mecc alte

THE INVERTER ONE.

✔ Inverter
✔ BESS200 Controller
✔ Electrical interface components

All the kit you need.
All in one place. All in one box.

Store power when you have it, use it when you need it.

The way the world uses power is changing - we need to harness and store energy when we can to make the best use of it.

Built around Mecc Alte's scalable MP range of inverters, the Inverter ONE power component kit, is a power sub system ideal for OEMs building Battery Energy Storage Systems (BESS) for integration into their BESS package. The Inverter ONE is designed to take the hard work out of component sourcing, technological development, and compatibility testing by providing a simple smart power component sub system.

With the Inverter ONE, you'll have the key power electronic components to enable your customers to avoid expensive peak charges by storing energy during low-demand periods and releasing it when demand spikes. Whether drawing power from the grid during off-peak hours, or capturing energy from renewable sources like solar panels, the system intelligently manages storage and distribution. We've developed these components for integration with BESS to serve applications like construction sites, so they can power daytime equipment peaks without oversized generators running continuously. Another practical implementation is for telecom installations in remote areas to enable renewable energy storage and keep towers running silently through the night.

The heart of the kit features Mecc Alte's MP range of inverters (MP0-40, MP1-50, MP1-75, MP1-100, MP2-150, MP2-175, MP3-200, MP3-250), available from 40 to 250kW and parallelable up to 2MW, working alongside the BESS200 controller. The system seamlessly switches between storing excess energy and supplying power during peaks, all managed automatically by the BESS200. Designed to work with various battery types and voltages, this power component kit delivers flexibility to match your specific application needs.

FIND OUT MORE AT **MECCALTE.COM**

MP: MECC ALTE PCS

MODULAR BESS SYSTEM – POWER COMPONENTS KIT FOR MICROGRIDS

MP0

MP1

MP3

MP2

SYSTEM DESCRIPTION

The scalable BESS kit from Mecc Alte is designed for seamless integration into microgrids and grid-connected energy systems, especially when used in combination with gensets, delivering exceptional flexibility, configurability, and reliability.

It includes all the essential components needed for efficient energy management and storage: High-performance inverter, AC filter for power quality improvement, AC and DC disconnecting devices, HMI interface for control, monitoring, and integration with other microgrid elements (gensets, PV systems, grid), galvanic isolation transformer for grid coupling.

APPLICATIONS AND BENEFITS

- **Microgrid-ready:** Suitable for both off-line microgrids and grid-connected applications*.
- **Renewable Energy Integration:** Easily interfaces with PV systems and gensets.
- **Backup Power & Blackout Protection:** Seamlessly creates a microgrid in case of a power outage, isolating the system autonomously with no voltage drops.
- **Peak shaving capability:** Allows to reduce energy costs by using stored power during peak demand and preventing expensive peak charges and blackouts, instantly supplying energy when needed. In microgrid applications, it seamlessly handles load peaks exceeding the capacity of diesel generators or renewable sources by drawing the excess energy from batteries—fully configurable to match your specific operational needs.
- **Designed for OEMs:** Power conversion kit designed for fast development and reduced time-to-market.
- **Expert Support & Engineering Services:** With extensive expertise in power generation and power electronics, we offer comprehensive support to both inverter system engineering and full system integration.

KEY FEATURES

Total Control, Tailored Performance

Fully managed through Mecc Alte control unit, monitoring every function with precision and reliability. With complete configurability of thresholds, setpoints, and parameters, you have full control of the system, ensuring optimal performance in any application. The dedicated controller will enable the following functions:

- Black start operation
- Power Back-up
- Spinning reserve
- Load balancing - Peak shaving
- Load levelling
- Demand management
- Load prioritization

Scalability & Modularity

Available in multiple sizes, from 40 kW to 250 kW, and parallelable up to 2 MW.

Flexibility

- Compatible with various battery voltages and technologies, from 400V to 800V.
- Compatible with all kinds of AC voltages and frequencies (from 208V/400V with neutral to 690V without neutral).
- Highly customizable, with multiple communication protocols and internal programmable logic for adding multiple external features.

Reliability

Sturdy industrial design, ensuring high reliability and durability in demanding conditions.

Safety

Features a supervision system, multiple integrated safety devices, and a galvanic isolation transformer, ensuring comprehensive protection and "ready-to" compliance with safety standards.

