SYSTEMATIC QUALITY

MarkLED / MarkLED EXIT

Product information

GIFAS ELECTRIC

09|23

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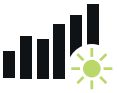

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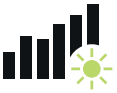

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LED guidance systems – for safe traffic routing

MarkLED 4

MarkLED EXIT

Our product line of optical guidance devices is applicable in tunnels, roundabouts or on the road in general.

We have detailed information, documentation, certificates for our system MarkLED which we would be appreciate to send if you are interested.

Why optical guidance systems?

An optical guidance device improves recognition of lanes or obstacles, particularly during times of poor visibility (at night, fog, etc.) as well as vulnerable traffic areas such as tunnels, curves, roundabouts or traffic islands. The signals provide a very high degree of safety for traffic.

The system complies with current regulations (BAST Germany, FEDRO Switzerland e.g.), and are continous EMC-approved, which means, that the system functions with cables/wires and is non-inductive, so electro-magnetic fields are excluded.

The wired systems are installed directly in the road surface. However, it is important that the installation area is not constantly driven over.
Our recess-mounted lamps are compatible with all GIFAS systems. They complement each other ideally and require the same system components, such as a control unit, feeder cable, etc.
All GIFAS systems can be dimmed across a continuous scale using the control unit or remote control.

Your benefits at GIFAS

- EMC-approved, no inductive interference
- quick and easy installation
- latest LED technology, very low power consumption
- vandal-proof, reinforced synthetic material/V4A Investment casting
- dimmable by control unit
- interoperable with all LED guidance systems
- modular construction, low-maintenance
- often set in systems in different applications
- thereby high product- and application know-how

Our services

- many years of know-how, experienced Project Manager
- individual advice, also on site
- large standard range, individual solutions possible
- expert advice on installation and bringing into service
- creating CAD documents, voltage drop calculations and tunnel disposals
- own service team with professional equipment and many years of know-how

MarkLED 4 – the system

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

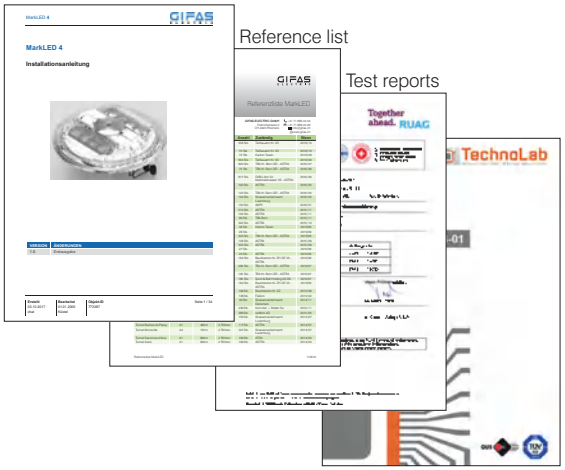
The diverse range of accessories allows different areas of application and fulfills complex customer requirements.

Functionality

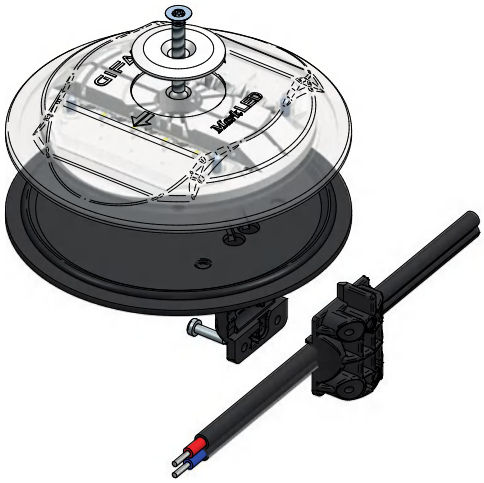
The guidance systems have a wide voltage range between 16 - 48 VDC. This allows to realise very long line distances. In addition, all systems are tested to meet IP68 protection.
Thanks to the modular design, the individual components can be replaced quickly in case of service.

Product documentation

Installation instructions



GIFAS-ELECTRIC GmbH · Dietrichstrasse 2 · CH-9424 Rheineck



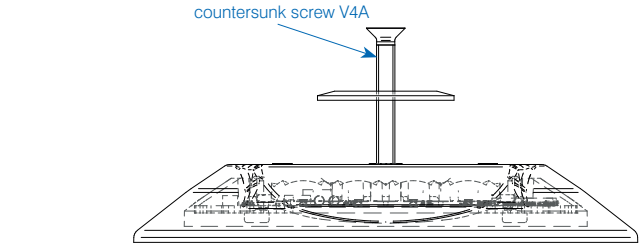
Technical data

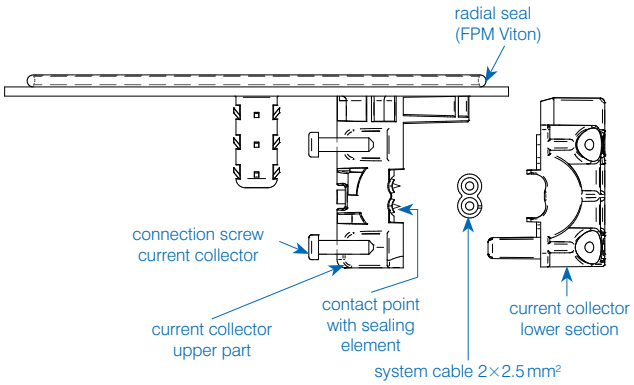
Single or double-sided with 4 LEDs each

Light colour:	white ~ 5'600 K
Light intensity:	65 cd
Operating life LED:	L90 / B10 100'000 h
Protection category:	IP68 / IP69
Protection class:	III
Impact protection rating:	IK10
Operating voltage:	24 VDC (range 16 - 48 VDC)
Power consumption:	30 mA (double-sided LED white) 80 mA (double-sided LED colored)
Diameter:	110 mm
Height	
– without current collector:	18 mm
– with current collector:	20 mm
Upper part:	polyketone, colourless, nano coated, dirt-repellent
Lower section:	polyamide 12 black, glass fiber reinforced
System cable:	system cable bipolar 2×2.5 mm²
Temperature resistance:	–40° C to +55° C
Axle load:	to 5 t (slow traffic with air-filled tyres)

ⓘ Certificates, reference lists on request.

