V UPS - Uninterruptible Power Supply

120-230 VAC Pure Sine Wave Output

Now with 120 volt GFCI duplex outlets.

Installation & Operating Manual

05/15/23

CONTENTS

COMPONENT IDENTIFICATION

Door LED output
*(LED **ON** if main power out)*

Power monitoring relays
(on when main power good)

STATUS Outputs
(closed relay output- power in good)
(open relay output - battery powered)

AC OUT
Circuit Breaker

AC IN
Circuit Breaker

Battery disconnect circuit breaker

120VAC Duplex GFCI outlets

Inverter / Charger

Inverter Power Switch
*(use power saver **OFF**)*

DESCRIPTION

The **V UPS** is versatile uninterrupted power supply that uses single phase 208-230 VAC 50/60Hz as the input power and will supply a pure sine wave output of 120/230 VAC while in inverting mode. Although the **V UPS** is designed for use with the **VM 1220** operator, this UPS is compatible with any other electrical equipment requiring 120/230 VAC for continued operation during power outages *(operational time is determined by the amp draw of the total load and cycles per hour)*.

The **V UPS** has been tested to provide 3,200 linear feet of gate travel when used with the **VM 1220**. [1]

Features

- ***4,000 watts continuous power output***
- ***Two 12 volt 75 ampere hour, deep cycle sealed AGM batteries included***
- ***Pure sine wave output***
- ***120 volt GFCI duplex outlets*** *(located on top of the inverter)*
- ***Door mounted led panel light illuminates when operating on batteries***
- ***Dry relay contact output for remote monitoring of power when operating on batteries (inverting mode)***
- ***Indoor and outdoor use***
- ***1 year warranty***

SPECIFICATIONS

Enclosure 14 ga. steel powder coated gray *(316 stainless steel enclosure optional)*

Batteries Two 12 volt 75 Ah AGM *(Absorbent Glass Mat)* deep cycle maintenance free batteries *(included)*.

Inverter/Charger

Line Input power:	208[2] - 240 VAC, 50/60 HZ, Single Phase, 30 Amp service
Output Power:	120/240 VAC 60 Hz, 30 Amp
DC Voltage:	24 VDC
Transfer time:	8 milliseconds
Waveform:	Pure Sine Wave
Continuous power output:	4,000 watts
20 Second surge rating	12,000 watts

OPTIONS:

V-ENCL SS UPGRADE 316 stainless steel enclosure upgrade

V-HEATER KIT Enclosure heater w/thermostat factory installed

V-XCOLD PKG Enclosure thermally insulated *(includes V-HEATER KIT)*

V-XFMR BUCK/BOOST External transformer for boosting 208VAC to 240VAC *(voltages may vary slightly)*

Note 1. Test Conditions: *Model VM 1220 used with a 20' opening, 30' length aluminum cantilever gate operating at 50% speed, 1 cycle per minute at 70^{0}F Ambient air temperature .*

2. If available voltage in is 208VAC, the **V XFMR BUCK/BOOST** option is recommended.

IMPORTANT SAFETY INSTRUCTIONS

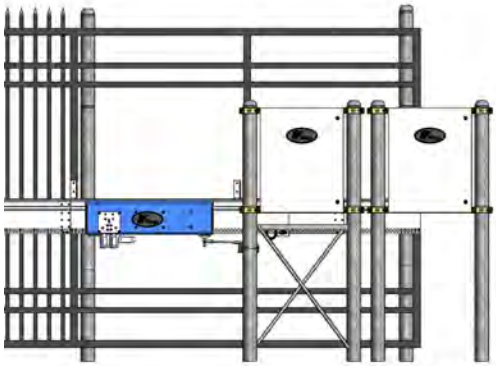
- All electrical work must be performed in accordance with local, state and federal electrical codes.
- Use insulated tools to reduce the chance of electrical shock or accidental short circuits.
- Remove all jewelry such as rings, watches, bracelets, etc., when installing or performing maintenance on the UPS.
- Always verify proper wiring prior to starting the inverter.
- Proper grounding is required for the input and output supply.
- Wear safety glasses when working with batteries.
- Never work alone. Always have someone near you when working with high voltages.
- Use proper lifting techniques when lifting batteries.
- Two personnel required for mounting UPS enclosure.
- Never use old or untested batteries. Check each battery's label for age, type and date code to ensure all batteries are identical. AGM batteries last 5-10 years.

