



7548RLY

Four Quadrant Power Amplifier for Protection Relay Production Testing and Commissioning

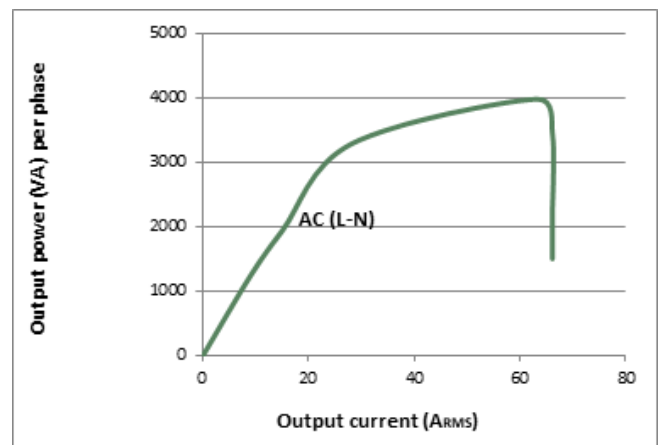
Performance Overview:

Maximum Current Output (0.5Ω):	100 A _p (70 A _{RMS})
Maximum Output Voltage:	195 V _p
Controlled-Current Bandwidth (0.25Ω load):	DC - 10 kHz
Standard Transconductance (from short to 1Ω load):	20 ±0.2%
Unit to Unit Phase Error (60 Hz):	±0.1°
Residual Noise (40 Hz - 600 Hz):	<2.5 mAp

AE Techron's **7548RLY** amplifier was created to meet the demanding requirements of the power utility industry. With an output capability of 100 A_p, the 7548RLY is powerful enough to put protection relays, fuses and other critical components through a full range of tests. It is capable of a controlled voltage bandwidth of DC - 100 kHz, and a controlled current bandwidth of DC - 10 kHz. The low noise floor, low distortion and minimal phase error of the 7548RLY make it the ideal amplifier for power grid modeling.

Features

- High compliance voltage allows the 7548RLY to drive electromechanical relays directly.
- Maintains phase accuracy for any load from a dead short to 0.25 ohms.
- Front panel indicators for rapid assessment of amplifier status.
- Installs in a standard 19-inch rack; or stands alone for bench-top operation.
- Shipped ready to operate from three-phase, 208VAC (±10%), 47-60 Hz, 30A service. 400VAC (±5%) 15A model available on request.
- Protection circuitry protects from input overloads, improper output connection (including shorted and improper loads), over-temperature, over-current, and supply voltages that are too high or low.
- Backed by AE Techron's comprehensive, 3-year, no-fault warranty.



Specifications

Performance

Controlled-Current Bandwidth (0.25-ohm load): DC - 10 kHz

Maximum Output Current (0.5-ohm load): 70 A_{RMS} (100 Ap)

Maximum Output Voltage: 195 Vp

Maximum Output Power: Dependent on load and frequency

Load Constraint for Maximum Output: 0.5Ω + 200 mH*

Output Offset Current: Less than 10.0 mA DC peak

Standard Transconductance (from short to 1-ohm load): 20 ±0.2%

Unit to Unit Phase Error (60 Hz): ±0.1 degrees

Residual Noise (40 Hz to 600 Hz): Less than 2.5 mAp

Out Accuracy: Less than ±1%

Input Characteristics

Balanced with ground: Three terminal barrier-block connector, 20 kΩ differential

Unbalanced: BNC connector, 10 kΩ single-ended

Max Input Voltage: ±10V, balanced or unbalanced

Common Mode Rejection Ratio (40 Hz - 600 Hz): -58 dB minimum

Status Display, Control, I/O

Front Panel LED Displays indicate: Ready, Standby, Fault

Soft Touch Switches for: Run, Stop, Reset

LCD Display: Can be configured for up to four simultaneous displays reporting one, two, or all four of the following: V_p, V_{RMS}, A_p, A_{RMS}. Also reports any fault conditions that occur and suggests corrective action.

