

Model No.:

Startup Troubleshooting

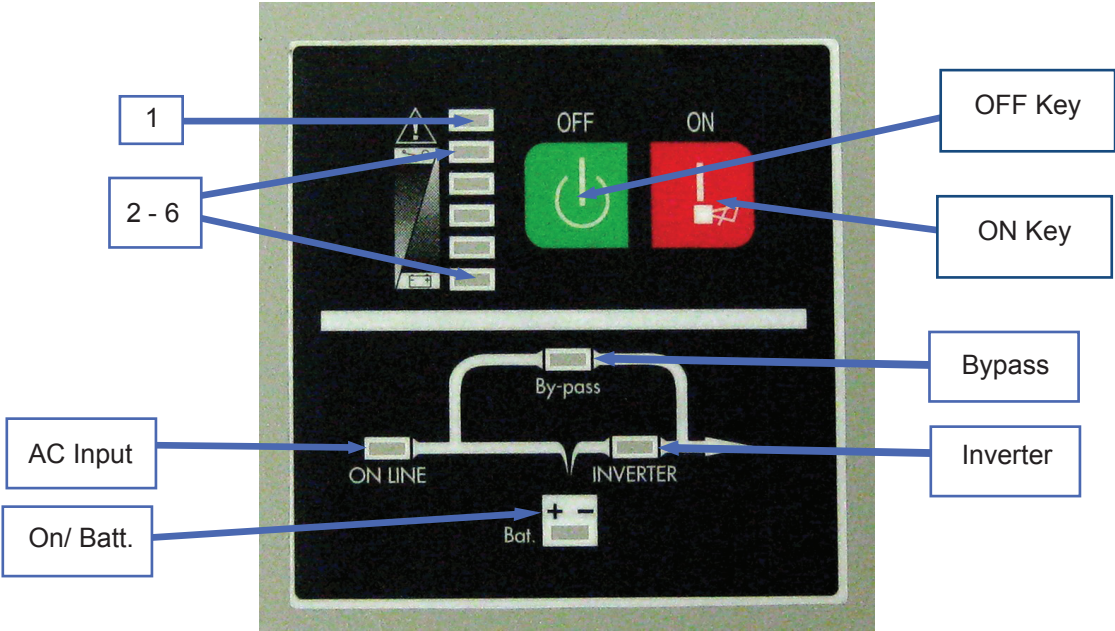
Unit S/N:

ATTENTION: Before applying power, meter your load wire for the presence of AC voltage (Should be at 0 VAC).

Contact Person:	<input type="text"/>	Phone 1:	<input type="text"/>	Phone 2:	<input type="text"/>
-----------------	----------------------	----------	----------------------	----------	----------------------

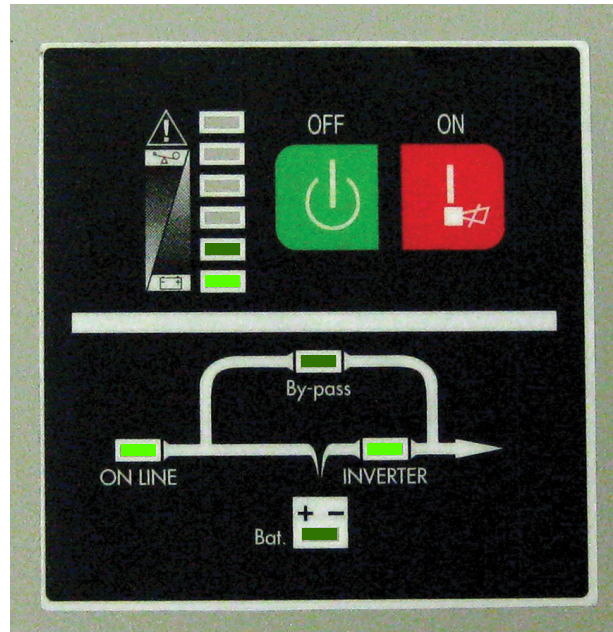
Date MM/DD/YY	Time	Battery Voltage (VDC) At Batt. CB	Utility Voltage CB	Utility Input Current (AAC)			Voltage (VAC) & Current (AAC) Inverter Output			Battery Voltage (VDC) With Input CB Off	AC Voltage & Current Battery-Run Output With Input CB Off		
				VAC	Neutral AAC	Hot AAC	VAC	Neutral AAC	Hot AAC		VAC	Neutral AAC	Hot AAC
		VDC	VAC							VDC			
		VDC	VAC							VDC			
		VDC	VAC							VDC			

NOTE: Please fill in the blanks with the requested information above. Please also put a check on the boxes for current status of the unit below.



