

MD-20-M



20 GHz Modulator Driver w/ Adjustable DC Bias

The Optilab MD-20-M Modulator Driver (MD) is a 20 GHz Bandwidth RF Amplifier in a compact and user-friendly module that provides a high-quality, single-ended voltage to drive an optical modulator. Typical applications include driving EML, EAM, and Mach-Zehnder devices, and it can also be used as a wideband RF amplifier with useable bandwidth of up to 20 GHz, including its +24 dBm adjustable output, making it suitable for many RF link applications. The MD-20-M amplifies 23 Gb/s data input signals to >7.5 Vp-p drive levels, and the flat gain and group delay response yield a high quality, low-jitter electrical drive signal for digital applications. Featuring a 12 V DC power supply, this versatile module also has an anodized, precision-machined aluminum housing designed for efficient heat dissipation during prolonged use. In addition to its amplification function, the MD-20-M also features a manually adjustable DC bias output voltage port, to further complement its effectiveness when used with a standard optical modulator. The MD-20-M also supports diplexed RF + DC port configurations for full optical modulator compatibility. Contact Optilab for more information.

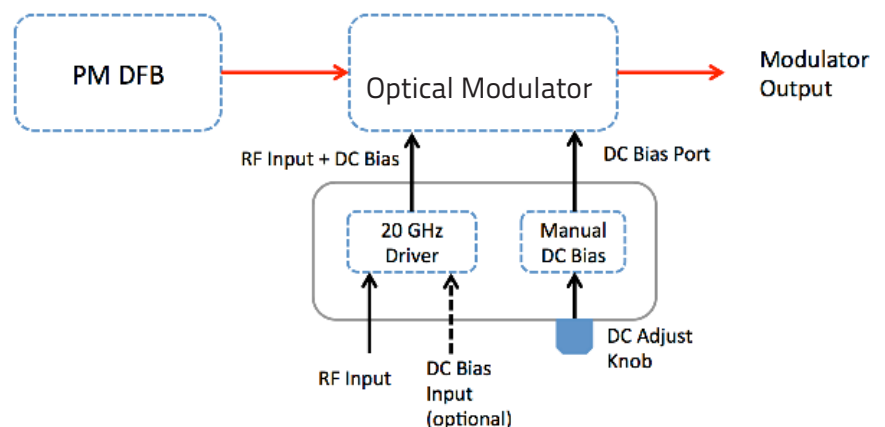
Features

- Bandwidth from 0.1 to 20 GHz
- Output power of 26 dBm
- Data rates exceed 23 Gb/s
- Manual DC bias output port to 10 volt
- Optional diplexed DC input port
- Variable Gain Control via USB
- Built in heat sink

Applications

- 20 GHz Analog RFOF link
- Amplified RF signals to 20 GHz
- General laboratory test and measurement
- 23 Gb/s digital modulation

Functional Diagram



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OPTIONS

MD-20-M

TECHNICAL INFO

For technical info and support:

sales@optilab.com

www.optilab.com

WEB ORDER

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Optilab Advantage

- Innovation
- Performance
- Quality
- Customization
- Warranty

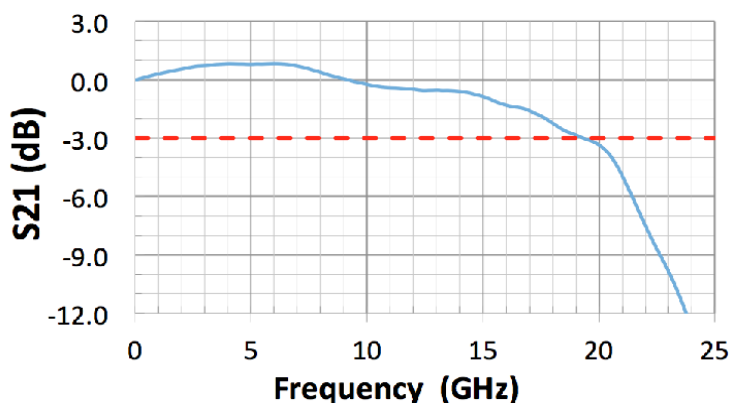
General Specifications	
3dB S21 Bandwidth	18 GHz typ.
Small Signal Gain	24 dB typ.
Input 1 dB Compression Point	0 dBm
S11 Characteristics	< -10 dB from 1 to 15 GHz < -5 dB from 15 to 20 GHz
S22 Characteristics	< -10 dB from 1 to 12 GHz < -5 dB from 12 to 20 GHz
RF Gain	19 dB to 24 dB, variable
Gain Adjustment Range	5 dB typ.
Gain Ripple	<±0.5 dB
Input, Output Impedance	50 Ω
Input VSWR to -10 GHz	1.6:1 typ.
Output VSWR	2.0:1 typ.
Manual DC Bias Adjustment Range	0 to + 10 VDC

