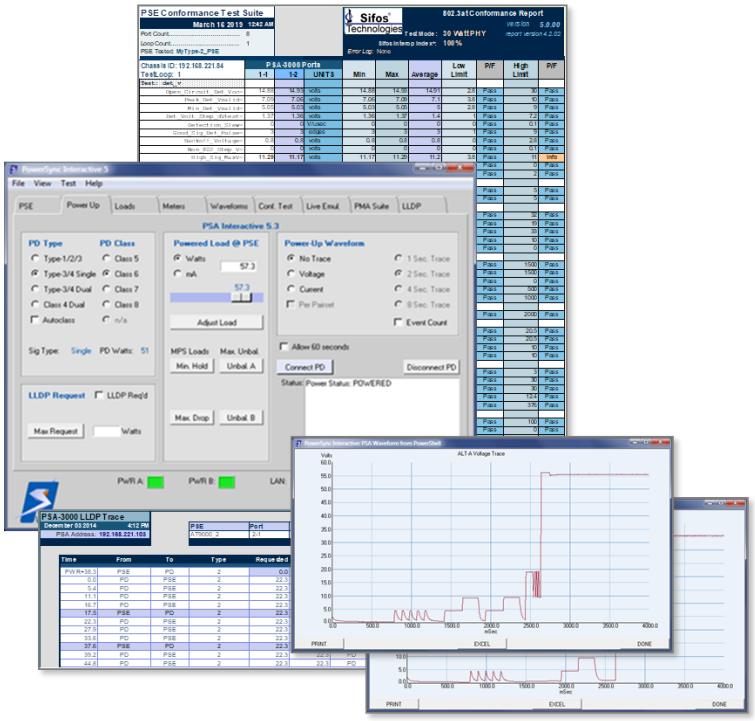
PSA-3402
Compact PowerSync® Analyzer
IEEE 802.3at & 802.3bt Power over Ethernet

Product Overview



Key Features

- ❑ **Industry Leading IEEE 802.3bt and 802.3at PoE PSE Conformance Tests**
- ❑ **Flexible 802.3at / 802.3bt Powered Device Emulation Including PoE LLDP**
- ❑ **Continuous 2-Pair PSE Loading > 47 Watts Per Test Port (2 Test Ports)**
- ❑ **Continuous 4-Pair PSE Loading to > 99 Watts (Either Test Port)**
- ❑ **Replaces All General Purpose Test Equipment & Fixtures**
- ❑ **One-Click 2-Pair and 4-Pair PSE Waveform Analysis**
- ❑ **Automated PoE LLDP Protocol Analysis**
- ❑ **High Level Script Automation and Powerful Graphical User Interface**
- ❑ **Flexible and Accurate Measurements of Voltage, Current, Power, & Noise**
- ❑ **Noise Immune Triggering, Transients, and Time Interval Measurements**
- ❑ **Supports PSE Packet Transmission Testing with PoE Loads**
- ❑ **Small, Light Weight, Transportable with Built-In Power Supply**
- ❑ **Smart Fan Control – Runs Cool and Quiet**

Verification, *Simplified.*

IEEE 802.3at and 802.3bt PSE's

2-Pair Powering PSE's

4-Pair Powering PSE's

Endspan & Midspan PSE's

Fully Automated 4-Pair & 2-Pair PSE Conformance Test

Comprehensive Hardware / Firmware DV Testing

Device Qualification

LLDP Protocol Analysis

Interoperability Analysis

Quality Assurance

Compact but Capable

Visualize Common 802.3at and 802.bt (4-Pair) PSE Behaviors and Responses

Prototype Tests and Software for PSA-3000

Troubleshoot PSE Ports Anywhere

Portable PoE Service Analyzer

Automated PoE Service Outlet Interoperability Analysis

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 provides a **one-box solution** to facilitate complete testing and analysis of Power Sourcing Equipment (PSE) behaviors including overall compliance to all **IEEE 802.3at** and **802.3bt** specifications. Each PowerSync Analyzer test port is an autonomous and fully isolated instrument offering a rich set of stimulus and measurement resources for **2-Pair** PSE testing. Furthermore, resources from both test ports can be combined to provide an autonomous and fully isolated instrument for testing an **802.3bt** (or pre-standard) **4-Pair** PSE port using either test port.

