AETECHRON

9205/9305

Multi-Channel Switch-Mode Amplifiers

Features

- Multi-channel options (available in 2- or 3-channel versions).
- Operate as a voltage-controlled voltage source or voltage-controlled current source.
- Four-quadrant operation.
- Adjustable gain.
- Stable when driving highly capacitive loads.
- User-selectable current limit to protect fragile DUTs or where specified in a Standard.
- DC enabled or DC blocked and DC Servo (for driving transformer-coupled loads or coils).
- Balanced and/or unbalanced inputs.

Performance Overview:

Bandwidth:	DC to 250 kHz
Minimum Drop/Rise Time:	7µs
Slew Rate:	Up to 150 V/µs
Maximum Voltage:	200 V_P
Maximum Current:	Up to 50 A_p per channel
Distortion:	<0.1% at 1 kHz below clip
Maximum Long-Term Power:	5.0 kW

AE Techron's 9205/9305 amplifiers are 200Vp, DC-to-250 kHz capable amplifiers that offer a unique combination of switch-mode efficiency and linear-amplifier-like fidelity in a compact, portable package. They can be configured for Controlled Current or Controlled Voltage operation, and are able to drive virtually any type of load without a reduction in rated power, while maintaining low distortion and low DC drift.

9205/9305 amplifiers are a great choice when available AC Mains power is limited or may change. The 9205/9305 amplifier couples an 85% operating efficiency with a universal, 100V-to-250V power supply with PFC (power factor correction). This highly efficient supply can draw up to 30% more power from a given-size AC Mains breaker while putting less noise back on the AC mains.

Combined, these features permit a 9205/9305 amplifier to produce up to 2 kW output when connected to a 20A, 120V mains supply and up to 5 kW from 230V or 240V sources. Plus, they can move seamlessly from lab to factory since they can be powered from any normal, single-phase, AC Mains supply.

With a slew rate of up to 150 V/µs and a minimum drop/rise time of 7µs, 9205/9305 amplifiers are fast enough to meet the surge and dropout requirements of many current EMC test standards.

9205/9305 amplifiers are available in two- and three-channel versions, with all channels drawing power from the amplifier's common power supply. This design allows power to shift dynamically between channels during operation, so up to 4500 watts of the power supply's potential 5000 watts can be available at any given moment for use by any single channel. This dynamic power capability makes the 9205/9305 amplifier able to perform like a much more powerful amplifier, making it well-suited for applications that have intermittent power demands for each channel over time, such as MRI systems, multi-channel positioning systems, or multi-element sonar.

Low THD+N and IMD distortion and low DC drift make 9205/9305 amplifiers ideal for many industrial multi-channel

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applications. Because the 9205/9305 amplifier's output is ground-referenced, channels can be used independently to create a three-phase, wide-bandwidth voltage source, or channels can be connected in series to form a higher-voltage differential output.

Altogether, 9205/9305 amplifiers are a great solution for a wide range of high-current, low-voltage, low-noise applications that require wide bandwidth and the ability to drive reactive or widely varying load impedances.

NOTE: The handles are not to be used for carrying the amplifier and only lift the device using a two-person technique.

	Maximum Continuous AC Output Current		
	Per Channel, All Channels Driven		Single Channel Driven
V_{RMS}	9205	9305	9205/9305
30	35A	35A	35A
60	35A	25A	35A
120	20A	12A	35A

Performance data is for a purely resistive load; when the load is reactive, it is possible for the All Channels Driven VA output to improve up to Single Channel Driven performance for all channels.

	Maximum Continuous DC Output Current		
	Per Channel, All Channels Driven		Single Channel Driven
V_{DC}	9205	9305	9205/9305
13.5	35A	35A	35A
24	35A	35A	35A
48	20A	12A	35A

