



HELIAC

SOLAR HOME UPS / INVERTER

- High Speed Micro Controller based Solar Home UPS.
- Built in Solar Charge Controller.
- Multi-colour LCD Display.
- Freq.:- Available - 50Hz & 60Hz.
- Charging Multi Stage (Bulk, Absorption & Float).
- Solar Priority of load & battery charging.
- Preference to Solar Power over Grid Power.
- Pure sine wave output.
- Protections : RBP, RSPV, OVL, BL, OBC, SC, IHV & ILV.
- Compatible with DG as an Input Source.
- Compatible with IT Load.
- Compatible with SMF, Gel & Tubular Batteries.
- Priority Selection - PCU, Smart & Hybrid for Saving Energy and Money.



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1. SAFETY

1.1. General

Read safety notes carefully and thoroughly to ensure its correct installation and operation. Save this manual properly.

Installation, maintenance & repair of the equipment should be undertaken by trained, experienced and authorized service person.

The handling, installation & maintenance of the battery associated with this equipment, must be done in accordance with the instructions & safety precautions given by the battery manufacturer. Risk of a possible electrocution is possible when the battery is connected to the System. Therefore, do not forget to disconnect the batteries, grid, panel, load before any service is to be done on the System.

To disconnect, remove the battery fuse, disconnect all connections located at the rear of System.



We request you to read the Manual prior installation, performing start up procedures or system operation or maintenance.
For any information regarding installation/maintenance, Please Call to on our nearest service center.

1.2. Safety Warnings

1.2.1 Environment

System packing must be recycled in compliance with regulations. Battery contains Lead and is dangerous substance for the environment hence same shall be dispose of by Govt. approved agency only.

1.2.2 Safety for persons

The System devices generate a large leakage current, grounding of the System & panel is necessary before connecting power. Improper connection may damage the device and lead to injuries.



Hazardous voltage levels are present within the System.
System should be opened by qualified engineer only.

After the System shut down, a dangerous voltage will be present on the battery terminals.

1.2.3 Safety for Product

System shall not be installed near liquid or with room exceeding specified room temperature and humidity. Place the System in a room with proper ventilation and safe distance. All ventilation apertures must be kept free and clean. Refer to manual to perform installation.

Avoid installing the System in location under direct sunlight, running water, or excessive humidity. Routine preventive check shall be done..

Store the Solar System in its original Packing. Ensure the arrow on the box is pointing vertically upward direction. Store it in dry location. Storage temperature must be between -10°C to 70°C Suitable handling equipment shall be used for handling of System. The route / passage up to the installation site and the actual foundation location must be capable of supporting the weight of the Solar System and its accessories.



If System is installed, then there will be hazardous AC & DC Voltages on exposed terminals and printed circuit boards. This condition prevails even when all the switches are OFF.

2. INSTALLATION

2.1 Receipt of System

When the System is received, please carry out visual check for any damage during transport.



Please immediately contact Service person, Dealer or Transport agency for following conditions occur:-

- Any damage observed, either external or internal.
- Any accessory is missing or damaged.

2.2 Positioning and Installation

The system must be installed in a dry & clean room. To have proper ventilation, the user must ensure enough air exchange in the room.

Never install the equipment near liquids or in an excessively damp environment. Never block the ventilation.

We are suggesting the distances require to be Solar System:

- Minimum distance from the rear wall = 500 mm
- Minimum distance from the top = 500 mm
- Minimum distance from the front wall = 500 mm

2.3 Electrical Connection

- Ensure proper earthing of the equipment.
- Keep the Battery, Panel, Grid Input & Output disconnect during installation.
- Connect Grid Input, SPV array & Battery supply to System.
- Ensure the correctness of the battery & Solar Panel Array supply polarity.
- Connect load cables.
- After complete installation to power up system, Switch ON the System through reset switch, Switch ON SPV, after 30 sec. Solar Charging will be started.
- For this system add External Ckt. Breaker for solar.

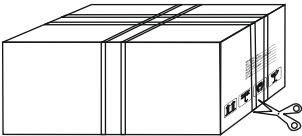
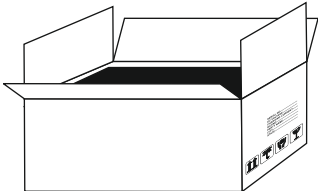
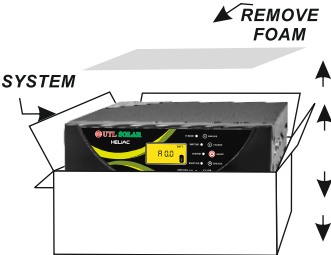

- Load will run on Inverter Output.
- After Connecting Mains Supply switch ON the GRID.

2.4 Storage

When the System is not installed immediately, it must be stored carefully in vertical position, as indicated on the packing and conserved in a dry and sheltered room. Cover it with an envelope so that it is protected from dust.

