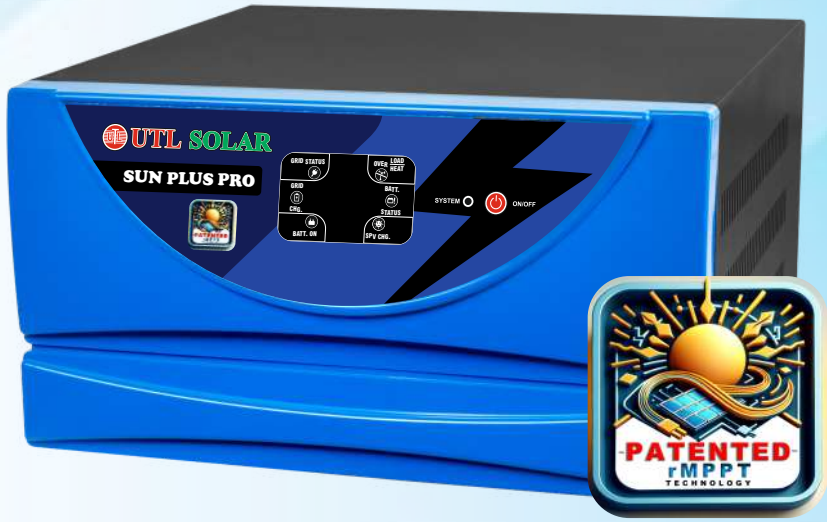
# UTL SOLAR

## SUN PLUS PRO (Solar Home PCU)

"Affordable Yet, Very Reliable"




**Model Available**
**SPP 920 to SPP 1420**

## FEATURES

- Inbuilt rMPPT Solar Charge Controller
- Support 12V & 24V Solar Panel with 12V System
- Battery Charging at Low Voltage (90V) Mains Input
- Compatible with IT Load
- Maintain battery health for longer life
- Modified Sine wave output
- Easy Installation & low maintenance
- Battery Charging with Multi stage (Bulk, Absorption & Float)
  Auto Equalize in a month
- Protections : RBP, RSPV, OVL, BL, BH, S.Ckt, I/P HV& LV, OHT
- Priority Mode Selection- 1) Hybrid 2) Smart
  For Saving Energy & Money
- Can Operated without Solar
- LED Display for Operation & Fault

