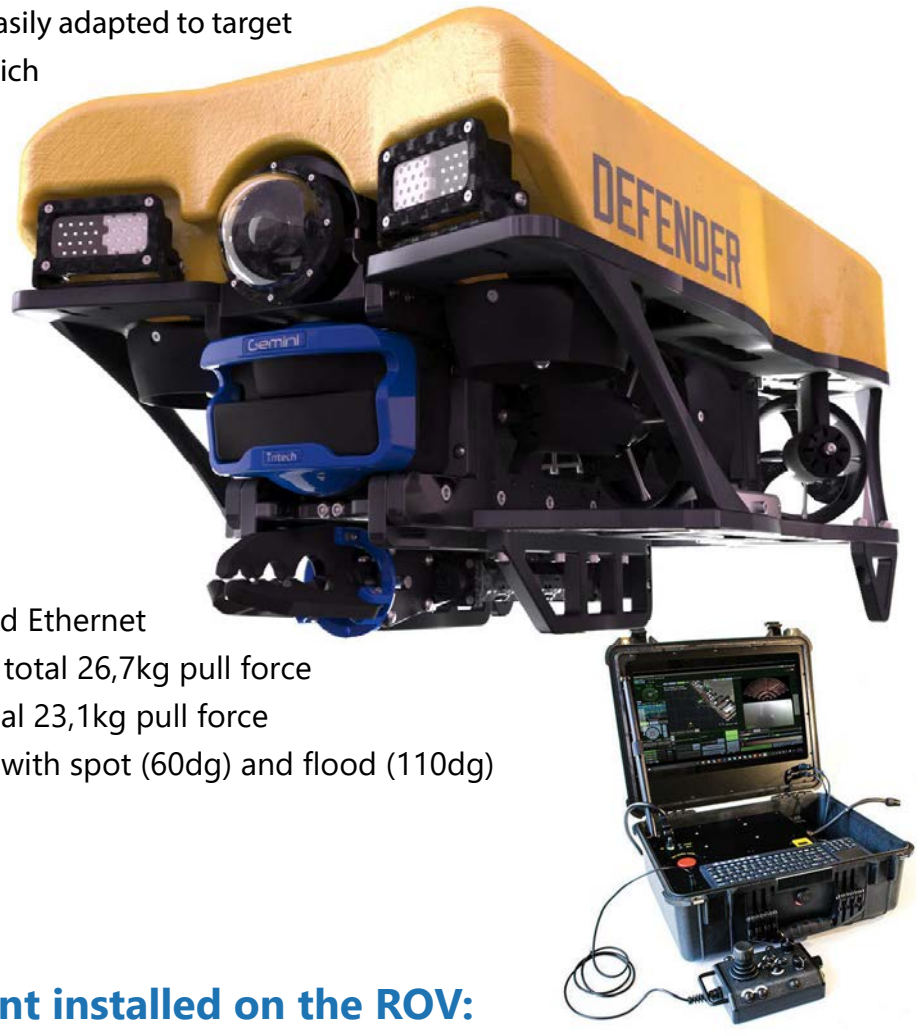
ROV system VRD1
DEP-DS-0493/01

Inspection ROV system, qualified to 2000m water depth

Description:

This ROV is a standard VideoRay Defender system, equipped for the oil & gas subsea market. This high-end system is easy and precise to control and operate, and equipped for many missions. The VideoRay Mission Specialist Defender ROV is a system which utilizes interchangeable, modular components residing on a single, intelligent network. This topology provides an extremely flexible and customizable platform which can be easily adapted to target specific missions. It is this flexibility which sets the Mission Specialist ROV series a part from current technology in the Remotely Operated Vehicle industry.



