



BYD Battery-Box HV Service Guideline

Version 1.2

Important: The installation and all other kinds of works or measurements in combination with the Battery-Box HV are only allowed by professional electricians.

General steps

Please always go through these general steps first.

#	✓	Name	Description
0		External connections and inverter setup	Please make sure that the connection between Battery-Box and inverter is correct and that the inverter software setup was successful. When in doubt, please follow instructions of inverter manufacturer.
1		Configuration	SMA Sunny Boy Storage 2.5 / 3.7 / 5.0 / 6.0: 5 - 8 Battery Modules KOSTAL PIKO BA / Plenticore Plus: 5 - 9 Battery Modules
2		DC Cables	Make sure + and - are connected correctly. Check sticker and PCB!
3		Communication Cable	CAT5 or higher; Twisted Pairs according to Instruction Manual
4		Communication Port (PIN and Jumper)	According to Short Instruction Manual - please double check SMA: 4 PINs; Shielding only on SMA SBS side; Jumper=JP1 KOSTAL PIKO BA: 6 PINs; Jumper=JP2 KOSTAL Plenticore Plus: 4 PINs; Jumper=JP2
5		Earth Cable	Connected from BYD Battery-Box directly to the ground of the house. The Battery must not be grounded via the inverter!
6		Software	Check for latest Battery-Box Software Update: www.eft-systems.de Also check inverter Software
7		Web Interface Setup	Section <i>Installation Config</i> : Correct Module Amount + Inverter Brand .
8		Web Interface: Error Messages	Check Messages in <i>Current Alarm</i> and <i>History Alarm</i> If there are Alarms, please follow the Instructions on the next page. (recommendation: Take a screenshot of the Alarm Messages)
9		Web Interface: Restart System	Turn off battery and inverter completely (all LEDs and Displays off). Turn on again after two minutes.
10		Web Interface: Reset BCU to Factory Setting	Section <i>Reboot and Restore</i> : Activate the checkbox <i>Restore</i> and then click on the button <i>Reboot</i> . Note: After Restart, please select correct Module Amount + Inverter Brand in the section <i>Installation Config</i> .
11		Change Communication Port	 <p>Try the othergreen port for the PIN Connection</p>

Web Interface Alarm: **BatteryDiff**

Error probably caused due to an extension without a charger.

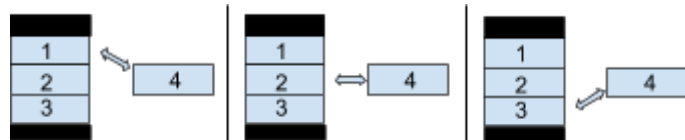
12	Battery extension? (new modules added)	<p>If battery system has been extended without an external charger: remove the new modules and follow the instructions on how to add a new module.</p> <p>If there never was an extension and all modules were installed at the same time, please get in touch with service partner EFT-Systems and provide all information in the Web Interface under <i>RUN Data</i> (e.g screenshot).</p>
13	Cell Voltage	Please check if the Voltage within the cells is about the same (RUN Data). Check for different SOC levels of the Battery Modules.
14	Reset BCU to Factory Setting	Section <i>Reboot and Restore</i> : Activate the checkbox <i>Restore</i> and then click on the button <i>Reboot</i> .

Web Interface Alarm: **BattCommErr / MonitorCommErr**

Or: Air Switch keeps turning off

Error might be caused by a defect component.

