



HF80KP RF AMPLIFIER

QEI Corporation can meet the needs of your custom system design. QEI designed the HF80KP air cooled, long pulse RF Amplifier specifically for the front end of the Spallation Neutron Source (SNS) at Oak Ridge National Laboratory (ORNL).

The amplifier is designed to operate from 1.8 to 2.2 megahertz with a full 80 kilowatt output with a pulse width up to 1.2 milliseconds and a duty factor of 8%.

Due to severe mechanical constraints, the power supplies and PA are contained in a small 61cm x 86cm x 149cm cabinet with the solid state driver, meter and control panel, and pulse generator in less than 61cm of rack space.

The HF80KP RF Amplifier comes complete with a pulse generator, solid state driver amplifier, and the power amplifier which utilizes a single 4CX20000 tetrode air cooled power grid tube. Output tuning is facilitated by the use of two multi-turn inductors to insure a full 80 kilowatt output from 1.8 to 2.2 megahertz.

Remote control capability is available from the front panel of the amplifier. All remote control I/O are either relay contact, TTL level, or -10VDC to +10VDC ground referenced

signals. RF Voltage and RF Current samples are available for precise output monitoring.

Full metering of all power supplies along with controls and indicators are located on the rack mounted meter panel assembly.

The anode power supply uses a twelve pulse power transformer to develop 12 kilovolts. The amplifier is completely protected against anode, screen, and grid overloads.

The driver assembly is a self contained all solid state amplifier that has a power output of about 175 Watts from an input of less than 0dBm.

The pulse generator can be used to develop the pulse input for the amplifier or a user defined pulse may be used.

Designed for 208 VAC three phase mains power, other three phase mains power voltages are available.

Although the HF80KP RF Amplifier was specifically designed to SNS specifications, QEI can

modify and design an amplifier to your specific needs.



HF80KP RF Amplifier

GENERAL

Power Output.....0-80 kW peak pulse
Frequency Range: 1.8-2.2 MHz
Full Power Bandwidth: greater than 200 KHz
Pulse Width:.....0.1-1.2 msec
Pulse Repetition Rate: 1-100 Hz
Duty Factor: 0.1-8%
Pulse Flatness: better than 1%
Tube Complement: single 4CX20000
Output Connector:..... 1 5/8 inch EIA flange
RF Load Impedance: 50 Ohms
Input Power for 80 kW Peak Pulse:.. 0 dBm
Linearity (10-90% of Rated Power):+/- 3 dB
Harmonic Distortion:... better than -30 dBc



Power Amplifier Compartment

ELECTRICAL/MECHANICAL

Mains AC Power:208 VAC, 60 Hz, three phase

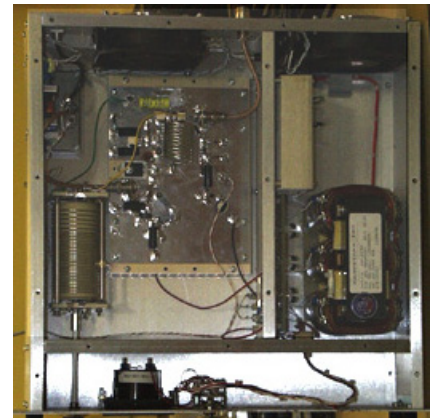
Ambient Temperature Range:

Operating:..... -15° C to +40° C
Startup:.....0° C to +50° C

Maximum Humidity:... 95% non-condensing

Maximum Altitude:..... 10,000 feet AMSL

Cabinet Size:24" (61 cm) W x 34" (86 cm) D x 59" (149 cm) H



Driver Assembly



Metering and Control Panel

Years of field proven experience in custom design will assure you of the best possible product, with the most effective interface and monitoring system.

QEI is always available to discuss your present and future needs. Please contact us so that we may quote on your project.

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