Traction Converter Upgrade and Overhaul



Power Assemblies



Dynex Semiconductor Ltd. (Formerly operating under the names of AEI Semiconductor, Marconi Electronic Devices and GEC Plessey Semiconductors) is a UK based power semiconductor device and assemblies manufacturer used in traction propulsion / auxiliary converters and rectification systems.

Dynex's devices and assemblies have been used throughout Europe and the world for both on-train and track-side power applications. Dynex uses our vast experience in power semiconductor device and assembly design to provide the following services:

- Retraction of propulsion systems (e.g. GTO to IGBT)
- Converter mid-life upgrade/overhaul
- Reliability improvements
- Propulsion modernisation and upgrade
- Replacement semiconductor devices
- Support for track side applications such as rectification circuits



Repair of Alstom ONIX Converter Cadix Module using Dynex IGBTs



Fertagus operator Double Deck EMU in Coina, Portugal

Converter Mid-life Upgrade/Overhaul

Rolling stock typically has a 40 year life, however, with changes in technology it is widely recognised that the original traction power and control electronic equipment can become dated, with obsolescence issues arising sooner. Therefore mid-life upgrades can offer numerous benefits.

- Improved reliability and maintainability resulting in reduced life cycle cost
- Availability through lower downtime and higher reliability
- Efficiency savings, approximately 5% improvement
- Space efficient, modular design resulting in improved maintainability
- Obsolescence management full collaborative agreement with Dynex ensures long-term UK support for spares and maintenance
- Improved traction adhesion with axle control redundancy
- Activation of regenerative braking is expected to produce a saving in electricity costs in excess of 20%
- Improved green credentials







Disassembly and repairing of a GTO based assembly in an oil cooled converter system, these assemblies are also load tested at Lincoln.







Concept converter design for GTO to IGBT conversion

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