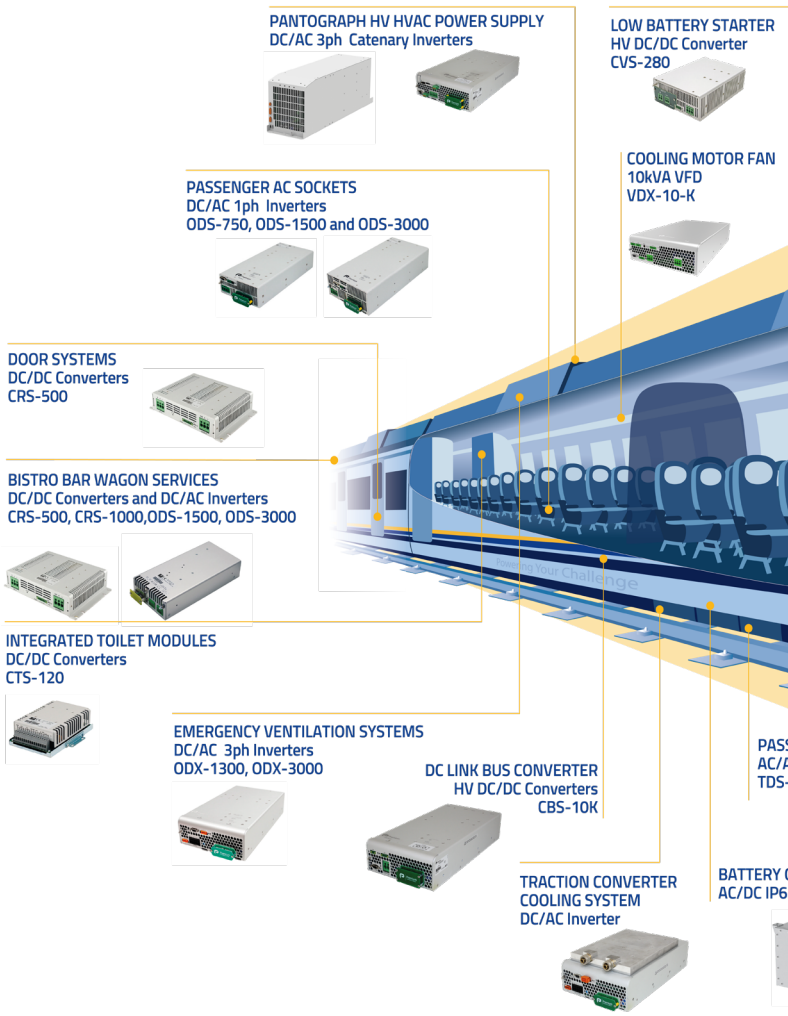
Premium
Powering Your Challenge

POWER TO KEEP YOU ON TRACK

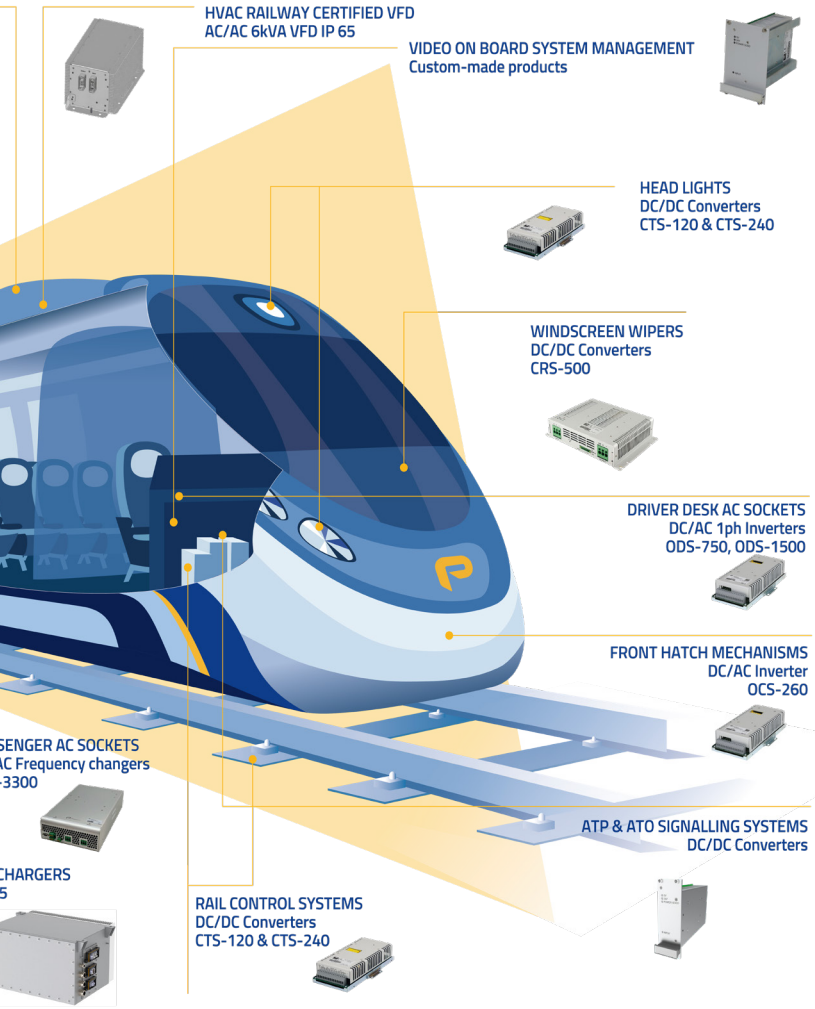


WHERE CAN YOU FIN



From the first carriage to the tail end of the train, Premium PSU designs reliable, robust, extremely safe operational, control or signalling solutions designed to optimise energy to the maximum.

ND OUR SOLUTIONS?



SHAPING THE FUTURE

Designed to last. With this in mind, at Premium PSU we have been developing solutions for the railway industry for more than four decades. Robust, safe, reliable and high-quality power conversion systems that strictly comply with rolling stock regulations.

Premium PSU has been supplying solutions to leading railway companies and its products can be found in vehicles such as trams, light rail vehicles, subways, locomotives or on-board equipment from all over the world and in applications like HVAC systems, auxiliary and emergency systems, propulsion systems or low battery starters, among others.

Our know-how allows us to go even further through custom designs. Regardless of the challenge or project, Premium PSU's engineering team is able to develop a product from scratch, reducing costs and delivery times. This expands the technical possibilities of each solution that are conceived entirely in Barcelona, without sacrificing development costs and time.

