



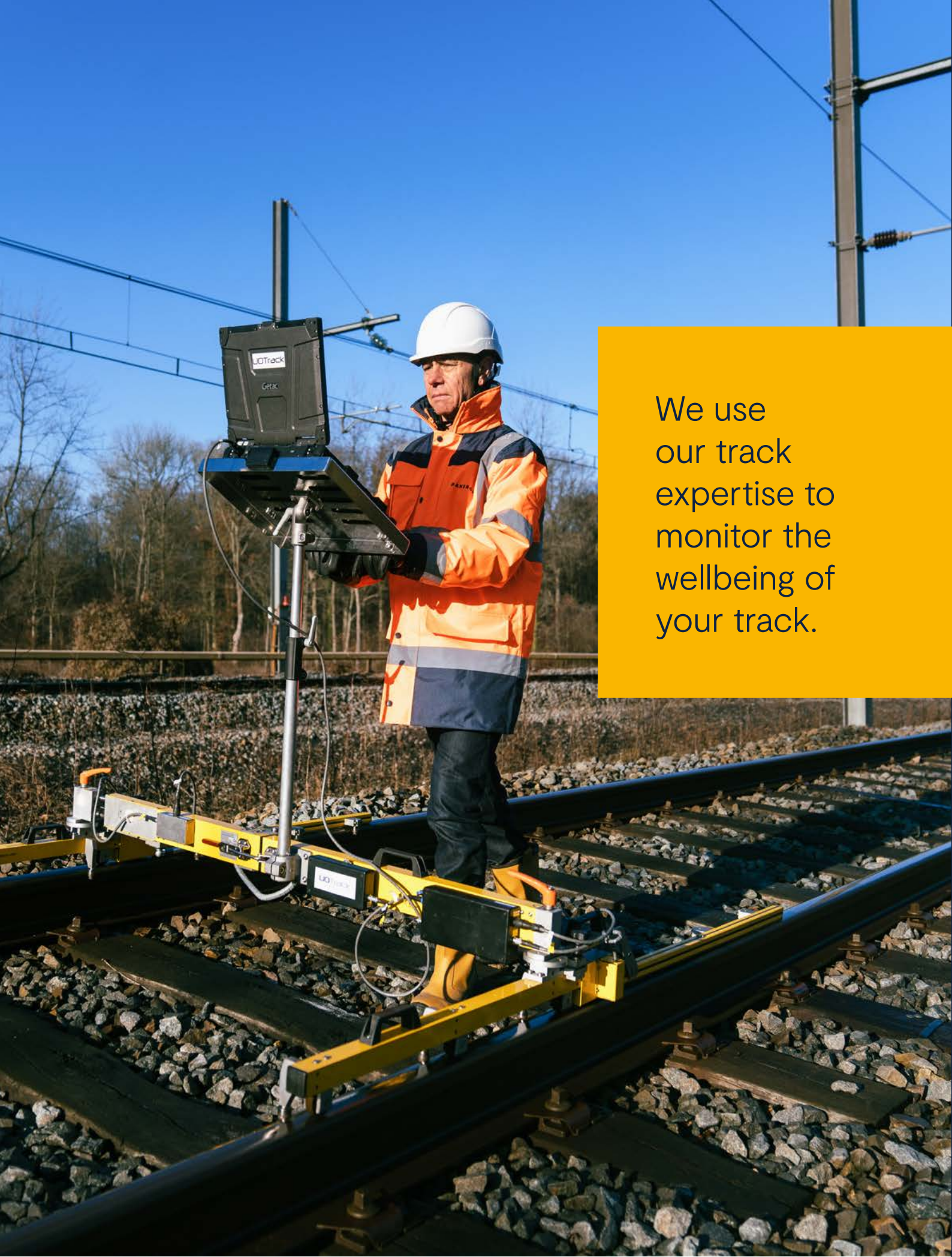
PANDROL

Partners in excellence

Track Measurement & Analysis

Rail inspection services,
equipment, and diagnostics.

Edition 2023



Track Measurement & Analysis

We use our track expertise to monitor the wellbeing of your track.

Rail networks have an increasing need to understand the status of their track, which allows them to implement more efficient maintenance operations.

We provide solutions for inspection through innovative equipment and services, suitable for all types of networks.

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1

Ultrasonic Testing

Pandrol provides a range of Ultrasonic Testing (UT) equipment using high pitched waves to identify rail defects.

Our range includes both manual and vehicle-towed tools, which can be operated at up to 20 km per hour.

