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## SlimSAS LP Cable Assemblies

### INTRODUCTION

#### Description

Amphenol SlimSAS LP is a flexible, robust and cost effective connector and cable assembly solution that help server and networking equipment design flexibility, reduce overall space, and extend the reach for high data rate signals. The solution can be used in PCIe Gen3/Gen4, SAS3.0/SAS4.0, 25G Ethernet, 56GT/s PAM4 and other potential applications. The solution can support wire to board application in system.

SlimSAS LP cable assemblies can be provided with 30AWG~34AWG discrete pairs and flat ribbon cable. The SlimSAS LP connector design is scalable to 24 channels and is available in straight, right angle, right side-exit and left side-exit plug configurations to mate with vertical board mount connectors.

SlimSAS LP cables are designed for applications in the data center, networking and telecommunications markets that use SAS, PCIe, Ethernet and other signal protocols. SlimSAS LP cables and connectors support many interconnection configurations including backplane to motherboard, backplane to add-in card and card to motherboard.

#### 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, 25Gbps Ethernet and 56 GT/s PAM-4
- Compatible with many different industry standards and protocols including SAS, PCIe, 25G Ethernet and 56GT/s PAM4
- Straight, right angle, side exit and customization cable plug are optional
- Supports 85 ohm impedance applications, 100 ohm will be available in the future
- 30-34AWG cables are available for both discrete and ribbon cable
- RoHS compliant. Halogen free is available on request

#### Product Applications

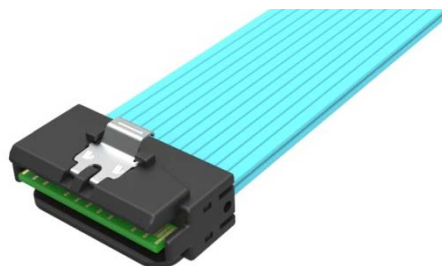
- Servers and storage devices
- High performance computing
- Data center & networking equipment
- Wireless base stations and radios

#### Industry Standards

- SAS 3.0 / 4.0
- PCIe Gen 3 / Gen 4
- 56GT/s PAM-4
- 25G Ethernet

#### Technical Documents

Product Specification: PS-AST-0956 SlimSAS LP Cable Assembly



## SlimSAS LP Cable Assemblies

### Plug Part Numbers

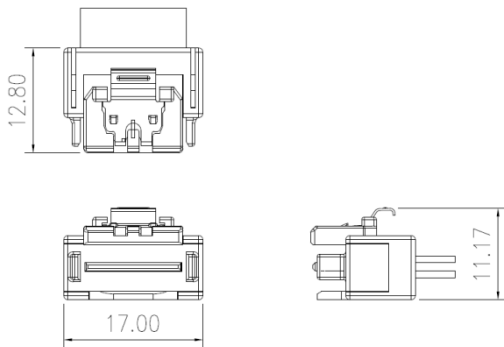
Table 1. Cable Connector Part Number Selection Guide

Part Description	Impedance	Bulk Cable	38position	74 position	124 position
			Plug Part Number		
Straight Plug	85	Discrete pairs or Ribbon Cable	AST8654-0038-11	AST8654-0074-23	AST8654-0124-02
Right Angle plug	85	Discrete pairs or Ribbon Cable	AST8654-0038-09	AST8654-0074-26	AST8654-0124-01
Right Side Exit Plug	85	Discrete pairs or Ribbon Cable	AST8654-0038-14	AST8654-0074-20	AST8654-0124-03
Left Side Exit Plug	85	Discrete pairs or Ribbon Cable	AST8654-0038-13	AST8654-0074-19	AST8654-0124-04

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

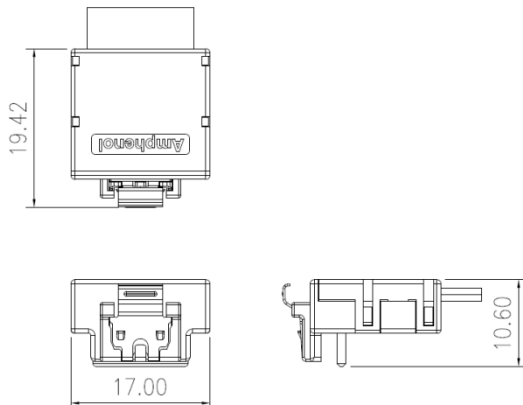
#### AST8654-0038-11:

38 pos.(4X/6X) straight



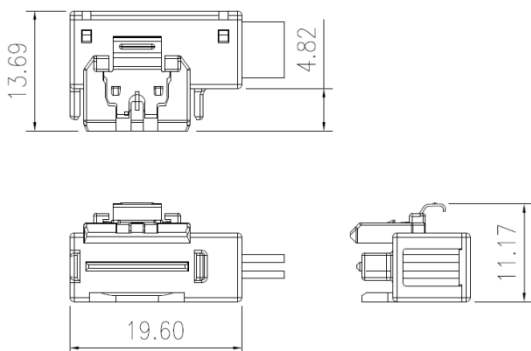
#### AST8654-0038-09:

38 pos.(4X/6X) right angle



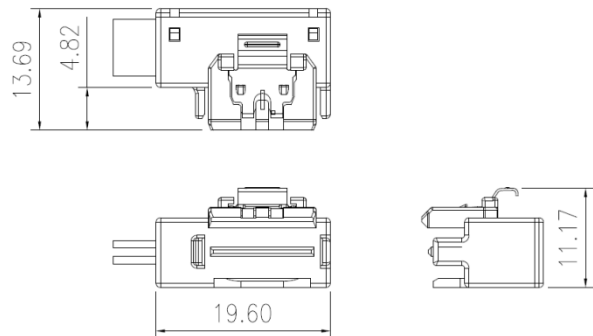
#### AST8654-0038-14:

38 pos.(4X/6X) right side-exit



#### AST8654-0038-13:

38 pos.(4X/6X) left side-exit



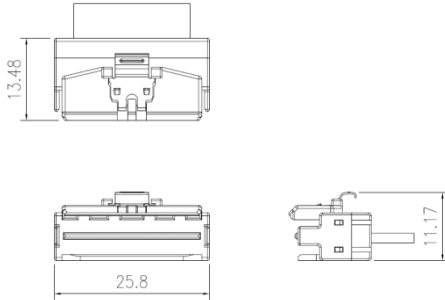
Note: the above dimensions proportion is off.

## Mini Cool Edge IO (MCIO) Cable Assemblies

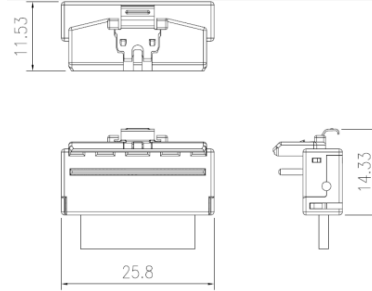
### Part Numbers

#### Cable Connector Part Number Selection Guide

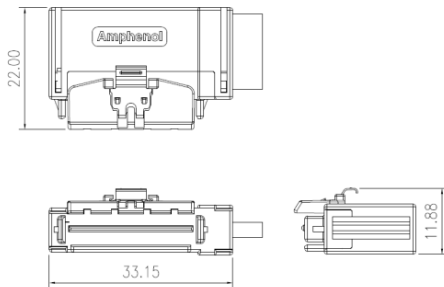
**AST8654-0074-23:**  
74 pos.(8X/12X) straight



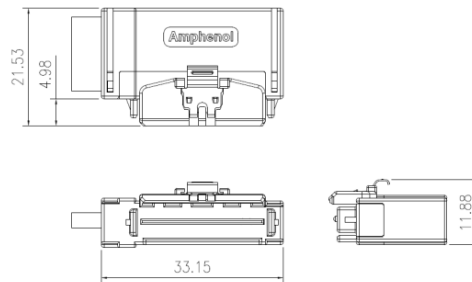
**AST8654-0074-26:**  
74 pos.(8X/12X) right angle



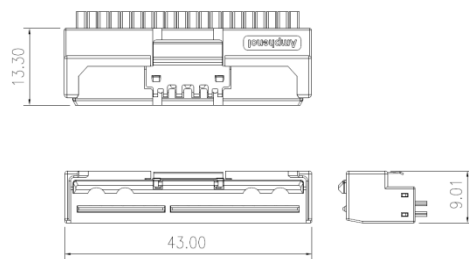
**AST8654-0074-20:**  
74 pos.(8X/12X) right side-exit



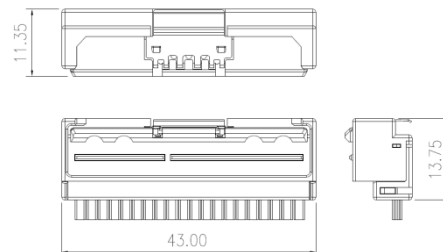
**AST8654-0074-19:**  
74 pos.(8X/12X) left side-exit



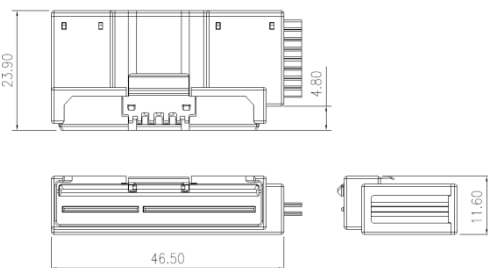
**AST8654-0124-02:**  
124 pos.(16X/20X) straight



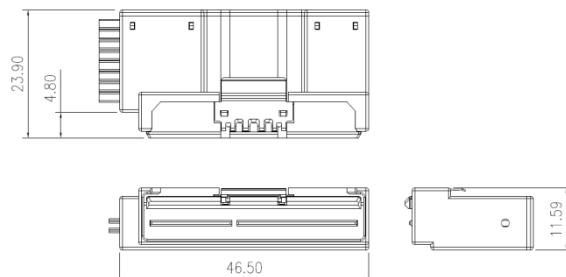
**AST8654-0124-01:**  
124 pos.(16X/20X) right angle



**AST8654-0124-03:**  
124 pos.(16X/20X) right side-exit



**AST8654-0124-04:**  
124 pos.(16X/20X) left side-exit



Note: the above dimensions proportion is off.

## SlimSAS LP Cable Assemblies

### 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**

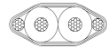
<b>Impedance</b>	85Ω, optional 100Ω for future
<b>Data Rate</b>	56GT/s per channel
<b>Within Pair Skew</b>	Max. 10 ps/m
<b>Rated Voltage</b>	30V
<b>Rated Current</b>	1A per pin
<b>Durability</b>	250 mating cycles
<b>Mating force</b>	38 pos = 21N Max.
	74 pos = 31N Max.
	124 pos = 67N Max.
<b>Wrenching 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 LP 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:**

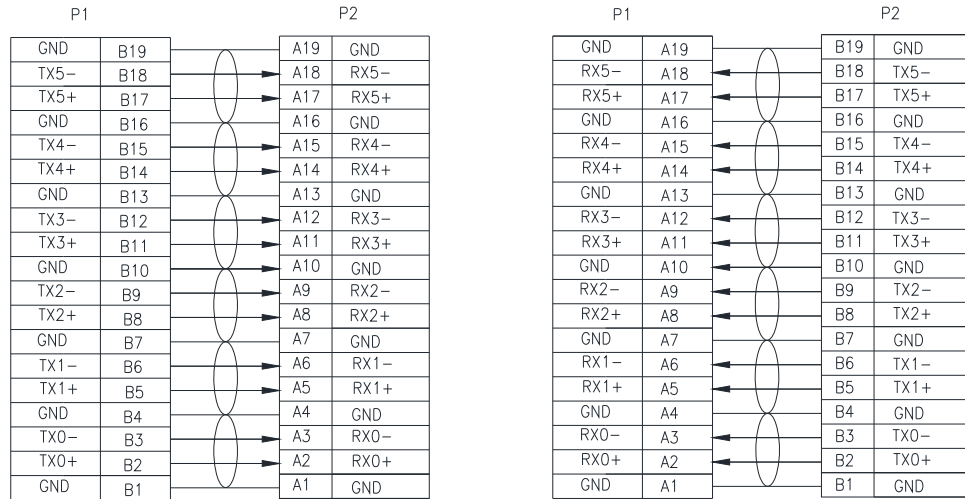
Conductor is solid copper for discrete and ribbon cable.

