



## MORE THAN JUST A SIDE APPEARANCE.

GIFAS optical traffic guiding system provides efficient and safe illumination for improved recognition of the course of the road. Especially in difficult visibility conditions (night, fog, etc.) and at neuralgic traffic points such as tunnels, curves or roundabouts.

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# LED guiding systems

## MarkLED 4



The MarkLED is a cable-guiding system with current carried through direct connections. This allows us to reach a very high efficiency factor (>80%) and to remain within the limits for electromagnetic compatibility (EMC). With the state-of-the-art LED technology, power consumption is so low that the desired line lengths can be usually realised without intermediate supply. The power consumption is extremely low because of the high energy efficiency. With those technical features we comply with regulations and expectation from public institutions and departments of international road engineering.

### The upper part – the MarkLED light module

The new top part is executed in an attractive and elegant form with a housing made of special transparent plastic. The outer surface is nano coated and antistatic for high dirt repellency. The electronics are installed from below and sealed with a neutral, white sealing compound. The brightness of the individual modes, such as dimming, blinking and flashing, are easily adjustable via the control units associated with the system and can also be influenced from the tunnel control centre or by overriding pulses.

### The lower part – the current collector

The «core» of this system is the current collector. It transfers the power from the system cable to the light module and offers it a fixed base for mounting. The cable need not be cut and therefore, continues to be fail-safe. The light module comes preassembled on the current collector (fast and safe installation on site).

1. Placement of the system cable in prepared groove
2. Power transfer from the system cable to the light module
3. Mounting base for light module

### The system cable

For the LED guidance systems you need a system cable as a feed line of every module.

### Control units

The new 4-channel control unit is used to control the GIFAS guidance systems. It can be integrated into existing control cabinets or also as a «stand alone» module.

### Accessories

The diverse range of accessories allows different areas of application and fulfills complex customer requirements.

### Functionality

The guidance systems have a wide voltage range between 16-48VDC. This allows to realise very long line distances. In addition, all systems are tested to meet IP68 protection.

Thanks to the modular design, the individual components can be replaced quickly in case of service.

Item no.	Description
860247	MarkLED 4 light module with current collector 30 mA/double-sided 4×white, 5600 K
860560	MarkLED 4 light module with current collector 80 mA/double-sided 4×green, 525 nm
860561	MarkLED 4 light module with current collector 60 mA/4×white, 5600 K/4×red, 625 nm
860562	MarkLED 4 light module with current collector 80 mA/double-sided 4×yellow, 595 nm
860563	MarkLED 4 light module with current collector 80 mA/double-sided 4×blue, 475 nm
860567	MarkLED 4 light module with strands 2×0.5 mm², 20 cm 30 mA/double-sided 4×white, 5600 K
860598	MarkLED 4 light module with cable 2×0.5 mm², 2 m, with V4A mounting plate, 30 mA/double-sided 4×white, 5600 K
860724	AP adapter MarkLED made of PA6 GF30 white incl. accessories (PU = 5 pcs) without cable gland
860725	AP adapter MarkLED made of PA6 GF30 white incl. accessories (PU = 5 pcs) with 1x KV M16×1.5
860726	AP adapter MarkLED made of PA6 GF30 white incl. accessories (PU = 5 pcs) with 2x KV M16×1.5

## MarkLED EXIT



The MarkLED EXIT combines two tunnel safety lighting systems. It is a combination of guidance and escape route light, and the road studs (optical guidance system) are typically installed at distances of 12.5 m and 25 m respectively. The MarkLED EXIT is therefore equipped with two separate lighting areas with two different characteristics, usually installed at a distance of 50 m, using the same connection system, which in combination makes the system very economical.

In normal operation, only the part of the marker light (optical guidance system) is in operation. During an incident, the EXIT part is switched on so that the escape route is sufficiently lit. The MarkLED EXIT also has a wide voltage range of 18-48 VDC. This allows lengths over 500 m.

### The current collector

It transfers the power from the system cable to the light module and offers it a fixed base for mounting.

