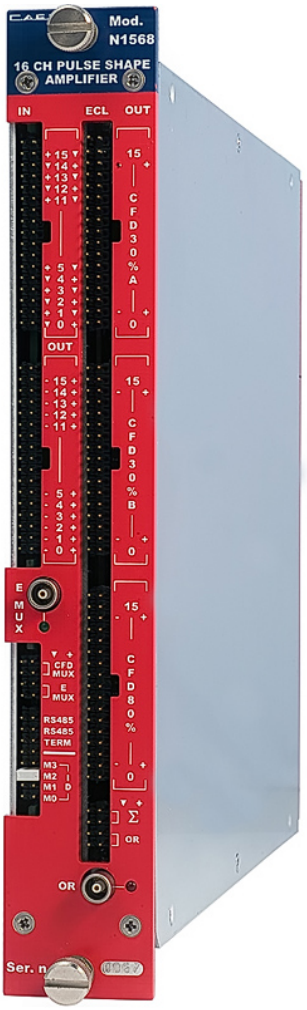
Rev. 2 - 29/09/2008

N1568B

16Ch Programmable Pulse Shape Amplifier & Dual 16Ch CFD (30%; 80%)



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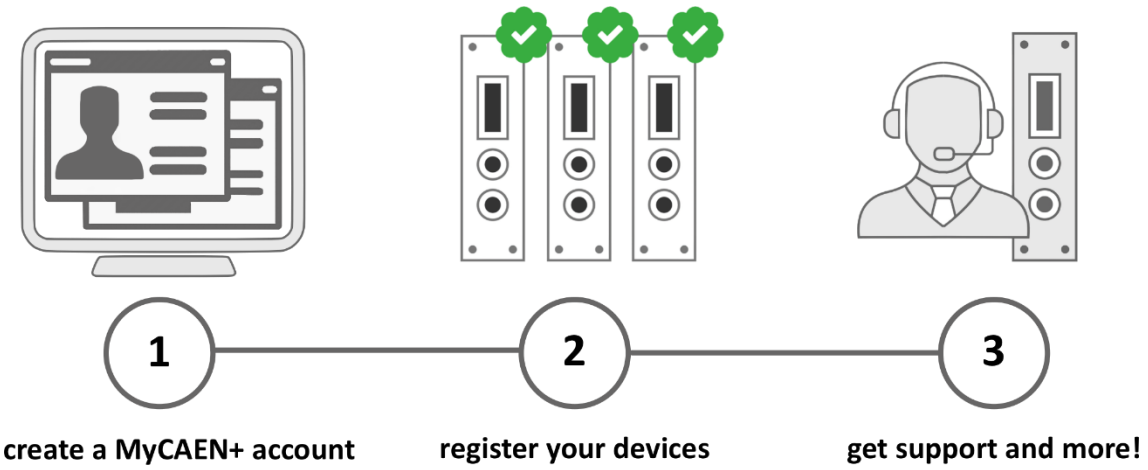

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PRELIMINARY

Technical Information Manual

Revision n. 2
29 September 2008

MOD. N1568B

16CH PULSE SHAPE AMPLIFIER & DISCRIMINATOR

NPO:
00115/06:N1568.MUTx/02

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Disposal of the Product

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

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1. General description

1.1 Overview

The Model N1568B is a 16 CHANNEL PULSE SHAPE AMPLIFIER & DISCRIMINATOR implemented in a single-width NIM Unit.
This module combines the functions of the Spectroscopy Amplifier to the functions of the Pulse Shape Discriminator using the double fraction technique to measure the rise-time of the signal. Typical application of this module is the "Z" discrimination with signals coming from Silicon detectors.
Easily programmable, the module accepts typical input pulses of either positive or negative polarity generated from nuclear particle detectors connected with preamplifiers having an output signal pulse characterized by a fast rise time and a slow fall time.
With 16 independent channels, this unit allows the optimization of cost and size in multi-detector systems.
Each 16 channel of the module consists of 2 Sections: the Spectroscopy Amplifier Section (A) and the Pulse Shape Discriminator Section (B). The input signals are sent in both Sections simultaneously and the principal parameters can be programmed by RS485 serial line interface; this feature allows the correct set-up of the channels for each individual detector.
All the programmable values are automatically stored in a non-volatile memory and at the power on, are reloaded.
All the inputs and the outputs of this module are accessible on the front panel.
The module can be easily programmed through a connection with a terminal emulator (such as Hyper Terminal); the module microcontroller handles a simple User interface; therefore a dedicated software is not necessary.
An optional USB-RS485 Adapter converts from USB to RS-422/485; the device is provided with drivers supporting the most used OS's (see also § 3.6.1).

1.1.1 Energy section

The input signal is fed into the inverting/non inverting input buffer stage (common with the Timing Section) followed by a differential circuit with pole-zero- adjustment, two gain stages, the shaping circuits, the DC restore and finally by a stretcher stage.
The shaping time can be selected by two bit in 4 different values between 0.5 µs and 4 µs.
The Pole-zero can be adjusted by 8 bits (0 to 255).
The 2 bits of Coarse Gain and the 7 bits of the Fine Gain allow an accurate selection of the gain value in the range of 1 to 16 .
The stretcher stage works with signal of -20mV minimum and up to –8 V max and can be remotely disabled by a status bit, allowing the adjustment of the pole-zero.
The stretcher gate is generated by means of the threshold of the timing section and the output width of the stretcher signal is fixed at 15µs circa.
The 16 Channel Stretched Outputs are provided to the (OUT) connector present on the Front Panel; if the stretcher is disabled (see § 3.4.7) a Gaussian output is provided. The Stretched Outputs shall be fed to a QDC suitable to negative pulses; Gaussian outputs must be used with negative polarity in order to adjust Pole zero, shaping, etc. Discriminators Out does not work as the stretcher is disabled.

