

The AE Techron **8102** power supply amplifier features an advanced switch-mode design that results in low noise and distortion, and high power density. It is configured as a single-channel, DC-coupled, controlled voltage amplifier ideal for reactive loads. The 8102 can provide up to 16 Arms or 235 Vrms continuous output. It offers a continuous, full-power frequency bandwidth of DC to 5 kHz.

The 8102 also features an integrated switching power supply that reduces weight and allows the unit to fit a standard 2U rack space. The 8102 operates from single-phase, 120-volt AC mains (230 VAC version available).

The 8102 amplifier is built and tested to the most stringent quality standards for long life and outstanding performance. The AE Techron brand is known throughout the world for its robust precision amplifiers as well as its product service and support.

### Performance

*Specifications are for units driven into an 8-ohm load, (20 times voltage gain) and operating from 120 VAC, unless otherwise specified.*

*"Standard 1 kHz Power" refers to maximum average power in watts at 1 kHz with 0.1% THD.*

### Frequency Response:

±3 dB from DC to 5 kHz at 1 watt

### Signal to Noise Ratio:

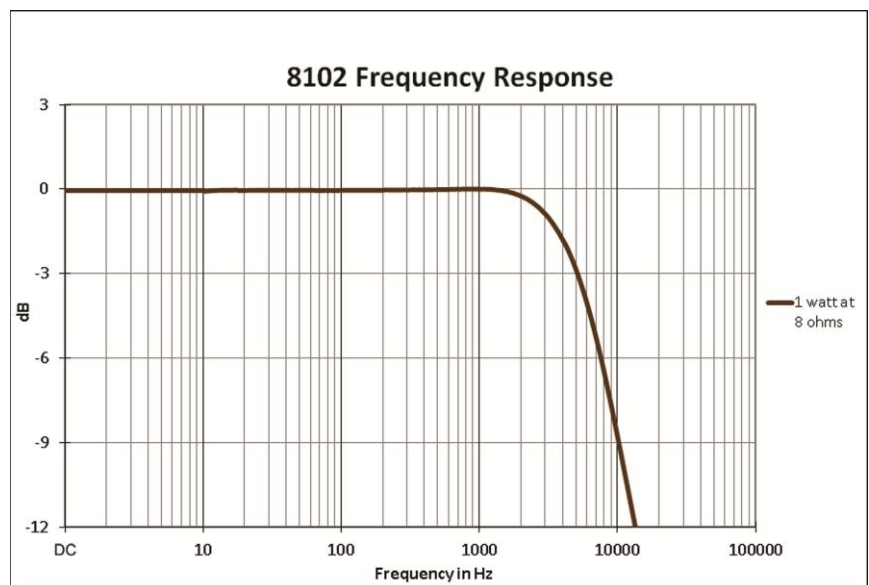
< 105 dB (ref. rated power, DC to 5 kHz, A-weighted).



## 8102 SPECIFICATION SHEET

### Features

- Up to 16 Arms and 235 Vrms continuous output.
- Full-power frequency bandwidth of DC – 5 kHz.
- Compact design; only 2U of rack space and 27 lbs.
- Switching power supply for reduced weight.
- Installs easily into a standard 19-inch rack or stands alone for bench top operation.
- Built-in protection circuitry safely provides for sustained high-power output, with protection against input overloads, improper output connection (including shorts and improper loads), and excessive temperature, voltage or current.
- Operates from single-phase, 120-volt AC mains, (230 VAC version available).





**Total Harmonic Distortion (THD):**

<0.35% at full rated power, from DC to 5 kHz.

**I.M. Distortion:**

<0.35% at 60 Hz and 7 kHz at 4:1, from -40 dB to full rated power.

**DC Output Offset:**

< 15 mV

**Input Impedance** (nominally balanced, nominally unbalanced):

10 k ohms, 5 k ohms.

**Maximum Input Voltage:**

± 10 V balanced or unbalanced

**Common Mode Rejection (CMR)**

(20Hz to 1kHz, typical):

50 dB

**Load Impedance:**

2 – 62 ohm

**Gain Control** (when enabled, switch selectable):

Voltage gain adjustable from 20 to 0 or from 63 to 0

**Front Panel Controls and Indicators**

**Fault Indicator:**

Red LEDs, flash when the amplifier output has stopped operating. Usually this means that the amplifier must be serviced.

**Thermal Indicator:**

Red LEDs, illuminate when the amplifier has shut down, or is very near shutting down, due to thermal stress or overload.

**Ready Indicator:**

Green LEDs, illuminate when the amplifier is initialized and ready to produce output.

