

User Manual



Inverter/ Charger Supreme Combi

24 VDC - 3000 VA | 24 VDC - 2000 VA | 230 VAC - 50 Hz

whisperpower.com

Inverter-Charger

230V Series

24V-2000W-40A (61242040)

24V-3000W-50A (61124001)

User Manual

For safe and optimum performance, the Inverter-Charger must be used properly. Carefully read and follow all instructions and guidelines in this manual and give special attention to the **CAUTION** and **WARNING** statements.

PLEASE KEEP THIS MANUAL FOR FUTURE REFERENCE

Disclaimer

While every precaution has been taken to ensure the accuracy of the contents of this guide, **Whisper Power** assumes no responsibility for errors or omissions. Note as well that specifications and product functionality may change without notice.

Important

Please be sure to read and save the entire manual before using your **Whisper Power Sinewave Inverter-Charger**. Misuse may result in damage to the unit and/or cause harm or serious injury. Read manual in its entirety before using the unit and save manual for future reference.

Model Numbers

230VAC Series :

61242040 - EU Inverter-Charger 24V / 2000W / 40A - 230VAC (Schuko Socket - CEE 7/4)

61124001 - EU Inverter-Charger 24V / 3000W / 50A - 230VAC (Schuko Socket - CEE 7/4)

Service Contact Information

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IMPORTANT SAFETY INFORMATION

This section contains important safety information for the Sinewave Inverter-Charger. Before using the unit, **READ ALL** instructions and cautionary markings on or provided with the unit, and all appropriate sections of this guide.

The Sinewave Inverter-Charger contains no user-serviceable parts. See Warranty section for how to handle product issues.



DANGER: Fire and/or Chemical Burn Hazard

Do not cover or obstruct any air vent openings and/or install in a zero-clearance compartment.

DANGER: Failure to follow these instructions can result in death or serious injury

- When working with electrical equipment or lead-acid batteries, have someone nearby in case of an emergency.
- Study and follow all the battery manufacturer's specific precautions when installing, using and servicing the battery connected to the inverter.
- Wear eye protection and gloves.
- Avoid touching your eyes while using this unit.
- Keep fresh water and soap on hand in the event battery acid comes in contact with eyes. If this occurs, cleanse right away with soap and water for a minimum of 15 minutes and seek medical attention.
- Batteries produce explosive gases. DO NOT smoke or have an open spark or fire near the system.
- Keep unit away from moist or damp areas.
- Avoid dropping any metal tool or object on the battery. Doing so could create a spark or short circuit which goes through the battery or another electrical tool that may create an explosion.



WARNING: Shock Hazard. Keep away from children!

- Avoid moisture. Never expose unit to snow, water, etc.
- Unit provides high voltage AC; treat the AC output socket the same as regular wall AC sockets at home.



WARNING: Explosion hazard!

- DO NOT install the unit near flammable fumes or gases (such as propane tanks or large engines).
- AVOID covering the ventilation openings. Always operate unit in an open area.

- Prolonged exposure to high heat or freezing temperatures will decrease the working life of the unit.
- DO NOT connect AC power sources like utility power or generator to the AC outputs of the unit. It will damage the unit and may cause fire. Feeding AC to the AC output of the unit is not covered by warranty.
- The **12V DC** unit is designed for use on **12V House Battery System** only. Use on a higher house battery system will damage the unit and lead to unit explosion.
- The **24V DC** unit is designed for use on **24V House Battery System** only. Use on a lower house battery system will damage the unit and lead to battery explosion

FCC and EMC INFORMATION

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules (for 120V models) and comply with the CE EMC Standard on 230V models. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Re-orient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Consult the dealer or an experienced radio/TV technician for help.

LIMITATIONS ON USE

Do not use in connection with life support systems or other medical equipment or devices.

TABLE OF CONTENTS

| | | |
|-----------|-------------------------------|-----------|
| 1. | INTRODUCTION | 8 |
| 2. | PRODUCT DESCRIPTION | 8 |
| 3. | UNDERSTANDING THE UNIT | 9 |
| 4. | INSTALLING THE UNIT | 14 |
| 5. | UNIT OPERATION | 17 |
| 6. | TROUBLESHOOTING | 29 |
| 7. | SPECIFICATIONS | 30 |
| 8. | WARRANTY | 32 |

1. INTRODUCTION

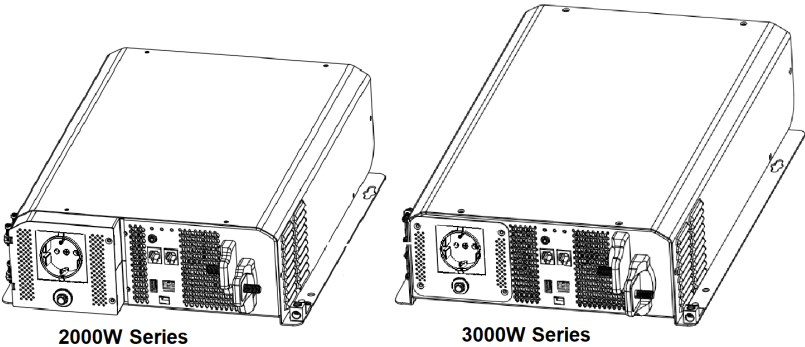
Thank you for purchasing the **Whisper Power Sinewave Inverter-Charger**. With our state of the art, easy to use design, this product will offer you reliable service by providing True Sinewave AC power for your home, cabin, boat, RV or trailer and recharge your battery automatically when utility AC is available. The Sinewave Inverter-Charger can run many AC-powered appliances when you need AC power anywhere. The multi-stage battery charger will charge different types of batteries. The built-in transfer switch will automatically switch the load to the battery power when the utility power is interrupted.

This manual will explain how to use this unit safely and effectively. Please read and follow these instructions and precautions carefully.

2. PRODUCT DESCRIPTION

The Sinewave Inverter-Charger includes the items listed below.

- Inverter-Charger base unit
- Multi-Function Display
- 7.5m (25') RJ12 Display Cable
- Owner's manual



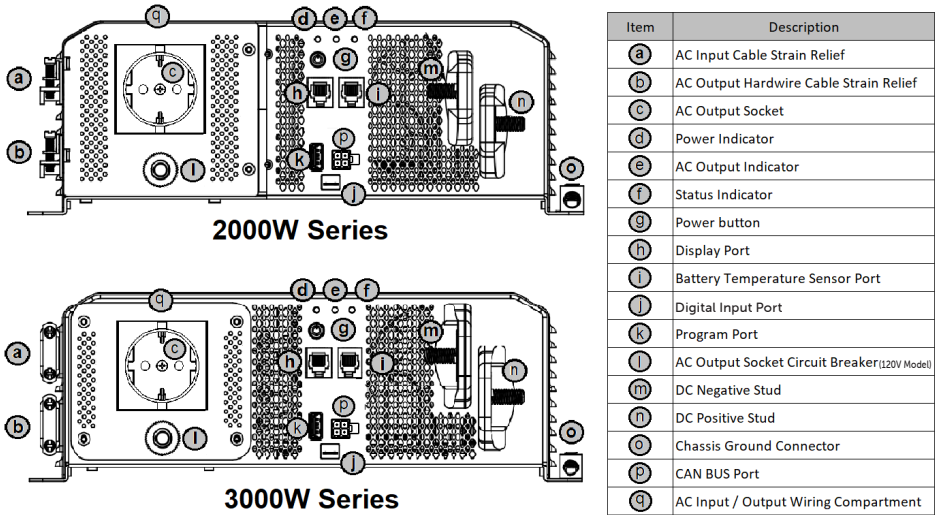
| Series | Model No. | Rating | | | AC Output Types |
|---------------|-----------|----------|---------|---------|-------------------------------------|
| | | Inverter | Charger | By-Pass | |
| 24V 230VAC | 61242040 | 2000W | 24V-40A | 16A | • EU: Schuko-CEE 7/4) • Hardwire |
| | 61124001 | 3000W | 24V-50A | 16A | |

3. UNDERSTANDING THE UNIT

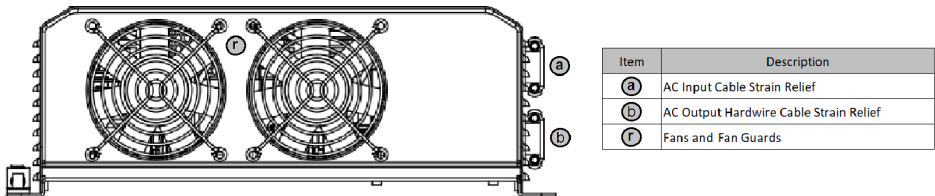
WARNING: It is recommended that all wiring be done by a certified technician or electrician to ensure adherence to the applicable electrical safety wiring regulations and installation codes. Failure to follow these instructions can damage the unit and could also result in personal injury or loss of life.

