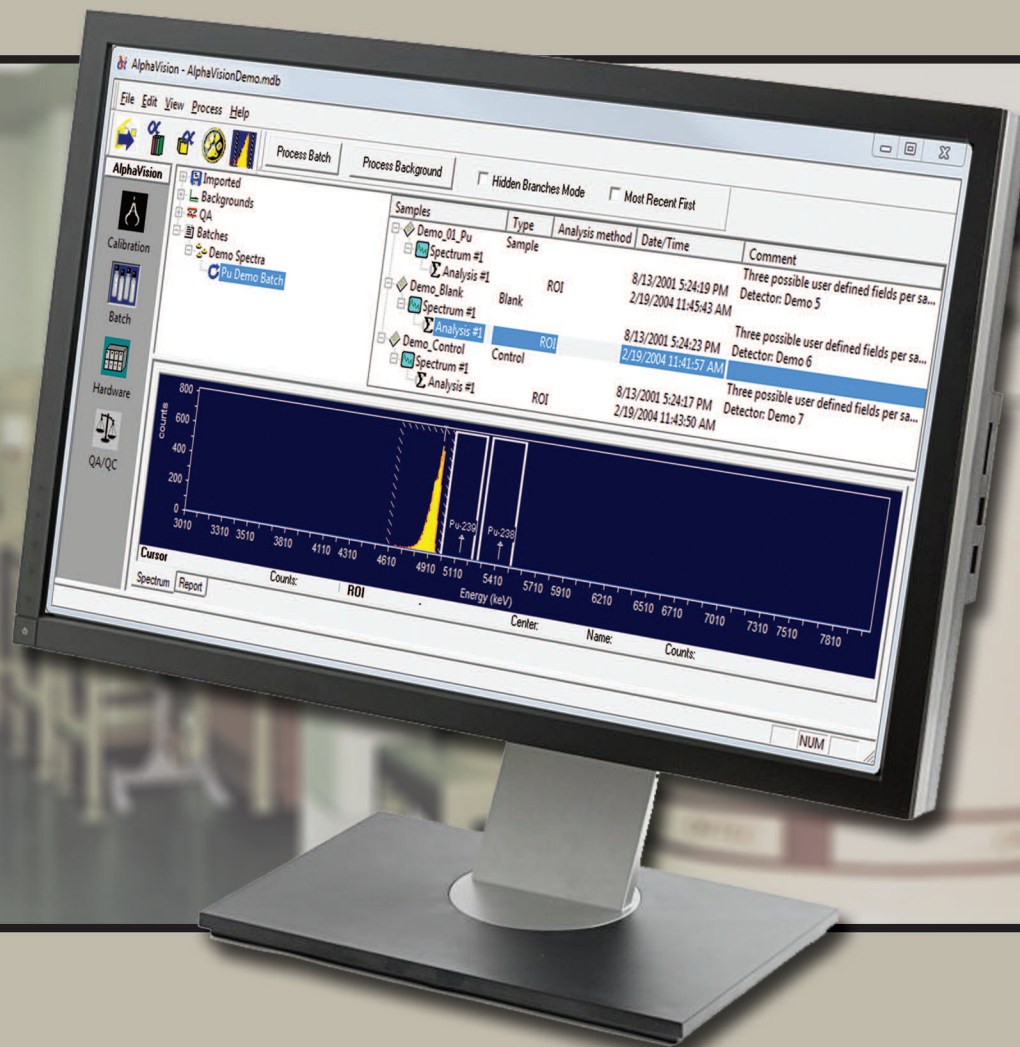


ORTEC®

AlphaVision®

Alpha Spectrometry Management Software



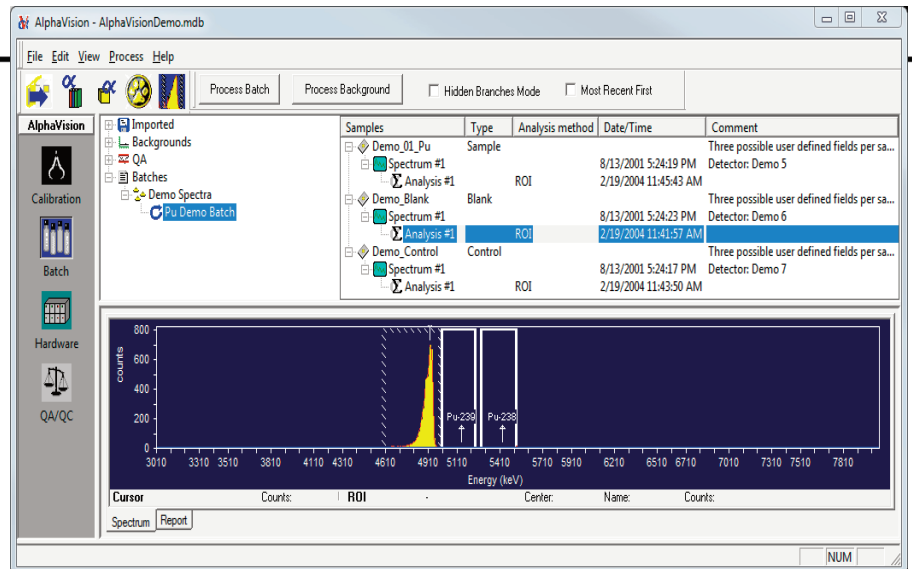
“The Comprehensive Alpha Spectrometry Solution for Compatible, Efficient, and Defendable Alpha Measurements.”

AMETEK®
ADVANCED MEASUREMENT TECHNOLOGY

AlphaVision

AlphaVision is a comprehensive PC-based alpha spectrometry application that combines rich features and intuitive processes to meet the demands of modern Radiochemistry Laboratories.

In large scale commercial laboratories with hundreds of alpha detectors or small labs with only a few detectors, AlphaVision is your solution to optimize routine measurement processes and monitor system performance.



Why AlphaVision?

Compatibility

- Windows 10 64-bit Compatible.
- Microsoft Access Database with Data Management tools and LIMS integration capability.
- Crystal Reports integration for Rich Standard Reports and Custom Report capability.
- Extensive Analysis capability to accommodate a wide variety of Radiochemistry processes.

Process Efficiency

