# LDS-300
# USER MANUAL

Thank you for selecting this DC to AC Pure Sine Wave Power Inverter. It designed to be your best companion at home, in the office, when traveling, outdoors camping, at sea, etc…

### *Please read this manual!*

This manual provides safety, installation and operating instructions that will help you derive the fullest performance and service life that this Power Inverter has to offer.

### *Please save this manual!*

It includes importance instructions for the safe use of this Power Inverter and for obtaining factory service should the proper operation of the Power Inverter come into question.

### *Please save or recycle the packaging materials!*

The Power Inverter's shipping materials were designed with great care to provide protection from transportation related damage. These materials are invaluable if you ever have to return the Power Inverter for service. Damage sustained during transit is not covered under the warranty.

## 1. GENERAL SAFETY INSTRUCTIONS

1-1 General safety

- Use the device only as intended.
- Do not operate the device in a damp or wet environment.
- Do not operate the device in areas that are potentially explosive.
- Maintenance and repair work only be carried out by qualified personnel who are familiar with the risks involved and the relevant regulations.

1-2 Safety when installing the device

- Ensure that the device has a firm foundation. The device must be set up and fastened in such a way that it cannot tip over or fall down.
- Take the precautions necessary to ensure that children cannot interfere with operation. Dangerous situations may occur which cannot be recognized by children.



- Do not expose the device to a heat source such as direct sunlight or heating. Avoid additional heating to the device.
- For installation on boats, if electrical devices are incorrectly installed on boats, corrosion damage might occur. Have the inverter installed by a specialist (marine) electrician.
- If cables have to be fed through metal walls or other walls with sharp edges, use ducts or wire bushings to prevent damage.
- Do not lay cables which are loose or bent next to electrically conductive material (metal).
- Do not pull on the cables.
- Do not lay the 115VAC / 230VAC mains cable and the 12VDC / 24VDC cables in the same duct.
- Fasten the cables well.
- Lay the cables so that they cannot be tripped over or damaged.
- Operate the device only if you are certain that the housing and the cables are undamaged.
- Make sure the air inlets and outlets of the device are not covered.
- Ensure good ventilation.
- Do not connect the 115VAC / 230VAC output of the inverter to an appliance not using the source of 115VAC / 230VAC.
- Even after the fuse triggers, parts of the inverter remain live.
- Always disconnect the power supply when working on the device.
- Reverse polarity connection of the battery wires can damage the inverter. Do not use inverter with electrical systems using positive ground.

## 2. TECHNICAL DESCRIPTION

The inverter can be operated wherever there is 12VDC supply or a 24VDC supply. With its light weight and the compact design the inverter can be easily installed into camping mobiles, commercial vehicles or motor and sailing yachts.

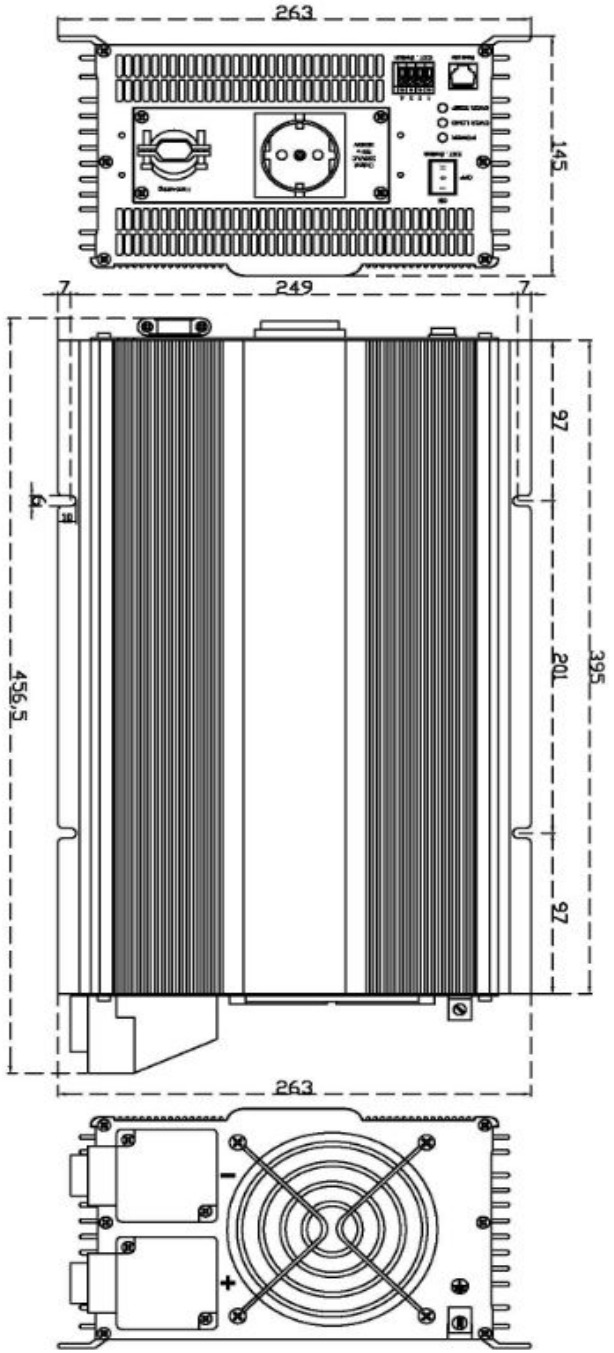
The output voltage corresponds to the socket standard (pure sinus-voltage).