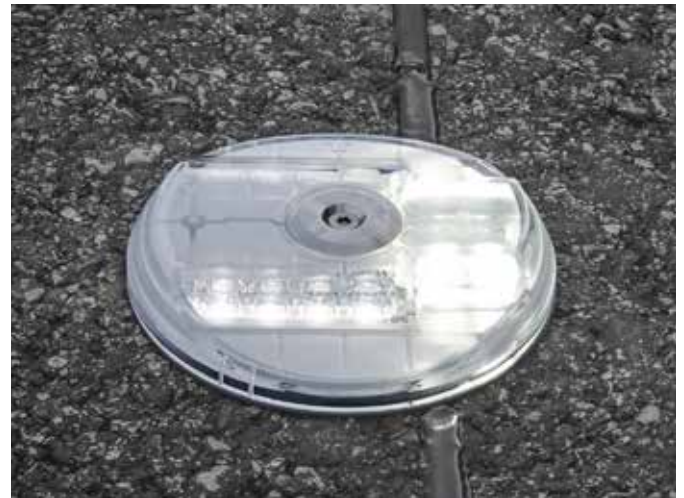
The cable need not be cut and therefore, continues to be fail-safe. The light module comes preassembled on the current collector (fast and safe installation on site).

1. Placement of the system cable in prepared groove
2. Power transfer from the system cable to the light module
3. Mounting base for light module
4. Integrated replaceable fuse inserts (micro-fuse 20×5 mm) for safety separation in case of fire.

**The system MarkLED EXIT with functional maintenance E30/E60, tested according DIN EN 1363-1:2012-10 and based on DIN 4102-12.**

Item no.	Description
860327	MarkLED EXIT light module with current collector Guidance: 30 mA/double-sided 4×white, 5600 K Emergency: 180 mA@48 VDC/4×white, 5900 K
860467	MarkLED EXIT light module with current collector Guidance: 80 mA/double-sided 4×yellow, 595 nm Emergency: 180 mA@48 VDC/4×white, 5900 K
860597	MarkLED EXIT light module with current collector Guidance: 60 mA/4×white, 5600 K/4×red, 625 nm Emergency: 180 mA@48 VDC/4×white, 5900 K

Other versions on request.



### The system cable

The light system is connected by a double-guided system cable with a cross section of 2×2.5 mm². This cable is embedded in a groove in the shoulder in the case of floor mounting.

### Control units

The new 4-channel control unit is used to control the GIFAS guidance systems. It can be integrated into existing control cabinets or also as a «stand alone» module.

The EXIT part can be powered directly via its own power supply, as it is operated with full brightness in the case of an incident and a control makes little sense.

### Accessories

The diverse range of accessories allows different areas of application and fulfills complex customer requirements.

### Functionality

The MarkLED EXIT is a system that can be used as a guidance in the tunnel as well as the actual escape route lighting. Corresponding sample installations have been created and tested in cooperation with ASTRA. The application must be checked carefully for each project, depending on the structural conditions.

### Light distribution when mounted on the floor



### Light distribution when mounted on the tunnel wall





# LED guiding systems

## TrafficLED



### The permanent drive-over marker and warning lights with the latest LED technology!

By popular demand and as widely requested, we have developed a completely new light that covers a variety of needs. In particular, the main target during development was the ability to withstand constant traffic on streets, on squares, or in tunnels. It is also often used in the driveways of tunnels for improved visibility of the course of lane and pedestrians for improved active safety. Last, but not least, they can also be used to light roundabouts (also for heavy traffic).

Standard SN 640853 «Underfloor Marker Lights» served as the basis for development with the following specifications and requirements:

- drive-over marker lights that can withstand constant traffic and that cover the entire summer/winter temperature range (–30 to +75°C) and that can withstand mechanical stresses (40t truck)
- for safety reasons (slip hazard) matt, circular light
- protrude over road surface level max. 4.0mm
- resistant to sand, snow spikes and chains, street cleaning
- have no protruding corners or edges that could be touched by a snowplough
- surface and light emission areas are designed in such a way that as little dirt as possible is deposited
- waterproof, frostproof, and resistant to UV sunlight/chemicals/oil and road salt
- control by push button, radar sensor, loop, vibration plate, or timer switch (e.g. school buildings)
- very good visibility in the dark, wet, and snow
- other applications: such as lane marking

The TrafficLED system complies with current regulations (e.g. BAST in Germany, FEDRO in Switzerland) and is one of the few EMC-tested systems, which means that the system works via wires, not induction.

