



Multi Channel Analyzer HEXAGON

Overview

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 SDD.

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. The module has been designed to operate as a scalable multi-input, multi-board acquisition system, offering synchronization capabilities.

The Hexagon houses USB 2.0 and Ethernet interfaces. USB 2.0 allows data transfers up to 30 MB/s.

Features

- Dual 32k Digital MCA & Pulse Processor
- ADC 16 bit, 100 MS/s
- Provides pulse height analysis (PHA), time-stamped list mode and multichannel scaler (MCS coming soon)
- Suited for high resolution spectroscopy with HPGe, Silicon detectors and scintillation detectors as NaI and LaBr3
- Designed to operate with Resistive Feedback and Transistor Reset preamplifier
- Ethernet and USB readout interfaces
- Easy synchronization for Multi-Board systems
- 24 Programmable Digital I/O
- Signal Inspector by both BNC Analog Output and Software visualization

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Specification

Parameter	Value
Operating Modes	<ul style="list-style-type: none"> - Pulse Height Analysis (PHA) - List mode (pulse height and time stamp for each event) - Oscilloscope mode - OMCS (Multichannel Scaling) mode
Digital Signal Processing	<ul style="list-style-type: none"> - Trapezoidal filter (rise time 0 - 20µs and flat top 0 - 10µs) - Manual trigger threshold adjustment - Manual AC coupled input signal pole/zero adjustment - Baseline restorer - Fast Discriminator - Manual fast discriminator threshold adjustment - Pile up rejection and Live Time correction
ADC	<ul style="list-style-type: none"> - Resolution: 16 bits - Sampling rate: 100 MS/s
Analog Input	<ul style="list-style-type: none"> - BNC connector - DC and ADC coupled - Positive and negative signals accepted - Programmable coarse gain (x1, x2, x4, x8, x16, x32, x64, x128, x256, x496) - Programmable fine gain (range 0.8 - 2.2 with steps of 0.001) - Gain attenuator (x4) - Programmable DC offset adjustment in the full scale range
High Voltage Power Supply	<ul style="list-style-type: none"> - SHV connector - V set/I set: ±5 kV/300 µA - HV polarity adjustable - Voltage ripple: 3 mVpp (Min.), 5 mVpp (Max.) - User configurable Ramp-Up/Ramp-Down rates independently for each channel: 1 ÷ 500 V/s range in steps of 1 V/s - User configurable HV parameters independently for each channel - OverVoltage/UnderVoltage alarms - OverCurrent/OverTemperature alarms - Channel Inhibit on DB9 and dedicated BNC connectors - Voltage limit, Vmax, software selectable
Coincidence Modes	<ul style="list-style-type: none"> - Single channel mode (uncorrelated) - Board coincidence (channel 0 con channel 1) - Board anti-coincidence (channel 0 con channel 1) - External Coincidence (GATE) - External anti-coincidence (INH)
Mechanical	237 W x 51 H x 195 L mm ³

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