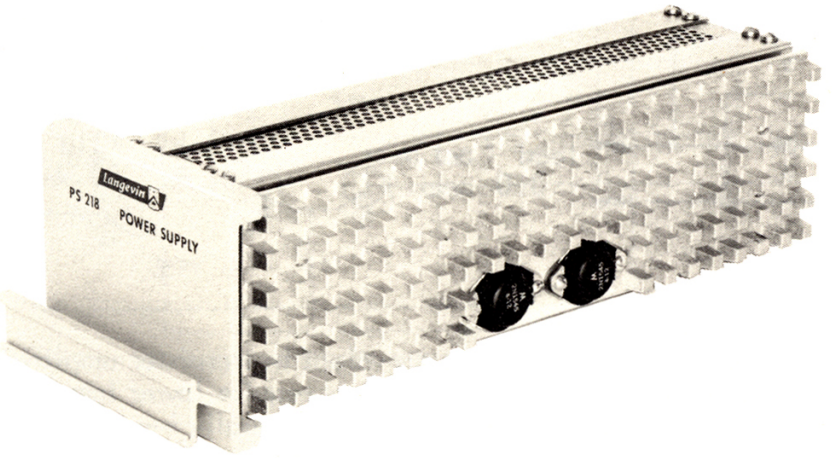
Langevin®

PROFESSIONAL SOUND EQUIPMENT

PS 218

PLUG-IN POWER SUPPLY
24 VOLTS 3 AMPERES
TRANSISTOR TYPE



general description

The PS218 Power Supply is a solid-state regulated unit primarily intended for the powering of transistor-type audio amplifiers. Output is 24 volts at a maximum current of 3 amperes. The full-load ripple output is less than 1×10^{-3} v. r.m.s.

The power mains which feed the PS218 may be either 105-125 volts or 210-250 volts. Power mains frequency may range from 50 cps to 400 cps.

Dependability has been stressed in the design of the PS218. All components are operated below their ratings.

The power transformer is of the balanced-coil "hum-bucking" type in order to minimize its radiated field. It is equipped with an electrostatic shield between primary and secondary windings. Insulation is Class S silicone.

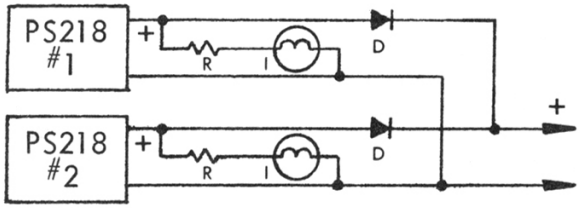
Inductors are not used ... ripple reduction and regulation of output are achieved by series-resistance transistors driven by error amplifiers.

The "remote sensing" feature allows the PS218 to correct for voltage error which may exist AT THE LOAD. This feature may be strapped out of the circuit if not required.

architects' and engineers' specifications

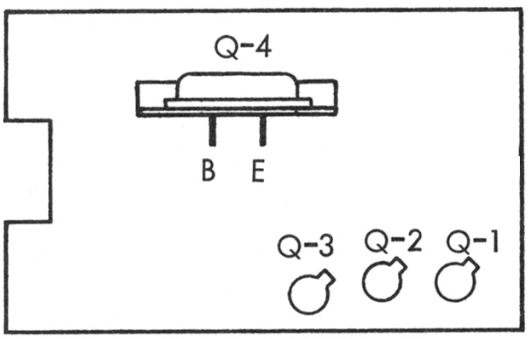
The power supply shall be Langevin PS218. It shall have a two-coil balanced input transformer with electrostatic shielding between primary and secondary. It shall operate from 105-125/210-250 volt 50-400 cps mains. Strapping for mains voltage and the remote sensing feature shall be on the tray or cabinet which receives the unit, and not on the supply proper. DC output shall be 24 volts, 3 amperes (maximum). There shall be fuses in the mains connection and in the DC output. Voltage regulation shall be ±0.05 volt from full load to no load. Total ripple in the output shall not exceed 0.001 v. r.m.s. under any condition of load. A remote sensing feature shall allow the voltage error correction to be referenced at point of load. All active components shall be solid-state, and no electron tubes shall be used. Size shall be approximately 3 3/8" high x 4 3/16" wide x 12 5/8" long not including plug pins. Plug pins shall be gold plated. Color scheme shall be gray and cadmium-plated metal, iridited.

