

		SMARTEN POWER SYSTEMS LIMITED PRODUCT SPECIFICATION
Model Name	SUPERB 20KVA/240V SOLAR PCU	
Product Specification Range of MPPT Solar PCU.	SUPERB 20KVA/240V	
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 WUPS mode	110VAC ± 10VAC	
Mains AC high cut WUPS mode	295VAC ± 10VAC	
Mains AC high cut recovery WUPS mode	285VAC ± 10VAC	
Input Frequency Range	48Hz to 52Hz	
Voltage Output in Mains Mode	Same as input	
Mains Charging Current Selection Mode	User can set mains charging current as per requirement 10Amp. /5Amp. /Enable/Disable	
Frequency Output in Mains Mode	Same as input	
Battery		
Battery Type	LA / Tubular / SMF	
DC input voltage	240V	
Battery Quantity 12V 100Ah to 220Ah	20	
Float charging voltage	274V±0.2V	
Boost charging voltage for LA Battery	280V±0.2V	
Boost charging voltage for Tubular and SMF Battery	290V±0.2V	
Battery Boost Mode	294V±0.2V	
Bulk Absorption Battery Voltage	300V±0.2V	
Battery deep Discharge Recovery	Yes (Independent Charger to Recover Deep Discharge Battery)	
Charging Current By Grid	5A - 15A±3A	
Backup Mode		
Output voltage	220VAC±10%	
Output frequency	50Hz ± 0.2 Hz	
Output waveform	Pure Sine Wave ≤ 5% THD	
No Load current	<1.8A	
Capacity	20KVA	
Discharging current @ full load	65A ± 2A	
Low Battery Warning	216V±0.4V	
Low Battery Cut	212V±0.4V	
Change over time UPS mode	< 4msec	
Change over time WUPS mode	< 25msec	
Cooling	Temp. Controlled Fan	
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 blow	
Phase to Phase protection in mains mode	Yes, provided by electronic	
Solar Charge Controller		
Solar Charge Controller type	MPPT	
Max Panel wattage can be connected	Approx 20000 WATT	
Maximum PV Voltage	500V	
Maximum Battery current	55 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.	
Mode Selection	User can select any mode as per requirement SOLAR>GRID>BATTERY SOLAR>BATTERY>GRID	
DOD definition(Depth of Discharge)	Mains will be connect when battery voltage reach at defined value of the battery voltage. 20% - if battery voltage is 187.5V±0.2V 30% - if battery voltage is 180V±0.2V 40% - if battery voltage is 172.5V±0.2V 50% - if battery voltage is 165V±0.2V	
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, DOD.	
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, Battery Current, PV Current,PV Voltage. Mains Low Cut, Mains High Cut, Mains Not Available, Mains Frequency Cut	
LCD Fault / Protection Status Display	Mains Fuse Blown / MCB Trip, Short Circuit, Overload, Battery Low, High Temperature, Back feed	
Buzzer	Mains Fuse Blown / MCB Trip, Short Circuit, Overload, Battery Low, High Temperature, Back feed	
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	
Environment		
Operating Temperature	0°C to 50°C	
Storage Temperature	0°C to 50°C	
Operating Relative Humidity	90% Non-Condensing	