PSL-3424A, PSL-3424L

PowerSync Programmable Load

IEEE 802.3at & 802.3bt Power over Ethernet

Product Overview

Key Features

- Continuous 4-Pair Loading > 99 Watts Per PSE Port x 24 Ports
- Continuous 2-Pair Loading > 47 Watts Per PSE Port x 24 Ports
- Robust Software Including PSA Interactive Graphical User Interface
- Intelligent 802.3at / 802.3bt Powered Device Emulation Including PoE LLDP
- Efficient Cooling with Smart Fan Control, 15 dB quieter than PoE5[1]
- Comprehensive Safety and Compliance Certifications
- Fully Automated, One-Click PSE Inspection Testing
- One-Click Specification Limit Load Cases
- Hybrid 2-Pair / 4-Pair Multi-Port Live PD Emulation to 96 Ports[2]
- Efficient Snaked Data Testing of 10/100/1000 and Multi-Gig Ports
- Fully Automated PoE LLDP Protocol Analysis[3]
- High Level Script Automation with Powerful Single Command Utilities
- DC Voltage, Current, and Power Metering on 2-Pair and 4-Pair PSE's

Verification, *Simplified.*

IEEE 802.3at and 802.3bt PSE's

2-Pair Powering PSE's

4-Pair Powering PSE's

Endspan & Midspan PSE's

Automate QA, Manufacturing

Easily Configured Snaked-Data Testing of 4-Pair and 2-Pair PSE's

Fully Automated, High Throughput PSE Inspection Utility

Highly Productive Automation Development Environment

PoE LLDP

Fully Automated 802.3at and 802.3bt PoE LLDP Protocol Analyzers

Highly Flexible 802.3at/802.3bt LLDP Capable PD Emulations

Commercial Test Instrumentation

Fully Certified

Factory Calibrated

Comprehensive Software and Documentation

Overview

Power-over-Ethernet (PoE) challenges design and test engineers to evaluate multi-channel, "intelligent" DC power sources that are activated and deactivated through signaling protocols operating over several power delivery and polarity configurations. The application and management of DC power over multiple local area network connections must be completely transparent and non-disruptive to the traditional data transmission functions of those network connections.

One Box Solution

Sifos Technologies offers a **one-box platform** to facilitate analysis of Power Sourcing Equipment (PSE) behaviors including basic compliance to the **IEEE 802.3at** and **802.3bt** specifications. The PSL-3424 is offered in three models, **PSL-3424A**, **PSL-3424L**, and **PSL-3424M**. *The PSL-3424M load-multiplexer is addressed separately by the Sifos datasheet PSL-3424M Product Overview*. The **PSL-3424A** and **PSL-3424L** both provide 24 test ports, each serving as fully isolated and autonomous instruments.

Loading 802.3bt PSE's

The PSL-3424 is the first Sifos test platform that offers all of the resources required for **4-Pair** PSE testing and flexible 802.3bt PD emulation from *each individual test port*. Up to 24 Type-3 or Type-4, 4-Pair capable PSE ports can simultaneously emulate PD's providing up to maximum Class 8 and dual Class 5 loading. With several mouse clicks, virtually any 802.3bt PD can be emulated and PSE responses to a variety of PD emulations can be assessed. **One-button test loads** expose PSE's to 802.3bt specification limit loading conditions.

Productivity Out of the Box

The PSL-3424 is provided with powerful Graphical User Interface software and a highly productive automation development environment. Users can define and connect any **802.3bt** or **802.3at** PD imaginable in several mouse clicks or in one automation command. PSE responses to static and transient load changes are easily assessed in a few mouse clicks or in several automation commands. The PSL-3424 offers **Multi-Port Live PD Emulation**[2], fully automated PSE high throughput inspection testing, and automated snaked-data testing applications accessible from the PSA Interactive graphical user interface.

LLDP Emulation[3] for 802.3at and 802.3bt

The IEEE **802.3at** and **802.3bt** specifications describe PSE's and Powered Devices (PD's) that communicate precise power demands and allocations using Ethernet layer 2 (LLDP) protocols. The **PSL-3424L** flexibly emulates 802.3at and 802.3bt LLDP capable PD's while also analyzing power negotiation protocols between PSE's and PD's.

Simple Integration into Existing Sifos Environments

For existing Sifos PSA-3000/PSL-3000 installations, the PSL-3424 utilizes shared software. Seamlessly switch between Sifos platforms with the **PSA Interactive** graphical user interface and **PowerShell PSA** script automation. Like all PSA-3000 family members, the PSL-3424 is safety and emissions certified including CSA listing and CE markings.

