



GivEnergy®

2019
V1.8D

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Home Energy Storage Systems

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GivEnergy[®]

Home Energy Storage Systems



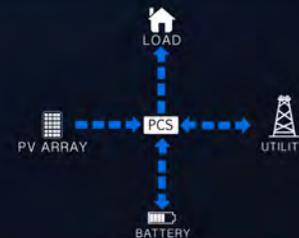
Hybrid System

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



Specification

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

| 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) | Giv-HY3.6 | Giv-HY5.0 |
|-----------------------------|---|-----------|
| 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 | Giv-HY3.6 | Giv-HY5.0 |
|----------------------------------|-----------------------------------|-----------|
| 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 | Giv-HY3.6 | Giv-HY5.0 |
|-------------------------------|-----------|-----------|
| Output rated power | 97.00% | 97.10% |
| Output voltage | 96.50% | 96.50% |
| Maximun efficiency | 99.50% | 99.50% |



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

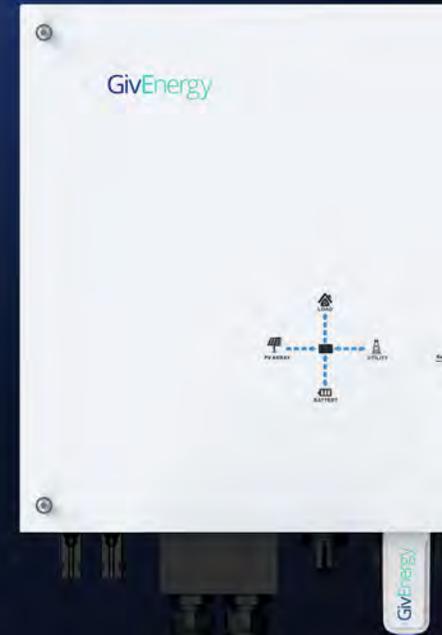
| | |
|---|---------------------|
| PV connection | H4/MC4 |
| Battery connection | Screw terminal |
| AC connection | Screw terminal |
| Display | LED |
| Interfaces:Wi-Fi/USB/GPRS/RS485/4G | Opt/Yes/Opt/Yes/Yes |
| Warranty: 5 years / 10 years / 15 years | Yes/Opt/Opt |

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



Long Body Hybrid

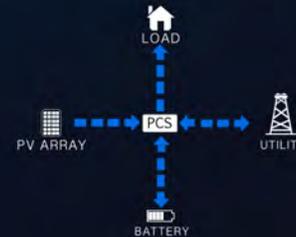
Giv-HY3.6L / Giv-HY5.0L



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



Specification

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

| 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) | Giv-HY3.6 | Giv-HY5.0 |
|-----------------------------|---|-----------|
| 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 | Giv-HY3.6 | Giv-HY5.0 |
|----------------------------------|-----------------------------------|-----------|
| 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 | Giv-HY3.6 | Giv-HY5.0 |
|-------------------------------|-----------|-----------|
| Output rated power | 97.00% | 97.10% |
| Output voltage | 96.50% | 96.50% |
| Maximun efficiency | 99.50% | 99.50% |



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



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



Specification

AC Coupled
Giv-AC3.0

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 |
| Norminal 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 ±2%, 50Hz (60Hz Optional)±0.2%,THDV<3% (linear load) |

Efficiency

| | |
|----------------|--------|
| Max efficiency | 97.10% |
| Euro-ETA | 96.5% |



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

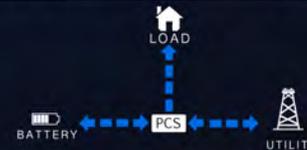


- ◆ Smart Demand Management
- ◆ Mobile App Available
- ◆ Wi-Fi/4G/RJ45
- ◆ Cloud based monitoring and control
- ◆ Monitor renewable generation from any source

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



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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 |
| Norminal 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



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 |
|--|--|

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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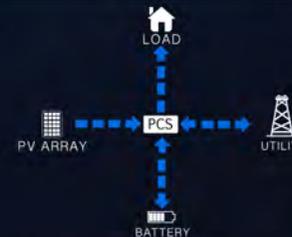
3 Phase Hybrid System

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®

Specification

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

| 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 ±5Hz |
| Maximun efficiency (Peak Power) | 15000W for 10ms; 12000W for10s |
| THDv | <3% |
| Switch Time | <10ms |



