




**Experts in Leak Detection
& Pressure Control**

Leak Noise Logging



Every day, huge volumes of clean, treated water are lost through leakage. Finding leaks in underground systems can be a very expensive and time consuming process. Many leaks disperse into the ground before water reaches the surface, and even when water does become visible above ground, it may be nowhere near the actual leak. If left undetected, leaks can quickly become highly destructive and very costly.

Permalog® is the most popular leak noise logger available on the market today. Its effectiveness in monitoring leakage has been proven over many years in water networks throughout the world. Easily deployed, the innovative leak noise loggers listen for the unique sound of water escaping from the pipe and can transmit data to a passing patrol vehicle or internet enabled device.

This highly cost effective solution enables water suppliers to monitor 100% of their distribution system with confidence, allowing leak areas to be identified quickly and promptly repaired.

Three Data Collection Methods are available:

Permalog+ (Lift & Shift) – enables manual data collection and swift redeployment of the loggers into a new area.

Patroller II (Drive By) – enables a passing patrol vehicle to communicate wirelessly with the loggers to collect data via a PDA/laptop running Permalog software.

PermaNet (Fixed Network) – the loggers transmit data automatically via radio or SMS Repeater for viewing over the internet, thereby enabling real time detection and monitoring of leak areas in the water network.



Leak Correlation

Palmer developed the worlds first leak noise correlator over thirty years ago and we have continuously improved our technology ever since.

Our range of correlators accurately pinpoint the location of leaks in water pipes. Two or more sensors are placed on the pipe to record the sound emitted by a leak between the points. The data is then transmitted to a base station that uses a mathematical algorithm to calculate the leak position by determining the time taken for the noise to travel from the leak to each sensor.

Together with the Radcom **SoundSens "I"** correlating loggers, Palmer correlators are used successfully throughout the world to pinpoint the location of leaks and they enjoy an excellent reputation for accuracy and reliability.

Our latest correlator, the **MicroCorr Touch**® features high quality long range radio transmission and new "best in class" sensors. These are combined with a high visibility full colour VGA touch screen for simple data entry and clear graphical display.

The base station is equipped with sophisticated software that includes preset pipe material settings and an innovative tri correlation mode.

The result is a compact and easy to use system that delivers the best all round performance at a highly competitive price



Ground Microphones

Not all leaks produce a noise audible to the human ear and, contrary to common perception it is not always the largest leaks which are the loudest. For this reason, we have developed advanced amplification and filtering technology to assist the operator in pinpointing underground leaks.

Our electronic ground microphones and listening sticks are designed to amplify the noise generated by water escaping from buried supply pipes under pressure. They are particularly useful to confirm the precise location of a leak following a correlation and prior to digging.

Lmic is a low cost, electronic listening stick and ground microphone combined. It is ideal for general leak sounding operations and can be fitted with either a tripod foot for use as a ground microphone or with probe rods for sounding at fittings or in soft ground. The control unit is hand-held with a 'trigger' operation and a volume/sensitivity rotary control.

Xmic is an advanced ground microphone which uses the latest acoustic and amplification technology to provide excellent sound quality and enable effective and accurate pinpointing on site.

Minimum level profiling assists the operator by logging readings as the sensor is moved and memorising the lowest noise level, which is the constant background (leak) noise. These readings are displayed digitally and graphically to clearly pinpoint the leak position.

Automatic filter settings and manual filtering options further suppress background noise and target the leak.



Pressure Control

Installing pressure controlling equipment into the water network is one of the fastest and most effective ways to save water.

When demand for water is low (e.g. at night), water pressure can be reduced accordingly, which saves water and reduces leakage.

Pressure controlling equipment can also help to extend asset life and reduce burst frequency, whilst providing a more consistent service to the customer.

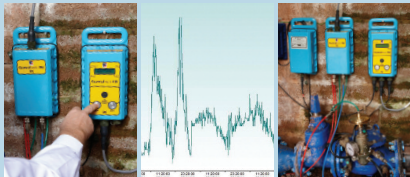
ControlMate II enables pressure into a zone to be switched between two pre-set values ("low" and "high") according to the demand (flow rate) or time of day. It is easy to use, self contained and produces immediate water savings.

ControlMate FM intelligently controls PRV output pressure against the zone's actual demand (flow modulation) or in response to a pre-programmed time of day.

ControllerCom provides high visibility reporting of logged data and enables remote programming of the ControlMate via SMS/GSM, thereby avoiding expensive and time consuming site visits.

Our **Si-Clops** self learning closed loop control system automatically adjusts pressure in response to changing demand to ensure that the 'critical point' of the network receives sufficient pressure. A data logger at this critical point (usually the highest point) transmits directly to a **ControllerCom** which programs the **ControlMate FM**. The system learns to anticipate changing demand and adjusts pressure accordingly, thereby maximizing water savings.

Our pressure management controllers can be supplied with an optional **Hydraulic Actuator**, a patent pending device that, when fitted to the Pressure Reducing Valve (PRV) enables highly accurate and repeatable control of the outlet pressure with our ControlMate equipment.





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