- **150 Volt**
- **50 Amp**

2105 GRADIENT AMPLIFIER

2105 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)	16	8.75	9	11.7	25	49	55

**DC 1Ω*

The AE Techron 2105 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 2105 functions as a voltage or current source and operates using single-phase power, making it ideal for use in the lab or classroom. Its linear design provides a very-low noise floor and fast current rise times. Because the 2105 has no ripple noise, no synching 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 50 amperes peak, 150 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.
- Efficient design and light-weight chassis materials allow amplifier to occupy only 2U height, and weigh only 41 lbs.
- 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 120-volt (±10%) single-phase AC mains; 220/240-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 µH +100 mΩ.

Peak Current Limit	55 A
Gain (adjustable)	**Voltage Mode:** 20 to 0.2 V/V **Current Mode:** 5 to 0.2 A/V
Gain Linearity (over input signal, from 0.2V to 5V)	**DC:** 0.02% **AC:** 0.05%
Output Offset (adjustable to zero)	**Voltage Mode:** Less than ±400 µV **Current Mode:** ±5 mA
Input Characteristics	**Three-Terminal Barrier Block Connector:** Balanced with ground; 20 kΩ differential **BNC Connector:** Unbalanced; 10 kΩ 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):** 28 mOhm in series with 1 µH
Load	**Current Mode:** 500 µH + 100 mΩ **Adaptable Range:** 5 µH 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 µs to within 1.0 A or 1% 35 µs to within 200 mA, 0.2%
Total Harmonic Distortion	**Current Mode:** Less than 0.1% **Load:** 500 µH + 100 mΩ
Noise Floor (when Blanking circuit is enabled)	5 µA 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:	23 V/µs
Remote Control and Monitoring (back-panel D connector)	**Current Monitor:** ± 1 V / 5 A ± 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:** 132 VAC / 253 VAC **Undervoltage Shutdown:** 108 VAC / 207 VAC

Status Indicators (front panel)	LEDs indicate a status of Run, Ready or Standby, and Fault, Over Temp, Over Voltage, and Over Load conditions
Controls (front panel)	**Soft Touch Switches:** Run (Enable), Stop and Reset functions **Gain Control, when-enabled:** Voltage gain adjustable from 20 to 0; Current gain adjustable from 5 to 0 **On/Off and Breaker:** Two-position power switch also functions as a breaker; turn off and then on to reset
Connectors (back panel)	**Power Connection:** 25-amp IEC (with retention latch) **Signal Output:** Three terminal barrier strip (OUTPUT/ COM/CHASSIS GROUND); resistor installed between COM 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	Single phase, 120 VAC, 60 Hz, 20 Amp service; (220-240 VAC, 50-60 Hz, 10 Amp service model available)
Thermal Requirements	**Operating Temperature:** +10°C to +30°C (+50°F to +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 3.5” H x 22.75” D (48.3 cm L x 8.9 cm H x 57.8 cm D) **Cooling:** Forced air cooling from front to back through removable filters. **Airflow:** 180CFM **Weight:** 41 lbs (18.6 kg) **Shipping Weight:** 51 lbs (23.2 kg)