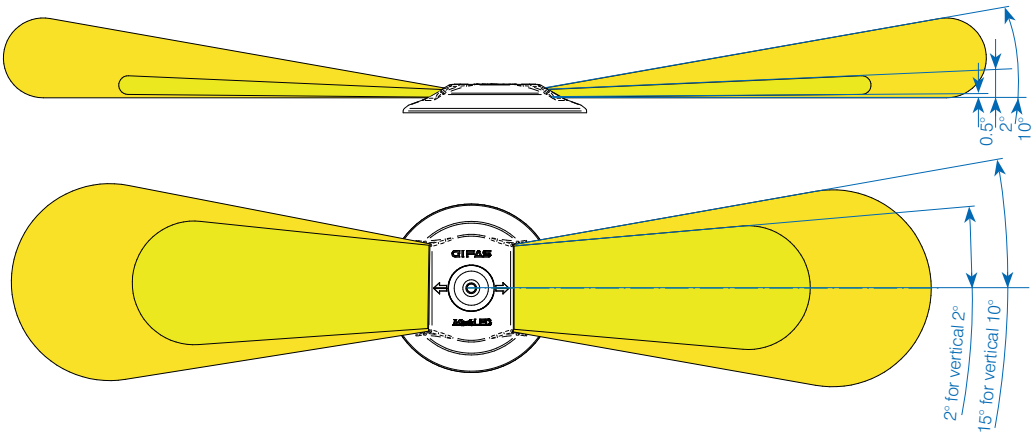
One-components MarkLED 4





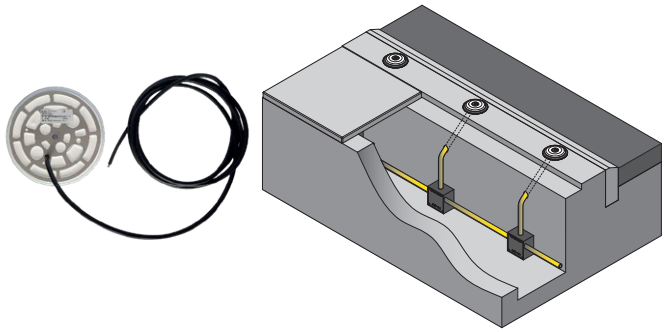
Scheme light emission

MarkLED the system meets the regulations of the Federal Road Authority (e.g. BAST-Germany, FEDRO Switzerland).



Example 1 – wired

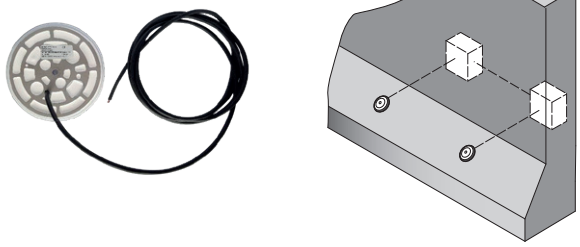
By default, the MarkLEDs are connected with current collector in a milled groove in the shoulder. If this is not possible, a conventional strand cabling with junction boxes/sleeves can be realised. Here, a strand cabling with FE180 cable is installed and connected to a box/sleeve.



Tunnel Schaffhausen

Example 2 – New Jersey profile

If the MarkLED has to be mounted for example on a New Jersey profile then there should be made a cross drill through the profile. On the backside a junction box can be set or inserted directly in a existing cable tray.

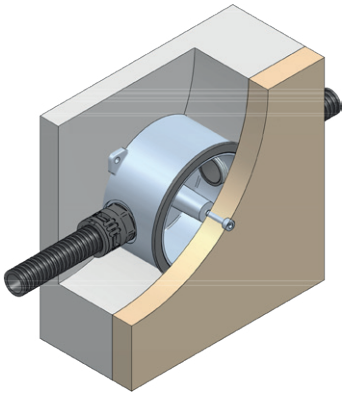


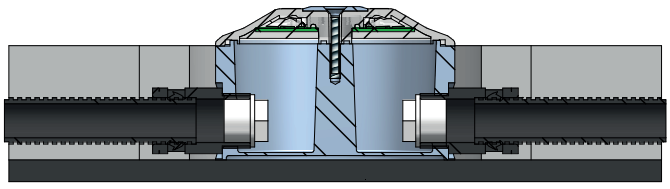
Tunnel Stephanshorn St. Gall

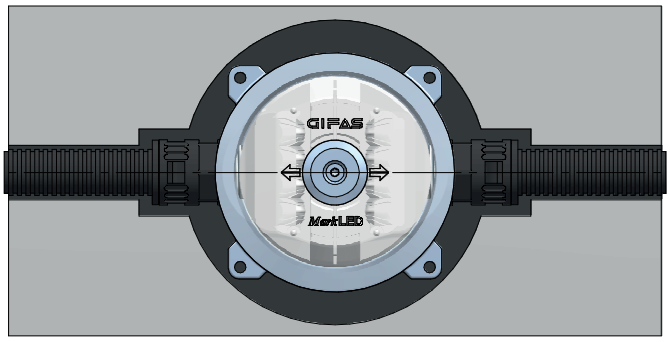
Example 3 – recessed-mounted

With the recessed-mounted box for MarkLED we can offer a robust and easy solution for a recessed installation of MarkLED. On both sides, hose connection (M25) are prepared for the connection of a protective hose.

Item no. 154580







Example 4 – surface-mounted (casing V4A)

A further possibility to mount the MarkLED is with surface-mounted solution. Here, the MarkLED is screwed onto a surface-mounted box, wherein the MarkLED has no current collector, but a direct outlet, which is connected to the feed line in the housing.

