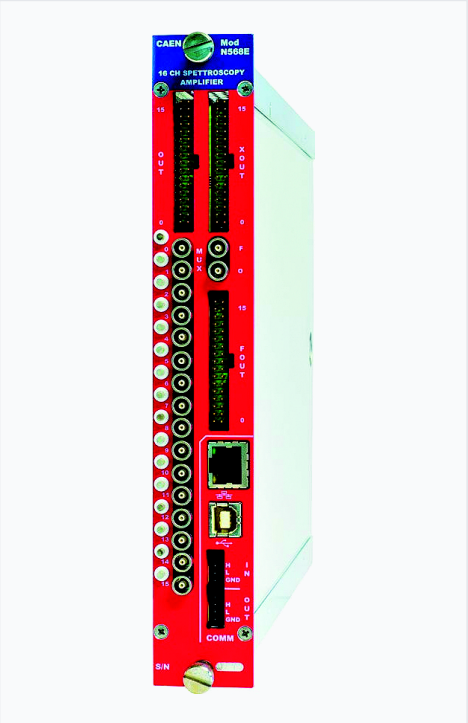
N568E

16 Channel Programmable Spectroscopy Amplifier (Low Noise)

The N568E is a 16-channel programmable spectroscopy amplifier in a single-width NIM module. Each channel accepts positive or negative inputs and provides programmable gain from 0.15 to 480, shaping time of 0.2, 1, 3 or 6 µs, output polarity and pole-zero cancellation. Semi-Gaussian outputs are available at the programmed gain or with further 10x amplification, direct or inverted, alongside fast amplifier outputs with fixed gain factor 20 for timing. Energy and timing signals can be monitored through multiplexed outputs. USB and Ethernet enable remote programming; input noise is smaller than 15 µV RMS @ Gain=100.



Overview

Product Highlights

- 16 channels
- Wide gain range: 0.15 to 480 per channel
- Programmable pole-zero cancellation per channel
- 16 fast amplifier outputs for timing purposes
- Completely programmable via USB and Ethernet
- Supported by CAEN-CSA software
- Positive or negative inputs accepted on each channel
- Programmable shaping time per channel
- 16 normal or inverted outputs (further 10x amplification outputs also available)
- Energy and timing multiplexed outputs
- Input noise smaller than 15 µV RMS @ Gain=100

Product Description

The **N568E** is a **16 channel spectroscopy amplifier** implemented in a single-width NIM module. The following versions are available:

Version	**N568ELC**	**N568E**	**N568EB**
Description	16 Ch Low Cost Ethernet Prog. Spectroscopy Amplifier	16 Ch Ethernet Prog. Spectroscopy Amplifier	16 Ch Ethernet Prog. Spectroscopy Amplifier
Shaping time	0.2, 1, 3, 6 µs	0.2, 1, 3, 6 µs	0.1, 0.2, 1, 3 µs
Impedance	50 Ω	50 Ω	50 Ω
Features	Low cost	Low noise	Low noise

For each channel the amplification gain, the output polarity, the shaping time and the pole-zero cancellation, are remotely programmable, either via **USB** or **Ethernet**; the **RS485** port al lows to connect up to **32** daisy chained modules. 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 software 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.

The N568E is supported by freely downloadable **CAEN-CSA** software, available for both Windows and Linux OS.

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Technical Specifications

Packaging	One unit wide NIM module
Inputs 0÷15	Positive or negative pulses with rise time >18 ns, max. amplitude: 8 V (absolute value), 50 Ω impedance

OUT 0÷15

Unipolar, ±8 V dynamic range, 100 Ω impedance

XOUT 0÷15

Unipolar, further 10x fixed amplification of the OUT value, ±8 V dynamic range, 100 Ω impedance

FOUT 0÷15

Unipolar, 100 ns differentiation time constant, ±8 V dynamic range, 100 Ω impedance
Risetime: 25 ns typically

MUX O

Unipolar, ±8 V dynamic range, 100 Ω impedance

MUX F

Unipolar, 100 ns differentiation time constant, ±8 V dynamic range, 100 Ω impedance
Risetime: 25 ns typically

Gain	Adjustable from 0.15 to 480
Shaping time N568E/N568ELC	Selectable time constant of 0.2 µs, 1 µs, 3 µs and 6 µs
Shaping time N568EB	Selectable time constant of 0.1 µs, 0.2 µs, 1 µs and 3 µs
Pole zero	Adjustable on 256 steps in a range from 50 µs to 500 µs
Integral non-linearity	<± 0.05% in 90% of the full scale @ Gain=90 and 6 µs shaping time (± 0.2% typ. for any shaping time)
Equivalent input noise	• N568E: < 15 µV RMS (Gain=100 and 3 µs shaping time) • N568ELC: < 25 µV RMS (Gain=100 and 3 µs shaping time)
Crosstalk	< 0.02 %
Count rate stability	< 0.05 % (from 1 to 20 KHz and 3 µs shaping time)

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Ordering Information

ORDERING CODE	DESCRIPTION
WN568ELCXAAA	N568ELC – 16 Channel Low Cost Ethernet Prog. Spectroscopy Amplifier (0.2, 1, 3, 6 µs – 50 Ohm)
WN568EXAAAAA	N568E – 16 Channel Ethernet Prog. Spectroscopy Amplifier (0.2, 1, 3, 6 µs – 50 Ohm)
WN568EXBBAAA	N568EBB – 16 Channel Progr. Spectroscopy Amplifier(0.1, 0.2, 1, 3 µs – 50 Ohm)

1. Ordering codes and descriptions are reproduced from the product record. Availability is confirmed at order entry.

Accessories

A385 — Adapter 2.54mm 34-pin female to 16x LEMO 00 female (or MCX male) – 50 cm / 1 m

A952 — Cable assembly 2.54mm 34 pin female to 2.54mm 34 pin female - 50 cm

Related Products

NIM8302 — 5U 10 slot 150 W Compact Crate

NIM8302P — 5U 5 slot 150 W Portable Crate

NIM8303 — 5U 12 slot 300/600 W Crate

NIM8304 — 7U 12 slot smart fan unit Switching 2000 W Crate

NIM8305 — 2 Slot Switching 450 W Mini Crate

NIM8306 — 2 Slot Switching 750 W Mini Crate

NV8020A — 7U CRATE VME/NIM 8 slot VME64 365W, 5 slot NIM 150W

Software & Control Tools

CAEN-CSA — Spectroscopy Amplifier Control Software

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