OFFICE LIGHTING
The rapid development of technology and science which began in the 1950s has significantly changed almost every aspect of human life. We currently spend a minimum of 8 hours in offices every day, regardless of the time of year, with limited access to natural daylight – all the while being expected to maintain maximum concentration.

Undoubtedly, the most beneficial form of light for our general well-being is the sun. However, its intensity changes depending on time of day and where we live. That is why when spending prolonged periods of time indoors, we compensate for this using artificial light sources.

As a leading manufacturer of architectural lighting, ES-SYSTEM has over the years proven its experience on the market by applying the latest technologies in providing innovative lighting solutions, to improve the working comfort in an office setting.
A FRIENDLY WORKING ENVIRONMENT

Using light sources with modern LED technology can significantly reduce electricity costs and provide your employees with a more comfortable workplace. When selecting a lighting system, special attention should be paid to:

- **THE SERVICE LIFE OF THE LIGHTING SOLUTION**
- **ENERGY EFFICIENCY AND OPERATING COSTS**
- **COMPLIANCE WITH THE PN-EN-12464 STANDARD**
- **THE PARAMETERS OF THE LIGHT SOURCES**

**Luminous flux (LUX)**

An appropriate level of brightness must be provided:
- 500 lux – workstations, meeting rooms, conference rooms
- 300 lux – reception area, archives, storage rooms, restrooms
- 100 lux – corridors and passages

**Lighting uniformity (E)**

The lighting uniformity factor on the working plane should amount to at least:
- 0.6 on the working plane
- 0.4 in corridors

**The employees’ working comfort and well-being (UGR)**

The glare factor at workstations should amount to at least:
- UGR<19 at workstations
- UGR<22 at receptions
- UGR<25 in corridors

**Accurate color rendering (CRI)**

The color rendering index must be greater than 80 in a workplace where employees stay for prolonged periods of time.

**Color temperature (CCT/Tcp)**

Luminaires with a color temperature of 4000K have a positive influence on the comfort, concentration and general well-being of employees.

<table>
<thead>
<tr>
<th>Color Temperature (CCT/Tcp)</th>
<th>3000 K</th>
<th>4000 K</th>
<th>5000 K</th>
</tr>
</thead>
<tbody>
<tr>
<td>Luminaires</td>
<td>warm color</td>
<td>neutral color</td>
<td>cool color</td>
</tr>
<tr>
<td>1900 K</td>
<td>candlelight</td>
<td>incandescent bulb</td>
<td>sunset</td>
</tr>
<tr>
<td>2700 K</td>
<td>sunset at noon</td>
<td>cloudy</td>
<td>overcast sky</td>
</tr>
<tr>
<td>3500 K</td>
<td>overcast sky</td>
<td>a sky with haze</td>
<td>a clear blue sky</td>
</tr>
<tr>
<td>5500 K</td>
<td>full sunlight</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7000 K</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>8500 K</td>
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<td></td>
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<tr>
<td>10000 K</td>
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</tbody>
</table>

Total Lighting Solutions
Results of clinical studies and my long-standing medical practice serve as a confirmation that light is extremely important for our vision process. I have repeatedly come in contact with patients, whose vision impairment progressed due to inadequate lighting in the workplace. That is why we should pay particular attention to proper lighting in places where we read, work or study. Lighting isn’t the only factor influencing our vision. We are often required to spend long hours working in front of monitors. This also has a negative impact on our eyesight. In order to minimize these consequences, it’s a good idea to think about taking breaks. Once an hour, we should look away from the computer and gaze out the window or somewhere into the distance. This will loosen the strained extraocular muscles, allowing them to relax.

Aleksandra Kuska-Grządziel, ophthalmologist
Human Centric Lighting is a concept for artificial interior lighting, which takes the human circadian rhythm into account. The goal is to use advanced color rendering technology in order to generate light with a spectrum similar to the spectrum of sunlight, which varies throughout the day.

The mature retina of the human eye contains approximately 3000 photosensitive ganglion cells (ipRGC), which are most sensitive to a blue light range of a specifically defined wavelength. It is a radiation within a given range which has the strongest effect on the human circadian system and the pupillary reflex.

The ipRGC receptor encodes the energy of light radiation and records changes in the radiation intensity occurring in the morning (for at least 90 minutes). Then the signal is sent to the pineal gland, which causes the inhibition of melatonin secretion. The organism receives the information that the wake cycle has begun and awakens from sleep, thus preparing us for daily activity.

In contrast, when the radiation with red wavelengths of the light spectrum reaches the highest value at sunset, the process of melatonin secretion into the organism begins once more, gradually preparing us for sleep, regulating our circadian rhythm.

