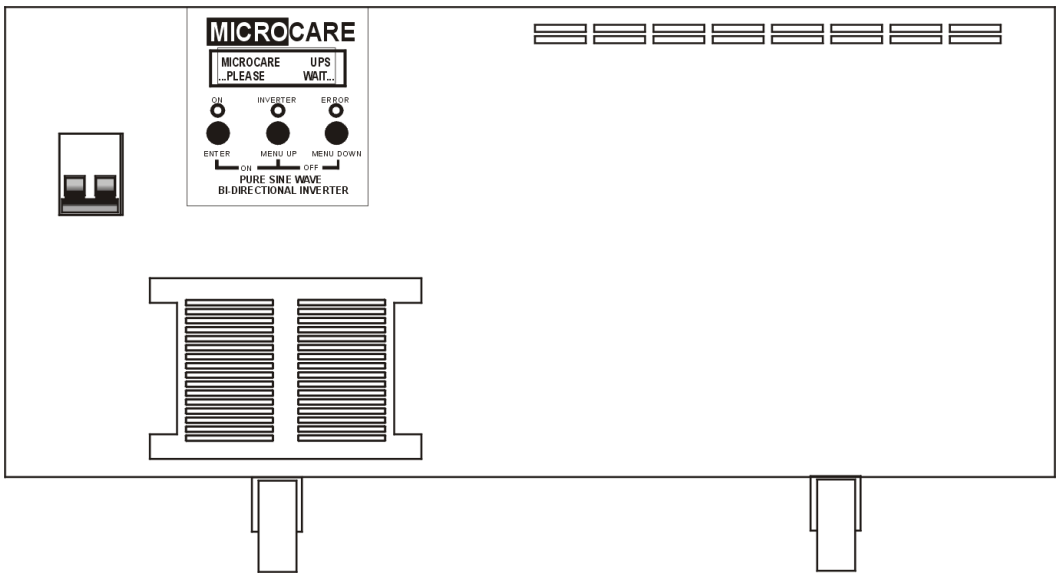
UPS
1kW24V / 2kW24V
User Manual



MANUAL VERSION UPS-1&2kW-24V-2020-V1R0

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Please Note:

This Inverter is pre-programmed with a set of default values.
These settings might not be correct for your battery type.
Please contact your battery supplier for your battery specifications
“Battery Float Voltage, Boost Voltage, Boost to Float Time “ Absorb Time”
and program the Inverter accordingly

1. IINTRODUCTION

1.1 General Description

The Microcare 1kW and 2kW UPS is programmed for UPS use. The UPS is able to anticipate load failure and pre-charges the circuits for rapid transfer of power and change-over up to 4 times faster.

1.2 Key Features

- Output power 1kW UPS - 1kW, 2kW UPS - 2kW .
- Pure Sine Wave.
- Built in multi-stage mains battery charger.
- Automatic changeover when the grid supply fails.
- LCD display and low idle current.
- Timed overload capacity with auto shutdown.
- 3-Attempt auto restart with short circuit protection.
- Fan cooling for optimum performance and component longevity.
- Audible buzzer indicating faults, overload and status.

1.3 Important Notices

- Read the instructions carefully before operating the UPS.
- UPS connection instructions must be followed.
- The unit should only be opened by skilled personal.
- Retain the load within in the rating of the UPS to prevent Overload/Short Circuit.
- Keep the UPS Clean & Dry.

1.4 Safety Instructions

- Do not install the UPS near water or in damp environments.
- Do not block off ventilation openings in the UPS housing and don’t leave objects on top of the UPS.
- Keep the UPS far away from heat emitting sources.
- Do not expose it to corrosive gas.
- Ambient temperature: 0˚C - 40˚C.

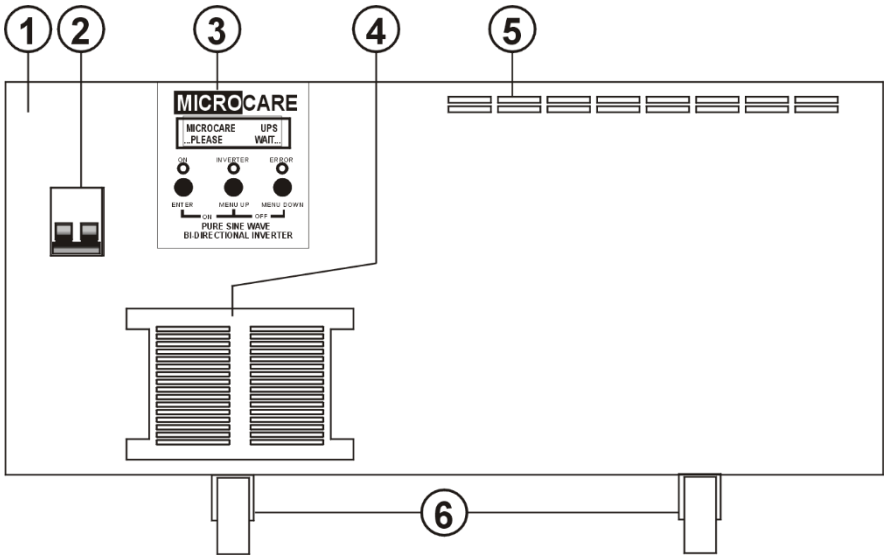
1.5 Maintenance & Service

- Caution – Risk of Electric Shock.
- Batteries may cause electric shock and have a high short-circuit current. Please take the precautionary measures specified below and any other measures necessary when working with batteries.
- Remove wristwatches, rings and other metal objects to reduce the risk of short circuits. Use only tools with insulated grips and handles

