Train Detection System **TDR14**

**INDOOR EQUIPMENT**
- **TDR14 UNUR**

**OUTDOOR EQUIPMENT**
- **ZK24-2 Rail Wheel Sensor**
- **ZGK Lightning Protection Module**

Train Detection System **TDR14** is the ideal replacement for old mechanical or magnetic wheel detectors, track circuits or loops in order to modernize level crossings as well as for all applications that require safe vehicle passage detection.

**General**
- Train detection system TDR14 consists of rail wheel sensor ZK24-2 on the rail, lightning protection module ZGK and indoor device TDR14 UNUR in the level crossing house or station with safety relay contact or optocoupler outputs.
- One sensor ZK24-2 replaces two single wheel detectors because of its doubled structure of wheel detection.

**Application**
- **TDR14 UNUR** provides safety relay contact outputs for connection to older level crossing systems and other signalling systems.
- Detection for speeds up to 350 km/h.
- Detection of drop away from the rail – on both sensor channels.
- Event recording - train passage over each wheel detector, date, time, speed, train movement direction, number of axles, disturbances / errors etc.

**Additional features**
- Bidirectional operation (activation in both directions of train movement) or unidirectional operation (activation in only one direction of train movement); both operation modes are fail-safe.
- Configurable for different combinations of switch-on and switch-off contacts / detectors.
- Configurable time delay for relay and optocupler safety outputs.
- Optional additional protection against intentional switching off of the level crossing on the switch-off contact.

**Order codes**
- **System TDR14** .................................................. AP215570
- **TDR14 UNUR** ..................................................... AP215573
- Trackside lightning protection module ZGK .................. AP215586
- Rail wheel sensor ZK24-2 ........................................ AP215595
Technical data for outdoor equipment: ZGK and ZK24-2 sensor

- Sensor mounting bracket for all rail types – version with the clamp (no need for rail drilling) and version for drilled rails.
- Mechanical protection of the wheel sensor with shields.
- 3-stage protection against lightning overvoltage and traction return current.

Supply voltage: 18 - 48 VDC
Operating temperature ZK24-2: - 60°C - +80°C
Operating conditions: Up to 100% humidity
Wheel detection: According to UIC510-2
Water and dust protection: IP68 sensor, IP65 ZGK (higher IP on demand)
ZK24-2 operating frequencies: H: 330 kHz, L: 300 kHz

Technical data for indoor equipment: TDR 14 UNUR

- Possibility to use only one or both wheel detection channels on each wheel detector.
- Microprocessor module in one unit can control up to 3 double wheel detectors (6 channels of wheel detection).
- Microprocessor module with 2-out-of-3 system.
- Event recording of train passages – the memory is inerasable with power failure.
- Output safety relays with forcibly guided contacts according to EN 50205, type A.

Supply voltage: 13 – 40 VDC
Operating temperature: - 30°C - +70°C
Dimensions (w x l x h): 270 × 245 ×133 mm

Quality

The system is developed, designed and certified according to the CENELEC standards EN 50126, EN 50128, EN 50129, for the highest safety level SIL4, as well as EN50125-3 for outdoor conditions and according to EN 50121-4 for EMC. TDR14 is assessed and certified by TUV Rheinland.

Application

Application of TDR14 for signalisation of station approaching trams and the beginning of battery charging on trams without the contact cable.

Six magnetic or mechanical wheel detectors / contacts can be replaced by one TDR14 system.

Modernization of level crossings.