

MCA2500R Standalone Digital Spectrometer

The MCA2500R is a stand-alone gamma spectrometer designed for use with scintillation detectors including NaI and LaBr. It is packaged as a peripheral to the PC, and one or more units can be connected via Ethernet. The MCA2500R features digital pulse processing using a 50 MHz 14-bit ADC, with software control over the trapezoidal filter shaping time. The system can operate either as a standard 1024-channel MCA in linear mode or as a 512-channel MCA in QCC™ (Quadratic Compression Converter™) mode. In QCC mode, the system delivers uniform peak resolution from 20 to 3000 keV with 512 channels of resolution.

The MCA2500R includes the QuantumMCA software. All hardware setup and calibration functions are made through QuantumMCA. For ease of setup, the software performs automatic adjustments of the detector bias and gain. For applications that require quantitative analysis, PGT's Quantum family of software packages has a number of software options that will satisfy your needs.



Applications

- Laboratory Instrumentation
- Low-cost teaching instrument
- Wipe testing
- Area monitoring

Features

- Digital pulse processing with shaping times from 40 ns up to 10 μ s
- Maximum throughput: over 75,000 cps
- Built-in dead time correction
- QCC mode: 256 or 512 channels; linear mode: 256, 512, or 1024 channels (2048 channel version available)
- Maximum counts per channel: $2^{31}-1$ (over 2 billion)
- Integral software-controlled bias supply
- TCP/IP networking over Ethernet supports many units and long distance between desktop and instrument
- Multi-unit installations easily configured using Compact Flash cards
- Software compatible with earlier Quantum MCA products

MCA2500R Specifications

Detector Connections:	SHV high voltage, BNC signal
External Outputs:	1 dry contact relay (120V@2A max) and 2 open collector contacts (12V@0.5A max) TTL level SCA output; Digital 'amplifier' output
Integrated Electronics:	Digital signal-processing MCA
Energy Range:	18 keV – 3 MeV typical, user selectable in Quantum Software
ADC:	Type: Base converter 14-bit pipelined-flash Conv. Modes: Linear 256, 512, 1024 (2048 optional) QCC 256, 512 (U.S. Patent 5,608,222) LLD/ULD: 0 to 100% of FS adjustable in < .01% steps Zero: ±100% of FS adjustable by channels
Pulse Processor:	Trapezoidal filter with adjustable time constant (40ns – 10µs)
Bias Supply:	0 to +1200 V in 1-V steps (computer controlled); other bias supplies available on special orders
Controller I/O:	10/100 Ethernet port
Power:	90-247 VAC, 50-60 Hz with universal power converter (included); or 9-16 VDC @ 500mA direct input for use with batteries; Typical power consumption: 6 watts ; Built-in self-resetting 1.5A fuse
Weight:	1.7 lb. (0.77 kg)
Dimensions:	6.3" L x 6.3" W x 2.2" H (16cm x 16cm x 5.5cm)
Temperature Range:	-20 to 50°C
Clock:	Battery-backed real-time clock/calendar
Controls:	Remotely operated through PC software
Patented Technology:	Quadratic Compression Conversion (QCC)