Microprocessor Controlled SCR Battery Charger

RS Series

The *RS SERIES* is the most convenient and reliable charger resulting of more than 30 years of experience in the design and manufacture of stationary battery chargers. The *RS SERIES* has been designed specially to fulfill the needs of industrial facilities and electric utilities. With a very competitive pricing and a modern design, combined with the renowned "Gentec" quality and customer support, the *RS SERIES* is the smart choice for your DC auxiliary systems.

Battery charger
125Vdc, 150A

Over and above the traditional functions of the standard battery chargers, the *RS SERIES* meets the present needs of the industry in order to minimize the operating costs and the requisite maintenance time. A special care has been taken to integrate the required characteristics to optimize the battery lifetime and provide remote communication.

- ✓ **Optimal battery lifetime**
- ✓ **Monitoring and automatic testing of the battery**
- ✓ **Remote monitoring using MODBUS, DNP3 or IEC 61850 protocols**
- ✓ **Ethernet ports**
- ✓ **Reduction of harmonics on the AC network**
- ✓ **Life expectancy of more than 25 years**
- ✓ **Supported by a large team of engineers and technicians**

CHARACTERISTICS

- **125Vdc output (other optional voltages available: 24, 48, 110, 220, 250Vdc);**
- **Single-phase and three-phase rectifier, three-phase rectifier using 6 SCR thyristors with microprocessor calculated firing angle reducing harmonics on the AC network;**
- **DC voltage regulation at the battery to compensate for the loss occurring between the charger and the battery enabling optimal adjustment of the battery voltage;**
- **Redundant chargers available as option;**
- **Can be used with any type of industrial battery;**
- **DC UPS system available (charger, battery and panelboard) included in a single cabinet;**
- **Graphic user interface on a large LCD screen (voltmeters, ammeters, history of the last 200 alarms, menus, secure access and much more);**
- **NEMA 1 cabinets** (other configurations available: NEMA 2, 3R, 4, 4X or 12 contact Gentec for details);
- **Seismic cabinets available** (contact Gentec for details);
- **c/CSA/us certified and UL listed as per CSA C22.2 No C107.2-01 and UL Std 1012;**
  (note: most of the models are certified and listed, contact Gentec for details)

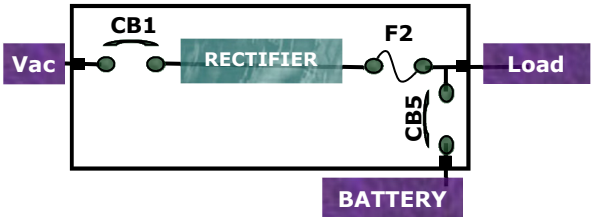
CONFIGURATIONS

Four (4) configurations are available. They allow to optimize the connections between the charger, the battery, the distribution panel and the loads.

"X" configuration is the basic one. This is the most standard and well known within the industry.

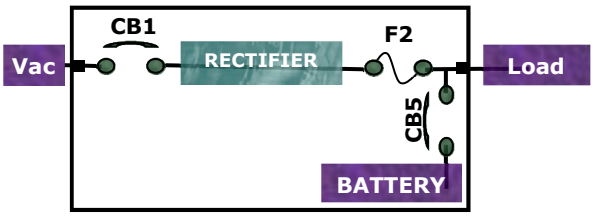
"X" configuration

"BX" configuration enables to directly connect to the battery without the need of an extra panel. This is reducing the costs of labour, material and space related to the installation of this panel. Moreover, many features, related to the monitoring of the battery, can be added (extra alarms, battery testing mode, battery recharge current limit, etc.).



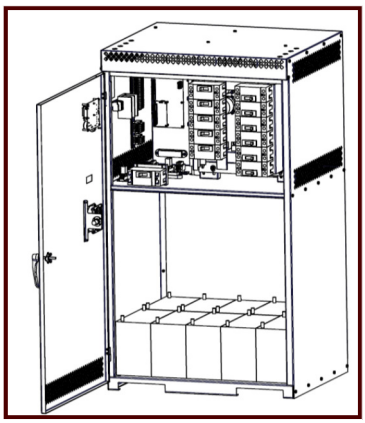
"BX" configuration

"BI" configuration is the same as the "BX" except that the battery is installed inside the battery charger cabinet. It is the most desirable configuration for small capacity systems.

