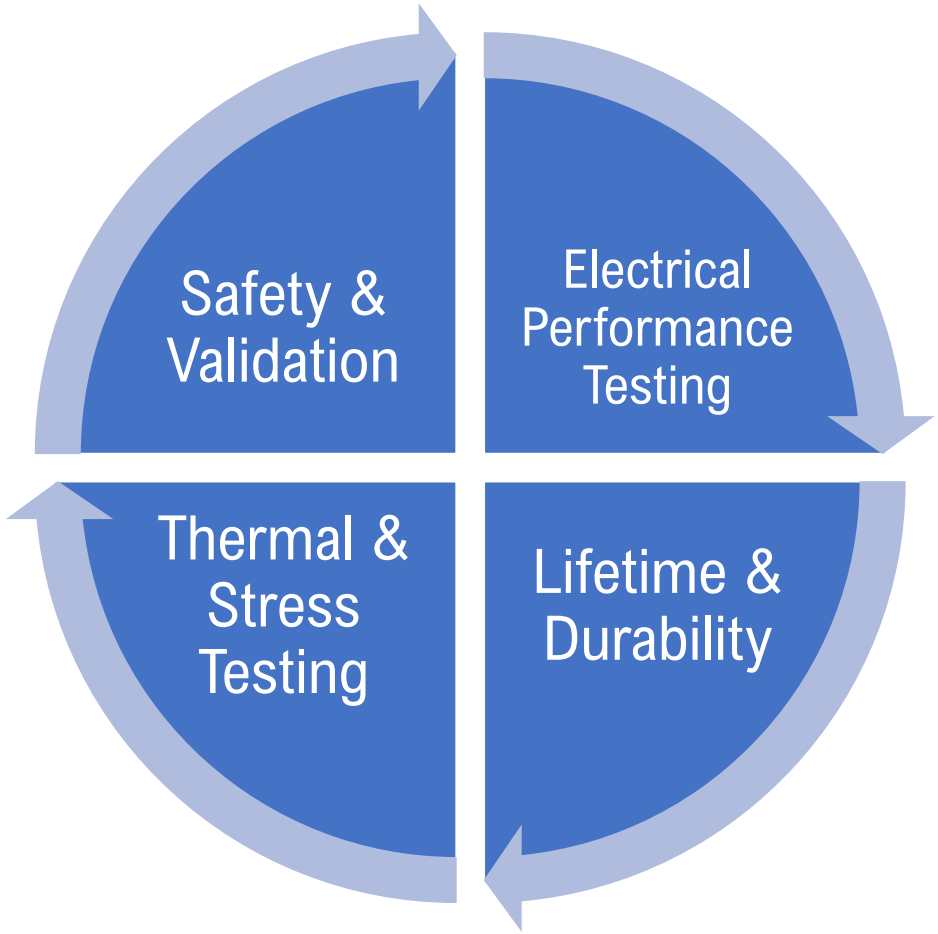
BeXema GmbH

Battery Application Presentation

BeXema | DC source/sink – Battery Applications – Modul and Pack

- Overcharge / Discharge
- Short Circuit Simulation
- Emergency Shut Down Validation



- Charge / Discharge Cycling
- Capacity & Energy Measurement
- Dynamic Load Profiles

- High Current Stress Test
- Cooling System Validation
- Efficiency Measurement

- High Power Cycling
- Accelerated Aging
- SOC Windows Tests

One system for full bidirectional battery testing – from R&D to EoL.

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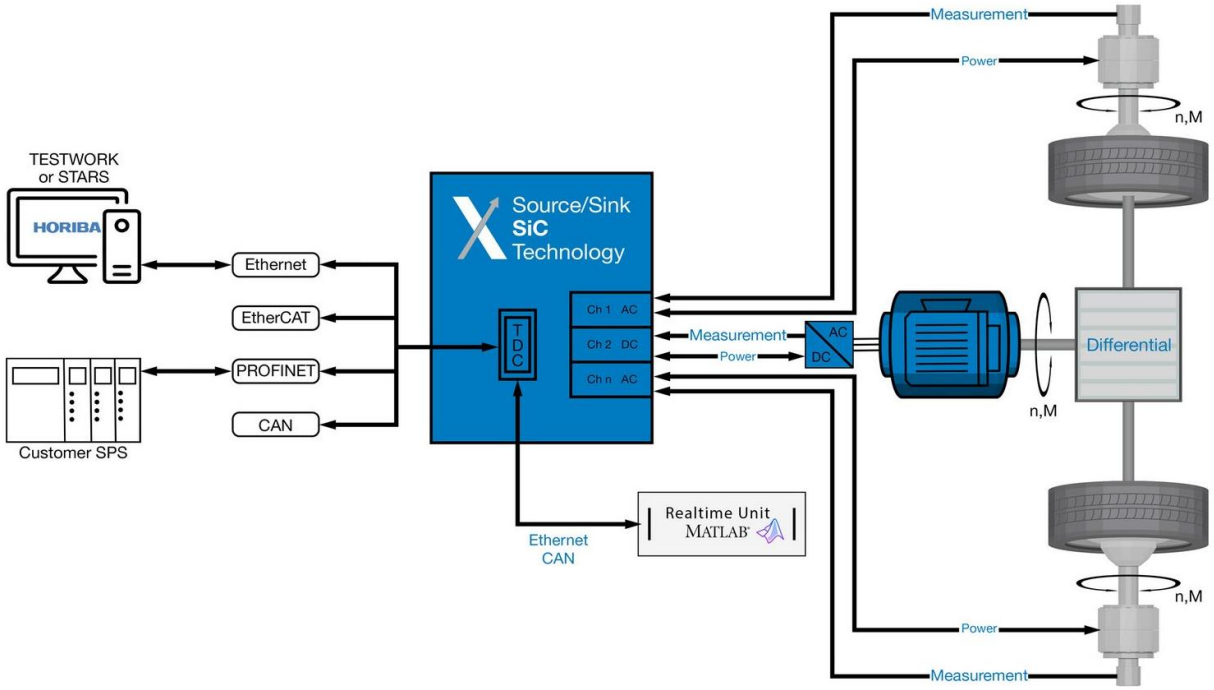
BeXema | DC source/sink – Battery Applications – HiL