Item no. 152744

Item no. 144534

Tunnel Limfjord Denmark

Example 5 – surface-mounted (plastic adapter)

Simple and secure assembly of the MarkLED modules on the shoulder / wall by means of the surface monted plastic adapter.

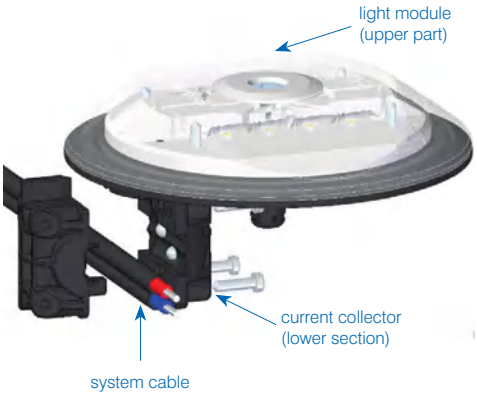
Surface-mounted adapter MarkLED 4 made off PA6 GF30

Surface-mounted adapter with guard plate (Item no. 208653)

Biel Bözingerfeld

Bypass Bütschwil

Complete product module



System cable light

The system cable MarkLED is a halogen-free EPR/EPR cable with tinned copper strands, high temperature resistance, bonding between the insulations of strands and the cable coating to increase water tightness.

Technical data

Material properties:	halogen-free, no toxic and corrosive gases
Fire behavior:	low smoke emission, flame-retardant, no fire spread, low fire load
Strand colors MarkLED:	red, dark blue
Nominal section:	2.5 mm²
Exterior dimensions:	9.6 mm × 5.25 mm
Weight (kg/km):	approx. 80 kg/km
Cu-Number (kg/m):	48 kg/km (48 g/m)
Temporary temperature resistance:	<10 s: 200° C
Fire class:	B2ca-s1-d1-a1

Item no.	Designation
115788	System cable light black – copper tinned flat cable EPR/EPR, 2×2.5 mm²
148912	System cable light red – copper tinned, flat cable EPR/EPR, 2×2.5 mm²
148913	System cable light blue – copper tinned, flat cable EPR/EPR, 2×2.5 mm²

Drilling jig MarkLED 4

Drilling jig for mounting hole Ø 9 mm and installation hole for current collector pin Ø 40 mm.

Item no.	Designation
860599	Drilling jig MarkLED 4

Product range MarkLED 4

Item no.	Designation
860247	MarkLED 4 light module with current collector 30 mA/double-sided 4×white, 5'600 K
860900	MarkLED 4 light module with current collector 30 mA/double-sided 4×white, 5'600 K, BAST switchable via dimming levels
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, 5'600 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, 5'600 K for surface mounted applications
860901	MarkLED 4 light module with strands 2×0.5 mm², 20 cm 30 mA/double-sided 4×white, 5'600 K, BAST switchable via dimming levels
860598	MarkLED 4 light module with cable 2×0.5 mm², 2 m, with V4A mounting plate, 30 mA/double-sided 4×white, 5'600 K
860246	MarkLED 4 light module with 2 NTQ plugs 30 mA/double-sided 4×white, 5'600 K
860899	MarkLED 4 light module, connectable NTQ/30 mA double-sided 4×white 5'600 K
860245	MarkLED 4 current collector
152744	MarkLED casing V4A, 110×110×29 mm 2 KV M16×1.5 for cable Ø 5-10 mm
144534	MarkLED casing V4A, 115×115×46 mm 3 KV M25×1.5 for cable Ø 9-16 mm
154580	MarkLED casing V4A, 110×110×55 mm 2×M25 hose connection
860724	Surface mounted MarkLED adapter, PA6 GF30 white incl. accessoires (VE=5 piece) without cable gland
860725	Surface mounted MarkLED adapter, PA6 GF30 white incl. accessoires (VE=5 piece) with 1×cable gland M16×1.5
860726	Surface mounted MarkLED adapter, PA6 GF30 white incl. accessoires (VE=5 piece) with 2×cable gland M16×1.5

Other versions on request

Tunnel Schaffhausen

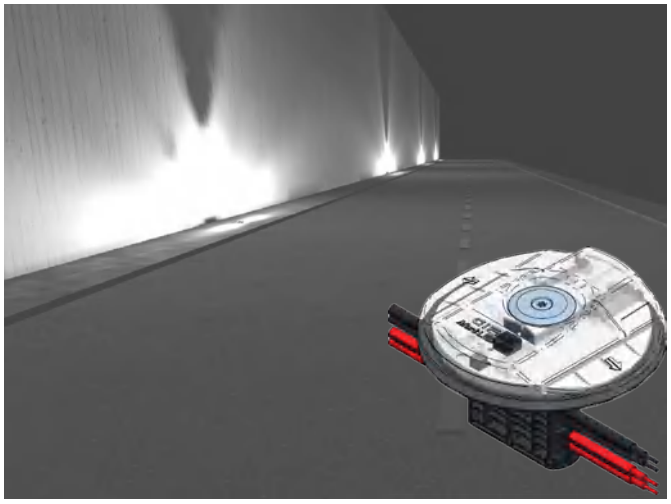
Bypass Bütschwil

Tunnel Schaffhausen

Garage Zermatten Chalais

Bypass Biel-Bözingerfeld

Tunnel lighting Nordoyatunnel Färöer



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 25 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 light module, MarkLED EXIT

The two lighting systems of the MarkLED EXIT are housed in the same size as the normal MarkLED 4. With the MarkLED 4, the MarkLED EXIT also shares the technology for the marker light (optical guidance system). The exact data of the marker light can be found on pages 4 - 7.
The EXIT part has 4 high-power LEDs, emitting on both sides. They come with a special optical coating for safe lighting of escape routes. Optionally, the MarkLED EXIT can be installed in the shoulder or on the wall.

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.

