

Industri**AE**

LITHIUM-ION Battery System
for Industrial Applications



WE POWER THE **E** FUTURE

TECHNICAL INFORMATION

180S01P BATTERY SYSTEM

Nominal energy of a single battery block	62.3 kWh
Maximum no. of battery blocks connected into one system	80
Total capacity of the battery system with maximum number of battery blocks connected	5 MWh
Configuration	180S01P (15 x 12S01P modules)
Dimensions of a single battery block (width x depth x height)	800 mm x 800 mm x 2100 mm
Estimated weight of a single battery block	570 kg
Nominal capacity of a single battery block @ 25°C, 1/3C (100% DOD - 4.15 V ... 2.7 V / cell)	94 Ah
Nominal voltage	662.4 VDC
Output voltage range	540 VDC ... 747 VDC
External power supply voltage	12 VDC
Maximum discharge current of a single battery block @ 25°C	230 A
Maximum charging current of a single battery block @ 25°C	100 A
Continuous supply current for a single battery block @ 12 VDC	~1 A
Pulse supply current (75 ms) for a single battery block @ 12 VDC	~8 A
Certification	UN38.3, CE
Operating temperature range	0°C ... +55°C
Recommended temperature	23°C
Slave ESS block control via data bus	via CAN bus
Communication interface	MODBUS TCP
LCD display with the battery system's current status	7" display in Master ESS
Battery charge indicator of a single battery block	LED indicator
Remote monitoring with event log	(option) – online
Remote servicing	Software upgrades and system monitoring possible via remote access
Pre-charge	External system required.
IP class	IP55
High-current connection between the battery blocks	Busbar output
Estimated number of cycles (until 70% SOH @ 25°C)	6000
Depth of Discharge (DoD)	99%
Battery chemistry	Li-ion NMC / LMO

■ APPLICATIONS

INDUSTRIÆ energy storage systems may be used in a variety of industrial and commercial applications.

Commercial and industrial applications.

INDUSTRIÆ can help energy producers and distributors optimize the investment in energy distribution solutions by storing the energy at times of lower demand and releasing it during peak hours. INDUSTRIÆ is a unique solution for Demand Side Response applications (DSR) to resolve the issues of grid instabilities and support grid balancing.

Off-grid and micro-grid applications

INDUSTRIÆ is an ideal alternative to diesel generators in both industrial, commercial or community applications. The solution may offer flexible and grid-independent power supply connected to renewable energy sources (e.g. solar and/or wind generators) offering reduced maintenance cost and minimized carbon foot-print.

Vehicle charging stations

INDUSTRIÆ as an end-point charging station is the answer to a growing demand for charging personal and commercial electric vehicles. Scalable and flexible configuration of the INDUSTRIÆ may become a large scale charging station for a fleet of e-buses, as well as a smaller, road-side station for electric cars.

Temporary or energy back-up applications

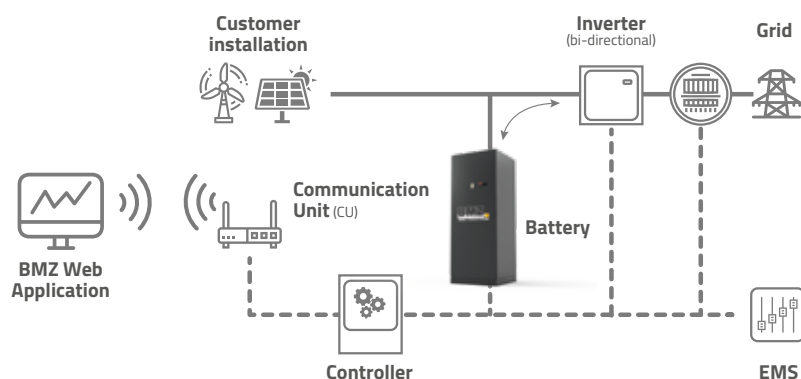
The flexible nature of the INDUSTRIÆ may offer a handful of non-standard applications. Built into a container, the solution can offer temporary power supply of even 1MWh/container.

Possible application may include:

- emergency power supply for industrial or commercial use (e.g. during times of black-out risk)
- power supply to mass events (e.g. concerts, public gatherings, etc)
- mobile power banks (e.g. for maintenance teams of energy distributors or grid operators)
- power supply to remote telecom transmission equipment



■ SIMPLIFIED INSTALLATION DIAGRAM



FEATURES

- Master and slave configuration of up to 80 battery blocks connected in parallel
- Real-time monitoring of the battery system's operating status:
 - Maximum possible charging current
 - Maximum possible discharge current
 - Current SOC (State of Charge)
 - No. of active batteries
 - Real-time value of charge/discharge
 - Real-time voltage value
 - Remaining capacity of the battery system
 - Power consumption meter
 - Average temperature / Maximum temperature / Minimum temperature
 - Warnings / Errors
 - Current operating status (charging, discharging, ready)
- Communication via the MODBUS TCP protocol.
- Monitored data logged and stored on BMZ servers.
Web application available to analyze collected data, create reports, graphs, and fault messages.
- Digital outputs facilitating the integration of the battery system with a range of converters.



