HEINZINGER
HIGH VOLTAGE – SMART SOLUTIONS

HEINZINGER ERS

High Dynamic Dual-Channel Test Bench Energy System

ERS

For low and high voltage applications

Technical Benefits

- 2 independent output channels for simultaneous testing of two devices.
- Galvanic isolation between channels and mains
- Energy-balancing between the output channels
- Increased power with external power supply or battery
- 250kW per channel
- Highly dynamic rise time <1ms prepared for increasing demands
- CAN Interface (1kHz)
- Comprehensive security features

48V

Mild-Hybrid

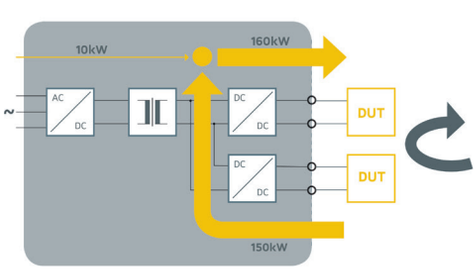
Real-Time-Interface

Energy Balancing

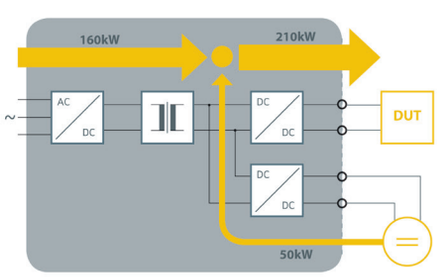
The relevance of 48V vehicle onboard power systems is grown through the use of Micro- and Mild-Hybrid-Systems. This demands not only new components and modules, but also new requirements for the test systems. An optimal design of the Heinzinger high dynamic ERS with regenerative feedback for these tasks is guaranteed by a continuous ongoing development process. The combination of high control accuracy, low ripple and a wide output voltage range from 48V to 1000V offers many opportunities for users to test the DUT under realistic operating conditions.

The ERS can be used both, as battery simulator, or as battery tester. They support customers needs as „stand-alone“ units, or as sub-systems in a higher-level test environment from the development stage through to series production.

Standard units of the ERS series are available as single channel or dual channel units. Dual channel units offer, besides the capability for power output distribution, a wide range of connection variations. The power supply units are universally applicable to different applications and significantly more cost-effective in comparison to two single channel units.



Energy balancing between the output channels



Increased power with external power supply or battery

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Output

device power	±50... 250kW
output voltage	1000V
output current	±1200A
output reference	Galvanic isolation by resonance converter between mains and Channel 1 to Channel 2

Accuracy dynamics

voltage accuracy	≤0.1 % FS
voltage rise time (10 % - 90 %)	< 1ms [resistive load]
setting resolution	0.1V
residual ripple	≤0.2 % U_{nom} (f=0-1MHz)
current accuracy	≤0.1 % FS
current rise time (10 % - 90 %)	<1ms [resistive load]
setting resolution	0.1A
residual ripple	≤0.4 % I_{nom} (f=0-1MHz)

Main connection

AC input voltage	3x380... 480V~ 3P/N/PE
AC input frequency	47... 63Hz
power factor	≥0.98

Ambient conditions

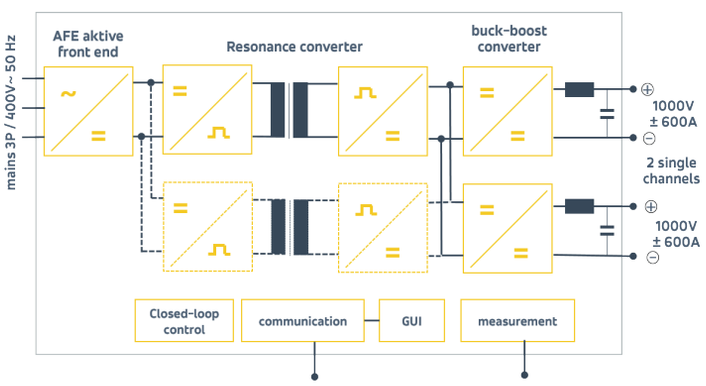
operating temp.	5... 40°C
humidity	15... 5 % (non condensing)
cooling	water cooled system

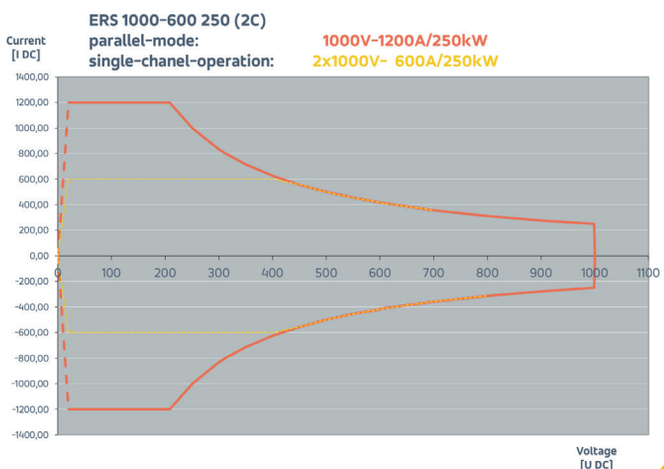
Standards

protection class	IP 54 EN 60529
EM emissions	EN 61000-6-4 EN 61000-6-2
safety	EN 61010

Version 02/2020 subject to technical modifications

Block diagramm and operation range ERS





Options

- **Insulation monitoring**
  Continuous two stage insulation and earth fault monitoring (switchable)
- **DC-output relays**
  to enable a galvanic disconnection of the load at no load switching condition
- **Battery test bundle**
  - Zero current activation
  - Active discharge by energy recovery to the mains
  - Discharge of the output capacitance when switching off
  - Dynamic control mode change enables automatic selection of operation mode like CC, CV or CP, depending on the set values & load
- **Second-level battery simulation**
  through RC-Network

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