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

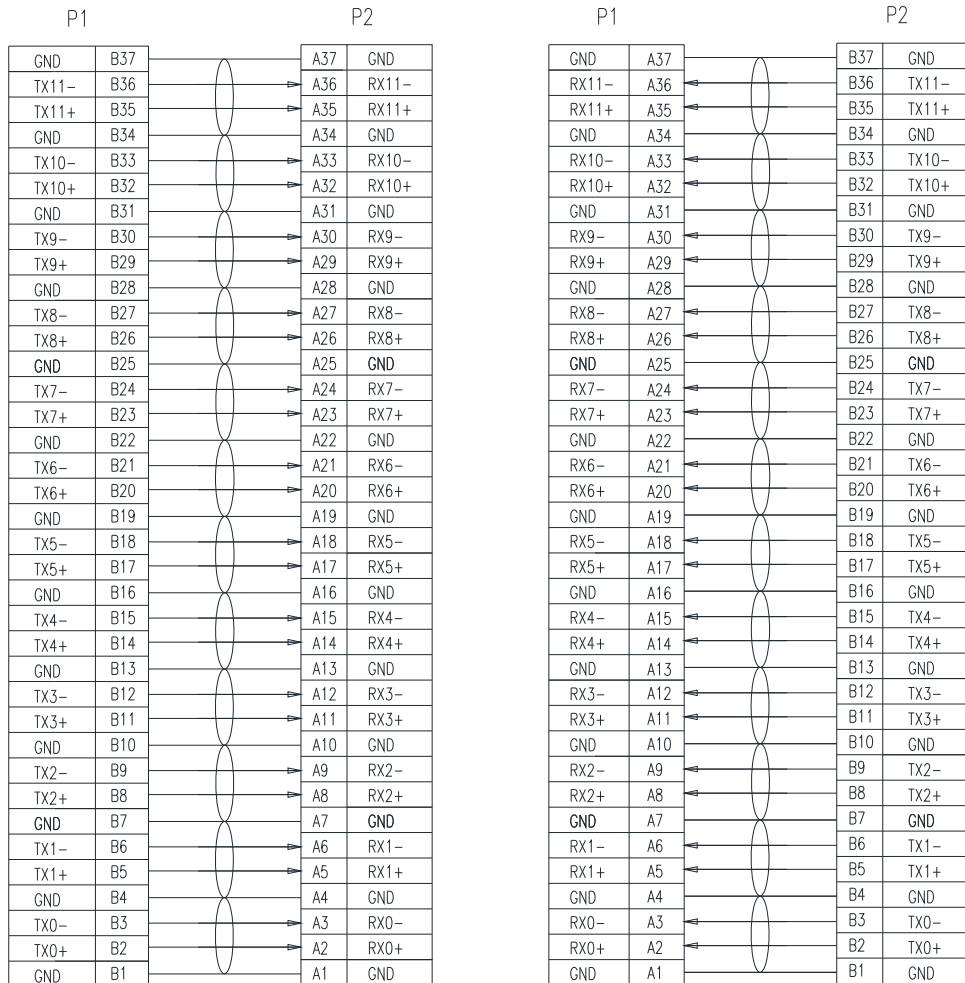
## SlimSAS LP Cable Assemblies

### Pin Configurations

#### SlimSAS LP 38 Position



#### SlimSAS LP 74 Position

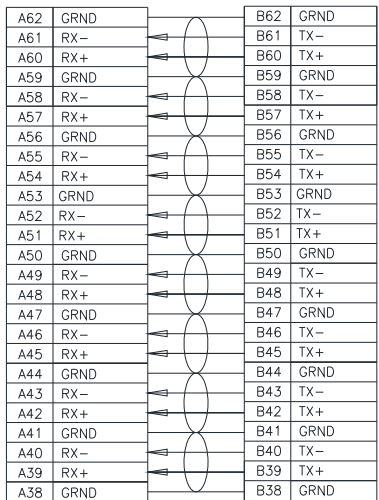
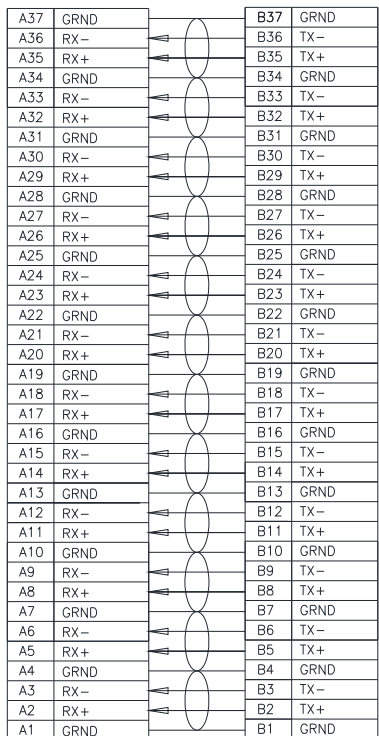
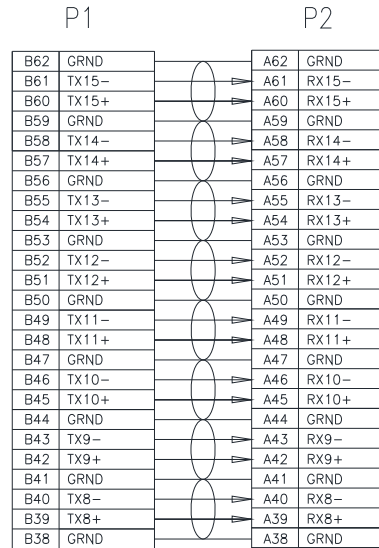
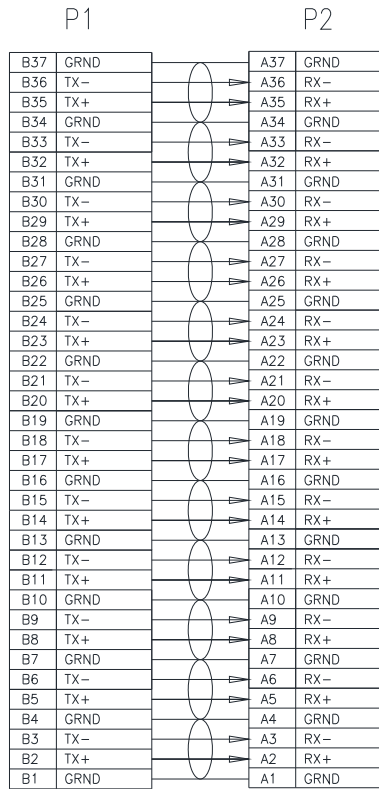


Note: P1 and P2 are connectors on both ends of cable assembly.

## SlimSAS LP Cable Assemblies

### Pin Configurations

#### SlimSAS LP 124 Position



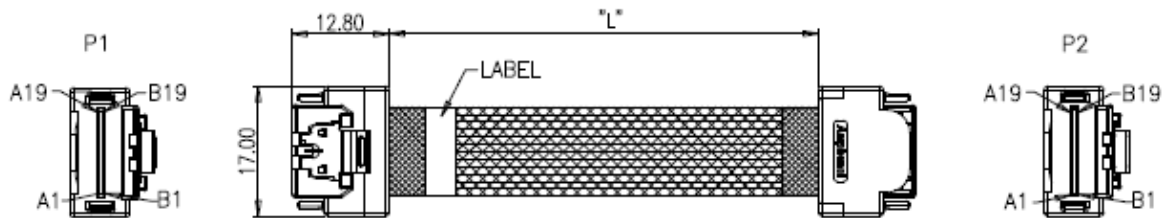
Note: P1 and P2 are connectors on both ends of cable assembly.