| 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

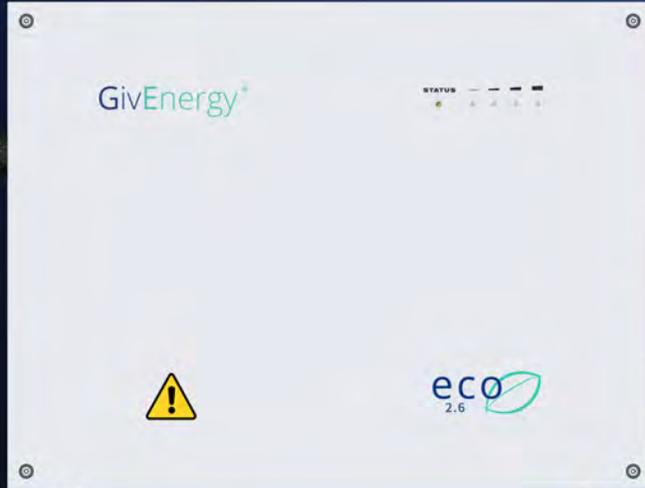
Specification

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



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 |



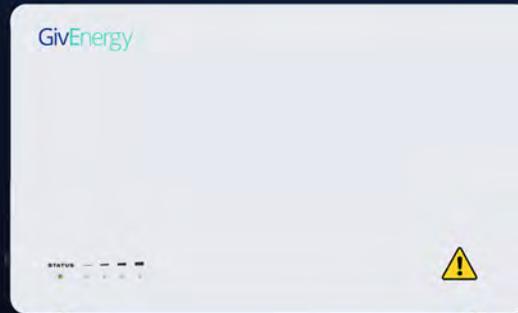
Battery Storage

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

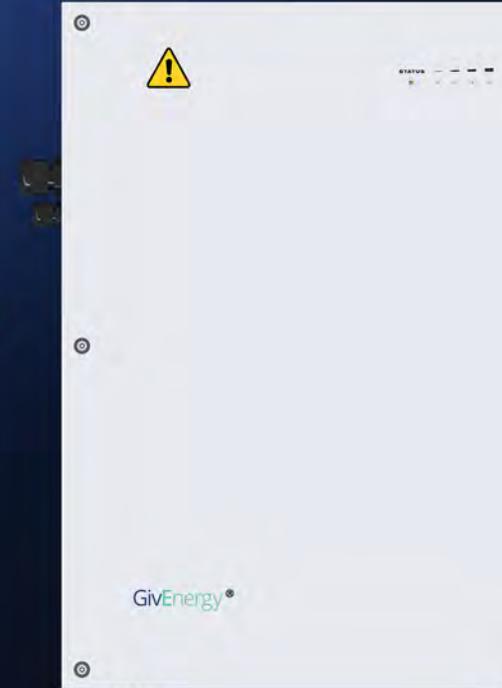
| Model | Giv-Bat3.2 | Giv-Bat6.3 | Giv-Bat8.2 |
|------------------------------|---|----------------|----------------|
| Capacity | 3.2kWh | 6.3kWh | 8.2kWh |
| Voltage | 51.2VDC | 51.2VDC | 51.2VDC |
| Current | 61.5Ah | 123Ah | 161Ah |
| IP Grade | IP65 | IP65 | IP65 |
| BMS | Robust multi point monitoring 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 Technology Prismatic LiFePO₄





- ◆ Fully compliant with SEAI Guidelines
- ◆ Plug And PLaY
- ◆ Dual MPPT input 1000V DC 20A
- ◆ High Voltage Automatic DC Connector Relay
- ◆ Disconnects PV supply when Grid fails
- ◆ Automatically reinstates PV supply when grid is stable
- ◆ Programmable time delay
- ◆ Programmable grid settings
- ◆ Standard 5 year warranty
- ◆ Non invasive, low maintenance requirement

Specification

PV Protect

Input Data (DC)

| | |
|----------------------------------|----------------|
| DC input Minimum/Maximum Voltage | 50V-1000V |
| DC Nominal Current | 20A |
| MAX DC Short circuit Current | 750A |
| Terminals | MC4-IP65 |
| MPPT | 2 (in and out) |

AC

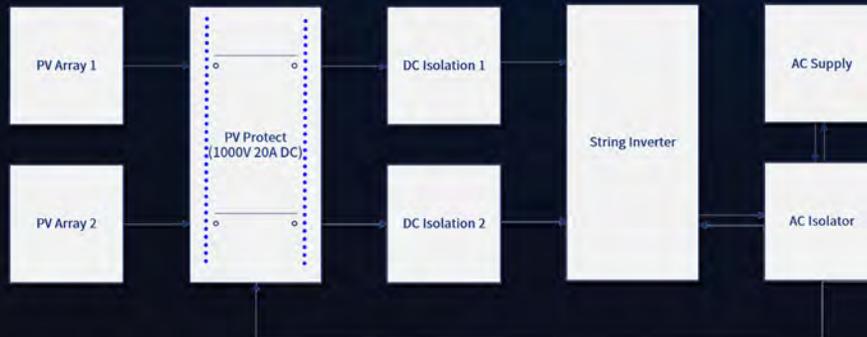
| | |
|-------------------------------------|--------------------------|
| AC working Voltage | 230Vac 50Hz Single Phase |
| Voltage Protection | Programmable |
| Overtoltage Setting Range | 220VAC-290VAC |
| Low voltage Setting Range | 150VAC-219VAC |
| Voltage Recovery time Setting Range | 1s-256s |
| Self consumption | ≤5W |
| MCB | 16A |
| AC supply connection | 1A |

Others

| | |
|---------------------|----------------------------|
| Dimensions(W*H*D) | 310*200*93.5 |
| Install | Wall Mounted |
| Weight | 3.8kG |
| LED | PV and Grid Working Lights |
| Working Temperature | -20°C to 50°C |
| IP | IP20 / IP67 available |
| Enclosure | Mild Steel Powder Coated |

Warranty

5 Years Parts Only



GivEnergy®

Voltage Optimiser

3 Tap (Selectable)
Giv-VO-360



- ◆ Digital display to show the output voltage
- ◆ Built in Voltage protection
- ◆ Prevent wear on appliances caused by electrical over supply and power surges
- ◆ Simple installation
- ◆ Works with, and improves the efficiency of, heat pumps and PV systems
- ◆ Thermal Protection
- ◆ Admendmant 3 compliant
- ◆ Manufactured to the highest British manufacturing standards
- ◆ Saves money on your electricity bills

Specification

3 Tap (Selectable)
Giv-VO-360

| | |
|---------------------------|---|
| Description | GIV-VO-360 Domestic Voltage Optimisation Unit |
| Input(Volts) | Nominal input voltage 230v + 10% - 6%, 50 Hz, Single Phase AC |
| Output(Volts) | Nominal input voltage less 6, 12 or 18V (selectable) |
| Max Load | 14.4kW |
| Dimensions | 450mmx280mmx110mm |
| Weight | Approximately 18kgs |
| Operating Temperature | -5°c to + 55°c |
| Terminal Capacity | Incoming Both Live and Neutral=35.0mm2 Outgoing Both Live and Neutral=35.0mm2 |
| Miniature Circuit Breaker | 63Amp 6kA Type to BS EN 60898 |
| Enclosure | Mild Steel Power Coated |
| Ingress Protection | IP20 |
| Cable Entry | Bottom - 2x25mm compression glands |
| Standards | MCBs to BS EN 60898 |
| Warranty | The Giv-VO-360 voltage optimisation unit is guaranteed for a period of 5 years from date of purchase. This warranty is limited the replacement of faulty components only. |



