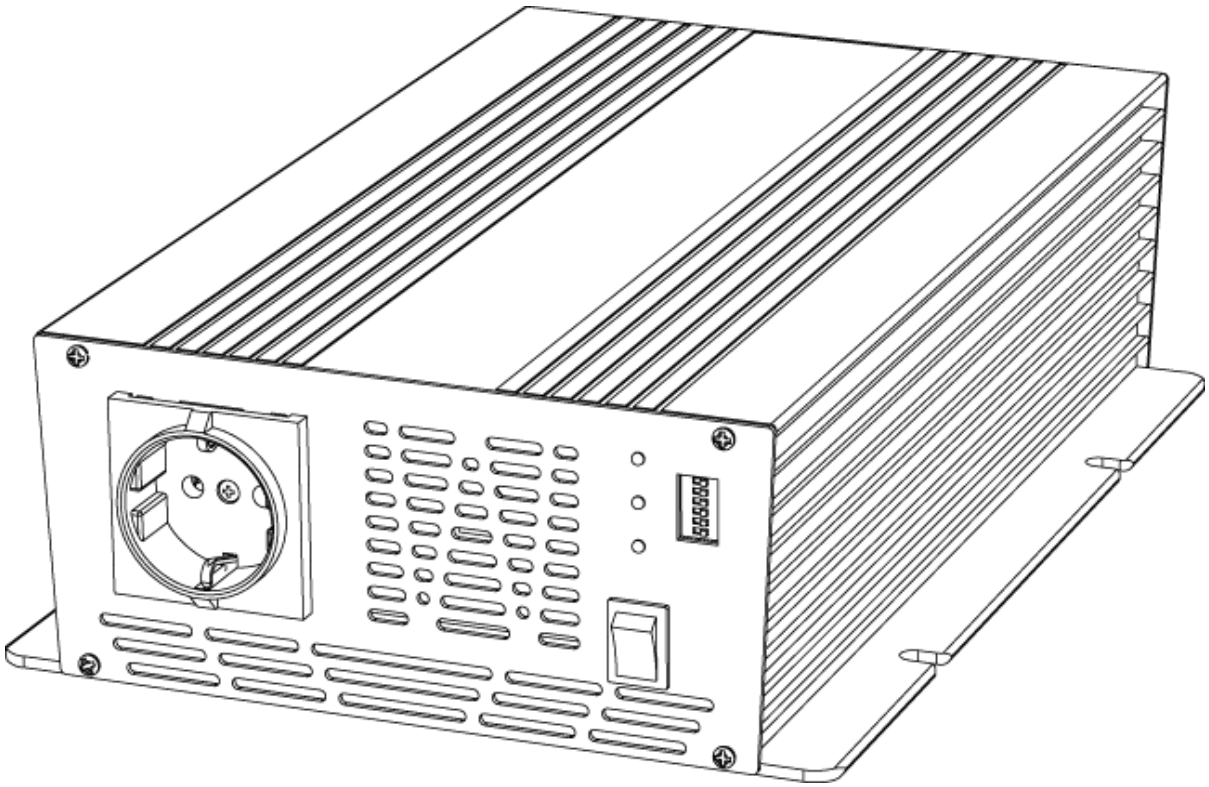
aap.tron



E13 CE

ASP Series User's Manual

ASP-0700/1000/1500/2000/3000

PURE SINE WAVE POWER INVERTER

Save This Manual

Please read this manual carefully prior to storage, installation, wiring, operation and maintenance of power inverter.

This manual contains important instructions and warnings that you should follow during the storage, installation, wiring, operation and maintenance of power inverter. Failure to follow these instructions and warnings will void the warranty.

Please note that only qualified and trained technician can do installation, wiring, operation and maintenance of power inverter.

Section 1: Safety Instruction

1-1 General Safety


Do not expose the power inverter to rain, snow, spray or dust. To reduce the risk of fire hazard, do not cover or obstruct the ventilation openings and do not install the power inverter in a zero-clearance compartment.


