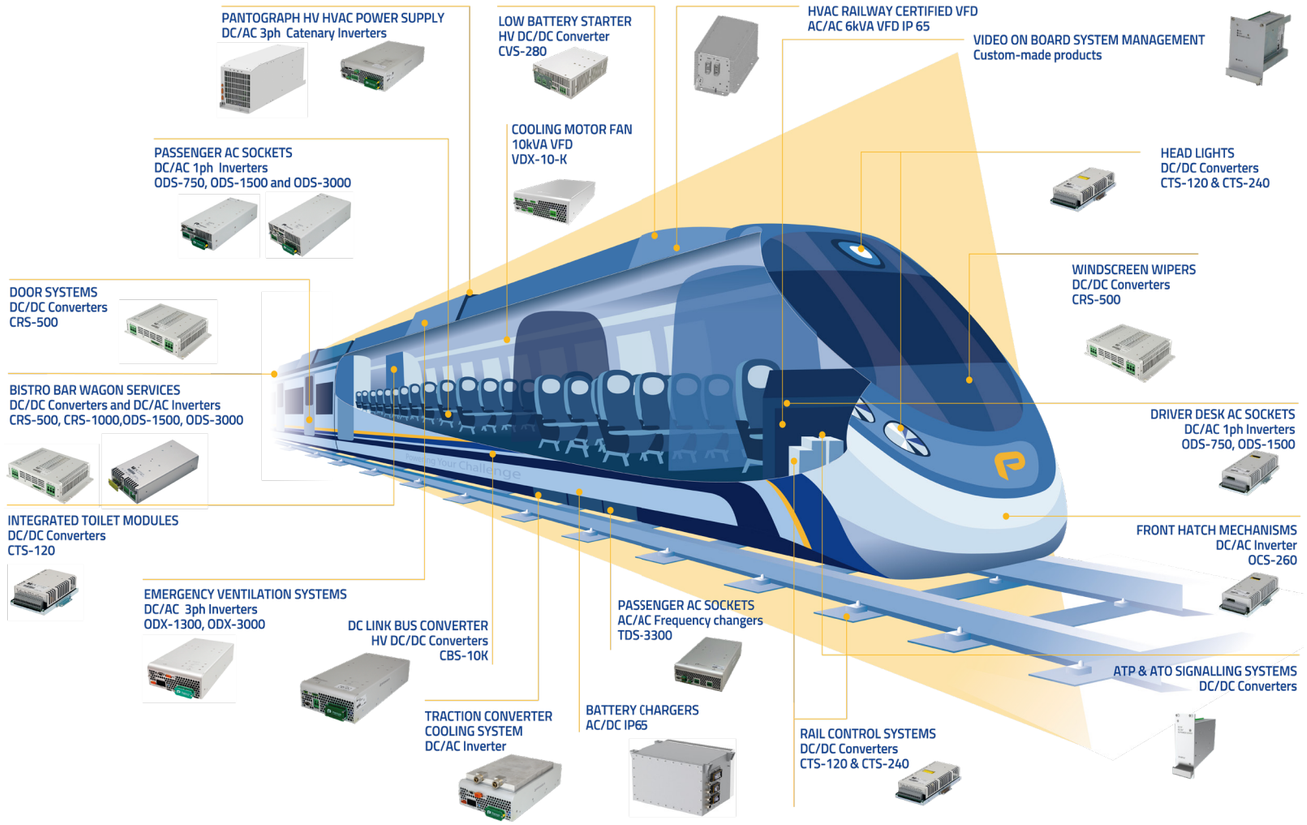
Premium
Powering Your Challenge

# POWER TO KEEP YOU ON TRACK

# WHERE CAN YOU FIND OUR SOLUTIONS?




**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.**

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## 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?

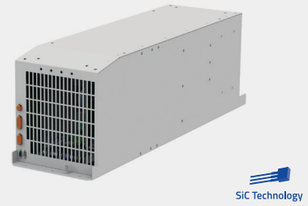
- +50 engineers at your service
- Affordable NRE
- +40 years of experience
- Design from scratch
- State of the art design



## 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




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


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**

**PHASE 3** — **DEVELOPMENT PROCESS**

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 4** — **RELEASE FOR LAUNCH**

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

## 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**

5 YEAR WARRANTY RAILWAY · EN50155 · EN45545 fire & smoke · ROHS REACH · UK CA · CE

## 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**

5 YEAR WARRANTY RAILWAY · EN50155 · EN45545 fire & smoke · ROHS REACH · UK CA · CE

## 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**

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# #SHAPINGTHEFUTURE

C/ Dolors Aleu, 19-21, Pl. 2ª
08908-L'Hospitalet de Llobregat
Barcelona-Spain

2026 - R01

tel | +34 93 223 26 85
email | hello@premiumpsu.com
web | premiumpsu.com