

CASE STUDY



**UPGRADING BROWNFIELDS
WITH THE LATEST
GENERATION UMBILICAL
MONITORING TECHNOLOGY**

 **VIPER
INNOVATIONS**

www.viperinnovations.com

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Specifically designed to address the demands of the Oil & Gas sector, the **V-LIM** is an accurate and precise sensor which monitors electrical cable integrity.

Long term operation and exposure to harsh environmental conditions causes insulation degradation in cables and other electrical equipment over time. With its precise and accurate measurements of insulation resistance, capacitance and other advanced electrical parameters, **V-LIM** not only provides a better picture of the health of the system over time, but also provides opportunities to identify problems before they arise. This allows proactive and more cost effective intervention to be undertaken based on risk and asset condition assessments rather than relying on reaction to failures after they have occurred.

The **V-LIM** can be used to upgrade the integrity monitoring capability on brownfield applications as well as being specified as the product of choice for green field installations.

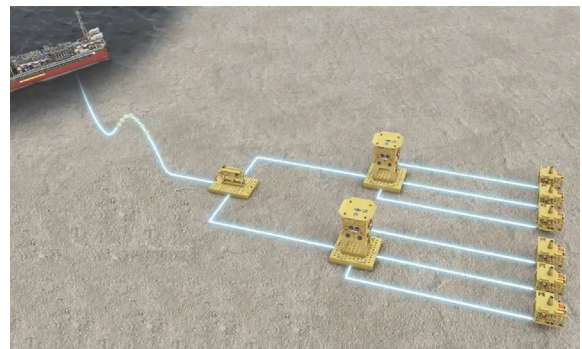
Across 30
Global Operators

400+
Installations

Since 2012
Proven in Field Operation

Problem

With subsea oil and gas fields having design lives of typically 15 years or more, most of the monitoring technology for line insulation resistance tends to be 'older generation' by the time it is really needed to be used. i.e. insulation resistance (IR) problems as a result of water penetration into cables and connectors are more prevalent in later field life.



Most of the older generation Line Insulation Monitors (LIMs) were designed for onshore applications and therefore not optimised for monitoring low IR as is typically found in the ageing subsea assets. The challenge presented is to replace low performance LIMs (which have a range of different physical forms and electrical interfaces) with the latest generation **V-LIM** whilst minimising system downtime during the change-out.

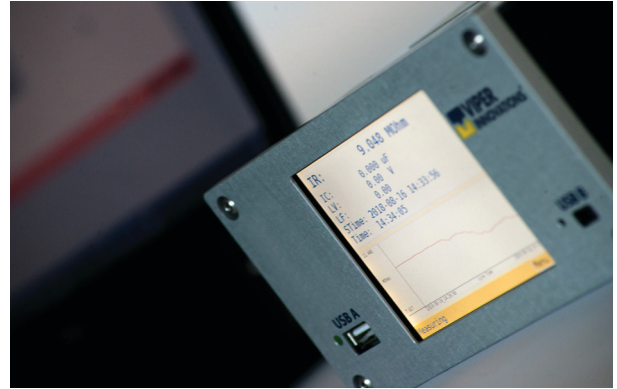
Solution

Viper Innovations has designed the **V-LIM** to allow the unit to be retrofitted into existing systems as easily as possible, without compromising the design. The unit is built into a custom extruded case specifically designed to enable replacement of existing equipment, therefore allowing customers to upgrade their existing IMD for a modern **V-LIM** with advanced features.



For older systems, Viper Innovations has designed a suite of 'Interface Modules' that allow the **V-LIM** to be easily integrated. These interface modules are fitted in place of the existing LIM and route the required electrical signals from inside the existing Power Module to front panel connectors.

Once the interface module is installed, the electrical signals can be routed to the **V-LIM** units. A decision on the mounting arrangement for the **V-LIM** units can be made on a project-by-project basis and optimised for the specific system.



One example is where the wiring from the interface card is routed via harness directly into a separate panel where the **V-LIM** units are mounted. A second example is where it is possible to make minor modifications to route the wiring harnesses in the rear of the 19" rack.

The **V-LIM** has an additional feature built in to solve the issue of cross talk interference between monitoring devices, which is a common problem amongst LIM/IMD devices on the market.

As well as the higher measured insulation resistance (IR) range, the addition of insulation capacitance (IC) & voltage measurement and full data log capability, the upgrade to the **V-LIM** also enables advanced functions via **V-LIFE**; a highly advanced feature for subsea applications which is exclusively provided by Viper Innovations.

V-LIFE mode can be activated on the **V-LIM** unit to increase the insulation resistance (IR) of a subsea system which is suffering from low IR without the need for costly subsea intervention or risk of introducing new faults.



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