

ON-BOARD CHARGERS

Lithium-Ion batteries in electric vehicles

Green Watt Power offers a variety of universal AC input on-board chargers for Lithium-Ion and other batteries in electric vehicles. Many of these chargers communicate via CAN with the vehicle battery management system.

THESE BATTERIES POWER A VARIETY of electric vehicle applications including motorcycles, scooters, material handling, marine, and other applications. These units offer CAN communication and compact packaging designed to withstand shock, vibration, moisture, salt, and other harsh environmental conditions. 240 W, 400 W, 720 W and 1200 W chargers are available. All models are RoHS-compliant and backed by a five year warranty. The models below are representative of design options. Modifications and custom solutions are possible to meet application specific requirements.

400-W Lithium-Ion battery charger

The EVC-58-400, a two stage constant current/constant voltage charger for use in charging Lithium-Ion battery systems used in electric vehicles, features a universal AC input range of 90 V_{AC} to 264 V_{AC}. The power factor is 0,98 with efficiency up to 93 %. The unit is housed in an IP64 waterproof enclosure for use in a variety of applications and environments.

The EVC-58-400 features CAN for communication with the vehicle battery management system for charger status as well as optimizing the charge profile for the battery. The output current is maximum 6,8 A with an output current range of 3,4 A to 6,8 A and a voltage range of 39,2 V to 58,15 V. The charger is protected through short circuit protection, over voltage protection, and over temperature protection. The operating temperature range is -23 °C to +85 °C. The storage range is -40 °C to +85 °C.

720-W on-board Lithium-Ion battery charger

The EVC-116-720 is a two stage constant current/constant voltage charger specifically designed for on-board electric vehicle applications including electric scooters, motorcycles, ATVs, etc. It also has a universal input range of 90 V_{AC} to 264 V_{AC} with an input frequency range of 47 Hz to 63 Hz. The charger features CAN communication to optimize the charger performance based upon commands from the vehicle's battery management system. The CAN connector is a [JAE MX23A18NF1](#). The charger is rated IP64 with the charge connector rated at IP25. The charger's weight is 2,9 kg. Depending on application requirements and/or constraints, Green Watt Power can modify the physical packaging, interconnects and/or charge profile to meet the needs of individual vehicle design.

The output current of the EVC-116-720 is 6 A with a current range of 5,8 A to 6,2 A. The output voltage regulation band is 69 V_{DC} to 116 V_{DC}. The input current is 10 A RMS at 110 V_{AC} and 5 A RMS at 240 V_{AC} continuous. The standard product input power socket is a panel mount IEC-60320 C14.

The efficiency of the charger is 92 % at 115 V_{AC} and 94 % at 220 V_{AC}. The power factor at 110 V_{AC} is 0,99 and 0,96 at 220 V_{AC}. The operating temperature range of the charger is -23 °C to +85 °C and the storage range is -40 °C to +85 °C. It is protected by over voltage protection, over temperature protection and short circuit protection.

About Green Watt Power

Green Watt Power is a division of Calnex and is based in California. The company specializes in power supplies and power solutions with enhanced functionality for LED lighting, electric vehicles, and related applications.

For the electric vehicle market, the company offers application specific DC/DC solutions as well as chargers up to 1200 W. For LED lighting applications, it specializes in architectural, street, indoor, and general purpose lighting, signage, displays, and commercial refrigerator and appliance lighting. Green Watt Power offers a 5-year warranty on all its products.



With IP 64, the 400-W charger is waterproof (Photo: Green Watt Power)



The 720-W charger has a JAE MX23A18NF1 CAN connector (Photo: Green Watt Power)