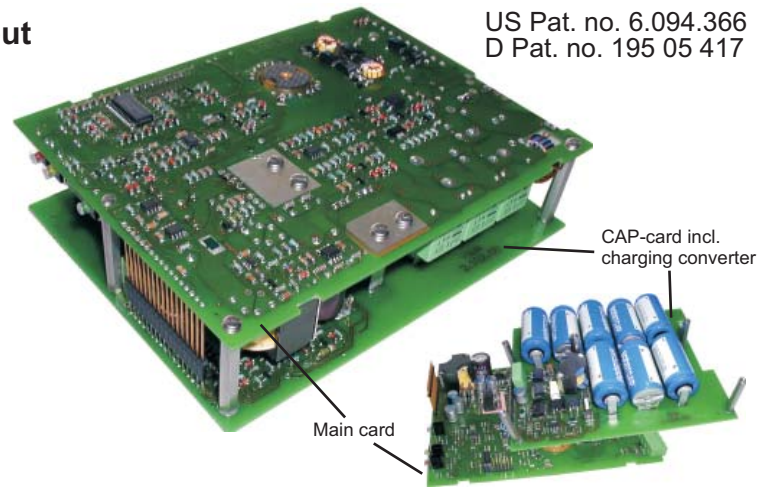
Uninterruptable power supply for mobile applications

- **UPS-function up to 40s at full load**
- **Main output not isolated to the input**
- **Isolated Auxiliary voltages**
- **Input range 9 - 34 V / 9 - 60 V**
- **DIN ISO 7637 / VG 96916 part 5**
- **Security relevant topology**
- **Noise suppression EN 55022.B (- 10 dB)**
- **Input fuse**
- ***CE- and E1-certification***



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

Series RV.USV
UPS-Supply

Main points:

Output:

- UPS-supported > Uin<9V
  50s/30W - 36s/40W
- Outputs independent of Cap-charging
- Main output / Aux.outputs 3,3/5,1V
- Accuracy absolute ±2%
- Regulation $\Sigma(U_{in}+I_{out}+T_U)$ <±1,5%
- Ripple < 10 mV_{pp} über T_U
- Spikes < 100 mV_{pp} (T 1:1/50MHz)
- Regulation deviation ΔI=50% ≤300mV
- Current limit <1,2 I_{Amax} (U_{out} = 0 V)
- Over voltage protection 1,2 $U_{o\,max}$ (Logic level)
- Power-fail-signal Uout<10V

Input:

- Input fuse internal
- Main switch isolating
- Input-reverse pol. protection (active)
- Active transient protection filter (AFI)
- Active Inrush current limiting (ICL)
- Input filter EN 55022.B (-10 dB)
- Disturbances
  - DIN ISO 7637-1 and 3
  - VG 96916 50V/50ms 70V/2ms
- Capable for defined transients
- Inhibit-function 5 - 34V surge proof

General:

- Ambient temperature -25°C / +70°C,
- Option: -40°C / +85°C
  Derating 1% / °C > 70°C
- Air convection cooled
- Internal, independent cap-charging converter
- 8x140F, charged to 17V_{max}, charging time 20s/V
  Additional fuse internal, symmetric charging
- Common 0V input - output
- 3,3/5,1V 0V-bridged with 5Ω to -Ui
- LED-signalling of the following parameters:
  - Input voltage available
  - Inhibit active/de-active
  - Status main output
  - Cap-chaging situation
- MTBF on request
- Weight approx. XXX g without Kabel/housing
- No breakthrough: U_{in} to U_{out} / U_{out} to U_{in}
- Option: housing, Kabel u. Plug
  for chassis mounting

