Power Backup Solutions
About US

- We are the brainchild of a band of young technocrats from power backup field passionate about technology, was formed with one single aim in mind to touch lives and change lifestyles formed in 2006 with 4 people team

- Driven by a passion for R&D and Innovation, Our Group has emerged as a shining star and a major player in the field of Power Backup Solutions.

- We are driven by technology always and we developed a full range of product in Power Electronics for the initial two periods

- Having pioneered the DSP Sine-Wave revolution, Our Group now has a vast array of products to suit every requirement for Homes, Industries, Information Technology and other Mission-Critical applications.

- Power products range includes DSP based Sine Wave Domestic Inverters / Home UPS, Industrial use Higher KVA Sine Wave Offline UPS, Sine Wave Line Interactive UPS, Online UPS, Hybrid Inverters, Hybrid Power Systems including those using Renewable Energy Sources etc.

- Solar products includes Solar Power conditioning unit, Solar hybrid inverter, Solar charge controllers etc
About US

- We have the state of Art manufacturing plant with a capacity of producing 50K inverter per month in Haridwar. With in-house capability of PCB (All range). We have the capability produce PCB with SMD technology.

- We have a dedicated work force of around 450 people and maxi of the work strength are with us since our inception
About Our Group of Companies

Our Major Business Verticals:

- Company manufactures power solution equipment's
  - For Big and renowned brand Original Equipment Manufacturers. under their own Brand
  - Our Group domestic Inverters, Static UPS, On-Line UPS and Automatic Lift Back-up System (ALBS) are now extensively sold and trusted in India as well as in more than 18 countries all over the world
  - Big Institution like Indian Banks, and big corporates like reliance, Airtel etc.

Core Area of Business

- Technology Transfer and Support - Company has its own in-house Research & Development Centre at Roorkee. Providing Technological Development and Research & Development related activities to several leading companies who are offering power conversion equipment.
- Our R&D is self sufficient to work and develop any product in the field of power Electronics.
- We always known for the Technology and R&D.
- In-house strong R&D recognised by Govt of India by Ministry of Science and Technology.
- Its our Technology which makes our growth exponentially.
- The products are put through rigorous testing and evaluation to ensure that they comply with international standards and design requirement.
Research & Development Strength

Aims to produce the best range of products suited to the Indian & the International Market

Our R&D Team consist of Professionals with specialisation and immense experience in power electronics & systems engineering
Research & Development Projects Completed Recently

Solar Inverter (PCU)- 850VA-10KVA (PWM Charge Controller)
- Solar inverters are the system utilizing solar power for charging the battery as well as load sharing, it works on the principle with solar power as priority during charging and backup mode.
- Solar inverters are economical (grid energy & fuel savings), efficient and eco friendly power back up solutions for home and industry.

Solar Inverter (PCU)- 1KVA-5KVA (MPPT Charge Controller)
- Solar inverters with MPPT charge controller are the system utilizing solar power for charging the battery as well as load sharing, it works on the principle with solar power as priority during charging and backup mode.
- Solar inverters with MPPT charge controllers offer a potential increase in solar power efficiency up to 30%, therefore more economical in terms of saving.

Online UPS with PFC (Power Factor Control) – Single Phase
- A true online UPS runs continually on the battery via the inverter, while the line power runs the battery charger. For a true online UPS, no transfer time occurs upon loss of utility power. The system provides power-factor correction and frequency regulation, in addition to surge suppression and power filtering. In rare occurrences, the inverter fails. In that case, the UPS will switch to power provided directly from utility power via the UPS power filter/surge suppressor.
GENUPS-15KVA/360V (3Ph-3Ph) and above – Hybrid system

- GENUPS is embodiment designed for intelligent utilization of power backup options (DS set and UPS) automatically in case of grid failure, out of range or voltage fluctuation.

