

# Dual-Channel RF Power Amplifier



Driver for 2D Acousto optical beam deflector/scanner

DATASHEET

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The DCRF Dual-Channel Broadband RF Power Amplifier is designed to drive two acousto-optic beam deflectors for 2D beam scanning. It is controlled via a GUI that allows scan profiles to be stored and executed, and it supports external synchronization for precise, high-speed frequency switching. The amplifier features a wide operating bandwidth with automatic RF power compensation to maintain stable diffraction efficiency across frequency. Powered by a 24 V DC supply, the DCRF delivers up to 5 W (37 dBm) of RF output power per channel over a 20 MHz to 300 MHz frequency range, making it well suited for acousto-optic modulation and beam-steering applications.

## Features

- 20-300 MHz
- Up to 5W
- 24V DC power
- Small Size Package

## Applications

- Acousto optical beam deflection
- Instrument

## Specifications

Parameter	Min	Typical	Max	Unit
RF output		2		ch
Frequency Range	20		300	MHz
Frequency Accuracy		± 1		kHz
Frequency Stability		± 2.5		ppm
Output Power		0		dBm
VSWR			1.5/1	
Harmonic Distortion		-20		dBc
Output Impedance		50		Ω
Digital modulation	Standard TTL (V_L<0.8V, V_H>2.0V)			
Trigger frequency	DC		1	MHz
Rise-time (10%-90%)		10		ns
Fall-time (90%-10%)		10		ns
Analog modulation		0 - 5		V
Frequency conversion time	467			ns
Synchronous Input	Standard TTL (V_L<0.8V, V_H>2.0V)			
Synchronous Output	Standard TTL (V_L=0V, V_H=3.3V)			
Power compensation		Yes		
Communication		RS232		
Connection	Input	Mini-USB, SMA-Female		
	Output	D-SUB37-Female, SMA-Female		
Supply power	24 VDC < 1A			
Operating Temperature	+10		+50	°C

**Notes:**  
Power amplifier is required

**Warning:** The device need to be mounted on a heat sink or on a metal frame



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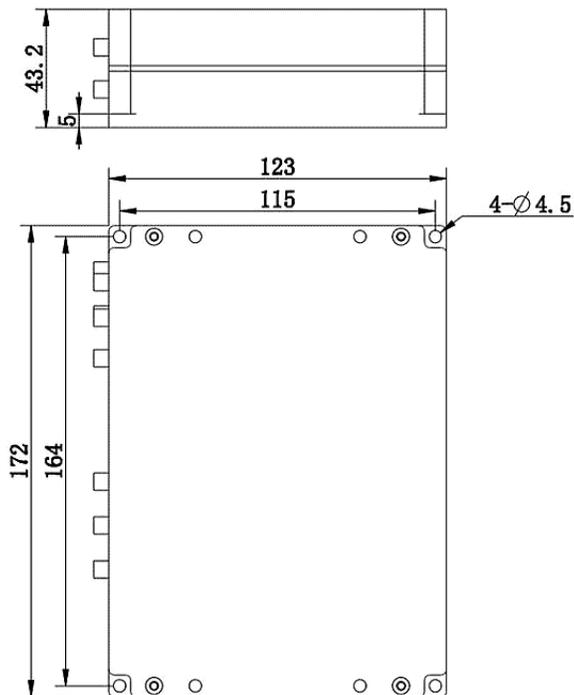
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### Mechanical Dimensions (mm)



\*Product dimensions may change without notice. This is sometimes required for non-standard specifications.

### Connection Diagram

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### Ordering Information

	20	300	5	11	<input type="checkbox"/>
Prefix	Low Frequency	High Frequency	Output Power	Connector	Package*
DCRF-	20MHz = 20	300MHz = 300	5W = 5	SMA = 11	Device = 1 Module = 2 Benchtop = 3

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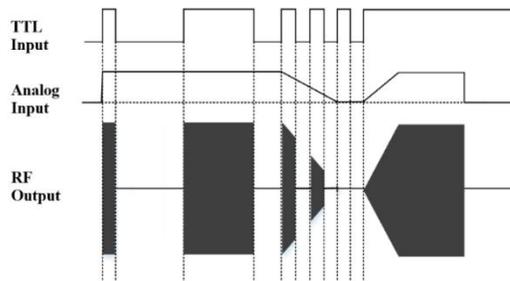
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### Interface Description



Name	Function
<b>SYNC-OUT</b>	Synchronous output interface. The output is high level in the process of frequency conversion, and the output is low level after frequency conversion. Support custom control logic.
<b>SYNC-IN</b>	Synchronous input interface. Received high level, control frequency conversion; Received low level, no processing. Support custom control logic.
<b>POWER</b>	24V power supply interface.
<b>Mini-USB</b>	Serial communication interface.

### Logic



**Note:** The control mode can be changed according to customer needs

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### Adjustment of driver output power

**Warning:** The RF output power of driver has been matched with acousto-optic device in factory. Please DO NOT adjust it unless necessary.

When the RF output power of driver has to be adjusted a flat-head screw driver can be used to turn the small knob masked as 'AM' located on the side of driver. Turn it clockwise to increase power, and counterclockwise to decrease power.

## Application Notes

- **Output impedance**  
50Ω
- **Driver cannot run without a load or with its output shorted.**  
Acousto-optic device and its driver work at high frequency. If driver is powered on when there is no load connected to it, such as an acoustic-optic modulator, then it will be damaged.  
A shorted output connection will also cause damage of driver.
- **Heatsink for driver**  
The driver will be heated up in work condition. A heatsink or a big piece of metal plate is strongly recommended for driver installation. High temperature will cause damage to driver.
- **Ensure driver is well grounded to achieve desired performance.**
- **Use caution when handle optical fibers.**
- **Always cover connectors with caps when they are unplugged**