

# Rail Vehicles

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**Connectors**

AB Connectors Limited



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# Company Profile

TT Electronics' brand AB Connectors specialises in the design, test and manufacture of high performance electronic connectors and interconnect solutions, supplying a range of global customers in aerospace, defence, rail and industrial markets.

Our broad product portfolio which includes miniature connectors, high power connectors, soldier systems, harness assemblies and box systems typically serve within key applications such as signalling, communication and power distribution.



Operating from the principle site in Abercynon, South Wales, our research and development teams have an excellent track record for developing innovative industry solutions and our engineers have extensive experience in designing a range of product configurations to meet customer specific requirements for the most demanding environments.

From plant layout to production line set-up and quick changeover processes, we offer the ideal service, with a flexible manufacturing environment and accredited facilities.

Quality systems and approvals include ISO9001 along with various product and market sector approvals including the military Mil-std 790 and mass transit IRIS certifications and environmental approval to ISO14001. As a result of these qualifications AB Connectors has been awarded several major customer approvals and accreditations.

AB Connectors total commitment to providing customers with high levels of service, cost effectiveness, quality and innovative solutions in interconnection products make it the ideal first choice supply partner.



# Rail Family

TT electronics' components division has multiple facilities for the design and manufacture of interconnection systems with engineering teams providing custom solutions.

## Rolling stock

Design, development and supply of interconnection solutions direct to major OEM partners.



## Equipment

Comprehensive product portfolio for all electrical interfaces on all rail vehicles.



## Infrastructure & signalling

Trackside and signalling cables and connectors.



## Services

Innovative product solutions for upgrades and vehicle overhaul programmes, supporting the vehicle life cycle.



# Application Areas

TT electronics' products can be found in all areas of the rail vehicle in power, control and communications systems.



## Rolling stock

- Bogies
- Engine
- Brakes
- Inter-car connections
- Train communication systems
- Drivers cabin equipment
- Data storage & record
- Doors, ramps & access devices
- Screens & audio systems
- Lighting
- Phone & com

## Infrastructure

- Signalling & level crossing
- Warning systems
- Location systems
- Detection, measurement & control
- Safety & detection equipment
- Video surveillance
- Control, operation & communication



# Case Studies

## Interfleet Technology–Class 158ERTMS upgrade

When Interfleet Technology was awarded the contract for the vehicle integration design and fleet fitment of the European Rail Traffic Management System (ERTMS) to the Class 158 Cambrian fleet, it turned to TT electronics Connectors Business Unit for bespoke jumper and cable harness solutions.

The ERTMS programme enables the speed and movement of trains to be continuously monitored and automatically controlled by signalling staff if required. The project required Interfleet Technology to fit a 19" cabinet housing the European Vital Computer (EVC), a touch screen driver-machine interface, Doppler radar, Euroblaise antennas, roof mounted GSM-R GPS and Data antennas. These complex systems are connected utilising a pre-tested, plug and play harness assembly designed by the team at TT electronics to reduce the vehicle downtime.

TT electronics was selected by Interfleet Technology for its proven track record in supplying and supporting the rail industry. Working closely with the Interfleet

project team, the Connectors Business Unit developed a custom rugged inter-car jumper system designed to meet the signal requirements and harsh environmental conditions of the project.

“TT electronics has become a valued supplier, instrumental in enabling us to deliver this complex and challenging project on time. Prior knowledge and experience of the standards required by the Rail industry was a key consideration for us when selecting design partners and the team at the Connectors Business Unit ticked all the boxes.”

### Programme Manager

– RollingStock, InterfleetTechnology Ltd.



## Petardseye Train-on-train surveillance

The development of any CCTV surveillance system demands high quality reliable components matched with superior build quality. This is especially true when the surveillance system is mounted in a challenging passenger train environment. When Petards, the market leader in on-train CCTV solutions secured contracts for their high performance eyeTrain digital surveillance system, they turned to the engineering team at TT electronics for support.

