

# SePem | Noise loggers for monitoring water distribution networks

## Theory

Leaks in water pipe networks can result in significant water losses. By systematic monitoring of the network with SePem® noise loggers, you can quickly identify existing leaks and catch new ones early on – much faster than with conventional methods.

## Systematic leak detection

The SePem system comprises the SePem 01 Master receiver and any number of leak noise loggers

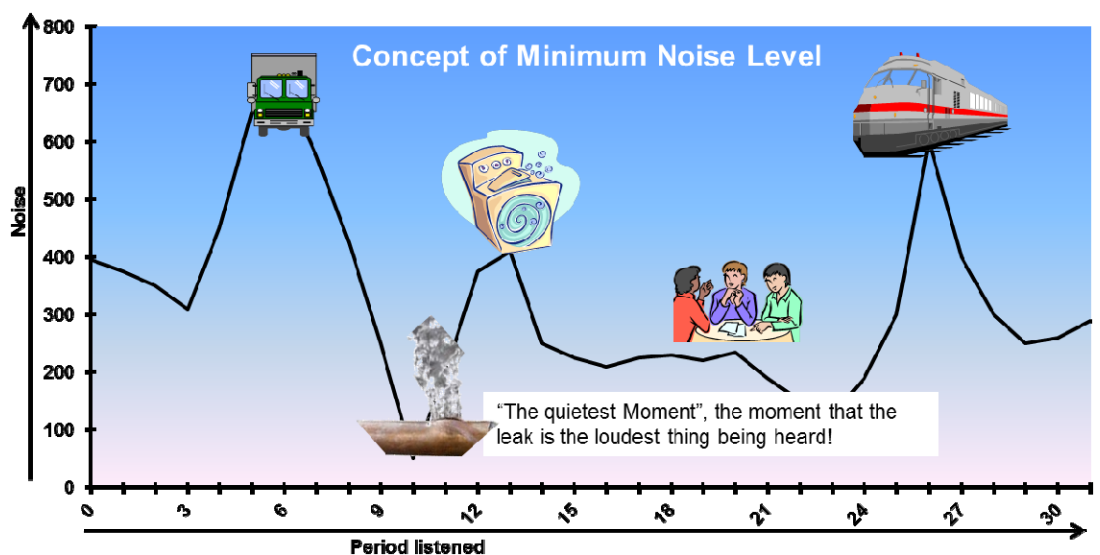
There are three version of noise logger available:

- The SePem 100 is intended for mobile use “Lift and Shift”
- The SePem 150 is designed for permanent use with routine “drive by” patrols to collect the data.
- The SePem 01 GSM is for permanent installation with alarms and levels being transmitted via GSM/SMS.

All loggers are magnetically attached to valves hydrants or other fittings in the pipe network. The integrated microphone records the **Minimum Noise Level** value (MNL) during times of low consumption – usually during the night, 02:00-04:00 (user programmable). On a leak-free pipe, the noise level measured during this time is virtually zero. If there is a leak in the pipeline, the noise logger will measure values much higher indicating a leak

## MNL - Minimum Noise Level - What does it mean?

A leak noise is constant; it does not get significantly quieter or louder unlike for example the noise from trucks, trains, washing machines and people talking. The SePem Noise loggers record the value of the “quietest” moment during the time you have been monitoring. This is displayed as an numerical value. If the level is significantly louder than normal this is a high indication that there is a leak.



## SePem 100 Noise loggers for mobile use - “Lift & Shift”



The SePem 100 noise loggers (with internal aerial) are designed for mobile “Lift & Shift” use in water pipe networks. They are attached by powerful magnets onto fittings, valves, hydrants, stop taps, and record the noise level for a programmable period of time during the night – usually half an hour is sufficient. The loggers are collected the next day. The Minimum Noise Level is wirelessly transmitted by radio to the SePem 01 Master. High MNL values indicate a leak which is immediately flagged up by an audible and visual alarm (user configurable). The noise loggers are then moved to other measuring positions for the next night’s measurements until the whole network has been checked.



## SePem 150 - Noise loggers for permanent monitoring with routine patrols

The SePem 150 noise loggers are designed for permanent monitoring of water supply networks. The logger, (with external aerial), is attached by magnet to a measuring point such as a valve or hydrant. The SePem 150s record the minimum noise level every night for a programmable period of time, for example for half an hour every second. The locations are periodically patrolled, perhaps daily or weekly. The noise loggers wirelessly send their information to the SePem 01 Master. If an increase in the usual minimum noise level for that location has been recorded the user will be alerted by a visual and audible alarm and new leaks are quickly identified



## SePem 01 GSM - Noise loggers for permanent monitoring with GSM / SMS data transmission

The SePem 01 GSM noise loggers are designed for permanent monitoring of water supply networks. The logger is attached by magnet to a measuring point such as a valve or hydrant. The SePem 01 GSM records the minimum noise level every night for a programmable period of time, for example for half an hour every second. The M.N.L is transmitted by SMS over the GSM network at intervals chosen by you, daily, weekly, monthly or even by alarm to your mobile when it has increased to a specific level. The SMS can be managed by any or all of the options below.

## Quality technology you can rely on

Sewerin noise loggers are manufactured to the highest standards.

