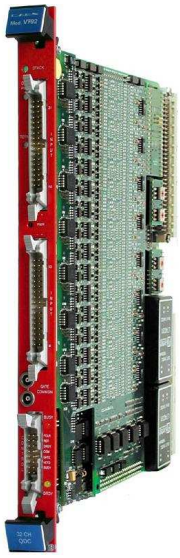
CAEN Nuclear
Tools for Discovery



# VME - V792

## 32 Channel Multievent QDC

The Mod. V792 is a 1-unit wide VME 6U module housing 32 Charge-to-Digital Conversion channels with current integrating negative inputs (50 Ohm impedance).
For each channel, the input charge is converted to a voltage level by a QAC (Charge to Amplitude Conversion) section. Input range is 0 ÷ 400 pC.
The outputs of the QAC sections are multiplexed and subsequently converted by two fast 12-bit ADCs.
The integral non linearity is ±0.1% of Full Scale Range (FSR) measured from 5% to 95% of FSR. The ADCs use a sliding scale technique to improve the differential non-linearity.
The Mod. V792 offers a 32 event buffer memory, A24/A32 addressing mode, D16, D32, BLT32/MBLT64 and CBLT32/CBLT64 data transfer mode. Multicast commands are also supported.
A 16 ch. decoupling board Mod. A992 is available for the Mod. V792 to avoid ground loops and signal reflections when long flat cable (110 Ohm) connections to the 50 Ohm inputs are used (one V792 requires two A992 boards).
A 16 channel flat cable to LEMO input adapter, Mod. A392 is also available for the Mod. V792 (one V792 requires two A392 boards).
The board supports the live insertion that allows inserting or removing them into the crate without switching it off.

- **High channel density**
- **12-bit resolution**
- **5.7 µs / 32 ch conversion time**
- **600 ns fast clear time**
- **Zero and overflow suppression for each channel**
- **±1.5% differential non linearity**
- **±0.1% integral non linearity**
- **32 event buffer memory**
- **BLT32/MBLT64/CBLT32/CBLT64 data transfer**
- **Multicast commands**
- **Live insertion**
- **Libraries, Demos (C and LabView) and Software tools for Windows and Linux**

## Technical Specifications Table

| | |
|---|---|
| **Packaging** | 1-unit wide 6U VME module (version AA requires the V430 backplane) |
| **Inputs** | 32 channels, 50 Ohm impedance, negative polarity, DC coupling |
| **Input range** | 0 ÷ 400 pC (if Sliding Scale is used FSR is reduced from 4095 to 3840 counts) |
| **Resolution** | 12 bit |
| **Gain** | 100 fC/count |
| **Max. tolerated positive voltage input** | 15 mV |
| **Reflections** | < 5% with 2 ns fall time input signals |
| **Input offset** | ±2 mV |
| **RMS Noise** | 0.5 counts typical |
| **Integral non linearity** | 0.1% of FSR (=3840 counts)<br>from 5% to 95% of FSR |
| **Interchannel gain uniformity** | ±4% |
| **Interchannel Isolation** | > 60 dB |
| **Power rejection** | 0.002 count/mV (+5V); 0.01 count/mV (-5V)<br>0.0046 count/mV (+12V); 0.0012 count/mV (-12V) |
| **Fast clear time** | 600 ns |

## Software

**YES**

Included with V792.

**Available Packages:**

**- Control Software**

For more information, please visit our website:

www.caen.it/nuclear/software_download.php

(Login required)

## Ordering code

**WA392XAAAAAA**

A392 - 16 Channel Cable Adapter (Flat to Lemo) for V792, 50cm ±10% cables

**WV792XACAAAA**

V792AC - 32 Channel Multievent Charge ADC (No JAUX, No 12V DCDC, live ins)

| | |
|---|---|
| **Gate timing** | the Gate signal must precede the analog input by > 15 ns |
| **Conversion time** | 5.7 µs for all channels |
| **Zero suppression** | Treshold values programmable in:<br>16 ADC counts steps over the entire FSR<br>2 ADC counts steps over 1/8 of FSR |
| **GATE/COM input** | NIM signal, high impedance<br>temporal window for current integration |
| **Control inputs** | active-high, differential ECL input signals:<br>GATE: temporal window for current integration .<br>RST: resets QAC sections, MEB status and control registers.<br>VETO: inhibits the conversion of the QAC signals.<br>FCLR: FAST CLEAR of QAC sections. |
| **Control outputs** | differential ECL output signals:<br>DRDY: indicates the presence of data<br>BUSY: board full, resetting, converting or in MEMORY TEST mode |
| **VME interface** | A24/A32<br>Geographical Addressing<br>Multicast commands<br>D16/D32,BLT32/MBLT64,CBLT32/CBLT64 |

## Powered Crates

**VME8000 Crate Series**

The VME8000 crate series consist of a VME mechanics both having flexible and pluggable Power Supply.
A wide choice of options is available for building a small and flexible setup for all type of measurements.
Thanks to the low noise Power Supply they are suitable both to analogue and digital electronics.

| | | |
|---|---|---|
| **NIM8301** | 7U 12 slot smart fan unit 300/600 W Crate | **NEW** |
| **NIM8302** | 5U 10 slot 150 W Compact Crate | **NEW** |
| **NIM8303** | 5U 12 slot 300/600 W Crate | **NEW** |
| **VME8002** | 5U 9 Slot VME64 Mini Crate | |
| **VME8010** | 7U 21 Slot VME64 Low Cost Crate | |
| **VME8011** | 7U 21 Slot VME64 Low Cost Crate | |
| **VME8100** | 8U 21 Slot VME64/64X Enhanced Crate Series | **NEW** |

## Compare with other Products

### Compare with other QDCs

| Model | Package | Function | Description |
|---|---|---|---|
| C1205 | CAMAC | QDCs | 16 Channel QDC |
| V792 | VME | QDCs | 32 Channel Multievent QDC |
| V792N | VME | QDCs | 16 Channel Multievent QDC |
| V862 | VME | QDCs | 32 Channel Multievent Individual Gate QDC |
| V965 | VME | QDCs | 16 Channel Dual Range Multievent QDC |
| V965A | VME | QDCs | 8 Channel Dual Range Multievent QDC |

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