Staying in rooms with limited access to natural daylight for prolonged periods of time exposes us to the adverse phenomenon of melatonin secretion at an equal level throughout the day. This may result in many negative symptoms, such as: lack of concentration, feeling unwell, drowsiness, apathy, fatigue, and even depression. In order for the ipRGC photoreceptor to be able to send the appropriate signal to the brain, so that the process of the secretion of the „sleep hormone“ into the organism will be triggered or blocked, the retina of the eye must be reached by a certain amount of energy from blue light (in the morning) or red light (in the afternoon) of a strictly defined wavelength.

ES-SYSTEM’s TRANSPARENT luminaires have been equipped with the CIRCADIAN System which uses blue and red LEDs of a particular wavelength to imitate the most important attribute of sunlight - the ability to inhibit the secretion of sleep hormones into the organism at the right time.

TRANSPARENT CIRCADIAN is designed mainly for interiors with limited access to sunlight - hospital rooms, nursing homes, or offices. It is especially recommended for use in Scandinavian countries, where natural daylight is scarce for extended amounts of time during parts of the year.
I have read through the presentation material for TRANSPARENT CIRCADIAN and have to say that the idea is excellent. It is based on scientific facts presented by two independent research groups that have demonstrated the action spectrum, with the calculated peak at 459–464 nm of visible light exposure on the human eyes, for the light-induced suppression of melatonin excretion.¹ ²

Light therapy (also called bright light treatment) has been used for the first-line treatment of seasonal affective disorder (also known as major depressive disorder or bipolar disorder with the seasonal pattern) since the beginning of 1980’s.³ ⁴

The right-timed exposures to light benefit not only treatment of seasonal mood disorders, but also treatment of non-seasonal depressive disorders and that of circadian rhythm sleep disorders.⁵ ⁶ Thus, the concept of TRANSPARENT CIRCADIAN fits in the evidence-based approach to treatment of the aforementioned mental disorders and supports their clinical management.

Timo Partonen, Doctor of Medicine
National Institute for Health and Welfare, Finland

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### BIBLIOGRAPHY

It has become increasingly important for employers to provide a comfortable working environment for their employees, all the while optimizing the cost. So how can we provide employees with a space that will contribute to working effectively and reduce office energy consumption? The best solution is to create an „intelligent office“ by using the latest in software, sensor and lighting technology.

ES-SYSTEM uses the DALI system which makes it possible to program lighting precisely according to the customer’s preferences. Thanks to special multisensors, this solution not only saves energy by maintaining a constant light intensity on the work plane, but it also imitates natural daylight.

In addition, DALI technology allows you to personalize the selected luminaire and control it via your mobile phone. The percentages given represent the artificial lighting intensity. These calculations were performed on November 1st in a 350m² open space office.
AN INTELLIGENT OFFICE

app recognizes the presence of employees in individual rooms. The light then follows the employee, simultaneously taking into account the time of day and even the weather outside. In the evenings, when there are only a few people or a cleaning crew left in the office, there is no need to light an entire floor of the building. Instead of keeping all the luminaires on, it's better to target which workplaces should remain lit in order to provide working comfort. This solution grants the users complete control over the lighting and additionally protects against unauthorized use by applying a high level of encryption. Our system can also be used with software that provides a full bird's eye visualization and monitoring of the lighting installation, collecting a multitude of data related to maintenance and energy consumption.

Energy Savings and Comfort

Occupancy sensing

DYNAWHITE

3000K 4000K 5700K
ES-SYSTEM offers a comprehensive range of services – from itemizing lighting, analyzing and diagnosing customer needs, to working out and designing a customized lighting solution, as well as performing installation and after-sales services.

WE OFFER:

- Inventory checking
- Analysis and diagnosis
- Planning
- Design
- Production
- Logistics
- Installation consultations
- After-sales service
WE ILLUMINATE ANY SPACE

Office Lighting

Education Lighting

Retail Lighting

Arts & Culture Lighting

Hospitality Lighting

Street & Infrastructure Lighting

Industrial Lighting

Medical Lighting

Illuminations
EXAMPLE

Luminaire: MODERNA 3Z
Floor space: 11,33 m²

Energy consumption: 192 W
Energy demand: 1,27 W/m²/100lx

Energy consumption using conventional light sources: 348 W
Energy demand using conventional light sources: 2,62 W/m²/100lx

Energy savings compared to conventional luminaires: 45%
OPEN SPACE

EXAMPLE

Luminaire: MODERNA
Floor space: 281.46 m²

Energy consumption: 1435 W
Energy consumption using conventional light sources: 3102 W

