



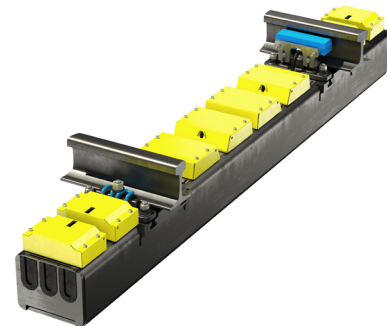
zentrak HOT BOX DETECTION zentrak HOT WHEEL DETECTION

Intelligent Rolling Stock Monitoring

Description

Hot wheels and hot boxes are a major threat for any railway operation. A hot box can lead to fractures of axle journals that might cause a derailment. Remarkable operational hazards are caused by locked brakes, due to overheated loosened wheel rims as well as broken wheel disks. A locked brake can cause fire and is one of the main reasons for the formation of flat spots. Additionally, not functional brakes can lead to very dangerous situations and significant wear and tear.

The Hot Box and Hot Wheel Detection functions (HBD/HWD) are solutions to decrease the mentioned faults to guarantee a safe railway operation. Temperature of axle bearing boxes, wheel rims and brake discs of passing trains can be monitored at speeds up to 450km/h.



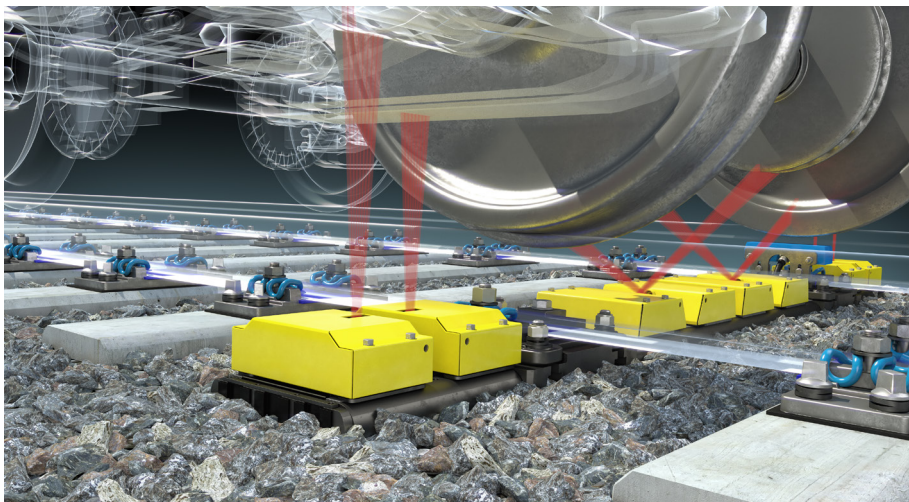
HBD
Hot
Box
Detection



HWD
Hot
Wheel
Detection

System advantages

- » Safety management of railway operations
- » Mitigating risks and asset protection
- » Improving operational performance by reducing train interruption
- » Performance monitoring
- » Condition based maintenance
- » Modular design for simple and fast mounting without any adjustment
- » Up to eight multi-beam scanners per sleeper cover a wide range of wheelset designs
- » Low power consumption
- » Scanners can be clustered for redundancy
- » Self-calibration, self-diagnostic and health monitoring
- » No influence on regular track maintenance



MULTI-BEAM TECHNOLOGY

The flexibly mountable scanners of the HBD/HWD functions are designed for the harsh conditions in the track bed. Up to 8 scanners can be integrated as a modular plug-in unit on a hollow steel sleeper. The target areas fulfill standards but can also be adapted to individual needs of the customer.

The core component is a multi-channel infrared sensor, which measures the target temperatures reliable even at high train speeds. The result is a temperature profile of the measured axles, wheels and/or brake discs. With an adapted temperature measurement level, cold wheels

are also detected. The sensor output signal is transmitted from the track to the electrical cabinet. Depending on the customer specified tolerance levels the operator will be alarmed directly. The transmission can be realized over several connections like modem, LAN, or GSM.

Technical Specification	
Train speed	0 to 450km/h
Bearing Temperature	0 to 150°C
Wheel/Brake Temperature	20 to 550°C
Resolution	Bearing 1°C Wheel/Brake 1°C
Absolute uncertainty	Up to 3K
IP class of sensors	IP66
Environment	-40°C to +70°C



Arctic



Desert



Tunnel

Train
TalkerSlab
Track

Solar