

Modular, High Power Battery Simulator & Systems

Bidirectional (source & sink), Regenerative
0...65VDC to 0...1500VDC, 20kW up to 1.5 MW



20kW / 32kW Module



40kW / 64kW System



768kW System

REFERENCES:

Audi, AVL, Bentley, BorgWarner, Continental, Daimler, Deutsche Accumotive, Ferrari, Ford, Fiat Chrysler, GM, Hyundai, IAVF Antriebstechnik, Integral Powertrain, Jaguar Land Rover, Kistler Lorch, LG Chem, Magna Powertrain, MAN, Mando, Maserati, MTU, Nidec, Porsche, Renault, Robert Bosch, Samsung Electric, Schaeffler, Volvo, Vossloh Kiepe, ZF, ZYTEK Automotive.
Universities, Certification Testing Labs and Automotive Research Centers

REGATRON's technologically advanced, programmable, high power, modular, regenerative source & sink Battery Simulators and Systems replace real battery power packs, handle both energy flow directions and use an advanced PFC technology for source mode and a fast self-synchronizing power regeneration technique for sink mode, are anti-islanding proof and very compact.

Comprehensive parameterization possibilities and multiple operational modes allow for adaption to even complex load situations. The standard operation and test software TopControl enables the operator to parameterize and set all important values and to monitor process relevant data online during run state.

BatSim and BatControl application software are highly advanced tools for all battery system substitutions and energy storage applications. The high degree of programmability and parameterization allows for the simulation of nearly all missions within this field of applications.

Unlike other systems on the market, each unit / module is a completely self-standing power supply enabling the user to choose any unit / module from a system for other power supply tasks as an independent regenerative power sink / source !

Using REGATRON's unique modular configuration possibilities, the system voltage can be expanded to increase the nominal output voltage **up to 1500 VDC**

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REGATRON's Battery Simulators & Systems define and can vary nearly all relevant electrical characteristics of a battery system - for example:

- cell system nominal voltage and type of chemistry
- number of cells
- internal resistance and associated parameters
- cell temperature progression
- max. allowed current
- charge efficiency
- energy computing and management facilities
- time-dependent and functional dependent parameters

BatSim (battery simulation software) offers the following benefits:

- substitution of bulky and expensive real battery packs, 100% SOC anytime
- simple change to another type of battery for the ease of comparative tests
- conditional parameters allow for simulations of battery states
- quick and easy ways to vary battery size (number of cells, type of chemistry, cell capacity)
- fully programmable 'sequencer' allowing for variation of parameters vs. time and defining proprietary long term test sequences

BatControl (battery testing, management & control software) offers the following additional benefits:

- To select and run so-called "BatScripts" from a list of available scripts. These scripts automate the otherwise manually given commands to the power supply. The scripts allow to run the commands according to a timeline and lets the user define aspects like "Charge that battery with 8 Amps for 90 minutes".
- Defining charge (and discharge) algorithms
- Running driving cycles (own or according to already defined standards)
- Replay of previously recorded discharge/charge data to repeatedly simulate the burden to the battery of a real driving test – all in your lab.

Defining and running scripts is very easy and simple! It is the intention of the software **to allow the user to write his own tests** which allows him to fully conduct his research work!

SELECTION GUIDE

20kW & 32kW = 1 Module, 40kW & 64kW = 2 Modules, 96kW = 3 Modules, 128kW = 4 Modules

Systems above 128kW up to the 1 MW range are available on request

Multi-module systems (≥40 kW) allow for **parallel-, series- or mixed-parallel-series operation** to increase output current and voltage range.

Output voltage	Output power	Output current	Model number	Order code
0...+/-65VDC	+/-20kW	+/- 0-385A	1x TC.GSS.20.65.4WR.S	GSS.20.65.385
	+/-32kW	+/- 0-600A	1x TC.GSS.32.65.4WR.S	GSS.32.65.600
	+/-40kW	+/- 0-770A	2x TC.GSS.20.65.4WR.S	GSS.40.65.770
	+/-64kW	+/- 0-1200A	2x TC.GSS.32.65.4WR.S	GSS.64.65.1200
	+/-96kW	+/- 0-1800A	3x TC.GSS.32.65.4WR.S	GSS.96.65.1800
	+/-128kW	+/- 0-2400A	4x TC.GSS.32.65.4WR.S	GSS.128.65.2400

Output voltage	Output power	Output current	Model number	Order code
0... +/-130VDC	+/-20kW	+/- 0-192A	1x TC.GSS.20.130.4WR.S	GSS.20.130.192
	+/-32kW	+/- 0-308A	1x TC.GSS.32.130.4WR.S	GSS.32.130.308
	+/-40kW	+/- 0-384A	2x TC.GSS.20.130.4WR.S	GSS.40.130.384
	+/-64kW	+/- 0-616A	2x TC.GSS.32.130.4WR.S	GSS.64.130.616
	+/-96kW	+/- 0-924A	3x TC.GSS.32.130.4WR.S	GSS.96.130.924
	+/-128kW	+/- 0-1232A	4x TC.GSS.32.130.4WR.S	GSS.128.130.1232

