



## HBD SERIES



1- 10KVA/48V

1 PHASE

5-8 KVA/96V

1 PHASE

8-15 KVA/120V

1 PHASE

15-50 KVA/240V

1 PHASE

40-50 KVA/360V

1 PHASE

## SINGLE PHASE HYBRID MPPT PCU (1-50 KVA)\*

### Genuine 'Hybrid' - Not just 'Off-Grid'

Our HBD series offers hybrid solar inverters of 1-250KVA to residential/commercial/industrial customers. This series is built to resolve the two challenges posed by unreliable grids and power cuts – intermittent electricity and high electricity costs. Energiaa's HBD series inverters are essentially grid-tie inverters with storage. They also work as standalone systems in case of no grid. They not only store electricity in the attached batteries but also export unconsumed solar power to the grid, or store and mix with the grid as programmed in its 'behind-the-meter' use.

\*Other customised ratings available on request

### KEY FEATURES

Bi-directional	Seamless switching to and from grid (both import and export) and battery supply, high-efficiency MPPT technology
Grid-interactive	Blends solar and grid-power for optimisation
Energiaa's Benchmark Solar Te	We use the latest DSP-based 'Active Front End' technology with IoT to achieve 'flexible' or 'smart' energy
IEC certified	IEC certifications available
Behind-the-Meter	Latest global tech enabled where in the absence of Net-Meter policy, we can store solar energy into battery and then blend it with Grid during high-tariff times or with DG-set for DG-set optimisation
Easy-to-monitor	Optional GPRS-based remote monitoring and controlling
3-Priority working modes	HBD with export/ HBD without export/ Off-Grid
Pure sine wave technology	Recommended for longer life of Industrial/ Commercial equipment
Intelligent battery charging	3-Stage charging (Float, Bulk & Absorption) for more battery life (for Lead Acid batteries). Communication-based charging for Lithium chemistries available
Compatible charger	Supports wide range of batteries – Flooded Lead Acid Tubular/GEL/VRLA. On request product for Li+ chemistries available

### KEY BENEFITS

Customisable Energy Shift	Store power and use later
Runs AC at home	Can sustain jerk loads like Air Conditioner
Protection	Protects against grid fluctuations, overload, short circuit, array reverse, battery reverse and thermal fluctuations
Galvanic Isolation	Uses galvanic isolation at output – Ideal for Rural/Microgrid applications
Long life	Lifespan of 15+ years
Almost zero-servicing	Our robust HBD series inverters are IoT-based and require zero to negligible servicing and maintenance
Largest-in-class display	Beautiful display units showing all inverter+solar+battery data