- CAUTION:** Before beginning unit installation, please consider the following:
- The unit should be used or stored in an indoor area away from direct sunlight, heat, moisture or conductive contaminants.
 - When placing the unit, allow a minimum of 7.5cm (three inches) of space around it for optimal ventilation.

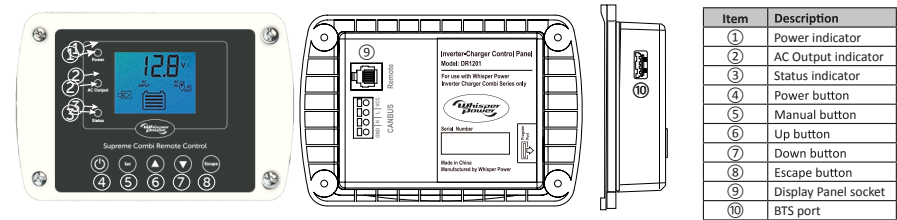
Main Unit Front



Main Unit Rear



Multi-Function Display



| Item | Description |
|------|----------------------|
| ① | Power indicator |
| ② | AC Output indicator |
| ③ | Status indicator |
| ④ | Power button |
| ⑤ | Manual button |
| ⑥ | Up button |
| ⑦ | Down button |
| ⑧ | Escape button |
| ⑨ | Display Panel socket |
| ⑩ | BTS port |

B DC Fuse or Circuit Breaker

- DC-rated fuse or DC-rated circuit breaker connected along the DC positive line is required.

| Fuse/Circuit Breaker Rating | 24V 2000W System | 24V 3000W System |
|-----------------------------|------------------|------------------|
| | 150Adc | 200Adc |

- Based on the size of the Battery Bank, determine the overall short circuit current rating of the battery bank from the battery manufacturer. The fuse or circuit breaker has to be able to withstand the short circuit current that can be supplied by the battery bank.
- For battery banks with total capacity under 500Ah the most affordable ANL fuse type can be used. Otherwise use Class-T type.

C DC Disconnect Switch

- A DC Disconnect Switch connected along the DC positive line is recommended. The rating of the switch is with the same or higher rating of the selected fuse or circuit breaker. Use ignition protected switches when required by local codes.
- This switch is used to disconnect the positive of the battery bank to the unit's positive terminal during maintenance/repair service, when not in use, or when troubleshooting. It could also be an A/B/A+B/OFF type switch to select either one of the two or both (paralleling) battery banks (if available).

D DC Input Cable

- All DC Input Wires should be insulated multi-strand low resistance wires.
- The DC wires must be copper and with minimum 105° rating.

| Model | Thinnest DC Input Wires Gauge Used | | |
|------------------|------------------------------------|-----------------------|---------------------|
| | ≤ 1.5 m / ≤ 5 feet (Recommended) | ≤ 2.25 m / ≤ 7.5 feet | ≤ 3 m / ≤ 10 feet |
| 24V 2000W series | 55 mm² / AWG # 1/0 | 70 mm² / AWG # 2/0 | 95 mm² / AWG # 3/0 |
| 24V 3000W series | 70 mm² / AWG # 2/0 | 95 mm² / AWG # 3/0 | 120 mm² / AWG # 4/0 |

The typically recommended wire length is limited to 5 feet or less for each of the positive and the negative. For longer wires, a proportionally thicker gauge is required to compensate for additional voltage drop

A Battery Bank

- The use of deep cycle, lithium ion battery is highly recommended for power inverter application
- For battery size, you need to identify how much and for how long the inverter has to provide AC power to the loads (based on Amps x hour energy consumption). It is recommended to purchase as much battery capacity as possible.

| AC Load | Estimated run time on 24V Battery bank on 24V Input Models | |
|---------|--|-----------|
| | 24V/60AH | 24V/120AH |
| 50 W | 22 hrs. | 44 hrs. |
| 100 W | 11.5 hrs. | 23 hrs. |
| 200 W | 5 hrs. | 11 hrs. |
| 500 W | 2 hrs. | 4 hrs. |
| 1000 W | 49 mins | 2 hrs. |
| 1500 W | 27 mins | 1 hr. |
| 2000 W | 15 mins | 49 mins |
| 2500 W | N.R. | 37 mins |
| 3000 W | N.R. | 27 mins |

N.R. - Not Recommended. Based on more than 2C discharged on battery capacity. Estimated run times are for reference use only. Actual run times may vary on battery type used.

CAUTION: These guidelines assume you are using the DC supplied cable and fuse sizes recommended in this manual. The use of a thinner gauge in the DC wires may cause the inverter to trigger the under-voltage shut down under heavy load conditions. It may also melt the wire insulation and catch fire, resulting in death or serious injury. The choice of the wire gauge should also match or exceed the ampacity rating of the DC fuse and holder being used.

E Chassis Ground

DANGER: The unit chassis has to be grounded properly before use. Never operate the unit without proper grounding. Failure to do so will result in death or serious injury.

| Model | Thinnest Wire Gauge Used | |
|---|------------------------------|--------------------------------|
| | Recreation Vehicle | Marine |
| 24V 2000W series | 10 mm ² / AWG # 8 | 35 mm ² / AWG # 2 |
| 24V 3000W series | | 55 mm ² / AWG # 1/0 |
| <div>- These guidelines assume you are using the DC supplied cable and fuse sizes recommended in this manual. If you are using different sizes, refer to the applicable installation code for the DC grounding detail.</div> <div>- In marine applications, the main AC-DC ground bonding may require galvanic isolators to avoid galvanic corrosion. Check your local electrical codes (i.e. NEC, UL, ABYC).</div> | | |

F AC Input Source

An AC source is usually grid power or an AC Generator. The acceptable AC Input voltage range and frequency are as shown:

| Model | Acceptable AC Input Voltage Range | Acceptable AC Input Frequency Range |
|---------------|-----------------------------------|-------------------------------------|
| 230VAC series | 180 - 260 VAC | 30 - 100 Hz |

An automatic or manual AC source selector switch can be used to switch between the multiple sources of shore power to the unit. Usually, the AC Main Panel includes a main circuit breaker that serves as over-current protection and as a disconnect for the AC shore power supply line. Additional AC circuit breakers serve individual circuits and one of the AC circuit breakers will serve the unit. During By-Pass mode, the AC Input source will serve the AC Output Load and also the AC Input current for the charger when it is used to charge the battery.

| Model | AC Input Circuit Breaker to serve the unit | AC Input Wire |
|---|--|---|
| 230VAC series | 16A (maximum) | 2.5 mm ² / #14 AWG (minimum) |
| - Follow the electrical and/or building code when you choose AC Branch Breaker and AC Input wire Size. Connect the unit to any AC Input Source - Smaller size AC Input wire can be used when a lower amperage rated AC Input Circuit Breaker is used from upstream to feed the unit. | | |

The unit is designed to accept non-Sinewave AC Input Source supplied by a generator.

