



7136

High-speed AC/DC Amplifier
with Precision DC Supply

Performance Overview:

AC Power (up to 20 kHz):	900 watts RMS
Small Signal (8V p-p):	400 kHz
For High-Power Applications to:	50 kHz
DC Power:	5A from 13.5V DC to 48V DC
40 mS Pulse (0.5Ω):	25 Ap
Slew Rate:	165 V/μs
Output Voltage:	±300 Vp or ±150 Vp
Output Impedance:	10mΩ in series with 0.95 μH

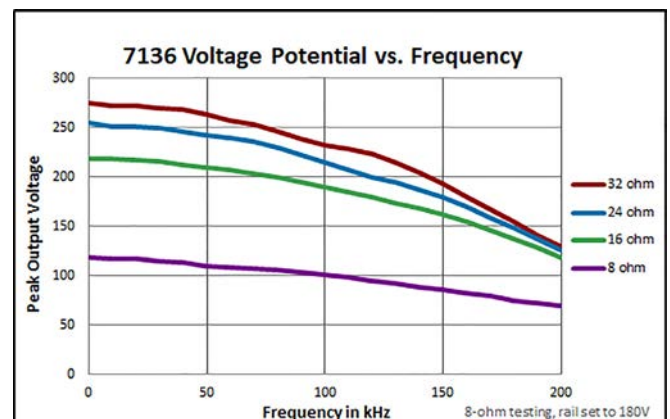
AE Techron's **7136** is a high-voltage 900-VA, 4-quadrant, AC and DC amplifier that provides exceptional versatility and value. Compact size, user configurability, DC-Max™ topology, and AE Techron toughness make the 7136 the ideal lab partner for DO-160 Section 16, AC with DC offset testing, or any application where more voltage or current is needed than is available from the signal source.

Compact Power

The 7136 weighs just 40 pounds and fits into a 2U rack space, but still can output up to 900 watts RMS continuous. This makes the 7136 a great choice when size or portability are important selection criteria.

Features

- 180V RMS at 5 amps
- User-variable DC offset: ±2V or ±20V
- User-adjustable current limit: 1A to 25A
- Compact 2U height; weighs only 40 lbs
- AC or DC coupled
- Four-quadrant operation
- AE Techron Tough: Protection from over-temperature, over-current, over/under supply voltages; will drive capacitive and inductive loads



Versatile

Front-panel user controls give the 7136 a wide range of possible uses; gain, maximum current, and DC offset can be fixed or infinitely varied. The choice of AC or DC coupling makes it suitable both for DC applications and for driving objects like coupling transformers or piezo elements that shouldn't see DC. All controls can be turned off when only a durable, high-current amplifier or DC source is needed. Or each function can be individually enabled to provide the unique set of capabilities needed at the moment.

The 7136 can produce a DC output without an input signal. DC output is independent of input signal and amplifier gain. This DC capability, when combined with an input

signal from a function generator, creates a versatile DC source with high-speed ripple and dropout capabilities.

DC-Max™

7136 is built with our new DC-Max topology. Amplifiers with DC-Max have long term DC power that is more than 40% greater than traditional designs. This increased DC performance better matches the power requirements found in DC conducted immunity and PSRR testing.

AE Techron Toughness

The 7136 is designed using the same conservative design rules and protection systems that have made AE Techron amplifiers the toughest audio bandwidth amplifiers available.

AC Specifications - High-Voltage Mode

Ohms	PEAK OUTPUT						RMS OUTPUT				
	40 mSec Pulse, 20% Duty Cycle		5 Minutes, 100% Duty Cycle		1 Hour, 100% Duty Cycle		5 Minutes, 100% Duty Cycle		1 Hour, 100% Duty Cycle		
	Volts	Amps	Volts	Amps	Volts	Amps	Volts	Amps	Volts	Amps	Watts
Open	300.0	0.0	300.0	0.0	300.0	0.0	211.0	0.0	211.0	0.0	0
32	288.0	9.0	258.8	8.1	258.0	8.1	183.0	5.7	170.0	5.3	903
24	263.0	11.0	206.0	12.9	186.4	7.8	167.0	6.9	131.8	5.5	729
16	231.0	14.4	202.0	12.6	87.8	5.5	143.0	9.1	62.1	3.9	241

AC Specifications - High-Current Mode

Ohms	PEAK OUTPUT						RMS OUTPUT				
	40 mSec Pulse, 20% Duty Cycle		5 Minutes, 100% Duty Cycle		1 Hour, 100% Duty Cycle		5 Minutes, 100% Duty Cycle		1 Hour, 100% Duty Cycle		
	Volts	Amps	Volts	Amps	Volts	Amps	Volts	Amps	Volts	Amps	Watts
Open	184.0	0.0	184.0	0.0	184.0	0.0	127.0	0.0	127.0	0.0	0
16	142.0	8.9	134.8	8.4	134.8	8.4	95.3	6.0	95.3	6.0	568
8	125.0	24.3	117.0	14.6	117.0	14.6	83.0	10.4	83.0	10.4	861
4	100.0	25.0	89.6	22.4	42.0	10.5	63.3	15.8	29.7	7.4	221

DC Specifications*

VDC	OUTPUT (Amperes)	
	5 Minutes, 100% Duty Cycle	1 Hour, 100% Duty Cycle
48	7.5	6.0
24	7.0	5.4
13.5	6.0	5.0

*Testing performed with Rail set to 90V.

Specifications

Performance

AC testing was done at 1 kHz. Continuous DC power levels are lower. See DC Specifications chart.

Frequency Response, DC–150 kHz (1 watt): +0 to -3.0 dB

32-Ohm Power Response (continuous duty),

DC to 60 kHz: ± 260 Vpk

DC to 200 kHz : ± 130 Vpk

Slew Rate: 165 V/ μ Sec

Residual Noise,

10 Hz to 22 kHz: 549 μ V (0.549 mV)

10 Hz to 500 kHz: 1485 μ V (1.485 mV)

Signal-to-Noise Ratio,

10 Hz - 30 kHz: -109 dB

10 Hz - 500 kHz: -102 dB

THD (DC - 30 kHz): <0.1%

DC Offset: $<\pm 1$ mV

DC Drift (after 1 minute of operation): $<\pm 400$ μ V

Output Impedance: 20 mOhm in Series with 0.95 μ H

Phase Response (10 Hz - 10 kHz):

± 10 degrees plus 1 μ sec propagation delay

Input Characteristics

Balanced with ground: Three-terminal barrier block connector, 20k ohm differential

Balanced with ground: Back-panel DB-9 connector (pins 1, 2 and 3), 20k ohm differential

Unbalanced: BNC connector, 10k ohm single ended

Gain (variable or fixed):

Voltage Mode: 40 volts/volt

Current Mode: 5 amperes/volt

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

AC: 0.15%

DC: 0.05%

Max Input Voltage: ± 10 V, balanced or unbalanced

Display, Control, Status, I/O

Front Panel

Toggle Switch for: Power

I LIMIT,

Switch: 25A fixed or variable

Variable Control Knob: 1 - 25A

COUPLING Switch: AC or DC

OFFSET,

Switch: None or Variable

Variable Control Knob: ± 2 V (configurable for ± 20 V)

RAIL V Switch (voltage potential): 360V or 180V

GAIN,

Switch: 40X fixed or variable

Variable Control Knob: 0-40X

LED Displays indicate: Power, Signal, Overload, Fault

Signal Input: Unbalanced BNC or balanced Barrier Strip

Signal Output: One pair of 5-Way Binding Posts, accepts wire up to 12 AWG

Back Panel

Power Connection: 25 Amp IEC (with retention latch)

DB-9 Connector for: Balanced signal input, remote emergency stop, fault monitor, current monitor.

Communication Capabilities (via back-panel DB-9 Control Port)

Current Monitor: 5A/V $\pm 1\%$

Reporting: System Fault

Remote Control: Blanking/Fast Mute/Emergency Stop

Physical Characteristics

Chassis:

The Amplifier is designed for stand-alone or rack-mounted operation. The chassis is steel with a black powder coat finish. The unit occupies two EIA RU.

Weight: 40 lbs (18.1 kg), Shipping 50 lbs (22.7 kg)

AC Power:

Single phase, 120 VAC, 60 Hz, 20A service;
(220-240 VAC, 50-60 Hz, 10A service model available)

Operating Temperature:

10°C to 50°C (50°F to 122°F), maximum output power derated above 30°C (86°F).

Humidity: 70% or less, non-condensing

Cooling:

Two-speed forced air cooling from front to back

Dimensions: 19.0 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

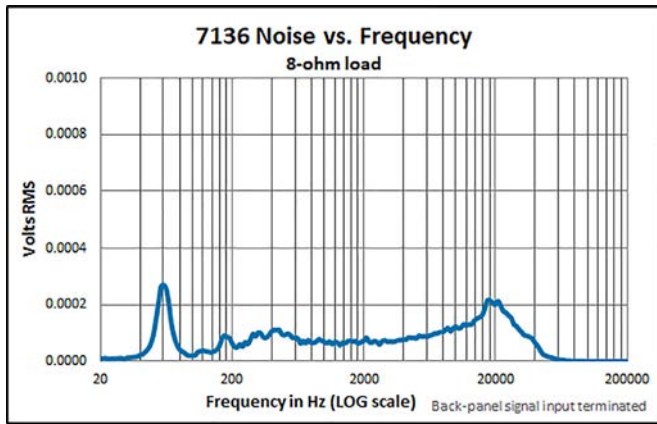
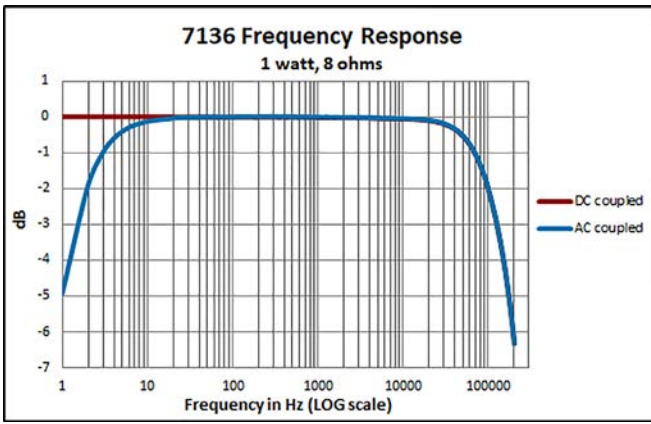
Over Current:

Fuse protection on both main power and low voltage supplies

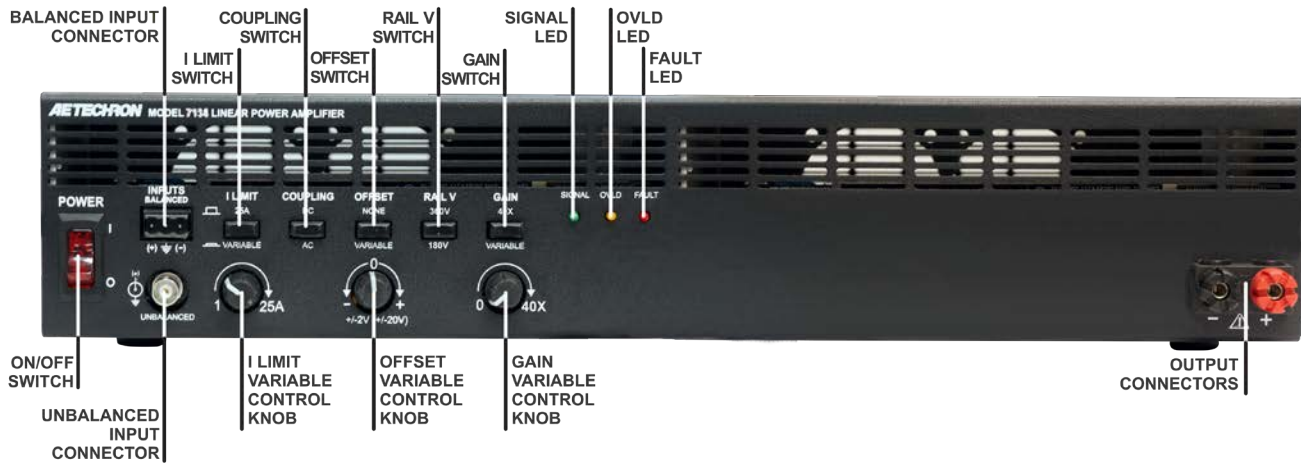
Over Temperature:

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

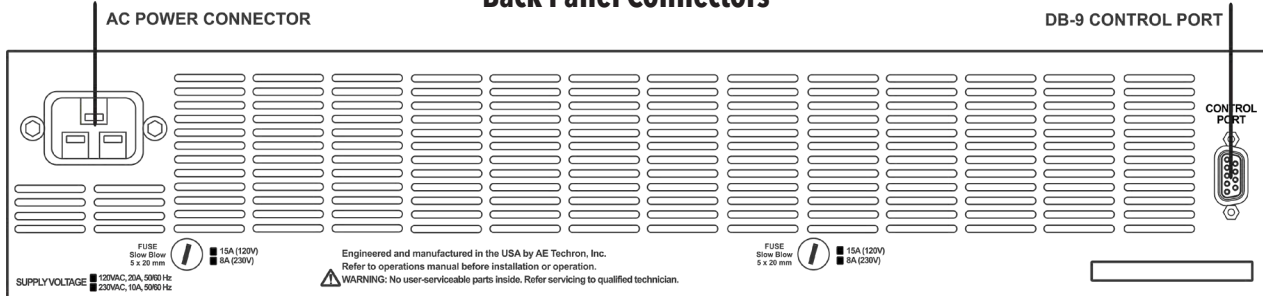
Frequency Performance



Front Panel Controls, Connectors and Indicators



Back Panel Connectors



CE 220-240V versions of this product bear the CE mark

AE Techron Sales Representative