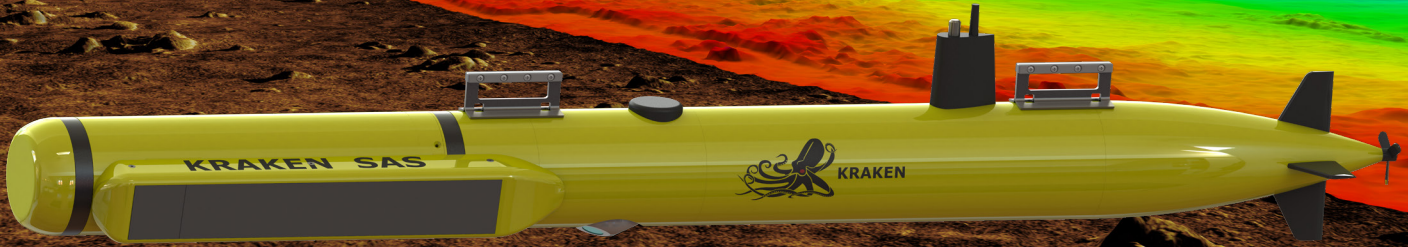
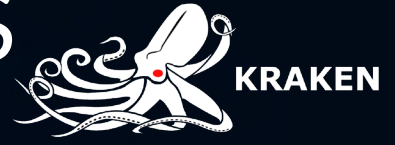


Man-Portable SAS

Seamless Integration



Kraken's MP-SAS payload is designed to retrofit existing man-portable UUVs and deliver full-swath, high-resolution Synthetic Aperture Sonar data from small vehicle platforms. Ideal for MCM/UXO/IPOE missions, the modular payload section can be added or removed in-field, allowing operators to keep the vehicles' OEM shipping containers.

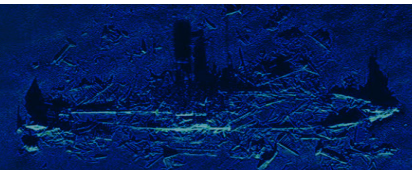
MP-SAS boasts rapid and efficient onboard SAS processing to resulting in reduced post-mission analysis time and resources. Real-time SAS processing also enables advanced features such as embedded Automatic Target Recognition, laying the foundation for contact ExFil and other autonomous behaviors such as mid-mission re-tasking.

Equipped with Kraken's lightweight MINSAS 60 LW (Light Weight) Arrays, MP-SAS consistently supplies high-resolution seabed imagery in complex environments, from very shallow waters to depths of 300 meters, all in a compact, man-portable package.

With best-in-class image resolution, MP-SAS makes seabed target detection, classification, and identification faster by reducing the number of false positives. Whether in standard or UHD (Ultra High Definition) mode, MP-SAS offers exceptional clarity across ranges of 100 meters per side, simultaneously providing real-time co-registered bathymetry data with an impressive 25-centimeter resolution. Constant resolution across the entire swath greatly increases the useable sonar range, resulting in Area Coverage Rate results that are not possible with traditional side scan sonar.

Kraken's latest KR-SAS electronics and robust and efficient Gen III Real-Time SAS (RTSAS) processor conserves energy while supplying the processing power needed to handle the advanced beam-forming algorithms required to process SAS in highly dynamic environments.

Kraken's MP-SAS is the ideal solution for upgrading existing 7.5-to-9-inch diameter UUVs. Offering very high-resolution imaging, efficient low-power processing, and advanced sonar capabilities to a class of platforms which previously were unable to benefit from SAS technology. MP-SAS revolutionizes underwater MCM (Mine Countermeasures) mission capabilities.