G AC Hardwire Output

An AC Sub-Panel is recommended to incorporate an AC output circuit breaker and breakers for individual load circuits. Use the same wire size as used for the AC Input Wire.

H AC Output Socket and I AC Output Thermal Breaker:

A single AC Output socket is provided for direct AC output from the unit. An overcurrent protective device (thermal breaker) is connected in series with the AC Output Socket to avoid excessive current being drawn from it.

| Model | AC Output Socket Type | AC Output Thermal Breaker |
|---------------|-----------------------|---------------------------|
| 230VAC series | EU: Schuko-CEE 7/4) | 16A |

| Model | By-Pass Mode Current (Maximum) | | | Inverter Mode Current (Maximum) | | |
|---|--------------------------------|--------------------|------------------|---------------------------------|--------------------|------------------|
| | Total AC Output | AC Output Hardwire | AC Output Socket | Total AC Output | AC Output Hardwire | AC Output Socket |
| 2000W/230VAC | 16A | 16A | EU: 16A* | 8.7A | 8.7A | EU: 8.7A** |
| 3000W/230VAC | 16A | 16A | EU: 16A* | 13A | 13A | EU: 13A** |
| * Limited by AC Output Thermal Breaker connected in series with the AC Output Socket. ** Limited by Inverter maximum AC Output Current during inverter mode. | | | | | | |

J Display Port

The port is used to connect to the Multi-Function Display of the unit.

K Multi-Function Display

The display is used to provide unit information and for unit setting.

L BTS Port

The port is used for connecting to the optional Battery Temperature Sensor. The thermistor installed inside the ring terminal is used to measure the battery terminal temperature and the unit will make compensation on battery charging voltage for battery charging.

M Digital Input Port, Program Port, Can-BUS Port

- Digital Input Port**

This port is used for connecting to a slave contact of an external Transfer Switch or Relay to control the charger input current limit.

- Program Port**

This USB port is for system firmware upgrade use only. This CANNOT be used for charging Smartphones or USB powered devices. Mis-use of this port can potentially damage the unit and is not covered by the warranty. This USB type A port is located on the Inverter-Charger and an extra port that shares the same function is also located on the side of the Multi-Function Display.

- CAN-BUS Port**

This is for unit communication through the CAN interface. Mis-use on this port can potentially damage the unit and is not covered by the warranty.

4. INSTALLING THE UNIT



WARNING: Explosion hazard!

- DO NOT install the unit near flammable fumes or gases (such as propane tanks or large engines).
- AVOID covering the ventilation openings. Always operate unit in an open area.

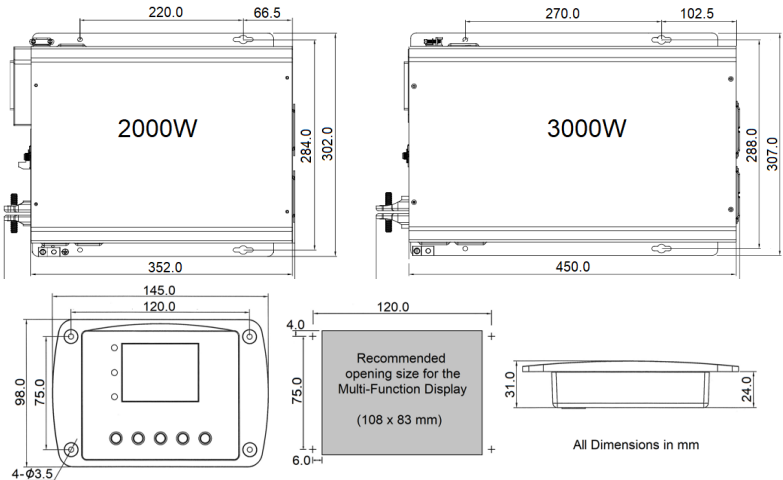
Choosing the location:

The unit should only be installed in locations that meet the following requirements:

- Do not allow water or other fluids to drip or splash on the unit.
- Environment temperature should be between -20 °C and 40 °C (-4 °F and 104 °F)
- Allow at least 7.5cm (three inches) of clearance around the unit. The more clearance for ventilation around the unit, the better the performance.

Mounting the Unit:

- Choose an appropriate mounting location.
- The unit can be mounted in any direction.
- Use the mounting template below to mark the positions of the mounting screws.
- Drill the 4 mounting holes and place the unit in position and fasten the unit to the mounting surface.



DC Input Connection:

WARNING: Electrical Shock Hazard

The unit 'On/Off' switch does not disconnect the DC power from the battery. Use the DC Disconnect Switch or disconnect the DC input cables to disconnect the DC power from the battery before working on any circuits connected to the unit. Failure to follow these instructions can result in death or serious injury.



CAUTION: Reversing the DC Input terminals will damage the unit and it cannot be repaired. Damage caused by reverse polarity connection is not covered by the warranty.

IMPORTANT: Field wiring DC terminals tightening torque 12-13 Nm

- Connect a negative DC input cable between the unit DC negative terminal and battery negative terminal.
- Make sure the Disconnect Switch is in the OFF position. Connect a positive DC input cable between the unit DC positive terminal and one terminal of the Disconnect Switch.
- Connect another DC input cable between the other terminals of the Disconnect Switch to one side of the terminal of the fuse holder or DC rated circuit breaker (OFF position).
- Connect another DC input cable between the other terminal of the fuse holder or DC rated circuit breaker to the battery positive terminal.
- Note: For Marine application, either the DC fuse or DC rated circuit breaker needs to be installed within 7 inches (17.8cm) from the battery positive terminals.
- Install the selected fuse to the fuse holder.

Chassis DC Ground Connection:

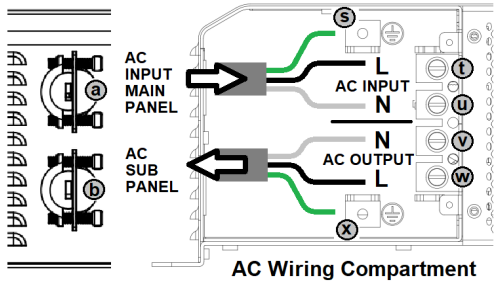
- Connect the grounding wire to the unit's Chassis DC Ground Lug located near the DC Input terminal and the other side of the cable to the common grounding point.
 - For a Recreation Vehicle, the common ground point is usually the vehicle chassis or a dedicated DC ground bus.
 - For Marine, the common ground point is usually the DC ground bus or engine negative bus.
- Note: Do not use the Chassis DC Ground Lug for your AC Grounding, For AC Grounding, see AC Wiring instructions for more details.*

AC Input and AC Output Hardwire Connections:



WARNING:

Before making any AC Input and AC Output Hardwire connection, please be sure the AC Input Source is not energized and the DC disconnect switch is switched OFF. Please double check the location of the AC input connector located inside the wiring compartment. Misconnecting to the AC output connector inside the same compartment will damage the unit and may cause fire.



| Item | Description |
|------|-------------------------|
| (a) | AC INPUT STRAIN RELIEF |
| (b) | AC OUTPUT STRAIN RELIEF |
| (s) | AC INPUT GROUND |
| (t) | AC INPUT LIVE (HOT) |
| (u) | AC INPUT NEUTRAL |
| (v) | AC OUT NEUTRAL |
| (w) | AC OUTPUT LIVE (HOT) |
| (x) | AC OUTPUT GROUND |

Remove the AC compartment cover by unscrewing the four screws located at the front of the AC compartment cover.

