

USER MANUAL

Online Low Frequency UPS
GP33-10~300KVA Series



Preface

Usage

The manual contains information on installing, using, operation and maintenance of the online UPS.
Please carefully read this manual prior to installation.

Users

Technical Support Engineer
Maintenance Engineer

Note

The manual will update regularly, due to the product upgrading or other reasons.

Unless otherwise agreed, the manual is only used as guide for users and any Statements or information.

Contained in this manual make no warranty expressed or implied.

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1.RECOMENDATIONS FOR SAFE OPERATION

DO NOT FORGET! There is always risk of electrocution inside the equipment, even after disconnecting the Unit from mains, because the internal circuitry and the battery bank remain connected, thus generating Dangerous voltage levels. Therefore, don't open the case if you aren't qualified.

1.1 Handling, transporting and storing

The equipment must remain in its original packing, before performing any installation procedure and During the processes of transportation, storing and general handling, in order to protect it from impacts or harsh environmental conditions.

It is very important for anyone reading this to bear in mind that the UPS weighs over 200 pounds or 100 kg generally (refer to the technical specifications chart for accurate weight). For this reason, the UPS must be handled only using the proper cranes or equipment intended for handling of heavy-weight loads.

It is strongly recommended that the UPS must be held the whole time in vertical position.

As soon as the UPS is received, the packing and its sealing should be checked. It has to be in good shape, this is: without any abrasion, without any damage in the sealing and free from excessive moisture. If there is found any anomaly please notify both our customer service and the carrier company.

During storing the UPS must be held in a location protected from sun light or close to any other heat Source (as boilers, stoves, furnaces, etc).

During storing the UPS must be held in a location away from water pipes or leaks and protected from wetness or moisture.

The height over sea level may affect the performance of the equipment.

If the UPS needs to be stored more than three months, it is mandatory to provide the batteries with a Maintenance charge, in order to avoid irreparable damages and the offered warranty term.

1.2. Minimum conditions for UPS location

The location where the UPS will be finally installed should have the following minimum conditions:

- The same conditions suggested above for storing.
- In order to ease inner ventilation, there must be held 30 centimeters or 1 foot as minimum distance between the wall and the rear section of the UPS. For maintenance purposes a suitable space should be at least 1 meter or 3 feet around the UPS.
- Environmental temperature should not exceed 25°C around the batteries, this is the normal temperature recommended by the manufacturer. Though a superior temperature level do not stop the UPS for working, the rising of this temperature level above 30°C could reduce the useful lifespan for the batteries even to 50% or less.
- If there is air conditioning available, by any case it should not generate condensation.

- For the UPS connection it is recommended the use of flexible cables, with a length suitable for performing maintenance procedures and for the operator to access the UPS by any side.

1.3. Battery handling

The batteries are components with a great capacity for energy storage and are able to generate dangerous voltage levels inside the UPS, even though the connection to the mains is not active. For that reason the UPS and its battery bank must be operated by qualified personnel only.

- DO NOT open, unseal, burn or destroy the batteries. Their chemical components are very toxic and can cause serious injuries in skin and eyes.
- DO NOT expose the batteries to high levels of heat. They may explode.
- The procedure of battery disposal should be made accordingly to the current environmental regulations.

2. GENERAL DESCRIPTION

The three-phase Gp33 Series Uninterruptible Power System delivers AC power to energize equipment and electric devices that require high quality power, such as: computing equipment, communications equipment, servers, data networks, medical electronic equipment (except life support equipment), automatic control systems, etc.

EXTERIOR APPEARANCE:



Outlook of the UPS

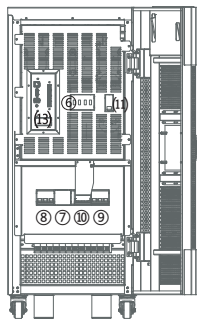
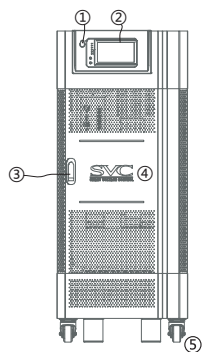


Figure 2.01 Front view of the UPS

Figure 2.02 Frontal view without cover

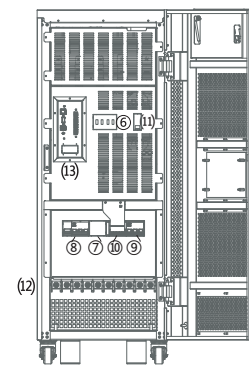
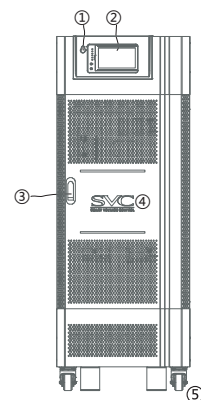
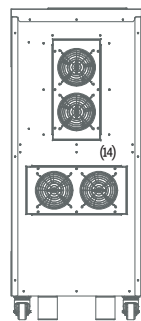
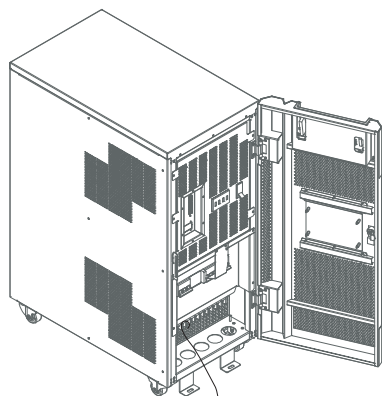


Figure 2.05 Front view of the UPS

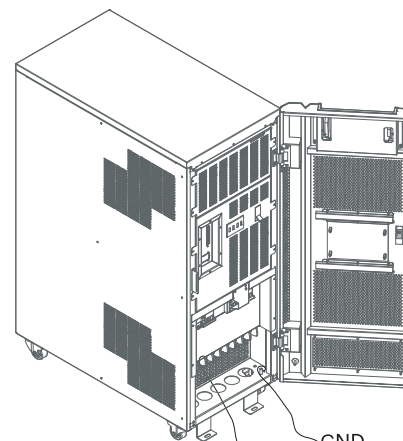
Figure 2.06 Frontal view without cover



Terminal connections cover

Figure 2.03 Outlook of the UPS

Figure 2.04 Back view of the UPS



GND
Terminal connections cover

Figure 2.07 Outlook of the UPS

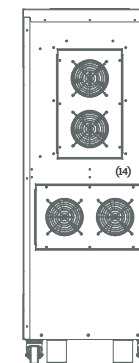


Figure 2.08 Back view of the UPS

- ①EPO; ②Display; ③Door lock; ④Logo; ⑤Anchor; ⑥Surge arrester;
⑦Dual input bypass breaker(Optional); ⑧Input breaker; ⑨Output breaker;
⑩Manual bypass breaker; ⑪Battery breaker; ⑫Terminal connections;
⑬Communications ports:RS232 and RJ-45(Optional); ⑭Cooling slots

The 10~20KVA UPS outlook is shown as Figure 2.01 to Figure 2.04

- ①EPO; ②Display; ③Door lock; ④Logo; ⑤Anchor; ⑥Surge arrester;
⑦Dual input bypass breaker(Optional); ⑧Input breaker; ⑨Output breaker;
⑩Manual bypass breaker; ⑪Battery breaker; ⑫Terminal connections;
⑬Communications ports:RS232 and RJ-45(Optional); ⑭Cooling slots