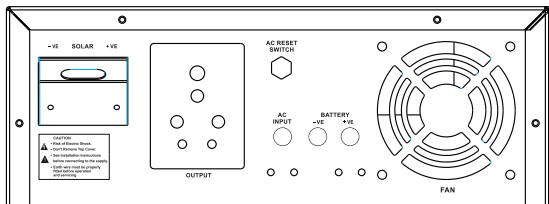
If the period of System installation is over 6 months, be sure to charge batteries for at least 8 hours before the first use.

3. SYSTEM HANDLING

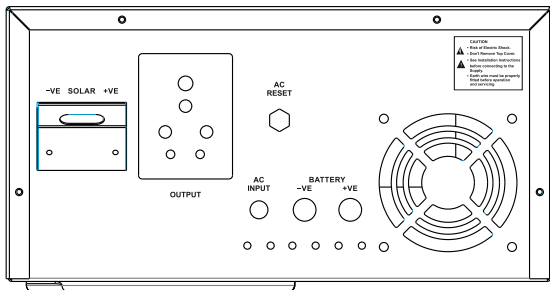
<p>STEP - 1</p>  <p>CUT THE STRAP</p>	<p>STEP - 2 REMOVE TAPE & OPEN THE BOX AS PER DIRECTION.</p> 
<p>STEP - 3 UNPACKING</p> <p>REMOVE FOAM</p> <p>SYSTEM</p> 	<p>STEP - 4 READY FOR INSTALLATION</p> 

3.1 System (Back View)

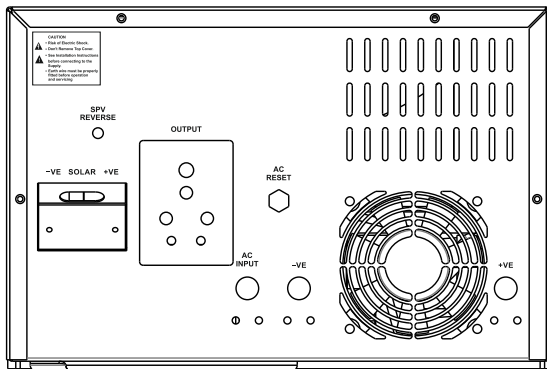
a. Heliac 1050 & 1500/12V



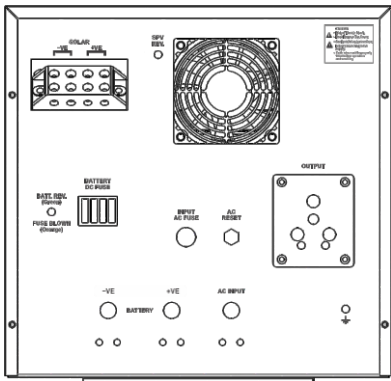
b. Heliac 2000/24V



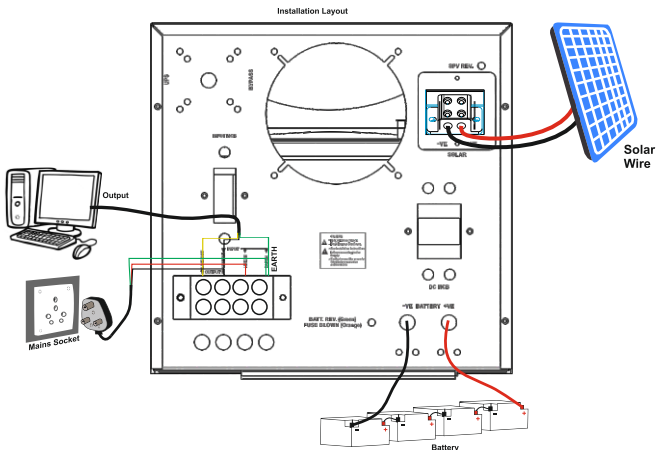
c. Heliac 2500/24V



d. Heliac 3000/24V

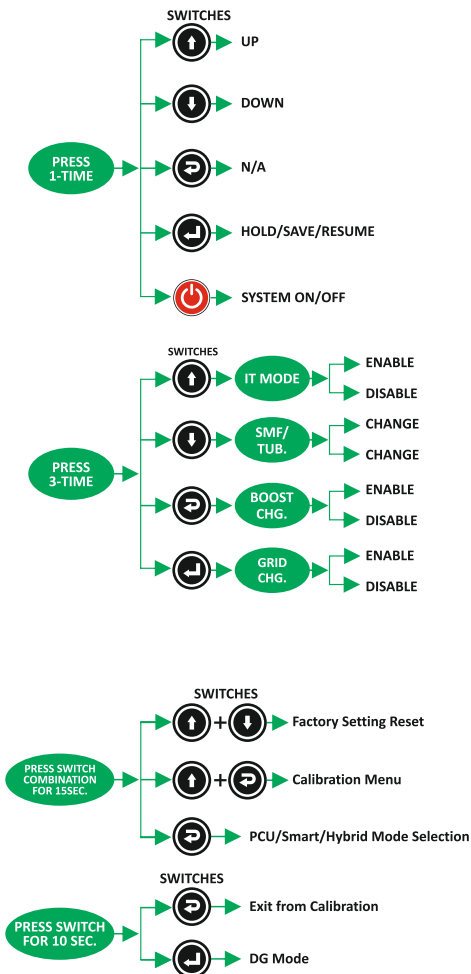




e. Heliac 4000/48V





Note: Image is only to show connections, number of batteries connected will be according to the rating of the system.

