

## **DPP-PHA**

# **Digital Pulse Processing for the Pulse Height Analysis**



## Features



- Digital solution equivalent to Shaping Amplifier and Peak Sensing ADC
- Trapezoidal Filter for Pulse Height Analysis
- Supported by:
  - **CAEN CoMPASS Software**
  - **NSCLDAQ Software** (725-730 series)
- Energy spectra measurements
- Self-Trigger using RC-CR2 digital algorithm
- Online baseline restoration and ballistic effect correction
- Programmable input offset, trigger and energy filter parameters
- Online correction of pile-up for high counting rate measurements
- On-line coincidence/anti-coincidence acquisition mode among channels
- Timing information (pulse timestamps and/or rise/fall time)
- Free downloadable firmware trial version

## Description

### Free downloadable DPP-PHA Trial version for 724, 725, 730, 2740, 2745 and 2730 series.

- The user can download and install DPP-PHA firmware without any license key and use it with time frame limitation: every 30 min the user have to restart (Power off/power on) the board
- To get time-unlimited operating DPP-PHA the user should purchase a License
- 780/781/V1782 Digital MCA are factory provided with time-unlimited operating DPP-PHA firmware and don't require licensing

DPP-PHA (Digital Pulse Processing for Pulse Height Analysis) firmware is fully controlled by **CoMPASS**, the CAEN multiparametric spectroscopy software for Physics application.

A digitizer running DPP-PHA firmware becomes a multichannel data acquisition system for nuclear physics or other applications requiring radiation detectors. The digitizers accept signals directly from Charge Sensitive Preamplifiers or photomultipliers and implement a digital replacement of Shaping Amplifier and Peak Sensing ADC, allowing the user to perform energy and time measurements. All these functions are performed inside the FPGA without any use of external cables, nor additional boards or delay lines. Therefore, a single compact system takes care of the acquisition, replacing the traditional analog boards.

It is also possible to realize multi-board systems and, eventually, perform coincidences among channels thanks to the DPP-PHA firmware features: the front panel clock, the trigger and the general-purpose LVDS I/Os connectors (VME only) make it possible to synchronize multiple boards.

<b>Software Firmware Features</b>	<b>724</b>	<b>725</b>	<b>730</b>	<b>2740<sup>(1)</sup></b>	<b>2745<sup>(1)</sup></b>	<b>2730<sup>(1)</sup></b>
ICH (Independent channels)	✓	✓	✓	✓	✓	✓
WV (Waveforms)	✓	✓	✓	✓	✓	✓
<b>Compass DPP-PHA</b> TS (Timestamp)	✓	✓	✓	✓	✓	✓
PHA (Pulse Height Analysis)	✓	✓	✓	✓	✓	✓
TDC (Time to Digital Converter)	✓	✓	✓	✓	✓	✓

<sup>(1)</sup> For comprehensive information on available firmware for the 'Digitizer 2.0' family and the organization of programming files (.CUP), please consult the FAQ **CUP files for Digitizer 2.0**

### Applications:

- Nuclear Spectroscopy
- HPGe, silicon drift, silicon strip detectors
- Readout of PMT with slow scintillation detectors (i.e. Na(Tl))
- Anti-Compton shielding
- Ion Beam analysis
- Homeland security
- Nuclear medicine

## Ordering Options

Code	Description
WFWDPPTFAA25	DPP-PHA - Digital Pulse Processing for Pulse Height Analysis for (16ch x 725)
WFWDPPTFAA30	DPP-PHA - Digital Pulse Processing for Pulse Height Analysis (16ch x 730)
WFWDPPTFAAAA	DPP-PHA - Digital Pulse Processing for Pulse Height Analysis (8ch x 724)
WFWDPPTFAD24	DPP-PHA - Digital Pulse Processing for Pulse Height Analysis (4/2 ch x 724)
WFWDPPTFAD25	DPP-PHA - Digital Pulse Processing for Pulse Height Analysis for (8ch x 725)
WFWDPPTFAD30	DPP-PHA - Digital Pulse Processing for Pulse Height Analysis (8ch x 730)

## Related Software

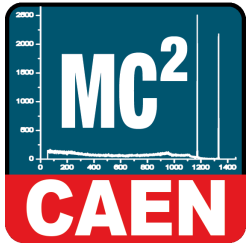
### COMPASS



Multiparametric DAQ Software for Physics Applications

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### MC<sup>2</sup>Analyzer



Graphical software tool for digitizers running DPP-PHA firmware

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## Related Products

### V1730 / V1730S



16/8 Channel 14 bit 500 MS/s Digitizer

### VX1725 / VX1725S



16/8 Input Channel 14-bit 250 MS/s Digitizer

### V1724



8 Input Channel 14 bit 100 MS/s Digitizer

### DT5781



Dual/Quad Digital Multi Channel Analyzer - Desktop

### N6780



Dual Digital Multi Channel Analyzer (HV & Preamplifier PS) - NIM

**DT5725 / DT5725S**



8 Input Channel 14-bit 250 MS/s Digitizer

**VX1730 / VX1730S**



16/8 Input Channel 14 bit 500 MS/s Digitizer

**N6724**



2/4 Channel 14 bit 100 MS/s Digitizer

**N6730 / N6730S**



8 Channel 14-bit 500 MS/s Digitizer

**N6781**



Dual/Quad Digital Multi Channel Analyzer - NIM

## **DT5730 / DT5730S**



8 Input Channel 14 bit 500 MS/s Digitizer

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## **DT5724**



4/2 Input Channel 14 bit 100 MS/s Digitizer

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## **N6725 / N6725S**



8 Channel 14-bit 250 MS/s Digitizer

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## **V1725 / V1725S**



16/8 Input Channel 14-bit 250 MS/s Digitizer

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## **DT5780**



Dual Digital Multi Channel Analyzer (HV & Preamplifier PS) - Desktop

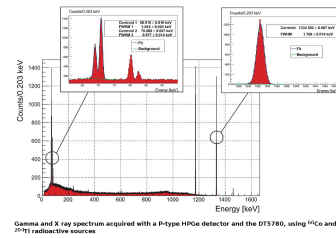
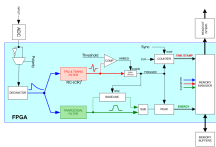
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**V1782**



Octal Digital Multi Channel Analyzer

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