

for Railway, Vehicles, Instrumentation

- Chassis mounting
- Security redundant 2 x 300 Watt¹⁾
- Power redundant 600 Watt¹⁾
- Input reverse polarity protection¹⁾
- Active hold-up time EN50155 S2¹⁾
- Wide input voltage range
- Inrush current limitation (ICL)
Active transient protection filter
(SYKO-Patent no. 3804074 and 0402367)
- Input noise suppression EN 55022.B
- Shock/vibration EN 50155
- Parallel operation (output diode)



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Series KN 60.U/B/S

Main points:

Output:

- Regulation $\Sigma (U_{in} + I_{out} + T_U) < \pm 2\%$
- Accuracy absolute $\pm 2\%$
- Ripple $< 20 \text{ mV}_{pp}$ (const. over T_U)
- Spikes $< 200 \text{ mV}_{pp}$ (T 1:1/50MHz)
- Response time $\Delta I = 50\% < 10 \text{ ms}$
- Constant current limitation $< 1,2 I_{Amax}$
- Output spike filter (C - L² - C)
- No-load, over load, short circuit proof
- power failure bridging $\geq 10 \text{ ms}^1$
- Output filter EN 55011.B
- Two separated stages decoupled with diodes¹⁾
- Isolated Relay contact 250V_{AC}/12A
- Power-Good-Signal (when U_{out} within the tolerance of $\pm 5\%$)
- Optical signal LED

Input:

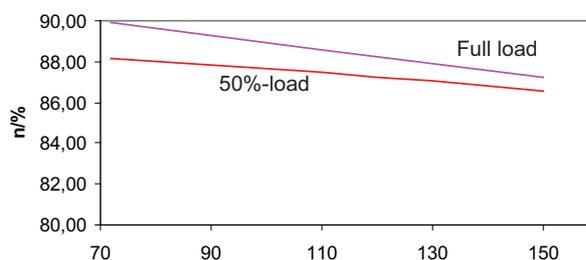
- Burst/Surge EN61000-4-4/5 level 3 2Ω
- Surge Railway 1,8kV / 5Ω
- Stand-by power $< 5 \text{ Watt}$
- ON-OFF-application (inhibit)
- Switch hysteresis and delayed restart at under voltage
- Input filter EN 55011.B
- Low input capacity
- Rev. polarity protection (length diode)¹⁾
- Inrush current limitation (active)
- Emergency fuse on PCB¹⁾
- Two completely separated input circuits¹⁾
- LED each circuit after rev. pol. protection

In general:

- Connection 4mm²-Wago-spring clamps
- Buck regulator + push-pull topology
- Clock frequency 60 kHz/80kHz
- Isolation test voltage 1,5 KV_{AC} 1 min
- Ambient temperature -25°C / +70°C
- Option: -40°C / +85°C EN50155 TX
- Derating 2,0%/°C $> 70^\circ\text{C}$
- MTBF on request
- Shock/vibration acc. to EN50155
- Weight approx. 4kg
- CE-conformity on request
- Limit temperature on KK-★ 95°C

	<u>U_{in}</u>		<u>U_{out}</u>	<u>I_{out}</u>	Model
	V	Output	V	A	number
Σ 300W	14,4 - 34	single output	24	16	KN 60.U 24.24.160
		single output	36	11	KN 60.U 24.24.160
		double output	2 x 24	2 x 8	KN 60.B 24.24.080
		double output	2 x 36	2 x 5,5	KN 60.B 24.36.055
		redundant	2x150W 24	8	KN 60.S 24.24.080
		redundant	2x150W 36	5,5	KN 60.S 24.36.055
Σ 400W	21 - 51	single output	24	20	KN 60.U 36.24.200
		single output	36	14	KN 60.U 36.36.200
		double output	2 x 24	2 x 10	KN 60.B 36.24.100
		double output	2 x 36	2 x 7,5	KN 60.B 36.36.075
		redundant	2x200W 24	10	KN 60.S 36.24.100
		redundant	2x200W 36	7,5	KN 60.S 36.36.075
Σ 600W	42 - 154	single output	24	24	KN 60.U 10.24.240
		single output	36	16	KN 60.U 10.36.160
		double output	2 x 24	2 x 12	KN 60.B 10.24.120
		double output	2 x 36	2 x 8	KN 60.B 10.36.080
		redundant	2x300W 24	12	KN 60.S 10.24.120
		redundant	2x300W 36	8	KN 60.S 10.36.080
Version H	-40°C up to ...+85°C:				additional charge
	Bipolarer Output durch Redesign:				on request
	Modification costs of possible changes above values:				on request

