

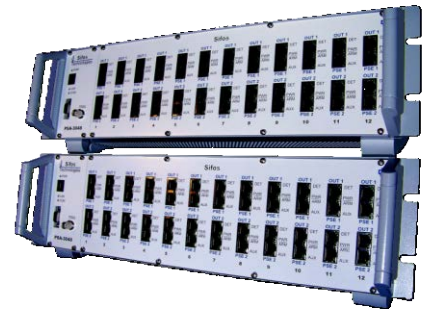
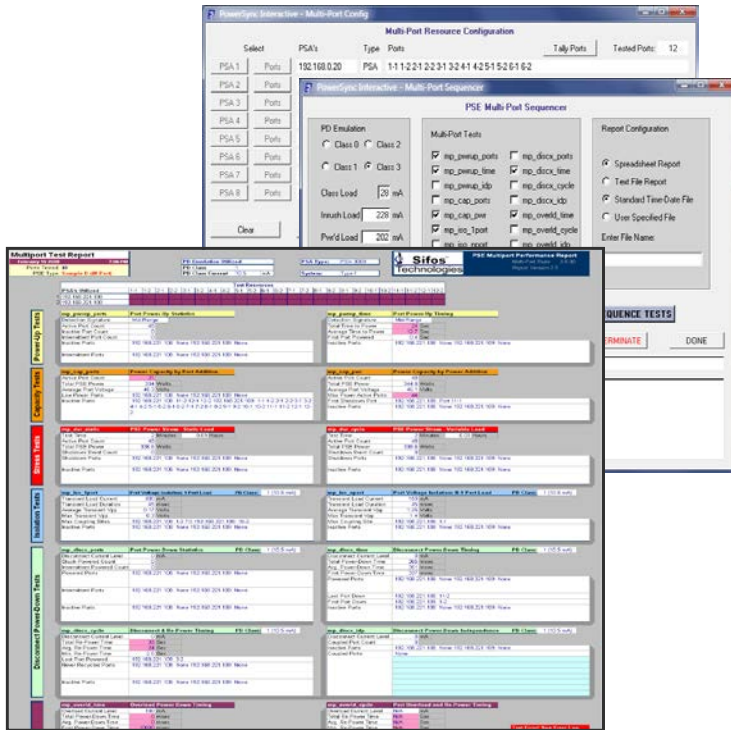


PSE Multi-Port Test Suite

PowerSync® Analyzer & Programmable Load

IEEE 802.3at Type-1 PD Emulations

Product Overview



Key Features

- ❑ Concurrently Analyze Up To 192 PSE Ports
- ❑ Multi-Port PSE Capacity Analysis
- ❑ Multi-Port PSE Power Management Testing
- ❑ Full Load PSE Stress Testing
- ❑ PSE Port Independence Testing
- ❑ PSE Disconnect, Overload, Restart Timing
- ❑ Fully Automated Testing
- ❑ Flexible Type-1 (Class 0-3) PD Emulation
- ❑ Test Any 802.3at Type-1 or Type-2 PSE
- ❑ User Configurable Test Conditions

Verification, Simplified.

IEEE 802.3 PSE's

End-Spans

Mid-Spans

PoE/PoE+ Connectors

Fully Automated System Testing

Up to 192 PSE Ports

Easily Configured & Sequenced

Colorful, Informative Reporting

Assess Critical System Parameters

Total Power Capacity

Power Management Decisions

Multi-Port Timing & Responsiveness

Inter-Port Interactions

Power Independence

Multi-Platform Support

PSA-3000 / PSA-3048

PSL-3000 / PSL-3024

PSA-1200 / PSA-2400

PSA-1200-PL

Overview

The **PSE Multi-Port Test Suite** is a component of the **PSE Multi-Port Suite** for PowerSync® Analyzers and Programmable Loads. This fully automated group of tests and reporting takes the PowerSync® Analyzer (PSA) and its proven PSE Conformance Testing Capabilities into the realm of fully automated PSE System Power Management and Multi-Port Behavior testing.

Whereas PSE Conformance Testing assesses compliance of each stand-alone PSE port to 802.3at specifications, Multi-Port Testing assesses system-wide behaviors only observable when many PD's are powered by a PSE. The PSE Multi-Port Test Suite will acquire and distill information regarding key behaviors of a PSE including network **power-up** and **power-down** behaviors, **total power capacity** and **power management** decisions, powered **port interactions**, port **interdependence** traits, and durability or **stress test** analyses.

