

# 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  $-40^{\circ}\text{C}$ -  $+50^{\circ}\text{C}$

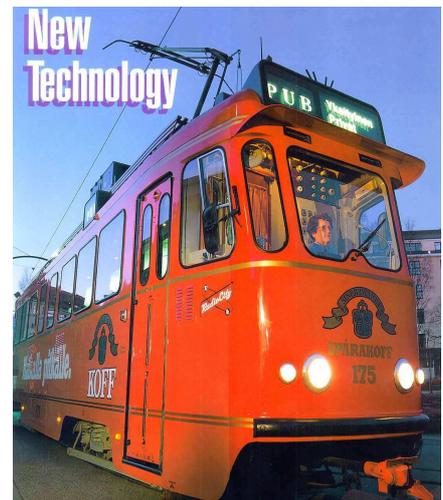
DDC4540 board net converter is based on modern power semiconductor technology and is **maintenance free**, long living unit.

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