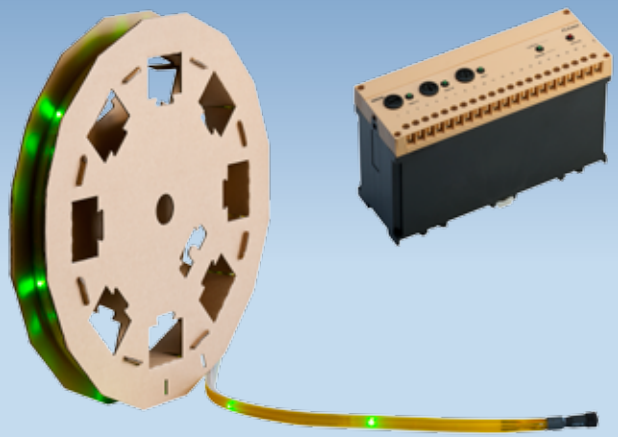
In the interests of occupational health and safety.

Working safely with visual warning systems.

telma electronics

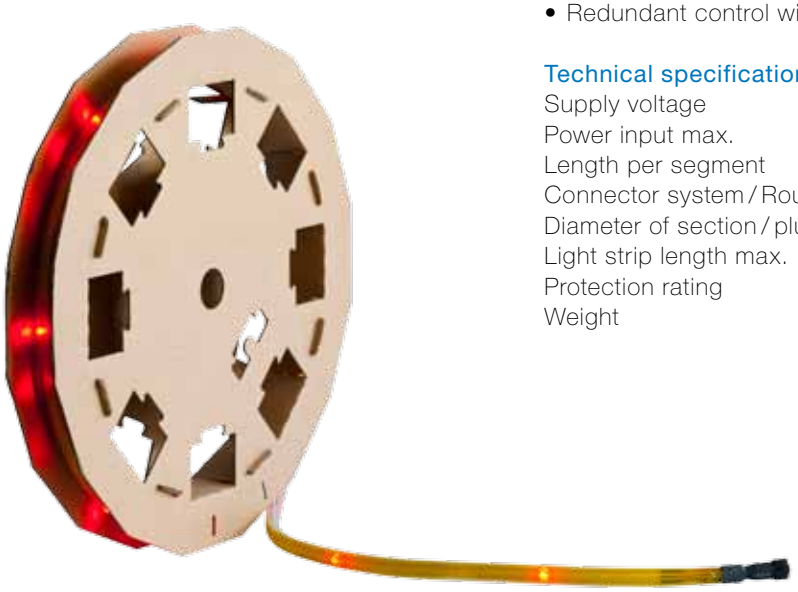
Signalling danger with…

LS700 Light strings



Improving occupational health and safety

High productivity, short maintenance periods, and optimised operating processes place ever increasing demands on safety systems.
Overhead contact lines in train and tram workshops are particularly a potential hazard for maintenance staff. More often than not, specialists from external companies, who have little knowledge of on-site danger, can be found in the workshops in connection with repair and inspection work. Workshop operators are required to ensure suitable occupational health and safety is provided by means of appropriate safety systems.
Telma AG not only has a wide range of suitable systems available, but also offers product-related consulting and engineering services.



Chase light directly above the overhead contact line

Light strings signal the operating status of sections of overhead contact lines. A chase light effectively draws attention to danger in the overhead line area. The bi-colour design can be used to indicate the live and grounded state of the overhead line. The chase light controller consistently designed in the safety technology can be perfectly integrated into a primary safety system.

Advantages / features

- Warning provided exactly where the hazard is; no danger of confusion
- Light string segments of any length can be joined together
- Long service life thanks to LED technology
- Redundant control with dual power supply

Technical specifications

Supply voltage	230 VAC
Power input max.	4 x 6 W
Length per segment	7 m
Connector system / Round plug	screw fitting
Diameter of section / plug	20 mm / 29 mm
Light strip length max.	336 m (48 x 7 m)
Protection rating	IP65
Weight	2 kg

WL100
Warning lights

Power supply directly from the overhead contact line

The warning light is used to indicate live direct current networks. Typical areas of application are workshops for public transport services. The device is designed for direct connection to rated voltages of 600 VDC and 750 VDC. The system is extremely reliable due to a redundant display and supply. The warning lights can be operated without an additional control system.

Advantages / features

- Operating voltage up to 750 VDC directly from overhead contact line
- Two brightness levels selectable
- Good visibility even in bright surroundings
- Easy mounting on wall or ceiling

Technical specifications

Supply voltage	600 VDC / 750 VDC
Power input max.	24 W
Lamps	Red LEDs
Dimensions (L x W x H)	200 x 150 x 230 mm
Protection rating	IP54
Weight	1 kg

SL450
Signal lamps

Displaying important information

The signal lamp comprises a solid plastic cover and the LED module (lighting unit). Both evenly backlit display fields can be labelled using a borderless film, providing an impressive transparent lighting effect.

Advantages / features

- Different signal colours possible
- Suitable for outside use
- Uniform illumination of one or both sides
- Low energy consumption
- Three brightness levels
- Maintenance-free

Technical specifications

Supply voltage	230 VAC
Power input max.	75 W (both sides)
Illuminated area	450 x 450 mm
Dimensions (W x H x D)	460 x 500 x 110 mm
Material	PMMA
Protection rating	IP54
Weight	5 kg

Warning light columns WS100

Mobile warning indicator

The warning light column is used as a visual warning and to demarcate danger zones. It can be used on the mains or battery-powered. Signalling is provided by the flashing LED bars on the four edges of the column. The mobile design features casters which allow it to be positioned easily and conveniently right at the danger zone. Several columns can be connected to form a master/slave system.

Advantages / features

- Automatic activation with key-interlock concept
- No structural measures/installation necessary
- Mains and battery power supply
- Warning signal for low battery voltage
- Integrated automatic cable winder

Technical specifications

Supply voltage	230 VAC
Power input max.	35 W
Battery operation time	> 12 h
Dimensions (L x W x H)	210 x 210 x 860 mm
Weight	20 kg

BL200 tevilux® Floor lamps

Multi-coloured signalling for tough conditions

The floor lamps permanently installed in the ground can be used to effectively signalise different zones. The robust lamp design allows for use even in tough conditions. These floor lamps can be operated and permanently monitored using a control device. Different danger levels can be indicated by the multiple colours and various flashing light patterns.

Advantages / features

- Can be driven over due to installation level with the ground
- Various flashing light patterns (chase light, alternating light, etc.)
- Resistant to oils, greases, and cleaning agents
- Two colours possible per light module
- Light module can easily be replaced
- Matching, integrable information lamp

Technical specifications

Supply voltage	24 VDC
Power input max.	1 W
Dimensions with holder (Ø x H)	90 x 56 mm
Protection rating	IP67
Weight light module	1 kg

Information lamp

(two-coloured)

Examples of implemented customer projects.

ICE maintenance works Russia

Train cleaning system

Municipal transport services

Wuppertal suspension railway

Warning light in the tram depot

Factory track workplace

ICE (Sapsan) maintenance works Russia
In order to protect employees the live and grounded state of the overhead contact line (swivelling power rails) is additionally indicated by light strings.

Train cleaning system
Light strings can also be used in demanding environments such as washing facilities, as the products are protected against water jets and resistant to aggressive cleaning agents.

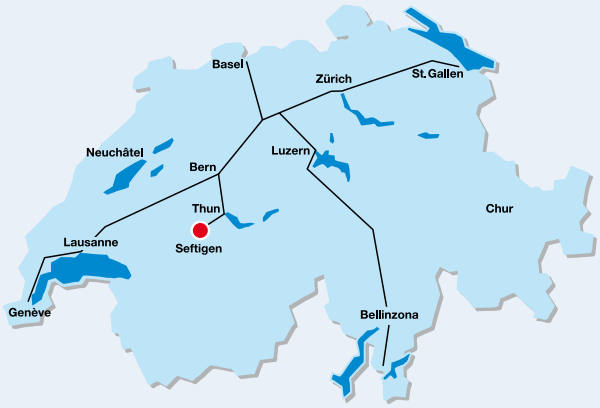
Municipal transport services
Different indication systems can be used to provide the required level of occupational health and safety in the workshops. In this example, the overhead line's disconnected state is indicated by a green signal lamp.

Wuppertal suspension railway
An additional visual signal indicates the live and disconnected state of the power line in the depot by means of a bi-colour light string.

Warning light in the tram depot
With up to 750 VDC direct current, the warning light offers a simple and yet effective option for indicating the hazardous state of a live overhead line.
The warning light is supplied directly from the overhead line.

Factory track workplace
Mobile warning columns or fixed floor lamps are very well suited to maintenance facilities where the power supply is provided by cable or power rails. Typical applications are workshops for train carriages, underground trains, and suburban railways.

Partnership with over 40 years' experience.



A6 motorway exit Thun-Nord

References with a guarantee.

bls
DB
ENOTRAC
Furrer + Frey
Kummler+Matter
matterhorn gotthard bahn
PÖYRY
Rhätische Bahn
SBB CFF FFS
sersa
Sersa Technik AG
STADLER
SWISSRAIL
tbfpartner
Planer und Ingenieure
vbl
Wiederkehr & Williger AG
Die Zentralbahn.

History

1975 Founding of telma ag in Bern
1981 Relocation to Ittigen / Bern
1991 Move to its own company premises in Seftigen
2016 Planning new building

Company Divisions

- In-house Products
- Customised Electronics
- Electronics Manufacturing Services (EMS)

Core Competencies

The specific focus on customer requirements is one of the major strengths of telma ag. Thanks to short distances and a common language, our customers gain valuable time and can enter the market faster. With our own development and production facilities, we are a complete supplier for electronic control systems. Even complex tasks are simply solved by collaborating with specialised partners. The total costs can be favourably low due to a high-degree of automation and very well qualified staff.

In addition to the visual warning systems, telma ag has also developed and manufactured different control systems for reputable customers in the railway sector. Knowledge of relevant standards and our experience in the industry are what distinguishes us as an expert, competent, and reliable partner.

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