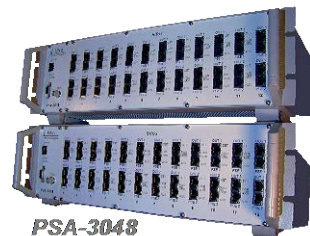
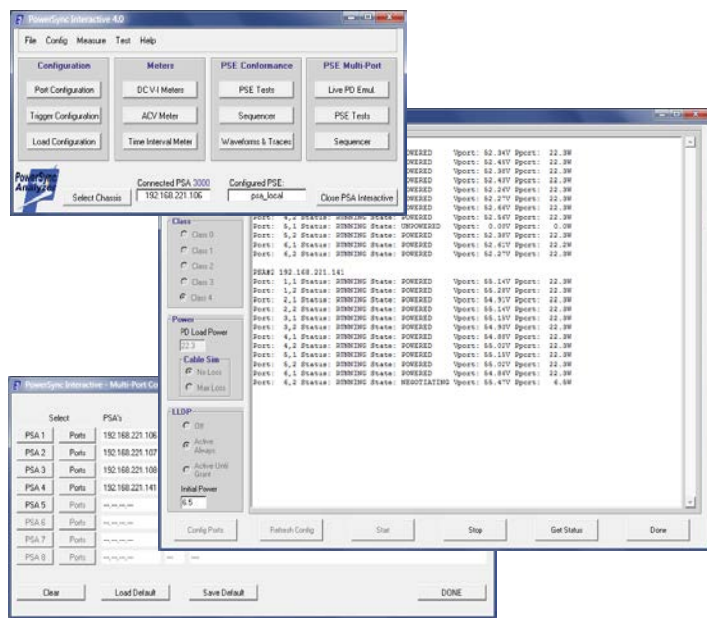




Multi-Port Live PD Emulation for PowerSync Analyzers & Programmable Loads

IEEE 802.3at Power over Ethernet

Product Overview



Key Features

- ❑ Fully Mimic 1 Powered Device Per Test Port
- ❑ Configure up to 192 Simultaneous PD's
- ❑ Flexible Powered Device Modeling
- ❑ Emulate Type-1 (13W) and Type-2 (25.5W) Devices
- ❑ Emulate PoE-LLDP Negotiations and Power Adjustments
- ❑ Emulate Both Valid and Non-Valid PD Loads
- ❑ Monitor Multi-Port Live Emulation Status
- ❑ Concurrent Loading to 34.5W on Every Port
- ❑ Supported on PSA-3000 and PSL-3000 Platforms under the Multi-Port Test Suite Feature

Verification, Simplified.

IEEE 802.3 PSE's

End-Spans

Mid-Spans

PoE/PoE+ Connectors

Hybrid-Legacy PSE's

No PD "Banks" Required

**Fully Emulate up to 24
PD's per Chassis, up to
192 PD's Total**

**Flexibly Emulate 802.3at
Type-1 and Type-2 PD's,
including LLDP!**

**Specify Class, Line Loss,
Pre- and Post-Negotiated
Power Loads**

Evaluate PoE Admin & Power Management Decisions

**Verify PSE Management
Functions and Interfaces**

**Verify PSE Management
Reporting**

Verify Power Capacity

Multi-Platform Support

**Configure ANY
Combination of PSA-30xx
and PSL-30xx**

Overview

Power Sourcing Equipment (PSE) system developers and system test personnel are routinely confronted with the challenge to connect many Powered Devices (PD's) to many PSE ports in order to evaluate PSE administrative and power management behaviors. With IEEE 802.3at extending power-per-port to 30 watts or more and adding the option of LLDP-managed power allocation between PSE's and PD's, the burdens on PSE power administration and power allocation processes are considerably larger. Type-2 PD's, under 802.3at, will typically have at least two power operating states while drawing maximum continuous power loads up to 25.5 watts.

Multi-Port Live PD Emulation

Live PD Emulation represents a new behavioral state where each Test Port in each PSA/PSL instrument autonomously behaves as a user-specified IEEE 802.3at PD regardless of the state of the PSE. If a PSE administratively disables PoE service and then restores it, the PSE will detect a PD and re-apply power. If a patch cord is disconnected and reconnected, the PSA/PSL Test Port will behave just as if an actual PD were at the end of the link. Users may describe PD Classification, PD Power Load, and Cable Loss Power when modeling PD's. PD Classifications range from 0 to 4 and PD Power Loads range from 0.5 to 25.5 watts. Cable Loss Power may be programmed to model or exceed worst case PoE power loss in a PSE to PD connection.

