

eHS32 Solver | OP4200

Introductory power electronics HIL simulator



Power electronics
HIL performance
at a game-
changing price

HIGHLIGHTS

- Convenient eHS user interface to import real-time electrical models from MATLAB/Simulink®, PLECS®, PSIM® or NI MULTISIM®
- Speed and accuracy with a minimum model time step of 100 microseconds (CPU) or 125 nanoseconds (FPGA)
- Simulate up to 48 switches on one FPGA core without decoupling your power electronics schematics

PURPOSE

Quickly move from your power electronics schematics (designed with MATLAB/Simulink®, PLECS®, PSIM® or NI MULTISIM®) to the real-time RT-LAB platform to run your most innovative HIL tests and validations.

DESCRIPTION

Powered by our respected eHS electrical solver, the OP4200 HIL system delivers the essential features you need to kick off your power electronics projects. With this modular solution, you can quickly compile and execute your electronic schematics, reconfigure I/Os, including signal format and conditioning, to fit your immediate needs.

APPLICATIONS

Battery management system and battery simulation, data acquisition for analog and digital signals, microgrid and renewable (detailed low-latency model), power electronics converters (up to 48 switches), programmable analog and digital signal generators.

KEY PERFORMANCE SPECS

- Switching Frequency: up to 200 KHZ
- Control Loop minimum delay: 1.5 μ s
- Model Minimum Time Step: 100 μ s (CPU), 125 ns (FPGA)
- Number of power electronics switches: 48 switches on one FPGA

TYPICAL USE CASE

HIL Process



System Configuration

HARDWARE

OP4200 Simulator

ARM® Cortex® A9 CPU - 2 cores - 1 GHz, Xilinx Zynq® FPGA Kintex™7 125K LUT
Connectivity - Ethernet port 10/100/1000 Mbps (RJ45).
RS232 (DB9), USB2.0, 5-Gbit/s high-speed fiber optic link (2x SFP)

Digital Input | 32 channels, 4.5V to 50V, 40 ns typical propagation delay

Digital Output | 32 channels, 5V to 30V, 65 ns typical propagation delay

Analog Input | 16 channels, 16 bits, 500 kS/s, +/-20V, adjustable range

Analog Output | 16 channels, 16bits, 1 MS/s, +/-16V

Analog Input | 16 channels, 16 bits, 2MS/s, +/-20V

Timed Generation and Measurement Firmware | Selectable 32 timed digital inputs and 32 timed digital outputs

SOFTWARE

RT-LAB | Real-time Simulation Software

eHS32 power electronic solver provides 48 coupled switches

RT-XSG | RT-XSG toolbox for FPGA real-time simulation

COMMUNICATION PROTOCOLS

CAN Bus interface board

Baseline

HARDWARE

✓

SOFTWARE

✓

✓

COMMUNICATION PROTOCOLS