To avoid the risk of fire and electric shock, make sure that the existing wiring is in good electrical condition, and the wire size is not undersized.


The power inverter contains components which can produce arcs or sparks. To prevent fire or explosion do not install in compartment containing batteries or flammable materials or in location which require ignition protected equipment. This included any space containing gasoline-powered machinery, fuel tanks, or joints, fittings, or other connection between components of the fuel system.


Depending on the user scenario, the AC output of the power inverter may require user installed breaker or fuse. In AC output hardwire application, AC socket will not been provided. The power inverter incorporates standard AC short circuit protection.


An over current protection at the time of installation shall be provided by others for the AC output circuit.


Additional breakers suitable for 20A branch circuit protection shall be provided for the GFCI receptacles.


When working on the power inverter, please remove watches, rings, or other metal objects. Use tools with insulated handles and wear rubber gloves and boots.

1-2 Other Safety


Upon receipt, examine the carton box for damage. If you have found any damage on the carton box please notify the company you purchased this power inverter from.


Do not operate near water or in excessive humidity.


Do not open or disassemble the power inverter, and warranty may be voided.


The DC side connections should be firm and tight.


Reliable grounding should be maintained.


Do not drop a metal tool on the battery. The resulting spark or short circuit on the battery or on the other electrical part may cause an explosion.


Install the power inverter in a well ventilated area. Do not block the front air vents or the rear air exhausts of the power inverter.


Adequate input power must be supplied to the power inverter for proper use; correct wiring sizes must be ensured.


Mount the power inverter such that the fan axis is horizontal.


Do not operate the power inverter close to combustible gas or open fire.


Do not operate appliances that may feed power back into the power inverter.


The power inverter should be operated in an ambient temperature range of -20 ° C to 40 ° C otherwise the output efficiency may be affected. Air flow to the power inverter must not be blocked.

1-3 Installation on Boat


Incorrect use or installation of the power inverter on boat may lead to corrosion of the boat. Please allow qualified personnel to perform the installation of the power inverter.

Section 2: Introduction

2-1 Product Introduction

This is a state-of-the-art DC to AC pure sine wave power inverter. With advanced digital signal processing technology, the power inverter has multiple functions such as power turbo mode, power saving mode, adjustable output voltage / frequency, fan speed control… etc.

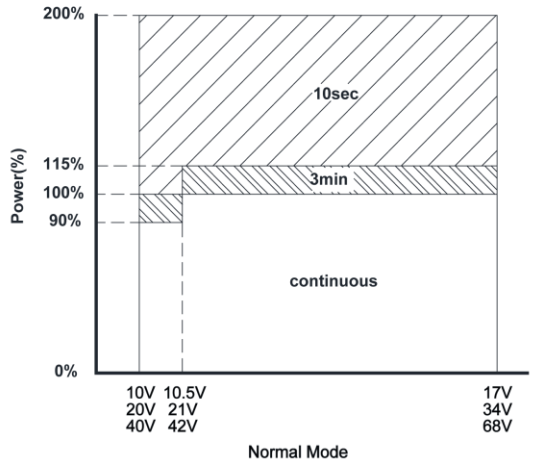
The power inverter has outstanding protection included input DC polarity reversed protection, input DC over/under voltage protection, internal over temperature protection, overload protection and output short circuit protection.

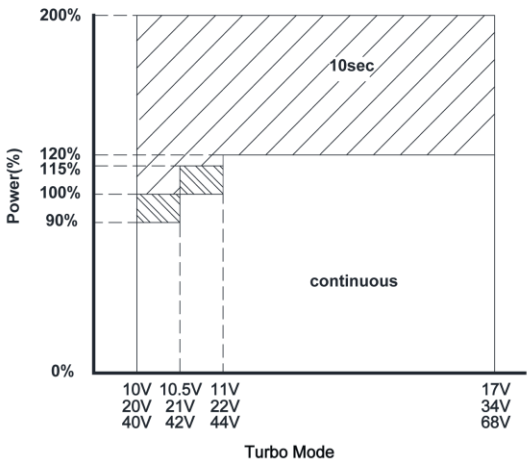
With RS232 communication port, it can be easily to monitor status of the power inverter.

