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N957 8 K Multi-Channel Analyzer**NEW****Overview**

The Mod. N957 is an 8 K Multi-Channel Analyzer (MCA) with USB2.0 port, housed in a 1-unit wide std. NIM module. The input pulses can be those produced by a standard spectroscopy amplifier. They can be Gaussian, semi-Gaussian or square waves, both unipolar and bipolar, in a range from 0 to +10 V, with a rise time greater than 0.2 μ s. The trigger can be made "on signal" or "external". In the first case a discriminator, with a settable threshold, opens the gate, which is automatically closed after the detection of the peak. In the second case, an external gate is fed to the module. The input channel has one peak amplitude stretcher, the output of which is digitized by a 14 bit successive-approximation fast ADC featuring a sliding scale technique to improve the differential non-linearity. Programmable zero and overflow suppression, trigger counter and test features complete the flexibility of the module.

The unit hosts an USB2.0 port (also compatible with previous USB versions), which permits a simple control and data-acquisition via PC.

Libraries for Windows and Linux will be provided as well.

Fully Supported by Winner Software.

**Highlights**

- >>> 1 input Multichannel Analyzer
- >>> Fully computer controlled MCA
- >>> 8K ADC, fast conversion time with linearization enhancement circuit
- >>> PHA acquisition mode
- >>> Suitable for HPGe, Nai(Tl), CdTe and other detector technologies
- >>> USB 2.0 communication interface
- >>> Fully supported by Winner Software

Ordering options

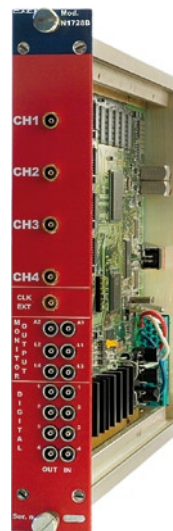
Code	Description	
WN957XAAAAA	N957 - 8 K Multi-Channel Analyzer	NEW

N1728A – N1728B 4 Ch. 14 bit 100 MS/s Digitizer with Pulse Shape Analysis**NEW****Overview**

The N1728 is a new NIM 4 channel digital pulse processor and waveform digitizer. The N1728 can work in "oscilloscope" mode, continuously storing waveforms (10 ms wide buffer with pre-trigger capability) and "Energy" mode, providing real time trapezoidal shaping, with a wide range of programmable filter parameters, and energy determination. A dedicated digital trigger algorithm allows very low energy threshold operation ensuring immunity to noise effects. A digital Constant Fraction Discriminator (CFD) has been implemented for applications requiring accurate timing.

The module is available in two versions: N1728A with differential input signals, N1728B with single ended input signals.

Fully Supported by Winner Software.

**Highlights**

- >>> 4 channels
- >>> 14 bit 100 MS/s ADC
- >>> Differential (N1728A) or Single Ended (N1728B) input signals
- >>> "Oscilloscope" mode/transient recorder with 10 ms wide waveforms buffer
- >>> "Energy" mode with real time trapezoidal shaping for energy determination and time stamp
- >>> Digital trigger and Constant Fraction Discriminator
- >>> Base Line Restoration and pile-up rejection
- >>> Two 512 ksamples circular memory buffers
- >>> Two analog TEST output signals via 12 bit / 100 MHz DAC (Monitor Output A1+A2)
- >>> External or internal clock
- >>> Firmware upgradeable via USB2.0
- >>> Software for full module control and data readout via USB2.0
- >>> Fully supported by Winner Software

Ordering options

Code	Description	
WN1728XAAAAA	N1728A - 4 Ch. 14 bit 100 MS/s Digitizer with Pulse Shape Analysis (Differential inputs)	NEW
WN1728XBAAAA	N1728B - 4 Ch. 14 bit 100 MS/s Digitizer with Pulse Shape Analysis (Single Ended inputs)	NEW

N978 4 Channel Variable Gain Fast Amplifier

Overview

The Mod. N978 is a 4 channel fast rise time amplifier housed in a one unit wide NIM module; each channel features a voltage gain variable in the range $0 \div 10$. Channels are non-inverting and bipolar: they amplify both positive and negative signals. Input bandwidth is 250 MHz for signals up to 50 mVpp and decreases for larger ones (up to 100 MHz @ 400 mVpp). Gain setting can be performed independently for each channel via four 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. The board features a ± 2 V output dynamics. 4 screw-trimmers (one per channel) allow the offset calibration which operates over a ± 30 mV range.



