



VANAIR®
MOBILE POWER SOLUTIONS®

EPEQ INVERTER5000 Electrified Power Equipment™

EPEQ™ Electrified Power Equipment®
5kW 48V DC - 230V AC Power Inverter
Part Number: 6240002



USER GUIDE

OPERATION MANUAL AND SERVICE PARTS LIST KEEP THE MANUAL WITH THE VEHICLE

NOTE: Read this manual before installing, operating or servicing this equipment. Failure to comply with the operation and maintenance instructions in this manual will VOID THE EQUIPMENT WARRANTY.

This publication contains the latest information available at the time of preparation. Every effort has been made to ensure accuracy. Vanair® Manufacturing, Inc. reserves the right to make design change modifications or improvements without prior notification.

Making unauthorized modification to the system components WILL VOID THE WARRANTY! Always contact Vanair® before beginning any changes to the EPEQ™ INVERTER5000 Series system.



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GENERAL INFORMATION

For parts, service or technical assistance, make sure you have the Serial Number and Model Number of the unit. Please record the information in the spaces below for future reference.

Serial Number:	
Model Number	

INVERTER5000 / CHARGER

The EPEQ™ INVERTER5000/Charger is a transformer-less DC to AC power inverter designed to provide single phase, 230V AC power output from a 48V DC source input:

NOTICE:



- All wiring must conform to National Safety Code, Provincial or other codes in effect at the time of installation. This inverter should be connected to a grounded wiring system. If the system ground is floating - be sure to follow the codes in effect.
- The INVERTER5000 ships with DC power cables and connectors pre-installed.
- When hard-wiring the unit, take note that the INVERTER5000 has no reverse protection. Please confirm polarity before making final wiring connections.
- Avoid use of third party accessories, and communications cables with this inverter.



- elements.
- Do not expose the inverter to rain, snow, spray/mist, dust or the elements.
- Inverter requires adequate clearance for air circulation and cooling. Do not block ventilation openings or cooling fans.
- Minimum air circulation required is 145 CFM.
- Installers must be certified technicians or electricians.
- Make certain all connecting wiring is in good condition and of adequate size to avoid risk of fire and electric shock. Do not use damaged or undersized wiring.
- Components in this unit can produce electrical arcing or sparks. To avoid risk of fire, do not install this equipment in areas in or around combustible liquids, solids, or gas. This includes any space containing combustion engine powered vehicles or machinery, fuel tanks, fuel lines or fittings that are a part of a fuel system.
- The use of a fuse between the Inverter positive (+) input and the positive (+) terminal of the battery can protect batteries from DC cable shorts which can cause damage to LiFePO4 batteries, and can cause other battery types to explode.
- Do not disassemble the inverter. It contains no serviceable parts and there is a risk of electrical shock or fire. Capacitors inside the case remain charged after all power is disconnected. Contact Vanair customer support for any service issues.
- Before any cleaning or maintenance, disconnect both the AC and DC power to reduce risk of electric shock. Turning off the controls only will not reduce the risk.

SAFETY:



- Please read all instructions and safety information for this inverter and any equipment or tools that will be attached to the INVERTER5000.
- This unit is designed for indoor use or within a clean, dry compartment, protected from rain, dust and the



- **Caution - Equipment Damage:** The AC output side of the inverter's AC wiring should NEVER be connected to the AC output of a public power source or a generator. This situation could cause permanent damage to the equipment. If the unit survives such a condition, it will shut down until the situation is corrected.



WARNING: EPEQ™ AC Inverters not intended for use with medical devices and lifesaving systems. Any such use is at your own risk.

FEATURES:

- Produces pure sine wave output.
- Built-in LCD Control panel with adjustable parameters.
- Maximum 3% THD at nominal battery voltage.
- Surge capability up to 200% peak load up to 5 seconds.
- Low standby current while in Power Saver Mode to conserve energy.
- Variable speed fan is temperature controlled for efficient cooling.
- Up to 6 units can be connected in Parallel to produce 230/400V 3-phase AC output.

DC TO AC INVERT

The INVERTER5000 has different overload capabilities.

- Surge capable from 150-200% peak load. Faults and powers off after 5 seconds.
- Surge capable from 110-150% peak load. Faults and powers off after 10 seconds.
- After switching the unit on, allow a few moments for the inverter to run self diagnosis before starting or powering on any attached tool or appliance.
- Power on any connected devices one at a time to avoid a combined surge at start up, which may result in a fault condition.

POWER SAVER

- The INVERTER5000 has two working modes. ON and OFF. These modes are self-explanatory, however the ON mode also includes a Power Saver mode which can be activated by the user.
- Power Saver mode (MODE 4 on the Controller) allows the inverter to save battery power when turned on, but is not currently in use.
- While in Power Saver mode - the inverter sends out a small test signal every 30 seconds. When a connected electrical appliance or tool is turned on (in excess of 100W), the inverter senses the need for AC power and automatically returns to full voltage. When a load less than 100W is detected, the inverter returns to Power Saver Mode.
- Power Saver mode reduces the idle energy consumption from 50 to 30 watts.
- Users can see the Power Saver mode is activated as the LED panel will blink, also the inverter will make a ticking sound as it sends out the test signals every 30 seconds.
- **NOTE: Some connected, smart energy saving devices may also include a similar “power saving feature”. In this case, both the inverter and connected device may remain in “sleep mode” each waiting for one another to wake up. If this is the case, users can “wake up” the inverter by using another connected appliance, or simply turn off the inverter’s Power Saver mode.**

PROTECTIONS

The INVERTER5000 uses several protections against faults and harsh conditions:

- AC input over voltage protection
- AC input voltage low voltage protection

- Low battery alarm
- High battery alarm
- Over temperature protection
- Over load protection
- Short circuit protection (1s after fault detected)

(Users can choose if the inverter should automatically reset after some of these protections are tripped.)

INSTALLATION

LOCATION

- Follow all local regulations when installing the converter
- Install in a clean, dry, and cool location with good ventilation.
- Working temperature: 14°F to 131°F (-10°C to 55°C)
- Storage temperature: 5°F to 140°F (-15°C to 60°C)
- Relative humidity: 5% to 95%, non-condensing
- Cooling: forced air
- **Warning! Operating the unit in a condensing atmosphere will void the warranty.**

UNPACKING AND INSPECTION.

The package should arrive intact with nothing broken or missing. Contents should include the following: **(VERIFY)**

- INVERTER5000 (1)
- User manual (1)
- Communication cable (1)
- DC Power input cable/connector (1) (pre-installed)
- Parallel cable (1)

MOUNTING THE UNIT

1. Before connecting any cables or wiring remove the terminal access panel by removing the two screws located on the bottom corners of the unit - and two additional screws on the sides of the panel. (See *Figure 1-1*)

2. Inverters produce heat during normal operation. Do not mount inverter where it may be in contact with flammable materials.
3. It is recommended that the inverter be mounted vertically against a non combustible surface or wall, such as metal or concrete using (4) M4 or M5 screws.
4. Install at eye level - so that the LCD screen can be easily seen at all times. If using multiple units install all at the same level.
5. For best operation, mount in an area with an ambient temperature between 32°F and 131°F (0°C and 55°C).
6. Allow proper clearance around unit to permit adequate heat dissipation. 8" (~20cm) on each side, and 20" (~50cm) above and below. Make sure air can circulate freely around unit.

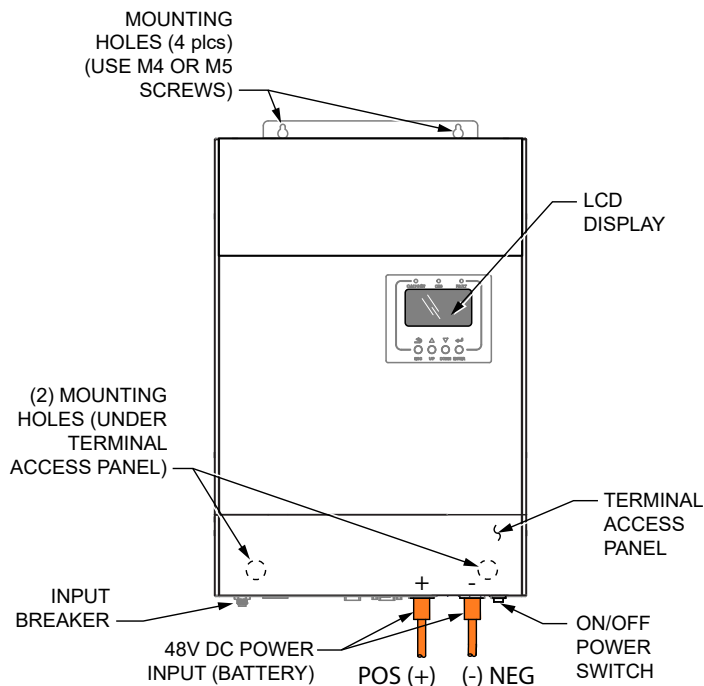


Figure 1-1

BATTERY WIRING

1. The orange colored DC power input cable and Anderson-type connector will come pre-installed. (If hardwiring the unit, please refer to the following.)
2. Before hard wiring - remove the 4 screws to remove the DC & AC terminal panel on

- the front, bottom of the inverter.
3. The DC terminal bolt size is M6
 4. For best results, keep the battery bank as close as possible to the inverter. Try to keep length of the DC power cable between 3'-16' (~1 to 5 meters).
 5. Battery capacity: 200AH (2) ELiMENT™ batteries are recommended
 6. Maximum Amperage: 136A
 7. Wire Size: 1 x 2AWG
 8. Ring Terminal:
 - Cable: 35 mm²
 - Ring terminal dimensions: 0.25 inch Dia. x 1.5 inches L. (6.4mm Dia. x 39.2mm L)
 - Torque Value: 17.7 to 26.5 ft-lbs (2 to 3 Nm)
 9. Recommended circuit breaker specification **for each inverter** on the battery side: 150A / 60V DC
 10. For multiple inverters connected in parallel, where only one breaker is used on the battery side - the breaker should be rated for "x" times the current where x equals the number of units connected (up to 6). (Example: 3 units would call for "3" x 50A or 150A. 6 units would call for "6" x 50A or 300A rating.)
 11. When using only 1 unit - a 50A breaker can be used, where each inverter has a breaker at its AC input. The recommended spec of the AC breaker is 50A for one INVERTER5000.



