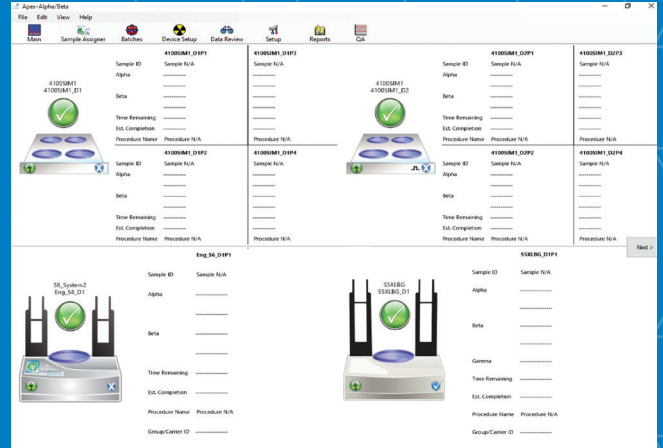




ALPHA/BETA COUNTING

Apex- Alpha/Beta™

Counting Productivity Software



Apex-Alpha/Beta Software streamlines low background alpha/beta counting processes for fast, accurate sample analysis.

Purpose-built for laboratories, Apex-Alpha/Beta Software simplifies tasks related to Mirion's low background alpha/beta counting systems.

Apex-Alpha/Beta software works with Mirion gas flow alpha/beta counters, including Series 6LB™, LB4200™, LB4100™, Series 5 XLB™, and Series 5 LB5500™ systems.

Radiological laboratories rely on the Mirion Apex™ software family to simplify training and facility operations. The software's user-friendly design and system compatibility make it easy to efficiently manage counting rooms.

Exclusive to the Series 6LB system, sample batches can be set to delay counting until or after a specific time. QC sequences can be associated so that starting a sample batch will also launch QC sequence(s). Multiple batch iterations can follow immediately, at specific times or after a preset delay. All of this can be accomplished on the Series 6LB with minimal steps in the Apex-Alpha/Beta software or even fewer steps via the Series 6 touch panel.

FEATURES

- ✓ Flexibility to conform
- ✓ Automated plateau and region of interest setup
- ✓ Calibration and QC sequences
- ✓ Express count for immediate counting without pre-entry
- ✓ Custom procedure creation for specific sample types
- ✓ Integrated support for ISO1929
- ✓ Integrated report editor
- ✓ Comprehensive event and environmental condition logging
- ✓ Multi-level security system for permission-based user access
- ✓ SQL Server Express Database included
- ✓ Compatible with Windows 10 and 11

SIMPLIFYING ALPHA/BETA ANALYSIS

Labs typically operate in one of two ways: 1) Using instrument software to provide the count results that are entered into a LIMS (Laboratory Information Management System) where all the calculations are performed, or 2) performing all the background subtraction and efficiency/spillover corrections to report the sample analysis results locally. Many labs are somewhere in between these two. Apex-Alpha/Beta is designed to be flexible to conform to the unique needs of the laboratory.

Users can enter sample information individually or use the convenient Sample Helper (Figure 1) to generate entire batches, including blanks, spikes and duplicates. Once created, sample batches can be easily copied and reused for similar future batches.

Sample assignment is flexible:

- **Manual Drawer Detectors:** Assign samples manually to specific drawer detectors.
- **Drag and Drop Batches** onto detectors or groups. (Figure 2 – Sample Assigner)
- **Custom Display Groups:** Organize sample detectors based on analysis type or any other desired criteria.
- **Sample Delay Option:** Automatically starts the batch count after a preset amount of time without additional input from operator.

During counting, real-time results are displayed in the Sample Assigner view (refer to Figure 2) for each detector within the selected display group for up to eight detectors. The background color code indicates detector status:

- **Blue Halo:** Available for counting
- **Green:** Active counting
- **Aqua:** Assigned, not yet counting

DEVICE SETUP

- **Plateau:** The software accommodates multi-detector system drawers that share a common high voltage power supply to perform plateau counts concurrently when multiple sources are used for a plateau (Figure 3). Alternatively, results from separate plateau counts from detectors within the same drawer can be combined into a single plateau measurement to determine the optimum operating voltages.
- **Alpha and Beta Regions of Interest:** Users can manually adjust the alpha and beta discriminators or automatically (Figure 3) optimize the levels for an ideal counting compromise between spillover and efficiency.

