



# TrueTrak™

Track geometry processor

**Balfour Beatty**

# TrueTrak™

A world-leading dynamic measurement system for both manned and unmanned track geometry measurement.

This light weight expandable, modular monitoring system uses state-of-the-art electronics for reliable, accurate track geometry measurements.

## An efficient system

The modular design is based around an expandable power and data bus architecture. It transfers data between modules over a high-bandwidth optical fibre communications link.

A central unit with removable drives provides a common control and data synchronisation hub. This hub contains integrated WiFi/ SMS for data upload and real-time alerts, as well as facilities for remote or local user login. The central unit also provides the interface point to any train-based systems data that may be available, which allows common information to be shared, reducing duplication and minimising installation costs.

## A collaborative platform

The central unit requires only a single narrow conduit to connect to any of its monitoring modules. Monitoring modules can then connect to other modules using an identical conduit, significantly reducing installation costs and allowing an expandable architecture based around simple Line Replaceable Units (LRU).

## A flexible solution

Sensor selection, whether inertial or optical, can be tailored to provide an extendable range of geometry parameters to meet customers' requirements. Expansion modules can extend monitoring capabilities to include overhead line, vehicle ride and corrugation parameters.

## Features

- Choice of optical modules (low-light or high-speed)
- Choice of inertial configurations (body or bogie mounted)
- All EN13848 compliant for track geometry
- Attended and unattended options
- Modern modular (LRU based) design
- Integrated lens cleaning
- Wi-Fi data up-load
- Real time data synchronization to other systems



Proven to reduce running costs



Backed by Balfour Beatty's experts



A light weight solution





### **Key benefits:**

- Low initial system costs
- Proven in-service
- Low running costs
- Integrated real-time:
  - alert management available
  - location system available
  - ride system available
  - running rail profile available
  - third and fourth rail profile







# Optical Modules

Accurate, reliable data

Cost effective track maintenance and operational safety requires accurate and reliable track geometry data

Principal measurements consist of:

- Vertical profile (top)
- Alignment
- Twist
- Cant and cant deficiency
- Curvature
- Gauge
- Dipped joints
- Cyclic top

High speed optical pods

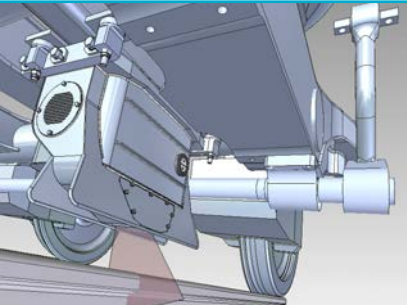
- Full day/night design
- Eye-safe - no laser safety issues
- High speed and high availability
- Ideal for express or long distance trains
- Robust temperature controlled design
- Aerodynamic lens cleaning

| Technical Specifications: |                        |
|---------------------------|------------------------|
| Dimensions:               | 500 x 350 x 250 mm     |
| Weight:                   | < 40kg maximum         |
| IP rating:                | IP54 (IP65 available)  |
| Operating temp:           | -20°C to +40°C         |
| Storage temp:             | -40°C to +70°C         |
| Operating voltage:        | 24VDC or 110 & 240 VAC |
| Accuracy:                 | EN 13848 compliant     |
| Operating Speed:          | 5 to 140 mph           |
| Laser:                    | Class 2/Class 3        |

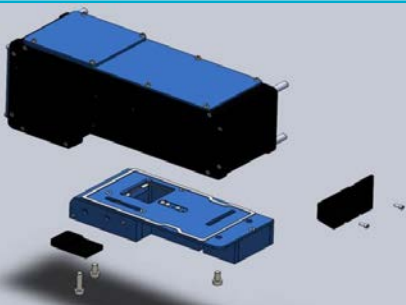
Low light optical pods

- New small low light design
- Eye-safe - no laser safety issues
- Based on standard industrial components
- Ideal for suburban and light rail applications
- Can use multiple pods for all rail profiles
- Film based lens cleaning

| Technical Specifications: |                        |
|---------------------------|------------------------|
| Dimensions:               | 300 x 250 x 150mm      |
| Weight:                   | < 20kg maximum         |
| IP rating:                | IP65                   |
| Operating temp:           | 0°C to +40°C           |
| Storage temp:             | -20 °C to +70°C        |
| Operating voltage:        | 24VDC or 110 & 240 VAC |
| Accuracy:                 | EN 13848 compliant     |
| Operating Speed:          | 0 to 100 mph           |
| Laser:                    | Class 2                |