Item no.	Description
297210	TrafficLED light module V4A, 18-28VDC, 140mA / 28-44VDC, 85mA, double-sided 6×LED blue, 470nm
284627	TrafficLED light module V4A, 18-28VDC, 140mA / 28-44VDC, 85mA, double-sided 6×LED orange, 600-609nm
294267	TrafficLED light module V4A, 18-28VDC, 140mA / 28-44VDC, 85mA, double-sided 6×LED white, 5600K
296722	TrafficLED light module V4A, 18-28VDC, 80mA / 28-44VDC, 50mA, single-sided 6×LED blue, 470nm
299475	TrafficLED light module V4A, 18-28VDC, 80mA / 28-44VDC, 50mA 50mA, single-sided 6×LED orange, 600-609nm
299474	TrafficLED light module V4A, 18-28VDC, 80mA / 28-44VDC, 50mA, single-sided 6×LED white, 5600K
299609	System cable TPE Traffic/CircLED black, halogen-free 2×2.5mm <sup>2</sup> , Ø8.2mm, strands: red, black

## CircLED



### CircLED recessed light

CircLED is used for specific applications, mounted as wall- or floorlamp. Main focus is the roundabout lighting, where it is used as security, control and design lighting. Used in addition to many other uses as path lighting (floor or wall mounting). The CircLED is available with integrated light optics as well as in three light colours. It should be noted that the CircLED is only partially suitable for permanent drive-over and snowplough operation.

### System description

Analogical to TrafficLED, the CircLED will be flush mounted. The casing is made of chrome steel and the assembly has to be effected directly in the subgrade (asphalt, concrete, gravel, ground or the like).

### Connection technology

The operating voltage is 18-44VDC (low voltage). The current is transmitted from the supply line (2×2.5mm<sup>2</sup>) in a suitable installation pipe and is inserted in the lower part. A clamp is used to connect the upper part, which is filled reversibly and screwed together.

### Support in the fight against light pollution

Using CircLED helps to fight increasing light pollution. The light guidance is designed in such a way that the light output is only aimed at the defined and desired direction.

### High energy efficiency to reduce costs

Sophisticated electronics with latest LED technology is leading to a very low power consumption. The total power consumption for an average roundabout of 20 pieces CircLED is similar to a single 60W bulb.

Item no.	Description
860156	CircLED light module V4A, 130mA @ 24VDC (20-48 VDC), white, 5.600K, 16 Power LED complete sealed
860160	CircLED light module V4A, 130mA @ 24VDC (20-48 VDC), white, 3.500K, 16 Power LED complete sealed
860157	CircLED light module V4A, 130mA @ 24VDC (20-48 VDC), blue, 470nm, 16 Power LED complete sealed
860158	CircLED light module V4A, 130mA @ 24VDC (20-48 VDC), orange, 609nm, 16 Power LED, complete sealed
299609	System cable TPE Traffic/CircLED black, halogen-free 2×2.5mm <sup>2</sup> , Ø8.2mm, strands: red, black

**On request**  
Different installation variants possible

## SecuLED



In contrast to the looped-through current transmission, as in the MarkLED system, the conventional wired system is used for the SecuLED product series. The modules can be wired directly and can be looped. The two-part construction facilitates the maintenance and repair effort massively.

When laying highly flammable and heat-resistant cables, grooves must be milled into the pavement or introduced in pipes designed for new plants for subsequent installation.

The lamp modules are installed on the kerb in the immediate proximity of the edge of the road. The brightness of the lamp modules can be easily adjusted using the control units and can be controlled in all areas via an automatic light control system or direct control from the tunnel monitoring and control complex.

