



GivEnergy[®]

2019
V1.8D

GivEnergy[®]

Home Energy Storage Systems



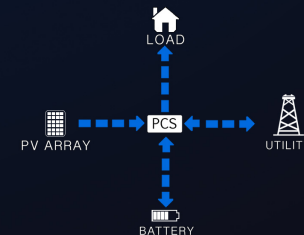
Hybrid System

Home Hybrid Inverter



- ◆ Compatible with GivEnergy LiFePO₄ battery packs
- ◆ Backup up power (2.5kW) output during a black out
- ◆ Installed to new builds or retrofit to an existing solar PV system
- ◆ IP65 water-resistant for exterior install
- ◆ Remote software updating via WiFi / 4G dongle
- ◆ Cloud based monitoring and control through web / app interface
- ◆ Batteries are able to charge directly from Solar PV and the Grid, Utilising a flexible energy tariff
- ◆ Available in 3.6kW & 5.0kW models

Dimensions (W/H/D) 480*440*260mm
Weight 24kg



GivEnergy®

Input Data (DC)	Giv-HY3.6	Giv-HY5.0
Max DC power	4500W	6500W
Max DC voltage	600V	
Start voltage	120V	
DC nominal voltage	360V	
PV voltage range	100V-600V	
MPPT voltage range	120V-550V	
Max input current per string of tracker A/tracker B	11A/11A	
Number of independent MPPT input	2	
Feedback current to the array	0A	

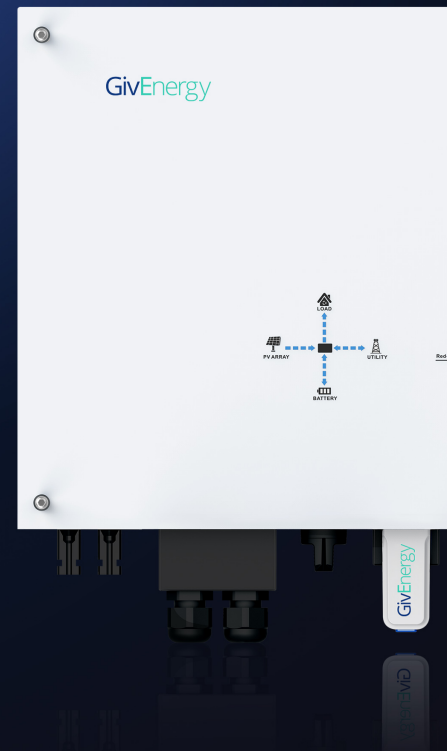
Output Data (AC)		
Nominal AC output power	3680W	5000W
Max AC apparent power	3680VA	5000VA
Max output current	16.4A	21.7A
AC nominal voltage; range	220V/230V/240V;180Vac-280Vac	
AC grid frequency; range	50,60Hz; ± 5 Hz	
Power factor at rated power	1	
Power factor	0.9leading...0.9lagging	
THDi	<3%	
AC connection	Single phase(can be linked for three phase)	

Battery		
Battery type	LiFePO ₄	
Nominal Power	2500W	
Nominal voltage	51.2V	
Battery capacity	≥ 61.5 Ah	
Max discharging /charging power	2500W/2500W	
Charging curve	3-stage adaptive with maintenance	
Operating voltage range	46-57V	
Max charging/discharging current	50A / 50A	

Emergency Backup Power Output		
Output rated power	97.00%	97.10%
Output voltage	96.50%	96.50%
Maximun efficiency	99.50%	99.50%

Specification

Hybrid
Giv-HY3.6 / Giv-HY5.0



Protection Devices

Giv-HY3.6

Giv-HY5.0

DC reverse polarity protection	Yes
DC switch rating for each MPPT	Yes
Output over current protection	Yes
Output overvoltage protection-varistor	Yes
Ground fault monitoring	Yes
Grid monitoring	Yes
Max inrush current	30A peak
Max output fault current	40A peak
Max output overcurrent protection	25A rms
Integrated all pole sensitive leakage current monitoring unit	Yes

General Data

Dimensions (W / H / D)	480*440*260mm
Weight	24kg
Operating temperature range	0°C-55°C (Ambient)
Noise emission (typical)	≤ 6 dB(A)
Altitude	Up to 2000m(6560ft)Without power derating
Relative humidity	95%
Consumption: operating (standby) / night	<5W / < 0.5 W
Topology	Transformerless
Cooling concept	Natural
Environmental Protection Rating	IP65

Features

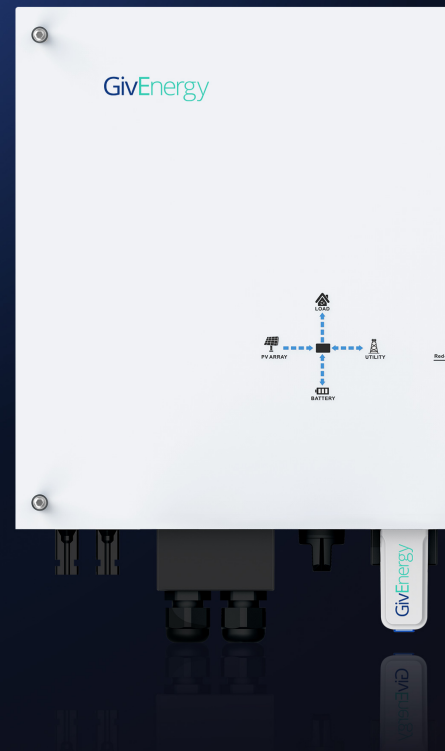
PV connection	H4/MC4
Battery connection	Screw terminal
AC connection	Screw terminal
Display	LED
Interfaces:Wi-Fi/USB/GPRS/RS485/4G	Opt/Yes/Opt/Yes/Yes
Warranty: 5 years / 10 years / 15 years	Yes/Opt/Opt

Certificates and Approvals

TÜV CE, TÜV IEC 62109-1&2, TÜV VDE 0126-1-1, TÜV G83/2, TÜV G59/3, TÜV AS4777&AS/NZS 3100, EN50438, SAA, TÜVG98/1-4:2019, G99

