ORTEC

Alpha Suite alfaspektrometrar

Integrated alpha spectrometry

Alpha Suite alfaspektrometrar – integrated alpha spectrometry from ORTEC.



Energy resolution

≤20 keV FWHM with BU-017-450-100 ULTRA detector and ^{241}Am point source; detector-to-source spacing equal to detector diameter [1]

Spectrum channels

Software-selectable conversion gain: 256, 512, 1024, 2048 or 4096 channels [1]

Specifications

DETECTOR

Maximum detector area	Aria/Duo: 1200 mm²; Mega: 3000 mm² (consult factory)	[1]
Maximum sample-to-detector spacing	44 mm, in 4 mm increments	[1]

PERFORMANCE

Energy resolution	≤20 keV FWHM with BU-017-450-100 ULTRA detector and ^{241}Am point source; detector-to-source spacing equal to detector diameter	[1]

ELECTRONICS & SIGNAL

Measurement channels	Aria: 1; Duo: 2; Mega: 1; Ensemble: up to 4 Duo/Mega modules (maximum 8 channels with Duo)	[1]
Detector bias	0 to ±100 V, 10 µA; computer-controlled 1 V increments	[1]
Spectrum channels	Software-selectable conversion gain: 256, 512, 1024, 2048 or 4096 channels	[1]

SOFTWARE & DATA

Software	MAESTRO included	[1]

CONNECTIVITY & INTERFACE

Vacuum connection	Aria/Duo/Mega: 0.25-inch Swagelok; Ensemble: NW25	[1]
Communication	High-speed USB, type B	[1]
Detector connector	Rear Microdot (ORTEC B mount)	[1]

MECHANICAL

Maximum sample diameter	Aria/Duo: 51 mm; Mega: 106 mm	[1]
Chamber material	Nickel-plated cast brass	[1]

ENVIRONMENT & RATINGS

perating temperature	0 to 50 °C	[1]

Models

Model	Measurement channels	Configuration	Maximum sample diameter	Maximum detector area
ALPHA-ARIA	1 [2]	Single alpha spectroscopy channel in a double-wide NIM chassis [1]	51 mm [1]	1200 mm² [1]
ALPHA-DUO	2 [2]	Benchtop unit with two alpha spectroscopy channels [1]	51 mm [1]	1200 mm² [1]
ALPHA-DUO-M1	2 [2]	Dual-input Alpha Ensemble expansion module (two chambers) [2]	51 mm [1]	1200 mm² [1]
ALPHA-ENSEMBLE-1D-1M	3 [2]	One ALPHA-DUO-M1 module and one ALPHA-MEGA-M1 module [2]	ALPHA-DUO-M1: 51 mm; ALPHA-MEGA-M1: 106 mm [1]	ALPHA-DUO-M1: 1200 mm²; ALPHA-MEGA-M1: 3 000 mm² (consult factory) [1]
ALPHA-ENSEMBLE-1D-2M	4 [2]	One ALPHA-DUO-M1 module and two ALPHA-MEGA-M1 modules [2]	ALPHA-DUO-M1: 51 mm; ALPHA-MEGA-M1: 106 mm [1]	ALPHA-DUO-M1: 1200 mm²; ALPHA-MEGA-M1: 3 000 mm² (consult factory) [1]
ALPHA-ENSEMBLE-1D-3M	5 [2]	One ALPHA-DUO-M1 module and three ALPHA-MEGA-M1 modules [2]	ALPHA-DUO-M1: 51 mm; ALPHA-MEGA-M1: 106 mm [1]	ALPHA-DUO-M1: 1200 mm²; ALPHA-MEGA-M1: 3 000 mm² (consult factory) [1]
ALPHA-ENSEMBLE-1M	1 [2]	One ALPHA-MEGA-M1 module [2]	106 mm [1]	3000 mm² (consult factory) [1]
ALPHA-ENSEMBLE-2	2 [2]	One ALPHA-DUO-M1 module [2]	51 mm [1]	1200 mm² [1]
ALPHA-ENSEMBLE-2D-1M	5 [2]	Two ALPHA-DUO-M1 modules and one ALPHA-MEGA-M1 module [2]	ALPHA-DUO-M1: 51 mm; ALPHA-MEGA-M1: 106 mm [1]	ALPHA-DUO-M1: 1200 mm²; ALPHA-MEGA-M1: 3 000 mm² (consult factory) [1]
ALPHA-ENSEMBLE-2D-2M	6 [2]	Two ALPHA-DUO-M1 modules and two ALPHA-MEGA-M1 modules [2]	ALPHA-DUO-M1: 51 mm; ALPHA-MEGA-M1: 106 mm [1]	ALPHA-DUO-M1: 1200 mm²; ALPHA-MEGA-M1: 3 000 mm² (consult factory) [1]
ALPHA-ENSEMBLE-2M	2 [2]	Two ALPHA-MEGA-M1 modules [2]	106 mm [1]	3000 mm² (consult factory) [1]
ALPHA-ENSEMBLE-3D-1M	7 [2]	Three ALPHA-DUO-M1 modules and one ALPHA-MEGA-M1 module [2]	ALPHA-DUO-M1: 51 mm; ALPHA-MEGA-M1: 106 mm [1]	ALPHA-DUO-M1: 1200 mm²; ALPHA-MEGA-M1: 3 000 mm² (consult factory) [1]
ALPHA-ENSEMBLE-3M	3 [2]	Three ALPHA-MEGA-M1 modules [2]	106 mm [1]	3000 mm² (consult factory) [1]
ALPHA-ENSEMBLE-4	4 [2]	Two ALPHA-DUO-M1 modules [2]	51 mm [1]	1200 mm² [1]
ALPHA-ENSEMBLE-4M	4 [2]	Four ALPHA-MEGA-M1 modules [2]	106 mm [1]	3000 mm² (consult factory) [1]

