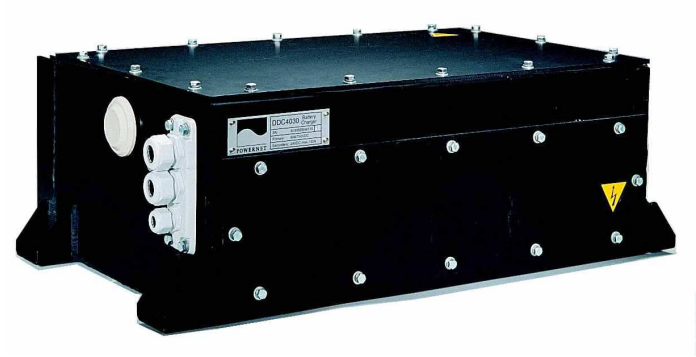
POWERNET

DATASHEET

# SECONDARY BOARD NET CONVERTER

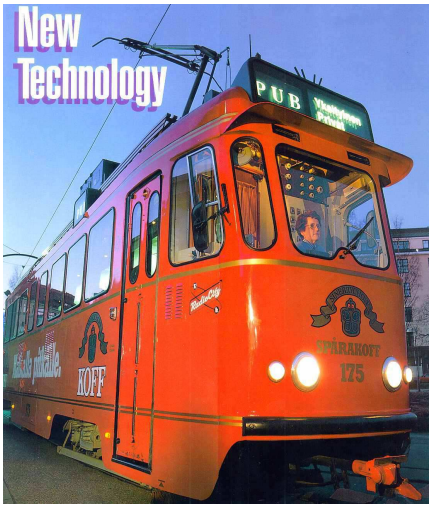
*Battery Charger for Tram Car Modernization*



## 3kW / 5kW

- Input voltage 450VDC-950VDC
- Output 27 VDC / 130 A–180 A
- High efficiency 85%
- Rugged IP54 enclosure
- Ambient temperature –40°C- +50°C

DDC4540 board net converter is based on modern power semiconductor technology and is **maintenance free**, long living unit.




Because of the modern design the unit **weights only 36 kg** and is quick and **easy to install**.

DDC4540 board net converter is a modern, maintenance free converter developed for tram car modernization. With this unit it is easy to replace the rotating generators and other main voltage converter systems in the tram cars.

DDC4540 was originally designed for Helsinki City tram cars. Because of the cold winter with snow and the warm summer in Helsinki, DDC4540 converters are very well tried also in harsh environment. The units have been working successfully in Helsinki since 1994.

Rugged enclosure and solid design give flexibility to the user, DDC4540 can be installed under the floor or on the roof of a tram car.

# POWERNET

## Technical Specification

## DDC4540

| | | | |
|---|---|---|---|
| **INPUT** | | | |
| Voltage, nominal | 600/750 | VDC | Un, EN50163 |
| Voltage strength | 1269 | VDC | Umax3, EN50163 |
| Current, max. | 12 | ADC | |
| **OUTPUT** | | | |
| Voltage setting range | 26,5...27,5 | VDC | |
| Preset constant charging voltage | 27.1 | VDC | Uin(DC) 750V, Iout 65A |
| Voltage regulation | 1 | % | Uin(DC) 400...950V |
| Charging current, max. continuous | 130 | ADC | Current limited |
| Charging current, max. peak <15min | 180 | ADC | Current limited |
| Current ripple, max. | 0.5 | % | Iripple(AC)/Icharge(DC), resistive load |
| Charging power, max | 5 | kW | I-U rectangular |
| Overvoltage protection level | 29 | VDC | Power-on resetable only |
| **GENERAL** | | | |
| Input protection | | | External 10A fuse or magnetic breaker |
| Input surge protected | | | EN50155 |
| Output overvoltage protected | 29 | VDC | Shut down |
| Temperature protected power devices | 70 | °C | Max. heatsink temperature |
| Charger fail message, delayed | >15 | s | Potential free, relay contact, 2ADC |
| Isolation | 3750 | VAC | Input/chassis, input/output |
| Enclosure | IP54 | | |
| Width, max. | 440 | mm | |
| Height, max. | 250 | mm | |
| Length, max. | 700 | mm | |
| Weight | 36 | kg | |
| Efficiency | > 85 | % | |
| **OPERATION CONDITIONS** | | | |
| Input voltage | 450...950 | VDC | Umin1...Umax2, EN50163 |
| Input ripple voltage, max. | 100 | Vpp | f<1kHz |
| Ambient temperature range | -40...+50 | °C | Class TX, EN50155 |
| **LIMITED OPERATION CONDITIONS** | | | |
| Input voltage | <400 | VDC | No output until >500 VDC |
| | >950 | VDC | No output until <900 VDC |
| Heatsink temperature | >+70 | °C | Reduced output current |
| **USER INTERFACE** | | | |
| Input terminals | 2x8 | mm | Stud |
| Output terminals | 2x8 | mm | Stud |
| Alarm output terminal | 3x1,5 | mm2 | Screw terminal |

**DESCRIPTION**

Switching at 36kHz, current mode control, asymmetric half bridge, MOSFET switching devices, U-constant/I-constant charging characteristic