NSR Powered by VAV

ENERGY PRO

NSR Residential ENERGY STORAGE SYSTEM

Technical Description
HOME BATTERY

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All information in this document is substantially correct at time of printing and may be altered subsequently. Final weight and dimensions will depend on completed specification.

GENERAL DESCRIPTION

NSR Home HBESS is a Hybrid all in one Battery Energy storage system, compatible with high voltage LFP battery system, it can be connected to external PV power station, AC generator and Grid power. The use of NSR HBESS System can achieve the best function to maximize clean solar power usage for home application. The system reduces significantly the dependence on grid, improve power supply quality and Ensure the power consumption of emergency load.

PRODUCT HIGHLIGHTS AND BENEFITS

- Convenient - Heat stimulation for the best layout.
- Quiet - Less than 25 db, no noise pollution.
- Flexible - IP65 protection up to 12kW, 40kWh battery capacity.
- Friendly user and minimal maintenance.
- Adaptive - self-power, backup and load-shifting modes
- Independent - No additional modules and inverters are required

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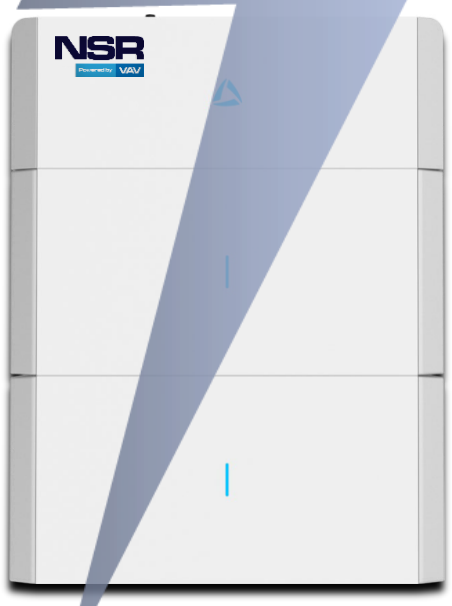
NSR HBESS Single-phase Series



Product Features

Independent

- Built-in EMS function with multi-mode operation (achieves energy independence)
- Real uninterruptible power supply, switching time <10ms
- Stronger back up power up to 7800W

Safe

- Physical and electrical dual isolation
- Modular fire protection integration
- AFCI function integration (optional)

Simple

- All-in-one design
- Modular installation & Quick plug connector
- Multiple battery expansion& Multiple system expansion

Smart

- Multi-point real-time monitoring, adaptive SOC management
- PACK-level battery management, active balance of charging and discharging
- Intelligent energy management with weather forecast function

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System Specification

System components			
Inverter model	HBESS 1-3	HBESS 1-5	HBESS 1-6
Number of Inverter	1		
Battery system model	NSR HST 1		
Number of battery module	1~8		
General			
Cell technology	LiFePO4		
System capacity	5~40kWh		
Rated system power	3.6kW	5kW	6kW
Dimension (W*H*D)	800*1090*240mm/31.49* 42.91*9.45in (two battery modules, with foundation)		
Noise	<25dB		
Cooling type	Natural cooling		
Altitude	3000 m (Derating above 2000 m)		
Operating temperature	-20~50ºC/-4~122ºF		
Recommended operating temperature	15~30ºC/59~86ºF		
Operating humidity	0~100%RH (Non-condensing)		
Display	LED & APP		
Installation method	Floor or Wall-mounted (optional)		
Communication interface	Portal-WiFi (standard) /4G (optional), Meter-RS485		

Hybrid Inverter Specification

Items	HBESS 1-3	HBESS 1-5	HBESS 1-6
DC Input (PV)			
Recommended Max. PV input power	9.0kWp		
Max. PV input voltage	580Vdc		
No. of MPPTs	2		
No. of PV strings per MPPT	1/1		
Max. PV input current	15A/15A		
Max. short current	18.75A/18.75A		
MPPT voltage range	100~550Vdc		
Starting voltage	100Vdc		
DC (PV) switch	Yes		
DC Input (Battery)			
Battery voltage range	360~500Vdc		
AC Input and Output (On-grid)			
Rated AC output power	3.6kW	5.0kW	6.0kW
Rated AC output voltage	220/230/240Vac		
Grid voltage range	180~270Vac		
Max. output current	15.6A	21.7A	26.1A
Max. input current	31.2A	43.4A	52.2A
Rated grid frequency	50/60Hz		
Grid frequency range	45~55/55~65Hz		
Power factor	>0.99 (rated power)		
Adjustable power factor	0.8 (leading)~0.8 (lagging)		
THDi	<3% (rated power)		
AC Output (Back-up)			
Rated AC output voltage	220/230/240Vac		
Rated output frequency	50/60Hz		
Rated output power	3.6kW	5.0kW	6.0kW
Peak output power	4.68kW, 60s 5.4kW, 30s	6.5kW, 60s 7.5kW, 30s	7.8kW, 60s
Switch time[1]	<10ms		
Efficiency			
Max. efficiency	97.70%		
European efficiency	97.10%		
General			
Weight	17kg/37.47lb (including side plates)		
Dimension (W*H*D)	800*280*233mm/31.49*11.02*9.17in (including side plates)		
Enclosure type	IP65		
Certification	EN 62109-1/2, IEC 62109-1/2, EN IEC 61000-6-2/3, EN IEC 61000-3-11, EN 61000-3-12, VDE-AR-N 4105, VDE V 0124-100, G98, G99, XP C15-712-3, VDE V 0126-1-1, EN50549-1, CEI0-21, AS4777.2, PO12.2, UNE 217002, UNE 217001		

