



**GALAXY ELECTRONICS (INDIA) INC.**

# **TECHNICAL MANUAL**

**FOR**

**TRUE-ON-LINE UPS SYSTEM**

***Modal - GT- 1 KVA TO 100KVA***

**BRAND :- (GALAXY)**

Website : <http://www.galaxyups.com>

**GALAXY ELECTRONICS (INDIA) INC**

**(ISO9001-2008 CERTIFIED ORGANISATION)**

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**Letter from the Chief Executive Officer,**

Dear Sir,

**We congratulate you on buying the SUNPOWER system-popular for its performance & reliability**

At SUNPOWE we have established stringent Production & Q.C. procedures to manufacture a trouble free and totally reliable system.

SUNPOWER enjoys a rich experience in Power Electronics and has a major presence in the Asian and African markets today. All our products are the outcome of a persistent endeavor to offer better technology and superior performance. Even in the future, we will strive to evolve the most effective products to meet your power problems & energy solutions.

At this juncture we would like to mention that a UPS system is meant to solve power problems at the site. Every product is a solution for the problems in the environment where the load is installed. The environment includes aspects like climatic conditions, local power conditions, connected & surrounding load, load-distribution, wiring & its rating, reversal of wiring and allied problems.

Although each system is functionally tested in the factory, final adjustment and tuning of the unit in your environment to solve the power problems is done by our engineer, at the site.

At this stage our engineer needs your co-operation for an initial period of few days, to get your operators acquainted with the UPS operation, to collect data on the working environment and to ensure that the product stabilizes & solves the power problems at your location. This co-operation is important since all site-related conditions do not get simulated on the first day of installation.

We also solicit your feedback on our products. It will greatly help us in fulfilling your requirements more accurately. We are sure you will get excellent performance from our systems and look forward to repeated orders from you.

We request you to read the chapter on “Precautions” before you start using our system.

With best wishes,

Signature

Date:

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**SECTION - I**  
**GENERAL INFORMATION**

Most of our equipment, application and household gadgets work on electricity. However quite often the supply of power is not well regulated and continuous. Although many of the equipment can cope up with erratic power, some can't. Hence the need for a reliable & cost-effective solution to erratic power can become critical.

**1.1 Your needs of a clean power supply :**

If you are using sensitive equipment like Computers, EPABX, Process Automation Systems, Medical Electronics System, CNC Machines etc you cannot afford to have a blackout (mains power failure) or a Brown –Out (low supply voltage) or other condition like spikes, surges, sags & frequency variations. These conditions could lead to

- a. Failure / Damage to your equipment.
- b. Frequent down – time, causing reduction in output.
- c. Corruption of the system software & other unpredictable problems.

There are various product solutions to the power problems existing at your site. We are summarizing the problems and solutions herewith. As a protection against these problems, the most powerful tool available is the

**“TRUE – ON – LINE ( TOL ) UPS SYSTEM ”**

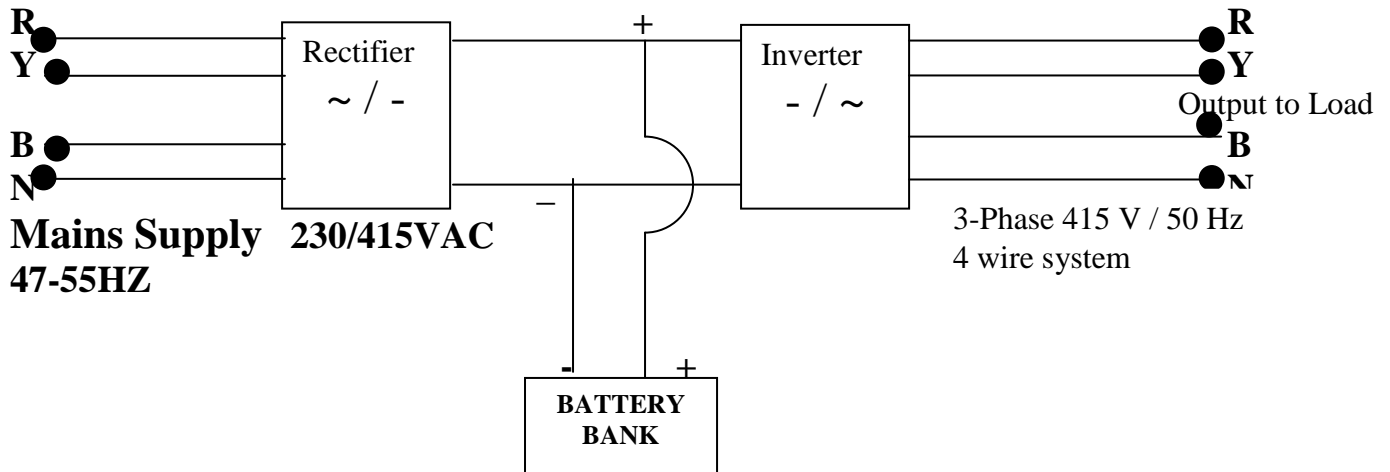
TOL UPS is indispensable for users sensitive electronic equipment. An Inverter can perform following functions:

1. Regulates the voltage being fed to the load.
2. Regulates the frequency being supplied.
3. Isolates the load from spikes, surges and sags.
4. Supply power to the load in case of mains failure.
5. Keeps the user informed about NORMAL and ERROR conditions.

The UPS is a system between the power supply and the load. It can also be called a “POWER PURIFIER” AND “POWER BACKUP” system.

## 1.2 System Block Diagram :

The simplest block diagram of a True On – line UPS System is as shown in figure.



There three blocks constitute the TOL UPS

- 1) Charger Section
- 2) Battery Section.
- 3) Inverter Section.

The charger supplies A.C. power rectified into D.C. power to the inverter & also keeps the batteries charged and ready for takeover in case of mains failure. The batteries supply D.C. power to the inverter whenever the mains input fails. The inverter supplies A.C. power to the load continuously. It takes D.C. input from the charger or the batteries, as the case may be. It is obvious that the amount of time the UPS can give backup power to the load (on mains failure) depends on the battery capacity & the total load.

Accordingly the UPS systems are available for different ratings of load which are normally expressed in KVA. The backup time varies from a few minutes to a few hours depending upon the number and A.H. capacity of the batteries connected and the charger provided in the UPS.

## 1.3 Characteristic of the system :

The system takes care of a number of erratic power situations :

1. It regulates the voltage.
2. It regulates the frequency.
3. It gives you indication on LCD of different error conditions like Overload, AC Over – Voltage, AC Under – voltage, DC Over-Voltage, DC under Voltage , etc. so that corrective actions can be taken as required.

4. On mains failure, it automatically transfer on Battery without any interruption.
5. It isolates the output from the input totally i.e. giving total protection to your equipment from spikes, surges and sags.

In short the TOL UPS is the **ULTIMATE SOLUTION** to your problems.

#### **1.4 About This Manual :**

This manual is written in very simple and easy language. In this manual you will find a description of the system and its features.

**Note :** It is recommended that you read the complete manual and acquaint your self with our system.

- In Section 1 : General Information
- Section 2 : Technical Specifications
- Section 3 : Function of TOL UPS
- Section 4 : Pre - Installation Instructions
- Section 5 : Installation Instruction
- Section 6 : Front Panel / Indications
- Section 7 : Precautions
- Section 8 : Diagnostic Trouble Shooting
- Section 9 : Company Profile

**‘Appendix A’** contains the test certificate, guarantee certificate, reply sheet. The test certificate and guarantee certificate can be filled by you for your record. It is absolutely essential that you send us the reply card duly filled. This will help us to serve you better. For your ready reference we have included the list of our regional offices. You can book mark your service center so that they can be contacted at short notice.

***SECTION - II***  
**TECHNICAL SPECIFICATIONS**

**TRUE - ON - LINE UPS**

**2.1 System Configuration : TOL UPS**

Serial No :  
Rating : KVA Output Voltage :  
Battery Details : AH Battery Voltage :  
Total number of batteries : Nos  
I / P supply Type : Three phase A.C / Single Phase A.C  
Phase connected : R, Y and B  
Metering : Digital / LCD type to show following

- a) A.C Volts ( Input/Output )
- b) Output A.C Amps :
- c) Battery Voltage :
- d) Battery Charging / Discharging current :
- e) Frequency : ( Input/Output )

Input MCB rating : A  
Mains fuse rating : A ( Nos. )  
Inverter fuse rating : A  
Manual bypass : A ( )

**NOTE :** Unless specified in purchase order the UPS is normally equipped with Digital Panel Meter to Show Output AC volts and Input AC Volts only )

