INTRODUCING
V-IR NETWORK
INTEGRITY MONITORING

V-IR monitors and locates subsea electrical faults without the need for subsea intervention.

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The Water Ingress Problem
Water ingress to subsea electrical cables is the dominant cause of electrical faults. This results in an increase in leakage current and a low insulation resistance (Low IR) alarm. Continual insulation degradation eventually leads to failure of the circuit.

Existing topside line insulation monitors only display a single IR result for the complete subsea system. When the IR drops the topsides monitor provides no information on the number of faults or their location. A costly subsea fault finding campaign and possibly a production outage is required which also carries the risk of introducing new faults in previously good connections. Even if a fault can be found and fixed, the entire process must be repeated each time a new fault occurs providing no long term added value.

The Solution
V-IR brings the V-LIM and V-SLIM products together into a system that provides visibility of the subsea distribution system electrical integrity.

The V-LIM unit is installed on the topsides and acts as the data gathering node for the V-SLIM units. The V-SLIM enabled electrical flying leads are installed at strategic subsea locations. The patented V-IR measurement technology does not rely on any in-line electronics or switches. The lines being monitored pass straight through the unit.

V-IR continuously monitors the subsea distribution network and provides the output via an intuitive user interface. Inter-node communications are accomplished using either the Viper V-NET line to earth signalling system or SIIS level 3 Ethernet interface. Host system communications are unaffected. When a fault occurs its location is evident without the need for diver or ROV operations.

Key Benefits
- Provides information to locate electrical faults without the need for an intervention
- Compatible with existing subsea control systems
- Available for retro-fit or integration into new distribution hardware
- Minimises subsea intervention costs and mitigates unplanned production loss

Key Features
- Provides IR of individual subsea network segments between v-slim nodes
- Additional outputs including voltage, current, power factor and cable capacitance
- Compatible with AC or DC systems up to 1000V (single phase)
- Compatible with existing subsea control systems
- Compatible with existing topside IR verification testing activities
- Patented measurement technology allows wires to be routed directly through the V-SLIM without electronics or switches in-line
- Maximum water depth 3000m (9,840ft)
- Qualified to ISO 13628-6: 2006

Installing V-IR
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- V-SLIM enabled electrical flying leads are installed at strategic subsea locations