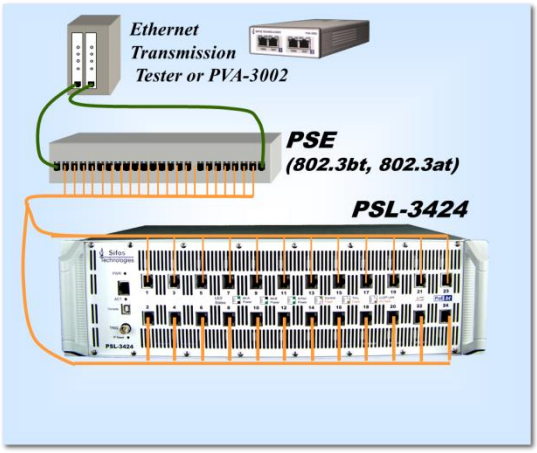
Easy on the Ears, Optimized for Racks

The PSL-3424 runs fans only when test port heating calls for it. An efficient cooling system then expels up to 2400 Watts without irritating, high frequency fans. The PSL-3424 is rack friendly and will tolerate equipment immediately on top and below the 3U sized instrument.

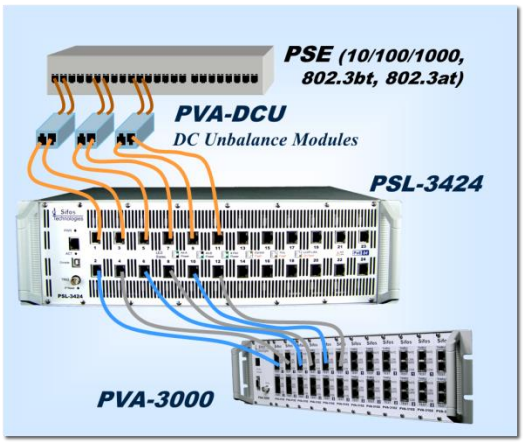
1 *See Technical Data – Fan Air Flow*
2 *See also PSE Live PD Emulation for PSL-3424 Overview datasheet*
3 *Available in the PSL-3424L model*

Verification, Simplified.

PowerSync Programmable Load Test Equipment Setups



PSE System QA
PSE Functional Test
Traffic Testing under PoE Load
Manufacturing Test



PSE PoE & 10/100/1000 Physical Layer Analysis
PSE DC Unbalance Tolerance

Flexible PD Emulation with Measurements (per Port)

Flexible 2-Pair & 4-Pair PD Detection & Class Emulation including 802.3bt Single and Dual Signature

2 Valid & 2 Invalid Detection Signatures

Emulate 802.3at Classes 0-4

Emulate 802.3bt Classes 1-8 and Dual PD Classes 1-5

Emulate Proprietary 4-Pair PD's

Static DC Load Current to 975mA/pairset

Average and Peak (Min/Max) DC Voltage Measurement

Average and Peak (Min/Max) DC Current Measurement

Average DC Power Measurement

Programmable Transients (5.5msec, 45 msec, 100msec)

Synchronized Metering and Load Transients

Programmable Inrush Current

Export / Import Hardware (Event) Trigger

Data Path Flexibility

Isolated: No Datalink Termination

Loop Back: Pass 10/100/1000/nGBase-T Port 1 to 2, 3 to 4, etc.

LLDP*: Terminate Ports to 10/100 PHY for LLDP Emulation

LLDP* Emulation and Analysis

Flexible, Per-Port, Programmable PD LLDP Emulation for PoE with Payload, Timing, & Synchronization Control

Fully Automated LLDP Protocol Traces and Analysis

Emulate 802.3at and 802.3bt LLDP Protocols

Multi-Port Live PD Emulation**

Configure any combination of 2-Pair powered and 4-Pair powered PD's up to 96 total PD's

Mimics Compliant PD Behaviors, including power demotion and LLDP* negotiations, as PSE's Remove and Apply PoE Services and Revise Power Management Configurations

Define Class 0-4 PD's for 2-Pair PSE Ports and Class 0-8 PD's for 4-Pair PSE Ports

Powerful Software

PSA Interactive GUI for Rapid Setup and Intuitive Manual Testing

PowerShell PSA Script Automation for Interactive Automated Test Development and Fast Test Execution

Single Command High Level Utilities to Emulate Flexibly Defined PD Connections and PD Power Behaviors

High Throughput, Multi-Port QA/Manufacturing Automated Functional Test for 802.at and 802.3bt PSE's

Extensive User Documentation

Dependable Sifos Quality

Temperature-Driven Fan Control Reduces Overall Fan Noise by 15dB - 18dB Relative to Competitor Products

Commercial Test Equipment with Comprehensive Safety and Emissions Certification Testing (CSA, CE, FCC, etc.)

