



**RIC**  
electronics Ltd.

RECTIFIER  
INVERTER  
CONVERTER

# SB7

## SCR Battery Charger





# Product Specifications

**SB7**

## Description

The SB7 is RIC Electronics' premiere SCR battery charger/rectifier. The SB7 provides power to critical DC loads through a wide range of outputs and is engineered for maximum reliability and ease of maintenance.

A key component of the charger is usability, that's why they designed a responsive human-machine interface with built in LEDs and mimic screen. Providing a bright two line vacuum florescent display and central key pad, performing routine maintenance couldn't be easier.

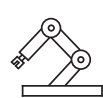
Focusing on continual innovation has enabled their SB7 to provide mean time between failure, or MTBF to over 200,000 hours and reduce mean time to repair, or MTTR to less than 30 minutes. Offering fast lead times and customized solutions, RIC Electronics is your go-to for all industry applications.



## Industries



Utility, Switchgear and Substation



Automation & Control Systems



Department of National Defense



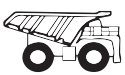
Municipal & General Industry



Hospitals and Laboratories



Data Center & Telecom



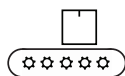
Mining



Oil and Gas



Solar and Wind



OEM



Pulp and Paper



Marine

## Standard Features

- Output blocking diode
- Digital output voltage and current metering
- Battery test mode
- Temperature compensation (optional probe is required)
- Modbus TCP, RS-485 & RS-232 communications
- Molded case UL 489 AC and DC breakers
- Designed for parallel operation and loadsharing
- Automatic and manual equalize and float modes w/ configurable setpoints & alarming
- High temperature shutdown



# Product Specifications

**SB7**

## Alarming and Control

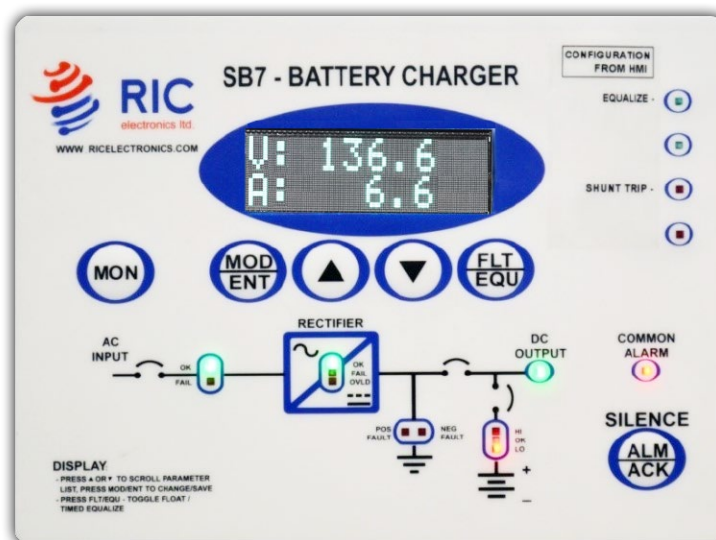
- Programmable common alarm
- Programmable Form C relays and digital inputs
- High DC voltage
- Low DC voltage/end of battery voltage
- AC failure/loss
- Rectifier failure
- Ground fault (+/-)
- Charger overload
- Control card temperature (high/low)
- High ripple alarm



Wall mount SB7 showing I/O and battery breaker

## Human-Machine Interface (HMI)

- **Vacuum Fluorescent Display** - bright display panel, wide viewing angles, can withstand extremely high and low temperatures
- **Alarm Logging**
- **Password Protected Panel** - only authorized users can change settings
- **Mimic screen with LED test feature**
- **Audible Buzzer** – sounds alarm on common alarm
- **Additional LEDs** - customizable to any alarm



SB7 HMI providing mimic screen, control and metering control

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# Available Options

**SB7**

## Mechanical Options

- Enclosure options:
  - NEMA 2
  - NEMA 3R
  - NEMA 4/4X
  - NEMA 12
- Floor mount/wall mount
- Integrated battery rack
- High seismic rating as per IEEE 693
- Enclosure insulation
- Conformal coating
- Heater, air conditioner, fan c/w thermostat
- Redundant configuration
- Integrated load distribution breakers
- Breakers padlock provision/kirk-key
- Door mounted mushroom button E-stop



NEMA 4 marine type, fully insulated SB7 charger with a heater, air conditioning and an integrated battery rack.