Automated 802.3bt & 802.3at PSE Conformance Testing

The PSA-3402 may be optioned via license keys to run the industry's most advanced PSE Conformance Test Suites for **802.3bt 4-Pair** PSE's and **802.3bt/802.3at 2-Pair** PSE's. These **fully automated** test applications apply the PowerSync Analyzer's diverse resources to assess over 340 4-Pair and over 70 2-Pair specification parameters per port, presented in easily readable spreadsheet reports with multi-port statistics and clearly notated pass/fail limit analysis.

The PowerSync Analyzer and the 2-Pair PSE Conformance Test Suite may be used to qualify PSE's for the Ethernet Alliance PoE Logo under the Ethernet Alliance PoE Certification Program.

Analyzing & Troubleshooting 4-Pair and 2-Pair PSE's

The PSA-3402 provides extensive resources under control of PSA Interactive graphical user interface software and PowerShell PSA scripting software to facilitate insights into many PSE behaviors and performance parameters. Easily emulate a wide range of 802.3at and 802.3bt PD's while evaluating PSE responses to user-defined PD behaviors. A rich set of standardized **one-click waveforms** and **one-button test loads** make swift work of exposing both 4-Pair and 2-Pair PSE's to the vast array of PD's and connection environments described under the 802.3bt and 802.3at standards.

LLDP Emulation 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 PSA-3402 may be optioned via a license key to flexibly emulate PD's and to analyze the power negotiation protocols between PSE's and PD's.

Start Small and Grow

The PSA-3402 is well suited to early device qualification and design verification applications as well as to field application and support activities. Test plans and software developed with the PSA-3402 are readily extendable into PSA-3000 (24-port) and PSA-3248 (48-port) test platforms.

Verification, *Simplified.*

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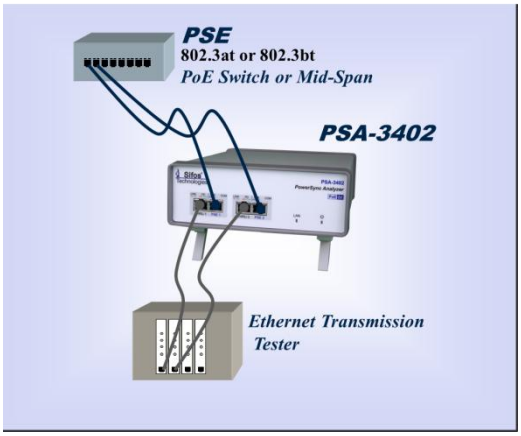
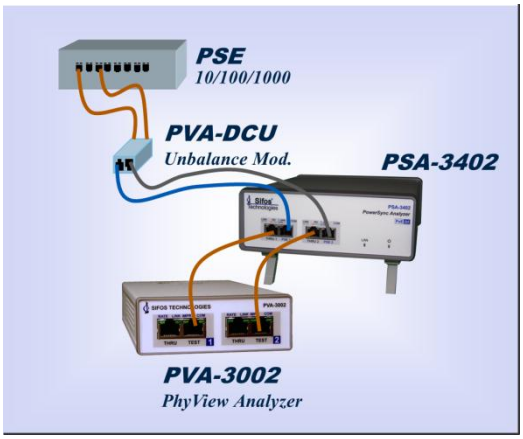
PowerSync Analyzer Test Equipment Setups

PSE DV, QA Test



PSE Magnetic Bias Tolerance



PoE Service Analysis

Per-Port PSE Test Resources

Flexible 2-Pair and 4-Pair PD Detection & Class Emulation including all 802.3bt PD Types

Flexible Loads and Load Transients including 4-Pair PSE Loads to > 99 Watts on Either Test Port

Event or Edge Triggering of Load Transients & Measurements

Average, Peak (Min/Max), and Trace Measurements of Port Voltage and Load Current with Flexible Sampling Apertures

Standard One-Click Waveforms for Rapid PSE Analysis and Conformance Troubleshooting