Man-Portable SAS



Man-Portable SAS Payload

Platform Speed	2-5 kn
Payload Dimensions - L/W/H	28.9/11.9/7.5 in
Payload Length Installed	22.3 in
Payload Weight - Air/Water	53 lb/neutral
Depth Rating	300 m
Power Supply	24/48 VDC
Real-Time SAS Image Resolution	3.3 cm x 3.0 cm
UHD SAS Image Resolution	1.9 cm x 2.1 cm
Real-Time SAS Bathy Resolution	25 cm x 25 cm
Post Proc. SAS Bathy Resolution	6 cm x 6 cm
SAS Bathy Vert. Accuracy @ 100 m	<15 cm at 95% Confidence
Source Level	210 dB re 1μPa @ 1 m
PRF	8 Hz
Center Frequency	337 kHz
Pulse Length	10 ms (configurable 1-10 ms)
Pulse Bandwidth	40 kHz
Pulse Type	Linear FM
SAS Robustness Against Yaw	±4° over 20 m track length
SAS Robustness Against Sway	±10 m
Max Crab Angle	20°
Solid State Storage	1 TB, optional 4 TB DataPod™
System Power Draw	80 - 100 W

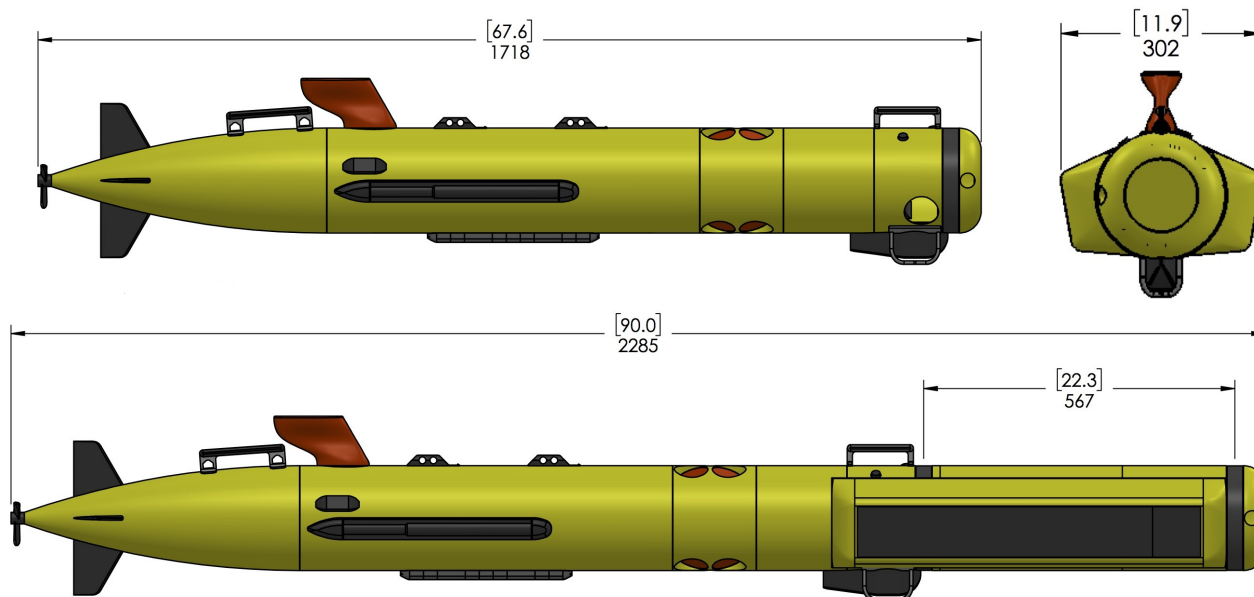
MINSAS 60 - Area Coverage

knots	m/s	Range m (per side)	ACR w/o Gap Filler km² / hr	ACR w/ Gap Filler km² / hr
3.00	1.54	118	0.92	1.31
3.50	1.80	100	0.91	1.30
4.00	2.06	87	0.91	1.29
4.50	2.32	77	0.90	1.29
5.00	2.57	69	0.90	1.28
6.00	3.09	57	0.89	1.27

Above: Speed vs Range table providing optimal Area Coverage Rates (ACR) at 140% and 100% coverage.



Above: Man-Portable SAS payload section designed for retrofit of small class vehicles.



Representative lengths of a Man-Portable UUV with and without MP-SAS payload section.
Measurements above are in inches (top value) and millimeters (bottom value)

