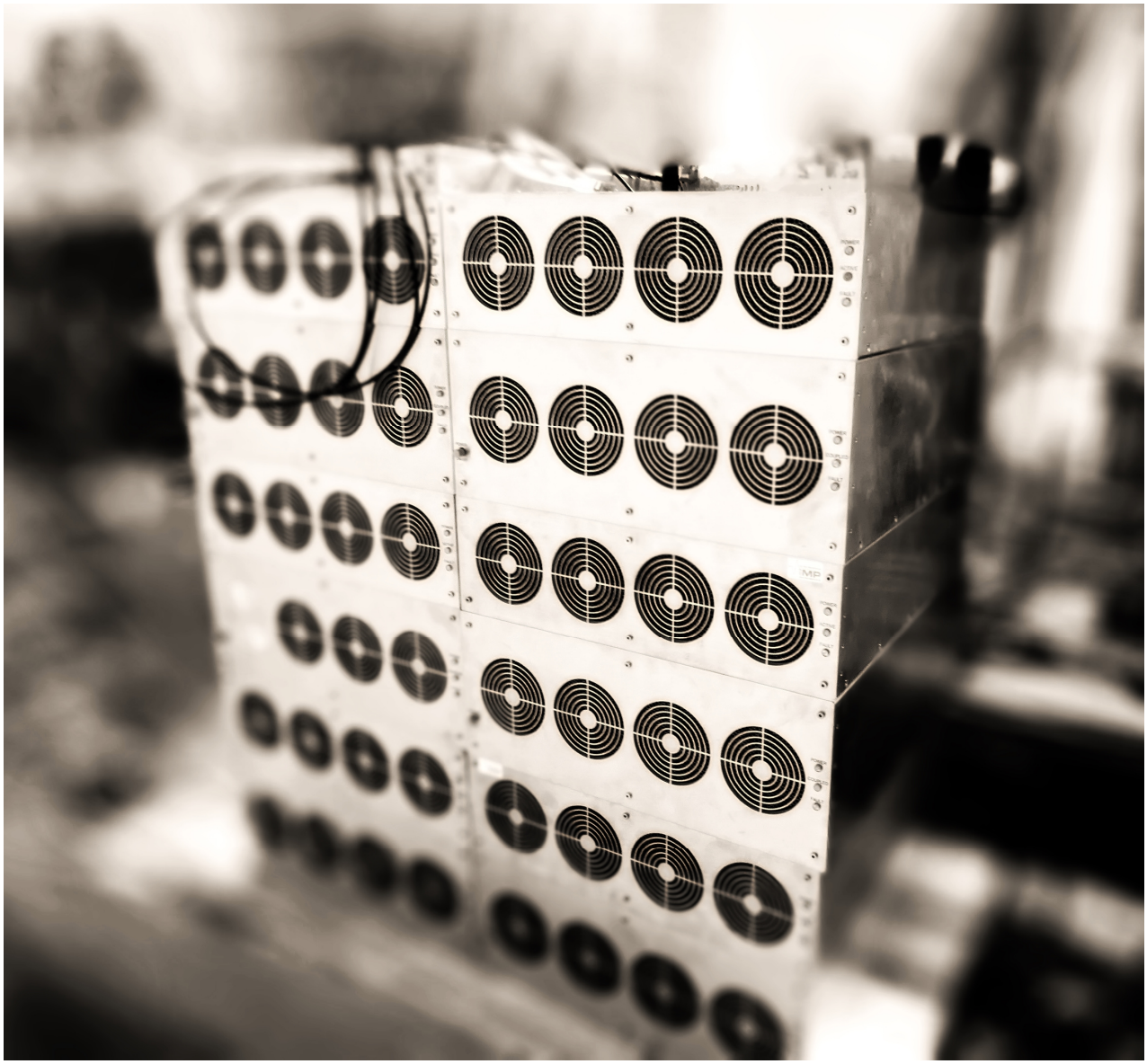
IMP Elektronik GmbH & Co. KG
Gewerbepark Hardtwald 7
68723 Oftersheim
Germany

High Current Ripple Generator-System

for voltage / current ripple immunity testing of EV voltage class B equipment according to LV123 / VW80300 / ISO 21498-2_2021 etc.