**2.2 Minimum System Specifications :**

Different electrical parameters related to the system are as given below :

**Modulation type used :** Sinusoidal Pulse Width Modulation giving pure sine – wave.

**Input Voltage range :** (Phase A.C.) 170-270VAC ( )  
300 – 450 VAC ( ) OR 355 – 470 VAC ( )

<b>Input Frequency</b>	: 45 – 55 Hz.
<b>Isolated Output</b>	: 230VAC(Single Phase) ( ) :415 VAC (Three Phase) ( ) 50 Hz. +/- 0.1 % (Crystal Controlled)
<b>Power Factor</b>	: 0.8 lagging to Unity.
<b>Distortion</b>	: Total harmonic distortion less than 2% for linear load and less than 5% for non – linear load
<b>Over load ratings</b>	: 100% Continuous. 110% for 5 minutes. 150% for 10 Seconds.
<b>Operating temperature</b>	: 0 to 50 degree centigrade.
<b>Relative humidity</b>	: 0 to 95% maximum ( non – condensing type )
<b>Transient response</b>	: For step load change of 50% O/P will change with in + or – 5% and recover within 1/4 <sup>th</sup> cycle.
<b>Change over Time</b>	: Instantaneous
<b>Isolation</b>	: Galvanic / Ultra isolation of output from input to protect from spikes and surges.

**Indications provided in case of LED panel :**

1. Mains ON
2. Inverter ON
3. UPS ON
4. Load ON UPS
5. Load on Mains
6. R Phase }
7. B Phase } ( For 3 – Phase Input )
8. Y Phase }
9. Phase Fail }
10. Battery LOW Warning
11. D.C. Under Voltage
12. D.C. Over Voltage



13.Charger Trip

14.A.C Under Voltage

15.A.C Over Voltage

16.Overload – R, Y, B

Load status : LED display load in % - R, Y, B,

Alarms : Battery low condition ( continuous non – resetable )  
Mains Fail  
Trip alarm

## SECTION – III

### FUNCTION OF TRUE-ON-LINE UPS SYSTEM

#### **3.0 Functional TOL UPS consists following Building Blocks:**

Mains U/V , O/V and DC Over  
Charger  
DC to DC Converter  
Protection + LCD Display and Power supply / Digital Panel Meter.  
Inverter ( PWM Card )  
PWM Driver and Power Devices  
Static Bypass

In single phase UPS, phase fail, Reversal and U/V, O/V blocks are not required.

Detailed working of functional block diagram :

#### **3.1 Phase fail and Reversal:**

The main principle of phase fail and phase reversal card is potential difference and phase shift angle when they are connected in star connection through any discrete passive component. When one of the phase fails, potential difference produced across primary of transformer by another two phases. Also when phase sequence interchanges, circuit detects the phase shifting mismatch and then a potential difference is developed across primary of phase control and phase reversal control transformer and supply generated at secondary of transformer. This supply is given to relay coil. When relay gets energised, it blocks the gate pulses of charger SCR

#### **3.2 U/V, O/V and D.C Over Voltage :**

In U/V, O/V card I/P voltages is checked. If input voltage not in range the U/V,O/V circuitry cuts the control supply of charger control If input voltage not in range the U/V,O/V circuitry blocks the charger SCR Pulses in three phase input UPS System.

For 1 Ph. I/P UPS System : I/P Range : 170 V to 270 V AC or 160 V to 260 V AC

For 3 Ph. I/P UPS System : I/P Range : 355 V to 475 V AC or 300 V to 450 V AC

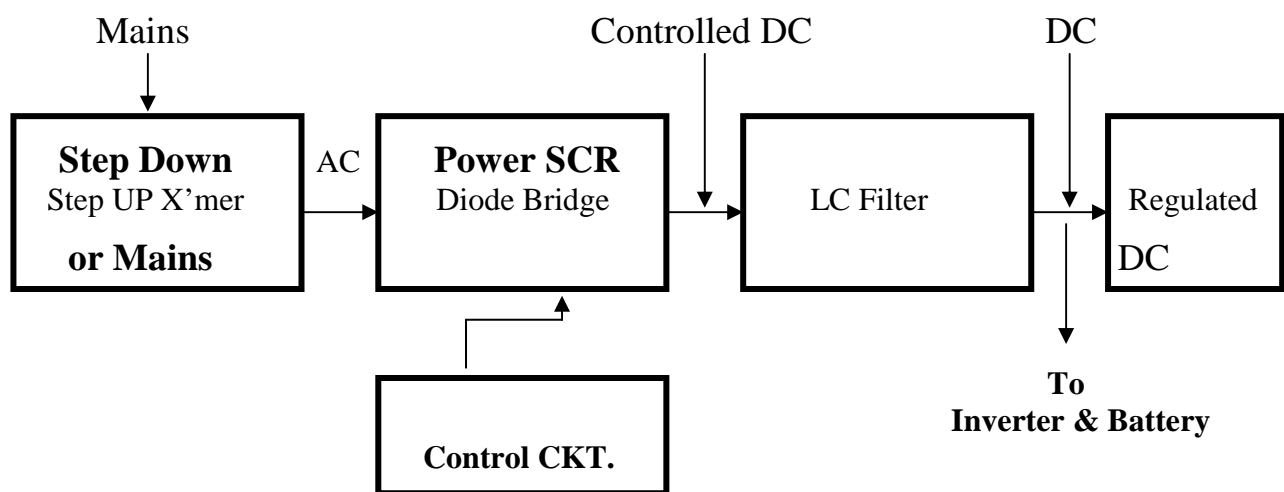
Charger trip protection available in the UV/OV card. If charger voltage increases beyond limit due to feedback open, charger trip protection blocks the charger SCR pulses.

### 3.3 Charger :

Charger is important building blocks in ON Line UPS System to provide DC power supply to inverter and battery at normal condition. There are number of types in rectifiers. The common method used is full bridge controlled rectifier. Rectifier consists of step down/ step up auto transformer or direct mains, Power SCR, Power Diode, Inductor and Capacitor.

See block diagram of Charger.

Fig No : 1



Efficiency and Reliability is most important factor to consider power and stability of the UPS System. According to UPS system rating is classified into two type :

- 1) Single Phase Rectifier.
- 2) Three Phase Rectifier.

Generally, single phase rectifier used in lower KVA UPS System rating (upto 7.5KVA)  
Three phase rectifier used in higher KVA UPS System rating ( $> 7.5$  KVA ).

Generally, in single phase rectifier, single phase controlled by using SCR control circuit.

### 3.4 DC to DC Converter :

Control supply to protection card, inverter card and driver card generated from DC – DC converter. Fly back technique is used in DC – DC converter. In DC – DC converter card, I/P Voltage is normal DC voltage of UPS system.. In DC - DC converter control supply +5V, -12V, +15V and GND generated for inverter card, +15V and gnd generated for protection and Driver Card.

### **3.6 Protections and LCD Display ( Using Pro - DPM )**

In Pro – DPM card there are number of protections to avoid malfunctioning of UPS System and to help fault diagnosis. In Pro–DPM following protections are available:

- 1) Mains ON.
- 2) Mains fail musical alarm with message.
- 3) Battery low warning.
- 4) DC Under Trip.
- 5) DC Over Trip.
- 6) Output AC Under Trip.
- 7) Output AC Over Trip.
- 8) Overload Trip.
- 9) Battery Backup Status.
- 10) Load Status

### **3.7 Inverter :**

Inverter is the main Block in the UPS System. Inverter generates AC voltage from DC Voltage. Inverter consists of inverter control card, driver card, power devices and inverter transformer. Inverter card generates the PWM pulses and apply to driver card. Driver card provides sufficient driver pulses to power devices. Power devices provides primary voltage to inverter transformer. Inverter Transformer secondary voltage sensed for feedback in inverter control card to control o/p voltage regulation. Inverter secondary goes to load through static if applicable.

### **3.8 Optional Features :**

#### **3.8.1 Static Switch :**

Static switch provides bypass supply to load in case of failure in UPS System. If any tripping or failure in inverter section occurs the load goes through static bypass automatically without any interruption to Mains. Manual bypass to ‘ Load ON Mains ’ is a standard feature.

#### **3.8.2 Shutdown Software :**

It helps mains fail condition, back up status of battery in minutes, battery low warning and auto shutdown in Windows, and LAN File - Server system.

#### **3.8.3 Remote Panel :**

Remote Panel indicates working functions, back up status of battery in minutes, load status and fault conditions if any in your present work stations if UPS System is away from work station.