- **CAUTION!!** Before connecting to AC input power source, please install a separate AC breaker between inverter and AC input power source. This will allow the inverter can be securely disconnected during maintenance and fully protected from over current of AC input.



- **CAUTION!!** There are two terminal blocks with "IN" and "OUT" markings. Make sure input and output connectors are properly connected.



- **WARNING: When inverters are connected in parallel, all inverters must share the same battery bank, or the inverters will detect a FAULT.**

WIRING AND GROUNDING

Follow the minimum size requirement (1 x 2AWG). One cable is always best, however using two or three smaller gauge wires together will work as long as the (35 mm²) area of the total cross section is the same or greater. Always opt for shorter and thicker wire if needed.

Battery cables must have crimped or (soldered and crimped) lugs. UL listed cables are available for this. Soldered-only lugs alone are not sufficient.

Before connection, battery terminal and lugs must have clean surfaces free of any dirt and oxidation to eliminate potential added resistance - which could lead to overheating during high current use. A stiff wire brush can be used to quickly clean these surfaces.

Connect an AWG 8 gauge copper wire, or greater, between the grounding terminal of the inverter (AC INPUT GND Terminal) and the Earth ground, or to the DC INPUT (-) Negative terminal from battery for mobile use.

NOTE: For mobile use, the INVERTER5000 can be grounded by installing a jumper wire between the DC Input NEGATIVE (-) terminal (from the battery) to the AC Input ground terminal on the inverter. (See Figures 1-2 and 1-3)



WARNING: Shock Hazard. Installation must be performed carefully due to high battery voltage in series.

- Do not place anything between the flat part of the inverter terminal and the ring terminal - such as a washer or spacer, otherwise overheating may occur.
- Do NOT apply an anti-oxidant on the terminals BEFORE tightening the connections.

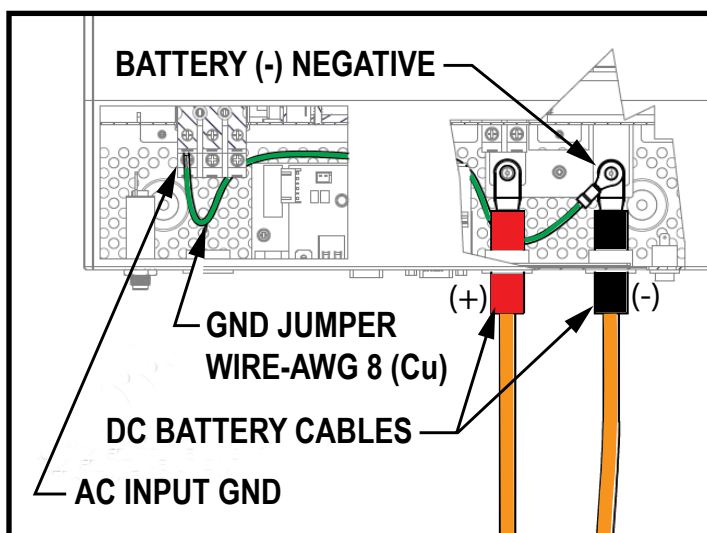


Figure 1-2

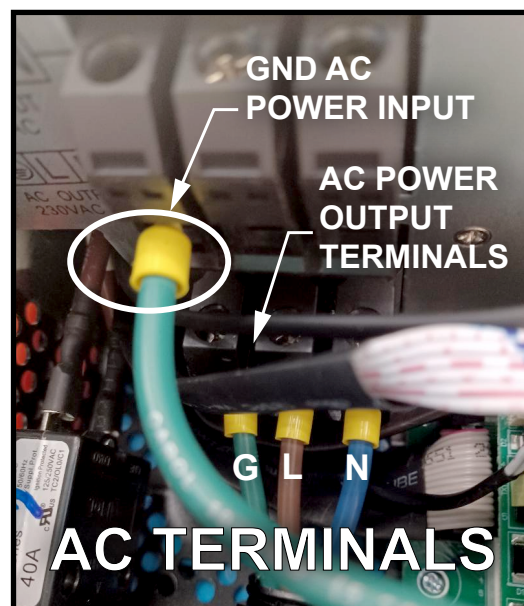


Figure 1-3



- Make certain the polarity is connected accurately before powering on the equipment. Positive connected to positive, and negative connected to negative.

NOTE: DC Input cables and an Anderson-type connector come installed at the factory as standard.

If choosing to hard wire the unit to the battery please follow the following steps to complete battery connection:

1. Assemble battery ring terminal based on recommended battery cable and terminal size.
2. Connect all battery packs required by the inverter. 200AH capacity is suggested for the INVERTER5000. (Achieved by using 2x ELiMENT™ 100Ah batteries)
3. Make sure DC polarity is correct at both the battery and inverter input terminals!
4. Insert ring terminal of battery cable flat onto the DC input terminal of the inverter - tighten to 22 inch lbs. (2.5 Nm).
5. Wires and connections should be verified to be properly routed, connected and tightened before use.
6. **WARNING:** Battery cable lengths should be the same between inverters to avoid voltage differences that may cause inverter parallel operation to fail.

OPERATION

Following the installation and wiring the user is ready to put the inverter to use.

1. With the inverter power switch in the OFF position, visually check the inverter, battery, cables, and connected equipment for any obvious damage or ventilation obstructions.
2. If using battery power, verify the battery source has an adequate charge level. (Starting with fully charged batteries allows for the best performance and longest working time.)
3. Once the battery level has been verified, check the connection between the inverter and battery. If not already connected, connect an orange DC output cable connector from the ELiMENT battery to the orange DC power input connector of the inverter by sliding one into the other as needed.
4. Push firmly to ensure a good connection.
5. Make sure any connected AC powered tools, equipment or appliances are turned off. Once all connections are secure, turn the inverter "ON" using the power switch located on the bottom-right of the inverter case. (See Figure 1-1)

6. The inverter will take a moment to run a self-diagnosis. During these few seconds, do not power on any connected devices. This may cause a surge that may result in a fault condition.
7. Once the brief self test is complete, turn on any connected devices **one at a time** when it is needed and is safe to do so.
8. Many electrical devices create an initial surge when powered on. If multiple devices are turned on simultaneously - this combined surge could cause a fault.
9. When finished using the inverter, simply power down the connected devices and switch the inverter unit "OFF".

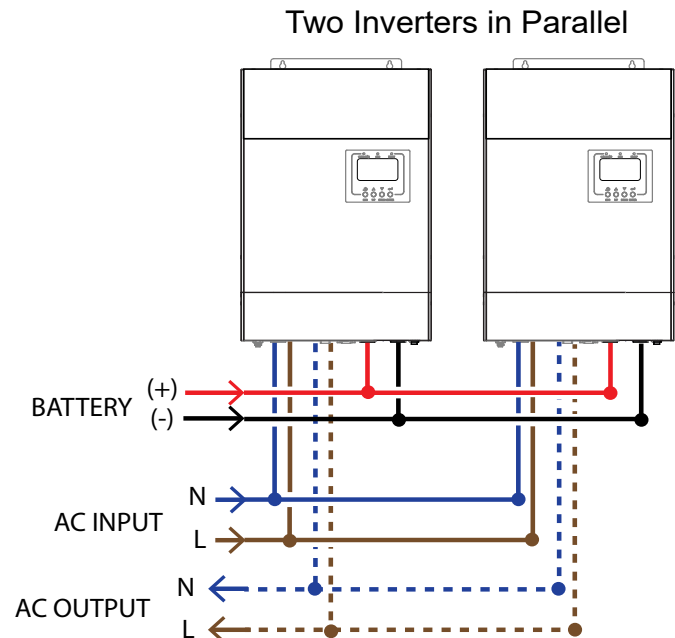
INVERTER PARALLEL OPERATION

Users can connect the INVERTER5000 units in parallel - up to 6 pieces. This provides users the ability to create a 230/400V AC 3-phase power source.

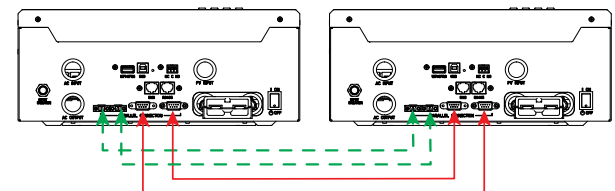
When more than one inverter is stacked, the load is evenly balanced among the inverters. Each inverter in a stack will produce power, even under periods of small power demand - and none will go into power saver mode. This aids in the event of sudden changes in power demand from connected devices.

Single Phase Parallel. See power wiring diagrams for wiring inverters (up to 6 units), to the right and on following pages.

