

GRID BANK

Informational Package 2017

**“POWER SYSTEMS
THAT ARE SAFE AND
RELIABLE.”**

clinotech

Our Complete Grid Bank System

Whether for emergency power or to cut peak loads. Our system offers an industrial storage solution for every application. The Grid Bank is designed to be flexible with a size and output to make it cost efficient. Our Active Battery Optimizer guarantees a long lifespan and a safe standby at 3W (without cooling).



Maximum Safety

Our Grid Bank uses cells from the Samsung SDI and offers a 10-year performance warranty on the entire storage system.



Long Service Life

The service life of a battery has a huge impact on its economic efficiency. Our components are built to last 8,000 cycles and offer a 30 - year service life.

CPU

Smart Systems

No matter the configuration our Grid Bank system comes with a smart metering system for optimized resource allocation. This ensures that all the working components are integrated and can be monitored remotely.



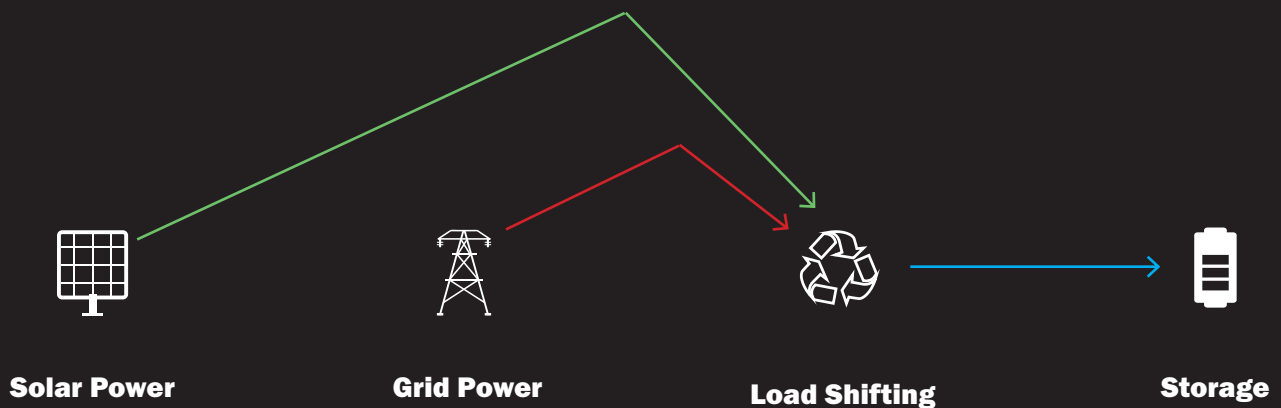
Without Compromises

The storage system can store and release energy with a continuous power rating of 1C. The storage system is optimised for professional use in industry and grid services. We have optimized our Grid Bank to service the health care industry with all the power needs of critical lab and clinical equipment.



Adaptability

Our storage system offers flexible configurations with our Active Battery Optimizer technology, the battery modules can also be retrofitted or exchanged even years later.