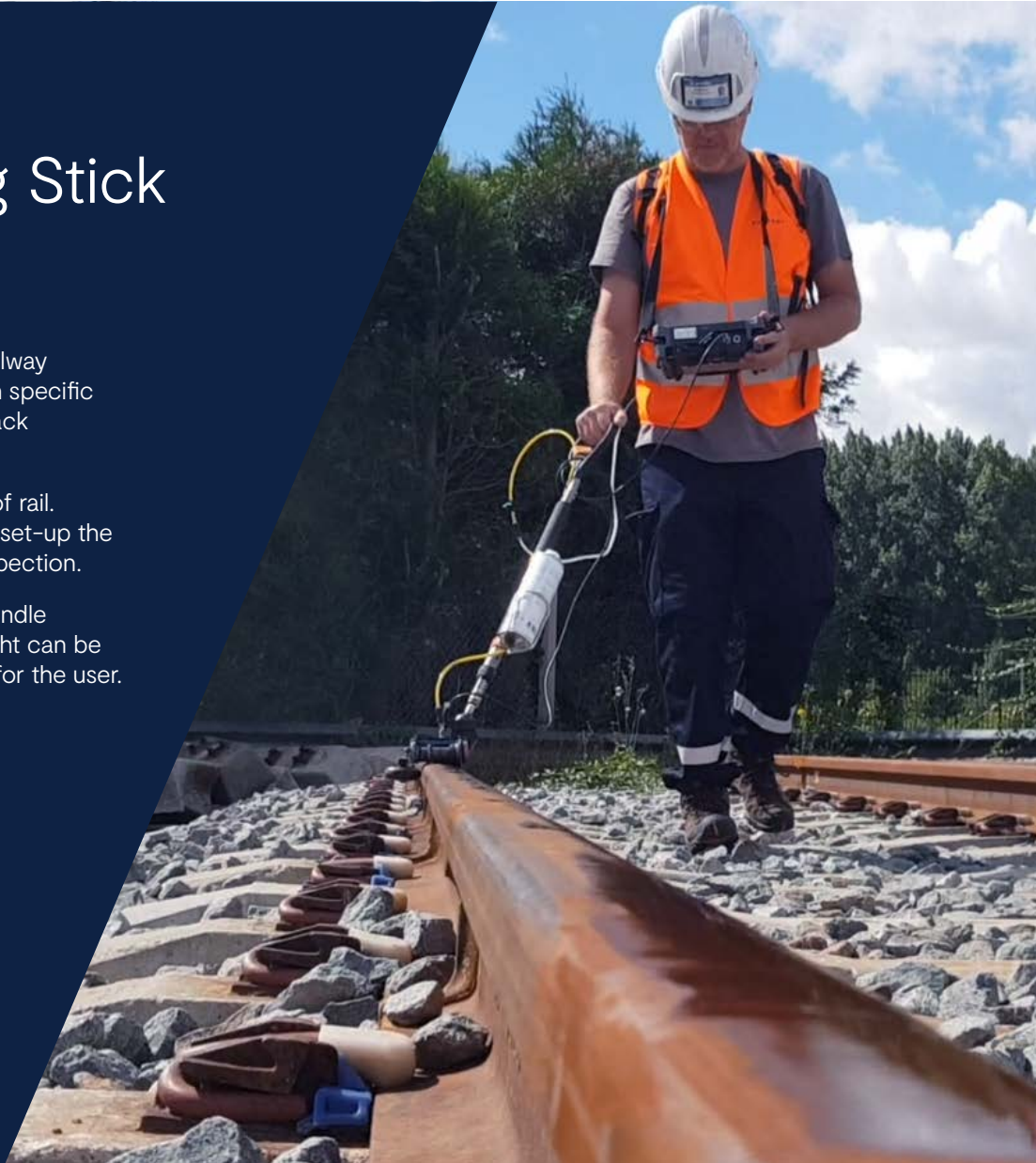
We support you by providing complete equipment training as well as health and safety support.

UT Walking Stick for one rail

Our UT Walking Stick is a railway inspection system used with specific transducers designed for track applications.

It can be used on any kind of rail. A single operator can easily set-up the equipment and start the inspection.

The tool uses a magnetic handle system, and the handle height can be adjusted, ensuring comfort for the user.

