

**CITY OF AUSTIN**  
**ELECTRIC UTILITY DEPARTMENT**  
**PURCHASE SPECIFICATION**  
**FOR**  
**130 VOLT BATTERY CHARGERS**

<u>DATE</u>	<u>PREPARED BY</u>	<u>ISSUANCE/REVISION</u>	<u>APPROVAL SIGNATURES</u>
4/03/00	Steven Booher	Revision	
1/26/07	Homer Portillo	Revision	
5/16/11	M. Vela de Casillas	Revision	
7/21/15	M. Vela de Casillas	Revision	
11/2/15	M. Vela de Casillas	Revision	 _____

<b>REASON FOR REVISION</b>	<b>AFFECTED PARAGRAPHS</b>
Prepare specification for bid solicitation.	4, 5

This specification, until revised or rescinded, shall apply to each future purchase and contract for the commodity described herein. Retain for future reference.

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**1**     **SCOPE AND CLASSIFICATION**

1.1     **Scope**

The City of Austin (COA) Electric Utility Department d/b/a Austin Energy (AE) sets forth this specification as the minimum requirements for operating characteristics and safety features of a 130 VDC battery charger.

1.2     **Classification**

1.2.1   The charger shall provide an uninterrupted current supply for remote control, automatic indicating, protective and regulating apparatus and charging stationary storage batteries.

1.2.2   The charger will be installed below an altitude of 1,000 meters above sea-level and subjected to an ambient temperature variance of -5°C to +50°C at 90% humidity.

1.2.3   Any product submitted in response to this specification shall have been available for purchase for a minimum of (5) years and manufactured by a manufacturer that has five (5) years of experience producing this type of charger(s) for the United States electric utility industry.

**2**     **APPLICABLE STANDARDS**

The charger supplied in accordance with this specification shall conform to the applicable provisions of the latest ANSI, IEEE, ANSI/IEEE, UL, and NEMA standards. In the case of a conflict between any of the standards mentioned in this specification and the content of this document, the City of Austin specification shall govern.

**3**     **FUNCTIONAL REQUIREMENTS**

The charger will be connected in parallel with a separately furnished battery to the 125 VDC control bus at all times. The charger shall respond to all current demands (0-20), (0-35) and (0-50) Amp, as required, up to its capacity.

**4**     **PERFORMANCE REQUIREMENTS**

4.1     The battery charger shall operate within the condition stated in section 1.2.2, environmental ranges without de-rating.

4.2     The DC charging voltage shall be maintained within +/- 0.5% from no load to full load, with AC line variations of +/- 10% and frequency variations of +/- 5%.

4.3     The AC supply voltage will be 240 volts, single phase, 60 Hertz.

4.4     The charger shall be capable of maintaining a float charge of 125 VDC to 135 VDC and an equalizing or high rate charge from 135 VDC to 145 VDC.

4.5 The charger(s) shall be capable of supplying a maximum continuous DC current of twenty (20), thirty-five (35), and fifty (50) amperes respectively at rated voltage. Size shall be requested on bid sheet.

4.6 The DC output shall be filtered to 30 mV RMS or less.

## 5 MATERIAL REQUIREMENTS

5.1 The charger shall be provided with the following mechanical features:

- 5.1.1 Convection cooled, NEMA Type 1, ventilated steel cabinet with wall brackets, if applicable.
- 5.1.2 Complete access to all components.
- 5.1.3 Meters, indicator lights and potentiometers mounted on the front of the hinged door.
- 5.1.4 Knockouts for conduit entrances.
- 5.1.5 Painted inside and out with enamel over a primed surface.
- 5.1.6 The battery charger cabinet shall be front opening for easy access to replaceable components. Components, cards, modules, heat sinks, etc., shall be easily removed or serviced without the necessity of removing the cabinet from the wall.

5.2 The charger shall be provided with the following electrical features:

- 5.2.1 Full wave rectification with silicon controlled rectifiers.
- 5.2.2 Plug-in sensing, reference and firing models.
- 5.2.3 DC indicating ammeter with 2% accuracy at full scale for analog meter, and 1% accuracy for digital ammeter.
- 5.2.4 DC indicating voltmeter with 2% accuracy at full scale for analog meter, and 1% accuracy for digital voltmeter.
- 5.2.5 Current limiting circuit with an adjustable range from 90-120% and factory set at 100% of rated output.
- 5.2.6 Two-pole circuit breaker with 10,000 ampere interrupting capacity at 240 VAC for input source.
- 5.2.7 Two-pole circuit breaker with 10,000 DC ampere interrupting capacity, rated for DC output voltage and current required.
- 5.2.8 0-72 hour equalizing charge timer.
- 5.2.9 AC input surge arrester.
- 5.2.10 Semiconductor transient voltage protection for control circuit and rectifiers per the applicable standards.
- 5.2.11 Complete isolation between input and output circuits shall be provided.
- 5.2.12 Charger shall have field adjustable float and equalize controls. These can be provided via potentiometers or via microprocessor controls.
- 5.2.13 Output ripple voltage shall be filtered to 100 mV RMS of the output voltage without a battery connected. The battery charger shall be supplied with a battery eliminator option.
- 5.2.14 DC output blocking and protection diodes shall be provided to prevent damage to the charger due to reversed polarity connections and to prevent the battery from discharging back through the charger.
- 5.2.15 Alarm circuits shall be supplied with one (1) set of Form "C" output contacts, SPDT (single pole double throw), wired to a terminal strip for customer termination. Alarm contacts shall be rated for resistive loads of 0.5 Amp at 125 VDC. Separate Form "C" contacts shall be provided for the following alarms:
  - A. AC power failure alarm
  - B. Positive DC ground detection
  - C. Negative DC ground detection
  - D. High DC voltage
  - E. Low DC voltage
  - F. Charger failure (no DC output current)

5.2.16 Indicating lights shall be provided on the front panel for the following conditions and alarms:

- A. Float indication
- B. Equalize indication
- C. AC power ON
- D. Positive DC ground detection with test switch
- E. Negative DC ground detection with test switch
- F. High DC voltage
- G. Low DC voltage
- H. Charger failure

6 **TEST REQUIREMENTS**

The charger shall be tested in accordance with the latest NEMA PE5 standard.