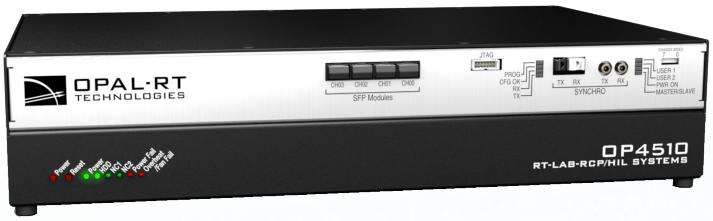
HYPERSIM® | OP4510

Closed loop protection relay testing



Designed by power system engineers for power system engineers

HYPERSIM

HIGHLIGHTS

- One-line diagram schematic editor
- Suitable for network tests with up to 30 single-phase nodes and 10 three-phase buses
- Specialized test automation tool for protection

DESCRIPTION

Provide large and complex model-based or basic functional test scenarios, while simultaneously supporting an array of inputs and outputs for unparalleled connectivity. This solution provides advanced real-time monitoring, control, and protection capabilities.

PURPOSE

This solution tests your protection control relay using HYPERSIM models in closed loop to receive detailed EMT simulation feedback. Monitor the behavior of the grid based on the relay under test in real time.

APPLICATIONS

Protection function testing via analog and digital interfaces or IEC61850 sampled value and GOOSE, protection scheme testing (including virtual relay library), events analysis.

KEY PERFORMANCE SPECS

- Control Loop minimum delay: 5 µs
- Model Minimum Time Step: 3 µs
- Run offline simulations
- Maximum entry-level network size: 30 single-phase nodes on one core
- COMTRADE playback

TYPICAL USE CASE

HIL Process

System Configuration

	Baseline
HARDWARE	
OP4510 Simulator Intel Xeon CPU - 4 cores - 3.5 GHz, Xilinx FPGA Kintex™-7 325T Connectivity - Ethernet port 10/100/1000 Mbps (2x RJ45). RS232 (DB9), USB2.0, 5-Gbit/s high-speed fiber optic link (4x SFP)	✔
Digital Input | 32 channels, 4.5V to 50V, 40 ns high-speed digital I/O	***
Digital Output | 32 channels, 5V to 30V, 200 ns to 65 ns	***
Analog Input | 16 channels, 16 bits, 500 kS/s, +-20V	***
Analog Output | 16 channels, 16 bits, 1MS/s, +-16V	***
Timed Generation and Measurement Firmware | Selectable 32 timed digital inputs and 32 timed digital outputs	***
Dual-port Gigabit Ethernet Interface Card	***
Time synchronization card, GPS, IEEE 1588, 1PPS, IRIG-B	***
SOFTWARE	
HYPERSIM Editor | Windows based model editing	✔
HYPERSIM HX30 | Real-time Simulation of up to 30 nodes (10 x 3-phase buses)	✔
ScopeView for HYPERSIM HX30 | Waveform Visualization and Analysis Software	✔
TestView for HYPERSIM HX30 | HYPERSIM® Test automation tool	***
TestView Function 121 | TestView test sequence add-on for distance protection relay (IEC 60255-100)	***
COMMUNICATION PROTOCOLS	
IEC 61850-8-1 GOOSE/Sampled Values/SV data integrity manipulation C37.118 slave/master DNP3 slave/master Modbus slave/master	***

*** Optional

Bundle No: BDL45-411