



Final Results FY23

Year ended 30 June 2023

25 September 2023

OVERVIEW/RECAP

Nigel Rogers – Executive Chairman





OWNERSHIP

Listed since 1991 (AIM:TRT)
Current market capitalisation = £16m

Major shareholders:

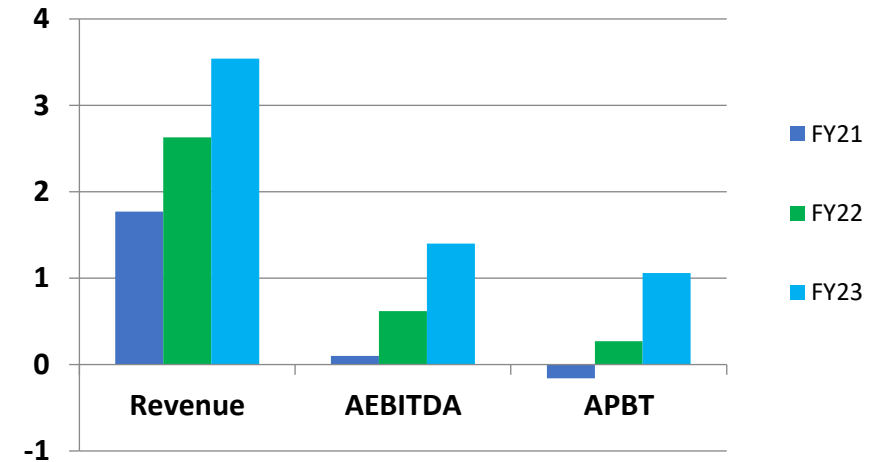
- CriSeren -10.4%
- Seneca - 8.0%
- Harwood - 4.3%
- Dowgate – 4.0%
- 3 x HNWI (total) -13.1%
- Board (total) – 2.4%

BOARD & MANAGEMENT

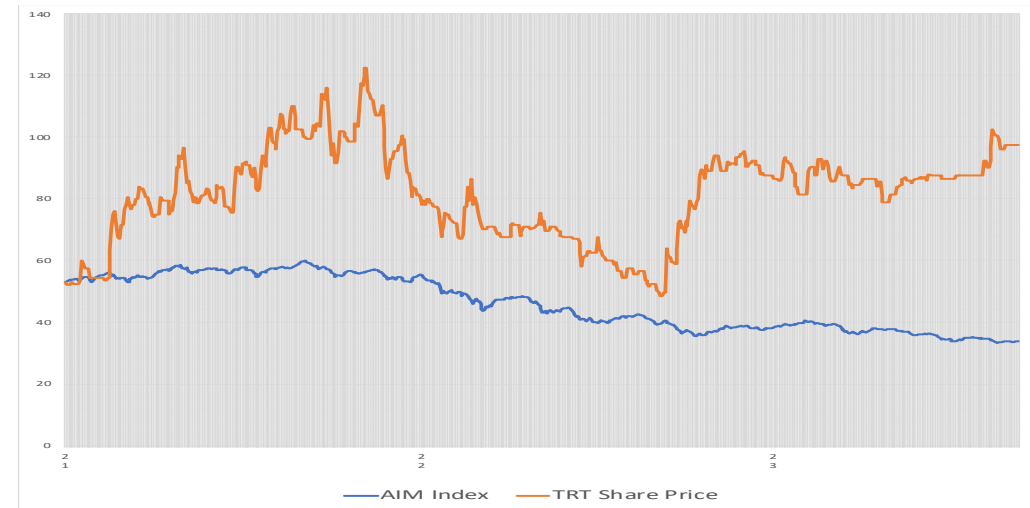
- Nigel Rogers - Executive Chairman
- Ryan Maughan – Business Development Director
- Melvyn Segal – CFO
- Rodney Westhead & Steve Parker – NED's
- Andy Bullock – Operations & Technical Director

Headcount = 20
Located nr Bicester, Oxfordshire

FINANCIAL TRACK RECORD (£m)



SHARE PRICE (pence)



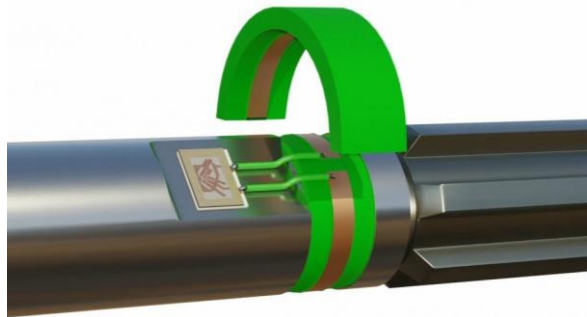


Design and supply of advanced sensor solutions for accurate non-contact measurement of torque, force, pressure & temperature

An enabling technology to improve control, efficiency and performance in electric motors and actuators, robotic systems, aerospace and machinery

Growing pipeline of world class customers in targeted high growth markets

Benefits: increased power & range, enhanced safety & reliability, improved efficiency and reduced in-service costs



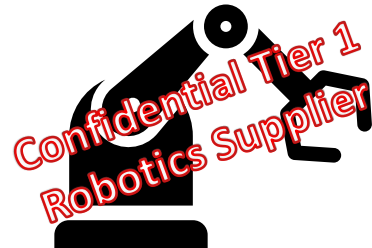
Development and supply of smart, connected tyre inspection and data collection tools for the truck & bus market

