

USER'S GUIDE

LEONICS®

**NB 0811 - NB 1511
NB 0831 - NB 4031**

**TRUE ON-LINE
DOUBLE CONVERSION UPS**

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SAFETY INSTRUCTIONS

Please read and follow this user's manual carefully and completely.

Remark : Please keep this user's manual for later reference. It consists of Introduction, Front and Rear Panel, Installation and Operation, Troubleshooting, Customer Support, Maintenance and Specifications

If the UPS does not operate properly and you cannot solve the problem using the troubleshooting information in this user's manual, please contact us or our nearest service center for assistance.

To help you much more quickly when contact us, please record the following information:

LEONICS UPS mode : _____

Serial number of your UPS : _____

Purchased date : _____

Purchased from : _____

1.1. General safety instructions

- 1.1.1. DO NOT work alone under hazardous condition
- 1.1.2. Short circuit current in conductor may cause severe skin burn.
- 1.1.3. Must contact certified person when user wants to connect any equipment to utility power line
- 1.1.4. Check whether the cables, receptacles, power source are always at good conditions.
- 1.1.5. To reduce short circuit risk, if you are not sure whether you have ground system, disconnect UPS from utility power every time before you connect any loads to UPS. After connect all loads to UPS already, then reconnect the UPS to utility power.
- 1.1.6. DO NOT touch any metal parts of the equipments when connected to UPS
- 1.1.7. When connect or disconnect communication cables between equipments, should use only one hand. This is to avoid electric shock from contact 2 surfaces which ground has different potential voltage.
- 1.1.8. Recommend to connect UPS to 3-wire power source (2 poles + ground) which connects to branch circuit or fuse or automatic cut out

1.2. Caution! Safety instructions for install and operate UPS

- 1.2.1 Should install UPS in dry area with good ventilation, low humidity, no chemical particles, no flammable substances. Avoid installing UPS near radio transmission station, heat dissipation equipment, or direct to sunlight.
- 1.2.2 UPS has ventilation grills on the back and sides. To help UPS has good ventilation, DO NOT block ventilation grill.
- 1.2.3 Should connect UPS to utility line and turn on all the time.
- 1.2.4 When user wants to connect computer interface to UPS, turn off power switch and disconnect cables from utility line.
- 1.2.5 Turn on UPS before turn on loads to prevent surge from your loads.
- 1.2.6 DO NOT connect utility power to UPS OUTPUT. This may cause damage to your UPS
- 1.2.7 When heavy rain, please avoid using electronic instruments including UPS to prevent it from lightning.
- 1.2.8 Use soft cloth to clean UPS when it is OFF. DO NOT clean it with solvents.
- 1.2.9 DO NOT use UPS with life recovery instruments. The failure of UPS may cause life recovery instruments failure or effect to their performance or effect to safety system of those instruments.

1.3. Warning! Safety instructions for battery

- 1.3.1 There are batteries inside the UPS. Although user has disconnected it from utility power line, the UPS OUTLET or OUTPUT terminal are still has electricity. Be careful of electric shock.
- 1.3.2 The internal parts of UPS may conduct electric current which is dangerous to user. UPS has no user serviceable parts. DO NOT remove or disassemble any parts of the UPS. If the user wants to repair the UPS, contact us or our nearest service center.

INTRODUCTION

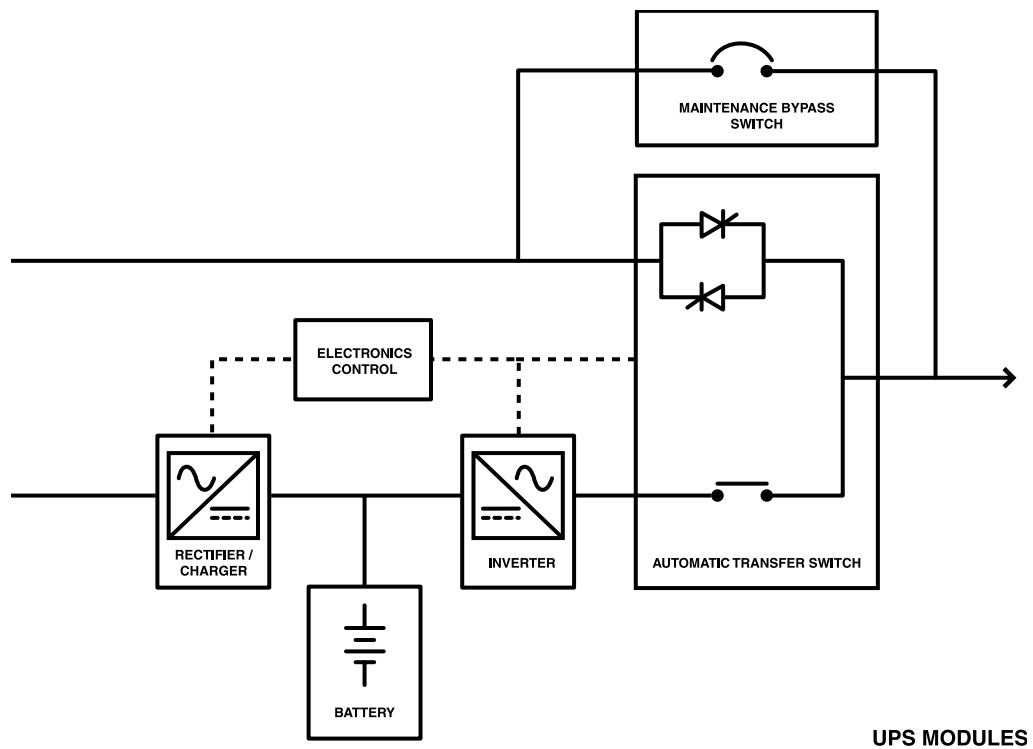
2.1 Feature

Leonics NB-series UPS is a True On-Line Double conversion uninterruptible power supply which is the highest efficiency UPS system available in the present market. First, NB-series UPS converts utility power from alternative current (AC) to direct current (DC) at RECTIFIER. Some of the DC power flow to charge battery to be backup power and the rest flow directly to INVERTER to invert power to high quality and stable AC power. Then, supply to load. If there is no AC current flows to RECTIFIER, INVERTER will invert power from battery to supply to load. With this NB-series UPS, user can be sure that loads will get power continuously. It is able to protect all kinds of power problems and suitable for any power sensitive electrical appliance and electronic equipments such as computers, communication equipments, medical instruments, electronic scales, measuring instruments, scientific equipments, and etc.

Outstanding features of NB-series UPS, 8kVA – 40kVA single phase output

- TRUE ON-LINE PURE SINE WAVE
- ADVANCE PWM INVERTER
- LATEST DEVICE TECHNOLOGY IGBT (INSULATED GATE BIPOLAR TRANSISTOR)
- STABLE OUTPUT FREQUENCY (CRYSTAL CONTROLLED)
- HIGH CREST FACTOR 4 : 1
- OVER CURRENT AND SHORT CIRCUIT PROTECTION
- OUTPUT ISOLATION TRANSFORMER
- AUTOMATIC BYPASS TRANSFER SWITCH (ZERO TRANSFER TIME)
- AUTOMATIC BYPASS OVER LOAD PROTECTION
- MAINTENANCE BYPASS CIRCUIT BREAKER
- CONSTANT VOLTAGE CONSTANT CURRENT BATTERY CHARGER
- SEALED LEAD ACID MAINTENANCE FREE BATTERY
- BATTERY EQUALIZED FUNCTION
- MANUAL CONTROL OF TRANSFER SWITCH
- SURGE AND NOISE FILTER
- USE FRIENDLY OPERATION
- LOAD LEVEL AND BATTERY LEVEL INDICATOR

2.2 UPS modules



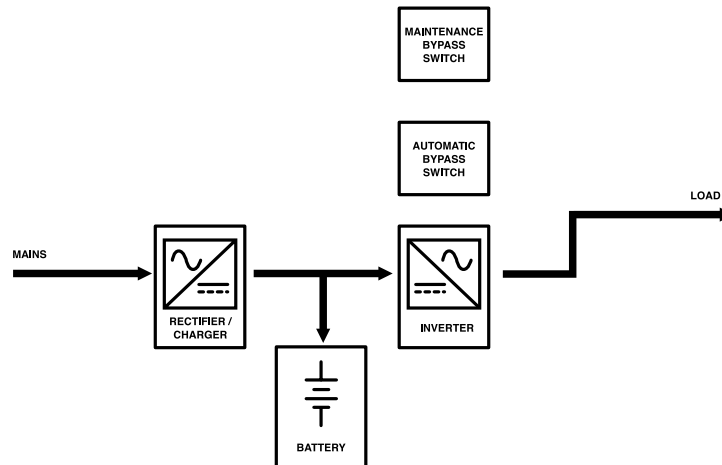
- 2.2.1 RECTIFIER/CHARGER converts utility power from alternative current (AC) to direct current (DC) to be supply INVERTER and charge battery
- 2.2.2 ELECTRONICS CONTROL controls all operations of UPS
- 2.2.3 INVERTER inverts direct current (DC) from RECTIFIER or BATTERY to alternative current (AC) to supply loads
- 2.2.4 AUTOMATIC BYPASS SWITCH automatically switches load to get power from INVERTER or utility power.
- 2.2.5 MAINTENANCE BYPASS SWITCH switches load to get power from UPS or utility power. Certified technicians may switch to bypass UPS for maintenance whilst load is still working using utility power.
- 2.2.6 BATTERY supplies power to INVERTER when power fails

HOW THE UPS WORKS

3.1 UPS operation mode

3.1.1 Normal operation

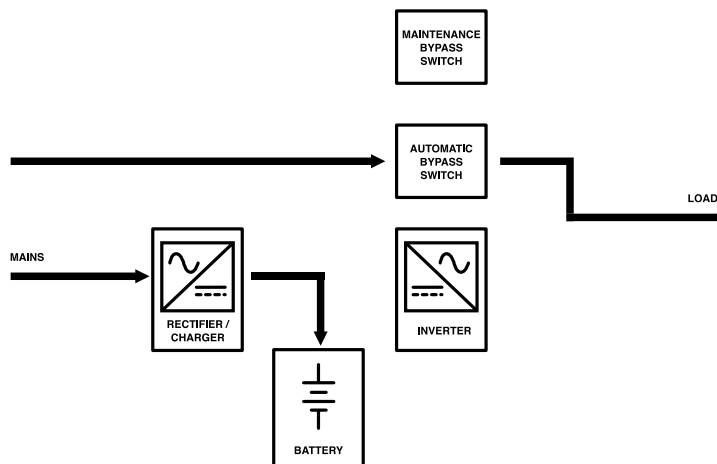
UPS converts utility power from alternative current (AC) to direct current (DC) at RECTIFIER/CHARGER. Some of the DC power flow to charge battery to be backup power and the rest flow directly to INVERTER to invert to high quality and stable AC power. Then, supply to load.