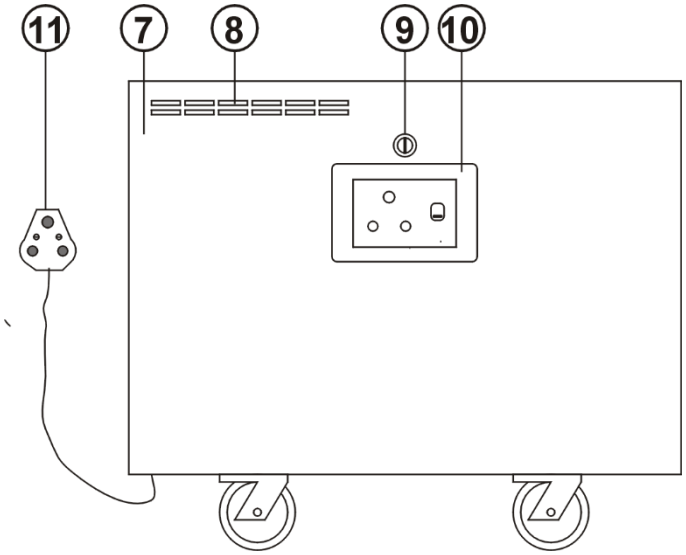
2. SYSTEM DESCRIPTION

2.1 SYSTEM LAYOUT

Front View



Side View

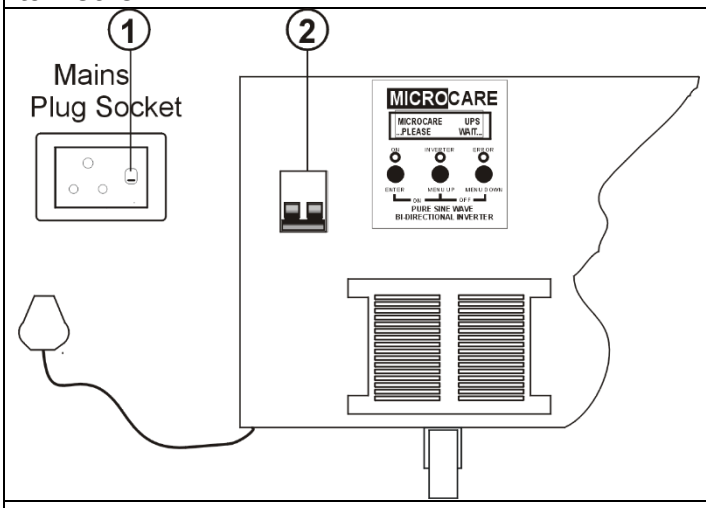
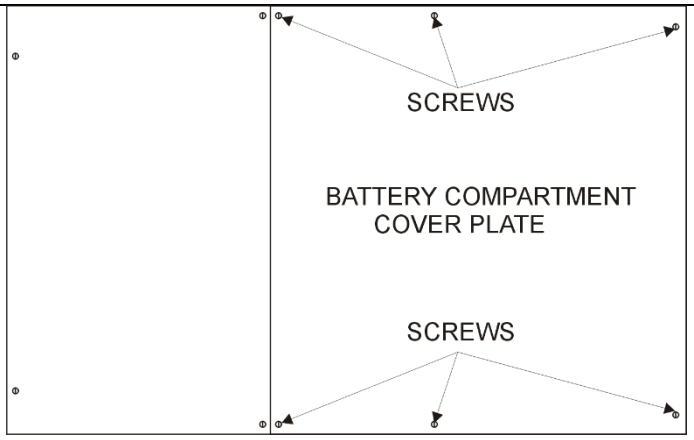
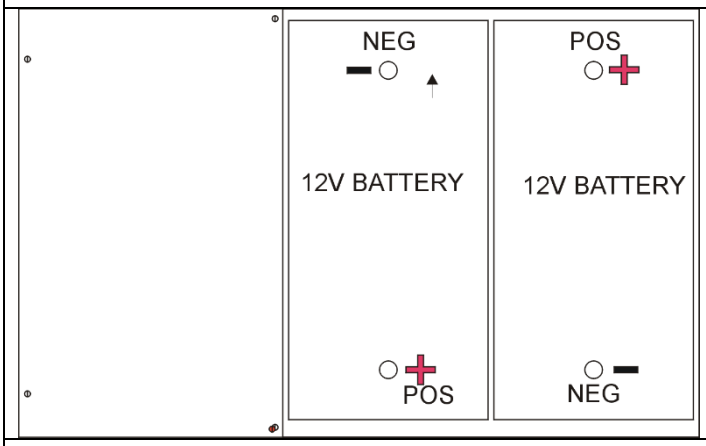
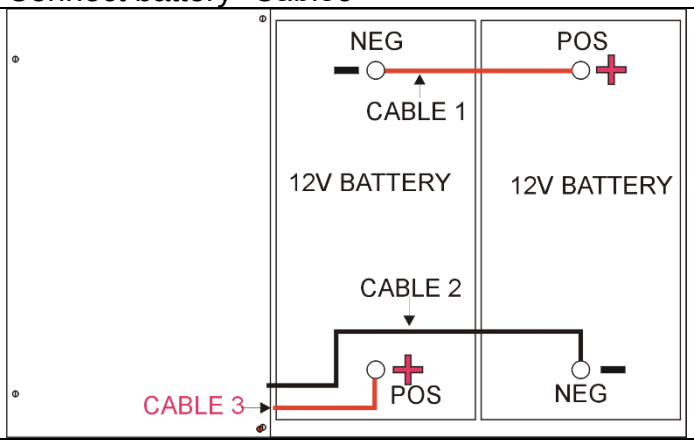
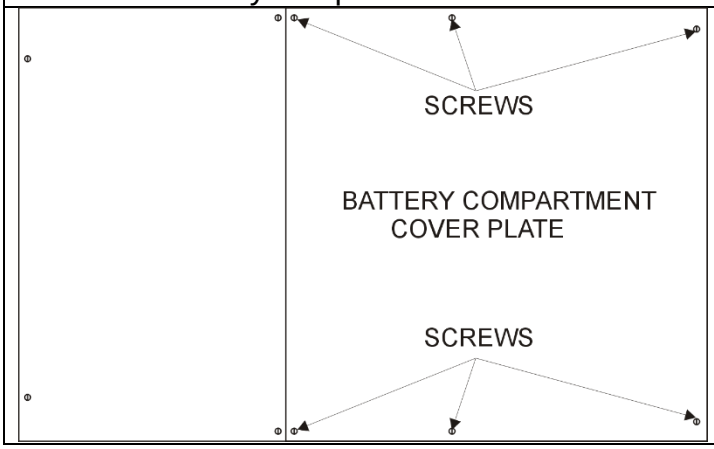


1 –-UPS Front Panel
2 – DC Circuit Breaker
3 – Display and Keypad
4 – Ventilation Grill
5 – Battery Compartment Ventilation
6 – Wheels
7 – UPS Left Side View.
8 – Battery Compartment Ventilation
9 – System Fuse
10 – Load 220 V AC Outlet Socket
11 – 220V Mains Input Plug top

3. UPS BATTERY CONNECTION DIAGRAM

Note the UPS cannot operate without batteries.

IF the UPS is shipped without batteries, follow the following steps:

1) Ensure that the UPS is not plugged into the mains socket. 2) UPS Battery circuit breaker is turned off	Remove the 6 battery compartment cover plate screws
	
Insert the batteries as shown below.	Connect battery inter-connect ”Cable 1”. Connect battery “Cable 2” Connect battery “Cable3”
	
Re-Fit the battery compartment cover screws	
	

4. INVERTER OPERATION

4.1 Front Panel LCD Display/Keypad and Description

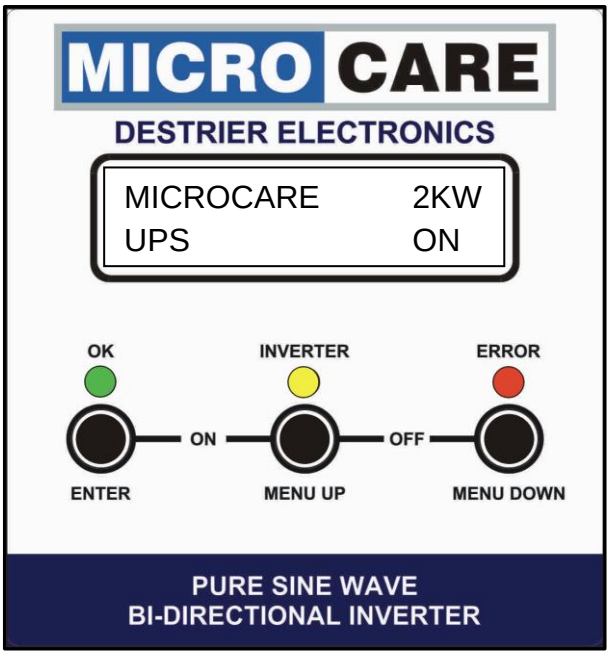


Figure 4-1: LCD Display & Keypad

The front Panel Display/Keypad indicates the Inverter's operational information, including output voltage, battery voltage, output load, internal temperature and is used for programming.
Panel Display/Keypad operation explained. For ease of explanation the following symbols will be used to represent the Enter, Menu Up and Menu Down Buttons.

