

Schilling Sub-Atlantic
ALLIANCE



An Introduction to the Schilling Robotics UHD™

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Schilling Robotics & Sub Atlantic



- California / Texas / Aberdeen
- Subsea controls
- Work-class ROVs
- Manipulator systems
- Custom subsea machines



- Aberdeen
- Inspection-light work-class ROVs
- Hydraulic & electric thruster line
- Hydraulic system components
- Custom subsea tools

THE UHDTM



Introduction

UHDTM
ULTRAHEAVY DUTY



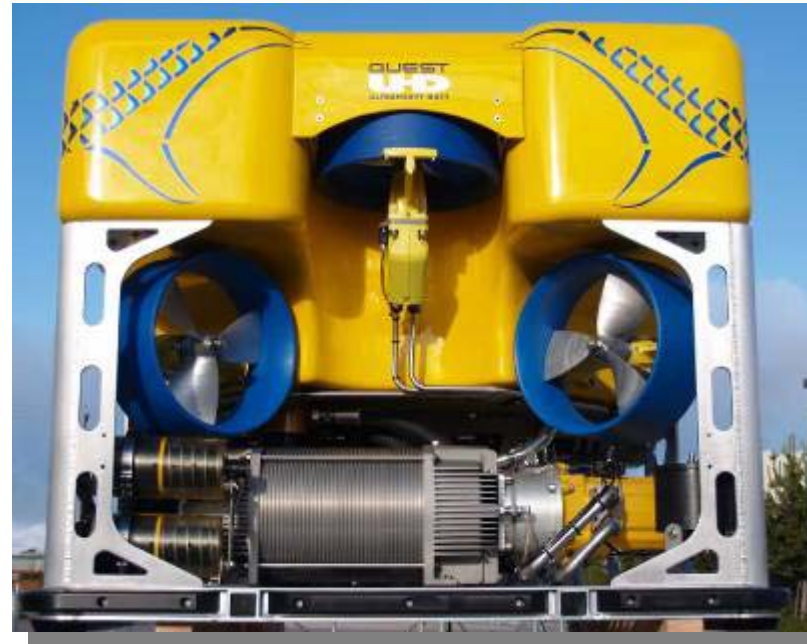
Overview: Specification

- 4,000 meter depth rating standard
- 100 kW (150 hp) standard
- 400 kg payload standard
- 7 x 420 mm thrusters
- 3 x 12 function valve manifolds
- 22 kW (30 hp) aux hydraulic circuit
- Remote variable pressure & flow control
- Under-slung toolkid support
- DnV-certified lift frame



Overview: Advanced Features

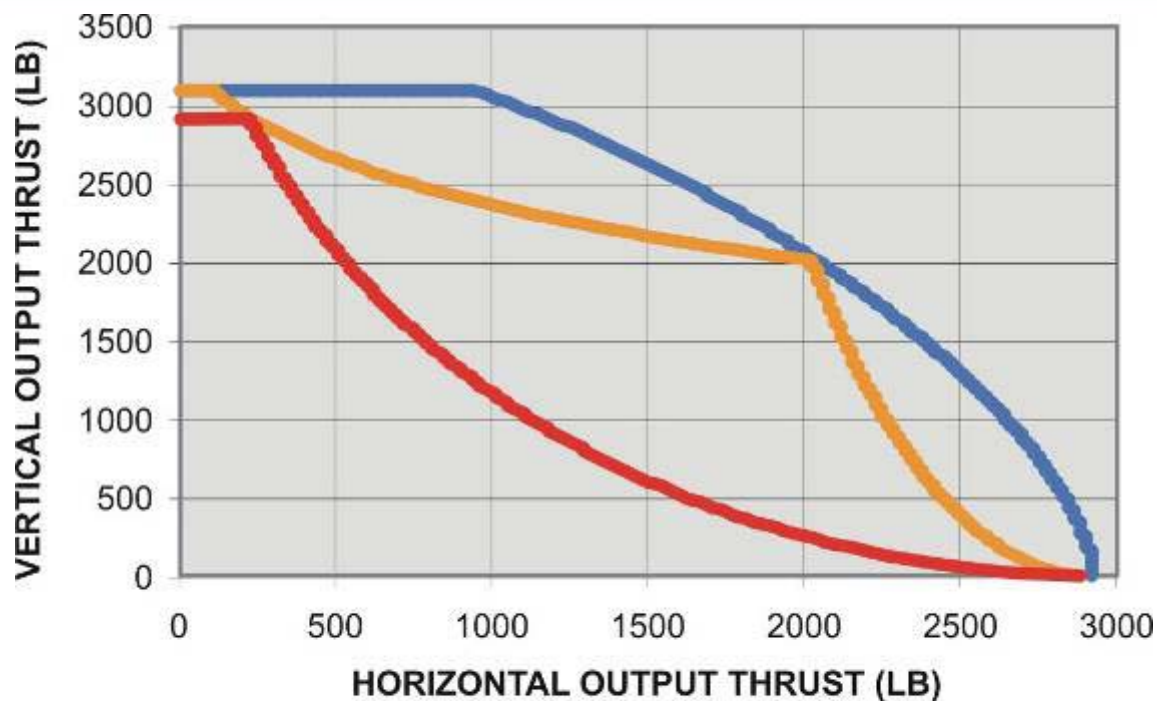
- Quick-disconnect tether termination
- HID & incandescent lighting
- StationKeep™ standard
- Autonomous follow mode
- Cardev hydraulic filters (main & aux)
- Digital & analogue video supportHDTV support
- Practically unlimited customer “spare” channels (serial, Ethernet, or video)



Performance

	Thrust
Forward	1110 kgf
Lateral	1080 kgf
Vertical Up	1050 kgf
Vertical Down	1150 kgf