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 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

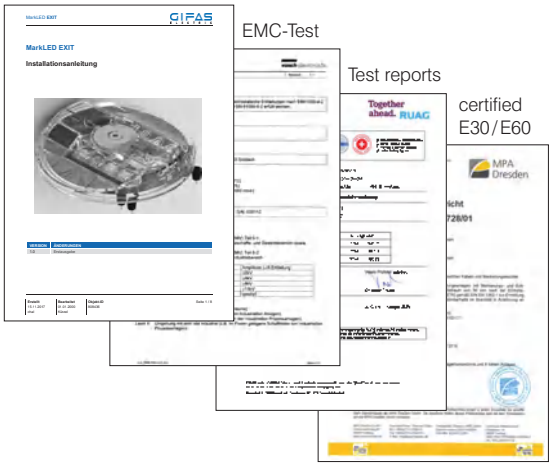
The diverse range of accessories allows different areas of application and fulfills complex customer requirements.

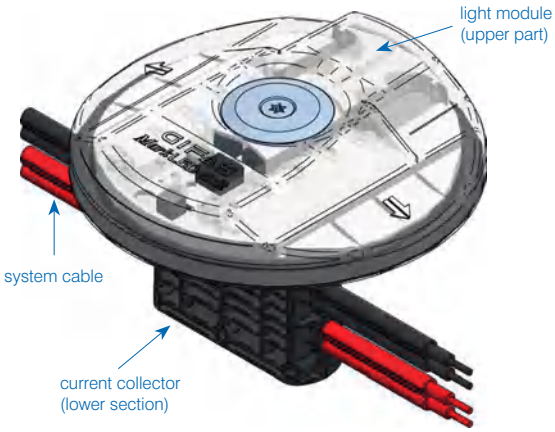
Functionality

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 FEDRO. The application must be checked carefully for each project, depending on the structural conditions.

Product documentation

Installation instructions





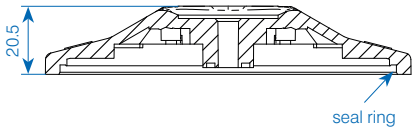
Technical data

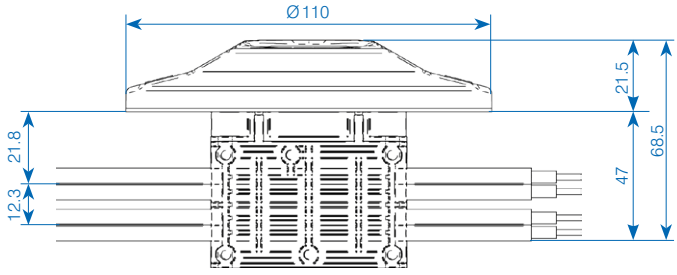
Double-sided with four white LEDs (5'600 K) as optical guidance system in direction of traffic and in opposite direction. Escape route lighting turned against the wall with four white LEDs (5'900 K).

Light colour:	
– optical guidance system	5'600 K
– escape route lighting	5'900 K
Light intensity:	
– optical guidance system	65 cd
– escape route lighting	1390 cd
Operating life LED:	
– optical guidance system	L90 / B10 100'000 h
– escape route lighting	min. 10'000 h
Protection category:	IP68 / IP69
Protection class:	III
Impact protection rating:	IK10
Operating voltage:	48 VDC (18 - 48 VDC, protected against polarity reversal)
Power consumption:	
– optical guidance system	30 mA (double-sided LED white) 80 mA (double-sided LED colored)
– escape route lighting	180 mA @ 48 VDC
Diameter:	110 mm
Upper part:	polycarbonate, colourless, nano coated
Lower section:	polyketone black, glass fiber reinforced
System cable:	2×system cable bipolar 2×2.5 mm²
Height above carriageway level:	21.5 mm
Temperature resistance:	–40° C to +55° C
Axle load:	< 5 t (slow traffic with air-filled tyres)

ⓘ Certificates, reference lists on request.

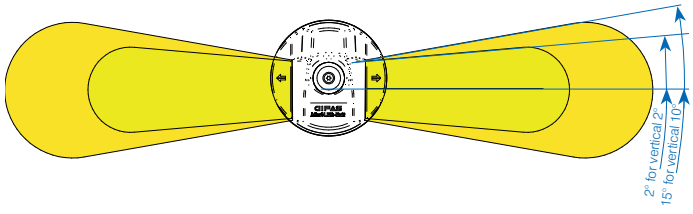
One-components MarkLED EXIT

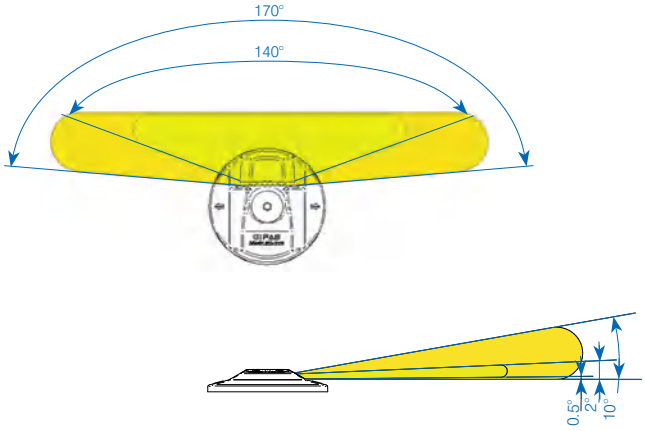




Scheme light emission

Optical guidance system
(Light emission in the direction of traffic)





MarkLED EXIT used for escape route lighting

In the FEDRO 13015 guideline, the function of the escape route lights is defined as follows: In the case of an incident, it must be ensured that the escape route in the traffic area is sufficiently visually perceived.
A separate fire escape route lighting is not required if this function can be taken over by the optical guidance system.

With this pioneering new development of the MarkLED EXIT, which combines the optical guidance system and the escape route lighting in one, a new dimension of economy is achieved.
In this execution, a second light source with focused radiation is integrated into the proven guidance system. This is only activated in case of an incident and immediately reaches its full brightness.