NEMA 3R charger fitted with double doors and rain hoods over vents. Integrated battery rack w/ 20 yr. VRLA batteries.

## Electrical Options

- 12 pulse rectifier
- Input/AC monitoring (voltage, current, frequency, kW, kVA & harmonics)
- Shunt trip (AC/DC, and/or battery breaker)
- High short circuit capacity (KA) breakers
- Communication:
  - DNP3: RS-485, RS-232, Ethernet
  - Fiberoptic
  - SNMP
- Relay card (2 form C contacts per alarm)
- Auxiliary alarm contact on breakers
- Dual input source option c/w breaker interlock
- Temperature probe (5, 10, 15m)



# Available Options

**SB7**

## Monitoring Solutions

When charging and providing backup power for critical devices, battery health is of the utmost importance. RIC Electronics provides two solutions for your monitoring needs: integrated monitoring on a string level or stand-alone monitoring on a single cell level.

### Battery Sense Integrated Monitoring

Integrated monitoring offers battery string voltage, current and midpoint voltage measurements and alarming functionality. The additional temperature probe provides battery string temperature measurements as well as battery temperature compensation which automatically adjusts the battery charger voltage based on ambient temperature.

### Single Cell Stand-alone Monitoring

Stand-alone monitoring provides full single cell battery readings including: cell conductance, voltage, temperature, and strap resistance between cells. Single cell monitoring can save hours on monthly, quarterly and annual battery checks and maintenance and in turn, substantial monetary savings.

Measurement	Battery Sense (String Level)	Cell Monitoring (Single Cell Level)
Battery string voltage	✓	
Battery string current	✓	
Battery string midpoint voltage	✓	
Battery string temperature*	✓	
Single cell conductance		✓
Single cell voltage		✓
Single cell temperature		✓
Strap resistance (between cells)		✓

*\*Additional temperature probe may be required*



# Technical Specifications

**SB7**

Input	
Input AC Voltage	1ph - 120, 208, 240, 480, 600V (other voltages optional) 3ph - 208, 480, 600V
Input Breaker Short Circuit Rating	240VAC – 65kAIC (standard) – up to 200 kAIC (optional) 480VAC – 35 kAIC (standard) – up to 200 kAIC (optional) 600VAC – 18 kAIC (standard) – up to 100 kAIC (optional)
Frequency	50 / 60 Hz
Power Factor Model Dependent	≤ 0.95
Input Voltage Tolerance	±10%
Frequency Tolerance	± 2 Hz
Short Circuit Protection	Auto shutdown at 250% of rated output (Auto Recovery)
Output	
Output DC Voltage	12, 24, 48, 120, 240VDC (others upon request)
Output DC Voltage Range	12VDC: 1-15, 24VDC: 1-30V, 48VDC: 1-60V, 120VDC: 1-150V, 240VDC: 1-300
Output Breaker Short Circuit Rating	240VDC – 10 kAIC (standard) – up to 30 kAIC (optional)
Output Current	5 to 1200A
Efficiency Model Dependent	≤ 93%
Regulation	< 0.5% for input variation of 10%
Ripple	1% (150mV optional)
Technical Features	
Programmable Form C Relays	9
Programmable LEDs	4
Programmable Digital Inputs	3
Environmental	
Operating Temperature	-25 to 40°C
Storage Temperature	-40 to 55°C
Altitude Above Sea Level	1000m w/o derating
Method of Cooling	Convection
Noise Level (1 meter)	<60 dBA
Humidity	0 to 95%, non-condensing
General Features	
Enclosure	NEMA 1 (optional: NEMA 2, 3R, 4/4X or 12)
Mounting Positions	Floor mount/wall mount
Enclosure Size Model Dependent	Size between: 24”H x 20”W x 16”D & 70.87”H x 47.24”W x 31.50”D
Certification	CSA 107.1/107.2/UL1012
Communication	Modbus: TCP, RS-485, RS-232 (optional: DNP3, Ethernet; Fiberoptic, SNMP)
Warranty	5 years from shipment

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