Specification

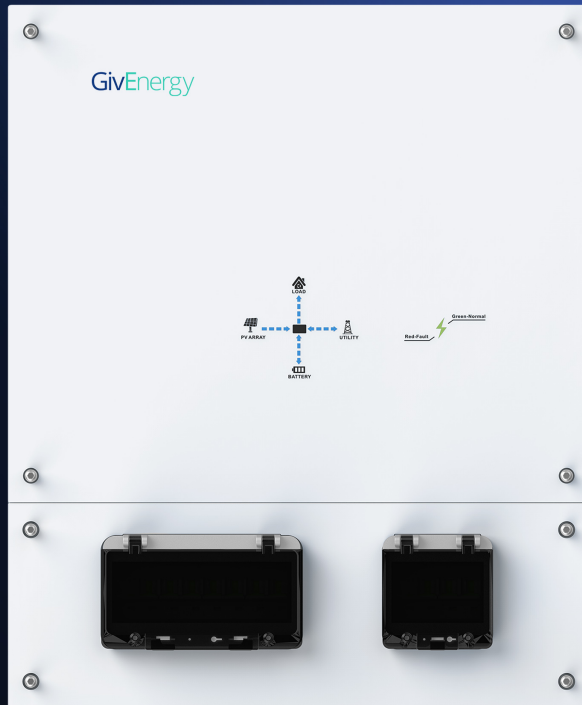
Hybrid
Giv-HY3.6 / Giv-HY5.0



GivEnergy®

Long Body Hybrid

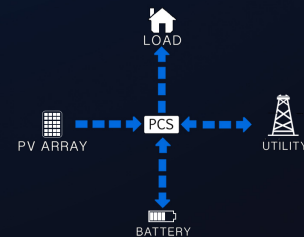
Giv-HY3.6L / Giv-HY5.0L



Extra Features Included in the Long Body design.

- ◆ Dual PV Switches
- ◆ Battery Switch
- ◆ Back up RCD Switch
- ◆ Main AC Switch
- ◆ Bi-Directional MID Approved meter (EN 50470-3) Class 1
- ◆ In-Built WiFi

Dimensions (W/H/D)	480*700*260mm
Weight	30kg



Input Data (DC)	Giv-HY3.6	Giv-HY5.0
Max DC power	4500W	6500W
Max DC voltage	600V	
Start voltage	120V	
DC nominal voltage	360V	
PV voltage range	100V-600V	
MPPT voltage range	120V-550V	
Max input current per string of tracker A/tracker B	11A/11A	
Number of independent MPPT input	2	
Feedback current to the array	0A	

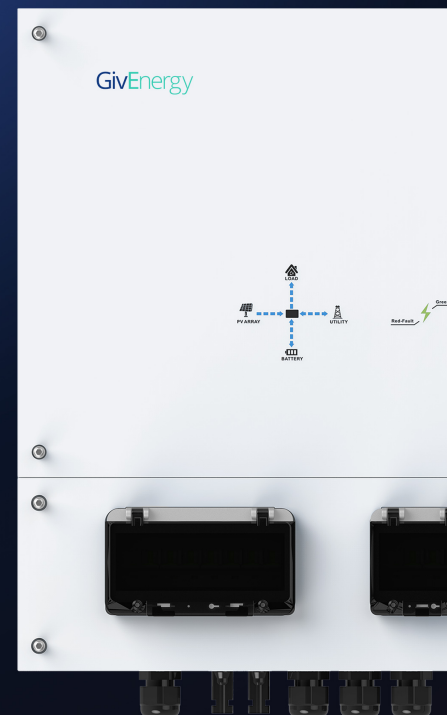
Output Data (AC)		
Nominal AC output power	3680W	5000W
Max AC apparent power	3680VA	5000VA
Max output current	16.4A	21.7A
AC nominal voltage; range	220V/230V/240V;180Vac-280Vac	
AC grid frequency; range	50,60Hz;±5 Hz	
Power factor at rated power	1	
Power factor	0.9leading...0.9lagging	
THDi	<3%	
AC connection	Single phase(can be linked for three phase)	

Battery		
Battery type	LiFePO ₄	
Nominal Power	2500W	
Nominal voltage	51.2V	
Battery capacity	≥61.5Ah	
Max discharging /charging power	2500W/2500W	
Charging curve	3-stage adaptive with maintenance	
Operating voltage range	46-57V	
Max charging/discharging current	50A / 50A	

Emergency Backup Power Output		
Output rated power	97.00%	97.10%
Output voltage	96.50%	96.50%
Maximun efficiency	99.50%	99.50%

Specification

Long Body Hybrid
Giv-HY3.6L / Giv-HY5.0L



Protection Devices

Giv-HY3.6

Giv-HY5.0

DC reverse polarity protection	Yes
DC switch rating for each MPPT	Yes
Output over current protection	Yes
Output overvoltage protection-varistor	Yes
Ground fault monitoring	Yes
Grid monitoring	Yes
Max inrush current	30A peak
Max output fault current	40A peak
Max output overcurrent protection	25A rms
Integrated all pole sensitive leakage current monitoring unit	Yes

General Data

Dimensions (W / H / D)	480*700*260mm
Weight	30kg
Operating temperature range	0°C-55°C
Noise emission (typical)	≤ 6 dB(A)
Altitude	Up to 2000m(6560ft)Without power derating
Relative humidity	95%
Consumption: operating (standby) / night	<5W / < 0.5 W
Topology	Transformerless
Cooling concept	Natural
Environmental Protection Rating	IP65

Features

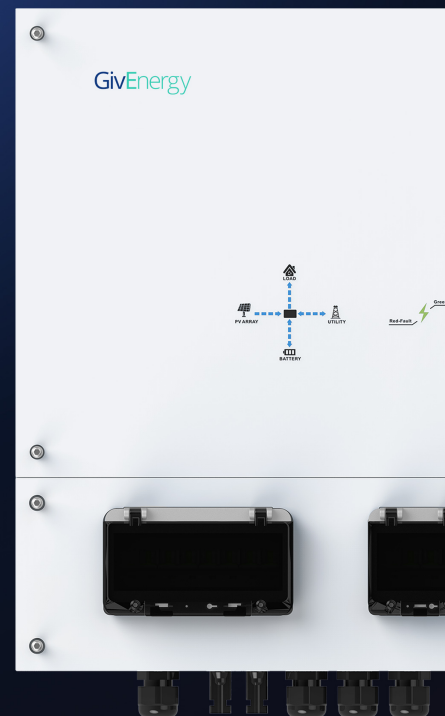
PV connection	H4/MC4
Battery connection	Screw terminal
AC connection	Screw terminal
Display	LED
Interfaces:Wi-Fi/USB/GPRS/RS485/4G	Opt/Yes/Opt/Yes/Yes
Warranty: 5 years / 10 years / 15 years	Yes/Opt/Opt

