

MD-12-DC



DEVICE

12 GHz Modulator Driver w/ Adjustable DC Bias

The Optilab MD-12-DC Modulator Driver (MD) is a 12 GHz Bandwidth RF Amplifier in a compact and user-friendly module that provides a high-quality, single-ended voltage to drive an external LiNbO3 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 12 GHz, including its +24 dBm adjustable output, making it suitable for many RF link applications. The MD-12-DC amplifies 12.5 Gb/s data input signals to >7.5 Vp-p drive levels, and the at 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-12-DC also features a manually adjustable DC bias output voltage port, to further compliment its effectiveness when used with a standard LiNbO3 external modulator. Contact Optilab for more information.

OVERVIEW

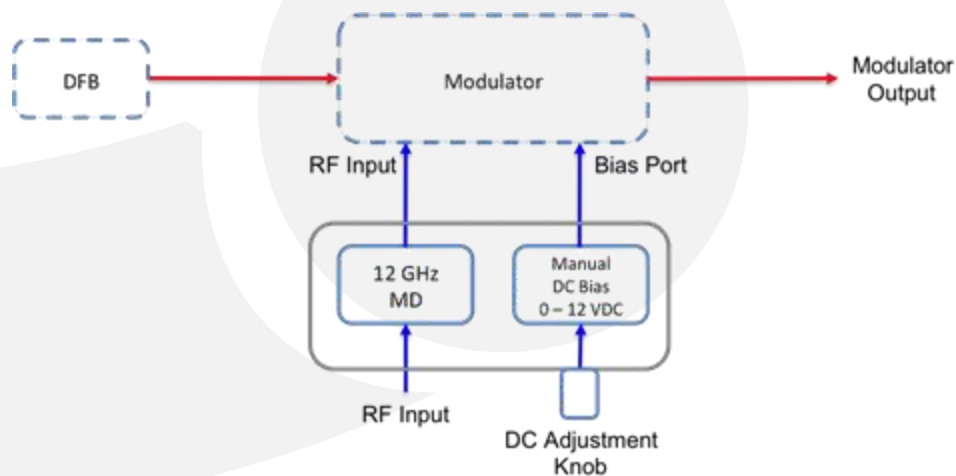
FEATURES

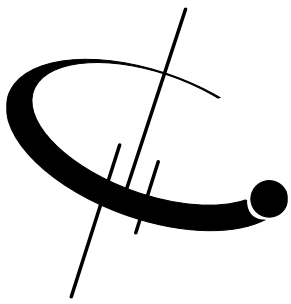
- Bandwidth up to 12 GHz
- Data rates exceed 12.5 Gb/s
- Compact size
- Built in heat sink
- Inverting Amplifier
- Manual DC Bias Output Port to 12 Volt
- Variable Gain Control built-in
- Single 12 V Power supply

USE IN

- SONET/SDH
- General Laboratory Testing
- 12.5 Gb/s Digital Modulation
- Analog RF Amplification to 15 GHz
- RF over Fiber Link Amplified

FUNCTIONAL DIAGRAM





MD-12-DC

SPECIFICATIONS

3 dB S21 Bandwidth	10 GHz min., 12 GHz typ.
S11 Characteristics	< -10 dB at 10 GHz
Saturated Output Power	24 dBm typ.
RF Gain	14 dB to 26 dB, variable
Gain Ripple	± 1.5 dB
Input, Output Impedance	50 Ω
Input VSWR to -10 GHz	1.6: 1 typ.
Total Power Dissipation	2: 1 typ.
Gain Adjustment Range	6 dB typ.

GENERAL

DC CONTROL

Manual DC Control Adjustment	- 12 V to + 12 V
Manual Bias Adjustment Range	- 12 V to + 12 V
Additional Features	On/Off Switch

DIGITAL APPLICATIONS

Data Rate	Up to 12.5 Gb/s
Pulse Response	10%, rise time 35 ps typ.
Output Amplitude	7.5 Vp-p typ.
Input Range	500 mV to 1.5 V

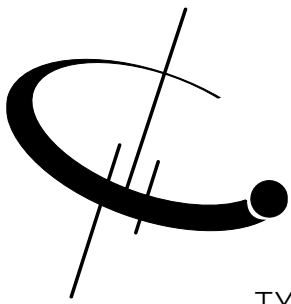
ANALOG APPLICATIONS

Useful Frequency Range	75 KHz to 15 GHz
P1 dB Output	23 dBm typ.
Group Delay (2 to 10 GHz)	± 25 ps
Noise Figure	11 dB max
Small Signal Gain	30 dB typ.

