NRG
Intelligent Engine Start Battery Charger

The Smart Choice for Mission-Critical Engine Starting

- Fast, accurate, mission-critical charging — gives best starting reliability
- 4-rate, temperature-compensated output — offers longest battery life
- Replace nearly any charger — without planning ahead
- Industry-first battery-fault alarm — helps dispatch service early
- Lasting reliability — field MTBF > 1 million hours with industry-best warranty
- IBC seismic certification — meets latest building codes, no installation delays
- Optional OSHPD pre-approval — already approved for California hospital projects
Failure to start due to battery problems is the leading cause of inoperable engine generator sets.

SENS NRG battery charger maximizes starting system reliability while slashing genset servicing costs:

One NRG replaces almost any charger without extra site visits. Installers can select or change at any time 120, 208 or 240 volts AC input, 12 or 24-volt battery and output settings optimized for nearly any lead-acid or nickel cadmium battery.

Easy to understand user interface provides state-of-the-art system status – including digital metering, NFPA 110 alarms and a battery fault alarm that can send service personnel to the site before failure to start.

Batteries charged by NRG give higher performance and last longer. In uncontrolled environments precision charging by SENS increases battery life and watering intervals 400% or more.

NRG meets all relevant industry standards – including UL, NFPA 110 and CE. Seismic Certification per International Building Code (IBC) 2000, 2003, 2006. All units are C-UL listed. 50/60 Hz units add CE marking to UL agency marks.

EnerGenius reliability technology built into every charger includes:
- All-electronic operation with generous component de-rating
- Disconnected/reversed/incorrect voltage battery alarm and protection
- Protection of connected equipment against load dump transients
- Widest temperature rating, and overtemperature protection
- Superior lightning and voltage transient protection
- Demonstrated field MTBF > 1 million hours
- Standard 3-year warranty (10 years magnetics and power semiconductors) and available 10-year extended warranty

Earn the best return on your charger investment – choose SENS NRG
NRG Specifications

AC Input
- Voltage: 110-120/208-240 VAC, ±10%, single phase, field selectable
- Input current: 10A charger: 6.6/3.3 amps maximum
- 20A charger: 12.6/6.3 amps maximum
- Frequency: 60 Hz ±5% standard; 50/60 Hz ±5% optional
- Input protection: 1-pole fuse, soft-start, transient suppression

Charger Output
- Nominal voltage ratings: 12 or 24 volt nominal
- Optional voltage rating: 12/24 volt, field selectable
- Battery settings: Six discrete battery voltage programs
  - Low or high S.G. flooded
  - Low or high S.G. VRLA
  - Nickel cadmium 9, 10, 18, 19 or 20 cells
- Regulation: ±0.5% (1/2%) line and load regulation
- Current: 10 or 20 amps nominal
- Electronic current limit: 105% rated output typical – no crank disconnect required
- Charge characteristics: Constant voltage, current limited, 4-rate automatic equalization
- Temperature compensation: Enable or disable anytime, remote sensor optional
- Output protection: Current limit, 1-pole fuse, transient suppression

User Interface, Indication and Alarms
- Digital meter: Automatic meter alternately displays output volts, amps
  - Accuracy: ±2% volts, ±5% amps
- Alarms: LED and Form C contact(s) per table:

<table>
<thead>
<tr>
<th>Alarm Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC good</td>
<td>LED</td>
</tr>
<tr>
<td>Float mode</td>
<td>LED</td>
</tr>
<tr>
<td>Fast charge</td>
<td>LED</td>
</tr>
<tr>
<td>Temp comp active</td>
<td>LED</td>
</tr>
<tr>
<td>AC fail</td>
<td>LED and Form C contact</td>
</tr>
<tr>
<td>Low battery volts</td>
<td>LED and Form C contact</td>
</tr>
<tr>
<td>High battery volts</td>
<td>LED and Form C contact</td>
</tr>
<tr>
<td>Charger fail</td>
<td>LED and Form C contact</td>
</tr>
<tr>
<td>Battery fault</td>
<td>LED and Form C contact</td>
</tr>
</tbody>
</table>

