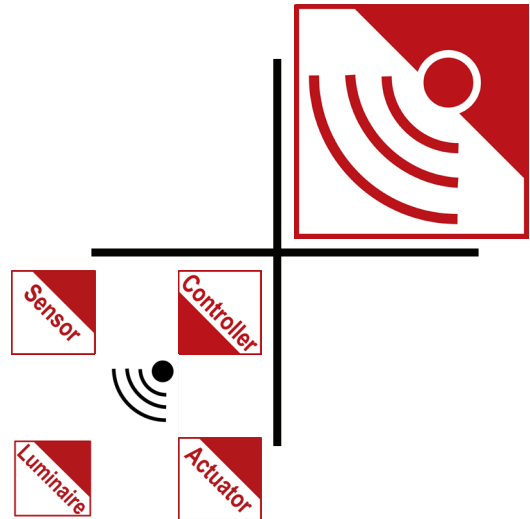


SmartLighting

light concept

3/2



3 efficient light
economic light
comfortable light

variable light
flexible light

2



SmartLighting is the **light concept** with $\frac{3}{2}$ benefits to modernize lighting in an easy way.

SmartLighting based on luminaires with LED modules and LED driver as a multifunctional **1for5 SmartDriver**.

The portfolio incorporates:

- Trunking system
- Louvre luminaires
- Panel luminaires
- Downlight
- Spotlights
- Floodlights
- Water and Damp proof luminaires
- Streetlights

There are 2 variations to modernize lighting with **SmartLighting**:

Variation 1 - for a inexpensive and better lighting:

Replace standard luminaires with **SmartLighting** luminaires.



Variation 2 - for an economical and robust centralized lighting management system

Not only does **SmartLighting** provide a better solution to standard luminaires, it is also a lighting management system for both decentralized or centralized systems.



SmartLighting light concept $\frac{3}{2}$

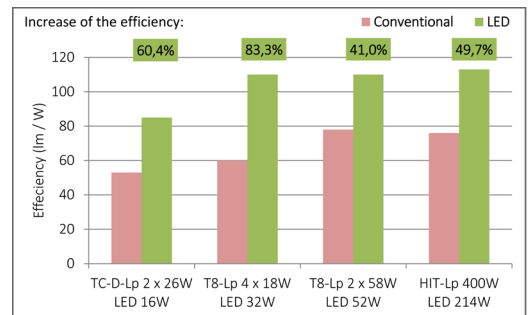
car park salesroom warehouse office

gym

Plus 1 efficient light



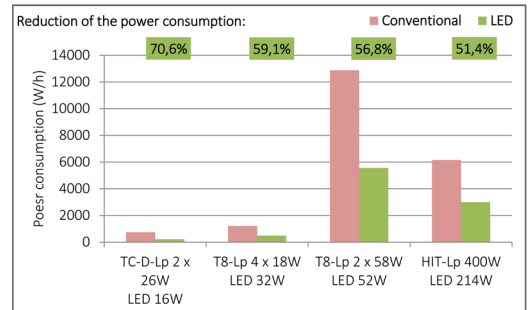
LED luminaires convert more energy into light. Improving the efficiency for typical luminaires, like Downlights, luminaires with louvre optic, water- and damp proof luminaires, Floodlights, about + 41,0% up to + 83,3%. This comparison based on a replacement of luminaires with discharge lamps and magnetic ballast to **SmartLighting** luminaires with LED.



Plus 2 economic light



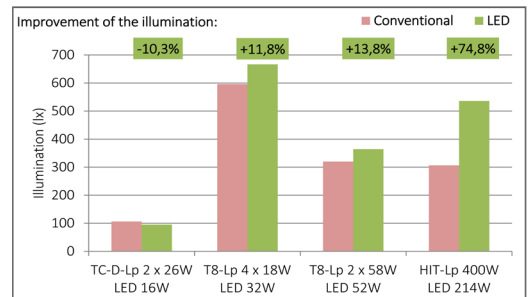
LED luminaires reduce the power consumption using the example of four lighting installation with 1) Downlight, luminaires with louvre optic, water- and damp proof luminaire, Floodlight about - 51,4% up to - 70,6%. These are from 0,528 kW to 7,316 per hour.