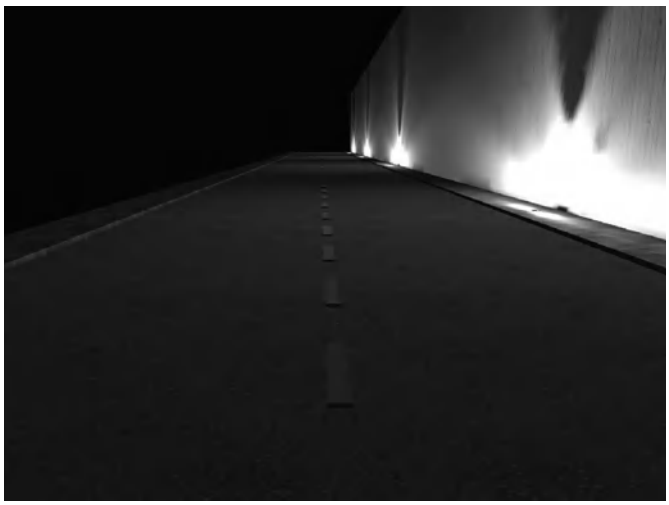
The MarkLED EXIT modules are equipped with cold conductor monitoring (function monitoring of the EXIT area possible with the escape route lighting off).

Example: MarkLED EXIT on surface/recessed-mounted housing in standard mode
Standard= optical guidance system

Example: MarkLED EXIT on surface/recessed-mounted housing in emergency event mode
Emergency= escape route lighting switched on

Example 1: Mounted on the floor

The luminaire is installed with the Exit element in the direction of the wall when assembling the MarkLED Exit on the shoulder (floor of the escape route). Part of the light is projected directly on the escape route. A large part of the light is also reflected onto the shoulder via the wall. This guarantees that the escape route is adequately illuminated.



Example 2: Mounted on the tunnel wall

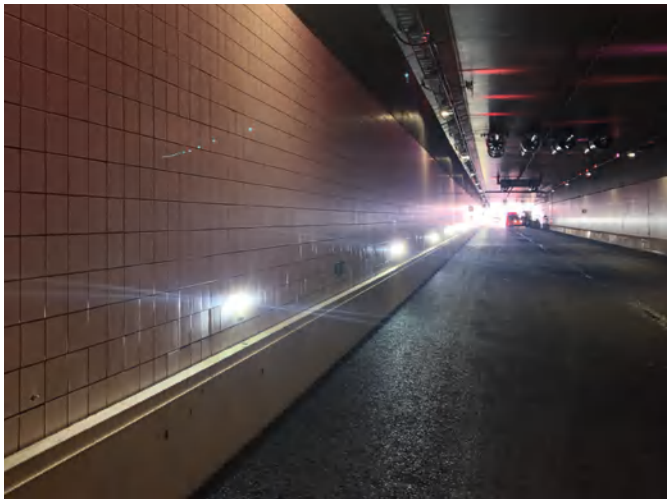
The luminaire is installed with the Exit element in the direction of the floor when assembling the MarkLED Exit on the wall. A large part of the light is projected directly on the escape route. Part of the light is also reflected onto the shoulder via the wall. This guarantees that the escape route is adequately illuminated.

Example 4 – surface-mounted (casing V4A)

A further possibility to mount the MarkLED is with surface-mounted solution. Here, the MarkLED is screwed onto a surface-mounted box, wherein the MarkLED has no current collector, but a direct outlet, which is connected to the feed line in the housing.

Item no. 152744

Item no. 144534



Gullbergstunnel Schweden

Example 5 – surface-mounted (adaptateur matière synthétique)

Simple and secure assembly of the MarkLED modules on the shoulder / wall by means of the surface monted plastic adapter.

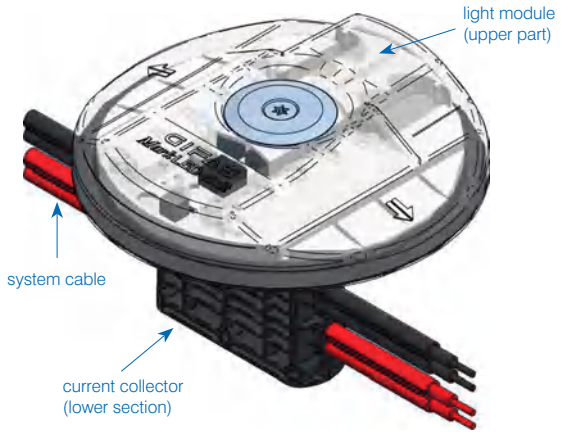
Surface-mounted adapter MarkLED EXIT made off PA6 GF30

Surface-mounted adapter with guard plate (Item no. 208653)

Surface-mounted adapter MarkLED EXIT

Tunnel Thun

Complete product module



System cable

The system cable MarkLED is a halogen-free EPR/EPR cable with tinned copper strands, high temperature resistance, bonding between the insulations of strands and the cable coating to increase water tightness.