For AC Input Connections:

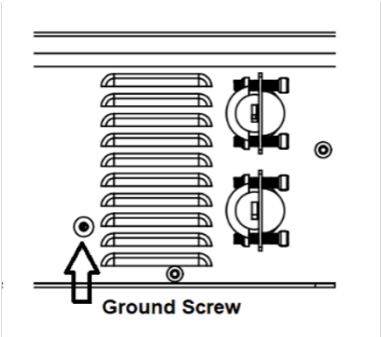
- Insert the AC Input cable through the AC Input Strain relief (a) on the unit.
- Connect the AC Main Panel AC Ground wire to the AC Input Ground terminal (s) on the unit. If a solid ground wire is used, the wire can be connected directly under the screw head. If a stranded ground wire is used, ring terminals must be used
- Connect the AC Main Panel AC Live or Hot wire to unit's AC Input 'L' Live or 'H' Hot' terminal (t).
- Connect the AC Main Panel AC Neutral wire to unit's AC Input Neutral 'N' terminal (u).
- Tighten the strain relief to secure the AC Input wire.

For AC Output Hardwire Connections:

- Insert the AC Input cable through the AC Output Strain relief **b** on the unit.
- Connect the AC Sub-Panel AC Ground wire to the AC Output Ground terminal **x** on the unit. If a solid ground wire is used, the wire can be connected directly under the screw head. If a stranded ground wire is used, ring terminals must be used
- Connect the AC Sub-Panel AC Live or Hot wire to unit's AC Output 'L' Live or 'H' Hot terminal **w**.
- Connect the AC Sub-Panel AC Neutral wire to unit's AC Output Neutral 'N' terminal **y**.
- Tighten the strain relief to secure the AC Input wire.

IMPORTANT: (For 230VAC models only)

The unit's AC Output Hardwire connector is configured for use with external RCD (Residual Current Device) or GFCI (Ground Fault Circuit Interrupter) connected to the AC Output of the unit. The AC output neutral pin from the Inverter section before the transfer switch is bonded to the unit's chassis through the **Ground Screw** as shown. This Neutral bonding is required in order to have the external RCD/GFCI to work properly. Safety standards in the USA and elsewhere demand this Neutral-to-Ground bonding. If RCD/GFCI is not required for your installation, the **Ground Screw** can be removed, and this will un-bond the AC output neutral pin of the inverter section to the unit's chassis. Note: This **Ground Screw** (either in used or not) will not have any effect between unit's AC Input Neutral and chassis.



Multi-Function Display Connection:

- Route the RJ12 cable from the unit to your desired location for the Multi-Function Display and connect one end of the cable to the main unit Display Port and the other end of the cable to the Display Panel socket located at the rear panel of the Multi-Function Display.

BTS (Battery Temperature Sensor) Connection (optional):

To provide more accuracy and precision on battery voltage charging against battery temperature, a BTS (sold separately) can be used.

- Connect the RJ12 end of the BTS cable to the BTS Port on the main unit.
- Install the ring terminal end of the BTS cable to the negative terminal of the battery bank.

Digital Input Port Connection (optional):

If a power selection switch or relay is present, the auxiliary contact may be used to provide a differently programmed current limit when in generator mode. Connect the Faston wired connection through the auxiliary contact to a fused 12 V connection at the battery

5. UNIT OPERATION

The unit is preset with factory default settings and will fulfill the basic needs for inverter-charger operation. The display is used to provide information about the unit status and the unit function can be customized through the Display. Once the unit function is customized, the display can be removed if desired, as the unit can run without it.

Understanding the Indicator/Push Button/Unit Functions

| Item | Description |
|------|---------------------|
| ① d | Power indicator |
| ② e | AC Output indicator |
| ③ f | Status indicator |
| ④ g | Power button |
| ⑤ h | Manual button |
| ⑥ i | Up button |
| ⑦ | Down button |
| ⑧ | Escape button |
| ⑨ | Display port |
| ⑩ | BTS port |
| ⑪ | Digital input port |
| ⑫ | Program port |
| ⑬ | CAN BUS port |



| Indicator | Status | Function |
|-----------|---------------|---|
| Power | ON | Unit is power ON |
| AC Output | ON | AC Output Switch is turned ON and AC is available at the Output Socket |
| | OFF | AC Output Switch is turned OFF and AC is not available at the Output Socket |
| Status | Green | AC Output is running from Utility |
| | Green (Flash) | AC Output is running from utility and battery charger is charging the battery |
| | Amber | AC Output is running from Inverter |
| | Amber (Flash) | Utility is detected and is under verification. AC Output is still running from Inverter and will switch to Utility in about 10 seconds. |
| | Red | Error/Warning occurs. Display will show Error or Warning code |

Normal Operation

When unit is On, the Multi-Function display shows Battery Voltage 'V'. Pressing any button will illuminate the backlighting of the display for about 10 seconds. **'Power'** button (Same function as the green 'On/Off' push button on the main unit):
- To turn the inverter ON: press and hold until hearing the beep (in about 1 sec.).
Display turns on and shows '-- --', all icons turn ON, followed by the revision levels

Note: When AC Input is available, this 'Power' button cannot be used to turn OFF the unit.

- Press '**Escape**' button once to return back to **Normal Operation**. (If none of the button is triggered for about 5 seconds, display will also return back to Normal Operation).

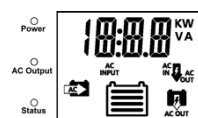
| Unit Setting | Display | Description and Available Setting |
|----------------------|---|--|
| AC Input Shore Power |  | 230 Vac WP Models: Range: 4,6,8,10,12,13,14,16A. (Default 8 A). SPW= Shore Power (AC in Display)* |
| Inverter |  | ON : Use as Inverter only. No By-Pass functions. |
| | | ABU (Default) : Auto Backup. Inverter automatically turns ON when AC Blackout. |
| | | MBU : Manual Backup. When AC Blackout occurs, Inverter has to be manually turned ON by using the 'Power' button' on either the Display panel or the 'Power' button on the Main unit |
| | | OFF : Inverter function is disabled. No AC backup when AC Blackout. |

| | | |
|-----------------------------|--------------------------|---|
| Load Sense | LdS OFF | OFF (Default): Continuous AC Output when inverter is ON |
| | | 10 : Continuous AC Output when inverter is ON and AC load is > 10W |
| | | 15 : Continuous AC Output when inverter is ON and AC load is > 15W |
| | | 20 : Continuous AC Output when inverter is ON and AC load is > 20W |
| | | 25 : Continuous AC Output when inverter is ON and AC load is > 25W |
| Battery Low Disconnect | bLd 21.0 | Battery Low Disconnect Voltage selectable ranges is 21.0 - 24.0V (0.2V steps) (Default voltage is set to 21.0V) |
| Battery Low Warning | bLW 22.0 | Battery Low Warning Voltage selectable ranges is 22.0 - 25.0V (0.2V steps) (Default voltage is set to 22.0V) |
| Battery Low Recovery | bLr 24.0 | Battery Low Recovery Voltage selectable ranges is 23.0 - 26.0V (0.2V steps) (Default voltage is set to 24.0V) |
| Audible Buzzer | ALM ON | ON (Default): Buzzer is enabled. Unit buzzes when Warning or Error occurs. OFF : Buzzer is disabled. Unit does not buzz when Warning and Error occur. |
| AC Charger | CHG ON | ON (Default): AC Charger is enabled. Charge battery when AC Input is available. OFF : AC Charger is disabled. No battery charging when AC Input is available |
| Battery Type | bAT GEL | GEL (Default): GEL Battery, default Bulk Charge/Float Voltage is 28.4V/27.6V |
| | | AGM : AGM Battery, default Bulk Charge/Float Voltage is 28.6V/26.8V |
| | | FLd : Flooded Battery, default Bulk Charge/Float Voltage is 28.8V/27.0V |
| | | LI : Lithium Battery, default Bulk Charge/Float Voltage is 27.8V/27.0V |
| | | PGM : Program, default Bulk Charge/Float Voltage is 27.6V/26.4V |
| | | PSY : Power Supply Mode, Default Power Supply Voltage 27.6V |
| Bulk Current | bUL 50 | 24V/3000W Models: Selectable Ranges 50A, 40A, 30A, 20A, 10A (Default 50A) |
| | | 24V/2000W Models: Selectable Ranges 40A, 30A, 20A, 10A, 5A (Default 40A). |
| Bulk/Absorption Voltage | AbS 28.4 | Bulk/Absorption voltage is based on the battery type chosen. All battery types have selectable ranges of 27.6 - 29.6V. (Default on GEL Battery is 28.4V) |
| Absorption to Float Current | AbS 5 | 12V/3000W Models: Selectable Range: 8A, 6A, 5A, 3A, 2A (Default 5A). |
| | | 12V/2000W Models: Selectable Range: 6A, 5A, 4A, 3A, 2A (Default 4A). |
| Float Voltage | FL0 27.6 | Float voltage is based on the battery type chosen. All battery types have selectable ranges of 26.0 - 28.0V. (Default on GEL Battery is 27.6V) |
| Recharge Voltage | rEC 25.6 | Battery Recharge Voltage Selectable Range: 25.6 to 28.0V (0.2V step) (Default on GEL, AGM, Flooded, PGM battery setting is 25.6V and Li setting is 26.4V). |

