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## SlimSAS Cable Assemblies

### INTRODUCTION

#### Description

Amphenol SlimSAS is a robust and cost effective high speed connector and cable assembly solution. SlimSAS products is specially designed for new generation SAS4.0 server application with higher speed 24Gbps data rate and smaller size. The solution can also be used in PCIe Gen3/Gen4, 25G Ethernet and other potential applications. SlimSAS cables can be widely applied in the data center, networking and telecommunications markets that use SAS, PCIe, Ethernet and other signal protocols. SlimSAS cables and connectors support many interconnection configurations including backplane to motherboard, backplane to add-in card and card to motherboard.

SlimSAS cable assemblies can be provided with 30AWG~34AWG discrete pairs and flat ribbon cable. The SlimSAS connector design is scalable to 16 channels and is available in straight, right angle, right side-exit and left side-exit plug configurations to mate with board mount connectors.

#### Features and Benefits

- Support cable to board application: 1.0mm PCB card thickness
- Multiple channels are optional: 4X/6X(38pos),8X/12X(74pos), 16X/20X(124pos)
- Small size design with great robustness : pitch 0.6mm connector and max 25N wrenching test
- Excellent SI performance: signal rates up to PCIe4 16GT/s, SAS 4.0 24Gbps and 25Gbps Ethernet
- Compatible with many different industry standards and protocols including SAS, PCIe and 25G Ethernet
- Straight, right angle, side exit and customization cable plug are optional
- 85 ohm and 100 ohm impedances are optional
- 30-34AWG cables are available for both discrete and ribbon cable
- RoHS compliant. Halogen free is available on request

#### Product Applications

- Servers and storage devices
- High performance computing
- Data center & networking equipment
- Wireless base stations and radios

#### Industry Standards

- SAS 3.0 / 4.0(24Gbps)
- PCIe Gen 3 / Gen 4(32GT/s)
- OpenCAPI 25Gbps
- 25G Ethernet

#### Technical Documents

Product Specification: PS-AST-0956 SlimSAS Cable Assembly



## SlimSAS Cable Assemblies

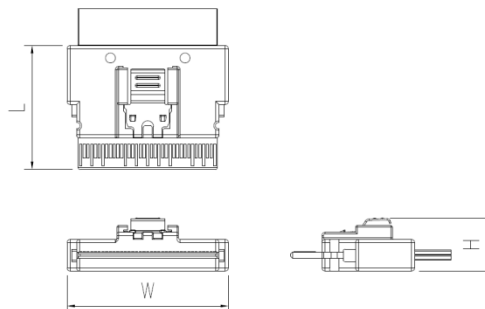
### Plug Part Numbers

Table 1. Cable Connector Part Number Selection Guide

		38position	74 position	124 position
Part Description	Bulk Cable	Plug Part Number		
Straight Plug	Discrete pairs or Ribbon Cable	AST8654-0038-01	AST8654-0074-01	AST8654-0124-05
Straight Plug with low latch	Discrete pairs or Ribbon Cable	AST8654-0038-02	AST8654-0074-02	On request
Narrow Straight Plug with low latch	Discrete pairs or Ribbon Cable	AST8654-0038-07	On request	On request
Widened Straight Plug	Discrete pairs or Ribbon Cable	AST8654-0038-08	AST8654-0074-07	On request
Widened Straight Plug with low latch	Discrete pairs or Ribbon Cable	On request	AST8654-0074-08	On request
Right Angle plug	Discrete pairs or Ribbon Cable	AST8654-0038-03	AST8654-0074-03	On request
Narrow Right Angle plug	Discrete pairs or Ribbon Cable	AST8654-0038-10	On request	On request
Reverse Right Angle plug	Discrete pairs or Ribbon Cable	AST8654-0038-04	AST8654-0074-04	On request
Right Side Exit Plug	Discrete pairs or Ribbon Cable	AST8654-0038-05	AST8654-0074-10	On request
Left Side Exit Plug	Discrete pairs or Ribbon Cable	AST8654-0038-13	AST8654-0074-09	On request

These plugs can be combined each other, please contact Amphenol for customized cable assembly

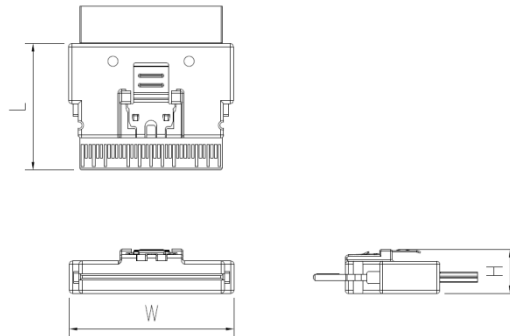
Position	PN	Description	L	W	H	Applicable cable
38	AST8654-0038-01	Straight Plug	19.95	15.15	8.55	30~34AWG 85 ohm 32~34AWG 100 ohm
74	AST8654-0074-01	Straight Plug	19.95	25.95	8.55	
124	AST8654-0124-05	Straight Plug	18.45	42.30	7.69	



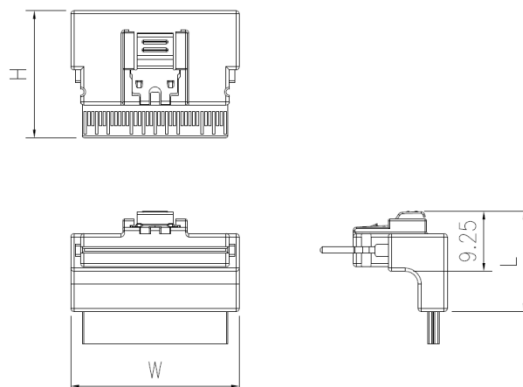
Note: the above dimensions proportion is off.

