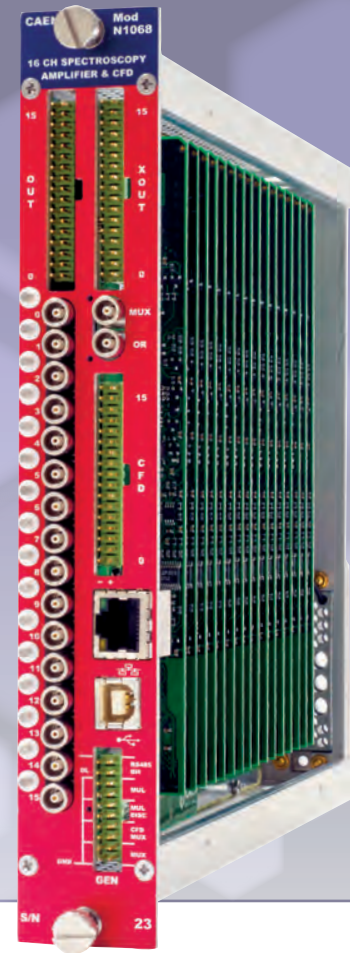


N1068

16 Channel Programmable Spectroscopy Amplifier and CFD



CAEN state-of-the-art Multi Channel Spectroscopy Amplifier & Constant Fraction Discriminator now merged in a single NIM programmable unit.

Features

- One unit wide NIM module
- 16 energy outputs with programmable polarity
- 16 channel 30% CFD
- Programmable positive or negative polarity per channel
- ± 4 V input dynamics
- 50 Ω Input impedance (Single Ended) or 110 Ω (Differential)
- Completely programmable via USB and Ethernet
- Spectroscopy amplifier with 8 step coarse and 8 bit fine gain
- Programmable shaping time per channel (0.5 μ s, 1 μ s, 3 μ s and 6 μ s)
- Pole-zero adjustment with 8 bit resolution
- Timing amplifier with 4-step coarse gain
- Energy multiplexed output
- CFD multiplexed output
- OR and Sum output

The N1068 is at the same time a 16 channels Programmable Spectroscopy Amplifier and a 16 channels CFD (Constant Fraction Discriminator). The device is a single width NIM module designed to be used with semiconductor detectors and other detectors connected to charge sensitive preamplifiers, such as scintillator detectors or ionizing chambers.

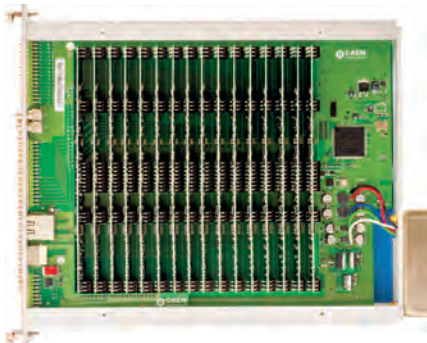
The input signal is sent initially to a polarity selection circuit which allows the user to set positive or negative polarity individually for each channel. The signal is then sent to two sections, which provide independently the Energy and Timing information.

The Energy section is composed by of a spectroscopy amplifier with 4 selectable Shaping time constants (0.5, 1, 3, 6 μ sec), pole-zero compensation, an 8-step coarse gain (2, 4, 8, 16, 32, 64, 128, 256), a 7 bit fine gain (1 to 2) and a DC restorer circuit.

The Timing section is composed by a timing filter amplifier with a differential and integration stage and selectable 4-gain value. This timing signal is sent to a Constant Fraction Discriminator section with 30% fraction. The discriminator has an auto walk compensation and the delay is selectable individually for each channel by 5 step jumper (15, 30, 45, 60, 100).

Analog delay line (jumper selectable) and ECL outputs delay (4 bit, FPGA programmable) are also available. The trigger stage foresees a Programmable Multiplicity Trigger and Multiplicity Chaining with a Sum Output available as well.

The USB 2.0 and Ethernet interface allows to handle most functional parameters such as Shaping Time, Coarse and Fine Gain, Input Polarity, CFD Thresholds, Pole Zero Adjustment etc.. The board is available in two versions: Single Ended, with 50 Ω impedance, and Differential, with 110 Ω impedance.



Ordering Option

Code	Description
WN1068SXAAAA	N1068S - 16 ch Programmable Spectroscopy Amplifier and 16 ch CFD Single Ended Inputs
WN1068DXAAAA	N1068D - 16 ch Programmable Spectroscopy Amplifier and 16 ch CFD Differential Inputs

Software

N1086 Control Software

Name	CoarGain	FineGain	Shape	OutConf	OutPol	PoleZA4
CH00	128	255	6 usec	Dir	Pos	255
CH01	128	255	6 usec	Inv	Neg	255
CH02	128	255	6 usec	Inv	Neg	255
CH03	128	255	6 usec	Inv	Neg	255
CH04	128	255	6 usec	Inv	Neg	255
CH05	128	255	6 usec	Inv	Neg	255
CH06	128	255	6 usec	Inv	Neg	255
CH07	128	255	6 usec	Inv	Neg	255
CH08	128	255	6 usec	Inv	Neg	255
CH09	128	255	6 usec	Inv	Neg	255
CH10	128	255	6 usec	Inv	Neg	255
CH11	128	255	6 usec	Inv	Neg	255
CH12	128	255	6 usec	Inv	Neg	255
CH13	128	255	6 usec	Inv	Neg	255
CH14	128	255	6 usec	Dir	Neg	255
CH15	128	127	6 usec	Inv	Neg	255

Channel settings

Name	CoarGain	FineGain	Shape	OutConf	OutPol	PoleZA4
CH00	1	0	0.2 usec	Dir	Pos	0
CH01	1	0	0.2 usec	Dir	Pos	0
CH02	1	0	0.2 usec	Dir	Pos	0
CH03	1	0	0.2 usec	Dir	Neg	0
CH04	1	0	0.2 usec	Dir	Pos	0
CH05	1	0	0.2 usec	Dir	Pos	0
CH06	1	0	0.2 usec	Dir	Pos	0
CH07	1	0	0.2 usec	Dir	Pos	0
CH08	1	0	0.2 usec	Dir	Pos	0
CH09	1	0	0.2 usec	Dir	Pos	0
CH10	1	0	0.2 usec	Dir	Pos	0
CH11	1	0	0.2 usec	Dir	Neg	0
CH12	1	0	0.2 usec	Dir	Pos	0
CH13	1	0	0.2 usec	Dir	Pos	0
CH14	1	0	0.2 usec	Dir	Pos	0
CH15	1	0	0.2 usec	Dir	Pos	0

Channel settings



All CAEN Control Software are available for **free download** on the web site.

The N1086 is supported by freely downloadable N1086 Control Software, available for both Windows and Linux OS.



News from Catalog web page www.caen.it/news

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