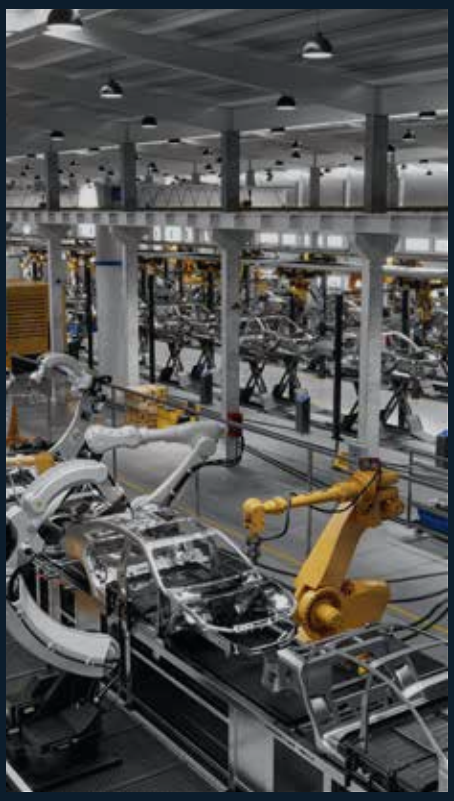
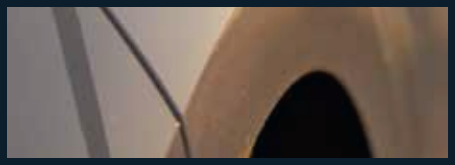






WHERE ENERGY BEGINS:
A New Era in Energy Storage









PRAMAC



ABOUT US

Pramac is the global benchmark for the production of generators and battery energy storage solutions. In 2016 Pramac became part of the Generac group, forming the world's third-largest generator producer. Pramac's corporate purpose is to lead the evolution toward more resilient and energy-efficient solutions, with a broad suite of products powering a smarter world. As an international company, we offer a global After-Sales service. Pramac assists customers providing service division offers, interventions on field, installations, repairs and rewinding support.
The Service and Parts division offers trainings and learning tools to help dealers and customers improve their product's technical knowledge and operational skill.

Innovation in C&I Storage Systems
As part of its continuous development, Pramac has expanded its offering to include Battery Energy Storage Systems (BESS). These integrated solutions are specifically designed for commercial and industrial (C&I) applications, helping customers optimise energy consumption, increase efficiency, and support advanced energy management strategies.

Advantages

- STRONG BRAND IDENTITY & GLOBAL PRESENCE
- OPERATIONAL FLEXIBILITY & MODULAR FUNCTIONS
- CORE TECHNOLOGIES DEVELOPED IN-HOUSE
- COMPREHENSIVE, "ALL-IN-ONE" SOLUTIONS
- DESIGN AND SIZING SUPPORT
- SERVICE & SUPPORT IN YOUR AREA

Control and Management System

High Flexibility

Monitoring System

Cyber Security

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A COMPLETE PARTNER FOR C&I ENERGY SOLUTIONS

ENERGY VERSATILITY

Our storage solutions are designed to integrate with maximum flexibility, both in new installations and retrofit projects. The range includes indoor, outdoor, hybrid outdoor and containerized configurations, with capacities from 100 kWh up to multi-MWh solutions. Our systems are fully configurable and scalable in terms of both power and capacity, allowing each solution to be tailored to the specific project. This ensures the optimal configuration based on the customer's energy profile, installation constraints, and operational goals.

The system is not just a storage unit: it is an intelligent and configurable platform, driven by advanced control and energy management logic. This architecture enables a wide range of operational functionalities, depending on the selected configuration and site priorities, ensuring optimal energy use and maximising the value of the investment.



KEY BENEFITS

INTELLIGENT ENERGY MANAGEMENT

The Pramac Energy Management System (EMS) monitors and optimizes all energy flows across the site in real time. Fully integrated into every Pramac C&I Battery Energy Storage System, it ensures efficient, reliable, and future-ready energy management.

MAXIMUM PROFITABILITY

Reduce energy costs, increase self-consumption, and unlock new revenue streams. The EMS automatically selects the most effective operating strategy based on site conditions, energy prices, and demand patterns.

SEAMLESS SYSTEM INTEGRATION

Enable centralized control of batteries, photovoltaic systems, loads, generators, and EV charging stations. The EMS integrates effortlessly into existing infrastructures and scales easily with future expansions.