Certificates and Approvals

TÜV CE, TÜV IEC 62109-1&2, TÜV VDE 0126-1-1, TÜV G83/2, TÜV G59/3, TÜV AS4777&AS/NZS 3100, EN50438, SAA, TÜV G98/1-4:2019, G99

Specification

Long Body Hybrid
Giv-HY3.6L / Giv-HY5.0L



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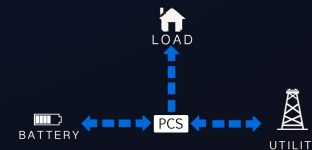
AC Coupled

Giv-AC3.0



- ◆ Installed to new builds or retrofitted to an existing solar pv system
- ◆ Charge the batteries directly from Solar PV by measuring the existing PV system via a CT
- ◆ Batteries can be charged directly from the Grid
- ◆ Remote software updating via Wi-Fi dongle
- ◆ Monitor your usage and generation through Web and APP interface
- ◆ Designed to be Lightweight and compact and to maximise self-consumption and minimise imported electricity
- ◆ Monitoring home usage with Integrated smart metering for an accurate reading

Dimensions (W/H/D) 480*290*260mm
Weight 19kg



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Output Data (AC)

Nominal AC output power	3000W
Max AC apparent power	3000VA
Max output current	15A
AC nominal voltage; range	220V/230V/240V;180Vac-280Vac
AC grid frequency; range	50,60Hz; ± 5 Hz
Power factor at rate power	1
Power factor	0.9 leading...0.9 lagging
THDi	<3%
AC connection	Single phase(can be linked for three phase)

Battery

Battery type	LiFePO ₄
Nominal Power	3000W
Normal voltage	51.2V
Max discharging /charging power	3000W
Charging curve	3-stage adaptive with maintenance
Operating voltage range	46.4-57.6V
Max charging/discharging current	60A / 60A

Backup Output

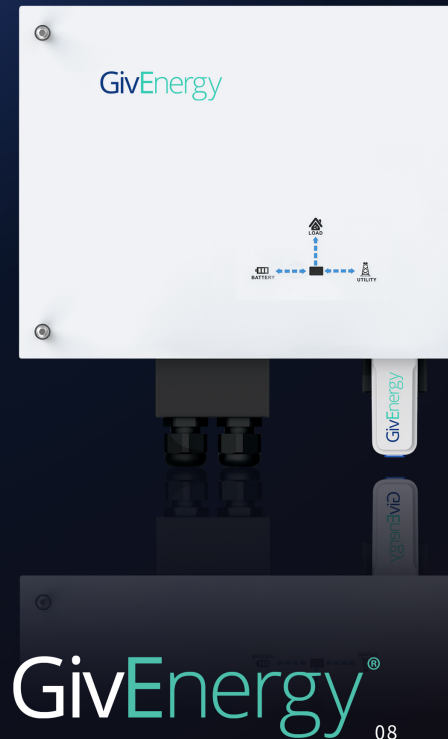
Output rated power	3000VA
Peak power	3600VA,10s
Output voltage	230Vac $\pm 2\%$, 50Hz (60Hz Optional) $\pm 0.2\%$, THDV<3% (linear load)

Efficiency

Max efficiency	97.10%
Euro-ETA	96.5%

Specification

AC Coupled
Giv-AC3.0



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Protection Devices

DC reverse polarity protection	Yes
DC switch rating for each MPPT	Yes
Output over current protection	Yes
Output overvoltage protection-varistor	Yes
Ground fault monitoring	Yes
Grid monitoring	Yes
Max inrush current	30A peak
Max output fault current	40A peak
Max output overcurrent protection	25A rms
Integrated all pole sensitive leakage current monitoring unit	Yes

General Data

Dimensions (W / H / D)	480*290*260mm
Weight	19kg
Operating temperature range	-25°C to 60°C (-13°F to 140°F) With derating above 45°C
Noise emission (typical)	≤ 25 dB(A)
Altitude	Up to 2000m(6560ft)Without power derating
Relative humidity	95%
Consumption: operating (standby) / night	<5W / < 0.5 W
Topology	Transformerless
Cooling concept	Natural
Environmental Protection Rating	IP65

Features

PV connection	No
Battery connection	Screw terminal
AC connection	Screw terminal
Display	LED
Interfaces:Wi-Fi/USB/GPRS/RS485/4G	Opt/Yes/Opt/Yes/Yes
Warranty	5 years / 10 years (Optional)/15years (Optional)