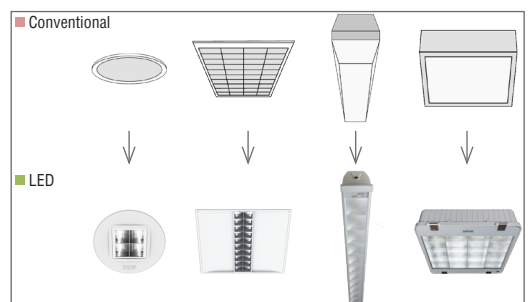
Plus 3 comfortable light



LED luminaires optimize the illumination value using the example of four lighting installation with 1) Downlight, luminaires with louvre optic water- and damp proof luminaire, Floodlight about - 0,3% up to + 74,8%. These are from - 11,0 lx to + 229,3 lx.



¹⁾ The example based on the comparison of lighting installations for different height: Illumination of a corridor 30 m x 2 m by downlights (rated illumination 100 lx). Illumination of an office room 10 m x 5 m by luminaires with louvre optic (rated illumination 500 lx). Illumination of an area in production hall 50 m x 25 m by water and damp proof luminaires (rated illumination 300 lx). Illumination of a corridor in a production hall 80 m x 4 m by floodlights (rated illumination 300 lx).



Decentralized lighting management system with **SmartLighting** allows light dependent dimming with self-sustaining AutoDimm functionality



This system is suitable for buildings or parts of a buildings with day light and a permanent presence of person, for example sales-rooms, workshops or production halls.

Centralized lighting management system with **SmartLighting** offers both daylight harvesting and motion detection switching with dimming through wireless communication.



This system is suitable for all buildings or parts of a building without natural light and little or no presence of people, for example offices, classrooms or stockrooms.

hostel

showroom

classroom

hospital

workshop

production hall

Plus $\frac{\text{variable light}}{4}$

With the **1for5 SmartDriver**, all **SmartLighting** luminaires becomes variable luminaires. Integrated interfaces allow optional modules for dimming and switching of the luminaires in either a decentralized or centralized environment. The optional modules are plug and play and can be easily incorporated during installation. **SmartLighting**: 5 luminaires in 1 luminaire:



Basic luminaires without optional modules

Ideal for the illumination of areas in buildings without natural light or a constant presence of people.



Basic luminaires with optional AutoDimm modules

Ideal for the illumination of areas in buildings with natural light and a constant presence of people.



Basic luminaires with optional Wireless modules

Ideal for the illumination of areas in buildings with natural light but little or no presence of people.



Basic luminaires with optional DALI modules

Ideal for the illumination of areas in buildings with natural light but little or no presence of people.



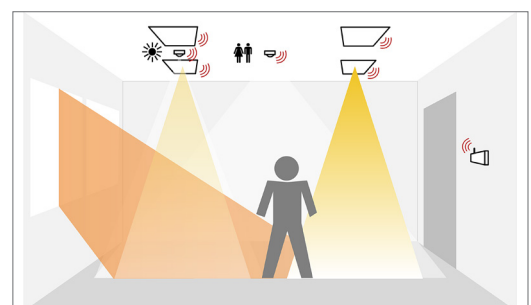
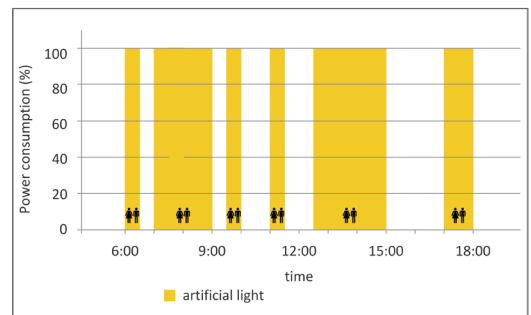
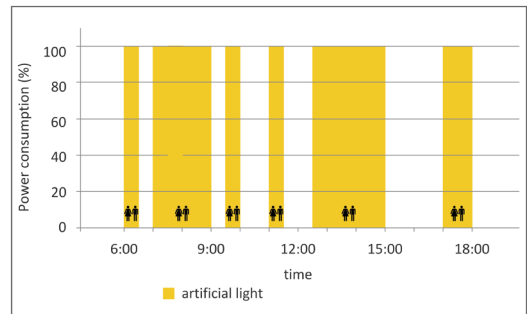
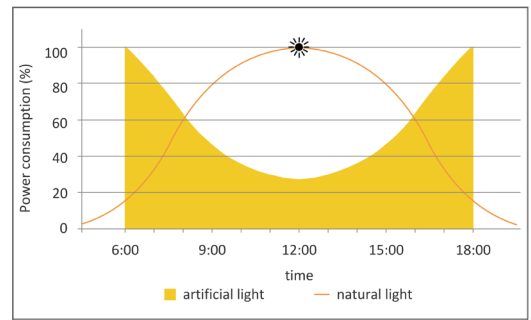
Basic luminaires with optional 1-10V modules

Ideal for the illumination of areas in buildings with natural light but little or no presence of people.

