

# SOLAR HYBRID PCU

SUNMAGIC SERIES  
SINGLE PHASE  
THREE PHASE



ENERGY THAT  
DRIVES FUTURE

Answering All Power Needs



[www.enertechups.com](http://www.enertechups.com)

**EnerTech**  
*Answering All Power Needs*

# 30 Years Experience In Manufacturing And Development In Cutting Edge Inverter And Converter Technology.

## ABOUT ENERTECH

### VISION

To enrich our customers with reliable, clean and interrupt free power with use of conventional and non conventioanal sources.

### QUALITY POLICY

At Enertech UPS Pvt. Ltd. our core purpose is to ensure customer - delight through offering a range of power electronics products that meets international standards of quality and performance with emphasis on user - friendliness and economy as parameters for continual improvement of products as well as our quality management systems.

### VALUES

- ◆ We believe in continual improvement for the betterment.
- ◆ We will never give up service, we stand with our comitments.
- ◆ Organization before Self
- ◆ We have no Place for Non Performers.



Enertech® UPS Pvt. Ltd. is a leading fast moving Indian multinational manufacturing company, providing the next generation technology products solutions for the Renewable and Power sectors.

We provide a comprehensive wide range of power management solutions including Solar hybrid Inverter, Solar UPS, Online UPS, Industrial UPS, Industrial Battery Charger, Static Frequency Converter. With the in-house R&D setup Enertech strive for constant success in leveraging technological innovation with next generation patented technology solutions.

Enertech® with its head quarter at Pune was established in the year 1989. All operations are at Sigma Level 4.87. The company has purposefully expanded by providing power solutions for IT, Industrial, Healthcare, Banking, and Infrastructure over the period and expanded footprints in Africa, Tanzania, Zambia, Cameroon, Nigeria, Niger, Yemen, Sudan, Zimbabwe, USA.



Leading Power Solution Provider



35+ Partners Across India



20000+ Esteemed Customers

# Benefit With Next Generation Patented Technology For Your Renewable Energy Needs With Our Solar Hybrid Inverter.

## DESIGN

- ◆ Patented Technology.
- ◆ Bidirectional Inverter.
- ◆ Battery Less Features.
- ◆ Modular & Flexibility in Design.
- ◆ Grid Utilization.

## QUALITY

- ◆ In House Engineering Workmanship.
- ◆ Every Unit Shipped Fully Tested.
- ◆ Utilization of Long Lasting Component.

## SERVICES

- ◆ Over 50+ Factory Trained Engineers.
- ◆ Pan India Parts Available.
- ◆ Industrial Leading Warranty Terms.



## VALUE

- ◆ Lowest TCO
- ◆ Functionality & Performance Design for 10+ Years Lifetime

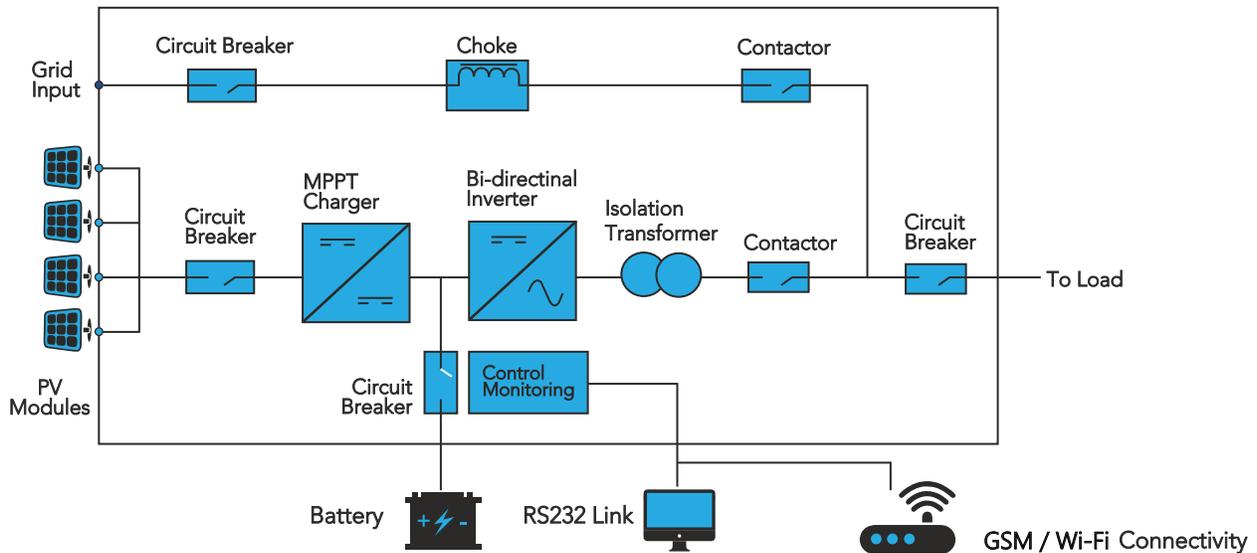
## Key Design Differentiating Features for Maximum Performance & Reliability

