

Cascading
n x 1700 Watt

Battery charger isolated
DC-high voltage or 3Ph-input



for • Rolling stock
• Vehicles

- Regulated cascading power-safety redundant
- Parallel operation network/battery without de-coupling diode
- Regulated current splitting in battery
- charging end-voltage = f(TBat)
- System suitability with internal LMB
- No load capable / 100%-load step
- Improved isolation PD2 / OV2
- Shock/vibration EN 61373 (any mounting position)
- Functional monitoring with Controller



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Series **BLG.M** Battery charger from high voltage or 3Ph-input

Main points:

Output:

- Temperature regulated charging end voltage
- Parallel operation network-battery
- Regulated parallel connection up to 4 units
- Accuracy absolute $\pm 1\%$
- Ripple $< 100 \text{ mV}_{pp}$ (over T_a)
- Spikes $< 500 \text{ mV}_{pp}$ (T 1:1/50MHz)
- Response time $\Delta I = 50\% \leq 3 \text{ ms}$
- constant short circuit level $< 1,2 I_{o-max}$
- Output spike filter (C - L² - C)
- no-load, over load, short circuit proof
- LED for $U_o = OK$
- Optional U_o -adjustment (isolated)
- Connection PT1000 (Master)
- RS232-interface [CAN-Option]
- Screw connectors M6

Input:

- converter starts from input source/Inhibit
- no-load power approx. 8Watt
- Input filter acc. EN 50121.2.3
- Disturbances EN 61000-4-4 level 3 Burst
EN 61000-4-5 level 3 Surge
- Input fuse (emergency protection) 6x35mm
- Inrush- and Turn-on current limitation by internal pre-charging
- Over and under voltage turn-off with Hysteresis and re-start delay
- Power spring clamps 4mm²

General:

- Efficiency typ. 93% (750 V / 1,5kW)
- Clock frequency 80Hz
- Isolation test voltage 2,8kV AC / 10s
- Air and creepage distances:
Input - output: 12mm
Input-Ground: 6 mm
Output-Ground: 5 mm
- Pollution degree PD2
- Over voltage category OV2
- Ambient temperature $-25^\circ\text{C}/+60^\circ\text{C}$
- Option: $-40^\circ\text{C}/+70^\circ\text{C}$, Derating 2% $>60^\circ\text{C}$ ¹⁾
- regulated fan operation
- MTBF on request
- Shock/vibration acc. EN61373
- Dimension approx: 300x230x103 mm³
- Weight: approx. 7kg
- CE-conformity on request
- Limit temperature at heat sink - : 95°C
- input sided voltage ripples of $>5\%$ must be discussed/specified
- Monitoring: U_o , I_o , I_{Bat}, T_{Bat}, fan error, power-good, two floating relay contacts, optical indications, master monitoring
Option: Temperature monitoring

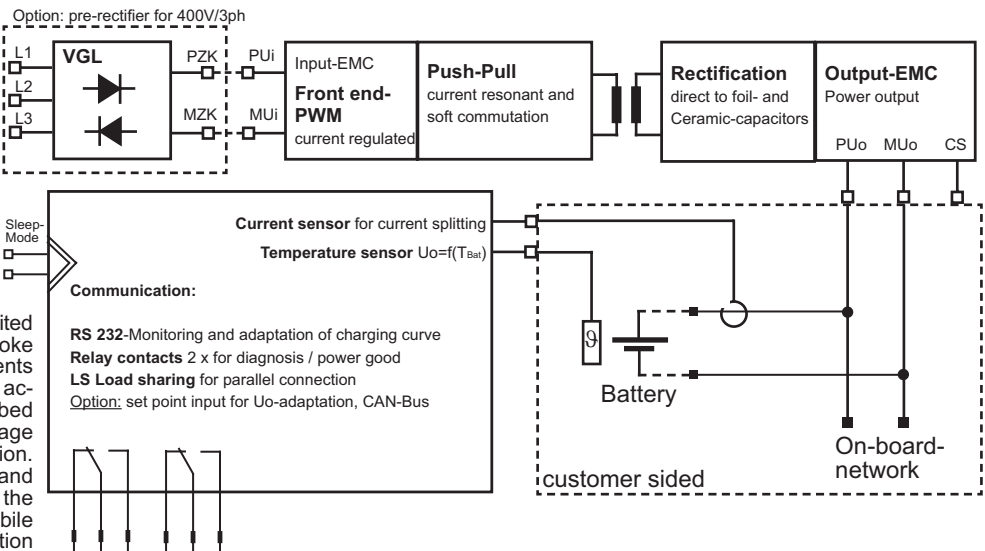
1) fan operation must be discussed

Option:

- 3Ph-rectifier with transient protection and diode-cut-off protection

<u>U_i</u> V	<u>P_{max}</u> W	<u>U_o</u> V	<u>I_o</u> A	Model number
460 - 850	1700	12	70	BLG.M600.12.70
		24	60	BLG.M600.24.60
		36	40	BLG.M600.36.40
		72	20	BLG.M600.72.20
320 - 580	1500	12	70	BLG.M450.12.70
		24	53	BLG.M450.24.53
		36	35	BLG.M450.36.35
		72	18	BLG.M450.72.18
200 - 850	1500	12	70	BLG.M400.12.70
		24	53	BLG.M400.24.53
		36	35	BLG.M400.36.35
		72	18	BLG.M400.72.18
160 - 330	1500	12	70	BLG.M220.12.70
		24	53	BLG.M220.24.53
		36	35	BLG.M220.36.35
		72	18	BLG.M220.72.18
Version H	-40°C...70°C (forced air convection) ¹⁾	additional charge		
Projecting costs:				on request
Modification costs for possible changes above values:				on request

The **BLG.M** series is designed for intelligent, temperature controlled voltage battery charging on high voltage networks in hybrid DC-railway, ship and vehicle applications with a very wide input voltage range of 1:5 (for speed related, wide varying intermediate voltage levels e.g. in diesel-electric drives). The chosen switching concept results very high and constant efficiencies over the input voltage range. Inrush currents are limited by pre-charging, differential U_i/dt -currents are limited by an optional pre-connected choke with snubber und Run-up currents are prevented by integral power activating. This secures an undisturbed operation on the intermediate voltage level with low system perturbation. The stable mechanical build-up and the direct thermal connection to the chassis guarantees the use in mobile applications with high shock/vibration and temperature requirements.

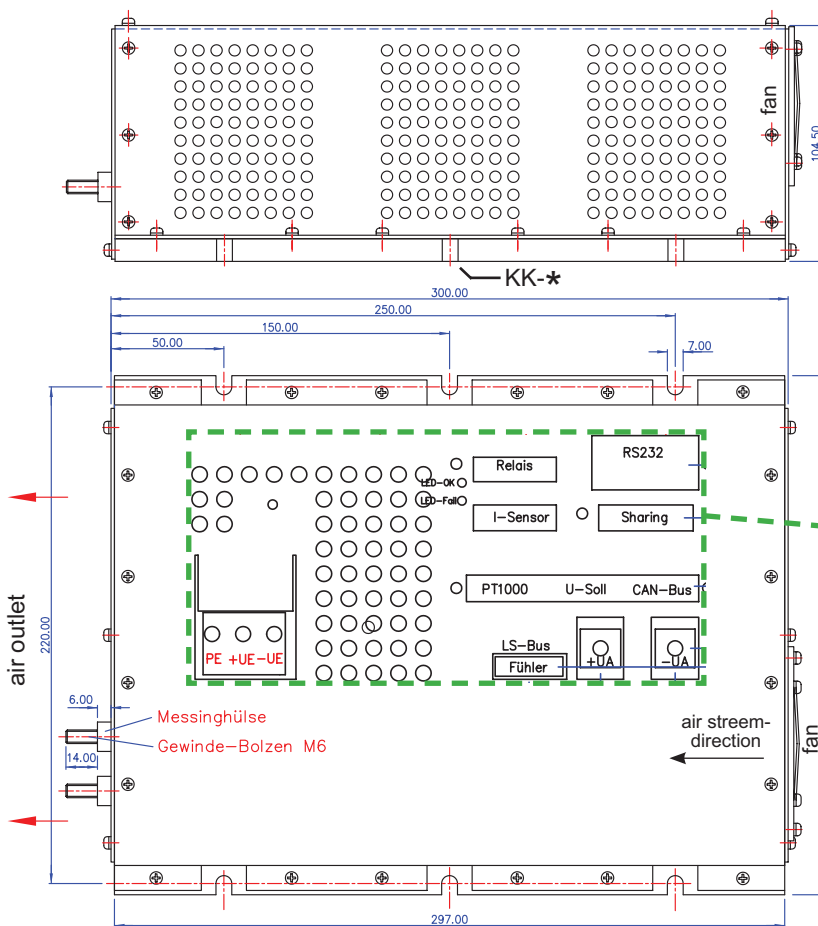


Ventilated operation³), is mandatory and recommended to improve the MTBF. The supply for the ventilation is internally generated by a integrated auxilliary converter. The input circuit is protected against long term transients (in closed energy systems) without current refrection, radio interference suppressed and can deal with chattering over plugging and short-term power failures (auto re-start). Input sided supply voltage ripples of <5% (nominal level) can be processed.

The start-up operation²) is handled down to <33% of a deep discharged battery or the battery voltage must reach 33% of the nominal value within 50ms. The switching topology, the choice of components, the auto run-up with the input voltage and the interface characteristic result a high system reliability up to limit values for the customer application. The integrated no-load capability prevents pumping (voltage ripple) by the choke's discontinuing

An internal „Charging management board“ **LMB** covers the intelligence of temperature regulated charging, current splitting, and current sharing and communication at parallel operation. With this solution up to four units can work safety redundant with a sum-output power of up to >5kW. In the case that n units fail the remaining units keep working with a power reduction of n x 5kW. The battery management characteristic can be modified on customer demand. Optionaly an external pre-filter/rectifier is available to supply the unit with 400V / 50Hz/3Ph.

Mechanic keep free 10cm air entrance / air outlet
Mounting direction: connection field top, fans bottom



Efficiency:

