

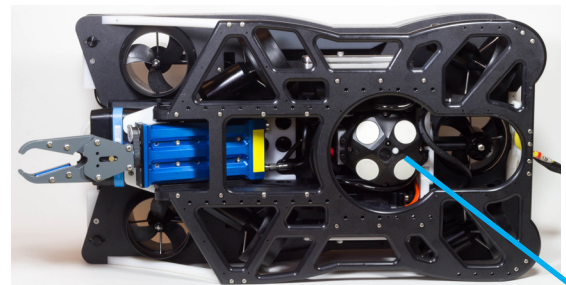
Accessory Data Sheet

MSS Navigation Package

The Mission Specialist Navigation Package allows for a higher level of autonomous control. The package integrates a Doppler Velocity log (DVL) which locks onto and tracks the ROV's position along the sea bottom. The DVL estimates distance traveled and calculates the current position with simple "dead reckoning" navigation. A GPS antennae is used to correct the vehicle's position when it is on the surface. These sensors are seamlessly integrated on the Defender through Greensea's Balefire software with station keeping, requisition, mission planning, dynamic positioning, and data string export features. A USBL system can be added to the system and used on mission profiles where the sea bottom exceeds the operational range of the DVL.

DVL SPECIFICATIONS

Depth rating	300m
Frequency of Operation	500kHz
Beam Width	2.9 degrees
Configuration	4-beam Janus array convex transducer, 25 degree beam angle
Minimum altitude	0.2m
Maximum altitude	60m



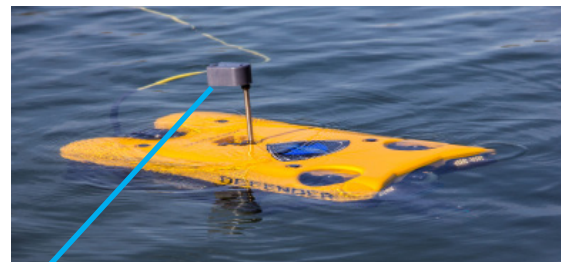
DVL

GREENSEA UPGRADES

Station keeping	Mission planning
Reacquisition	Dynamic Positioning

MAX-M8W GPS MAST SPECIFICATIONS

Depth Rating	300m
Horizontal Position accuracy	2.5m
Time-to-first-fix	29s
Sensitivity	-166 dBm



GPS

OPTIONAL:

USBL	
Depth Rating	300m
Acoustic Range	1km radius horizontal, 1km vertical
Range Resolution	±50mm
Velocity-of-Sound Range	1300ms ⁻¹ to 1700ms ⁻¹
Beacon Velocity	Active Doppler compensation, up to 15kts (28kph)
Communications	Broadband spread spectrum encoding, 24-32kHz, 100 baud. Multi-tiered Acoustic Protocol Stack.

