The **RFG 20K-WC (20kW / 20000 WATT)** RF generator is a precision unit intended for both scientific and industrial applications. The robust construction using the latest in switch mode and solid-state design techniques ensure a long and trouble free life even in harsh environments.

The small size of the unit makes it ideal for use where there is restricted rack space.

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.

This unit is water-cooled (WC) for continuous operation.

### The main features of this RFG are:

- Efficient Class-E design
- 380-415 VAC (3 phase) – As standard
- 208 VAC (3 phase) – Optional
- 480 VAC (3 phase) – Optional
- Floor-standing cabinet
- Analog and RS-232 interfaces available.
- External control of output voltage. (Useful in sputter coating applications).
- Feedback control system ensures that the set output power remains constant and repeatable.
- Internally calibrated power measurements for high accuracy throughout the power range.
- Microprocessor display of incident (forward) power, reflected power and unit status
- Precision power control fully adjustable between 0-100%.
- 13.56MHz, 27.12MHz frequencies available as standard.

*(Non-standard frequencies are available - please contact factory for details).*

The output power of each 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.

### Option (please enquire)

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

<table>
<thead>
<tr>
<th>Model Variants</th>
<th>RFG 20K-13-WC (13.56MHz)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RFG 20K-27-WC (27.12MHz)</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Floor-standing cabinet</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>600mm (W) x 800mm (L) x 1150mm (H)</td>
</tr>
<tr>
<td></td>
<td>External connectors protrude from rear panel.</td>
</tr>
</tbody>
</table>

| Weight                 | Estimated 330kg.          |

| Front panel Material / Colour | Aluminium, powder coat finish. |

| Chassis and Cover Material | Steel, powder coat finish. |

### Connector and Cable Specifications

<table>
<thead>
<tr>
<th>RF Output Connector</th>
<th>1-5/8 EIA flange</th>
</tr>
</thead>
<tbody>
<tr>
<td>User Port Connector</td>
<td>25-pin, Sub-Miniature 'D' Female, with 8mm 4-40 jack post</td>
</tr>
<tr>
<td>AC Power Input Connector</td>
<td>380-415 VAC Model: 63A type 3P+E (4 pin) connector</td>
</tr>
<tr>
<td>Input + Output CEX / Drive Connector</td>
<td>Input: SMA, Coaxial Sub-Miniature / Output: SMA, Coaxial Sub-Miniature</td>
</tr>
<tr>
<td>Pulse Input Connector</td>
<td>NOT APPLICABLE</td>
</tr>
<tr>
<td>AMNC Readout connector</td>
<td>Lemo – Circular Connector, 3 contacts.</td>
</tr>
<tr>
<td>Coolant Connectors</td>
<td>Water IN – 8mm Bore push-fit connector</td>
</tr>
<tr>
<td></td>
<td>Water OUT – 8mm Bore push-fit connector</td>
</tr>
<tr>
<td>Earth Connection</td>
<td>Single, 45° Stud-Mount terminal, 6.35 x 0.81mm</td>
</tr>
</tbody>
</table>

### Electrical

| Input Power             | 380-415 VAC (3 phase) - Standard |
|                        | 208 VAC (3 phase) – Optional    |
|                        | 480 VAC (3 phase) – Optional    |
| Output Power / Impedance | 20000-Watts (20kW) Continuous / 50 Ω |
| Output Frequency Options / Stability | 13.56MHz / +/-1.4kHz. |
|                         | 27.12MHz / +/-2.7kHz.          |
| Interface Options       | Analogue (Standard), RS-232 (Optional), |
| Efficiency              | 80%                           |
| Output Envelope Ripple  | Less than 1% of full amplitude. |
| VSWR Capability         | Can withstand VSWR at any phase angle. |
| Harmonic Output         | Better than 40 dB below fundamental. |
| Pulse Operation via SMA input on rear panel | Consult factory |

### Local Control and Remote Interface

#### Local Control

**Accessed via Front-Panel Controls:**
- Line ON/OFF.
- RF ON/OFF.
- Digital output power set / Menu Control dial.
- Menu Switches.
- Remote switches: RF on/off control enable, O/P set on/off.
- Local switches: x0.1 / x1 (output range), CEX-OSC, PULSE-CW.
- Timer.

**VFD display showing:**
- Forward (Incident) power / Reflected power / Reflected power exceed limit.
- Remote operation.
- Timer.
- Interlock status (cooling and external)
- AMN Readout on main display (optional)

#### Remote Interface

**Accessed via User-Port:**
- RF ON/OFF
- Incident Power indication
- Reflected Power indication
- Output set 0-5volts = 0-100%
- Remote output set request.

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Specification is continued on the following page
Environmental

Operating Temperature 0-40°C (32°F-104°F)

Storage Temperature 0-65°C (-4 to 149°F)

Cooling Requirements

Cooling Water-Cooled Amplifier via external recirculation system / Air-cooled Driver.

Water Temperature 1-50°C (33-104°F) to inlet temperature.

Flow 10 LPM minimum

Other

Standards

EN61000-3-2:2006
EN61000-3-3/A2:2005
EN61326-1:2006
EN55011:2009+A1:2010
UL61010-1:2004 R7.05
Machinery Directive 2006/42/EC
Low Voltage 2006/95/EC
EMC 2004/108/EC
BS EN ISO 9001:2008

Notes & Revision History

Warranty

Coaxial Power Systems Ltd offer a warranty for parts and labour (if returned to factory) for 1 year from date of despatch. The warranty is invalidated if the generator has suffered inappropriate treatment i.e. excessive vibration, mechanical denting or dropping, accidental liquid spill, excessive applied voltage to remote connectors etc. Coaxial Power Systems Ltd should be notified of all warranty claims before return of equipment.

Contact

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