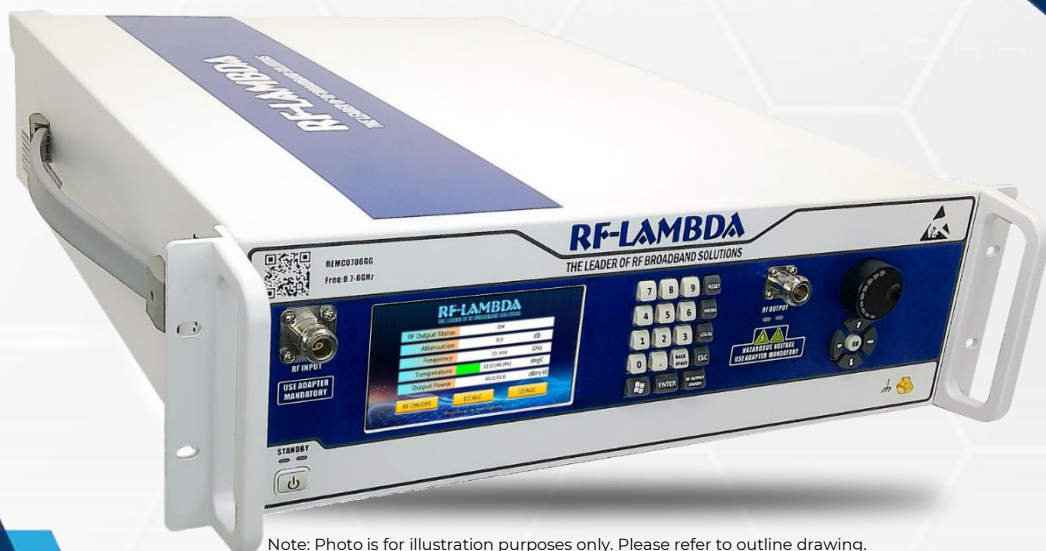


RF-LAMBDA

THE LEADER OF RF BROADBAND SOLUTIONS

400W Wideband EMC Benchtop Power Amplifier 4GHz-8GHz

REMC04G08GD



Note: Photo is for illustration purposes only. Please refer to outline drawing.

Sales: sales@rflambda.com

Technical: support@rflambda.com

Rev 1. 07-08-2026 | Subject to change without notice

www.rflambda.com

PRODUCT SUMMARY

PRODUCT OVERVIEW

GENERAL DESCRIPTION

REMC04G08GD is a wideband EMC power amplifier with a frequency range of 4 to 8GHz.

The power output of this amplifier is 56dBm typical. The typical small signal gain is 65dB with a flatness of ± 3 dB. This performance is achieved through the use of GaN devices. The power amplifier's input connector is N-Female and Output connector N-Female. The operating temperature of this product is within 0°C to +50°C.



FEATURES

- » Wide band EMC Solid State Power Amplifier
- » Small Signal Gain 65dB Typical
- » Output Saturation Power 56dBm Typical
- » Supply Voltage 110/220 VAC
- » 50 Ohm Matched Input / Output
- » Fast RF Blanking
- » Real Time VSWR measurement
- » Internal Signal Generator – Optional
- » Over temperature Protection
- » Over current Protection
- » Over voltage Protection
- » Auto Calibration

TYPICAL APPLICATIONS

- » Wireless Infrastructure
- » Military and Aerospace Applications
- » Test Instrumentation
- » Radar Systems
- » 5G Wireless Communications
- » Microwave Radio Systems
- » TR Modules
- » Research and Development
- » Cellular Base Stations

QUALITY STANDARDS



ESD Policy



https://rflambda.com/pdf/rflambda_esd_control.pdf

Random Vibration Test Standard



https://www.rflambda.com/pdf/rflambda_random_vibration_MIL-STD-202G.pdf

Connector Torque Specifications



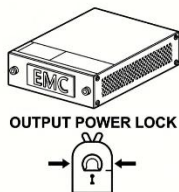
https://www.rflambda.com/pdf/Torque_Specifications.pdf

Parameter	Description
Operational Temperature	0°C to +50°C (Ambient Temperature)
Thermal Shock	0°C → +50°C (5 Cycles / 10 hours, Only internal modules tested prior to final assembly)
*Random Vibration	MIL-STD-202G, Table 214-I, Test Condition Letter C, 1.5 Hours Per Axis
High Temperature Burn In	Temperature +50°C for 72 Hours
Storage Temperature	-40°C to +85°C

*For vibration testing details please see additional information section.

