

Flex-ESS500

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

Flex-ESS500 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-ESS500** 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-ESS500** 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-ESS500** provides the ultimate, flexible approach for most applications.

 **KORE POWER**

Mark1 Battery Modules, total
832 kWh in each housing



 **LI-ION TAMER**
Protection

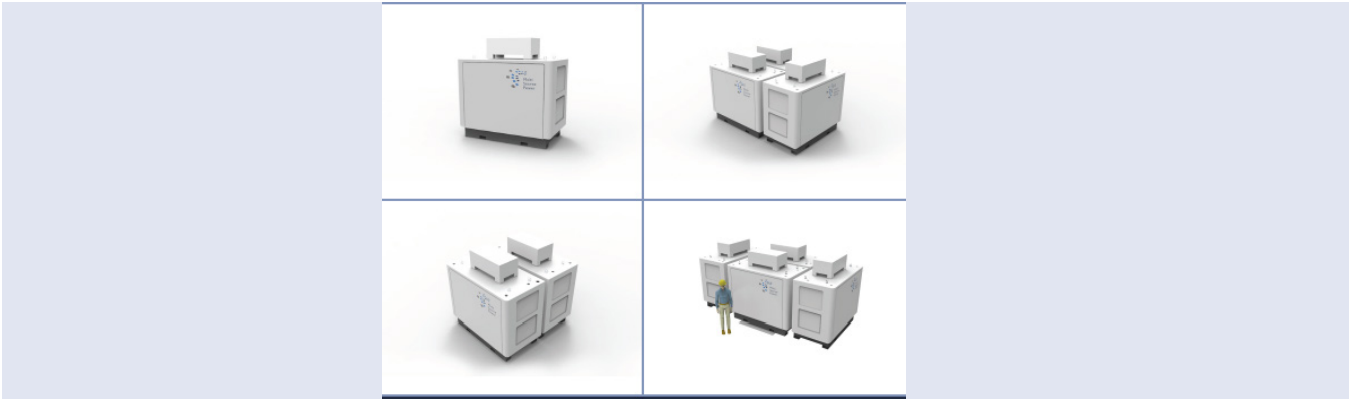
epcpower 
PD250 or PD250(H)

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 500kVA of 3 phase AC Power with blocks of 104kWh of storage to a maximum of 832kWh.

Additional 250kVA energy expansion modules are available with each box housing upto 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-ESS500 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-ESS500** 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.

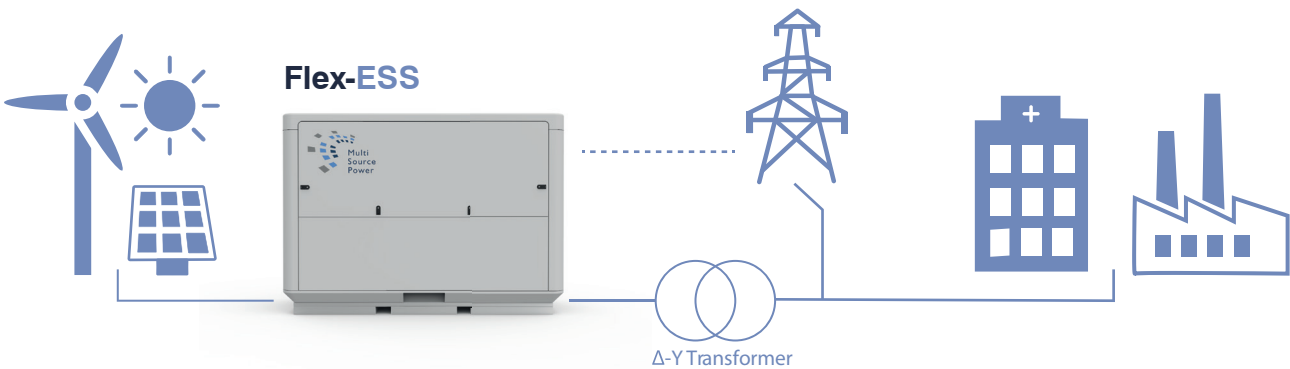
- Ultra low footprint - 2.7m x 3.4m x 1.5m (HxWxD)
- Easily transported on site by forklift or Hiab
- Factory-built and tested
- Secure and ultra-durable
- Thermally optimised
- Maximum energy density
- Flexible layout options
- Plug-and-play, delivery to commissioning hours, not days
- IP 64 rated enclosure

Flex-ESS500 for a full spectrum of energy demands

ON GRID/GRID SERVICES

With ultra-fast response bidirectional 4-quadrant operation, the **Flex-ESS500** 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.

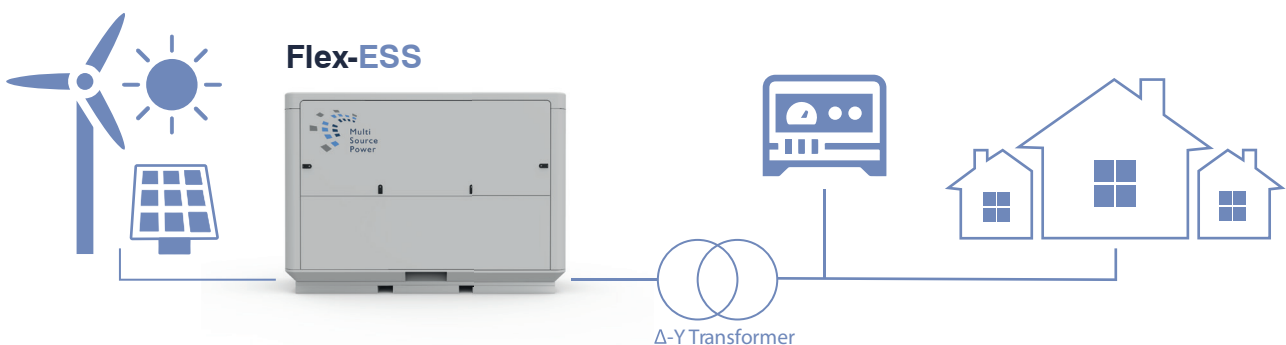
- Voltage control and droop
- Power factor control
- Reactive power (VAR)
- Frequency regulation and response
- Peak shaving
- Curtailment avoidance
- Scheduled shifting or islanding
- Accurate and fast ramp rate control
- Black start and UPS
- Remote command power and operation
- 24hr automated system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



OFF GRID

From microgrid to industrial power, **FLEX-ESS500** 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.

- 500 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-ESS500 Specifications

INVERTER

AC	Power	500 kVA 600 ARMS
	AC Voltage	480 VRMS +10%/-12%
	Overload capacity	550 kVA 10 mins 625 kVA, 10 seconds
	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	750 ADC up to 1100 VDC 375 kW
	Peak efficiency / Lowest efficiency	98.6% - 97.0%
Other	Warranty	10/15/20 years

BES

Storage module 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% (upto)
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 500kw of solar, the FLEX-ESS offers a fully integrated AC coupled solar input offering unrivalled performance and efficiency.

Flex-ESS500 Specifications

SYSTEM

Power	500 kVA
Storage	Max 832 kWh per housing
Energy Expansion Storage	In 104 kWh blocks upto 1040 kWh. Energy expansion boxes housing upto 1,040kWh
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-ESS1000
- Flex-ESS 250
- Flex-EV



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