MECHANICAL

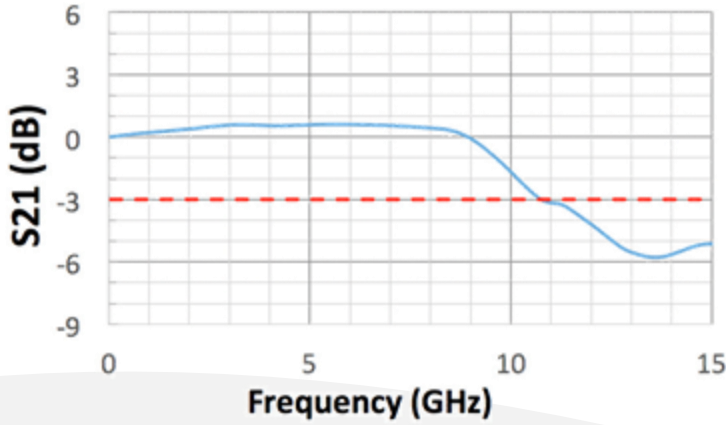
Operating Temperature	0 °C to +70 °C
Storage Temperature	-45 °C to +100 °C
Operating Humidity	85%
Power Supply Requirements	+ 12 V DC, 1 A max.
RF Input/Output Connector	K Connector Female
Electrical Connector	4-pin Molex
Dimensions	126 mm x 37 mm x 26 mm



