

CUSTOM MOTOR TEST SYSTEM

ELECTRONIC PERSONAL TRANSPORTATION DEVICES

COMPONENTS

- Custom 80/20 Enclosure with Custom Guarding
- E-Stop System
- Computer with Windows 7 PRO
- M-Test 7 Motor Testing Software
- DSP7000 Programmable Controller
- 6510e Power Analyzer
- 100A External Shunt
- Interface GPIB-USB-HS+
- Data Acquisition Hardware, Analog Input Module and Thermocouple Module
- TM 309 Torque transducers
- AHB-12-5510 Air Cooled Hysteresis Brake
- Lambda ZUP36-6/U Power Supply, 36VDC, 6A, rack mount
- Actuator Assembly, 24VDC, 6" stroke
- Force assembly, 400 lb·f
- Applied Force Meter load Cell, 500 lb·f
- UUT Interface assembly



Fig.1 : Hoverboard motor test system

DESCRIPTION

With the increase in popularity of electronic personal transportation devices, Magtrol, designed and built a custom motor test system to test the performance of rechargeable lithium-ion batteries. Performance factors tested include but are not limited to in-use temperature and current draw, motor speed, torque, and output power.

APPLICATIONS

HoverBoard – max speed: 10 mph - Self-balancing personal transporter consisting of two motorized wheels connected to a pair of articulated pads on which the rider places their feet. The rider controls the speed by leaning forwards or backwards and direction of travel by twisting the pads

Onewheel Board – max speed: 15 mph - Self-balancing personal transporter consisting of one motorized wheel. The rider controls the speed by leaning forwards or backwards, and steers by twisting the unit using their feet.

Segway – max speed: 11 mph - a two-wheeled motorized personal vehicle consisting of a platform for the feet mounted above an axle and an upright post surmounted by handles.