- 1 Bidirectional Power Conversion Technology With Inbuilt Isolation Transformer
- 2 Innovative MAXIMUM POWER POINT TRACKER (MPPT) Solar Power Conversion Technology.
- 3 High Performance All Digital Control
- 4 SunMagic PCU with Multiple Charging Sources Availability
- 5 Paralleling Solar PCU: Load Sharing-System Flexibility (Optional)
- 6 Battery Management
- 7 Enertech® SunMagic Series is compatible with Different Battery Technologies
- 8 Battery Less Features
- 9 Anti-Islanding IEC 62116 & IEC 61727 compliance

# ABOUT SUNMAGIC SERIES

SunMagic Solar Hybrid Inverter (PCU) design with its Patented Technology delivers the Highest Reliabilities and performance in the industry to go along with the quality that the user are accustomed to when specifying SunMagic.

## POWER CONDITIONING UNIT



# UNIQUE FEATURES



Bidirectional Inverter



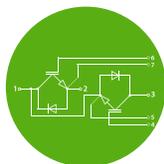
Flexibility in Design



Grid Utilization



Battery Less Operation



IGBT Based Rectifier



Advanced Multiple DSP



Support Multiple Input

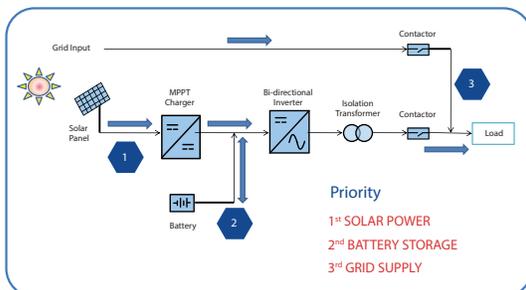


Monitoring Features

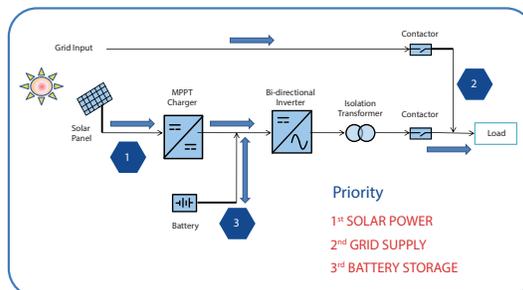
# Possible Operating mode

User Selecting Any Mode From Below Mode IEC61727

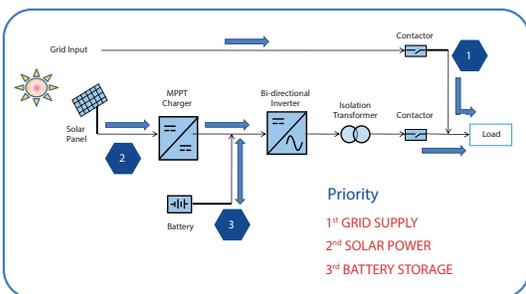
## Solar -> Batteries -> Grid



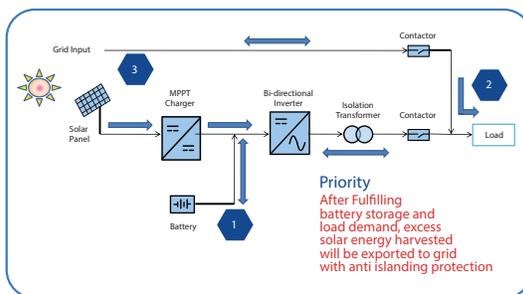
## Solar -> Grid -> Batteries



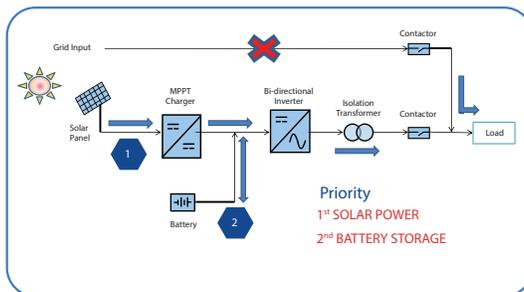
## Grid -> Solar -> Batteries



## Grid Feed Mode



## INVERTING Mode



# Remote Monitoring Solution

## MONITORING ON THE GO & AT YOUR DESK !!!

Suitable Protocol: RS-232/MODBUS/RS-485

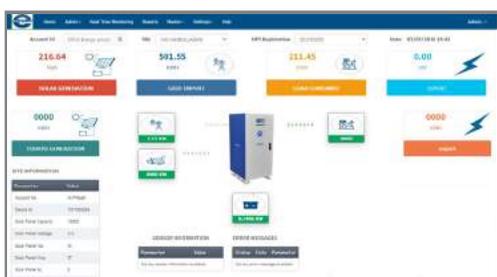
IOT based monitoring system- to enable customer to monitor critical PCU systems at their desk or phone. By using remote monitoring equipment at your sites, you'll now have the visibility you need to monitor and control your Systems.

- ◆ All PCU systems in a facility is connected to Enertech® RMS Interface to collect data and transfer to network system / cloud to process data
- ◆ Remote PC , mobile is configured with RMS Software for PCU monitoring on the GO and always at your desk.



## BENEFITS

- ◆ Continuous PCU monitoring and access to data.
- ◆ Load trend and graphs in your mobile.
- ◆ Data on power failures in a day / week / month.
- ◆ PCU Alerts on email /SMS.
- ◆ Daily/weekly/monthly reports
- ◆ 24x7 remote monitoring – Peace of mind.
- ◆ Connectivity Via GSM/Wi-fi.
- ◆ Report with pop-up alarms.



# Specifications (SUNMAGIC | Single Phase | 5kVA - 30kVA)

STANDARD SPECIFICATION	SUNMAGIC - 5kVA to 30kVA									
<b>INVERTER CAPACITY (kVA)</b>	5	6	8	10	12.5	15	20	25	30	
<b>INPUT</b>										
Input Voltage Range*	170 V to 260 V, 1 Phase									
Nominal Frequency	50 Hz (± 6%)									
Input Fault Level	10 kA									
Self-Consumption	upto 4%									
DG / Grid Compatibility	Yes									
<b>SOLAR</b>										
Charger Type	MPPT									
Max PV Voltage (VOC)	250	250	250 / 300	300	300	300 / 500	300 / 500	500	500	
MPPT Voltage Range	130 - 200V for 96VDC / 165 -250V for 120VDC / 280-450V for 240VDC									
MPPT Modes Available	2 (Selectable)									
No. Of Channels	1									
Max I/P Amps per Channel (Amps)	52	63	83 / 66	83	104	125 / 63	166 / 83	104	125	
Panel Reverse Protection	Yes									
Solar Charger Efficiency	upto 95%									
<b>BATTERY</b>										
Nominal Battery Voltage (VDC)	96	96	96 / 120	120	120	120 / 240	120 / 240	240	240	
Grid Charging Current	Selectable as 5A Steps									
Input Power Factor (Grid Charging)	Near to Unity									
Battery Charging Voltage	Selectable from LCD Display									
Type & No. Of Cells	Lead Acid / VRLA / Ni-Cd/Lithium									
<b>OUTPUT</b>										
Output Current (Amp)	17.5	21	28	34	44	53	70	87	105	
Load Power Factor	0.8 lag									
Output Voltage (Inverter Mode)	230V AC ± 2 %									
Voltage Regulation	± 2 %									
Output Frequency (Free Running)	50 Hz ± 0.5%									
Output Waveform	Pure Sine wave									
Peak Inverter Efficiency (Full Load)	Upto 92 %									
Total Harmonic Distortion	≤ 3% 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									
<b>CONFIGURATION</b>										
Modes Available	Hybrid, Grid Export, Standalone									
Battery Buffer Setting	Selectable for 25%, 50%, 75%									
GRID feed mode	Enable / Disable option Available									
<b>ENVIRONMENTAL</b>										
Acoustic Noise Level from 1 m distance (Ref: ISO 3746)	≤ 65 dB									
Operating Temperature	0 to 40 Deg C <b>Dust free, Cool &amp; Dry Environment</b>									
Storage Temperature	-10 Deg C to 60 Deg C									
Relative Humidity	Up to 95 % (Non-Condensing)									
Altitude	<b>Upto 1000 &amp; (1000 to 3000 deviation) **</b>									
<b>PHYSICAL</b>										
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	<b>RAL 7016</b>									
Cable Entry	Bottom									

