LENTO

House of Green Energy

THE MOST EFFICIENT FORM OF RENEWABLE ENERGY

WE MAKE YOUR LIFE EASY....

Lento Industries Pvt. Ltd.

www.lentoindia.com

Company Overview

Lento is driven by research and development but with a difference. Here at Lento the focus is on harnessing power of R&D to develop innovative, future-proof products that are aligned with markets and requirement of end users. A group of young technocrats with this common ideology got together and thus was born Lento, a company specializing in Power Electronics and Energy Efficiency.

Today Lento has come a long way from its modest beginnings and our R&D powers manufacturing of advanced technologies based product that include Inverters, Online UPS and static UPS, Automatic Lift Back-up System (ALBS), Solor Power Equipments, LED lights and BLDC motor application based products.

Total quality management is part of our corporate philosophy and goes hand in hand with our R&D based approach to manufacture future-proof products. Technology, we believe, should be for use of the masses and must be implemented in a way that is affordable with products that are reliable and can be serviced easily in case of need. While growth lies in catering to requirements of large corporations, we have always created products that will also meet the requirements of individuals and small home owners.

Today we boast of one of the widest range of products ranging from compact inverters for home use to grid tie and stand alone power plants. What sets our products apart from the rest is they feature intelligent controls, accuracy and precision one could find only in world famous, highly expensive brands. We have brought world class technologies and products to india through R&D, but at a fraction of the price. Lento today is on the threshould of greater expansion into a diverse range of products in efficiency power and energy.

Business Values & Core Strength

R&D powers our business and is fundamental to Lento's underlying enterprise spirit that has helped us deliver quality, world class innovations and change the landscape of power electronics.

We design and develop smart, rugged and highly reliable products that offer the best price to performance ratio in the class. This core philosophy has helped us create some unusual, advanced power electronic device, inverters, UPS, Solar batteries and LED lightings for energy efficiency products that will create a new dimension in this field.

We seamlessly integrate research & development, quality and delivery. Research by itself does not achieve much but research that brings products to markets and fulfils requirements is what makes a vital difference and Lento's focus on applied research does just that.

Anticipate the future and deliver products that are cost efficient and meet user requirements, giving them best returns on investments.

Manufacturing is supported by extensive service and maintenance with a division created specifically to handle this important task that is so essential for customer satisfaction.

Plough back profits into research and development of products as well as betterment of staff and the community in a holistic approach to business.

Listen to feedback from users as an important contributory element to improvement of our products and our way of working.

Always on the path of Progressive Technologies

Well on our way to becoming the top indian Power Conversion Equipment Company, our strength is our in-houseResearch & Development wing, If our products have innovative features, perform with highest efficiency figures and are known for legendary reliability, the credit goes to our R&D team that has come up with designs customized for indian operating conditions, We anticipate trends and tailor research to design products that perform flawlessly for years and are easy to maintain. Our R&D personnel have proven experience and work under an enlightened management that gives them free hand to innovate and develop products that make us market leaders.

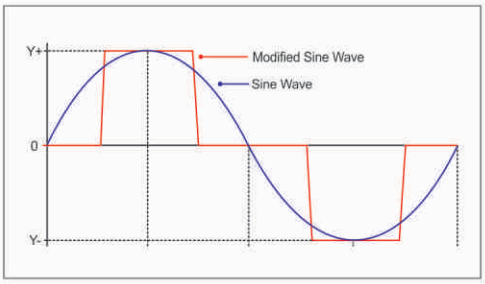
R&D powers our activities and we consider it an essential part of operations and growth. R&D is what gives us the edge in an extremely competitive field.

Design & Technology

Our design and technology is driven from a user perspective. We ask ourselves what is available in the market and what features do users want? This is the fundamental principles of our design and technology ideologies. While quality is a prime ingredient, cost considerations are equally important as are functionality, ease of use and total reliability. While taking care of these elements in our standard range of products like our digital signal processing systems tied to switch mode technology used in our sine wave inverters. We modestly claim to be up there with the best, offering world class products and technologies as the outcome of our superior design capabilities

OUR INCLINATION TOWARDS GREEN TECHNOLOGIES

Sine Wave Technology



- **Square Wave:** Very old style inverter. Ok for Bulb Loads. Not good for other appliances like Tube Lights, Fans, coolers and motors etc.
- **Quasi Sine Wave:** In basic it is square wave inverter, but at low load conditions the circuit in this type of inverters cuts some part of the square wave, Good for Bulbs. Not good for other appliances like Tube light, LED Light, Fans, coolers and and motors etc.
- **Micro Controller Based Pure Sine Wave:** Inverters are not pure sine wave as they claim it is. It gives low battery backup and it is very costly. Also these inverters create a very irritating high frequency noise which is very much disturbing..
- **DSP Based Pure Sine Wave :** This is the world's latest technology Inverter manufactured by Lento. This inverter is having all the advantages of Sign wave Inverter with backup time equal to square wave inverters. It creates no sound in load and in inverter. This gives exact replica of A C mains which is best suited for all kind of electrical appliances as all appliances are design to operate on this. This increases the appliances life span in terms of operation life.

Solar System

Our units are flexible, modular and scalable allowing remote deployment with minimal physics intervention due to a high degree of electronic automated monitoring and controlling processes. Stand alone system, hybrid, home units or industrial, grid tied we have a solution for every situation. Being reliable and manufactured using military grade components, our solar systems perform day in, for years with minimal maintenance.

Led Lights

LED is the light of the future and Lento has developed advanced LED lighting devices in the from of LED bulbs and LED tube lights with high lumen output, excellent reliability, durability, color rendering and affordable prices. For interior lighting we have affordable energy efficient LED light and streetlights we offer next generation high lumen high watt LED arrays in the range of 3W to 150W which includes LED bulbs, Tubelights & Street Light. Our LED lighting solutions ill save the nation a huge amount of energy and reduce green house gas emissions as well as the carbon footprint.

BLDC Motor

BLDC motors are more versatile, mainly because of their savvy in the speed and torque department. They also come in compact packages, making them viable for a variety of compact design. Typical apps include computer hard drives, mechanical-based media players, electronic-component cooling fans, cordless power tools, HVAC and refrigeration, industrial and manufacturing systems, and direct-drive turntables.

Another advantage of a BLDC motor is that it can be made smaller and lighter than a brush type with the same power output, making the former suitable for applications where space is light

Because a BLDC motor dispenses with the brushes -- instead employing an "electronic commutator" -- the motor's reliability and efficiency is improved by eliminating this source of wear and power loss. In addition, BLDC motors boast a number of other advantage over brush DC motor and induction motor, including better speed versus torque characteristic; faster dynamic response; noiseless operation; and higher speed ranges.

Traditionally, ferrite magnets were used to make the permanent magnets, While these magnets are more expensive, they generate greater flux density, allowing the rotor to be made smaller for a given torque. The use of these powerful magnets ia a key reason why BLDC motors deliver higher power than a brush-type DC motor of the same size.

Moreover, the ratio of torque delivered relative to the motor's size is higher, making it a good choice for applications such as washing machines and EV's where high power is needed but compactness and lightness are critical factors.

Manufacturing Facility

Lento boasts of state of art manufacturing facilities in a modular and well organized workflow environment. We have well organized sections segregated into.

- Input section where components are received and batch tested;
- PCB design and manufacturing section where our engineers use CSD stations to design PCBs and these are later translated to PCBs. We use only glass epoxy boards for high reliability;
- Assembly section with pick and place equipments for SMT and SMD, and wave soldering units in a highly automated, high speed process that gives us high production capabilities with consistencies and reliabilities into the process. This is the heart of our manufacturing unit producing populated PCBs for solar systems, for inverters, UPS, SMPS and LED lights. We have opted for SMT and SMD resistors, capacitors and chips for compact form factor, fast manufacturing and high reliability as cost efficiency.
- Quality check division to check sup-assembly boards.
- Sheet metal unit where outer cabinets are manufactured and powder coated for long life.
- Final assembly and test section where each product undergoes 24 hour burn, overload, temperature and humidity tests according to international norms before being passed for dispatch.

Quality Consciousness

Sourcing Quality Management

"Quality is our **Passion** &
Quality is our **Business**"

Each of our products is made up of hundreds of components, majority of them sourced from reputed vendors. Still, we have our own stringent system of rigorous checks and instruments that will detect flaws in components. Our aim is to achieve zero defect and it starts with checking parts and components at source, not at the assembled stage.

Here at Lento we are of the firm belief that if be take care of quality at the source, half of the work is done and that too in an easy manner since it is easy to check components before fitting into circuit board rather than try to identify faults afterwards. Hence, our rigorous focus on checking each component at source to ensure fail safe performance.

In-House Production Quality

Our in-house production quality plan is simple and fool-proof because it is detailed and without compromises. We take lot-wise samples, check for all parameters and pass only assemblies that conform to specs. Only if samples pass stringent physical, electrical, mechanical and electronic tests are the final products approved for dispatch.

In-Process Quality Management

Production comprises number of stages. Only those components that are approved go into process. Here too, each sub-assembly is tested for all parameters using human intervention and specialized tools and equipments developed for that purpose. Only if a sub-assembly passes the tests is it approved for onward process. if faults are detected production people receive full report and our R&D is also involved in order to detect and root out such flaws for future batches.

