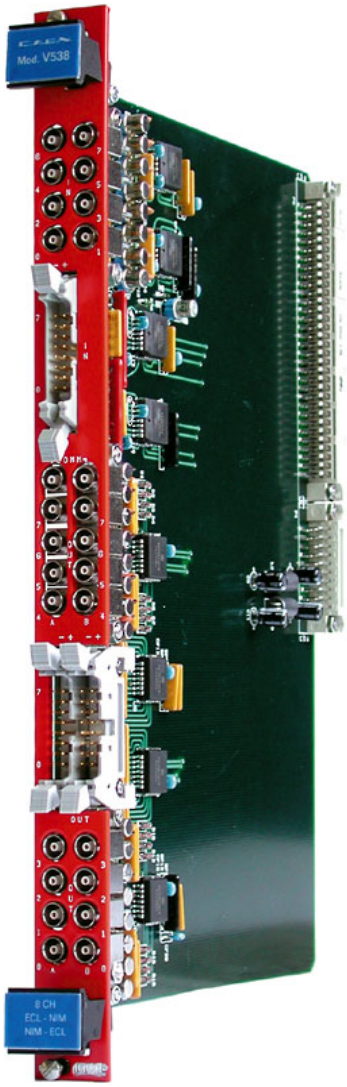
Rev. 03 - 26/09/2003

V538 Series

8 Channel NIM-ECL/ECL-NIM Translators



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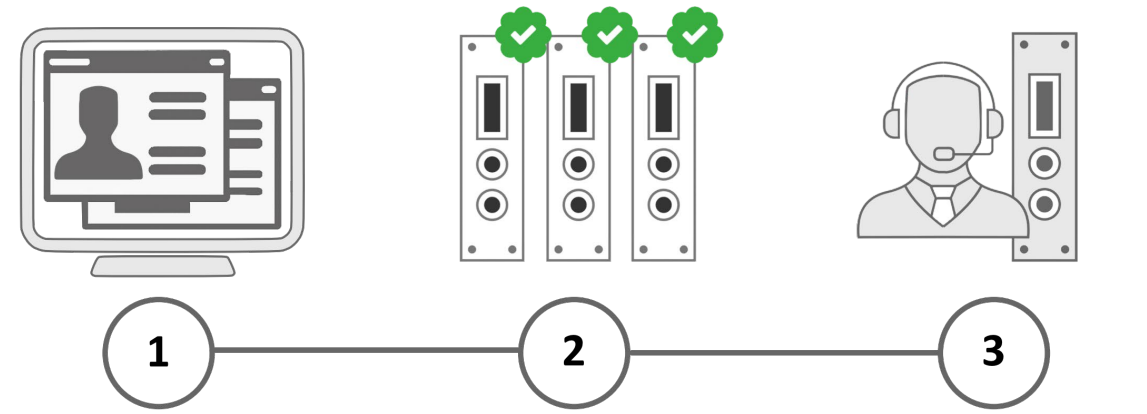
User Manual

Register your device

Register your device to your **MyCAEN+** account and get access to our customer services, such as notification for new firmware or software upgrade, tracking service procedures or open a ticket for assistance. **MyCAEN+** accounts have a dedicated support service for their registered products. A set of basic information can be shared with the operator, speeding up the troubleshooting process and improving the efficiency of the support interactions.

MyCAEN+ dashboard is designed to offer you a direct access to all our after sales services. Registration is totally free, to create an account go to https://www.caen.it/become-mycaenplus-user and fill the registration form with your data.



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Technical Information Manual

Revision n. 3

26 September 2003

MOD. V538 A series

8 CHANNEL
NIM-ECL / ECL-NIM
TRANSLATORS AND
FAN OUT

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.

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1. DESCRIPTION

1.1. FUNCTIONAL DESCRIPTION

The CAEN Model V538 A is an 8 CHANNEL TRANSLATOR and FAN OUT (1X16) housed in a 1-unit wide VME module (a functional block diagram is shown in Fig. 1.1).
This model implements the simple conversion of logic signals in a VME module, which can be close to front-end electronics with consequent better cabling and timing results. It can also be used in applications in which a limited number of control signals must be sent to several modules.
Each of the 8 channels accepts a NIM or an ECL signal and provides two NIM and two ECL outputs ("OUT 0÷7 A, B"). The NIM and ECL inputs of each channel are ORed prior to fan-out.
The maximum operating frequency is 300 MHz ([1]).
Two front panel input connectors accept a COMMON IN NIM signal, which allows the use of the module as a fan-out of 16 NIM and 16 ECL signals. These inputs are bridged for daisy-chaining: the last input in the chain must be loaded with 50 Ω.
The board can be purchased equipped with both the P1 and the PAUX connectors (**Mod. V538 AA**[2]), or with the P1 only (**Mod. V538 AB**). Both the models support live insertion. The Mod. V538 AA requires the VME430 backplane. The models can be distinguished by a label placed on the printed board (soldering side), see Fig. 1.1.

Fig. 1.1: Model type label (example: V538 AB)

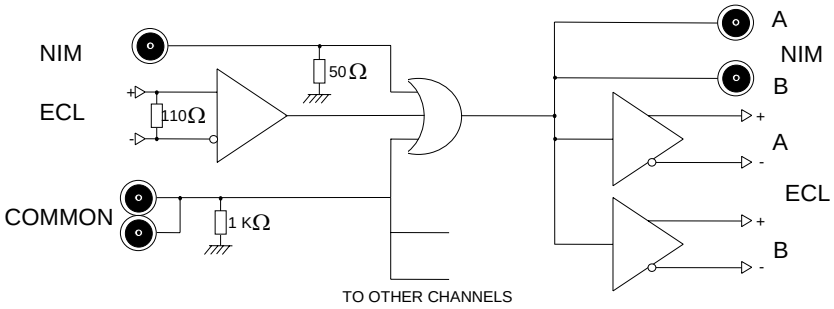

Fig. 1.2: V538 A Functional Diagram (one channel)

[1] When using NIM input signals
[2] Model available exclusively on request.

2. SPECIFICATIONS

2.1. EXTERNAL COMPONENTS

CONNECTORS

- No. 1, "IN 0÷7", input connector, Header 3M 3408-5202 type, 8+8 pins. Connector for the input differential ECL signals.

- No. 8, "IN 0÷7", input connectors, LEMO 00 type. Connectors for the input NIM signals.

- No. 2, "COMM", input bridged connectors, LEMO 00 type. Connectors for the COMMON IN NIM signal.

- No. 1, "OUT 0÷7 A, B", output connector, Condo Header 3M 3408-D203 type, 2 X (8+8) pins. Connector for the differential ECL output signals.

- No. 16, "OUT 0÷7 A, B", output connectors, LEMO 00 type. Connectors for the NIM output signals.

2.2. POWER REQUIREMENTS

Power Supply	Mod. V538 AA	Mod. V538 AB
+ 5 V	-	2.1 A
– 5 V	1.3 A	-
– 2 V	400 mA	-

2.3. CHARACTERISTICS OF THE SIGNALS

INPUTS:

- IN 0÷7 NIM: NIM logic level, 50 Ω impedance, 1.65 ns minimum FWHM. Reflections < 3% for input signals featuring: 0.8 ns rise/fall time, 50 ns FWHM, 1 KHz frequency.

- IN 0÷7 ECL: Std. ECL logic levels, 110 Ω impedance, 1.65 ns minimum FWHM. Reflections < 10% for input signals featuring: 0.8 ns rise/fall time, 50 ns FWHM, 1 KHz frequency..

- COMM: Std. NIM Level, high impedance, 2.5 ns minimum FWHM.

Reflections < 3% for input signals featuring: 0.8 ns rise/fall time, 50 ns FWHM, 1 KHz frequency.

OUTPUTS:

- OUT 0÷7 A, B NIM: Std. NIM levels on 50 Ω impedance, 1.65 ns minimum FWHM. rise/fall time: < 0.6 ns.

- OUT 0÷7 A, B ECL: Differential ECL levels on 110 Ω impedance, 1.65 ns min.FWHM. rise/fall time: < 0.8 ns.

2.4. GENERAL

Maximum Frequency: NIM inputs: 300 MHz (50% Duty Cycle);
ECL inputs: 250 MHz (50% Duty Cycle);
Common IN: 200 MHz (50% Duty Cycle).

Input to Output Delays:

- ECL IN to NIM OUT: 2.5÷3 ns;
- ECL IN to ECL OUT: 2.5÷3 ns;
- NIM IN to ECL OUT: 3.5÷4 ns;
- NIM IN to NIM OUT: 3.5÷4 ns;
- COMMON IN to NIM OUT: 4÷5 ns;
- COMMON IN to ECL OUT: 4÷5 ns.