Uin	Pout	Uout	Iout	Model
V	W	V	A	number
10 - 34	**40**	12	3,2	
8V dyn.		5,1 / 3,3	0,4 / 0,4	RV.USV 20·12·032
ISO 7637-1 / 3*				
VG 96916 T1–5*	**35**	24	1,4	
		5,1 / 3,3	0,3 / 0,3	RV.USV 20·24·014
10 - 48	**35**	12	2,5	
9 - 56V dyn.		5,1 / 3,3	0,4 / 0,4	RV.USV 26·12·025
100V / 50ms*				
ISO 7637-1 / 3*	**35**	24	1,4	
VG 96916 T1–5*		5,1 / 3,3	0,3 / 0,3	RV.USV 26·24·014
Version H	-40°C			on request
Warning: Maximum temperature Tu for CAPs = 65°C				
Housing				on request
Modification costs for possible changes above values:				on request

LED-indication logic description

LED1 green (Uin) Operating-condition	U_{in}<8V/Main switch Off/Inhibit active Sleep 1	LED blinking (approx. all 2-3s/100ms) I_{in} < 0,5 mA
	U_{in}<8V/Main switch On/Inhibit inaktive Sleep 2	LED blinking (approx. 2 Hz /100 ms) I_{in} approx. 1,5 mA
	U_{in} >9,6–10 V/Stand-by/Inhibit active U_{in} < 8,3 V / UPS-operation	LED static LED blinking (approx. 2 Hz/100 ms)
LED2 yellow (Uout) Controlling Output	Uout (12V Main) >11,4V ±0,1 V	LED static
	Uout (12V Main) <11,4V	LED blinking (approx. 1 Hz/100 ms) Acoustic alarm with breaks
	Over temperature	LED blinking with 20 s delay (approx. 5 Hz/100 ms) Acoustic alarm static
LED3 red (Charging) Controlling Charging	LED green and yellow ok	LED static
	UCAP < 16,72 V ±0,1 V	LED blinking (approx. 1 Hz/100 ms)
	UCAP < 10 V ±0,1 V	LED blinking (approx. 2 Hz/100 ms)
	At difference approx. 0,5 V ±0,1V between PUC and UCAP	LED blinking (approx. 4 Hz/100 ms)
	Over temperature	LED blinking (approx. 5 Hz/100 ms)

