DATA SHEET

SkelMod
102V88F

+ 102V DC nominal voltage
+ Ultra-low ESR
+ Integrated Supercapacitor Management System for effective cell balancing
+ Long lifetime - 1 million duty cycles
+ CAN bus communication
+ 19 inch rack system compatible

CE

General Specifications	Value	Unit
Electrical		
Product code	6730112	
Nominal voltage	102	V
Absolute maximum voltage	108	V
Rated capacitance	88	F
Rated DC 10ms ESR	6.2	mΩ
Rated DC 1s ESR	7.6	mΩ
Specific energy [3]	4.8	Wh/kg
Energy density [5]	4.3	Wh/L
Maximum series voltage	1250*	VDC
Rated maximum peak current (for 1 s duration) [1, 9]	2.69	kA
Typical short circuit current (For informational purposes - do not use as operating current.)	21.25	kA
Maximum stored energy [2]	127.1	Wh
Cells in total	36	pcs
Cell type	SCA3200	

Standards and certifications

International protection marking (for enclosure)	IEC 60529, IP 20
Isolation protection	IEC 62477-1, OVC2, PD2
EMC immunity	IEC 61000-6-2
EMC emissions	IEC 61000-6-4

Temperature and Life	Value	Unit
Operating temperature range*		
Minimum	-20	°C
Maximum	+60	°C
Storage temperature range (uncharged)		
Minimum	-40	°C
Maximum	+50	°C
Life		
Lifetime @ 102V and maximum operating temperature	1500	Hours
Storage life @ RT, uncharged	10	Years
Projected cycle life @ RT, between V_R and V_R / 2	1,000,000	Cycles

Power

Rated nominal power, calculated from 10 ms ESR		
Power [6]	419.5	kW
Specific power, matched Impedance [7]	15.8	kW/kg
Power density, matched Impedance [4]	14.2	kW/L

Rated practical power, calculated from 1 s ESR		
Power [6]	342.2	kW
Specific power, matched Impedance [7]	12.9	kW/kg
Power density, matched impedance [4]	11.6	kW/L

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Supercapacitor management system

	Value	Unit
Nominal auxiliary supply voltage	24	V
Auxiliary supply voltage range	16-33	V
Constant current consumption at 24V DC	0.095 **	A
Cell balancing method	Controlled resistive balancing	
Temperature monitor	6 NTC sensors	
Voltage monitor	Individual Cell	
Communication interface	CAN bus 2.0B	