Users of the PSE Multi-Port Test Suite may specify characteristics of typical or "worst-case" Powered Device (PD) loads including **classification level**, **classification current**, power-up **inrush loads**, and **steady state loads**. These characteristics will automatically be applied as Multi-Port Tests sequence across all selected ports-under-test.

Reports generated by the PSE Multi-Port Test Suite provide highly distilled performance parameters including statistics covering failed power-ups, network power-up, shut-down, and restart timing, power capacity measured with both incremental ports and incremental port power methods, full PSE power stressing and port power intermittency including identification of specific problem test ports.

The **PSE Multi-Port Suite** is optionally available to all Sifos PSA-3000, PSL-3000, PSA-1200 and PSA-1200-PL chassis-based platforms. PSA-3000 / PSL-3000 platforms additionally support the Multi-Port Live PD Emulation capabilities included in the PSE Multi-Port Suite.

PSE Multi-Port Tests

Powered Port Inventories

Group Power-Up Timing Test

Group Power-Up Independence Test

PSE Total Power Capacity Tests

Power-Duration Stress Tests

Load-Response Isolation Tests

Group Disconnect Shutdown Tests

Group Overload Shutdown Tests

Group Restart Timing Tests

Group Shutdown Independence Tests

Multi-Port System Test Automation

Automated Analysis and Reporting on Up to 192 PSE Ports at a Time

Run Individual Tests from PSA Interactive or PowerShell

Sequence Selected Tests from PSA Interactive or PowerShell

Automated Microsoft Excel Report Generation with PD Class-Specific Test Limit Analysis

PSE Multi-Port Test Suite Features

Configurable 802.3at Type-1* PD Emulation (Detection Load, Class Load, Inrush Load, Steady-State Load)

Configurable Load Stimuli for Port Isolation, Disconnect Loads, and Overloads

Many Tests Run with low cost PSA Programmable Load platforms.

Higher Defect Coverage and Power Management Analysis using PowerSync Analyzer platforms.

* For Type-2 PSE Systems Analysis, see Sifos datasheet **Multi-Port Live PD Emulation**.

Multi-Port System Suite Tests

Network Power-On Tests

mp_pwrup_ports	<p>Powered Port Inventories Evaluate ability of PSE to power a fixed number of ports given PD's of specified classification, specified transient, and steady-state load characteristics. Recover statistics on successfully powered ports, un-powered ports, and intermittently powered ports.</p>
mp_pwrup_time	<p>System Power Up Timing Characteristics Evaluate network startup timing characteristics of a PSE including time to first port powered, time to last port powered, average port power-up time, and un-powered ports discovered during a network power-up utilizing specified PD characteristics.</p>
mp_pwrup_idp	<p>Port Power-Up Independence Testing Determines that power-up of each individual port in a PSE has no impact to operational state of any other port in the PSE. Reports any port-to-port couplings that are discovered.</p>

User Setup Options:

PD Load Traits:
(PD Class, I_{class}, I_{inrush}, I_{load})

PD Detection Signature:
(Low, Mid, High)

PSE Power Capacity Tests

mp_cap_ports	<p>PSE Total Power Capacity by Port Addition Determine the total PSE Power Capacity by successively adding PD's of user specified load or classification characteristics to the network load. Report total PSE power output, average port voltage at full capacity as well as powered port count, under-powered ports, and un-powered ports. Use PD emulation controls to assess PSE Power Management characteristics.</p>
mp_cap_pwr	<p>PSE Total Power Capacity by Load Growth Determine the total PSE Power Capacity by starting all ports that will power in a low power mode and then successively stepping up power demand per port until peak total output capacity is reached. Report total PSE power output, average port voltage at full capacity, powered port count at peak PSE output power, un-powered ports, and first port to drop power. Use PD emulation controls to assess PSE Power Management characteristics.</p>

User Setup Options:

PD Load Traits: (PD Class, I_{class}, I_{inrush}, I_{load})

