



USER MANUAL



SALIENT FEATURES

- Less No load current
- Great Power Saving upto 30%
- System efficiency more then 88%*
- Backup time is more than 12 to 15%
- Silent operation and Pure Sine Wave Output
- Battery Charging at very low voltage till 90V
- Compatible with all type of batteries (LA/SMF/ TUB/Li-Ion)
- Changeover time less than 10ms (for UPS application)
- Triple protection (Overload, Short Circuit and Wiring Fault)
- SMPS based battery charger increase Battery Life up to 40%
- Independent charger feature charge that battery when battery is deep discharged



AN ISO 9001 : 2015 CERTIFIED COMPANY





PRODUCT SPECIFICATION

MODEL - 2500 MPPT SOLAR PCU WITH INBUILT LITHIUM BATTERY / 24V

Product Specification Range of MPPT Solar PCU.		HELIO 2500VA
Mains Input mode		
Mains AC low cut UPS mode		175VAC ± 10VAC
Mains AC low cut recovery UPS mode		185VAC ± 10VAC
Mains AC high cut UPS mode		265VAC ± 10VAC
Mains AC high cut recovery UPS mode		255VAC ± 10VAC
Mains AC low cut WUPS mode		90VAC ± 10VAC
Mains AC low cut recovery WUPS mode		110VAC ± 10VAC
Mains AC high cut WUPS mode		295VAC ± 10VAC
Mains AC high cut recovery WUPS mode		285VAC ± 10VAC
Input Frequency Range		40Hz to 60Hz
Voltage Output in Mains Mode		Same as input
Mains Charging Enable/Disable		Yes Provided, you can set by front switch
Frequency Output in Mains Mode		Same as input
Battery		
Battery Type		LI-ION
DC input voltage		24V
Battery Quantity 24V 100Ah to 250Ah		1
Boost charging voltage for Li-ion Battery		28V±0.3V
Floot charging voltage		27.4V±0.2V
Battery deep Discharge Recovery		Yes (Independent Charger to Recover Deep Discharge Battery)
Mains Charging Current Enable/Disable		Yes Provide by Keypad
Charging Current By Grid		20A±2A
Backup Mode		
Output voltage		220VAC±10%
Output frequency		50Hz ± 0.2 Hz
Output waveform		Pure Sine Wave ≤ 5% THD
No Load current		<1.8A
Capacity		2500VA
Discharging current @ full load		70A ± 2A
Low Battery Warning		21.6V±0.2V
Low Battery Cut		20.8V±0.2V
Change over time UPS mode		< 10msec
Change over time WUPS mode		< 25msec
Switching Element		MOSFET
Cooling		Temp. Controlled Fan
Protections		
Overload in backup mode		Yes provided, system will indicate on display at 101% load
Short Circuit in Backup Mode		System will shutdown after 3 - retries in case of output short circuit
Short Circuit in Mains Mode		Mains MCB will trip
Back feed		System will shutdown in case of back feed and there is no retry
Over temperature		Yes provided, if heat sink temperature goes above 100°C System will shut down
Reverse Battery		DC fuse will blown
Phase to Phase protection in mains mode		Yes provided by electronic
Solar Charge Controller		
Solar Charge Controller type		MPPT
Max Panel wattage can be connected		1500WATT
Maximum PV Voltage		105±2V
Maximum Battery current		50Amp
Efficiency		> 93%
Reverse PV protection		Yes provided, it will also display on LCD panel
Switches		Menu(Select) Up, Down, Esc.
Reverse current flow to PV		Yes provided
Sharing of current when PV and Grid both are available		If PV power is not sufficient enough to charge the battery, system will start sharing battery charging from PV and grid.
Mains Disconnect SOC (State of charge)**		65%- of battery capacity*** Default SOC is 40%
		75%- of battery capacity*** Default SOC is 30%
		85%- of battery capacity*** Default SOC is 30%
		95%- of battery capacity*** Default SOC is 30%
SOC definition(State of charge)**		Mains will be connect when battery SOC use defined value of capacity
SOC (State of charge)**		30% of battery capacity
		40% of battery capacity
		50% of battery capacity
		60% of battery capacity
Battery Capacity**		100Ah
Display and Alarms		
LCD Initial Display		Welcome, SMARTEN Website Address, System Capacity, Charging Till 90VAC and Deep Discharge Battery, System Setting, UPS / WUPS mode, I/P range 90-295VAC / 170-265VAC, Battery Type Selected LA / SMF / Tubular, DOD.
LCD Status Display		Mains ON, Input Voltage, Input Frequency, Battery Voltage, Battery Charging, Battery Charged, Charging Current, Backup Mode, UPS ON, UPS OFF, Battery Voltage, Load %, Output Voltage, Output Frequency, Battery Current, PV Current, PV Voltage.
		Mains Low Cut, Mains High Cut, Mains Not Available, Mains Frequency Cut
LCD Fault / Protection Status Display		Mains Fuse Blown / MCB Trip, Short Circuit, Overload, Battery Low, High Temperature, Back feed
Buzzer		Mains Fuse Blown / MCB Trip, Short Circuit, Overload, Battery Low, High Temperature, Back feed
Safety		
HV Test Input to Earth		Leakage current <5mA when 1.5kV applied for 1 min
HV Test Output to Earth		Leakage current <5mA when 1.5kV applied for 1 min
IR Test Input to Earth		>5MΩ between @ 500VDC
IR Test Output to Earth		>5MΩ between @ 500VDC
Earth Leakage current in Mains mode		< 2.5mA
Earth Leakage current in Backup mode		< 2.5mA
Environment		
Operating Temperature		0°C to 50°C
Storage Temperature		0°C to 50°C
Operating Relative Humidity		90% Non-Condensing

