



# superstate

Superstate AB  
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**superstate**  
SAFE | EASY | EFFICIENT | SMART | ALL IN ONE

Superstate is a Swedish solar, energy storage, and innovation company with the vision to offer the most attractive solutions on the market based on innovative technologies.

**Vision**  
To become a leading solar and energy storage company by offering a variety of competitive solar and energy storage solutions and offer these solutions globally.

**Mission**  
To select, promote, and commercialize the most high-potential solar and energy storage products and innovations.

**Business concept**  
To offer the most attractive solar and energy storage products to the market based on innovative solar and energy storage technologies.

**Core values**  
Create positive environmental impact and offer great value to our customers.

**Founder & Core Values**  
The founder of Superstate, Göran Bolin, is an inventor and business leader with over 40 years of experience in the European market for solar and energy storage. Göran was awarded the Swedish Engineer of the Year in 2018 and is the founder of several successful cleantech businesses.  
His vision is to create clean and intelligent energy for the world and accelerate the sustainable development of global energy. Adhering to this vision, Superstate focuses on scientific and technological innovation, and we are committed to providing our customers with safe, clean, intelligent energy, power products, and services.

## Products

Superstate's solar tracking and battery energy storage systems (BESS) are designed to suit both small-scale residential projects and large-scale commercial projects.

Combine Superstate's solar tracking systems and BESS into an optimal solar + storage solution for more independence from the electricity grid and maximum savings on your electricity bill.

**Solar Tracking System**  
Produce up to 50% more electricity per m<sup>2</sup> solar panel by tracking the sun's movement

01 02

**Residential BESS**  
The optimal BESS product for your home

03 04 05

**Grid-Scale BESS**  
A BESS solution for larger energy storage needs

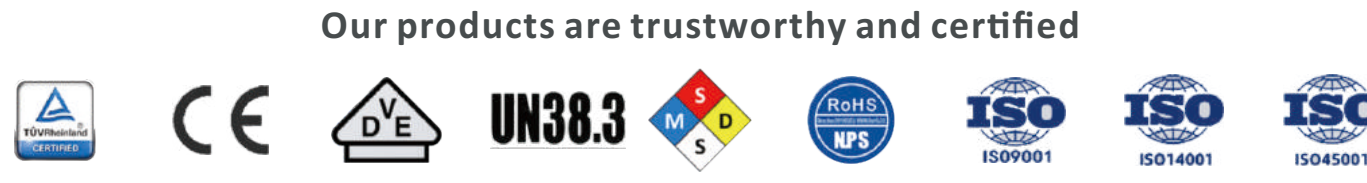
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**Portable BESS**  
Bring Portable BESS with you wherever you go

08 09

## superstate

**Certifications**  
Our products are trustworthy and certified



## Solarmotion 1.5-5.0kW Dual Axis Solar Tracker

**Benefits of solar tracking**  
Superstate offers fully automatic Dual Axis Solar Trackers in sizes ranging from 1.5kW to 5kW targeting both the residential and industrial segments.

Increased electricity production per m<sup>2</sup> solar panels by tracking the sun's movement

Solar tracking increases electricity production by 25-50% per year compared with a fixed panel facing south with an ideal tilt. The energy increase depends on the latitude where the installation is located, from +25% at the Equator to +50% in the Nordics.

The extra energy is generated in the morning and in the evening which matches the consumption curve of a typical household much more efficiently than a static system which peaks at solar noon – often when no one is home.

**Superstate Technology**

- UP TO 40-50% MORE SINGLE ROW TYPE
- Astronomic algorithm + the sensor close loop control
- Dual Axis Solar Tracking system with the most efficient design, easy for installation and maintenance
- Automatically tracks the trace of the sun
- Improve your power yield by 40-50%

WARRANTY: 10-YEAR STRUCTURAL, 5-YEAR DRIVE AND CONTROL COMPONENT

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## Specifications for Solarmotion