3.1.2 When UPS bypass and utility power is normal

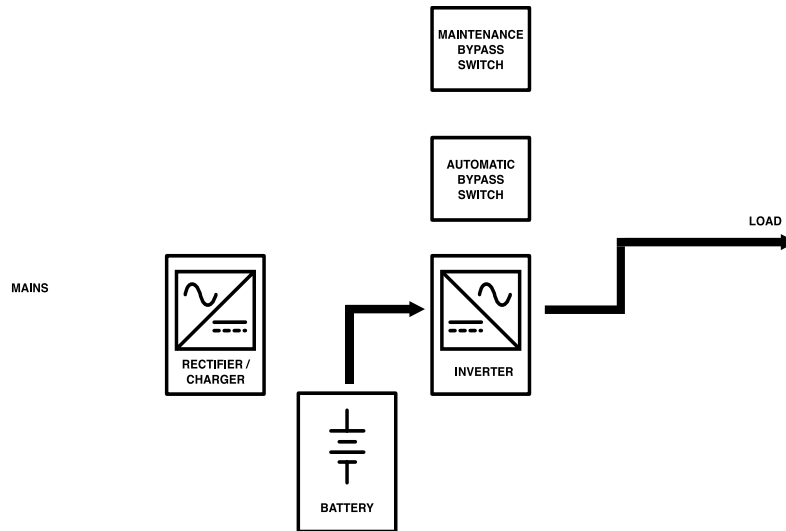
Loads get supply from utility power through automatic bypass switch whilst UPS still converts AC current to DC current to charge batteries. This may happen by one or more of the below cases,

- Overload or abnormal loads
- UPS just starts
- Temporary stop UPS
- Maintenance bypass switch is at ON position
- Transfer switch is at BYPASS position (option)
- UPS is malfunction
- Temperature inside the UPS is too high



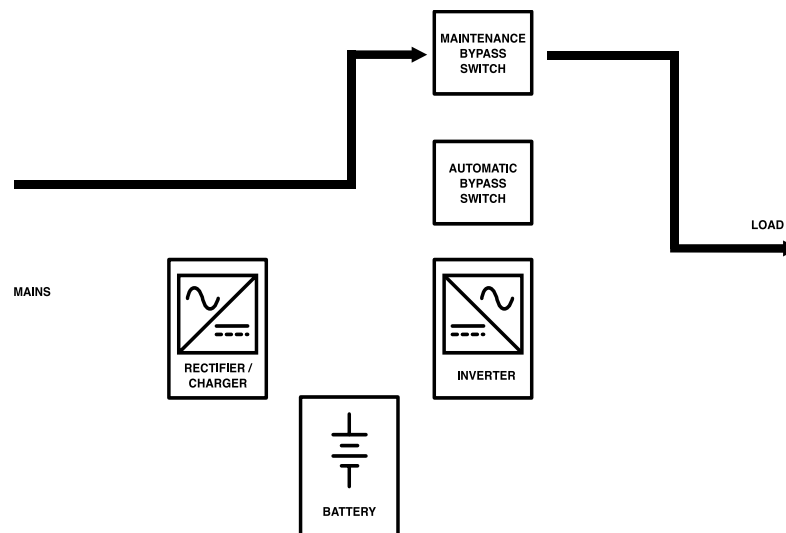
3.1.3 When utility power fail

INVERTER draws backup power from battery to invert to AC power and continuously supplies to load until run out of power. Then, UPS automatically shuts down.

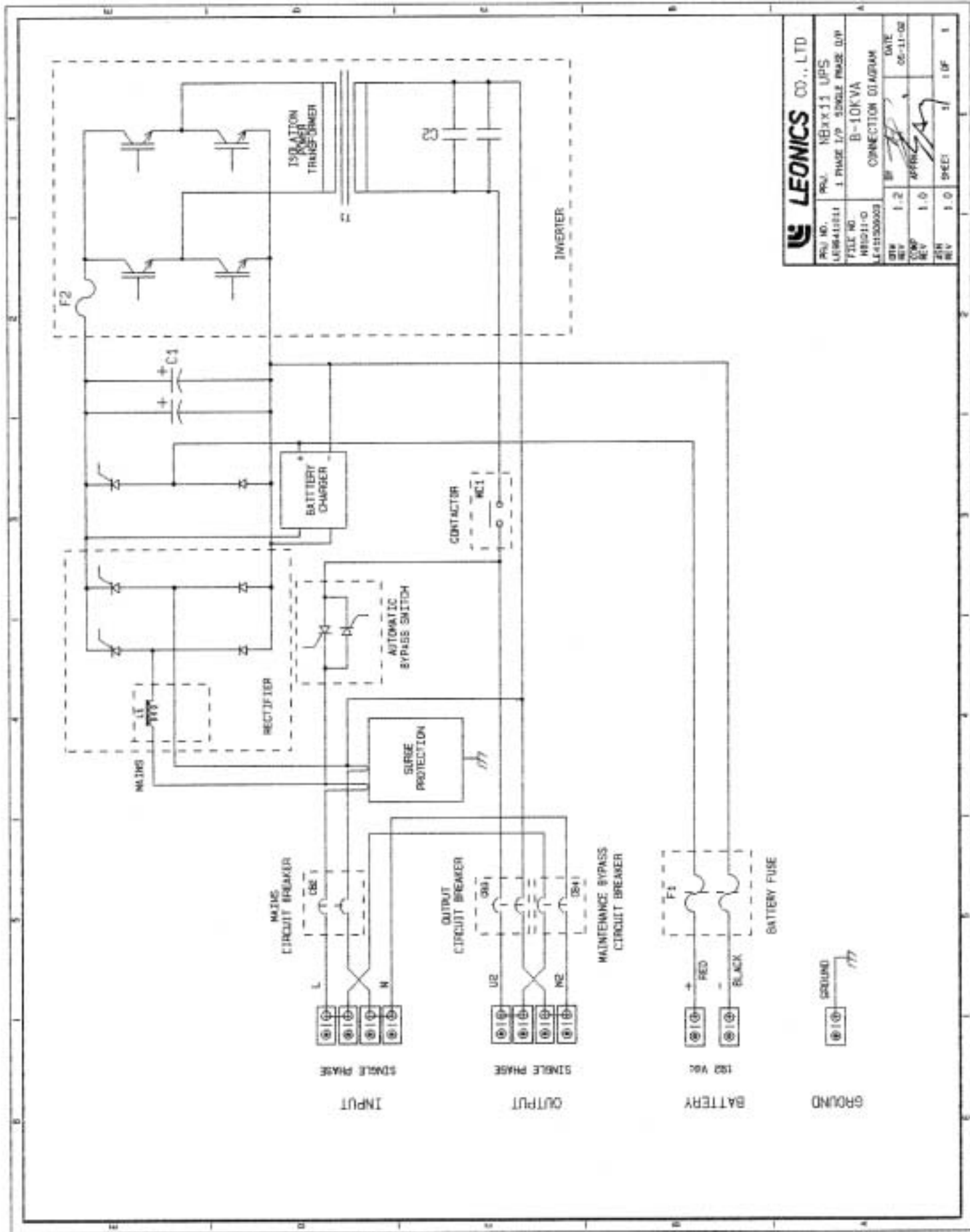


3.1.4 When operating under maintenance bypass mode

Turn Maintenance bypass circuit breaker to ON position, the UPS operates as the below diagram. Load gets power directly and continuously from utility line through maintenance bypass circuit breaker. Now, it is safe to stop the operation of the UPS and turn off other circuit breakers to disconnect the UPS from utility power for maintenance.