**Input Signal Indicator:**

Green LEDs, illuminate when the amplifier's input signal is above -40 dBu (8 mVrms).

**Output Signal Indicator, -20 dB:**

Green LEDs, illuminate when the amplifier's output signal is within 20 dB of clipping.

**Output Signal Indicator, -10 dB:**

Green LEDs, illuminate when the amplifier's output signal is within 10 dB of clipping.

**Clip Indicator:**

Red LEDs, illuminate when the amplifier's output signal reaches the onset of audible clipping. The Clip Indicators also will illuminate during Thermal Level Control (TLC) limiting or when the input compressor/limiter is protecting the amplifier from input overload.

**Cooling Vents:**

Front-to-rear forced airflow.

**Power Indicator:**

Blue LED indicates AC power has been applied and is within the safe operating range of the power supply. The LED will flash when the AC line voltage is approximately 15% above or 25% below the nominal rated value.

**Data Indicator:**

Feature not implemented.

**Bridge Indicator:**

Illuminates when the amplifier is receiving AC power.

**Power Switch:**

Push-on / push-off switch.

**Back Panel Controls and Connectors**

**Power Cord Connector:**

Standard 15 amp IEC inlet. A circuit breaker located near the IEC power inlet protects the amplifier from excessive AC current draw.

**Reset Switch:**

Resets the circuit breaker that protects the power supply.

**Ventilation Grille:**

Air flow is front to back. Do not block the ventilation grilles.



### Input Panel:

8100 Series Input Card includes two balanced 3-pin removable barrier connectors for signal input. The “Y” Input Switch can be used to daisy-chain the input signal to another amplifier. When this switch is set to ON, CH-1 input and CH-2 input are paralleled, reducing input impedance by 50%. Either CH-1 input or CH-2 input can be used when the “Y” Input switch is set to ON.

### Input Attenuator:

One 21-position detented rotary attenuator, ranging from –100 dB to 0 dB gain.

### Output Connectors:

One two-pole touch-proof terminal strip. Accepts up to 10 AWG terminal forks.

### Output Cover (not shown):

This covers the output connectors, protecting users from the connectors’ potentially high voltage. This cover is required for Class 2 wiring installations.

### Physical Characteristics

**Required AC Mains** (+15%, -25%):  
120V/60Hz (230V/50Hz version available).

**Power Draw at Idle** (120 VAC mains):  
35W (Standby Mode).

### Overall Group Delay:

< 120  $\mu$ sec.

### 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:

Front-to-back airflow.

### Chassis:

The Amplifier is designed for stand-alone or rack-mounted operation. The Chassis is black aluminum with a powder coat finish. The unit occupies two EIA 19-inch-wide units.

### Dimensions:

**Width** – 19 inches (48.3 cm)  
**Height** – 3.5 inches (8.9 cm)  
**Depth** – 14.25 inches (36.2 cm)

### Net Weight:

27.0 lbs. (12.3 kgs.)

### Shipping Weight:

32.0 lbs. (14.5 kgs.)

### Protection Fault

The amplifier will light the Fault LED if the amplifier output stage stops operating. If this happens, contact AE TECHRON for servicing information.

### Low-Pass Filters

Gaussian-approximation ultrasonic filters prevent ultrasonic feedback and HF burnout of transducers. This type of filter preserves transient response better than a Butterworth filter.

### AC Under/Over Voltage Protection

If the AC line voltage drops below 25% or rises above 10% of the nominal operating voltage of the amplifier, the amplifier’s blue Power LED flashes. The LED will stop flashing and return to solid ON when the AC line voltage returns to safe operating levels.

### Circuit Breaker

A circuit breaker located near the IEC power inlet protects the amplifier from excessive AC current draw.

### Inrush Limiting

A soft-start circuit in the power supply minimizes the amplifier’s current draw during power-on.

## Output Power

The following are typical output at 1 kHz from units configured for 120 VAC, 60 Hz power.

Ohms	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		
	Volts	Amps	Volts	Amps	Volts	Amps	Volts	Amps	Volts	Amps	Watts
open	335		335		335		235		235		
62	325	5.2	325	5.2	325	5.2	230	3.7	230	3.7	853
31	325	10.5	268	4.3	261	4.2	190	6.1	185	5.9	1103
16	255	16	202	13	197	12	144	8.9	139	8.7	1209
8	206	26	141	18	134	17	100	12.5	95	11.9	1130
4	141	35	99	25	92	23	70	17.5	65	16.3	1059
2	86	44	59	30	Not recommended		42	21.0	Not recommended		

*AE Techron Sales Representative*