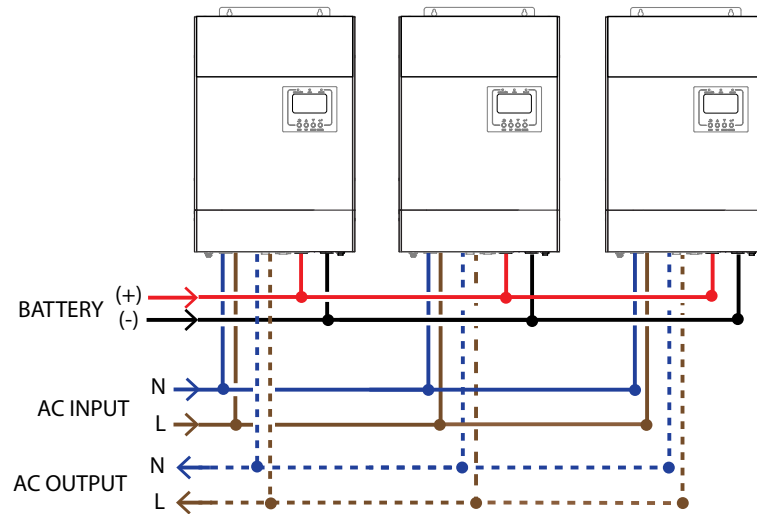
WIRING DIAGRAMS - PARALLEL / SINGLE PHASE



