



Application report

Safety at level crossings – only the best solutions will do

Partner RGS – Bahnsicherheitstechnik GmbH
Area Transport and traffic technology

Transport and traffic technology

Level crossing safety systems

Alerting

Safety

There are still too many serious accidents at level crossings, often resulting in fatalities. Signalling systems are frequently ignored or misinterpreted if there are no barriers. It is therefore of paramount importance that level crossings are equipped with good safety systems.

Increasing safety at level crossings

According to the Federal Office of Transport (FOT), there are about 4,400 level crossings on the Swiss rail network which must have the regulation safety installations to prevent the relevant dangers in any given situation (intensity of road traffic, visibility conditions, mode of operation of the railway). Barrier systems, flashing light signals or signal boards are used for this purpose (railway crossing signs, "tram" signals). Around 2,600 level crossings have been modernised or closed since 2000. Work on the last few level crossings still to be modernised – often complex cases involving many parties – is nearing completion or is in progress.

Reminding motorists of their duty

Rail vehicles always have priority at level crossings. All other road users must stop and wait at level crossings when required to do so by the signal. Railway crossing signs or other signs are always used to warn of a level crossing ahead. In any event, motorists are required to drive slowly and carefully when approaching level crossings.

Standardising safeguards

The safety systems at level crossings are not uniform. At some crossings, for example, the entire width of the road is closed off by barriers when a train approaches while the barriers only go halfway across the road at other level crossings, each blocking the traffic in one direction only. It is therefore possible to cross the tracks even when the barriers are closed by switching lane – a manoeuvre which is not only illegal but also very dangerous. Finally, there are "unmanned" level crossings

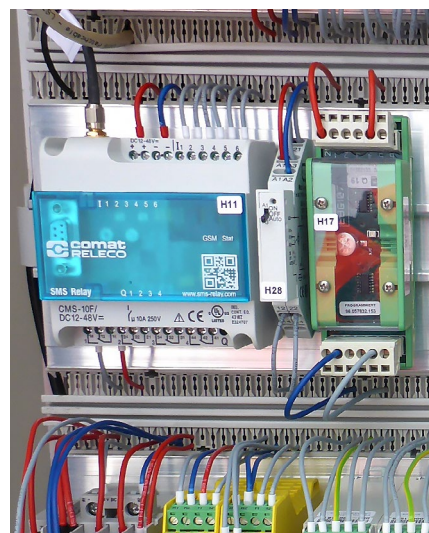
which do not have a barrier but merely a red flashing light on a triangular board to signal that a train is coming.

The fact that serious accidents occur again and again at level crossings despite the intrinsic clarity of the signals is mostly due to the behaviour of the car drivers. Only in about 6% of cases is an accident caused by an incorrect signal due to human error or by a technical defect in the signalling system.

RGS-Bahnsicherheitstechnik GmbH specialises in level crossing safety systems and offers a range of solutions in its product range which can be adapted to the conditions in any given case. There are already more than 200 systems in operation in Switzerland.

RGS-LC example of a low-cost flashing light signal system for small level crossings:

- Flashing lights, rotating lights or conventional flashing light signals can be used as warning devices
- Activation and deactivation by all standard track switching devices, such as rail contacts, magnetic receivers or track circuits



Partner

The range offered by RGS-Bahnsicherheitstechnik GmbH is based on tested and approved flashing light and barrier systems which are adapted to meet customer requirements and to suit specific locations. RGS-Bahnsicherheitstechnik GmbH and ComatReleco have been working together successfully on the development and use of CMS-10 products since the early 2000s.



ComatReleco products in use

- CMS-10 - ComatReleco messaging system
- C3, C5, C7 - Industrial relays - pluggable
- C55 - Time relays - pluggable

- Facility for actuation of all train control systems in Switzerland
- Compact aluminium control cabinet at the level crossing or option of integration in signal box
- Safety control and backup relay for fail-safe operation
- Plain text display of operating states and faults
- Fault indication by means of SMS system or remote control interface

Where there is no connection to a remote control, the CMS relay supplied by ComatReleco AG is used. The following messages are transmitted via 2G, 3G or 4G mobile networks:

- CPU on stop
- No mains voltage / mains voltage OK
- Battery discharged or defective / battery OK
- Flashing light signal malfunction / flashing light signal OK
- Forced shutdown

The high quality and range of functions of the ComatReleco products also play a significant part in efficient operation and effective alarm management at the RGS-Bahnsicherheitstechnik crossings. We are proud of this and happy to have the privilege of playing a key partnership role in major development processes. Product design geared to individual customer requirements is our strength.