UTL SOLAR

# TECHNICAL SPECIFICATION

## SUN PLUS PRO (Solar Home PCU)

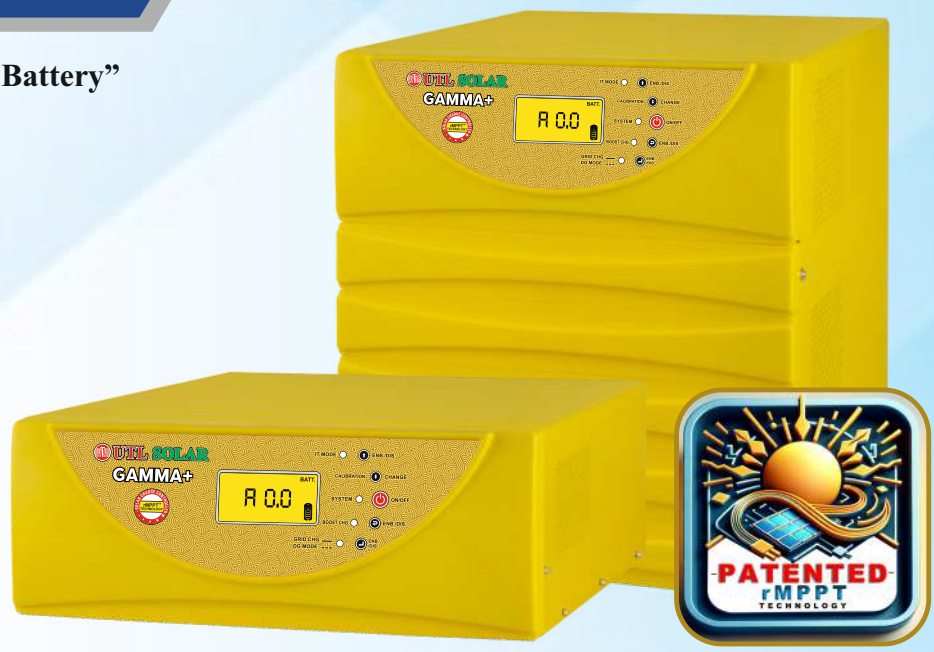
| Parameters | | Rating | | | |
|---|---|---|---|---|---|
| **Producs** | | **SUN PLUS PRO SOLAR PCU** | | | |
| **Model No.** | | SUN PLUS PRO 920 | SUN PLUS PRO 1020 | SUN PLUS PRO 1420 | SUN PLUS PRO 1820 |
| System Rating | | 700VA | 900VA | 1100VA | 1500VA |
| Operating DC Voltage | | 12V | | | 24V |
| Switching Element | | MOSFET | | | |
| Charger Topology | | BOOST MOSFET | | | |
| Max. Battery Capacity | | 200AH | | | |
| Operating Mode (SMART/HYBRID) | | HYBRID | | | |
| **Parameters (Solar)** | | | | | |
| Switching Element | | MOSFET | | | |
| Type of Charger | | MPPT | | | |
| SPV Charging Voltage (**TUB**) | Boost | 14.7V ± 0.2V (Each Battery) | | | |
| | Float | 14.2V ± 0.2V (Each Battery) | | | |
| Maximum PV Power Recommended | | 540Wx1 | | | |
| Solar PV Maximum Voltage | | 25 -50 VOC | | | 50 VOC |
| Efficiency | | >95% | | | |
| **Parameters (Grid)** | | **Default Value** | | | |
| Nominal Grid Voltage | | 230V 1Φ | | | |
| Nominal frequency | | 50Hz | | | |
| Battery Charging Method 4 Stages | | Bulk/Absorption/Float/Equalize | | | |
| Grid - Battery Charging Voltage | Boost | 14.5V ± 0.2V (Each battery ) | | | |
| | Float | 13.8V ± 0.2V (Each battery ) | | | |
| Grid - Battery Charging Voltage (Equalize) | | After 30 days | | | |
| Grid Charging Current | Normal/Boost | 15A /18A/12A ±2A | | | |
| Grid Reconnect @ Battery Voltage | | 11.8V ± 0.2V (Each battery ) | | | |
| Grid Low Cut Voltage | IT MODE ENABLE | 170V ± 10V | | | |
| Grid Low Cut Recovery | | 180V ± 10V | | | |
| Grid High Cut Voltage | | 265V ± 10V | | | |
| Grid High Cut Recovery | | 255V ± 10V | | | |
| Grid Low Cut Voltage | IT MODE DISABLE | 80V ± 10V | | | |
| Grid Low Cut Recovery | | 90V ± 10V | | | |
| Grid High Cut Voltage | | 280V ± 10V | | | |
| Grid High Cut Recovery | | 275V ± 10V | | | |
| Change Over (Battery to Mains) | IT MODE ENABLE | <8ms | | | |
| Change Over (Mains to Battery) | | <15ms | | | |
| **Parameters (Inverter)** | | | | | |
| Output Phase | | 1Φ | | | |
| Nominal output voltage | | 230V±10% RMS | | | |
| Nominal Frequency | | 50 Hz±1% | | | |
| Max. Output Current | | 2.1A | 2.9A | 3.5A | 4.3A |
| Output Waveform | | Modified Sinewave | | | |
| Battery Low Buzzer | | 10.8V ± 0.2V (Each battery ) | | | |
| Battery Low Cut | | 10.5V ± 0.2V (Each battery ) | | | |
| Battery High Cut | | 16.5V ± 0.2V (Each battery ) | | | |
| Typical Efficiency | | ≥80% | | | ≥85% |
| Over Load Capacity | IT Mode Disable | **>100% After 30 sec delay (with Alarm) 3Time Auto Reset , 4th Time Shut Down** | | | |
| | IT Mode Enable | **>100% After 30 sec delay (with alarm) 1st Time Shut Down** | | | |
| Protection | | Overload, Battery Low, Battery High, Output Short Ckt, Battery Reverse (Fuse Blown) , Over Heat @90*C ± 10*C , SPV High, SPV Reverse , I/P HV, I/P LV | | | |
| LED Indication | | System ON, Grid Status, Over load/Heat , Grid chg., Batt. ON, SPV Chg. Batt. Status . | | | |
| Switches | | System ON, (IT Mode, Hybrid , Boost Charging ) | | | |
| **Parameters (Environment)** | | | | | |
| Operating Temperature | | 0-45°C | | | |
| Cooling | | Fan | | | |
| Max. Relative Humidity @ 25°C (non Condensing) | | 95% | | | |
| Noise @ 1 meter | | 50dB | | | |
| Standard Compliance | | IP20 | | | |
| Weight (kg) | | 7.6 | 8.4 | 13.3 | 14 |
| Dimension (LXWXH) | | 275X305X131mm | | 302*306*165 mm | |