Flexibly Triggered, Noise-Immune Time Intervals / Slews

LAN Termination, LLDP Protocol Emulation and Tracing

Concurrent Packet Transmission and PoE Load Testing

PSE Conformance Suites* 802.3bt / 802.3at

High Coverage, Fully Automated 802.3bt 4-Pair Testing and Analysis (including LLDP*) with 26 Tests Producing over 340 Parameters per PSE Port (up to 2 ports)

High Coverage, Fully Automated 802.3bt/802.3at 2-Pair Testing and Analysis (including LLDP*) with 23 Tests Producing over 70 Parameters per PSE Port (up to 2 ports)

Automated Test and Port Sequencing with Comprehensive, Colorful Spreadsheet Reporting

Automatically Adapts to PSE Device Technologies

> 90% 802.3bt 4-Pair PSE PICS Coverage

> 95% 802.3at 2-Pair PSE PICS Coverage

Regularly Updated with Sifos Tracking Service

Approved for Ethernet Alliance 1st Party (self) Certification Testing of 802.3at PSE's

EA Certified™

LLDP*, PHY, Transmission Test Support

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

Test Port "THRU" Channel for 10/100/1000 PHY Testing (*using the Sifos PVA-3000*) and Packet Transmission Testing

Negligible Thru-Channel Impairment (10/100/1000/2.5GBase-T)

PoE Service Analyzer for 802.3at

Comprehensive Evaluation of PoE Service at a PD Interface

PoE Service Interoperability Analysis

Colorful Spreadsheet Reporting

Powerful Software

PSA Interactive GUI for Control of all Test & Diagnostic Resources

Automated Test Menus for PSE Conformance and PoE Service Test Suites

Comprehensive, User-Friendly PowerShell PSA Script Development and Execution Environment Built on Tcl/Tk

* Available as an optional feature to the PSA-3402. See feature-specific data sheet.

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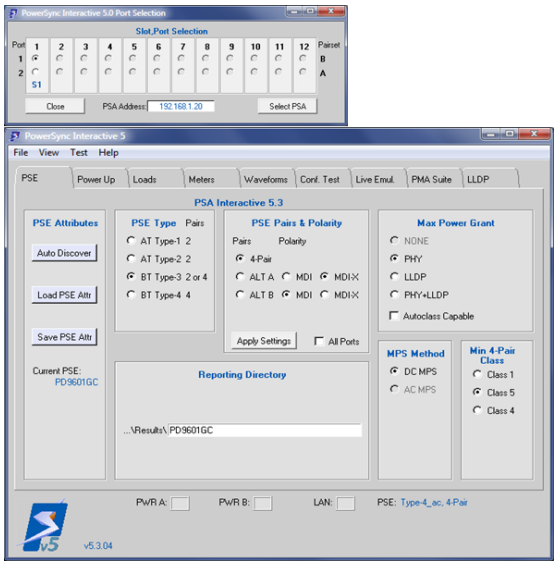
PSA Interactive Graphical User Interface

The Sifos **PSA Interactive** graphical user interface (GUI) is a flexible and powerful tool that enables users to access and manage many of the resources and testing functions available in a PSA-3000 instrument. **PSA 5.0** software introduces a second generation of PSA Interactive offering the following key features:

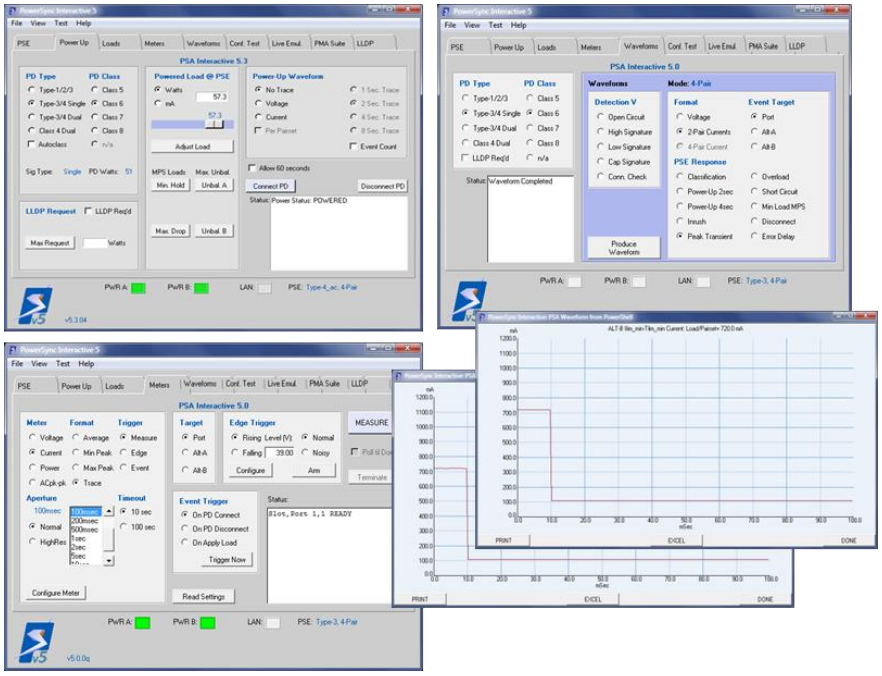
- Intelligent Management of 2-Pair and 4-Pair PSE Connections
- Seamless Integration Between 802.3at and 802.3bt PSE Testing Processes
- Seamless Integration of Newer PSA-3202 Test Blades and Older PSA-3102 Test Blades
- Ergonomic Tab Menu Scheme
- Highly Flexible PD Emulations and PSE Stimulus-Response Assessments
- Full Support for All 802.3bt Automated Test Suites
- Full Support for All 802.3at Automated Test Suites
- Adaptive behaviors respond to PSE Attributes

Included in the second generation PSA Interactive GUI is an intelligent **Slot-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 observing PSE behaviors and responses to those PD connections
- **Loads**: Select and apply elemental signatures, static DC loads, and flexible load transients.
- **Meters**: Configure and perform a wide variety of measurements with a variety of triggering options
- **Waveforms**: Configure and capture a wide variety of one-click waveforms that perform stimulus-response evaluations of **802.3at** and **802.3bt** PSE's. Flexibly emulate 802.3at, 802.3bt, and proprietary 4-pair PD's



PSA Interactive Tab Menu and Slot-Port Panel



PSA Interactive Menus for Power Up Emulation, Measurements & Triggering, and One-Click Waveforms

Conf. Test: Configure and sequence either the **4-Pair** or **2-Pair** PSE Conformance Test Suite from an adaptive user interface that responds to PSE attributes defined in the PSE tab menu

- **Live Emul**: (*Multi-Port Suite menus are not available to PSA-3402 instruments*)
- **PMA Suite**: (*Multi-Port Suite menus are not available to PSA-3402 instruments*)
- **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

PowerShell PSA Tcl/Tk Interface

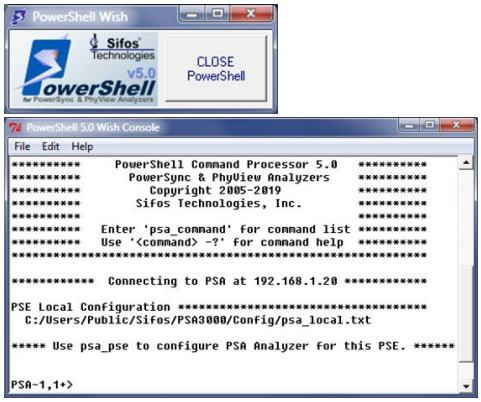
The PowerShell PSA Scripting Environment provides a high level, interactive means to control and program automated test sequences for the PSA-3402 PowerSync Analyzer. PowerShell enables fully automated testing suites that span multiple ports, blades, and instruments. Built upon the powerful and extensible Tool Command Language (Tcl), it offers an effective programming language well suited for automated testing.

PowerShell PSA provides a complete API for the PSA-3402 instrument including an extensive command set that ranges from elemental resource configurations to high level automated tests and test sequencers. Starting with PSA software version 5.0, 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 4-Pair signature type).

PowerShell PSA can be integrated into broader Tcl environments that combine network transmission and Power-over-Ethernet tests.