Analog Specifications	
RF Bandwidth	20 GHz typ.
Max. Output	26 dBm typ.
Input IP3	12 dBm typ.
Group Delay	+/- 70 ps
Noise Figure	9 dB typ.
Digital Applications	
Data Rate	Up to 23 Gb/s
Output Amplitude	7.5 Vp-p typ.
Pulse Response	10%, rise time 35 ps typ.
Input Range	500 mV to 1.5 V

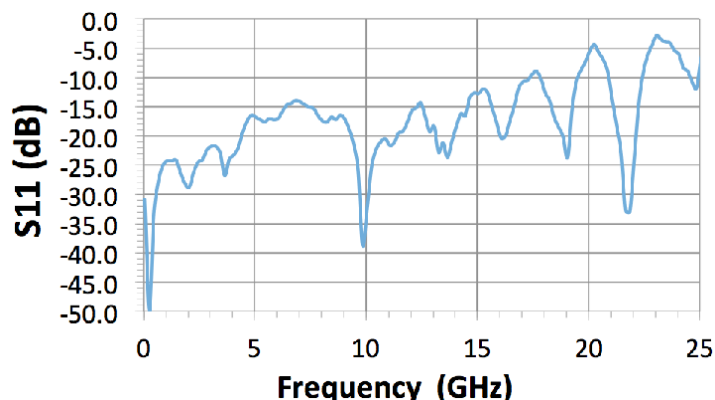
Mechanical Specifications	
Operating Temperature	-20° C to +70° C
Storage Temperature	-45° C to +100° C
Operating Humidity	85%
Power Supply Requirements	+12 V DC, 1 A max.
Total Power Dissipation	10 W max.
Accessories Included	Power Supply and Cables
RF Input/Output Connectors	Input: SMA Female Output: SMA Male
Electrical Power Connector	4-pin Molex
Remote Interface	USB 2.0
Dimensions	160 mm x 65 mm x 32.5 mm

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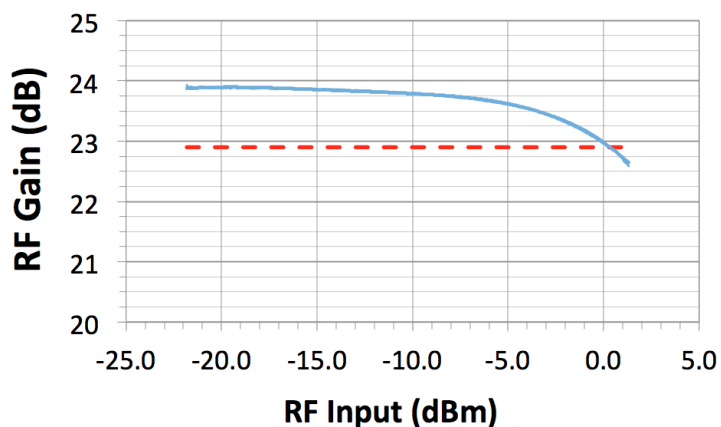
Typical S21 Response



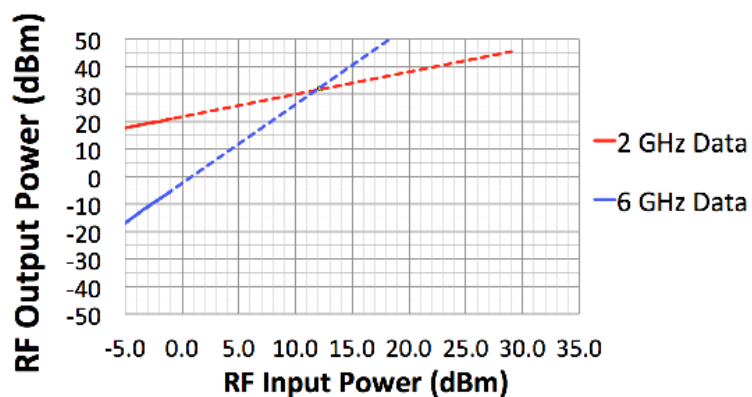
Typical S11 Response



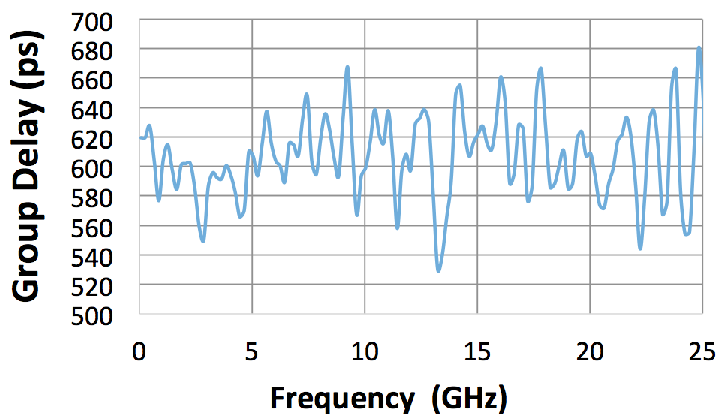
1 dB Compression



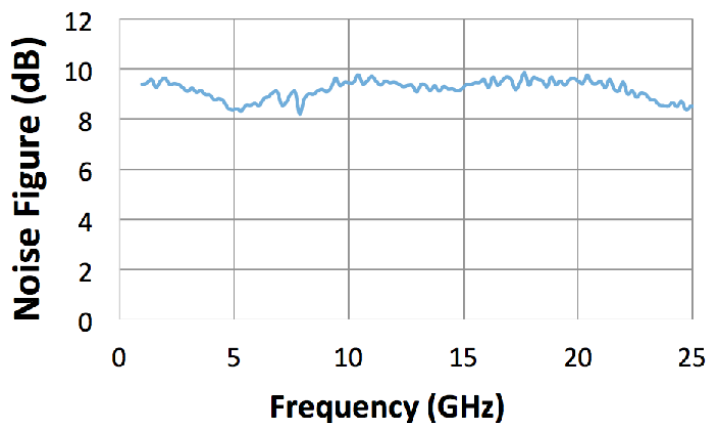
Third Order Intercept



Group Delay

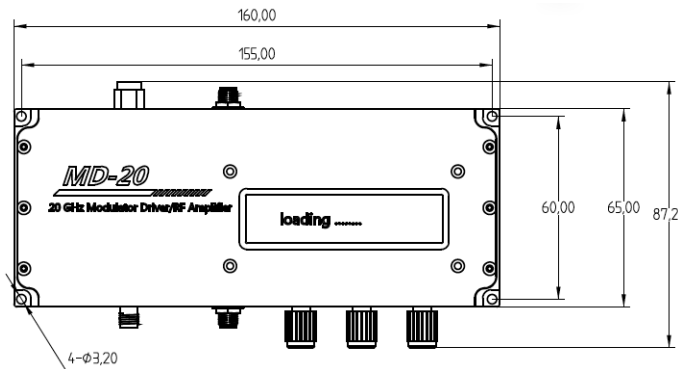
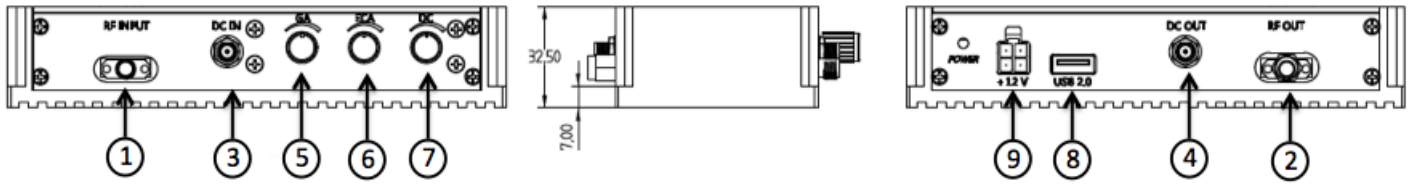


Noise Figure



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Mechanical Drawing



Unit: mm

Port Function Description

Port Number	Function Description
1	RF input
2	RF output
3	DC bias input
4	DC bias output
5	RF gain adjust knob
6	Eye crossing adjust knob
7	DC output adjust knob
8	USB 2.0
9	Power input molex

Remote Labview Interface

Optilab offers remote interface via Labview software, for parameter adjustment and status monitoring, contact Optilab for more details.

