Rev. 07- 25/03/2011

N979

16 Channel Fast Amplifier

CAEN
Tools for Discovery

User Manual

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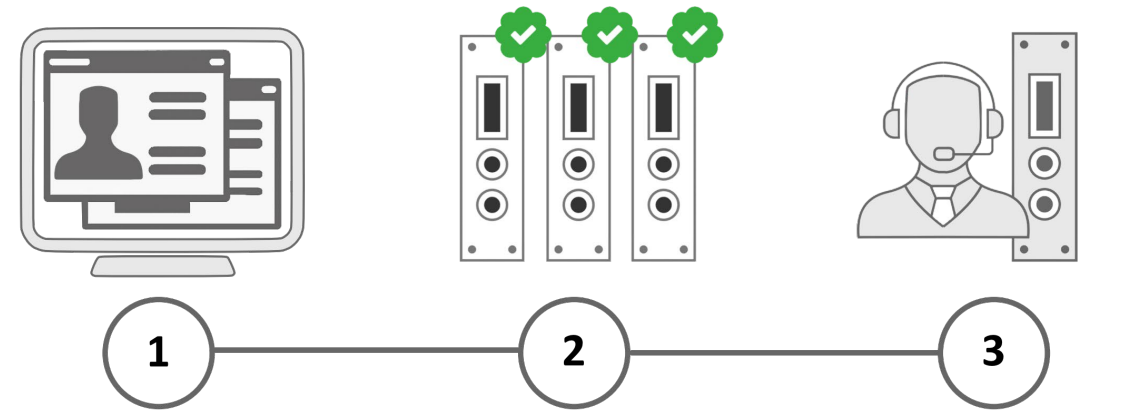

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Technical Information Manual

Revision n.7
25 March 2011

MOD. N979

16 CHANNEL
FAST AMPLIFIER
MANUAL REV.7

NPO:
00107/01:N979x.MUTx/07

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.

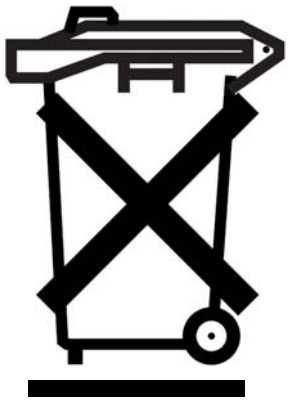
CAEN declines all responsibility for damages or injuries caused by an improper use of the Modules due to negligence on behalf of the User. It is strongly recommended to read thoroughly the CAEN User's Manual before any kind of operation.

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 Mod. N979 is a 16 channel fast rise time amplifier housed in a 1-unit NIM module; each channel features a fixed voltage gain of 10; fixed gain values in the x2 ÷ x9 range (gain step = 1) are available on request.

The Mod. N979B is a “mixed gain” version with 4 channels with 10x gain, 4 with 8x gain, 4 with 4x gain and 4 with 2x gain.

Channels are bipolar, non-inverting.

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 for the output (fan out of 2).

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. 16 screw-trimmers (one per channel) allow the offset nulling.

The features include an input overvoltage protection.

Table 1.1: Available items

Ordering code	Description
WN979XAAAAAA	N979 - 16 Channel Fixed Gain Fast Amplifier
WN979XBAAAAA	N979B - 16 Channel Mixed Gain Fast Amplifier
WPERS0097902	N979 Customization - Total Gain = x2
WPERS0097903	N979 Customization - Total Gain = x3
WPERS0097904	N979 Customization - Total Gain = x4
WPERS0097905	N979 Customization - Total Gain = x5
WPERS0097906	N979 Customization - Total Gain = x6
WPERS0097907	N979 Customization - Total Gain = x7
WPERS0097908	N979 Customization - Total Gain = x8
WPERS0097909	N979 Customization - Total Gain = x9

2. Technical specifications

2.1 Packaging

The Model N979 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	850 mA
- 6 V	850 mA

2.3 Front panel

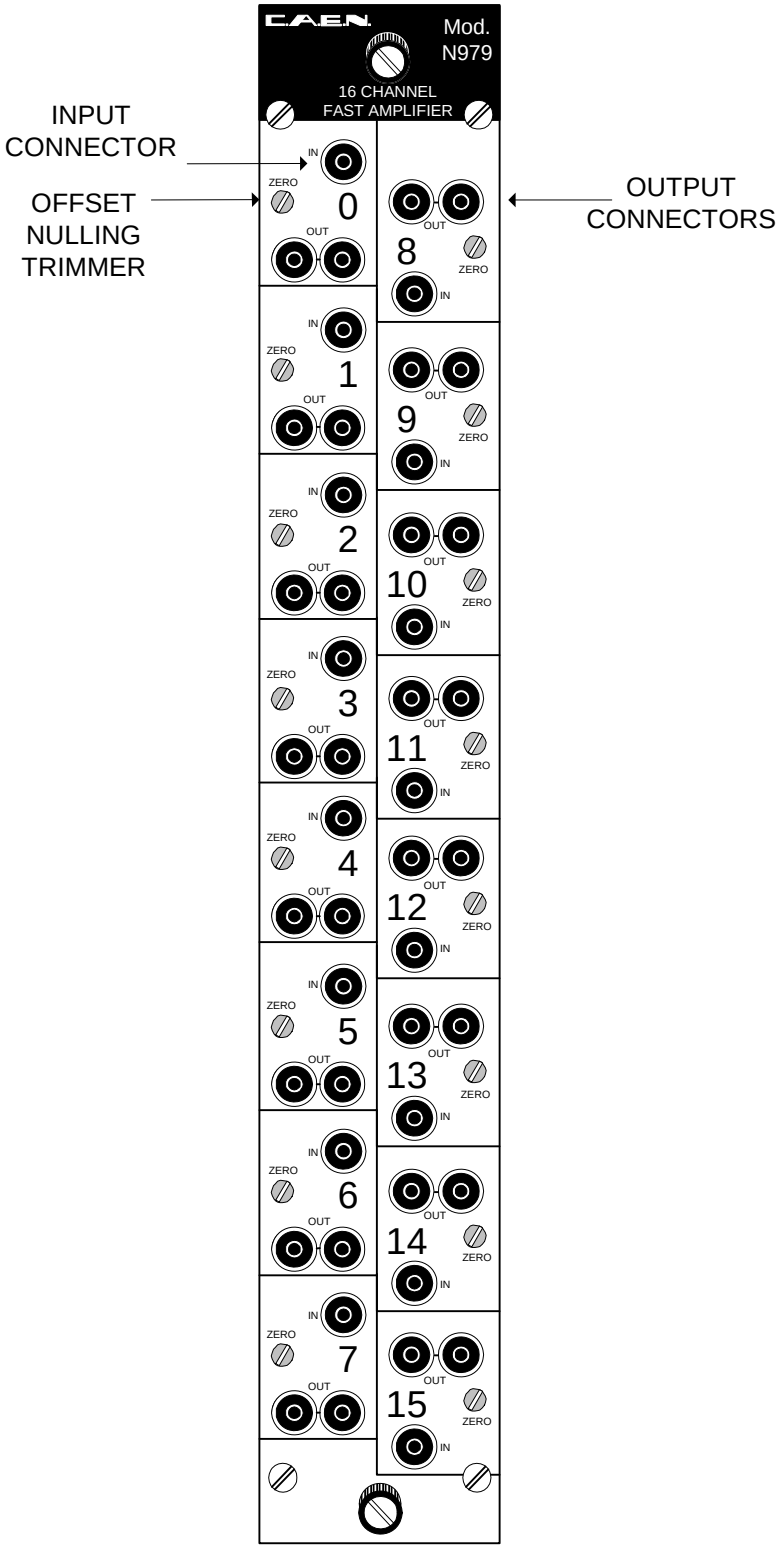

Fig. 2.1: Mod. N979 Front Panel

2.4 External components

INPUT CONNECTORS: 16 LEMO 00 connectors

OUTPUT CONNECTORS: 32 LEMO 00 connectors (16 coupled pairs)

OFFSET NULLING: 16 Screw-trimmers

2.5 Technical specification table

Table 2.2: Mod. N979 Technical Features

Packaging	1U-wide NIM unit	
Voltage gain	10 ± 6%	
Rise time	< 1.5 ns (with unipolar input, ±25 mV amplitude)	
Band width (gain 10x)	±25 mV input signal: 0÷250 MHz ±150 mV input signal: 0÷130 MHz	
Output dynamics	±2 V	
Offset uniformity	±4 mV (typical) ±12 mV (maximum)	
Max input amplitude	Total Gain	Max input amplitude (mV)
	2x	-1000 ÷+1000
	3x	-667 ÷+667
	4x	-500 ÷+500
	5x	-400 ÷+400
	6x	-333 ÷+333
	7x	-286 ÷+286
	8x	-250 ÷+250
	9x	-222 ÷+222
	10x	-200 ÷+200
Offset nulling range	±30 mV (measured with 0 Ohm termination on input)	
Inputs channels	16, DC coupled, 50 Ω ± 2% impedance	
Output channels	16 with Fan-Out of two, drive 50 Ω load	
Noise (gain 10x)	< 50 µV RMS (referred to the input)	
Interchannel insulation	50 dB	
Input reflections	< 10%	
I/O Delay	< 3 ns	

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