ENERGY TRADING & FLEXIBILITY

Unlock the value of energy flexibility through participation in energy and ancillary service markets. Optional integration with aggregators and trading partners enables additional monetization opportunities.

FULL TRANSPARENCY & CONTROL

Gain real-time visibility of energy flows, system status, and key performance indicators. Access data anytime, anywhere via cloud platform and mobile applications.

ENGINEERED IN GERMANY

Developed and engineered in Germany, combining advanced control algorithms with industrial-grade reliability and advanced cybersecurity standards.

USER-FRIENDLY DESIGN

VERSATILE APPLICATIONS

COMPACT AND POWERFUL

ADVANCED CYBERSECURITY

FULLY GDPR COMPLIANT

SMART ENERGY MANAGEMENT SYSTEM

At the core of Pramac's energy storage solutions is the Energy Management System (EMS), the intelligent control platform that ensures optimal system performance. Fully developed in-house, the EMS manages the operation of the BESS and regulates energy flows between storage, the grid, and site loads.

The system provides a continuous, aggregated 24/7 overview of all connected batteries, enabling users to quickly assess overall system status and performance. Through intuitive planning and programming features, it allows for smart energy flow control, supporting flexible and user-friendly operating modes as well as advanced multi-battery management.

In addition to maximizing operational efficiency, the EMS is designed with a strong focus on security and compliance. The server infrastructure is located in Germany, ensuring high standards of cybersecurity and full GDPR compliance.

Pramac is currently working towards CRA compliance and IEC 62443 certification for its Smart Energy Management System.

ADVANTAGES

- Direct control over key functionalities and platform evolution
- Intelligent, continuous monitoring of energy storage systems
- 24/7 aggregated view of all connected batteries
- Intuitive interface with a dedicated app for iOS and Android
- Data access from anywhere, with no additional software required
- Fast installation and simplified configuration
- Advanced management with real-time reporting
- Customizable operating logics based on site requirements



WHAT THE SIZING TOOL OFFERS

Technical and Economic Analysis Based on Real Site Data

BESS Sizing Based on Consumption, Production, and Objectives

Comparison of Different Operating Strategies:

Self-Consumption, Peak Shaving, Multi-Use and Energy Trading

Centralized Project and Customer Management

Professional Reporting and Easy Result Sharing

OUR BATTERY SIZING TOOL 2.0

Pramac's Battery Sizing Tool combines technical and economic simulation with intuitive project management. Based on real site data, it helps identify suitable battery storage solutions, compare operating strategies and evaluate their economic potential.

TECHNICAL AND ECONOMIC ANALYSIS
Simulate battery storage systems based on real consumption data, renewable generation and site-specific requirements. Compare different operating strategies and assess their impact on energy costs and economic performance.

INTUITIVE PROJECT MANAGEMENT
Create, save and manage projects through an intuitive interface. Store customer information centrally and reuse it across multiple projects.

FLEXIBLE PRODUCT SELECTION
Explore the Pramac battery storage portfolio and identify suitable products based on system type, power rating and storage capacity.

REPORTING AND COLLABORATION
Generate professional PDF reports and PowerPoint presentations, or share project results directly via a link, even with users who do not have an account.



BSI / BSI PRO:
INDOOR
SOLUTIONS



BSI / BSI PRO Series:

Industrial battery storage systems play a central role in the energy transition.
Our industrial battery storage solutions therefore help to increase self-consumption and the self-sufficiency rate in order to optimise energy costs.

Pramac's backup solutions for the indoor area ensure that the connected loads continue to be supplied reliably even in the event of a grid failure, which reduces downtimes.

- Pre-configured indoor battery storage kit
- Easy installation and commissioning
- EMS and Battery Inverter 50K or 90K integrated
- Modular battery racks for capacity stacking
- Combiner Rack for capacity or power expansion

- C&I Buildings – Peak Shaving, Time of Use, Self-consumption, Multi-Use
- Buffer storage for EV fast charging – increasing the usable output
- Agricultural buildings – use of PV electricity after end of subsidy
- Urban storage or new buildings – reducing the load on the transformer

OUR CORE TECHNOLOGY

INVERTER & ENERGY MANAGEMENT SYSTEM

BSO MAX
BSO MAX PRO
SOLUTIONS



BSO MAX
BSO MAX PRO Series:

The new BSO MAX BESS generation from Pramac delivers an efficient and scalable solution for advanced energy management. With its high energy density and compact outdoor design, it enables space-saving installations and flexible expansion through parallel operation. Ideal for on-grid commercial and industrial applications – such as self-consumption optimization, peak shaving, and grid services – BSO MAX helps reduce peak demand, improve energy efficiency, and lower operating costs.

