



For testing to these Specifications:

MILITARY

MIL STD 461, RS101

AVIATION

DO160G (2012-12)

AUTOMOTIVE STANDARDS

ANSI ASAE EP455

ISO 16750-2

ISO 7637-2:2004 (E)

ISO 7637-2:2011 (E)

JASO D 001-94 (1994)

SAE J1113-11

SAE J1113-11 (rev.2000)

SAE J1113-11 (rev.2007)

AUTOMOTIVE OEM

Audi I EE-32 (2006-06)

BMW GS 95003-2 (2010-01)

BMW GS 95003-3 (2010-01)

BMW GS 95024-2-1 (2010-01)

BMW GS 95024-2-2 (2011-01)

Case New Holland ENS0310 (12-2-2010)

Chrysler CS-11809 (2009-05-29)

Chrysler CS-11979 (2010-04-13)

Claas CN 05 0215 (2004-12)

Cummins 14269 (06201-028)

Cummins 14387 (102020-119)

DAF BSL-003 (1998-12)

DAF BSL-006 (2009-04)

Daimler Chrysler DC-10842 (2003-12)

Daimler Chrysler PF-9326 Change D

Ford CS-2009.1 (2-11-2010)

General Motors GMW3172_H

(July 2010)

Honda 7794Z-SAAA-000 (28.12.2004)

Hyundai ES 39110-00 (5-8-2012)

Hyundai ES 96200-00 (2008-07-03)

Hyundai ES 95400-10 (2007-11-14)

Hyundai ES 96100-02 (2006-11-16)

Mazda MES PW67600 (1995-17)

Mitsubishi ES-X892010 Rev Q (2007-01)

Mitsubishi ES X82115 Rev C (2009-03)

Toyota TSC350G Rev 8 (May 2005)

Toyota TSC3590G Rev 7 (June 2001)

Volkswagen VW 80101 (2009-03)

Volkswagen VW 80000 (2009-10)



7794 4-Quadrant Power Amplifier / Battery Simulator

Features

- Stable when driving highly capacitive loads
- 60A continuous at 13.8 VDC
- 200A in-rush current capability
- 150 kHz small signal bandwidth
- ±80 VDC capable
- 41 V/μS slew rate
- Four quadrant operation (source and sink)
- 3 mOhm output impedance

AE Techron's 7794 is a powerful four-quadrant amplifier and battery simulator that can be used to reproduce various DC waveforms required by testing Standards for military, aviation and the automotive industry. It is designed to be used as a battery substitute for transient immunity testing requiring a battery and can produce up to 60A continuous at 13.8 VDC. It offers a 200A in-rush current capability and, when combined in multiples, can provide an in-rush current of up to 800A.

The 7794 is capable of producing the 80V surges required for DO160G Section 16.6.2.4 abnormal surge testing. It is also well suited for ISO 7637 pulse 2b and 4 (voltage variations) testing.

ONE HOUR DC PERFORMANCE

VOLTAGE DC	DC CURRENT
13.5	60
28	106
32	115
80	70

Performance (Controlled Voltage Mode)

Note: Testing performed at 208V/415V AC. 7794 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.

7794P 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

DC – 150 kHz, +0.1, –5.2 dB

Slew Rate:

41 V/ μ Sec

Phase Response:

± 8.3 degrees (10 Hz – 10 kHz)

Unit-to-Unit Phase Error:

± 0.1 degrees at 60 Hz

Output Offset:

7794: Less than 5 mV, field adjustable to less than 1 mV

7794P: Less than 200 μ V

Output Offset Current:

Less than 10 milliamperes DC

DC Drift:

7794: ± 1.5 mV

7794P: ± 400 μ V (from cold to maximum operating temperature); ± 200 μ V (after 20 minutes of operation)

Residual Noise:

Unfiltered: Less than 75 μ V

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

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):

7794: 0.1%

7794P:

DC: 0.0125%

AC: 0.030%

Max Input Voltage:

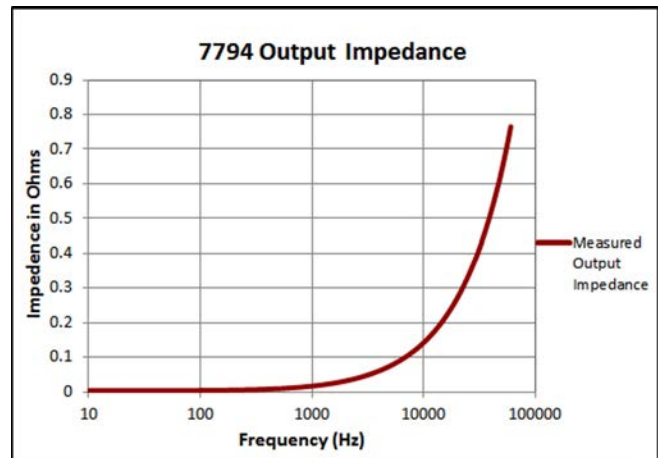
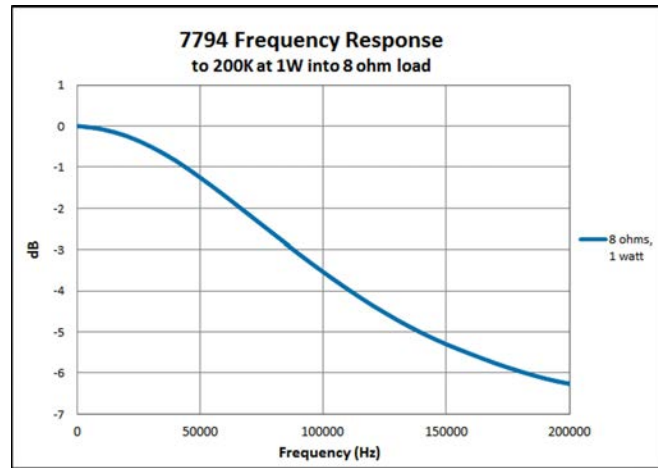
± 10 V balanced or unbalanced

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)



7794 Front-Panel Display and Controls



7794 Back-Panel Controls and Connectors

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.