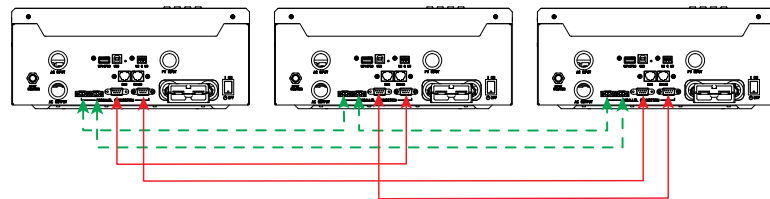
Communication Wire Connection



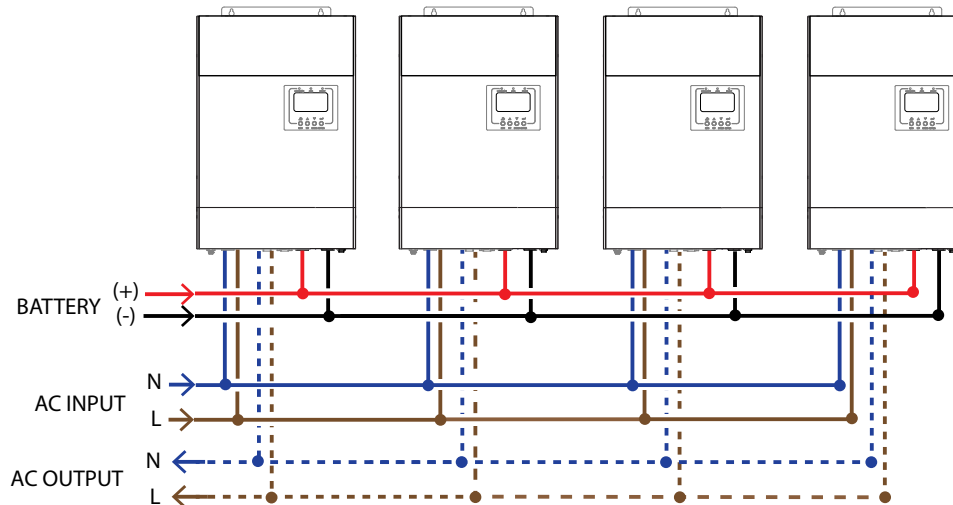
Three Inverters in Parallel



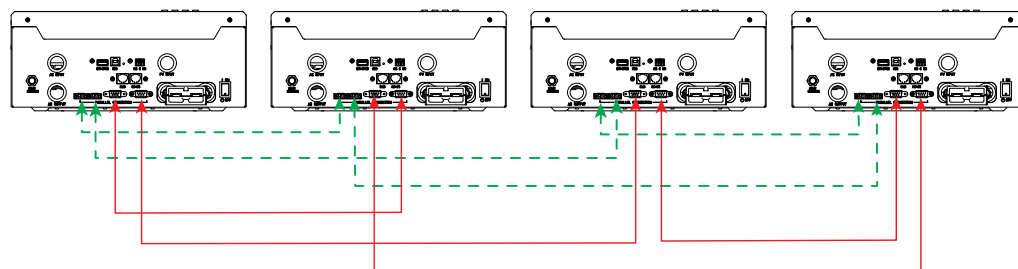
Communication Wire Connection



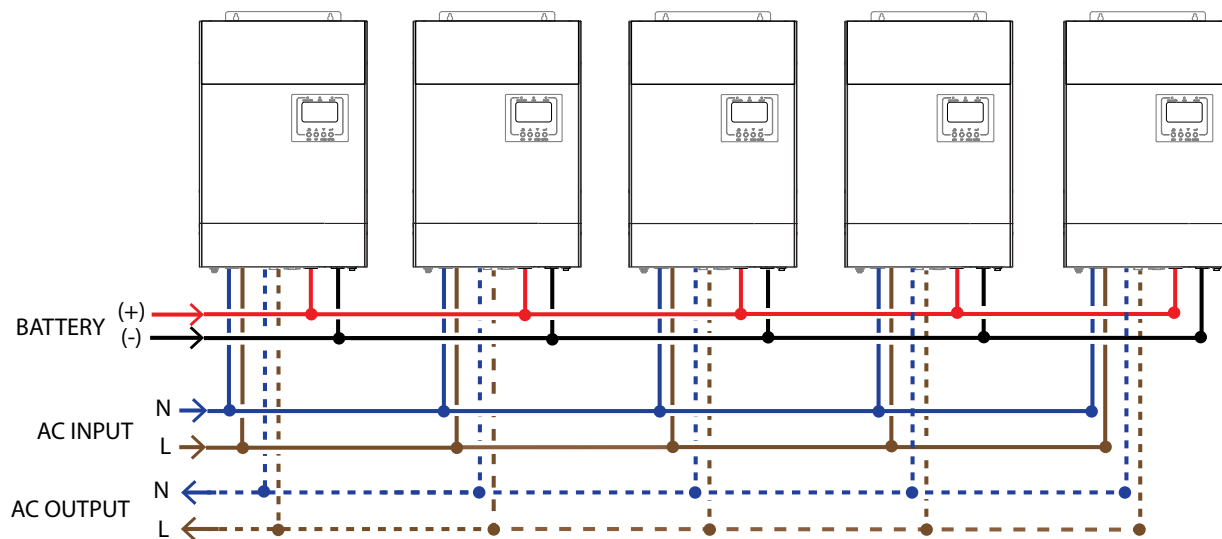
Four Inverters in Parallel



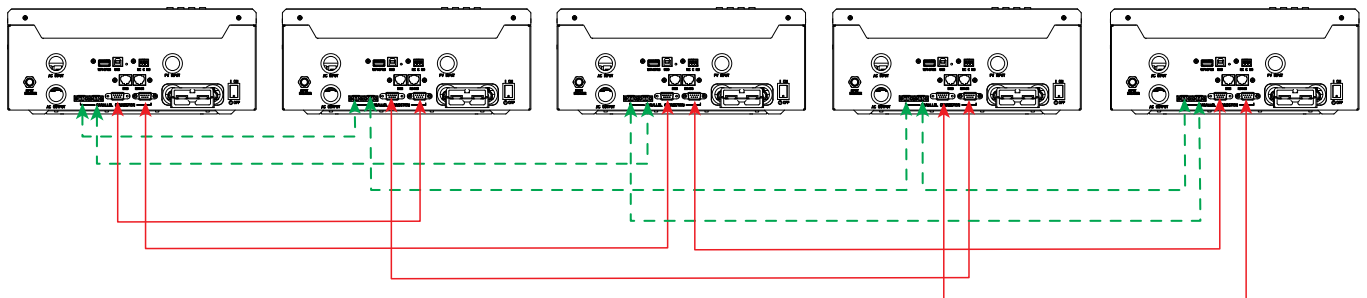
Communication Wire Connection

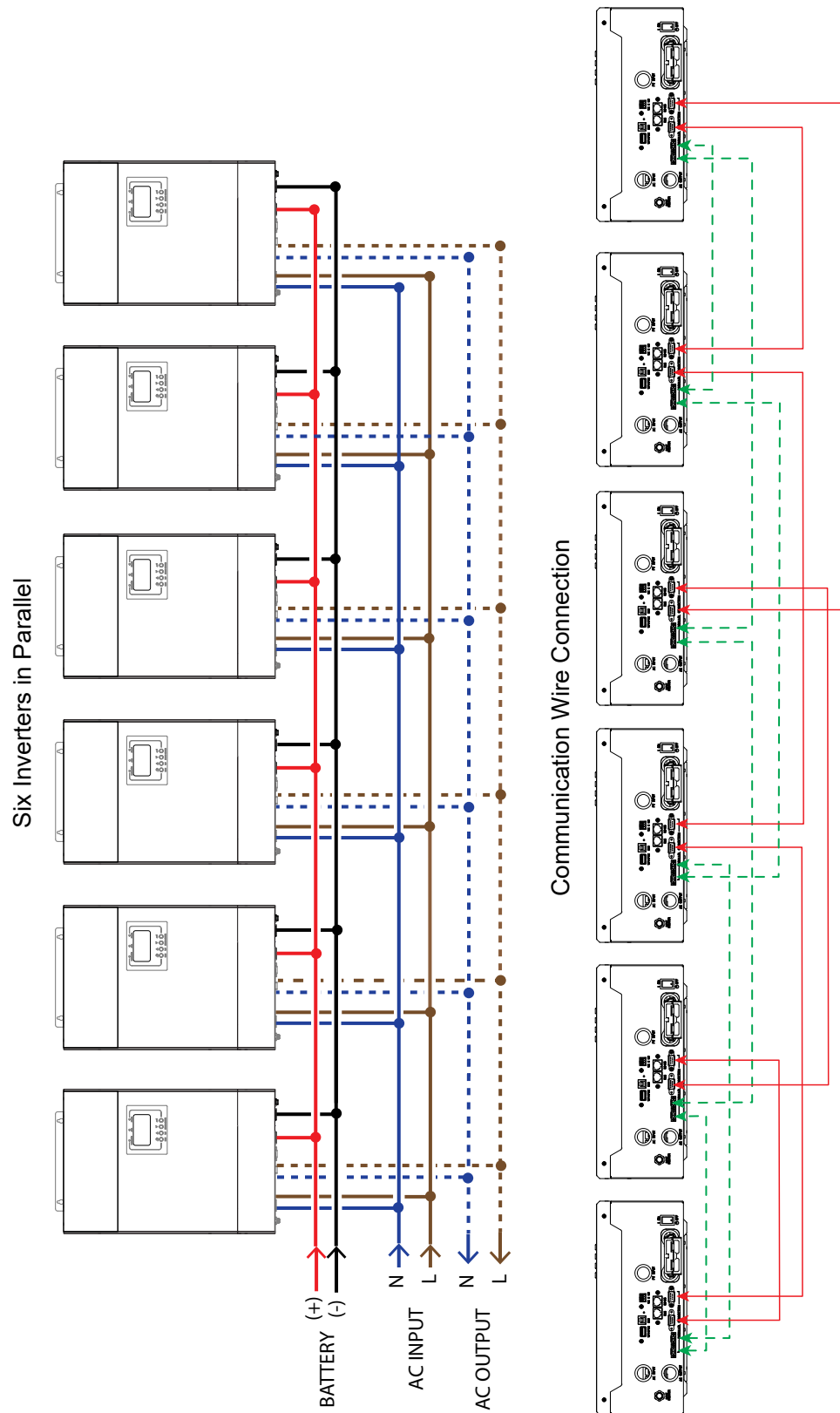


Five Inverters in Parallel



Communication Wire Connection





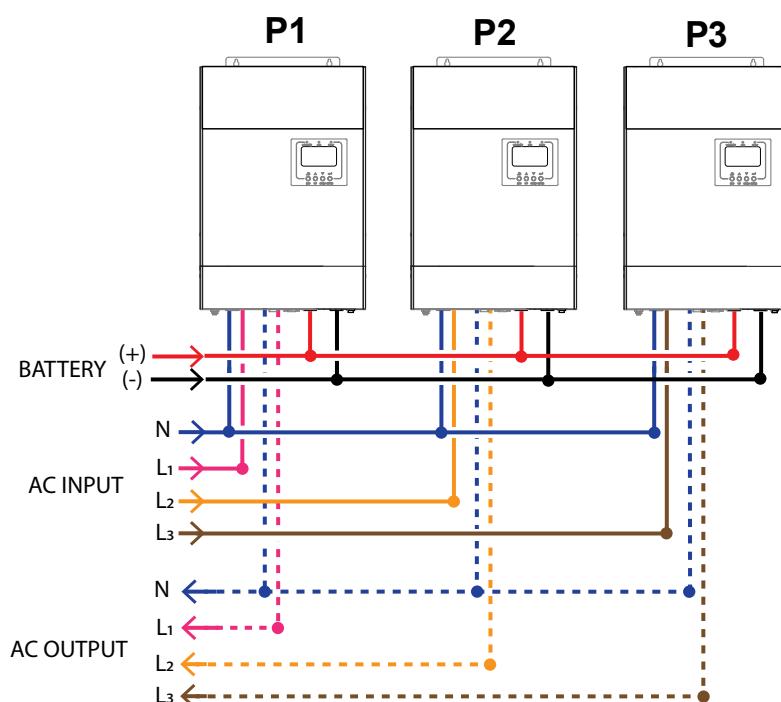
CONNECTING INVERTER5000 UNITS FOR THREE PHASE POWER



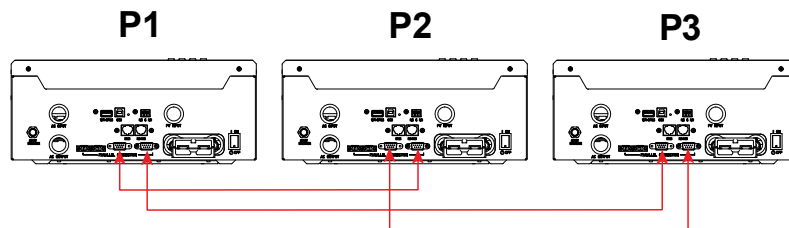
WARNING: Cables sharing AC line current must NOT be connected between inverters that are in different phases.

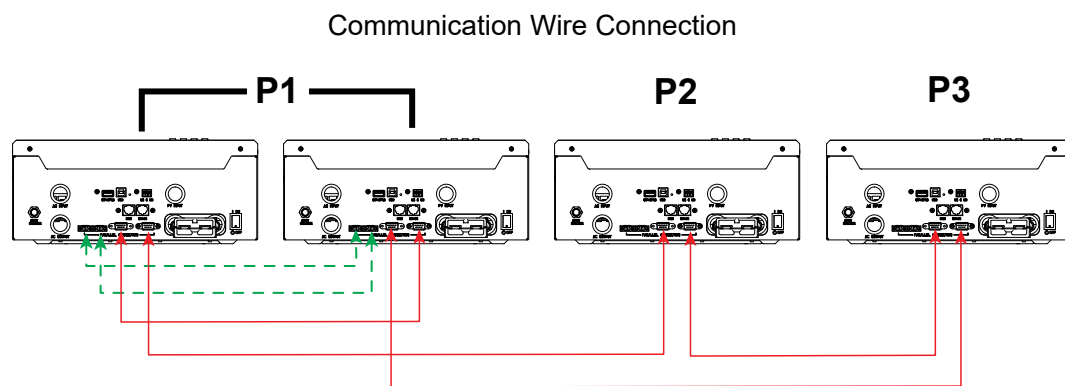
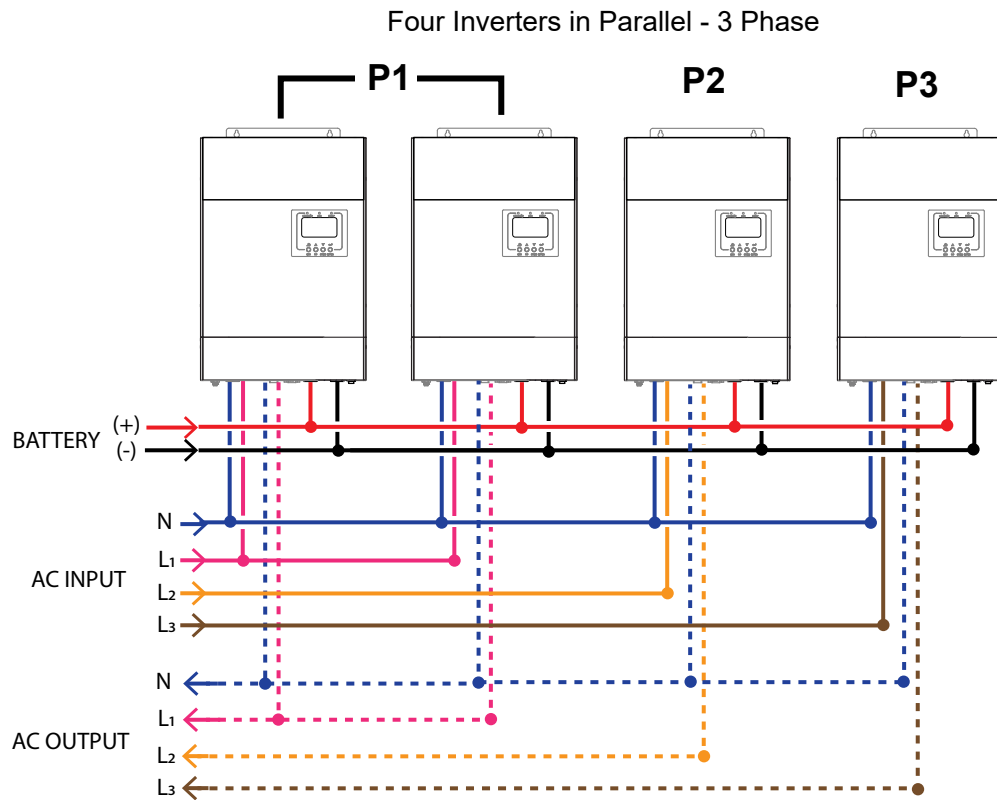
Power wiring diagrams for wiring several inverters (up to six units) in parallel for three phase, below and on following pages. Phases are indicated by P1, P2, P3 in following diagrams.