UPG 45822 batteries only.

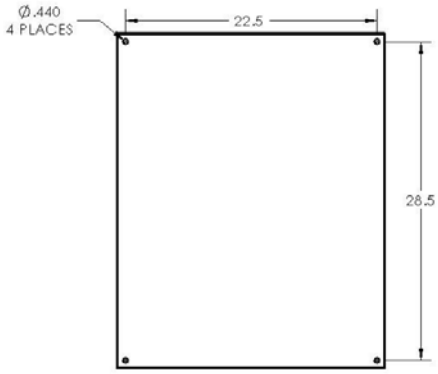
INSTALLATION

All wiring should enter from the bottom of the enclosure

The VMUPS weighs approximately 98 lbs *(298 lbs. with batteries)*



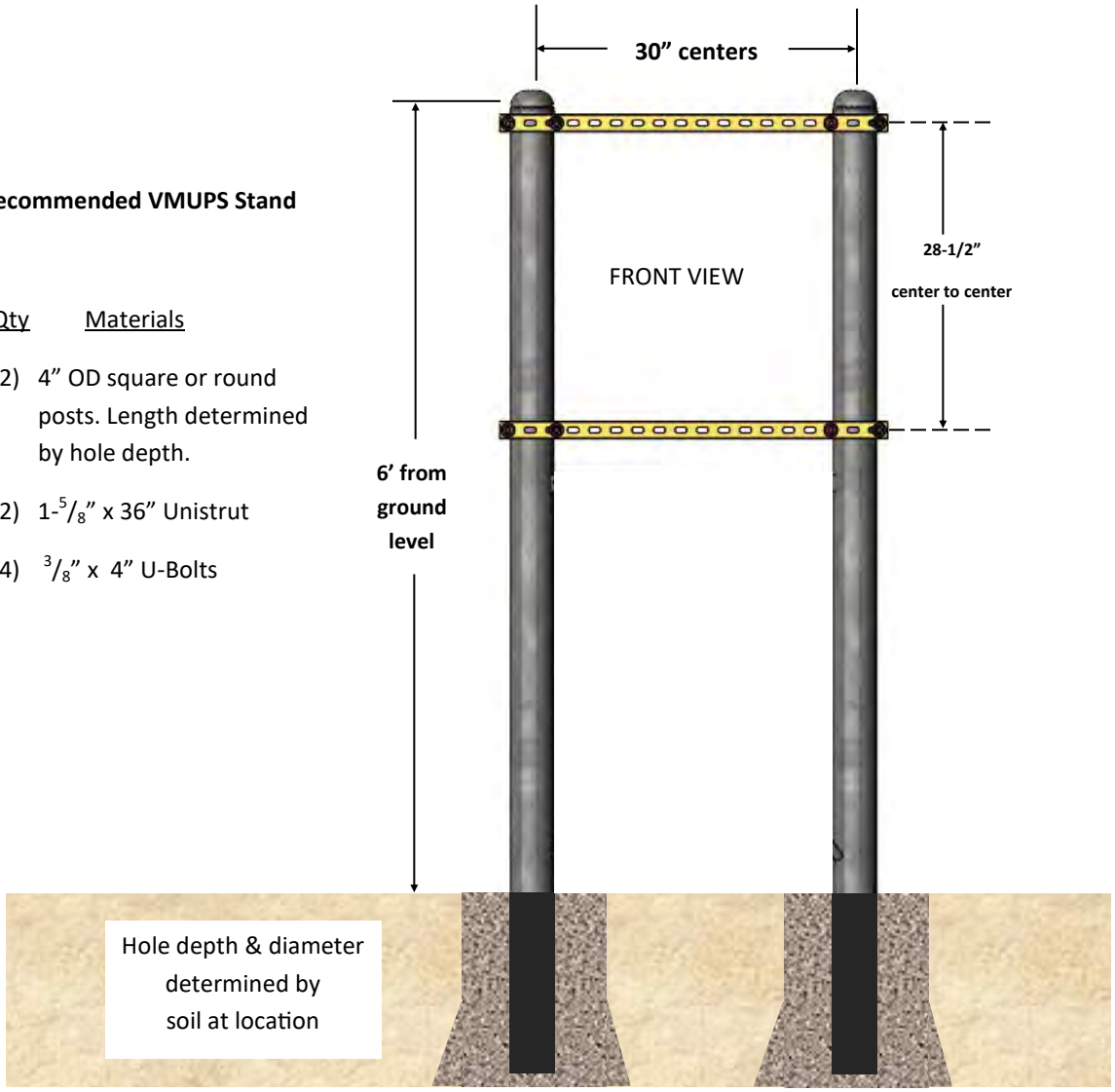
Example of VMUPS installation with Vmag



Enclosure mounting hole dimensions

Recommended VMUPS Stand

Qty	Materials
(2)	4” OD square or round posts. Length determined by hole depth.
(2)	1-$^{5}/_{8}$” x 36” Unistrut
(4)	$^{3}/_{8}$” x 4” U-Bolts



GROUNDING

High Importance

Proper electrical grounding is essential for all Vmag gate operator installations. Low resistance grounding

improves lighting dissipation and minimizes radio frequency interference (RFI) that can affect sensitive electronic components. The grounding technique below is minimal but suitable for many locations.

Other techniques, however, may be required depending on geographic conditions including soil composition, frequency of lighting or other radio frequency emissions in the area.

A local licensed electrical contractor should be able to recommend and install the proper grounding equipment for the specific geographical location. Ground resistance is measured with a 'Ground Resistance Tester' which must be used by an electrician or technician experienced in the operation of the tester.

Ideal ground resistance is 5Ωs or less.

DO NOT USE EXISTING GROUND ROD UNLESS TESTED.

DO NOT INSTALL GROUND ROD THROUGH OR IN CONCRETE!

DO NOT USE CONDUIT AS A GROUND CONDUCTOR!