**TOLL-FREE SERVICING SUPPORT: 1800-891-3319**

## 1-P LOW VOLTAGE (48V) 1-10KVA HYBRID MPPT PCU



Petrol Pumps



Lithium ESS



Residences



Bungalow



Telecom BTS



Rural Micro Grids

RATINGS	1KVA/48V	2KVA/48V	3KVA/48V	4KVA/48V	5KVA/48V	6KVA/48V	8KVA/48V	10KVA/48V
Model No.	HBD-048-01K-1P	HBD-048-2K-1P	HBD-048-03K-1P	HBD-048-04K-1P	HBD-048-05K-1P	HBD-048-06K-1P	HBD-048-08K-1P	HBD-048-10K-1P
<b>A. SOLAR CHARGE CONTROLLER (SCC)</b>								
Type (Buck)	MPPT							
PV Nominal Capacity (Total KWp)	1	2	3	4	5	6	8	10
Max PV Strings in Parallel	1	2	3	4	5	6	8	10
No of MPPT Channels	1							
Max. Open Circuit PV Volts (Voc)	190							
MPPT Voltage Range(Vmp)	75-160							
Max SCC O/P Amps	20	40	60	80	100	120	160	200
Peak Charging Efficiency	92%				94%			
<b>B. SOLAR INVERTER</b>								
Nominal Capacity	1KVA	2KVA	3KVA	4KVA	5KVA	6KVA	8KVA	10KVA
Output Current (A)	3.5	7	10	14	17	21	28	35
Battery Voltage (V)	48							
Output Voltage/ Freq/Phase	230V(± 2%) / 50Hz/ 1P+N							
Load Power Factor	0.8- unity							
Peak Efficiency	>86 %				>88 %			
Over Loads: 60 sec/ 30 sec/ 5 sec	101-110%/111- 125%/126- 150%							
Auto Bypass Feature	Provided							
Anti Islanding/ Power Export to Grid	Provided (As per IEC 62116 & IEC 61727)							
<b>C. GRID CHARGER</b>								
Grid Voltage Range	230V (+10% & -20%)							
Grid freq Range	50Hz (+5% & -5%)							
Max Grid Import Power	1.5KVA	3KVA	4.5KVA	6KVA	7.5KVA	9KVA	12KVA	15KVA
<b>D. PROTECTIONS &amp; DISPLAY PARAMETERS</b>								
	<b>PROTECTIONS</b>				<b>DISPLAY PARAMETERS</b>			
PV Side	• Reverse Polarity, PV Power Limit, Surge Protection (MOV)				• Voltage, Charger O/P Amps, Power, Cumulative Energy			
Battery Side	• Reverse Polarity, O/U Voltage, Current Limit				• Voltage, Current, Battery State			
Grid Side	• O/U Voltage, O/U Frequency, Surge Protection (MOV)				• Phase Voltage, Frequency, Power, Power Factor			
Load Side	• Overloads, Short circuit, Surge Protection (MOV)				• Voltage & Current, Frequency, Power, Export kWh.			
System Protection	• Over Temperature				• Mode of Operation, Active Faults, Status Mimic			
<b>E. MISCELLANEOUS</b>								
Switchgear Protection	MCB/MCCB provided on PV, Battery, Load & Grid path.							
LED Indications	Mains On, Alarm, Buzzer Mute.							
Data Port (RS485/ RS 232)	Optional (Available on Request)							
Remote Monitoring	Optional through GPRS based Modem							
Ingress Protection	IP-21 (Indoor Type)							
Cooling Method	Force Cooling (Temp Controlled)							
Operating Temperature	0-50 degrees (without Derating)							
Humidity	Max. 95% Non-Condensing							
Altitude	1000m above sea level							
Color Shade	RAL7035 /DA GREY HE1S005							
Dimensions(H X W X D)	320X430X300MM			310X500X625		750X530X897.45MM		

# 1-P HIGH VOLTAGE (96/120/240V) 5-15KVA HYBRID MPPT PCU



Petrol Pumps



Office Buildings



Process Industries



Bank ATM



Mini Grids



Farmhouse



Rural Micro Grids



Cold Storage



Hospitals/Nursing Homes



RATINGS	5KW/96V	6KW/96V	8KW/96V	8KW/ 120V	10KW/120V	15KW/120V	15KW/240V
Model No.	HBD-096-05K 1P	HBD-096-06K 1P	HBD-096-08K 1P	HBD-120-08K 1P	HBD-120-10K 1P	HBD-120-15K 1P	HBD-240-15K 1P
<b>A. SOLAR CHARGE CONTROLLER (SCC)</b>							
Type (Buck)	MPPT						
PV Nominal Capacity (Total KWp)	5	6	8	8	10	15	15
Max PV Strings in parallel	4	5	6	6	6	9	5
No of MPPT Channel	1						
Max. Open Circuit PV Volts ( Voc)	360			360			720
MPPT Voltage Range (Vmp)	140-299			165-299			330-598
Max Output Current (A)	50	60	80	64	80	120	60
Peak Charging Efficiency	94%						
<b>B. SOLAR INVERTER</b>							
Nominal Capacity	5KW	6KW	8KW	8KW	10KW	15KW	15KW
Output Current (A)	22	26	35	35	43	65	65
Battery Voltage (V)	96			120			240
Output Voltage/ Freq/Phase	230V(± 2%) / 50Hz/ 1P+N						
Load Power Factor	0.8 - Unity						
Peak Efficiency	>88 %					>90 %	
Over Loads: 60 sec/ 30 sec/ 5 sec	101-110%/ 111-125%/ 126-150%						
Auto Bypass Feature	Provided						
Anti Islanding/ Power Export to Grid	Provided (As per IEC 62116 & IEC 61727)						
<b>C. GRID CHARGER</b>							
Grid Voltage Range	230V (+10% & -20%)						
Grid freq Range	50Hz (+5% & -5%)						
Max Grid Import Power	7.5KW	9KW	12KW	12KW	15KW	22.5KW	22.5KW
<b>D. PROTECTIONS &amp; DISPLAY PARAMETERS</b>							
	<b>PROTECTIONS</b>				<b>DISPLAY PARAMETERS</b>		
PV Side	• Reverse Polarity, PV Power Limit, Surge Protection (MOV)				• Voltage, Charger O/P Amps, Power, Cumulative Energy		
Battery Side	• Reverse Polarity, O/U Voltage, Current Limit				• Voltage, Current, Battery State		
Grid Side	• O/U Voltage, O/U Frequency, Surge Protection (MOV)				• Phase Voltage, Frequency, Power, Power Factor		
Load Side	• Overloads, Short circuit, Surge Protection (MOV)				• Voltage & Current, Frequency, Power, Export kWh.		
System Protection	• Over Temperature				• Mode of Operation, Active Faults, Status Mimic		
<b>E. MISCELLANEOUS</b>							
Switchgear Protection	MCB/MCCB provided on PV, Battery, Load & Grid path.						
LED Indications	Mains On, Alarm, Buzzer Mute.						
Data Port (RS485/ RS 232)	Optional (Available on Request)						
Remote monitoring	Optional through GPRS based Modem						
Ingress Protection	IP-21 (Indoor Type)						
Cooling Method	Force Cooling (Temp Controlled)						
Operating Temperature	0-50 degrees (without Derating)						
Humidity	Max. 95% Non-Condensing						
Altitude	1000m above sea level						
Color Shade	RAL7035 /DA GREY HE1S005						
Dimensions(H X W X D)	400X600X500			650X400X700		825X845X550	