Energy savings compared to conventional luminaires: 54%

Energy demand: 1.03 W/m²/100lx
Energy demand using conventional light sources: 2.16 W/m²/100lx

PRODUCTS

S6000 LED → 32
MODERNA → 37
OPPOSITE 1 & 2 → 37
TRANSPARENT → 40

VERSOS LED → 48
OFFICE ROOMS

PRODUCTS

EXAMPLE

Luminaire: S6000 LED
Floor space: 8.21 m²

Energy consumption: 168 W
Energy consumption using conventional light sources: 354 W

Energy savings compared to conventional luminaires: 53%

Number of luminaires: 8
Energy demand: 1.87 W/m²/100lx
Energy demand using conventional light sources: 3.86 W/m²/100lx

Total Lighting Solutions
**PRODUCTS**

**EXAMPLE**

Luminaire: MODERNA 3Z  
Floor space: 14,15 m²

Energy consumption:

96 W  

Energy consumption using conventional light sources:

248 W

Energy savings compared to conventional luminaires:

61%  

Energy demand:

1,35 W/m²/100lx

Energy demand using conventional light sources:

3,53 W/m²/100lx
PRODUCTS

S6000 LED

S4000 LED

ANGLE 30

OPPOSITE 1 & 2

EXAMPLE

Luminaire: ANGLE 30
Floor space: 25.17 m²

Energy consumption: 348 W

Energy consumption using conventional light sources: 696 W

Energy savings compared to conventional luminaires: 50%

Number of luminaires: 4

Energy demand: 2.78 W/m²/100lx

Energy demand using conventional light sources: 5.09 W/m²/100lx

Total Lighting Solutions
PRODUCTS

S6000 LED

LUMA IRREGULAR

TRANSPARENT

TRIANGLE

EXAMPLE

Luminaire: TRIANGLE
Floor space: 50.14 m²
Energy consumption: 328 W
Energy consumption using conventional light sources: 708 W
Energy savings compared to conventional luminaires: 54%

Number of luminaires: 43
Energy demand: 2.13 W/m²/100lx
Energy demand using conventional light sources: 4.01 W/m²/100lx
EXAMPLE

Luminaire: S6000 LED
Floor space: 300 m²
Energy consumption: 2250 W
Energy consumption using conventional light sources: 4760 W
Energy savings compared to conventional luminaires: 53%

ASSEMBLY HALL

PRODUCTS

S6000 LED → 32
S4000 LED → 32
LUNA IRREGULAR → 36

Energy demand: 1,46 W/m²/100lx
Energy demand using conventional light sources: 3,2 W/m²/100lx
Number of luminaires: 30

Total Lighting Solutions
PRODUCTS

ARCH FLOWER

LUNA IRREGULAR

WHY 2

EXAMPLE

Luminaire: ARCH FLOWER
Floor space: 77,28 m²
Energy consumption: 230 W
Energy consumption using conventional light sources: 354 W
Energy savings compared to conventional luminaires: 53%

Number of luminaires: 10
Energy demand: 1,16 W/m²/100lx
Energy demand using conventional light sources: 3,86 W/m²/100lx

Total Lighting Solutions
EXAMPLE

Luminaire: COSMO LED LAM
Floor space: 19.66 m²

Energy consumption: 54 W
Energy consumption using conventional light sources: 135 W

Energy savings compared to conventional luminaires: 60%

Number of luminaires: 2
Energy demand: 1.20 W/m²/100lx
Energy demand using conventional light sources: 3.10 W/m²/100lx
PRODUCTS

COSMO LED

MONITOR1 IP65 LED – H0

EXAMPLE

Luminaire: COSMO LED
Floor space: 19.57 m²

Energy consumption:
150 W

Energy consumption using conventional light sources:
352 W

Energy savings compared to conventional luminaires: 57%

Number of luminaires: 3

Energy demand:
1.53 W/m²/100lx

Energy demand using conventional light sources:
3.36 W/m²/100lx
EXAMPLE

Luminaire: QUADRA LED
Floor space: 82,67 m²

Energy consumption: 176 W

Energy consumption using conventional light sources: 704 W

Energy savings compared to conventional luminaires: 75%

Energy demand: 1,09 W/m²/100lx

Energy demand using conventional light sources: 4,08 W/m²/100lx

Number of luminaires: 16

MONITOR1 IP40 LED
→ 35
PRODUCTS

EXAMPLE

Luminaire: TRIANGLE
Floor space: 15,75 m²

Energy consumption: 82 W
Energy consumption using conventional light sources: 150 W

Energy savings compared to conventional luminaires: 45%

Number of luminaires: 2
Energy demand: 2,43W/m²/100lx
Energy demand using conventional light sources: 4,7 W/m²/100lx

