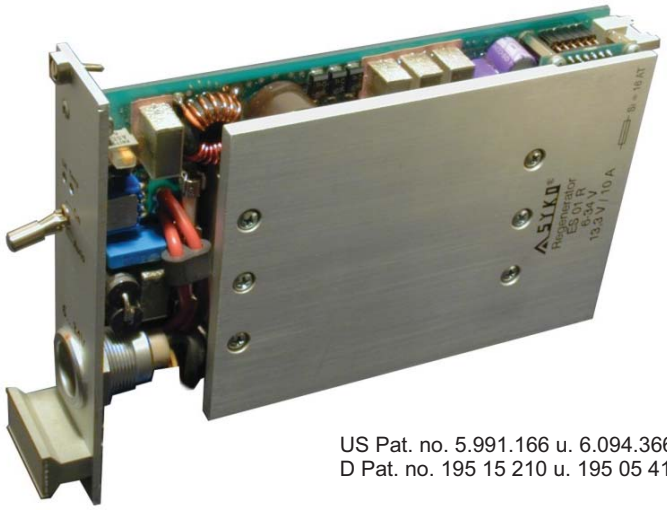
- **Input voltage range 1:6**
- **Security relevant topology**
  no static voltage breaktrough
- **Step-up/step-down regulator**
  Uin lower-equal-higher as Uout
- **Noise suppression EN 55022.B**
- **19"-rack style / 6TE**
- **Active reverse pol. protection**
  (low power-loss)
- **Load-dump-proof**

Measurement applications / Vehicles / Industry



Series ES 01.R

US Pat. no. 5.991.166 u. 6.094.366
D Pat. no. 195 15 210 u. 195 05 417

Main points:

Output:

- Short circuit protected / no-load stable
- Accuracy absolute ±1%
- Regulation $\Sigma(U_{in}+I_{out}+T_U)$ ±1,5%
- Ripple <20 mV_{pp}(const. over T_U)
- Spikes <100 mV_{pp} (T 1:1/50MHz)
- Regulation time ΔI=50% ≤ 3 ms
- Fan connection (Temp. separated)
- Power fail-signal
- Temperature-signalling

Input:

- No-load power 0,8W
- Extreme input voltage range
- Active reverse pol. protection
- Fuse (emergency protection)
- Disturbances EN 61000-4-5 level 3
- DIN ISO 7637 T1/3 tested
- Low input capacity
- Hold-up time or UPS-function with separated circuit (connections prepared)
- Switch on with security toggle switch and with remote control (RMC)

General:

- Ambient temperature -25°C / +70°C
- Option H: -40°C / +85°C
- Derating: see chart
- Forced air converction
- MTBF on request
- Shock / vibration vehicle tested
- Weight approx. 600 g
- Connectors:
  Input: LEMO-opposite plug
  FGJ.3B.304.CYMD72
  Output:H15
- Dimension 160 x 100 x 6TE mm³
- No breakthrough of U_{in} to U_{out} /U_{out} to U_{in}
- Do not bridge input-0V and output-0V (active reverse pol. protection)

Uin	Uout	Iout	Model
V	V	A	number
8 - 18	24	5	ES 01.R 12.24.050
27V dyn	12	10	ES 01.R 12.12.100
9 - 34	12	9	ES 01.R 20.12.100
6-40 dyn	24	4	ES 01.R 20.24.040
10 - 48	12	8	ES 01.R 26.12.080
9-60 dyn	24	4	ES 01.R 26.24.040

