

SIGMA⁺ Grid Export Solar PCU

rMPPT™ Hybrid Solar PCU (1Ph in 1Ph out)

“A Smart PCU - Which Stores as well as Exports Electricity”

Available in
1-15KVA



FEATURES

- Grid Interactive.
- DSP based design built in rMPPT solar charge controller.
- USB/Ethernet based monitoring with 30 days data storage.
- Maximum preference to Solar Power.
- Priority based working modes:
Smart Mode - Solar, Battery, Grid (Day time)
Grid, Battery (Night time).
PCU Mode - Solar, Battery, Grid.
Hybrid Mode - Grid, Solar, Battery (Load)
Solar/Grid (Charging)
Grid Export Mode - Solar, Grid, Battery.
- User friendly & easily accessible LCD Display with all AC & DC parameter configurable from LCD:
AC- Input & Output Voltage.
DC- Battery charging voltage, Charging current, Low cut & High cut.
- Compatible with all PV arrays having different no of cells (36 cell/60 cell/72 cell) with 100% panel power rating.
- IEC 61683, 61727, 60529, 60068-2 (1,2,14,30) and 62116 standards approved from MNRE.

PCU Mode Priority

Solar/Battery/Grid

Hybrid Mode Priority

For Load - Grid/Solar/Battery

For Charging - Solar/Grid

Smart Mode Priority

For Day Time - Solar/Battery/Grid

For Night Time - Grid/Battery

Grid Export Mode

Solar/Grid/Battery

Application



SIGMA⁺ Grid Export SOLAR PCU (1Ph in 1Ph out)

Parameters	Units	Rating										
System Rating	KVA	1	1	2	3	4	5	7.5	10	10	15	
Operating DC Voltage	V	24	48	48	48	48	96	120	120	180	240	
Photovoltaic Input												
Input Voltage range(Min.-Max.)	V _{oc}	45-90	80-230	80-230	80-230	80-230	160-450	200-550	200-550	300-625	400-750	
Maximum PV power recommended	kW	1	1	2	3	4	5	7.5	10	10	15	
Solar Charge Controller Rating	A	40	20	40	60	80	50	60	80	50	60	
MPPT Based Charge Controller												
Switching Element		MOSFET				IGBT						
Controller		DSP										
Type of Charger		MPPT										
Efficiency	%	95										
Configurable Parameters												
Battery Low Buzzer	V	Batt. Low Cut +0.2									Default Value	11.2
Battery Low cut	V	10-11.7									11	
Battery High cut (INV.)	V	SPV Present-SPV CHG. REF +1V for 15Sec, SPV CHG. REF +1.5V for 2Sec									16	
		SPV Absent-SPV CHG. REF for 15Sec, SPV CHG. REF +0.2V for 2Sec									14.7	
Battery Charging Voltage with SPV	V	13.5-16									14.5	
Battery Charging Current with SPV	A	2-60 (Optional) / 2-23 (Regular)									18	
Battery Charging Voltage with Grid	V	13-15.5									14.2	
Battery Charging Current with Grid	A	1-16									10	
Grid low cut voltage(IT Load Enb/Dis)	V	NA/120-200									175/120	
Grid high cut voltage(IT Load Enb/Dis)	V	NA/245-280									260/280	
Grid Charging	V	Enable/Disable									Enable	
IT Load		Enable/Disable									Enable	
Operating mode		Smart/PCU/Hybrid/Grid Export									Smart Mode	
Input Source		Grid/Genset(for Genset, Grid Export Mode must be Disable)									Grid	
Output voltage low	V	170-190									185	
Output voltage high	V	250-260									255	
No load shutdown		Enable/Disable									Disable	
Grid Export Mode Enable												
Grid Low/recover	V	185/195										
Grid High/recover	V	280/275										
Synchronization voltage range	V	185-280V										
Synchronization frequency range	HZ	47 to 53										
maximum charging current from grid (import)	A	1-16A									10	
Battery												
Grid Disconnect (Solar Available) PCU/SMART		@ 14.5V/Battery for 2 minutes OR 13.5V/Battery-100% Current (if Grid Chg. Volt. Ref. set to 14.2V)										
Grid Reconnect (PCU Mode / Smart Mode), Import ON (Grid Export mode)	V	11-12									11.5	
Temp. Compensation		@ 3mV/cell/°C; 18mV/Battery/°C										
Inverter												
Switching Element		MOSFET				IGBT						
Control		PWM										
Nominal Output voltage		220										
Output supply phase		1Phase, 3 Wire										
Output waveform		Pure Sine Wave										
Nominal frequency	Hz	50										
Load Current	A	4.5	4.5	9	13.5	14.2	18	27	36	36	54	
Voltage regulation	%	1										
Output voltage distortion with 100% linear load	%	<3										
Overload capacity	%	IT Load Disable 100 - 120%(3TAR) : 60sec; 200 - 300%: 1 sec; 120 - 150%(3TAR) : 30sec; 300 - 400%:250msec; 150 - 200%:2sec;			IT Load Enable 100 - 110%:10min; 150 - 200%:2sec; 110 - 120%: 2min; 200 - 300%:1sec; 120 -150%:30sec; 300 - 400%:250msec; >400%(20msec - 30msec)			Grid Tie ON Over Load Indication @>200% >200 - 300% : 10min >300 - 400% : 1min >400% : 250ms				
Peak efficiency	%	>85										
Noise @ 1 meter	dB	50										
Coding		Temp. Controlled Fan										
Protections		Overload, Battery Low, Battery High, Output Low, Output High, Input Low, Input High, SPV Low, SPV High, Output Short Ckt., Input Short Ckt., Over Temp., Under Frequency, Over Frequency, Solar Panel Reverse, Anti-islanding, Surge Protection, Grid/Solar Charger Open Circuit.										
Display Parameters		Battery Voltage, Charging Current, Discharging Current, charging KWH and discharging KWH										
		Solar Voltage, Solar Current, Instantaneous Power, Cumulative Energy										
		Grid Voltage, Grid Current, Frequency, Import Power, Import Energy,										
		Export Power, Export Energy										
		Output Voltage, Output Current, Frequency, instantaneous Power & Commutative Energy										
Switches		Grid, Inverter & SPV Charger Status										
Indications		System Info : NLSD-EN, Grid CHG-EN, IT Load-EN, Input Source-Grid, Operation Mode-Smart										
		Reset for System ON/OFF, UP, DOWN, BACK ENTER (for LCD Configuration)										
		System ON, Inv. ON, SPV Charging, Grid Charging, Grid Tie ON, Battery Low/High/NLSD, Overload / Overheat, Mains Low / Mains High, Under frequency/Over frequency, Operating modes (smart, Hybrid, PCU and Gridexport), Fault, HOE										
Environment												
Operating temperature	°C	0-50										
Max. Relative Humidity @ 25 C (non condensing)	%	95										
Degree of Protection		IP-21										
Data Logging		30 Days Data Storage										
Dimension (LxWxH)	Inch	15x16x15	18 x 10 x 20				23 x 13 x 26		26 x 13 x 26		30 x 16 x 27	
Weight (Approx)	kg	30	35	43	50	52	70	78	103	120		

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