Final Product Quality Management

The final product, whether it is a small inverter or a complex, digital, microprocessor controlled UPS or power plant, undergoes the 24 hour bourn in test only once it passes the test for all parameters. Products are test.

Solar Hybrid System

Solar Hybrid Home Inverters (PCU-LKVA)

Solar Hybrid Systems (PCU) are ideal in case of higher loads. The Hybrid Solar System feature a bank of solar photo voltaic modules tied to a bank of batteries with a controlling interface. The controlling interface is the critical component here. Lento has designed a superior computerized digital controller with these features:

Convenience

Solar Hybrid DSP uses both Solar Power as well as A.C. Mains for charging the battery bank according to priority settings which provids the users uninterrupted power supply always.

Salient Features

- Smart load sharing compatibility.
- Inbuilt Solar Charge Controller with high charging current
- Three stage solar charging (TSSC), suitable for all type of battery charging .
- PV availability, battery charging from solar power indication with display on LCD.
- Deep discharge battery charging from A.C. Mains as well as solar .
- Battery type charging selection (Tubular /Flat /SMF/GEL)
- Duel Modes of operation (EC/NC)
- Smart grid charging with Enable/Disable option.
- User selectable UPS and Normal Mode.
- Resettable AC circuit breaker which reduce service calls.
- Compatible with D.G. sets.
- Protections against short-circuit ,Mains Fuse Trip , Overload, Reverse Phase, Low Battery, Reverse Battery and Over Temperature (With proper indications with buzzer as well as display on LCD available).
- User friendly, feather touch control and selection switches with LED indication on front panel.
- Battery charging even at low voltage.
- External D.C. Fuse (Easy to replace).

700VA | 900VA | 1100VA | 1600VA | 2100VA

SOLAR HYBRID SYSTEM

Technical Specifications

Model name	700VA 12 V DC	900VA 12VDC	1100VA 12V DC	1600VA 24V	2100 VA 24 VDC
System rating (Name Plate)	700	900	1100	1600	2100
Full Load Input Current ±2A	<45Amp.	<55Amp.	<65Amp.	<50Amp.	<63Amp.
Operating DC voltage	12	12	12	24	24
PV Input voltage max Voc	25	25	25	45	45
Maximum Solar array power	500	500	500	1000	1500
Max PV modules of 150/250/300Wp	2	2	2	4	4
Parallel strings	2	2	2	4	4
Max current rating of SCC	40 Amp DC				
Efficiency of SCC	>90 %				
Type of Control	PWM				
Nominal Output voltage in inverter mode	220V ± 7V V AC				
Output supply phases	Single				
Nominal Frequency (in inverter mode)	50 ± 1 HZ				
Output voltage regulation	195 -220 V				
Output THD (v) at linear loaad	<5%				
Creast Factor	3:01				
Overload capacity 125%	6 (6 Retry)				
Cooling Fan ON at temp	60 (or 45% of rated Load or Solar I>15A) °C				
Cooling Fan Off at temp	55 (or 40% of rated Load or Solar I<10A) °C				
Battery low voltage cut per battery	10.5 ± 0.1 (With 4 Retry)				
Batter low cut recovery per battery through Solar	12.7 ± 0.1 (or Mains or reset swich on front panel)				
Max Battery charging voltage by Grid per battery	"14.4 ± 0.1 Settable for Tub-14.4V/28.8V, GEL-14.2V/28.4V, SMF-14.2V/28.4, Flat-14.2V/28.4V Settable for Tub-13.8V/27.6V, GEL-13.8V/27.6V, SMF-13.8V/27.6, Flat-13.6V/27.2V"				
Max Battery charging current by Grid in Hi/Lo option	"16/12 ±2A Settable for Tub-12/16A, GEL-10/16A, SMF-10/14A, Flat-14/10"				
Max Battery charging voltage by Solar per battery	"14.4 ± 0.1 Settable for Tub-14.4V/28.8V, GEL-14.2V/28.4V, SMF-14.2V/28.4, Flat-14.2V/28.4V Settable for Tub-13.8V/27.6V, GEL-13.8V/27.6V, SMF-13.8V/27.6, Flat-13.6V/27.2V"				
Battery High cut with Alarm per battery	14.8±0.1 VDC				
Battery High cut Recovery per battery	14.3±0.1 VDC				
Max Battery charging current by Solar	20±2A VDC				
Max Charging current to battery by Solar+Grid	20±2A VDC				
Grid low cut voltage (IT load/Normal load)	180/100 ± 10 VAC				
Grid low cut voltage recovery (IT load/Normal load)	190/110 ± 10 VAC				
Grid high cut voltage (IT load/Normal load)	265/280 ± 10 VAC				
Grid high cut voltage recovery (IT load/Normal load)	255/270 ± 10 VAC				
Grid charging Enable/Disable	yes				
Selection of UPS Load/Normal Load	yes				
Selection of Operating Mode	"HC-Charging current = 20A ±1A Solar + Mains till battery boost voltage with maximum Solar Sharing. System will not be disconnect Grid in any case EC-Charging current= 20A ±1A Solar + Mains till boost voltage, System will cut off the mains when battery voltage reaches boost voltage level and output load is transferred to Solar + Battery and Grid reconnected <=11.8V/11.2V per Battery"				
Output Voltage at No load at rated Battery voltage	220 VAC				
Noise @ 1 meter	<50 DB				
Protections	Overload, Battery Deep discharge, Battery Overcharge, Short circuit (1retry),Battery Hi, PV Reverse, Over Temp				
Display parameters	"PV Current, Battery voltage, Mains voltage, UPS ON/OFF, UPS Mode, Symbol of sun (Smily) if solar available, (non smily symbol in absence of solar), Load percentage (0 to 150%), over load, short ckt, fault, battery low, over temp, PV reverse, Fuse trip, (Customised LCD)"				
Indication	Manis status, Mains Charging, Solar Charging, Tast switch Status				
Operating Temperature range	0-50				
Storage Temperature range	0 +65				
RH	95				
Front panel details (MCB, Display, Selection switch etc)	Display with tact switch				
Rear panel details (MCB, Terminals etc)	O/P socket,fuse,mains & batt. Cable and fan				
Enclosure protection	20				
Changeover time from inverter to mains in UPS mode	<10 Msec				
Changeover time from mains to inverter in Normal mode	<40 Msec				

WEIGHT & DIMENSIONS

Dimensions	342x320x195mm	360x345x185mm	360x345x185mm	405x345x240mm	380x350x330mm
Net Weight	9.1Kg	9.95Kg	11.2Kg	17.25Kg	19Kg
Gross Weight	9.8Kg	10.80 Kg	12Kg	18.6Kg	21Kg

Technical Specifications can be changed without prior notice.

Solar Hybrid Industrial Inverter (pcu)

Our Solar Inverters (pure sine wave are much perfect for hybrid solar system. It has inbuilt sine wave inverter and PWM solar charger/SMPS charger in a single unit. It is specially designed to keep battery healthy for longer time period.

Convenience

Solar Hybrid DSP uses both Solar Power as well as A.C. Mains for charging the battery bank according to priority setting providing the users availability of uninterrupted power supply.

Salient Features

- User friendly Wide LCD display for battery user interface.
- Smart Load sharing compatibility.
- Monitoring/data logging feature for better system information at user end (optional)
- Selectable charging current with high charging (HI) and Normal Charging (Low).
- PV availability, battery charging from solar power indication with solar power priority
- User friendly, control and selection switches with LCD indication on front panel
- Protections such as Mains MCB Trip, Overload, Short circuit, Battery low, over temperature indication with buzzer as well as display on LCD available
- Power Saving through No Load Shutdown Feature
- Maximum Solar Power Utilization during charging and backup mode
- PV pole reversal protection indication on LCD
- Deep discharge battery charging from A.C. Mains as well as Solar
- No humming Noise (Silent UPS)
- AC Mains available, battery charging/charged and it voltage indication provided on LCD display

2.5KVA | 3 KVA | 3.5 KVA | 5 KVA | 7.5 KVA | 10 KVA

Also Available in **SNMP & GPRS** (Simple Network Management Protocol)

SOLAR HYBRID INDUSTRIAL INVERTER (PCU)

Technical Specifications

System Capacity	2.5KVA		3.5KVA	5KVA	7.5KVA	10KVA
Max PV Panel Power	2500W	2500W	3500W	5000W	7500W	1000W
Battery Voltage	36V	48V	48V	48V/96V	96V/120V	120V/192V
No Load Current			≤2.2A			
Output Voltage @ No Load			220V±5V		230V±5V	
Output Voltage @ Full Load			195V-220V		210V-230V	
DC Current @ Full Load	<63A±2A	<46A±2A	<63A±2A	<102 & 46A±2A	<76 & 53A±2A	<66A & 55A±2A
Output Frequency			50HZ±1HZ			
Solar Charger Type			PWM			

UPS MODE

Low Cut Voltage	180V±10A
Low Cut Recovery	9V–12V HYSTERSIS
High Cut	260V±10V
High Cut Recovery	9V–12V HYSTERSIS
Charge Over Mains to UPS	<=10ms
Charge Over UPS TO Mains	<=10ms

NORMAL MODE

Low Cut Voltage	100V±10A
Low Cut Recovery	9V–12V HYSTERSIS
High Cut	280V±10V
High Cut Recovery	9V–12V HYSTERSIS
Charge Over Mains to UPS	<=50ms
Charge Over UPS TO Mains	<=10ms

CHARGING MODE (HC/QC)

Max Charging @ Mains Only	20A±2A
Max Charging @ Solar Only	30A±1A
Max Charging @ Solar + Mains	25A±1A

Solar + Mains Charging Current Adding in HC Mode, Max charging current below 13.7V Battery voltage; above 13.7 Battery Voltage charging current i

CHARGING MODE (NC/EC)

Max Charging @ Mains Only	20A ± 2A
Max Charging @ Solar Only	30A ± 1A
Max Charging @ Solar + Mains	25A ± 1A

Mains Charging Current will be zero if solar current is >13A, Max charging current below 13.7V Battery Voltage; above 13.7V Battery Voltage, charging current is 15A±1A, system will cut off the mains when battery voltage reaches Boost voltage level and Output load is transferred to Solar + Battery Power.

