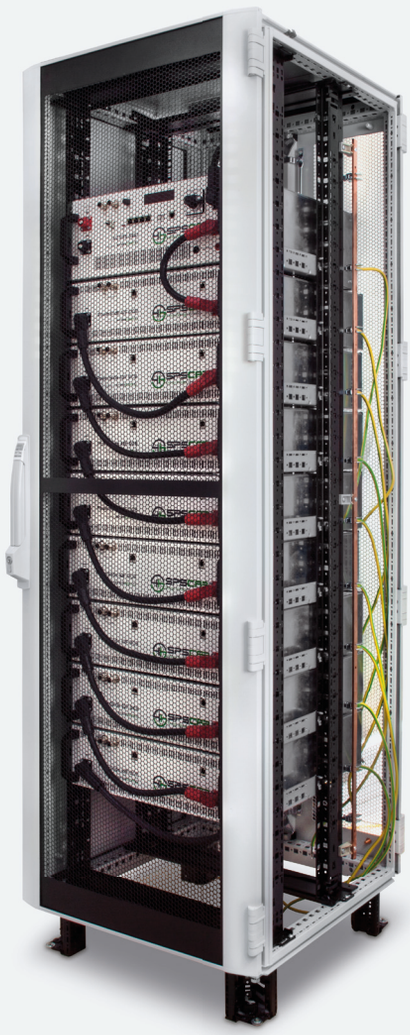

Powerstore System (ESS)

UltraCap Booster

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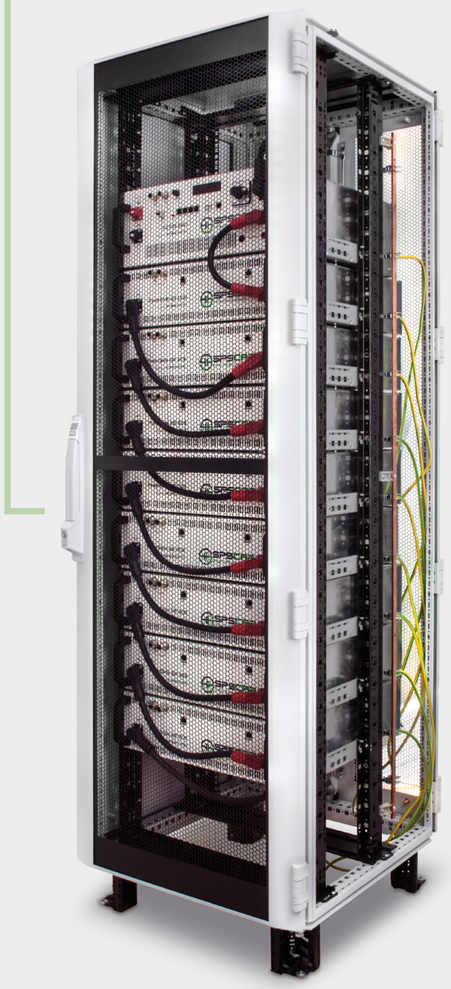
Powerstore Booster

Version 2.0
02.06.2024w

UltraCap Booster

Modular Energy Storage Systems for High Power Applications



TYPICAL APPLICATIONS

- High Pulse power supplies
- Test Racks
- Peak shaving
- Industrial
- Uninterruptible power supplies (UPS)
- Energy Recovery

SAFETY AND EFFIZIENCY

- Configurable Sring voltages up to 1200 V
- High string currents Power Active or passive connection to a DC link

BALANCING

- Intelligent Dynamic Cell Balancing
- Integrable pre-charging function
- Integrable service unloading

FLEXIBLE AND SCALEABLE

- Integrated string and power management
- modular system
- Variable slide-in system

