

Optical Elements - PON

FPLC PLC (Planar Waveguide Circuits) splitters

02



PLC Splitters

Fibrain PLC splitters series are used for splitting of optical power. Thanks to planar technology, very high port count devices are available and the number of output ports varies from 2 up to 128. At the same time, the technology guarantees small dimensions and small loss variations in the full bandwidth 1260-1650 nm. FPLC splitters exhibit also low PDL, very good channel uniformity and excellent thermal stability. Most often, PLC splitters have nominally symmetrical split, however there are also available asymmetrical FPLC 1x5 splitters, with a single high power express output port and 4 local ports (lower power) which are dedicated for FTTH networks in rural areas.

Technical Parameters:

Characteristics of Splitters with Bare Fibers

Parameter	Unit	Specification				
		1x2	1x3	1x4	1x6	1x8
Insertion Loss (Max. S/P)	dB	4.0/3.7	6.3/6.0	7.3/7.1	9.5/9.1	10.7/10.5
Uniformity (Max. S/P)	dB	0.8/0.6	0.6/0.1	0.6/0.5	0.8/0.7	1.0/0.8
PLD (Max. S/P)	dB	0.2/0.15	0.2/0.2	0.2/0.2	0.2/0.2	0.3/0.3
Return loss/Directivity	dB	>=55				
Operating Wavelength	nm	1260 -1650				
Operating Temperature	°C	-40 to +85				
Optical Fiber	-	Bend Insensitive Fiber				

Parameter	Unit	Specification					
		1x12	1x16	1x24	1x32	1x64	1x128
Insertion Loss (Max. S/P)	dB	12.5/12.4	13.8/13.7	-	17.0/17.0	20.5	-
Uniformity (Max. S/P)	dB	1.1/1.0	1.2/1.0	-	1.3/1.1	2.0	-
PLD (Max. S/P)	dB	0.3/0.3	0.3/0.3	-	0.3/0.25	0.3	-
Return loss/Directivity	dB	>=55					
Operating Wavelength	nm	1260 - 1650					
Operating Temperature	°C	-40 to +85					
Optical Fiber	-	Bend Insensitive Fiber					

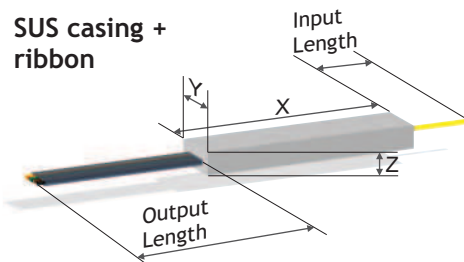
Applications:

- telecommunication networks,
- CATV networks,
- Fiber to the Home (FTTH) networks.

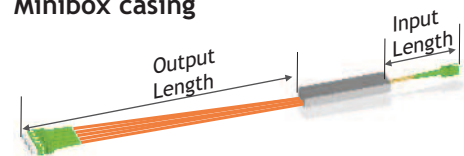
Features:

- low insertion loss,
- good uniformity,
- very wide spectrum,
- compact casings,
- low macrobending losses due to G.657A fiber,
- low PDL,
- suitable for uncontrolled environment.

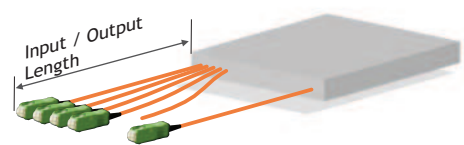
SUS casing + ribbon



Minibox casing



Blackbox casing



Casing:

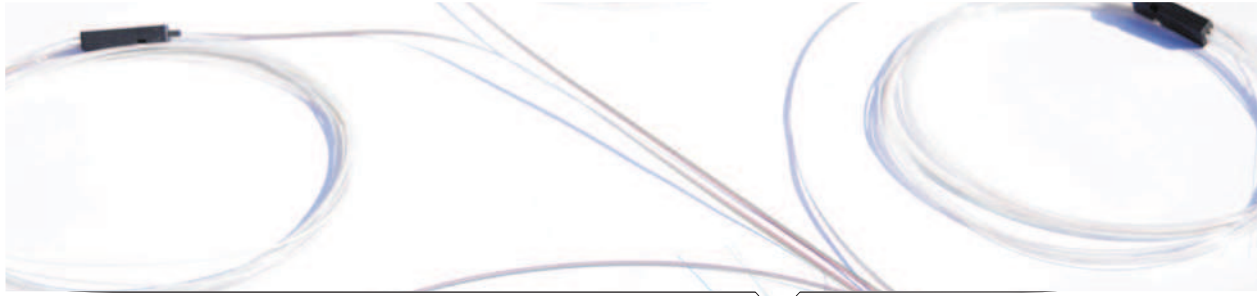
SUS stainless steel box. Output - ribbon 250 µm						
Type	1x2, 1x3, 1x4, 1x5, 1x6, 1x8, 1x12, 1x16, 2x2	2x4, 2x8	1x32	1x64	2x16	2x32
Material	Stainless steel (SUS)					
Dimensions (mm)	40x4x4	50x7x4	55x7x4	58x12x4	60x5x4	60x7x4
SUS minibox. Output - loose tube 900 µm						
Type	1x2, 1x3, 1x4, 1x5, 1x6, 1x8	2x2	1x16	1x32	1x64	
Material	Stainless steel (SUS)					
Dimensions (mm)	55x7x4	60x7x4	60x12x4	80x23x4.5	100x48x4.5	
Fibers & tubes	Output fibers in 900 µm Hytrel, white, loose tube.					
ABS blackbox. Output - cable 2.0 mm or 3.0 mm						
Type	1x2, 1x3, 1x4, 1x6, 1x8, 1x12, 1x16, 1x32, 1x64, 2x2, 2x4, 2x8, 2x16, 2x32					
Material	ABS					
Dimensions (mm)	100x75x20					
Fibers & tubes	Output fibers in 2.0 mm or 3.0 mm, PVC, yellow cable.					

