# CMLup (10 – 20 A)

Solar Charge Controllers with Mobile Phone Charging Capability

- **SMD assembly, greater reliability**
- **New housing design**
- **High current rated MOSFETs**
- **High performance microcontroller**
- **More intuitive LED design**
- **USB port for charging mobile phones or small music players**
- **Easily accessible terminals**
- **Easy mounting**

The CMLup series of charge controllers is equipped with a number of outstanding features such as a status display, an alarm, and safety functions.

The temperature-compensated, four-stage PWM charging algorithm (float-main-boost-equalization) is adjustable for sealed and vented lead-acid batteries.

The CMLup charge controller also allows either a SOC or voltage-controlled low-voltage disconnect.

Battery status is clearly indicated by three LEDs. An acoustic alarm warns about an impending low-voltage disconnect (LVD).



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Solar Charge Controllers with Mobile Phone Charging Capability

| Type | CMLup 10 | CMLup 20 |
|---|---|---|
| System voltage | 12/24 V auto recognition | |
| Max. charge/load current | 10 A | 20 A |
| Float charge | 13.8/27.6 V (25 °C) | |
| Main charge | 14.4/28.8 V (25 °C), 0.5 h (daily) | |
| Boost charge | 14.4 /28.8 V (25 °C), 2 h<br>Activation: battery voltage < 12.3/24.6 V | |
| Equalization charge | 14.8/29.6 V (25 °C), 2 h<br>Activation: battery voltage < 12.1/24.2 V | |
| Deep discharge protection:<br>Voltage dependent | 11.4 – 11.9 V / 22.8 – 23.8 V by SOC<br>11.0/22.0 V by voltage | |
| Reconnect level | 12.8/25.6 V | |
| Overvoltage protection | 15.5/31.0 V | |
| Undervoltage protection | 10.5/21.0 V | |
| Max. panel voltage | 30 V in 12 V system<br>50 V in 24 V system | |
| Temperature compensation<br>(Charge voltage) | –25 mV/K at 12 V<br>–50 mV/K at 24 V | |
| Idle self-consumption | < 5 mA | |
| Grounding | Positive grounded | |
| Ambient temperature | –40 to +50 °C | |
| Max. altitude | 4,000 m above sea level | |
| Battery type | Lead acid (GEL, AGM, flooded) | |
| USB port | 5.0 V; 800 mA | |
| Max. wire cross section | 16 $mm^2$ | |
| Dimensions (W x H x D) | 100 x 100 x 28 mm | |
| Weight | 130 g | |
| Type of protection | IP20 | |



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