

TERMS & CONDITIONS

- This Limited Warranty is provided by Smarten Power Systems Pvt. Ltd., and covers defects in workmanship and materials in your product. This warranty period lasts for 12 Months from the date of purchase at the point of sale to you. You require proof of purchase to make warranty claims. This Limited Warranty is Transferable to subsequent owners but only for the unexpired portion of the Warranty Period. Subsequent owners also require proof of purchase.
- Smarten will, at its option, repair or replace the defective product free of charge, provided that you notify Smarten of the product defect within the Warranty Period, and provided that Smarten through inspection establishes the existence of such a defect and that is covered by this Limited Warranty.
- Smarten will, at its option, use new and/or reconditioned parts in performing warranty repair and building replacement products. Smarten reserves the right to use parts or products of original or improved design in the repair or replacement. If Smarten repairs or replaces a product, its warranty continues for the remaining portion of the original warranty period. All replaced products and all parts removed from repaired products become the property of Smarten.
- In any warranty claim, dated proof of purchase must accompany the product and the product must not have been disassembled or modified without prior written authorization by Smarten.
- Proof of purchase may be in any one of the following forms:
 - The dated purchase receipt from the original purchase of the product at the point of sales.
 - The dated invoice or purchase receipt showing the product exchanged under warranty.
- This Limited Warranty does not cover normal wear and tear of the product or costs related to the removal, installation, or troubleshooting of the customer's electrical systems. This warranty does not apply to and Smarten will not be responsible for any defect in or damage to:
 - The product if it has been misused, neglected, improperly installed, physically damaged or altered, either internally or externally, or damaged from improper use or use in an unsuitable environment;
 - The product if it has been subjected to fire, water, generalized corrosion, biological infestations, or input voltage that creates operating conditions beyond the maximum or minimum limits listed in the Smarten product specifications including high input voltage from generators and lightning strikes;
 - The product if repairs have been done to it other than by Smarten;
 - The product if it is used as a component part of a product expressly warranted by another manufacturer;
 - The product if its original identification (trade-mark, serial number) markings have been defaced, altered, or removed.

Out of Warranty Service:

- If the warranty period for your product has expired.
- If the unit was damaged by misuse or incorrect installation.
- If other conditions of the warranty have not been met, or if no dated proof of purchase is available, your product will be considered as out of warranty & it will be served at actual repair case only.

WARRANTY CARD

Product Barcode / Serial No. _____ Model _____ Date of purchase _____
 Customer name _____ Contact No. _____
 Address _____
 State _____ Pin _____ City _____

Manufactured By:
SMARTEN POWER SYSTEMS PVT. LTD.
 Plot No. 374, Pace City-II, Sector-37, Gurgaon - 122001 (Haryana) INDIA
 Toll Free No.: 1800 1800 649 • www.smartenpowersystems.com
 Email: care@smartenpowersystems.com

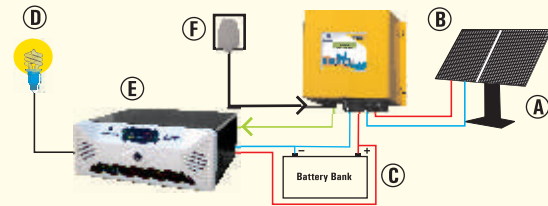
Dealer Signature
 with stamp

Solar Retrofit is an intelligent MPPT Charge controller and solar conversion device which connected to any existing UPS converts it into 100% Solar UPS without any change in the electrical wiring of existing UPS.

DISPLAY MESSAGES

- | | |
|---|--------------------------|
| 1. Welcome To Smarten World | 7. Mains Available 200 V |
| 2. Website www.smartenpowersystems.com | 8. Batt Volt 12.2V |
| 3. Prime MPPT SCC 12V/30 Amp | 9. Reverse PV Connected |
| 4. Batt Type Switch Lead Acid / Tubular Battery | 10. Saving Unit 010 |
| 5. Solar Power Available/ Not Available | 11. PV Voltage |
| 6. Solar PV Current 10 Amp | |

BLOCK DIAGRAM OF PRIME+ MPPT SOLAR PCU KIT



A. Solar Module B. MPPT Prime+ C. Battery Bank D. Load
 E. Home UPS F. Mains

Press menu button for 5-7 Sec. to select battery depth of discharge and battery type
 बैटरी दाइज और डिस्चार्ज बैटरी की स्थिति (गहराई) जानने के लिए 5-7 सेकण्ड के लिए मेन्यू बटन दबायें

