

# ACES **Li** POWER

Instruction for camper and caravan use ACES Li POWER 12V HFA Series



HFA series with smart BMS

LITHIUM **LiFePO4** BATTERIES



ACES LI POWER®

## Choice for the right type of battery

- Capacity and load when using inverters. Please note that these inverters or converters themselves have a efficiency of 85-90%, so 1000W is 1176W on the battery.  
When using a 12V/230ac converter, the of maximum allowed 230Vac load is:  
12V80HFA up to 800W load on the 230Vac  
12V100HFA up to 1000W load on the 230Vac  
12V150HFA, 12V200HFA, 12V320HFA, 12V400HFA up to 1500W on the 230Vac
- In addition, the total continuous battery load current must always remain within the I<sub>max</sub> specification.
- If higher current load is desired, up to a maximum of 4 batteries can be connected in parallel.

## Charging the battery

- The battery must be charged within the specifications.
- When charging via solar MPPT charger, the max. charging voltage is 14.4-14.6V, Float voltage 13.5V
- Via the 230Vac charger up to 14.4V max. and 13.5V float.
- The battery must not be kept constant at 14.4-14.6V, this will lead to a short service life. Within 4 hours after the battery has been fully charged, it must return to the float voltage.
- The battery shall not be charged directly by a vehicle alternator, a so-called charging booster must always be switched between them.

## Discharging the battery

- The battery must be discharged within the specifications.
- Users such as an inverter must have a low voltage limit set to 11... 11.5V. The BMS itself is adjusted to a lower undervoltage protection and should not intervene in normal use.

## Installing and connecting the battery

- Around the battery ensure sufficient ventilation space.
- Preferably place the battery on a rubber surface and fix it securely with a strap.
- Use cable cross sections as e.g. 35mm<sup>2</sup>/100A to 2m and 50mm<sup>2</sup>/100A to 5m length.
- The battery poles shall always be equipped with a rubber hood as insulation.
- Thin cables connected to the poles shall always be provided with a suitable fuse close to the poles.
- The battery itself is short-circuit resistant and additionally has an internal fuse.





## Parallel or series connection of the ACES battery

- Max. 4 batteries can be connected inparallel, using short cabling. Max. allowable current is (N-1) \*I<sub>max</sub>.
- When connected in parallel, use the diagram as described in the user manual
- The ACES batteries shall not be connected in series; this can cause damage




## Important points of attention for use

- Make sure that the battery is always in a charged condition as much as possible (>20%).
- Make sure the battery is charged for about 60% for the period of not use in wintertime.
- Often several small electricity consumers are connected to the battery, therefore it is advisable to disconnect the battery poles during a long period of no use.
- If the above instructions are not followed and the battery enters in the deep discharge condition, it may become irretrievably defective. In that case, there is no warranty.

## 12V LiFePO4 series technical specifications 24-100AH

				
Description	12.8V 24AH	12.8V 60AH	12.8V 80AH	12.8V 100AH
Model name	AL12V24HFA	AL12V60HFA-BT	AL12V80HFA-BT	AL12V100HFA-BT
EAN / GTIN	4738474176742	4738479938789	4738476325483	4738475950945
Rated Capacity	24AH / 307WH	60AH / 768WH	80AH / 1024WH	100AH / 1280WH
Discharge current	24A	60A	80A	100A
Peak discharge current	100A	200A	300A	300A
Maximum charge current	24A	60A	80A	100A
Recommended charge current	2...12A	6...30A	10...40A	10...50A
Nominal Voltage	12.8V			
Operational Voltage range	11.0...13.5V			
BMS cutoff Voltage	10V			
Cycle Life 0.2C 80% DOD	4000			
Charge end voltage range	14.2...14.6V (13.5V float Voltage)			
Charge characteristic	CC / CV			
Battery Management System	Integrated			
Serial connection	Not allowed			
Parallel connection	Up to 4 batteries			
Bluetooth monitoring	no	Yes inside; App available for Android and Iphone		
IP protection rating	IP65			
Temperature range discharge	-20°C ... +60 °C			
Temperature range charge	0°C ... +45 °C			
Temperature storage <1 month	-20°C ... +50 °C			
Temperature storage >1 month	5 °C ... +30 °C			
Connection	M5	M8	M8	M8
Weight	3 kg	7.2 kg	9.3 kg	11.5 kg
Dimensions (L x W x H) in mm	181 x 76 x 167	197 x 166 x 173	260 x 168 x 209	306 x 168 x 211
Warranty	5 years			

## 12V LiFePO4 series technical specifications 150-400AH

			
Description	12.8V 150AH	12.8V 200AH	12.8V 320AH /400AH
Model name	AL12V150HFA-BT	AL12V200HFA-BT	AL12V320HFA-BT AL12V400HFA-BT
EAN / GTIN	4738479950491	4738476085431	4738470491856 (320AH) 4738477621232 (400AH)
Rated Capacity	150AH / 1920WH	200Ah / 2560WH	320AH / 4096WH 400AH / 5120WH
Discharge current	150A	150A	150A
Peak discharge current	360A	360A	360A
Maximum charge current	150A	150A	150A
Recommended charge current	15...75A	20...100A	20...150A
Nominal Voltage	12.8V		
Operational Voltage range	11.0...13.5V		
BMS cutoff Voltage	10V		
Cycle Life 0.2C 80% DOD	>4000		
Charge end voltage range	14.2...14.6V (13.5V float Voltage)		
Charge characteristic	CC / CV		
Battery Management System	Integrated		
Serial connection	Not allowed		
Parallel connection	Up to 4 batteries		
Bluetooth monitoring	Yes inside; App available for Android and Iphone		
IP protection rating	IP65		
Temperature range discharge	-20°C ... +60 °C		
Temperature range charge	0°C ... +45 °C		
Temperature storage <1 month	-20°C ... +50 °C		
Temperature storage >1 month	5 °C ... +30 °C		
Connection	M8	M8	M8
Weight	19 kg	23 kg	32 kg (320AH) 39 kg (400AH)
Dimensions (L x W x H) in mm	483 x 170 x 240	522 x 239 x 218	522 x 267 x 218
Warranty	5 years		