- Batch Configuration process with LIMS¹ integration to maximize throughput and minimize errors.
- Intuitive Sample Management including Query tools to quickly locate Batches and Samples.
- Rapid Data Review and Analysis modification process.
- Integrated Hardware control for up to 256 detectors in a common interface.

Defendable Results

- Security controls to limit user access to authorized functions.
- Compliance with Industry Standards such as ANSI N13.30 and N42.23.
- Comprehensive Quality Control features.
- Historical Analysis retention when re-analyzing samples.
- Detailed Event Logging for routine operations, warnings, and errors.

Introducing AlphaVision 7.0!

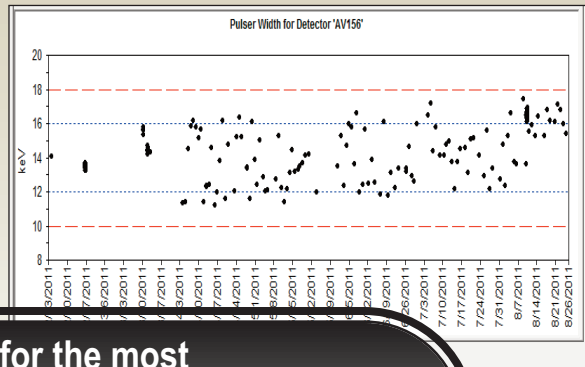
- New!** 64-Bit Windows 10 Compatibility.
- New!** Alpha Mega now supported in the Instrument Group Control.²
- New!** Automatic Spectrum Export on Completion of Calibration Measurements.
- New!** Simple Spectrum Export from any spectrum window.
- New!** Notification of Communication Interruption on the Instrument Group Control.²

¹ Laboratory Information Management System.