Complementing this, the BSO MAX PRO expands the platform beyond grid-connected use cases. Designed for off-grid and microgrid applications, it enables reliable and flexible energy management in areas with limited or no grid access.

- All-in-one outdoor system – Fully integrated battery, power electronics, and auxiliaries in a single enclosure
- Fast installation – Pre-installed, factory-tested components reduce on-site effort and commissioning time
- High safety standards – Advanced safety features incl. fire suppression, smoke/heat detection, and degassing
- Integrated thermal management – Heating & cooling ensure stable performance and long battery life
- Modular & space-efficient – Side-by-side installation enables scalable expansion with minimal footprint

- C&I Buildings – Peak Shaving, Time of Use, Self-Consumption, Multi-Use, Trading, Microgrid, Smart Self-Consumption
- Buffer storage for EV fast charging – increasing the usable grid connection output
- Agricultural buildings – use of PV electricity after end of subsidy
- Urban storage or new buildings – reducing the load on the transformer

OUR CORE TECHNOLOGY

ENERGY MANAGEMENT SYSTEM

BSO HYB
SOLUTIONS



BSO HYB
Series:

The BSO HYB 60/126 is Pramac's all-in-one hybrid outdoor battery storage solution for commercial and industrial applications. It combines battery storage, a hybrid inverter and the Pramac Energy Management System in a single cabinet, enabling direct photovoltaic integration without a separate PV inverter.

- All-in-one hybrid system – Battery storage, hybrid inverter and Pramac EMS integrated into a single outdoor cabinet
- Direct PV integration – Up to 120 kW PV input through 6 MPPT trackers, without the need for a separate PV inverter
- Fast installation – Pre-installed components simplify on-site installation and commissioning
- High safety standards – Battery monitoring, smoke and gas detection, aerosol fire suppression and firefighting water connection
- Outdoor-ready design – IP55 protection and integrated thermal management for reliable outdoor operation

- C&I Buildings – Self-Consumption, Peak Shaving and Multi-Use energy strategies
- EV Charging – PV and battery support for charging demand while reducing the load on the grid connection
- Agricultural Buildings – Integration of suitable existing PV strings after technical validation
- Urban Storage & New Buildings – Integrated management of PV, battery storage and site loads where grid capacity is limited

OUR CORE TECHNOLOGY

ENERGY MANAGEMENT SYSTEM

BSC MAX / PWR: **CONTAINERIZED** SOLUTIONS

BACKUP

PRO SOLUTIONS

MICROGRID



BSC MAX / PWR Series:

The BSC MAX / PWR is Pramac's new industrial containerised battery storage solution with significantly higher energy density in 10 ft and 20 ft designs. Thanks to the compact design, the solutions offer maximum flexibility in site selection and system planning.

With in-house development and production at the Pramac Factory, the BSC MAX /PWR solution offers everything from a single source – a central point of contact, customised solutions and the highest quality standards.

This covers the growing energy requirements of commercial and industrial users, optimising self-consumption, balancing load peaks and improving efficiency.

- Pre-installed battery container all-in-one solution - on a reduced footprint
- In-house power and control electronics – Perfectly optimised with maximum safety and efficiency
- State-of-the-art safety technology (degassing / aerosol / smoke / heat)
- Latest cell technology – Highest quality, durability and safety
- Scalable performance and capacity
- Energy-optimized air-air battery cooling system for higher efficiency

- Commercial and industrial plants – Peak Shaving, Time of Use, Self-Consumption, Energy Trading, Multi-Use
- Buffer storage for EV fast charging – increase of usable power
- Control power – balancing grid fluctuations
- Urban district storage or new buildings – Transformer load relief

OUR CORE TECHNOLOGY

INVERTER & ENERGY MANAGEMENT SYSTEM

TECHNICAL SPECIFICATIONS

BSI / BSI PRO - INDOOR

TECHNICAL DATA	BSI 50	BSI PRO 90*	BSI 100	BSI 180
Rated Power (kVA)	50	90 On-Grid / 75 Backup Power	2x50	2x90
Total capacity range (kWh)	109 - 436		218 - 872	
Rated net capacity range (kWh) (90%DoD)	98 - 392		192 - 785	
Max. C-Rate	1 C			
Cell Type	LFP (Pouch)			
Cycles	5.000 @ 90% DoD | 70% SoH			
Operating temperature range (min / max)	+10°C / +40°C			
Humidity (%, RH)	5-95, non-condensing			
Max. permissible installation height (m)	2.000			
Weight range, assembled (kg)	1.400 - 5.500		2.900 - 10.500	
W (mm)	From 1.488 to 4.060		From 2.430 to 7.320	
D (mm)	659 - 800			
H (mm)	2.200			
Protection type	IP20			

