Livguard™ Solar

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Livguard™ Solar

EXPERT KO BULAO, APNI BIJLI BANAO.

SOLAR POWER KE SMART SOLUTIONS GHAR LE AAO!

Trained Technicians

Advanced Tool Kit

ABOUT LIVGUARD

Livguard Energy Technologies Pvt. Ltd. (LETPL) one of India's leading providers for power energy solutions is poised to transform the world with its cutting edge technology, in solar solutions, power back-up, automotive solutions, & e-rickshaw batteries. Livguard was founded in the year 2014 and is a part of the SAR Group which has been serving the nation for the past three decades. With our technologically advanced toolkit and trained technicians we have achieved the customer's trust and faith in our products and services. This has helped us reach the 1,000 crore company milestone in a short period of time.

LIVGUARD SOLAR PRODUCT RANGE

SOLAR PANEL

40 WATT – 400 WATT

SOLAR MANAGEMENT UNIT

30 A - 50 A

SOLAR CHARGE CONTROLLER

10 A– 50 A

SOLAR UPS

900 VA – 2000 VA

PWM POWER CONDITIONING UNIT

3.5 KVA – 10 KVA

MPPT POWER CONDITIONING UNIT

3.5 KVA – 15 KVA

SOLAR BATTERY

40 AH – 200 AH

SOLAR STREET LIGHT

9 WATT – 12 WATT

SOLAR POWER GENERATING SOLUTIONS

- Light duty home solutions.
- Heavy duty home solutions.
- Existing inverter solarization solution.
- DC solution.

SOLAR PANEL

Livguard Solar Panels are polycrystalline/mono perc PV panels, IEC compliant having range from 40 W – 400 W. Our Panels are ideally suited for rooftop and agricultural applications.

5 Years Product Warranty

25 Years Performance Warranty

MODULE

Model Name	LGV12V40	LGV12V50	LGV12V75	LGV12V100	LGV12V165	LGV24V325	LGV12V180M
Power (pm) in Watts (Nominal)	40	50	75	100	165	325	180
No. of Cells	36	36	36	36	36	72	32
Rated Module Voltage	12	12	12	12	12	24	12
Voltage at Maximum Power (Vmp) in Volts	17.5	18	18	18	18.30	37.8	18.01
Current at Maximum Power (Imp) in Amps	2.46	2.78	4.17	5.66	9.02	8.6	9.99
Open Circuit Voltage (Voc) in Volts	21	22	22	22	22.30	46.2	22.12
Short Circuit Current (Isc) in Amps	2.54	3.28	4.67	6.06	9.57	9.13	10.37
Maximum System Voltage (V_{DC})	600	600	600	600	1000	1000	1000
Module Efficiency η (%)	>12%	>12%	>14%	>14%	>16%	>16%	>18%
STC: Irradiance 1000W/M², Ambient Temperature 25°C, Air Mass 1.5, Measuring Tolerance ± 3%							

MECHANICAL DATA

Junction Box	IP65 rated with Bypass diodes					IP67 / IP68 rated with 3 Bypass diodes	IP65 rated with Bypass diodes
Application Class	Class A (Safety Class II)						
Glass	High Transmission Low Iron Tempered Solar Glass						
Cells	Poly Crystalline Solar Cells/Mono Perc Solar Cells						
Cell Encapsulate	Ethylene Vinyl Acetate (EVA) - FC/UFC						
Back sheet	Composite Film - White						
Frame	Silver Anodized Aluminium Frame with Twin Wall Profile						
Mechanical Load Test	Sustain Heavy Wind & Snow Loads (2400 Pa & 5400 Pa or 550 Kg/m2)						
Max Series Fuse Rating	6A	6A	6A	10A	15A	20A	20A
Module Weight (Kg)	4	4.1	5.4	7.6	10.6	21.5	21.5
Dimension in (mm) L	435	550	775	1010	1495	1970	1345
Dimension in (mm) W	670	670	670	670	670	990	680
Dimension in (mm) H	34	34	34	34	35	40	35

OPERATING CONDITIONS

Operating Temperature	-40°C to + 85°C	-40°C to + 85°C	-40°C to + 85°C
TC of Short Circuit Voltage (α)	0.057%/°C ± 0.01	0.052%/°C ± 0.01	0.048%/°C ± 0.01
TC of Open Circuit Voltage (β)	-0.31%/°C ± 0.02	-0.31%/°C ± 0.02	-0.28%/°C ± 0.02
TC of Power (γ)	-0.41%/°C ± 0.02	-0.40%/°C ± 0.02	-0.38%/°C ± 0.02

WARRANTY & CERTIFICATION

Performance Warranty*	25 Years (90% module efficiency after 10 years, 80% module efficiency after 25 years)
Certificates	IS:14286, IS-61215, IS-61730

***Refer solar module warranty card document**

Technical Parameters are subject to change without any prior notice

SOLAR MANAGEMENT UNIT

Livguard Solar Management Unit (SMU) converts any existing inverter into solar system. It has in-built intelligence to maximize use of solar energy and is ideal for various DC voltages.