BATTERY CHARGING VOLTAGE

Boost Voltage	14.4V ± 0.2V / Battery
Float Voltage	13.7V ± 0.2V / Battery

PROTECTION

Over Load Protection, Battery Low Protection, Over Temperature Protection, Short Circuit Protection (Battery Mode),PV Reverse Protection	Yes
Over Load Warning	Yes
Battery Low Alarm	Yes
Over Temperature Alarm	Yes
Short Ckts (Mains Mode)	Mains MCB Trip
Short Circuit Retry (Battery Mode)	Yes
Mains MCB Trip/Fuse Trip	Yes

* All Protections are resetable through PCU Switch & Mains.

* Above mentioned specifications are subjected to change as per development without prior notice.

WEIGHT AND DIMENSTIONS

With Packaging LxWxH in mm	470x440x610	470x440x610	470x440x610	500x495x660	600x500x740	600x500x740
With Out Packaging LxWxH in mm	310x290x450	310x290x450	310x290x450	350x300x540	550x350x660	550x350x660
Net Weight	32	32	32	54	78	89
Gross Weight	39	39	39	58	89	100

Technical Specifications can be changed without prior notice.

MPPT Solar Hybrid Inverter (PCU)

MPPT Solar Inverters are a next generation solar inverters, High efficiency MPPT technology ensure 20 % to 30% more solar power harvesting from the same capacity solar panels as compare to other technology. Its state-of-the-art design and intelligent control optimizes the yield of all PV installations in residential, offices, rural and other remote installations with very poor or no grid availability.

It consists of MPPT based solar charge controller and bi-directional inverter with transformer on the AC side. Transformer based design makes our inverter more rugged and reliable in verse grid input conditions. It provides uninterrupted pure sine wave power at the load output using solar, battery and grid input in customizable order of priority.

Latest DSP based control ensures excellent performance and protection from any kind of malfunction.

The high conversion efficiency helps in longer battery backup. Ease of operation and Plug 'N' Use type of design make it the ideal product for all kinds of users.

Salient Features

- Intelligent Charging Algorithm to increase Battery Life
- MPPT based State-of-the-art Latest technology for Optimum Performance
- Smart solar charging current sharing when mains is available
- DSP based automatic battery level management
- Compatible with Inverter load as well as UPS load
- Priority selection option Solar/Battery/Grid.
- Bypass switch for manual Operation
- Protection Inverter Batt. Low, Batt. High, Overload, Short circuit,Over temp, PV reverse,MCB Trip/Fuse Trip.
- Solar Mode Selection The "SOLAR MODE" selection will have three options - SBG (Solar-Battery-Grid) , SGB (Solar-Grid-Battery) and GSB (Grid-Solar-Battery). While the selected type is displayed, on pressing "CHANGE" button will alternate between the available options in the order listed above. Default value "SBG".
- Grid Reconnect Voltage mode in Solar Power Saving Mode (SBG or GSB)
- While "Grid Reconnect voltage" setting is displayed, pressing the "CHANGE" button will change voltage Grid Reconnect voltage will have options "11.8" OR "11.5" as displayed above. Default value "11.8".

Advance Battery Management for longer battery life and prevent battery from overcharging

1KVA | 1.4KVA | 2KVA | 3KVA | 3.5KVA | 5KVA | 7.5KVA | 10KVA

MPPT SOLAR HYBRID INVERTER (PCU)

Technical Specification

Model/Capacity	1450VA 24VDC	2KVA 24VDC	3.5KVA 48VDC	5KVA 48V DC	5KVA 96V DC	7.5 KVA 120VDC	10 KVA 192VDC
OUTPUT PARAMETERS							
Voltage Regulation	220±7V AC	220±7V AC	220±7V AC	220±7V AC	220±7V AC	230±7V AC	230±7V AC
Frequency Regulation	50Hz ± 1 Hz	50Hz ± 1 Hz	50Hz ± 1 Hz	50Hz ± 1 Hz	50Hz ± 1 Hz	50Hz ± 1 Hz	50Hz ± 1 Hz
Output Waveform	Pure Sine Wave	Pure Sine Wave	Pure Sine Wave	Pure Sine Wave	Pure Sine Wave	Pure Sine Wave	Pure Sine Wave
Crest Factor	>3:1	>3:1	>3:1	>3:1	>3:1	>3:1	>3:1
Inverter Voltage	24V DC	24V DC	48V DC	48V DC	96V DC	120V DC	192V DC
Maximum panel Voltage (Voc)	80V DC	80V DC	150V DC	150V DC	360V DC	360V DC	720V DC
Panel Power	1000W	1000W	2000W	2000W	5000W	7500W	10000W
Charge controller current (Max.)	50A		50A		50A		
Inverter efficiency			85%				
Charger Efficiency			90%				
INPUT MAINS PARAMETERS							
Normal mode parameter							
Input supply	100V-280V AC ±10V AC						
Change over time	<40mS						
UPS mode parameter							
Input supply	180V-260V AC ±10V AC						
Change over time	≤10 ms						
CHARGING PARAMETERS							
Dual mode charging current control /SOLAR Charging	Charging Current @ 220V AC -13A±1Amp Solar Charging Current 50A±1Amp Max			Charging Current @ 220V AC -13A±1Amp Solar Charging Current 50A±1Amp Max			
Battery low voltage cut per battery	10.5 VDC ± 0.1 (4 Retry)						
Batter low cut recovery per battery through Solar	12.7Vdc ± 0.1 (Or mains and Front Switch)						
Max Battery charging voltage by grid per battery	14.0 Vdc±0.1V						
Selection of Operating Mode	EC-Charging current= (10A Solar + Mains) or (10-20A Only from Solar) till boost voltage, System will cut off the mains when battery voltage reaches boost voltage level and output load is transferred to Solar + Battery and Grid reconnected <=11.5V per Battery. QC-Charging current = (10A Solar + Mains) or (10-20A Only from Solar) till battery boost voltage with maximum Solar Sharing. Sysyem will not be disconnect Grid in any case SC-Charging current = (10A Solar + Mains) or (10-20A Only from Solar) 1. Mains Cut when Solar >=15A and Battery Voltage Should be >12V 2. Mains Connect When <10A or Battery voltage <=11.5V and disconnect mains when battery reach >12.0V per battery.						
Noise @ 1 meter /dB	<50						
Protections	Batt. Low, Batt. High,Overload, Short circuit,Over temp, PV reverse,MCB Trip/Fuse Trip						
LCD Display parameters	PV Voltage,PV Current,Solar Power,Energy, Battery voltage, Mains voltage,Mains Frequency, Output Voltage, Output Frequency, PCU on-off, UPS Mode on-off,SOlar Mode, Solar On-off, Load percentage (0 to 150%), Load status (on solar, battery or grid), Charging status, overload, short ckt, battery low, over temp, PV reverse, MCB trip (20X4 Graphical LCD Yelloe-Green Backlight)						
Operating Temperature range °C	0-50						
Storage Temperature range °C	'0 +65						

WEIGHT AND DIMENSTIONS

With Packaging LxWxH in mm	410x280x250	410x280x250	535x360x480	535x360x480	610x390x560	600x500x740
Net Weight	18	22	32	54	78	89
Gross Weight	20	24	39	58	89	100

Technical Specifications can be changed without prior notice.

Solar Home Lighting System

Lento has designed its solar home lighting system to give maximum lumen output,be maintenance free and have an extremely long life. it is very simple in construction and easy to deploy. The SPV module has a built in support and users can place it anywhere on the terrace where they receive sunlight for at least 5 to 6 hours. Wires from these connect to the controller unit that also has connections to two LED luminaries and an output socket which can be used to power other devices.

Lento solar home lighting systems use high efficiency solar photovoltaic modules with a small footprint. High efficiency, high lumen white LEDs are used in the luminaries to give higher lumen output but at substantially lower power consumption in comparison to CFL. This means a smaller solar panel and smaller battery can be used at a lower cost for the same duration of light output from the system. It is also lower in cost.