Connectors

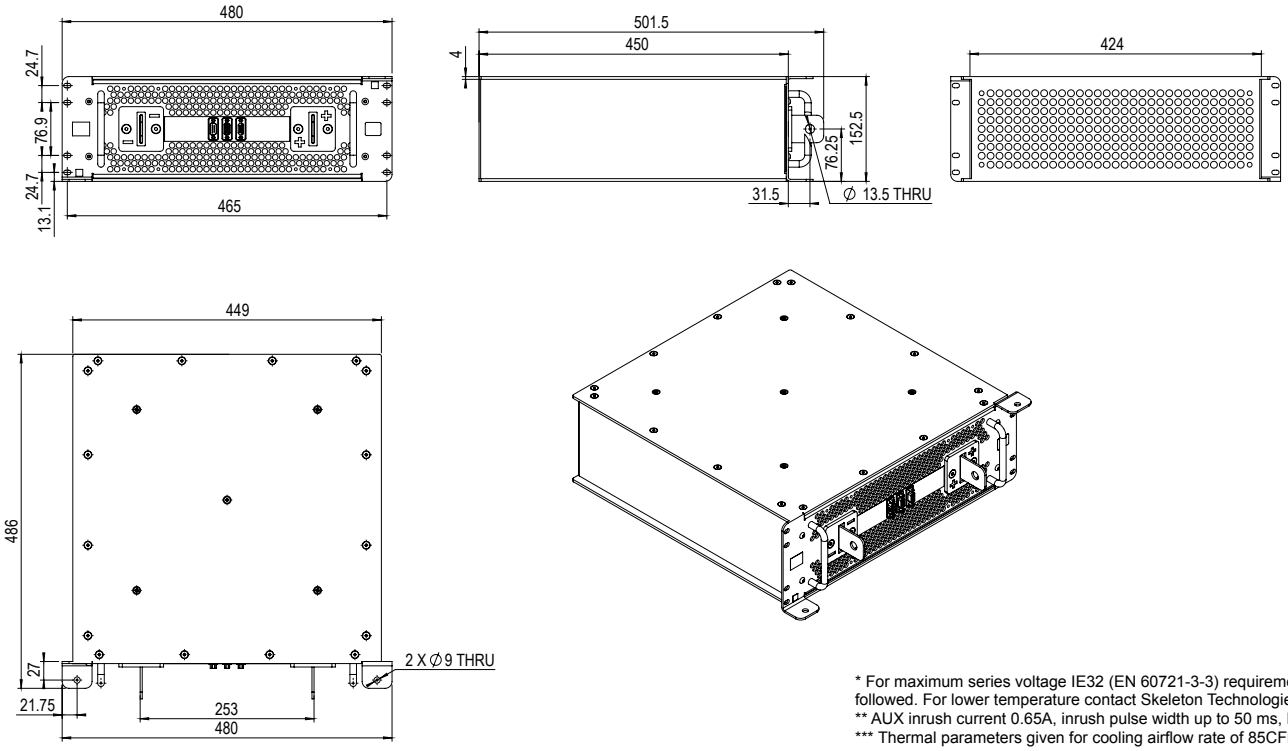
Power connector	Ø 13.5 mm Trough hole
Signal connectors	D-sub DE-9 Male D-sub DE-9 Female
Connector location	Front

Thermal***

	Value	Unit
Thermal resistance given at ΔT 30 °C (R_{th})	0.065	°C/W
Thermal capacitance (C_{th})	25	kJ/°C
Max continuous current [10], ΔT = 15°C	174	A
Max continuous current [10], ΔT = 30°C	246	A
Max continuous current [10], ΔT = 40°C	285	A

Physical parameters

	Value	Unit
Mass. Typical	26.5	kg
Volume	29.6	L



* For maximum series voltage IE32 (EN 60721-3-3) requirements must be followed. For lower temperature contact Skeleton Technologies
** AUX inrush current 0.65A, inrush pulse width up to 50 ms, I^2t = 84 mA^2s
*** Thermal parameters given for cooling airflow rate of 85CFM

(9) The stated maximum peak current should not be exceeded during use. If the limit is to be exceeded by the customer, Skeleton must be consulted beforehand and give approval for the exceeded power load.

(10) These values of current refer to begin of life conditions of the product, for system design 200% ESR should be considered.

(1) Maximum peak current (1 sec) = $\frac{½\ CV}{C \times ESR + 1s}$ (2) $E_{stored} = \frac{½\ CV^2}{3600}$ (3) $E_{specific} = \frac{E_{stored}}{mass}$

(4) $P_{density} = \frac{P_{max}}{volume}$ (5) $E_{density} = \frac{E_{stored}}{volume}$ (6) $P_{max} = \frac{V^2}{4 \times ESR}$

(7) $P_{specific} = \frac{P_{max}}{mass}$ (8) $R_{th} = \frac{\Delta T}{DC\ 1s\ ESR \times I^2}$

Standard markings

+ Name of manufacturer, part number, serial number, rated voltage
+ Rated capacitance, negative and positive terminals, warning marking
+ Total energy in watt-hours

Notes

+ All information provided on this data sheet and all subsequent supercapacitors sales and testing are subject to Standard Terms of Service (ToS) available on www.skeletontech.com, document General Terms of Sale for Skeleton Technologies GmbH