2-2 Functions and Features

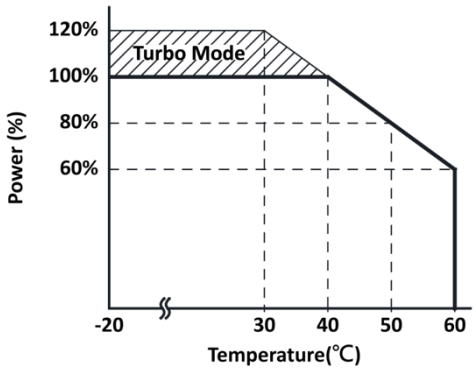
- DC Input Polarity Reversed protection by auto- recovery
- Input DC Over/Under Voltage Protection.
- Internal Over Temperature Protection.
- Output Overload Protection.
- Output Short Circuit Protection.
- Adjustable AC output voltage and frequency.
- Fan speed control by Load and Temperature
- ECO mode available with power consumption <1W.
- Turbo mode available: 120% continuous output power when temperature <30°C.
- High efficiency: max up to 94%.
- Low THD: ≦2.5%
- With RS232 communication port.
- With dry contact terminal.
- Remote LCD display controller (option)

2-3 Output Power and Input Voltage Curve



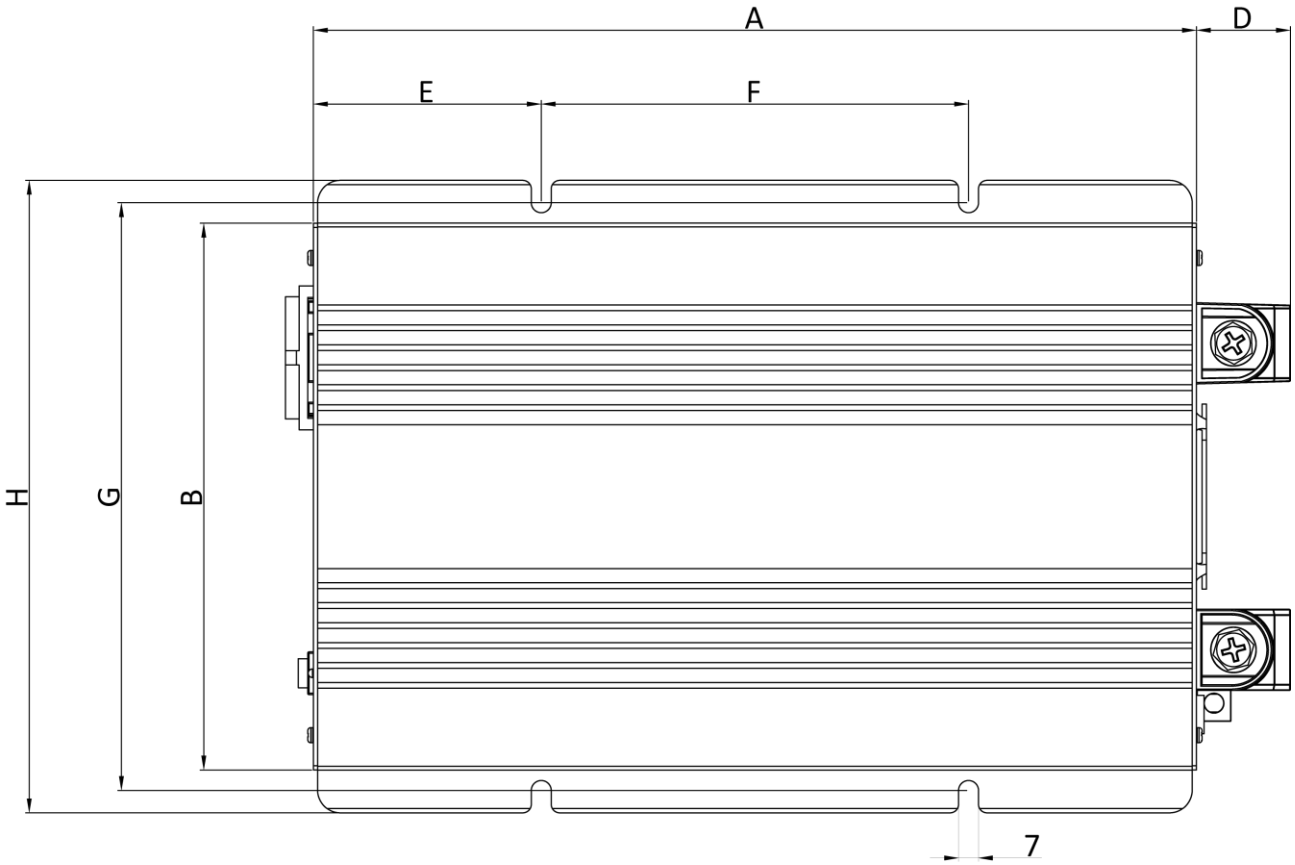


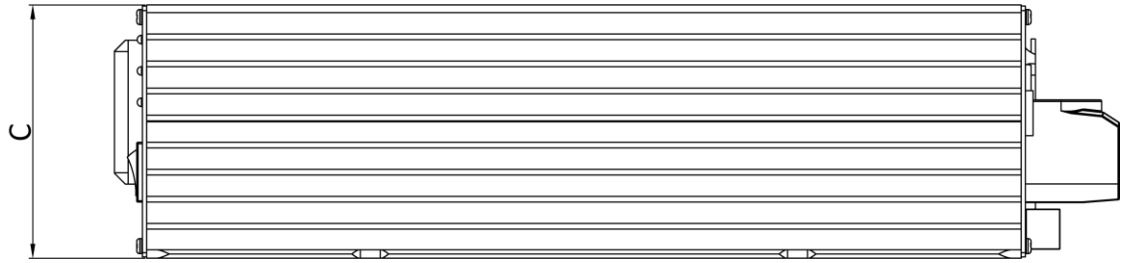
2-4 Output Power and Temperature Curve



Section 3: Appearance and Mechanism

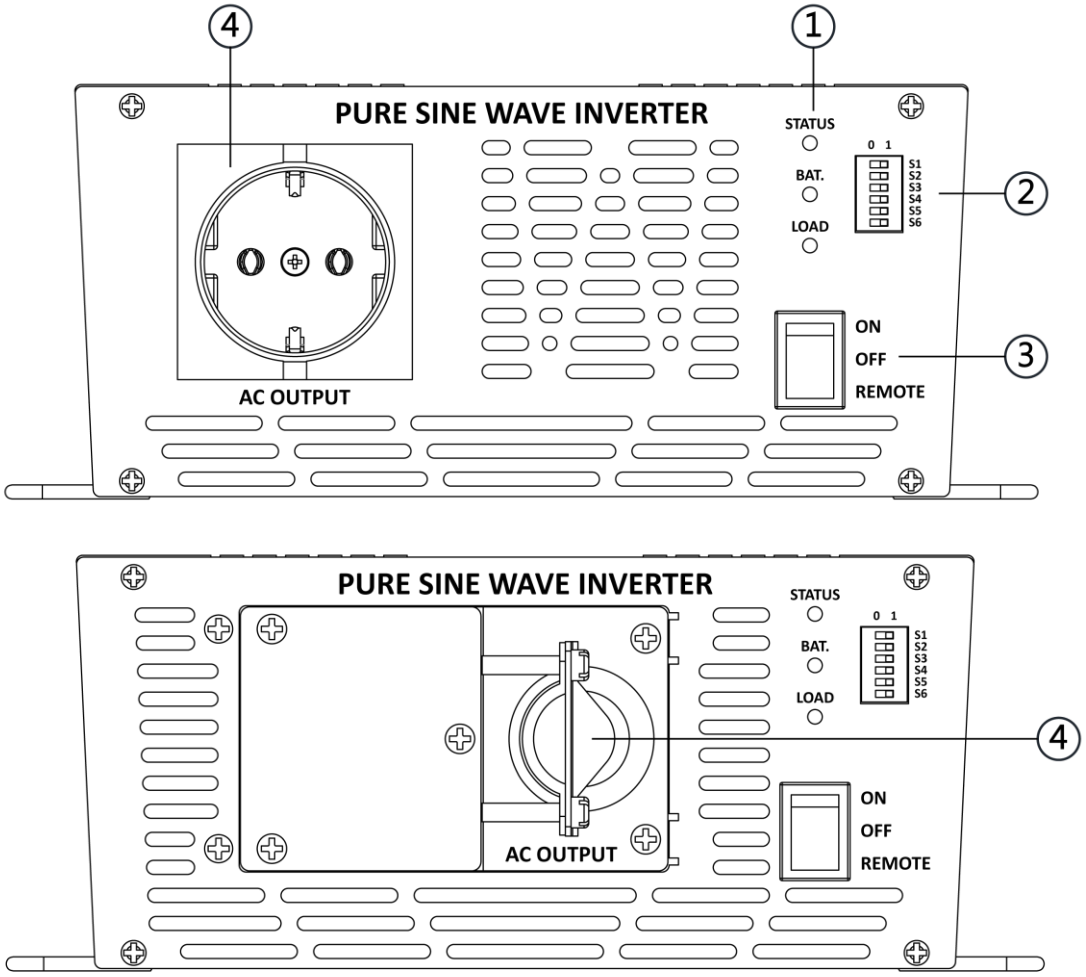
3-1 Appearance and Dimension





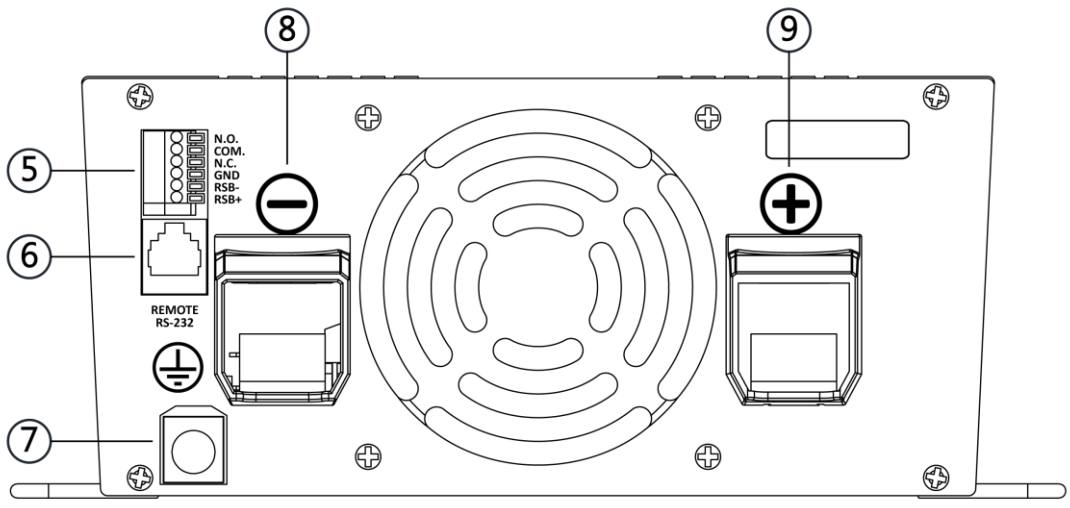
ASP-0700	210	192	88.9	33	50	110	206.5	222
ASP-1000	250	192	88.9	33	50	150	206.5	222
ASP-1500	300	192	88.9	33	80	140	206.5	222
ASP-2000	375	192	88.9	33	80	215	206.5	222
ASP-3000	455	192	88.9	33	80	295	206.5	222