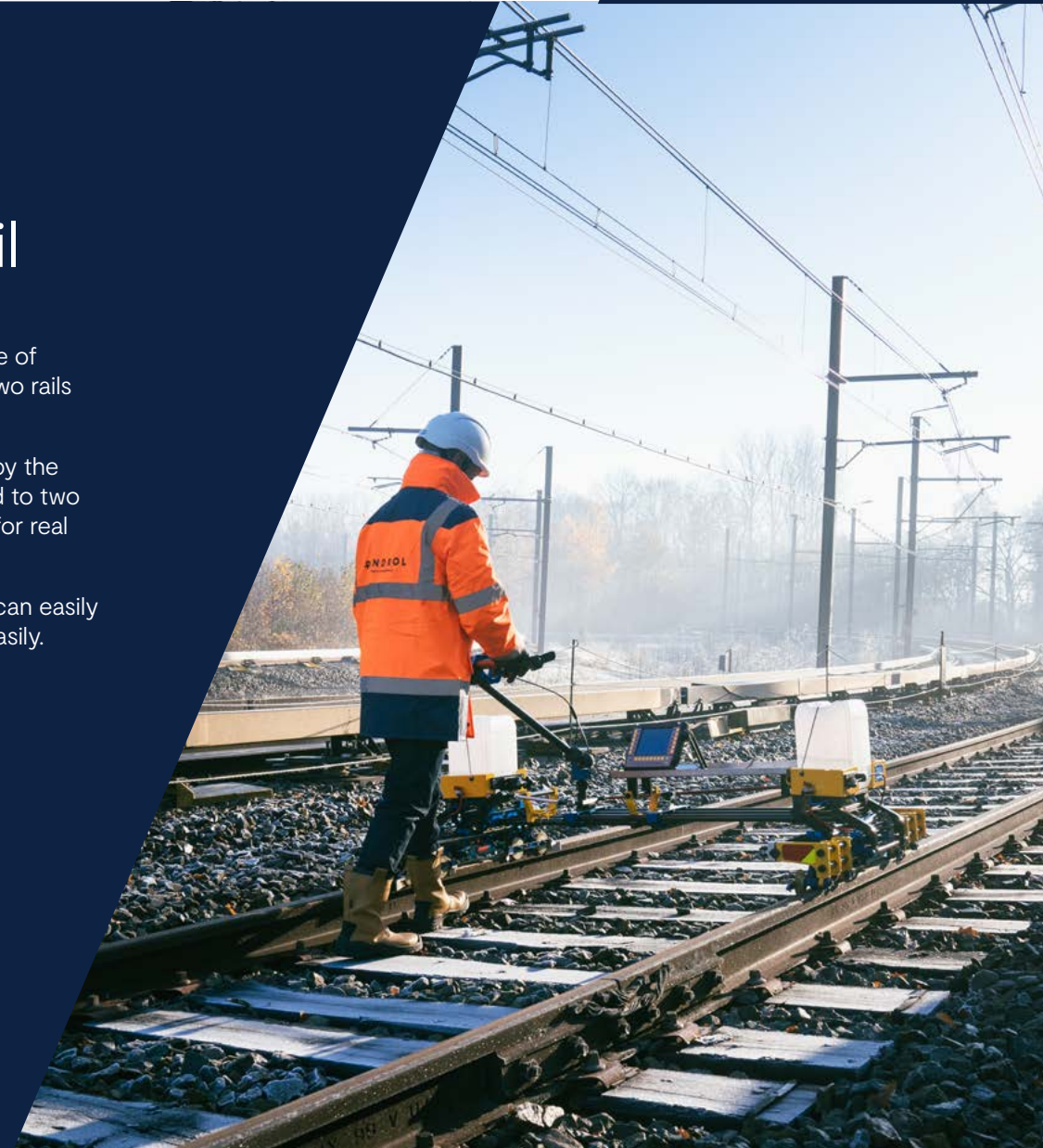


UT Trolley for dual rail

UT Trolley is a manual piece of equipment for inspecting two rails simultaneously.

The information collected by the transducers are transmitted to two displays (right and left rail) for real time information viewing.

The tool is lightweight and can easily be lifted on and off track easily.



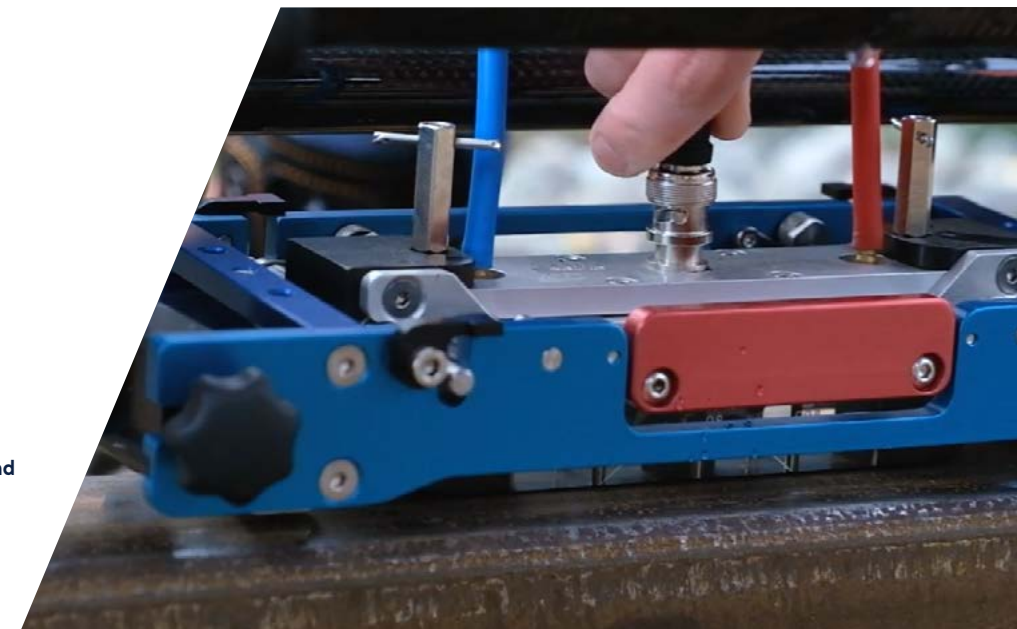
→ FEATURES

- Quickly inspect the rail condition
- Weighs only 3 kg
- Possibility to use even in traffic
- Possibility to adapt all probes
- Ideal tool for inspecting after head wash repair
- Inspect all track components



→ FEATURES

- Designed for safe use
- Weighs only 23 kg
- Maximum speed 5 km/h
- Water Capacity 2 x 10L
- Automatic safety brake
- Can be used on all track types
- Its lightweight design allows easy repacking and transport
- Works on rail temperature between -10 and 55°C
- Adjustable for rail gaps between 1000 and 1670 mm
- Wheels are totally isolated
- Approved by French railways



Explore our range of Ultrasonic Testing packages & solutions



Basic or Smart?

Our equipment is intuitively designed, meaning both newly certified inspectors and experts can use it effectively.

→ BASIC

Our Basic version allows the user to have all functionalities for an effective inspection.

