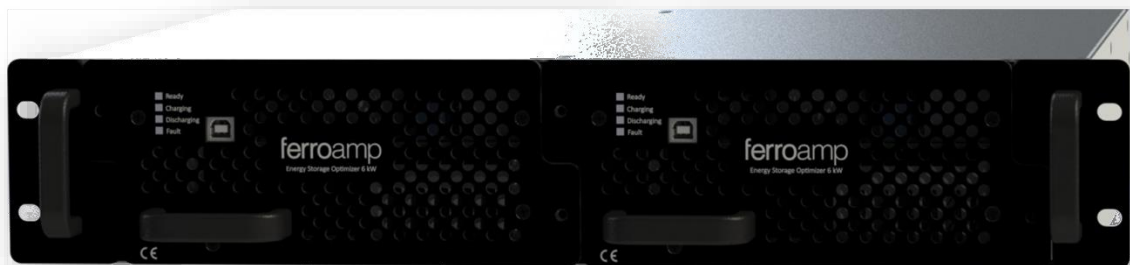


Energy Storage Optimizer

ESO – 6 kW

Bidirectional charger with DC nanogrid technology

- Bidirectional DC/DC converter
- For high voltage batteries 120 – 720 V
- Combine batteries with different chemistry and age
- Suitable for EV charging and vehicle to grid (V2G)
- State of the art efficiency (99 %)



The new smarter way of using energy storage

The Energy Storage Optimizer brings a new flexible way of integrating batteries into energy systems. Each unit comprises a bidirectional charger/discharger and safety functions so that an installation can be built with any number of battery strings and also combine batteries with different chemistry and state of health. The optimizer is designed for interfacing to the DC nanogrid architecture that enables seamless integration and scalability on the DC side for optimum flexibility and minimal losses.

Energy Storage Optimizer

ESO – 6 kW

ferroamp

ESO – Energy Storage Optimizer		
Battery side	Single	Dual
Rated DC power @ 600 V	6 000 W	12 000 W
Battery voltage range, V_{BAT}	120 – 720 V	
Maximum battery current, I_{BAT}	+/- 10 A	+/- 20 A
Battery fusing	Battery must be protected by 10 A, 1000 VDC fuse links	
Battery connection	One battery string (B+, B-) or string with midpoint (B+, M, B-)	
BMS communication	CAN bus	
DC bus side		
DC bus voltage, V_{DC}	760 V (nominal)	
DC bus voltage range, V_{DC}	740 - 780	
Maximum DC bus output current, $I_{DC(max)}$	9 A	18 A
DC bus connection	3-wire (L+, L-, PE) or 4-wire (L+, M, L-, PE)	
Max efficiency	99.0%	
System communication	Narrow band power line communication (PLC)	
Physical		
Dimensions H x W x D	89 x 220 x 450 mm	89 x 440 x 450 mm
Weight	6.0 kg	10.0 kg
Color	Black	
Installation		
Ambient temperature ¹⁾	-10°C – 45°C	
Humidity	0 – 95% RH non-condensing	
Degree of protection	IP 21	
Battery connector	FCI PwrBlade	
DC bus connector	FCI PwrBlade	
System design		
Number of ESOs when paralleling to one battery	1 – 20 (6 – 120 kW @ V_{BAT} 600 V)	
Number of ESOs per DC bus	1 – 180	
Maximum DC bus cable length ²⁾	1 200 m	
Output voltage during fault, shut down or disconnected from DC-bus	0 V	
Compliance		
LVD	IEC 62477-1:2012	
EMC	EN 61000-6-2, EN 61000-6-3	
RoHS	Yes	
Protection functions	DC polarity reversal, Battery polarity reversal (anti-parallel diode), DC bus short circuit, Overtemperature	

- 1) Power may be derated if ambient temperature exceeds 35 °C
- 2) Consult Ferroamp for design guidelines for projects with cable lengths exceeding 100 m
- 3) Items included in delivery are 1 x ESO Solar string optimizer, 1 x FCI PwrBlade connector with screw terminals.