

Llachar Amplifier v1.2 Calibration

S/N:0030

Calibration performed by Dr C. Aled Isaac*

Calibration performed on March 9, 2017

This calibration is provided for reference only, and you should perform your own calibration when the device is in its final application. The amplifiers have been designed with a nominal input–output gain of 14, and an output–monitor attenuation of 14. The nominal 10%–90% half-rise ($0 \rightarrow \pm 140$ V) time is $10 \mu\text{s}$, and hence the nominal rise/fall rate is $11 \text{ V}/\mu\text{s}$.

1 Summary for S/N:0030

1.1 Voltage Characteristics

	Gradient [V/V]	Intercept [V]
Input A vs Output	(14.0764 ± 0.0090)	$(496 \pm 53) \times 10^{-3}$
Input B vs Output	(14.1825 ± 0.0083)	$(253 \pm 48) \times 10^{-3}$
Monitor vs Output	(14.0262 ± 0.0095)	$(-68 \pm 56) \times 10^{-3}$

1.2 Timing Characteristics

	Rise Time [μs]	Fall Time [μs]	Rise rate [$\text{V}/\mu\text{s}$]	Fall rate [$\text{V}/\mu\text{s}$]
$0 \rightarrow 140\text{V}$	10.8	10.9	10.7	10.5
$0 \rightarrow -140\text{V}$	11.3	10.9	10.3	10.6
$-140\text{V} \rightarrow 140\text{V}$	21.3	20.7	11.0	11.3
$-7\text{V} \rightarrow 7\text{V}$	4.15	4.11	2.73	2.75

2 Calibration details

Calibration between channels, monitor and output were performed by using a 10 Hz, $20V_{pp}$ triangle wave produced using a AIM-TTi TGA1244 function generator. Timing characteristics were performed using the same function generator producing square waves of appropriate amplitudes and applied to Input A only.

Measurements were performed using a Tektronix TDS2024 oscilloscope with an appropriately compensated $\times 10$ probe connected to the amplifier output.

Analysis was carried out using standard functions in National Instruments LabVIEW 2016. Transition characteristics are based upon 10%–90% thresholds. The uncertainties in the linear fits are given based upon a 95% confidence level.

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3 Data

