



## AUXILIARY POWER SUPPLY – MASS TRANSIT (MONORAIL)

30kVA /11kW Sao Paulo Expresso Tiradentes (SPET) & King Abdullah Financial District (KAFD)

### Key Technical Features

- ✓ Auxiliary Power Supply (APU) is self-contained unit powered from track supply
- ✓ Aluminium Enclosure
- ✓ Galvanically Isolated Input Stage for HV supply
- ✓ An input filter and transient protection stage
- ✓ Pulse Width Modulated (PWM) Inverter for 3 phase output
- ✓ An AC inter-car power transfer stage for redundancy of 3 phase supply
- ✓ Single phase Inverter for utility supply
- ✓ Primary and secondary low voltage power supply (LVPS) stages for battery charging and vehicle control equipment
- ✓ Dead battery start provision
- ✓ Car communication interface via CANbus
- ✓ External hardware signal interface via MIL connectors
- ✓ IP65 standard. Tested for water / dust sealing
- ✓ Event and fault logging via proprietary portable test equipment (PTE) software



### Key Benefits to Transit Authorities

- ✓ Light weight and compact (150Kgs)
- ✓ Very high efficiency i.e. > 94%
- ✓ Designed, tested and validated for monorail platform
- ✓ Reliable operation under extreme environments – Thanks to liquid cooled design
- ✓ Modular approach to component placement for efficient maintenance and minimal downtime
- ✓ Battery voltage, temperature and reverse polarity monitoring



|                                    |   |
|------------------------------------|---|
| Input Voltage                      | 750 Vdc   |
| Input Voltage Range                | 600 Vdc to 1050 Vdc at full load  |
| Input isolation to earth           | 3kV rms for 1 minute  |
| Output Voltage 3phase Inverter     | 380 Vac $\pm 5\%$ at 60Hz $\pm 1\%$   |
| Rated Power                        | 30kVA   |
| Short term overload                | 150% for 10 seconds   |
| Motor Starts                       | Direct on line (DOL) motor starts can be used                                     |
| Single Phase Output                | 220 Vac $\pm 5\%$ rated at 2.5kVA   |
| Low Voltage DC Output 1            | 124.5 Vdc $\pm 0.5V$ rated at 8kW   |
| Low Voltage DC Output 2            | 24 Vdc $\pm 0.25V$ rated at 3.6kW   |
| Protection                         | Electronic short-circuit, overload and transient protection                       |
| Battery Protection and Monitoring  | Yes, reverse battery temperature, polarity and voltage monitoring                 |
| Efficiency                         | > 94% at full load  |
| Weight                             | 150 Kgs   |
| Dimensions                         | 1641mm (L) x 470mm (W) x 682mm (H)  |
| Reliability                        | > 100,000 hrs MTBF  |
| Design Life                        | 30 years  |
| Operating temperature and Humidity | -25 <sup>0</sup> C to +65 <sup>0</sup> C and relative humidity at maximum of 100% |
| Cooling                            | Liquid-cooled heatsinks   |
| Portable Test Equipment (PTE)      | Remote condition and fault monitoring   |
| Car Communication                  | Yes via CANbus  |

TPS is a #1 supplier of power conversion equipment for various monorail platforms across the globe. There are more than 400 units successfully operating in Brazil, Saudi Arabia and Malaysia. TPS was chosen for this project due to its long standing pedigree in delivering compact, efficient, reliable and light weight power electronic solutions.

With over 40 years rail pedigree, a team of highly skilled engineers and technicians, and a track record in creating world-class power electronics, why go anywhere else for your auxiliary power supply?

To discuss your project or for any further information please contact our marketing department at [marketing@turbopowersystems.com](mailto:marketing@turbopowersystems.com) or +44 (0) 0191 482 9288/9251/9278.



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