Please observe the values for constant output power and peak output power (Max. 10 mins). Never connect devices that have a higher power requirement.

**** Note: when connecting devices with an electrical drive such as power drills and refrigerators, that they often need more power than is stated on the type plate.***

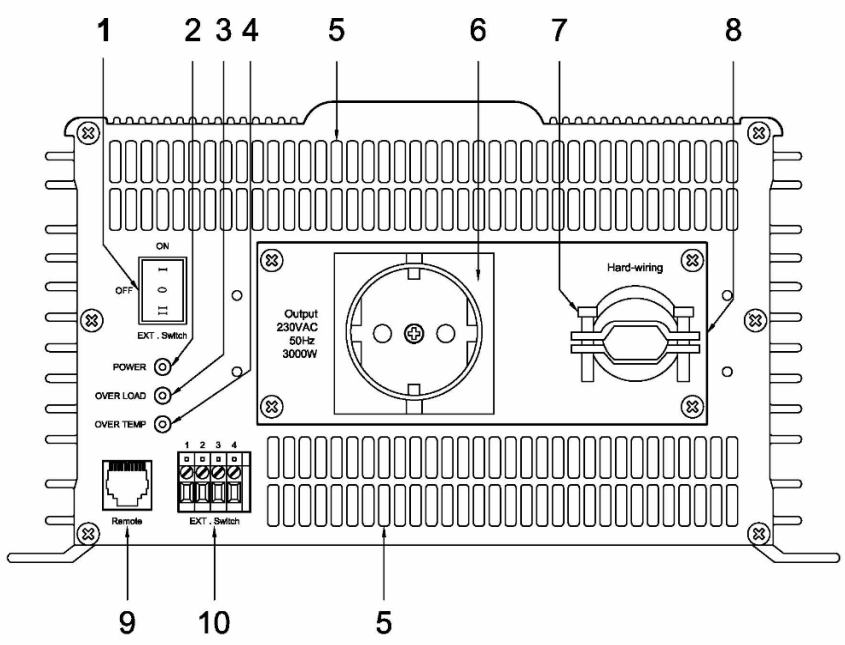
## 3. APPEARANCE

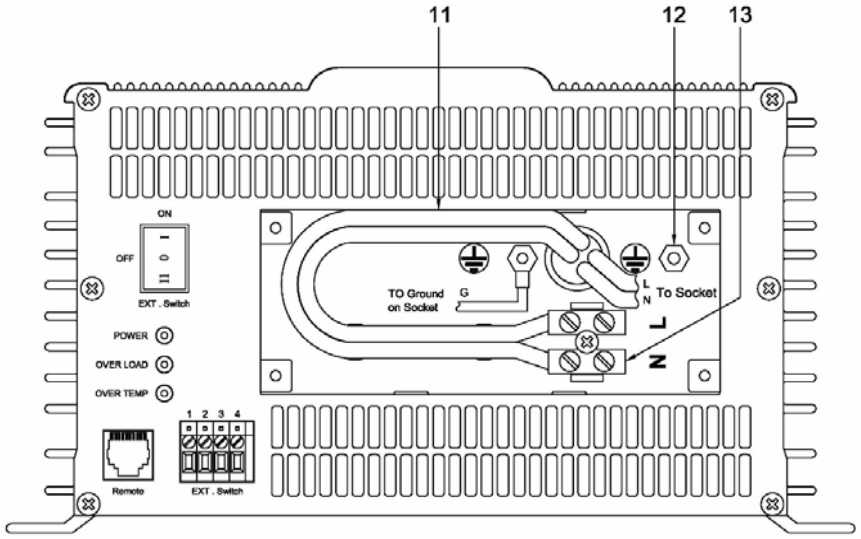
3-1 Mechanical Drawing



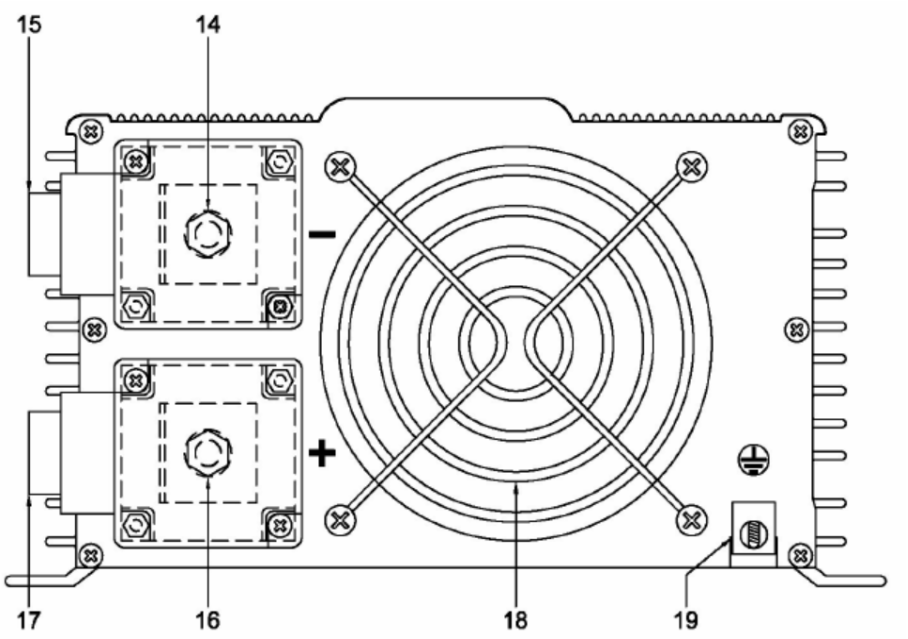



3-2 Front Panel



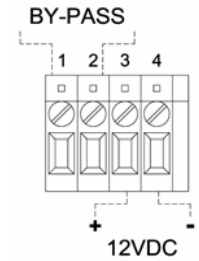



3-3 Rear Panel



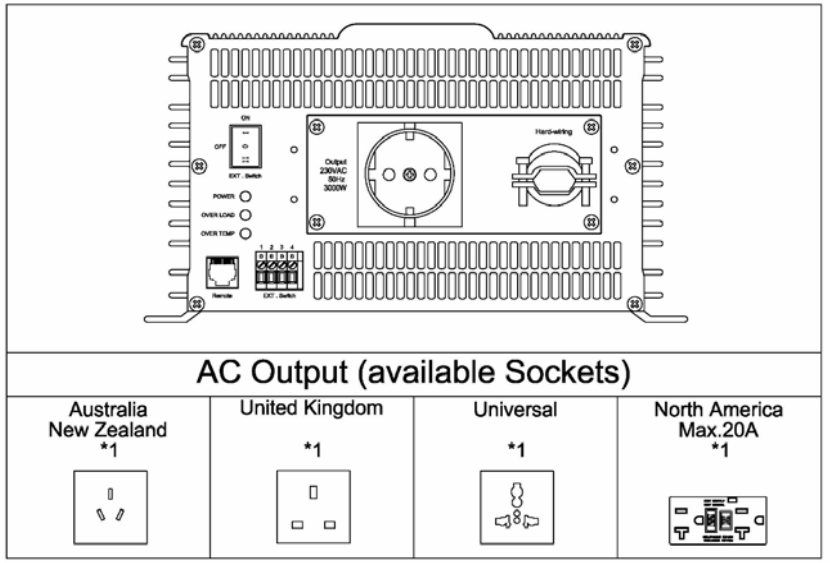

| PANEL ITEM | DESCRIPTION |
|---|---|
| 1. Power ON / OFF/ EXT. Switch | ON: Turn on the inverter.<br>OFF: Turn off the inverter.<br>EXT.: External control. (see item 10 below) |
| 2. Power ON | POWER ON indicator |
| 3. OVER LOAD | OVER LOAD protection indicator |