4. SWITCH FUNCTION FLOW CHART






IT Mode LED :- On Pressing  Switch 3 times, IT Mode LED will glow solid, indicates IT Mode is Enabled. On again pressing this  switch for 3 times this LED will turn OFF, indicates that IT Mode is disabled.

SMF/TUB :- On Pressing  Switch for 3 times, SMF/TUB LED will turn OFF, indicates Tubular Battery mode is Selected. On again pressing this  switch 3 times this LED will glow solid, indicates that SMF Battery Mode is Selected.


System ON/OFF LED :- a) On Pressing  Switch 1 time, System will turn ON and vice versa.

Grid Chg. Enb./Dis. LED :- On Pressing  Switch 3 times, This LED will glow solid, indicates Grid Chg. is Disabled. On again pressing this  switch for 3 times this LED will turn OFF, indicates that Grid Chg. is Enabled.

DG Mode LED :- On Pressing  Switch for 10sec., this LED will Blink, indicates DG Mode is Enabled. On again pressing this  switch for 10sec. this LED will either turn OFF or glows solid, indicates DG Mode is Disabled.


Boost Chg. LED :- On Pressing  Switch 3 times, Boost Charging LED will glow solid indicates Boost Charging is Enabled. On again pressing this switch 3 times this LED will turn OFF, indicates Boost Charging is Disabled.

Description Of Features

DG Mode Enb./Dis. :- Generally this feature is required when generator is used as a input source. To Enb./Dis. this features press and hold switch  for 10sec. Disable this mode when grid power is present.

IT mode Enb./Disb.:- This Mode, when enabled, is suitable for sensitive loads like computer, laptops etc.




Boost Chg.:- Whenever customer need to charge battery faster then he/she needs to enable this mode.

TUBULAR/SMF:- This LED will remain OFF when charger settings are according to TUBULAR batteries, and will be ON by 3 times continuously pressing switch , that indicates charger settings are according to SMF batteries and vice versa.

Grid Chg. Enable/Disable :- Whenever customer don't require charging through Grid/Mains then he/she can disable this Feature.

5. SELECTION OF WORKING MODES (HYB/SMT/PCU)

View - 1

Now on pressing switch  for 15 sec. to enter in to working modes window. This window shows Smart mode is selected as working mode of the system. To select any of the working mode out of HYB/SMT/PCU, we need to press  or  switch.




View - 1.1

For Example, To select PCU mode from SMT mode we need to press  switch for once.



View - 1.2

To save PCU mode we need to press  switch for once.



View - 1.3

This window shows PCU mode has been selected as working mode.



6. DISPLAY PANEL DETAILS

The Display panel provides all the information related to operating status & electrical parameters.



Protection	Under/Over voltage for Array & Battery, Array & Battery reverse polarity, Output Overload, SPV Overload, Short circuit, Over Temperature.
Indication & Display	System ON, IT-Mode, SMF/TUB, Grid Charging Disable, Boost Charging, Over Heat, Mains Low/High, DG Mode, Battery Low/High, Over Load, Frequency Out, SPV Volt High, SPV Current
Display Parameter	Solar - Current, SPV Status. Battery - Voltage, Chg. Current. Input - Voltage, Frequency, Status. Output - Voltage, Load%, Frequency.

7. SCROLLING DISPLAY

View - 1

PCU Mode, Inverter Output/Load Voltage is 220V.



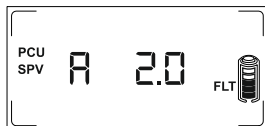
View - 2

PCU Mode, Inverter Output/Load Frequency is 49.6Hz.



View - 3

PCU Mode, Solar Current is 2.0A.



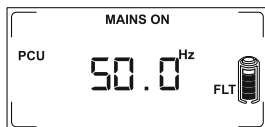
View - 4

PCU Mode, Mains/Grid/Input Voltage is 250V



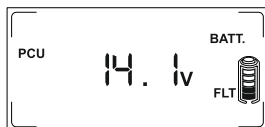
View - 5

PCU Mode, Mains/Input Frequency is 50.0Hz.



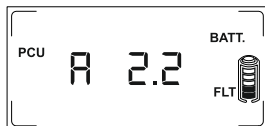
View - 6

PCU Mode, Battery Voltage is 14.1V for 12V system.



View - 7

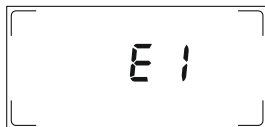
PCU Mode, Battery Charging Current is 2.2Amp.