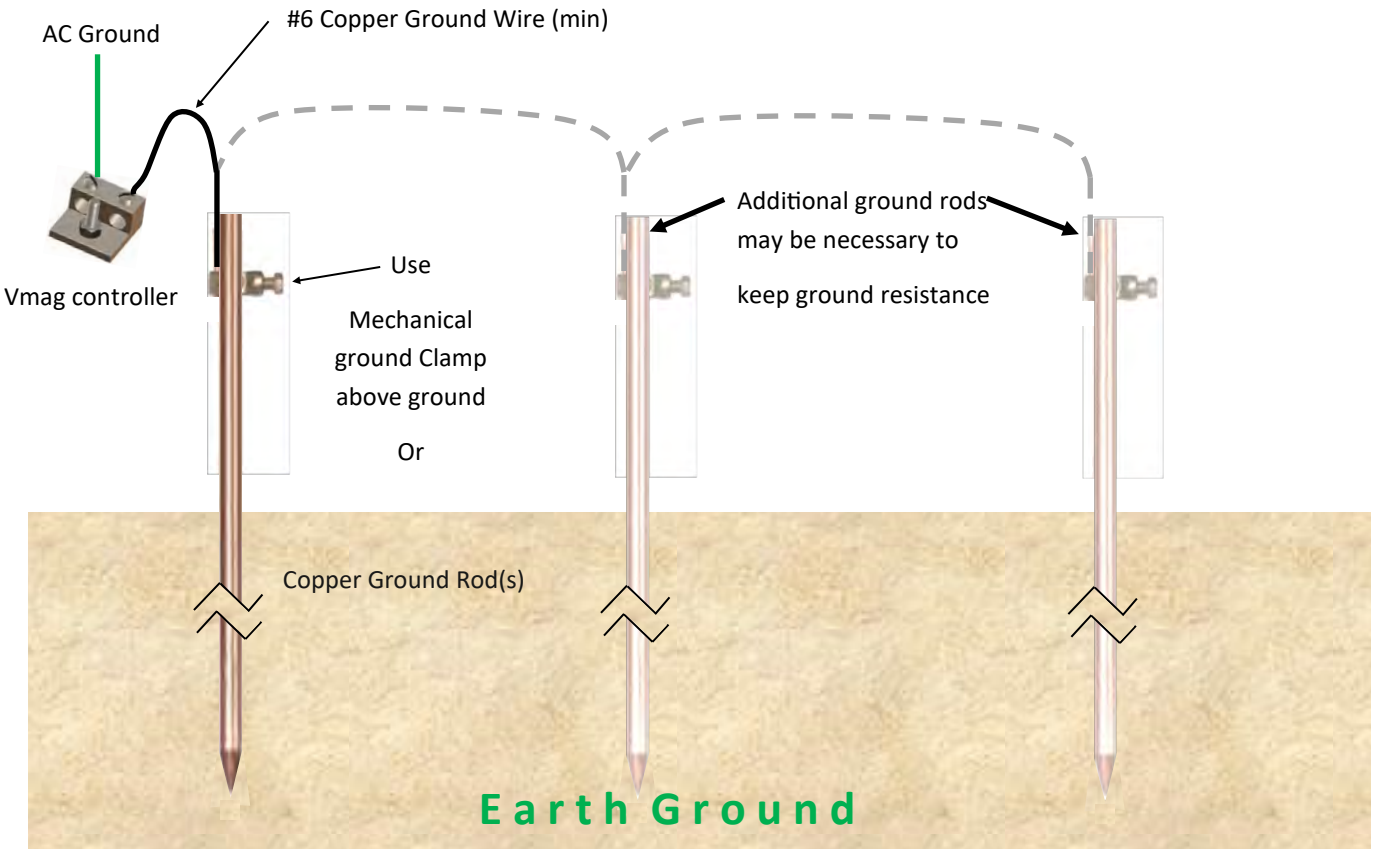
DO NOT CONNECT GROUND WIRE TO THE CONTROLLER POST!

DO install a new ground rod & wire if resistance is >10Ωs.

DO install the ground rod as close to the controller as possible.

DO check that both connections are securely tightened.

DO terminate the ground wire at the controller ground lug.