Auto bypass during fault

1 Years Warranty

SOLAR MANAGEMENT UNIT

Model Name	LSMU 122430		LSMU 24-4850		
Solar Management Unit Rating	12/24V @ 30A		24V @ 50A	36V @ 50A	48V@ 50A
Technology	Micro Controller Unit based PWM				
Type	Series Regulator Common Positive				
System Voltage	12V	24V	24V	36V	48V
Setting	Auto Sensing		Settable (Default 48V)		
Maximum Solar Panel (Wp)	500W	1000W	1800W	3600W	
Maximum Solar Panel Voltage	50V		90V		

BATTERY SETTINGS

Bulk Voltage	Range	13.9 - 15.9V	27.9 - 31.8V	41.7 - 47.7V	55.6 - 63.6V
	Default	14.2V	28.4V	42.6V	56.8V
Float Voltage	Range	13.3 - 14.1V	26.6 - 28.2V	39.9 - 42.3V	53.2 - 56.4V
	Default	13.5V	27V	40.5V	54V
Low Battery		10.5 ± 0.2V	21 ± 0.2V	31.5 ± 0.2V	42 ± 0.2V

LOAD CONTROLLER

Grid Disconnect from Inverter (Voltage)	After Battery goes to Bulk Charge Mode & PV Energy Available				
Grid Re-connect to Inverter (Voltage)	12.7V Default Setting Settable Range: 11.4 - 13.3V	25.4V Default Setting Settable Range: 22.8 - 26.6V	25.4V Default Setting Settable Range: 22.8 - 26.6V	38.1V Default Setting Settable Range: 34.2 - 39.9V	50.8V Default Setting Settable Range: 45.6 - 53.2V

PROTECTIONS & USER INTERFACE

Protection		• Reverse Polarity for PV/Battery, Short Circuit, Battery Overcharge & Deep Discharge
User Interface	LED Indications	• Faults: Battery Low & High, Reverse Current, Panel Charging Overcurrent
		• Battery Charging Status
	LCD Display	• PV Current/Voltage
		• Battery Current/Voltage
		• Faults: Battery Low & High, Reverse Current, Charging Overcurrent
		• KWh Generated from Solar (Cumulative - kWh, Instantaneous - KW)

GENERAL

Operating Temperature	0°C to 50°C	
Dimensions (LxWxH) in mm	205 x 113 x70	264 x 183 x 90
Weight (Kg)	0.8	1.57

Technical Parameters are subject to change without any prior notice

SOLAR CHARGE CONTROLLER

Livguard Solar Charge Controller is an advanced micro controller unit based on PWM technology. The charging process has been optimized for longer battery life and improved system efficiency.

Dusk to Dawn

1 Years Warranty

SOLAR CHARGE CONTROLLER

Model Name	LSCC 122410	LSCC 122420	LSCC 24-4850		
Charge Controller Rating (Amp.)	12/24V @ 10A	12/24V @ 20A	24V @ 50A	36V@ 50A	48V@ 50A
Technology	Micro Controller Unit Based PWM				
Type	Series Regulator Common Positive				
System Voltage	12 / 24 V		24 / 36 / 48V		
Setting	Auto Sensing		Settable (Default 48 V)		
Maximum Solar Panel (Wp)	12V @ 160W 24V @ 335W	12V @ 335W 24V @ 600W	1800W	3600 W	
Maximum Solar Panel Voltage	60V		90V		

BATTERY SETTINGS

Voltage	12V	24V	24V	36V	48V
Bulk Voltage (V)	14.2V	28.4	27.8V - 31.8V	41.7V - 47.7V	55.6V - 63.6V
Default Voltage (Bulk)		28.4V		42.6V	56.8V
Float Voltage (V)	13.5	27V	26.6V - 28.2V	39.9V - 42.3V	53.2V - 56.4V
Default Voltage (Float)		27V		40.5V	54V
Low Battery (V)	10.5V ± 0.2V	21.0V ± 0.2V		31.5V ± 0.2V	42.0V ± 0.2V

PROTECTIONS & USER INTERFACE

Protection		• Reverse Polarity (Panel/Battery), Short Circuit, Battery Overcharge & Deep Discharge	
User Interface	Display & Indications	LED	LED & LCD
	LED Indications	• Faults: Battery Low & High, Reverse Current, Panel Charging Overcurrent	
		• Battery Charging Status	
	LCD Display	NA	• Solar PV Power
			• Battery Voltage
			• Charging Mode
			• Load On/Off
			• Faults: Battery Low & High, Reverse Current, Charging Overcurrent
			• Charging Status

GENERAL

Operating Temperature	0°C to 50°C		
Dimensions (LxWxH) in mm	112 x 125 x 25	125 x 100 x 45	264 x 183 x 90
Net Weight (Kg)	0.32	0.45	1.48

Technical Parameters are subject to change without any prior notice

SOLAR UPS

Livguard Solar Hybrid UPS provides power from solar battery and grid as per the load profile. It has the highest rated solar charge controller which extracts maximum power from solar modules and reduces electricity bills.

Highest Rated Solar Charge Controller

Auto bypass during fault

2 Years Warranty

Real Time Clock (RTC) Technology
- In-built intelligence RTC to maximize solar energy utilization.
- Optimized solar energy utilization based on localized power situation

Fast Battery Charging
- In-built 50A solar charge controller Charges the battery in short time

Safety & Protection
- In-built human, panel, & battery protections
- Over voltage/ current protection in bypass mode

User Friendly LCD Display
- Easy to operate, in-built interactive LCD display indicates alarm & system status including solar generation

UPS Mode
- Suitable for computer load as well as areas with low voltage

Pure Sine Wave
- Noiseless operations & long life of electrical appliances

SOLAR UPS

Model Name	LS OG1150	LS OG1850	LS OG2250
System Rating	900VA	1500VA	2000VA
Nominal Battery Voltage (Vdc)	12V	24V	
Ouput Waveform	Pure Sine Wave		
Switching Element	MOSFET		

SOLAR PV INPUT

Technology	PWM	
Charge Controller Rating (Amps.)	50A	
Maximum Solar Panel (Wp)	900 Wp	1800 Wp
Input Voltage Range (Vmp)	Min - 15V, Max - 18V	Min - 30V, Max - 36V
Maximum Input Voltage (Voc)	22V	46V

Grid Input

Input Supply	Single Phase - 230V, 50Hz
Operating Voltage Range (ECO Mode)	90V - 290V
Operating Voltage Range (UPS Mode)	180V - 270V

Output

No Load Output Voltage	225 ± 7V	
Output Frequency Battery Mode	50 ± 1Hz	
No Load Current (UPS Switch Off)	≤ 180mA	≤ 200mA

Battery

Battery Charging through Mains + Solar	Mains - 17A	Mains - 20A
	Solar - 20A	Solar - 50A
Battery Charging through Solar (Default)	40A	
Low Battery Indication	10.8 ± 0.2V	
Solar Optimization after Battery is Fully Charged	If Solar is Available - then Load is Handled by Battery & Solar	

Overload, Protection, LCD Display & User Interface

Overload Shutdown Indication	Display Overload & Alarm
Overload Pre-Alarm Indication	Display Overload with Load% & Alarm
Overload Capacity	120% Load Running at 30 Sec
Protection	Thermal Trip, Over Load with %, Short Circuit, Battery Low, PV Reverse, Fuse Trip
LCD Display	Mains Voltage/Output Voltage, Battery Voltage, Load (%), Battery Low, Solar KWh Solar Current on Load, Solar Charging Current, Overload with (%), PV Reverse, Short Circuit
User Interface	Battery Boost Voltage, Battery Low Cut Voltage, Max. Grid Charging Current, Max. Solar Charging Current

General

Operating Temperature	0°C to 50°C		
Dimensions (LxWxH) in mm	295 x 330 x 170	363 x 398 x 251	365 x 400 x 250
Net Weight (Kg)	10	15	16.5

Technical Parameters are Subject to Change Without any Prior Ntotice

PWM POWER CONDITIONING UNIT

Livguard Solar Hybrid PCUs are high capacity, high efficiency solar UPS that runs both on solar & utility (grid) power supply. It has an in-build solar charge controller which extracts maximum power from solar modules to power your appliances & battery charging.

LCD & LED Display

2 Years Warranty

Real Time Clock (RTC) Technology
- In-built intelligence RTC to maximize solar energy utilization.
- Optimized solar energy utilization based on localized power situation

Fast Battery Charging
- In-built 50/70 Amp solar charge controller that charges the battery in short time

Safety & Protection
- In-built human, panel, & battery protections
- No risk of electric shocks

User Friendly LCD Display
- Easy to operate, in-built interactive LCD display indicates alarm & system status including solar generation

UPS Mode
- Suitable for computer load as well as areas with low voltage

Pure Sine Wave
- Noiseless operations & long life of electrical appliances

PWM POWER CONDITIONING UNIT

Model Name	LS OGR3500	LS OGR5000	LS OGR7500	LS OGR10000
System Rating	3.5 KVA	5 KVA	7.5 KVA	10 KVA
Nominal Battery Voltage (Vdc)	48V	48/96V	120V	120V
Ouput Waveform	Pure Sine Wave			
Switching Element	MOSFET			

SOLAR PV INPUT

Technology	PWM			
Charge Controller Rating (Amps.)	50 A	70/50 A	50 A	70 A
Maximum Solar Panel (Wp)	3400W	4760/6800W	8500W	11900W
Input Voltage Range (Vmp)	Min - 60V, Max - 68V	48V: Min-60V, Max-68V, 96V: Min-120V, Max-136V	Min - 150V, Max - 170V	Min - 150V, Max - 170V
Maximum Input Voltage (Voc)	88 V	88/175V	220 V	220 V

GRID INPUT

Input Supply	Single Phase - 230 V; 50 Hz
Nominal Voltage Range	100 - 280V
Nominal Frequency Range	45 - 55Hz

OUTPUT

Nominal Output (Vac)	220V ± 7V			
Nominal Frequency	50Hz ± 1Hz			
Nominal Output Current (A)	12.5Amp.	17.5Amp.	27Amp.	35Amp.
UPS Efficiency	≥ 80%	≥ 85%		

BATTERY

Battery Recharge Current Range from Grid Side (A)	5 - 18A	5 - 16A	5 - 20A
Default Value Battery Recharge Current Range from Grid Side (A)	18A	16A	20A
Battery Recharge Current Range from PV Side (A)	5 - 50A		