PSE Power Stress Tests

mp_dur_static	<p>Assess Port Power Reliability Under Constant Full Power Load Evaluate the ability of a PSE to sustain full power with a steady state load for a user specified time duration without port dropouts. Test automatically determines, establishes, and reports near-full power output of the PSE and tallies counts of instantaneous or permanent port shutdown events and associated shutdown test ports. Testing may be specified to run from 1 minute until 100 hours. Optional control to re-cycle or disable ports that shut down.</p>
mp_dur_cycle	<p>Assess Port Power Reliability Under Constant Full Power Load Evaluate the ability of a PSE to sustain variable power for a user specified time duration without port drop-outs. Test automatically determines, establishes, and reports near-full power output of the PSE and tallies counts of instantaneous or permanent port shutdown events and associated shutdown test ports. All testing performed under cycling load capacity between 15% and 100% of full power randomly distributed across all tested ports. Testing may be specified to run from 1 minute until 100 hours. Optional control to re-cycle or disable ports that shut down.</p>

User Setup Options:

PD Load Traits:
(PD Class, I_{class}, I_{inrush}, I_{load})

Test Duration
(up to 100 hours)

Disable Down Ports

PSE Port Isolation Tests

mp_iso_1port	<p>Single-Port Load Transient Impact Evaluate impact of large load transients on a single PSE port across all other PSE ports. Reports average and peak port voltage variation across all PSE ports. Reports peak coupling site (stimulus and response ports). Accepts user defined load transient characteristics.</p>
mp_iso_nport	<p>Multiple-Port Load Transient Impact Evaluate impact of near-capacity load transients on multiple PSE ports across all other PSE ports. Reports average and peak port voltage variation across all PSE ports. Reports peak coupling site (peak response port). Accepts user defined load transient characteristics.</p>

User Setup Options:

PD Load Traits:
(PD Class, I_{class} , I_{inrush} , I_{load})

Transient Load
(Magnitude & Duration)

Multi-Port Disconnect Shutdown Tests

mp_discx_ports	<p>Disconnect Shutdown Inventories Verify that all powered PSE ports remove power given mass PD disconnect. Report powered port count, intermittently powered port count, and associated powered ports and intermittent ports. Report inactive ports that never power initially. Control Imin1 disconnect current level to DC MPS PSE's.</p>
mp_discx_time	<p>System Power Down Timing Characteristics Evaluate power-down timing across all powered PSE ports given a mass PD disconnect event. Report average time-to-remove-power, first power-down time, last power-down time, as well as associated first and last ports to remove power. Report any inactive ports that never powered initially and any powered ports that fail to power down. Control Imin1 disconnect current level to DC MPS PSE's.</p>
mp_discx_cycle	<p>System Disconnect Power Recycle Timing Evaluate power-down and power recycle timing following a mass PD disconnect event. Report average time-to-recycle power, minimum recycle time, and maximum recycle time, as well as associated last port to recycle power. Report any inactive ports that never powered initially and any down ports that fail to recycle power.</p>
mp_discx_idp	<p>Port Disconnect Power-Down Independence Testing Determines that a PD induced disconnect power-down of each individual port in a PSE has no impact to operational state of any other port in the PSE. Reports any port-to-port couplings that are discovered (both count and associated coupled ports).</p>

User Setup Options:

PD Load Traits:
(PD Class, I_{class} , I_{inrush} , I_{load})

Disconnect Load Current Level (I_{min1})
(PSE MPS Method known via standard PSA1200 PSE Configuration File)

Multi-Port Overload Shutdown Tests

mp_overld_time	<p>System Overload Power Down Timing Characteristics Evaluate power-down timing across all powered PSE ports given a mass PD overload event. Report average time-to-remove-power, first power-down time, last power-down time, as well as associated first and last ports to remove power. Report any inactive ports that never powered initially and any powered ports that fail to power down. Control Icut overload current level to assess PSE behaviors with different overloads and PD Classification levels.</p>
mp_overld_cycle	<p>System Overload Power Recycle Timing Evaluate power-down and power recycle timing following a mass PD overload event. Report average time-to-recycle power, minimum recycle time, and maximum recycle time, as well as associated last port to recycle power. Report any inactive ports that never powered initially and any down ports that fail to recycle power.</p>
mp_overld_idp	<p>Port Overload Power-Down Independence Testing Determines that a PD induced overload power-down of each individual port in a PSE has no impact to operational state of any other port in the PSE. Reports any port-to-port couplings that are discovered (both count and associated coupled ports).</p>

User Setup Options:

PD Load Traits:
(PD Class, I_{class} , I_{inrush} , I_{load})

Overload Cutoff Current Level (I_{cut})

Standard Multi-Port System Test Report

The PSE Multi-Port Test Suite includes a standard Microsoft Excel spreadsheet report that is automatically produced upon the completion of any sequence of Multi-Port tests. This document distills all meaningful testing conditions and test results onto a single, easy-to-read page. The report documents PSA testing resources utilized and automatically applies test limits for certain system parameters. Test limits are derived from test conditions such as number of tested ports and PD classification level. Those parameters that exceed the derived test limits are annotated clearly in the standard report.