TERMS OF THE PRODUCT WARRANTY

24 Months Smarten products (12V - 48V) and 24 Months on High Capacity products (48V- 180V) is provided in an effort to improve service and peace-of-mind to end users of SMARTEN products. All SMARTEN authorized Dealers and Distributors are required to complete a SMARTEN Warranty Card in the event of a claim, at which point SMARTEN will either (a) replace or repair any products or parts of the product during the Warranty Period or (b) the original cost of the SMARTEN products, proven defective in design or manufacturing, will be refunded. SMARTEN will not be obligated to fulfill on a warranty claim, if all or any of the following is true:

- "Warranty Card" is not returned to Distributor/Dealer of SMARTEN.
- Product is modified, the design is changed or parts are replaced by an unauthorized party not pre-approved by SMARTEN to specifically do so.
- Modifications, changes, or attempted repairs are made or serial numbers/seals/ certification marks are erased by an unauthorized technician not pre-approved by Smarten to specifically do so; warranty is on all parts except LED/LCD, Switches and Body etc.)
- Incorrect installation of commissioning.
- Failure to observe the applicable safety regulations (VDE standards, etc).
- The Product has been improperly stored or was damaged while in possession of the Dealers or end users.
- A claim to cover transportation damage or scratches caused by shipping Company must be filed with insurance company when containers are unload and enough evidence is gathered to support the claim.
- Failure to observe and follow guidelines in the user manual, installation guide, and maintenance regulations.
- Incorrect use or inappropriate operation.
- Insufficient ventilation of the device.
- Substandard maintenance and service procedures.
- Force majeure (e.g., lighting, over voltage, storm, fire).

WARRANTY CARD

Product Barcode / Product Serial No. _____

Customer Name _____

Address _____

Contact No. _____ City _____ Pin _____ State _____

Model _____ Date of Purchase _____

Name of Dealer _____

Address of Dealer _____

Dealer Signature with Stamp



SMARTEN®
FUSION IS THE FUTURE



HOME UPS

SOLAR PCU (MPPT & PWM)

MPPT HYBRID SOLAR PCU

ON-GRID SOLAR INVERTER

LITHIUM & TUBULAR BATTERY

EV CHARGERS

SOLAR PANELS

SOLAR CHARGE CONTROLLER

SOLAR KITS & ACCESSORIES

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