- ✓ A-SCAN display
- ✓ UT probe 5 angles -70° / -40° / 0° / 40° / 70°
- ✓ Record an image of each defect
- ✓ 2 years anti wear warrantee

→ SMART

The Smart version offers more possibilities, with enhanced defect traceability and automatic reporting with its smart software.

- ✓ A-SCAN display
- ✓ B-SCAN display
- ✓ UT probe 5 angles -70° / -40° / 0° / 40° / 70°
- ✓ UT probe head radius 4 x 70°
- ✓ Record an image of each defect
- ✓ Record a video of each defect
- ✓ Odometer localization
- ✓ Defect traceability
- ✓ Anomalies defect table
- ✓ One probe for defection and characterization
- ✓ GPS
- ✓ Smart Software
- ✓ 2 years anti wear warrantee

Finding effective maintenance equipment can be challenging. Our extensive track expertise allows us to offer suitable turnkey solutions that meet your needs.

Pandrol has a proven track record in making maintenance easier and more reliable. We have collaborated with many rail networks and guided them through various challenges.

We work closely with our customers to offer them tailored solutions, providing the equipment best-suited to their infrastructure. We offer a variety of UT probes for various global standards and track specifications.

Explore our range.

→ Our Turnkey Solutions

We provide complete training for all of our equipment. We also program the equipment according to your needs and specifications.

- Choose between walking stick or trolley UT systems
- All necessary probes
- UT Flaw Detector
- Calibration equipment
- Software for Smart solution
- Cables
- Onsite training and assistance

Basic & Smart versions are available for both the walking stick and trolley





Transducers

We offer a range of wear-resistant probes for Ultrasonic Testing, suitable for applications including inspection of rail, welds, and defect detection.

→ UT Weld TR452001

This transducer is used for weld inspection.



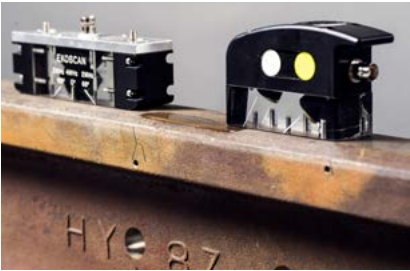
→ UT Rail & More TRTRC002

Mounted on a walking stick or trolley, the transducer is used for UT inspection of all track material.



→ UT Rail TRTRM001

This transducer is used to identify the characteristics of the defect (length, depth, etc.)



→ UT Weld TR452002

This transducer is used for Ultrasonic Testing of welds with Tandem rig (cf. p 14)



→ UT Weld TR02001

This transducer is mainly used for welds and scanning area.

Technical data				
Item Reference	TRTRC002	TRTRC005	TR702001	TR452001
Angle	-70 / -40 / 0 / + 40 / +70	-70 / -40 / 0 / + 40 / +70	70	45
Frequency MHz (MHz)	2 - 4 - 2	2,25 - 4 - 2,25	2	2
Size mm			14 x 14	14 x 14
Connector	BNC	5 Lemo	Lemo00	Lemo00
Other information	For detection	For detection	For detection & characterization	For detection & characterization

Technical data				
Item Reference	TR452002	TRT02001	TRTRM001	TRTRM002
Angle	45	0	0 / 38 / 68	0 / 45 / 70
Frequency MHz (MHz)	2	2	4	4
Size mm	20 x 22	ø 10		
Connector	Lemo00	Lemo00		
Other information	For tandem rig	For detection and characterization	For characterization	For characterization

All our transducers are manufactured in France.
Above is a non-exhaustive list of our most popular solutions – please contact us to discuss all options available.



UT Flaw Detectors

We offer various advanced Ultrasonic flaw detectors with displays ranging from 1 to 8 channels.

→ **USSTA001**

→ Ultrasonic Flaw Detector – 1 or 2 channels

Our time-tested manufacturing experience has enabled us to develop and produce a high-performing ultrasonic flaw detection system.

- A Scan and B Scan Display
- Standard DAC
- Automatic calibration
- Auto Gain, Auto Freeze

Weight	Dimensions	Autonomy	LCD Screen
0,74 kg	224 x 188 x 34	10 hours	1024 x 768



→ **USBLU001**

→ Ultrasonic Flaw Detector – Bluetooth version

Transform your smartphone or your tablet into a real ultrasonic device, allowing the same functionality as a standard device.

With this small tool, you can easily go on track and carry out inspections.

- A Scan and B Scan Display
- Standard DAC
- Automatic calibration
- Auto Gain, Auto Freeze

Weight	Dimensions	Autonomy	Connexion
240 g	112 x 32 x 79	8 hours	Bluetooth



→ **USSTA004**

→ Ultrasonic Flaw Detector – 6 channels

This next-generation flaw detector uses our latest smart software. All data is recorded and can be exported in a PDF or Excel.