RF-Lambda is ISO: 9000 certified with 25,000 ft² combined R&D and production space, including an ISO7 10K Clean Room to meet ISO-14644-1.

PRODUCT FUNCTIONS



Local/Remote Control Toggle



Select control mode:
Local (direct) or Remote (network)



1 EMC Functions

- Output Power Lock
- Automatic Calibration

2 Mode Selections

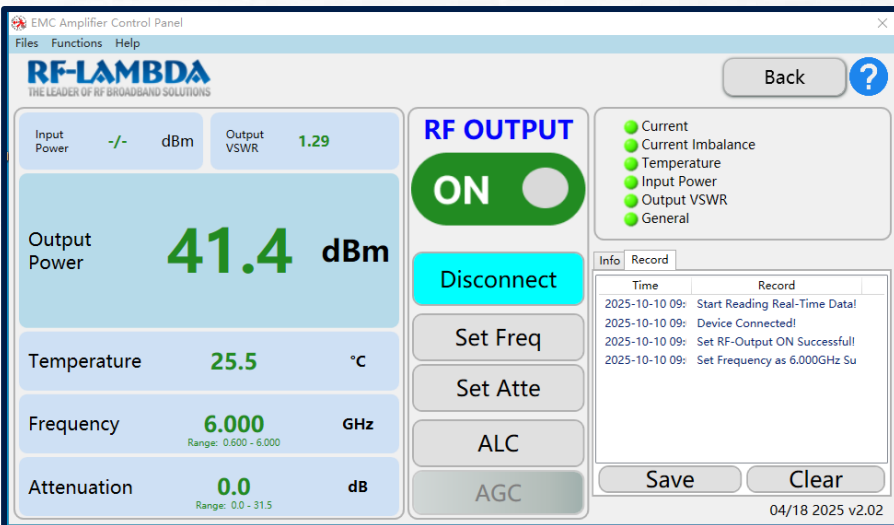
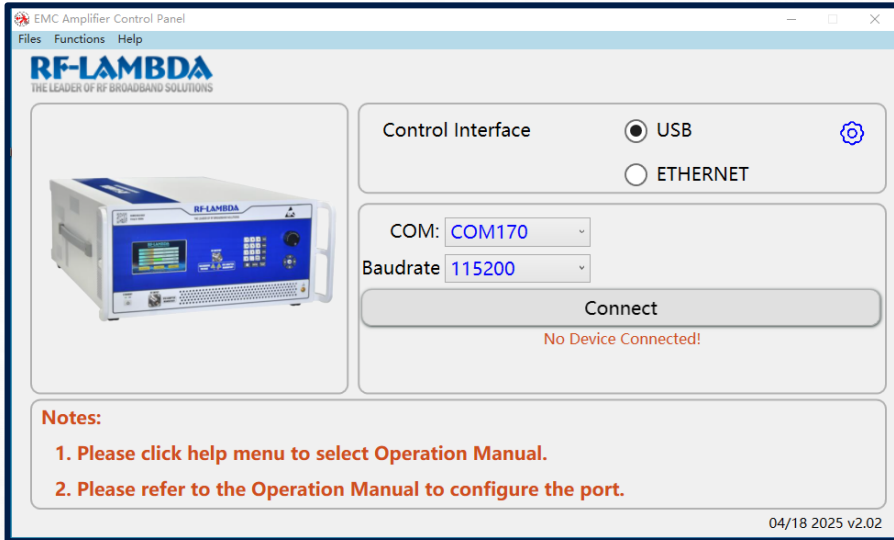
- Local
- Remote Control

3 Product Safety Interlock

- Input Power Overload Protection
- Output Mismatch Protection
- Over temperature Protection
- Over current Protection
- Cooling System Anomaly Protection

