

Phillips Scientific

Octal Multifunction Logic Unit

NIM MODEL 757

FEATURES

- * Octal, Quad, Dual or Single Logic Sections
- * Ideal for NIM Logic Fan-Out
- * OR/AND Logic From 2 to 16 Inputs
- * Outputs Timed to Within 500pSec
- * Converts TTL to NIM Logic Outputs
- * Available in CAMAC Packaging Model 7157

DESCRIPTION

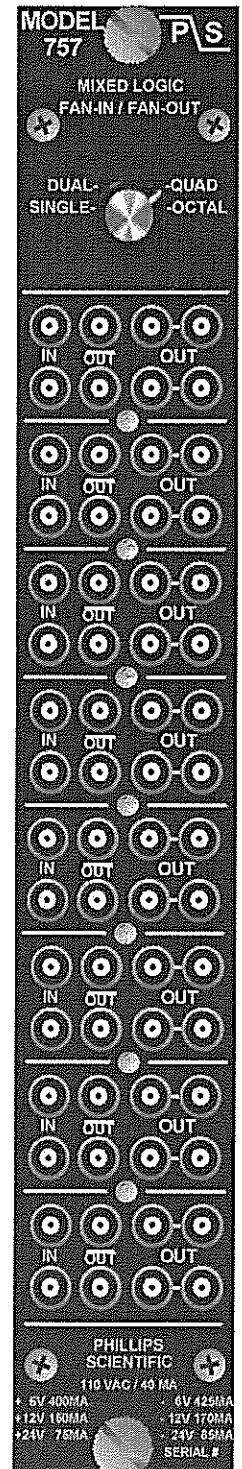
The model 757 is a general purpose fast logic unit used to perform logic OR, AND, Fan-in, Fan-out, TTL to NIM level conversion, and polarity inversion. The 757 contains eight logic channels. Each logic section consists of two inputs which accept NIM or TTL signal levels. The inputs form a logical "OR" function and generate four NIM level and two complementary NIM level outputs. The AND function can be implemented with negative NIM complement logic levels. All input functions produce output widths equal to the overlap time of the inputs.

Sections are easily configured by means of a four position switch allowing the module to be setup as follows:

Logical Sections	Number of Inputs	Normal NIM Outputs	Complement NIM Outputs
Octal (8)	2	4	2
Quad (4)	4	8	4
Dual (2)	8	16	8
Single (1)	16	32	16

The logical setup is easily determined by front panel LED's indicating which sections are logically linked. The input to output propagation is timed to within 500pSec for any configuration selected, allowing for precise timing without re-adjusting cable lengths for different logic setups.

The outputs are the current source type with two pairs of negative bridged outputs and two complements for each channel. When only one output of a bridged pair is used, a double-amplitude NIM pulse (-32mA) is generated, useful for driving long cables with narrow pulse widths. In addition, current source outputs also allow pulse clipping and provide inherent protection from damage due to shorted cables.



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"A THEORY DEVELOPMENT COMPANY"

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INPUT CHARACTERISTICS

Number of Inputs :

Two per section; LEMO style connectors; accepts both negative NIM or positive TTL pulses and levels. Input is compatible with both logic types. No jumpers or level selection necessary.

Input Impedances :

NIM input level: 50 ohms, $\pm 10\%$; TTL input level: 500 ohms, $\pm 10\%$ impedance.

Signal Levels :

Standard NIM logical "one" input levels: -12mA to -36mA ; (typically -500mV threshold); Inputs protected from damage to $\pm 8\text{VDC}$.

Standard TTL logical "one" input levels: $+2\text{Volt}$ to $+5\text{Volts}$; (typically $+1.3\text{Volt}$ threshold); Inputs protected from damage to $\pm 8\text{VDC}$.

Input Width :

Overlap coincidence width of 4nSec or greater.

OUTPUT CHARACTERISTICS

Number of Outputs :

Six (6) LEMO style connectors per section; Two pairs of negative bridged NIM outputs and one bridged pair of complements per section. This produces four (4) normal NIM levels and two (2) complemented NIM level outputs.

Output Levels :

Each of the bridged outputs deliver -32mA , (-1.6Volts into a single 50 ohm load), and -16mA , (-800mV with both terminated). The complemented outputs are quiescently -32mA (-1.6Volts with a single 50 ohm load and -800mV with both terminated), and go to 0mA , (0Volt) during output.

Rise and Falltimes :

1.5nSec maximum, 10% to 90% levels.

Duration :

Equal to the logical sum of the input durations. Output widths from 4nSec to DC levels.

GENERAL PERFORMANCE

Number of Sections :

Eight sections; may be cascaded by means of a four position front panel switch. A LED located between sections, indicates which sections are logically coupled.

Rate :

Greater than 125 MHz for any logic combination.

Insertion Delay :

Less than 8.0nSec .

Time Variation Between Outputs :

8 channel operation: less than 100 pSec ;

4 channel operation: less than 200 pSec ;

2 channel operation: less than 300 pSec ;

1 channel operation: less than 500 pSec .

Duty Cycle Limitations :

None, direct coupled throughout.

Power Supply Requirements :

+ 6 V @ 400 mA + 12 V @ 150 mA + 24 V @ 75 mA

- 6 V @ 425 mA - 12 V @ 170 mA - 24 V @ 85 mA 110 VAC @ 40 mA

Packaging :

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

Quality Control :

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

12/03

MODEL 757 OCTAL MULTIFUNCTION LOGIC MODULE

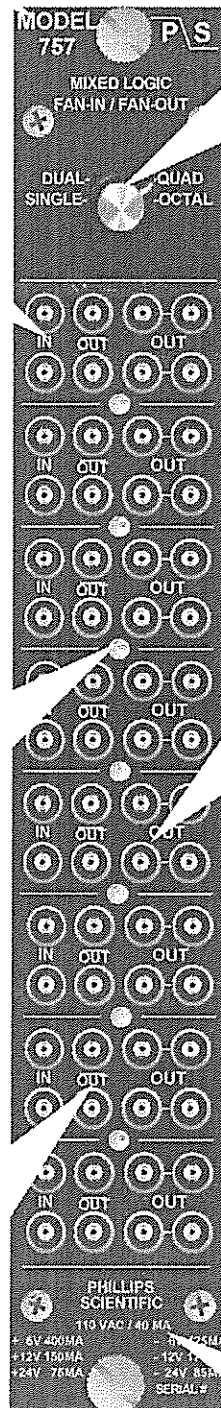
(Front Panel Description)

Standard # 1 NIM Packaging
in accordance with TID-20893

Two Logic Level LEMO Inputs;
Negative NIM or Positive TTL;
NIM=50 ohm, TTL=500 ohm.

LED's (7) Between Channels,
Indicate which Sections are
Logically Linked.

