



- Provide freshening charge as per storage interval clause (1.3) of I&O Manual
- Always use insulated tools to avoid short circuit & use calibrated instruments for measurements
- After a discharge, recharge the batteries immediately, if any problem in the charging system use external charger
- Always connect the take-off connections to the respective polarities only ('+Ve' to '+Ve' and '-Ve' to '-Ve')
- Maintain the battery records all the time without fail

**DO NOTs:**

- Do not keep the batteries in places exposed to direct sunlight, rain, dust, storm etc.
- Do not add water or acid.
- Do not attempt to dismantle the battery.
- Do not tamper with safety valves.
- Do not over tighten the terminal bolts & avoid the loose connections.
- Do not allow any metal objects to rest on the battery or fall across the battery terminals.
- Do not install any physical damaged modules / batteries.
- Do not mix the batteries of different capacities or makes.
- Do not mix ordinary conventional / low maintenance batteries with Amaron Sleek (FTA) Batteries
- Don't install batteries in horizontal direction / tilted manner
- Don't pull / drag the batteries on the floor

**SECTION 6.0 – TROUBLE SHOOTING:**

| Symptom                              | Check for   | Cause   | Remedy   |
|--------------------------------------|---|---|--|
| Low back up                          | - Charger settings                                | Lower setting                                   | Re-adjust to 13.5V per Module  |
|                                      | - Terminal tightness                              | Continuous charging at High voltages            | Replace the battery  |
|                                      | - State of charge                                 | Loose   | Tighten to 11 Nm (97.36lbs)  |
|                                      |   | Not fully charged                               | Charge the battery at 13.8 VPM for 24 Hrs  |
| Unequal voltages among the batteries | - Terminal tightness                              | Loose in few modules                            | Check the terminals tightness for all the batteries. Tighten to 11 Nm (97.36lbs) |
|                                      | - External heat sources directed on few batteries | External heat sources directed on few batteries | Redirect the heat sources from the batteries / reposition the batteries.         |
|                                      | - Tap connections                                 | Tap connections                                 | Remove the tap connections   |
|                                      | - Boost charge                                    | No boost charge once in three months            | Boost charge at 13.8 VPM for 24 Hours  |
| Abnormal battery heating             | - Ventilation                                     | Poor  | Provide adequate ventilation.  |
|                                      | - Ripple  | Very high ripple in the charger out put         | Rectify the charger  |
|                                      | - Charger setting                                 | Continuous over charge                          | Replace the battery  |

**Section 7.0 – DISPOSAL OF USED BATTERIES**  
**7.1 Lead hazardous**

1. Lead is hazardous when the lead metal is processed.
  2. If batteries are disposed to unauthorized recyclers, the unauthorized recyclers would not be following good manufacturing practices guided by Central Pollution Control Board / Ministry of Environment & Forests thereby polluting the surroundings which in turn causing health problem to the surroundings habitants.
  3. In view of the above said reason, please ensure that the used batteries are disposed only to the registered recyclers
- Please follow the above guidelines issued by Ministry of Environment and Forests, during the disposal of used batteries.

**Problem Reporting**

Whenever any abnormality is observed in the battery system in regards to functional as well physical performance, the same to be brought into notice of the nearest Amara Raja representative or HOD – Service at Amara Raja batteries Ltd, Hyderabad, AP, India by referring the battery manufacturing date & serial number, which are available on the cell top cover.

**BATTERY MONITORING REPORT**

Date: \_\_\_\_\_  
 Company: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 No. of Units: \_\_\_\_\_  
 Serial No. \_\_\_\_\_  
 Date Installed: \_\_\_\_\_  
 Model, No of battery: \_\_\_\_\_

**Operating Parameters**

Date: \_\_\_\_\_ Time: \_\_\_\_\_  
 Charger Output (at UPS terminals): \_\_\_\_\_  
 Ambient Temp.: \_\_\_\_\_  
 Total Battery bank Voltage (at battery bank terminals): \_\_\_\_\_  
 Panel Meter Volts: \_\_\_\_\_  
 Charging Current (at the time of reading): \_\_\_\_\_

**Individual Unit Readings**

| Unit No | Volts |
|---------|-------|
| 1       |       |
| 2       |       |
| 3       |       |
| 4       |       |
| 5       |       |

**Remarks and Recommendations:**

\*When advice is desired, please forward a duplicate of this report to your nearest Amara Raja representative.



