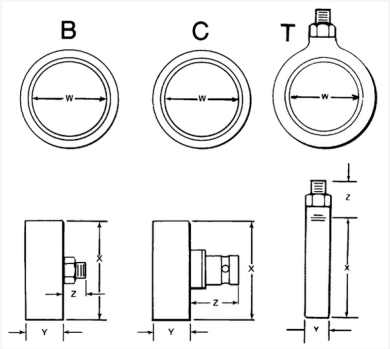
ORTEC

ORTEC ULTRA-AS

Low-background silicon detectors for alpha spectroscopy

ORTEC ULTRA-AS comprises 8 models (low-background silicon d etectors for alpha spectroscopy). The models differ in active area, d epletion depth and warranted resolution, among other things – c ompare them in the model table.



Detector type
Ion-implanted silicon, partially depleted [1]

Active depth
≈100 µm [2]

Specifications

Detector type	Ion-implanted silicon, partially depleted	[1]
Active depth	≈100 µm	[2]
Resolution measurement conditions	^{241}Am 5.486 MeV alphas; standard ORTEC electronics; 1 µs shaping time c onstants	[3]
Resolution measurement and warranty temperature	21 ±1 °C	[1]
Bias polarity	Positive	[3]
Resolution reference geometry	Thin-window point source; distance at least 2 times the detector diameter	[4]

Models

Model	Minimum active area	Guaranteed maximum alpha resolution	Ordering mounts	Alpha Suite compatibility
U-019-300-AS	≥300 mm² [2]	≤19 keV FWHM [2]	B, C, T (closed back) [2]	ULTRA-AS in B mount is guaranteed compatible; C/T mounts require an approved special [2]
U-020-450-AS	≥450 mm² [2]	≤20 keV FWHM [2]	B, C, T (closed back) [2]	ULTRA-AS in B mount is guaranteed compatible; C/T mounts require an approved special [2]
U-020-490-AS	≥490 mm² [2]	≤20 keV FWHM [2]	B, C, T (closed back) [2]	ULTRA-AS in B mount is guaranteed compatible; C/T mounts require an approved special [2]
U-024-600-AS	≥600 mm² [2]	≤24 keV FWHM [2]	B, C, T (closed back) [2]	ULTRA-AS in B mount is guaranteed compatible; C/T mounts require an approved special [2]

U-029-900-AS	≥900 mm² [2]	≤29 keV FWHM [2]	B, C [2]	ULTRA-AS in B mount is guaranteed compatible; C mount requires an approved special [2]
U-037-1200-AS	≥1200 mm² [2]	≤37 keV FWHM [2]	B, C [2]	ULTRA-AS in B mount is guaranteed compatible; C mount requires an approved special [2]
U-053-2000-AS	≥2000 mm² [2]	≤53 keV FWHM [2]	B, C [2]	ULTRA-AS in B mount is guaranteed compatible; C mount requires an approved special [2]
U-064-3000-AS	≥3000 mm² [2]	≤64 keV FWHM [2]	B, C [2]	ULTRA-AS in B mount is guaranteed compatible; C mount requires an approved special [2]

Model	Installation and spare packages
U-019-300-AS	B, C or T mount; ENS-U300: B mount, installed and system tested with an Alpha Suite spectrometer; ENS8U300: pack of eight spare detectors (not installed or system tested), only with an ALPHA-ENSEMBLE-8 system [2]
U-020-450-AS	B, C or T mount; ENS-U450: B mount, installed and system tested with an Alpha Suite spectrometer; ENS8U450: pack of eight spare detectors (not installed or system tested), only with an ALPHA-ENSEMBLE-8 system [2]
U-020-490-AS	B, C or T mount; ENS-U490: B mount, installed and system tested with an Alpha Suite spectrometer; ENS8U490: pack of eight spare detectors (not installed or system tested), only with an ALPHA-ENSEMBLE-8 system [2]
U-024-600-AS	B, C or T mount; ENS-U600: B mount, installed and system tested with an Alpha Suite spectrometer; ENS8U600: pack of eight spare detectors (not installed or system tested), only with an ALPHA-ENSEMBLE-8 system [2]
U-029-900-AS	B or C mount; ENS-U900: B mount, installed and system tested with an Alpha Suite spectrometer; ENS8U900: pack of eight spare detectors (not installed or system tested), only with an ALPHA-ENSEMBLE-8 system [2]
U-037-1200-AS	B or C mount; ENS-U1200: B mount, installed and system tested with an Alpha Suite spectrometer; ENS8U1200: pack of eight spare detectors (not installed or system tested), only with an ALPHA-ENSEMBLE-8 system [2]
U-053-2000-AS	B or C mount; ENS-U2000: B mount, installed and system tested with an Alpha Suite spectrometer [3]
U-064-3000-AS	B or C mount; ENS-U3000: B mount, installed and system tested with an Alpha Suite spectrometer [3]

Sources

[1] Si Charged Particle Radiation Detectors for Alpha Spectroscopy
RTEC (AMETEK) · product-page · ULTRA / ULTRA AS comparison table ('Diode Structure') and footnote †; footnote * below the introduction t ext · checked 2026-10-16
https://web.archive.org/web/20261016000000/https://www.ortec-online.com/products/radiation-detectors/silicon...

[2] ORTEC Product Guide
RTEC (AMETEK) · catalog · PDF p. 4 (printed p. 1), 'ULTRA-AS Ion-Implanted Detectors' note; PDF p. 4 (printed p. 1), table 'ULTRA-AS I on-Implanted Detectors', Active Area column; PDF p. 11: 'The next group of dig; PDF p. 4 (printed p. 1), table 'ULTRA-AS Ion-Implanted D etectors' · checked 2026-10-16
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[3] ULTRA and ULTRA AS Ion-Implanted-Silicon Charged-Particle Detectors
ORTEC (AMETEK) · brochure · p. 2–3, footnote * under the ULTRA / ULTRA-AS ordering tables; p. 1, footnote **; p. 3, table 'ULTRA-AS to be i nstalled and system tested with an Alpha Suite Spectrometer. Supplied in B Mount' · checked 2026-10-16
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[4] Introduction to Charged-Particle Detectors
ORTEC (AMETEK) · application-note · PDF p. 3, 'Energy Resolution and Noise' · checked 2026-10-16
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Every value is taken from the manufacturer’s own document; the number after the value refers to the source list. Always check against the latest datasheet before ordering.

The data comes from the manufacturer’s published documents. Manufacturers may change specifications; the current configuration and performance are confirmed in the quotation.