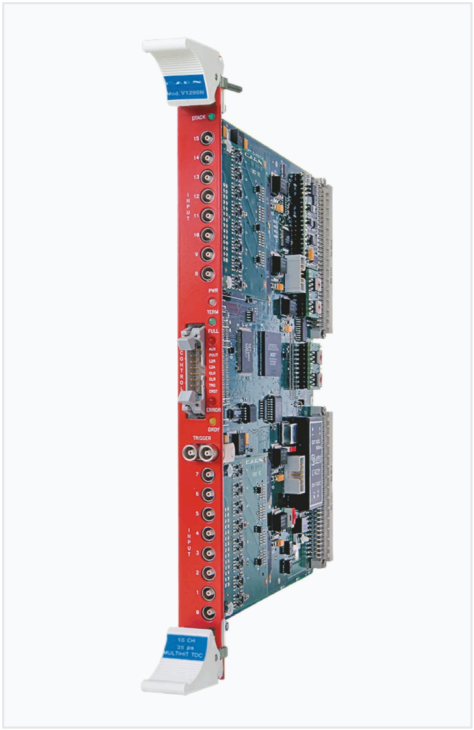
VX1290N-2ESST

16 Channel Multihit TDC (25 ps)

VME64X	16	21
Package	No. of Channels	Resolution (bit)

The VX1290N-2eSST is a 16-channel multihit TDC in a 1-unit-wide VME64X 6U module, featuring CERN-developed high-performance time-to-digital converter chips. It provides 25 ps LSB, 21 bit resolution, a 52 µs full-scale range and 5 ns double-hit resolution for NIM input signals. Channels detect leading and trailing edges with digital offset adjustment. Trigger Matching Mode with a programmable time window and Continuous Storage Mode are supported, with a 32 k x 32 bit output buffer and MBLT, CBLT and 2eSST readout.



Overview

Product Highlights

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

Product Description

AT A GLANCE	
Package	**VME64X**
No. of Channels	**16**
Resolution (bit)	**21**
Type	**Multihit Digital TDC**
Conversion Time (µs)	**-**
LSB (ps)	**25**

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 µs 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.

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Technical Specifications

Packaging	6U-high, 1U-wide VME unit
Inputs	NIM inputs, 50 Ω 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 µs
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	≤3 LSB
Offset spread	<2 ns
EXT TRIGGER input	Two LEMO 00 bridged connectors, NIM signal, 50 Ω
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

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Ordering Information

ORDERING CODE	DESCRIPTION
WVX1290BNXAE	VX1290N – 2ESST 16 Ch. Multievent Multihit TDC 25 psec NIM (no JAUX)

1. Ordering codes and descriptions are reproduced from the product record. Availability is confirmed at order entry.

Related Products

VME8004X — 2U 4 Slot VME64X Mini Crate

VME8008X — 4U 8 Slot VME64X Mini 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

Software & Control Tools

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