



Applications:

- Radar Calibration & Testing
- Signal & Phase Noise Processing
- Extension of radar range site
- RF Communications Links & Antenna remoting

Key features:

- Suitable for L,S,C,X,Ku bands
- Up to 15 usec single delay line
- DC Supply
- Compact Ruggedised enclosure
- Low cost Solution

RFOptic's optical delay line ODL series provide a high performance solution for testing and calibration of radar systems or for RF Communication. The ODL converts analog RF signals at different frequency ranges to optical signals and back, utilizing direct or indirect modulation ODL architecture. The RF input signal is converted into an optical modulated signal, which is then transmitted into a single mode fiber, creating a fixed time delay defined by the fiber length. After passing the fiber, the optical signal is converted back into an electrical RF signal, which is identical to the input RF signal.

The ODL is operated as a standalone unit with no need for any intervention by the operator - it can be also controlled externally from a PC through RS232 or Ethernet interfaces.

RFOptic's ODL unit is a compact solution, which provides superb performance including accurate time delay, low spurious emission level, and with ultra silent operation. The ODL can be purchased with an integral switch unit supporting up to 8 predefined time delay values in one ODL unit.

For some applications, RFOptic offers MINI ODL solutions up to 6 GHz based on direct modulation. Mini ODL is offered also 0.1-18 GHz on indirect modulation basis. Typical parameters are presented below here.

Table below describes the typical specifications ODL .

Parameter	Unit	Specifications	Note
RF and Electrical			
Method		Direct Modulation	Indirect Modulation
Frequency bands	GHz	Up to 6GHz	0.1 - 18 GHz
Gain [1]		>0	-30
Delay Lines	µsec	≤ 15	<15
Delay Accuracy [2]	%	1%	1%
Delay Repeatability	%	0.1%	0.1%
1dB compression point (maximum linear)	dBm	0	15
Min input RF	dBm	≤ -70	≤ -80
Max input RF power no damage	dBm	10	23
Noise Figure (at 2.5 8 GHz)	dB	30	40
RF Flatness for all bands [3]		<±2.5	<±3.0
VSWR	-	2:1	2:1
Impedance	Ohm	50	50
Mechanical			
1310 nm laser optical power (CW) For the signals and 1550 for the comm	mW	<5	<20
RF connectors	-	SMA	SMA
Main AC supply	VDC	5	5
Enclosure	mm	226*160*72	226*160*72
Operating Temperature	°C	0 - 60	0 - 60
Storage Temperature	°C	-40 - 85	-40 - 85

- (1) Can be adjusted with pre/post amplifiers.
- (2) Delay accuracy not less than 25 ns for short delays.
- (3) Additional ±0.5 dB deviation is considered within spec.