## SOLAR KIT MODEL: SI-H500

### System Information
- **500 Solar PV Hybrid Kit**
- **2400 Wh per day**
- **72 kWh per month**

### Quantity Description Table

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Solar panels 250W Polycrystalline</td>
</tr>
<tr>
<td>1</td>
<td>Solar charge controller 40A</td>
</tr>
<tr>
<td>1</td>
<td>Solar hybrid inverter 800W</td>
</tr>
<tr>
<td>2</td>
<td>Battery bank 12V 60AH or equivalent</td>
</tr>
<tr>
<td>1</td>
<td>Support structure for solar panels</td>
</tr>
<tr>
<td>1</td>
<td>15m DC cables 1x5.6mm R1000 2 core PV panel to charge controller with thimble at ends</td>
</tr>
<tr>
<td>1</td>
<td>2m DC cables 1x5.6mm R1000 2 core battery to hybrid inverter with thimble at ends</td>
</tr>
<tr>
<td>1</td>
<td>2m DC cables 1x5.6mm R1000 2 core battery interconnection with thimble at ends</td>
</tr>
<tr>
<td>0</td>
<td>2m DC cables 1x5.6mm R1000 2 core battery interconnection with thimble at ends</td>
</tr>
<tr>
<td>1</td>
<td>5m AC cable 1x5.6mm R1000 2 core inverter to main breaker with thimble at ends</td>
</tr>
<tr>
<td>1</td>
<td>1 pair Solar connector MC4 3 in 1</td>
</tr>
<tr>
<td>1</td>
<td>1 installation tool kit</td>
</tr>
</tbody>
</table>

### System Warranty*
- Solar modules production: 25 years
- Module support structure: 25 years
- Inverters: 5 years standard, (extendable to 25 years)
- Battery: 1 year (10 years life)

### Quality of Components
- Manufactured in EU.
- All components in the kit are high quality standard

### Description
- SITECNO solar kits for hybrid system with diesel generator, batteries and grid are complete solutions which also provide energy in all unforeseen situations that may lead either by time, by circumstances of outage and any situation. It is a complete solution for saving your energy costs and fuel.
Kits advantages
• Easy to organize the order through a unique code and provider
• Compatibility between all components secured
• Measurement of energy flows installation
• CE Highest quality components
• Support pre (Combiner Box) enclosures configured to facilitate mounting installation.
• Possibility of dimensioning variants references listed kits for other power settings (on request)

Function of the system
1. The place uses the solar energy produced by photovoltaic modules during the hours of sun, plus the excess energy store in the batteries.

2. The battery is second choice after solar energy and the first choice for the night. In the absence of solar energy, either by night or unstable climate. The place will feed by the energy stored in batteries.

3. The grid is a third option, when the energy stored in the batteries is not enough, the load consumes energy from the grid and also charge the batteries.

4. The diesel generator is the last option when the load does not get solar energy, batteries do not have enough stored energy or are empty, and there is load shedding in the grid. In these situations the location consumes energy from diesel generator and also charges the batteries.

Modular system
These systems are module type and can be installed as per your space and requirement. You can ask for additional services as state-of-the-art designing, drawings, engineering and installation of your projects.

Solar kits with modular system can be extended to MW projects

Solar Kit Applications:
• Schools
• Restaurants
• Gymnasium
• Electric vehicle charging stations
• Gardens
• Markets
• Administration buildings
• Hospitals
• Resorts
• Service centres
• Multi story buildings
• Shopping malls
• Hotels
• Scout camps
• Petrol Stations
• Parking Areas
• Old houses
• Public service offices

Additional Accessories
You can ask for additional accessories for extension at your installation or shifting of your system to another place.

Installation Training Services
Training of installation is offered for technical persons on time to time basis. Schedule of the training session announce on web site.

Operation and maintenance services
Operation and maintenance services offered for the valued customers for efficient operation of the system. Customers may ask for the O&M service contract with the company.

Monitoring services
In order to monitor solar power systems, data can be transmitted to remote locations. For communication between the solar inverter and monitoring devices, SITECNO provides two basic choices:
Wireless or Blue-tooth and wired variants.

SITECNO Solar Photovoltaic Panels stand for quality, durability and most importantly, high performance. Our experience, capacity of research, continuing development and improvement have turned us into a company recognized in the sector by the high value offered to our clients.