#### **3.8.4 Power – Monitoring Software :**

Power Monitoring of Ups system with various features like display of power parameters, event activation, history log etc. using SNMP and Internet

## SECTION IV

### PRE-INSTALLATION INSTRUCTIONS

Your TOL UPS system is handling very high amount of currents and voltages and also is a critical part of your setup. Proper use of the system will ensure a long and trouble free working life.

#### **4.1 Inspection**

Inspect the UPS upon receipt and check packing list. Notify the carrier and dealer if there is damage or shortage. The packaging is recyclable; save it for re-use or dispose it properly.

#### **4.2 Placement**

Install the UPS in a protected area with adequate flow of air and free of dust. Do not operate the UPS if the temperature and humidity are not within the specified limits. In colder territories allow the UPS to come to room temperature before operating.

Successful installation of every unit gets completed after it has acclimatized to various site conditions and covers aspects like:

- a) Variation in input voltage.
- b) Variation in load connected and variable nature of load.
- c) Loose connection in main board from where supply comes or at load end.
- d) Voltage between neutral to earth at input.
- e) Air circulation.
- f) Wiring on the load side to various sockets.
- g) Charge holding time of SMPS in the computers.
- h) Starting current of Monitors, especially color monitors.

### 4.3 WORK INSTRUCTIONS BEFORE INSTALLATION OF UPS SYSTEM

CHECK UPS SYSTEM FOR TRANSIT DAMAGES & CHECK FOR ANY ITEM BROKEN IN PRESENCE OF OUR ENGINEER



KINDLY ARRANGE FOR FOLLOWING BEFORE INSTALLATION



THE INPUT OUTPUT CABLES TO UPS & FROM UPS SHALL BE PROPERLY CONNECTED



THE RATING OF INPUT & OUTPUT CABLES SHALL BE PROPER WITH EARTHING WIRE



CHECK INPUT OUTPUT RATING OF BREAKERS SHOULD BE PROPER



OPEN UPS SYSTEM, CHECK ANY LOOSE CONNECTIONS OF PCB CONNECTORS & POWER CONNECTIONS, IF FOUND TIGHT IT



INSTALL BATTERIES ON BATT. RACK ENSURE PROPER POLARITY WHILE CONNECTING BATTERIES



ENSURE PHASE, NEUTRAL & EARTH SEQUENCE TO CHARGER INPUT & OUTPUT WITH COLOUR CODE, AS RED, YELLOW, BLUE & BLACK WIRES RESPECTIVELY



REFER WORK INSTRUCTIONS FOR POWERING UP OF UPS SYSTEM

## **SECTION – V**

### **OPERATING INSTRUCTIONS FOR TOL UPS**

This section gives you step by step instruction to be carried out under different conditions. The sequence of these steps carries great significance hence it is recommended that you religiously follow them :

#### **5.1 Normal Working Conditions :**

In this condition the mains supply is ON.

1. START mains to the UPS system
2. SWITCH ON the Battery MCB after some time.
3. Wait till LCD shows `System Check O.K' / Indication for DPM model
4. Start the UPS by pressing START switch on front panel
5. After UPS output voltage reaches 230V, Start the LOAD step by step
6. Start your normal course of work, thereafter.

**Note :** Do not switch on or off high loads suddenly. Do it gradually, else the UPS may trip.

7. Always keep the mains switch ON. This ensures that the batteries are being charged, optimally.

#### **OPERATING INSTRUCTIONS FOR LCD PANEL**

- A. Press `UP and DOWN' Keys on front panel to view the instantaneous values of various parameters
- B. SET/ENTER KEY : LCD will show three rolling message one after another viz. `UPS status', `Setting' and `Last trip' fault. To view any one of the above, press `ENTER' key when the message is being displayed on LCD.

**NOTE :** Do not press `SET/ENTER' key when LCD displays `SETTING' message. These are factory settings and are password is protected. In any case if user goes in password mode then press SET key till the 8 digits get entered. Then LCD will come out of settings mode since wrong password is entered. If by chance correct password is entered then press UP key for 5 sec. Setting mode is then bypassed

#### **5.2 Mains Fail Condition :**

After mains failure, inverter automatically switches to battery for DC power and load gets the AC power continuously. In such a case nothing is required to be done by the user. After mains failure, the melody buzzer rings for 10 seconds and stops automatically. When the mains supply restarts, the system will switch to mains automatically and the batteries will start recharging.

