- **Input range 6 - 38 V / 9 - 60 V**
- **Load dump / VG 96916 part 5**
- **Connection to cigarette lighter or on-board vehicle plug**
- **Security relevant topology**
- **Over voltage protection (Thyristor)**
- **Noise suppression EN 55022.B (- 10dB)**
- **Input fuse**
- ***CE- and E1-certification***

Laptop-supply for vehicle applications

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

Series MSV·V Car-Adapter

Main points:

Output:

- Accuracy absolute ± 1%
- Regulation $\Sigma(U_{in}+I_{out}+T_U)$ <±1,5%
- Ripple < 40 mV_{pp} über T_U
- Spikes < 60 mV_{pp} (T 1:1/50MHz)
- Regulation time ΔI=50% ≤ 3 ms
- Current limit < 1,2 $I_{o\,max}$ (U_{out} = 0 V)
- Output spike filter (C - L² - C)
- Over voltage protection 1,2 $U_{o\,max}$

Input:

- No-load power approx. 3 Watt
- extreme input voltage range
- Input fuse internal
- Input-reverse pol. protection (fuse)
- Input filter EN 55022.B (-10 dB)
- Disturbances
  EN 61 000-4-4 level 3
  EN 61 000-4-5 level 3
  DIN ISO 7637-1 and 3
  VG 96916 50V/50ms 70V/2ms
- Inrush current reduced
- Switch-on current limited / integral
- Capable for defined transients
- Plug for cars and trucks without change [1] level on request
- EMC-limit LA01G3 according to MIL on request

General:

- Ambient temperature -25°C / +70°C,
- Option: -40°C / +85°C
  Derating 1% / °C >70°C
- Air convection cooled
- Common 0V input - output (DC)
- MTBF on request
- Weight approx. 200 g without cable/housing
  approx. 560 g incl. cable/housing
- No breakthrough: U_{in} to U_{out} / U_{out} to U_{in}
- Option: without housing, cable and Plug for chassis mounting

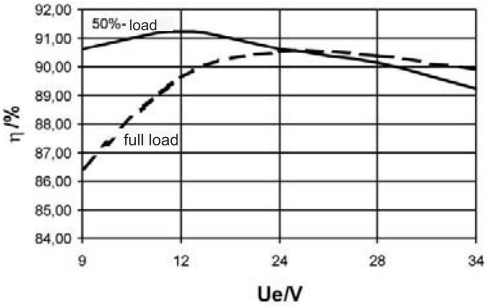
Uin	PA	Uout	Iout	Model
V	W	V	A	number
7 - 38	**60 Watt**	12	5,0	MSV·V 19·12·050
6V dyn.		15	4,0	MSV·V 19·15·040
		24	2,5	MSV·V 19·24·025
10 - 34 9V dyn.	**80 Watt**	12	6,5	MSV·V 20·12·065
ISO 7637-1 / 3		15	5,3	MSV·V 20·15·053
or VG 96916 T15		24	3,3	MSV·V 20·24·033
50V/50ms - 70V/2ms				
10 - 48	**70 Watt**	12	5,8	MSV·V 26·12·058
9-60 V dyn		15	4,6	MSV·V 26·15·046
3-voltage on-board		24	2,9	MSV·V 26·24·029
network 12/24/42V				

Option: MSV.V 19. bzw. 20.XX.XX O
MSV.V 26.XX.XX O
without housing, plug and cable with screw terminal

Output adaption to any laptop-voltage/current with modification possible
The needed laptop plug must be defined

Version H	-40°C up to +85°C	Additional charge
Other output plugs		Additional charge
Modification costs for possible changes above values		on request

Efficiency **MSV.V 20.15.053**



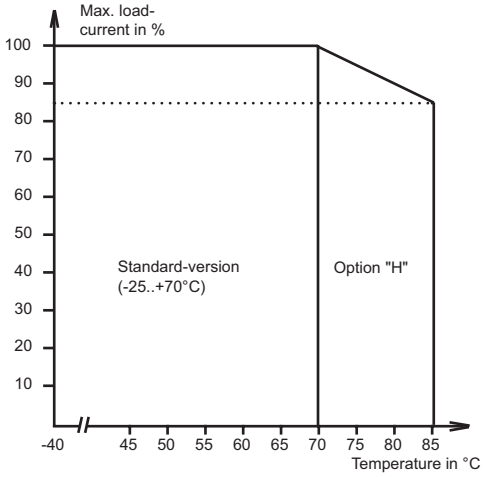
The ***MSV·V*** series is designed for the supply of Notebooks and Laptops in mobile applications. Extreme climatic and mechanic requirements allow the use in automotive measurement systems and special technology. The automotive EMC and disturbance standards are also kept.

With the universal input voltage range this series can be used in cars and utility vehicles and is ideal to bridge the motor's start situation. The MSV.V26 series additionally supports the new 42V on-board vehicle network.