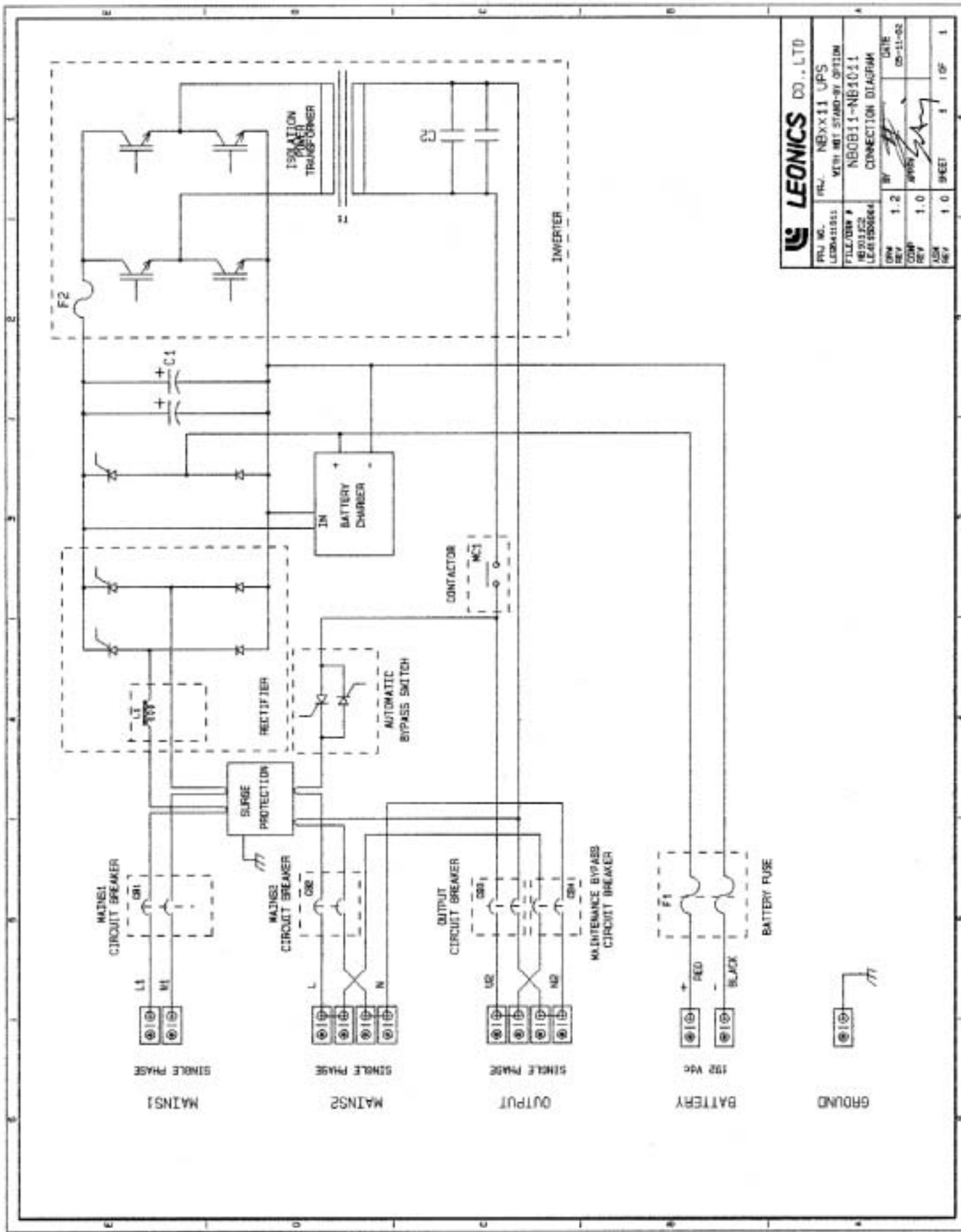


3.2 Connection diagram

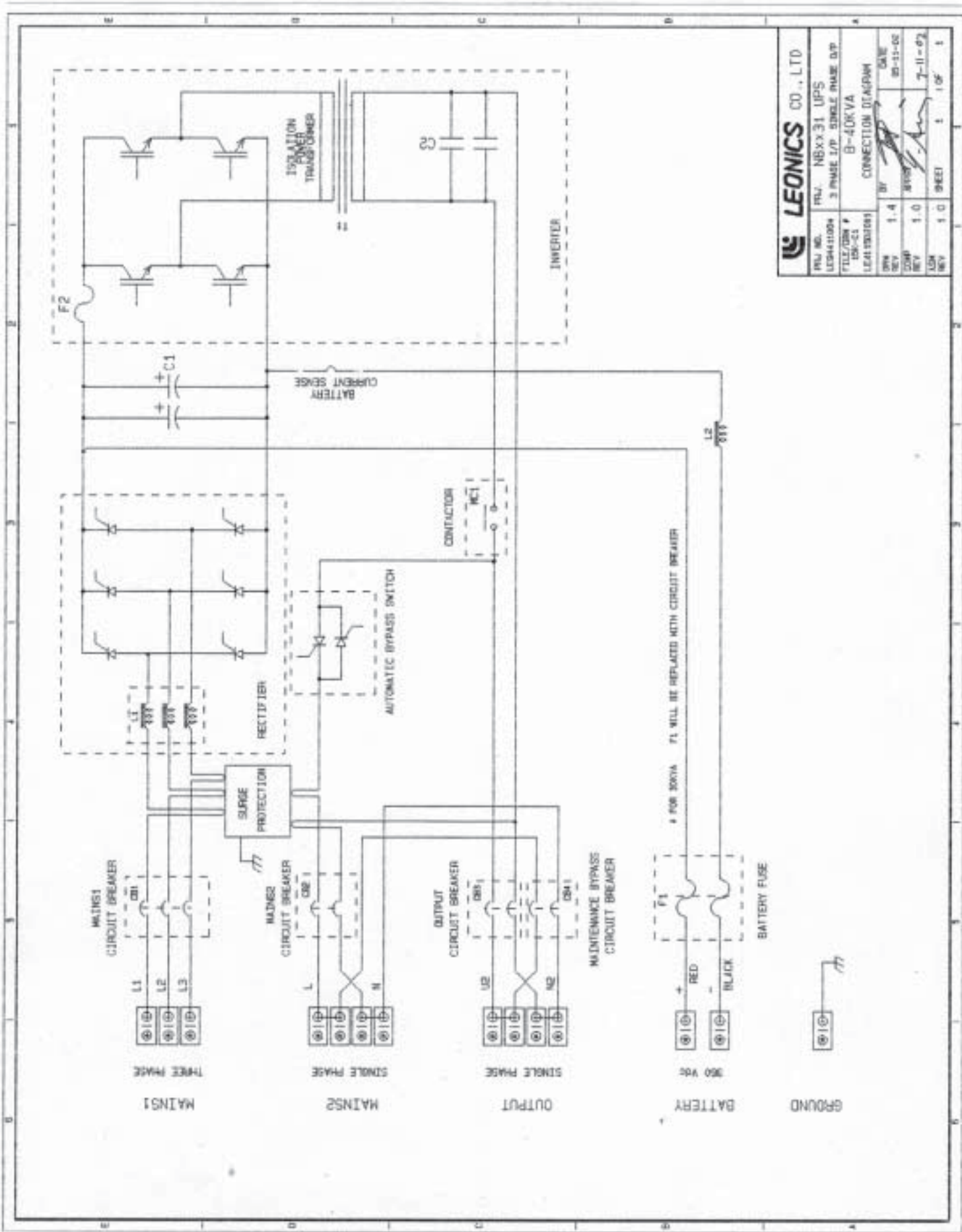


LEONICS CO., LTD

PROJ. NO.	NRX11 UPS	DATE	
FILE NO.	1 PHASE 1/P SINGLE PHASE DUP	REV	05-11-02
CONTRACT NO.	B-10KVA	REV	
CONNECTION DIAGRAM		REV	
DATE		REV	
REV	1.2	REV	
REV	1.0	REV	
REV	1.0	REV	
REV	1.0	REV	



LEONICS CO., LTD	
PRJ. NO.	NBXX11 UPS
LEONICS NO.	WITH HOT STAND-BY OPTION
FILE/DIR	NB011-NB1011
REV	CONNECTION DIAGRAM
DATE	05-11-02
BY	JWS
CHK	JWS
APP	JWS
REV	1 OF 1



LEONICS CO., LTD	
PLU NO. NBXX-31 UPS	DATE 20-11-02
LEONICS 3 PHASE 1/P. SINGLE PHASE O/P	DESIGN 7-11-02
FILE/DIR # B-40KVA	BY
LEA-100101	REV 1.0
CONNECTION DIAGRAM	
BY	REV 1.0
DATE	SHEET 1 OF 1

INSTALLATION

4.1 Preparation

Before installation, check the external parts of the UPS. If there are any damages during transportation, contact us or our nearest service center

4.1.1 Dimension

Approximate size and weight for each UPS are as below

Model	Width (mm)	Height (mm)	Depth (mm)	Weight (kg)
NB 0811 / NB1011				
- UPS without battery	430	942	830	172
- UPS include standard battery	430	1,098	865	263.5
NB 1511				
- UPS without battery	430	942	830	210
- UPS include standard battery	430	1,254	865	353
NB 0831 / NB 1031				
- UPS without battery	430	942	830	191.5
- UPS include standard battery	430	1,254	865	364.5
NB 1231 / NB 1531				
- UPS without battery	430	942	830	237.5
- UPS include standard battery	430	1,254	865	410.5
NB 2031				
- UPS without battery	430	1,110	830	337
- Battery cabinet	430	784	865	349
NB 3031				
- UPS without battery	650	942	880	458.5
- Battery cabinet	430	784	865	349
NB 4031				
- UPS without battery	650	942	880	498
- Battery cabinet	430	784	865	349

4.1.2 Transportation of UPS

All NB-series UPSs have casters to transport. Anyway, for model NB2031 - NB4031, user also can use forklift truck to transport. If you have to lift the UPS up, you have to concern about

4.1.2.1 Keep the UPS upright all the time

4.1.2.2 Transport the UPS with its packaging until it arrive installation location to avoid damages

4.1.3 Storage of UPS

Keep UPS indoor and in dry place, far from dust and chemicals. DO NOT stack.

4.1.4 Storage of batteries

To install the batteries, please consider about load capacity of the floor. Keep the batteries at 20 degree C and if you do not use it for a long time, please follow the below instruction

4.1.4.1 recharge batteries until they are full before storage

4.1.4.2 If you store the batteries at 20 degree C, recharge them every 6 months

If you store the batteries at 30 degree C, recharge them every 3 months

If you store the batteries at 35 degree C, recharge them every 2 months

4.1.5 Working with batteries

The batteries in UPS are connected in series which is up to 400VDC. For safety operations, says you want to connect wire between each battery, must call trained staffs to handle the operations.

Warning DO NOT do anything with batteries when UPS is operating

4.1.6 Ventilation

UPS creates heat when operating and releases the heat by air force cooling from its sides to its back. Losses when full loads are as below

Model	Losses
8 kVA	0.79 kW
10 kVA	0.85 kW
12 kVA	0.95 kW
15 kVA	1.15 kW
20 kVA	1.4 kW
30 kVA	2.1 kW
40 kVA	2.8 kW

4.2 Installation

4.2.1 Choose installing location by following these criteria

4.2.1.1 Keep the space at least 20 cm between the UPS's back panel and the wall or other equipments for good ventilation

4.2.1.2 Keep the space at least 80 cm from the UPS's front and sides for installation, operation and maintenance

4.2.1.3 Avoid these areas

- that get sun shines for long time
- high humidity area, with water drops or rain
- near chemical vapors or seaside
- near heat dissipation equipment

- dusty
- low pressure
- near radioactivity area
- high intensity of magnetic field or electric field

4.2.1.4 Installing location must be durable enough carry the UPS weight

4.2.2 Select sizes of power source as follow

4.2.2.1 Model NBXX11 (ex. NB0811 - NB1511)

require 1-phase 220V 50 Hz power source which is at least twice of UPS rating power

4.2.2.2 Model NBXX31 (ex. NB0831 - NB4031)

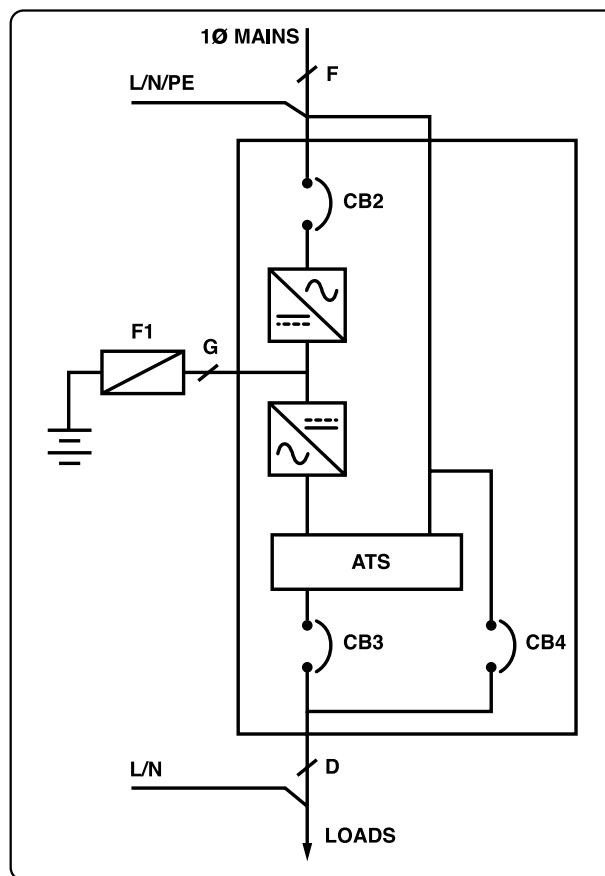
require 2 power sources. One is 3-phase 380V 50Hz which is at least twice of UPS rating power, referred as MAIN1 and another is 1- phase 220V 50 Hz power source which is at least 1.1 time of UPS rating power, referred as MAIN2

4.2.2.3 If using generator to supply power to UPS, the spare capacity of generator for UPS is at least 3 times of UPS rating power.