Category	Function	Included	Optional (Licensing)	Optional (Hardware)	NOT Applicable
Product Safety Interlock	Input Overload Protection	☒	☐	☐	☐
	Output VSWR Protection	☒	☐	☐	☐
	Current Overload Protection	☒	☐	☐	☐
	Temperature Protection	☒	☐	☐	☐
	Current Imbalance Protection	☒	☐	☐	☐
	Overvoltage and Undervoltage Protection	☒	☐	☐	☐
	AC Power Abnormality Protection	☒	☐	☐	☐
	Fan Abnormality Protection	☒	☐	☐	☐
User Operation Functions	USB, LAN Communication	☒	☐	☐	☐
	DB Interface	☒	☐	☐	☐
	Self-Calibration Function	☒	☐	☐	☐
	Gain Compensation Over Temperature	☒	☐	☐	☐
	Current Compensation Over Temperature	☒	☐	☐	☐
	TDD Control - RF Switch Enable	☒	☐	☐	☐
	TDD Control - Positive Voltage Enable	☒	☐	☐	☐
	TDD Control - Negative Voltage Enable	☒	☐	☐	☐
	GUI Interface	☒	☐	☐	☐
	Parameter Setting	☒	☐	☐	☐
	Gain Calibration Each Stage	☒	☐	☐	☐
	Software ON/OFF Function	☒	☐	☐	☐
	Modularized System Integration	☒	☐	☐	☐
	Remote Software Control ON/OFF	☒	☐	☐	☐
EMC Functions	Rotary Gain Adjustment	☒	☐	☐	☐
	Screen Protection Function	☒	☐	☐	☐
	Touch Screen Display	☒	☐	☐	☐
	Developer Interface	☒	☐	☐	☐
User Customization Functions	System Log Recording	☒	☒	☐	☐
	Output VSWR Measurement	☒	☒	☐	☐
	Input Power Measurement	☒	☒	☐	☐
	ALC - Automatic Loop Control Gain	☒	☒	☐	☐
	AGC - Automatic Gain Control Function	☐	☒	☐	☐
	Input Circulator Protection (Internal Load)	☐	☐	☒	☐
	Output Circulator Protection (Internal Load)	☐	☐	☒	☐
	Waveguide Adapter (E-H)	☐	☐	☒	☐
	Fast RF Blanking	☒	☐	☐	☐
	Single Frequency Output	☐	☒	☐	☐
Internal Signal Generator	Frequency Auto Sweeping	☐	☒	☐	☐
	Frequency Hopping	☐	☒	☐	☐
	External Signal	☐	☒	☐	☐

REMOTE CONTROL



TECHNICAL DATA SPECIFICATIONS

Parameter		Min	Typ	Max	Units
Frequency Range		4		8	GHz
Small Signal Gain		60	65		dB
Gain Flatness			±3		dB
Gain Variation Over Temperature (0°C to 50°C)			±3		dB
Input VSWR			1.5	2	:1
Output 1dB Compression Point (P1dB)			51		dBm
Saturated Output Power (Psat)(CW)			56		dBm
Supply Current (220V AC)			8	10	A
Power Added Efficiency (PAE)			30		%
IM3			-30		dBc
Turn On/Off Speed (Switch Disable)	ON		100		ns
	OFF		100		ns
Turn On/Off Speed (Drain Disable)	ON		2000		us
	OFF		500		us
Turn On/Off Speed (Gate Disable)	ON		2000		us
	OFF		500		us
RF Fast Blanking Speed (Optional) (Mute RF Output signal and noise)	ON		/		us
	OFF		/		us
Optional RF Fast Blanking Frequency (Optional)			/		kHz
Weight			/		lbs.
Impedance			50		Ohms
*RF Input Power (RFIN)		Psat – Large Signal Gain			
Package		5U Rack-mount/Tabletop Chassis			
Cooling System		Forced air (Self-contained fan)			
Supply Voltage			90 to 264		VAC
Supply Frequency			47 to 63		Hz
Supply Power			1800		W

*Maximum RF input power is set to assure safety of amplifier. Input power may be increased at own risk to achieve full power of amplifier. Please reference gain and power curves.

INSTRUCTIONS FOR USE



CAUTION!

1. Please connect and turn OFF input RF signal.
2. Please verify output-load is connected.

ENTER



Signal Source Selection

[1] External Source [ESC]

[2] Internal Source [ENTER]

[2] Internal Source Function Not Licensed. Please contact Technical Support.



Output Status: ON Band: 18.0 - 40.0 GHz

Frequency: 22.8 GHz

Output Power: 45.2 dBm, 33.1 W

ALC: ON AGC: OFF

Temp: 35.2 °C/95.4 °F Atten: 15.5 dB

MENU [1] Freq. Set [2] ALC Set [3] AGC Set RF ON/OFF

Please follow the instructions on the front panel LCD screen after switching on the power. Press “ENTER” on keypad to continue.

