

The *AE Techron 7796* amplifier is a high-powered, DC-enabled unit designed to provide clean, reliable power for gradient coils in magnetic resonance imaging systems or in applications that require both significant short-term (burst) and long-term (continuous) power. A single 7796 has an output capability of over 210 amperes peak at its rated voltage. If more current is needed, up to four amplifiers can be combined in parallel and operate as a single system.

The 7796 can operate in either voltage or current mode and features robust output devices and a power range of over 5000 watts RMS. It provides very low noise and fast slew rates, and can safely drive a wide range of resistive, inductive loads.

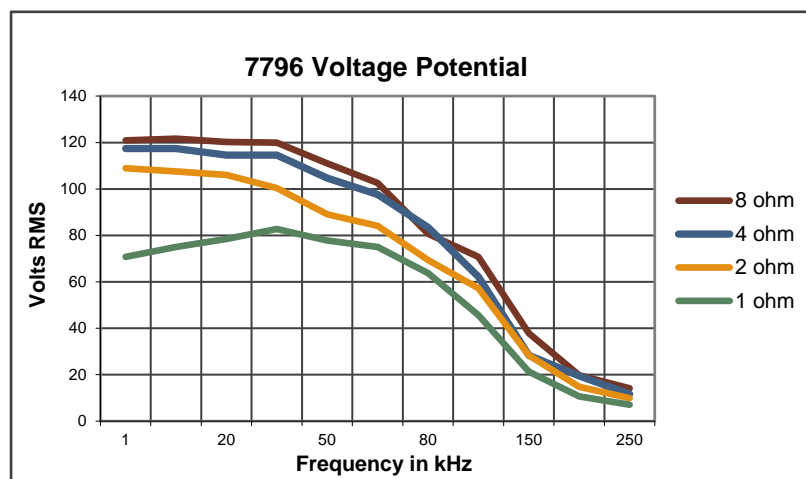
Typical use includes as a self-contained, general purpose amplifier or combined into systems for doing three-phase or high-current testing required in ANSI-T1-315-2001 or MIL-STD-704.



7796 SPECIFICATION SHEET

Features

- Over 22,000 watts peak for 40 mSec and 8,000 watts peak continuous into a 0.5-ohm load.
- 40 mSec pulses of up to 209 amperes peak into a 0.5-ohm load.
- System output of over 650 volts and 250 amperes maximum are possible with multiple, interconnected amplifiers.
- Frequency bandwidth of DC to 30 kHz; DC to 100 kHz at reduced power.
- Rugged chassis for stand-alone or rack mounted operation. No additional power supplies are required.
- Protection circuitry protects the *AE Techron 7796* from input overloads, improper output connection (including shorted and improper loads), over-temperature, over-current, and supply voltages that are too high or low.
- 7796 with "P" option offers precision control of output offset, DC drift and gain linearity.
- Shipped ready to operate from 208-volt ($\pm 10\%$) three-phase AC mains. Operation from 400-volt ($\pm 10\%$) AC mains are available on request.



AC Specifications

Ohms	PEAK OUTPUT						RMS OUTPUT				
	40mSec Pulse, 30% 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
Open	181	0	181	0	181	0	128	0	128	0	0
16	159	12	159	10	159	10	112	7	112	7	795
8	159	19	154	19	154	19	109	13	109	13	1483
4	158	39	152	38	152	38	107	27	107	27	2887
2	157	79			141	71			100	50	5004
1.5	148	99			71	71			50	50	2509
1	140	140			71	71			50	50	2509
0.5	106	209			63	127			45	90	3999
0.25	53	209									

Note: Performance levels typical up to 20 kHz frequency levels. Above 20 kHz, slew rate may affect performance, reducing maximum voltage, current and power output.

Performance (Controlled Voltage Mode)

Note: Testing performed at 208V/415V AC. 7796 amplifiers can operate from 400V AC $\pm 10\%$. Since these amplifiers have an unregulated power supply, low line conditions may slightly affect the maximum voltage potential.

7796P accuracy was measured when driven into a 10 ohm load with between 0.1VDC and 6VDC or between 0.2V AC and 5V AC presented at its inputs.