ALPHA-ENSEMBLE-6	6 [2]	Three ALPHA-DUO-M1 modules [2]	51 mm [1]	1200 mm² [1]
ALPHA-ENSEMBLE-8	8 [2]	Four ALPHA-DUO-M1 modules [2]	51 mm [1]	1200 mm² [1]
ALPHA-MEGA	1 [2]	Benchtop unit with one large chamber for samples up to 106 mm [1]	106 mm [1]	3000 mm² (consult factory) [1]
ALPHA-MEGA-M1	1 [2]	Single-input Alpha Ensemble expansion module (one large chamber, samples up to 106 mm) [1]	106 mm [1]	3000 mm² (consult factory) [1]

Model	Recoil protection	Vacuum control	Computer connection	Software
ALPHA-ARIA	External RCAP-2 required for recoil protection [1]	Manual Pump/Hold/Vent [1]	USB type B [1]	MAESTRO included; AlphaVision is separate software [1]
ALPHA-DUO	Built-in pressure controller; optional biased sample trays required [1]	Computer control per module [1]	USB type B [1]	MAESTRO included; AlphaVision is separate software [1]
ALPHA-DUO-M1	Built-in pressure controller; optional biased sample trays required [1]	Computer control per module [1]	–	–
ALPHA-ENSEMBLE-1D-1M	Built-in RCAP pressure controller for the ALPHA-DUO-M1 module(s) only (requires optional biased sample holders); not available for the ALPHA-MEGA-M1 module(s) [1]	Computer control per module [1]	USB type B [1]	MAESTRO included; AlphaVision is separate software [1]
ALPHA-ENSEMBLE-1D-2M	Built-in RCAP pressure controller for the ALPHA-DUO-M1 module(s) only (requires optional biased sample holders); not available for the ALPHA-MEGA-M1 module(s) [1]	Computer control per module [1]	USB type B [1]	MAESTRO included; AlphaVision is separate software [1]
ALPHA-ENSEMBLE-1D-3M	Built-in RCAP pressure controller for the ALPHA-DUO-M1 module(s) only (requires optional biased sample holders); not available for the ALPHA-MEGA-M1 module(s) [1]	Computer control per module [1]	USB type B [1]	MAESTRO included; AlphaVision is separate software [1]
ALPHA-ENSEMBLE-1M	RCAP recoil-protection option is for ALPHA-DUO-M1 modules only; biased sample tray not available for Mega modules [3]	Computer control per module [1]	USB type B [1]	MAESTRO included; AlphaVision is separate software [1]
ALPHA-ENSEMBLE-2	Built-in pressure controller; optional biased sample trays required [1]	Computer control per module [1]	USB type B [1]	MAESTRO included; AlphaVision is separate software [1]

