

Packaged Solar Energy with Appliances



SPECIALIZED SOLAR SYSTEMS® COLOUR RANGE

SOLAR TECHNOLOGY ENERGY SUPPLY

Smart Solar DC Micro-grids

*Choose your package
according to colour
(Non-managed)*



DO-RED

DO-ORANGE

DO-YELLOW

DO-GREEN

DO-BLUE



Product code: **DBPB240/20/33**

This DC controlled distribution box is housed with a dry cell lead acid battery and a 20 A PWM Victron controller.

Ideal for: lights, cell phone charging, radio & TV.

This distribution box is ready for installation and has the following **features:**

Load output has current control with short circuit protection (please see technical detail attached)

Battery indicator for ease of reference

Dual USS cell phone charger.

Battery specifications (please see details attached).

Easy installation with built in dry cell battery, MC4 connector for solar panel connection and main fuse for protection.

DISTRIBUTION BOX



Product code: **DBLI360/20/1280**

This DC controlled distribution box is housed with a lithium phosphate DC battery system.

Ideal for: lights, cell phone charging, radio, TV and DStv decoder, hifi, fridge and other.

This distribution box is ready for installation and has the following **features:**

20 amp MPPT with 100 V input.

Bluetooth monitoring.

1280 lithium battery with BMS control.

Programmable display with state of charge, Wh, Amps and time remaining.

Load output has current control with short circuit protection (please see technical detail attached)

Dual USS cell phone charger.

Battery specifications (please see details attached).

Easy installation with built in dry cell battery, MC4 connector for solar panel connection and main fuse for protection

The **DO-RED** solar energy package is ready to install and includes lights and cell phone charging. The unit has the ability to evolve to a **DO-ORANGE** solar energy package as your needs increase, with the addition of solar panels and appliances.

DO-RED ENERGY PACKAGE INCLUDES

Product code: **DC240/20/33RED**

Up to 240Wp of solar panels can be installed on this system.

Smart distribution box with:
Visual indicators for: Battery, Charging, Consumption.

Safety features: Temperature compensation when charging, Overload protection, Low Voltage protection, Polarity protection

Inputs: USB cell phone charger.
Radio ready.

Each package includes:

- 80Wp solar panel.
- 3 x Internal LED lights (3W 210Lu) with fittings and shades.
- 1 x External light.
- 3 x Light switches.
- Plug box with radio, TV and HD receiver inputs. 12V Universal cell charger/USB cable.
- Dry cell lead acid battery.
- 8m PV cable
- 10m 0.75mm 2 core cable.



The **DO-ORANGE** solar energy package is ready to install and includes lights and cell phone charging.

DO-ORANGE ENERGY PACKAGE INCLUDES



Product code: **DC240/20/33ORANGE**

Up to 240Wp of solar panels can be installed on this system.

Smart distribution box with:

Visual indicators for: Battery, Charging, Consumption.

Safety features: Temperature compensation when charging, Overload protection, Low Voltage protection, Polarity protection

Inputs: USB cell phone charger.

TV ready

Each package includes:

- 150Wp solar panel.
- 4 x Internal LED lights (3W 210Lu) with fittings and shades.
- 1 x External light.
- 4 x Light switches.
- Plug box with radio, TV and HD receiver input.
- 42cm Universal cell charger/USB cable.
- Dry cell lead acid battery.
- 8m PV cable.
- 15m 0.75mm cable.

