AWILCO

PURE SINE WAVE POWER INVERTER 3000W

AW1230EU-R
AW1230UK-R

USER MANUAL

Please be sure to read and save the entire manual before using the product.
Misuse may result in damage to the unit and/or cause harm or serious injury.

PLEASE KEEP THE MANUAL FOR FUTURE REFERENCE

SERVICE CONTACT INFORMATION

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AWILCO
FLEXIBLE POWER SOLUTIONS

Thank you for purchasing this high-frequency pure sine wave inverter. This unit converts DC power from 12V battery to 220~240Vac with advanced features and functions:

1. Input and output complete electrical isolation design.
2. Adopt SPWM technology, pure sine wave output.
3. Anti-surge current design, suitable for lithium battery power supply system.
4. Compatible with non-resistive load, such as microwave oven, washing machines, and motors.
5. 3.6kW mains power switching input, switching time <30ms to ensure uninterrupted use of electrical appliances.
6. Independent 20A solar charging function, convenient to supplement energy to the battery.
7. Select high-efficiency amorphous magnetic core to ensure high efficiency and stability of products.
8. Low no-load power loss, low standby power loss, and low total harmonic distortion (<3%).
9. Input reverse connection/under-voltage/over-voltage protection, output overload/short circuit protection, over temperature protection.
10. High-definition LCD design, real-time parameter reading and modification.
11. Speed adjustable and silent fan based on load and temperature control.
12. Adjustable output voltage 220~240Vac.
13. USB charging port 5V2A, able to supply power to small electronic devices.
14. RJ12 communication interface, support optional remote display.

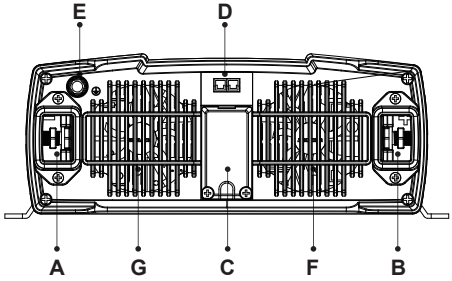
WARNINGS & CAUTIONS

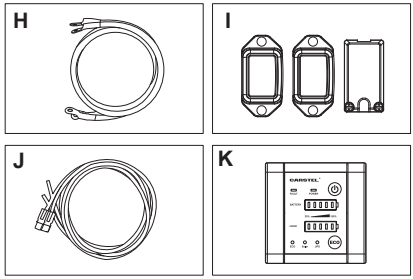
Please read this manual carefully before using the inverter. Failure to follow these instructions may result in damage to the unit and could also result in serious injury to users. Always consult your licensed dealer/retailer for any repairs or spare parts services.

1. Do not use under wet weather and the inverter is for indoor use only.
2. Do not place any objects on the inverter or battery.
3. The inverter and battery shall avoid direct sunlight, external heat source, corrosive chemicals, flammable fumes or gases.
4. Please ensure all ventilation vents and fan vents are not obstructed in any way.
5. Double check battery negative and positive posts before making any connection; a wrong connection (reverse polarity) will cause the fuses to blow and may damage the inverter.
6. Do not use substandard or damaged wiring with this inverter, it may cause fire or a shock hazard. Ensure that all the DC connections are tight.
7. A small spark (arc) can occur when making the final battery connection, this is most common when the inverter has not been used for some time. To minimize this, make the last connection quickly and completely.
8. Connect 220-240Vac appliances that are in safe condition only. When the inverter is working, please have someone nearby in case of an emergency.
9. Remove personal metal items such as rings, bracelets, necklaces, and watches when working with a battery.
10. If battery acid contacts skin or clothing, wash immediately with soap and water. If acid enters eye, immediately flush eye with running cold water for at least 20 minutes and get medical attention immediately.
11. For risk of electric shock: Do not attempt to open, disassemble or repair the inverter if damaged. Please keep away from children and pets to touch the inverter.

