The N1068 is a 16 channel Programmable Spectroscopy Amplifier with Time Filter, CFD and pile-up rejection implemented in a single width NIM module. This module is designed to be used with Silicon, Germanium, and many other detectors types connected to charge sensitive preamplifiers. Also adapted for fast unipolar input signal like PMT and all fast charge detectors. Available dedicated version for germanium detectors: N1068GE (Coming Soon)
The first part of the Amplifier circuits is the polarity selector circuit which select the positive or negative input polarity. Follow two different sections which provide the Energy and Timing information.

The Energy section is composed by a Spectroscopy amplifier with CR-RC5 shaping type and four different time constants (0.5, 1, 2, 4 μs, extended up to 16 μs for N1068GE), pole-zero compensation, a 8-step coarse gain (2, 4, 8, 16, 32, 64, 128, 256), a 7-bit fine gain (from 1 to 2) and a DC restorer circuit.

The Timing section is composed by a Timing filter with a differential stage followed by an integration stage both with two time constants. An amplifier stage provides 2 gain value. This timing signal is sent to a Constant Fraction Discriminator section. The CFD has an auto walk compensation and the delay time is selectable individually for each channel by 5 step jumper. The width of CFD OUT is individually programmable in a rang if 40 to 1000ns.

A delay on the ECL CFD output are also available. It can be individually Enabled and programmed in a range of 200 ns to 800 ns with 12 bit resolution. The trigger stage foresees a Programmable Multiplicity Trigger and Multiplicity Chaining with a Sum Output available as well.

Pile-up rejection is configurable individually for each channel. When enabled each time a pile-up event occurs, the Energy output is set to the saturation value.

The USB 2.0, Ethernet and RS485 interfaces allow 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 both Single Ended (50 Ω Impedance) and Differential (110 Ω impedance) versions.

Software

N1086 Control Software

<table>
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<tr>
<th>Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>WN10685XAAAA</td>
<td>N10685 - 16 ch Programmable Spectroscopy Amplifier and 16 ch CFD Single Ended Inputs</td>
</tr>
<tr>
<td>WN10680XAAAA</td>
<td>N10680 - 16 ch Programmable Spectroscopy Amplifier and 16 ch CFD Differential Inputs</td>
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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.

Ordering Option

Channel settings

FREE DOWNLOAD

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