| 4. OVER TEMPERATURE | OVER TEMPERATURE protection indicator |
| 5. Ventilation Openings | Do not obstruct, allow at least 10CM for air flow. |
| 6. Outlet | Max. 16A/250Vac --- LDS-300-12E/24E<br>Max. 20A/125Vac --- LDS-300-12A/24A |
| 7. Metal Strain Relief Clamp for AC Output Cable | |
| 8. Cover plate for compartment | |
| 9. Remote Control | Modular Jack for RC-300 (optional) |



| | | |
|---|---|---|
| 10. External Switch | Inverter power ON/OFF through external BY-PASS or voltage signal.<br><br>BY-PASS: Connect jumper between 1 to 2 to by-pass remote ON/OFF.<br><br>Voltage signal: Connect 10V~33VDC and between 3(+) to 4(-) to start Inverter ON/OFF. |  |
| 11. Compartment containing L, N and G terminals for hardwiring of AC output to Panel board | | |
| 12. Grounding Nut and Bolt | | |
| 13. AC output Cable external Terminal. | | |
| 14. Negative (-) DC Input Terminal | Connect to battery Negative (-). | |
| 15. Black removable plastic cover for (-) DC input terminal | | |
| 16. Positive (+) DC Input Terminal. | Connect to battery Positive (+). | |
| 17. Red removable plastic cover for Positive (+) DC input terminal | | |
| 18. Fan Ventilation | Be sure to keep it a distance.(at lease 10CM). | |
| 19. Grounding Terminal | Connect the wire #8 chassis. | |



3-4 Available Output Sockets



## 4. INSTALLATION AND OPERATION

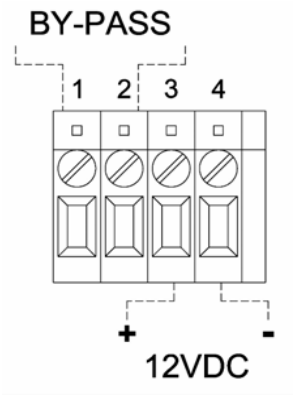
4-1 DC Cable

| Model No. | Maximum DC input current at rated output power | Minimum current rating of external fuse | Size of Wire (AWG) | Size of Wire (mm2) |
|---|---|---|---|---|
| LDS-300-12 | 360A | 360A | #0 or #2 x 2 | 53 (mm2) or 33 (mm2) x 2 |
| LDS-300-24 | 180A | 180A | #2 or #4 x 2 | 33 (mm2) or 21(mm2) x 2 |