Modular • Highest Power • Best Efficiency



Key features:

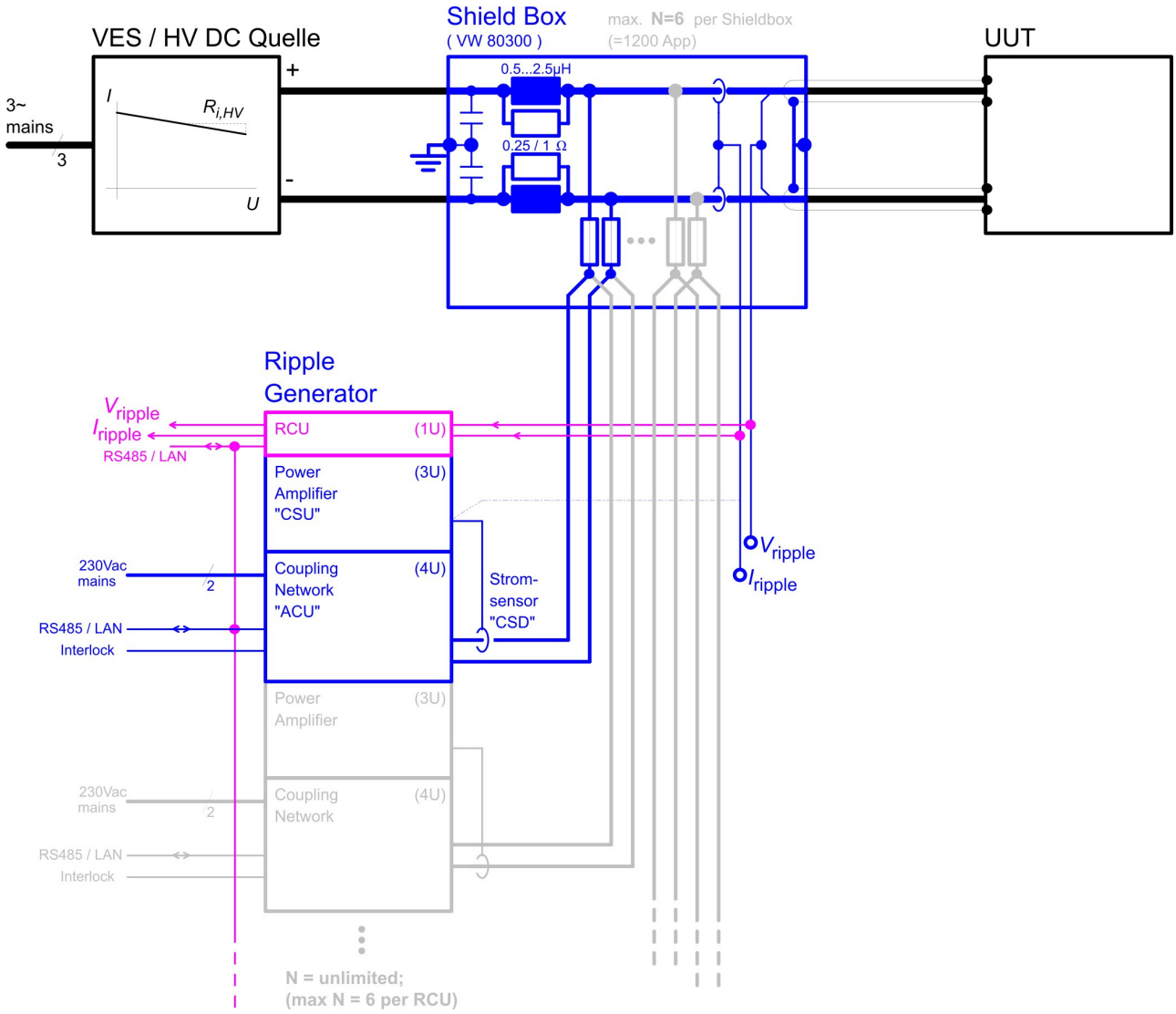
- System components:

  Ripple Generator (Switchmode Power Amplifier + Integrated Coupling Network)

  Shield Box (LISN, "artificial network", with integrated differential AC-current sensor)