*** This model requires the Accessory Product Pramac Smart Transfer Switch (PSTS)**

BSO MAX / BSO MAX PRO - OUTDOOR

TECHNICAL DATA	BSO MAX 90/188	BSO MAX PRO 90/188*	BSO MAX 125/261
Rated Power (kVA)	90	90 On-Grid / 75 Backup Power	125
Total capacity (kWh)	188		261
Rated net capacity (kWh) (95%DoD)	178		248
Max. C-Rate	0.5 C		0.5 C
Cell Type	LFP (Prismatic)		LFP (Prismatic)
Cycles	7.300 @ 95% DoD | 70% SoH		8000 @ 95% DoD | 70% SoH
Operating temperature range (min / max)	-20°C / +50°C		-25°C / +55°C
Humidity (%, RH)	5-95, non-condensing		5-95, non-condensing
Max. permissible installation height (m)	3.000		3.000
Weight range, assembled (kg)	2.600		2.900
Dimensions WxDxH (mm)	1.300x1.354x2.387		950x1.300x2.480
Protection type	IP54		IP55
Interfaces	RJ45 (Ethernet)		RJ45 (Ethernet)
Safety devices	Permanent monitoring of the Battery cells / Smoke-/Heat-Sensor / Aerosol Generator / Water Pipe connector / Overpressure flap		Permanent monitoring of the Battery cells / Smoke-sensor & Heat-sensor / Degassing system / Aerosol fire-extinguishing system

*** This model requires the Accessory Product Pramac Smart Transfer Switch (PSTS)**

TECHNICAL SPECIFICATIONS

BSO HYB

TECHNICAL DATA	BSO HYB 60/126
Rated output power (kW)	60
Rated capacity (kWh)	126.6
Max. C-Rate	0.5 C
Cell Type	Li-Ion LFP, prismatic
Cycle life	7,500 @ 95% DoD | 70% SoH
Max. PV input power	120 kW
MPPT trackers	6
MPPT voltage range	150–950 Vdc
PV strings	12
AC voltage	400 V, 3P + PE (+N)
Operating temperature	-25°C to +50°C
Max. installation altitude	3,000 m without derating
Dimensions W × D × H	1,050 × 1,300 × 2,200 mm
System weight	1,650 kg
Protection type	IP55

BSC MAX / BSC PWR - CONTAINER

TECHNICAL DATA	BSC MAX 10’	BSC MAX 20’	BSC PWR 10’	BSC PWR 20’
Rated Power Range (kVA)	270 - 540	540 - 1080	270 - 540	540 - 1080
Total gross capacity range (kWh)	564 - 1129	1129 - 2258	266 - 532	532 - 1064
Rated net capacity range (kWh) (95%DoD)	536-1072	1072-2145	-	-
Rated net capacity range (kWh) (100%DoD)	-	-	266 - 532	532 - 1064
Max. C-Rate	0.5 C		1 C	
Cell Type	LFP (Prismatic)			
Cycles	7.300 @ 95% DoD | 70% SoH		7.300 @ 100% DoD | 70% SoH	
Operating temperature range (min / max)	-20°C / +50°C			
Humidity (%, RH)	5-95, non-condensing			
Max. permissible installation height (m)	3.000			
Weight Container range, assembled (kg)	7.900 - 12.000	17.400 - 26.300	6.300 - 9.500	14.300 - 19.400
Dimensions WxDxH (mm)	2.991x2.438x2.591	6.058x2.438x2.896	2.991x2.438x2.591	6.058x2.438x2.896
Protection type	IP54			
Interfaces	RJ45 (Ethernet)			
Safety devices	Permanent monitoring of the Battery cells / Smoke-/Heat-Sensor / Aerosol Generator / Overpressure flap/ Degassing			

COMPREHENSIVE **FUNCTIONALITIES**

Pramac's Battery Energy Storage can be used in a variety of operating modes, depending on the application area and specific customer needs.

SELF-CONSUMPTION OPTIMIZATION

- Excess PV energy is stored in the battery and used later to maximize on-site self-consumption.
- Reduces energy imports from the grid and increases the utilization of locally generated renewable energy.

