

**TRANSFORMER BASED
HYBRID PCU THREE PHASE
10 KVA-150 KVA**



Key Features



**SCALABLE
POWER**



**MAXIMUM
EFFICIENCY**



**SMART
MONITORING**



**ULTIMATE
VERSATILITY**



**ADVANCED
PROTECTION**



The **ULTRA ECO** Three Phase Transformer-Based Hybrid PCU is engineered to deliver reliable, high-capacity, and uninterrupted power for commercial, industrial, institutional, and utility-scale applications. By intelligently integrating solar energy, battery storage, and grid power, it ensures continuous operation and optimized energy utilization. Built with a rugged transformer-based architecture, ULTRA ECO provides superior protection against voltage fluctuations and demanding operating conditions. Featuring advanced MPPT technology, over 93% system efficiency, Wi-Fi-enabled remote monitoring, and compatibility with a wide range of battery technologies, it delivers dependable performance with minimal maintenance.

Designed to meet international standards, the ULTRA ECO Three Phase PCU is the ideal power solution for manufacturing facilities, telecom infrastructure, hospitals, commercial buildings, data centers, educational institutions, mini-grids, and remote industrial operations worldwide.

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	32.0/10.7	40.0/13.3	40.0/13.3	48.0/6	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: (1)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 Temperature.																			
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)																			
5	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	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	
7	Approx. Weight (kg)	245	248	256	260	262	260	350	384	313	336	436	550	550	650	750	900	900	900	950	