Certificates

AS 4777, VDE-AR-N4105, VDE0126, G83, G98, IEC62109-1-2, IEC62040, EN61000-6-2, EN61000-6-3, EN50438

Specification

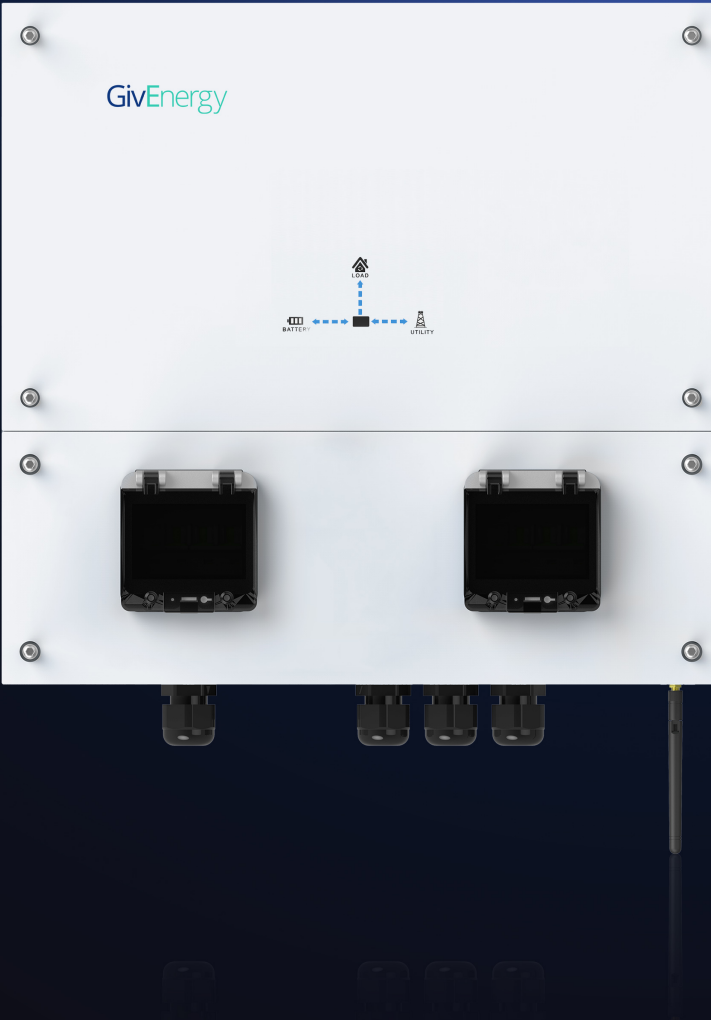
AC Coupled
Giv-AC3.0



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Long Body AC Coupled

Giv-AC3.0L

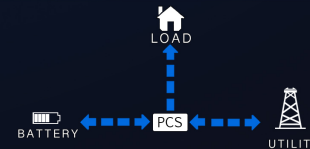


- ◆ Smart Demand Management
- ◆ Mobile App Available
- ◆ Wi-Fi/4G/RJ45
- ◆ Cloud based monitoring and control
- ◆ Monitor renewable generation from any source

Extra Features included in the long body design

- ◆ Battery Switch
- ◆ Back up RCD Switch
- ◆ Main AC Switch

Dimensions (W/H/D) 480*550*260mm
Weight 30kg



Output Data (AC)

Nominal AC output power	3000W
Max AC apparent power	3000VA
Max output current	15A
AC nominal voltage; range	220V/230V/240V;180Vac-280Vac
AC grid frequency; range	50,60Hz; ± 5 Hz
Power factor at rate power	1
Power factor	0.9 leading...0.9 lagging
THDi	<3%
AC connection	Single phase(can be linked for three phase)

Battery

Battery type	LiFePO ₄
Nominal Power	3000W
Normal voltage	51.2V
Max discharging /charging power	3000W
Charging curve	3-stage adaptive with maintenance
Operating voltage range	46.4-57.6V
Max charging/discharging current	60A / 60A

Backup Output

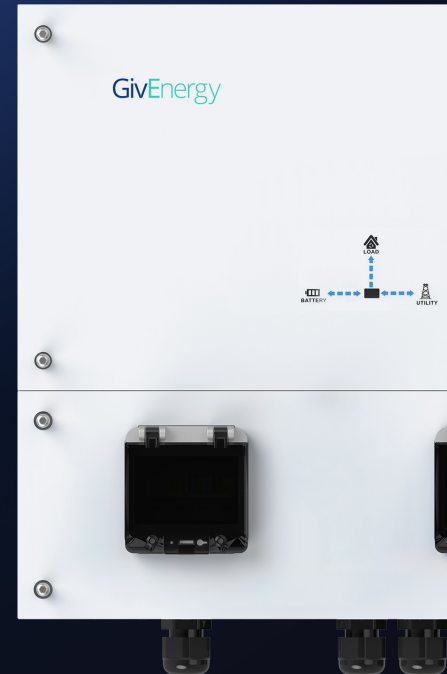
Output rated power	3000VA
Peak power	3600VA,10s
Output voltage	230Vac $\pm 2\%$, 50Hz (60Hz Optional) $\pm 0.2\%$, THDV<3% (linear load)

Efficiency

Max efficiency	97.10%
Euro-ETA	96.5%

Specification

Long Body AC Coupled
Giv-AC3.0L



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Protection Devices

DC reverse polarity protection	Yes
DC switch rating for each MPPT	Yes
Output over current protection	Yes
Output overvoltage protection-varistor	Yes
Ground fault monitoring	Yes
Grid monitoring	Yes
Max in rush current	30A peak
Max output fault current	40A peak
Max output overcurrent protection	25A rms
Integrated all pole sensitive leakage current monitoring unit	Yes

General Data

Dimensions (W / H / D)	480*550*260mm
Weight	25kg
Operating temperature range	-25°C to 60°C (-13°F to 140°F) With derating above 45°C
Noise emission (typical)	≤ 25 dB(A)
Altitude	Up to 2000m(6560ft)Without power derating
Relative humidity	95%
Consumption: operating (standby) / night	<5W / < 0.5 W
Topology	Transformerless
Cooling concept	Natural
Environmental Protection Rating	IP65

Features

PV connection	No
Battery connection	Screw terminal
AC connection	Screw terminal
Display	LED
Interfaces:Wi-Fi/USB/GPRS/RS485 /4G	Opt/Yes/Opt/Yes/Yes
Warranty	5 years / 10 years (Optional)/15years (Optional)

Extra Features included in the long body design.	Main AC Switch Battery Switches Back up RCD Switch EPS pre-installed for super fast fit
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Certificates

AS 4777, VDE-AR-N4105, VDE0126, G83, G98, IEC62109-1-2, IEC62040, EN61000-6-2, EN61000-6-3, EN50438

Specification

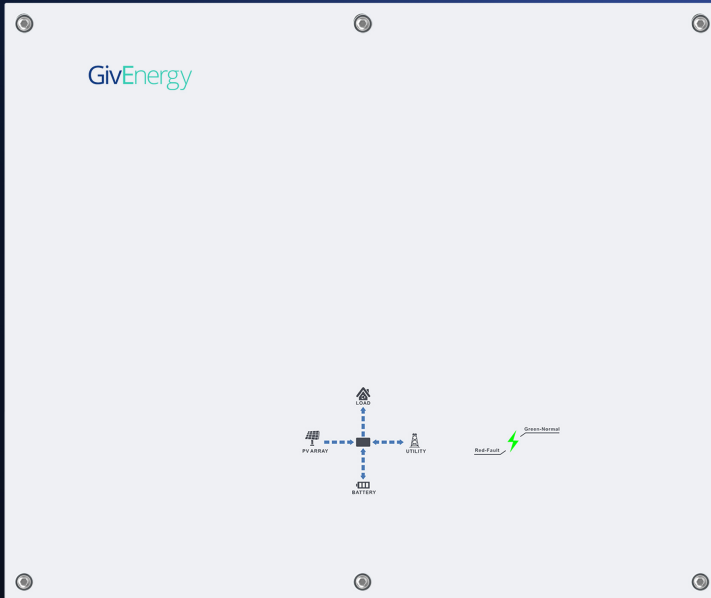
Long Body AC Coupled
Giv-AC3.0L



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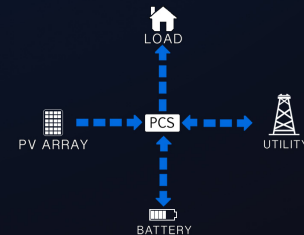
3 Phase Hybrid System