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Fiber Optical Cables
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FPLC Splitters PLC (Planar Wave Circuit)



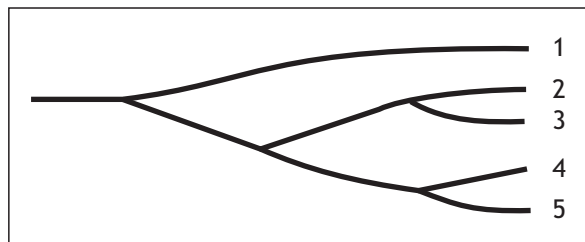
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Color of Fiber:								
Ribbon Fiber can be distinguished each fiber by using method of coloring								
Channel (Output)	Fiber Number							
	1	2	3	4	5	6	7	8
4ch Ribbon Fiber	Blue	Yel.	Gre.	Red	-	-	-	-
8ch Ribbon Fiber	Blue	Yel.	Gre.	Red	Oran.	Viol.	Bro.	Bla.
Channel (Input)	Fiber Number							
	1				2			
1ch	Clear				None			
2ch	Blue				Clear			

Output ribbon fiber Configuration:				
Splitter Type				
1x2/2x2	1x3	1x4/2x4	1x6	1x8/2x8
1ea - 4ch Ribbon	1ea - 4ch Ribbon	1ea - 4ch Ribbon	2ea - 4ch Ribbon	1ea - 8ch Ribbon & 2ea - 4ch Ribbon
1x12	1x16/2x16	1x32/2x32		1x64
2ea - 8ch Ribbon	2ea - 8ch Ribbon	4ea - 8ch Ribbon	8ea - 8ch Ribbon	

Splitter FPLC 1x5

Fibrain FPLC 1x5 splitters are dedicated for FTTH networks in rural areas. In contrast to standard symmetrical PLC splitters, the 1x5 splitters are asymmetrical, and have a high power (low loss) express port and 4 local (higher loss) ports. The 1x5 splitters are available in four different versions, with the express port carrying 75%, 67%, 50% or 5% of the total input power.



Technical data				
Parameter	Max IL (port 1) [dB]	Max IL (ports 2-5) [dB]	Uniformity (ports 2-5) [dB]	Max PDL [dB]
Type				
75%/(4x6%)	2.0	15.3	0.8	0.25
67%/(4x8%)	2.7	13.6	0.8	0.25
50%/(4x12%)	4.0	10.8	0.8	0.25
5%/(4x24%)	16.6	8.0	0.8	0.25

Fibrain FPLC 1x5 asymmetric splitters, available versions:

Port 1: 75%, 67%, 50%, 5%
Ports 2-5: 6%, 8%, 12%, 24%

Fiber: 1-G652D 2-G657A 3-G657B 4-MM50 5-OM3 6-M62.5	Input fiber: 25 - 250 µm 90 - 900 µm 20 - 2.0 mm 30 - 3.0 mm	Output fiber: 1- 250 µm ribbon 2- 900 µm tube 3- 2.0 mm cable 4- 3.0 mm cable	Casing type: 1 - 40x4x4 mm 2 - 55x7x4 mm 3 - 58x12x4 mm 4 - 50x5x4 mm 5 - 60x7x4 mm 6 - 60x12x4 mm 7 - 80x23x4.5 mm 8 - 120x48x4.5 mm 9 - 100x75x20 mm			
FPLC - G0 - 1 - 14 - 90 - 0 - 2 - 1 - 2 - SC - SC	Quality: S0/S1 G0/G1 T0/T1 P0/P1	Split: 12 - 1X2 22 - 2X2 13 - 1X3 14 - 1X4 18 - 1X8 116 - 1X16 132 - 1X32 164 - 1X64 etc.	Input lenght: 0 - 0.5 MB 1 - 1.0 MB 2 - 2.0 MB	Output length: x0 - 0.5 m x1 - 1 m x2 - 2 m	Connector type: ST SC SCA FC FCA LC LCA E20 E2A x - other	Connector type: ST SC SCA FC FCA LC LCA E20 E2A x - other

FPLC-G0-1-14-90-0-2-1-11-SC-SC

Example: FPLC series splitter, G.652D fiber, 1x4 split, 900 µm tube, 0.5 m input pigtail, 1.0 m output pigtails, 55x7x4 mm minibox, SC PC connectors.