



## RFG 50K 50kW. RF GENERATOR TECHNICAL SPECIFICATION

The **RFG50K, 50,000-Watt output RF Generator** is a precision unit 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. It is recommended that the generator be used in conjunction with either a manual or automatic impedance matching network. Both types are available from Coaxial Power Systems Ltd – please see the separate brochure for details.



The main features of the generator are:

- Proven design and track record
- Crystal Control for frequency stability
- 50 Ohm output impedance
- Individual displays of incident (forward) and reflected power.
- Precision power control +/- 1% of set point.
- Common exciter input/output
- Solid State/Power Tube design for reliable performance
- May be located in a position remote from the load.
- Fast pulse operation from TTL/CMOS input (Optional)
- De-ionising water-cooling system with temperature, flow and conductivity interlocks.(Optional) 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.

The amplifier chain consists of a solid-state driver, with an output up to 2kWatts, which feeds into a ceramic triode power amplifier tube, which is operated in a grounded grid configuration. This design gives maximum efficiency –typically 70%–together with a robust construction using the minimum of components.

A 4U, 1/2 rack space is available on the front panel for mounting the controller of an automatic impedance matching network.

The generator is supplied with a 12ft. long Heliax RF cable with 3-1/8 EIA flanges. An external voltage of 0 - 5Volts may be used to control the output power.

## General Specifications

### Model RFG30K RF Generator

#### **Output frequency**

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

#### **Output power**

50,000 Watts CW

#### **Frequency stability**

Crystal controlled:  
13.56MHz +/- 1.4kHz  
27.12MHz +/- 2.7kHz

#### **Output impedance**

50Ω

#### **Output connection**

3-1/8 EIA/50Ω

#### **Power control**

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

#### **Meters**

Analogue meters to display incident (forward) and reflected power.  
3 1/2 digit LED display of driver incident (forward) and reflected power  
Analogue meters displaying internal power supply

voltages, PA anode current and PA grid current.

#### **VSWR capability**

Can withstand any VSWR at any phase angle

#### **Harmonic output**

Better than 40dB below fundamental

#### **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; Interlock status

#### **Amplifier Line-up**

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

#### **Cooling**

Forced air for driver.. PA water cooled via external water recirculating system

#### **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, 60kVA

#### **Size**

1700mm(L) x 1040mm(W) x 2089mm(H).

#### **Environment**

90% humidity (non evaporating). 10,000 ft. above sea level

#### **Standards**

Safety: EN601010

Emissions:

EN 61000-6-4

Immunity:

EN 61000-6-1

### Options

#### **Pulse operation**

BNC TTL input on rear panel. Minimum pulse width 10μsec. 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

#### **Water Cooling Recirculating System**

Primary input: 12 gallons/min.

Secondary: preset flow to suit PA tube. Flow, Conductivity and Temperature Interlock. Deionising cartridge to maintain conductivity less than 10μs

## **Coaxial Power Systems Ltd**

Spectrum House, Finmere Road, Eastbourne, E.Sussex BN22 8QL UK

Tel: +44(0)1323 639974 Fax: +44(0)1323 739654 E-mail: [sales@coaxialpower.com](mailto:sales@coaxialpower.com)

Web: [www.coaxialpower.com](http://www.coaxialpower.com)