Test limits may be user specified with simple edits to the standard spreadsheet report. For example, if a 48 port PSE offers less than 48 port X 15.4 watts of maximum port power to Class 0 PSE's, the power capacity limits may be manually set to the rated power capacity of the PSE.

Multiport Test Report		October 24 2010 3:50 PM		PD Emulation Utilized		PSA Type: PSA 3000		Sifos Technologies		PSE Multiport Performance Report																																																																																										
Ports Tested: 48		PSE Type: Type-1 48-Port PSE		PD Class: 3		PD Class Current: 28 mA		System: Type-1		Multi-Port Suite 4.0.00 Report Version 4.0																																																																																										
<table border="1"> <thead> <tr> <th colspan="12">Test Resources</th> </tr> <tr> <th>PSA's Utilized</th> <th>1-1</th> <th>1-2</th> <th>2-1</th> <th>2-2</th> <th>3-1</th> <th>3-2</th> <th>4-1</th> <th>4-2</th> <th>5-1</th> <th>5-2</th> <th>6-1</th> <th>6-2</th> <th>7-1</th> <th>7-2</th> <th>8-1</th> <th>8-2</th> <th>9-1</th> <th>9-2</th> <th>10-1</th> <th>10-2</th> <th>11-1</th> <th>11-2</th> <th>12-1</th> <th>12-2</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>192.168.221.108</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>2</td> <td>192.168.221.109</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </tbody> </table>												Test Resources												PSA's Utilized	1-1	1-2	2-1	2-2	3-1	3-2	4-1	4-2	5-1	5-2	6-1	6-2	7-1	7-2	8-1	8-2	9-1	9-2	10-1	10-2	11-1	11-2	12-1	12-2	1	192.168.221.108																									2	192.168.221.109																								
Test Resources																																																																																																				
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1	192.168.221.108																																																																																																			
2	192.168.221.109																																																																																																			
Power-Up Tests	mp_pwrup_ports Port Power-Up Statistics PD Class: 3 (28 mA)						mp_pwrup_time Port Power-Up Timing PD Class: 3 (28 mA)																																																																																													
	Detection Signature: Mid-Range Active Port Count: 36 Inactive Port Count: 12 Intermittent Port Count: 0 Inactive Ports: 192.168.221.108: None 192.168.221.109: 7-1 7-2 8-1 8-2 9-1 9-2 10-1 10-2 11-1 11-2 12-1 12-2 Intermittent Ports: 192.168.221.108: None 192.168.221.109: None						Detection Signature: Mid-Range Total Time to Power: 18 Sec Average Time to Power: 9.9 Sec First Port Powered: 0.4 Sec Inactive Ports: 192.168.221.108: None 192.168.221.109: 7-1 7-2 8-1 8-2 9-1 9-2 10-1 10-2 11-1 11-2 12-1 12-2																																																																																													
Capacity Tests	mp_cap_ports Power Capacity by Port Addition PD Class: 3 (28 mA)						mp_cap_pwr Power Capacity by Power Addition PD Class: 3 (28 mA)																																																																																													
	Active Port Count: 21 Total PSE Power: 333 Watts Average Port Voltage: 45.4 Volts Low Power Ports: 192.168.221.108: None 192.168.221.109: None Inactive Ports: 192.168.221.108: 11-2 12-1 12-2 192.168.221.109: 1-1 1-2 2-1 2-2 3-1 3-2 4-1 4-2 5-1 5-2 6-1 6-2 7-1 7-2 8-1 8-2 9-1 9-2 10-1 10-2 11-1 11-2 12-1 12-2						Active Port Count: 47 Total PSE Power: 344.8 Watts Average Port Voltage: 46.1 Volts Max Power Active Ports: 44 First Shutdown Port: 192.168.221.109: Port 12-2 Inactive Ports: 192.168.221.108: None 192.168.221.109: 7-1																																																																																													
Stress Tests	mp_dur_static PSE Power Stress - Static Load PD Class: 3 (28 mA)						mp_dur_cycle PSE Power Stress - Variable Load PD Class: 3 (28 mA)																																																																																													
	Test Time: 2 Minutes 0.03 Hours Active Port Count: 47 Total PSE Power: 331.5 Watts Shutdown Event Count: 0 Shutdown Ports: 192.168.221.108: None 192.168.221.109: None Inactive Ports: 192.168.221.108: None 192.168.221.109: 7-1						Test Time: 2 Minutes 0.03 Hours Active Port Count: 47 Total PSE Power: 331.5 Watts Shutdown Event Count: 0 Shutdown Ports: 192.168.221.108: None 192.168.221.109: None Inactive Ports: 192.168.221.108: None 192.168.221.109: 7-1																																																																																													
