
CBSW1-S • CBSW2-S

HIGH FREQUENCY ELECTRONIC BATTERY CHARGERS

OPERATING MANUAL



Attention: Carefully read this operating manual before using the battery charger.



OPERATING MANUAL

GENERAL INFORMATION ABOUT THIS CHARGER

- This device is an electronic battery charger with microprocessor control suitable for any lead acid battery type when correctly set.
- Fully automatic charging with electronic setting; protected against overload, short-circuit and reversed polarity.

WARNINGS

- Never disconnect the battery while charging; this could cause sparks.
- Never use the equipment in the rain, in areas used for washing or in damp areas.
- Caution: the gases generated during charging are explosive. Do not smoke in the vicinity of the batteries. When working with cables and electrical equipment, avoid open flames and sparks.
- Before starting to charge, make sure the voltage of the equipment suits the voltage of the battery, that the charging current suits the capacity of the battery and that the selected charging curve (for lead-acid wet batteries or VRLA - i.e. gel or agm - batteries) is correct for the type of battery to be charged. In addition, make sure the rated input voltage of the charger suits the available supply voltage and the system is grounded.
- If necessary, replace the fuse with another of the same type and value as indicated on the rating plate.
- Use battery chargers only in well ventilated areas.
- Pay attention to any remarks of the battery manufacturer.
- **Attention:** Use protective glasses and gloves during battery maintenance. Battery acid causes injuries. In case of contact with battery acid, wash the affected parts with fresh water and consult a doctor if necessary.

CONTROLS (see diagram on page 5)

1. Main switch (1): when in the "OFF" position, the charger is disconnected from the main supply; when in the "ON" position, the charger is connected.
2. Three-digit display + symbol (2), to show:
 - A** = the charging current
 - U** = the battery voltage
 - h** = the charging time elapsed
 - C** = the charging ampere-hours [Ah] absorbed by the battery
 - E** = the energy in kilowatt hours [KWh] absorbed by the battery
3. Button "S" for the selection of the display mode (3) noted above: A, U, h, C, E.
After about 10 seconds the display returns to a display of the charging current.
4. Red control indicator (4): when it is on, the charging cycle has started.
5. Yellow control indicator (5): when it is on, the final phase of the charging cycle has started.
6. Green control indicator (6): when it is on, the charging cycle has finished.

OPERATION

- Put the main switch (1) in the "OFF" position and connect the AC cord to the power supply.
- Connect the battery, checking the polarity.
- Move the switch (1) to "ON", thus starting the automatic charging cycle. The display will show a sequence of details on the charger's internal programming after first displaying "SPE", it will show the software release installed in the equipment, then the following parameters in sequence:
 - o battery voltage
 - o charging current
 - o charging curve number
 - o the words "GEL" or "Acd" depending on the set up charging curve being suitable for sealed (gel or agm) batteries or lead-acid wet batteries.



- Make sure the type of batteries to be charged (VRLA or lead-acid wet batteries) matches the displayed details (“GEL” or “Acd”, respectively). If it doesn’t, contact your dealer.
- Next, a test is run on the battery voltage to decide if the charging process should be started or not. If the battery is not connected to the battery charger, the display will show the word “bat”. The word will stay on, even if the test is failed (for instance, reversed polarities or incorrect battery connection). If the test is passed, the display will show the battery voltage for approximately 5 seconds and the battery will begin to be charged. The charging cycle progress will be shown by red (4), yellow (5) and green (6) LED indicators.
- At the end of the charge, when the green indicator is on, put the main switch (1) in the “OFF” position and disconnect the battery.

