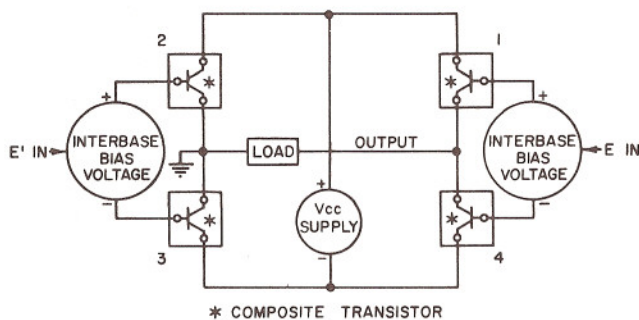


MODEL 7560 POWER SUPPLY AMPLIFIER SPECIFICATIONS

TECHRON's 7560 Power Supply Amplifier delivers accurate high power levels with complete self-protection for dependable operation. At frequencies from DC to 40KHz, 1,000 watts continuous average output into 4 ohms is typical, with extremely low distortion and noise.

The Patented Bridge Circuitry in the 7560 effectively doubles the available output voltage without exposing output transistors to excessive voltages. In addition, the patented AB+B mode of operation means that quiescent current is carried by the driver transistors only, calling on the output section exactly as necessary for precise high power output.



The SPACE Controller (Signal Programmed Automatic Current Executor) circuit acts as a signal-variable current limiter at most frequencies, and as a Voltage/Current limiter at low frequencies and DC, offering comprehensive protection against amplifier damage, no matter what the input or output demands may be.

The Interlock Circuit allows multiple 7560's to operate together for even higher power levels without any possibility of amplifier damage due to unsynchronized starting and stopping. The interlock also allows external start/stop control of an entire amplifier system.

Modular Construction permits rapid servicing and accurate parts replacement. Output modules also enable thorough, even cooling for minimum stress on electronic components.

TECHRON engineering supports the 7560 with constant attention to user needs, design assistance for special installations, and a wealth of technical know-how to handle new or unusual applications for the 7560.

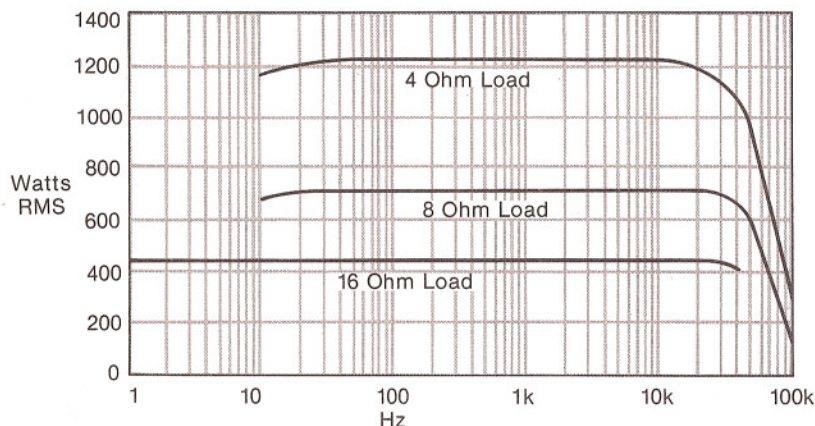
The TECHRON 7560 Power Supply Amplifier is a proven, yet innovative system that's tough enough for industrial environments, dependable enough for medical uses, and accurate to laboratory standards.

7560 (Single Unit)

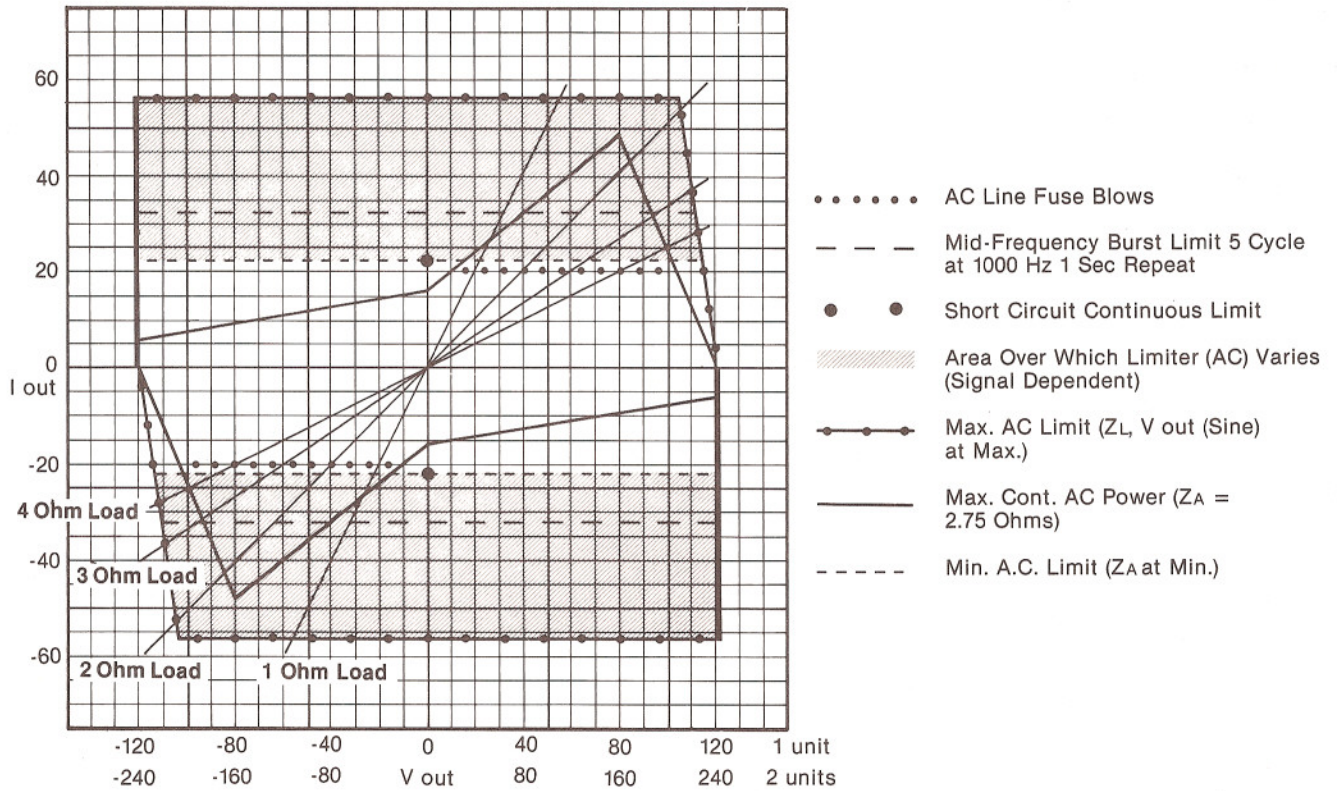
DUAL 7560's (Bridged)*

POWER RESPONSE	<p>8 ohm load: DC-45KHz at 600 W Continuous average output power with no more than .05% THD (Total Harmonic Distortion)</p> <p>4 ohm load: DC-40KHz at 1KW continuous average output power with no more than .07% THD (Total Harmonic Distortion)</p>	<p>8 OHM LOAD: +1, -0dB, DC-40KHz at 2KW continuous average output power with no more than .1% THD (Total Harmonic Distortion)</p> <p>16 ohm load: +1, -0dB, DC-45KHz at 1.2KW continuous average output power with no more than .07% THD (Total Harmonic Distortion)</p>
POWER AT CLIP POINT: (LESS THAN .01% THD at 1 KHz)	<p>8 ohm load: Typically 750W</p> <p>4 ohm load: Typically 1350W</p>	<p>8 ohm load: Typically, 2.7KW</p> <p>16 ohm load: Typically, 1.5KW</p>
DC OUTPUT	Typically 20A maximum (supply fuse limited) at 100V or 2KVA	Typically 20A maximum (supply fuse limited) at 200V or 4KVA
FREQUENCY RESPONSE (8 ohm load)	<p>DC-20KHz: +/- .1dB at 1W</p> <p>DC-100KHz: +/- 1dB at 1W</p> <p>10Hz-100KHz: +/- 1dB at 1W, AC coupled via standard input plug-in</p>	<p>DC-20KHz: +/- .2dB at 1W</p> <p>DC-50KHz: +/- 1dB at 1W</p>
PHASE RESPONSE	+0, -15° DC-20KHz at 1W into 8 ohms	+0, -20°, DC-20KHz at 1W into 8 ohms
SLEW RATE	32V/usec	64V/usec
I.M. DISTORTION (60Hz-7KHz 4:1)	Less than .05% from .01W to 600W (peak equivalent to a single sinusoid, rms) into 8 ohms. Less than .01% at 600W into 8 ohms or 1200W into 4 ohms.	Less than .1% from 10mW to 2KW (peak equivalent to a single sinusoid, rms into 8 ohms)
HARMONIC DISTORTION (TRUE RMS MEASURE)	Less than .05% from DC-45KHz at 600W into 8 ohms. Less than .001% from 20Hz-400Hz and increasing linearly to .05% at 600W into 8 ohms.	Less than .05% from DC-10KHz at 2KW into 8 ohms.
OUTPUT IMPEDANCE	5 mohms in series with 1.25uH which are together shunted by 2.7 ohms in parallel with 0.1uF	20 mohms in series with 4uH
LOAD IMPEDANCE	Normally, 4 ohms or greater; maximum continuous sinusoidal output power at 2.5 ohms. Lower impedance affects only maximum power. The 7560 will drive a completely reactive load with no harm to the amplifier. Highly inductive loads may require external compensation to avoid oscillations.	(Balanced Output): Primarily used at 8 ohms or greater; maximum continuous sinusoidal output power at 5 ohms. Lower impedance affects only maximum power.

Typical Power Output



THE V-I GRAPH



The unique protection circuitry of the TECHRON 7560 enables it to operate at or near its limits of performance as easily and safely as it would in less demanding situations. The V-I plot helps users of the 7560 to predict amplifier performance with varied loads and power demands.

Users of the TECHRON 7560 can plot load characteristics on the V-I Graph to be sure of accurate, dependable operation in each application. Experienced users will be able to plot load characteristics on the V-I Graph for an immediate assessment of the 7560's capabilities in each intended use. For new uses, TECHRON engineering gladly offers assistance in amplifier selection and modification.

Definition & Explanation of V-I Graph Terms

AC Line Fuse Blows: A demand for continuous DC, 20 amp output will cause the line fuse to blow. Protection circuitry allows excursions of AC (even square wave) output demands well beyond this point.

Mid-Frequency Burst Limit: Varied signal burst demands will generate varied results. This is a "medium" level of demand. At loads below 4 ohms, and with a low duty cycle, a "step" effect will occur, as protection circuitry monitors output signal history to set limits. With higher duty cycle, the "step" effect decreases, and with loads over 4 ohms, amplifier response is instantaneous.

Short Circuit Continuous Limit: The 7560's protection circuitry will permit a short circuit at the output up to ± 24 amps. However, overheating will result and the 7560's thermal switches will place the amplifier in Standby.

Shaded Area: AC signals, because of their constantly varying strength, allow a larger output range than DC. With AC signals, the limiting circuitry constantly varies, depending on the history of the output. The graph is most helpful here, where output limits will vary constantly.

Max. AC Limit: With a sine wave input, and low load impedance, the protection circuitry allows this output for a very short time.

Max. Continuous AC Power: Self explanatory. Applies to loads above 2.7 ohms.

Min. AC Limit: With extremely low impedance loads, the AC limit might be this low in a worst-case burst mode of use.