  Ripple Control Unit (RCU) feat.
  - automatic (narrowband, closed-loop) DUT ripple voltage or DUT ripple current control
  - parallel operation of up to 6 Ripple Generators (**up to 1200 A_{pp}**)
- Very high Ripple Output Current: **120 A_{pp}** / **200 A_{pp}** (selectable; single unit)
- Very high Ripple Output Power: **4 kVA_{rms}** (single unit).
- Very high Ripple Output Voltage: **350 V_{pp}** (@ 120 A setting) / **170 V_{pp}** (@ 200 A setting)
- Scalability: Virtually **unlimited parallel operation** of Ripple Generators in customized setups
- Frequency range: **150 Hz -300 kHz**; no range switching required
- Non-invasive **parallel ripple injection**
- Supported DC voltages: **0 to 1200 V**
- Shield Box max. DC current: **1200 A**
- Interface / Connectivity: RS485 or LAN, simple protocol, easy integration into any test stand automation system
- By far **most energy efficient** (only single 230 V 16 A 1~ outlet required for >600A_{pp} system) available
- By far **most lightweight, small and portable** (Ripple Generator 600 A_{pp}: <120 kg, Shield Box 1200 V / 1200 A: <60 kg) system in market
- **Rugged:** Protected against all kinds of DUT failure (even under full DUT load)
- **Field proven performance** in the most demanding applications (high power axle- / inverters and Power-HIL test stands, not only simple HV vehicle battery testing)
  Customer references available on request

System topology:

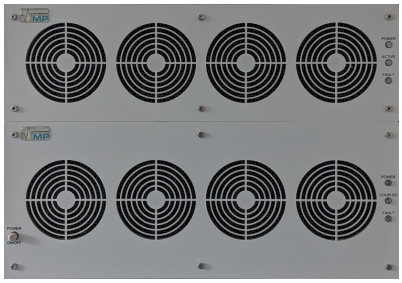


System Components

Ripple Control Unit RCU

Switching Amplifier (Current Source)

Integrated Coupling Network



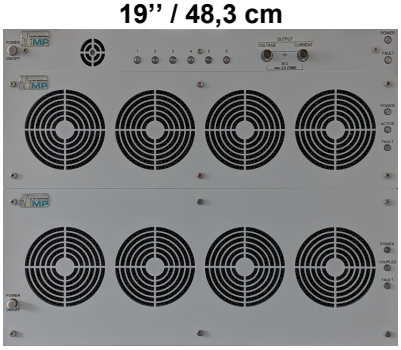
Shield Box

Configurations

4 kVA / 200 App Ripple

19'' / 48,3 cm

8U / 36 cm

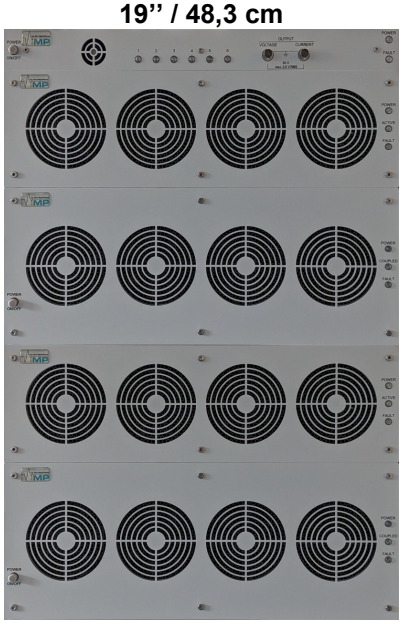


Applications:
Testing of
- HV AC Compressors
- HV Pumps
- DC/DC Converters

8 kVA
400 App Ripple

19'' / 48,3 cm

15U / 67 cm



Applications:
Testing of
- HV AC Compressors
- HV Pumps
- DC/DC Converters
- Small Inverters

