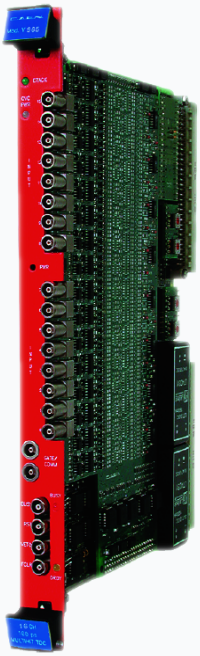
V965A

8 Channel Dual Range Multievent QDC

VME	8	12 (15 dyn.)
Package	No. of Channels	Resolution (bits)

The V965A is a 1-unit-wide VME 6U, 8-channel dual-range QDC for integrating negative charge inputs through 50 Ω impedance. Each channel provides simultaneous 0 ÷ 100 pC and 0 ÷ 900 pC ranges, with 25 fC and 200 fC LSB respectively, 12-bit resolution with 15-bit dynamics, 2.8 µs / 8 ch conversion time and 600 ns fast clear. It features programmable zero and overflow suppression, ±0.1 % integral non-linearity, ±1.5 % differential non-linearity, 32-event buffering, trigger counter, A24/A32 addressing, D16/D32/BLT32/MBLT64/CBLT32/CBLT64 transfers, multicast commands and live insertion.



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Tools for Discovery

Overview

Product Highlights

- Two simultaneous ranges: 0 ÷ 900 pC / 0÷100 pC
- 25 fC LSB on low range, 200 fC LSB on high range
- 600 ns fast clear time
- ±0.1 % Integral non linearity
- 32 event buffer memory
- Multicast commands
- Libraries, Demos (C and LabView) and Software tools for Windows and Linux
- 12 bit resolution with 15 bit dynamics
- 2.8 µs / 8 ch conversion time
- Zero and overflow suppression for each channel
- ±1.5 % Differential non linearity
- BLT32/MBLT64/CBLT32/CBLT64 data transfer
- Live insertion

Product Description

The **Mod. V965A** is a 1-unit wide VME 6U module housing 8 Charge-to-Digital Conversion channels with current integrating negative inputs (50 Ω impedance). For each channel, the input charge is converted to a voltage level by a QAC (Charge to Amplitude Conversion) section. Each QAC output is then converted by two ADCs in parallel; one ADC is preceded by a x1 gain stage, the other by a x8 gain stage: a dual input range is then featured: 0 ÷ 900 pC (200 fC LSB) and 0 ÷ 100 pC (25 fC LSB); this allows to avoid saturation with big charge pulses while increasing resolution with small ones.

The outputs of the QAC sections are multiplexed and subsequently converted by two fast 12-bit ADCs. The ADCs use a sliding scale technique to improve the differential non-linearity. Programmable zero suppression, multi-event buffer memory, trigger counter and test features complete the flexibility of the unit.

The module works in A24/A32 addressing mode; the data transfer occurs in D16/D32/BLT32/MBLT64. The module also supports the chained block transfer (CBLT32/CBLT64) and the multicast commands.

The board supports the live insertion that allows inserting or removing it into the crate without switching it off.

AT A GLANCE

Package	**VME**
No. of Channels	**8**
Resolution (bits)	**12 (15 dyn.)**
Conversion Time (µs)	**2.8**
LSB (fC)	**25 / 200**
Full Scale Range (pC)	**100 / 900**

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Technical Specifications

Packaging	1-unit wide 6U VME module
Inputs	8 channels, 50 Ohm impedance, negative polarity, DC coupling
Input range	Dual range: 0 ÷ 900 pC / 0÷100 pC
Resolution	12 bit (15 bit dynamics)
Gain	High range: 200 fC/count; Low range: 25 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) 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) • 0.0046 count/mV (+12V); 0.0012 count/mV (-12V)
Fast clear time	600 ns
Gate timing	the Gate signal must precede the analog input by > 15 ns
Conversion time	5.7 µs for all channels
Zero suppression	Threshold values programmable in: • 16 ADC counts steps over the entire FSR • 2 ADC counts steps over 1/8 of FSR

Control inputs

NIM input signals:
- GATE: temporal window for current integration
- RST: resets QAC sections, MEB status and control registers
- VETO: inhibits the conversion of the QAC signals
- FCLR: FAST CLEAR of QAC sections

Control outputs	NIM output signals: • DRDY: indicates the presence of data • BUSY: board full, resetting, converting or in MEMORY TEST mode

VME interface

- A24/A32
- Geographical Addressing
- Multicast commands
- D16/D32,BLT32/MBLT64,CBLT32/CBLT64

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Ordering Information

ORDERING CODE	DESCRIPTION
WV965AXBAAAA	V965A – 8 Channel Dual Range Multievent Charge ADC (No JAUX, No 12V DCDC, live ins)

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

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

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