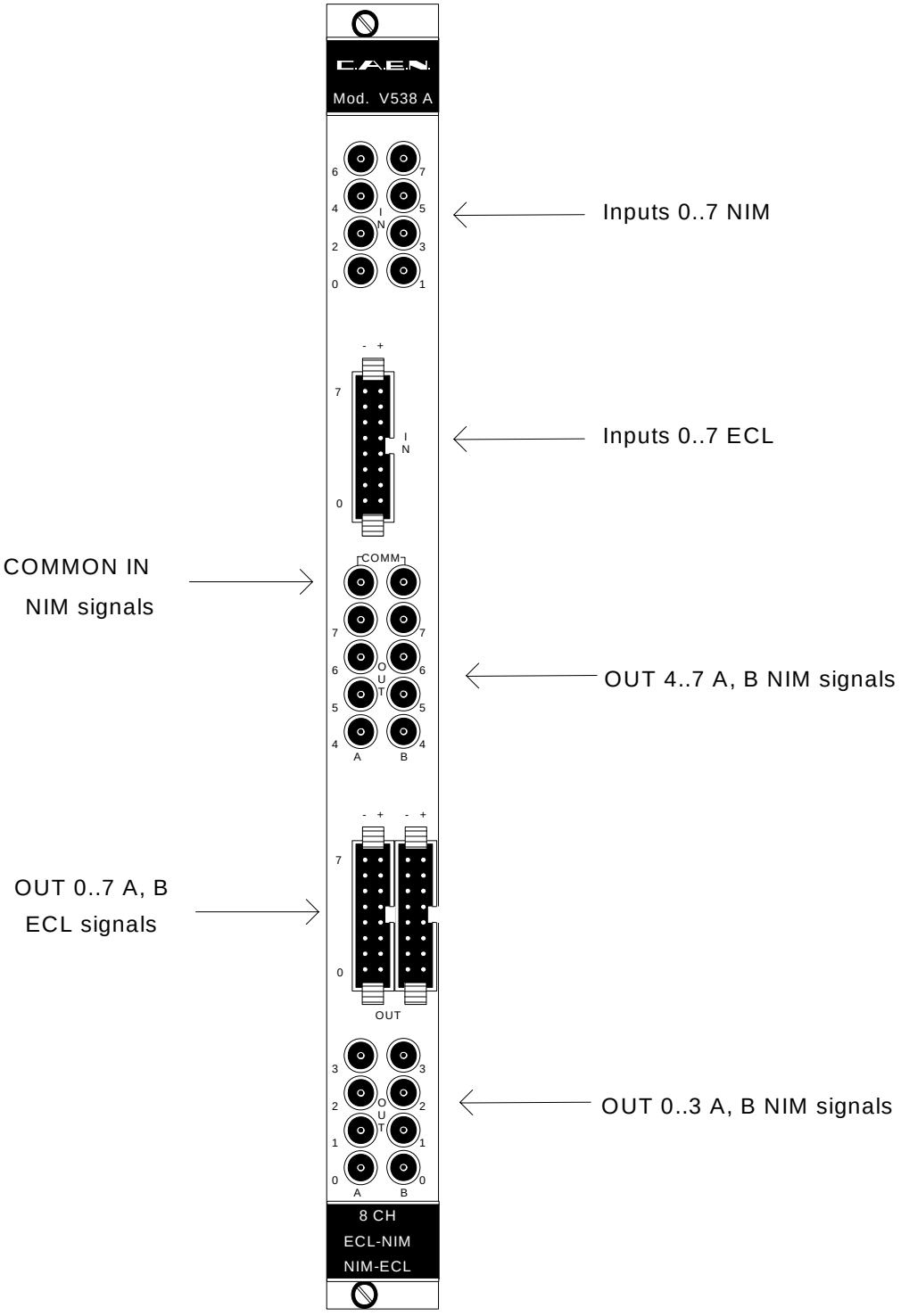

Fig. 2.1: Mod. V538 Front Panel

3. OPERATING MODES

3.1. GENERAL INFORMATION

This model implements the simple conversion of logic signals from NIM to NIM/ECL and from ECL to NIM/ECL in a VME module.

Its operation is extremely simple and immediate: the User should just insert the module into a VME crate and turn the crate on. The module is ready to operate.

3.2. FRONT PANEL SIGNALS

Each of the 8 channels accepts a NIM or an ECL signal and provides two NIM and two ECL outputs ("OUT 0_7 A, B"). The NIM and ECL inputs of each channel are ORed prior to fan-out.

Two front panel input connectors accept a COMMON IN NIM signal, which allows the use of the module as a fan-out of 16 NIM and 16 ECL signals. These inputs are bridged for daisy-chaining: the last input in the chain must be loaded with 50 Ω.

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