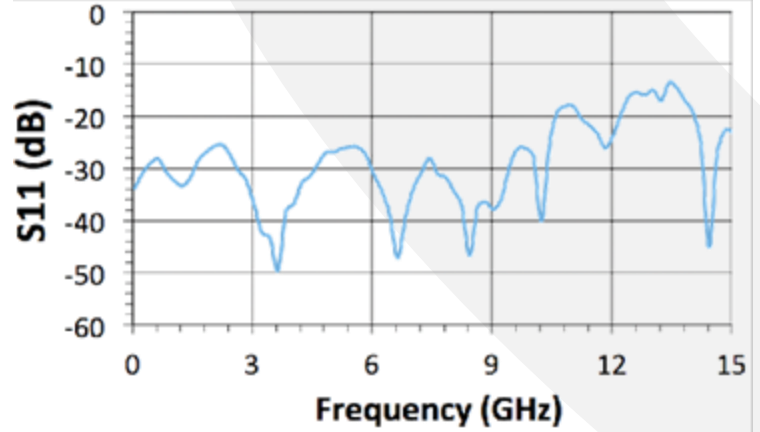


MD-12-DC

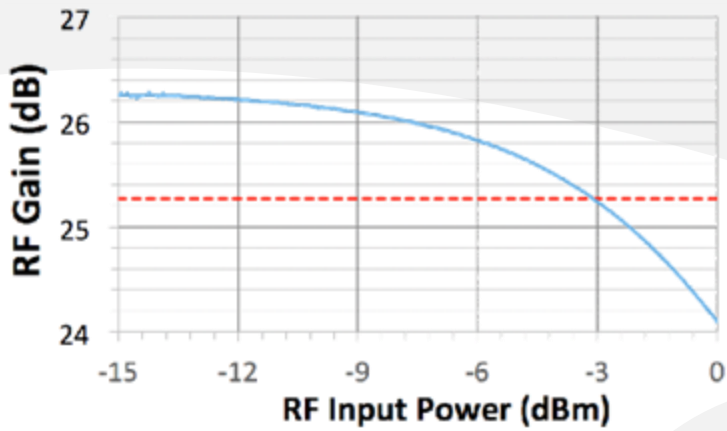
TYPICAL S21 RESPONSE



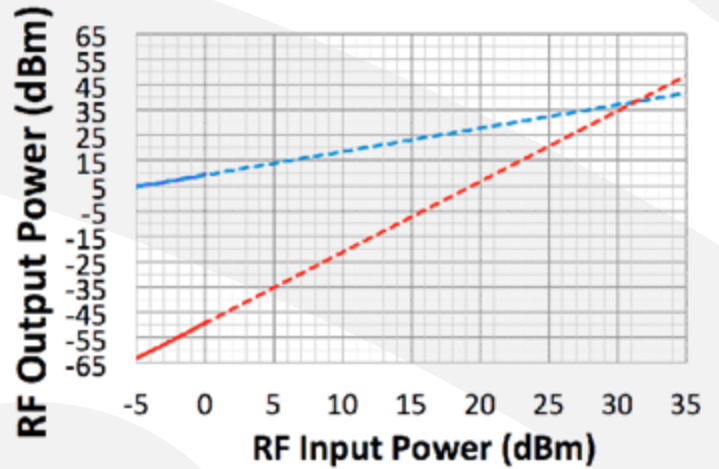
TYPICAL S11 RESPONSE



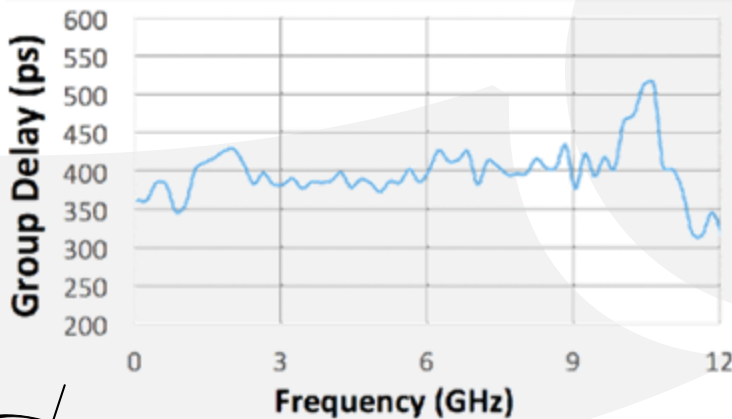
1 DB COMPRESSION



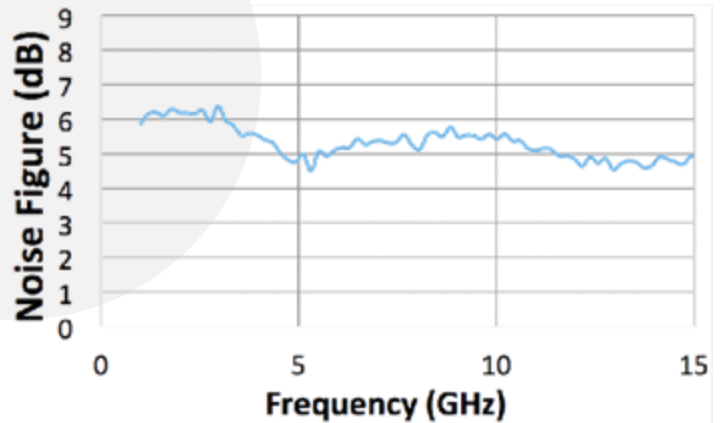
THIRD ORDER INTERCEPT

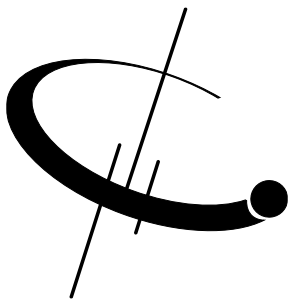


GROUP DELAY



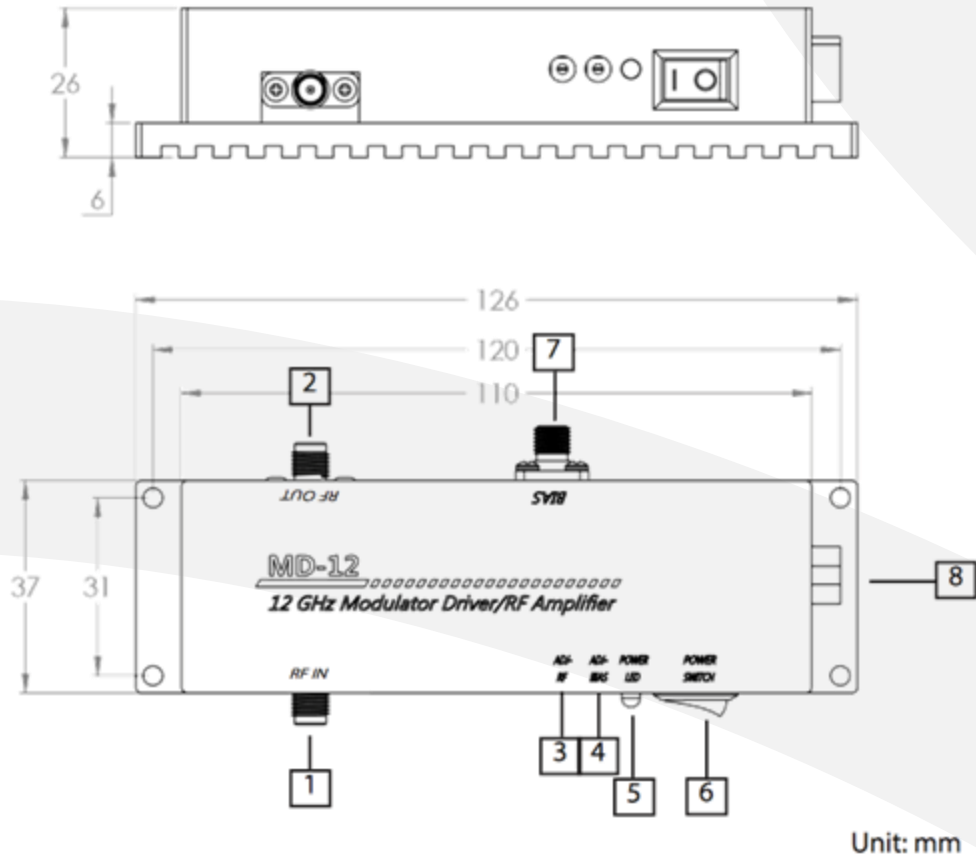
NOISE FIGURE





MD-12-DC

MECHANICAL DRAWING



Unit: mm

1	RF input
2	RF output
3	RF gain adjust
4	DC bias adjust
5	Power LED
6	Power switch
7	Bias out
8	DC power input, molex