Three Inverters in Parallel - 3 Phase

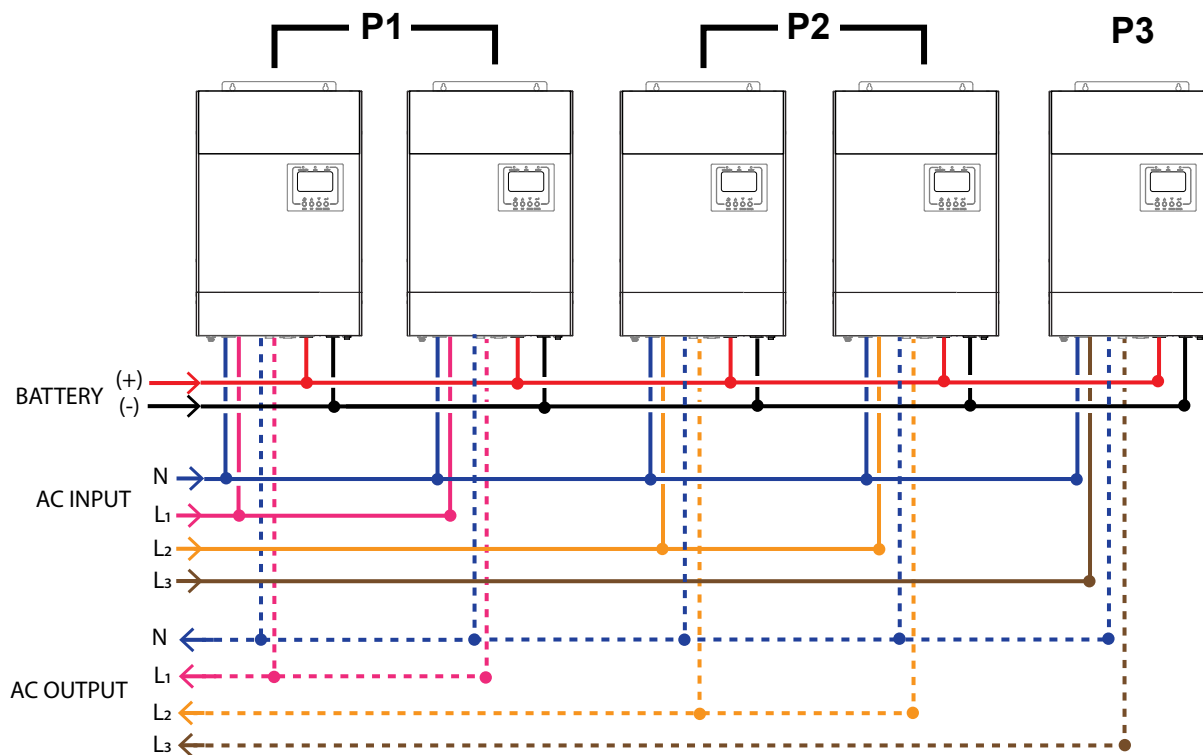


Communication Wire Connection

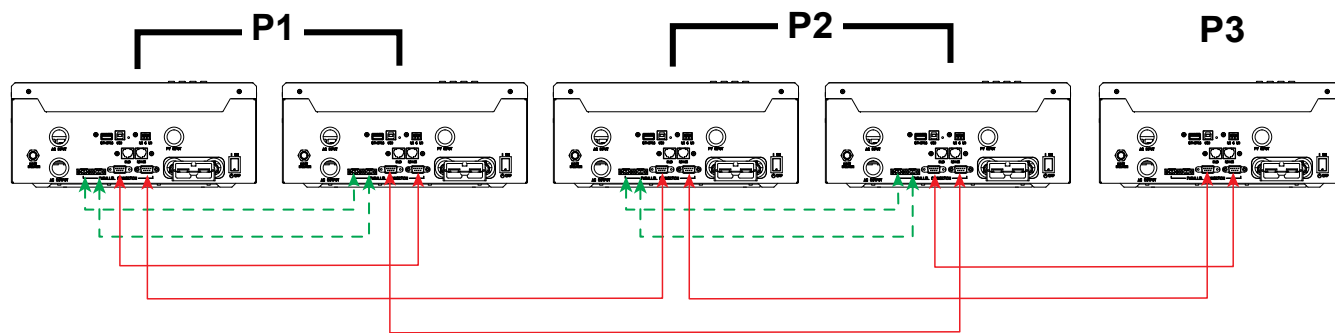




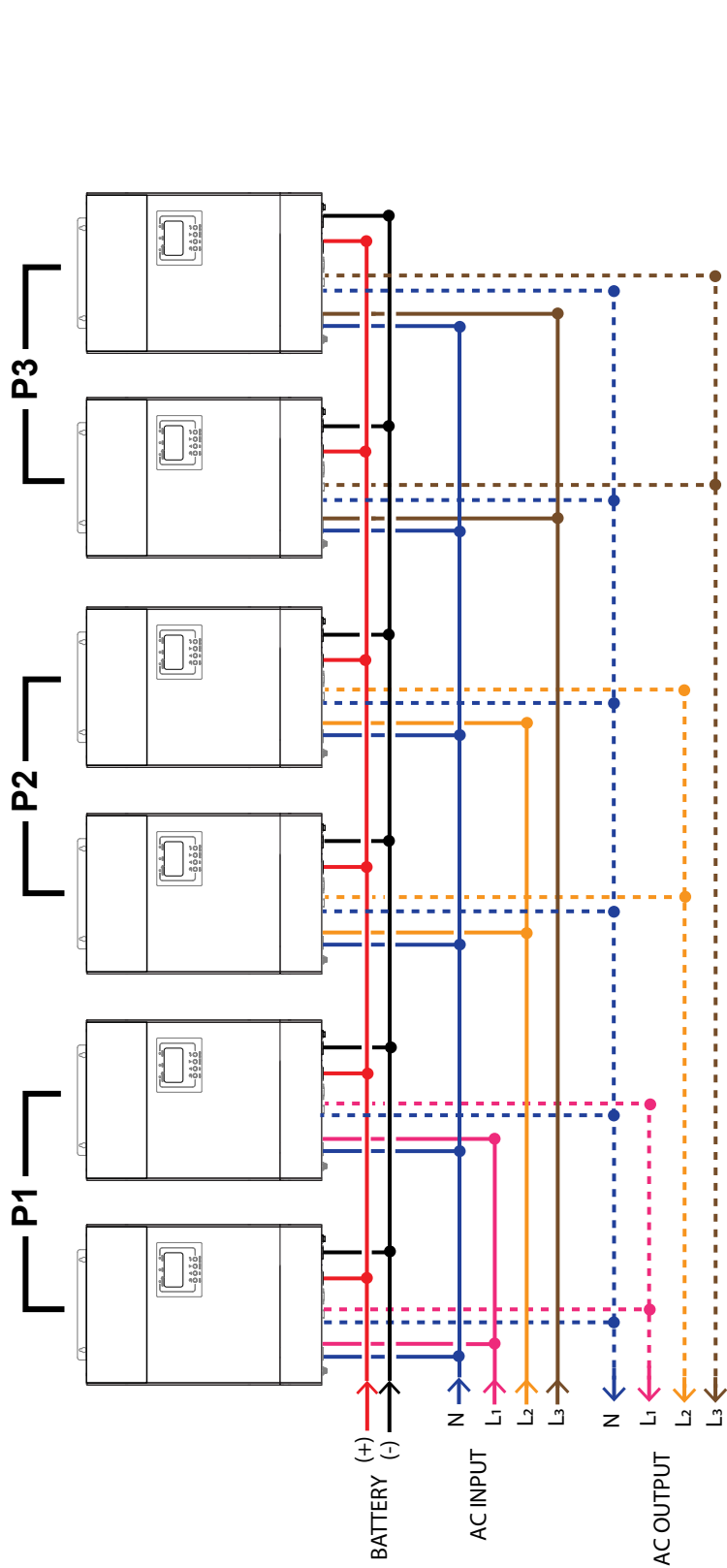
Five Inverters in Parallel - 3 Phase



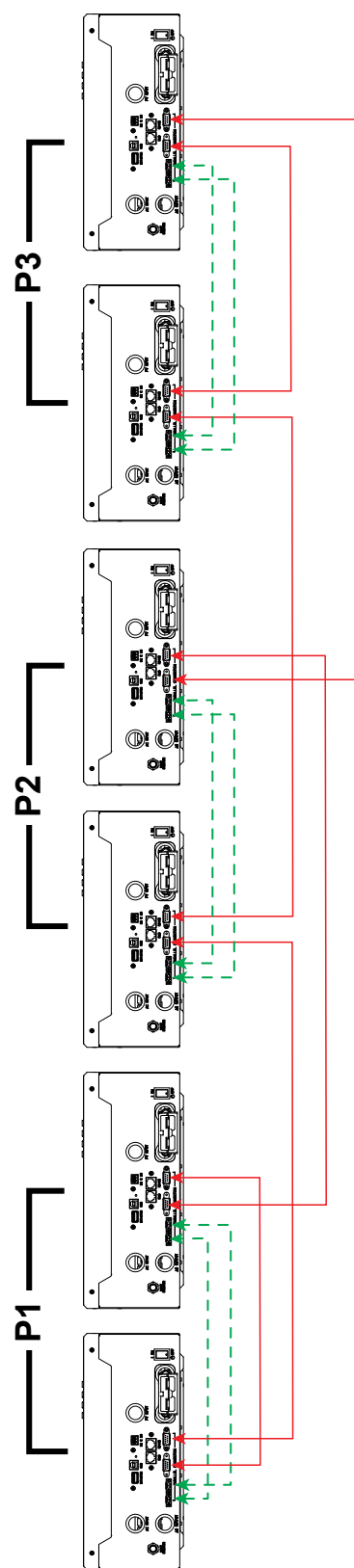
Communication Wire Connection



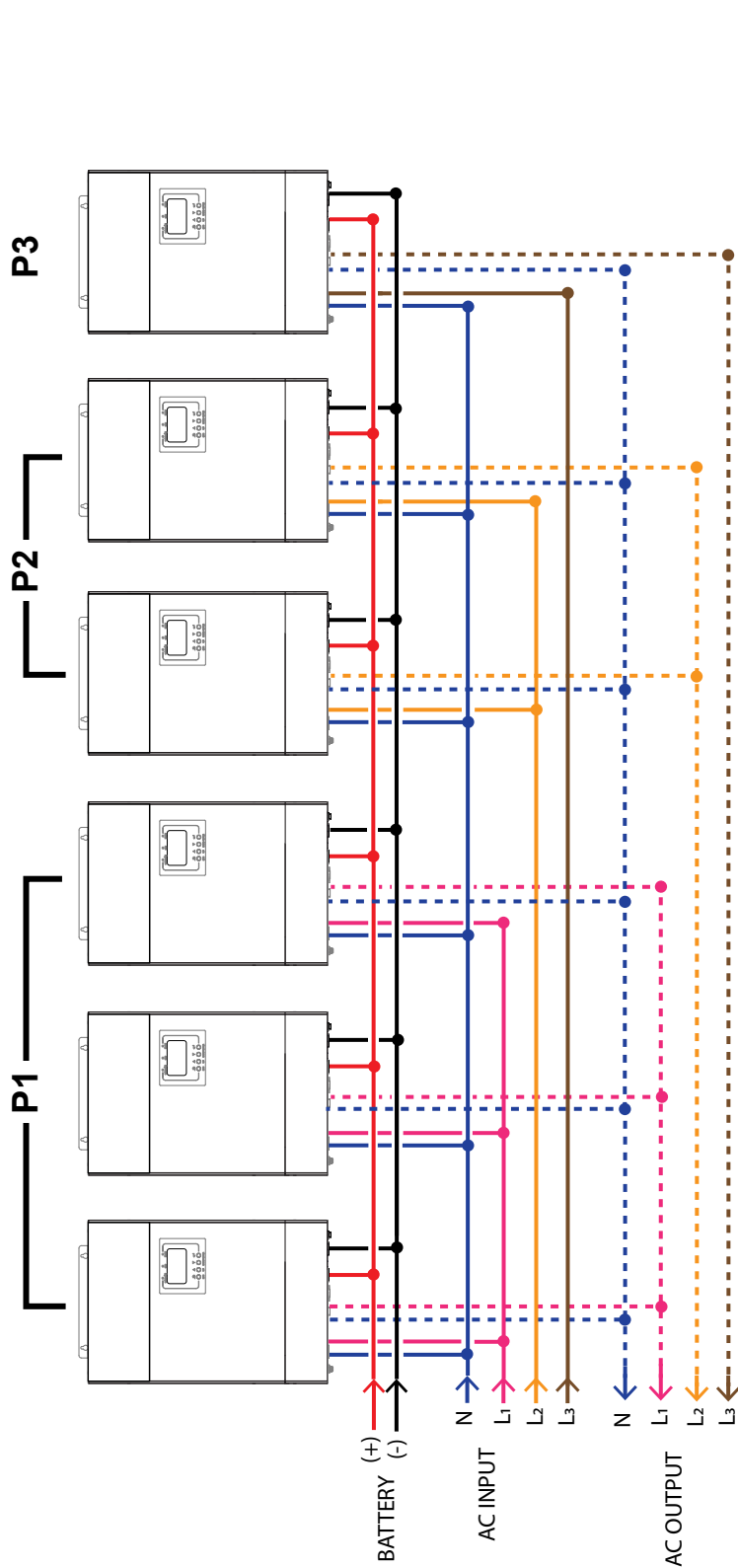
Six Inverters in Parallel - 3 Phase



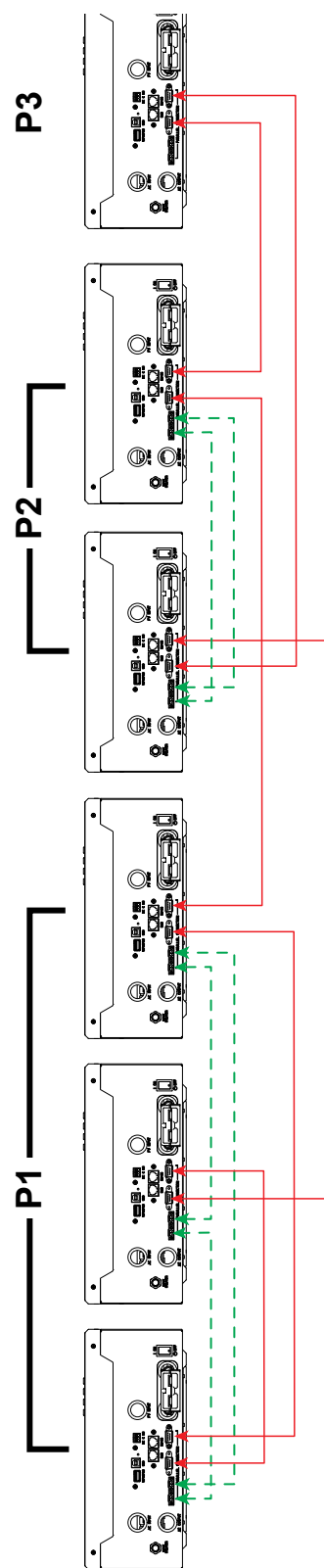
Communication Wire Connection



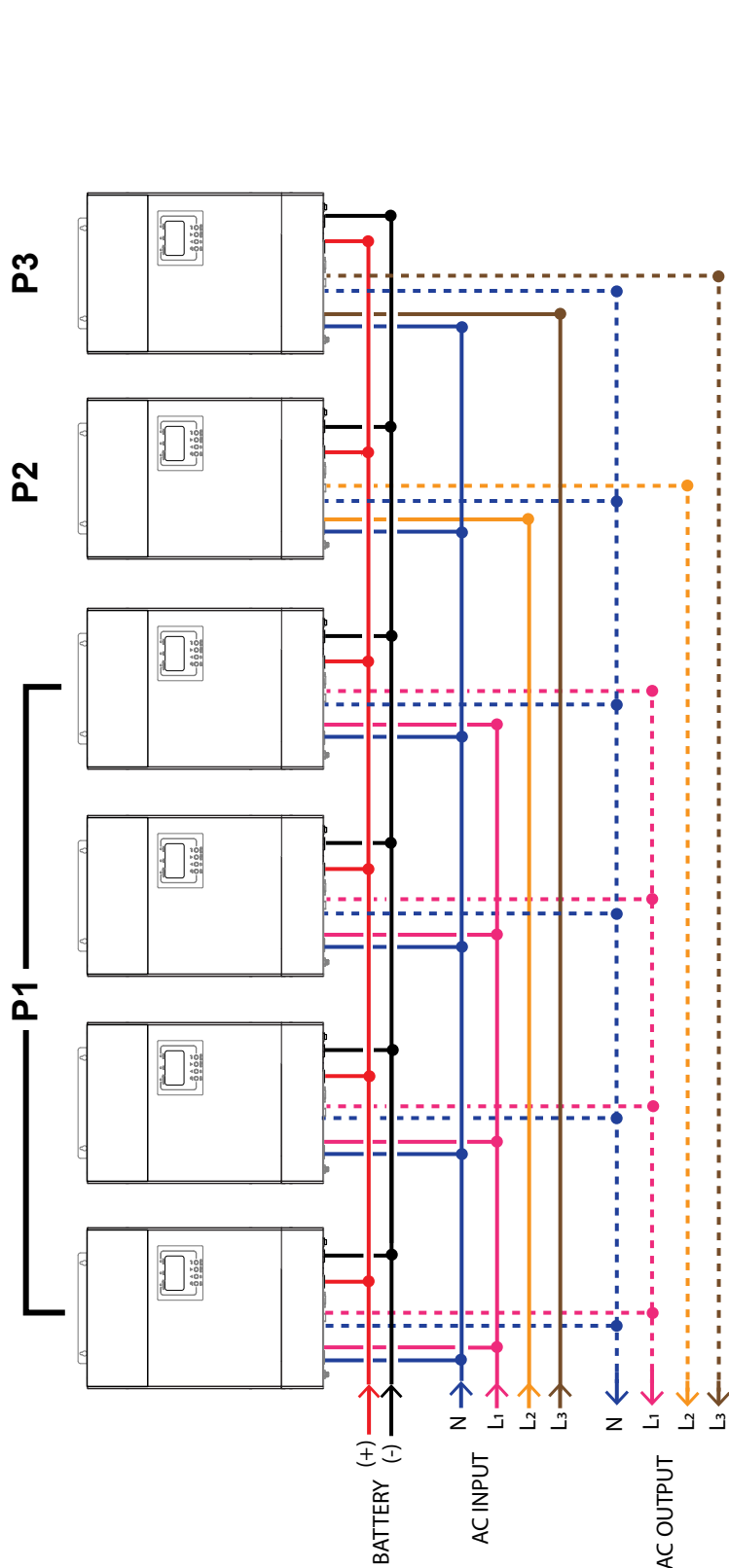
Six Inverters in Parallel - 3 Phase; (3 in first phase, 2 in second phase, 1 in third phase)



