



RFG15K – 15kW RF GENERATOR

The **RFG15K-15kilowatt output RF generators** are precision units intended for both scientific and industrial applications. The robust construction, using tried and tested components together with the latest design techniques, ensure a long and trouble-free life even in harsh environments. The generators are totally air-cooled which considerably reduces their service requirements and allows simple installation.

It is recommended that the generators be used in conjunction with an automatic impedance matching network (**Model AMN15K**). Please see the matching network section for the full technical specification. The matching network controller may be fitted into the front panel of the generator



The main features of the generator are:

- Proven design and track record
- Air cooled
- Individual LED displays for incident (forward) and reflected power.
- Precision power control +/- 1% of set point.
- Common exciter input/output
- **13.56MHz** and **27.12MHz** frequencies available as standard. Non-standard frequencies are available – please contact factory for details.
- Fast pulse operation from TTL/CMOS input (Optional)
- Solid State/Power Tube design for reliable performance

The output power of the generator is fully adjustable between zero and maximum power. The feedback control system ensures that the set output power remains constant and repeatable. Incident (forward) and reflected power measurements are internally calibrated to give high accuracy throughout the power range.

An external voltage of 0 to 5Volts can be used to control the output. This is particularly useful in sputter coating applications where the D.C. voltage developed across the plasma dark space can be controlled rather than the RF power.

General Specifications

RFG15K RF Generators

Output frequency

13.56MHz or 27.12MHz. crystal controlled or common exciter/external signal source input (BNC on rear panel.)

Consult factory for other frequencies

Output power

RFG15K – 15,000 Watts CW

Frequency stability

Crystal controlled:

13.56MHz +/-1.4kHz

27.12MHz +/-2.7kHz

Output impedance

50Ω

Output connection

EIA 1/5/8 type/50Ω

Power control

Analogue control system allows power or external feedback control. Output stability +/-1% for +/-15% variation in line.

Meters

3 1/2 digit LED display of incident (forward) and reflected power.

VSWR capability

Can withstand any VSWR at any phase angle

Harmonic output

Better than 40dB below fundamental

Option - Pulse operation

BNC TTL input on rear panel. Minimum pulse width 10μs. The external power control signal should vary the peak output from 0% to 100%, with a pulse-on duty cycle from zero to continuous DC (100% duty cycle.)

Front panel power meters automatically display pulse output levels by utilising sample/hold technology

Common exciter

BNC input 50Ω (max 13 dBm)

Output envelope ripple

Less than 1% of full amplitude

Front panel controls

Line on/off; Machine on/off; RF on/off; Reflected power limit; Output power set; Overload set; Remote/Local.

Front panel indicators

Line; Machine on/off; RF on/off; Overload; Remote control; Incident output power; Reflected power; Interlock status

Diagnostics

Analogue meter/LED indicator show the following parameters:

All internal power supply voltages
Driver output incident/reflected power

PA anode current

PA grid current

Amplifier Line-up

Solid state crystal oscillator and RF driver. Thermionic vacuum power tube power amplifier.

Cooling

Forced air

Remote control

Accessed via rear panel 15 way 'D' type socket indicators:
RF on/off (open collector 100mA)

Incident power

Reflected power

BNC output 50(7dBm

RF on/off (contact closure)

Interlock (contact closure)

Output set 0-5Volts = 0-100%

Remote output set request

External feedback

Remote RF on/off request

Line

380/415 Vac 3-phase 50/60Hz 5

Wire

Size

Standard Version

37U (H) x 900mm(D) enclosure with lockable castors.

Environment

90% humidity (non evaporating).

10,000 feet above sea level

Standards

Safety:

EN601010

Emissions:

EN 61000-6-4

Immunity:

EN 61000-6-1

Other Products Manufactured By Coaxial Power Systems Ltd Include:

- **Low Power RF Generators – 50Watts to 600Watts**
- **Medium Power RF Generators – 1kWatt to 3kWatt**
- **High Power RF Generators – 5kWatt to 25kWatt**
- **Very High Power Generators – 30kW to 100kWatt**
- **Wide Band Generators – 100Watts and 300Watts, 10MHz to 100MHz**
- **Impedance Matching Networks for all sizes of generator**
- **Plastic Welding Power Supplies**
- **Wood Glue Curing Systems**
- **Vacuum Deposition Systems:-Sputter Coating**
- **Plasma Etching**
- **Reactive Ion Etching**
- **Ashing**
- **PECVD**
- **Diamond Deposition**

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RFG 15KW SE Technical Specification

Output Frequency	13.56Mhz. Crystal controlled or common Exciter input.
Frequency Stability	Crystal controlled: 13.56Mhz +/- 0.005%
Output Power	0-15 Kilowatts CW continuously variable.
Output Impedance	50 Ω
Output Connection	1-5/8 EIA flange
Power Control	Analogue control system allows power or external feedback control. Output stability +/- 1% for +/- 15% variation in line.
VSWR Capability	Can withstand any VSWR at any phase angle.
Harmonic Output	Better than 40db below fundamental.
Common Exciter	BNC Input 50 Ω 5dbm BNC output 50 Ω 5dbm
Front Panel Controls	RF On, RF Off, Output Power Set Overload Reset Line On / Off
Concealed controls	PA Output Tune PA Output Load PA Input Tune
Controller front panel indicators	RF On, RF Off, Remote Operation 2 x 3 1/2 Led DPM Display: Reading Incident & Reflected Output Power High Reflected Power warning LED. Interlock LED bank, Alarm LED bank
Driver front panel	2 x 3 1/2 LED DPM Display of drive power and drive reflected power
Remote Control	Accessed Via Rear Panel 15 Way "D" Type Socket Indicators: RF On/Off Incident Power Reflected Power Controls: RF On/Off (Contact Closure) Interlock (Contact Closure) Output Set 0-5 Volts = 0 - 5000W. External Feedback. Remote Output Set Request Remote RF On/Off Request
Cooling	Forced Air cooling.
Line	Three Phase 380/400/415V 50/60Hz.
Size	19" Rack 39U High 900mm Deep.
Weight	TBA
Environment	Operating Temperature: 0-35°C (-20 To +65°C Storage).
Standards	SAFETY IEC 215 EMISSIONS EN 50081-2 IMMUNITY Pr EN 50082-2