SMARTEN®

FUSION IS THE FUTURE

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SMARTEN®

FUSION IS THE FUTURE

SOLAR ENERGY

COMPLETE SOLAR SOLUTIONS



SOLAR

SMART ENERGY

SMART SAVINGS

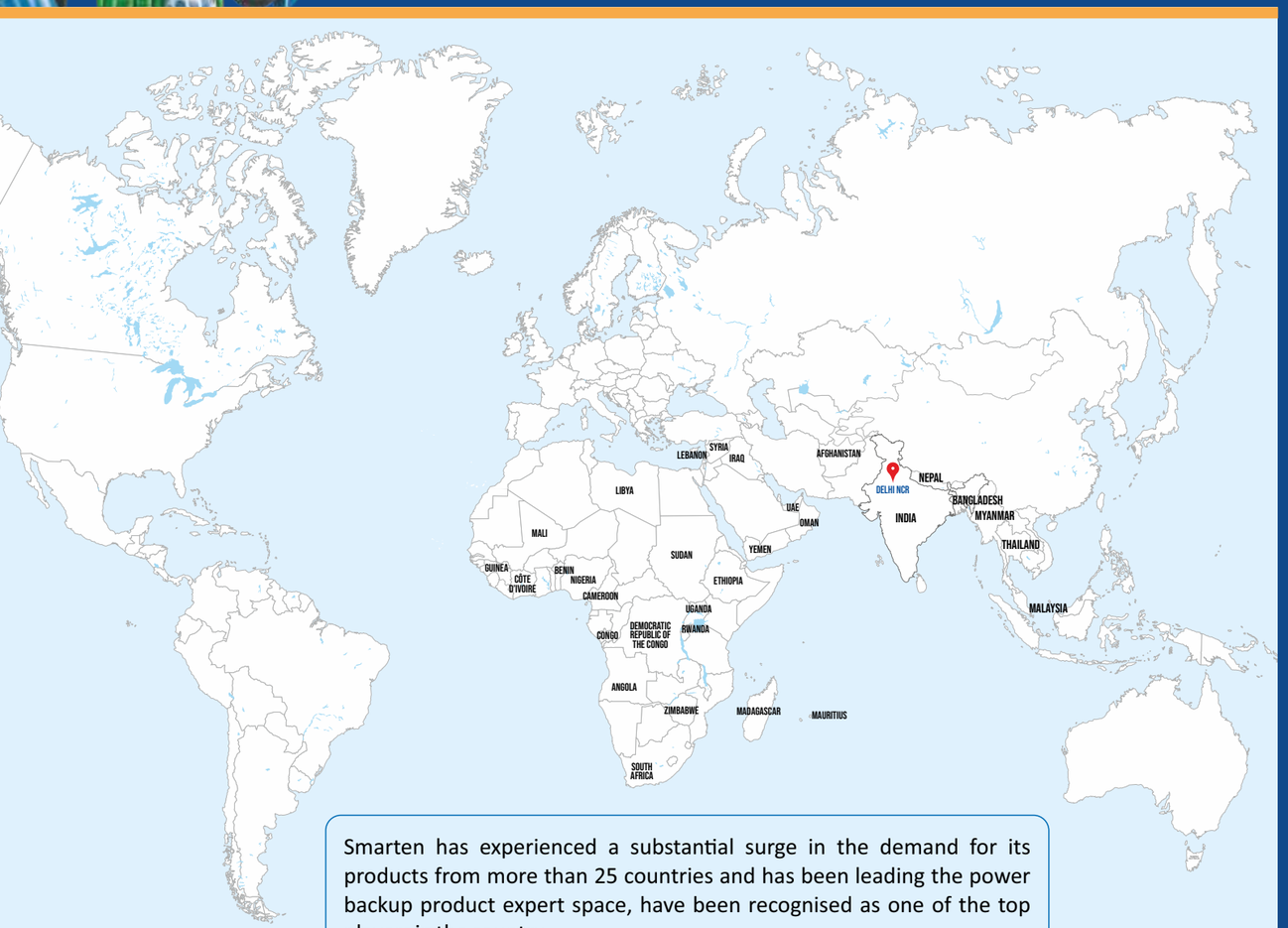
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SMARTEN®
FUSION IS THE FUTURE



WHAT DO WE DO

Smarten believes in empowering every home & commercial space with its world class product range of Solar Inverters, Batteries, Solar Panels & much more. “Evolution of Renewable Energy” is the only motto, to achieve the desired Smarten is rigorously working on its designs, R&D & manufacturing capacity. We believe that “Fusion is the Future”, with such advancements in technology the time is to enrich mother earth through ultimate source of all power Sun.



Smarten has experienced a substantial surge in the demand for its products from more than 25 countries and has been leading the power backup product expert space, have been recognised as one of the top players in the country.

Backed by a team of over 300 technologists and dignitaries in power, Smarten is now well-known across many countries in the world, including India, Nepal, Bangladesh, Afghanistan, UAE, Nigeria and Benin.

WHAT ARE WE

Smarten Power Systems Pvt. Ltd. is a Solar Product Manufacturing Company that was established in 2014 with a mission to provide best solution to need of power/solar that can drive our present towards a sustainable future.

Smarten Power Systems is more than just inverter manufacturers. Since inception in 2014, Smarten has been defined by the vision of its founders: to put the company at the forefront of the evolution to a renewable energy future. This vision is enshrined in the company’s brand statement, Fusion is the Future, which is a salute to the nuclear fusion reactions in the Sun which are the ultimate source of all power on the Earth.

Beginning with a series of Home UPS, Smarten has developed a range of unique Power Backup Solutions and Solar Products which differentiate it from the Industry. The diverse product range includes Home UPS, Inverters, Solar Power Conditioning Units, Solar Charge Controllers, Solar Inverters, Solar Panels, Batteries, Off-Grid Solutions, Grid Tie Inverters and Customized Solar Solutions.

Smarten’s products are designed and manufactured in-house to exacting standards and best-practice processes and are backed up in the field by unmatched reliability and the company’s renowned service support. Due to a clear focus on quality throughout the organization’s operations, Smarten has rapidly established a footprint across India as well as further afield in Nepal, Bangladesh, Afghanistan, Dubai, Nigeria, Benin, Uganda and South Africa.

Thank you for associating with Smarten, we have been doing continuous efforts to cater your requirements & deliver the best. You are so valuable for us.

Stay Tuned!

Rajnish Sharma
Director

SMARTEN®

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Welcome to the next chapter of Smarten Power Systems, culminating in our brand-new facility at Reliance MET. Established in 2014, we began our journey in a modest space with a focused range of products, earning the trust and loyalty of our customers while meeting market needs with precision.

Today, we proudly announce our expansion to a larger, cutting-edge factory. This move signifies a monumental step forward, empowering us with robust in-house manufacturing capabilities. We now produce over thousands of products daily, meticulously crafted to uphold our commitment to quality and innovation. This growth not only reinforces our dedication to meeting market demands but also sets a new standard in the industry.





CERTIFICATIONS

Government of India
Ministry of Commerce and Industry
Directorate General of Foreign Trade
Importer-Exporter Code

Govt. of India MNRE APPROVED CHANNEL PARTNER

MEMBER OF MULTILATERAL RECOGNITION ARRANGEMENT IAF

ISO 9001:2008 EQUALITAS REGISTERED M44102101I JAS-ANZ
AN ISO 9001 : 2015 CERTIFIED COMPANY

IS 14242

Producing Power for Better Living

SON STANDARDS ORGANISATION OF NIGERIA

CE

ISO 9001 CERTIFIED

ISO 14001:2015
Environmental Management System

RCMC by MPEDA



BRAVO

1050 VA - 10 KVA

PURE SINE WAVE HOME UPS

- 15 ampere current for faster battery charging
- Smart charging even during low voltage 90V*
- Complete protection from back feed and phase to phase supply
- Compatible with all type battery

India's Inverter Series which is need of every household!

The technically advanced BRAVO Sine Wave Home UPS operates on mains and supplies power while charging the battery when mains supply is available. In case of a power outage, Bravo transfers the entire load to its optimally charged battery and supplies high quality sine wave AC power.

Apart from the highest quality components and engineering, what makes Bravo special is the inbuilt charger that even charges zero volt zero gravity battery as-well. In simple terms, it charges the dead battery and get it recover slowly that provides the user uninterrupted supply.



SMARTEN® FUSION IS THE FUTURE

SOLAR ENERGY

PRODUCT SPECIFICATIONS

MODEL NAME	1050VA	2000VA	3500VA	5500VA	5500VA	7500VA	10000VA
MAINS 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						
Frequency Output in Mains Mode	Same as input						
BATTERY							
Battery Type	LA / Tubular / SMF						
DC input voltage	12V	24V	48V		96V	96V	120V
Battery Quantity 12V 100Ah to 350Ah	1	2	4		8	8	10
Bulk absorption Voltage	14.8V	29.6V±0.2V	59.2V±0.4V	59.2V±0.4V	118V±0.4V	118V±0.4V	148V±0.4V
Float charging voltage	13.7V±0.2V	27.4V±0.2V	54.8V±0.4V	54.8V±0.4V	109.6V±0.4V	109.6V±0.4V	137V±0.4V
Boost charging voltage for LA Battery	14.0V±0.2V	28.0V±0.3V	56.0V±0.4V	56.0V±0.4V	112V±0.5V	112V±0.5V	140V±0.5V
Boost charging voltage for Tubular and SMF Battery	14.5V±0.2V	28.8V±0.3V	57.8V±0.4V	57.8V±0.4V	116V±0.5V	116V±0.5V	145V±0.5V
Battery deep Discharge Recovery	Yes (Independent Charger to Recover Deep Discharge Battery)						
Charging Current 100Ah-135Ah Setting (Input range 135VAC to 295VAC)	12A ± 2A						
Charging Current 150Ah-350Ah Setting (Input range 135VAC to 295VAC)	15A ± 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						
Discharging current @ full load	50A ± 2A	60A ± 2A		90A ± 2A	45A ± 2A	65A ± 2A	
Low Battery Warning	10.8V±0.2V	21.6V±0.2V	43.2V±0.4V	43.2V±0.4V	86.4V±0.4V	86.4V±0.4V	108V±0.4V
Low Battery Cut	10.4V±0.2V	20.8V±0.2V	41.6V±0.4V	41.6V±0.4V	83.2V±0.4V	83.2V±0.4V	104V±0.4V
Change over time UPS mode	< 10msec				< 4msec		
Change over time WUPS mode	< 25msec						
PROTECTIONS							
Overload in backup mode	Yes provided, system will give indication 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℃ System will shut down						
Reverse Battery	DC fuse will blown						
ALARMS							
Buzzer	Audible beep for Overload, Short Circuit, Back feed, Low Battery, Over Temperature, Mains Fuseblown / MCB Trip						
ENVIRONMENT							
Operating Temperature	0°C to 50°C						
Storage Temperature	0°C to 50°C						
Operating Relative Humidity	90% Non-Condensing						
WEIGHT AND DIMENSIONS							
Dimensions in mm (LxWxH)	355x355x195	425x315x385	425x315x385	518x415x515		575x415x640	
Weight (Kg)	9.35	18.5	24.5	45	50	72	75

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BRAVO ECO

875 VA - 2050 VA

PURE SINE WAVE HOME UPS

- Great power saving up to 30%
- 12% to 15% more backup
- Battery charges at very low voltage till 90V*
- User friendly interface

Bravo Eco is a Pure Sine Wave Home UPS that comes with its unique features. The product is a great companion for people who are looking to run appliances with small applications.

The product has high efficiency of converting battery load to AC load results into long backup. The whole process helps the customer to provide uninterrupted power supply with low electricity bill & more savings.

Bravo Eco gives 12%-15% extra backup to have smooth experience for domestic and commercial purposes.



