



Manitou Systems Inc.

Lunar-Link™

VHF & UHF Amplifiers
for Demanding Modes

LA-12A 222 MHz

LA-22A 144 MHz

LA-62A 50 MHz

LA-72A 432 MHz



LA-x2A SERIES 1500 WATT OUTPUT VHF/UHF LINEAR AMPLIFIERS

Designed for the serious VHF/UHF DX, EME, digital and contest operator, the LA-x2A Series Linear Amplifiers are compact desktop RF decks that generate 1500 watts of stable, reliable and highly linear power output. Their continuous duty ratings allows stress free 1500 watt operation on digital modes like WSJT, JT65 and PSK443 (1200 watts for the LA-72A).

LA-x2A Series Amplifiers use 2 modern, rugged 3CX800A7 or 3CPX800A7 ceramic metal triodes. The optimal design silver plated plate circuits are highly efficient. A vernier drive Plate Tune control facilitates smooth plate tuning. The front panel Plate Load control makes for easy tune up. Grounded grid circuitry with tuned inductance neutralization ensures stable operation, high efficiency and maximum tube life. The LA-x2A Series will give you a super clean signal with 3rd order distortion products down more than -35dBc.

All models have tuned cathode input circuits with front panel controls to allow for easy tuning adjustment. The use of optimized T networks provide high input efficiency, excellent out of band rejection, improve IMD and have low input SWR. Drive power is typically less than 40 watts for the LA-12A/22A, 50 watts for the LA-62A and 60 watts for the LA-72A.

Comprehensive control and protection circuitry is constructed on a high quality glass epoxy 2-layer printed circuit board. Some of the many features include: Cathode warm up delay, grid over current protection, high SWR shutdown, operate and standby bias, ALC (Automatic Level Control) and HV sensing for tube protection

A built in T/R relay sequencer supplies 26VDC switched on transmit for external RF relays, sequenced bias relay switching and a sequenced output signal for control of other equipment.

Optional control functions include a dual speed blower which reduces noise during standby. An air pressure sensor option protects the tubes in case cooling air is not present. A remote monitoring and control interface option provides key signals to user provided remote displays.

Metering of Plate Current, Grid Current and Plate Voltage on high quality pivot and jewel meters is standard. An optional dual directional coupler adds both forward and reflected RF power metering in both peak and average modes.

Built to last a lifetime, all LA Series models feature commercial quality construction. The aluminum cabinet parts are .062 and .080 thick and gold Iridite finished. The front panel is made from rugged .125" thick aluminum and is epoxy powder coated. Stainless steel hardware is used throughout. The LA Series' solid construction ensures extremely low RF leakage.

Desktop models use a sleek wrap around black epoxy powder coated top and side cover.. Optionally is a gold iridite top and side cover which matches older LA-Series amplifiers. The gold colored cover is supplied with the front rack panel option.

Matching high voltage power supplies, the Models PS-72 and PS-70D are also available. The PS-72 is optimized for use with 3CX800A7 tubes at 2,350 VDC. The PS-70D has 2300-2500-2700 VDC voltage taps for use with either the 3CX800A7 or the 3CPX800A7 tubes.

MODEL SPECIFICATIONS - LA-X2A SERIES AMPLIFIERS

MODEL LA-12A SPECIFICATIONS

Frequency/Bandwidth: 222-225 MHz /
1.1MHz @ -3dB

Power Output: 1500 watts continuous carrier, SSB
(PEP) and CW

Efficiency: 61% typical

Drive Power: 45 watts

Circuit Topology: $1/4\lambda$ plate stripline & $1/2\lambda$ tuned
Cathode

Stability: Reverse isolation is greater than -35 dB.
Typical power drift is less than 25 watts (<0.07 dB).

MODEL LA-62A SPECIFICATIONS

Frequency/Bandwidth: 50-54 MHz /
0.35MHz @ -1dB

Power Output: 1500 watts continuous carrier, SSB
(PEP) and CW

Efficiency: 62% typical

Drive Power: 50 watts

Circuit Topology: PI plate tank & T network tuned
Cathode

Stability: Reverse isolation is greater than -35 dB.
Typical power drift is less than 25 watts (<0.07 dB).