PRODUCT OVERVIEW

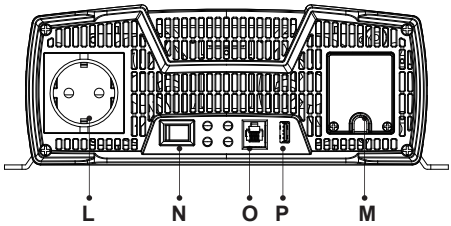
DC Input Side:





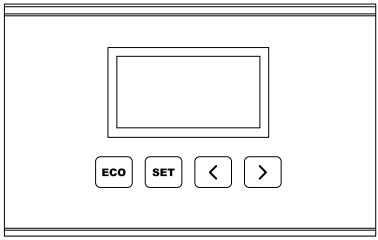
A: Negative Input Terminal
B: Positive Input Terminal
C: AC Transfer Switch Input
D: Solar Input Ports
E: Chassis Ground
F: Cooling Fan 1
G: Cooling Fan 2
H: Battery Cables (Option)
I:Protective Caps
J:Solar DC Input Cables
K:Remote (Option)

AC Output Side:

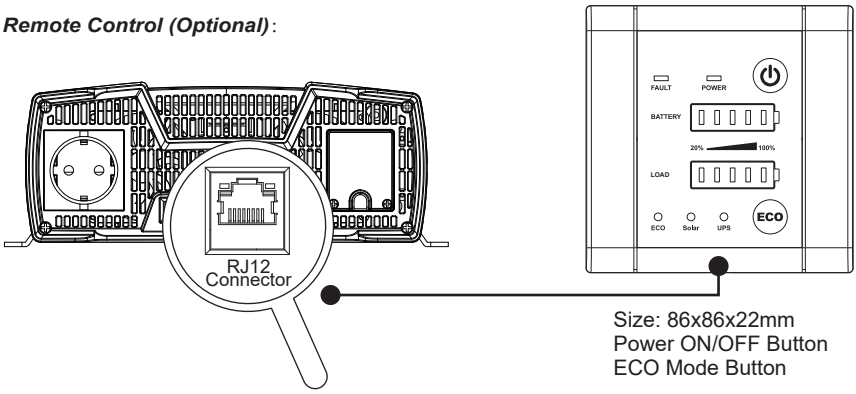


L: AC Output Socket
M: AC Output Terminal (With Protective Caps)
N: ON/OFF Switch
O: Remote Port
P: USB Port

LCD Screen & Buttons:



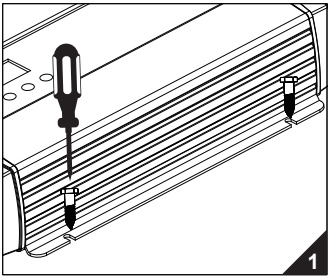
Remote Control (Optional):

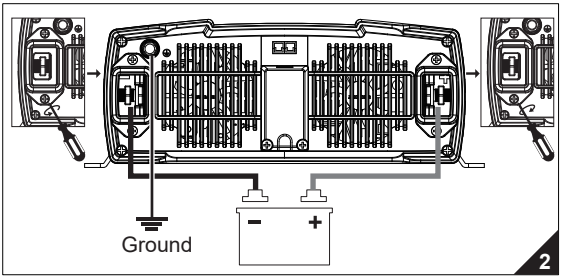


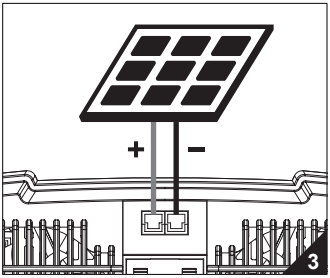
Size: 86x86x22mm
Power ON/OFF Button
ECO Mode Button

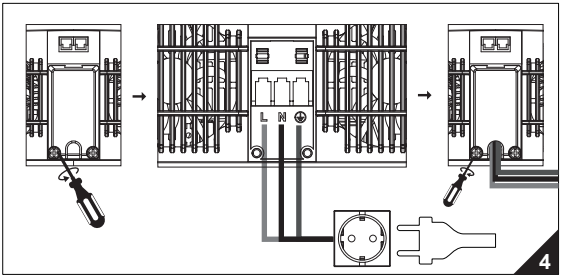
INSTALLATION STEPS

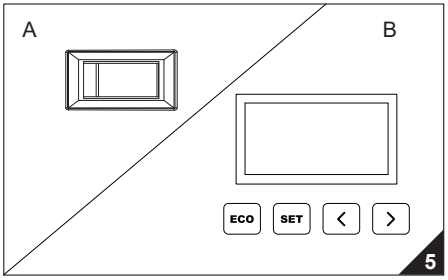
- **If you use AC output socket (Part L) only:**

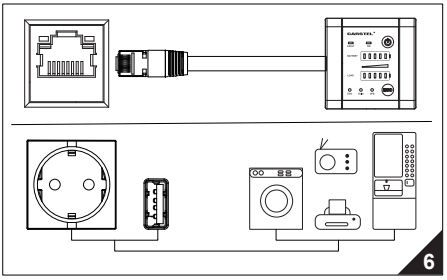












Step.1: Position screws into mounting holes to fix the inverter properly.