SMARTEN®
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SOLAR ENERGY

PRODUCT SPECIFICATIONS

MODEL NAME	875VA	1075VA	1250VA	2050VA
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			
Frequency Output in Mains Mode	Same as input			
BATTERY				
Battery Type	LA / Tubular / SMF			
DC input voltage	12V			24V
Battery Quantity 12V 100Ah to 350Ah	1			2
Bulk absorption Voltage	14.8V			29.6V±0.2V
Float charging voltage	13.7V±0.2V			27.4V±0.2V
Boost charging voltage for LA Battery	14.0V±0.2V			28.0V±0.2V
Boost charging voltage for Tubular and SMF Battery	14.5V±0.2V			29.0V±0.2V
Battery deep Discharge Recovery	Yes (Independent Charger to Recover Deep Discharge Battery)			
Charging Current 100Ah-135Ah Setting (Input range 135VAC to 295VAC)	12A ± 2A			
Charging Current 150Ah-350Ah Setting (Input range 135VAC to 295VAC)	15A ± 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			
Discharging current @ full load	40A ± 2A	52A ± 2A	60A ± 2A	60A ± 2A
Low Battery Warning	10.6V±0.2V		10.8V±0.2V	21.6V±0.2V
Low Battery Cut	10.4V±0.2V			20.8V±0.2V
Change over time UPS mode	< 10msec			
Change over time WUPS mode	< 25msec			
PROTECTIONS				
Overload in backup mode	Yes provided, system will give indication 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 Fuse will blown			
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℃ System will shut down			
Reverse Battery	DC fuse will blown			
ALARMS				
Buzzer	Audible beep for Overload, Short Circuit, Back feed, Low Battery, OverTemperature, Mains Fuse blown / MCB Trip			
ENVIRONMENT				
Operating Temperature	0°C to 50°C			
Storage Temperature	0°C to 50°C			
Operating Relative Humidity	90% Non-Condensing			
WEIGHT AND DIMENSIONS				
Dimensions in mm (LxWxH)	301×297×160	355x355x195		403x392x227
Weight (Kg)	7.7	8.8	9.8	16

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NOVA
1075 VA - 3050 VA
PURE SINE WAVE HOME UPS

- **WUPS/UPS Selectable Switch**
- **Smart Charging Even During Low Voltage 90V***
- **Recover Deep Discharge Battery Even Zero Volt Gravity**
- **Compatible with all Type Battery***

When Performance comes with style!

The smartly designed Nova Home UPS comes with LED Buttons that operates on mains and supplies power while charging the battery when mains supply is available. In case of a power outage, Nova transfers the entire load to its optimally charged battery and supplies high quality AC power.

Apart from the highest quality components and engineering, what makes Nova special is the inbuilt charger that even charges zero volt zero gravity battery as-well. In simple terms, it charges the dead battery and get it recover slowly that provides the user uninterrupted supply.


LED BULB

TULLU PUMP

JUICER MIXER


PC


LED TV


REGRIGERATOR


SUBMERSIBLE PUMP


DENTAL CHAIR


PHOTOCOPIER

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SOLAR ENERGY

PRODUCT SPECIFICATIONS

MODEL NAME	1075VA	1250VA	1500VA	2050VA	2525VA	3050VA
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					
Frequency Output in Mains Mode	Same as input					
BATTERY						
Battery Type	LA / Tubular / SMF					
DC input voltage	12V			24V		
Battery Quantity 12V 100Ah to 350Ah	1			2		
Bulk absorption Voltage	14.8V			29.6V±0.2V		
Float charging voltage	13.7V±0.2V			27.4V±0.2V		
Boost charging voltage for LA Battery	14.0V±0.2V			28.0V±0.3V		
Boost charging voltage for Tubular and SMF Battery	14.5V±0.2V			28.8V±0.3V		
Battery deep Discharge Recovery	Yes (Independent Charger to Recover Deep Discharge Battery)					
Charging Current 100Ah-135Ah Setting (Input range 135VAC to 295VAC)	12A ± 2A					
Charging Current 150Ah-350Ah Setting (Input range 135VAC to 295VAC)	15A ± 2A		18A ± 2A	15A ± 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					
Discharging current @ full load	50A ± 2A	60A ± 2A	70A ± 2A	60A ± 2A	70A ± 3A	90A ± 3A
Low Battery Warning	10.8V±0.2V			21.6V±0.2V		
Low Battery Cut	10.4V±0.2V			20.8V±0.2V		
Change over time UPS mode	< 10msec					
Change over time WUPS mode	< 25msec					
PROTECTIONS						
Overload in backup mode	Yes provided, system will give indication 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℃ System will shut down					
Reverse Battery	DC fuse will blown					
ALARMS						
Buzzer	Audible beep for Overload, Short Circuit, Back feed, Low Battery, Over Temperature, Mains Fuseblown / MCB Trip					
ENVIRONMENT						
Operating Temperature	0°C to 50°C					
Storage Temperature	0°C to 50°C					
Operating Relative Humidity	90% Non-Condensing					
WEIGHT AND DIMENSIONS						
Dimensions in mm (LxWxH)	355x355x195			410x390x235		425x315x335
Weight (Kg)	8.8	9.8	10.3	16	17.8	20.5



HELIO

900 VA - 1500 VA

MPPT SOLAR PCU
IN-BUILT LITHIUM BATTERY

- DSP Based Pure Sine Wave
- Faster Charging, More Backup
- LCD Display
- Can Install 24V Solar Panels
- Wall Mount
- Zero Maintenance

Smarten Helio MPPT in-built Lithium Battery Solar PCU is a next-generation power conditioning unit designed for reliable and efficient solar energy management. Powered with advanced MPPT technology, it ensures maximum solar energy extraction even in low light conditions.

With a built-in lithium battery, Helio offers higher efficiency, longer life, faster charging, and zero maintenance compared to traditional batteries. Its compact design saves space, while the intelligent control system provides seamless power backup, making it an ideal solution for homes, offices, and institutions looking for sustainable and uninterrupted green energy.



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TECHINICAL SPECIFICATION

Mains Input mode	**HELIO 1500**
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 W.UPS mode	110VAC ± 10VAC
Mains AC high cut WUPS mode	295VAC ± 10VAC
Mains AC high cut recovery W.UPS mode	285VAC ± 10VAC
Input Frequency Range	48Hz to 52Hz
Voltage Output in Mains Mode	Same as input
Frequency Output in Mains Mode	Same as input
Battery	
Battery Type	LI-ION
DC input voltage	12V
Battery Quantity 12V 100Ah Li-ION	1
Bulk absorption Voltage	14.2±0.2V
Boost charging voltage for LI-ION Battery	14.2V±0.2V
Battery deep Discharge Recovery	Yes (Independent Charger to Recover Deep Discharge Battery)
Charging Current LI-ION Battery	20A ± 3A
Charging mode	5Amp 5A ± 1A 10Amp 10A ± 2A Enable 20A ± 3A Disable
Backup Mode	
Output voltage	220VAC +5% -10% (until battery low alarm)
Output frequency	50Hz ± 0.2 Hz
Output waveform	Pure Sine Wave ≤ 5% THD
Capacity	1250VA
Discharging current @ full load	73 ±3A
Low Battery Warning	10.8V±0.2V
Low Battery Cut	10.4V±0.2V
Change over time UPS mode	< 10msec
Change over time WUPS mode	< 25msec
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
Battery High Protection	Yes provided by Firmware
Solar Charge Controller	
Solar Charge Controller type	MPPT type
Max Panel wattage can be connected	1200W
Max PV Voltage	60 ±3V
Max PV current	55A
Reverse PV protection	Yes provided, it will also display on LCD panel
Reverse current ow to PV	Yes provided, it will also display on LCD panel
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
Mode Option	1. Solar >> Grid >> Battery (In this condition first priority is Solar then Grid and Battery) 2. Solar >> Battery >> Grid (in this condition first priority is solar then Battery and Grid) 3. Grid >> Solar >> Battery (In this condition first priority is Grid then Solar and Battery, Mains will not be disconnect in this condition)
Mains Disconnect SOC (State of charge)**	65% of battery capacity*** Default SOC is 30%
	75% of battery capacity*** Default SOC is 40%
	85% of battery capacity*** Default SOC is 30%
	90% of battery capacity*** Default SOC is 30%
SOC definition (State of charge)**	Mains will disconnect if battery will charge dened SOC level
SOC (State of charge)**	20%- of battery capacity
	30%- of battery capacity
	40%- of battery capacity
	50%- of battery capacity
SOC definition (State of charge)**	Mains will be connect when battery use defined SOC value of full 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/LI-ION, Battery
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,
Buzzer	Audible beep for Overload, Short Circuit, Back feed, Low Battery, Over Temperature, Mains Fuse blown / MCB Trip
Mains Chargin Enable and Disable	
	Yes, Provided user can set mains charging Enable/Disable from front keypad
UNIT SAVING IN DISPLAY	
	LCD Display will show the toal saving unit from Solar
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
Definition	
	* This option is enabled only for the LA/SMF/TUB batteries ** This option is enabled only for the Li-Ion Batteries

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Superb+ 1100 VA - 20 KVA | **TRENDY+** 1100 VA - 10 KVA

MPPT SOLAR PCU

- **MPPT Based Advance Technology PCU**
- **Smart Charging even During Low Voltage 90V***
- **Set Solar Charging Current as per Battery Capacity**
- **Grid Charging Enable / Disable Option for Reduced Electricity Bill**

Made with high-grade quality and MPPT-based advanced technology, these Solar PCUs feature an operating input AC Voltage of 90-290V for low voltage charging. The conversion of solar energy begins with the first rays of the sun, ensuring maximum utilization even during the rainy season. Packed with exciting features such as grid charging enable/disable to reduce electricity bills, customizable battery discharge levels, UPS mode for IT load operation, an LCD display for important notifications, an advanced DSP controller, and more.

The Superb/Trendy PCU boasts 30% greater efficiency compared to traditional PCUs, thanks especially to Smarten's impeccable solar panels. It offers four levels of battery depth of discharge options to cater to various power requirements, a 10ms changeover time, and triple protection to safeguard house wiring and appliances.