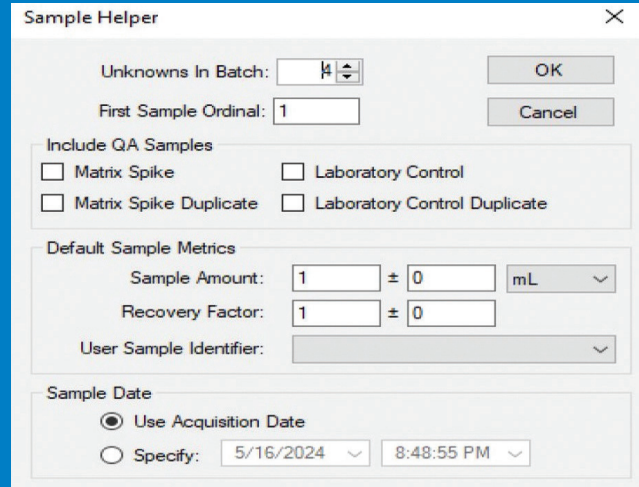


Figure 1. Sample Helper

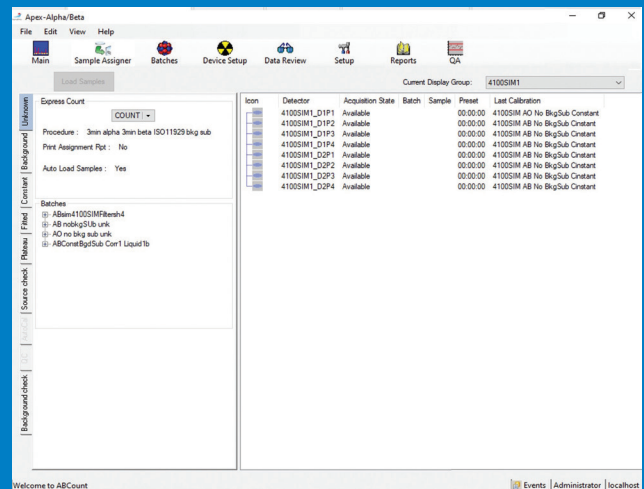


Figure 2. Sample Assigner

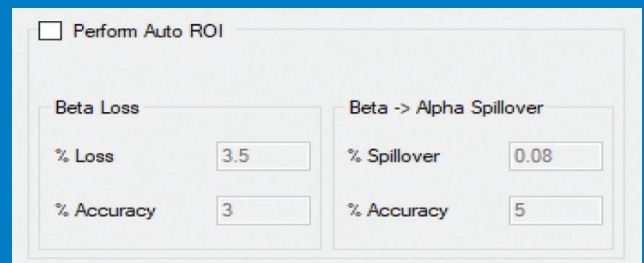


Figure 3. Automatic ROI Setup

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CONSTANT EFFICIENCY OR FITTED ATTENUATION CORRECTION

The Apex-Alpha/Beta software allows users to choose either a traditional constant (versus mass) efficiency or from multiple methods for approximating count loss based on residual mass with four available fit models: Inverse Linear, Inverse Quadratic, Exponential and Linear.

Mass Attenuation Correction calibration simplifies instrument setup. The interaction of energetic alpha and beta particles with matter can lead to varying mass attenuation due to sample self-absorption.

Calibration Sequences streamline the process for sample changer-based systems. Load the calibration standards onto the changer, initiate the sequence and later return to a fully calibrated system.

SIMPLE COUNTING PROCEDURES

The heart of sample entry simplicity lies in the Procedure Editor. Users define sample-specific parameters for each analysis type, including:

- Count Time
- Required Sample Information
- Background and Efficiency Corrections
- Reports and Data Reviews

The Batch Manager (Figure 4) streamlines data entry by allowing users to create templates for routine samples, which can be reused for similar groups of samples.

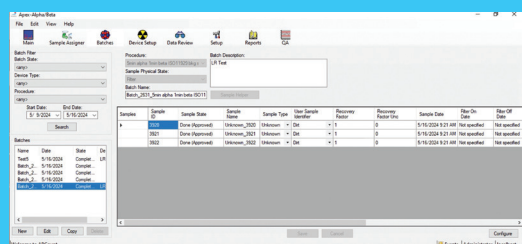


Figure 4. Batch Manager

Additional Features:

- **Copy Sample/Batch Information:** Users can renew and apply previously analyzed batch information to new sample batches.
- **Sample Helper:** For entirely new batches with similar samples, the sample helper allows creating multiple samples with editable information, enabling quick counting initiation.