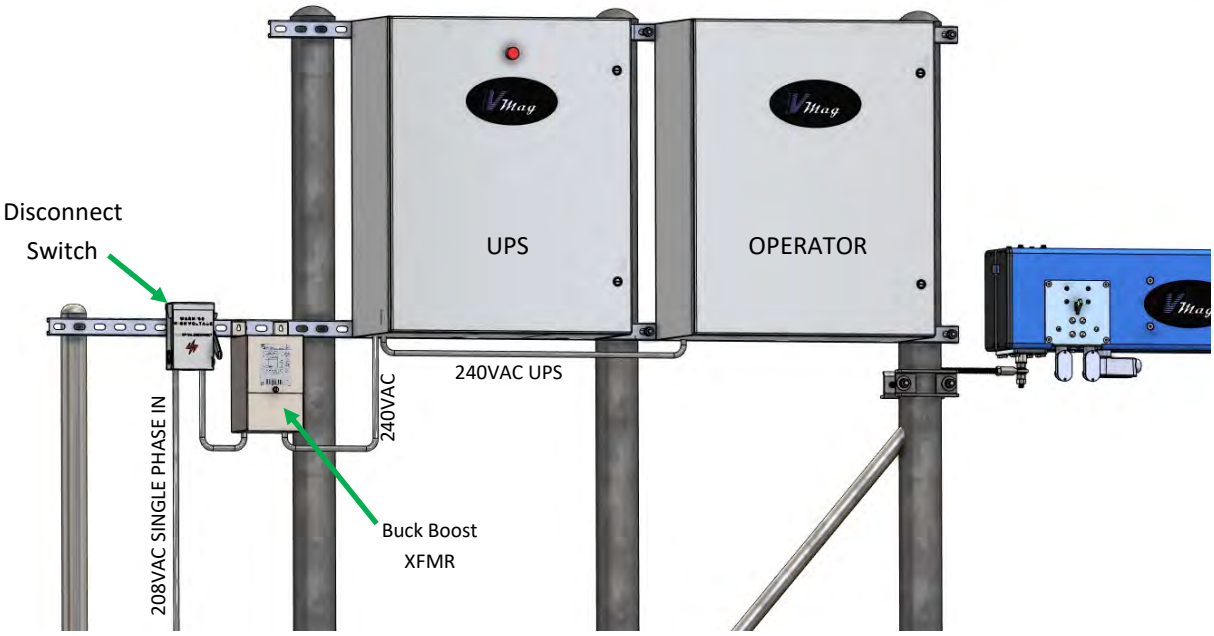
208VAC SINGLE PHASE POWER IN

If available power is 230-240VAC, go to next page

If available power is 208VAC single phase, a **Buck Boost Transformer** is recommended on the UPS input. The transformer will boost 208VAC to 238-240 VAC which enhances operator performance and matches the UPS pass-thru power (in-coming power available) with the backup power (in-coming power is out).

