RFOptic
Optical RF Solutions

Low Frequency Mini ODL

Mini-ODL front panel

Key Features:

- Delays 1ns to 32µs up to 6Ghz
- Delay accuracy <0.5%
- High Dynamic Range
- Excellent Phase noise
- Monitoring & Control – USB
- Power 5VDC 0.6A, (1.5A startup peak)

Monitoring:

- Managed remotely by software

Applications:

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

RFOptic's high-frequency up to 6Ghz Mini Optical Delay Line (Mini ODL) series provides a high-performance solution for testing and calibration of radar systems, or for RF communication. This series is intended for OEM integration but can be used as a stand-alone small form factor ODL.

The Mini ODL provides a true time delay for wideband RF signals using low-loss optical fiber. The Input RF 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.

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

RFOptic's Mini ODL solution, offered in a compact robust enclosure is recommended when single short delays of up to 32µs are required.

Monitoring & control provides performance indication, power saving options, diagnostics and BIT through the USB interface with the RFOptic Configuration tool under Windows OS or using the USB API for embedded applications.

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

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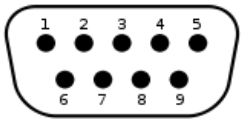
High Frequency Mini Optical Delay Line

Electrical	Specifications (Typical)	Unit
Frequency Range	0.001 – 2.5, 3, 4 or 6	GHz
Delay Range [1]	0.001 to 32	µs
Delay Accuracy	0.5	%
Delay Repeatability for ± 5°C variations	0.05	%
Built in software activated LNA	30	dB
Built in software-controlled Input and output step attenuators	Range 31.5 step 0.5 each	dB
1dB Compression Point	0 (LNA Off), -30 (LNA On)	dBm
SFDR	105	$dB/Hz^{2/3}$
Gain Flatness	± 2.5	dB
Maximum Input No damage	20	dBm
Spurious [2]	- 90	dBm
Phase Noise at 6 GHz at 10KHz offset	-130	dBc/Hz
VSWR Input / Output	2:1	dBm
Input / Output impedance	50	Ohm

Optical and Electrical		
DC Connector D-sub 9 pin	5 - 12	VDC
RF Connectors	SMA	
Remote Monitoring & Control	USB	

Mechanical and Environmental Parameters		
Operating Temperature	0 to +60	°C
Storage Temperature	-45 to +85	°C
Dimensions	180(w) x 260(L) x 80(H)	mm



D-sub 9pin Power and Data connector pinout

Function	Pin	Comments
DC Power	1	+5V to +12V
Ground	5	
USB D-	2	
USB Host +V	3	
USB D+	4	

* Standard USB connection optional

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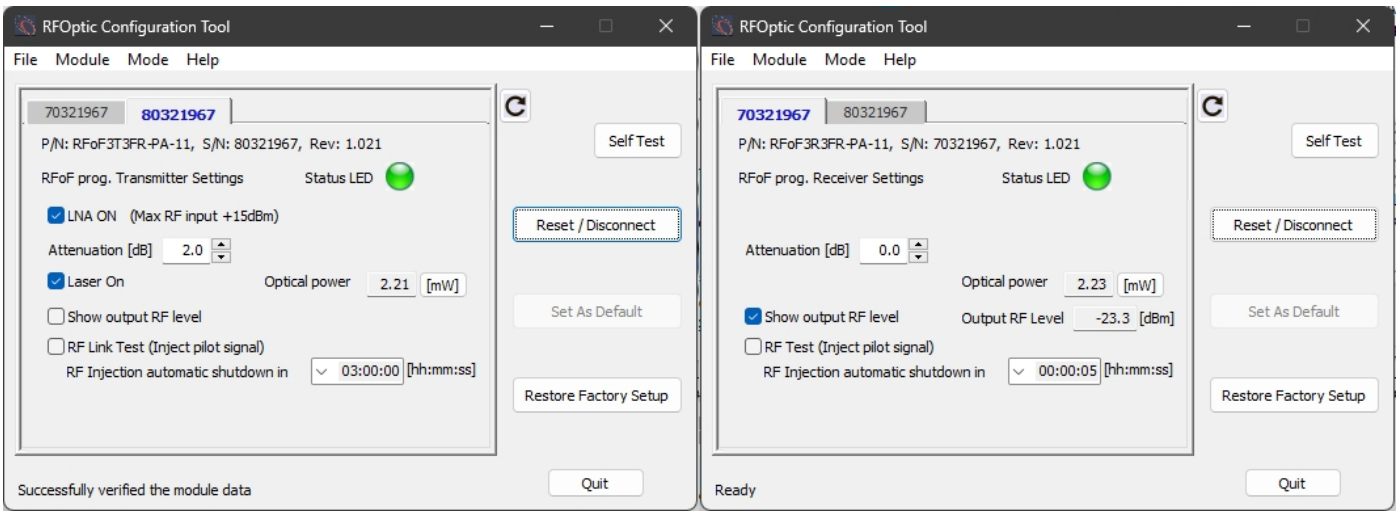
Management & Control

The mini-OD is supported by the RFOptic Configuration tool which is a free Windows based USB software that provides full control and management of the mini-ODL. It reports functional indicators as well as provides BIT and control functions. The software does not require installation or special drivers. It also a useful diagnostic tool capable of logging operational parameters for support actions.