MODEL LA-22A SPECIFICATIONS

Frequency/Bandwidth: 144-148 MHz /
0.7MHz @ -3dB

Power Output: 1500 watts continuous carrier, SSB
(PEP) and, CW

Efficiency: 64% typical

Drive Power: 40 watts

Circuit Topology: $1/4\lambda$ plate stripline & T network tuned
Cathode

Stability: Reverse isolation is greater than -35 dB.
Typical power drift is less than 25 watts (<0.07 dB).

MODEL LA-72A SPECIFICATIONS

Frequency/Bandwidth: 420-450 MHz /
4MHz @ -3dB

Power Output: 1200 watts continuous carrier,
1.5kW PEP

Efficiency: 52% typical

Drive Power: 65 watts

Circuit Topology: $1/2\lambda$ plate stripline & $1/2\lambda$ cathode
stripline

Stability: Reverse isolation is greater than -30 dB.
Typical power drift is less than 50 watts (<0.15 dB).



Rear View of a LA-x2A RF deck with blower and relay package installed.

SPECIFICATIONS COMMON TO ALL LA-X2A SERIES AMPLIFIERS

TUBE COMPLEMENT: Two 3CX800A7 ceramic metal triodes. (Tubes are included with amplifier and RF deck packages. Tubes may be ordered separately for RF decks). 3CPX800A7 tubes may also be used and provide maximum performance.

PLATE DISSIPATION: 1500 watts nominal, may range from 1000 to 1600 watts depending upon blower selection, ambient temperature and elevation.

SPURIOUS EMISSIONS: Greater than -60 dBc when properly tuned at rated output power.

OUTPUT IMPEDANCE: 50 ohms nominal, depending upon reactance, loads from 25 to 100 ohms can be handled.

INPUT IMPEDANCE: 50 ohms nominal, can be adjusted for less than 1.15:1 VSWR at any single frequency.

LINEARITY: Odd order IMD products are typically down more than 35 dB from peak power at rated output.

GRID PROTECTION: Sensing is incorporated which disables transmit if grid current exceeds 150 ma.

HIGH SWR SHUTDOWN: Drops the RF deck out of transmit if reflected power exceeds 150 watts. (Standard on Amplifier Packages. Requires option -060 on RF decks).

HV SENSING: Transmit cannot be enabled unless a minimum of 1400 volts is present on the tube plates.

CATHODE PROTECTION: A solid state time delay circuit prevents transmit during the 3 minute warm up period.

HEATER PROTECTION: An over voltage transformer with an adjustable dropping resistor limits turn on surges and allows for adjustment to local line voltage levels.

T/R SWITCHING: Enabled via. Ground to Transmit (PTT). The maximum open circuit voltage is +14 VDC. The maximum current sink when grounded is 10 ma. The Ground to TX circuit (PTT) is compatible with most HF / VHF / UHF transceivers that have open collector "linear" control outputs. Tube operate / standby bias and +26 VDC at up to 700 ma. for RF relays are all automatically switched in TX mode.

T/R SEQUENCING: Delays the TX bias relay by 20 ms when switching to transmit. When switching back to receive, the coaxial relays are held for 20 ms. A sequenced output signal is available for controlling devices such as transverters and preamplifiers. Sequencing may be disabled via a jumper.

RF LEAKAGE: 0.3 uw/cm² maximum at 1500 watts output when measured per ANSI-IEEE C95.1-1992 at 2" from any surface at any polarity averaged over a 30 minute period. At 24" from a LA- Series Amplifier typical levels are less than .03 uw/cm².

DIMENSIONS: 5.7 H x 12.5 W x 12" D (14 .5 x 31 x 31 cm) Not including blower and feet.
6.4 H x 12.5 W x 18.5" D (16 x 31 x 47 cm)
Maximum Dimensions With Standard Blower knobs, connectors and feet.

WEIGHT: 19.5 lb. (8.8 kg) with tubes & 60 CFM blower.

POWER REQUIREMENTS: 2200-2700 VDC @ 1.2A and 220-240 VAC @ 1 A, 50/60 Hz. With Options -002 110-120 VAC @ 2 A, 50/60 Hz.

