

Spontaneous Leak Detection Service

Pinpoint and localize small leaks in seconds

www.siemens-energy.com/SLD-Service

Siemens Energy Spontaneous Leak Detection Service powered by ProFlex

Overview

The Siemens Energy Spontaneous Leak Detection (SLD) Service powered by ProFlex is a subscription service for detection of small spontaneous leaks in pipelines, gathering systems and offshore risers.

The SLD Service is based on Siemens Energy proven IoT architecture and leverages advanced signal processing algorithms from ProFlex Technologies to identify and localize a spontaneous leak within seconds. The IoT architecture leverages edge nodes and cloud technology to detect the leak, time stamp the leak and then calculate the location of the leak and provide notification to customers.

The key differentiation between SLD Service and other leak detection approaches is performance.

SLD Service provides a non-intrusive, cost-effective solution that can detect and pinpoint leaks in seconds without requiring a large loss of product from the pipeline or riser.

As an example, our technology detected a 1/2" leak in a 12" pipeline within a few seconds. Typical mass balance systems require 1.5% - 4% volume loss with pressure threshold margins typically set at -15% pipeline low operational pressure which would require several hours to detect a similar leak. This means a substantial loss of product before a leak is indicated and then verified.

Key SLD Service Benefits

- **Speed** – Detect leaks in seconds. Before environmental damage
- **Location** – Pinpoint leak location typically to +/- 20 to 50 feet. Reducing the cost and time to find leaks.
- **Product Loss** – Identify leaks typically as small as 1/2 to 2 inches in order to react quickly to reduce product loss
- **Layered Security** – Supplement existing leak detection systems for critical pipeline sections
- **Regulations** – Be able to quickly respond to new and pending regulations

Why look at new leak detection technology?

As new regulations come into force and scrutiny of environmental incidents continues to increase, it is even more important for operators to be able to quickly identify and pinpoint a leak in a pipeline or riser.

Analyzing the Federal Regulator data from the past 10 years, PHMSA indicated the top 20 oil and gas pipeline incidents had an economic cost of over \$2.3B to Operators.

- Average cost per pipeline leak of \$115M or \$230,000 per mile
- 100% of these incidents had SCADA systems in place
- Only 50% of the leaks were detected
- Current solutions are not effective

Detection and mitigation of just one major incident over 10 years utilizing the Siemens LDS, will result in significant cost savings.

The Siemens Energy Spontaneous Leak Detection Service powered by ProFlex now provides operators with the ability to quickly detect and pinpoint spontaneous leaks. These benefits are made possible by leveraging continuing improvements in sensors, computing power, and communications technology combined with the advanced signal processing algorithms from ProFlex to detect the negative pressure wave created by a spontaneous leak from the background pipeline “noise.” By analyzing pipeline behavior and developing a unique, specialized approach to signal filtering for each individual pipeline and by continuously updating algorithms according to changes in pipeline flow parameters, the ability to quickly identify and pinpoint spontaneous leaks is achieved.

We Make it Simple

SLD Service provides leak detection as a subscription service. This means that Siemens Energy takes all responsibility for implementing the SLD Service. Our goal is minimal impact on the pipeline operation and customer staff to engineer and deploy the SLD Service.

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The SLDS is an Engineered Solution that is tailored for the customer’s specific pipeline physical and operating conditions.

- The first step is a site survey and field test using portable SLD Service hardware to determine feasibility
- The next step is determining the number of nodes, node locations, then installing the nodes and sensors along the pipeline
- We then “tune” the system to the customer’s specific pipeline operating conditions
- Operational handover to customer
- We provide ongoing maintenance and support for the SLD Service during the subscription term
- Ongoing meetings with customer to share best practices and insights

The goal is to minimize disruptions to pipeline operations and minimize the amount of staff time required to get the SLD Service operational.

Business Model

By combining the IoT-based spontaneous leak detection technology with a “as a Service” business model, customer staff do not have to learn and maintain yet another new system.

We offer a 3-year SLD Service subscription. There is no CAPEX outlay by the customer. As stated earlier, we will engineer the SLD Service, install the hardware, tune the Service to the specific characteristics of the customer operations, monitor the health of the system (hardware, software, tuning) and replace hardware, fix software, modify tuning as required to be able to maintain an operating SLD Service that will alert the customer to a leak event.

Multi-Layered Security for Critical Pipeline Segments

The SLD Service also easily provides operators the ability to implement multi-layered security for critical segments of their pipeline operations – pipelines in cities, pipelines under rivers, pipelines in environmentally sensitive areas.

Because of the ease of installation and the subscription business model a customer can easily add the SLD Service to a critical segment of pipeline to increase leak detection security. There is no need to replace or modify existing leak detection systems. The SLD Service is a complement to your existing system.

Our Challenge

Do you have opportunity for improvement? Let us show you how our system can provide a higher level of pipeline security. Drop us an email at onshore-solutions.energy@siemens.com