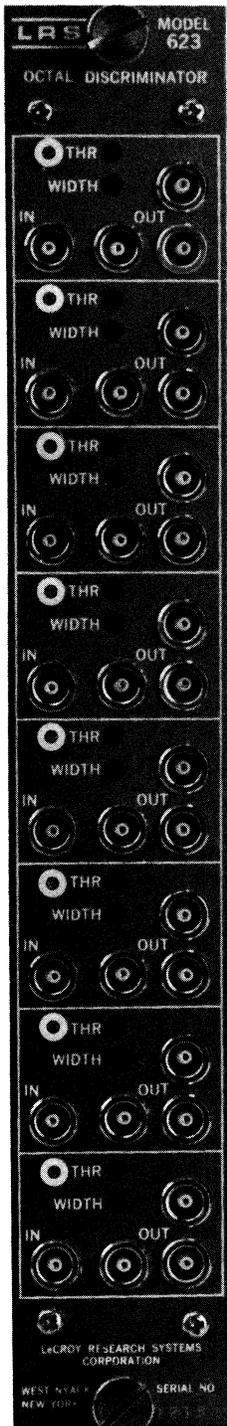


TECHNICAL DATA

LeCroy



NIM Model 623

8-Channel Updating Discriminator

The Model 623 is a new, low cost, 8-fold updating discriminator combining the most useful operating features of standard, general-purpose discriminators with the high packaging density, economy, and improved input characteristics afforded by a hybrid circuit input stage. Based on the popular LRS Model 620L Octal Discriminator, the Model 623 offers at modest additional cost the improved performance and convenience of updating operation, wider output width range, and individual threshold control on each channel.

The minimum threshold of the Model 623 is -30 mV, variable up to -1 volt via front-panel screwdriver adjustment. A threshold monitor point is provided to permit the measurement of the threshold level with a common voltmeter rather than the more difficult and less precise analog measurement via oscilloscope. The stability of the threshold is $<0.2\%/^{\circ}\text{C}$ to assure accurate results in varied operating environments. Because of the extremely low reflections from its input (4%), the 623 is significantly better protected against the multiple pulsing due to reflections at -30 mV than is a standard 10% reflection discriminator at -50 mV.

The Model 623 operates at maximum rates in excess of 100 MHz. Its updating design permits retriggering even while an output from a previous input is still present. At minimum output width setting, the 623 will respond to a second pulse within 8 ns after the leading edge of the first pulse. Propagation delay through the 623 is approximately 12 ns.

The outputs of the 623 are low impedance voltage outputs, providing output levels greater than -800 mV into a 50Ω load. The output durations are independently presettable via front-panel screwdriver adjustment from 6 ns to > 150 ns. Output risetimes are typically 2.1 ns. Output fall-times increase with output width from approximately 4 ns at short widths to approximately 10% of the output width at maximum. This departure from conventional practice is of little consequence in use, since all common coincidence circuits inherently perform a very stable regeneration function internally.

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Innovators In Instrumentation

SPECIFICATIONS

NIM Model 623

8-CHANNEL UPDATING DISCRIMINATOR

SIGNAL INPUT CHARACTERISTICS

Threshold:	-30 mV to approximately -1.0 volt; front-panel screwdriver adjust (screwdriver included).
Impedance:	$50\Omega \pm 1\%$, protected to ± 5 A for 0.5 μ s clamping at +1 and -7 volts.
Reflections:	<4% for input pulses of 2 ns risetime.
Stability:	< 0.2%/°C, 20°C to 60°C operating range.
Offset:	0 ± 1 mV.
Threshold Monitor:	10:1 ratio of monitor voltage to actual voltage.

OUTPUT CHARACTERISTICS

Amplitude:	3 NIM-level voltage outputs, quiescently 0 volts, -800 mV during output.
Duration:	≤ 6 ns to > 150 ns, continuously variable via front-panel screwdriver control.
Risetime:	Typically 2.1 ns; maximum 2.5 ns. At least 2 outputs should be terminated in 50 Ω for optimum pulse shape.
Falltime:	Approx. 4 ns at minimum width, increasing with width setting up to 6 ns max.
Width Stability:	Maximum $\pm (50 \text{ ps} + 0.3\%)/^\circ\text{C}$ for temperature variation and $\pm 0.1\%/%$ for variation of any supply voltage.
Amplitude Stability:	Better than $\pm 0.1\%/^\circ\text{C}$.

GENERAL

Maximum Rate:	> 100 MHz, input and output.
Double-Pulse Resolution:	Less than 9 ns.
Time Slewing:	1 ns for input amplitudes 110% of threshold and above.
Input-Output Delay:	11 ns.
Multiple-Pulsing:	None; one and only one output pulse of preset duration is produced for each input pulse, regardless of input pulse amplitude or duration.
Bin Gate:	Slow gate via rear connector and rear panel ON-OFF switch; risetimes and falltimes approximately 50 ns; clamp to ground from +5 volts inhibits; direct-coupled.
Packaging:	In RF shielded AEC/NIM #1 module; Lemo-type connectors.
Current Requirements:	+12 volts at 215 mA + 6 volts at 230 mA - 6 volts at 415 mA -12 volts at 201 mA -24 volts at 73 mA