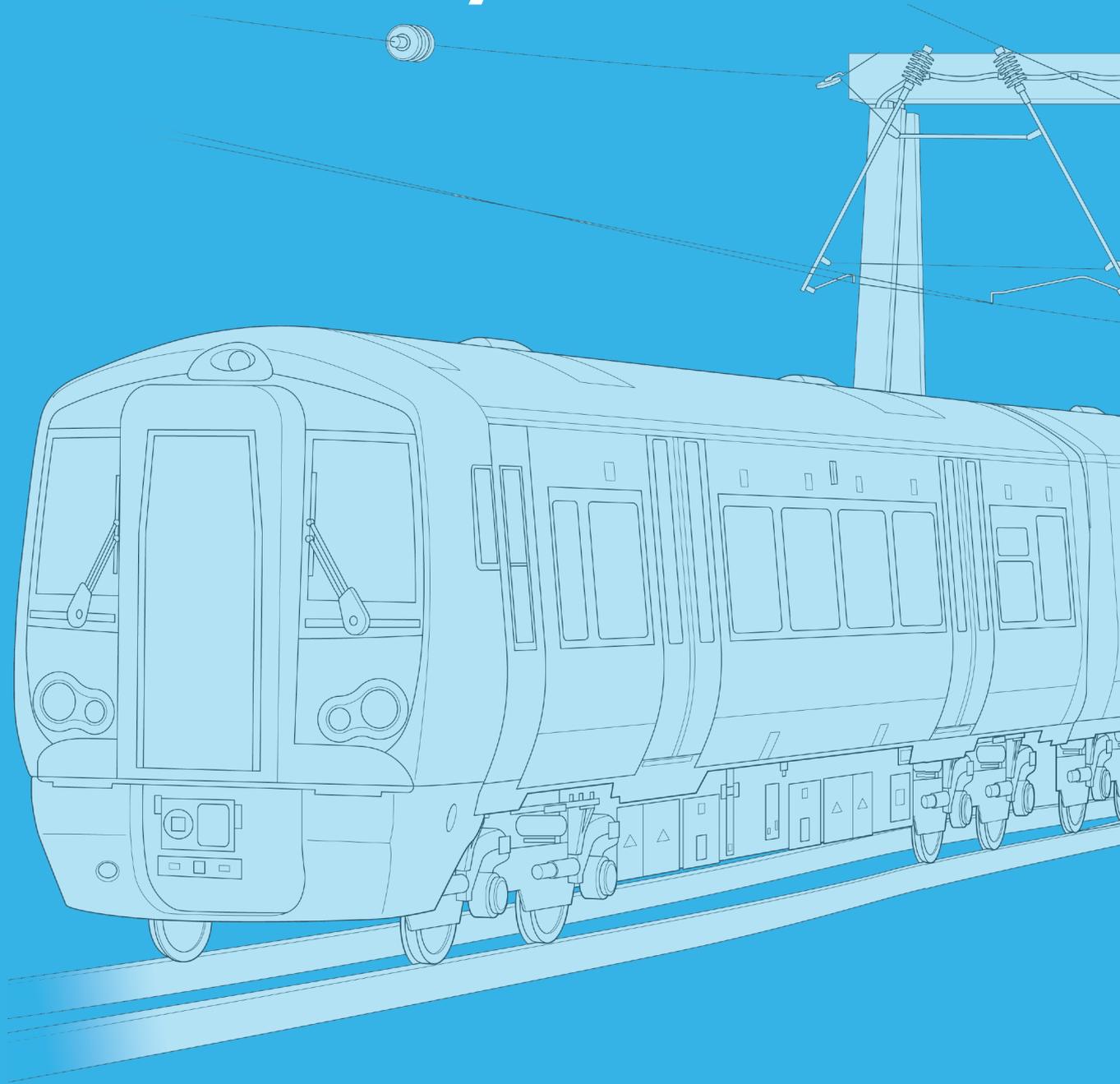
Effective transport surveillance systems have been shown to increase passenger security by deterring crime and anti-social behaviour. The installed systems need to remain operational in fluctuating temperatures and during extreme vibration conditions whilst providing instant high resolution images direct to the driver and storing them.