Plus $\frac{\text{flexible light}}{5}$

SmartLighting uses ZigBee® wireless protocol. **SmartLighting** is very flexible at the modernization of existing illumination installation without the need of additional cables.

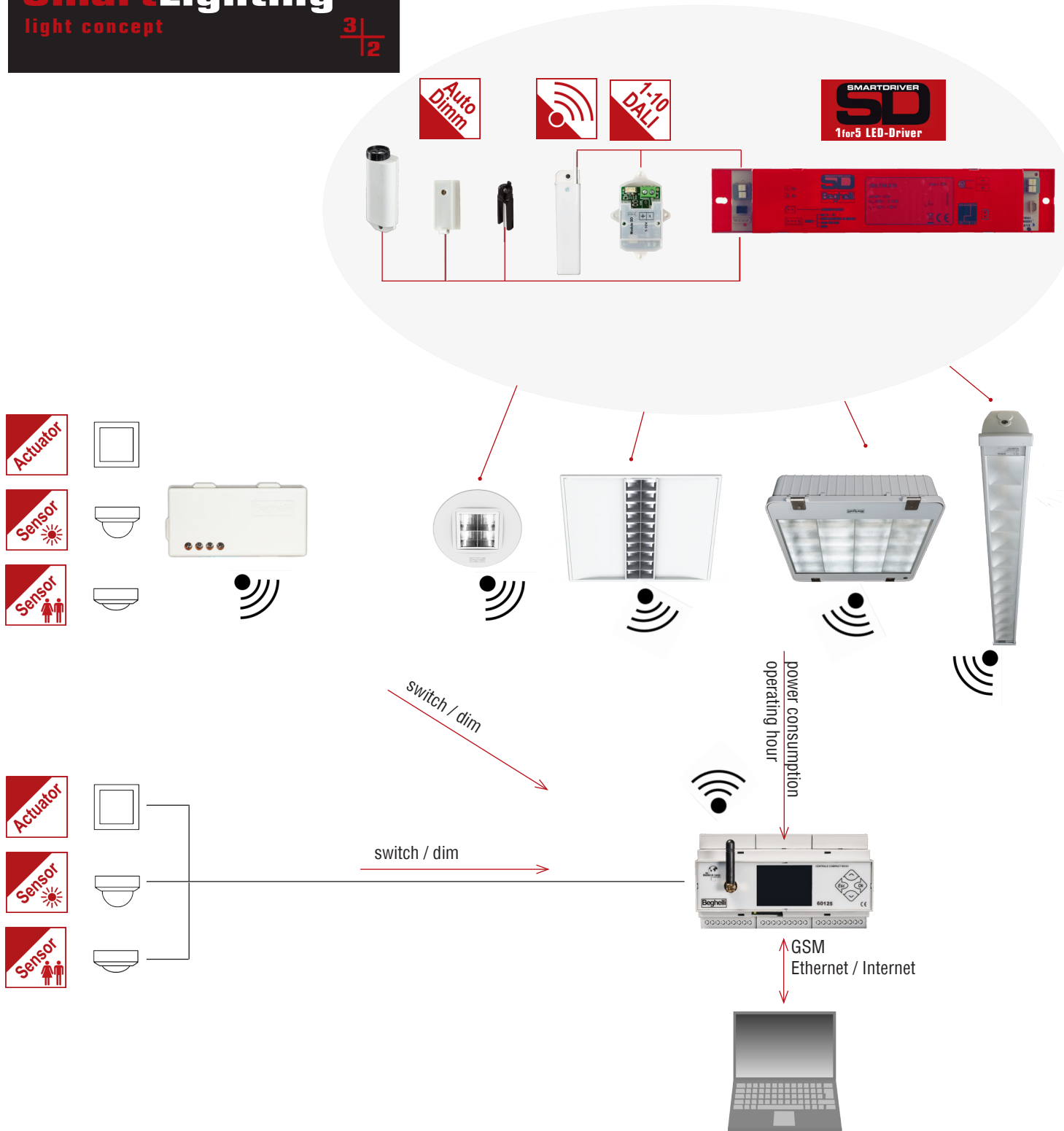
With **SmartLighting** you can control automatic dimming, switching and monitor luminaires and integrated wireless modules as well as actuators and light or motion sensors with wireless interface based on 16 main and 240 sub scenes.