| | |
|--|---|
| Set Battery DoD? < - ENTER ? - > | Press menu button for 5 sec. 5 सेकण्ड के लिए मेन्यू बटन दबायें |
| After entering in battery DoD press up and down key to select different DoD levels बैटरी DoD में प्रवेश करने के बाद बैटरी लेवल चयन करने के लिए DoD बटन को ऊपर और नीचे का बटन दबायें | |
| Set Battery DoD— > 20% < - ENTER ? - > | Press menu button for 5 sec. to select battery DoD 20% ¹ 20% बैटरी सिलेक्ट करने के लिए 5 सेकण्ड के लिए मेन्यू बटन दबायें ¹ |
| Set Battery DoD— > 30% < - ENTER ? - > | Press menu button for 5 sec. to select battery DoD 30% ¹ 30% बैटरी सिलेक्ट करने के लिए 5 सेकण्ड के लिए मेन्यू बटन दबायें ¹ |
| Set Battery DoD— > 40% < - ENTER ? - > | Press menu button for 5 sec. to select battery DoD 40% ¹ 40% बैटरी सिलेक्ट करने के लिए 5 सेकण्ड के लिए मेन्यू बटन दबायें ¹ |
| Set Battery DoD— > 50% < - ENTER ? - > | Press menu button for 5 sec. to select battery DoD 50% ¹ 50% बैटरी सिलेक्ट करने के लिए 5 सेकण्ड के लिए मेन्यू बटन दबायें ¹ |
| Battery Type < - ENTER ? - > | Press menu button for 5 sec. 5 सेकण्ड के लिए मेन्यू बटन दबायें |
| After entering in battery type press up and down key to select different type प्रवेश करने के बाद बैटरी मोड चयन करने के लिए ऊपर और नीचे का बटन दबायें | |
| SMF/TUB Battery < - ENTER ? - > | Press menu button for 5 sec. to select battery type SMF/TUB SMF/TUB बैटरी सिलेक्ट करने के लिए 5 सेकण्ड के लिए मेन्यू बटन दबायें |
| Lead Acid Batt. < - ENTER ? - > | Press menu button for 5 sec. to select battery type lead acid LEADACID बैटरी सिलेक्ट करने के लिए 5 सेकण्ड के लिए मेन्यू बटन दबायें |

Note:- By default setting for MPPT Charge Controller: 1. Battery DoD 30%² 2. Battery Type SMF/TUB
 Prime + MPPT System is a fully Automatic System, and disconnect mains if the battery is fully charged and solar power is available, connect mains depend upon the selection of the battery DoD, definition of the battery DoD is mentioned below.

¹ Battery DoD definition

- 20% - Prime+ MPPT system automatically connects mains if the battery level is 12.5V each Battery.
- 30% - Prime+ MPPT system automatically connects mains if the battery level is 12.0V each Battery.
- 40% - Prime+ MPPT system automatically connects mains if the battery level is 11.5V each Battery.
- 50% - Prime+ MPPT system automatically connects mains if the battery level is 11.0V each Battery.

² This feature is available in only Prime + Version

USER MANUAL



PRIME+
MPPT SOLAR PCU KIT

SALIENT FEATURES

- ◆ Eco Friendly.
- ◆ High Efficiency.
- ◆ Wall mounting option.
- ◆ User Friendly LCD Display.
- ◆ Power saving calculation on display*.
- ◆ Power saving up to 100%, user dependable.
- ◆ Compatible with all type of battery (LA/SMF/Tubular).
- ◆ Complete protection (Reverse PV, Battery Low, Battery Deep-Discharge and High Temp.

Toll Free No. 1800 1800 649

SALIENT FEATURES

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Toll Free No. **1800 1800 649**

USER MANUAL

Dear Customer,

Thank you for deciding in favor of SMARTEN MPPT. In doing so you have purchased an innovative, high quality product with unique equipment features and a high constant efficiency. This user manual contains explanations on using the SMARTEN MPPT. You will learn to recognize the many possibilities of the MPPT. Information is provided on safety and installation. Please observe the safety precautions exactly to ensure increased safety at the operating site of the MPPT.

WARNING! Before installation of MPPT, read and save these safety instructions.

IMPORTANT SAFETY INSTRUCTIONS

IMPORTANT : READ AND SAVE THIS OWNER'S GUIDE FOR FUTURE REFERENCE. This chapter contains important safety and installation instructions for the MPPT. Each time, before using the MPPT. READ ALL instructions and cautionary markings on or provided with the Solar Charger and all appropriate sections of this guide.

Safety Precautions to be followed while Installation, Operation & Maintenance for MPPT. Incorrect installation or use may result in risk of electric shock or fire. No user serviceable parts in this unit.

- Do not expose the MPPT to rain, snow, spray, or bilge water. This MPPT is designed for indoor use only.
- Disconnect both PV and Battery wire from the MPPT before attempting any maintenance or cleaning or working on any circuits connected to the MPPT. See note below.
- Do not operate the MPPT with damaged or substandard wiring. Make sure that all wiring is in good condition and is not undersized.