**Note :** Kindly ensure that the UPS is not left ON under no load condition. In that case press `STOP' (Red) switch before going out of the UPS room.

### **5.3 Battery Discharged Condition:**

If mains supply is not available for a long time, the batteries power will be utilized by the load. Meter/ Indication will then show the battery back up status at lowest. When the batteries get discharged to its minimum, the battery low message will be shown and the system will give a continuous audio alarm. This means the batteries are almost reaching towards its maximum depth of discharge.

#### **In such a case :**

1. If the load is ON, stop the work at earliest (e.g. you are working on computer system, save your work).
2. Switch off the load circuit one by one.
3. Stop the UPS by pressing `STOP ' switch

#### **After the mains resumes :**

1. Press START switch.
2. The batteries will start charging automatically.
3. Switch on the load circuit one by one.

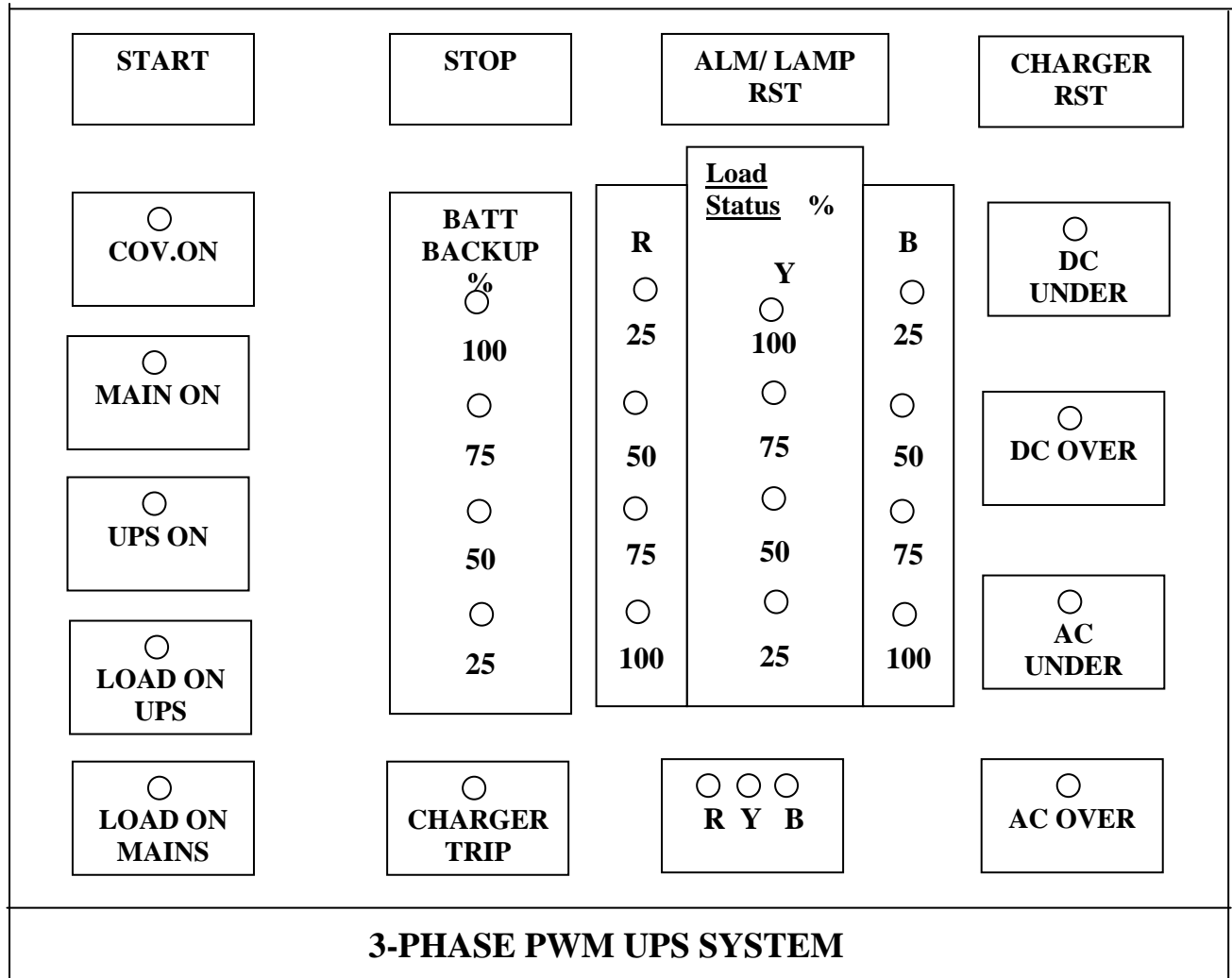


## SECTION VI

### FRONT PANEL AND INDICATIONS

#### 6.0 Front Panel : TOL UPS System with Digital Panel Meter

UPS is normally offered with a Digital Panel Meter ( 7 segment LED ) which reads input/output voltage .



