

Instruction Sheet

	No smoking, no naked flames, no sparks		Clean all acid splash in eyes or on skin with plenty of clean water. Then seek medical help. Acid on clothing is to be washed with water.
	Electrical hazard		Read instructions
	Electrolyte is corrosive		Re-cycle scrap batteries. Contains lead
	Shield eyes		Risk of explosion or fire. Avoid any short circuit. Metallic parts under voltage on the battery, do not place tools or items on top of the battery.
	Danger		

California Proposition 65 Warning – Battery posts, terminals and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm. Wash hands after handling.

PowerSafe SBS monoblocs are supplied in a charged condition, and are capable of extremely high short circuit currents. Take care to avoid short-circuiting terminals of opposite polarity.

1. Receiving

1.1 In-Transit Damage or Short Shipments

Upon receipt of a shipment, check that the items delivered are undamaged and match the carriers Bill of Lading. Report any damage or shortages to the carrier. EnerSys is not responsible for shipment damage or shortages, which the receiver does not report to the carrier.

1.2 Shipment Damage or Shortages

Open the shipping containers and check the contents for damage and against the packing slip. Immediately inform EnerSys of any damaged or missing items.

EnerSys is not responsible for damaged or missing items after a shipment has been in storage.

2. Storage

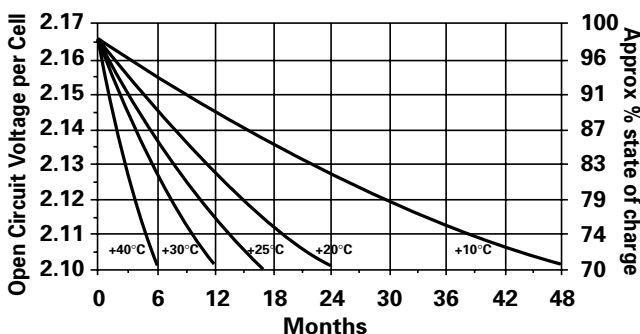
2.1 Storage Conditions and Time

If a battery cannot be immediately installed it should be stored in a clean, cool, dry area.

During storage batteries lose capacity through self-discharge.

High temperature increases the rate of self-discharge and reduces the storage life.

The chart below shows the relationship between open-circuit voltage (OCV) and storage time at various temperatures.



The maximum storage times before a freshening charge is required and recommended open circuit voltage audit intervals are:

Temperature °C / °F	Storage Time Months	OCV Audit Interval Months
10 / 50	48	6
15 / 59	34	6
20 / 68	24	4
25 / 77	17	4
30 / 86	12	3
35 / 95	8.5	2
40 / 104	6	2

Monoblocs must be given a freshening charge when bloc voltages approach the equivalent of 2.10 volts per cell or when the maximum storage time is reached, whichever occurs first.

2.2 Freshening Charge

Charge the monoblocs, or strings at a constant voltage equivalent to 2.29 to 2.4 volts per cell with 10% of the C10 current available for a period of 24 hours.

3. Battery Location

The battery compartment/room must have adequate ventilation to limit hydrogen accumulation to a maximum of 1% by volume of free air.

4. Installation

Each monobloc is supplied with the terminal/connector fasteners.

On each monobloc the positive terminal is identified by a "+" symbol. Install the batteries in accordance with the instructions and/or layout drawing, taking care to ensure correct terminal location and polarity.

Connect the blocs with the connectors and fasteners provided. The fastener torque value is:

Type	Fastener Size	Torque Nm / lbf in
SBS 8	M4	1.0 / 9
SBS 15-60	M6	3.9 / 35
SBS 110-390	M8	5.0 / 44
SBS J13, J16	M6	5.6 / 50
SBS J30 - J70	M6	6.8 / 60
SBS B & C Types	M8	5.0 / 44

Place the insulating covers in position immediately after tightening the fasteners.

5. Operation

Constant voltage chargers are recommended. The charging voltage should be set at the equivalent of 2.29 volts per cell at 20°C/68°F or 2.27 volts per cell at 25°C/77°F. The minimum charging voltage, at any temperature, is 2.21 volts per cell. The recommended float voltage temperature compensation is:

	Temperature °C / °F						
	10/50	15/59	20/68	25/77	30/86	35/95	40/104
Recommended	2.33	2.31	2.29	2.27	2.25	2.23	2.21
Minimum	2.31	2.29	2.27	2.25	2.23	2.21	2.21

Disconnecting the battery from the load when the recommended end voltage is reached will eliminate the risk of over-discharge. We recommend that the charge voltage is reapplied within 24 hours, up to a maximum of 7 days, of any discharge.