Voltage
Reduced &
Stabilised



Electricity
bills cut



GivEnergy®

Metering EM418

single phase energy meter-100A-Modbus- Multi-rates



- ◆ MID approved with appendix "B" and "D" certification
- ◆ Single phase metering 4.5 din modules
- ◆ Direct metering up to 100A
- ◆ LCD display, 6 integer 2 decimal, meter display when power fails
- ◆ Clear green backlight display
- ◆ S0 pulse output
- ◆ Modbus RTU with 16 bit CRC
- ◆ 1,2,3 and 4 tariff meter option
- ◆ Accuracy class B according to EN50470-3
- ◆ Accuracy class 1 according to IEC62053-21
- ◆ Memory back-up (EEPROM)
- ◆ Import / Export / Generation and Consumption
- ◆ NET Metering to comply with OFGEM regulations on Co-Located Storage

Characteristics

| | |
|----------------------------------|---|
| Type of measurement | Voltage, Ampere, kW, kvar, PF, Hz, +kWh, -kWh, ΣkWh, -kvarh, +kvarh |
| Rated current | 100A |
| Rated Voltage | 230V |
| Frequency (Hz) | 50 or 60Hz |
| Maximum current | 100A |
| Maximum value measured | 999999.99kWh |
| Power consumption | <2W 10VA |
| Current terminals flexible 1×mm2 | 0-16mm2 |
| RS485 cable | AWG18 |
| another terminal flexible 1×mm2 | 0-2.5mm2 |

Time of use

| | |
|------------------------------------|-----------|
| Rates | 0~4 |
| Separate Import & Export Registers | 585 |
| Programmable special days | 64 |
| Time-keeping accuracy | <0.5S/day |
| Power off clock running time | >5 years |

Modbus serial comms

| | |
|------------------|------------------------------|
| Protocol | Modbus RTU with 16 bit CRC |
| Baud Rate(bps) | 1200,2400,4800,9600(default) |
| Bus loading(pcs) | < 64 |

Dimension

| | |
|-------------|-------|
| Width (mm) | 76 |
| Height (mm) | 104.5 |
| Depth (mm) | 60 |

Environmental

| | |
|-----------------------|---------------|
| Operating temperature | -25°C - +55°C |
| Storage temperature | -40°C - +70°C |

Specification

EM418



GivEnergy®

Metering EM115

single phase energy meter-45A-Modbus



- ◆ MID approved with appendix "B" and "D" certification
- ◆ Single phase metering 1 din modules
- ◆ Direct metering up to 100A
- ◆ LCD display, 6 integer 2 decimal
- ◆ Clear green backlight display
- ◆ S0 pulse output
- ◆ Modbus RTU with 16 bit CRC
- ◆ 1,2,3 and 4 tariff meter option
- ◆ Accuracy class B according to EN50470-3
- ◆ Accuracy class 1 according to IEC62053-21
- ◆ Memory back-up (EEPROM)
- ◆ Import / Export / Generation and Consumption
- ◆ NET Metering to comply with OFGEM regulations on Co-Located Storage
- ◆ With bi-directional energy measurement, this meter is ideal for solar PV energy metering. Direct/CT connection
- ◆ Solid or split CT options

Specification

EM115

Characteristics

| | |
|----------------------------------|--|
| Type of measurement | Voltage ,Ampere ,kW, PF,HZ, +kWh , -kWh ,L kWh |
| Rated current | 5A |
| Rated Voltage | 230V |
| Frequency (Hz) | 50 or 60Hz |
| Maximum current | 45A |
| Maximum value measured | 999999.99kWh |
| Power consumption | <1.3W 0.01 VA |
| Current terminals flexible 1×mm2 | 0-16mm2 |
| RS485 cable | AWG18 |
| another terminal flexible 1×mm2 | 0-2.5mm2 |

General Data

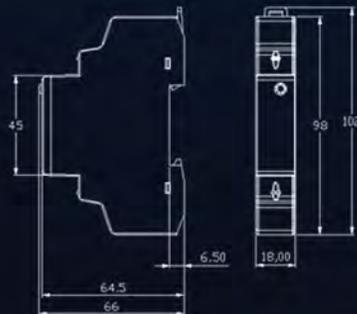
| | |
|---------------------------|------------------|
| Pulse 1 width(ms) | 80 |
| Pulse 1 constant(imp/kWh) | 10000 |
| Pulse 2 constant(imp/kWh) | 0.001/0.01/0.1/1 |
| LED constant(imp/kWh) | 10000 |

Dimension

| | |
|-------------|-------|
| Width (mm) | 18 |
| Height (mm) | 104.5 |
| Depth (mm) | 88 |

Environmental

| | |
|-----------------------|---------------|
| Operating temperature | -25°C - +55°C |
| Storage temperature | -40°C - +70°C |



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 |

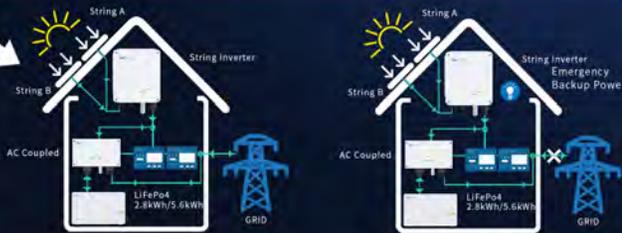


Home Systems

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.



Emergency back up mode

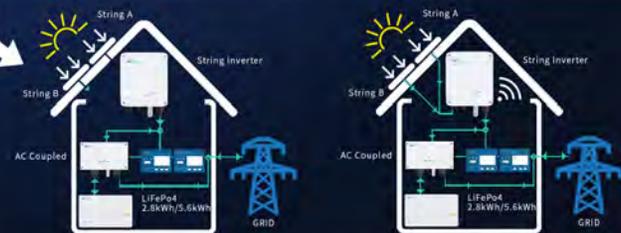
Our systems can be installed so that if you suffer a loss of power to the home our system will automatically switch over to power your lighting and other essential circuits

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.



Demand Side Response

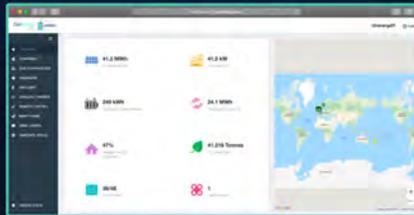
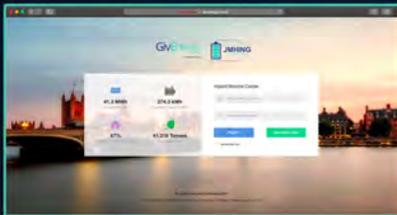
There is an option in our software to allow remote data collection/ analytics. This gives vital information to utility providers and can allow a high level of indication to when demand will occur. The system can also be operated remotely via wireless communication and can allow network operators access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

Home Systems

Monitoring Portal



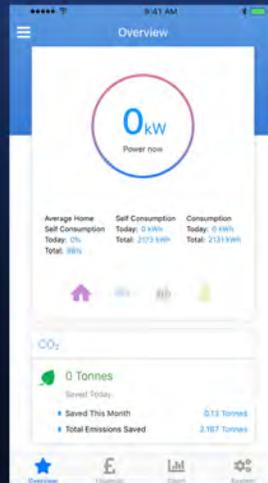
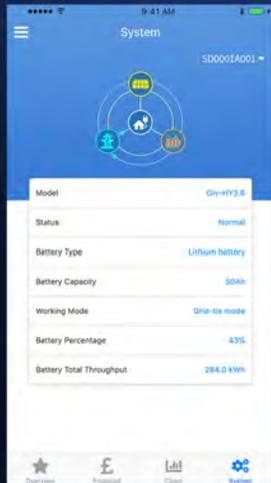
- ◆ Complete monitoring of all energy modes: Import, Export, Generation & Consumption.
- ◆ Web portal or APP access anywhere and anytime
- ◆ Real time monitoring and data with integrated smart meter
- ◆ Monitor PV array parameters
- ◆ Monitor battery information, SoC, warranted throughput
- ◆ Remote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



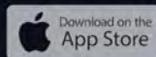
We have the control logic and monitoring platform that we believe to be the best on the market, we spend thousands of hours speaking with our clients to improve each version and allow us the greatest flexibility. This affords us the time to research and develop the best outcomes for our clients. Please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