Total Lighting Solutions
PRODUCTS

EXAMPLE

Luminaire: CANOS
Floor space: 34,38 m²

Energy consumption: 96 W
Energy consumption using conventional light sources: 342 W

Energy savings compared to conventional luminaires: 72%
PRODUCTS

BASE LED

CAMELEON MIDI 1

PRIMA LED

EXAMPLE

Luminaire: PRIMA LED
Floor space: 1.32 m²

Energy consumption:
22 W

Energy consumption using conventional light sources:
84 W

Energy savings compared to conventional luminaires: 74%

Number of luminaires: 1

Energy demand:
8.03 W/m²/100lx

Energy demand using conventional light sources:
26.45 W/m²/100lx

Total Lighting Solutions
EXAMPLE

Luminaire: FLAT LED
Floor space: 80 m²

Energy consumption: **480 W**

Energy consumption using conventional light sources: **744 W**

Energy savings compared to conventional luminaires: **35%**

Number of luminaires: **12**

Energy demand: **1.75 W/m²/100lx**

Energy demand using conventional light sources: **3.12 W/m²/100lx**
PARKING LOT

PRODUCTS

COSMO LED
→ 35

MILEDIA 2
→ 44

PARK FLOWER 2
→ 44

RACER MINI
→ 45

Total Lighting Solutions
EMERGENCY LIGHTING

One of the requirements during the construction of office buildings is for them to have appropriate emergency lighting installations. A reliable network ensures the employees’ safety in case of an emergency and allows fast and easy evacuation. The system’s correct operation and the type and frequency of its control testing are strictly defined by emergency lighting standards and legislation. ES-SYSTEM manufactured central monitoring systems for autonomous luminaires and central power supply systems for emergency lighting guarantee compliance with all these conditions. Our assortment includes a variety of escape route and directional luminaire systems. In addition, we have developed NESSI, our own unique application which makes it possible to supervise and configure central monitoring and power supply systems. Our systems automatically monitor the status of individual luminaires, ensuring the electronic systems, light sources and batteries work perfectly at all times. The system indicates luminaires that are not working correctly and makes it possible to fix them before a general power failure occurs. This eliminates risk of escape routes being left without lighting in an emergency. NESSI allows you to plan functional and back-up time tests whenever it is most convenient for the user, and their results are automatically recorded in the emergency lighting system’s event log. NESSI makes it possible to place icons symbolizing the installed luminaires and devices on maps of the building, which clearly determines their location and makes it easier to maintain the system. The application’s intuitive user interface ensures comfort and reliability while using it. Our systems have been in place for years in various public buildings such as office complexes, museums, shopping malls or airports all over the world, proving that they are dependable, functional and among the top emergency lighting fixtures on the market.

PRODUCTS

MONITOR1 IP40 LED
→ 47

MONITOR1 IP65 LED
→ 47

SCREEN BASIC LED
→ 47

VERSO LED
→ 48

VERSO LED-HO
→ 48

MONITOR1 IP65 LED-HO
→ 48

COBRA LED
→ 49

POINT LED
→ 49

ES-CTI2 3x64
→ 49

ES-NET CB220
→ 50

ES-CTI2 CB24V
→ 50
PRODUCTS

→ system 4000 LED

Technical data:
› Luminous flux: 1000–4300 lm
› Power: 12–43 W
› Max. luminous efficacy: 88–102 lm/W
› Color temperature: 3000 K, 4000 K
› CRI: > 80
› IP: 20
› Power supply: 230 V AC

4000 LED system features include:
› 2 color temperatures available – 3000K and 4000K
› 2 diffuser types – opal and microprismatic
› HO and HE versions available
› perfect for the creation of light lines
› a linear pendant luminaire also suitable for surface mounting on ceilings

→ system 6000 LED

Technical data:
› Luminous flux: 1200–6350 lm
› Power: 12–43 W
› Max. luminous efficacy: 88–102 lm/W
› Color temperature: 3000 K, 4000 K
› CRI: > 80
› IP: 20
› Power supply: 230 V AC

6000 LED system features include:
› 2 color temperatures available – 3000K and 4000K
› 2 diffuser types – opal and microprismatic
› HO and HE versions available
› perfect for the creation of light lines
› a linear pendant luminaire also suitable for surface mounting on ceilings

the luminaires can be combined in linear structures and adjusted according to the length and shape of the rooms
› different module lengths – 530, 1030, 1535, 2035 mm
› ON/OFF and DALI versions available
› versions for pendant, recessed and surface ceiling installation available
PRODUCTS

