



NIM Model 688AL Level Adapter

- * 8 NIM to TTL and 8 TTL to NIM converters
- * Direct - coupled
- * Full input protection
- * TTL outputs compatible with terminated 50 Ohm cable
- * Switchable normal or complementary operation in groups of four
- * No duty cycle limitations
- * Single-width module

The LRS Model 688AL Level Adapter provides 8 channels of direct-coupled NIM-to-TTL and 8 channels of TTL-to-NIM conversion in a single-width NIM module. Standard negative TTL notation is used to be compatible with unterminated CAMAC and slow NIM logic levels.

The NIM-to-TTL section accepts either normal or complementary NIM logic levels (logical "0" = 0 to -2 mA; logical "1" = -12 to -32 mA) at each of its eight 50 Ohm inputs. The 8 outputs switch between zero volts and +2.5 volts for a time equal to the input signal duration. The polarity of the outputs is controlled by two front-panel switches common to two groups of four channels and provides either normal or complementary operation. Up to 50 mA at +2.5 volts is delivered from each output, making the TTL drive capability compatible with terminated, direct-coupled 50 Ohm cable. The low level clamp capability is 100 mA, or approximately 60 standard TTL loads. Direct-coupled, the 688AL is free from any rate effects and has no limitations on duty cycle.

The TTL-to-NIM section accepts standard negative TTL logic levels (logical "1" 0 to +.8V; logical "0" = > 2 volts) at each of its eight inputs. The minimum input duration for a full output is 10 ns. The output from each channel is a standard NIM logic level which switches between 0 volts and -16 mA (-800 mV into 50 Ohm) during an output. Risetimes and falltimes are < 3 ns and the output width is approximately equal to the duration of the input signal. Two front-panel switches common to two groups of four channels provides either normal operation (TTL logical "1" IN gives NIM logical "1" OUT) or complementary operation.

SPECIFICATIONS

NIM Model 688AL LEVEL ADAPTER

NIM TO TTL SECTION	
NUMBER OF CHANNELS	Eight.
INPUT CHARACTERISTICS	
Impedance:	50ohm +/- 5%; reflections <10% for risetime > 2 ns.
Quiescent DC Level:	0 volts.

Input Signal:	Normal (logical "0" = 0 to -2 mA; logical "1" = -12 to -32 mA) or complementary fast NIM logic levels.
Input Protection:	+/-5 volts.
Minimum Input Width:	Less than 1 0 ns.
OUTPUT CHARACTERISTICS	
Signal Levels:	Standard negative TTL logic levels; logical "1" -- 0.4 volts; logical "0" > +2.5 volts.
High Level Drive Capability:	50 mA at +2.5 volts (compatible with terminated, direct-coupled 50 ohm cable.)
Low Level Clamp Capability:	1 00 mA at 0 +/- 500 mV (60 standard TTL loads, or 50 ohm to +5 volts).
Risetime and Falltime:	Less than 1 0 ns.
Output Duration:	Approximately equal to input duration.
Output Impedance:	Less than 5 ohm.
Duty Cycle Limitations:	None.
GENERAL	
Delay:	Approximately 12 ns.
Logic Polarity:	Two front-panel switches, each common to four channels, provides normal operation (logical "1" IN gives logical "1" OUT) or complementary operation.
TTL TO NIM SECTION	
NUMBER OF CHANNELS	Eight.
INPUT CHARACTERISTICS	
Input Signal:	Standard negative TTL logic levels (logical "1" = 0 to + 0.8 volts, requires -1.6 mA max.; logical "0" 2 volts, requires + 100 uA max.)
Minimum Input Duration:	Less than 1 0 ns.
Input Protection:	5 A for 0.5us, clamping at +7 and -1 volts.
OUTPUT CHARACTERISTICS	
Signal Levels:	Logical "0", open circuit; logical "1", -16 mA.
Output Duration:	Approximately equal to input duration.
Risetime and Falltime:	Less than 3 ns.
Duty Cycle Limitations:	None.
GENERAL	
Delay:	Approximately 6 ns.

Logic Polarity:	Two front-panel switches, each common to four channels, provide normal operation (logical "1 " IN gives logical "1 " OUT) or complementary operation.
MODULE CHARACTERISTICS	
Packaging:	NIM single-width module; Lemo-type connectors.
Current Requirements:	+ 6 volts at 280 mA; + 12 volts at 30 mA; -6 volts at 300 mA.

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