Hardware-in-the-Loop:

- Emulation of complex electrical systems such as batteries, fuel cells, electrolysers and AC grids
- Realistic testing without physical power hardware
- Real-time mapping of dynamic system behaviour with defined electrical interfaces
- High flexibility thanks to freely configurable test scenarios and short changeover times
- Precise measurement and control technology for reproducible and reliable test results
- Early verification of functions and system strategies
- Accelerated development, reduced testing effort, more meaningful results

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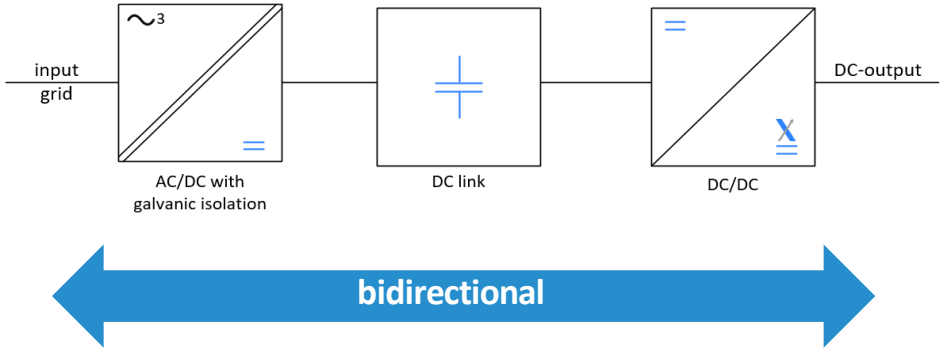

- Input voltage AC 3x 380V to 690V @50Hz/60Hz
- Output-Voltage: 10V up to 1,500V
- Current up to ±20kA per unit
- Measuring accuracy: 0.01% MV±0.015% FS
- Measurement resolution: 21Bit
- Ripple: <0.1% eff. FS
- Efficiency: >95%
- Current rise time (t10-90): <1ms
- Voltage rise times (t10-90): <2ms
- Cooling: Air cooling (IP52), Water cooling (IP54)
- Interfaces: Ethernet, CAN, EtherCAT, Modbus, PROFINET

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Standard equipment:

- Real-time controller with TFT touch display
- Real-time scripting (Python, Sequencer)
- Operating modes CC, CV, CP
- Galvanic isolation on the AC side
- Sense line for voltage measurement/control
- Capable of regenerative power supply
- Parallel switchability
- Integrated insolation monitoring
- Safe DC output contactors per pole
- DC link discharge
- Door contact switch in the emergency stop chain
- Safety control for performance level d

Optional features:

- Multi channel option:
  - Energy can be circulated via the DC output channels (not galvanically isolated)
  - Each DC channel can provide full current and voltage
  - The total power of the system is dynamically shared between the DC channels
  - The energy collected can be fed into a battery storage system, for example
- 0V option:
  - Extension of the voltage range down to 0V
- Protective diode option:
  - Protects the test object from unwanted currents in the direction of the DUT (testing fuel cells)
- Reverse polarity protection
  - Protection of the DUT against incorrect polarity

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Contact

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Thank you

Cảm ơn

감사합니다

ありがとうございました

Dziękuję

धन्यवाद

Grazie

Merci

谢谢

நன்றி

ขอบคุณครับ

Gracias

Obrigado

Σας ευχαριστούμε

Děkuji

Teşekkürler

شكرا

Tack ska ni ha

Danke

Большое спасибо

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