LIGHT MANAGEMENT SYSTEMS

LIMAS Air • LIMAS Line • RFL



SCHUCH



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Light management systems

OVERVIEW

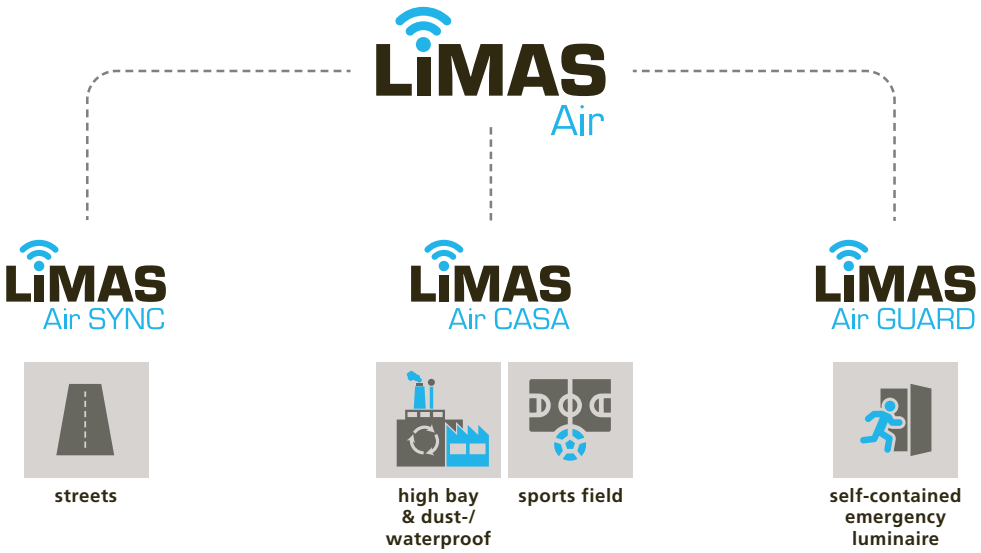
Light only where it is needed, only when it is essential, only as bright as necessary and only as long as it is required - with the help of a Light Management System, the efficiency potential of LED technology can be optimally exploited.
Intelligent, demand-controlled light saves a great deal of energy costs and is extremely environmentally friendly and sustainable thanks to the considerable reduction in CO2 emissions associated with it. In addition, the networking of the light points opens up a wide range of options.
Digital lighting, networking and intelligence can be approached in stages. From simple control via DALI luminaires to complex light management. SCHUCH always offers the right lighting solution for individual needs: whether wired or radio-controlled, permanently installed or upgradeable.

Function	LiMAS Air SYNC	LiMAS Air CASA	LiMAS Air GUARD	LiMAS Line BASIC	LiMAS Line PRO	LiMAS Line ESC
Radio-based	✓	✓	✓	✗	✗	✗
DALI	✗	✗	✗	✓	✓	✓
Emergency lighting monitoring	✗	✗	✓	✗	✓	✓
App control	✗	✓	✗	✓	✗	✗
Cloud control	optional	optional	✗	✗	✗	✗
Sensor integration	✓	✓	✗	✓	✓	✗
Extendability	✓	optional	✗	✗	✓	optional

LIMAS Air (SYNC / CASA / GUARD)

RADIO-BASED LIGHT MANAGEMENT

Whether replacing an existing system or installing a new one, with the **LIMAS Air** light management system you can now make your light system smart in no time at all and bring it to a new level. Extremely simple, fast and without additional installation effort.
LIMAS Air-equipped luminaires communicate via a self-healing mesh network, ensuring high reliability.
Integrating sensors enables efficient, demand-based control of the luminaires.



Radio-based light management system for outdoor light and smart city applications

Our **LIMAS Air SYNC** light management system allows a demand-based, intelligent control of lighting on streets, squares, parks and industrial areas. Even complex smart city projects can be easily implemented. The system enables wireless control and grouping of luminaires via a self-organising mesh network. Cloud connectivity is optional and can be implemented using special controllers. Integrated eSIM communication ensures secure data exchange with the cloud. The mesh network can also operate completely independently of the cloud, which is particularly advantageous for critical infrastructures.