Used by global tyre suppliers, leading commercial vehicle fleet operators & service centres for vehicle inspection and inventory management

Carry out fast, accurate measurement and capture of tyre tread depth, pressure, TPMS & RFID tag data

Benefits: reduce fleet operating costs and downtime, improve vehicle safety and audit trail



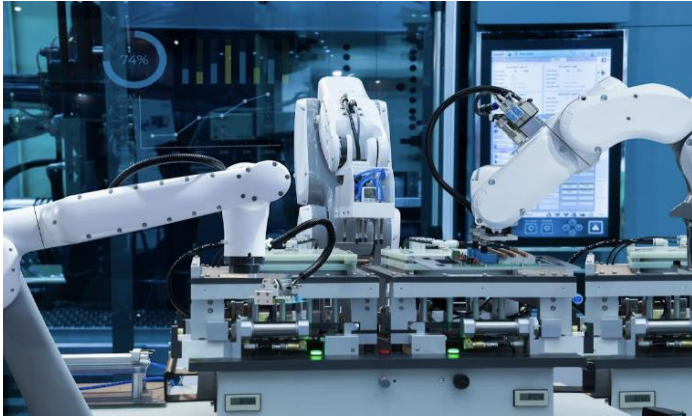


5. GROWING LIST OF BLUE-CHIP CUSTOMERS

Aerospace



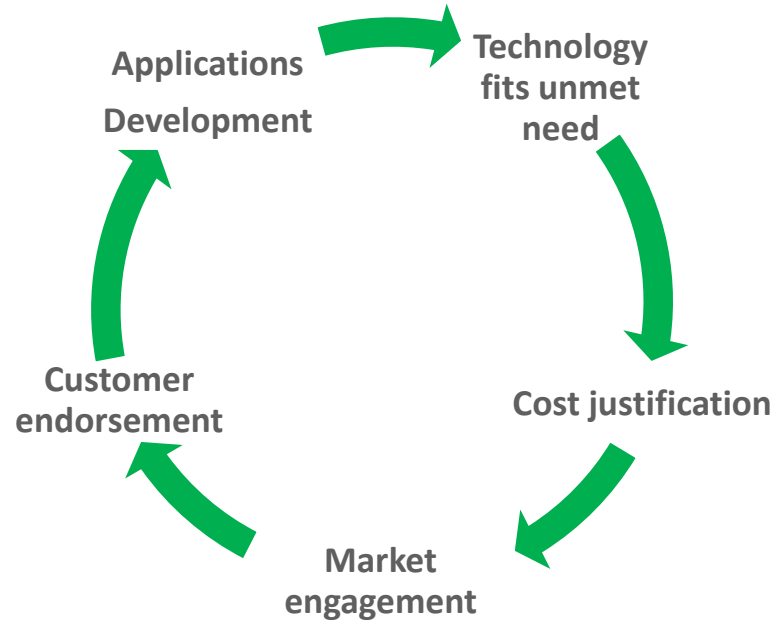
Industrial Machinery (incl. Robotics)



Electric Motors & Drives (EMD)



Performance Automotive





iTrack technology for mining haul truck tyres developed by Transense

Operating business & assets sold to Bridgestone Corporation in June 2020

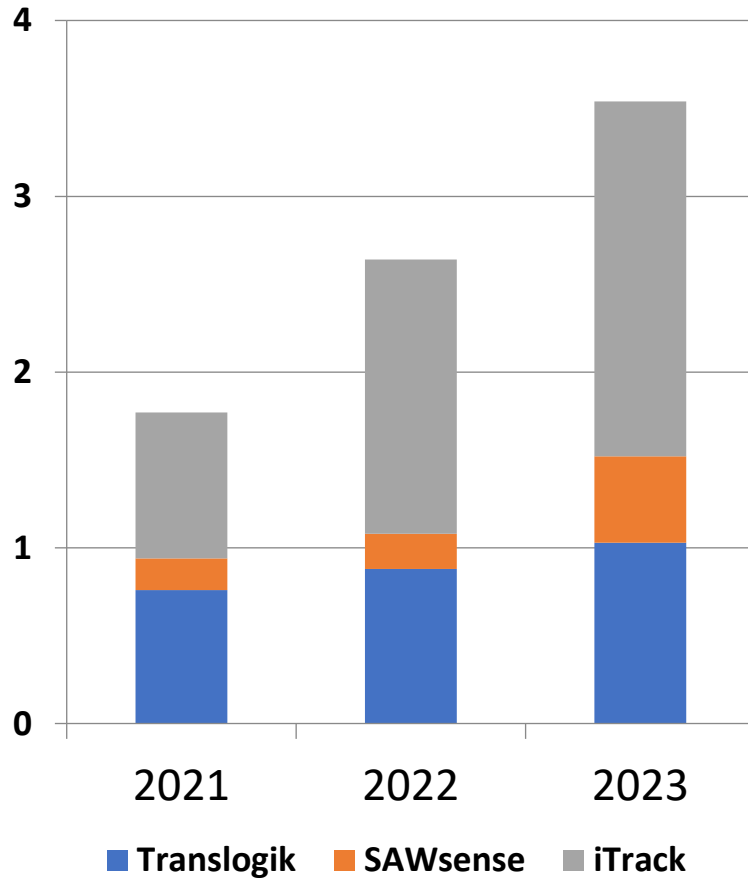
Licence income based on number of installations for ten years to 2030