		On	Off			On	Off			On	Off
LED	1	<input type="checkbox"/>	<input type="checkbox"/>	Input CB		<input type="checkbox"/>	<input type="checkbox"/>	AC Input		<input type="checkbox"/>	<input type="checkbox"/>
LED	2	<input type="checkbox"/>	<input type="checkbox"/>	Battery CB		<input type="checkbox"/>	<input type="checkbox"/>	On Battery		<input type="checkbox"/>	<input type="checkbox"/>
LED	3	<input type="checkbox"/>	<input type="checkbox"/>	Output CB		<input type="checkbox"/>	<input type="checkbox"/>	Bypass		<input type="checkbox"/>	<input type="checkbox"/>
LED	4	<input type="checkbox"/>	<input type="checkbox"/>					Inverter		<input type="checkbox"/>	<input type="checkbox"/>
LED	5	<input type="checkbox"/>	<input type="checkbox"/>								
LED	6	<input type="checkbox"/>	<input type="checkbox"/>								

Startup Troubleshooting Information



This is an example of the unit in normal operation.

Displays

Line LED (Green): To indicate the AC Power is applied to the system input. In case this LED blinks, it means the main AC source is out of tolerance.

Bypass LED (Yellow): To indicate the load is powered via the bypass.

Battery LED (Yellow): To indicate the system is in battery backup mode when the building source power has failed.

Inverter LED (Green): To indicate the system is powered through the inverter

Alarm, Load, and Battery Capacity LED's:

- a. Number 5 and 8 LED's are green colored and Number 2 (used as a Warning LED for overload or battery low) is yellow.
- b. Number 3 to 6 LED's show the load % of the system if the main power is available (in normal operation). Each of the green LED's will indicate a % of the power level for the rating of the system.

NOTE: Depending on unit size the LED's 3 to 6 may not indicate the actual load.

- c. In the battery operation, the LED's indicate the capacity (%) of the batteries run time remaining, As the batteries are depleted the LED's will extinguish from bottom to top. When LED number 3 is only lighted then there is 0-25% left on the battery run.

Fault LED (Red): To indicate that the Emergency Lighting Inverter System is in a fault condition because of inverter shutdown or over temperature condition.

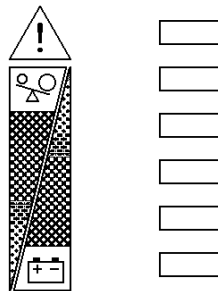
OFF Key: This button needs to be pushed to turn the emergency lighting inverter circuits off.

ON Key: This button needs to be pushed to turn the emergency lighting inverter circuits on.

NOTE: Please see the Troubleshooting Information Guide for more details.

Startup Troubleshooting Information

Indicators' State And Meanings

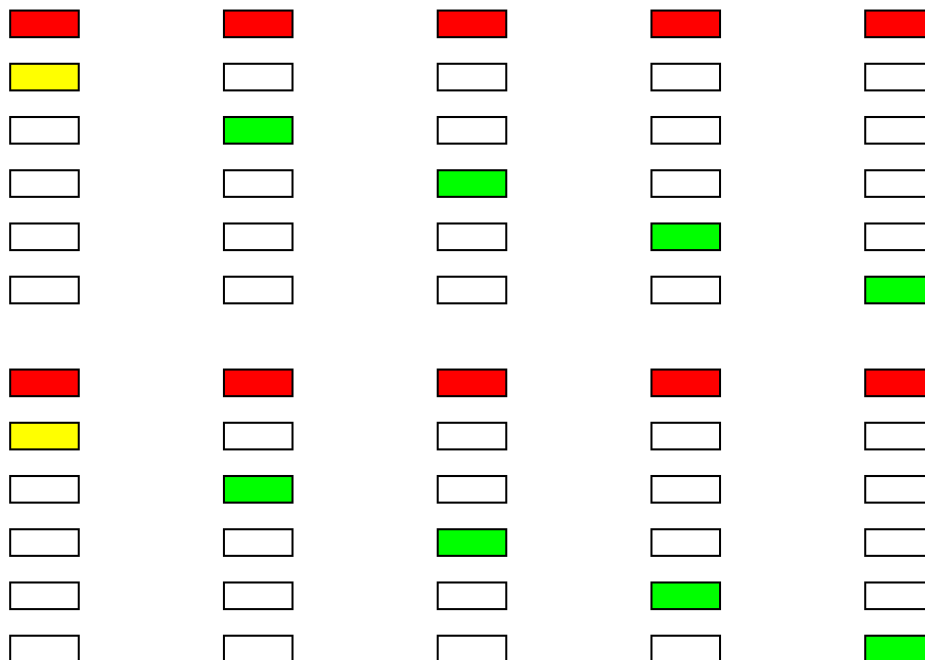


Indicators compositor from up to down:

Indicator 1: Red, fault indicator light, this light shine, UPS sends out continuous alarm showing that UPS is at abnormality state, equipments are supplied directly by line.

Indicator 2: Yellow, and Indicator 3 through Indicator 6: Green, shows load and battery capacity.

Indicator 1 shine, Indicators 2~6 display different state respectively.



UPS run at line mode or bypass mode, indicators display the capacity of load from up to down. UPS run at battery mode, indicators display percentage of battery capacity.