Hybrid Inverter



- ◆ Compatible with GivEnergy LiFePO₄ battery packs
- ◆ Charging and discharging (10kW)
- ◆ Suitable for small commercial properties
- ◆ Designed to maximise self-consumption and minimise imported electricity
- ◆ Back up for essential loads
- ◆ Remote software updates via Wi-Fi / 4G Dongle
- ◆ Active and reactive power control (instantly)
- ◆ Comprehensive monitoring

Dimensions (W/H/D) 650*460*210mm
Weight 40kg



GivEnergy®

Input Data (DC)	Giv-3P-HY6.0	Giv-3P-HY8.0	Giv-HY10
Max DC power	7800W	10400W	1300W
Max DC voltage		1000V	
Start voltage		200V	
DC nominal voltage		600V	
PV voltage range		280V-800V	
MPPT voltage range		120V-550V	
Max input current per string of tracker A/tracker B		11A/11A	
Number of independent MPPT input		2/1	

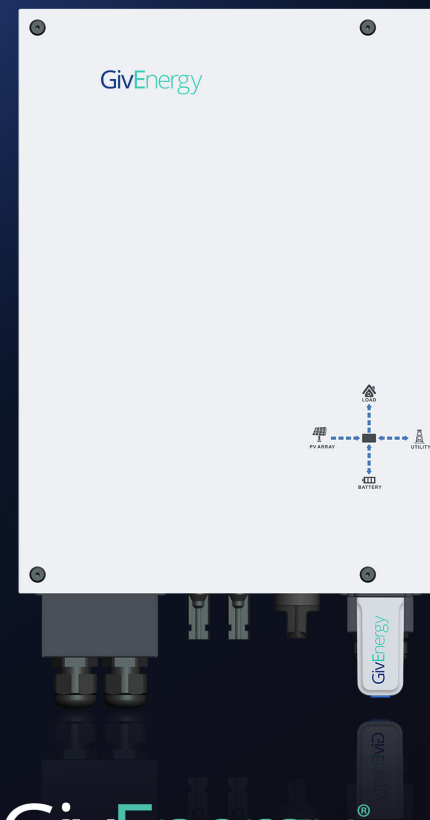
Output Data (AC)			
Nominal AC output power	6000W	8000W	10000W
Max AC apparent power	6000W	8000W	10000W
Max output current	10.0A	13.0A	16.0A
AC nominal voltage; range		380V/400V; 310V-480V	
AC grid frequency; range		50,60Hz; ± 5 Hz	
Power factor at rated power		1	
Power factor		0.8leading...0.8lagging	
THDi		<3% (<1.5% @ Full load)	

Battery	
Battery type	Li-ion or Lead-acid
Nominal voltage	384V
Max discharging /charging power	10000W / 10000W
Charging curve	3-stage adaptive with maintenance
Operating voltage range	352V-456V
Max charging/discharging current	25A / 25A

Emergency Backup Power Output	
Output rated power	10000W (3-phase asymmetrical load)
Output voltage	230V, 50/60Hz ± 5 Hz
Maximun efficiency (Peak Power)	15000W for 10ms; 12000W for 10s
THDv	<3%
Switch Time	<10ms

Specification

3 Phase Hybrid
Giv-3P-HY6.0 / Giv-3P-HY8.0
Giv-3P-HY10



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Efficiency	Giv-3P-HY6.0	Giv-3P-HY8.0	Giv-HY10
Euro-ETA	97.5%	97.5%	97.5%
MPPT efficiency	99.9%	99.9%	99.9%
Max efficiency	98.0%	98.3%	98.3%
Max battery to load efficiency	94.0%	94.0%	94.9%

Protection Devices

DC reverse polarity protection	Yes
DC switch rating for each MPPT	Yes
Output over current protection	Yes
Output overvoltage protection-varistor	Yes
Ground fault monitoring	Yes
Grid monitoring	Yes
Integrated leakage current monitoring unit	Yes

General Data

Dimensions (W / H / D)	650*460*210mm
Weight	40kg
Operating temperature range	-25°C/+60°C (-13°F/+140°F) With derating above 45°C (113°F)
Noise emission (typical)	≤ 25 dB(A)
Altitude	Up to 2000m(6560ft)Without power derating
Relative humidity	95%
Consumption: operating (standby) / night	<5W / < 0.5 W
Cooling concept	Natural
Environmental Protection Rating	IP65

Features

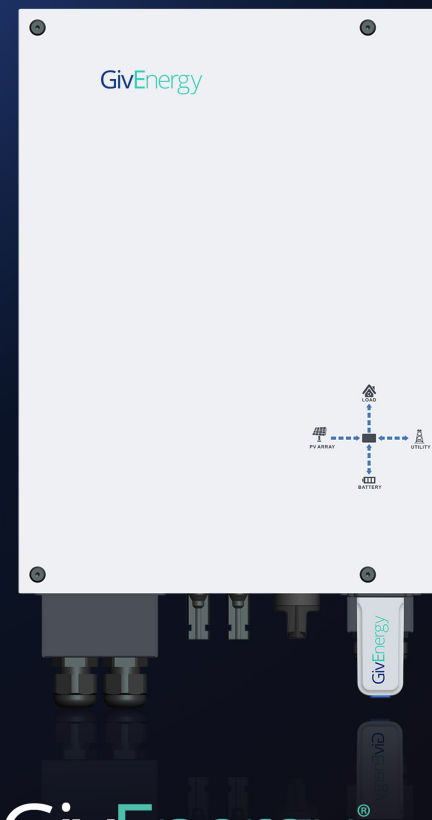
PV connection	H4/MC4
Battery connection	Screw terminal
AC connection	Screw terminal
Display	LED
Interfaces:Wi-Fi/USB/GPRS/RS485	Opt/Yes/Opt/Yes
Warranty: 5 years / 10 years / 15 years	Yes/Opt/Opt

