

# CAUTION! PLEASE READ!



## **Proper Charging is Crucial! Charge before initial use!**

**Be sure to read the Instruction Sheet for full instructions.**

Proper Charging is crucial to the life of your XS Power SuperBANK. It is very important that the temperature of the SuperBANK remains cool.

### TEMPERATURE SPECIFICATIONS

|                          |                                 |
|--------------------------|---------------------------------|
| Range, Operational Temp. | -104°F to 149°F / -40°C to 65°C |
| Range, Storage           | -104°F to 158°F / -40°C to 70°C |



## **Do Not Over-tighten SuperBANK Terminals!**

**Whether using the automotive post adaptors, bolts or screws, the tightening torque should never exceed 8 ft-lbs max on any XS Power SuperBANK!**



**PROP 65 WARNING:** This product can expose you to chemicals including lead and lead compounds, which are known to the State of California to cause cancer or birth defects or other reproductive harm. Wash hands after handling.

For more information, visit [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

### Safety

Never touch the power terminals as any residual voltage can cause fatal electrical shocks. Always check with a calibrated meter that the SuperBANK is discharged prior to handling the SuperBANK, please see the step by step instructions in this manual for the discharge procedure.

- Carefully observe the polarity each time you connect to it, DO NOT REVERSE POLARITY.
- Prior to installation or removal the SuperBANK must be properly discharged.
- Provide sufficient electrical isolation for operation above 50VDC (relative to ground).
- Protect surrounding electrical and conductive components from incidental contact.
- Do not operate above specified voltage or temperature range.
- Do not touch terminals while charged, serious burns, shock or material fusing may occur.

### Unpacking

Please inspect the shipping carton for signs of damage prior to unpacking the carton. Report any damage to the carton, or the contents, to the carrier immediately. Retain all shipping materials until the SuperBANK is fully inspected and determined to be operational.

Do not use the terminals to lift the SuperBANK out of the package. If any parts are determined to be missing or defective an RGA number must be issued prior to returning the unit for repair or replacement. Please contact your salesperson or distributor to request an RGA number.



# REAL POWER UNREAL PERFORMANCE

## Handling

Ultracapacitor *SuperBANKS* are designed for years of maintenance free operation if handled, installed and used properly. These handling precautions should be observed.

- The only tools to be used on the *SuperBANK* should be properly sized wrenches for the terminal and mounting bolts (hammers, chisels, files or power tools in general should not be used).
- Do not drop *SuperBANKS*, invisible internal damage may occur. Use the protective terminal caps while transporting the *SuperBANK* or ensure that the *SuperBANK* has been properly discharged before transporting.

## Installation

*SuperBANKS* can be mounted in any orientation and are qualified for shock and vibration. In addition, it is best to avoid mounting on or near significant heat sources such as engine exhausts or solar heated panels.

## Environmental

For best results *SuperBANKS* should not be exposed directly to the environment, particularly the avoidance of direct splashes should be considered. In systems with voltages greater than 60V it is highly recommended to use the included protective terminal caps. *SuperBANKS* that are expected to see significant cycling should be mounted in free air or in a forced ventilation housing. Care should be taken to protect *SuperBANKS* in potentially corrosive environments and direct water splash or spray should be avoided. In all environments the best possible performance is aided by using an anti-oxidation agent for all terminal connections.

Careful design consideration should be given to the application to prevent the overheating of the *SuperBANKS*.

Please refer to the operational temperature range on the data sheet and be sure to allow for internal heating of the *SuperBANKS*. If you require help with the design considerations and sizing please contact your representative for assistance.

## Electrical

*SuperBANKS* can be mounted in series and/or parallel with each other. Care should be taken to insure that similar capacitance is used for series chains and that if different type or age *SuperBANKS* are used in parallel configurations the differences in ESR are accounted for in your design.

Appropriate size bus bars or cables and terminals should be used for the application. Please note, that to minimize system losses the capacitors do not have fusing or internal circuit breakers, careful consideration in the system design should be taken to prevent over current. With the low ESR of the capacitors they can deliver very large amounts of current. The worst-case fault current should be considered when sizing the wire for this application. Thread locking should be done with star washers or an appropriate chemical thread locker applied to the threaded portions only; in no case should flat washers be used with lock washers.