Finding a power solution for the railway sector is key. Electrical and mechanical components for the railway industry need to provide reliable and safe operations while running under wide temperature fluctuations, condensation, electromagnetic interference and shock and vibrations. Under these circumstances, nothing can be left to chance, and being accompanied by Premium PSU is synonymous to reliability, safety and the highest profitability.

EVERYTHING IS READY TO RAISE THE BARRIER AND START THE RIDE

- **Solutions conceived to work under demanding environmental conditions**
- **Long life solutions: designed to last**
- **All processes, from design to testing and manufacturing, are carried out in Barcelona**
- **Custom made products to fit the needs of each application**
- **The largest range of DC/AC inverters on the market for the railway sector**
- **Premium PSU is a trusted technological partner**

WHY CHOOSE A CUSTOMIZED SOLUTION FROM PREMIUM PSU?

- +50 engineers at your service
- Affordable NRE
- +40 years of experience
- Design from scratch
- State of the art design

CUSTOM DESIGN CAPABILITIES

Power from 50W up to 72kW
(very high power density, high frequency)

Ingress protection up to IP68

Efficiency up to 97% (no isolated converters)
Efficiency up to 94% (isolated converters)

Temperature range: -50...85ºC
Cooling: Forced air, convection, conduction

Input voltage up to 1kVac (1-3Ph) or 1.5kVdc
Output voltage up to 500Vac (1-3Ph) or 750Vdc

Up to 10kV isolation (surges of ±20kV 1,2/50 µs)

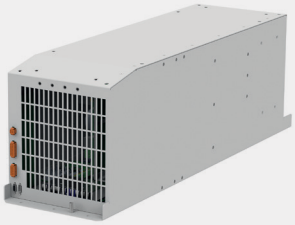
Multiple and Wide input and output voltages
(e.g. 14.4...154V in railway apps)

