More with Less
ROV Solutions to Offshore Challenges

seatronics

The Marine Technology Specialists
Content

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- Operational Challenges
- Global Involvement with government and military agencies
- VALOR – Versatile and Lightweight Observation ROV
- Advances in sensor and tooling technology
- Summary
- Questions & Answers
Operational Challenges

- Market conditions
- Marine environment
- Vessel / Platform & Subsea asset integrity
- Project time & Costs
- Risk
Operational Challenges

- Market conditions
- **Marine environment**
- Vessel / Platform / Subsea asset integrity
- Project time & Costs
- Risk
Operational Challenges – Inspection Class ROV’s

- Trade off between power and performance vs size
- More power can mean larger system solutions
- Ability to host multiple sensors and tooling simultaneously
- Data quality and synchronisation
- Reliability & performance
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Why Choose Seatronics?

- Predator System acquired from Global Marine
- 2014 Seatronics involvement with US Homeland / FBI
- Specific focus on the challenges faced by first responders
- Emphasis around public safety and the EOD programs
- The Predator system specifically developed for these applications
SEATRONICS VALOR PLATFORM
VALOR Specifications

- System is 300m rated with 1000m option
- The most powerful, yet manoeuvrable vehicle in this class
- Circa 73Kgf of bollard pull
- Fibre Optic Communications - Single fibre + CWDM
- Portable platform – ROV < 60Kg, 81 x 60 x 43 cm
- 45Kg payload with > 100Kg through-frame lift
- Multiple deployment options
- TMS compatible
## Comparison / Vehicles Specification / Criteria

<table>
<thead>
<tr>
<th>Vehicle</th>
<th>VideoRay Pro 4</th>
<th>Falcon DR</th>
<th>Super Mohawk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depth Rating</td>
<td>300m</td>
<td>1000m</td>
<td>3000m</td>
</tr>
<tr>
<td>Max Thrust</td>
<td>10 kgf</td>
<td>50kgf/13kgf</td>
<td>110kgf/75kgf</td>
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<tr>
<td>Visual (STD)</td>
<td>1 x SD</td>
<td>1 x SD</td>
<td>1 x SD</td>
</tr>
<tr>
<td>Ethernet</td>
<td>0</td>
<td>Optional</td>
<td>Optional</td>
</tr>
<tr>
<td>Payload</td>
<td>---</td>
<td>15 kg</td>
<td>65 kg</td>
</tr>
<tr>
<td>Weight</td>
<td>6 kg</td>
<td>100 kg</td>
<td>390 kg</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>VALOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>300m or 1000m</td>
</tr>
<tr>
<td>73kgf/45kgf</td>
</tr>
<tr>
<td>5 x HD</td>
</tr>
<tr>
<td>Multiple</td>
</tr>
<tr>
<td>45 kg</td>
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<tr>
<td>60 kg</td>
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</tbody>
</table>

*Spec obtained from website for comparison purposes*
Control Software

- Traditional ROV - user presses forwards, ROV thrusts forwards
- MK III Control Software - user presses forwards, ROV moves forwards
- Our software enables increased power without loss of control
- Controls ROV attitude
- Midwater station-keeping
- Integrated SeeByte CoPilot support
- Control System developed in-house
2G Robotics

Underwater Imaging and Laser Scanners
Basic Principles

**ULS-500 PRO**

- Dynamic or Stationary
- 1.5m to 20m range

**ULS-500 PRO Camera**

- SeaShot Imager Stills Camera & SeaShot LED

Dynamic Scanning

52 Hz laser line capture

52 Hz laser line capture
2G Robotics Laser Scanner

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Oilfield Mapping and Metrology
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ROV3D – Real time 3D Mosaicking

1. Pair Two Cameras

2. Connect to ROV3D Server

3. Calibrate Cameras

4. Generate 3D Models
ROV3D – Real time 3D Mosaicking

ROV3D augments conventional subsea video
Sonar Footage in Black water
Predictive CP Inspection

- Reduced offshore vessel time
- Cost-effective subsea inspections
- Predicted future condition of your assets

FiGS takes CP inspection into the future

Increase SAFETY
Reduce COST
Predict RISK

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Offshore wind & power cables

FPSO / Hulls / Mooring lines

Semi sub & Jackups

Jackets

In-field structures

Exposed & buried pipelines

Flexibles
FiGS – a step change in subsea CP Inspection

Non-contact CP survey, buried structures

Marine growth on anodes, no cleaning

• No need for cleaning
• No need for stabbing
• Electrically disconnected

Muddy waters & shallow waters - no issues
Tooling Packages

- Cleaning Tools – Micro FlexiClean, On board CaviBlaster, Weld joint cleaner
- Mini Dredger
- NDT – Force Technology – Mini FIGS
- Dual Electric Manipulators
- Electric Torque Tool
Summary

- Advancements in ROV & sensor technology will provide efficiencies & lower cost solutions
- Previous developments by Seatronics on military & government projects
- Next generation of observation class ROV with increased capabilities
- Sensor & Tooling packages tailored for specific projects

- **Seatronics ROV solutions will achieve more with less**
Thank you for your time
Q&A