Increased from £0.8m in year one to £2.0m in year three, 7 years remaining

Installed base growth continuing, although unit rate reduces in 2025 & 2027



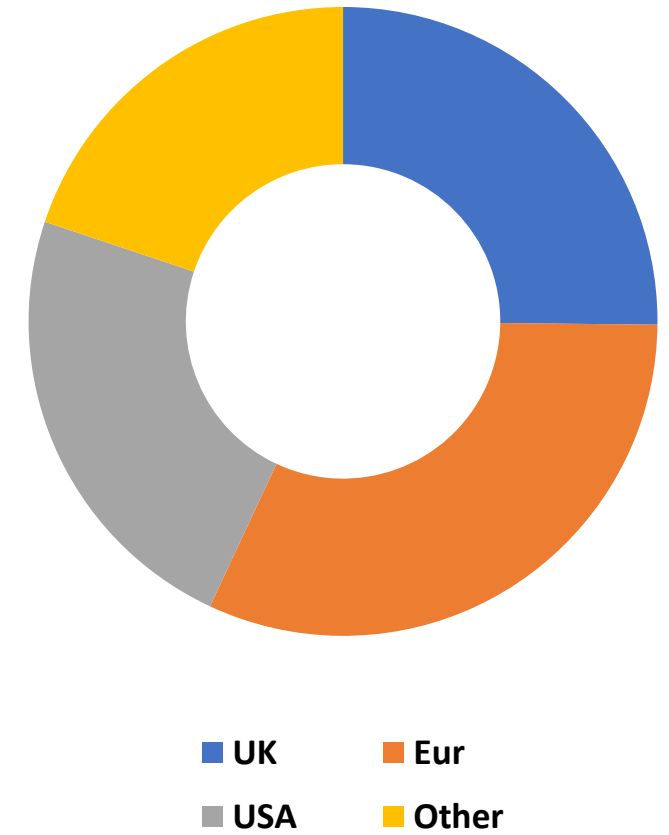
Revenue by activity (£m)



SAW Revenue by sector



Revenue* by location



Revenue* denotes FY23 excluding iTrack royalty income

STRATEGY IMPLEMENTATION

Nigel Rogers – Executive Chairman



- Growing logistics market, but with strong cost saving pressure
 - Increasing road safety regulations including
 - Mandatory Tyre Pressure Monitoring Systems (TPMS) EU from 2024, US planned for 2028
 - Mandatory vehicle inspections and digital record keeping
 - Adoption of RFID technology for tyre inventory management
-
- Addressable market estimated at US\$25m pa
 - Strong blue chip customer base on which to build
 - Direct fleet sales opportunities in UK and overseas
 - Key appointment of additional BD leadership (post period end)
 - Goal to move to recurring revenue model



2020

2023

2028+

Industry Trends

Cleaner more efficient systems for commercial aircraft with conventional engines

New electric propulsion systems for new styles of aircraft e.g. UAM eVTOL market

New propulsion technology e.g. Hybrid Electric, Hydrogen FC & combustion

Commercial Applications

Specified for T901 helicopter engine torque after rigorous testing for US Army

Helicopter engine torque
Electric actuator force/torque
Hybrid generation system torque
Open rotor engine torque

Helicopter engine torque
Electric actuator force/torque
Hybrid generation system torque
Open rotor engine torque
Electric propulsion motor torque
Torque/Pressure measurement on other airframe and propulsion systems



Confidential Tier 1 Aerospace Supplier

Confidential Tier 1 Aerospace Supplier

+ Additional blue chip aerospace opportunities

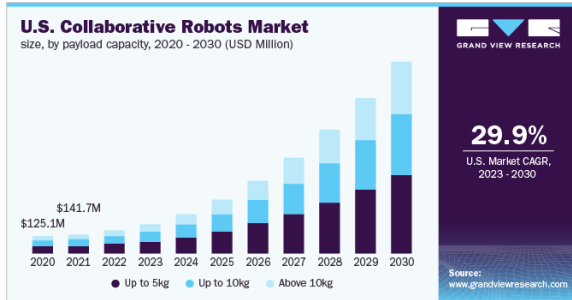
+ Additional blue chip aerospace opportunities

Aerospace sensor market = US\$4Bn (2021)*

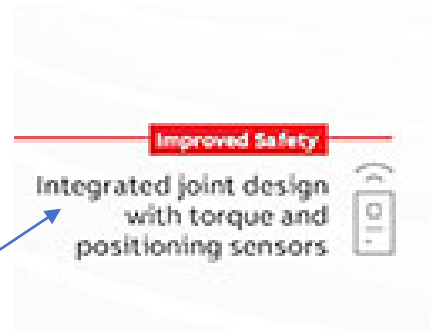
Growth forecast at 8% CAGR to 2028*

TRT estimate potential revenue from engineering services and component supply of US\$5-10m by 2030

