Installation instructions

GB

BAE
Energy from Batteries

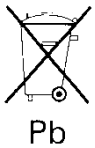
Stationary & solar lead-acid batteries

Batteries, Stands, Cabinets

WARNINGS

	Observe operating instructions and position them within sight of the battery! Work only on batteries under instruction of skilled personnel!
	When working on batteries wear safety glasses and protective clothing! Comply with accident prevention rules as well as with DIN VDE 0510, DIN EN 50110-1 (VDE 0105-1)!
	No smoking! Do not expose the battery to an open flame, a glowing fire or sparks as explosion and fire hazards exist!
	Acid splashes in the eyes or on the skin must be washed out or off with plenty of water. Then see a doctor immediately. Clothing exposed to acid should be washed out with water without delay.
	Dangerous voltages!
	The electrolyte (diluted sulphuric acid) is extremely corrosive.
	Block batteries or cells are heavy! Ensure secure installation! Only use suitable lifting and transport equipment!
	Explosion and fire hazard due to explosive gases escaping from the battery. Caution! Metal parts of the battery are always live, therefore do not place items or tools on the battery! Avoid short circuits!

Usage of the battery which does not comply with the OPERATING INSTRUCTIONS, repairs carried out with spare parts not approved by BAE, use of additives in the electrolyte or unauthorised interference with the battery will invalidate any claim for warranty.

	Used batteries with this symbol are reusable goods and must be returned to the recycling process or must be disposed in accordance with the rules of the country concerned.	

1. Requirements and preparations for installation

1.1 Before installation ensure that the battery room is clean and dry and is furnished with a lockable door. The battery room must be set out and marked according to DIN EN 50272-2; VDE 0510-2. Particular attention must be paid to the following:

- floor load-carrying capacity and nature (conveying paths and battery room)
- electrolyte resistance of battery installation surface
- no ignitable sources (e.g. open flame, glowing objects, electric switches) near the cell openings (500 mm thread measure)
- ventilation conditions

To ensure smooth operation, coordination between other persons working in the same room is necessary.

1.2 Check deliveries for completeness and damage. If necessary, clean all parts before assembling.

1.3 Observe all documentation included with the delivery (e.g. battery-, rack-, cabinet-assembly drawings).

1.4 Before renewing old batteries ensure that all electric leads are switched of (separator, fuses, switches). This must be carried out by qualified personnel.

CAUTION: Do not carry out unauthorised switching!

1.5 Open-circuit voltage measurements of individual cells or block batteries. Ensure correct polarity. With unfilled, dry charged batteries these measurements can only be carried out after putting into operation. The number of cells per block is obtained by dividing the nominal voltage of the block by two. Fully charged cells have the following open-circuit voltages at an electrolyte temperature of 20 °C, measured at the battery terminals:

Battery range	Open-circuit voltage in V/cell
OPzS, SPzS	2.08 ± 0.01
PVS, PVSM	2.08 ± 0.01
OGi, SGi	2.08 ± 0.01
SGiV	2.08 to 2.12
OGiV	min. 2.12
OPzV, SPzV	min. 2.12
PVV, PVVM	min. 2.12

The open-circuit voltages of the individual cells/blocks should not vary from the average by more than the values listed in the table below:

Battery range	OPzS, SPzS, PVS, PVSM, OGi, SGi	OGiV, SGiV, OPzV, SPzV, PVV, PVVM
Single cell	0.02 V	0.04 V
4 V block	0.03 V	0.06 V
6 V block	0.04 V	0.07 V
10 V block	0.05 V	0.09 V
12 V block	0.05 V	0.10 V

Higher temperatures reduce, lower temperatures increase the open-circuit voltage. With a deviation of 10 K from the nominal temperature the open-circuit voltage changes by 0.003 V/cell. Should greater deviations occur, consult the supplier.

2. Racks

2.1 Align the racks according to the installation drawing. Should an installation drawing be missing, the following minimum distances must be observed:

- From the wall: 100 mm
- 1500 mm with a nominal or component voltage > 120 V between non-insulated

terminals or connectors and grounded parts (e.g. water pipes) or between the battery end terminals. During installation it must be ensured that DIN EN 50272-2; VDE 0510-2, is adhered to (e.g. protection by barriers or enclosures of electrically conductive parts).