1#, 2# indicators display overload	1#, 3# indicators display battery voltage too high	1#, 4# indicators display BUS voltage abnormality	1#, 5# indicators display inverter voltage abnormality	1#, 6# indicators display temperature too high
------------------------------------	--	---	--	--

Fault Instructions		
Fault	Indicator Display	Instructions
Charger abnormality	1# indicator shine	When battery voltage 240V and CHG control signal is on, give alarm if battery voltage doesn't increase at 1 hour.
Overload	1#, 2# indicators shine	<ol style="list-style-type: none"> 1. Line inverter mode 105% ~ 130% overload, turn to bypass after 10 mins; 2. Line inverter mode > 130% load, turn to bypass immediately; 3. Bypass mode 130% load, cut off output after 1 min, give an alarm 4. Battery mode 105% ~ 130% load, give an alarm after 10 seconds and cut off output. 5. Battery mode more than 130% load, alarm immediately and cut off output.
Battery SCR destroyed	1#, 3#, 6# indicators shine	Battery voltage > 300V
Parallel communication abnormality	1#, 2#, 3#, 6# indicators shine	Parallel UPS communication interrupted
Bus abnormality	1#, 4# indicators shine	<p>Sense condition: PFC ON</p> <ol style="list-style-type: none"> 1. +Bus voltage higher than 450V or - Bus voltage lower than - 450V for 80 ms. 2. +Bus voltage higher than 400V or - Bus voltage lower than - 400 V for 1.5 ms. 3. +Bus voltage lower than 230V or - Bus voltage higher than - 230V for 1.5 ms. 4. +Bus and - Bus absolute value difference more than 40V for 2 mins. 5. PFC IGBT fault
Inverter Fault	1#, 5# indicator shine	<p>Sense condition: PWM ON</p> <ol style="list-style-type: none"> 1. Inverter voltage higher than 276V or lower than 140 V for 128 ms
Inverter output short	1#, 2#, 5# indicator shine	Inverter output voltage 50V, output current > 10A more than 3 periods.
Temperature too high	1#, 6# indicator shine	Sense that PSDR PCB radiator's temperature higher than 75
Inverter relay short	1#, 4#, 6# indicator shine	After Bus voltage has increased , PWM sense inverter voltage > 80 V
Communication abnormality	1#, 3#, 4# indicator shine	Bosom CPU can't set up communication
Fan abnormality	1#, 2#, 6# indicator shine	Sense fan signal abnormality
Inverter bypass short	1#, 2#, 3#, 4# indicator shine	Sense the power of inverter more than minus 800W

Fault	Lights Display	Countermeasure and Maintenance
Charger board abnormality	1# light shine	For long backup time UPS, firstly check whether power line (from CN03/CN05 of charger to CN104/CN105 of PSDR) connects correctly, afterward change charger board if other connection correct. For standard UPS, no power line; if measure BUS voltage normal, please change charger board.
Overload	1# and 2# lights shine	Unload unimportant load to 90 % below; if UPS have been fault ,you should turn UPS into inverter mode.
Battery SCR fault	1#, 3#, 6# lights shine	Maybe charger or PSDR board fault; mostly check whether battery SCR (Q305) on the PSDR board is fault or battery relays(RY3 、 RY4) are fault, and then check whether components in battery driver part are normal, also need to check circuitry of line commutating part; if PSDR board is normal, charger output is likely to be fault.
Parallel communication abnormality	1#, 2#, 3#, 6# lights shine	Need to check whether parallel line、 parallel card 、 the connection between parallel card and CNTL board are normal.
Bus abnormality	1#, 4# lights shine	Maybe PSDR board fault; mostly check whether PFC part on PSDR board and such power components as IGBT 、 SCR on line commutating part are fault, at the same time, check whether components of driving circuitry are fault.
Inverter Fault	1#, 5# lights shine	Maybe PSDR board fault; mostly check whether power components on PSDR INVERTER part and on driving circuitry are abnormal; at the same time ,check whether protecting circuitry of IGBT and PFC components are OK.
Inverter output short_circuit	1#, 2#, 5# lights shine	Check whether load switch of user jumps, and find out equipment power and input current's characteristic of user.
Temperature too high	1#, 6# lights shine	If temperature is assuredly too high inside the case, please unload redundant load and suggest user install an air - condition in UPS room; if sense is fault, maybe CNTL board estimates falsely, or NTC on PSDR board fault.
Output relay short-circuit	1#, 4#, 6# lights shine	Check whether the shrapnel on inverter relays RY1、 RY2 of PSDR board are fault.
Communication abnormality	1#, 3#, 4# lights shine	CNTL board fault
Fan abnormality	1#, 2#, 6# lights shine	Check whether fan runs normally, if OK, check fan detective circuitry.
Inverter Bypass short circuit	1#, 2#, 3#, 4# lights shine	Firstly check whether input 、 output connection are right; secondly check whether inverter relays RY1、 RY2 of PSDR board are fault or bypass SCRQ207、 Q208 and driving circuitry are fault.