- A Scan and B Scan Display
- GPS and KP localization of data
- Post treatment of data in special analysed mode
- Intuitive user interface

Weight	Dimensions	Autonomy	LCD Screen
0,74 kg	224 x 188 x 34	10 hours	1024 x 768





Inspection Tools

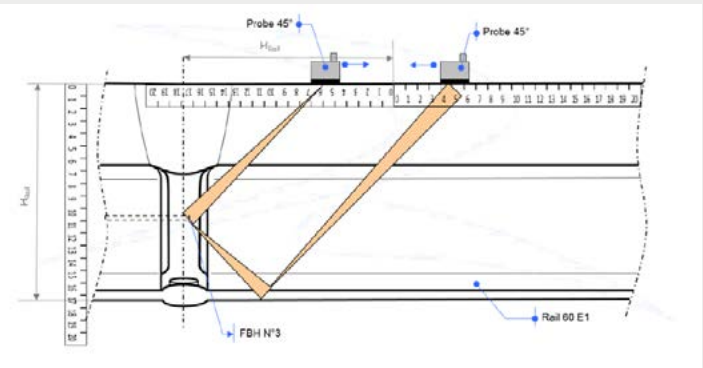
We provide useful tools for NDT weld inspections using Ultrasonic Testing & Eddy Current Technology.

→ RTTAN001

→ Ultrasonic Testing Tandem rig

The rig has been designed to allow the detection of vertical defects in welds, including a lack of fusion, shrinkage, and thermal contraction.

Using 2 probes positioned at 45°, this tool allows the detection, characterization, and evaluation of the entire height of the weld.



→ TOC00065

→ DigiLame – Digital Scale

This tool is used to measure the flatness of the rail profile and its alignment. It allows checking weld geometry by obtaining curves on the mobile app.

This tool is designed to be used after welding to check the weld conformity.

Measurement specification	
Weight (excluding PDA)	8,25 kg
Measuring range	+/- 4 mm
Measurement accuracy	+/- 0,025 mm
Measured length	1 000 mm

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Track Geometry

Pandrol provide a range of Track Geometry equipment – from small and lightweight gauges through to trolleys for long distance inspections.





Track Geometry Gauges

The Abtus range of Track Geometry Gauges offer accurate and repeatable measurement performance, in a light-weight and robust design.

Abtus track gauges have been designed with a sprung gauging foot, with all measurements displayed on the useable end of the gauge, ensuring improved repeatability and accuracy of measurements, whilst minimising potential user error.



