Technical Information Manual

Revision n.5
25 February 2011

MOD. N978

4 CH. VARIABLE GAIN FAST AMPLIFIER

MANUAL REV.5

NPO:
00107/01:N978x.MUTx/05

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.

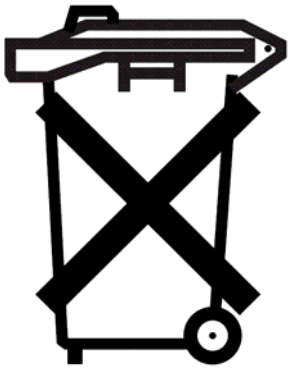
CAEN declines all responsibility for damages or injuries caused by an improper use of the Modules due to negligence on behalf of the User. It is strongly recommended to read thoroughly the CAEN User's Manual before any kind of operation.

CE

CAEN reserves the right to change partially or entirely the contents of this Manual at any time and without giving any notice.

Disposal of the Product

The product must never be dumped in the Municipal Waste. Please check your local regulations for disposal of electronics products.



MADE IN ITALY : We stress the fact that all the boards are made in Italy because in this globalized world, where getting the lowest possible price for products sometimes translates into poor pay and working conditions for the people who make them, at least you know that who made your board was reasonably paid and worked in a safe environment. (this obviously applies only to the boards marked "MADE IN ITALY", we can not attest to the manufacturing process of "third party" boards).

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1. General description

1.1 Overview

The Model N978 is a 4 channel fast rise time amplifier housed in a 1-unit NIM module; each channel features a voltage gain variable in the range 0 ÷ 10[1].

Channels are non-inverting and bipolar: they amplify both positive and negative signals.

Gain setting can be performed independently for each channel via four 11-position rotary handles.

Channels can be cascaded in order to obtain larger gain values. Each channel is provided with three LEMO 00 connectors, one for the input and two (bridged) for the output.

If only one of the outputs connectors is employed, the other is recommended to be terminated on 50 Ohm.

The board features a ±2 V output dynamics. 4 screw-trimmers (one per channel) allow the offset nulling.

The features include an input over voltage protection.

[1] Gain = 0 means NO output.

2. Technical specifications

2.1 Packaging

The Model N978 is housed in a 1U-wide NIM unit.

2.2 Power requirements

Power consumptions measured with Input open and Output terminated on 50 Ohm:

Table 2.1: Power requirements

+ 6 V	250 mA
- 6 V	250 mA

2.3 Front panel

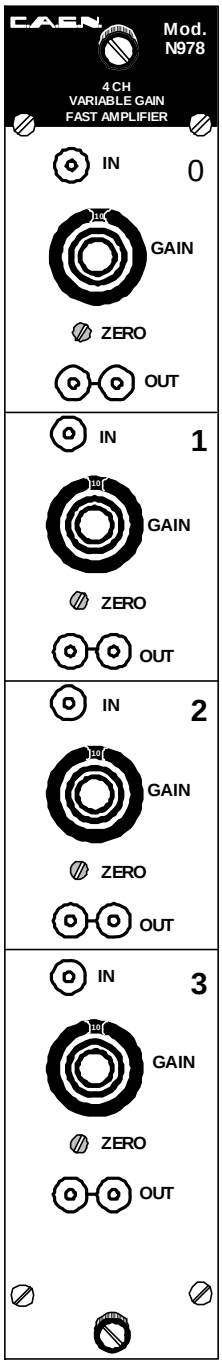

Fig. 2.1: Mod. N978 Front Panel

2.4 External components

INPUT CONNECTORS: 4 LEMO 00 connectors

OUTPUT CONNECTORS: 8 LEMO 00 connectors (4 coupled pairs)

OFFSET NULLING: 4 Screw-trimmers

2.5 Technical specification table

Table 2.2: Mod. N978 Technical Features[2]

Packaging	1U-wide NIM unit
Voltage gain	0 ÷ 10 ± 6% *(Gain = 0 means no output)*
Rise time	< 1.5 ns (with unipolar input, ±25 mV amplitude)
Band width	DC to 250 MHz with ±25 mV input signal DC to 100 MHz with ±150 mV input signal
Output dynamic range	±2 V
Offset nulling range	±30 mV (measured with 0 Ohm termination on input)
Offset uniformity	±4 mV (typical) ±12 mV (maximum)
Input dynamic range	400 mV peak to peak
Inputs channels	4, DC coupled, 50 Ω ± 2% impedance
Output channels	4 with Fan-Out of two, drive 50 Ω load
Noise	< 50 µV RMS (referred to the input)
Interchannel insulation	50 dB
Input reflections	< 10%
I/O Delay	< 3 ns

[2] All specifications measured with Gain = 10