## Mini Cool Edge IO (MCIO) Cable Assemblies

Position	PN	Description	L	W	H	Applicable cable
38	AST8654-0038-02	Straight Plug With Low Latch	19.95	15.15	6.95	30~34AWG 85 ohm 32~34AWG 100 ohm
38	AST8654-0038-07	Narrow Straight Plug With Low Latch	19.95	12.50	6.95	32~34AWG 85 ohm 32~34AWG 100 ohm
38	AST8654-0038-08	Widened Straight Plug	19.95	17.85	8.55	28-30AWG 85 ohm 30AWG 100 ohm
74	AST8654-0074-02	Straight Plug With Low Latch	19.95	25.95	6.95	30~34AWG 85 ohm 32~34AWG 100 ohm
74	AST8654-0074-07	Widened Straight Plug	21.45	32.35	8.55	28AWG 85 ohm 28AWG 100 ohm
74	AST8654-0074-08	Widened Straight Plug With Low Latch	21.70	30.50	6.95	30AWG 85 ohm 30AWG 100 ohm



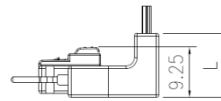
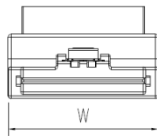
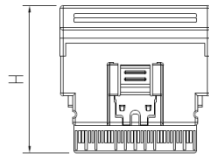
Position	PN	Description	L	W	H	Applicable cable
38	AST8654-0038-03	Right Angle Plug	15.45	15.15	19.55	30~34AWG 85 ohm 32~34AWG 100 ohm
38	AST8654-0038-10	Narrow Right Angle Plug	15.45	12.60	19.55	
74	AST8654-0074-03	Right Angle Plug	15.45	25.95	19.55	



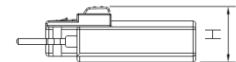
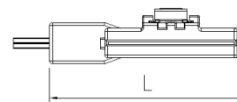
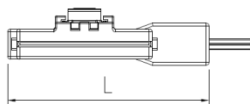
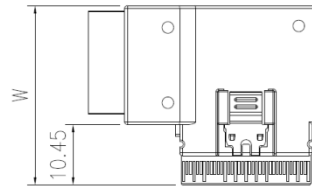
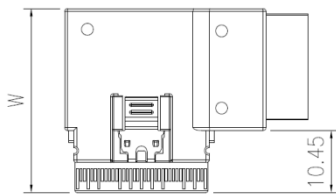
Note: the above dimensions proportion is off.

## Mini Cool Edge IO (MCIO) Cable Assemblies

Position	PN	Description	L	W	H	Applicable cable
38	AST8654-0038-04	Reverse Right Angle Plug	11.80	16.70	26.55	30~34AWG 85 ohm 32~34AWG 100 ohm
74	AST8654-0074-04	Reverse Right Angle Plug	11.80	27.50	27.05	



Position	PN	Description	L	W	H	Applicable cable
38	AST8654-0038-05	Right Side Exit Plug	23.00	26.90	8.55	30~34AWG 85 ohm 32~34AWG 100 ohm
74	AST8654-0074-10	Right Side Exit Plug	34.00	29.20	9.55	
38	AST8654-0038-13	Left Side Exit Plug	23.00	26.90	8.55	30~34AWG 85 ohm 32~34AWG 100 ohm
74	AST8654-0074-09	Left Side Exit Plug	34.00	29.20	9.55	



Note: the above dimensions proportion is off.

### Product Specifications

**Table 2. Material Specifications**

<b>PCB</b>	Halogen Free laminate
<b>Contact</b>	30µin min hard Gold plated contact pads
<b>Connector housing</b>	Thermoplastic UL94V-0
<b>Active latch</b>	Stainless steel
<b>Raw Cable (30-34AWG)</b>	Silver plated copper conductor
	Fluoropolymer dielectric
	Tinned copper drain wire
	Metallic tape pair shield
	Polyester tape jacket

**Table 3. Electrical/Mechanical Specifications**

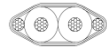
<b>Impedance</b>	85Ω, optional 100Ω for future
<b>Data Rate</b>	32GT/s per channel
<b>Within Pair Skew</b>	Max. 10 ps/m
<b>Rated Voltage</b>	30V
<b>Rated Current</b>	1A per pin
<b>Durability</b>	250 mating cycles
<b>Mating force</b>	38 pos = 21N Max.
	74 pos = 31N Max.
	124 pos = 67N Max.
<b>Wrenching test</b>	Max 25N for each axis direction

**Table 4. Environmental Specifications**

<b>Storage Temperature</b>	-20° to 80°C
<b>Operating Temperature</b>	0° to 80°C
<b>Flammability Rating</b>	VW-1
<b>Safety Certificates</b>	RoHS compliant, HF optional