Specification ROV:

VideoRay datasheet: See below
Max water depth: 2 000m
Power Input: 240VAC & 2600W
Communication protocol: RS-485 and Ethernet
Thrusters Vectored Horizontal: 4 off, total 26,7kg pull force
Thrusters Vectored Vertical: 3 off, total 23,1kg pull force
Lighting: 2 off 38watt dual LED light with spot (60dg) and flood (110dg)
Weight in air: 17.2Kg
Size (LxWxH): 75,2 x 39,4 x 26,7cm

Specification on equipment installed on the ROV:

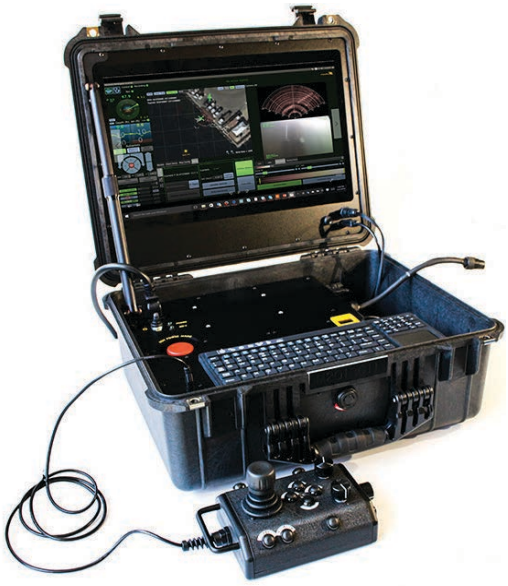
Manipulator: Slide and rotating with 5 intercangable heads
Camera: View angle (180dg with tilt), HD (1920x1080), 16x Digital zoom, Sensitivity <1 lux
Navigation: Nortek DVL 1000 with integration of Greensea Dynamic Positioning system
Operator Control Console: 1 pelicase with daylight viewable monitor and controls
Sonar: Blueprint Oculus 1200d

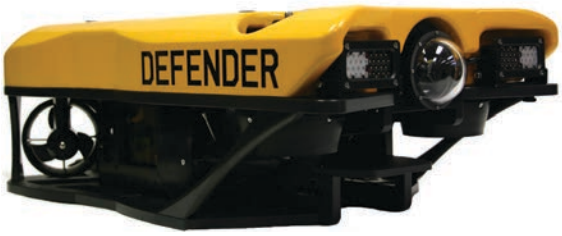
Consider it done

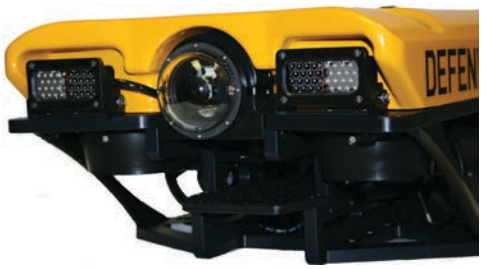
Product Data Sheet

Mission Specialist DEFENDER

The VideoRay **Mission Specialist Defender** ROV is a system which utilizes interchangeable, modular components residing on a single, intelligent network. This topology provides an extremely flexible and customizable platform which can be easily adapted to target specific missions. It is this flexibility which sets the Mission Specialist ROV series apart from current technology in the Remotely Operated Vehicle industry.







SYSTEM INFORMATION

Power Requirements	110/220VAC (1 to 2.6kW)
Total System Weight (sub and OCC)	32.5 kg (71.6 lbs)
Cases	2 Watertight Rugged Hard Cases
Owner's Manual	Online Digital
System Tool Kit	Basic Tool Kit
Communications Protocol	RS-485 and Ethernet
Warranty	2 Year Limited

SUBMERSIBLE

Depth Rating	Up to 1,000m (3,280ft)
Size (l x w x h)	75.16 x 39.37 x 26.67 cm (29.59" x 15.5" x 10.5")
Weight	17.2 kg (38 lbs)
Ballast	Modular
Case	79.5x51.8x31 cm (31.3"x20.4"x12.2") 9.4 kg (20.8lbs)

CAMERA

HD with Ethernet interface (IP)

