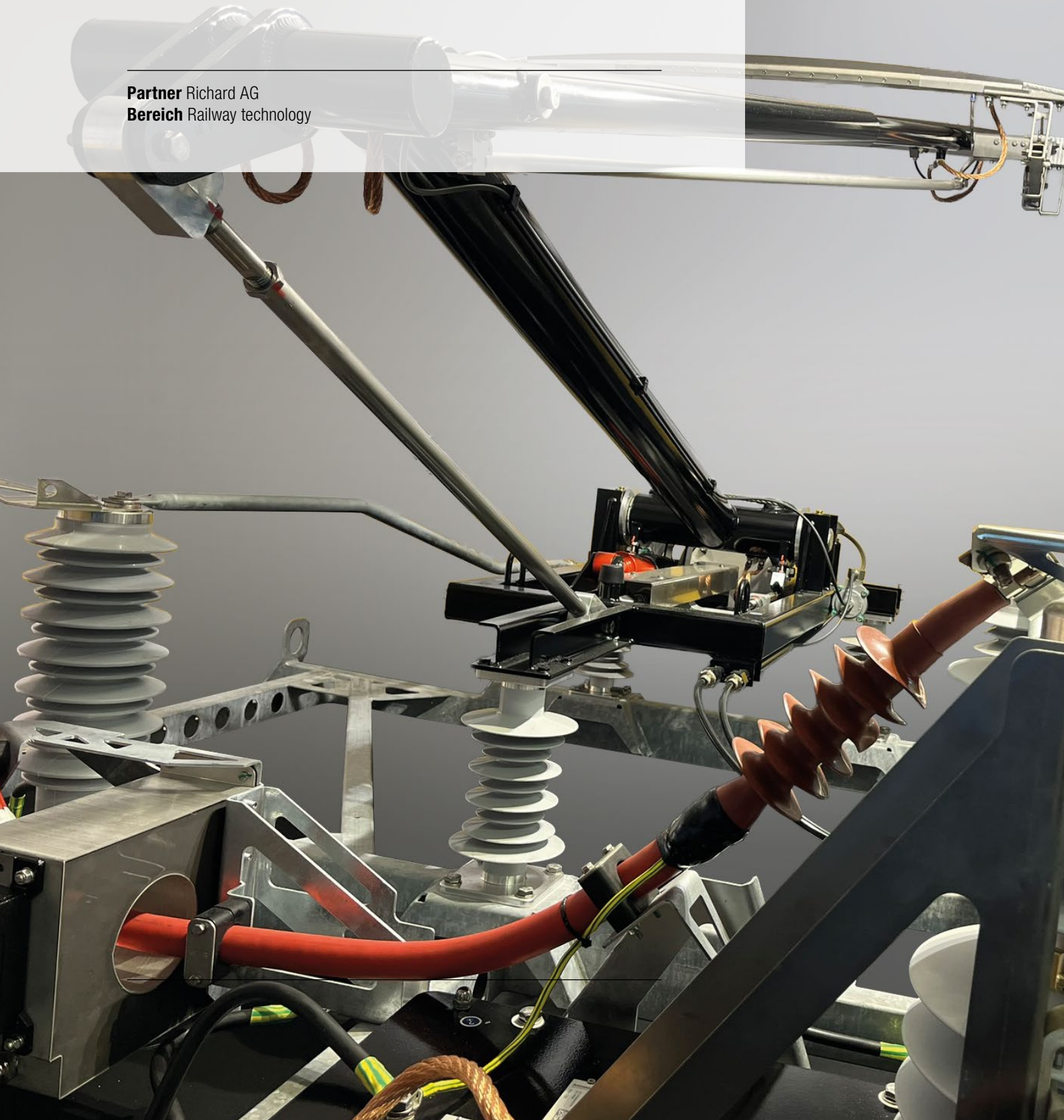




Application report

# Swiss precision in electrical and mechanical engineering

**Partner** Richard AG  
**Bereich** Railway technology



# Railway technology

## Controlling

## Control technology

## Energy and power protection systems

### Partner

Richard AG, based in Murgenthal (Switzerland), is one of the world's leading manufacturers of components and systems for the power supply of electric rail vehicles. Founded in 1906, the company develops and manufactures current collectors, vacuum main switches, disconnectors and other system solutions for the international railway market. Richard AG combines precision Swiss manufacturing with innovative technologies and employs over 100 people.



