



Electrification

Premium PSU

The Complete Auxiliary Power Matrix for Rolling Stock – Premium PSU at InnoTrans 2026

From 40W battery DC/DC converters to 10kW variable frequency drives, galvanically isolated and non-isolated AC/AC converters and catenary-fed auxiliaries: Premium PSU designs and manufactures the full range of auxiliary and services power conversion for railway rolling stock, all engineered to EN 50155 and built in Barcelona. InnoTrans 2026, Hall 17, Stand 425 – here is what is on the stand.

One Supplier, the Full Conversion Matrix

Premium PSU designs and manufactures the complete railway power supply matrix used on board a modern train – AC/DC power supplies, DC/DC converters, DC/AC inverters, AC/AC variable frequency drives and DC-UPS – from 40W to 40kW. Every railway product is engineered to EN 50155, with fire-and-smoke behaviour to EN 45545-2, shock and vibration to EN 61373 and the EMC performance the onboard environment demands. Sourcing the whole matrix from one qualified supplier removes multi-vendor qualification overhead and the grey areas of responsibility that appear when converters from different makers share the same bus. The complete range will be on show at InnoTrans 2026, Hall 17, Stand 425.

Spotlight – VDX Series

Premium PSU's VDX series are railway variable frequency drives (VFDs) for speed control of rotating loads – HVAC compressors, condenser fans and similar motors – where no galvanic isolation between input and output is required. Both models take a 400VAC three-phase supply and deliver a fully controllable sinusoidal output: any voltage between 60 and 400VAC and any frequency between 5 and 100Hz, with programmable V/F ramp, soft start and phase reversal. RS-232 is available on both models; CAN Bus is available on the VDX-10K.

The VDX-6K is the compact IP54 version – 6.4kW nominal, 11.6kW peak for 500ms – designed for exposed installation environments such as rooftop HVAC units. Its hardware



inputs select from four preset V/F operating points, though any voltage and frequency within the operating range can be set via RS-232. The VDX-10K is the standard IP20 version at 10kW nominal, and adds CAN Bus alongside RS-232 for integration into vehicle networks using the CANOpen protocol, with node address selectable by dip switch. Both models comply with EN 50155, EN 45545-2 and EN 61373 Category 1 Class B.

Railway OVX

High-Density DC/AC Inverters
for Railway Catenary Applications

OVX-6400 6400VA

3 phase sine wave
DC/AC inverter
HV 750V input



Catenary-Fed Power – The Spark Series

The Spark Series is Premium PSU's catenary power supply product line – converters designed to take power directly from the 600/750 VDC DC traction supply, eliminating the need for an intermediate AC/DC stage on vehicles where the catenary is the primary source. The OVX-6400 is a 6.4 kVA DC/AC inverter that converts catenary voltage directly to a stable 400 VAC three-phase output – 6 kW nominal, 8 kW peak for 5 seconds – with galvanic isolation rated at 5,200 Vrms and frequency selectable from 50/60 Hz by DIP-switch or freely configurable via RS-232 and CAN Bus. The CVS-280 complements it at the auxiliary DC level: a 280 W DC/DC converter drawing from the same catenary input and delivering regulated 24, 48, 72 or 110 VDC with 7,000 Vac isolation – the highest in the portfolio – and an integrated ORing diode for battery paralleling and redundancy. For higher-power applications, Premium PSU has delivered catenary-fed systems up to 35 kVA + 5 kVA combining two independent three-phase outputs from a single 750 VDC input – an example of the custom development capability available from the same engineering team. Both standard products comply with EN 50155, EN 45545-2 and EN 61373 Category 1 Class B.

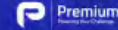
Isolated DC/DC – The CRS, CTS and CLS Families

Premium PSU offers two complementary railway DC/DC converter platforms for different system architectures.

The CRS family covers higher-power DC/DC conversion from 180W to 2kW, with galvanic isolation and input voltage options spanning all standard railway battery nominals – 24, 36, 48, 72 and 110VDC. Unlike the CLS, which fixes the output at regulated 24VDC, the CRS/CTS matrix covers both input and output flexibility: output voltages from 5V to 110V are available depending on the model, making it the right

Railway CLS Series

Railway DC/DC Converters
Wide Input Range
Baseplate and robust
thermal design



is available in Eurocard 3U format for rack-integrated architectures.