*Specifications are subject to change without prior notice.
*1: Except for countries with special requirements.

NSR HST 1

Lithium-ion Battery Module

Product Features

- **Safe and reliable**
- **Intelligent and flexible**
- **Easy O&M**

Items	NSR HST 1
General	
Cell technology	LiFePO4
Energy capacity	5kWh
Usable capacity[1]	5kWh
Scalability	8
Scalable capacity range	5~40kWh
DOD	Max. 100 % DOD (settable)
Rated power	4kW
Voltage range	360~500Vdc
Maximum charge current	11.11A
Maximum discharge current	11.11A 13.33A,10s
Dimension (W*H*D)	800*380*238mm/31.49*14.6*9.37in (including side plates)
Weight	51kg/112.43lb (including side plates)
Operating temperature	-20~50°C/-4~122ºF
Recommended operating temperature	15~30°C/59~86ºF
Humidity	0~100%RH (Non-condensing)
Altitude	3000 m (Derating above 2000 m)
Cooling type	Natural cooling
Display	LED
Communication interface	RS485, CAN
Topology	Isolated
Connection method	Floor or Wall mounted (optional)
Enclosure type	IP65
Certification	IEC 62619, IEC 60730, UN38.3, IEC 62040-1

* Specifications are subject to change without prior notice.
*1: Test conditions: 25°C, 100 % depth of discharge (DOD), 0.2C charge & discharge

NSR HBESS Three-phase Series

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Product Features

Independent

- Built-in EMS function with multi-mode operation (achieves energy independence)
- Real uninterruptible power supply, switching time <10ms
- Stronger back up power up to 20kW

Simple

- All-in-one design
- Modular installation & Quick plug connector
- Multiple battery expansion& Multiple system expansion

Safe

- Physical and electrical dual isolation
- Modular fire protection integration
- AFCI function integration (optional)

Smart

- Multi-point real-time monitoring, adaptive SOC management
- PACK-level battery management, active balance of charging and discharging
- Intelligent energy management with weather forecast function

System Specification

System components					
Inverter model	HBESS 3-5	HBESS 3-6	HBESS 3-8	HBESS 3-10	HBESS 3-12
Number of Inverter	1				
Battery system model	NSR HS3				
Number of battery module	1~8				
General					
Cell technology	LiFePO4				
System capacity	5~40kWh				
Rated system power	5kW	6kW	8kW	10kW	12kW
Dimension (W*H*D)	800*1995*240mm/31.49*78.54*9.45in (four battery modules, with foundation)				
Noise emission	<30dB				
Cooling type	Natural cooling				
Altitude	3000 m (Derating above 2000 m)				
Operating temperature	-20~50ºC/-4~122ºF				
Recommended operating temperature	15~30ºC/59~86ºF				
Operating humidity	0~100%RH				
Display	LED & APP				
Installation method	Floor or Wall-mounted (optional)				
Communication Interface	Portal-WiFi (standard)/4G (optional), Meter-RS485, EMS-RS485 (sunspec)				

