Focus on railway power converters
RAILWAY POWER CONVERTERS SOLUTIONS

Onboard

1. Battery Charger 3.5kW with built-in Battery Pack
2. Battery Charger Calvary-Supplied 3kW
3. ERTMS STM 155W DC-DC Converter
4. ERtms Encoder AC/DC PSU

Substation

4. Recifier + Battery Charger
4. Power Insulation Transformer
4. 48 Vdc Power Station

Trackside Signalling

6. Safety ferro-resonant PSU for high speed line
6. SCMT Encoder AC/DC PSU
RAILWAY POWER CONVERTERS SOLUTIONS

Onboard

1. Battery Charger 3.3kW with built-in Battery Pack
2. Battery Charger Calvary Supplied 3kW
3. ERTMS STM 155W DC-DC Converter
4. Auxiliary Power Unit integrated inside HVAC system

Substation

4. Receiver + Battery Charger
4. Power Insulation Transformer
4. 48 Vdc Power Station

Trackside Signalling

6. ERTMS Encoder AC/DC PSU
6. Safety ferro-resonant PSU for high-speed line
6. SCMT Encoder AC/DC PSU
Battery Charger 3.5kW with built-in Battery Pack (BALIN)

For railway passengers cars

- VIN: 400 VAC 50 Hz, 3ph+n / 600 VDC
- VOUT: 24 VDC
- Full digital control
- RS485 interface for diagnostic
- Optional CAN interface for diagnostic
- IP67 electronic side

RGM developed BALIN according to Trenitalia needs to renovate its fleet of old batteries and battery chargers installed on passengers cars.
BALIN – Real view

Easy & Fast power connection of BALIN to the coach thanks to rear power contact for extractable box system

BALIN 4,5kW (peak) removable electronic module

Overall dimensions (mm)
565 x 240 x h 433
Weight: approx. 25Kg
3kW – 250A Battery Charger Catenary Supplied

For trolleybus

- VIN: as per EN 50124-2, 750 VDC nominal
- VOUT: 13.7 VDC nominal @ 250 A
- Three-level power circuit configuration
- Highly integrated and sophisticated digital control
- High frequency modulation
- CAN bus / Serial port interfaces available

The trolleybus catenary supplied battery charger is the first RGM device based over the three-level power circuit configuration. A highly integrated and sophisticated digital control, together with this state-of-the-art design, allows to use very high carrier modulation frequencies respect to the common devices in the same voltage/power class; this means lighter magnetic parts, better output form factors and highest efficiency.
150W DC/DC converter for ERTMS BTM device

For trainborne

- VIN: 24 VDC
- Eight output voltages
- 150 W power (continuous at ambient temperature of +85°C)

The BTM controls the supply of energy for telepowering the balises. It receives and decodes the telegrams coming from the balises.
Auxiliary Power Unit integrated inside HVAC system

For emergency ventilation

- VIN: 110 VDC (battery)
- VOUT: 400 VAC, 50Hz, 3ph
- Max. output power for motor inrush: 400 W
- Temperature range: Min °C: -25  Max °C: +70
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Substation

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Trackside Signalling

6. ERTMS Encoder AC/DC PSU
6. Safety ferro-resonant PSU for high-speed line
6. SCMT Encoder AC/DC PSU
5/10 Kw Substation Rectifier + Battery Charger

- VIN: 400 VAC 50 Hz, 3ph.
- VOUT: 110 VDC 15/30/ or 50 A
- Full digital control
- Scalable, redundant and configurable
- Linux-based master control unit
- Wide range of communication interfaces
Power Insulation Transformer

For trackside signalling

- 40 kVA
- ST IS 365 ed. 2008
- CEI EN 60064-1
- Pulse test 8kV
48 Vdc Power Station

For railway high speed lines

- Input: 230 Vac ,50 Hz
- Output: 2 x 48Vdc @60A
- Dimensions: 800 x 600 x 2000 mm
- Battery: 200 Ah
- Main features: Redundancy n+1, Hot swap, Natural convection
RAILWAY POWER CONVERTERS SOLUTIONS
ERTMS AC/DC PSU

AC/DC Line Encoder Unit Signalling PSU

- Input: AC 88 ÷ 264 V 16 ÷ 440 Hz / DC 70 ÷ 380 V
- Output: DC + 3,3 / ± 12 / ± 5 / 24 V Insulated
- Power: 45 W
- Temperature Range: -30° ÷ +85° C no derating

*a Lineside Eletronic Unit (LEU) captures movement authority information from interlocking or signal aspect and selects and sends telegrams to Eurobalise® that contain movement authorities and trackside data*
### Safety Ferro-resonant Power Supply

for high speed line

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input range</td>
<td>220 Vac 50Hz or 110 Vac 60 Hz</td>
</tr>
<tr>
<td>Output</td>
<td>48 Vdc</td>
</tr>
<tr>
<td>Power</td>
<td>360 W</td>
</tr>
<tr>
<td>Main features</td>
<td>Overload +33% 48H; +100% 1h Parallelable (up to 10 units)</td>
</tr>
</tbody>
</table>
SCMT Encoder AC/DC PSU
for lineside SCMT signalling

- Input: AC 120 ÷ 264 V, 47 ÷ 83 Hz
- Output: DC 15 / 48 / 48 Isolated V
- Power: 600 W
- Temperature Range: -30° ÷ +85° C no derating
Thank you for your attention

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