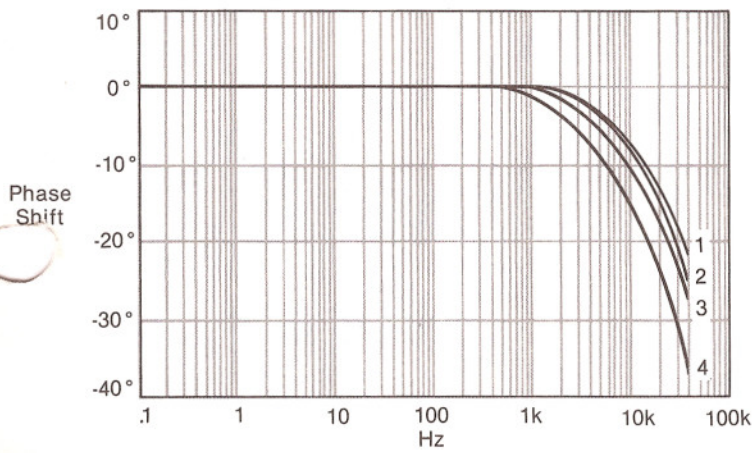
Load Impedance and Inductance: Because input signal frequency, load inductance, load impedance all affect output limits, use the V-I Graph as a guide to amplifier performance. Contact TECHRON engineering for assistance in difficult or innovative applications.

SPECIFICATIONS

	7560 (Single Unit)	DUAL 7560's (Bridged)*
INPUT GAIN	20 +/- 1% (26dB) at standard input, input attenuator fully CW (1 +/- 1% at interlock connector input)	40 +/- 1% for (32dB) at standard input with input attenuator fully CW
INPUT SENSITIVITY	3.45 VC rms +/- 1% for 600W into 8 ohms	3.6V rms +/- 1% for 2KW rms into 8 ohms
INPUT IMPEDANCE	25K +/- 30% with standard input. 44.76K +/- 5% at interlock connector input.	25K +/- 30% with standard input
HUM AND NOISE (20Hz-20KHz)	100dB below 600W into 8 ohms. Typically 107dB.	96dB below 2KW into 8 ohms. Typically 104dB.
DC DRIFT AT OUTPUT	Typically less than 100uV/°C with all inputs grounded	Typically less than 200uV/°C with inputs grounded
POWER REQUIREMENTS	50-60Hz AC, single phase, with adjustable taps for 100, 120, 200, 220 and 240V +/- 10% operation	50-60Hz AC with adjustable taps for 100, 120, 200, 220 and 240V +/- 10% operation
POWER DRAW	116W or less on idle; 1KW at 600W output into 8 ohms	232W or less on idle, 3.8KW at 2KW output into 8 ohms
COOLING CAPACITY	Forced air cooling with eight high efficiency heatsinks can dissipate 1900W with 25°C intake air at 1 atmosphere. (Dissipation downgrades to zero at 75°C.) Dual fans with washable intake filters force air through heatsinks and out both the top and bottom of the amplifier.	
TURN-ON DELAY	Switch-selected for instant on or 4-5 seconds of delay at turn-on	
LOW FREQUENCY LOAD PROTECTION	Switch-selected, producing shutdown of the high voltage power supply at DC outputs greater than 6V or low frequency outputs greater than 600W at 20 Hz and 8 ohms.	
OUTPUT TRANSISTOR PROTECTION	Short, mismatch, and open-circuit protection; electronic protection operates without thumps or shutdown.	
MAXIMUM AC CURRENT DRAW	20 Amps	
OPERATING ENVIRONMENT	0-25°C, non-condensing at 90% or less humidity	
INTERLOCK	11-pin "octal" type socket provides interlock function to allow simultaneous start/stop for multiple 7560's driving a common load.	

*These specifications are for two Model 7560 amplifiers joined into a bridge by cable option 75D01. Other combinations of multiple 7560 amplifiers can be constructed. Consult the factory for design assistance.