| | | |
|--------------------------|--|--|
| Battery Temperature | | HI : High > 35 °C Nor (Default) : Normal 15 - 35°C Low : Low < 15°C |
| AC Input Generator Power | | 230 Vac Models: Range: 4,6,8,10,12,13,14, 16A (Default 16A) GPW = Generator Power (AUX in Display)* |
| Factory Default | | Select YES to reset all settings to default. |

* Circuit Breaker setting representation: **SPW** (Shore Power Wattage) for AC input power when no signal on Digital Input.
GPW (Generator Power Wattage) for AUX input, when +12V on Digital Input

Understanding the Display Icons during Unit Operation



| Icons | Meaning |
|-----------------|--|
| | Solid : Unit is running in Battery Charger mode and is charging the battery. Input current limit set under SPW is applicable when on generator, symbol changes to AUX solid, and current limit set under GPW is applicable. |
| | Solid : Unit is running in By-Pass mode. (The transfer switch is switched to AC Input Source). - AC Output power is running from AC Input Source. - AC Output is available at both the AC Output socket and the AC Output Hardwire terminal if AC Output switch is turned On (indicated by AC Output indicator located on the left side of the Display and also the Main unit being On). <i>Note: Press and hold the 'Escape' button on the Display panel for 5 seconds to toggle AC Output switch On/Off.</i> |
| AC INPUT | Solid : AC Input is available and is in the operating range. Flashing : AC Input is detected and is under verification before switching to By-Pass mode. This normally takes about 10 seconds. |
| | Solid : Unit is running in Battery Mode (The transfer switch is switched to Inverter) - AC Output power is running from the inverter - AC Output is available at both the AC Output socket and the AC Output Hardwire terminal if AC Output switch is turned On (indicated by AC Output indicator located on the left side of the Display and also the Main unit being On). <i>Note: Press and hold the 'Escape' button on the Display panel for 5 seconds to toggle AC Output switch On/Off.</i> |

| | Battery bar(s) in solid indicating the unit is running in Battery Mode. The bars show estimated remaining battery power. 4 solid bars : Battery is Full 3 solid bars : Battery capacity with 75% remaining 2 solid bars : Battery capacity with 50% remaining 1 solid bar : Battery capacity with 25% remaining No bar : Battery is empty. Inverter will shut down when it reaches under-voltage shutdown point. <i>Note: This indicator is for reference use only. It varies depending on battery health or type used.</i> |
|-------------------|---|
| | Battery bar(s) with the last bar flashing indicates the unit is running in By-Pass mode and the battery charging process is in progress. The charging stages are indicated by the number of bars. 4 bars in solid : indicates the battery is fully charged and it is in Float stage Top bars flashing : indicates the battery is in Absorption charging stage Second top bar flashing : indicates the battery is in Bulk charging stage and the battery is > 27.0V Second bottom bar flashing : indicates the battery is in Bulk charging stage and the battery is > 25.0V Bottom bar flashing : indicates the battery is in Bulk charging stage and the battery is > 23.0V No bar : indicates the battery is in Bulk charging stage and the battery is > 21.0V Battery icon flashing : indicates the battery is in Bulk charging stage and the battery is below 21.0V |
| Display Character | Meaning |
| 28 A | 'A' icon On indicates the display shows battery discharge current (28A as shown) |
| 0.80 kW | 'kW' icon on, it indicates the display shows AC Output power in kW (0.80kW = 800W as shown) |
| 12.8 V | 'V' icon on, it indicates the display shows battery voltage in V (12.8V as shown) |
| E01 | Warning icon on, it indicates the display shows Error/Warning Code (E01 as shown, Battery Low Disconnected error) |
| E90 | Equalization on Flooded battery is in process. This function is available for use with Flooded battery type only. The display will also show the equalization voltage during the process. Follow the instruction provided by the battery manufacturer when performing the equalization process. |
| R 1.0 | Indicating the Main unit firmware revision (R:1.0 shown) |
| r 1.0 | Indicating the Display Panel firmware revision (r:1.0 shown) |

Exploring the Unit Settings

a) Inverter and Charger Functions

| INT | CHG | AC INPUT | AC OUT | CHARGE | FUNCTIONING | COMMENT |
|-----|-----|----------|--------|--------|-----------------|---|
| ABU | ON | ON | Bypass | Y | Auto Backup | Commonly used default setting |
| ABU | ON | OFF | Backup | - | | |
| ABU | OFF | ON | Bypass | N | | For external charger |
| ABU | OFF | OFF | Backup | - | | |
| MBU | ON | ON | Bypass | Y | Manual Backup | Requires user intervention |
| MBU | ON | OFF | - | - | | |
| MBU | OFF | ON | Bypass | N | | User intervention with external charger |
| MBU | OFF | OFF | - | - | | |
| OFF | ON | ON | Bypass | Y | Transfer Switch | Battery charger only |
| OFF | ON | OFF | - | - | | |
| OFF | OFF | ON | Bypass | N | | Bypass only |
| OFF | OFF | OFF | - | - | | |
| ON | ON | ON | Backup | N | On-Line UPS | Inverter only (charger disabled) |
| ON | ON | OFF | Backup | N | | |
| ON | OFF | ON | Backup | N | | Inverter only |
| ON | OFF | OFF | Backup | N | | |

b) Load Sense Function

| Load Sense Mode | |
|--|--|
| LdS | This Load Sense function is only effective when the unit is running as inverter (Battery power) mode. |
| | 'Off': Unit provides continuous AC Output power all the time. |
| | 10: Load Sense power setting is set to 10W. Unit will provide continuous AC Output only when the AC load connected to the AC Output is >10W. AC Output will switch back to pulsing AC Output every few seconds when the AC Load connected is approximately 3W or less. |
| <ul style="list-style-type: none"> The Load Sense Power rating is available at power levels of 10W, 15W, 20W and 25W. This setting is designed to reduce battery power when the unit is running as inverter and the AC Load demand is small. Under this setting the GFCI tripping detection error code (E13) does not work, and a tripped GFCI cannot be reset when the function is in operation. See more details in "Reset the GFCI outlet" in section 4. | |

