

on 1000V_{AC} or 1500V_{DC}
up to 220 Watt

High voltage converters
with isolation



for railway / car applications / high voltage batteries

- Use on UIC-high voltage bus
- Input voltage acc. to UIC 550
- Transient strength acc. to UIC 550 / 10kV
- Noise suppression EN 55022.A +20db
- >24 mm air and creepage distances / OV2 acc. to EN50124-1 / increased isolation / PD2
- Partial discharge voltage 4,3 kV / 10pC
- LES-DB / Railway EN 50155 / 121
- Battery charging / system supply
- Power factor correction 16/50Hz on sinus, rectangular, trapeze



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Series UIC02

Main points:

Output:

- Regulation $\Sigma (U_{in} + I_{out} + T_U) < \pm 2\%$
- Accuracy absolute $\pm 2\%$
- Ripple $< 200 \text{ mV}_{pp}$ (over T_U)
- Spikes $< 300 \text{ mV}_{pp}$ (T 1:1/50MHz)
- Response time $\Delta I = 50\% \leq 3 \text{ ms}$
- Constant current limitation $< 1,2 I_{Amax}$
- Output spike filter (C - L² - C)
- No-load, over load, short circuit proof
- Battery charging to charging end voltage (optional)
- Switch off at over load $< 0,7 \times U_{out}$
3 times re-start cycle
- Dynamical over load¹⁾ 30s (optional)
- Relay, closing from approx. $0,7 \times U_o \text{ nom}$
- Screw terminal M4

Input:

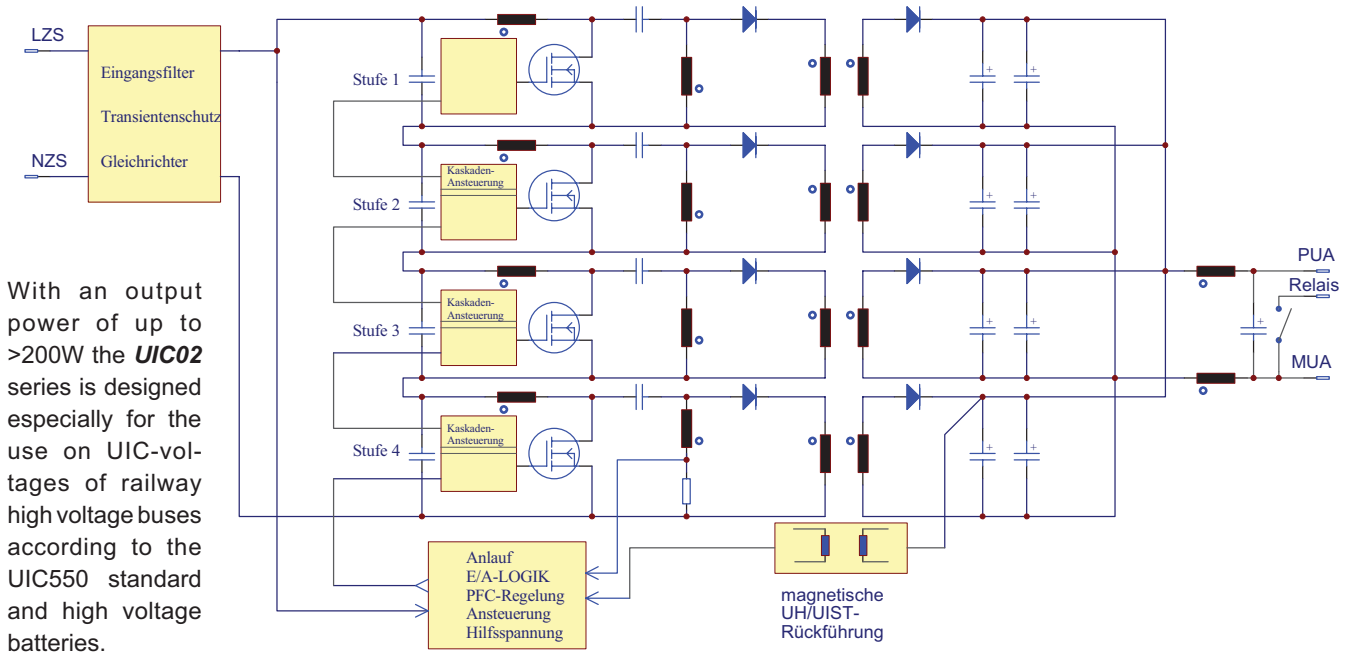
- No-load power approx. 15 Watt
- Input filter EN 55022.A +20db
- Disturbances
EN 61000-4-4 level 4 Burst
EN 61000-4-5 level X
Surge 6 kV on $2\Omega / 50\mu\text{s}$
- Input fuse 1,2kV 8x50 mm
with adapted melt flow characteristic
- Inrush current + run-up current limitation
- Reverse pol. protection bridge rectifying
- Screw terminal M4
- Power factor correction at AC (sin, sq, tr)
Output ripples $2 \times f_{nom} \approx 1V (I_{max})$