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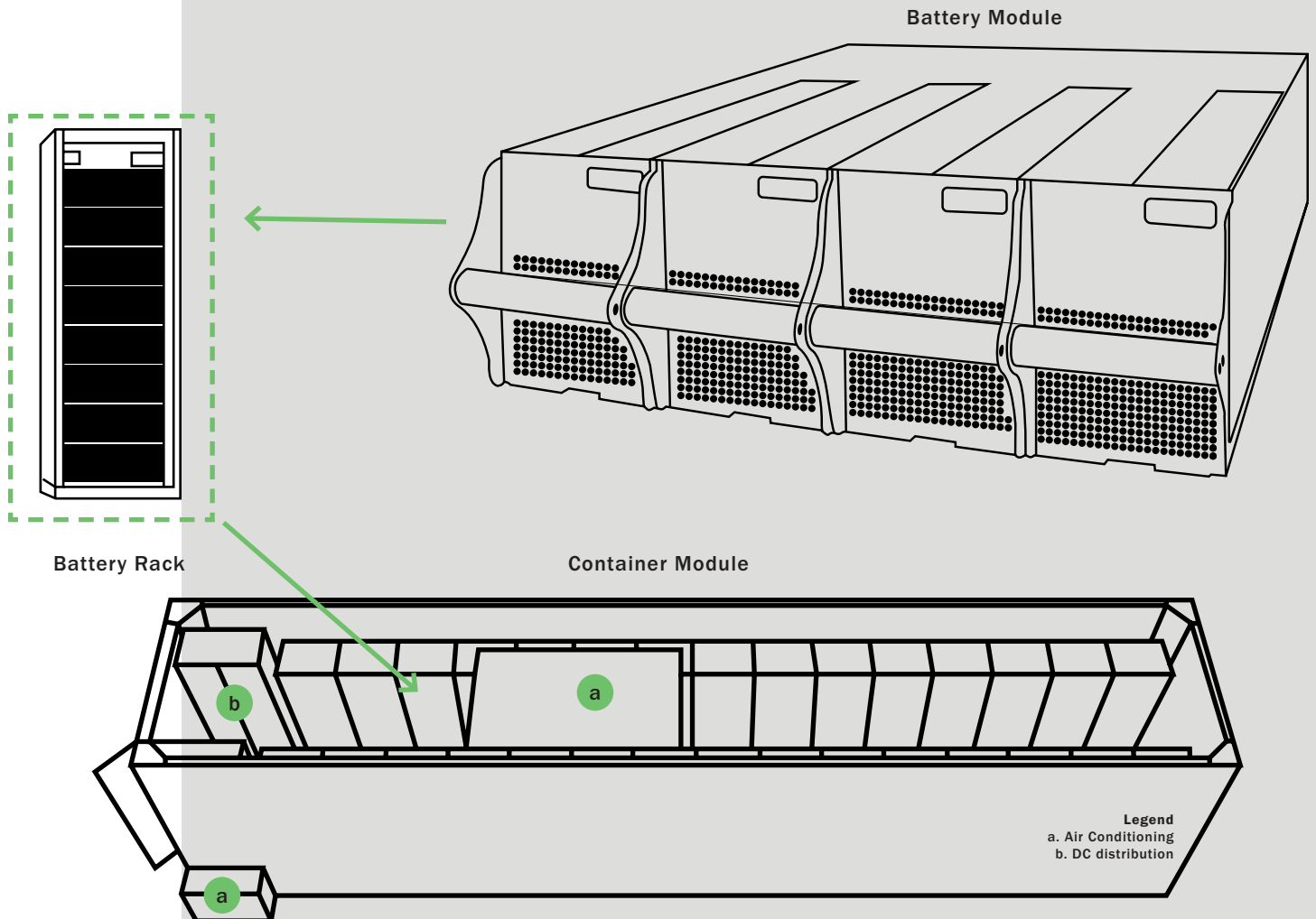
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Our Complete Storage System

