



Ref: FAQ0368

Version: 1.0

Title – PermaNet+ TM

Made By: AE (Issue 1)

Trunk Main Logging with the PermaNet+TM

The HWM PermaNet+TM system allows the user to frequently monitor the noise levels in water pipes, allowing the user to be notified of bursts as soon as they happen.

- **How to switch on Trunk Main logging?**

Set your logging interval and the sample rate depending on how often you wish to take an audio sample. In the example, the logger would sample every 30 seconds and average this over the 15 minute log interval.

- **What settings do I need to adjust?**

Channels:

Channel 2 and 3 are derived from the main audio channel (LNSLevel)

In the example, the **Min** value logged is the **lowest** value from the 30 second samples in the 15 minute period, so lowest of 30 samples taken. The **Max** value is the **Highest** value measured.

Channel 4 is the difference between the Max and Min values

Channel 5 is the result of a check that the difference between the LNSSprd and LNSLevel is greater than the Leak Threshold.

Above example explained:

The logger measures the LNS sound level every 30 seconds.

Every 15 minutes it stores the 5 channels.

Channel 1 = The average of the 30 samples (1 sample every 30 seconds for 15 mins = 30 samples)

Channel 2 = The lowest value from the 30 samples

Channel 3 = The highest value from the 30 samples

Channel 4 = The spread between lowest & highest samples (Ch3-Ch2)

Channel 5 = A status value '0' or '1' indicating if the value of Level-Spread (Ch1-Ch4) is greater than the **Leak Threshold**



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- **How do I set alarms?**

Bursts can be detected as a larger than normal difference between the average spread and average level of sound levels recorded.

It is recommended to run the logger at the site for a while and slowly adjust the **Leak Threshold** to a point where no false alarms are shown on channel 5, then set an Upper Level alarm of value '0' to send an alert if the Leak Threshold is crossed.

Cond 1 Cond 2 Cond 3 Cond 4 Cond 5 Cond 6

Logging Ch No
5

Persistence
1 out of 1

Upper level 1 0.00

Hysteresis 1 0.00

☐ Lower
☒ Upper
☐ Minimum Night Flow
☐ Rate of Change
☐ Dif>
☐ Dif<
☐ Out Band
☐ In Band

If you still get false alarms, you can adjust the sensitivity of by changing the Persistence.
e.g. set 6 out of 9 to only set the alarm if 6 thresholds out of 9 consecutive ones are crossed, however this will increase the time between a suspected burst and the alarm being triggered so careful choice of logger interval vs persistence should be made.

- **How do I make recordings?**

Currently automatic recordings are not possible in trunk main mode, to schedule a manual recording use PermaNet+ software to set a recording.

Document History:

Edition	Date of Issue	Modification	Notes
1st	08/07/16	Release	