

## **DPP-QDC**

**Digital Pulse  
Processing for  
Charge Integration  
in High Density  
Systems**



## Features



- Digital solution equivalent to Single Gate QDC + Discriminator + Gate Generator
- Runs only on x740D models
- Single gate integration for Energy spectra calculation
- Self-Gating (no discriminator) with digital noise filtering
- No delay line is needed to fit the position of the pulse inside the gate
- Independent 32 (Desktop, NIM) - 64 (VME) channel self-trigger
- Trigger adjustment for single channel
- Programmable gate width and position for single channel
- Automatic Baseline subtraction (pedestal)
- Dead-timeless acquisition (no conversion time)
- Provides also timing information (pulse time stamps)
- Free downloadable firmware trial version
- Fully supported by the **CoMPASS** multiparametric acquisition software
- Demo software to handle 740 digitizer family running DPP-QDC firmware

## Description

Tired of your old QDC? Try the new digital QDC algorithm for 740 digitizer series. Digital QDC is specifically supported by x740D models mounting EP3C40 Altera FPGA. 740D digitizer series running DPP-QDC firmware become multi-channel data acquisition systems for nuclear physics or other applications requiring radiation detection. The digitizers accept signals directly from the detector and implement a digital replacement of Single Gate QDC, Discriminator and Gate Generator.

The algorithm is able to self-trigger up to 32/64 channels independently, according to the board form factor. Furthermore, the trigger filter of each channel can be programmed independently to allow for a fine tuning of the threshold. The integration gate itself can be programmed independently to get the best resolution from different detector systems.

The new digital QDC is able to self gate on the input pulse with no need of additional delay lines, nor external discriminator. It is particularly suitable for segmented detector configuration, where multiple channels need to be acquire simultaneously.

<b>Software Firmware Features</b>	<b>740</b> <sup>(1)</sup>
ICH (Independent channels)	✓
WV (Waveforms)	✓
<b>Compass DPP-QDC</b> TS (Timestamp)	✓
QDC (Charge to Digital Converter)	✓

<sup>(1)</sup> DPP-QDC runs only on x740 digitizers equipped with EP3C40 AMC FPGA

A demo software (DPP-QDC Demo Software) is available with C source files and Visual Studio project to help users to dial with the DPP-QDC firmware and develop their own control software.

## Applications

- Spectroscopy with scintillation detectors, as NaI(Tl), LaBr3 (Ce), CeBr3
- Suitable for applications with detector arrays
- Homeland security
- Environmental survey
- Compton camera

## Ordering Options

Code	Description
WFWDPPQDCAAA	DPP-QDC- Digital Pulse Processing for Time Stamped Digital QDC (64ch x 740)
WFWDPPQDCDAA	DPP-QDC- Digital Pulse Processing for Time Stamped Digital QDC (32ch x 740)

## Related Software

### COMPASS



Multiparametric DAQ Software for Physics Applications

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## Related Software Libraries

### CAENComm Library



Interface library for CAEN Data Acquisition Modules

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### CAENDigitizer Library



Library of functions for CAEN Digitizers high level management

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## Related Products

### DT5740D



32 Input Channel 12 bit 62.5MS/s Digitizer supporting DPP-QDC firmware

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### V1740D



64 Input Channel 12 bit 62.5 MS/s Digitizer supporting DPP-QDC firmware

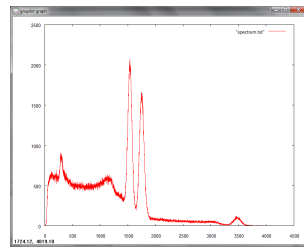
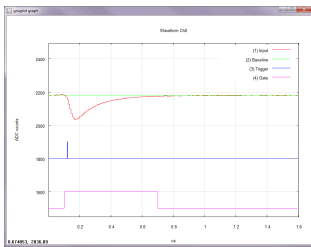
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### VX1740D



64 Input Channel 12bit 62.5 MS/s Digitizer supporting DPP-QDC firmware

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