



LAB-VOLT/OPAL-RT 0.2kW Electrical Motor Laboratory

Enhance academic research on electric motor control development using an OPAL-RT Real-time simulator connected with a LABVOLT 0.2 kW electric motor Laboratory.

OPAL-RT, in partnership with Lab-Volt, presents the 0.2 kW electrical motor laboratory kit ideal for power electronics control studies and research in universities. This lab provides to students the ability to design advanced controls using Matlab/Simulink/RT-LAB and test and validate their prototype controls in real-time. Students could also design models using OPAL-RT power electronics modelization toolboxes and validate them with real power electronics components.

This experimental laboratory offers multiple possibilities on the same platform and represents a great investment for unique laboratories that want to meet students' needs, from undergraduate up to graduate research. Universities that have the actual Labvolt 0.2kw electric motor laboratory could easily upgrade to incorporate OPAL-RT Real-time simulators.

Product Highlights

Control strategies design using RT-LAB and MatLab/Simulink/SimPowersystems/Stateflow.

RT-LAB, fully integrated with MATLAB/Simulink®, is the open Real-Time Simulation software environment that has revolutionized the way Model-based Design is performed.

Total integration of Labvolt laboratory with OPAL-RT OP5600 simulator and OP8660 HIL Controller Interface.

The OP5600 is a complete simulation system comprising a powerful target computer, a flexible high-speed front-end processor and a signal conditioning stage. With its multiple parallel cores, the OP5600 has the capacity to run, in real time, elaborate Matlab models that can represent a complex physical system, its associated controllers or both. The OP5600 interfaces to real world systems through its comprehensive digital and analog I/Os.

The OP8660 features high voltage and current probes specifically customized for Lab-Volt's Laboratory kit power ratings. The OP8660 can also output the firing pulses to control two IGBT inverter modules and can read two ABZ position encoders. Finally, a wide array of digital and (low power) analog I/O are available for the user.

Step-by-step tutorial and operational demonstration.

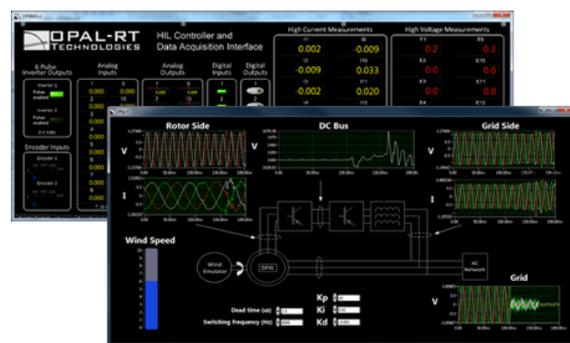
Made and performed by students for students under OPAL-RT supervision, full documentation is provided to go as fast as possible into the applications.

The operational demo includes:

1. Control of LABVOLT Dynamometer
2. Speed Control of Squirrel cage induction motor (SCIM)
3. Control of Permanent Magned DC motor
4. Speed Control of PMSM Brushless motor

Visualization and control with built-in user interface.

All models come with an intuitive visualisation and control interface allowing users to easily operate, calibrate, change control parameters and even program automatic testing and data recording.



Worldwide OPAL-RT support provided everywhere, anytime

All OPAL-RT TECHNOLOGIES customers can rely on experienced applications engineers located all around the world, trained and experienced with the Lab-Volt laboratory application.