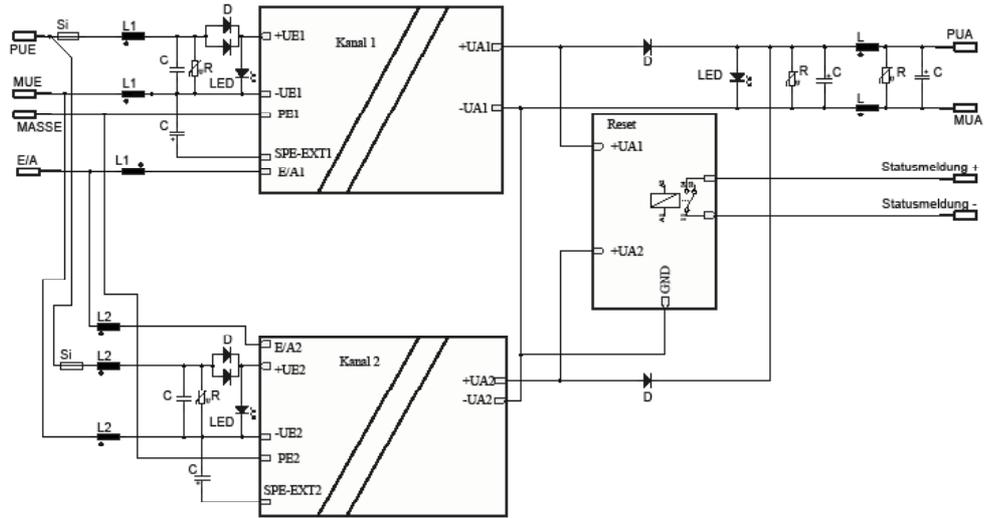
Efficiency Version KN 60.U 10.24.240 (without input length diode)



The **KN 60** series with an output power up to 600W is developed for mobile applications and high operational reliability.