## SlimSAS Cable Assemblies

Table 5. Typical Cable Specifications



<b>30AWG 85Ω Cable Bend Radius</b>	1.95mm (good way bend)	<b>30AWG 85Ω Cable Bend Radius</b>	2.1mm (good way bend)
<b>Cable Dimensions</b>	Thickness =0.78 mm	<b>Cable Dimensions</b>	Thickness =0.85 mm
	Width per pair = 1.80 mm		Width/12 pairs = 27.30 mm
<b>31AWG 85Ω Cable Bend Radius</b>	1.8mm (good way bend)	<b>31AWG 85Ω Cable Bend Radius</b>	1.95mm (good way bend)
<b>Cable Dimensions</b>	Thickness = 0.72mm	<b>Cable Dimensions</b>	Thickness = 0.78mm
	Width per pair = 1.70 mm		Width/12 pairs = 25.90 mm
<b>32AWG 85Ω Cable Bend Radius</b>	1.6mm (good way bend)	<b>32AWG 85Ω Cable Bend Radius</b>	1.8mm (good way bend)
<b>Cable Dimensions</b>	Thickness =0.65 mm	<b>Cable Dimensions</b>	Thickness =0.71 mm
	Width per pair = 1.56 mm		Width/6 pairs = 13.80 mm
<b>34AWG 85Ω Cable Bend Radius</b>	1.4 mm (good way bend)	<b>34AWG 85Ω Cable Bend Radius</b>	1.5mm (good way bend)
<b>Cable Dimensions</b>	Thickness =0.55 mm	<b>Cable Dimensions</b>	Thickness =0.60 mm
	Width per pair = 1.25 mm		Width/6 pairs = 12.0 mm

<b>30AWG 85Ω Cable Attenuation (max)</b>	4.5GHz = 4.5 dB/m
	9.0 GHz = 8.8 dB/m
	12.0 GHz = 10.7 dB/m
<b>31AWG 85Ω Cable Attenuation (max)</b>	4.5GHz = 5.0 dB/m
	9.0 GHz = 8.8 dB/m
	12.0 GHz = 10.7 dB/m
<b>32AWG 85Ω Cable Attenuation (max)</b>	4.5GHz = 5.8 dB/m
	9.0 GHz = 10.5 dB/m
	12.0 GHz = 14.0 dB/m
<b>34AWG 85Ω Cable Attenuation (max)</b>	4.5GHz = 4.8 dB/0.7m
	9.0 GHz = 9.8 dB/0.7m
	12.0 GHz = 12.8 dB/0.7m

**Note:**

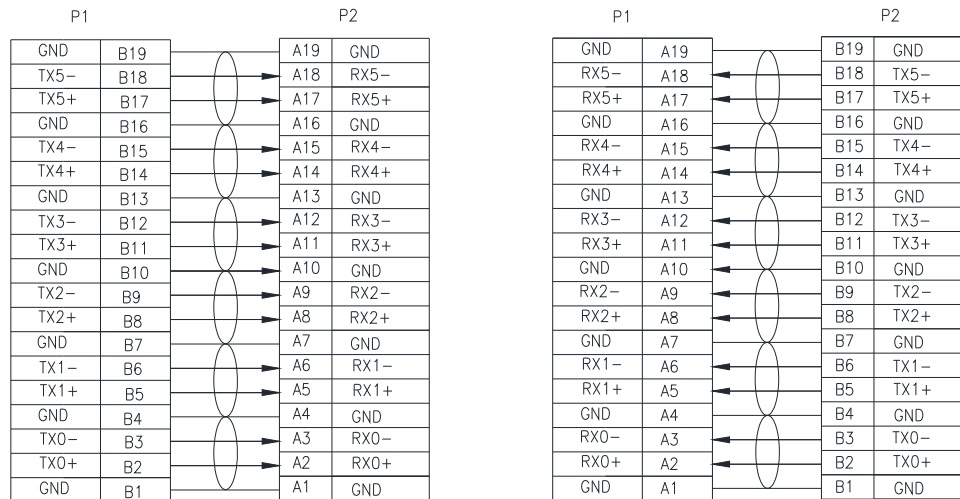
Conductor is solid copper for discrete and ribbon cable.

For more details, please contact local Amphenol sales person or visit [www.amphenol-ast.com](http://www.amphenol-ast.com).