Performance

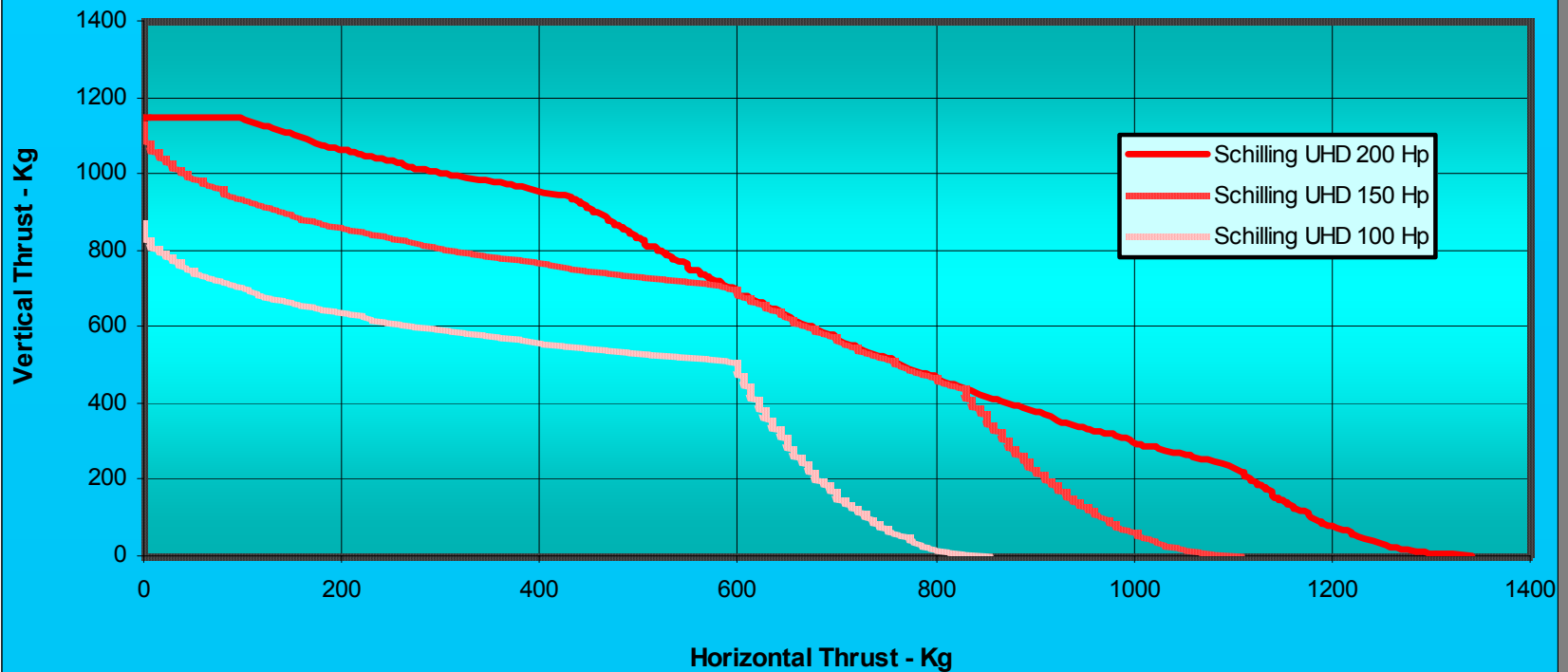


- Ideal Thruster System
- Fixed-Pressure System Performance
- Variable-Pressure System Performance

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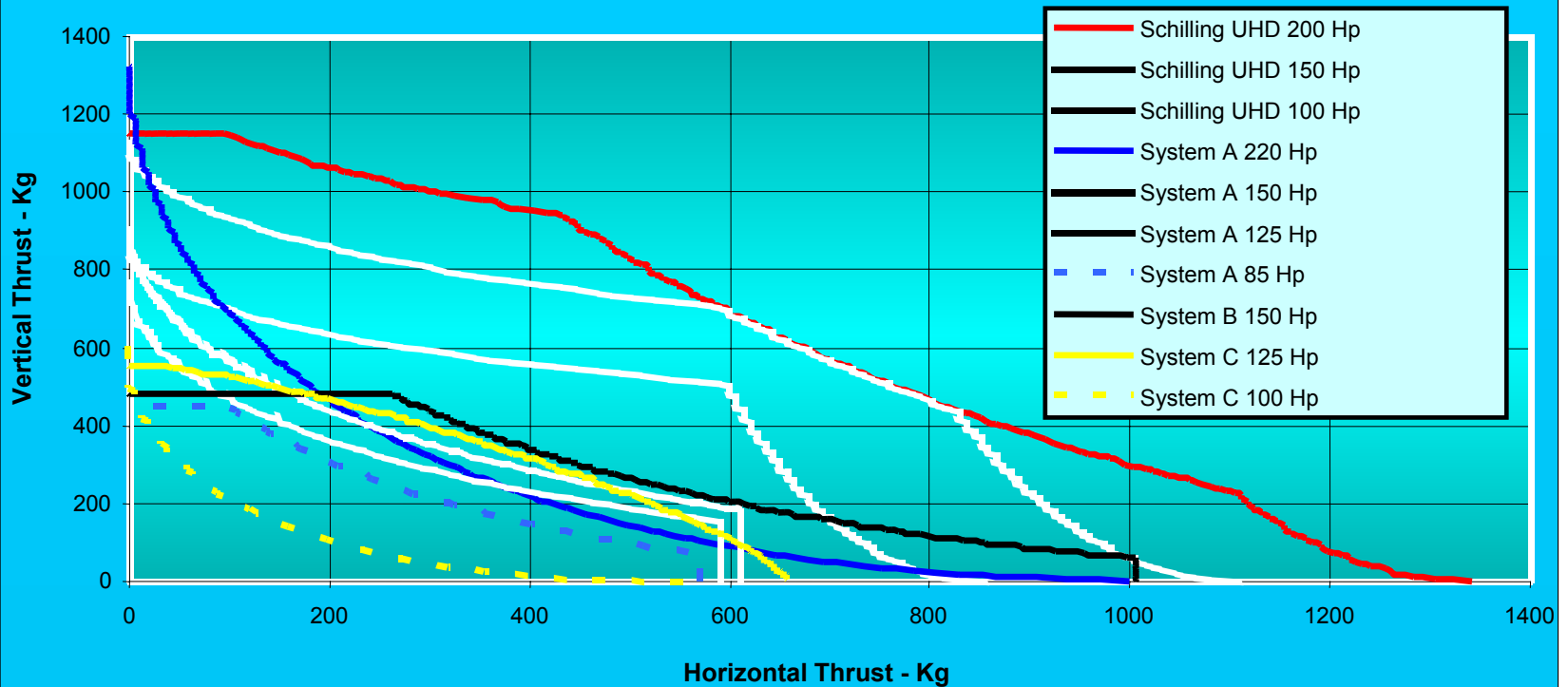
Performance