Phase Response



Notes:

- Curve 1 — Open Ckt and 16 Ohm Load
- Curve 2 — 8 Ohm Load
- Curve 3 — 4 Ohm Load
- Curve 4 — Input Atten. Set to -6 : 8 Ohm Load (Worst Case)
- Effective Signal Delay Td = 1.5 uSEC — Open
 = 1.6 uSEC — 16 Ohms
 = 1.7 uSEC — 8 Ohms
 = 1.9 uSEC — 4 Ohms
 = 2.6 uSEC — Worst Case
- Output 2.828 Volts All Loads

GENERAL SPECIFICATIONS

Protection circuitry in the 7560 prevents damage due to high line voltage, overtemperature, RF burnouts, input overload, excessive output demand, mismatched loads, shorted loads, and internal malfunction.

Displays:

Power on: red neon indicator, plus green mechanical indicator in power switch to help verify power connection
Standby: amber neon indicator

Controls:

- Push-push power switch
- AC/DC coupling switch
- Input Attenuator Pot
(with standard input plug-in)
- Low Frequency Protect Switch
- Turn-on Delay Switch
(rear panel)

Input Plug-ins:

The 7560's input plug-ins provide a wide range of input flexibility.

- Standard Input Card:
 - AC/DC Coupling Switch
 - Input Attenuator
 - Universal PC board for user-constructed input modifications

Several other custom input cards are available from TECHRON.

Still others can be built by users from TECHRON designs, or from custom designs.

Input options include differential inputs, filters, oscillators, servo amplifiers, remote DC gain controls, compressors, digital controllers, etc. Regulated $\pm 15\text{VDC}$ supplies are provided, with the maximum total available current of the supplies limited to 50ma (25ma with optional meter display module). The delay mode of amplifier operation may be programmed from the plug-in.

Connectors:

- Standard Input: BNC jack
- Special Input: 3-terminal barrier strip can route input to input card for special input modifications.

Output: Two-terminal barrier strip for permanent connections; color coded binding posts on standard 3/4" centers for monitoring or temporary connections

AC Line: Three-wire 20A, 120V male connector with 5-foot cable

Interlock: 11-pin "octal" type socket provides interlock function to allow simultaneous start/stop for multiple 7560's driving a common load.

Construction:

Aluminum chassis with 1/4" thick front panel reinforced with steel to retain the power transformers, 1/8" aluminum side panels. Heavy duty handles on front for easy transport. Plug-in circuit boards.

Dimensions:

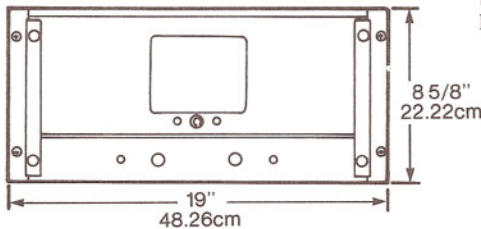
19" (48.26cm) standard rack mount, 8 5/8" (22.22cm) height, 16 1/2" (41.91cm) behind mounting surface, handles extend 2" in front of mounting surface. Center of gravity is nearly centered at 5" behind the mounting surface.

Weight:

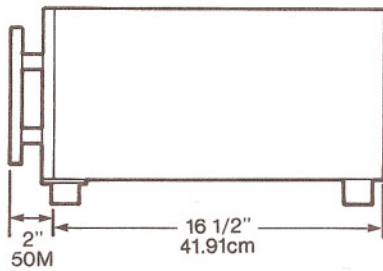
92 pounds (41.7kg) net weight

Finish:

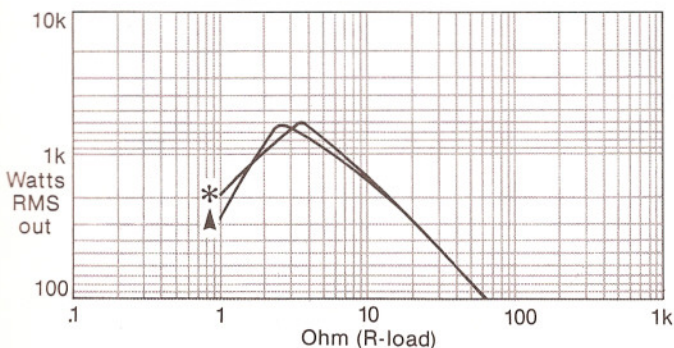
Two tone front panel coated with durable textured polyurethane. The front panel is tan; handles and end bars dark brown. Black painted aluminum chassis and covers.