SMARTEN® FUSION IS THE FUTURE

SOLAR ENERGY

PRODUCT SPECIFICATIONS

MODEL NAME	1100VA	2675VA	3275VA	3575VA	4000VA	5500VA	6000VA	7500VA	10000VA	15000VA	20000VA
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 W.UPS mode	110VAC ± 10VAC										
Mains AC high cut WUPS mode	295VAC ± 10VAC										
Mains AC high cut recovery W.UPS 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	LA / Tubular / SMF			LA / Tubular / SMF / Li-ion	LA / Tubular / SMF	LA / Tubular / SMF / Li-ion	LA / Tubular / SMF				
DC input voltage	12V	24V			48V		72V	96V	120V	180V	240V
Battery Quantity 12V 100Ah to 350Ah	1	2		2/1	4	4/1	6	8	10	15	20
Float charging voltage	13.7V±0.2V	27.4V±0.2V			54.8V±0.2V		82.2V±0.2V	109.6V±0.4V	137V±0.4V	205.5V±0.4V	274V±0.4V
Boost charging voltage for LA Battery	14V±0.2V	28V±0.3V			56V±0.4V		84V±0.2V	112V±0.4V	140V±0.4V	210V±0.4V	280V±0.4V
Boost charging voltage for Tubular and SMF Battery	14.5V±0.2V	29.0V ± 0.2V			57.8V±0.4V		87V±0.2V	116V±0.4V	145V±0.4V	217.5V±0.4V	290.5V±0.4V
Bulk Absorption Battery Voltage	14.8V±0.2V	29.6±0.2V			60V±0.2V		88.8V±0.2V	120V±0.4V	150V±0.4V	222V±0.4V	296V±0.4V
Battery deep Discharge Recovery	Yes (Independent Charger to Recover Deep Discharge Battery)										
Charging Current By Grid	15A±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										
Discharging current @ full load	60A ± 2A	70A ± 2A	80A ± 2A	90A ± 2A	60A ± 2A	90A ± 2A	66A ± 2A	65A ± 2A			
Low Battery Warning	10.7V±0.2V	21.4V±0.2V	21.64V±0.2V	21.64V±0.2V	43.2V±0.4V	43.2V±0.4V	64.2V±0.4V	86.4V±0.4V	108V±0.4V	162V±0.4V	214V±0.2V
Low Battery Cut	10.4V±0.2V	21V±0.2V	21V±0.2V	21V±0.2V	41.6V±0.4V	41.6V±0.4V	62.4V±0.4V	83.2V±0.4V	104V±0.4V	159V±0.4V	208V±0.2V
Change over time UPS mode	< 10msec						< 4msec				
Change over time WUPS mode	< 25msec										
Cooling	Temp. Controlled Fan										
PROTECTION											
Phase to Phase Voltage Protection	Mains Mode										
Back feed protection	Mains apply in output side@<295V										
Over Load system Shutdown	> 130% after approx >180sec,and > 300% system will be shutdown approx < 20 Sec.										
Short Circuit (A PK-PK)	Yes,After 3 tries system will be shutdown (System reset from front switch)										
Reverse Battery	DC Fuse Burn										
SCC Reverse Battery	DC Fuse Burn										
Short Circuit in Mains Mode	Mains MCB Trip										
Battery Over Charge	Battery Over Charge Protection in Charging mode										
Reverse PV Connected	Yes, Provided										
Over Charge Protection	Yes, Provided										
Over Current Protection PV	Yes, Provided										
SOLAR CHARGE CONTROLLER											
Solar Charge Controller type	MPPT										
Max Panel wattage can be connected	750 WATT	1800 WATT	2500 WATT		3000 WATT	5500 WATT	4500 WATT	6500 WATT	8000 WATT	15000 WATT	20000 WATT
Maximum PV Voltage	50V	105V	105V		135V	160V	200V	250V	350V	450V	550V
Maximum Battery current	50 Amp.		70 Amp.		50 Amp.	70 Amp.	50 Amp.				
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.										
DOD definition (Depth of Discharge)	Mains will be connect when battery voltage reach at defined value of the battery voltage.										
DOD (Depth of Discharge) 20% - if battery voltage is	12.5V	25.0V±0.2V			50.0V±0.2V		75V±0.2V	100V±0.2V	125V±0.2V	187.5V±0.2V	250V±0.2V
DOD (Depth of Discharge) 30% - if battery voltage is	12.0V	24.0V±0.2V			48.0V±0.2V		72V±0.2V	96V±0.2V	120V±0.2V	180V±0.2V	240V±0.2V
DOD (Depth of Discharge) 40% - if battery voltage is	11.5V	23.0V±0.2V			46.0V±0.2V		69V±0.2V	92V±0.2V	115V±0.2V	172.5V±0.2V	230V±0.2V
DOD (Depth of Discharge) 50% - if battery voltage is	11.0V	22.0V±0.2V			44.0V±0.2V		66V±0.2V	88V±0.2V	110V±0.2V	165V±0.2V	220V±0.2V
Mode Selection	Solar>>Battery>>Grid Grid>>Solar>>Battery Solar>>Grid>>Battery				SOLAR>GRID>BATTERY SOLAR>BATTERY>GRID						
BATTERY CHARGING CURRENT BY SOLAR											
30% battery will charged with	20Amp.± 3Amp.										
40% battery will charged with	30Amp.± 3Amp.										
50% battery will charged with	40Amp.± 3Amp.										
100% battery will charged with	70Amp.± 3Amp.										
LCD DISPLAY											
LCD Display	Messages (Display Values can be different 2% from the RMS actual values)										
	Mains Input Voltage / Battery Voltage / Mains Fuse Blown / Solar Power Available or Not. / Reverse PV / High PV Voltage / Mains Current / Solar Current / Battery Current / PCU ON, OFF / Battery Voltage / Battery Current / Solar Power Available or Not / Load % . / Short Ckt. / Over Load / Wiring Fault / Battery Low. / Battery High / Out Put Voltage / High Temp. / Output Frequency.										
	Mains Disconnected, Connected Selection										
	If solar is available battery reaches float voltage after <5 min. mains will be disconnected, when mains is connected battery voltage reaches permitted DOD voltage and solar power not available. NOTE: This Condition is not applicable for Grid >> Solar >> Battery Condition.										

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SAVER+ 850 VA - 10 KVA | **Shine+** 1050 VA - 10 KVA

SOLAR PCU

BATT VOLT 27.6V
AC LOAD 25%

Big LCD Screen for all Notification

Set Solar Charging Current as per Battery Capacity

Recover Deep Discharge Battery Even Zero Volt Gravity

In built 70 Amp* strong solar charge controller

Smarten' PWM Solar PCU (Power Conditioning Unit) is an intelligent integrated system of Solar Charger, Grid Charger, Offline Inverter. The of the PCU is designed to run the load & charge the battery simultaneously while extracting power from Solar.

Smarten's PWM PCU stand apart from the rest as the maximum utilisation of solar power happens through this. Also, this Solar PCU is user friendly basis the privilege of personalised settings through the options given on the PCU itself such as connecting or disconnecting with mains. Saver Solar PCU is highly efficient even to run submersible pump.


LED BULB

TULLU PUMP

JUICER MIXER


AIR CONDITIONER


LED TV


REGRIGERATOR


SUBMERSIBLE PUMP


DENTAL CHAIR


PHOTOCOPIER

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SOLAR ENERGY

PRODUCT SPECIFICATIONS

MODEL NAME	850VA	1050VA	1250VA	1700VA	2650VA	3275VA	3575VA	4000VA	5500VA	5500VA	6000VA	7500VA	10000VA
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 W.UPS mode	110VAC ± 10VAC												
Mains AC high cut WUPS mode	295VAC ± 10VAC												
Mains AC high cut recovery W.UPS mode	285VAC ± 10VAC												
Input Frequency Range	40Hz to 60Hz												
Voltage Output in Mains Mode	Same as input												
Frequency Output in Mains Mode	Same as input												
BATTERY													
Battery Type	LA / Tubular / SMF						LA / Tubular / SMF / Li-ion	LA / Tubular / SMF					
DC input voltage	12V				24V			48V	96V	72V	96V	120V	
Battery Quantity 12V 100Ah to 350Ah	1				2		2/1	4	8	6	8	10	
Float charging voltage	13.7V±0.2V				27.4V± 0.2V			54.8V±0.4V	109.6V±0.4V	82.2V±0.4V	109.6V±0.4V	137V±0.4V	
Bulk absorption Voltage	14.8V±0.2V						29.6±0.2V	59.2V±0.4V	118V±0.4V	88.8V±0.4V	118V±0.4V	148V±0.4V	
Boost charging voltage for LA Battery	14.0V±0.2V				28.0V±0.3V	28.0V±0.2V		56.0V±0.4V	111.5V±0.5V	83.5V±0.5V	111.5V±0.5V	139.5V±0.5V	
Boost charging voltage for Tubular and SMF Battery	14.5V±0.2V				29.0V±0.2V	29.0V±0.2V		57.8V±0.4V	115.5V±0.5V	86.5V±0.5V	115.5V±0.5V	144.5V±0.5V	
Boost charging voltage for LI-ION Battery							28.5V±0.2V						
Battery deep Discharge Recovery	Yes (Independent Charger to Recover Deep Discharge Battery)												
Charging Current at Grid priority/Battery priority	15A ± 3A							13A ± 3A					
Charging Current at Grid priority/Battery priority Li-Ion Battery							25A ± 3A						
Grid Charging Enable/Disable Option	Yes												
BACKUP MODE													
Output voltage	220VAC +5% -10%												
Output frequency	50Hz ± 0.2 Hz												
Output waveform	Pure Sine Wave ≤ 5% THD												
No Load current	<1.8A												
Discharging current @ full load	40A ± 2A	50A ± 2A	60A ±3A	90 ±3A	70 ±2A	80 ±3A	90A ± 3A	60A ± 2A	90A ± 2A	46A ± 2A	65A ± 2A		
Low Battery Warning	10.8±0.2V				21.4V ± 0.2V		21.6V±0.2V	43.2V±0.4V	43.2V±0.4V	86.4V±0.5V	64.8V±0.5V	86.4V±0.5V	108±0.5V
Low Battery Cut	10.4V±0.2V				21V ± 0.2V		20.8V±0.2V	41.6V±0.4V	41.6V±0.4V	83.2V±0.5V	62.4V±0.5V	83.2V±0.5V	104V±0.5V
Change over time UPS mode	< 10msec									< 4msec			
Change over time WUPS mode	< 25msec												
PROTECTION													
Phase to Phase Voltage Protection	Mains Mode												
Back feed protection	Mains apply in output side@<295V												
Over Load system Shutdown	> 130% after approx >180sec, and > 300% system will be shutdown approx < 20 Sec.												
Short Circuit (A PK-PK)	Yes, After 3 tries system will be shutdown (System reset from front switch)												
Reverse Battery	DC Fuse Burn							Battery MCB will trip					
SCC Reverse Battery	DC Fuse Burn												
Short Circuit in Mains Mode	Mains Fuse will blown				Mains MCB Trip								
Battery Over Charge	Yes, Provided												
High PV Voltage	55V ± 2V												
Reverse PV Connected	Yes, Provided												
Over Charge Protection	Yes, Provided												
Over Current Protection PV	Yes, Provided												
SOLAR CHARGE CONTROLLER													
Solar Charge Controller type	PWM type												
Max Panel wattage can be connected	600W	800W		1200W	1800W	2400W		3000W	5500W	6500W	4500W	6500W	8000W
Max PV current	25A	40A		50A	50A	70A		50A	70A	50A	50A	50A	50A
Reverse PV protection	Yes provided												
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.												
Option for Grid and Battery priority	Yes, provided, user can set priority for Battery or Grid. Hence user can set system in electricity bill saving.												
DOD definition (Depth of Discharge)*	Mains will be connect when battery voltage reach at defined value of the battery voltage.												
DOD* (Depth of Discharge) 20% - if battery voltage is				12.5v±0.2V		25.0v±0.2V			50.0V±0.2V				
DOD* (Depth of Discharge) 30% - if battery voltage is				12.0v±0.2V		24.0v±0.2V			48.0V±0.2V				
DOD* (Depth of Discharge) 40% - if battery voltage is				11.5v±0.2V		23.0v±0.2V			46.0V±0.2V				
DOD* (Depth of Discharge) 50% - if battery voltage is				11.0v±0.2V		22.0v±0.2V			44.0V±0.2V				
SOC definition(State of charge)**	Mains will be connect when battery SOC use defined value of capacity												
SOC (State of charge)**	20% of battery capacity 30% of battery capacity 40% of battery capacity 50% of battery capacity												
Battery Capacity**	100Ah / 150Ah / 200Ah / 250Ah												
Mode Selection	Solar>>Battery>>Grid Grid>>Solar>>Battery Solar>>Grid>>Battery				Solar>>Grid>>Battery Solar>>Battery>>Grid	Solar>>Battery>>Grid Grid>>Solar>>Battery Solar>>Grid>>Battery			Solar>>Grid>>Battery Solar>>Battery>>Grid				
Battery Charging Current By Solar	You can set the battery charging current by solar 15Amp to 70Amp (This option is available on 1700, 3275 & 3575 models)												
LCD DISPLAY	Messages (Display Values can be different 2% from the RMS actual values)												

Mains Input Voltage / Battery Voltage / Mains Fuse Blown / Solar Power Available or Not. / Reverse PV / High PV Voltage / Mains Current / Solar Current / Battery Current / PCU ON, OFF / Battery Voltage / Battery Current / Solar Power Available or Not / Load % . / Short Ckt. / Over Load / Wiring Fault / Battery Low. / Battery High / Out Put Voltage / High Temp. / Output Frequency.
Mains Disconnected, Connected Selection
If solar is available battery reaches float voltage after <5 min. mains will be disconnected, when mains is connected battery voltage reaches permitted DOD voltage and solar power not available.
NOTE: This Condition is not applicable for Grid >> Solar >> Battery Condition.

