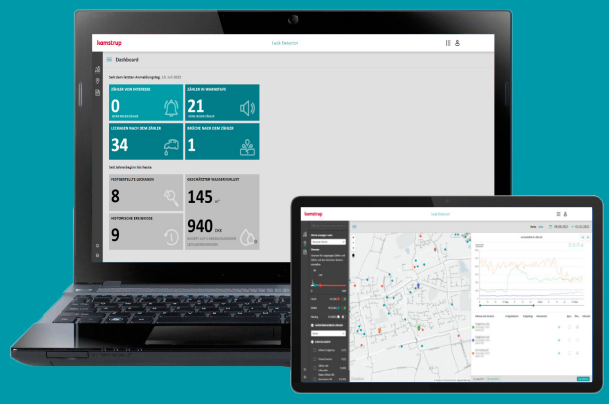
kamstrup

Leak Detector noise curve assessment



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Leak Detector noise curve assessment

Introduction

The Leak Detector software is a tool used to find leakages in utility pipeline networks. The software receives noise values from Kamstrup meters capable of recording noise values. One noise value for each meter is recorded each day, and that is the lowest recorded noise value from that day.

These noise values are recorded in a manner to indicate if a leakage is present near the given meter. The values are filtered to eliminate stochastic noise sources such as consumption of water, traffic noise, construction work etc. Depending on the solution these values are exported to Leak Detector either via READy-Manager or other meter data management systems. The noise values are the necessary data points used to create the noise curves in Leak Detector, which allow for leakage detection.

Example of a Leak Detector noise curve

The behavior of the noise curve is directly linked to the probability of finding a leakage. In the following sections the typical noise curve behaviors and their leakage probability will be explained. These noise curve behaviors are not exhaustive, and other more atypical tendencies will appear in the software.

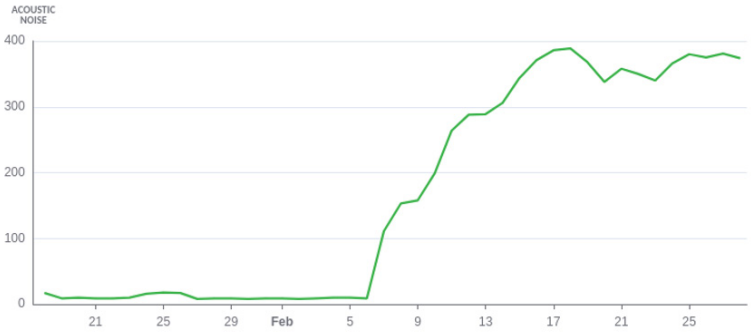
Note: The absolute value of the noise value is not the focus, but instead the noise curve behavior and tendency.

Noise curve behavior with high leakage probability

Sudden noise change
If the noise curve behavior changes from a steady low noise value to a sudden high and ongoing noise value, this might indicate a leakage. If this behavior is observed during the heating season, this might mean that the heating system has been turned on. It is recommended to track and monitor this behavior to assess. If the Tendency remains steady, follow the recommendations in the section “Recommendation before dispatching leak detection personal”.

Before dispatching leak detection personnel, ensure that no leak after the meter is causing the increase in noise. The leak detector software will display the current info code indicating a leak after the meter.

Slow noise change
If the noise curve behavior changes from a steady low noise value to a slowly increasing noise value, this might indicate a leakage. This behavior might indicate an increasingly growing leakage.