→ VARIATIONS /

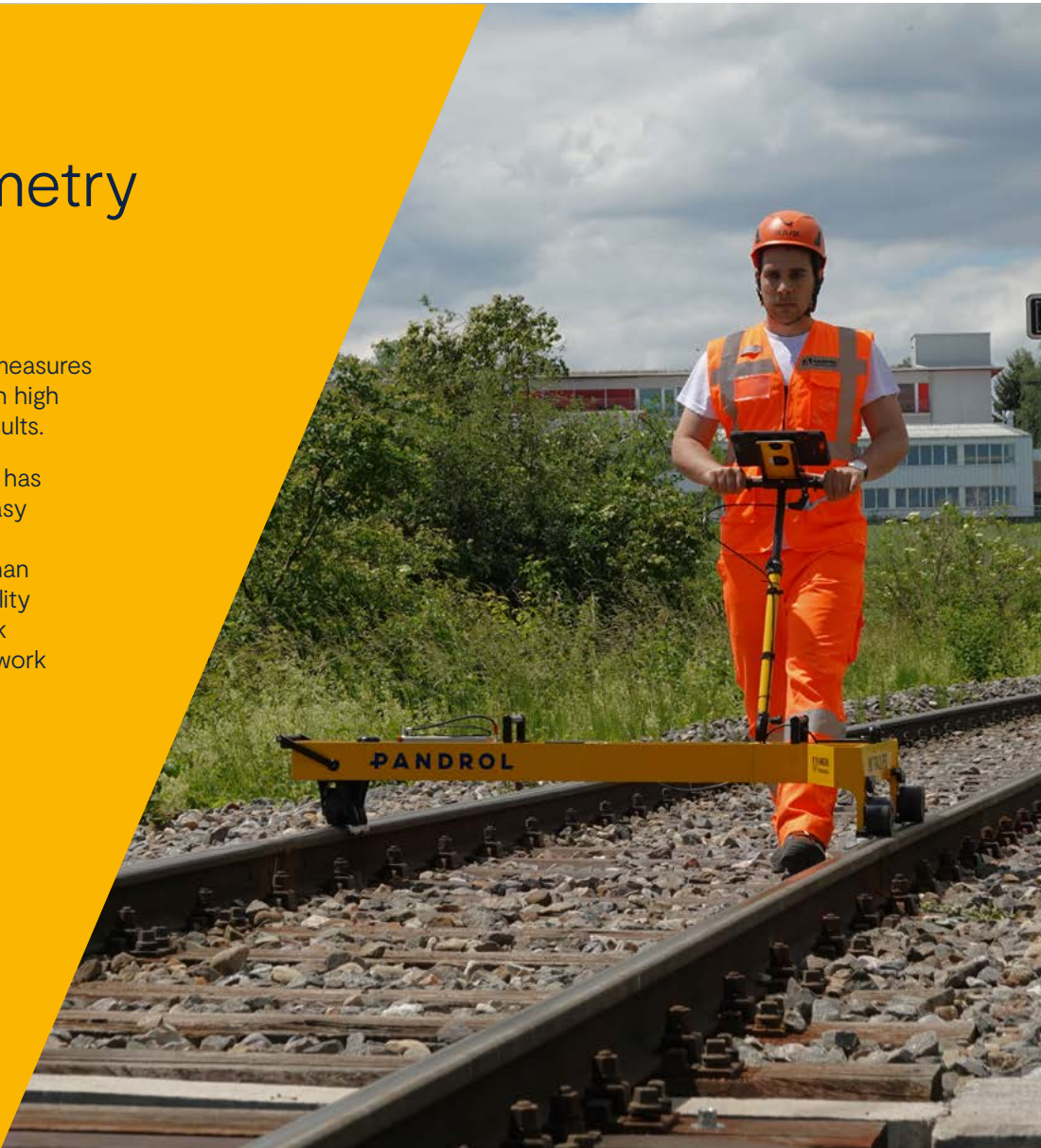


	P4670	P5000	P5010	P5020
Reference	PGEOP022	TOCR0027	TOC00064	TOC000061
Weight	2.8kg	3.2Kg	3.2Kg	3.2Kg
Size	1500mm x 300mm x 200mm	1660mm x 135mm x 150mm	1660mm x 135mm x 150mm	1660mm x 135mm x 150mm
Gauge sizes available	1000, 1067, 1435, 1600, 1668	1000, 1067, 1435, 1600, 1668	1000, 1067, 1435, 1600, 1668	1000, 1067, 1435, 1600, 1668
Measure free wheel clearance	X		X	X
Measure free wheel passage			X	X
Flangway	X			
Gauge / Cant		X	X	X
Switch & Crossing	X			

Track Geometry Trolley

The Track Geometry Trolley measures the geometry parameters with high accuracy and records the results.

The trolley is easy to use and has a modular design, enabling easy transportation by one person and fixing on a track in less than 5 minutes. In addition, the ability to use the trolley on any track gauge significantly increases work productivity.



→ VARIATIONS



	P7100	GeoVizio-TR-Smart
Weight	25 kg	25 kg
Dimensions	700 mm x 1000 mm x 720 mm	
Gauge sizes available	1435, 1600, 1668	1000, 1067, 1220, 1372, 1435, 1520, 1600, 1668, 1676
Gauge	X	X
Cant	X	X
Twist	X	X
GPS	X	X
Cyclic top	X	X

→ SYSTEM CAPABILITIES

- Cyclic Top Identification - 4,5m, 6m, 9m, 13, & 18m wavelengths
- Left and right rails measured simultaneously
- Pre-maintenance guidance - live high/low point identification and lift guidance
- Post-maintenance inspection - maintenance effectiveness analysis
- Trigger point identification - locate and measure track defects
- Track geo recording - gauge, cant, distance and twist measurement
- Track geo reporting - live data viewing/analysis + exportable data
- A precision GPS receiver ensures future recordings can be conducted at the same location enabling pre/post maintenance analysis and preventive maintenance of known problem sites



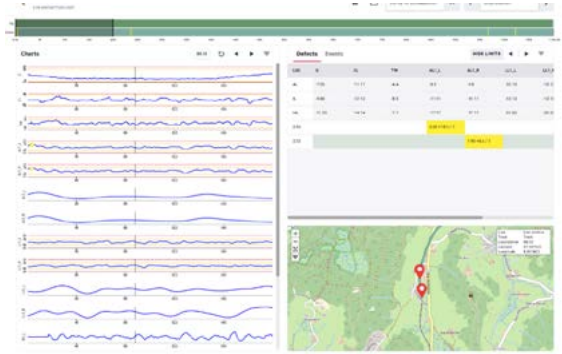
→ FEATURES

- Gauge Track Geometry Measurements
- Gauge / Cant / Twist / Top Alignment / Alignment
- Calculation of threshold exceeding
- Alert = Yellow / Intervention = Orange / Red = Immediate Action
- Calculation of Track Quality Index (TQI)
- Visual Track Inspection and Asset Documentation



→ FIELDS OF APPLICATION

- Track Geometry Assessments
- Monitoring of Track Quality
 - Complying with EN13848 (1, -4, -5, -6)



In partnership with **abtuslimited**

3



Overhead Line (OHL) Inspection

Pandrol offers a range of equipment for overhead line (OHL) inspection.

Overhead Line Inspection

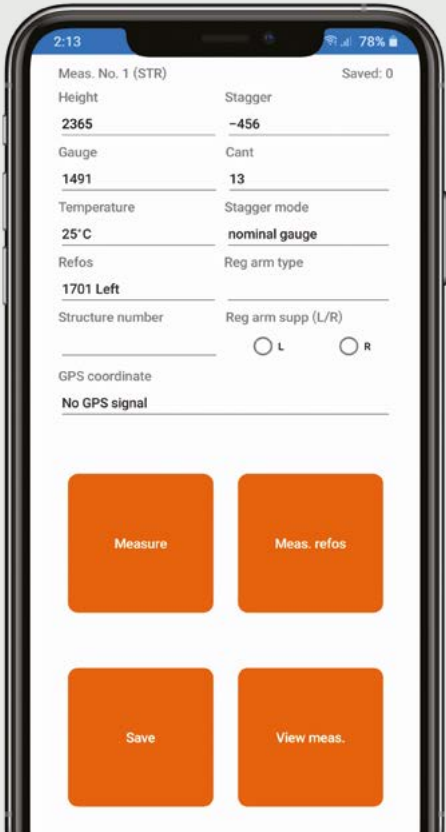
The Overhead Line Equipment is a new range of solutions which save time by storing data directly onto an Android device. The product is a folding, robust, and lightweight tool for measuring the height and stagger of overhead catenary wire.