* This option is enabled only for the LA/SMF/TUB batteries ** This optioin is enabled only for the Li-Ion Batteries



BOOM
400 VA & 2050 VA
SOLAR PCU

- **Smart Solar Optimization User Setting**
- **Solar Panel Capacity upto 500W to 1500W**
- **Extremely Economical**
- **User Friendly LED Display**

Smarten' PMW Solar PCU (Power Conditioning Unit) is an affordable device with LED Display. The PCU works as good as other Solar PCU but pretty economical for any household. It functions to run the load & charge the battery simultaneously while extracting power from Solar.

Smarten's PWM PCU stands apart from the rest as the maximum utilisation of solar power happens through this. Also this Solar PCU is user friendly basis the privilege of personalised settings through the options given on the PCU itself such as connecting or disconnecting with mains. Saver Solar PCU is highly efficient to run consumer durable device as Juicer Grinder.


LED BULB

TULLU PUMP

JUICER MIXER


PC


LED TV


REGRIGERATOR


FAN


CFL 15W

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SOLAR ENERGY

PRODUCT SPECIFICATIONS

MODEL NAME	400VA	2050VA
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	
Frequency Output in Mains Mode	Same as input	
BATTERY		
Battery Type	LA / Tubular / SMF	
DC input voltage	12V	24V
Battery Quantity 12V 100Ah to 350Ah	1	2
Float charging voltage	13.7V±0.2V	27.4V±0.2V
Bulk absorption Voltage	14.8V±0.2V	29.6±0.2V
Boost charging voltage for LA Battery	14.0V±0.2V	28.0V±0.3V
Boost charging voltage for Tubular and SMF Battery	14.5V±0.2V	28.8V±0.3V
Battery deep Discharge Recovery	Yes (Independent Charger to Recover Deep Discharge Battery)	
Charging Current at Grid priority/Battery priority	12A ± 2A	15A ± 3A
BACKUP MODE		
Output voltage	220VAC±10%	
Output frequency	50Hz ± 0.2 Hz	
Output waveform	Pure Sine Wave ≤ 5% THD	
No Load current	<1.5A	<1.8A
Discharging current @ full load	28A ±2A	60A ± 2A
Low Battery Warning	10.8±0.2V	21.6V±0.2V
Low Battery Cut	10.4V±0.2V	20.8V±0.2V
Change over time UPS mode	< 10msec	
Change over time WUPS mode	< 25msec	
PROTECTIONS		
Overload in backup mode	Yes provided, system will give indication 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 Fuse will blown	
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℃ 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	PWM type	
Max Panel wattage can be connected	600W	1500W
Max PV current	25A	50A
Reverse PV protection	Yes provided	
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.	
Option for Grid and Battery priority	Yes, provided, user can set priority for Battery or Grid. Hence user can set system in electricity bill saving.	
ALARMS		
Buzzer	Audible beep for Overload, Short Circuit, Back feed, Low Battery, OverTemperature, Mains Fuse blown / MCB Trip	
WEIGHT AND DIMENSIONS		
Dimensions in mm (LxWxH)	301×297×160	403x392x227
Weight (Kg)	6.4	16.5



Kranti+

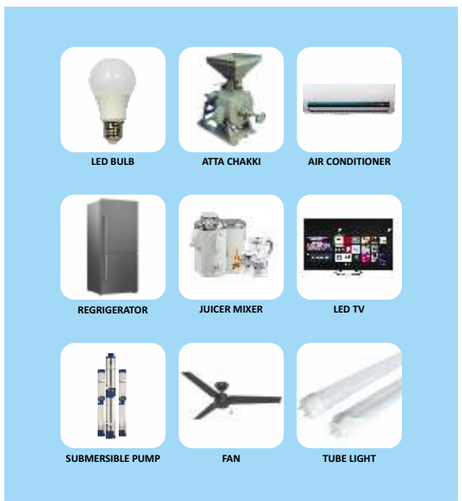
5 KVA - 10 KVA

BATTERY LESS SOLAR PCU

- Advanced DSP Technology
- Max Panel Voltage Range: VOC 400-750 V
- Big LCD Display
- No Battery Requirement

With the advanced technology, Smarten came up with battery-less renewal energy PCU, this advanced system does not require batteries for converting solar power into utility power of 220V AC.

It absorbs solar power directly from solar panels and if the load driven by this system exceeds the available solar power, it will draw the required power from the mains to compensate the output power requirement without any glitch. In conventional solar power systems using batteries, one third of the total investment goes for batteries and since they are required to be replaced after some years.



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SOLAR ENERGY

TECHINICAL SPECIFICATION			
MODEL: KRANTI+	**5KVA**	**8KVA**	**10KVA**
Min. Solar Input Voltage	400V		
Max. Solar Input Voltage	750V		
Technology	Digital Processor Based High Efficiency Design		
Max. Load Wattage	4200 Watt*	6500 Watt*	8000 Watt*
Max.Output Current	20Amp. ± 3Amp.	30Amp. ± 3Amp.	37Amp. ± 3Amp.
Panel Install	5KW to 10KW	5KW to 20KW	5KW to 35KW
Output Voltage	220VAC±10%		
Low Solar Cut	300V		
PROTECTIONS			
Low Solar Voltage	Yes Provided, It will show on display		
High PV Voltage	Yes Provided, It will show on display		
Reverse PV Protection	Yes Provided, System will not ON		
DISPLAY PARAMETERS			
Display Type	LCD Display		
Display Parameters	Solar PV Voltage, Load%, Output Voltage, Solar Current, Overload, Short Circuit, Low Solar Please Reduce load		
ENVIRONMENT			
Operating Temperature	0^{0}C to 40^{0}C		
Storage Temperature	0^{0}C to 50^{0}C		
Operating Relative Humidity	90% Non-Condensing		

*The load depends on the connected panel and weather conditions. There may be load fluctuations during morning and evening hours due to low solar power.

Note: If you want to run heavy load like (1.5 Ton AC, 2HP Water Pump) you need to connect > 8KW solar panel.

SOLAR
SMART ENERGY
SMART SAVINGS

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SOLAR ENERGY



STAR SERIES | 1 KW - 6 KW SINGLE PHASE

ON-GRID SOLAR INVERTER

Patented Cooling Design • Unique H6 Topology Prevent Leakage Current
Dual Cooling System (Force + Natural) • Voltage Range Upto 290V • DC Switch

Big LCD display | Compact and easy to install | Power export limit

Wifi/GPRS/Lan communication optional

Model	S1KW	S1.5KW	S2.2KW	S3KW	S3.6KW	S4.4KW	S5KW	S6KW
DC Side / Input Parameters								
Max DC power (W)	1500W	2250W	3300W	4500W	5400W	6600W	7500W	7500W
Max DC voltage (Vdc)	550	550	550	550	550	550	550	550
Min System start/Shut down voltage (Vdc)	65/70	75/100	75/100	75/100	75/100	75/100	75/100	75/100
MPPT voltage range(Vdc)	70~500	100~500	100~500	100~500	100~500	100~500	100~500	100~500
Max. input current (A)	18A					22A		
Max.input short circuit per MPPT	25A					30A		
Number of MPP trackers	1							
Strings per MPP tracker	1							
AC Side / Output Parameters								
Nominal output power (W)	1000	1500	2200	3000	3600	4000	5000	6000
Maximum output power (W)	1100	1650	2420	3300	3960	4400	5500	6600
Nominal output voltage/range (V)	208,220,230,240/180~270							
AC grid frequency/range (Hz)	50Hz,60Hz(auto-selection) / 44Hz-55Hz; 54Hz-65Hz							
Maximum output current (A)	6	8	12	16	16	21	23	28
AC connection (with PE)	Single phase							
Current distortion(THDi)	<1.5%	<1.5%	<1.5%	<1.5%	<2.5%	<2.5%	<2.5%	<2.5%
Power factor	~1%(Adjustable from 0.8 leading to 0.8 lagging)							
Efficiency								
Maximum conversion efficiency	97.3%	97.3%	97.4%	97.5%	97.8%	97.8%	97.5%	97.6%
European efficiency	97.0%	97.0%	97.1%	97.2%	97.3%	97.3%	97.2%	97.3%
MPPT efficiency	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%
Safety and Protection								
DC reverse-polarity protection	yes							
Anti-islanding / Overvoltage protection	yes							
Short circuit protection	yes							
Leakage current protection	yes							
Grid monitoring / Ground fault monitoring	yes							
DC/AC side SPD (thermally protected)	yes							
General Parameters								
Dimension (L/W/H)(mm)	300/294/104						370/318.5/105.5	
Weight (kg)	5						7	
Embedded DC Switch	Optional							
Night power consumption (W)	< 0.2							
Isolation type	Transformerless							
Protection degree	IP65 according to IEC60529							
Operation temperature (ºC)	-25 ~ +60							
Cooling concept	Smart Cooling							
OperatiingAltitude (m)	<2000m without power derating							
Acoustic noise level (dB)	< 25							
Display	Graphic LCD							
Communication Interface	Standard WIFI; RS485 (optional)							

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SOLAR ENERGY



STAR SERIES | 5 KW - 25 KW 3 PHASE

ON-GRID SOLAR INVERTER

Patented Cooling Design • Unique H6 Topology Prevent Leakage Current
IP66 • Voltage Range Upto 290V • DC Switch

Big LCD display | Compact and easy to install | Power export limit

Wifi/GPRS/Lan communication optional

Model	TP5KW	TP6KW	TP8KW	TP10KW	TP12KW	TP15KW	TP17KW	TP20KW	TP25KW
Input (DC)									
Max DC power (W)	6500W	7500W	9500W	11500W	18000W	22500W	25500W	30000W	30000W
Max DC voltage (Vdc)	1000Vd.c.								
Min working voltage (Vdc)	160Vd.c.						250Vd.c.		
MPPT voltage range (Vdc)	160...850Vd.c.						200...850Vd.c.		
Max input current / per string (A)	18A/18A						26A/26A		36A/26A
Max.input short circuit MPPT	25A/25A						34A/34A		46A/34A
Number of MPP trackers	2								
Strings per MPP tracker	1						2		
Output (AC)									
AC nominal power (W)	5000	6000	8000	10000	12000	15000	17000	20000	25000
MaxAC apparent power (VA)	6000	7000	8800	11000	13200	16500	18700	22000	27500
Max output current (A)	10	12	15	17	20	23	25	30	36
NominalAC output	50/60 Hz; 400 Vac								
AC output range	45/55 Hz ; 280 ~ 490 Vac (Adj)								
Power factor	0.8leading...0.8laging								
Harmonics	< 5%								
Grid type	3 W/N/PE								
Efficiency									
Max efficiency	98.2%	98.2%	98.3%	98.4%	98.4%	98.4%	98.5%	98.5%	98.5%
Euro efficiency	97.7%	97.7%	97.8%	97.9%	97.9%	98.0%	98.1%	98.1%	98.2%
MPPT efficiency	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%
Safety and Protection									
DC reverse-polarity protection	yes								
DC breaker	yes								
DC/AC SPD	yes								
Leakage current protection	yes								
Insulation Impedance Detection	yes								
Residual Current protection	yes								
General Parameters									
Dimension (W/H/D)(mm)	480*476*157						520*510*160		
Weight (kg)	16						23		
Operating temperature range ºC	-25 ~ +60								
Degree of protection	IP65								
Cooling concept	Smart Cooling								
Topology	Transformerless								
Display	LCD								
Humidity	0-95%, no condensation								
Communication	RS485/WiFi/GPRS								

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ULTRA

3.5 KVA |5 KVA | 7.5 KVA

MPPT HYBRID SOLAR PCU

MAX PV INPUT CURRENT 27A
Designed with 27A PV input current compatible to the market trend of increased Imp in solar panel.