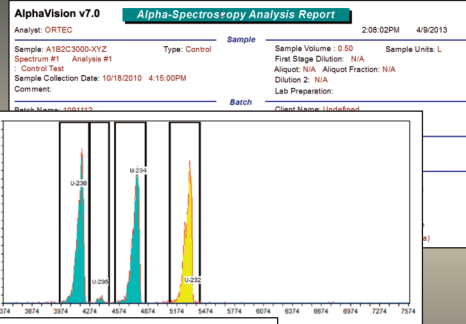
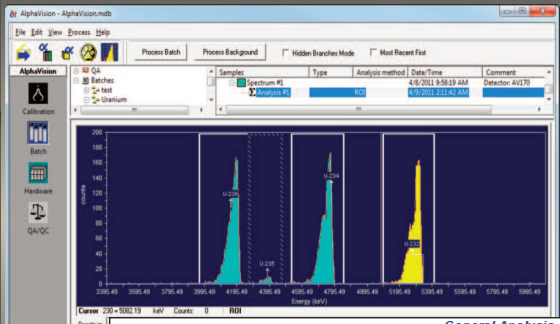
² Hardware control is available for instruments with software control capability.

Batch Automation

Quality Assurance



Bringing it all together for the most Compatible, Efficient, and Defendable Results Possible!



Analysis Method: ROI Analysis, Set Name = UROI
Decay Correction: 4/7/2011 3:26:52PM
MDA Constants: $K\alpha = 1.64$, $K\beta = 1.64$

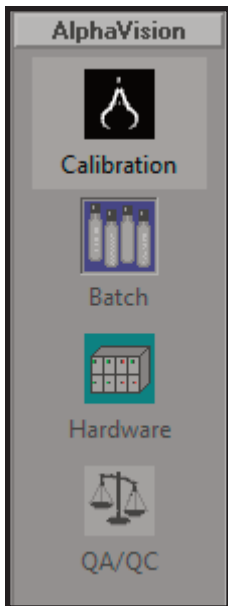
Nuclide Library: Uranium
MDA Source: Background

Nuclide Summary (ROI)

Nuclide	Peak Energy keV	ROI Start keV	ROI End keV	FWHM keV	B.R. %	Gross Counts	Bkgd Counts	Net Counts	Activity pCi/L	1.00Sigma pCi/L	Critical Level pCi/L	MDA pCi/L
U-238	4157.453	3958.099	4261.858	70.9	100.0	1,777.00	0.0000	1,777.00	6.959E+000	4.274E-001	0.000E+000	1.080E-002
U-235	4381.179	4269.316	4470.670	67.9	80.2	59.00	0.0000	59.00	2.881E-001	4.109E-002	0.000E+000	1.321E-002
U-234	4776.430	4530.331	4851.005	67.5	99.8	1,853.00	0.8000	1,652.20	6.483E+000	4.004E-001	7.748E-003	2.611E-002
U-232	5343.203	5097.104	5410.321	75.4	100.1	1,854.00	2.4000	1,651.60	6.116E+000	3.437E-001	1.445E-002	4.033E-002

Hardware Control

Calibration



Calibration

- α Energy and Efficiency Calibration
- α Automated and Interactive Peak Fit
- α Traceable Historical Calibration Records
- α Active/Deactivate Calibrations
- α Customizable Calibration Report
- α Unlimited Calibration Standards

AlphaVision - AlphaVision.mdb

Name	Status	Date	Shelf	Cal. Source	Initial	Active	Gain	Offset	Quadratic	Efficiency
2011.07.27_AV002	Completed	7/27/2011 10:48:26 PM	1	82242-334	No	<input type="checkbox"/>	7.4575 +/- 0.0131 KeV/ch	3366.9528 +/- 3.1260 KeV		0.2713 +/- 0.0022
2011.09.29_AV002	Completed	8/31/2011 11:25:48 AM	1	82236-334	No	<input type="checkbox"/>	7.4575 +/- 0.0131 KeV/ch	3366.9528 +/- 3.1260 KeV		0.2740 +/- 0.0022
2011.09.29_AV002	Completed	9/29/2011 11:47:47 PM	1	82236-334	No	<input type="checkbox"/>	7.4575 +/- 0.0131 KeV/ch	3366.9528 +/- 3.1260 KeV		0.2722 +/- 0.0022
2011.10.31_AV002	Completed	10/31/2011 10:04:05 AM	1	82236-334	No	<input checked="" type="checkbox"/>	7.4575 +/- 0.0131 KeV/ch	3366.9528 +/- 3.1260 KeV		0.2745 +/- 0.0022
2011.11.11_AV002	Completed	11/28/2011 6:40:36 AM	1	82236-334	No	<input type="checkbox"/>	7.4575 +/- 0.0131 KeV/ch	3366.9528 +/- 3.1260 KeV		0.2732 +/- 0.0022

AlphaVision v7.0 Alpha-Spectroscopy Calibration Report

Analyst: 60040
 Detector: AV147
 Calibration: 5:20:32PM 4/1/2013
 Analysis Date: 2/27/2011 6:26:18AM
 Calibration Type: Energy And Efficiency

Energy Calibration: Test
 Description:
 Certificate ID: 82240-334
 Prepared by: Analytics
 Description:
 Certification Date: 6/9/2010 12:00:00PM

Acquisition
 Detector: AV147, SN:50-05R1, ID: 0
 Energy Calibration Equation:
 Gain = 7.4575 keV/Ch
 Offset = 3.366.95 keV
 Quadratic = 0.0000 keV/Ch²
 Efficiency Calibration Name: Test
 Efficiency: 27.28% +/- 0.31% TPU (2 sigma)

Detector: AV147, SN:50-05R1, ID: 0
 Acquisition Start Date: 2/25/2011 2:06:18PM
 Live Time: 140.00 min.
 Real Time: 140.01 min.

Method: Manual (ROI) Initial Calibration: No
 Algorithm: Linear Shelf: 1

Nuclide	Peak Channel	Peak Energy keV	ROI Start Channel	ROI End Channel	Peak FWHM keV	Gross Counts	Net Count Rate (cpm)
Th-230	177	4.68750	132	186	1.75276	14,297.00	102.32
Pu-239	240	5.15540	186	249	28.51	16,489.00	117.78
Am-241	284	5.48570	249	303	25.88	19,066.00	136.19

Calibration Source: STD-123

Certificate ID: STD-123
 Manufacturer: Source Supplier
 Certification: 2/24/2011
 11:00:00 AM
 Source Activity Units: DPM

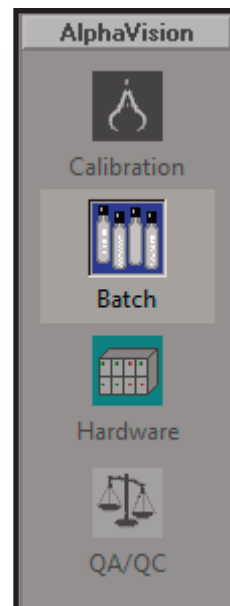
Name	Activity (DPM)
Th-230	410.0000
Pu-239	330.0000
Am-241	330.0000

Add... Edit... Remove

OK Cancel

Batch Automation

- α Analysis Templates for Consistent Processes
- α LIMS Integration Capability
- α Extensive Analysis Options for Peak Fit, Activity Calculations including Tracer and Dilution Schemes, and Detection Limits
- α Custom Reports with Crystal Reports 11.5
- α True “Count to MDA” Presets
- α Interactive Review/Reanalysis



AlphaVision - AlphaVision.mdb

File Edit View Process Help

Process Batch Process Background Hidden Branches Mode Most Recent First

Samples	Type	Analysis method	Date/Time	Comment
Spectrum #1			4/8/2011 9:58:19 AM	Detector: AV170
Analysis #1	ROI		4/9/2011 2:11:42 AM	

counts

Energy (keV)

U-238 U-235 U-234

3995.49 4195.49 4395.49 4595.49 4795.49 49

Units: 0 ROI

General

Load From LIMS

Americium Batch #6542

Americium Batch #6542

Plutonium Batch #1542

Routine Background

Test Batch #0001

Test Batch #0002

Test Batch #0003

Test Batch #0004

Batch Name:

Chemical Recovery Type:

Template Name:

Save As Template

Create Template without

Sample names	Type	Description
S1A1234-001	Control	
S1A1234-001X		
S1A1234-002		
S1A1234-004		
S1A1234-006		
S1A1234-007		
S1A1234-008		
S1A1234-009		
S1A1234-010		
S1A1234-011		
C5E20001-004A		
C5E20001-004B		

QA Type: Am LCS

Ctrl Sol.: Am241_RAD04-00

Amount: 0.5 mL

Decay Correction: 4/ 2/2013 3:17:15 PM

Collection: 10/21/2010 11:55:00 AM

Lab Preparation: 4/ 2/2013 7:00:00 PM

User defined

Key: Value:

Tracer Amt.: 0.1

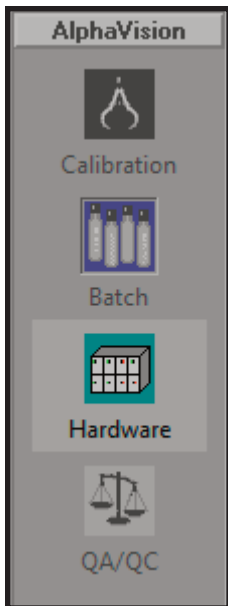
Manual CR: 0 (%)

Calc. Dilution: 1.000e+000

Sample Units

Sample	Amount	Unc (%)
0.5021 g	0	0
Dilution	0	0
Aliquot 1:	0	0
Dilution	0	0
Aliquot 2:	0	0
Dilution	0	0

Back Next > Finish Cancel



Hardware Control

- α Rapid Detector “Group” Operations
- α Integrated Instrument Control Based on Instrument Type
- α Detector Status Indicators “at a glance”
- α Automated Instrument Setup
- α Configurable Detector Grid

AlphaVision - AlphaVision.mdb

File Edit View Help

☑ Show Group Control

AlphaVision

Detector Selection
ID Filter:
Select All

Detector Status
Refresh Auto Refresh

Vacuum Control
Pump

Vacuum Monitor
Enable Disable

Pulsar
Enable Disable

High Voltage (HV)
Enable Disable

ID	Detector Name	Running	HV	Pulsar	Vac. Mode	Vac. (Torr)	Vac. Monitor
0008	Dasis 1	No	39.5	On	N/A	65.535	N/A
0009	Dasis 2	No	39.5	On	N/A	65.535	N/A
0010	Dasis 3	Yes	39.5	On	N/A	65.535	N/A
0012	Dasis 5	No	39.6	On	N/A	65.535	N/A
0013	Dasis 6	No	39.5	On	N/A	65.535	N/A
0014	Dasis 7	No	39.6	On	N/A	65.535	N/A
0015	OCTETE 1	No	39.4	On	N/A	65.535	N/A
0016	OCTETE 2	No	35.8	On	Pump	19.990	Enabled
0017	OCTETE 3	No	Disabled	Off	Pump	19.990	Enabled
0018	OCTETE 4	No	48.8	On	Pump	19.990	Disabled
0019	OCTETE 5	No	49.3	Off	Pump	19.990	Disabled
0020	OCTETE 6	No	49.6	Off	Vac	19.990	Disabled
0021	OCTETE 7	No		Off		19.990	Disabled
0022	OCTETE 8	No		Off		19.990	Disabled

View (O) PULSER OPERATION

Chamber 1 (lenctude) Chamber 2 (lenctude) Chamber 3 (lenctude) Chamber 4 (lenctude) Chamber 5 (lenctude) Chamber 6 (lenctude) Chamber 7 (lenctude) Chamber 8 (lenctude)

Row	A	B	C	D	E	F	G	H
1	AVBL(8)	AVBL(9)	AVBL(10)		AVBL(15)	AVBL(16)	AVBL(17)	AVBL(18)
2	AVBL(12)	AVBL(13)	AVBL(14)		AVBL(19)	AVBL(20)	AVBL(21)	AVBL(22)

High Voltage: 0-200 V, 10 MeV

Vacuum: 0-30 Torr, 10 MeV

Leakage: 0-140 nA

Internal Pulsar: 0-4096

Center Channel: 1, Width: 3, Adjustment: 0%

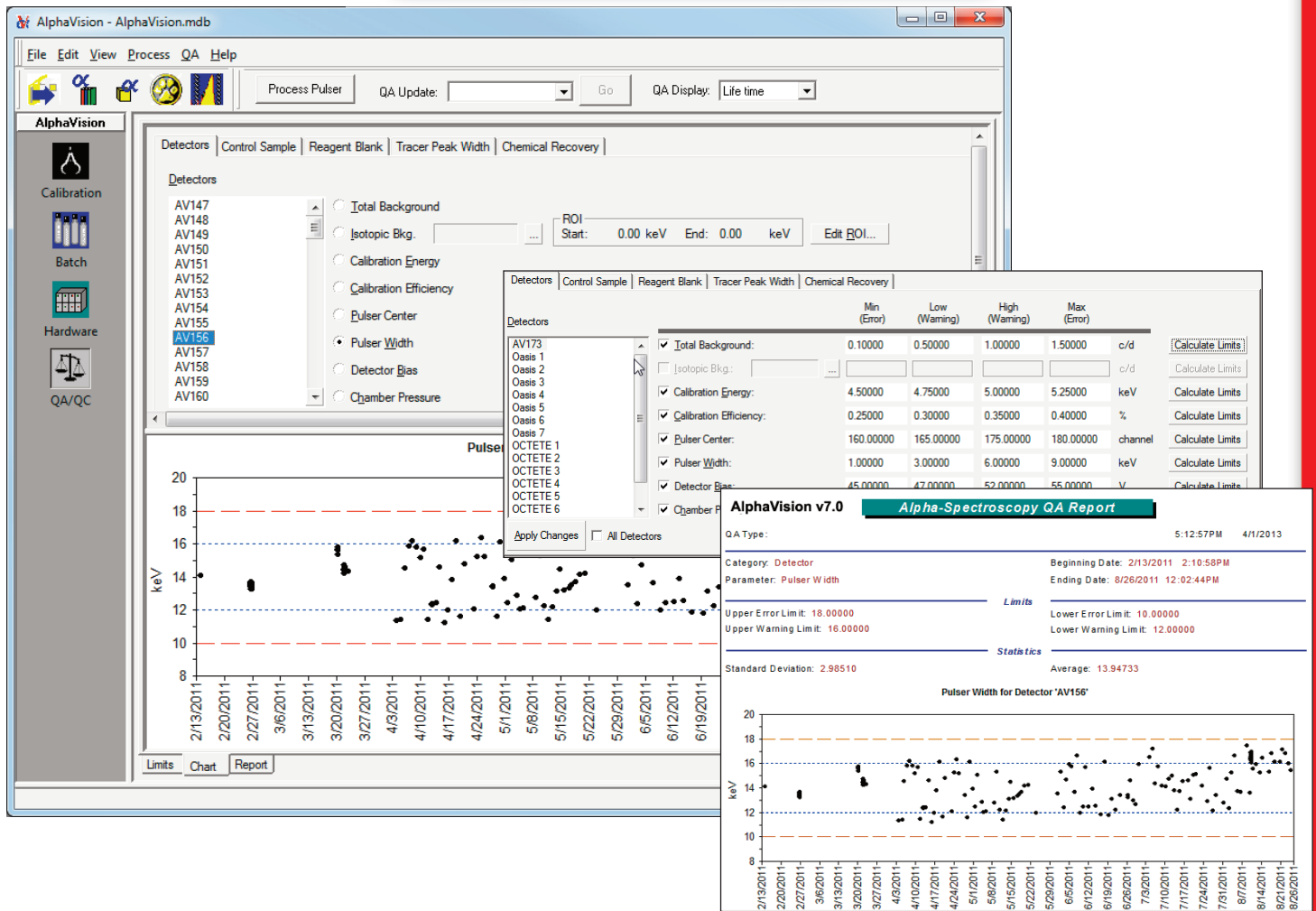
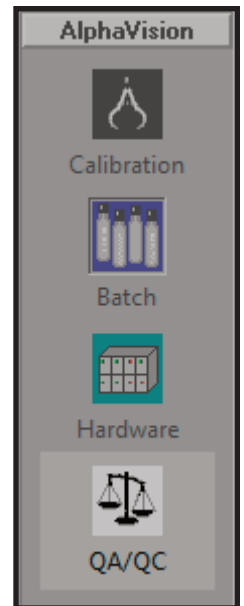
SN: PCT, Input: 1

Target: 35 (Volt), Target: 9.997 Torr, Pump: Pump

3598 (0 - 4095)

Quality Assurance

- α ANSI N42.23 and ANSI N13.30 Compliant
- α Automated Control Charts and Reports
- α Warning/Alarm Limit Calculations
- α Monitoring Parameters:
 - ✓ Detector Background (Total and Isotopic)
 - ✓ Calibration Energy and Efficiency
 - ✓ Pulser Centroid and Width
 - ✓ Detector Bias and Chamber Pressure
 - ✓ Reagent Blank Nuclide Activity
 - ✓ Control Sample Nuclide Activity
 - ✓ Tracer Peak Width
 - ✓ Chemical Recovery



AlphaVision

Specifications

Operating System Requirements

Windows 10 64-bit.