c) Battery Disconnect Function

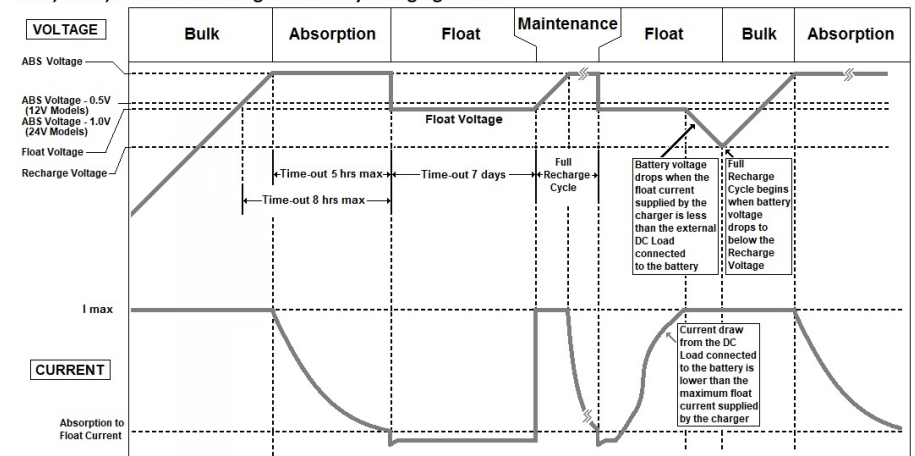
| Battery Under and Over Voltage Setting | |
|--|--|
| bLd | Battery Low Disconnect voltage has selectable range: 21.0 - 24.0V (0.2V steps) (Default 21.0V) |
| | The Battery Low Disconnect Voltage must be with a minimum of 1.0V below the Battery Low Alarm (BLA) Voltage. |
| bLA | Battery Low Alarm Selectable range: 22.0 - 25.0V (0.2V step) (Default 22.0V) |
| | The Battery Low Alarm Voltage must be with a minimum of 1.0V above the Battery Low Disconnect (BLd) Voltage and must be with a minimum of 1.0V below the Battery Low Recovery (bLr) Voltage. |
| bLr | Battery Under Voltage Recovery Selectable range: 23.0 - 26.0V (0.2V step) (Default 24.0V) |
| | The Battery Low Recovery Voltage must be with a minimum of 1.0V above the Battery Low Alarm (bLA) Voltage. |
| Battery Over Voltage Disconnect | 33.0 V (Not User selectable) |
| Battery Over Voltage Recovery | 32.0 V (Not User selectable) |

d) Alarm Function

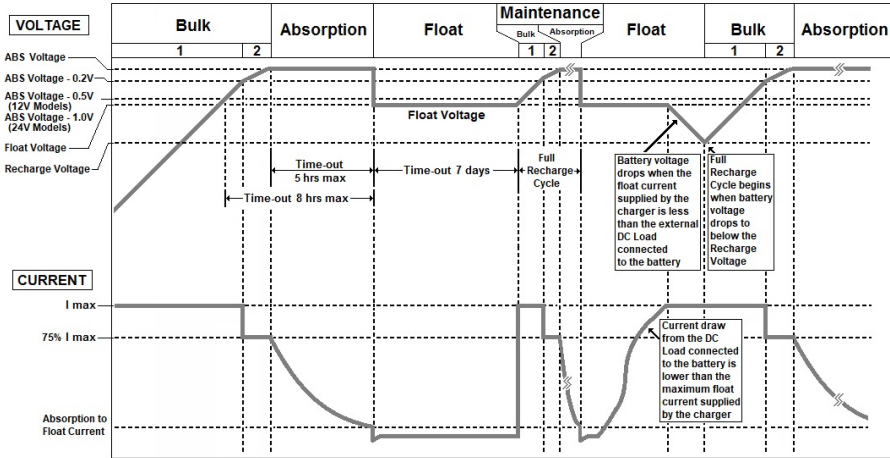
| Alarm Setting | |
|---------------|--|
| ALM | Fault and warning audible alarm can be enabled (On - Default) or disabled (Off). |

e) Charger Functions

GEL, AGM, Flooded and Program Battery Charging Profile



Lithium Battery Charging Profile



Battery Charging Cycle

Charging Voltage Setting: Bulk/Absorption (AbS), Float (FLO) and Recharge (rEC)

| Battery Type | Bulk Voltage (Default) | Float Voltage (Default) | Recharge Voltage (Default) |
|---------------------|----------------------------------|--------------------------|----------------------------|
| GEL | 27.6-29.6V (28.4V) | 26.0-28.0 (27.6V) | 25.6-28.0 (25.6V) |
| Flooded | 27.6-29.6 & 31.6V (28.8V) | 26.0-28.0 (27.0V) | 25.6-28.0 (25.6V) |
| AGM | 27.6-29.6V (28.6V) | 26.0-28.0 (26.8V) | 25.6-28.0 (25.6V) |
| Lithium | 27.6-29.6V (27.8V) | 26.0-28.0 (27.0V) | 25.6-28.0 (26.4V) |
| Program | 27.6-29.6V (27.6V) | 26.0-28.0 (26.4V) | 25.6-28.0 (25.6V) |
| Power Supply | 26.0-28.0V (27.6V) | | |

- Consult the battery manufacturer when choosing the bulk and float voltage for the battery bank.
- When selecting the Float voltage, it has to be with a minimum of 0.8V below Bulk Voltage setting.
- The Recharged Voltage determines the restart cycle of the battery bank. The charger will go through a full recharge cycle when the battery voltage drops to the Recharge Voltage set value. When selecting the Recharge Voltage, it has to be with a minimum of 0.8 below the Float Voltage setting.
- If Power Supply is chosen, the charger will provide a constant voltage to charge the battery bank.

Charging Current Setting: Bulk Stage (bUL), Absorption to Float Stage (AbS)

| Model | Bulk Stage | Absorption to Float Stage |
|------------------|---|---|
| 24V 3000W | 50A, 40A, 30A, 20A, 10A (Default: 50A) | 8A, 6A, 5A, 3A, 2A (Default: 5A) |
| 24V 2000W | 40A, 30A, 20A, 10A, 5A (Default: 40A) | 6A, 5A, 4A, 3A, 2A (Default: 4A) |

- Consult the battery manufacturer when choosing the Bulk Stage charging current of the battery bank. For a sealed lead acid battery, the rule of thumb for the maximum charging current is 1/5 of battery capacity.
- The Absorption to Float stage current determines the transition from Absorption stage to Float stage. If an external DC load is connected to the battery bank, a higher current setting is recommended to compensate for the extra current drawn from the external DC load.
- In order to avoid the tripping of the external AC Source Branch Breaker, when high powered AC loads are connected to the AC Output, the charging current will automatically be reduced so that the total AC Input current (AC Output Current + AC Charger Current) is maintained below the set values of the AC Input Circuit Breaker (Cbr). See more details in AC Source Circuit Breaker Function.

Note: When the battery charging process starts, the unit will first measure the battery voltage, if it senses the battery voltage is below 19V, the charger current is automatically reduced to < 12.5A. It will resume back to the set charger current when the battery is charge to above 19V for 15 minutes. See more details on section Understanding on Unit Error code (E01 and E11).

Battery Temperature Setting 'bTM' (voltage adjustment from 25°C setting)

No Battery Temperature Sensor (BTS) installed

There are three settings (Low, Normal, High) available for battery temperature setting.

- Setting to 'Low' temperature will compensate the charging voltage by +1.35 on GEL and Flooded battery type and +1.05V on AGM battery type.
- Setting to 'Nor' will have no change to the selected charging voltage.
- Setting to 'Hi' temperature will compensate the charging voltage by -0.54V on GEL and Flooded battery type and -0.42V on AGM battery type.

Optional Battery Temperature Sensor (BTS) Installed

- If the temperature measured by the BTS is below 25°C, the charging voltage will be compensated with +0.054V per °C on GEL and Flooded battery or +0.042V per °C on AGM battery.
- If the temperature measured by the BTS is above 25°C, the charging voltage will be compensated with -0.054V per °C on GEL and Flooded battery or -0.042V per °C on AGM battery.

There is no voltage adjustment compensation when battery type of Lithium, Program or Power Supply is selected.

Flooded Battery Equalization Setting:

Equalization setting can only be set on Flooded batteries. Before the equalization begins, the unit will automatically fully charge the battery first, followed by one hour of equalization. Consult and follow the instruction provided by the battery manufacturer when performing the equalization process.