EASY ACCESS
Two outputs for smart load management. The second output can be scheduled on & off based on setting point of battery transfer to utility.

BATTERY
Battery equalization function extend life cycle reserved communication port (RS485, CAN) for BMS.

OFF-GRID AND ON-GRID
Smarten HM series is suitable for on-grid and off-grid application.

INTERFACE
Global cloud platform mobile APP anytime and anywhere open APP support power internet applications.

PROTECT
Built-in anti-dust kit for harsh environment, AC over current, AC over voltage, over temperature protection.

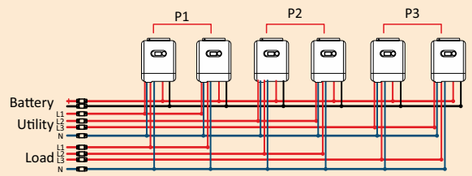
With battery connected



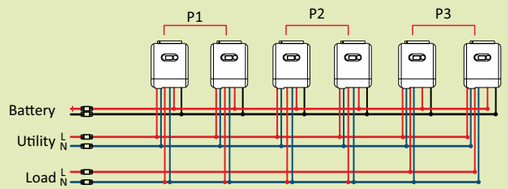
Without battery connected



Three phase output using either 3 units (18kw) or max 6 units (36kw)



Single phase output up to 36kw using 6 units



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PRODUCT SPECIFICATIONS

MODEL NAME	3.5KVA/3500W	5KVA/4000W	7.5KVA/6000W
AC INPUT			
AC Voltage	230VAC		
Voltage Range	170-280VAC (For Personal Computers), 90-280VAC (For Home Appliances)		
Frequency Range	50/60Hz (Auto Sensing)		
AC OUTPUT			
Surge Power	7000VA	8000VA	12000VA
Ac Voltage Regulation (Battery Mode)	230VAC ± 5%		
Rated Frequency	50Hz / 60Hz		
Efficiency (Peak)	93%		
Transfer Time	10ms (For Personal Computer), 20ms (For Home Appliances)		
BATTERY			
Battery Voltage	24 VDC		48 VDC
Floating Charge Voltage	27 VDC		54 VDC
Overcharge Protection	33 VDC		63 VDC
Battery Type	Lithium / Lead acid		
SOLAR CHARGER & AC CHARGER			
Maximum PV Array Open Voltage (V)	500 VDC		
Maximum PV Array Power	4000W	5000W	7000W
MPPT Voltage Range (V)	60-450 VDC		
Maximum Input Current	15A	27A	
MPPT tracker / strings	1		
Maximum Solar Charge Current	100A	120A	
Maximum AC Charge Current	80A	100A	
Maximum Charge Current	100A	120A	
PROTECTION & FEATURE			
AC Overcurrent	Yes		
AC Overvoltage	Yes		
AC Temperature Protection	Yes		
Smart Load Management	Yes		
On Grid	Yes		
Parallel Function	Yes (Optional)		
GENERAL PARAMETERS			
Operation temperature	-10°C - 50°C		
Relative Humidity	5% - 95% (Non-condensing)		
Attitude	(2000m Derating)		
Dimesnions DxWxH (mm)	358x295x105	466x313x136.5	
Net Weight (Kg)	6.2	8.5	9
DISPLAY AND COMMUNICATION			
Display	Touch Buttons		
Interface	Standard; RS232, USB, CAN&RS485; Optional: WiFi, Bluetooth		
Safety Standard	EN/IEC62109-1, EN/IEC62109-2		

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ULTRA ECO

1 KVA - 50 KVA Single Phase | **10 KVA - 150 KVA 3 Phase**

TRANSFORMER BASED HYBRID PCU

Smarten Transformer-Based Hybrid PCUs are designed to deliver reliable and efficient power management for both residential and commercial needs. Available in single-phase and three-phase models, these PCUs combine the benefits of solar energy, battery backup, and grid power to ensure uninterrupted electricity. The transformer-based design enhances durability and provides superior protection against voltage fluctuations, making them ideal for Indian power conditions.

In single-phase models, they cater to homes and small businesses with stable and efficient energy usage, while the three-phase models are built to support larger loads, industries, and institutions with seamless power distribution. With advanced hybrid technology, Smarten Transformer-Based Hybrid PCUs maximize solar utilization, ensure faster battery charging, and provide long-lasting performance with minimal maintenance.

SALIENT PRODUCT FEATURES

- MNRE-approved, MPPT-based system
- Tested as per IEC 61683, IEC 61727, EN 50530 and IEC 62116 / IS 16169, IEC 60068 (1, 2, 14, 30
- Active front-end charger
- Low input current distortion
- Remote device monitoring available
- Live device monitoring on RS-232
- Over 5 MW of systems successfully supplied
- > 93% system efficiency
- Compatible with all types of batteries
- Can be configured as an Off-Grid system
- Peak demand management
- Wi-Fi enabled data through mobile application
- Insensitive to Input Grid phase sequence

APPLICATIONS

- Rural Electrification
- Remote Sites
- Farmhouses, Schools, Offices
- Rural Health Schemes
- Telecom, Oil & Gas pipelines
- Defence
- Industrial applications
- Hospitals, Cold stores
- Mini grid

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TECHNICAL SPECIFICATIONS - SINGLE PHASE

INVERTER RATING (KVA)		1KVA	2KVA	3KVA	5KVA	5KVA	7.5KVA	10KVA	15KVA	20KVA	25KVA	30KVA	40KVA	50KVA
A . SOLARCHARGE CONTROLLER (SCC)														
1	ChargerType & Topology	Buck Type MPPT												
2	PV Total Nominal Capacity (KVA)	1KW	2KW	3KW	5KW	5KW	7.5KW	10KW	15KW	20KW	25KW	30KW	40KW	50KW
3	No. of MPPT Channels	1	1	1	1	1	1	1	1	1	1	1	1	1
4	Per Channel PV Capacity (w)(Nominal Peak)	1KW/1.1KW	2KW/2.2KW	3KW/3.3KW	5KW/5.5KW	5KW/5.5KW	7.5KW/8.2KW	10KW/11KW	15KW/16.5KW	20KW/22KW	25KW/27.5KW	30KW/33KW	40KW/44KW	50KW/55KW
5	Max. open Circuit PV Volts (Voc)	240	240	240	240	300	300	400	700	700	700	700	700	700
6	MPPT Voltage Range (Volts)	70-240	70-240	70-240	70-240	96-300	96-300	140-400	240 - 700	240 - 700	240 - 700	240 - 700	240 - 700	240 - 700
7	PV Minimum Voltage (Volts)	48	48	48	48	96	96	120	240	240	240	240	240	240
8	Max. I/P Amps per channel (Amps)	15	30	45	75	35	55	60	45	60	75	80	105	132
9	Max. Battery Amps during PV Charging(Amps)	20	40	60	100	50	73	78	60	78	80	97	129	161
10	Max. SCC O/P (Amps)	20	40	60	100	50	73	78	60	78	80	97	129	161
11	Battery type Supported	VRLA / LMLA/Li-Ion/Li-Ph (User Settable)												
12	Min. Battery AH (Suggested)	150	150	150	150	150	150	150	300	300	300	300	300	300
13	Peak charging Efficiency (%)	>93												
B.	SOLAR INVERTER													
1	No. of Phases/Connection Type	1-Phased/2 wire												
2	Nominal Battery Voltage (Volts)	48	48	48	48	96	96	120	240	240	240	240	240	240
3	Battery Ripple	5% for VRLA & LMLA/ 1% for Li-Ion & Li- Ph Battery												
4	Nominal Output Voltage/Frequency (Volts/Hz)	230/50												
5	Nominal KVA Capacity (KVA)	1KVA	2KVA	3KVA	5KVA	5KVA	7.5KVA	10KVA	15KVA	20KVA	25KVA	30KVA	40KVA	50KVA
6	Output Amps	3.47	6.96	10.43	17.39	17.39	26.09	34.78	52.17	69.57	86.96	104.3	139.1	173.9
7	Voltage Regulation (in standalore Mode)	± 2%												
8	Freq. Regulation (in Standalone mode)	± 0.5 Hz												
9	THD	< 3%												
10	Load Power Factor	0.8 lag to unity												
11	Efficiency (%): Peak/ 100% Load/25% Load	>89/ >88/ >86	>89/ >88/ >86	>89/ >88/ >86	>90/ >87/ >86	>90/ >87/ >86	>90/ >87/ >86	>89/ >89/ >86	>89/ >89/ >86	>89/ >89/ >86	>89/ >89/ >86	>91/ >89/ >86	>91/ >89/ >86	>91/ >89/ >86
12	Over Loads :	100-110% - 60 sec												
13		110-125% - 30 sec												
14		125-150% - 5 sec												
15	Max Allowed Phase Imbalance (%)	N/A												
16	Auto Bypass Feature	Provided												
17	Parallel Operation with Grid/DG	Provided												
18	Power Export to Grid Facility Enable / Disable	Enable / Disable (User Settable)												
19	Anti Islanding from Grid	Provided												
C.	GRID CHARGER													
1	Grid Voltage Range (Voltage Sync. Range)	160V-280V (Phase to Neutral)												
2	Grid Frequency Range (Freq. Sync. Range)	50 Hz ±5%												
3	Max Grid Import Power (KVA)	1KVA	2KVA	3KVA	5KVA	5KVA	7.5KVA	10KVA	15KVA	20KVA	25KVA	30KVA	40KVA	50KVA
4	Max Battery Amps During Grid Charging (Amps)	13	27	40	68	34	51	54	40	54	68	72.5	96.6	120.8
5	Peak charging Efficiency (%)	>87												
INVERTER (KW)		0.8	1.6	2.4	4.0	4.0	6.0	8.0	12.0	16.0	20.0	24.0	32.0	40.0
1	PV Side	Reverse Polarity , Surg Protection												
2	Battery Side	Reverse Polarity, Over/Under Voltage , Current Limit												
3	Grid Side	Over/Under Voltage , Over/Under Frequency ,Anti-Islanding,Surg Protection												
4	Load Side	Overloads, Short circuit												
5	System Protection	Over Temperature.Trip,Breakers at all Inputs,Emergency stop												
D.	USER INTERFACE													
1. DISPLAY INTERFACE		Graphical Display with mimic diagram												
2. DISPLAYED PARAMETERS														
1	Battery Parameters	Voltage, Charging Current, Discharging Current,AH-in,AH-out,Cumulative AH-in,Cumulative AH-out,charging state-charging/Discharging.												
2	PV Parameters	Voltage, Current, Power, Cumulative,Today Generation,Irradiance,Ambient Temprature.												
3	Grid Parameters	Voltage, Current, Frequency, Export Power, Import Power, Export Cumulative Energy, Import Cumulative Energy,Power Factor												
4	Load Parameters	Voltage, Current, Frequency, Power,Cumulative,Power Factor												
5	Data Logging	90 Days PV Generation, Export Energy, Import Energy, Load Energy.												
6	System Level	Faults and warnings												
3. INDICATIONS/PROTECTION														
1	LED Indications:	Power ON, PV Available, PV Charging, Inverter ON, Grid Import Mode, Grid Export Mode, Fault, HYBRID /OFF GRID Mode												
2	User Keypad for Settings Change	Keypad for Settings Input												
3	Breakers at all inputs/Space Heater/Emergency stop Button	Provided												
4	Over shoot due to misbehaviour of BHMS	Provided												
5	Remote monitoring: Optional*	Data monitoring through GPRS (Optional)												
Designed and Manufactured the product as for IEC		Tested as per IEC 61683, IEC 61727, IEC 62116 / IS 16169 EN 50530 and IEC 60068 (1, 2, 14, 30).												
MISCELLANEOUS														
1	Degree of Protection	IP31												
2	Cooling Method	Temp. Controlled Force Cooling												
3	Operating Temperature	0-55°C ambient operation												
4	Humidity (Non-condensing)	Max. 95% Non-Condensing												
5	Altiude (above sea level)	1000m above sea level												
6	Housing	Sheet Metal,Floor Standing							Floor Standing,Front/Rear Door					
7	Colour Shade	RAL-7035/RAL-7016 (Other Colours also available on request)												
8	Cable Entry	Rear Bottom							Front Bottom					
9	Cable Termination Type	Bus Bar Type with ring type lugs												
10	Terminal Sizes(PV/Battery/Grid/Load)	TERMINAL SCREW TYPE							35-50MM/35-50MM/25MM/25MM					
11	Dimensions in mm (H X W X D)	360X280X530	360X280X560	360X280X665	360X280X665	478X375X675	528X375X775	528X375X775	715x850x750					715X1000X750
12	Approx. Weight (kg)	30	35	60	80	80	130	140	160	215	245	260	300	350

Note: The specifications are subject to change due to continuous improvements. Higher rating systems are available on request.