Prices incl. front panel

(H) -40°C up to +85°C — Additional charge

First-sample modification costs: on request

Modification costs for possible changes above values: on request

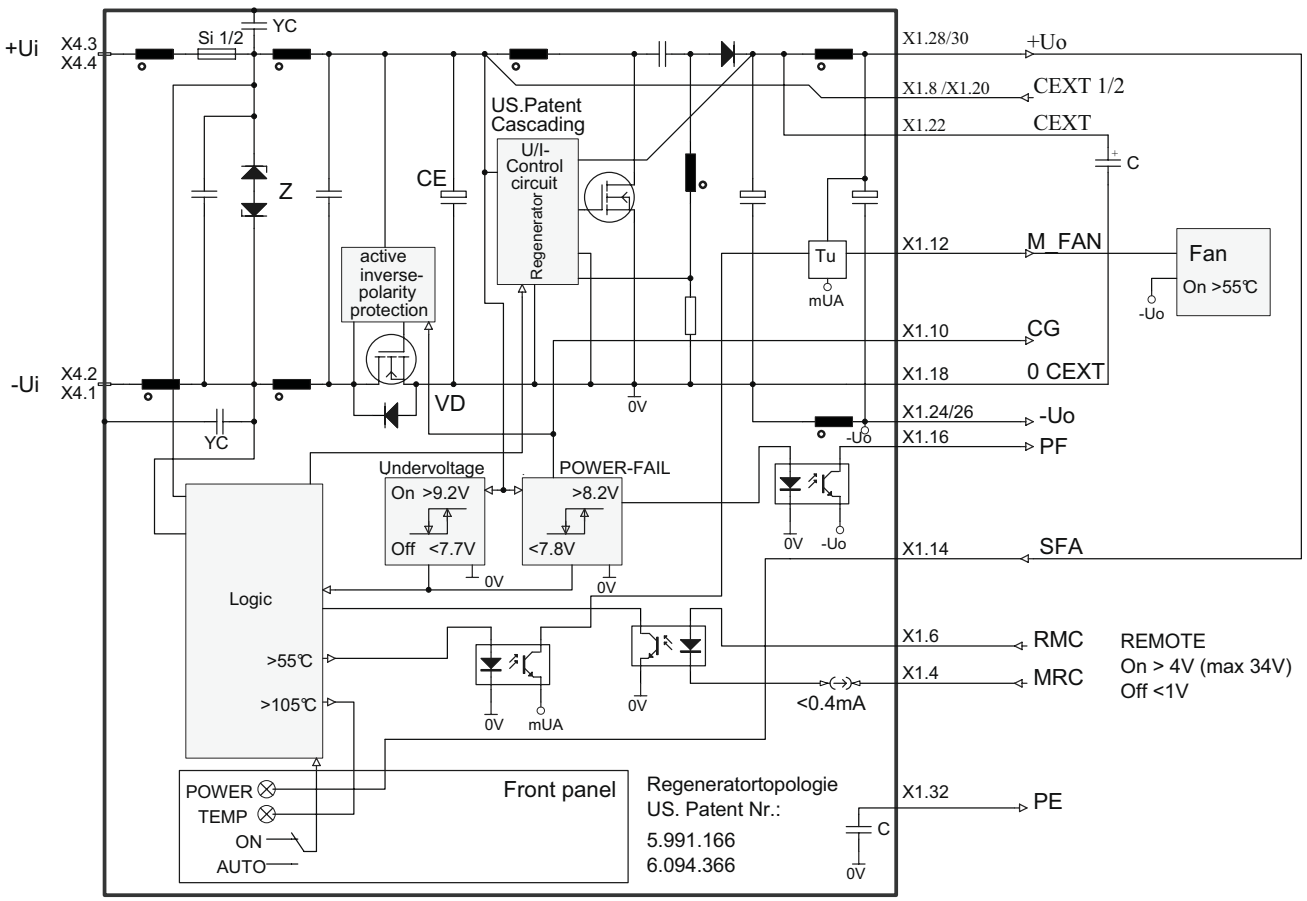
Other current/voltage values: on request

The ES 01.R series is expandable with an active, chassis mountable hold-up time. Network interruptions can be bridged at -40°C up to 150ms without a fluctuating output voltage. In this case the active reverse pol. protection separates high resively the ES 01 R's input from the battery (no energy flow/loss).

10-cell-NiCd and NiMH-batteries are charged and controlled with an intelligent UPS-expansion. This solution can bridge network-interruptions up to a few minutes.

Application reports on request

ES 01 R



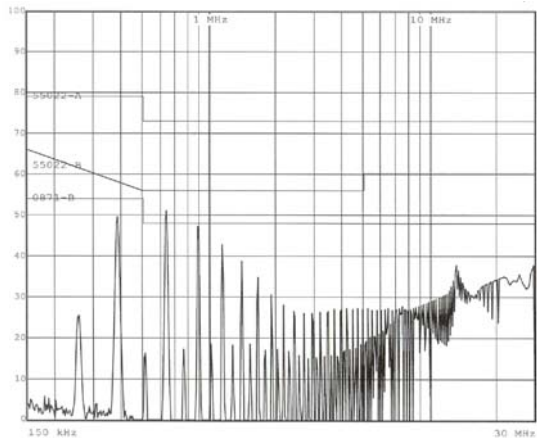
SYKO designed this non-isolating ***ES 01.R*** power supply series (euro card 6TE) for the use in car and truck battery networks with the patented / cascaded REGENERATOR-principle. By an input voltage range of (6 - 36) V or (9-60) V the output voltage of 12V (or 24V) is generated with a sum power of 120W. This power can be used with an input voltage down to 6V dynamically and down to >8V statically. With a derating to >75 W an input voltage of 6 V statically is allowed. The functionality is guaranteed up to an ambient temperature of 85°C (derating) with moving air. A temperature sensor controls the converter's temperature and supplies a fan via MFAN.

An active reverse pol. protection reduces high power loss at the length-diode and prevents an input sided short circuit in the case of under voltage or voltage interruption. Additionally by negative transients, the reverse pol. protection prevents the re-flow of energy out of the input capacitors or external hold-up circuit.

The battery is connected front sided with a high-current plug. The converter can be switched on/off with a front sided security switch. SYKO uses an active hold-up time circuit to guarantee a hold-up time of up to 200 ms or to generate a UPS-function. This can be extended to the range of minutes by using batteries (Ni-Cd, Ni-MH) or high-caps.

Outputs, the hold-up time circuit and the logic signals are connected to the back sided H15-connector. Additionally to this front-end supply different, de-central loads (DC/DC-converters, fans, motors) can be connected. This power supply was tested in according to the EN 55011.B and EN 610004-4/-5, DIN ISO 7637 part 1 and 2 - standards and is delivered with a CE-label.

Measurement of radio interference



Temperature-Derating with forced ventilation

Uin	Ambient temperature / max. load in %			
	50°	60°	70°	85°
6V	90%	80%	75%	70%
7V	100%	90%	80%	75%
8V	100%	100%	90%	80%
9V	100%	100%	100%	90%
10V	100%	100%	100%	100%
12V	100%	100%	100%	100%
24V	100%	100%	100%	100%
32V	100%	100%	100%	100%