Frequency Response:

DC – 30 kHz, +0.1, -0.5 dB

8 ohm Power Response:

DC-50 kHz: ± 150 Vpk

DC-150 kHz: ± 50 Vpk

DC-200 kHz: ± 25 Vpk

Maximum Continuous Output Power:

5000 watts RMS

Slew Rate:

41 V/ μ Sec

Phase Response:

± 8.3 degrees (10 Hz – 10 kHz)

Phase Error:

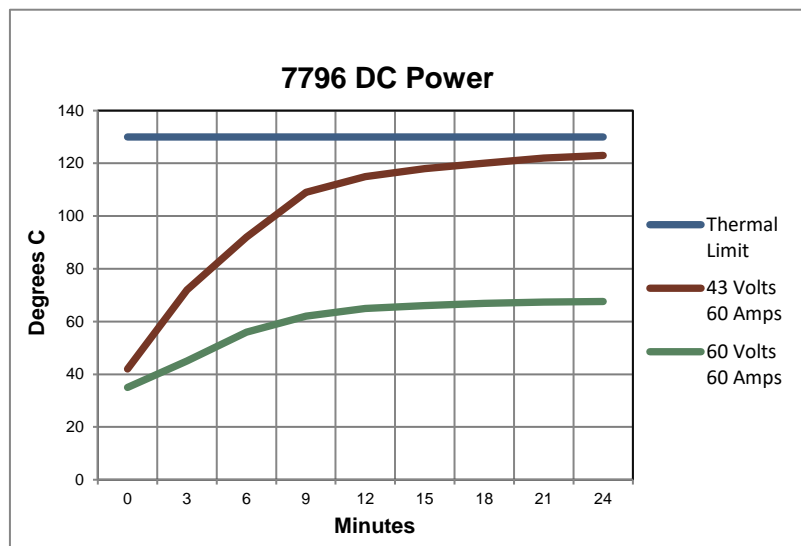
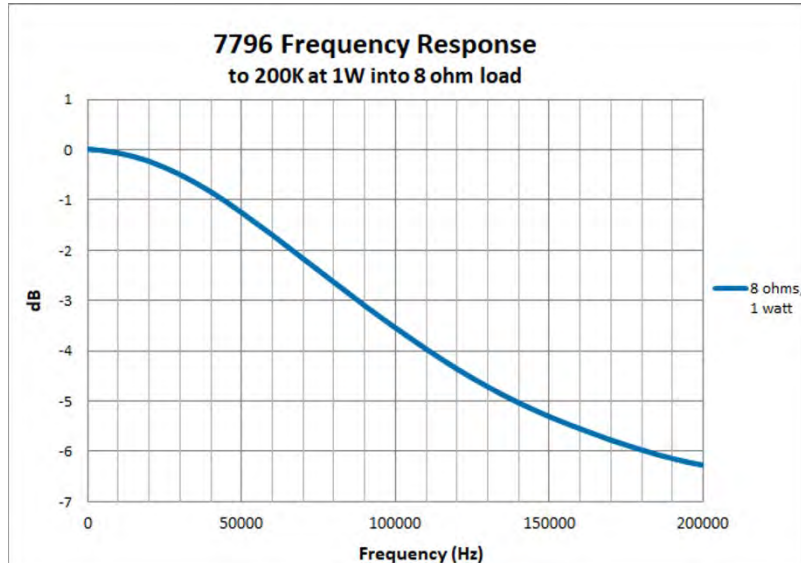
± 0.1 degrees at 60 Hz

Output Offset:

7796: Less than 5 mV, field adjustable to less than 1 mV

Unit to Unit Phase Error:

± 0.1 degrees at 60Hz



Output Offset:

7796: Less than 5 mV, field adjustable to less than 1 mV

7796P: Less than 200 µV

Output Offset Current:

Less than 10 milliamperes DC

DC Drift:

7796: ±1.5 mV

7796P: ± 400 µV (from cold to maximum operating temperature); ±200 µV (after 20 minutes of operation)

Residual Noise:

Unfiltered: Less than 75 µV

Filtered (400 Hz – 30 kHz): Less than 55 µV

THD:

DC - 30 kHz less than 0.1%

Input Characteristics

Balanced with ground:

Three terminal barrier block connector 20k ohm differential

Unbalanced:

BNC connector, 10k ohm single ended

Gain:

Voltage Mode: 20 volts/volt

Current Mode: 20 amperes/volt

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

7796: 0.1%

7796P:

DC: 0.0125%

AC: 0.030%

Max Input Voltage:

± 10 V balanced or unbalanced

Input Impedance:

20 kOhm differential

Input Sensitivity:

3.0V input for 3800W output into 1 ohm (adjustable)

Common Mode Rejection Range:

± 11 VDC maximum

Common Mode Rejection Ratio:

70 dB

Display, Control, Status, I/O

Front Panel

LED Displays indicate:

Run, Ready, Standby, Stop, and Fault conditions in the output stage

LCD Display:

Lists type of fault condition and gives suggested corrective action

Soft Touch Switches for:

Run (Enable), Stop, Reset

User Configurable:

LCD display can be configured for up to four simultaneous displays reporting one, two or all four of the following: Voltage Peak, Voltage RMS, Current Peak, and Current RMS

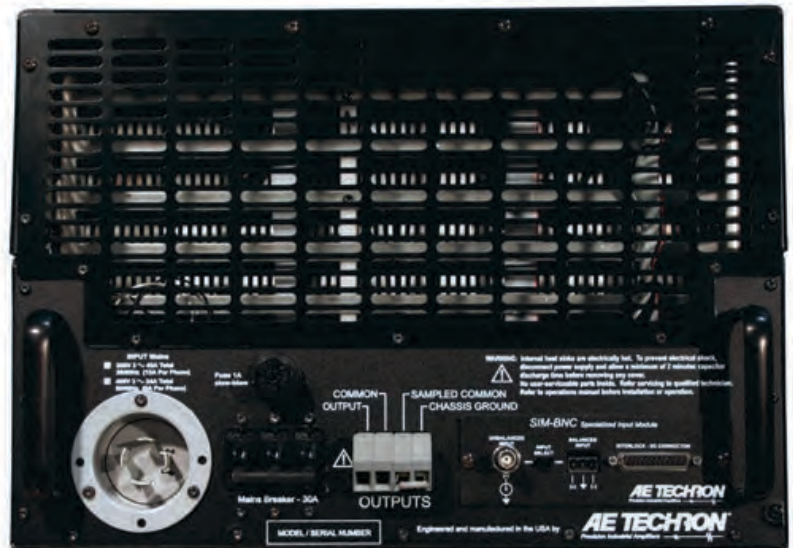
Back Panel

Power Connection:

NEMA-style locking receptacle; matching AC connector also included

Signal Output:

4-position terminal barrier block (OUTPUT/Common/SAMPLED Common/CHASSIS GROUND); resistor installed between SAMPLED COMMON AND CHASSIS GROUND is a 2.7-ohm, 2W, 5%, metal-oxide resistor



Signal Input:

User-selectable Unbalanced BNC or Balanced Barrier Strip

Interlock Connector:

25-pin D-sub connector used for amplifier control and status applications; also used in multi-amplifier applications

Communication Capabilities

Current Monitor: $\pm 1V / 20A \pm 1\%$

Reporting:

System Fault, OverTemp, Over Voltage, Overload

Control:

Force to Standby; Reset after a fault

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

Physical Characteristics**Chassis:**

All aluminum construction designed for stand-alone or rack-mounted operation with black chassis; the amplifier occupies seven EIA 19-inch-wide rack units

Weight:

153 lbs. (69 kg)

AC Power:

Three-phase, 208 VAC $\pm 10\%$, 47-60 Hz, 30A AC service. (400 VAC $\pm 10\%$, 15A version available)

Operating Temperature:

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

Humidity:

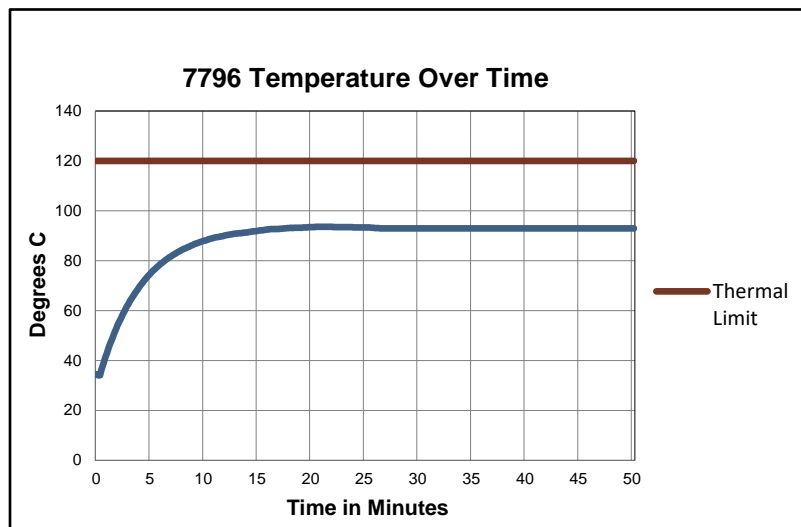
70% or less, non-condensing

Cooling:

Forced air-cooling from front to back through removable filters via six 100 ft³/min. fans. No space is required between rack-mounted amplifiers. Air filters are removable from the rear via one fastener per side and may be eliminated if cabinet filtration is provided.

Dimensions:

19 in. x 22.8 in. x 12.25 in. (48.3 cm x 57.9 cm x 31.1 cm). Unite occupies seven EIA 19-inch-wide rack units.



CE 400V versions of this product bear the CE mark

AE Techron Sales Representative