Features / functions:

Technology	Radio-based (2.4 GHz, mesh network / cloud / eSIM)
Control	Cloud-based, via sensors, buttons or time profiles
Communication	Radio-based mesh communication, optional eSIM for cloud integration
Operation	Web interface via browser
Installation	No additional control line required
Visualisation	Map or list view with status display of all lights
Special feature	Smart city-compatible system with light-on-demand function

LiMAS Air CASA

Radio-based light management system for industrial indoor areas and sports facilities

In many areas of an industrial or commercial enterprise, there is considerable potential for saving energy. For example, in production halls and warehouses, shelving aisles or even large areas such as car parks and sports facilities. By using new technology, a lot can usually be achieved here – especially in light systems. This is how intelligently controlled LED lighting performs from the start to a noticeable reduction in costs and, in the sense of a sustainable corporate management, to a significant reduction in CO_2 emissions.

Our **LIMAS Air CASA** system enables wireless control and grouping of luminaires via a self-organising mesh network (CASAMBI®). It also supports the integration of sensors and push buttons. Flexible, energy-efficient and easily controllable via app. Ideal for renovations, retrofits or new buildings where DALI cabling is not available or desired.

Features / functions:

Technology	Radio-based (2.4 GHz, mesh network)
Control	Movement / Daylight / Scene control / Push button
Communication	Radio networked, up to 250 components
Operation	CASAMBI® app (smartphone / tablet)
Installation	No wiring required
Visualisation	Floor plan display with lighting status
Special feature	Wireless system, ideal for renovations

LiMAS Air GUARD

Radio-based monitoring system for self-contained emergency luminaire

The reliable operation of emergency light systems is essential for commercial and industrial businesses. The easier the system is to install, monitor and control, the more efficient and comfortable it is for the operator. Our radio-based **LIMAS Air GUARD** light management system for monitoring, controlling and testing self-contained emergency luminaires offers maximum efficiency and safety. It enables wireless communication between the luminaires and the control centre via a self-organising mesh network based on DALI or radio technology. This allows production halls, car parks, public buildings and all areas where emergency luminaires are operated without additional control cables to be conveniently monitored in accordance with the applicable standards.

Features / functions:

Technology	Radio-based (2.4 GHz, mesh network)
Function	Automatic testing and monitoring of self-contained emergency luminaires
Communication	Wireless connection between emergency lights and control centre
Operation	Web interface via browser
Visualisation	Clear status display of all lights with test report
Installation	No additional control line required
Norms	Complies with DIN EN 50172 / DIN VDE V 0108-100:2024-10
Special feature	Radio-based system with standard-compliant emergency light testing

System components

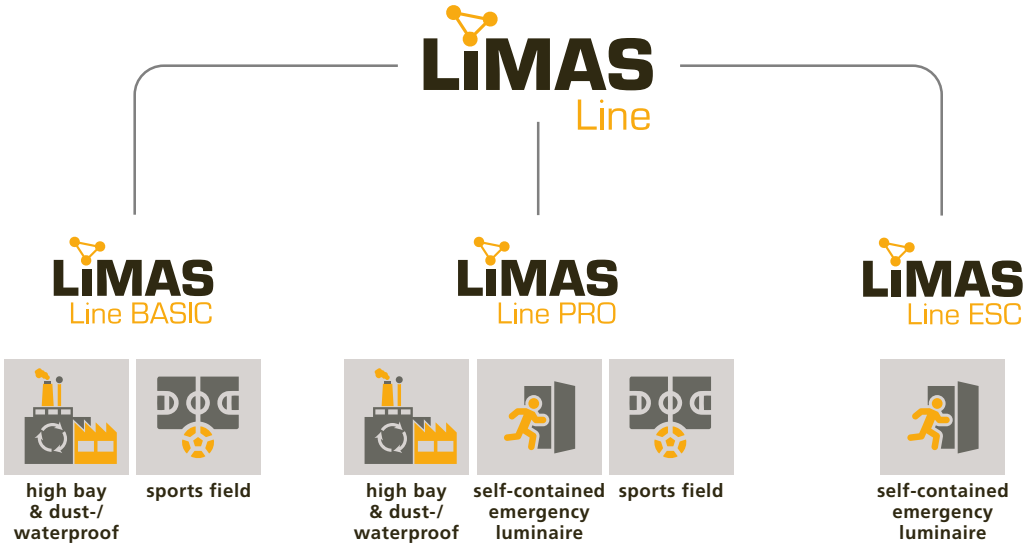
Type	Art.-Nr.		
LACA FM FC	90547 9001	CASAMBI® radio module with FastConnect quick-connector for controlling DIMD luminaires	
LACA FM MK1	90547 9002	CASAMBI® radio module with FastConnect quick-connector for controlling DIMD luminaires and 1.0 m cable	
LACA FM DALI PS120	90547 9010	CASAMBI® radio module with DALI power supply and broadcast control for up to 60 ECGs (total current 120 mA). Power supply 230 V	
LASC DONGLE USB + SOFT + LIZ	90543 0001	USB radio adapter including software and license for on-site setup / programming of LIMAS Air SYNC systems	
LACA BM/DS IR3	90547 9008	CASAMBI® motion and light sensor for mounting heights up to 2.2 m and a maximum detection range of 5.0 m in diameter	
LACA BM/DS IR10	90547 9014	CASAMBI® motion and light sensor for mounting heights of 2.0 – 10.0 m and a maximum detection rage of 24,0 m in diameter	
LACA BM/DS IR16	90547 9013	CASAMBI® motion and light sensor for mounting heights of 5.0 – 16.0 m and a maximum detection range of 19.0 m x 30.0 m	
LACA BM/DS IR20	90547 9007	CASAMBI® motion and light sensor for mounting heights up to 20.0 m and a maximum detection range of 5.0 m in diameter	
LACA TASTIF4 UP	90547 9009	CASAMBI® push-button interface for connecting up to 4 volt-free push-button inputs. Designed for installation in a flush-mounted wall box	
LACA TAST4 AP	90547 9011	Battery-free, 4-button CASAMBI® radio switch. Actuating the switch generates the energy required to power the switch electronics	
LASC SENSBOX	90545 0047	DALI-2 controller for monitoring up to 192 self-contained emergency luminaires via radio on 3 DALI buses (additional system accessories and expert advice required)	
LACA SENSBOX	10183 0002	External unit with integrated RFLS socket for connecting a radio module (can be combined with LIMAS Air CASA)	
LASC SENSBOX	Request	External unit with integrated radio module (2.4 GHz mesh network) for integrating various functions into a LIMAS Air SYNC system (compatible with LIMAS Air SYNC controllers)	