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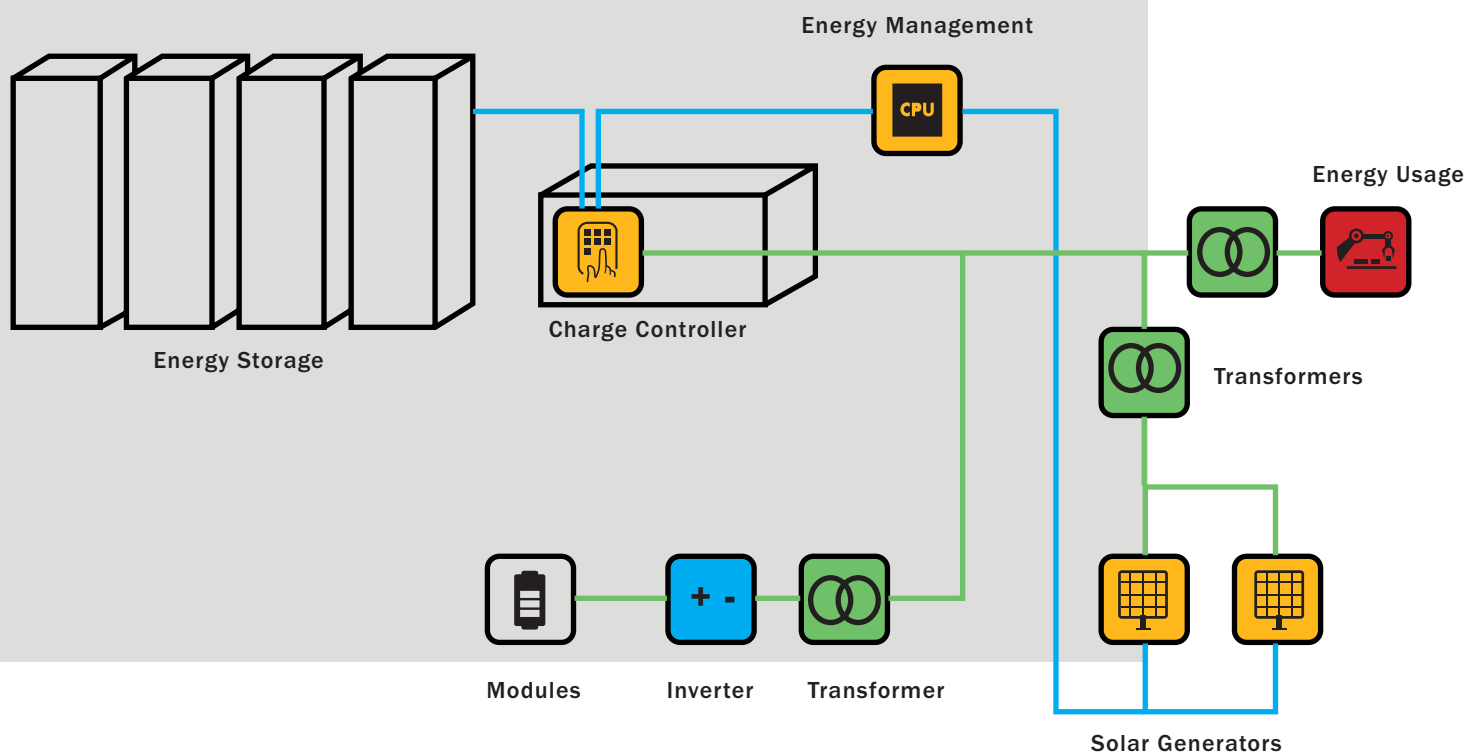
The Grid Bank system is designed to be completely modular. The arrangement of the batteries can be adjusted as the project requirements change. This highly customizable layout allows for efficiency and long service life.



