





7234 Single-phase, 2U, Industrial Amplifier/Battery Simulator

Performance Overview:								
AC Power								
(up to 20 kHz):	900 watts RMS							
Small Signal (3V p-p):	1 MHz							
For High-Power								
Applications to:	150 kHz+							
DC Power:	28A at 13.5 VDC							
40 mS Pulse (0.5Ω):	50 Ар							
Slew Rate:	100+ V /µs							
Output Voltage:	±150 Vp							
Output Impedance:	$4.4m\Omega$ in series with 0.43 μH							

AE Techron's 7234 amplifier is a capable, versatile, and reliable EMC lab partner.

This powerful amplifier/battery simulator provides up to 28A of long-term DC current with surges of up to 50A and can slew voltages at rates of up to $100 + V/\mu s$.

It is load-tolerant, able to drive most inductive, capacitive, and resistive loads easily. The feature set of the 7234 allows it to meet or exceed the requirements of 1000+ Automotive and Aviation DC Conducted Susceptibility Standards Tests.

The 7234 is light enough to be hand-carried from one test location to another, rugged enough to tolerate being bounced around on a cart, and able to be powered from standard 120V/230V AC wall power. These features, along with the 7234's powerful performance, make it possible to turn virtually any bench or desk into a competent test location.

Features

- Bench-sized.
- Drop outs and surges as fast as 1.2µs.
- Source and sink (4-quadrant).
- Small signal response up to 1 MHz.
- 13.5 VDC at up to 28A.
- Rugged design.
- Field-selectable ±40V, 75V or 150V potential.
- Protection circuitry protects the amplifier from input overloads, improper output connection (including shorted and improper loads), overtemperature, over-current, and supply voltages that are too high or low.
- Shipped ready to operate from 120-volt (±10%) single-phase AC mains; 220/240-volt model available on request.



Specifications

Performance

AC testing was done at 100 Hz. Continuous DC power levels are lower. See DC Specifications chart for test conditions.

Frequency Response, DC–300 kHz (1 watt): +1.0 to -1.5 dB Slew Rate: 100+ V/µSec

Unit to Unit Phase Error: \pm 0.1 degrees at 60 Hz Output Impedance: 4.4 mOhm in Series with 0.43 µH Phase Response (10 Hz - 10 kHz):

±5 degrees plus 600 nsec propagation delay

Input Characteristics

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

Unbalanced: BNC connector, 10k ohm single ended

Gain (variable or fixed): Voltage Mode: 20 volts/volt or 6 volts/volt (DIP switch) Current Mode: 5 amperes/volt

Gain Linearity (over input signal, from 0.2V to 5V): 0.15%

Max Input Voltage: ±10V, balanced or unbalanced

Input Impedance: 20k ohm differential

Residual Noise, 10 Hz to 22 kHz: <250 μV 10 Hz to 500 kHz: <700 μV

Signal-to-Noise Ratio, 10 Hz to 22 kHz: <110 dB 10 Hz to 500 kHz: <100 dB

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. Can be configured for a gain of 6 to 0.

On/Off Breaker

Back Panel Power Connection:

25 Amp IEC (with retention latch)

Signal Output:

Four-position terminal strip (OUTPUT/COMMON/SAMPLED COMMON/CHASSIS GROUND); resistor between SAMPLED COMMON and CHASSIS GROUND terminals is a 2.7-ohm, 2W, 5%, metal-oxide resistor

Signal Input:

User-selectable BNC or Barrier Strip, Balanced or Unbalanced

DC Specifications – High-Current Mode

	OUTPUT (Amperes)							
VDC	100 mS Surge	10 Minute, 100% Duty Cycle	1 Hour, 100% Duty Cycle					
13.5	50	30	28					
24	45	29	29					
48	40	19	19					

Remote Sense Port: Correction up to 10V drop, DC-1kHz, 0.1% accuracy; Up to 10V drop, DC-10kHz, 1% accuracy. DIP Switches: Refer to the Configuration Settings graphic Interconnect Connectors: Two back-panel DB9 connectors. Refer to the Configuration Settings graphic for more information.

Communication Capabilities

Operation Monitor: Řun/Standby **Voltage Monitor:** 10V/V ± 1% **Current Monitor:** 5A/V ± 1% **Temperature Monitor:** 1V/100 Kelvin

Reporting:

System Fault, Over Temp, Over Voltage, Over Load Remote Control via Interconnect Connectors:

Force to Standby

Remote Control via Interlock Connector: Blanking 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 steel with a black powder coat finish. The unit occupies two EIA 19-inch-wide units.

Weight: 47.5 lbs (21.5 kg), Shipping 58 lbs (26 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:

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

THD + Noise*							
Filter	μV						
10 to 500 kHz	697						
10 to 80 kHz	418						
10 to 30 kHz	331						
10 to 22 kHz	315						

*THD + Noise with 1V input, 8-ohm load

Information subject to change.

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AC Specifications – High-Voltage Mode

	PEAK OUTPUT							R	MS OUTP	UT	
	40 mSec Pulse, 20% Duty Cycle		5 Mir 100% Du	nutes, uty Cycle	1 Hour, 100% Duty Cycle		5 Minutes, 100% Duty Cycle		1 Hour, 100% Duty Cycle		
Ohms	Volts	Amps	Volts	Amps	Volts	Amps	Volts	Amps	Volts	Amps	Watts
16	158	9.8	158	9.8	158	9.8	112	6.9	112	6.9	773
8	154	19	136	16	120**	15**	96	11.5	85**	10.6**	900**
4	124	31	108	25.7	61	14.5	76	18.2	43	10.3	443
2	98	49	*	*	*	*	*	*	*	*	*

AC Specifications – Mid-Level Mode

	PEAK OUTPUT							R		UT	
	40 mSec Pulse, 20% Duty Cycle 100		5 Min 100% Du	iutes, ity Cycle	1 Hour, 100% Duty Cycle		5 Minutes, 100% Duty Cycle		1 Hour, 100% Duty Cycle		
Ohms	Volts	Amps	Volts	Amps	Volts	Amps	Volts	Amps	Volts	Amps	Watts
4	72	18	69	16.4	69	16.4	49	12	49	11.6	568
2	61	30	57	26.2	57	26.2	40	19	40	18.5	740
1	47	47	43	39.6	21	21	30	28	15	14.8	222
0.5	26	52	*	*	*	*	*	*	*	*	*

AC Specifications	– High-Current Mode

	PEAK OUTPUT							R		UT	
	40 mSec Pulse, 5 Minutes, 20% Duty Cycle 100% Duty Cycl			iutes, ity Cycle	1 Hour, 100% Duty Cycle		5 Minutes, 100% Duty Cycle		1 Hour, 100% Duty Cycle		
Ohms	Volts	Amps	Volts	Amps	Volts	Amps	Volts	Amps	Volts	Amps	Watts
1	29	29	29	29	29	29	21	21	20.5	20.5	420
0.75	27	36	26	34	26	34	18	24	18	24	432
0.5	24	48	22.7	45	22.7	45	16	32	16	32	512

Note: *Numbers provided are preliminary.* Testing performed into resistive loads as specified. Performance reported is typical into the specified load up to 20 kHz frequency levels. Performance may be affected when operating into highly reactive loads or above 20 kHz, reducing maximum voltage, current and power output. *Testing not performed. **Maximum 45 minutes of continuous operation.





CONFIGURATION SETTINGS



AE Techron Sales Representative

Information subject to change. page 4