8. SYSTEM ERROR DESCRIPTION

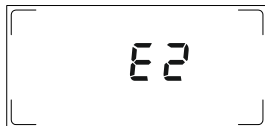
View - 1

Inverter Open Circuit Error



View - 2

Grid Charger Open Circuit Error



View - 3

NTC Open Circuit Error



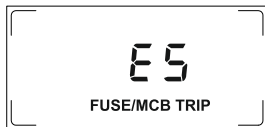
View - 4

Mains Sensing Error



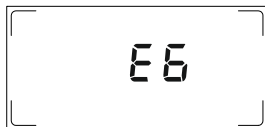
View - 5

Fuse Blown/MCB Trip Error



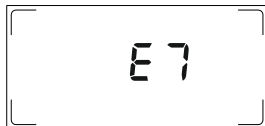
View - 6

Relay Fault Error



View - 7

Communication Error



View - 8
GRID Frequency Out



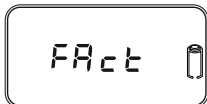
9. DISPLAY BACK LIGHT COLOR DESCRIPTION

LED BACK LIGHT COLOR DESCRIPTION	
RED (SOLID GLOW)	Protection
RED (BLINK)	Error (E1 to E8)
LIGHT ORANGE (SOLID GLOW)	When Mains Present
GREEN (SOLID GLOW)	When Solar is Present
ORANGE (SOLID GLOW)	When SPV + Mains Present
LIGHT GREEN / YELLOW (SOLID GLOW)	When SPV and Mains OFF and Only System ON

10. FACTORY SETTING PROCEDURE

View - 1

After Pressing Switch  +  Simultaneously for 15 sec. First window will appear as shown in Fig. which shows Factory Setting Mode.





View - 2

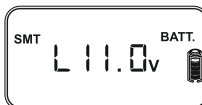
This window shows Factory Setting finally saved.



11. CALIBRATION PROCEDURE

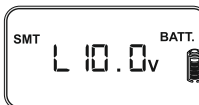
View - 1

After Pressing Switches  +  Simultaneously for 15 sec. First window will appear as shown in its adjacent Fig. which shows Battery Low Set point in CALIBRATION MODE.



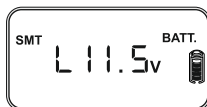
View - 1.1

Now on pressing switch  multiple times to decrease Battery Low Voltage set Point minimum upto 10.0V.



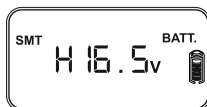
View - 1.2

Now on pressing switch  multiple times to Increase Battery Low Voltage set Point maximum upto 11.5V.



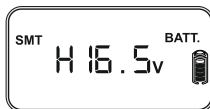
View - 1.3

Now on pressing switch  battery low voltage save and go to battery high set point window.



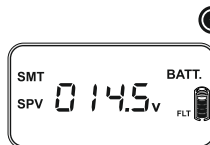
View - 2

After saving battery low set point you will get battery high set window. In this window you can get variable battery high voltage range 16.5-17.5V. To set battery high voltage follow the previous procedure 1.1,1.2 & 1.3.



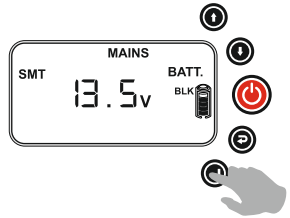
View - 3

After saving battery high voltage we will get battery charging voltage through solar window. In this window by default 13.7V in float and boost for SMF battery you can get variable voltage range 13.5-14.5V and Tubular Battery by default 15V(boost), 14.2V(float) and variable range 14-15.5V(Boost), 13.8-14.5V(float) follow previous procedure to change charging voltage from solar is similar as in case of view 1.1,1.2 & 1.3.



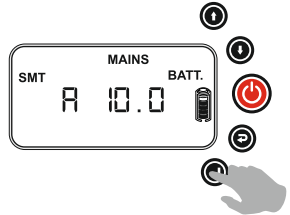
View - 4

After saving battery charging voltage through solar we will get battery charging voltage through mains window. In this window you can get by default 13.5V(float & boost) and variable voltage range 13.5-14.2V. For Tubular Battery by default 14.5V(boost), 13.8V(float) and variable range 13.5-15V(Boost), 13-14.2V(float). Follow previous procedure to change charging voltage from mains is similar as in case of view 1.1, 1.2 & 1.3.



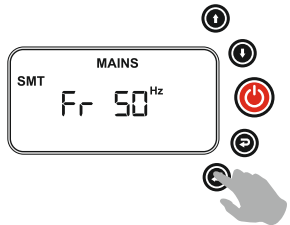
View - 5

In this window you can get variable current range 5-20Amp. After change parameter follow previous procedure(1.1, 1.2 & 1.3)



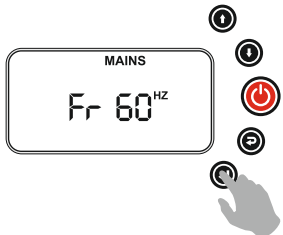
View - 6

After saving battery charging voltage through mains we will get frequency window 50Hz



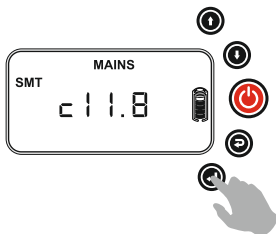
View - 7

For changing the frequency. Follow previous procedure(1.1, 1.2 & 1.3).