From Imagination... to Real-Time

OPAL-RT KIT SPECIFICATIONS

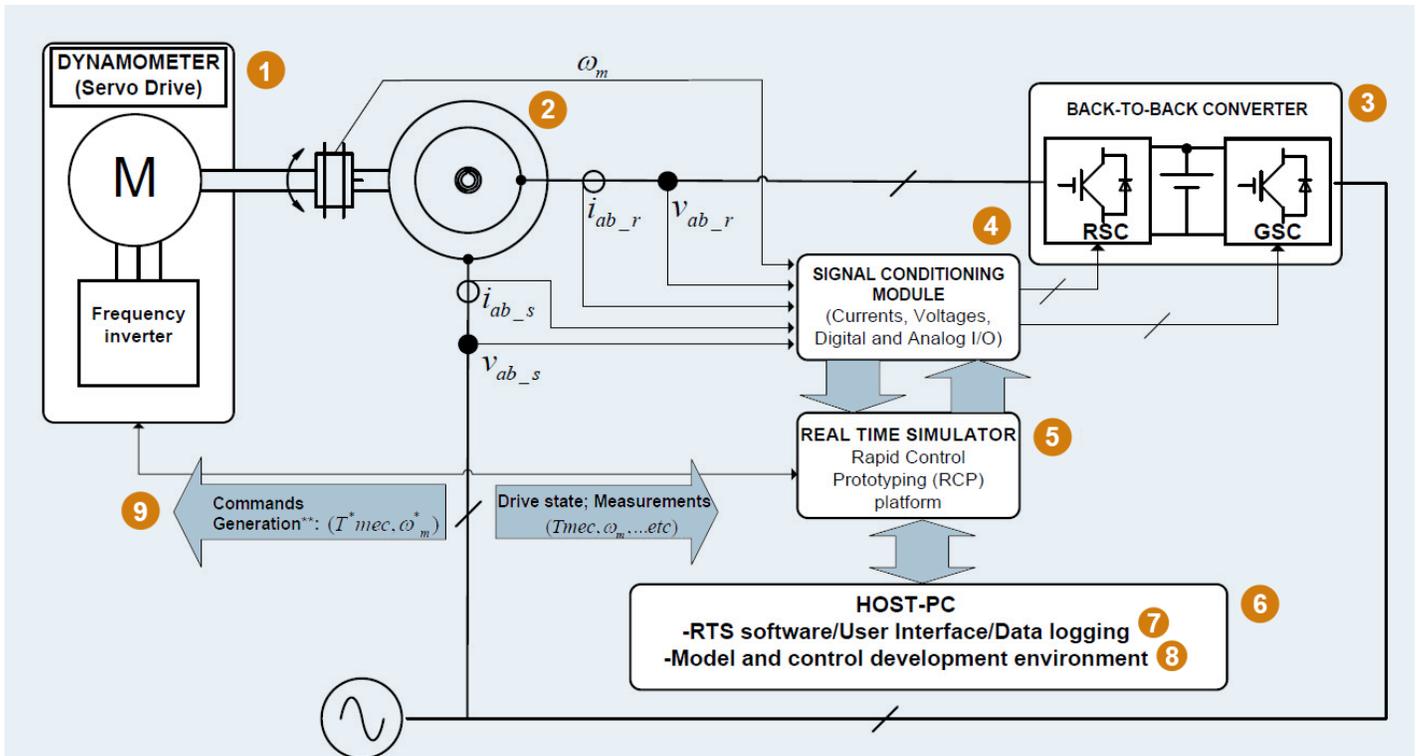
Hardware	1X OP5600 Real-Time Digital Simulator 1X OP8660 Signal conditioning Module
Software	RT-LAB suites for LABVOLT Laboratory (RT-LAB, RT-EVENTS, TESTDRIVE)
Courseware	0.2 kW LABVOLT/OPAL-RT Tutorial
Optional	On-site training Web training

LABVOLT KIT SPECIFICATIONS

0.2-kW Electromechanical Training System (8001) Including:

1X8213-00	Permanent magnet DC Motor
1X8221-00	Four-Pole Squirrel-Cage Induction Motor
1X8221-00	Three-Phases Synchronous Motor
1X8245	PMSM Brush

Typical Configuration



Description and kit part

- | | |
|--|---|
| 1 - Dynamometer LabVolt 8540 | 6 - Host computer (Window based PC) |
| 2 - Electrical motor LabVolt 8505 | 7 - RTS' user interface (OPAL-RT's RT-LAB) |
| 3 - Back-to-back converter LabVolt 8857 | 8 - Model and control software (Matlab/Simulink) |
| 4 - Signal conditioning module (OPAL-RT OP8660) | 9 - Serial communication (Asynchronous half-duplex serial) |
| 5 - OPAL-RT simulator (OPAL-RT OP5600) | |

PRINTED IN CANADA

About OPAL-RT TECHNOLOGIES

OPAL-RT is the world leader in the development of PC/FPGA Based Real-Time Digital Simulator, Hardware-In-the-Loop (HIL) testing equipment and Rapid Control Prototyping (RCP) systems to design, test and optimize control and protection systems used in power grids, power electronics, motor drives, automotive industry, trains, aircrafts and various industries, as well as R&D centers and universities

1751 Richardson, Suite 2525, Montreal, Quebec, Canada H3K 1G6 | Toll free: 1-877-935-2323 | www.opal-rt.com