Certificates and Approvals

G99 / CE,IEC 62109-1&2, VDE 0126-1-1,G59/2, AS4777&AS/NZS 3100, EN50438

Specification

3 Phase Hybrid
Giv-3P-HY6.0 / Giv-3P-HY8.0
Giv-3P-HY10



GivEnergy®

Battery Storage

Giv-Bat-ECO-2.6



- ◆ Using the latest LiFePO₄ prismatic cell technology
- ◆ Warranted for 10 years or throughput of 10 MWh per 1kWh of stored capacity
- ◆ 0.5C-1C charge and discharge rate
- ◆ 157Wh per Kg +/- 5%
- ◆ Plug & Play functionality
- ◆ Active BMS system allowing greater control and functionality
- ◆ Scalable Battery Packs - Up to 5 per inverter in 2019
- ◆ Fully Recyclable at end of life
- ◆ IP65



GivEnergy®

Specification

Giv-Bat-ECO-2.6

Model	Giv-Bat-ECO-2.6
Capacity	2.6kWh
Voltage	51.2VDC
Current	51Ah
IP Grade	IP65
BMS	Robust multi point monitoring BMS pre installed
Life cycling (80% DOD, 25°C)	10years
Operation temperature	-20°C~55°C
Storage Temperature	-30°C~60°C
Warranty BTT	26MWh
	10 years, whichever comes sooner
Standard	UN 38.3, IEC61000
Weight	28kg
Dimensions	380*340*191mm

Electrical Parameters

Operating voltage	57.6VDC
Maximum Charging Voltage	57.9VDC
Maximum charging/ Discharging current	50A / 50A
Network Interface	RS485
Communication Protocols	Modbus
Advantages	Stackable, BMS upgradeable, *IP65



GivEnergy® eco 2.6

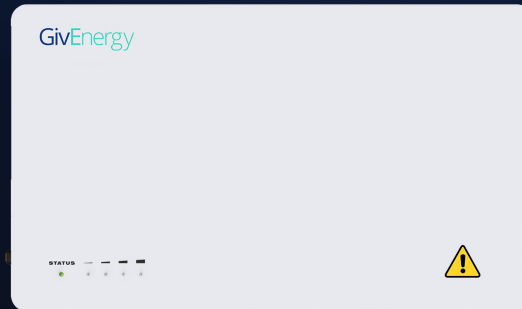
Battery Storage

LiFePO₄

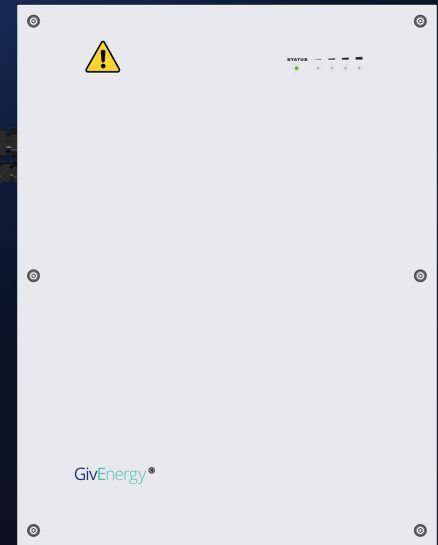
- ◆ Using the latest LiFePO₄ prismatic cell technology
- ◆ Warranted throughput of 10 MWh per 1kWh of stored capacity
Or 10 Years, Whichever comes first
- ◆ 0.5C-1C charge and discharge rate
- ◆ 170Wh per Kg +/- 5%
- ◆ Active BMS system allowing greater control and functionality
- ◆ Scalable Battery Packs - Up to 5 per inverter in 2019
- ◆ Fully Recyclable at end of life
- ◆ IP65



3.2kWh (16kWh scalable)



6.3kWh (31.5kWh scalable)



8.2kWh (41kWh scalable)

GivEnergy®

Specification

LiFePO₄ Battery

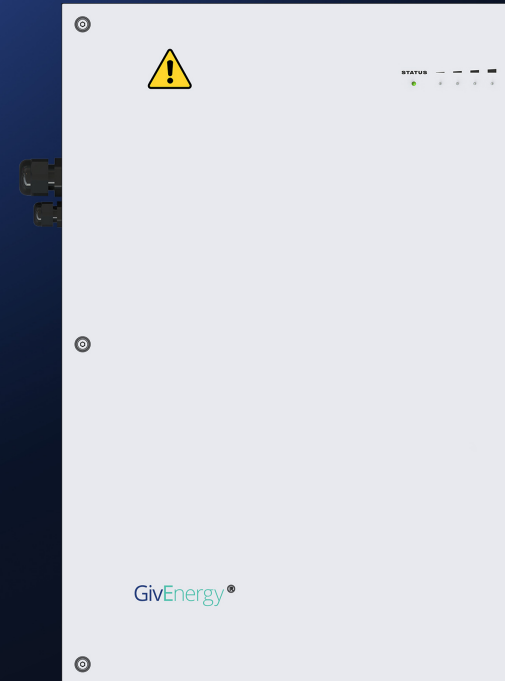
Model	Giv-Bat3.2	Giv-Bat6.3	Giv-Bat8.2
Capacity	3.2kWh	6.3kWh	8.2kWh
Voltage	51.2VDC	51.2VDC	51.2VDC
Current	61.5Ah	123Ah	161Ah
IP Grade	IP65	IP65	IP65
BMS	Robust multi point monitoring BMS pre installed		
Life cycling (80% DOD, 25°C)		10years	
Operation temperature		0°C~45°C	
Storage Temperature		-30°C~60°C	
Warranty BTT	32MWh	63MWh	82MWh
	10 years, whichever comes sooner		
Standard		UN 38.3, IEC61000	
Weight	28kg	53kg	74kg
Dimensions	380*340*191mm	690*390*182 mm	480*620*220 mm

Electrical Parameters

Operating voltage	44.4VDC-57.6VDC
Maximum Charging Voltage	60VDC
Maximum charging/ Discharging current	60A/60A
Network Interface	RS485
Communication Protocols	Modbus
Advantages	Stackable, BMS upgradeable, *IP65



Cell Technonlogy Prismatic LiFePO₄



GivEnergy®

Dongle

Wi Fi / 4G



- ◆ Choose From Wi-Fi, 4G or Ethernet RJ45 Dongle options
- ◆ Flexible monitoring through IOS / Android
- ◆ IP65
- ◆ Easy configuration before install
- ◆ Real time monitoring when used with the APP
- ◆ Monitoring points every 5 minutes.