- Electrical equipment, where during normal operation sparks can occur (e.g. in switches, sockets, ventilators, lights) must be at least 500 mm away from the cell openings of the battery. If this is not possible, then the distance is calculated in accordance with DIN EN 50272-2.
- The aisle width should be 1.5 times the cell depth (built-in depth), however, at least 600 mm. If no further information is available, an aisle width of 1200 mm is recommended.

2.2 Cells in PP containers (SPzV, SPzS, SGi, PVSM, PVVM) have to be installed in racks which are able to give pressure on the side walls to avoid excessive bulging of the cells. Between the cells must be used rib plates.

2.3 Align racks horizontally using the levelling parts or adjustable insulators provided. The distances of the support profiles must correspond with the cell or block battery size. Check rack stability and ensure all screw and clamp connectors are firmly seated. If stipulated, ground the rack or parts thereof. Protect screw connectors from corrosion.
Please note that when using several racks a flexible connector must be fitted between each rack joint.

2.4 Check that cells or block batteries are in perfect condition (visually, polarity).

2.5 Place, align and connect each cell or block battery onto the rack with suitable lifting tool and with the correct polarity (positive/negative terminal of a cell or block with the negative/positive terminal of the next one). Don't lift the cells on the poles. For large cells it is recommended that cell installation should commence from the middle of the rack. The following steps need to be realized in detail:

- Align cells or monoblock batteries parallel to each other.
- Distance between the cells or monoblock batteries should be approx. 10 mm or according to the length of the connectors supplied.
- If necessary clean the contact surface of the terminals and connectors.
- Fit cell or block connectors and tighten with an insulated torque wrench (for correct torque see operating instruction).
- Fit row, step, tier connectors and tighten by observing the specified torque (only for rows, step, tier installation of the batteries).
- Cable connectors have to be secured during mounting by the following fixing tools:

Cable cross section in mm²	Material / Order number Fixing tool
35	4852930
50	4852931
70	4852932
95	4852933
120	4852934

- If necessary, fit insulating caps onto cell/block connectors, terminal plates and end terminals.
- Connect the battery with the correct polarity (positive terminal of the battery with positive terminal of the charger and negative terminal of the battery with negative terminal of the charger) with a suitable charger which is switched off.
- Ensure short-circuit proof installation work. Wiring with a dielectric strength of at least 3 kV must be used, or a distance of approx. 10 mm between wiring and electrically conductive parts must be kept or the connectors must be furnished with additional insulation. Avoid mechanical stress on the cell/battery terminals, secure the end cables if necessary.
- If applicable, remove transport plugs and replace with operation plugs.
- Check electrolyte level of the vented lead-acid batteries, for instance the battery types OPzS, SPzS, PVS, PVSM, OGi or SGi (observe operating/commissioning instructions).
- Measure the total voltage which should equal the total off-load voltages of the individual cells/block batteries.
- If necessary, number through visibly the cells or block batteries (from the battery positive terminal to the negative terminal).
- Affix polarity labels for the battery connectors.
- Affix safety marking sign, nameplate and operating instructions visibly.
- If the cells/block batteries have to be cleaned please observe the operating instructions.

3. Cabinets

Battery cabinets made from metal shall either be connected to the protective conductor or insulated from the battery and the place of installation.

3.1 Cabinets with built-in battery:

- The battery cabinet is assembled on site (observing the relevant accident prevention rules).
- Take into account additional space needed or planned cable entries.
- Remove any transport safety devices from the built-in cells or block batteries.
- Check cells or block batteries for correct position and mechanical damage.

3.2 Cabinets with separately delivered cells or block batteries:

- Only filled and charged cells or block batteries (vented or sealed) are built into cabinets.
- Assemble cabinet, place in designated location and align (observing the relevant accident prevention rules).
- Place cells or block batteries into the cabinet according to assembly plan and spacing specified, connect them and mark (see item 2.5).

4. CE marking

For batteries above 75 V nominal voltage is required an EC declaration of conformity in accordance with regulations 2006/95/EG (Low Voltage Directive) with the corresponding CE labelling on the battery. The battery installer of the battery plant is responsible for issuing the declaration and affixing the CE label on or next to the battery's nameplate.

CAUTION:
Before connecting to the charger ensure that all assembly work has been duly completed!

06/2015 4804094 Technical details may be subject to alterations

BAE Batterien GmbH
Wilhelminenhofstraße 69/70
12459 Berlin
Germany

Tel.: +49 (0)30 53001-661
Fax: +49 (0)30 53001-667
E-Mail: info@bae-berlin.de
www.bae-berlin.de