CAEN SyS
Systems and Spectroscopy Solutions

metorX

DUAL INDEPENDENT 32K DIGITAL MCA WITH HV AND PREAMPLIFIER POWER SUPPLY

Hexagon

MAIN FEATURES

- Dual 32k Digital MCA and Pulse Processor
- Provides pulse height analysis (PHA), time-stamped list mode and multichannel scaler
- Suited for high resolution spectroscopy with HPGe, Silicon and scintillation detectors as NaI and $LaBr_3$
- Operate with Resistive Feedback and Transistor Reset preamplifier
- Open access to embedded CPU for custom developments
- 2 HV power supply channels (up to ±5 kV) with HV inhibit, programmable ramp
- 2 DB9 connectors for preamplifier power supply (±12 V, ±24 V), HV inhibit and Detector Temperature read
- 2 BNC inputs for TRP inhibit or ADC gate
- Front panel OLED Display
- Ethernet and USB readout interfaces
- Link for synchronizing multiple MCAs
- 24 Programmable digital I/Os (e.g. ICR, SCA, MCS start/stop, MCS advance and sweep, etc.)
- MC^2 Analyzer software to manage the acquisition and to perform basic spectrum analysis
- Signal Inspector by both BNC Analog Output and Software visualization

DESCRIPTION

Hexagon is a compact, stand-alone dual digital 32k MCA, available in desktop form factor.
It is designed for high energy resolution semiconductor detectors, like HPGe and silicon drift detectors, connected to charge sensitive preamplifiers.
Hexagon integrates advanced firmware algorithms operating digital pulse processing for Pulse Height Analysis (PHA).
The embedded CPU runs an os able to execute custom routines for automated operations.
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 and pile-up rejection.

Moreover the module features on-board spectrum recording, acquisition settings logging and autonomous data acquisition when unconnected from external devices.
Thanks to the two input simultaneous acquisition, the module is 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.
Hexagon embeds I/O connectors for SCA, MCS and Coincidence/ Anticoincidence functions, it integrates High Voltage Inhibit and TRP Inhibit.
Clock and Synchronization connectors are provided, which allow the time stamp of multiple modules to be aligned with high accuracy.

The module embeds an LCD screen to monitor real time the data acquisition results, e.g. ICR, OCR and dead time. **Hexagon** 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 **MC²Analyzer** software, providing energy spectra with up to 32k 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. demo applications and utilities.

TECHNICAL SPECIFICATIONS

Dimensions :

- 237 x 51 x 164 mm³ (W x H x L) (without connectors)
- 154 x 50 x 195 mm³ (W x H x L) (including connectors)

OPTIONS

The two high voltage supply channels can be ordered in three different polarity configurations:

- both channel positive: 2 HVPS +5kV/300µA, 2 LVPS ±12V/100mA, ±24V/50mA
- both channel negative: 2 HVPS -5kV/300µA, 2 LVPS ±12V/100mA, ±24V/50mA
- mixed polarity configuration: 1 HVPS +5kV/300µA, 1 HVPS -5kV/300µA, 2 LVPS ±12V/100mA, ±24V/50mA

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