Mobile App

IOS & Android



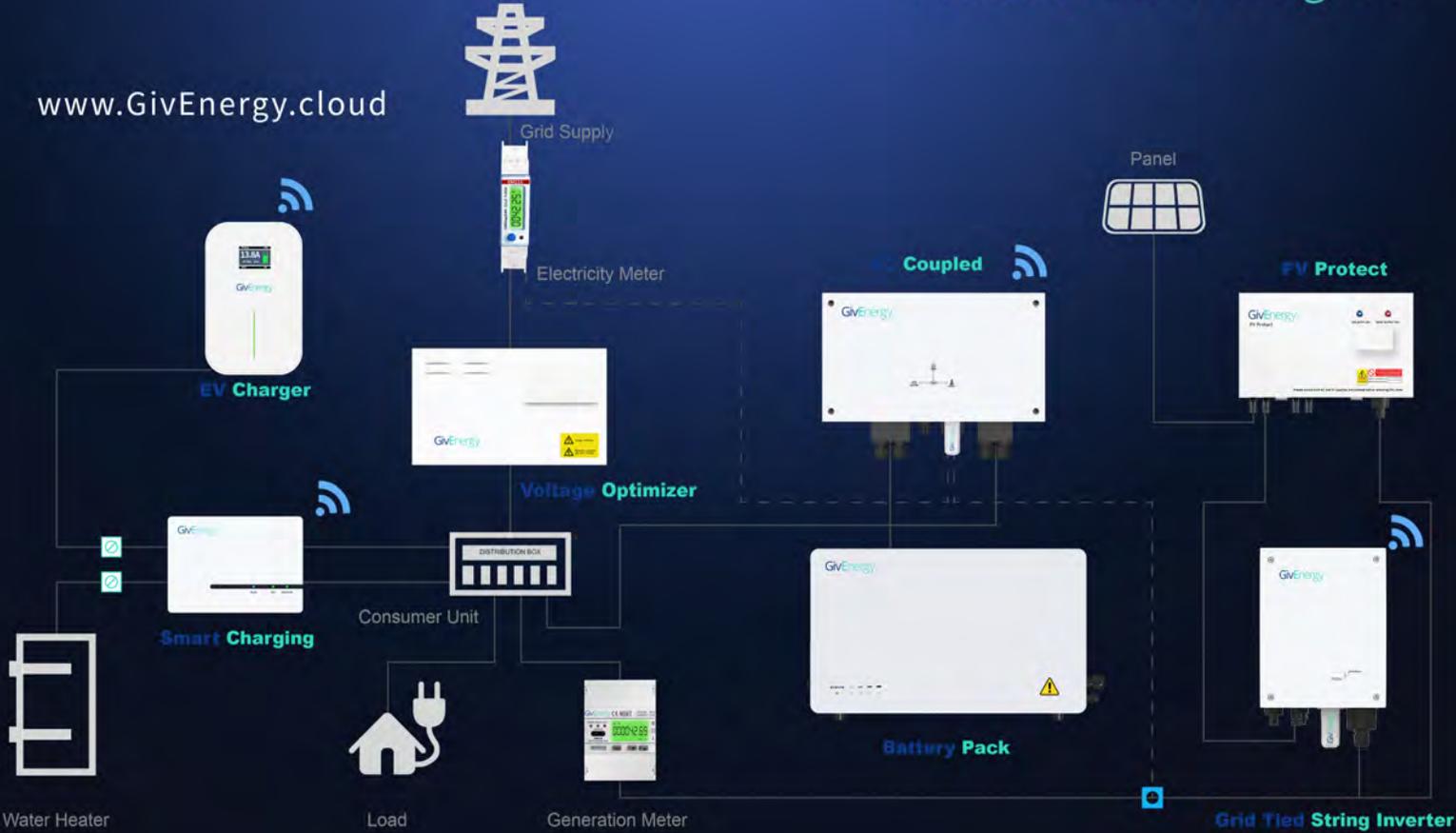
App Available to download from



GivEnergy®

Product Flow Diagram

www.GivEnergy.cloud



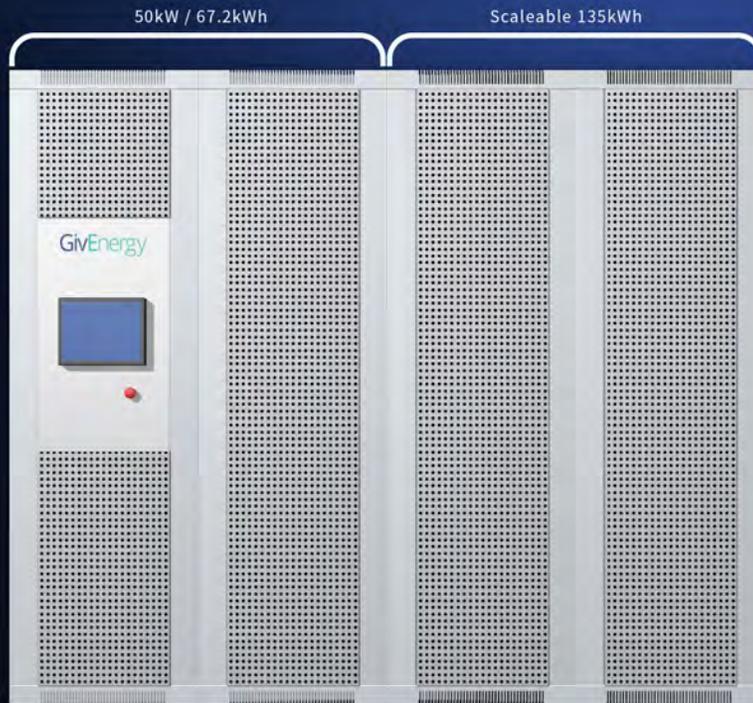
GivEnergy

Energy Storage
For
Commercial, Industrial and Grid



SME- Small to Mid Sized Enterprise Energy Storage System

64kWh / 50Kw Cabinet



- ◆ Using the latest LiFePO₄ prismatic cell technology
- ◆ Smart EMS for integration of renewables
- ◆ Up to 1C charge and discharge rate
- ◆ 3 Phase 400V Installation
- ◆ Plug & Play Battery Packs, each 9.6kWh
- ◆ Multi Layer BMS for cell management - can be used to shift peak demand (DUOS), system allowing greater control and functionality
- ◆ Remote monitoring & control
- ◆ Local control via LED screen
- ◆ Scaleable in 64kWh cabinet upto 201.6kWh
- ◆ Available in 30/50/100kW Models
- ◆ IP20

| AC Specifications | GivPCS-30 | GivPCS-50 | GivPCS-100 |
|-------------------|-----------|-----------|------------|
|-------------------|-----------|-----------|------------|

| | | | |
|---------------------------|-------|-----------------------------|--------|
| Wiring Methods | | Three Phase Five Wires | |
| Nominal Power Capacity | 30kW | 50kW | 100kW |
| Maximun Power | 33kVA | 55kVA | 110kVA |
| Nominal Grid Voltage | | 400V | |
| Voltage Range (Grid Tied) | | 400V+ 10%(settable) | |
| Voltage Range (Off Grid) | | 400V±5% | |
| Nominal Current | 44A | 72A | 144A |
| Maximum Current | 48A | 79A | 158A |
| Nominal Frequency | | 50Hz | |
| Frequency Range | | 47-51.5 (settable) | |
| THDi | | <3% (Nominal Power) | |
| Power Factor | | 0.9 (Leading)-0.9 (Lagging) | |

| DC (Battery) Specifications | GivPCS-30 | GivPCS-50 | GivPCS-100 |
|-----------------------------|-----------|-----------|------------|
|-----------------------------|-----------|-----------|------------|

| | | | |
|------------------------------|------|-----------|-------|
| Nominal Power | 30kW | 50kW | 100kW |
| DC Voltage Range | | 0V-900V | |
| Full Load Voltage Range | | 350V-850V | |
| Nominal Current | 91A | 150A | 150A |
| Stabilized Voltage Precision | | ±1% | |
| Stabilized Current Precision | | ±2% | |

| PCS System | GivPCS-30 | GivPCS-50 | GivPCS-100 |
|------------|-----------|-----------|------------|
|------------|-----------|-----------|------------|

| | | | |
|-------------------------------|-------|-------------------------------------|-------|
| Maximum Conversion Efficiency | 0.95 | 0.955 | |
| Weight | 490KG | 600KG | 850KG |
| Dimensions | | Standard 19" 42U | |
| Altitude | | 5000 meter(Derated when>3000 meter) | |
| IP Grade | | IP20 | |
| Noise | | <65dB | |
| Operating Temp Range | | - 35°C~+45°C | |
| Storage Temp Range | | - 40°C~+10°C | |
| Cooling Method | | Forced Cooling | |
| Humidity | | 0-95% | |
| Communication | | Enthernet, RS485, CAN2.0 | |

| Others | GivPCS-30 | GivPCS-50 | GivPCS-100 |
|--------|-----------|-----------|------------|
|--------|-----------|-----------|------------|

| | | | |
|--------------------------------------|--|------|--|
| Phase Imbalance Operating Capability | | 100% | |
| Parallel Capability | | Yes | |

| Battery | GivPCS-30 | GivPCS-50 | GivPCS-100 |
|---------|-----------|-----------|------------|
|---------|-----------|-----------|------------|

| | | | |
|----------------------|--|------------------------|--|
| Battery Pack | | 5.33kWh Standard 19" | |
| Battery Pack Voltage | | 51.2VDC | |
| Battery Rack | | 64kWh Standard 19" 42U | |
| Battery Rack Voltage | | 614VDC | |
| Rack Scaleable | | Yes | |

