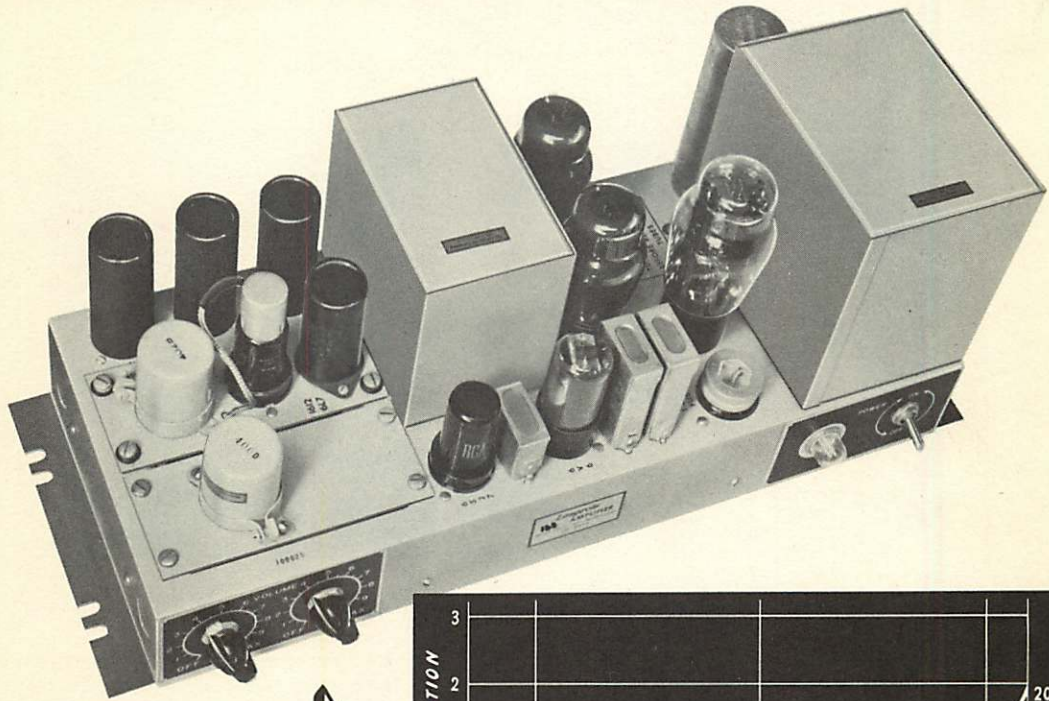


20 WATT POWER AMPLIFIER

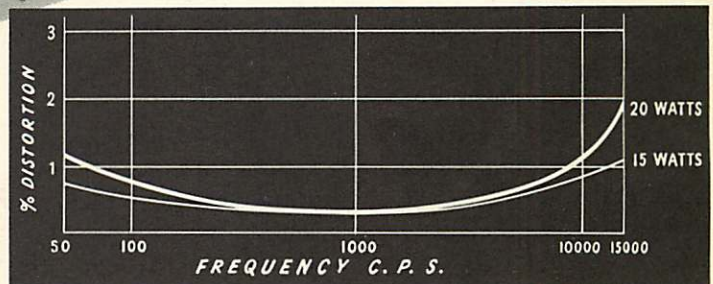
BY
Langevin

SOUND SYSTEMS EQUIPMENT

TYPE 128 SERIES



Total Harmonic Distortion
(Production Run Average)



The Langevin Type 128 series amplifiers are 20 watt units designed for high quality sound systems. *Quiet, low distortion performance over a wide frequency range at rated power output* highlights the electrical characteristics which make these amplifiers desirable where fine sound reinforcement or reproduction is required.

Design features of the Type 128 series make these amplifiers adaptable to the varied requirements of sound installations. These features include five interchangeable input panels...a *line level input* with connections to match or bridge 600 ohms, a *pre-amplifier input* for microphones and phono pickups with impe-

dance of 30 or 250 ohms, a *pre-amplifier input* for high impedance microphones, a *pre-amplifier input equalized* for GE or Pickering type pickups and an *input for high impedance tuners*.

Taps on the output transformer permit matching the amplifier output to any load impedance from 1 to 1000 ohms.

The low output noise characteristic and low internal output impedance of these units make them ideal for use as the power unit to drive a low impedance buss across which many power amplifiers can be bridged in large sound installations.

The 128 can be rack mounted, using a modification, or it can be housed in the conventional type of wall or shelf mounting cabinet.