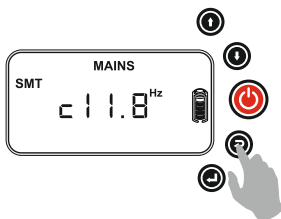
View - 8


After saving frequency we will get mains reconnect voltage window. In this window you can get variable voltage reconnect range 11-12V. After change parameter follow previous procedure (1.1, 1.2 & 1.3)



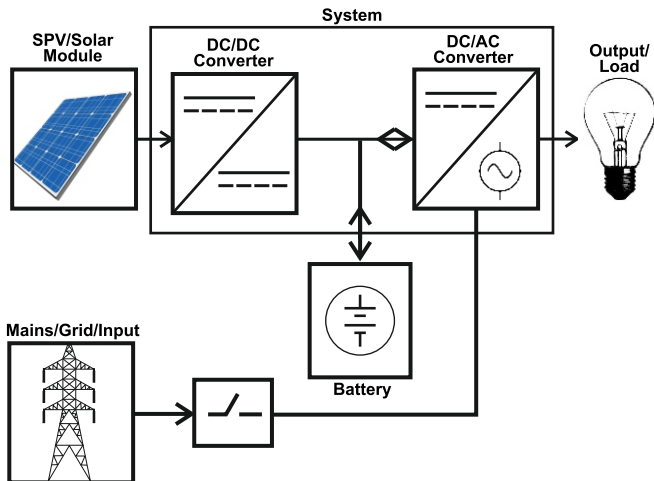
View - 9

To exit from calibration mode, we need to press  switch for 10 sec. A beep will be observed that will indicate the exit from this mode.



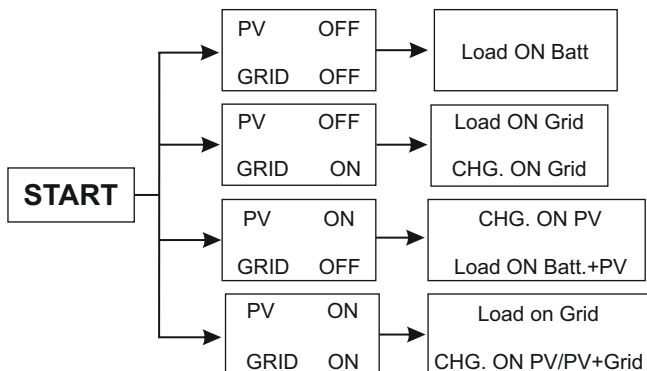
Note:- If you want to go next parameter without saving previous. You should press  switch. After change parameter follow previous procedure(1.1, 1.2 & 1.3).

