

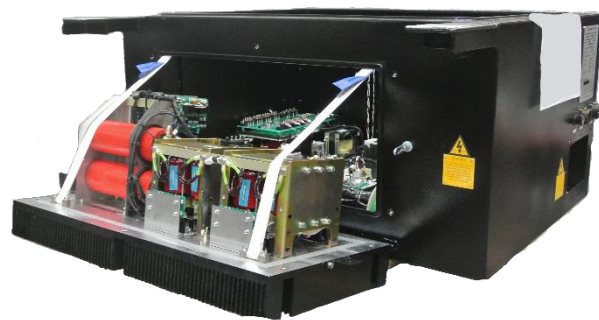


## LOW VOLTAGE POWER SUPPLY / BATTERY CHARGERS

### 12kW DIESEL MULTIPLE UNITS (DMU)

#### Key Benefits to Rail Operators

- ✓ Light, compact and rugged design
- ✓ Compatible with any battery type e.g. NiCds, LiFePO, LA
- ✓ High reliability
- ✓ Proven i.e. > 500 units in service
- ✓ Low audible noise
- ✓ Excellent output voltage stability and low voltage ripple
- ✓ Low maintenance costs thanks to naturally air cooled design
- ✓ Best in class safety with over voltage and battery over temperature detection and shutdown
- ✓ Immune to voltage transients
- ✓ Fully compliant to UK Rolling Stock and Network Rail Standards
- ✓ Fault Diagnostics and Condition Monitoring Software



#### Key Technical Features

- ✓ Soft start circuit
- ✓ Input EMC filter
- ✓ Six pulse rectifier
- ✓ High frequency DC-DC conversion stage
- ✓ Output rectification
- ✓ Filtering
- ✓ Natural air cooled design
- ✓ Highly stabilised and smoothed DC Output for Low Voltage Power Supply (LVPS) systems
- ✓ System to accurately control charge rate and recover completely discharged batteries
- ✓ Reverse battery connection detection circuits



Input Voltage	3 phase 400V AC 50Hz
Operating Range	360V to 440V
Output Power	12kW
Nominal Battery Voltage	28 V DC
Current Accuracy	± 2% of nominal maximum value
Voltage Ripple	< 500 mV pp
Output Power Maximum	12kW
Output Signal	Charger fault, output current limit, charge available
Environmental Protection	BS EN 605029 IP65
Ambient Temperature	-17°C to +40°C
Humidity	Maximum 100%
Cooling	Natural Air Cooling Earthed Heatsinks
Independent Low Voltage Monitoring	Yes
Efficiency	88% @ full load
Weight	195 Kgs
PTE Diagnostics	Yes, Portable Test Equipment ( PTE) software provided for condition monitoring and fault diagnostics
Dimensions	Height – 52cm, Width Including Plug – 110cm, Length with hangers – 115cm, Length of main fab – 92cm.
Design Life	35 Years
Audible Noise	70 dBA at 1m
Environmental Protection	Electronic Components - IP54 , Magnetic Components – IP20

Different types of batteries are used to support the low voltage standby and emergency circuits in trains. To obtain the longest life and minimum watering periods from these batteries, the charging voltage needs to be controlled within close limits.

The Low Voltage Power Supply was developed to provide a stable DC output voltage, across a range of supply variations. This supply feeds all of the car LVDC loads as well as charging the back-up batteries. High frequency switching techniques are used to provide low ripple, low weight and a compact assembly.

The equipment is ruggedly constructed to withstand the severe under floor environment and the design techniques used provide good reliability in operation. Multiple units can be operated in parallel to achieve higher current output or provide redundancy of operation.

We will be happy to discuss your project or enquiries, please contact our marketing department at [marketing@turbopowersystems.com](mailto:marketing@turbopowersystems.com) to get in touch or ring us on +44 (0) 191 482 9288/9251/9278.



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