SCHILLING QUEST UHD SYSTEM PERFORMANCE



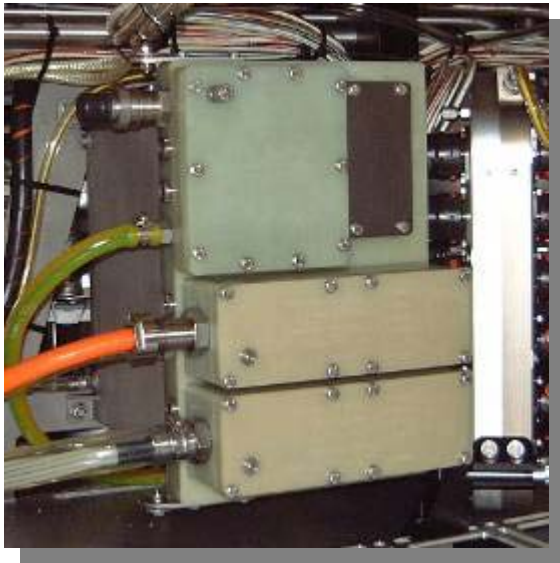
Performance

ROV SYSTEM PERFORMANCE COMPARISON



Tether Quick-Disconnect Assembly

Fast, safe & reliable mobilization & demobilization



1. Tether Connected

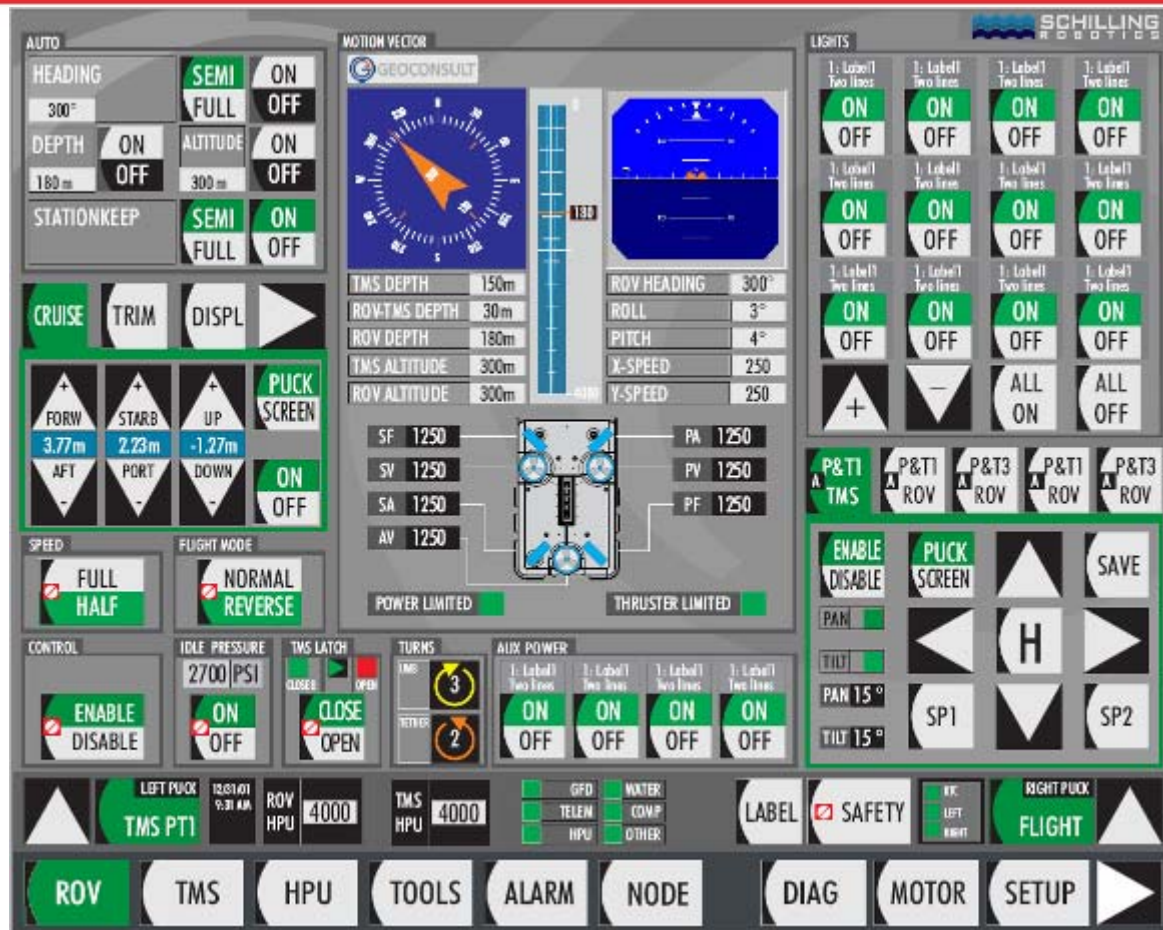


2. Tether Disconnected



3. Connector View

User Interface



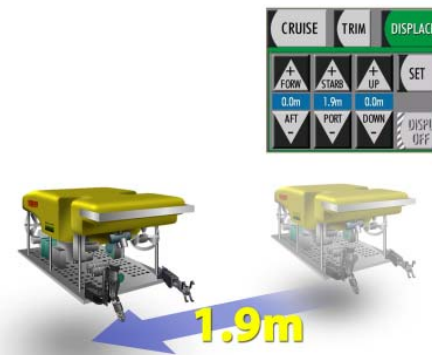
StationKeep™

- Vehicle dynamic positioning
- DVL-based
- Allows operators to focus on tasks while the vehicle holds position
- Proven to reduce vessel time for construction support tasks by as much as **20-30%**