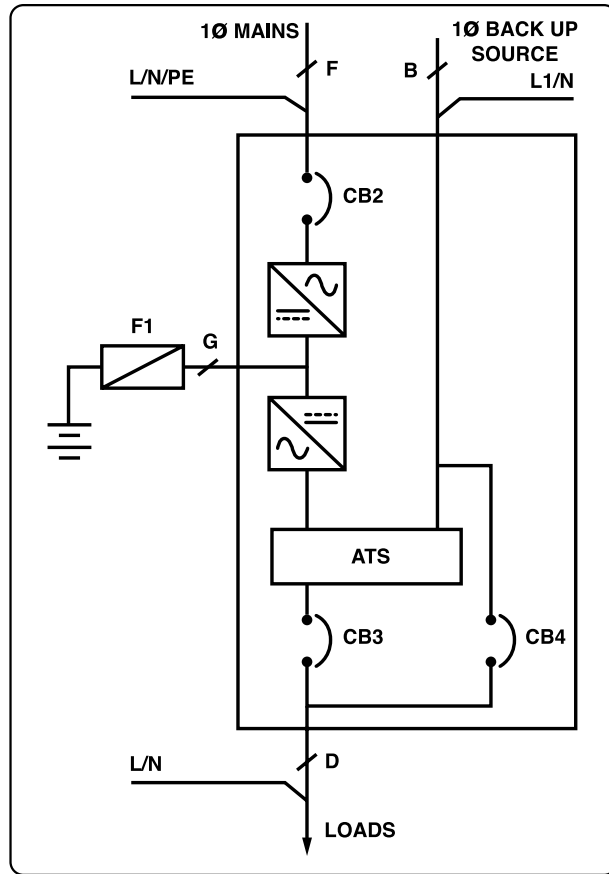
4.2.3 Wiring

4.2.3.1 Model NBXX11 (ex. NB0811 - NB1511)

- normal



- with hot standby (option)



4.2.3.2 Model NBXX31 (ex. NB0831 - NB4031)

There are 2 diagrams which you can follow

Diagram 1 : separate MAIN1 and MAIN2

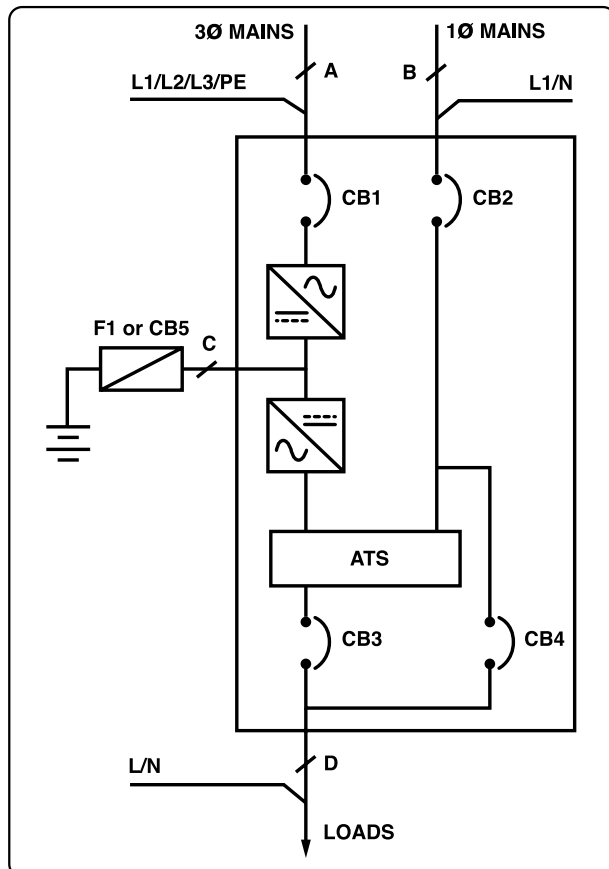


Diagram 2 : MAIN1 and MAIN2 is together

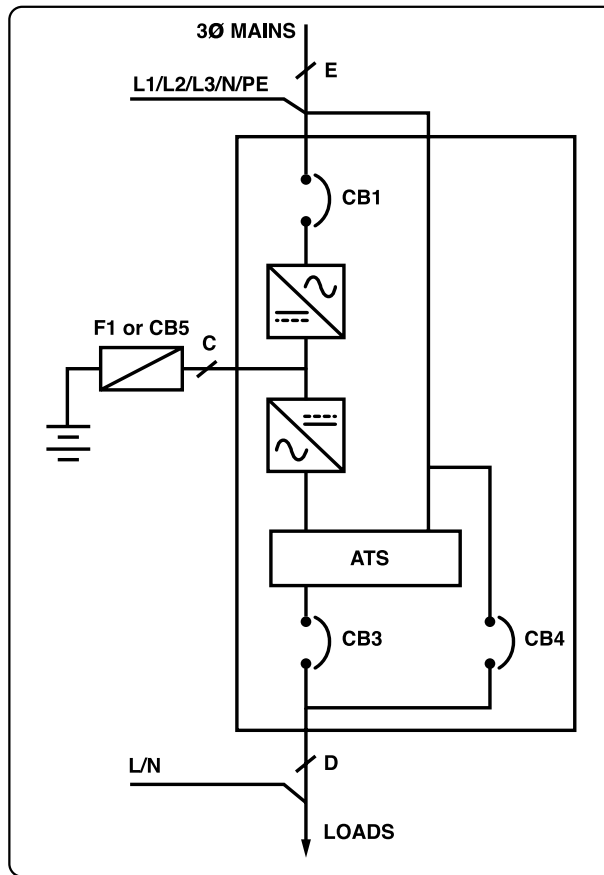


Table shows rating of wiring cables for installation

	UPS rating power	A	B=D	C	E	F	G
Rating voltage or wiring cable	8-40 kVA	600V	600V	600V	600V	600V	600V
Size of wiring cable wired in open space (sq.mm.)	8-10 kVA	4x4	2x10	2x6	4x10+4	2x16+6	2x16
	12-15 kVA	4x6	2x16	2x6	4x16+10	-	-
	20 kVA	3x10+6	2x25	2x10	4x25+16	-	-
	30 kVA	3x16+10	2x50	2x25	4x50+35	-	-
	40 kVA	3x25+16	2x70	2x35	4x70+50	-	-
Size of wiring cable wired in duct or multi-core wire (sq.mm.)	8-10 kVA	4x6	2x16	2x6	4x16+6	2x25+6	2x25
	12-15 kVA	3x10+6	2x25	2x10	4x25+16	-	-
	20 kVA	3x16+10	2x35	2x16	4x35+25	-	-
	30 kVA	3x35+25	2x70	2x35	4x70+50	-	-
	40 kVA	3x50+35	2x95	2x50	4x95+70	-	-

If the length of wiring cable is more than 50 meters, MUST use the larger cross section conductive area cable.

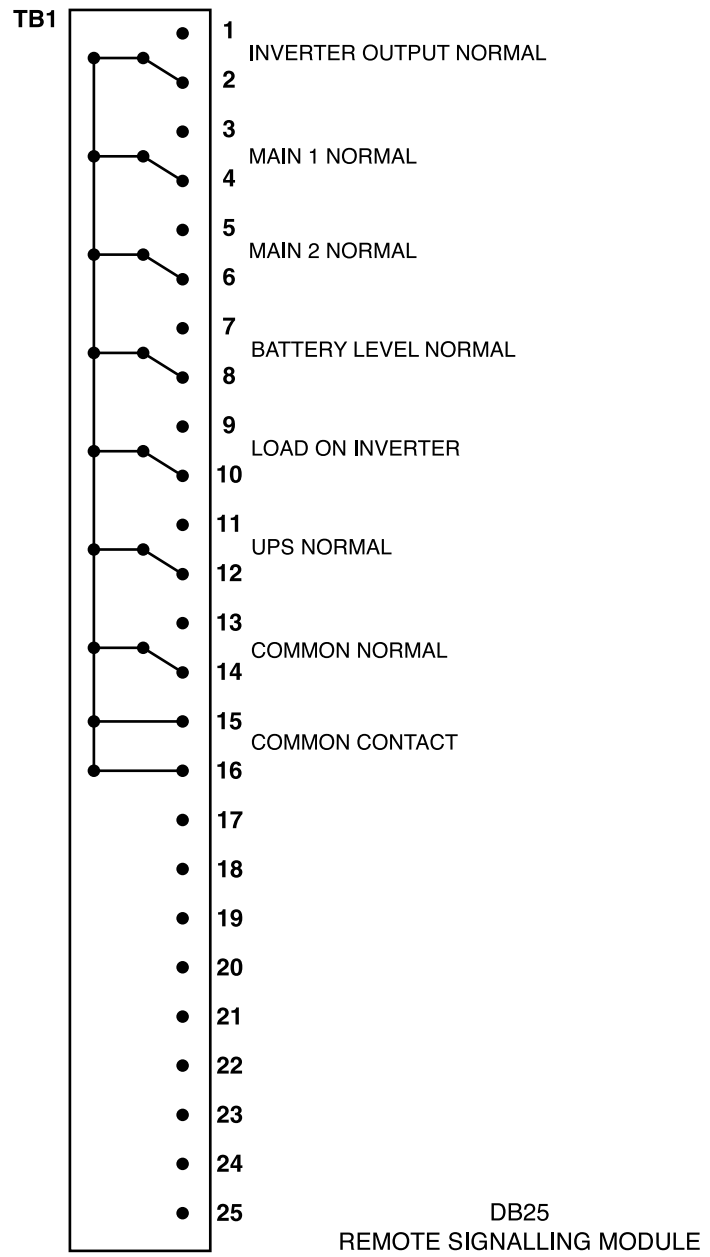
Table shows rating power of protection equipment for installation

UPS rating power	Rating power of protection equipment (A)					
	F1	CB1	CB2	CB3	CB4	CB5
NB 0811 - NB 1011	2x80	-	2x80	2x80	2x80	-
NB 1511	2x100	-	2x80	2x80	2x80	-
NB 0831 - NB 1031	2x50	3x50	2x80	2x80	2x80	-
NB 1231 - NB 1531	2x50	3x50	2x80	2x80	2x80	-
NB 2031	2x80	3x80	2x125	2x125	2x125	-
NB 3031	-	3x100	2x160	2x160	2x160	2x160
NB 4031	-	3x100	2x200	2x200	2x200	2x160

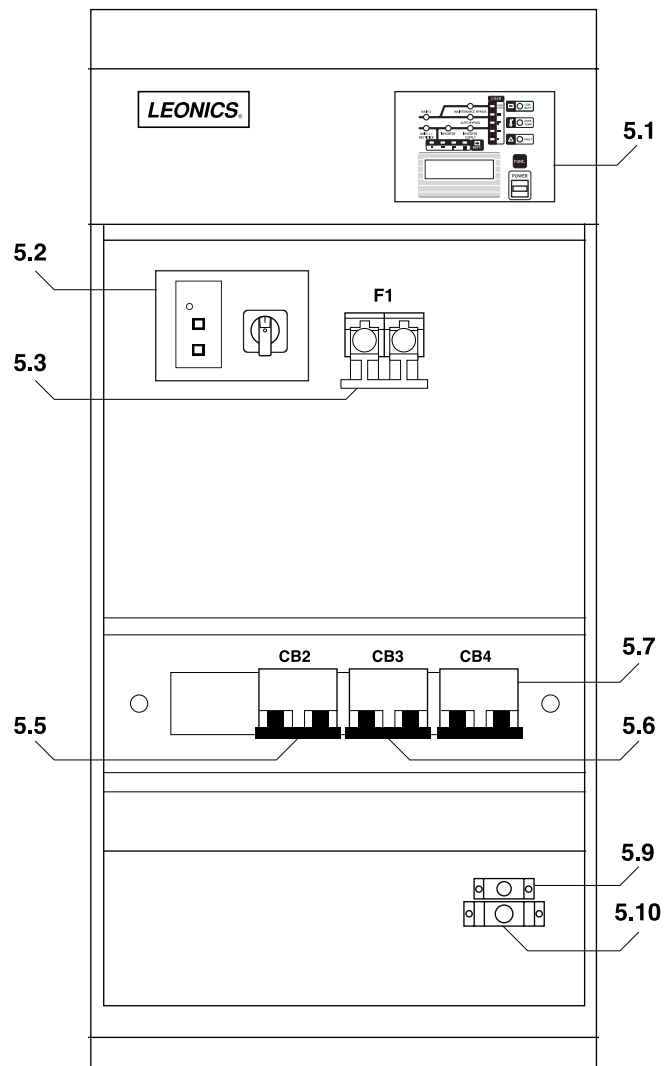
Remark

1. Phase of output voltage of UPS is the same as phase of input voltage at MAIN2
2. F1 fuse is AGL type, 500V (for NB3031 - NB4031, use circuit breaker instead)
3. Wiring must be done by qualified person only
4. MUST connect the correct phase to MAIN1 which is L1/L2/L3

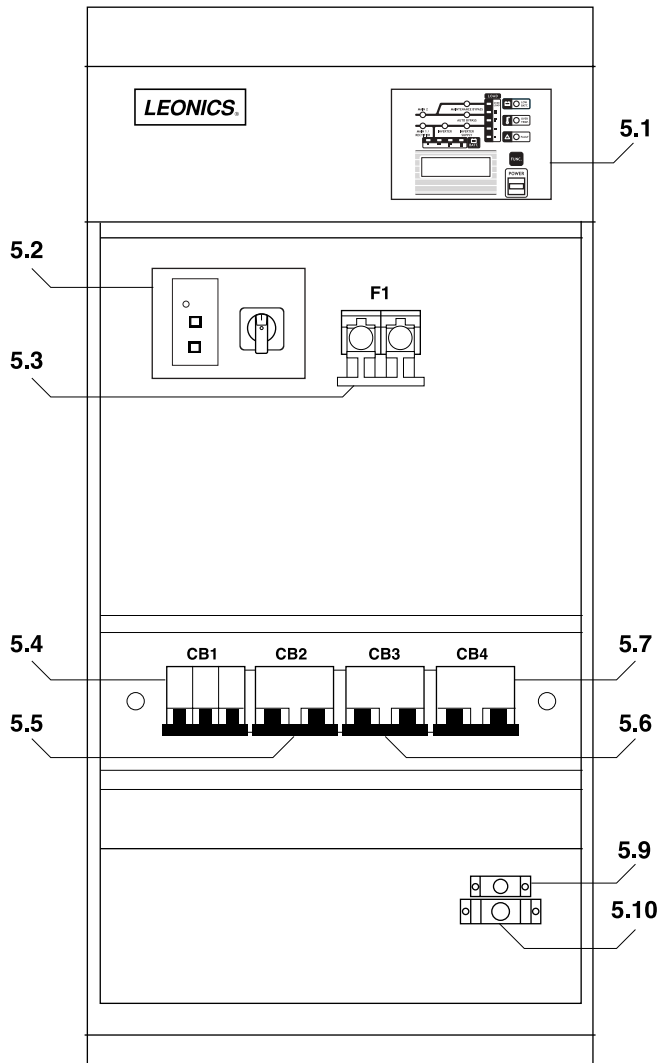
4.2.3.3 Wiring of signals (voltage free contact)



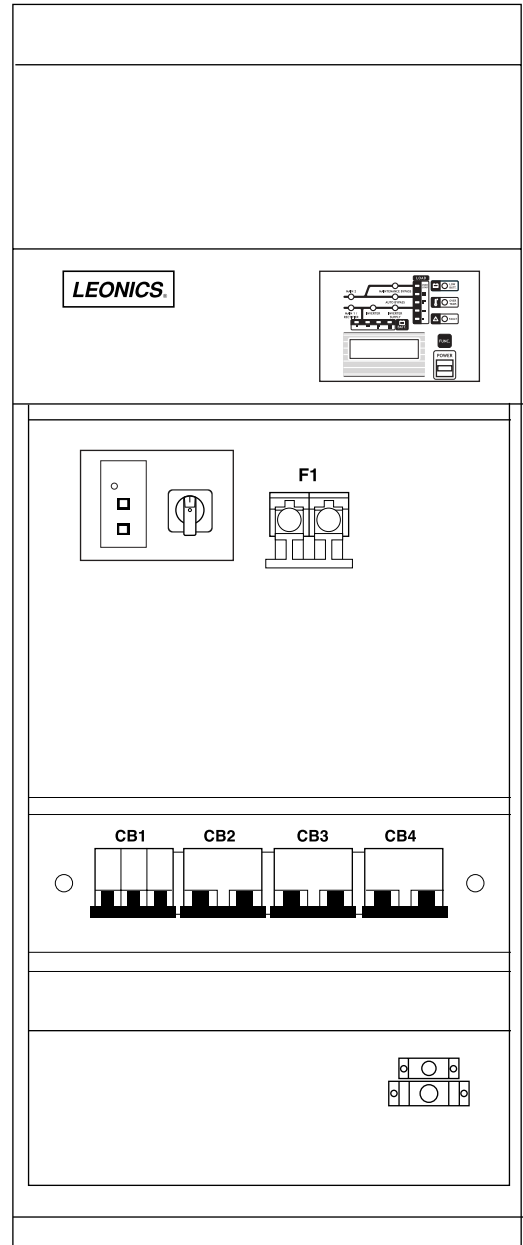
FRONT PANEL



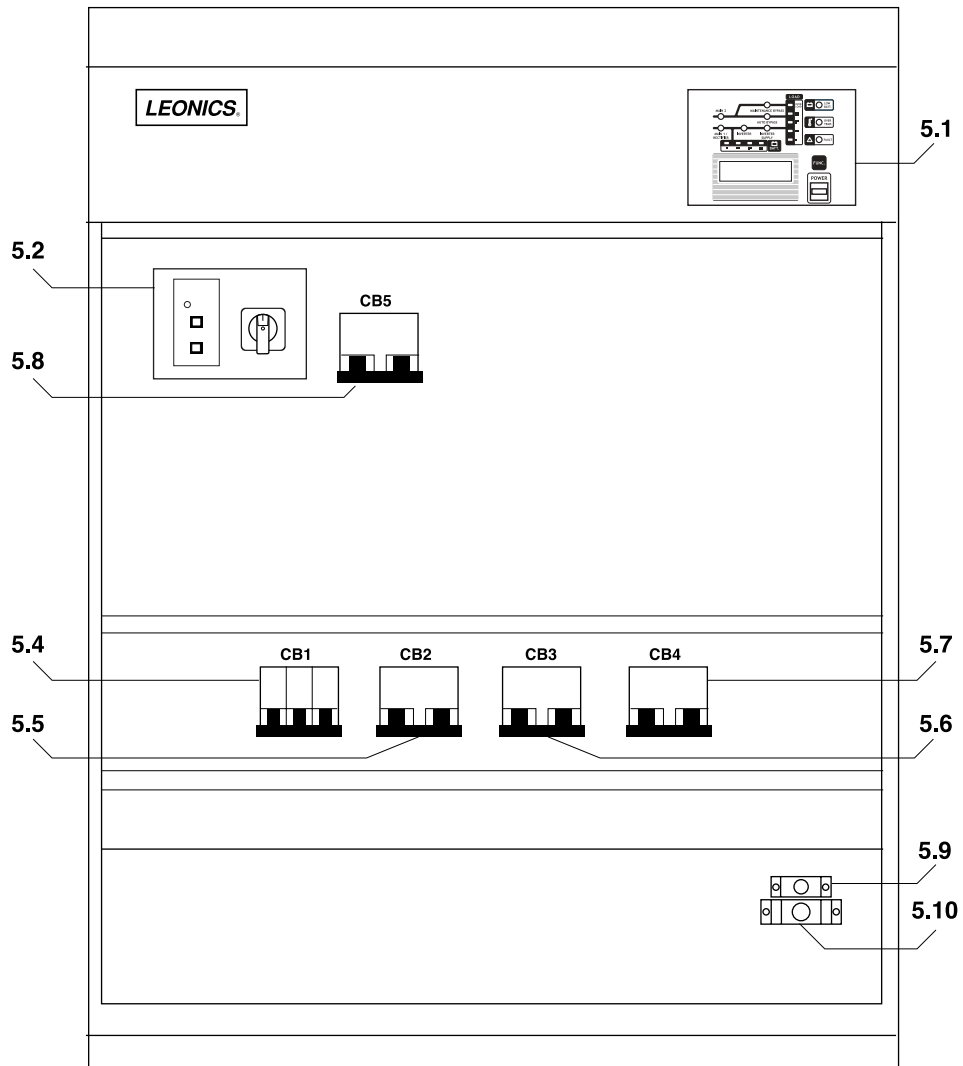
NB 0811- NB 1511



NB 0831- NB 1531

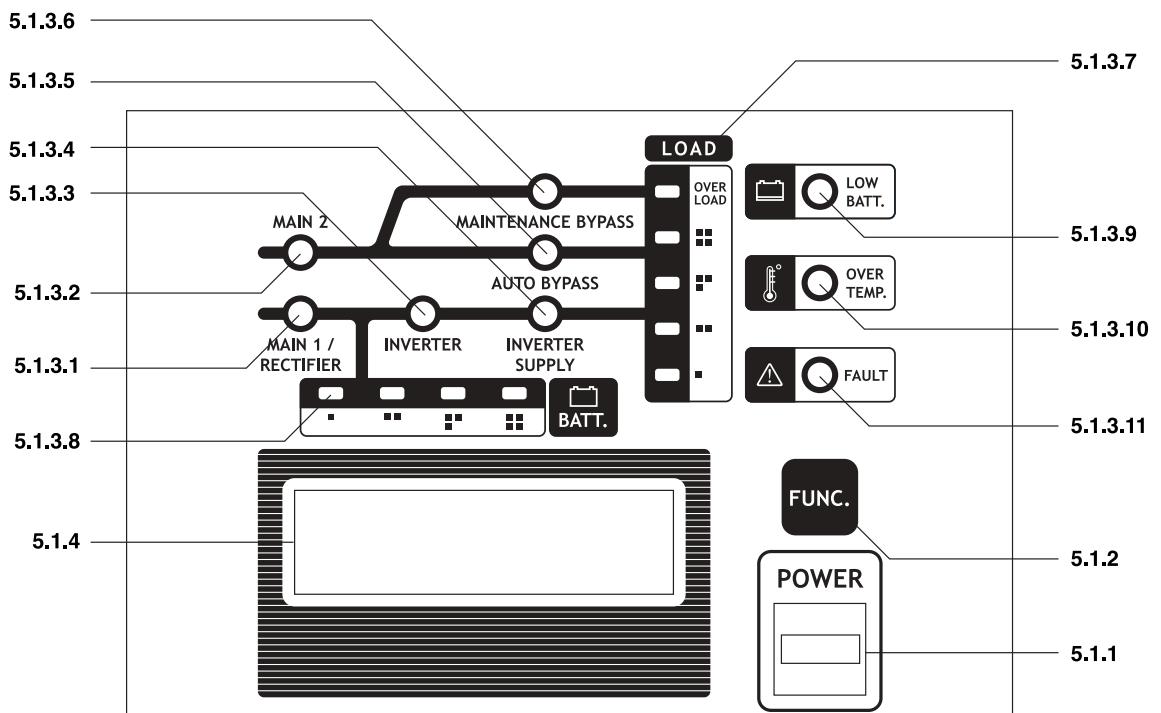


NB 2031



NB 3031-NB 4031

5.1 Control Panel



5.1.1 POWER SWITCH

- ON command INVERTER to start. When INVERTER operates normally, loads are transferred to get supplied power from INVERTER
- OFF command INVERTER to stop. Loads are transferred to get supplied power from MAIN2