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Langevin



The equipment herein described is licensed under U. S. patents of the A.T. & T. Co. and the Western Electric Company.

TWO INPUT CHANNELS

In the design of the 128 series amplifiers, provisions have been made for two input channels. These channels are furnished as separate input panels and are interchangeable on the amplifier. Five different types of input panels, any two of which can be used at one time, are available.

The basic 128 amplifier is supplied with any one or any combination of two of these input panels already installed. (See chart page 4 for Type numbers). Modification groups Types 11-A and 24-A are available for adding either pre-amplifier input panel, to a single channel amplifier already in service.

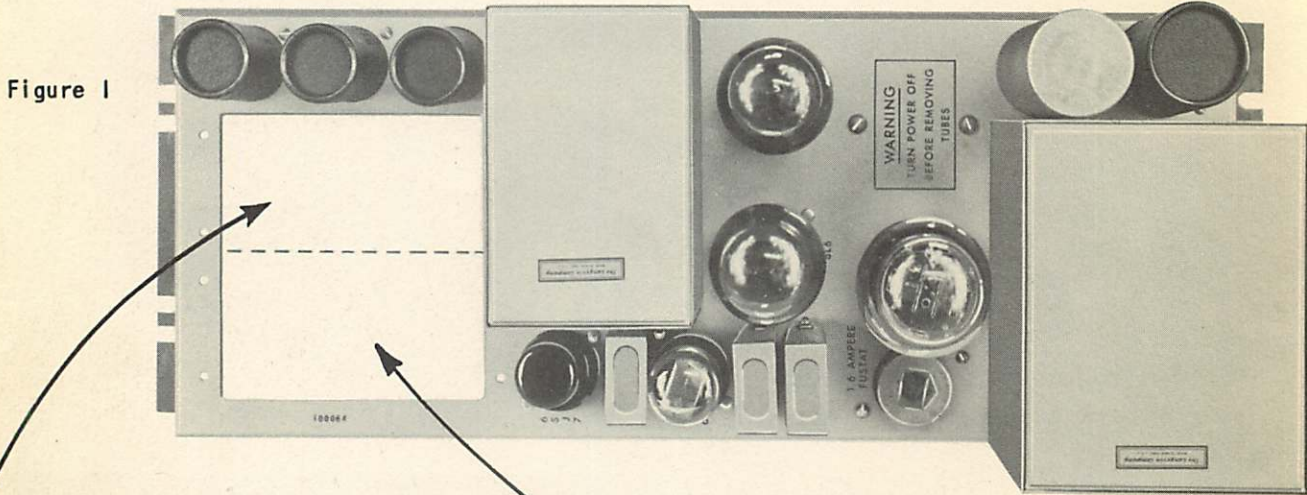


Figure 1

Line Level Input

Figure 2 illustrates the *line level input panel* which consists of an input transformer with connections for matching 600 Ohms and for bridging 0 to 600 Ohms. This unit is equipped with a 250,000 Ohm volume control on the secondary of the input transformer.

Pre-Amplifier Inputs

The *Pre-amplifier input panel* illustrated in figure 3 is a Langevin Type 103-A amplifier for *low impedance* microphones and phono pick-ups. This unit consists of an input transformer (for source impedances of 30 or 250 Ohms), a 1612

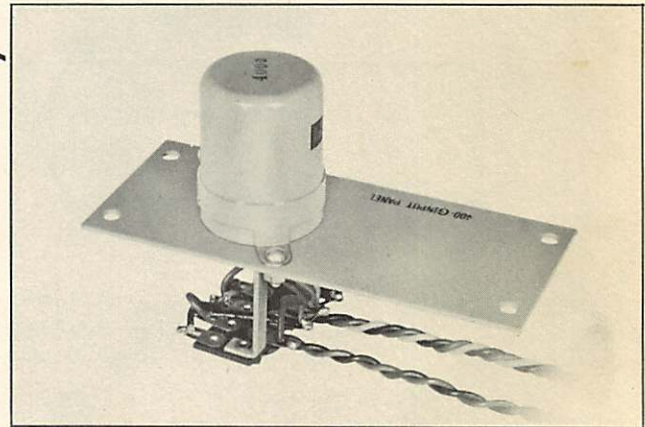


Figure 2

vacuum tube to provide additional amplification and an electronic volume control (varies resistance in the cathode circuit) which can be operated in remote positions up to 5000 ft. The output of this pre-amplifier stage is fed directly into the basic 128 amplifier.