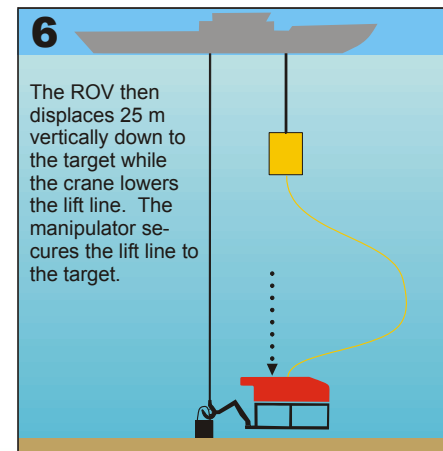
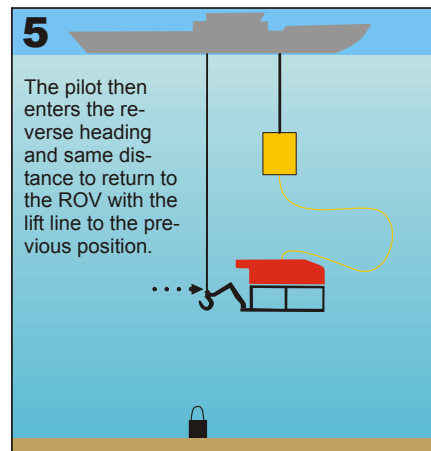
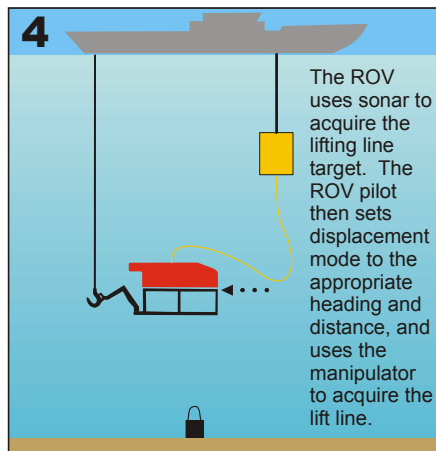
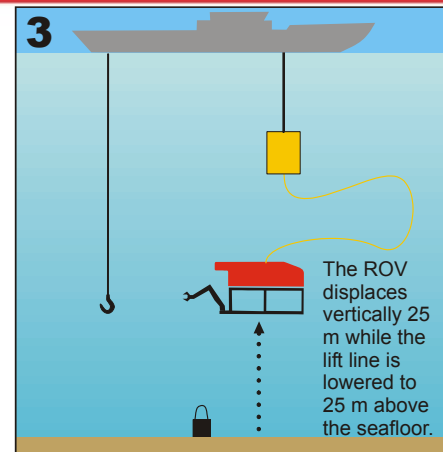
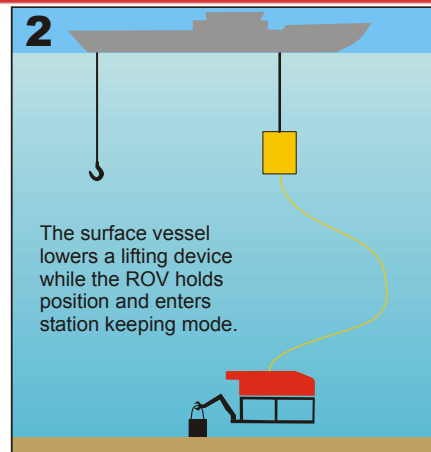
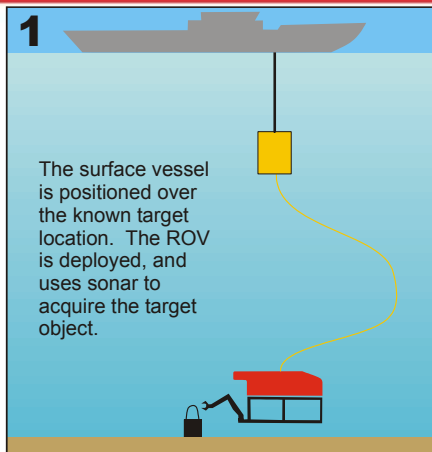


StationKeep™ Displacement

- Controlled automatic displacements
- X, Y, and Z axis, or combination
- Can be expanded to provide an autonomous follow mode
- Rate control mode
- GPS tie-in optional



StationKeep™ Displacement: Example of Use

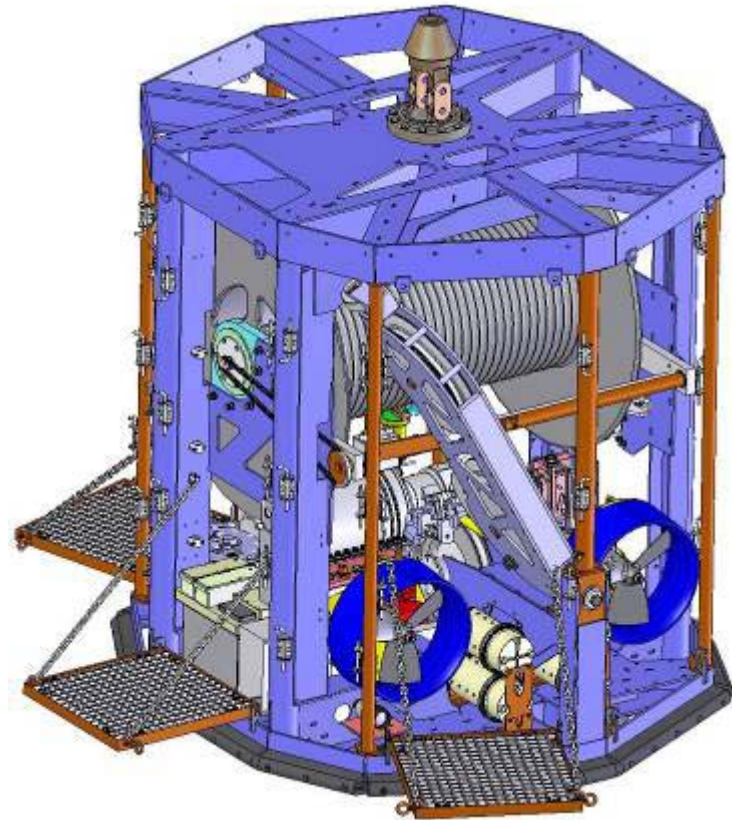


StationKeep™



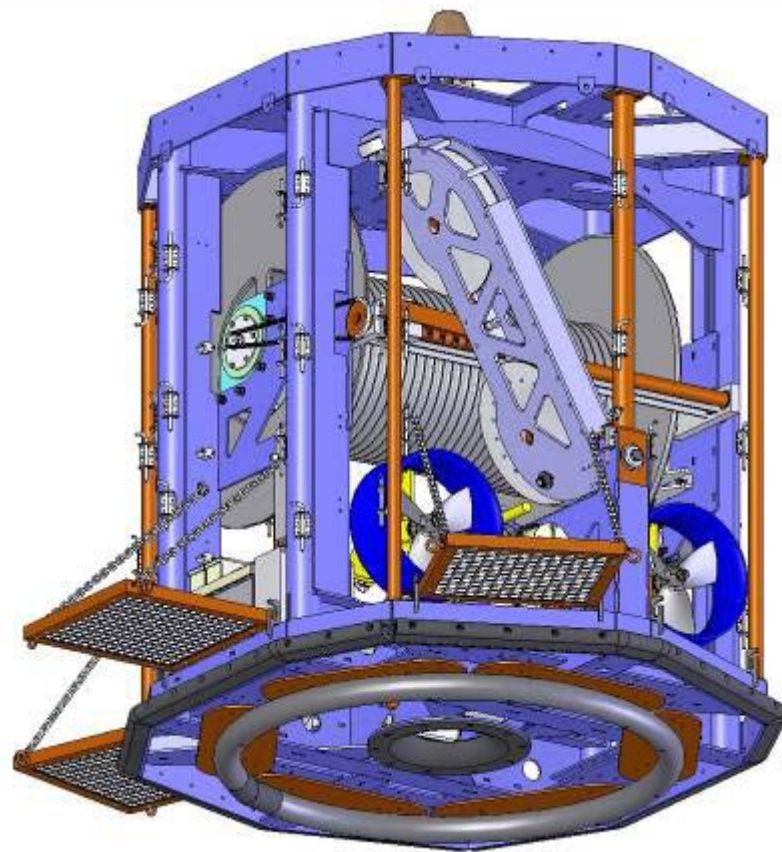
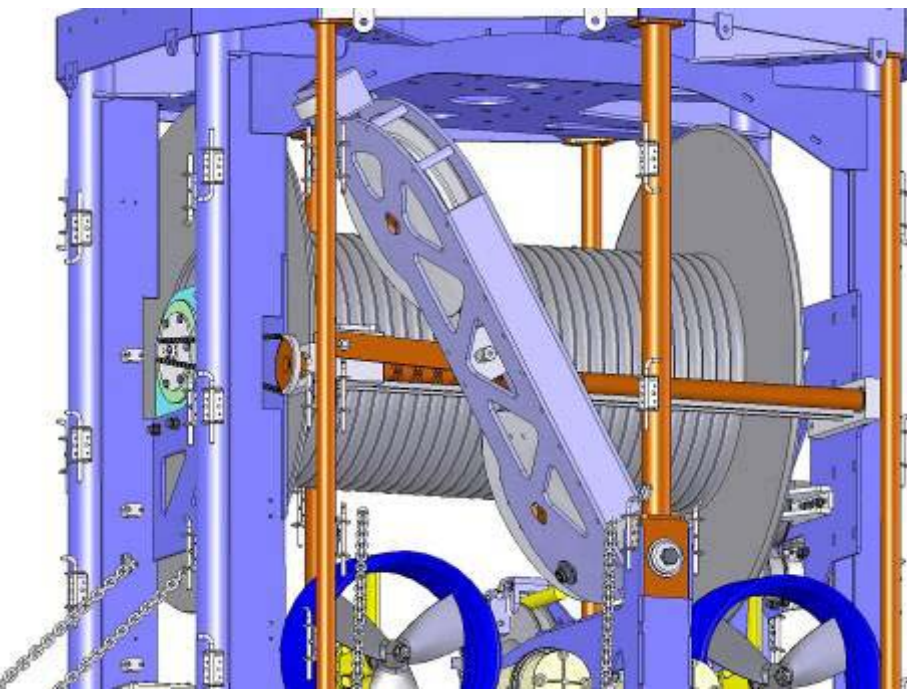
XE™ TMS

- Extended-excursion tether management system
- 1,150 meter 27 mm cable capacity
- 825 meter 35 mm cable capacity
- Stainless steel frame (low maintenance)
- Variable-speed operation up to 90 meters per minute
- Significant parts commonality with ROV



