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Technical Information Manual

Revision n. 8
25 February 2011

MOD. V974 series
4 CH. VARIABLE
GAIN AMPLIFIERS
MANUAL REV.8

NPO:
00107/01:V974x.MUTx/08

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.



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



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 V974 is a 4 channel fast rise time amplifier housed in a 1-unit VME module; each channel features a voltage gain variable in the range $0 \div 10^1$.

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 used, 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 V974 is housed in a 6U-high, 1U-wide VME unit. The board hosts the VME P1 connector.

2.2 Power requirements

The module requires +5 V @ 550 mA (measured with Input disconnected and Output terminated on 50 Ohm).

2.3 Front panel

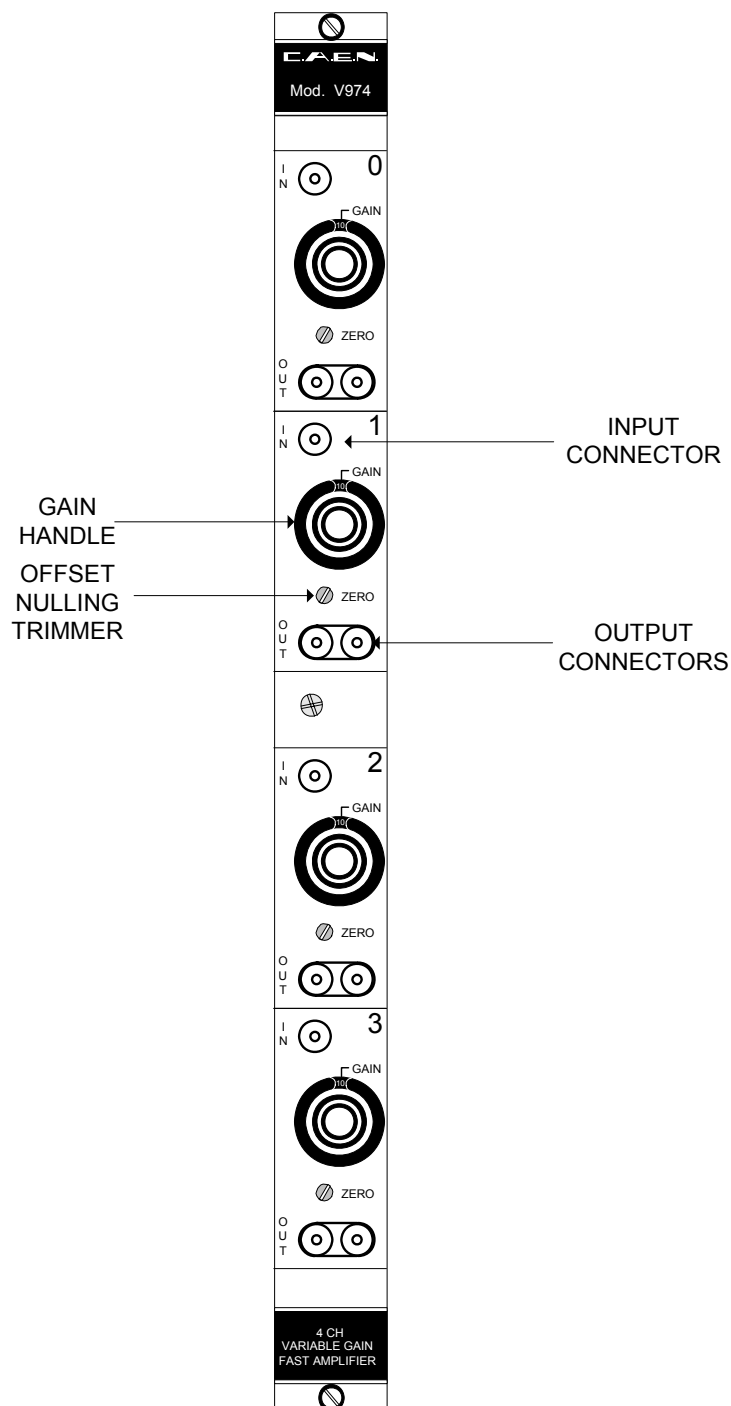


Fig. 2.1: Mod. V974 Front Panel

2.4 External components

INPUT CONNECTORS:	4 LEMO 00 connectors
OUTPUT CONNECTORS:	8 LEMO 00 connectors (4 coupled pairs)
ZERO CALIBRATION:	4 Screw-trimmers
GAIN ADJUSTMENT:	Four 11-position rotary handles

2.5 Technical specification table

Table 2.1: Mod. V974 Technical Features²

Packaging	1U-wide VME unit
Voltage gain	$0 \div 10 \pm 6\%$
Rise/fall time	< 3 ns (with unipolar input, ± 25 mV amplitude)
Band width	DC to 170 MHz with ± 25 mV input signal DC to 100 MHz with ± 200 mV input signal
Output dynamic range	± 2 V
Offset uniformity	± 4 mV (typical) ± 12 mV (maximum)
Offset nulling range	± 25 mV (measured with 0 Ohm termination on input)
Input dynamic range	400 mV peak to peak
Inputs channels	4, DC coupled, $50 \Omega \pm 2\%$ impedance
Output channels	4 with Fan-Out of two, drive 50Ω load
Noise	< 70 μ V RMS (referred to the input)
Interchannel insulation	40 dB
Input reflection	$\leq 10\%$
I/O Delay	< 3 ns

² Specifications measured with Gain = 10

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