Button Function Description

Symbol	Button Name	Function description
↵	Enter	Confirms or store DATA, increment or decrement values and to reset alarm conditions.
↑	Menu Up	Navigates through the list of operational information, parameters and functions.
↓	Menu Down	Navigates through the list of operational information, parameters and functions.

Press and hold both ↵ ↑ for 3 seconds, turns the inverter "ON".
Press and hold both ↑ ↓ for 3 seconds, turns the inverter "OFF"

4.2 Inverter Status LED's

Indicator	Indicator Name	Description
	On	Led on: Indicates the INVERTER is turned on and operating normally
	Inverter	Led on: Notification that the Inverter is inverting power from DC Power to AC Power
	Error	Led on: Indicates the INVERTER is in a fault condition because of inverter shutdown or over temperature

4.2.1 Inverter ON and Grid Supplying the Load

			
ON	INVERTER	ERROR	

4.2.2 Inverter ON and the Battery Supplying the Load “Inverter Mode”

			
ON	INVERTER	ERROR	

4.2.3 Inverter Displaying WARNING “Battery Low Battery Capacity”

			**WARNING!!! LOW BATTERY CAPACITY**
ON	INVERTER	ERROR	Steady “ON”, Green , Yellow and Red LED

Buzzer sounds continuously, Press  to clear the buzzer and warning

4.2.4 Inverter Warning Switched OFF due to Battery LOW/HIGH Battery Voltage

			**UPS LOW/HIGH BATTERY**
ON	INVERTER	ERROR	Steady “ON”, Yellow and Red LED

Buzzer sounds continuously

Please Note:

This Inverter is pre-programmed with a set of default values.

These settings might not be correct for your battery type.

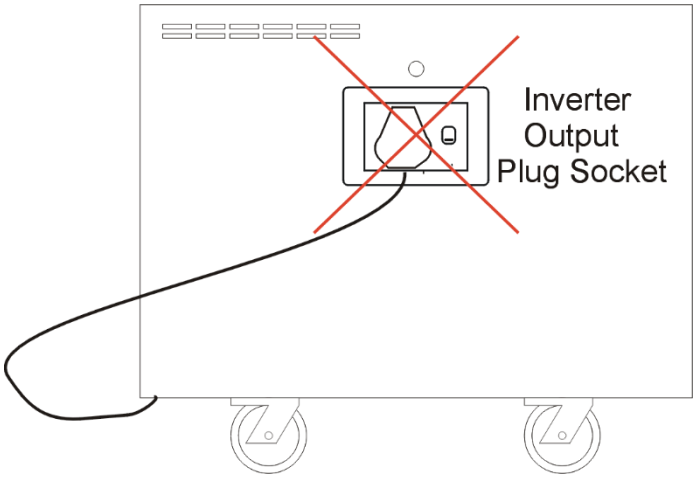
Please contact your battery supplier for your battery specifications

“Battery Float Voltage, Boost Voltage, Boost to Float Time “ Absorb Time”

and program the Inverter accordingly

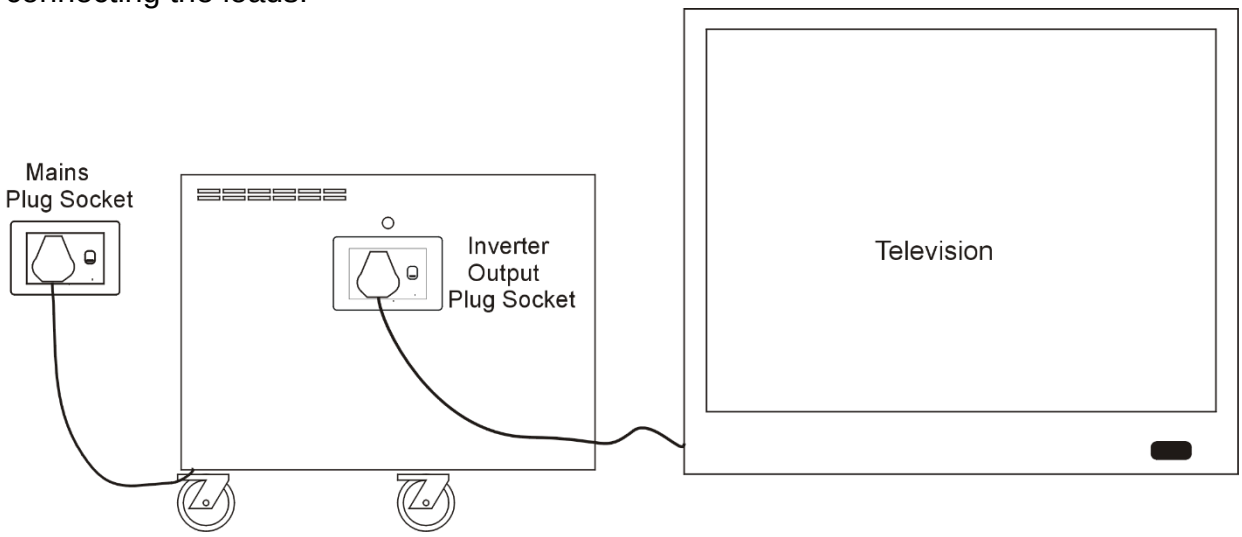
4.3 Incorrect Connection

Never connect the UPS mains input plug into UPS output Plug Socket



4.4 Typical Connection Diagram

- Follow the steps in section 4.5 before connecting the UPS to the mains inlet socket and connecting the loads.

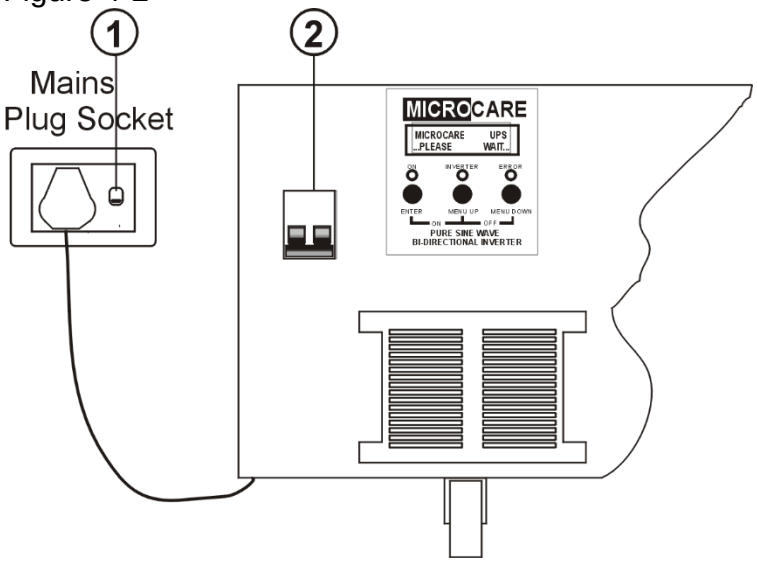


4.5 Checks Prior To Start-Up

Ensure the following:

- The UPS is standing on its wheels.
- Batteries are installed. “Refer to section 3”
- AC Mains Plug Socket supply to the inverter is switched off (1).
- DC Circuit breaker is turned off (2).
- External Load if connected is switched off.

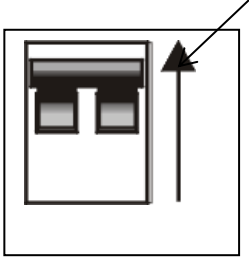
Figure 4-2



4.6 Start-UP Procedure

If all the conditions in section 4.3 are true, then proceed as follows:

Turn the **BATTERY CIRCUIT BREAKER on as labelled in figure 4-2 above.**.