5.1.2 FUNC BUTTON

- 5.1.2.1 For model NBXX11 : Press this button to mute alarm sound or on the LCD's back light. The back light will turn off automatically in 10 seconds after release this button
- 5.1.2.2 For model NBXX31 : Press this button to mute alarm sound or on the LCD's back light. While the LCD's back light is on, press this button to switch over the screen of
1. 3-phase input voltage or
 2. bypass voltage (Vin), output voltage (Vout), battery level (%B) and load level (%LD)

5.1.3 INDICATORS

item	position	indicator	Alarm	meaning
5.1.3.1	MAIN 1 / RECTIFIER	ON (green)	No	MAIN1 is normal, phase is correct and RECTIFIER/CHARGER is normal
		ON (red)	-- --	MAIN1 is fail and RECTIFIER/CHARGER is shut down
5.1.3.2	MAIN 2 (BYPASS MAIN)	ON (green)	No	MAIN2 is normal
		ON (red)	-- --	MAIN2 is fail
5.1.3.3	INVERTER	ON (green)	No	INVERTER is normal
5.1.3.4	INVERTER SUPPLY	ON (green)	No	Power from INVERTER is supplying to loads
		ON (red)	—	Inverter is fail
5.1.3.5	AUTO BYPASS	ON (green)	No	Automatic bypass switch is working and loads are getting power from MAIN2
5.1.3.6	MAINTENANCE BYPASS	ON (red)	No	Circuit breaker CB4 is at ON position
5.1.3.7	LOAD LEVEL	ON (green)	No	Displays how much power UPS is supplying to load compare with UPS full capacity, each indicator represents 25%
5.1.3.8	BATTERY LEVEL	ON (green)	No	Displays how much backup power stored in battery from left to right
5.1.3.9	LOW BATT.	Blink (red)	-- --	Battery level is low or battery energy is almost gone. Prepare to turn off loads.
5.1.3.10	OVER TEMP.	ON (red)	—	UPS is over heat, INVERTER shuts down to protect UPS. All loads are automatically switched over to get supplied power from MAIN2. When temperature is cool down until the safety point, UPS restarts.
5.1.3.11	FAULT	ON (red)	—	Some problems occurred in the system, such as over temperature, short circuit at loads or overload, which cause INVERTER shuts down. All loads are automatically switched over to get supplied power from MAIN2. User cannot mute this alarm sound. To OFF the UPS, please follow section 7.4 Shut down procedure)

5.1.4 LCD

- 5.1.4.1 For model NBXX11 : displays input voltage (Vin), output voltage (Vout), battery level (%B) and load level (%LD)

$V_i = 220$	$V_o = 220$
$\%B = 90$	$\%LD = 97$

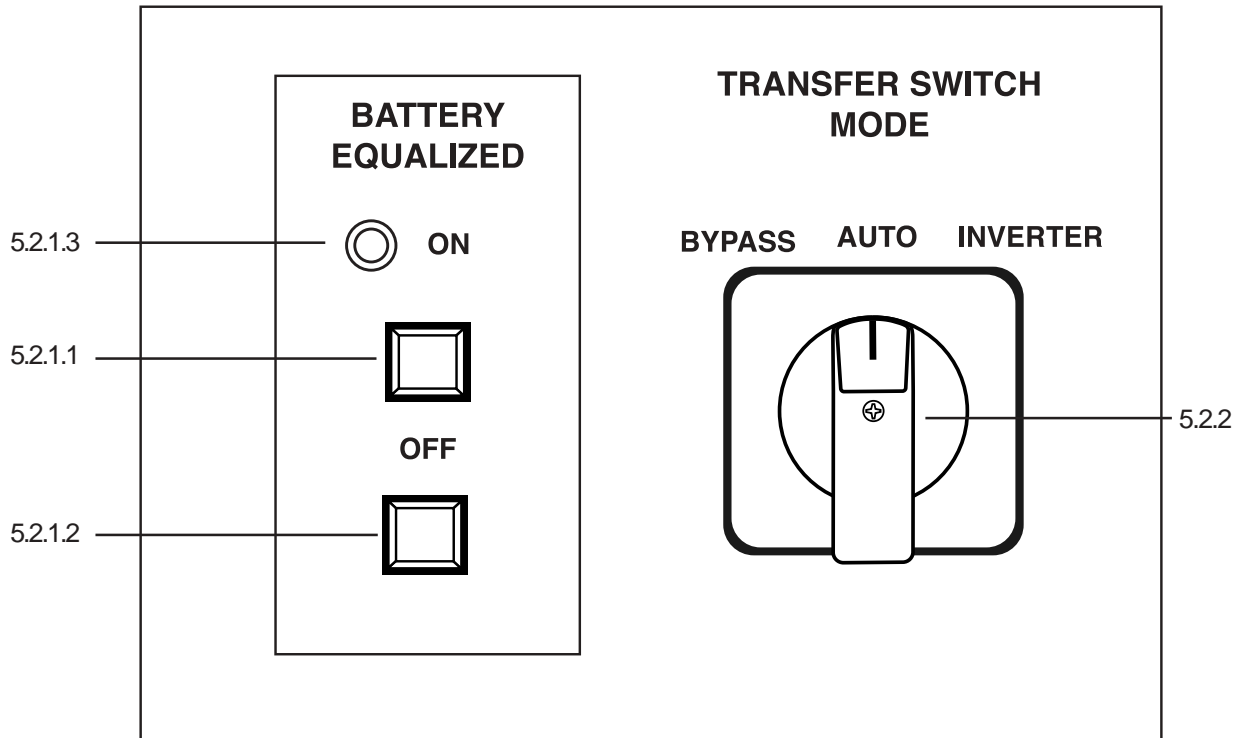
- 5.1.4.2 For model NBXX31 : displays voltage of MAIN2 (Vi, Bypass voltage), output voltage (Vout), battery level (%B), load level (%LD), 1-2 input voltage (V12), 2-3 input voltage (V23) and 3-1 input voltage (V31)

$V_i = 220$	$V_o = 220$
$\%B = 90$	$\%LD = 97$

V_{12}	V_{23}	V_{31}
380	380	380

Remark : The values of MAIN2 voltage (Vi :Bypass voltage), output voltage (Vo), 1-2 input voltage (V12), 2-3 input voltage (V23) and 3-1 input voltage (V31) read from the LCD of UPSs or Easy-Mon X) from the UPSs in the same network may be different, even though connected to the same power source. Possible causes of these happenings are the voltage over each branch circuit is not equal, or +- 1% accuracy of input and output voltage measuring circuit, or the UPSs are connected to different power phases of the same source.

5.2 Special Function Control Panel (Option)



5.2.1 BATTERY EQUALIZED

This is special feature for using batteries which have to fill in distill water with UPS system. It helps batteries in the same series are about the same voltage by equally charge and discharge power. This method is to prolong battery life.

5.2.1.1 ON button press to start equalize batteries

5.2.1.2 OFF button press to stop equalize batteries

5.2.1.3 Battery equalized This indicator displays when batteries are during equalizing process. They are equalized for a period and stop automatically.

Remark: default equalized period is 2 hours

5.2.2 TRANSFER SWITCH MODE SELECTOR Turn this switch to select UPS transfer switch mode which are

- BYPASS set transfer switch to let loads get power from MAIN2 all the time
- AUTO set transfer switch to be automatically controlled
- INVERTER set transfer switch to let loads get power from INVERTER all the time except when maintenance bypass circuit breaker (CB4) is at ON position

5.3 BATTERY FUSE (F1) : Protect battery from overload or short circuit current. Available in model NB0811-NB1511 and NB0831 - NB2031

5.4 MAIN1 CIRCUIT BREAKER (CB1) : Protect UPS from overload or short circuit current. Available in model NB0831 - NB4031.

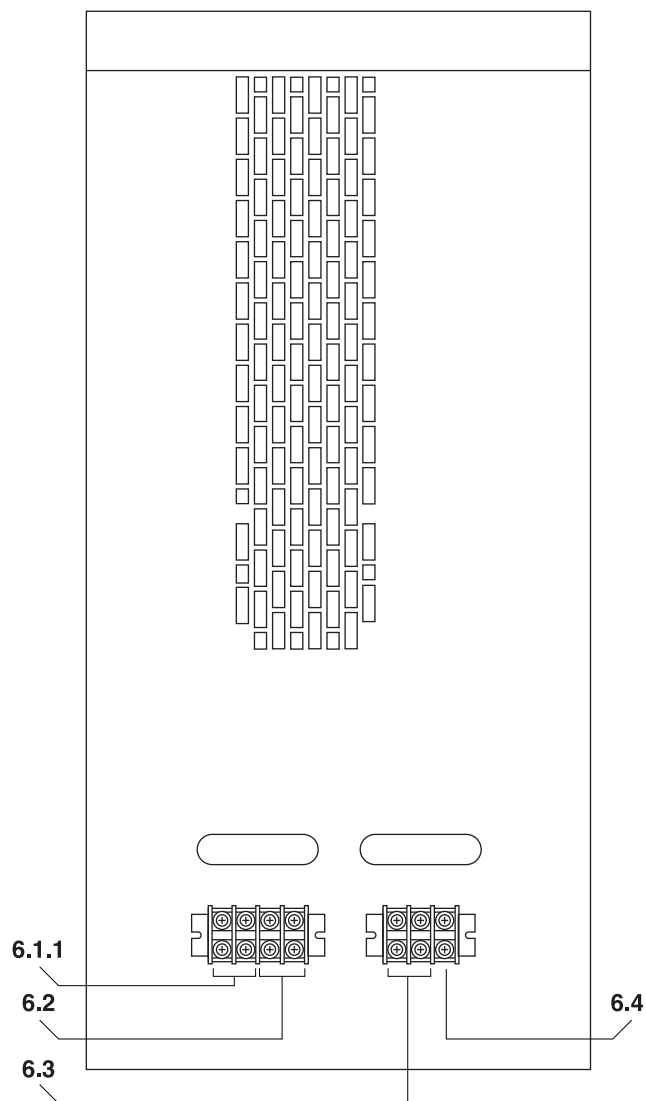
5.5 MAIN2 CIRCUIT BREAKER (CB2) : Protect UPS from overload or short circuit current.