Isolation Tests	mp_iso_1port Port Voltage Isolation: 1 Port Load PD Class: 3 (28 mA)						mp_iso_nport Port Voltage Isolation: N-1 Port Load PD Class: 3 (28 mA)																																																																																													
	Transient Load Current: 400 mA Transient Load Duration: 45 msec Average Transient Vpp: 0.23 Volts Max Transient Vpp: 0.3 Volts Max Coupling Sites: 192.168.221.108: 1-1 TO 192.168.221.108: 2-2 Inactive Ports: 192.168.221.108: None 192.168.221.109: 7-1 7-2 8-1 8-2 9-1 9-2 10-1 10-2 11-1 11-2 12-1 12-2						Transient Load Current: 150 mA Transient Load Duration: 45 msec Average Transient Vpp: 0.45 Volts Max Transient Vpp: 0.6 Volts Max Coupling Site: 192.168.221.108: 4-2 Inactive Ports: 192.168.221.108: None 192.168.221.109: 7-1 7-2 8-1 8-2 9-1 9-2 10-1 10-2 11-1 11-2 12-1 12-2																																																																																													
Disconnect Power-Down Tests	mp_disc_ports Port Power-Down Statistics PD Class: 3 (28 mA)						mp_disc_time Disconnect Power-Down Timing PD Class: 3 (28 mA)																																																																																													
	Disconnect Current Level: 0 mA Stuck Powered Count: 0 Intermittent Powered Count: 0 Powered Ports: 192.168.221.108: None 192.168.221.109: None Intermittent Ports: 192.168.221.108: None 192.168.221.109: None Inactive Ports: 192.168.221.108: None 192.168.221.109: 7-1 7-2 8-1 8-2 9-1 9-2 10-1 10-2 11-1 11-2 12-1 12-2						Disconnect Current Level: 0 mA Total Power-Down Time: 357 msec Avg. Power-Down Time: 340 msec First Power-Down Time: 324 msec Powered Ports: 192.168.221.108: None 192.168.221.109: None Last Port Down: 192.168.221.109: 6-2 First Port Down: 192.168.221.108: 3-2 Inactive Ports: 192.168.221.108: None 192.168.221.109: 7-1 7-2 8-1 8-2 9-1 9-2 10-1 10-2 11-1 11-2 12-1 12-2																																																																																													
Overload Power-Down Tests	mp_disc_cycle Disconnect & Re-Power Timing PD Class: 3 (28 mA)						mp_disc_idp Disconnect Power-Down Independence PD Class: 3 (28 mA)																																																																																													
	Disconnect Current Level: 0 mA Total Re-Power Time: 27 Sec Avg. Re-Power Time: 19.8 Sec Min. Re-Power Time: 3.7 Sec Last Port Powered: 192.168.221.108: 12-1 Never Recycled Ports: 192.168.221.108: None 192.168.221.109: None Inactive Ports: 192.168.221.108: None 192.168.221.109: 7-1 7-2 8-1 8-2 9-1 9-2 10-1 10-2 11-1 11-2 12-1 12-2						Disconnect Current Level: 0 mA Coupled Port Count: 0 Inactive Ports: 192.168.221.108: None 192.168.221.109: 7-1 7-2 8-1 8-2 9-1 9-2 10-1 10-2 11-1 Coupled Ports: None																																																																																													
	mp_overld_time Overload Power Down Timing PD Class: 3 (28 mA)						mp_overld_cycle Port Overload and Re-Power Timing PD Class: 3 (28 mA)																																																																																													
	Overload Current Level: 399 mA Total Power-Down Time: 102 msec Avg. Power-Down Time: 58 msec First Power-Down Time: 5 msec Powered Ports: 192.168.221.108: None 192.168.221.109: None Last Port Down: 192.168.221.108: 7-1 First Port Down: 192.168.221.109: 6-2 Inactive Ports: 192.168.221.108: None 192.168.221.109: 7-1 7-2 8-1 8-2 9-1 9-2 10-1 10-2 11-1 11-2 12-1 12-2						Overload Current Level: 399 mA Total Re-Power Time: 31 Sec Avg. Re-Power Time: 22.7 Sec Min. Re-Power Time: 10 Sec Last Port Powered: 192.168.221.109: 3-2 Never Recycled Ports: 192.168.221.108: None 192.168.221.109: None Inactive Ports: 192.168.221.108: None 192.168.221.109: 7-1 7-2 8-1 8-2 9-1 9-2 10-1 10-2 11-1 11-2 12-1 12-2																																																																																													
mp_overld_idp Overload Power Down Independence PD Class: 3 (28 mA)						Powerup Independence																																																																																														
Overload Current Level: 399 mA Coupled Port Count: 0 Inactive Ports: 192.168.221.108: None 192.168.221.109: 7-1 7-2 8-1 8-2 9-1 9-2 10-1 10-2 Coupled Ports: None						mp_pwrup_idp PSE Port Power-Up Independence PD Class: 3 (28 mA)																																																																																														
						Detection Signature: Mid-Range Coupled Port Count: 0 Inactive Ports: 192.168.221.108: None 192.168.221.109: 7-1 Coupled Ports: None																																																																																														