LIMAS Line (BASIC / PRO / ESC)

WIRED LIGHT MANAGEMENT

Once set up, the compact, intelligent controller takes command of the entire light solution - fully automatically and according to the user's needs. The result is an easy-to-use, wired light control system, which creates ideal conditions for flexible use of space, in particular, focuses on the various needs of people and additionally reduces operating costs.

The available light fittings, sensors and controls leave nothing to be desired - from simple switching on and off and dimming, to user-defined lighting scenes and control of the emergency lighting and monitoring of self-contained emergency luminaire.



LiMAS Line BASIC

Wired light management system for small DALI projects

This light management system enables simple and efficient control of DALI luminaires without central emergency lighting monitoring. It allows easy addressing and grouping of luminaires, integration of standard push buttons and sensor-based automation. **LIMAS Line BASIC** offers a compact alternative to the PRO version, both in terms of technology and dimensions. It is conveniently operated via an app and clearly displays all luminaires on a self-created floor plan, making it an ideal solution for small DALI projects in industry, commerce and administration – for example, warehouses, workshops and ancillary areas.

Features / functions:

Technology	Wired (DALI)
Control	App / Sensors / Push buttons
Emergency lighting monitoring	–
Operation	App-based configuration and control
Visualisation	Display of luminaires on self-created floor plans
Installation	DALI cabling required
Capacity	Up to 64 luminaires
Special feature	Wired system with app control

LiMAS Line PRO

Wired light management system with emergency lighting monitoring and building management integration

This powerful wired light management system combines light control and emergency lighting monitoring in a single system. **LIMAS Line PRO** can be operated via PC or touch panel and clearly displays all luminaires in a central visualisation on a floor plan. It enables easy addressing and grouping of luminaires, the integration of standard push buttons and sensor-based automation. This makes it particularly suitable for industrial halls, warehouses and logistics areas, production facilities and larger DALI projects, such as interior light systems with central control and emergency lighting monitoring.

Features / functions:

Technology	Wired (DALI)
Control	PC / Sensors / Push buttons / Time profiles
Emergency lighting monitoring	Integrated, automatic testing in accordance with DIN EN 50172
Operation	Via PC or touch panel
Visualisation	Display of all luminaires and emergency luminaires in the room (lichtMONITOR server licence required)
Installation	DALI cabling required
Capacity	Up to 192 luminaires, expandable to 960
Special feature	Wired system with central control and BACnet building management integration

LiMAS Line ESC

Wired system for central monitoring of emergency lights

LIMAS Line ESC is used exclusively for the central control and monitoring of DALI emergency lights in accordance with the applicable standards (DIN EN 50172 VDE 0108-100:2024-1). This wired system enables convenient monitoring and functional testing of emergency lighting in buildings such as industrial halls, public facilities, schools or office buildings. It is operated via a touch panel and clearly displays all emergency lights on a floor plan.