In general:

- Auto run-up with input voltage U_{in}
- Efficiency typ. 86%
- Clock frequency $> 80 \text{ kHz}$
- Cascaded Regenerator-topology (Patent)
- Isolation test voltage 4,6 kV_{AC} 10s/100%
- 24 mm air and creepage distances
- EN 50124-1 / PD2
- Ambient temperature $-25^\circ\text{C} / +70^\circ\text{C}$
- Option: $-40^\circ\text{C} / +85^\circ\text{C}$
- Derating 1,5% / $^\circ\text{C} > 55^\circ\text{C}$
Dynamical load 1s / $^\circ\text{C} > 55^\circ\text{C}$
- MTBF 368.000 h acc. to SN29500/40°C
- Shock/vibration acc. to EN50155
- Weight approx. 3,3 kg
- Dimension 350 x 338 x 43 mm³
- CE-conformity certificate on request

<u>U_{in}</u> V	<u>P_{out}</u> W	<u>U_{out}</u> V	<u>I_{out}</u> A	Model number
			stat./dyn. ¹⁾	
700 - 1280 V AC	220 / 55°C	24	9,2 / 13,5	UIC02.U10AC.024.092
16,3 - 60 Hz	170 / 70°C	36	6,1 / 9,2	UIC02.U10AC.036.061
UIC 550 / 1000V_{AC}	no air convection	72	3,1 / 4,6	UIC02.U10AC.072.031
sinus, rektang. trapeze		110	2,0 / 3,0	UIC02.U10AC.110.020
Increased isolation				
900 - 1950 V DC	220 / 55°C	24	9,2 / 13,5	UIC02.U15DC.024.092
2050V / 10s	170 / 70°C	36	6,1 / 9,2	UIC02.U15DC.036.061
4000V / 2ms	no air convection	72	3,1 / 4,6	UIC02.U15DC.072.031
UIC 550 / 1500V_{DC}		110	2,0 / 3,0	UIC02.U15DC.110.020
Reduced transient strength and single isolation				
By forced air convection 220 Watt are available up to TU = 70°C (Option)				
Start-up operation as Series ESP0 exklusive sales by Schaltbau München / www.schaltbau.de				on request
<u>U_{out}</u> for charging as charging end voltage				on request
Version H	-40°C up to 85°C			additional charge
1) here the dyn. current value is given in the model number:				on request
Modification costs for possible changes above values:				on request
Distance isolating bolts are not part of delivery (option)				

Principle circuit



With an output power of up to >200W the **UIC02** series is designed especially for the use on UIC-voltages of railway high voltage buses according to the UIC550 standard and high voltage batteries.

High isolation with air and creepage distances of 24mm, high output voltages and wide input voltage ranges are possible with this patented switching topology. The robust and stable mechanical build-up for extreme shock and vibration demands is ideal for traffic applications e.g. the use on the railway high voltage bus.