→ system ANGLE 30

Technical data:
- Luminous flux: 3630–14520 lm
- Power: 30–120 W
- Max. luminous efficacy: 121 lm/W
- Color temperature: 3000 K, 4000 K
- CRI: > 80
- IP: 40
- Power supply: 230 V AC

ANGLE 30 system features include:
- pendant luminaire with indirect light distribution
- glare is completely eliminated to ensure exceptional working comfort
- excellent lighting uniformity
- modern and unique design by Professor Lars Bylund
- also available with an integrated power supply unit, improving the product’s aesthetic appeal

→ system ARCH FLOWER

Technical data:
- Luminous flux: 2200–4300 lm
- Power: 23–47 W
- Max. luminous efficacy: 95 lm/W
- Color temperature: 3000 K, 4000 K
- CRI: > 80
- IP: 40
- Power supply: 230 V AC

ARCH FLOWER system features include:
- an innovative solution
- 3 system sizes - MINI, MIDI and MAXI
- 2 color temperatures – 3000K and 4000K
- MIDI and MAXI versions with 30° and 50° lenses available
- MINI and MIDI versions with microprismatic diffusers available
- each module is freely adjustable
- 2-, 3- and 4-petal versions available
- the luminaire can be painted in any RAL color
- ON/OFF and DALI versions available
PRODUCTS

→ system BASE LED

Technical data:
- Luminous flux: 1400 lm
- Power: 15 W
- Max. luminous efficacy: 93 lm/W
- Color temperature: 3000 K, 4000 K
- CRI: > 80
- IP: 21, 44
- Power supply: 230 V AC

BASE LED system features include:
- luminaire for surface mounting on walls or ceilings
- an opal diffuser to ensure even light distribution
- increased ingress protection rating (IP44)
- also available with a motion sensor - a great way to optimize operating costs

→ system CAMELEON

Technical data:
- Luminous flux: 790–5600 lm
- Power: 8–58 W
- Max. luminous efficacy: 90–103 lm/W
- Color temperature: 3000 K, 4000 K
- CRI: > 80
- IP: 20, 54
- Power supply: 230 V AC

CAMELEON MIDI system features include:
- a luminaire system with individual configuration, adaptable to suit the requirements of any given room
- available in two shapes: round or square
- 4 sizes, 3 light distribution variants, tilted or fixed optics, different color versions available
- ceiling luminaires suitable for recessed or surface mounting
- versions with higher ingress protection (IP54) made to order
- DALI dimmable version optionally available
PRODUCTS

→ system CANOS

CANOS system features include:

› 2 system sizes - 190 mm and 225 mm
› 2 color temperatures - 3000K and 4000K
› ON/OFF and DALI versions available
› emergency version available
› options with an external PICO power supply available (integrated in the LED plate)

Technical data:

› Luminous flux: 1600-2500 lm
› Power: 16-24 W
› Max. luminous efficacy: 104 lm/W
› Color temperature: 3000 K, 4000 K
› CRI: > 80
› IP: 20
› Power supply: 230 V AC

→ system COSMO LED

COSMO LED system features include:

› ceiling-mounted or pendant luminaire
› very high efficiency due to the use of LED technology
› two types of diffusers to choose from, both ensuring uniform light distribution
› increased ingress protection rating (IP65)
› a lamella louvre to reduce unpleasant glare (COSMO LAM)

Technical data:

› Luminous flux: 3000-9800 lm
› Power: 25-79 W
› Max. luminous efficacy: 120-132 lm/W
› Color temperature: 3000 K, 4000 K
› CRI: > 80
› IP: 65
› IK: 08
› Power supply: 230 V AC
→ system FLAT LED

Technical data:
- Luminous flux: 1400–4000 lm
- Power: 18–40 W
- Max. luminous efficacy: 78–100 lm/W
- Color temperature: 4000 K
- CRI: > 80
- IP/IK: 20
- Power supply: 230 V AC

FLAT LED system features include:
- a very flat, narrow luminaire for installation in suspended ceilings with low ceiling voids
- uniform light distribution
- suitable for installation in modular ceilings or for surface mounting or installation in plasterboard ceilings using additional accessories

→ system LUNA IRREGULAR

Technical data:
- depending on the size of luminaire

LUNA IRREGULAR system features include:
- the luminaire can be designed to take on any shape
- 2 color temperatures: 3000K and 4000K
- ON/OFF and DALI versions available
- an evenly illuminated diffuser that ensures ideal light dispersion
- DYNAWHITE version available
- versions for pendant, recessed and surface ceiling installation available (LUNA BIS LED)
MODERNA system features include:

- luminaire for recessed installation in suspended and plasterboard ceilings, optionally suitable for pendant mounting
- a specialist MIRO SILVER aluminum louvre for very good glare protection (UGR 16–19) and high lighting uniformity
- a luminaire housing height of only 26 mm
- DALI dimmable version available
- quick and intuitive installation

Technical data:

- Luminous flux: 2650–5400 lm
- Power: 24–47 W
- Max. luminous efficacy: 114–117 lm/W
- Color temperature: 3000 K, 4000 K
- CRI: > 80
- IP: 20
- Power supply: 230 V AC

OPPOSITE system features include:

- luminaire for recessed installation in modular and plasterboard ceilings
- square and circular, concave and convex versions available, allowing the creation of exceptional interior arrangements
- a microprismatic diffuser for excellent light distribution and very good glare protection (UGR 18–19)
- DALI dimmable version available
- also comes in a DYNAWHITE variant, with a dynamically changing color temperature of the emitted white light

Technical data:

- Luminous flux: 4000–4200 lm
- Power: 46–50 W
- Max. luminous efficacy: 80–87 lm/W
- Color temperature: 3000 K, 4000 K, 2700–6500 K
- CRI: > 80
- IP: 40
- Power supply: 230 V AC
PRODUCTS

- system PRIMA LED

Technical data:
- Luminous flux: 1100–1900 lm
- Power: 11–22 W
- Max. luminous efficacy: 100 lm/W
- Color temperature: 3000 K, 4000 K
- CRI: > 80
- IP: 44
- Power supply: 230 V AC

PRIMA LED system features include:
- high ingress protection rating – IP44
- 2 color temperatures – 3000K and 4000K
- ON/OFF and DALI versions available
- emergency version also available

- system PURE 1

Technical data:
- Luminous flux: 4200–5600 lm
- Power: 34–45 W
- Max. luminous efficacy: 124 lm/W
- Color temperature: 4000 K
- CRI: > 90, > 80
- IP: 65
- Power supply: 230 V AC

PURE 1 system features include:
- 3 system versions available – PURE 1, PURE 3 and PURE 4
- 2 color temperatures: 3000K and 4000K
- high ingress protection rating – IP65
- designed for use in clean rooms
- long LED service life
- 3 optical systems – with matte glass, a microprismatic diffuser or louvre
- 2 sizes - 597x597 and 1197x297
- ON/OFF and DALI versions available
PRODUCTS

› system QUADRA LED

Technical data:
› Luminous flux: 1200–2300 lm
› Power: 11–22 W
› Max. luminous efficacy: 105 lm/W
› Color temperature: 3000 K, 4000 K
› CRI: > 80
› IP: 20
› Power supply: 230 V AC

QUADRA LED system features include:
› 2 color temperatures – 3000K and 4000K
› ON/OFF and DALI versions available
› emergency version available

› high quality reflector made of MIRO aluminum sheet
› also available as QUADRA 2 with a PICO power supply (integrated with the LED light source)

› system REGLUX

Technical data:
› Luminous flux: 3200–7400 lm
› Power: 30–67 W
› Max. luminous efficacy: 107–120 lm/W
› Color temperature: 3000 K, 4000 K
› CRI: > 80
› IP: 44
› Power supply: 230 V AC

REGLUX system features include:
› a modern ceiling luminaire
› Two color temperatures to choose from
› available in two luminous flux and power variants:

› HO (high output), which ensures an excellent luminous flux value and a high luminous efficacy and
› HE (high efficiency), for the most efficient and cost-effective light distribution at a given rated power
PRODUCTS

→ system TITANIA LED

![TITANIA LED 300/400/500](image)

Technical data:
- Luminous flux: 2200–4600 lm
- Power: 23–47 W
- Max. luminous efficacy: 94–98 lm/W
- Color temperature: 3000 K, 4000 K
- CRI: > 80
- IP: 20
- Power supply: 230 V AC

TITANIA LED system features include:
- luminaire for surface installation on ceilings or walls
- a steel gray frame to give the product a contemporary, elegant look
- an opal diffuser for uniform light distribution
- two color temperatures to choose from
- DALI dimmable version optionally available

→ system TRANSPARENT

![TRANSPARENT](image)

Technical data:
- Luminous flux: 2900–5800 lm
- Power: 38–76 W
- Max. luminous efficacy: 76 lm/W
- Color temperature: 3000 K, 4000 K
- CRI: > 80
- IP: 40
- Power supply: 230 V AC

TRANSPARENT system features include:
- pendant luminaire
- modern design and lightweight construction
- a unique light distribution technology thanks to the use of a transparent diffuser provides evenly distributed light and a low glare index
- 2 luminaire sizes
- two color temperatures
- DALI dimmable version also available
- CIRCADIAN version optionally available; this version changes the color temperature, influencing the process of melatonin release and regulating the human circadian rhythm
PRODUCTS