- The display shows the following:

MICROCARE UPS
…PLEASE WAIT…

- The display changes to

UPS TURNED OFF
…CALIBRATING…

- The display changes to

UPS TURNED OFF

- Press the ENTER Button and the display will change to:

MICROCARE 2KW
INVERTER OFF

4.7 Switching the UPS On & Off

4.7.1 Switching the inverter “ON”

Press and hold both ↵ **and** ↑ **buttons** for up to 3 seconds.

MICROCARE 2KW
INVERTER ON

The UPS will start up and the Green LED will light up to indicate the power is being supplied from the inverter to the load. (Yellow when no mains)

4.7.2 Switching the UPS “OFF”

Press and hold both ↑ **and** ↓ **buttons** for up to **3 seconds**, the UPS will turn **OFF** after two beeps.

MICROCARE 2KW
INVERTER OFF

5. INVERTER MENU

In either the inverter ON or OFF mode, use the ↑ OR ↓ buttons to view the menu displays on the LCD screen explained below.

5.1 Power rating of the UPS

The load drawn as a % of the rated power is displayed.

MICROCARE 2KW
INVERTER = 47%

By turning on a load, the **OUTPUT %** will change to indicate the **LOAD** as a **%** of the unit being used in KW. Above 5% of load is displayed.
This status menu is displayed when the inverter runs from the grid or in inverter mode.

5.2 Battery Volts and Amps

Battery voltage and the **amps** that the UPS is drawing from the battery when the inverter runs from the battery.

BATT VOLTS : 27.2
BATT AMPS : 7.0

This status menu is only displayed in inverter mode, the Green and Yellow LED is on.

5.3 Battery Charge Amps and Volts

This shows the **Charge Amps** that are being put back into the battery bank from the charging source.

BATT VOLTS : 27.2
CHGR AMPS : 10.0

The inverter only charges the batteries when a grid connection is present
This status menu is only displayed when the inverter runs from the grid, the Green LED is on.

5.4 Output Volts and Amps

AC Output voltage and amps that the load is drawing In inverter mode.

UPS VOLTS : 220
UPS AMPS : 7.0

This status menu is displayed when the inverter runs in inverter mode, the Green and Yellow Led is on.

5.5 Grid Volts and Grid Amps

Grid Volts and power draw from the grid power supply:

GRID VOLTS : 227
GRID AMPS : 10.0

This status menu is displayed when running from the grid, the Green LED is on

5.6 Temperature

Internal temperature of the inverter.

TEMPERATURE
26.3 Deg/Cel

5.7 Signal Strength

Control cards in the Inverter have 100% communication.

SIGNAL STRENGTH
DISPLAY- UPS 100%

5.8 Serial Number & Software Version

Serial number of the inverter.
Software version of the inverter.

SN: MCxxx7777
FW: VXXXX

The Serial number of the inverter needs to be noted and supplied when requesting any fault support information.

5.9 System Setup

This menu allows the user **TO CHANGE** the system settings

ENTER SETUP MENU?

Sections 10 and 11 Covers the programming of the different parameters.
Set the “Battery Setup Menu” values first and then make changes to the “System Setup Menu”.

5.10 Battery Setup

This menu allows the user **TO CHANGE** the battery settings

ENTER BATTERY MENU?

Sections 6 and 7 Covers the programming of the different parameters.
Set the “Battery Setup Menu” values first and then make changes to the “System Setup Menu”.

5.11 Log Menu

ENTER LOG MENU?

5.12 Exit & Save

This menu allows the user **TO SAVE** all the new setting changes

EXIT AND SAVE SETUP MENU?

5.13 Restore Factory Settings

This menu allows the user **TO RESTORE** the factory default settings

RESTORE FACTORY SETUP MENU?

5.14 Exit Do Not Save

This allows the user **NOT TO SAVE** any system settings that were changed.

EXIT DO NOT SAVE SETUP MENU?

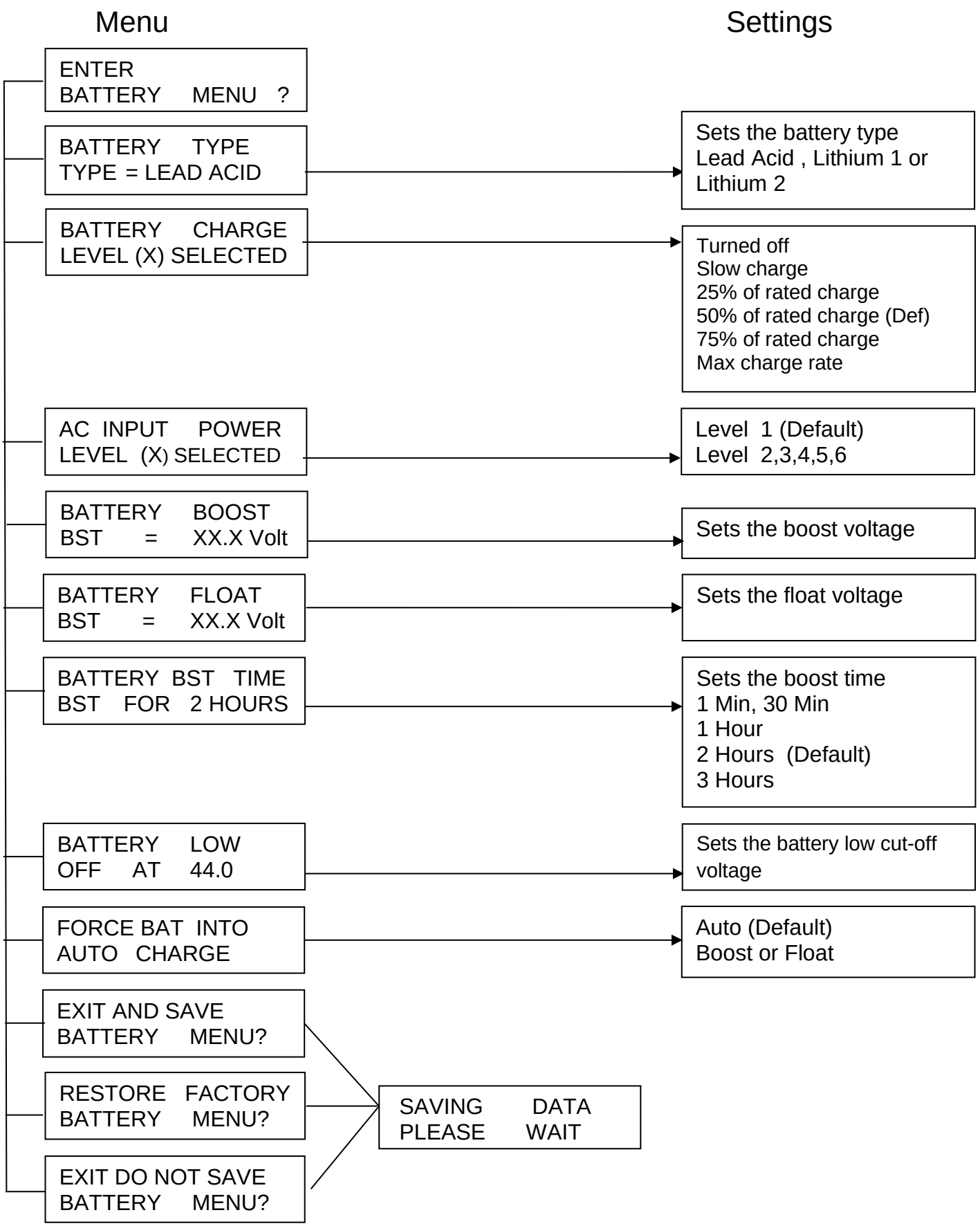
Sections 6 and 7 Covers the programming of the different parameters.