Specification

64kWh / 50kW Cabinet



Rack Mounted Battery

125kWh - 1.25MWh



- ◆ 9.6kWh packs based on 61.5Ah cells
- ◆ Modular plug and play packs
- ◆ Easy to Install
- ◆ LiFePO₄ Battery cell Technology
- ◆ Can be used to charge from Grid or Surplus Renewable generation i.e solar, wind, hydro
- ◆ Built in multi layer BMS for precise cell monitoring and balancing
- ◆ Intergrated EMS allows multiple monitoring points
- ◆ 0.5c - 1c charge / discharge rate
- ◆ Modular packs, Modular racks for desired capacity
- ◆ Full monitoring and control through GivEnergy.Cloud



GivEnergy®

Specification

Rack Mounted Batteries



| Battery Rack | |
|------------------------------|---|
| Nominal Voltage | 665V |
| Maximum Charge Voltage | 759V |
| Cut-off Discharge Voltage | 600V |
| Nominal Current | 165A |
| Energy | 125kWh |
| Power | 109.8kW |
| Dimensions | 800*600*2140mm |
| 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 |
| Standard | UN 38.3, IEC61000 |

| Per Rack | 61.5Ah |
|----------|--------|
|----------|--------|

| | |
|-----|---------|
| 1, | 125kWh |
| 2, | 250kWh |
| 3, | 375kWh |
| 4, | 500kWh |
| 5, | 625kWh |
| 6, | 750kWh |
| 7, | 875kWh |
| 8, | 1000kWh |
| 9, | 1125kWh |
| 10, | 1250kWh |

For Larger rack mounted systems, please contact Technical@givenergy.co.uk

External Access Container

Energy Storage System



- ◆ Bridge Power Gaps in Generation
- ◆ Modular 72kWh Battery Packs
- ◆ Backup Power for Grid Upgrades and Planned Maintenance
- ◆ Peak shaving and load shifting
- ◆ PF Regulation and Voltage Support
- ◆ Time of use ready
- ◆ DUoS Avoidance - Green, Amber, Red rates
- ◆ TnUoS- Triad Avoidance
- ◆ UPS (Optional)
- ◆ Easy installation - External rack mounted
- ◆ Integrated G99 Relay Control Panel
- ◆ 400V/11kV/33kV Connections
- ◆ Perfect for Grid Balancing Mechanisms

External Access Container

Energy Storage System

Battery Cell LiFePO₄

| | |
|-------------------|----------------------------|
| Capacity | 61.5Ah |
| Voltage | 3.2V |
| Charging method | Constant current + voltage |
| Temperature | |
| Charging | 0°C~45°C |
| Discharging | -20°C~50°C |
| Short time | |
| Discharging/30min | -20°C~55°C |
| Storage | 20°C~40°C |
| Transportation | -40°C~50°C |
| Weight | 1.15±0.01kg |
| Energy Density | 157/170±10Wh/Kg |
| Maximum Charging | 2C charging |
| Discharging rate | 3C discharging |
| Resistance | 0.65mΩ ±5% |

Battery Pack

| | |
|------------------------------------|--------------|
| Cell | 48 pcs |
| Connection Method | 3P16S |
| BMU | 1pcs |
| Nominal Voltage | 51.2VDC |
| Voltage Range | 32.0-58.4VDC |
| Capacity | 165Ah(185Ah) |
| Energy | 72kWh |
| Maximum Continuous Discharge Power | 72kW |
| Nominal charge current | 330A |
| Charge Method | CV/CC/CP |
| Cut-off Voltage | 58.4VDC |
| Cut-off Current | 8.25A |
| Rated Discharge Current | 165A |
| Standard Discharge Method | CC |
| Temperature Working Range | 0°C~40°C |