SmartLighting

light concept

3/2



SmartLighting Controller controls automatic dimming, switching and monitors luminaires with integrated wireless modules as well as actuators to manage daylight harvesting and motion sensors with wireless interface based on 16 main and 240 sub scenes. **SmartLighting** uses ZigBee® wireless protocol. Programming via GSM net or Ethernet/Internet.

Mounting: wall surfaced
Protection rate: IP 65 / Protection class:II

Order no. : 1201P



Wireless interface: Interface for actuators and light or presence sensors for wireless communication by ZigBee® standard to the SmartLighting controller. Control signal: 1 ~ 230 V / 50 Hz

Control input: 2
Mounting: installation box
Protection rate: IP 65 / Protection class:II

Order no. : 20104



AutoDimm-Interface / Radio-Interface / DALI- or 1-10V-Interface: Interfaces for an optional extension of SmartLighting luminaires in plug&use principle.

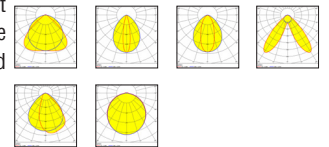
Mounting: built in

Order no. : dependent on series of luminaires

product series



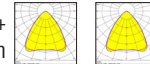
Track SD Trunking system: System consisting of luminaires modules with special lenses for 5 different direct distributions, linear LED modules, SmartDriver, dimmable from 1% to 100, length 600 and 1500 mm, 3 phase track modules, length 570 and 1416 mm, basic modules, 7-pole, length 570, 1416, 2832 and 4248 mm and different L- T or X connectors. 28 W/ 3700 lm, 65 W/9000 lm



LensPanel SD Recessed and surfaced ceiling mounted luminaires: highly specular parabolic louvre, direct + indirect distribution, linear LED modules, SmartDriver, dimmable from 1% to 100%, UGR <19, 35 W/4300 lm, 41 W/ 5000 lm, 56 W/7000 lm



I418 SD Recessed and surfaced ceiling mounted luminaires: highly specular parabolic louvre, direct + indirect distribution, linear LED modules, SmartDriver, dimmable from 1% to 100%, UGR < 19, 36 W/4000 lm



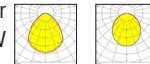
Panel SD Recessed and surfaced ceiling mounted luminaires: light guide Panel with opal diffuser and microprism, direct distribution, linear LED modules, SmartDriver, dimmable from 1% to 100 , UGR < 19, 36 W/4000 lm



P236/258 SD Surfaced ceiling and suspended mounted luminaires: highly specular parabolic louvre, direct + indirect distribution, linear LED modules, SmartDriver, dimmable from 1% to 100%, UGR <19, 36 W/4000 lm, 47 W/5100 lm



236L / 258L SD Surfaced ceiling and suspended mounted luminaires: translucent diffusor or clear diffusor with micro prism, direct distribution, linear LED modules, SmartDriver, dimmable from 1% to 100% , 40W / 3500lm, 59 W/5200lm



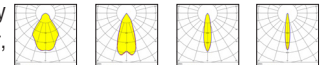
D170 SD / D1150 SD Recessed and surfaced ceiling mounted downlight: highly specular parabolic louvre, direct distribution, round LED modules, SmartDriver, dimmable from 1% to 100%, UGR < 22, 43 W/3300lm, 52 W/5500 lm



D226 SD Recessed and surfaced ceiling mounted downlight: highly specular parabolic louvre, direct distribution, round LED modules, SmartDriver, dimmable from 1% to 100%, 20 W/1700 lm



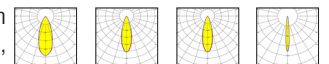
D170 SD OR / D1150 SD OR Recessed ceiling mounted down-/spotlight: white/polished reflector, rotationally symmetric distribution 70°, 40°, 24° or 16°, 345° turnable, 60°rotatable, round LED modules, SmartDriver, dimmable from 1% to 100%, 34 W/3400 lm, 55 W/5500 lm



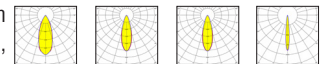
WW135/170 SD Recessed ceiling mounted wallwasher: highly specular parabolic louvre, direct distribution, 60°rotatable, round LED modules, SmartDriver, dimmable from 1% to 100% 23 W/2250 lm, 45 W/4000 lm



