



Application Report

# Energy management on the railways

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**Partner** Stadler Rail AG  
**Area** Transport and Traffic Technology



# Transport and traffic technology

## Energy management

## Functionality

## Availability

## Partner

Stadler builds rail vehicles that pay off and are tailored to the needs of customers.

With comprehensive services that bring added value to the railways. And with Swiss values that promote and shape Stadler's standing worldwide. Stadler stands for reliability, flexibility and innovation - since 1942. Today, more than 7000 employees at more than 20 locations are committed to maximum precision every day.

### ComatReleco Products in use

- MRU32R - Voltage monitoring
- C32D, CT32 - Time module
- CC3H610 - Solid-state contactor
- CIM1R - Timerelay

Stadler Rail has been using proven ComatReleco products for years. These are railway-compatible relays and multifunction devices used for control and power tasks in the field of light and door control, as well as semiconductor products capable of switching large inductive and resistive loads.

#### At Stadler Rail AG, the trains are unconditionally trimmed to minimum energy consumption.

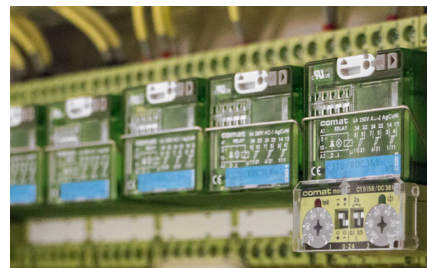
All high-power consumers are switched off as soon as the train is no longer supplied with power from the overhead wire. The train enters the quiescent current phase and draws the energy for light and door control from the batteries, which were recharged during driving and braking. The train control system is also switched off if the train stands still for a lengthy period. The MRU32R (voltage monitoring relay) is now used for this.

Using integrated limit value monitoring, the supply voltage of the battery is monitored and, if necessary, the on-board electrical system is completely switched off. This ensures that the train always has sufficient energy to connect itself to the network again by means of the pantographs.

#### Which functions are performed by the ComatReleco C32D relay with CT32 timer module?

These relays with 3 changeover contacts are used for various control functions on the train. On entering a switched-off vehicle, for example, a switch is actuated that switches on the emergency lighting and door system. The underlying control is realised by C32D with a CT32 timer module.

After 5 minutes, the systems – including the power supply to the time delay relay – switch off again. That en-



ures that this circuit requires no quiescent current that would discharge the vehicle battery in the long term. Furthermore, ComatReleco relays forward signals from the vehicle's fire alarm system or power management, or signals that indicate different operating conditions of the train, such as "Driver's cab occupied", "Train occupied" or "Towing mode activated".

#### Larger loads such as heaters are switched with solid-state contactors (SSCs).

Due to the many switching operations and high power, the availability of solid-state contactors such as the type CC3H610 is significantly better than that of mechanical contactors. The wear-free solid-state outputs provide maximum availability and therefore low maintenance costs.

The CIM1R time delay relays employed here are used for lighting control in the driver's cab of the train. The light

switches off after a certain time or can be manually switched off by pressing a button before the train's departure.

This is important, because on the one hand the light should not inadvertently remain on and discharge the battery, while on the other the light would lead to disturbing reflections when driving the train.

The high quality and the functionality of ComatReleco's products thus make an essential contribution to a well-functioning energy management in trains from Stadler Rail AG. We are proud of that and we are also pleased to participate as a key partner in major development processes, because individual and customer-oriented product development is our forte.

# STADLER