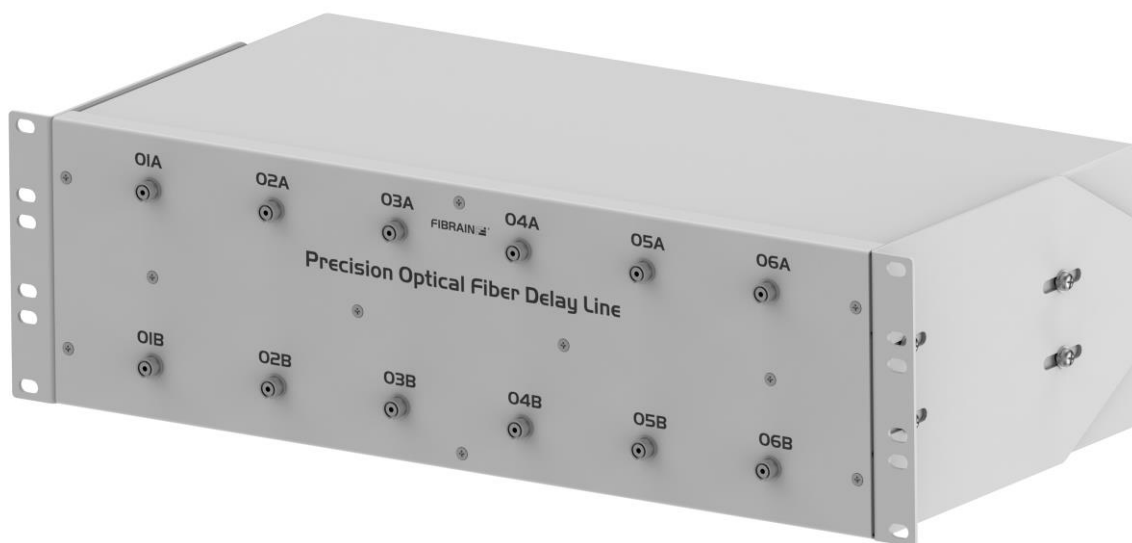


Photonics

Precision Optical Fiber Delay Line

Precision Optical Fiber Delay Lines are used in applications that demand setting exact delay of system. Delay Lines manufactured by Fibrain thanks to the use of master class connectors guarantee to obtain repeatable connections with low insertion loss. Selected fibers together with an advanced winding process guarantee extremely low optical loss of the entire line. Additionally it is possible to make a delay line in an acoustic and vibration absorbing version. Fibrain Precision Optical Fiber Delay Lines are characterized by the market-leading latency tolerance of 0.005%. As a standard delay modules are placed in 19" distribution boxes.



APPLICATION FIELDS

- ✓ Test and measurement system
- ✓ Laser spectroscopy
- ✓ Optoelectronic oscillators
- ✓ Quantum optics
- ✓ Optical gyroscopes

FEATURES AND ADVANTAGES

- ✓ Delay of line customized to customer requirements
- ✓ Use of master class optical connectors, optical fiber with low attenuation and precise winding technology guarantees low insertion loss of line
- ✓ Extremely high delay accuracy
- ✓ Available in an acoustic and vibration absorbing version

TECHNICAL SPECIFICATION:

Optical fiber parameters ¹			
Parameter	Unit	Value	Comment
Fiber type	-	G.657A2	Other type of fiber on request
Attenuation @1310 nm	dB/km	≤0.35	
Attenuation @1383 nm	dB/km	≤0.34	
Attenuation @1490 nm	dB/km	≤0.23	
Attenuation @1550 nm	dB/km	≤0.21	
Attenuation @1625 nm	dB/km	≤0.23	
Mode field diameter (MFD) @1310 nm	µm	8.8 ± 0.4	

Photonics

Mode field diameter (MFD) @1550 nm	μm	9.8 ± 0.5	
Optical connectors parameters			
Maximum insertion loss IL	dB	≤ 0.1	Measure at wavelength 1310, 1550 nm
Minimum return loss RL	dB	≥ 65 (APC), ≥ 55 (UPC)	
Concentricity	μm	≤ 0.3	
Longitudinal angle of the ferrule hole	°	≤ 0.2	
Apex offset	μm	≤ 30	
Fiber height	nm	-30 – +30	
Radius of curvature	mm	7-12 (APC), 10-20 (SC UPC), 7-25 (LC UPC)	
Polishing angle	°	8 ± 0.3 (APC), 0 ± 0.2 (UPC)	

¹ Full datasheet of optical fiber available on request

Standard specifications ²			
Nominal length [km]	Maximum insertion loss ³ [dB]	Typical delay [μs]	Delay tolerance [%]
1	0.41	5	0.005
2	0.62	10	
5	1.25	25	
10	2.30	50	
15	3.35	75	
20	4.40	100	
25	5.45	125	
50	10.70	250	

² Other lengths available on request

³ Insertion loss with optical connectors at 1550 nm wavelength

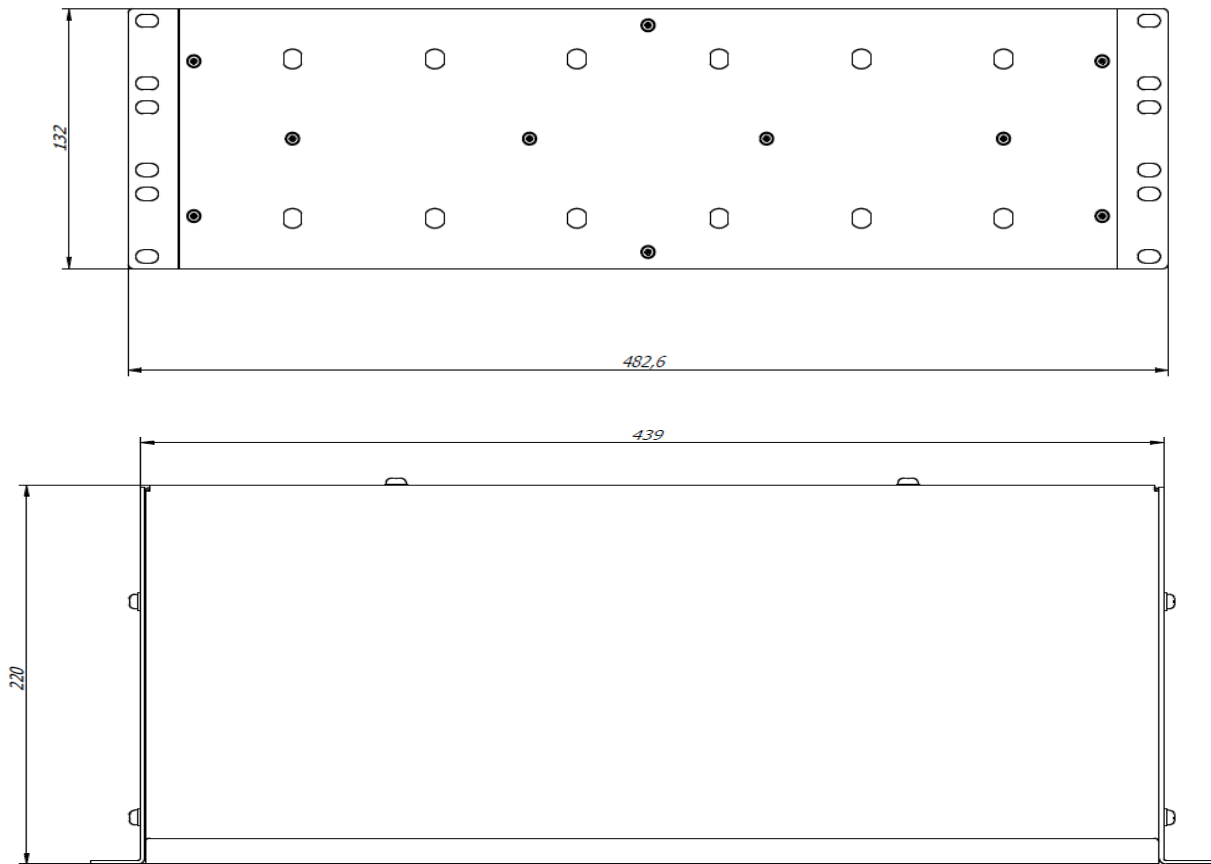
EXAMPLE OF AVAILABLE HOUSINGS ⁵:

Distribution box 19" 3U equipped with 6 spools of a capacity up to 3 km of optical fiber



Type:	Precision Optical Fiber Delay Line	REV: 1.0
Date:	13/07/2021	MD
Modification:		
Reference:	FPODL -, see ref. system below	

Photonics



⁵ Housings adapted to the number and length of delay lines

ORDERING INFORMATION:

Series	Quality	Fiber type	Delay	Number of lines	Version	Housing	Input connector	Output connector
FPODL	G0	2 - G.657A2	005 – 5 μ s	01 – 1	S – standard	10 – 19" 1U	FCA	FCA
			010 – 10 μ s	06 – 6	W – acoustic and vibration absorbing	20 – 19" 2U	FC	FC
			250 – 250 μ s	10 – 10		30 – 19" 3U	SCA	SCA
						65 – 19" 6.5U	SC	SC
							E2A	E2A
							E20	E20
							LCA	LCA
							LC	LC

Examples of references:

FPODL-G0-2-250-01-S-65-FCA-FCA – Fibrain Precision optical fiber delay line, distribution box 19" 6.5U, delay 1x 250 μ s, standard version, optical fiber G.657A2, connectors FC/APC.

FPODL-G0-2-015-06-W-30-FCA-FCA – Fibrain Precision optical fiber delay line, distribution box 19" 3U, delay 6x 15 μ s, acoustic and vibration absorbing version, optical fiber G.657A2, connectors FC/APC.

Important notice
Buyer and/or user of this product has to make sure before using this product that it is suitable for the intended use. All questions of liability relating to this product are subject – in accordance with the prevailing – to the Term of Sale of the selling Fibrain subsidiary.