Benefits	Typical Applications & Uses
Easy to install.	Lighting for homes, shops, banks, clinics, corridors etc.
No Electric Connection Requied, No electric Bill	

Salient Features

- System is completely shock proof due to low voltage circuitry.
- Short circuit protection.
- Safe and easy to install.
- Free from noise,smoke and pollution.
- Required very little attention.
- Possible to expand the system in future
- Available in different configuration.
- Mobile Charging (Optional)
- FM Radio (Optional)
- Night Lamp (Optional)
- Digital Battery Status (Optional)
-

Product Range

LED SOLAR HOME LIGHTING

	LSHL - L01	LSHL - L02
Type of Luminary	LED	LED
LED Lamps	3W X 1	3W X 2
DC Fan	Optional	Optional
Solar Module (wp)	10	20
12V Battery (AH)	7	12
Recommended hourse of charging at full sun shine (1Kw/m2irradiance) for daily usage of 4 hours	3	3.5
Maximum autonomy days,assuming 4 hours per day	3	3
Maximum continuous backup (hours)	14	14

Solar Panels

Lento solar panels are manufactured under conditions with rigorous tests to ensure performance and rated performance over rated life.We use high efficiency polycrystalline silicon calls and the latest in bonding techniques to interconnect cells followed by vacuum sealing and affixing to frames resulting in compact construction, space savings with corresponding higher output of power. The result is a panel that withstands climatic conditions and performs efficiently over its rated life of 25 years with only a drop of 5 to 10%

Salient Features

- Tempred water white glass plate, extruded aluminium frame for industry standard fitment, vacuum sealing using UV resistant encapsulating resin and EVA sandwich to conform to MNRE and international specifications
- IEC 61215, ISO 9001 and ISO 14001:2004 complied
- Polycrystalline calls
- More Energy Efficient UV Resistant thermo setting plastic
- Encapsulate ethylene vinyl acetate, cushions the solar cells within the laminate and protects the cell due to harsh weather conditions.
- The high strength polymer sheet protects the rear surface from ingress of moisture and mechanical damage.

Technical Specification of Solar Panels

Power (Pm) in Watts (nominal)	100 (0±3%)	150 (0~+3%)	250 (0~+3%)	300 (0~+3%)	320 (0~+3%)
Open Circuit Voltage (Voc) in Volts	22	22	44.5	44.5	46.5
Short Circuit Current (Isc) in Amps	6	8.8	8.7	8.7	9
Voltage at Maximum Power (Vmp) in Volts	18	18	36	36	38
Current at Maximum Power (Imp) in Amps	5.55	8.33	8.2	8.2	9
Maximum System Voltage 1000V 1000V	1000V	1000V	1000V	1000V	1000V
Solar Cells per Module (Units)	36	36	72	72	72
Length x Width x Thickness (L x W x T) mm 100x665x35		1480X665X35	1645X990X35	1745X990X35	1745X990X35
Weight – Kg	9	12.5	18	22	24
9 Mounting Holes Pitch (Y) – mm 510 510	510	740	1000	1000	1000
Mounting Holes Pitch (X) – mm	633	633	958	1159	1220
Area – Sq. M	0.68	0.98	1.63	1.89	1.89
Junction Box	3T/2T	3T	IP65 4T With Play & Plug connectors	IP65 4T With Play & Plug connectors	IP65 4T With Play & Plug connectors

Note : All Specifications Are Subject To Change Without Prior Notice

Renewable Energy Management

Solar Charge Controller (PWM/MPPT Type)

MOSFET based solar charger incorporates circuitry that senses battery voltage. If voltage falls below a certain value the MOSFET switches on through the PWM controller that delivers pulsed power. As battery begins to charge up the power to it progressively reduces and when the battery is fully charged the circuit switches off delivery of power to the battery keeping it in full stand by condition. This circuitry also prevents over charge of battery that can lead to loss of electrolyte. It work unattended and is simply to operate as well as maintain, with the least part count

Salient Features

- Designed for fool-proof installation even by mechanics with minimum training
- Protection from reverse current flow battery to solar array during night
- Self diagnostics and inbuilt protection features to prevent damages by incorrect terminations, system shorts or connections
- MOSFET based series PWM/MPPT charging technology for improved battery life and maximum performance
- Automatic detection of system voltage
- Use of MOSFETs avoids the use of mechanical relays that are prone to failures
- Can be adapted to charge gel, tubular or flooded battery types
- Inbuilt temperature detection and compensation for the battery to maintain battery life
- Over charging protection, overheating protection, over discharge protection and overload protection
- Reverse polarity protection
- Potentially increase the charging efficiency by 30% in MPPT based product.

Product Range

Available from 10 Amps continuous charging current to 60 Amps to suit different SPV array and battery configurations from 12 to 192 VDC

Lead Acid Solar Tubular Batteries

Lento uses premium technology and high grade materials in these lead acid tubular batteries to deliver maximum power for extended durations and have an appreciably longer life span. These batteries are specifically suitable for powering up UPS and inverters.

Lento flooded lead acid batteries are environment-friendly, highly reliable in performance and are low in cost. Here again our extensive research and development wing has hepled us create batteries customized to suit indian operating conditions. These flooded batteries are perfect for use in battery powered vehicles and to power inverters as well as for telecom use.

Salient Features

- Specially mixed corrosion resistant alloy for spins & gride.
- Tubular gauntlets of high brushing strength with high performance for positive plates.
- Low maintenance battery
- Specially designed vent plugs to trap electrolyte loss
- Good recovery from deep discharging.
- Long shelf life when left unattended for extended periods
- Long life cycle

LEAD ACID SOLAR TUBULAR BATTERIES

Technical Specification

Models	Capacity at 27 deg C When discharged at (C20 upto 1.75 VPc 1.280)	Dimension (±3MM)			Weight (Kg±5%)		Volume of Electrolyte (1.220 Sp. Gr)	Intial Charge Minimum AH Input (AH)	Initial Charge at Constant Current (A)		Constant Potential Limiting Current (Amps)	Tricle Charge Current in (mA)	
		Length	Width	Height	Dry	Filled	Liters		Start (Upto 2.3Vpc)	Finish (Upto 2.75 Vpc)		Min.	Max.
LSTB 8000	75 AH	504	218	254	18.3	32.5	14.5	7.5	3.7	265	12.5	65	260
LSTB 12000	100 AH	504	218	254	19.3	34	14	10	5	350	16.7	85	350
LSTB 14000	120 AH	500	187	416	28	54	20	12	6	420	20	105	420
LSTB 16500	150 AH	500	187	416	31	57	19.5	15	7.5	525	25	130	520
LSTB 20000	180 AH	500	187	416	35.5	60	19	18	9	630	30	155	625
LSTB 22000	200 AH	500	187	416	38.5	63	19	20	10	700	33.5	175	695
LSTB 24000	220 AH	500	187	416	41.5	66	18	22	11	770	36.6	190	765

* The height mentioned is upto terminal top

Initial Charging Instruction For Dry Charge Battery

1. Filling in specific Gravity 1.220 ± 0.005 at 27 deg C
2. Rest Period 12 hrs
3. In order to reduce the charging time, the following route may be adopted

   For LI 7500 The initial 2.36Vpc charging current may be 7.5A upto followed by 3.7A upto 2.75VPC

   For LI 10000 The initial 2.36Vpc charging current may be 10A upto followed by 5A upto 2.75VPC

   For LI 12000 The initial 2.36Vpc charging current may be 12A upto followed by 6A upto 2.75VPC

   For LI 15000 The initial 2.36Vpc charging current may be 15A upto followed by 7.5A upto 2.75VPC

   For LI 18000 The initial 2.36Vpc charging current may be 18A upto followed by 9A upto 2.75VPC

   For LI 22000 The initial 2.36Vpc charging current may be 22A upto followed by 11A upto 2.75VPC

Condition Of Fully Charged

A) 3 consecutive hourly reading of specific gravity and voltage become constant

B) Top of charge voltage will be around 16.2V - 16.5V

C) All Cells should be gas freely

D) Minimum Ah has been given

5. Specific Gravity at fully Charged condition 1.240 +- 0.005 at 27 Deg C

PRODUCT FEATURES

- Long shelf life when left unattended for extended periods
- Pasted Negative Plates
- Tubular Positive Plates
- Acid Resistant Polyester Gauntlets
- High Porosity Envelope Separators
- Micro porous Ceramic Vent Plug

PRODUCT BENEFITS

- Long design life
- Very low maintenance
- Can handle extreme weather conditions
- Rugged Performance
- Longer life without charging
- More efficient and saves money

Sealed Maintenance Free Batteries

Lento SMF batteries differ from traditional gel base SMF batteries in that the same charging system without modification of current or voltage can be used as one uses for charging flooded batteries. At the heart of lento SMF technology is the use of special grade fine fibre high density glass mats with a high degree of porosity. in addition, these batteries have a longer than usual service life, consistent current and voltage delivery, deep discharge capability and the ability to supply high rush of starting current in case of inductive loads. Charging is easy, using traditional flooded acid battery charger thus saving on cost of recalibration or purchase of specialized charger for the SMF battery.