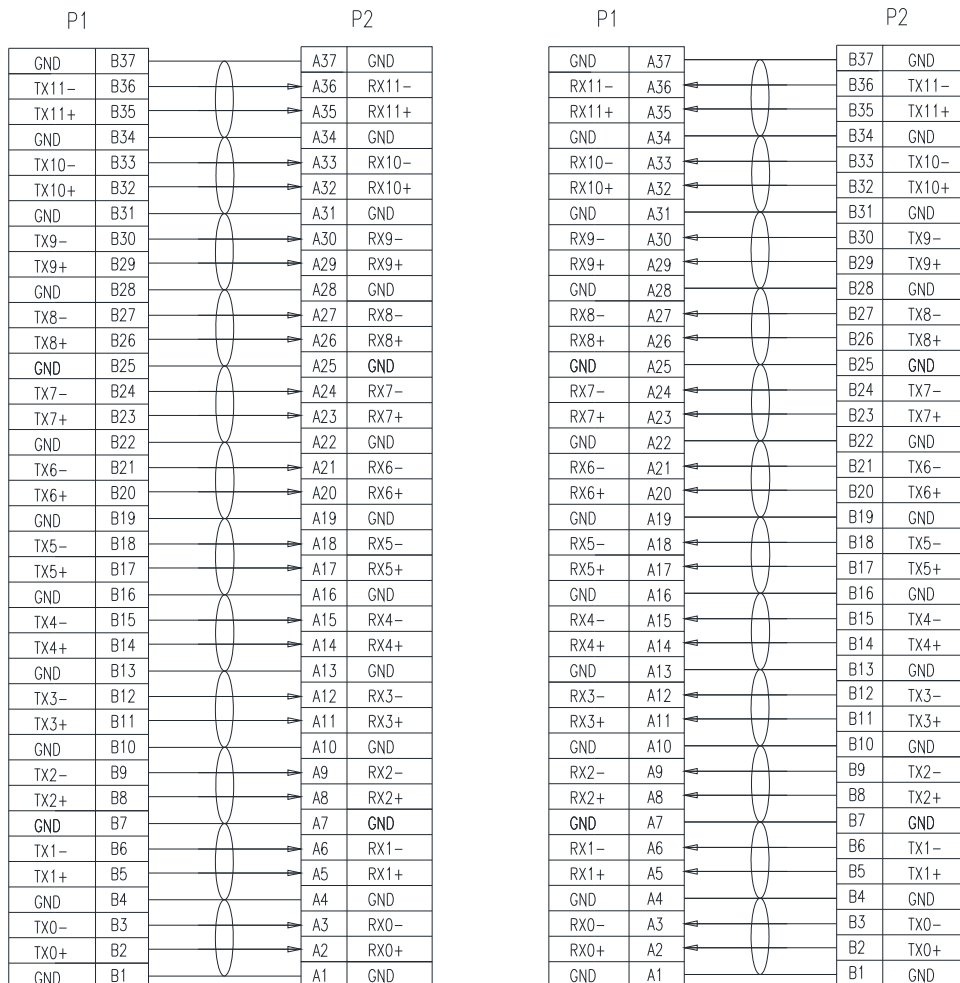
## SlimSAS Cable Assemblies

### Pin Configurations

#### SlimSAS 38 Position



#### SlimSAS 74 Position

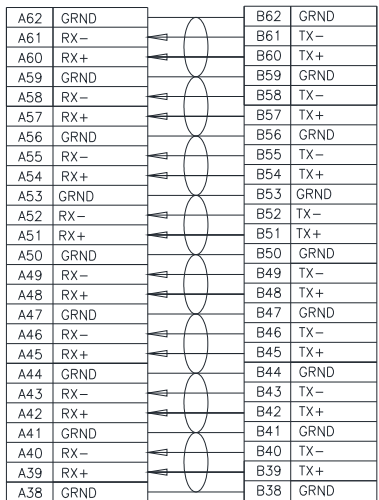
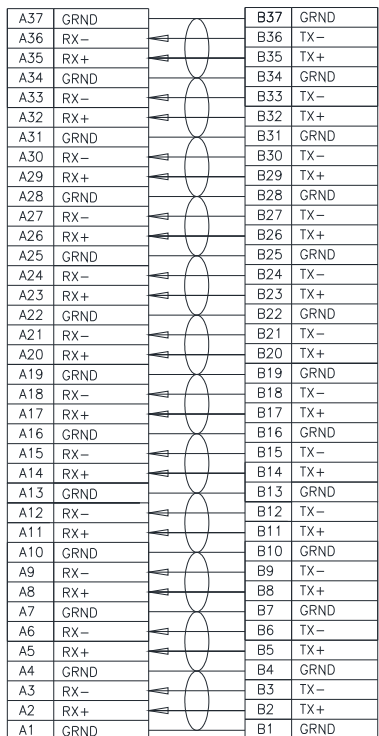
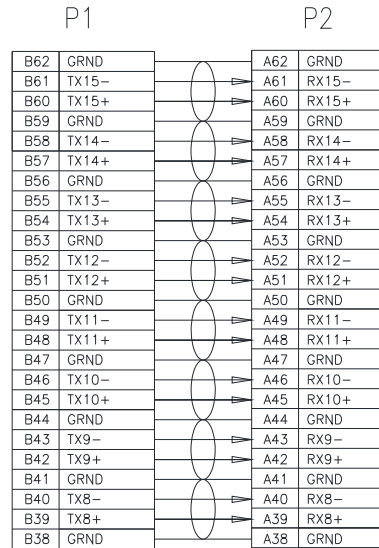
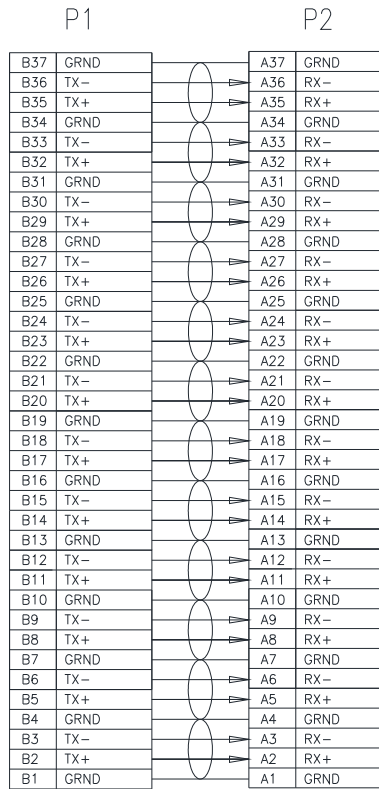


Note: P1 and P2 are connectors on both ends of cable assembly.