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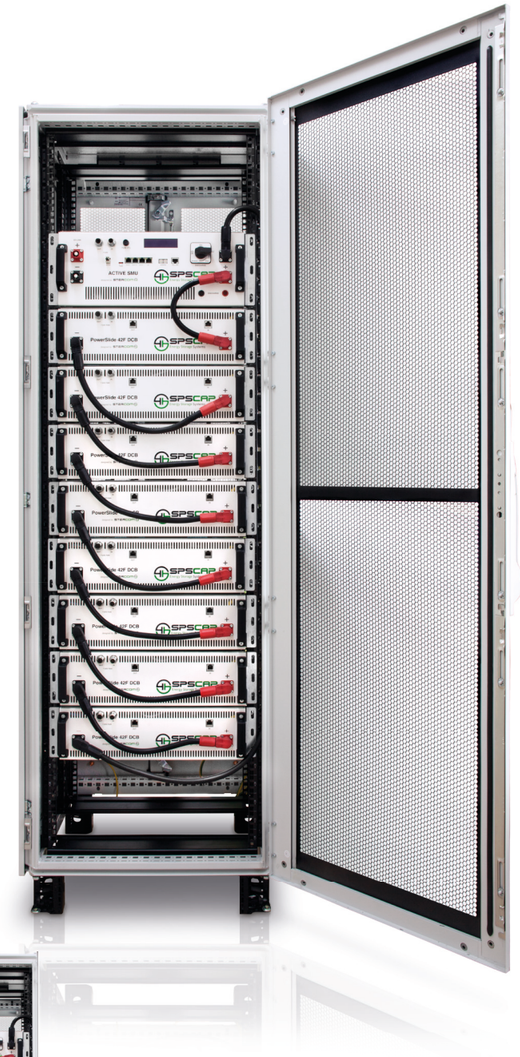
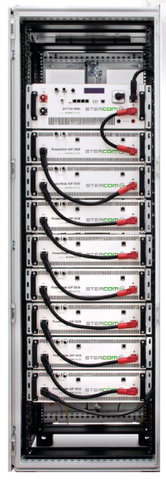
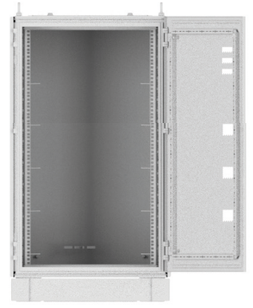
UC-RACK AND COMPONENTS

ACTIVE SMU MODULE

POWERSLIDE 2.0







RACK 1:

- Height 230cm
- Max 10 PS83 + SMU/SPB

RACK 2:

- Height 190cm
- Max 8 PS83 + SMU/SPB

RACK 3:

- Height 130cm
- Max 4 PS83 + SMU/SPB

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POWERSLIDE 2.0

102V/83F_DCB, equipped with 2.85V cells

FEATURES

- High Power 19” plug-and-play rack module
- Stack voltages up to 1500V*, fully isolated high voltage safety protections
- Integrated Dynamic Cell Balancing
- Simply Scalable; Rack Auto-Setting
- Outstanding Life Time and Life Cycles
- Very Low ESR
- Integrated blowers for optimal cooling
- High-value 2.85V SPSCAP® cells

PowerSlide modules are UltraCap power storage units in modular 19” technology. A kit of slots for storage modules, string management, or active DC boosters in identical construction enables the easy implementation of even demanding (high-) power applications.

ACTIVE SMU MODULE

FEATURES

- String Management Controller with CAN and Ethernet communication interface and Cell-Com interface to the PowerSlide Modules
- Integrated fully digital controlled high power DCDC converter to precharge the PowerSlide string before connecting to the DC-Link and discharging the PowerSlide string to DC-Link in case of maintenance
- At Off-State DC-Link and Storage are electrically insulated from each other by 2-pole high power contactors
- Overcurrent protection by high power DC-Fuse
- Integrated precise voltage, current, power and temperature measurement
- Parameterization via Stercom Diagnostic Interface

The SMU can be used for:

- Power Storage System with max. 1000 V and max. 500 A capability
- Peak power of 500 kW per Active-SMU
- As part of Stercom PowerSlide Systems

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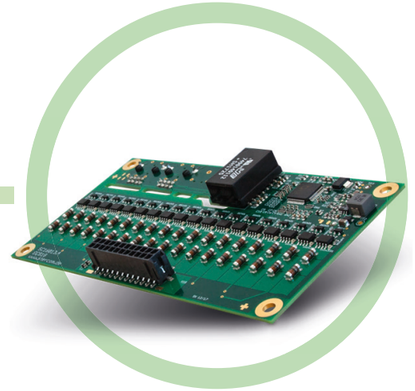
DYNAMIC CELL BALANCING (DCB) AND STRING MANAGEMENT CONTROLLER SMC

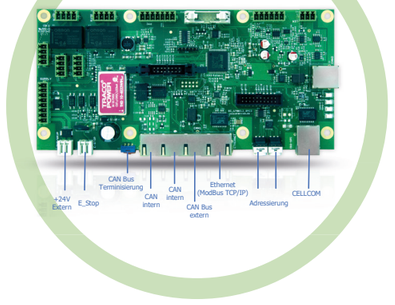


DCB18 (DYNAMIC CELL BLAANCING)

- Max 18 cells per DCB18
- Precise cell monitoring and cell protection
- Balancing even with partially charged cells
- Balancing current up to 0,45 A @ 2,7 V
- Cell voltage monitoring starting with low module voltage of 5 V

SMC (STRING MANEGEMENT CONTROLLER)

- Isolated CellCom bus for up to 30 DCB18 per string
- Supply voltage range 18 – 75 V
- Optional current measurement for detection of state of charge (SoC) and state of health (SoH)
- Grouping of several strings for huge UltraCap clusters via CAN Bus
- Communication link to the charger or energy management via external interfaces (ModBusTCP/IP, Ethernet/MQTT, CAN)
- Configuration of PowerSlide modules/system via „Stercom Diagnostic Studio“
- Address selection switch for cluster applications with several strings



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TECHNICAL DATA

Electrical		Temperature and Humidity	
Capacitance	83 F	Operating temperature range (cell case temperature)	-40°C to +65°C
Capacitance tolerance	0 % to +20 %	Storage temperature range (storage uncharged)	-40°C to +70°C
Rated voltage	102 V	Rth @ convection air cooled (thermal resistance module to air)	0.6 K/W
Absolute max. voltage (surge)	108 V	Rth @ forced air cooled (thermal resistance module to air at 4 m3/min air flow)	0.2 K/W
Recommended Operation Range	50V to 100V	Cth	32 kJ/K
ESR, DC (max.)	11 mΩ	Environment humidity (not condensing)	≤ 96%
Max. continuous current (ΔT = 40°C)	222 A	**Mechanical**	
Max. peak current, 1 sec.	2700 A	Weight	32 kg
Leakage current (25°C, after 72 h)	14.5 mA	Power Terminals	High Current Plugs, front access
High-Pot Isolation	3,000 VAC, 60 s	Data Terminal	2xRJ45 isoSPI IN and OUT
Cooling	Blowers: require +24V (20.5-27.6V / 0.5A rated, 0.8A peak per module)		

Life			
High Temperature (at rated voltage & max. operating temperature	1,500 hours	Cycle Life (number of cycles)	1,200,000
Capacitance change (decrease from initial value)	≤ 20%	Capacitance change (decrease from initial value)	≤ 20%
ESR change (increase from initial value)	≤ 100%	ESR change (increase from initial value)	≤ 100%
Room Temperature (at rated voltage & 35°C operating temperature)	10 years	Shelf life (stored uncharged up to max. storage temperature	2 years
Capacitance change (decrease from initial value)	≤ 20%		
ESR change (increase from initial value)	≤ 100%		
Power and Energy		Standards	
Max stored Energy @ rated voltage	433.50 kJ (up to +20%)	Ingress protection test standard	IEC 60529 IP20
Stored Energy @ Recommended Working Range	312.50 kJ (up to +20%)	Insulation coordination for equipment, HV Protection	EN 60664-1 xx

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ACTIVE SMU

Electrical		Temperature and Humidity	
DC-Link and Storage max.	1000 V	Operating temperature range	-40°C to +65°C
DC continuous current (DC-Link and Storage)	±140 A	Storage temperature range	-40°C to +70°C
Max. peak current @DC-Link	±500 A	Environment humidity (not condensing)	≤ 95%
Max. power DCDC	±10 kW	Mechanical	
Max. current DCDC @DC-Link	±20 A	Housing	19” Rack Technology
Max. current DCDC @Storage	±30 A	Weight	22 kg
Voltage range of DCDC	60 – 800 V	Power connectors	Phoenix Contact ES-FT-BPC-B/S 35-70
Ext. voltage supply	24 VDC	Air cooling	Passive
Ext. supply current max.	2 A		
Control loop of DCDC	CC/CV/CP	Standards	
Communication interfaces	CAN 2.0 Ethernet Modbus	Ingress protection test standard	IEC 60529 IP21
		Safety requirements for electrical equipment	IEC 61010-1

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