

# **High Resolution Synthetic Aperture Sonar**

### **Kraken SAS Key Features**

### Flexible, Modular Design



- Integrate into vehicles ranging from manportable 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**

Ranges up to 200 m per side

#### **Improve Survey Results**



- 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

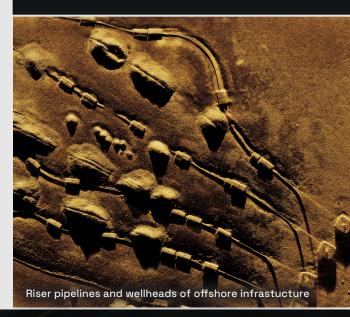


#### **Increase Efficiency**

- Real-time full-swath processing to enable embedded automatic target recognition (ATR) and advanced autonomy features
- Increased area coverage rate reduces mission
- 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.









### **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 ± 20 kHz	
Stability		
SAS Robustness Against Yaw	±4° 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**

	MP-SAS and SAS-60		SAS-120	
Survey Speed	Range (per side)	ACR	Range (per side)	ACR
2 kn (1.54 m/s)	100 m	0.52 km²/hr	200 m	1.04 km²/hr
3 kn (1.54 m/s)	100 m	0.87 km²/hr	200 m	1.56 km²/hr
3.5 kn (1.80 m/s)	100 m	0.91 km²/hr	200 m	1.81 km²/hr
4 kn (2.06 m/s)	87 m	0.91 km²/hr	181 m	1.88 km²/hr
5 kn (2.57 m/s)			143 m	1.86 km²/hr
6 kn (3.09 m/s)			118 m	1.84 km²/hr
7 kn (3.60 m/s)			100 m	1.82 km²/hr
8 kn (4.12 m/s)			87 m	1.80 km²/hr
9 kn (4.63 m/s)			76 m	1.78 km²/hr

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