Industry Leader in All Aspects of PoE Certification and Conformance Testing

* *Available with PSL-3424L model. See LLDP Emulation and Analysis datasheet.*

** *See also PSE Live PD Emulation for PSL-3424 Overview datasheet*

PSA Interactive Graphical User Interface

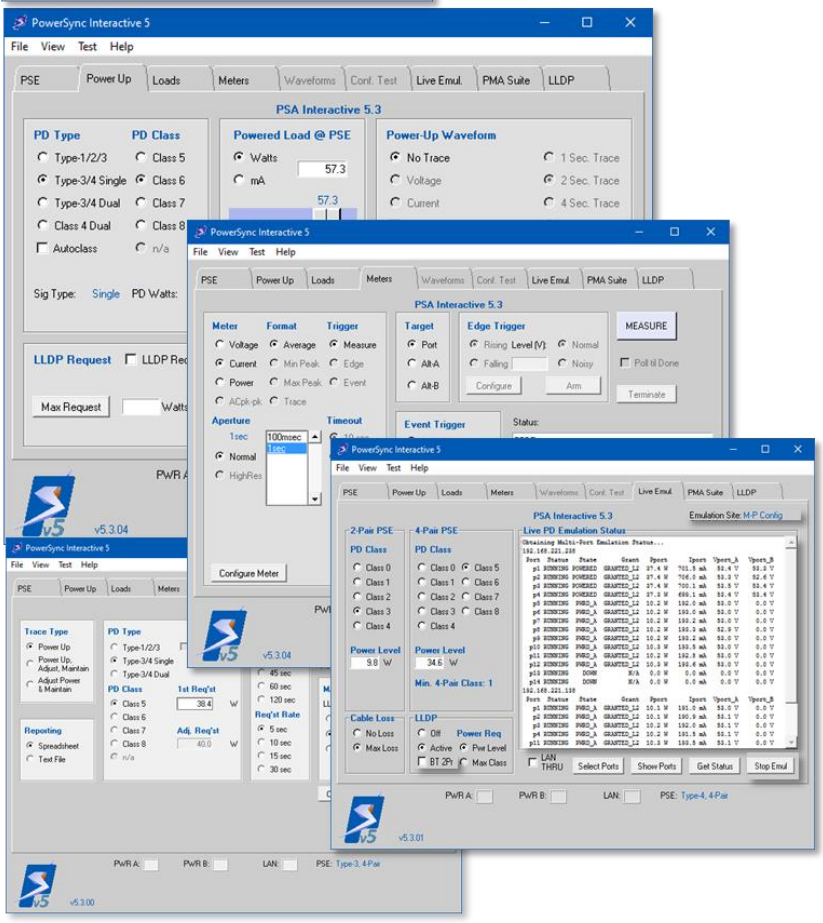
The Sifos **PSA Interactive** graphical user interface (GUI) is a flexible and intuitive tool that enables users to access and manage many of the resources and testing functions available in the PSA-3000 family of instruments. **PSA 5.3** software introduces full support of the PSL-3424 Programmable Load:

- Intelligent Management of **2-Pair** and **4-Pair** PSE Connections
- Seamless Integration Between **802.3at** and **802.3bt** PSE Testing Processes
- Ergonomic Tab Menu Scheme
- Flexible PD Emulations and PSE Stimulus-Response Assessments
- Easy Access to Automated Tests such as the Power Management Analyzer Suite and LLDP Protocol Traces

*Included in the second generation PSA Interactive GUI is an intelligent **Port Selection Panel** and a tab menu window with nine tab menus:*

- **PSE**: Learn, Declare, Load, and Save **PSE Attributes** that are essential to test port configuration and to automated test functions and utilities
- **Power Up**: Flexibly emulate and then connect **802.3at**, **802.3bt**, and **proprietary 4-Pair PD's** while capturing PSE responses to those connections
- **Loads**: Select and apply elemental signatures, static DC loads, and transient DC loads to **2-Pair** and **4-Pair** PSE's
- **Meters**: Configure and perform a wide variety of measurements on **2-Pair** and **4-Pair** PSE's
- **Waveforms**: (*One-Click waveforms are not available to the PSL-3424*)
- **Conf. Test**: (*The PSE Conformance Test Suite is not available to the PSL-3424*)
- **Live Emul***: Configure and activate **Multi-Port Live PD Emulations** of up to 96 PD's combining any mix if **2-Pair** and **4-Pair** powered PD's.
- **PMA Suite****: Configure and run the Power Management Analyzer Suite for 2-Pair, 4-Pair, and hybrid 2-Pair/4-Pair PSE's.
- **LLDP*****: Configure and run **802.3bt** or **802.3at** LLDP protocol traces while emulating any 802.3 PD type including 802.3bt dual signature PD's