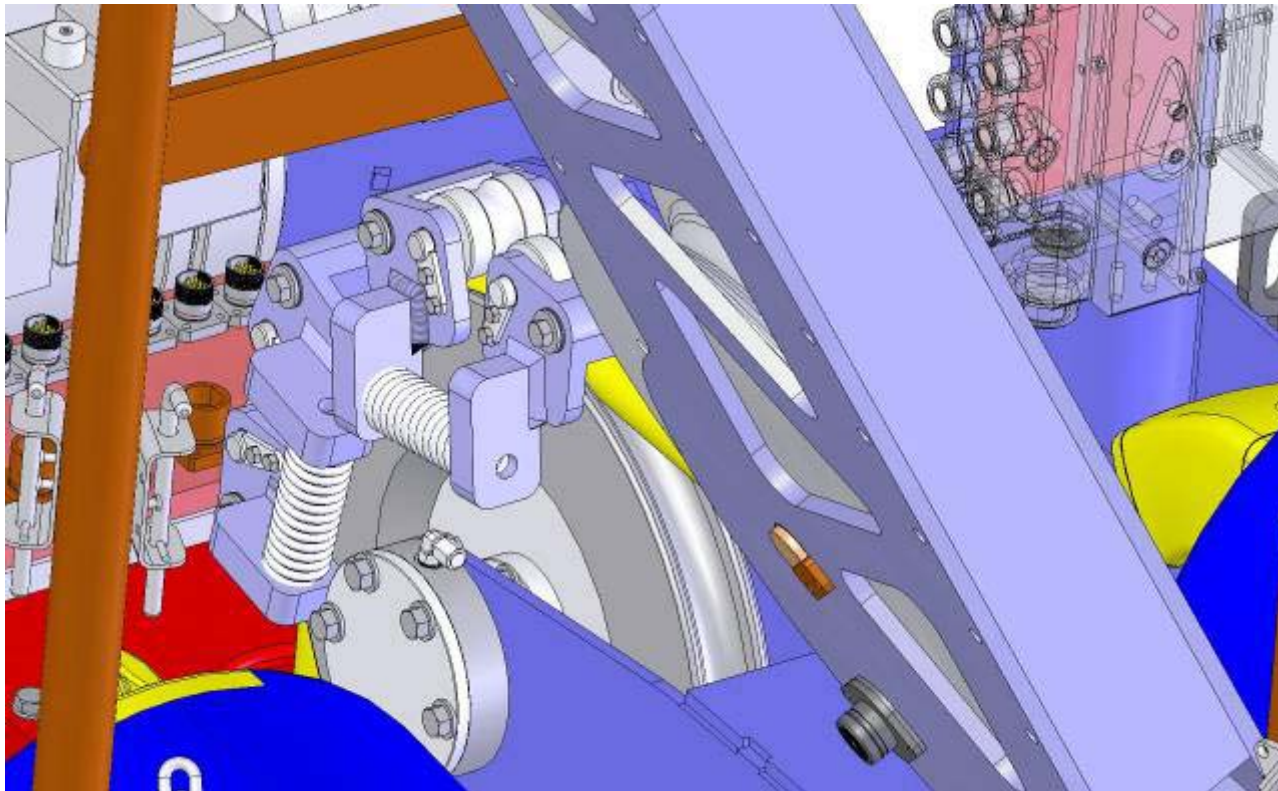
XE™ TMS

- Optional Thruster package
- Fold down work doors
- Low force level wind



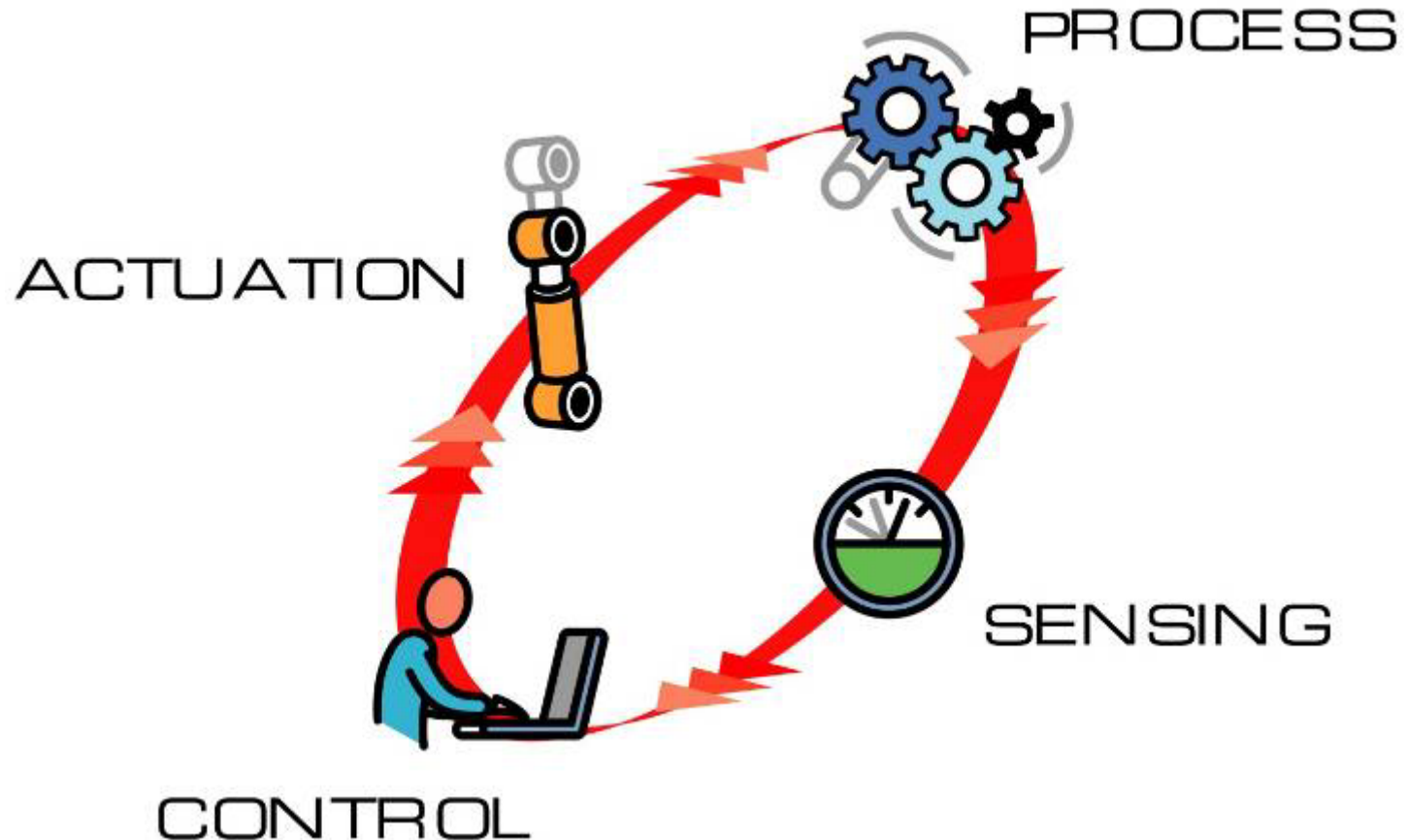
XE™ TMS

- Low tension power sheave



THE REMOTE SYSTEMS ENGINE™

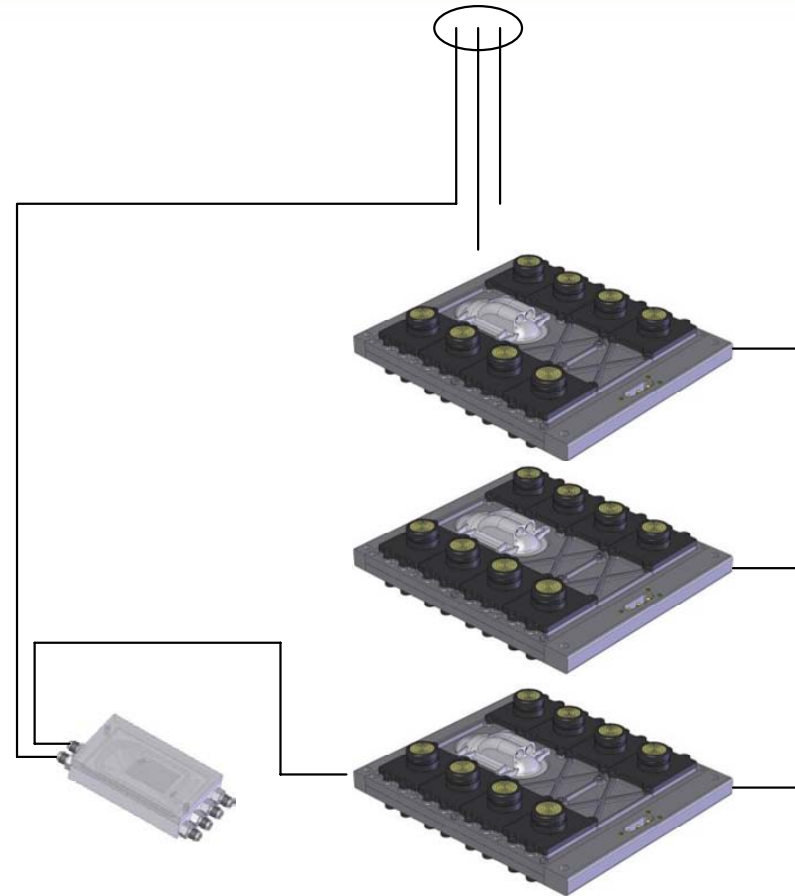
Overview



THE REMOTE SYSTEMS ENGINE™

Schilling Digital Telemetry System™ (SDTS)

- Developed for a wide variety of subsea applications
- Based on commercial Ethernet technology (low risk of obsolescence / multiple supply & upgrade paths)
- Highly configurable
- Multiple levels of redundancy built-in
- Hardware & software developed to work in conjunction; upgrades and enhancements are continuous

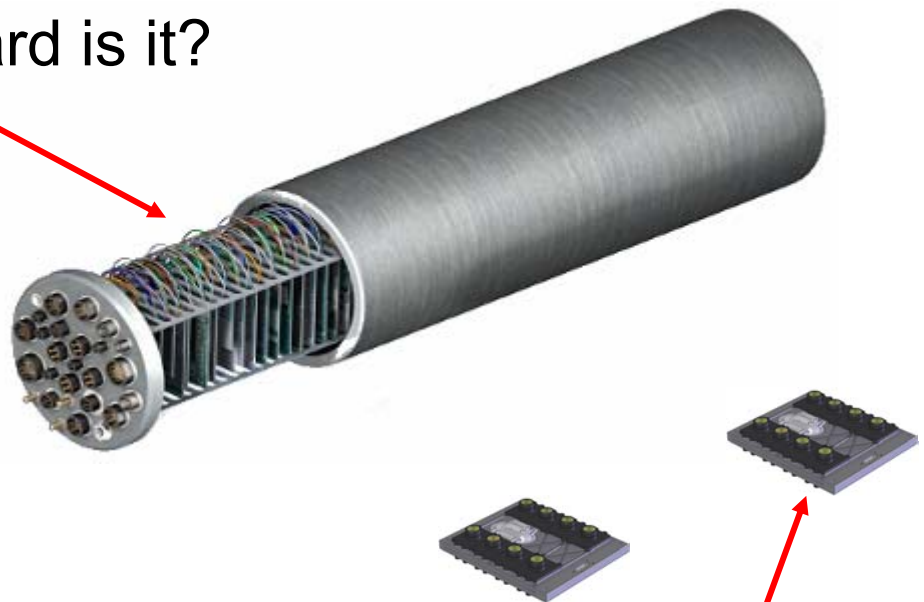


THE REMOTE SYSTEMS ENGINE™

Schilling Digital Telemetry System™ (SDTS)

