

-- Manual --

Nova-40 Charger

for LiFePO4 battery packs



Symbol-Photo

Version / MEC Art-Nr.

- | | |
|---|---|
| <input type="checkbox"/> 10.8V 3.0A / 116-03302-430 | <input type="checkbox"/> 14.4V 2.0A / 116-04252-430 |
| <input type="checkbox"/> 25.5V 1.3A / 116-07132-430 | <input type="checkbox"/> 28.8V 1.2A / 116-08122-430 |

Dear Customer!

Thank you very much for your trust in us and our product.

Please read these operating instructions carefully **before** start of operation .

MEC-Energietechnik GmbH

1. Safety Rules and General Warnings

- ATTENTION: 100-240 Volts AC voltage, device is not suitable for children – danger of life!!
- ATTENTION: Please consider the charging instructions from the battery manufacturer before charging!!
- ATTENTION: The charger is exclusively designed for rechargeable LiFePO4 battery packs and must not be used for other purposes.
- Persons, which are not able to use the device in a safe way, because of their physical, sensory or mental competence, or because of their inexperience, should not use the charger without control or instruction of a skilled person. Look that the children don't play with the charger.
- Only for charging LiFePO4 battery packs with overcurrent and overvoltage protection.
- Do not cover the vent outlet during operation!
- If the mains connection of the device is damaged, you have to change it, with an original connection which is available at the manufacturer.
- Don't use the device near flammable gases, solvents or vapours. EXPLOSION RISK!
- Use the device only in dry rooms and protect against dust, heat (>40°C) and humidity (>80% rel.) .
- Protect against direct solar radiation.
- Clean with a dry cloth only.
- No fluids of any kind must get into the device.
- In case of obvious damage or malfunction immediately disconnect the device from mains supply and protect against unintended reconnection.
- Do not open! Repair work must only be accomplished by authorized companies or specialized technical staff

2. General information

MEC's Nova-series features freely programmable charge parameters, providing the factory with the flexibility and ease to comply with the battery manufacturer's stringent charge specifications, and to confidently deliver the safety required for charging lithium-based batteries.

The combination of the used high frequency switching technology and a precise 3-Step charging profile guarantees optimal and gentle charging for LiFePO4 battery packs to achieve the longest lifetime and most charge cycles as possible.

If the battery pack remains connected to the charger after loading, the voltage is detected permanently.

Should the voltage get underneath a pre-defined value, the charger automatically starts a new cycle.

If there is no big enough voltage drop detectable within 30 days, a new cycle is starting though.

3. Special Features

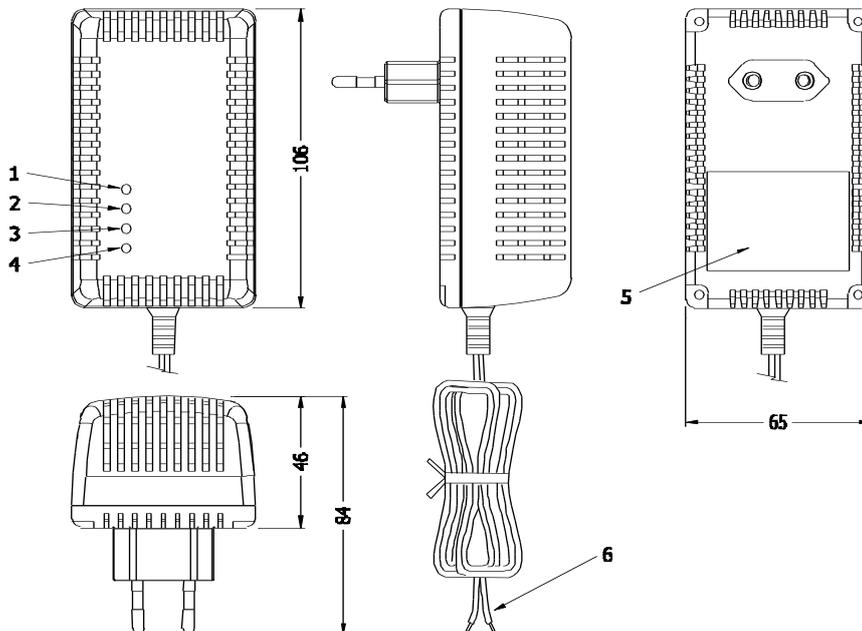
- Convection cooled.
- Protection against reverse polarity and short circuit
- High frequent switching technology
- LEDs to indicate operation and charging status
- Charging profile with „Softstart“-phase and auto restart function

4. Scope of delivery

1. Red Power-LED
2. Green Full-LED

3. Yellow Charging-LED
4. Red Error-LED

5. Rating plate
6. Charging cable with open ends



5. Charging cable - polarity

Very important: Please check polarity before connecting the battery pack to the charger!