Other features offered by the PowerShell PSA environment include:

- Interpretive command execution (no compilation, easy debug)
- Simple, intuitive PowerSync Analyzer commands (API)
- Integrated and extensive command “help” features
- Smart prompt that tracks selected test port configuration
- Command-Knowledgeable Wish Console with PSA waveform viewer capability
- Notepad++ Editor for PowerShell PSA script editing & debugging
- Flexible test suite sequencing including compound sequences
- Traditional Tcl Command Console
- Extensive PowerShell PSA command documentation



PowerShell PSA Wish Console

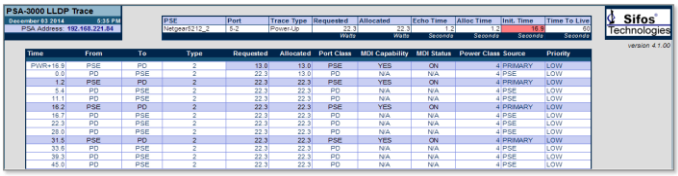
IEEE 802.3bt & 802.3at PSE Conformance Test Suites

The PSA-3000 may be licensed for fully automated conformance testing of **4-Pair** (802.3bt) PSE’s and/or **2-Pair** (802.3bt, 802.3at) PSE’s. The PSE Conformance Test Suites are libraries of **fully automated, flexibly sequenced,** and **self-adapting** tests that provide a high degree of specification compliance testing of PSE ports without the need for any external instrumentation. Each PSE Conformance Test Suite fully assesses interoperability of one or more PSE ports given a single button press or single command. Colorful Microsoft Excel spreadsheet reports analyze all test results relative to the applicable IEEE 802.3 specification parameters, flagging failures and compiling statistics.

The PSE Conformance Test Suites from Sifos serve as de facto industry standards for PSE specification compliance. Testing can be completed without deep, internal knowledge of the 802.3 PoE standards and without high expertise in PSA-3000 capabilities. Test coverage **exceeds 90%** of 802.3bt and **95%** of 802.3at PSE PICS. See Sifos datasheets, **PSE 4-Pair Conformance Test Suite Overview** and **PSE 2-Pair Conformance Test Suite Overview**.

802.3bt & 802.3at PoE LLDP Emulation and Analysis

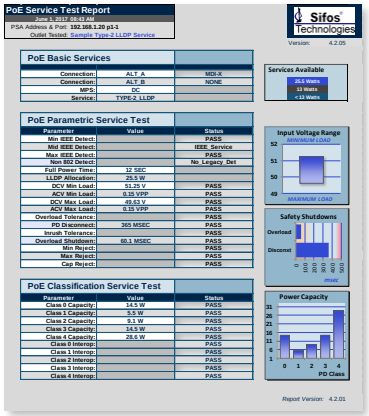
The PSA-3402 includes a license optioned subsystem designed to flexibly emulate all **802.3bt** and **802.3at** LLDP capable PD’s on a per test port basis. Fully automated tools enable capture and analysis of protocol and protocol timing between the PSE and the PD. See Sifos datasheet **LLDP Emulation & Analysis for the PowerSync Analyzer**.



LLDP Protocol Trace

PoE Service Analyzer Application

The PoE Service Analyzer is a special automated test and reporting application to enable comprehensive parametric and interoperability analysis at any PD connection point in a PoE enabled wiring plant. The testing



Service Analyzer Report

supports **802.3at** Type-1 and Type-2, including Type-2 with LLDP, PoE services. See Sifos datasheet, **PoE Service Analyzer Product Overview**.

Technical Data: PSA-3402

LAN Interface Specifications

Operating Mode	Signal Path	Parameter	Specification
Data Through Mode	PSE # to THRU #	Connections	RJ45
		Data Rates and Signaling	10/100/1000/2.5G/5G/10GBase-T
		Latency	None - Passively Coupled
		Impedance	100Ω, Balanced
		Insertion Loss	≤ 2dB (0.1 to 100MHz) ≤ 7dB (0.1 to 500MHz)
		Pair to Pair Isolation	≥30dB (0.1 to 100MHz) ≥15dB (0.1 to 500MHz)
		Equivalent Length Cat6A Cable / Test Port	~ 15 Meters (typical)*
Data Connect (LLDP Emulation) Mode	PSE-# to Blade Transceiver	Connection	RJ45
		Data Rate and Signaling	10/100Base-T
		Orientation	MDI End Point
		Protocol	802.1ab, 802.3bc, 802.3at, 802.3bt
		Impedance	100Ω, Balanced
		Return Loss	≤-20dB, 1MHz to 100MHz

* This figure should be doubled for snaked data path testing with PoE using test port pairs. Does not account for potential impairments introduced with PoE DC currents on long cables such as effects of DC Unbalance on link partner magnetics.