PROTECTION, USER INTERFACE & SETTING

Protection	Thermal Trip, Over load with %, Short Circuit, Battery Low, PV Reverse, MCB Trip
LCD Display	Mains on/off/cut, Mains Voltage, Battery Voltage, Battery Charging/Charged, Mode: UPS/Normal Load (%), Solar On/Off, Solar to Load (A), Solar to Battery (A)
Indications	Inverter: On/Off, Charging: high/low, Mode: UPS/Normal, Mode: Hybrid
User Setting	Battery Boost Voltage, Battery Low Cut Voltage, Max. Grid Charging Current, Max. Solar Charging Current

ENVIRONMENT

IP Protection Level	IP-20
Operating Temperature (°C)	0 to + 55°C
Max Relative Humidity @ 25°C	0-95%
Max. Altitude above Sea Level without De-rating (M)	≤1000 m

PHYSICAL

Dimension (W x D x H) in mm	370 x 400 x 320	370 x 510 x 550	370 x 530 x 620	370 x 530 x 620
Net Weight (Kg)	28.97	43.79	64.57	67.28
Gross Weight (Kg)	31.3	46.5	69.6	70.8

Technical Parameters are subject to change without any prior notice

MPPT POWER CONDITIONING UNIT

LCD & LED Display

2/5 Years Warranty

Livguard Solar Hybrid MPPT PCUs have everything that our PWM variants offer but with unmatched enhanced capabilities. They are smart remote monitoring enabled, high capacity, enhanced efficiency solar UPS that run both on solar & utility (grid) power supply with a grid charging disable feature for maximizing savings. They have an in- built RTC based solar charge controller, which extracts maximum power from PV modules to power your appliances & to charge your batteries.

FEATURES

Enhanced Solar Power Utilization with RTC
- No PV overload tripping via limiting feature to ensure generation does not fully stop
- Greater PV power allowed per KVA along with a wide MPPT voltage range

Smart Remote Monitoring Enabled
- MODBUS Output
- Continuous monitoring with daily data logging for solar kWh

Safety & Protection
- Smart thermal management
- In-built battery, inverter and panel protection
- MCB protection at all Inputs and Outputs

ECO/ UPS Mode
- Wide range for poor grids where voltage frequently comes down

Best in Class Overload Capability
- 200 % overload for peak surges
- Multiple overload attempts allowed

Pure Sine Wave
- Noiseless operations & long life of electrical appliances

MPPT POWER CONDITIONING UNIT

Model No.	LS OG3500M	LS OG5048M	LS OG7500M	LS OG10000M	LS OG15000M
Product Specification Range of MPPT Solar PCU	3.5KVA/48V	5KVA/48V	7.5KVA/96V	10KVA/120V	15KVA/240V

Mains Input Mode

Mains AC Low Cut (UPS Mode)	180 ± 5V		170 ± 5V		
Mains AC Low Cut Recovery (UPS Mode)	9-12V Hysterisis from > Low Cut Voltage				
Mains AC High Cut (UPS Mode)	260 ± 5V		270 ± 5V		
Mains AC High Cut Recovery (UPS Mode)	9-12V Hysterisis from < High Cut Voltage				
Mains AC Low Cut (Wide Range Mode)	120 ± 5V		170 ± 5V		
Mains AC Low Cut Recovery (Wide range Mode)	9-12V Hysterisis > Low Cut Voltage				
Mains AC High Cut (Wide Range Mode)	280 ± 5V		270 ± 5V		
Mains AC High Cut Recovery (Wide Range Mode)	9-12V Hysterisis < High Cut Voltage				
Input Frequency Range	50 ± 5% Hz				
Output voltage in Mains mode	Same as Mains Input				
Output frequency in Mains mode	Same as Mains Input				

Battery

Battery Type	TUBULAR				
	VRLA				
	FLAT PLATE				
DC Input Voltage (Nominal)	48V	48V	96V	120V	240V
Battery Quantity (12V 100Ah to 220Ah)	4	4	8	10	20
Float Charging Voltage (Tubular/VRLA/Flat Plate)	13.2/13.5/13.4 (per Battery) ± .5V				
Boost Charging Voltage(Tubular/VRLA/Flat Plate)	14.5/13.8/13.7 (per Battery) ± .5V				
Boost Charging Voltage Range for Tubular and SMF Battery	Provided Above				
Bulk Absorption Battery Voltage	Same as Above				
Battery Deep Discharge Recovery	YES				
Charging Current By Grid	20.0 ± 1.0A	30.0 ± 1.0A	25.0 ± 1.0A	35.0 ± 1.0A	30.0 ± 1.0A
Charging Current By PV	Provided Above				

Backup Mode

Output Voltage	230 ± 2% V				
Output Frequency	50 ± 0.5 Hz				
Output Waveform	PURE SINE WAVE				
No Load Current (Switch OFF)	Sleep Mode is not Provided Currently				
Discharging Current @ Full Load	12.2 A± 1 Amp.	17.5 A ± 1 Amp.	26 A± 1 Amp.	35 A± 1 Amp.	52 A± 1 Amp.
Low Battery Warning	11.1V (per Battery) ± 0.2V				
Low Battery Cut	10.8V (per Battery) ± 0.2V				
Change Over Time From Mains To Inverter (Unregulated Mode)	≤ 25 msec		≤ 25 msec		
Change Over Time From Inverter To Mains (Unregulated Mode)	≤ 25 msec		≤ 25 msec		
Change Over Time From Mains To Inverter (UPS Mode)	≤ 20 msec		≤ 25 msec		
Change Over Time From Without Inverter To Mains (UPS Mode)	≤ 20 msec		≤ 25 msec		
Cooling	FORCED COOLING BY FAN				