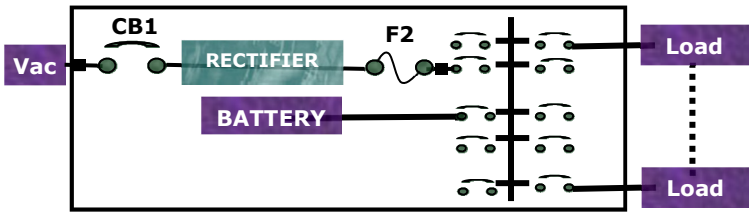


"BI" configuration

"BIP" configuration is a "turnkey" type system. Available for small capacity systems, **it is reducing the labour and space costs** by integrating a complete Vdc system (DC UPS) in a single cabinet: battery charger, battery and distribution panel. All you have to do is to connect to the AC and the loads!



Vdc system installed in a single cabinet (DC UPS)
("BIP" configuration)



"BIP" configuration

ALARMS

RS SERIES **battery chargers are equipped with a very efficient alarm system. The alarms warning is performed via a signal light (details are showing on the LCD screen) and audible device. Two form "C" dry contacts (common alarm) + 1 form "C" (programmable) are supplied for remote alarms indication. As an option, an extra 6 form "C" dry contacts (programmable) can be added.**

INDICATING LIGHTS

The operational state of the charger is indicated by the following lights:

- Rectifier ON
- Auto equalize
- Equalize
- Float
- AC voltage
- Current limit
- Alarm

OPTIONS

With the numerous choice of options, you can select the charger that fully meets your requirements.

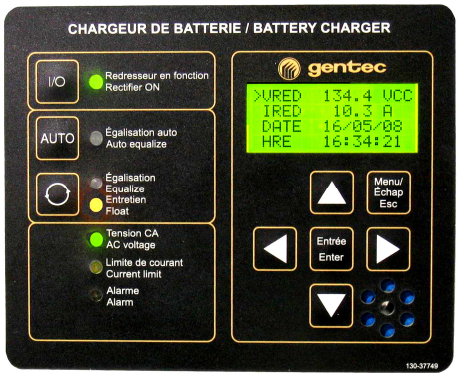
	ALARMS AS A FUNCTION OF THE CONFIGURATION (s=standard, o=option, na=not available)	X	BX	BI	BIP
1.	Rectifier failure	s	s	s	s
2.	AC failure	s	s	s	s
3.	Ground fault (+/-)	s	s	s	s
4.	High/Low battery voltage	s	s	s	s
5.	Very high/low battery voltage	s	s	s	s
6.	High rectifier current	s	s	s	s
7.	Display module failure	s	s	s	s
8.	Rectifier high temperature	s	s	s	s
9.	AC frequency out of range	s	s	s	s
10.	Excessive battery recharging	o	s	s	s
11.	High battery current	o	s	s	s
12.	"Battery Test" fault	o	s	s	s
13.	Symmetry fault (battery center tap unbalanced voltages, one or more defective cells)	o	o	s	s
14.	AC voltage over limit (out of range) (including AC voltmeter)	o	o	o	o
15.	Open circuit breaker (breakers c/w auxiliary contact)	o	o	o	o
16.	3 Extra alarms input for future use	o	o	o	o