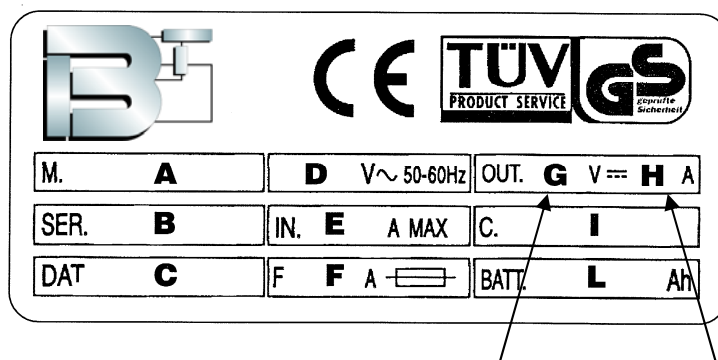
Troubleshooting

PROBLEMS	SOLUTIONS AND CHECKS
The battery charger does not switch on	Check that the plug is connected to the mains supply. Check that the fuse is not blown.
The charging cycle does not start and the message ‘bat’ is displayed	Check the connection to the battery and the polarity.
The yellow indicator (5) will not light up even 15 hours from the starting of the charging cycle, and the display shows E03 .	Check the battery for possible faulty components.
The message E01 is displayed	This means that the maximum voltage admissible by the battery has been exceeded. The charging is interrupted.
If the battery charger is provided with a safety thermostat (optional) and the message E02 is displayed.	This means that the maximum temperature has been exceeded. The charging is interrupted.
The message E03 is displayed	This means that the maximum time for the charging phase has been exceeded. The charging is interrupted.
The message SCt is displayed	This means that the total safety timer has interrupted the charging.
The message Srt is displayed	This signals a possible internal short circuit.

RATING PLATE

The rating plate on the rear of the unit provides the following details:

- A – model
- B – serial number
- C – date of manufacture
- D – mains voltage
- E – input current
- F – fuse rating
- G – output voltage
- H – output current
- I – charging curve
- L – range of battery sizes possible



NOTE: The rating plate stipulates the maximum possible output of DC voltage (G) and current (H). The setting of your particular unit may be different. For the settings on your unit see the front panel.

OTHER TECHNICAL DATA

- Storage Temperature Range: - 40 to +50 degrees Celcius
- Relative Humidity Range: 0 – 80%
- Operating Temperature Range: -10 to 50 degrees Celcius

REPAIRS

- Repairs must only be carried out by qualified personel.
- Use only original equipment manufacturers (OEM) parts for repairs.

PO Box 161, Burlington, ON Canada L7P 0N4

Phone: 905.636.9865 Fax: 905.636.9879 www.bti-chargers.com

ELECTRICAL FEATURES

1. System input 115V 60Hz (other input voltages available on request).
2. Charging parameters insensitive to $\pm 10\%$ system voltage variations.
3. ISO isolation transformer, class H
4. Efficiency > 80%.
5. Output ripple at max load below 150mV.
6. Accuracy of power and voltage measurements 1%.

ELECTROMAGNETIC COMPATIBILITY

The tests of electromagnetic compatibility (EMC) on these devices were carried out in compliance with the *CEI EN55014-1+A2(04/98-06/99)* and *CEI EN 55014-2(10/98) STANDARD norms*, with the test instructions and conditions as requested by the norms.

NORM	RESULT
<i>EN 55014-1+A2</i>	<i>COMPLIANT</i>
<i>EN 55014-1</i>	<i>COMPLIANT</i>
<i>EN 61000- 3-2</i>	<i>COMPLIANT</i>
<i>EN 61000- 3-3</i>	<i>COMPLIANT</i>
<i>EN 61000- 4-2</i>	<i>COMPLIANT</i>
<i>EN 61000- 4-4</i>	<i>COMPLIANT</i>
<i>EN 61000- 4-5</i>	<i>COMPLIANT</i>
<i>EN 61000- 4-6</i>	<i>COMPLIANT</i>
<i>EN 61000- 4-11</i>	<i>COMPLIANT</i>