### Technical data

Light colour	white (5100 K)
Light intensity	30 cd
Illuminant	12 LED
Operating life LED	50000 h
Protection category	IP67
Protection class	III
Operating voltage	24 VDC (range 16 - 40 VDC)
Power consumption	40 mA
Dimensions (LxWxH)	178.4x118x53.5 mm
Upper part	polyamide, white
Lower part	polyamide, white

Item no.	Description
860462	SecuLED light module 40 mA / double-sided 6xwhite, 5100 K
860463	SecuLED light module 60 mA / 6xwhite, 5100 K / 6xred, 625 nm
860464	SecuLED light module 80 mA / double-sided 6xgreen, 525 nm
860465	SecuLED light module 80 mA / double-sided 6xblue, 470 nm

## Wildlife warning reflector



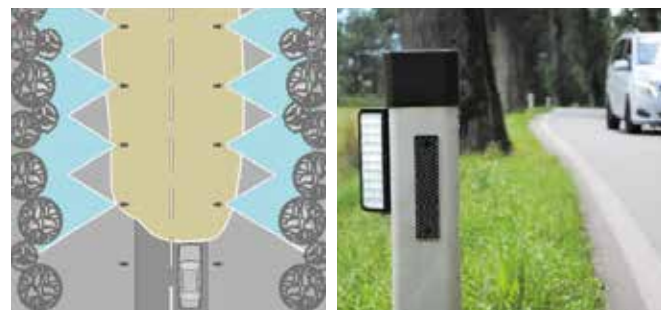
The headlight of an approaching vehicle falls on the wildlife warning reflectors set up on both sides of the roadside. The wild animal warning reflectors reflect the incident light to the sides of the terrain without the driver being aware of it. This creates an optical fence that signals danger to the animals. The driver is not distracted or disturbed in his view at any time by the wildlife warning reflectors.

### Technische Daten

Colour	white, red or blue
Material	ASA
Dimensions (LxWxH)	82x86x60 mm
Fastening	2 pcs. V2A screws

### Functional principle

Radiation of the wildlife warning reflectors



Item no.	Description
on request	Wildlife warning reflector white
on request	Wildlife warning reflector red
on request	Wildlife warning reflector blue

# LED guiding systems

## InduLED



The InduLED Basic marker light is powered inductively, i.e. wirelessly via Wireless Power Transfer, or WPT for short. This allows complete encapsulation of the light module, which is therefore optimally protected against environmental influences. In the event of a defect, the supply line remains untouched. The light module can simply be removed and replaced with a new light module. No galvanic connection to the supply line is required. The light module is supplied with electricity via the fully encapsulated cable drum sunk into the floor.

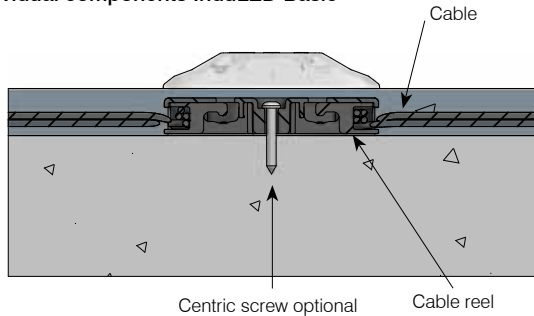
### Product features

- dimmable, switchable, blinking, flashing
- latest LED technology with integrated optics
- impact-resistant, UV-resistant polycarbonate housing
- scratch-resistant coating
- self-cleaning design
- fully encapsulated
- quick and easy installation and replacement

### Technical data

Direction of light	Single or double-sided with 4 LEDs each
Colour temperature	white approx. 5600 K
Luminous intensity	65 cd
Protection category	IP68 / IP69K
Protection class	III
Impact resistance	IK10
Supply	Inductive
Consumption	< 2 W
Diameter	115 mm
Height	20 mm
Housing	Polycarbonate transparent, nano-coated and dirt-repellent
Temperature resistance	-40° C to +55° C
Drive-over capability	Up to 5 tonnes (low-speed traffic with air-filled tyres)
Mounting	Adhesive connection