Please follow the instructions.

Name	Description
RF Output Status	Indicates instrument RF output status. It will display: ON or OFF
Frequency	RF input signal frequency (For illustrative purposes only)
Output Power	Instrument RF output power (For illustrative purposes only)
RF ON/OFF	Switches On or Off for instrument RF output port
ALC	ALC mode, Automatic Loop Control
AGC	AGC mode, Automatic Gain Control, this function is invalid
Temperature	Instrument temperature (For illustrative purposes only)
Attenuation	RF output attenuation (change with adjustment knob)

Power On/Off Procedure

Power On Procedure	Power Off Procedure
1. Connect the back panel grounding post to the common ground wire.	1. Turn off the RF output and the input source signal.
2. Connect RF input and RF output with 50 Ohm source/load. (In band VSWR < 1.9:1 or >10dB VSWR).	2. Turn off the unit, turn off the display, and enter standby mode.
3. Connect the AC power cord, turn on the AC switch, and enter standby mode.	3. Turn off the AC switch and remove the AC power cord.
4. Press the front panel switch button to enter operating mode.	4. Remove RF Connection.
5. Ensure the input signal is a low-power signal and turn on the RF output.	5. Remove ground.

*When using two identical devices simultaneously for testing or power combining applications, it is necessary to add reverse isolation protection measures at the output port of each device to prevent mutual interference from large signals between the devices under different operating conditions, which could cause equipment damage. For example: add an isolator at the output of each device.

INTERNAL SOURCE

Output Status	ON	Band	18.0 - 40.0 GHz
Frequency	22.8 GHz	MENU	
Output Power	45.2 dBm	[1] Freq. Set	
	33.1 W	[2] ALC Set	
ALC	ON	AGC	OFF
Temp.	35.2 °C/95.4 °F	Atten.	15.5 dB
RF ON/OFF			

To enter this function selection page, press "Menu" on front panel keypad while the instrument is showing the status page.

Signal Source Selection

Signal Source Selection

[1] External Source ☒

[2] Internal Source ☐

[3] Internal Source Independent Output ☐

ESC

NOTE: The amplifier's RF output will turn off when the signal source is changed.

ENTER

Internal Signal Source Mode

Internal Signal Source Mode

[1] Single Frequency ☒

[2] Sweep Frequency ☐

[3] Frequency Hopping ☐

ESC

ENTER

Single Frequency Setting

Signal Source Settings

Frequency (set) 12.500 GHz

Signal Level (set) -6.5 dBm

ESC

Please use the keypad to enter value.

ENTER

Real-Time Tuning of Single Frequency Point

Signal Source Settings

Output Status ON

Output Power 45.8 dBm

Frequency (set) 15.5 GHz

Signal Level (set) -5.5 dBm

ESC

Please use the keypad to enter value and press 'ENTER' to confirm.

ENTER

Frequency Sweep Setting

Frequency Sweep Settings

Start Freq. 18.0 GHz

Step Freq. 40.0 GHz

Stop Freq. 0.5 GHz

Delay 200 ms

Output Power 40.2 dBm

ESC

Enter the required data using the keypad, click "Enter" to start sweep.

ENTER

Frequency Hopping Setting

Frequency Hopping Settings

ID	Freq. (GHz)	RF Power (dBm)	Delay (ms)	ID	Freq. (GHz)	RF Power (dBm)	Delay (ms)
1				13			
2				14			
3				15			
4				16			
5				17			
6				18			
7				19			
8				20			
9				21			
10				22			
11				23			
12				24			

ESC

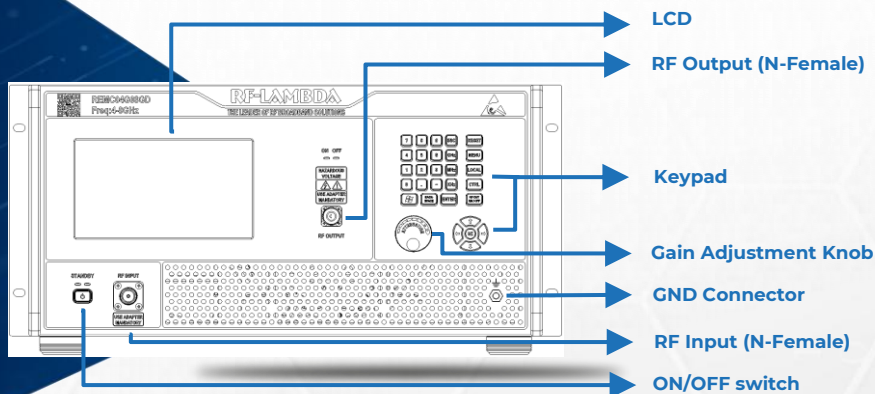
Please use the keypad to enter value, and press 'ENTER' to start the hopping.

