- **Security relevant topology**
  No static breakthrough Uin / Uout
- **Step-up / Step-down converter**
  U_{out} lower-equal-higher as U_{in}
- **Noise suppression EN 55022.B**
- **Isolated Interfaces**
  Set value / actual value / inhibit
- **U_{out}/I_{out} adjustable from zero up to max**
  (alternatively)
  Voltage regulated output *(standard)*
  Current regulated output *(option)*
- **Efficiency up to 96%**

for Vehicles / Railway

Series ERG 01

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

Main points:

Output:

- Constant voltage output with regulated current limit
- no-load proof / short circuit protected
- Over voltage protection (Thyristor)
- Option:
  Constant current with voltage limitation

Input:

- Uout-set value 4-20mA (Ri=104Ω)
- Iout-actual value re-signalling 0-20mA (max 330Ω)
- Inhibit (on/off) Off=open / On=<0,6V(5mA)
- Auxiliary supply (14-25)V / 50mA max
- Reverse pol. protection cross diode (pre switched fuse - customer)
- Disturbances EN 61000-4-5 level 3/2Ω DIN-ISO-7637 T1/3 Load dump
- Noise suppression EN 55022 B
- Input transient- / surge-fest

General:

- Under voltage switch-off / hysteresis
- Ambient temperature -25°C / +70°C
- Option H: -40°C / +85°C
- Derating: 2%/°C >70°C
- Air convection cooled
- MTBF on request
- Set-point value linearity <1,5%
- Connection:
  Power part: M5 terminal
  Interface: Phönix MC 1,5/8-STF-3,81
- Shock / vibration
- Protection class IP 20
- Weight approx. 5kg
- Dimension 322 x 250 x 65 mm³

Uin V	Uout V	Iout A	Model number
14 - 36	0-90	0-4,5	ERG 01.24.90.60
Surge proof		dyn 6	
EN 61000-4-5	0-60	0-6	ERG 01.24.60.80
level 3 / 2 Ohm		dyn 8	
16,8 - 36	0-90	0-4,5	ERG 01.24.90.60 MIL
50V/50ms		dyn 6	
70V/2ms			
VG96916 part 5			
21 - 52	0-60	0-6	ERG 01.36.60.80
Surge proof		dyn 8	
EN 61000-4-5	0-90	0-4,5	ERG 01.36.90.60
level 3 / 2 Ohm		dyn 6	
42 - 101	0-60	0-6	ERG 01.72.60.80
Surge proof		dyn 8	
EN 61000-4-5	0-90	0-4-5	ERG 01.72.90.60
level 3 / 2 Ohm		dyn 6	
67 - 154	0-90	0-4,5	ERG 01.10.90.60
Surge proof		dyn 6	
EN 61000-4-5	0-60	0-6	ERG 01.10.60.80
level 3 / 2 Ohm		dyn 8	

Version H	-40°C up to +85°C	Additional charge
First sample modification costs:		on request
Modification costs for possible changes above values:		on request