Supported Hardware

ORTEC Alpha Suite integrated spectrometers (Alpha Aria, Duo, Ensemble, and Mega) are recommended in order to take advantage of the software controlled operations and Windows 10 64-bit USB connectivity.

Legacy instrumentation compatible with ORTEC CONNECTIONS such as ORTEC OCTÊTE-PC, OCTÊTEPlus, 576A, Soloist, 920 series, and Oxford OASIS, as well as the ORTEC 676 Alpha King, Tennelec TC-256, and Canberra 7401/7404 models which are supported through ORTEC MCBs may be available through networked connection to computers running compatible Operating Systems or using the DPM-USB for native Windows 10 compatibility if supported. Contact your local ORTEC representative for questions related to legacy instrument compatibility.

Analysis Methodology

- Peak Search/Fit Methods: Second Derivative (Mariscotti)³, Top Hat Correlation⁴, Peak Interference Correction, ROI (Regions of Interest) including automatic shift of ROIs based on the Tracer Peak, Best Peak, or All Peak positions, and Interactive ROI Adjustment to optimize peak fit during reanalysis.
- Nuclide Activity Calculations: Absolute (no Tracer), Tracer Recovery Correction, Chemical Recovery Correction (Automatic and Manual), Background Subtraction, Blank Subtraction, Total Propagated Uncertainty.
- MDA Methods: KTA, Currie, ANSI N13.30, (corrections such as dilution scaling, tracer and chemical recovery, etc. included).
- Presets: Real and Live Time, Tracer Peak Area, MDA.

System Management

- Select, Archive, and Compact Database.
- Search Samples by Batch/Sample ID or Batch Tree Navigation.
- Event Log captures process information, warnings, and errors.
- Purge Data.
- Security:
 - ◆ Configuration – Save Batch Template, Edit Sample Properties and Client Info, Edit Master Nuclide Library, Nuclide Libraries, Standards, Tracers, and ROIs.
 - ◆ Detector Management – Add, Remove, Configure, Move, Edit Properties, Calibrate, Edit Chamber Pressure and Leakage Current Thresholds.
 - ◆ Quality Assurance – Edit QA Types and Limits.
 - ◆ System – View and Clear Event Log, Edit Batch Tree, Edit Users and Security Levels.

Ordering Information

Model	Description
A36-BW	AlphaVision Alpha Spectrometry Management Software for Windows. Includes standalone or first network copy and binary use license.
A36-BVW	AlphaVision software (A36-BW) with V&V Test Results and Certificate of Validation (A36-VW).
A36-NW	Single Use Network Copy. Requires current version of AlphaVision. Example: For a three-station network, order one copy of A36-BW and two copies of A36-NW.
A36-UW	Update from A36-B32, A36-BW, or A36-NW to latest version of AlphaVision.
A36-UVW	AlphaVision software update (A36-UW) with V&V Test Results and Certificate of Validation (A36-VW).
A36-GW	Additional Hard Copy Documentation for AlphaVision.
A36-VW	AlphaVision V&V Test Results and Certificate of Validation.

³M.A. Mariscotti. "A Method for Automatic Identification of Peaks in the Presence of Background and its Application to Spectrum Analysis," Nuclear Instruments and Methods 50, 309–320 (1967).

⁴K. Debertin and R.G. Helmer. Gamma- and X-Ray Spectrometry with Semiconductor Detectors, Elsevier Science, 1988. (If peak shapes are well-controlled (through good sample preparation) the Top-Hat method is likely to yield better results than the Mariscotti method in which peak width is a free parameter.)

Specifications subject to change
073021

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For International Office Locations, Visit Our Website

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