* See resources – page 26



Sector undergoing rapid market growth



Torque sensor technology widely used to improve control and safety by major manufacturers

Typically using strain-gauge or displacement sensors



SAW technology allows improved joint and sensor designs

Increases robot load capacity, speed, productivity and performance

Robotic torque/force sensor market = US\$300m (2022)*

Forecast to reach US\$650m by 2028*

TRT estimate our addressable market exceeds US\$50m

* See resources – page 26



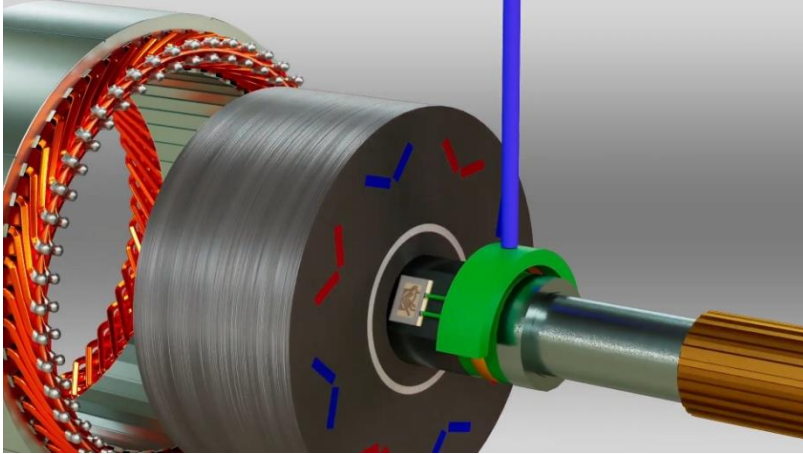
Motorsport global spend exceeded US\$5Bn in 2022*

Growth forecast at 8% CAGR to 2028*

TRT estimate addressable motorsport torque sensing market exceeds US\$20m pa

* See resources – page 26

- Increasing adoption of torque sensing driven by:
 - Regulation and cost controls to create more exciting competition between teams whilst controlling budgets
 - Increasing use of (more complex) hybrid and electric powertrains
- Strategic partner, McLaren Applied, is delivering high growth in telemetry and sensing business
- SAW technology has proven to be more accurate and reliable with a lower overall lifecycle cost than other technologies
- Motorsport sector provides pathway to consideration by hi-performance road vehicle OEM's



Near term revenues from several funded feasibility projects in US£25-100k range

Full market adoption likely to be 3-5 year duration

TRT estimate addressable market in eDrive torque sensing exceeds US\$50m pa

- EV market characterised by rapid growth and fierce competition, hence system performance, efficiency and cost are key to success
- Motor output torque and rotor temperature not currently measured in production motors due to the limitations of other sensing technologies, so not a feature in today's motor drive systems – SAW enables real time torque measurement to be used for enhanced motor control
- Potential to unlock significant improvements in motor performance, efficiency and functional safety
- Benefits proven in technical simulation - progressing to demonstration test rig – potential for enhanced breadth, depth and longevity of patent portfolio

Active engagement with customers at Sept 2023 (Sept 2022)	Aerospace	Electric motors and drives	Industrial machinery (incl OTR & Agric)	Performance automotive	Total
Stage 4 - Contracted	1 (1)	0 (0)	0 (0)	1 (1)	2 (2)
Stage 3 - Contract under negotiation	2 (1)	0 (0)	0 (0)	0 (0)	2 (1)
Stage 2 - In development	1 (1)	3 (1)	1 (1)	1 (0)	6 (3)
Stage 1a – Development project in planning	3 (0)	2 (2)	1 (1)	1 (0)	7 (3)
Stage 1b - Active enquiry	7 (4)	24 (8)	8 (3)	1 (0)	40 (15)
Total	14 (7)	29 (11)	10 (5)	4 (1)	57 (24)

Highlights

Development projects in progress or planned doubled from 6 to 13

Early stage engagement up almost threefold – mostly now incoming enquiries

Aerospace sector doubled and increased depth

FINANCIALS

Melvyn Segal - CFO



Financials – Income Statement

	FY23 £m	FY22 £m
Revenue	3.53	2.63
Cost of sales	0.47	0.40
Gross profit	3.06	2.23
Operating expenses	2.09	1.97
Exceptional costs	0.22	-
Other income	0.12	0.02
Operating profit	0.87	0.28
Financial expense	-	0.01
PBT	0.87	0.27
EPS (pence)		
Reported	8.81	5.36
Adjusted	10.20	5.36

Highlights

Revenue increased by 34%

Gross margin 87% (FY22: 85%)

Opex up 6%

Exceptional reorganisation costs of £0.22m

Adjusted operating margin 31% (FY22: 11%)

PBT before exceptional costs up fourfold

EPS up 64% (before exceptional costs up 90%)

Segmental analysis	FY 23 £m	FY 22 £m	Change
Revenue	3.53	2.63	Up 34%
Translogik	1.03	0.87	Up 18%
SAW	0.49	0.20	Up 145%
Contribution	1.52	1.07	Up 42%
iTrack	2.01	1.56	Up 29%
Adjusted Profit Before Taxation	1.09	0.27	Up x 4.03
Translogik	0.42	0.36	Up 19%
SAW (Adjusted)*	(0.55)	(0.81)	Reduced 32%
Net contribution	(0.13)	(0.46)	Reduced 76%
iTrack	1.97	1.51	Up 30%
Central Overheads	(0.75)	(0.79)	Reduced 4%