→ system TRIANGLE

![TRIANGLE 650](image1)

![TRIANGLE 1300](image2)

Technical data:
- Luminous flux: 3500–7600 lm
- Power: 41–82 W
- Max. luminous efficacy: 93 lm/W
- Color temperature: 3000 K, 4000 K
- CRI: > 80
- IP: 20
- Power supply: 230 V AC

TRIANGLE system features include:
- innovative design by the MEDUSA GROUP
- the possibility of creating multi-level light structures
- the system comes in 2 sizes – 650 mm and 1300 mm
- 2 color temperatures – 3000K and 4000K
- 2 types of diffusers - opal and microprismati
- ON/OFF, DALI and SWITCH DIM versions available
- long LED service life
- unlimited design possibilities
PRODUCTS

→ system WHY 1, WHY 2

Technical data:
- Luminous flux: 5200–10800 lm
- Power: 67–167 W
- Max. luminous efficacy: 71–72 lm/W
- Color temperature: 3000 K, 4000 K
- CRI: > 80
- IP: 20
- Power supply: 230 V AC

WHY system features include:
- a unique design
- 2 WHY system types - WHY1, WHY2
- 2 color temperatures available - 3000K and 4000K + RGB
- available opal diffuser

→ system WHY 3, WHY 4

Technical data:
- Luminous flux: 5800–12000 lm
- Power: 67–167 W
- Max. luminous efficacy: 71–90 lm/W
- Color temperature: 3000 K, 4000 K
- CRI: > 80
- IP: 20
- Power supply: 230 V AC

WHY system features include:
- a unique design
- 2 WHY system types - WHY3, WHY4
- 2 color temperatures available - 3000K and 4000K + RGB
- available opal diffuser
PRODUCTS
OUTDOOR LIGHTING

→ system MILEDIA

![MILEDIA](image.png)

Technical data:
- Luminous flux: 3800–5000 lm
- Power: 41–55 W
- Max. luminous efficacy: 91 lm/W
- Color temperature: 3000 K, 4000 K
- CRI: > 80
- IP: 65
- IK: 10
- Power supply: 230 V AC

MILEDIA system features include:
- Luminaire for installation on poles
- Single chamber construction, aluminum housing
- 4DIM (AstroDIM) lighting control system compatibility
- 3 diffuser types: opal, ribbed and transparent
- 3 color temperatures available: 3000K, 4000K and 5700K

→ system PARK FLOWER

![PARK FLOWER](image.png)

Technical data:
- Luminous flux: 6200–13600 lm
- Power: 63–130 W
- Max. luminous efficacy: 108–109 lm/W
- Color temperature: 3000 K, 4000K
- CRI: > 80
- IP: 65
- Power supply: 230 V AC

PARK FLOWER system features include:
- Versions with 2, 3, 4 or more petals available
- The unique possibility of changing the luminaire's photometry by tilting or rotating the petals
- Optional lighting control via DALI
- 2 diffuser types: transparent or matte
- 2 color temperatures available: 3000K and 4000K
OUTDOOR LIGHTING

system RACER MINI

Technical data:
› Luminous flux: 1800–14500 lm
› Power: 20–143 W
› Max. luminous efficacy: 121 lm/W
› Color temperature: 4000 K, 6000 K
› CRI: > 70
› IP: 66
› Power supply: 230 V AC

RACER MINI system features include:
› die-cast aluminum housing
› tool-free access to the gear compartment
› dual chamber construction - optics separated from the gear compartment
› StepDIM, AstroDIM, DALI and Zlight control system compatibility
› operating temperature ranging from -30 to 50°C
EMERGENCY LIGHTING

› system MONITOR1 IP40 LED

Technical data:
› Light source power: 1,2 W
› IP: 40
› Protection class: II, III
› Power supply: 230 V AC, 220 V DC, 24 V DC

MONITOR1 IP40 LED system features include:
› available versions: STI, ATI, CTI2 3x64, CTI-DALI, CB24, CB24A, CB220
› materials: plastic, PC
› installation: surface mounting on walls
› operating time: 1 h, 3 h
› sign visibility range: 20 m

› system MONITOR1 IP65 LED

Dane techniczne: Technical data:
› Light source power: 1,2 W
› IP: 65
› Protection class: II, III
› Power supply: 230 V AC, 220 V DC, 24 V DC

MONITOR1 IP65 LED system features include:
› available versions: STI, ATI, CTI2 3x64, CTI-DALI, CB24, CB24A, CB220
› materials: plastic, PC
› installation: surface mounting on walls
› operating time: 1 h, 3 h
› sign visibility range: 22 m