GSM Module & SNMP Module for Inverter & UPS

- GSM & SNMP module is developed for remote monitoring with the help of GSM & SNMP technique to check status of the inverter and UPS. This GSM & SNMP module can interface with any Kevin make UPS.
- This technique is helpful for the users to keep them updated about UPS parameters (like: load Status, Mains Availability, Battery Status, etc.) and remote monitoring with the help of mobile. This module generates the message and sends it to the user notifying the System status. It also generates message during any protection and sends it to the saved number (User defined) to make the user aware of any such condition.
5. SNMP Technology
6. GSM Technology for OLU and HKVA UPS/INV
Under Trial Year 2011-2012

Fault, warning and Alarm through SMS

- Administrator
- Consumer-1
- Consumer-2

UPS with RDM unit

- BATTERY LOW
- MAIN MCB TRIP
- UPS OUTPUT NOT PROPER
- UPS HEAT UP
- UPS COMMUNICATION FAIL
- OVER LOAD
- UPS OUTPUT SHORT
- MAINS FAIL

page3
Research & Development Projects - Future :

- Solar Grid Tie Inverters
- Solar Micro Inverters
- PMBLDC Ceiling Fan
- MPPT Based Solar drive for Water
- LED LIGHTS
- Telecom Inverter for 4G Technology
Domestic Series

DSP Sine wave Home UPS Systems :

<table>
<thead>
<tr>
<th>Model</th>
<th>Battery Voltage</th>
<th>Weight (in Kg.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSP Sine wave Home UPS 400VA</td>
<td>12VDC (One Battery)</td>
<td>8.000</td>
</tr>
<tr>
<td>DSP Sine wave Home UPS 650VA</td>
<td>12VDC (One Battery)</td>
<td>9.600</td>
</tr>
<tr>
<td>DSP Sine wave Home UPS 850VA</td>
<td>12VDC (One Battery)</td>
<td>10.600</td>
</tr>
<tr>
<td>DSP Sine wave Home UPS 1000VA</td>
<td>12VDC (One Battery)</td>
<td>11.500</td>
</tr>
<tr>
<td>DSP Sine wave Home UPS 1450VA</td>
<td>24VDC (Two Battery)</td>
<td>19.700</td>
</tr>
<tr>
<td>DSP Sine wave Home UPS 2000VA</td>
<td>24VDC (Two Battery)</td>
<td>23.400</td>
</tr>
</tbody>
</table>

APPLICATIONS:
Power Back-up for House hold as well as the computer
Small Water pumps and all motor based small applications
TV Sets, Fans, Tube Lights, etc.

Note: Other brand does not have the product like 1000VA and 2KVA which are best suitable for the application where load requirement is more and Power backup requirement is more so

USP’s:
• The 650VA User can easily shift to 1000VA with same battery but more power.
• The 850VA User can easily shift to 1400VA with same battery but more power.
• The 1450VA User can easily shift to 2000VA with same battery but more power.
### Product Profile

#### Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>Other Brands</th>
<th>Our Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intelligent Charger for Deep Discharged Battery.</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>More back-up being a Sine Wave UPS (ASIC Control)</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>No humming Noise (Silent UPS)</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Selector Switch for Normal / UPS</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Advance Battery Management for longer battery life and prevent battery from overcharging.</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>LCD Display Options (on Demand of Customer)</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Sinewave Output even on CFL load</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>DSP based which results proper control over Voltage and current</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Field Failure Ratio (Less The 1%) The most reliable product of Industry in India as per industry feedback</td>
<td>No (failure is more then 5% as per industry feedback)</td>
<td>Yes</td>
</tr>
</tbody>
</table>

### Comparison Between Our Group Vs Others
**Corporate and Commercial (HKVA Series)**

**DSP Sinewave Static UPS:**

<table>
<thead>
<tr>
<th>Model</th>
<th>Battery Voltage</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSP Sine wave Static UPS 2.5KVA</td>
<td>36VDC &amp; 48VDC</td>
</tr>
<tr>
<td>DSP Sine wave Static UPS 3.0KVA</td>
<td>48VDC</td>
</tr>
<tr>
<td>DSP Sine wave Static UPS 3.5KVA</td>
<td>48VDC</td>
</tr>
<tr>
<td>DSP Sine wave Static UPS 5KVA</td>
<td>120VDC, 96VDC &amp; 48VDC</td>
</tr>
<tr>
<td>DSP Sine wave Static UPS 7.5KVA</td>
<td>120VDC</td>
</tr>
<tr>
<td>DSP Sine wave Static UPS 10KVA</td>
<td>180VDC &amp; 120VDC</td>
</tr>
<tr>
<td>DSP Sine wave Static UPS 12KVA</td>
<td>192VDC</td>
</tr>
</tbody>
</table>

