Altimeter Optical Delay Line

Key Features:

- Altitude range 0.5 to 100,000 feet
- Display Delay, Round-trip Distance, Range, or Altitude
- Customizable steps
- Supports frequencies from 0.5MHz up to 6 GHz
- Handles all altimeter RF signals, encoding, and protocols, including Pulse and CW signals
- Delay accuracy of 0.1%
- Amplitude Control with 30dB LNA on/off as well as 0.5dB step 31.5dB input and output attenuators
- High Dynamic Range
- Excellent Phase Noise

Options:

- RF and Optical bypass
- DC Power
- External Delay(s)
- Optical Power indication
- Built-in diagnostics

Monitoring:

- Remote or local management via Ethernet, USB, or front panel with a navigation switch.

Applications:

- Radar Calibration Testing
- Altimeter

RFOptic's high-frequency Altimeter Optical Delay Line (ALT ODL) provides a high-performance solution for testing and calibrating radar altimeter systems.

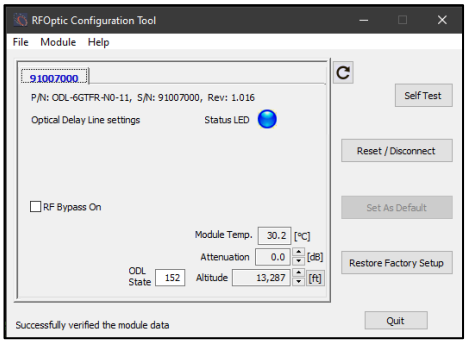
The RF input signal is converted into a modulated optical signal, which is then transmitted into a single-mode fiber, creating a fixed time delay defined by the fiber length corresponding to a desired altitude. After passing through the fiber, the optical signal is converted back into an electrical RF signal, identical to the input RF signal.

The ALT ODL can be configured to emulate a single altitude or more than 4,096 altitude steps (12 bits) with a minimum step of 0.5ft (15cm).

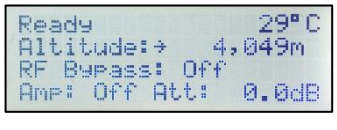
RFOptic's ODL unit is a compact solution that provides superb signal performance and altitude simulation accuracy with an ultra-quiet operation.

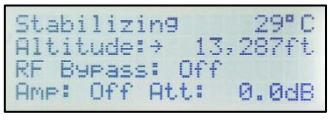
Local Control and Monitoring are provided via the front panel LCD and navigation switch. Remote M&C is available via a USB interface using the RFOptic App or over an Ethernet Interface using HTML/SNMP/REST protocols. For system integration, USB or REST API and MIB are provided. Direct TTL option is also available when sub-millisecond fast switching is required.

The Altimeter ODL offers very high accuracy, better than 0.3ft (10cm) in the smallest main segments for altitude steps under 6ft and >0.1% above. The maximum altitude can reach 100,000 feet or 30 km in one enclosure.



USB GUI Screen





LCD Panel (in m and ft.)

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www.rfoptic.com

Altimeter Optical Delay Line

Electrical	Unit	Specifications (Typical)
Frequency Range [1]	GHz	0.1 - 6
Altitude Range [2]	ft	1 - 100,000
Altitude segments	ft	1ft, 2ft, 4ft, etc. or Custom
Number of Altitudes	each	1 to > 4,096
Altitude Accuracy	%	0.1
Altitude Repeatability at +/- 5°C variations	%	0.01
Switching time	ms	< 10, (< 0.1 optional)
1dB Compression Point	dBm	-2
Minimum Noise Figure -LNA On	dB	6
Amplitude Control (Input 30dB LNA On/Off, 31.5dB/0.5dB step attenuator, Output 31.5dB/0.5dB step attenuator)	dB	> 90dB
SFDR	$dB/Hz^{2/3}$	105
Gain Flatness	dB	±2.5
Maximum Input No damage	dBm	20
Spurious	dBm	-80
Phase Noise at 6 GHz at 10KHz offset	dBc/Hz	-130
VSWR Input / Output		2:1
Input / Output impedance	Ohm	50

Optical and Electrical		
Main AC Supply [3]	VAC	220/110
RF Connectors		SMA or N Type
Control – Manual (front panel)		Navigation Switch
Control – Remote (rear panel)		USB, HTML, REST

Mechanical and Environmental Parameters		
Operating Temperature	°C	0 to +60
Storage Temperature	°C	-45 to +85

[1] Other frequencies upon request.
[2] Other Optical Delay Lines upon request.
[3] For additional 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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