A Multiplexer output allows monitoring the 16 channel Stretched Outputs. When a channel is selected by the user through the communication program of the module, the corresponding Stretched Output is automatically sent to the “E MUX” output connectors.
When the Module is selected via RS485, the Green LED lights “ON” and the E MUX Output is enabled.
The E MUX OUTPUT is present on both two pin double row connector and LEMO Connector.

1.1.2 Timing section

The Section processes the input signal, after the inv./noninv. Buffer Stage, with a differential circuit (500ns) followed by a 2 bit programmable linear gain stage (G = 1, 2, 4, 8) followed by two low walk and high resolution Constant Fraction Discriminator circuits having 30% and 80% fraction respectively.
The Constant Fraction Discrimination technique is based on summing a delayed, full height input signal to an inverted and attenuated signal. The resulting signal is fed into a zero-crossing comparator, thus obtaining a precise timing information that eliminates any walk errors induced by constant rise time and varying amplitude signals.
For correct operation the maximum of the attenuated pulse has to cross the delayed pulse at the selected fraction. This condition leads to the following relation:

$$T_{delay} = T_{rise} * (1 - F)$$

where:

T_{delay} = delay selected via one SMD zero Ohm resistance (see § 3.3)

T_{rise} = expected rise time of the input signals

F = Constant Fraction value (30% for the N1568B)

The delay value of the 30% CFD is adjustable via SMD zero Ohm resistance between 15 and 150ns in 6 steps (15, 22, 30, 37,100 and 150ns); it is necessary to select the delay value closest (yet smaller) to the expected rise time. § 3.3 shows the SMD zero Ohm resistance, while the 80% CFD is fixed at the max value of 150ns.
The 30% CFD delay value can be selected by the user depending on the rise time of the input signal so as to optimize the timing performance .
Both CFDs are enabled by a programmable threshold discriminator by 8 bit (700mV max).
The width of the CFD’s output signals is programmable in the range of 800ns up to 1µs by 8 bits (CFD 30%); CFD 80% width depends on CFD 30% width (it always ends at the same time of CFD 30%), for example it can assume 600ns up to 850ns by 8 bits.
The 16 Channel 30% CFD Outputs are present on the Front Panel with two Fan OUT connectors (A and B).
The 16 Channel 80% CFD Outputs are present on the Front Panel by one connector.
The 30% CFD OUTPUT signal is also used to generate:
- an analog multiplicity signal “Σ” with 1mA per hit, present on a two pin double row connector.
- an OR signal of the 16 channels, present on the two pin double row connector and on a LEMO connector.
A Red LED flashes when the OR signal is present.
A 30% CFD Multiplexed Output is present on the F.P by two pin double row connector (CFD MUX).
The 30% CFD OUTPUT width depends on two facts: the signal initial time is given by the input rise time, the ending time by the end of 30% CFD OUTPUT (see Fig. 1.2).

1.1.3 Interface capability

The module is programmable by means a RS485 serial interface on two pins double row connector (see also § 3.5).
Connection of up to 16 modules is possible and each module is programmed individually by means of a 4 bit address, selectable via 4 Jumpers located on the front panel.
The User can configure an electronic chain with up to 256 channels, and using the E and CFD MUX outputs can monitor the status of all the channels (16 channel x 16 modules = 256).

1.1.4 Purposes and performances

The performances of this module allow operation with semiconductor detectors in different applications.
The main purpose of N1568B module is the charge identification (ID) of nuclear particles which are stopped in a silicon detector. The ID method is based on an efficient pulse shape analysis of the rise time charge signal produced by the ionizing particle. The rise time measurement is performed by comparing two CFD logical signals. N 1568B module incorporates the relevant measurements in nuclear spectroscopy, such as signal amplitude for the energy measurements (E) and timing reference for the Time of Flight (TOF) applications. The input signal, delivered by the output of a Charge Preamplifier, is treated by two separate sections. The first section is devoted to generate a proper shaped signal for the E information. The second section is devoted to generate two separate logical CFD signals (30% and 80% of the timing signal, respectively). So that carefully TOF measurements are also allowed by the module. In conclusion the N1568B module produces the relevant functions of a typical high resolution spectroscopic chain, needed for nuclear spectroscopy.
Characteristic parameters, such as CFD internal line delays and differentiation constants of the time signal, have been chosen and tuned in order to fit with high capacitance silicon detectors. These parameters can be changed according to the characteristics of the semiconductor devices, and on request by the users.