Multi-Port Live PD Emulation is a feature available under the **Multi-Port Test Suite** for the PSA-3000 and the PSL-3000. Using PSA Interactive software, users may configure up to 192 Test Ports across up to 8 PSA/PSL chassis' to simultaneously model a user-defined PD. Alternatively, using PowerShell PSA, users can program unique PD emulations *per Test Port* across any number of PSA/PSL instruments.

Multi-Port Live PD Emulation with LLDP

Live PD Emulation can be extended to model PoE LLDP messaging and protocol from a PD. All Type-2 (or Class 4) PD's are required to support PoE LLDP protocol while Type-1 PD's have the option to support this link layer protocol. PoE LLDP enables PSE's to manage power loads with 0.1 watt granularity per powered PD and also allows PSE's to "throttle" down Type-2 PD power levels (13 to 25.5 watts) to below Type-1 levels, that is less than 13 watts.

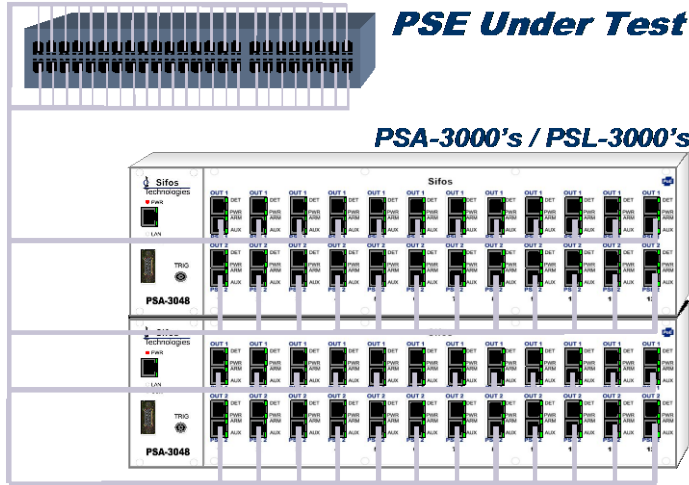
Multi-Port Live PD Emulation with LLDP is available to those PSA-3000's and PSL-3000's that are enabled for both the Multi-Port Test Suite and for LLDP Emulation features. Users describe both the pre-negotiated start-up (and throttle back) PD load and the post-negotiated PD Power Load. Per-Test Port emulations will respond to any PSE initiated requests to throttle down Type-2 power and any PSE grants to restore Type-2 power draw.

Live Status Monitoring

PD emulation status across all emulating Test Ports is readily captured and displayed with a single mouse click to PSA Interactive software. This status information can be compared to PSE status information to assess PSE status reports are accurate and up-to-date.

Verification, Simplified.

Multi-Port Test Configuration (48 Port Example)

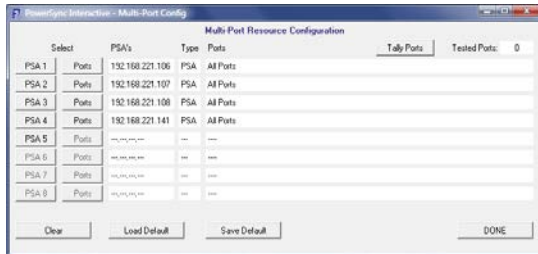


Flexible IEEE 802.3at PD Modeling on Every PSE Port

With the advent of IEEE 802.3at (PoE+), PSE system developers and system testers are ever more challenged by testing administrative and power management functions in multi-port PSE's. The traditional "rack of PD's" is becoming prohibitively expensive and space consuming given the possible range of Powered Devices that are now possible under 802.3at.

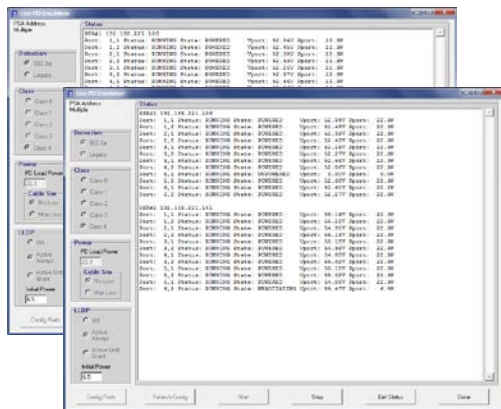
Using **Multi-Port Live PD Emulation**, each PSA-3000 (or PSL-3000) test port can flexibly model any Powered Device from Class 0 to Class 4 with static power loading from 0.5 watts to well over 25.5 watts. Modeling of inline power loss is also supported.