#### Indications on DPM:

1. **Mains on** : This LED indicates that mains power supply to the UPS is ON.
2. **Converter On** : The power needed by the circuits inside the UPS is derived from mains or batteries. This is done by a converter card. This LED when glows indicates that this card is working all right.
3. **UPS On** : This LED in on condition indicates that UPS is working.
4. **Load On UPS** : Your load may be connected to UPS or to mains through a static bypass switch. This LED indicates that power to load such a situation if static switch is available in the UPS system.

## **SECTION – VII**

### **PRECAUTIONS**

**7.0** In this section we have listed a few instructions that will help you in maintaining your system.

**Note :** It will be a good idea to have a look at fault diagnosis along with this section. For any further information, please contact our nearest regional office.

#### **7.1 Dos**

1. Everyday take a careful look at the connections made to the system.
2. Before starting the UPS system check that all the load circuit (e.g. computers) are off.
3. After starting the UPS wait till the LED/Digital Meter shows normal output. Then start the load.
4. Before closing work ensure that mains supply to UPS is ON. This will keep the batteries charged and healthy.
5. Please understand the operational instructions thoroughly from the Engineer during installation and follow them carefully.
6. Please ensure the batteries are maintained periodically.
7. Please ensure the earthing is done properly and is maintained periodically.
8. Keep at least 6-inch clearance on both sides of the metal case to provide adequate ventilation.
9. Please check the charge holding capacity of SMPS, used in Computers. It should confirm to IBM standards of 20 Milli seconds, minimum.
10. Kindly switch off Mains once in a week for 10-15 minutes to ascertain healthy operations of battery.

#### **7.2 DON'Ts**

1. Do not disconnect batteries from UPS.
2. Do not turn the mains supply OFF if batteries are being charged, in the night.
3. Do not connect ELCB in the circuit of supply provided to UPS.
4. Please check the rating of wire giving supply to UPS and from UPS to load.

5. Do not overload the UPS or connect loads like tube lights, Fan, drilling Machine to UPS Output
6. Do not keep computer stationery or tea cups on the UPS System.
7. Do not press SET / ENTER key when LCD displays settings mode to disturb factory settings.
8. Do not drop the UPS or apply heavy shock
9. Do not insert items such as pins, wires Screwdriver etc through ventilation slots.
- 10 Do not dispose off the batteries in fire. They will explode. Do not open or mutilate the battery. The content is toxic and harmful to skin and eyes.

## SECTION – VIII

### DIAGNOSTIC / TROUBLE SHOOTING

1. As the mains is switched on with in a few seconds ‘DC Under’ or ‘DC Over’ or both alarms occur. This may happen in a normal operation also because the voltages take time to settle down to their normal values. Before the voltage settles down to the normal value it may go beyond the normal limits momentarily which is indicated by the alarm and LCD indications. In such a case, press alarm reset push button. The indication and the audible alarm will stop.
2. If the Inverter trip occurs immediately after pressing inverter start, it means the load connection is faulty. There may be a short circuit at the output or a loose connection. In such a case disconnect the load and check the working on UPS.
3. ‘AC Over’ trip may occur if the feedback to the inverter card is open. So System goes in an open loop condition, the AC voltage starts increasing till finally the system trips gives ‘AC Over’ alarm. This may also happen because of incorrect setting of the voltage waveform setting of the voltage waveform setting pots on the Inverter Card. Let the service engineer set it for you
4. ‘AC Over / DC Over / DC Under’ indications may occur if a large load is suddenly switched ON or OFF. This occurs as the ‘Inverter card AC corrective response on the inverter card or the DC corrective response on the charger card is not able to reply to the sudden load change. On application of a large load initially the output AC voltage and charger DC voltage drops: inverter and charger cards take corrective action to increase output voltage. This generates oscillations and hence ‘AC Over / DC Over / DC Under’ condition occur. In such a case switch off the Inverter, reduces the load & then restart inverter & check its performance. Avoid frequent switching of the load.
5. Corrective action of the inverter and the charger depends on the load transients and DC source ( Mains or Battery ). In mains fail condition with a little battery back
6. up remaining, if large load is switched ON or OFF, it leads to ‘AC Over / DC Over / DC Under’ conditions. Avoid frequent switching of the load. Do not drive high load when inverter is on battery back up.
7. **Inverter overload occurs due to :**
  - a) If load on the inverter exceeds it’s rated value. In such a case, decrease the load and check the performance.
  - b) If there is a short circuit or a loose connection at the load terminals causing a high load current to flow. In such a case switch OFF the CONVERTER and disconnect the load and check the performance of CONVERTER.
  - c) If Inverter trips on extremely low loads it indicates that trip setting are disturbed. Let a service Engineer set it for you.