Highlights

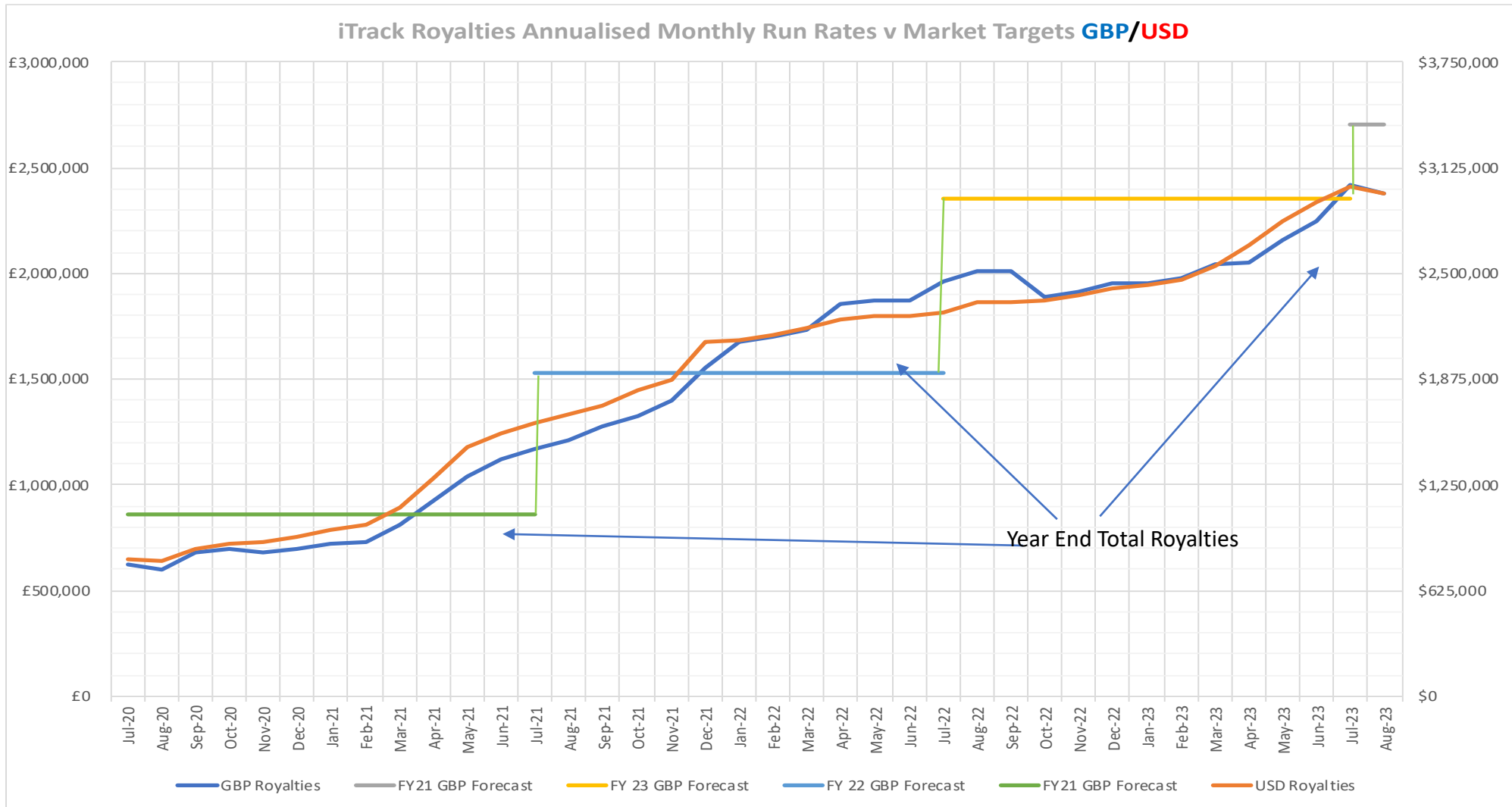
Ongoing businesses outperform
Royalty slightly below expectation

Adjusted Profit before exceptional costs

Ongoing segments profitable in H2

Central costs under tight control

** Before Exceptional Costs*



Research note refers to Broker research published by Allenby Capital

19. iTRACK ROYALTY INCOME

Cash flow statement	FY23 £m	FY22 £m
Net profit after tax	1.52	0.88
Adjustment for non-cash items	(0.34)	(0.26)
Working capital movements	(0.53)	(0.28)
Operating cash flow	0.65	0.34
Taxation	-	0.07
Capex	(0.26)	(0.10)
Cash flow before financing	0.39	0.31
Share buybacks	(0.41)	(0.30)
Other	(0.06)	(0.00)
Net Cash Flow	(0.08)	0.01

Highlights

Operating cash conversion 75% (FY22: 121%)

Share buybacks £0.41m at average 88p each

Cumulative share buybacks £0.71m at an average 79p each (post year end £0.75m at an average of 80p)

PROSPECTS

Nigel Rogers – Executive Chairman



Trading outlook indicates continuation of strong cash generation

Opportunities to increase investment in SAW technology to maximise strategic growth dynamic

Further engineering recruitment to accelerate commercial and technical development

Return to shareholders – broad consultation support buybacks as preferred mechanism over dividends

Build cash resources for future strategic investment opportunities



Current trading – revenues up 16% on prior year

Translogik

- addition of experienced BD leader with sole focus on exciting new opportunities
- well placed to be primary driver of top line growth 2023 – 28

SAWsense

- rapid expansion of market awareness and new qualified sales leads
- increased intensity of engagement in paid development projects
- opportunities to add depth and longevity to IP portfolio
- self-sustaining business model until full commercial deployment from 2028 onwards

iTrack – FY24 prospects underpinned by deployments late in FY23



	Historic 2020-2023	Mid Term 2023-2028	Long Term Beyond 2028
Translogik	CAGR c. 15% pa	Annual step changes Main driver of top-line growth Move to recurring revenue model	Total addressable market >US\$25m pa
SAWsense	Technical & commercial evaluation	Funded development work across target market sectors Aim to be financially self-sufficient Building pipeline of sustainable long term partnerships	Annual step changes Main driver of top-line growth
iTrack royalty	Annual step changes Main driver of top-line growth	CAGR in volume of 15-20% Unit rate reduction 6/25 Likely to revert to c.2023 level	Growth rate slows Unit rate reduction 6/28 Expires 6/30
Company	CAGR c. 40% pa (from low base)	Continued high growth to 2025 TL & Saw sufficient to offset iTrack (2025-2028)	SAW & TL drive high growth beyond expiry of iTrack



24. MID & LONG TERM FINANCIAL GOALS



QUESTIONS?



Further information on technology and applications – see video materials on:

SAWsense – <https://vimeo.com/695763393>

Translogik – www.translogik.com/translogik/innovative-tyre-technology

Market statistics

Page 11: Aerospace sensors market:

www.polarismarketresearch.com/industry-analysis/aircraft-sensors-market

www.marketsandmarkets.com/Market-Reports/aircraft-sensors-market-53630527.html

www.alliedmarketresearch.com/aircraft-sensors-market-A06225

Page 12 - Robotics Torque Sensor market:

www.alliedmarketresearch.com/robotic-sensors-market-A16956

www.gminsights.com/industry-analysis/robot-sensor-market

Page 13 – Motorsport global spend:

www.marketforecast.com/market-reports/motorsports-market

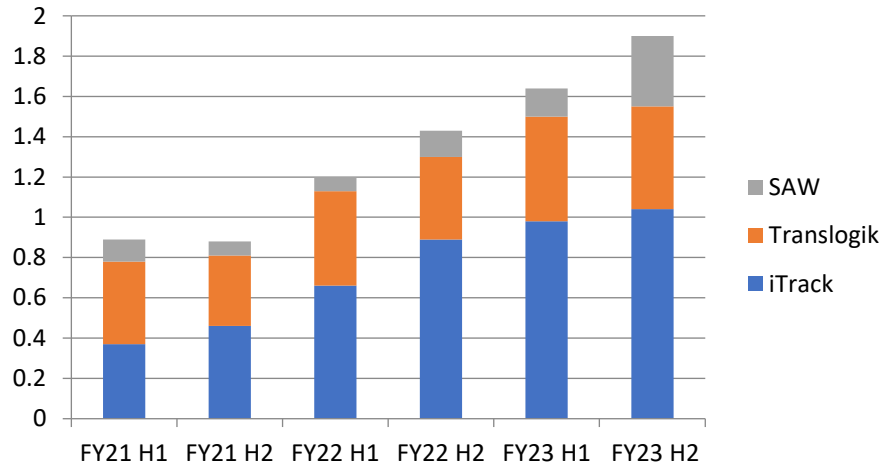
www.researchandmarkets.com/report/motorsport

www.industryarc.Report/17/global-motorsporting-motorsports-market.html

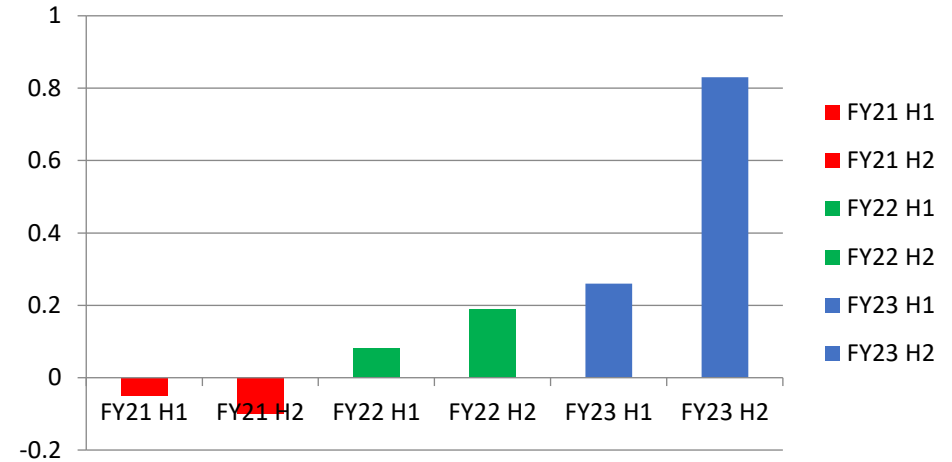


	Appendices
A	Financial KPI's
B	Financial position
C	SAWsense - System description
D	SAWsense – current use cases
E	SAWsense – Selection of funder development projects
F	SAWsense – competitive landscape