The P8000, and P8100 are calibrated to offer accurate laser angles every time, for detailed and accurate measuring.



→ Zoom On P8000

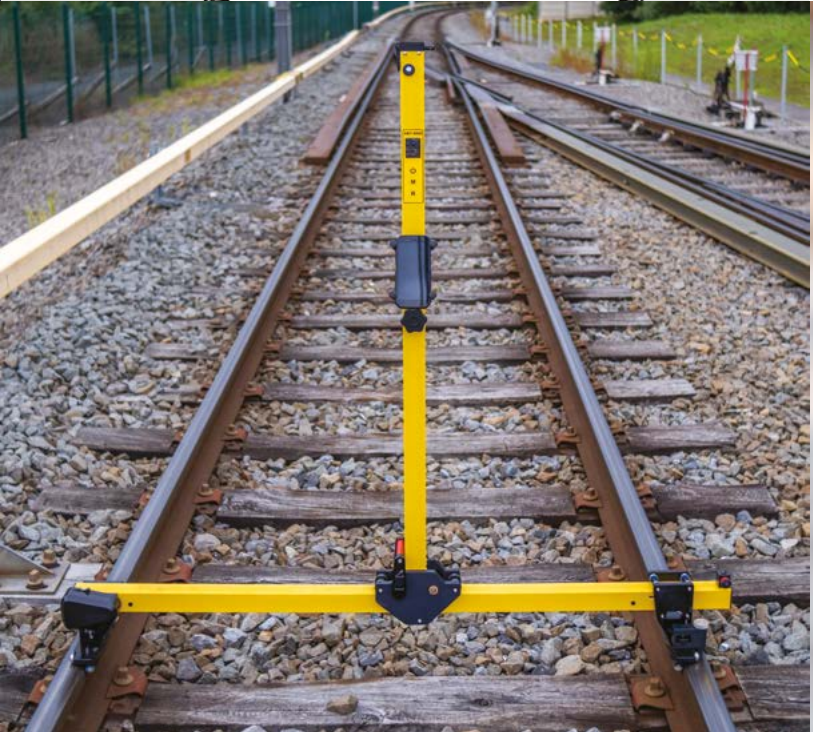
- The Android App can be used to view and send recorded files via email or USB.
- Exportable reports can be accessed, providing the user with results for review on their smart phone and can be emailed from site.



→ VARIATIONS



	P8000	P8100
Reference	PGEOP028	PGEOP029
Weight	11kg	10Kg
Size	1616mm x 1450mm x 245mm	1620mm x 1450mm x 250mm
Gauge sizes available	1435, 1600, 1668	1435, 1600, 1668
Data logs	X	
Over head line / Cant	X	X
Stagger	Referenced from nominal or real gauge	Referenced from real gauge
Gauge / GPS	X	
REFOS (Rail Edge to Face of Structure)	X	X