Protections

Overload in Backup Mode	YES
Short Circuit in Backup Mode	YES
Short Circuit in Mains Mode	Mains MCB Trip
Backfeed	YES
Over Temperature	YES
Reverse Battery	YES
Phase to Phase Protection in Mains Mode	YES

Solar Charge Controller

Solar Charge Controller Type	MPPT				
Max Panel Wattage That Can Be Connected	3850W	5500W	8250W	11000W	16500W
Max No. of (@325 Wp) Panels Connected (S:Series, P: Parallel)	S: 4, P: 3	S: 4, P: 4	S: 7, P: 4	S: 7, P: 5	S: 13, P: 5
Min No. of (@325 Wp) Panels Connected (S:Series, P: Parallel)	S: 3, P: 1	S: 3, P: 3	S: 5, P: 1	S: 5, P: 2	S: 10, P: 3
No. of Input Channel	1	1	1	1	1
Max. input Current per Channel (Maximum Isc)	(38 ± 1)A	(50 ± 1)A	(50 ± 1)A	(57 ± 1)A	(57 ± 1)A
Maximum PV Voltage Voc	(190 ± 5)V		(320 ± 5)V		(700 ±5)V
Minimum PV Voltage Vmp	70V		175V		350V
Maximum PV Voltage Vmp	(160 ± 5)V		(266 ± 5)V		(560 ± 5)V

MPPT POWER CONDITIONING UNIT

Solar Charge Controller					
Maximum Battery Current	70A	100A	75A	80A	60A
MPPT Charger Efficiency (Peak)	94%		95%		
Reverse PV Protection	YES				
Reverse Current Flow to PV	NO				
Switching Element(MPPT Charger)	IGBT				
DOD (Depth of Discharge)	As per battery voltage setting (1.8V/cell)				

Display and Alarms

LCD Display Parameters	1. Battery Voltage & Current
	2. PV Voltage & Current
	3. PV Power, Total Generation & Today's Genration
	4. Mains Voltage & Frequency
	5. Load Voltage, Current & Frequency (Inverter Mode Only)
	6. Load Power
	7. Battrey Charging/Discharging Status
	8. Time & Date
	9. User Settings & Factory Settings
LCD Fault/Protection Status Display	i) Overload
	ii) Short Circuit
	iii) Battery & PV Reversew Polarity
	iv) Battrey Over/Under Voltage
	v) Battery Current Limit
	vi) Mains Over/Under Voltage
	vii) System Over Temprature
	viii) Grid/Load/PV Surge Protection(MOV)
Buzzer	YES

Safety

HV Test Input to Earth	YES
HV Test Output to Earth	YES
IR Test Input to Earth	YES
IR Test Output to Earth	YES

Environment

Operating Temperature	0°C to 50°C
Storage Temperature	10°C to 70°C
Operating Relative Humidity	5-95% (Non-condensed)

Dimensions

Dimensions in mm (LXWXH)		448.5X275X611	448.5X275X611	650X400X753.5	650X400X753.5	650X450X753.5
Box Dimensions in mm (LXWXH)		680X345X510	680X345X510	835X495X800	835X495X800	835X565X800
Weight in Kg	Net Weight	49.35Kg	52.95Kg	97.5Kg	104.35Kg	138.40Kg
	Gross Weight	51.95Kg	55.55Kg	109.85Kg	116.70Kg	153.45Kg

NOTE: Specifications are subject to change without prior notice

SOLAR BATTERY

Livguard Solar Batteries are C10 rated deep cycle batteries. Innovative Super Tuff 3D design and extra thick tubular plates gives longer backup & battery life.

Super Tuff 3D design Plates

Up to 5 Years Warranty

Super Tuff 3D Grid
- Industry's 1st 3D design with double side pasting
- Ensures longer battery life

Superior Life Cycle
- Ensures longer battery service life
- Life Cycle- 2000 at 80% depth of discharge at Room Temperature

Tuff Futuristic Design
- Advanced premium design
- Robust high quality durable material

Ultra Low Maintenance
- Topping up frequency – Initially 8 to 10 Months

SOLAR BATTERY

Model Name	Nominal Voltage (V)	Capacity @ C10 (Ah)	Battery Weight with Acid ± 3% (Kg)	Overall Dimension			Free Replacement (Months)	Pro Rata Warranty (Months)
				Length ± 3 mm	width ± 3 mm	Height ± 3 mm		
LS 4036ST	12	40	23.2±3%	410	174	230	0 - 36	-
LS 7536ST	12	75	29.9±3%	410	174	271	0 - 36	-
LS 10060TT	12	100	52.4±3%	505	190	410	0 - 60	-
LS 13560TT	12	135	54.4±3%	505	190	410	0 - 60	-
LS 15060PTT	12	150	54.1±3%	505	190	410	0 - 36	37 - 60
LS 16560TT	12	165	59.5±3%	505	190	410	0 - 60	-
LS 18060PTT	12	180	59.5±3%	505	190	410	0 - 36	37 - 60
LS 20060TT	12	200	64.5±3%	505	190	410	0 - 60	-

