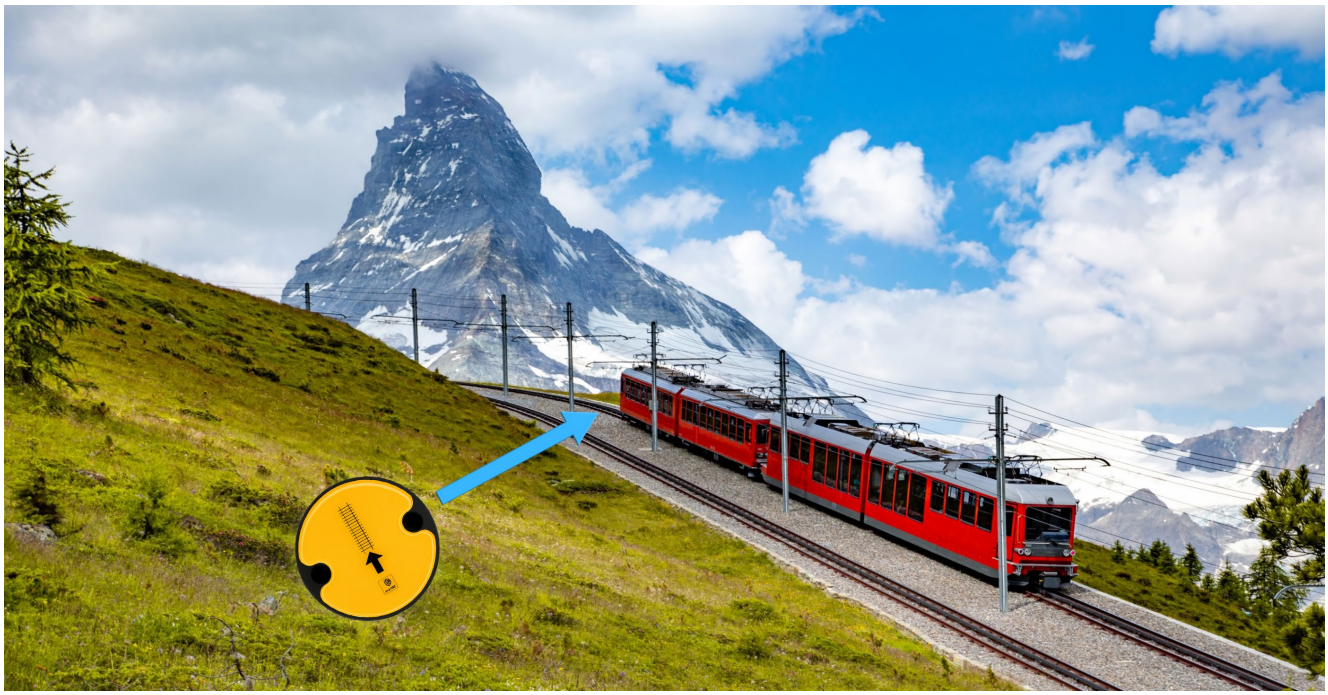
July 2024

Quiet and gentle on the material through tight curves – with RFID from FEIG, the track runs like clockwork

To limit global warming and meet climate targets, rail and public transport will be even more important in the future than before. A good infrastructure and attractive connections ensure that more people travel by train and leave their cars at home. In Switzerland, for example, the train is a very good alternative to the car. State-of-the-art wheel flange and rail head treatment solutions from REBS Zentralschmiertechnik reduce wear and tear on trains and reduce noise in curves. But what does this have to do with reliable RFID components?



Winding railway line in the Alps; special railblock transponders from smart TEC are laid in the track bed.

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Winding railway lines can be found in the mountains and especially in the city centres. Wear reduction during cornering, in which the metallic wheels of the train slide sideways over the rail, is therefore an issue that has a positive influence on the maintenance times and maintenance intervals of wheelsets. In addition, the slipping of metallic wheels on metallic rail creates a noise nuisance that cannot be ignored - especially in city centres, trams cause a lot of noise pollution when cornering. REBS Zentralschmiertechnik therefore offers, among other things, systems for wheel flange lubrication and rail head treatment, which noticeably reduce both wear and noise in curves. Of course, such treatment must be carried out selectively before or in the curve, dosed as sparingly as possible. If traction is reduced too much, the positive effects of the solution fade.

Identified placemarks prompt the use of lubrication systems

A train location that is robust, accurate, but still easy to handle is therefore required. Depending on the train position, the REBS system is activated. In addition, it can be determined which wheels are to be treated and for how long. REBS has been relying on a UHF RFID-based tracking system for several years.

UHF reader (front) and UHF antenna from FEIG

A FEIG RFID reader (ID LRU 1002X) is installed in combination with a robust antenna (e.g. the ID ANT. U290/290) in or under the vehicle. The antenna detects transponders in the track bed.

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These passive, battery-free and maintenance-free transponders indicate position markers and each contain an ID, which is transmitted to the control system of the REBS system via the RFID reader. Depending on the coding of the ID, the REBS system "knows" what to do, e.g., "Start lubrication system front left".

Once the system has been installed, additional position markers (transponders) can also be easily retrofitted afterwards. The corresponding action is communicated to the REBS system via the coding of the transponders. So, all that’s needed is the installation of a suitably coded transponder. The REBS system itself does not need to be reconfigured again. Retrofitting can therefore be easily carried out as part of track construction work.

RFID also works where GPS reaches its limits

The great advantage of UHF RFID technology over GPS technology is that it enables reliable track-accurate localization even in tunnels, deep (house) canyons and in all weather conditions. FEIG's RFID technology has been in use around the globe for over 10 years for the recognition of waymarks and train localization. Of course, all components have been successfully tested according to the applicable type tests in accordance with EN 50155.

In a similar way, other applications such as platform recognition and position markers for the passenger information system can also be implemented or, thanks to special sensor transponders, even signal information from older signalling systems can be transmitted to the train. FEIG ELECTRONIC offers

suitable products for all train speeds and vehicle types – even train speeds of >150 km/h are no problem.

"UHF RFID technology enables precise, efficient, environmentally friendly and fully automatic rail head treatment – even at high speeds! It is therefore becoming increasingly important alongside GPS technology. The UHF RFID technology also works independently of tunnels, mountains or other interference. The rail head treatment reduces the noise level and the maintenance costs are lower thanks to reduced wear. So far, the application has proven particularly effective in low-floor vehicles and railcars" says Harald Rebs, Managing Director of REBS Zentralschmiertechnik.

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