High speed optical pods



Low light optical pods



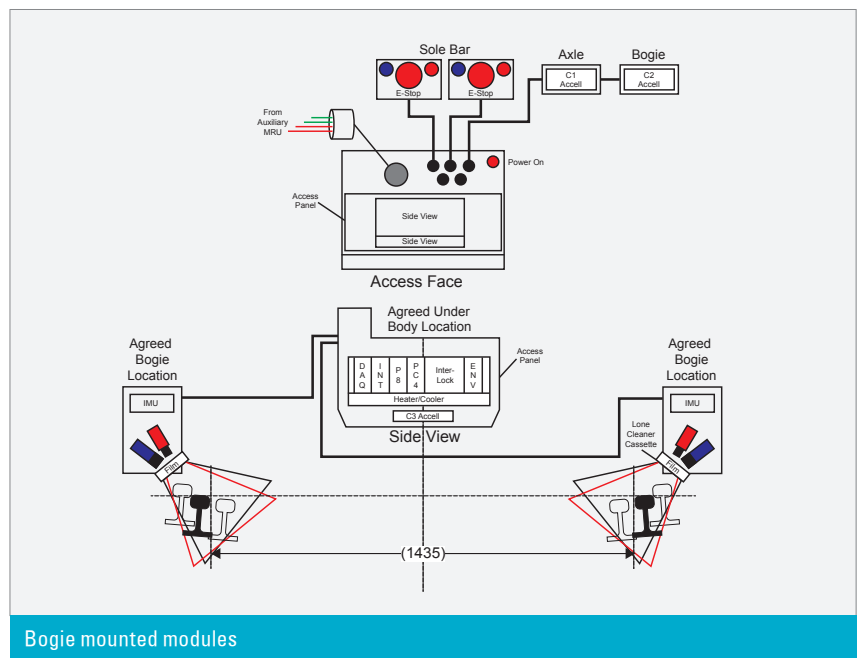
Trusted track measurements

# Multiple configurations

## Bogie mounted TrueTrak™ system

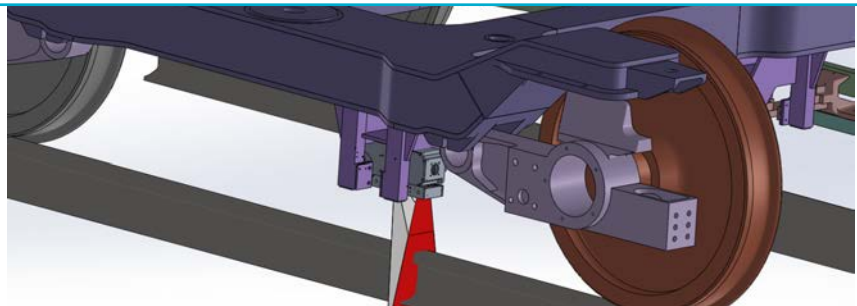
The TrueTrak™ bogie mounted system is comprised of three distinct modules:

1. One body mounted module which houses the environmental controller and data acquisition equipment.
2. Left rail bogie mounted module containing the inertial measurement systems and rugged industrial laser-camera unit.
3. Right rail bogie mounted module containing the inertial measurement systems and rugged industrial laser-camera unit.



### Body mounted options:

- BS EN 13848 compliant geometry
- Most widely used (industry standard)
- Low system costs
- Low installation costs
- Eye-safe laser optical pod available



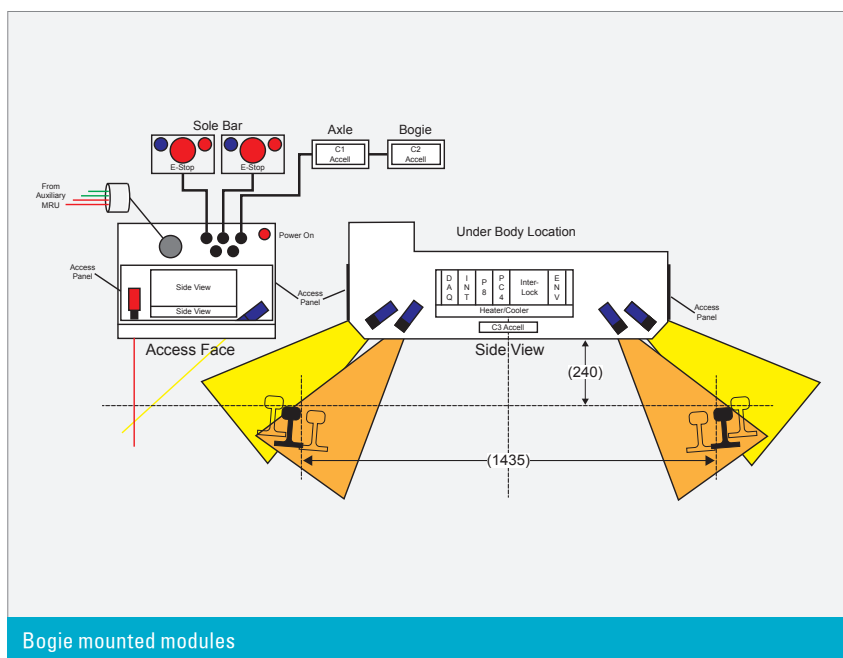
Bogie mounted options

## Body mounted TrueTrak™ system

The body mounted TrueTrak™ solution comprises of an inertial unit and two integrated laser camera units which are all mounted in the same robust enclosure.

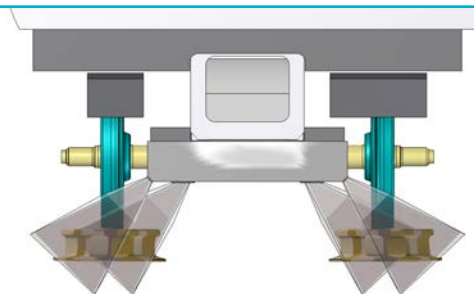
The enclosure also houses the environmental and aperture/glass heating controllers and acquisition equipment.

The TrueTrak™ modules transfer data to the on-board control units fitted to a resiliently mounted frame that will mount standard 19" 3U instrumentation sub-rack for the controller modules within the mechanically robust enclosure.



### Body mounted options:

- BS EN 13848 compliant geometry
- Low installation costs
- Low maintenance costs
- One single pre-calibrated unit
- Class 3B lasers (day-time availability)



Backed by Balfour Beatty's experts

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