

Pipeline Leak Detection Solutions

Selection of computer-based systems offer best fit, support safe operations, reflect best practices



Make the most of your energySM

Schneider
Electric



Controllers can rely on the Schneider Electric OASyS SCADA system itself for conventional monitoring of pressure and flows, rate of changes, and data trends for basic pipeline leak detection.

Liquids Pipeline Solutions

Adequate procedures for hydrocarbon pipeline leak detection and leak mitigation are essential to protect people, property, and the environment and to maintain safe operations. Computational Pipeline Monitoring (CPM) uses real-time information from the field, along with an algorithmic, computer-based monitoring tool to estimate the hydraulic behaviour of the product being transported.

Using CPMs, controllers can be alerted to operating conditions not consistent with the calculated conditions and possibly signaling the existence of a pipeline leak. This regulatory and industry-recommended technology not only supports the safety of the general population and environment but also helps sustain efficient operations and facilities management.

SCADA system monitoring

Controllers can rely on the Schneider Electric OASyS SCADA system itself for conventional monitoring of pressure and flows, rate of changes, and data trends for basic pipeline leak detection. They can track temperature/pressure correlations of shut-in lines and view pressure and flow in overviews for holistic monitoring – two practical ways of utilizing the core OASyS SCADA system for leak detection.

The Pressure/Flow Rate Monitoring application, in conjunction with the SCADA system, associates configured pressure telemetry with related flow meters that would be affected if a leak was to occur; it is typically used to reliably detect larger “rupture or burst” leaks.

CPM solutions from Schneider Electric

No single leak detection solution is optimum for the diverse range of pipelines operating in widely varying

environments. Schneider Electric offers a choice of liquids pipeline leak detection options, relying on SCADA system monitoring alone or SCADA paired with CPM software applications. These solutions meet or exceed the American Petroleum Institute (API) publication 1130 criteria, following the best practices proposed or currently established by governmental regulations worldwide as well as recommendations from leading industry agencies.

Two distinct Leak Detection modules within the Schneider Electric Liquids Management Suite (LMS) help detect product loss; if a leak occurs, the system alerts the controller who manages the response.

LMS Pipeline Monitoring

Pipeline Monitoring (PLM) integrates operational applications to the SCADA system for more targeted detection of situations associated with a pipeline leak. PLM is a reliable solution when combined with a history of benchmark performance. PLM is fully integrated with the OASyS SCADA system using the same configuration tools, displays, and alarm system.

PLM is a Modified Volume Balance, complete with options for line balance, volume balance, and modified volume balance. It provides the ability to monitor meter and tank flows and compensate for changes in current pipeline capacity. Dynamic alarm thresholds reduce false alarms while increasing the sensitivity of the leak detection capabilities.

SimSuite Pipeline

Simulation technology provides a real-time transient model (RTTM) that constantly monitors for possible leaks with minimum false alarms. It offers the highest fidelity in the industry and typically is the solution of choice for operations that have the most stringent leak detection requirements.



Schneider Electric's SimSuite Pipeline is a highly accurate, real-time, two-phase RTTM targeting liquid pipelines that transport any fluid composition and accurately handle two-phase flow, drag reducing agent (DRA) injections, shut-in monitoring, and pipeline transients. Leak-specific discrepancy patterns between model and measured values indicate both leak location and volume. SimSuite Pipeline consistently meets or exceeds leak detection sensitivity prescribed in API publication 1149.

Choosing the CPM solution right for your pipeline operations

Strengths of Pipeline Monitoring (PLM) leak detection	Strengths of SimSuite Pipeline RTTM leak detection
<ul style="list-style-type: none"> • Targets shorter segments, steady state conditions, and non-HCA areas • Ideal when operators have demonstrated they can successfully adapt PLM accuracy to their pipelines, using calculated or manually manipulated temperatures and other techniques • Cost effective, simple maintenance, managed by the user 	<ul style="list-style-type: none"> • Excellent detection during both steady state and transient and shut-in conditions • Leak detection thresholds less than 1 percent of flow are possible • High confidence in response with false alarm rates significantly lower than other methods • Leak location and volume estimation • High fidelity pressure and temperature compensation for excellent performance with compressible products • Accounts for presence of DRA in the pipeline • Provides detection for new pump stations, compressor stations, injection/delivery stations, tank farms, valves, and control logic • Two-phase model detects leaks through slack line conditions • Supports expedited permitting on new pipelines

The operator evaluating a new or legacy CPM solution for leak detection should consider parameters that impact business performance as well as regulatory requirements. These factors include rate of false alarms and misses; response time; robustness and availability; and ownership costs, among others. A pipeline network that is large and complex with diverse operating parameters, locations, and products might consider employing multiple leak detection solutions to satisfy its specific requirements. A selection of Schneider Electric solutions allows the operator to implement this multi-tiered leak detection approach, all integrated with its OASyS DNA SCADA system.

Expertise in compliance, safety, efficiency

There are many challenges involved in efficient and effective real-time pipeline operations management. Yet, with the right tools developed through industry experience and expertise, effective leak detection can yield many benefits. With Schneider Electric's proven solutions, the pipeline operator can implement the best possible predictive, preventive, and protective measures for its specific needs.

Contact us for more information about the Schneider Electric hydrocarbon pipeline leak detection solution that aligns with your specific safety, environmental responsibility, and business performance goals.

Schneider Electric Industries SAS

10333 Southport Rd SW, Suite 200
Calgary, AB T2W3X6
Phone: 1-866-338-7856
Fax: 1-403-259-2926
www.schneider-electric.com