SUNMAGIC-REeFI BATTERYLESS PCU

Superior to Grid Tie Inverter

Technical Write up

ENERGY THAT

DRIVES FUTURE

Answering All Power Needs

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EnerTech

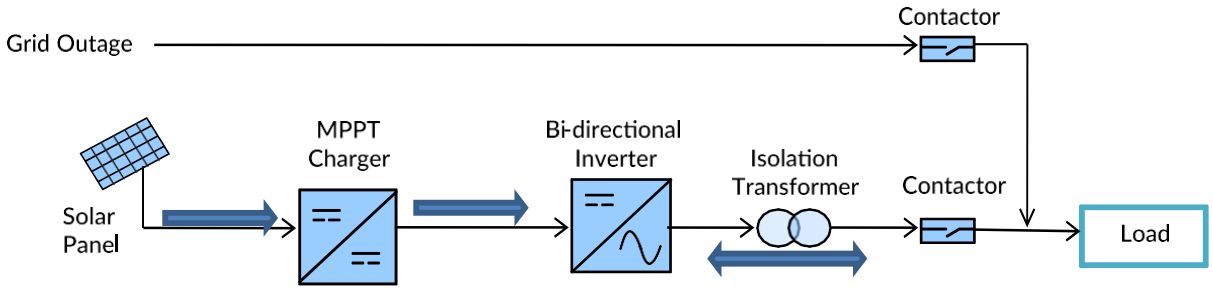
Answering All Power Needs

ABOUT BATTERYLESS SUNMAGIC SERIES

Enertech® is the first Solar PCU Manufacturer in India, started manufacturing and supplying different kinds and models of power generating systems since 1989. This battery less Solar PCU completely works on main line and solar power. Any time we can upgrade solar power generating modules.

If sufficient wattage of solar power is available there is no need of grid line. In the morning and evening, we can reduce output AC load because of the low availability of solar power. **This power saver can solve the power problems in deserts, farm, forest, and for the working of water pump, air conditioner, fan loads, motor equipment's and other electrical products.**

Sun magic PCU both single phase and three phase is having an optional feature to configure and operate it without batteries. While enabling the PCU as battery less mode, it will sync with solar power or grid and supply power to the load, and it also exports the excess power to the grid.



NEED OF BATTERYLESS FEATURE

Enertech® has developed this solar inverter meant for commercial/industrial purposes and daytime use. Here we can avoid storage batteries, save space and money. Through this system we get full efficiency of solar power what we use for generating power.

This model is a compensating type that means shortage current of solar panel, will be taken from grid-line. If solar energy is sufficient then the total output load will operate on Enertech Solar PCU. When solar energy is weak then the inverter will take balance AC source from grid line.

In this mode PCU is also treated as a grid tie inverter. In future, these features can be disable and connected with any energy storage system. At that stage, we can use solar power after day time with battery bank.

FEATURES:

- IGBT or MPPT with PWM intelligent charging technology.
- Work with solar power, the best way to save money using natural resource.
- Protection from lightening.
- Over Load Protection.
- Independent Digital display inverter input and output voltage, load, etc.
- Visual Indicators.

ADVANTAGES:

- When solar energy is sufficient then total output load will Operate on Solar.
- When solar energy is weak then inverter is taking balance from the grid.
- When solar energy is absent then the entire load is working on grid.
- It will work on Solar as well as grid or DG set.
- Compensating Type – First preference solar and second preference grid or DG Set.
- Battery less Mode PCU will sync with solar power & Grid and supply power to the load and possibly configure exports the excess power to the grid.
- PCU can also be configured as a grid tie inverter to export the solar Power to the Grid.
- If Customer needs in future, he can use the batteries to connect the energy storage. This mode can be disable.
- E.g.: If we install 5 KVA power conditioner unit (PCV) SunMagic series with 3 KW Solar panel for generating power, we draw 5 KVA load with a discharging difference of 2 KVA which will be taken from the grid or DG set.

