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7548 SPECIFICATION SHEET

The AE Techron **7548** amplifier is a DC-enabled, high-powered unit designed to provide very low noise and fast slew rates. A single 7548 has an output capability of 100 amperes peak and 200 volts peak when driving typical MRI gradient coil loads. It can output a 40 mSec pulse with up to 105 amperes peak current into a 1-ohm load. If more current is needed, up to four amplifiers can be combined in series or parallel and operate as a single system.

The 7548 can operate in either voltage or current mode and features robust output devices and a power range of over 3300 watts RMS. It can safely drive a wide range of resistive, inductive loads.

Typical use includes as a power source for EMC testing in applications that require both continuous AC or DC signals and significant short term (burst) signals. It can be combined in a three-phase system ideal for MIL-STD-704F (AC and 28VDC tests).

Performance (Controlled Voltage Mode)

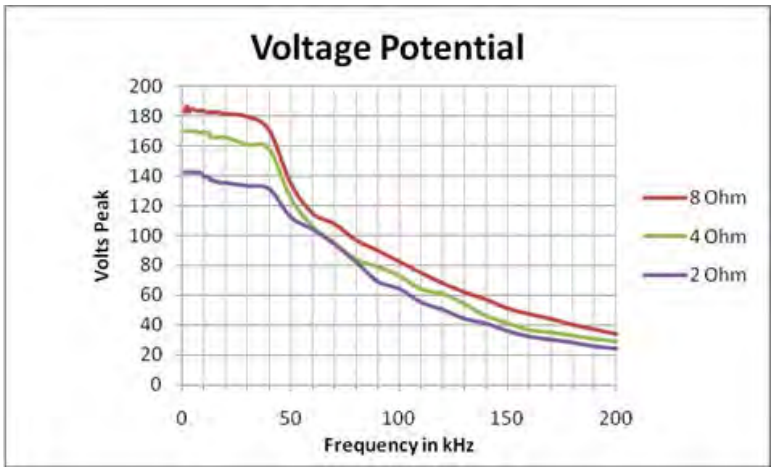
Note: Testing performed at 208V/415V AC. 7548amplifiers can operate from 400V AC ±10%. Since these amplifiers have an unregulated power supply, low line conditions may slightly affect the maximum voltage potential.

7548P 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

Features

- Over 12,000 watts peak for 40 mSec and 5,500 watts peak continuous into a 1-ohm load.
- 40 mSec pulses of up to 105 amperes peak into a 1-ohm load.
- System output of 800 volts and 70 amperes maximum are possible with multiple, interconnected amplifiers.
- Frequency bandwidth of DC to 50 kHz at rated power; 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 7548* from input overloads, improper output connection (including shorted and improper loads), over-temperature, over-current, and supply voltages that are too high or low.
- 7548 with "P" option offers precision control of output offset, DC drift and gain linearity.
- Shipped ready to operate from 208-volt (±10%) three-phase AC mains. Operation from 400-volt (±10%) AC mains are available on request.



AC Specifications

	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		
Ohms	Volts	Amps	Volts	Amps	Volts	Amps	Volts	Amps	Volts	Amps	Watts
Open	200	0	200	0	200	0	141	0	141	0	0
16	195	12	195	12	195	12	138	8	138	8	1170
8	183	23	183	23	183	23	129	16	129	16	2104
4	165	41	165	41	165	41	117	29	117	29	3381
2	150	75			86	43			61	30	1848
1.5	134	90									
1	116	105									
0.5	66	112									

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.

8 ohm Power Response:

DC-40 kHz: ± 180 Vpk
DC-50 kHz: ± 150 Vpk
DC-150 kHz: ± 50 Vpk
DC-200 kHz: ± 25 Vpk

Maximum Continuous Output Power:
3300 watts RMS

Power Sinking:
1.2 kVA at 120VAC

Slew Rate:
41 V/µSec

Phase Response:
± 5 degrees (10 Hz - 10 kHz)

Unit to Unit Phase Error:
+/- 0.1 degrees at 60Hz

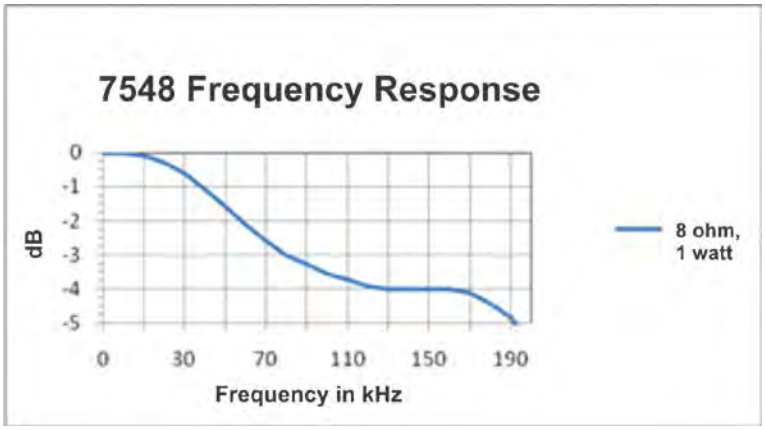
Output Offset:
7548: Less than 5 mV, field adjustable to less than 1 mV
7548P: Less than 200 µV

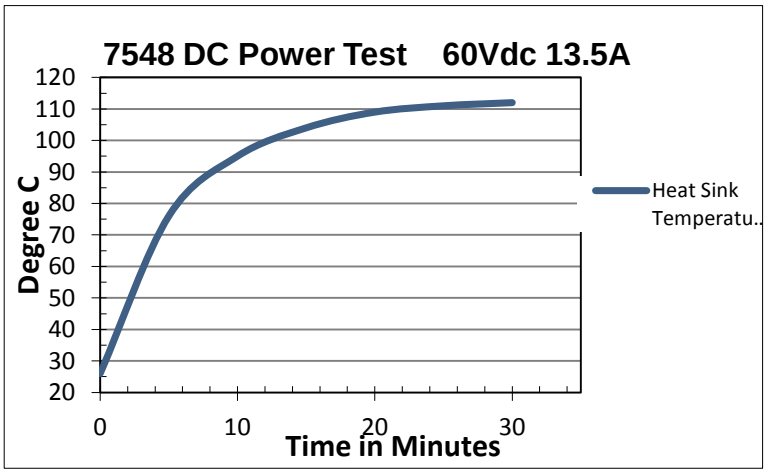
Output Offset Current:
Less than 10 milliamperes DC

DC Drift:
7548: ±1.5 mV
7548P: ± 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 20 k ohm differential

Unbalanced:
BNC connector, 10 k ohm single ended

Gain:
Voltage Mode: 20 volts/volt
Current Mode: 20 amperes/volt

Gain Linearity (over input signal, from 0.2V to 5V):
7548: 0.1%
7548P:
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: ± 1V / 20A ±1%

Reporting:
System Fault, OverTemp, Over Voltage, Overload

Control:
Force to Standby; Reset after a fault

Protection

Over/Under Voltage:
± 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:

Black powder-coat chassis with all aluminum construction; designed for stand-alone or rack-mounted operation. The amplifier occupies five EIA 19-inch-wide rack units

Weight:

103 lbs. (46.7 kg)

AC Power:

Three-phase, 208 VAC ±10%, 47-60 Hz, 20A AC service (400 VAC ±10%, 15A version available). A toggle switch circuit breaker opens all legs of the AC mains on excess current demand.

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 four 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 8.75 in. (48.3 cm x 57.9 cm x 22.3 cm). Unit occupies five EIA 19-inch-wide rack units.

AE Techron Sales Representative