



Applications:	Key features:
Radar Calibration & Testing	Delays: 0.1-255 μ sec (Progressive), special request >300 μ sec.
Signal & Phase Noise Processing	Frequency Range: 1 to 15 GHz
Extension of radar range site	Delay accuracy: 0.5%
Clutter Canceler	Remote Control: RS-232 or Ethernet
BIT (built-in test)	High Dynamic Range
EW Systems - Jammers	Variety of configurations
Path Delay Simulation	

Options
Progressive ODL with multiple delay
Delay accuracy of 0.1%
RF Bypass (Option)
Dispersion Compensator for long delay line
Various Gain
Control RS-232 or Ethernet



RFOptic's optical delay line ODL series provides a high-performance solution for testing and calibration of radar systems, or for RF communication. The ODL converts analog RF signals to optical signals and back. 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 through the fiber, the optical signal is converted back into an electrical RF signal, which is identical to the input RF signal.

Any fixed time delay between 0.1 and 300 μ sec can be provided to customers. The Optical Delay Line 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 various communication user interfaces. RFOptic's ODL unit is a compact solution, which provides superb performance including accurate time delay and with an ultra-silent operation.

The table below describes the typical specifications ODL 15 GHz Progressive:

Parameter	Unit	Specifications	Note
Frequency range	GHz	1 - 15	Can be customized for 1 to 8/12/15GHz
Progressive ODL	8 main states	1,2,4,8,16,32,64,128	256 = 2 ⁸ states, 1 μsec step
Delay time [1]	μsec	1-255	1 μsec step
Zero Internal delay	μsec	≤ 60	
Delay accuracy of 8 main delays [3]	%	0.5	
Delay repeatability	%	<0.01	at +/- 5° variations
System RF gain	dB	0 ± 3	
Automatic Gain Control	dB	± 2	
Noise Figure at 4 GHz [7]	dB	44	Without Delay Line loss. Noise Figure can be customized as per customer requirement.
Switching Time	msec	10	
1dB Input Compression point	dBm	15	
Max input RF power	dBm	23	
Spurious [4]	dBc	≤ -80	
Phase noise (at 10kHz offset)	dBc	≤ -100	
VSWR	-	2.1:1	
Impedance	Ohm	50	
Laser diode operating wavelength	μm	1.55	
Communication [5]	-	RS-232	
RF connectors	-	SMA (F)	
Optical Connectors	FC/APC	-	
Main AC supply	VAC	220/110	
19" Rack mounting [6]	19" U	6U	
Control and Display	LCD	-	
BIT	-	Improved BIT	
Operating Temperature	C0	0-50	
(1)	Any fixed delay between 0.1 to 300 μsec is optional.		
(2)	Dispersion compensator unit for long delays is optional.		
(3)	0.1% accuracy for long delay line is optional.		
(4)	Excluding in-band harmonics.		
(5)	Ethernet is optional.		
(6)	Variety of ODL enclosures are optional.		
(7)	Custom Noise Figure and P1dB is optional.		

Part Number	Product Description
ODL-8G-S11-SWP8.	1 to 8GHz Progressive ODL with 8 state Delay (up to 255μsec Delay)
ODL-12G-S260- SWP8	1 to 12GHz Progressive ODL with 8 state Delay (up to 255μsec Delay)
ODL-15G-S264- SWP8	1 to 15GHz Progressive ODL with 8 state Delay (up to 255μsec Delay)

*Contact factory for custom specification and detailed part number