RS232, RS485, I2C, Modbus, CANbus, Ethernet,
Web Embedded Server, Profibus, etc



2KW 3PH DC/AC INVERTER, PARALLELIZABLE UP TO 4 UNITS

RAILWAY INTEGRATED TRACK MANOEUVRING SYSTEM



SiC Technology

35KW+5KW V/F 3PH INVERTER 750VIN

RAILWAY HVAC COMPRESSOR AND FANS POWER SOURCE



DC/DC CONVERTER, MULTIPLE REDUNDANT OUTPUT

RAILWAY SIGNALING (ERTMS)



400W DC/DC CONVERTER, 110VIN/290VOUT

RAILWAY EMERGENCY VENTILATION



2KW BATTERY CHARGER, >90% EFFICIENCY

RAILWAY LEVEL CROSSING GATES



SiC Technology

4.4KVA 3PH DC/AC, 110VIN

EMERGENCY FANS FOR HVAC SYSTEM

Increasing the range of high power with innovative solutions to cover all needs for the railway market is key to keep giving shape to power the future.

Premium PSU has been providing reliable power supply solutions for the main companies of the railway sector since its early days. This path began in the early 80s with a special retro fit design for the subway of Madrid (a 300 W DC/DC converter with dual output) and continues to this day. Premium PSU is outstanding developing and manufacturing limited series of completely custom-made products

Our solutions for the railway market offer a 5 year warranty and comply with standards according to the needs of the application. Some of them are:

- **EN 50155 (Rolling stock electronic equipment)**
- **RIA 12 surge protection (3.5 x V_N 20ms)**
- **EN 61373 (Shock & Vibration)**
- **EN 50121-3-2 (EMC)**
- **EN 50124-1 (insulation coordination)**
- **EN 45545 (Fire & Smoke)**
- **IEC/EN 62368-1 (Safety)**
- **EN 50163 (Traction supply voltage)**
- **RIA 13 and RIA 20 mechanical standards**

WE MAKE THE JOURNEY TO YOUR CUSTOM DESIGN SIMPLE

PHASE 1



BRIEFING

1. Consulting process
2. Definitions of technical specification needs

PHASE 2



PROJECT PROPOSAL

3. Quote (offer of the total project)
   · Development costs
   · Certification costs (if required)
   · Mass production estimated unit price
   · Prototyping costs
   · Preliminary datasheet

KICK-OFF MEETING



4. Gantt diagram layout
5. 3D (step file) and mechanical draws
6. Preliminary functional prototype (optional)
7. Final tweaks and minor adjustments
8. Final Prototype & Documentation (pre-certified)

PHASE 3



DEVELOPMENT PROCESS

9. Prototype customer release
10. Industrialization process
11. External certification (if required)
12. Pre-Series
13. Mass-production

PHASE 4



RELAUNCH FOR LAUNCH

BENEFITS OF DEVELOPING A CUSTOM PRODUCT

- **The product is unique and only belongs to you**
- **Guaranteed supply, no obsolescence surprises**
- **The product evolves as your customer needs grow**
- **Differentiation from your competition, adding value to the final solution**

SPARK SERIES

Designed to operate directly from the catenary line

CVS-280

280W DC/DC CONVERTER 600/750VIN



SiC Technology

Parallelizable units by ORing
Low battery voltage starter
Active catenary surges filter
Input voltage according to EN50163:2004 and EN50124-2:2017

Input Voltage Range [V] 400 - 1100
Output Voltage Range [V] 21.6 - 121

OVX-6400

6400VA 3PH DC/AC INVERTER (600/750 VIN)



SiC Technology

SiC Technology: high power density
Active catenary surges filter
Sine wave output voltage
Configurable power & soft start
Input voltage according to EN50163:2004 and EN50124-2:2017