This standard power supply is interference suppressed and protected against over voltages as well as disturbances input and output sided. The customer can use the isolated, regulated, short circuit protected and no-load stable low voltage level, which is generated directly out of the UIC-level, to supply systems or to charge batteries with increased isolation. To charge batteries the output voltage can be adjusted to the according charging end voltage level optionally. An external output length diode prevents the battery's energy re-flow while charging and allows the parallel connection for security reasons or for power increasing.

Regenerator

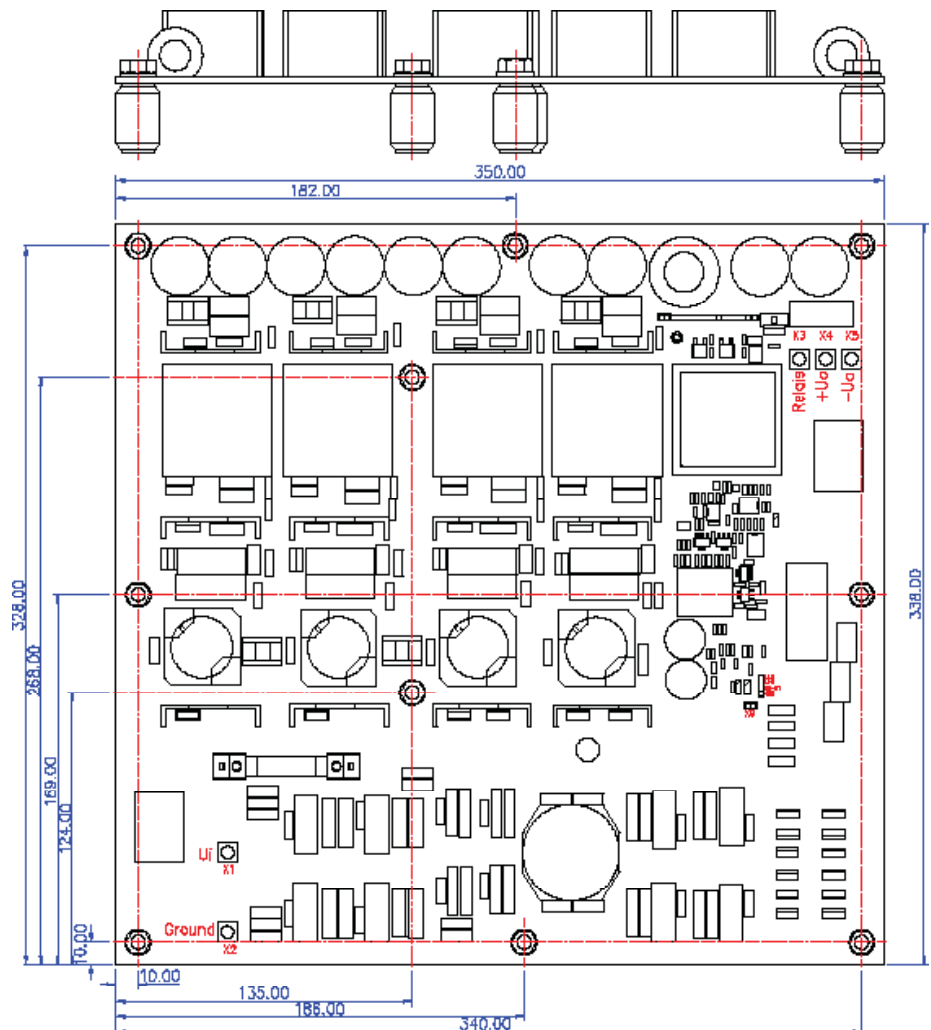
US Pat. no. 5.991.166
D Pat. no. 195 15 210

Cascading

US Pat. no. 6.094.366
D Pat. no. 195 05 417

Mechanics

Distance isolating bolts are not part of delivery (option)



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