Features / functions:

Technology	Wired (DALI)
Control	Central monitoring and testing of self-contained DALI emergency luminaire
Emergency lighting monitoring	Integrated in accordance with DIN EN 50172
Operation	touch panel
Visualisation	Rudimentary representation using tiles
Installation	DALI cabling required
Capacity	Up to 64 luminaires, expandable to 256
Special feature	Wired system for compact emergency lighting solutions

System components

Type	Art.-Nr.		
LLBC CON	90545 0005	DALI-2 controller for controlling up to 64 devices	
LLPO CON	90545 0031	DALI-2 controller for controlling up to 192 devices across 3 DALI buses. Monitoring of self-contained emergency luminaires possible	
LLEC CON	90545 0042	7-inch touch panel with integrated DALI-2 controller for monitoring up to 64 self-contained emergency luminaires. Required accessories: DALI bus power supply (no. 90545 0016) and 24 V power supply (no. 90545 0043)	
LL BM/DS IR3	90545 0038	Infrared DALI-2 motion sensor with integrated light sensor for vertical wall mounting, suitable for installation heights of 1.8 – 2.5 m	
LL BM/DS IR4	90545 0035	Infrared DALI-2 motion sensor with integrated light sensor for mounting heights of 2.5 – 4.0 m	
LL BM/DS IR5	90545 0039	Infrared DALI-2 motion sensor with integrated light sensor for mounting heights of 2.5 – 5.0 m and a maximum detection range of 6.0 m x 23.0 m	
LL BM/DS IR14	90545 0036	Infrared DALI-2 motion sensor with integrated light sensor for mounting heights of 4.0 - 14.0 m	
LL BM/DS IR16	90545 0037	Infrared DALI-2 motion sensor with integrated light sensor for mounting heights of 4.0 - 16.0 m	
LL BM/DS HF4	90545 0040	High-frequency DALI-2 motion sensor with integrated light sensor for mounting heights of 2.0 – 4.0 m and a maximum detection range of 8.0 m in diameter	
LL XR DS4	90545 0045	DALI-2 light sensor in encapsulated housing for areas exposed to harmful gases and mounting heights of 2.0 to 4.0 m	
LL TASTIF4 UP	90545 0015	DALI-2 push-button interface for connecting up to 4 volt-free push-button inputs. Designed for installation in a flush-mounted wall box	
LLPO AKTOR 4X10	90545 0041	DALI-2 actuator with 4 volt-free outputs (max. 10 A). Suitable for signaling test states and system statuses of self-contained emergency luminaires	
LL DALI PS240	90545 0016	DALI bus power supply with up to 240 mA maximum output current	
LLEC PS	90545 0043	24 V power supply for touch panel (no. 90545 0042)	

Luminaires for light management systems

In order to control and monitor our luminaires using the listed light management systems, they must have the appropriate interfaces. The available interfaces are listed below. Further information on designs can be found in the catalogue for the relevant luminaires.

Wired control with DALI

These luminaires have a DALI interface that connects directly to both DALI lines. The DALI connections are reverse polarity protected. When planning, the number of ECGs (corresponding to the number of DALI addresses) must be taken into account.

DIMD The dimming range is generally 0-100 %. Luminaires with the suffix DIMD are compatible with: **LIMAS Line BASIC und PRO**

MA-Z These self-contained emergency luminaire cannot be dimmed, but only monitored. Lights with the suffix MA-Z are compatible with: **LIMAS Line ESC und PRO**

DIMD MA-Z The dimming range is generally 0-100%. Luminaires with the suffix DIMD MA-Z are compatible with: **LIMAS Line PRO**

DIMDI The dimming range is generally 0-100 %. This suffix only appears on EX-protected luminaires. Luminaires with the suffix DIMDI are compatible with: **LIMAS Line PRO**

Radio-based control

Luminaires with Casambi® technology bear our abbreviation CS. As Casambi® is controlled via radio, no additional terminal point is provided for the electrical connection.