Legend

| Energy Transfer

| Communication



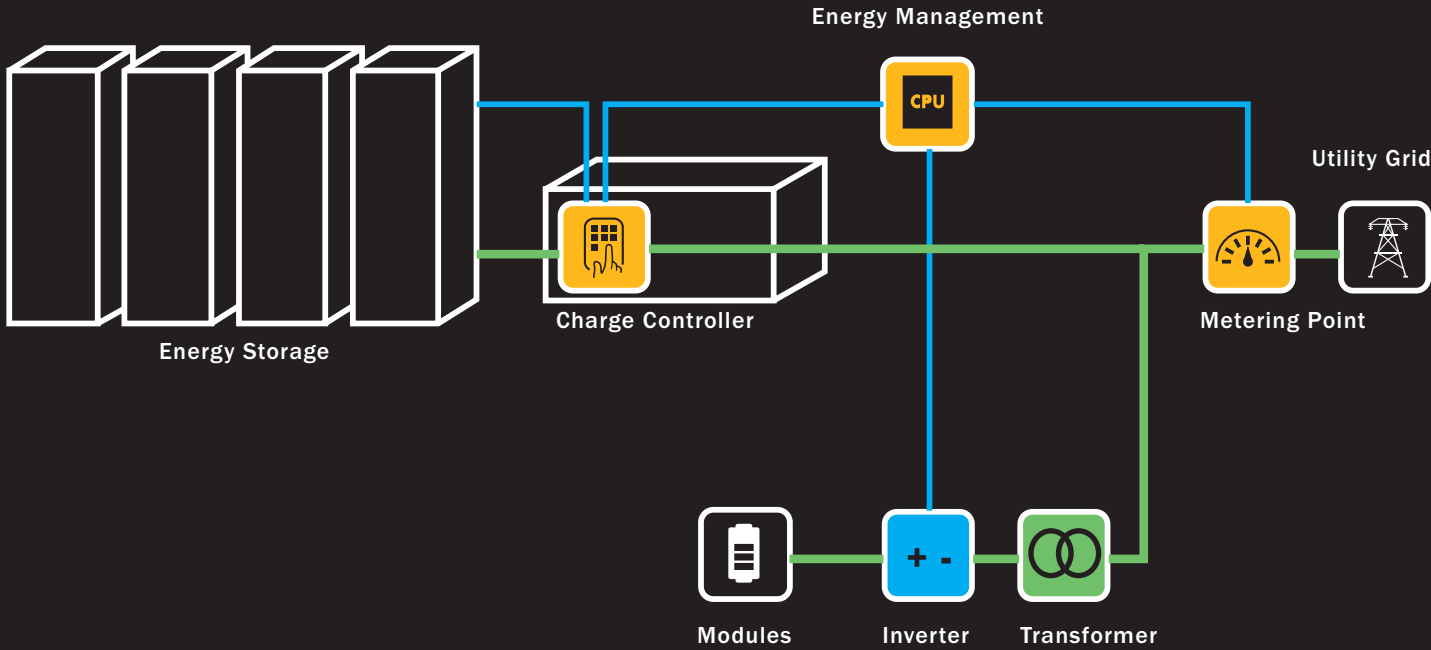
“Off” Grid System

Is enabled to reduce energy fuel consumption. When combined with suitable charge controllers (e.g. SMA SCS), the systems can be used with diesel fuel hybrids. Our Grid Bank system works with Solar Cell Generators as charging points, this adds to the overall long term cost savings. Excess energy can be stored, or put back into the grid for extra profits.

Legend

Energy Transfer |

Communication |



“On” Grid System

The Grid Bank system during grid usage allows for flexible reactive power supply. The Energy Management Software built with our system seamlessly manages load shifting and load shedding. This way the sytem balances irregularities in power output thus allowing for 247 Power.

System Configurations

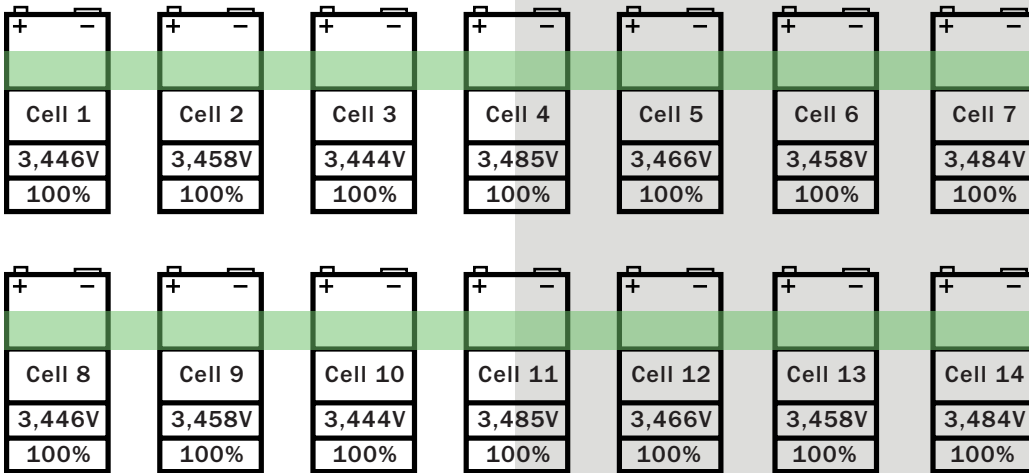
This table displays the possible output depending on the container version and capacity.

individual	14,000 kWh										●	●
	7,000 kWh	●	●	●	●	●	●	●	●	●	●	●
	5,000 kWh	●	●	●	●	●	●	●	●	●	●	●
	3,000 kWh	●	●	●	●	●	●	●	●	●	●	
	2,000 kWh	●	●	●	●	●	●	●	●	●	●	
45 ft	2,000 kWh				●	●		●	●	●	●	
	1,850 kWh	●	●	●	●	●	●	●	●	●		
	1,700 kWh	●	●	●	●	●	●	●	●	●		
40 ft	1,700 kWh				●	●		●	●	●		
	1,550 kWh	●	●	●	●	●	●	●	●	●		
	1,400 kWh	●	●	●	●	●	●	●	●	●		
	1,250 kWh	●	●	●	●	●	●	●	○	○		
	1,100 kWh	●	●	●	●	●	●	○	○	○		
	950 kWh	●	●	●	●	●	●	○	○	○		
20 ft	800 kWh	●	●	●	●	●	○	○	○	○		
	650 kWh	●	●	●	●	○	○	○				
	500 kWh	●	●	●	○	○						
	350 kWh	●	○	○	○							
	200 kWh	○	○	○								
Container		500 KW	630 KW	720 KW	850 KW	1,000 KW	1,260 KW	1,600 KW	1,800 KW	2,000 KW	4,000 KW	8,000 KW

Energy going Up and Down
Output going Left to Right
Filled Circle Are Available
Empty Circles Are On Request

Monitoring and Maintenance

With our storage monitoring system, the Clinotech team can keep an eye on the state of the charge and condition of the battery at all times. This system allows to analyse the storage system both on site and remotely. We believe this level of control ensures smart metering and higher levels of safety.