1. Three-position jumper allows user to select from three display settings:
   - alternating volts / amps (normal), constant volts, or constant amps
2. Contacts rated 2A @ 30 VDC resistive
3. Battery fault alarm indicates these fault conditions:
   - Battery disconnected - Battery polarity reversed - Mismatched charger battery voltage - Open or high resistance charger to battery connection
   - Open battery cell or excessive internal resistance
**Controls**

- AC input voltage select: Field-selectable switch
- Optional 12/24-volt output select: Field-selectable two-position jumper
- Battery program select: Field-selectable six-position jumper
- Meter display select: Field-selectable three-position jumper
- Fast charger enable/disable: Field-selectable two-position jumper
- Temp compensation enable: Standard. Can be disabled or re-enabled in the field
- Remote temp comp enable: Connect optional remote sensor to temp comp port

**Environmental**

- Operating temperature: -20°C to +60°C, meets full specification to +45°C
- Over temperature protection: Gradual current reduction to maintain safe power device temperature
- Humidity: 5% to 95%, non-condensing
- Vibration (10A unit): UL 991 Class B (2G sinusoidal)
- Transient immunity: ANSI/IEEE C62.41, Cat. B, EN50082-2 heavy industrial, EN 61000-6-2
- Seismic Certification: IBC 2000, 2003, 2006, 2009 Maximum Sds of 2.28 g, Optional OSHPD pre-approval

**Agency Standards**

- Safety: C-UL listed to UL 1236 (required for UL 2200 gensets), UL Category BBGQ, CSA standard 22.2 no. 107.2-M89
- Agency marking: CE: 50/60 Hz units DOC to EN 60335
- EMC: 60 Hz: C-UL-US listed
- 50/60 Hz: C-UL-US listed plus CE marked
- Emissions: FCC Part 15, Class B; EN 50081-2
- Immunity: EN 61000-6-2
- NFPA standards: NFPA 70, NFPA 110. (NFPA 110 requires Alarms “C”)
- Optional agency compliance: OSHPD pre-approval

**Construction**

- Dimensions: See Drawings and Dimensions page for details
- Printed circuit card: Surface mount technology, conformal coated
- Cooling: Natural convection
- Protection degree: Listed housing: NEMA-1 (IP20). Optional IP21 drip shield. Optional NEMA 3R enclosure
- Damage prevention: Fully recessed display and controls
- Electrical connections: Compression terminal blocks

**Warranty**

- Standard warranty: Three year parts and labor warranty (10 years magnetics and power semiconductors) from date of shipment
- Optional warranty: If specified at time of order, warranty coverage for the standard warranty period can be upgraded to reimburse customer’s documented field service costs up to the original charger price. Alternatively, standard parts and labor warranty coverage can be increased to 5 or 10 years. Contact the factory for full details

**Optional features**

- Input: Input frequency, 50/60 Hz
- Remote temp comp sensor: Recommended where battery and charger are in different locations
- Drip shield meets s/b (IP21): Protects from dripping water
- NEMA 3R housing: Enables outdoor installation (remote temp sensor recommended)
Drawings and Dimensions

10A Chargers

20A Chargers

<table>
<thead>
<tr>
<th>Amps</th>
<th>Width</th>
<th>Depth</th>
<th>Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>7.66&quot; (195 mm)</td>
<td>6.50&quot; (165 mm)</td>
<td>12.50&quot; (318 mm)</td>
</tr>
<tr>
<td>20</td>
<td>13.95&quot; (354 mm)</td>
<td>6.83&quot; (173 mm)</td>
<td>13.06&quot; (332 mm)</td>
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Additional Information
Contact SENS or your local sales representative for additional specification, engineering and installation information. Check the SENS web site for latest available data. Specification is subject to change without notice.

Contact Information
For information and service on any SENS product, please contact us at:
Sales 1.866.736.7872 • 303.678.7500 • Fax 303.678.7504
www.sens-usa.com • info@sens-usa.com
1840 Industrial Circle, Longmont, CO 80501 USA