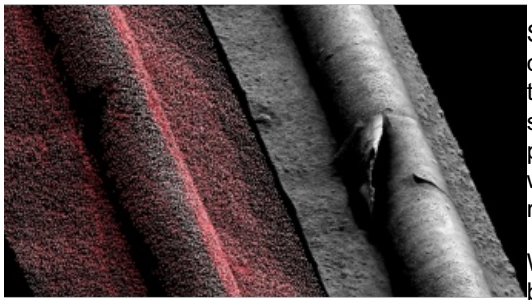
Subsea Sensor Technologies for Automated Pipeline Inspection



Subsea pipelines are an integral component of offshore oil and gas production and are one of the most discussed topics in the subsea survey community. Ongoing inspection of these assets is critical for reducing environmental risk while also allowing for a more surgical approach to their repair and maintenance. Over the years, the techniques for pipeline inspection have evolved from the manual click and scroll method to a point where we now have real-time 3D models with machine learning for automated eventing and reporting. This is the premise for moving towards automated pipeline inspections.

With the growing utilization of AUVs and increased pressure on offshore oil and gas budgets, automating pipeline inspection has become the new standard. The latest technologies and sensor packages are providing levels of data quality that only a few years ago seemed a pipe dream, allowing companies to make objective and informed decisions on their subsea assets. Listed below are the latest subsea sensor technologies that are essential for automated pipeline inspection.

Subsea Dynamic Laser Scanners

Extremely high-resolution true-scale 3D point cloud models that deliver quantifiable data for automation and real-time machine learning. Capable of detecting anomalies including dents, buckling and out-of-roundness – along with enabling predictive maintenance through modelling free-spans, nearby debris, anode volume/depletion rates and pipeline movement. The industry-leading resolution provided by laser scanning systems, such as the Voyis Insight product line, enables pipeline tracking, anomaly eventing and structural referencing, unlocking the best possible 3D data for advanced capability.

Stills Cameras

Clear and crisp stills images with time-synchronized geotagging, all while operating simultaneously with a laser scanning system. The combination of the latest super-sensitive sCMOS sensors coupled with highly power-efficient LED strobe lights has paved the way for useful imaging at high vehicle speeds. A subsea purpose-built stills camera is able to generate a photo mosaic that can be draped over 3D laser models for consolidated analysis. Selecting a system with advanced parameters such as high dynamic range (bit depth) and extreme sensitivity, such as the Voyis Observer product line, will allow users to get more out of every image with real-time image enhancements/corrections.

Read the full story here.