Highlights

- ...> **x10 adjustable gain (x1 steps)**
- ...> **Input bandwidth up to 250 MHz**
- ...> **50 Ohm input impedance**
- ...> **± 2 V output dynamics**
- ...> **50 Ohm loads driven**
- ...> **Cascadeable channels**
- ...> **Rise/fall time smaller than 3.5 ns**
- ...> **I/O delay smaller than 3 ns**

Ordering options

Code	Description
WN978XAAAAA	N978 - 4 Channel Variable Gain Fast Amplifier

N979 16 Channel Fast Amplifier

Overview

The Mod. N979 is a 16 channel fast rise time amplifier housed in a one unit wide NIM module; each channel features a fixed voltage gain of 10. Channels are bipolar, non-inverting. Channels can be cascaded in order to obtain larger gain values. Input bandwidth is 250 MHz for signals up to 50 mVpp and decreases for larger ones (up to 130 MHz @ 400 mVpp). Each channel is provided with three LEMO 00 connectors, one for the input and two bridged for the output. The board features a ± 2 V output dynamics. 16 screw-trimmers (one per channel) allow the offset calibration which operates over a ± 30 mV range. The features include an output short circuit protection.



Highlights

- ...> **x10 fixed gain**
- ...> **Input bandwidth up to 250 MHz**
- ...> **50 Ohm input impedance**
- ...> **± 2 V output dynamics**
- ...> **50 Ohm loads driven**
- ...> **Cascadeable channels**
- ...> **Rise/fall time smaller than 1.5 ns**
- ...> **I/O delay smaller than 3 ns**

Ordering options

Code	Description
WN979XAAAAA	N979 - 16 Channel Fixed Gain Fast Amplifier

N568B - N568LC 16 Channel Programmable Spectroscopy Amplifier**Overview**

The Mod. N568LC is a 16 channel spectroscopy amplifier implemented in a single-width NIM module. The Mod. N568B provides the same features of the N568LC with a particularly low equivalent input noise (less than 15 μV RMS, with Gain=100 and 3 μs shaping time).

For each channel the amplification gain, the output polarity, the shaping time and the pole-zero cancellation, are remotely programmable, via HS CAENET line, by the following controllers: V288 VME (see *VME / HS CAENET Controller* section), A1303 PCI Bus or A250 Manual (see *Accessories* section).

The shaping time can be selected from 0.2 μs to 6 μs . The gain ranges from 0.15 to 480. The working parameter values are automatically stored in a non-volatile memory.

A semi-Gaussian output is provided either with the programmed gain (OUT) or with a further 10x amplification (XOUT), either direct or inverted. A COMMON OFFSET can be programmed via HS CAENET and allows to shift the baseline of the output. A FOUT output provides a fast amplification for timing purposes (fixed gain factor of 20). A MUX OUT allows to monitor both the OUT and the FOUT outputs of a single channel selected via HS CAENET.

(Designed in collaboration with INFN Milano).

**Highlights**

- 16 channels in a one unit wide NIM module
- Positive or negative inputs accepted on each channel
- Wide gain range (0.15 to 480) per channel
- Programmable shaping time per channel
- Programmable pole-zero cancellation per channel
- 16 normal or inverted outputs
- Further 10x amplification outputs also available
- 16 fast amplifier outputs for timing purposes
- Energy and timing multiplexed outputs
- Completely programmable via High Speed CAENET

Ordering options

Code	Description
WN568BXAAAAA	N568B - 16 Channel Progr. Spectroscopy Amplifier (0.2, 1, 3, 6 μs - 50 Ohm)
WN568LCXAAAA	N568LC - 16 Channel Low Cost Progr. Spectroscopy Amplifier (0.2, 1, 3, 6 μs - 50 Ohm)