## SlimSAS Cable Assemblies

### Pin Configurations

#### SlimSAS 124 Position

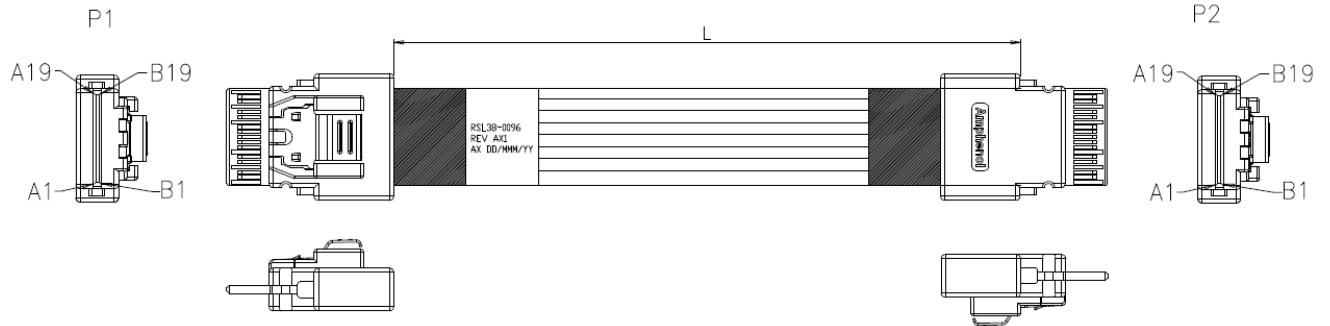


Note: P1 and P2 are connectors on both ends of cable assembly.

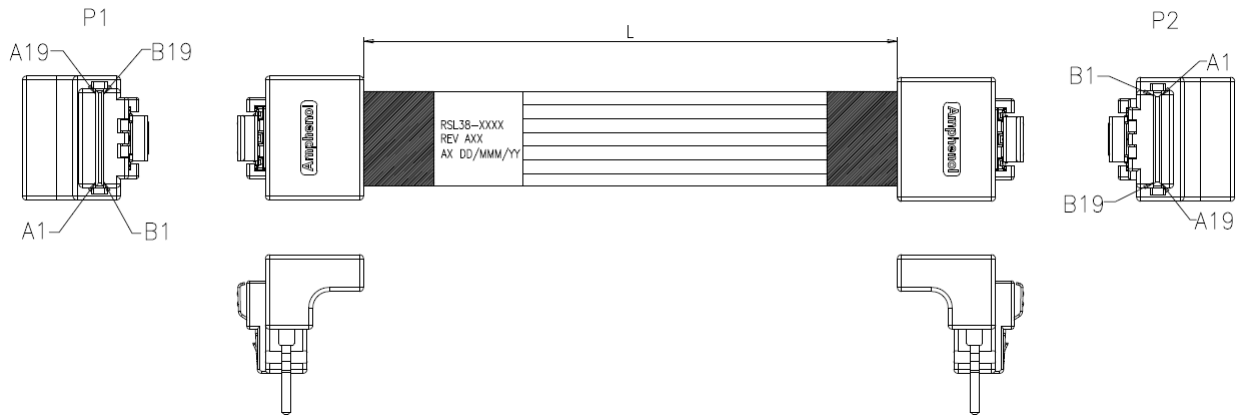
## SlimSAS Cable Assemblies

### SlimSAS Cable Assembly Mechanical Schematics

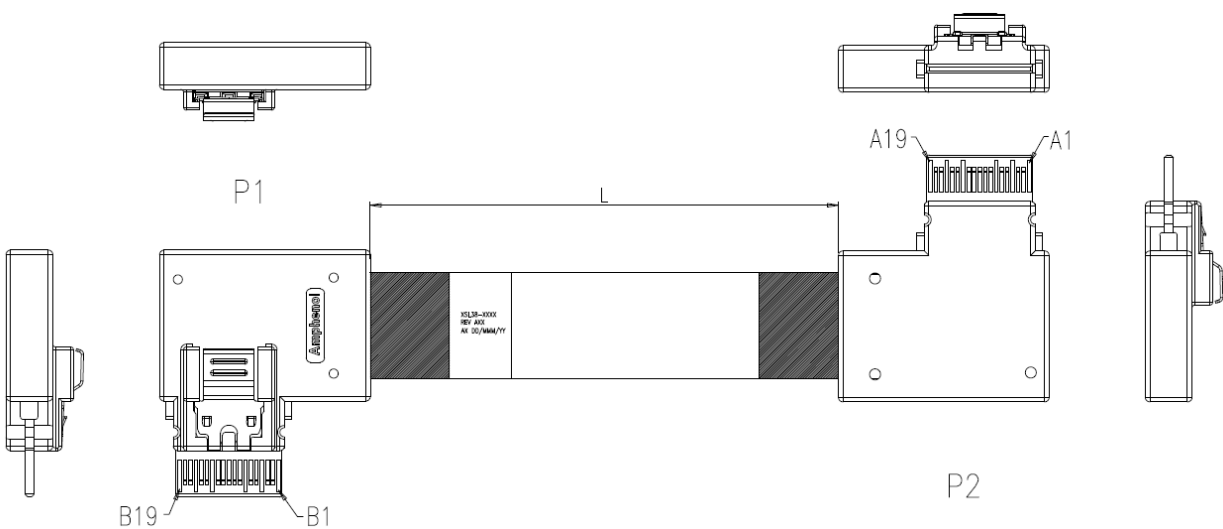
#### SlimSAS 38 Position Straight to Straight Cable Assembly