PSA Interactive Port Selection Panel



PSA Interactive Power-Up Emulation, Metering, Multi-Port Live PD Emulation, and LLDP Tab Menus

***** *See also PSE Live PD Emulation for PSL-3424 Overview datasheet*

****** *See also PSE PM Analyzer Suite for PSL-3424 Overview*

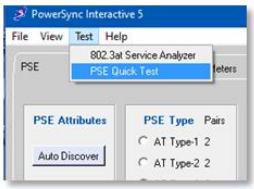
**** LLDP emulation and analysis is supported by the PSL-3424L model.*

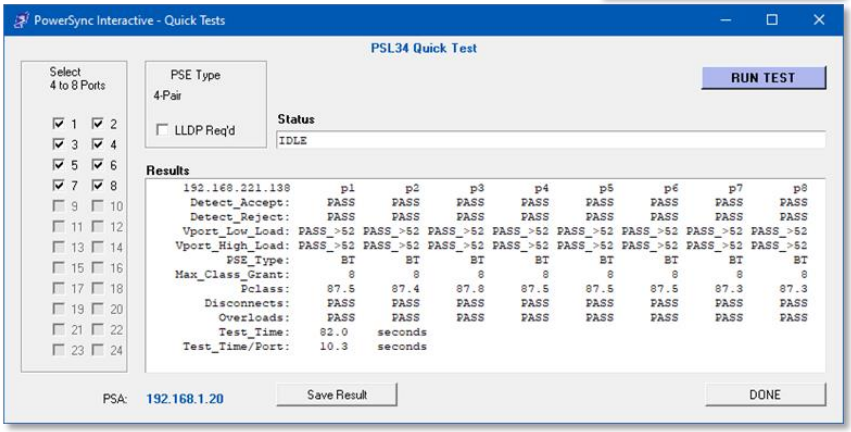
802.3at/802.3bt PSE Quick Inspection Test

The PSL-3424 is provided with a PSE automated test script, **psl34_quick_test**, that recovers a number of important PoE parameters from PSE ports with an effective test throughput as fast as 8 seconds per tested port. The test supports both **2-Pair** and **4-Pair** powering PSE ports and automatically adapts to the maximum supported PSE class. On instruments configured with the LLDP testing feature, it will optionally emulate LLDP power negotiations with Class 4 through Class 8 PD's.

Important features of the **psl34_quick_test** include:

- Accessible from PSA Interactive or PowerShell PSA
- Scans 2 to 8 PSE ports per test cycle
- Automatically determines and adapts to PSE maximum assigned class
- Tests PSE's that grant full power via PD Classification or through PoE LLDP
- Validates PoE Detection Acceptance and Rejection Ranges
- Measures PSE **Port Voltage** at both minimum (DC MPS) and maximum (Pclass) load conditions
- Reports PSE type (AT vs BT), maximum assigned class capability, and Pclass power capacity
- Assesses **Disconnect Power Removal** response (< 1 second on each port)
- Assesses **Overload Power Removal** response(< 100msec on each port)
- Assesses LLDP Power Protocol and Allocations*





PSL Quick Test in PSA Interactive

Typical test times will range from 8 to 20 seconds per port tested depending upon powered pairs, typical PSE powering time, and use of LLDP protocols if required by the PSE under test.

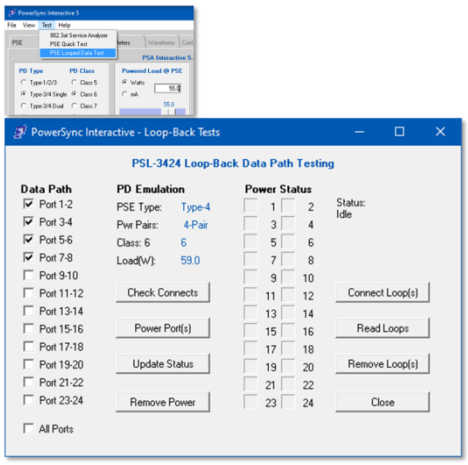
```
PSA-1,1>psl34_quick_test p1 p2 p3 p4 p5 p6 p7 p8
PSE attributes are a 4-Pair PSE powering all four pairs.
TESTING WITH 192.168.221.138 ON PORTS p1 p2 p3 p4 p5 p6 p7 p8
EVALUATING DETECTION REJECT SIGNATURES...
EVALUATING 20Kohm DETECTION, PSE TYPE/CLASS, and MPS RESPONSE...
EVALUATING 24Kohm DETECTION, MAX LOADING, OVERLOAD RESPONSE...
TESTING COMPLETED.

 192.168.221.138           p1       p2       p3       p4       p5       p6       p7       p8
      Detect_Accept:     PASS     PASS     PASS     PASS     PASS     PASS     PASS     PASS
      Detect_Reject:     PASS     PASS     PASS     PASS     PASS     PASS     PASS     PASS
     Vport_Low_Load: PASS_>50 PASS_>50 PASS_>50 PASS_>50 PASS_>50 PASS_>50  PASS_>50 PASS_>50
    Vport_High_Load: PASS_>50 PASS_>50 PASS_>50 PASS_>50 PASS_>50 PASS_>50  PASS_>50 PASS_>50
           PSE_Type:       BT       BT       BT       BT       BT       BT       BT       BT
    Max_Class_Grant:        6        6        6        6        6        6        6        6
             Pclass:     57.8     57.7     57.7     57.8     57.6     57.8     57.8     57.7
        Disconnects:     PASS     PASS     PASS     PASS     PASS     PASS     PASS     PASS
          Overloads:     PASS     PASS     PASS     PASS     PASS     PASS     PASS     PASS
          Test_Time:       82.0          seconds
     Test_Time/Port:       10.3          seconds
```

