NEON Use Cases

Annulus Pressure Monitoring

Pressure Sensor Use Case

Offshore Annulus Pressure Monitoring with LoRaWAN NEON Pressure Sensors and SolidRed Software Suite

Background

Monitoring annulus pressure is crucial for maintaining well integrity and preventing potential leaks or blowouts. However, offshore platforms' remote and often inaccessible nature poses significant challenges for effective monitoring.

NEON LoRaWAN Pressure Sensors, combined with TWTG's SolidRed Software Suite, offer a comprehensive solution by enabling continuous, remote monitoring of annulus pressure without the need for direct power or network connections.



The Challenge

Offshore annulus pressure measurement plays a vital role in regulating pressure and ensuring the integrity of oil and gas wells. However, monitoring these pressures presents challenges due to their remote location and the logistical difficulties of accessing offshore platforms. Traditional monitoring methods are often costly, labor-intensive, and prone to delays, increasing the risk of safety hazards and environmental damage.

The Solution

NEON LoRaWAN Pressure Sensors, integrated with SolidRed Software Suite, address the challenges of offshore annulus pressure monitoring. NEON sensors operate autonomously, requiring neither direct power nor network connections, making them ideal for remote offshore environments. SolidRed Software Suite provides a centralized data analysis and visualization platform, allowing operators to monitor annulus pressure data in real-time and receive alerts for potential issues.

Measurement - How It's Done

The solution for continuous annulus pressure monitoring was implemented in a systematic approach. See Figure 2 for a global schematic overview.



Figure 1. Annulus pressure monitoring plays a vital role in regulating pressure and ensuring the integrity of offshore oil and gas wells.



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Figure 2. Annulus pressure monitoring in a global schematic overview with pressure measured at Annulus A,B, and C. Insert: One of the NEON Pressure Sensors on North Sea offshore platforms.

Key Benefits

Remote Monitoring: NEON sensors allow continuous monitoring of annulus pressure on offshore platforms, eliminating the need for costly and labor-intensive manual monitoring trips.

Cost Efficiency: By reducing the reliance on manual monitoring methods, NEON sensors help oil and gas operators save on operational costs and minimize downtime.

Early Detection: Continuous monitoring enables early detection of potential issues with annulus pressure, allowing operators to take proactive measures to prevent leaks or blowouts and ensure the safety of offshore operations.



Products Used

- NEON Pressure Sensors and Gauges (see <u>datasheet</u> at twtg.io)
- SolidRed Software Suite (see <u>datasheet</u> at twtg.io)

Successful Deployments

Several oil and gas operators have successfully deployed NEON LoRaWAN Pressure Sensors integrated with SolidRed Software Suite for offshore annulus pressure monitoring. One such operator, operating in the North Sea, deployed NEON sensors across multiple offshore platforms. Combined with SolidRed Software Suite, these sensors provided continuous monitoring of annulus pressure and real-time data analysis, enabling the operator to detect and address potential issues promptly. As a result, the operator was able to improve safety, reduce downtime, and optimize operational efficiency across its offshore assets.



Figure 3. NEON Pressure Gauge - ATEX / IECEx Zone 0 certified, wireless, and battery-powered - for digital and analog workflows in offshore annulus valve monitoring.





Figure 4. SolidRed, TWTG's Software Suite giving users actionable insights based on sensor-generated data

Conclusions

Implementing NEON Pressure Sensors for offshore annulus pressure monitoring represents a significant advancement in well integrity management for the oil and gas industry. By enabling continuous monitoring of pressure located on remote offshore platforms and providing real-time data analysis capabilities, this integrated solution offers a cost-effective and efficient way to mitigate risks and ensure the safety and integrity of offshore operations.

About TWTG

TWTG is I-IoT. TWTG is the market leader in Industrialized (IECEx / ATEX) LoRaWAN® sensors. Launched in 2012, the company has become known for its green NEON LoRaWAN® products that solve industrial use cases. These wireless, battery-powered sensors revolutionize how industrial sites implement their digitalization strategy. Based in Rotterdam, the Netherlands (HQ) - As specialists in building IECEx / ATEX certified solutions for demanding markets such as the oil and gas, petrochemical and utility sectors, TWTG's devices contribute to greater accountability and environmental responsibility, while making facilities safer and increasingly efficient.

Keen to know more about this use case and the products involved? Please contact one of our specialists.





For more, contact



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