Technical data

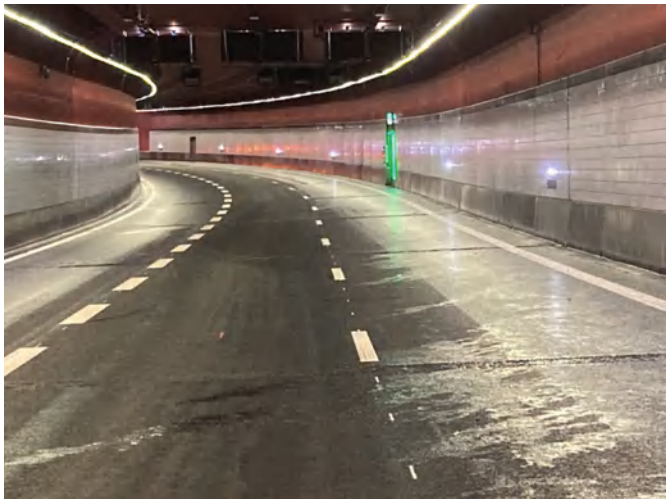
Material properties:	halogen-free, no toxic and corrosive gases
Fire behavior:	low smoke emission, flame-retardant, no fire spread, low fire load
Strand colors MarkLED:	red, dark blue
Nominal section:	2.5 mm²
Exterior dimensions:	9.6 mm × 5.25 mm
Weight (kg/km):	approx. 80 kg/km
Cu-Number (kg/m):	48 kg/km (48 g/m)
Fire load (kwh/m):	approx. 1'280 kJ/m
Temporary temperature resistance:	<10 s: 200° C
Fire class:	B2ca-s1-d1-a1

Item no.	Designation
115788	System cable light black – copper tinned, flat cable EPR/EPR, 2×2.5 mm²
148912	System cable light red – copper tinned, flat cable EPR/EPR, 2×2.5 mm²
231694	Gifasafety cable CPR Cca s1-d1-a1 2×2,5 mm² strands tin-plated (red, black) ø 8,7 mm +/-0,3 for system MarkLED/incl. rodent guard
236892	Gifasafety cable CPR B2ca s1-d1-a1 4×2,5 mm² rigid (red, black, blue, white) ø 12,5 mm +/-0,5 mm for system MarkLED/incl. rodent guard

Product range MarkLED EXIT

Item no.	Designation
860327	MarkLED EXIT light module with current collector Guidance: 30 mA/double-sided 4×white, 5'600 K Emergency: 180 mA@48 VDC/4×white, 5'900 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, 5'900 K
860597	MarkLED EXIT light module with current collector Guidance: 60 mA/4×white, 5'600 K/4×red, 625nm Emergency: 180 mA@48 VDC/4×white, 5'900 K
860564	MarkLED EXIT light module with strands 4×0.25 mm², 20 cm Guidance: 30 mA/double-sided 4×white, 5'600 K Emergency: 180 mA@48 VDC/4×white, 5'900 K
860604	MarkLED EXIT light module with cable 4×0.25 mm², 2 m, with V4A mounting plate, Guidance: 30 mA/double-sided 4×white, 5'600 K Emergency: 180 mA@48 VDC/4×white, 5'900 K
860326	MarkLED EXIT light module with 4 NTQ plugs Guidance: 30 mA/double-sided 4×white, 5'600 K Emergency: 180 mA@48 VDC/4×white, 5'900 K
860325	MarkLED EXIT current collector
860890	Surface mounted MarkLED EXIT adapter, PA6 GF30 white incl. accessoires (VE=5 piece) without cable gland
860891	Surface mounted MarkLED EXIT adapter, PA6 GF30 white incl. accessoires (VE=5 piece) with 1×cable gland M16×1.5
860892	Surface mounted MarkLED EXIT adapter, PA6 GF30 white incl. accessoires (VE=5 piece) with 2×cable gland M16×1.5

Other versions on request



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Tunnel Thun

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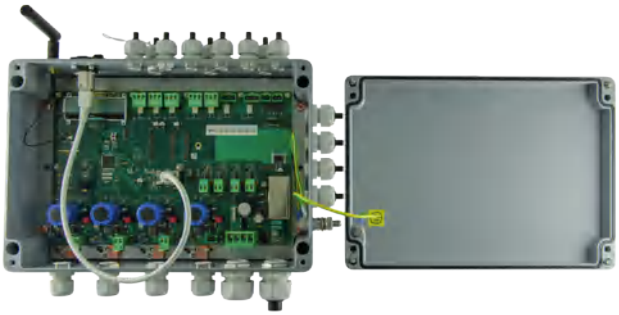
Tunnel Thun

4-channel control unit



The control unit for all GIFAS systems is designed for 4 output lines. Each channel can be loaded with up to 10 A.

- **Supply:** A 230 VAC / 24 - 48 VDC power supply device with a nominal output current of 40 A is installed upstream from the control unit.
- **Error messages:** Each channel has a relay with SPDT (potential free) assigned to the signaling of error messages.
- **External blinking contacts:** By default, two external flashing signals (24 - 60 VDC) can be connected and transferred to the outgoing lines (synchronisation with flashing signal).
- **Operating mode:** The control unit has 8 or 31 different modes of operation.
- **Failure rate:** By failure rate detection, the lights can be tested for their functionality. The control unit measures the total power consumption of the respective channel. If the power consumption drops to a preset value, the fault message can be detected via a changeover contact (potential-free).
- **Functions:** One of the following functions can be assigned to each channel in each mode:
  - Continuous lighting: 100 %
  - Dimming: adjustable from 1 - 99 %
  - Flash: adjustable from 0.1 - 9.9 Hz
  - Lightning: adjustable from 1 - 99 ms
  - Running light: running light direction, dimming 1 - 99 %, Light duty cycle 100 ms - 10 sek, delay in lighting 100 ms - 10 sek, Switch-on delay 0 - 999 sek, duty cycle 0 - 999 sek
  - Off
- **Programming:** the control unit can be optionally parametrised and read out via the web interface or the optionally available radio programming unit.
  - Web interface: if the control unit is connected to the network via RJ45 Cat. 6a, all parameters can be set and read out via a web browser.
  - Radio programming unit: The parameters can also be set by the radio programming unit.

Technical data

Protection category:	IP65
Rated power max.:	1'920 VA
Input voltage:	18 - 48 VDC
Supply current:	40 A, 4 channels à 10 A
Power supply:	external
Dimensions:	330×230×110 mm

Item no.	Designation
860594	Control unit 4-channel IP65, 18 - 48 VDC, 4×10 A ready for installation in housing of cast aluminium 330×230×110 mm, excl. power pack

Remote control to 4-channel control unit

Programming device with menu guide for set-up, programming and status recognition of the control unit. Communication with the control unit occurs through radio.