3-2 Front Panel



1.	LED indicators
2.	DIP switch
3.	Main switch
4.	AC output socket

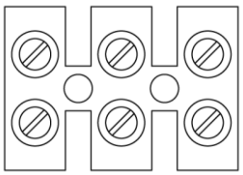
3-3 Rear Panel



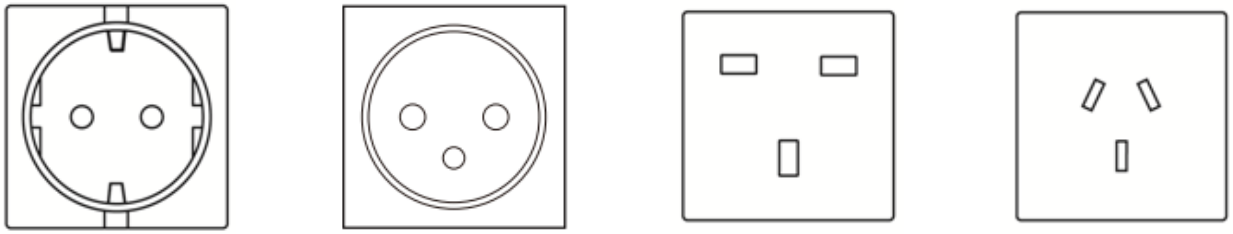
5.	Dry contact
6.	Remote port
7.	Ground terminal
8.	Battery - terminal
9.	Battery + terminal

3-4 AC Output Socket

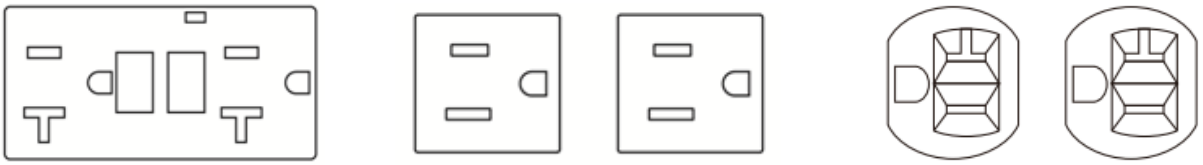
3-4-1 Output Socket for Hard Wire System



3-4-2 Output Socket for 200~240VAC System



3-4-3 Output Socket for 100~120VAC System



Section 4: Installation and Wiring

4-1 Prior to Installation

Only a qualified and trained technician can do the installation. If you want to install by yourself, installation must be under the supervision of qualified and trained technician.

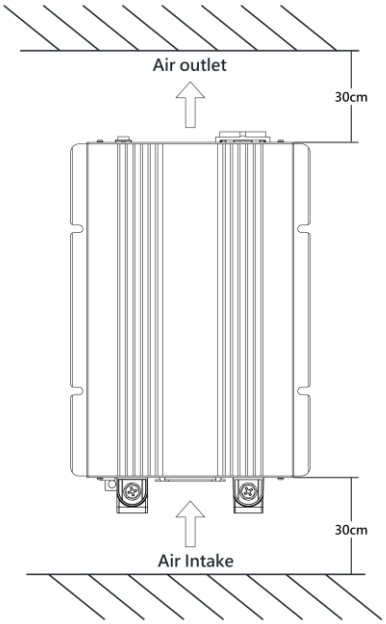
During the transportation, some unpredictable situations might occur. It is recommended that you inspect the power inverter exterior packaging. If you notice any damage, please immediately contact company you purchased this power inverter from.

Make sure the MAIN SWITCH is at OFF position.

4-2 Installation Environment

The power inverter has to be installed in a dry and clean place, not exposed to humidity and heat source.

Make sure that the place is well ventilated. If installed inside a cabinet, ensure proper ventilation. At least keep a free space of 30cm around the power inverter.



Do not install the power inverter in the same cabinet with battery. Gas discharged from the battery will damage the power inverter.

The air intake and the air outlet of the power inverter should not be blocked.

The installation surface must be level and of sufficient strength.