#### SlimSAS 38 Position Right Angle to Right Angle Cable Assembly



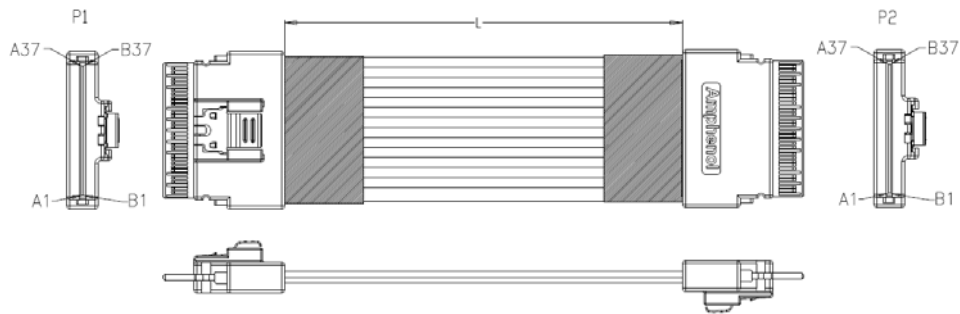
#### SlimSAS 38 Position Right Side Exit to Left Side Exit Cable Assembly



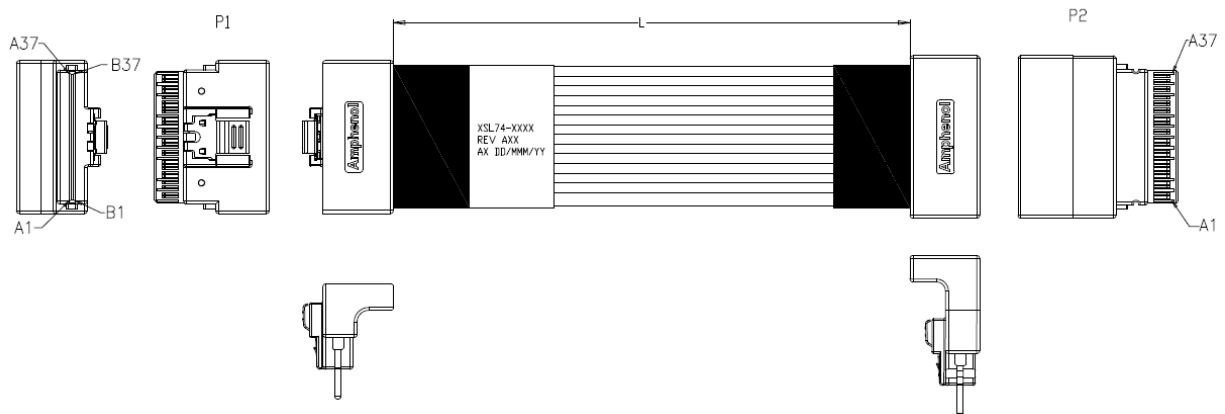
## SlimSAS Cable Assemblies

### SlimSAS Cable Assembly Mechanical Schematics

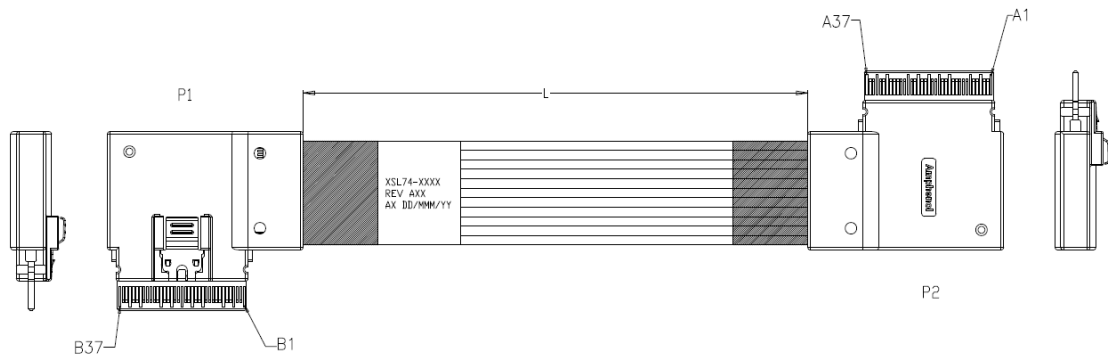
#### SlimSAS 74 Position Straight to Straight Cable Assembly



