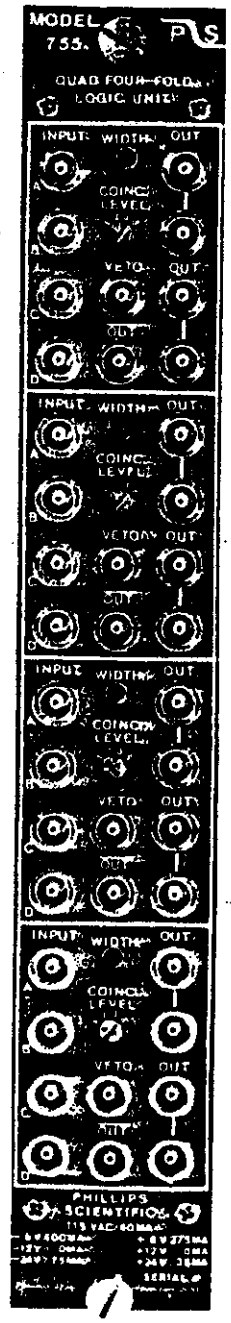
Phillips Scientific

Logic Unit

NIM MODEL 755

FEATURES

- VERSATILE LOGIC MODULE WITH MAJORITY LEVEL SELECTION
- FOUR INDEPENDENT CHANNELS
- 125 MHz RATE CAPABILITY
- DEADTIMELESS UPDATING OUTPUTS
- FAST ANTI-COINCIDENCE CAPABILITY



DESCRIPTION

The model 755 logic unit contains four channels of four input logic with veto in a single width NIM module. Logic AND, OR majority logic, fan-in/fan-out, and anti-coincidence functions can be performed with this versatile module. All functions are direct coupled and operate to over 125 MHz with input overlap times as narrow as 1 nSEC.

Each channel has four logic inputs, an anti-coincidence input, a coincidence level switch, and five outputs with common width control. The inputs are enabled by connecting the input cable to the desired input, eliminating errors often occuring with switched inputs. The setting of the coincidence level switch then determines whether a logic OR, AND, or majority logic function will produce an output.

After the inputs have satisfied the logic function desired, triggering of an updating regenerative stage produces a standardized output pulse, variable from 4 nSEC to 1 uSEC, independent of the input pulse shapes or overlap times. The updating feature ensures deadtimeless operation, while the double-pulse resolution is 7.5 nSEC for fast counting applications.

The outputs are the current source type with two pairs of negative bridged outputs and one complement for each channel. When only one output of a bridged pair is used, a double-amplitude NIM pulse (-32 mA) is generated for driving long cables with narrow pulse widths. The outputs have transition times of typically 1.0 nSEC, and their shapes are virtually unaffected by the loading conditions of the other outputs.

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INPUT CHARACTERISTICS

A, B, C, D:

Four inputs per section, LEMO connectors; accepts NIM level logic signals (-500 mV); 50 ohm input impedance direct coupled; input reflections are less than ±5% for a 1 nSEC rise-time. Inputs are protected against damage from ±50 volt input transients. Inputs respond to a 1 nSEC or greater input width.

Fast Veto:

One input per section, LEMO connector; accepts NIM level logic signal (-500 mV); 50 ohm input impedance, direct coupled; less than ±5% input reflection for a 1 nSEC risetime, protected against damage ±50 volt input transients. Requires a 3.5 nSEC minimum input width in time with the input pulse leading to inhibit.

Bin Gate:

Rear-panel slide switch enables or disables the slow bin gate via the rear connector. Signal levels are in accordance with the TID-20893 standard.

OUTPUT CHARA TERISTICS

General:

Five outputs per se on, two pairs of negative bridged and one cc plemented NIM. The two pairs of bridged ou its are quiescently 0 mA and -32 mA during itput (-1.6 V into 50 ohms or -.8 V into 25 oh). The complemented output is quiescent 16 mA and 0 mA during output. Risetimes a falltimes are less than 1.5 nSEC, and the outp pulse shapes are optimized when the idged outputs are 50 ohm terminated.

Width Control:

One control per se n; 15-turn screwdriver adjustment. Output re continuously variable from 4 nSEC to 1 u ; better than 0.15%/°C.

Updating Operati n:

The output pulse wi e extended if a new input pulse occurs while t output is active. This provides deadtimele operation and 100% duty cycle can be achiev

GENERAL PERFORMANCE

Functions:

Logic AND, OR, majority logic, and logic fan-in/fan-out. All functions have leading ec inhibit with standard-ized outputs.

Rate:

125 MHz minimum, input to output. Typically 140 MHz.

Double-Pulse Resolution:

Less than 8 nSEC; Typically 7 nSEC with output width set a minimum.

Input to Output Delay:

Less than 8 nSEC.

Multiple Pulsing:

One and only one output pulse regardless of input pulse amplitude or duration.

Power Supply Requirements:

-6 V @ 400 mA	+6 V @ 275 mA
-12 V @ 150 mA	+12 V @ 0 mA
-24 V @ 25 mA	+24 V @ 35 mA

115 VAC @ 60 mA

Note: All currents within NIM specifications limits allowing a full-pov red bin to be operated without overloading.

Operating Temperature:

0°C to 70°C ambient.

Packaging:

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

Options:

Call Phillips Scientific to find out about available options.

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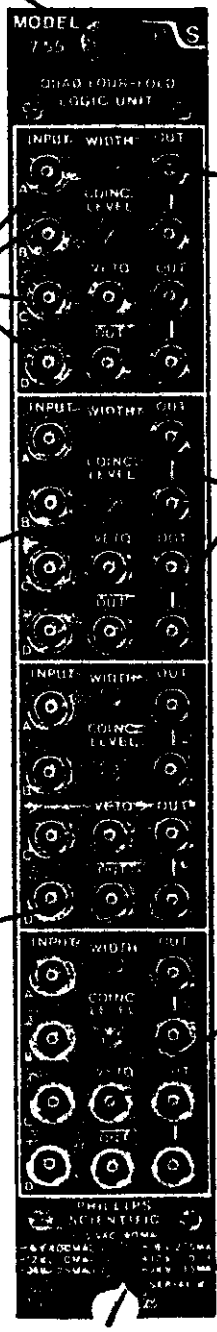
MODEL 755 QUAD FOUR-FOLD MAJORITY LOGIC UNI

(FRONT PANEL DESCRIPTION)

Standard #1 NIM Packaging in accordance with TID-20893



Four Logic Inputs; Accepts Normal NIM Logic (-500 mV) 50 ohm Impedance

Four Position Coincidence Level Switch; Selects Logical "OR", "AND", or Majority Logic Functions.

One Complemented NIM Output. Quiescently -16 mA (-800 mV). Goes to 0 mA (0 Volts) during output.

NOTE: Bin Gate Enable/ Disable Switch on Rear Panel permits Inhibiting via Bin Connector.

Output Wid l Control; 15-turn Sc wdriver Adjustment Variable from 4 nSec to µSec.

Two pairs bridged outputs; e h pair delivers -32 mA (-1 Volts across 50 ohms, - Volt with both outpu 50 ohm terminated

Fast Inhib Input accepts normal NIM ogic (-500 mV) 50 ohm Imp lance

Voltage a l Current Requireme s