Salient Features

- Specially mixed corrosion resistant alloy for spins & gride.
- Tubular gauntlets of high brushing strength with high performance for positive plates.
- Low maintenance battery
- Specially designed vent plugs to trap electrolyte loss
- Good recovery from deep discharging.
- Long shelf life when left unattended for extended periods
- Long life cycle

PRODUCT SPECIFICATIONS

Model	Nominal Voltage	Rated Capacity @ C20 at 27OC (10.50 EBV)	Dimentions (mm)			Weight (Kgs ± 5%)
			Length (± 5mm)	Width (± 5mm)	Height (± 5mm)	
LSB 42-12	12	42	198	167	175	13.5
LSB 65-12	12	65	350	167	190	22
LSB 80-12	12	80	307	169	240	23
LSB 100-12	12	100	330	173	222	29
LSB 120-12	12	120	406	171	240	35
LSB 150-12	12	150	485	170	240	45
LSB 200-12	12	200	522	240	220	62

Electrolyte	Immobilized H_2SO_4
Positive Plate Alloy	"Arsenic and Cadmium Free Pb-Ca-Sn Alloy
Positive Plate Type	Flat Pasted
Type of Connection	Bolted
Type of Separator Material	Absorptive Glass Mat
Container Material	"ABS"
Recommended Charging Method	Constant Potential
Shelf life at 27° C	6 Months
Self Discharge	<1% per week
Float Charge Voltage	13.5V - 13.62V
Boost Charge Voltage	13.8V - 14.1V
Charging Time from 20% SOC TO 90% SOC	6-8 Hrs
Operating Temperature Range	"0° C to 50° C"
Design Life at 27° C	10 Years
Cyclic Service Life (@27° C)	
At 20% D.O.D	2100 Cycles
At 50% D.O.D	850 Cycles
At 80% D.O.D	400 Cycles
Product Performance Conforms to	JIS C 8702

* Technical Parameters are Subject to Change due to Continuous improvements and R&D

Solar Power Pack

Lento Solar Power Pack – Utilize with three white LED Luminary (One 5 Watt and Two 3 watt) , one DC ceiling fan 25 watt and mobile charging plug point .

Salient Features

- An energy efficient controller for rural/urban solar charging system.
- Low Power Load Controller and MPPT solar charger in a single Unit.
- Perfect solution for urban and rural requirements.
- Keeps battery healthy for longer period.
- Optimum utilization of Solar Power.
- Works on both Solar and AC mains power.
- Wide LCD display with USB mobile charger.
- Provision for Temperature Compensation.
- Low PV to Battery Drop.
- Protected against over load, short circuit, battery deep discharge, over charge and reverse flow conditions
- In-built AC mains battery charger and Solar Charge Controller with temperature compensation

Electrical Specification

S.N.	Parameters	Specification
1	Operating Battery Voltage	11.0~15 VDC
2	Quiescent Current(NLC)	<20mA
3	Full Load Battery Current	4A
4	Battery Low Trip	11.1 ± 0.2V
5	Rated Current MPPT	10± 1A
6	Operating Mains Voltage	100~280Vac
7	Rated Current Mains	5± 1A
8	Charging Current (Mains + PV)	10± 1A
9	Max. DC Load	45W
10	Load Sharing when MPPT current increase mains charger current decrease respectively	Should be ok
11	Mobile Charging	Should be ok
12	Load Reconnect	12.5V
13	Overload retry	3 Nos
14	Battery Boost Voltage	14.4±0.2V
Protection		
15	Overload	>45W
16	Short Circuit	Should be ok
17	PV Reverse	Should be ok
18	All protection reset by switch	Should be ok
Visual LED Indication	LED	Indication
1	Green	PV Charging
2		Press(Glow)
3	Red	Battery Low
4	LCD Back Light On	Press(Glow)
5	PV Voltage	Should be display
6	PV Current	Should be display
7	Battery Voltage	Should be display
8	Charging status in %	Should be display
9	Charging Current	Should be display
10	Load Voltage	Should be display

Technical Specifications can be changed without prior notice.

Solar LED Street Lighting Solution

Concerns over global climatic change, local air pollution and resource scarcity make photovoltaic (PV)an increasingly attractive energy supply technology, the sun being an in-exhaustive, reliable, non -polluting source of power. Using solar energy with LEDs instead of CFL provides a very efficient solution. Solar powered outdoor lighting products are ideal for lighting the area in remote locations where the electricity is unavailable or erratic. Even in urban areas, solar led street lights find great usage to reduce dependency on conventional power and contribute towards green energy. Reliable and long life makes this solution effective in fulfilling our present and future lighting requirements.

Salient Features

- No line voltage, trenching, or metering
- No power outages
- Independent power and light source- no two systems are connected, hence no single point of failure.
- Easy to install
- No maintenance except for the battery
- Better and long life light source - LED lights feature white light without flickering and instant on.
- Safe 12/24 volt circuit, no risk of electric shock.
- Self -contained solution light on/off controlled by automatic daylight sensing.
- Battery backup for cloudy or rainy days
- Automatic dawn dusk operation (with timer-optional)
- No running cost

SOLAR LED STREET LIGHTING SOLUTION

Technical Specifications

Luminary Rating	7W	10W	12W	18W	20W	30W	40W	50W	60W
LED Type	Chip led 1.2W 3030 OSRAM								
No. Of LED	12	15	21	27	30	48	60	75	90
Wattage ±5%	7W	10W	12W	18W	20W	30W	40W	50W	60W
Type	W-LED								
Luminous efficacy	> 100 Lumen /Watt								
Color temperature range	5500°K-6500°K								
Life time	50,000 hrs								
Colour rendering index	> 80								
Viewing Angle	120°								
Charge controller type	Microcontroller based MOSFET drive PWM								
Charge controller rating ±0.5A		6A			10A		15A		
Charging efficiency	> 90%								
Auto dusk to down	Provided								
Auto dimming	5.30 ~ 6 Hour								
Lighting quality	Uniform illumination , free fom glare and flickering								
Working temperature	−20°C to 55°C								
Humidity	35 to 85% RH								
Temperature Compensation	Provided								
Load regulation	< 2%								
Material	ADC12 Alluminum alloy PDC housing								
Diffuser	Poly carbonate (PC) /Glass								
Gasket	Silicone gasket								
IP rating	IP65								
Low Voltage cut off ±0.2V	11.1V								
Load reconnect ±0.2V	12.5V								
Protection	Reverse current flow through the PV module Provided,Open Circuit Protection,Short circuit protection for LED drive,Battery Reverse polarity protection, SPV Module Reverse polarity protection,Battery charging current limit, Surge protection								
Green LED	Blink in charging & contunuous on when charged								
Red LED	Blink when batt. Low								
Fault	Green and RED led Continuous ON								
Light output in Lux 4 mtr.	Min 16 Lux measured at the periphery of 4 meater diameter from a height of 4 meter Min 8 lux				Street lamp should have illumination not less than 0.5 Lux/Watt perpendiculars from the height of 9 m.				
Panel Power (Pmax)	40Wp	60Wp	75Wp	100Wp	100Wp	120Wp	150Wp (75Wp*2)	200Wp (100Wp*2)	200Wp (100Wp*2)
Panel Voc Max	25V DC								
Battery Type	Flooded/VRLA								
Battery Capacity C/10	30Ah C/10	40Ah C/10	50Ah C/10	75Ah C/10	75Ah C/10	100Ah C/10	120Ah C/10	150Ah C/10	150Ah C/10
Pole Detail	GI 5 Meter	GI 5 -7 Meter (Optional)						GI 5 -9 Meter (Optional)	

Technical Specifications can be changed without prior notice.

Ac Led Street Light Specification

TESTING PARAMETERS	20W	25W	30W	35W	40W	45W	60W	70W	100W	120W	150W
	General Characteristics										
LED Type	Chip led 1.2W 3030 OSRAM										
No. Of LED	35	42	49	56	63	72	91	112	150	180	210
Driver Efficiency @220V	>85%										
Rated Voltage	220V AC,50Hz										
Voltage Range ±10V	100-300V AC	100-300V AC	140-300V AC	140-300V AC	140-300V AC	140-300V AC	100-300V AC	100-300V AC	100-300V AC	100-300V AC	100-300V AC
Output Constant Current ± 20mA	700mA	700mA	700mA	700mA	900mA	900mA	700mA	700mA	700mA	700mA	700mA
PF							>0.9				
Input Current ± 20mA	100mA	120mA	150mA	160mA	185mA	205mA	272mA	320mA	430mA	520mA	520mA
Color tempature	5500-6500°K										
CRI	>70										
Lumen Efficiency (lm/w)	100										
Protection	Open circuit protection,Short Circuit protection										
Surge Protection	4.0KV										
H.V Voltage	>2.0KV										
Protection gard	IP65,Aluminium casting body										

Technical Specifications can be changed without prior notice.

Integrated Solar Street Light

Integrated Solar Street Light comes equipped with an inbuilt Lithium Ion or Lithium Phosphate battery pack. Solar Panel is external and adjustable independent of Luminary allowing for flexible orientation for optimum solar charging.

