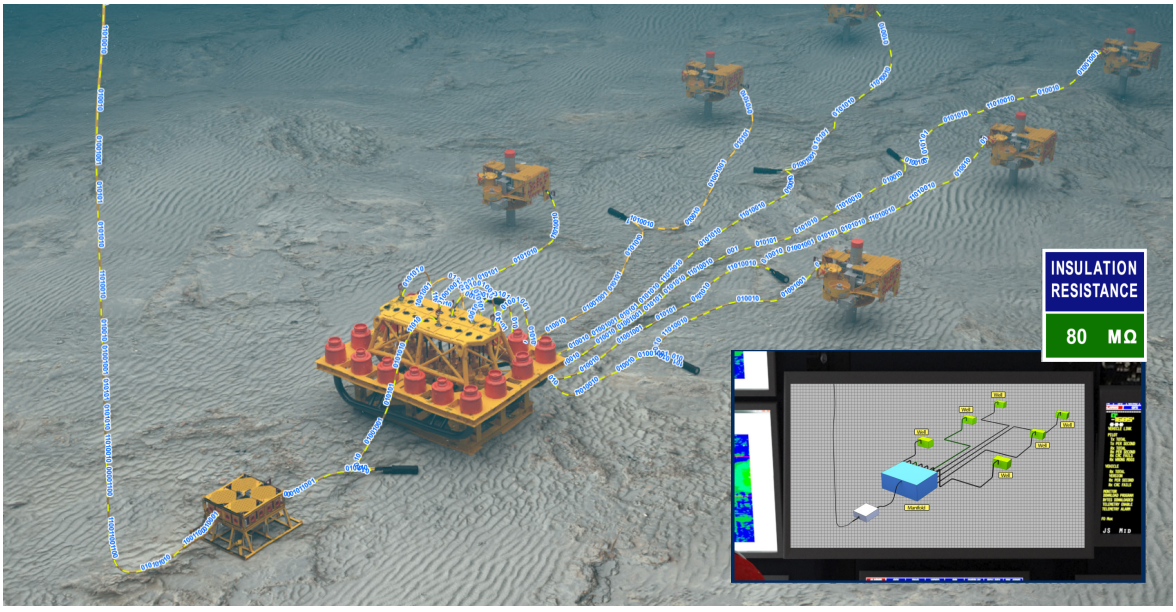
V-IR®
A VIPER INNOVATION

INTRODUCING
V-IR NETWORK INTEGRITY MONITORING

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



To see more visit viperinnovations.com

V-IR®

V-IR IS AN ESSENTIAL TOOL IN PROACTIVE INTEGRITY MANAGEMENT OF SUBSEA ELECTRICAL SYSTEMS

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

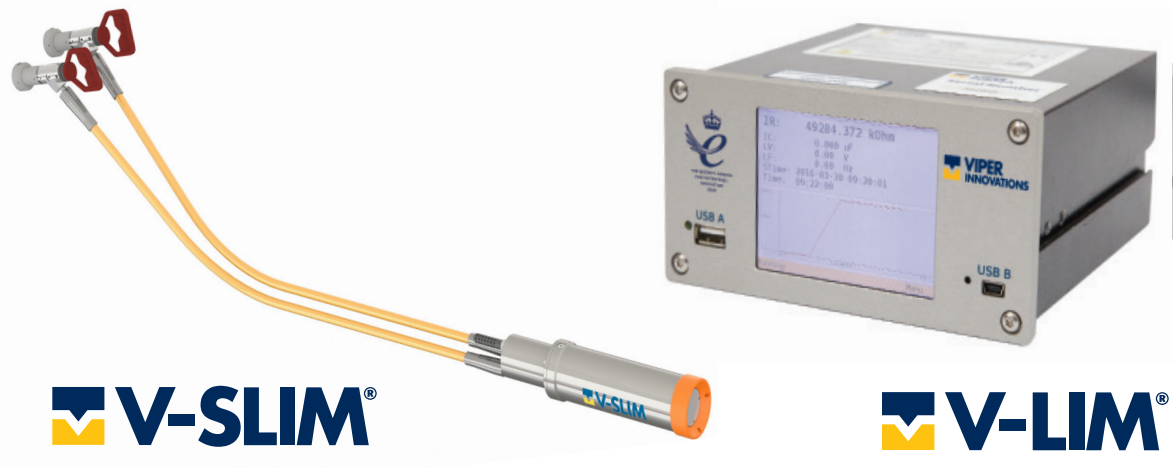
- Provides information to locate electrical faults without the need for an intervention
- Compatible with existing subsea control systems
- Available for retro-fit or integration into new distribution hardware
- Minimises subsea intervention costs and mitigates unplanned production loss

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 with no electronics or switches in-line
- Maximum water depth 3000m (9,840ft)
- Qualified to ISO 13628-6: 2006

Installing V-IR

- The V-LIM unit is installed topside and acts as the data gathering node for the V-SLIM units
- V-SLIM enabled electrical flying leads are installed at strategic subsea locations



Viper Innovations, with UK offices in Portishead and Aberdeen

www.viperinnovations.com
email: enquiries@viperinnovations.com