Limit checking within the standard report is performed on the following parameters.

Multi-Port Test	Parameter	Default Limit Criteria
mp_pwrup_ports	Inactive Port Count	< 1 Port
	Intermittent Port Count	< 1 Port
mp_pwrup_time	Total Time to Power	< 10 Seconds
	Average Time to Power	< 5 Seconds
mp_pwrup_idp	Coupled Port Count	< 1 Port
mp_cap_ports	Active Port Count - Ports	= Total Ports
	Total PSE Power - Ports	≥ Total Ports x Max_Power/Port(PD Class)
	Average Port Voltage - Ports	≥ 45 Volts
mp_cap_pwr	Active Port Count - Pwr	= Total Ports
	Total PSE Power - Pwr	≥ Total Ports x Max_Power/Port(PD Class)
	Average Port Voltage - Pwr	≥ 45 Volts
	Max Power Powered Ports	= Total Ports
mp_dur_static	Active Port Count - Static	= Total Ports
	Total PSE Power - Static	≥ Ports x Max_Power/Port(PD Class) x 90%
	Shutdown Event Count - Static	< 1
mp_dur_cycle	Active Port Count - Cycle	= Total Ports
	Total PSE Power - Cycle	≥ Ports x Max_Power/Port(PD Class) x 90%
	Shutdown Event Count - Cycle	< 1
mp_iso_1port	Average Transient Vpp - 1port	≤ 0.5 V
	Max Transient Vpp - 1port	≤ 0.75 V
mp_iso_nport	Average Transient Vpp - nport	≤ 4.0 V
	Max Transient Vpp - nport	≤ 6.0 V
mp_discx_ports	Stuck Powered Count	< 1 Port
	Intermittent Powered Count	< 1 Port
mp_discx_time	Total Power-Down Time	≤ 500 msec
	Avg. Power-Down Time	≤ 400 msec
	First Power-Down Time	≥ 300 msec
mp_discx_cycle	Total Re-Power Time	≤ 11 seconds
	Avg. Re-Power Time	≤ 6 seconds
	Min. Re-Power Time	≥ 0.5 seconds
mp_discx_idp	Coupled Port Count	< 1 Port
mp_overld_time	Total Power-Down Time	≤ 90 msec
	Avg. Power-Down Time	≤ 75 msec
	First Power-Down Time	≥ 50 msec
mp_overld_cycle	Total Re-Power Time	≤ 12 seconds
	Avg. Re-Power Time	≤ 7 seconds
	Min. Re-Power Time	≥ 0.85 seconds
mp_overld_idp	Coupled Port Count	< 1 Port

Textual Multi-Port System Test Reports

Prior to sequencing Multi-Port tests, users may elect to have all test results stored into an ASCII text file that is amended as test results are developed. This text file will be automatically titled with a Time-Date stamp. Users may override that default file name with a name and directory location of their choice.