4

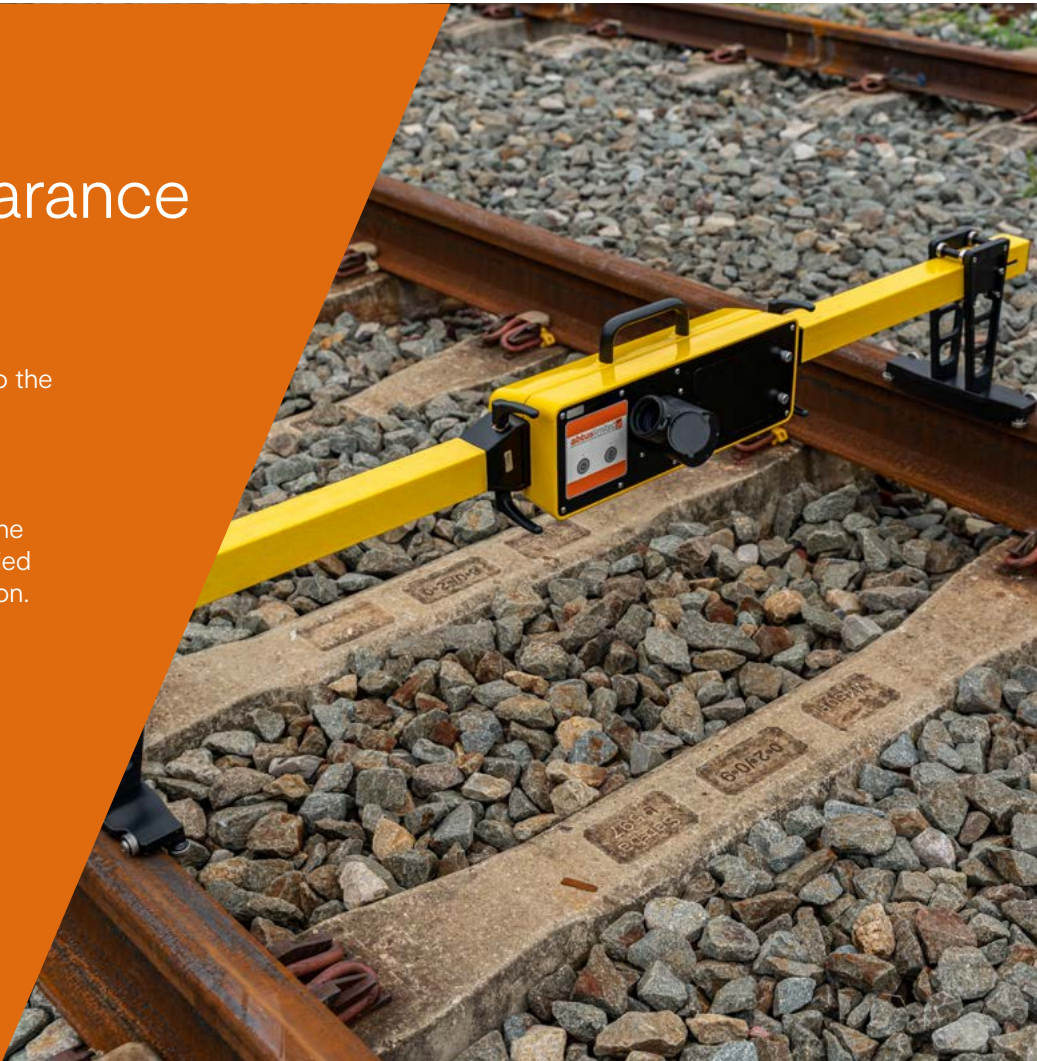
Structure clearance

We offer a range of equipment designed specifically for measuring structure clearance, including various gauges and RouteScan technology.

Structure clearance

RouteScan has been developed to provide quick, accurate structure clearance measurements relative to the Permanent Way.

With the RouteScan in position on the track, the operator is able to control, from a position of safety, the measurement laser using the supplied tablet PC via a Bluetooth connection.



System capabilities

The unit is lightweight, electrically non-conductive and easily transported making it the ideal tool for a highly time pressured rail environment. The two legs detach easily from the body, allowing the whole kit to be stowed in two small carry bags.

The ABT5650 measures X/Y coordinates as single points or full profile scans, referenced to the running edge of the datum rail. The RouteScan also provides the user with accurate track gauge and SE readings whilst the sprung gauging foot ensures repeatability of positioning and measurement.

Bluetooth communication allows operation of the device from a position of safety offering significant benefits over more traditional gauging methods. The battery indicator button can alert the user of the remaining charge and the battery can be removed/swapped by accessing the front panel via the thumb screws. This allows for prolonged use of the RouteScan during long shifts.

- SITUATIONS /
- Tunnels
 - Bridges
 - Signals
 - Platforms
 - Datum plates
 - Six-foot and ten-foot rail positions

→ VARIATIONS /



	P4050	P4610	P4659	P5650
Reference	TOC00046	TOCR0021	PGEOP021	PGEOP026
Weight	4.7kg	8.0kg	13,7 kg	13.6kg
Size	1900mm x 400mm x 40mm		1655 mm x 315 mm x 265 mm	1655 mm x 315 mm x 265 mm
Gauge sizes available	1067, 1435, 1495, 1600	1067, 1220, 1435, 1600, 1668	1000, 1067, 1435, 1600, 1668	1000, 1067, 1435, 1600, 1668
Measures the height of a platform	X			
Measures the height and distance of any structure		X		X
Cant		X		X
Gauges	X			X
Using with the RouteScan / Data logs			X	

→ FEATURES /

- Bluetooth connexion
- Several possibilities :
 - Single point check
 - Move the spindle +20° / -20°
 - Move the spindle from 0 to 180°
 - Choose start/end angle
- Results are graphical and numerical



5

Maintenance Services

Track Control Solutions proposes a range of inspection services for predictive track maintenance.

Our services

Our team of experts is comprised of level I, II and III NDT certified inspectors with more than 30 years of experience in Non-Destructive Testing.

We offer our Ultrasonic Testing services to customers worldwide to enhance the quality and lifetime of their infrastructure.

We offer all types of track inspection

Our services also extend to analysing the reception of welds, phased array analysis, and much more.

→ Ultrasonic testing

The inspection is made by our level I, II and III NDT certified inspectors. Our technicians are specialised in Ultrasonic Testing.

We work with our customers to determine the acceptance criteria for their network.

An exhaustive report of track quality and actions is supplied to help avoid track deterioration.



→ Geometry

We measure several parameters including gauge, cant, alignment, and twist.

The data collected is outputted into a comprehensive report, that shows all anomalies detected and their precise GPS location.

The report takes into account the data of the network (configuration, curve, etc.)

The report will classify all the geometrical anomalies in a priority fashion.



→ Corrugation

Inspecting rail corrugation allows the user to precisely detect any undulatory wear on the rail head.

This inspection highlights areas that need to be grinded, to prevent track and rolling stock deterioration.

The undulatory wear is determined by identifying the peak values in both wavelength and amplitude.



→ Rail profile

A detailed inspection of the rail is carried out using laser technology. The real profile is compared to the nominal profile to check the level of wear on the head of the rail.



We were involved with these projects

→ Kourou, French Guiana
Launch pad for Ariane rocket



→ Tanger, Morocco
First high speed line in Africa



→ Copenhagen, Denmark
Oresund bridge



→ Lyon, France
Football stadium



→ ON ANY TYPE OF NETWORK

- Classical Line
- High Speed Line
- Tram
- Subway
- Mining Track

Partners in excellence

Contact us to discuss your track requirements

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