9309-4
Quad Fast Amplifier

The ORTEC Model 9309-4 is Ideal for Amplifying Fast Analog Signals from Photomultipliers, Electron Multipliers, Photodiodes, and Microchannel Plates.

- **Rise Time <1.5-ns (for unipolar ≤±25 mV inputs).**
- **DC Coupled to allow high counting rates.**
- **0 to 10 Adjustable Gain to provide flexible gain requirements.**
- **Two Outputs for each Amplifier allows simultaneous counting and timing.**

Often various fast detection devices have different signal amplitudes that need to be amplified to be counted or time discriminated. The 9309-4 solves this problem with four channels of variable gain amplification up to a gain of 10. Two channels can be cascaded for a gain of up to 100 should your experiment require it. An offset adjustment and DC coupling allow for higher counting rates and less baseline distortion encountered with AC coupled amplifiers. This four channel fast amplifier is ideal for experiments using photomultiplier tubes, electron multipliers, microchannel plates, or photodiodes. Dual outputs from each channel reduce the need for an additional fan-out for counting and timing applications.



Specifications

The 9309-4 provides four DC coupled bipolar non-inverting fast amplifiers in a single width NIM with adjustable gain in 10 steps. Two outputs for each amplifier are provided. Adjustable offset for each output is via a screwdriver adjustment on the front panel.

PERFORMANCE

Noise <50 µV RMS (referred to the input).

I/O Delay <3 ns.

Crosstalk 50-dB isolation between channels.

Input Dynamic Range 400 mV peak-to-peak.

Rise Time <1.5 ns with unipolar input ±25 mV amplitude.

Gain Adjustable in 11 steps from 0 (no output) to a gain of 10 ±6%.

Band Width DC to 250 MHz with ±25 mV input, DC to 100 MHz with ±200 mV input.

INPUTS AND OUTPUTS

Inputs One input for each of the four channels accepts up to ±200 mV. DC coupled. Z_{in} = 50 Ω ±2%. LEMO 00 connector.

Outputs Two outputs for each channel provide up to ±2 V into 50 Ω. Output delay is <10 ns. LEMO 00 connector.

CONTROLS

Gain 11 position switch for each channel controls the gain from 0 (no output) to 10 ±6%.

Zero Front panel screwdriver adjustment; input and outputs must be terminated in 50 Ω for proper adjustment.

ELECTRICAL AND MECHANICAL

Power Required +6 V, 250 mA; –6 V, 250 mA.

Weight Net 0.9 kg (2 lb), Shipping 2.25 kg (5 lb)

Dimensions NIM-Standard single width 3.43 x 22.13 cm (1.35 x 8.714 in) front panel per DOE/ER-0457T.

Ordering Information

Model	Description
9309-4	Quad Fast Amplifier

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Specifications subject to change
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