Video	1920 x 1080, 25 FPS 1280 x 720, 25 FPS 640 x 480, 25 FPS
Mechanical	Standard VideoRay 9 pin connection Ethernet, 12VDC, RS-485 Auto Focus or Manual Focus Optical Glass Dome
Features	White Balance Control 16x Digital Zoom (64 steps) 13 Megapixel Still Image Capture
Sensitivity	Less than 1 lux (standard)
View Angle	160 degrees Tilt (180-degree FoV)
Horizontal	136 degrees
Vertical	91 degrees
Interface	Ethernet/RS-485
Compression	h.264

PROPULSION

Brushless thruster with integrated controller

4 Vectored Horizontal Thrusters

Forward	26.7 kg (59 lb.)
Reverse	15 kg (33 lb.)
Lateral	8.6 kg (19 lb.)

3 Vertical Thrusters

Up	23.1 kg (50.9 lb.)
Down	12.9 kg (28.4 lb.)

POWER

400 VDC power module
1500W @ 48VDC
Full monitoring of input voltage, output current, temperature

BUOYANCY

400m (1,312ft)
2km (6561.68ft) - *optional*

COMMUNICATIONS

5 x 100Mbps Ethernet ports
5 x RS-485 ports
Power Available: 12 V, 120 W
24 V, 300 W
48 V, 1500 W
Power control and monitoring

LIGHTING

LED
2 independent light arrays each at 38 Watts max
- 60-degree spot beam
- 110-degree flood beam
- Each array can be individually controlled
- 3,000 K CCT, 80 CRI White
- 7,600 total lumens per LED light module

IMU

9 DOF IMU and magnetic compass
- Pressure based depth sensor: 100 Bar, with 400 Bar optional
- 0.2 degree Static Roll/Pitch / 0.5 degree Dynamic Roll/Pitch
- 1.0 degree Yaw
- 18 degree/h Gyro Bias stability

OPERATOR CONTROL CONSOLE (OCC)

Power Input	90-260 VAC (47-440 Hz)
Power Output	400VDC, 2600W
Display	Daylight Viewable Monitor
Weight	15.2 kg (33.6 lb)
Case	Water tight - 0.62" x 16.87" x 8.12" (52.37 x 42.85 x 20.62cm)
Processing	Integrated i7 system processor
Controller	Industrial Programmable Hand Controller
Safety	Integral Line Isolation Monitor Emergency Kill Switch
Ports	7 external USB ports 1 external Ethernet port

TETHER

Neutral Performance	Neutral bouyancy, smaller diameter
Standard Neutral	Neutral bouyancy
Negative Extension	Negative bouyancy
Breaking Strength	680 kg (1,500 lb.)
Management	Tether Deployment and Storage Reel

Payloads For more details, visit www.videoray.com

Sonar
Blueprint Oculus 750d
Blueprint Oculus 1200d
Blueview M Series
Tritech MicronNav

Manipulator
Rotating with 5 interchangeable heads

Cavitation Cleaners
Dome
Lance

Navigation & Positioning Systems
Seatrac USBL
Nortek 1000 DVL

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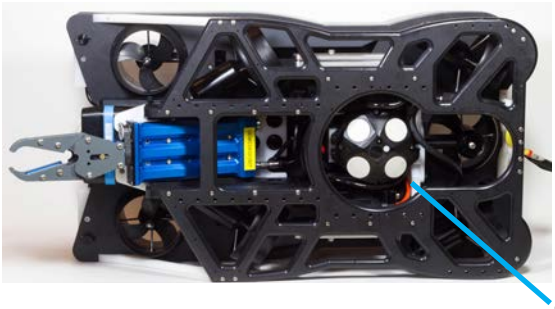
Accessory Data Sheet

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 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	1MHz
Beam Width	2.9 degrees
Configuration	4-beam Janus array convex transducer, 25 degree beam angle
Single ping std @ 3 m/s	0.5cm/s
Minimum altitude	0.2m
Maximum altitude	75m



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

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.

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