All necessary functions can be set up and assigned through the menu structure. No special knowledge is required to operate it. The connection between the control unit and the programming device is bi-directional, i.e. the current settings can be transferred from one to the other.

The buttons «⇧», «⇩», «⌫» and «✓» are used to navigate the system. The range is approx. 3 m.

The menu is available in 4 languages: German, English, French and Italian.

Technical data

Material:	ABS
Protection category:	IP40
Protection class:	III
Radio frequency:	2.4 - 2.525 GHz
Operating voltage:	4.5 VDC, 3 pcs. batteries type AAA
Life of battery:	> 1 year in standby mode
Dimensions (WxHxD):	73×140×32 mm
Colour:	graphite grey similar to RAL 7024

Item no.	Designation
860460	Remote control complete for the control unit 4-channel

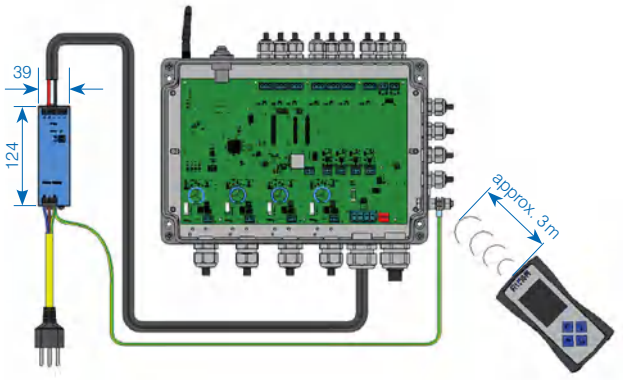
Power pack for control unit 4-channel

A 230VAC/24/36/48VDC power pack is installed upstream from the 4-channel control unit. The power pack is equipped with integrated protection against overloading and short-circuiting, with automatic or manual reset.
The power pack conforms to CEE regulations and also has UL and/or CSA approval.

Technical data

Protection category:	IP20 (with additional cover IP42)
Protection class:	I
Input voltage:	230VAC (range 100-240VAC)
Output voltage:	24/36/48VDC
Output current:	10/20A
Connections primary:	screw terminals 4mm²
Connections secondary:	screw terminals 4mm²
Status display:	LED green
Installation:	quick fastening for DIN rail 35mm
Dimensions (W×H×D):	39×124×117mm

ⓘ A detailed datasheet on the power pack is available on request



Item no.	Designation
163193	Power pack 230VAC/24VDC-10A/240W 39×124×117mm
136629	Power pack 230VAC/24VDC-20A/480W 65×124×127mm
202595	Power pack 230VAC/48VDC-10A/480W 48×124×127mm
180867	Power pack 230VAC/48VDC-20A/960W 125×124×127mm

Other versions on request

Cold conductor monitoring

The cold conductor monitoring is used for detecting defective installations or lights that are not connected. The monitoring is automatically activated as soon as the lights are switched off.

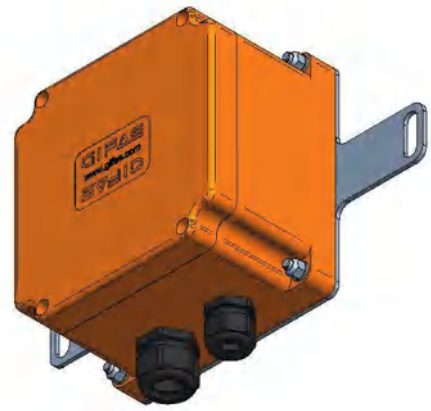
- **Feeding:** A power pack 230VAC/18-48VDC with a rated output current of max. 10A is connected upstream of the old conductor monitoring. The level of the output voltage of the power pack depends on the marking light used in this case.
- **Fault signal:** The cold conductor monitoring has two relays with change-over contact (potential-free) to signal fault messages for voltage interruption (for example, failure of the power supply unit) and exceeding of the failure rate (for example defect in the control unit installation).
- **Functions:** In every cold conductor monitoring, the threshold for the max. failure rate detection can be set individually in percentage. The adjustment range is 10-70% and can be adjusted in 10% increments.
- **Programming:** Programming is done directly via the programming buttons on the control board or via the 4-channel control unit.

Technical data

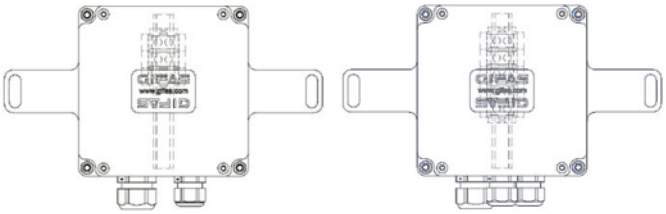
Protection category:	IP66
Rated power max.:	480VA
Input voltage:	18-48VDC
Supply current:	10A
Power supply:	extern
Dimensions (W×H×D):	160×100×80mm

Item no.	Designation
860603	Cold conductor monitoring, 18-48VDC, 10A ready for installation in housing of cast aluminium 160×100×80mm, excl. power pack

Fire-proof junction boxes



The safety cable must be connected from control center to the GIFAS system cable when connecting the signal units to the infrastructure. A special junction box is required for these connections. This can be installed in the cable trunks in the tunnel shoulder or at another suitable point. An E30/E60 junction box is usually required for this application.
The size of junction box depends on the feed-in cable used as well as the number of outlets.
We will be pleased to advise you on a project-specific basis.



Item no. 207643 Item no. 208762

Item no.	Designation
207643	Junction box polyester FE180/E30 type 3018, orange 160×160×100 mm, 7x10 mm², IP66/68
208762	Junction box polyester FE180/E30 type 3018, orange 160×160×100 mm, 7x10 mm², IP66/68

Installation material

Protective hose

Depending on the type of installation, the system cable can also be conducted in a conduit (fluted, halogen-free).
We are glad to advise you for specific projects!