Risk of fire, explosion, or burns. Do not disassemble, heat above 55°C or incinerate

**INSTALLATION & OPERATIONAL MANUAL**

**AMARA RAJA BATTERIES LIMITED**

**Corporate Operations Office | Registered Office & Works:**

Terminal A  
 Karakambadi,  
 Tirupati – 517 520.  
 Andhra Pradesh, India  
**Unit - II,**  
 Nunegundla Palli,  
 Bangarupaiyam (Mandal)  
 Chittoor District, AP – 517 416  
 Tel No. +91 8572 280100  
 Fax No. +91 877 2285599 / 600

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### SECTION 1.0 – RECEIPT OF SHIPMENT & STORAGE

#### 1.1 DELIVERY INSPECTION:

Upon receipt of shipment, unload and store the batteries in covered area. Do not expose them to direct sun light, rain, dust, storm, etc. Immediately upon delivery, examine for possible damage caused in transit, damaged packing material could indicate rough handling. Make a descriptive note on the delivery receipt before signing. If battery damage is found, request on inspection by the carrier and file a damage claim immediately. Any battery with post or seal damage should be replaced

#### 1.2 STORAGE LOCATION & STORAGE INTERVAL

Do not locate batteries in places exposed to direct sun light, rain, dust, storm etc. Such exposure will cause damage to plastic components and will reduce battery life drastically. If the battery is not to be installed at the time of receipt, it is recommended that it be stored indoors at a temperature of 15°C – 30°C clean, dry location provided with a freshening charge. Do not stack wooden crates or cases one above the other to prevent damage to the batteries.

Amaron Sleek (FTA) batteries have a long shelf life provided that the following instructions are adhered. During the storage interval (i.e., between date of shipment and date of installation), a freshening charge should be given once in every six – (6) months. Storage at elevated temperatures will result in accelerated rates of self-discharges. The table given below shows the storage interval at the various elevated temperatures before which a freshening charge is to be given

| Temp in °C | Storage Interval in months |
|------------|----------------------------|
| Up-to 27   | 6.0                        |
| 27-32      | 4.5                        |
| 32-37      | 3.0                        |
| 37-42      | 2.25                       |

Storage beyond these periods without charge can result in excessive Sulphation of plates, which is detrimental to battery performance and life.

#### Note:

- All temperatures given in this Section should be considered as average temperatures for the entire duration of the storage interval.
- Please maintain freshening charge records

### 1.3 BATTERY CONTAINER & COVER

Amaron Sleek (FTA) batteries are uniquely made of using Fire Retardant PPCP material which will well suits for Tropical environment due to its properties such as lower water permeability characteristics. This will help us in not losing higher moisture from the batteries during its service when operating at tropical environments unlike other plastics such as ABS. Since the VRLA batteries works under positive pressure to support superior oxygen recombination in the battery, PPCP which is elastic in nature has bulging as a normal property. This Elongation is due to material characteristics and it will not have any adverse effects on battery performance when operated at normal conditions as recommended by the manufacturers.

### SECTION 2.0 – GENERAL INSTALLATION CONSIDERATIONS

Prior to installation of the battery system, a review of this section is strongly recommended.

#### 2.1 BATTERY LOCATION:

It is recommended that the battery unit shall be installed in a clean, cool & dry location. A location having an ambient temperature of 27°C will result in optimum battery life. Continuous operation above 50°C is not recommended.

#### 2.2 VENTILATION

The Amaron Sleek (FTA) battery is a valve regulated lead-acid battery, which under normal recommended charging, in a stationary application, does not vent any gases, tests have confirmed that more than 99.9% of gases generated are recombined within the battery. Under normal operating conditions, no special ventilation and / or battery room is required.