PSL Quick Test in PowerShell PSA

* *LLDP emulation and analysis is supported by the PSL-3424L model.*

Automated Setup for PSE Snaked Data Traffic Testing



PSE Loop-Back Data Path Test Menu

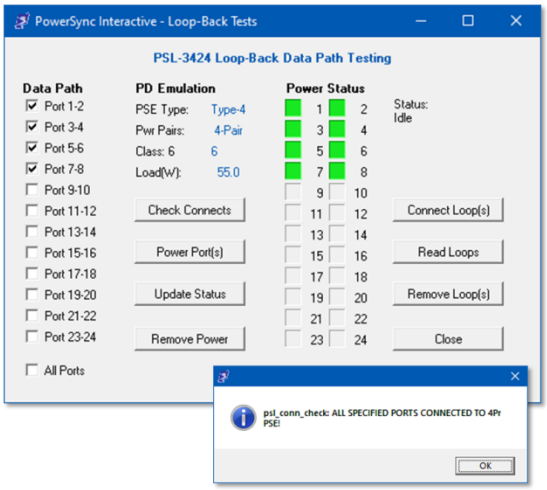
The PSL-3424 is also provided with a graphical user interface to enable rapid configuration, verification, and utilization of resources required for testing of PSE switch traffic processing under controlled or full PoE loading conditions. Users simply describe a PD emulation (PD Class, Load Power or Load Current) of interest in the **Power Up** tab menu, then enter the **Loop-Back Data Test** menu to set up the required port powering and data path connections to facilitate the snaked data traffic test.

Configurations automatically adapt to PSE attributes described in PSA Interactive including **2-Pair** (802.3at) versus **4-Pair** (802.3bt) powering.

Prior to powering, the data paths where PSE ports will be powered are defined and a Connection Check can be run to verify the integrity of all of those specified PSE connections involved in the data transmission path.

Ports are then powered with clear annunciation of PSE ports that power and maintain the specified load power. Power status is always readily updated with one button press. 4-Pair ports that power with 2-Pairs to PD Class 0-4 are also indicated in the menu.

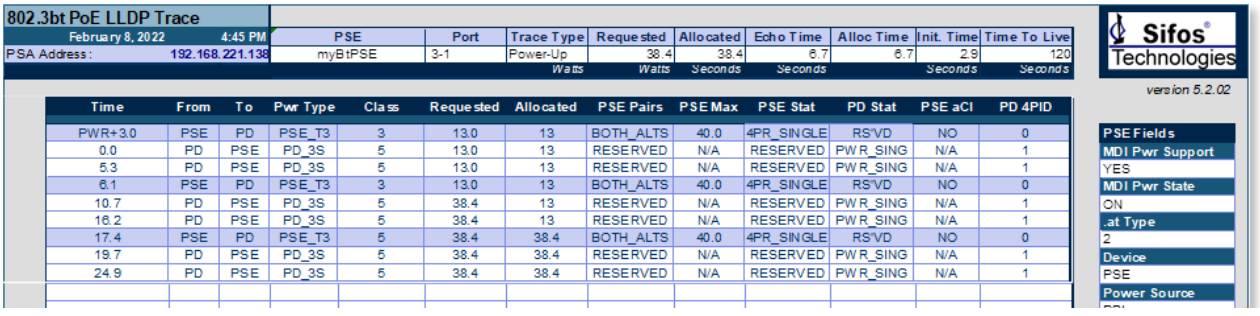
Loop-Back data path connections are then effected on all of the selected port pairs, i.e. **Port 1 to Port 2**, **Port 3 to Port 4**, etc. In that condition, PSE ports configured to paired VLAN's or other means of filtering can transmit one stream of packet data throughout all of the powered PSE ports.