Care should be taken in cable routing to not impose undue forces (torques or tensions) on the *SuperBANK* terminals. Only appropriately sized ring terminals or bus bars for the expected currents should be used.

## Operation

All *SuperBANKS* should only be operated within their prescribed voltage, constant current and temperature, operating window.

**NOTE:** Operation of *SuperBANK* above 149°F/65°C will void the warranty

## Maintenance

The *SuperBANKS* should be kept free of dust and debris and cleaned at a regular interval. In inside locations, that should be no more than annually however this may vary with your particular circumstances. Outside location will be as needed. Once the *SuperBANKS* are discharged, proceed with cleaning with a cloth and a simple water/soap solution. Avoid the use of hoses or pressurized sprays. Once the assembly is clean check for properly torqued fasteners and note any damage to any of the housings or signs of internal damage and replace as necessary.

In high vibration applications fasteners used for mounting as well as electrical connections should be checked for torque every 6 months.

## Discharging

Before replacing or disconnecting a *SuperBANK* or individual capacitors they should be properly discharged to limit the risk of dangerous electrical shocks and sparks. Even a properly discharged *SuperBANK* can naturally rebound in certain conditions. The provided lamp can be used to safely discharge the *SuperBANK* by connecting one lead to the positive side of the *SuperBANK* and the other lead to the negative side. After the lamp has dimmed out and cooled then it is safe to disconnect and remove from the system. The lamp can be removed and a shorting wire can be connected between the terminals of the *SuperBANK* to prevent it from building up a charge. This should especially be done if the *SuperBANK* will be sitting unused for an extended period of time.

## Included Light Bulb

Included with your *SuperBANK* is a 12V halogen lamp which can be used to limit the rate of charge when the *SuperBANK* is introduced to a new system. Since the *SuperBANK* can absorb hundreds of amps in seconds it can be dangerous to connect it directly to a power source before it has been charged. Allowing the *SuperBANK* to draw this current through the lamp will limit the amount of power the *SuperBANK* absorbs to just a few amps and thus reduce the risk of electrical shock and/or burning or fusing of contact points.