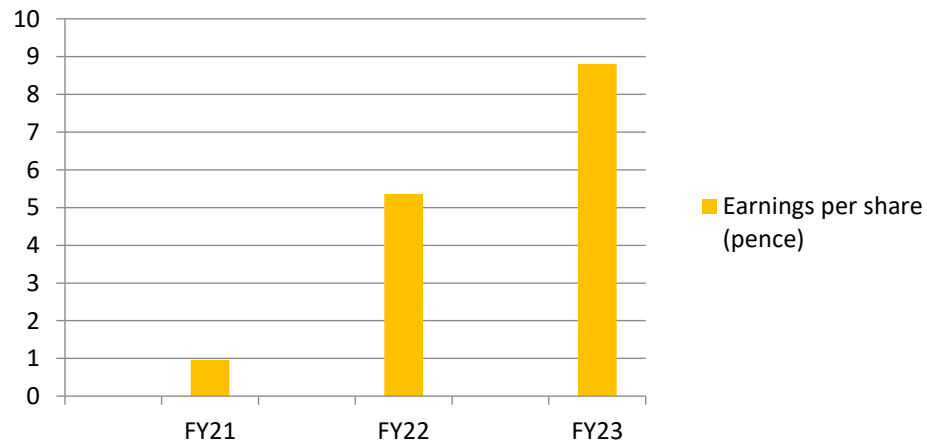
Revenue by segment (£m)



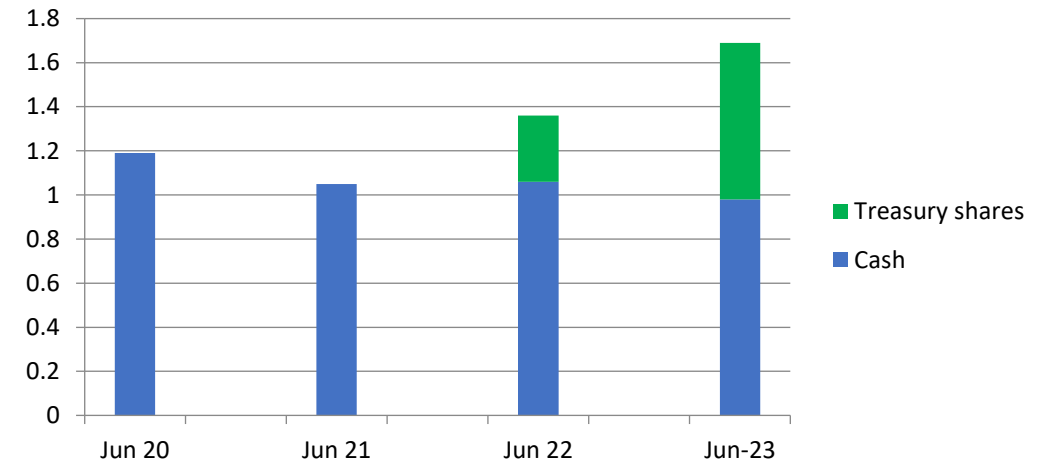
Net PBT (£m)



Earnings per share (pence)



Cash/Treasury Shares (£m)



Financial position	June 23 £m	June 22 £m
Tangible assets	0.15	0.17
Intangibles (including DT)	2.03	1.31
Net working capital	1.19	0.67
Cash equivalents	0.98	1.06
Lease liabilities	(0.04)	(0.11)
Net Assets	4.31	3.09
Share capital/premium	1.71	1.71
Reserves	3.31	1.68
Treasury shares	(0.71)	(0.30)
Total Equity	4.31	3.09

Highlights

Net assets per share 28p (FY22: 19p)

Net cash of £0.98m (FY22: 1.05m)

Q4 Royalty received in July 2023 £0.54m (FY22: £0.47m)

Treasury shares £0.71m (FY22: £0.30m)

Distributable reserves £2.20m (FY22: 1.20m)

Torque Measuring System (TMS) key building blocks and associated functions

Torque Sensor

- Patented All Quartz Package (AQP), the SAW component
- Low cost in high volume
- AQPs are the sensing elements required to measure strain and temperature for thermal compensation.
- AQPs are manufactured by licenced suppliers.
- The AQP is a passive device and can operate with no active electronics on shaft.