12. BLOCK DIAGRAM

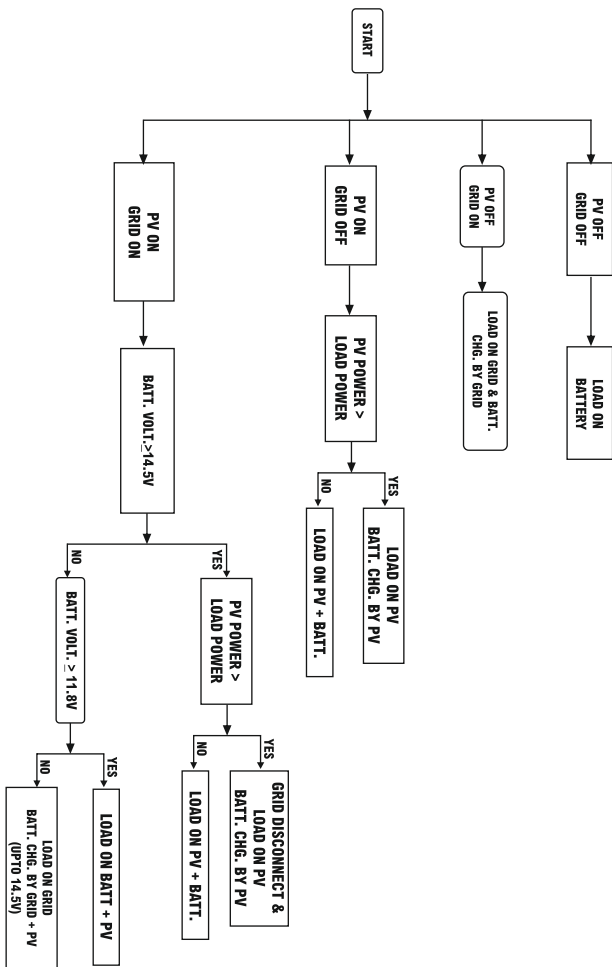


13 FLOW CHART

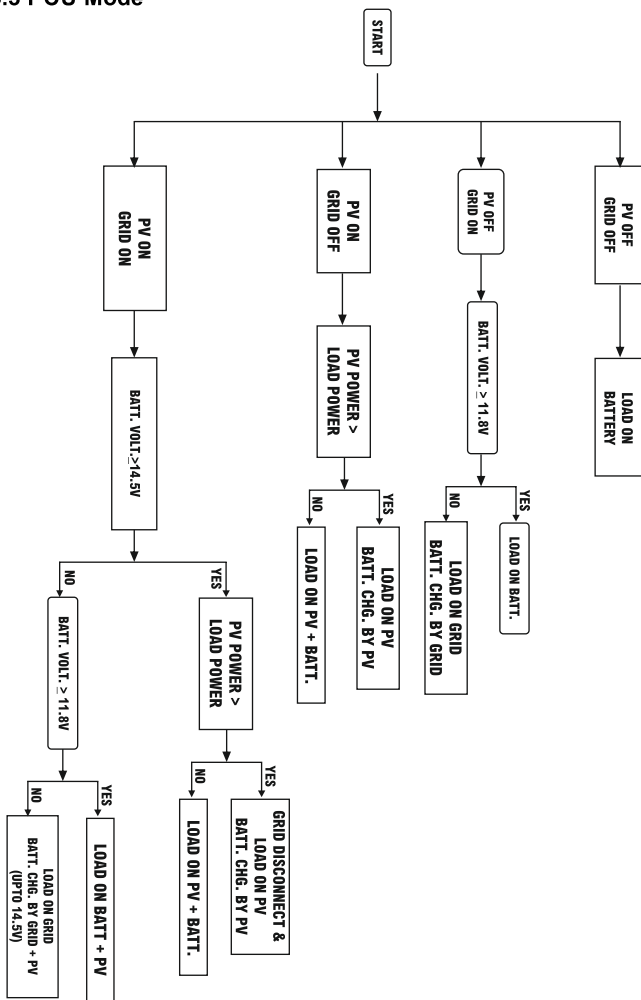
13.1 Hybrid Mode



13.2 (Smart Mode)



13.3 PCU Mode



14. SYSTEM DESCRIPTION

System is single phase output, Solar Inverter System. In normal (Hybrid) mode, System operates from battery or array power source and produces single phase AC output to fulfill the load requirement PWM Charge Controller based array charger, supplies the DC power for battery charging as well as for the inverter.

When Battery will be at battery low set point then Grid/input source will get triggered automatically at certain predetermined battery voltage level. Grid Input source starts battery charging as well as take care of output load and sufficient battery charge level.

MOTOR LOGIC :-

Heliac 2500 & 3000 System will run continuously 15 minutes during overload condition in every 1 Hour (1 HP Motor Load). Either use these 15 minutes together or in segments.

14.1 System Details

System Comprises the following boards.

1. Control Board:- It controls operating of PWM Charge Controller and inverter. It contains power modules of PWM Charge Controller and inverter. PWM Charge Controller receives DC supply from solar array and provides charging voltage to battery and DC voltage for inverter operation. This board also contains power relays for grid and inverter, based on signal from controller. Hence, operation is controller and output is available at load.

2. Display Board:- It received all inputs from control board. It display array, battery, inverter, Solar & grid parameters.

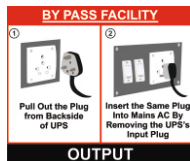
14.2 Priority

Solar / Battery / Grid & Solar / Grid / Battery
Automatic Select

14.3 Bypass Facility

a).Heliac 1050 - 3000

If the user feels the need to shift the system due to any reason (white washing, System Failure etc.), he can bypass the System through a simple procedure. Take off the Mains input lead(input MCB OFF & change rotary switch) as well as solar input leads of the System out of Mains input socket & disconnect the battery. Now take off the wire plug inserted in output socket and insert the plug back into the same Mains socket in which the Mains input lead was inserted.

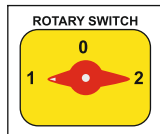


b).Heliac 4000

In order to bypass keep rotary knob in Position No. 2

Function of Rotary Switch:

- Inverter Mode - Knob should be in Position No. 1
- Bypass - Knob should be in Position No. 2



