

Edwards Microphone Preamp Model LE10S Specifications

Serial Number: 0615001 Test Date: August 1, 2015

Test Conditions

Tests were made using a Sound Technology 1501A measurement system. The residual second harmonic distortion (D2) is less than 0.005% at all output levels from +24dBu to -10dBu. Third harmonic distortion is the same.

Nominal operating (line up level) for the test system is +4dBu (1.23 VAC RMS, 3.47 VAC p-p)

Preamp Gain (A_v)

The Edwards LE10S Microphone Preamp as variable gains ranging from microphone input gain of 9dB (using -20dB pad) to 68dB.

The preamp has three settings that affect overall gain: "TRIM" (stepped variable resistor graduated 0 to 10,) "GAIN" (stepped variable resistor graduated 0 to 10) and the HIGH/LOW gain switch.

Microphone input measurements

A 20dB pad can be switched in between the input connector and the microphone transformer. The input impedance is approximately 1.4K ohm.

$A_v = 29\text{dB}$ at Minimum gain (TRIM = 0, GAIN = 1, HIGH/LOW set to LOW)
input 43.3mV is required to produce "0 VU" (the lineup level of +4dBu.)

$A_v = 68\text{dB}$ at Maximum gain (TRIM = 10, GAIN = 10, HIGH/LOW set to HIGH)
input 0.5mV is required to produce "0 VU" (+4dBu.)

The HIGH/LOW gain switch changes the overall gain of the output stage by a nominal 10dB. This varies somewhat depending on settings of the TRIM and GAIN variable resistors.

Instrument input measurements

The instrument input bypasses the input 20dB pad and microphone transformer and presents approximately 1Meg ohm load to the source.

At maximum gain (TRIM = 10, GAIN = 10 and HIGH/LOW set to HIGH) the high impedance unbalanced input requires 4.5mV for "0 VU."

Frequency Response

At minimum gain and with the low cut switch in the down position (not engaged) the frequency is down 0.1dB at 40 KHz, and flat between 20 KHz and 20 Hz.

With the low cut switch engaged, the output level is down 3dB at 78Hz and 11.7dB at 20Hz.

Signal to Noise

Noise measurements are documented as the measured noise between 20Hz and 40 KHz applying a CCIR frequency response weighing. The noise level is relative to “0 VU” (+4dBm.) Depending on the gain settings on the preamp, the equivalent input noise level is noted by the figure in brackets.

Minimum gain Signal to noise is -85dB [-110dBu]

Maximum gain Signal to Noise is -60dB [-124dBu]

Harmonic Distortion Measurements

The measurements for harmonic distortion are made at 400Hz with levels stepping from -15 VU to +20 VU. Second harmonic distortion is measured by measuring the first overtone of the test frequency (800 Hz)

Minimum gain settings D2 is 0.85% at “0 VU” Maximum gain settings D2 is 0.60% at “0 VU” Minimum gain settings D3 is 0.09% at “0 VU” Maximum gain settings D3 is 0.06% at “0 VU”

Headroom

At maximum gain, the output waveform of the preamp is observed and the input level increased to the point where the sine wave just begins to show signs of clipping or flattening of the peaks. Reducing the input level to the point where the clipping is no longer visible results in a second harmonic distortion reading of 1.6% and the voltage level of the output is approximately +24dBu (12.3 VAC RMS.) This method is sometimes used to define the headroom of an amplifier so this 20dB resulting value can be compared to other “headroom” specifications. Please note that some maximum levels are selected with slightly different criteria (3%, 10% total harmonic distortion) but the comparable difference between maximum and nominal “0 VU” or lineup level will usually be within 2-4 dB of other methods.