



# Storage Systems

## BATTERY STORAGE SYSTEM OUTDOOR BSO 50-88/109



- **All-in-one battery storage system for outdoor use**
- **Outdoor cabinet with protection class IP65 / IP54**
- **Easy & quick installation** – components pre-installed
- **High safety standard** – Gas & smoke sensors, fire protection system
- **Heating & cooling included**



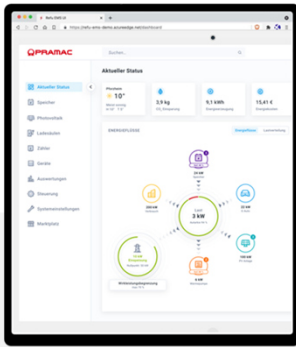
- **Commercial and Industrial Buildings** – Peak Shaving, Self consumption, Time of Use
- **Buffer storage for EV fast charging** – increasing the usable output
- **Agricultural buildings** – use of PV electricity after end of subsidies
- **Urban storage or new buildings** – reducing the load on the transformer



- **Pramac Storage Systems** – leading supplier of power electronics
- **Proven technology** – For a wide range of battery applications
- **Strong team** – with a global partner
- **Reliable energy storage solutions** – Indoor / Outdoor / Container



# BATTERY STORAGE SYSTEM OUTDOOR BSO



TECHNICAL DATA OUTDOOR SYSTEM	BSO 50/109	BSO 88/109
-------------------------------	------------	------------

Battery data		
--------------	--	--

Total capacity (kWh)	109	
Rated capacity (kWh) (90% DoD)	98	
Rated voltage (Vdc)	736	
Max. Charge/discharge current (A)	148	
Cell type	Li-Ion (LFP) Pouch	
Cycles @ 90% DoD   65% SoH   0,5C/0,5C	7300	

Battery Inverter	PBI 50K-PC	PBI 88K-PC
------------------	------------	------------

Rated power (kW)	50	88*
Rated voltage (Vac)	380 / 400 / 415	
Maximum AC current (A)	128	
AC grid connection	3P, PE / TT, TN-C, TN-S	
Rated frequency (Hz)	50	
THDi (%)	< 3	
AC power factor / range	1 / 0,3i ... 0,3c	
Max. Efficiency (%)	98,6	
Topology	Transformerless	

\*Power reduction from 33 °C ambient temperature

Safety devices System		
-----------------------	--	--

Safety devices	Active devices	Permanent monitoring of the battery cells CO sensor H <sub>2</sub> sensor Smoke sensor Exhaust fan
	Passive devices	Extinguishing system with Novec 1230 Overpressure flap

# BATTERY STORAGE SYSTEM OUTDOOR BSO

General data			
<b>Operating temperature range (°C)</b>		-20 to +50	
<b>Cooling/heating concept</b>	Battery room	Cooling power 2 kW Heating power 1 kW	
	Inverter room	Smart active cooling	
<b>Dimensions (W×D×H, mm)</b>		1500×1108×2320	
<b>Total weight (kg) Incl. batteries and inverter</b>		2100	
<b>Protection class</b>		IP 65 (Battery room) / IP 54 (Inverter room)	
<b>Max. permissible installation height (m)</b>		3000	
<b>Corrosion resistance of the housing</b>		C3	
<b>Colour housing</b>		RAL7035	
<b>Interfaces</b>		RJ45 (Ethernet)	
<b>Certification / Approvals</b>	Battery system	CE / UN 38.3 / UN 3481 / IEC 62619 / IEC 63056 / UL 1973 / UL 9540A / VDE 2510-50 / EN 61000-6-2 / EN 61000-6-4	
		EU Directives	2014/30/EU / 2014/35/EU / 2011/65/EU
	Battery inverter	Product	IEC 62109-1 / IEC 62109-2 / IEC 62116 / IEC 61727 / IEC 62477-1 / IEC 61439-1 / IEC 61439-2 /
		Grid connection conditions	DIN VDE V 0126-1-1 / VDE AR-N 4105:2018 / VDE AR-N 4110:2018 / TOR Erzeuger Typ A / UTE C15-712-1 VFR 2019 / G99 / EN 50549-1/-2
<b>Warranty</b>		5 years product warranty 10 years performance guarantee	

All certificates are available online at [www.pramac-storage-systems.com](http://www.pramac-storage-systems.com)

# BATTERY STORAGE SYSTEM OUTDOOR BSO

TECHNICAL DATA ENERGY-MANAGEMENT-SYSTEM		Pramac Smart Energy Controller (PSEC) ZY000A00011   PSEC-DMXX
<b>Voltage supply</b>		<ul style="list-style-type: none"> <li>• 10-24 Vdc</li> <li>• UPS for controlled shutdown and recovery</li> </ul>
<b>Connectors</b>	USB	V 2.0 Micro-USB AB (OTG-Flash-Port) V 2.0 USB-A (Host Port)
	LAN	2× RJ45 with 10/100 Mhz Dedicated MAC addresses for OT/IT use
	IoT	1× Internal bus connection module Digital-IO 1× Internal bus connection module RS485
<b>Basic functions</b>		<ul style="list-style-type: none"> <li>• Self-consumption optimization</li> <li>• Peak load shaving</li> <li>• Time-based charging/discharging</li> </ul>
<b>Extended functions</b>		<ul style="list-style-type: none"> <li>• Simple management of charging stations</li> <li>• Load management and prioritisation for charging points</li> </ul>

TECHNICAL DATA SMART METER		Acrel ADL3000-E* ZY000A00002
<b>Voltage</b>	Reference voltage	3×380 V, 3×220/380 V
<b>Current</b>	Input current	3×1(6) A, 3×1(6) A (Passive current transformer), 3×10(80) A
<b>Power</b>		Active, reactive, apparent power, error ±0,5 %
<b>Communication</b>		RS485 (Modbus RTU)
<b>Conductor cross-section voltage measurement min/max (mm<sup>2</sup>)</b>		2,5/16
<b>Mounting</b>		DIN rail
<b>Dimension (W×D×H, mm)</b>		126×88×69
*Current transformer and fuse protection voltage measurement are not included in the scope of delivery		

Text and illustrations correspond to the technical status at the time of printing. We reserve the right to make technical changes. No liability for printing errors. The current version replaces all previous versions. You can find the latest version at [www.corporate.pramac.com/storagesystems](http://www.corporate.pramac.com/storagesystems)