15. TECHNICAL SPECIFICATION

Parameters		Rating							
Model No.		1050/50A	1500/50A	2000/50A	2500/50A	3000/70A	4000/60A		
Capacity		850VA	1000VA	1500VA	2000VA	2200VA	3500VA		
Operating DC Voltage		12V		24V					
Switching Element		MOSFET							
Charger Topology		Boost MOSFET							
Battery Capacity		200AH MAX							
Operating Mode	SMART/PCUI/HYBRID	Smart mode							
DG Mode	Enable/Disable	Disable							
Parameters (Grid)		Default Value						Variable Range	
Nominal Grid Voltage		230V 1ϕ							
Nominal Grid frequency		50Hz							
Frequency Range		47-53Hz ± 1Hz							
Default mode	TUB/SMF	Tubular							
Grid Charging Voltage	TUB	Boost							
Grid Charging Voltage		Float							
Grid Charging Voltage	SMF	Boost							
Grid Charging Voltage		Float							
Grid Charging Method 4 Stages		Bulk/Absorption/Float/Equalize							
Grid Charging Voltage (Equalize)		After 30 Days							
Grid Charging Current (Normal/Boost)		12A/15A ± 2A						NA	
Optional Grid Charging	Enable/Disable	Enable						1A-20A	
Grid Reconnect @ Battery Voltage		11.8V ± 0.2V						11V-12V	
Grid Low Cut Voltage		170V ± 10V							
Grid Low Cut Recovery	IT Mode Enable	180V ± 10V							
Grid High Cut Voltage		265V ± 10V							
Grid High Cut Recovery		255V ± 10V							
Grid Low Cut Voltage		100V ± 10V							
Grid Low Cut Recovery	IT Mode Disable	110V ± 10V							
Grid High Cut Voltage		290V ± 10V							
Grid High Cut Recovery		280V ± 10V							
Changeover (Batt. to Mains)		IT Mode Enable/Disable	<5ms						
Changeover (Mains to Batt.)	IT Mode Enable	<12ms							
	IT Mode Disable	<30ms							
Parameters (Inverter)									
Output Phase		1ϕ							
Nominal Output Voltage		220V ± 6%							
Nominal Frequency		50Hz ± 1%							50-60Hz
Max. Output Current		2.1A	2.9A	4.3A	5.6A	6.8A	10.0A		
Battery Low Buzzer		10.8V ± 0.2V						Battery Low Cut+0.3V	
Battery Low Cut		10.5V ± 0.2V						10V-11.5V	
Battery High Cut		16.5V ± 0.2V						16.5V-17.5V	
Output Waveform		Sinewave							
Typical Efficiency		≥80%				≥85%			
Voltage Harmonic		<3% (Linear Load)							
Over Load Capacity	IT Mode Disable	>100% After 30 sec delay (with Alarm) 3Time Auto Reset, 4th Time Shut Down Note : 1HP Motor Load Run for 15min with alarm (1 sec ON 5sec OFF) in 2500 & 3000 Model.							
	IT Mode Enable	>100% After 30 sec delay 1st Time Shut Down >150% Output Goes Down							
Motor 1 HP		NA	Yes(<6.5A)	Yes(<7.5A)	Yes				
Protection		Overload, Battery Low, Battery High, Output Short Ckt., Battery Reverse (Fuse Blown), Over Heat @90°C + 10°C, Over/Under Frequency, IP Hi, IP Low, SPV High.							
LED Indication		System ON, (IT Mode, SMF/TUB, Boost Chg., DG Mode, Grid Chg.) Enable/Disable.							
Switches		Reset for System ON/OFF, UP, Down, Back, Enter(For LCD Calibration)							
Display (Multi Color)		Battery Voltage, Charging Current, Grid Voltage, Grid Frequency, Output Voltage, Output Frequency, Load%, Battery Graph, Overheat, BLK/ABS/FLT., SPV Current, Working Mode(HYB/PCUI/SMT).							
Parameters (Solar)									
Switching Element		MOSFET							
Type of Charger		PWM							
SPV Charging Voltage (Boost)	TUBULAR	15V ± 0.2V						14.2V-15.5V	
SPV Charging Voltage (Reconnect)		14.2V ± 0.2V						13.1V-14.5V	
SPV Charging Voltage (Boost)	SMF	14.0V ± 0.2V						13.6V-14.5V	
SPV Charging Voltage (Reconnect)		13.7V ± 0.2V						13.6V-14.5V	
Efficiency		≥95%							
Solar Current MIN.		>3A (Below 3A, System will act like Solar Absent)							
Solar Current MAX.		50A		70A		60A			
Input Voltage Range (Min - Max)Voc		17V-25V		31V-49.5V		60V-100V			
Maximum PV Power Recommended		(150W/160W) x4	(150W/160W) x5	(315W/320W/325W)x4, 390Wx3	(315W/320W/325W)x6, 390Wx5	(315W/320W/325W)x6, 390Wx5	(315W/320W/325W)x6, 390Wx5		
Parameters (Environment)									
Operating Temperature		0-50°C							
Cooling		Fan							
Max. Relative Humidity @25°C (non Condensing)		95%							
Noise @ 1meter		50dB							
Standard Compliance		IP20							
Weight (kg)		10	11	15	18	28	40		
Dimension L x W x H(mm)		300x265x128		300x265x165		450x340x300			
								450x340x385	

*Specification are subject to change without prior notice due to constant improvement in design & technology.

16. OPERATING INSTRUCTIONS

To Start the System

- Connect earth to the system.
- Check tightness of all power terminals outside of the Cabinet.
- Ensure Battery voltage and Polarity and then connect it to the System.
- Ensure SOLAR array voltage & polarity and then connect it to the system.
- Connect solar Array supply to the system.
- Now turn ON System through Reset switch.
- While connecting Grid supply, Please ensure line & neutral before connection.

To Shutdown the System

- Disconnect Grid from the System.
- Disconnect Solar connection from System.
- Switch off the System through reset switch.
- Disconnect System Output Connection.
- Then finally, disconnect battery connection from the system.

17. PREVENTIVE MAINTENANCE

We would like to inform you that specialized periodic maintenance (with yearly frequency) is recommended for the System, in order to offer optimum System, in order to offer optimum operating efficiency and avoid downtime of the equipment by authorized Service Engineer.

