



Product Information



MCA4000—Multichannel Analyzer

Premium Performance at an Affordable Price

- Intergrated ADC/MCA in a low profile, standalone package
- Includes Quantum MCA software for hardware settings and complete qualitative analysis
- Available in 1k, 2k or 4k models
- No PC slots or reserved memory required
- Easy installation and setup

The MCA 4000 is a high performance multichannel pulse height analyzer. It has features that make pulse-height analysis a pleasure to perform. This MCA 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. The MCA 4000 is available in three configurations: 1k channels of spectrum memory, 2k and 4k. Each unit includes Quantum MCA software and is compatible with our optional fully quantitative analysis software packages.

The MCA 4000 features a 2.7 microsecond successive approximation ADC. With hardware add-one 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 MCA 4000 is fully computer controlled. There are no pots to adjust. Upper level (ULD) and lower level (LLD) discriminators, the ADC zero offset, and conversion gains are software adjustable.

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 MCA4000 has I/O connections needed 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 can be programmed from the MCA software. MCA outputs include SCA OUT, PEAK DETECT, and ADC BUSY. The polarity of the PEAK DETECT and ADC BUSY signals are also 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 4000 includes Quantum MCA software at no additional charge. However, for those applications that require quantitative gamma analysis, PGT also offers the optional Quantum Gold. 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 who wants control of the analytical process, Quantum Gold will still 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 MCA 4000 is also used in X-ray spectroscopy applications. PGT's Excalibur X-ray analysis package is for use with the MCA 4000.

Computer and Network Connectivity

Quantum-MCA has a single hardware setup and search utility that establishes communication with PGT multichannel analyzers via RS-232 or RS-485. Both methods allow users to enjoy the benefits of connecting the MCA 4000 directly to a PC. The RS-232 interface allows a quick and simple method of connecting the MCA 4000 directly to a PC in the field or other location. An unused COM port is all that is needed. Multiple MCA 4000s can also be connected via an RS-485 multi-drop interface.

