

# VX1290N-2ESST

## 16 Channel Multihit TDC (25 ps)



## Features

- 25 ps LSB
- 21 bit resolution
- 52  $\mu$ s full scale range
- NIM Input Signals
- 5 ns Double Hit Resolution
- Leading and Trailing Edge detection
- Trigger Matching and Continuous Storage acquisition modes
- 32 k x 32 bit output buffer
- MBLT, CBLT and 2eSST data transfer
- Multicast commands
- Geographical address supported
- Live Insertion

## Description

The CAEN **Mod. VX1290N-2eSST** is a

**16 channel Multihit TDC**

, housed in a

**1-unit wide VME64X 6U**

module. The unit features

**High Performance Time to Digital Converter**

chips developed by CERN. LSB is

**25 ps**

(21 bit resolution, 52  $\mu$ s FSR). The module accepts NIM inputs.

The channels can be enabled for the detection of hits rising/falling edges. For each channel there is a digital adjustment for the zero-ing of any offsets. The data acquisition can be programmed in "Events" ("Trigger Matching Mode", with a programmable time window) or in "Continuous Storage Mode".

The module programming is performed via a microcontroller that implements a high-level user friendly interface. The VME interface allows the module to work in A24 and A32 addressing modes.

The board houses a 32 k x 32 bit deep Output Buffer, that can be readout via VME in a completely independent way from the acquisition itself.

The device supports MBLT, CBLT and 2eSST readout modes. Live insertion is also supported.

## Technical Specifications

### Packaging

6U-high, 1U-wide VME unit

### Inputs

NIM inputs, 50  $\Omega$  impedance

### Double hit resolution

5 ns

### Acquisition modes

Trigger Matching Mode; Continuous Storage Mode

### Built-In memory

32 kwords deep Output Buffer

### LSB

25 ps

### Dynamic Range

52  $\mu$ s

### RMS resolution (with compensation enabled)

35 ps (typical)

### Integral non linearity (with compensation enabled)

<2.5 LSB

### Max. differential non linearity (with compensation disabled)

<3 LSB

### Interchannel isolation

$\leq$ 3 LSB

### Offset spread

<2 ns

### EXT TRIGGER input

Two LEMO 00 bridged connectors, NIM signal, 50  $\Omega$

### Double Trigger Resolution

75 ns

### Clock source

Internal (40 MHz) or External (on Control connector), dip switch selectable

## Control inputs

active-high, differential ECL input signals:

- CLR: performs the Hardware CLEAR (min. width: 25 ns)

rising-edge active, differential ECL input signals:

- CRST: performs the Bunch RESET (min. width: 25 ns)
- CLK: external clock (max. freq.: 40 MHz)
- TRG: trigger for the TDC latching (min. width: 25 ns)

## Control Outputs

differential ECL output signal:

OUT\_PROG: control output signal, programmable via the out prog control register

## Displays

- DTACK: green LED; lights up at each VME access
- PWR: green/red LED; green: power ON, red: failure status
- TERM: green LED; control bus termination ON
- FULL: red LED; memory full
- ERROR: red LED; TDC global error
- DRDY: yellow LED; at least one datum/event in the Output Buffer

## VME

- Addressing modes: A24, A32, MCST
- Data modes: D16, D32, MBLT32, BLT64, CBLT32, CBLT64, 2eVME, 2eSST7
- Readout rate: up to 120 Mbyte/s with 2eSST

## Ordering Options

Code	Description
WVX1290BNXAE	VX1290N - 2ESST 16 Ch. Multievent Multihit TDC 25 psec NIM (no JAUX)

## Related Software

### CAEN Toolbox



Multi-Functional Software Suite for the Upgrade of Front-end Boards, Bridges and Power Supplies

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## Related Products

### VME8004X



2U 4 Slot VME64X Mini Crate

### VME8100



8U 21 Slot VME64/64X Enhanced Crate Series

### VME8008XB

### VX4718



VME to USB 3.0/Ethernet/Optical Link Bridge

### VX3718



VME64 to USB 2.0/Optical Link Bridge

## VME8008X



4U 8 Slot VME64X Mini Crate

## VME8200



9U 21Slot VME64X Enhanced Crate series

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