### Individual components InduLED Basic



Item no.	Description
860950	InduLED Basic marker light, IP68 / IP69K, IK10, 2×4 LED, white 5600 K, housing Ø 115 mm, H = 20 mm

## Cable reel / system cable Individual components

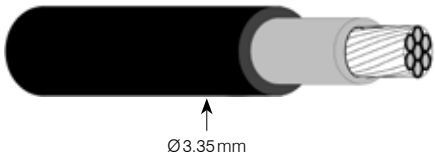


The cable drum, consisting of holder and cover, is placed underneath each marker light. It is used to guide and wind the system cable correctly and ensures inductive coupling to the marker light. No tools are required for installation. Once the cable has been wound and the drum closed, it can be placed in the hole. Optionally, the cable drum can be anchored to the floor with a central screw. The three wings define the correct distance to the mounting surface of the light module. After placement and moulding, the wings can be broken off and disposed of.

### Technical data

Material	Saxaketon 160FR GF30
Diameter (without blades)	122 mm
Height (without sash)	19 mm
Installation position	Horizontal
Bore diameter	Ø130 - 150 mm
Hole depth	min. 25 mm
Fixing (optional)	Screw in the centre
Grouting	e.g. mortar, BücoFix, etc.

Item no.	Description
860951	InduLED Basic cable reel holder
860952	InduLED Basic cable reel cover



The system cable is a single-core, double-insulated cable that is used to supply the marker lights. It is uninterrupted over the entire length of the system and therefore continuously insulated. It has excellent ozone, chemical, weather and UV resistance and is also halogen-free and has improved behaviour in the event of fire.

### Technical data

Measured	DC
Conductor resistance	at 20° C < 14Ω / k
Nominal voltage conductor-earth	1800 VAC
Rated voltage conductor-conductor	3000 VAC
Outer Ø	3.35 mm
Conductor cross-section	1.5 mm <sup>2</sup>
Construction n×Ø	37×0.23 mm
Tinned stranded wire, finely stranded	(EN 60228 cl. 5)
Insulation inside (white)	RADOX EI 110
External insulation (black)	RADOX EI 109

Item no.	Description
225755	InduLED Basic system cable 1×1.5 mm <sup>2</sup> , double insulated

## Mudguard / system profile

### Individual components

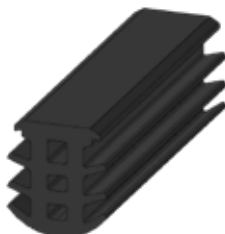


In the winter months, when snow ploughs touch the marker lights when entering and exiting tunnels, the result is sheared units and therefore their replacement. However, this can be counteracted by using a protective plate in V4A quality. It is sufficient to fit them to the first InduLED Basic at the tunnel entrance and exit.

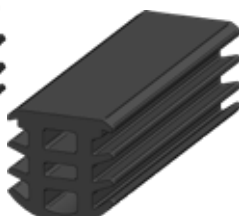
Item no.	Description
024446	Protective plate V4A for InduLED Basic, 190×150×24 mm
024676	Countersunk screw V4A with I-6Kt. without shank M8×70 mm
024677	Nylon dowel Fischer M8-S×50 mm
019180	Nylon dowel Fischer Ø 6×35 mm, without edge
019290	Chipboard screw countersunk head V4A, Ø 5×80 / 50 mm



Item no. 116753



Item no. 140862



Item no. 155809

The milled groove of the optical guidance system must be sealed against environmental influences. A simple and cost-effective solution is to use the halogen-free GIFAS system profile made of EPDM. This is inserted into the slot, is self-clamping and is available in three different widths. A stable and even slot with slot widths of 6 - 15 mm is required for use.

