

1-phase output  
1,0 up to 3,0 kVA

**1Ph-Sine Wave inverter**  
on 72/110VDC battery networks



- Use in rolling stock
- Extreme stable control loop
- Any kind of load (capacitive, inductive, one-way-rectifying, phase control)
- Synthetic sinus, Distortion factor <1%
- RS 232 / 485 Interface for changes of parameters and data check
- Processor controlled
- Multiple sine output voltages
- Voltage-time area symmetry (Patent pending)

for railway, special technology, building machinery



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## Series WER 02

with low-frequency transformer

### Main points:

#### Input:

- Input voltage range up to >1 : 2,5
- External fuse (emergency protection)
- Disturbance proof EN61000-4-4/5 level 3
- Input filter in acc. to EN55011.A
- Reverse polarity protection
- External soft start pre-charging (relay)
- Inrush current limiting
- Integral power run-up
- Defined switch-on/switch-off point
- No-load current 650mA (110V)
- Input clamp: ring connector M6

#### Output

- Low voltage intermediate circuit
- 1Ph-sine voltage
- Output sided low-frequency transformer
- Internal output EMC-filter
- I<sup>2</sup>t-over load protection of dynamical loads
- No-load proof, short circuit proof dynamically and statically
- U- or f/U-run-up (standard: U-run-up)
- Tolerance  $\pm 2\% = f(U_{in}/I_{out}/TU)$
- Response time  $\Delta I=50\% < 2 \text{ ms}$
- Distortion factor <1%
- Under voltage control
- Over load capable up to 1,5 x P<sub>out</sub>
- Output connector: Wago-745-202

#### In general:

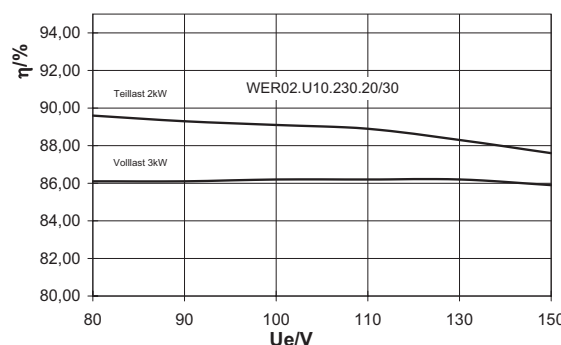
- Signal connector X10: Phoenix MSTB 2,5/6GF
- On/Off remote (Inhibit)
- $\Sigma$ -failure signal
- Status display LED (7 segment display)
- Auxiliary supply 24V/600mA (for: Relay 400mA / Fan 200mA)
- Fan customer sided: 170m<sup>3</sup>/h
- Option: Temperature control/fan control
- Full bridge with re-feeding
- Clock frequency >10 kHz
- Isolation test voltage: Input/Output - ground: 2,5 KV<sub>AC</sub> 1 min
- Ambient temperature -25°C / +70°C
- Short term 85°C / Derating 2%/°C >70°C (ventilation to be clarified)
- MTBF On request
- Shock/vibration in acc. to EN50155
- Weight: approx. 6 kg (plus transformer, choke, relay)
- Dimension: (330 x 226 x 108)mm
- CE-Conformity on request

Input	Output UZK	Trans-former <sup>1)</sup>	Power	Model number
<u>U<sub>in</sub></u>	<u>U<sub>out</sub></u> / 1Ph	<u>U<sub>in</sub></u> / <u>U<sub>out</sub></u>	<u>P<sub>out</sub></u> stat./dyn.	
V DC	Vrms/50 Hz	Vrms/50 Hz	VA	
<b>50 - 101</b>	30	30/230	1000/1500	WER02.U72.100/150
43 - 130 dyn.	30	30/230	1600/2000	WER02.U72.160/200
<b>77 - 154</b>	46	46/230	1600/2000	WER02.U10.160/200
66 - 170 dyn.	51	51/230	2000/3000	WER02.U10.200/300

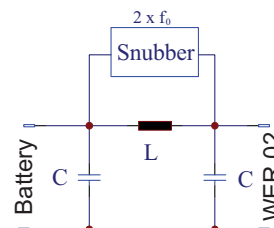
1) customized / additional output windings available  
The output voltage can drop up to 10% by U<sub>in</sub> min  
Mechanical adaptation: On request  
One time projecting costs: On request  
Modification costs for possible changes above values: On request  
Output frequency 60Hz / 400Hz / 115Vrms: On request  
Higher power and voltages: On request

1) Prototypes of transformer, choke, relay are delivered by SYKO, series by the manufacturer. SYKO gives a delivery manual.

Efficiency WER02.U10.230



### Input current-smoothing Option (on request)



To smooth down the input sine current ( $2 \times f_0$ ), which is caused by very high input capacity a choke can be connected input sided.

