



## 7234

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

#### Performance Overview:

|                                    |                               |
|------------------------------------|-------------------------------|
| AC Power<br>(up to 20 kHz):        | 900 watts RMS                 |
| Small Signal (8V p-p):             | 1 MHz                         |
| For High-Power<br>Applications to: | 150 kHz+                      |
| DC Power:                          | 28A at 13.5 VDC               |
| 40 mS Pulse (0.5Ω):                | 50 Ap                         |
| Slew Rate:                         | 100+ V/μs                     |
| Output Voltage:                    | ±150 Vp                       |
| Output Impedance:                  | 4.4 mΩ in series with 0.43 μH |

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

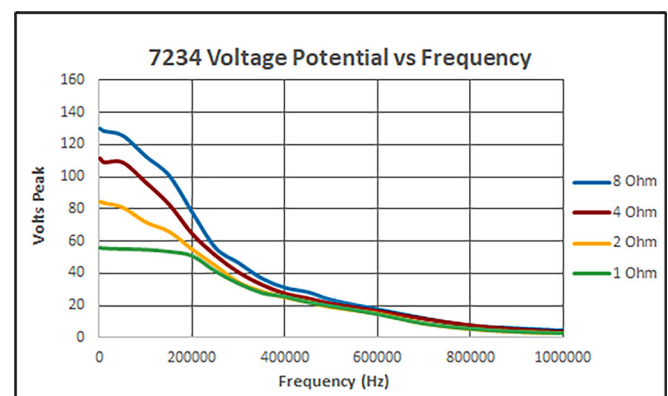
This powerful amplifier/battery simulator provides up to 28A of long-term DC current with surges of up to 50A and can slew voltages at rates of up to 100+ V/μs.

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), over-temperature, 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/ $\mu$ Sec

**Unit to Unit Phase Error:**  $\pm 0.1$  degrees at 60 Hz

**Output Impedance:** 4.4 mOhm in Series with 0.43  $\mu$ H

**Phase Response (10 Hz - 10 kHz):**

$\pm 5$  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:**  $\pm 10$ V, balanced or unbalanced

**Input Impedance:** 20k ohm differential

**Common Mode Rejection:** -58 dB with 5V input

### 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

**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:** Run/Standby

**Voltage Monitor:** 10V/V  $\pm 1\%$

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

**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:**

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

## DC Specifications – High-Current Mode

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

## AC Specifications – High-Voltage Mode

| Ohms | PEAK OUTPUT                      |      |                               |      |                            |      | RMS OUTPUT                    |      |                            |        |       |
|------|----------------------------------|------|-------------------------------|------|----------------------------|------|-------------------------------|------|----------------------------|--------|-------|
|      | 40 mSec Pulse,<br>20% Duty Cycle |      | 5 Minutes,<br>100% Duty Cycle |      | 1 Hour,<br>100% Duty Cycle |      | 5 Minutes,<br>100% Duty Cycle |      | 1 Hour,<br>100% Duty Cycle |        |       |
|      | 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   | *                             | *    | *                          | *    | *                             | *    | *                          | *      | *     |

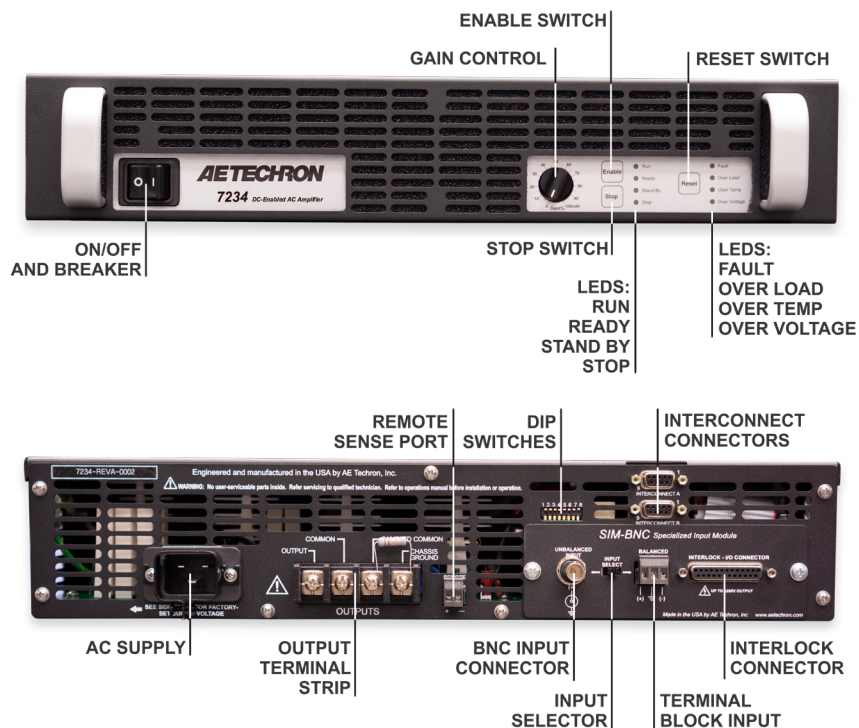
## AC Specifications – Mid-Level Mode

| Ohms | PEAK OUTPUT                      |      |                               |      |                            |      | RMS OUTPUT                    |      |                            |      |       |
|------|----------------------------------|------|-------------------------------|------|----------------------------|------|-------------------------------|------|----------------------------|------|-------|
|      | 40 mSec Pulse,<br>20% Duty Cycle |      | 5 Minutes,<br>100% Duty Cycle |      | 1 Hour,<br>100% Duty Cycle |      | 5 Minutes,<br>100% Duty Cycle |      | 1 Hour,<br>100% Duty Cycle |      |       |
|      | 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   | *                             | *    | *                          | *    | *                             | *    | *                          | *    | *     |