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

# UTL SOLAR

## GAMMA+ (Solar Home PCU)

"Get Two Battery Back -up in Single Battery"




**Model Available**
**GPP1012-GPP3400**

## FEATURES

- Controller based design, Pure Sine Wave, Built in rMPPT 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, BH, S.Ckt, I/P HV & LV, OHT.
- Compatible with DG as an input Source.
- Compatible with IT Load.
- Compatible with Tubular Batteries (Lithium) .
- Priority Selection - PCU, Smart & Hybrid for Saving Energy and Money.
- Support 1HP Motor in Model No 2600 and 3350.

# UTL SOLAR

## TECHNICAL SPECIFICATION

## GAMMA+ (Solar Home PCU)

| Parameters | | | | | | | |
|---|---|---|---|---|---|---|---|
| Model Name | | Gamma+ PCU | | | | | |
| Model No. | | GPP1012 | GPP1650 | GPP2000 | GPP2600 | GPP3400 | |
| System Rating | | 1000VA | 1400VA | 1500VA | 2000VA | 3000VA | |
| Operating DC Voltage | | 12V | | 24V | | | |
| Switching Element | | MOSFET | | | | | |
| Charger Topology | | Boost Mosfet | | | | | |
| Max. Battery Capacity | | 200AH | | | | | |
| Operating Mode | SMART/PCU/HYBRID | Smart mode (Default) | | | | | |
| Optional DG mode | Enable/Disable | Disable (Default) | | | | | |
| Input Voltage Range (Min - Max) Voc | | 15V-53V | 30V-53V | 30V-106V | | 60V-106V | |
| Solar Power Maximum | | 1000W | 1650W | 1500W | 2000W | 3000W | |
| Solar Panel Recommended (Watt) | | 165x6P, 200X5P (335x3P*) (400/440/540X2P*) | (335x4P*) (400x4P*) (440/540/550x3P*) (590x2P*) | 335 (2S* & 2P*) 400 (2S* & 2P*), (540X3P*) Parallel | 335 (2S* & 3P*) (400/440 (2S* & 2P*), (540X3P*) Parallel | 590 (2S* & 2P*) 440/540 (2S* & 3P*) 400 (2S* & 4P*) | |
| **Parameters (Grid)** | | **Default Value** | | | | | **Variable Settable Range (Each Batt.)** |
| Nominal Grid Voltage | | 230V 1Φ | | | | | |
| Nominal frequency | | 50Hz | | | | | |
| Frequency Range | | 47-53Hz ± 1Hz | | | | | |
| Battery Charging Method 3 Stages | | Bulk/Absorption/Float | | | | | |
| Default charging mode | TUB (LITHIUM) | Tubular | | | | | |
| Grid - Battery Charging Voltage (TUB) | Boost | 14.5V ± 0.2V | | | | | 13.5-15V |
| | Float | 13.8V ± 0.2V | | | | | 13-14.2V |
| Grid - Battery Charging Voltage (LITHIUM) | Boost / Float | 13.8V ± 0.2V | | | | | 13.5V-14.2V |
| Grid Charging Current | Normal/Boost | 10A/15A ± 2A | 15A/20A ± 2A | 10A/15A ± 2A | | | 1A-20A |
| Optional Grid charging | Enable/Disable | Enable | | | | | |
| Grid Reconnect @ Battery Voltage (TUB) | | 11.8V ± 0.2V | | | | | 11-12V |
| Grid Reconnect @ Battery Voltage (LITHIUM) | | 12.4V ± 0.2V | | | | | 12-13V |
| Grid Low Cut Voltage | IT Mode Enable | 170V ± 10V | | | | | |
| Grid Low Cut Recovery | | 180V ± 10V | | | | | |
| Grid High Cut Voltage | | 265V ± 10V | | | | | |
| Grid High Cut Recovery | | 255V ± 10V | | | | | |
| Grid Low Cut Voltage | IT Mode Disable | 100V ± 10V | | | | | |
| Grid Low Cut Recovery | | 110V ± 10V | | | | | |
| Grid High Cut Voltage | | 290V ± 10V | | | | | |
| Grid High Cut Recovery | | 280V ± 10V | | | | | |
| Change Over (Battery to Mains) | IT Mode Enable/Disable | <8ms | | | | | |