**Why Static UPS?**

- The OFF Line UPS above 1.5KVA are highly unreliable and not available with any brand.
- The ON Line UPS always wastes 10-15% electricity, i.e. Power Loss. About 40% Loss due to poor power Factor is additional to the above.
- For the applications where the fully regulated Voltage and frequency is not required, the Static UPS is the best solution. It provides the reliability of an ON Line UPS and with negligible power loss when Input Mains AC is present.
- Applications: Cyber Café, Petrol Pumps, BPO, ATM etc.
### Product Profile

#### Comparison of Static UPS Between Our Group V/s Others:

<table>
<thead>
<tr>
<th>Features</th>
<th>Other Brands</th>
<th>Our Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>State of the Art MOSFET/IGBT Based PWM Technology to increase Crest Factor</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Fast Changeover ensuring reliable Compatibility with Computers</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Electronic change-over, hence much better reliability others are using relay for changeover whereas we are using SCR</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Selector Switch for Normal / UPS</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>TDR (Time Delay Relay), especially for AC compressor based applications</td>
<td>Partly yes (Some brands have some does not have)</td>
<td>Yes</td>
</tr>
<tr>
<td>LCD Display Options</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Surge Load Capacity up to 300%</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>DSP based which results proper control over Voltage and current</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**Other FEATURES:**
- Auto Sense Intelligent Control Smart Charger
- Quiet of AC motors as well as other inductive loads unlike the noise that emanates from modified Sine Wave Systems
- Mains Mode Short Circuit Protection & Less Operating Coast as compared to that with Online UPS as well as DG
- Bypass Switch in case of system failure
- Compatibility with D.G Sets & Very low Total Harmonic Distortion <3%
**Difference between Inverter & Static UPS**

**INVERTER (2.5 KVA to 100 KVA)**
- Used only for normal housing loads like lights, fans, ACs etc.
- Changeover time 40-50 m sec.
- Relay Changeover (Mechanical Changeover).
- Not suitable for critical equipment's like computers, servers.

**STATIC UPS (2.5 KVA to 12 KVA)**
- We are the first and only company in India to have designed and made this product range which has a dual feature of inverters and UPS.
- It can work both as a inverter cum UPS through the operating switch mode that can be selected manually.
- Fast changeover time i.e, less than 10msec, this feature makes it computer compatible and does not let the computer reboot when mains supply fail.
- Fully electronic changeover through static switch.
- More reliable than inverters.
- Other than normal housing loads it can also run computers without any hassle.
## Corporate and Commercial Series

### Lift Inverter Or ALBS (Three Phase Inverter for Three Phase Applications):

<table>
<thead>
<tr>
<th>Model</th>
<th>Battery Voltage</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSP Sine wave ALBS UPS 4kVA (3Ph-3Ph)</td>
<td>72VDC</td>
</tr>
<tr>
<td>DSP Sine wave ALBS UPS 5kVA (3Ph-3Ph)</td>
<td>72VDC &amp; 96VDC</td>
</tr>
<tr>
<td>DSP Sine wave ALBS UPS 6kVA (3Ph-3Ph)</td>
<td>72VDC &amp; 96VDC</td>
</tr>
<tr>
<td>DSP Sine wave ALBS UPS 8kVA (3Ph-3Ph)</td>
<td>180VDC</td>
</tr>
<tr>
<td>DSP Sine wave ALBS UPS 10kVA (3Ph-3Ph)</td>
<td>180VDC</td>
</tr>
<tr>
<td>DSP Sine wave ALBS UPS 12kVA (3Ph-3Ph)</td>
<td>180VDC</td>
</tr>
<tr>
<td>DSP Sine wave ALBS UPS 15kVA (3Ph-3Ph)</td>
<td>360VDC</td>
</tr>
<tr>
<td>DSP Sine wave ALBS UPS 20kVA (3Ph-3Ph)</td>
<td>360VDC</td>
</tr>
<tr>
<td>DSP Sine wave ALBS UPS 25kVA (3Ph-3Ph)</td>
<td>360VDC</td>
</tr>
<tr>
<td>DSP Sine wave ALBS UPS 30kVA (3Ph-3Ph)</td>
<td>360VDC</td>
</tr>
<tr>
<td>DSP Sine wave ALBS UPS 40kVA (3Ph-3Ph)</td>
<td>360VDC</td>
</tr>
<tr>
<td>DSP Sine wave ALBS UPS 50kVA (3Ph-3Ph)</td>
<td>360VDC</td>
</tr>
<tr>
<td>DSP Sine wave ALBS UPS 60kVA (3Ph-3Ph)</td>
<td>360VDC</td>
</tr>
</tbody>
</table>
Corporate and Commercial Series
Lift Inverter Or ALBS (Three Phase Inverter):