Set the “Battery Setup Menu” values first and then make changes to the “System Setup Menu”.

6. BATTERY SETUP SETTINGS

6.1 Battery Setup Settings - Quick Reference Guide

Before making any settings changes, switch off the UPS “Press and hold both ↑ ↓ for 3 seconds, turns the inverter “OFF”



6.2 Battery Setup Procedure

Please consult your battery supplier for the correct battery charging specifications

Press ↑ OR ↓ to select BATTERY Set-Up Menu: → **ENTER BATTERY MENU**

Press ↵ to access the Battery Setup Menu:

Press ↑, the menu changes to Battery Type

6.3 Battery Type

To change the **BATTERY TYPE** settings, Press ↵

BATTERY TYPE
TYPE = LEAD ACID

This allows the user to select the **BATTERY TYPE**.

BATTERY TYPE
TYPE = LEAD ACID

OR

BATTERY TYPE
TYPE = LITHIUM 1

OR

BATTERY TYPE
TYPE = LITHIUM 2

"Please consult your battery supplier for the correct battery charging specifications"

Press ↑, the menu changes to Battery Charging Rate

6.4 Battery Charging Rate

BATTERY CHARGE
LEVEL (X) SELECTED

To change the **BATTERY CHARGE** settings, Press ↵ :

TURNED OFF	-	0% of charge rate as per the list supplied below.
SLOW CHARGE	-	5% of charge rate as per the list supplied below.
25% OF RATED CHR	-	25% of charge rate as per the list supplied below.
50% OF RATED CHR	-	50% of charge rate as per list supplied below. (Default)
75% OF RATED CHR	-	75% of charge rate as per the list supplied below
.MAX CHARGE RATE	-	100% of charge rate as per the list supplied below.

Below is the list of available charge amps for the inverters.

Table 6-1: Battery Setup - Battery Charging rates

INVERTER	**Charging Rate (A)**				
Model	5%	25%	***50% - Default***	75%	100%
1kW24V	1A	5A	***10A***	15A	20A
2kW24V	2A	10A	***20A***	30A	40A

Regarding the battery charge level. The level selected will allow the battery charge to the batteries.

- Great care should be taken when charging batteries. Please consult your battery supplier for the optimum battery charging rate for the batteries you have purchased for your installation.
- Overcharging and undercharging can reduce the life of the batteries.

To change the Menu press ↑, the menu changes to AC Input Power

6.5 AC Input Power From Generator

AC POWER	INPUT LEVEL (X)

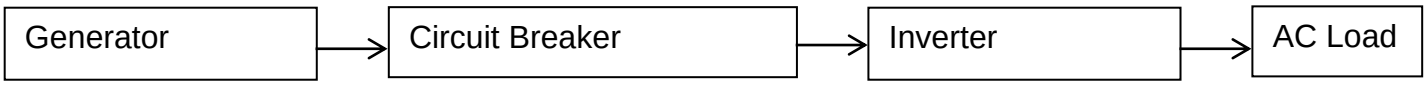
To change the **AC INPUT POWER** settings, Press ↵

This allows the inverter to extract the maximum amount of power from a generator.
The inverter constantly monitors the Voltage from the generator and then applies maximum charge.

LEVEL 1 is the highest load to the generator while
LEVEL 6 is the minimum.
The factory default LEVEL is 1.
This setting only needs to be adjusted if there is a generator connected.

When a generator is running the generator will supply the AC Load first and the inverter charges the batteries with any excess power created from the generator.

Always install a generator with a circuit breaker or contactor connection
Keep the circuit breaker off until the generator is running fully.
Turn of the circuit breaker before switching off the generator.



Circuit breaker must be placed within 1m from the Inverter

To change the Menu press ↑, the menu changes to Battery Boost Voltage

6.6 Battery Boost Voltage

BATTERY BST	BOOST = 29.2 V

To change the **BATTERY BOOST** settings, Press ↵
This allows the user to adjust the **BATTERY BOOST** voltage.
The boost settings can be changed as follows

6.6.1 Battery Boost Voltage Settings

Table 6-2a: Battery Setup - Battery Boost Voltage Firmware V10R6

24V System	
27.4	***Default Lithium 1 & 2***
27.6	
28	
28.1	
28.2	
28.8	
29.2	***Default – Lead Acid***
30	
31	

Please Note:
This Inverter is pre-programmed with a set of default values. These settings might not be correct for your battery type. Please contact your battery supplier for your battery specifications “Battery Float Voltage, Boost Voltage, Boost to Float Time “ Absorb Time” and program the Inverter accordingly
“Please consult your battery supplier for the correct battery charging specifications”

To change the Menu press ↑, the menu changes to Battery Float Voltage

6.7 Battery Float Voltage

BATTERY FLOAT	**=**	**Float 27.6 V**

To change the **BATTERY FLOAT VOLTAGE** settings, Press ↵
This allows the user to adjust the **BATTERY FLOAT** voltage.
The float settings can be changed as follows

6.7.1 Battery Float Voltage Settings

Table 6-3B: Battery Setup - Battery Float Voltage Firmware V10R6

24V System	
26.8	
27	
27.2	***Default – Lithium 1***
27.4	
27.6	***Default Lead Acid***
27.8	
28	***Default – Lithium 2***

"Please consult your battery supplier for the correct battery charging specifications"

To change the Menu press ↑, the menu changes to Battery Boost Time

---

6.8 Battery Boost Time

BATTERY BST TIME		
BST FOR 2 HOURS		

To change the **BATTERY BOOST TIME** settings, Press ↵
This allows the user to select the **TIME duration** that the **BOOST VOLTAGE** will be held at before changing to FLOAT.

By Pressing ↵ you can select 1 min, 30min, 1, 2 or 3 hours.

"Please consult your battery supplier for the correct battery charging specifications"

To change the Menu press ↑, the menu changes to Battery Low Off At

---

6.9 Battery Low Voltage Shut Down

BATTERY OF AT		**LOW 22.0 V**

To change the **BATTERY LOW OFF AT** settings, Press ↵

This selects at which **BATTERY LOW VOLTAGE** the inverter will shut down
"Also known as: low battery cut-out voltage"
This function prevents the inverter from draining the batteries completely.
When the DC voltage drops below a specified level, the inverter will stop functioning.
The system display will give a Low Battery Voltage message or Low Battery Voltage error.
This function is intended to protect both the batteries and the inverter's output.
This voltage is adjustable as below.

By Pressing ENTER you can select to change the Battery Low OFF At voltage.

Table 6-4A: Battery Setup:
Lead Acid Battery Low Voltage Shutdown

24V System	
20	
21	
22	***Default Lead Acid***
23	
24	
25.5	

Table 6-4B; Battery Setup
Lithium Ion Battery Low Voltage Shutdown

48V System	
23.4	
23.8	
24.2	
24.6	***Default – Lithium 1 & 2***
25	
25.4	

To change the Menu press ↑, the menu changes to Force Bat Into

6.10 Force Charge

FORCE BAT INTO
AUTO CHARGE

To change the **FORCAE BAT INTO** settings, Press ↵
It is possible to **FORCE** the charger to go into another charge mode on a temporary basis.
If the charger is in **FLOAT** but you require it to go back into **BOOST** then the next menu will allow this.