The 30~40KVA UPS outlook is shown as Figure 2.05 to Figure 2.08

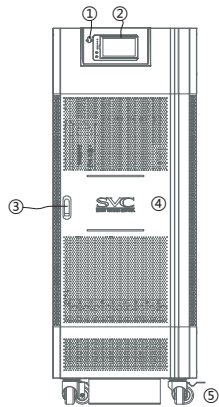


Figure 2.1 Front view of the UPS

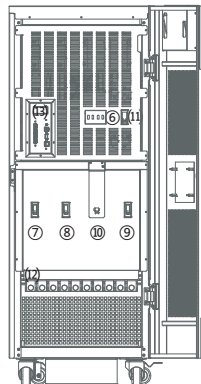


Figure 2.2 Frontal view without cover

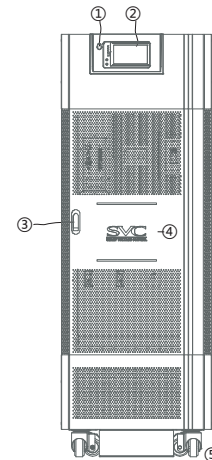


Figure 2.5 Front view of the UPS

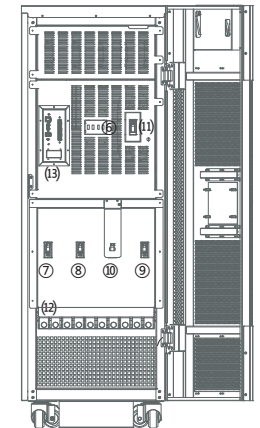


Figure 2.6 Frontal view without cover

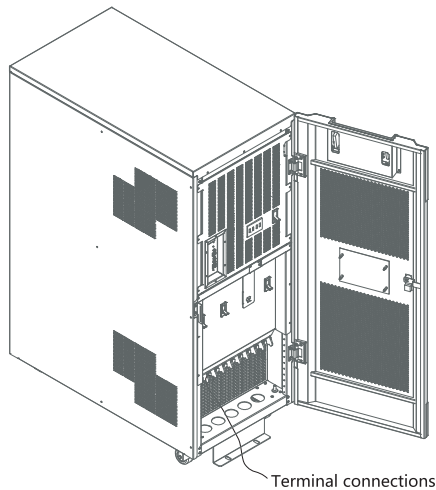


Figure 2.3 Outlook of the UPS

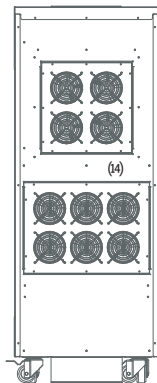


Figure 2.4 Back view of the UPS

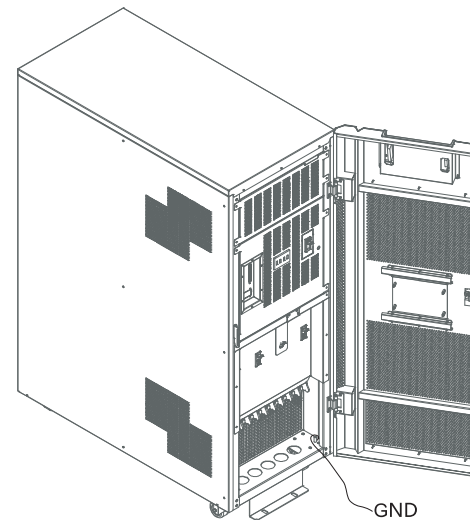


Figure 2.7 Outlook of the UPS

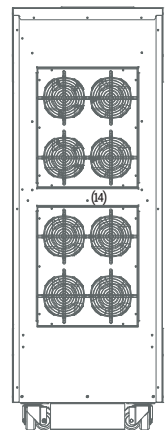


Figure 2.8 Back view of the UPS

- ①EPO; ②Display; ③Door lock; ④Logo; ⑤Pallet; ⑥Surge arrester;
 ⑦Dual input bypass breaker(Optional); ⑧Input breaker; ⑨Output breaker;
 ⑩Manual bypass breaker; (11)Battery breaker; (12)Terminal connections;
 (13)Communications ports:RS232 and RJ-45(Optional); (14)Cooling slots

The 60~80KVA UPS outlook is shown as Figure 2.1 to Figure 2.4

- ①EPO; ②Display; ③Door lock; ④Logo; ⑤Wheels; ⑥Surge arrester;
 ⑦Dual input bypass breaker(Optional); ⑧Input breaker; ⑨Output breaker;
 ⑩Manual bypass breaker; (11)Battery breaker; (12)Terminal connections;
 (13)Communications ports:RS232 and RJ-45(Optional); (14)Cooling slots

The 100~120KVA UPS outlook is shown as Figure 2.5 to Figure 2.8

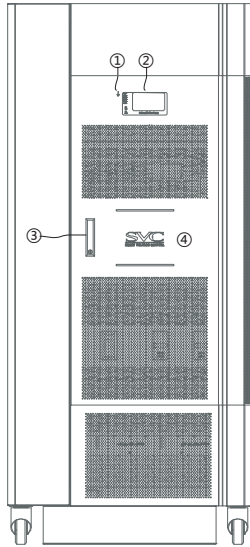


Figure 2.25 Front view of 160/200KVA UPS

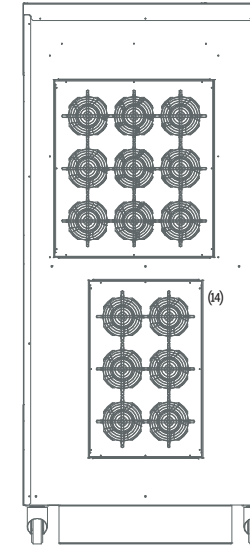


Figure 2.27 Back view of 160/200KVA UPS

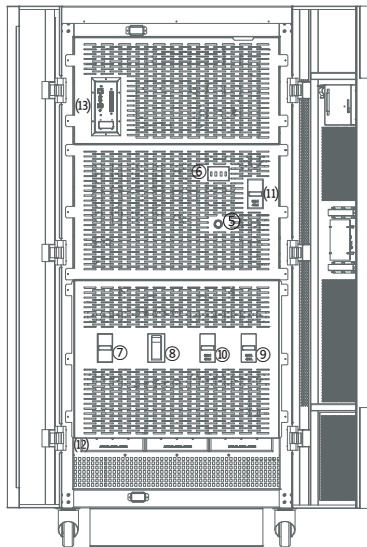


Figure 2.26 Frontal view without cover

- ① EPO; ② Display; ③ Door lock; ④ Logo; ⑤ Cool Start; ⑥ Surge arrester;
 ⑦ Dual input bypass breaker(Optional); ⑧ Input breaker; ⑨ Output breaker;
 ⑩ Manual bypass breaker; ⑪ Battery breaker; ⑫ Terminal connections;
 ⑬ Communications ports:RS232 and RJ-45(Optional); ⑭ Cooling slots

The 160/200KVA UPS outlook is shown as Figure 2.25 to Figure 2.28

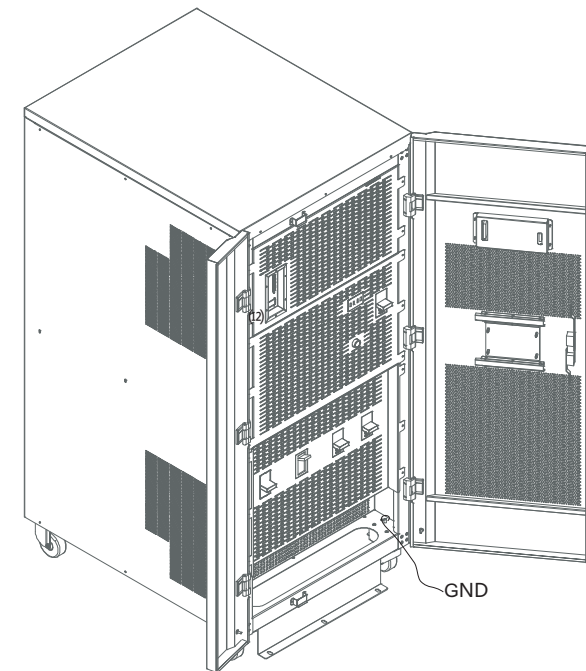


Figure 2.28 Outlook of 160/200KVA UPS

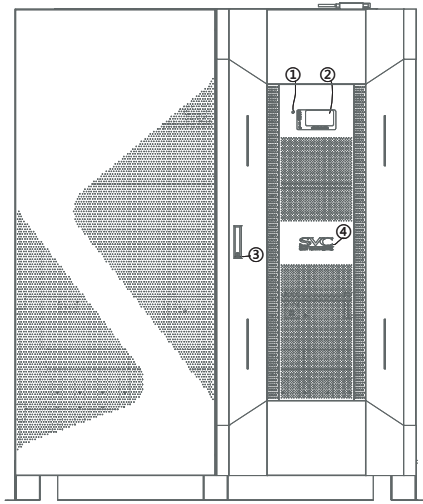


Figure 2.29 Front view of the UPS

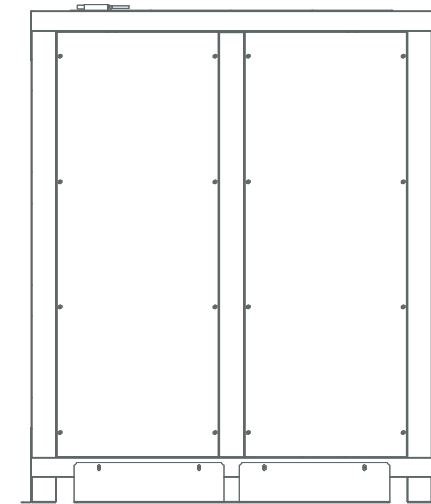


Figure 2.31 Back view of the UPS

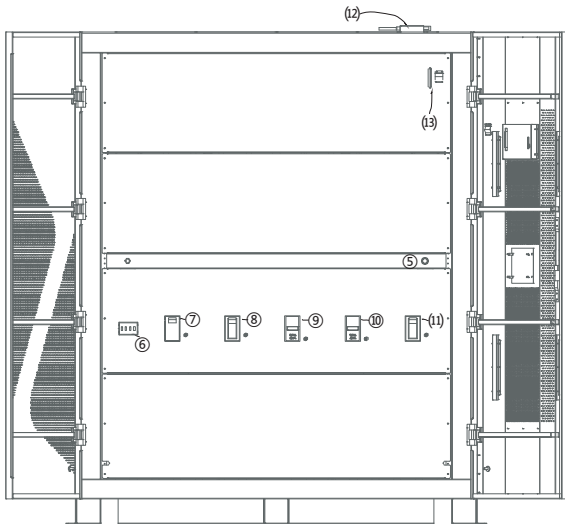


Figure 2.30 Frontal view without cover

- ① EPO; ② Display; ③ Door lock; ④ Logo; ⑤ Cool Start; ⑥ Surge arrester;
 ⑦ Dual input bypass breaker(Optional); ⑧ Input breaker; ⑨ Output breaker;
 ⑩ Manual bypass breaker; ⑪ Battery breaker; ⑫ Modem(Optional);
 ⑬ Communications ports:RS232 and RJ-45(Optional); ⑭ Cooling slots