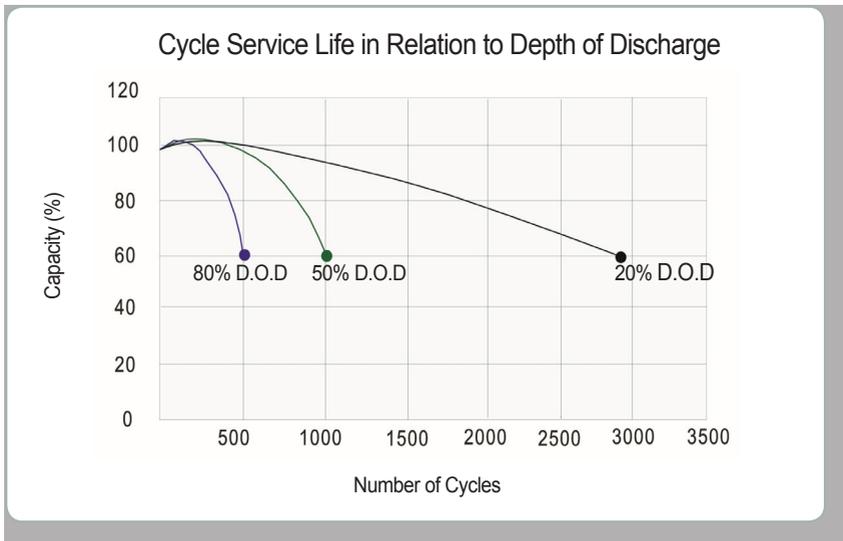


DO RED

DO ORANGE

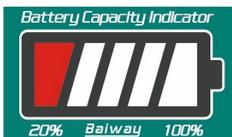
BATTERY LIFE

The number of charge / discharge cycles depends on the capacity taken from the battery, operating temperature and the charging methods.



BATTERY CAPACITY INDICATOR

- When the battery is connected, the LED power display will show the current status of the battery.
- The display panel (from the left to the right side of the display grid) represents five colour bars from low to high battery capacity.
- In the battery state (non-charging), if the left side of the red-light flashes, indicating that the battery capacity is close to zero, the battery must be replaced.
- If the battery does not charge, ensure that all cabling is properly fitted.



Capacity: <20%



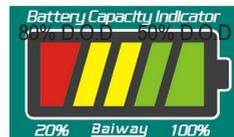
Capacity: 20%~40%



Capacity: 40%~60%



Capacity: 60%~80%



Capacity: 80%~100%

RESPONSIBLE Solution:

Non-gassing and non-spillable.
Maintenance free.
Approved for environmentally sensitive areas.
Safeguards against spill related injuries and damage
Eliminates corrosion due to off-gassing.
Does not require ventilated charging room.
Replacement sizes for all standard hazardous batteries.

SMART Savings:

Designed for longer run times.
Designed for high-rate, long-duration discharges.
Designed for longer life.
Shorter charging time and good charge retention.
Opportunity charging recommended.
Save costs on labour and battery maintenance.
Save replacement costs on poorly maintained batteries.
Protects your equipment from corrosion damage..

CURRENT LIMITER FUNCTION

By selecting the ampere required for maximum output on the load (4A or 6A), this DB box will automatically disconnect the load when more current is requested at the output load. This allows the consumer to stay within the load profile according to the system design. If there is over-current on the circuit, the circuit will disconnect in 20ms. After this the following will take place:

a. After Over-Current Circuit Disconnect the Following will Take Place:

1. The red LED on the front of the DB box will flash
2. The battery indicator will stay on.
3. The solar panels will still charge the battery in this position.
4. The load will be disconnected and the unregulated output and fridge output (inside the DB box) will stay on.

b. Restoring the Current Trip Regulator

1. Make sure that the load output has been restored to below your current setting (4-6A).
2. Make sure that there is no short circuit on the line.
3. Take the load off the DB box if you are unsure.
4. Open the DB box.
5. Push reset on the current limiter and the red LED will deactivate.
6. The load will now be activated.
7. Reconnect your load output cables and see that the system is functioning correctly.

Please Note: If the red LED is active, the load will disconnect, but the battery indicator will remain on.

If the customer should not be limited, please connect your output load to the “Non-Regulated Output” on the DB box.

