

INPUT CHARACTERISTICS

General:

One LEMO connector input per channel; 50 ohms $\pm 1\%$ direct coupled; less than 2% input reflection for a 2.0 nSEC input risetime. Input protection clamps at +7 Volts and -6 Volts and can withstand ± 2 amps (± 100 Volts) for 1 μ SEC with no damage to the input.

LLT Threshold:

-10 mV to -1 Volt; 15-turn screwdriver adjustment; better than $+0.3\%/^{\circ}\text{C}$ stability; a front panel test point provides a DC voltage ten times the actual LLT setting.

ULT Threshold:

-25 mV to -1 Volt; 15-turn screwdriver adjustment; better than $\pm 0.2\%/^{\circ}\text{C}$ stability; a front panel test point provides a DC voltage ten times the actual ULT setting.

Fast Veto:

One LEMO connector input common to all five (5) channels; accepts normal NIM level pulse, 50 ohms, direct coupled; must precede negative edge of input by 5 nSEC in LED mode, and 5 nSEC plus the delay setting in the ARC and ΔE modes; 5 nSEC minimum input width.

OUTPUT CHARACTERISTICS

General:

Three (3) LEMO connector outputs per channel; two normal NIM level outputs and one complementary output. The normal outputs deliver pulses of -16 mA (-800 mV across 50 ohms). The complemented output is quiescently -16 mA (-800 mV) and goes to zero mA (0 Volts) during output. Output risetimes and falltimes are less than 1.5 nSEC from 10% to 90% levels.

Width Control:

One control per channel; 15-turn screwdriver adjustment; outputs continuously variable from 5 nSEC to 150 nSEC range; better than $\pm 0.15\%/^{\circ}\text{C}$ stability. Non-updating output regeneration.

Bin Gate:

Rear panel slide switch enables or disables bin slow gate in accordance with TID-20893. Responds in approximately 10 nSEC to bin gate signal.

GENERAL PERFORMANCE

Delay Control:

Required to shift the timing of the LLT crossing to occur at the peak of the input. One 15-turn screwdriver adjustment common to all five (5) channels; compensates for input risetimes from 1.0 nSEC to 25 nSEC in the ARC and ΔE Modes less than $0.1\%/^{\circ}\text{C}$ or 10 pSEC/ $^{\circ}\text{C}$ stability whichever is greater; a point provides a DC voltage of 100 mV/nSEC of delay. For proper operation, the input pulse must be longer than the delay time.

Continuous Repetition Rate:

100 MHz for any mode of operation; delay control and width control set at minimum.

Input to Output Delay:

Typically 10.5 nSEC with delay control set at minimum.

Multiple Pulsing:

One and only one output pulse regardless of input pulse amplitude or duration for any mode of operation.

Power Supply Requirement:

-6 Volts @ 390 mA	+6 Volts @ 230 mA
-12 Volts @ 150 mA	+12 Volts @ 0 mA
-24 Volts @ 75 mA	+24 Volts @ 25 mA

115 Volts AC @ 30 mA

NOTE: All currents are within NIM specification limits permitting a full powered 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 ND-524.

Quality Control:

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

**MODEL 730 FIVE-CHANNEL TRI-MODE
DISCRIMINATOR**

(FRONT PANEL DESCRIPTION)

Standard #1 NIM Packaging
in accordance with
TID-20893

Lower Level Threshold
Monitor; Test Point provides
a DC Voltage 10 times
the actual threshold
setting (-100 mV to -10 V)