## 1-P HIGH VOLTAGE (240/360V) 20-50KVA HYBRID MPPT PCU



Cold Storage



Process Industries



Mini Grids



Hospitals/PHC



Urban Office Buildings



EV Station

RATINGS	20KW/240V	25KW/240V	30KW/240V	40KW/ 240V	50KW/240V	40KW/360V	50KW/360V
Model No.	HBD-240-20K-1P	HBD-240-25K-1P	HBD-240-30K-1P	HBD-240-40K-1P	HBD-240-50K-1P	HBD-360-40K-1P	HBD-360-50K-1P
<b>A. SOLAR CHARGE CONTROLLER (SCC)</b>							
Type (Buck)	MPPT						
PV Nominal Capacity (Total KWp)	20	25	30	40	50	40	50
Max PV Strings in parallel	6	8	9	12	15	8	10
No of MPPT Channel	1						
Max. Open Circuit PV Volts ( Voc)	720				820		
MPPT Voltage Range (Vmp)	330-598				495-681		
Max Output Current (A)	80	100	120	160	200	108	135
Peak Charging Efficiency	95%						
<b>B. SOLAR INVERTER</b>							
Nominal Capacity	20KW	25KW	30KW	40KW	50KW	40KW	50KW
Output Current (A)	87	109	130	174	217	174	217
Battery Voltage (V)	240					360	
Output Voltage/ Freq/Phase	230V (± 2%) / 50Hz/ 1P+N						
Load Power Factor	0.8 - Unity						
Peak Efficiency	>91 %						
Over Loads: 60 sec/ 30 sec/ 5 sec	101-110%/ 111-125%/ 126-150%						
Auto Bypass Feature	Provided						
Anti Islanding/ Power Export to Grid	Provided (As per IEC 62116 & IEC 61727)						
<b>C. GRID CHARGER</b>							
Grid Voltage Operating Range	230V (+10% & -20%)						
Grid freq Operating Range	50Hz (+5% & -5%)						
Max Grid Import Power	30KW	37.5KW	45KW	60KW	75KW	60KW	75KW
<b>D. PROTECTIONS &amp; DISPLAY PARAMETERS</b>							
	<b>PROTECTIONS</b>				<b>DISPLAY PARAMETERS</b>		
PV Side	• Reverse Polarity, PV Power Limit, Surge Protection (MOV)				• Voltage, Charger O/P Amps, Power, Cumulative Energy		
Battery Side	• Reverse Polarity, O/U Voltage, Current Limit				• Voltage, Current, Battery State		
Grid Side	• O/U Voltage, O/U Frequency, Surge Protection (MOV)				• Phase Voltage, Frequency, Power, Power Factor		
Load Side	• Overloads, Short circuit, Surge Protection (MOV)				• Voltage & Current, Frequency, Power, Export kWh.		
System Protection	• Over Temperature				• Mode of Operation, Active Faults, Status Mimic		
<b>E. MISCELLANEOUS</b>							
Switchgear Protection	MCB/MCCB provided on PV, Battery, Load & Grid path.						
LED Indications	Mains On, Alarm, Buzzer Mute.						
Data Port (RS485/ RS 232)	Optional (Available on Request)						
Remote monitoring	Optional through GPRS based Modem						
Ingress Protection	IP-21 (Indoor Type)						
Cooling Method	Force Cooling (Temp Controlled)						
Operating Temperature	0-50 degrees (without Derating)						
Humidity	Max. 95% Non-Condensing						
Altitude	1000m above sea level						
Color Shade	RAL7035 /DA GREY HE1S005						
Dimensions(H X W X D)	825X845X550	925X845X550	1040X650X965		1650X800X850		