



- 180 Volt
- 200 Amp



**2120
GRADIENT
AMPLIFIER**

2120 Pulsed Output - Current Mode

	PULSE DURATION / OFF TIME (ms)						
	DC*	500 / 500	100 / 100	10 / 20	170 / 1000	25 / 1000	4 / 100
Output (±A Peak)	60	50	50	80	200	200	200

*DC 1Ω

The AE Techron 2120 is a high-power, DC-enabled linear amplifier and integrated power supply that offers a wide bandwidth and exceptional control of drift and distortion. The 2120 functions as a voltage or current source, making it a great choice for use in the lab or classroom. Its linear design provides a very-low noise floor and fast current rise times. Because the 2120 has no ripple noise, no syncing with the console is required.

The AE Techron brand is known throughout the world for its robust, low-noise gradient amplifiers as well as its product service and support.

Features

- Output of up to 200 amperes peak, 180 volts.
- 4-quadrant linear design.
- Blanking feature lowers the noise floor on the amplifier by shutting down the output stage. This action occurs in less than 10 μs.
- Current mode response: DC-5 kHz (compensation dependent); Voltage mode response: DC-20 kHz at rated power.
- Robust, linear power supply results in extremely low noise; bi-level switch design limits heat dissipation to output devices.
- Provides precision control of output offset, DC drift and gain linearity.
- Protection circuitry guards against 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 208-volt (±10%) 3-phase AC mains; 400-volt model available on request.

Performance

Specification typical at 25°C ambient. Unless otherwise noted; testing was done in Current mode with a load = 500 μ H + 100 m Ω .

Peak Current Limit	209 A
Gain Linearity* (over input signal, from 0.2V to 5V)	DC: 0.0125% AC: 0.030%
Output Offset (adjustable to zero)	Voltage Mode: Less than $\pm 400 \mu$ V Current Mode: ± 5 mA
Input Characteristics	Three-Terminal Barrier Block Connector: Balanced with ground; 20 k Ω differential BNC Connector: Unbalanced; 10 k Ω single ended Max Input Voltage: ± 10 V balanced or unbalanced Common Mode Rejection: -58 dB with 5 V input
Output Impedance	Current Mode (effective): 2000 Ω Voltage Mode (typical): 3 m Ω in Series with 2.23 μ H
Load	Current Mode: 500 μ H + 100 m Ω Adaptable Range: 5 μ H to 2.5 H, 0.01 Ω to 20 Ω
Current Mode Response	-3 dB at 5 kHz (compensation dependent)
Current Settling Time	Ramp 0 A to ± 50 A or ± 50 to 0 A: 20 μ s to within 1.0 A or 1% 35 μ s to within 200 mA, 0.2%
Total Harmonic Distortion	Current Mode: Less than 0.1% Load: 500 μ H + 100 m Ω
Noise Floor (when Blanking circuit is enabled)	5 μ A or less
DC Drift	Self Heating Drift, 0 to ± 60 A: 5 mA/10 minutes maximum
Noise Output	10 Hz to 1 kHz: 0.2 mA 1 kHz to 60 kHz: 0.05 mA
Ripple Noise Output	None
Slew Rate, Voltage Mode:	41 V/ μ s
Remote Control and Monitoring (back-panel D connector)	Current Monitor: ± 1 V / 20 A $\pm 1\%$ Reporting: System Fault, Over Temp, Over Voltage, Over Load Control: Force to Standby, Remove from Standby, Reset after a Fault
Amplifier Protection	Over Load/Distortion (IOC): Shutdown or clipped output Current vs Time (ODEP): Clipped output Each heat sink temperature: Shutdown 105°C Overvoltage Shutdown: 229 VAC / 440 VAC Undervoltage Shutdown: 187 VAC / 360 VAC

*Gain Linearity Accuracy was measured in Voltage mode with the amplifier driven into a 10 Ω load with between 0.1VDC and 6VDC or between 0.2VAC and 5VAC presented at its inputs.

Status Indicators (front panel)

LEDs indicate a status of Run, Ready or Standby, and Fault conditions.

Controls (front panel)

Soft Touch Switches: Run (Enable), Stop and Reset functions.

Controls (back panel)

AC Mains Switch and Circuit Breaker: Dual-function power switch and circuit breaker; rating: 30A for 208 volts or 15A for 400 volts. Turn off and then back on to reset.

Connectors (back panel)

Power Connection: NEMA-style locking receptacle; matching AC connector also included.

Signal Output: 4-position terminal barrier block (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 unbalanced BNC or balanced Barrier Strip

Interlock I/O Connection: 25-pin D connector provides for remote monitoring and control functions

Power Requirements

Three-phase, 208 VAC $\pm 10\%$, 47-60 Hz, 30 Amp AC service; (400 VAC $\pm 10\%$, 15 Amp service model available).

Thermal Requirements

Operating Temperature: +10°C to +50°C (+50°F to +122°F). Maximum output power de-rated above 30° C (86°F).

Storage: -30°C to +85°C (-22°F to +185°F).

Humidity: 70% or less, non-condensing.

Physical Characteristics

Dimensions: 19" L x 12.25" H x 22.8" D (48.3 cm L x 31.1 cm H x 57.9 cm D).

Cooling: Forced air cooling from front to back through removable filters via six 100 CFM fans. No space is required between rack-mounted amplifiers. Air filters are removable from the rear via one fastener per side and may be eliminated if cabinet filtration is provided..

Airflow: 600CFM.

Weight: 153 lbs (69 kg).

Shipping Weight: 158 lbs (71.7 kg).