The team at TT electronics was able to meet these design challenges head-on with a flexible product offering that met the exacting standards of the rail industry. The AB Multipole high speed & signal data connector was selected by Petards for its simple yet robust characteristics.

The innovative connector features a low fire hazard thermoplastic insulator, which is removable for repositioning and can withstand operational temperatures from -55°C to +125°C. The connector's IP67 rating alongside BSEN61373 Cat 1 Class A shock and vibration classification meant it was the ideal solution for several Petards passenger train upgrade projects in 2011.



# Vehicle Cutaway



Electrical Box Assembly

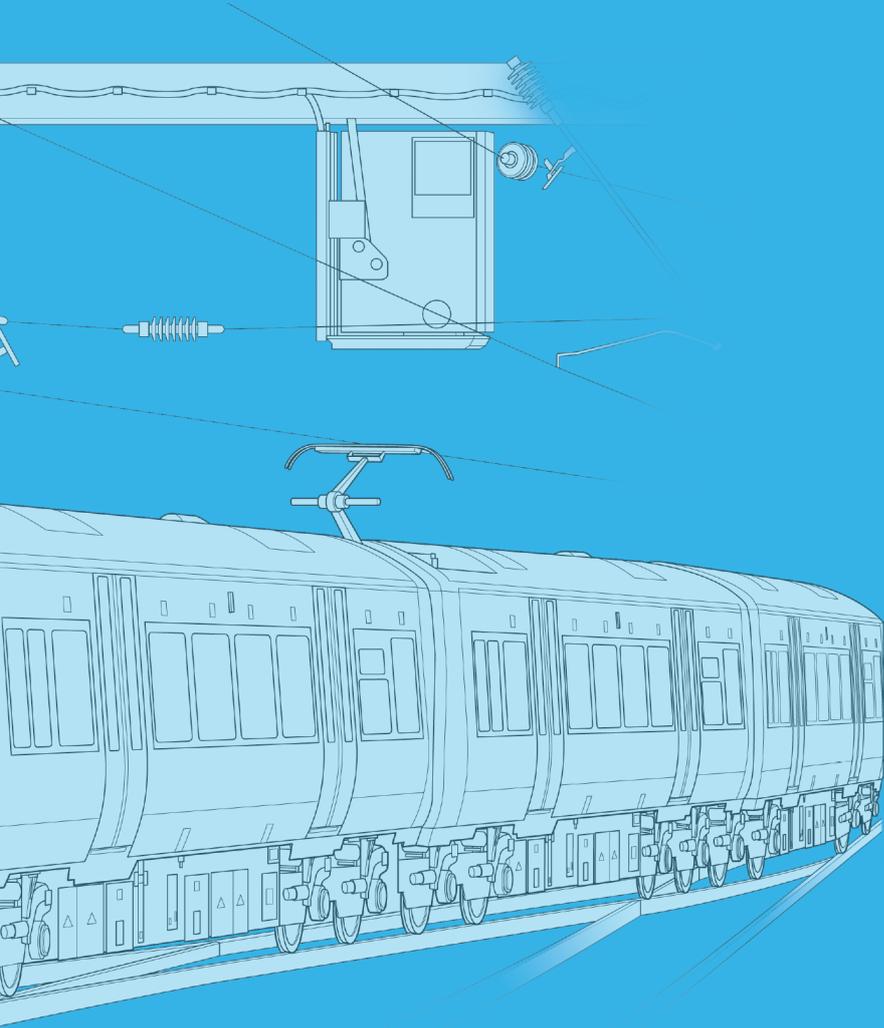


ABCIRH



ABCIRP

# Rail Vehicles



AB05H



ABMP



PolaPower™



ABCIRH



Inter-car Jumper and Harnessing



ABPC

# Technical Details



## ABCIRH

Mil-C-5015 style conforming to VG95234 and LUL standard. Reverse bayonet coupling connect or with low fire hazard/ halogen free rubber inserts. Contact rating from 7.5 amps to 500 amps; temperature rating from -55°C to +200°C; contact configuration from 1 to 95 ways.