Model	Superstate Solarmotion
Control mode	Time + GPS
Average tracking accuracy	0.1 – 2.0 degrees (adjustable)
Gear motor	24V/1.5A
Output torque	5,000 N x M
Tracking power consumption	< 0.01 kWh/day
Azimuth angle tracking range	100 degrees
Elevation angle tracking range	50 degrees
Max. wind resistance in safety mode	> 40m/s
Max. wind resistance in working mode	> 24m/s
Material	Hot-Dipped Galvanized Steel > 65µm
Working temperature	-40C + 75C
Certificates	CE, TÜV
Weight per set	150 – 250kg
Total power per set	1.5 – 5.0kW

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## iKran series ePowercube Residential BESS

The optimal BESS product for your home

Designed in Sweden, Superstate Residential BESS is an all-in-one energy storage system with the inverter integrated with the battery unit for a more appealing and compact design and an easier installation

**FEATURES**

- Active detection to prevent faults and danger
- IP65 waterproof and dustproof
- Switching time < 10ms
- Long warranty 10 years
- Low noise < 25db
- Low voltage compatibility
- All-in-one design
- Remote control

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## Specifications for inverter

Inverter	AEK-L-S	AEK6-L-S	AEK4-L-S	AEK4-L-S	AEK5-L-S	AEK-L-S
Max. PV input power	4.6kW	6kW	6kW	6kW	6kW	7kW
Max. PV input voltage	500V	500V	500V	500V	500V	500V
Start voltage	120V	120V	120V	120V	120V	120V
MPPT voltage range	125V-550V	125V-550V	125V-550V	125V-550V	125V-550V	125V-550V
Rated MPPT voltage	360V	360V	360V	360V	360V	360V
Max. PV input current	18A	18A	18A	18A	18A	18A
Number of MPPT trackers / string per MPPT	2/1	2/1	2/1	2/1	2/1	2/1
Output (AC)						
Max. output current	13A	16A	17.4A	20A	21.7A	26
Rated power	3kVA	3.6kVA	4kVA	4.6kVA	5kVA	6kVA
Rated voltage	230V	230V	230V	230V	230V	230V
Operating voltage range	180V-280V	180V-280V	180V-280V	180V-280V	180V-280V	180V-280V
Frequency	50Hz/60Hz	50Hz/60Hz	50Hz/60Hz	50Hz/60Hz	50Hz/60Hz	50Hz/60Hz
Power factor	1.0 99 lagging - 0.99 leading	1.0 99 lagging - 0.99 leading	1.0 99 lagging - 0.99 leading	1.0 99 lagging - 0.99 leading	1.0 99 lagging - 0.99 leading	1.0 99 lagging - 0.99 leading
THD	< 3%	< 3%	< 3%	< 3%	< 3%	< 3%
Grid (Hz)						
Rated power	3kVA	3.6kVA	4kVA	4.6kVA	5kVA	6kVA
Rated voltage	230Vac	230Vac	230Vac	230Vac	230Vac	230Vac
Rated current	13A	16A	17.4A	20A	21.7A	26A
Rated frequency	50Hz/60Hz	50Hz/60Hz	50Hz/60Hz	50Hz/60Hz	50Hz/60Hz	50Hz/60Hz
Automatic switch time	< 20ms	< 20ms	< 20ms	< 20ms	< 20ms	< 20ms
Overload capability	110%/60/210%/30%/150%/10s	110%/60/210%/30%/150%/10s	110%/60/210%/30%/150%/10s	110%/60/210%/30%/150%/10s	110%/60/210%/30%/150%/10s	110%/60/210%/30%/150%/10s
THDU	< 2%	< 2%	< 2%	< 2%	< 2%	< 2%
EMC						
Max. DC efficiency	97.60%	97.60%	97.60%	97.60%	97.60%	97.60%
European efficiency	97%	97%	97%	97%	97%	97%
MPPT efficiency	99.90%	99.90%	99.90%	99.90%	99.90%	99.90%
Battery charge / discharge efficiency	95.5%/95%	95.5%/95%	95.5%/95%	95.5%/95%	95.5%/95%	95.5%/95%
Communication						
Display	LED	LED	LED	LED	LED	LED
Communication	Standard: RS485/CAN/DMX Optional: WiFi/LAN	Standard: RS485/CAN/DMX Optional: WiFi/LAN	Standard: RS485/CAN/DMX Optional: WiFi/LAN	Standard: RS485/CAN/DMX Optional: WiFi/LAN	Standard: RS485/CAN/DMX Optional: WiFi/LAN	Standard: RS485/CAN/DMX Optional: WiFi/LAN
Standard compliance						
Certificates	CE, TÜV, SAA, IEC62116-2014, IEC61843-1999	CE, TÜV, SAA, IEC62116-2014, IEC61843-1999	CE, TÜV, SAA, IEC62116-2014, IEC61843-1999	CE, TÜV, SAA, IEC62116-2014, IEC61843-1999	CE, TÜV, SAA, IEC62116-2014, IEC61843-1999	CE, TÜV, SAA, IEC62116-2014, IEC61843-1999
Material data						
Dimensions (W x H x D)	550 x 500 x 200mm	550 x 500 x 200mm	550 x 500 x 200mm	550 x 500 x 200mm	550 x 500 x 200mm	550 x 500 x 200mm
Weight	26kg	26kg	26kg	26kg	26kg	26kg
Operating temperature	-25C - 60C	-25C - 60C	-25C - 60C	-25C - 60C	-25C - 60C	-25C - 60C
Cooling method	Natural cooling	Natural cooling	Natural cooling	Natural cooling	Natural cooling	Natural cooling
Protection degree	IP65	IP65	IP65	IP65	IP65	IP65
Noise emission	< 35dB	< 35dB	< 35dB	< 35dB	< 35dB	< 35dB
Max. operating altitude	5000m (derating above 2000m)	5000m (derating above 2000m)	5000m (derating above 2000m)	5000m (derating above 2000m)	5000m (derating above 2000m)	5000m (derating above 2000m)
Relative humidity	0-95% (non-condensing)	0-95% (non-condensing)	0-95% (non-condensing)	0-95% (non-condensing)	0-95% (non-condensing)	0-95% (non-condensing)
Topology	Transformerless	Transformerless	Transformerless	Transformerless	Transformerless	Transformerless
Standby power consumption	< 3W	< 3W	< 3W	< 3W	< 3W	< 3W

