





## Safety Underwater – Bender Protects Subsea Systems and Remotely Operated Vehicles

The safety and reliability of subsea electrical systems and remotely operated vehicles (ROVs) is of paramount importance to oil and gas operations. Any system failings potentially have great consequences, due to the extreme conditions which make repair and recovery difficult and dangerous. Operators must have total confidence in the integrity of subsea operating systems, and effective monitoring plays a vital role by giving early warning of developing issues with systems and components facing the extreme pressures and hazards of the deep ocean.

## **Subsea Cable Monitoring**

Effective monitoring of parallel subsea cables identifies trends in insulation resistance values informing operations and maintenance teams of cable degradation and developing electrical failure.

At SPE Offshore Europe 2019 Bender UK is showcasing its advanced ISOMETER® isoHR685 LIM (Line Insulation Monitor) developed specifically to monitor subsea umbilical cables. The device detects up to 10GΩ and monitors IT systems up to 1,760V DC and 12 kV AC to provide the early warning of cable degradation that improves operational efficiency.

Bender's subsea LIM is compliant to IEC 61557-8 and is universally applicable in AC, AC/DC and DC systems. It monitors AC systems with galvanically connected rectifiers or inverters, DC systems and AC systems that may include extensive DC-supplied loads (e.g. rectifiers, inverters and variable speed drives).

Interference from neighbouring monitoring devices in IT systems is suppressed and filtered by Bender's innovative 'ISOsync' feature enabling multiple LIMs to be fitted across the umbilical power cores. Up to 100 units can be synchronised without cross disturbance, continuously monitoring umbilical cables up to  $10~\rm G\Omega$  which allows the trend of the insulation level to be recognised at an early stage.

The isoHR685 uses the extended Adapted Measuring Principle [AMP] to overcome limitations of DC measuring signals by superimposing a clocked, pulsed measuring voltage onto the system. The microprocessor

onto the system. The microprocessorcontrolled signal automatically adapts to system conditions such as high leakage capacitances.

## Remotely Operated Vehicles

Bender supplies a range of original equipment manufacturers both subsea and offshore with equipment to protect systems, production and personnel.

Bender ISOMETER® insulation monitoring devices are used in a range of ROVs to continuously monitor and provide early warning of insulation degradation in unearthed (IT) systems.

Bender offline monitoring solutions assess systems while offline and before deployment, in addition to identifing any electrical failure, water ingress, or component malfunctions. Advanced warning enables operators to recover the ROV before the problem becomes



critical and significantly reduces the risk of high value ROV assets failing or becoming inoperative, and the inevitable costly

disruption to production schedules.

Bender UK Oil and Gas Business
Manager, Phil Robinson, explains:
"Collaborations of this sort play to our
strengths, and we supply more than
90% of the ROV specialists active in
the UK market. Bender's intelligent
monitoring and measurement
systems are designed to monitor
and protect assets which work in
some of the harshest operating
conditions. We frequently partner
with market leading ROV and robotic
underwater vehicle manufacturers."

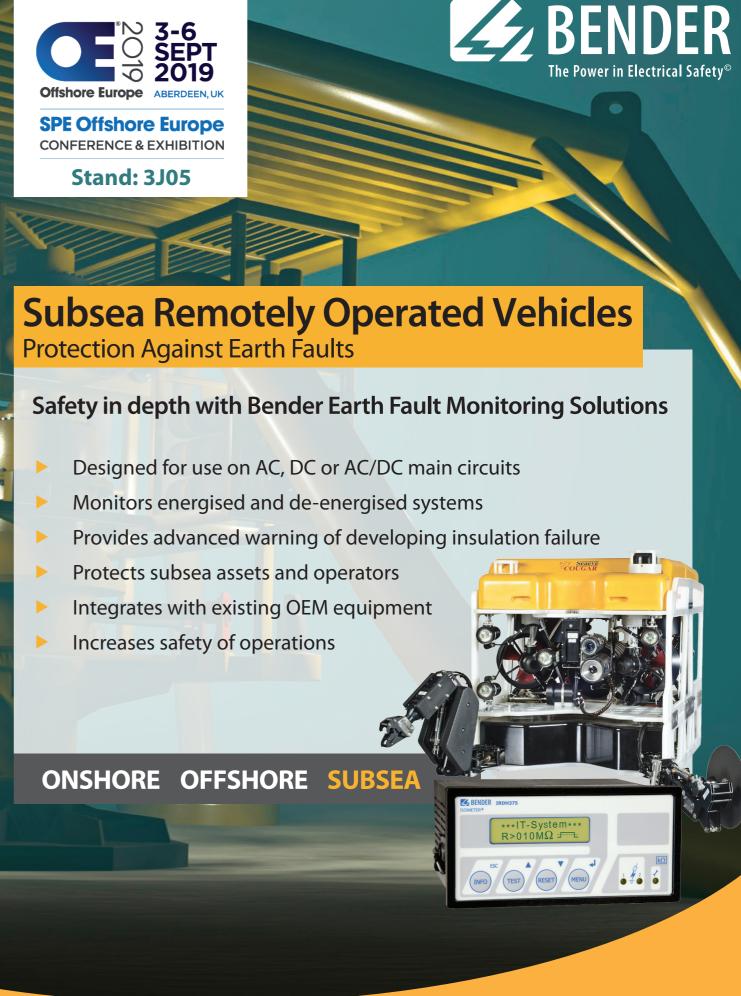
At SPE Offshore Europe 2019 Bender is demonstrating its total capability in electrical safety and asset integrity monitoring for oil, gas and subsea. For more information visit Stand 3J05.

**44** (0)1229 480 123

 $oxed{oxed{oxed{oxed{oxed{oxed{O}}}}}$  industrialsales@bender-uk.com

www.bender-uk.com





**BENDER UK**