The 250/300KVA UPS outlook is shown as Figure 2.29 to Figure 2.32

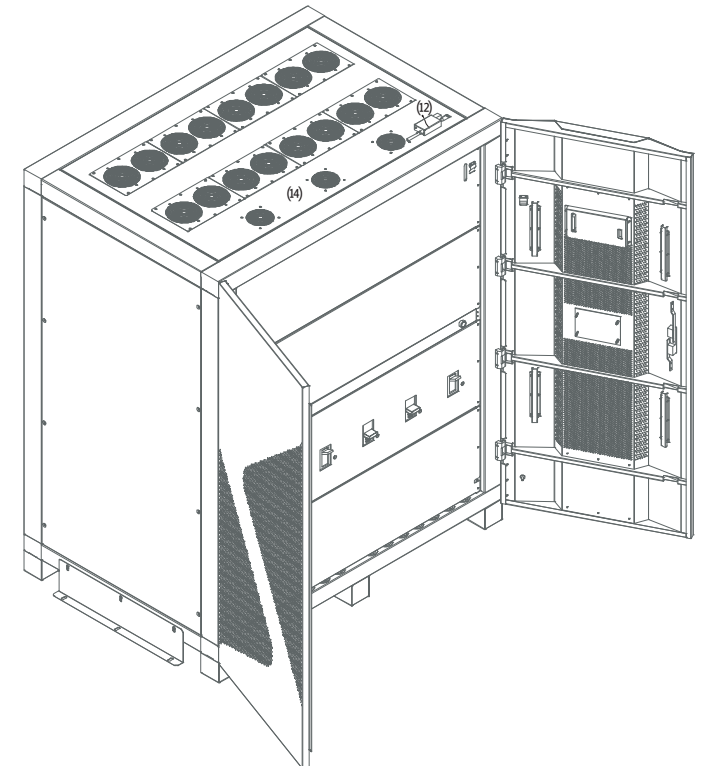


Figure 2.32 Outlook of the UPS

3.OPERATION MODES

The Gp33 Series UPS works among the next operation modes:

Normal Operation Mode

The functional schematic for the Gp33 UPS when operating in normal mode is depicted in figure 3.1.theAC Power present in the input is converted in DC power by the rectifier.The DC voltage is then used for charging The batteries and delivering power to the inverter.The power inverter takes the DC voltage at the output of the rectifier and generates a pure sinusoidal wave useful for feeding the load.

Battery Discharging Mode

In this operation mode the energy delivered as AC power to the load from the inverter was initially provided by the battery bank as DC power,without the intervention of the rectifier.The UPS automatically enters this mode when there is no voltage at the input or there is any abnormal condition.The UPS returns automatically to normal operation when the voltage is normal again.If such abnormality persists longer than the time span for which the battery bank was assembled,the UPS will eventually stop delivering power to the load in order to avoid deep discharge over the batteries.

Nevertheless,if this last event happens,the electronic control and frontal panel will continue working as a last resource(because this kind of power consumption is too low),until the battery discharging process resches dangerous level.it is hingly recommended to turn off the UPS and disconnect the battery bank (refer to section 6.2)to avoid their complete discharge.

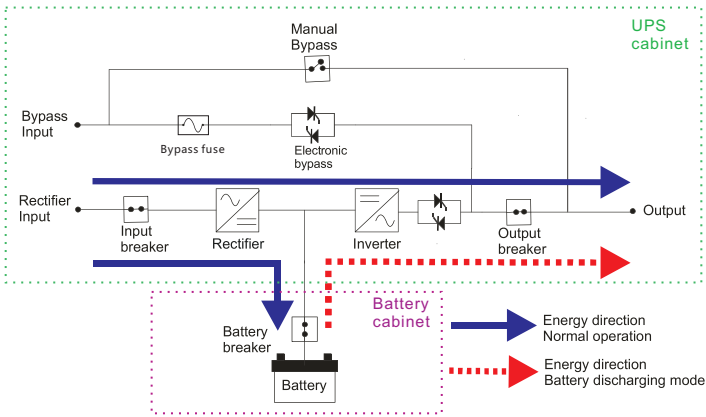


Figure 3.1. Functional schematic for Gp33 series UPS in normal mode

Electronic Bypass

In this operation mode the load is connected to the mains through an electronic switch based on SCR's.The UPS enters this operation mode when:there was some sort of overload at the output,there was a temperature rise and it is above the nominal value of operation or the battery bank is too much discharged.

Manual Bypass

The UPS is in manual bypass mode when the load is connected directly to the mains through a bypass circuit breaker while the UPS itself remains unenergized.Thia mode allows the user or operator to carry out maintenance tasks without actually cutting the power to the load.

Manual Shutdown

The UPS is fully turned off in the manual shutdown mode,so the inverter is turned off and the load has no power through any of the bypass ciuits.Nevertheless if the battery bank is discharged and incidentally there is AC power at the input of the UPS,the battery charger circuit will work.The communications devices and the control panel also work under this mode.

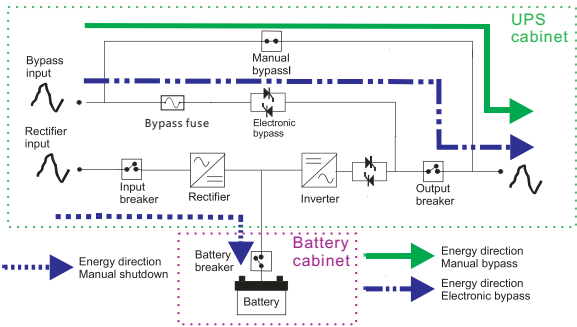


Figure 3.2. Functional schematic for Gp33 series UPS in manual bypass mode

Total Shutdown

When the UPS is in this State,none of the circuits or devices inside it is working,However there is still remaining energy stored in the battery bank, even though the voltage level is that previous to complete discharge,so in this state there is still risk for handling the interior of the unit.

ECO MODE

With ECO mode the load is feed by static switch, no by inverter, for allow the maximum efficiency, this mode works automatically. If this mode is selected by user, the UPS works in normal mode during 5 minutes (this time is selectable by user) and after this time the load will transfer to static switch. In case of input power loose the UPS will transfer to battery mode automatically.

Provide schematics for reference,Please see page 32 Figure 9.1

4. INSTALLATION

At this point it is highly recommended the installation to be done by a qualified electrician or trained technician,this recommendation pretend to diminish the risk of damage on the unit and the odds for an accident to happen.The recommendations ahead should be taken as a guide for a safe and successful installation;anyway any recommendation should be adjusted to local valid norms.

4.1.Unpacking

The UPS unit comes in a wooden packing as is shown in Figure 4.1.The process for removing the packing should start by removing the top cap,then the lateral covers and finally the frontal and rear covers.The UPS unit is also anchored underneath the packing's floor to a wooden stowage as is depicted in Figure 4.2. After removing the packing,the next step is to unload the UPS unit from the stowage,For this operation do as is said next:

- Remove first the lateral covers from the UPS unit.
- The levelers should be lifted up.
- Lightly bend the UPS unit in one of its sides,right or left,to ease the removing of the anchorage in the opposite side.
- Repeat the last step for the other anchorage in the opposite side.After removing this second Anchorage the unit will be able to move using their own wheels.
- Set up aside from the stowage a ramp strong enough to support the unit's weight.

- Finally, the unit can roll down the ramp.
- Once on the floor, the UPS nit can be rolled to its final location, where we can lock he universal wheels and ensue the machine is stable.

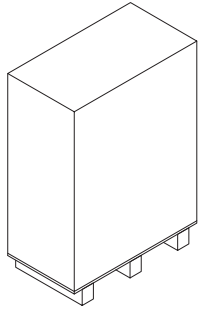


Figure 4.1 UPS Packaging

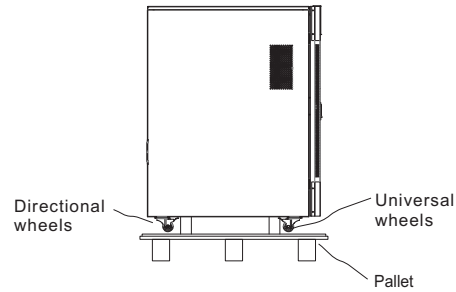


Figure 4.2 UPS Anchored To the Pallet

4.2.RUSH REQUIREMENTS

The Gp33 Series ups requires a three phase input 400Vac, you must have a dedicated breaker for the ups distribution panel, each line in the entry and exit must have the proper gauge to carry the current to flow through them.

The sizes of the cables at the input and output change according to capacity, as shown in the following tables.

