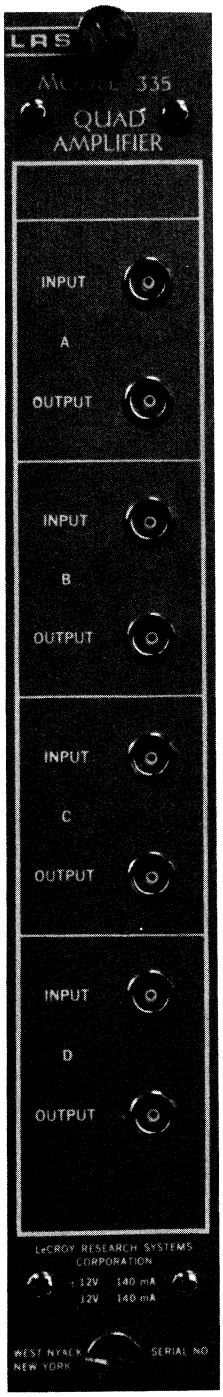
TECHNICAL DATA



NIM Model 335/335L

Quad Linear Amplifier

LRS Model 335 contains four high-speed pulse amplifiers which provide fixed, non-inverting gains of X6. The amplifiers are designed for use with either linear or logic signals of either polarity. The fast risetime (< 1.8 ns), low time slewing, and high stability make the Model 335 an excellent amplifier for use with high-performance photomultiplier/discriminator combinations.

The circuit of the Model 335 is completely direct-coupled and thus provides freedom from any baseline shift at high rates. Both input and output DC levels are at ground potential for easy interconnection with other direct-coupled circuits. An input protection circuit prevents damage from transient overloads to ± 10 volts. DC stability is less than 0.1mV/° C at the output, better than an order of magnitude improvement over previously available performance. Stage delay is nominally 1.5 ns, input to output.

The direct-coupled design, unique in an amplifier of such wide bandwidth, affords the rapid overload recovery (< 2 ns for 20-fold overload), stable baseline, and general freedom from spurious rate effects that characterizes the performance of this amplifier. The excellent linearity (better than 1% integral) and temperature stability are achieved through heavy feedback. The amplifiers are packaged in a single-width Nuclear Instrument Module (NIM) which conforms to the standards set forth in AEC Report TID-20893 (Rev.). The unit is also available with Lemo-type connectors (Model 335L).

The LRS Model 335 is a member of the LRS Innovator Line, an integrated line 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.

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Innovators In Instrumentation

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SPECIFICATIONS
NIM Model 335/335L
QUAD LINEAR AMPLIFIER

INPUT CHARACTERISTICS

Impedance:	50 Ω .
Input Protection:	Withstands pulse inputs to ± 10 V without damage; DC limited by 250 mW terminating resistors.
Reflection Coefficient:	Less than 5% over input dynamic range.
Quiescent Voltage:	Ground.

OUTPUT CHARACTERISTICS

Impedance:	Approximately 6 Ω .
Linear Range:	+ 800 mV to -800 mV.
Maximum Amplitude:	+ 2 V to -1.1 V.
Overshoot:	Less than 15% with 0.8 ns input risetime.
Quiescent Voltage:	Ground, adjustable with internal potentiometer.

GENERAL

Gain:	Fixed gain of 6, non-inverting. Long term stability ± 1%. Gain tolerance ± 5%. Temperature-dependence approximately 0.1%/° C.
Linearity:	1% integral.
Coupling:	Direct.
Risetime:	1.8 ns, 10% to 90%.
Delay:	In linear range, 1.5 ns, const.
Overshoot:	< 15% with 0.8 ns risetime; less with slower inputs.
Noise:	Less than 100 microvolts rms, referred to input, total.
Power Requirements:	± 24 V at 50 mA, —12 V at 160 mA, +12 V at 150 mA.
Packaging:	AEC #1 module; Model 335: BNC connectors. Model 335L: Lemo connectors.
Weight:	Module, approximately 1 lb.