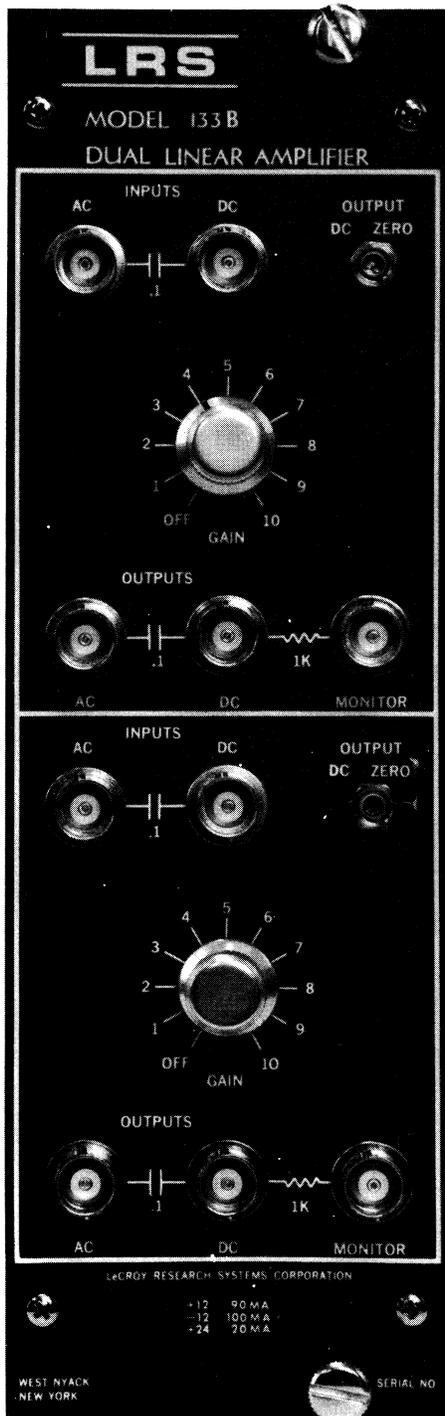


TECHNICAL DATA

LRS



NIM Model 133B

Nanosecond Bipolar Dual Linear Amplifier

- * 2 ns risetime
- * Bipolar operation
- * Direct-coupled design
- * Variable, feedback-stabilized gain
- * Low time slewing
- * High stability
- * Rapid overload recovery
- * No baseline shift at high rates
- * Input protected to ± 100 volts

LRS Model 133B consists of two high-speed, direct-coupled bipolar pulse amplifiers in a single package. These amplifiers are especially suitable for applications in which wide variations in duty ratio and pulse amplitude are encountered, as well as for general-purpose use. They offer a unique combination of fast risetime, high gain, excellent overload characteristics (well protected input, low time slewing, and rapid recovery), and high output amplitude.

Each of the 133B's two independent channels consists of a ten-step 50Ω attenuator followed by a basic direct-coupled, solid-state amplifier. Both input and output DC levels are at ground potential for easy interconnection with other direct-coupled circuits. Separate capacitively coupled AC inputs and outputs are provided for use when DC blocking is desired. Excellent linearity and stability are achieved through heavy feedback in an amplifier circuit of high inherent linearity and stability. A standard LRS input limiter provides substantial protection against damage from accidental overloads without sacrifice of direct coupling or amplifier performance.

The LRS model 133B is a member of the LRS Innovator Line, an integrated series of high-speed logic instrumentation in which modern circuit design, components, and packaging are combined in instruments of unusually broad usefulness to experimental physicists in both high and low energy nuclear research.

January 1974

Innovators In Instrumentation

SPECIFICATIONS

NIM Model 133B

NANOSECOND BIPOLAR DUAL LINEAR AMPLIFIER

INPUT CHARACTERISTICS

Impedance:	50 Ω , constant to ± 100 V.
Input Protection:	Withstands pulse inputs to ± 100 V without damage; DC limited by 250 mW attenuator resistors.
Reflection Coefficient:	Less than 5% at input amplitudes up to ± 100 V.
Quiescent Voltage:	Ground.

OUTPUT CHARACTERISTICS

Impedance:	Approximately 6 Ω .
Maximum Amplitude:	± 2 volts (input limited to ± 300 mV) for linear operation.
Overshoot:	Less than 10%; less than 5% with 1 ns input risetime. Decays in approximately 3 ns.
Quiescent Voltage:	Ground.
Monitor Output:	Signal output decoupled with 1 K Ω resistor for viewing purposes. 20:1 attenuation into 50 Ω .

GENERAL

Gain:	1 through 10 in unit steps, non-inverting. Long-term stability $\pm 1\%$. Gain tolerance $\pm 5\%$. Temperature dependence approximately 0.1%/° C.
Linearity:	2% integral.
Risetime:	1.8 to 2.2 ns., 10% to 90%. Variation with amplitude approximately 5%.
Delay:	In linear range, 4.0 ns, const. (3.0 ns circuit delay, 1.0 ns internal cabling delay). Slewing approximately 0.5 ns at 10-fold overload, 1.0 ns at 30-fold overload, and 1.2 ns at 60-fold.
Overload Recovery:	Less than 2 ns for 20-fold overload.
Noise:	Less than 50 microvolts rms, referred to input, total.
Bandwidth:	Direct-coupled, 0 to 200 MHz; AC-coupled, 30 KC to 200 MHz.
Packaging:	AEC NIM #2 module; BNC connectors.
Weight:	Module, approximately 1 lb.
Current Requirements:	+ 12 V at 200 mA; -12 V at 100 mA; + 24 V at 50 mA; - 24 V at 150 mA.