PoE Port Connections

Operating Mode	Dependency	Parameter	Selections
2-Pair Power	Port 1 and Port 2 operate independently	Powered Pair	ALT-A or ALT-B
		Polarity	MDI or MDI-X
4-Pair Power:	Connect to Port 1 (Port 2 disabled) or Connect to Port 2 (Port 1 disabled)	ALT-A Polarity (Port 2)	MDI or MDI-X
		ALT-B Polarity (Port 1)	MDI or MDI-X
		Detection Signature Type (PSA-3202 Test Blades)	Single (shared) or Dual (independent)
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 and AC MPS Specifications

Description	Conditions	Parameter	Specification
Detection Resistance	Vport = 2.5VDC - 12VDC, Port Connected, Transition Current Load = 0	Range	9 KΩ to 39 KΩ
		Resolution	1 KΩ
		Accuracy vs Setting $\Delta V / \Delta I$ at 4.5 Volt Spacing	±1.75% + 300Ω
Detection Capacitance	Vport = 2.5VDC - 12VDC, Port Connected, Transition Current Load = 0	Range	0.14, 5, 7, 11μF
		Accuracy	±15%
Detection Signature Cut-Off Threshold	Port Connected	Vport	12V ± 2%
AC MPS Signature	Vport = 12VDC - 60VDC, Port Connected	AC Impedance	24KΩ ‖ (0.1μF + 330Ω)
		Resistance Accuracy $\Delta V / \Delta I$ at 2 Volt Spacing	22.8KΩ ± 250Ω
	Port Isolated	AC Impedance (≤ 500 Hz) AC Impedance (≤ 120 Hz)	≥ 1.1 MΩ ≥ 3.0 MΩ

Current Load Specifications

Description	Conditions	Parameter	Specification
Load Current	Per Powered (or classifying) Pairset	Range	0 to 950 mA
		Resolution	0.25 mA
		Accuracy	± (0.5% setting + 0.25mA)
		Slew Rates	> 4mA / µsec
		Activation Voltage	15V, Rising Vport
		De-Activation Voltage	14V, Falling Vport
Transition (Mark Region) Current	Load Current Activated, Per Powered (or classifying) Pairset	Range	0 to 400 mA
		Resolution	0.25 mA
		Accuracy	± (1.0% setting + 0.5mA)
		Slew Rates	> 4mA / µsec
		Activation Voltage	14V, Falling Vport
		De-Activation Voltage	PSA-3202: 4.5V, Falling Vport PSA-3102: 6V, Falling Vport
Multi-Event Classification	Multi-Event Activated, Vport > 15VDC	802.3bt Signatures Emulated	Single Signature Class 5 - 8
			Dual Signature Class 1 - 5
	Multi-Event Activated, Vport > 15VDC	Non-Standard Signatures	Class Current per Event
		802.3bt Auto-Class	2mA @ 80msec of LCE1
		Multi-Event Activation	**psa_connect** or **mclass**
		Multi-Event Deactivation	**psa_disconnect** or **mclass**
		Multi-Event Timeout	100 msec @ > 15V
		Event Start Glitch De-bounce	150µsec
		Mark and Idle Transition Glitch De-bounce	500µsec
		Event Count Reset Condition	< 4.5V for > 500µsec
		Power-On Expiration (default)	115 msec
Configurable Load Transient	Vport > 15VDC, Per Powered Pairset	Sequential Load Steps	2
		Transient Sequence Repeats	1 to 6 cycles
		Load Step 1 Range	0 to 1800 mA
		Load Step 2 Range	0 to 950 mA
		Resolution (0 – 950 mA) Resolution (> 950 mA)	0.25 mA 0.50 mA
		Accuracy (0 – 25 mA) Accuracy (> 25 mA)	± (2% setting + 0.5mA) ± (1% setting + 1mA)
		Slew Rate	< 10mA / µsec
		Step 1 Duration ≤ 950 mA	200 µsec to 1 sec
		Step 1 Duration > 950 mA	200 µsec to 80 msec
		Step 2 Duration Load Step 1 ≤ 950 mA Load Step 1 > 950 mA	 200 µsec to 1 sec (or persist) 1 sec
		Step Resolution	100 µs
		Trigger Modes: ≤ 950 mA > 950 mA	Immediate, Edge, Event Immediate
		Active Load Resistance	37 Ω
		Foldback Suppression Min. Port Voltage (@ 400mA)	30 VDC
		Foldback Suppression Duration	Step 1 + Step 2 Duration