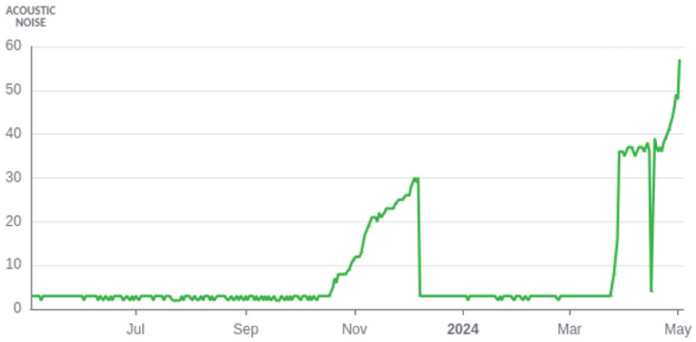


Unknown noise change

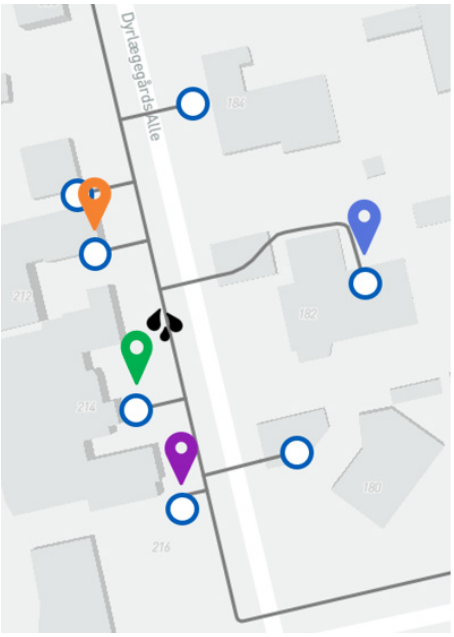
If a leakage has been present in an installation before a noise value capable Kamstrup meter was installed, the typical noise curve behavior would resemble the example below. If this behavior is observed during the heating season, this might indicate that the heating system is turned on. It is recommended to track and monitor this behavior to assess.

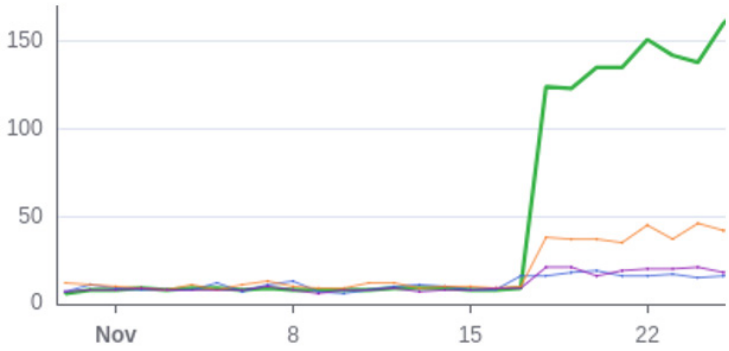
Repeated noise change

It is common in old pipeline systems that a corrected leak can cause a new leak on the same line. The noise curve behavior in that case could look like the example below.



Neighbour correlated noise change
If the noise curve tendencies explained above are seen for different meters within the same proximity, that indicates a high leakage probability. Furthermore, the noise value level can be used to indicate the location of the leakage.

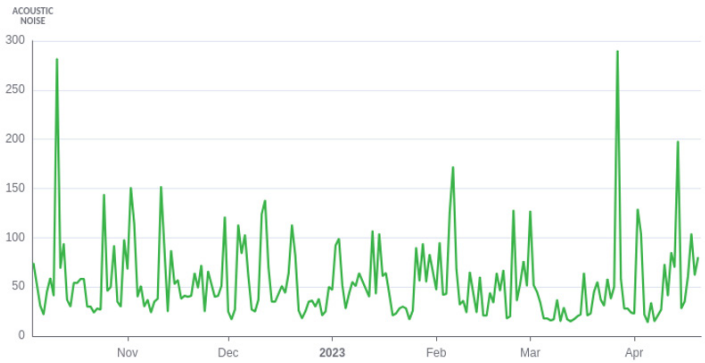




Suggested actions:
Before dispatching ground crew, ensure no flushing has been done in the area, since that could lead to multiple meters detecting increased noise at the same time.

Noise curve behavior with low or no leakage probability

Fluctuating noise change
The noise curves may also contain noise from other sources than leakages. This could be for example district heating pumps or circulation pumps.
Noise curve behaviors from these sources can vary a lot and some might mimic leakage behavior, but if the noise curve fluctuates a lot as seen below it is very likely some sort of pump. Therefore, fluctuating noise value behavior has a low probability of leakage.



District heating
The noise curve behavior can also be affected by heating systems. In these scenarios there would be a sudden drop in the noise curve trend over the typical summer months. The typical noise curve behavior would resemble the noise curve blow.

Recommendation before dispatching leak detection personal

When contacting the end user in order to arrange access to the meter, Kamstrup recommend asking the following questions:

- Has your heating system been turned on recently?
- Have you had plumbing work done recently?
- Have you installed a new pump or other sources of noise near the water meter?

This might have an impact on the recorded noise values, and therefore can be useful information to assess a potential leakage.

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