

Soliton1 Specs

Performance:

- **1000 Amps:** The Soliton1 has a continuous current rating with liquid cooling of 1000A.
- **340 Volts:** 8 to 340 Volts maximum pack voltage.

Features:

- **Idle:** PID controlled. Makes converting vehicles with automatic transmissions, power steering, A/C, etc. much easier!
- **Battery Pack Protection:** Both maximum current and minimum voltage on the battery side are programmable - protect your pack from abuse while extracting the maximum performance and range from your pack.
- **"Limp Home" Mode:** Low pack voltage limit function protects batteries against over-discharge while extracting the maximum possible range by limiting motor current to whatever amount keeps the pack voltage above the programmed limit. This function provides the greatest "limp-home" capabilities.
- **Motor Voltage Protection:** User can limit the motor voltage output to any level.
- **Current Control:** Throttle controls motor current (torque) for a very natural driving feel.
- **Smooth Starts:** Spread spectrum switching, or dithering, is used at low motor currents to maintain precise control and eliminate jerky starts.
- **Adjustable Acceleration Rate:** The rate at which motor current is allowed to rise is adjustable from a tortoise-like 100A per second to a tire-boiling 25,000A/s (functions essentially like traction control).
- **Protected Against Wiring Errors:** All input terminals protected against reverse and over-voltage. All output terminals protected against short-circuit and inductive kickback (diodes recommended across all coils anyway). Even the battery pack terminals are protected against reverse polarity and over voltage!
- **3-wire Throttle Input:** Accepts a 0-5V signal from a pot, automotive TPS or Hall effect pedal, etc.. The range is calibrated and "off" can be compensated for drift. Polarity can be inverted and a broken throttle wire detected.
- **Tachometer Input/Output:** Compatible with industrial proximity sensors (1, 2, 4, 6 per turn) to protect against motor over-speed and necessary for idle. Tach output drives a 4cyl or 6cyl tachometer gauge regardless of input pulses/turn.
- **Brake Input:** Inhibits the throttle when active for additional safety.
- **Three Programmable Inputs:** Reverse and motor over-temp so far, with sport/econo mode and cell-level low voltage cutoff coming soon
- **Three Programmable Outputs:** Meter drivers to display motor and battery amps, power, etc. Switching twin motors between series/parallel (coming soon).
- **Error Light Output:** For reporting errors to the driver via the existing "Check Engine" light or other 12V indicator.

Superior Construction:

- **Dyno Tested:** Every single Soliton1 is put through a vigorous dyno tested procedure to ensure quality.
- **Built in Precharge:** Precharge management and components are built inside the controller. There is no need for a external contactor and resistor.
- **High Efficiency:** 1.5V max. drop at 1000A (0.8V typical).
- **Rugged Enclosure:** Great weatherability.
- **Forced Air & Liquid Cooled Heat Sink:** Awesome heat-dissipation as-is; liquid cooling loops add even more.
- **Dedicated High Power Connections:** Separate terminals (1/2") for the battery and motor connections. Makes for a clean and safe installation.

Connectivity:

- **Web Browser Interface:** Access all settings and update the firmware with an ordinary web browser!
- **Data Acquisition:** Performance data is continuously streamed to the Ethernet port (UDP format) at 0.1s intervals. A basic logging program is available and the data format is open source.
- **Firmware Upgrades:** Code can be upgraded through the Ethernet port and is AES encrypted to allow updating to be done without sending the controller back to us.

For more information about the Soliton1 Controller – contact PA Electrics – An authorized Evnetics Dealer