Terminal Support Unit

Energy Storage System

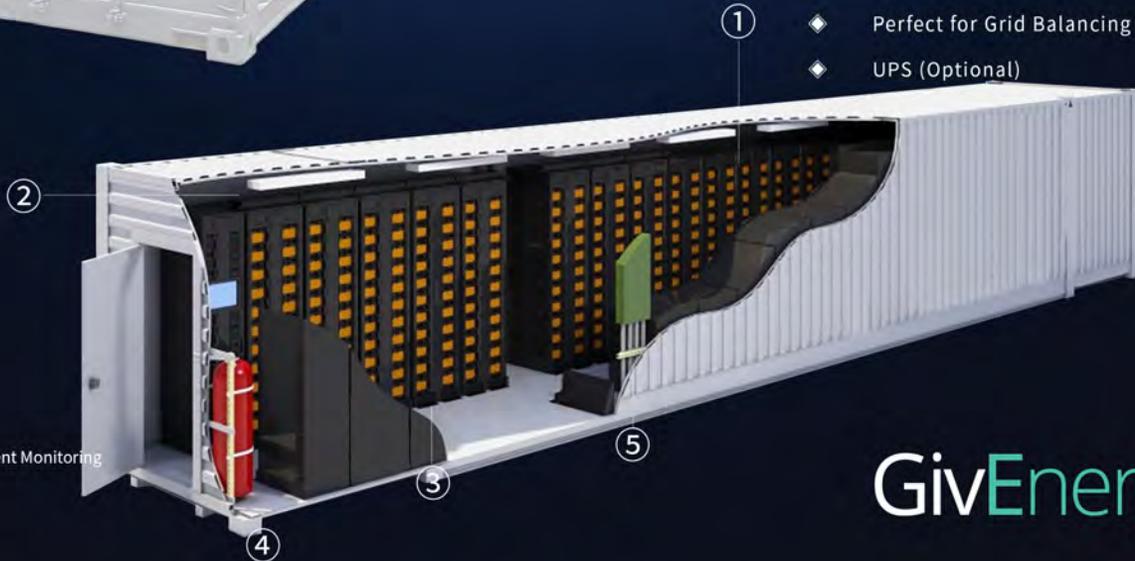


10Ft TSU 125kWh-375kWh

20Ft TSU 375kWh-1000kWh

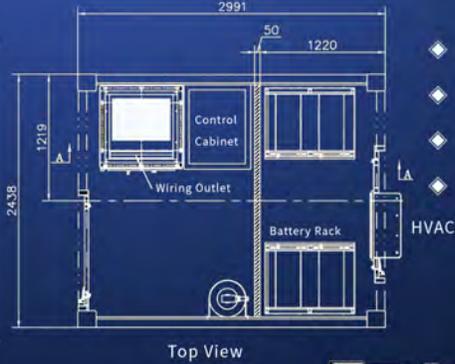
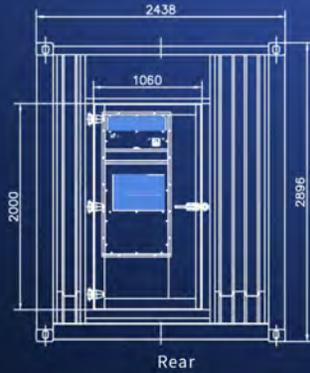
40Ft TSU 1000kWh-2500kWh

- ◆ Bridge Power Gaps in Generation
- ◆ Backup Power for Grid Upgrades and Planned Maintenance
- ◆ Peak shaving and load shifting
- ◆ PF Regulation and Voltage Support
- ◆ Time of use ready
- ◆ DUoS- Green, Amber, Red rates
- ◆ TnUoS- Triad Avoidance
- ◆ Integrated G99 Relay Control Panel
- ◆ 400V/11kV/33kV Connections
- ◆ Perfect for Grid Balancing Mechanisms
- ◆ UPS (Optional)



- ① Battery Pack
- ② Power Conversion System
- ③ Central Control and Environment Monitoring
- ④ Fire Suppression Equipment
- ⑤ Industrial Air Conditioning

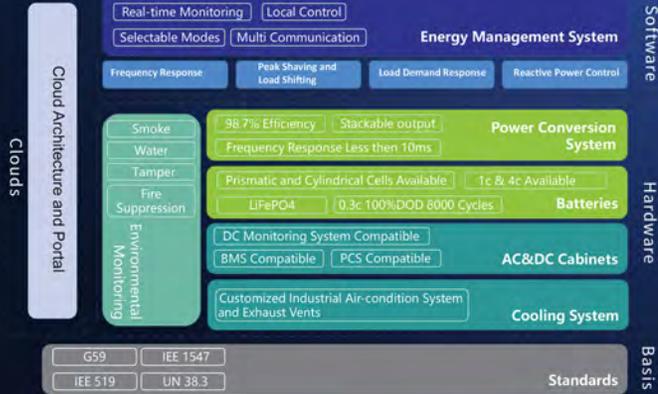
10ft Container ESS



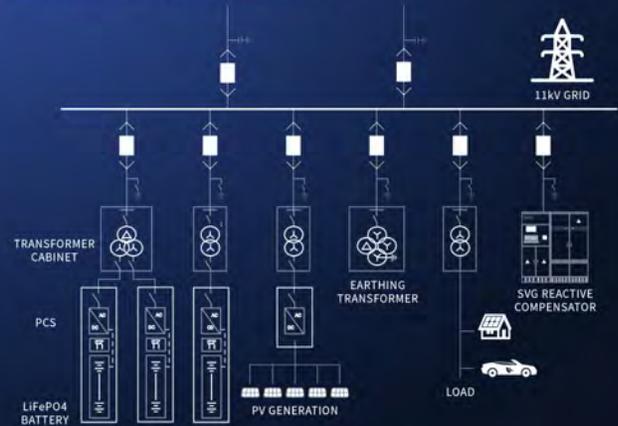
- ◆ Fire Suppression system
- ◆ Full HVAC System Install
- ◆ BMS-Building Management System
- ◆ Fully customizable to your requirements



Integration



Energy Storage System Applications



Commercial Battery Cells, Packs and Racks

Battery Cell LiFePO₄

| | |
|-------------------|----------------------------|
| Capacity | 61.5Ah |
| Voltage | 3.2V |
| Charging method | Constant current + voltage |
| Temperature | |
| Charging | 0°C~45°C |
| Discharging | -20°C~50°C |
| Short time | |
| Discharging/30min | -20°C~55°C |
| Storage | 20°C~40°C |
| Transportation | -40°C~50°C |
| Weight | 1.15±0.01kg |
| Energy Density | 157/170±10Wh/Kg |
| Maximum Charging | 2C charging |
| Discharging rate | 3C discharging |
| Resistance | 0.65mΩ ±5% |

Battery Pack

| | |
|------------------------------------|--------------|
| Cell | 48 pcs |
| Connection Method | 3P16S |
| BMU | 1pcs |
| Nominal Voltage | 51.2VDC |
| Voltage Range | 32.0-58.4VDC |
| Capacity | 165Ah(185Ah) |
| Energy | 9.6kWh |
| Maximum Continuous Discharge Power | 16.9KW |
| Nominal charge current | 330A |
| Charge Method | CV/CC/CP |
| Cut-off Voltage | 58.4Vdc |
| Cut-off Current | 8.25A |
| Rated Discharge Current | 165A |
| Standard Discharge Method | CC |
| Temperature Working Range | 0°C~40°C |
| Weight | 75kg |

Battery Rack

| | |
|---------------------------|----------------|
| Nominal Voltage | 665V |
| Maximum Charge Voltage | 759V |
| Cut-off Discharge Voltage | 600V |
| Nominal Current | 165A |
| Energy | 125kWh |
| Power | 125kW |
| Dimensions | 800*600*2140mm |