PRECAUTIONS & INSTALLATION

NOTES:

- **Step 1 :** Locate the SMARTEN MPPT unit away from batteries in a well ventilated compartment.
- **Step 2 :** Mount the Controller to a vertical surface. Allow space above and below the controller for air flow.
- **Step 3 :** It is recommended that connections be made in order from 1 to 6 (See the below diagram).
- **Step 4 :** Connect the battery first. Use care that PVC wires do not touch the metal case of MPPT.
- **Step 5 :** Connect the Solar PV wires as per standard of solar installation (Conductor Size in Sq.mm / wire length etc).
- **Step 6* :** Connect inverter Mains cord to the PCU kit output (only applicable for Prime+ version).
- The Charge Controller Required approx. 15 second of continuing transition value before it starts to work
- Make sure the PV and load currents will not exceed the ratings of the require current.

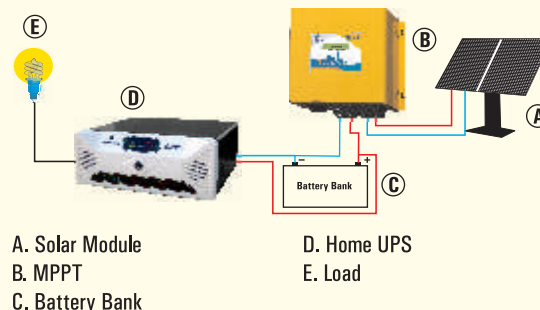
02

INSPECTION & MAINTENANCE

The Following Inspection & Maintenance tasks are recommended at least once per year or time to time for best charge controller performance.

- Confirm that the correct battery type has been connected with the system.
- Confirm that the current levels of the solar array and load do not exceed the controller ratings.
- Tighten all the terminals, inspect for loose, broken, or burnt wire connections.
- Batteries can produce a short circuit current high enough to weld a ring or metal bracelet or like to the battery terminal, causing a severe burn.
- Check that charge controller is securely mounted in a clean environment.
- Protect from sun & rain. Confirm that water is not collecting under the cover.
- Check that the controller functions and LCD messages are correct for the system conditions at that time.
- Make sure the PV array is clean and clear of debris and snow. Confirm the array is oriented correctly for the installation location.
- Re-charged is not covered under the purview of this warranty and shall be billed as extra and octroi duty or local taxes, if any become livable for the battery under repair/replacement shall be borne by the consumer.

BLOCK DIAGRAM OF PRIME



A. Solar Module
B. MPPT
C. Battery Bank

D. Home UPS
E. Load

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TECHNICAL SPECIFICATIONS

| Model | MPPT 12V-24V AUTOMATIC | |
|--|--|---------------|
| Electrical: | | |
| Nominal Battery Voltage | 12V | 24V |
| Max. Battery Current Rating | 30 A- 50 Amp | |
| Max. PV Panel Rating | 500 Watt | 1000 Watt |
| Input PV Voltage Range, Voc | 25 V - 45 V | 40 V - 85 V |
| High PV | 45 V | 85 V |
| Power Conversion Efficiency | >96% | |
| MPPT Efficiency | >96% | |
| Battery: | | |
| Charging regulation | Four stage charging algorithm: Bulk, Absorption, Float | |
| Absorption period | Held battery voltage at bulk setting for a cumulative period of 2 hour | |
| Float Voltage | 13.5V | 27V |
| Supported Battery types | Flooded, GEL, AGM, Custom | |
| Reverse Polarity PV Voltage Protection | PV Connects when PV V > Battery V and Disconnects when PV < V | |
| Protection: | | |
| PV Array Connect / Reconnect Points | Protection at PV Voltage 80V | |
| Reverse Current flow protection from Battery to PV | Yes | |
| PV High Voltage Charging Disconnect and Its Recovery | Yes, LCD will Display Reverse Voltage Protection | |
| PV High Current Regulation | If Battery Current >=30A | |
| Reverse Polarity Battery Protection | Yes | |
| Thermal Protection | If Heat sink temperature is equal to 100 °C ± 5 °C charging OFF | |
| General Parameter: | | |
| Operating Temperature Range | 0°C to ± 55°C | |
| Humidity | Up to 95% (NC) | |
| Recommended Storage Temp. | 0°C to ± 40°C | |
| Cooling | Forced through Fan | |
| Transient Surge Protection | Yes | |
| Parameters to be Displayed in LCD | PV Voltage, PV Current, Battery Voltage, Battery Current, Solar Generation Kwh | |
| Mains AC low cut WUPS mode | 90 VAC ± 10 VAC* | |
| Mains AC low cut recovery WUPS mode | 110 VAC ± 10 VAC* | |
| Mains AC high cut WUPS mode | 285 VAC ± 10 VAC* | |
| Mains AC high cut recovery WUPS mode | 285 VAC ± 10 VAC* | |
| Input Frequency Range | 40 Hz to 60 Hz* | |
| Voltage Output in Mains Mode | Same as input* | |
| Frequency Output in Mains Mode | Same as input* | |
| Panel Configuration | 250 W 2 P | 250 W 2S - 2P |
| VOC | 37 V | 74 V |
| Weight and Dimensions | | |
| Dimensions in mm | 255 (W) x 105 (D) x 255 (H) | |
| Weight in Kg. | 2.8 Kg | |

* These parameter applicable only Prime+ Solar PCU Kit

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