\* with tolerance of 5v

\*\* 1.6 % derating per 100 m

PARAMETERS DISPLAYED ON LCD MIMIC									
General Group	System Rating, Date & Time, Current Status, Configuration, Fault Log								
Input Group	Input Voltage, Input Current, Input Frequency								
Output Group	Output Voltage, Output Current, Output Frequency								
Battery Group	Battery Voltage, Charging Current, Discharging Current, Battery Status								
Solar Group	Solar Voltage, Solar Current, Solar Power (KW), Solar Energy (KWh)								
Fault Log	Recent 9 fault log since last time								
Inverter Group	Voltage, Current								
Configuration	SGB, SBG, GSB, GFM, INVERTER								
Indication of Mimic	Fault, PV On, Grid On, Load On Mains, Inverter On, Charger On, Load On Battery								
Message Display On LCD	Output Under Voltage, Output Over Voltage, Output Overload, Short-Circuit, Standby Mode, Battery Low								
Reset	Buzzer reset (Manual), Overload, Short Circuit, Battery Low								
PROTECTIONS									
ALARMS ARE PROVIDED FOR IMPORTANT PROTECTIONS									
Input Group	Input MCB/MCCB, Input Under Voltage, Input Over Voltage, Charger Over voltage, Surge								
Output Group	Output High, Output Low, temperature, Over Load, Short Cuircuit								
Battery Group	Battery MCB/MCCB, Battery Low, Battery Over voltage								
Solar Group	Solar MCB/MCCB, Solar Fuse, Surge								
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 (Ref. IS 3043)	Earth Stud								
DIMENSIONS (STANDARD/OPTIONAL)									
Dimensions (in mm)	(Approx.)								
KVA Rating	5	6	8	10	12.5	15	20	25	30
Width (W)	380	450	450	450	450	450	450	450	450
Depth (D)	580	800	800	800	800	800	800	800	900
Height (H)	520	800	800	800	800	800	800	800	800
Weight (Kg)	84	125	165	175	200	220	296	320	350

