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 micro controller**
- **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 are equipped with a number of outstanding features such as a status display, 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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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	
	Activation: battery voltage < 12.3/24.6 V	
Equalization	14.8/29.6 V (25 °C), 2 h	
	Activation: battery voltage < 12.1/24.2 V	
Deep discharge protection:		
State-of-charge dependent	11.4 – 11.9 V / 22.8 – 23.8 V by SOC	
Voltage dependent	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	
	50 V in 24 V system	
Temperature compensation	−25 mV/K at 12 V	
(Charge voltage)	−50 mV/K at 24 V	
Self-consumption	< 5 mA	
Grounding	Positive grounding	
Ambient operating 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	
Wire cross section	Up to 16 mm^2	
Weight	130 g	
Dimensions (W x H x D)	100 x 100 x 28 mm	
Type of protection	IP20	