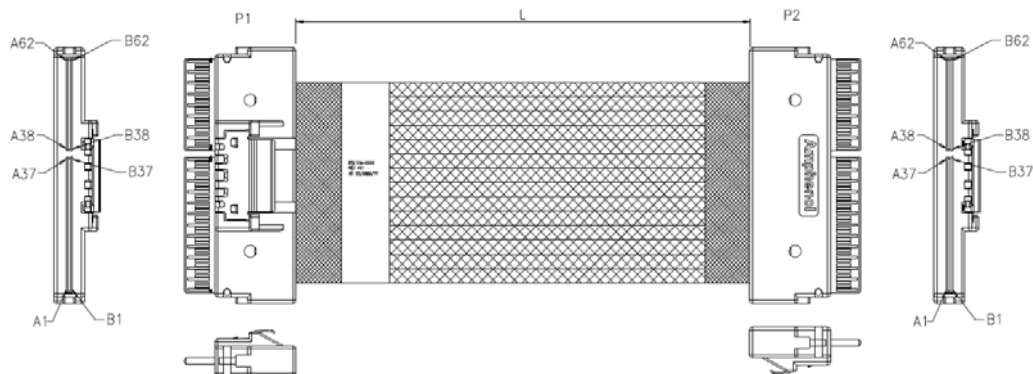
#### SlimSAS 74 Position Right Angle to Reverse Right Angle Cable Assembly



#### SlimSAS 74 Position Right Side Exit to Left side Exit Cable Assembly

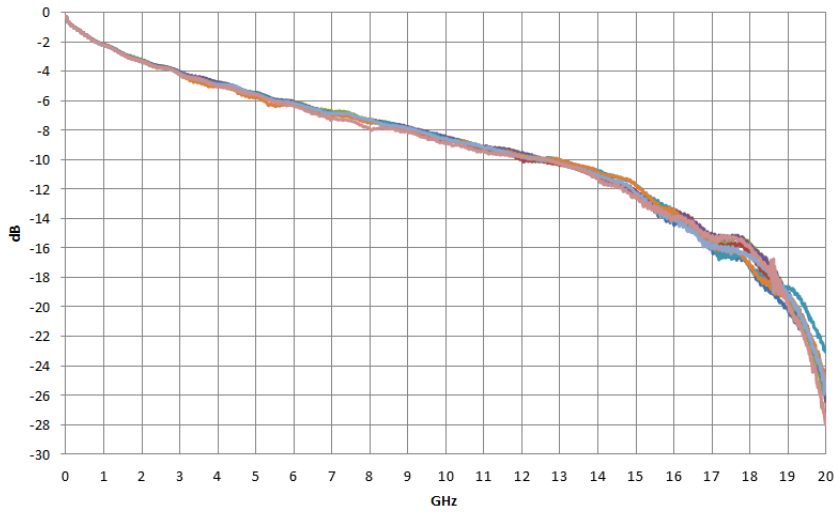


#### SlimSAS 124 Position Straight to Straight Cable Assembly

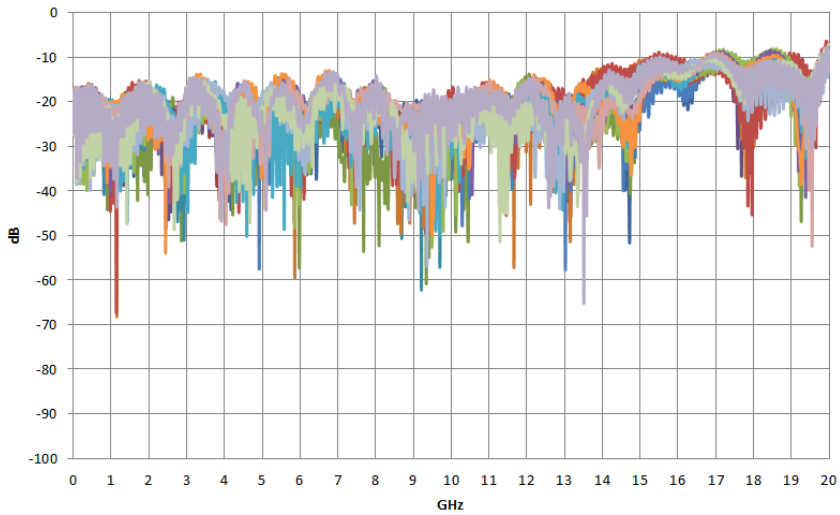


### Signal Integrity Performance

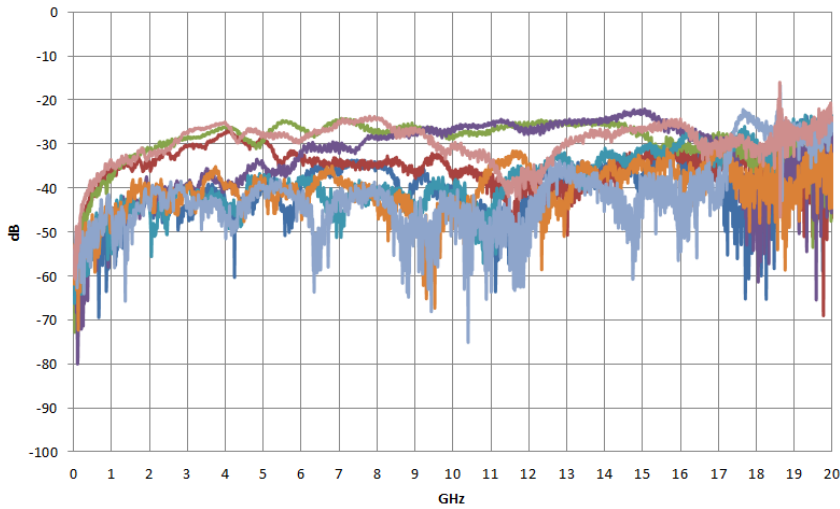
Insertion Loss (SDD21) of 1m 32AWG 85 Ohm SlimSAS