Due to their engineered hollow section frame and its 4mm special textured glass with AR coating, SITECNO modules meet the maximum demands with regard to stability and corrosion resistance.

Thanks to their high performance SITECNO modules are prepared for changes in legislation. These panels will produce 5% more than any other of the same features.

The performance warranty is for 25 years, after 12 years, modules still produce a minimum 90% of their nominal performance. After 25 years module still produce a minimum 80% of their nominal performance.

**Electrical Characteristics:**

<table>
<thead>
<tr>
<th>MODEL</th>
<th>SI-P60-250</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal Power (Pmax)</td>
<td>250W</td>
</tr>
<tr>
<td>Open Circuit Voltage (VOC)</td>
<td>37,5V</td>
</tr>
<tr>
<td>Short Circuit Current (ISC)</td>
<td>8,76A</td>
</tr>
<tr>
<td>Voltage at Nominal Power (Vmp)</td>
<td>30,3V</td>
</tr>
<tr>
<td>Current at Nominal Power (Imp)</td>
<td>8,24A</td>
</tr>
<tr>
<td>Module Efficiency (%)</td>
<td>15,20</td>
</tr>
</tbody>
</table>

**Mechanical Characteristics:**

- **Cell type:** Polycrystalline 156x156mm
- **Number of cells:** 60 (6x10)
- **Module dimension:** 1660 x 990 x 50mm
- **Weight:** 20kg
- **Front cover:** TSG low-iron tempered glass
- **Frame:** Aluminium alloy
- **Junction box:** IP65, 3diodes
- **Cable length:** 1200mm (+) , 800mm(-)
- **Connector:** PV-JM601

**Temperature Coefficients:**

- **Nominal Operating Cell Temperature (NOCT):** 25°C ±2°C
- **Temperature Coefficients of Pmax:** -0.43% / °K
- **Temperature Coefficients of Voc:** -0.31% / °K
- **Temperature Coefficients of Isc:** 0.04% / °K
- **Operating Temperature:** -40 °C to +85 °C
- **Maximum System Voltage:** 1000V DC
- **Reverse current load:** 15A
SOLAR HYBRID INVERTER
SITEC 2000-HD

SITEC 2000-HD INVERTER is a DC-to-AC inverter with auto line-to-battery transfer and integrated charging system, serving as an extended run UPS, a standalone power source or an automotive inverter. SITEC 2000-HD INVERTER supplies power from AC power and DC source. When AC cable is connected to a wall socket, utility power goes to connected equipment(s) and/or charges the battery set via charging system. In battery mode, SITEC 2000-HD INVERTER automatically converts battery energy into AC power for backing up the connected devices.

Features:
- Automatic line-to-battery switchover
- Selectable Input voltage ranges
- High efficient DC-to-AC conversion, minimizing energy loss
- Rack design & wall-mounted design for flexible installation
- Built-in enhanced charger, selectable charger current
- Intelligent 3-stage charger control for efficient charging and preventing overcharge
- Auto restart while AC recovery
- User-friendly LCD+LED indications
- Multiple protection: low battery alarm, low battery shutdown, over charger protection, overload protection, over temperature protection, short circuit protection

Specification:

<table>
<thead>
<tr>
<th>Feature</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>MODEL</td>
<td>SITEC 2000-HD</td>
</tr>
<tr>
<td>CAPACITY (VA/W)</td>
<td>2000VA/1440W</td>
</tr>
<tr>
<td>BATTERY</td>
<td>24VDC</td>
</tr>
<tr>
<td>INPUT</td>
<td></td>
</tr>
<tr>
<td>Nominal Voltage</td>
<td>220/230/240VAC</td>
</tr>
<tr>
<td>Voltage Range</td>
<td>170-280VAC (Narrow Range)</td>
</tr>
<tr>
<td></td>
<td>90-280VAC (Wide Range)</td>
</tr>
<tr>
<td>OUTPUT</td>
<td></td>
</tr>
<tr>
<td>Voltage</td>
<td>230VAC</td>
</tr>
<tr>
<td>Voltage Regulation (Bat. Mode)</td>
<td>10% / -18%</td>
</tr>
<tr>
<td>Frequency</td>
<td>50Hz or 60Hz</td>
</tr>
<tr>
<td>Frequency Regulation (Bat. Mode)</td>
<td>+/-1 Hz</td>
</tr>
<tr>
<td>Output Waveform</td>
<td>Modified Sine-wave</td>
</tr>
<tr>
<td>BATTERY &amp; CHARGER</td>
<td></td>
</tr>
<tr>
<td>Charger Current</td>
<td>10Amp</td>
</tr>
<tr>
<td>Overcharge Protection</td>
<td>32V</td>
</tr>
<tr>
<td>TRANSFER TIME</td>
<td></td>
</tr>
<tr>
<td>Typical</td>
<td>15ms</td>
</tr>
<tr>
<td>Typical, Max.</td>
<td>40 ms</td>
</tr>
<tr>
<td>EFFICIENCY</td>
<td></td>
</tr>
<tr>
<td>AC to AC</td>
<td>&gt;95%</td>
</tr>
<tr>
<td>DC to AC</td>
<td>&gt;80%</td>
</tr>
<tr>
<td>DISPLAY INDICATOR</td>
<td></td>
</tr>
<tr>
<td>AC Mode</td>
<td>Display output power, output voltage</td>
</tr>
<tr>
<td>Battery Mode</td>
<td>The mark will flicker every 1 second.</td>
</tr>
<tr>
<td>Battery Charging Mode</td>
<td>Display the Battery capacity Fault</td>
</tr>
<tr>
<td></td>
<td>Display fault</td>
</tr>
</tbody>
</table>
### AUDIBLE ALARM
- Low Battery at Battery Mode: Sounding every 2 seconds
- Overload: Sounding every 0.5 second
- Fault: Continuously sounding

### PROTECTION
- Full Protection: Discharge, overcharge, overload, over temperature protection.

### PHYSICAL
- Dimension (DxWxH) mm: 252mm*220mm*87mm
- Net Weight (kgs): 2.5

### ENVIRONMENT
- Operating environment: 0-50°C, 5%-90% relative humidity (non-condensing)
- Storage Environment: -15°C to 55°C, 5% to 95% humidity (non-condensing)
- Noise Level: Less than 50dB

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**SOLAR BATTERY CHARGE CONTROLLER**

**SITEC 500-DC**

SITEC 500-DC solar charger is a 40 amp 12/24 voltage Maximum Power Point Tracking (MPPT) photovoltaic (PV) battery charge controller. Through the use of MPPT technology, SITEC 500-DC solar charger can increase charge current up to 30% or more compared to conventional controllers. Fully automatic temperature compensation of charge voltage is available to further improve charge control and battery performance. The SITEC 500-DC solar charger can easily install in parallel connection, so it is also suitable for large system current application condition.

#### Features
- High converting efficiency up to 97% for minimizing energy loss
- Build-in MPPT tracker for optimizing the power transformation
- Reversed current protection with fuse
- Automatic battery temperature compensation for long-term reliability
- Capable of selecting different charging mode for various type of batteries
- Capable of connecting additional DC load for wider applications
- Three stage charge control system (bulk, absorption, and float mode) with temperature compensation
- LED indicators display charge status in real time
- Pulse Width Modulation (PWM) topology combined with a multi-stage charge control algorithm leads to superior charging and enhanced battery performance

#### Specifications
Specifications provide the specifications for the SITEC 500-DC solar charger charge controller.

**Electrical Specification**
- Rated Voltage: 12/24Vdc
- Rated charge current: 40Amp
- Load current: 15Amp
- Input voltage range: 15-55Vdc
Max. PV open circuit array voltage 55Vdc
Overload protection (DC load) 2.0 * Inom>5s, 1.5 * Inom >20s
Typical idle consumption At idle < 10mA
Bulk charge 14.6Vdc (default) 29.2Vdc (default)
Floating charge 13.4Vdc (default) 26.8Vdc (default)
Equalization charge 14.0Vdc (default) 28.0Vdc (default)
Over charge disconnection 14.8Vdc 29.6Vdc
Over charge recovery 13.6Vdc 27.2Vdc
Over discharge disconnection 10.8Vdc (default) 21.6Vdc (default)
Over discharge reconnection 12.3Vdc 24.6Vdc
Temperature compensation -13.2mV/º  -26.4mV/º
Lead acid battery settings Adjustable, Ni-cad battery settings Adjustable

**Load control mode**
1. Low Voltage Reconnect (LVR): Adjustable
2. Low Voltage Disconnect (LVD): Automatic disconnection
3. Reconnection: Includes warning flash before disconnect and reconnection

