

# EVC-42-84

## 84 Watt 42V

### Electric Bike Charger



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#### Description



The 84 Watt EVC-42-84 charger is a constant current charger designed for charging Lithium Ion and other chemistry battery systems with a variety of applications including charging of Electric Bikes and Electric Vehicles.

- Universal AC Input / Full Range
- 90-264 VAC Input
- High Reliability
- Efficiency up to 90% @ 230VAC
- Over Voltage Protection
- Short Circuit Protection
- Over Temperature Protection
- Reverse Polarity Protection
- <20 $\mu$ A Output Sinking Current
- RoHS Compliant
- 2 Year Warranty



Input Parameters			
Input Voltage Range*	MIN	90	VAC
*Designed to optimum performance at 110 and 230 nominal lines	TYP	110/230	
	MAX	264/305	
Input Frequency	TYP	47 - 63	Hz
Input Current			
110 VAC Input Continuous	MAX	2.2	ARMS
230 VAC Input Continuous		1.1	
Efficiency			
115VAC Full Load	TYP	88.5	%
230VAC Full Load		90	

Output Parameters			
Output Current Setting	TYP	2000 $\pm$ 5%	mA
Charging Voltage Range (1)	MIN	17	V
	MAX	42.2	
Note (1) a) When the output voltage is less than 17Vdc, the charger will stop charging. b) When the output voltage is between 17Vdc and 23Vdc, the charger operates on constant current mode with 350mA output charging current. c) When the output voltage is between 23Vdc and 41Vdc, the charger operates on constant current mode with 2.0A output, when the output voltage is higher than 41.8Vdc, the charger will operate on constant voltage mode. d) Output voltage is zero when the output is disconnected.			

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#### Specifications

Output Characteristics			
Current Accuracy	MAX	±5	%
Voltage Accuracy	MAX	±0.6	%
Output Power	MAX	86.1	W
Ripple and Noise - I <sub>out</sub> with typical CV load at 25 °C 100-240VAC input measured at 20MHz	Max	10	% I <sub>OUT</sub>
Turn-on Delay Time Full Load @ 110VAC Full Load @ 230VAC	MAX	3 2	s
Rise Time @25 °C, Full Load	MAX	500	ms
Current Temperature Coefficient 0 °C < T <sub>case</sub> < T <sub>cmax</sub>	MAX	0.05	%/°C
Voltage Temperature Coefficient 0 °C < T <sub>case</sub> < T <sub>cmax</sub>	MAX	0.05	%/°C

General Specifications			
Short Circuit Protection	Auto Recovery return to normal when fault is removed		
Over Voltage Protection	Auto-recovery during over voltage protection and will return to normal operation when fault condition is removed.		
Over Temperature Protection	The unit will go into thermal protection when it is over heating. The unit will enter auto-recovery mode and will self-recover when the temperature becomes normal.		
Reverse Polarity Protection	When the battery is reverse polarity connected, the output is cut off, and the charger will return to normal operation after fault condition is removed.		
MTBF: (@25°C, 230VAC Input and full load)	≥ 100,000	Hours	
Life Time: (@50°C, 230VAC Input and full load)	≥ 15,000	Hours	
Temperature - Operating	MIN MAX	-10 +45	°C
Temperature - Storage	MIN MAX	-40 +85	°C

Relative Humidity	10% - 100%
Weatherproof	IP20 for Enclosure
Case Size	4.33" x 2.32" x 1.26" 110mm x 59mm x 32mm
Unit Weight	0.5 kg
Agency Approval	Designed to meet CE and UL1012

Safety			
Isolation Test: Primary to Secondary	3000 VAC 5mA Max/60 seconds (3 seconds for production)		
Isolation Test Secondary to Ground	500 VAC 5mA Max/60 seconds (3 seconds for production)		
Leakage Current: @240VAC/50Hz	0.75mA Max@240 VAC/50Hz		
Isolation Resistance: Primary to Secondary with 500 VDC test voltage	MIN	50	MΩ

Electromagnetic Compatibility EMI/EMC	
EMI	Comply with EN55015 Class B
Immunity	
EN61000-4-2	ESD 8kV Air Discharge, 4kV Contact Discharge, Criteria A
EN61000-4-4	Electrical Fast Transient/Burst
EN61000-4-5	Surge Immunity Test, AC power line: line to line 2kV, line to earth 1kV.
EN61000-4-6	Conducted Radio Frequency Disturbance Test-C <sub>s</sub>
EN61000-4-8	Power Frequency Magnetic Field Test
EN61000-4-11	Voltage Dips

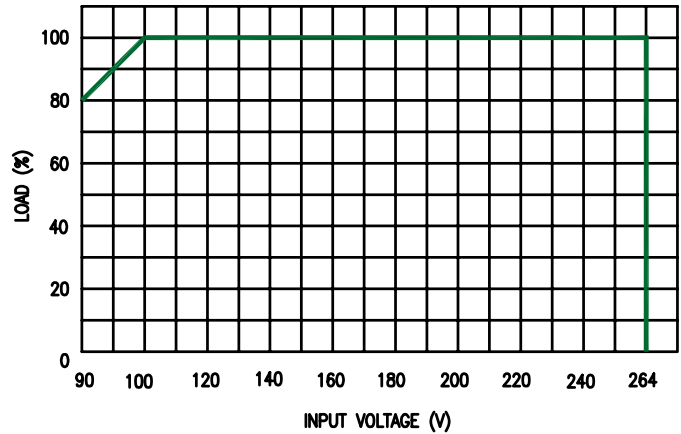
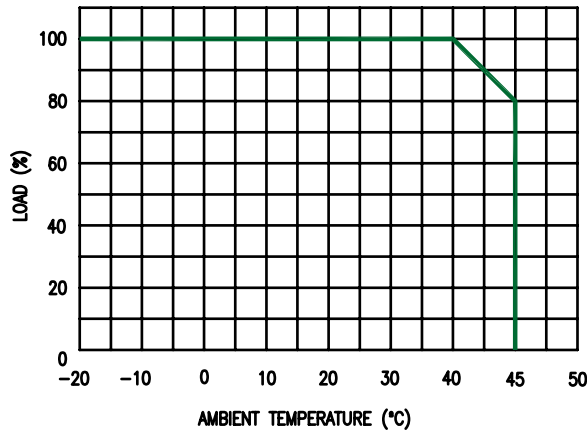
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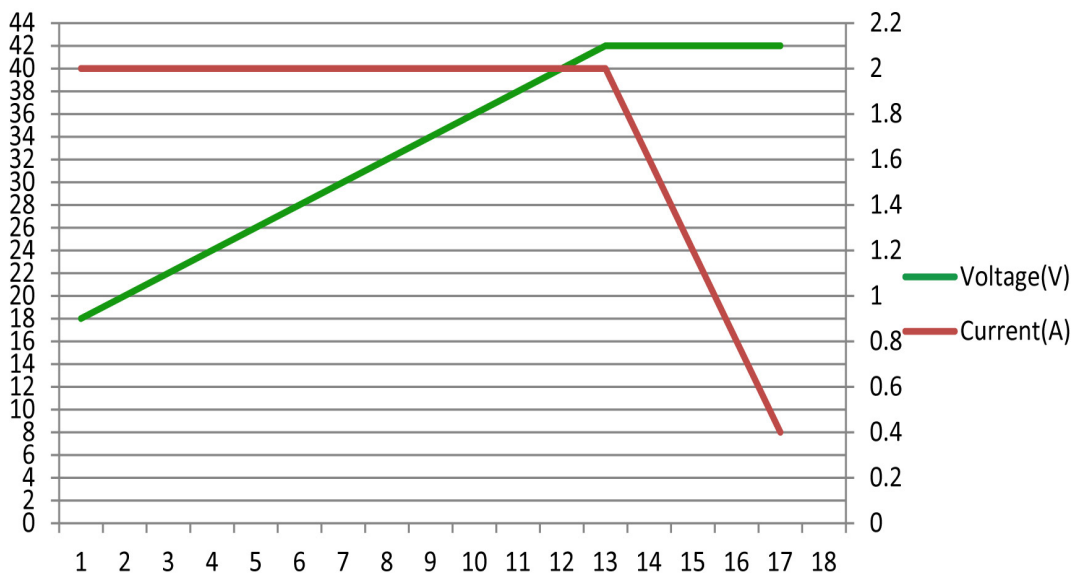
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#### De-rating Curves



#### Charging Curve



There is an ENABLE pin in the output socket. To make sure the charger operates properly, a 5V 10kHz PWM signal with 50% must be applied to the Enable pin.

There is less than 20μA sinking current at the output when the battery is connected to the output and AC input is disconnected.

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#### Case Specifications

