

Warning High voltage!



**Warning system with blinking light strings
for overhead contact lines in
transport company workshops**

Live overhead contact lines in the workshops of railway, tramway and trolley bus operating companies pose a high risk for operating staff.

Improved Working Safety

High productivity, short maintenance/servicing times and optimised operational procedures place high demands on personnel protection systems. Whilst conducting maintenance work in the area of roof structures, a clearly arranged and highly visible indication of the status of overhead contact lines is of vital importance for the safety of maintenance personnel.

Advantages of the FLC System

Clear and effective warnings are required precisely wherever dangerous situations may occur. This is why the light strings of the FLC system are arranged directly above the overhead contact line. Light dots move over the entire section of the overhead contact line, clearly and effectively indicating that this particular line is under voltage. The system design rigorously incorporates safety features ensuring operation with maximum reliability. Various inputs and outputs guarantee the efficient integration of the FLC system in a comprehensive safety system.

Engineering / Installation

telma ag or a local engineering company can engineer and manufacture the control installation. A local installation company or the customers own technical staff can carry out the installation and commissioning of the control cabinet and light strings on site.

Maintenance

The devices are maintenance-free. However, as the equipment is a safety system we recommend periodical functional tests.

Checklist for Project Planning

With just a few basic data we will estimate the costs of the FLC system to suit your requirements.

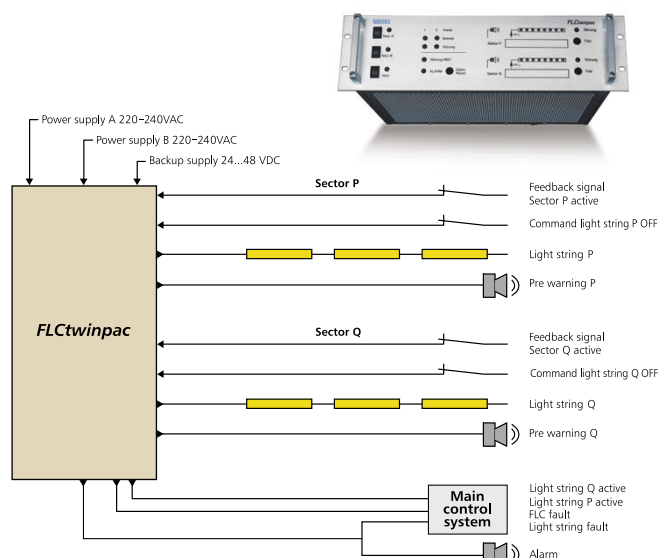
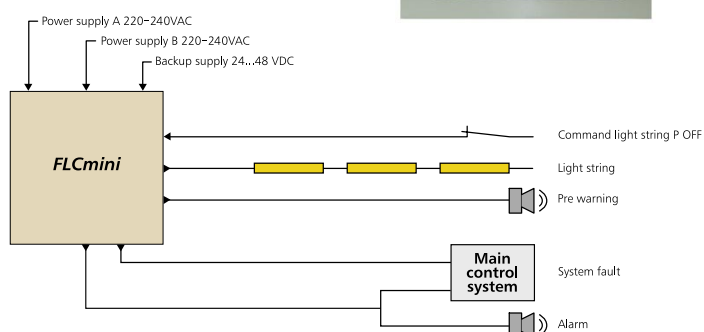
- ☐ Number of track sections
- ☐ Length of the individual sections
- ☐ Availability of local 220–240V 50Hz mains power supply
- ☐ Availability of 220–240V 15–50Hz traction network supply
- ☐ Availability of backup DC voltage power supply
- ☐ Availability of higher-level control system (e.g. PLC) for the controlling, monitoring and switching of the overhead contact lines
- ☐ Who will be responsible for planning and engineering
- ☐ Will the equipment be integrated in a existing system or will a separate control cabinet be required

Control cabinet with
control devices
FLC2000 twinpac



FLC700mini – The compact Control System ►

- Redundant system due to two independent power supply systems
- Function monitoring of light strings
- Outputs for additional visual and audible indicators
- Easy, space-saving installation on DIN rail
- Dimensions (WxHxD) 200x70x120 mm
- Track section length up to 112 m with incandescent lamp light strings
- Track section length up to 300 m with LED light strings



◀ FLC2000twinpac – Control for Large-Scale Systems

- Redundant system due to two independent power supply systems
- Extended redundancy thanks to twin control structure
- Two independently controlled running-light sectors per controller
- Expanded function monitoring of light strings
- Various inputs and outputs for integration in a higher-level control system
- Practical test functions for commissioning and servicing
- 19" rack housing 3HM
- Track section length up to 200 m with incandescent lamp light strings
- Track section length up to 600 m with LED light strings

Light Strings – LEDs or Incandescent Lamps

The four-channel design of the light strings facilitates various visual effects and therefore a clear and effective indication of the danger zone.

Indication is possible over track sections of any length by simply plugging together several segments. The IP65 rating allows for operation even in wet areas.

- Operating voltage 220-240VAC
- Temperature range 0...45°C



FLC/GL Light String with Incandescent Lamps

- Lighting elements: Longlife incandescent lamps
- Power consumption: 17.5 W per channel
- Length: 7 m



◀ FLC/LED Light String with LEDs

- LED technology for long service life and low power consumption
- Lighting elements: Light emitting diodes (LEDs)
- Power consumption: 6 W per channel
- Length: 7 m, 14 m





Passenger Information System

Simple and practical screen display for unattended railway stations.



Cursator and anti-rolling control system

For retrofitting on carriages (e.g. EW-IV). Enables pull-and-push operation and high travelling speeds (rights reserved by project partner Enotrac AG).



Interference Current Monitor

Interference current monitoring within defined frequency ranges in traction units (rights reserved by project partner Enotrac AG).

telma ag, Partner for Railway and Industrial Electronics

With its own development and production facilities, telma ag is a comprehensive provider of electronic control systems. Years of experience and extensive know-how are the guarantee for perfected products offering a long service life. In cooperation with the customer as well as specialized project and engineering partners we can solve even the most demanding tasks.



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