

# Storage Systems with Lithium Batteries

SAE Lipo MKS storage system allows you to independently produce up to 90% of the energy needs of a home thanks to the energy produced by the photovoltaic panels. The remaining energy is used to recharge the batteries.

## FUNCTIONS

During the day, in sunny conditions, the energy produced by the photovoltaic panels is used by the SAE Lipo MKS to supply all the domestic loads that need electricity daily. The energy not consumed is used to recharge the batteries, representing the "reserve" that will be used by the loads connected to the need. When the battery power is finished, electricity will be supplied from the public network.

- **Simple and quick to install**
- **Quick return of the investment** (also thanks to government deductions)
- **No bureaucracy costs**
- Immediate and **visible savings on the bill**
- **Protection against blackouts**
- **Lithium batteries for maximum efficiency** and system durability

## Main features

- **Network bypass**: if the network is present, the inverter synchronizes to it in frequency and is able to bypass the load on it in case of machine shutdown, anomalies, flat batteries, long-term overloads, guaranteeing the continuity of the supply.
- **Switching on/off according to the load**: the system is able to recognize the presence or absence of a load on the output and, based on it, automatically turns on or off so as to reduce battery consumption to a minimum and improve the efficiency. In case of shutdown due to lack of load, the network bypass intervenes switching to the mains (if present).
- **Power supply continuity**: the system guarantees power supply continuity to the operating logic even in the case of completely discharged batteries, sulphated or disconnected from the BMS.
- **Battery protection**: when the batteries reach discharge thresholds due to voltage or residual capacity, the inverter switches off and switches the load to the mains, so that the battery pack is not further stressed and that charging can take place more quickly.
- **Overload protection**: the equipment is capable of withstanding gains up to 40% of the nominal power, the bypass switches the utility on the network to safeguard the equipment and subsequently will attempt to take it back if the current is within the permitted nominal parameters.
- **Supervisor**: the individual blocks of the accumulation system are in dialogue with each other through communication channels managed by a central DSP unit.

| | | SAE LIPO MKS 5K | SAE LIPO MKS 10K |
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| ENVIRONMENT | Working Temperature | 0 ~ 50°C | |
| | Humidità (without condensation) | 5 ~ 95% | |
| | Altitude (Max) | 1000m | |
| | Weight | 105 Kg | |
| | Dimensions (LxDxH) | 800 x 500 x 1065 mm (5Kwh Version) | |
| | Noise | < 45 db (a 1mt) | |
| CHARACTERISTICS OF PV INPUT | Maximum voltage (Input MPPT Charge Controller) | 145 Vdc | |
| | Input charge regulator working voltage | 60 ÷ 115 Vdc | |
| | Input charge regulator nominal power | 3000 W | |
| OUTPUT CHARACTERISTICS OF STORAGE | Nominal voltage | 230 Vac Single phase | |
| | Dynamic stability | ± 5% | |
| | Nominal current | 21,5 A | 43 A |
| | Nominal power | 5 Kva | 10 Kva |
| | Max peak power (5 sec) | 10 Kva | 20 Kva |
| | Nominal frequency | 50 Hz | |
| | Stability | ± 0,1% | |
| | Wave Form | Sinusoidal | |
| | Distorsion (THD) | 3% | |
| | Phase shift of the load | 0,95 (cosφ) | |
| | Efficiency | 90% | |
| BATTERY PACK CHARACTERISTICS | Battery type | Lithium Ion, LiFePO4 | |
| | Number of cells | Series of 15 | |
| | Max Voltage | 55 V | |
| | Min Voltage | 42 V | |
| | Nominal Voltage | 49 V | |
| | Nominal capacity | From 60 to 200 Ah (1C) | From 100 to 300 Ah (1C) |
| | Nominal energy | Up to a 9,6 Kwh | Up to 14,4 Kwh |
| | Battery Management System | Voltage, current and temperature control of each cell. Alarm management and package monitoring | |
| | Equalization | Passive | |
| | Max continuative discharge | 3C | |
| | Impulsive max discarge | 20C | |
| | Max continuative charge | 3C | |
| | Standard charge/discharge | 0,5C | |
| ALARMS | Acustic and Led | Low battery, overload, overvoltage, overtemperature, device failures | |
| HMI | Display | Graphic display 3" mono 128x64 pixel with Keypad 5 keys | |
| | Communication interface | USB/RS232/RS422/LAN (Opz GPRS) | |
| CONFORMITY | Quality | ISO 9001:2008 | |
| | Safety | EN 62040-1-1 e directive 2014/35/CE (LVD), 93/68 EEC | |
| | EMC | EN 62040-2 e 2014/30/CE | |
| | Marks | CE | |