Mounting Dimensions

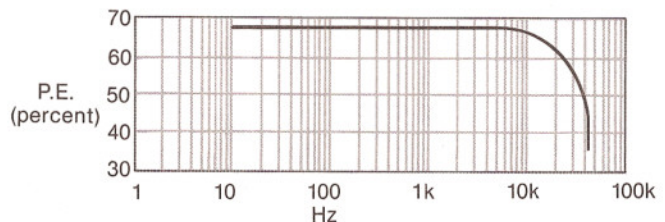


Output vs. R (Load) at 1KHz



- NOTES:
1. *—Continuous
 2. ^—Tone Burst

Typical Power Efficiency: 120 VAC-Driven to Maximum Undistorted Level at 8 Ohms



TECHRON®

Engineering for Innovation

TECHRON's entire amplifier series sets new standards not only of performance, but of possibility itself. Power limits, amplifier dependability, accuracy of operation — TECHRON amplifiers offer previously impossible levels of all these.

Here is just a sampling of some tasks TECHRON's 7560 is now performing:

AC Mains supply testing: With a sine wave input, the 7560 can deliver a continuous AC output at any desired frequency, 0 - 20KHz, and at various power levels. A push-pull pair of 7560's can deliver over 120V AC in the same frequency range.

Motor Control and Testing: The 7560 can power either AC or DC motors, offering speed control and/or test supply power. Users can superimpose varying AC voltages on DC supplies.

AC or DC Bench Supply: The 7560 can provide accurate, variable supply power for any number of lab or shop purposes.

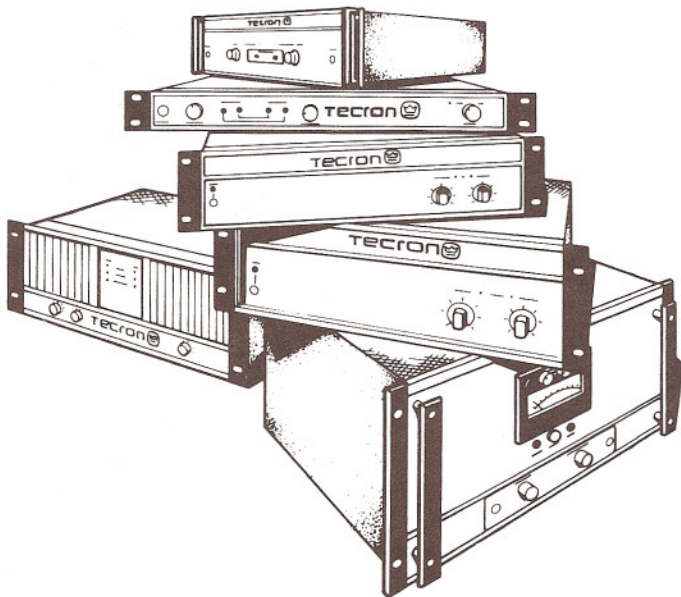
Sonar: The 7560 provides powerful, accurate amplification for Sonar pulses aboard some ships.

Vibration Testing: In sophisticated vibration testing systems, the 7560 powers huge electromagnets according to pre-designed test regimens. The 7560's ruggedness, accuracy, and responsiveness make this testing practical and reliable.

Magnetic Resonance Imaging Systems: Manufacturers of magnetic resonance imaging systems around the world have turned to TECHRON for the kind of gradient coil power these important new medical systems need — and the 7560 delivers.

YOUR REQUIREMENTS: TECHRON engineering stands ready to assist you in developing, modifying, and even custom-manufacturing power supply amplifiers to meet your needs for the present and the future.

TECHRON can provide custom inputs, various configurations and combinations, even color and appearance modifications. TECHRON is eager to serve as OEM manufacturer and supplier, with custom circuitry when needed. Contact TECHRON engineering for complete design assistance and details.



TECHRON®