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TECHNICAL SPECIFICATIONS - 3 PHASE

	INVERTER RATING (KVA)	10KVA	10KVA	12.5KVA	12.5KVA	15KVA	15KVA	20KVA	20KVA	25KVA	30KVA	40KVA	50KVA	50KVA	60KVA	80KVA	100KVA	100KVA	120KVA	150KVA
A.	**SOLAR CHARGE CONTROLLER (SCC)**																			
1	ChargerType & Topology	Buck Type MPPT																		
2	PV Total Nominal Capacity (KW)	10KW	10KW	12.5KW	12.5KW	15KW	15KW	20KW	20KW	25KW	30KW	40KW	50KW	50KW	60KW	80KW	100KW	100KW	120KW	150KW
3	No. of MPPT Channels	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	3	3	3	3
4	Per Channel PV Capacity (w)(Nominal Peak)	10KW/11KW	10KW/11KW	12.5KW/13.8KW	12.5KW/13.8KW	15KW/16.5KW	15KW/16.5KW	20KW/22KW	20KW/22KW	25KW/27.5KW	30KW/33KW	40KW/44KW	25KW/27.5KW	25KW/27.5KW	30KW/33KW	40KW/44KW	33.3KW/36.6KW	33.3KW/36.6KW	40KW/44KW	50KW/55KW
5	Max. open Circuit PV Volts (Voc)	320	620	320	620	320	620	320	660	660	660	660	660	900	900	900	660	900	900	900
6	MPPT Voltage Range (Volts)	175-320	350-550	175-320	350-550	175-320	350-550	175-320	240-660	240-660	240-660	240-660	240-660	360-900	360-900	360-900	240-660	360-900	360-900	360-900
7	PV Minimum Voltage (Volts)	140	280	140	280	140	280	140	240	240	240	240	240	360	360	360	240	360	360	360
8	Max. I/P Amps per channel (Amps)	60	30	75	35	90	45	120	60	75	90	70	75	70	83	110	100	92.5	80	100
9	Max. Battery Amps during PV Charging(Amps)	80	40	100	50	120	60	155	80	100	115	135	195	115	135	170	318	211	104	130
10	Max. SCC O/P (Amps)	80	40	100	50	120	60	155	80	100	115	135	195	115	135	170	318	211	104	130
11	Battery type Supported	VRLA / LMLA/Li-Ion/LiFePo4 (User Settable)																		
12	Min. Battery AH (Suggested)	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300
13	Peak charging Efficiency (%)	>93											>94							
B.	**SOLAR INVERTER**																			
1	No. of Phases/Connection Type	3-Phased/4 wire																		
2	Nominal Battery Voltage (Volts)	120	240	120	240	120	240	120	240	240	240	240	240	360	360	360	240	360	360	360
3	Nominal Output Voltage/Frequency (Volts/Hz)	415/50																		
4	Nominal kW Capacity (KW) (Total Per Phase)(*4)	8.0/2.7	8.0/2.7	10.0/3.3	10.0/3.3	12.0/4.0	12.0/4.0	16.0/5.3	16.0/5.3	20.0/6.7	24.0/8.0	32/10.7	40.0/13.3	40.0/13.3	48/16	64/21.3	80.0/26.7	80.0/26.7	96.0/32.0	120.0/40.0
5	Output Amps per Phase (*4)	11.6	11.6	14.5	14.5	17.4	17.4	23.2	23.2	28.9	34.8	46.4	57.9	57.9	69.5	93	115.9	115.9	139.1	173.9
6	Voltage Regulation (in standalone Mode)	± 2%																		
7	Freq. Regulation (in Standalone mode)	± 0.5 Hz																		
8	THD	< 3%																		
9	Load Power Factor	0.8 lag to unity																		
10	Efficiency (%): Peak/ 100% Load/25% Load	>90/>89/>80	>90/>89/>80	>90/>89/>80	>90/>89/>80	>90/>89/>80	>90/>89/>80	>90/>89/>80	>90/>89/>80	>90/>89/>80	>90/>89/>80	>90/>89/>80	>90/>89/>80	>90/>89/>80	>90/>89/>80	>90/>89/>80	>90/>89/>80	>90/>89/>80	>90/>89/>80	>90/>89/>80
11	Over Loads :	100-110% - 60 sec																		
12		110-125% - 30 sec																		
13		125-150% - 5 sec																		
14	Max Allowed Phase Imbalance (%)	N/A																		
15	Auto Bypass Feature	Provided																		
16	Parallel Operation with Grid/DG	Provided																		
17	Power Export to Grid Facility Enable / Disable	Enable / Disable (User Settable)																		
18	Anti Islanding from Grid	Provided																		
C.	**GRID CHARGER**																			
1	Grid Voltage Range (Voltage Sync. Range)	160V-280V (Phase to Neutral)																		
2	Grid Frequency Range (Freq. Sync. Range)	50 Hz ±5%																		
3	Max Grid Import Power (KW)	8KW	8KW	10KW	10KW	12KW	12KW	16KW	16KW	20KW	24KW	32KW	40KW	40KW	48KW	64KW	80KW	80KW	96KW	120KW
4	Max Battery Amps During Grid Charging (Amps)	55	27	70	35	80	40	108	54	70	81	108	136	136	82	109	272	272	217	272
5	Peak charging Efficiency (%)	>87																		
NOTE: (*)Overload Protection at load end is applicable only in standalone mode (*4) valid at unity power factor																				
INVERTER (KW)		8KW	8KW	10KW	10KW	12KW	12KW	16KW	16KW	20KW	24KW	32KW	40KW	40KW	48KW	64KW	80KW	80KW	96KW	120KW
1	PV Side	Reverse Polarity , Surg Protection																		
2	Battery Side	Reverse Polarity, Over/Under Voltage , Current Limit																		
3	Grid Side	Over/Under Voltage , Over/Under Frequency ,Anti-Islanding,Surg Protection																		
4	Load Side	Overloads, Short circuit																		
5	System Protection	Over Temperature Trip,Breakers at all Inputs,Emergency stop																		
D.	**USER INTERFACE**																			
1.	**DISPLAY INTERFACE**	Graphical Display with MIMIC Diagram																		
2.	**DISPLAYED PARAMETERS**																			
1	Battery Parameters	Voltage, Charging Current, Discharging Current,AH-in,AH-out,Cumulative AH-in,Cumulative AH-out,charging state-charging/Discharging.																		
2	PV Parameters	Voltage, Current, Power, Cumulative,Today Generation,Irradiance,Ambient Temprature.																		
3	Grid Parameters	Phase Voltage, Current, Frequency, Export Power, Import Power, Export Cumulative Energy, Import Cumulative Energy,Power Factor																		
4	Load Parameters	Voltage, Current, Frequency, Power,Cumulative,Power Factor																		
5	Data Logging	90 Days PV Generation, Export Energy, Import Energy, Load Energy.																		
6	System Level	Faults and warnings																		
3.	**INDICATIONS/AUXILIARY**																			
1	LED Indications:	Power ON, PV Available, PV Charging, Inverter ON, Grid Import Mode, Grid Export Mode, Fault, HYBRID /OFF GRID Mode																		
2	User Keypad for Settings Change	Keypad for Settings Input																		
3	Breakers at all inputs/Space Heater/Emergency stop Button	Provided																		
4	DESIGNED AND MANUFACTURED THE PRODUCT AS PER IEC STANDARD	* Inverter efficiency test - as per IEC 61683" photovoltaic systems-Power conditioners –Procedure for measuring efficiency." * Islanding test –as per IS 16169/ IEC 62116" Test procedure of islanding prevention measures for utility-interconnected photovoltaic inverters" * Grid parallel operation test-as per IEC 61727 "Photovoltaic (PV) system-characteristics of the utility interface " * Performance and functioning of charge controller – IEC 62509 * MPPT test as per EN50530 * Environmental test as per IEC 60068-2 (1,2,14,30)																		
8	Remote monitoring: Optional*	**PV voltage, PV Current, Battery Voltage & Current, Grid voltage & current, Inverter Voltage & Current, Grid & Inverter, Frequency, Grid Power, Import and Export, PV Instantaneous, Daily & Cumulative Generation,Battery and Inverter Status, Cumulative Grid Import and Export Energy.**																		
MISCELLANEOUS																				
1	Degree of Protection	IP21																		
2	Cooling Method	Temp. Controlled Force Cooling																		
3	Operating Temperature	0-55°C ambient operation																		
4	Humidity (Non-condensing)	Max. 95% Non-Condensing																		
5	Altitude (above sea level)	1000m above sea level																		
6	Housing	Sheet Metal, Floor Standing, Front/Rear Door																		
7	Colour Shade	RAL-7035/RAL-7016 (Other Colours also available on request)																		
8	Cable Entry	Bottom																		
9	Cable Termination Type	Bus Bar Type with ring type lugs																		
10	Terminal Sizes(PV/Battery/Grid/Load)	35-50MM/35-50MM/25MM/25MM SCREW TYPE																		
11	Dimensions in mm (H X W X D)	715x850x750	715x850x750	715x850x750	715x850x750	715x850x750	715x850x750	1100x750x750	1100x750x750	1100x750x750	1100x750x750	1235x1000x750	1635x1000x750	1635x1000x750	1800X1000X750	2000X1100X750	2160x1100x800	2160x1100x800	2160x1100x800	1635x3000x750
12	Approx. Weight (kg)	245	248	256	260	262	260	350	284	313	336	436	550	550	650	750	900	900	900	950

Note: The specifications are subject to change due to continuous improvements. Higher rating systems are available on request.

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SOLAR DC WIRE

2.5-10 Sq. mm, HRFR-105 UV GRADE
TIN COATED



FEATURES

- Heavy duty wire
- Designed for solar application
- Compatible from -20°C to 105°C
- Electron beam cross linked compound
- Fire retardant, low smoke
- UV, ozone, temperature & hydrolysis resistant
- Excellent encapsulation
- Very long/service life >25 years



Available in:
Single Core & 2 Core | 100 mtr.