0... +/-260VDC	+/-40kW	+/- 0-192	2x TC.GSS.20.130.4WR.S	GSS.40.260.192
	+/-64kW	+/- 0-308A	2x TC.GSS.32.130.4WR.S	GSS.64.260.308
	+/-128kW	+/- 0-616A	4x TC.GSS.32.130.4WR.S	GSS.128.260.616

0... +/-400VDC	+/-20kW	+/- 0-63A	1x TC.GSS.20.400.4WR.S	GSS.20.400.63
	+/-32kW	+/- 0-100A	1x TC.GSS.32.400.4WR.S	GSS.32.400.100
	+/-40kW	+/- 0-126A	2x TC.GSS.20.400.4WR.S	GSS.40.400.126
	+/-64kW	+/- 0-200A	2x TC.GSS.32.400.4WR.S	GSS.64.400.200
	+/-96kW	+/- 0-300A	3x TC.GSS.32.400.4WR.S	GSS.96.400.300
	+/-128kW	+/- 0-400A	4x TC.GSS.32.400.4WR.S	GSS.128.400.400

0... +/-500VDC	+/- 20kW	+/- 0-50A	1x TC.GSS.20.500.4WR.S	GSS.20.500.50
	+/- 32kW	+/- 0-80A	1x TC.GSS.32.500.4WR.S	GSS.32.500.80
	+/-40kW	+/- 0-100A	2x TC.GSS.20.500.4WR.S	GSS.40.500.100
	+/-64kW	+/- 0-160A	2x TC.GSS.32.500.4WR.S	GSS.64.500.160
	+/-96kW	+/- 0-240A	3x TC.GSS.32.500.4WR.S	GSS.96.500.240
	+/-128kW	+/- 0-320A	4x TC.GSS.32.500.4WR.S	GSS.128.500.320

0... +/-600VDC	+/- 20kW	+/- 0-40A	1x TC.GSS.20.600.4WR.S	GSS.20.600.40
	+/- 32kW	+/- 0-66A	1x TC.GSS.32.600.4WR.S	GSS.32.600.66
	+/- 40kW	+/- 0-80A	2x TC.GSS.20.600.4WR.S	GSS.40.600.80
	+/- 64kW	+/- 0-132A	2x TC.GSS.32.600.4WR.S	GSS.64.600.132
	+/- 96kW	+/- 0-198A	3x TC.GSS.32.600.4WR.S	GSS.96.600.198
	+/-128kW	+/- 0-264A	4x TC.GSS.32.600.4WR.S	GSS.128.600.264

0... +/-800VDC	+/- 40kW	+/- 0-63A	2x TC.GSS.20.400.4WR.S	GSS.40.800.63
	+/- 64kW	+/- 0-100A	2x TC.GSS.32.400.4WR.S	GSS.64.800.100
	+/-128kW	+/- 0-200A	4x TC.GSS.32.400.4WR.S	GSS.128.800.200

0... +/-1000VDC	+/- 40kW	+/- 0-50A	2x TC.GSS.20.500.4WR.S	GSS.40.1000.50
	+/- 64kW	+/- 0-80A	2x TC.GSS.32.500.4WR.S	GSS.64.1000.80
	+/-128kW	+/- 0-160A	4x TC.GSS.32.500.4WR.S	GSS.128.1000.160

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Output voltage	Output power	Output current	Model number	Order code
0... +/-1200VDC	+/- 40kW	+/- 0-40A	2x TC.GSS.20.600.4WR.S	GSS.40.1200.40
	+/- 64kW	+/- 0-66A	2x TC.GSS.32.600.4WR.S	GSS.64.1200.66
	+/- 96kW	+/- 0-100A	3x TC.GSS.32.400.4WR.S	GSS.96.1200.100
	+/-128kW	+/- 0-132A	4x TC.GSS.32.600.4WR.S	GSS.128.1200.132
0... +/-1500VDC	+/- 60kW	+/- 0-50A	3x TC.GSS.20.500.4WR.S	GSS.60.1500.50
	+/- 96kW	+/- 0-80A	3x TC.GSS.32.500.4WR.S	GSS.96.1500.80
	+/-128kW	+/- 0-100A	4x TC.GSS.32.400.4WR.S	GSS.128.1500.100

OPTIONS

CANOPEN	Rear Panel Integrated CAN/CANopen Interface
CANmp	CAN multi protocol Interface for connection to a proprietary protocol
ETHERNET	Rear Panel Integrated Ethernet Interface
IEEE	Rear Panel Integrated GPIB / IEEE488.2 / SCPI Interface
RS232REAR	Rear Panel Integrated RS232 Interface
RS422	Rear Panel Integrated RS422 Interface
USB	Rear Panel Integrated USB Interface
BatControl	Battery Testing and Cycling Software (for Development and Process Automation)
BatSim	Battery Simulation Software (for Development and Process Automation)
CapSim	Capacitor Simulation Software (for Development and Process Automation)
TFEAAPControl	Function Generating Engine, Time-based and Parametric Programming
PAC.G.DC	DC Terminal Protective Cover (for each 20/32 kW module)
ISR	Integrated Safety Relay for Increased Emergency Stop Reliability, PL c according EN ISO 13849-1:2006 (for each 20/32 kW module)
RPP.G	Reverse Polarity Protection (for each 20/32 kW module)
AIRFILTER.9	Front Panel Air Filter (for each 20/32 kW module)