Let's talk!

Power Innovation
Stromversorgungstechnik GmbH

DC-DC Converter DCDC17k-750-110-K1

Battery Charger for Railway Applications

- **3 DCDC converter modules, each providing 6 kW for battery charging and for supplying the 110 V on-board network**
- **1 DCDC converter module with a max. output power of 700 W for supplying 24 V loads**
- **Intelligent battery management system with temperature-controlled charging curves**
- **Parameter setting via web interface**
- **Internal CAN bus control**
- **External management interface via ext. CAN**
- **Efficiency > 95 % at full load**
- **Overload and short-circuit proof**
- **Water cooling**

Picture may differ from actual device

Technical Data

General information

Electrical safety	acc. to EN 50124-1:2017 and EN 50153:2018 overload and short-circuit proof
Galvanic isolation (primary / secondary)	3.75 kV_{AC}
Protection class	1
EMC	acc. to EN 50121-3-2:2017
Decoupling of the 110 V load output	via an active diode
Design and function:	
3 x 6 kW DCDC converter modules	voltage conversion from 720 V DC link voltage into 110 V output voltage for battery charging and load supply
1 x 700 W DCDC converter module	voltage conversion from the 110 V load output voltage into an additional output voltage of 24 V
Controller	control of the battery charger via CAN bus

Electrical data – input

Input voltage	U_N = 720 V_{DC}
Voltage range	600 – 800 V_{DC}
Voltage ripple	max. 50 Vss

Electrical data – output (110 V_{DC})

Output voltage	U_{NOM} = 110 V_{DC}, potential-free
Output voltage tolerance	acc. to temperature-controlled battery charging characteristics: - IU characteristic (default) - IUoU characteristic (optional)
Voltage readjustment	depending on charging current, gradient according to the cable resistance (adjustable value)
Output ripple	< 200 mVpp
Output current	max. 130 A
Output power	max. 17 kW
Short-circuit current	130 A, short-circuit detection: I > 123 A, t > 30 s, U < 40 V
OVP	137,5 V_{DC} ±0,5 V within 100 ms
Load range	0 – 100 %
Efficiency	> 95 % at full load
Number of outputs	2 outputs (for load supply and battery charging)

Power Innovation GmbH
Rehland 2
28832 Achim

Telefon: +49 (0) 4202 5117-0
Fax: +49 (0) 4202 5117-70
eMail: Info@powerinnovation.com
Internet: www.powerinnovation.com

Amtsgericht Walsrode
HRB 121695
Steuer Nr. 48-201-24705
UST-ID DE 114 426 732

Geschäftsführer:
Dipl.-Ing. Bernhard Böden

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Electrical data – output (24 V_{DC})

Output voltage	U_{NOM} = 24 V_{DC}, potential-free
Output voltage tolerance	± 5 %
Output current	max. 25 A
Output power	max. 700 W
Short-circuit current	30 A
OVP	28 V (±1 V)
Load range	0 – 100 %
Efficiency	> 88 % at full load

Environmental conditions

Operation temperature	-25 °C to +70 °C according to EN 50125-1:2014 and EN 50155:2018 category OT3
Relative humidity	15 % – 100 % (with coating), according to EN 50125-1:2014
Max. operation altitude	1400 meters
Shock and vibration	according to EN 61373:2011 category 1B

Signalling

Optical	LED red: Alarm LED green: OK
Electrical (X4)	1 x potential-free relay contact for „24 V Power Good“, 2-pole led out (NC-C), max. contact load: 77 – 137,5 V, < 50 mA, gold-plated contacts; emergency current measurement by the integrated battery current sensor. The current absorbed by the emergency consumers (which are connected to the battery) is deducted from the battery charging current.
External CAN bus (X5)	communication with Master Unit of the external management system
LAN interface (X6) (service)	display of device status and error messages, parameter setting (web interface); specification: IEEE 802.3™ compatible Ethernet controller, 10/100 Base-T Port, supported network protocols: IPv4, HTTP, DHCP, ICMP
Battery temperature (X7)	external NTC temperature sensor, 10 kΩ at 25 °C

Mechanical data

Construction	for mounting in a closed underfloor container (IP 54)
Housing material	galvanized sheet steel
Dimensions (W x H x D)	591 x 364 x 381 mm
Weight	37 kg
Ingress protection class	IP 00
Cabling	front side, left side, right side
Cooling	water cooling, external ventilation

Operation

Parameter setting	via web interface
Control	external management system (TCN)

Connection technique

720 V DC input: X1	pole terminals M6 (+, –)
110 V DC output load / battery: X2	pole terminals M12 (+load, +batt, –)
24 V DC output load: X3	pole terminals M6 (+, –)
Relay output / emergency current measurement: X4	Wago, 6-pole mating plug: Wago 231-106/037-000/034-000
External CAN bus: X5	SUB-D plug, 9-pole, M3 thread, Harting
Service interface (LAN): X6	M12 circular connector, 4-pole, D-coded
Battery temperature input: X7	SUB-D socket, 9-pole, M3 thread, Harting
Grounding bolt	M8
Upper coolant connection	
Hose nozzle	G ¾ "
Hose bend	acc. to 3EGM041593P0001
Quick coupling	acc. to 3EGM063010R0001
Lower coolant connection	
Sealing adaptor	acc. to 3EGM063009P0001

Warranty	**24 months**
Order code	**DCDC17k-750-110-K1**

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