Transistor-type power supplies do not usually afford the same high degree of dependability as do transistor-type amplifiers. A major reason for this is the inclusion of large electrolytic capacitors in the supplies. For those who require the highest maximum dependability, it is recommended that supplies be redundantly installed in such fashion that one will supply full load in case the other fails. The diagram below outlines one method .....

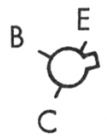


D 1N2228 (or equal) on heatsink
I #313 lamp
R 50 ohm 3 watts

Interchannel crosstalk created by cable drop is more prevalent in transistor amplifiers than in electron tube amplifiers, because (1) transistor amplifiers require lower impedance (i.e., more current at less voltage) supply lines, and (2) they do not usually have the same degree of built-in decoupling as have electron tube amplifiers. Common-mode coupling may cause amplification instability if a cascaded chain of amplifiers is fed from a long common run. When using one common power supply, provide as many physical cable pairs as there are programs. Even if they are on the same program, do not feed preamplifiers from the same power pair as power amplifiers.



Q-1 through Q-3:

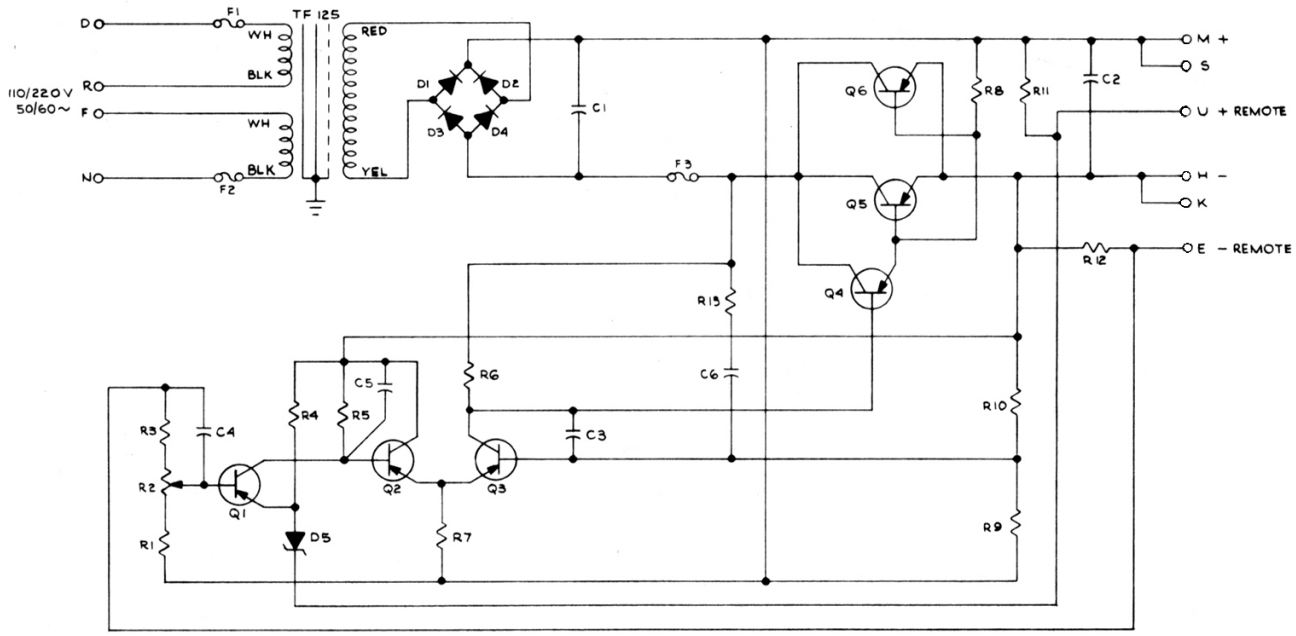


Top View

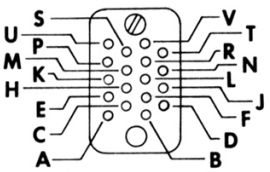
VOLTAGES CHART: Input voltage 120 vac. All measurements are to minus polarity of PS218 power supply. DC voltages only. Information is for use of a 20,000 ohm-per-volt meter set for lowest practical scale. Values shown are TYPICAL values.