ENTER

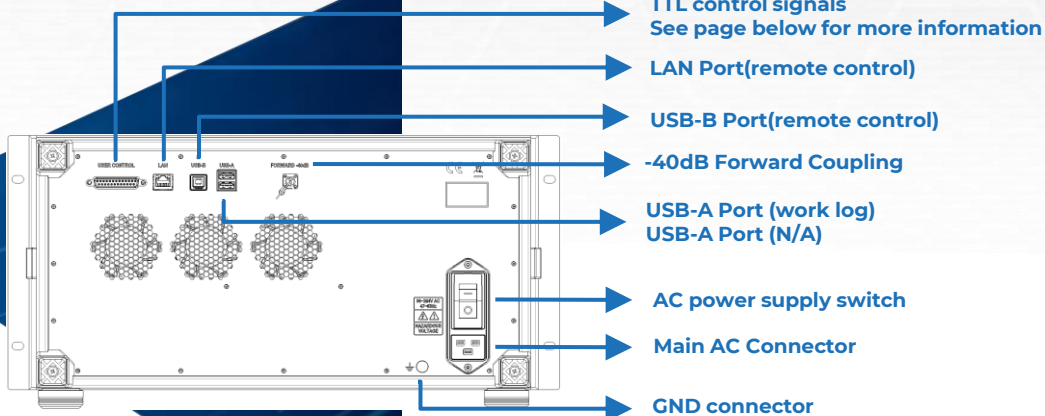
All action functions will ask for confirming execution when selected from function selection menu.

INTERFACE DESCRIPTION

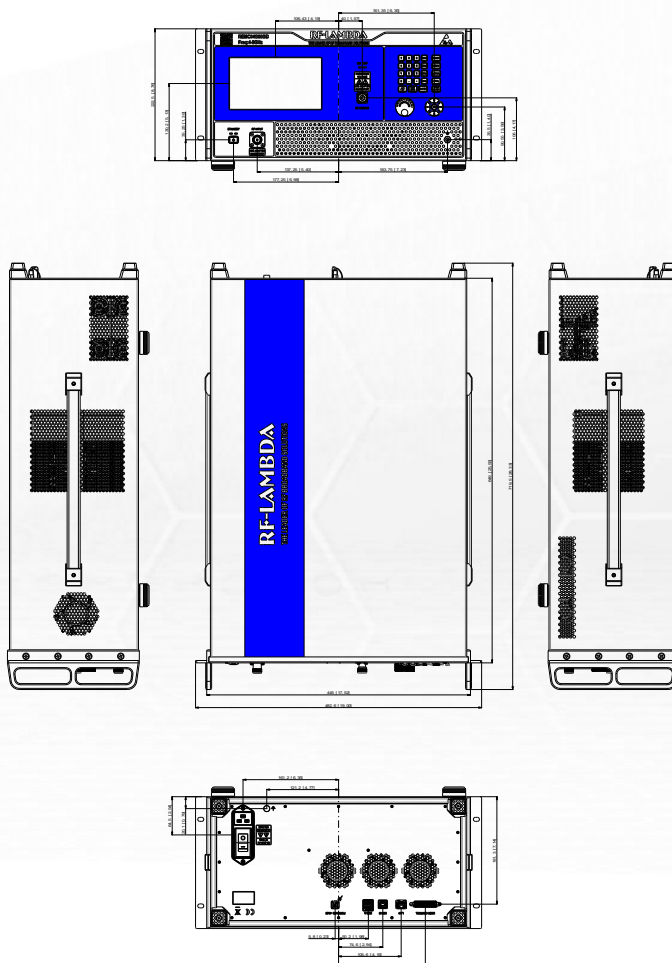
FRONT PANEL



REAR PANEL



OUTLINE DRAWING



ATTENTION
STATIC SENSITIVE DEVICES

**HANDLE ONLY AT
IC SAFE WORK STATIONS**

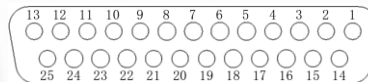
Notes:

1. Package Material: Aluminum
2. Finish: White Baking Paint
3. All dimensions are in millimeters [inches].
4. Standard torque wrench must be used to secure RF connectors.

