

# PHOENIX<sup>MDS</sup> HBD/HWD HOT BOX AND HOT WHEEL DETECTION



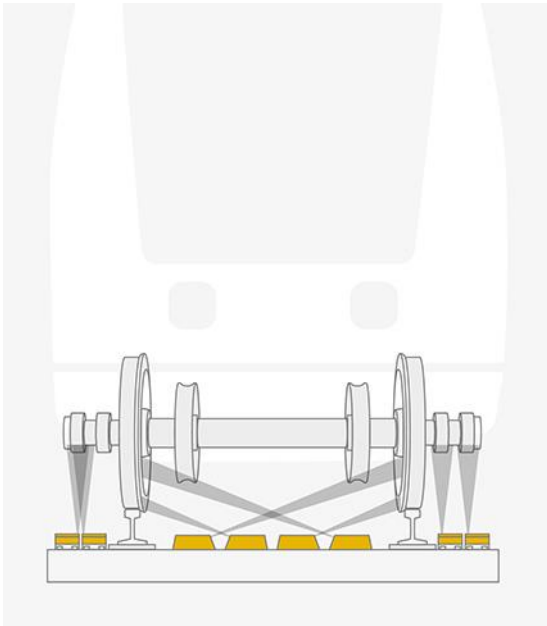
## Intelligent Rolling Stock Monitoring

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 PHOENIX<sup>MDS</sup> HBD/HWD are solutions to decrease the mentioned faults to guarantee a safe railway operation. Monitor reliably the temperature of axle bearing boxes, wheel rims and brake discs of passing trains up to 500km/h.

## Key Features

- » 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 configurable PHOENIX<sup>MDS</sup> HBD/HWD functions are mounted in a hollow steel sleeper in the track. Up to 8 scanners are integrated as a modular plug-in unit and let the customer freely decide the scanning areas of bearings and brakes. The core piece of the sensor is a multi-beam infrared detector. The self-cleaning optic of the scanner unit guarantees a clear view all the time. The integrated high performance processing unit converts fast and exactly each measurement result to determine the

temperature profile. A 3D thermographic image of the scanned axles, wheels and/or discs is generated. 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 Specifications

Train speed:	0 to 500km/h
Bearing Temperature:	0 to 150°C
Wheel/Brake Temperature:	50 to 500°C
Resolution:	Bearing 1°C Wheel/Brake 1°C
Absolute uncertainty:	Up to 3°C
IP class of sensors:	IP65
Environment:	-40°C to +70°C

### Options and Variants



Arctic



Train Talker



Desert



Slab Track