RF Couplers

- Patented Low-cost, non-contact RF Close coupled antennae are required for wireless transmission, and reception, of RF signals on the rotating component. There are two main design options which are selected based on performance and space envelope available. These are custom designed for the customer's application and manufactured using standard Printed Circuit Board (PCB) materials.
- The Rotor Couple is mounted on shaft, connected to sensor
- The Stator Couple is mounted in a housing

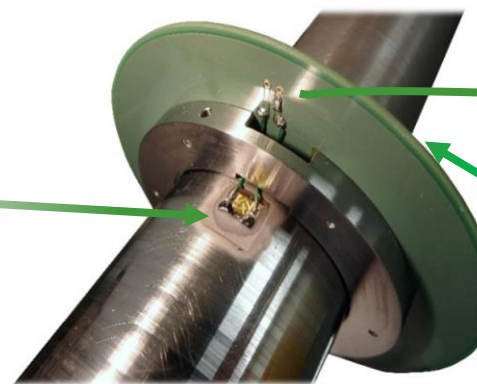
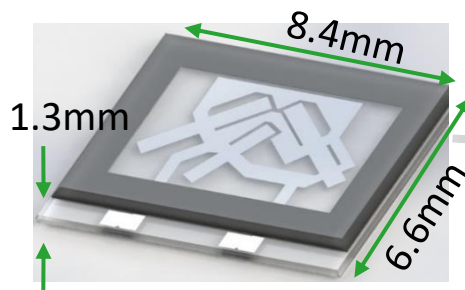
Reader Electronics

- Patented electronics and software required to condition and process the AQP SAW signal
- The key semiconductors are an Application Specific Integrated Circuit (ASIC) developed by Melexis and an off the shelf Texas Instruments (TI) Digital Signal Processor (DSP) which contains the interrogation algorithm.
- Can be integrated onto RF coupler if required

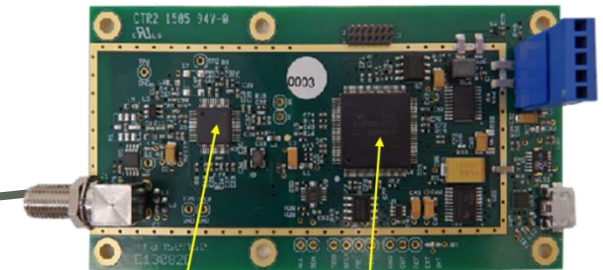
Non-Contact

Accurate

Low cost



RF Rotary Coupler

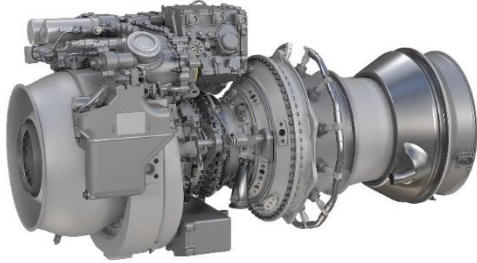


ASIC

DSP

Torque and Temp Output

Current Use Cases



- Licensed to GE for use in T901 Gas Turbine engine output shaft
- T901 engine to be used in US Army Apache and Blackhawk helicopters
- SAW technology was selected due to
 - Improved torque measurement accuracy
 - Elimination of sensor maintenance
- Enables engine control system to deliver improved:
 - Fuel consumption
 - Flight handling
 - Data collection
 - Component protection



- Through McLaren Applied, instrumented shafts are sold to race series and race teams
- SAW technology was selected due to:
 - Improved torque measurement accuracy
 - Reduced and reduced calibration requirements
 - Impervious to magnetic fields
 - Lower cost
- Enables race series and teams to have improved:
 - Torque measurement
 - Balanced competitiveness across teams
 - Reliability
 - Lower costs than other systems



Description	Automotive electric motor torque	Aerospace electric actuation system torque	Automotive electric motor temperature
Customer	T1 Automotive	T1 Aerospace	T1 Automotive
Status	Initial feasibility and motor packaging integration	Successful testing of prototype	Successful testing of prototype
Application Need/Benefit	Torque measurement to improve functional safety and performance	Torque measurement for control and performance verification of electric actuation system	Motor rotor magnet temperature measurement to enable use of improved non-rare earth magnet motor technology
Next steps	Complete packaging and feasibility study project	Planning prototype development and production application project	Demonstration of prototype to end customer (OEM) and planning of production application project

E. SELECTION OF DEVELOPMENT PROJECTS

Features	SAW Sensors	Strain Gauge Sensors	Displacement Sensors	Magnetoelastic/ Magnetostrictive Sensors
Non-contact	✓	✗ ₁	✓	✓
Torsionally stiff	✓	✗	✗	✓
Integrated temp sensor for temp compensation	✓	✗	✗	✗
Suitable for use in liquid environments i.e. oil	✓	✓	✗ ₃	✓
Frequency response	Possible up to 8Kz, normally 1.7 kHz	1kHz	500 Hz	2 kHz
Operational Speeds	0 – 30,000 rpm	Note 2.	Note 2.	0 - 20,000 rpm
Operational Temperature range	-40°C to +150°C	Note 2.	Note 2.	+20°C to +130°C
Static and Dynamic Torque measurement	✓	✗	✗	✓
Static and Dynamic Temperature measurement	✓	✗	✗	✗
Suitable for medium to high volume manufacture	✓	✗	✓	✗
Suitability to a variety of steels and non-ferrite materials	✓	✓	✓	✗
Axial space requirement	V small	Small to medium	Substantial	Small to medium
IP	Torque IP owned by Transense	Widely used	Widely used	IP owned by other companies

Notes:

- 1 To have a non-contact capability requires inductive coupling, slips rings or electronic shaft telemetry
- 2 Dependant on sensor material properties and configuration
- 3 Possible if displacement is mechanical, not using optical technology

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