6. Maintenance

In practice the user usually specifies the maintenance schedule based on site criticality, location and manpower.

The following is a suggested maintenance schedule.

Monthly (Record All Readings)

Measure the battery string voltage.
If necessary, adjust the float voltage to the correct value.

Every Six Months (Record All Readings)

Measure the battery string voltage.
If necessary, adjust the float voltage to the correct value.
Measure individual bloc voltages. The blocs should be within 5% of the average.
Inspect for contamination by dust, loose or corroded connections. If necessary isolate the string/bloc and clean with a damp soft cloth.

Do not use solvents or scouring powders to clean the blocs.

Contact EnerSys if you have any questions regarding maintenance.

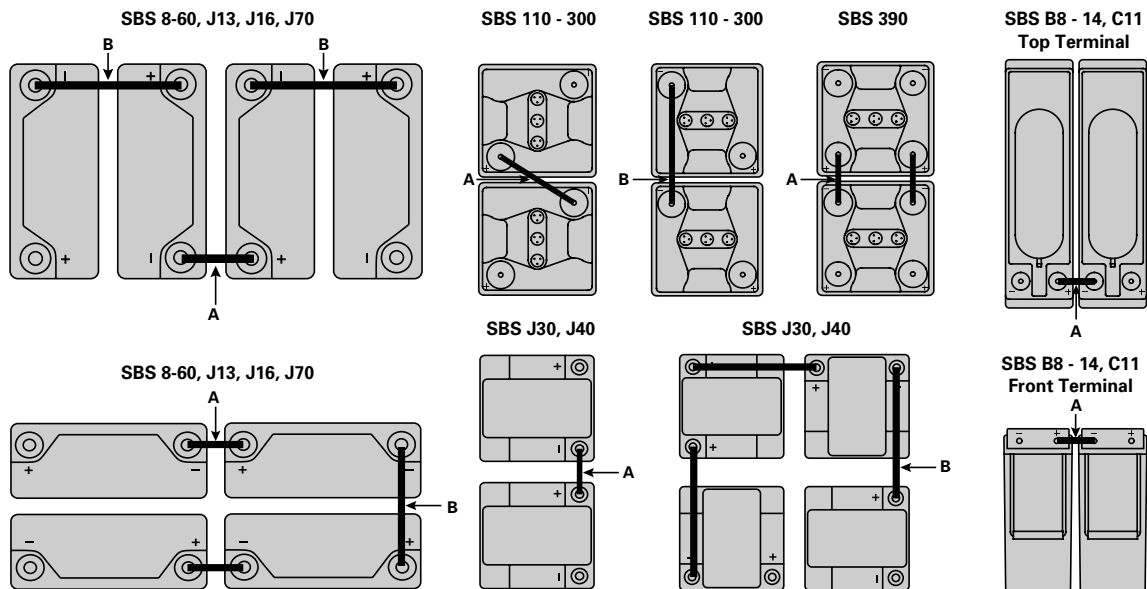
7. Disposal

PowerSafe SBS batteries are recyclable. Scrap batteries must be packaged and transported in accordance with prevailing transportation rules and regulations.

Scrap batteries must be disposed of in compliance with local and national laws by a licensed or certified lead acid battery recycler.

Type	Connector Part No.	
	A	B
SBS 8	2205-8982	2205-8981
SBS 15	2205-9851	2205-9850
SBS 30, 40	2205-4090	2205-4215
SBS 60	2205-4090	2205-4260
SBS 110 - 300	2205-9887	2205-8865

Type	Connector Part No.	
	A	B
SBS 390	2205-9759 x 2	N/A
SBS J13, J16	2205-9851	2205-9850
SBS J30, J40	2205-4090	2205-4260
SBS J70	2205-4090	2205-4420
SBS B8 - 14, C11	2205-8919	N/A



www.enersysinc.com

Global Headquarters
P.O. Box 14145 Reading,
PA 19612-4145
USA
Tel: +1-610-208-1991
+1-800-538-3627
Fax: +1-610-372-8613

EnerSys EMEA
Brussels, Belgium
Tel: +32 (0)2 247 94 47
EnerSys Asia
Guangdong, China
Tel: +86-755-2689 3639

EnerSys Limited
Rake Lane,
Clifton Junction,
Swinton, Manchester
M27 8LR, UK
Tel: +44 (0)161 794 4611
Fax: +44 (0)161 727 3809

Contact: