Technical Information

GENERAL DESCRIPTION

LRS Model 334 contains four extremely high-speed pulse amplifiers which provide fixed, non-inverting gains of X3. The amplifiers are designed for use with either linear or logic signals of either polarity. The fast risetime (< .9 ns), low time slewing and high stability make the 334 an excellent amplifier for use with high performance photomultiplier/discriminator combinations. The circuit of the Model 334 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 0.1 mV/°C at the output, better than an order of magnitude improvement over previously available performance. Stage delay 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.).

ENGINEERING DEPARTMENT
LeCroy Research Systems Corp.

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SPECIFICATIONS

Input Characteristics:

Impedance:	50 Ω.
Input Protection:	Widthstands 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 3, non-inverting. Long term stability ± 1%. Gain tolerance ± 5%. Temperature dependence approximately 0.1%/°C.
Linearity:	1% integral.

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Coupling:	Direct.
Risetime:	0.9 ns typical, 10% to 90%. 1.0 ns maximum, 10% to 90%.
Delay:	In linear range, 1.5 ns, const.
Overshoot:	< 15% with 0.8 ns risetime; less with slower inputs.
Overload Recovery:	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.
Weight:	Module, approximately 1 lb.