FEATURES

* Sixteen Channels in Single Width NIM Module
* 100 MHz Input to Output Rate
* Common Threshold Control -10 mV to -1 Volt
* Common Output Width Control 5 nS to 150 nS
* Both Nim and Differential ECL Outputs per Channel
* Non-Updating Outputs
* Reliable Current-Switched Nim Output
* Fast Common Veto and Bin Gate

DESCRIPTION

The Model 707 is a 100 MHz Leading Edge Discriminator specifically designed for experiments with large counter arrays, offering high performance and reliability at a reasonable cost. The 707 features sixteen channels with common threshold and width controls. By simultaneously generating both Nim and ECL outputs, trigger logic can be simplified. The Nim output can be used for the fast trigger logic while the ECL output provides for a TDC input or logic for pattern recognition circuits to produce second level triggers. In addition, a fast veto input and a Bin Gate are common to all channels.

The 707 has high input sensitivity of -10mV variable to -1Volt via a 15-turn front panel control. A front panel test point provides a DC voltage equal to the actual threshold to insure accurate settings. Likewise, output durations are continuously variable via a front panel control over the range of 5nSec to 150nSec. The 707 employs non-updating regeneration circuits for output widths that are always the same duration regardless of the input rate conditions.

A fast veto input allows simultaneous inhibiting of all channels to reject unwanted events early in the system. Similarly, a bin gate will inhibit the entire module when applied via the rear connector.

The negative Nim output is the current source type which allows for pulse clipping and is protected from damage due to shorted cables. The differential ECL output is capable of driving two 100 ohm loads or up to 30 daisy-chained ECL inputs. Output risetimes and falltimes are typically 1.5nSec, and their shapes are unaffected by the loading conditions of the other outputs.
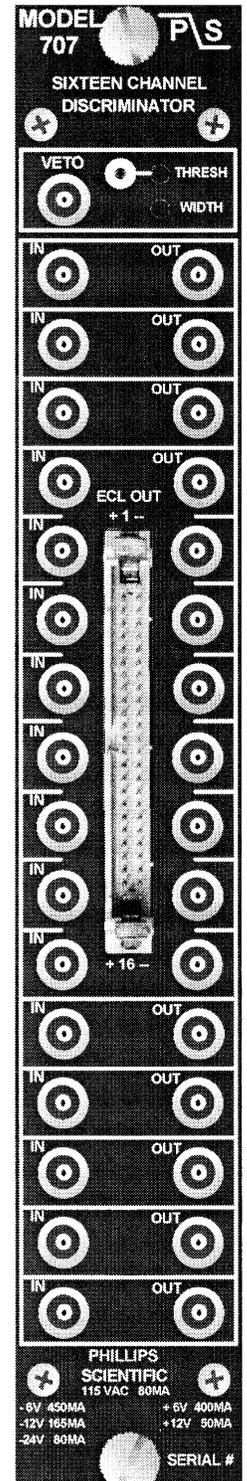
INPUT CHARACTERISTICS

General:
One LEMO connector input per channel; 50ohms, ±1%, direct coupled; less than ±2% input reflection for a 2.0nSec input risetime. Input protection clamps at +.7Volt and -5Volts, and can withstand ±2Amps (±100Volts) for 1mSec with no damage to the input.

Threshold:
From -10mV to -1Volt; 15-turn screwdriver adjustment; better than ±0.2%/ ^{o}C stability; A front panel test point provides a DC voltage equal to the actual threshold setting.

Fast Veto:
One LEMO connector input common to all sixteen (16) channels; accepts normal NIM level pulse (-500 mV), 50 ohms, direct coupled; must precede the negative edge of input pulse by 5nSec; 5nSec minimum input width.

Bin Gate:
Rear panel slide switch enables or disables slow bin gate in accordance with TID-20893.

OUTPUT CHARACTERISTICS

General:
NIM Out: One LEMO connector per channel; current switched type. The output delivers -16mA (-800mV) into a single 50 ohm load. ECL Out: Differential ECL; 34 pin, (2x17) header; Drives two 100 ohm loads or up to 30 daisy-chained; The output rise and fall times are typically 1.5nSec from 10% to 90% levels.

Width Control:
One 15-turn screwdriver adjustment per module. Controls all outputs simultaneously; variable from 5nSec to 150nSec non-updating outputs; stability ±.35%/ ^{o}C. The output widths track to within 2nSec or ±7%, whichever is greater for all sixteen channels.

Non-Updating Outputs:
The output width will equal the width control setting and will not be retriggered during an output pulse.

GENERAL PERFORMANCE

Continuous Repetition Rate:
Greater than 100 MHz, with output width set at minimum.

Pulse-Pair Resolution:
Better than 10nSec, with output width set at minimum.

Input to Ouput Delay:
NIM: Less than 8.5nsec; ECL: <9.5nsec.

Multiple Pulsing:
None; One and only one output pulse regardless of input pulse amplitude or duration.

Power Supply Requirements:

-- 6 Volts @ 450 mA	+ 6 Volts @ 400 mA
-12 Volts @ 165 mA	+12 Volts @ 50 mA
-24 Volts @ 80 mA	115 VAC @ 80mA

Note: All currents are within NIM specification limits permitting a full powered bin to be operated without overloading.

Operating Temperature:
0 ^{o}C to 70 ^{o}C ambient.

Packaging:
Standard single width NIM module in accordance with TID-20893 and Section ND-524.

Quality Control:
Standard 36-hour, cycled burn-in with switched power cycles.

Options: Call Phillips Scientific to find out about available options.   *9/02, Rev--*