

# TUNNELFOX®

AUTONOMOUS VEHICLE FOR RAIL INSPECTION



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Introducing the intelligent inspection platform that facilitates predictive maintenance, promotes asset reliability and availability, and conducts data collection automatically on critical assets!



Rail  
Inspection



Critical Assets  
Condition  
Monitoring



Platform  
Analytics

First-of-its-kind

Smart

Modular &  
Multi-purpose

Precise

Autonomous

Easy Assembly  
& Deployment

## TECHNICAL SPECIFICATIONS

Dimensions	Length	2.13m
	Width	2.40m
	Height	1.71m
Weight	246kg	
Carrying Capacity	200kg	
Maximum Speed	Up to 16km/h	

*Note: Specifications are subject to change by the manufacturer without prior notice.*

## KEY FEATURES



### Enhanced Safety

- Dedicated LIDARs and ultrasonic sensors for obstacle detection up to 20m
- Fail-safe brake system



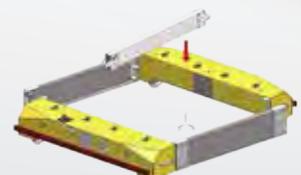
### Self Navigation with Localisation\*

- Pre-designated inspection area



### Advanced and Modular Payload

- Multi-source Instrumentation



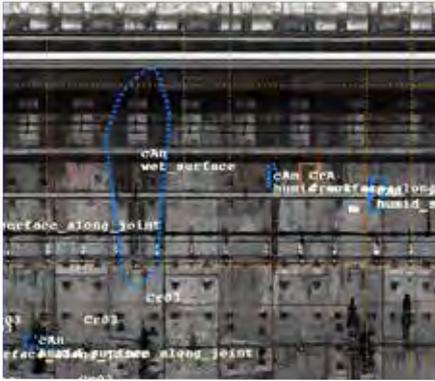
### Modular Design

- Rapid assembly and deployment

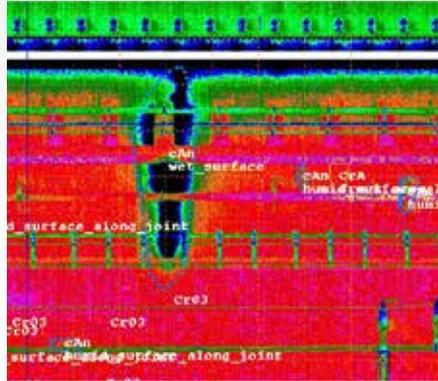
\* Optional add-on: Communications Based Train Control (CBTC)

## ADVANCED AND MODULAR PAYLOADS (ADD-ONS)

### Payload Option 1: 3D Tunnel Scanner



Visual Imaging  
Detect cracks > 0.3 mm



Thermal Imaging  
Determine track and tunnel dampness



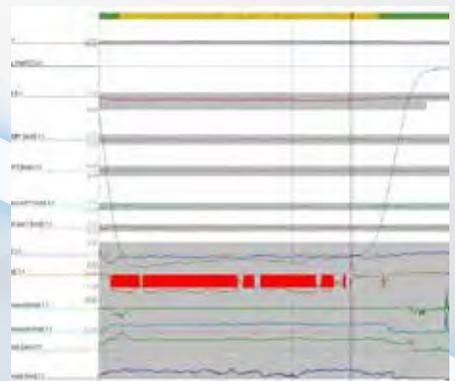
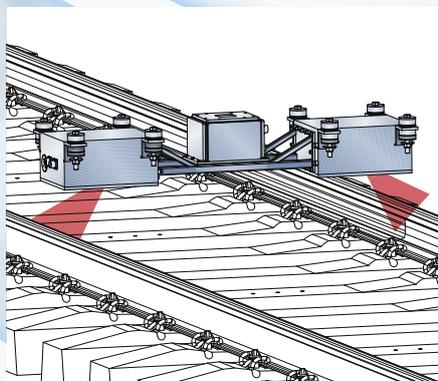
3D Profiling  
Clearance identification and analysis

With the 3D Tunnel Scanner, TunnelFox® can capture visual and thermal images as well as 3D profile recordings all in a single recording sweep, allowing for a wide variety of analysis options. With this fox hard at work for you, you can reduce reliance on manual inspection and improve the consistency, efficiency and accuracy of tunnel fault detection.

### Payload Option 2: Track Geometry Measurement System (TGMS)



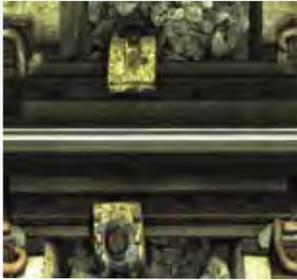
Track Geometry Measurement System



Track Geometry Real Time Chart

Compact and easy to install, the Track Geometry Measurement System (TGMS) monitors track parameters using advanced technologies and optical laser sensors. With this attachment, TunnelFox® can be deployed to improve consistency, efficiency and accuracy of track fault detection.

## Payload Option 3: Track Component Vision Inspection System (TCVIS)



Track Component Vision Inspection System

Image Visualisation and Processing

With the Track Component Vision Inspection System (TCVIS) on board TunnelFox®, you can inspect the surface tops of rail heads and detect surface defects of joint bars, missing bolts/fasteners/clips and sleeper integrity. One-line cameras create a continuous image of track data, and collected data is processed using innovative image processing, computer vision and machine learning techniques.

## Payload Option 4: Track Geometry & 3<sup>rd</sup> Rail Measurement with 3<sup>rd</sup> Rail Video



The portable Track Geometry and Conductor Rail Measurement System provides a convenient method of ascertaining many parameters simultaneously with reference to distance measurement. Small and light with a total assembled weight of approximately 100kg, each of the four parts can be lifted by two operators and used in two modes; pushed/towed by TunnelFox®.



The unit can be quickly deployed to conduct measurements recording within minutes. It utilises both mechanical and laser sensors to record a myriad of track and conductor rail parameters. Data is stored directly to the PC for immediate analysis.

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