Bespoke inserts are available to support specific customer requirements; power, signal and communication (Co-ax, Twinax and Quadrax).

## ABCIRP

Mil-C-5015 style conforming to VG95234. Reverse bayonet coupling connector approved to NF-F-61-030 by SNCF, RATP, AlstomTransport and Bombardier meeting LUL standards. Lowfire hazard thermoplastic inserts with metal clip retained contacts. Contact rating from 10 amps to 42 amps; temperature rating from -55°C to +125°C; contact configuration from 7 to 60 ways.

## ABOSH

Mil-C-26482 Series I style conforming to BS9522 F00017, CECC 75201003. Miniature bayonet coupling connector with halogen free rubber inserts. Contact rating from 7.5 amps to 13 amps; temperature rating from -55°C to +125°C; contact configuration from 2 to 61 contacts

## ABBMS

Mil-C-5015 style conforming to BS9522-F0032 and VG95234. Reverse bayonet coupling connector with polychloroprene inserts. Contact rating from 7.5 amps to 500 amps; temperature rating from -55°C to +125°C; contact configuration from 1 to 61 ways.

## UKAN

Mil-C-5015 style conforming to DEF5321. Fine screw coupling connector with silicone rubber inserts. Contact rating from 12 amps to 100 amps; temperature rating from -55°C to +190°C plus high temperature option with rating from -55°C to +1100°C (for 20 minutes); contact configuration from 1 to 48 ways.

## Pola Power™ Single Pole Power

Whether it's for power distribution for electric drive vehicles or air conditioning units, TT Electronics makes the connection.

With a finger proof design and quick disconnection, Pola Power™ provides solutions for engineers who require a small, light connector which has the capability of delivering big power (upto 1,000 amps) to applications. Temperature rating from -55°C to +150°C.

## ABPF

Three start threaded coupling connector conforming to CECC 75-201-007 with robust plastic body and anti-vibration feature. Lowfire hazard/halogen free inserts. Contact rating from 7.5 amps to 500 amps on shell sizes 18, 22 and 28 with contact configuration from 2 to 37 ways.

## ABIC (inter-car)

Unique reverse bayonet coupling connector for high dynamic inter-car applications designed with a lever handle for convenient coupling and secondary locking. Bespoke inserts are available to support specific customer requirements; power, signal and communication (Co-ax, Twin-ax, Tri-ax and Quadrax). Temperature rating from -65°C to +125°C.

## ABMP

Mil-C-5015 style conforming to BS9522-F0032 and VG95234. Reverse bayonet coupling connector with lowfire hazard thermoplastic inserts. Tested for high speed data applications:

- 100 Base-Tx on Cat 5e: Single Quadrax;
- 1000 Base-Tx on Cat 5e: 2 x Quadrax.

Bespoke inserts are available to support specific customer requirements; signal and communication (Co-ax, Twin-ax, Tri-ax and Quadrax). Temperature rating from -55°C to +125°C.

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	Control 10A to 135A	Signal	Power Over 135A	High Speed Co-ax & Twin-ax	High Speed Tri-ax & Quad-ax	Inter-Car Jumper	Inter-Car Jumper High dynamic application	Fire Barrier Testing
ABCIRH	●	●	●	●		●		●
ABCIRP	●	●				●		●
ABO5H	●	●						●
ABBMS	●	●	●			●		
UKAN	●	●				●		●
Pola Power™			●			●		●
ABPF	●	●		●		●		
ABIC	●	●		●	●	●	●	●
ABMP	●	●		●	●	●		

# Global Presence

The world's demand for electronics is increasing as new technologies, with a higher dependence on complex components, are being adopted by a broader customer base. This growth provides TT electronics an assured future as we focus on efforts to deliver excellence in customer service and quality products to these markets. From our strong UK base, the company has achieved truly global reach. We have established technical and manufacturing facilities in strategic countries maintaining the successful formula of close liaison with our customers in all major overseas markets.

In addition, through strategic relationships with Original Equipment Manufacturers around the world, we are now in the enviable position where we gain double benefit - from growth in their markets and from the increase in the electronic content of end products.

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