- The microphone housing is made of stainless steel, the body from a tried and tested plastic, which is also used in the housing of pumps used in sewage treatment. This makes the SePem 100 and SePem 150 totally waterproof and dustproof, (IP68).
- The SePem noise loggers feature highly sensitive Piezo microphones, which are optimised for leak detection and can pick up noises over very large distances.

## Quality Information you can rely on.

- The data is easily read out by bidirectional radio. In the case of the permanently installed SePem 150 loggers, you do not need to open chamber covers; simply drive by with the SePem 01 Master to recover the data by wireless transmission.
- As well as the Minimum noise Level” the transmitted information contains the spread (variation in noise levels) and the frequency of the MNL and is clearly displayed on the SePem 01 Master screen. There are additional options for verifying the measurement results, for example by precluding sound interference such as rain, traffic, power lines etc.
- During a patrol, a full data set containing the graph of the last measurement can also be retrieved at the touch of a button from every SePem 150 logger. It is not necessary to open the manhole cover to obtain this data. A brief pause within radio range of the SePem 150 is sufficient

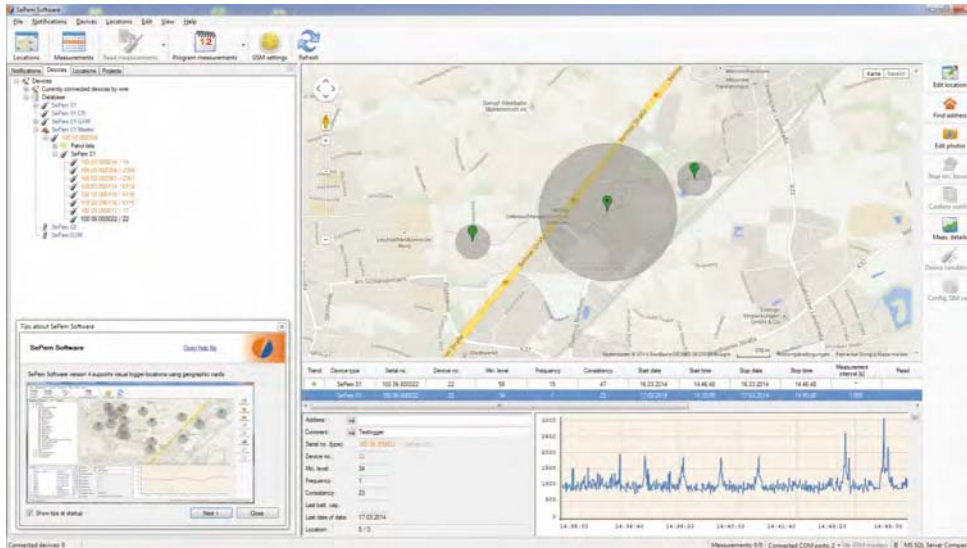


## SePem - Optional software for easy evaluation

The SePem software is an optional tool for evaluating data.

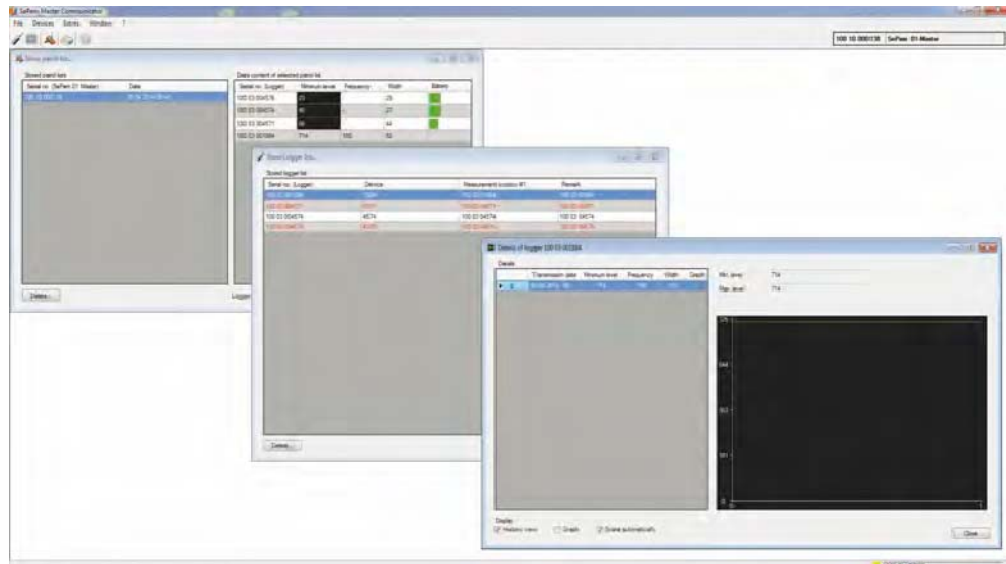
The data from the SePem ® noise loggers is uploaded from the SePem 01 Master to PC by USB. The loggers can then be dragged & dropped into position on a map if the PC is connected to the internet. All the measurements recorded are then assigned to that measuring point.

In the absence of an internet connection, the measurement data is displayed in the usual way in a table in the Explorer view



## SePem Master Communicator - Optional freeware for data backup and display

The SePem Master Communicator software is optional freeware, which allows you to display the data from the SePem 01 Master on a PC. The patrol lists and other data is uploaded from the SePem ® 01 Master to PC by USB. In logger lists, you can directly access and manage measurements from the individual SePem noise log



## Various accessories and cases available