| Model Number  | Weight lbs. | Weight kgs. | Dimensions: inch |       |         | Max Power | Watt Hours | Max Amps |
|---|-------------|-------------|------------------|-------|---------|-----------|------------|----------|
|   |             |             | Length           | Width | *Height |           |            |          |
| <b>12V-500F SuperBanks</b> 12 Volt, 500F SuperBank Ultra Capacitors - Operating Voltage 12.0V - 16.2V   |             |             |                  |       |         |           |            |          |
| SB500   | 10.00       | 4.53        | 7.00             | 7.50  | 5.00    | 4000W     | 18.2Wh     | 10,000A  |
| SB500-47  | 11.00       | 4.98        | 9.49             | 6.93  | 7.48    | 4000W     | 18.2Wh     | 10,000A  |
| SB500-51  | 11.00       | 4.98        | 9.04             | 5.43  | 8.19    | 4000W     | 18.2Wh     | 10,000A  |
| SB500-51R   | 11.00       | 4.98        | 9.04             | 5.43  | 8.19    | 4000W     | 18.2Wh     | 10,000A  |
| SB500-34  | 11.00       | 4.98        | 10.24            | 6.75  | 7.20    | 4000W     | 18.2Wh     | 10,000A  |
| SB500-34R   | 11.00       | 4.98        | 10.24            | 6.75  | 7.20    | 4000W     | 18.2Wh     | 10,000A  |
| SB500-48  | 11.00       | 4.98        | 10.94            | 6.93  | 7.48    | 4000W     | 18.2Wh     | 10,000A  |
| SB500-24  | 11.00       | 4.98        | 10.24            | 6.65  | 8.31    | 4000W     | 18.2Wh     | 10,000A  |
| SB500-65  | 11.00       | 4.98        | 11.80            | 7.20  | 6.80    | 4000W     | 18.2Wh     | 10,000A  |
| SB500-27  | 11.00       | 4.98        | 12.09            | 6.65  | 8.31    | 4000W     | 18.2Wh     | 10,000A  |
| SB500-49  | 11.00       | 4.98        | 10.24            | 6.93  | 7.48    | 4000W     | 18.2Wh     | 10,000A  |
| <b>12V-630F SuperBanks</b> 12 Volt, 630F SuperBank Ultra Capacitors - Operating Voltage 12.0V - 14.25V  |             |             |                  |       |         |           |            |          |
| SB630-1200  | 8.50        | 3.85        | 7.80             | 6.54  | 6.69    | 4000W     | 16Wh       | 15,500A  |
| SB630-51R   | 8.50        | 3.85        | 9.04             | 5.43  | 8.19    | 4000W     | 16Wh       | 15,500A  |
| <b>12V-1000F SuperBanks</b> 12 Volt, 1000F SuperBank Ultra Capacitors - Operating Voltage 12.0V - 16.2V |             |             |                  |       |         |           |            |          |
| SB1000-27   | 22.00       | 9.98        | 12.09            | 6.65  | 8.31    | 8000W     | 36.4Wh     | 20,000A  |
| SB1000-31   | 22.00       | 9.98        | 12.99            | 6.81  | 8.43    | 8000W     | 36.4Wh     | 20,000A  |
| SB1000-75   | 22.00       | 9.98        | 12.90            | 7.20  | 10.75   | 8000W     | 36.4Wh     | 20,000A  |
| <b>12V-1260F SuperBanks</b> 12 Volt, 1500F SuperBank Ultra Capacitors - Operating Voltage 12.0V - 16.2V |             |             |                  |       |         |           |            |          |
| SB1260-31   | 22.00       | 9.98        | 12.99            | 6.81  | 8.43    | 8000W     | 32Wh       | 31,000A  |
| <b>12V-1500F SuperBanks</b> 12 Volt, 1500F SuperBank Ultra Capacitors - Operating Voltage 12.0V - 16.2V |             |             |                  |       |         |           |            |          |
| SB1500-75   | 35.00       | 15.87       | 12.90            | 7.20  | 10.75   | 12,000W   | 54.6Wh     | 30,000A  |
| <b>16V-430F SuperBanks</b> 16 Volt, 430F SuperBank Ultra Capacitors - Operating Voltage 14.0V - 18.9V   |             |             |                  |       |         |           |            |          |
| SB430-16  | 11.00       | 4.98        | 10.24            | 6.75  | 7.20    | 4,000W    | 21.2Wh     | 10,000A  |
| <b>16V-1050F SuperBanks</b> 16 Volt, 1050F SuperBank Ultra Capacitors - Operating Voltage 12.0V - 17.1V |             |             |                  |       |         |           |            |          |
| SB1050-31   | 22.00       | 9.98        | 12.99            | 6.81  | 8.43    | 8000W     | 38.2Wh     | 31,000A  |

## Included Light Bulb cont'd

**WARNING:** The lamp can get extremely hot (up to 500°F/260°C) and should not be touched or handled until it has cooled. Do not let the lamp rest on or near any surfaces that cannot tolerate the heat generated from the lamp, this includes the surface of the *SuperBANK*. Doing so could cause damage which is not covered under the warranty of the *SuperBANK*.

The lamp has no polarity so it does not matter which side is connected to the capacitor or which side is connected to the power source. It should be connected in line to the power source as if it were a fuse, connecting the lamp in parallel with any other connections would defeat its purpose and so using the lamp in this way would be unnecessary. When connected, the lamp will illuminate in correlation with the state of capacity of the *SuperBANK*. The more capacity the *SuperBANK* has the brighter the lamp will be. As the *SuperBANK* charges the lamp will dim and it will continue to do this slowly until the voltage of the bank is close to the voltage of the power source. At this point the lamp can be removed and the *SuperBANK* can be connected directly to the power source safely. Keeping the lamp connected will prevent you from getting the best performance out of your *SuperBANK*.

## Storage

The *SuperBANK* can be stored in the original package discharged in a dry place. Observe the maximum storage temperature as stated in the specifications. Discharge used *SuperBANK* prior to stock or shipment.

## Disposal

Please recycle according to local codes and regulations for flammable materials.

## Technical Assistance

Our Customer Service Department is eager to help you with any questions or issues you may have and are available from 8:30AM to 5:30PM, Monday thru Friday at 865-688-5953. In addition, technical support is available via FAX at 865-281-9844 or by email at tech@xspowerbatteries.com

Be sure to check out our website for additional technical and product information.

www.xspowerbatteries.com

888-4XS-POWER

International: 865-688-5953