

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



NRG Battery Charger Benefits and Features



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

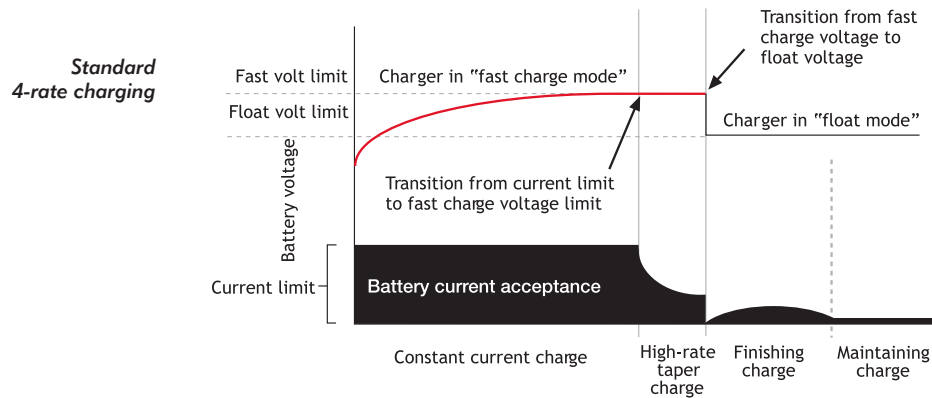
NRG Specifications

AC Input

Voltage	110-120/208-240 VAC, $\pm 10\%$, 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 $\pm 5\%$ standard; 50/60 Hz $\pm 5\%$ 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	$\pm 0.5\%$ (1/2%) line and load regulation
Current	10 or 20 amps nominal
Electronic current limit	105% rated output typical – no crank disconnect required
Charge characteristic	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 ¹
Accuracy	$\pm 2\%$ volts, $\pm 5\%$ amps
Alarms	LED and Form C contact(s) per table:



Front panel status display

Alarm System Functions

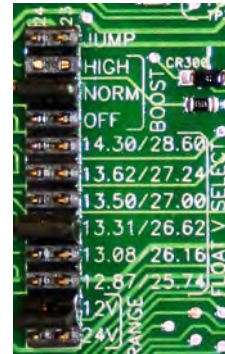
Alarm code "C" (meets requirements of NFPA 110)	
AC good	LED
Float mode	LED
Fast charge	LED
Temp comp active	LED
AC fail	LED and Form C contact ²
Low battery volts	LED and Form C contact ²
High battery volts	LED and Form C contact ²
Charger fail	LED and Form C contact ²
Battery fault ³	LED and Form C contact ²

- Three-position jumper allows user to select from three display settings: alternating volts / amps (normal), constant volts, or constant amps
- Contacts rated 2A @ 30 VDC resistive
- 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
Optional 12/24-volt output select
Battery program select
Meter display select
Fast charger enable/disable
Temp compensation enable
Remote temp comp enable

Field-selectable switch
Field-selectable two-position jumper
Field-selectable six-position jumper
Field-selectable three-position jumper
Field-selectable two-position jumper
Standard. Can be disabled or re-enabled in the field
Connect optional remote sensor to temp comp port



Simple field adjustments

Environmental

Operating temperature
Over temperature protection
Humidity
Vibration (10A unit)
Transient immunity
Seismic Certification

-20C to +60C, meets full specification to +45C
Gradual current reduction to maintain safe power device temperature
5% to 95%, non-condensing
UL 991 Class B (2G sinusoidal)
ANSI/IEEE C62.41, Cat. B, EN50082-2 heavy industrial, EN 61000-6-2
IBC 2000, 2003, 2006, 2009 Maximum S_{ds} of 2.28 g, Optional OSHPD pre-approval

Agency Standards

Safety

Agency marking

EMC

NFPA standards
Optional agency compliance

C-UL listed to UL 1236 (required for UL 2200 gensets), UL Category BBGQ,
CSA standard 22.2 no. 107.2-M89
CE: 50/60 Hz units DOC to EN 60335
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 70, NFPA 110. (NFPA 110 requires Alarms "C")
OSHPD pre-approval

Construction

Housing/configuration
Dimensions
Printed circuit card
Cooling
Protection degree
Damage prevention
Electrical connections

Material: Non-corroding aluminum. C-UL listed enclosure.
See Drawings and Dimensions page for details
Surface mount technology, conformal coated
Natural convection
Listed housing: NEMA-1 (IP20). Optional IP21 drip shield. Optional NEMA 3R enclosure
Fully recessed display and controls
Compression terminal blocks

Warranty

Standard warranty

Optional warranty

Three year parts and labor warranty (10 years magnetics and power semiconductors) from date of shipment
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

