

«active RFID» for locating individual railroad cars and locomotives

ZOMOFI® - zone monitoring & find

The latest transponders and readers in the ZOMOFI® product family are used in railroad systems. The RFID components are suitable for detecting passages of rolling stock, its location and the frequency of its use in real time. This enables the maintenance and management of railroad cars and locomotives to be optimized. TrainTracer (TT) products are ideally suitable for the arduous conditions encountered in railroad operations.



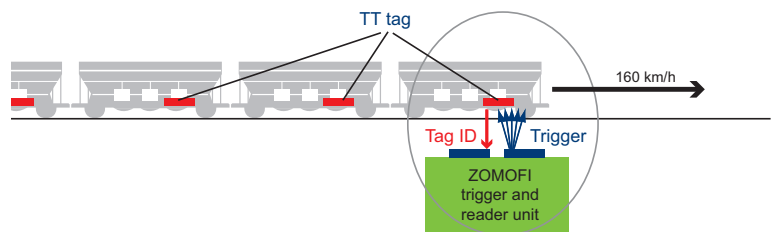
Assignment

For passenger and freight car operations railroad companies always depend on having the latest, correct data at their disposal in order to plan the use of rolling stock optimally for succeeding hours or days. The goal is to prevent manual intervention and utilize modern technology. Data acquisition for this purpose should be reliable, automatic and accurate. The exact sequence of the cars in the train compositions is a key feature here. Regulations regarding the detection of distances traveled by each individual car and each locomotive are being enacted or are planned in many countries. The TT tag enables the distance traveled by each car to be recorded and thus helps to optimize maintenance cycles for rolling stock or performance-related invoicing.

Mode of operation and components

Trigger/reader units are installed at selected locations in the railroad network. These units are equipped with an interface (LAN/serial/modem/GSM link) to the railroad's IT network. The cars and locomotives are each equipped with a hand-sized active RFID transponder. These are of weatherproof, robust design, have a lifetime of 10 years and are attached firmly to the underbody of the cars.

Each time the train composition passes, the identity of each individual car is recorded. The exact sequence of the passing cars is transmitted to the railroad's central computer. This occurs almost instantly, fully automatically and at speeds of up to 160 km/h.



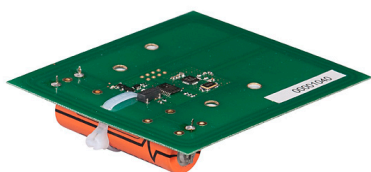
The following information on each and every car and locomotive is therefore available at any time:

- last passage at the selected locations
- number of kilometers traveled per day / month / year
- travel in what sequence with which other cars in the composition

The transponders (TT tags) are impervious to summer and winter temperatures, contamination (dust- and waterproof casting), chemical and aggressive substances, vibration and impact. The TT tag can be bolted or riveted directly on to the metal underbody of the railroad car or locomotive.

Further features

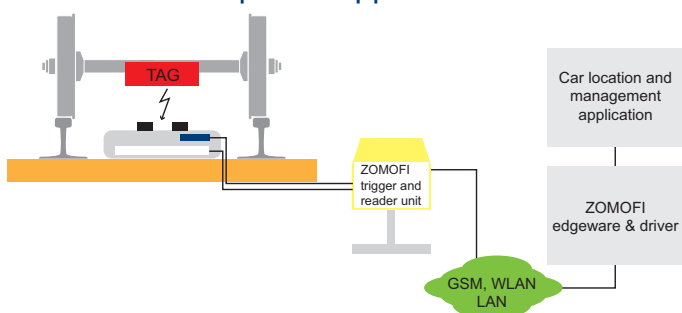
The same TT tags have a further operating mode. In addition to the «Passage and km detection» mode they also offer the «Location in depot» mode. This second mode is active at the same as the TT mode (Train Tracer mode) and enables data to be written and read out. For example, if the freight car is in a siding or entering a siding, data (location, time, next assignment, necessary repairs, etc.) can be written. These data can be read out at any time later at the same or another location. These write and read processes are performed by means of installed devices or manual readers at distances of 20 meters or more.



In use in Switzerland

A Swiss private railway has purchased the above-mentioned technology and components from Siemens Switzerland Ltd. In the initial project stage the railroad system is designed exclusively for locating the individual units of rolling stock. The actual distance traveled by each unit can be ascertained together with the travel data from the Siemens Ittis control system.

Incorporation in the railroad-specific application



The ZOMOFI® product family

The ZOMOFI® product family enables zone monitoring and asset tracking to be performed in buildings, warehouses, airports, outdoor areas, on vehicles, etc. High-performance «active RFID» technology consists of tags, sensor tags, controllers and accessories.

Technical data

Frequency Band	2.400 GHz ~ 2.483 GHz worldwide unlicensed ISM band
Temperature	IEC 60068-2-14 (Na)
Controller	Operating -10°C – 65°C Storage -40°C – 70°C
TT tag	Operating -40°C – 80°C Storage -40°C – 80°C
Vibration	IEC 60068-2-64 - Test Fh
Free Fall	IEC 60068-2-32- part2 - Test Ed
Safety	EN 60950-1 EN 50371
EMC	EN 301 489-3 V1.4.1 EN 301 489-17 V2.1.1 EN 55022 + A1 EN 55024 + A1 + A2 EN 61000-6-2
Housing	
Controller	IP50 (IP63 or IP67 on request)
TT tag	IP67 - customer specific

Spheres of application

Asset Management & Supply Chain

- Logistics
- Defense
- Airports / Ports
- Transport (Train/Trucks)
- Automotive
- Hospitals
- Museums

People Safety

- Fire Brigades
- Hospital / Care Homes
- Mining and Milling

Further more applications

- Access Control (long range)
- Intrusion Detection for Security
- Cold Chain

Contact

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