Train Detection System **TDR14**

Train detection system TDR14 is a SIL4 certified train detection solution which uses wheel sensors ZK24-2 for detection of the train. The system consists of indoor TDR14 evaluation unit, wheel sensor and outdoor lightning protection module. It is ideally used as train detection part of level crossing protection system, for activation or triggering of various systems (HOT BOX, passenger information...).

**Functionality**
TDR14 system is using ALTPRO wheel sensor technology for detection of the arriving train. Beside train detection its functionality includes extensive event recording - train passage over each wheel sensor (bidirectional and unidirectional), date, time, speed, train movement direction, number of axles, disturbances / errors etc.

**Safety**
The system is developed, designed and certified according to the CENELEC standards EN 50126, EN 50128, EN50129, for the highest safety integrity level SIL4, as well as EN50125-3 for harsh environmental conditions and according to EN 50121-4 for EMC. TDR14 is assessed and certified by TUV Rheinland.

**Maintenance**
Indoor TDR14 system simple user interface enables maintenance personnel quick read of codes from the display. Outdoor equipment (sensor and overvoltage protection) require simple periodic maintenance (parametre check).

**Connectivity**
TDR14 provides safety relay outputs, direction outputs and transistor/optocoupler outputs whose activation delays are time configurable. Diagnostic interface is also available so that it can be even done remotely.

**Analytics**
PC application is available for analyzing the operation of the system. Furthermore, advanced diagnostic mode enables reading of detailed information about train wheel passage and other parameters which influence the sensor.
Application

- Level crossing protection system
- Hot box
- Passenger information systems
- Flat wheel detection systems
- Automatic warning systems
- Track lubrication

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

<table>
<thead>
<tr>
<th>Supply voltage</th>
<th>18 - 48 VDC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating temp.</td>
<td>-40°C - +80°C</td>
</tr>
<tr>
<td>Operating cond.</td>
<td>Up to 100% humidity</td>
</tr>
<tr>
<td>Wheel detection</td>
<td>According to TSI</td>
</tr>
<tr>
<td>Water dust pro.</td>
<td>IP68 sensor IP65 ZGK</td>
</tr>
<tr>
<td>ZK24-2 freq.</td>
<td>H: 330 kHz, L: 300 kHz</td>
</tr>
</tbody>
</table>

System information output

- Wheel passage
- Direction output
- Extensive diagnostic information

System benefits

- Bidirectional or unidirectional operation
- Configurable strike-in and strike-out configurations
- Configurable time delay for relay and optocoupler safety output
- Protection against intentional switching off the level crossing

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

<table>
<thead>
<tr>
<th>Supply voltage</th>
<th>13 – 40 VDC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating temp.</td>
<td>-30°C - +70°C</td>
</tr>
<tr>
<td>Dim. (w x l x h)</td>
<td>270 × 245 ×133 mm</td>
</tr>
</tbody>
</table>

Order codes

- System TDR14 .......................................................................................................... AP215570
- TDR14 UNUR ............................................................................................................ AP215573
- Lightning Protection Module ZGK ......................................................................... AP215534
- Rail Wheel Sensor ZK24-2 ................................................................................... AP215595