Cablemedia.pl **MR20** **Battery Charger**

Features:

- Input voltage range: 11.5-15V
- Output voltage: 14.4V
- Output current: 20A
- Thermal overload protection @ 75°C
- Measured voltage tolerance: +/- 0.5%
- Compliance with CE, RoHS, 97/24/EC-C08, EN1175 standards
- Supports 12V systems
- Compatible with automotive, gel, AGM, and traction batteries
- Low standby current < 3mA
- Recommended minimum battery capacity: 60Ah
- No maximum capacity limit
- Battery presence detection

Applications:

- Charger for additional batteries in Euro 5/6/7 emission standard cars
- Workshop charger for rapid charging of large batteries powered by a 230V/12V power supply
- Low-voltage cyclic UPS
- Parallel connection of devices to achieve higher charging current

Operation Principle:

The device is used for fast charging of batteries from circuits where the initial voltage is too low for proper full charging. It features two types of thermal protection, which should not normally activate at normal conditions (25°C). In cases of elevated ambient temperatures or improper installation, the device may limit the charging current to a lower value. When the internal temperature reaches 70°C, it stops charging until the temperature drops to 60°C, after which charging resumes automatically.

The functional battery detection involves checking whether a minimum of 10V is present at the output from a discharged battery. This safeguards against charging damaged/shorted cells.

The device is activated by connecting it to the power supply's positive terminal - the CTRL terminal (typically connected to the ignition signal in a vehicle). When voltage appears at the CTRL terminal, the system counts down 30 seconds - indicated by 1Hz LED blinking. After 30 seconds, charging begins. This delay prevents immediate charging upon starting the vehicle to avoid excessive alternator load.

Once the battery is charged, the device enters standby mode, and when the battery voltage drops below 13V, another charging cycle starts.

The built-in fan operates automatically and might continue running after charging to cool the device.

NEVER connect the device's output to its input!!!!

Alarm States Signaling:

If the output lacks 10V after the 30-second countdown, the system locks and signals an error with fast LED blinking. To reset the error, disconnect voltage from the CTRL terminal for 2 seconds.

If the output reaches 15V, the system automatically locks and signals an error as above.

Proper charging status is indicated by LED blinking with increasing brightness.

Charging completion is signaled by continuous LED lighting.

Battery damage, manifesting as high internal resistance, is signaled by an alternating rising and continuous signal interval of 1-10 seconds, depending on the internal resistance level. This signal can also appear if the battery is disconnected during charging before the process is complete.

Installation Method:

ALWAYS place a fuse as close to the battery's positive terminal as possible in battery installations. To ensure proper functioning, connect the device with sufficiently thick wires (recommended 6mm2). Connect power wires using the appropriate-sized ring connector.

The device's housing is isolated from its terminals. However, note that after attaching the device to a vehicle, the housing will likely carry the ground potential, usually negative. The housing is made of aluminum and conducts electricity!! Due to the device's high power under full load, ensure air circulation through the built-in fan.

Install the device in a dry and cool location in the vehicle. Avoid installing it in the engine compartment. The device is not waterproof.

Installation Template: