Technical Information Manual

MOD. N 96

EIGHT-FOLD FAST DISCRIMINATOR

30th August1991

CAEN will repair or replace any product within the guarantee period if the Guarantor declares that the product is defective due to workmanship or materials and has not been caused by mishandling, negligence on behalf of the User, accident or any abnormal conditions or operations.

CAEN declines all responsibility for damages or injuries caused by an improper use of the Modules due to negligence on behalf of the User. It is strongly recommended to read thoroughly the CAEN User's Manual before any kind of operation.

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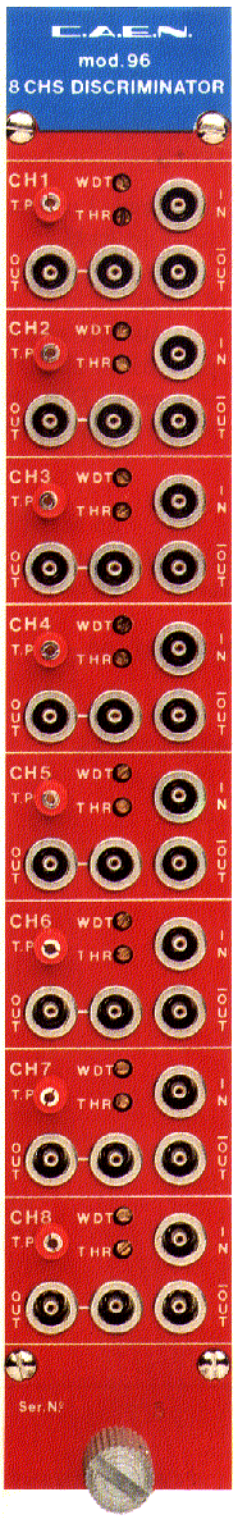

C.A.E.N.
mod.96
8 CHS DISCRIMINATOR
CH1
CH2
CH3
CH4
CH5
CH6
CH7
CH8
WDT
THR
T.P
IN
OUT
Ser.N:

TABLE OF CONTENTS

DESCRIPTION

Model N 96 is an 8-channel fast discriminator, with std NIM outputs, in a one-unit wide NIM module.

High or low impedance inputs ordering options are available; with high impedance it is possible to cascade multiple sections (a 50 Ω termination is required on the last unit of the daisy-chain).

On each section it is possible to adjust both the threshold level and the output pulse width: the selection of the full scale range is made by a single DIP switch on the PCB for the threshold level (total range 20 to 380 mV) and by a DIP-2 switch for the output width (total range 7 to 300 ns). Both parameters can then be continuously adjusted via the front-panel trimmers THR and WDT.

Each section has also a Test Point (TP) to monitor the threshold level on a DC voltmeter.

Three outputs (2 normal, 1 complementary logic) are available per channel.

SPECIFICATIONS (each section)

Input characteristics

Number ..... 1 high or low impedance

Threshold ..... continuously adjustable via front-panel trimmer THR over two ranges selected by DIP switch on PCB. Range is 20 to 380 mV.

Output characteristics

Number ..... 2 normal, 1 complementary logic, 50 Ω impedance, std NIM levels.

Rise-Fall Time ... ≤ 1.6 ns

Pulse Width ..... continuously adjustable with front-panel trimmer WDT over three ranges selected by DIP switch on PCB. Range is 7 to 300 ns.

General

Maximum Rate ..... 85 MHz

Double Pulse Resolution ..... 9 ns

Input-Output Delay ..... 16 ns

All connectors are **LEMO 00** type

POWER REQUIREMENTS **+ 6V 120 mA**

- 6V 2100 mA

TEST PROCEDURES

(on 1 of 8 identical channels)

Necessary instruments: 100 MHz pulse generator NIM standard output; Oscilloscope Tektronix Model 475A or equivalent; Digital Voltmeter; 36 dB dynamic Attenuator.

Procedures:

1) Check that the voltage threshold available on the tp monitor point on the front panel is varied continuously by the THR front panel trimmer by the dip-switch SW1 on the printed board.

2) Turn trimmers WDT and THR completely anti-clockwise.

3) Feed the IN entry a signal compatible with the input specifications.

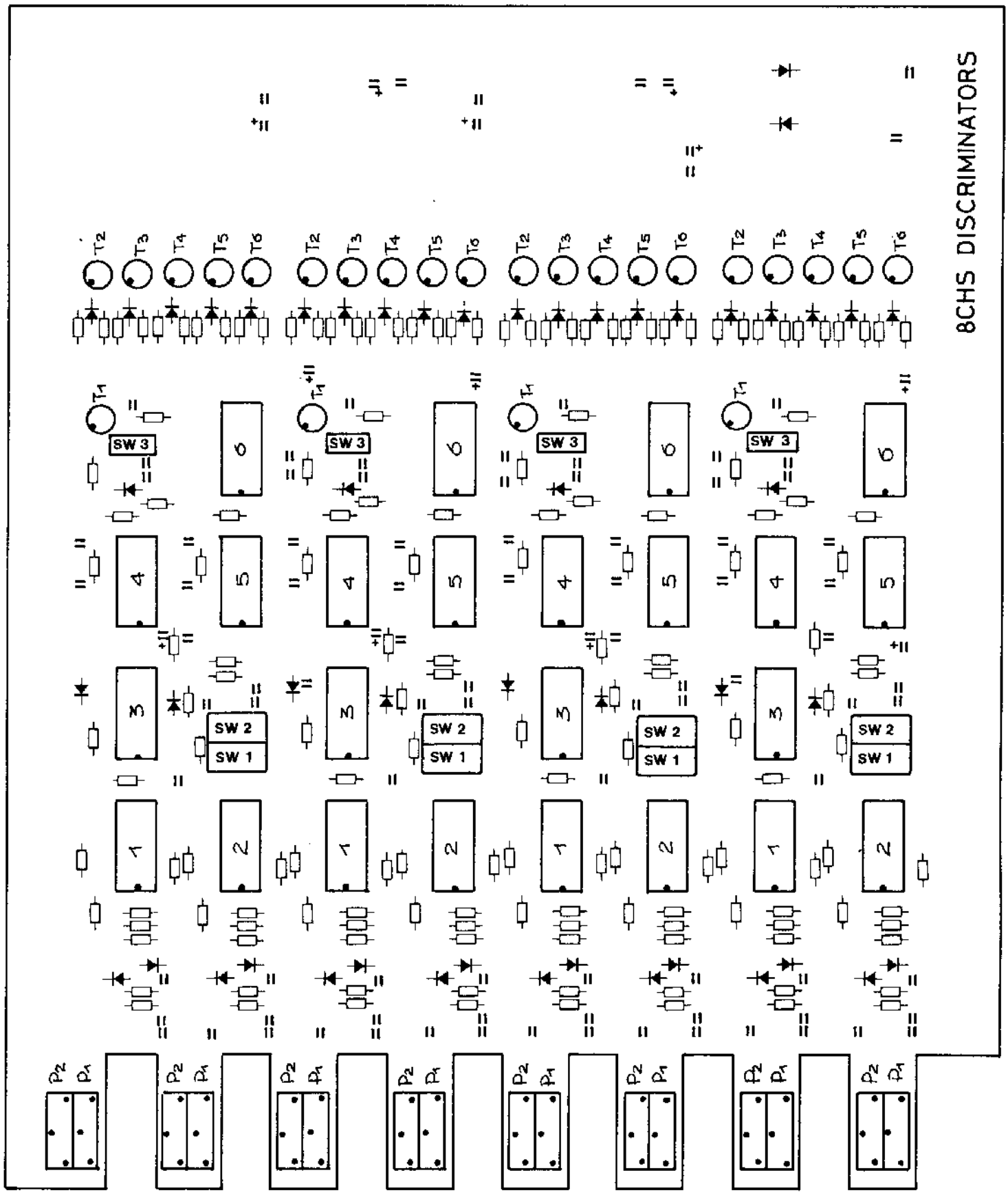
4) After having fixed the input amplitude signal by the attenuator, check the presence of a NIM signal std. (16 mA, 50 Ω) at the OUT and $\overline{\text{OUT}}$ outputs, equal in frequency to the input.

5) Controlling the WDT trimmer and the dip-switches SW2 (SW3) check that the output signal width varies continuously in the limits foreseen by the output specifications.

6) Turn the THR trimmer clock-wise until the output signal ends.

7) Check that the input signal amplitude is equal to the voltage threshold ± 5%.

8) Repeat points 4,5,6,7 for the increasing input amplitude signal.


8CHS DISCRIMINATORS
SW 1
SW 2
SW 3
T1
T2
T3
T4
T5
T6
P1
P2

LIST OF COMPONENTS

(1 of 8 identical channels)

I. C.s.

IC1,IC2	AM 685 ADL	(2)
IC6	MC10101	(1)
IC4,IC5	MC10216	(2)
IC3	MC10231	(1)

TRANSISTORS

T1÷T3,T1÷T3	2N918 Philips	(6)

DIODES

D1÷D3,D1÷D3	1N914	(6)
D4÷D6,D4÷D6	HP2800 or HP2900	(6)

CAPACITORS

C3,C3	15 pF	(2)
C4,C4	22 pF	(2)
C1,C1	47 pF	(2)
C2,C2	100 pF	(2)
C5,C5	150 pF	(2)
C7÷C13,C7÷C13	10 nF	(16)
C6,C6	2.7 pF	(2)
C14,C14	82 pF	(2)

TRIMMERS Elipot Beckman 7286

P2,P2	.....	20 KΩ	(2)
P1,P1	.....	100 KΩ	(2)

RESISTORS 1/4 W 5% unless otherwise specified

R2,R2	.....	5.6 Ω		(2)
R9,R9	.....	33 Ω		(2)
R11,R11	.....	160 Ω		(2)
R16,R18,R20,R16,R18,R20	.....	215 Ω	1%	(6)
R4,R4	.....	316 Ω	1%	(2)
R13,R14,R13,R14	.....	330 Ω		(4)
R3,R3	.....	464 Ω	1%	(2)
R7,R8,R7,R8	.....	470 Ω		(4)
R15,R17,R19,R15,R17,R19	.....	560 Ω		(6)
R10,R10	.....	1 KΩ		(2)
R1,R1	.....	2.2 KΩ or 51		(2)
R5,R5	.....	3.83 KΩ	1%	(2)
R12,R12	.....	3.9 KΩ		(2)
R6,R6	.....	33 KΩ		(2)
R21	.....	10 KΩ		(2)

SWITCHES

SW1,SW2,SW3	.....	DIP Switches 2 way 2 pos.	(3)