



Product Information



MCA8000 Multichannel Analyzer

Premium Performance at an affordable price

- Integrated ADC/MCA in a low profile, standalone package
- Includes Quantum MCA software for hardware settings and complete qualitative analysis
- Available in 8k or 16k models
- No PC slots or reserved memory required
- Easy installation and setup via Ethernet 10/100 base-T or serial link



The MCA 8000 is PGT's latest multichannel pulse height analyzer which was designed to give outstanding performance and value at an economical price. Packaged as a standalone unit, it features total computer control and excellent performance and flexibility. Computer control is accomplished via Ethernet or serial link. In addition the MCA8000 is available in 8k or 16k configurations. Each unit includes Quantum MCA software and is compatible with our optional fully quantitative analysis software packages.

The MCA8000 features an 8.12 microsecond successive approximation ADC. With hardware add-on to memory and an on-board 20 MHz processor, there is processing power to spare. Differential non-linearity is less than ± 1 percent over the top 99 percent of the range, and integral non-linearity is less than 0.05 percent over the same range. Digital stabilizers are provided for both the gain and offset. Data is stored as 31 bits per channel with an additional 8 bits for ROI information. Flexible live time correction is provided with a choice of simple busy, Lowes, Gedcke-Hale, or external dead time methods.

Software Control

The MCA8000 is fully computer controlled. Upper level (ULD) and lower level (LLD) discriminators, the ADC zero offset, and conversion gain are software adjustable. Conversion gain can be set in increments of 256, 512, 1024 etc up to the maximum for the particular mode. A wide range of presets is available including: live time, real time, integral of all ROI's, integral of selected ROI's, total SCA counts, net ROI statistics, and gross ROI statistics. The MCA 8000 has the I/O connections for configuring any measurement application. External rear panel BNC connections are provided for GATE, REJECT, BUSY-IN, and ADC-INPUT. The polarity of REJECT and BUSY-IN is programmed from the software. MCA outputs include SCA OUT, PEAK DETECT, and ADC BUSY. The polarity of the PEAK DETECT and ADC BUSY signals is programmed from the software. A 26-pin DSUB connector is provided for ROI outputs and digital control signals.

Analytical Software

For qualitative analysis, the MCA 8000 includes Quantum-MCA software at no additional charge. However, for those applications that require quantitative gamma analysis, PGT offers Quantum Gold as an option. This package features an intuitive, user-friendly, interface. The main screen is not cluttered with buttons and controls. Tool-tips allow frequently used functions to be quickly and easily identified.

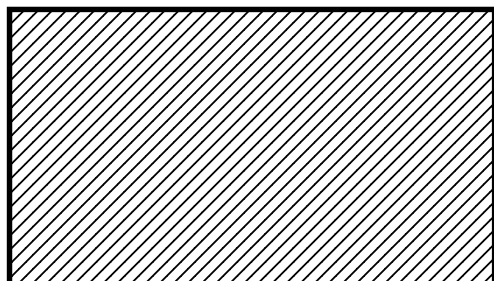
For the user that wants control of the analytical process, Quantum Gold will be a pleasure to use. The Tools Setup window allows the fine-tuning of parameters associated with the analytical calculations. Some of these controls include peak search sensitivity, line matching for library-based identification of isotopes, and ROI definitions. The efficiency calibration process is as simple as selecting energy lines associated with the various calibration standards, and then pressing one button. The efficiency curve is generated along with a theoretical model for the response of the detector. The gamma activity report includes all information associated with the analysis. Each spectrum data file contains all information associated with the calibration that was in effect at the time of acquisition.

Computer and Network Connectivity

Quantum-MCA has a single hardware setup and search utility that establishes communication with PGT multichannel analyzers via Ethernet 10/100 base-T or RS-232. Ethernet capability allows users to enjoy the benefits of connecting the MCA 8000 directly to a PC or to the local area network. Whereas, the RS-232 interface allows a quick and simple method of connecting the MCA 8000 directly to a PC in the field or other location where Ethernet is not available. For RS-232, an unused COM port is all that is needed.

MCA8000 Specifications

- **ADC**
 - 8.12 μ s successive approximation ADC (14-bit resolution)
 - Discriminators (PC adjusted): upper (0 to 105% of full scale) and lower (<1% to 105% of full scale) in 0.41% increments.
 - Zero adjustment in increments of .41% (PC adjusted)
 - Maximum throughput: 70,000 cps
- **Spectrum memory**
 - MCA 8008: 256, 512, 1024, 2048, 4096, 8192 channels
 - MCA 8016: 256, 512, 1024, 2048, 4096, 8192, 16,384 channels
 - Maximum counts per channel: $2^{31} - 1$ i.e. 2.1E9)
- **Digital Stabilizer**
 - Internal ADC zero and gain stabilization
 - PC controlled time constants
 - Balanced channel and ROI centroid Modes
 - Gain: $\pm 12.5\%$ range
 - Zero: $\pm 1.25\%$ range
- **Counting presets**
 - Real time
 - Live time
 - Integral of all ROI's
 - Integral of selected ROI's
 - Gross ROI statistics
 - Net ROI statistics
 - Total system counts
 - Total SCA counts
- **Linearity**
 - Differential: $< \pm 1\%$ over top 99% of range
 - Integral: $< \pm 0.05\%$ over top 99% of range
- **Battery backup for**
 - Spectrum
 - Setup parameters
 - Clock memory
- **Computer Control**
 - Ethernet 10/100 base-T
 - RS-232 baud rates: 2400, 9600, 19200, 38400, 57600, 115200
 - Max. number units connected to PC: 8
- **Front panel indicators**
 - LED's for: Acquire, Event, Serial Com, AUX I/O in-use, power.
 - 3-color LED array for dead-time
- **Rear panel controls and connectors**
 - Power switch
 - 2.5mm power jack
 - Fuse housing
 - 9-pin D male RS-232 connector
 - 26-pin D female connector for ROI output
 - 9-pin D auxiliary I/O connector
 - Ethernet interface connector (RJ-45)
 - ADC input (BNC) 0-10V Unipolar or Bipolar pulse
 - ADC gate input (BNC) (coin. / anti-coin. / off) CMOS/TTL
 - Pile-up reject input (BNC) CMOS/TTL
 - SCA output CMOS/TTL
 - ADC busy out (BNC) CMOS/TTL
- **Weight**
 - 4.06lb (1.85Kg)
- **Dimensions**
 - 10.4in. (26.4cm) wide
 - 12.3in. (31.2cm) deep
 - 2.75 (7.0cm) tall
- **Power requirements**
 - 10-18 VDC, 9.6 watts, external
 - 12V universal AC supply provided
- **Software**
 - 32-bit Quantum MCA compatible with MS Windows 95/98/XP
 - 32-bit Quantum Gold software for quantitative analysis, compatible with MS Windows 95/98/XP



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