This type of report is preferable in cases where Microsoft Excel is not available or in cases where processing scripts might be used to form customized reports over many test sequences. The text format report presents test conditions, parameters, and test results on a test-by-test basis and does not perform any limit checking.

Multi-Port test results may also be displayed in PowerShell as tests are run, either stand-alone or from the Multi-Port test sequencer.

Multi-Port Data Logging

Under the PSE Multi-Port Test Suite sequencer, detailed test data collected from all PSE ports may at the user's request be stored in test-specific logs formatted as text files. This enables a more detailed analysis of many of the results produced by the PSE Multi-Port Test Suite. For example, those tests reporting minimum or maximum and average values will store all individual port measurement data inside the data logging files. This information can be used by designers and QA personnel to get very detailed insights into PSE behaviors.

PowerSync Analyzer Product Family Support

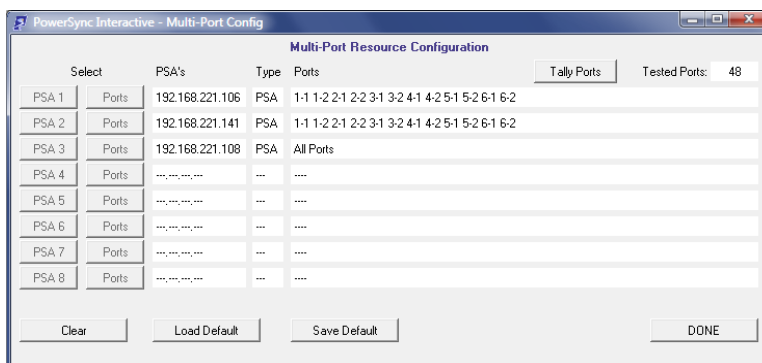
The test suite is fully supported by the **PowerSync Analyzer** family* of instruments excluding Compact (2-port) PSA's. A subset of the PSE Multi-Port Test Suite is supported on **PowerSync Programmable Loads** as indicated in the table below. Defect coverage will not be as robust with the Programmable Load as it would be with the PowerSync Analyzer.

Multi-Port Test	Programmable Load Support	Programmable Load Test Limitations	Supported Resource Configurations
mp_pwrup_ports	YES	No Intermittent Testing with Programmable Load	PSA-3000 + PSA-3048 + PSL-30xx or PSA-1200 + PSA-2400 + PSA-1200-PL
mp_pwrup_time	NO		PSA-3000 + PSA-3048 or PSA-1200 + PSA-2400
mp_pwrup_idp	YES	Sampled Time vs. Continuous Time on all ports	PSA-3000 + PSA-3048 + PSL-30xx or PSA-1200 + PSA-2400 + PSA-1200-PL
mp_cap_ports	YES		
mp_cap_pwr	YES		
mp_dur_static	YES	Sampled Time vs. Continuous Time on all ports (PowerSync Analyzer Monitors Continuously)	
mp_dur_cycle	YES		
mp_iso_1port	NO		PSA-3000 + PSA-3048 or PSA-1200 + PSA-2400
mp_iso_nport	NO		
mp_discx_ports	YES	No Intermittent Testing with Programmable Load	PSA-3000 + PSA-3048 + PSL-30xx or PSA-1200 + PSA-2400 + PSA-1200-PL
mp_discx_time	NO		PSA-3000 + PSA-3048 or PSA-1200 + PSA-2400
mp_discx_cycle	NO		
mp_discx_idp	YES	Sampled Time vs. Continuous Time on all ports	PSA-3000 + PSA-3048 + PSL-30xx or PSA-1200 + PSA-2400 + PSA-1200-PL
mp_overld_time	NO		PSA-3000 + PSA-3048 or PSA-1200 + PSA-2400
mp_overld_cycle	NO		
mp_overld_idp	YES	Sampled Time vs. Continuous Time on all ports	PSA-3000 + PSA-3048 + PSL-30xx or PSA-1200 + PSA-2400 + PSA-1200-PL

* Second generation chassis' (PSA-3xxx / PSL-3xxx) and first generation chassis' (PSA-1200 / PSA-2400) may not be combined in a single Multi-Port Test configuration.