Which board is it?

DTS™: simple
troubleshooting



Swap out whole node
and troubleshoot offline.

SCHILLING DTS™

Subsea DTS™ Node

- 300 W / port; electronic fusing
- 16 x 10 / 100 Ethernet ports
- 2 x GigE ports
- Ground fault detection on each port
- Digital video transmission supports NTSC/PAL or MJPEG cameras with megapixel resolution at video frame rates
- Titanium or composite housing



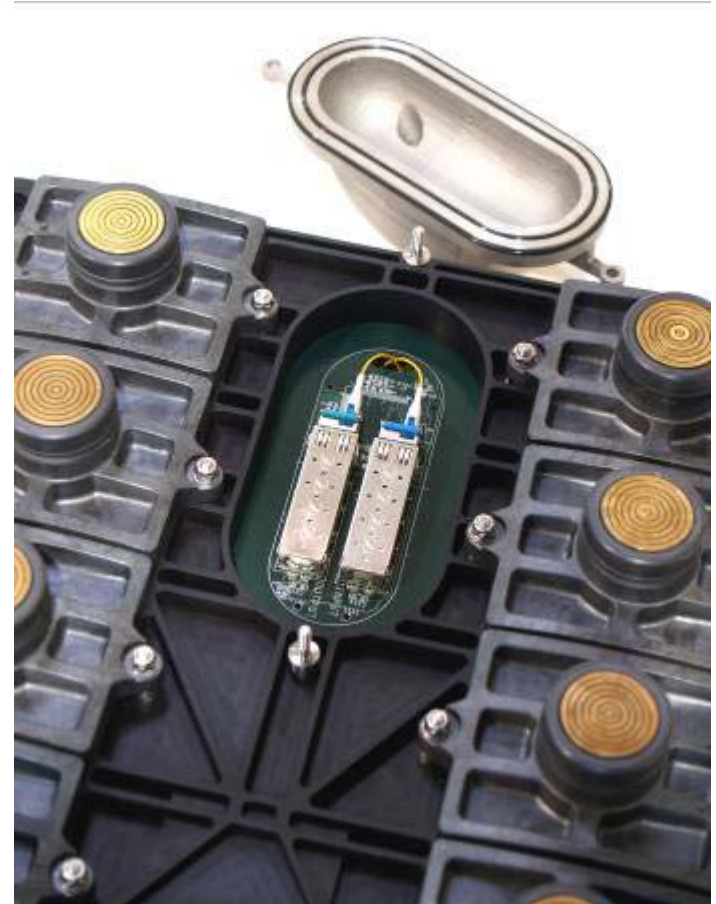
Subsea DTS™ Node: Some Benefits

- Easily expandable; module stacking allows wide range of physical configurations
- Several options to provide redundancy as required
- **Seamless**, automatic transition to secondary fiber if connection is lost on primary fiber
- Can be operated in air without concern for overheating (proven issue with can-type pressure vessels)