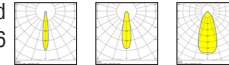
Zoom SD surfaced ceiling mounted or track spotlight: zoom lenses for variable symmetric distribution from 10° to 40°, 170° turnable, +/- 90°rotatable, round LED modules, SmartDriver, dimmable from 1% to 100%, 17W/1400lm, 33 W/2500lm, 52 W/4000 lm, 77 W



Zoom C SD Recessed spotlight: 1 or 2 spotlights with zoom lenses for variable symmetric distribution from 10° to 40°, 170° turnable, +/- 90°rotatable, round LED modules, SmartDriver, dimmable from 1% to 100%, 17 W/1400 lm, 33 W/2500 lm, 52 W/4000 lm, 77 W



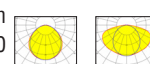
COB-Rail SD Track spotlight: highly specular parabolic louvre, direct symmetric distribution 16°, 24° and 40°, 340° turnable, 180° rotatable, round LED modules, SmartDriver, dimmable from 1% to 100%, 26 W/3100 lm, 38 W/4400 lm



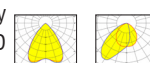
AcciaioECO / AcciaioTOP SD Surfaced wall or ceiling mounted water- and dampproof luminaires: highly specular parabolic louvre, cover with micromrism, direct distribution, linear LED modules, SmartDriver, dimmable from 1% to 100%, 22 W/2500 lm, 32 W/ 3500 lm, 40 W/4.400 lm, 58/6500 lm, 74 W/8100 lm



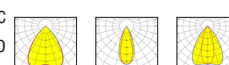
BS100 SD Surfaced wall or ceiling mounted water- and dampproof luminaires: white reflector, cover with micromrism, direct distribution, linear LED modules, SmartDriver, dimmable from 1% to 100%, 22 W/2750 lm, 46 W/5500 lm, 64 W/7500 lm, 74 W/8500 lm, 52 W/5500 lm



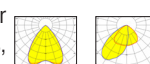
FH70 SD / FH150 SD Surfaced wall, ceiling or ground mounted water- and dampproof floodlight: highly specular parabolic louvre, cover with micromrism, direct symmetric or asymmetric distribution, linear LED modules, SmartDriver, dimmable from 1% to 100%, 45 W/5400 lm, 74 W/8500 lm



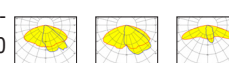
H250 SD / H400 SD Surfaced ceiling mounted water- and dampproof floodlight: highly specular parabolic louvre, cover with micromrism, direct distribution, linear LED modules, SmartDriver, dimmable from 1% to 100%, 127 W/15000 lm, 230 W/26000 lm



F250 SD / F400 SD Surfaced wall or ground mounted water- and dampproof floodlight: highly specular parabolic louvre, cover with micromrism, direct symmetric or asymmetric distribution, linear LED modules, SmartDriver, dimmable from 1% to 100%, 127 W/15000 lm, 230 W/26000 lm



S30/S50/S70/S100/S150 SD Street or path luminaires: highly specular parabolic louvre, cover with micromrism, direct asym. distribution, linear LED modules, SmartDriver, dimmable from 1% to 100%, 24 W/2900 lm, 34 W/3900 lm, 48 W/5300 lm, 34 W/4000 lm, 51 W/5600 lm, 71 W/8000 lm, 109 W/11500 lm



offices
salerooms
showrooms
classrooms
workrooms
production halls
warehouses
car parking
hospitals
hostels
streets/places