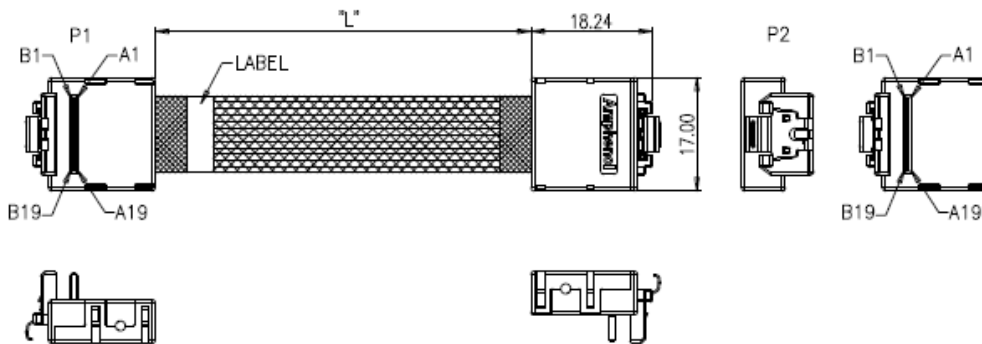
## SlimSAS LP Cable Assemblies

### SlimSAS LP CABLE ASSEMBLY MECHANICAL SCHEMATICS

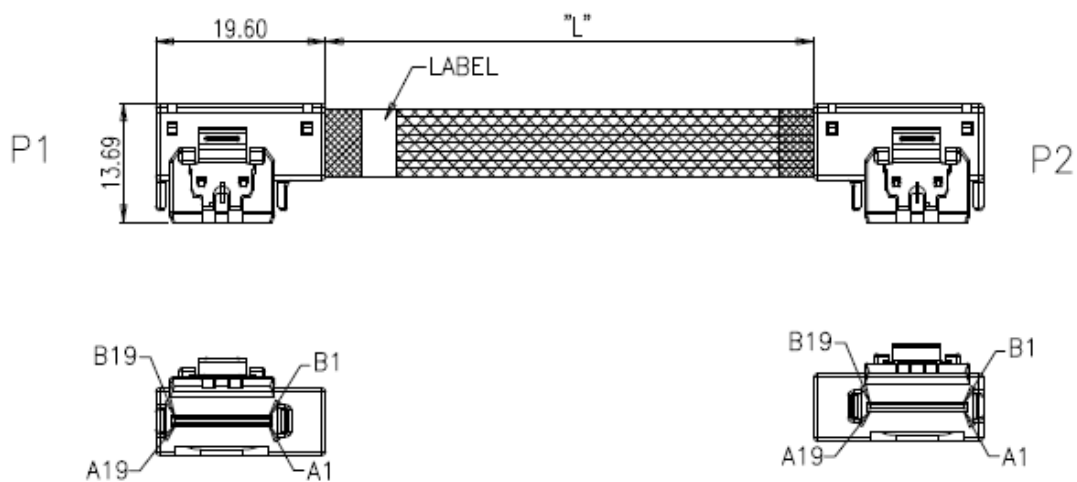
#### SlimSAS 38 Position Straight to Straight Cable Assembly