Hybrid Inverter Specification

Items	HBESS 3-5	HBESS 3-6	HBESS 3-8	HBESS 3-10	HBESS 3-12
DC Input (PV)					
Recommended Max. PV input power	23kWp		29kWp		
Max. PV input voltage	1000Vdc				
No. of MPPTs	2				
No. of PV strings per MPPT	1/1		2/1		
Max. PV input current	16A/16A		27A/16A		
Max. short current	20A/20A		34A/20A		
MPPT voltage range	150~900Vdc				
Starting voltage	180Vdc				
DC (PV) switch	Yes				
DC Input (Battery)					
Battery voltage range	650~900Vdc				
AC Input and Output (On-grid)					
Rated AC output power	5kW	6kW	8kW	10kW	12kW
Rated AC output voltage	380/400Vac, 3W/N/PE				
Grid voltage range	323-418Vac/340-440Vac				
Max. output current	7.9A	9.6A	12.8A	16A	17.4A
Max. input current	14.4A	17.4A	23.2A	26A	26A
Rated grid frequency	50Hz/60Hz				
Grid frequency range	45~55Hz/55~65Hz				
Power factor	>0.99 (rated power)				
Adjustable power factor	0.8 (leading)~0.8 (lagging)				
THDi	<3% (rated power)				
AC Output (Back-up)					
Rated AC output voltage	380/400Vac, 3W/N/PE				
Rated output frequency	50/60Hz				
Rated output power	5kW	6kW	8kW	10kW	12kW
Peak output power	12kW, 60s		20kW, 60s		
Peak output current	18.2A, 60s		30.4A, 60s		
Switch time	<10ms (without parallel), <300ms (parallel)				
Support the unbalance load	Yes				
Efficiency					
Max. efficiency	98.3%				
European efficiency	97.5%				
General					
Weight	27kg/59.52lb (including side plates))				
Dimension (W*H*D)	800*400*200mm/31.49*15.75*7.87in (including side plates)				
Enclosure type	IP65				
Certification	EN 62109-1/2, IEC 62109-1/2, EN IEC 61000-6-1/2/3/4, EN 50549-1 NC RfG, PPDS,CEI 0-21, VDE AR-N-4105, VDE V 0124-100				

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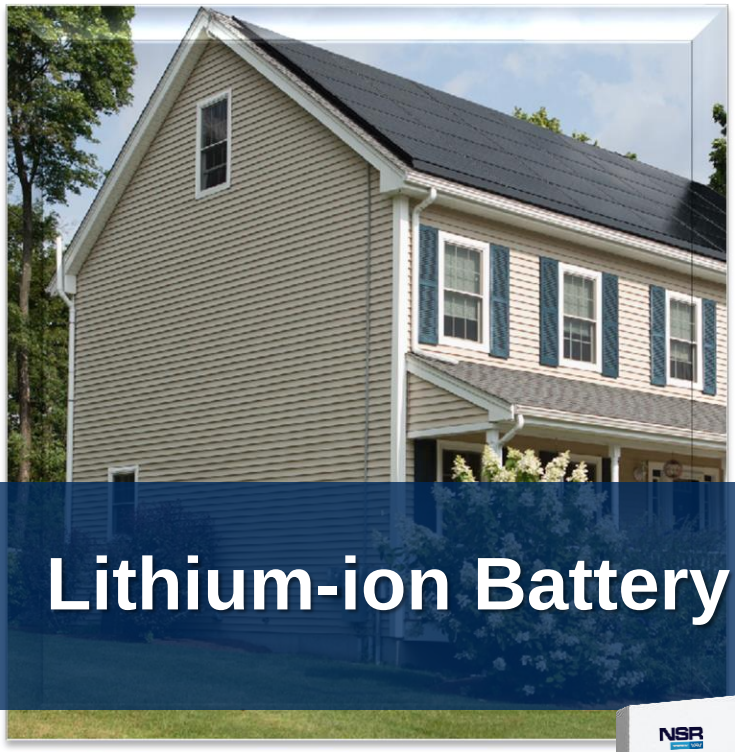

NSR HST 3

Lithium-ion Battery Module

Product Features

- **Safe and reliable**
- **Intelligent and flexible**
- **Easy O&M**

Items	NSR HST 3
General	
Cell technology	LiFePO4
Energy capacity	5kWh
Usable capacity[1]	5kWh
Scalability	8
Scalable capacity range	5~40kWh
DOD	Max. 100 % DOD (settable)
Rated power	4kW
Voltage range	650~900Vdc
Maximum charge current	6.15A
Maximum discharge current	6.15A 7.38A,10s
Dimension (W*H*D)	800*380*238mm/31.49*14.6*9.37in (including side plates)
Weight	52kg/114.64lb (including side plates)
Operating temperature	-20~50°C/-4~122ºF
Recommended operating temperature	15~30°C/59~86ºF
Humidity	0~100%RH
Altitude	3000 m (Derating above 2000 m)
Cooling type	Natural cooling
Display	LED
Communication interface	RS485, CAN
Topology	Isolated
Connection method	Floor or Wall mounted (optional)
Enclosure type	IP65
Certification	IEC 62619, IEC 60730, UN38.3

* Specifications are subject to change without prior notice.
*1: Test conditions: 25°C, 100 % depth of discharge (DOD), 0.2C charge & discharge