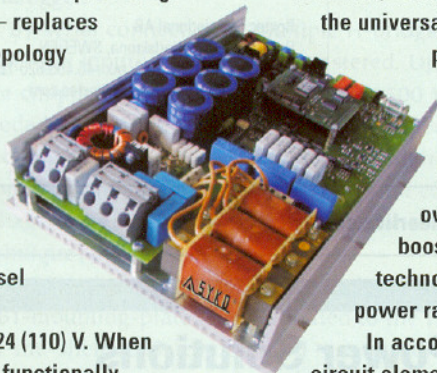
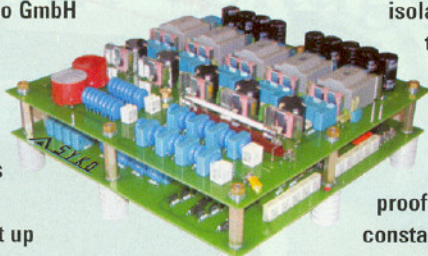


PROJECT SPECIFIC TOPOLOGIES

The topology of the patented circuitry (Regenerator/Cascading) allows power electronics company Syko GmbH to realise corner parameters such as wattage up to >3 KW, output currents up to >100 A and input voltages up to >5000 V based on a printed circuit board built up without cabling.

The technology of cascading voltage and current is used to implement these electrical maximum permissible values in hardware. Regenerator topology – whose controlled and short-circuit window output can be lower, equal and higher than the extreme fluctuations of input voltage (based on SEPIC) – replaces Buck and Boost topology applications.

On-board power supply fluctuations can be regenerated without a transformer in diesel locomotives dyn 9-36 (36–170) V to 24 (110) V. When the output is to be functionally determinable, then protectors, current-proportional valves or excitation windings are operated by synchronous



generators via constant current or voltage.

If the patent is used with galvanic isolated outputs, this topology replaces the flyback converter. The output, however, is short-circuit proof with constant current.

Regenerator topology is successful for loading batteries and high-capacity accumulators in which input and output voltage overlap. When the Regenerator topology runs on UIC voltages 1000 VAC/16.3 Hz, 1500 VAC/50 Hz, 1500 Vdc and 3000 Vdc with the universal range 680 VAC to 5050 Vdc plus extreme transients, this solution has advantages in component expenditure over the overlapping-boost or boost-push/pull technologies in the power range up to 2 kW.

In accordance with the functional circuit element on passenger train cars that travel cross border, a 28V-NiCd-Akku with 1 KW is loaded. The extreme requirements of 6 KV discharge interception

voltage, first article inspection voltage of 31 kV, air/creepage distances ≥ 80 mm etc is observed. With a reduction in power, these device clusters run on UIC intermediate circuit voltages in emergency facilities (start-up power supplies). Inexpensive and small in volume, supply modules for catenary (contact line) voltages with 380–1050 Vdc and transients 2500 V/5sec./0 Ω and 6K V/50 μ s/5 Ω are mastered.

When the function-determining output voltage is to yield a one- or two-phase voltage, an inverter on 110 V battery or a frequency converter on 400 VAC/3 Ph with controlled amplitude or f/U-control is mastered.

With all developments, standards and modifications, the standards of the EN50121/155, IEC61287, UIC555, EN50163, EN50124, VG96916, MIL STD461, RTCA D0160, ABD0100 etc are observed. ○

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