DC Metering Specifications

Description	Conditions	Parameter	Specification
Voltage Meter	Average, Max-Peak, Min-Peak, Scope Trace	Voltage Range	0 - 60V
		Aperture or Trace Length	256 Samples (10ms, 20ms, 0ms…10s)
		Extended Trace Length[3]	1024 Samples (200ms, 2s, 4s, 8s, 20s)
		Sample Rates	39.1 µsec - 39.1 msec (1,2,5 steps)
		Resolution	16 mV

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DC Metering Specifications

Description	Conditions	Parameter	Specification
Voltage Meter (con'd)		Displayed Resolution	Avg & Peak: 2 decimal places O-scope Traces: 25 mV
		Accuracy[1]	> 30VDC: ± (1.5% reading + 16mV) < 30VDC: ± (2.0% reading + 16 mV)
		Measurement Triggers	Immediate, Edge, Event, Power-Up (*traces only*)
Current Meter	Average, Max-Peak, Min-Peak, Scope Trace	Current Range	0 – 2000 mA
		Aperture or Trace Length	256 Samples (10ms, 20ms, 50ms…10s)
		Extended Trace Length[3]	1024 Samples (200ms, 2s, 4s, 8s, 20s)
		Sample Rates	39.1 µsec - 39.1 msec (1,2,5 steps)
		Resolution (0– 1023 mA)	0.25mA
		Resolution (1024–2000 mA)	0.5mA
		Accuracy[2]	± (0.5% reading + 0.5mA)
		Triggers	Immediate, Edge, Event, Power-Up (*traces only*)

1. Does not include Voltage drop due to cable losses and 0.45Ω maximum test port input resistance.
2. Does not include Port-Connected MPS current, which is approximately (Vport - 12V)/24kΩ.
3. Scope Traces only

AC Metering Specifications

Description	Conditions	Parameter	Specification
AC Peak-Peak Meter	Low Band, VDC= 40-57V	Accuracy, 25Hz – 325Hz Accuracy, 50Hz – 300Hz	-15%, +11% -7.5%, +11%
	High Band, VDC= 40-57V	Accuracy, 2.5KHz – 250KHz Accuracy, 20KHz – 250KHz	-15%, +7% -6%, +7%
	Full Band, VDC= 40-57V	Accuracy, 50Hz – 250KHz	-7.5%, +8.5%
	All Bands, VDC= 40-57V	Resolution	1mV
		Range	1Vp-p
		Input Impedance	0.05µF[1]

1. Input impedance models the lowest possible PD input capacitance – measurements are therefore affected by the effective source impedance of the PSE, including any frequency specific variations in that source impedance.