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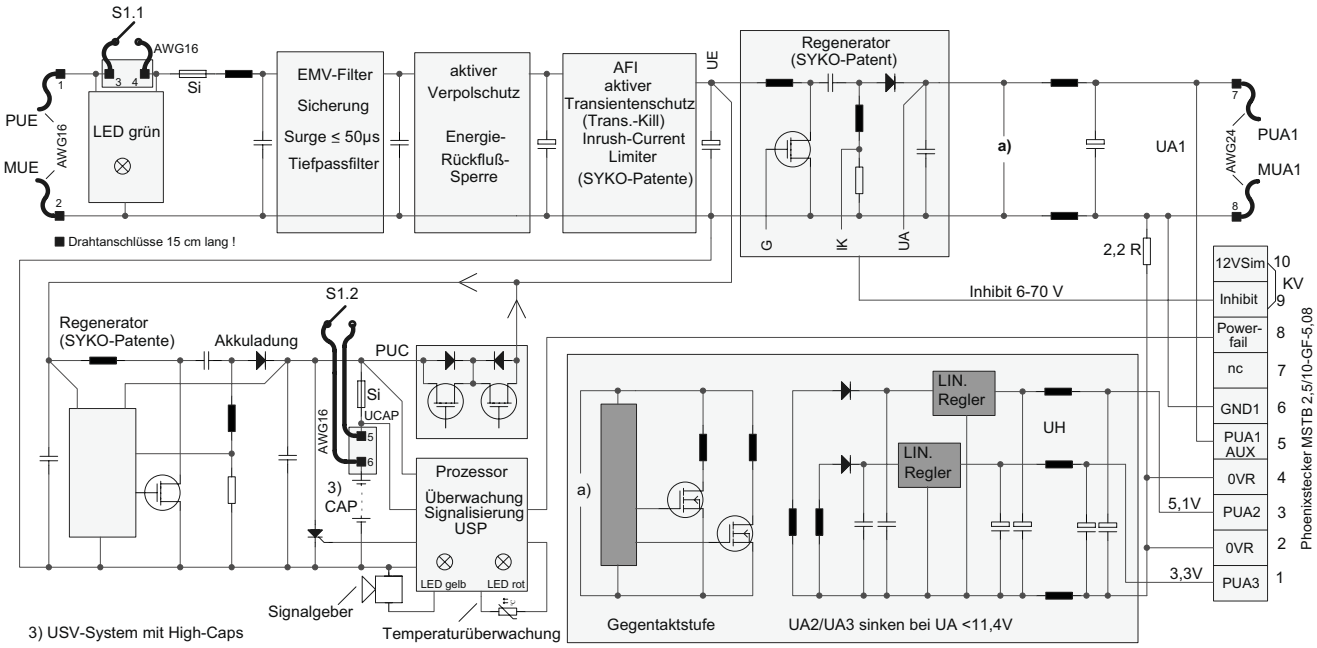
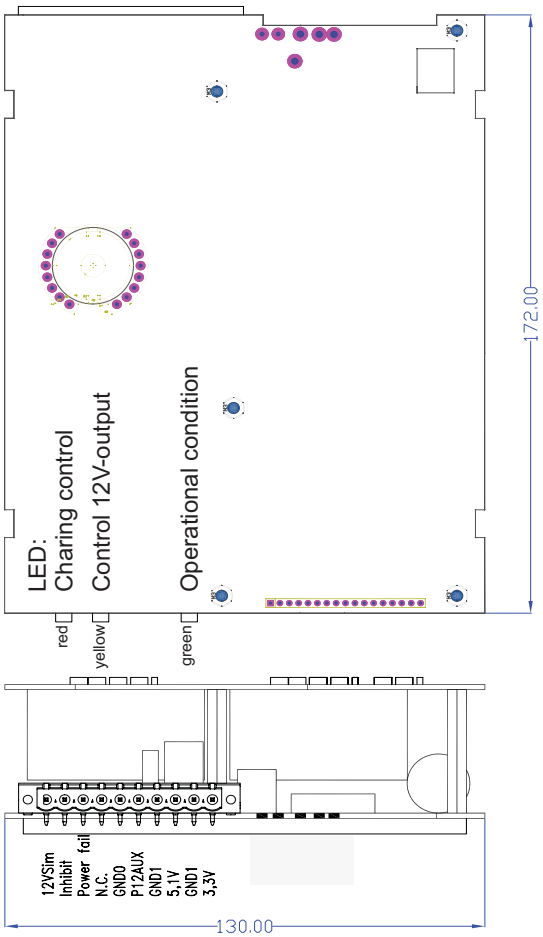


Unter Einhaltung vorgegebener mechanischer Innenabmessungen ist der Wandler zertifiziert nach e1, E1 und CE.

Datasheet and detailed description on request

The ***RV.USV*** series is designed as a UPS-frontend-supply for an output power of 40 W. Long term transients, input voltage interruptions and the universal input voltage are handled with a constant Uout and without current reflection in accordance to the DIN ISO 7637 and VG96916T5 standards respectively. Complex EMC-filtering, active reverse polarity protection, active transient protection and active inrush current limiting as well as active hold-up time are system parameters, which lead to a high performance and functionality for mobile requirements. To the customer's disposal is one non-isolated, regulated and short circuit proof output-voltage (12V or 24V). Additionally two isolated standard controller voltages are available [2,2Ω -U_{o1}-$GND_{2/3}$ (5,1V / 3,3V / each 400mA)]. The converter works with an ambient temperature ranges of (-25...+60)°C (optionally down to -40°C). If an input voltage drops under the minimum Uin the UPS-function is activated. The charged high-caps with high CU² guarantee the stable output voltage as f=(TU / ΔC / aging) for 40s with full load. A processor (on customer request) take over the complete intelligence and signalling of 3 LEDs and the output signal PF (Power fail). Other energy-carrier as lead-gel-, NiCd-, Li-Ion-batteries can be modified optionally for hold-up times up to the range of hours. The standard delivery is a open double-story PCB for chassis mounting. Customized housings are available on request.

Mechanics



Sample of a customer application

CE, e1, E1 is just valid for the aluminium housing version
with the inside dimensions: (172 x 130 x 50)mm