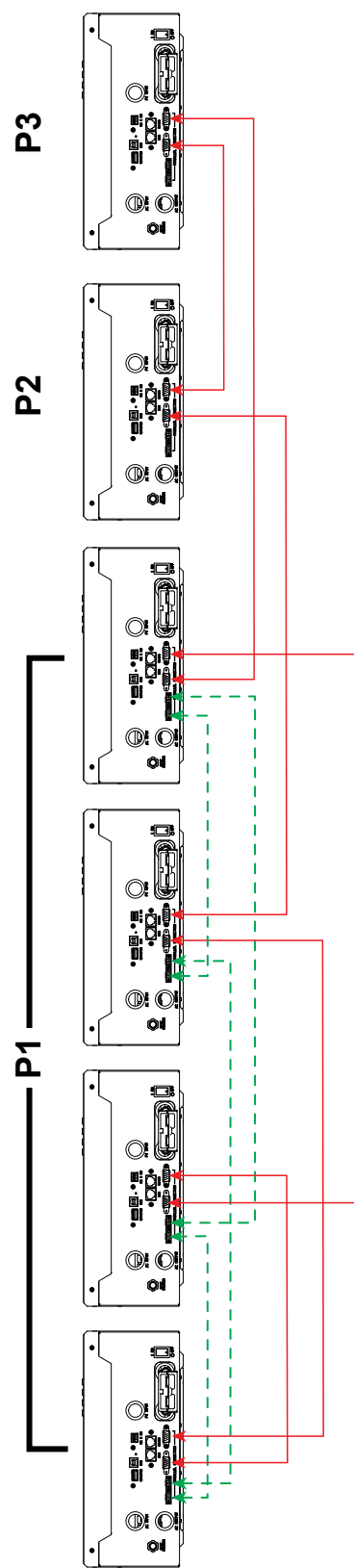
Communication Wire Connection



Six Inverters in Parallel - 3 Phase; (4 in first phase, 1 in second phase, 1 in third phase)



Communication Wire Connection



LCD PANEL - PARALLEL SETTINGS

PARALLEL: SINGLE PHASE:

1. Check for proper wiring connections
2. Make sure all breakers in Line wires of load side are open, and Neutral wires of each unit are connected together.
3. Turn on each unit. Set "PAL" in LCD setting program 23 for each unit.
4. Once completed, shut down ALL of the units using the unit's power switch.