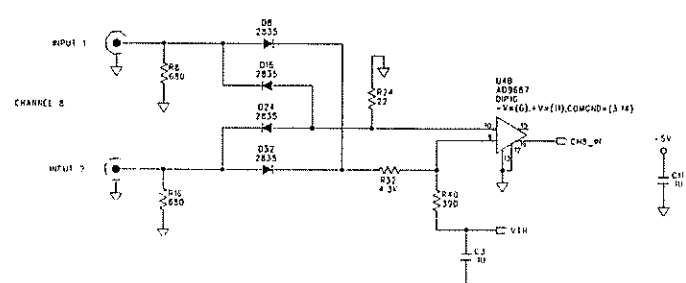
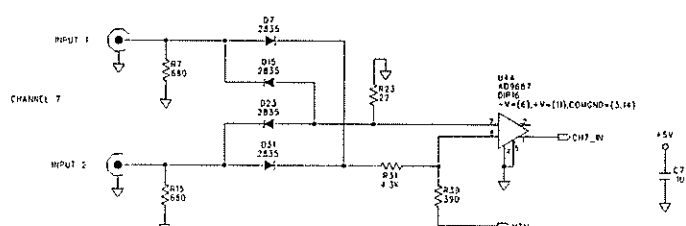
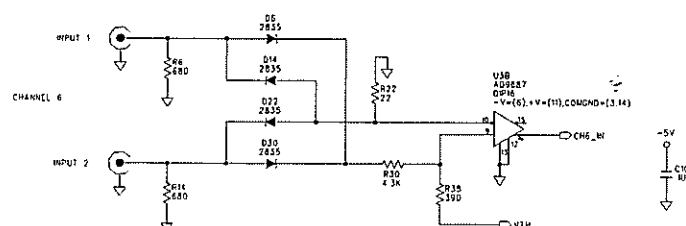
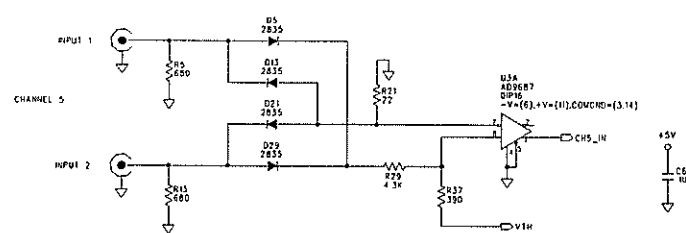
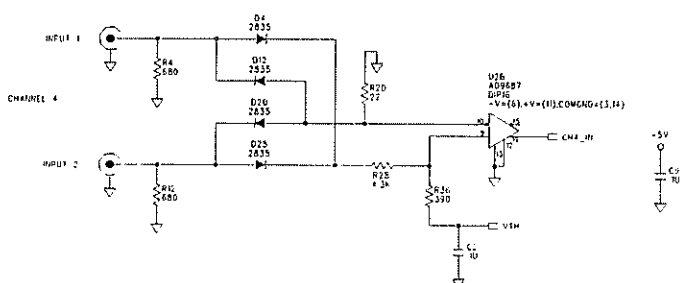
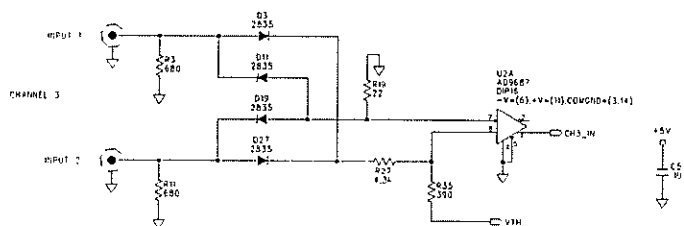
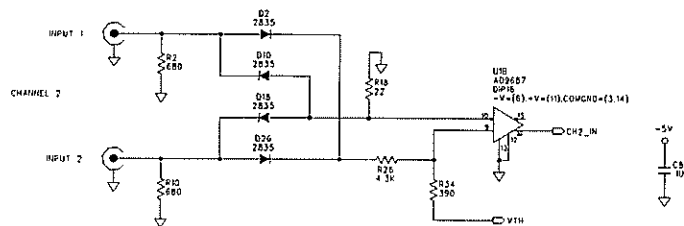
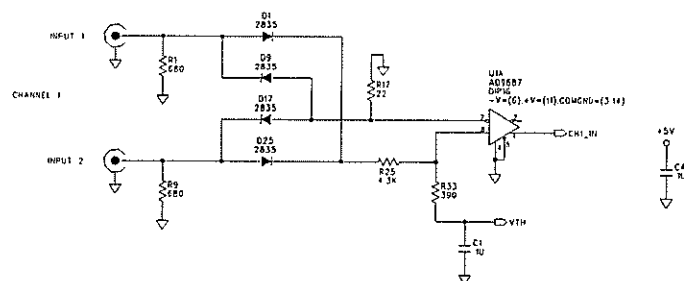
Two Double-Amplitude Complemented
Bridged NIM Outputs; -32mA (-1.6 V into
50 ohms, -.8 Volt into Two 50 ohm Loads)



Four Position Switch Selects
an Octal, Quad, Dual or Single
Channel Operation.

Two Pairs Double-Amplitude Bridged
NIM Outputs; -32mA (-1.6 Volts into 50
ohms, -.8 Volt into Two 50 ohm Loads)

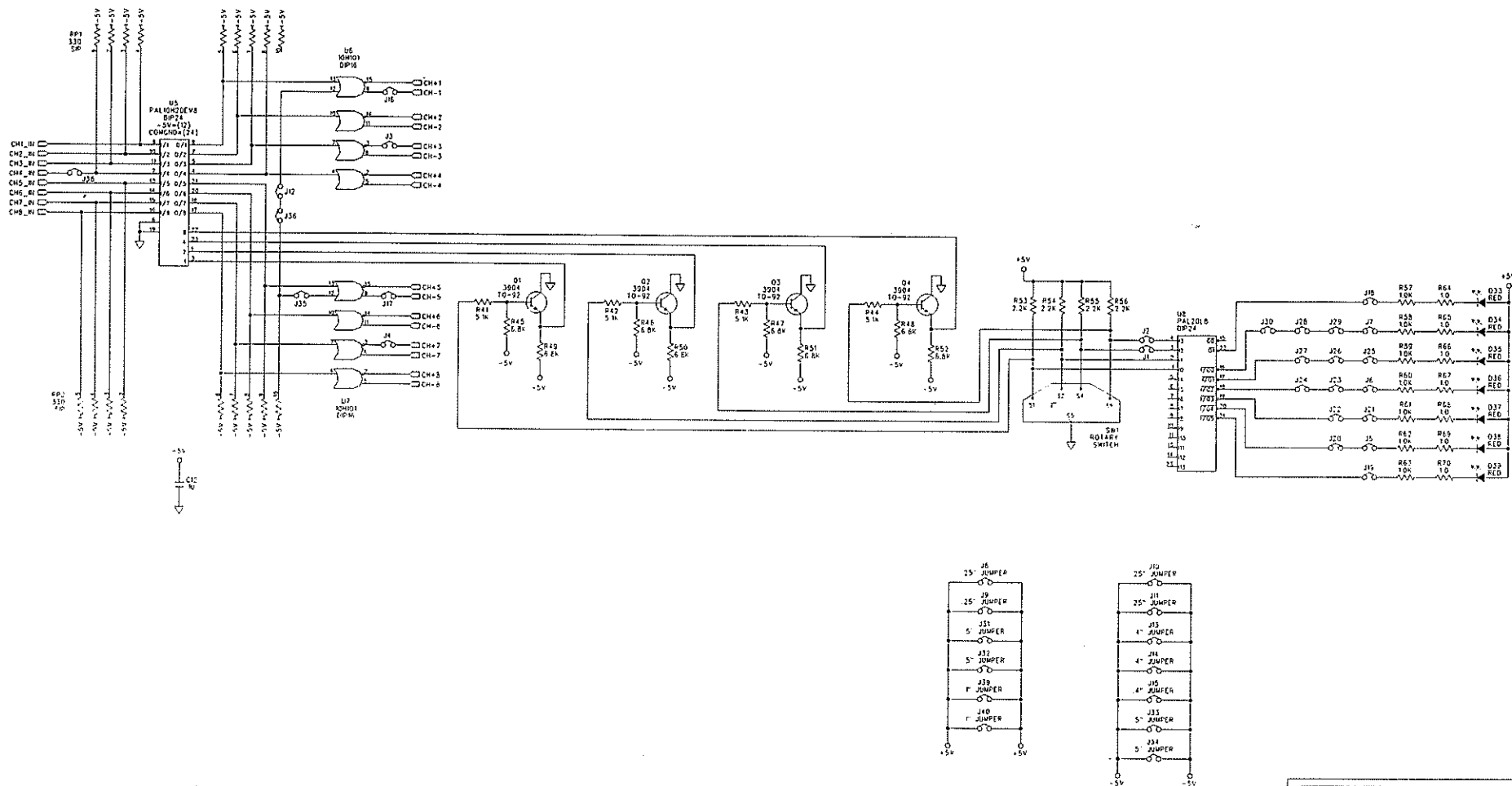
NIM Voltage and Current
Requirements



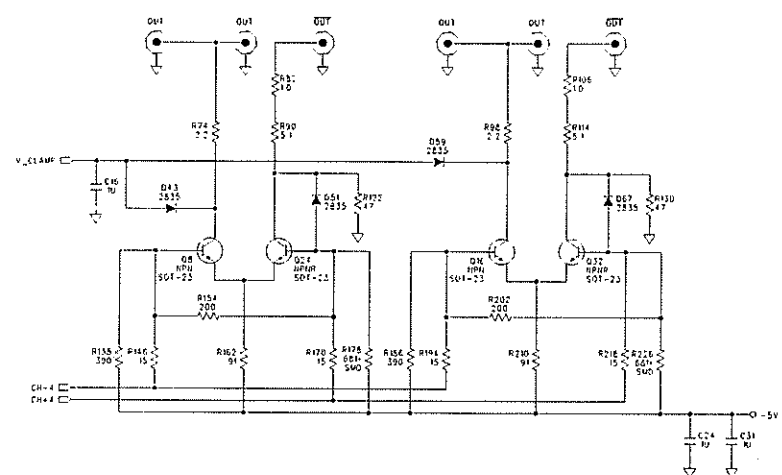
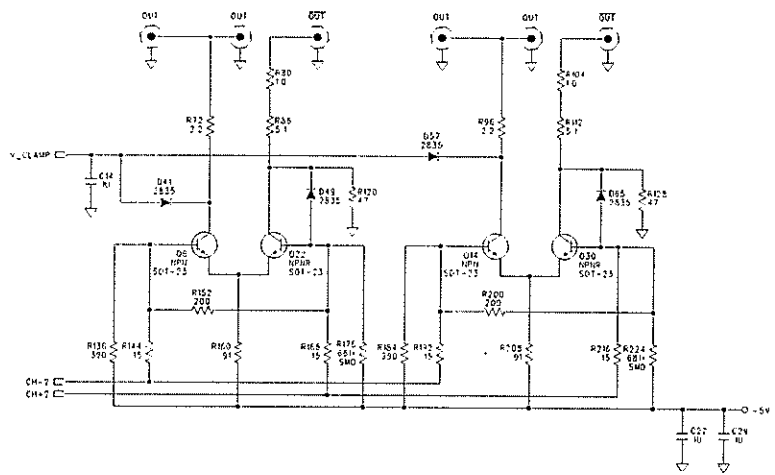
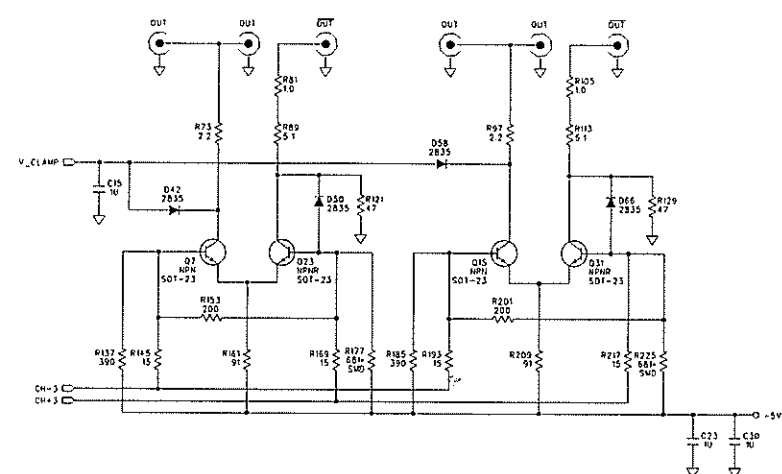
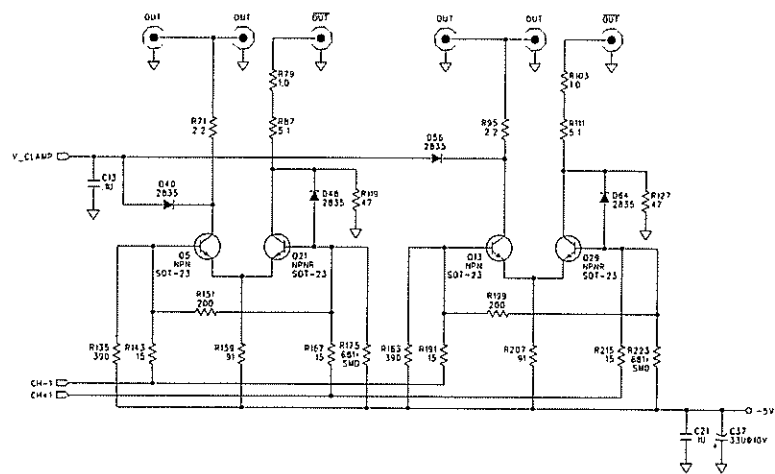
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MODEL 757
 OCTAL MULTIFUNCTION LOGIC UNIT