- Select 'Eq' under 'Bulk/Absorption Voltage' (AbS Voltage) setting.
- The unit will start a full flooded battery charging cycle first before the Equalization begins. The Equalization Voltage is set to 31.6V and current is limited to 1/10 of the set Bulk Stage Charging Current.
- Display will show 'Equ' and the battery voltage during the Equalization period.
- The unit cannot determine when to terminate the equalization of the battery. A one-hour timeout is set as a safety feature and requires the user to continually re-activate it as necessary after checking the batteries manually.
- To terminate the Equalization process, change and save the battery type to other types like AGM, GEL etc. and then change and save it back to the Flooded type battery.

Battery Recharge Timer:

The charger will restart a full charging cycle automatically if the float stage is maintained for 7 days.

f) AC Source Circuit Breaker Function**AC Source Circuit Breaker Setting**

AC Source Circuit Breaker Setting Selectable Values: 16, 14, 13, 12, 10, 8, 6, 4A (Default: 16A)

This setting limits the total AC current draw from the AC Source during the By-Pass Mode to avoid tripping the AC Source Branch Breaker. The selected value must be the same or smaller than the rating of the AC Source Branch Breaker.

NOTE: Depending on Digital Input status, Shore (SPW) or Generator (GPW) limits can be set and used. Shore (AC in Display): Setting SPW
Generator (AUX in Display): Setting GPW

g) Manufacturing Factory Default Function**Factory Default Setting**

Select 'Yes' to reset all the settings to the preset Factory Default settings.

Note: The setting for battery type is GEL. If another battery type is used, select Yes to set all the parameter to factory default, then proceed to the battery type and make change to the new battery type.

h) Understanding the Digital Input port

Battery charging must be reduced when output power demand exceeds the current limit set for the circuit breaker on the input source to prevent this external breaker from tripping. Independent current limiting settings can be programmed for normal (shore) AC input and for generator. The limiting value for Generator input may be programmed and applied (GPW) by activating the Digital Input port (with +12V or 24V signal).

In Generator mode, with detected AC voltage, the display changes from 'AC' to 'AUX'. Without activation of the Digital Input, the programming and application current level for Shore Power (SPW) is employed.

NOTE: In either mode prevention of Circuit Breaker tripping cannot be made when output load connection exceeds the rating of the respective circuit breaker.

NOTE: when running in current limiting mode for elongated periods, the batteries will not fully charge.

AC Load on Inverter

Although the Power Inverter can provide high surge power up to two times the rated output power, some high surge loads like air conditioners, sump-pumps, heavy-duty motors, etc. may still trigger the inverter protection system even though the load falls within the power rating of the inverter. A higher power Inverter-Charger is required for these appliances.

Understanding the Error Codes

| Code | Condition | Corrective Action |
|-----------------------|---|---|
| E01 (Battery Mode) | No AC Output. Inverter shutdown due to low battery voltage . | Recharge the battery immediately and restart unit. |
| | <i>Note: E01 will shows for about 30 sec. After 30 sec, Display will turns Off and unit will shutdown completely.</i> | |
| E01 (By-Pass Mode) | - No battery is connected to the unit. | - Check the battery connection. |
| | - Battery voltage remains < 19.0V. A large portion of the charger current provided is used to maintain the DC load connected to the battery. E01 will turn OFF when the battery voltage is charged to > 19.0V | - Remove or turn off DC load connected to the battery to minimize the charging time to charge the battery to > 19.0V. If this condition is ignored, the charger will terminate the charging process (See note below). |
| | <i>Note: The charger current with battery voltage < 9.5V is limited to ~25A and there is a 15 minute timer to allow the charger to charge the battery to > 9.5V. If battery voltage remains < 9.5V after 15 minutes of charge, the charger will shutdown and show E11 (Bad battery).</i> | |
| E02 | When unit is in Battery/Inverter mode, unit senses the battery voltage is too high and inverter has shutdown. | Check battery voltage or determine if any external charger is connected to the battery bank that leads to high battery voltage. |
| E03 | When unit is in Battery/Inverter mode, AC output is overloaded or short-circuited and inverter has shutdown. | Check load connected to the output. Reduce load and restart the unit. |
| | <i>Note: E03 will shows for about 30 seconds. After 30 seconds, Display will turns Off and unit will shutdown completely.</i> | |
| E04 | When unit is in Battery/Inverter mode, Internal temperature is too high and inverter has shutdown. | Turn unit off and wait for 15 minutes before restarting. Check if any object has blocked the airflow of the unit. |
| E05 | When unit is in Battery/Inverter mode Input battery voltage is low and warning occurs. | Recharge battery as unit will shutdown shortly. |
| E06 | When unit is in Battery/Inverter mode AC output load connected has been sensed high and is close to shutdown limit. | Reduce AC load. Note: E06 occurs when AC Output power is close to 1850W for 2000W units and 2800W for 3000W unit. |
| E07 | When unit is in Batter/Inverter mode Internal temperature is high and is close to over-temperature shutdown limit. | Reduce load and check if any ventilation of the unit is blocked. |
| E10 | When unit is in By-Pass mode, Battery Charging voltage too high . | Check battery setting. Check and any other DC power sources connected to the battery has high voltage. |

| | | |
|-----|---|--|
| E11 | Bad Battery classification: E01 (By-Pass Mode) condition has not been solved. AC Charger has shutdown. | - Check corrective action in E01 (By-pass Mode) and restart the charging process by removing and reconnecting the AC Input Source. |
| | Other conditions leading to Bad Battery Classification: Battery Voltage remains below 19V after 15 minutes of charge. | - Check if there is any heavy DC load connected to the battery as stated in E01 (By-pass mode). Restart the charging process. - Change to a new battery. |
| E12 | When unit is in By-Pass mode, Internal transfer switch temperature is high and shutdown occurs. | Reduce load and check if any ventilation of the unit is blocked. |
| E13 | AC Output GFCI Tripped . | Reset the GFCI. |
| | <i>Note: This error function is not effective when Load Sense "LdS" function is in use.</i> | |
| E14 | Display panel has communication error . | Check RJ12 cable connected between the main and Display panel. |
| E15 | AC Back Feed to Unit AC Output. | Check AC Input and AC Output wiring. |
| E16 | Internal Fault. Unit damage . | Consult Customer Service for assistance. |
| E17 | AC Input Current withdrawn from the unit is close to the set AC Circuit Breaker (Cbr) rating. | Reduce AC load. Check the AC Circuit Breaker (Cbr) rating match with the external AC Input Source Branch Breaker rating. |
| E18 | AC Input Current drawn by unit is beyond the current rating of the transfer switch . (30A for 120V model, 16A for 230V model). AC Output Switch is switched off. | Reduce AC Load connected to unit. Press and hold ' Escape ' button for 5 seconds to reset AC Output Switch to provide AC Output from AC Input Source. |
| E19 | Battery temperature sensed by BTS is > 60°C. Battery charging cycle terminates. | Cool down the battery. Battery charging cycle will automatically resume when the temperature drops to below 50 °C. |
| E20 | Battery temperature sensed by BTS is > 55 °C and is close to battery temperature thermal shutdown | Check battery and environmental temperature or add ventilation to the battery compartment. |
| E21 | Battery temperature sensed by BTS is < 0 °C. Battery charging cycle terminates. | Check battery and environmental temperature. The charging cycle will resume when temperature increases to > 5 °C. |

6. TROUBLESHOOTING

To troubleshoot the unit, please note the error code displayed on the main unit and review "Understanding the Error Codes" in section 5.

