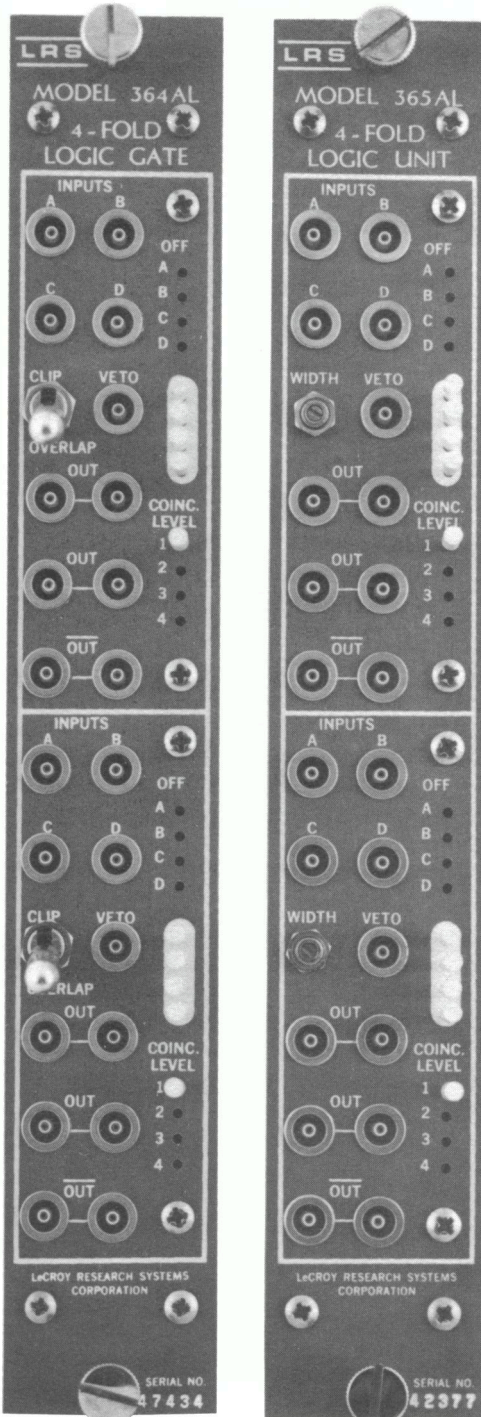


## NIM Models 364AL and 365AL

# Dual 4-Fold Majority Logic Units

with Veto

The Models 364AL and 365AL offer an unmatched combination of flexibility, compactness, and performance at a reasonable cost. Both modules provide the functions of fan-in, coincidence, inhibit, and majority logic with high fan-out capability along with 150 MHz operation. The two models differ in that the 364AL has overlap or fixed output width, and the 365AL provides an updating timing stage with front-panel width control. Each of the two identical channels accepts standard NIM logic signals at each of the four logic inputs and one veto input. Front-panel selectors allow programming of one to four simultaneous negative input signals required for an output and provide the ability to disable the separate logic inputs without removing cables. Separate veto inputs are provided for inhibiting the unit regardless of the state of the other inputs. Except in the overlap mode of the Model 364AL, the inhibit need only overlap the leading edge of the coincidence. A single output pulse is produced regardless of input amplitude or duration (no multiple pulsing). The output pulse duration of the Model 364AL is front-panel switch-selected to be either the time overlap of the input signals or to be a clipped 3.8 nsec duration. The output pulse duration of the Model 365AL may be continuously set from 3.8 nsec to 50 nsec by a multiturn front-panel potentiometer. The duration is independent of input overlap time, amplitude, and rate. Because it is updating, it may be retriggered even before the end of an output pulse that is already present. Both units provide two sets of dual (32 mA) negative outputs and one set of dual complementary outputs, each of which may be fanned out to two later inputs or be used as a means of cable clipping or reverse terminating.



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HIGH ENERGY PHYSICS DIVISION

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# SPECIFICATIONS

## NIM Models 364AL and 365AL

### DUAL 4-FOLD MAJORITY LOGIC UNITS WITH VETO

#### INPUT CHARACTERISTICS

Logic Inputs:	4 LEMO-type connectors; 50 $\Omega$ impedance; NIM level input requirements; each input can be separately enabled or disabled.
Veto Input:	LEMO-type connector; 50 $\Omega$ impedance; NIM level input requirements. Model 364AL requires 3 ns minimum prompt leading edge overlap in fixed width position; complete overlap in overlap position. Model 365AL requires 3 ns minimum width delayed 3 ns from leading edge of input.
Bin Gate:	Via rear connector; clamp to ground from +4 volts inhibits; rise and fall times <50 ns.

#### OUTPUT CHARACTERISTICS

Outputs:	Three; two negative (quiescently 0 mA, -32 mA during output), one positive (quiescently -32 mA, 0 mA during output).
Fan-Out:	6 fold, if each output drives two 50 $\Omega$ loads. (Any used output pair should drive 25 $\Omega$ for proper amplitude and shape.)
Duration:	Model 364AL: switch-selected to be either fixed 3.8 $\pm$ 0.3 ns with inputs > 5 ns or equal to time overlap. Non-updating. Model 365AL: continuously adjustable from less than 4 ns to greater than 50 ns by means of front-panel screwdriver-adjustable potentiometer. Updating.
Output Rise and Fall Times:	1.2 ns typical. (Fall time of 365AL is slightly longer except at minimum width.)

#### GENERAL

Functions:	AND; OR; Majority Logic; Leading Edge Inhibit; Complement; Pulse standardization without multiple pulsing; coincidence level determined by front-panel selector.	
Coincidence Width:	1 ns up, determined by input pulse durations.	
Rate:	150 MHz minimum.	
Input-Output Delay:	Model 364AL: approximately 6 ns; Model 365AL: approximately 10 ns.	
Double Pulse Resolution:	Typical 5 ns; (6.5 ns for triple pulses).	
Packaging:	NIM single-width module; LEMO-type connectors used for all inputs and outputs.	
Power Requirements:	<u>Model 364AL</u> +12 V at 55 mA* -12 V at 145 mA 115 V AC at 70 mA	<u>Model 365AL</u> +12 V at 55 mA* -12 V at 165 mA -24 V at 22 mA 115 V AC at 70 mA

\*Increases to 120 mA if both channels in 4-fold coincidence.