Item no. 035976 Item no. 128266

Item no.	Designation
035976	Conduit PP, Ø 25/19 mm, flexible VE = 100 m
128266	Protective hose PA6, Ø 21.2/16.5 mm, flexible, VE = 50 m UV resistance, operating range of temperature –40 °C to 120 °C, up to 150° for a short time 150 °C

System profile

Item no. 116753 Item no. 140862 Item no. 155809

The milled groove of the optical guidance system must be sealed against environmental conditions. A simple and low-cost solution is to use the halogen-free GIFAS system profile made of EPDM. This is inserted in the slot. It is self-locking and available in three different widths. A stable and smooth slot with slot widths of 6 -15 mm is the prerequisite for use.

Technical data

Material properties:	halogen-free, no corrosive and toxic gases
Shore hardness A:	70° ±5%
Special weight:	1.23 kg/l
Elongation at break:	237% DIN 53504
Breaking stress:	11.2 MPa DIN 53504
Item no. 116753	
Exterior dimensions:	9.3 mm×17.1 mm
Groove width:	6 - 8 mm
Nominal section:	89 mm²
Weight:	109 kg/km
Item no. 140862	
Exterior dimensions:	14.5 mm×17.1 mm
Groove width:	10 - 11.2 mm
Nominal section:	146 mm²
Weight:	177 kg/km
Item no. 155809	
Exterior dimensions:	17.35 mm×17.5 mm
Groove width:	12 - 15 mm
Nominal section:	171 mm²
Weight:	254 kg/km

Item no.	Designation
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

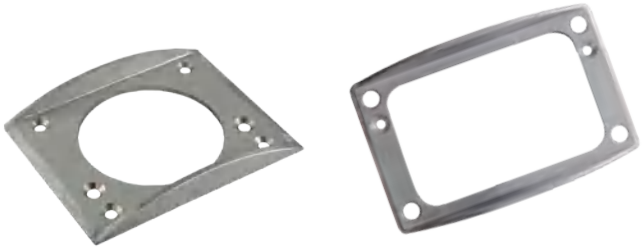
Joint sealing compound

The recommended system sealing compound is heated to 160° – 180° C while being constantly mixed. The compound is applied using a spouted container or grouting lance. Excess compound must be removed by scraping once it has fully cooled.

Technical Data

Colour:	black
Form of delivery:	1 box with 24 × cubes à 700 g
Sealing temperature:	160° C - 180° C
Weight per unit volume:	1.2 g / cm³

Item no.	Designation
208907	Sealing compound TOK-Melt N2 (1 box with 24 × cubes à 700 g)



Guard plate to system MarkLED

In winter, there is often the problem that the snowploughs touch the signal units when entering and exiting the tunnels. That entails that the MarkLED can be sheered off and should be exchanged. Against it we can offer a protective plate. That protects the first MarkLED's at the entrance and exit of the tunnels.

Item no.	Designation
024446	Guard plate V4A to MarkLED, 190 × 150 × 24 mm
208653	Guard plate V4A to Surface-mounted adapter MarkLED 245 × 150 × 43 mm
024676	Countersunk screw V4A with I-6Kt. without shaft M8 × 70 mm
024677	Nylon plug Fischer M8-S × 50 mm
019180	Nylon plug Fischer Ø 6 × 35 mm, without surrounding
019290	Chipboard screw V4A, Ø 5 × 80 / 50 mm

For mounting e.g. 860598 / 860604

Adhesive and sealant to module MarkLED

The current collector MarkLED is glued to the base with the help of the sealant and adhesive. Our adhesive is a single-component adhesive that vulcanises itself into an elastic compound as it reacts to the air humidity. It also has no silicone or solvents.

Technical data

Basis:	MS-Polymer
Cross-linking system:	polymerisation through air humidity
Temperature resistance:	-40° C to +90° C
Processing temperature:	approx. +5° C to +30° C
Color:	pebble gray
Processing:	using a hand spray gun
Packaging:	cartridge of 290 ml

Item no.	Designation
020157	Adhesive and sealant hybrid pebble grey, 290 ml Permafix 1153

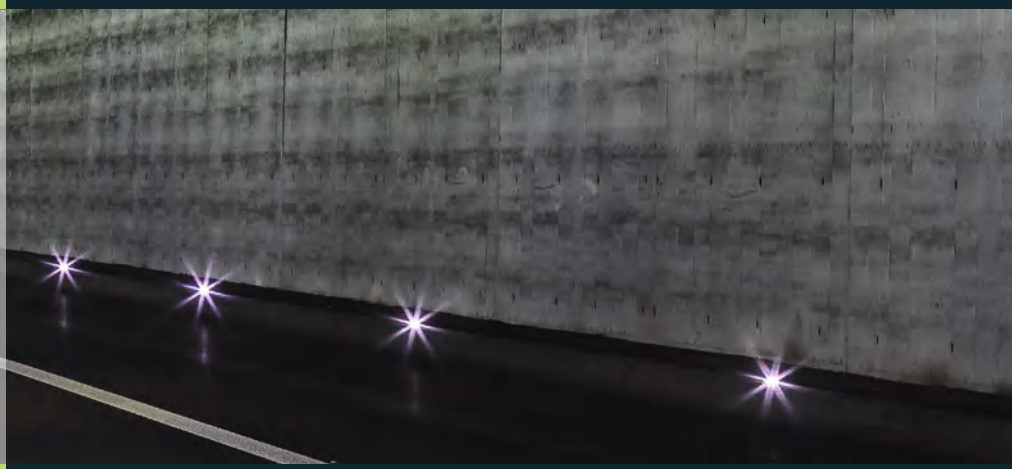
Item no.	Designation
211986	Screw A4 - 5.0 × 80 mm Torx T25 (PU = 200)
019180	Fischer nylon dowel Ø 6 × 35mm, without edge

GET IN TOUCH WITH US

We reserve the right to make technical modifications. V 0224

News about the assortment and specific solutions can be found on our website:

www.gifas.ch



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