


High Resolution Synthetic Aperture Sonar

Kraken SAS Key Features


Flexible, Modular Design

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- Integrate into vehicles ranging from man-portable to large diameter
 - Configurable array size: 60 cm, 120 cm or 180 cm modular array options
 - 300 m, 1000 m, or 6000 m-rated options


Maximize Area Coverage Rate

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- Ranges up to 200 m per side

Improve Survey Results

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- Constant resolution across the entire swath
 - Real-time SAS resolution of 3 cm x 3 cm
 - Post-processed SAS resolution of 2 cm x 2 cm
 - Simultaneous bathymetry and dynamically focused sidescan sonar data

Increase Efficiency

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- Real-time full-swath processing to enable embedded automatic target recognition (ATR) and advanced autonomy features
 - Increased area coverage rate reduces mission time
 - Reduces mission duration 2-3x compared to sidescan sonar

Providing Actionable Intelligence

Kraken Synthetic Aperture Sonar (SAS) is a technology evolution, integrating the capability to perform imaging and bathymetric mapping simultaneously, while delivering significantly higher resolution, range, and one of the industry's best Area Coverage Rates (ACR). From mine countermeasures and port and harbour security to infrastructure integrity surveys and broad area habitat mapping campaigns, Kraken SAS provides higher-grade information that reduces the cost and time required to make critical decisions.



Riser pipelines and wellheads of offshore infrastructure

Kraken MP-SAS



Kraken's light-weight man-portable synthetic aperture sonar (MP-SAS) brings increased capability to low logistics, small class UUV surveys. Kraken MP-SAS uses Kraken SAS technology as a foundation, with modifications to reduce size, weight, and power.

Compact, Versatile Design

- Fits small UUV diameters of 7.5+ inches and rated to 300 m depth
- Light-weight 60 cm transducers provide a range of up to 100 m per side
- Modular payload section can be added and removed quickly in the field without recalibration

Legacy UUV Integration

- Proven integration on new and legacy platforms, providing significant capability upgrade at a fraction of the cost of a new UUV

Kraken SAS Specifications

Data	
Real-Time SAS Resolution	3.3 cm along x 3.0 cm across
Post-Processed SAS Resolution	2.1 cm along x 1.9 cm across
Real-Time Bathymetry Resolution	25 cm x 25 cm
Data Formats	Kraken TIL, XTF, GeoTIFF, XYZ, HDF5, BMP
Data Storage	4 TB onboard solid state storage
SAS Frequency	
Pulse Length	1 - 16 ms configurable
Pulse Center Frequency	337 kHz \pm 20 kHz
Stability	
SAS Robustness Against Yaw	$\pm 4^\circ$ over 20 m track length
SAS Robustness Against Sway	± 10 m
Max Crab Angle	20°
Power	
Power Input	24 VDC – 60 VDC nominal

Available Configurations

Operational Parameters	Kraken MP-SAS Module	Kraken SAS-60 (Flood System or OEM)	Kraken SAS-120 (Flood System or OEM)
Survey Altitude	3 m - 30 m	3 m - 30 m	3 m - 30 m
Maximum Depth Rating	300 m	300 m [OEM], 1000 m [OEM or Flood], or 6000 m [Flood]	300 m [OEM], 1000 m [OEM or Flood], or 6000 m [Flood]
Operating Speed	2-4 kn	2-4 kn	2-9 kn
Sonar Range	100 m per side	100 m per side	200 m per side

Area Coverage Rates

Survey Speed	MP-SAS and SAS-60		SAS-120	
	Range (per side)	ACR	Range (per side)	ACR
2 kn (1.54 m/s)	100 m	0.52 km ² /hr	200 m	1.04 km ² /hr
3 kn (1.54 m/s)	100 m	0.87 km ² /hr	200 m	1.56 km ² /hr
3.5 kn (1.80 m/s)	100 m	0.91 km ² /hr	200 m	1.81 km ² /hr
4 kn (2.06 m/s)	87 m	0.91 km ² /hr	181 m	1.88 km ² /hr
5 kn (2.57 m/s)			143 m	1.86 km ² /hr
6 kn (3.09 m/s)			118 m	1.84 km ² /hr
7 kn (3.60 m/s)			100 m	1.82 km ² /hr
8 kn (4.12 m/s)			87 m	1.80 km ² /hr
9 kn (4.63 m/s)			76 m	1.78 km ² /hr

Performance specifications represent maximum sensor values and may vary due to environmental conditions, vehicle stability, and operational specifics.