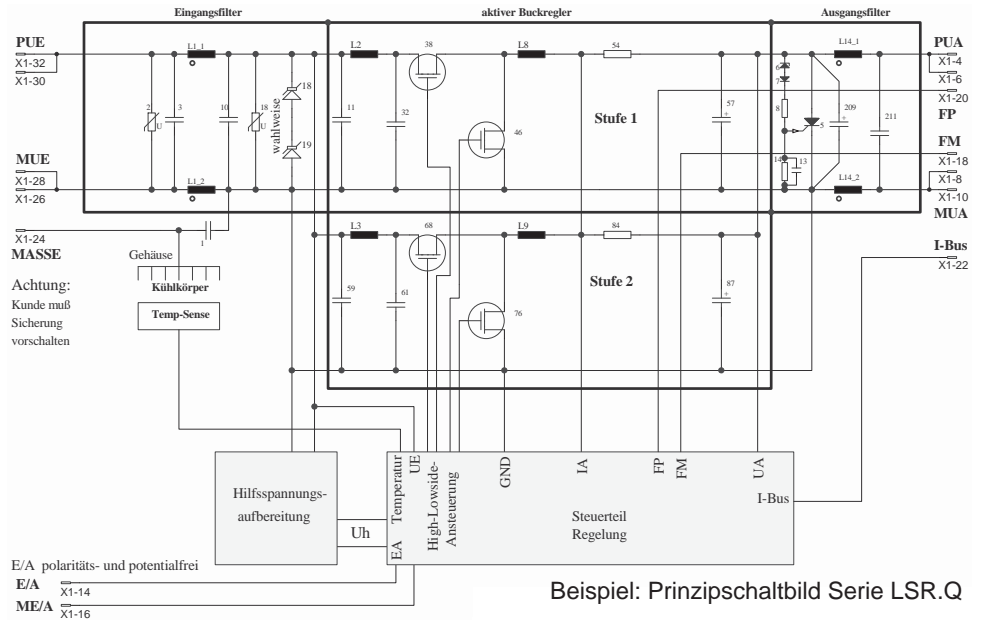


Product lines A's switching regulators (step-down / Buck-topology) are designed especially for the supply in systems with single-ended applications¹⁾ on extremely fluctuating on-board voltage networks as well as secondary-switching regulators (supplementary regulator) on rectified or regulated front-end supplies. These regulators are defined with very wide input voltage ranges, dynamical long term over voltages and transient protection.

The use of synchronic switches instead of cross diodes results higher efficiencies. For systems in which the input voltage can drop un-allowed under the value of the needed output voltage, we suggest converters of the product line B.

1) Take care of galvanic coupling battery-converter-system and potential loops to the battery.



Combination brings functionality!

- **Wide input ranges**
- **Transient adapted**
- **Simply radio interference adjustable**
- **Applications for external circuit available**
- **High functional security**
- **Over voltage protection (Thyristor)**
- **Synchronic switches**
- **Inhibit (on/off)**
- **Adjustable output voltage (Option BER)**
- **Reliable system suitability**

Converter-family	PA W	Nom. U _{in} V	Quantity Outputs	Build-up Style		Special features
MSR.A	6	12 - 48	1	DIL 24-Module	potted	optional not potted
MSR.K	6	12 - 48	1	PCB-Module	open	
MSR.F	16	12 - 60	1	PCB-Module	potted	screwable
GRW / GRK	20	12 - 24	1, 2, 3	PCB-Module	open	screwable
MSR	30	12 - 48	1	PCB-Module	open	screwable
NSR.O	60	12 - 24	1	PCB-Module	open	screwable
KSR	60	12 - 24	1	PCB-Module	open	VG-compliant, >>η
SR.O	72	12 - 60	1	PCB-Module	open	screwable
LSR.P	80	24 - 110	1	19"-Rack version	3U / 5TE	U _{out} -polarity changeable
LSR.M	150	24 - 110	1	19"-Rack version	3U / 5TE	flat design
LSR.Q	480	12 - 110	1	19"-Rack version	3U / 10TE	very high efficiency
QSR	1500	12 - 110	1	Chassis mounting	with housing	>>η / On-board supply
TSR	7500	170 - 680	1	Chassis mounting	with housing	>>η / battery charging

External application circuits as filters and disturbance protection are available for requirement-adaptation for all switching converter modules. For 19"-rack versions and chassis mountable converters the filtering and disturbance protection is included. Do not use synchronic rectified switching regulators to supply/charge energy sources with a higher voltage than the nominal input voltage.