

ORTEC®

ASC2
Automatic Sample Changer

**Advanced, Automated Gamma Spectroscopy
... Yet Economically Priced**



Model ASC2 Automatic Sample Changer

... the top choice for those performing high-resolution gamma spectroscopy who want an integrated, automatic system for unattended analysis of bulk samples in containers such as Marinelli beakers.

The ASC2 Automatic Sample Changer is the top choice for those performing high-resolution gamma spectroscopy who want an integrated, automatic system for unattended analysis of bulk samples in containers such as Marinelli beakers.

- Accommodates most HPGe detector sizes
- Automatic sample changer system for gamma spectroscopy
- Unattended acquisition and analysis of multiple high-resolution gamma-spectroscopy samples
- Low background design: no moving parts inside lead shield
- Completely safe: totally enclosed!
- Easy to use
- Twenty 1-liter samples standard; other configurations available
- ORTEC *CONNECTIONS* architecture allows PC to be remote from sample changer

State-of-the-Art Systems

A complete ASC2 system comprises an ORTEC HPGe detector in a low background shield; a safe, ultra-reliable automatic sample changer; ORTEC spectroscopy electronics; ORTEC GammaVision analysis software and control via a unique High-Productivity Automation software package.

Ultra Reliable

ASC2 is extremely compact, highly reliable, and designed for many years of carefree operation. The use of an ASC2, especially when coupled to one of **ORTEC's super-large Ge detectors**, results in maximum sample throughput and lowest cost per sample processed.



ASC2

Automatic Sample Changer

Maintaining Low Background

The mechanical design of the ASC2 is such that when a sample is in place with the shield closed, the detector “sees” no additional hardware whatsoever; comparable to that of a manual system. No parts of the handling mechanism are within the shield, nor does the changer mechanism introduce any scatter- or shine-paths which might degrade low background performance.

Safety First

In the design of ASC2, safety was considered to be of paramount importance. The unit is fully enclosed with interlocked access doors. An emergency stop button is mounted prominently on the front of the system.

Handles Nearly Any Sample

ASC2 accommodates a wide variety of sample size/sample number combinations, including a variety of Marinelli beakers. The twenty standard 1-liter containers (10 cm diam x 12 cm high) are perfect for holding scintillation vials, small beakers, charcoal and paper filters, and various sample bottles. Optional sample carriers such as the Marinelli beakers can be used on the same system as the standard 1-liter carriers. There are no screws to remove nor carriers to dismantle. Simply pull out one set of carriers and install the new set. A command to the X-Y-Z controller resets the positioning mechanism to pick up the new carriers. When the other set is needed, simply reverse the process. Total time to change out a carrier set is <5 minutes.

Computer Remote

Through ORTEC’s *CONNECTIONS* architecture for networked spectroscopy systems, the ASC2 system may be located remote from its controlling computer. Moreover, during acquisition, although the automatic sequence is “locked” to prevent unauthorized or inadvertent interruption, spectra being acquired are easily viewed from any other PC on the network.

Operation

The samples are first registered into a loading jig, from which they are sequentially taken into the counting chamber by the pre-programmed action of the X-Y-Z robotic arm. The sample count starts as soon as the data for the first sample has been entered, thus maximizing count time. The sliding top of the lead shield is rolled back smoothly under computer control to allow for sample changing. When the sample is in place, the robotic arm releases it, and returns to its rest position as the shield lid closes and the count starts.

Through the use of the automation software, different sample types can be completed in one batch. Simply choose the right template for each sample to be counted, and the automation software will handle the rest.

During normal operation, the only controls to which the operator has access are power on, start, and reset. No computer control is necessary. All communications are through the “CHANGE SAMPLE” and “SAMPLE READY” BNC connectors on the ORTEC MCB.

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Shield Specifications

Type Sliding lid, integrates with sample changer mechanism.

Cavity 25 cm (10 in.) ID x 32 cm (12.75 in.) H.

Construction Low-carbon steel outer jacket: 3-3/4 in. thick Doe Run™ lead.

Inner-Graded Liner 0.02-in. cadmium and 0.0064-in. copper.

Finish External: Polyurethane epoxy. Internal: Copper and lead surfaces finished in clear-acrylic lacquer.

Dimensions 180 cm H x 190 cm W x 120 cm D (71 in. H x 75 in. W x 47 in. D).

Weight 1100 kg (2426 lbs).

Spectroscopy Electronics

ASC2 is designed to operate with a variety of spectroscopy electronics systems. Recommended is the ORTEC DSPec Plus or DSPec Pro Digital Gamma-Ray Spectrometer. Any ORTEC ADCAM® architecture MCB, even the older units (919, 920, 92X, etc.), can control the system. Alternatively, TTL-level signals can be sent directly to the ASC2's controller to operate the system in the absence of an ADCAM MCB.

Computer Prerequisites

Any computer running Windows 2000/XP will be suitable for running GammaVision software. The sample changer itself is controlled via control signals from the spectroscopy hardware. To connect a DSPec Plus to a CONNECTIONS system, a thin-wire Ethernet is required.

Ordering Information

For a complete ASC2 system, order the following:

Description

ASC2 Sample Changer System, including lead shield ORTEC HPGe detector (aluminum endcap recommended)

CFG-PV4 Vertical Cryostat

DWR-30 30-liter dewar

DSPec Plus or DSPec Pro Digital Gamma-Ray Spectrometer

A66-B32 GammaVision-32 Software with GammaVision Automation Pack

A suitable PC and printer (ORTEC models PC-1 and PRT-1 recommended)

Alternate sample carriers (e.g., for Marinelli beakers)

If mechanical cooling without liquid nitrogen is preferred, order X-COOLER II and X-COOL-STAND in place of CFG-PV4 and DWR-30.

Recommended Software Options

- Nuclide Navigator® III (C53-B32) nuclide data base
- Custom Report Writer (A44-B32) option for GammaVision

Specifications subject to change
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