4-3 Prior to Wiring

The DC cables should be as short as possible: less than 6 feet / 1.8 meter ideally.

The size of the cable should be thick enough to limit the voltage drop to less than 2% when carrying the maximum input current to prevent frequent low-input voltage alarm and shutdown.

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 the 110VAC / 220VAC cable and the 12VDC / 24VDC cable in the same duct.

Do not lay cables which are loose or bent next to electrically conductive material (metal).

4-4 Cable Size and Breaker / Fuse

The following size of cables and breakers / fuses are recommended. Distance: <6 feet / <1.8 meter between the battery and the power inverter.

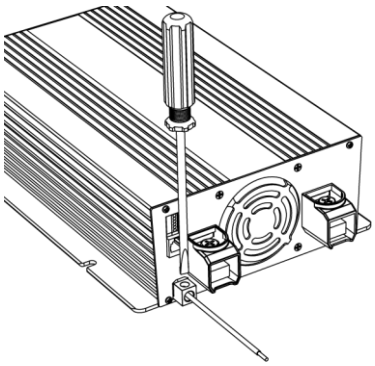
ASP-3002	#3/0 AWG	500A
ASP-3004	#1 AWG	250A
ASP-3008	# 4 AWG	125A
ASP-2002	# 0 AWG	320A
ASP-2004	# 3 AWG	160A
ASP-2008	# 6 AWG	80A
ASP-1502	# 1 AWG	250A
ASP-1504	# 4 AWG	125A
ASP-1508	# 7 AWG	60A
ASP-1002	# 3 AWG	160A
ASP-1004	# 6 AWG	80A
ASP-1008	# 8 AWG	40A
ASP-0702	# 4 AWG	120A
ASP-0704	# 7 AWG	60A
ASP-0708	# 10AWG	30A

**** Note: Batteries are capable of providing very large currents in case of short circuit. The fuse should be as close to the positive battery terminal as possible.***

4-5 Wiring

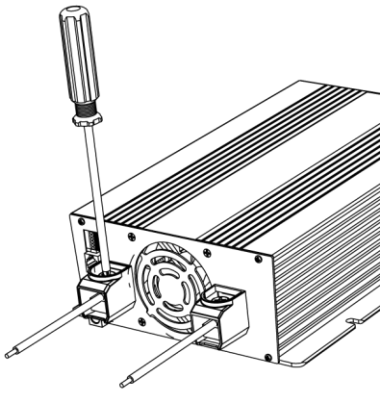
4-5-1 Connecting the Ground

Must be connected to earth ground prior to make any other connections to the equipment. Please use 18 AWG ~ 10 AWG cable for grounding.



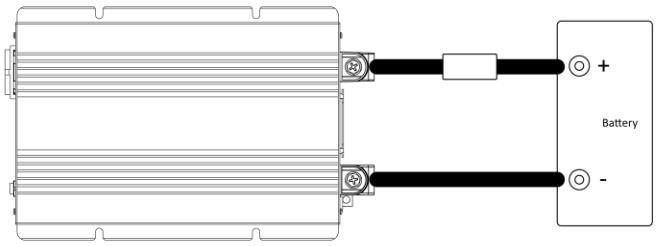
4-5-2 Connecting the Battery

Connect DC input terminals to 12VDC / 24VDC battery or other DC power source. 【+】is positive and 【-】is negative.



**** Note:***

- ***Use high quality copper wire and keep the cable length short which is a maximum of 3 ~ 6 feet.***
- ***Make sure all DC connections are tight (torque to 11 ft-lbs, 15Nm). Loose connections could result in overheating and can be a potential hazard.***
- ***The recommended breaker / fuse should be installed as close to the battery positive terminal as possible. Failure to use breaker / fuse between the power inverter and battery may cause damage to cable / power inverter and will void warranty.***



4-5-3 Connecting the Loads

Make sure total power consumption of loads do not exceed the rated power of power inverter. If the total power consumption of loads over rated power of power inverter, remove the non-critical loads until the total power consumption is below the rated power of power inverter.