**** Warning: If using size of DC cable too small, that will cause hazard of fire.***

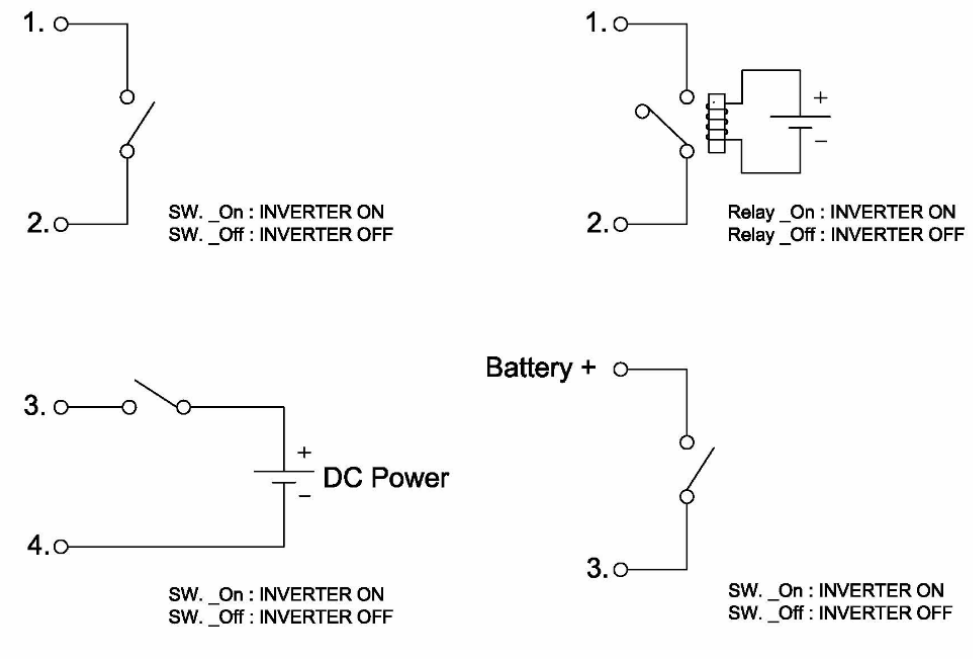
4-2 External Switch Control

In addition to Power ON/OFF switch on the front panel, there is an external switch to control ON/OFF of inverter.




**** Warning: The max. range of voltage for external switch to control – 10VDC ~ 33VDC.***

There are several connecting ways of external switch as follows:

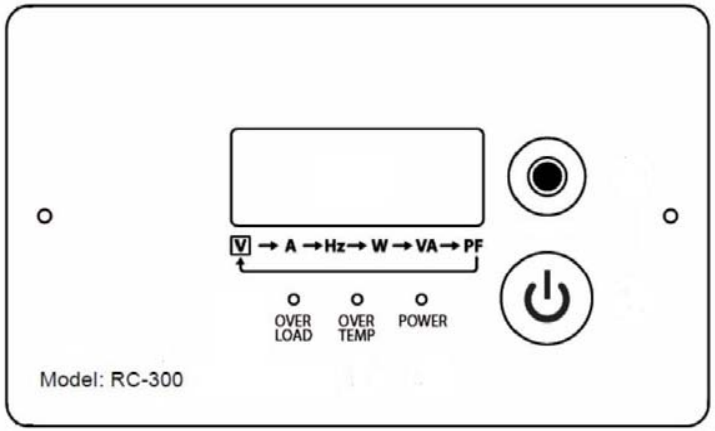



4-3 Remote Control / Power Meter (option)

RC-300 is an optional accessory of inverter. This remote control indicates the power ON/OFF and LED status on front panel of inverter, and it also has a LCD to show the function of remote control.

The LCD displays the exact output parameters, such as voltage (V), current (A), frequency (Hz), power (W), apparent output power (VA) and power factor (PF).

If you need detailed operating information of RC-300, please refer to user's manual of RC-300.




4-4 Protection

4-4-1. Low Input Voltage Alarm

When voltage of battery is too low, buzzer will alarm and users need to replace new battery, to charge battery or to shut down the loading. When voltage of battery recovers to setting voltage, the buzzer will stop automatically.

LDS-300-12: The setting voltage of buzzer to alarm - 10.7V +/-0.1V.
LDS-300-24: The setting voltage of buzzer to alarm - 21.4V +/-0.2V.

4-4-2 Low Battery Voltage Protection

When voltage of battery is lower than the working range of inverter's voltage, the protection circuit inside inverter will sense low voltage and enter into status of low voltage protection.

- Shut down output voltage
- Buzzer alarms

LDS-300-12: The setting voltage of low voltage protection -10.0V +/-0.1V.
LDS-300-24: The setting voltage of low voltage protection - 20.0V +/-0.2V.

When input voltage recovers to restart voltage, inverter will automatically start and will recover output voltage.

LDS-300-12: The setting voltage of restart voltage - 11.5V +/-0.3V
LDS-300-24: The setting voltage of restart voltage - 23.0V +/-0.5V



4-4-3 Over Voltage Protection

When voltage of battery is over the working range of inverter's voltage, the protection circuit inside inverter will sense high voltage and enter into status of high voltage protection.

- Shut down output voltage
- Buzzer alarms

When voltage recovers within working range, inverter will automatically start and will recover output voltage.