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

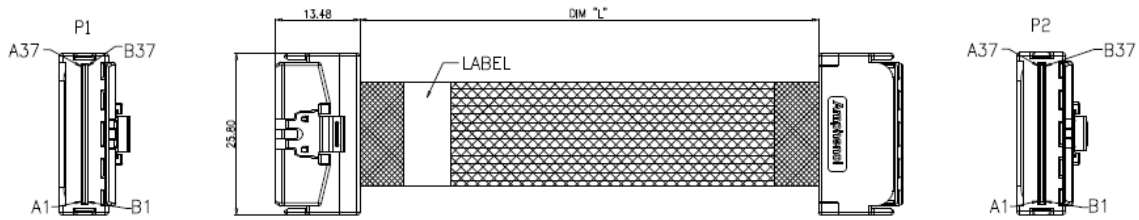


#### SlimSAS LP 38 Position Right Side Exit to Left Side Exit Cable Assembly

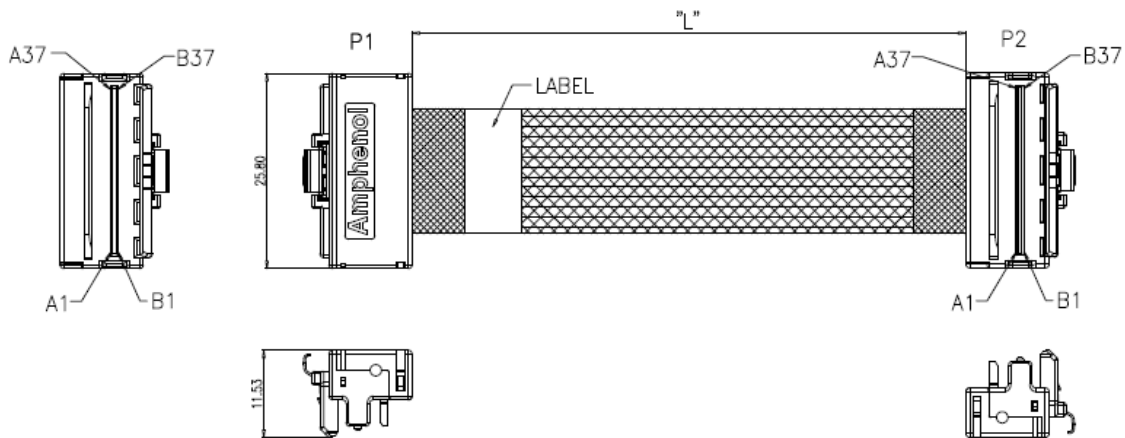


## SlimSAS LP Cable Assemblies

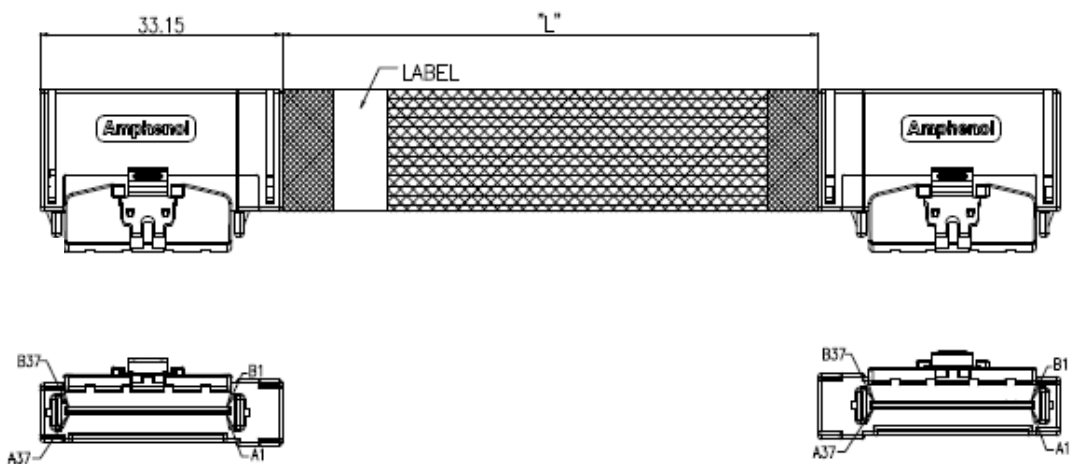
### SlimSAS 74 Position Straight to Straight Cable Assembly



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



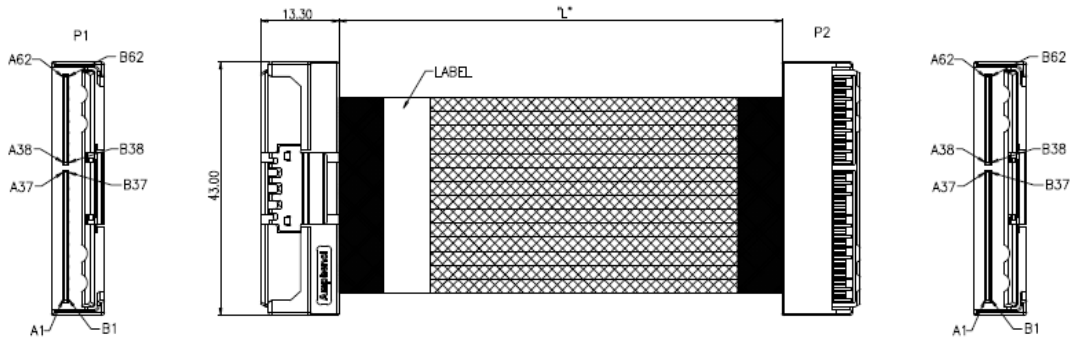
### SlimSAS 74 Position Right Side Exit to Left side Exit Cable Assembly