Table 4.1 gauges of the wires to the UPS input

CAPACITY (KVA)	PHASE GAUGE (mm²)	NEUTRAL GAUGE (mm²)	GROUND GAUGE (mm²)	THREE-PHASE BREAKER
10/15-S	5	5	5	25/40
20/30-S	8	8	8	50/63
40-S	13	13	13	100
20	8	8	8	50
30	8	8	8	63
40	13	13	13	100
60	21	21	21	150
80	25	25	25	175
100	35	35	35	225
120	50	50	50	300
160	70	70	70	400
200	100	100	100	500
250	70*2	70*2	70*2	700
300	100*2	100*2	100*2	800

* We recommend using a three-phase industrial breaker.

Table 4.2. cross sections of the wires to the output of the UPS

CAPACITY (KVA)	PHASE GAUGE (mm²)	NEUTRAL GAUGE (mm²)	GROUND GAUGE (mm²)	THREE-PHASE BREAKER
10/15	5	5	5	25/40
20	8	8	8	40
30	8	8	8	63
40	13	13	13	80
60	21	21	21	125
80	25	25	25	150
100	35	35	35	200
120	50	50	50	225
160	70	70	70	300
200	100	100	100	400
250	70*2	70*2	70*2	600
300	100*2	100*2	100*2	800

* We recommend using a three-phase industrial breaker.

4.3. CONNETION TERMINALS

It is necessary that a professional technician install the cables or this UPS. To access the terminal block need to remove the front cover of the UPS. The UPS has he terminal block as show in this figure 4.3:

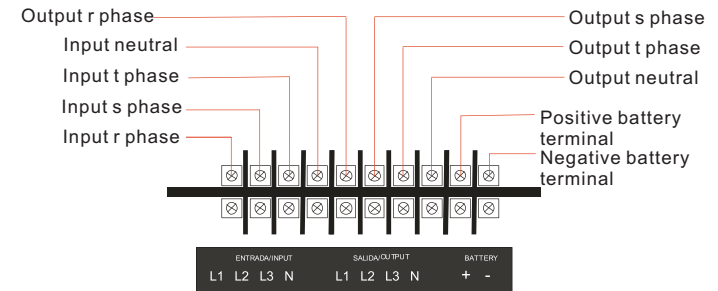


Figure 4.4.Connection terminals

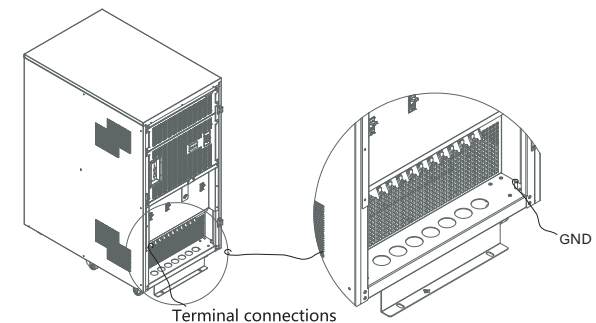


Figure 4.5.Connection GND

In any case need to follow the marks near the connections and understand the indication and the meaning of each mark.

5. Operation

5.1. Control pane

Gp33 Series UPS includes a control panel that displays the status of the ups, and to see certain parameters on a lcd screen (input voltage, output voltage, frequency, temperature, etc.) figure 5.1 shows that interface.



Figure 5.1.Frontal panel

Control panel parts

- 1. Epo: emergency power off button, when activated, the computer shuts down completely.
- 2. “on”: It transfer the UPS from total shutdown mode to bypass mode (Pressing it for more than 6seconds) and from bypass mode to normal operation mode (pressing the button for more than 1 second).
- 3. Lcd: the lcd screen displays information about the operation of ups battery status,input voltages,alarms,etc.
- 4. Input led: indicates whether there is any abnormality at the ups input. When the input is normal,the led is green color, when there is a problem is red color.
- 5. Bypass led: when the ups is in electronic bypass, the two leds light up intermittently.
- 6. Charge led: indicates the status of the charger.
- 7. Battery led: indicates the battery status, if the batteries are functioning normally be green and if aproblem will be red.
- 8. Inverter led: indicates the status of the inverter, when the inverter is on is green, if off is red.
- 9. Output led: indicates whether the output voltage of the ups, or if there is any problem with the output.
- 10. “off”: It transfers the UPS from normal operation mode to bypass mode(Pressing it for about 3 seconds) and from bypass mode to total shutdown mode (Pressing the button for more than 6 seconds).

The following table gives a more detailed description of the meaning of the leds on the mimic.

Table 5.1. Meaning of the leds.

Leds color	description
Inverter=green; output =green; Input=green; charger=green; batteries =green;	The UPS is operating normally.
Input=green; charger =green; Batteries=flashing yellow-orange Inverter=green; output= green.	The ups operates normally, but the batteries are charging. if a power failure the ups entry will have no autonomy. Because the batteries are not charged to 100%.
Input= green; charge= red. Batteries=red. Inverter=green; output=green.	The batteries are completely discharged, in case of a court, there is no energy input to the output load.

	however, the batteries are charging.
Input=red; charger = red, batteries = green; inverter=green; output = green.	There was an abnormal event at the entrance of ups and the load is being fed through the inverter, the energy stored in batteries.
Input=red; charger = red;batteries = flashing red-green; inverter=green; output = green.	No energy input and energy in the batteries are running low, it also generates an audible alarm, the display will show “low battery alert”. It is advised to turn off all computers that are connected to ups.
input = flashing red-green.	The network is not optimal to switch to manual bypass.
Input= yellow.	No synchronization; the network conditions are close to be appropriate but are not required.
Input= red.	The entry conditions are not suitable to enter bypass so this operation is not allowed because it could raise problems with the load.
output= red.	The load is not being fed by the ups, consult service.
output=flashing red-green.	The load is being supplied by the bypass, and the input conditions are not good.
output =green.	The load is being fed by the ups through the inverter or bypass still appropriate input conditions.
bypass leds, lighting intermittently.	The electronic bypass is activated.

5.2 lights frontal cover

The ups has lights on the front that displays the status of UPS as follows:

- If the lights are blues means that the load is being fed through either the inverter or bypass.
- If the lights are reds means that the load is being fed to the energy stored in batteries.
- If the lights are flashing red and blue is because the charger is not working properly, the cause may be who missed one or two phases o the entrance.
- When the charger starts and if there is no problem, the lights are flashing blue and violet.
- If you used the emergency shutdown of the ups, the light has a violet color.

5.3 lcd operation

Figure 5.2 illustrates the operation of the lcd, and table 5.2 below gives a description of each display.

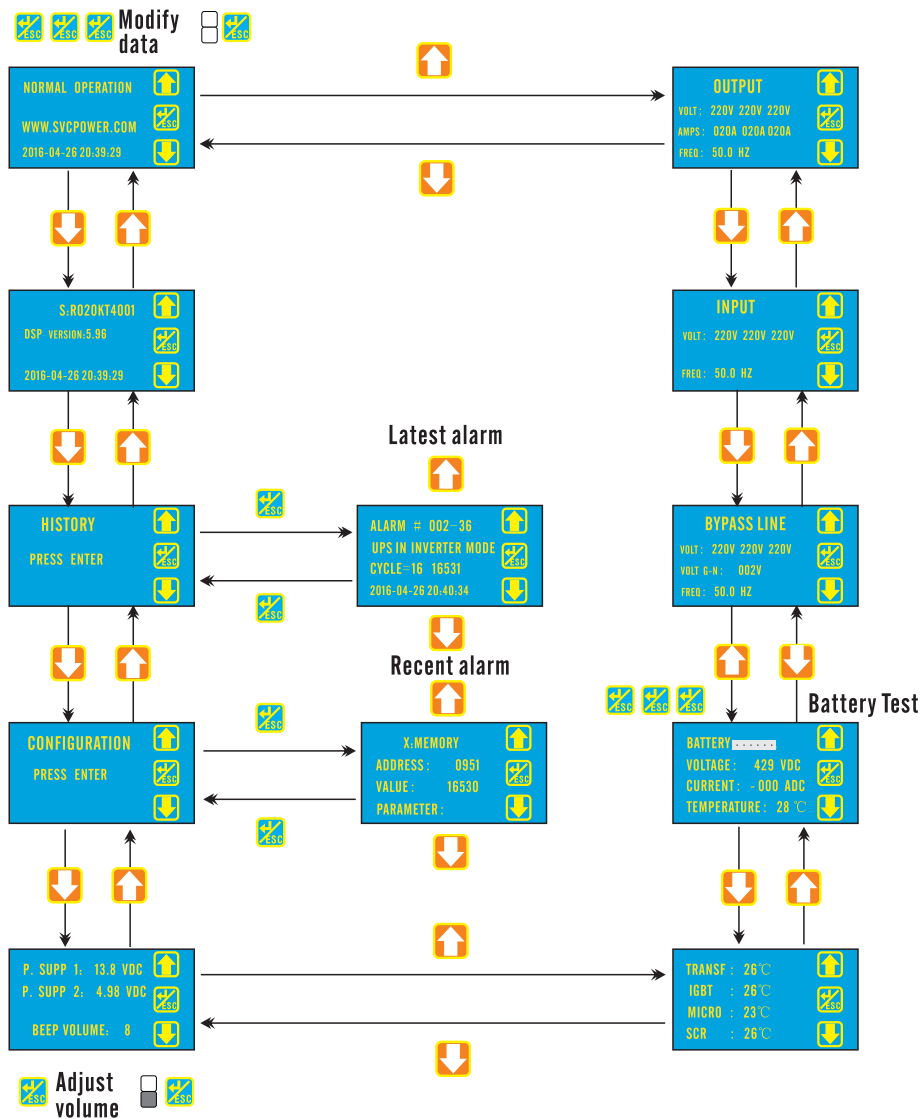
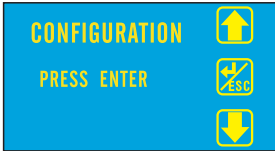
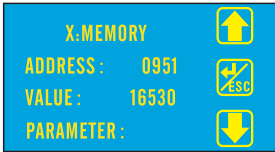
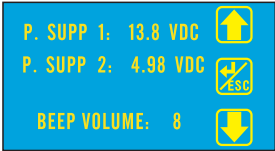

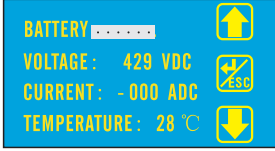
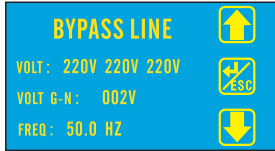
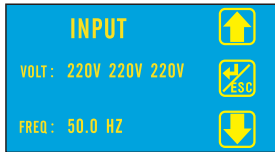



Figure 5.2.LCD operation

Table 5.2 Description of the UPS' menus

visualitation	name	description
	Main menu	<p>This is the main menu display, this screen shows the ups operating status (in this case is in normal operation). It also displays the web address of manufacturer, date and time, in this menu you can also update the date and time, to make it do the following:</p> <ul style="list-style-type: none"> • Press three times the “enter/esc button”, and the last two digits of the year start to flash, change the year using the “arrow” and “down arrow”; • When you set the year again press “enter/esc button” and the number for the month will flash, change the month using the “arrow” and “down arrow”; • Press again “enter/esc”, and the number for the day will flash, change the day with “arrow” and “down arrow” to change the time simply press “enter/esc button” and modify it with “arrow” and “down arrow”; • Press again “enter/esc button” and may amend the minutes to “arrow” and “down arrow”, return to press “enter/esc button” and the date and time will be updated.
	Serial number and firmware version	This screen shows the serial computer, the firmware version of the ups and contact the manufacturer.
	Alarm history	This screen allows entry into the alarm history.to view the history you must press “enter/esc button”.
	alarm history detail	On this screen you can see information about the latest alarms have been activated in the ups for information about other alarm press the “arrow” or “down arrow”, in the first line is the order in which the alarm occurred, alarm 000 being the most recent, the second line shows the cause of the alarm (In table 7.1 there is more information about alarms that may occur), the fourth line displays the date and time of the event, the third line shows the number of cycles of the output waveform which went before the occurrence of the event and after the time that is

		recorded in the fourth line..
	configuration	Allow in the setup menu;
	Values of configuration parameters	This menu may change the operating parameters of the ups, since the change of these parameters can cause serious damage to the ups, only qualified personnel can make modifications;
	Supply voltage and volume of the whistle	Indicates the dc voltages that supply the electronic control of the ups, it also indicates the volume alarm, to change the volume of the alarm, press "enter/esc button" three times and then vary the volume with "arrow up" to up and "down arrow" to down;
	Temperatures	This display indicates the temperature of critical devices within the ups (transformer, igbt's, microcontroller);
	Batteries	This screen shows the battery status: percentage of load, voltage, current and temperature, in this menu, you can perform a battery test, press three times to do the "enter/esc button", the duration of the test, depends on the test result is satisfactory, there is no display on the lcd and an alarm will occur "battery test ok" which can be seen in the alarm history. If the result is not satisfactory to generate the alarm "battery test failure" which is displayed on the screen and stored in the alarm history, the battery led will be red;

	Bypass	Indicates the status of the bypass input: voltage in the three phases of the bypass input, voltage and frequency neutral ground;
	Input	Indicates the status of the ups input; input voltage on all three phases and frequency;
	Output	Indicates the output status of the ups in the three-phase voltage, current in all three phases and frequency.

5.4. Emergency power off

The system has an emergency power off that turned off the computer completely. the button is located on the front panel of the ups (see figure 5.1).

6. OPERATING PROCEDURES

Warning:

If the UPS is not in NORMAL MODE it has the risk of turn off the load if the utility or any other abnormal issue happened. The customer needs to know the risk and need to be in accordance with the proposed procedures.

*The UPS should have batteries for work normally.

6.1 Emergency Shutdown(all the equipments connected to the UPS will go off):

6.1.1 Press the EPO switch (emergency power off);

6.2 TURN ON procedure:

- 6.2.1 Turn on input breaker;
- 6.2.2 Wait until the green LED of rectifier is on and readable information showed in display. Silence the buzzer by pressing any key;
- 6.2.3 Turn on battery breaker;
- 6.2.4 Turn on output breaker;
- 6.2.5 Pulse key ON for 2 seconds, all LED become green and the UPS NORMAL is showed on display.

6.3 Transfer from NORMAL to BYPASS(No manual BYPASS):

- 6.3.1 If the UPS is in NORMAL state all LED are green;
- 6.3.2 Pulse key OFF for 2 seconds;
- 6.3.3 Check that red BYPASS LED are flashing;
- 6.3.4 Now the UPS is in automatic BYPASS mode.

6.4 Transfer from automatic BYPASS (No manual BYPASS) to NORMAL OPERATION:

- 6.4.1 Pulse key ON for 2 seconds;
- 6.4.2 Check that all LED become green;
- 6.4.3 Now the UPS is in NORMAL mode.

6.5 Turn off (the load will go to off):

- 6.5.1 Check that all equipments connected to the UPS are off;
- 6.5.2 Pulse key OFF for 2 seconds;
- 6.5.3 Turn off the output breaker, battery breaker and input breaker and in any order, the lights and sound inside the UPS will shut down after approximately 1minute.

6.6 Transfer to manual BYPASS:

- 6.6.1 Transfer to BYPASS UPS, pulse key OFF for 2 seconds , wait until the BYPASS LED is flashing;
- 6.6.2 Turn on manual BYPASS breaker;
- 6.6.3 Turn off battery breaker, output breaker and input breaker in any order, the lights and sound inside the UPS will shut down after approximately 1minutes.

6.7 Transfer from manual BYPASS to NORMAL operation:

- 6.7.1 Turn on input breaker , wait until the green LED of charge is on , and red LED of BYPASS is flashing Silence the buzzer by pressing any key;
- 6.7.2 Turn on output breaker;
- 6.7.3 Turn off manual BYPASS breaker;
- 6.7.4 Turn on battery breaker;
- 6.7.5 Transfer to inverter by pressing key ON for 2 second, ALL LED will be green and the display show the message "UPS NORMAL".

6.8 Transfer from EPO or totally off state to NORMAL:

- 6.8.1 If previously the UPS was in EPO mode, turn off all breakers and restart the UPS again with the TURN ON procedure;
- 6.8.2 If the UPS was in totally off state, then press ON button for near 10 seconds continuously, after it the UPS will start in BYPASS mode, follow the procedure to charge form BYPASS TO NORMAL if need it.

6.9 ECO MODE

With ECO mode the load is feed by static switch, no by inverter, for allow the maximum efficiency, this mode works automatically.
If this mode is selected by user, the UPS works in normal mode during 5 minutes (this time is selectable by user) and after this time the load will transfer to static switch. In case of input power loose the UPS will transfer to battery mode automatically.

7. Alarms

7.1. Active alarms

When there is an event which affect the normal operation of the UPS (overload, high temperature, voltage abnormality at the input, etc..) will you hear an alarm signal and you will see on the display the cause of the alarm until the situation is normal again. The cause of the alarm is stored in the alarm 's historical.
In table 7.1,it is possible shown all the alarm messages, a description of the message and the possible solution to the problem.

7.2. Alarms reset and normalization of the UPS

There are alarms which make the inverter of the UPS get blocked (for example an overload). They prevent the UPS from normal operation. To make the equipment work again, go to the main menu and press the "enter/esc" button for more than 10 seconds.