LDS-300-12: The setting voltage of high voltage protection – 17.2V +/-0.1V.
LDS-300-24: The setting voltage of high voltage protection – 34.4V +/-0.2V.

4-4-4 Over Load Protection

The normal working range of LDS-300 is 0~3000W. When loading reaches 3300W+/-50W, inverter will enter into status of over load protection.

- Shut down output
- Buzzer alarms
- LED of ''OVER LOAD'' on front panel lighting

4-4-5 Over Temperature Protection

Under abnormal operation, such as exposing to direct sunlight, not enough ventilation, working when overload (>3000W)..., all of them will cause over temperature to inverter. When over temperature, inverter will enter into status of over temperature protection.

- Shut down input
- Buzzer alarm Pi~Pi
- LED of ''OVER TEMP'' on front panel lighting

**** Warning: When over temperature occurs, please remove the problem so as to avoid inverter damaged.***

4-4-6 Short Circuit Protection

When short circuit happens to output of inverter and over 1 second, inverter will enter status of short circuit protection.

- Shut down input
- Buzzer alarms Pi~Pi

- LED of ''OVER LOAD'' on front panel lighting

If you want to restart after short circuit protection, please reset the inverter.

**** Warning: Please remove problem of short circuit before reset so as to avoid inverter damaged.***

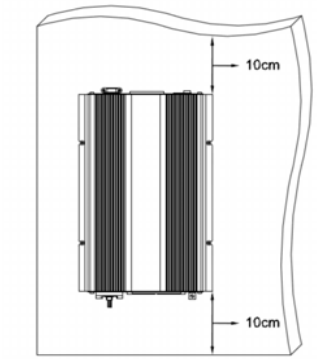
4-4-7 Input DC Reversed Polarity Protection

When reverse polarity connection occurs to input of inverter, fuse inside inverter will be broken to avoid parts of inverter damaged.

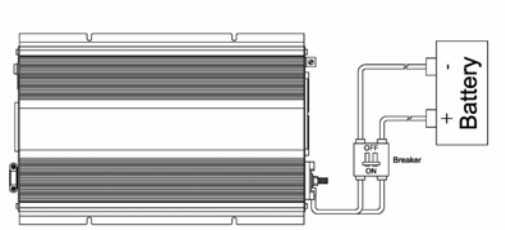
**** Warning: Please replace fuse by supplier or electrical engineer and use fuse with the same rating.***

4-5 Inverter Operation

- Install inverter firmly and keep a free space of 10 cm around the inverter.

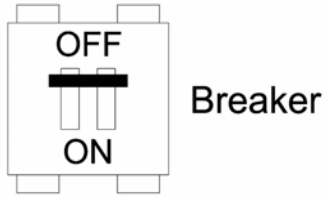



- Add breaker or fuse between inverter and battery to protect.






- Before installing DC cable, please switch the external breaker to OFF then to install positive cable, negative cable and grounding cable. Also, make sure the nuts have been screw up firmly.




- Switch OFF the loading and Connect loading.
- Switch to ON position of both external breaker and the switch on front panel. The LED of POWER ON will be lighted. It means the AC outlet of inverter has voltage output.
- Switch ON the loading.

## 5. TROUBLE SHOOTING

| PROBLEM | POSSIBLE CAUSE(S) | REMEDY |
|---|---|---|
| Normal output AC voltage<br><br>Buzzer alarms | Voltage of battery too low | Charging battery |
| Operation of inverter is normal, but inverter shuts down and buzzer alarms in a short time. | 1. The capacity of battery is too small.<br>2. Battery is too old. | 1. Replace battery to capacity over 100AH.<br>2. Replace battery |
| No output<br><br>LED of ''OVER LOAD'' lights and buzzer alarms | Over load | Lower loading |
| | Short circuit externally | Make sure the problem of short circuit and remove. |
| | Damage of internal parts | Return for repair. |
| No output<br><br>LED of ''OVER TEMP'' lights and buzzer alarms | Over load | Lower loading |
| | Space of ventilation of fan inlet is not enough or blocked. | Improve the ventilation or remove barrier. |
| No output<br><br>LED of ''POWER'' off | Damage of internal parts results in fuse broken. | Return for repair. |
| | Reverse polarity connection results in fuse broken. | Return to replace fuse. |