PSE Snaked Data Connection Check and Emulated PD Load Application

802.3bt & 802.3at PoE LLDP Emulation and Analysis

The **PSL-3424L** model of the PSL-3424 includes a subsystem* designed to flexibly emulate **802.3bt** and **802.3at** LLDP capable PD's on a per test port basis. Fully automated tools enable capture and analysis of protocol and protocol timing between the PSE and the PD.



LLDP Protocol Trace

* See Sifos datasheet**, LLDP Emulation & Analysis for the PowerSync Analyzer**.

PowerShell PSA Tcl/Tk Interface

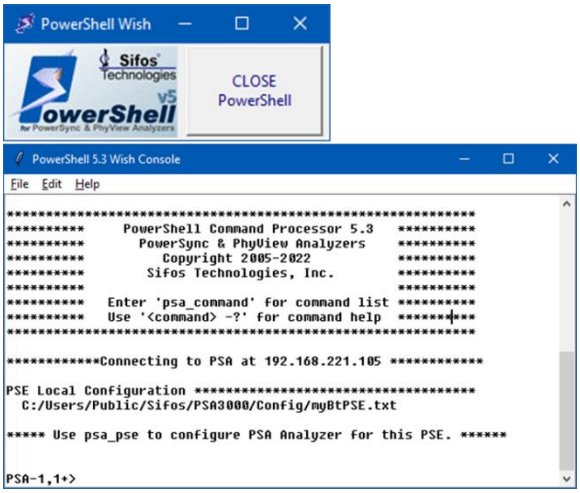
PowerShell PSA provides a complete and extensible API for the PSL-3424 instrument including a robust command set that ranges from elemental resource configurations to high level automated tests and test sequencers. PowerShell PSA seamlessly manages transitions between 802.3at (2-Pair) PSE testing and 802.3bt (4-Pair) PSE testing.

Many PowerShell PSA commands and utilities automatically take on personalities governed by test port configurations (for example, **2-Pair** versus **4-Pair** and Single versus Dual signature). Built upon the powerful and extensible Tool Command Language (Tcl/Tk), PowerShell PSA offers an effective programming language well suited for automated testing.

PowerShell PSA can be integrated into broader Tcl environments that interlace traditional network transmission tests with Power-over-Ethernet tests. This enables seamless integration of custom or standard PSE tests with existing Tcl-based test suites.

Other features offered by the PowerShell PSA environment include:

- Interpretive command execution (no compilation, easy debug)
- Simple, intuitive PSA/PSL-3000 family commands (API)
- Integrated and extensive command “help” features
- Low level resource management commands embedding all I/O management functions
- Mid-level and high level utility commands such as flexibly emulated power-ups, multi-port connection checking, power load adjustment, LLDP negotiation assessments, etc.
- Fast test execution speeds
- Smart prompt that tracks selected test port configuration
- Command-Knowledgeable Wish Console
- Notepad++ Editor Extension for PowerShell PSA script editing and debugging
- Flexible test suite sequencing including compound sequences
- Traditional Tcl Command Console
- Extensive PowerShell PSA command documentation
- Supported on Microsoft Windows and Linux



PowerShell PSA Wish Console

Technical Data: PSL-3424

LAN Interface Specifications			
Operating Mode	**Signal Path**	**Parameter**	**Specification**
Isolated	No Connection		
Data Loopback Mode	Odd Port to Even Port (e.g. Port 1 to Port 2, Port 3 to Port 4, Port 5 to Port 6, …Port 23 to Port 24)	Connections	RJ45
		Data Rates and Signaling	10/100/1000Base-T/ 2.5GBase-T/5GBase-T/ 10GBase-T
		Latency	None - Passively Coupled
		Impedance	100Ω, Balanced
		Pair-Pair Isolation	≥ 30dB @ 100MHz
		Insertion Loss	≤ 2.5dB, 1MHz to 100 MHz
		Insertion Loss Variation	≤ 1dB, 1MHz to 100 MHz
		Return Loss (OUT pairs terminated into 100Ω)	≤ -16dB, 1MHz to 100MHz
LLDP Mode	Terminate in Test Port	Data Rate and Signaling	10/100Base-T
		Protocol	802.1ab, 802.3bc, 802.3at, 802.3bt
		Impedance	100Ω, Balanced
		Return Loss	≤ -16dB, 1MHz to 100MHz