SHORT CIRCUIT PROTECTION

The circuit limiter board also has short circuit protection. Please note that depending on what solar control unit is installed, the solar control unit may fulfil the short circuit function instead of the current limiter (because of a faster response). At present our circuit limiter and short circuit board has a 20ms short circuit trip. Some PWM controllers have 15ms short circuit trip.

If this is the case (protection via solar control unit), the red LED will not activate but the load will disconnect. Some controllers will deactivate, while others try to activate itself again. If the short circuit persists, they will shut themselves down.

a. Reactivating the SCU Short Circuit

1. Disconnect the load cable.
2. Push the button on SCU.
3. System will reactivate.
4. Connect load cables and check if system is operational.

The **DO-YELLOW** solar energy package is ready to install and includes lights and cell phone charging.

The unit has the ability to evolve to a **DO-BLUE** solar energy package as your needs increase, with the addition of solar panels and appliances.

DO-YELLOW ENERGY PACKAGE INCLUDES

Product code: **DC360/20/1280YELLOW**

Up to 330Wp of solar panels can be installed on the system.

Smart distribution box with:

Visual indicators for: Battery, Charging, State of charge, Consumption, Wh & time remaining.

Safety features: Temperature compensation when charging, Overload protection, Low Voltage protection, Polarity protection

Inputs: USB cell phone charger, Fridge ready. Radio, TV and DSTV ready.

Each package includes:

150Wp solar panel.

5 x Internal LED lights (3W 210Lu) with fittings and shades.

1 x External light.

4 x Switches.

Plug box with radio, TV and HD receiver inputs.

Universal cell charger/USB cable.

Lithium phosphate 1.280Wh battery.

8m PV cable.

20m 0.75mm twin core cable.



The **DO-GREEN** solar energy package is ready to install and includes **lights & cell phone charging**. The unit has the ability to evolve to a **DO-BLUE** solar energy package as your needs increase, with the addition of solar panels and appliances.

DO-GREEN ENERGY PACKAGE INCLUDES

Product code: **DC360/20/1280GREEN**

Up to 330Wp of solar panels can be installed on this system.

Smart distribution box with:

Visual indicators for: Battery, Charging, State of charge, Consumption, Wh & time remaining.

Safety features: Temperature compensation when charging, Overload protection, Low Voltage protection, Polarity protection.

Inputs: USB cell phone charger, Fridge-ready, radio, TV, DSTv and additional lights ready.

Each package includes:

330Wp solar panel.

7 x Internal LED lights (3W 210Lu) with fittings and shades.

2 x External lights.

6 x Light switches.

Plug box for radio, TV and HD receiver inputs.

Universal cell charger/USB cable.

Lithium phosphate 1.280Wh battery.

8m PV cable.

30m 0.75mm twin core cable.



DO-RED

DO-ORANGE

DO-YELLOW

DO-GREEN

DO-BLUE



The **DO-BLUE** solar energy package is ready to install and includes lights , cell phone charging and a fridge.

The unit is the top end of this range.

DO-BLUE ENERGY PACKAGE INCLUDES:

Product code: **DC360/20/1280BLUE**

Up to 330Wp of solar panels can be installed on this system.

Smart distribution box with:

Visual indicators for: Battery, Charging, State of charge, Consumption, Wh & time remaining.

Safety features: Temperature compensation when charging, Overload protection, Low Voltage protection, Polarity protection.

Inputs: USB cell phone charger, Fridge-ready. Radio, TV and DSTV ready, supplied with 158L DC fridge.

Each package includes:

330Wp Solar panel.

7 x Internal LED lights (3W 210Lu) with fittings and shades.

2 x External lights.

6 x Light switches.

Plug box with radio, TV and HD inputs.

158L Fridge/freezer combo or 210L freezer.

Universal cell charger/USB cable.

Lithium phosphate 1.280 Wh battery.

8m PV cable.

35m 0.75mm twin core cable.





DO YELLOW
DO GREEN
DO BLUE

CURRENT LIMITER FUNCTION

By selecting the ampere required for maximum output on the load (4A or 6A), this DB box will automatically disconnect the load when more current is requested at the output load. This allows the consumer to stay within the load profile according to the system design. If there is over-current on the circuit, the circuit will disconnect in 20ms. After this the following will take place:

a. After Over-Current Circuit Disconnect the Following will Take Place:

1. The red LED on the front of the DB box will flash
2. The battery indicator will stay on.
3. The solar panels will still charge the battery in this position.
4. The load will be disconnected and the unregulated output and fridge output (inside the DB box) will stay on.

b. Restoring the Current Trip Regulator

1. Make sure that the load output has been restored to below your current setting (4-6A).
2. Make sure that there is no short circuit on the line.
3. Take the load off the DB box if you are unsure.
4. Open the DB box.
5. Push reset on the current limiter and the red LED will deactivate.
6. The load will now be activated.
7. Reconnect your load output cables and see that the system is functioning correctly.

Please Note: If the red LED is active, the load will disconnect, but the battery indicator will remain on.

If the customer should not be limited, please connect your output load to the “Non-Regulated Output” on the DB box.

SHORT CIRCUIT PROTECTION

The circuit limiter board also has short circuit protection. Please note that depending on what solar control unit is installed, the solar control unit may fulfil the short circuit function instead of the current limiter (because of a faster response). At present our circuit limiter and short circuit board has a 20ms short circuit trip. Some PWM controllers have 15ms short circuit trip.

If this is the case (protection via solar control unit), the red LED will not activate but the load will disconnect. Some controllers will deactivate, while others try to activate itself again. If the short circuit persists, they will shut themselves down.

a. Reactivating the SCU Short Circuit

1. Disconnect the load cable.
2. Push the button on SCU.
3. System will reactivate.
4. Connect load cables and check if system is operational.

DO-RED

DO-ORANGE

DO-YELLOW

DO-GREEN

DO-BLUE



1. Press the “←” key for 3 seconds in the main interface and enter the engineering mode;
2. Press the “△” or “▽” key to select item:

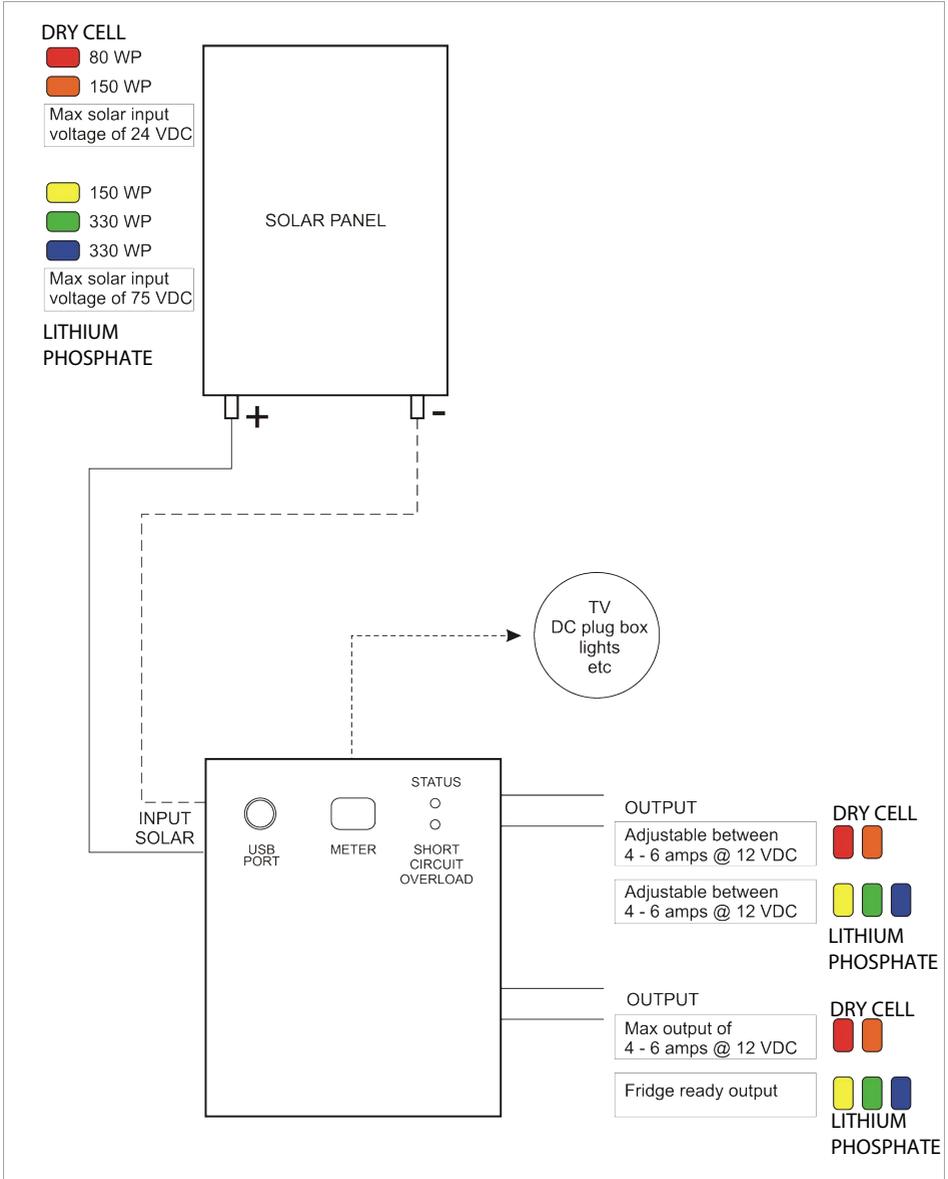
CAP - capacity setting: an initial capacity has been set at factory. Please set it according to the real capacity;

FULL U - full voltage setting: when the voltage is higher than it the percentage will be 100%;

ZERO U - zero voltage setting: when the voltage is lower than it the percentage will be 0% and backlight off.

NOTE: Generally the FULL U and ZERO U do not need to be set. The default is 0V, which is invalid. If you want to set it, please understand the actual charge and discharge voltage of the battery firstly.
3. Select “CAP” and press “←” key to enter capacity setting. The set part of capacity value flicker, press the “←” key to set other items, press the “△” or “▽” key to increase or decrease the value.
4. Press the “←” key for 2 seconds to finish the settings. Other items are the same as above.
5. Press the “△” and “▽” keys at the same time to exit engineering mode.

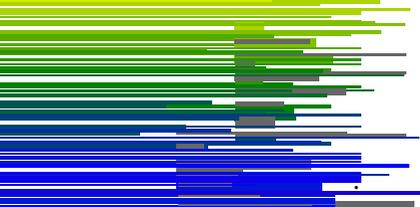
DC - SYSTEM WIRING DIAGRAM



SYSTEM USAGE & MAINTENANCE

- a. **Interior Lights**
1. The interior lights should not be used for more than 6 hours per night/day.
 2. Do not switch on all the lights at once if you do not need them all at once – switch on only the light/s you need.
 3. If the light does not come on when you switch it on, check that the light is screwed in properly. Only turn the metal part of the light, not the plastic cover (the light will not shock you).
 4. Check wires have been correctly connected to the Smart DB Box.
 5. If the wires are correctly connected, the fuses are fine and the lights still do 't come on, contact your supplier for assistance.
 6. If lights aren't working, ensure fuses are in place and working. If fuses are faulty, replace.
- b. **Cell Phone Charger Socket**
1. You will need to buy a car-type cell phone charger for your particular cell phone type, in order to use the cell phone charger socket on the plug box.
 2. Alternatively, you can use a USB cell-phone charger that can be plugged into the USB port of the smart DB Box.
 3. The cell phone charger socket can be used at any time of day or night to charge a cell phone.

Only a car-type cell phone charger or the 12VDC FM/AM radio with car-type plug can be used in this socket.



DO YELLOW
DO GREEN
DO BLUE

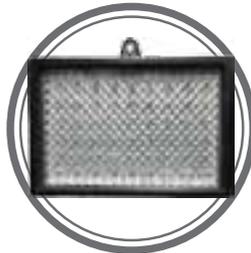
OPTIONAL

The RAINBOW RANGE of solar energy packages can support additional appliances which are exclusively available at selected outlets throughout the country. Please make certain that these appliances are supported by your energy package and if unsure, ask one of our professional consultants.

ADDITIONAL SUPPORTED APPLIANCES



Internal Lights (126554)
* Incl: 3W LED bulb, ES27 shade and 5m cable



External Lights (126554)
** Incl: 3W 54 LED light, fittings and 5m cable



Fan (126554)
Energy efficient 12V DC fan



Endless Computer
Please enquire.



Fridge Freezer
158L DC Fridge/Freezer combo
210L DC Freezer

Borehole pumping, water pressure, sewage and water purification systems are also available. Please enquire at your nearest outlet for more detail.

Please ensure that these appliances are supported by your energy package below:

Product	DO-RED	DO-ORANGE	DO-YELLOW	DO-GREEN	DO-BLUE
Internal Lights*	X	X	X	X	X
External Lights**	X	X	X	X	X
Fan			X	X	X
Computer (Endless)			X	X	X

QUESTIONS

At Specialized Solar Systems, our strategic vision is strongly driven by our customers' needs. We are committed to fulfilling these needs and building long-term customer loyalty. We listen carefully to what our customers tell us and tailor our deliverables to the customer's individualized needs.

FREQUENTLY ASKED QUESTIONS

What is solar energy?

Solar energy is energy that is produced by converting sunlight into electrical energy through solar panels, which is stored in batteries for further usage.

What happens if there is no sunlight or it rains for a few days?

Each Solar Home System should have sufficient power to supply energy for 3 whole days on one charge, in the event that there are 3 days without any sunlight whatsoever.

What happens if my system does not work?

If your Solar Home System is not working, you can call our customer service team free of charge via (add cell number). We are proud to state that so far 98% of all issues have been solved via phone in real-time. On the rare occasion that your problem cannot be solved immediately, we will arrange an appointment with one of our technicians, who will come by your home and take care of the necessary repair steps, free of charge.

Do my system and appliances come with warranties?

Specialized Solar Systems guarantees a 1-year warranty on our SHS (solar controller and panel), 1 year warranty on the dry cell battery storage and a 5 year warranty on the lithium phosphate battery storage, as well as one year warranty on all appliances (cables, switches, phone charging kit, TVs, etc). Additionally we offer free customer care via our service hot-line as well as technical assistance from our local staff. We are proud to guarantee you best quality and engineering.

SPECIALIZED SOLAR SYSTEMS

Turnkey Rural Electrification Solutions

www.ssspecializedsolar.com

SPECIALIZED SOLAR SYSTEMS®
RAINBOW
SOLAR TECHNOLOGY ENERGY SUPPLY

DO-RED

DO-ORANGE

DO-YELLOW

DO-GREEN

DO-BLUE

SPECIALIZED SOLAR SYSTEMS (PTY) Ltd. (SSS) --- WARRANTY CONDITIONS

This Limited Warranty applies to the Products and Systems sold and/or installed by Specialized Solar Systems or an affiliated company. Specialized Solar Systems warrants the quality of such Systems and specifies the scope of such Warranty.

