

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
12V280HFA up to 2000W on the 230Vac
- In addition, the total continuous battery load current must always remain within the I_{max} 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. 35mm²/100A to 2m and 50mm²/100A 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 $(N-1) \cdot I_{max}$.
- 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%).
- When the batteries are stocked make sure the SOC is >50% and check the capacity every 3 months and recharge the battery when needed.
- Make sure the battery is charged for about 80...100% 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 24-80AH

				
Description	12.8V 24AH	12.8V 45AH	12.8V 60AH	12.8V 80AH
Model name	AL12V24HFA	AL12V45HFA-BT	AL12V60HFA-BT	AL12V80HFA-BT
EAN / GTIN	4738474176742	4738470384141	4738479938789	4738476325483
Rated Capacity	24Ah / 307WH	45Ah / 576WH	60Ah / 768WH	80Ah / 1024WH
Discharge current	24A	45A	60A	80A
Peak discharge current	100A	125A	200A	300A
Maximum charge current	24A	45A	60A	80A
Recommended charge current	2...12A	4...23A	6...30A	8...40A
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	4 kg	7.2 kg	9.3 kg
Dimensions (L x W x H) mm	181 x 76 x 167	165 x 126 x 175	197 x 166 x 173	260 x 168 x 209
Warranty	5 years			

12V LiFePO4 series technical specifications 80-150AH

				
Description	12.8V 100AH	12.8V 120AH	12.8V 150AH	12.8V 150AH DIN
Model name	AL12V100HFA-BT	AL12V120HFA-BT	AL12V150HFA-BT	AL12V150HFAS-BT
EAN / GTIN	4738475950945	4738476073223	4738479950491	4738471253859
Rated Capacity	100Ah / 1280WH	120Ah / 1536WH	150Ah / 1920WH	150Ah / 1920WH
Discharge current	100A	100A	150A	150A
Peak discharge current	300A	350A	360A	360A
Maximum charge current	100A	100A	150A	150A
Recommended charge current	10...50A	12...60A	15...75A	15...75A
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			
Temp. storage <1 month	-20°C ... +50 °C			
Temp. storage >1 month	5 °C ... +30 °C			
Connection	M8	M8	M8	Din 17(-) / 19(+)-mm
Weight	12.8 kg	13 kg	19 kg	17 kg
Dimensions (L x W x H) mm	306 x 168 x 211	260 x 168 x 209	483 x 170 x 240	355 x 175 x 188
Warranty	5 years			

12V LiFePO4 series technical specifications 200-400AH

				
Description	12.8V 200AH	12.8V 280AH	12.8V 320AH	12.8V 400AH
Model name	AL12V200HFA-BT	AL12V280HFA-BT	AL12V320HFA-BT	AL12V400HFA-BT
EAN / GTIN	4738476085431	4738477657125	4738470491856	4738477621232
Rated Capacity	200Ah / 2560WH	280Ah / 3584WH	320Ah / 4096Wh	400Ah / 5120Wh
Discharge current	150A	200A	150A	150A
Peak discharge current	360A	400A	400A	400A
Maximum charge current	150A	150A	150A	150A
Recommended charge current	20...100A	20...100A	20...150A	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			
Temp. range discharge	-20°C ... +60 °C			
Temp. range charge	0°C ... +45 °C			
Temp. storage <1 month	-20°C ... +50 °C			
Temp. storage >1 month	5 °C ... +30 °C			
Connection	M8	M8	M8	M8
Weight	23 kg	24 kg	32 kg	39 kg
Dimensions (L x W x H) mm	522 x 239 x 218	345 x 190 x 245	522 x 267 x 218	522 x 267 x 218
Warranty	5 years			