THD + Noise*	
Below	mV
500 kHz	25
80 kHz	2

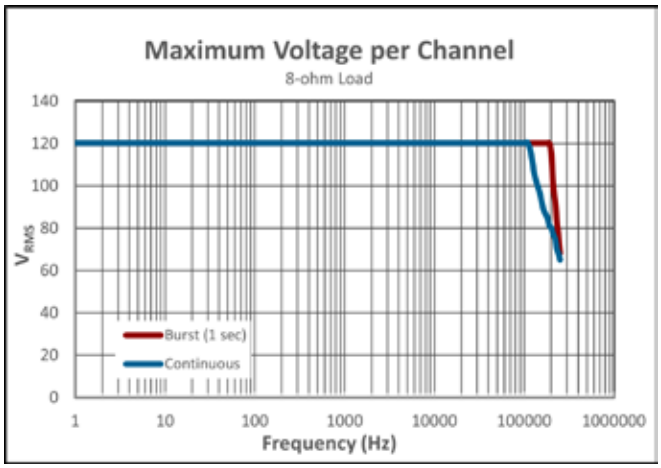
*THD + Noise with 1V input, 8-ohm load

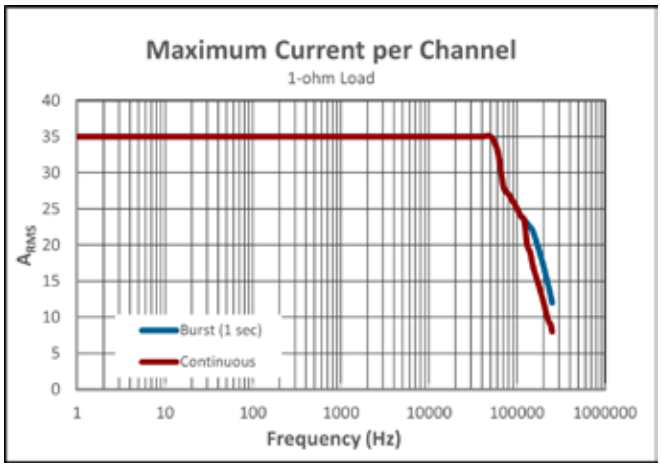
9205/9305 Default DIP Switch Settings

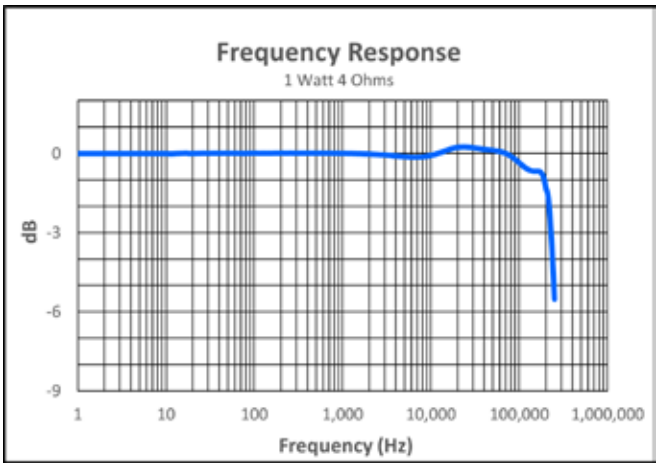
Red = Default

1	DC SERVO		OFF	ON
2	OPERATION MODE		CC	CV
3	COMPENSATION NETWORK 2		OFF	ON
4	COMPENSATION NETWORK 1		OFF	ON
5	CONTROL CONFIGURATION		FOLLOWER	MASTER
6	COUPLING		AC	DC
7	GAIN BIT 3 (MSB)	ALL OFF = 2.5 ALL UP = 20	OFF	10
8	GAIN BIT 2		OFF	5
9	GAIN BIT 1 (LSB)		OFF	2.5
10	*ELECTRONIC GAIN MATCHING*		OFF	ON
11	CURRENT LIMIT BIT 1	BOTH OFF=12.5Ap BOTH ON=50Ap	OFF	+25Ap
12	CURRENT LIMIT BIT 2		OFF	+12.5Ap

NOTE: *GRAY TEXT INDICATES SWITCH USED FOR FACTORY CONFIGURATION ONLY.*
ALL BIT SWITCHES ARE ADDITIVE. RIGHT = ON.







Specifications

9205

Maximum Continuous Output
Current per Channel: 35A_{RMS} AC or DC
Power: 5 kW from 30A, 230/240VAC;
2 kW from 20A, 120VAC
Output Channels: 2
Supply Voltage: Universal power supply with PFC, single-phase, 100V to 240V AC ±10%, 30A, 50/60 Hz
Dimensions (HxWxD): 3.47 x 17.3 x 22.8 in. (8.81 x 43.94 x 57.91 cm)
Weight: Approximately 44.5 lbs. (20.2 kg)

9305

Maximum Continuous Output
Current per Channel: 35A_{RMS} AC or DC
Power: 5 kW from 30A, 230/240VAC;
2 kW from 20A, 120VAC
Output Channels: 3
Supply Voltage: Universal power supply with PFC, single-phase, 100V to 240V AC ±10%, 30A, 50/60 Hz
Dimensions (HxWxD): 3.47 x 17.3 x 22.8 in. (8.81 x 43.94 x 57.91 cm)
Weight: Approximately 56 lbs. (25.4 kg)

Common Data (all models)

Operating Modes: AC, DC, and AC + DC
Frequency, AC Mode Output (-3 dB): DC – 250 kHz
Max Voltage Ranges (no load),
AC: 0 – 140 V_{RMS}
AC + DC: 0 – ±200 V_P
Load Regulation (ref to full scale): <0.05%, DC to 100 Hz; <0.1%, 10 Hz to 10 kHz
Line Regulation (full scale): 100V to 250V AC_{RMS}
Harmonic Distortion (80 kHz, low-passed): Less than 0.3% from 10 Hz to 30 kHz; 0.5% up to 50 kHz
Harmonic Distortion (30 kHz, low-passed): Less than 0.1% from 10 Hz to 50 kHz
DC Offset: <2mV
Distortion: <1.0%
Voltage Slew Rate, 8Ω: 150 V/µs
Efficiency: 85%, typical
Power Factor: .98, typical
Source Impedance: 5 mΩ + 6 µH
Cooling: Internal forced-air fans
Protection: Over/under voltage, over current, over temperature
Input, Signal In: BNC connector (unbalanced)
Output: High-current barrier strip
Operating Environment,
Temperature: 5 °C to 50 °C (41 °F to 122 °F); Maximum output power de-rated above 30 °C (86 °F)
Humidity: Maximum relative humidity 80% for temperatures up to 31 °C decreasing linearly to 50% relative humidity at 40 °C
Altitude: 3000 m Maximum
Environment: Indoor Use Only, Pollution degree 2
Equipment Class: Group 1 Class A
Transient Overvoltage: Overvoltage Category II