Can do attitude for latest ROV control system

Sub-Atlantic Ltd, Aberdeen, Scotland

In recent years, manufacturers of sensors for Remotely Operated Vehicles (ROVs) have developed increasingly sophisticated systems in ever smaller, lighter packages. This has allowed ROV manufacturers to offer evermore high-tech solutions for port security applications including structural and vessel hull inspection, diver support, surveillance operations, mine countermeasures, and intervention/recovery etc.

However, the ability to carry a vast array of tools has taken its toll on existing ROV control systems to the point of overload, leaving operators with vehicles performing at limited capacity. This led Sub-Atlantic Ltd to develop the subCAN control system.

Features

subCAN comprises a PC running Windows LabView, a pilot’s hand control unit and touch screen monitor. The topside PC communicates with compact subsea control boards in the ROV thus providing data acquisition, sensor interrogation and real-time vehicle diagnostics.

The simplicity and compactness of the package might lead one to assume that system functionality is very limited, yet it includes multiple/expandable digital and analogue channels, diagnostics, fault protection and auto positioning. The ability to increase system nodes or to have extra PCs in series is crucial. For security ops, the capacity to integrate further sensors or to expand the mission role at short notice is fundamental, as is the capability for simulated mission training prior to any live operations.

Communication protocols

In order to provide the operator with speed, reliability functionality and undetectable communication latency – bandwidth is crucial – and so subCAN employs three communication protocols:

- Ethernet is ubiquitous, reliable and capable of high speed (to 100MB/s).
- CAN (Controller Area Network) is used because of high relative speed (to 1MB/s), reliability and simplicity. Bus contention is carried out at the hardware level and can be prioritised. This produces an extremely high bandwidth, even if more CAN nodes are added afterwards. That cannot be said of many other network protocols.
- RS232 and RS485 are simple and well understood forms of communication and when combined with software Cyclic Redundancy Checks and Check Sums provide a very robust communication medium.

The PC or linked PCs also provide mechanisms for data logging, setting up operator preferences and the ability to provide intelligence instantly across a closed security network or globally.
via the internet. The speed, flexibility and diagnostic feedback make the operator/vehicle interface simple to run, fault find and provides a very responsive environment for all operations.

**Autoposition**

Another exciting aspect is Sub-Atlantic’s ‘Autoposition’ function, which allows the operator to pre-programme a route of waypoints and manoeuvres for the vehicle to follow hands free with centimetric accuracy. This aligned to accurate ‘hands off’ position holding allows for pre-planned search and observation tasks despite prevailing subsea currents, vessel prop wash etc. This leaves the operator free to concentrate fully on exploitation and interpretation of intelligence data gathered by the sensors.

Of course, Security is only one aspect of the port, harbour and inland waterways industry (and beyond), for which subCAN has massive implications and almost endless solutions using the Sub-Atlantic range of ROVs. Subsea construction, structural maintenance, survey, environmental monitoring, and seabed mapping etc. will all benefit.

**About the Company**

Sub-Atlantic is a world-leading manufacturer of Electric Remotely Operated Vehicles (ROVs) and support systems. They are also the leading propulsion supplier to work-class ROV builders, providing hydraulic thrusters, hydraulic power units (HPU), valve packs, compensators and pan and tilt units. Their products operate in the world’s harshest of environments and are therefore designed and built with the highest levels of technology, expertise and innovation.

The Triton Group is comprised of eleven companies specialising in the design, development, manufacture, sale and rental of remotely operated technologies and their systems’ components. The group also offers engineering support, training and the supply of qualified technical personnel.

**Enquiries**

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Sub-Atlantic ROVs are capable of operating in the harshest environments, offering outstanding reliability and ease of maintenance.

- Auto Positioning
- Auto Heading / Depth
- Dynamic Vectoring™
- Stator Shield Technology™
- SubCAN™ Control & Diagnostics
- Tooling & Skid Options