- Black/White striped or red cable = Plus (+)
- Black cable = Minus (-)

6. Operation

I. Connect the charger to the battery and start charging:

- Make sure that the charger is disconnected from the mains supply.
- Connect the positive terminal (+) of the battery with the red or black/white cable of the charger (+).
- Connect the negative terminal (-) of the battery with the black cable of the charger (-).
- Plug in the charger into the power socket.

→ The Power-LED (1) is permanently on, The Full- (2), Charging- (3) and Error-LED (4) flash once. The charging process starts automatically and runs through the following three charging phases:

1. charging phase: Soft start-phase

The charging step is indicated by **constant lighting of the yellow control LED**.

The battery is being charged with lower current till reaching a voltage of 2.5V / cell.

2. charging phase: constant current (CC)

The charging step is indicated by **slowly flashing of the yellow control LED**.

During the constant current phase, the battery is being charged with nominal current till reaching a voltage of 3.6V / cell.

3. charging phase: constant voltage (CV)

This charging step is indicated by **fast blinking of the yellow control LED**.

During the constant voltage phase the battery is being charged to its maximum capacity.

When the max. capacity is reached the **green Full-LED is lighting constantly**.

The charger can now be disconnected from the battery (see pt. II disconnect the charger) or remain at the battery in float-charge mode. After 30 days or if the battery voltage is sinking below 3.4V / cell at connected device an automatic restart charging process starts (automatic restart-function).

II. Disconnect the charger from the battery:

- a) Disconnect the charger from the mains supply;
- b) Disconnect the charger from the battery;

7. Errors and Troubleshooting

General faults

Error description	Solution
No LED is on or blinking after connecting	→ Check if charger is connected to mains → Check mains supply for voltage
Power LED is on, battery pack is connected, no charging cycle starts	→ Check connection to battery pack → Check battery pack for damaged or low-discharged conditions
Error LED is blinking (x times / 2 sec pause)	→ Please see list below

Error-LED evaluation

Blinking signal	Description
1 x	Temperature sensor failed *
2 x	Time limit exceeded: → Connected battery pack is damaged or capacity is too big
4 x	Device temperature too high: → Too high ambient temperature
5 x	Too high voltage at starting: → Wrong battery pack connected
8 x	Battery disconnected from the charger while charging
9 x	Wrong sum when checking parameters: → Internal fault *
10 x	Current tolerance is too high or too low *
11 x	Wrong parameter values in memory → Internal fault *
12 x	Current can not be monitored → Internal fault *
13 x	Charging current is too high or low: → Internal fault *
14 x	Charging current can not be controlled: → Internal fault *

*= Please contact a specialist supplier at internal faults.

!! Caution !!

-- Do not open! Repair work must only be accomplished by authorized companies or specialized technical staff --

8. Technical Specifications

Version →	3S 10.8V / 3.0A	4S 14.4V / 2.0A	5S 18.0V / 2.0A	6S 21.6V / 1.5A	7S 25.2V / 1.3A	8S 28.8V / 1.2A
Order no.	116-03302-430	116-04252-430	116-05202-430	116-06152-430	116-07132-430	116-08122-430
Input	100...240VAC 50...60Hz					
AC-Plug type	CEE 7/16 (UK, AU, US on demand)					
Charging voltage max.	10.8VDC ±1%	14.4VDC ±1%	18.0VDC ±1%	21.6VDC ±1%	25.2VDC ±1%	28.8VDC ±1%
Charging current max.	3.0A	2.0A	2.0A	1.5A	1.3A	1.2A
Output power max.	32.4W	28.8W	36W	32.4W	32.8W	34.6W
Ripple	<1%					
Efficiency	>84% @ 230VAC					
DC-Cable	2-adrig 1.75m±0.1m with open ends					
Indication	4 LEDs					
Cooling	Convection cooled					
Operating temperature range	±0°C...+40°C					
Device protection	Reverse polarity / Short circuit					
Certification	CE					
Enclosure	Plastic housing					
IP-Class	IP20					
Weight	ca. 290g					

9. Advice for Disposal



It is prohibited to dispose the charger into the house- and residual waste removal (WEEE-Richtlinie 2002/96/EG und EAG-VO) , it must be disposed at the according collection points. For the protection of our environment please inform yourself at your communal administrative agency about your nearest disposal point.

The charger equates to the RoHS-directive 2002/95/EG, for the restriction of the use of certain hazardous substances in electrical and electronic equipment.



10. Disclaimer of Warranty

- The warranty period (see our GTC) starts with device being dispatched by the manufacturer. The MEC-Energietechnik GmbH is accepting liability by guaranteeing to working hours and spare parts only.
- For damages caused by non-observance of the operating instructions, inappropriate start up or handling as well as reconstructions and modifications of the device, the warranty claim expires and MEC-Energietechnik GmbH assumes no liability for consequential damage to property or persons!

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