Description	9W LED	12W LED	14W LED
Solar Panel	40Wp Solar Panel Polycrystalline/Monocrystalline		
LED Light	9W LED	12W LED	14W LED
Battery Capacity (OPtion1) 2 Yr Warranty	12.8V 11AH Li-Ferro phosphate Battery		12.8V 18AH Li-Ferro phosphate Battery
Battery Capacity (OPtion2) 3 Yr Warranty		14.8 V 10.4AH Li-ion Battery	14.8 V 13AH Li-ion Battery
Motion Sensor	PIR Motion Sensor(12m Range)		
Lumen Output \Watt	130-140 Lumen/Wp		
Operation	Light will glow in full bright mode for first 4 hours, After 4 hours, Light will Dim to 33% Power and motion sensor will activate for detection of motion. If a human motion is detected in 12M area around the light, It will glow in full mode for 1 minutes, After that it will again come to 33% power.		
LED Driver Efficiency	>93.5%		
LED Light Operating Voltage Range	11-16V		
Load Cutt-Off Voltage for Battery Deep Discharge Protection	11.2 volt ±1		
Space Between pole and Pole	20mtr to 30mtr		
Product Warranty	2 Years Warranty complete System (Battery warranty 5 Year).		
Light Backup Time	Full Night		
Net Weight	13Kg Approx		
Product Dimension (L*W*H)	770*580*145		
Over Charge Protection	Provided		
Deep discharge protection	Provided		
load open & short protection	Provided		
Indication on Charging	Green LED Glow		
Indication on Battery Low	Red LED Glow		
Indication on Higher Cutt Off	Green LED Blinking		
Reverse Current Flow protection	Provided		
Temperature Compensation	Provided		
Battery reverse Protection	Provided		
Packaging Contains	Integrated light with SPV, Mounting bracket, U-clamp, Nut-bolt		

Note - We have battery option Li-ion or Li-Ferro Phosphate.
Technical Specifications can be changed without prior notice.

DSP Sine Wave Home UPS & Inverter

Our products are the outcome of passion of a few young and enthusiastic technocrats. Since its inception the company has conquered new horizons and set new standards for the industry. Cutting-edge technology international class of manufacturing facilities and total focus on quality & testing ensure that all our Inverters & UPS, give sustained trouble free performance for a long time.

Lento pioneered Pure Sine Wave technology in its Inverters, UPS and power supplies. Our Sine Wave inverters gives stable frequency and voltage, mimicking mains power supply, making it perfectly suitable power to expensive equipments, especially inductive loads which not work well on square waves.

Lento DSP Sine wave Home UPS & Inverter delivers quality output with reliable performance at a reasonable price. Lento DSP based Sine wave inverters & UPS are specialized in providing clean and stable power supply to all connected appliance and equipments.

Salient Features - Normal Inverter & Home Ups (700va -2100va)

- DSP Based Design with absolute and stable Sine Wave output voltage and frequency
- State of the art MOSFET based PWM technology with greater efficiency at lower cost with Dynamic Stability
- Over Temperature Protection
- More back-up being a Sine Wave UPS (ASIC Control)
- Three stage solar charging (TSSC) suitable for all types of battery charging..
- Deep Discharge Battery charging from A.C. Mains.
- User friendly, feather touch control and selection switches with LED indication on front panel.
- Protection such as Mains Fuse Trip, Overload, Short Circuit, Battery low, Over Temperature indication with buzzer as well as display on LCD available.
- AC Mains available, battery charging /charged and its voltage indication provided on LCD display.
- Battery type charging selection (Tubular /Flat /SMF/GEL)
- Grid charging enable /disable options which makes it fully compatible with solar.
- Selectable battery charging current (High /Low).
- Resettable AC circuit breaker which reduce service calls.
- Selectable mode for UPS/Inverter.
- External DC fuse for reverse battery protection.
- Bypass switch in case of any fault
- Comprehensive LCD Display
- Resettable A.C. fuse

Applications

- Power Back-up for House hold, Small shops, Small offices etc.
- Small Water pumps and all motor based small applications
- TV Sets, Fans, Tube Lights, computers etc.

700VA | 900VA | 1100VA | 1600VA | 2100VA

DSP SINE WAVE HOME UPS & INVERTER

Technical Specifications

PARAMETERS/CHECKS	MODELS				
Model / Capacity	700VA-12V DC	900VA-12V DC	1100VA-12V DC	1600VA-24V DC	2100VA-24V DC
Maximum No Load Current @ Full Charge Battery		≤ 2.2A		≤2.4A	≤2.2A
O/P Voltage @ No Load			220V ± 7V		
Full Load Battery Current	45A±2A	55A±2A	65A ± 2A	51A ± 2A	62A ± 2A
O/P Voltage @ Full Load			180-220V		
Over Load Protection	>46A	>56A	>66A	>52A	>63A
Battery Low Alarm			10.6 ± 0.2V		
Battery Low Protection			10.4 ± 0.2V		
Short Ckts Protection (One Retry)			OK		
INV Out Put Frequency			50.0Hz ± 0.5Hz		
UPS MODE					
Input Voltage Range			180 - 260V		
Low Cut Voltage			180V ±10V		
Low Cut Voltage Recovery			190V ±10V		
High Cut			260V ±10V		
High Cut Recovery			255 V ± 10 V		
Maximum Change Over Time			< 10ms		
NORMAL MODE					
Input Voltage Range			100 - 280V		
Low Cut Voltage			100V ± 10V		
Low Cut Voltage Recovery			110V ± 10V		
High Cut			280V ± 10V		
High Cut Recovery			270V ± 10V		
Maximum Change Over Time			< 40ms		
CHARGING MODE					
Charging Current @ 220VAC (NC)	11A ± 1A 11A ± 1A		12A ± 1A	12A ± 1A	
Charging Current @ 220vac (HC)	13A ± 1A 14A ± 1A		14A ± 1A	14A ± 1A	
Boost Charging Voltage Per Battery (HC/NC)	Settable for Tub-14.4V / 28.8V, GEL-14.2/28.4V, SMF-14.2/28.4V, FLAT-14.2/28.4V				
Float Charging Voltage Per Battery			13.6V ± 0.2V		
Short Circuit			YES		
PROTECTION					
Over Load Auto Retries			6 times		
Battery Voltage Low (Auto Retries)			4 times		

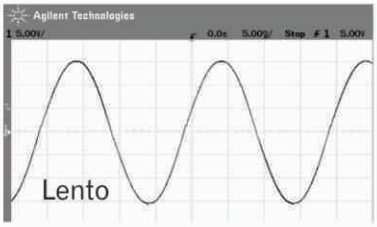
WEIGHT & DIMENSIONS					
Model	700VA	900VA	1100VA	1600VA	2100VA
Capacity	700VA 12VDC	900VA 12VDC	1100VA 12VDC	1600VA 24VDC	2100VA 24VDC
Dimensions	342x320x195mm	360x345x185mm	360x345x185mm	405x345x240mm	380x350x330mm
Net Weight	9.1Kg	9.95Kg	11.2Kg	17.25Kg	19Kg
Gross Weight	9.8Kg	10.80 Kg	12Kg	18.6Kg	21Kg

Applications

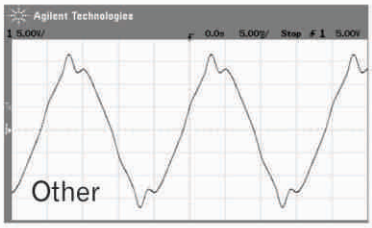
- Power Back-up for House hold as well as the computer, Small shops, Small offices etc.
- Small water pumps and all motor based small applications
- TV Sets, Fans, Tube Lights, computers etc.

Why Lento UPS is better than other Home UPS / Inverter?

A.) Output Waveform Of Inverter With Load Of 15 Tubelights

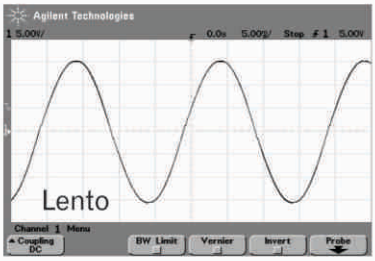


Pure Sine Wave ..Lento UPS

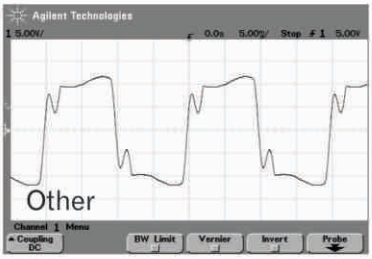


Distorted Sine Wave.. Other Brands

B) Output Waveform Of Inverter Withload Of 35 Cfls Or Energy Saving Lamps



Pure Sine Wave ..Lento UPS



Nearly Square Wave.. Other Brands

Lento DSP Based Home UPS/Inverter provides Pure Sine Wave output, whereas output of Home UPS of other brands gets badly distorted especially on normal loads like Compact Fluorescent Lamp, Tube Lights, Motors, Coolers & Computers etc.. this type of Distorted Waveform is very Harmful for all your Sophisticated Electronic Appliances.

Hence, Lento DSP based Home UPS is the preferred choice.It delivers Pure power, with Reliable Performance and at a Reasonable Price.

DPS Sine Wave Static UPS & Inverters

Most appliances like LED Bulb, Fans, motor based equipments like air conditioners and pump sets are designed to work at Sine Wave 50Hz frequency. Running such equipments on unregulated quasi sine wave-square wave based inverters poses a risk in regards with performance and durability. Lento DSP sine wave Static UPS and inverters are designed to provide stable 50Hz sine wave irrespective of load and battery voltage, making them the most suitable for inductive, capacitive and non-resistive loads. Importantly, our inverters and UPS are designed to deliver instantaneous high current during start up, especially in case of air conditioners and refrigerators, with safety cut out when battery voltage goes lower then a specified point to aviod brownouts and burning of motors.