Step.2: Use battery DC input cables to connect inverter with battery. Double check battery negative and positive terminals before connection and ensure its tightness. For safety reason, it is necessary to connect GND cable (not supplied) from inverter to vehicle chassis ground.

Step.3: If solar resource/system device is available, you can use solar input cable to connect it with solar input ports on the inverter to replenish energy for the battery.

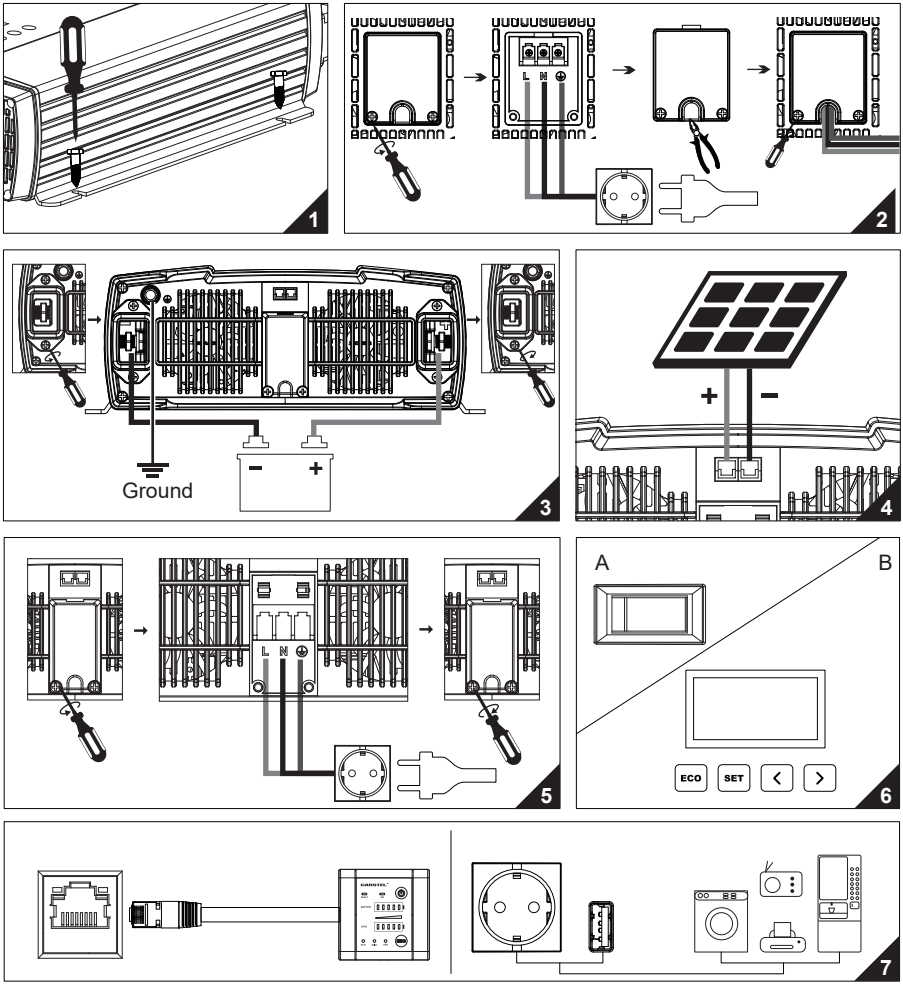
Step.4: If mains electricity is available, you can use AC transfer switch cable to connect it with AC transfer switch input port on the inverter to enjoy uninterrupted use of electrical appliances. Remember to properly connect L\N and GND cables, then re-close the protective cap. (You can cut off a small lower part of the cab to make device cables spread ouside.)

Step.5: Turn on the inverter by ON-OFF switch. Set ECO mode or other values in SETTING mode if in need.

Step.6: Plug your appliances into the AC output socket. Now It is time to enjoy the output function! USB port 5V2A output is also available! Meanwhile you can connect the inverter with a remote to control the inverter in a distance.

