

# 780 MCA Family

Dual Independent 16k Digital MCA  
with HV & Preamplifier Power Supply



**A complete, compact solution for gamma spectroscopy**

## Features

- Dual Independent 16k Digital MCA
- Available in Desktop and NIM form Factors
- Suited for high resolution digital nuclear spectroscopy
- Selectable input dynamic range and adjustable fine gain
- 3 outputs HV power supply ( $\pm 5$  kV/300  $\mu$ A) or ( $\pm 500$  V/3 mA) or ( $\pm 4$  kV 3 mA)
- 2 DB9 connectors for preamplifier power supply
- HV Inhibit input
- Features DPP-PHA firmware for energy and time stamp calculation
- Digital oscilloscope function for an easy setup and signal monitoring
- Suited for high counting rate
- USB and Optical Link communication interfaces
- Drivers, libraries and API for Windows and Linux 32/64-bit
- New MC<sup>2</sup>A analyzer software. for configuration, acquisition, data plotting and HV management

The 780 MCA family is composed by compact, stand-alone dual digital 16k MCA with integrated HV & Preamplifier Power Supply, available in desktop and NIM form factors. They are designed for high energy resolution semiconductor detectors, like HPGe and Silicon detectors with resistive feedback Charge Sensitive Preamplifiers.

The 780 MCA family integrates advanced firmware algorithms operating Digital Pulse Processing for Pulse Height Analysis (PHA).

The processing algorithms can be easily adapted to different detectors and application ensuring effective data analysis even at high count rates. It provides advanced tools for configuring baseline restoration, pile-up rejection.

Thanks to the two input simultaneous acquisition, the modules are able to manage coincidence and anti-coincidence logic between detectors, allowing the user, for example, to easily take advantage of background rejection or anti-Compton techniques.

These MCAs may provide at the same time energy, time stamp and the digitized pulse in a configurable time window (e.g. including the rising edge region) in order to perform further offline analysis.

Acquisition settings and mathematical analysis are performed through the MC<sup>2</sup>Analyzer software, providing energy spectra with up to 16k channels, which can be exported and imported in ASCII or N42.42 compliant files.

CAEN further provides drivers for the supported communication interfaces; configuration software tools, C and LabVIEW libraries (CAENComm, CAENDigitizer, CAENDPP), demo applications and utilities.

The high voltage supply channel can be ordered in three different versions to meet detector requirements: rated up to  $\pm 5$  kV/300  $\mu$ A for high purity germanium detectors,  $\pm 4$  kV/3 mA (limited to 4 W) for scintillation detectors and  $\pm 500$  V/3 mA for silicon and diamond detectors.



DT5780 rear view



News from Catalog web page  
[www.caen.it/news](http://www.caen.it/news)



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## Software

### MC<sup>2</sup> Analyzer (MC<sup>2</sup>A)

Digital MCA Data Acquisition and Analysis Software



MC<sup>2</sup>A is a software specifically designed to manage CAEN Digital MCA (780/781 family, DT5770 and *Ystream*) as well as CAEN digitizers running DPP-PHA (Digital Pulse Processing for the Pulse Height Analysis) firmware, like 724, 725 or 730 family.

It allows the user to set the relevant parameters, to manage the HV channels configuration (x780 and *Ystream* only), to collect the spectra and perform mathematical analysis like energy calibration, peak search, background subtraction, peak fitting, etc.

It is designed with multi-channel, multi-board capabilities: it can handle several boards and manage the data acquisition from each of them at the same time.



All CAEN Control Software are available for **free download** on the web site.

### Ordering Option

Code	Description	Form Factor
WDT5780XMAAA	DT5780M - Dual Digital MCA - 1 HVPS +5kV/300uA, 1 HVPS -5kV/300uA, 2 LVPS $\pm$ 12V/100mA, $\pm$ 24V/50mA	Desktop
WDT5780XNAAA	DT5780N - Dual Digital MCA - 2 HVPS -5kV/300uA, 2 LVPS $\pm$ 12V/100mA, $\pm$ 24V/50mA	Desktop
WDT5780XPAAA	DT5780P - Dual Digital MCA - 2 HVPS +5kV/300uA, 2 LVPS $\pm$ 12V/100mA, $\pm$ 24V/50mA	Desktop
WDT5780SDXMA	DT5780SDM - Dual Digital MCA - 1 HVPS +500V/3mA, 1 HVPS -500V/3mA, 2 LVPS $\pm$ 12V/100mA $\pm$ 24V/50mA	Desktop
WDT5780SDXNA	DT5780SDN - Dual Digital MCA - 2 HVPS -500V/3mA, 2 LVPS $\pm$ 12V/100mA, $\pm$ 24V/50mA	Desktop
WDT5780SDXPA	DT5780SDP - Dual Digital MCA - 2 HVPS +500V/3mA, 2 LVPS $\pm$ 12V/100mA, $\pm$ 24V/50mA	Desktop
WDT5780SCXMA	DT5780SCM - Dual Digital MCA - 1 HVPS +4kV/3mA, 1 HVPS -4kV/3mA, 2 LVPS $\pm$ 12V/100mA $\pm$ 24V/50mA	Desktop
WDT5780SCXNA	DT5780SCN - Dual Digital MCA - 2 HVPS -4kV/3mA, 2 LVPS $\pm$ 12V/100mA, $\pm$ 24V/50mA	Desktop
WDT5780SCXPA	DT5780SCP - Dual Digital MCA - 2 HVPS +4kV/3mA, 2 LVPS $\pm$ 12V/100mA, $\pm$ 24V/50mA	Desktop
WN6780XMAAAA	N6780M - Dual Digital MCA - 1 HVPS +5kV/300uA, 1 HVPS -5kV/300uA, 2 LVPS $\pm$ 12V/100mA, $\pm$ 24V/50mA	NIM
WN6780XNAAA	N6780N - Dual Digital MCA - 2 HVPS -5kV/300uA, 2 LVPS $\pm$ 12V/100mA, $\pm$ 24V/50mA	NIM
WN6780XPAAA	N6780P - Dual Digital MCA - 1 HVPS +5kV/300uA, 2 LVPS $\pm$ 12V/100mA, $\pm$ 24V/50mA	NIM

Small details  
Great differences

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