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RYDER
Longer Rides, Stronger Power

LITHIUM EV BATTERY
51.2V 100AH

Remote Monitoring • Fast Charging • Last for a Long Distance

App-based Monitoring • Easy Connection • Durable Design



12 MONTHS WARRANTY

MADE IN INDIA
MAKE FOR INDIA

LITHIUM EV
RICKSHAW CHARGER
51.2V/30A

SMARTEN®
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12 MONTHS WARRANTY

MADE IN INDIA
MAKE FOR INDIA

EV SCOOTER CHARGER
72V/10A | 72V/3.3A | 60V/4A | 48V/5A

- 5 Stage FLC Charging Technology
- Compatible for Lithium & Lead Acid Battery
- Reliable Charging
- Compact Size Charger

PRODUCT SPECIFICATION				
MODEL NAME	**EV CHARGER 300WATT**			
CHARGER RATING	**72V/10A**	**72V/3.3A**	**60V/4A**	**48V/5A**
Battery Pack	72V, Lithium	72V, Lead Acid	60V, Lead Acid	48V, Lead Acid
Nominal Input Voltage	230V			
Nominal Input Currrent (RMS)	3.5A	2.55A ± 15%		
Input Operation Voltage	160-300V	125-300V		
Input Power Factor	>0.97	>0.5		
Max. Input Power	910W	320W ± 10%		
Input Frequency Range	50-60Hz			
Battery Type	Li-Ion	Lead Acid/VRLA		
DC Output Voltage Range	60V to 84V	63V to 87V	52.5V to 72.5V	42V to 58V
Battery Quantity Required 12V	6	6	5	4
Float Charging Voltage	84V±0.5V	81.6V ± 0.5V	68.0V ± 0.5V	54.4V ± 0.5V
Boost Charging Voltage	NA	87.0V ± 0.5V	72.5V ± 0.5V	58V ± 0.5V
Battery Charging Current	10A ± 0.5A	3A ± 0.3A	4A ± 0.3A	5A ± 0.3A
PROTECTIONS				
Short Circuit Protection	Yes, Provided			
Over Temperature	Yes provided, if Mosfet heat sink temperature goes above 110°C System will decrease the charging current			
Reverse Battery	Red LED will glow			
DISPLAY PARAMETERS				
LED	Charging LED, Charged LED, Reverse Battery LED, Battery connected			
SAFETY				
HV Test Input to Output	Leakage current <5mA when 3.75kV applied for 1 min			
ENVIRONMENT				
Operating Temperature	0°C to 50°C			
Storage Temperature	0°C to 50°C			
Operating Relative Humidity	90% Non-Condensing			

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energia
POWER WITH INTELLIGENCE

12.8V - 240V/100Ah
LITHIUM-ION BATTERY



- BLUETOOTH CONNECTIVITY*
- EXTRA MILE
- LOW SELF DISCHARGE
- LONG LIFE CYCLE
- ACTIVE BALANCING
- ECO FRIENDLY

TECHNICAL SPECIFICATION LI-ION BATTERY

Parameters	Specified Value		
	SMARTEN 12.8V - 100Ah	SMARTEN 25.6V - 100Ah	SMARTEN 51.2V - 100Ah
Battery Capacity	100Ah		
Battery Nominal Voltage	12.8V± 0.2V	25.6V ± 0.2V	51.2V ± 0.2V
Battery High cut Voltage	14.4V± 0.2V	28.8V ± 0.2V	57.6V ± 0.2V
Battery Low Cut Voltage	10.4V± 0.2V	20.8V ± 0.2V	41.5V ± 0.2V
Standard Charging Current	50Amp. ± 0.5Amp.		
Allowed Maximum Charging Current	70Amp. ± 1.0Amp.		
Allowed Maximum Discharging Current	80Amp. ± 1.0Amp.		
Standard Charge	CV-CC		
Over Current Protection	150Amp-60Sec		
Battery Cell	4S	8S	16S
Over Voltage Protection (OVP)	3.65V ± 25mV		
Over Voltage Protection Release (OVPR)	3.55V ± 50mV		
Under Voltage Protection (UVP)	2.60V ± 80mV		
Under Voltage Protection Release (UVPR)	2.90V ± 100mV		
Short Circuit Current Protection	660A		
Operating Temperature	0 to 60		

*Selected models only

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FUSION IS THE FUTURE

SOLAR ENERGY



SOLAR TALL TUBULAR BATTERY
170 Ah - 350 Ah

Durable & compatible in all ways!

Made with Hi-Power Selenium technology which makes it almost self-sustainable battery (Low maintenance) and more durable (Low self-discharge current). All of smartens batteries are solar panel compatible. It protects you from the suffering of buying a new battery whenever you wish to switch to solar.

- Hi-power selenium technology
- More backup, more reliability
- Ultra low maintenance
- Low self discharge
- Long life

Sl. No.	Capacity @C20	Volts	Initial Charging Current (Amps)	Dimensions (HxWxL) mm
1.	170 Ah	12	15A	503 x 193 x 412
2.	200 Ah	12	15A	503 x 193 x 412
3.	220 Ah	12	15A	503 x 193 x 412
4.	230 Ah	12	15A	503 x 193 x 412
5.	350 Ah	12	15A	503 x 193 x 412

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TUBULAR & TALL TUBULAR BATTERY

40 Ah - 180 Ah

Worry not, lets boom!

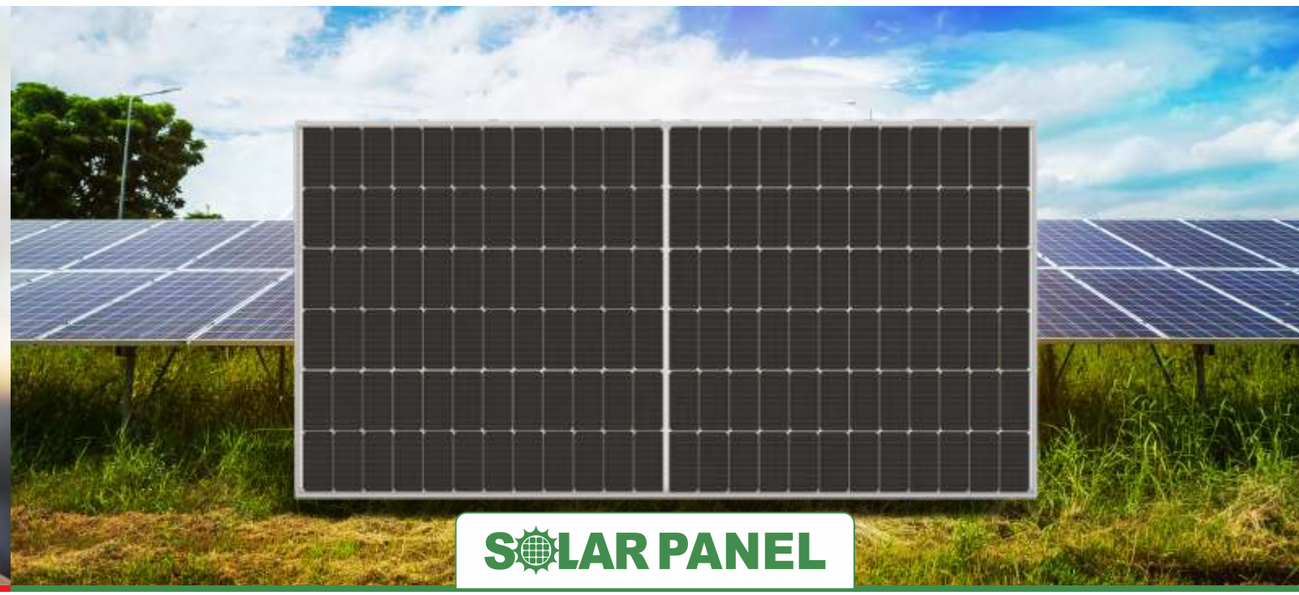
No worry for long power cuts! Boom tubular inverter battery for home offers complete satisfaction during power cuts. These inverter batteries are leak proof tower type polypropylene container with relatively more electrolytes. Tubular plates are custom designed for uninterrupted power delivery during long power cuts. They are 100% safe to use & reliable for every home.

- Low self discharge
- Superior high rate discharge feature
- Long cycle life
- Level indicator for easy maintenance

Sl. No.	Capacity @C20	Volts	Initial Charging Current (Amps)	Dimensions (HxWxL) mm
1.	40 Ah	12	15A	240 x 170 x 405
2.	120 Ah	12	15A	503 x 193 x 412
3.	140 Ah	12	15A	503 x 193 x 412
4.	160 Ah	12	15A	503 x 193 x 412
5.	180 Ah	12	15A	503 x 193 x 412

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SOLAR PANEL

DCR & NON-DCR BIFACIAL | MONOCRYSTALLINE | POLYCRYSTALLINE SOLAR PANELS

With the highest quality materials and based on the latest solar technology, Smarten Solar Panels are completely immune to India's extreme heat, cold, dust and heavy rainfall. Whatever the weather, these panels are cared to serve you reliably for 25 years or more.

Authentic, durable, with the highest efficiency of solar cells, Smarten Solar Panels offer the best performance in cloudy weather, and don't even get damaged in winds of 120 km/hr.

Smarten Solar Panels help you cut down your electricity bills and also friendly to the environment. We urge you to invest in this very best of investments, both for yourself and your planet.

Technical Specifications

	Polycrystalline Panels		Monocrystalline Panels				
PV Module	**40W/12V**	**50W/12V**	**100W/12V**	**165W/12V**	**225W/12V**	**545W/24V**	**545W/24V BIFACIAL**
Maximum Power (Pmax ± 2%)	40 W	50 W	100 W	165 W	225 W	545 W	545 W
Maximum Power Voltage Vmp (V)	20.84 V	18.88 V	18.02 V	18.80 V	24.15 V	41.90 V	43.92 V
Open Circuit Voltage Voc (V)	24.01 V	21.88 V	21.12 V	21.95 V	28.12 V	49.76 V	49.54 V
Maximum power current Imp (A)	1.96 A	2.65 A	5.38 A	8.78 A	9.32 A	13.02 A	12.41 A
Short Circuit Current Isc (A)	2.02 A	3.04 A	5.98 A	9.36 A	9.74 A	13.90 A	13.48 A
Maximum System Voltage	1000 V	1000 V	1000 V	1000 V	1000 V	1500 V	1500 V
Specification: STC: 1000W/m² irradiance AM 1.5; 25°C cell temperature, Electrical specification is 0/±3%							
Module Mechnical Details							
Module Length (mm) ±2mm	665	400	770	1085	1485	2280	2280
Module width (mm) ±2mm	435	765	775	765	665	1135	1135
Module efficiency (%)	14.7	17.5	16.5	19.9	22.4	21.1	21.5
Mounting hole Pitch X axis in mm +2mm	220	385	395	735	635	1100	990
Mounting hole Pitch Y axis in mm ±2mm	640	375	745	545	750	1400/1000	1400
Module weight (Aprox in kg)	3.1	3.4	6.3	9	10.5	26.5	28
Packing Type	1 in 1	1 in 1	1 in 1	1 in 1	1 in 1	1 in 1	1 in 1
Power Tolerance -0/+3%, Electrical Parameters Tolerance ±5%							

*Conditions apply

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PRIME+ | PRIME

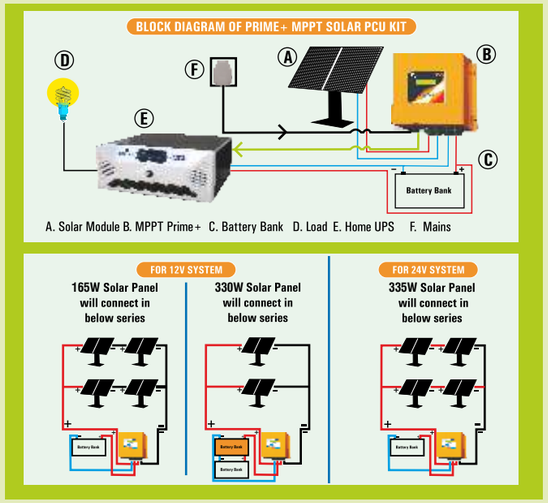
PRIME+
12V-24V/50Amp
24V-48V/50Amp

PRIME
72V-180V/50Amp

MPPT BASED SOLAR CHARGE CONTROLLER

- 30% more efficient
- Grid control for saving the electricity bill
- DOD, can set four battery discharge levels. (20%, 30%, 40%, 50%)
- Smart auto detect battery function

A device to convert your simple Inverter into Solar Inverter using advance MPPT technology. The device comes with wall mounting option & can connect 24V panel on single battery. This comes with user friendly LCD that displays important information like battery charging status, charging source, total units savings etc. Also has world class MCB ensures your UPS and connected loads stay protected from short circuits. Other advantages are in terms of complete protection, reverse PV, battery deep discharge, battery over charging and high temp.