NORMAL OPERATION	The ups is operation normally	not available
DISCHAEING BATTTRIES	The battery charge is off and the batteries are discharge. the causes may be : *Dc fuse open; *Loss of any the input phases; *Input voltage(phase neutral) outside the operating range (80 to 150 volts rms)	*Check the input voltages; *Call for service.
RECTIFIER TURN ON	Is on the battery charger.	not available
INVERTER TURN ON	The inverter is turned on.	not available
MANUAL INV SHUTDOWN	Inverter has been turned off manually.	not available
EMERGENCY PWR OFF	Emergency shutdown is active. The emergency shutdown can easily de-energize the ups in case of an emergency.	Before starting the machine again, make sure that the operating conditions are not dangerous.
MANUAL LOAD SHUTDOWN	The ups has entered the operating mode "manual off total".	not available
CONDIGURATION MODE	Configuration mode enabled. In this mode you can modify any parameter of operation of the ups, only qualified personal should access the configuration mode.	not available
END CONDIGURATION	Out of configuration mode.	not available
TURN ON MANUAL BYPASS	If you have a problem with any of the phases, due to a problem in the inner working of the ups , this alarm is activated, recommending the user to operate the manual bypass.	Activate the manual bypass and call service center to solve the problem at ups.
BYPASS SCR FAILURE	One of the bypass scrs failed.	Support call
BYP.ROTATION ERROR	The phase sequence of the bypass is reversed.	Check on the terminal block of the bypass, the phases are connected correctly.
BYP.ROTATION OK	The sequence phases of the bypass, is correct.	not available

UTILITY ABNORMAL	This alarm is activated when the voltage at the input of the bypass is not adequate to supply the load:the voltage is too high or too low, the frequency is not adequate.	Check the wiring that feeds the ups, if the facility is good, wait until the entry conditions are normal.
BYPASS AVAILABLE	The input voltage conditions on the bypass are suitable for switching to bypass.	not available
CRITICAL OVERLOAD	It is activated when you have had an overload that has lasted longer than the ups can support, leading to bypass.	*check for shorts to the output; *verify that the load does not consume more power than it is capable of delivering the ups.
INVERTER SHUTDOWN A	It is activated when the inverter is turned off because it suffers an internal failure of control.	Support call.
INVERTER SHUTDOWN B	It is activated when the inverter is turned off because it suffers an internal failure of control.	Support call.
BATTERY EXHAUSTED	The ups batteries are depleted, one possible cause is that ups has operated in battery mode for long.	Wait for the ups input is normal, and start charging the battery will not charge call service.
DC FUSE BLOWN	The dc fuse is open, this happens when you turn the battery breaker before you turn on the charger when you are starting the ups.	Support call.
5V PWR SUPPLY FAIL	The 5v supply that feeds electronic control failed.	Support call.
5V PWR SUPPLY OK	The source of 5volts that powers the electronic control works correctly.	not available
14V PWR SUPPLY FAIL	The source of 13.5volts that feeds the electronic control failed.	Support call.
14V PWR SUPPLY OK	The source of 13.3volts that powers the electronic control works correctly.	not available
INVERTER OVERFLOW	When reading in the inverter output voltage is not reliable because the voltage is read range the electronic control, this event will bypass the ups, this condition can occur when there are transients.	If the problem persists, contact technical support.
OVERLOAD 200%	There is an overload to output more than twice the rating of the ups.	*check for shorts to the output.

		*check that the load does not consume more power which supplies the ups.
TXI FAILURE	Failure to transfer to the inverter, there is an internal problem that can't activate the inverter.	Support call.
INVERTER COMP.FAIL	The output voltage of the ups is different from the inverter output voltage.	Support call.
HIGH GROUND VOLTAGE	The voltage between ground and neutral is too high(10volts rms). This can occur because there is no connection to ground at the facility where ups or because there is no solid connection between neutral and ground. Another cause may be an overload on the input that feeds the ups especially if the load is unbalanced.	*make sure the installation that is connected to ups has a grounding; *check the connection between ground and neural at the facility where the ups; *review the balance of the load.
CLR HIGH GND VOLTAGE	Activated when the voltage is normalized between neutral and ground, after an alarm occurred"neutral-earth high".	not available
INVERTER SCR FAIL	There is an internal short in the scr at the inverter output.	Support call.
UPS IN BYPASS MODE	The ups is in operation mode"electronic bypass".	not available
HIGH BYP FREQUENCY	The frequency of bypass input is too high.	Wait until the frequency is normal. If ups is fueling a power plant, check it. One reason may be that the plant fuel is running low.
BYP FREQUENCY OK	The frequency of bypass input is normal.	not available
UPS IN INVERTER MODE	The load is being fed through the inverter.	not available
LOW BYP FREQUENCY	The frequency of bypass input is too low.	Wait until the frequency is normal. If ups is fueling a power plant, check it. One reason may be that the plant fuel is running low.
BYPASS OUT OF RANGE	The bypass voltage is beyond the recommended voltage to supply equipment in accordance with ul standards, the charger	To increase the tolerance of this alarm, please contact technical support.

	and inverter are still active, this alarm is only informative.	
BYPASS VOLTAGE OK	The bypass voltage is within the recommended voltage to supply equipment in accordance with ul standards.	not available
CLR OVERLOAD	It is activated when the output current standard ups, having been overcharged.	not available
UNBALANCE WARNING	There is a considerable imbalance in the load of the ups, the difference in current between phases is greater than 50% of the rated current.	Check the balance of the load.
CLR UNBALANCE	Charging the ups returns to rock, after submission of an unbalance alarm.	not available
CHECK BATTERIES	The battery have more than 5 years of operation.	Due to the operating history of the batteries is recommended to verify performance and age of these.
LOW BATTERY WARNING	The battery is running low.	Turn off computers that are connected to the ups as it does not take much time off.
CLR LOW BATTERY	The battery has enough charge after the filing of a low battery warning.	not available
CHECK FANS	The blowholes are more than 5 years of use.	It is advisable to change the FANS to perform the operation contact technical support.
SELF DIAGNOSTIC	Alarm information indicates that event counters ups have flooded the memory limit. Note: this does not imply a malfunction of the machine.	Diagnostic is recommended by "software". Call support.
PWR SUPPLY WARNING	It is activated when the control board has no power.	Support call.
CLR PWR SUPPLY FAIL	This alarm appears when the power returned to the control board after a power alert.	not available
DC OVERVOLTAGE	It is activated when there has been an excessively high voltage to the inverter input. This alarm may be generated when there is a sudden change of current to the exit.	Try to avoid charges that generate large current peaks shortly.
DC OVERFLOW	When the reading on the charger output voltage is not reliable, because the voltage	If the problem persists, call for service.

	is not in the read range of electronic control, this event will take the ups to bypass. This condition can occur when there are transients.	
CLR DC OVERFLOW	When the volatge on the charger output is back in the read range of electronic control after an alarm "overflow dc".	not available
FLASH MISMATCH	It occurs when changing a parameter that can affect the normal operation of the ups.	Not manipulate the settings menu, it should be handle only by qualified personnel.
FLASH UPDATED	It occurs when any parameter of operation of the ups is modified.	not available
TRANSFMR TEMPERATURES	The transformer temperature is above the recommended limit for the proper functioning of the ups an can affect battery life.	Check the temperature of where the ups is located. Check the air conditioning system, as is maybe a fault.
IGBT TEMPERATURE	Igbt temperature is above the recommended limit for the proper functioning of the ups an can affect battery life. This may cause a malfunction in the inverter and reduce the efficiency of the ups.	Check the temperature of where the ups is located. Check the air conditioning system, as is maybe a fault.
SCR TEMPERATURE	The temperature of the "scr" is above the recommended limit for the proper functioning of the ups an can affect battery life. This may cause a malfunction in the ups and loss of efficiency.	Check the temperature of where the ups is located. Check the air conditioning system, as is maybe a fault.
AMBIENT TEMPERATURE	The atmosphere temperature is above the recommended limit for the proper functioning of the ups and can affect battery life.	Check the temperature of where the ups is located. Check the air conditioning system, as is maybe a fault.
CLR AMBIENT TEMPERATURE	It is activated when the temperature has returned to normal after an event occurred overheating.	not available
BYPASS FUSE PHASE A	Bypass the fuse phase a is open. This may be because there is an overload to the output that can't stand the fuse.	Service call to replace the fuse.
BYPASS FUSE PHASE B	Bypass the fuse phase b is open. this may be because there is an overload to the output that can't stand the fuse.	Service call to replace the fuse.

BYPASS FUSE PHASE C	Bypass the fuse phase c is open, his may be because there is an overload to the output that can't stand the fuse.	Service call to replace the fuse.
MAINTENANCE MODE	It is activated by modifying a parameter of operation of ups, this facilitates the solution of both internal and external problems of the team as it omits some alarms.when maintenance mode is activated the display flashes.	The maintenance mode is deactivated at 12 at night or whenever changed the corresponding configuration parameter.
MAINTENANCE MODE END	It is activated when you leave the maintenance mode.	not available
PROCESSOR RESET	It occurs when the ups has shut down completely, the alarm appears when you turn on the ups.	not available
TEMPERATURE ALERT	This alarm occurs when there is a high temperature in the computer, but not high enough to go to bypass.	Check the temperature of where the ups is located check the air conditioning system, because it may be a fault.
AMBIENT TEMP OK	It is activated when the temperature is at an optimum level, after having ben high.	not available
START BATTERY TEST	It has been initiated battery test.	not available
END BATTERY TEST	There has completed the test battery.	not available
OVERLOAD 100% PH A	It occur when the output current in phase a is greater than the nominal and less than 1.5times the rated current.	<input type="checkbox"/> *Check for shorts to the output; <input type="checkbox"/> *Verify that the load does not consume more power than it is capable of supplying the ups.
OVERLOAD 100% PH B	It occur when the output current in phase a is greater than the nominal and less than 1.5times the rated current.	<input type="checkbox"/> *Check for shorts to the output; <input type="checkbox"/> *Verify that the load does not consume more power than it is capable of supplying the ups.
OVERLOAD 100% PH C	It occur when the output current in phase a is greater than the nominal and less than 1.5times the rated current.	<input type="checkbox"/> *Check for shorts to the output; <input type="checkbox"/> *Verify that the load does not consume more power than it is capable of supplying the ups.

