

REDT 5-40 Battery Module Data Sheet

5kWe/40kWhe
8hr duration



Parameter	Values
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Battery DC input	
DC input voltage / DC voltage range	48 V / 37 V ... 61.5 V
Maximum battery charging current	125 A
DC rated charging current	100 A
Battery type	Vanadium Redox
Battery capacity	Up to 40 kWhe (configurable from 20 kWhe)
Charge control	VRFB charging process with automatic charge equalization
Stack deterioration	None detected in 1 000 cycle testing
Stack life	No known limit

DC protection	
DC reverse polarity protection	Yes
DC fuse	250 Amp (nominal)
Battery over temperature protection	Yes
Battery deep discharge range	0% ... 100%

AC Output (discharging) into loads / stand-alone grid	
AC grid connection type	TT or TN system
Rated power (for Unom Fnom / 25°C / pf >84%)	5 000 W
AC charging power at 25°C for 15 min	8 000 W
Rated line voltage / AC Voltage range	230 Volts / 202 V ... 253 V 1-ph
Rated AC Current	22 Amps
Max output current (Peak)	37 Amps
Rated frequency / Frequency range adjustable	50 Hz / 45 Hz ... 65 Hz
Nominal power factor	1
Power factor adjustable range	-1 ... +1
Total harmonic distortion output voltage	< 4%

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AC Input (charging)	
Rated input voltage / AC input voltage range	230 Volts / 172.5 V ... 264.5 V
Rated input frequency / allowable input frequency range	50 Hz / 40 Hz ... 70 Hz
Max AC Current, adjustable	22 Amps
Max AC input power	5 000 W
Rated AC charge power	5 000 W (depending on state of charge)
Response time AC -100% to 100% output	60 ms
Transition between Grid and Islanded modes	100 ms
AC connection	Location dependent

AC Protection	
AC switch and Circuit breaker	32 A
Earth leakage protection	40 Amp 30mA RCD
Anti-islanding protection	G59-3 (Europe)
Output overvoltage protection	Class III voltage surge protection [IEC 60664-1]

Operating performance	
DC-AC PCS efficiency (η_{max})	95%
DC-AC PCS weighted efficiency (η)	93%
DC / DC round-trip efficiency	71% ... 83%, depending on power
Self-consumption standby consumption	< 50 W
Capacity range (DOD)	0% ... 100%
Self-discharge when off	Negligible
Nominal discharge time	8 hours
Full DOD charge/discharge cycles per 24 hour period	2.6 (capable of constant operation)

Communication	
Remote monitoring	Wired, GSM, Satellite

Environmental	
Operating environment	FO-H (with temperature limits, below) [IEC 62586-1]
Operating ambient temperature range (full power) (tolerates deviations outside range for short periods)	-25 °C ... +30 °C (climate control option extends temperature to 55 °C)
Unpowered temperature range	-0 °C ... + 40 °C
Noise emission	50 dBA
Maximum operating altitude without derating	2000 m

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Chemical	
Containerised electrolyte	Vanadium in 3 M H ₂ SO ₄
Containment	Tanked, banded, encased, with drain
Siting	See REDT Mandatory Site Requirements Document

Physical	
Degree of protection	IP65 [IEC 65029]
Environmental protection rating	I [IEC 62103]
Dimension (W x H x D)	2 615 mm x 2 573 mm x 1 500 mm
Physical clearance (W x H x D)	5 000 x 2 600 mm x 1 600 mm
Dry weight	2 200 kg
Filled weight	5 000 kg

Safety	
Transformer	None
Marking CE	Yes for EC locations
Safety and EMC standard	EN 50178, EN62109-1, EN61000-6-2, EN61000-6-4

Manufacturing Certification	
QMS	ISO 9001 / 2000 QMS; ISO 13485 - Medical QMS; AS9100 - Aerospace QMS
Environmental	ISO 14001 Environmental Management
Workmanship	IPC Class 3

Warranty	10 year warranty with REDT service plan
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