Batteries can be installed in close proximity to electronic equipment provided that the heat generated by the electronic equipment is removed by ventilation. NEVER INSTALL BATTERIES IN AIR TIGHT ENCLOSURES.

#### 2.3 CONNECTING CABLES

Cable size selection should provide the lowest voltage drop possible between the battery system and operating equipment. Excessive voltage drop will reduce the desired support time of the battery system. The maximum voltage drop in the cable between the system and operating equipment should not be more than 0.03 V, per meter length.

#### 2.4 EQUALIZATION CHARGE

Equalizing (Top up Boost) Charge to be ensure for all batteries once after installation.

### SECTION 3.0 – OPERATION

#### 3.1 – Float Charge

In this type of operation, the battery is connected in Parallel with a constant voltage charger and the critical load circuits. The charger should be capable of maintaining the required constant voltage at the battery terminals and also of supplying the normal load where applicable. This sustains the battery in a fully charged condition and also makes it available to resume the emergency power requirements in the event of an AC Power interruption or charger failure.

#### 3.2 – Float & Boost Voltages

Following are the Float and Boost Voltages recommended for the Amaron Sleek (FTA) Battery system.

Recommended voltage settings for a 12V module for float cum boost charging:

Float Voltage: 13.50VPM @ 27°C

Boost Voltage: 13.80VPM @ 27°C for 24 hrs.

Boost charge Intervals: 03 months once

Current Limit: Min-10% to Max-25% of rated capacity

Modern constant voltage output charging equipment with current limiting feature is recommended for charging of Amaron Sleek (FTA) batteries. This type of charger, properly adjusted to the recommended voltage and following recommended surveillance procedures will assist in obtaining consistent service ability and optimum life. After the battery has been given a freshening charge, the charger should be adjusted to provide the recommended float voltage at the Battery

### Terminals.

Do not float batteries at voltages high or lower than those recommended. Reduced capacity or loss of battery life will result.

After completion of the freshening charge and with the battery floating at float voltage for a minimum of 72 hours, the minimum open circuit voltage should be

| Model                 | Voltage |
|-----------------------|---------|
| 12 Volt Configuration | 13.2 V  |

### SECTION 4.0 – TECHNICAL SPECIFICATIONS:

| Model   | FTA 100           | FTA 125           | FTA 150           |
|---|-------------------|-------------------|-------------------|
| AH capacity @ 10 hr rate at 27°C to 1.75 VPC        | 100               | 125               | 150               |
| Nominal Voltage (V)                                 | 12                | 12                | 12                |
| Physical dimensions (LXWXH)mm ±3mm                  | 556x123x224       | 556x123x257       | 556x123x296       |
| Terminal Torque                                     | 11 Nm (97.36 lbs) | 11 Nm (97.36 lbs) | 11 Nm (97.36 lbs) |
| Recharge time from 0 to 90% SOC (Hrs) in boost mode | 08-10             | 08-10             | 08-10             |
| Float Voltage @ 27°C                                | 13.50VPM          | 13.50VPM          | 13.50VPM          |
| Boost Voltage @ 27°C                                | 13.80VPM          | 13.80VPM          | 13.80VPM          |
| Voltage compensation VS temperature                 | ± 18mv/°C Module  | ± 18mv/°C Module  | ± 18mv/°C Module  |

### Note:

- The charger should have protection against over charge/discharge beyond prescribed ECV's.
- Deep discharges can cause permanent damage to the battery.
- It is recommended that interconnecting cable between battery and load shall be selected to ensure a maximum drop of 30 mv per meter length at the maximum rate of discharge

(Note: Specifications are subject to change without prior notice)

### SECTION 5.0 – DO'S & DON'T'S

#### DO'S:

- Upon receipt of shipment unload and store the batteries in covered area.
- Read 'Installation and operating instruction Manual' prior to installation of the batteries.
- Clean the batteries as and when dust accumulates.
- Provide sufficient ventilation, if the batteries are placed in cubicle.
- The terminal bolt connection to be torqued to 11 Nm (97.36lbs).
- Re-torque the connections once in every 2-3 months (very critical).
- Keep the batteries away from heat source, sparks, fire etc.