QA Samples counted alongside sample batches are easily identified during the data review process. This allows users to perform QA analysis of chemistry methods.

SERIES 6LB FUNCTIONALITY

Series 6LB counters can be operated exactly like Series 5 XLB systems in the Apex-Alpha/Beta software. This compatibility allows new units to integrate into existing Series 5 XLB laboratories without changing established operating procedures.



Additional functionality exclusive to the Series 6LB system includes:

- Express Sample Batches and QA Sequences can be initiated directly from the instrument's tablet-like front panel, eliminating the need for direct computer or Apex-Alpha/Beta software interaction.
- Linked QA Procedures: Within the sample procedure setup, link QA batches to automatically start alongside sample batches.
- Flexible Counting Start and Recount Times allow immediate counting or can be configured to occur at a future point or a specific time.
- Environmental data, such as temperature, humidity and barometric measurements, is also collected to help users to identify external factors impacting data quality.

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QUALITY ASSURANCE

The Apex-Alpha/Beta software places significant emphasis on system quality assurance. As demands for instrument and laboratory method quality control increase, radio-analytical laboratories face additional requirements.

QC sequences simplify routine source and background checks. All QA data is saved into the SQL Server Express database where it can be accessed by many third-party statistical process control (SPC) software or even user-built spreadsheets.

DATA REVIEW, REPORTING AND EXPORT

Retrieving samples for review is straightforward:

- **Data Review Utility:** This flexibility is particularly valuable for responding to follow-up queries. For instance, an environmental lab may receive inquiries about specific samples or specific projects; the Data Review Utility assists in addressing these requests.
- **Database Filters:** Apply filters to locate individual samples or groups of samples for review.

Apex-Alpha/Beta software incorporates an integrated report writing tool, enabling the creation and modification of custom reports as needed.

Unlike third-party software with yearly updates and compatibility challenges, the standard reporting system within Apex-Alpha/Beta software offers essential report formats for typical user requirements. Reports can be exported in various formats: PDF, Microsoft Word, Microsoft Excel, Image formats (bmp, gif, jpeg) and more. Data export can be manual or set up for automatic export.

SPECIFICATIONS

UPGRADES TO EXISTING SYSTEMS

Compatibility:

- Apex-Alpha/Beta software is compatible with all LB4100-W systems, requiring no system firmware updates.
- Series 5 XLB and Series 5 LB5500 systems running Version 3.3 or newer do not need firmware updates.
- Apex-Alpha/Beta software is not compatible with any LB4100-D system unless it was previously upgraded to operate under OSUM or APEX-ALPHA/BETA.
- IN20/MINI20 Systems are no longer formally supported beginning with APEX-Alpha/Beta 2.2, though operation isn't explicitly denied.

Multiple Counters on a Single Workstation:

- The software supports multiple counters on a single PC workstation.
- For LB4100 and Series 5 systems, the computer requires an IEEE 488.2 Compliant Interface with the upper limit of connections of 15 devices.
- Each compliant interface connects to an LB4100 or Series 5 Controller, supporting up to thirty (30) sample drawers or sample changers.
- LB4200 and Series 6 systems require an available USB port for each unit.

RECOMMENDED MINIMUM SYSTEM CONFIGURATION

- Intel Core i7 Processor
- Microsoft Windows 11 Professional x64
- 16 GB RAM
- Hard disk with 1 TB
- Optical drive for installation purposes
- IEEE-488.2-compliant interface for LB4100 or Series 5 systems
- Available USB port(s) for Series 6LB and LB4200 systems

ORDERING INFORMATION

- S556C Apex-Alpha/Beta Counting Productivity Software
- S556U Apex-Alpha/Beta Upgrade from older version of Apex-Alpha/Beta software
- S5E2S5XU Upgrade Kit for Series 5-E to Series 5-XLB system

NOTE: Genie™ 2000 software is NOT required for Apex-Alpha/Beta software

NOTE: S556U update version requires previous purchase of S556C



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