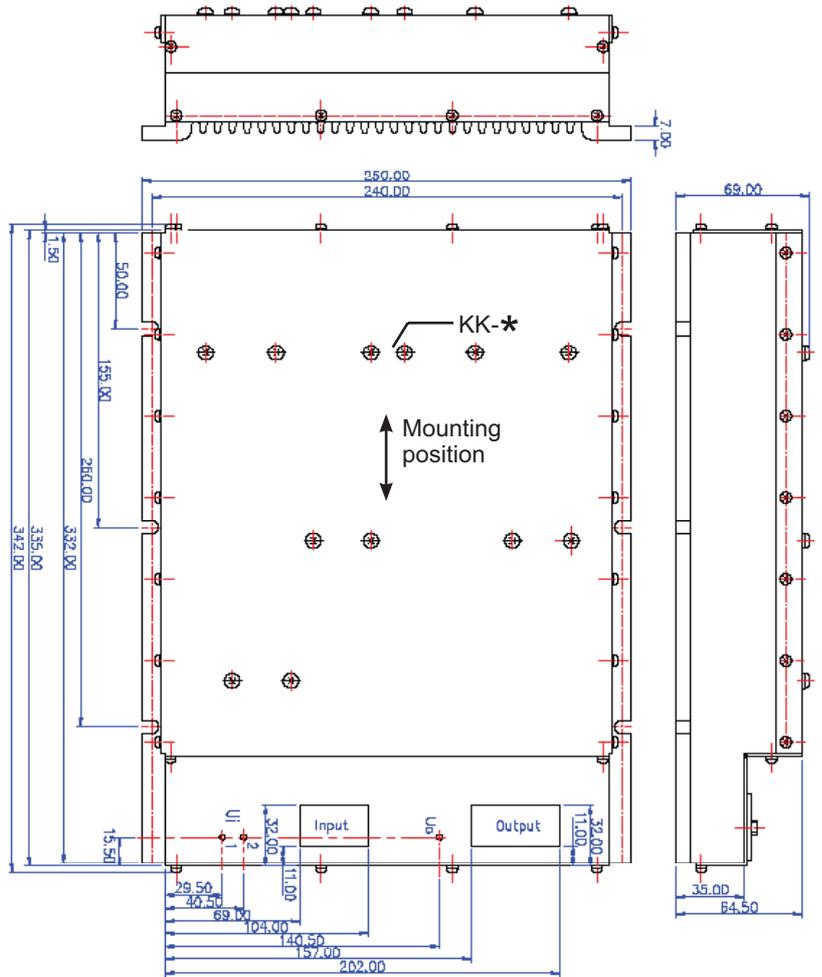
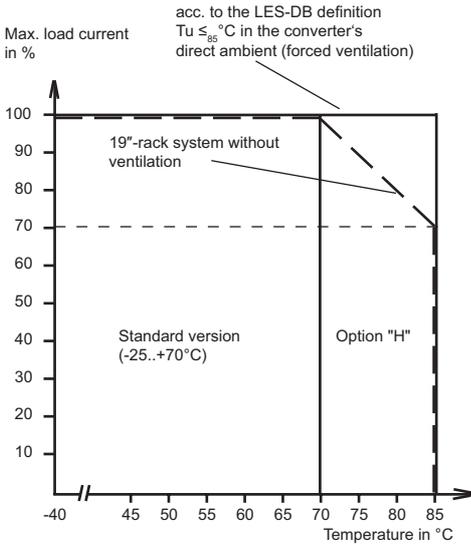
Inrush currents are limited and long term transients are absorbed with the used SYKO-Patent of an active filter. The converter works with low input capacity. Based on the SYKO developed topology the chopping capacitors just have to deal with low currents.

The clever mechanical build up allows the heat conduction to the heat sink. The direct chassis mounting is possible.

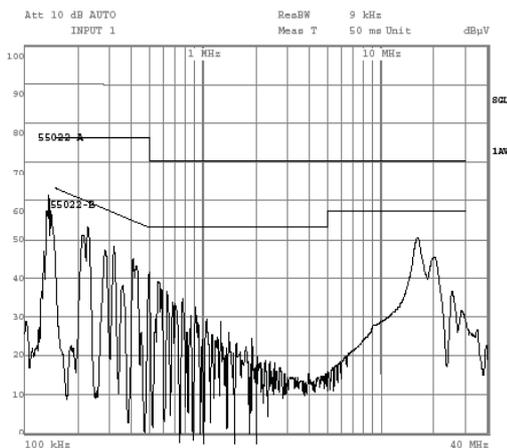


1) This converter is built up with two absolutely separated stages, which are decoupled with an input and an output diode to guarantee a security redundant operation. Both stages have separated fuses, input filters, input length diodes and 10ms-power failure bridging. With the output diode it is additionally possible to switch two single output converters parallel again. In the case that the security relevant operation is not needed optionally the input/output diodes and the hold up time can be left out for better efficiency. The functionality is secured in the whole operational range up to limit values based on the chosen components, filters, security circuits, dynamical and statically current limitation, over voltage protection and logic circuits.

Derating curve



Measurement of radio interference without external circuits



Pin assignment

