

DATA SHEET

SkelMod 102V
88F

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



SMA102V88FAF TECHNICAL SPECIFICATIONS

UNIT

VALUE

Electrical

Nominal voltage	V	102
Absolute maximum voltage	V	108
Rated capacitance	F	88
Rated DC 10ms ESR	mΩ	6.2
Rated DC 1s ESR	mΩ	7.6
Specific energy ³	Wh/kg	4.8
Energy density ⁴	Wh/L	4.3
Maximum series voltage	VDC	1500*
Rated maximum peak current (for 1 s duration) ¹	A	2689
Typical short circuit current	kA	21.25
Maximum stored energy ²	Wh	1271

Rated nominal power (DC 10ms ESR):

Power ⁵	kW	419.5
Specific power ⁶	kW/kg	15.8
Power density ⁷	kW/L	14.2

Rated practical power (DC 1s ESR):

Power ⁵	kW	342.2
Specific power ⁶	kW/kg	12.9
Power density ⁷	kW/L	11.6

Cells in total	pcs	36
Cell type		SCA3200

Life*

Life at 102 V and maximum operating temperature	Hours	1500
Shelf life @ RT, uncharged	Years	10
Projected cycle life @ RT between 102 V and 56 V	Cycles	1 000 000

Temperature

Operating temperature range	°C	-20 to +60*
Storage temperature range	°C	-40 to +50

Ultracapacitor management system

Nominal auxiliary supply voltage	V	24
Auxiliary supply voltage range	V	16-33
Constant current consumption at 24V DC	A	0.07**
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

Standards

International protection marking (for enclosure)
 Isolation protection
 EMC immunity
 EMC emissions

IEC 60529, IP 20
 IEC 62477-1, OVC2, PD2
 IEC 61000-6-2
 IEC 61000-6-3

Thermal parameters***

Thermal resistance given at ΔT 30 °C (R_{th})
 Thermal capacitance (C_{th})
 Maximum continuous current (at ΔT 15 °C)
 Maximum continuous current (at ΔT 30 °C)
 Maximum continuous current (at ΔT 40 °C)

°C/W
 kJ/°C
 A
 A
 A

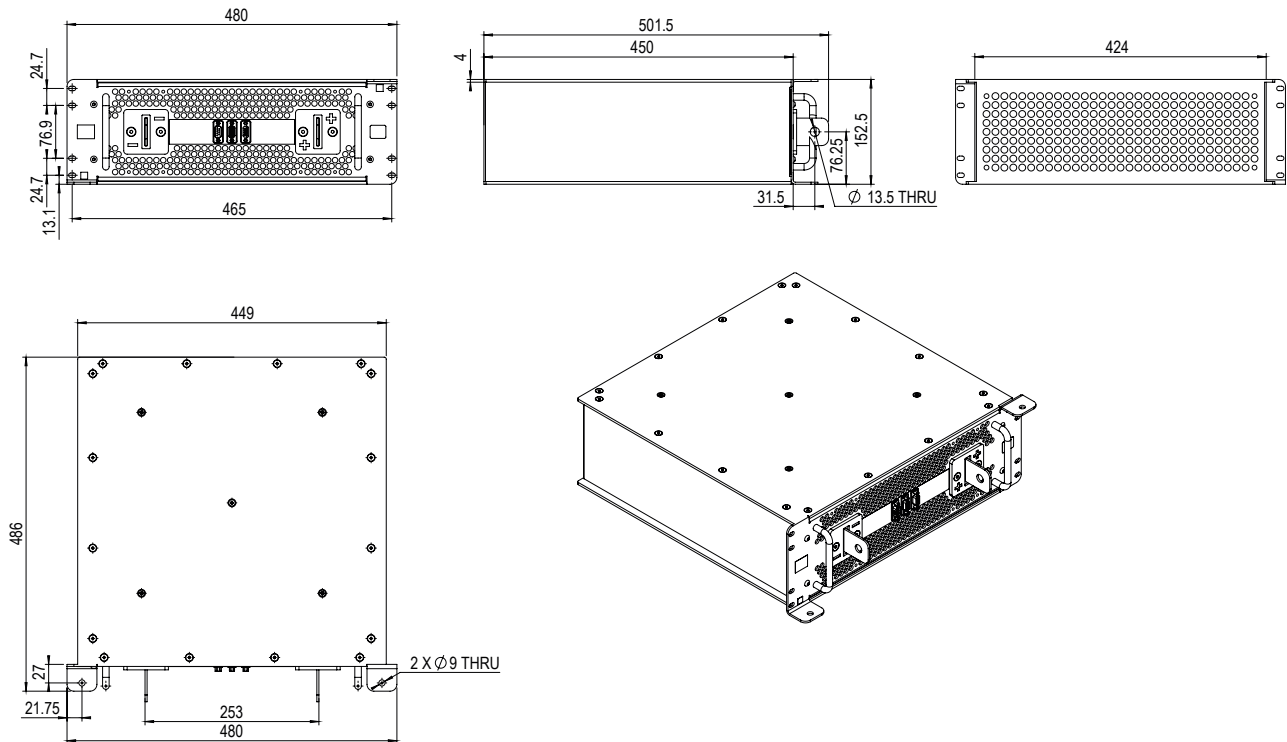
0.065
 25
 172
 245
 281

Physical parameters

Typical mass
 Typical volume

kg
 L

26.5
 29.6



* For maximum series voltage IE32 (EN 60721-3-3) requirements must be followed. For lower temperature contact Skeleton Technologies

** Inrush current for the auxiliary supply: 0.18A

*** Thermal parameters given for cooling airflow rate of 85CFM

1 Maximum peak current (I_s) = $\frac{C \times \frac{1}{2} \times V}{C \times ESR + T_s}$ 2 $E_{stored} = \frac{1}{2} \times C \times V^2$ 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 $R_{th} = \frac{\Delta T}{DC I_s ESR \times I^2}$

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 ultracapacitors sales and testing are subject to Standard Terms of Service (ToS) available on www.skeletontech.com, document General Terms of Sale for Skeleton Technologies OÜ

Skeleton Technologies GmbH

Sales and Headquarters
 Schücostraße 8, 01900 Großröhrsdorf, Germany
info@skeletontech.com

www.skeletontech.com