PEAK SHAVING

- The BESS reduces peak power demand from the grid by supplying energy during load peaks.
- The battery is charged during periods of lower site demand.
- Helps reduce demand charges and optimize grid connection usage.

MULTI-USE

- Combination of Peak Shaving and Self-Consumption Optimization.
- Automatic switching between operating modes based on configurable battery State of Charge (SoC) threshold.
- Maximizes battery utilization by combining multiple value streams.

SMART SELF-CONSUMPTION OPTIMIZATION

- AI-based optimization of battery charging and discharging schedules using PV generation forecasts, load forecasts, and market signals.
- Integration of dynamic electricity prices to minimize energy costs and maximize PV revenues.
- Further increases self-consumption and overall system profitability.

EV LOAD MANAGEMENT

- Enables expansion of EV charging infrastructure without increasing grid connection capacity.
- Dynamically distributes available power among charging stations and other site loads.
- Prioritizes the use of locally generated renewable energy for EV charging.
- Reduces peak loads and optimizes overall site energy consumption.

ENERGY TRADING & FLEXIBILITY MARKETING

- Arbitrage trading on spot and intraday markets.
- Primary (FCR) and Secondary (aFRR) Control Reserve to stabilize and restore grid frequency.

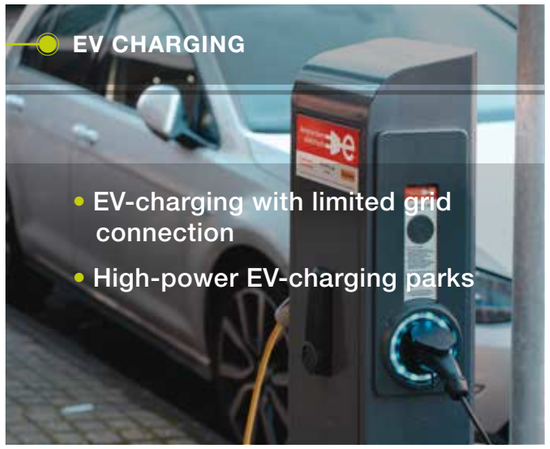
PV FEED-IN LIMITATION

- Limit PV production to avoid exceeding grid connection limits.
- For implementing Zero Feed-in or individual limits.

CLEAN AND EFFICIENT ENERGY SOLUTIONS ACROSS **A WIDE RANGE OF APPLICATIONS**













CASE STUDY

INTEGRATED ENERGY ECOSYSTEM FOR SMARTER ENERGY USE

Overview: Integrated PV, storage and e-mobility ecosystem for on-site energy optimisation.

Key Data: Austria | 340 kWp PV (+1,120 kWp planned) | ~2,200 kWh BESS | 8,000 m² / 2,500 modules

Highlights: Self-consumption & peak shaving | EV integration | Rooftop BESS design

Value: Reduced grid dependency | Long-term reliability

Integrated energy ecosystem for advanced C&I applications



COUNTRY:
Austria

SYSTEM SIZE:
2,200 kWh

OPTIMIZING INDUSTRIAL ENERGY THROUGH SMART STORAGE

Overview: Commercial storage solution to enhance self-consumption and energy management.

Key Data: Germany | 109 kWh | 88 kW | LFP battery

Highlights: Self-consumption optimisation | Grid reliance reduction | Tariff optimisation

Value: Cost-efficient operation | Scalable system

Flexible on-site storage for commercial energy management



COUNTRY:
Germany

SYSTEM SIZE:
109 kWh / 88 kW

CASE STUDY

SMARTER ENERGY USE FOR INDUSTRIAL EFFICIENCY

Overview: Battery storage system to optimise solar usage and reduce energy costs in manufacturing.

Key Data: UK | BSO MAX 90/188 | 188 kWh | 90 kW

Highlights: Excess PV storage | Time-of-Use optimisation | Tariff arbitrage

Value: Lower energy costs | Improved efficiency

Optimised for solar self-consumption and cost reduction



COUNTRY:
United Kingdom
SYSTEM SIZE:
188 kWh / 90 kW

STORAGE CONTAINER AT HARRY WUBBEN

Overview: Battery storage system for peak shaving and energy cost optimisation.

Key Data: Netherlands | 948 kWh | 704 kW | 20-ft container

Highlights: Peak shaving | Dynamic pricing optimisation | Load balancing

Value: Energy trading optimisation | Flexible operation

Designed for peak shaving and energy market optimisation



COUNTRY:
Netherlands

SYSTEM SIZE:
948 kWh / 704 kW

PRAMAC

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