Specification

WiFi / 4G

4G Module

Port type	USB
SIM card type	Micro
Frequency range	GSM 900 - 1800 MHz
Antenna gain	3.0 dBi
Operation voltage	5 V
Operation current	400 mA
Instantaneous Max. power	< 2 W
Statics power	< 1 W

General Data

Dimension (W/H/D)	79/135/29 mm
Weight	63 g
Operation temperature	-25°C ~ +55°C
Certification	FCC/CE
Warranty	5 year

Wi-Fi Module

Wireless type	802.11.b/g/n
Frequency range	2.412GHz ~ 2.484GHz
Antenna gain	2.5 dBi
WLAN default IP	192.168.10.100
Default server URL	server.GivEnergy.cloud

Security

Security mechanism	WEP/WPA-PSK/WPA2-PSK/WAPI
Encryption	WEP64/WEP128/AES/TKIP

General Data

Max. communication distance	50m (Through one wall)
Dimension (W/H/D)	79/135/29 mm
Weight	63 g
Operation temperature	-25°C ~ +55°C
Certification	FCC/CE
Warranty	5 year

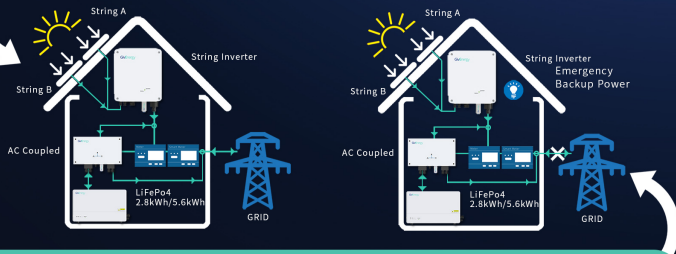


Home Systems

Operating Modes

Day time mode

The inverter will divert PV generated power into the home to assist the demand. If the PV generation is higher than the demand the excess will be stored in the battery and/or exported to grid. If the demand in the home spikes (for example turning on a kettle) and the PV generation isn't enough on its own to meet this demand the battery will discharge to assist the PV so that very little energy is imported from the grid.

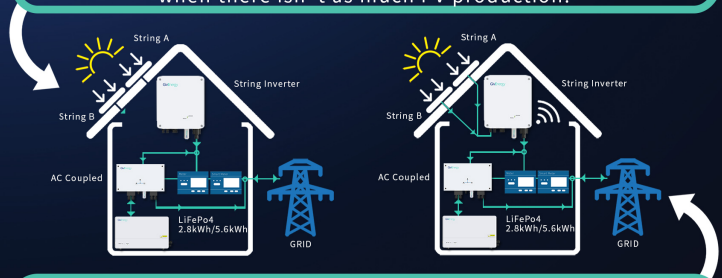


Evening mode

When the PV is not generating due to insufficient light levels the system will monitor the demand and discharge the battery at the required level to minimise imported energy and to reduce demand on the grid at peak times.

Night time (Economy 7) mode

Our systems can be set to recharge at cheap off peak rate energy to be used at peak times. This is extremely useful in Winter when there isn't as much PV production.



Emergency back up mode

Our systems can be installed so that if you suffer a loss of power to the home our system will automatically switch over to power your lighting and other essential circuits

Demand Side Response

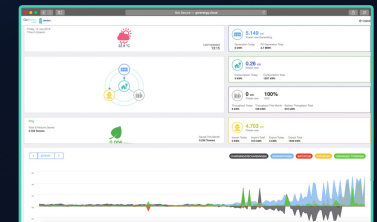
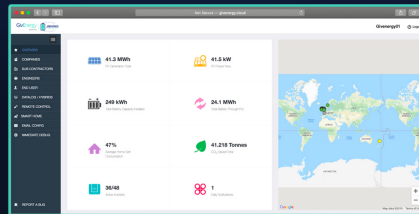
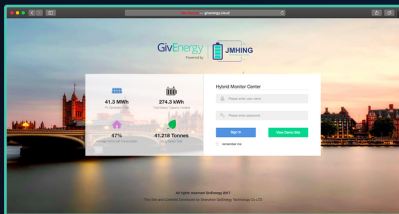
There is an option in our software to allow remote data collection/ analytics. This gives vital information to utility providers and can allow a high level of indication to when demand will occur. The system can also be operated remotely via wireless communication and can allow network operators access to balance the community loads at peak times and replace at off peak times, without any user intervention.

Home Systems

Monitoring Portal



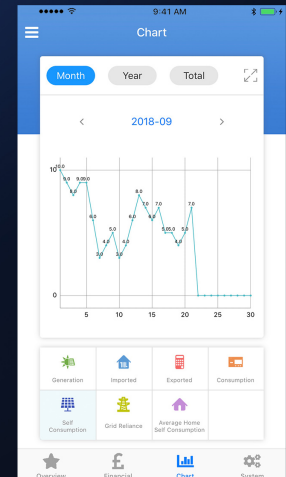
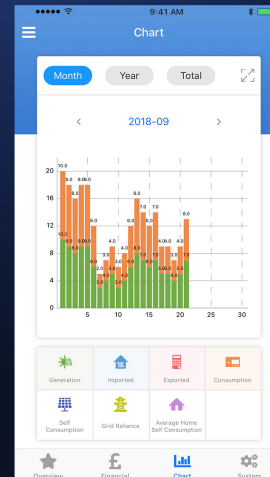
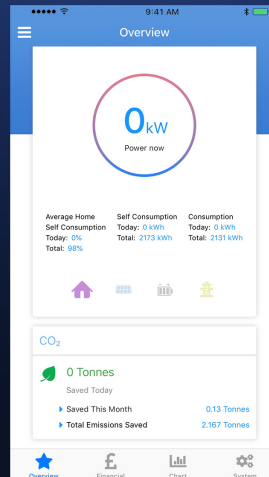
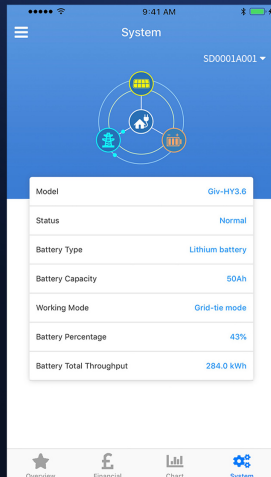
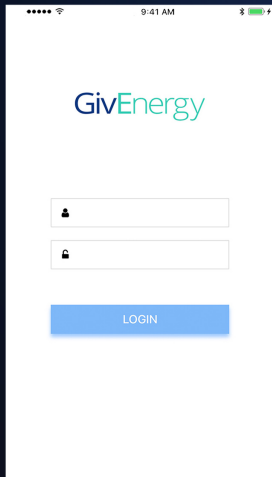
- ◆ Complete monitoring of all energy modes: Import, Export, Generation & Consumption.
- ◆ Web portal or APP access anywhere and anytime
- ◆ Real time monitoring and data with integrated smart meter
- ◆ Monitor PV array parameters
- ◆ Monitor battery information, SoC, warranted throughput
- ◆ Remote Control access for charging/discharging (DUoS, TnUoS, ToU, Off Peak)
- ◆ Remotely charge and Discharge with Simplicity



