Technical Information Manual

Revision n. 3
1 June 2004

MOD. N625
QUAD LINEAR
FAN IN / FAN OUT
MANUAL REV.3

NPO:
00111/02:N625x.MUTx/03

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

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1. Module description

1.1 Overview

The Mod. N625 is a 1-unit NIM module which houses:

- Four linear 4 Input + 4 Output Fan in/Fan out sections
- One 1 Channel Discriminator

Each Fan in/Fan out section produces on all its output connectors, the sum of the signals fed to the inputs, multiplied for the selected gain factor (1 or –1, jumper selectable).
Gain = 1 (non inverting mode) and gain = -1 (inverting mode) are signalled by LEDs.

Fan in/Fan out inputs are bipolar, both input and output signals are DC coupled.

Moreover each Fan in/Fan out section features a screwdriver trimmer which allows the DC offset (“zero”) adjustment.

The discriminator channel has one DC coupled input, an internal jumper allows to perform the slope coupling on either the leading or the trailing edge; the threshold is screwdriver adjustable and monitorable via test point; the output is NIM standard, its width is screwdriver adjustable as well.
The discriminator In/Out connectors are placed on the back panel, while its controls are on the front panel.

1.2 Block diagram

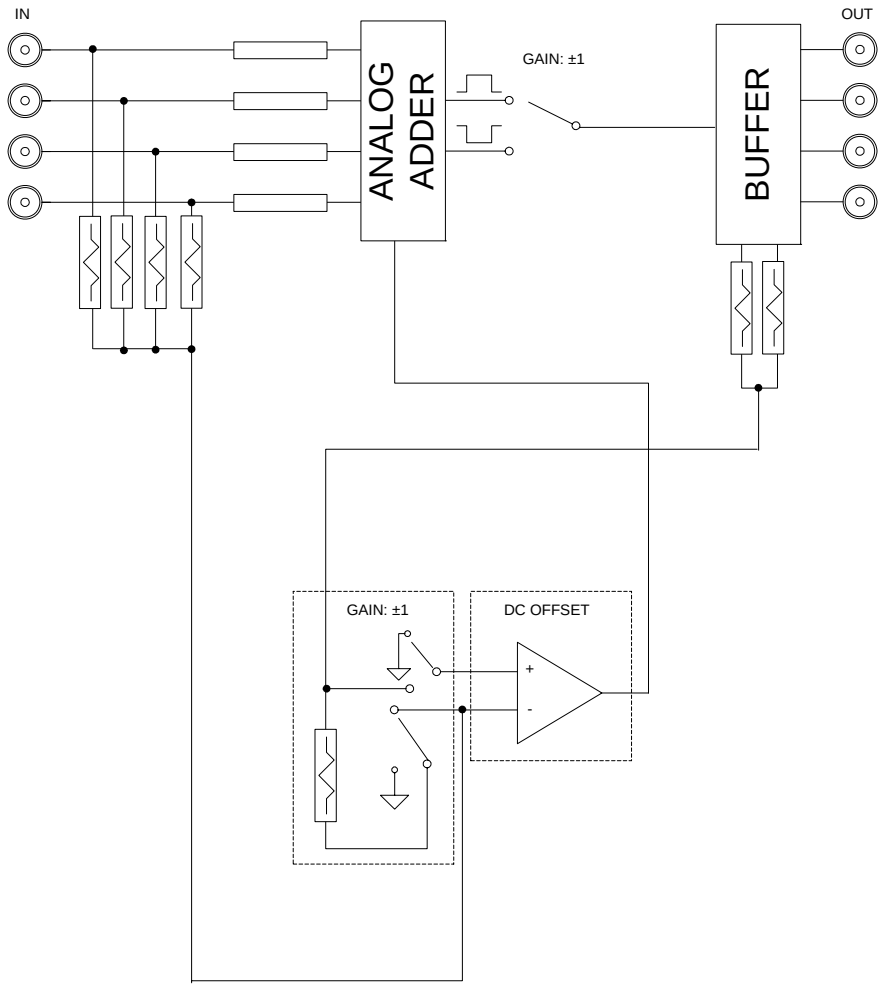

Fig. 1.1: Fan in/Fan out section block diagram

2. Technical specifications

2.1 Packaging

The module is housed in a one unit wide std. NIM mechanics.

2.2 Power requirements

The power requirements of the module are as follows:

Table 2.1: Power requirements

+12 V	110 mA
-12 V	155 mA
+6 V	230 mA
-6 V	225 mA

2.3 Front and back panel

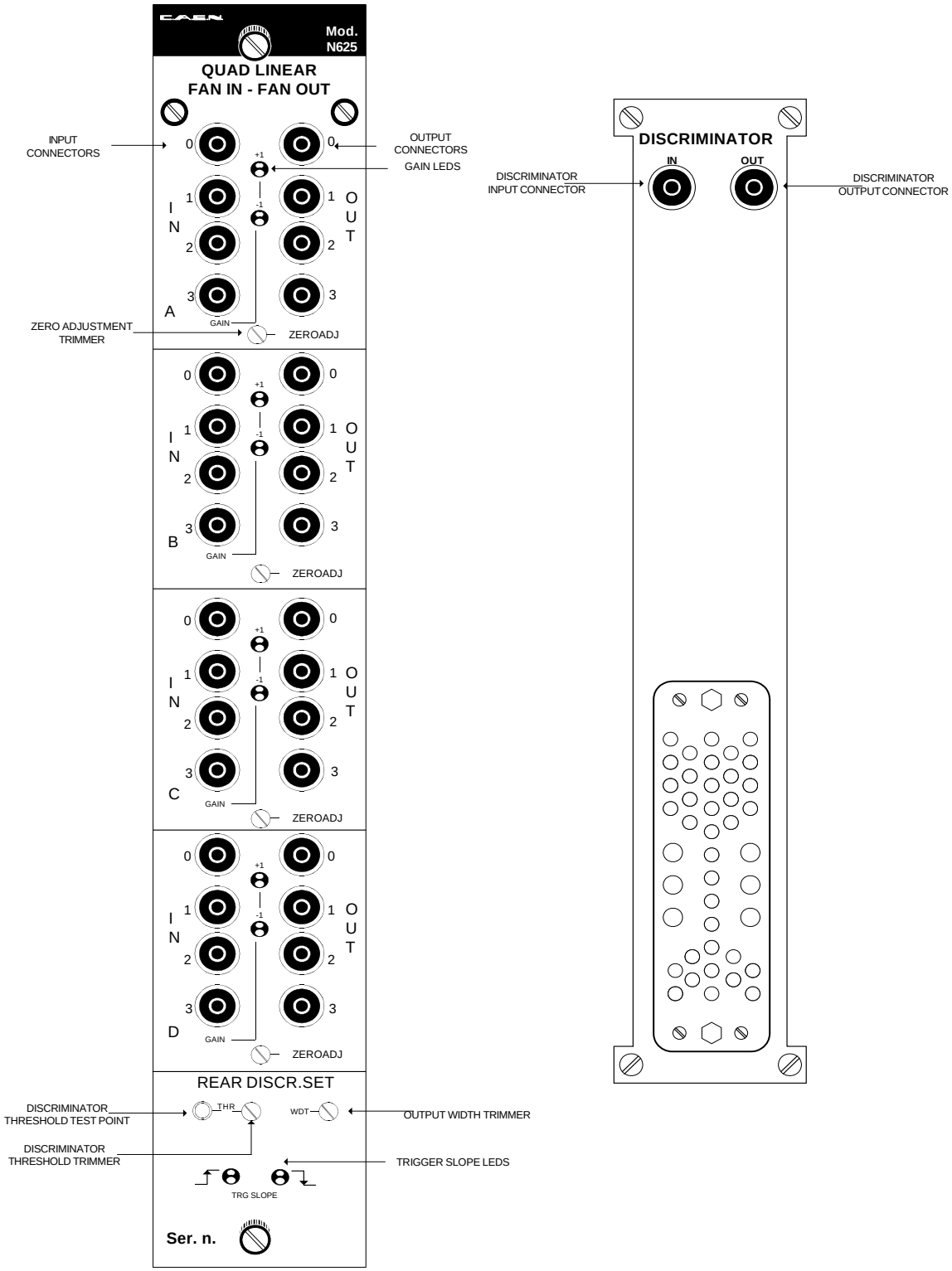

Fig. 2.1: Mod. N625 front and back panel

2.4 Mechanical and electrical features

2.4.1 Fan in/Fan out sections

INPUT CONNECTORS:
Mechanical specifications:
Front panel LEMO 00 type connectors
Electrical specifications:
Bipolar, DC coupled, 50 Ω impedance

OUTPUT CONNECTORS:
Mechanical specifications:
Front panel LEMO 00 type connectors
Electrical specifications:
DC coupled, provided across 50 Ω loads

ZERO TRIMMER:
Mechanical specifications:
Front panel screwdriver trimmer
Function:
Allows to adjust the output DC offset within a ±100 mV range

DISPLAYS:
Gain LEDs: 2 Front panel LEDs per section: green: Gain=-1; yellow: Gain=+1.

INTERNAL JUMPERS:
Gain jumper: allows to set gain either at +1 or at -1 (refer to Fig. 2.2)

2.4.2 Discriminator

INPUT CONNECTOR:
Mechanical specifications:
Back panel LEMO 00 type connector
Electrical specifications:
Bipolar, DC coupled, 50 Ω impedance

OUTPUT CONNECTOR:
Mechanical specifications:
Back panel LEMO 00 type connector
Electrical specifications:
Std. NIM level, provided across a 50 Ω load

WIDTH TRIMMER:
Mechanical specifications:
Front panel screwdriver trimmer
Function:
Allows to adjust the output pulse width in the 5÷70 ns/15÷600 ns ranges, jumper selectable (see Fig. 2.2)

THRESHOLD TRIMMER:

Mechanical specifications:
Front panel screwdriver trimmer
Function:
Allows to adjust the discriminator threshold in the -1200÷+1200 mV range; one test–point allows to monitor the threshold value

DISPLAYS:

Trigger slope LEDs: 2 Front panel LEDs; the relevant LED lights up according to the trigger slope setting: green: Trailing edge; yellow: Leading edge

INTERNAL JUMPERS:

Trigger slope jumper: allows to set the trigger slope either to leading or to trailing edge
Width range jumper: allows to select the output width range between 5÷70 ns and 15÷600 ns (refer to Fig. 2.2)

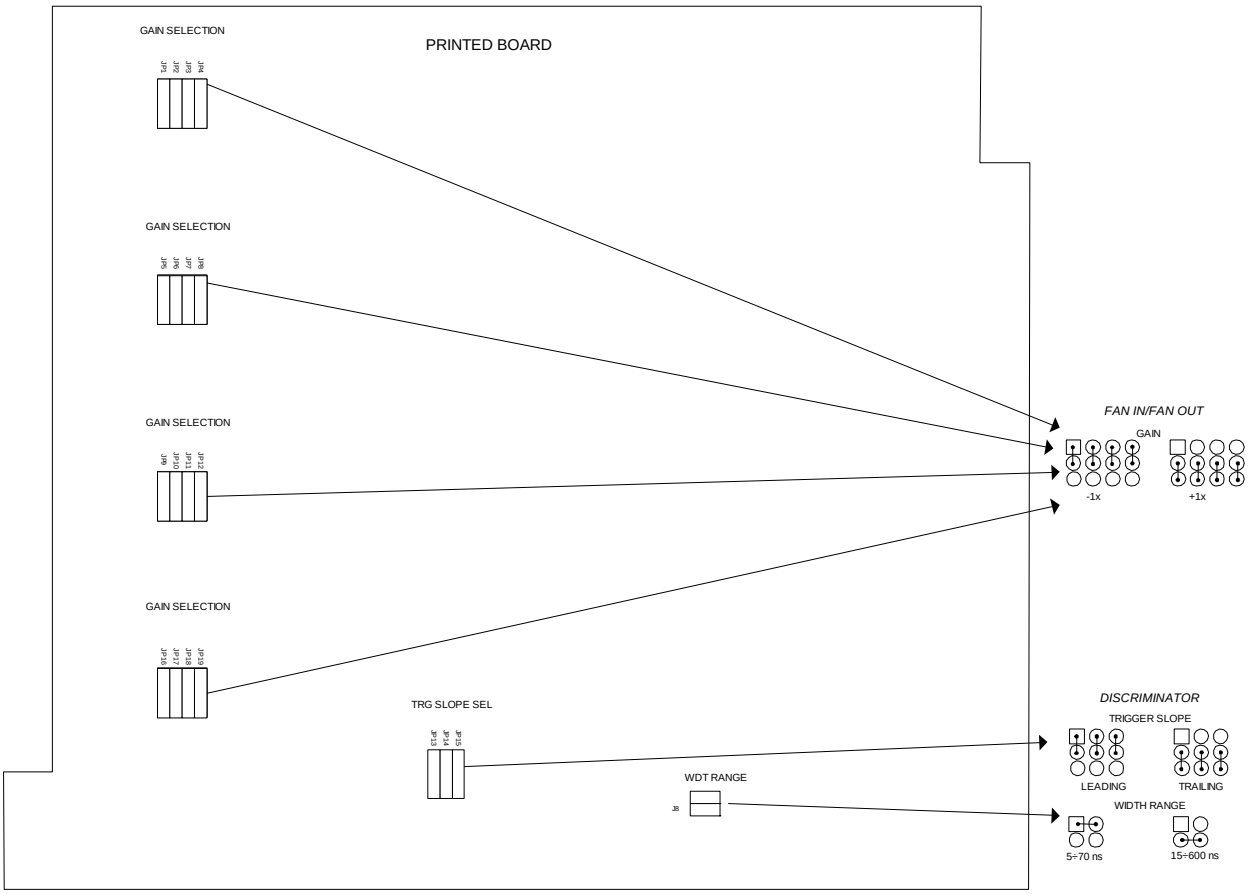

Fig. 2.2: Jumpers setting

2.5 Technical specification table

Table 2.2: Fan in/Fan out technical features

Inputs	bipolar, DC coupled, 50 Ω impedance
Outputs	DC coupled, inverted or non inverted (internal jumper selectable), drive 50 Ω loads
Max. input amplitude	±1.6 V
Gain	±1 (internal jumper selectable)
DC offset (Zero) adjustment	±100 mV
Input reflection	<4%
Interchannel insulation	<40 dB
Input band width	100 MHz (input: sine wave with 1 V peak-to-peak amplitude)
Integral non-linearity	< 1%
DC offset stability	<100 µV/ °C
Noise	<300 µV RMS
Input/output delay	4 ± 1 ns

Table 2.3: Discriminator channel technical features

Input channel	DC coupled on either leading or trailing edge (jumper selectable), 50 Ω
Max. input voltage	± 5V
Min. detectable signal	± 10 mV
Max. input frequency	90 MHz
Double pulse resolution	11 ns
Threshold range	±1200 mV
Output channel	Std. NIM level, provided across a 50 Ω load, non updating
Threshold stability	70 µV/ °C
Input/output delay	11 ns
Output width	Dual range: 5÷70 ns/15÷600 ns
Output rise/fall time	1 ns