Pressing ↵ allows the charge to be changed from, **AUTO** to **BOOST** or **FLOAT**.

Pressing ↑ will give you 3 options to **SAVE** the changed data.

This will give you the options of saving the changes that have been made. Press ↵ at the correct **SAVE** menu.

EXIT AND SAVE
SETUP MENU?

OR

RESTORE FACTORY
SETUP MENU?

OR

EXIT , DO NOT SAVE
SETUP MENU?

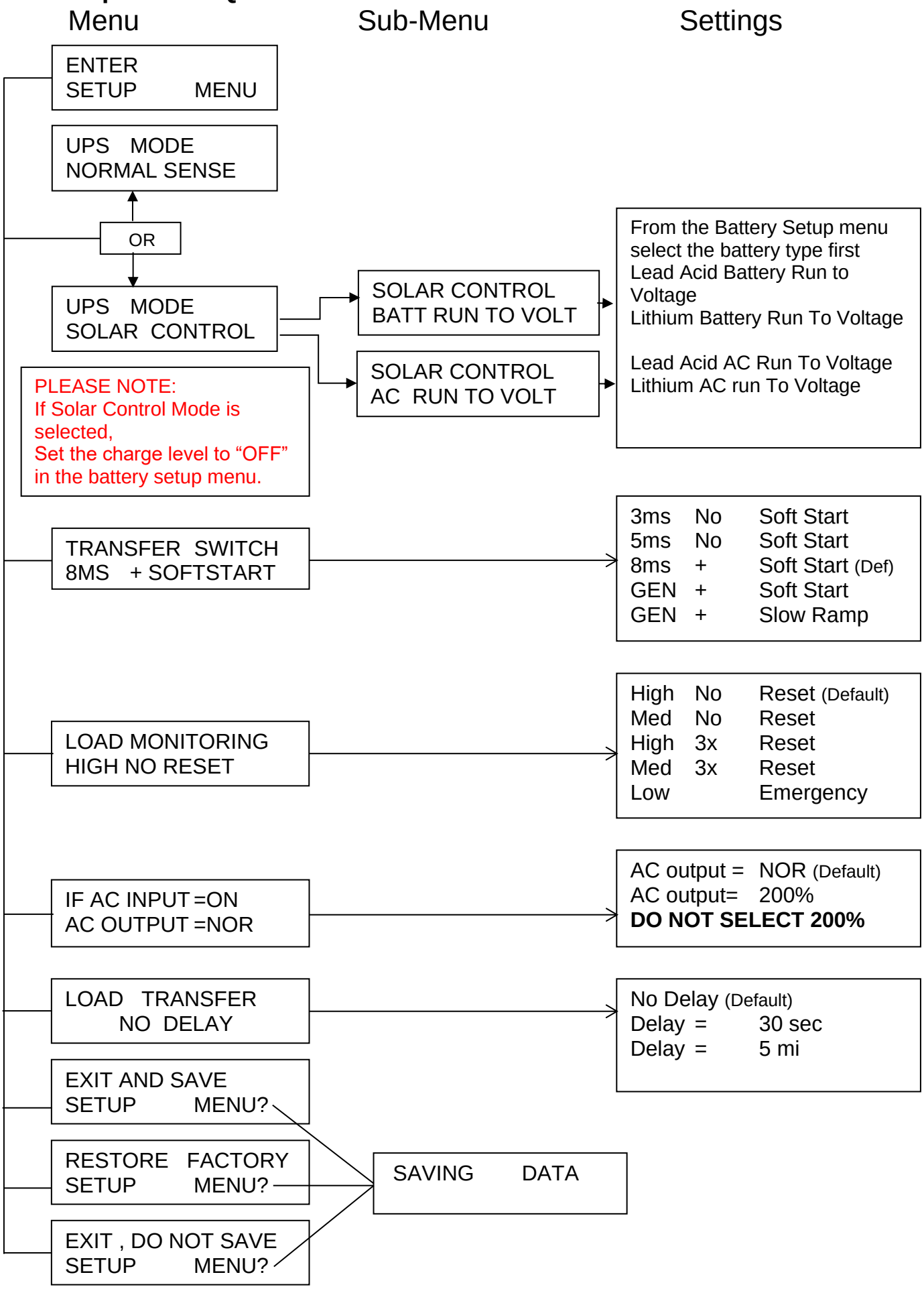
If the changes to the settings need to be **saved** Press **ENTER,**
When the enter button is pressed then the inverter will show:

SAVING DATA
PLEASE WAIT

If no entry is made for 1 minute the display will return to the main menu and the back light will turn off

7. SETUP MENU SETTINGS

7.1 Setup Menu - Quick Reference Guide



7.2 Setup Menu Settings

ENTER		
SETUP	MENU	?

Press ↑ OR ↓ until the **ENTER SETUP MENU** appears

Press ↵ to enter the **SETUP** menu.

To menu changes to Normal Sense

By Pressing ↵ you can select whether the inverter runs in NORMAL SENSE or SOLAR CONTROL mode

7.3 Normal Sense - Set the UPS for Normal Sense

UPS	MODE
NORMAL	SENSE

When to select Normal Sense?

UPS application – "The load is connected to the Grid most of the time**"**

- The grid "ESKOM" is the primary energy source and the system switches to inverter mode when disconnected from the grid eg: "load shedding".
- As soon the Grid is restored, the load re-connects to the GRID.
- The batteries will only charge when the Grid is present.

OR

Off-Grid application – "No Grid connection is available**"**

- The battery bank is the primary energy source and the inverter **"IS NOT"** connected to the grid.
- Renewable energy is used to charge the batteries.
- A generator can be connected to supply the system when needed.

If normal sense is required, press ↑, *the menu changes to* ***Transfer Switch Time, section 7.7***

If Solar Control Mode is required press ↵, the menu changes to **Solar Control Mode**

7.4 Solar Control Mode

UPS	MODE
SOLAR	CONTROL

SOLAR CONTROL MODE EXPLAINED

When to select Solar Control Mode?

- The batteries are the primary energy source and the inverter **"IS"** connected to the grid. **"Grid assisted solar power system"**
- The system uses renewable energy to charge the batteries.
- If the system is correctly sized the inverter will run mostly in inverter mode and will only connect to the grid when the batteries are discharged to a set level.
- The system will run from the batteries for as long as the batteries can be sustained.
- When the battery voltage reaches the set " Battery Run To Voltage", the inverter connects the load to the grid.
- When the battery reaches the set "AC Run To" voltage, the inverter transfers back to inverter mode.
- The inverter charger should be switched off in order for the battery bank to be effectively charged from the renewable energy source.

For Solar Control Mode the following setting must also be changed from the battery setup menu:

Refer to section 6.1 Charging Rate

Battery Charging Rate

TURNED OFF - 0% of charge rate

BATTERY	CHARGE
LEVEL (X)	0%

⚠ Please note: Do not connect a generator when operating in the solar control mode.

To change the Menu, press ↑, the menu changes to: Batt Run To

7.5 Battery Run To Voltage

SOLAR	CONTROL
BATT RUN TO	23.0V

"This setting only applies for Solar Control Mode"

This allows the user to set the level the battery discharges to before switching to mains power.

Press ↵ to change the Battery "Run To Voltage".
Battery Run To settings can be changed as follows:
This voltage settings must be lower than the "AC Run To Voltage" section 7-6, and higher than the battery than the Battery Low Of at setting.

Table 7-1A:

Lead Acid Battery Run to Voltage settings

24V System	
21	
22	
23	***Default Lead Acid***
24	
25	

Table 7-1B

Lithium Battery Run to Voltage settings.