N968 Spectroscopy Amplifier**Overview**

The Mod. N968 is a spectroscopy amplifier implemented in a one unit wide NIM module. It accepts the typical outputs generated from either optical feedback or resistor feedback preamplifiers connected with nuclear particle detectors. The output is quasi gaussian with 0 to +10 V output dynamics. A front panel switch allows to select between positive and negative input signals. Gain setting can be performed continuously in the 10 ÷ 1500 range, product of Coarse, Fine and Superfine Gain. Two internal jumpers allow to set a x0.1 attenuation and a further x2 amplification, thus extending the gain range to 1 ÷ 3000. The shaping time values are 0.5, 1, 2, 3, 6, 10 μs . The Pole Zero cancellation is performed via a front panel screw-trimmer. The module features also a Bipolar output (to be used for timing purposes), an advanced Gated Baseline Restorer circuit (with manual or automatic threshold setting) and a Pile Up Rejector which allows to reject piled up events.

**Highlights**

- Gain Range continuously variable from 1 to 3000
- Integral non-linearity $\leq \pm 0.025\%$ for 2 μs shaping time
- Unipolar output noise $< 4.0 \mu\text{V rms}$ for gain=100 and $< 3.5 \mu\text{V rms}$ for gain=1000 (@ 3 μs shaping time)
- Bipolar zero cross-over walk $\leq \pm 3\text{ns}$ (@ 50:1 dynamic range, 2 μs shaping time)
- LED indicator for high precision pole-zero cancellation without using oscilloscope
- Active filter networks with wide range of shaping times
- Gated baseline restorer with automatic controls of threshold and restoring rate
- Pile-up rejector and live-time corrector

Ordering options

Code	Description
WN968XAAAAAA	N968 - Spectroscopy Amplifier

N1568B 16 Channel Programmable Spectroscopy Amplifier & Pulse Shape Discriminator**NEW****Overview**

The Mod. N1568B is a 16 channel Pulse Shape Amplifier and Dual 16 Channel Constant Fraction Discriminator (30% and 80% constant fraction) implemented in a single-width NIM module. Each channel is composed by two sections: Energy section (A) and Timing section (B). The input signal is sent to both sections simultaneously. Section A processes the input signal with a differential circuit, followed by the gain stages (coarse: 2 bit; fine: 8 bit), by the shaping circuit and finally by a stretcher with programmable threshold (10 mV minimum).

Section B processes the signal with a low noise differential stage (500 ns) followed by a 2 bit programmable linear gain stage; the signal is then fed to two low walk and high resolution Constant Fraction Discriminator sections (30% and 80% constant fraction respectively). The discriminators share a 8 bit common threshold; the discriminators delay is adjustable via PCB jumpers (5 steps from 15 to 150 ns).

The RS485 interface allows to handle most functional parameters such as Shaping Time, Coarse and Fine Gain, Input Polarity, CFD and Stretcher Thresholds, Pole Zero Adjustment etc.

**Highlights**

- ...> 16 channels in a one unit wide NIM module
- ...> Positive or negative inputs accepted on each channel
- ...> ± 4 V input dynamics
- ...> Completely programmable via RS485 interface
- ...> Programmable (2 bit) shaping time per channel
- ...> 2bit coarse gain and 8 bit fine gain for energy amplifier
- ...> 2bit coarse gain for timing amplifier
- ...> 8 bit pole zero adjustment
- ...> Programmable stretcher threshold
- ...> 16 channel stretched energy output
- ...> Dual 16 channel CFD (30% and 80% constant fraction)
- ...> 16 channel 30% CFD multiplexed output
- ...> Energy multiplexed output
- ...> OR and Sum output

Ordering options

Code	Description	
WN1568XAAAAA	N1568B - 16Ch Programmable Pulse Shape Amplifier & Dual 16Ch CFD (30%; 80%)	NEW

N858 Dual Attenuator**NEW****Overview**

The Mod. N858 is a double attenuator housed in a one a one unit wide NIM module. The module does not require any power supply since it is made up of resistive cells. Attenuation ranges from 0 to 44.5 dB for each section (0.5 dB steps).

Each section is provided with two LEMO 00 connectors, one for the input (50 Ohm impedance) and one for the output, and seven toggle switches for attenuation setting.

