete lighting module with integrated control, customised to suit medical light fittings. SVEA is below two centimetres high and can easily be integrated into most light fixtures for examination and minor surgery. The quality of light exceeds most lighting sources of today and is compliant with the highest standards, i.e. the cyanosis observation index and guidelines for light used in diagnosis of patients in hospital wards.

The LED-engine provides well-balanced white light (~Ra98) with a powerful, even spread that makes it usable in light fixtures for examination and minor surgery. The service life is approximately 50,000 hours.

The OptoDrive® SVEA series is designed for high current operation and high flux output applications. The thermal management performance exceeds other power LED solutions thanks to a new SMD design and thermal emission materials, along with the most efficient switch technology.



# SVEA ID:7 Medical

LED-light engine for examination and minor surgery

<b>Power consumption</b>	10W	15W
<b>Luminous flux</b>	1,000lm	1,400lm
<b>Illuminance</b> (max lux 1.0m)	>18,000 lux	>25,000lux
<b>Light field diameter</b>	D50 = 121mm D10 = 237mm	D50 = 121mm D10 = 237mm
<b>Beam uniformity</b> (D50/D10 ratio)	0.51	0.51
<b>Supply voltage</b>	30-36VDC	
<b>Colour rendering index</b>	Ra: 98 (R9: 98)	
<b>Correlated colour temp</b>	4,000K	
<b>Beam spread</b>	8°	
<b>Dimensions</b>	83x95.5mm h=19mm	

Svea ID.15.30-36.7.940-9	Ra	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
4,000K	98	98	99	97	98	97	96	98	98	98	98	98	79	99	98	97



# SVEA ID:12 Medical

LED-light engine for minor surgery

<b>Power consumption</b>	17W
<b>Luminous flux</b>	1,360lm
<b>Illuminance</b> (max lux 1.0m)	>30,000lux
<b>Light field diameter</b>	D50 = 131mm D10 = 258mm
<b>Beam uniformity</b> (D50/D10 ratio)	0.51
<b>Supply voltage</b>	24-36VDC
<b>Colour rendering index</b>	Ra: 98 (R9: 98)
<b>Correlated colour temp</b>	4,000K
<b>Beam spread</b>	9°
<b>Dimensions</b>	83x95.5mm h=19mm

Svea ID.17.24-36.12.940-9	Ra	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
4,000K	98	98	99	97	98	97	96	98	98	98	98	98	79	99	98	97





# SVEA ID:12CCT Medical

LED-light engine for minor surgery with variable CCT

<b>Power consumption</b>	12-14W* (30W)
<b>Luminous flux</b>	1,170lm** (2,340lm)
<b>Illuminance</b> (max lux 1.0m)	>20,000lux
<b>Light field diameter</b>	D50 = 131mm D10 = 258mm
<b>Beam uniformity</b> (D50/D10 ratio)	0.51
<b>Supply voltage</b>	24-36VDC
<b>Colour rendering index</b>	Ra: 96 (R9: 96)
<b>Correlated colour temp</b>	3,500-4,500K
<b>Beam spread</b>	9°
<b>Dimensions</b>	83x95.5mm h=19mm

Svea ID CCT	Ra	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
<b>3,500K</b>	<b>97</b>	98	99	97	98	97	96	98	98	98	98	98	79	99	98	97
<b>4,000K</b>	<b>96</b>	99	98	92	95	99	96	96	97	99	92	94	85	100	95	99
<b>4,500K</b>	<b>96</b>	99	97	92	95	98	94	96	97	96	90	94	82	99	95	100

\* Depending on colour temperature.

\*\* Digitally controlled lumen output.



# OptoDrive reduces environmental impact

OptoDrive® reduces environmental impact thanks to energy efficiency that is second to none. The LED-engines contain no toxic substances and has a very long service life. This service life means significant cost savings for the end user, especially if the modules are used for general lighting in large rooms.

- **10% of the energy consumption of an incandescent bulb**
- **20% of the energy consumption of a halogen bulb**
- **No toxic substances such as mercury or lead**
- **Over 50,000 hours of burning time with good cooling**

## Greener and more energy efficient

Six times more energy efficient than incandescent bulbs, 50 % better than fluorescent or low-energy bulbs! One LED module is equivalent to the life of 50 incandescent bulbs.







# Do you want to know more about benefits of OptoDrive® LED?

With the OptoDrive® LED-light engines, Optoga has taken the initiative to replace strip lights, incandescent and halogen bulbs with LED-based sources.

Read more about OptoDrive® at [www.optoga.com](http://www.optoga.com). You can also contact us via [info@optoga.com](mailto:info@optoga.com) or call us.

We provide optimized LED-light solutions, integrated light engines that enable luminaire manufacturers to focus on satisfying their end-customers with a perfect light. Quicker and simpler.

## optoga

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