**FEATURES:**
- State of art MOSFET/IGBT based PEM technology to increase Crest Factor Tolerance & Dynamic Stability
- Auto Sense Intelligent Control Smart Charger
- High performance voltage and current regulation with DSP control
- Electronic change over, hence better reliability
- Surge load capacity up to 300%
- Quiet operation of AC motors as well as the other Inductive loads unlike that with modified Sine Wave Inverters
- Very Low Total Harmonic Distortion <3%
- Wide input voltage range
- All necessary Protection like Short Circuit, Over Temp., Battery Low/High, Mains MCB Tripped etc. with Comprehensive display

**Applications:**
- For providing reliable power back-up for Lift/ Elevators
- As a major power supply source for water Pumps, Fire pumps & other 3Phase critical motorized equipment
- Petrol/Diesel Dispensing (Filling) Machines
- Tread Mills & other Health Equipment in Homes/Gyms
- Major Power Back Up source in Corporate Offices as well as Call Centres
- Computers & peripherals / Office Equipment like, Scanners, Printers, Fax Machines etc.
- Emergency & Mobile Power Systems
- Air Conditioners and all compressor Based applications Like Water Cooler, Bottle Coolers, Ice Cream Parlours etc.

With GENUPS this entire process of D G set Running or switch over to Inverter in case of less power requirement automatically.
## Comparison of Lift UPS Between Our Group V/s Others:

<table>
<thead>
<tr>
<th>Features</th>
<th>Other Brands</th>
<th>Our Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>State of the Art MOSFET/IGBT Based PWM Technology to increase Crest Factor</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Use Electro-Mechanical contactor which creates sparks, hence poor reliability &amp; less life</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Electronic change-over, hence much better reliability others are using relay for changeover whereas we are using SCR</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Low end Micro-controller based design, so the control is poor</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Automatic load sensing. Will stop in Door Open condition at the time of Low Battery Protection</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>LCD Display Options</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Surge Load Capacity up to 300%</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>DSP based which results proper control over Voltage and current</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>
# DSP Sine wave Online UPS

## Product Profile

<table>
<thead>
<tr>
<th>Model</th>
<th>Battery Voltage</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSP Sine wave Online UPS 1KVA (High Frequency Model)</td>
<td>48VDC</td>
</tr>
<tr>
<td>DSP Sine wave Online UPS 2KVA (High Frequency Model)</td>
<td>96VDC</td>
</tr>
<tr>
<td>DSP Sine wave Online UPS 3KVA (High Frequency Model)</td>
<td>96VDC</td>
</tr>
<tr>
<td>DSP Sine wave Online UPS 5kVA (1Ph-1Ph)</td>
<td>180VDC</td>
</tr>
<tr>
<td>DSP Sine wave Online UPS 7.5kVA (1Ph-1Ph)</td>
<td>180VDC</td>
</tr>
<tr>
<td>DSP Sine wave Static UPS 10kVA (1Ph-1Ph)</td>
<td>192VDC</td>
</tr>
<tr>
<td>DSP Sine wave Static UPS 7.5kVA (3Ph-1Ph)</td>
<td>360VDC</td>
</tr>
<tr>
<td>DSP Sine wave Static UPS 10KVA (3Ph-1Ph)</td>
<td>360VDC</td>
</tr>
<tr>
<td>DSP Sine wave Static UPS 15KVA (3Ph-1Ph)</td>
<td>360VDC</td>
</tr>
<tr>
<td>DSP Sine wave Static UPS 20KVA (3Ph-1Ph)</td>
<td>360VDC</td>
</tr>
<tr>
<td>DSP Sine wave Static UPS 5KVA to 120KVA (3Ph-3Ph)</td>
<td>360VDC</td>
</tr>
</tbody>
</table>
DSP Sine wave Online UPS