PoE Port Connections

Operating Mode	Test Ports	Configuration	Specification
2-Pair PSE Loading	Any Port 1-24	ALT-A	Polarity MDI or MDI-X
		ALT-B	Polarity MDI or MDI-X
4-Pair PSE Loading	Any Port 1-24	Single Signature	ALT-A, MDI or MDI-X and ALT-B, MDI or MDI-X
		Dual Signature	
All	Any Conductor referenced to Any Other Conductor	Maximum Input Voltage	±60 VDC
	Any Conductor referenced to RJ-45 Shield	Maximum Input Voltage	±60 VDC

Detection Specifications

Description	Conditions	Parameter	Specification
Detection Resistance	2-Pair and 4-Pair Dual Signature Vport = 2.5VDC - 10VDC ΔV / ΔI at 4.5 Volt Spacing below 9.25V Port "Connected"	Valid Signatures	20 KΩ, 24 KΩ
		Invalid Signatures	≤ 14 KΩ, ≥ 33KΩ
		Valid Signature Accuracy (20KΩ)	20.6KΩ ±200Ω (*Reduce by 600Ω for Single Sig.*)
		Valid Signature Accuracy (24KΩ)	24.8KΩ ±200Ω (*Reduce by 1KΩ for Single Sig.*)
		Cut-Out Voltage	13V ± 4%
Detection Capacitance	Vport = 2.5VDC – 57VDC	Pairset Capacitance	0.05μF
		Accuracy	±20%

Classification Specifications

Description	Conditions	Parameter	Specification
Classification Signatures	PSE Voltage Vport = 13 – 22.5 VDC	2-Pair Classes	0, 1, 2, 3, or 4
		4-Pair Single Signature Classes	1, 2, 3, 4, 5, 6, 7,or 8
		4-Pair Dual Signature Classes	1, 2, 3, 4, 5
		4-Pair Proprietary Classes	4 (each pairset)
Class Events	PSE Voltage Vport = 13 – 22.5 VDC	Class 0 current	2.5 ± 0.4mA
		Class 1 current	10.8 ± 0.4mA
		Class 2 current	18.5 ± 0.4mA
		Class 3 current	28 ± 0.7mA
		Class 4 current	40 ± 0.8mA
		Class Stability Timing	≤ 1 msec
		Event 1 Autoclass Current	2.5 ± 1.5mA
		Event 1 Autoclass Transition Time	81.5 ± 5 msec
Mark Event Load	PSE Voltage Vport = 4 – 12VDC Following Class Events	Resistance per Pairset	10KΩ ± 2.5KΩ
Class Reset		Reset Threshold	4 VDC
		Minimum Time Duration	< 1 msec

Current Load Specifications

Description	Conditions	Parameter	Specification
Static Load Current	2-Pair PSE Loading	Range	0 to 975 mA
		Resolution	1.00 mA
	4-Pair PSE Loading	Range	0 to 1950 mA
		Resolution	2.00 mA
		Pairset Configuration	Autonomous, Fully Isolated
		Pairset Resolution (ALT-A, ALT-B)	1.00 mA
	2-Pair or 4-Pair PSE Loading	Slew Rates (100mA Step)	> 2.5mA / μsec
		Activation Voltage	39V, Rising Vport
		De-Activation Voltage	10V, Falling Vport
		Default Inrush Current at Power-Up	40 mA per Pairset (80mA 4-Pair)
		Inrush Duration at Power-Up	100msec ± 1msec
		Inrush Current Range	0 to 975 mA per Pairset

Current Load Specifications

Description	Conditions	Parameter	Specification
Transient Load Current	2-Pair PSE Loading	Range	0 to 975 mA
		Resolution	1.00 mA
	4-Pair PSE Loading	Range	0 to 1950 mA
		Resolution	2.00 mA
	2-Pair or 4-Pair PSE Loading	Trigger Mode	**Immediate** or **Event Trigger**[1]
		Duration = "Short"	5.5 msec
		Duration = "Mid"	45 msec
		Duration = "Long"	100 msec
		Duration = "Hold"	Indefinite

1 **Event Trigger** is used to synchronize transient loads across test ports and also with meter measurements