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## Specifications for battery unit

Battery unit	AE-B548/5-1-W
Nominal voltage (V)	51.2
Operating voltage range (V)	45-58
Total capacity (kWh)	5.38
Usable capacity (kWh)	5.32
Rated capacity (kWh)	100
Standard power (kW)	2.5
Max. charge/discharge power (kW)	5.0/5.0
Recommended charge/discharge current (A)	50/50
Max. charge/discharge current (A)	100/100
Cycle life (P90 D50)	> 6000 cycles
Expected life time warranty (years)	10
Operating temperature range (°C)	-10-50
Storage temperature (°C)	-20-60
Relative humidity (%)	0-95 (non-condensing)
Max. operational altitude (m)	5000m (derating above 2000m)
Protection degree	IP65
Communication interface	RS485, CAN
Master LED indicator	LED
System switch (on/off)	EMS button
Safety certificate	IECEN 62519, IEC 60906, IEC 61777, IEC 62040-1, IEC 61000-6-1, IEC 61000-6-3
UL number	3480
Dimensions (L x W x H)mm	550 x 550 x 220mm
Weight (kg)	58
General data	
Cooling	Natural
Standard warranty (Years)	10

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## ePowercube Features

- Active detection to prevent faults and danger
- Low noise < 25db
- IP65 waterproof and dustproof
- Long warranty 10 years
- Switching time < 10ms
- Low voltage compatibility
- Slim design. Hang on the wall or stand alone
- Remote control
- Certified BESS

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## ePowerstation 500kWh All-in-one Energy Storage Module

A BESS solution for larger energy storage needs

In order to adapt to large-scale energy storage modularity, integration, and design requirements, ePowerstation is an all-in-one energy storage module. ePowerstation includes battery modules, a step-up transformer, an energy storage converter and a communication unit with the function of virtual synchronization.