### ComatReleco products in use

- CIM1R multifunction time relay
- MRS13R overcurrent protection relay

**In railway technology, reliability is not a promise, but a basic requirement. For decades, Richard AG has been developing robust vacuum main switches for railway catenary systems that meet the highest requirements for safety, availability and service life.**

**The key to success lies in the precise interaction of mechanics, pneumatics and electrical engineering. Emerging from classic mechanical engineering, Richard AG is now a highly specialised supplier for railway requirements – with a clear focus on quality and reliability.**

#### Precise control of the pneumatic drive

At the heart of every pneumatic main switch is a pneumatic actuator that enables safe switching. Richard AG relies on the CIM1R time relay for precise timing control.

After switching on, pressure is applied to the drive, and then the time relay vents the actuator in a controlled manner after a defined delay. This prepares it optimally for the next switching operation.

The result is reproducible and material-friendly operation.

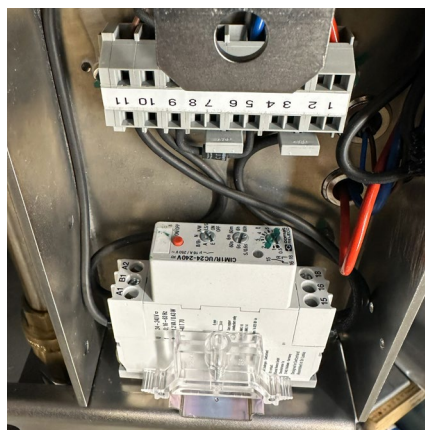
Advantages of time-controlled venting:

- Secure switch-on behaviour
- High repeat accuracy of switching operations
- Increased service life of the pneumatic system
- Reliable operation even under demanding environmental conditions

#### Reliable protection through current monitoring

Integrated current transformers continuously record the operating currents and forward them to the MRS13R current monitoring device.

In combination with the current transformers, the single-channel overcurrent protection relay reliably protects the system against overload and short circuit – especially in railway and high-current applications where classic fuses cannot be used.



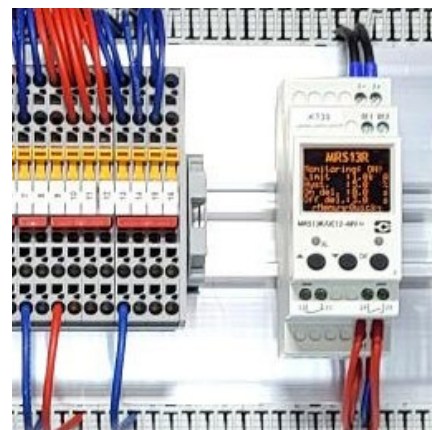
*The CIM1R time relay controls the time-delayed venting of the pneumatic actuator.*

With galvanically isolated measurement input (–5 ... +5 A), a response time of less than 20 ms and positively driven relay contacts in accordance with IEC 61810-3, the MRS13R enables fast shutdown and reliable feedback to higher-level control systems.

Further features of the MRS13R:

- AC/DC 12–48 V power supply
- Simple parameterisation via three buttons with display
- LED status indicators for a quick system overview
- Integrated diagnostic input for function tests without real overcurrent
- Power failure-proof storage of all settings
- Compact design (35 mm) and top-hat rail mounting according to IEC EN 60715

This makes the MRS13R ideal for safety-related railway applications with the highest requirements for availability and transparency.



*The MRS13R monitors currents and provides reliable protection against overload and short circuits.*

#### Swiss quality – reliably combined

The combination of vacuum main switches from Richard AG, the CIM1R time relay and the MRS13R current monitoring device shows how Swiss technologies work together perfectly.

The result is a robust, low-maintenance overall system for the safe operation of railway catenary systems – even under extreme operating conditions.