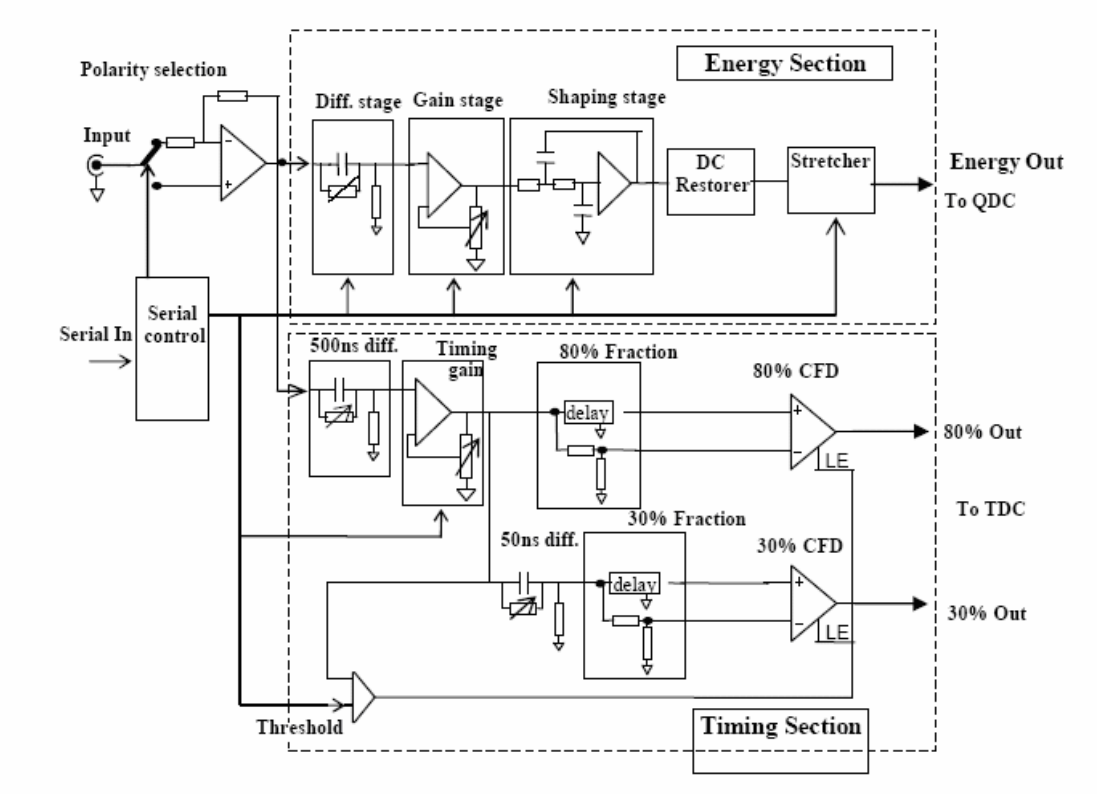

Fig. 1.1: Block diagram

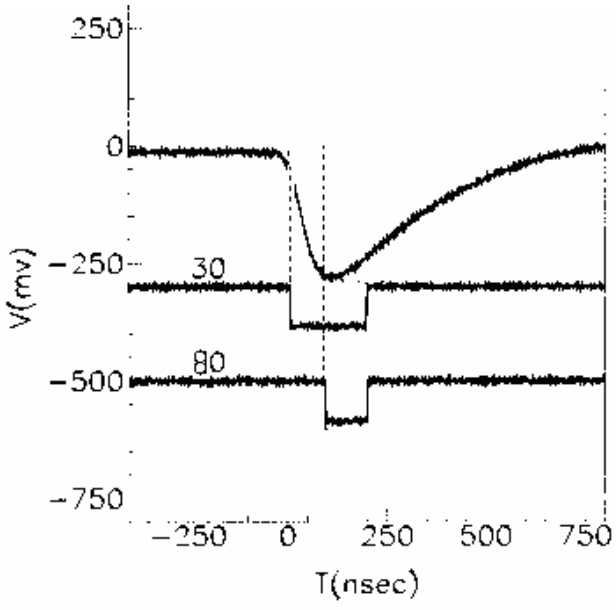

Fig. 1.2: Schematic view of basic method used to Measure rise time of the signal

As evident in the figure, the measure of the rise time is obtained between the time difference from 30% and 80%.

2. Technical specifications

2.1 Packaging

The Model N1568B is housed in a single width NIM module.

2.2 Power requirements

Table 2.1: Power requirements

+12 V	1.1 A
-12 V	1.1 A
+6 V	1.4 A
-6 V	4 A

2.3 Front panel

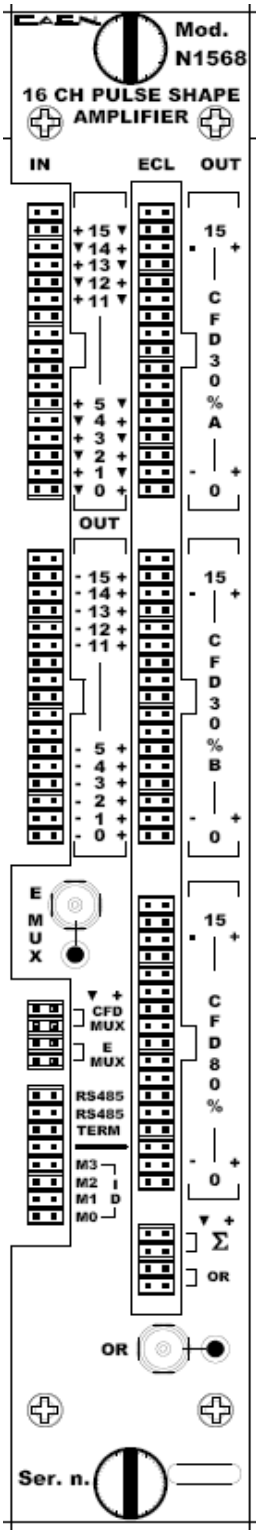

Fig. 2.1: Mod. N1568B Front panel

2.4 External components

2.4.1 Connectors

- N. 16, "IN 0..15", input signal connector, 17 + 17 pin, double row strip header (left and right pin ground alternatively).

- N. 16, "OUT 0..15", output Energy signal connector, 17 + 17 pin, double row strip header (left pin: ground, right pin: signal).

- N. 16, "OUT CFD 30% 0..15", output 30% CFD connector "A", 17+17 pin, double row strip header (left pin: -ECL, right pin: +ECL);

- N. 16, "OUT CFD 30% 0..15", output 30% CFD connector "B", 17+17 pin, double row strip header (left pin: -ECL, right pin: +ECL);

- N. 16, "OUT CFD 80% 0..15", output 80% CFD connector, 17+17 pin, double row strip header (left pin: -ECL, right pin: +ECL);

- N. 1, " E MUX", LEMO 00 type; single selected channel output connector.

- N. 1, "E MUX", 2+2 pin, ; single selected channel output double row strip header (left pin: ground, right pin: signal).

- N. 1, " CFD MUX 30%", 2+2 pin, ; single selected channel output double row strip header (left pin: ground, right pin: signal).

- N. 1, "RS 485", 2+2 pin, double row strip header differential signal (left pin: -, right pin:+).

- N. 1, "Σ", 2+2 pin, double row strip header (left pin: ground, right pin: signal).

- N. 1, "OR", 2+2 pin, double row strip header (left pin: ground, right pin: signal).

- N. 1, "OR", LEMO 00 type.

2.4.2 Jumpers and Leds

- N. 1, "TERM", 1+1 pin, double row strip, RS 485 Line termination jumper (terminates line on 100 Ohm when inserted).

- N. 1, "ID", 4+4 pin, double row strip header, Short Circuit Jumpers, for the selection of the module identification number (M0, M1, M2, M3 respectively).

- N. 1, " E MUX", Green LED when the module is selected and E MUX out is active.

- N. 1, " OUT OR", output signal OR, RED LED.

2.5 Characteristics of the signals

Table 2.2: I/O signals

INPUT	Positive or negative pulses, max. amplitude of ±4V, 50 Ω impedance
E OUT	stretched unipolar/gaussian signal with a dynamic range of 0 ÷ - 8V max (on 1MΩ), 50 Ω output impedance
OUT CFD 30%	A and B connectors, ECL output
OUT CFD 80%	ECL output
E MUX	on LEMO connector, 0 ÷ -8V max (on 1MΩ), 50 ohm impedance; high impedance when disabled. On double row connector, 0 ÷ -8V max (on 1MΩ), 50 ohm impedance, high impedance when disabled
CFD MUX 30%	- 4mA current output (-200 mV on 50 Ω)
"Σ"	Sum of OUT CFD 30%; - 1mA current output per hit, 50mV on 50 Ω
"OR"	OR of OUT CFD 30%'s on LEMO connector, standard NIM output -16mA current output on double row connecto, -16mA current output

2.6 Serial Interface

RS 485 Serial Port Interface allows to control up to 16 modules connected by a twisted pair cable; the last module must be terminated by a Jumper (TERM) located on the Front Panel.

2.7 Technical features

Table 2.3: Mod. N1568B Technical Features

INTEGRAL NON LINEARITY	±0.05% in 90% of the full scale @ Gain=Max and 4 µs shaping time (± 0.25% typ. for any shaping time).
EQUIVALENT INPUT NOISE	< 100 µV (Gain=max; 4 µs shaping time)
INTERCHANNEL CROSSTALK	-45 dB (at Gain =1 and 4 V input signal).
COARSE GAIN RANGE	2bit adjustable (1, 2, 4, 8); set 0 / gain =1; set 1 / gain =2; etc.
FINE GAIN RANGE	7bit adjustable, from 1 to 2; set 0 / gain =1…set 127 / gain =2
SHAPING TIME	selectable time constant of 0.5 µs, 1 µs, 2 µs and 4 µs by 2 bits (0 leads to 4 µs; 1 to 2 µs etc.)
THRESOLD OF STRETCHER SIGNAL OUTPUT	20 ÷ 700mV (settable from 0 ÷ 1000mV on 8bit)
DELAY VALUE of the CFD	selectable by SMD zero Ohm resistance on PCB between 15 to 150ns (6 steps)
CFD 30% Jitter	≤100 psec FWHM (1V, 10nsec input)
CFD 30% Walk	±250 psec from 50mV to 1V (20ns input rise time, 15ns delay)

3. Operating modes

3.1 General information

The Model N1568B is a 16 CHANNEL PROGRAMMABLE SPECTROSCOPY AMPLIFIER & PULSE SHAPE DISCRIMINATOR implemented in a single-width NIM module.
Thanks to its high channel density, this unit allows the optimization of cost and size in multi-detector systems.

3.2 Module operation

At Power-ON, the module contains the last performed settings before Power-Off. The status of these settings can be read out via RS485 serial interface by Terminal (see below). The following paragraphs describe in more detail the single settings.

3.3 Manual settings

By M0 ,M1, M2 and M3 Identification Jumpers, it is possible select the module's Station Number for the Terminal .

The user can select the right delay value of the CFD 30% signal, depending on the rise time of the input signal (see § 1.1.2), by closing with a SMD zero Ohm resistance one of six PCB pads named J3, located on the channel daughter boards (fig. 3.1); default setting shown.

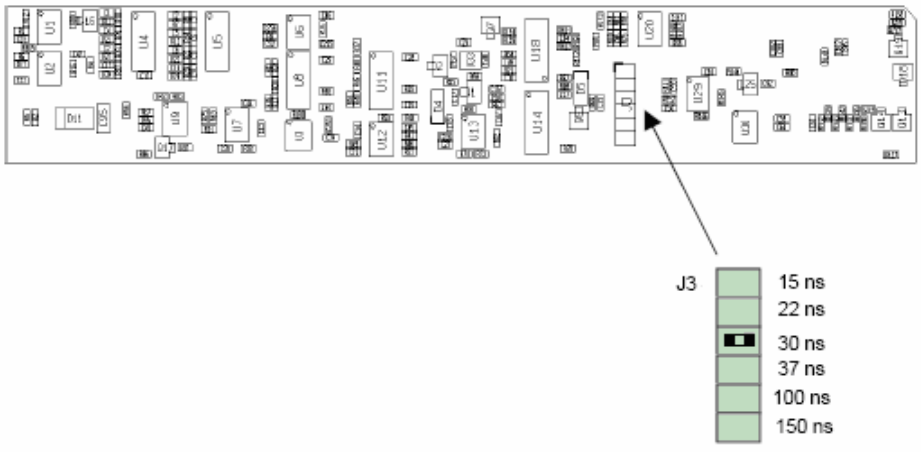

Fig. 3.1: Internal settings

Channel daughter boards can be serviced by sliding off the right side panel (viewing from front panel). Particular attention must be paid to correctly insert the daughter board on the motherboard.

3.4 Parameters setting

3.4.1 Input polarity setting

The selection of the input polarity allows to the internal electronic circuits to operate with the positive or negative signals at the input.
Command key: I(0;1)
Stretched / Gaussian signal: I0 = positive input polarity ; I1 = negative input polarity
All the output signals are negative, when such settings are performed.

3.4.2 Shape setting

The shaping time can be selected in 4 steps (0 to 3) among the following: 0.5 µs, 1 µs, 2 µs and 4 µs.
Command key: S(0÷3)
S3=0.5µs, S2=1µs…

3.4.3 Pole Zero Adj.

The Pole Zero can be adjusted in 256 step in a range of the tail from 50 µs to 500 µs. For the right setting the Stretcher circuit must be disable by means of the STR enable command.
Command key: P(0÷255)
Range 50÷500µs

3.4.4 Gain setting

- The Coarse Gain can be set in 4 steps and the selectable values of the gain are 1, 2, 4 and 8.
  Command key: G(0÷3)
  G0=1x, G1=2x…
- The Fine Gain can be set in 128 steps (0 to 127). The fine gain and coarse gain ranges allow an overall gain range of 1 to 16.
  Command key: g(0÷127)
  g0=1x…g127=2x

3.4.5 Discriminator threshold

Using this setting the user can program the threshold discriminator value up to -1V max., selecting the desired value by 8 bit (see § 2.7 for actual threshold range).
N.B.: if the threshold is higher than the signal, the Stretcher (see § 3.4.7) is automatically disabled and the “E OUT” provides the Gaussian signal.
Command key: C(0÷255)
Range 0÷1V (actual range 20÷700mV)

3.4.6 Gain of Timing section

This setting can be done selecting the value of the programmable gain stage by 2 bits. The gain value can be set to 1, 2, 4, or 8 times.
Command key: T(0÷3)
T0=1x, T1=2x…

3.4.7 Stretcher Enable command

The Stretcher circuit may be enabled or disabled by the STR command allowing to monitor the true Gaussian signal coming from the shaping circuit, useful to perform the Pole-zero compensation.
Command key: E(0;1)
Enable Stretcher Command: 1 = enabled (stretcher out); 0 = disabled (Gaussian out)

3.4.8 Module address selection command

The module enables its MUX output every time it is selected via Module_select command, set via the RS485 port. The enable status is displayed by a green led placed under the E MUX output.
MUX outputs are disabled (becoming high impedance), as soon as the module receives a Module_select command with an address different from its own.
When the module is enabled, the channel presented by the MUX outputs depends on the last Channel select command received.
Command key: M(0÷16)
M0=select module ID0, M1= select module ID1…M16=select all modules (Broadcast)

3.4.9 CFD30% Out Width

Using this setting the user can program the CFD30% Out Width (and therefore the CFD80% Out Width), selecting the desired value by 8 bit.
Command key: W(0÷255)
W0=800ns...W255=1µs

3.4.10 Channel selection command

This command allows to select the channel where commands shall be sent. When a channel is selected, the corresponding Output is automatically sent to the “E MUX” output connectors and “CFD MUX” output connector.
Command key: N(0÷15)
N0=select ch0, N1= select ch1…

3.4.11 Export command

This command allows to copy settings from Ch0 to all other channels.
Command key: X1

3.4.12 Help and Update commands

Help command allows to show the commands explanation summary.
Command key: H1

Update command allows to refresh the description of the parameters settings on all channels.
Command key: U1

3.5 RS485 communication

The module can be programmed through a serial interface Standard RS 485. The RS 485 sends and receives data in half duplex modality; a Network of 16 modules can be controlled with an asynchronous serial transmission at 9600 Baud rate.
The connection between modules is realised through a twisted pair; the chain must be terminated with a Jumper on the TERM connector of the last module.
RS485 signals can be adapted to RS232 via a DTE (Data Terminal Equipment) RS485 - RS232 converter (for example ATEN IC485S), which is not provided with the Mod. N1568B . The DB25 to DB9 cables must be configured as follows:

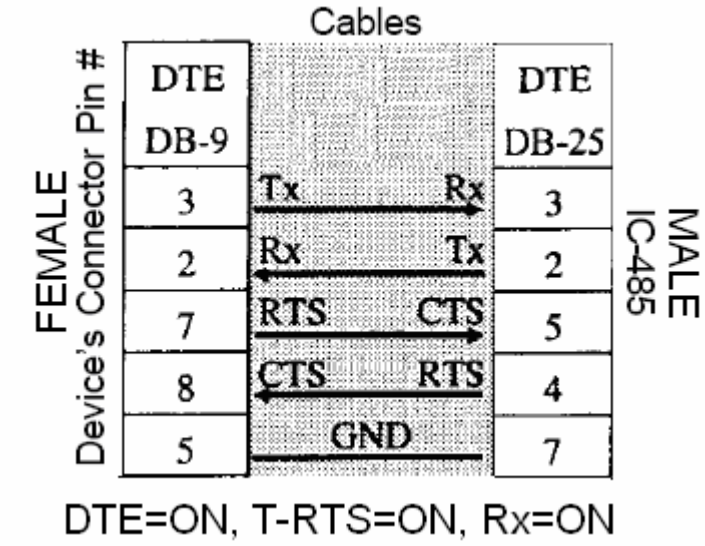

Fig. 3.2: DB25 to DB9 cable setting

Two 50 Ohm resistors must be placed between T+/R+ and T-/R- on the RS-485 / RS-422 Four Terminal Block.