5.6 OUTPUT CIRCUIT BREAKER (CB3) : Protect load from overload or short circuit current.

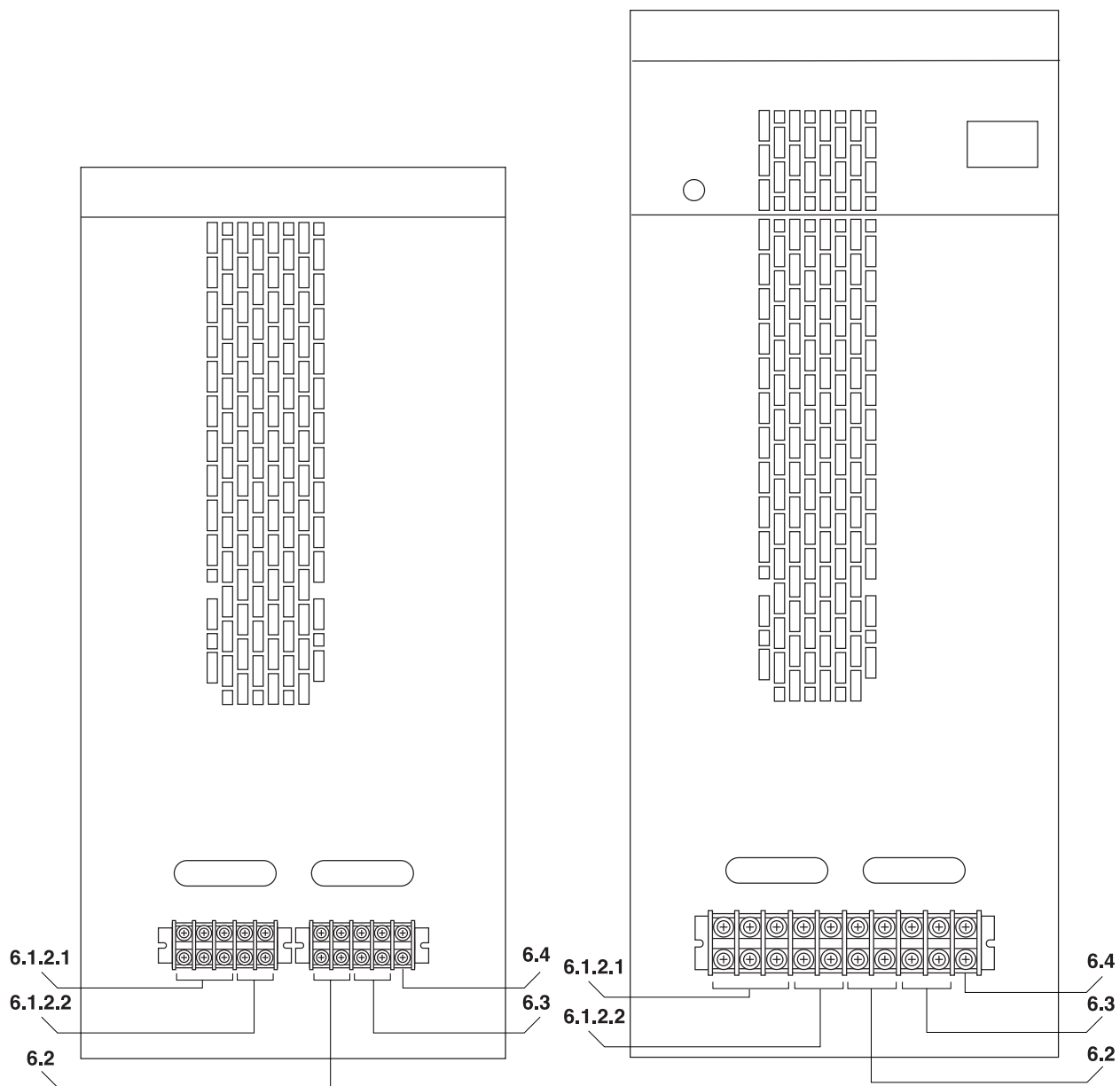
5.7 MAINTENANCE BYPASS CIRCUIT BREAKER (CB4) : Protect UPS from overload or short circuit current.

- 5.8 **BATTERY BREAKER (CB5)** : Protect battery from overload or short circuit current. Available in model NB3031 - NB4031 only.
- 5.9 **LAN INTERFACE (LAN I/F); DB9** : Plug in RS-232 cable at this port to connect UPS and computer
- 5.10 **REMOTE SIGNAL MODULE ; DB25** : Plug in Remote panel at this port to monitor UPS from remote area

REAR PANEL

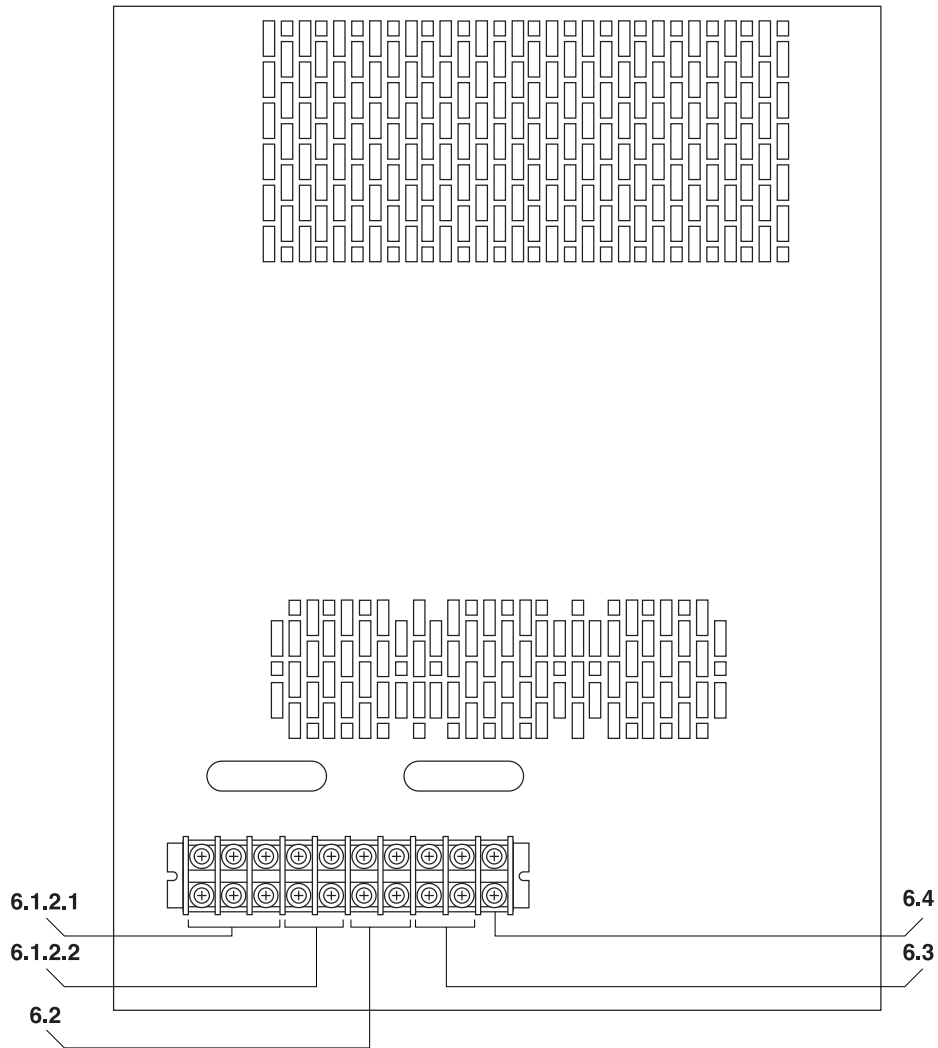


NB 0811-NB 1511



NB 0831-NB 1531

NB 2031



NB 3031-NB 4031

6.1 INPUT TERMINAL

6.1.1 Model NBXX11 (L,N) : Connect 1-phase power from utility line at this terminal (220V, 50Hz)

6.1.2 Model NBXX31 : Connect 1-phase power from utility line at this terminal (220V, 50Hz)

6.1.2.1 INPUT TERMINAL (MAIN1-L1, L2, L3) : Connect 3-phase power from utility line at this terminal (380V, 50Hz)

6.1.2.2 INPUT TERMINAL (MAIN2-L, N) : Connect 1-phase power from utility line at this terminal (220V, 50Hz)

6.2 OUTPUT TERMINAL (L-N) : Connect loads to this terminal to get high quality and backup power

6.3 BATTERY TERMINAL (+ pole, - pole) : Connect battery bank at this terminal

6.4 GROUND TERMINAL : Ground of input and output side of UPS is combine at this Ground.

OPERATION

7.1 Start-up procedure

- 7.1.1 Turn TRANSFER SWITCH MODE SELECTOR to AUTO position.
- 7.1.2 Turn CB4 to OFF position
- 7.1.3 Turn CB1 (if any) and CB2 to ON position
 - RECTIFIER starts. The RECTIFIER indicator displays green color. If it displays red, means the phase series is incorrect or voltage of MAIN1 is lower than UPS range
 - The MAIN2 indicator displays green color. If it displays red, means voltage of MAIN2 is fail. Please check MAIN2
- 7.1.4 When RECTIFIER completely operates, notice that battery indicators are all light up. Insert fuse F1 and fit it in the fuse holder. For NB3031, turn battery breaker (CB5) to ON position to connect battery to the system
- 7.1.5 Turn CB3 to ON position. Loads get supplied power from MAIN2 through automatic bypass switch. The automatic bypass switch indicator display green color.
- 7.1.6 Turn on POWER SWICH at control panel
- 7.1.7 When UPS operates normally, loads are transferred to INVERTER automatically

7.2 Temporary shutdown

To temporary shutdown UPS after office working hour, user is allow to shut down only INVERTER by turning the POWER SWITCH at control panel to OFF position. Anyway, RECTIFIER and AUTOMATIC BYPASS SWITCH are still operating to maintain the battery level to be fully charged all the time.

7.3 Restart procedure

To restart UPS from temporary shutdown, turn on POWER SWICH at control panel. When UPS operates normally, loads are transferred to INVERTER automatically.

