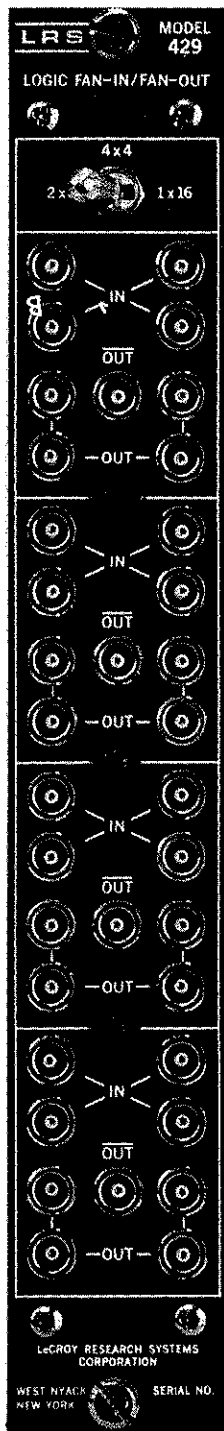


# TECHNICAL DATA

LRS

## NIM Model 429

### Quad 4-Fold Fan-In/Fan-Out



The LRS Model 429 represents a new advance in efficient fast logic signal handling. It combines in one low cost unit three functions formerly available only separately: fan-in, fan-out, and polarity inversion. Each channel of the Model 429 contains four independent logic inputs, four normal logic outputs, and one complementary logic output. Channels may be paralleled to provide up to 16 inputs and 20 outputs by means of a front-panel switch. An efficient circuit design holds the power dissipation of the entire module to within the NIM standard.

The Model 429 eliminates the extra cabling and time delay involved when conventional fan-ins and fan-outs must be cascaded. In addition, it eliminates the common use of expensive logic units to perform logical ORing with adequate fan-out. The ability to conveniently parallel channels permits the 429 a degree of flexibility and efficiency heretofore unavailable.

The circuitry of the Model 429 is completely direct-coupled and compatible with either normal or complementary logic signals in any duty ratio. Channel paralleling is accomplished by means of a single front-panel locking switch that is not in the signal path and hence permits switching with minimal effect on signal fidelity. Front-panel lamps located between channels light to indicate channels that are combined, providing a clear, easily interpreted display of the unit's status.

Inputs are  $50 \Omega$  impedance. Unused inputs need not be terminated. Inputs may be driven with either single or double amplitude NIM signals without affecting output amplitude. The two pairs of bridged normal outputs are direct-coupled current sources which deliver  $-32 \text{ mA}$  each. The complementary output is reverse-terminated in  $50 \Omega$  and provides  $-800 \text{ mV}$  into a  $50 \Omega$  load. Output duration is equal to the logical sum of the input durations.

Preliminary March 1974

*Innovators In Instrumentation*

LeCROY RESEARCH SYSTEMS CORPORATION • WEST NYACK, NEW YORK 10994 • TELEPHONE: (914) 358-7900

# SPECIFICATIONS

## NIM Model 429

### Quad 4-Fold Fan-In/Fan-Out

Number of Sections: Four; may be cascaded by means of front-panel switch to form dual 8-fold fan-in/fan-out or single 16-fold fan-in/fan-out; with LED indication.

#### INPUT CHARACTERISTICS

Number of Inputs: Four per section.

Impedance:  $50 \Omega \pm 5\%$ .

Reflections:  $< 10\%$  for 2 ns risetime.

Quiescent Level: 0 volts dc.

Signal Level: Standard NIM logic level. (quiescent 0 volts;  $> -600$  mV for logical "1").

Coupling: Direct.

#### OUTPUT CHARACTERISTICS

Outputs: 4 negative (quiescent 0 volts, -800 mV during output), one complementary (quiescently -800 mV, 0 volts during output), per section, direct-coupled.

Risetimes and Falltimes: 2 ns.

Duty Cycle Limitations: None.

#### GENERAL

Rate:  $> 100$  MHz.

Stage Delay: 5.5 ns.

Power Dissipation: +12 volts at 32 mA; -12 volts at 17 mA;  
+6 volts at 128 mA; -6 volts at 433 mA.

Packaging: Single-width NIM module.