Note: Battery Capacity is C10 upto 1.80 Volts per Cell at 27°C

Applications

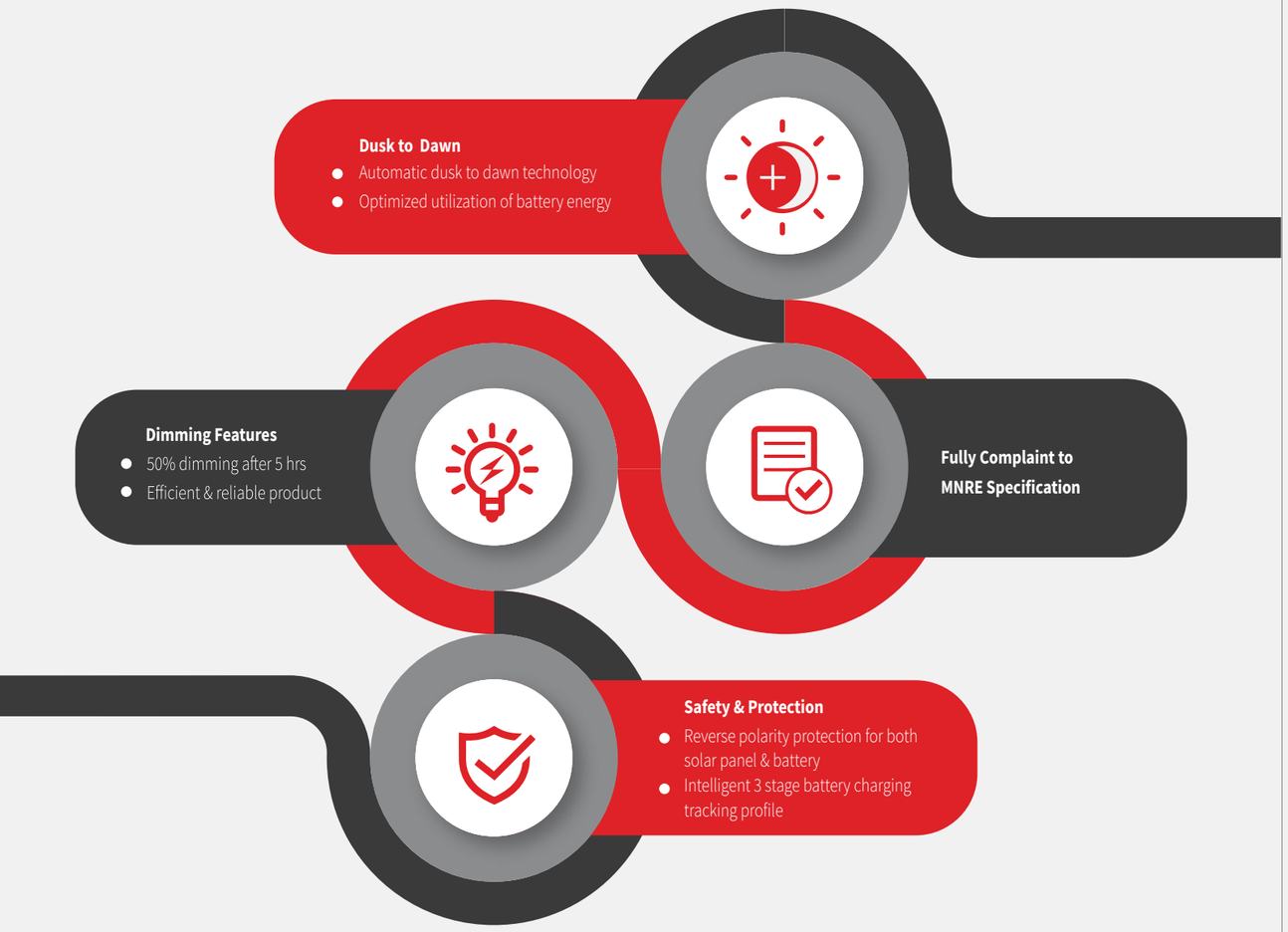
- **Solar Rooftop Projects**
- **Solar Home Lights**
- **Solar Street Lights**
- **Solar UPS**
- **Solar Management Unit**
- **Solar Charge Controller**
- **Telecom Towers**

SOLAR STREET LIGHT

Livguard solar street lights are integrated with high efficiency LED as per MNRE specifications.