| Change Over (Mains to Battery) | IT Mode Enable | <12ms | | | | | |
| | IT Mode Disable | <30ms | | | | | |
| **Parameters (Inverter)** | | | | | | | |
| Output Phase | | 1Φ | | | | | |
| Nominal Output Voltage | | 230V | | | | | |
| Output voltage range | | 230V ± 10% | | | | | |
| Nominal Frequency | | 50 Hz ± 1% | | | | | 50Hz/60Hz |
| Max. Output Current | | 2.9A | 4.3A | 4.3A | 5.6A | 9.0A | |
| Battery Low Buzzer (TUB) | | 10.8V ± 0.2V (Each Battery ) | | | | | Battery Low Cut-0.3V |
| Battery Low Cut (TUB) | | 10.5V ± 0.2V (Each Battery ) | | | | | 10-11.5V |
| Battery Low Buzzer (LITHIUM) | | 11.9V ± 0.2V (Each Battery ) | | | | | Battery Low Cut-0.3V |
| Battery Low Cut (LITHIUM) | | 11.6V ± 0.2V (Each Battery ) | | | | | 11-12V |
| Battery High Cut (TUB) | | 16.5 ± 0.2V (Each Battery ) | | | | | 16.5-17.5V |
| Battery High Cut (LITHIUM) | | 14.5 ± 0.2V (Each Battery ) | | | | | 14.5-15V |
| Output Waveform | | Sinewave | | | | | |
| Typical Efficiency | | >80% | | >82% | | | |
| 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<br>Note : 1HP Motor Load Run for 15min with alarm (1 Sec ON, 5 Sec OFF) in 2600 Model . | | | | | |
| | IT Mode Enable | >100% After 30 sec delay (with Alarm) 1st Time Shut Down | | | | | |
| | | >150% Output Goes Down | | | | | |
| Motor 1 HP | | NA | | | Yes (<6.5A) | Yes | |
| Protection | | Overload, Battery Low, Battery High, Output Short Ckt, Battery Reverse (Fuse Blown) , Over Heat @90°C ± 10°C, Over/Under frequency, I/P High, I/P Low, SPV High, SPV Low | | | | | |
| LED Indication | | System ON, (IT mode, TUB/LITHIUM, Boost Chg, DG mode, Grid Chg.) Enable/Disable | | | | | |
| Switches (Micro) | | 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, SPV Current, Operating Mode (HYB/PCU/SMT) , Solar energy (KWH) . | | | | | |
| **Parameters (Solar)** | | | | | | | |
| Switching Element | | Mosfet | | | | | |
| Type of Charger | | MPPT | | | | | |
| SPV Chgarging Voltage (TUB) | Boost | 14.7V ± 0.2V (Each Battery ) | | | | | 14-15.5V |
| | Float | 14.2V ± 0.2V (Each Battery ) | | | | | 13.1-14.5V |
| SPV Charging Voltage(LITHIUM) | Boost / Float | 13.9V ± 0.2V (Each Battery) | | | | | 13.6-14.4V |
| SPV Charging Current (Battery) | | 18A ± 2A (Def.) | 25A ± 2A (Def.) | 18A ± 2A (Def.) | | | 11-40A |
| Battery Charging Method 3 Stages | | Bulk/Absorption/Float | | | | | |
| Efficiency | | >94% | | | | | |
| **Parameters (Environment)** | | | | | | | |
| Operating Temperature | | 0-45°C | | | | | |
| Cooling | | Fan | | | | | |
| Max. Relative Humidity @ 25°C (non Condensing) | | 95% | | | | | |
| Noise @ 1 meter | | 50dB | | | | | |
| Standard Compliance | | IP20 | | | | | |
| BIS Approved | | | | | | | |
| System Weight (KG) | | 12.4 | 19 | 16 | 17.6 | 25 | |
| Dimension (LXWXH)mm | | 327.8x305.5x116 | 357x305.5x292 | 333.8x305.5x158.6 | | 340x305.5x360 | |

**Note. * Specification are subject to change without prior notice due to constant improvement in design & technology.**
*** Above mention battery parameter is according to single battery.**
*** Solar Panel Max. (*S- Series, *P- Parallel)**