POWER FROM WITHIN

	FRAME							
	MP0	MP1			MP3		MP4	
AC CHARACTERISTICS								
SIZE	40	50	75	100	150	175	200	250
POWER [KW][1]	42	50	73	102	153	174	215	255
POWER [KW][2]	39	46	69	97	146	165	204	243
POWER [KW][3]	24	28	42	59	88	100	123	147
CURRENT [A][4]	58	70	110	150	220	250	310	370
VOLTAGE [V]	up to 690							
WIRING	3PH+N							
FREQ. [HZ]	50/60							
PF RANGE	4-quadrant, 0 to 1							
OVERLOAD	150%, 30sec							
OPERATION MODES	VSI (Vf), CSI (PQ), Islanding, Black start							
TRANSFORMER TYPE	AN, dry-type							
SHORT CIRCUIT CURRENT	10kA							
BATTERY CHARACTERISTICS								
VOLTAGE [VDC]	409, 665, 716							
BMS COMM.	CANbus							
MAX. CURRENT [A_{DC}]	71	84	125	176	263	298	368	438
ENVIRONMENTAL CONDITIONS								
TEMP. RANGE [°C]	-20/50 [5]							
REL. HUMIDITY [%]	5%-95% non-condensing							
MAX. ALTITUDE [MASL]	4000 [6]							
PRODUCT COMPLIANCE								
DRIVE	CEI/EN 61800							
TRANSFORMER	CEI/EN 61558							
SWITCHES	CEI/EN 60947							
GENERAL SPECIFICATIONS								
COOLING	Air, forced (liquid cooling as option)							
DIMENSIONS WXHXD[MM][7]	194x322x253	248x556x300			309x978x315		484x978x315	
WEIGHT	10	25			50		75	

Notes

1. Rated power given for 716V nominal battery voltage.
2. Rated power given for 665V nominal battery voltage.
3. Rated power given for 410V nominal battery voltage.
4. Nominal current of the inverter, at the primary side of the transformer. Output current varies depending on transformer ratio.
5. Derating above 40°C.
6. Derating above 1000m.
7. Dimensions and weight are referred to the inverter drive only. Additional space will be needed for AC filter and transformer installation.

POWER FROM WITHIN

BESS 200

BESS CONTROLLER FOR ENERGY STORAGE SYSTEMS

INTRODUCTION

The BESS200 controller integrates with Mecc Alte's range of Power Conversion Systems "MP" to provide comprehensive control and monitoring of a Battery Energy Storage System (BESS). The BESS200 is able to continuously monitor the battery's BMS (Battery Management System), as well as the inverter and its contactors on both DC and AC sides, to ensure optimal operation and protection.

As an integral part of the Mecc Alte BESS sub-system, the controller can synchronise with and connect to a live grid. At the same time it can manage battery charging and discharging, deliver active power, and when needed, provide reactive power to support load power factor correction. In the event of a grid outage, the BESS200 operates independently and replaces the mains power or establishes a microgrid, even performing a black start when needed.

The controller supports CANBUS communication talking directly with renewable energy controllers, mains and genset controllers. This enables full coordination for power flow management, load sharing, peak shaving, load demand management, backup mode, spinning reserve, and other advanced operational strategies.

With a wide range of programmable digital and analogue inputs/outputs, together with internal PLC programming capabilities (including PID blocks), the BESS200 provides maximum flexibility to handle complex control situations and application-specific requirements. Multiple communication interfaces are provided as standard, with a variety of ports available for remote connectivity.

The BESS200 also features a large memory for the storage of time-stamped events and periodical data. The stored information can be viewed from the front display panel.

EMBEDDED FUNCTIONS

- Communication with external 'Battery Management System' for maximum battery life and performance or built-in BMS for charging logic and battery level estimation and visualisation

- Control of the working mode of the inverter: automatic switching between grid forming and grid following according to the system conditions

- Automatic BESS system turn on/off, according to storage battery voltage and charge level or mains presence

- Power reserve for unexpected changes in load demand (backup mode)

- Peak shaving

- Load ramp for both load and unload

- Battery voltage and current compensation according to battery temperature

- Management of alternative solar energy sources thanks to the possibility of integrating up to 8 RN200 controllers

- Storage battery measurement visualisation

- Remote start and stop

BESS200 COMMUNICATIONS

- MODBUS RTU serial ports: RS232 and isolated RS485

- Ethernet port 10/100Mbps

- NTP, DHCP, DNS and SNMP Support

- USB function for configuration

- Internal clock with history log

- CANBUS J1939 interface

- Dedicated CANBUS (PMCBUS) for communication between Mecc Alte controllers

  - Up to 24 BESS200/GC600 controllers connected together

  - Up to 16 MC200 supported

OPTIONS

- Compatible with Mecc Alte's CL100: Device for GPRS/GSM/LTE connection to Mecc Alte SmartCloud® remote monitoring and control solution

- Compatible with Mecc Alte expansion module range: DITHERM, DIGRIN, DIVIT, DANOUT, DITEL

- CANBUS transducer for DC current/voltage measurements

TECHNICAL DATA

- **Supply voltage:** 8-32V DC

- **Power consumption:** typically, less than 6W (auto mode, standby, LCD lamp saving active)

- **Operating frequency:** 50Hz or 60Hz (AC reading only)

- **Graphic colour display resolution:** 480 x 272 pixel

- **Recommended operating temperature:** -30°C to +70°C

- **Storage temperature:** -30°C to +80°C

- **Protection degree:** IP65 (gasket included)

- **Weight:** 1100g

- **Overall dimension:** 244(w) x 178(h) x 83(d) mm

- **Panel cut-out:** 218(w) x 159(h) mm

- **Graphic display dimensions:** 95(w) x 54(h) mm

- **ECM:** conforms to EN61326-1

- **Safety:** built in conformity to EN61010-1

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POWER FROM WITHIN