15	Module Number	<p>In the Web Interface under <i>Installation Config</i>, please select the number of battery modules currently used in the battery</p> <p>Important: Please always modify Module Amount in the Web Interface (Installation Config), when modules are added or taken away.</p>
16	Visual Inspection	Visually check the connection ports of the different Battery Modules for any damage. (The PINs must not be twisted, bent or similar)
17	Check Modules	<p>The following steps are used to identify a possibly defect module:</p> <ol style="list-style-type: none"> Build the Battery-Box with only 3 Modules (+ Stand and BCU). Adjust module Amount in the Web Interface under <i>Installation Config</i>. Note: The module amount must be adjusted whenever the number of modules is changed. Check status: Note: The battery status is OK when battery is on (Air Switch up and WIFI available) & no Errors are shown (Web Interface under <i>Current Alarm</i>). Otherwise, the battery status is NOT OK. <ul style="list-style-type: none"> 2.1 OK: Add one module at a time, adjust module number and check again. If battery status turns to "NOT OK", then the defect module is identified to be the one that has been added newly. 2.2 NOT OK: The defect module is probably one of the 3 modules in the tower. Take one of the spare modules and exchange each of the 3 modules with the spare module one at a time. Check the battery status after each step. If battery status turns to "OK", the defect module is identified to be the one that was exchanged. If the defect module is identified, it needs to be replaced by a new module. <p>NOTE: In the meantime, you might want to use the battery with the remaining modules at a reduced capacity. For this case please strictly mention and follow the guideline how to extend a module to the Battery-Box HV and mention this to EFT.</p> <p>NOTE: If a defect module cannot be identified, the defect could be located elsewhere (e.g BCU, connection between Battery-Box & inverter etc). In that case, please contact EFT-Systems.</p>



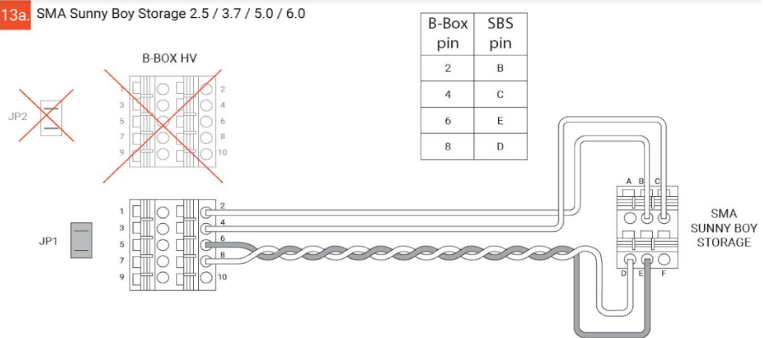
Web Interface Alarm: **UT /OT / UV / OV**

Error probably caused by a defect sensor (e.g temperature, voltage) in a battery module.

18	Cell temperature & voltage	<p>Check the Max and Min Cell Temperature and Voltage. You can find these values in the web interface under <i>HOME</i> or <i>RUN</i>. If the minimum and maximum are far off, check and record each Module individually under <i>RUN Data</i>. If one module is far off from all other modules, that module probably has a sensor damage and needs to be replaced.</p> <p>If many modules have an UV or OV, then the complete Battery might be damaged. In this case, please contact EFT-Systems.</p>
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Web Interface Alarm: **BMUProcCommErr**

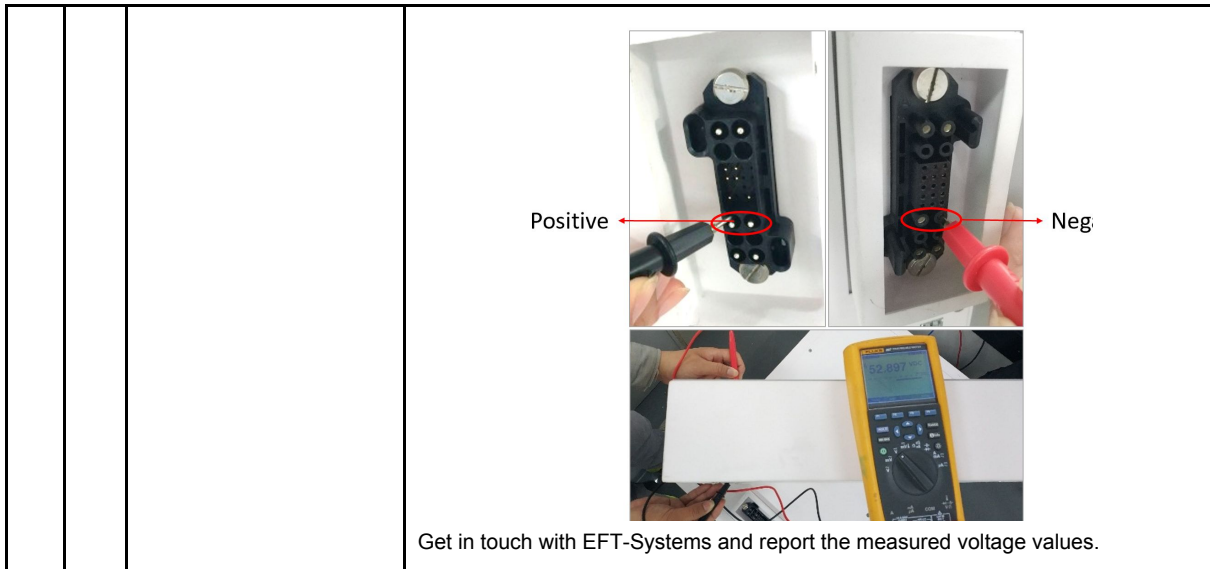
Error probably caused by a false PIN Connection.