CS The dimming range is generally 0-100%. Luminaires with the suffix CS are compatible with: **LIMAS Air CASA**

MA-Z CS Luminaires with the suffix MA-Z CS are self-contained emergency luminaires and can only be monitored. They are compatible with: **LIMAS Air GUARD**

DIMD MA-Z CS The dimming range is generally 0-100%. Luminaires with the suffix DIMD MA-Z CS are compatible with: **LIMAS Air GUARD**

RFL RFL luminaires are equipped with one or two bases (Zhaga Book 18) and are therefore ready for integration into light management systems. Luminaires with RFL bases are compatible with: **LIMAS Air SYNC or LIMAS Air CASA**

Luminaires suffix	LIMAS Air SYNC	LIMAS Air CASA	LIMAS Air GUARD	LIMAS Line BASIC	LIMAS Line PRO	LIMAS Line ESC
DIMD	✗	✓ [1]	✗	✓	✓	✗
MA-Z	✗	✗	✗	✗	✓	✓
DIMD MA-Z	✗	✗	✗	✗	✓	✗
DIMDI	✗	✗	✗	✗	✓	✗
CS	✗	✓	✗	✗	✓ [2]	✗
MA-Z CS	✗	✗	✓	✗	✗	✗
DIMD MA-Z CS	✗	✗	✓	✗	✗	✗
RFL	✓	✓	✗	✗	✗	✗

[1] only for hall bay luminieres with additional radio module

[2] only in conjunction with Casambi® Gateway

SENS/DIMC These luminaires can be controlled via a switching phase L'. SENS luminaires also have an integrated sensor. For more information, please refer to the DIMC/SENS catalogue pages on dust-/waterproof luminaires.

RFL - luminaires

When is the right time to implement a light management system? Right at the replacement of the conventional lighting or should you rather wait a few more years?

Our RFL luminaires, that are prepared for retrofitting light management components, keep all options open for the future. Timing is yours.

Conzept „Ready For Light Management Systems"

One or two Zhaga Book 18 (Z18) compliant sockets with D4i control gear integrated into the luminaire housing enable the subsequent, tool-free installation of the necessary components such as controllers, radio antennas and sensors. The use of autonomous sensors without connection to a light management system is also possible at any time. RFL luminaires are available in various series and product ranges, such as outdoor or indoor luminaires. The product range is being continuously expanded.

Thanks to the standardisation of sockets in accordance with Zhaga Book 18 (Z18), you are not tied to our LIMAS Air light management system, but can choose freely from all manufacturers who also use standardised Zhaga socket connections.

Advantages

- Standardised Zhaga Book 18 (Z18) compliant sockets with D4i control gear in the luminaire housing
- Light management system can be added at any time
- Quick, tool-free installation of light management system components





System components

Type	Art.-Nr.		
RFL LASC DS	90546 9014	Controller for radio control of RFL luminaires (2.4 GHz mesh network) with photocell (twilight switching)	
RFL LASC DS GPS SIM	90546 9010	Controller for radio control of RFL luminaires (2.4 GHz mesh network) with GPS antenna (automatic luminaire position determination) and photocell (twilight switching), with integrated SIM card for connecting up to 100 adjacent nodes to the cloud. Enables remote configuration / commissioning and monitoring of the system, and provides timing in the system (GPS)	
RFL LASC BM RAD8	90546 9011	Controller for radio control of RFL luminaires (2.4 GHz mesh network) with integrated radar motion sensors, maximum mounting height 8.0 m	
RFL LASC BM RAD10 MA MK2	90546 9012	Controller for radio control of RFL luminaires (2.4 GHz mesh network) with integrated radar motion sensors, designed for pole mounting, maximum mounting height 10.0 m	
RFL BM RAD12	90546 9017	Radar motion sensor for RFL luminaires with mounting heights up to max. 12.0 m - only permitted in conjunction with RFL radio control (no. 90546 9014 and 90546 9010)	
RFL BM/DS IR8	90546 9004	Infrared motion sensor for RFL luminaires with mounting heights up to max. 8.0 m - only permitted in conjunction with RFL radio control (no. 90546 9014 and 90546 9010)	
RFL BM/DS IR12	90546 9018	Infrared motion sensor / twilight sensor for RFL luminaires with mounting heights up to max. 12.0 m, suitable for standalone operation or for use in combination with RFL radio control (no. 90546 9014 and 90546 9010), compatible accessory: shielding mask for limiting the detection area (no. 90546 9020).	
RFL DS20	90546 9000	Twilight sensor for autonomous control of RFL luminaires. Use in conjunction with other system components not permitted	
RFL LACA FM DS	90546 9013	CASAMBI® radio module with light sensor for RFL sockets	

