



The *AE Techron 7212* amplifier is a 0.44 kVA, DC-enabled unit that provides exceptional versatility and value. It features DC to 250 kHz bandwidth and offers a wide range of field-configurable options. A single 7212 can output a 40 mSec pulse with up to 30 amperes peak current. In continuous operation, a 7212 can provide 430 watts RMS of output power. If more voltage is needed, up to four amplifiers can be combined in series and operate as a single system.

The 7212 can operate in either voltage or current mode and can be configured by the customer for high-voltage/low-current, medium voltage and current, or low-voltage/high-current applications. It provides very low noise and fast slew rates, and can safely drive a wide range of resistive, or inductive loads.

The optional 7212P version features a precision, 20-turn trim control that offers an output offset of less than 200 μV , field-adjustable to less than 100 μV , and a DC drift during operation of only $\pm 75 \mu\text{V}$.

Performance

Small Signal Frequency Response:

DC - 100 kHz +0.0 to -3.0 dB

8-ohm Power Response:

$\pm 140 \text{ Vpk}$ DC to 60 kHz

$\pm 50 \text{ Vpk}$ DC to 100 kHz

Slew Rate:

50 V/ μSec

Residual Noise:

10 Hz to 300 kHz: 950 μV (0.95 mV)

10 Hz to 80 kHz: 300 μV (0.3 mV)

Signal-to-Noise Ratio:

10 Hz - 30 kHz: -113 dB

10 Hz - 80 kHz: -106.6 dB



7212 FOUR-QUADRANT POWER AMPLIFIER

Features

- Frequency bandwidth of DC to 250 kHz.
- Continuous output of 430 watts RMS at 4 ohms.
- 40 mSec pulses of up to 30 amperes peak into a 1 ohm load.
- System output of over 1,700 watts or over 90 A_{peak} is possible with multiple, interconnected amplifiers.
- Efficient design and light weight chassis materials allow amplifier to occupy only 2U height and weigh only 35 lbs.
- Protection circuitry protects the *AE Techron 7212* from input overloads, improper output connection (including shorted and improper loads), over-temperature, over-current, and supply voltages that are too high or low.
- Optional "P" version offers precision control of output offset, DC drift and gain linearity.
- Shipped ready to operate from 120-volt ($\pm 10\%$) single-phase AC mains; 230/240-volt model available on request.

Unit to Unit Phase Error:

± 0.1 degrees at 60 Hz

THD:

DC - 30 kHz less than 0.1%

Output Offset:

7212: Less than 5 mV, field adjustable to less than 1 mV

7212P: Less than 200 μV , field adjustable to less than 100 μV ; adjustment via 20-turn precision trim control; DC offset adjustment range is ± 10 mV with about 0.9 mV per turn

DC Drift:

7212: ± 1.5 mV

7212P: $\pm 200 \mu\text{V}$ (from cold to maximum operating temperature); $\pm 75 \mu\text{V}$ (after 20 minutes of operation)

7212P Gain Linearity (over input signal, from 0.2V to 5V):

DC: 0.0125%

AC: 0.030%

AC Specifications - High Voltage Mode

Ohms	PEAK OUTPUT						RMS OUTPUT					
	40mSec Pulse, 20% Duty Cycle		5 Minute, 100% Duty Cycle		1 Hour, 100% Duty Cycle		5 Minute, 100% Duty Cycle		1 Hour, 100% Duty Cycle			
	Volts	Amps	Volts	Amps	Volts	Amps	Volts	Amps	Volts	Amps	Watts	
32	166	5.1	161	5	161	5	113	3.6	113	3.6	407	
16	147	9	146	9	120	7.4	102	6.3	85	5.2	442	
8	123	15	98	12	68	8.5	69	8.5	48	6	288	
4	95	23.1										

AC Specifications - Mid-Level Mode

Ohms	PEAK OUTPUT						RMS OUTPUT					
	40mSec Pulse, 20% Duty Cycle		5 Minute, 100% Duty Cycle		1 Hour, 100% Duty Cycle		5 Minute, 100% Duty Cycle		1 Hour, 100% Duty Cycle			
	Volts	Amps	Volts	Amps	Volts	Amps	Volts	Amps	Volts	Amps	Watts	
8	72	8.8	71	8.8	71	8.8	50	6.2	50	6.2	313	
4	62	14.8	60	14.8	59	14.6	42	10.5	42	10.3	432	
2	48	22.7	42	21.2	30	14.1	30	15	20	10	200	
1	32	30										

