eHS32 Solver | OP4200

Introductory power electronics HIL simulator

BDL42-300

POWER ELECTRONICS HIL PERFORMANCE AT A GAME-CHANGING PRICE

Dimensions: 11.2 "(W) x 8.7 "(D) x 9,75" (H)

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.

DESCRIPTION

Powered by the renowned eHS electrical solver, the OP4200 HIL system delivers the essential features you need to kick off your power electronics project. 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.

PURPOSE

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

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
- Model minimum time step: 100 μs (CPU), 125 ns (FPGA)
- Control loop minimum delay: 1.5 μs
- Number of power electronics switches: 48 switches on 1 FPGA

TYPICAL USE CASE

HIL Process

WORKSTATION   REAL-TIME SIMULATOR   ACTUAL SYSTEM

Controllers, Protective relays
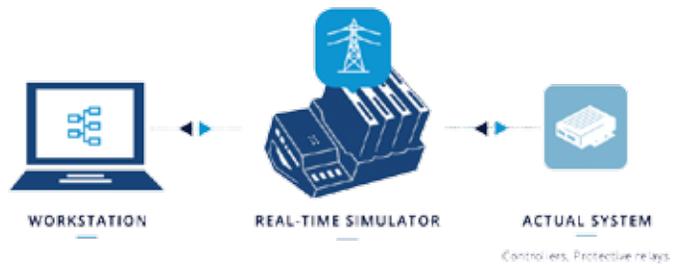
System Configuration	Baseline
HARDWARE	
OP4200 Simulator ARM® Cortex® A9 CPU - 2 cores - 1 GHz, Xilinx Zynq® FPGA Kintex™7 125K LUT Connectivity - Ethernet port 10/100/1000 Mbps (RJ45). RS232 (DB9), USB2.0, 5-Gbit/s high-speed fiber optic link (2x SFP)	✓
Digital input | 32 channels, 4.5V to 50V, 40 ns 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	***

*** Optional