Modular System Principle

The Grid Bank can adapt to suit any operating purpose.

- The storage system can be installed in system with voltages up to 950V DC.
- The storage systems are available from 200kWH
- Three different sizes of containers can be used (20ft, 40ft and 45ft) can be used as housing.
- The containers can be fitted with racks holding up to 5 to 10 battery modules.

Data Table

This table displays the possible output of the Grid Bank depending on the container version and capacity selection.

Technical data battery module	
C-rate	1C (4C max. 20sec)
Cells	Lithium NMC prismatic (Samsung SDI)
Cell balancing	Active Battery Optimizer
Cycles at 100% DOD 70% EOL 23 °C + 5 °C 1C/1C	6,000
Cycles at 100% DOD 70% EOL 23 °C + 5 °C 1C/1C	8,000
Efficiency (battery)	up to 98%
Maximum system voltage	950 V DC
Stand - alone system storage capacity at DOD 100%	94 Ah
Self consumption (standby)	3 W
System coupling	up to 99 systems in parallel
Communication interface	CAN 2.0 Modbus TCP / IP
Certificates/norms	Cell
	Product
	UL 1642, UN 38.3
	CE; IEC 629619;UL 1973;UN 38.3; IEC 6100-6-3; BattG 2006/66/EG
Warranty	10-year performance warranty, 5-year product warranty
Recycling	free take-back system with Tesvolt

Container System			
Size	20ft	40ft	45ft
Energy (max.)	864kWh	1,728	2,016kWh
Number of storage systems	up to 12	up to 24	up to 28
Integrated DC main distribution board	●	●	●
External temperature range for operation	-20 to 45 °C		
Humidity	0 to 85% (non-condensing)		
Power supply circuit	3-N 400 V, 50 Hz, 16A	3-N 400 V, 50 Hz, 32 A	3-N 400 V, 50 Hz, 32A
Dimensions (L x W x H)	6.06m x 2.44m x 2.90m	12.19m x 2.44m x 2.90m	13.72m x 2.44m x 2.90m
Protection class	IP 54		
Optional extras	Fire alarm unit, fire extinguisher unit, CSC certification, extended operating temperature range		

Example SMA SCS configuration				
SMA product	SCS 500	SCS 720	SCS 1000	SCS 2000
Nominal power at 40 °C	500 kVA	720 kVA	1,000 kVA	2,000 kVA
Battery system				
Voltage range (battery)	627.2 to 813.4V	627.2 to 813.4V	672 to 871.5V	672 to 871.5V
1C	8 systems at 67.2 kWh each	10 systems at 67.2 kWh each	14 systems at 72 kWh each	28 systems at 72 kWh each
Energy	537.6 kWh	670.0 kWh	1,008 kWh	2,016 kWh
Product (container)	TPS 500 (20ft)	TPS 650 (20ft)	TPS 1000 (40ft)	TPS 2000 (45ft)
0.5C	16 systems at 67.2 kWh each	20 systems at 27.2 kWh each	28 systems at 72 kWh each	56 systems at 72 kWh each
Energy	1,075.2 kWh	1,344 kWh	2,016 kWh	2x 2016 kWh
Product (container)	TPS 1000 (40ft)	TPS 1400 (40ft)	TPS 2100 (45ft)	2x TPS 2000 (45ft)

Technical Component Partners

LG Energy -
Alevo Energy -
Turkwatt & Anko Enerji -
NEC Energy Solutions -
Samsung Battery & Energy -
Corcus Energy -
Schneider Energy -
Wartsila Energy -

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Thank You For Choosing Us

As your Technical Solution Partner on Grid Bank to provide 24/7 Power Supply. Let us bring back to those in need and create the light of hope for the many.

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