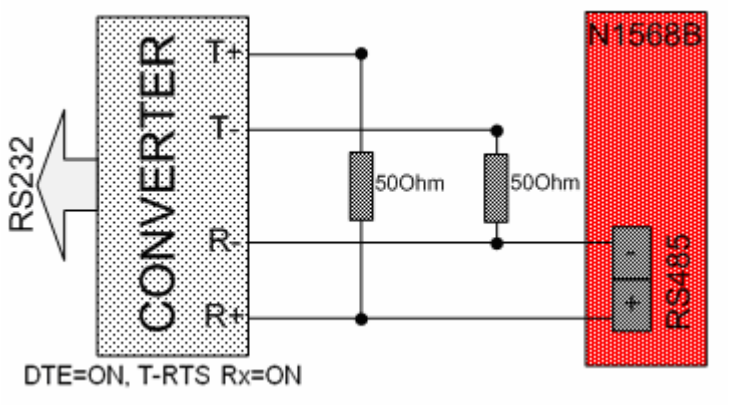

Fig. 3.3: Four Terminal Block Configuration

The module can be easily programmed through a connection with a terminal emulator (such as Hyper Terminal); the module microcontroller handles a simple User interface which allows to access (via a set of commands) all the module functions. Therefore a dedicated software is not necessary. The used PC RS232 Port must be configured as follows:

Table 3.1: RS232 Port Default Settings

Baud rate	9600
Parity	None
Character length	8 bits
Number of stop bits	1 bit
Flow control	hardware

At the Power ON the list of connected modules is displayed.
At this point it is necessary to select at least one module, among those connected to the same serial line communication, via Module address selection command (see § 3.4.8).
(Wait 4 seconds then select the module by typing M0..M15; M16).
After this command, the communication is active only for this selected module and only this module answers to the sent commands.
In order to select Module ID15, type M15:

```
M15
Module 15 (press M15 to select)
-
```

Once the module is selected, wait for another 4 seconds, then this “page” can be seen on the Terminal screen, showing the status of all the parameters and the description of the commands for their setting.

```
CAEN N1568 16CH PULSE SHAPE AMPLIFIER

Module15
CH 0 CFth= 18 CFWdt=255 P/Z=100 FG=127 SH=3 CG=3 CGT=1 PIn STREn
CH 1 CFth= 18 CFWdt=255 P/Z=100 FG=127 SH=3 CG=3 CGT=1 PIn STREn
CH 2 CFth= 18 CFWdt=255 P/Z=100 FG=127 SH=3 CG=3 CGT=1 PIn STREn
CH 3 CFth= 18 CFWdt=255 P/Z=100 FG=127 SH=3 CG=3 CGT=1 PIn STREn
CH 4 CFth= 18 CFWdt=255 P/Z=100 FG=127 SH=3 CG=3 CGT=1 PIn STREn
CH 5 CFth= 18 CFWdt=255 P/Z=100 FG=127 SH=3 CG=3 CGT=1 PIn STREn
CH 6 CFth= 18 CFWdt=255 P/Z=100 FG=127 SH=3 CG=3 CGT=1 PIn STREn
CH 7 CFth= 18 CFWdt=255 P/Z=100 FG=127 SH=3 CG=3 CGT=1 PIn STREn
CH 8 CFth= 18 CFWdt=255 P/Z=100 FG=127 SH=3 CG=3 CGT=1 PIn STREn
CH 9 CFth= 18 CFWdt=255 P/Z=100 FG=127 SH=3 CG=3 CGT=1 PIn STREn
CH10 CFth= 18 CFWdt=255 P/Z=100 FG=127 SH=3 CG=3 CGT=1 PIn STREn
CH11 CFth= 18 CFWdt=255 P/Z=100 FG=127 SH=3 CG=3 CGT=1 PIn STREn
CH12 CFth= 18 CFWdt=255 P/Z=100 FG=127 SH=3 CG=3 CGT=1 PIn STREn
CH13 CFth= 18 CFWdt=255 P/Z=100 FG=127 SH=3 CG=3 CGT=1 PIn STREn
CH14 CFth= 18 CFWdt=255 P/Z=100 FG=127 SH=3 CG=3 CGT=1 PIn STREn
CH15 CFth= 18 CFWdt=255 P/Z=100 FG=127 SH=3 CG=3 CGT=1 PIn STREn
-------------------------- Command Key --------------------------
CH=N CFth=C   CFWdt=W   P/Z=P   FG=g   SH=S CG=G CGT=T In=I STR=E
UPDATE=U1  HELP=H1 Mod=M eXport=X1
```

All commands require 4 seconds to be executed.

HELP command allows to show the commands explanation:

```
Mod = ( Module Addres Selection ) Command Key M(0-16) note: M16=Broadcast
CH = ( Channel Selection ) Command Key N(0-15) note: Mux Out are also selected
CFth = ( CFD threshold ) Command Key C(0-255) note: range 0-1V
CFWdt = (Width of CFD Outputs ) Command Key W(0-255) note: range 500-1000ns
P/Z = (Pole-Zero Compensation ) Command Key P(0-255) note: range 50-500us
FG =  (Fine Gain  ) Command Key g(0-127) note: range 1-2X
SH =  (Shaping Time Selection ) Command Key S(0-3) note: value 0.5/1/2/4us
CG =  (Coars Gain ) Command Key G(0-3) note: value 1/2/4/8X
CGT = (Coars Gain Timing ) Command Key T(0-3) note: value 1/2/4/8X
In =  (Input polarity ) Command Key I(0-1) note: value 0=Positive 1=Negative
STR = (Stretcher Enable ) Command Key E(0-1) note: value 0=Disable 1=Enable
X1= (eXport ) Command Key eXport data from CH0 to all CH
```

3.6 N1568 Demo software

N1568Demo is a command line application which allows to operate the N1568 using the APIs displayed by N1568Lib.

3.6.1 USB-RS485 Adapter

The USB-RS485 Adapter converts from USB to RS-422/485. The converter is provided, configured for the N1568B, in order to use the module with laptop computers that do not have a serial port. The device is provided with drivers supporting the most used OS's.

Fig. 3.4: USB to RS-422/485 Adapter

3.6.2 N1568Demo installation

- Connect the USB-RS485 adapter's A-type connector to a free USB port on your PC
- Connect the adapter's RS485 connector to the RS485 port on the N1568B
- Turn ON the NIM crate
- Go to http://www.caen.it/nuclear/product.php?mod=N1568B web page
- Open the Software / Firmware Menu
- Download the CAEN_N1568X.Y.zip file
- Unzip the file and launch the CAEN_N1568setup-X.Y.exe
- Go to destination folder CAEN\N1568ToolBox\Demo\N1568Demo\bin
- Launch N1568demo.exe
- Now the N1568B is ready for operation

3.6.3 N1568Demo main page

As the N1568Demo is executed, the following screen will be displayed:

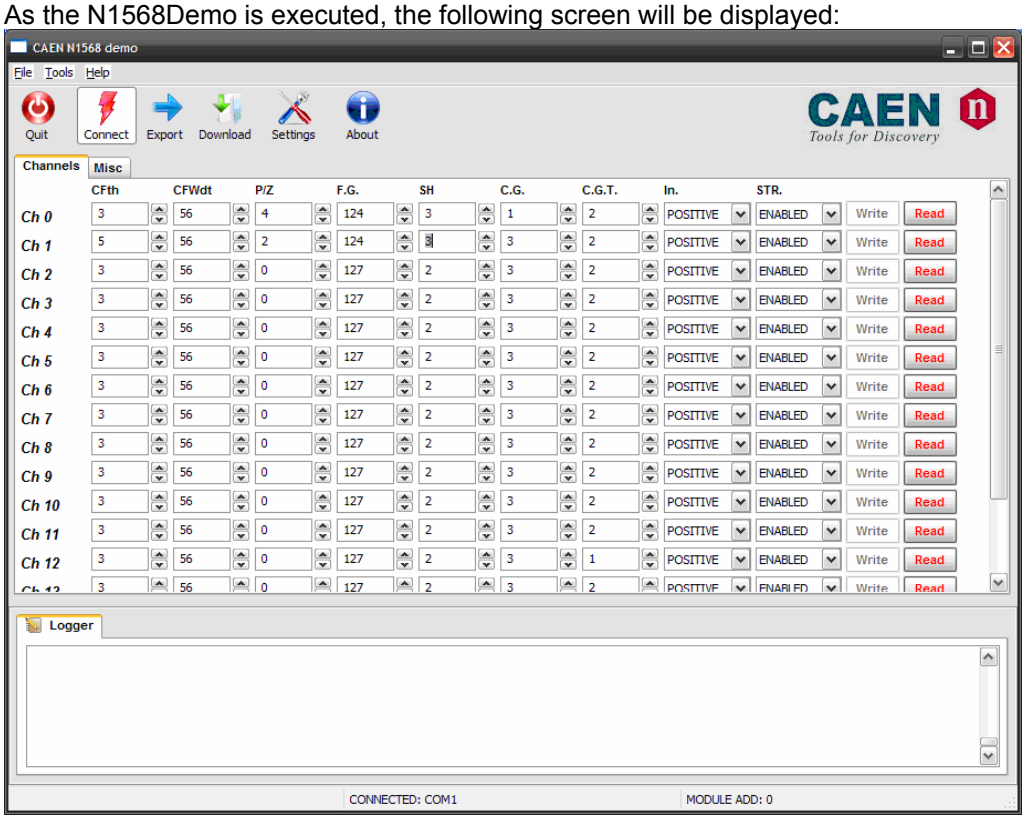

Fig. 3.5: Main page

The tool bar includes six buttons:

Fig. 3.6: Tool bar

3.6.4 N1568Demo connection

The first step is to start connection with the N1568B; click on the **Settings** button in the tool bar.

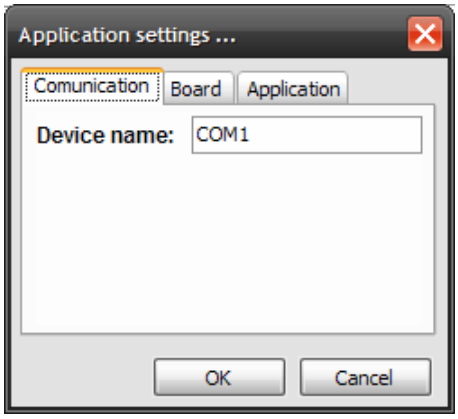

Fig. 3.7: Settings menu

Go to and Select the used device name (check the “My Computer” folder).

3.6.5 N1568Demo Misc menu

The Misc thumbnail allows to access the module general settings (Module address, MUX OUT, Direct Command); choose the correct Module Address, then click on the **Connect** button.