# Specifications are subject to change without prior notice  
 ## Not for Life Support & Mission Critical Application

Updated on 04 October 2021

# Application of Single Phase Solar Hybrid Inverter



Home



Farm House



Petrol Pump



Hospital



Institution



Rural Bank



Police Station



Shop



ATM



Railway Station



Microgrid



Primary Health Care Center

# Specifications (SUNMAGIC + | Three Phase | 5kVA - 600kVA)

STANDARD SPECIFICATION		SUNMAGIC+ 5kVA to 300kVA																														
INVERTER CAPACITY (kVA)	5		10		15		20		25		30		40		50		60		80		100		120		150		200		250		300	
<b>INPUT</b>																																
Input Voltage Range *	360 VAC to 450 VAC																															
Nominal Frequency	50 Hz (± 6%)																															
Input Fault Level	10 kA																															
Self-Consumption	upto 4%																															
DG / Grid Compatibility	Yes																															
<b>SOLAR</b>																																
Charger Type	MPPT																															
Max PV Voltage (VOC)	250V	300V	500V	500V	500V	500V/700V	700V	900V	1200V	1200V																						
MPPT Voltage Range	120-180V	160-250V	300-450V for 240VDC / 450-600V for 360VDC														800-1100V															
MPPT Modes Available	4 (Selectable)																															
No. of MPPT Channel													3 / 2		3 / 2		3 / 2		3		3		3									
Max I/P Amps per Channel (Amps)	52	83	125	83	104	125/83	166/111	208/138	250/166	333/222	138/92	166/111	138	104	104	125																
Panel Reverse Protection	Yes																															
Solar Charger Efficiency	upto 95%																															
<b>BATTERY</b>																																
Nominal Battery Voltage (VDC)	96	120	120	240	240	240/360	240/360	240/360	240/360	240/360	240/360	240/360	240/360	360	480	600	600															
Grid Charging Current	Selectable as 5A Steps																															
Input Power Factor (Grid Charging)	Near to Unity																															
Battery Charging Voltage	Selectable From LCD Display																															
Type & No. of Cells	Lead Acid / VRLA / Ni-Cd / Lithium																															
<b>OUTPUT</b>																																
Load Power Factor	0.8 lag																															
Output Voltage (Inverter Mode)	415V AC																															
Voltage Regulation	± 2%																															
Output Frequency (Free Running)	50 Hz ± 0.5%																															
Output Waveform	Pure Sine Wave																															
Peak Inverter Efficiency (Full Load)	upto 90%																															
Total Harmonic Distortion	≤ 3% at Liner Load																															
Overload Capacity	125% for 60 Sec, 150% for 5 Sec																															
Changeover Time (Full Load)	20 msec																															
DC to AC Osolation	In Built isolation Transformer at Inverter Output																															
Anti Islanding Function	Available in Compliance with IEC 62116																															
Duty	Continuous																															
<b>CONFIGURATION</b>																																
Modes Available	Hybrid, Grid Export, Standalone																															
Battery Buffer Setting	Selectable for 25%, 50%, 75%																															
GRID Feed Mode	Enable / Disable Option Available																															
<b>ENVIRONMENTAL</b>																																
Acoustic Noise Level From 1m distance (Ref : ISO 3746)	≤ 65 dB																															
Operating Temperature	0 to 40 Deg C Dust free, Cool & Dry Environment																															
Storage Temperature	-10 Deg C to 60 Deg C																															
Relative Humidity	Up to 95% (non condensing)																															
Altitude	Upto 1000 & ( 1000 to 3000) **																															
Basic Seismic Qualification	0.5g (the test inspection shall be with extra cost)																															
<b>PHYSICAL</b>																																
Enclosure Protection Grade	IP 20 ( IP 21 to IP 55 Optional)																															
Enclosure Thickness	Frame 2.0mm & all covers 1.6mm																															
Cooling	Forced Air																															
Colour	RAL 7016   RAL 9016																															
Cable Entry	Back Side	Bottom / Front																														