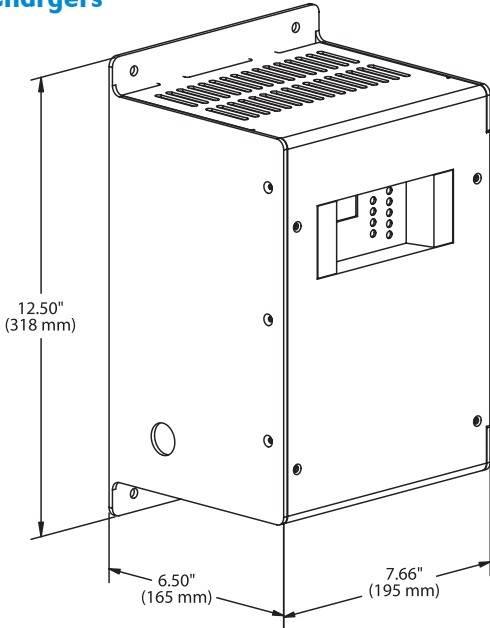
Optional features

Input
Remote temp comp sensor
Drip shield meets s/b (IP21)
NEMA 3R housing

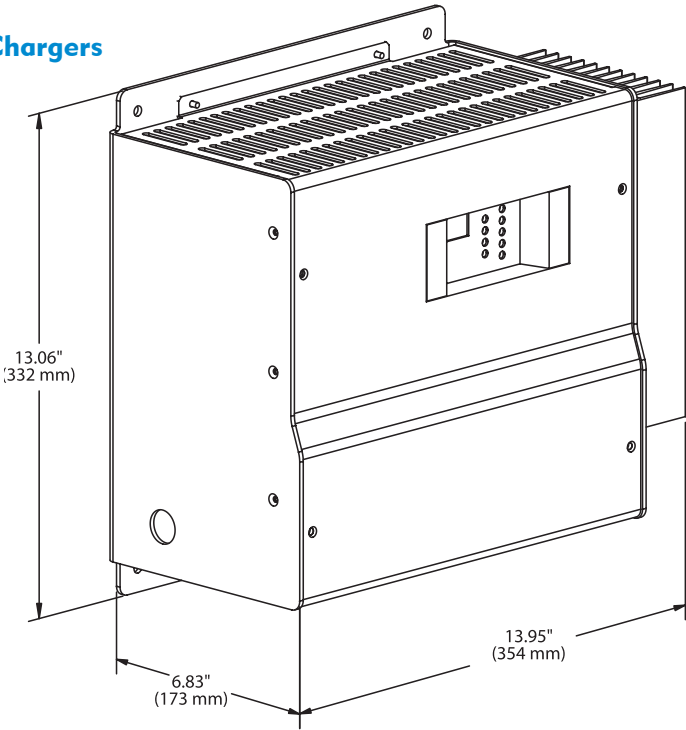
Input frequency, 50/60 Hz
Recommended where battery and charger are in different locations
Protects from dripping water
Enables outdoor installation (remote temp sensor recommended)

Drawings and Dimensions

10A Chargers



20A Chargers



Housing Dimensions Table			
Amps	Width	Depth	Height
10	7.66" (195 mm)	6.50" (165 mm)	12.50" (318 mm)
20	13.95" (354 mm)	6.83" (173 mm)	13.06" (332 mm)

NRG Ordering Information					
Output volts	Output amps	Model	NFPA 110 Alarms	Lbs/Kg	Shipping Lbs/Kg
12	10	NRG12-10-RC	Yes	23 / 10.4	25 / 11.4
24	10	NRG24-10-RC	Yes	23 / 10.4	25 / 11.4
12/24	10	NRG22-10-RC	Yes	23 / 10.4	25 / 11.4
12	20	NRG12-20-RCLS	Yes	39 / 17.7	43 / 19.5
24	20	NRG24-20-RCLS	Yes	42 / 19.1	46 / 20.9
12/24	20	NRG22-20-RCLS	Yes	42 / 19.1	46 / 20.9

All models offer field-selectable input 120/208-240 volts. 60 Hz input is standard with C-UL listing. Optional 50/60 Hz input includes C-UL listing and adds CE mark.

Model Number Breakout - 10 Amp Models



Model
Output voltage
 12: 12 volts
 24: 24 volts
 22: 12/24-volt field selectable

AC input
 R: 120/208-240 VAC, 60 Hz
 H: 120/208-240 VAC, 50/60 Hz

Option code
 E: OSHPD Pre-Approved

All NRG models are C-UL Listed to UL1236

All NRG models provide LEDs and Form C contacts to meet NFPA 110

Model Number Breakout - 20 Amp Models



Model
Output voltage
 12: 12 volts
 24: 24 volts
 22: 12/24-volt field selectable

AC input
 R: 120/208-240 VAC, 60 Hz
 H: 120/208-240 VAC, 50/60 Hz

Option code
 E: OSHPD Pre-Approved

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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

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