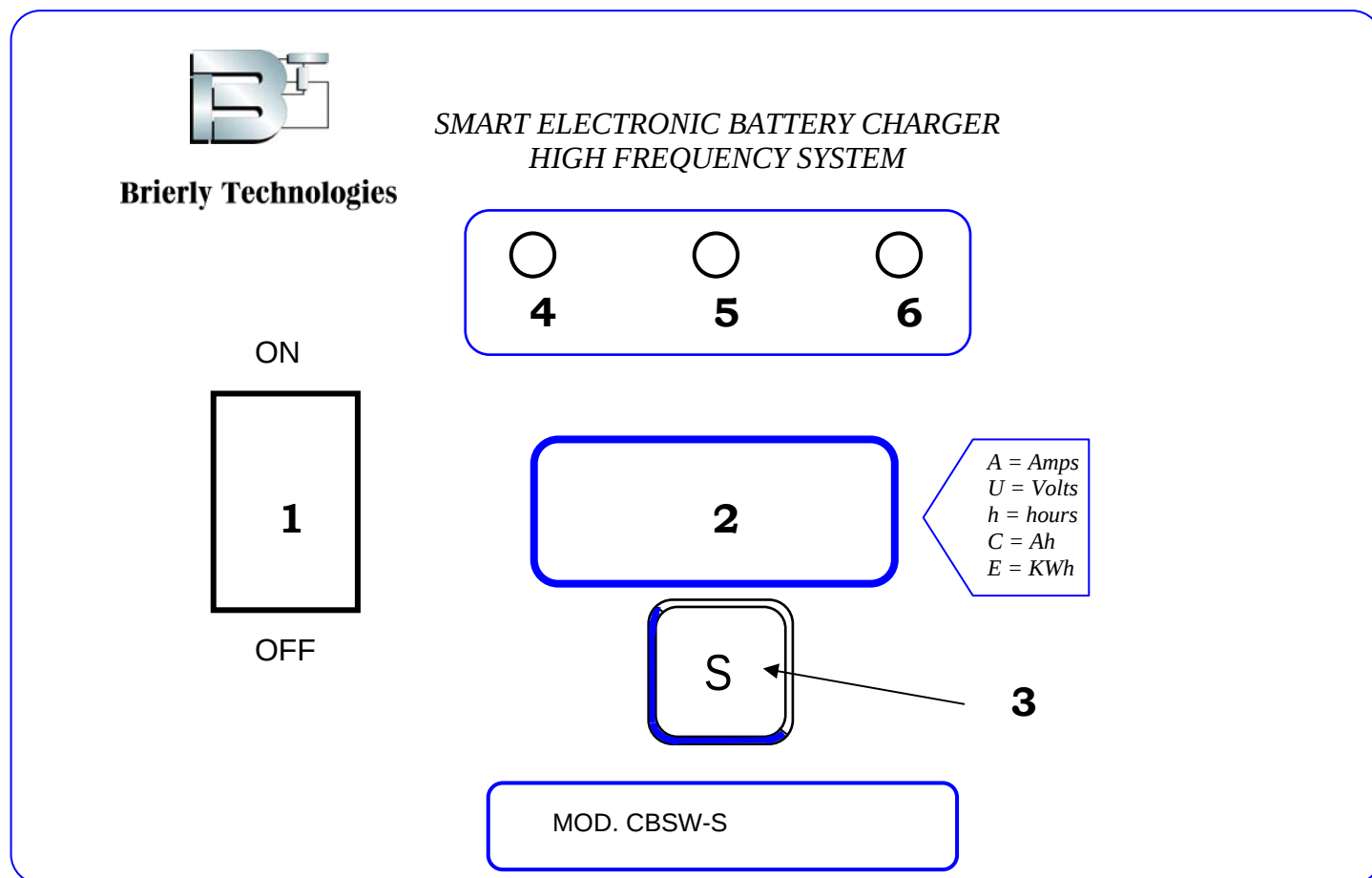
As to the immunity the devices are classified as Category II.

ELECTRICAL APPROVALS

The CBSW1-S and CBSW2-S range of battery chargers are CSA certified to CAN/CSA-C22.2 No 107.2 and are also approved to UL 1236.

FRONT PANEL CONTROLS

CBSW1-S AND CBSW2-S SERIES





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Battery Charger Warranty Registration Form

Please take a moment to fill in and return this warranty registration form to activate your warranty coverage.

Send by mail, fax or scan and e-mail to one of the addresses below.

Company Name:	
Name:	
Full Address:	
Phone Number:	
Fax Number:	
E-mail Address:	
Model Purchased:	
Serial Number:	
Date Purchased::	
Indicate where the product was purchased:	Dealer name and location:

The rating plate on the rear of the unit will provides details for model and serial number:

- **A** – Model
- **B** – Serial Number

M. A	D V~ 50-60Hz	OUT. G V ~	H A		
SER. B	IN. E A MAX	C. I			
DAT C	F F A	BATT. L Ah			

If you have any comments you would like to make about this product, the documentation supplied or if you have any suggestions on how we can better serve you better please note in the space below.

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Thank you for purchasing our product!

E-mail: info@bti-chargers.com



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