INVERTER POWER (kW)

	kWh	120kW	240kW	360kW	480kW	600kW	720kW	840kW	960kW
1x INDUSTRIÆ	62,3	■							
2x INDUSTRIÆ	124,6	■	■						
3x INDUSTRIÆ	186,9	■	■	■					
4x INDUSTRIÆ	249,2	■	■	■	■				
5x INDUSTRIÆ	311,5	■	■	■	■	■			
6x INDUSTRIÆ	373,8	■	■	■	■	■	■		
7x INDUSTRIÆ	436,1	■	■	■	■	■	■	■	
8x INDUSTRIÆ	498,4	■	■	■	■	■	■	■	■

TECHNICAL SPECIFICATIONS OF LITHIUM-ION BATTERY SYSTEM FOR INDUSTRIAL AND COMMERCIAL ENERGY STORAGE

INDUSTRIÆ lithium-ion battery solution is a purpose-designed Industrial Energy Storage System (IESS). Its modular structure offers energy capacity from 62.3kWh up to 5MWh. **INDUSTRIÆ** IESS may easily be adapted to a variety of converters and high voltage end-points thanks to MODBUS TCP connectivity and a number of digital outputs.

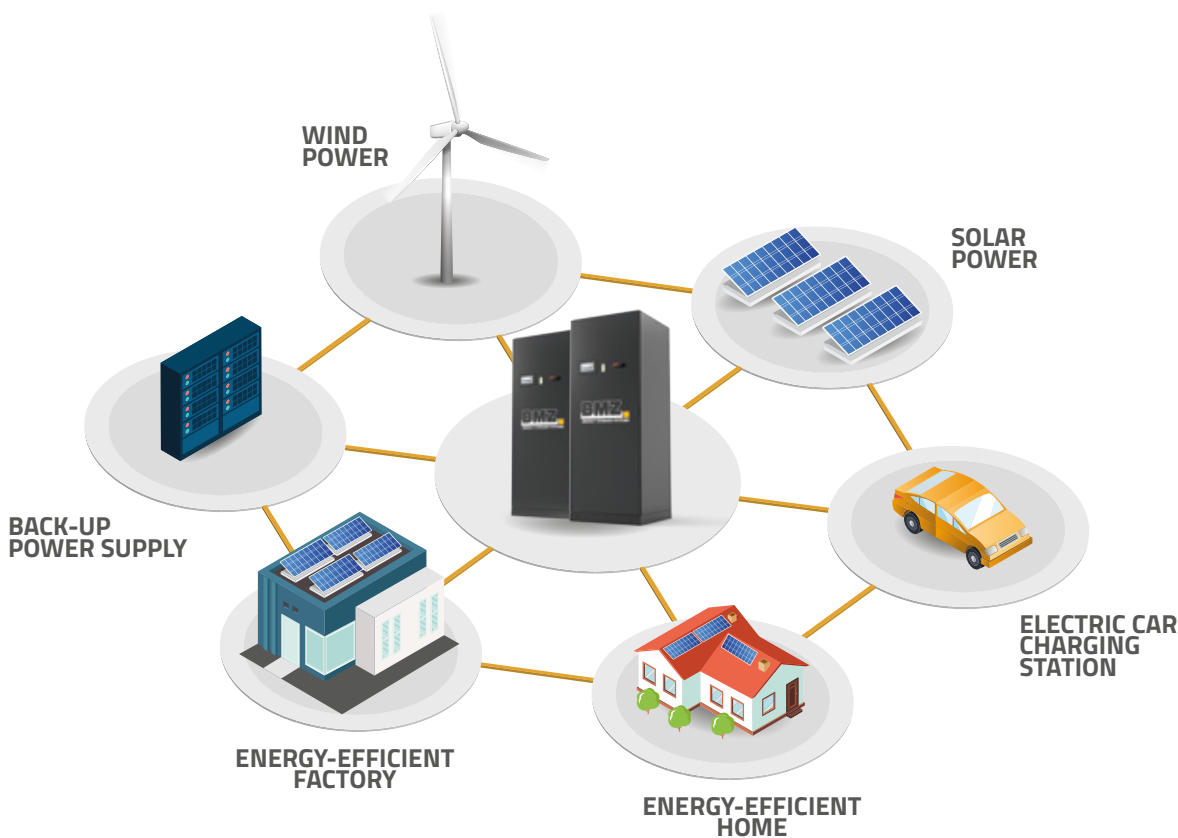
To facilitate easy expansion of the system with no modification to control cabling, CAN bus is used for communication between the individual battery blocks. Integrated controls and built-in BMS allow **INDUSTRIÆ** solution to be installed in applications where energy buffering is required.

The dimensions of an individual battery block complies with the metric standard used in the energy industry.



IndustriÆ APPLICATIONS

MANY ENVIRONMENTS – ONE SYSTEM



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