DC Metering Specifications

Description	Modes	Parameter	Specification
Voltage Meter	Average, Max. Peak, or Min. Peak each Pairset	Voltage Range	0 - 58V
		Measurement Apertures	100 msec, 1 sec
		Sample Rate (100 msec aperture)	390 µsec
		Sample Rate (1 sec aperture)	3.9 msec
		Resolution	30 mV
		Accuracy: ≥ 5 VDC[1]	± (0.6% reading + 0.25 V)
		Accuracy: < 5VDC	± 2.0% reading -0.25V, + 0.5 V
		Trigger Modes	**Immediate** or **Event Trigger**[2]
Current Meter	2-Pair or Pairset Average, Max. Peak, or Min. Peak	Current Range	0 – 1000 mA
		Resolution	0.25 mA
	4-Pair Average, Max. Peak, or Min. Peak	Current Range	0 – 2000 mA
		Resolution	0.5 mA
	Average, Max. Peak, or Min. Peak 2-Pair or 4-Pair	Measurement Apertures	100 msec, 1 sec
		Sample Rate (100 msec aperture)	390 µsec
		Sample Rate (1 sec aperture)	3.9 msec
		Accuracy	± (1% reading + 2.5 mA)
		Trigger Modes	**Immediate** or **Event Trigger**[2]
Power Meter	2-Pair Average	Range	0 – 57W
		Resolution	0.1 W
	4-Pair Average	Range	0 – 114W
		Resolution	0.1 W
Power Meter	2-Pair or 4-Pair Average	Measurement Apertures	100 msec, 1 sec
		Sample Rate (100 msec aperture)	390 µsec
		Sample Rate (1 sec aperture)	3.9 msec
		Accuracy	± (2% reading + 0.1W)
		Trigger Mode	**Immediate**

1 Does not include Voltage drop due to cable losses and 0.3Ω maximum test port input resistance.
2 **Event Trigger** is used to synchronize meter measurements across test ports and also with transient loads

LED Indicators

LED	Parameter	Description
Top LED	ALT-A Power & Activity	**GREEN:** ALT-A Pairset Powered **OFF**: ALT-A Pairset Not Powered **AMBER** (Blink): Test port command/query activity
Bottom LED	ALT-B Power & LAN	**GREEN**: ALT-B Pairset Powered **OFF**: ALT-B Pairset Not Powered **AMBER** (Blink Fast): Test port configured for LLDP **AMBER** (Blink Slow): Test port configured for Loop Back (snaked data)

Programming and Control	
Description	**Specification**
Interface	Ethernet 10/100BaseT **NOTE**: The **Console** interface is for IP Address config only.
Host Requirements	PC running Microsoft Windows XP, Vista, 7, 8, 10, 11, or Linux PC (Fedora, SUSE, Debian)
Control Environment	Sifos PowerShell PSA or PSA Interactive PL
Recommended Network Latency:	< 50 msec

Physical and Environmental	
Description	**Specification**
Dimensions	19"W x 5.25"H x 12"L (3U Rack Mount)
Weight	24.8 lbs.
Power	100VAC-240VAC, 50-60 Hz, 1.35A Max.
Ambient Operating Temperature	0°C to 40°C (≤ 100W per test port)
Max Fan Air Flow	~300[1] CFM
Storage Temperature	-20°C to 85°C
Operating Humidity	5% to 95% RH, Non-Condensing.
[1] Relative to Reach Technology PoE5, maximum Fan Noise is 14.8dB quieter wideband and 18dB quieter above 1KHz	

Certifications		
Description	**North America**	**Europe & International**
Safety	**CSA Listed** (CSA22.2 No. 61010)	EN61010-2 (Test & Measurement Equipment)
Emissions	FCC Part 15, Class ICES-001	EN55011 (Class A Radiated Emissions) EN61326-1 (EMC) VCCI, AS/NZS 3548
European Commission		Low Voltage Directive (2014/35/EU) Electromagnetic Compatibility Directive (2014/30/EU) RoHS 2 Directive (2011/65/EU) **CE Marking** Directive (93/68/EEC)
FCC Statement: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their own expense.		

Ordering Information

PSL-3424A, PowerSync Programmable Load Chassis and Controller including 24 test ports, PowerShell PSA, and PSA Interactive Software

PSL-3424L, PowerSync Programmable Load Chassis and Controller including 24 test ports enabled for LLDP Emulation and Analysis, PowerShell PSA, and PSA Interactive Software

PSL-3424-QT, Optional Single Instrument Feature License for Automated Quick Inspection Test and Snaked Data Path Configuration applications

PSL-3424-EMUL, Optional Single Instrument Feature License for Multi-Port Live PD Emulation

PSL-3424-PMA, PSE Power Management Analyzer Suite for 2-pair, 4-pair, and hybrid-pair powering PSE's for one **PSL-3424** Address (24 ports). Requires **Live PD Emulation** license, PSL-3424_EMUL.

Accessories Included:

- Installation Guide & Configuration Chart
- PSA Software (CD, USB Stick)
- PowerSync Analyzer Reference Manual (Hardcopy, CD, USB Stick)
- Power Cord
- Cross-Over Ethernet Cable
- USB Cable

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Verification, Simplified.

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