We have the control logic and monitoring platform that we believe to be the best on the market, we spend thousands of hours speaking with our clients to improve each version and allow us the greatest flexibility. This affords us the time to research and develop the best outcomes for our clients. Please feel free to look at our monitoring and control portal.

Mobile App

IOS & Android



App Available to download from



GivEnergy®

Model	GivPCS-100	GivPCS-250	GivPCS-500
AC connection method	Three-phase three-wire	Three-phase three-wire	Three-phase three-wire
Parameters in battery side			
Rated power	100kW	250kW	500kW
DC voltage range	500V~900V	500V~900V	500V~900V
DC voltage range of full power	500V~850V	500V~850V	580V~850V
Rated running current	207A	517A	880A
Voltage stabilizing accuracy	≤1%	≤1%	≤1%
Current stabilizing accuracy	≤2%	≤2%	≤2%

Parameters in battery side			
Rated power	100kW	250kW	500kW
Max capacity Rated	110kVA	275kVA	550kVA
grid voltage	400V	400V	400V
Voltage range (gird-connected)	400V+10%(Adjustable)	400V+10%(Adjustable)	400V+10%(Adjustable)
Voltage range(off gird)	400V±5%	400V±5%	400V±5%
Rated current	145A	362A	721A
Max running current	159A	398A	794A
Rated grid frequency		50HZ	
Frequency range		47-51.5 (Adjustable)	
THDv		<3% (rated power)	
Power factor		0.9(lead)-0.9(lagging)	

Protection	GivPCS-100	GivPCS-250	GivPCS-500
Low voltage ride through		Yes	
Anti-islanding mode		Yes (support planned Island)	
AC over current/short circuit protection		Yes	
AC over voltage/under voltage protection		Yes	
AC over frequency/under frequency protection		Yes	
Phase sequence fault protection		Yes	
DC over current/short circuit protection		Yes	
DC over voltage/under voltage protection		Yes	
DC reverse polarity protection		Yes	
Over temperature protection		Yes	
Insulation protection		Yes	
Power module(IGBT) protection		Yes	
System			
Max conversion efficiency	0.97	0.97	0.987
Dimension(W*H*D)	807mm*1976mm*860mm	1010mm*1976mm*650mm	1406mm*1976mm*650mm
Weight	930kg	940kg	950kg
Altitude		5000m	
Protective class		IP23	
Noise		<65dB	
Operating temperature		-35°C~+45°C	
Storage Temperature		-40°C~+70°C	
Cooling		Forced Air cooling	
Relative humidity		0-95%, Non- condensing	
Communication		Ethernet、RS485、CAN2.0, Modbus, Bacnet	

Introduction

The Battery Management System (BMS) comprises of the following items:

(BMU) Battery Module Monitoring Unit. This is used to monitor each 9.6kWh pack and monitors the cell voltages and temperatures of each cell within the pack.

(BCMS) Battery Cluster Management Unit. This is used to monitor all 8.448kWh packs within a rack. This also monitors Pack voltages, Pack Temperatures and monitors SoC of each pack when charging and discharging.

(DMU) DC Monitoring Unit. This monitors the central DC BUS and controls the upper and lower voltage limits of the battery pack.

(BAMS) Battery Rack Automatic Management System. This is the Heart of the control system and is used to read all battery packs in regards to voltages, currents, SoC. This unit also control the charge and discharge rates of the battery packs, manages pack voltages and temperatures and adjusts safety/grid parameters accordingly.



BAMS

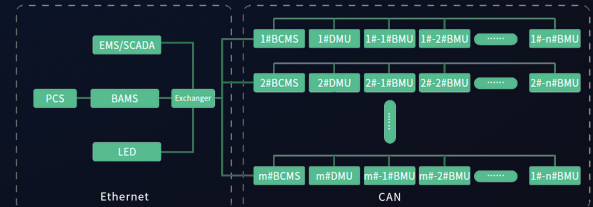
Production

- ◆ SoC high protection
- ◆ SoC low protection
- ◆ Rack overvoltage protection
- ◆ Rack undervoltage protection
- ◆ Rack overcurrent protection
- ◆ Single cell overvoltage protection
- ◆ Single cell undervoltage protection
- ◆ Single cell overcurrent protection
- ◆ Single cell over temperature protection
- ◆ Single cell low temperature protection
- ◆ Short circuit protection
- ◆ Fire protection

Specification

Master BMS	
Name	Specifications
Voltage Range	18~32V
Cell Voltage	0~5V
Cell Voltage Error Range	$\leq \pm 3mV$
Voltage and Tep Acquisition Cycle	$\leq 5ms$
Current Acquisition Range	$\leq 300A$
Current Acquisition Error	$\leq \pm 1\%$
Current Acquisition Cycle	$\leq 1ms$
Temperature Acquisition Error	$\leq \pm 1^{\circ}C$
Temperature Acquisition Range	-20~60°C
Battery Balanced Current	2A
Communication with PCS	CAN
Communication with EMS	Ethernet
History Event Memory	≥ 100000 packet
History Store Memory	≥ 90 day

Communication



OEM UK Installation

Recent Installs



AC Coupled + 2.6kWh Battery



AC Coupled + 2x2.6kWh ECO Battery

OEM UK Installation

Recent Installs



5kWh Hybrid Inverter
3x2.6kWh ECO Battery

OEM UK Installation

Recent Installs



2 x 5kWh Hybrid Inverter
2 x 6.3kWh Battery



5kWh Hybrid Inverter
2.6kWh ECO Battery



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GivEnergy®