Protection:

1	Solar DC over Voltage / DC under Voltage
2	Inverter AC over Voltage / AC under Voltage
3	Mains Overvoltage / under voltage
4	Overload Trip

Indication:

- PV---ON
- Mains---ON
- Inverter---ON
- Fault- details

Metering:

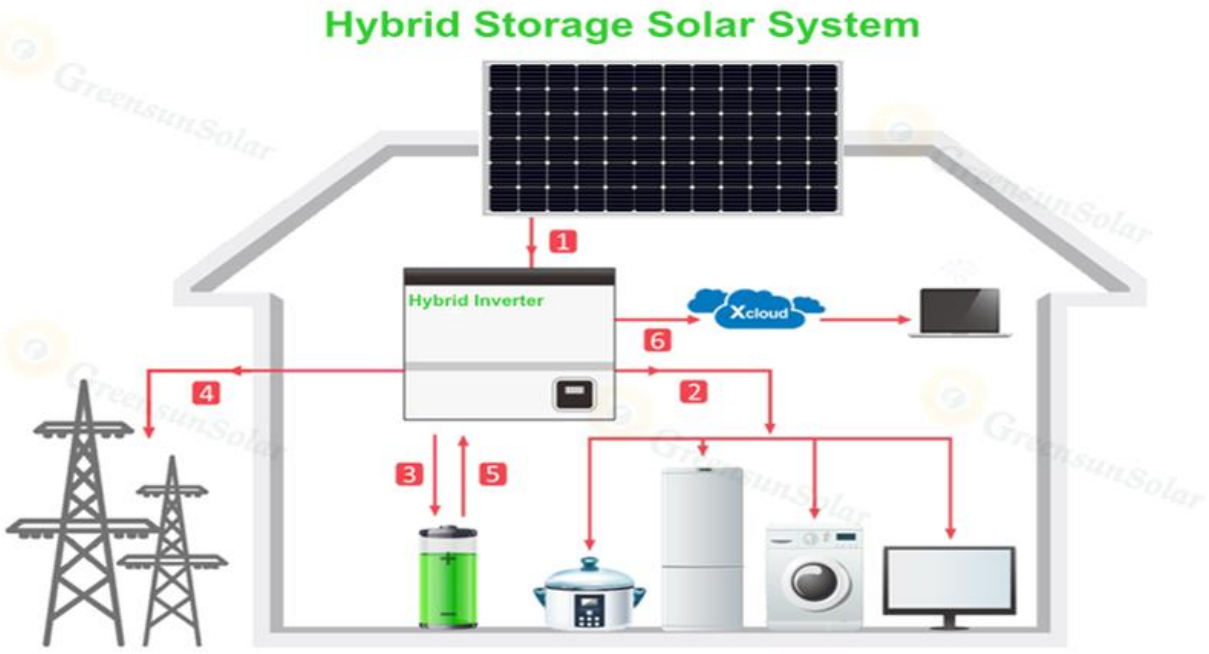
- Input Voltage: R, Y, B
- Input Current: R, Y, B
- Output Voltage: R, Y, B
- Output Current: R, Y, B
- Solar Voltage; Current, KW, KWh
- Fault

Efficiency:

- MPPT>94%
- Solar Input: AC O/P--91%
- Inverter on Battery: 94%

USP

In Future you can use battery bank also to get solar energy in night time. Also, our solar hybrid inverter can be uses for lighting load in day time on solar without mains.



STANDARD SPECIFICATION	BATTERY LESS SUNMAGIC+ Series - 5kVA to 100kVA										
MODEL	**SUNMAGIC+**										
INVERTER CAPACITY (kVA)	**5**	**10**	**15**	**20**	**25**	**30**	**40**	**50**	**60**	**80**	**100**
INPUT											
Input Voltage Range	360 to 450										
Nominal Frequency	50 Hz (± 6%)										
Input Power Factor	≥ 0.92										
Input Fault Level	10 kA										
Self-Consumption	<4%										
DG / Grid Compatibility	YES										
AUXILIARY SUPPLY REQUIRED	230VAC 1A										
SOLAR											
Charger Type	MPPT										