Low voltage reconnect 12.0-14.0Vdc  24.0-28.0Vdc
Low voltage disconnect 10.5-12.5Vdc  21.0-25.0Vdc
Ambient temperature 0-40ºC (full load) 40ºC 60ºC (de-rating)
Altitude Operating 5000 m, Non-Operating 16000 m
Protection class IP21
Battery temperature sensor BTS - optional remote battery temperature sensor for increased charging precision

Terminal size (fine/single wire) #8 AWG

**Environmental Temperature**
Operating Temperature: 0ºC to 40ºC (40ºC to 60ºC (de-rating))
Transit Temperature: 25ºC to +70ºC
Storage Temperature: -25ºC to +70ºC

**Safety:**
American market, Compliant with FCC Part 15B, Compliant with UL 1741

**European market**
Compliant with EN 60335-1, Compliant with EN61000-6-1:2001, Compliant with EN61000-6-3:2001

**Humidity**
Operating Humidity: 20 to 80% relative humidity (non-condensing)
Non-Operating Humidity: 5 to 95% relative humidity, 38.7ºC maximum wet bulb temperature with no cosmetic damage.

**Mechanical specification**

<table>
<thead>
<tr>
<th>Items</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimension</td>
<td>(H x W x D)</td>
</tr>
<tr>
<td>Depth:</td>
<td>≤ 192 mm</td>
</tr>
<tr>
<td>Height:</td>
<td>≤ 66 mm</td>
</tr>
<tr>
<td>Width:</td>
<td>≤ 140 mm</td>
</tr>
<tr>
<td>Unit Weight</td>
<td>1.4Kg</td>
</tr>
<tr>
<td>Warranty</td>
<td>2 years</td>
</tr>
<tr>
<td>Mounting</td>
<td>Vertical wall mount - indoor only</td>
</tr>
<tr>
<td>Cooling</td>
<td>Natural cooling</td>
</tr>
</tbody>
</table>
The rechargeable batteries are lead-lead dioxide systems. The dilute sulphuric acid electrolyte is absorbed by separators and plates and thus immobilized. Should the battery be accidentally overcharged producing hydrogen and oxygen, special oneway valves allow the gases to escape thus avoiding excessive pressure build-up. Otherwise, the battery is completely sealed and is, therefore, maintenance-free, leak proof and usable in any position.

**Type of Battery:**
- **Standards:** DIN40737-3 IEC896-11
- **Capacity Range:** 60 AH
- **Normal Voltage range:** 12V
- **Container Material:** PP
- **Grid alloy (+ive, -ive):** Pb + <1% Ca
- **Plates (+ive, -ive):** Grid, Grid
- **Electrolyte:** H2SO4, fixed in AGM
- **Application:** Solar
- **Connector design:** cramp / bolted connector
- **Design life up to:** 10 years
- **Cycles up to:** 800
- **Operating temperature:** -20ºC to +40ºC

**Design**
- **Technical feature:**
  - **Weight:** 2.49kg/m
  - **Loads:** wind, snow
  - **Test certificate:** CE Certifies

**Cable:**
- **Model:** SI-MC4-F
- **Rated Voltage:** TUV 1500V DC / UL 600V DC
- **Rating Current:** 20-30A
- **Cable Size:** 2.5-4.0-6.0, 10-12-14AWG
- **Proof Voltage:** TUV 1500V AC, 1 min
- **Protection Class:** Class II
- **Temperature Range:** -40 to 85ºc
- **Flame class:** UL94-V0

**Connector:**
- **Flexible conductor:** class 5
- **Maximum service temperature:** 120ºC
- **Estimated lifetime:** 30 years.
- **UV Resistant UV Resistant**
- **Grease & mineral oils resistance:** excellent
- **Grease & mineral oils resistance:** excellent
1. Photovoltaic modules
2. Charge controller
3. Batteries
4. Inverter
5. Grid
6. Consumption

**Load:**
- Fans
- Tube lights / energy saver bulb
- TV
- Computer / Laptop
- Printer
- Juicer machine
- Microwave oven < 1000 W
- Refrigerator / Deep freezer < 1000 W
- Washing machine < 1000 W
- Cloth Iron < 1100W
- Water pump < 1000 W

* 1000 W load will work as alternate of each other.