

for Range-Extender
n x 9000 Watt

DC/DC high voltage charger
Fuel cell to high voltage



- for • Railway
- Vehicles
- Special Technology

- customer sided charging management
- Input current regulation fuel cell capable
- CAN-interface with set point, actual value, functional data
- 19"- and IP65 build up style Forced convection / water cooling
- Increased isolation PD2 / OV2
- Shock/vibration EN 61373
- Start-up for secondary side



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Series PM.U

CAN-controlled set point input for input current and output voltage

Main points:

Output:

- CAN-controlled output voltage
- Option: power cascading Internal U/I-control loop
- no-load, over load, short circuit proof
- Accuracy absolute $\pm 1,5\% = f(T_a / I_{out} / U_{in})$
- actual value response time $\Delta t_A = 50\% \leq 10ms$
- LED for $U_{out} = \text{Okay}$
- Output for On-board network
- Output for current regulated Battery charging (current splitting)
- Output filter acc. EN 50121-3-2
- Connectors:
19": breakout cable 5 x 2,5², ca. 1m
IP65: GCB-3102-22-12-PNB-T2

Input:

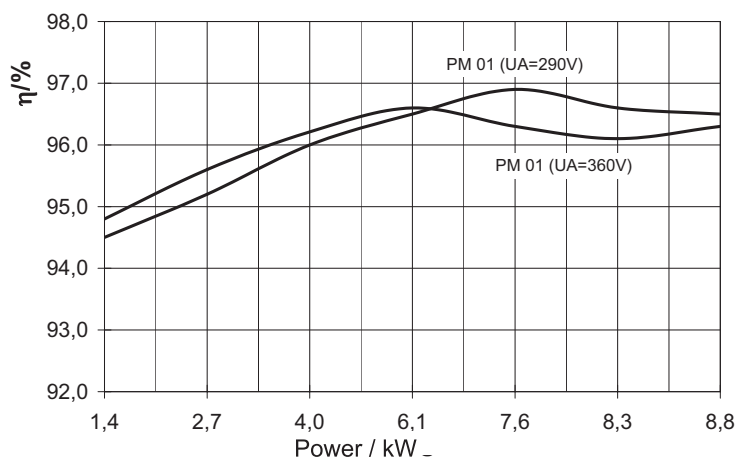
- CAN-controlled input current
- Start-up from U_{out} -high voltage (optional) from external auxiliary supply (1:4)
- Input filter acc. EN 50121.3.2
- Disturbances EN 61000-4-4 level 3 Burst EN 61000-4-5 level 3 Surge
- Inrush- and turn-on current limitation
- Over-, under voltage turn-off with hysteresis and re-start delay
- Regulated average-current-mode Cascading
- Connectors:
19": APP-Series PMHP
IP65: ODU-Series HV

In general:

- Efficiency up to 96,9%
- 5 mm air and creepage distances
- Ambient temperature T_a : $-25^\circ\text{C} / +60^\circ\text{C}$
- Option: $-40^\circ\text{C} / +70^\circ\text{C}^3$
- Derating on request, MTBF on request
- Safety EN 60950
- Radio suppression EN 55011
- Disturbance protection EN 61000-6-2
- Shock/vibration acc. EN 61373
- Dimensions: L x B x H ca.:
19"-rack style: 600 x 430 x 3HE xmm³
IP65-water cool.: 525 x 430 x 92,2 mm³
- Weight:
19"-rack style: approx. 31 kg
IP65-water cool.: approx. 28 kg
- CE-Conformity on request
- Connectors interface:
2 x D-SUB 9 pol (CAN)
1 x D-SUB15-pol (analog)

U_{in}	$P_{out \text{ cont./ shortt.}}$	$U_{out \text{ max}}$	$I_{in \text{ max}}$	Model number
V_{DC}	kW	V_{DC}	A	
40 - 80	6,5 / 7,2	240	180	PM.U50.240.
	7,0 / 8,0	380	180	PM.U50.380.
50 - 105	7,0 / 8,0	240	150	PM.U72.240.
	8,0 / 9,0	380	150	PM.U72.380.
77 - 154	7,0 / 8,0	240	110	PM.U10.240.
	8,0 / 9,0	380	110	PM.U10.380.
150 - 320	7,0 / 8,0	240	53	PM.U22.240.
	8,0 / 9,0	380	60	PM.U22.380.
Version H	-40°C...+70°C (forced ventilation)			add. charge
IP65-version	(water cooling)			add. charge
Output voltages up to 600V				on request
Projecting costs:				on request
Modification costs for possible changes above values:				on request