Subsea DTS™ Node: Fiber System

- SFP module provides fiber connection
- Housed in isolated pressure chamber located on main PCB
- Patented pressure vessel penetration technique
- Supports connection between nodes in close proximity over copper
- Supports connection between nodes / node clusters over fiber of up to 120 km



DTS™ Port Modules

- Use appropriate port to configure subsea DTS™ node for requirements
- Option 1: Serial (RS-232 or RS-485)
- Option 2: Video
- Option 3: Ethernet
- Built-in electronic fusing (surface reset)
- Burton serial module available – includes two GPIO pins for responder triggering & current loop devices
- 24 VDC device support



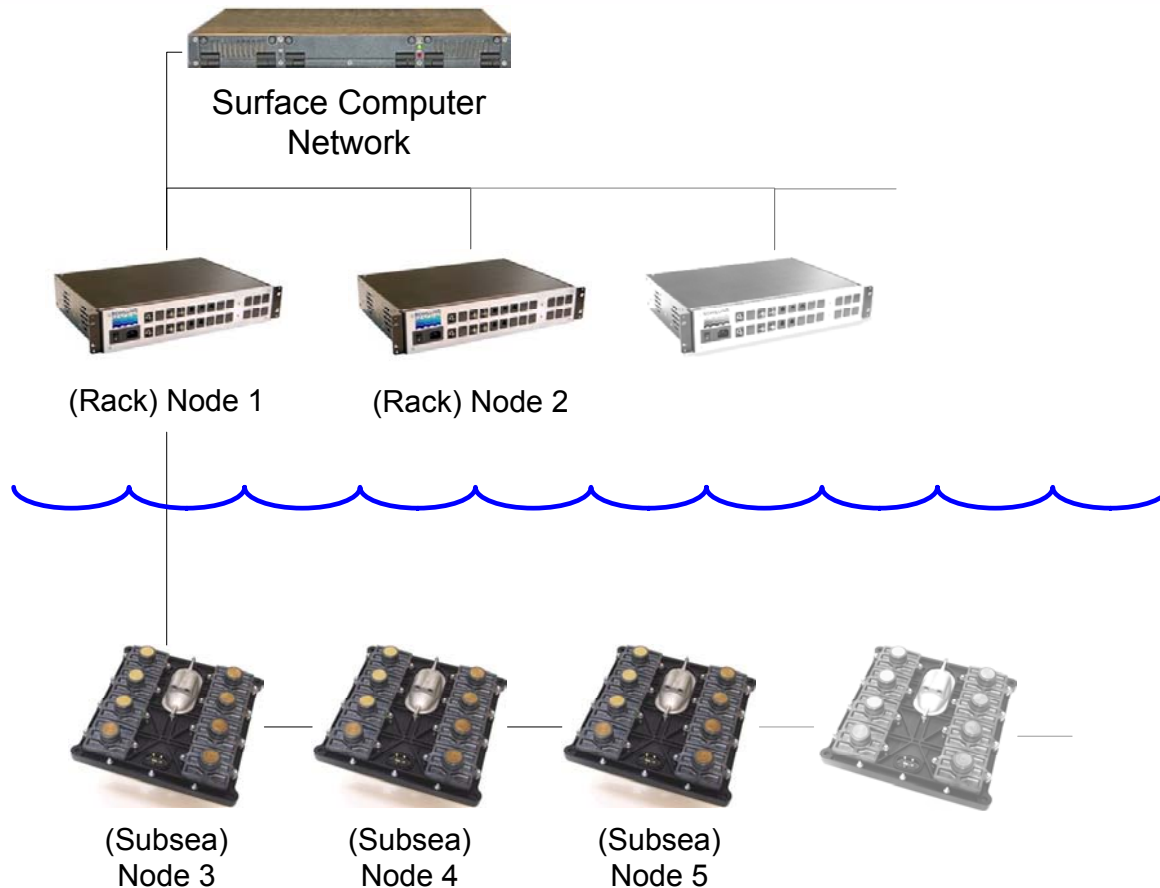
Surface DTS™ Node

- 2U rack-mount unit (10" deep)
- 16-port unit
- Single port used for surface system
- 15 ports remain for customer use
- Ports can be configured for serial output or analog video output as required
- Multiple units can be daisy-chained to increase interface capability



SCHILLING DTS™

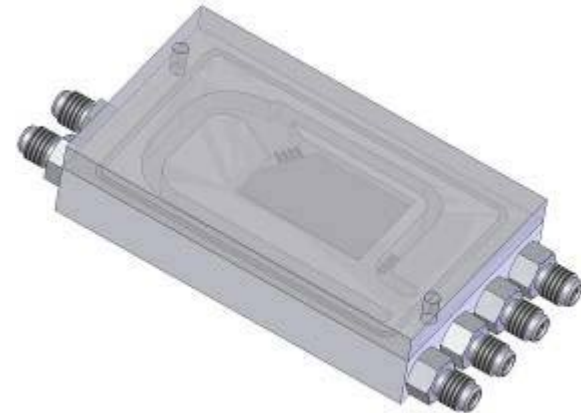
DTS™ Architecture



DTS™ CDWM Module



- CWDM: Course Wavelength Division Multiplexer
- Provides connections for extra passes (such as SDI HDTV)
- 3 SDI modules included for 3-channel HD support (4 optional)
- Topside CWDM unit required, plus SDI module for each channel supported (i.e. 3 SDI modules required topside for 3-channel HDTV)



THE REMOTE SYSTEMS ENGINE™

Visualisation System (GRI)

- Complete virtual environment simulation system available
- Provides complete training environment for operators
- Allows operators to run through mission planning scenarios without being the critical path
- Real-time visualisation system available (offshore use)



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