A similar unit, the Langevin Type 103-C pre-amplifier input panel is available for use with *high impedance* microphones. This panel mounts in the same position as the Type 103-A and the output is fed directly into the 128 basic amplifier.

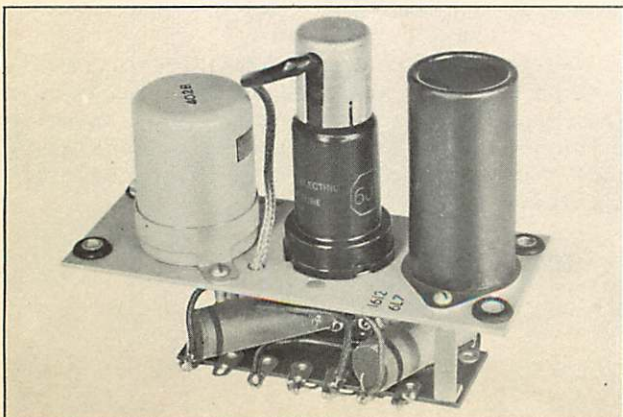


Figure 3

128 SERIES

The 128 amplifier is constructed along *clean, rugged* lines. Chassis layout has been arranged to reduce interconnecting wiring to a minimum, thus providing maximum accessibility to all parts and connections (see figure 4). The chassis is constructed of 16 gauge zincplated, bonderized steel finished inside and out with baked-on grey enamel. Components have been selected with high safety and overload factors.

All transformers are made in our own transformer shops to insure full control over the design and manufacturing process including winding, impregnating, potting and testing. "Potted" coils assure longer life and uniform characteristics despite variations in temperature and humidity.

High Quality

Electrically, this amplifier has low noise level (78 db below full output) and excellent transient response. Each amplifier is tested for distortion at rated output over the entire frequency range from 50 to 15,000 cycles assuring full performance at the frequency extremes as well as over the middle range.

New Circuit

Good regulation of output is provided in the Langevin 128 series by very low internal output impedance; the change in output level from a condition of "no load" to a condition of "full load" is only 1 db. As measured with a complex wave form such as speech or music, the internal output impedance averages about 1/6 of the nominal load impedance.

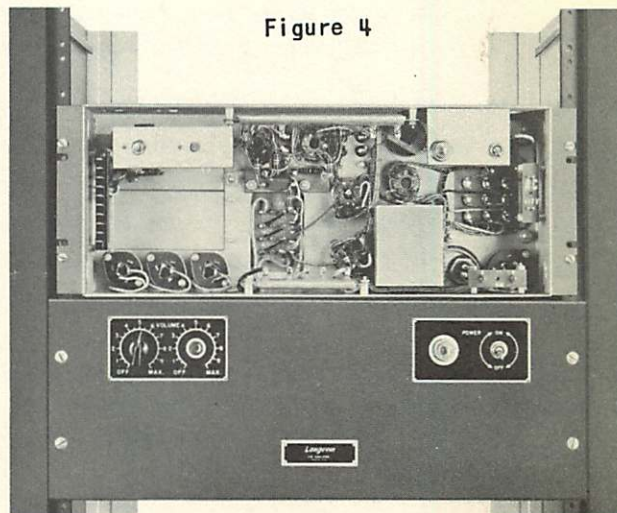


Figure 4

In addition, a new circuit, incorporating direct coupling between the voltage amplifier and phase splitter stages, minimizes circuit components and provides maximum gain and reliability.

MOUNTING DETAILS

The Type 128 amplifier can be either rack or cabinet mounted. When rack mounted, (see figure 4) a modification is required (Modification Group Type 21-A). This modification includes brackets to remount the power switch, pilot light and volume controls, and a mat panel, as illustrated. The amplifier will fit the standard 19 inch equipment rack.

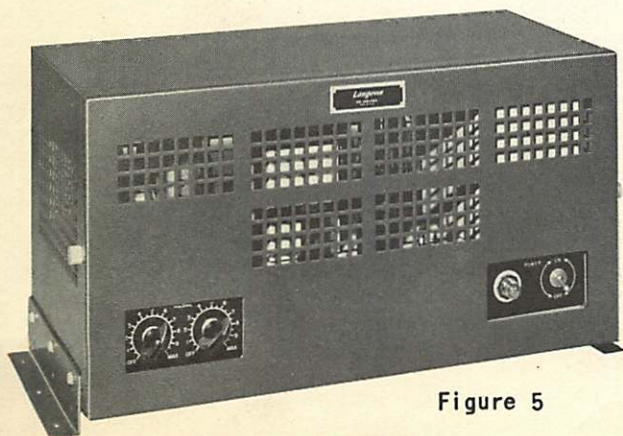


Figure 5

Mechanical Specifications

Length: 18 3/4"; Width: 6 3/4"; Height: 7 3/4" (requires 7" of panel space when rack mounted).