The topology prevents the break through of the input voltage to the output side, especially for extreme security requirements at high input voltages, even in the case of a defect switching transistor (a normal step-down converter does not prevent the break through). Also eliminated are the disadvantages of the step-up topology, which allows the reach-through to the blocking capacitor (high inrush currents) and the not existing short circuit protection.

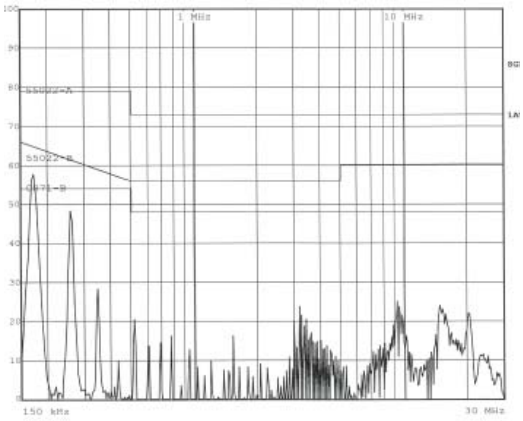
Just small input filter-capacitors are used to keep the noise suppression according to the EN55022. B (-10dB). An active over voltage protection prevents an output sided over voltage in the case of a defect control-loop. The output is over load and short circuit protected. Low no-load currents of <12mA allow the stand by-operation without separating relay.

Derating-curve

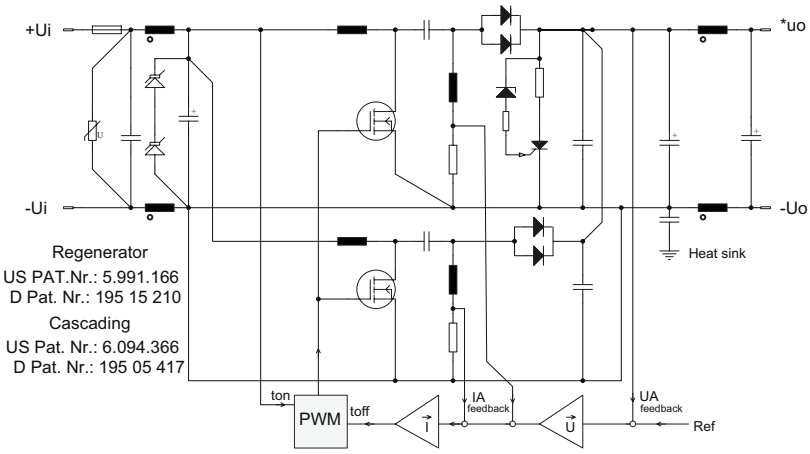


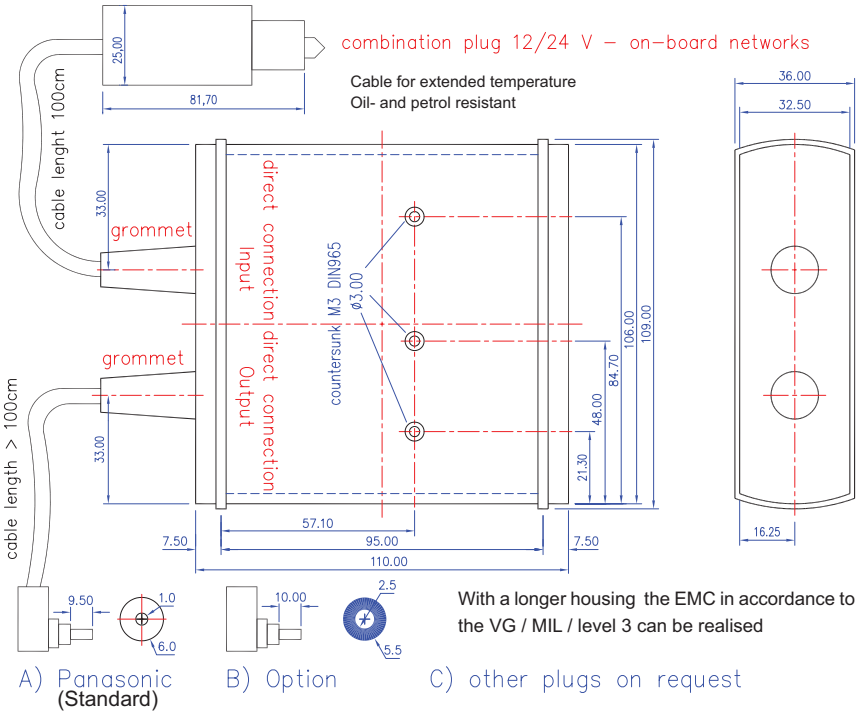
Measurement radio interference

with housing



Schematic diagram MSV.V





With a longer housing the EMC in accordance to the VG / MIL / level 3 can be realised

Option: without housing, with screw terminal
with Phoenix connector