- 7). When start button is pressed, inverter fuse blows up making an abnormal sound. Check Inverter IGBTs bank for blown up or short circuited components. Let a service Engineer check output PWM waveform of driver cards. Always use fuse of proper rating. Incorrect rating may damage the system.
  
- 8) If the computer reboots a number of times automatically it means that you are switching ON or OFF large amounts of load. The correct procedure is to start the CONVERER first, then one by one the computers. Maximum step load switching allowed is 50% of the rated. If the rebooting problem occur even at lower load values it means the waveform settings are disturbed. Let a service engineer do it for you.

## Section – IX

### COMPANY PROFILE

**SUNPOWER** is promoted by

Mr. G. K. Singh, B. Tech. (Hons) – I.I.T. Bombay, M. B. A. – I.I.M. Calcutta a having wide experience in field of R & D, Production, Quality Control and Marketing. The organization specializes in offering cost effective solutions to various power- related problems. For last five years, consistent growth in domestic and export markets has doubled the company's turn over every year. The company continues it's Growth through more value – added products. Its present list of products include:

- True – on – line UPS system
- Smart / UPS systems
- Constant Voltage Transformers
- Solid State Voltage Stabilizers
- Servo – Stabilizers
- Appliance – Protectors
- Sine – Wave Inverters
- Float – Chargers

For further details, you may visit our website :

[www.galaxyups.com](http://www.galaxyups.com)

**APPENDIX A**

*APPENDIX A - 1*

**TEST CERTIFICATE**

*System Description : TRUE-ON-LINE UPS*

*Serial Number :*

*Rating :*

*Buyer :*

*(Quality Control Department)*

*(Production Department)*

*Date:*

*(Company Seal)*



**WARRANTY CERTIFICATE**

**System Description** : *True – On – Line UPS*

**Serial Number** :

**Rating** :

**Buyer** :

This unit is warranty against all manufacturing and workmanship defects upto a period of 12 months from the date commissioning or 13 months from the date of supply, whichever is earlier.

This warranty is valid only if the unit is used to its electrical, mechanical and environmental specifications and no consequential damage are accepted under this warranty.

**(Quality Control Department)**

**(Production Department)**

Date :

**(Company Seal)**

APPENDIX A – 3

**REPLY CARD**

**System Description** :

**Serial Number** :

**Rating** :

**Date of Dispatch** :

**Client Information**

**Name** :

**Address** :

**Contact Person** :

**Department** :

**Phone (with STD Code)** :

**Fax :**

**Dealer's Information**

**Name** :

**Address** :

**Contact Persons** :

**Department** :

**Phone(with STD Code)** :

**Fax :**

**(Dealer's Seal )**

## **GALAXY ELECTRONICS (INDIA) INC.**

### **10.0 LIST OF REGIONAL OFFICES / SERVICE CENTERS**

<b>SR.</b>	<b>LOCATION</b>	<b>PHONE (S)</b>	<b>FAX ( STD</b>
<b>1.</b>	<b>PUNE ( Sales&amp; HO )</b>	40084939	020-40084939
<b>2.</b>	<b>MUMBAI</b>	25791800 25790461	022-25774087
<b>3.</b>	<b>DELHI</b>	55705321 39548589	011-22022087
<b>4.</b>	<b>HYDERABAD</b>	27051318	040-27069029
<b>5.</b>	<b>AHAMDABAD</b>	<b>079-25451577</b>	

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