Triggering Specifications

Description	Conditions	Parameter	Specification
Edge & Event Triggers	All Modes	Range	0.25V - 59.5V
		Resolution	0.125 mV
		Accuracy (relative to DC Meter)	± 0.0625 mV
		Trig1 to Meter or Transient Latency	~ 50 µsecs
		Event Trigger Latency	< 500 µsecs
	Trigger Noise Immunity	Pre-Trigger Qualification Time (Voltage below Rising threshold or above Falling threshold)	1.5 msec
		Normal Mode Edge Noise Rejection	125 mV
		Noisy Mode Edge Noise Rejection	500 mV

Time Interval Metering Specifications

Description	Conditions	Parameter	Specification
Time Interval Meter	Microsecond scale	Time Range	4 – 26200 µs
		Time Resolution	1 µsec
		Time Accuracy	± 2 µsecs
		Min. Resolvable Time Interval	~ 4 µsecs
	Millisecond scale	Time Range	2-6550 msec
		Time Resolution	0.1 msec
		Time Accuracy	± 1 msec
		Min. Resolvable Time Interval	2 msec

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Time Interval Metering Specifications

Description	Conditions	Parameter	Specification
Time Interval Meter (con'd)	Second Scale	Time Range	0.1 – 16.1 sec
		Time Resolution	0.1 sec
		Time Accuracy	± 50 msec
		Min. Resolvable Time Interval	0.1 sec
	Triggering & Noise Immunity	Start Trigger	Edge or Event
		Stop Trigger	Edge
		Normal Mode Edge Noise Rejection	125 mV
		Noisy Mode Edge Noise Rejection	500 mV

LED Indicators – PSA-3202

LED Label	Parameter	Description
LINK	LLDP Link Status & Activity	**GREEN:** Linked at 100Base-Tx for LLDP, Blink with Activity **AMBER**: Linked at 10Base-T for LLDP, Blink with Activity **OFF**: Unlinked (or Disconnected)
PD	PoE Power Status	**GREEN**: PSE powered with Vport > 36 VDC **AMBER**: Valid 802.3 Detection Signature Connected (No PSE Power) **OFF**: PSE not powered & PD signature not connected
4PR	Test Port Mode	**GREEN:** Test port configured for 4-Pair powering **AMBER**: Opposite test port configured for 4-Pair powering **OFF:** Test port configured for 2-Pair powering
COM	Communications	**ON**: Indicates active communications with test port

Programming and Control

Description	Specification
Interface	Ethernet 10/100BaseT (*Telnet Port 23 protocols*) **NOTE**: *The **Console** interface is for IP Address config only.*
Host Requirements	PC running Microsoft Windows XP, Vista, 7, 8, 10, or Linux PC (Fedora, SUSE, Debian)
Control Environment	Sifos PowerShell PSA or PSA-Interactive
Recommended Network Latency:	< 5 msec

Physical and Environmental

Description	Specification
Dimensions	7.5"W x 3"H x 10"D
Weight	3.2 lbs.
Power	100VAC-240VAC, 50-60 Hz, 1.3A Max.
Ambient Operating Temperature	0°C to 40°C (≤ 100W combined PoE loading on both test ports)
Storage Temperature	-20°C to 85°C
Operating Humidity	5% to 95% RH, Non-Condensing.

Certifications

Description	North America	Europe & International
Safety	**CSA Listed** (CSA22.2 No. 61010)	EN61010-1 (Test & Measurement Equipment)
Emissions	FCC Part 15, Class A 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.

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Ordering Information

PSA-3402, PowerSync Analyzer 3402 including PowerShell PSA and PSA Interactive Software
PSA-LLDP, IEEE 802.3at/802.3bt LLDP Emulation & Analysis Feature for One PSA Address
PSA-CT4P*, 4-Pair PSE Conformance Test Suite for One PSA Address
PSA-CT2P*, 2-Pair PSE Conformance Test Suite for One PSA Address
CASE-PSA-PDA, Protective Carrying Case for Transporting PSA-3402 and Accessories
RACKKIT-PDA, Rack Mount Kit for PSA-3402
HCopy-Manual, Hardcopy of PSA-3000 Technical Reference Manual

* **NOTE**: *See PSE Conformance Test Datasheets for all part numbers and descriptions associated with the 4-Pair and 2-Pair PSE Conformance Test Suites.*

Accessories Included:

- PSA Software (CD, USB Stick)
- PSA Installation Guide (Hardcopy, CD, USB Stick) & Quick Start Guide for Phone
- PSA-3000 Technical Reference Manual (Softcopy, CD and USB Stick)
- Power Cord
- Cross-Over Ethernet Cable
- USB 2.0 Cable

Optional Carrying Case for PSA-3402

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Verification, Simplified.

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