LCD display in Host unit	LCD display in Slave unit

Note: Host and slave units are randomly defined.

Figure 1-4

5. Turn each unit back on.
6. Switch all AC breakers connected to the AC input Lines. All inverters should connect to the utility power at the same time to avoid triggering a warning "15".
7. Check for any fault indicators. If there is no fault, system is completely installed.
8. Switch on all AC Line breakers on the load side. The INVERTER500 will provide power to the load.

LCD display in Host unit	LCD display in Slave unit

Figure 1-5

PARALLEL - THREE PHASE

1. Check for proper wiring connections
2. Make sure all breakers in Line wires of load side are open, and Neutral wires of each unit are connected together.
3. Turn on all units and use the LCD program 23. Set each unit to "3P1" "3P2" or "3P3" in LCD setting program 23 as needed - see power wiring diagrams for reference.
Example: All units in Phase 1 must be set to 3P1. All units in Phase 2 must be set to 3P2, and all units in Phase 3 must be set to 3P3. Do this for each unit in sequential order.
4. Once completed, shut down ALL of the units using the unit's power switch.

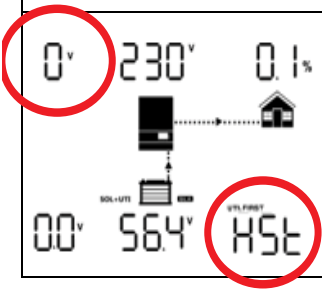
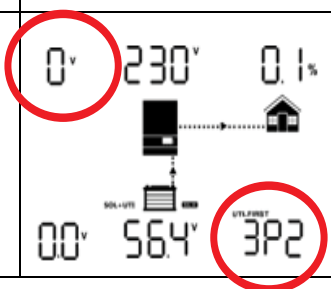
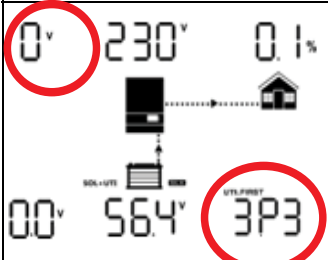
LCD display in L1-phase unit	LCD display in L2-phase unit
	
LCD display in L3-phase unit	
	

Figure 1-6

5. Turn each unit back on in sequential order, one by one, starting with the host unit (usually first). (See Figure 1-6)
6. Switch on all AC breakers on the Line wires from the AC power input. If AC connection is detected and all three phases are matched with the unit's setting, they will work normally. If not, they will trigger a warning "15/16" and will not work in the line mode. (See Figure 1-7)

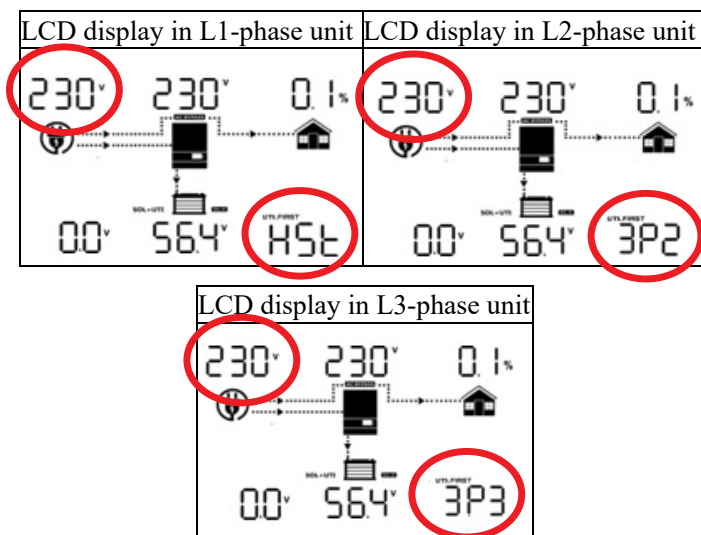


Figure 1-7

Notes:

- If there is only one inverter in L1-phase, the LCD display will show “HSt” (host), the rest of the inverters will display “3P1”
- Before turning on the AC breakers on the load side, make sure the system is functioning properly to avoid overload.
- Transfer time exists for this operation which could cause a brief power disruption that could affect some critical devices.

STATUS LIGHTS & TROUBLESHOOTING

The following is designed to help you quickly identify the most common inverter status and fault indications.

The control panel includes 3 LED indicator lights along the top (AC/INV, CHG and FAULT). (See *Figure 1-8*)

- The AC/INV LED is a green LED and indicates if the unit is in AC power mode, or if the inverter is active and being powered by battery. Solid green indicates AC, flashing indicates inverter active and the battery is being used.
- CHG light is a green LED. Solid light indicates battery fully charged. Flashing indicates battery is being charged.

- FAULT light is a red LED. Solid light means a fault has been detected in the inverter. Flashing indicates a warning condition has been detected in the inverter.



LCD Display - Control Panel

Figure 1-8

There are also four selection/navigation buttons along the bottom used to interact with the LCD screen menus, and the LCD screen display itself.

The four buttons along the bottom of the display panel, control the menu and selections.

- ESC - exits setting mode
- UP - navigates to previous selection
- DOWN - go to next selection
- ENTER - confirm selection, or enter displayed setting mode.

See tables on following pages for explanation of the LCD Panel display, codes and audible indicators.



MAINTENANCE & TROUBLESHOOTING

The following tables list fault codes, warnings and audible alarms that may arise during use of the INVERTER5000 and the most likely reasons for these conditions to aid during troubleshooting.

FAULT CODE	POSSIBLE REASON	DISPLAY
01	Fan is locked	01 ERROR
02	Over temperature	02 ERROR
03	Battery voltage is too high	03 ERROR
04	Battery voltage is too low	04 ERROR
05	Output short circuited	05 ERROR
06	Output voltage is too high.	06 ERROR
07	Overload time out	07 ERROR
08	Bus voltage is too high	08 ERROR
09	Bus soft start failed	09 ERROR
51	Over current or surge	51 ERROR
52	Bus voltage is too low	52 ERROR
53	Inverter soft start failed	53 ERROR
55	Over DC voltage in AC output	55 ERROR
56	Battery connection is open	56 ERROR
57	Current sensor failed	57 ERROR
58	Output voltage is too low	58 ERROR
60	Negative power fault	60 ERROR
61	PV voltage is too high	61-
62	Internal communication error	62-

80	CAN fault	
81	Host loss	

WARNING INDICATOR

CODE	DESCRIPTION	BUZZER ALARM	FLASHES
01	Fan is locked	Beep 3 times every second	01 [△]
02	Over temperature	Beep once every second	02 [△]
03	Battery is over-charged	Beep once every second	03 [△]
04	Low battery	Beep once every second	04 [△]
07	Overload	Beep once every 0.5 second	07 [△]
10	Output power derating	Beep twice every 3 seconds	10 [△]
12	Solar charger stops due to low battery	Beep once every second	12 [△]
13	Solar charger stops due to high PV voltage	Beep once every second	13 [△]
14	Solar charger stops due to overload	Beep once every second	14 [△]
15	Parallel input utility grid different	Beep once every second	15 [△]
16	Parallel input phase error	Beep once every second	16 [△]
17	Parallel output phase loss	Beep once every second	17 [△]
18	Buck over current	Beep once every second	18 [△]
19	Battery disconnect	No beep	19 [△]
20	BMS communication error	Beep once every second	20 [△]
21	PV power insufficient	Beep once every second	21 [△]
22	Parallel forbidden without battery	Beep once every second	22 [△]
25	Parallel inverters' capacity different	Beep once every second	25 [△]
33	BMS communication loss	Beep once every second	33 [△]

34	Cell over voltage	Beep once every second	34 [△]
35	Cell under voltage	Beep once every second	35 [△]
36	Total over voltage	Beep once every second	36 [△]
37	Total under voltage	Beep once every second	37 [△]
38	Discharge over current	Beep once every second	38 [△]
39	Charge over current	Beep once every second	39 [△]
40	Discharge over temperature	Beep once every second	40 [△]
41	Charge over temperature	Beep once every second	41 [△]
42	Mosfet over temperature	Beep once every second	42 [△]
43	Battery over temperature	Beep once every second	43 [△]
44	Battery under temperature	Beep once every second	44 [△]
45	System shut down	Beep once every second	45 [△]

TROUBLESHOOTING TABLE

ISSUE	LIGHTS/BUZZER	REASON	POSSIBLE REMEDY
Unit shuts down Automatically during startup process.	LCD/LEDs and buzzer will be active for 3 seconds and then complete off.	The battery voltage is too low . (<1.91V/Cell)	1.Re-charge battery. 2.Replace battery.
No response after power on.	No indication.	1.The battery voltage is far too low. (<1.4V/Cell) 2.Battery polarity is connected reversed.	1. Check if batteries and the wiring are connected well. 2.Re-charge battery. 3.Replace battery.
Mains exist but the unit works in battery mode.	Input voltage is 0 on the LCD and green LED is flashing.	Input protector is tripped.	Check if AC breaker is tripped and AC wiring is connected well.
	Green LED is flashing.	Insufficient quality of AC power. (Shore or Generator)	1. Check if AC wires are too thin and/or too long. 2. Check if generator (if applied) is working well or if input voltage range setting is correct. (UPS→Appliance)
	Green LED is flashing.	Set “Battery First” or “Solar First” as the priority of output source.	Change output source priority to Utility first.
When it's turned on, internal relay is switching on and off repeatedly.	LCD display and LEDs are flashing	Battery is disconnected.	Check if battery wires are connected well.
Buzzer beeps	Fault code 01	Fan fault.	1.Check whether all fans are working properly.

