7796RLY FOUR-QUADRANT POWER AMPLIFIER

The *AE Techron* ***7796RLY*** amplifier was created to meet the demanding requirements of the power utility industry. With an output capability of $200A_{pk}$, the 7796RLY 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 7796RLY make it the ideal amplifier for power grid modeling.

Performance

Maximum Output Current:
200 amps peak

Maximum Output Voltage:
183 volts peak

Maximum Output Power:
Dependent on load and frequency

Load Constraint for Maximum Output:
0.19 ohms + 200 microhenries

Output Impedance:
Greater than 250 ohms at 60 Hz

Output Offset Current:
Less than 10.0 milliamperes DC peak

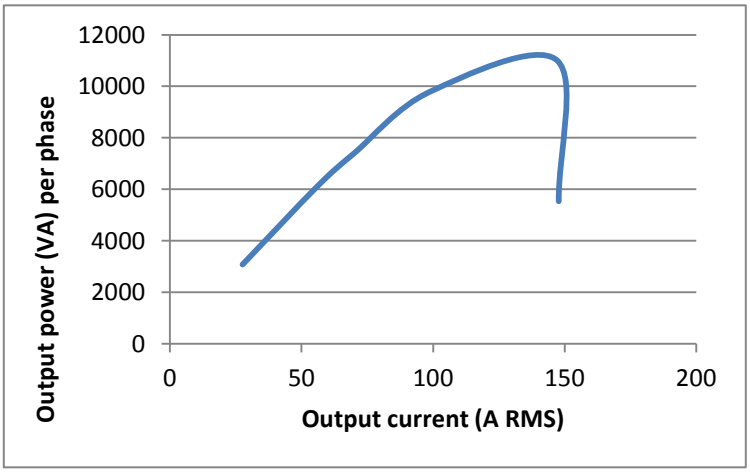
Unit to Unit Phase Error:
± 0.1 degrees at 60 Hz

Residual Noise:
Less than 2.5 milliamperes peak (40Hz – 600Hz)

THD+N:
Less than 0.10% at 600 Hz, full output power

Features

- High compliance voltage allows the 7796RLY to drive electromechanical relays directly.
- Maintains phase accuracy for any load from a dead short to 0.25 ohms.
- Capable of a controlled voltage bandwidth of DC – 100 kHz, and a controlled current bandwidth of DC – 10 kHz
- 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, 208VAC (±10%), 47-60 Hz, 30A service. 400VAC (±5%) 15A model available on request.
- 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, 10k ohm single ended.

Gain: 40 amps/volt (+0.2%)

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

Display, Control, Status, I/O

Front Panel LED Displays indicate:
Ready, Standby, Fault, Over Temp, Over Voltage, Overload

Front Panel LCD Display:
User-configurable for up to four simultaneous displays reporting one, two, or all four of the following: Voltage Peak, Voltage RMS, Current Peak, and Current RMS. If an amplifier fault condition occurs, the front panel display lists the type of fault condition and gives suggested corrective action.

Soft Touch Switches for:
Run, Stop, Reset

Gain Control, when enabled:
Voltage gain adjustable from 20 to 0

On/Off Breaker

Back Panel Power Connection:
25 Amp IEC (with retention latch)

Signal Output:
+/Common/Sampled Common

Signal Input:
User Selectable BNC Unbalanced or Barrier Strip Balanced

Communication Capabilities

Current Monitor: ± 1 V / 6 A ± 1%

Input Signal Monitor: ± 1 V / 2 V ± 1%

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

Pulse/Burst Specifications

Load	Duration	Waveform	Output Power
0.19 ohm	1 minute	60 Hz Sine	125 Arms / 176 Apeak
		DC	60 Apeak
	0.5 second	60 Hz Sine	141 Arms / 200 Apeak
		DC	188 Apeak
	0.2 second	60 Hz Sine	141 Arms / 200 Apeak
		DC	188 Apeak
0.53 ohm	1 minute	60 Hz Sine	91 Arms / 128 Apeak
		DC	100 Apeak
	0.5 second	60 Hz Sine	137 Arms / 193 Apeak
		DC	181 Apeak
	0.2 second	60 Hz Sine	139 Arms / 196 Apeak
		DC	164 Apeak
1.07 ohm	1 minute	60 Hz Sine	75 Arms / 107 Apeak
		DC	66 Apeak
	0.5 second	60 Hz Sine	93 Arms / 118 Apeak
		DC	108 Apeak
	0.2 second	60 Hz Sine	85 Arms / 120 Apeak
		DC	108 Apeak

Control:
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:
160 lbs (72.5 kg)

AC Power:
Three-phase, 208 VAC ±10%, 47-60 Hz, 30 Amp service; 400 VAC (±5%) 47-60 Hz, 15 Amp 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).)

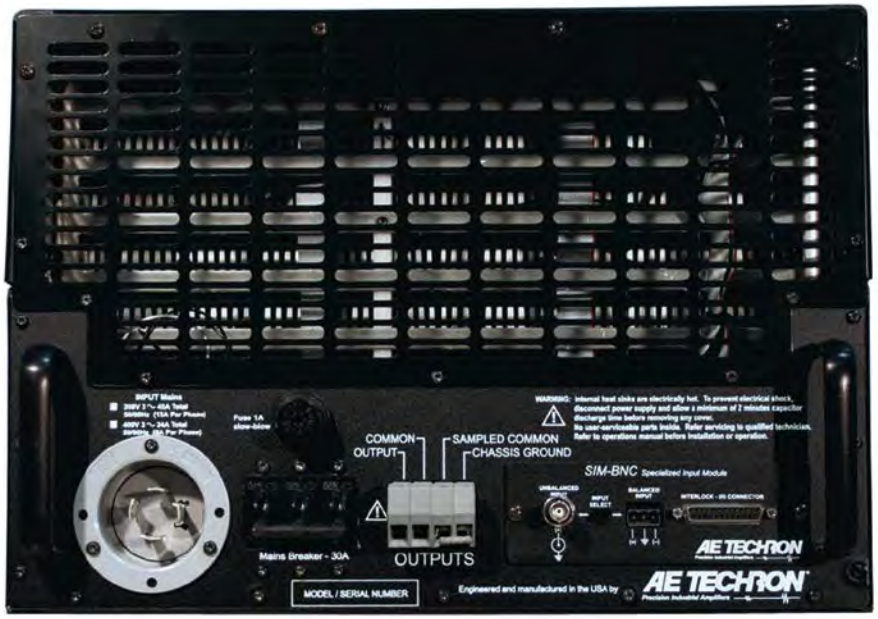
Humidity:
70% or less, non-condensing

Cooling:
Forced air cooling from front to back through removable filters.

Dimensions:
19” x 22.8” x 12.25” (48.3 cm x 57.8 cm x 31.1 cm)

Accuracy

Amplitude vs. Frequency at 1V input, 20A output, amplifier transconductance set to 20:			
		Transconductance	
Load	Input Signal	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



AE Techron Sales Representative