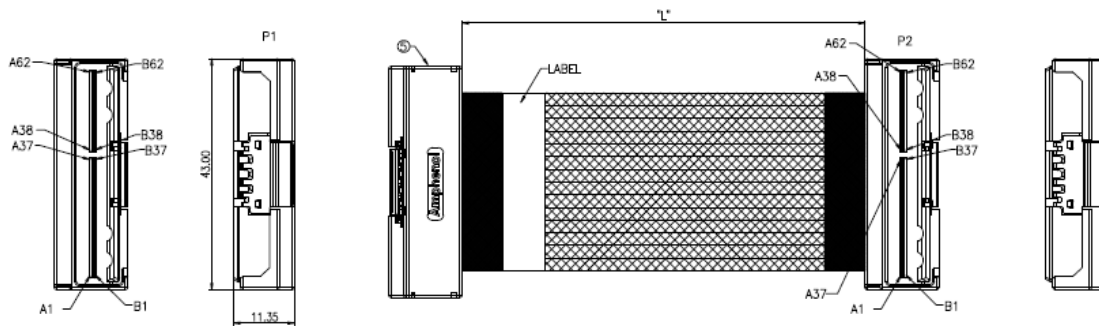
## SlimSAS LP Cable Assemblies

### SlimSAS LP CABLE ASSEMBLY MECHANICAL SCHEMATICS

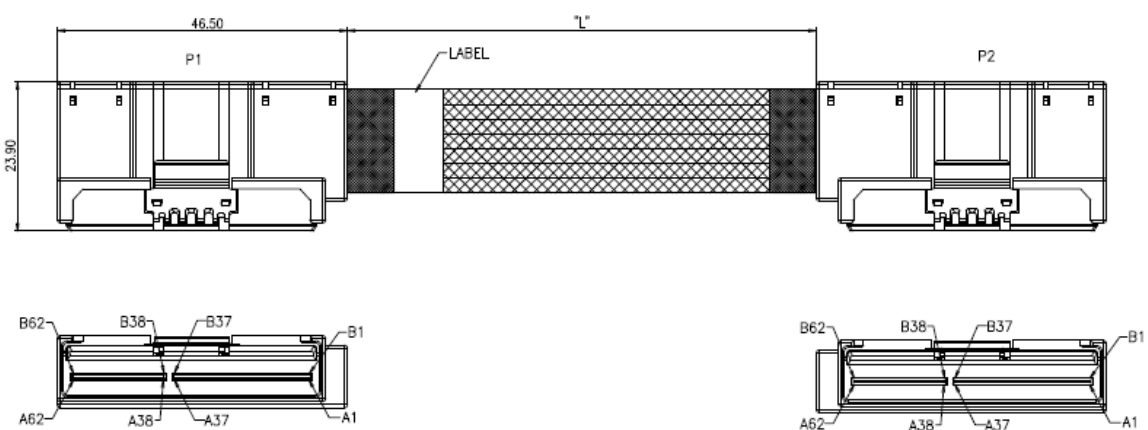
#### SlimSAS 124 Position Straight to Straight Cable Assembly



#### SlimSAS 124 Position Right Angle to Right Angle Cable Assembly



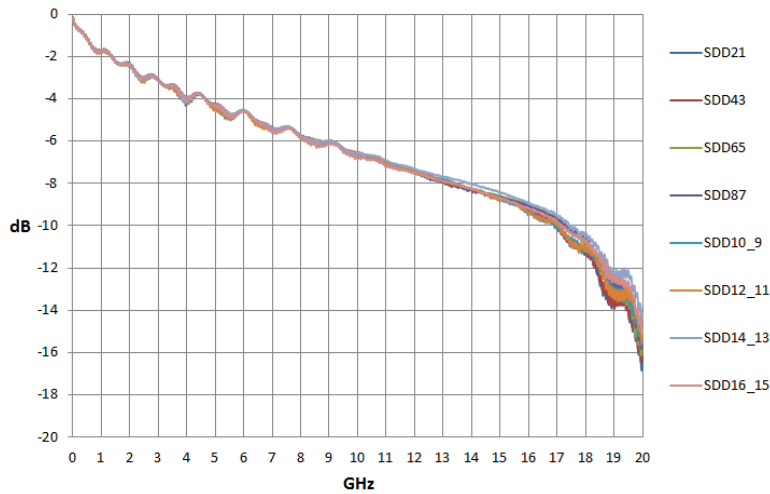
#### SlimSAS 124 Position Right Side Exit to Left Side Exit Cable Assembly



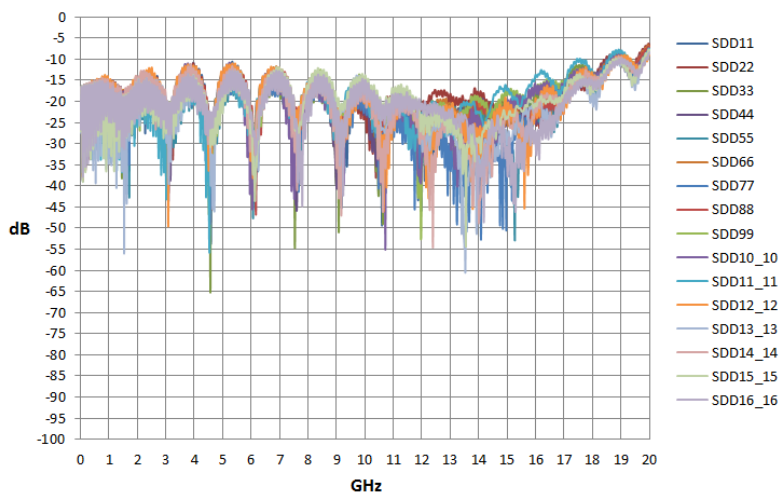
## SlimSAS LP Cable Assemblies

### Signal Integrity Performance

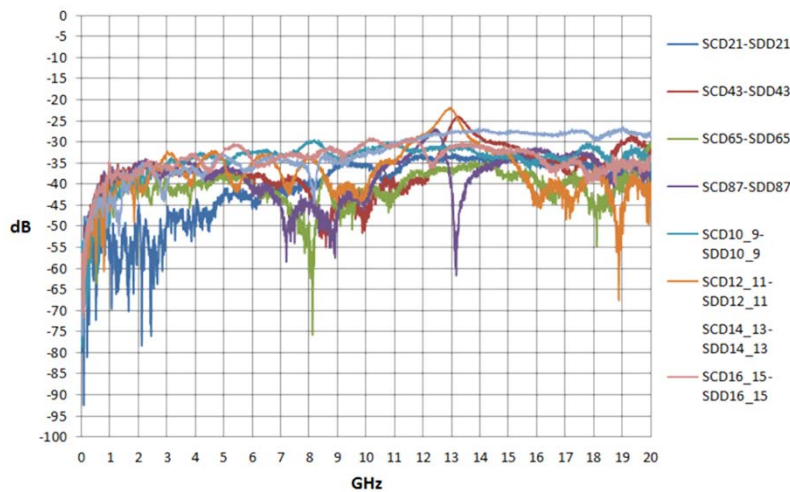
Insertion Loss (SDD21) of 1m 30AWG 85 Ohm SlimSAS LP



