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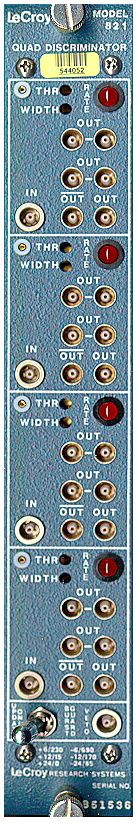
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NIM Model 821 Quad 100 MHz Discriminator

featuring Common Veto and Rate Lite

* Burst Guard
* High sensitivity -30 mV
* Output width 5 nsec to 1 usec
* Hybrid f ront-end
* Updating operation
* DPR <9 nsec
* Low time slewing <1 nsec
* High fan-out

The LeCroy Model 821 is a high performance Quad Discriminator incorporating the features requested by experimenters throughout the world. The reliability designed into the 821 is based upon LeCroy's experience with its last three generations of quad discriminators. Its advanced hybrid front ends afford high sensitivity and greater than 100 MHz counting rate capability. Output pulse width stability is excellent even at threshold. Each channel has its own threshold and width controls, 5 NIM outputs, 1 ANTI-NIM output and a Rate Lite. Threshold may be monitored at a front-panel test point.

Updating Operation The output duration of the Model 821 may be adjusted over the range 5 nsec to 1 usec. In the updating mode, a threshold crossing extends the output pulse duration by a time equal to the selected pulse width. If the second threshold crossing occurs within the 9 nsec double-pulse resolution, the unit will not respond.

Burst Guard Mode If, in a train of input pulses to a discriminator, the pulses are separated by less than the resolving time, the discriminator output will be extended until the falling edge of the last pulse in the burst. This is a particularly important feature in veto applications.

Rate Lite is an indicator LED. It produces a flash for each discriminator firing. A stretching circuit allows single firings to be discerned.

Common Veto provides the option of inhibiting all channels simultaneously, by application of a NIM fast pulse. This is an effective means of eliminating unwanted background early in the logic system.

SPECIFICATIONS
NIM Model 821
QUAD DISCRIMINATOR

INPUT CHARATERISTICS

Signal Input: Threshold, -30 mV to -1000 mV; front-panel screwdriver adjustment (screwdriver included); 50 Ohm protected to +/-5A for 0.5 usec, clamping at +1 and -7 volts; reflections <1% for input pulses of 3 nsec risetime; stability < 0.2%/'C over 20'C to 60'C operating range; offset 0 +/-2 mV; threshold monitor has 10: 1 ratio of monitor voltage to actual voltage, +/-5%.

Bin Gate: Slow gate via rear connector and rear panel ON-OFF switch; risetimes and falltimes approximately 50 nsec; clamp to ground from +5 inhibits; direct-coupled.

Veto: Front-panel connector permits simultaneous inhibiting of all channels; 50 Ohm; required NIM-level signal (>-600 mV); direct-coupled, must overlap leading edge of input signal; must precede

input by approximately 5 nsec. Minimum width 5 nsec.

OUTPUT CHARACTERISTICS
Number of Outputs: 6, differential-type current source; 2 bridged normal pairs (0mA quiescently, -16mA during output; complementary: -16 mA quiescently, 0mA during output).

Risetime: <2.0 nsec.

Falltime: <2.5 nsec, (slightly longer on wide output durations).

Width Stability: <+/-0.2%/'C maximum.

Duration: Internal switch permits choice of Update Only or Burst Guard Mode. Front panel LED indicates Burst Guard Mode.

Update Only Mode: 5 nsec to 1 usec, continuously variable up to 600 nsec via front-panel screwdriver control. (Narrower widths possible at slight expense of amplitude).

Burst Guard Mode: Output duration is either equal to the time-overthreshold of the input signal or equal to the preset duration, whichever is greater. For input burst rates greater than the DPR of the unit, the output is equal to the duration of the burst.

GENERAL
Maximum Rate: 110 MHz typical, input and output.

Double-Pulse Resolution: Less than 9 nsec.

Time Slewing: <1 nsec for input amplitudes 110% of threshold and above.

Input-Output Delay: 9.5 nsec. typical.

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.

Rate Lite: One per channel. Indicates discriminator output. 10 msec stretching employed.

Packaging: In RF-shielded AEC/NIM #1 module (AEC Report #TID-20893); Lemo-type connectors.

Current Requirements:
-6 V @ 690 mA +6 V @ 230 mA
-12 V @ 170 mA +12 V @ 15 mA
-24 V @ 85 mA

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