19	Communication Port (PIN)	<p>Check PIN Connection. The PIN F to 1 should NOT be installed with SMA SBS 2.5.</p> <p>13a SMA Sunny Boy Storage 2.5 / 3.7 / 5.0 / 6.0</p>  <p>The diagram shows two pin headers: JP1 and JP2. JP2 is crossed out with a red 'X', indicating it should not be used. JP1 is shown with a correct wiring configuration. A table maps B-Box pins to SBS pins:</p> <table border="1" data-bbox="1034 875 1142 1021"> <thead> <tr> <th>B-Box pin</th> <th>SBS pin</th> </tr> </thead> <tbody> <tr> <td>2</td> <td>B</td> </tr> <tr> <td>4</td> <td>C</td> </tr> <tr> <td>6</td> <td>E</td> </tr> <tr> <td>8</td> <td>D</td> </tr> </tbody> </table> <p>The wiring diagram shows a cable connecting JP1 to the SMA Sunny Boy Storage unit, with pins 2, 4, 6, and 8 connected to B, C, E, and D respectively.</p>	B-Box pin	SBS pin	2	B	4	C	6	E	8	D
B-Box pin	SBS pin											
2	B											
4	C											
6	E											
8	D											

BCU does not turn on

If there are no active LEDs inside the BCU, it is off.

20	Voltage measurement	<p>If there are no active LEDs inside the BCU, although the AirSwitH is turned on, please perform a voltage measurement as shown in the picture below.</p> <p>ATTENTION: High Voltage! Be careful when working / measuring inside the BCU.</p>  <p>The voltage should be about 50V multiplied with the number of modules (thus between 250-450V). If the measured value is well off, please measure the voltage on single modules:</p>
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Service contact

Please note, that this document is intended to provide a quick help for common issues only. Documents with detailed installation instructions can be downloaded at www.eft-systems.de.

In Case of further help, please contact:

EFT-Systems GmbH

Mail: service@eft-systems.de

Phone: +49 9352 8523999

IMPORTANT: Please prepare and send the following Information

#	✓	Name	Description
A		Serialnumber BCU	Can be found at the Air Switch or on WEB Interface (<i>Device Information</i>)
B		Picture of BCU	Inside BCU complete
C		Picture PIN connection on BCU and Inverter	Inside BCU detailed and Inverter
D		Screenshots of Web Interface:	Can be found at the WEB Interface
D1		- <i>Device Information</i>	
D2		- <i>Installation Config</i>	
D3		- <i>Current Alarm</i>	
D4		- <i>History Alarm</i>	
D5		- <i>Run Data</i>	
E		Serial Number of defect module (Note: only necessary if a defect of a module is known!)	Can be found on top of the module.
F		Serial Number and model of Inverter	Can be important for EFT to analyse on System level with the inverter partner
G		Possible Delivery Address	If spare parts would be necessary. Please provide: <ul style="list-style-type: none"> - Complete Delivery Address with Country - Contact Person - Phone Number
H		Additional Information	Please also support with any additional information or material that might be helpful. (e.g. Comments / Portal Data or error messages of the Inverter / Additional pictures of the System / ...)