FEATURES:
• State of art MOSFET/IGBT based PEM technology to increase Crest Factor Tolerance & Dynamic Stability
• Auto Sense Intelligent Control Smart Charger
• High performance voltage and current regulation with DSP control
• Electronic change over, hence better reliability
• Surge load capacity up to 300%
• Quiet operation of AC motors as well as the other Inductive loads unlike that with modified Sine Wave Inverters
• Very Low Total Harmonic Distortion <3%
• Wide input voltage range
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Applications:
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• As a major power supply source for water Pumps, Fire pumps & other 3Phase critical motorized equipment
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• Emergency & Mobile Power Systems
• Air Conditioners and all compressor Based applications Like Water Cooler, Bottle Coolers, Ice Cream Parlours etc.

With GENUPS this entire process of D G set Running or switch over to Inverter in case of less power requirement automatically.
### Solar Power Plants and Solar Power Conditioning Unit (Hybrid Solar Inverter)

<table>
<thead>
<tr>
<th>Model</th>
<th>Battery Voltage &amp; Solar Charging Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSP Sine wave Hybrid Inverter (PCU) 650VA (PWM)</td>
<td>12VDC &amp; 30A</td>
</tr>
<tr>
<td>DSP Sine wave Hybrid Inverter (PCU) 850VA (PWM)</td>
<td>12VDC &amp; 30A</td>
</tr>
<tr>
<td>DSP Sine wave Hybrid Inverter (PCU) 1450VA (PWM)</td>
<td>24VDC &amp; 30A</td>
</tr>
<tr>
<td>DSP Sine wave Hybrid Inverter (PCU) 2.5KVA (PWM)</td>
<td>48VDC &amp; 40A</td>
</tr>
<tr>
<td>DSP Sine wave Hybrid Inverter (PCU) 3.5KVA (PWM)</td>
<td>48VDC &amp; 40A</td>
</tr>
<tr>
<td>DSP Sine wave Hybrid Inverter (PCU) 5KVA (PWM)</td>
<td>96VDC, 48VDC &amp; 40A</td>
</tr>
<tr>
<td>DSP Sine wave Hybrid Inverter (PCU) 7.5KVA (PWM)</td>
<td>120VDC &amp; 40A</td>
</tr>
<tr>
<td>DSP Sine wave Hybrid Inverter (PCU) 10KVA (PWM)</td>
<td>180VDC &amp; 40A</td>
</tr>
</tbody>
</table>

Entire above given Product series will be converted to inbuilt MPPT solar Charge instead of Existing PWM Solar Charge Controller.
Batteries

**Flat Plate Battery**

Capacity Ranges between 100 AH to 180 AH

**Automotive Battery**

Capacity Ranges between 35 AH to 200 AH

**Short & Tall Tubular Plate Battery**

Capacity Ranges between 100 AH to 240 AH

**Solar Battery**

Capacity Ranges between 10 AH to 200 AH

Note: We are sourcing SMF battery from OEM in India as well as from China for domestic and export sales
Quality Control Measures

Ensure proper management and planning to meet the high standards of the quality of our products. Comprehensive quality control and checking procedures for all stages of the Manufacturing process.

Various inline checks and multilevel performance outputs are measured and looked after. We have set up the actual quality environment and tools to ensure the products' viability and service.
Start

Take Lot wise sample from Production as per sampling plan

All Parameter check as per the specifications

If Class C, accept lot & give feedback to Production to take care in

Accept lot & give feedback to Production to take care in further lots

If Class B, more samples to be taken, if Problem

Judge the Class of Fault, either Class A, B or C

If Class A, the total lot reject & give immediate feedback to Production

Total Lot Reject and give immediate feedback to Production

Despatch

Yes

Total Lot accept and give clearance to Despatch

All Parameters ok and under specs

No
Major Customers

- V-Guard Industries Limited
- Exide Industries Limited
- Crompton Greaves Everyday Solutions
- Base Terminal
- Mahindra
- Amara Raja Batteries Limited
- Bajaj Electricals Limited
- Whirlpool Corporation
- Videocon
- Muthoot Finance
- Ac – Delco brand from GM
Thanks

From –

Lento Industries Private Limited
(Export Business, All Domestic Institutional, Corporate and Channel Business)

Advance Electronics
(Manufacturing and OEM Business)