SMARTEN® FUSION IS THE FUTURE

SOLAR ENERGY

TECHNICAL SPECIFICATION

		MPPT 12-24 automatic		MPPT 24-48 automatic					
MODEL		12V	24V	24V	48V	72V	96V	120V	180V
ELECTRICAL									
Battery Type		LA/Tubular/SMF							
Technology		Digital Processor Based High Efficiency Design							
Max. BATTERY Current Rating		50AMP.							
Max. PV Voltage Rating		50V±0.5V	85V±1V	100 V±1V	135V±2V	200V±0.5V	250V±1V	350V±1V	450V±1V
High PV Voltage		>50V	>85V	>100V	>135V	>200V	>250V	>350V	>450V
Max. Panel Install		up to 750W	up to 1500W	up to 1500W	up to 3000W	up to 5000W	up to 6500W	up to 8000W	up to 12000W
Battery Qty.12V 100-220AH		1	2	2	4	6	8	10	15
Boost Charging Voltage For Tubular And SMF Battery		14.5V±0.2V	29V±0.2V	29V±0.2V	58V±0.2V	87V±1V	116V±1V	145V±1V	217.5V±1V
Boost Charging Voltage For LA Battery		14V±0.2V	28V±0.2V	28V±0.2V	56V±0.2V	84V±1V	112V±1V	140V±1V	210V±1V
Bulk/ Absorption Voltage		14.8V±0.2V	29.6V±0.2V	29.6V±0.2V	59.2V±0.2V	88.8V±1V	118.4V±1V	148V±1V	222V±1V
DOD level (Depth of Discharge)	20% - if battery voltage is	12.5V	25.0V		50.0v±0.2V	DOD function is not available in this segment			
	30% - if battery voltage is	12.0V	24.0V		48.0v±0.2V				
	40% - if battery voltage is	11.5V	23.0V		46.0v±0.2V				
	50% - if battery voltage is	11.0V	22.0V		44.0v±0.2V				
Mains Connect if Solar Power Not Available		At any Stage of Battery Voltage				Mains Connect disconnect function is not available			
Mains Disconnect		If battery reaches boost level then after <10 minutes mains will be disconnect							
D.O.D (Depth of Discharge)		Mains will be connect when battery voltage reach at defined value of the battery voltage							
MPPT To PV Power Connection Time		<15 Sec.							
Peak Efficiency		>94%							
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							
Frequency Output in Mains Mode		Same as input							
Panel configuration (NTC)		375W 2P	250W 2S 3P/300W 5P	250W 2S 3P/300W 5P	250W 3S 4P/ 330W 3S 3P	330W 4S 4P	330W 5S 4P	330W 6S 4P	330W 10S 4P
Panel configuration VOC (NTC)		39.75V	74V/ 44V	74V/ 44V	111V/132V	180V	225V	270V	450V
PROTECTIONS									
Reverse Battery		Yes							
Reverse PV Protection		Yes							
Reverse Current Flow to PV		Yes							
High PV Voltage		Yes							
Over Current		Yes							
Thermal Protection		Yes							
MCB		MCB ensures your UPS and connected loads stay protected from short circuits							
DISPLAY PARAMETERS									
Display Type		LCD Display							
Display Messages		Welcome, Smarten Website Address, System Capacity, Mains available, Battery Priority, PV Current, Battery Current, PV Voltage, Battery Voltage							
SCC Fault/Protection Status		Reverse PV/High PV voltage /High Temp.							
ENVIRONMENT									
Operating Temperature		0°C To 40°C							
Storage Temperature		0°C To 50°C							
Fixing		Wall Mounted							
Operating Relative Humidity		90% Non-Condensing							

SOLAR SMART ENERGY SMART SAVINGS

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TEJAS

DC LOAD SOLAR CHARGE CONTROLLER 12V-20A

DC MPPT SOLAR PCU

- 100% shock proof
- Inbuilt USB mobile charger
- MPPT Technology (Upto 20% more power saving)
- Upto 24hrs back-up*

The device comes with wall mounting option & can connect 24V panel on single battery. The product has digital Processor based high efficiency design also give option to charge mobile phone. A user friendly LCD that displays important information like battery Charging Status, Charging Source, etc. Other advantages are in terms of Complete Protection, Reverse PV, Battery Deep Discharge, battery over charging and High Temp.

SOLAR SMART ENERGY SMART SAVINGS

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TECHNICAL SPECIFICATION

MODEL: 12V/20A DC MPPT SOLAR PCU

Battery Volt	12V
Battery Type	Lead Acid / Tubular
Technology	Digital Processor Based High Efficiency Design
Max. Battery charging Current	20 Amp.
Charge controller Rating	20 Amp.
Max. Solar VOC	50V
Min. Solar VOC	20V
PV High Cut	>50V
PV High Cut Recovery	45V
Max. Panel Install	260W
Low Battery Cut	10.6V
Battery Boost Voltage LA Mode	14.0V
Battery Boost Voltage Tub Mode	14.5V
Battery Float Voltage	13.7V
Battery High cut	15V
DC load Rating	15 Amp.
Mobile Chraging	500 mAMP.
DC load ON/OFF	BY Power Switch
MPPT To PV Power Connection Time	15 Sec.
Peak Efficiency	>94%
SCC Type	MPPT
PROTECTIONS	
Battery Low	Yes Provided, It Will show on display
High PV voltage	Yes Provided, It Will show on display
Reverse PV Protection	Yes Provided,it will also show on display
Reverse Current Flow to PV	Yes Provided
Reverse Battery Protection	Yes provided,System is not ON in Reverse Battery
load short circuit protections	Yes, provided, it will show on display
Load overload Protection	If DC load connect more then 15 Amp. System show on display,after 3 retries load will be shutdown
DISPLAY PARAMETERS	
Display Type	LCD Display
Display Parameters	Reverse PV/High PV voltage /High Temp./DC Load overload,DC load short circuit,Battery voltage,Battery Current,PV voltage,PV current,Low Battery,DC load Voltage, DC load Current,Solar power available/Not Available
SAFETY	
HV Test Input to Earth	Leakeage current <5MAmp.when 1.5KV Applied for 1 Min.
HV Test Output to Earth	
IR Test Input to Earth	<5MΩ between @500V DC
IR Test Output to Earth	
ENVIRONMENT	
Operating Temperature	0°C To 40°C
Storage Temperature	0°C To50°C
Operating Relative Humidity	90% Non-Condensing
WEIGHT AND DIMENSIONS	
Dimensions in mm (LxWxH)	310x310x180
Weight (Kg)	3.2

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SAVIOR PWM BASED SOLAR CHARGE CONTROLLER | 12V/120V-50A

A device to convert your simple Inverter into Solar Inverter using PWM Technology. The device comes with wall mounting option with user friendly LCD that displays important information like battery Charging Status, Charging Source, Total units savings etc. Also has world class MCB ensures your UPS and connected loads stay protected from short circuits. Other advantages are in terms of Complete Protection, Reverse PV, Battery Deep Discharge, battery over charging and High Temp.

- **DOD, can set four battery discharge levels.** (20%, 30%, 40%, 50%)
- **Grid control for saving the electricity bill**
- **Smart auto detect battery function**
- **Convert normal inverter to solar inverter**

TECHNICAL SPECIFICATION

	12V	12V	24V	48V	72V	96V	120V
Battery Type	LA/Tubular/SMF						
Technology	Digital Processor Based High Efficiency Design						
Max. PV Current Rating	25 AMP	50 AMP					
Max. PV Voltage Rating	25V	25V	55V	90V	132V	265V	265V
Max. Panel Install	500 Watt	1000 Watt	1500 Watt	3000 Watt	4500 Watt	6500 Watt	8500 Watt
Float Charging Voltage	13.7V±0.2V	13.7V±0.2V	27.4V±0.2V	54.8V±0.2V	82.2V±0.2V	109.6V±0.2V	137V±0.2V
Boost Charging Voltage For Tubular And SMF Battery	14.5V±0.2V	14.5V±0.2V	29V±0.2V	58V±0.2V	87V±0.2V	116V±0.2V	145V±0.2V
Boost Charging Voltage For LA Battery	14V±0.2V	14V±0.2V	28V±0.2V	56V±0.2V	84V±0.2V	112V±0.2V	140V±0.2V
Bulk/Absorption Voltage	14.8V±0.2V	14.8V±0.2V	29.6V±0.2V	59.2V±0.2V	88.8V±0.2V	118.4V±0.2V	148V±0.2V
Solar Charge Controller To PV Power Connection Time	<15 Sec.						
Peak Efficiency	>90%						
SCC Type	PWM (Pulse With Modulation)						
PROTECTIONS							
Reverse PV Protection	Provided						
Reverse Current Flow to PV	Provided						
High PV Voltage	Provided						
Over Temperature	Provided (If heat sink temperature goes above 100°C, system will shut down)						
DISPLAY PARAMETERS							
Display Type	LCD Display						
Display Messages	Welcome, Smarten Website Address, System Capacity						
SCC Fault/Protection Status	Reverse PV/DC Load Overload/High PV voltage / High Temp.						
ENVIRONMENT							
Operating Temperature	0°C To 40°C						
Storage Temperature	0°C To 50°C						
Operating Relative Humidiy	90% Non-Condensing						

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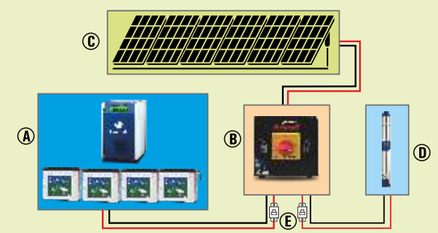
Kranti PV CHANGER

A POWERFUL PV CHANGER TO MAKE YOU ENERGY-INDEPENDENT

YOU CAN USE THE PANEL MOUNTED ON THE SOLAR PUMP BY KRANTI PV CHANGER IN YOUR HOME AS PER YOUR REQUIREMENT

- Can use solar pump panels to run house load.
- Can use same unit from 12V PCU to 120V PCU.
- Avoid the hassle of frequently changing the panel connections.
- Selectable rotary switch to change Pump to PCU-PCU to Pump.
- Diagram and panels connection method depend on existing pump panel connections.

Note: This is only a panel voltage change over not to run AC load directly. This will give only DC voltage to PCU as per required.



A. PCU + Battery B. PV Changer C. Solar Module D. Pump E. MCB

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CYC'KAL



For the Greener Tomorrow

BLDC Motor	Mileage: 30-35 Km /charge	Speed 25 Km/hour	Lithium-ion battery	Shimano Gears



CYC'KAL Desire

- Steel Frame
- 26"/ 27.5", 2.4/2.1 Tyres
- 250W BLDC Motor
- 7.5Ah Li-ion Removable Battery
- Disc Brake



CYC'KAL Passion

- Carbon Steel Frame
- 26"/ 27.5", 2.4/2.1 Tyres
- 250W BLDC Motor
- 7.5Ah Li-ion Removable Battery
- Disc Brake



CYC'KAL Passion Bold

- Steel Frame Fat Bike
- Fat Bike 26x4.00 Tyres
- 250W BLDC Motor
- 7.5Ah Li-ion Removable Battery
- Disc Brake

Smarten Service: Quick & Easy

For any Complaints, Warranty & Solutions

With Customer first motto, we have specialized Service team to solve all queries & complaints. To make it more effective Fast-track Service campaign has been launched to cater you more quickly. One can register online to get quick response.

2800+ Channel Partners

7+ Lakh Smiling Users Worldwide

500+ Service Points

- 24X7 customer care call support
- 2800+ service experts
- Onsite service facility
- Service by trained professionals

For any service related query contact on WhatsApp:

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