



RFG 30K 30kW. RF GENERATOR TECHNICAL SPECIFICATION

The **RFG30K, 30,000-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 an 18ft. 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

30,000 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

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