| PROBLEM | POSSIBLE CAUSE/CONDITION | SOLUTION |
|---|--|---|
| No AC Output at AC Output Socket | The thermal breaker on the unit is tripped | Reset the thermal breaker |
| | The AC Output switch is turned Off. | Press and hold the 'ESCAPE' button for 5 seconds to turn On the AC Output. |
| | With unit running from AC Input Source or shore power, the AC Input Source is available but is outside the acceptance range. | Check AC Input Source. Operating range of AC Input is 190 – 267Vac. Unit Start-up AC Voltage is higher than 198 Vac and below 264VAC. |
| | Unit is set to Inverter Off | Check unit 'Int' setting. |
| | Check Error code on display. Inverter may be overloaded. | Reduce AC load. Inverter may be overloaded. |
| | DC over-voltage, under-voltage, or other shutdown type errors in addition to overload. | Check battery voltage. |
| | For 120V model, GFCI may have tripped | Reset GFCI |
| | | |
| Charger did not supply charging current | Check charger setting. Charger may be set to Off. | Set Charger function 'CHG' to On. |
| | Unit had determined the battery is bad. See also description in Error Code E01 (By-Pass Mode) and E11 | Check battery and remove the DC load connected to the battery and restart the charger again |
| | Battery is with BTS installed and it senses the battery temperature is high (E19) | Check battery temperature or environmental temperature. Battery charging cycle will resume when the battery cools down to acceptable level. See Understanding the Error Codes for more details. |
| | Battery is with BTS installed and it senses the battery temperature is too low to accept charge (E21) | Check battery temperature or environment temperature. Battery charging cycle will resume when the battery temperature increase to acceptable temperature. See Understanding the Error Codes for more details. |

7. SPECIFICATIONS
24 V Input Model

| | 230VAC 24V Model | |
|--------------------------------------|--|----------|
| | 61242040 | 61124001 |
| Running as Inverter | | |
| AC Output Power | 2000W | 3000W |
| AC Output Current | 8.7A | 13.0A |
| AC Surge Power (Peak) | 4000W | 6000W |
| AC Output Voltage/Frequency | 230 VAC / 50Hz | |
| AC Output Waveform | Sinewave (<3% THD) | |
| Nominal DC Input Voltage | 25.0 VDC | |
| No Load battery draw (Inverter Mode) | < 1.8 ADC | |
| DC Input Voltage operating range | 21.0 - 33.0 VDC | |
| Under Voltage Alarm | 22.0 - 25.0 VDC | |
| Under Voltage Alarm Recovery | 23.0 - 26.0 VDC | |
| Under Voltage Shutdown | 21.0 - 24.0 VDC | |
| Under Voltage Recovery | 23.0 - 26.0 VDC | |
| Over Voltage Shutdown / Recovery | 33.0 / 32.0 VDC | |
| AC Transfer Switch | | |
| Transfer Time | < 30 ms | |
| Transfer Relay Rating | 16A | |
| AC Input Source Setting | 4, 6, 8, 10, 12, 13, 14, 16A | |
| AC Output Hardwire (max.) | 16A | |
| AC Output Socket (max.) | 16A-EU,13A-UK,10A-AU | |
| Display | | |
| Display Port | RJ12 | |
| Inverter Mode | Battery Voltage, DC Current, AC Output Power | |
| Charger Mode | Charging Voltage, Charging Current, AC Input Power | |

| Running as Battery Charger | | |
|--------------------------------|---|-----------|
| Charging Voltage Range | 27.6 - 29.6 VDC | |
| Float Voltage Range | 26.0 - 28.0 VDC | |
| Bulk Charge Current Range | 5 - 40 A | 10 - 50 A |
| Absorption-Float Current Range | 2 - 6 A | 2 - 8 A |
| Battery Type | Gel, Flooded, AGM, Lithium, Program, Power Supply | |
| Charge Cycle Stages | Bulk / Absorption / Float / Recharge | |
| Maintenance Recharge Cycle | 7 days | |
| Power Factor Correction | >95% | |
| Efficiency | >80% | |
| | | |
| Safety and Environmental | 230VAC Series | |
| Conformance | LVD: EN/IEC 62040-1, IEC 61558-2-16 | |
| EMI/EMC | EMC: EN/IEC 62040-2, Category C1 | |
| Agency Markings | CE | |
| Operating Temperature | 0°C to 40°C (32°F to 104°F) | |
| Storage Temperature | -20°C to 60°C (-4°F to 140°F) | |
| Relative Humidity | 5-90% non-condensing | |
| Operating Altitude | Up to 3000m (9,843ft) above sea level | |
| Weights and Dimensions | | |
| Weights 2000W Series: | 8.0 kg (17.6 lbs) | |
| Weights 3000W Series: | 3000W Series: 10.4 kg (22.9 lbs) | |
| Dimensions 2000W Series: | 391 x 302 x 106 mm (15.4 x 11.9 x 4.2 inches) | |
| Dimensions 3000W Series: | 500 x 307 x 106 mm (19.7 x 12.1 x 4.2 inches) | |

Note: Specifications are subject to change without notices.

8. WARRANTY

During the production and assembly of the WP Inverter Charger, each unit undergoes several checks and tests. These are carried out with strict adherence to the established procedures. Each WP INVERTER CHARGER has a serial number allowing complete follow-up on the checks, according to the particular data for each device. For this reason it is very important never to remove the type plate which shows the serial number. The manufacture, assembly and tests for each WP INVERTER CHARGER are carried out in their entirety by our factory in Drachten (the Netherlands). The warranty for this equipment depends upon the strict application of the instructions appearing in this manual.

The warranty period for the Whisper Power Centre is 2 years. Refer to the Whisper Power general conditions of sales.

8.1. Exclusion of warranty

No warranty claims will be accepted for damage resulting from handling, usage or processing that does not explicitly appear in this manual. Cases of damage arising from the following causes are notably excluded from the warranty:

- Surge voltage on the battery input (for example, 48 V on the battery input of an WP INVERTER CHARGER)
- Incorrect polarity of the battery (mixing up + and -)
- The accidental ingress of liquids into the device or oxidation resulting from condensation
- Damage resulting from falls or mechanical shocks
- Modifications carried out without the explicit authorisation of WhisperPower
- Nuts or screws that have not been tightened sufficiently during the installation or maintenance. High currents through poor connections can cause extreme heat and fire.
- Damage due to atmospheric surge voltage (lightning)
- Damage due to inappropriate transportation or packaging
- Disappearance of original marking elements

8.2. Exclusion of liability

The placement, commissioning, use, maintenance and servicing of the WP INVERTER CHARGER cannot be the subject of monitoring by WhisperPower. For this reasons we assume no responsibility and liability for damage, costs or losses resulting from an installation that does not conform to the instructions, defective functioning or deficient maintenance. The use of a WhisperPower Centre is the responsibility of the customer in all cases.

This equipment is neither designed nor guaranteed to supply installations used for vital medical care nor any other critical installation carrying significant potential damage risks to people or the environment. We assume no responsibility for the infringement of patent rights or other rights of third parties that result from using the inverter.

WhisperPower reserves the right to make any modifications to the product without prior notification.

RETURN/REPAIR POLICY

If you are experiencing any problems with your unit, please contact our customer service department at sales@whisperpower.com or Phone +31 (0) 512 571 550 before returning product to retail store. After speaking to a customer service representative, if products are deemed non-working or malfunctioning, the product may be returned to the purchasing store within 30 days of original purchase. Any defective unit that is returned to manufacturer within 30 days of the date of purchase will be replaced free of charge.

If such a unit is returned more than 30 days but less than one year from the purchase date, manufacturer will repair the unit or, at its option, replace it, free of charge. If the unit is repaired, new or reconditioned replacement parts may be used, at manufacturer's option. A unit may be replaced with a new or reconditioned unit of the same or comparable design. The repaired or replaced unit will then be warranted under these terms for the remainder of the warranty period. The customer is responsible for the shipping charges on all returned items.

LIMITATIONS

This warranty does not cover accessories, such as adapters and batteries, damage or defects result from normal wear and tear (including chips, scratches, abrasions, discoloration or fading due to usage or exposure to sunlight), accidents, damage during shipping to our service facility, alterations, unauthorized use or repair, neglect, misuse, abuse, failure to follow instructions for care and maintenance, fire and flood.



Enjoy Green Energy

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