In-built Dusk to Dawn Feature

2 Years Warranty



STREET LIGHT

Model Name	LGVSSL9N	LGVSSL12N
System Rating	9 Watt	12 Watt
Panel Specification		
Maximum Solar Panel (Wp)	Upto 100W	

BATTERY

Battery Type	Lead Acid
Nominal Battery Voltage	12V
Battery Capacity (Ah)	Upto 100Ah

CHARGE CONTROLLER

Maximum input Voltage(Voc)	22V	
Nominal Input Voltage (V)	12V	
Nominal Input Current (A)	0.74A @ 12V	0.97A @ 12V
Output Voltage (V)	22.8V ± 2%	16.82V ± 2%
Output Current (A)	0.36A ± 2%	0.625A ± 2%
Efficiency (%)	> 90%	
Dusk To Dawn	Dusk < 2.8V	
	Dawn > 8V	

LED

Number of LED	16	20
LED Type	1W	
CRI	Min 70	
CCT	5500K - 6500K	
Luminous Efficacy	> 90 lm/w	> 110 lm/w

CHARGING & WIRE SPECIFICATION

Charging Type	PWM
Charging Algorithm / Charging Current	3 Stage of Charging (Bulk, Constant Voltage, Floating)
	6.8A ± 5%
Wire Specification	4 core 1.5 sq. mm
	1 m Length
	Panel: Yellow(-ve), Blue (+ve)
	Battery: Black(-ve), Red(+ve)

PROTECTIONS & INDICATORS

Open Circuit Protection	Provided
Short Circuit Protection	Both LED will Blink on Error. If Error is Removed, System will Restart after Around 30 Secs
Reverse Polarity	Provided for both Battery & Solar Panel
Charging	Green LED Blinking
Low Battery	11.2 V ± 2% (Red, LED On), Battery Reconnect @ 12.3 V ± 2%
Error	Both LED will Blink (Red & Green)
Dimming	50% Dimming after 5 Hours

GENERAL

Operating Temperature	0°C to 50°C	
Dimensions (LxWxH) in mm	330 x 76 x 139	330 x 76 x 139
Net Weight (Kg)	1.5	1.5

Technical Parameters are subject to change without any prior notice

SOLAR POWER GENERATING SYSTEMS

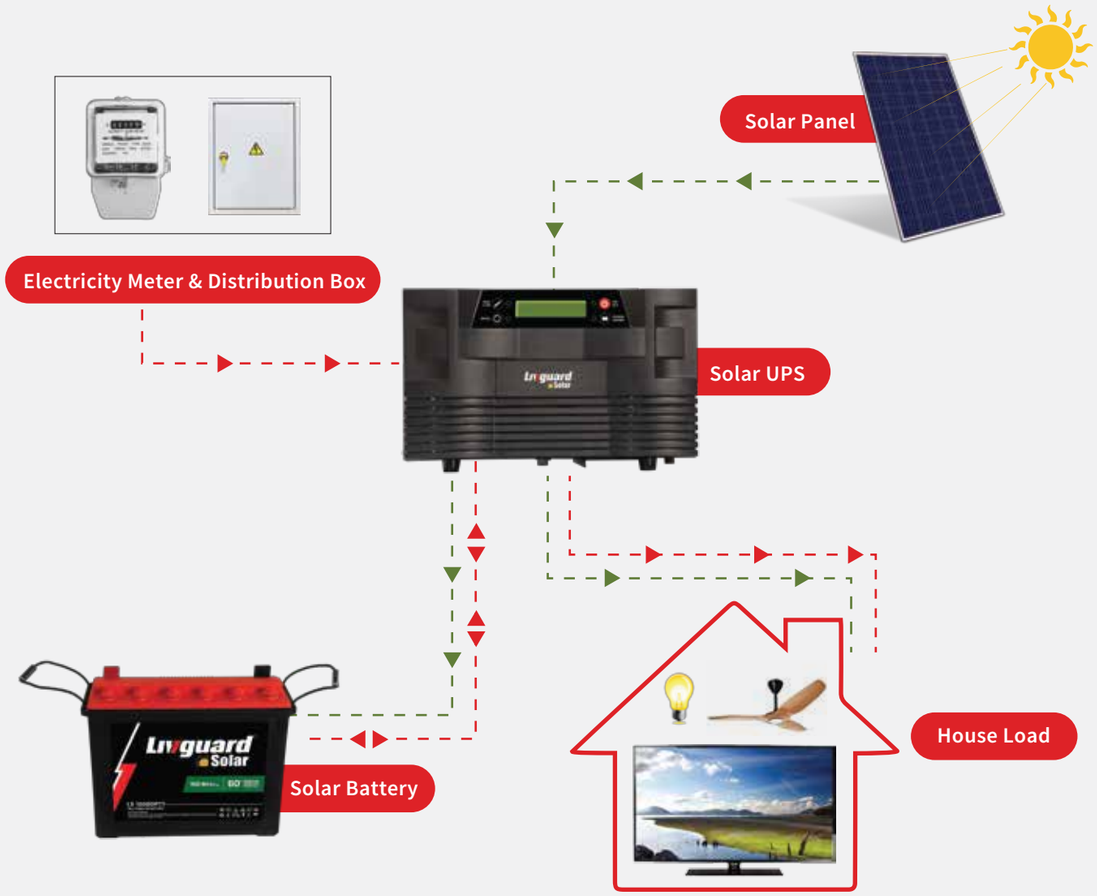
LIGHT DUTY HOME SOLUTION

SOLAR COMPONENTS

SOLAR PV PANEL- 12 V:100 W, 180 W | 24 V: 325W, 330W, 400W

SOLAR UPS- 12 V: 900 VA | 24 V: 1500-2000 VA

SOLAR BATTERY- 100 AH, 135 AH, 150 AH, 165 AH, 180 AH, 200 AH



Note: For the above solution, extra BOS will be required for final installation & commissioning.