Return Loss (SDD11) of 1m 32AWG 85 Ohm SlimSAS

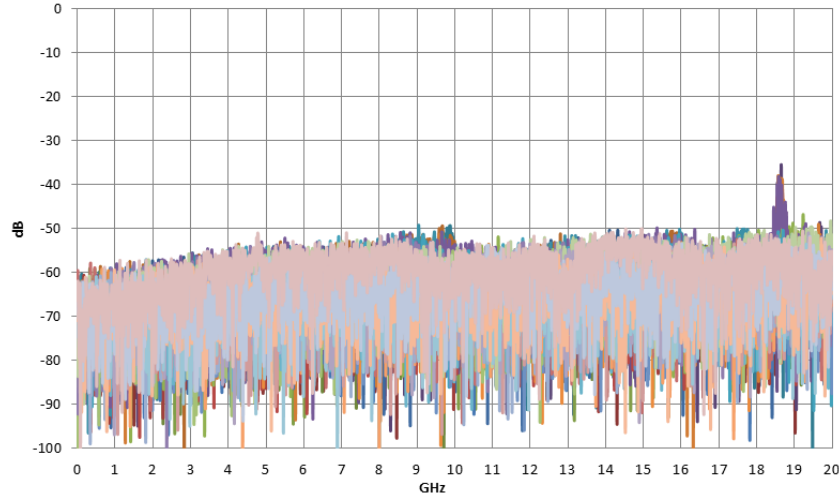


SCD21-SDD21 of 1m 32AWG 85 Ohm SlimSAS

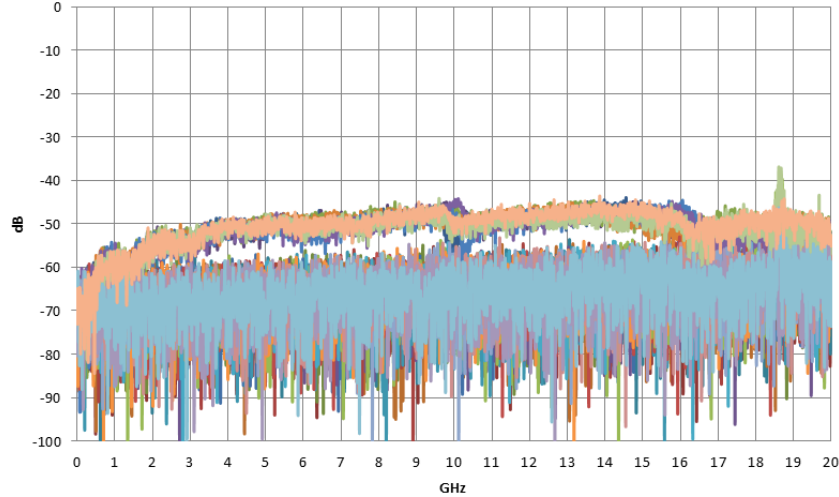


## SlimSAS Cable Assemblies

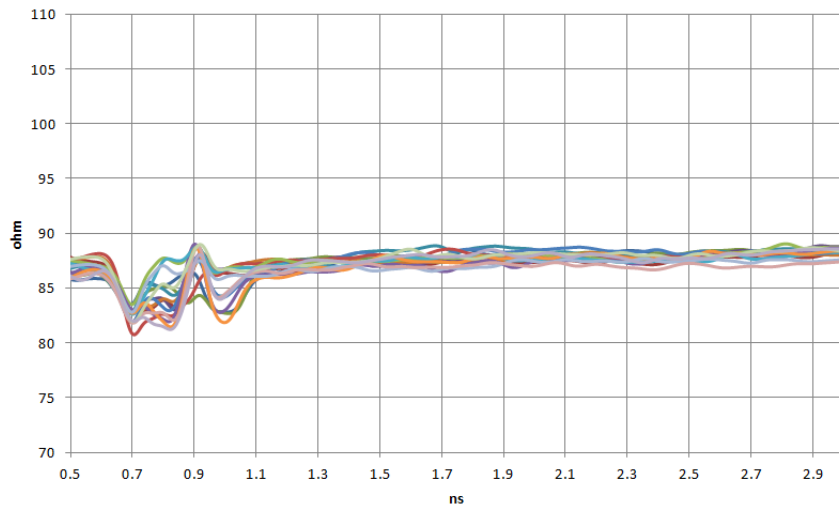
**NEXT of 1m 32AWG 85 Ohm SlimSAS**



**FEXT of 1m 32AWG 85 Ohm SlimSAS**



**Differential Impedance @ Tr=25ps(20%-80%) of 1m 32AWG 85 Ohm SlimSAS**



**Note:**

1. Please visit our website <http://www.amphenol-ast.com/V3/en/product.aspx?classId=158> to find specific product information.
2. Any requirement, please send email to [sales@amphenol-ast.com](mailto:sales@amphenol-ast.com) or inquire our local sales.