7.4 Shutdown procedure

- 7.4.1 Shut all loads down. If you still want to operate loads, transfer loads to maintenance bypass by follow transfer loads to maintenance bypass procedure (section 7.5.1)
- 7.4.2 Turn off POWER SWICH at control panel
- 7.4.3 Turn CB3, CB2, and CB1 (if any) to OFF position
- 7.4.4 Remove fuse F1. For model NB3031-NB4031, turn battery breaker (CB5) to OFF position

7.5 Maintenance bypass operation

- 7.5.1 [Transfer loads to maintenance bypass procedure](#)

- 7.5.1.1 When UPS is not operating (CB1 (if any), CB2 and CB3 is at OFF position), turn TRANSFER SWITCH MODE to BYPASS position. Then, turn CB4 to ON position
- 7.5.1.2 When UPS is operating, follow as below
 - 7.5.1.2.1 Turn TRANSFER SWITCH MODE to BYPASS position
 - 7.5.1.2.2 Turn circuit breaker CB4 to ON position
 - 7.5.1.2.3 Turn circuit breaker CB3 to OFF position

7.5.2 Transfer loads from maintenance bypass to UPS procedure

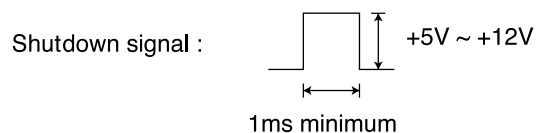
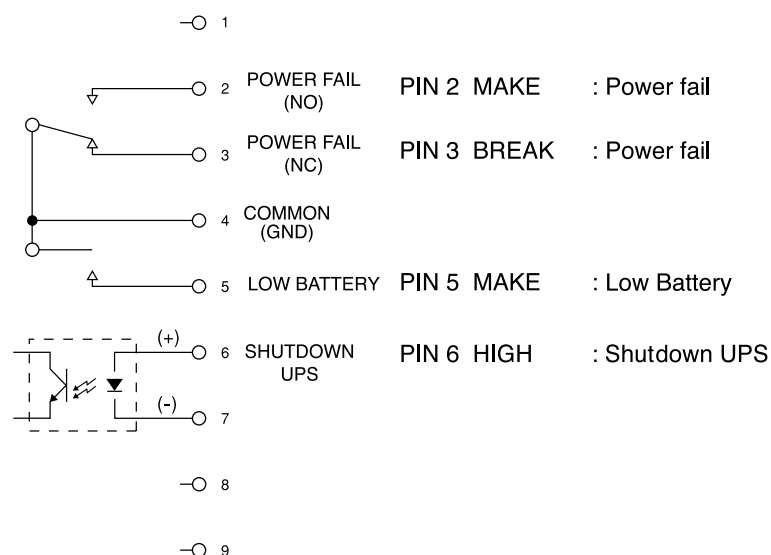
- 7.5.2.1 If UPS is not operating, follow section 7.1.2 to 7.1.7
- 7.5.2.2 Turn circuit breaker CB3 to ON position
- 7.5.2.3 Turn circuit breaker CB4 to OFF position
- 7.5.2.4 Turn TRANSFER SWITCH MODE to AUTO position

UPS STATUS CONTACT

8.1 LAN interface (LAN I/F)

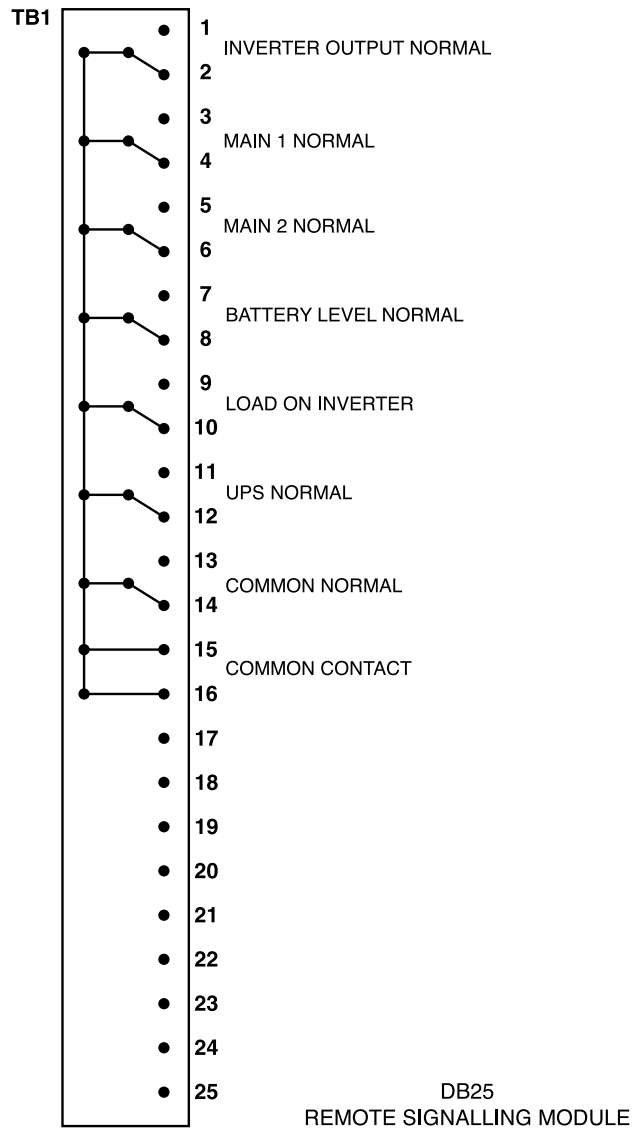
To communicate with computer or network, user is allowed to connect the signal from DB9 connector at front panel to your computer to get the status as below,

- 8.1.1 POWER FAILURE shows utility power fail
- 8.1.2 LOW BATTERY shows batteries are going to run out of power
- 8.1.3 SHUTDOWN UPS When utility power fail and UPS is going to run out of power, computers and network are automatically save files or data. Then send signal to UPS to shutdown



8.2 Remote signaling model (option)

To monitor UPS from remote area, user is allowed to connect the signal from DB25 at front panel to get the status as below,



Contact rating (resistive load) : 28VDC, 1A or 120VAC, 0.5A

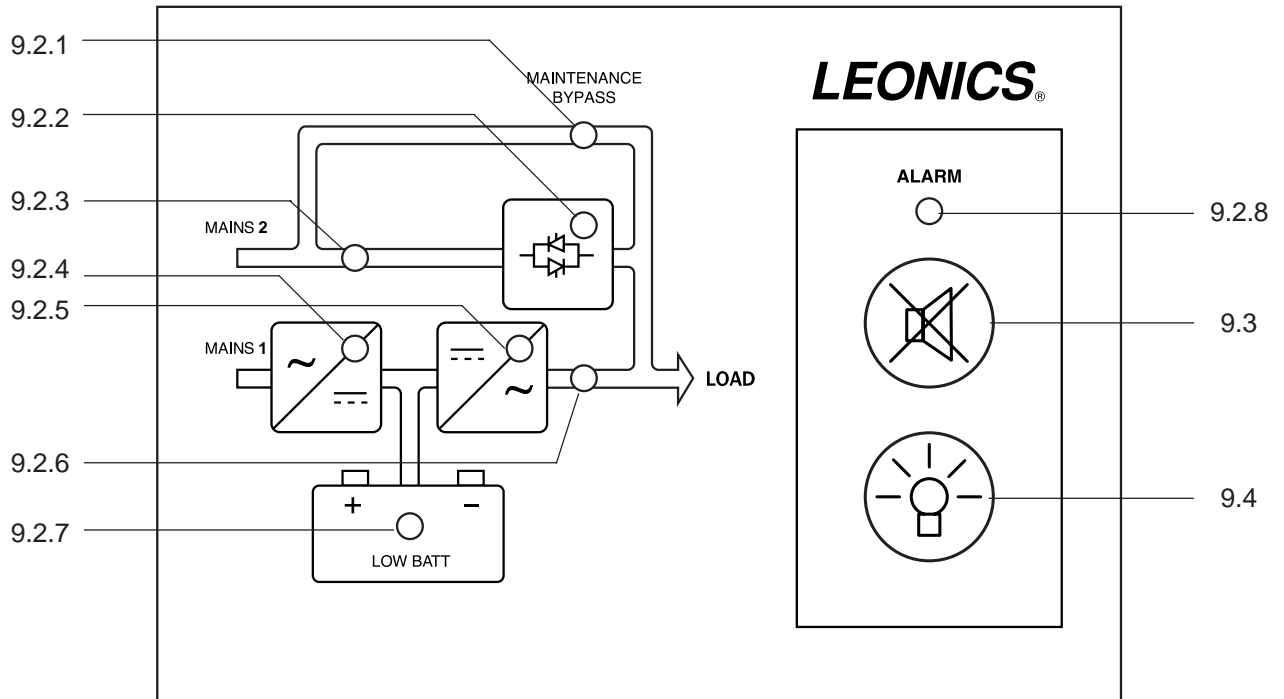
Event	PIN No.		Contact Status	
	NO	NC	NO	NC
MAIN 1 Normal	3	4	make	break
MAIN 2 Normal	5	6	make	break
Inverter Output Normal	1	2	make	break
Battery Level Normal	7	8	make	break
Low Battery	7	8	break	make
Load on Inverter	9	10	make	break
UPS Normal	11	12	make	break
Alarm Status	13	14	make	break

Remark : Alarm status contact is under MAKE status when event 1, 2, 4 and 7 is fail or UPS is under maintenance bypass

REMOTE PANEL OPTION

9.1 Remote panel description

This is optional feature for users who want to monitor UPS from remote area. The maximum distance between UPS and remote panel is 100 meters.



9.2 LED display

item	position	indicator	Alarm	meaning
9.2.1	MAINTENANCE BYPASS	ON (red)	No	Circuit breaker CB4 is at ON position
9.2.2	AUTOMATIC BYPASS	Blink	No — —	Automatic bypass switch is working and loads are getting power from MAIN2
9.2.3	MAIN 2 (BYPASS MAINS)	ON (green) Blink	No	MAIN2 is normal MAIN2 is fail
9.2.4	MAIN 1	ON (green) Blink	No — —	MAIN1 is normal, RECTIFIER/CHARGER is normal MAIN1 is fail and RECTIFIER/CHARGER is shut down
9.2.5	INVERTER	ON (green)	No	INVERTER is normal
9.2.6	INVERTER SUPPLY	ON (green)	No	Power from INVERTER is supplying to loads
9.2.7	LOW BATTERY	Blink	— — — —	Battery level is low or battery energy is almost gone. Prepare to turn off loads.
9.2.8	ALARM STATUS	Blink	— — — —	Some problems occurred in the system, such as MAIN1 or MAIN2 is fail, maintenance bypass circuit breaker is at ON position, low battery or UPS fault, etc.

9.3 Alarm silence switch : Press this button to mute alarm sound

9.4 Lamp test switch : Press this switch to test indicator operations