OVERLOAD 150% PH A	It occur when the output current in phase a is greater than the nominal and less than 1.5-2times the rated current.	<input type="checkbox"/> *Verify that the load does not consume more power than it is capable of supplying the ups.
OVERLOAD 150% PH B	It occur when the output current in phase a is greater than the nominal and less than 1.5-2times the rated current.	<input type="checkbox"/> *Verify that the load does not consume more power than it is capable of supplying the ups.
OVERLOAD 150% PH C	It occur when the output current in phase a is greater than the nominal and less than 1.5-2times the rated current.	<input type="checkbox"/> *Verify that the load does not consume more power than it is capable of supplying the ups.
REVERSE POWER FAIL	It occurs when there is a return current in the output of the ups.	Check the equipment connected to the output of the ups.
PAPALLL FAILUE	This alarm occurs when two ups are connected n parallel and one o the two fails.	Check the ups is going wrong and try to restore system operation, If necessary contact your service.
INVERTER OFF	<p>The inverter is turned off, this may be due to:</p> <p>*You manually turn off the inverter; *There was an overload; *There was a temperature overload; *There was an overload on the dc voltage to the inverter input; *Inconsistency in the voltage of the inverter; *Overflow of the investor.</p>	<p>*Check for shorts o the output; *Verify that the load does not consume more power than it is capable of supplying the ups. *Check he temperature of where the ups is located; *Avoid charges that generate large surges in short time; *The problem persists call service.</p>
BYP FRQ OUT OF RANGE	The frequency of he input bypass is not adequate to power the loads.	Wait until the frequency is normal, If ups are fueling a power plant, check it. One reason may be that the plant fuel is running low.
MANUAL BYPASS ENABLED	Bypass breaker is activate. (see section 6.4)	not available

MANUAL BYPASS DISABLED	The manual bypass switch is off.	not available
BATTERY TEST FAILED	<ul style="list-style-type: none">• there is a problem with the batteries; possible causes are:• you have not activated the battery breaker;• the batteries are not connected;• the battery polarity is incorrect;• batteries need replacement.	<ul style="list-style-type: none">• Turn on the battery breaker;• Turn off the ups and connect the battery properly;• Replace the battery bank.
BATTERY TEST OK	the battery test was successful.	not available

7.3 Maintenance:

Except for minor routine maintenance that may be performed by the operator safety instructions to be used during maintenance of the UPS are nirmally made available only to service persons.

8.Communications:

8.1.rs232:

The rs232 port is located on the rear panel. this interface can be used for remote monitoring of the ups. It is recommended that the distance between the ups and the monitoring equipment does not exceed 10 meters. If the computer you want to do the monitoring does not have rs232 port. We recommend using a usb to serial converter trendnet tu-s9. monitoring can be done from a pc using HyperTerminal, which is included in versions of "windows" less than or equal to "windows xp". for newer versions you can download the software from the Internet.running the program window appears as shown in figure 8.1:

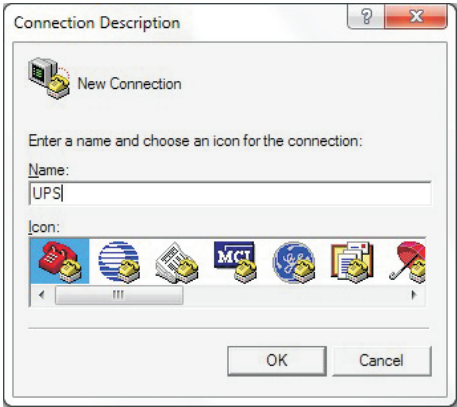


Figure 8.1

Name your connection and select an icon and click 'OK'. then in the next window in the "connect using" select the port which is connected to the ups and click "OK" (see figure 8.2). in the next window set the port, Select 2400 bits per second transmission rate, with 8 bits of data per frame, no parity bit, a stop bit and no flow control, as shown in figure 8.3. click "OK". then see the window shown in figure 8.4. click on the button (Disconnect) and then(properties). then see the window shown in figure 8.5. select the "settings" tab and click on the "ascii setup"(see figure 8.6). in the next window (figure 8.7) check the "append line feeds to incoming line ends" and click "OK" until you see the window in figure 8.4. click on the buttom(call).

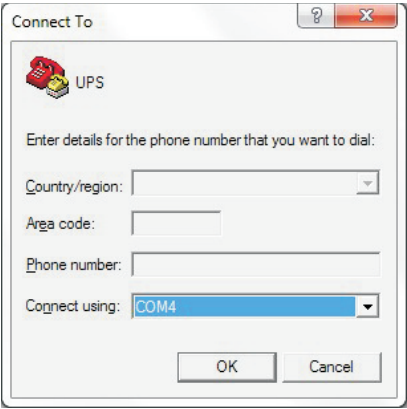


Figure 8.2

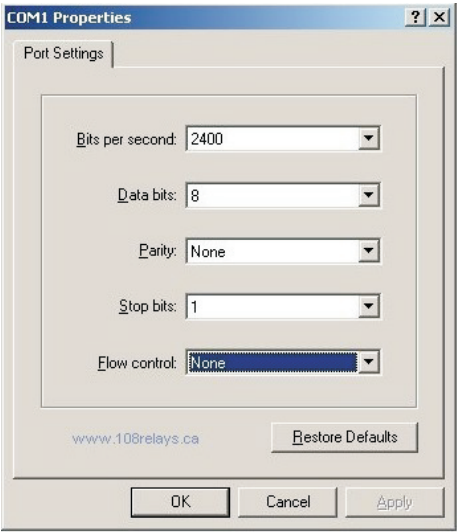


Figure 8.3

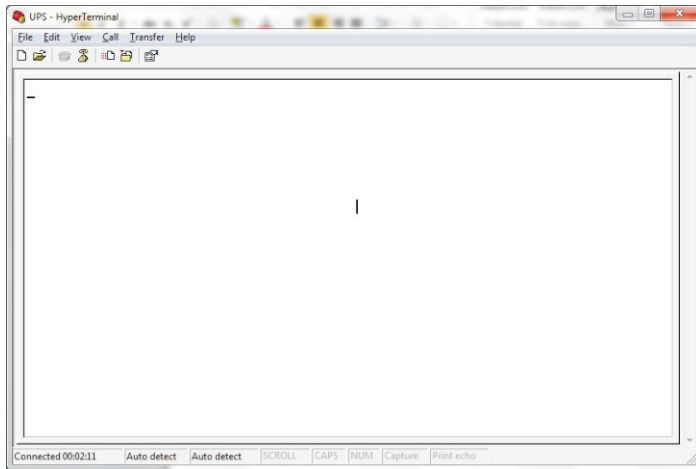


Figure 8.4

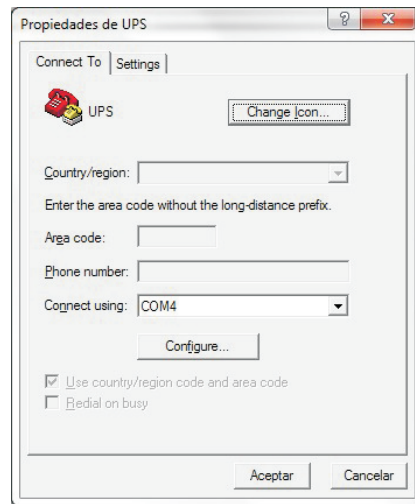


Figure 8.5

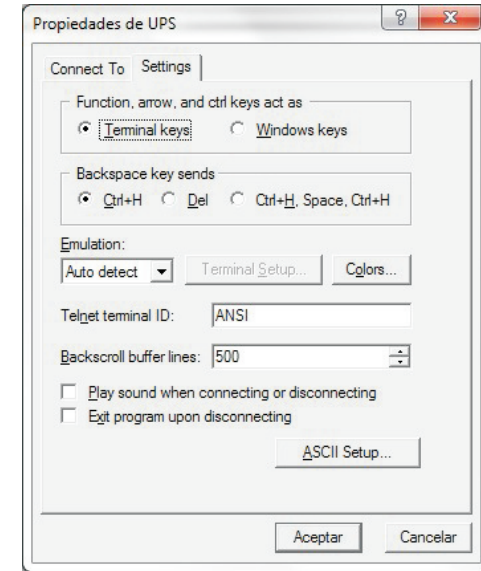


Figure 8.6

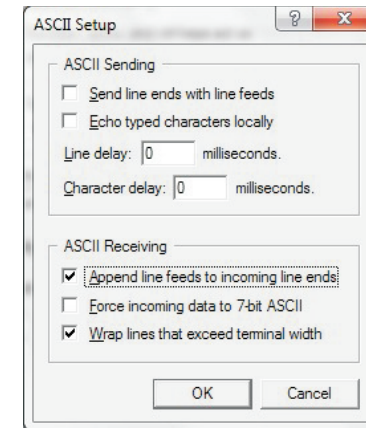


Figure 8.7

now you can see in figure 8.4 window that appears on the lcd screen of the ups to change the menu click on the computer keyboard key ↑ or ↓ these amount to "arrow" and "down arrow", respectively, on the front panel of ups. The equivalent of the button "enter"/esc" on the computer keyboard is the ←key. Can it while connected to the serial port to display lines with strange characters, this is normal in the operation of the ups.