continuously and red LED is on.(Fault code) Buzzer beeps once every second, and red LED is flashing. (Warning code)			2.Replace the fan.
	Fault code 02	Internal temperature of component is over 100°C.	1.Check whether the air flow of the unit is blocked or whether the ambient temperature is too high. 2.Check whether the thermistor plug is loose.
	Fault code 03	Battery is over-charged.	Restart the unit, if the error happens again, please return to repair center.
		The battery voltage is too high.	Check if spec and quantity of batteries are meet requirements.
	Warning code 04	The battery voltage/SOC is too low.	1.Measure battery voltage in DC input. 2.Check battery SOC in LCD when use Li battery. 3.Recharge the battery.
	Fault code 05	Output short circuited.	Check if wiring is connected well and remove abnormal load.
	Fault code 06/58	Output abnormal (Inverter voltage is over 150Vac or below 40Vac).	1.Reduce the connected load. 2. Restart the unit, if the error happens again, please return to repair center.
	Fault code 07	The inverter is overload 110% and time is up.	Reduce the connected load by switching off some equipment.
	Fault code 08	Bus voltage is too high.	1.If you connect to a lithium battery without communication, check whether the voltage points of the program 19 and 21 are too high for the lithium battery. 2. Restart the unit, if the error happens again, please return to repair center.
	Fault code 09/53/57	Internal components failed.	Restart the unit, if the error happens again, please return to repair center.
	Warning code 15	The input status is different in parallel system.	Check if AC input wires of all inverters are connected well.
	Warning code 16	Input phase is not correct.	Change the input phase S and T wiring.
	Warning code 17	The output phase not correct in parallel.	1.Make sure the parallel setting are the same system(single or parallel; 3P1,3P2,3P3). 2.Make sure all phases inverters are power on.
	Warning code 20	Li battery can't communicate to the inverter.	1.Check whether communication line is correct connection between inverter and battery. 2.Check whether BMS protocol type is correct setting.
	Fault code 51	Over current or surge.	Restart the unit, if the error happens again, please return to repair center.
	Fault code 52	Bus voltage is too low.	
	Fault code 55	Output voltage is unbalanced	
	Fault code 56	Battery is not connected well or fuse is burnt.	If the battery is connected well, please return to repair center.
	Fault code 60	Negative power fault	1. Check whether the AC output connected to the grid input. 2. Check whether Program 8 settings are the same for all parallel inverters 3. Check whether the current sharing cables are connected well in the same parallel phases. 4. Check whether all neutral wires of all parallel units are connected together. 5. If problem still exists, contact repair center.
	Fault code 80	CAN fault	1. Check whether the parallel communication cables are connected well.
	Fault code 81	Host loss	2. Check whether Program 23 settings are right for the parallel system. 3. If problem still exists, contact repair center

NOTE: To restart the inverter, disconnect all power sources. Once LCD display is off, restart the inverter using only the battery.

SPECIFICATIONS

Model: EPEQ INVERTER5000

Minimal AC Output Power: 5000VA/5000W

Nominal Output Current: 21.7A

AC Input Voltage: 208/220/230/240V AC

Maximum AC Input: 300V AC

Input Frequency: 50/60 Hz (Auto detect)

Output Frequency: 50/60Hz (default)

Efficiency (Line mode): >95% (under full linear load)

Transfer Time: 10ms (typ.) 20 ms; Max: <30ms

AC Input Breaker (Single Phase): 50A (50A per each inverter)

AC Input Breaker (Three Phase): (Amp rating equal to the phase using the most inverter units)

AC Output Bypass Breaker: 150A (per inverter)

Battery Input Voltage: 48V DC

Output Waveform: Pure Sine Wave

AC Voltage Regulation (Battery): 230V AC +/- 5%

Surge Peak Output Power: 10,000W (5 sec.)

Inverter Dimensions: 17.9"x11.6"x5.1" (455mm x 295mm x 130mm)

Unit Weight: 25.3 lbs. (11.5KG)

Operating Temperatures: -14°F to 131°F (-10°C to 55°C)

Storage Temperatures: 5°F to 140°F (-15°C to 60°C)



**EPEQ™ ELECTRIFIED POWER
EQUIPMENT™****EXCLUDES
ELiMENT™ BATTERY****VANAIR® VANTAGE
WARRANTY**

This limited warranty supersedes all previous Vanair® warranties and is exclusive with no other guarantees or warranties expressed or implied.

LIMITED WARRANTY—Subject to the expressed terms and conditions set forth below, Vanair® Mfg., Inc. ("Vanair"), of Michigan City, Indiana (USA), warrants to the original retail purchaser of new Vanair® equipment that such equipment is free from defects in materials and workmanship when shipped by Vanair®.

For warranty claims received by Vanair® within the applicable warranty periods described below, Vanair® will repair or replace any warranted equipment, parts or components that fail due to defects in material or workmanship or refund the purchase price for the equipment, at Vanair's discretion. Vanair® is not responsible for time or labor to gain access to the machine to preform work. **WARRANTY WILL BE VOID IF GENUINE VANAIR PARTS AND FLUIDS ARE NOT USED.**

Vanair® must be notified in writing within thirty (30) days of any such defect or failure. All warranty or returns must be pre-authorized in writing prior to performing warranty work. Call Vanair® for process and forms. Vanair® will provide instructions on the warranty claim procedures to be followed.

Warranty will commence upon receipt of the Warranty Registration Card. If the Warranty Registration Card is not received within six (6) months of shipment from Vanair®, the warranty commencement date shall be thirty (30) days from the date of shipment from Vanair®. Records of warranty adherence are the responsibility of the end user.

1. Inverters: 1 Year Parts / 1 Year Labor
2. Converters: 1 Year Parts / 1 Year Labor
3. Chargers: 1 Year Parts / 1 Year Labor
4. Electric Motors: 1 Year Parts / 1 Year Labor
5. EPEQ™ Lithium Welder: 1 Year Parts / 1 Year Labor
6. Alternators: 1 Year Parts / 1 Year Labor
7. Compressor Air End:
 - Rotary Screw: Lifetime with Vanair® Authorized Service Kits and Lubricants : 3 Years Labor
 - Reciprocating: 3 Years Parts / 1 Year Labor
 - Scroll: 1 Year Parts / 1 Year Labor
8. Hydraulic Pumps/Motors: 2 Years Parts / 1 Year Labor
9. 1 Year Parts/Labor on the following:
 - All electronics and controls including, but not limited to:
 - (i) I/O Boards
 - (ii) Modules
 - (iii) Panel Boxes
 - (iv) Instrumentation
 - (v) Clutches
 - (vi) Solenoids
 - (vii) Running Gear/Trailers
 - (viii) Cooler Cores and Fans
 - (ix) Battery Management Systems and Controllers

This Limited Warranty shall not apply to:

1. Consumable components, such as: shaft seals, valves, belts, filters, capacitors, contactors, relays, brushes, wire or parts that fail due to normal wear and use.
2. Items furnished by Vanair®, but manufactured by others, such as engines and trade accessories (these items are covered by the manufacturer's warranty, if any).
3. Equipment that has been modified by any party other than Vanair® or equipment which has not been used and maintained in accordance with Vanair's specifications.

4. Equipment which has been improperly installed and/or improperly operated, based upon Vanair's specifications for the equipment or industry standards.
5. Equipment installed by non-authorized or third party personnel. Vanair® products are intended for purchase and use by commercial/industrial users and persons trained and experienced in the use and maintenance of industrial equipment.

In the event of a warranty claim covered by this Limited Warranty, the exclusive remedies shall be, at Vanair's sole discretion: (i) repair; or (ii) replacement; (iii) where authorized in writing by Vanair® in appropriate cases, the reasonable cost of repair or replacement at an authorized Vanair® service facility; or (iv) payment of (or credit for) the purchase price (less reasonable depreciation based upon actual use) upon return of the equipment at the warranty claimant's risk and expense. Vanair® will pay standard ground freight for any warranty item shipped to and from Vanair® or (Vanair® designated facility) within the first year of the applicable warranty period. Any additional expedited freight cost is the responsibility of the purchaser.

TO THE GREAT EXTENT PERMITTED BY APPLICABLE LAW, THE REMEDIES PROVIDED HEREIN ARE THE SOLE AND EXCLUSIVE REMEDIES APPLICABLE TO THE VANAIR® EQUIPMENT. IN NO EVENT SHALL VANAIR® BECOME LIABLE FOR DIRECT, INDIRECT, SPECIAL, PUNITIVE, INCIDENTAL OR CONSEQUENTIAL DAMAGES (INCLUDING LOSS OF PROFIT OR LOST BUSINESS OPPORTUNITY), WHETHER BASED ON CONTRACT, TORT OR ANY OTHER LEGAL THEORY. IN NO EVENT SHALL VANAIR® BECOME OBLIGATED TO PAY MORE ON ANY WARRANTY CLAIM THAN THE PURCHASE PRICE ACTUALLY PAID BY THE ORIGINAL RETAIL PURCHASER.

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Some states in the United States of America do not allow limitations of how long an implied warranty lasts, or the exclusion of incidental, indirect, special or consequential damages, and as such, the above limitations and exclusions may not apply to you. This warranty provides specific legal rights. Other rights may be available to you, but may vary from state to state.

In Canada, legislation in some provinces provides for certain additional warranties or remedies other than as stated herein, and to the extent that they may not be saved, the limitations and exclusions set out forth above may not apply. This Limited Warranty provides specific legal rights, and other rights may be available, but may vary from province to province.

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RETURNS MUST BE
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TO PERFORMING
ANY WARRANTY WORK.**

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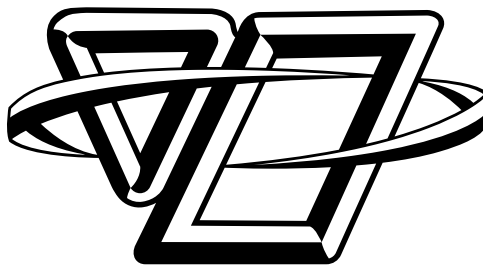
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EFFECTIVE: MAY 20, 2022

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Effective Date: January 24, 2023