The CLS family covers railway battery applications from 40W to 500W with regulated 24 VDC output as standard, plus 12, 15 and 110V variants. Models from 40W to 150W use an ultra-wide 11:1 input range (16.8–137.5V), covering all nominal battery voltages – 24, 36, 48, 72 and

Model	Power nom. / peak	Input range [VDC]	Output [VDC]	Efficiency typ.
CLS-40	40W / 60W	16.8–137.5 (11:1)	24	92%
CLS-75	75W / 90W	16.8–137.5 (11:1)	24 / 12	91–92.5%
CLS-150	150W / 165W	16.8–137.5 (11:1)	24 / 15 / ±15	94%
CLS-300	300W / 330W	16.8–137.5 (12:1)	24 / 110	94%
CLS-500	500W / 550W	50.4–137.5 (4:1)	24	95%

Table 1 – CLS family overview. All models: EN 50155, EN 45545-2 HL1–HL3, EN 61373 Cat. 1B, OT4 + ST1/ST2, conformal coating PC2, 20-year design lifetime.

platform when the conversion involves application-specific bus architectures – traction control supplies, hotel-load distribution, or redundant auxiliary buses. All models support parallel operation with passive current sharing, optional ORing FET, and optional 10ms hold-up. The CRS-1000 adds four cooling options including conduction cooling for sealed enclosures; the CTS-240

110 V DC – in a single reference; the CLS-300 extends this to a 12:1 range with the same continuous operating window. The CLS-500 targets 72/110V systems with a 4:1 extra-wide range (50.4–137.5V), achieving 95% typical efficiency and an MTBF of 1,800,000 hours at 25°C. Across the family, this reduces the number of variants needed for qualification, stock and spares management in mixed fleets.

In short, CRS is the higher-power platform for application-specific input/output voltage combinations; CLS is the wide-input platform for regulated 24VDC or 110VDC auxiliary outputs.

Auxiliary AC – TDS and TDX Series



Where galvanic isolation between the train supply and the load circuit is required, the TDS/TDX AC Master series provides it. Both models deliver 3.3kW / 3.3kVA from a 400–480VAC three-phase input – or optionally from a 600VDC input, making them suitable for both AC-fed and DC-fed vehicle architectures. The TDS-3300 provides a regulated 230VAC single-phase output; the TDX-3300 provides a regulated 400 VAC three-phase output with neutral. Both operate at 50Hz by default with frequency freely configurable from 5 to 75Hz via RS-232 or CAN Bus, and comply with EN 50155, EN 45545-2 and EN 61373 Category 1 Class B.

Battery Backup – ECS Series

The ECS series are DC uninterruptible power supplies for on-board critical loads – control electronics, signalling interfaces and monitoring systems – that must remain powered through mains interruptions or vehicle supply



José Bailón (DACH Export Area Manager) and Christian León (Product Manager) presenting the VDX-6K IP54 and CLS railway DC/DC series ahead of InnoTrans 2026.

transitions. The ECS-100 delivers 100W and the ECS-200 delivers 200 W, both with outputs of 12, 24 or 48VDC and AC inputs covering the standard auxiliary supply range. Both manage battery charging and load supply simultaneously, with automatic switchover to battery on mains failure, four selectable charging current levels, deep-discharge protection, and independent supply-fail and battery-low alarms via relay contacts. The ECS-200 additionally supports parallel operation on 24 and 48V models and is qualified to EN 45545-2.

Designed, Built and Tested in Barcelona – By a Team of Experts

What ties the portfolio together is process. Premium PSU's engineering, test laboratory and production are co-located in Barcelona, so the loop between specification, qualification and manufacturing never crosses time zones or supply chains. A dedicated team of power-electronics experts works from a quantified mission profile through a Design-for-Reliability flow, delivering custom prototypes in as little as

14 weeks – about half the typical industry cycle – and backing every unit with 100% final test. With more than 900 custom designs since 1981, the team's know-how keeps NRE costs and schedules low while meeting the most demanding rolling-stock requirements.

Meet Our Experts at InnoTrans 2026

Premium PSU will present this full portfolio at **InnoTrans 2026, Hall 17, Stand 425**. Our engineering team will be on the stand to discuss specific operating profiles, qualification requirements and custom developments. The most useful conversation does not start with a datasheet – it starts with your application, your operating profile and your timeline. To arrange a meeting at the stand in advance, contact us at marketing@premiumpsu.com or visit www.premiumpsu.com.



Premium
Powering Your Challenge