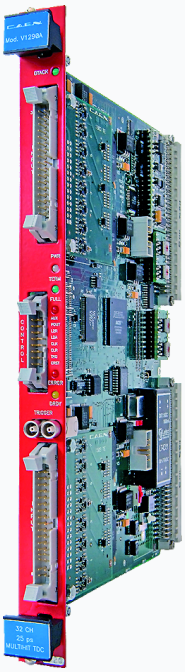
V1290A-2ESST

32 Channel Multihit TDC (25 ps)

VME	32	21
Package	No. of Channels	Resolution (bit)

The V1290A-2eSST is a 32-channel multihit TDC in a 1-unit-wide VME 6U module, using high-performance time-to-digital converter chips developed by CERN. It provides 25 ps LSB, 21 bit resolution and a 52 µs full-scale range, with ECL/LVDS inputs, 5 ns double-hit resolution, and selectable rising- and/or falling-edge detection. Digital per-channel offset adjustment is provided. Acquisition supports Trigger Matching with a programmable time window and Continuous Storage modes. A 32 k × 32 bit output buffer supports independent VME readout via MBLT, CBLT and 2eSST, with A24/A32 addressing, multicast commands and live insertion.



CAEN
Tools for Discovery

Overview

Product Highlights

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

Product Description

The CAEN Mod. **V1290A-2eSST** is a **32 channel Multihit TDC**, housed in a **1-unit wide VME 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 both ECL and LVDS inputs. he 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.

AT A GLANCE

Package	**VME**
No. of Channels	**32**
Resolution (bit)	**21**
Type	**Multihit Digital TDC**
Conversion Time (µs)	**-**
LSB (ps)	**25**

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Technical Specifications

Packaging	6U-high, 1-unit wide, VMEx64X unit
Inputs	32 ECL / LVDS inputs, 110 Ohm 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 compensation5 disabled)	<3 LSB
Interchannel Isolation	≤3 LSB
Offset spread	<2 ns
EXT TRIGGER input	Two LEMO 00 bridged connectors, NIM signal, 50 Ohm
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
WV1290AEXAAE	V1290A – 2ESST 32 Ch. Multievent Multihit TDC 25 psec ECL/LVDS (no JAUX)

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

Accessories

A952 — Cable assembly 2.54mm 34 pin female to 2.54mm 34 pin female - 50 cm

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

VME8008B — 4U 8 Slot VME64 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

Software & Control Tools

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

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