IP20



IP40

IP20

IK05



IP54

IP20

IK05



IP40

IK05



IP20

IK05



IP40

IK05



IP20

IK05



IP20

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IP40

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IK05



IP42

IP20

IK05



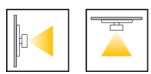
IP40

IK05



IP40

IK05



IP40

IK05



IP66

IK09



IFS



IP65

IK05



IFS



IP66

IK09



IP66

IK09



IFS



IP66

IK09



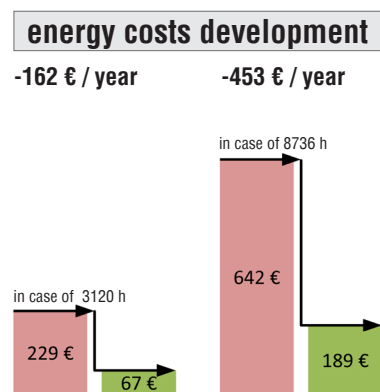
IP66

IK09



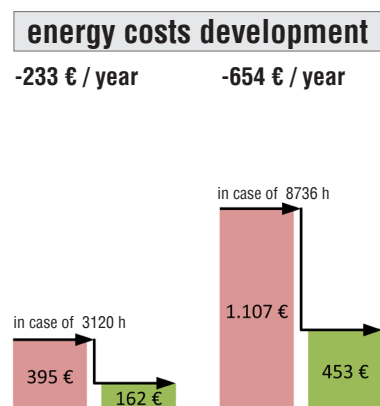
**For example: Illumination of a corridor 30 m x 2 m
rated illumination 100 lx, mounting high 3.0 m**

luminaire	before replacement	after replacement
	Downlight with	
	TC-D-Lp 2 x 26W + KVG	LED 16W + SD-Driver
Number of luminaires	9	9
Power consumption (luminaires)	68 W	20 W
Luminous flux (luminaires)	1713 lm	1700 lm
Illumination E_m	111 lx	102 lx
Uniformity g_1	0.66	0.64
Energy consumption / Energy costs ¹	with 3120 h 1909 kWh / 229 €	with 8736 h 562 kWh / 67 €



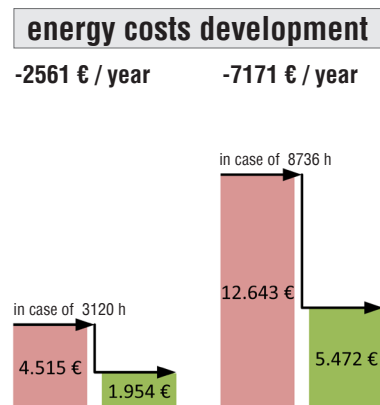
**For example: Illumination of an office room 10 m x 5 m
rated illumination 500 lx, mounting high 3.0 m**

luminaire	before replacement	after replacement
	Luminaire with louvre optic with	
	T8-Lp 4 x 18W + KVG	LED 32W + SD-Driver
Number of luminaires	12	12
Power consumption (luminaires)	88 W	36 W
Luminous flux (luminaires)	3333 lm	4000 lm
Illumination E_m	580 lx	663 lx
Uniformity g_1	0.40	0.54
Energy consumption / Energy costs ¹	with 3120 h 3295 kWh / 395 €	with 8736 h 1348 kWh / 162 €



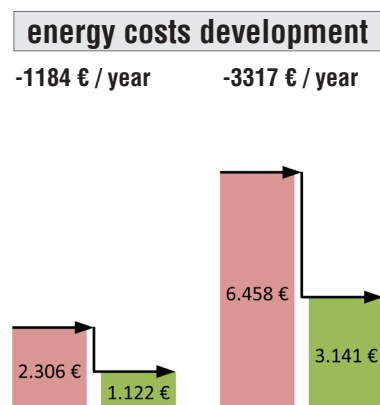
**For example: Illumination of an area in production hall 50 m x 25 m
rated illumination 300 lx, mounting high 5.0 m**

luminaire	before replacement	after replacement
	Damp and waterproof luminaire with	
	T8-Lp 2 x 58 W + KVG	LED 52W + SD-Driver
Number of luminaires	90	90
Power consumption (luminaires)	134 W	58 W
Luminous flux (luminaires)	6703 lm	6500 lm
Illumination E_m	328 lx	368 lx
Uniformity g_1	0.58	0.51
Energy consumption / Energy costs ¹	with 3120 h 37627 kWh / 4515 €	with 8736 h 16286 kWh / 1954 €



**For example: Illumination of a corridor in a production hall 80 m x 4 m
rated illumination 300 lx, mounting high 10.0 m**

luminaire	before replacement	after replacement
	Damp and waterproof luminaire as flood with	
	HIT-Lp 400 W + KVG	LED 214W + SD-Driver
Number of luminaires	14	14
Power consumption (luminaires)	440 W	214 W
Luminous flux (luminaires)	32000 lm	26000
Illumination E_m	306 lx	540 lx
Uniformity g_1	0.63	0.57
Energy consumption / Energy costs ¹	with 3120 h 19219 kWh / 2306 €	with 8736 h 9348 kWh / 1122 €



¹ electricity price 0.12 € / kWh

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