	OPTIONS AS A FUNCTION OF THE CONFIGURATION (s=standard, o=option, na=not available)	X	BX	BI	BIP
1.	Reverse current protection (blocking diode)	o	o	o	o
2.	DC Output protected by a 2-pole thermal magnetic circuit breaker (standard: fuse "F2")	o	o	o	o
3.	AC Input high interrupting capacity thermal magn. circuit breaker (standard: 10kA, 14kA @ 600Vac)	o	o	o	o
4.	DC Output high interrupting capacity thermal magnetic circuit breaker (standard: 5kA)	o	o	o	o
5.	Battery high interrupting capacity thermal magnetic circuit breaker (if applicable) (standard: 5kA)	na	o	o	o
6.	Circuit breakers c/w padlocking device	o	o	o	o
7.	Automatic shutdown on "Very high battery voltage" alarm	s	s	s	s
8.	Automatic AC circuit breaker trip on "Very high battery voltage" alarm	o	o	o	o
9.	6 extra form «C» programmable alarm dry contacts	o	o	o	o
10.	Paralleling of 2 redundant chargers (including the choice to automatically reduce the output chargers capacity to 50% each to eliminate the possibility of a harmful recharge of the battery)	o	o	o	o
11.	100mV RMS AC ripple voltage on resistive load, without battery connected (standard: 2% RMS of the output Vdc on resistive load, without battery connected)	o	o	o	o
12.	50hz Input frequency	o	o	o	o
13.	Compensation of the output Vdc as a function of the battery temperature (and "battery high temperature" alarm)	o	o	s	s
14.	Battery recharge current limit (eliminate the possibility of a harmful recharge of the battery) and battery ammeter	o	s	s	s
15.	"Battery Test" mode (including an alarm for a "Battery Test" fault)	o	s	s	s
16.	Fan for the battery compartment	na	na	o	o
17.	Air flow detector (initiate "Battery fan failure" alarm)	na	na	o	o
18.	RS-485 Serial port for remote access (MODBUS/RTU slave communication protocol)	s	s	s	s
19.	RJ-45 Ethernet port for remote access (MODBUS/TCP slave communication protocol)	o	o	o	o
20.	RS-232 Serial port for local access (MODBUS/RTU slave communication protocol)	o	o	o	o
21.	DNP3 Communication	o	o	o	o
22.	IEC 61850 with 2 RJ45 Ethernet ports	o	o	o	o

Automatic Equalization Cycles

To obviate the prematurely aging of the battery, the equalization cycles should only take place when it is really necessary. The *RS* charger offers a large choice of automatic equalization cycles:

- The charger is operating on current limit (rectifier/battery) during «x» seconds;
- The battery has remained at the minimum voltage level during «x» seconds;
- An automatic equalization is required every «x» months;
- On AC power failure longer than «x» minutes;
- At start-up after an AC and DC power failure



Lights & LCD display module

The *RS* charger can be programmed, on site, for each of these conditions through the menu available on the LCD display module.

Communication Protocol

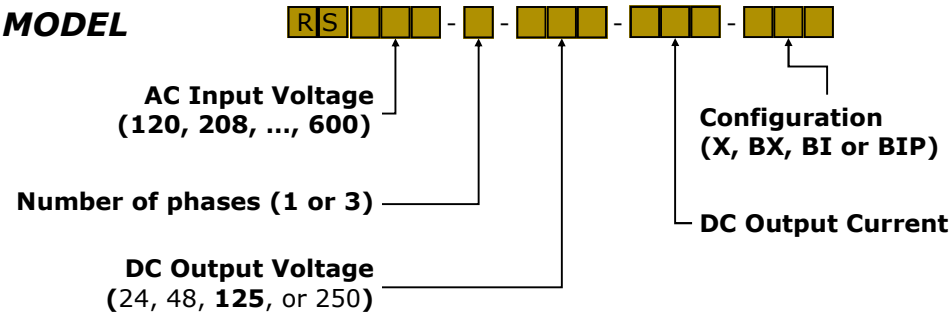
You can now remotely turn the rectifier ON or OFF, start an equalization cycle, monitor the status of the charger (voltages, currents and alarms), change the value of many parameters, consult the details of the last 200 alarms, monitor and test the battery.

MODBUS RTU Slave (RS-485 Serial port) is a standard feature in all RS SERIES chargers.

Optional Communication Protocols: MODBUS TCP/IP slave using Ethernet port; DNP3 Communication; IEC 61850.

Thanks to the remote access, the operating costs will be reduced as the number of required on site visits will be minimized.

MODEL



Since 1959, Gentec designs, manufactures and sells solutions for the electrical field: energy management, power systems (battery chargers, batteries, inverters & UPS), data acquisition and processing. Gentec, a certified ISO9001-2000 manufacturer, maintains its leadership within the electrical field by paying special attention to good customer relationship and technical support, combined with the reliability and the ruggedness of its products.

Battery charger and battery
in a single cabinet
("BI" Configuration)

2625 Dalton, Quebec (QC), Canada G1P 3S9
(418) 651-8000 / www.gentec.ca

120-2628ZD3, ref. ACI 2009-146
Printed in Canada—02/2017