Low Frequency L Band Optical Delay Lines

Key Features:

- Delays 1 nanosec to 500 µsec or more
- Supports L-Band (0.5 MHz – 2.5 GHz)
- Delay accuracy <0.5%
- Customized solution; short delivery time
- Delays displayed as Time, Distance, Range, and Altitude
- High dynamic range
- Embedded LNA and step attenuator
- NF as low as 6 dB
- Excellent Phase noise

Monitoring:

- Managed remotely by software or locally through navigation switch

ODL Configurations:

- Single Delay ODL
- Multi Delay ODL
- Progressive Variable ODL forming up to 4,096 delay combinations
- Bidirectional ODL
- Multipath ODL

Applications:

- Radar Calibration testing
- Signal and Phase Noise processing
- Extension of radar range site
- Clutter Canceler
- EW systems
- Altimeter

Options:

- Pre and Post RF Amplifiers
- Delay expansion
- RF and Optical Bypass
- Fast switching <100 µsec
- Amplitude Control
- Bidirectional ODL: 2-way signal transmission
- DC Power

RFOptic's low frequency L Band Optical Delay Line (ODL) series provides a high-performance solution for testing and calibration of radar systems or RF communication.

The Optical Delay Line (ODL) provides true time delay of wideband RF signals using low-loss optical fiber. The RF input signal is converted to an optical signal, delayed by one or more single-mode optical fiber sections and is converted back into RF signal at the output.

The ODL can be configured to form up to 4,096 delays using up to 12 predefined time delay values in a single ODL unit.

As listed on the left, RFOptic provides various Optical Delay Line configurations that can all support from 1 nanosec up to 500 µsec; longer delays can be provided upon request.

Each RFOptic Optical Delay Line operates as a standalone unit with no need for any intervention by the operator. It can be managed remotely by software or locally through a navigation switch and LCD display.

RFOptic's Optical Delay Line solutions offer accurate time delays and with an ultra-silent operation.

RFOptic ODL provides investment protection by allowing the addition of external spool(s). Additional options include RF and optical bypass and very fast switching (up to 10 µsec), amplitude control, dual ODL (2-way signal), and DC power (for e.g., altimeter applications).

RFOptic's Mini ODL solution offered in a compact, robust enclosure is recommended when a few short delays up to 15 µsec are required.

RFOptic's Optical Delay Lines are used in a wide range of EW applications such as Radar and altimeter testing, calibration, simulation.

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Low Frequency L Band Optical Delay Line

Electrical	Unit	Typical Specification
Frequency Range [1]	GHz	0.0005 - 2.5
Delay Range [2]	µsec	0.001 to 500
Delay Steps		Up to 4,096 delay steps
Delay Accuracy [3]	%	0.5
Delay Repeatability at +/- 5 0C variations	%	0.05
Switching time	ms	10
1dB Compression Point Range	dBm	0 to -33
SFDR Range	$dB/Hz^{2/3}$	105
Gain Flatness	dB	±2.5
Noise Figure Range	dB	2.5 to 27
Maximum Input No damage	dBm	20
Spurious	dBm	-80
Phase Noise at 6 GHz at 10KHz offset	dBc/Hz	-130
VSWR Input / Output	dBm	< 2:1
Input / Output impedance	Ohm	50
Optical and Electrical		
Main AC Supply	VAC	220/110
RF Connectors		SMA
Fiber Connectors [4]	-	FC/APC or SC/APC
Control – Manual (front panel)		Navigation Switch
Control – Remote (rear panel)		USB
Mechanical and "Environmental Parameters		
Operating Temperature	C°	0 to +60
Storage Temperature	C°	-45 to +85
19" Rack Mounting	3U	440*500*133

[1] Other frequencies upon request
[2] Other ODL upon request.
[3] Down to 1 µsec.
[4] For external fiber spools.

To order or for more information, please contact your local RFOptic distributor or send an email to sales@rfoptic.com

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