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 installed between SAMPLED COMMON AND CHASSIS GROUND is a 2.7-ohm, 2W, 5%, metal-oxide resistor

Signal Input: User-selectable BNC or Barrier Strip, Balanced or Unbalanced

Interlock Connector: 25-pin D-sub connector used for amplifier control and status applications; also used in multi-amplifier applications

Communication Capabilities

Current Monitor: 20A/V ± 1%; 10A/V ± 1% (differential configuration)

Reporting: System Fault, Over Temp, Over Voltage, Over Load

Remote Control via Interlock Connector: Force to Standby, Reset after a Fault

Protection

Over/Under Voltage: ±10% (±5% for 400VAC version) 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

Physical Characteristics

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

Weight: 110 lbs (50 kg), Shipping 122 lbs (55.3kg)

AC Power: Three-phase, 208V AC (±10%), 47-60 Hz, 30A AC service; (400V AC (±10%), 15A model available)

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: Forced air cooling from front to back through removable filters via six 100ft³/min. 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.

Dimensions (HxWxD): 8.75" x 19" x 22.8" (22.2 cm x 48.3 cm x 57.8 cm)

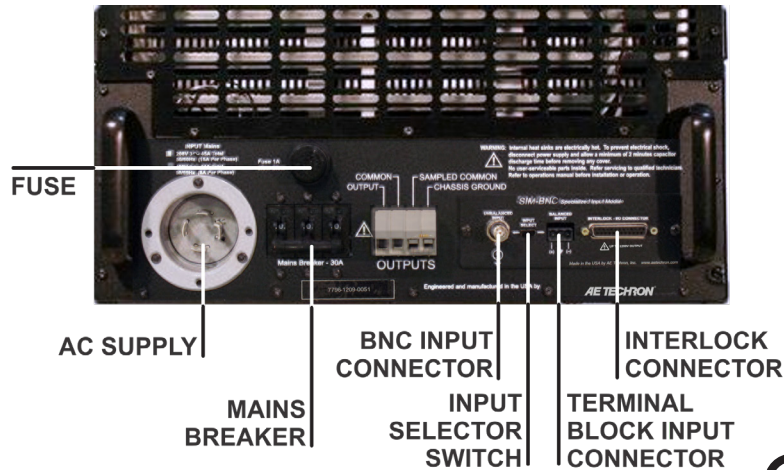
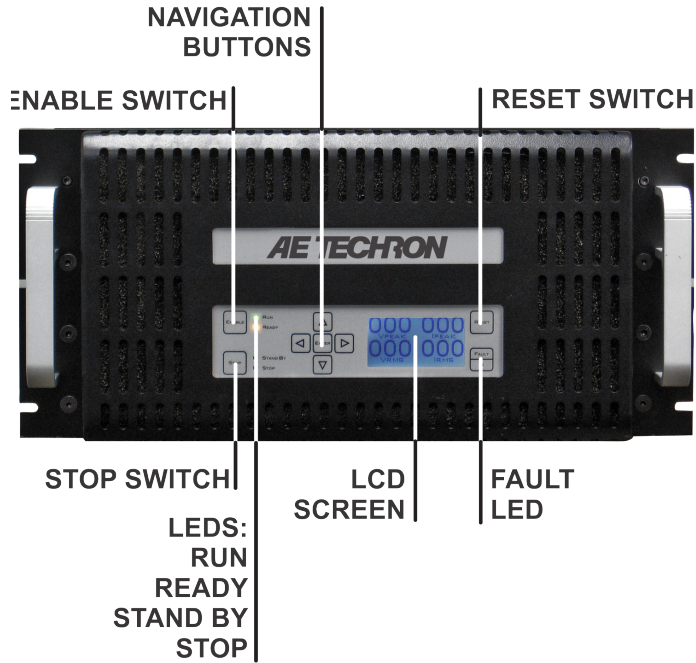
*All loads from 8-ohm to short are stable with 2 mH in series.

Accuracy

Amplitude vs. Frequency at 1V input, 20A output, amplifier transconductance set to 20			
Load	Input Signal	Transconductance	
		1 kHz	100 Hz
2 ohms	Sine	19.9	20
1 ohm	Sine	20	20
½ ohm	Sine	20	20
Short (unimpeded wire)	Sine	20	20

Pulse/Burst Specifications

Load	Duration	Waveform	Output Power
0.5 ohms	20 seconds	60 Hz Sine	57 Arms / 80.6 Apeak
		DC	25 Apeak
	0.5 second	60 Hz Sine	66 Arms / 93 Apeak
		DC	70 Apeak
	0.2 second	60 Hz Sine	66 Arms / 93 Apeak
		DC	70 Apeak



CE 400V versions of this product bear the CE mark

AE Techron Sales Representative