› system SCREEN BASIC LED

Technical data:
› Light source power: 1,2 W
› IP: 20
› Protection class: II, III
› Power supply: 230 V AC, 220 V DC, 24 V DC

SCREEN BASIC LED system features include:
› available versions: STI, CB24, CB24A, CB220
› materials: aluminum profile, Plexiglas
› installation: surface mounting on ceilings
› operating time: 1 h, 3 h
› sign visibility range: 30 m
EMERGENCY LIGHTING

→ system VERSO LED

VERSØ LED system features include:

› available versions: STI, ATI, CTI2 3x64, CTI-DALI, CB24, CB24A, CB220
› materials: plastic, PC

VERSØ LED system features include:

› installation: surface mounting on ceilings
› operating time: 1 h, 3 h
› sign visibility range: 30 m

VERSØ LED-HO system features include:

› available versions: STI, ATI, CTI2 3x64, CTI-DALI, CB24, CB24A, CB220
› materials: plastic, PC

VERSØ LED-HO system features include:

› installation: surface mounting on ceilings
› operating time: 1 h, 3 h

→ system MONITOR1 IP65 LED-HO

MONITOR1 IP65 LED-HO system features include:

› available versions: STI, ATI, CTI2 3x64, CTI-DALI, CB24, CB24A, CB220
› materials: plastic, PC

MONITOR1 IP65 LED-HO system features include:

› installation: surface mounting on ceilings
› operating time: 1 h, 3 h

Technical data:

› Light source power: 1,2 W
› IP: 40
› Protection class: II, III
› Power supply: 230 V AC, 220 V DC, 24 V DC

Technical data:

› Light source power: 4x1 W
› IP: 40
› Protection class: II, III
› Power supply: 230 V AC, 220 V DC, 24 V DC

Technical data:

› Light source power: 4x1 W
› IP: 65
› Protection class: II, III
› Power supply: 230 V AC, 220 V DC, 24 V DC
EMERGENCY LIGHTING

→ system COBRA LED

Technical data:
- Light source power: 2x1 W, 3x1 W
- IP: 20
- Protection class: I, III
- Power supply: 230 V AC, 220 V DC, 24 V DC

COBRA LED system features include:
- available versions: STI, ATI, CTI2 3x64, CTI-DALI, CB24, CB24A, CB220
- materials: painted steel sheet
- installation: recessed mounting in ceilings
- operating time: 1 h, 3 h

→ system POINT LED

Technical data:
- Light source power: 1x1 W
- IP: 40/20
- Protection class: II, III
- Power supply: 230 V AC, 220 V DC, 24 V DC

POINT LED system features include:
- available versions: STI, ATI, CTI2 3x64, CTI-DALI, CB24, CB24A, CB220
- materials: plastic, PC
- installation: recessed mounting in ceilings
- operating time: 1 h, 3 h

→ ES-CTI2 3x64

Technical data:
- Maximum number of devices per unit: 192
- Maximum number of devices per bus: 64
- No. of communication buses: 3
- LCD display
- Power supply: 230 V AC

ES-CTI2 3x64 features include:
- battery and light source status monitoring in emergency luminaires
- manual and automatic functional test activation
- grouping of the installed luminaires according to their function
- maximum number of devices per system: unlimited
EMERGENCY LIGHTING

→ **ES-NET CB220**

ES-NET CB220 features include:

- system programming via: a system application, a web browser and a master module keyboard
- luminaire testing via the power supply line
- compatible with BMS (Building Management System)
- direct communication with any computer via Ethernet
- AGM batteries with a declared service life of 10 years
- automatic luminaire and circuit calibration

Technical data:

- Maximum number of devices per unit: unlimited
- Maximum number of devices per bus: 20
- No. of communication buses: unlimited
- Load current of each circuit: 3 A
- Maximum power load of the system: 1.5 kVA, 2 kVA, 5.2 kVA, 9.2 kVA, 14.4 kVA, 18 kVA
- IP: 20
- LCD display
- Power supply: 230 V AC

→ **ES-CTI2 CB24V**

ES-CTI2 CB24V features include:

- automatic testing according to a set schedule
- reading and printing from the event log
- freely programmable mixed-mode operation on a circuit for addressable luminaires
- CB24A system communication with the luminaires via the power supply lines
- grouping of the luminaires according to their function
- monitoring of power failures by means of voltage and potential-free connectors
- batteries with a declared service life of 10 years

Technical data:

- Maximum number of devices per unit: 80
- Maximum number of devices per bus: 20
- No. of communication buses: 4
- Circuit load: 6 A
- System load: 16 A
- IP: 20
- LCD display
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