PSA Interactive Resource Configurations



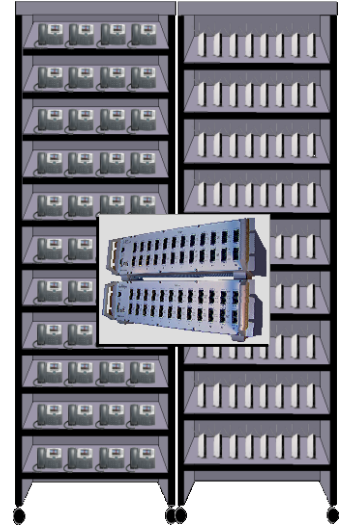
Under control of **PSA Interactive** software, Multi-Port test resource fields of up to 192 test ports spanning up to 8 PSA chassis' may be configured. A single common PD emulation may then be activated on every test port in the resource configuration.

Using **PowerShell PSA** scripting, either unique or common PD emulations may be defined across a limitless resource configuration of test ports.



PSA Interactive Live PD Status

Traditional Rack of PD's vs PSA-3048



Live PD Emulation will automatically emulate Powered Device **802.3at LLDP** messaging and power management actions given that the LLDP emulation feature is enabled on each PSA / PSL chassis in a given Multi-Port resource configuration. Each time a PD is disconnected and re-connected, or each time PSE PoE service is restored, the PD will carry-out a start-up power negotiation with the PSE. If a PSE elects to throttle back Type-2 power levels to a powered PD using LLDP, the PD will drop back to a pre-negotiated, Type-1 power level that the user may define.

Live PD Emulation runs indefinitely on each PSA / PSL test port until terminated by the user. While running, current power status, negotiation status, and actual power loading may be sampled for all utilized test ports with a single mouse click.

Technical Specifications

Supported PowerSync Analyzer and Programmable Load Configurations	
Live PD Emulation PD Classes 0 – 4 Combined PD and Line Loss Loading to 34.5 watts per Test Port	PSA-3000, PSA-3048, PSL-3000, or PSL-3024 <i>with Multi-Port Test Suite feature enabled</i>
Live PD Emulation with LLDP PD Classes 0 – 4 Combined PD and Line Loss Loading to 34.5 watts per Test Port Pre-Negotiated Loading to 15.5 watts	PSA-3000, PSA-3048, PSL-3000, or PSL-3024 <i>with Multi-Port Test Suite and LLDP features enabled</i>
PSA Software Versions	Version 3.5.09 and higher
Test Blade (PSA-3102, PSL-3102) Firmware Versions	Version 3.13 and higher

Static PD & Line Loss Power Loading (combined)	
PD Class 0 & 3	0.5 to 17.71 watts per port
PD Class 1	0.5 to 4.60 watts per port
PD Class 2	0.5 to 8.05 watts per port
PD Class 4	0.5 to 34.50 watts per port

PSA Interactive Cable Simulation	
No Loss	0 watts
Max Loss (PD Class 0 & 3)	2.40 watts
Max Loss (PD Class 1)	0.16 watts
Max Loss (PD Class 2)	0.51 watts
Max Loss (PD Class 4)	4.50 watts

LLDP Modes	
Active Always (connected)	LLDP runs indefinitely while PD is powered up with capability to throttle back power given PSE request.
Active Until Grant (through)	LLDP runs until initial power negotiation is completed and PD is at requested power. PSA OUT port is then connected to PSE.
PD Power Load until LLDP negotiation is completed or following PSE LLDP power throttle down	0.5 to 15.5 watts

Initial (Start-Up) & Throttle Back Power	
PD Power Load until LLDP negotiation is completed and following any PSE LLDP power throttle down	0.5 to 15.5 watts

Initial (Start-Up) & Throttle Back Power	
Minimum Time from PSE Power-Up to Static PD Load or LLDP Initial Power Load	80 msec

Ordering Information*

- PSA-MPT** PowerSync Analyzer Multi-Port Test Suite, per PSA Controller
- PSL-MPT** PowerSync Programmable Load Multi-Port Test Suite, per PSL Controller
- PSA-LLDP** LLDP Emulation and Analysis for PSA-3000, PSA-3002, PSA-3048, or PSA-1200+PSA-3102 Blades
- PSL-LLDP** LLDP Emulation and Analysis for PSL-3000, PSL-3024, or PSA-1200-PL with PSL-3102 Blades
- * **Multi-Port** and **LLDP** features may be added to any existing PSA or PSL instrument with the purchase of a chassis-specific activation key from Sifos
- PSA-QTD** PowerSync Analyzer Test Suite Multi-Chassis Discount (Single P.O.)

Sifos Technologies, Inc.
1061 East Street
Tewksbury, MA 01876
+1 (978) 640-4900
www.sifos.com
sales@sifos.com

Verification, Simplified.