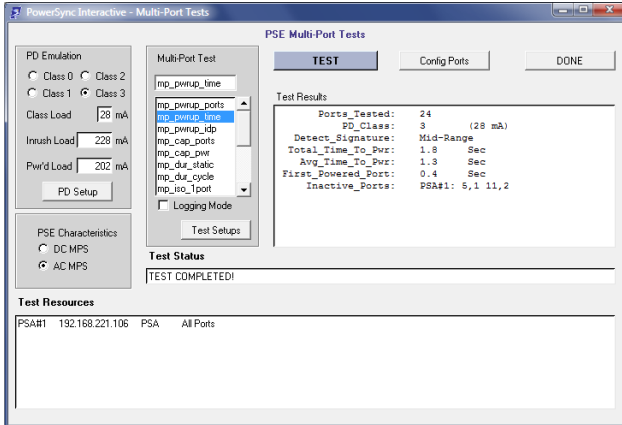
PSA Interactive and the PSE Multi-Port Suite

The PSE Multi-Port Suite can be accessed from PSA Interactive, the interactive graphical user interface provided for the PowerSync Analyzer family. Each top level Multi-Port Suite menu, **Multi-Port Live PD Emulation***, **Multi-Port PSE Tests**, and **Multi-Port Sequencer**, provides access to the **Multi-Port Resource Configuration** menu. Resource Configuration is used to define the field of instruments and test ports to be used in Multi-Port Testing. Once this field is defined, PSE Tests and the Sequencer can be used to select PD Emulations and Multi-Port Tests that will be executed.

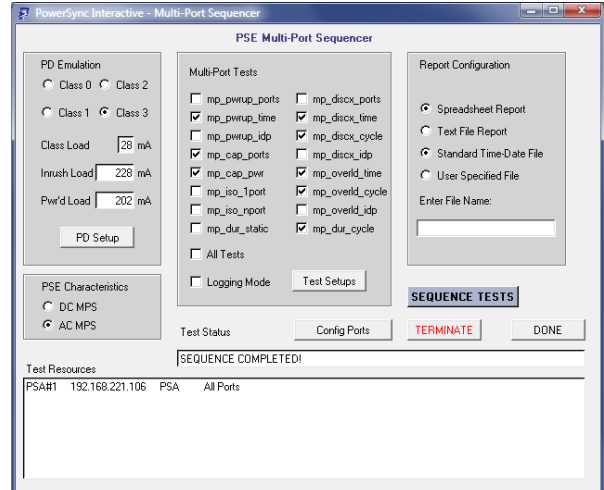


Multi-Port Resource Configuration

*Multi-Port Live PD Emulation is described in Sifos datasheet **Multi-Port Live PD Emulation Overview**.

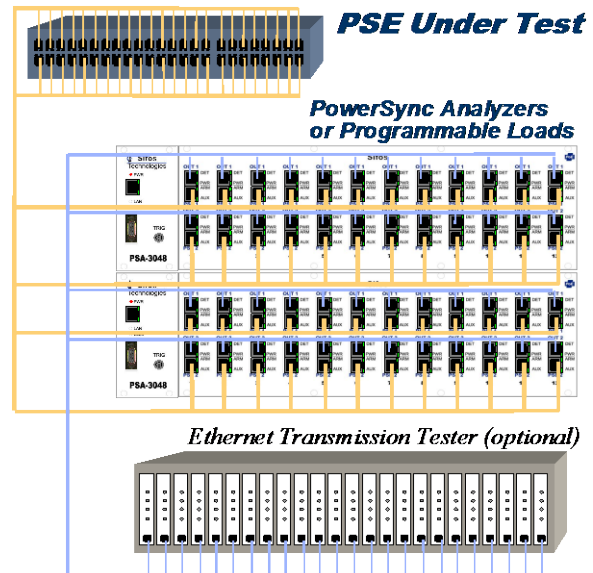


Multi-Port Selected Test Menu



Multi-Port Test Sequencer Menu

Multi-Port Test Configuration (48 Ports)



ORDERING INFORMATION

- PSA-MPT** PowerSync Analyzer PSE Multi-Port Suite including Multi-Port Live PD Emulation and the Multi-Port Test Suite, per PSA Controller
- PSL-MPT** PowerSync Programmable Load PSE Multi-Port Suite including Multi-Port Live PD Emulation and the Multi-Port Test Suite, per PSL Controller
- PSA-QTD** PowerSync Analyzer Test Suite Multi-Chassis Discount (Single P.O.)

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