RELIABLE & EFFECTIVE POWER SOLUTIONS

TURBO POWER SYSTEMS
Powering Intelligent Solutions

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AUXILIARY POWER SUPPLY (APU) – METRO

52kVA/9kW Toronto Transit Commission (TTC) H6 Series

Key Technical Features

- ✓ The APU consists of an HV Input Stage and DC Link (IVPS), 3 phase inverter, output transformer, and LVPS
- ✓ EMC type tested to RIA 18
- ✓ IGBT based high frequency inverters /LVPS
- ✓ Galvanic isolation on AC output
- ✓ Reverse current protection i.e. 4kV input diode prevents energy returning to track
- ✓ Paralleling System - Designed for operation over rail gaps
- ✓ Designed to withstand transients of up to 3kV
- ✓ Independent battery voltage monitoring
- ✓ Event monitoring and fault logging via TPS proprietary portable test equipment (PTE) software

Key Benefits to Operators and Fleet Owners

- ✓ High reliability
- ✓ Short-circuit and thermal overload protection.
- ✓ Naturally cooled design (no fans). Hence reduced through life costs
- ✓ Designed to operate in extreme weather i.e. -35^{0}C to +40^{0}C
- ✓ Designed for effective maintenance operation
- ✓ Immune to supply fluctuations and transients

Input Voltage	600Vdc Nominal
Input Voltage Range	350 Vdc – 950 Vdc (operation rated at full power)
Input Isolation to Earth	3.875 kV AC rms for 1 minute
Transient Withstand	Transient fault energy sources of up to 3kV, with an energy of 30,000J and 5kV for 1ms with an energy of 20J
Intermediate voltage power supply (IVPS)	400v dc± 5%, 100kW. Reregulates input voltage and created DC link.
Inverter Output Voltage	3 Phase 4 wire, 208 Vac ±5% , 60 Hz ± 0.5 Hz
Inverter Rated Power	52 kVA Continuous
Inverter output Voltage THD	< 5% up to 25th harmonic
Motor Starts	The APU will Direct On Line start the motor with all other loads running
LVPS output voltage	37.5 D dc ± 0.5 V
LVPS output power	10kW
Battery temperature compensation	Yes it is included
Protection	Reverse battery protection, Electronic short-circuit and thermal overload protection of the output
Environmental Protection	Wound Components IP22, Remaining Components, IP66
Noise	<68dBA at 1 metre under any conditions
Efficiency	> 92% @ full load
Weight	1100kg
Dimensions	2350mm (L) x 1200mm (W) x 600mm (H) (existing box)
Design Life	30 years
Operating temperature and Humidity	-35^0 C to + 40^0 C and 100% condensing
Cooling	Natural convection cooling
Portable Test Equipment (PTE)	Internal monitoring system and laptop computer based PTE

Our H6 APU consists of an intermediate voltage power supply (IVPS), inverter and low voltage power supply (LVPS) providing electricity for heating, ventilation, air conditioning (HVAC), battery charging, general auxiliary supplies and more. An APU is fitted to the car operating as two car units. The HVDC supply is pre-regulated by the IVPS to create a 400 Vdc link paralleled between the two APUs. The IVPS provides a stabilised power output for both the inverter and the LVPS. The IVPS is rated at 200% and is capable of supporting the inverter and LVPS loads of both cars, thereby increasing availability and reducing the effects of rail gaps. Each LVPS is capable of being paralleled to significantly improve supply availability for the train's critical low voltage control loads.

Our dedicated support to customers is key to the sustainability of rail projects, which is why we have a team of sales representatives in North America, Atlanta. Furthermore, an advisory support line is available via telephone.

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

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