12 kVA
600 App Ripple

19'' / 48,3 cm

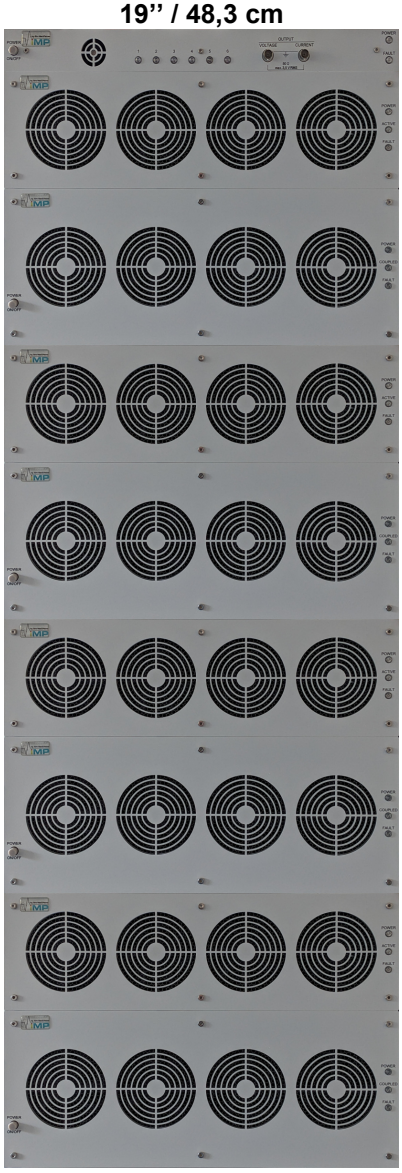
22U / 98 cm

Applications:
Testing of
- Medium Power Inverters
- HV Axle Drives
- Small Batteries

Configurations

16 kVA
800 App Ripple

19'' / 48,3 cm

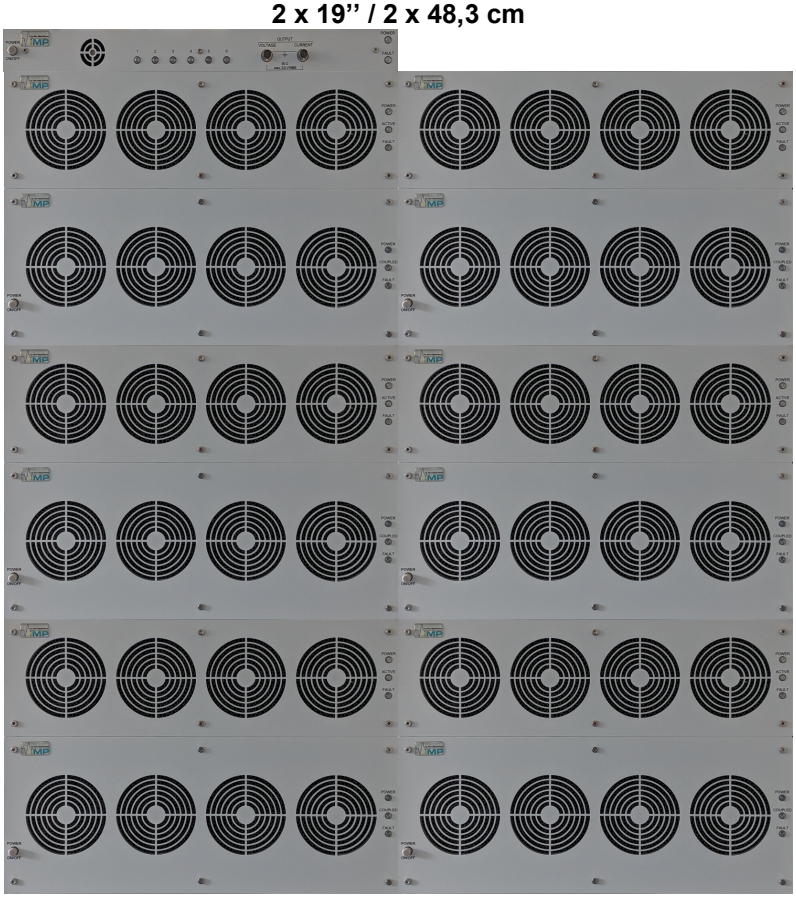


29U / 129 cm

Applications:
Testing of
- Medium Power Inverters
- HV Axle Drives
- Medium Size Batteries