- 2.5 KVA
- 3 KVA
- 3.5 KVA
- 5 KVA
- 6 KVA
- 7.5 KVA
- 10 KVA
- 12 KVA

Salient Features

- DSP Based Design with absolute and stable Sine Wave output voltage and frequency
- State of the art MOSFET based PWM technology with greater efficiency at lower cost with Dynamic Stability
- Over Temperature Protection
- Three stage solar charging (TSSC) suitable for all types of battery charging..
- Deep Discharge Battery charging from A.C. Mains.
- Monitoring/data logging feature for batter system information at user end through SNMP / GPRS (optional)
- Protection such as Mains MCB Trip, overload, short circuit, Battery low, over temperature indication with buzzer as well as display on LCD available.
- AC Mains available, battery charging /charged and its voltage indication provided on LCD display.
- Grid charging enable /disable options which makes it fully compatible with solar (Optional).
- Selectable battery charging current (High /Low).
- Fast change over in UPS mode makes computer compatible .
- Comprehensive LCD Display

Why Lento Static Ups Is Better Than Other Inverters ?

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

Major power Back up source in corporate offices as well as Call Centers
Computer & peripherals /office Equipment like, Scanners, Printers, Fax Machine etc.
Emergency & Mobile Power Systems
A.C and all Compressor based Applications
Petrol/Diesel Dispensing (Filling) Machines
Tread Mills & other Health Equipment in Homes/Gyms
Water Pumps and similar Motor Based Applications
All types of clinical equipments

Also
Available in
SNMP & GPRS
(Simple Network
Management
Protocol)

DSP SINE WAVE HOME UPS & INVERTER

Technical Specifications

DESCRIPTION	MODELS							
INVERTER MODEL	2.5KVA/36V & 48V	3KVA/48V	3.5KVA/48V	5KVA/48V	5KVA/96V	7.5KVA/96 & 120V	10KVA/120 & 180V	12KVA/192V
No. Load battery Current	≤ 2.2A							
Max. O/P No. Load Voltage	220V ± 5V				230V ± 5V			
Max. Full Load Voltage	220V ± 7%				230V ±10%			
Max. Load Battery Current Max.	<69 & 49Amp.	<54Amp.	<57Amp.	<106Amp.	<49Amp.	<71 & 65Amp.	<76 & 53Amp.	<62Amp.
Full Load O/P Current	8.5±0.7Amp.	9.5±0.7Amp.	10.5±0.7Amp.	17±0.5Amp.	17±0.5Amp.	27±0.5Amp.	34±0.5Amp.	38±0.5Amp.
Overload Retry	6 Times							
Output Frequency (Inverter Mode)	50.0±1.0Hz							
Batt Low Voltage Alarm	10.5V±0.2V/Batt.							
Batt Low Voltage Cut	10.0V±0.2V/Batt.							
	MAINS MODE							
Mains Low Cut	115V±10V							
Recovery	100V±10V			125V±10V		125V±10V		
Mains High Cut	110V±10V			280V±10V		135V±10V		
Recovery	275V±10V							
Change Over time (Mains to Inverter)	<50 ms.							
Change Over time (Inverter to Mains)	<10 ms.							
Battery Low Retry	4 Times							
Short Circuit, Retry	OK, 1 Time							
Permanent Short Circuit Protection	Yes							
	UPS MODE							
Mains Low Cut	180V±5V							
Recovery	190V±5V							
Mains High Cut	260V±5V							
Recovery	255V±5V							
Change Over time (Mains to UPS)	<=10 ms.							
Change Over time (Inverter to UPS)	<10 ms.							
	MAINS MODE							
Max. Charging Current	20V±2Amp.			25V±1Amp.		20±2Amp.		
Boost Charging Voltage	14.2V / Batt.							
	WEIGHT AND DIMENSTIONS							
With Packaging LxWxH in mm	490x420x560	490x420x560	490x420x560	520x480x670	500x495x660	600x500x740	600x500x740	600x500x740
With Out Packaging LxWxH in mm	310x290x450	310x290x450	310x290x450	350x300x540	350x300x540	550x350x660	550x350x660	550x350x660
Net Weight	29	32	32	54	54	78	89	104
Gross Weight	36	39	39	58	58	89	100	115

LOAD CHART*

Application	Load	2.5KVA	3.5KVA	5KVA	7.5KVA	10KVA	12KVA
Petroleum Outlet	Fan	_	2	4	5	5	5
	Tube Light	_	3	4	5	8	8
	Petrol Filling Machine	1	1	2	3	4	4
Institute	Fan Only	25	32	50	75	100	110
Browsing Centre (Type 1)	Fan	15	20	35	55	70	75
	Tube Light	10	15	20	35	40	50
	AC	–	–	1	1	2	2
	Fan	4	6	4	8	8	10
	Tube Light	4	6	4	8	8	10
	Computers	4	5	2	6	6	6
Browsing Centre (Type 2)	Fan	4	6	10	20	20	25
	Tube Light	4	6	10	20	20	25
	Computers	4	5	8	15	15	20
Corporate Bldg.	AC	–	–	1	2	2	2
	Fan	15	20	8	16	16	20
	Tube Light	10	15	8	16	16	20

APPLICATIONS

- Major power back up source in Corporate Offices as well as Call Centers
- Computer & peripherals/office Equipments like, Scanners, Printers, Fax Machine etc.
- Emergency & Mobile Power Systems
- AC and all Compressor Based Applications
- Petrol/Diesel Dispensing (Filling) Mschines
- TREADMILL & other Health Equipment in Homes/Gyms
- Water Pumps and similar Motor Based Applications
- All types of clinical equipments.

DSP Sine Wave Online UPS

Lento DSP sine wave online ups feature a wealth of advanced features. Designed for use with expensive critical electronic instrumentation, these UPS systems have a host of safety controls to ensure your devices are always protected. Lento DSP online UPS performs very well in case of mains failure, sensing of voltage fluctuations and automatic switchover, lightning guard, electrostatic protection, overvoltage and overload protection, short circuit protection and low battery protection. Lento DSP UPS are configured to be always active when power fails. At the same time the batteries are kept constantly charged through a monitoring circuit to ensure their longevity. DSP sine wave online UPS are perferred especially when they are Lento with guaranteed frequency and voltage control along with inbuilt protection features.

Lento low frequency series online UPS meets critical industry standards with its state of art digital intelligent online UPS technologies with the best power factor rating and consistently reliable performance day in and day out.

We are recognized as the foremost manufacturer, exporter and supplier of an exclusive quality array of DSP based UPS Series. Specially designed for small data centres and critical load appliances, this range is manufactured using optimum quality factor inputs. Moreover, it is made by experts that rigorously inspect this range on various parameters of quality. Available in various technical specifications this product can also be customized in accordance with performances laid by our patrons.

Applications

- Major Power back up source in corporate offices as well as call centers.
- Banks & ATMs.
- Life saving medical equipments and diagnostic labs.
- Photography and colour labs.
- Emergency Devices (Lights/Alarms)
- Fire Devices.
- Telecommunication Devices.
- Industrial Applications.
- Vital real time & process control equipment in industries.
- Aviation and broadcasting.

Also Available in **SNMP & GPRS** (Simple Network Management Protocol)

Above then 60 KVA online UPS are available with power factor control along with advance technology are available on specific requiremens.

- 1 KVA
- 2KVA
- 3KVA
- 5KVA
- 7.5 KVA
- 10KVA
- 15KVA
- 20KVA
- 25KVA
- 30KVA
- 35 KVA
- 40 KVA
- 50 KVA
- 60 KVA

Salient Features

- DSP Based double conversion topology with enhanced control over the voltage and frequency.
- In-Built requisite safety & protections like short circuit, over temp, battery Low/ High. Etc. With comprehensive display.
- Wide Input Voltage and frequency range.
- Pure Sine wave output.
- Generator Compatibility.
- (Remote) Monitoring and Auto- Shutdown software.
- Extremely Low Total harmonics distortion (<3%)
- Web, SNMP & GSM based monitoring (optional)
- Cold Start.
- LCD Display
- Ability to handle 100% phase imbalance on output while maintaining perfect balance on the input phases.