50 Ohm Input

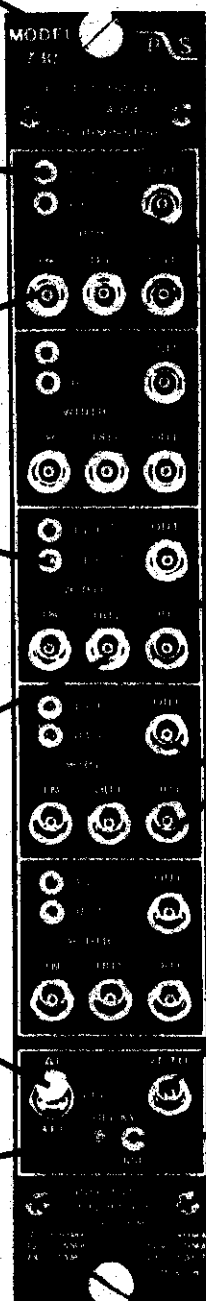
Upper Level Threshold
Monitor; Test Point provides
a DC Voltage 10 times the
actual Threshold Setting.
(-250 mV to -10 Volts)

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

Three Position Locking Toggle
Switch (pull to Toggle).
Sets Operating Mode (ΔE , LED,
ARC) desired; common for
all Five Channels.

Delay Adjustment; Variable
from 1 nSec to 25 nSec.

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



Lower Level Threshold
Control; 15-turn Screwdriver
Adjustment, Variable from
-10 mV to -1 Volt.

Upper Level Threshold
Control; 15-turn Screwdriver
Adjustment, Variable from
-25 mV to -1 Volt.

Output Width Control;
15-turn Screwdriver
Adjustment, Variable from
5 nS to 150 nS

Two Individually driven
normal NIM outputs; delivers
-16 mA out (-800 mV @ 50 Ohms)

Fast Inhibit Input accepts
normal NIM logic (-500 mV)
50 Ohm Impedance

Delay Setting Monitor;
provides a DC Voltage of
100 mV/nSec of Delay.

Voltage and Current
Requirements

MODEL 730 DISCRIMINATOR QUALITY CONTROL CHECK-OFF

DATE: 2-15-83

SERIAL NUMBER: 361

CHECKED BY: DCM

ECO LEVEL: 150

MODIFICATIONS: NONE

TESTS	CHANNEL #	1	2	3	4	5	6	7	8	Units
Visual Inspection		✓	✓	✓	✓	✓				✓
Power Supplies		5.118	+12.0	-11.9	5.12	+5.18	-1.28			✓
Input to Output Response		✓	✓	✓	✓	✓				✓
Burn-In										✓
Verification		✓	✓	✓	✓	✓				✓
Bin Gate Test		✓	✓	✓	✓	✓				✓
Veto Test		✓	✓	✓	✓	✓				✓
Output Level Out 1		799	799	788	792	807				mV
Output Level Out 2		835	839	848	832	863				mV
Output Level OUT		796	794	790	793	809				mV
Maximum Output Widths		153	153	152	151	152				nSEC
Minimum Output Widths		5.0	4.9	5.0	4.9	5.0				nSEC
Risetime Out 1		1.1	1.0	1.0	.97	1.0				nSEC
Risetime Out 2		1.2	1.1	1.1	.99	1.1				nSEC
Risetime OUT		1.4	1.3	1.4	1.4	1.4				nSEC
Falltime Out 1		1.6	1.6	1.6	1.6	1.6				nSEC
Falltime Out 2		1.5	1.4	1.5	1.4	1.4				nSEC
Falltime OUT		1.2	1.2	1.5	1.2	1.5				nSEC
Pulse Shapes		✓	✓	✓	✓	✓				✓
LLT Test Point		100	99	99	99	99				mV
ULT Test Point		249	249	250	249	248				mV
Delay Test Point		99 mV	TO	2.54	Volts					mV
LLT Hysteresis		45	44	44	47	45				mV
ULT Hysteresis		25	25	25	25	25				mV
LLT Threshold Trim		10.2	10.2	10.2	10.0	9.9				mV
ULT Threshold Trim		25.2	25.2	25.1	25.1	25.1				mV
Delay Trim		✓	✓	✓	✓	✓				mV
ΔE, ARC, LED Check		✓	✓	✓	✓	✓				✓
Alignment Check										✓
Cleaning										✓
Visual Inspection		✓	✓	✓	✓	✓				✓