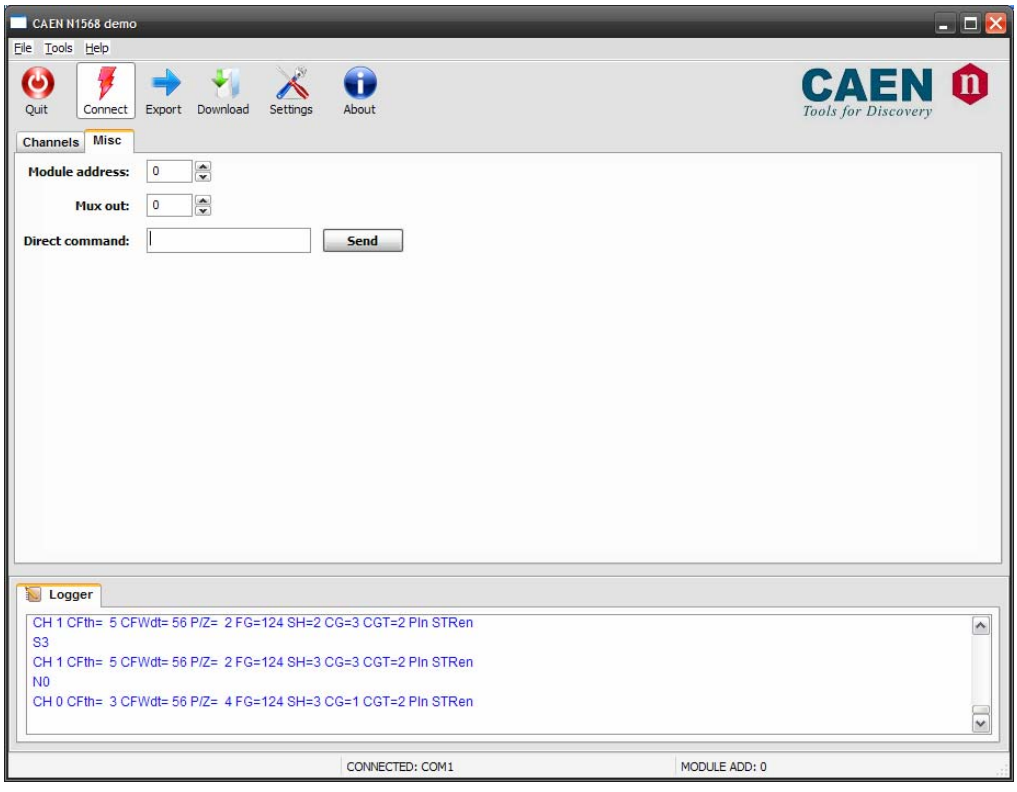

Fig. 3.8: Misc menu

3.6.6 N1568Demo Settings Menu: Board

This menu allows to set operation parameters (First/Last visible channel, Default module address, Default MUX OUT)

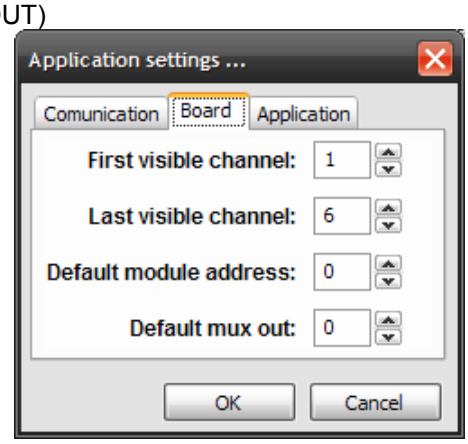

Fig. 3.9: Settings Menu: Board

3.6.7 N1568Demo parameters

The available parameters are:

Table 3.2: Parameters description

Name	Description	Value
CFth	CFD threshold	0-1 V
5CFWdt	Width of CFD output	800-1000ns
P/Z	Pole zero compensation	50-500µs
FG	Fine gain	1-2x
SH	Shaping time selection	0.5/1/2/4µs
CG	Coarse gain	1/2/4/8x
CGT	Coarse gain timing	1/2/4/8x
In	Input polarity	0=positive; 1=negative
STR	Stretcher enable	0=disable; 1=enable

As one parameter is changed (use the **arrows** to increase/decrease), the **Write** button becomes **green** (=active); click on Write to confirm changes.
The **Export** button in the tool bar allows to broadcast data from CH0 to all Channels.

3.7 LabView VIs

A set of LabView8.2 VIs also allows the module's control; such VI's can be found in the CAEN\N1568ToolBox\LabView\8.2\Demo\ folder installed via the procedure described in § 3.6.2. (in the "LabView" folder).
As the program is executed, the following screen will be displayed:

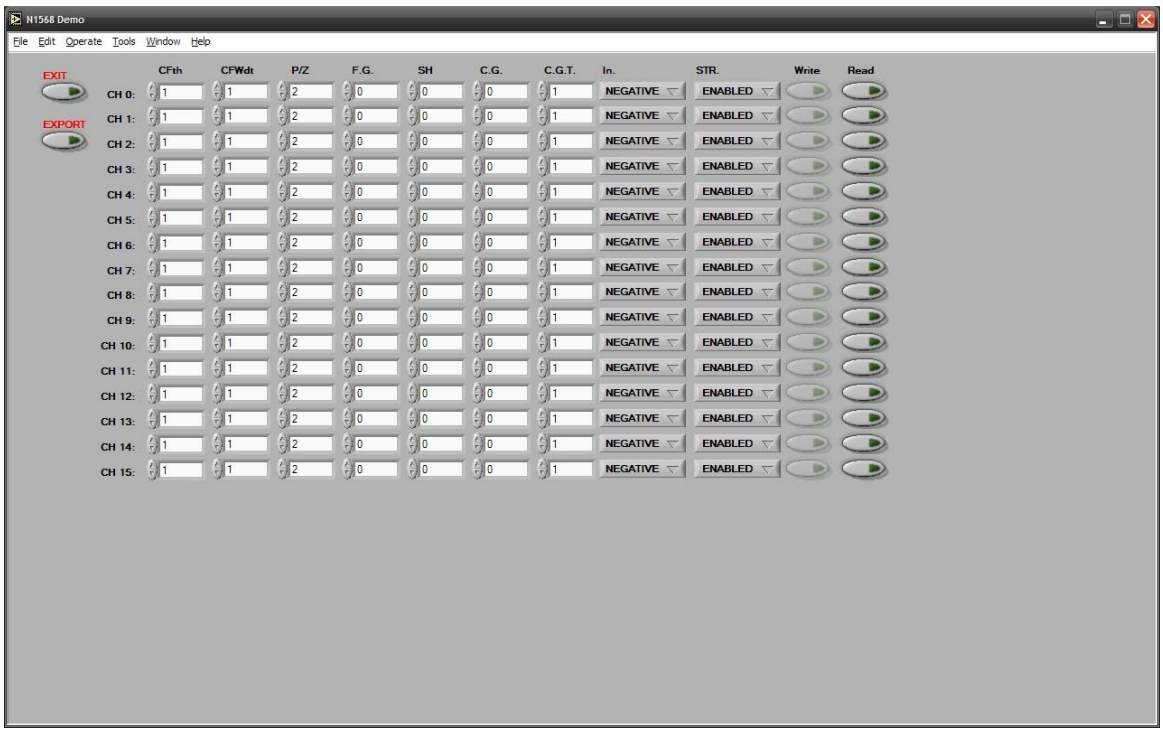

Fig. 3.10: LabView8.2 Demo main menu

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