SAFETY WARNING: When the inverter is powered on, connected with mains power (UPS mode), or connected with the solar panel, do not open the protective caps of AC output terminals to avoid electric shock. (Part M)

- **If you need to AC output Terminal (Part M):**



Step.1: Position screws into mounting holes to fix the inverter properly.
Step.2: For safety season to avoid electric shock, first of all please unifx the protective caps of AC output terminal (M) and connect the L/N/GND terminals with device cables properly. Then re-close the protective cap. You can cut off a small lower part of the cab to make device cables spread ouside.
Step.3: Use battery DC input cables to connect inverter with battery. Double check battery negative and positive terminals before connection and ensure its tightness. For safety reason, it is necessary to connect GND cable (not supplied) from inverter to vehicle chassis ground.
Step.4: If solar resource/system device is available, you can use solar input cable to connect it with solar input ports on the inverter to replenish energy for the battery.

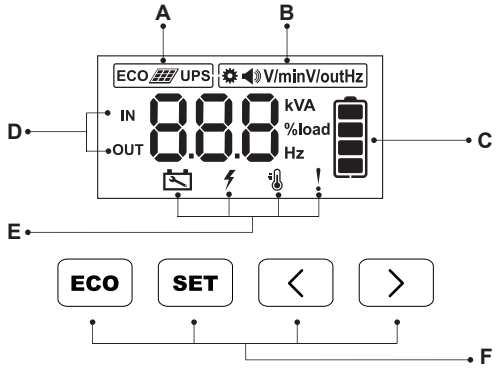
Step.5: If mains electricity is available, you can use AC transfer switch cable to connect it with AC transfer switch input port on the inverter to enjoy uninterrupted use of electrical appliances. Remember to properly connect L\N and GND cables, then re-close the protective cap. (You can cut off a small lower part of the cab to make device cables spread ouside.)

Step.6: Turn on the inverter by ON-OFF switch. Set ECO mode or other values in SETTING mode if in need.

Step.7: Now It is time to enjoy the output function! USB port 5V2A output is also available! Meanwhile you can connect the inverter with a remote to control the inverter in a distance.

SAFETY WARNING: If you need to stop using the inverter and detach the cord from the terminals. Before open the cap, please make sure that inverter is powered off, disconnected with mains power (UPS mode) and solar panel, or it could cuase electric shock.

SCREEN INDICATION AND SETTING



A.ECO/Solar/UPS Functions
B.Setting Options
C.Battery Electricity Status
D.Parameters Display
E.Fault Icons
F.4 Buttons Control

Bottom	Details
ECO	Press ECO button to activate or quit ECO mode. When in ECO mode, the icon “ECO” is indicated on the LCD screen.
SET	Press and hold SET button until the LCD screen indicates ⚙, then the inverter is now in the setting mode with 3 options. Press SET button to choose setting options.
< >	When the inverter is normally working, press the button then the screen will alter display contents in the following sequence loop as shown by Pic.1; When the inverter is in UPS mode, which is also called "AC Transfer Switch Input Function", press the button then the screen will alter display contents in the following sequence loop as shown by Pic.2: **(Default)** Output Voltage Frequency **(OUT --- Hz)** → Input Voltage **(IN --- V)** → Output Voltage **(OUT --- V)** → Output Power **(OUT --- kVA)** → Output Current **(OUT --- A)** → Output Load Percentage **(OUT --- %load)** → Output Voltage Frequency **(OUT --- Hz)** **Pic.1** < for ↑ **(Default)** Output Voltage **(OUT --- V)** → Input Voltage **(IN --- V)** → Output Voltage Frequency **(OUT --- Hz)** **Pic.2** > for ↓

Setting Options
The inverter has 3 options for Setting 1. ⚙◀)) Alarm (The first setting on default): ON/OFF 2. ⚙ V/min Values for under-voltage protection: 10.5~11.5V, 0.5V/DIV 3. ⚙ V/out Output voltage: 220~240Vac, 5Vac/DIV Press the " < " or " > " button to adjust the value. After adjusting, press and hold the SET button until the " ⚙ " disappears on the screen, then the inverter will quit the setting mode and will work based on new adjusted values which are now saved. The inverter will automatically quit setting mode in 30 seconds if no values adjusted or new values not saved. Once the inverter is in setting mode, the output will shutdown immediately and will automatically recover when the setting finished.