Operating modes

		Radio networking	Motion detection	Twilight switching	Time-based control	Programming	Connection to the cloud
1 RFL LASC DS GPS SIM		✓	✗	✓	✓	USB dongle / Cloud connection	✓
	+ RFL BM/DS IR8	✓	✓	✓	✓	USB dongle / Cloud connection	✓
	+ RFL BM RAD12	✓	✓	✓	✓	USB dongle / Cloud connection	✓
	+ RFL BM/DS IR12	✓	✓	✓	✓	USB dongle / Cloud connection	✓
2 RFL LASC DS		✓	✗	✓	Optional with article ❶	USB dongle	Optional with article ❶
	+ RFL BM/DS IR8	✓	✓	✓	Optional with article ❶	USB dongle	Optional with article ❶
	+ RFL BM RAD12	✓	✓	✓	Optional with article ❶	USB dongle	Optional with article ❶
	+ RFL BM/DS IR12	✓	✓	✓	Optional with article ❶	USB dongle	Optional with article ❶
3 RFL LASC BM RAD8		✓	✓	Optional with article ❶ or ❷	Optional with article ❶	USB dongle	Optional with article ❶
4 RFL LASC BM RAD10 MA MK2		✓	✓	Optional with article ❶ or ❷	Optional with article ❶	USB dongle	Optional with article ❶
5 RFL BM/DS IR12		✗	✓	✓	✗	Standard sensor programming, can be customised ex works	✗
6 RFL DS20 *		✗	✗	✓	✗	✗	✗

USB dongle

Cloud connection

Standard sensor programming, can be customised ex works



EcoTune

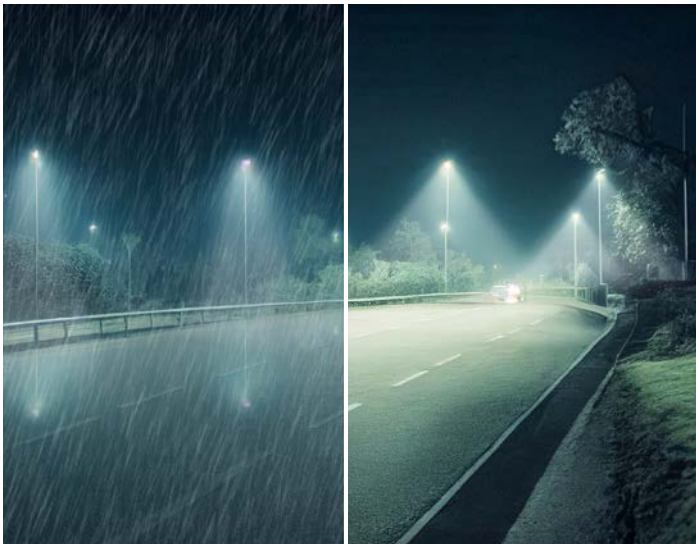
Good lighting must meet many requirements: ensure the safety of road users and residents, increasingly take ecological aspects into account, and offer urban planners opportunities to make inner-city areas more attractive. Static lighting does not meet these requirements. Adaptive systems, on the other hand, with which lighting can be flexibly adjusted to changing situations, offer many forward-looking solutions.

Change of the light colour

The combination of neutral white (4,000 K) and warm, natural light (2,200 K) creates pleasant, warm lighting in the evening and at night ('insect mode'). In the morning hours, the neutral white component is increased to ensure better visibility and greater safety as traffic increases. The multi-layer principle ensures uniform illumination at all times. Motion sensors also enable the light to be increased as needed when people or vehicles are present.

Change of light distribution

Rain, fog or snow can cause increased glare, especially on wet roads. Luminaires with two optics allow the light distribution to be adjusted: wide beam for dry roads, narrow beam for wet roads. This reduces glare and increases safety. Our AB and ABL optics already meet the normative requirements.



Advantages

- Independent adjustment of light colour and luminous flux
- Neutral white light in the early evening and morning enables good contrast vision and increases the attention of road users.
- Warm and dimmed light in the deep hours of the night helps residents to sleep, is particularly insect-friendly and minimises light emissions into the night sky
- Smooth transition between colour temperatures
- Multi-layer principle guarantees uniform illumination of the entire surface in the respective light colour combination.
- light colours can be combined according to customer requirements.
- Illuminance and dimming profile can be programmed on a customer-specific basis

Your Notes

With passion for excellent lighting – since 1895!



SCHUCH

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