8.2. Network adapter(optional)

The network adapter enables the exchange of information across a lan network and/or internet. monitoring through the network adapter can be of two types which can be used independently or simultaneously if desired:

*via http server, the ups acts as a small http server, monitoring can be done from any computer that has access to the ip address assigned to the ups.

*the other option is for snmp, with this option, the manufacturer provides snmp adapter software (netagentutility) that allows monitoring of the ups in real time. the software provides audible signals and signs on the screen when an abnormality occurs, additionally provide the ups mib to adapt to an environment with a professional monitoring nms program such as openview.

If it is enabled, the UPS can send alert messages up to 8 different e-mail address when the there is an abnormal working condition. The addresses include cellphone numbers.

8.3. Cellular modem(Optional)

The cellular modem let you use a GSM network to monitor the UPS atate. This system allows you to know in real-time the behavior of the equipment in a remote place where a cellular network is present. With the system you can check up to 130 variables among which you can find:voltages and frequencies at the input, voltages and frequencies at the output, output currents, battery charge percentage, etc. If an alarm occurs, its description is transmitted via e-mail or SMS. The system allows remote management and control. The data corresponding to the state of the UPS can be seen, through internet, in a web page.

9. Technical specifications:

MODEL	GP33-10/15/20Kva	GP33-160~200Kva	GP33-250~300Kva
UPS (LxWxH)	L402xW660xH880	L848xW1117xH1876	L1600xW1182xH1962
UPS weight (kg)	153/168/194	960/1080	1540/1745

MODEL	GP33-30~40Kva	GP33-60~80Kva	GP33-100~120Kva
UPS (LxWxH)	L412xW813xH1121	L505xW1060xH1321	L555xW1060xH1421
UPS weight (kg)	223/256	382/434	535/580
Temperature	0℃ ~ 40℃		
Relative humidity	0 ~ 95%, non condensing		
Noise	<60db at 1.5m from surface of unit		
Altitude	1000m(height rises every 100m, power decreases 1%, maximum height is 4000m)		
Efficiency	ECO mode>98%,Inverter>92%,AC-AC>91%		

Transference	0ms cutless
Technology	True double-conversion online technology, conversion performed by IGBT

INPUT	
Voltage	3x220/380 vac ± 25%
Frequency	50Hz ± 15%
Conductors	Three phrases+N+E

OUTPUT	
Voltage (selectable)	3x220/380 vac ± 1% (More voltage can be selected)
Frequency	50Hz ± 0.1%
Waveform	Pure sine wave generated by high frequency PWM inverter
Harmonic Distortion	<2% Linear load/<5%Nonlinear load
Crest Factor	3:1
Power factor	≥0.9
Overload recuperation	Self-transference to UPS
Voltage regulation	Load balance:±1%
Overload capacity	125% for 12 minutes / 150% for one minute
Conductors	Three phrases+N+E

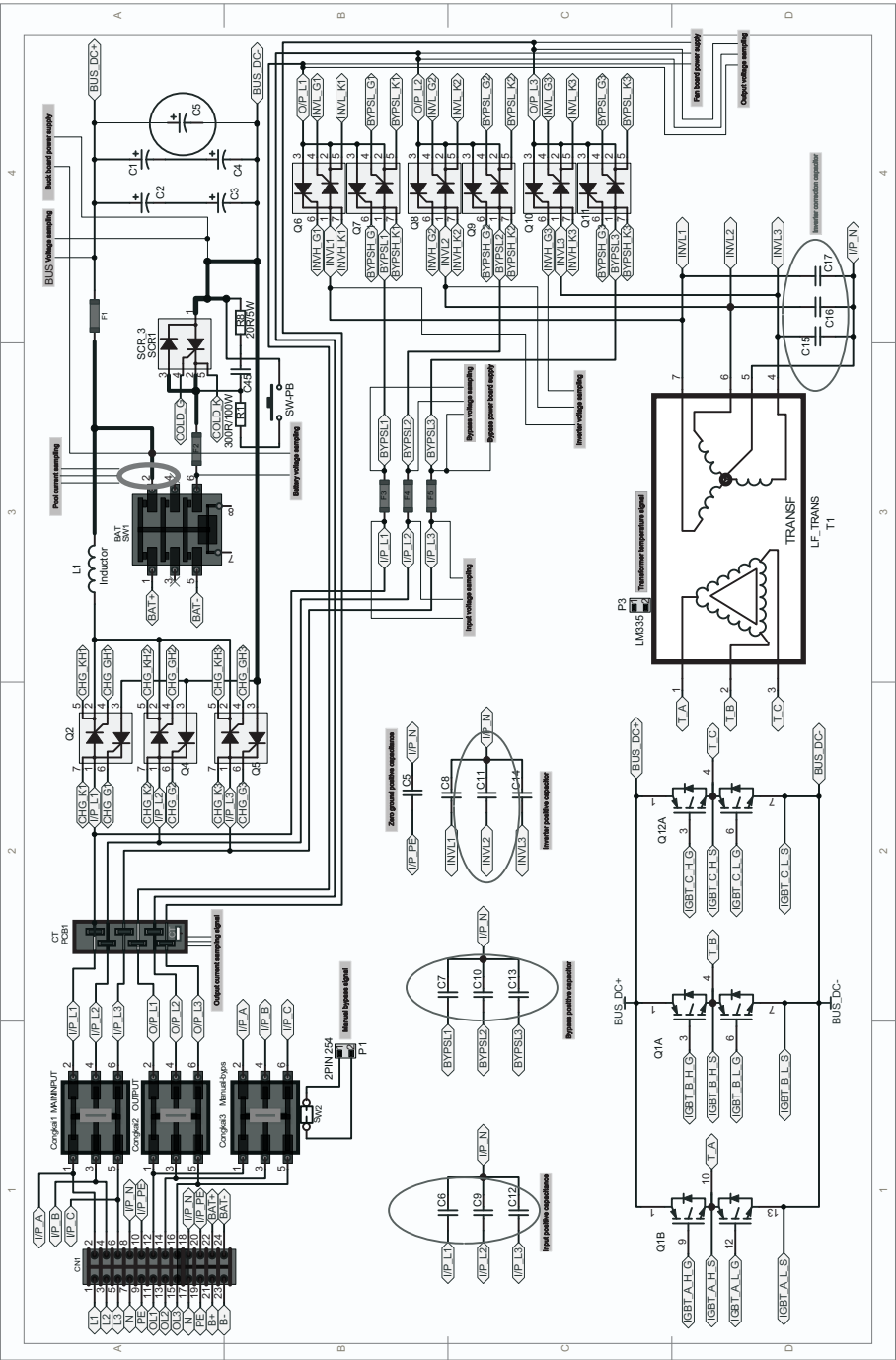
Battery	
Type	Maintenance – free sealed lead-acid battery
Quantity	32pcs (29~32pcs adjustable) Note:300KVA UPS 40pcs
Voltage	Nominal 384V , Float 435V(Adjustable)
Typical recharge time	4 ~ 8 hours, 90%
Battery handly	Autotest. Transfer Point Adjustable battery and alarm setting
Battery protection	Fuse protection, battery switch, temperature compensation, regular inspection, software protection, overvoltage tripping.
Rectification	Software protection, input switch, over current protection, temperature protection

Protection	
Hardware protections	Breaker for input, output, battery and bypass. Fast acting fuses in DC, fans,redundant power supplies, temperature sensors, on-o switch and audible alarms.
Bypass	Static solid state, automatic and manual operation without interruption for maintenance. External Bypass (optional)
Emergency switch	Remote and/or local EPO

Supervisory control and communication	
Frontal panel	Interactive LCD display(Touchscreen)
Alarms	Audible and visual alarm for abnormal conditions
Communications	RS232, SNMP-RJ45, GPRS module for mobile network remote monitoring

* Product specifications are subject to change without notice.

9.1. Provide schematics for reference:



GUARANTEE CERTIFICATE

Serial No.: _____

Customer's Name		Contact Person	
Address		Telephone No.	
Product/Model:	Post Code	Fax No.	
Date of purchase		Expire Date	
Dealer Signature		Customer Signature	

Figure 9.1 Power schematic