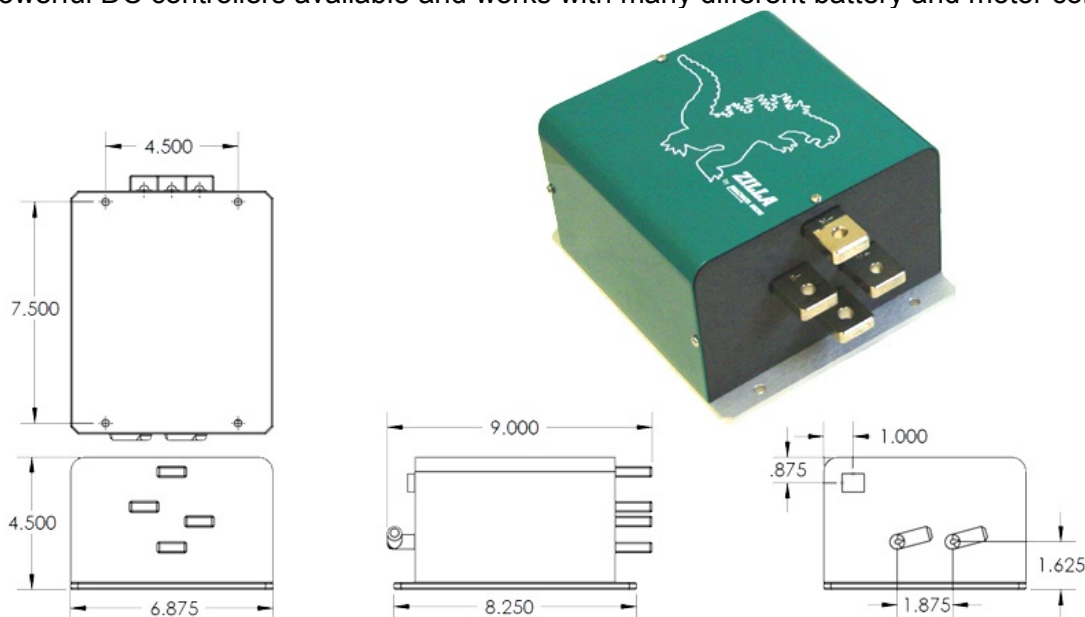


The Zilla controllers were born of the desire to create a substantially more powerful and safer DC motor controller with many features for electric vehicles. The Zilla 1K is the 1,000 amp smaller sibling to the venerable Zilla 2K. All of the Zilla 1K models share the same size enclosure which is about half the size of the 2K. There are two models of Z1k to choose from, LV and HV. The LV "Low Voltage" model will run on any voltage from 72 to 156VDC. The HV "High Voltage" model handles voltages from 72 to 300VDC. The Zilla regulates power to the motor based on input from the throttle and it is designed to keep the voltage and power levels within the parameters defined by the user.

Every Zilla controller comes with a Hairball 2 interface box which is packed with features. The Hairball is the central connection hub for all of the smaller ancillary circuits and it handles communication with the controller as well as programmable parameter adjustment. The unit has a built-in automatic pre-charge function to help protect the main contactor from arcing. There is also active monitoring of the main contactor for voltage drop or a stuck condition. Other features include programmable motor voltage and current limits, programmable battery voltage and current limits, adjustable low battery voltage protection and an additional low battery indicator output. There are two speed sensor inputs for motor over speed limiting of up to two motors and there is a pulse output which can interface with most 4 or 6 cylinder tachometers to show instantaneous motor RPM.

The Hairball has indicators which make it easy to tell when the battery pack is connected, how the pre-charge is working and if the controller is in run mode. There is an error indicator which makes it easy to determine when there is an error and to flash more specific error codes. The error indication can also be tied into an auxiliary circuit to illuminate an instrument panel indicator. There are more than 40 status and error codes to help diagnose problems and no special scan tools are needed to retrieve codes.

With easily programmable voltage and current parameters and power levels of up to 265kW, the Zilla 1K is one of the most powerful DC controllers available and works with many different battery and motor configurations.



The Zilla 1K series of motor controllers weigh in at approximately 15.5 pounds (7 kg)

The maximum outermost dimensions including the aluminum base plate, connection terminals and other protrusions is approximately: 9.13" L x 7" W x 4.63" H (232mm x 177mm x 118mm)



ZILLA 1K

EV DC MOTOR
CONTROLLER

	Zilla 1K LV	Zilla 1K HV
Recommended Nominal Input Voltage Range	72-156 VDC	72-300 VDC
Absolute Min/Max Operational Voltage	48-175 VDC	48-336 VDC
Output (Motor) Voltage Range	From zero to batt. pack voltage*	From zero to batt. pack voltage*
Input (Battery) Current Max	See ** Note Below	See ** Note Below
Output (Motor) Current Max	1,000 Amps	1,000 Amps
Output (Motor) Current Continuous @ 122° F (50° C) Coolant Temperature	≥ 350 Amps	≥ 350 Amps
Peak Power	Up to 148 kW	Up to 265 kW
PWM Frequency	15.7 kHz	15.7 kHz
Power Devices	IGBT	IGBT
On State Voltage Drop	< 1.9 V @ max current	< 1.9 V @ max current
Operational Temperature Range (Coolant Temp)	-4° to 122°F (-20°/50°C)	-4° to 122°F (-20°/50°C)
Internal Temp Automatic Power Reduction @	> 131°F (55°C)	> 131°F (55°C)
Internal Temp Full Shutdown	212°F (100°C)	212°F (100°C)
Suggested Coolant Flow at +5°C ≤ ambient	2 GPM	2 GPM
Heatsink Coolant Pressure Maximum	15 psi	15 psi
Coolant Type	Silicate-Free Antifreeze	Silicate-Free Antifreeze
Recommended Fuse (Ferraz Shawmut #)	A30QS500	A50QS400-4
Hairball Power Recommended Input Voltage	12-14.5V	12-14.5V
Absolute Min/Max Hairball Power Voltage	>9V / <16V	>9V / <16V
External PC to Hairball Communication for Parameter Adjustment	9600 baud, No Parity, 8 Bits, 1 Stop Bit, No Flow Control	9600 baud, No Parity, 8 Bits, 1 Stop Bit, No Flow Control
Warranty	Limited 12 Months	Limited 12 Months

* Controllers buck but do not boost so output voltage will be less than or equal to input voltage.

**Maximum battery current at: 200V = 950A and at 300V = 885A.

The efficiency of the Zilla controllers varies with duty cycle and voltages but is usually 98% or greater.

Pricing and accessories available at: www.manzanitamicro.com