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Model 4616

Emitter Coupled Logic to NIM converter and NIM to ECL

The Model 4616 is simultaneously an ECL-to-NIM and a NIM-to-ECL converter, specially designed to fill the gap between the new growing ECL circuitry and the old NIM electronics. The Model 4616 is designed so that each channel can be used for both applications. When ECL complementary pulses have to be converted, the circuit provides three NIM outputs and an additional ECL output. When a NIM pulse has to be converted, it is sent in one of the NM outputs (now used as an input) while the other two NIM outputs are unconnected. Thus, the circuit provides a single complementary ECL output.

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Maximum Frequency: 150 MHz.

Minimum Pulse Width: ECL and NIM inputs/outputs 4 nsec.

Transit Times: ECL input to NIM output < 6 nsec. ECL input to ECL output < 10.5 nsec. NIM input to ECL output < 6.5 nsec.

Power Requirements: -6 V quiescently at 700 mA, with all loads connected and all channels activated 1.7 A maximum.

Side By Side with NIM

ECL Inputs: 16, one per section, in a 2 x 17 pin connector; accepts complementary ECL levels; typical threshold 200 mV.

NIM Inputs: 16, one per section, Lemo-type connector, to be chosen out of the three Lemo-type connectors in the channel; the other two have to be kept unconnected; input impedance 50 ohm $\pm 5\%$; reflections < 10% for input rise times > 2 nsec

ECL Outputs: 16, one per section, in a 2 x 17 pin connector; ECL complementary levels (-0.8 V and -1.7 V); rise time 2 nsec typical.

NIM Outputs: 48, three bridged outputs per section, Lemo-type connectors; quiescently at 0 mV, < -700 mV into 3 x 50 ohm loads, maximum -1.2 V into 1 x 50 ohm load, during output; rise time 2 nsec typical.

Advantages of ECL over NIM

To be specific, what we are using is a NIM to ECL, ECL to NIM converter. However, for ECL generally, the advantages it has over NIM is speed (better suited for when fast signal processing is needed), more efficiency in power use, compactness, and compatibility with newer technology and digital logic rather than analog.

Rise times tend to be slower for NIM pulses