For OEM applications the mini-ODL supports a programing API which is capable of performing similar function for control and Monitoring of the mini-ODL status.



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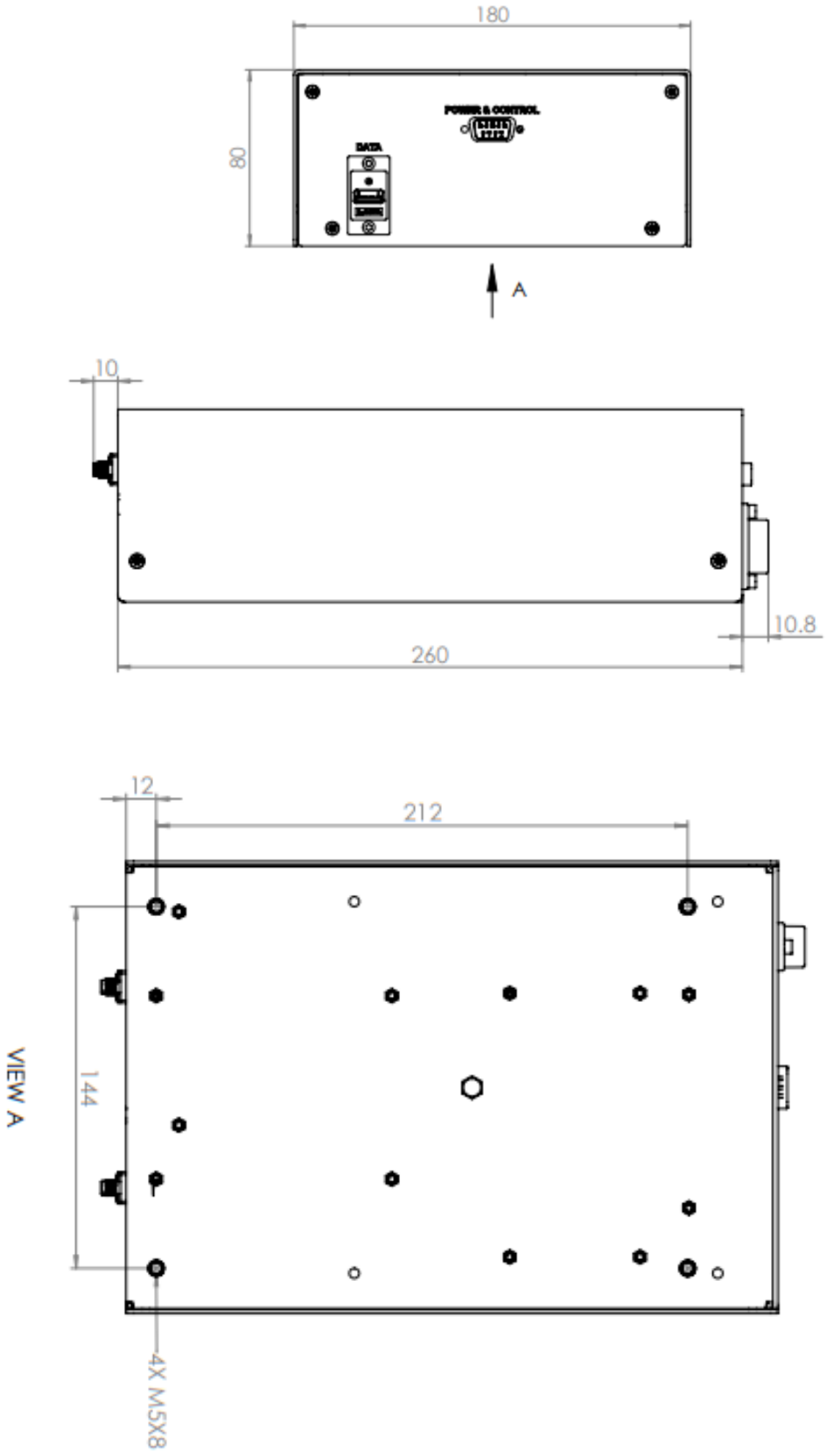
Mini Optical Delay Line Mechanical Outline



4 sealed M5 screw threads are available for OEM mounting of the mini-ODL on the bottom of the enclosure as indicated in the above drawing.

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