Commercial OEM Installations



PCS Cabinet
BMS Cabinet



BMS Display



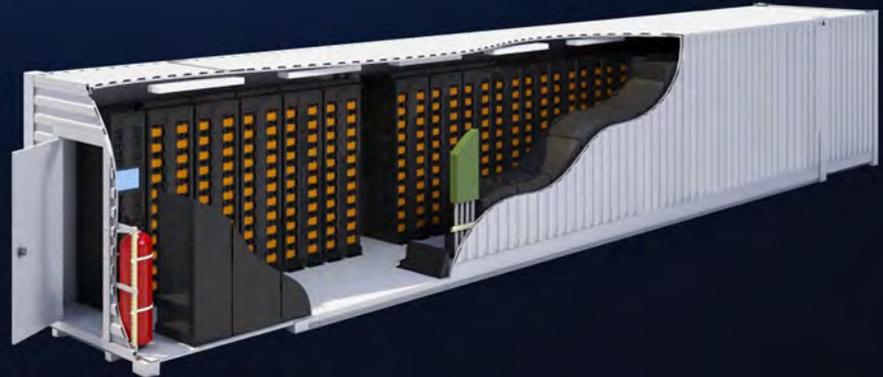
Fire Suppression



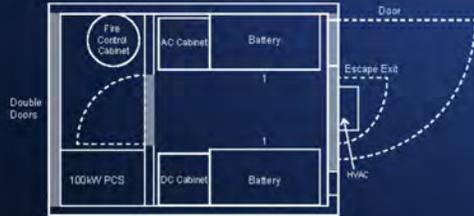
Battery Rack



HVAC



10' Container Solution



Standard 10' Container Solution
11.9×8.0×9.5 feet
100kW / 218kWh or 100kW / 327kWh

20' Container Solution



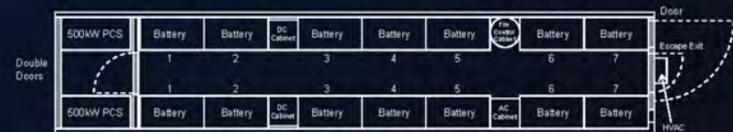
Standard 20' Container Solution
19.9×8.0×9.5 feet
100kW / 436kWh or 250kW / 763kWh

30' Container Solution



Standard 30' Container Solution
29.9×8.0×9.5 feet
500kW / 1MWh or 750kW / 1.6MWh

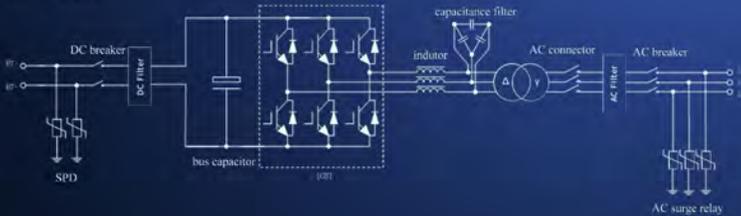
40' Container Solution



Standard 40' Container Solution
40×8.0×9.5 feet
1MW / 1MWh or 1MW / 2MWh

Bi-Directional PCS

Hardware



100kW Power Conversion System

500kW Power Conversion System



- ◆ Hybrid design, on-grid, off-grid and energy storage function combined
- ◆ Bidirectional conversion available
- ◆ Autonomous energy management system
- ◆ Intelligent charging function
- ◆ Multi source renewable integration
- ◆ Black start-up compatibility
- ◆ Autonomous phase balancing
- ◆ Online seamless handover between on-grid and off-grid modes.
- ◆ Active and reactive power control (instantly)
- ◆ Support various loads type, independently or mixed
- ◆ Comprehensive and high precision operation and fault monitoring and recording
- ◆ Can be remotely controlled via RS485
- ◆ Can be integrated into existing building management systems.
- ◆ Remote monitoring Via Givenergy.cloud

| 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 | GivPCS-100 | GivPCS-250 | GivPCS-500 |
|---------------------------|--------------------|-------------------------------------|---------------------|
| 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

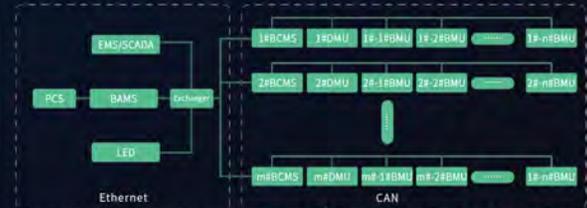
Production

- ◆ 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

| Name | Specifications |
|-----------------------------------|----------------------------|
| Voltage Range | 18~32V |
| Cell Voltage | 0~5V |
| Cell Voltage Error Range | $\leq \pm 3\text{mV}$ |
| Voltage and Tep Acquisition Cycle | $\leq 5\text{ms}$ |
| Current Acquisition Range | $\leq 300\text{A}$ |
| Current Acquisition Error | $\leq \pm 1\%$ |
| Current Acquisition Cycle | $\leq 1\text{ms}$ |
| Temperature Acquisition Error | $\leq \pm 1^\circ\text{C}$ |
| 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



Our Additional Services

Site Survey

We offer a comprehensive site survey at the start of any commercial project to ascertain specific requirements to put together an accurate proposal.

Installation

We offer full training and support on all of our products to our certified installer network. This in turn enables us to make sure that our products are fitted in accordance with BS 7671:2018 and to our requirements to validate the manufacturer warranty.

Web Portal

Our bespoke, easy-to-use monitoring portal has different layers of access. As an end user you can monitor what your system is doing and see how much you are saving. As an Approved installer you will have 24hr access to giverenergy.cloud in order to manage your complete portfolio and perform remote system checks.

Support / After care

Our UK-based Technical support team will ensure you are never more than a phone call away from all the support you need



Our Installations around the world



OEM UK Installation



OEM Australian Installation



OEM Thailand Installation



OEM New Zeland Installation

GivEnergy are looking for worldwide distributors, please contact Carl at carl.pote@givenergy.co.uk if you are interested in distrubution outside of the UK

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

About Our Company

GivEnergy is a manufacturer of electronic equipment designed to manage energy use and production. We specialise in our range of inverters and battery systems which have been developed to negate the need for costly infrastructure upgrades in Low Voltage areas.

Our systems use intelligent algorithms to peak shave and make the most of ToU and Economy 7 tariffs as well as storing excess-generated power from solar, wind etc to maximise self consumption.





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