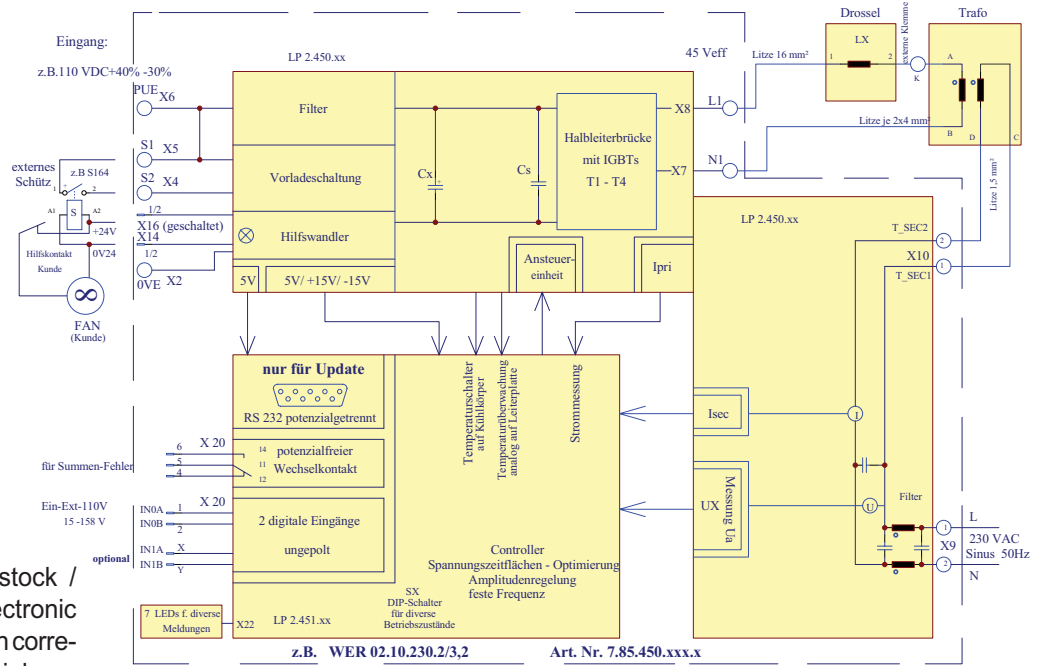
1-phase output  
1,0 up to 3,0 kVA

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Many mobile applications need a 1phase/50Hz/230V-alternating voltage to supply kitchen-devices, pumps, computers, control systems, measurement equipment and tools etcetera out of the on-board network or UPS-battery.

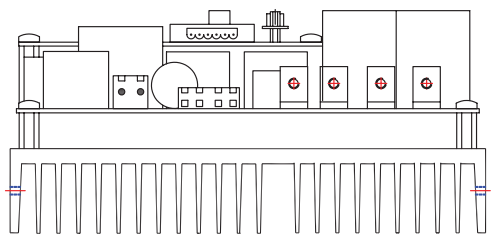
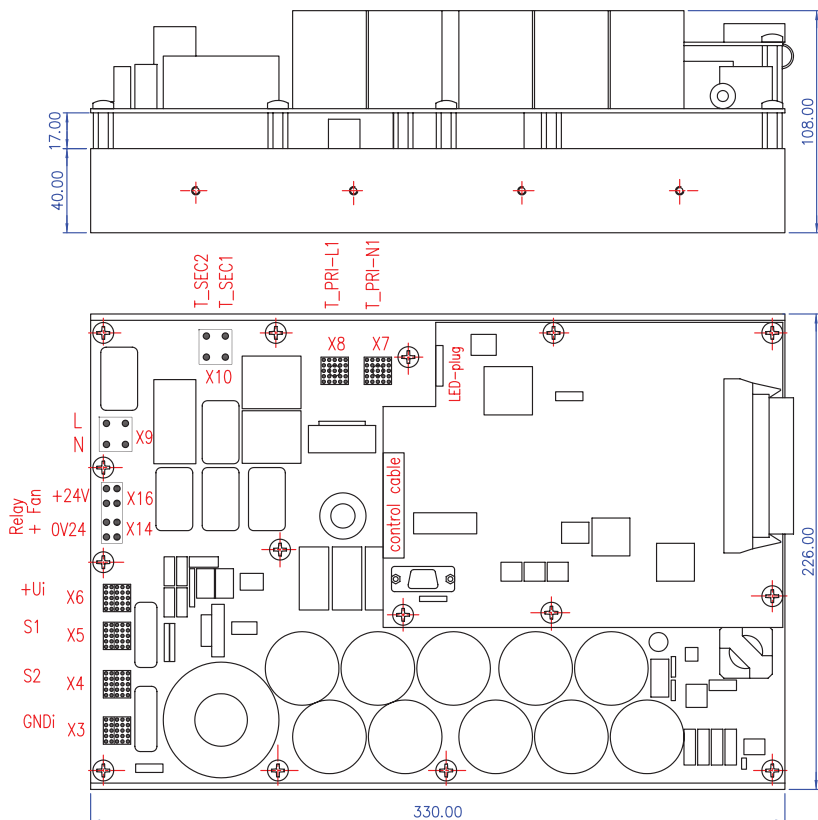
The **WER02** series generates an output power of 1,0kVA statically up to >3,0kVA dynamically. It is supplied by on-board voltages from 72V up to 110VDC. Developed for the mobile use in rolling stock / railway applications this „electronic power block“ is equipped with corresponding connectors for periphery, optional components as (input filter choke), input relay, sine filter choke (low voltage side), 50 Hz-transformer, display unit and functional inputs for different signalling applications.



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The power block is build up/developed with the following features: no cabling, modern semiconductors, very wide input voltage range, over voltage and transient strength, simply mechanical mounting, very high efficiency, transformer's voltage-time area symmetry (Patent pending), filter capacitors dimensioned for extreme low frequency 100 Hz and high frequent chopping currents, input and output sided EMC-filters, monitoring functions, quartz stable frequency, distortion factor of <1%, regulated/controlled/short circuit proof output voltage and a wide ambient temperature range. These functions lead to a flexible and unproblematic usable power component. An input current-smoothing is available on request.

**Mechanics**



Forced air convection necessary

**Customized complete solution**



WER02.U10.230.200/300