AC Specifications - High Current Mode

Ohms	PEAK OUTPUT						RMS OUTPUT					
	40mSec Pulse, 20% Duty Cycle		5 Minute, 100% Duty Cycle		1 Hour, 100% Duty Cycle		5 Minute, 100% Duty Cycle		1 Hour, 100% Duty Cycle			
	Volts	Amps	Volts	Amps	Volts	Amps	Volts	Amps	Volts	Amps	Watts	
2	30	14.9	30	14.9	30	14.9	21	10.5	21	10.5	225	
1.5	27	17.6	27	17.7	27	17.7	19	12.5	19	12.4	236	
1	24	22.6	24	22.6	24	22.6	17	16	17	16	272	

Output Impedance:

28 mOhm in Series with 1 μ H

Phase Response:

± 5 degrees (10 Hz - 10 kHz)
plus 560 nsec propagation delay

Input Characteristics

Balanced with ground:

Three terminal barrier block connector;
20k ohm differential

Unbalanced:

BNC connector, 10k ohm single-ended; fixed or variable gain

Max Input Voltage:

± 10 V balanced or unbalanced

Common Mode Rejection:

-58 dB with 5V input

Display, Control, Status, I/O

Front Panel LED Displays indicate:

Ready, Standby, Fault, Over Temp, Over Voltage, Overload

Soft Touch Switches for:

Run, Stop, Reset

Gain Control, when enabled:

Voltage gain adjustable from 20 to 0

On/Off Breaker

Back Panel Power Connection:

25 amp IEC (with retention latch)

Signal Output: +/- Sampled Common

Signal Input: User Selectable BNC or Barrier Strip Balanced

Communication Capabilities

Current Monitor: $\pm 1 \text{ V} / 6 \text{ A} \pm 1\%$

Input Signal Monitor: $\pm 1 \text{ V} / 2 \text{ V} \pm 1\%$

Reporting: System Fault, Over Temp, Over Voltage, Over Load

Control: Force to Standby, Reset after a fault

Physical Characteristics

Chassis:

The Amplifier is designed for stand-alone or rack-mounted operation. The Chassis is black aluminum with a powder coat finish. The unit occupies two EIA 19-inch-wide units.

Weight: 35 lbs. (15.9 kg), Shipping 45 lbs. (20.4 kg)

AC Power:

Single phase, 120 VAC, 60 Hz, 10-amp service; (220-240 VAC, 50-60 Hz, 5-amp service model available)

Operating Temperature:

10°C to 50°C (50°F to 122°F), Maximum Output Power de-rated above 30°C (86°F)

Humidity: 70% or less, non-condensing

Cooling:

Forced air cooling from front to back through removable filters

Airflow: 180CFM

Dimensions:

19 in. x 22.75 in. x 3.5 in. (48.3 cm x 57.8 cm x 8.9 cm)

Protection

Over/Under Voltage:

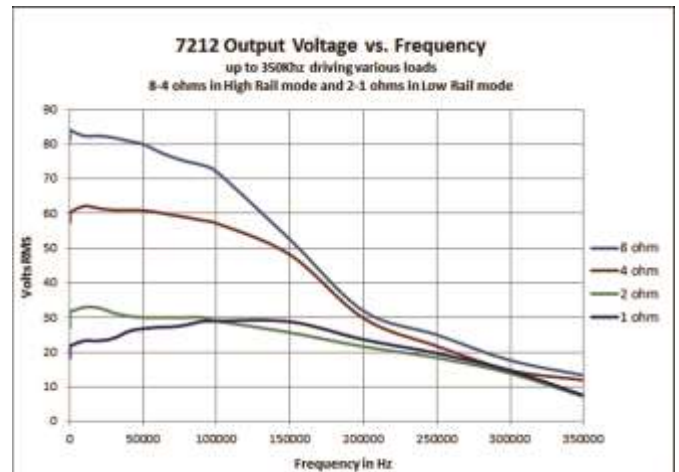
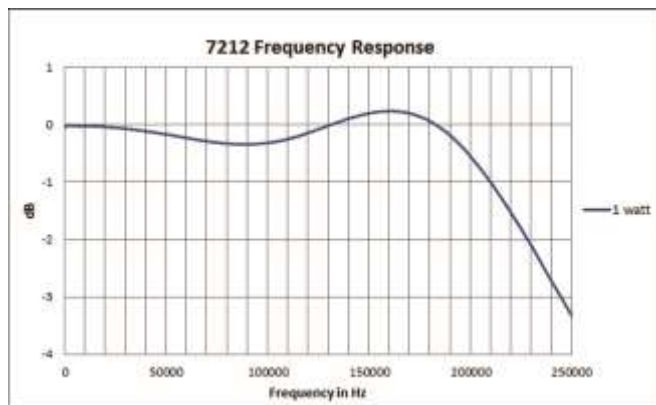
$\pm 10\%$ from specified supply voltage amplifier is forced to Standby

Over Current:

Breaker protection on both main power and low voltage supplies

Over Temperature:

Separate output transistor, heat sink, and transformer temperature monitoring and protection



AE Techron Sales Representative