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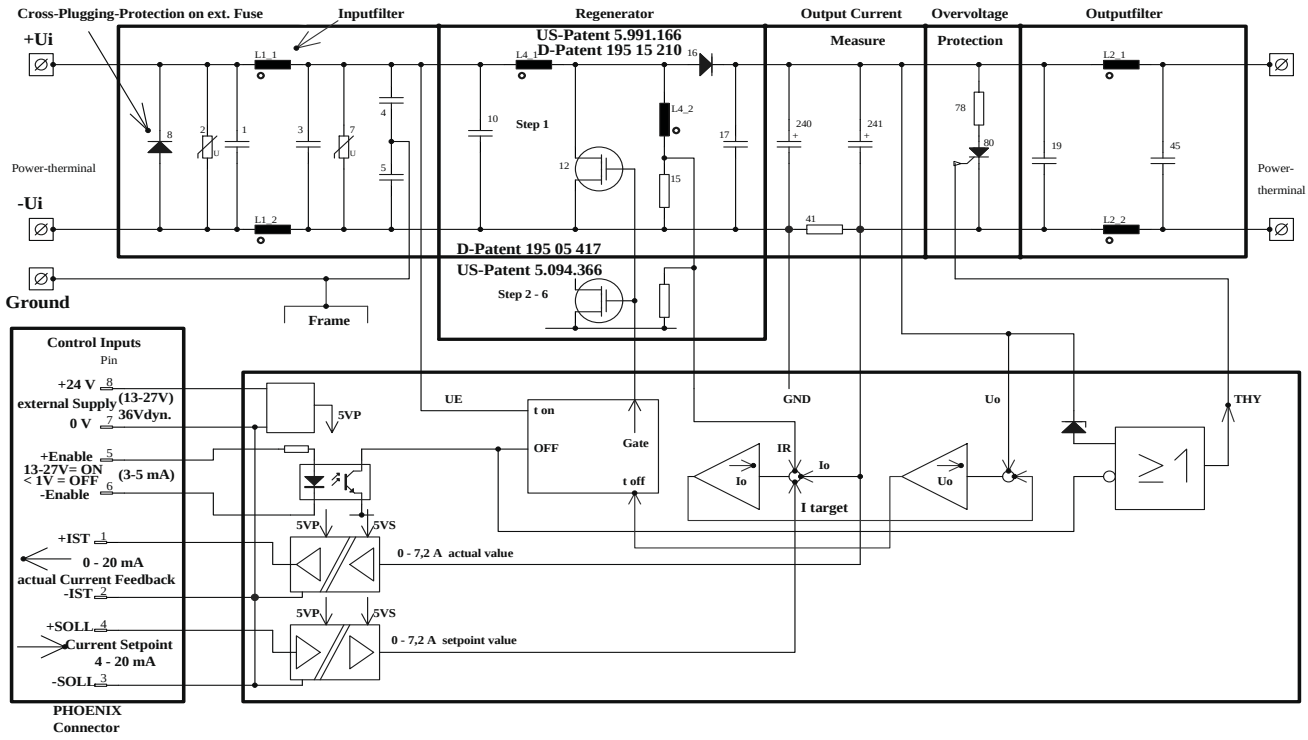
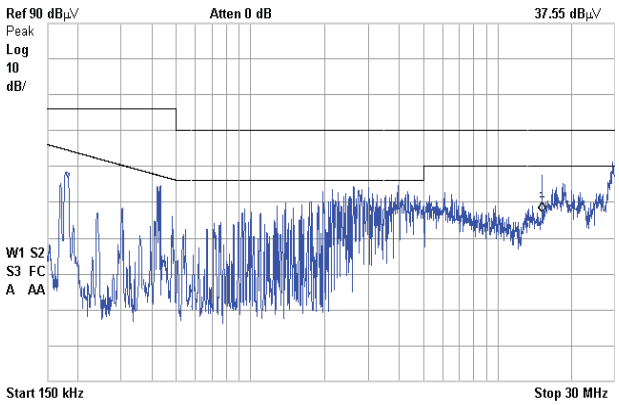


The ***ERG 01 field regulator*** is designed for the supply of an excitation winding in brushless synchronous machines / generators for Diesel-electric-drives. The ERG series works according to the EN 50155 / 121 railway standards and DIN 7637 T1/3 road car standards respectively and is built up with the patented Regenerator-technology as a current cascaded buck-boost topology with a clock frequency of approx. 100 kHz.

This actuating element works as an independent, subordinated control-loop with regulation unit, control unit and functional interface. This means that for this voltage-control-loop the customer's superposed current-regulation-circuit is the set-point value (4 – 20 mA/0.10V) as an amplified failure-difference. The regulated output voltage Uout is directly proportional to the isolated set-point voltage and constant over the whole input voltage range, load range and temperature range. The set-point value's burden resistance is 100 Ohm. The output current is the result of Uout and the field winding's complex resistance L and R. Furthermore the output current is given back with 0 – 20 mA constant current and isolated at a 330 Ohm-burden as the actual current value for the customer's current control loop.

A bridged OK-Signal-contact with a constant current of 5mA activates the output with an integral run-up (t = 500ms) to the set-point given output voltage. An open OK-Signal-contact deactivates the converter. The output is dynamically and statically overload protected, short circuit proof and no-load stable. At a load throw-off the converter keeps the adjusted output values. A Thyristor limits the output voltage to approx. 1,3 times $U_{o\,max}$, in the case of an over voltage caused by a defect voltage control loop. Customer sided an auxiliary voltage of 15 ±1 V must be available to supply the isolated function-interface. To keep the requirement of a reverse polarity protection and to reduce the power loss an input square diode is used instead of an input length diode. Input sided an external fuse (delayed) must be connected ahead as an emergency protection.

Measurement of radio interference



Mechanics