\* with tolerance of 5v

\*\* 1.6 % derating per 100 m

Parameters Displayed on LCD MIMIC	General Group	Input Group	Output Group	Battery Group	Solar Group											
	1. System Rating	1. Input Voltage	1. Output Voltage	1. Battery Voltage	1. Solar Voltage											
	2. Date & Time	2. Input Current	2. Output Current	2. Charging Current	2. Solar Current											
	3. Current Status	3. Input Frequency	3. Output Frequency	3. Discharging Current	3. Solar Power (kW)											
	4. Configuration	4. kW	4. kW	4. Battery Status	4. Solar Energy (kWh)											
	5. Fault Log	5. KVA	5. KVA													
	Fault Log	DG Group	Power Group	Inverter Group	Configuration Group											
	Recent 9 Fault Log Since Last Reset	1. DG Power (kW)	1. Total Input (kW)	1. Voltage	1. SBG											
		2. Power (KVA)	2. Total Output (kW)	2. Current	2. SGB											
		3. Energy (kWh)	3. Input PF	3. Frequency	3. GSB											
		4. Output PF	4. Power (kW)	4. GFM												
			5. Power (KVA)	5. INVERTER												
Fault	PV ON	Inverter ON	Load on Battery													
	Grid ON	Charger ON														
	Load on Mains															
* Flashing LED Indicates fault condition in respective group *																
Message Displayed on LCD		Output Under Voltage	Battery Low Voltage													
		Output Over Current	Battery Over Voltage													
		Output Overload														
		Short-Circuit														
		Stand By Mode														
Reset	Buzzer Reset (Manual)	Overload	Battery Low													
		Short Circuit														
PROTECTIONS	* Alarms are provided for all important protections.															
	1. Input MCCB	1. Output Under Voltage	1. Battery MCCB	1. Solar MCCB												
	2. Input Under Voltage	2. Output Over Voltage	2. Battery Low	2. Solar Fuse												
	3. Input Over Voltage	3. Output Overload	3. Battery Over Voltage	3. MOV Card												
	4. Charger Over Voltage	4. Output Short Circuit	4. Battery Charging Current Limit													
	5. MOV Card	5. Inverter Over Temperature														
CONNECTIVITY																
Communication	RS 232, (Modbus RS 485, GSM Connectivity) - Optional															
Monitoring	ENERLOG (Remote Monitoring Solution) - Optional															
PFCs																
	Grid Trip															
	Inverter Trip															
	Load on Battery															
	Battery Low Prealarm															
	Load on Static Bypass															
	Common Fault															
	One Relay Contact for Each (Rating : (1A/ 230 VAC or 2A / 12V DC)															
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															
Safety Factor	1 for Electronic Devices, 1 for Electrical															
Earthing Connection	25- 40 kVA : 3 x 25 mm GI (Earth bus bar running along the panel)															
(Ref. is 3043)	45- 150 kVA : 6 x 50 mm GI (Earth bus bar running along the panel)															
	200- 300 kVA : 6 x 50 mm GI (Earth bus bar running along the panel)															
Illumination Lamp	11 W CFL															
Gland Plate	3 mm MS C.R.C.A															
Utility Socket	5A / 230 VAC															
DIMENSIONS (STANDARD/OPTIONAL)																
Dimensions (in mm)	(Approx.)															
KVA Rating	5	10	15	20	25	30	40	50	60	80	100	125	150	200	250	300
Width (W)	380	450	450	450	450	450	450	800	800	1100	1100	1100	1565	3315	3315	3315
Depth (D)	580	800	800	800	800	900	900	950	950	800	800	800	850	850	850	850
Height (H)	520	800	800	800	800	800	800	1700	1700	1800	1900	1900	1900	1900	1900	1900
Weight (Kg)	84	175	200	296	320	350	390	1120	1120	1184	1480	1150	1500	1200	1200	1300

# Specifications are subject to change without prior notice

# Application of Solar Hybrid Inverter



Petrol Pump



AC Unit



Cold Storage



ATM



Farm House



Rural Bank



Government  
Offices



Primary  
Health Care Center



Hostel of  
School & College



Microgrid



Factory & Dairy  
Equipment



Water Pump



Lift In Society



Railway Platform



Solar Farming  
Centre



# Enertech® Highly Reliable And Efficient Products are Backed by A Highly Responsive and Dependable Field and Factory Services

Your business runs around the clock, and so does Enertech. With 24x7 technical support coverage, including weekends and holidays, The Technical Support team at Enertech is dedicated to protecting your investments

With factory trained engineers positioned throughout the India, rapid response times can significantly reduce downtime and loss of revenue.

Highly skilled Technical Support representatives are available to troubleshoot by phone and, If necessary, Can dispatch the expert Service engineer to your site.



50+ Service  
Personnel Pan-India



Pan-India  
Spare Parts Operations



Wide Repair  
Network

## SERVICES

- ◆ Start-up / Installation
- ◆ Factory and On-site Testing
- ◆ Preventive Maintenance
- ◆ Extended Warranty

Please call for  
Technical Support

+91 9372623418

## ENERTECH UPS PVT. LTD.

S. No. 399/1-2, Bhare, P. O. Ghotawade,  
Near Pirangut, Taluka- Mulshi  
Dist.- Pune - 412115

Domestic and International Presence  
7 x 24 x 365 Customer Service Support

### Contact

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Mail : [sales@enertechups.com](mailto:sales@enertechups.com)

**Enertech**  
*Answering All Power Needs*

### Our Offering

Online UPS, Static Frequency Converter,  
Solar UPS, Industrial Battery Charger



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