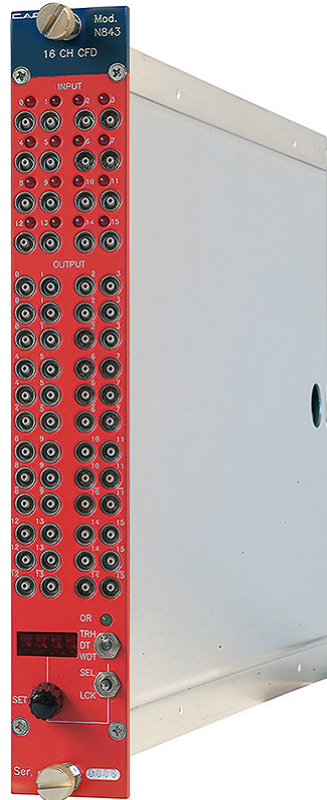


# N843

## 16 Channel Constant Fraction Discriminator



## Features



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

## Description

The CAEN **Mod. N843** is an **16 Channel Constant Fraction Discriminator** housed in a one unit wide NIM module. The module accepts **16** negative inputs and produces **2x16 NIM outputs** (NIM outputs are provided with a fan-out of two)+ **16 /NIM outputs** (negated) on front panel LEMO 00 connectors.

The constant fraction delay is **20ns full scale** with 4 ns steps (8 ÷ 20 ns operating range), optionally are also available:

- **5ns** full scale with **1ns** steps (4 ÷ 5 ns operating range)
- **50ns** full scale with **10ns** steps (10 ÷ 50 ns operating range)
- **100ns** full scale with **20ns** steps (20 ÷ 100 ns operating range)

The timing stage of the discriminator produces an output pulse whose width is adjustable in a range from **from 15 ns to 245 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) ±20%.

## Technical Specifications

### Packaging

1U-wide NIM unit

### Input Channels

16 inputs (negative polarity, 50 ohm impedance)

### Max input voltage

-5 V

### Threshold range

-1 mV to -255 mV (1 mV step)

### Constant fraction

0,2

### Delay

- 20ns full scale with 4 ns steps (8 ÷ 20 ns operating range) optional: 5ns full scale with 1ns steps (4 ÷ 5 ns operating range)
- 50ns full scale with 10ns steps (10 ÷ 50 ns operating range)
- 100ns full scale with 20ns steps (20 ÷ 100 ns operating range)

### Output Channels

8x3 NIM (1 pair bridged 1 complementary)

### Input/output delay

Set delay + 6.5 ns ± 3 ns

### Output width

Programmable from 15 ns to 245 ns (typical values)

### Dead Time

Programmable from 137 ns to 1865 ns (typical values)

### Interchannel Insulation

60 dB for 2.5 ns rise time input signals

### Max outputs time walk

±400 ps for input signals in the range from -50 mV to - 5 V with 25 ns rise time

### Autowalk

Automatic adjustment to input offset and low frequency input noise of ±40 mV

### Test Input

NIM logic signal, high impedance Min. FWHM: 5 ns Max. frequency: 30 MHz

### **Veto Input**

NIM logic signal, high impedance Min. FWHM: 15 ns

### **OR Output**

NIM logic signal

### **Current Sum Output**

current proportional to input multiplicity (-1 mA  $\pm$ 20% per hit), high impedance

## Ordering Options

Code	Description
WN843XAAAAAA	N843 - 16 Channel Constant Frac. Discriminator(Delay 20 ns; F = 20%) <span data-bbox="1372 246 1452 302">RoHS</span>

## Accessories

### A385



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

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## Related Products

### NIM8302P



5U 5 slot 150 W Portable Crate

### NIM8306



2 Slot Switching 750 W Mini Crate

### NV8020A



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

### 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

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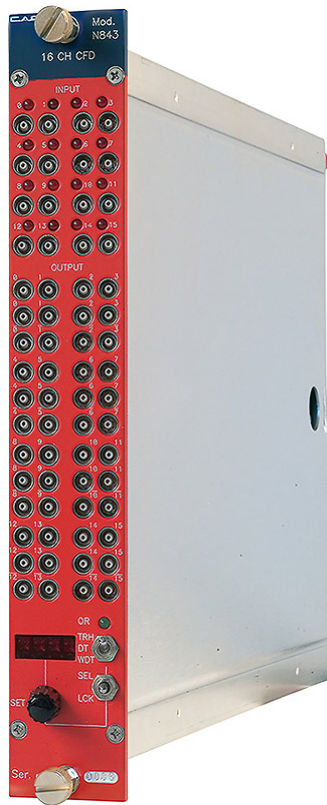
## NIM8302



5U 10 slot 150 W Compact Crate

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# Gallery



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