Function	Details
220~240V Pure Sine wave Output	● **When 10.5V to 15.5V input voltage is available:** Turn on the ON/OFF switch, rated 240V pure sine wave will output in 5 seconds. (5Vac/DIV adjustment)
Charging from Solar Panels	● **The inverter has built-in PWM charge controller and compatible with 15~45V, Max 20A solar panel.** Connect solar panel properly with the inverter, the Icon " ▰▰▰ " will appear on the screen, and: ● If the battery voltage is less than 13.5V: The solar panel will start to charge the battery in 10 seconds and dynamic battery charging icon " ▮ " will appear on the screen to indicate charging process. ● When the charging current is over 20A for 5 consecutive seconds: The charging will immediately stop and restart charging in 15 seconds. ● When the battery reaches 14.4V (Max voltage), The charging current will be less than 1A and charging is now finished, icon " ▮ " indicating full charge. **Please Note:** ● When the inverter is switched OFF: Connecting with solar panel will automatically turn on the inverter and start charging the battery. If the solar panel is then disconnected, the inverter will be automatically turned off. ●When the inverter is switched ON: Connecting with solar panel will start charging battery. AC Socket can normally output. If the solar panel is then disconnected, the inverter still remains turned on.
UPS Mode (AC Transfer Switch Input)	● **When connecting the mains power to AC Transfer Switch Input (Part C)** The inverter will detecting 220-240Vac/50Hz and the inverter AC load will be automatically supplied by the mains. The screen will indicate icon "UPS". ● **But when improper mains voltage or frequency is detected:** The inverter AC load will be supplied by the battery system. The max. switch time is 30ms. Fuse from the mains is 15A.

Function	Details
ECO Mode (Energy Saving Function)	● **ECO Mode is turned on or off by the ECO button on the inverter.** In ECO mode, the icon “ECO” is indicated on the screen and inverter will check the load by the way of pulse output. ● If the load is detected < 50W: The inverter will stop output and wait for next period of pulse. ● If the load is detected ≥ 50W: The inverter will start to output. During output the inverter will continuously detect the load to check whether it should proceed the output.
Protection	● Over-voltage and Low-voltage Protection ● Reverse Polarity Protection ● Output Short Circuit Protection ● Over-temperature Protection ● Over-load Protection See the below trouble-shooting for how these protection work.

TROUBLE-SHOOTING

Icon Indicated	Fault	Automatic or Manual Solutions
F01 	Input “Over or Under voltage” Fault. The fault occurs when input voltage <10.5V or >15.5V.	The inverter will beep-alarm and stop output then take 1 minute to detect voltage to check if it has reached threshold voltage for automatic recovery: When threshold voltage >12.0V: The inverter will automatically recover from under-voltage protection. When threshold voltage <14.5V: The inverter will automatically recover from over-voltage protection.
F02 	AC Output Short Circuit Fault	The inverter will beep-alarm and stop output. Please unplug and check your appliance, then restart your inverter manually.
F03 	Over temperature fault when the fans malfunction or ambient temperature is over 60°C.	The inverter will beep-alarm and stop output. Please turn off the inverter and unplug your applience. Leave the inverter for cooling and wait until the temp below 60°C, then restart your inverter manually.
F04 	Over Load Fault	The inverter will beep-alarm and will stop output in serveral seconds. Please unplug and check your appliance, then restart your inverter manually.
F05	Internal Fault	Try to restart your inverter several times. If the inverter still fails to work normally, please consult and send it back to your licensed dealer/retailer for any repairs or spare parts services.

SPECIFICATION

Basic Specifications	
Model	30.01.3000 (PURE SINE WAVE)
Power	3000W Continuous, Peak Power: 6000W
DC Input	10.5-15.5Vdc
AC Output	220-240Vac, 50Hz
USB Output	USB-A 5V/2A
Back Drain Current	Normal <1.6A, ECO <0.2 A
Total Harmonic Distortion	<3%
Efficiency	>88%
Working Temp	-20 ~ 45°C
IP Rating	IP22
Battery Type	STD, GEL, AGM, LiFePO4
Inverter Size	486*278*103 mm
Weight	6.8 kg
Solar Charging Function	
Charging Mode	PWM
PV Input	15-45Vdc, Max.20A
AC Transfer Switch Function	
Input Maximum Power	3600W
Acceptable Voltage	220-240Vac
AC Transfer Switch Fuse	15A
AC Transfer Switch Time	<30ms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