**Highlights**

- ...> Attenuation adjustable from 0 to 44.5 dB
- ...> Input bandwidth larger than 300 MHz
- ...> 100 mW maximum input power
- ...> No power supply required

Ordering options

Code	Description	
WN858XAAAAA	N858 - Dual Attenuator (0 to 44.5 dB)	NEW

N113 Dual OR 12 In - 2 Out

Overview

The Mod. N113 is a one unit wide NIM Module, with two 12 input - 2 output OR sections.

Via 4 internal jumpers the module can be converted to a single 24 OR inputs with separate or common gate control.

All input/output signals are std. NIM.

The outputs can be "gated" via two front panel GATE inputs with relevant switches.



Highlights

- ...> **2 independent OR sections, 12 inputs each**
- ...> **1 GATE signal per section**
- ...> **Cascadeable sections**
- ...> **Less than 10 ns input/output delay**

Ordering options

Code	Description
WN113XAAAAAA	N113 - Dual OR 12 In-2 Out

N405 Triple 4-Fold Logic Unit/Majority with VETO

Overview

The Mod. N405 is a one unit wide NIM module housing three independent sections that can be used either as logic unit or majority. The two modes are selectable via internal DIP switches. Each section accepts 4 input signals, a VETO input and provides 4 outputs (2 normal and 1 complementary, shaped, plus 1 linear). The linear output provides a signal whose width is equal to the time during which the input signals satisfy the conditions programmed via the front panel lever switches. The shaped output widths can be set via front panel trimmers in the range 6 ns to 800 ns.

LOGIC UNIT MODE

The input signals can be disabled by means of a front panel lever switch. Each section can be programmed to perform either the AND or the OR functions via front panel switches. When only one input signal is enabled the section acts as a logic FAN-OUT independently from the selected mode.

MAJORITY MODE

The front panel enable/disable lever switches are used to set the majority level. The AND/OR lever switch must be set in the AND position.



Highlights

- ...> **Three independent sections with 4 DC coupled NIM inputs each**
- ...> **AND, OR, MAJORITY function selectable for each section**
- ...> **NIM outputs with Fan Out of two**
- ...> **One VETO input per section**
- ...> **Front panel trimmer for output width adjustment on each section**
- ...> **One auxiliary NIM output per section whose width is equal to the coincidence duration**
- ...> **One negated NIM output per section**

Ordering options

Code	Description
WN405XAAAAAA	N405 - Triple 4-Fold Logic Unit/Majority with Veto

N455 Quad Coincidence Logic Unit

Overview

The Mod. N455 houses, in a single width NIM module, 4 independent sections performing the logic function, AND or OR, selected via the relevant front panel switch. Each section has 3 normal and 1 complementary NIM shaped outputs whose width can be set via front panel trimmer and a supplementary overlap output (OVP OUT) whose width is equal to the time interval during which the desired function is satisfied. The OVP OUT allows to obtain an output signal with the minimum input/output delay. A common veto input signal is available to disable all the output signals.

(ISN-GRENOBLE design)



Highlights

- ...> 4 identical independent sections
- ...> Two inputs per section
- ...> 130 MHz Max input frequency
- ...> 6 ns double pulse resolution
- ...> 10 ns I/O delay
- ...> Switch selectable AND/OR logical function
- ...> Adjustable output FWHM (4 to 650 ns)
- ...> Overlap output
- ...> Common Veto

Ordering options

Code	Description
WN455XAAAAAA	N455 - Quad Coincidence Logic Unit

N840 - N841 8 / 16 Channel Leading Edge Discriminators

Overview

The Mod. N840 is an 8 Channel Leading Edge Discriminator housed in one unit wide NIM module. The module accepts 8 negative inputs and produces 2x8 NIM outputs (NIM outputs are provided with a fan-out of two) + 8/NIM outputs (negated) on 24 front panel LEMO 00 connectors.

The Mod. N841 is the 16 channel version of the module, featuring all the characteristics of the N840.

The pulse forming stage of the discriminator produces an output pulse whose width is adjustable in a range from 5 ns to 40 ns. Each channel can work both in Updating and Non-Updating mode according to on-board jumpers position. The discriminator thresholds are individually settable in a range from -1 mV to -255 mV (1 mV step), via an 8-bit DAC. The minimum detectable signal is -5 mV. The back panel houses VETO and TEST inputs, the OR output and the Current Sum output, which generates a current proportional to the input multiplicity, i. e. to the number of channels over threshold, at a rate of -1.0 mA per hit (-50 mV per hit into a 50 Ohm load) $\pm 20\%$.

Settings can be performed via front panel switches and viewed via the Led display.



Highlights

- ...> Individually programmable thresholds
- ...> Selectable Updating/Non Updating mode
- ...> Programmable output width
- ...> TEST and VETO inputs
- ...> OR and Current sum outputs
- ...> 4 digit led display

Ordering options

Code	Description
WN840XAAAAAA	N840 - 8 Channel Leading Edge Discriminator 50 Ohm Negative
WN841XAAAAAA	N841 - 16 Channel Leading Edge Discriminator 50 Ohm Negative

N842 - N843**8 / 16 Channel Constant Fraction Discriminators****Overview**

The Mod. N842 is an 8 Channel Constant Fraction Discriminator housed in a one unit wide NIM module. The module accepts 8 negative inputs and produces 2x8 NIM outputs (NIM outputs are provided with a fan-out of two) + 8/ NIM outputs (negated) on 24 front panel LEMO 00 connectors. The Mod. N843 is the 16 channel version of the module, featuring all the characteristics of the N842.

The constant fraction delay is defined by a delay line network of 20 ns with 5 taps. The timing stage of the discriminator produces an output pulse whose width is adjustable in a range from 16.5 ns to 273 ns. Moreover, in order to protect against multiple pulsing, it is possible to program a dead time during which the discriminator is inhibited from retriggering. The maximum time walk is ± 400 ps (for input signals in the range from -50 mV to -5 V with 25 ns rise time). The constant fraction is 20%. The individual discriminating thresholds are settable in a range from -1 mV to -255 mV (1 mV step) via an 8-bit DAC. The module can operate also with small (below 10 mV) input signals, though in this case the Constant Fraction operation is not performed, i.e. the time walk is higher. The channels' threshold, output width and dead time can be programmed via two switches and one rotary handle placed on the front panel. The back panel houses VETO and TEST inputs, the OR output and the Current Sum output, which generates a current proportional to the input multiplicity, i. e. to the number of channels over threshold, at a rate of -1.0 mA per hit (-50 mV per hit into a 50 Ohm load) $\pm 20\%$.

Settings can be performed via front panel switches and viewed via the Led display.

**Highlights**

- > Individually programmable thresholds
- > Programmable output width
- > Programmable dead time
- > TEST and VETO inputs
- > OR and Current sum outputs
- > 4 digit Led display

Ordering options

Code	Description
WN842XAAAAAA	N842 - 8 Channel Constant Frac. Discriminator (Delay 20 ns; F = 20%)
WN843XAAAAAA	N843 - 16 Channel Constant Frac. Discriminator (Delay 20 ns; F = 20%)

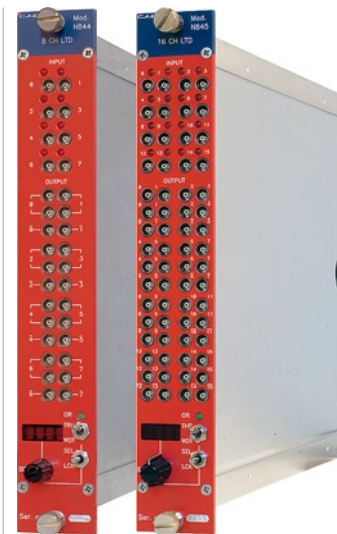
N844 - N845**8 / 16 Channel Low Threshold Discriminators****Overview**

The Mod. N844 is an 8 Channel Low Threshold (leading edge type) Discriminator housed in a one unit wide NIM module. The module accepts 8 inputs and produces 2x8 NIM outputs (NIM outputs are provided with a fan-out of two) + 8/NIM outputs (negated) on 24 front panel LEMO 00 connectors.

The Mod. N845 is the 16 channel version of the module, featuring all the characteristics of the N844.

The pulse forming stage of the discriminator produces an output pulse whose width is adjustable in a range from 6 to 95 ns. The channels work in updating mode. The discriminator thresholds are individually settable in a range from -1 mV to -255 mV (1 mV step), via an 8-bit DAC. The minimum detectable signal is -3 mV. A positive input version (Model N844P), with the thresholds settable in the 1 mV to 255 mV range, is also available. The back panel houses VETO and TEST inputs, the logical OR output (the relevant OR LED lights up if at least one channel is over threshold) and the Current Sum output, which generates a current proportional to the input multiplicity, i. e. to the number of channels over threshold, at a rate of -1.0 mA per hit (-50 mV per hit into a 50 Ohm load) $\pm 20\%$.

Settings can be performed via front panel switches and viewed via the Led display.

**Highlights**

- > Individually programmable thresholds
- > Programmable output width
- > TEST and VETO inputs
- > OR and Current Sum outputs
- > 4-digit Led display
- > High sensitivity on small signals

Ordering options

Code	Description
WN844XAAAAAA	N844 - 8 Channel Low Threshold Discriminator 50 Ohm Negative Inputs
WN844PXAAAAA	N844P - 8 Channel Low Threshold Discriminator 50 Ohm Positive Inputs
WN845XAAAAAA	N845 - 16 Channel Low Threshold Discriminator 50 Ohm Negative Inputs

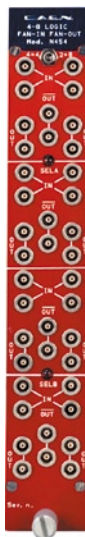
N454 4 - 8 Logic Fan In-Fan Out

Overview

The Mod. N454 is a single width NIM unit housing 4 independent Fan In-Fan Out sections. Each section accepts 4 input NIM signals and performs on these the logic OR function. The result of the function is available as 4 normal and 2 complementary NIM signals on 6 front panel connectors.

The unit can be programmed, via a front panel switch, to work as 4 OR sections (4 inputs/4 outputs) or 2 OR sections (8 inputs / 8 outputs).

(ISN-GRENOBLE design)



Highlights

- ...> 4 independent sections with 4 inputs each
- ...> OR output with fan out of four per section
- ...> Possibility of cascading channels to form a dual 8-fold Fan In-Fan Out
- ...> Input/output delay less than 7 ns
- ...> 100 MHz max. input frequency

Ordering options

Code	Description
WN454XAAAAAA	N454 - 4-8 Logic Fan In-Fan Out

N625 Quad Linear Fan In-Fan Out

Overview

The Mod. N625 is a 1-unit NIM module which houses four 4 Input + 4 Output Fan In-Fan Out sections and a Single Channel Discriminator. Each Fan In-Fan Out section produces on all its output connectors, the sum of the signals fed to the inputs, eventually inverted. Fan In-Fan Out inputs are bipolar, while the output can be either inverting or non inverting (jumper selectable independently for each section). Both input and output signals are DC coupled. Maximum input amplitude is ± 1.6 V. Moreover each Fan In-Fan Out section features a screwdriver trimmer which allows the DC offset adjustment. The discriminator channel has one DC coupled input (polarity is jumper selectable), the threshold is screwdriver adjustable and monitorable via test point; the output is NIM standard, its width is screwdriver adjustable as well. Front panel LEDs allow to monitor all the mode, gain and polarity adjustments performed via internal jumpers.



Highlights

- ...> Four independent sections
- ...> Bipolar inputs
- ...> Four 4 Input + 4 Output Fan In-Fan Out sections
- ...> 1 Channel Discriminator featured
- ...> Inverting or non-inverting mode independently selectable on each section
- ...> 100 MHz bandwidth

Ordering options

Code	Description
WN625XAAAAAA	N625 - Quad Linear Fan In-Fan Out

N1145 Quad Scaler and Preset Counter / Timer

Overview

The Mod. N1145 is a double unit NIM module that includes four independent 8-digit up-counters, plus a fifth 7-digit down-counter that can be used either as a preset counter or timer. The counters can have different operating modes and can be variously interconnected, thereby making the module a flexible and powerful tool for several applications involving time, frequency and ratio measurements. All counters can accept either TTL or NIM inputs. All control and output signals are standard NIM. The maximum input frequency is 250 MHz and the minimum pulse width is 2 ns for the up-counters, and respectively 80 MHz and 3 ns for the down-counter. All input and output connectors as well as all the control switches are located on the front panel. All input and output connectors are LEMO 00 type.



Highlights

- Four 8-digit up-counters with 250 MHz max counting rate
- One 7-digit down-counter with 80 MHz max counting rate
- NIM and TTL inputs
- One LED display per section
- Up to three sections can be cascaded for 24-digit counting
- Frequency and frequencies ratio measurements
- Individual GATE and RESET per counter
- Manual or pulse triggered RESET

Ordering options

Code	Description
WN1145XAAAAA	N1145 - Quad Scaler and Preset Counter-Timer

N93B Dual Timer

Overview

The Mod. N93 B is a one unit NIM module housing two identical triggered pulse generators.

The module produces NIM and ECL pulses whose width ranges from 50 ns to 10 s when triggered. Output pulses are provided normal and complementary.

Timers can be re-triggered with the pulse end marker signal.

The coarse adjustment of the output width is provided via a 10-position rotary switch, the fine adjustment can be performed via a rotary handle.

The trigger START can be provided either via an external signal or manually via a front panel switch.



Highlights

- Manual or pulse triggered START (NIM or ECL input)
- Monostable (retriggerable) or bistable operation
- NIM and ECL output pulses from 50 ns to 10 s
- Manual or pulse triggered RESET
- (NIM and ECL) END-MARKER output pulse
- VETO input

Ordering options

Code	Description
WN93BXAAAAA	N93B - Dual Timer (from CERN type 2255)

N108A Dual Delay

Overview

The Mod. N108A is a dual delay unit housed in a one unit wide NIM module. Delay ranges from 0 to 63.5 ns (+ 1.6 ns offset) per section. The delay can be set in 0.5 ns steps. The delay lines are made up of calibrated coaxial cable stubs for high accuracy delay and do not require power supply.



Highlights

- ...> Delay from 0 to 63.5 ns (+ 1.6 ns offset) per section
- ...> No power supply required
- ...> 0.5 ns step
- ...> ± 100 ps accuracy on 0.5 to 8 ns delay lines, ± 200 ps on higher lines
- ...> VSWR < 1.15

Ordering options

Code	Description
WN108AXAAAAA	N108A - Dual Delay Unit (1.6 to 65.1 ns)

N89 NIM - TTL - NIM Adapter

Overview

The Mod. N89 is a one unit wide NIM module housing two sections of 4 NIM to TTL converters and two sections of 4 TTL to NIM converters. All inputs are DC coupled.

On each section, a front panel switch allows logic inversion of the output signals.

The unit is capable of driving remote 50 Ohm loads with minimum signal degradation. Fast rise and fall times (2 ns) ensure reliable performance at minimum pulse width (10 ns) and maximum frequency (60 MHz).



Highlights

- ...> 8 NIM-TTL, 8 TTL-NIM translator channels
- ...> Less than 10 ns Input/Output delay
- ...> 60 MHz max operating frequency
- ...> No duty-cycle limitations

Ordering options

Code	Description
WN89XXAAAAA	N89 - NIM-TTL-NIM Adapter

N638 16 Channel NIM-ECL/ECL-NIM Translator and Fan Out

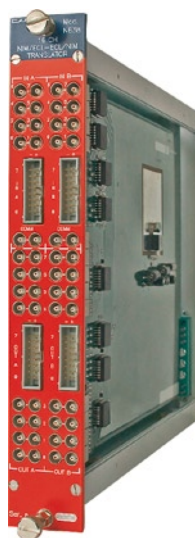
Overview

The Mod. N638 is a standard NIM module housing 16 independent logic level translators.

Each of the 16 channels accepts a NIM or an ECL signal and provides two NIM and one ECL outputs.

The NIM and ECL inputs of each channel are ORed prior to Fan Out. The maximum operating frequency is 300 MHz.

Two couples of front panel input bridged connectors accept two COMMON IN NIM signals; each common signal allows the use of the module as a Fan Out of 16 NIM and 8 ECL signals.



Highlights

- 16 independent NIM to ECL/NIM and ECL to NIM/ECL channels
- NIM Fan Out of two
- 300 MHz maximum operating frequency
- 2 COMMON IN input with a Fan Out of 16 NIM and 8 ECL
- I/O delay from 2.5 to 4 ns, depending on input type

Ordering options

Code	Description
WN638XAAAAA	16 Channel NIM-ECL/ECL-NIM Translator and Fan Out