24V System	
25.2	
25.4	
25.6	Default Lithium 1 & 2
25.8	
26	

The battery low of at voltage in the "BATTERY SETUP MENU section 6.9 must be set as:
EG: For a 24V Lead Acid Battery system : Battery low of at = Batt run to Voltage Minus 2V

For the above xample: 24V Lead Acid Battery system: If the Battery run to voltage is selected as 23V then:
Battery low of at = 23V - 2V = 21V
For lithium Ion batteries please contact your battery supplier.

To change the Menu, press ↑, the menu changes to AC Run To

7.6 AC Run To Voltage

SOLAR	CONTROL
AC RUN TO	27.0V

"This setting only applies for Solar Control Mode"

This allows the user to set the level the solar regulator will charge the battery to before the inverter switches back to battery power.

Press ↵ to change the AC Run To Voltage,
The AC Run To settings can be changed as follows:

AC Run to Settings
Table 7-2A:

Lead Acid AC Run to Voltage settings

24V System	
24	
25	
26	
27	***Default Lead Acid***
28	

Table 7-2B:

Lithium AC Run to Voltage Settings

24V System	
26.8	
27.2	
27.4	
27.6	***Default Lithium 1 & 2***
28.0	

To change the Menu, press ↑, the menu changes to Transfer Switch Time

7.7 Transfer Switch Time

To change the **Transfer Switch Time** settings press ↵.

TRANSFER SWITCH
5MS NO SOFT START

The inverter uses a transfer relay to switch between the Grid and Inverter Mode.
The transfer time can be changed. In most applications the default vale will suffice.
For applications where Servers, Desktop Computers, DSTV are connected to the inverter, change the transfer time to “5mS NO SOFTSTART”.

The Menu settings can be changed as follows

Table 11-5: System Setup - Transfer Switch time settings

3mS NO SOFTSTART	3 milli second transfer time and will restart load instantly - with mains fail prediction.
5mS NO SOFTSTART	5 milli second transfer time and will restart load instantly - with mains fail prediction.
8mS + SOFTSTART*	(Default) 8 milli second transfer time and will ramp the RMS voltage up in less than 1 second - with mains fail prediction. **Default Setting**
GEN + SOFTSTART	8 milli second transfer time and will ramp the RMS voltage up in less than 1 second - with **no** mains fail prediction.
GEN + SLOW RAMP	8 milli second transfer time and will ramp the RMS voltage up in 3 seconds - with **no** mains fail prediction.

To change the Menu, press ↑, the menu changes to Load Monitoring

7.8 Load Monitoring

To change the **Load Monitoring** settings press ↵.

LOAD	MONITORING
HIGH	NO RESET

The sensitivity of the **SHORT CIRCUIT TRIP** may be changed by 5 different settings.

The settings in Table 4 below will determine how the inverter reacts to a short circuit or overload.

- The RED LED lights up and the internal buzzer sounds.
- The inverter switches off if this overload or short circuit persists.
- You can restart the inverter after the overload or short circuit is removed.
- Pressing the Enter button clears the trip, buzzer and the RED Led switches off.
- To start the inverter Press and hold both the **Enter-key** and the **MENU UP-key** for up to 3 seconds.

The Menu settings can be changed as follows

Table 11-6: System Setup – Load monitoring settings

HIGH NO RESET*	High sensitivity to short circuits - will trip the inverter after a short delay time period. **Default Setting.**
MED NO RESET	Medium sensitivity to short circuits - will trip the inverter after a medium delay time period.
HIGH 3x RESET	High sensitivity to short circuits - will trip the inverter after a short delay time period, with soft start to prevent in rush current.
MED 3x RESET	Medium sensitivity to short circuits - will trip the inverter after a short delay time period, with soft start to prevent in rush current.
LOW EMERGENCY	Low sensitivity to short circuits - will trip the inverter after a long delay time period. **Only to be Used in Emergency Situations.**

To change the Menu press ↑, the menu changes to Inverter Output Power

7.9 Inverter Output Power

To change the **Inverter Output Power** settings press ↵.

IF AC INPUT = ON **AC OUTPUT = NOR**

For UPS operation, either select AC Output = NOR

For Off-Grid operation, select AC Output = NOR

For Grid Assisted operation, select AC Output = NOR

For Grid Assisted operation, select AC Output = NOR

DO NOTSELECT AC Output = 200% For this UPS

To change the Menu, press ↑, the menu changes to Load Transfer

---

7.10 Load Transfer Time

To change the **Load Transfer Time** settings press ↵.

LOAD TRANSFER **NO DELAY**

This setting applies when the system is connected to the grid.

- When the grid connection is lost eg: Load shedding or any other unforeseen grid loss, the load will be connected to the battery powered inverter.
- When the grid is restored the inverter delays the connection from battery to the grid.
- Transfer time can be set as in Table 10-5.

The settings available are as follows:
Table 11-7: System Setup - Load Transfer Time

NO DELAY*	As soon as Grid power is available the Inverter will synchronise and switch from battery to Grid. **Default Setting**.
DELAY = 30Sec	30 seconds after Grid power is available the Inverter will synchronise and switch from battery to Grid.
DELAY = 5 Min	5 minutes after Grid power is available the Inverter will synchronise and switch from battery to Grid.

To change the menu Press ↑, the menu changes to the following

---

7.11 Save/Restore/ Do Not Save Menu

Pressing ↑ will give you 3 options to **SAVE** the changed data. The display will show:

EXIT AND SAVE SETUP MENU?	OR	**RESTORE FACTORY SETUP MENU?**	OR	**EXIT , DO NOT SAVE SETUP MENU?**

If the changes to the settings need to be **saved** Press **ENTER,**

When ↵ is pressed then the inverter will show:

SAVING DATA PLEASE WAIT

If no entry is made for 1 minute the display will return to the main menu and the back light will turn off.

8. LOGS

Press ↑ OR ↓ until the **ENTER LOG MENU** appears

ENTER		
LOG	MENU	?

Press ↵ to enter the **LOG** menu.

8.1 Battery Voltages

Displays the max (Vm) and min (Vn) DC battery voltage.

Press ↑ to view the next log.

Battery	Voltages
Vm: 39.6	Vn: 37.6

8.2 Battery Currents

I – Displays the Max Battery Discharge Current.

I + Displays the Max Battery Charge Current.

Press ↑ to view the next log.

Battery	Currents
I – 25.3	I + 7.8

8.3 Grid Voltage

Displays the max (Vm) and min (Vn)Grid AC voltage.

Press ↑ to view the next log.

Grid	Voltage
Vm: 245	Vn: 220

8.4 Grid Current

Displays the max (Im) and min (In) AC Load Current.

Press ↑ to view the next log.

Grid	Currents
Im: 4.0	In: 3.5

8.5 UPS Voltages

Displays the max (Vm) and Min (Vn) UPS Voltage.

Press ↑ to view the next log.

UPS	Voltages
Vm: 231	Vn:228

8.6 UPS Current

Displays the Inverter Max (Im) and Min (In) AC Load Current.

Press ↑ to view the next log.

UPS	Currents
Im: 52.5	In:58.7

8.7 Thermal Log

Press ↑ to view the next log.

Thermal Log		
24.4	deg/cel	Max

8.8 Total Run Time

Press ↑ to view the next log.

Total Run Time		
0D	0H	16M

8.9 Run Time On Battery

Press ↑ to view the next log.