Item no.	Description
116753	Joint profile EPDM 70° Shore, for groove 6 - 8 mm 9.3×17.1 mm, black
140862	Joint profile EPDM 70° Shore, for groove 10 - 11.2 mm 14.5×17.1 mm, black
155809	Joint profile EPDM 70° Shore, for groove 12 - 15 mm 17.35×17.5 mm, black

## Supply unit



### Technical data

#### Functional states

Status of the control unit, or during commissioning  
Passive functions for the LED marker lights

LED status display (red / green)

Permanent lights, up to 4 individually adjustable dimming levels (15 - 100 %),

Synchronised flashing

#### Connection options

Standard

230 V input

Output

2-pole Phoenix contacts

Digital I/O

8 inputs, 2 outputs

#### Electrical data

Supply voltage

230 V, 50 Hz

Current consumption

(max.) 3 A

Power factor

approx. 0.94

Power consumption

(max.) 700 W

Main mains fuse

min. 6 A ... max. 13 A

Output current (max.)

2.5 A (rms)

Frequency range of the

Power transmission frequency range 37.6 kHz

Typical cable current

1.5 A (rms)

Typical cable voltage

< 300 V (rms)

Certificates (pending)

CE: YES / RoHS: YES

International standards and approvals (pending)

#### Operating environment

Operating temperature

-10° C to 50° C

Humidity

10 % to 80 % (non-condensing)

Cooling Convection

(internal fan)

#### Dimensions

Weight

20 kg

Dimensions (W×H×D)

422 mm×400 mm×172 mm (without lugs)

#### Installation

Installation position

Vertical

Installation environment

Switch cabinet / wall mounting

Free space

- side & bottom

10 cm

- Top

20 cm

- front

35 cm

Mounting method Lugs for rear panel & 19" rack (interchangeable, depending on mounting position)

Item no.	Description
861050	InduLED Basic control unit 230 VAC / 3A, max. 500 m System length, 51 units, housing 400×422×172 mm, 20 kg





Tunnel, MarkLED



Roundabout, CircLED



Public transport sector, MarkLED



Public transport sector, CircLED



Car park, MarkLED



Public building, CircLED





Road traffic, TrafficLED



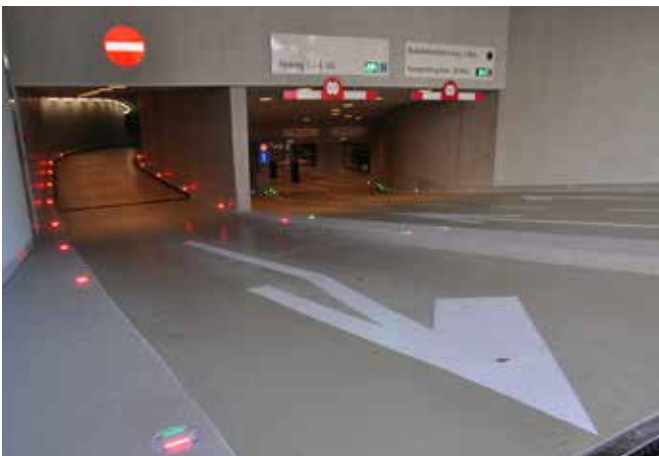
Tunnel, SecuLED



Roundabout, TrafficLED



Tunnel, SecuLED



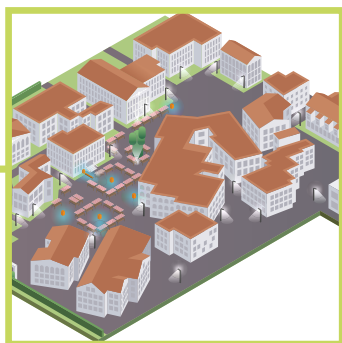
Car park, TrafficLED



Tunnel, SecuLED

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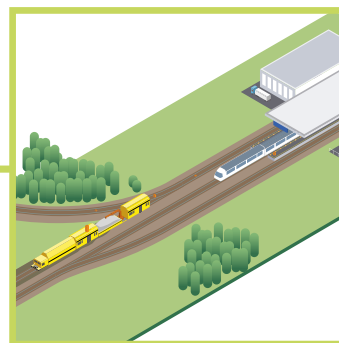
## LED guiding systems



Public sector



Industrial sector



Transportation

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