Drivelab kit

Test bench

OP1640

"This kit enables mastery of electric drive concepts, from simulation of the whole virtual system to implementation on the real physical test bench."

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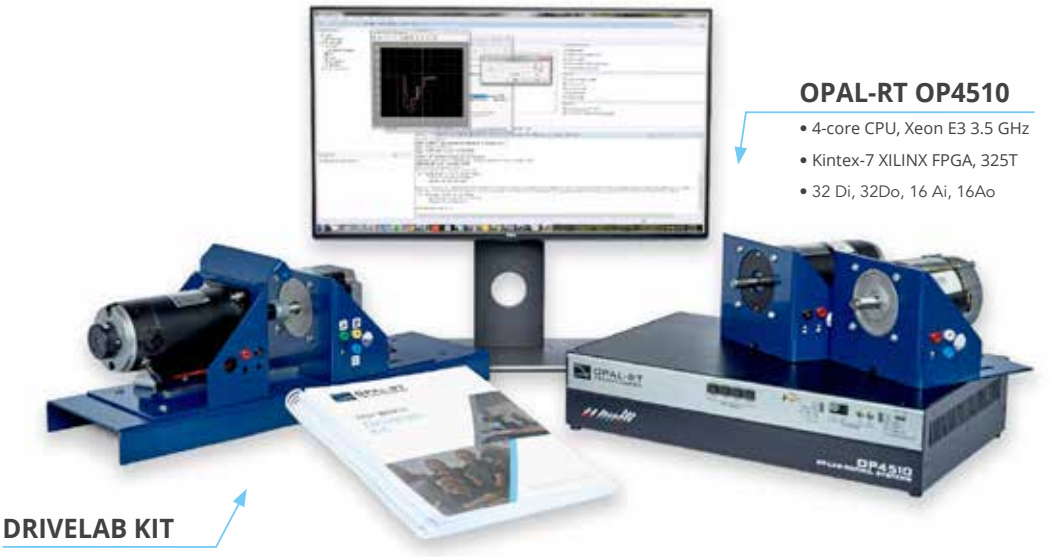
Technical Lead in Advanced Control and Electric Drives

The Drivelab Kit is a fully integrated motor drive laboratory, designed to enable students to perform a variety of experiments on AC and DC machines. As learning outcomes, students will have: hands-on experience with hardware including power electronics, motors, sensors and measurement instruments, and will learn parameter identification and motor modeling, current and speed control loop design, and scalar and vector control techniques.

TEST BENCH OFFER



OPAL-RT OP4510

- 4-core CPU, Xeon E3 3.5 GHz
- Kintex-7 XILINX FPGA, 325T
- 32 Di, 32Do, 16 Ai, 16Ao

DRIVELAB KIT

- Four Machines
  1. brushed dC motor with quadratic encoder
  2. brushless dC motor with Hall Effect encoder
  3. Squirrel-cage induction motor with quadratic encoder
  4. brushed dC generator with variable resistor
- Power electronics inverters
- Voltage and current sensors
- Braking chopper

COURSEWARE

Power electronics HIL teaching laboratory
Modules 1 to 4

OUR DRIVELAB KIT COMES WITH FOUR MODULES

MODULE 1:
Hands-On Setup

OBJECTIVES

- Become familiar with hardware and sensor calibration.

Laboratory Exercises include:

- Understand the mechanical setup: motors and coupling.
- Understand the electrical setup: drivelab mapping box, real-time simulator and cables.
- Calibrate sensors.

MODULE 2:
DC Motor Drives

OBJECTIVES

- Learn the principles of operation of a DC motor.
- Design a DC motor drive.

Laboratory Exercises include:

- Identify electrical and mechanical steady-state parameters.
- Simulate virtual motor.
- Design: (i) current control, (ii) speed control.
- Understand fourquandrant operations.

MODULE 3:
BLDC Motor Drives

OBJECTIVES

- Learn the principles of operation of a BLDC motor.
- Design a BLDC motor drive.

Laboratory Exercises include:

- Identify electrical and mechanical steady-state parameters.
- Simulate virtual motor.
- Design: (i) six-step control, (ii) vector control.

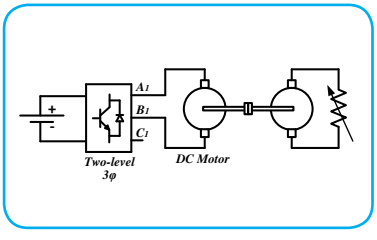
MODULE 4:
Induction Motor Drives

OBJECTIVES

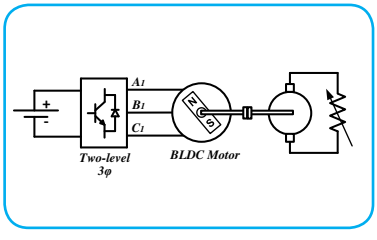
- Learn the principles of operation of an induction motor.
- Design an induction motor drive.

Laboratory Exercises include:

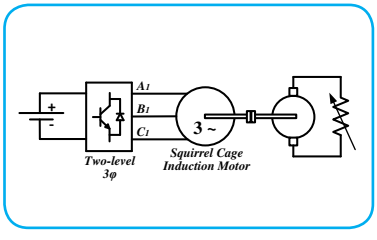
- Identify electrical and mechanical steady-state parameters.
- Simulate virtual motors.
- Design: (i) V/F control, (ii) vector control.



MODULE 2



MODULE 3



MODULE 4