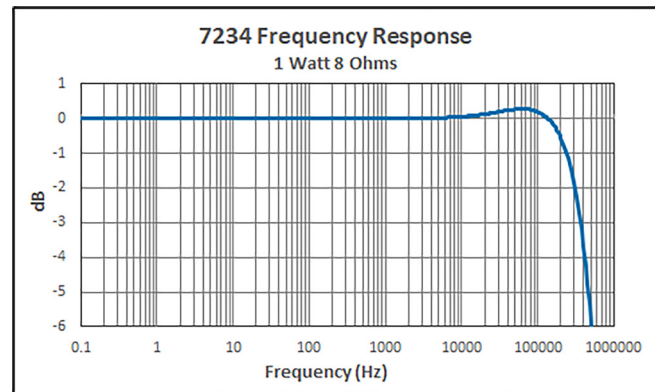
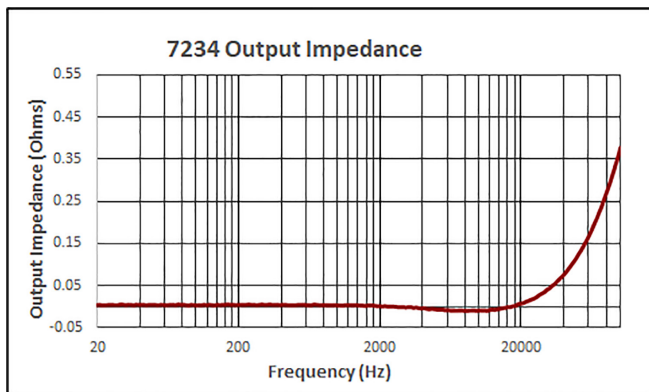
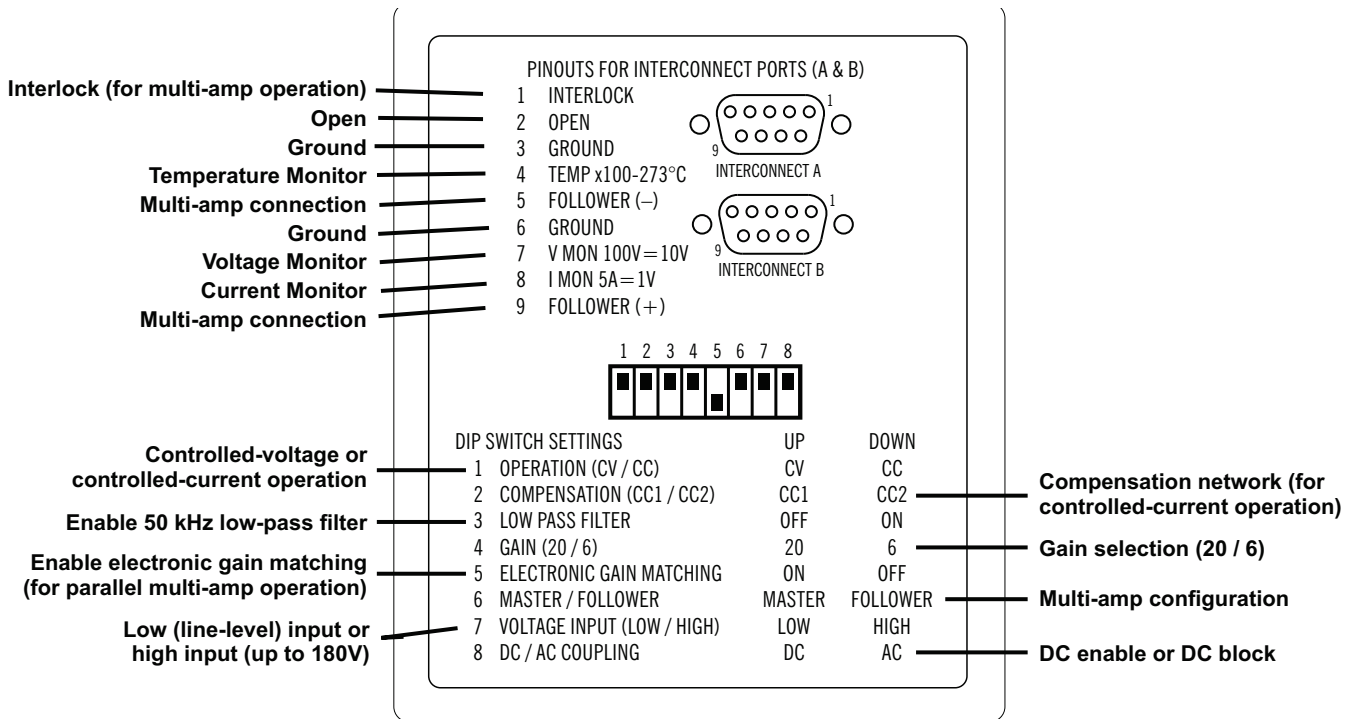
## AC Specifications – High-Current Mode

| Ohms | PEAK OUTPUT                      |      |                               |      |                            |      | RMS OUTPUT                    |      |                            |      |       |
|------|----------------------------------|------|-------------------------------|------|----------------------------|------|-------------------------------|------|----------------------------|------|-------|
|      | 40 mSec Pulse,<br>20% Duty Cycle |      | 5 Minutes,<br>100% Duty Cycle |      | 1 Hour,<br>100% Duty Cycle |      | 5 Minutes,<br>100% Duty Cycle |      | 1 Hour,<br>100% Duty Cycle |      |       |
|      | 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



**CE** 230V versions of this product bear the CE mark

AE Techron Sales Representative