1. (One) Year Limited Warranty

Specialized Solar Systems warrants the equipment installed and workmanship to be free from defects and/or failures specified below for a period not exceeding 1 (one) year from the date of installation of such equipment:

- i) Defects and/or failures due to manufactured items;
- ii) Defects and/or failures due to materials;
- iii) Defects and/or failures due to faulty workmanship.

Notwithstanding the above, certain components of installed systems carry additional supplier warranties.

Photovoltaic Panels
Inverter/MPPT
Batteries

In the event of any of the above defects and/or failures, Specialized Solar Systems will arrange for the repair/replacement of such systems/components at its sole option. This may include the repair/replacement of the system/components with new/replacement components.

2. Warranty Exclusions

- i) No claim based on this Limited Warranty may be brought after the applicable Warranty period;
 - ii) Any repair/replacement of systems/components shall not extend the original terms of this Warranty.
 - iii) The customer is responsible for ensuring a valid electrical Certificate of Compliance is obtained for a specific site/premises, prior to Specialized Solar Systems conducting any installation of systems on that specific site/premises. Failure of the customer to comply with this requirement will invalidate this warranty.
3. **This Limited Warranty shall not cover defects and/or failures of systems/components from the following causes, even though such defects and/or failures are discovered within the applicable Warranty period:**
- i) Defects and/or failures caused by devices and/or parts other than the systems/components supplied/installed by Specialized Solar Systems;
 - ii) Defects and/or failures caused by defective wiring, installation, or handling by parties other than Specialized Solar Systems;
 - iii) Defects and/or failures caused by installations not in conformance with Specialized Solar Systems system/component specifications, installation manuals or operation manuals;

- iv) Defects and/or failures caused by unauthorised maintenance, operation or modification;
- v) Defects and/or failures caused by removal from the original place of installation;
- vi) Defects and/or failures caused by repairs not in accordance with SSS' instructions;
- vii) Defects and/or failures caused by inappropriate handling during transportation and storage;
- viii) Defects and/or failures caused by external accidents such as fire and explosion;
- ix) Defects and/or failures caused by natural forces, acts of God, or force majeure events and other unforeseen circumstances or causes beyond SSS' reasonable control including but not limited to, earthquakes, hurricanes, typhoons, tornadoes, floods, lightning, storm damage, snow damage, etc.;
- x) Defects and/or failures caused by smoke and/or other pollution, salt damage, acid, rain, etc.;
- xi) Unauthorised tampering with any part of the system/components.

4. This Limited Warranty covers only the transportation cost for reshipment of any repaired or replaced system/components to the applicable location, and does not cover the transportation cost for the return of the system/components to Specialized Solar Systems or Specialized Solar Systems's authorised agents and costs associated with installation, removal or re-installation of the system/components, where such system/components are not installed by Specialized Solar Systems or an authorized Specialized Solar Systems agent.

5. This Limited Warranty is transferable to a new owner of a location where the system/components were originally installed provided that the system/components remain installed at the location where originally installed.

6. Warranty Limitations

The Limited Warranty set forth herein is expressly in lieu of and excludes all other express or implied warranties including, but not limited to, warranties of merchantability and fitness for a particular purpose and all other obligations or liabilities on the part of Specialized Solar Systems, unless such other warranties, obligations or liabilities are expressly agreed to in writing by Specialized Solar Systems. Specialized Solar Systems shall have no responsibility or liability whatsoever for damages or injury to persons or property, or for other loss or injury resulting from any cause whatsoever arising out of or relating to the systems/components or from use or installation. Beyond this SSS shall not be liable under any circumstances for any incidental, indirect, consequential or special damages howsoever caused. In no event shall SSS' aggregate liability exceed the value of the system/component which is the subject of a claim or dispute.

This Limited Warranty shall be valid until a new revision is issued by Specialized Solar Systems.



SPECIALIZED SOLAR SYSTEMS[®]
The National Alternative Energy Supply Company
www.specializedsolarsystems.co.za

ENQUIRIES