BOS: Cable, connector, ACDB, structure etc.

HEAVY DUTY HOME SOLUTION

SOLAR COMPONENTS

SOLAR PV PANEL- 24 V: 325W, 330W, 400W | 48V: 3.5KVA , 5 KVA

SOLAR MPPT/PWM PCU- 48V: 5KVA | 96V/120V: 7.5 KVA | 120V: 10KVA | 240V: 15KVA

SOLAR BATTERY- 100AH, 135AH, 150AH, 165AH, 180AH, 200AH

Note: For the above solution, extra BOS will be required for final installation & commissioning

BOS: Cable, Connector, ACDB, DCDB, structure etc.

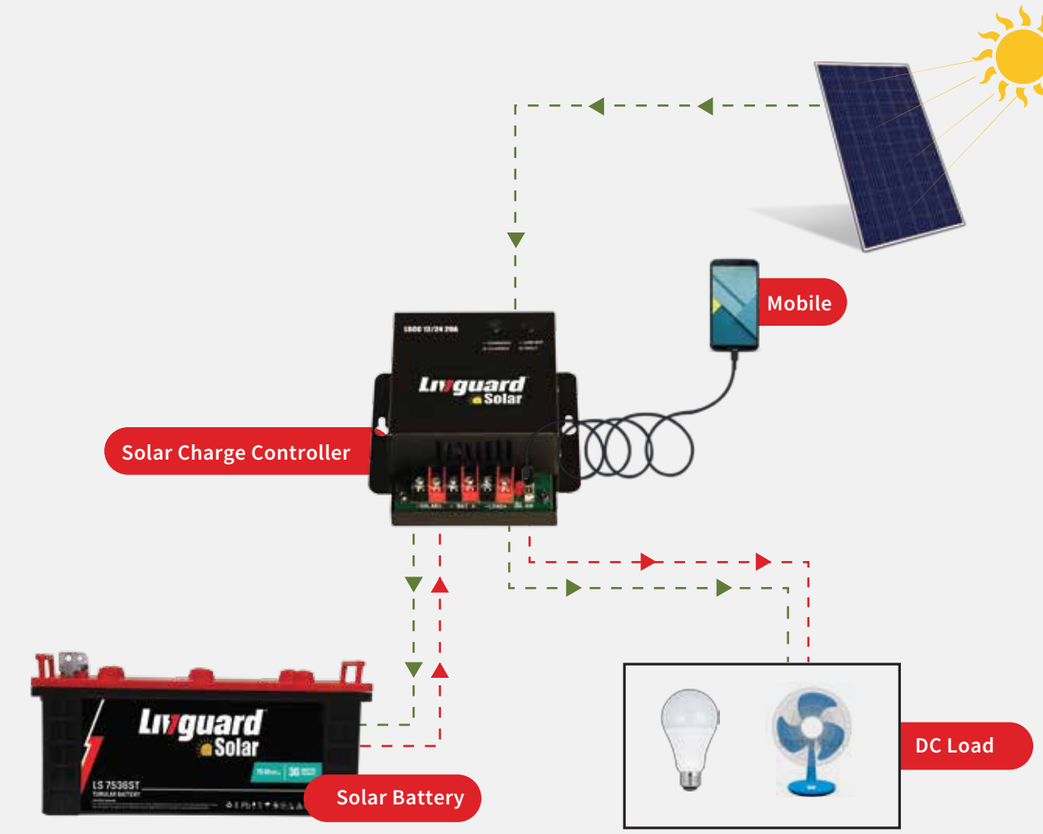
DC SOLUTION

SOLAR COMPONENTS

SOLAR PV PANEL- 12V: 40W, 50W, 75W, 100W, 180W | 24V: 325W, 330W, 400W

SOLAR CHARGE CONTROLLER- 12/24V: 10-20AMPS. | 24/36/48V: 50AMPS.

SOLAR BATTERY: 40AH, 75AH, 100AH, 135AH, 150AH, 165AH, 180AH, 200AH



Note: For the above solution, extra BOS will be required for final installation & commissioning

BOS: Cable, connector, structure etc.

EXISTING INVERTER SOLARISATION SOLUTION

SOLAR COMPONENTS

- SOLAR PV PANEL- 12V: 100W, 180W | 24V: 325W, 330W, 400W
- SOLAR MANAGEMENT UNIT- 12/24V: 30AMPS. | 24/36/48V: 50AMPS.
- SOLAR BATTERY- 100AH, 135AH, 150AH, 165AH, 180AH, 200AH

Note: For the above solution, extra BOS will be required for final installation & commissioning

BOS: Cable, connector, ACDB, structure etc.

SOLAR STREET LIGHT SOLUTIONS

SOLAR COMPONENTS

- SOLAR PV PANEL- 12V: 40W, 50W, 75W, 100W
- SOLAR STREET LIGHT- 9W & 12W
- SOLAR BATTERY- 40AH, 75AH, 100AH

Note: For the above solution, extra BOS will be required for final installation & commissioning

BOS: Cable, connector, Pole, Battery box etc.

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