Maintenance consists of accurate functional checks on electronic and mechanical parts with replacement of parts subject to wear if necessary (typically batteries, fans and capacitors)

Checkpoints:-

Check points	Quarterly	Yearly
Check Electrical power connections for tightness on terminals.		
Battery inter cell connectors for tightness and corrosion on terminals.		
Verify Display parameters with actual readings.		
Cleaning of dust filter (In case of IP4X).		
Power transformer cable tightness.		
Fan Operation.		
Physical verification of AC and DC power capacitors.		
Cleaning of total system by removing side covers.		

18. TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	RESOLUTION
In day Hours with good solar radiation, Solar System is running on battery	<ul style="list-style-type: none"> i) Array voltage absent ii) Array is at extremely low / high voltage condition 	<ul style="list-style-type: none"> i) Check Array supply ii) Check Array supply low/high voltage Condition
Low battery backup	<ul style="list-style-type: none"> i) Solar System Overload ii) Battery deteriorated iii) Battery is not fully charged iv) Battery charger fail v) Battery path fuse fail vi) High ambient Temp. 	<ul style="list-style-type: none"> i) Check load condition ii) Check battery status iii) Contact Our Service Center. iv) Contact Our Service Center. v) Contact Our Service Center. vi) Maintain ambient temp. as per spec
Output Under/Over Voltage	<ul style="list-style-type: none"> i) Output short circuit ii) Control board failed 	<ul style="list-style-type: none"> i) Check load. ii) To reset the fault press reset switch on front LCD display. iii) If fault repeats Contact Our Service Center
System Over temperature	<ul style="list-style-type: none"> i) High ambient Temp. ii) Output overload. iii) System cooling fan failed iv) Temp . sensor failed v) Control board failed. vi) Ventilation input is blocked 	<ul style="list-style-type: none"> i) Check Solar System room ventilation is proper ii) Reduce the load iii) Contact Our Service Center. iv) Contact Our Service Center. v) Contact Our Service Center. vi) Clean ventilation input by blower fan

INSTALLATION CABLES/WIRES DETAILS

HELIAC Series Models	Battery Wire	Input Wire	Output Wire	Earth Wire	Solar Wire
HL-1050/12V	10 Sq.mm	0.75 Sq.mm	1 Sq.mm	1 Sq.mm	10 Sq.mm
HL-1500/12V	12 Sq.mm	0.75 Sq.mm	1 Sq.mm	1 Sq.mm	10 Sq.mm
HL-2000/24V	8 Sq.mm	1.5 Sq.mm	1.5 Sq.mm	2.5 Sq.mm	10 Sq.mm
HL-2500/24V	12 Sq.mm	2.5 Sq.mm	2.5 Sq.mm	4 Sq.mm	10 Sq.mm
HL-3000/24V	16 Sq.mm	2.5 Sq.mm	2.5 Sq.mm	4 Sq.mm	16 Sq.mm
HL-4000/48V	10 Sq.mm	2.5 Sq.mm	2.5 Sq.mm	4 Sq.mm	10 Sq.mm

WARRANTY CARD

Model No.....

Serial No.....

Name of Purchaser :

Address.....

.....

Date of Purchase.....

Dealer's Name.....

Company warrants to the original purchaser provided the product is still in possession and used by original purchaser, from the date of shipment from the company. Consumer shall have no coverage or benefit under this warranty in the event of any of the following conditions are applicable.

- a) Warranty is valid for 24 months of purchase by end customer from retailer or for 30 months from purchase by any Distributor from company, whichever is earlier.
- b) The product has been subjected to abnormal use or conditions, improper storage, exposure to excessive moisture or dampness, exposure to excessive temperature, unauthorized modification, unauthorized repair (including but not limited to the use of unauthorized spare parts in repairs), abuse, accident, act of God, spill of food or liquid, improper installation and breakage or damage.
- c) The consumer has not notified the defect of the product to the company during the warranty period.
- d) The product Serial No. code or the accessory code has been removed, defaced or altered.
- e) The seals are broken or show evidence of tampering.
- f) All plastic surfaces and all other externally exposed parts that are scratched or damaged due to abnormal customer use.

This warranty is offsite in nature, the consumer will have to take the product to the company or it's authorised service centers for repair and will have to take it back at his/her own expenses.

No other express warranty is applicable to this product. The duration of any implied warranties, including the implied warranty of marketability or fitness for particular purpose or use is limited to the duration of express warranty herein. The company shall not be liable for the loss of use of the product inconvenience, loss or any other consequent damage arising out of the use or inability of use, of this product or for the breach of any express or implied warranty including the implied warranty of market ability or merchantability or fitness applicable to this product.

All disputes are subject to Delhi jurisdiction only.

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Marg Metro Station, Near NDPL Grid Office, Delhi - 110015.

For Sales: +91 9250 885 885, **For Service:** +91 8510 885 885
E-mail: service@utlups.com, **Website:** www.upsINVERTER.com

Manufacturing Unit

Unit 1 : Village Naryal, Near Sec-4 Barrier, Parwanoo, H.P.- 173220

Unit 2 : Plot No.51-52, Sector- Ecotech 1 Extension 1,
Greater Noida, Distt Gautam Budh Nagar, U.P.- 201310