

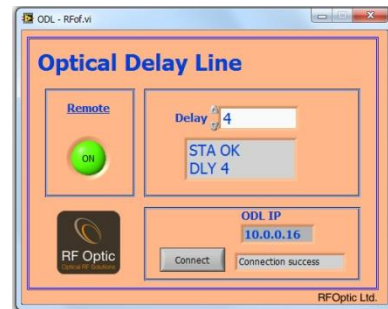
RFOptic's optical delay line ODL series provides a high performance solution for testing and calibrating radar systems, or for RF communication. The ODL converts analog RF signals to optical signals and back. The RF input signal is converted into an optical modulated signal, which is then transmitted 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.

Customers can choose from any fixed time delay between 0.1 and 300 μ sec. The Optical Delay Line is operated as a standalone unit with no need for any intervention by the operator. It can also be 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 ODL can be purchased with an integral switch unit supporting up to 8 predefined time delay values in a single ODL unit.

Applications:	Key features:
Radar Calibration & Testing	Delays: 0.1-300 μ sec (fixed), special request >300 usec.
Signal & Phase Noise Processing	Frequency Range: 1 to 40 GHz
Extension of radar range site	Delay accuracy: 0.5%
Clutter Canceler	Remote Control: RS-232 or Ethernet
BIT (built-in test) ¹²	High Dynamic Range
EW Systems - Jammers	Variety of configurations
Path Delay Simulation	

Options:
ODL with 2, 4, up to 8 switchable delays
Progressive ODL with multiple delay
Delay accuracy of 0.1%
RF Bypass
Dispersion Compensator for long delay line
Various Gain
Control RS-232 or Ethernet



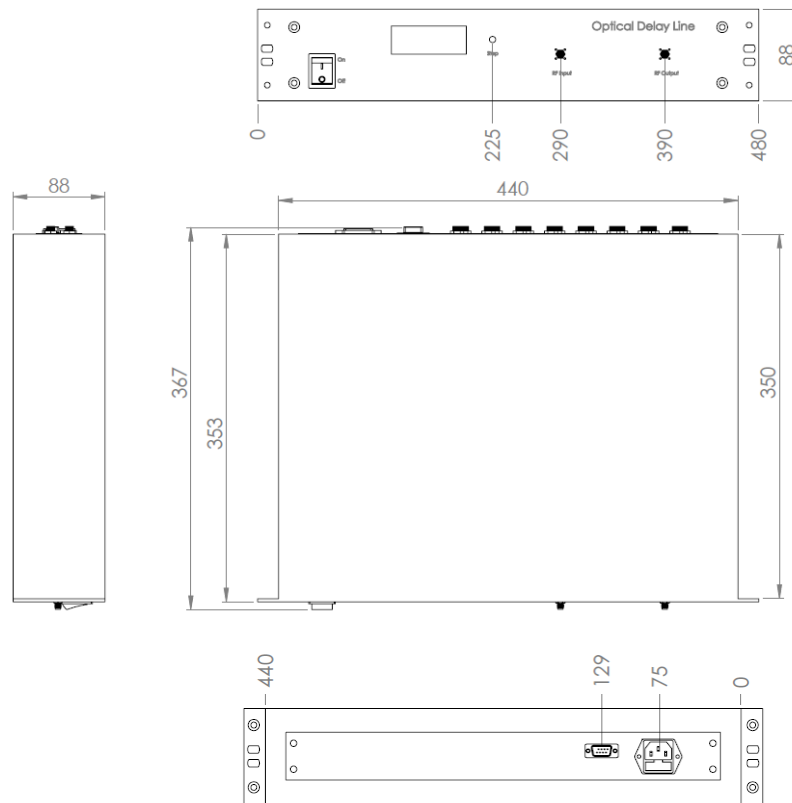
The table below describes typical ODL specifications:

Parameter	Unit	Specifications	Note
RF			
Frequency range ¹	GHz	1-40	
Delay time ^{2,3,4,5}	µsec	0.1-300	pre-fixed delay defined by customer
Delay accuracy ⁶	%	0.5	
Delay repeatability	%	<0.01	at +/- 5 °C variations
System RF gain ^{7,8}	dB	-44	Without Delay Line loss
Noise Figure with pre amp.at 20GHz ⁷	dB	≤30	Without Delay Line loss
Noise Figure at 35GHz ⁷	dB	≤44	Without Delay Line loss
Group Delay Variation	psec	± 100	
1dB input compression point	dBm	13	
Max input RF power	dBm	23	
Spurious ⁸	dBc	< -80	
Phase noise (at 10KHz offset)	dBc/Hz	< -100	
RF Flatness ⁹ for 1-40 GHz	dB	≤ ± 4	
RF Flatness ⁹ for any 10 GHz	dB	≤ ± 1.5	
VSWR	-	2.2:1	
Impedance	Ohm	50	
Mechanical			
Laser diode operating wavelength	µm	1.55	
Communication ¹⁰	-	RS-232	
RF connectors	-	2.92 mm (F)	
Main AC supply	VAC	220/110	DC version is available
19" Rack mounting ¹¹	mm3	440 x 450 x 133	See mechanical drawing
Operating Temperature	°C	0 ÷ +60	
Storage	°C	(-40) ÷ +85	

- (1) Any frequency between 1 to 40 GHz.
- (2) Any fixed delay between 0.1 to 300 µsec is optional.
- (3) Integrated switching unit allowing choosing between 2 to 8 predefined delay values is optional.
- (4) RF bypass is optional.
- (5) Dispersion compensator unit for long delay / high frequency is optional.
- (6) 0.1% accuracy for long delay line is optional.
- (7) Not including delay line loss which is about 1dB per 10 µsec delay and optical switches loss.
- (8) Excluding in-band harmonics.
- (9) Additional ±0.5 dB deviation is considered within spec.
- (10) Ethernet are optional.
- (11) Variety of ODL enclosures are optional.
- (12) Full BIT is optional (using signal detection at the receiver).

Mechanical Layout: 2U/3U Layout

Note: 3U is similar to 2U with 133 mm height.



Please note: There is an option for up to 8 ports rear panel for an external delay line.