Input Voltage Range [V] 400-1000
Output Voltage Range [V] 80 - 400

AC MASTER SERIES

Railway AC/AC Variable Frequency Drives

VDX-10K

10KVA AC/AC VARIABLE FREQUENCY DRIVE



SiC Technology

Suitable for motors control
Remote control via RS232
Sine wave output voltage

Input Voltage Range [V] 360-440
Output Voltage Range [V] 80-400

TDS-3300

3300VA AC/AC FREQUENCY CONVERTER



SiC Technology

Suitable for socket AC power
Input-Output Isolation
Stable output voltage

Input Voltage Range [V] 432-528
Output Voltage Range [V] 230

DC/AC INVERTERS

OCS-260

1PH 260VA DC/AC INVERTERS



Extreme reliability
Sine wave output voltage

Input Voltage Range [V] 9.5 - 138
Output Voltage Range [V] 144 - 241.5

OPS-260

1PH IP66 260VA DC/AC INVERTERS



Extreme reliability
Sine wave output voltage
IP66

Input Voltage Range [V] 9.5 - 138
Output Voltage Range [V] 144 - 241.5

ODS-750

1PH 450-750W DC/AC INVERTERS



High power density
Extreme reliability
Sine wave output voltage

Input Voltage Range [V] 9.5 - 138
Output Voltage Range [V] 0 - 230

ODS-1500

1PH 1500W DC/AC INVERTERS



Very high power density
Configurable power
Sine wave output voltage

Input Voltage Range [V] 10 - 138
Output Voltage Range [V] 0 - 230

ODS-3000

1PH 3000W DC/AC INVERTERS



SiC Technology

Very high power density
Configurable power
Sine wave output voltage

Input Voltage Range [V] 16.8 - 138
Output Voltage Range [V] 0 - 230

ODX-1300

3PH 1300VA DC/AC INVERTERS



Very high power density
Sine wave output voltage
Configurable power & soft start

Input Voltage Range [V] 16.8 - 138
Output Voltage Range [V] 150 - 400

ODX-3000

3PH 3000W DC/AC INVERTERS



SiC Technology

Very high power density
Sine wave output voltage
Configurable power & soft start

Input Voltage Range [V] 16.8 - 138
Output Voltage Range [V] 0 - 400

ODX-4500

3PH 4500W DC/AC INVERTERS



SiC Technology

Very high power density
Configurable power & soft start
Sine wave output voltage

Input Voltage Range [V] 50.4 - 138
Output Voltage Range [V] 0 - 400

ODX-6000

3PH 6000W DC/AC INVERTERS



SiC Technology

Very high power density
Configurable power & soft start
Sine wave output voltage
Up to 5 units in parallel

Input Voltage Range [V] 16.8 - 138
Output Voltage Range [V] 0 - 400

DC/DC CONVERTERS

CCS-60
50-70W DC/DC CONVERTERS



Low profile
Extreme reliability

Input Voltage Range [V] 9.5 - 144
Output Voltage Range [V] 4.5 - 55.2

CTS-60
50-70W DC/DC CONVERTERS



Extreme reliability
Wide input/output range combinations
MTBF >1Mh @ 40°C

Input Voltage Range [V] 14.4 - 144
Output Voltage Range [V] 4.5 - 55.2

CTS-120
100-140W DC/DC CONVERTERS



MTBF >1Mh @ 40°C
Extreme reliability

Input Voltage Range [V] 14.4 - 144
Output Voltage Range [V] 4.5 - 55.2

CTS-240
180-240W DC/DC CONVERTERS



MTBF >1Mh @ 40°C
Extreme reliability

Input Voltage Range [V] 14.4 - 275
Output Voltage Range [V] 4.5 - 55.2

CRS-500
500W DC/DC CONVERTERS



Extreme reliability,
Oring FET, current sharing
& hold-up time options.

Input Voltage Range [V] 14.4 - 144
Output Voltage Range [V] 21.6 - 55.2

CRS-1000
1000W DC/DC CONVERTERS



Extreme reliability,
Oring FET, current sharing
& hold-up time options

Input Voltage Range [V] 14.4 - 144
Output Voltage Range [V] 21.6 - 126.4

CRS-2000
2000W DC/DC CONVERTERS



SiC Technology

High power density
Wide input/output range combinations

Input Voltage Range [V] 14.4 - 154
Output Voltage Range [V] 21.6 - 126.5

CBS-10K
10KW PEAK DC/DC CONVERTER



SiC Technology

Up to 10 kW during 40s
O-ring output diode
up to 2000V

Input Voltage Range [V]
16.8 - 138 (14.4 - 154Vdc 0.1s)
Output Voltage Range [V] 500

DC/DC ULTRA WIDE INPUT CONVERTER

CLS-40

40W DC/DC CONVERTER



Ultra-wide input 11:1 · Full power -40/+85°C, no derating · Peak load 150% (60W/10s)

Input Voltage Range [V] 16.8 - 137.5Vdc (14.4 - 154Vdc 100ms)
Output Voltage Range [V] *24Vdc*

CLS-75

50-70W DC/DC CONVERTER



Ultra-wide input 11:1 · Hold-up time Class S1 · Peak load 120% (90W/10s)