DSP Sine Wave Online UPS

Technical Specifications

Description	Single Phase					3 PhaseIn-1 Phase Out					3 PhaseIn - 3 Phase Out			
	1KVA HF	2KVA HF	3KVA HF	5KVA	7.5KVA	10KVA	7.5KVA	10KVA	15KVA	20KVA	7.5KVA	10KVA	15KVA 30KVA	40KVA 60KVA
Output Wave From	Pure Sine wave													
nominal Battery Voltage	36V DC			96V DC		180V DC		192V DC			360V DC			
Output Power Factor	0.8													
No Load battery Current	1.1A±0.2A													
Total harmonic Distortion	< 3%													
No Load O/P Voltage (L-N)	230±1%					230 AC±1%								
No Load O/P Voltage (L-L)	N/A			N/A		N/A					415±1%			
O/P Frequency	50 Hz±0.5Hz													
Full Load O/P Voltage (N-L)	230V AC±1%					230V AC ± 1%					230±1%			
Full Load O/P Voltage (I-L)	N/A					N/A					415±1%			
low Battery Cut Off	10.4V±0.2V DC Per Battery (12V DC Battery)													
Low battery indication	10.6±0.2V DC Per Battery (12V DC Battery)													

MAINS MODE

Inpot Voltage Range (N-L)	140V-280V±5V AC					170V to 270V±5V AC								
Input Voltage Range (L-L)						N/A					290V to 480V±5V AC			
Input Frequency Range	40Hz to 60HZ													
input Power factor Lagging	0.9					0.9					N/A			
Charging Current	5A to 10±A					1.5A to 8A±1A								
Boost Charging Voltage	13.9V±0.2V DC Per Battery (12V DC Battery)													

PROTECTION

Protection	Output Not Ok, battery Voltage Low, Over Load Battery Over Charge, Over Temperature, Short Circuit, Mains MCB Tripped

DISPLAY

Displays	Welcome Massage, Capacity, output Voltage, Output frequency. Load Percentage Input Voltage & Frequency, Battery Charging, Battery Voltage, All Protections

ENVIRONMENTAL PARAMETERS

Operating Temperature	O Deg- 45 Deg
Acoustic Noise at 1 Mtr.	< 45 dB
Relative Humanity	Max. 95% non - Condensing
Thermal Management	Integrated Cooling (Fan & Heat Sink)

WEIGHT AND DIMENSIONS

With Packaging LXWXH in mm	400x420x135			600x500x730	700x500x950				860x630x950		700x500x780		860x630x950	1020x860x1450
Without Packaging LXWXH in mm	350x320x90			400x350x600	550x350x670				700x460x830		550x350x670		700x460x830	810x580x1310
Net Weight	6.5Kg	8.5Kg	8.5Kg	70Kg	92Kg	107Kg	95Kg	110Kg	150Kg	180Kg	105kg	121Kg	.....	.....
Gross Weight	7.1Kg	9.1Kg	9.1Kg	79Kg	104Kg	119Kg	107Kg	122Kg	167Kg	195Kg	120Kg	141Kg	.....	.....

** Both External & Internal Battery Models are Available

Technical Specifications can be changed without prior notice.

DSP Sine Wave Three Phase Inverters (ALBS)

Lento DSP sine Wave Automotive Lift Backup System (ALBS) is specifically designed to address the requirements of running lift motors with high torque. These ALBS output 3 phase supply that is similar to the 4 wire mains 3 phase supply and can be effortlessly switched in with a simple electronics changeover in case of power failure to power lifts and elevators. The same ALBS can be used as a power source for staircase, parking, compound and common lighting as well as a power source for security systems. Lento ALBS feature DSP based three phase sine wave output inverter module, battery charger, electronic change over and extra heavy duty components to handle high starting torque currents drawn by lift motors, pump sets and air conditioners.

Applications

- For Providing reliable power back-up for Life/Elevators
- As a major power supply source for water Pumps, Fire pumps & other 3phase critical motorized equipment
- Petro/Diesel Dispensing (Filling) Machines
- Tread mills & other Health Equipment in Home/Gyms
- Major Power back Up source in corporate Offices as well as Call Centres
- Computers & peripherals/ Office Equipment like Scanners, Printers, and Fax Machines etc.
- Emergency & Mobile Power Systems
- Air Conditioners and all compressor Based applications like Water Cooler, Bottle Coolers, Ice Cream Parlours etc.

10 KVA
12 KVA
15 KVA
20 KVA
25 KVA
30 KVA
40 KVA

DSP SINE WAVE THREE PHASE INVERTER (ALBS)

Technical Specifications

PARAMETERS		MODELS						
Models		10KVA/180V-360V	15KVA/180-360V	20KVA/240V	20KVA/360V	25KVA/360V	30KVA/360V	40KVA/360V
No Load Battery Current (NLC)		0.9±0.2A	0.9±0.2A	0.9±0.2A	0.9±0.2A	0.9±0.2A	0.9±0.2A	0.9±0.2A
O/P No Load Voltage	R	230±5V	230±5V	230±5V	230±5V	230±5V	230±5V	230±5V
	Y	230±5V	230±5V	230±5V	230±5V	230±5V	230±5V	230±5V
	B	230±5V	230±5V	230±5V	230±5V	230±5V	230±5V	230±5V
O/P Full Load Voltage	R	230±7%	230±7%	230±7%	230±7%	230±7%	230±7%	230±7%
	Y	230±7%	230±7%	230±7%	230±7%	230±7%	230±7%	230±7%
	B	230±7%	230±7%	230±7%	230±7%	230±7%	230±7%	230±7%
Full Load Battery Current	A	25±2A	37±2A	70±2A	49±2A	60±2A	106±2A	72±2A
Full Load O/P Current	R	11.6±0.5A	17.5±0.5A	23±0.5A	23±0.5A	29±0.5A	34.5±0.5A	46.5±0.5A
	Y	11.6±0.5A	17.5±0.5A	23±0.5A	23±0.5A	29±0.5A	34.5±0.5A	46.5±0.5A
	B	11.6±0.5A	17.5±0.5A	23±0.5A	23±0.5A	29±0.5A	34.5±0.5A	46.5±0.5A
Overload Retry		6Times	6Times	6Times	6Times	6Times	6Times	6Times
OutPut Frequency (Inverter Mode)	R	50.0 ± 0.5 Hz	50.0 ± 0.5 Hz	50.0 ± 0.5 Hz	50.0 ± 0.5 Hz	50.0 ± 0.5 Hz	50.0 ± 0.5 Hz	50.0 ± 0.5 Hz
	Y	50.0 ± 0.5 Hz	50.0 ± 0.5 Hz	50.0 ± 0.5 Hz	50.0 ± 0.5 Hz	50.0 ± 0.5 Hz	50.0 ± 0.5 Hz	50.0 ± 0.5 Hz
	B	50.0 ± 0.5 Hz	50.0 ± 0.5 Hz	50.0 ± 0.5 Hz	50.0 ± 0.5 Hz	50.0 ± 0.5 Hz	50.0 ± 0.5 Hz	50.0 ± 0.5 Hz
OutPut Sine Wave (Inverter)	R	Should be OK	Should be OK	Should be OK	Should be OK	Should be OK	Should be OK	Should be OK

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MAINS MODE								
OutPut Sine Wave (Mains)	V	Should be OK	Should be OK	Should be OK	Should be OK	Should be OK	Should be OK	Should be OK
Mains Low Cut	V	180±10V	180±10V	180±10V	180±10V	180±10V	180±10V	180±10V
Recovery	R	190±10V	190±10V	190±10V	190±10V	190±10V	190±10V	190±10V
Mains High Cut	R	280±10V	280±10V	280±10V	280±10V	280±10V	280±10V	280±10V
Recovery	R	270±10V	270±10V	270±10V	270±10V	270±10V	270±10V	270±10V
Change Over Time (Mains to Inverter)		< 40ms	< 40ms	< 40ms	< 40ms	< 40ms	< 40ms	< 40ms
Change Over Time (Inverter to Mains)		<10ms	<10ms	<10ms	<10ms	<10ms	<10ms	<10ms
Batt Low Buzzer (V/Batt)		10.8V ±0.2V	10.8V ±0.2V	10.8V ±0.2V	10.8V ±0.2V	10.8V ±0.2V	10.8V ±0.2V	10.8V ±0.2V
Batt Low Cut (V/Batt)		10.10V ±0.2V	10.10V ±0.2V	10.10V ±0.2V	10.10V ±0.2V	10.10V ±0.2V	10.10V ±0.2V	10.10V ±0.2V
Batt Low Retry		4times	4times	4times	4times	4times	4times	4times
Short Circuit, Retry		NO	NO	NO	NO	NO	NO	NO
Permanent Short Circuit Protection		Should be OK	Should be OK	Should be OK	Should be OK	Should be OK	Should be OK	Should be OK
Max. Charging Current		10±2A	10±2A	10±2A	10±2A	10±2A	10±2A	10±2A
Boost Charging Voltage ±0.2V/Batt		14.2±0.2V/Batt	14.2±0.2V/Batt	14.2±0.2V/Batt	14.2±0.2V/Batt	14.2±0.2V/Batt	14.2±0.2V/Batt	14.2±0.2V/Batt
Trickle Charging Voltage ±0.2V/Batt		13.6±0.2V/Batt	13.6±0.2V/Batt	13.6±0.2V/Batt	13.6±0.2V/Batt	13.6±0.2V/Batt	13.6±0.2V/Batt	13.6±0.2V/Batt
Protection		Output Not Ok ,Battery Voltage Low, Over Load ,Battery Over Charge ,Over Temparture , Short Circuit ,Mains MCB Trip						
Displays		Welcome Message ,Capacity ,Output Voltgae ,Output Frequncy,Load Percentage ,input Volatge& Frequency ,battery Charging ,Battery volatage, All Protection						

ENVIRONMENTAL PARAMETERS	
Opreting Temperature	0 Deg. - 45 Deg.
Acoustic Noise at 1Mtr	< 45 DB
Relative Humidity	Max 95% Non -Condensing
Thermal Management	Integrated Cooling Fan & Heat Sink

* Charging Current Change on Custmer Dimand

Note: Specification subject to change without prior notice.

GENTO

House of Green Energy

OUR BUSINESS VERTICALS

- International Business
- OEM Business
- Institutional & Corporate Business
- Domestic Distribution Business
- Turnkey Projects
- New Products Development Through R & D

OUR UPCOMING FUTURE PRODUCTS RANGE

- Water pumping solutions
- Voltage Surge protectors
- Distribution Box and Control Panels
- Wires and MCBs

ENTO

House of Green Energy

LENTO
House of Green Energy

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