

Flex-ESS250

The most flexible all-in-one energy storage system for hybridisation and self-consumption

continu
energy



Balancing energy
efficiency



- Modular for a flexible approach to energy storage
- Market leading power density and efficiency
- Ultra-Low Installation Cost/Time
- DC Coupled Solar

Flex-ESS250 is the most flexible all in one energy storage solution on the market today



DC Capabilities



Energy trading & grid services



Minimal Op-Ex for long term cost savings



Quick and easy installation when time is a premium



Compact for small footprint installations



Manufactured in Great Britain



Modular & flexible solution



Low EPC costs



1MW inverter scalable module: 1 to 4 hours+ storage



Our **Flex-ESS250** hybrid power system is a fully-factory-built and tested, high-density, modular energy solution. It offers reduced project risk and cost thanks to its simple installation, small footprint, and lightweight construction. It also offers low operating costs thanks to its enclosed cooling and durable housing. Integrating KORE Power energy storage and our ground-breaking FLEX Inverter, **Flex-ESS250** achieves an industry-leading, optimising footprint for applications where space is constrained or at a premium. Working with multiple power sources and output configurations, the **Flex-ESS250** provides the ultimate, flexible approach for most applications.



Mark1 Battery Modules, total
832 kWh in each housing



SYSTEM CONFIGURATION

The FLEX-ESS system can be paralleled to multiple MW level in a highly variable range of storage and power configurations. Each GRP housing contains 250kVA of 3 phase AC Power with blocks of 104kWh of storage to a maximum of 832kWh (double stacked).

Additional 250kVA energy expansion modules are available with each box housing up to 1MWh of additional capacity, configurable as required.

With its small footprint, multi box configurations can be arranged to preserve space in limited areas and still be planning friendly or discreet installations in any colour preference.



Flex-ESS250 for low cost project overheads

INVERTER

- Reduced infrastructure & component costs
- DC Coupled giving unrivalled flexibility when sizing your solar & storage
- UPS function offering protection to your facility
- Both Off & On grid forming and following
- Peak efficiency 98.6% lowest 97%
- Outdoor housing IP64 (indoor version available)
- Solar MPPT Hybrid Inverter 300 kWp

STORAGE

- Long lifespan with all components designed to last 5000 to 6000 cycles and 10/15/20 year lifespan
- British-engineered 10/15/20-year performance and 5/10/15 year product extendable warranty
- Maximum safety, modules certified to UL9540A
- Easily expandable flexible energy storage system can be sized according to need
- Optimised battery performance via the Master/String-Rack Controller (SRC)
- Li-ion Tamer protected

BESS

Modular and expandable, the **FLEX-ESS250** offers installers a plug-and-play, factory built-and-tested, solution.

The thermally insulated and ultra durable housing ensures ideal climatic conditions for the ESS. Parasitic loads are minimised by water cooling the inverter and HVAC for the KORE Mark 1 batteries results in class leading efficiencies.

- Ultra low footprint - 2.7m x 3.4m x 1.5m (HxWxD)
- Easily transported on site by forklift or Hiab
- Factory-built and tested
- Secure and ultra-durable
- Thermally optimised
- Maximum energy density
- Flexible layout options
- Plug-and-play, delivery to commissioning hours, not days
- IP 64 rated enclosure

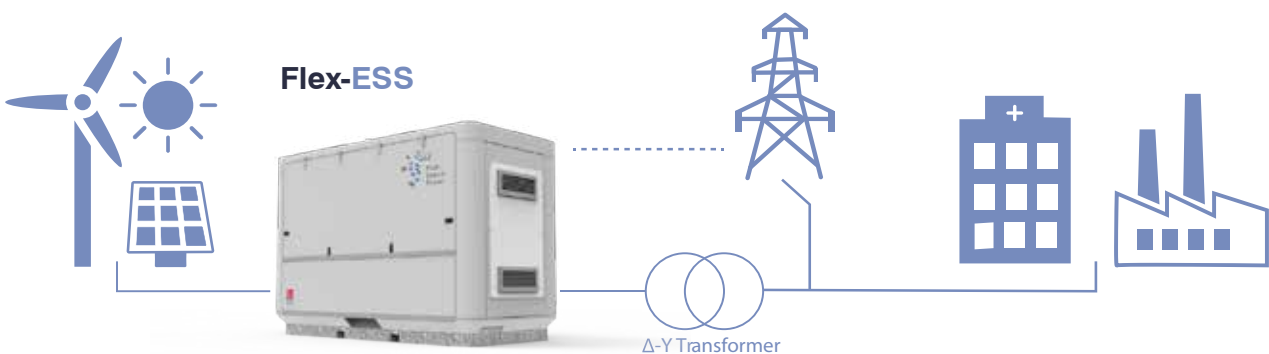
Flex-ESS250 for a full spectrum of energy demands

ON GRID/GRID SERVICES

With ultra-fast response bidirectional 4-quadrant operation, the **Flex-ESS250** system offers **ACTIVE** and **REACTIVE** power services to both industrial and commercial operators. With only the highest quality components and water cooling, the system delivers outstanding up time, minimal **OPEX** and > 20 years service life, ensuring long term reliable access to those current and future revenue streams.