Run Time on Batt		
0D	0H	4M

8.10 Time on Battery

Press ↑ to view the next log.

Time on Batt (R)		
0D	0H	4M

8.11 No of Overloads

Press ↑ to view the next log

No of Overloads
0 counts

8.12 No of Short Circuits

Displays the Short Circuit counts.

Press ↑ to view the next log.

No of Short Circuit **0 counts**

8.13 Forced Shutdown Counts

Displays the Forced Shutdown counts due to

Forced Shutdown **0 counts**

8.14 Power Failure Counts

To change the **Inverter Output Power** settings press.

Press ↑ to view the next log

Power Failure (R) **4 counts**

8.15 Reset a few logs

To change the **Inverter Output Power** settings press.

Press ↑ to view the next log.

Reset (R) **Recorded Logs?**

8.16 Exit Recorded Log

To Exit the recorder log screen press ↵.

Exit **Recorded Log ?**

8.17 Delete All Logs

Press ↑ OR ↓ until the **ENTER LOG MENU** appears

ENTER LOG **MENU ?**

9. TROUBLESHOOTING

Symptom	Possible Cause	Remedy
Inverter not charging	The unit is inverting or not connected to the grid	Connect inverter input to AC Source
Inverter not charging	The unit is connected to the grid but is in a mode or stage that does not use the charger such as Solar Control mode	
Inverter not charging	The unit is connected to the grid but the charger has been turned off	Enable charging in the Battery setup menu.
Inverter not switching on	Batteries are discharged to a low level	Recharge the batteries
Inverter not switching on	Battery breaker turned off	Turn the breaker on
Inverter inverting all the time In UPS mode	Grid disconnected	
Inverter fan runs all the time	Charging above 50% of rated charge rate or the Load is above 60% of rated Inverter capacity	Switch off some loads
Inverter Inverting all the time	Solar Control mode, battery in limits	
Inverter not switching on	Fuse blown	Replace fuse

10. UPS SPECIFICATIONS

DESCRIPTION		MODEL 24 V, 1000W UPS
Capacity	Watt	1000
DC Input	Nominal Voltage	24 VDC
	Acceptable Voltage	20-30 VDC
	Standby Power	15 W
	Batteries	2 x 12 V, 100 Ah
AC Output	Voltage	220 VAC
	Amps	5 A
	Voltage Regulation	< 3 % RMS for entire battery voltage range
	Frequency	50Hz
	Frequency Regulation	± 0.1Hz
	Power Factor	1
	Wave Form	Pure Sine Wave
	Efficiency	90%
	Hardware Protection	DC Battery Circuit Breaker
	Overload Protection	Programmable Overload levels and Auto Retry
AC Charger	Float Voltage	26.8 – 27 – 27.2 – 27.4 – 27.6 – 27.8 – 28
	Boost Voltage	27.4 – 27.6 – 28 – 28.1 – 28.2 – 28.8 – 29.2 30 – 31
	Boost Time	Selectable 1min, 30min, 1, 2, 3 hours
	Maximum charge Current	20 ADC

DESCRIPTION		MODEL 24 V, 2000W UPS
Capacity	Watt	2000
DC Input	Nominal Voltage	24 VDC
	Acceptable Voltage	20-30 VDC
	Standby Power	15 W
	Batteries	2 x 12 V, 100 Ah
AC Output	Voltage	220 VAC
	Amps	5 A
	Voltage Regulation	< 3 % RMS for entire battery voltage range
	Frequency	50Hz
	Frequency Regulation	± 0.1Hz
	Power Factor	1
	Wave Form	Pure Sine Wave
	Efficiency	90%
	Hardware Protection	DC Battery Circuit Breaker
	Overload Protection	Programmable Overload levels and Auto Retry
AC Charger	Float Voltage VDC	26.8 – 27 – 27.2 – 27.4 – 27.6 – 27.8 – 28
	Boost Voltage VDC	27.4 – 27.6 – 28 – 28.1 – 28.2 – 28.8 – 29.2 30 – 31
	Boost Time	Selectable 1min, 30min, 1, 2, 3 hours
	Maximum Charge Current	40 ADC

11. MICROCARE LIMITED CARRY- IN WARRANTY

Microcare warrants the 1kW24V and 2kW24V UPS against defects in workmanship and materials, fair wear and tear accepted, for a period of 3 (three) years from the date of delivery/collection for all equipment and is based on a carry-in basis. Where the installation of the product makes it impractical to carry-in to our workshops, Microcare reserves the right to charge for travel time and kilometres travelled to and from the site where the product is installed.

During this warranty period, Microcare will, at its own discretion, repair or replace the defective product free of charge. This warranty will be considered void if the unit has suffered any physical damage or alteration, either internally or externally, and does not cover damages arising from improper use such as, but not exclusive to:

- Reverse of battery polarity.
- Inadequate or incorrect connection of the product and/or of its accessories.
- Mechanical shock or deformation.
- Contact with liquid or oxidation by condensation.
- Use in an inappropriate environment (dust, corrosive vapour, humidity, high temperature, biological infestation.)
- Breakage or damage due to lightning, surges, spikes or other electrical events.
- Connection terminals and screws destroyed or other damage such as overheating due to insufficient tightening of terminals.
- When considering any electronic breakage except due to lightning, reverse polarity, over-voltage, etc. the state of the internal control circuitry determines the warranty.

This warranty will not apply where the product has been misused, neglected, improperly installed, or repaired by anyone else than Microcare or one of its authorised Qualified Service Partners. In order to qualify for the warranty, the product must not be disassembled or modified. Repair or replacement are our sole remedies. Microcare shall not be liable for damages, whether direct, incidental, special, or consequential, even caused by negligence or fault. Microcare owns all parts removed from repaired products. Microcare uses new or re-conditioned parts made by various manufacturers in performing warranty repairs and building replacement products. If Microcare repairs or replaces a part of a product, its warranty term is not extended. Removal of serial nos. may void the warranty.

All remedies and the measure for damages are limited to the above. Microcare shall in no event be liable for consequential, incidental, contingent or special damages, even if having been advised of the probability of such damages. Any and all other warranties expressed or implied arising by law, course of dealing, course of performance, usage of trade or otherwise, including but not limited to implied warranties of merchantability and fitness for a particular purpose, are limited in duration to a period of 3 (three) years from the date of purchase.

Life Support Policy:
As a general policy, Microcare does not recommend the use of any of its products in life support applications where failure or malfunction of the Microcare product can be reasonably expected to cause failure of the life support device or to significantly affect its safety or effectiveness.

Microcare does not recommend the use of any of its products in direct patient care. Microcare will not knowingly sell its products for use in such applications unless it receives in writing assurances satisfactory to Microcare that the risks of injury or damage have been minimised, the customer assumes all such risks, and the Liability of Microcare is adequately protected under the circumstances.

Caution:
Our products are sensitive. While all care is taken by us to dispatch goods with adequate packaging, Microcare is not responsible for any damages caused to products after they have left our premises.

12. REGISTRATION OF MY MICROCARE PRODUCT

Please register your product online at www.microcare//register-my-product

Also fill in the form below as a hardcopy reference for technical support.

Product Serial Number: _____

Product Description: _____

Date Purchased _____

From whom the product was purchased.

Company Name _____

Contact Person _____

Contact Number _____

E-mail Address _____

Installation Company Information:

Company Name _____

Contact Person _____

Contact Number _____

E-mail Address _____

Details of Product Owner

Name & Surname _____

Address _____

City & Province _____

Contact Number _____

E-mail Address _____

Date Installed _____

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