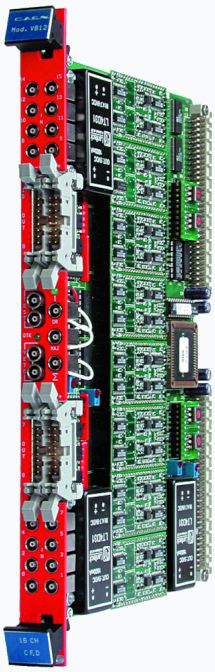
V812

16 Channel Constant Fraction Discriminator

VME	16	Const. Fraction
Package	No. of Channels	Function

The CAEN V812 is a 1-unit-wide VME module housing a 16-channel constant fraction discriminator for precise timing discrimination of negative input signals. It provides individually programmable thresholds from -1 mV to -255 mV in 1 mV steps via 8-bit DACs, adjustable output widths from 12 ns to 206 ns, and programmable dead time from 118 ns to 1625 µs. ECL outputs have fan-out of two; front-panel logic includes OR, CURRENT SUM and programmable MAJORITY outputs, with global VETO, TEST and channel masking.



CAEN
Tools for Discovery

Overview

Product Highlights

- Thresholds individually programmable via VME
- ECL outputs with fan-out of two
- Global VETO and TEST inputs
- OR, CURRENT SUM and MAJORITY outputs
- Constant fraction for precise discrimination timing
- Programmable output width
- Mask register for individual channel enable/disable
- Libraries (C and LabView) and Software tools for Windows and Linux

Product Description

The CAEN **Mod. V812** is a **1-unit wide VME module housing a 16 channel constant fraction discriminator**. The module accepts 16 negative inputs and generates precise ECL pulses when the input signals exceeds a given threshold: constant fraction technique allows to precisely determine the timing of the discrimination. The pulse forming stage of the discriminator produces an output pulse whose width is adjustable in a range from 12 ns to 206 ns (typical values) via VME.

Moreover, in order to protect against multiple pulsing, it is possible to program via VME a dead time, from 118 ns to 1625 µs (typical values) , during which the discriminator is inhibited from retriggering. The discriminator thresholds are individually settable via VME in a range from -1 mV to -255 mV (1 mV step) through an 8-bit DAC. Each channel can be turned on or off via VME by using a mask register. A Current Sum output 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 Ω load). The module can operate also with small (below 10 mV) input signals. A MAJORITY output provides a NIM signal if the number of input channels over threshold exceeds the MAJORITY programmed value. Several V812 boards can be connected in a daisy chain via the Current Sum output: in this case, by switching the majority logic to External, it is possible to obtain a Majority signal when the number of active channels in the chained modules exceeds a global Majority level. The logic OR of discriminator outputs is available on a front panel NIM signal.

AT A GLANCE	
Package	**VME**
No. of Channels	**16**
Function	**Const. Fraction**
Updating	**No**
Min Input (mV)	**-5**
Output Width (ns)	**12 ÷ 206**

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Technical Specifications

Packaging	6U-high, 1U-wide VME unit
Inputs	16 inputs (negative polarity, 50 Ω impedance)
Max input voltage	-5 V
Min detectable signal	-5 mV
Threshold range	-1 mV to -255 mV (1 mV step)
Constant fraction	20%

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)

Outputs	16 ECL outputs with a fan-out of two
Input/output delay	Set delay + 4.5 ns ± 2 ns
Output width	Programmable from 12 ns to 206 ns (typical value)
Dead Time	Programmable from 118 ns to 1625 ns (typical value)
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 of input offset and low frequency input noise of ±40 mV
Control inputs	NIM logic signals, high impedance: VETO: allows to veto all channels simultaneously TEST: triggers all the enabled channels at once

Control outputs

- VETO IN: NIM signal, high impedance, allows vetoing of all channels simultaneously
- TEST IN: triggers all the enabled channels at once
- OR OUT: standard NIM signal, 50 Ohm impedance, logic OR of outputs;
- SUM OUT: current proportional to input multiplicity (-1 mA ±20% per hit), high impedance

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Ordering Information

ORDERING CODE	DESCRIPTION
WPERS0081201	V812 Customization – Delay 100ns
WPERS0081202	V812 Customization – MSU Delay 5ns
WPERS0081203	V812 Customization – Delay 50ns
WV812XBAAAAA	V812B – 16 Channel Constant Frac. Discriminator (No JAUX)

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

A954 — Cable assembly 2.54mm 34 pin female to two 2.54mm 16 pin female - 50 cm

Related Products

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

V3718 — VME to USB 2.0 / Optical Link Bridge

V4718 — VME to USB 3.0/Ethernet/Optical Link Bridge

VME8001 — 1U 2 Slot VME64 Mini Crate

VME8004B — 2U 4 Slot VME64 Mini Crate

VME8004X — 2U 4 Slot VME64X Mini Crate

VME8008X — 4U 8 Slot VME64X Mini Crate

VME8011 — 7U 21 Slot VME64 Low Cost Crate

VME8100 — 8U 21 Slot VME64/64X Enhanced Crate Series

VME8200 — 9U 21Slot VME64X Enhanced Crate series

VX3718 — VME64 to USB 2.0/Optical Link Bridge

VX4718 — VME to USB 3.0/Ethernet/Optical Link Bridge

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