



# NPS LV cables proposal 2021/06/12

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#### Voltage divider PCB option 1







### Voltage divider PCB option 2





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#### LV cable route ?

Simplified representation of the cables bundles





One solution was to bend the cable toward the Top of the box just after the voltage divider and connect the cables on a patch pannel at the top

Solution not validated because if we want to replace a PMT block we can't get it out due to the cable bundle

So the best solution is to route the cables toward the back of the interface PCB (next slide)



### LV cable route ?





What cables ?









## Accessibility for dismounting





If we have to replace a PMT, we slide the vertical PCBs by 15cm and unscrew PMT block : 567 mm is enough for access









# Low Voltage cables









#### Points to validate:

- 1. 20-mm extension of voltage divider PCB
- 2. Ribbon cable between divider and extension PCB
- 3. LV connectors on the outer side of the NPS box

#### Additional parts to manufacture:

- 1. New voltage dividers (JLab)
- 2. Extension PCBs
- 3. Patch panel PCB (top of the box)
- 4. 1080 ribbon cables (crimping of the connectors)
- 5. 30 coax cables (PCB to top of the box)

Product Specification

Sales Drawing

# Picoflex ribbon cable reference

This document was generated on 09/30/2020 PLEASE CHECK WWW.MOLEX.COM FOR LATEST PART INFORMATION

Part Number: 0923150650   Status: Active   Overview: Picoflex Ribbon-Cable Co   Description: Picoflex PF-50 IDT-to-Pico   500.000mm Length, Tin (;		<u>ectors</u> ex PF-50 IDT Off-the-Shelf (OTS) Cable Assembly, Plating, 6 Circuits	nnn
Documents: 3D Model Drawing (PDF) Product Specification PS-990	)20-0011-001 (PDF)	Datasheet (PDF) RoHS Certificate of Compliance (PDF)	Series image - Reference only
Application tooling port line			Conce image - Reference only
Application Tooling Part Link Application Tooling Part Link	(	62100-6000 62100-6010	EU ELV Not Relevant
General Product Family Series		Cable Assemblies 92315	EU RoHS China RoHS Compliant REACH SVHC
Assembly Configuration Connector to Connector Overview		Dual Ended Connectors Picoflex IDT-to-IDT Picoflex Ribbon-Cable Connectors	Not Contained Per - D(2020)4578-DC (25 June 2020)
Product Name Type UPC		Picoflex Ribbon Cable Assembly 800756453804	Halogen-Free Status Not Low-Halogen
Physical			For more information, please visit Contact
Cable Length		500.00mm	China ROHS Green Image
Circuits (Loaded)		6	ELV Not Relevant
Color - Resin		Natural	RoHS Phthalates Not Contained
Gender		Female-Female	
Lock to Mating Part		None	
Material - Metal		Phosphor Bronze	Search Parts in this Series
Material - Plating Mating		l in Ti-	92315 Series
Material - Plating Termination	1	l In Belvester	
Net Weight		6 300/a	Mates With
Number of Rows		2	Picoflex PF-50 Header 90325, 90800
Packaging Type		Bag	90779,90715,90814
Pitch - Mating Interface		1.27mm	
Plating min - Mating		2.032µm	Application Tooling   FAQ
Plating min - Termination		2.032µm	Tooling specifications and manuals are
Single Ended		No	found by selecting the products below.
Termination Interface: Style		IDT or Pierce	Crimp Height Specifications are then
Waterproof / Dustproof		No	contained in the Application Tooling
Wire Insulation Diameter		N/A	Specification document.
Wire Size AWG		28	Global
Wire/Cable Type		PVC, Ribbon Cable	Description Product # Extractor Tool for 621006000
Electrical	1	4.04	Connectors
Current - Maximum per Conta	ACI	1.ZA	, L
Voltage - Maximum		250\/	
vollage - maximum		2004	
Material Info			
Reference - Drawing Numb	ers		

PS-99020-0011-001

SD-92315-001

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Vertical chaining with flat cable option



In this option , each column is chained up and down by 18 serial connectors





Middle of one column



## Vertical chaining with flat cable option





Global cabling possible Avantage : shorter cabling than precedently but ...





## Vertical chaining with flat cable option



Laboratoire de Physique des 2 Infinis



Need a very small connector, easy to connect and disconnect (This kind of connector is difficult to disconnect)



May be we can use a pincet to disconnect : remember that the acces is not easy

Moreover the flat cable bending is short and have to be tested



Vertical chaining with flat cable option

Removing the PMT block if necessary seems very difficult, even if we disconnect the neighbouring connectors : only gap 9 mm between aluminum support part and PCB







Personnaly I think that this chaining option seems too difficult to be used



## 90° Vertical chaining with flat cable option

Should be ok if we find a width connector less than 9 mm and with angled pins and a narrower flat cable ...







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