



The AE Techron **7548RLY** amplifier was created to meet the demanding requirements of the power utility industry. Capable of outputting up to 100 amperes peak current, the 7548RLY is powerful enough to put protection relays, fuses and other critical components through a full range of tests. The low noise floor, low distortion and minimal phase error of the 7548RLY make it the ideal amplifier for power grid modeling.

## Performance

### Frequency Response:

DC to 10 kHz driving a 0.25-ohm load

### Maximum Output Current:

70 Arms, 100 Apeak, 0.5 ohms

### Maximum Output Voltage:

195 Vpeak

### Maximum Output Power:

Dependent on load and frequency

### Load Constraint for Maximum Output:

0.5 ohms + 200 microhenries

### Output Offset Current:

Less than 10.0 milliamperes DC peak

### Unit to Unit Phase Error:

$\pm 0.1$  degrees at 60 Hz

### Residual Noise:

Less than 2.5 milliamperes peak  
(40Hz – 600Hz)

### Out Accuracy:

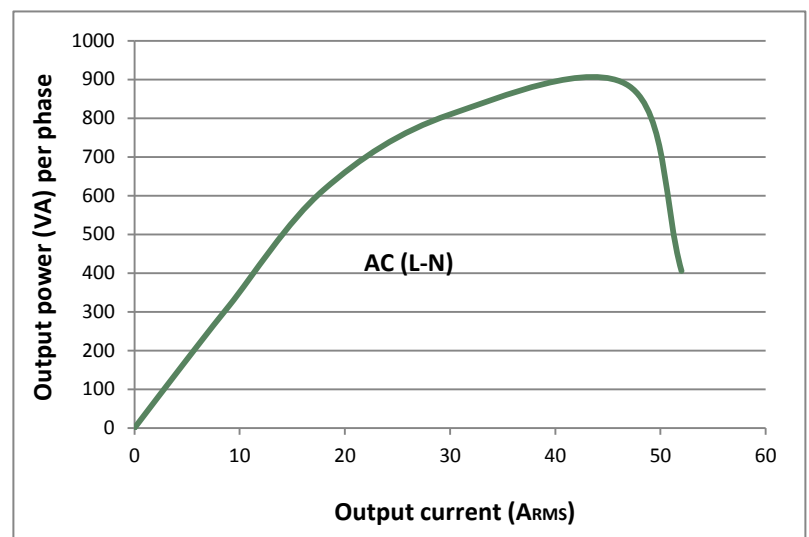
Less than  $\pm 1\%$



## 7548RLY FOUR-QUADRANT POWER AMPLIFIER

## 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.
- Designed to survive input overloads, continuous operation under demanding conditions and improper output conditions – including improper loads.
- Shipped ready to operate from three-phase, 200-220 VAC ( $\pm 10\%$ ) 47-60 Hz, 20A service (400 VAC ( $\pm 5\%$ ), 10A version available).
- Installs in a standard 19-inch rack; or stands alone for bench-top operation.
- Backed with AE Techron's application engineering, service facilities, complete technical information and a 1-year warranty.



## Input Characteristics

### Balanced with ground:

Three terminal barrier block connector  
20 k ohm differential

### Unbalanced:

BNC connector, 10 k ohm single ended

### Standard Gain:

Switchable 10 amps/volt (+0.2%) or 2 amps/volt (+0.2%)

### Standard Transconductance:

20  $\pm$ 0.2% from short to 1-ohm loads

### Max Input Voltage:

$\pm$  10 V balanced or unbalanced

### Input Impedance:

20 kOhm differential

### Input Sensitivity:

3.0V input for 3800W output into 1 ohm (adjustable)

### Common Mode Rejection Ratio:

-58 dB minimum, 40-600Hz

## Display, Control, Status, I/O

### Front Panel

#### LED Displays Indicate:

Run, Ready, Standby, Stop, and Fault conditions in the output stage

#### LCD Display:

Lists type of fault condition and gives suggested corrective action

#### Soft-Touch Switches for:

Run (Enable), Stop, Reset

#### User Configurable:

LCD display can be configured for up to four simultaneous displays reporting one, two or all four of the following: Voltage Peak, Voltage RMS, Current Peak, and Current RMS

### Back Panel

#### Power Connection:

NEMA-style locking receptacle; matching AC connector also included

#### Signal Output:

4-position terminal barrier block

7548RLY Datasheet



#### Signal Input:

User-selectable Unbalanced BNC or Balanced Barrier Strip

#### Interlock Connector:

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

## Communication Capabilities

**Current Monitor:**  $\pm$  1V / 20A  $\pm$ 1%

#### Reporting:

System Fault, OverTemp, Over Voltage, Overload

#### Control:

Force to Standby; Reset after a fault

## Protection

#### Over/Under Voltage:

$\pm$  10% 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

Information subject to change.

01/31/17

## Physical Characteristics

### Chassis:

Black powder-coat chassis with all aluminum construction; designed for stand-alone or rack-mounted operation. The amplifier occupies five EIA 19-inch-wide rack units

### Weight:

110 lbs. (50 kg)

### AC Power:

Three-phase, 208 VAC  $\pm 10\%$ , 47-60 Hz, 20A AC service (400 VAC  $\pm 10\%$ , 15A version available). A toggle switch circuit breaker opens all legs of the AC mains on excess current demand.

### 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 four 100 ft<sup>3</sup>/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:

19 in. x 22.8 in. x 8.75 in. (48.3 cm x 57.9 cm x 22.3 cm).

## 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

Maximum Current: 70Arms, 100Apeak			
Maximum Voltage: 195Vpeak			
Total Load	Duration	Waveform	Output Power
0.5 ohm	20 seconds	60 Hz Sine	57Arms/80.6Apeak
		DC	25Apeak
	0.5 second	60 Hz Sine	66Arms/93Apeak
		DC	70Apeak
	0.2 second	60 Hz Sine	66Arms/93Apeak
		DC	70Apeak

*AE Techron Sales Representative*