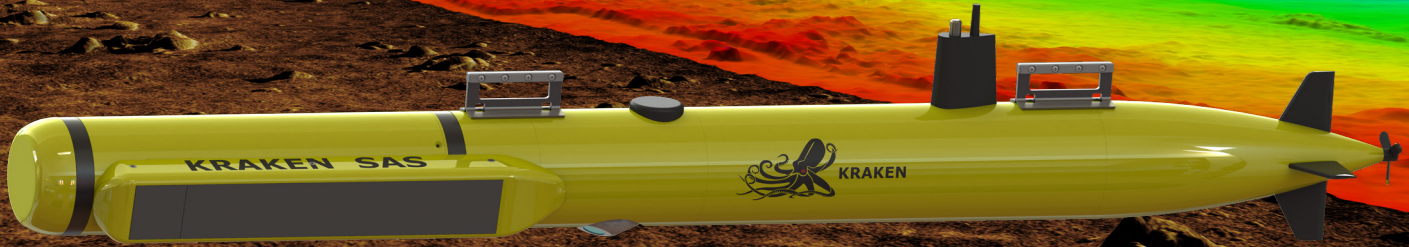
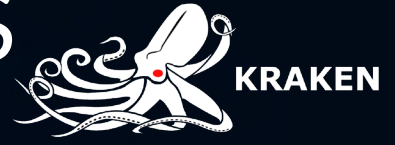


Man-Portable SAS

Seamless Integration



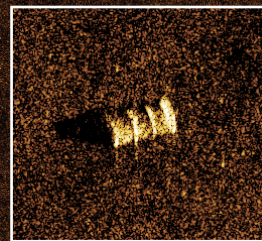
Kraken's Man-Portable SAS payload utilizes our new MINSAS 60 Light Weight arrays and is designed to retrofit existing Man-Portable UUVs with diameters from 7.5 to 9 inches. This modular payload section can be added and removed quickly in the field without recalibration; retaining the ability to use the vehicle's existing OEM shipping containers.

The MINSAS 60 LW delivers picture-perfect seabed images with unprecedented image resolution and detail in a compact, man-portable package. It provides detailed images with a resolution of 3.3 cm x 3.0 cm out to a range of 100 m from each side of a UUV (200 m swath). The MINSAS 60 LW also produces real-time bathymetric data with a resolution of 25 cm out to full range while delivering high depth accuracy.

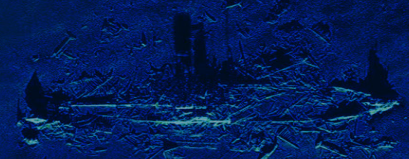
At the heart of the MINSAS 60 LW is Kraken's new Gen III, Real-Time SAS (RTSAS), industry-first, true full swath SAS processing which greatly reduces power consumption.

Onboard SAS processing reduces post-mission analysis and enables embedded Automatic Target Recognition, providing a foundation for contact ExFil and other advanced autonomous behaviors.

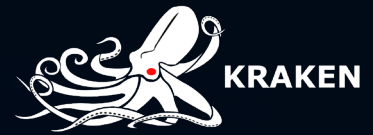
High resolution is maintained throughout the entire swath allowing you to zoom in to help identify objects of interest or nonthreatening objects like barrels.



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Man-Portable SAS



MINSAS 60 LW Man-Portable 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
Along track SAS image resolution*	3.3 cm*
Across track SAS image resolution*	3.0 cm*
SAS bathy resolution - Real Time	25 cm
SAS bathy resolution - Post Proc.	Up to 6 cm
SAS bathy vert. accuracy @ 100 m	10 cm
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™
Total System Power Draw	80 W

*Note: 2.1 cm x 1.9 cm resolution also available

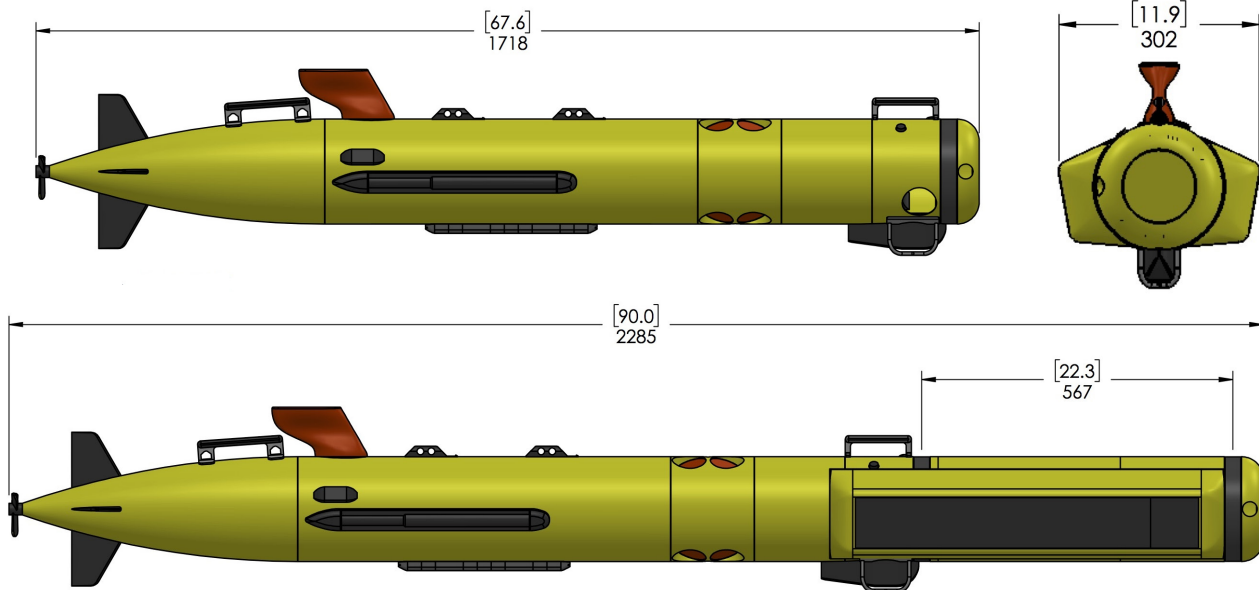
MINSAS 60 LW - Area Coverage

knots	m/s	Range m (per side)	ACR w/o Gap Filler km² / hr	ACR w/ Gap Filler km² / hr
2.00	1.03	178	0.93	1.32
2.50	1.29	148	0.93	1.32
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

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



Above: Man-Portable Light Weight SAS payload ready for installation on a small diameter AUV, as pictured below.



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

