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- 9 POSITIVE AND NEGATIVE COVER ASSEMBLY 4S-2P et 8S-1P
Read the manual before integration of 18650 cells into the modules
Before making the connections, make a freehand sketches defining all electrical connections
Remove all metal objects from your hands: ring, bracelet, watch... etc.
Use insulated tools
Do not short-circuit the modules
Do not immerse the modules in wetlands
Do not immerse into liquids modules
Do not burn the modules
Do not disassemble the modules
Do not subject modules to shocks or falls
Use a suitable battery charger (voltage and load current)
Use only accessories and screws supplied with TYVA MODULOO modules
For higher voltages up to 48 volts, use personal protective equipment, gloves, goggles and face shield, hearing protection.
Do not integrate into the modules of 18650 cells of different batches, voltage and chemistry
2.0 TYVA MODULOO MODULES AND ACCESSORIES

- Housing TYVA MODULOO
- Assembled positive cover
- Assembled negative cover
- T10 M3x14 screws
- Mounting tool
- Cells spacers
- Horizontal Busbar
- Vertical clip
- Protective cover

- Busbar HO 1.0
  - Maximum current: 140 A

- Busbar VE 1.0
  - Maximum current: 30 A
2.1 MODULOO CASES DETAILS

POSITIVE LID

NEGATIVE LID

Slots available for PCM ou BMS

Landmarks
2.2 FIXING THE PCB IN THE HOUSING

- POSITIVE LID
- NEGATIVE LID

- Fixing holes
- Optional fixing holes for power PCB range

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2.3 VERSIONS OF LIDS

Version 1S/8P (3.2 to 3.6 V)
Version 4S/2P (12.8 to 14.8 V)
Version 8S/1P (25.6 to 29.6 V)

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2.4 ELECTRICAL SPECIFICATIONS OF THE VARIOUS PCB

<table>
<thead>
<tr>
<th>Module configuration</th>
<th>Polarity</th>
<th>1S/8P</th>
<th>4S/2P</th>
<th>8S/1P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reference card</td>
<td>+</td>
<td>PCB-1S-V5.2</td>
<td>PCB-4S-V4.1 POS</td>
<td>PCB-8S-V1.0 POS</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>PCB-1S-V5.2</td>
<td>PCB-4S-V4.1 NEG</td>
<td>PCB-8S-V1.0 NEG</td>
</tr>
<tr>
<td>Continuous discharge current*</td>
<td></td>
<td>30 A</td>
<td>15 A</td>
<td>3 A</td>
</tr>
<tr>
<td>Pulse discharge current *</td>
<td></td>
<td>240 A (10s)</td>
<td>50 A (1s)</td>
<td>30 A (20s)</td>
</tr>
<tr>
<td>Maximum operating temperature</td>
<td></td>
<td>-30 à +80°C</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* It is possible to increase the discharge current by fixing the two positive and negative PCBs on the inner holes of TYVA MODULOO housing (see section 2.2). For high discharge rate, air cooling of the modules must be taken into account. In order not to damage the 18650 cells, it is not advised to exceed a module internal temperature of 60°C.

Optional mounting points

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2.4.1 PCB 4S/2P (12.8 to 14.8 V)

Version 4S/2P (12.8 to 14.8 V)

Fuse SMD 20A
2.4.2 PCB 8S/1P (25,6 to 29,6 V)
The 3 PCB openings from positive cover must be placed on the 3 pins housing
3.2 18650 Li-ion CELLS

- 18650 cells size must have the same batch, voltage and identical chemistry
- The voltage difference between each cell must be less than 1.5 mV, it’s advised to measure the voltage of each cell before module integration
- $18.1 \text{ mm} < 18650 \text{ cell diameter} < 18.6 \text{ mm}$
- $64.9 \text{ mm} < \text{cell length} 18650 < 65.8 \text{ mm}$
3.3 POSITIONING THE HOUSING

Position the positive cover on the positive side of the housing and then return the assembly on a flat surface.
Installation of 18650 cells into 8 housings on the negative side of the housing.

- **Version 1S/8P** (3.2 à 3.6 V)
- **Version 4S/2P** (12.8 à 14.8 V)
- **Version 8S/1P** (25.6 à 29.6 V)

Keying pins
3.5 INSTALLATION OF SPACERS

Insert 4 spacers with the included tool

1. Insert the tool into the designated holes.
2. Place the spacers as indicated in the diagram.
The 3 PCB openings from positive cover must be placed on the 3 pins of the housing.
5. Screwing the M3 screw on negative cover

- Setting the screwdriver with a maximum torque 3 Nm.
- Place into position the negative cover and tighten the screw in the order 1,2,3,4 while pressing down firmly on the cover.
6 POSITIVE COVER MOUNTING

- Return the positive side module upwards taking care to maintain the unbound positive cover. The cells and spacers must always remain in place during this operation.
- Then remove the positive cover.
The 3 PCB openings from positive cover must be placed on the 3 pins of the housing.
Placing into position the positive cover

Tighten the screws in the 1,2,3,4 order
9 MOUNTING COVER POSITIVE and NEGATIVE version 4S-2P and 8S-1P

- Insert the + connector of the negative PCB into the box housing
- After setting up the negative cover screws, release the connector
- Before securing the 4 screws on the PCB positive, connect the two connectors of the positive and negative cards