ALPHA-ENSEMBLE-2D-1M	Built-in RCAP pressure controller for the ALPHA-DUO-M1 m odule(s) only (requires o ptional biased sample h olders); not available f or the ALPHA-MEGA-M1 m odule(s) [1]	Computer control per module [1]	USB type B [1]	MAESTRO included; A lphaVision is separate s oftware [1]
ALPHA-ENSEMBLE-2D-2M	Built-in RCAP pressure controller for the ALPHA-DUO-M1 m odule(s) only (requires o ptional biased sample h olders); not available f or the ALPHA-MEGA-M1 m odule(s) [1]	Computer control per module [1]	USB type B [1]	MAESTRO included; A lphaVision is separate s oftware [1]
ALPHA-ENSEMBLE-2M	RCAP recoil-protection option is for ALPHA-DUO-M1 modules o nly; biased sample tray not a vailable for Mega modules [3]	Computer control per module [1]	USB type B [1]	MAESTRO included; A lphaVision is separate s oftware [1]
ALPHA-ENSEMBLE-3D-1M	Built-in RCAP pressure controller for the ALPHA-DUO-M1 m odule(s) only (requires o ptional biased sample h olders); not available f or the ALPHA-MEGA-M1 m odule(s) [1]	Computer control per module [1]	USB type B [1]	MAESTRO included; A lphaVision is separate s oftware [1]
ALPHA-ENSEMBLE-3M	RCAP recoil-protection option is for ALPHA-DUO-M1 modules o nly; biased sample tray not a vailable for Mega modules [3]	Computer control per module [1]	USB type B [1]	MAESTRO included; A lphaVision is separate s oftware [1]
ALPHA-ENSEMBLE-4	Built-in pressure controller; optional biased sample trays required [1]	Computer control per module [1]	USB type B [1]	MAESTRO included; A lphaVision is separate s oftware [1]
ALPHA-ENSEMBLE-4M	RCAP recoil-protection option is for ALPHA-DUO-M1 modules o nly; biased sample tray not a vailable for Mega modules [3]	Computer control per module [1]	USB type B [1]	MAESTRO included; A lphaVision is separate s oftware [1]
ALPHA-ENSEMBLE-6	Built-in pressure controller; optional biased sample trays required [1]	Computer control per module [1]	USB type B [1]	MAESTRO included; A lphaVision is separate s oftware [1]
ALPHA-ENSEMBLE-8	Built-in pressure controller; optional biased sample trays required [1]	Computer control per module [1]	USB type B [1]	MAESTRO included; A lphaVision is separate s oftware [1]
ALPHA-MEGA	External RCAP-2 required for recoil protection [1]	Computer controlled [1]	USB type B [1]	MAESTRO included; A lphaVision is separate s oftware [1]

ALPHA-MEGA-M1	RCAP recoil-protection option is for ALPHA-DUO-M1 modules only; biased sample tray not available for Mega modules [3]	Computer control per module [1]	–	–

Model	Net weight	Host system	Module slots
ALPHA-ARIA	1.9 kg [1]	–	–
ALPHA-DUO	7.5 kg [1]	–	–
ALPHA-DUO-M1	–	Expansion module for Alpha Ensemble; not a standalone benchtop instrument [2]	–
ALPHA-ENSEMBLE-1D-1M	–	–	Up to 4 Duo/Mega modules [1]
ALPHA-ENSEMBLE-1D-2M	–	–	Up to 4 Duo/Mega modules [1]
ALPHA-ENSEMBLE-1D-3M	–	–	Up to 4 Duo/Mega modules [1]
ALPHA-ENSEMBLE-1M	–	–	Up to 4 Duo/Mega modules [1]
ALPHA-ENSEMBLE-2	–	–	Up to 4 Duo/Mega modules [1]
ALPHA-ENSEMBLE-2D-1M	–	–	Up to 4 Duo/Mega modules [1]
ALPHA-ENSEMBLE-2D-2M	–	–	Up to 4 Duo/Mega modules [1]
ALPHA-ENSEMBLE-2M	–	–	Up to 4 Duo/Mega modules [1]
ALPHA-ENSEMBLE-3D-1M	–	–	Up to 4 Duo/Mega modules [1]
ALPHA-ENSEMBLE-3M	–	–	Up to 4 Duo/Mega modules [1]
ALPHA-ENSEMBLE-4	–	–	Up to 4 Duo/Mega modules [1]
ALPHA-ENSEMBLE-4M	–	–	Up to 4 Duo/Mega modules [1]
ALPHA-ENSEMBLE-6	–	–	Up to 4 Duo/Mega modules [1]
ALPHA-ENSEMBLE-8	–	–	Up to 4 Duo/Mega modules [1]
ALPHA-MEGA	8.5 kg [1]	–	–
ALPHA-MEGA-M1	–	Expansion module for Alpha Ensemble; not a standalone benchtop instrument [2]	–

Sources

[1] AlphaSuite – All-In-One Integrated Alpha Spectrometers
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