

1. DESCRIPTION

The LAV-191 is a combination of a wideband audio generator and a wide-range AC millivoltmeter.

This instrument is specially useful in testing and servicing audio circuits, monaural and stereo, for frequency response and gain characteristics. The generator frequency range is 10Hz to 1MHz and the output is controllable from 0 to -120dB in 1dB steps into a 600Ω load.

The AC millivoltmeter covers a voltage range from $150\mu\text{V}$ to 500Vrms in the 10Hz to 1MHz range. In addition to the direct input, two switchable input – LEFT and RIGHT – are provided for stereo circuit measurements. A separate decibel scales, at $0\text{dB} = 0.775\text{Vrms}$ and $0\text{dB} = 1\text{Vrms}$ can be used when comparing signal levels.

2. SPECIFICATIONS

Audio Generator Section

Frequency Range 10Hz – 1MHz in five decade ranges.

Calibration Accuracy $\pm (3\% + 1\text{Hz})$.

Output Characteristics

Sine Wave

Voltage: over 3Vrms into 600Ω

Response: Flat within $\pm 0.5\text{dB}$.

Distortion, maximum:

500Hz ~ 20kHz 0.05%

50Hz ~ 200kHz 0.4%

20Hz ~ 500kHz 0.8%

10Hz ~ 1MHz 1.5%

Impedance

600Ω Internal load and external load change-over system.

Control

Variable: 0 to over 3Vrms .

Attenuator: 120dB in 1dB steps at 600Ω ; $40\text{dB} \times 2$, 20dB, 10dB, 1dB $\times 10$ accuracy within $\pm 1.5\%$.

Frequency Characteristics:

Accuracy	dB range	Frequency
$\pm 0.5\text{dB}$	0 - 60	to 500kHz
	60 - 120	to 150kHz
$\pm 2\text{dB}$	0 - 60	to 1 MHz
$\pm 6\text{dB}$	60 - 120	to 500kHz
$\pm 10\text{dB}$	60 - 120	to 1 MHz

Square Wave

Output: Over 3Vp-p into 600Ω

Rise Time 200 ns.

Sag 5% at 50Hz

Output Impedance

$600\Omega \pm 10\%$

SYNC Signal Terminal

Input Impedance: Approx 10 k Ω

Control range: $\pm 1\%/V$

AC Millivoltmeter Section

Voltage Range	1.5mV (0.15mV min.) to 500Vrms full scale in 12 ranges.
Decibel Range	-80 to +55dB (0dB = 0.775V) -80 to +54 dB (0 dB = 1V) in 12 ranges.
Accuracy	Within $\pm 2\%$ of full scale.
Frequency Range	20Hz-100kHz within $\pm 2\%$ ref: 1kHz. 10Hz-1MHz within $\pm 10\%$
Input Impedance	10M Ω ; less than 50pF: 1.5-500mV range less than 35pF: 1.5-500V range
Input Selection	LEFT and RIGHT, switchable.
Amplifier Output Voltage	Approx. 1V rms at full scale
Output Terminal	RCA pin jack
Distortion	Less than 2% at 1kHz, full scale
Output Frequency Response	10Hz-500kHz, -3dB (Connected input resistor 10M Ω and capacitor 50pF to output terminal)
Power Supply	100, 117, 200, 234V 50/60Hz; approx. 8VA.
Size and Weight	215(H) x 300(W) x 160(D) mm; 4kg.
Accessories, supplied -	
Lead, clip to pin plug	2 ea.
Lead, spade tip to pin plug	2 ea.
Option, on separate order:	Carrying case with strap.

3. CONTROLS AND CONNECTORS

3.1. AC Millivoltmeter Section, see Fig. 3-1.

- ① Meter: With scales calibrated for Volts, rms, and decibels.
- ② Mechanical zero adjuster for the meter.
- ③ SIGNAL SENSITIVITY: When the knob is set at the position of CAL, this unit can be used as AC millivoltmeter calibrated at the value of the range used in the same manner as that of ordinary AC millivoltmeter. When the knob is set at other than CAL, this unit is to set the level of incoming signal at 0dB and compare signal against standard signal in making measurement of SN ratio, etc.
- ④ RANGE switch: Selects the input voltage and dB level ranges.
- ⑤ ⑩ INPUT terminal (red): For the high potential side. ⑤ LEFT, ⑩ RIGHT.
- ⑥ ⑪ INPUT terminal (black): For the low potential side; this is "floated" from the chassis with a 0.22 μ F capacitor, ⑥ LEFT, ⑪ RIGHT.
- ⑦ Input jack for LEFT signal of stereo input.
- ⑧ INPUT SELECTOR switch: Selects the LEFT or RIGHT signal of stereo input.
- ⑨ Input jack for RIGHT signal of stereo input.