HIGH-VOLTAGE EMULATION

- Advanced IGBT technology with extremely low noise design
- Programmable standard and user-own battery models
- Outstanding security features for fulfillment of performance level „d“
- Programmable control loop architecture to accommodate different test tasks
- Data acquisition with highest accuracy and reproducibility
- Powerful automation interfaces, including direct ECU communication and HiL interface
- Manual interaction opportunity with a modern touch interface
- Flexible setup concepts by remote terminal boxes with cable influence compensation

FuelCon

TrueData X-HVE

GENERAL FACTS

Overall efficiency at power rating	>= 96 %
Total harmonic distortion THD	3.3 %
Noise	<= 70 dB(A) at 1 m (160 kW, 600 A)

EMULATION

Cycle time	1 ms
Standard models	VOCV + R1 + R2 || C1 VOCV + R1 + R2 || C1 + R3 || C2 VOCV + R1 + R2 || C1 + R3 || C2 || R4
Setpoint	Voltage SOC
Parameter	Rated capacity Open circuit voltage Technology (SOC curve) Internal resistance Dynamic (resistance und capacity) Temperature (optional)

DYNAMIC SPECIFICATION

Ripple	<= 0.2 % eff. FS
Rise time on resistive load (10-90 %):	< 3 ms (optional 0.3 ms)

ELECTRIC SPECIFICATION

Power rating	40, 60, 80, 100, 120, 140, 160, 180, 200, 250, 300, 500 kW
Voltage range	100 V, 600 V, 800 V, 1,000 V (optional negativ)
Current range	±600 A, ±1,000 A, ±1,200 A
Accuracy	±0.03 % MV, ±0.015 % FS
Resolution	21 bit
Sampling rate	10 µs (100 kHz)
Storage rate	1.0 ms (1 kHz), optional 0.3 ms (3 kHz)

SAFETY

Safety controllers	Emergency stop (two channels) DC Stop (two channels) DC On (two channels) Signal of ISO-controller
ISO-controller	Insulation resistance HV Plus and HV Minus Analog processing of insulation resistance Safe disconnection of DC contactors
Safety version according to ISO 13849 / EN 60204-1	Galvanically isolated IGBT half bridges

Verification of the functional safety (audit trail)
incl. creation of validation certificate ISO 13849

The TrueData X-HVE HV emulators of FuelCon reproduce the behavior of electrical energy storage in a functionally and electrically way.

They work with excellent accuracy at high system dynamics and allow the emulation of:

- Batteries, battery modules, battery packs and battery systems
- Fuel cells, fuel cell stacks and fuel cell systems
- High-voltage electrical systems in vehicles
- 48 V electrical systems in vehicles
- Energy networks

With a single unit voltages up to 1,000 V, currents up to 1,200 A, and outputs up to 600 kW can be covered. Parallel alignment enables higher currents and power.

The stored simulation models allow the emulation of real batteries. Furthermore, own, discrete-time, continuous-time or hybrid Simulink and Stateflow models can be processed.

Please feel free to download the latest information available at our website www.fuelcon.com. If you have any questions, please do not hesitate to contact us. We will be happy to support you and discuss your testing requirements!

FUELCON AG | STEINFELDSTR. 1
39179 BARLEBEN \\ GERMANY | T +49 \ 39203 \ 514 400
F +49 \ 39203 \ 514 409 | INFO@FUELCON.COM
WWW.FUELCON.COM

FuelCon

Fuelcon reserves the right to make changes at any time without notice.