Return Loss (SDD11) of 1m 30AWG 85 Ohm SlimSAS LP

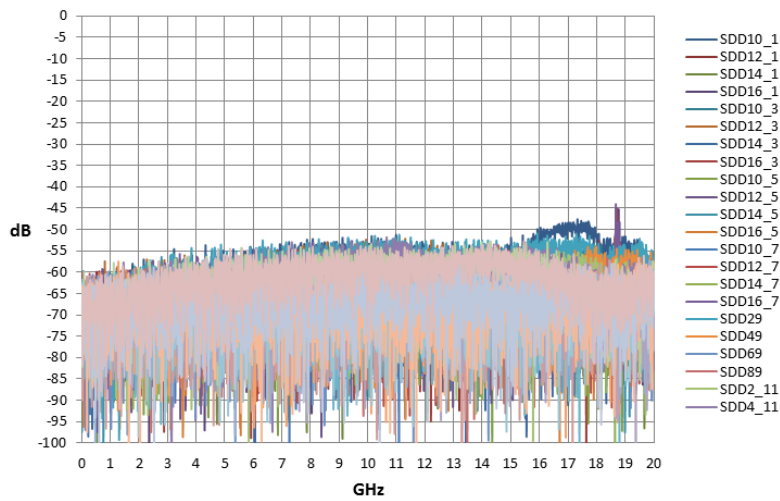


SCD21-SDD21 of 1m 30AWG 85 Ohm SlimSAS LP

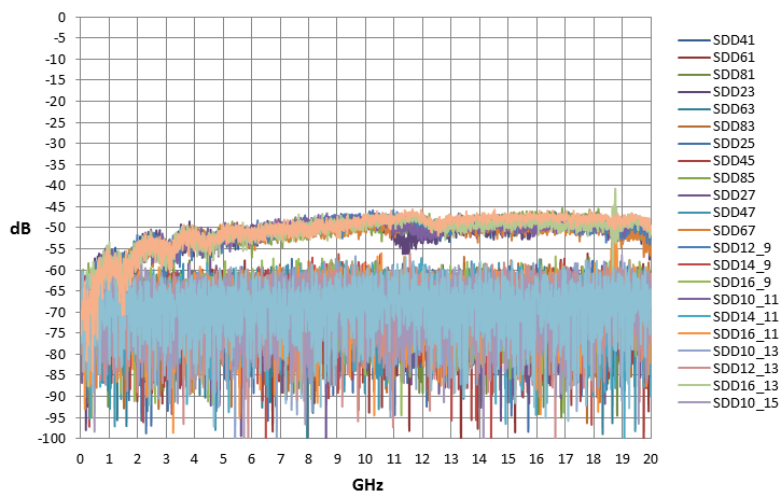


## SlimSAS LP Cable Assemblies

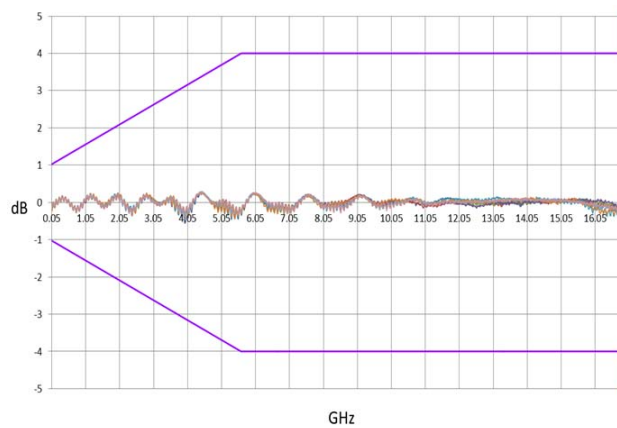
**NEXT of 1m 30AWG 85 Ohm SlimSAS LP**



**FEXT of 1m 30AWG 85 Ohm SlimSAS LP**

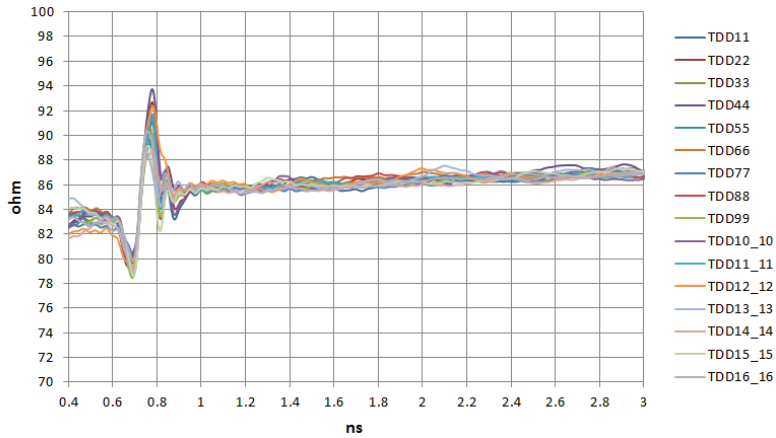


**ILD of 1m 30AWG 85 Ohm SlimSAS LP**



## SlimSAS LP Cable Assemblies

### Differential Impedance @ $T_r=25ps(20\%-80\%)$ of 1m 30AWG 85 Ohm SlimSAS LP



**Note:**

1. Please visit our website <http://www.amphenol-ast.com/V3/en/product.aspx?classId=212> 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.