24 kVA
1200 App Ripple

2 x 19'' / 2 x 48,3 cm

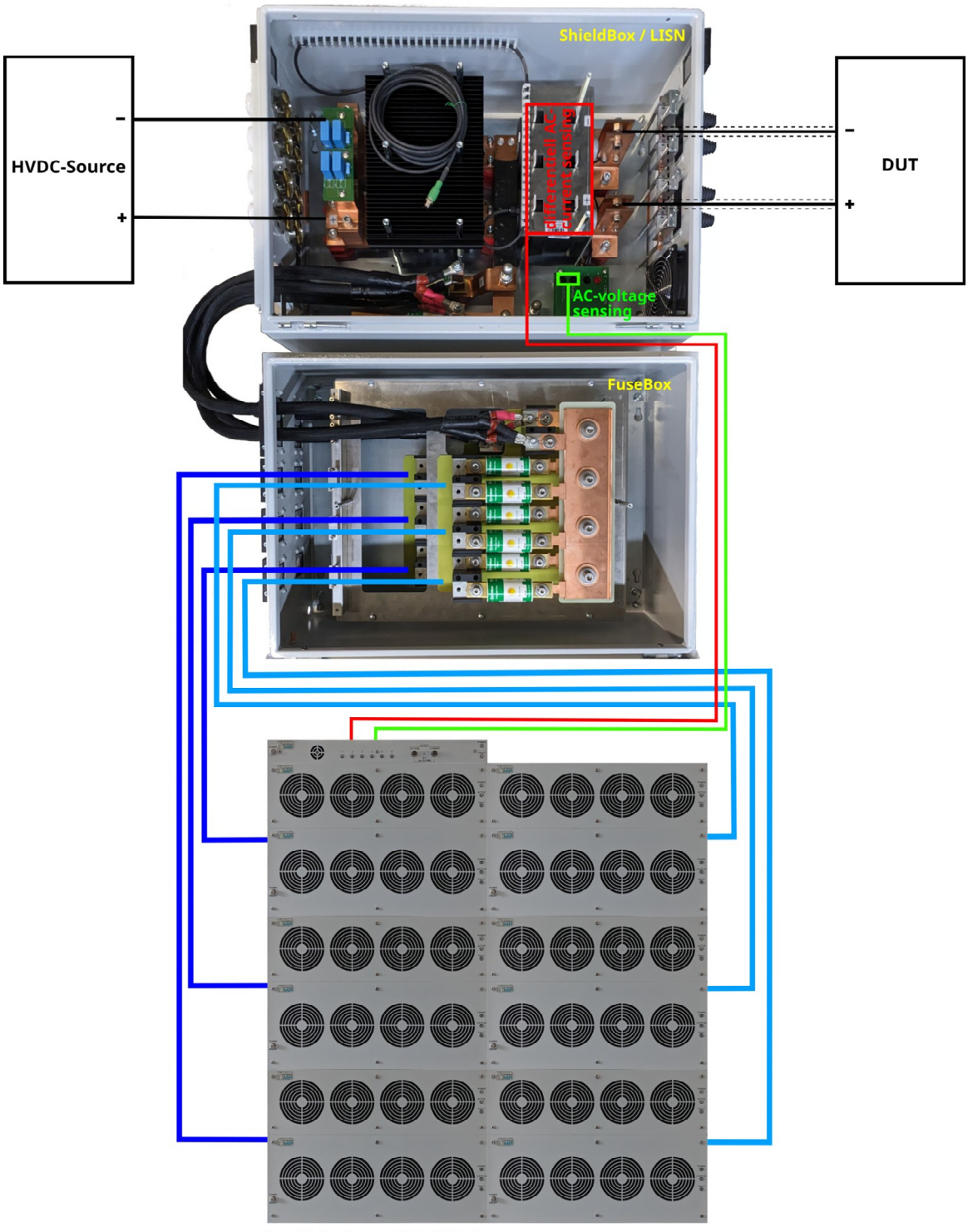


22U / 98 cm

Applications:
Testing of
- High Power Inverters
- HV Axle Drives
- Large Batteries

Ripple-Test-Setup 1200 App / 24 kVA:

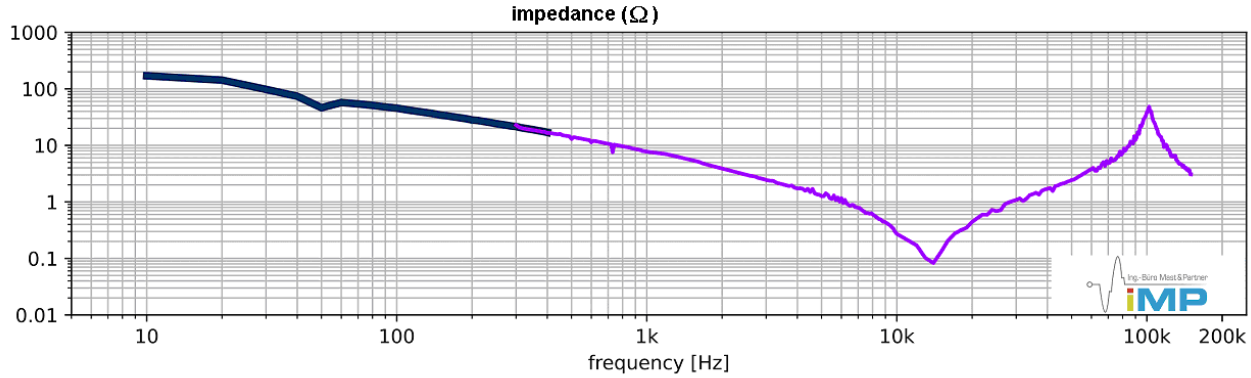
- 6 x RG
- RCU (Control Unit)
- Fusebox
- ConnectionBox / LISN