**FEATURES**

- Precise management**  
Precise management for each battery cluster avoids battery clusters connected in parallel
- All-in-one design**  
Integrated design including battery modules, a step-up transformer, an energy storage converter and a communication unit
- Intelligent security**  
IP65 protection with integrated intelligent fire protection system and temperature control
- Grid friendly**  
High and low voltage, transverse, active and reactive power scheduling, three-phase suppression, frequency, voltage, harmonic, and power factor compensation

**USAGE SCENARIOS**

- Industrial companies**  
Enables companies in power intensive industries such as Chemicals, Cement and Paper the option to store electricity when it is at its cheapest for the use during peak production
- Apartment blocks**  
Enables apartment blocks where each unit individually buys electricity from the grid to become an embedded network with a solar charging system providing a significant part of the electricity to its households
- Small to medium sized solar and wind power plants**  
Enables a constant flow of electricity from solar and wind power plants to the grid even at times when there is no sun or wind

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## Specifications for ePowerstation 500kWh

Model	ePowerstation 500 kWh
PV Input (DC)	
Battery type	Lithium Iron Phosphate/230Ah
Battery voltage range	300-850V
Battery storage capacity	500kWh
Grid side output (AC)	
AC rated power	250kVA
AC maximum power	300kVA
Rated voltage range	380V/20% V
Wire system	Three phase four wire
Rated grid frequency	50/60Hz
AC current variability	< 3%
DC component	< 0.5%ipn
Power factor	> 0.99
Unbalance compensation	100%
Harmonic compensation	2-25 times
Virtual synchronization function	Standardized
System data	
Maximum system efficiency	> 91%
Charge and discharge rate	0.5C
Battery depth of discharge	100%
Cycle life	9000
Charge and discharge switching time	< 100ms
Communication interface	LAN/CAN/485
Protection rating	IP54
Transformer	Optional
Cooling method	Smart air cooling
Operating temperature	-25-55C
Relative humidity	5-95% (non-condensing)
Noise emission	< 75dB
Dimensions	3000*2500*2200 mm
Fire protection system	Heptafluoropropane
Weight	4500kg

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## iKran series ePowercube Portable BESS

Bring Portable BESS with you wherever you go

**Safety starts from the core**  
Safe battery cell technology. Superstate Portable BESS is your wise choice

- Lithium Iron Phosphate cell
- 340\*195\*210mm
- Around 7kg
- 2000+ cycle life

Enables wireless charging of your phone

**4 kinds of Charging Methods**

**Method #1**

Plugged into power outlet

**Method #2**

USB charging

**Method #3**

Car charging

**Method #4**

Solar PV Charging

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## Specifications for Portable BESS

Brand	Type	USB 2 input*2	DC 3.0 output*2
Superstate Portable BESS	85-MPP910A-A	5V/2A, 10W	5V-20V/1.5W Max
Battery type	Battery capacity	AC output*2	DC charging output*1
Lithium Iron Phosphate	16000mAh	220V/50Hz, 250W (peak 1000W)	12V 10A, 120W Max
Cycle life	Coverage material	DC 3.0 output*2	Wireless charging output*1
> 2000	94% Energy retention PC-ABS resin	12V/5A, 60W	5W-7.5W-10W
Product size	Product weight	EC1 output*1	Light*2
360*195*210mm	About 7kg	32V/20A	Specialize in reading clamp BP
DC input	PD input/output*1	Load/packer box*1	Operating temperature
12V/5A, 60W Max	5V-20V/60W Max	Bluetooth, TF Card, USB	-10C-60C

**System protection**  
OVP, OCP, UVL, SCP, OPP, High-Limit, Over-charge protection, Temperature protection

**Reference time of device usage**

Device	Power	Usage Time
iPhone 13	30W	About 40 times
Notebook PC	80W	About 5-8 hours
Camera	8W	About 5-8 hours
UAV	40W	About 10 times
Electric cooker	300W	About 1.5 hours
Car refrigerator	55W	About 1.4 hours
Electric fan	40W	About 1.5 hours
Projector	45W	About 1.0 hours

**Pure Sine Wave Alternating Current**  
Continuous wave with smooth repetitive oscillation. Increases stability and protect electrical equipment from damage.

**SPWM intelligent inverter**  
500W output. 2X peak output of 1000W can be achieved with high-quality recipients.

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