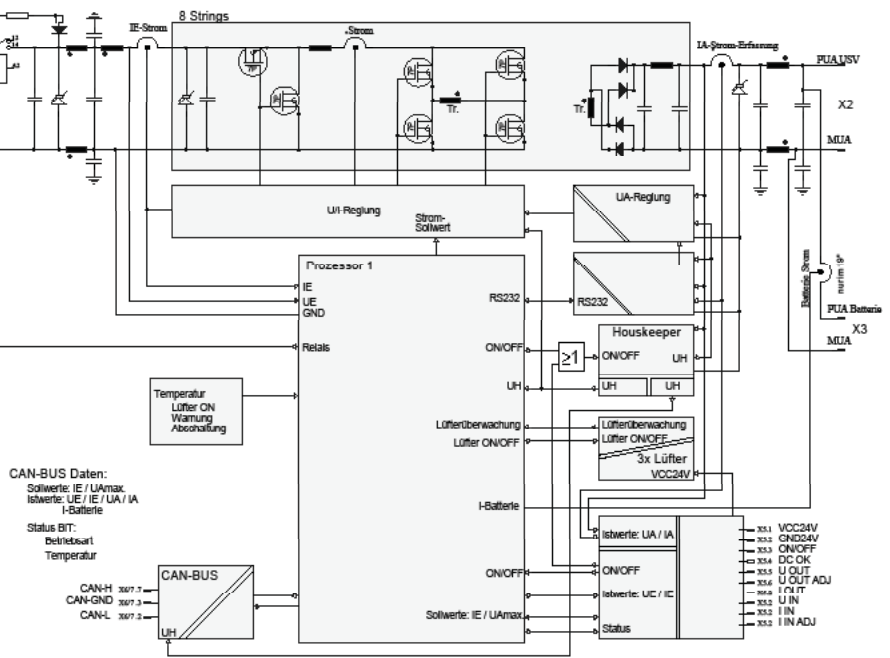
Efficiency



Further data for water cooling IP65 on request

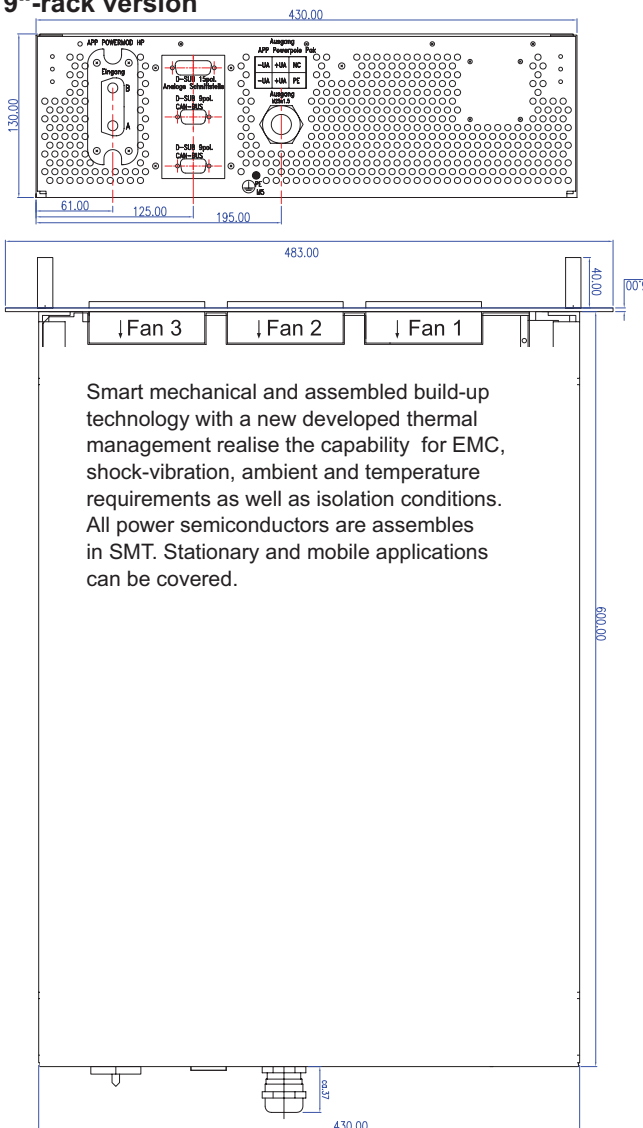
Stand: 12/11

The **PM** series is designed as an subsidiary 9kW battery charger. Data such as set point values, actual values and functional parameters can be exchange in between the external customer sided and the internal regulation management via CAN-Bus communication. Preferred use for this isolated DC/DC converter is to charge high voltage batteries in Hybrid networks with pre-connected fuel cell as Range Extender. Optionally this unit as front end unit PMF can generate an intermediate level to supply series connected 1ph/3ph-inverters. For the use on fuel cells continuous power demand with primary sided current regulation is assumed. Dynamical inrush (pre charging) and run-up currents (integral set point parameter) as well as input current ripple (interleaving operation) are prevented circuitry-wise. The cooling concept for the 19"-rack (IP65) version is realised by temperature regulated forced ventilation (water cooling system). Shock-vibration capability acc. to EN 61373 (any mounting position) allows the use in mobile and stationary applications.



An integrated, subsided and intelligent functional management limits the regulated input current as function of the external source condition and the output voltage/current values as function of the battery condition (temperature regulated and current splitting), which also allows the parallel operation of the network and battery charging. Optionally available is regulated current cascading operation. The set-in order process is supported and controllable by SYKO's user interface.

Mechanic 19"-rack version



Mechanic IP65 water cooling

