Electrical Machines Teaching Platform
K-EMP Product Information

Description

Kylowave Inc. (www.kylowaveeducation.com) has developed a new teaching platform called the K-EMP to enable affordable implementation of state-of-the-art course curriculum in electrical machines. K-EMP is useful in courses from introductory, senior undergrad up to various graduate level course studying various subjects in electrical machines technology. K-EMP differentiates form existing products through its small footprint, lower cost and a deeper experience for the students and one which provides for more practical hands-on skill development for what the engineer will face in industry.

Customers

University and college undergraduate and graduate courses in electrical machines, power systems, control systems and mechatronics

Value to Customers

- A total cost of ownership 2X to 3X lower than existing products
- Flexible platform that can serve many Labs and several courses with the same setup
- Ruggedized to support students to develop hands-on skills transferable to the industry
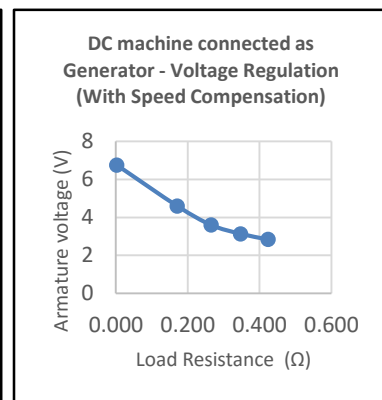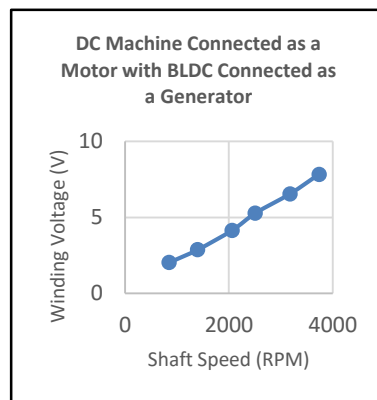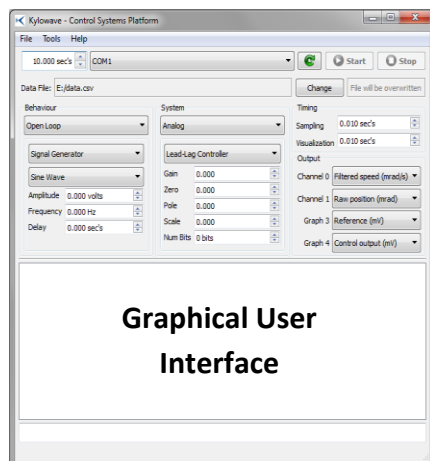
Typical Applications

Any or all of the following and much more:

- Theory and operation of BLDC, PMSM and DC machines in motor and generator mode
- Theory, operation and control of six-step commutation BLDC motors
- Electrical machines with analog and digital PI, PID, PI-PD and Lead-Lag controllers
- Position, speed and torque controllers
- Real-time emulation of COTS machines
- Renewable energy powered motion control
- Integration to Matlab/Simulink and LabView

Introducing K-EMP, a software-defined control systems teaching platform that consists of:

✓ Configurable software that enables instructors to abstract material not relevant to the course to focus on the parts they are teaching

✓ Laboratory experiment manuals developed by electrical engineering professors that can be customized for your specific needs

✓ Exporting experimental data to Matlab and Excel for report preparation

✓ All the equipment necessary to realize the experiments (DC & PM electric machines, power converter, digital controllers, data acquisition, etc.)

✓ Real-time emulation of COTS electrical machines for maximum student hands-on experience

✓ High quality motors for improved linearity and performance

✓ Attractive pricing.

Graphical User Interface

Integrated Signal Visualizer And Data Logger Interface to Excel and Matlab

DC Machine Connected as a Motor with BLDC Connected as a Generator

DC machine connected as Generator - Voltage Regulation (With Speed Compensation)

425 McArthur Av. 2nd Floor Suite 1A, Ottawa ON. CA. K1T 1G5, Tel: (613) 454-1437
www.kylowaveEducation.com   info: sales@kylowave.com

Specifications

BUCK-BOOST DC-DC CONVERTER		
Input / Output Voltage	Nominal: 12 VDC / 12 VDC	
Power	Maximum: 12 W	
MOTORS	**DC**	**PMSM**
Rated Voltage / Rated Power	12 VDC / 4 W	24 VDC / 60W
Rated Speed	7600 RPM	10800 RPM
SENSORS		
Voltage, current, speed, position and temperature accessible through the analog and digital connectors		
Hall-based motor shaft position and speed encoder with 48 pulses per rotation		
Six-step hall sensor for BLDC speed control		
Signal conditioning, Internal PWM digital-to-analog converters and hall-based current sensors		
SMART LOAD		
Four independent and digitally-controlled resistive loads		
These 25 Ohms loads can be independently turned ON/OFF through a TTL/CMOS digital signal applied to the appropriated pins on the K-EMP digital connector		
CONNECTION INTERFACES		
Ruggedized interfaces with short-circuit and over-voltage protection		
Medium Voltage: DIN Rails Terminal Blocks Amphenol PCDS connector for 300V, and32A, compatible with wire gauge 16-28 AWG		
Low Voltage: 2X17 positions Molex male socket		
Power Adaptor: 2.1 mm power adaptor jack with positive at the center		
ENVIRONMENTAL SPECIFICATIONS		
Operating/Storage Temperature	0°C to +70°C / -25°C to +85°C	
Humidity	95% RH	
Lead-free Compliance	Lead free / RoHS Compliant	
PHYSICAL SPECIFICATIONS		
Case Material	Polycarbonate (flammability to UL 94V-0, Rating IP65)	
Weight	Approximately 3.0 lbs	
Dimensions	Approximately 8.740" L x 5.748" W x 2.953" H	

K-EMP Pricing

Please contact us at sales@kylowave.com for latest pricing.

Warranty

Limited hardware one-year manufacturer warranty. Free support for initial setup, training and integration to your existing Lab. Free software and libraries updates.

How to order

To order, please contact
Kylowave Inc.
Sandra Costa
(613) 454-1437 ext. 115
sales@kylowave.com   [SP-KWE-2015-11-24-PI]