



GUAM  
POWER  
AUTHORITY  
AGANA, GUAM

PREPARED BY ENGINEERING DEPARTMENT

Specification No. E-042

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Revision No. 2  
Date: 04/16/15

**GUAM POWER AUTHORITY**  
**P.O. Box 2977**  
**Agana, Guam 96932**

**TRANSMISSION & DISTRIBUTION SPECIFICATION**

**Specification No. E-042**

**For**

**STATION BATTERY CHARGER**

Effective date: 4-20-15      Issued: *Jen*      Approved: *JR*

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### STATION BATTERY CHARGER

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Effective date: 4-20-15    Issued:

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Approved:

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### STATION BATTERY CHARGER

#### 1.0 SCOPE

This specification covers the requirements for furnishing of the battery charger and accessories. The battery charger shall provide a precise, regulated DC output and current limiting capabilities that can operate with or without batteries.

#### 2.0 CONFORMANCE TO SPECIFICATION REQUIREMENTS

##### 2.1 Applicable Standards

The station battery bank shall meet the requirements of the IEEE, NEC, ANSI, and the Federal "Occupational Safety and Health Standards" specifications and guidelines including latest revisions with respect to material, design, and tests.

##### 2.2 Deviations and Non-Conformance Requirements

- 2.2.1 Deviations from this specification or changes in the material or design after the purchase order has been placed must be approved by the Guam Power Authority's Engineering Department and acknowledged by a Purchase Order Amendment.
- 2.2.2 Units received with deviations or non-conformance, which are not acknowledged as specified in sub-paragraph 2.2.1, are subject to rejection. The supplier of units rejected in this paragraph is responsible for any corrective action including but not limited to materials, labor, and transportation necessary to dispose of, or make the units conform to the specification.
- 2.2.3 Notification of defective units discovered before or after installation that are believed to be inherent to manufacturing problems or workmanship shall be forwarded to the supplier. The description of the item, documentation of the problem and the desired information, disposition and/or follow-up (as appropriate) that GPA expects from the supplier will be specified. The supplier's response shall be made within thirty (30) days unless otherwise noted or an extension is acknowledged and approved in writing by the Guam Power Authority's Engineering Department.

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### 3.0 DATA TO BE FURNISHED

The following data shall be provided:

- 3.1. Manufacturer's catalog data with size, type, and factory-configured specification form.
- 3.2. Physical arrangement drawings with elevation, plan view, and mounting details.
- 3.3. Wiring schematics and diagrams complete with interconnection requirements and capabilities.
- 3.4. Outline drawings with dimensions and other physical properties such as weight(s).

3.2 Six (6) complete sets of instruction books containing the following:

- a. Instruction and data for ordering of all parts and accessories
- b. Instructions covering installation, assembly, operation, and maintenance.
- c. Copies of recommended spare parts lists.

### 4.0 DESIGN AND CONSTRUCTION

#### 4.1 Requirements

- 4.1.1 Battery charger shall be self-regulating, solid-state silicon controlled full wave rectifier type designed for single operation with the batteries. The charger shall be battery eliminator DC output filtering. Battery charger shall be GNB "GSCR Series Float Battery Charger" Model No. SCRF 130-1-50E or approved equal.
- 4.1.2 The battery charger shall have an input voltage of 208/240 volt AC, single phase, 60 hertz, 0.75 power factor at full load when tested on battery and resistive load, and 67% efficiency at full load.

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- 4.1.3 The battery charger shall maintain an output regulation of less than 0.5% for simultaneous variations of +10/-12% input voltage, +/-5% input frequency, and 0-100% load capacity.
- 4.1.4 Solid-state electronic circuits shall have an ac and dc transient voltage protection. The battery charger shall be designed to recharge a totally discharged battery without overloading and trickle rate charge when the battery is fully charged.
- 4.1.5 Audible noise shall be less than 65dBA at any point 5 feet from any vertical surface of enclosure. Typical values measure shall be 55 to 60dBA at 100% load.

### 4.2 Capacity

The battery charger should be able to provide a rated output current capacity of 50 Amperes dc continuously at 125 volts dc in an ambient temperature of 104 degrees F (40 degrees C).

### 4.3 Construction

Battery charger shall be floor mounted (unless otherwise specified) NEMA Type 1 cabinet with a hinged front access door. The enclosure shall be finished painted on the outside and inside with corrosion resistant light gray enamel paint, ANSI Color No. 70, using the manufacturer's standard finish procedure. Cooling system shall not require force ventilation, shall be provided with louvers as required for operation in the specified ambient (except the cabinet top shall be solid). Battery charger cabinet shall be drip shield type.

### 4.4 Accessories

Standard features are as follows:

AC Input Circuit Breaker  
DC Output Circuit Breaker  
AC Input Voltmeter, LED Digital  
DC Output Ammeter and Voltmeter, LED Digital  
Manual Equalizer Timer 0-72 Hours and Float Equalize Indicating Light  
AC Power Failure Alarm and Indicating Light  
DC Ground Detection Alarm and Indicating Light with Ground & Lamp Tests

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High-Low DC Voltage Alarm and Indicating Light  
Charger Failure Alarm (No DC Current) and Indicating Light  
Battery Discharge Alarm and Indicating Light  
End of Discharge Alarm and Indicating Light  
DC Current Limit Alarm and Indicating Light  
Common (Summary) Alarm and Indicating Light  
CASM, Combined Alarm-Status Monitor Board with one (1) Form-C Contacts

- High-Low AC Voltage Alarm Relay
- High DC Voltage Alarm Relay
- Low DC Voltage Alarm Relay
- Ground Detection Alarm Relay
- Charger Failure Alarm Relay
- Common Alarm Relay

High DC Voltage Charger Shutdown Alarm and Indicating Light  
Cabinet Heater Strips  
Nameplates to identify each item mounted on control panel.

### 5.0 DRAWING APPROVAL

- 5.1 GPA shall be allowed one (1) week to review and approve drawings without affecting the shipping date.
- 5.2 Drawings returned to the Supplier as approved shall be considered authorization to proceed with the work. The approval of GPA shall in no way abrogate the requirements of this specification.

### 6.0 CERTIFIED REPRODUCIBLES

- 6.1 At least three (3) weeks prior to shipment of the equipment the Supplier shall furnish GPA with four complete sets of final certified reproducible drawings for each station battery bank purchased. Under no circumstances will "Typical Drawings" be accepted. This includes both schematic and wiring diagrams.
- 6.2 The following information shall be shown on each drawing submitted:
  - a. GPA Purchase Order
  - b. Supplier's Name
  - c. Description of Drawing

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### 7.0 INSTRUCTION BOOKS

- 7.1 At least three (3) weeks prior to delivery the Supplier shall furnish GPA five sets of complete operating and instruction books for each station battery bank.
- 7.2 One additional instruction book shall be attached to each station battery bank.
- 7.3 Each manual or instruction book shall include the following:
  - a. Both schematic and wiring drawings. No typical drawings are acceptable.
  - b. List of parts that were shipped loose from the battery charger and to be installed in the field.
  - c. A replacement parts list that includes part number identification.
  - d. A list of recommended spare parts and complete packing lists of accessory items.
  - e. Instruction manuals covering step-by-step installation and assembly with illustrative drawings. Each separate part shall be marked with or identification system to aid in erection.
  - f. Manual recommending proper storage procedures.
  - g. Operating and "troubleshooting" manual.
  - h. List of all special tools needed for installation and maintenance.

### 8.0 WARRANTY

The Supplier shall warrant the satisfactory and successful operation of the apparatus furnished under this specification at the rating, under the conditions, and for the service specified. The Supplier shall further warrant the apparatus against defects of design, material and workmanship. All workmanship and parts shall have a warranty of at least 1 year from the date of equipment commissioning.

The Supplier shall supply three sets of prints of the above requirements. In addition, a list indicating the drawing number and title of each drawing shall be provided.

### 9.0 TEST REPORTS

Four (4) copies of certified test reports shall be supplied to GPA.

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