Weight: Approximately 26 lbs.

Shipping Weight: Approximately 30 lbs.

Finish: Light grey baked-on enamel on zincplated, bonderized 16 gauge steel.

Cabinet Mounting

A Langevin Type 202-A cabinet, illustrated in figure 5, is available for wall, ceiling or shelf mounting this amplifier. It is constructed of heavy gauge bonderized steel, finished in baked-on dark grey enamel and is equipped with a removable cover held in position by two knurled thumb screws.

128 SERIES

ELECTRICAL SPECIFICATIONS TYPE 128-A (Amplifier equipped with Line Level Input)

SOURCE IMPEDANCE: 600 Ohms; also bridging input connections.

LOAD IMPEDANCE: Nominal 2, 8, 16, 32, 150 or 600 Ohms.

OUTPUT POWER:

<u>Output Level</u>	<u>Total RMS Harmonic Distortion</u>	
	<u>50 to 10,000 cycles</u>	<u>15,000 cycles</u>
+43 VU (20 watts)	Less than 2%	Less than 3%
+42 VU (15 watts)	Less than 1%	Less than 2%

At 20 watts output (+43 VU) Total RMS Harmonic Distortion measured at 400 cycles single frequency, less than 3/4 of 1%.

MAXIMUM GAIN: Approximately 63 db matching 600 Ohms; approximately 45 db bridging 600 Ohms.

OUTPUT NOISE: Unweighted, 78 db below full output level (+43 DBM) (35 db below .001 watt).

FREQUENCY CHARACTERISTIC: Within ± 1.0 db over the range 30 to 15,000 cycles, from 0 to full output.

EXTERNAL POWER REQUIREMENTS: 105 to 125 Volts AC, 60 cycles; 150 VA maximum power consumption at 120 volts.

VOLUME CONTROL: 250,000 Ohm gain control in secondary of input transformer, mounted on front of chassis.

TUBE COMPLEMENT: 1 - 6SJ7; 1 - 6V6GT; 2 - 6L6GA; 1 - 5U4G.

ADDITIONAL SPECIFICATIONS FOR 128 AMPLIFIER WITH PRE-AMPLIFIER INPUT FOR LOW IMPEDANCE MICROPHONES AND PHONO PICK-UPS

TYPES 128-B, BB

SOURCE IMPEDANCE: 30 or 250 Ohms.

MAXIMUM GAIN: Approximately 103 db.

OUTPUT NOISE: Unweighted, 55 db below full output power (+43 DBM).

VOLUME CONTROL: Electronic...varies resistance in cathode circuit of 1612 tube...can be used in remote positions.

TUBE COMPLEMENT: 1 - 1612 or selected 6L7.

ADDITIONAL SPECIFICATIONS FOR 128 AMPLIFIER WITH PRE-AMPLIFIER INPUT FOR HIGH IMPEDANCE MICROPHONES

TYPES 128-E, EE

INPUT IMPEDANCE: 1 Megohms.

MAXIMUM GAIN: 101 db; approximately 4 Millivolts required for full power output.

OUTPUT NOISE: Unweighted, 55 db below full output power (+43 DBM).

VOLUME CONTROL: Electronic...varies resistance in cathode circuit of 1612 tube...can be used in remote positions.

TUBE COMPLEMENT: 1 - 1612 or selected 6L7.

INPUT PANELS

FOR USE WITH 128 AMPLIFIER

INPUT PANEL	DESCRIPTION
1-A	Line level input panel with transformer for matching 600 ohms; 35,000 ohms for bridging 0-600 ohms.
1-B	Pre-amplifier input panel for source impedance of 30 or 250 ohms.
1-E	Pre-amplifier input panel for high impedance inputs.
1-H	Pre-amplifier, equalized for GE or Pickering pick-ups.
1-J	Input panel for high impedance radio tuners or equivalent.

NOTE: When ordering 128 series amplifier, add the type designation letters of the input panel or panels required to the type number of the basic amplifier as follows.

Type 128AB = Basic Type 128 amplifier with Types 1-A and 1-B input panels added.

