PowerCache® – XS (73 kVA / 72 kWh) Datasheet

PowerCache® – S: Grid-in-a-Box

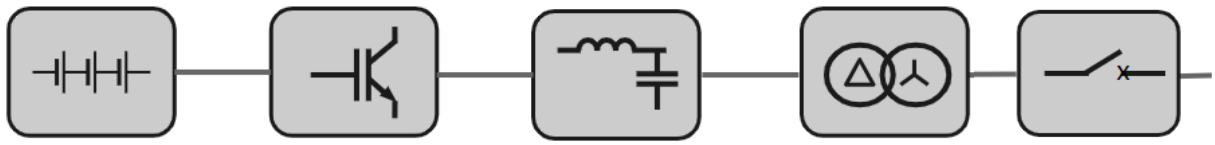
PowerCache is a utility-grade grid in a box. It enables operators of ultra-fast EV charging, commercial or industrial sites, microgrids and communities to provide an unconstrained power user experience on a constrained network. This versatile power system combines a robust, ultra-rapid-response power converter/ controller and a high-performance battery with intelligent microgrid control. PowerCache is expandable and integrates with other systems on-site. It can participate in ancillary services markets.

Pole-mounted version for illustration only. Details in this datasheet are for a ground-mounted system

System Performance	
Nominal frequency and voltage	47Hz … 53Hz, 415V or 400V +10%/-6%
Grid connection	3-phase+N, YNd transformer-coupled
Active and reactive power rating	S_{Nom} = 73 kVA - 4-quadrant P&Q, symmetrical apparent power
Maximum continuous load	3-phase: S_{Nom} = 73 kVA, single phase: $S_{Nom}/\sqrt{3}$ (other phases not loaded)
Permissible phase load imbalance	Unlimited within the rating per phase +/-
Inverter base electrical function	• Current source (on-grid) • Emulated synchronous machine (ESM) (on- & off-grid, various modes)
Harmonics	Compliant with AS4777.2
Step load capability (islanded or UPS)	Instantaneous load swing up to 220% S_{Nom} (absorbing to injecting)
Response time to external signal	< 50 ms
Primary frequency control step response – rise time / settling time	User definable via generator time constant and frequency PID control, typically: 150 ms / 1500 ms
System overload capability	400% instantaneous, 200% for 2 s, 150% for 1 minute in 10 minutes
Fault current capability	Fault current settable up to 200% I_{Nom} (3-phase) and 340% (1-phase) for 2 s
AC protection concept	Inter-tie protection of BESS and site mains or generation points of isolation
AC protections	Over/under current/voltage/frequency, RoCoF, VVS, negative sequence voltage, sync-checks, anti-islanding to AS4777
Application-level protections	Over/under SoC, sustained overvoltage, protection consistency checks, application alarms, safe states, etc, via the PaDECS® control system
DC protection	Insulation monitoring, overcurrent/voltage, Battery OEM protections
System AC-AC round trip efficiency	>89% for a typical application scenario.

Battery Performance	
Total DC energy / usable energy	72 kWh / 65 kWh at 1C (dis-)charge
Battery chemistry	NMC cathode, $LiNi_xMn_yCo_zO_2$, pouch cell structure
Indicative battery cycle life / full cycle equivalents (FCE)	4,000 FCE at 90% DoD to 70% capacity retention; or 5,000 FCE at 80% DoD to 70% capacity retention
Battery calendar life	>13 years
Battery Protection	Cell-, rack- and system-level supervision, control and protection of current, voltage, power, SoC, SoH, temperature, imbalances, insulation

Interface	
Web-API	Web-API via VPN
SCADA	Modbus TCP or discrete hardwired alarms and E-Stop
System HMI	GUI web application via VPN
Local data Historian Client	Logging all system features, parameters, modes and actuals, access via VPN
Cloud-Client GUI and API	Cloud-Client GUI and API via PaDECS®-Cloud (SaaS)
Mechanical	
Fire mitigation	Smoke & heat detection, Novec® gaseous fire suppression system with detector tube
Cabinet cooling	Forced air cooling, air inlet: door louvres, outlet: roof frame
Cabinet structure	Single-walled, lined with heat & noise protective foam
Dimensions	Hight x Width x Depth = 1,900 mm x 1,100 mm x 1,100 mm
Weight	1,600 kg
Environmental	
Humidity	5% to 100% outside, 5% to 95%, non-condensing inside cabinet
Altitude	Up to 1,000 m without derating
Operating ambient temperature	0 – 40º C without derating, 0 – 55º C max
Noise (max. @ 1 m distance)	<55 dBA
IP Rating	IP54 outdoor cabinet
Compliances include:	
AS/NZS 4777.2:2020	The inverter/filter assembly is AS4777.2 certified. Cert No.: SAA192864
AS 5139	Safety of battery systems for use with power conversion equipment
IEC 61000 (Part 3), EN 61800	EMC emission limits
AS 3000	Electrical wiring rules
System Configuration	



Batteries	Inverter	LC Filter	Transformer	Switchgear

Contact
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