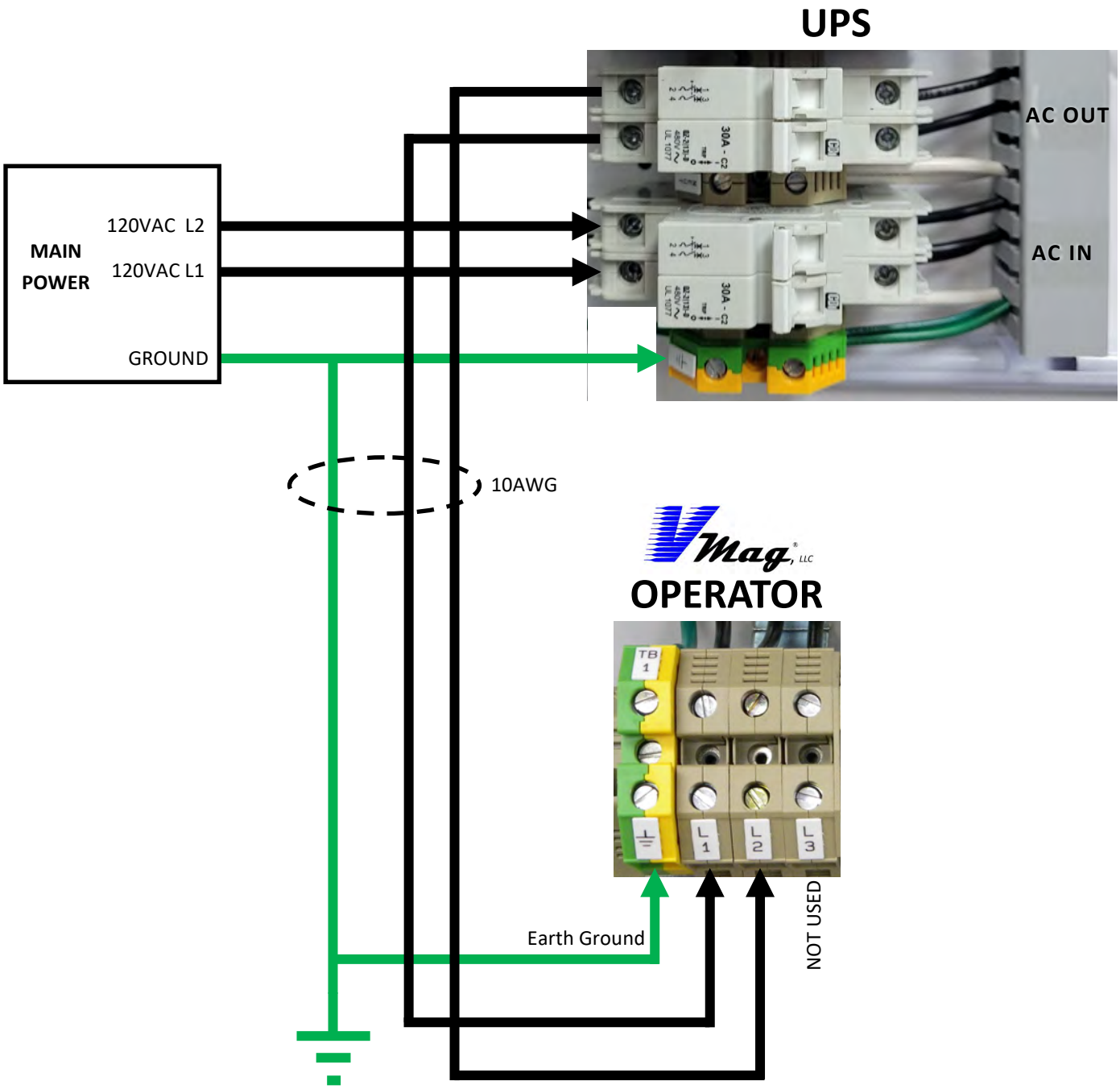
DO NOT INSTALL THE TRANSFORMER IF AVAILABLE POWER IS 230-240VAC

Doing so may damage the operator and will void warranty.



1/2” rigid conduit rated for outdoor use is recommended for main power distribution.

ELECTRICAL CONNECTIONS



208-240VAC IN

Battery Connections

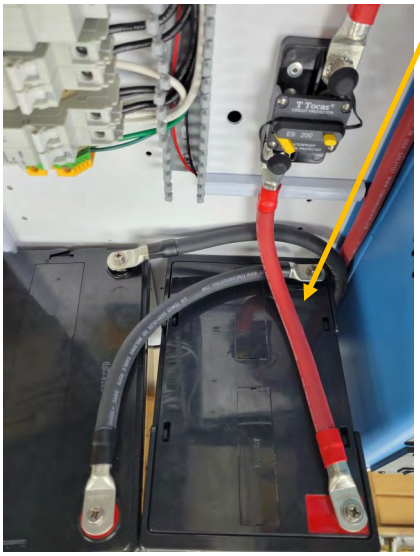
NOTE: A battery riser is provided to allow routing and clearance for the electrical enclosure holes and conduit connections.

Verify that the circuit breaker is OFF (yellow switch is angled down).

Circuit breaker OFF

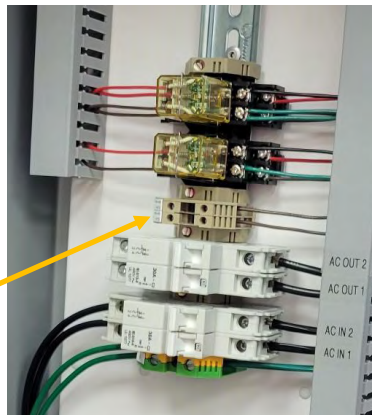
Install batteries as shown with terminals on the right side.

Connect battery cables as shown.



The red LED light on the front of the unit will illuminate if one or both incoming power legs are lost indicating that the operator is running on back up power.

The dry contact outputs will facilitate remote monitoring.



In the event that power is not restored for more than one day (or heavy usage) the inverter may need to be manually turned on again once power is restored due to the battery level voltage dropping below the minimum value of 20VDC.

OPERATION

1. Turn battery breaker **ON**

2. Turn both AC breakers **ON**

3. Set inverter switch to: **POWER SAVE OFF**

4. Turn gate operator breakers **ON**

Door LED light **OFF** - AC operation (normal)

Door LED light **ON** - Battery operation

Test for proper gate operation.

Back up power may be tested by turning **AC** IN circuit breaker **OFF**