**** Note: When connecting devices with motor drive such as power drills and refrigerators, please make sure peak power of such devices first. The peak power of such devices will be higher than nominal power rating.***

Section 5: LED Indicators and Setting

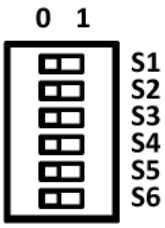
5-1 LED Indicators

Green Light				
Light Continuously	———	Normal	Normal	Loads 0% ~ 104%
Flash Slowly	– – –	Standby		ECO Mode
Flash Quickly	• • • • • •			Turbo Mode Loads 104% ~ 120%
Orange Light				
Light Continuously	———		Low Voltage	Loads >104%
Flash Quickly	• • • • • •		High Voltage Alarm	
Flash Slowly	– – –		Low Voltage Alarm	
Red Light				
Light Continuously	———	VBUS Failure Overload 5 Times		Overload
Flash Quickly	• • • • • •	Battery High Voltage Protection		
Flash Slowly	– – –	Battery Low Voltage Protection		
Flash Intermittently	– – – –	Over Temperature		

5-2 Main Switch

ON	Power ON
OFF	Power OFF
REMOTE	Enable remote ON / OFF

5-3 DIP Switch



S1 S2	Output voltage setting (refer to 5-3-1)
S3	Output frequency setting (refer to 5-3-2)
S4	ECO mode setting (refer to 5-3-3)
S5	Turbo mode setting (refer to 5-3-4)
S6	DIP switch setting (refer to 5-3-5)

5-3-1 Output Voltage Setting (S1 & S2)

200VAC	0	0
220VAC	1	0
230VAC	0	1
240VAC	1	1

5-3-2 Output Frequency Setting (S3)

50HZ	0
60HZ	1

5-3-3 ECO Mode Setting (S4)

Disable	0
Enable	1

**** Note: If ECO mode enable, the power inverter will automatically enter power saving mode when loads <5W for 10 seconds. If loads >15W then power inverter will be ON within 10 seconds.***

5-3-4 Turbo Mode Setting (S5)

Disable	0
Enable	1

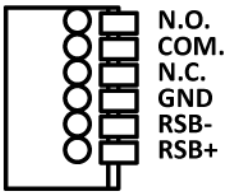
**** Note: If turbo mode enable, the continuous output power will increase 20% than rated power when internal temperature <40 ˚ C. If internal temperature >40 ˚ C and internal heat sink temperature >70 ˚ C, then turbo mode will stop .***

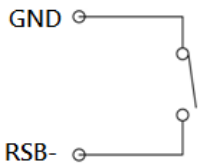
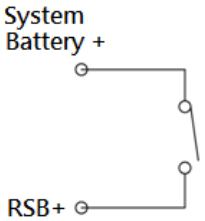
5-3-5 DIP Switch Setting (S6)

Disable	0
Enable	1

**** Note: If DIP switch setting disable, above setting (S1 / S2 / S3 / S4 / S5) will be ignored.***

5-4 DRY Contact



N.O. COM N.C.	Abnormal events such as overload, no output, short circuit	Switch power: 60W Rating: 2A @ 30VDC Wire size: 20~24AWG	Normal: N.O. – COM short Abnormal: N.C. – COM short
GND RSB-	Remote ON / OFF	Put switch between GND and RSB- Wire size: 20~24AWG 	Power ON: short Power OFF: open
RSB+		Put switch between battery+ and RSB+ Wire size: 20~24AWG 	Power ON: short Power OFF: open

**** Note: The MAIN SWITCH position must at REMOTE position to enable Remote ON / OFF function.***

Warranty

We guarantee this power inverter against defects in materials and workmanship for a period of 24 months from the date of purchase. In case you need to repair or replace any defective power inverter, please contact AAP Global Limited local distributor.

This warranty will be considered void if the power inverter has been misused, altered, or accidentally damaged. AAP Global Limited is not liable for anything that occurs as a result of the user's fault.