BMZ
THE INNOVATION GROUP

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INDUSTRIÆ 3.0
Industrial Energy Storage

E-MOBILITY | DRIVE SYSTEMS | **ENERGY STORAGE SYSTEMS** | POWER- AND GARDENTOOLS | INDUSTRIAL | MEDICAL

Lithium-Ion Battery System
FOR INDUSTRIAL APPLICATIONS

TECHNICAL INFORMATION

180S02P BATTERY SYSTEM	
Nominal energy of a single battery block	77.6 kWh
Maximum no. of battery blocks connected into one system	80
Total capacity of the battery system with maximum number of battery blocks connected	6.2 MWh
Configuration	180S02P (15 x 12S02P modules)
Compatibility with the industrial dimensional standard (width x depth x height)	800 mm x 800 mm x 2000 mm (enclosure) + 100 mm (pedestal) (ICT series type: 42U)
Estimated weight of a single battery block	630 kg
Nominal voltage	669 VDC
Output voltage range	606 VDC ... 778 VDC
External power supply voltage	12 VDC
Maximum discharge continuous / pulse current of a single battery block @ 25°C	200 A/350 A (60s), 500A (30s), 700A (10s)
Maximum charging continuous / pulse current of a single battery block @ 25°C	116 A/ 175 A (30s), 350 A (10s)
Certification	CE, UN38.3
Operating temperature range	0°C ... +55°C
Recommended temperture	25°C
Internal communication between cabinet	via CAN bus
Communication interface with application	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
Web server	YES
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
Depth of Discharge (DoD)	up to 100%
Battery chemistry	Li-ion NMC
Cycle life	up to 7500

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.

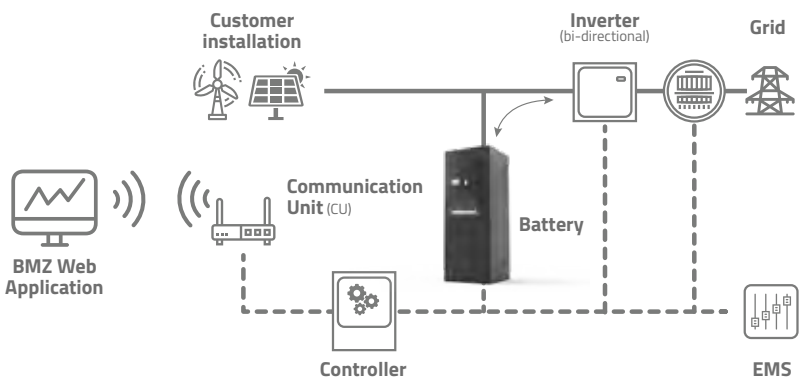
Temporary or energy back-up applications

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 (constant and 30s peak)

kWh	134 kW 335 kW	268 kW 670kW	402 kW 1005 kW	536 kW 1340 kW	670 kW 1675 kW	804 kW 2010 kW	938 kW 2345 kW	1072 kW 2680 kW
1x INDUSTRIÆ 78	■							
2x INDUSTRIÆ 156	■	■						
3x INDUSTRIÆ 234	■	■	■					
4x INDUSTRIÆ 312	■	■	■	■				
5x INDUSTRIÆ 390	■	■	■	■	■			
6x INDUSTRIÆ 468	■	■	■	■	■	■		
7x INDUSTRIÆ 546	■	■	■	■	■	■	■	
8x INDUSTRIÆ 624	■	■	■	■	■	■	■	■

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

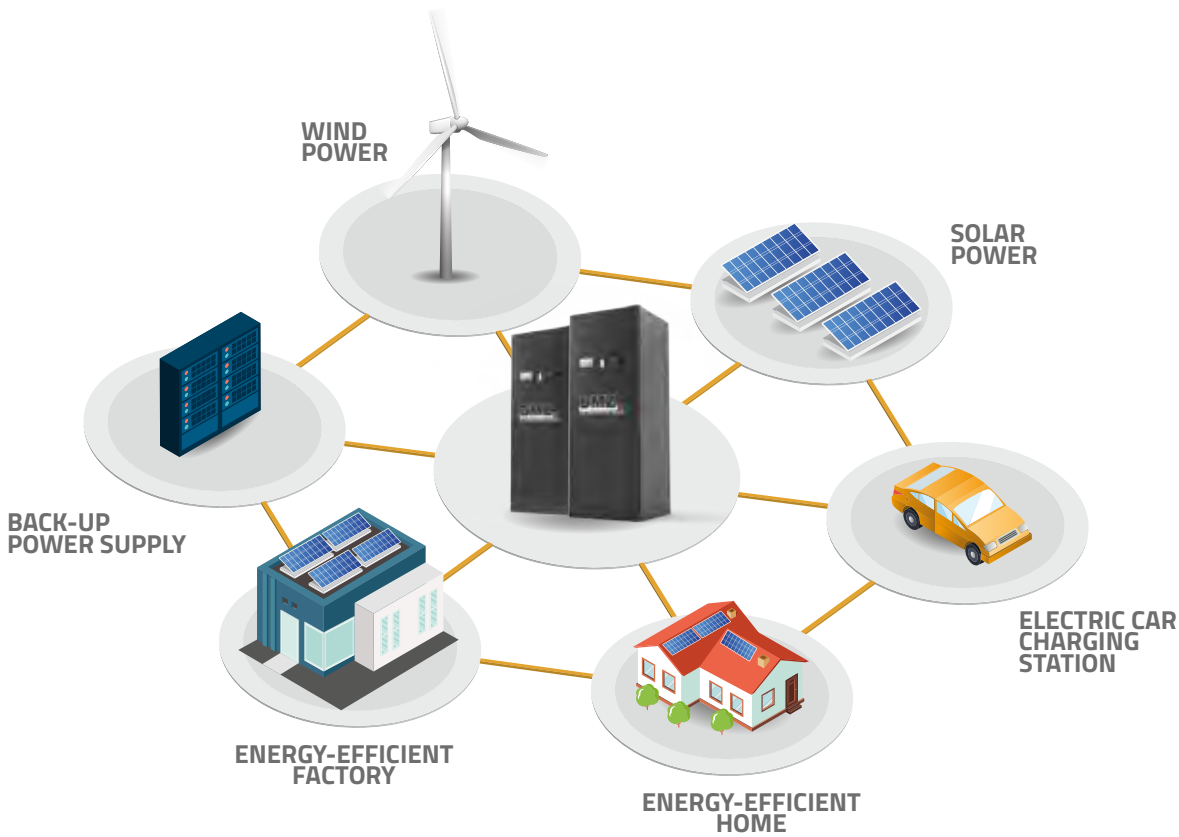
INDUSTRIÆ lithium-ion battery solution is a purpose-designed Industrial Energy Storage System (IESS). Its modular structure offers energy capacity from **77.6 kWh** up to **6.2 MWh**. **INDUSTRIÆ** IESS may easily be adapted to a variety of converters and high voltage end-points thanks to MODBUS TCP communication 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.



Any questions?

Contact us, we will be pleased to advise you.

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