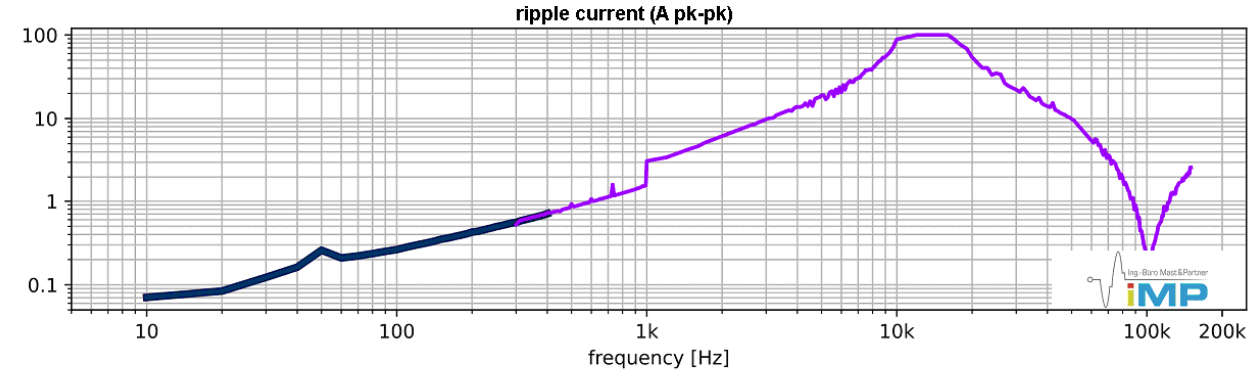


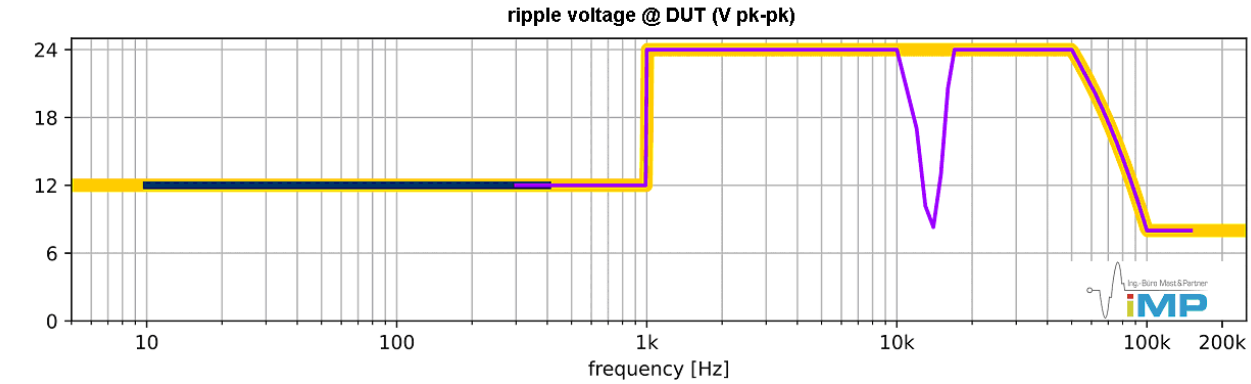
6 x RG-System + RCU (1200 App)

Example Test Results:

DUT: Hydraulic pump for active suspension, U_{HV} = 400 V







Contact information:
IMP Elektronik GmbH & Co. KG
Gewerbepark Hardtwald 7
68723 Oftersheim
Germany

Jochen Mast (jochen.mast@imp-elektronik.de , +49 6202 92605-15)
Jens Helfrich (jens.helfrich@imp-elektronik.de , +49 6202 92605-12)

IMP Elektronik GmbH & Co. KG
IMP Elektronik GmbH & Co. KG
Gewerbepark Hardtwald 7
D-68723 Oftersheim

CALTEST INSTRUMENTS
Caltest Instruments GmbH
Binzigstrasse 21 | Tel: +49(0)7842-99722-00
D-77876 KAPPELRODECK | Fax: +49(0)7842-99722-29
www.caltest.de | info@caltest.de