PROTECTION CONNECTOR TABLE

Female D-Sub is on the housing

The mating Male part number: 172-E25-103R001



Pin #	Name	Function	Initial State	Description	Applied
1	Reset	Control	HIGH	Resets PA when logic LOW is applied for five more seconds and released	Yes
2	Gate Disable	Control	LOW	Applying logic HIGH disable gates of amplifiers	Yes
3	Drain Disable	Control	LOW	Applying logic HIGH disable drains of amplifiers	Yes
4	RF Input Over Drive	Indicator	LOW	Pin will be latched to logic HIGH when input signal is over limit	Yes
5	Temperature Over	Indicator	LOW	Pin will be latched to logic HIGH when amplifier is driven over temperature	Yes
6	Current Over	Indicator	LOW	Pin will be latched to logic HIGH when drain current limit is reached	Yes
7	Current Imbalance	Indicator	LOW	Pin will be latched to logic HIGH when an imbalance in the drain current of the combining branches occurs	Yes
8	PA Off Alarm	Indicator	LOW	Pin will be latched to logic HIGH when any of the protection limit is reached	Yes
9	Fan Alarm	Indicator	LOW	Pin will be latched to logic HIGH when Fan limit is reached	Yes
10	RF Input Switch	Control	LOW	Applying logic HIGH turns OFF RF front-end switch to terminator	Yes
11	VSWR	Indicator	LOW	Pin will be latched to logic HIGH when output reflection is over limit	Yes
12	Fixed Attenuation 10dB	Control	LOW	Applying and holding logic HIGH to enable 10dB fixed attenuation	Yes
13	Fixed Attenuation 20dB	Control	LOW	Applying and holding logic HIGH to enable 20dB fixed attenuation	Yes
14	+5V	Power Supply	+5V	+5V DC is supplied for reference (200mA)	Yes
15	GND	Ground	GND	Ground	Yes
16	Calibration	Control	LOW	Applying logic HIGH startup calibration	Yes
17	PA ON/OFF	Control	LOW	Applying logic HIGH opens amplifier RF output	No
18	Calibration indication	Indicator	LOW	Default output low level, output high level during calibration state	Yes
19~25	NC	NC	NC	NC	No

Notes:

- HIGH/LOW voltages are standard TTL signals 0.0V-0.8V = LOW. 2.8V-5V = HIGH.

PACKING LIST

ID	Description	QTY
1	Fig a. AC power supply line (Consulting sales)	1
2	Fig b. DB25 cable (RFCBLADB25)	1



Fig a.



Fig b.

ORDERING INFORMATION

Part Number	Modification	Description
REMC04G08GD	Input connector N-Female and Output connector N-Female	4GHz-8GHz Wideband EMC Benchtop Power Amplifier

AMPLIFIER USE

Ensure that the amplifier input and output ports are safely terminated into a proper 50 ohm load before turning on the power. Never operate the amplifier without a load. A proper 50 ohm load is defined as a load with impedance less than 1.9:1 or return loss larger than 10dB relative to 50 Ohm within the specified operating band width.

Power Supply Requirements

Power supply must be able to provide adequate current for the amplifier. Power supply should be able to provide 1.5 times the typical current or 1.2 times the maximum current (whichever is greater).

In most cases, RF - Lambda amplifiers will withstand severe mismatches without damage. However, operation with poor loads is discouraged. If prolonged operation with poor or unknown loads is expected, an external device such as an isolator or circulator should be used to protect the amplifier.

Ensure that the power is off when connecting or disconnecting the input or output of the amp.

Prevent overdriving the amplifier. Do not exceed the recommended input power level.

Adequate heat-sinking required for RF amplifier modules. Please inquire.

Amplifiers do not contain Thermal protection, Reverse DC polarity or Over voltage protection with the exception of a few models. Please inquire.

Proper electrostatic discharge (ESD) precautions are recommended to avoid performance degradation or loss of functionality.

What is not covered with warranty?

Each RF - Lambda amplifier will go through power and temperature stress testing.

Since the die, ICs or MMICs are fragile, these are not covered by warranty. Any damage to these will NOT be free to repair.

IMPORTANT NOTICE

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