



Application Report

Safety **in road tunnels**

Partner Groupe E
Area Transport and traffic technology

Transport and traffic technology

Monitoring

Alerting

Controlling

The high safety requirements of the complete system can only be met if the products in the monitoring circuits conform to an appropriate quality standard. The reliable monitoring devices from the MR series have been tested by the Swiss Federal Transport Office, ASTRA, and approved for use in road traffic. This approval now enables, for example, the use of these devices for the monitoring of lighting in road tunnels.



New standards for safety devices

Following intensive revision, new standards prescribing the safety devices in tunnels came into force. This led to numerous projects for the conversion of existing systems. Adaptations of signalling and control devices are being dealt with and implemented with the utmost priority. The second priority is the adaptation of the ventilation systems, while structural measures such as safety tunnels are the third priority.

Relevance of tunnel lighting

The tunnel lighting has various brightness steps. In the entrance area the tunnel is lit in such a way that the human eye can adapt itself slowly to the darkness. The further the lights are from the tunnel portal, the lower their luminosity. For safety reasons, however, the lighting must never fail. As the first company to be certified to EN 61439-1 and EN 61439-2 (low-voltage switchgear combinations), Groupe E Connect built – amongst

other things – the controllers for the road tunnels between Faoug and Kerzers.

Use of current monitoring devices

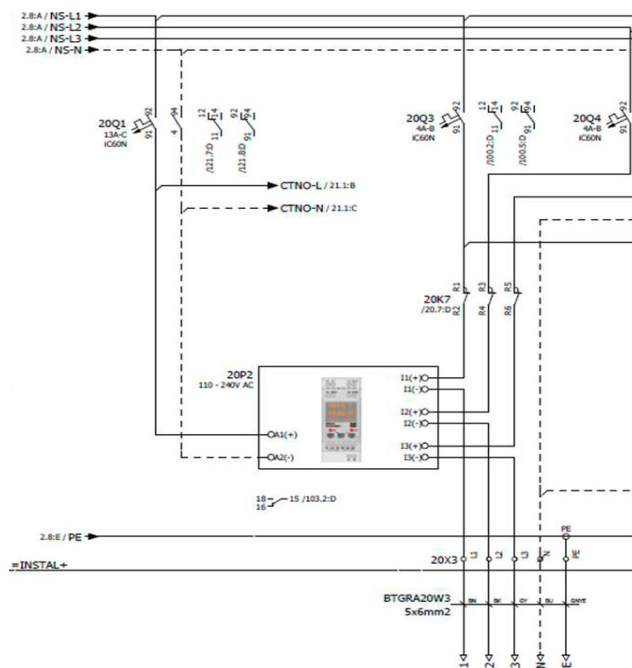
In this system the three-phase current monitoring device MRI32/UC110-240V is used to monitor the lighting in the central section of the tunnel. The devices continually measure the current drawn by the lighting and register changes with an accuracy of 0.1 A. If a light fails the current drops. If the current falls below a certain limit value the monitoring device signals this via a potential-free contact that is connected to the control room. In this way appropriate messages are generated, whereupon the defective lights can be replaced without delay by the maintenance personnel. This ensures that a failure cannot remain undetected and lead to the endangerment of the occupants of vehicles that travel every day through the tunnel.

Partner

Since its founding in 2003, Group E Connect has constantly developed its activities in the electrical installation and switchboard construction segments. In the space of ten years, the ISO and EN 61439-certified company has thus been able to increase its number of employees from 170 to 750. The fostering of young people is very important to the company. Groupe E Connect is currently training 140 young electrical installation technicians, automation technicians and commercial employees.

ComatRelco Products in use

- MRI11 - Current monitoring
- MRI32 - Current monitoring



Road and rail

Groupe E Connect also uses devices from the MR series for rail traffic. The single-phase monitoring device MRI11/UC110-240V is used to monitor the fans in the Grauholz railway tunnel on the Olten – Berne railway line. The devices are parameterised in such a way that any deviation from the rated current is relayed immediately to the control system, whereupon the necessary repair measures can be initiated.