Max PV Voltage (VOC)	450VDC										
MPPT Voltage Range	300-400V										
MPPT Modes Available	MPPT										
No of MPPT Channel	1	1	1	1	1	1	1	1	1	1	1
MAXIMUM SOLAR CAPACITY (KW)	5.5	11	16.5	22	27.5	33	44	55	66	88	110
Max I/P Amps per Channel	14	28	41	55	70	83	111	139	166	222	278
Panel Reverse Protection	Yes										
Solar Charger Efficiency	UPTO 95%										
OUTPUT											
Load Power Factor	0.8 lag										
Output Voltage (Inverter Mode)	415V AC										
NOMINAL OUTPUT CURRENT (AMP)	5.8	11.5	17.3	23	29	35	46.4	58	70	93	116
Output Frequency (Free Running)	50 Hz ± 0.5%										
Output Waveform	Pure Sine wave										
Peak Inverter Efficiency (Full Load)	UPTO 93%										
Total Harmonic Distortion	≤ 5% at Linear Load										
Overload Capacity	125% for 60Sec, 150% for 5 Sec										
Changeover Time (Full load)	20 msec										
DC to AC Isolation	In built Isolation Transformer at Inverter Output										
Anti Islanding Function	Available, In Compliance with IEC 62116										
Duty	Continuous										
CONFIGURATION											
Modes Available	Grid Export, Standalone										
GRID feed mode	Enable / Disable option Available										
ENVIRONMENTAL											
Acoustic Noise Level from 1 m distance(Ref : ISO 3746)	≤ 65 dB										
Operating Temperature	0 to 40 Deg C										
Storage Temperature	-10 Deg C to 60 Deg C										
Relative Humidity	Up to 95 % (Non Condensing)										
Altitude	< 1000 meter above sea level										
Basic Seismic Qualification	0.5g (The test inspection shall be with extra cost)										

PHYSICAL	
Enclosure Protection Grade	IP 20 Compatible to IEC 60529:2001-02- As per MNRE Requirement
Enclosure Thickness	Frame 2.0mm & all covers 1.6mm
Cooling	Forced Air
Color	RAL 7016 / RAL 9016
Cable Entry	Bottom

Parameters displayed on LCD mimic	**General Group**	**Input Group**	**Output Group**	**Solar Group**
	1. System Rating	1. Input Voltage	1. Output Voltage	1. Solar Voltage
	2. Date & Time	2. Input Current	2. Output Current	2. Solar Current
	3. Current Status	3. Input Frequency	3. Output Frequency	3. Solar Power (kW)
	4. Configuration	4. kW	4. kW	4. Solar Energy (kWh)
	5. Fault Log	5. KVA	5. KVA	
	Fault Log	**Power Group**	**Inverter Group**	**Configuration Group**
	Recent 9 Fault Log since last reset	1. Total Input (kW)	1. Voltage	4. GFM
		2. Total Output (kW)	2. Current	5. INVERTER
		3. Input PF	3. Frequency	
		4. Output PF	4. Power (kW)	
			5. Power (KVA)	
	Fault	**PV ON**	**Inverter ON**	
Indications on MIMIC		Grid ON		
		Load on Mains		
	v Flashing LED Indicates fault condition in respective group v			
Message displayed on LCD			Output Under Voltage	
			Output Over Voltage	
			Output Overload	
			Short-Circuit	
			Standby Mode	
	Buzzer reset (Manual)		Overload	
Reset			Short Circuit	

PROTECTIONS	● Alarms are provided for all important protections.		
	1. Input MCCB	1. Output Under voltage	1. Solar MCCB
	2 Input Under Voltage	2. Output Over voltage	2. Solar Fuse
	3. Input Over Voltage	3. Output Overload	3. MOV Card
	4. Charger Over voltage	4. Output Short Circuit	
	5. MOV Card	5. Inverter Over temperature	

CONNECTIVITY	
Communication	RS 232 , (Modbus RS485, GSM Connectivity - Optional)
Monitoring	ENERLOG (Remote Monitoring Solution) - Optional
Testing standard	IEC -61683:1999, IEC- 60068-2-1, IEC-60068-2-2, IEC-60068-2-14, IEC-60068-2-30- As per MNRE Requirement

Earthing Connection	25- 40 kVA : 3 x 25 mm GI (Earth bus bar running along the panel)
(Ref. is 3043)	45-100 kVA : 6 x 50 mm GI (Earth bus bar running along the panel)
Gland Plate	3 mm MS C.R.C.A.

DIMENSIONS (STANDARD/OPTIONAL)											
Dimensions (in mm)	(Approx.)										
KVA Rating	**5**	**10**	**15**	**20**	**25**	**30**	**40**	**50**	**60**	**80**	**100**
Width (W)	800	800	800	800	950	950	950	950	950	950	1100
Depth (D)	450	450	450	450	550	550	550	850	850	850	800
Height (H)	800	800	800	800	1000	1000	1000	1700	1700	1700	2000
Weight (Kg)	125	150	150	350	350	350	600	600	600	800	800

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