METERING: Plate Current: 0-1.5 amperes
Grid Current: 0-150 ma.
Plate Voltage: 0-4 KV
*Forward Power: 0-2.5 KW
*Reflected Power: 0-250 W

*Requires Peak Reading RF Power Meter (option -060)

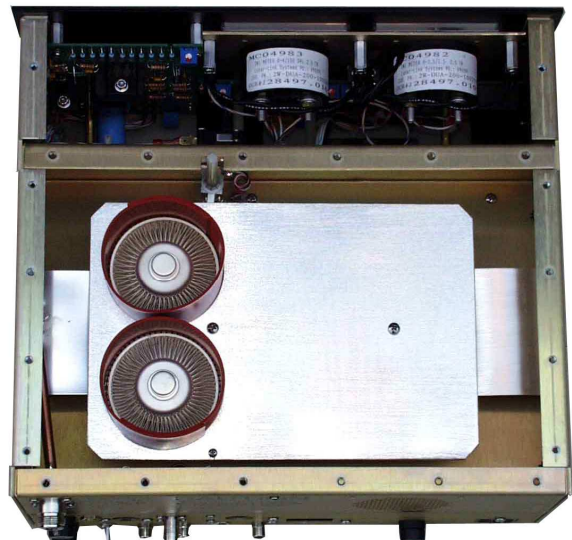
RF CONNECTIONS: TYPE N female (UG-58) standard.

ACCESSORIES SUPPLIED:

55 CFM 234VAC 60 Hz / 50 CFM 50Hz Blower
2 Pin Cinch Plug (For External RF Relays)
Spare Fuses

LA-x2A SERIES OPTIONS:

-006 100 CFM/60Hz, 80 CFM/50Hz, 234VAC Blower.
-013 100/200 VAC heater and control transformers.
-015 Type UHF RF connectors (LA-22A & LA-62A only)
-050 Front Rack Panel
-060 Peak Reading RF Power Meter
-090 Dual Speed Blower

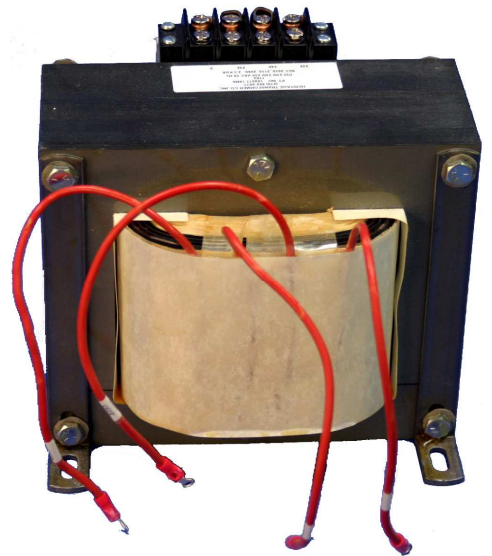


LA-72 PLATE COMPARTMENT

OPTIONS AND ACCESSORIES



Series PS High Voltage Power Supply



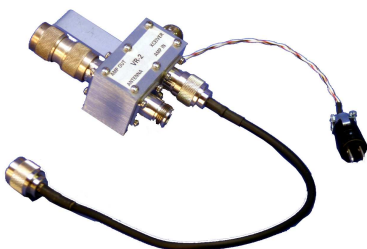
HV Plate Transformers



Optional 19" rack panel mounting



3CPX800A7 and 3CX800A7
Electron Tubes



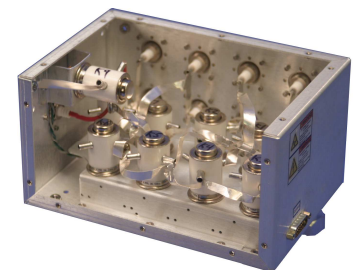
VR-2 Vacuum
Transfer Relays



Multiple Amplifier
Connection Modules



Low Pass RF
Filter Modules



RF Switching Modules for
amplifiers and antennas

For more information or to place an order, please contact us at:

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The information and specifications contained in this data sheet may change without prior notice. See our website for the latest information.

The LA-62A 50MHz Model is not yet been approved by the FCC. This device is not and may not be offered for sale until FCC approval is obtained.

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