

PRODUCT · UFS FAMILY

UFS

Direct Conversion Linear Detector Platform

UFS is Athlos's standard direct-conversion linear scanning array, built around a CdTe detector bump-bonded to a full-custom CMOS ASIC. Sensitive to single photons, 16-bit dynamic range, and user-selectable resolution from 100 µm to 400 µm.



1 Key highlights

DETECTOR CdTe direct conversion	PLATFORM Linear scanning array	MODE TDI · Gen 3 Energy Integration
SPEED Up to 75 000 lps · 1700 m/min	INTEGRATION OEM-ready · plug-and-play	ENCLOSURE Standard · non-IP67

2 Standard variants

UFS 7777.1 mm	UFS 150154.2 mm	UFS 225231.3 mm	UFS 460462.6 mm
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3 Technical specifications

Detector & pixel3.1				Active area & collimator3.2			
Detector material	CdTe	–	Bump-bonded to full-custom ASIC	Active width	2.8	mm	28 stages TDI
Pixel size	100 × 100	µm	Square pixel	Active length · UFS 77	77.1	mm	
Detector technology	Direct conversion	–	No intermediate scintillator	Active length · UFS 150	154.2	mm	
Pixel mode of operation	Gen 3 Energy Integration · TDI	–	Single-photon sensitive	Active length · UFS 225	231.3	mm	
Sensor mode	TDI / Frame	–	28 stages	Active length · UFS 460	462.6	mm	
Pixel binning (TDI)	1×1 / 2×2 / 4×4	pixel		Custom active length	up to 12	m	Built to order
Dynamic range	16	bit		Distance window → detector	7	mm	
Energy range	10 – 360	kV	LINAC up to 9 MeV on request	Collimator · low energy	2 mm Cu	10 – 120 kV	Copper
				Collimator · high energy	2 mm W	120 – 360 kV	Tungsten

4 Application areas

Industrial inline inspection - Food safety & quality control — foreign-object, seal integrity, fill level - Electronics & semiconductor — PCB, reel, SMT and AXI - Pharmaceutical NDT — tablets, blister, fill verification - Automotive — castings, parts and component porosity	Dental, medical & OEM - Panoramic and cephalometric dental imaging - Medical radiography — direct conversion, low dose - OEM imaging system integration - Research & laboratory X-ray imaging
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Technical specifications (continued)

Scanning & readout3.3				Power, mechanical & environment3.4			
Object speed · 100 µm	up to 28	m/min	High-resolution tier	Sensor power supply	9 – 24	V DC	
Object speed · 200 µm	up to 180	m/min	Balanced tier	Power consumption	1.3	W/cm	Peak per cm of active length
Object speed · 400 µm	up to 1700	m/min	Ultra-fast tier	Operating temperature	10 – 40	°C	No Peltiers · no active cooling
Object speed	User-adjustable	–		Storage temperature	0 – 50	°C	
Line rate	1 – 75 000	lps		Physical dimensions (X·Y·Z)	255 · 160 · 50	mm	Without mounting brackets
Calibration	Factory + auto	–	Auto-adjusted within operating range	Weight	3.5	kg	UFS 225 reference
Communication interface	Gigabit Ethernet	–		Mounting brackets	Customisable	–	Flush with X-ray window on demand
Cable length	up to 10	m	Shielded · longer on request	Enclosure / IP rating	Standard · non-IP67	–	For IP67 see separate UFS IP67 datasheet

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Software & integration

The **Athlos SDK** includes the C/C++ API for camera control, header files, libraries, documentation and example code. A graphical user interface is provided at no extra cost for plug-and-play evaluation of the sensor and on-board post-processing filters. Calibration profiles ship on-board; no flat-field correction or per-material setup is required.

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Ordering & configuration

Order codes6.1			
UFS 77	UFS-77-NC-44-TDI-HVS	77.1 mm	Standard enclosure · non-IP67
UFS 150	UFS-150-NC-44-TDI-HVS	154.2 mm	Standard enclosure · non-IP67
UFS 225	UFS-225-NC-44-TDI-HVS	231.3 mm	Standard enclosure · non-IP67
UFS 460	UFS-460-NC-44-TDI-HVS	462.6 mm	Standard enclosure · non-IP67
Custom length	UFS-CUST-NC-44-TDI-HVS	up to 12 m	Built to order · contact Athlos sales

DOCUMENT	REVISION	STATUS	ORIGIN
UFS-DS-2026.1	A · May 2026	Production release	Athlos Oy · Finland

NOTE

An **IP67-rated version (UFS IP67)** is available separately for applications requiring enhanced protection against dust and water ingress — with identical imaging performance. Request the dedicated UFS IP67 datasheet for full specifications.

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Contact

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Datasheets · brochures · SDK access