Input Voltage Range [V] 16.8 - 137.5Vdc (14.4 - 154Vdc 100ms)
Output Voltage Range [V] 12 - 24Vdc

CLS-120

120W ULTRA WIDE INPUT RANGE DC/DC CONVERTER



Universal input range
Efficiency up to 91%

Input Voltage Range [V] 14.4 - 154Vdc
Output Voltage Range [V] 10.8 - 69.6Vdc

CLS-150

150W DC/DC CONVERTER



Ultra-wide input 11:1 · Option -L: -50/+90°C · DC OK with relay changer

Input Voltage Range [V] 16.8 - 137.5 (14.4 - 154Vdc 100ms)
Output Voltage Range [V] 15 / ±15 / 24Vds

CLS-300

300W DC/DC CONVERTER



Ultra-wide input 12:1 · Full power -40/+85°C, no derating · Efficiency up to 94.8%

Input Voltage Range [V] 16.8 - 137.5 (14.4 - 170Vdc transient)
Output Voltage Range [V] 24Vdc

CLS-500

500W DC/DC CONVERTER



Extra-wide input 4:1 · Efficiency 95% · 550W max, 23A output

Input Voltage Range [V] 50.4 -137.5 (43.2 - 170Vdc transient)
Output Voltage Range [V] 24Vdc

DRAW THE POWER BLOCK DIAGRAM OF YOUR PROJECT
WE PROVIDE THE SOLUTION TO YOUR CHALLENGE

AC/DC DIN RAIL POWER SUPPLIES AND ACCESSORIES

SDP-90

1PH AC/DC 90W



Ultra-slim 2U (36mm), 151g · Audible noise suppression · NEC Class 2 / LPS

Input Voltage Range [V] 85 - 277Vac (88 - 370Vdc)
Output Voltage Range [V] 24-29

DPS-120

1PH AC/DC DIN RAIL POWER SUPPLY 120W



Smallest 120W DIN-Rail PSU · Power density 500W/liter · Lifetime 231kh @40°C

Input Voltage Range [V] 85 - 277Vac (88 - 370Vdc)
Output Voltage Range [V] 12 - 56

DPS-240

1PH AC/DC DIN-RAIL POWER SUPPLY 240W



Built-in ORing diode · Lifetime 273kh Mosfet @40°C · Efficiency 95%

Input Voltage Range [V] 85 - 277Vac (88 - 370Vdc)
Output Voltage Range [V] 24 - 29

DPS-480

1PH AC/DC DIN-RAIL POWER SUPPLY 480W



Constant current or parallel mode · Efficiency up to 95.4% · DC-OK signal

Input Voltage Range [V] 85 - 277Vac (88 - 370Vdc)
Output Voltage Range [V] 24 - 56

DPX-240

3PH AC/DC DIN-RAIL POWER SUPPLY 240W



Full power -40°C/+70°C · 6kV surge immunity · Lifetime 80kh @40°C

Input Voltage Range [V] 3x 320 - 575Vac (430 - 815Vdc)
Output Voltage Range [V] 24 - 28

DPX-480

3PH AC/DC DIN-RAIL POWER SUPPLY 480W



Charging & parallel operation · Extended surge immunity 2.5kV/6kV · Lifetime 80kh @40°C

Input Voltage Range [V] 3x 320 - 575Vac (430 - 815Vdc)
Output Voltage Range [V] 24 - 56

DPX-960

3PH AC/DC DIN-RAIL POWER SUPPLY 960W



Efficiency up to 97.1% · 960W convection cooled · Lifetime 80kh @40°C

Input Voltage Range [V] 3 x 320 - 575Vac
Output Voltage Range [V] 24 - 56

EFC-120

4-CHANNEL 5A E -FUSE



4-channel e-fuse, 5A/ch· NEC Class 2 selectable · Individual OCP per channel

Input Voltage Range [V] 22 - 28Vdc
Output Voltage Range [V] 24Vdc

EFC-240

4-CHANNEL 10A E -FUSE



4-channel e-fuse, 10A/ch · Priority load shedding · Efficiency 98.6%

Input Voltage Range [V] 22 - 28Vdc
Output Voltage Range [V] 24Vdc

Premium
Powering Your Challenge

#SHAPINGTHEFUTURE

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