	Q-1			Q-2			Q-3		
	E	B	C	E	B	C	E	B	C
No Load	15.75	15.5	5.3	5.45	5.3	0	5.45	5.25	-0.1
1/2 Load	15.75	15.5	5.2	5.4	5.2	-0.07	5.4	5.19	-0.4
Full Load	15.9	15.75	5.15	5.35	5.15	-1.25	5.35	5.1	-0.55

	Q-4			Q-5,6		
No Load	0	-0.05	-19	0	0.05	-20
1/2 Load	-0.35	-0.3	-13	-.075	-0.25	-13
Full Load	-0.5	-0.43	-8.6	-0.15	-0.4	-9.6



PLUG



(SEEN FROM OUTSIDE OF AMP.)

For 110 v mains: Connect D to F. Connect R to N.

For 220 v mains: Connect R to F.

If remote-sense regulation is not used, connect U to M, and E to H.

C-1 C-2	2000 ufd* 50 v electrolytic
C-3	0.22 ufd 100 v
C-4 C-6	1.0 ufd 50 v electrolytic
C-5	0.047 ufd 100 v
D-1 D-2 D-3 D-4	20C2**
D-5	1N713
F-1 F-2	0.75 A, slow
F-3	4.0 A, fast

Q-1 Q-2 Q-3	2N650
Q-4 Q-5 Q-6	2N1545
R-1	1600
R-2	1000
R-3	2700
R-4 R-7 R-10	3300
R-5	22 K
R-6	6200
R-8	2400
R-9	12 K

R-11 R-12	10
R-13	62 K

NOTE: All Resistors are 1/2 watt, 5%.

T-1 TF125***

* C-1 and C-2 each are two paralleled 1000 ufd 50 v capacitors.

**International Rectifier part number.

***Langevin part number.

WARNING: Any attempt at unauthorized modification or repair which results in damage will void the "no-repair-charge" guarantee. It is suggested that any PS218 be returned to the factory untouched if it becomes defective within the guarantee period.

OUTPUT VOLTAGE: 24 volts. This may be adjusted to exactly 24 volts by use of a screwdriver-set control on side of chassis.

OUTPUT CURRENT: 3 amperes, maximum.

REGULATION: Output voltage will not vary more than 0.05 volt from no load to full load.

RIPPLE: AC components in output voltage will not exceed 0.001 volt rms at any load.

MAINS: Mains voltage may be 105-125 volts or 210-250 volts, at user's option. Mains frequency may be 50 cps to 400 cps. Demand from mains is approximately 150 VA.

SIZE: Approx. 3 3/8" high x 4 3/16" wide x 12 5/8" long not including plug pins.

NOTE: The performance figures given above are the GUARANTEED figures. A typical unit may be expected to have approximately 0.0003 volt rms ripple at full load and 0.00025 volt rms ripple at no load. Regulation for a no-load to a full-load condition is usually about 0.02 volt.

installation and operation

The installation of a PS218 consists of merely plugging it into its receptacle GENTLY.

Proper connector pins for desired mains voltage will be found on page 3.

Proper connector pins for strapping of the remote sensing feature will be found on page 3.

Do not install the unit where ambient temperature will exceed 65°C (145°F). Do not obstruct the flow of air over the heatsink.

Although the hum field radiated from the PS218 is low, due to the balanced-construction power transformer and the absence of filter chokes, it is not recommended that this power supply be installed in the proximity of low-level devices such as microphones, preamplifiers, etc.

If for any reason it is desired to have access to the interior of the chassis, remove only the screws whose heads are encircled. It is not necessary to remove the heatsink.

The output of the PS218 may be adjusted to exactly 24 volts (as was done at the factory prior to shipment) by turning the screwdriver-shaft control which is accessible through a small hole in the side of the chassis.

Page 2 of this folder gives more information on the general use of the PS218.

The negative side of the DC output from the unit usually must be grounded in order to avoid amplifier/s oscillation. Do not ground at MORE than one point.

accessories

SEE LANGEVIN CATALOGUE (or request individual spec. sheets)

Mounting Tray no. TRY7 (for installation of single PS218 Power Supply)

Rack Cabinet no. RC76 (for installation of as many as four PS218 Power Supplies or four intermixed PS218 and AM17 Amplifier units.

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