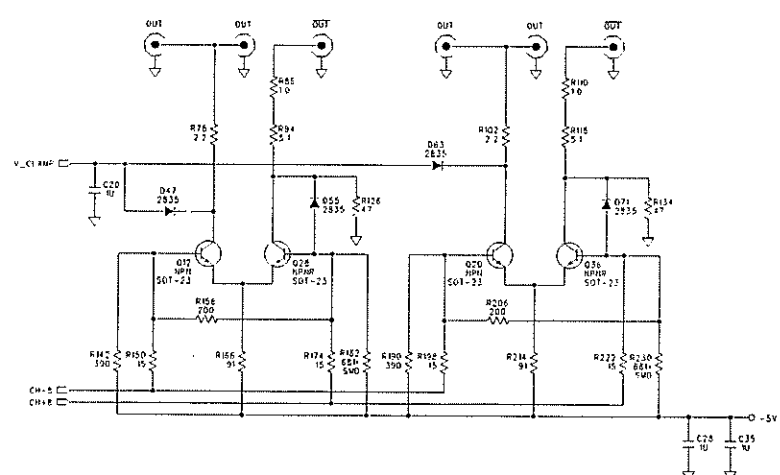
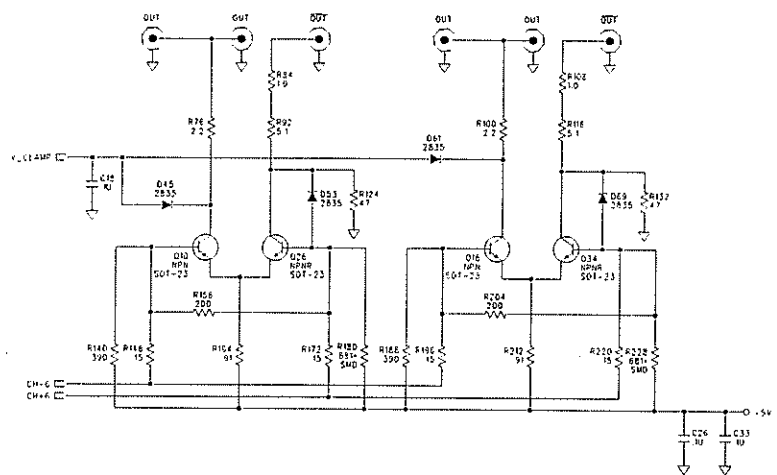
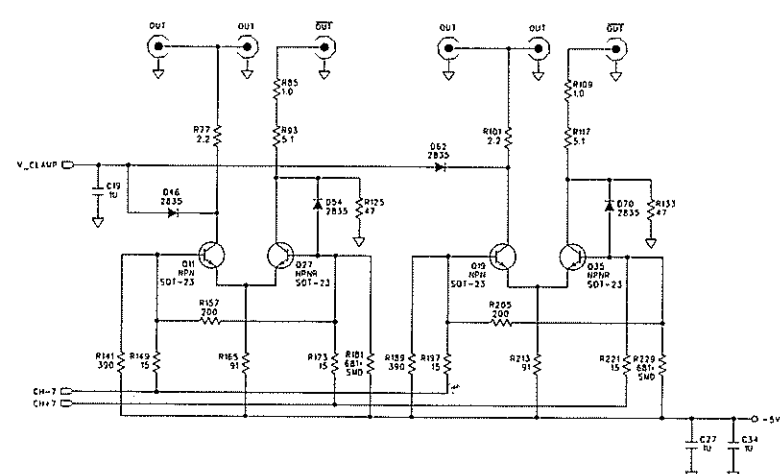
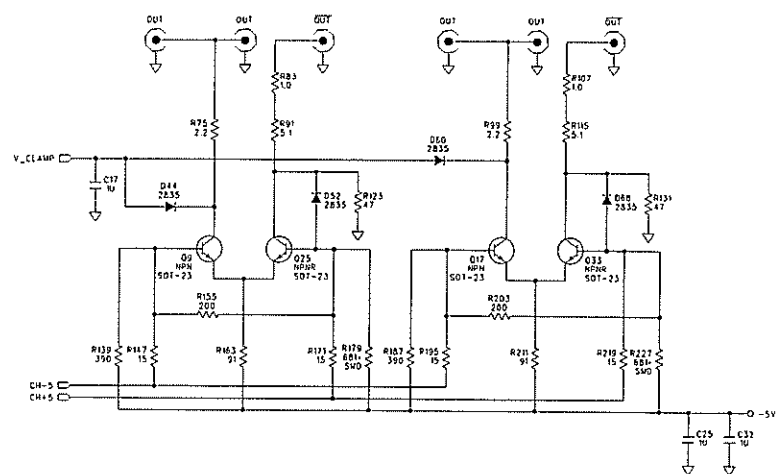
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09-18-02	D	75701



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MODEL 757		
OCTAL MULTIFUNCTION LOGIC UNIT		
DATE	REV	FILE
09-18-02	REV D	75702



PHILLIPS SCIENTIFIC		
MODEL 757		
OCTAL MULTIFUNCTION LOGIC UNIT		
DATE	FILE	
02-16-02	REV D	75703



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MODEL 757

OCTAL MULTIFUNCTION LOGIC UNIT

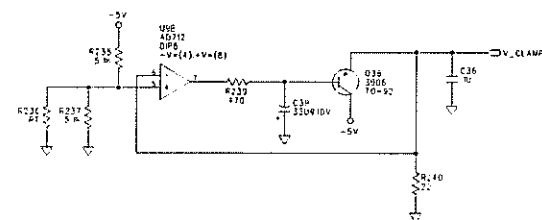
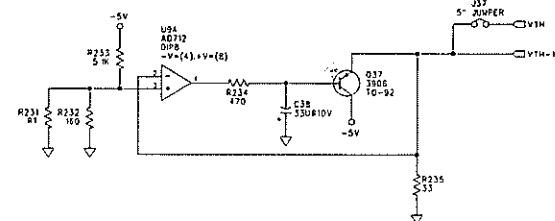
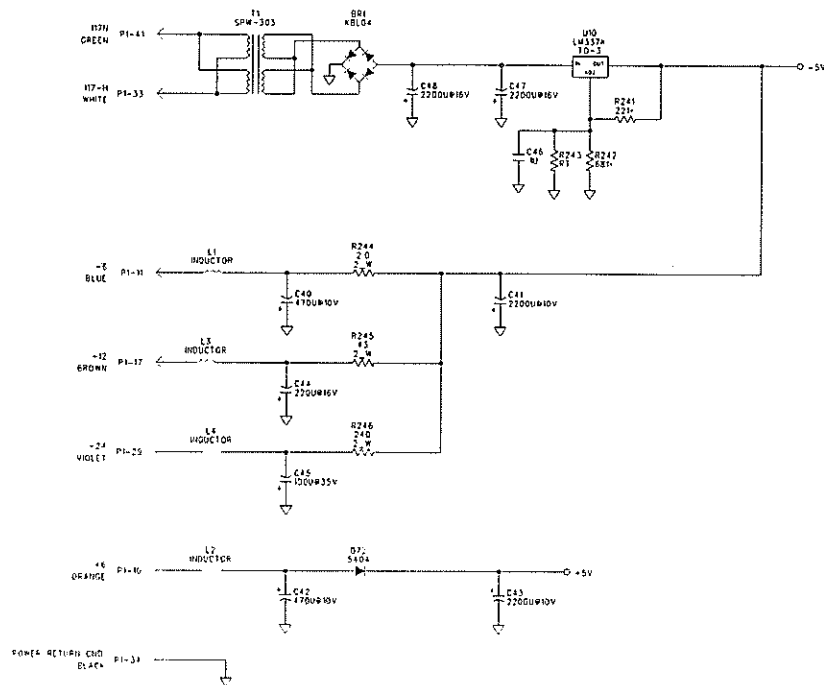
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REV D

FILE

09-15-02

75704



PHILLIPS SCIENTIFIC		
MODEL 757		
OPTICAL MULTIFUNCTION LOGIC UNIT		
DATE	REV	FILE
09-18-02	REV D	75705

MODEL 757 PARTS LIST

Rev. D

<u>Ident.</u>	<u>Qty.</u>	<u>Part Number</u>	<u>Description</u>
R1-16	16	00106800	680 ohm 5% CF 1/8 resistor
R17-24	8	001022R0	22 ohm 5% CF 1/8 resistor
R25-32	8	00104301	4.3K ohm 5% CF 1/8 resistor
R33-40	8	00103900	390 ohm 5% CF 1/8 resistor
R41-44	4	00105101	5.1K ohm 5% CF 1/8 resistor
R45-52	8	00106801	6.8K ohm 5% CF 1/8 resistor
R53-56	4	00102201	2.2K ohm 5% CF 1/8 resistor
R57-63	7	00101001	1.0K ohm 5% CF 1/8 resistor
R64-70	7	00101R00	1.0 ohm 5% CF 1/8 resistor
R71-78	8	00102R20	2.2 ohm 5% CF 1/8 resistor
R79-86	8	00101R00	1.0 ohm 5% CF 1/8 resistor
R87-94	8	00105R10	5.1 ohm 5% CF 1/8 resistor
R95-102	8	00102R20	2.2 ohm 5% CF 1/8 resistor
R103-110	8	00101R00	1.0 ohm 5% CF 1/8 resistor
R111-118	8	00105R10	5.1 ohm 5% CF 1/8 resistor
R119-134	16	001047R0	47 ohm 5% CF 1/8 resistor
R135-142	8	00103900	390 ohm 5% CF 1/8 resistor
R143-150	8	001015R0	15 ohm 5% CF 1/8 resistor
R151-158	8	00102000	200 ohm 5% CF 1/8 resistor
R159-166	8	001091R0	91 ohm 5% CF 1/8 resistor
R167-174	8	001015R0	15 ohm 5% CF 1/8 resistor
R175-182	8	00706810	681 ohm 1% SMD 1/8 resistor
R183-190	8	00103900	390 ohm 5% CF 1/8 resistor
R191-198	8	001015R0	15 ohm 5% CF 1/8 resistor
R199-206	8	00102000	200 ohm 5% CF 1/8 resistor
R207-214	8	001091R0	91 ohm 5% CF 1/8 resistor
R215-222	8	001015R0	15 ohm 5% CF 1/8 resistor
R223-230	8	00706810	681 ohm 1% SMD 1/8 resistor
R231	1	00000000	Resistor Trim
R232	1	00101600	160 ohm 5% CF 1/8 resistor
R233	1	00105101	5.1K ohm 5% CF 1/8 resistor
R234	1	00104700	470 ohm 5% CF 1/8 resistor
R235	1	001033R0	33 ohm 5% CF 1/8 resistor
R236	1	00000000	Resistor Trim
R237-238	2	00105101	5.1K ohm 5% CF 1/8 resistor
R239	1	00104700	470 ohm 5% CF 1/8 resistor
R240	1	001022R0	22 ohm 5% CF 1/8 resistor
R241	1	00252210	221 ohm 1% CF 1/3 resistor
R242	1	00256810	681 ohm 1% CF 1/3 resistor
R243	1	00000000	Resistor Trim
R244	1	00342R00	2.0 ohm 5% MOF 2w resistor
R245	1	003443R0	43 ohm 5% MOF 2w resistor
R246	1	00342400	240 ohm 5% MOF 2w resistor
RP1-2	2	00803300	330 ohm SIP resistor network
C1-36	36	10151003	.1 mfd cer mono capacitor
C37-39	3	10813305	33 mfd @ 10v tan capacitor
C40	1	10514706	470 mfd @ 10v al el capacitor
C41	1	10612207	2200 mfd @ 10v al el capacitor
C42	1	10514706	470 mfd @ 10v al el capacitor
C43	1	10612207	2200 mfd @ 10v al el capacitor
C44	1	10522206	220 mfd @ 16v al el capacitor
C45	1	10541006	100 mfd @ 35v al el capacitor
C46	1	10151003	.1 mfd cer mono capacitor
C47-48	2	10622207	2200 mfd @ 16v al el capacitor

MODEL 757 PARTS LIST

Rev. D

<u>Ident.</u>	<u>Qty.</u>	<u>Part Number</u>	<u>Description</u>
D1-32	32	20202835	Schottky diode
D33-39	7	21000003	HLMP-1340 LED (R)
D40-71	32	20202835	Schottky diode
D72	1	20005404	1N5404 diode
Q1-4	4	24003904	2N3904 NPN transistor
Q5-20	16	2420NPN0	NPN (SMD) (R2) transistor
Q21-36	16	2420NPNR	NPN (SMD) reverse transistor
Q37-38	2	24003906	2N3906 PNP transistor
L1-4	4	15000000	Power Inductor
T1	1	15500004	Power Transformer
BR1	1	2030BL04	KBL04 Bridge Rectifier
U1-4	4	30509687	SPT9687SIN Honeywell Comp IC
U5	1	360H20P8	PAL10H20EV8-4 IC
U6-7	2	3510H101	10H101P IC
U8	1	3650007A	PAL20L8 IC
U9	1	3020712J	AD712JN Op-Amp IC
U10	1	3010337K	LM337K TO-3 Regulator
J1	1	00010100	0 ohm .1" jumper
J2	1	00010200	0 ohm .2" jumper
J3-12	10	00010250	0 ohm .25" jumper
J13-17	5	00010400	0 ohm .4" jumper
J18-37	20	00010500	0 ohm .5" jumper
J38	1	00010800	0 ohm .8" jumper
J39-40	2	00011000	0 ohm 1" jumper

MODEL 757 PARTS LIST

Rev. D

<u>Ident.</u>	<u>Qty.</u>	<u>Part Number</u>	<u>Description</u>
SW1	1	40000008	8 Pin DIP Socket
	6	40000016	16 Pin DIP Socket
	2	40000024	24 Pin DIP Socket
	64	40100007	Lemo PC Mount
	1	40200000	NIM Connector Block
	1	40200001	NIM Connector Shield
	7	40200002	NIM Elect. Pin
	2	40200003	NIM Female Guide Pin
	1	40200004	NIM Male Guide Pin
	1	40200005	NIM Male Guide Pin Gold Plate
	1	40200006	#4 Lock Washer Gold Plate
	1	40200007	#4-40 Hex Nut Gold Plate
	2	40950002	Solder Lug
	1	58000102	Back Panel
	1	58000103	Right Side Cover
	1	58000104	Left Side Cover
	2	58000105	Square Rail
	2	58000106	Round Rail
	1	50005003	Rotary Switch
	1	50005004	Knob for Rotary Switch
	1	58007570	Front Panel
	4	65025603	2-56 x 3/16" Flat Head Phillips Screw
	7	65144006	4-40 x 3/8" Round Head Phillips Screw
	6	65044003	4-40 x 3/16" Flat Head Phillips Screw
	1	65944004	4-40 x 1/4" Fillister Head Screw
	10	65944005	4-40 x 5/16" Fillister Head Screw
	1	67044000	4-40 Hex Nut
	3	68000602	1/8" Nylon Shoulder Washer
	2	73010000	Stand Off
	2	73010001	Captive Screw
	1	75000002	TO-3 Insulating Cover
	1	85007570	Model 757/7157 Printed Circuit Board
	1	85007571	Model 757-1/7157-1 Printed Circuit Board