- Voltage control and droop
- Power factor control
- Reactive power (VAR)

- Frequency regulation and response
- Peak shaving
- Curtailment avoidance
- Scheduled shifting or islanding
- Accurate and fast ramp rate control
- Black start and UPS
- Remote command power and operation
- 24hr automated system monitoring
- EV Charging

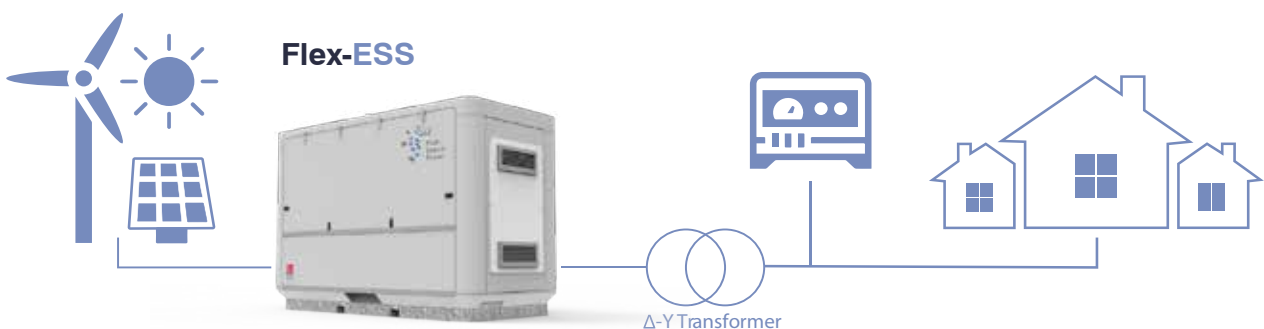


OFF GRID

From microgrid to industrial power, **FLEX-ESS250** gives you the power you need when you need it. With the ability to deliver 100% capacity to the AC load and still store excess solar, direct line control and optimise any fuel derived generation, keeping OPEX to a minimum and maximising revenue.

- 250 kVA Hybrid inverter
- Grid-forming and following

- High-performance storage by KORE Power
- Black start
- Generator reserves displacement
- Ramp rate control
- Power factor correction
- Load and peak shaving
- EV Charging



Flex-ESS250 Specifications

INVERTER

| | | |
|-------|-------------------------------------|---|
| AC | Power | 250 kVA 301 ARMS |
| | AC Voltage | 480 VRMS +10%/-12% |
| | Overload capacity | 275 kVA, 10 mins 312.5 kVA, 10 secs |
| | Nominal frequency range | 50-60 Hz field settable |
| | Power factor/reactive power | 0 leading ... 0 lagging (full 4-quadrant operation) |
| | Max aux. power consumption | 750W |
| | CEC efficiency | 98.0% (>97% throughout operational range) |
| | Peak AC to DC efficiency | 98.40% |
| DC | Battery DC port | 550 ADC up to 1100 VDC 375 kW |
| | Solar DC Port | 550 ADC 200-650 VDC 250 kW |
| | Peak efficiency / Lowest efficiency | 98.6% - 97.0% |
| Other | Warranty | 10/15/20 years |

BES

| | | | |
|---|-----------------------------|-------------------------|---|
| Storage capacity | 6.5 kWh | Weight (battery module) | 48 kg |
| Voltage range | 44.8 – 68.8 V | Operating temperature | -5°C - 45°C |
| Cells | Lithium G-NMC | RTE Efficiency | 98% (up to) |
| Humidity | 0 - 85% (non-condensing) | Certifications / norms | UL1973, 1998, 991 UN 38.3, IEC 62619 UL9540A, G99 |
| Cycles @100% DOD 80% EOL 25°C ± 5°C 0.5C/0.5C | 5000 (expected) | Warranty | 10/15/20 years |

SYSTEM SECURITY

Hosted on Microsoft Azure, with guaranteed uptime and security, MSP's system controller is compliant with IEC 62351 for security in energy management system and associated data exchange.

SOLAR CONFIGURATIONS

With 50kw to 340kw of solar, the FLEX-ESS offers a fully integrated DC coupled solar input offering unrivalled performance and efficiency. The DC port can also accept other DC sources; fuel cell, DC Generator, wind turbine, and hydro. AC coupling up to 250kW



Flex-ESS250 Specifications

SYSTEM

| | |
|-------------------------------------|--|
| Power | 250 kVA |
| Storage | Max 832 kWh per housing |
| Energy Expansion Storage | In 104 kWh blocks up to 1040 kWh. Energy expansion boxes housing up to 1040kWh |
| AC voltage | 380/400/415/480/600 VRMS 3-phase 3-wire delta (Delta-Wye Transformer required for specific Voltage requirements, and for 4-wire distribution) |
| AC frequency | 50-60 Hz |
| Communication protocol | Modbus TCP/IP (others available) |
| Ambient temperature (operation) | -20°C to 45°C |
| Shipping dimensions & weight | Storage: 2.5m x 3.4m x 2.5m (HxWxD), 9 metric tons (H&W + or - 30 mm) |
| Footprint (pad) size | 3m x 1.5m |
| Maintenance envelope (openings etc) | 1.2m projection to front. 0.3m to sides |
| Black Start Capability | Yes |
| Site power requirements | None, Self-powered |
| Warranty | 10/15/20 years |

Flex-ESS250 Controller



MONITORING

Capable of integration with existing plant infrastructure using Industrial Ethernet communication protocols (for example Modbus TCP/IP, SCADA) for remote control and monitoring of the system from a centralised control room.

Battery health is continuously monitored via the KORE Power MS.BMS, providing real-time data of battery system health and performance. Our bespoke software allows an operator to monitor total system performance from input power source to output.

The system is also supported with remote performance monitoring for servicing and maintenance.

OTHER AVAILABLE PRODUCTS

- Flex-ESS 1000
- Flex-ESS 500
- Flex-ESS 250
- Flex-EV



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