



Topgrip
Instruments Company

Topgrip Safety Applications with IoT Platform

Smarter trains. Better future



We are
IATF 16949:2016,
AS9100D, D-U-N-S & ISO
Certified Company



www.topgripinst.com



TOPGRIP SAFETY PRODUCT FAMILY

AT TOPGRIP, WE PRIDE OURSELVES ON OUR EXTENSIVE EXPERTISE IN DESIGNING AND MANUFACTURING SYSTEMS WITH SAFETY INTEGRITY LEVEL FUNCTIONS. WITH A PROVEN TRACK RECORD, WE HAVE SUCCESSFULLY DEVELOPED SYSTEMS UP TO TOPGRIP FOR A WIDE RANGE OF SAFETY-CRITICAL FUNCTIONS.

PROVEN TRACK RECORD

At Topgrip, we boast a proven track record of developing systems up to HBD-IOT across diverse safety functions. With a large number of existing functionalities already developed, coupled with rigorous testing and documentation practices, our capabilities are unmatched in the industry, affirming our ability to deliver safety-critical solutions up to HBD-IOT with utmost reliability and confidence.

WHAT DO WE OFFER ?

Topgrip has in-house competencies to develop a range of safety applications. Below is a selection of some of our offerings. We have developed many more, so please contact us to learn how we can assist with your specific needs.



AUTOMATIC SELECTIVE DOOR OPERATION
Automatically assesses the train's alignment with the station and platform setup, granting activation solely to doors that can be safely opened. RIS-2747-RST.



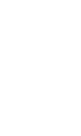
HOT AXLE & WHEEL DECEPTION ON IoT PLATFORM
Continually monitors the axle box and gearbox temperature and issues warnings if the measurements vary from normal. EN 15437-2.



LATERAL ACCELERATION MONITORING
Measures lateral vibrations and sends notifications about abnormalities or automatically stops the train in immediate danger.



VIGILANCE CONTROL SYSTEM
Continually monitors the train driver's vigilance and automatically stops the train if the system pedal/button is not periodically pressed.



PHYSICAL PREVENTION OF OVERSPEEDING
Speed-monitoring system. Automatically brakes, stops tram, and alerts control room on limit breach.



AUTOMATED PANTOGRAPH CONTROL
A change-over function which provides location-based control for switching power feed from the catenary to battery.



SAFETY COMMUNICATION MANAGEMENT SYSTEM
Centrally managed networked safety functions to ensure safe data communication throughout the train.



SUPERVISION OF TRACTION ENABLING
Checks conditions that must be fulfilled to enable the traction, e.g. driver's cab occupied, no speed (null speed signal on), doors are closed.



FIRE DETECTION SUBSYSTEM MONITORING
Reads fire detection signals from locomotives and coaches and displays the information to the train crew.



SUPERVISION OF PASSENGER ALARM ACTIVATION
Receives the activation of the passenger alarm when the train is at the platform or when leaving the platform.



TRAIN SPEED AND DISTANCE MONITORING
Analysis of several speed measurements and display of the value to the train crew.



BRAKE PIPE PRESSURE MONITORING
Informs the driver of the status of the main brake pipe pressure and if necessary, activates the protective actions.

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HOT AXEL BOX AND HOT WHEEL DETECTION WITH IoT PLATFORM

AN ON-BOARD HOT AXLE BOX AND HOT WHEEL DETECTION SYSTEM ENABLING CONTINUOUS MONITORING ON IoT BASED TAILORED PLATFORM TO SPECIFIC TRAIN CHARACTERISTICS, TRIGGERING ALARMS FOR ANY DEVIATIONS FROM ACCEPTABLE TEMPERATURES, AND ENSURING TIMELY SAFETY MEASURES ARE IMPLEMENTED. CAN ENABLE TO COUNT THE WHEELS.

WHAT IS A HOT AXLE BOX AND HOT WHEEL DETECTION SYSTEM ON IoT PLATFORM ?

An IoT based Hot Axle Box & Hot Wheel Detection System is a device used to monitor the temperature of the axle boxes & hot wheel on train wheels and/or gearboxes to check for overheating bearings, which could potentially lead to mechanical failures or even fires. These can be wayside or on-board system on cloud base data storage for analysing the mechanical faults to improving the manufacturing line.



WHY CHOOSE TOPGRIP ?

The on-board Hot Axle Box Detection system offers real-time, configurable solutions for different train types and designs. With over 1,800 HABD systems installed, you can rely on our extensive experience and trusted performance to ensure optimal safety and efficiency for your fleet.

01

ON-BOARD CONTINUOUS TEMPERATURE MONITORING

On-board continuous temperature monitoring for hot axle boxes provides superior condition insights over traditional trackside equipment. Unlike intermittent trackside measurements, on-board systems deliver constant real-time data. Monitoring both wheel and gearbox temperatures offers a view of axle health, allowing early failure detection and improved safety.

02

MONITORING REGARDLESS OF AXLE BOX LOCATION

Unlike traditional axle detection methods, which are limited to monitoring axle boxes located on the wheels, the system seamlessly integrates into the train itself, ensuring surveillance of all axle points. This ensures that potential issues, such as overheating, are detected immediately, regardless of axle box location, reducing the risk of costly equipment failures, minimising downtime, and safeguarding your operations.

03

CONFIGURABLE, EFFICIENT MONITORING SOLUTION

Our monitoring system's versatile sensor compatibility and flexible configuration allow precise customisation to meet unique customer needs and operating conditions. This tailored approach improves detection accuracy and effectiveness. It accommodates various train models, bogie designs, and bearing properties, providing a bespoke, efficient solution for railway operators.



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