Phocus®.sms

Leak detection logger with remote alarm

Phocus.sms is an acoustic logger with a remote alarm facility to host PC or to a mobile phone. It is designed for use in detecting and localising leakage on water distribution systems.
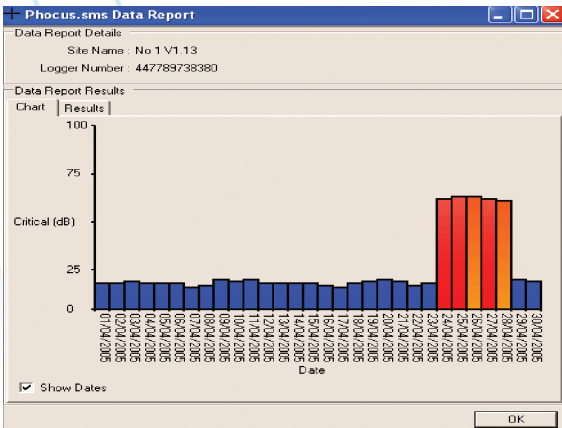
Phocus.sms automatically determines the presence of a leak. It also gives visual indication of the leak noise strength and a leakage confidence factor.
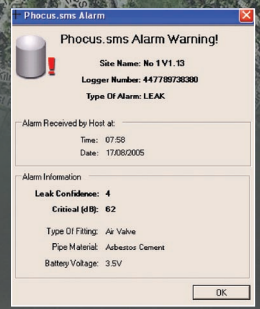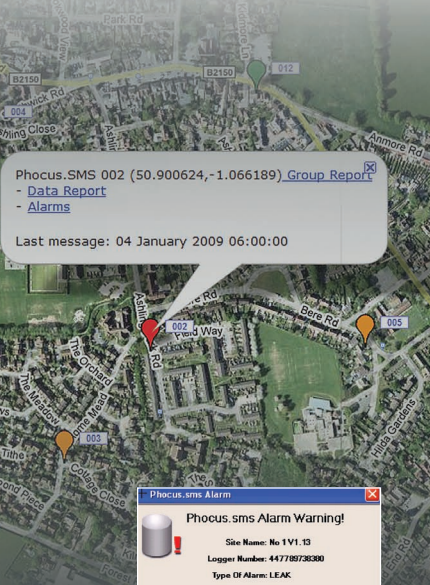
Features include:

- **Instant alarms - reduces time the leak 'runs'**
- **Three sample periods overnight separates genuine use from leakage so reducing the incidence of false alarms**
- **Uses Phocus noise algorithm to reduce incidence of undetected leaks**
- **Regular 'health-check' reports**
- **No 'drive-by' required reduces operational costs**
- **On-site indication of leakage**

Operation

Phocus.sms is an intelligent acoustic logger which detects the noise generated by a water leak. The logger samples pipeline noise at one second intervals during each of three sample periods (termed epochs) during the night when background acoustic noise is lowest. It carries out statistical analysis on each of the three epochs to determine the Leakage Confidence Factor. If this is high then an alarm message is transmitted via a SMS message. The alarm message also includes the lowest leak noise amplitude measured, termed the Critical Noise Value. This value is important as a measure of how close to the leak the *Phocus.sms* logger is situated.

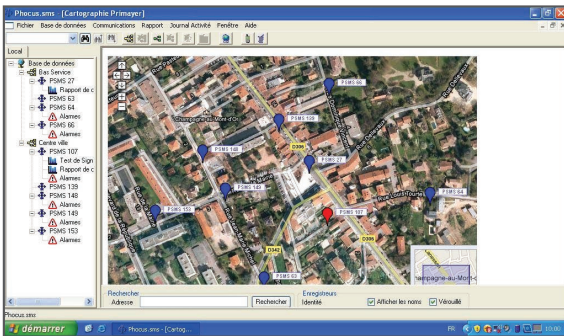*Plot of daily Critical Noise Values shows leak reported and repaired after five days.*

Primayer

Regular 'health-check'

In addition to the alarm information *Phocus.sms* also transmits a regular 'health-check'. The 'health-check' message comprises the most recent Critical Noise Values and Leakage Confidence Factor values. These messages provide confirmation that the logger is fully operational and also give a record of the leak status and noise levels.

Logger characteristics

- Logger determines presence and strength of leak noise
- Integral accelerometer with high sensitivity
- Operation underground in majority of locations (with optional special antenna for optimised performance)
- Leak, low battery, and low SMS credit alarms
- Powered for up to 5 years (significantly reduced if 'Health-check' messages sent daily, weekly or two weekly)
- Submersible to IP68

Tabular report for alarm status and noise statics of all loggers deployed

Site Name	Fitting	Material	17/08/2007	18/08/2007	20/08/2007	21/08/2007	22/08/2007	23/08/2007	24/08/2007	25/08/2007	26/08/2007	Day of last SMS	LCF	Peak dB	Max dB Level	dB Trend	%Counts (CNV to Peak)	GSM (%)	Comments
001 (A)	AV	AC	22	14	14	6	17	16	17	13	14 12	3	1	16	22	↓	50	29	
002	AV	AC		11	12	9	17	20	14	6	7 7	10	1	9	16		91	54	
004	AV	AC		13	13	11	17	19	13	25	6 6	10	1	6	25	↓	66	29	
005	AV	AC		15	16	12	18	19	14	3	4 7	10	1	9	18	↓	83	22	
006	AV	AC	24	12	13	10	18	49	41	41	38 38	3	4	35	38	↑	96	19	
008	AV	AC		15	13	12	19	15	19	26	22 28	5	4	32	34	↑	91	22	

Google Maps interface for leak alarm visibility
Maps courtesy of Google Maps

Visual indication

The logger gives an on-site, visual indication of the Critical Noise Value and Leakage Confidence Factor for the most recent night. Indication is initiated by use of a special stroboscopic torch. This is also used to commission the logger and initiate the GSM network signal strength measurement at time of installation.

Part Numbers

Phocus.sms Noise Logger (includes stub antenna)	**AXG 986**
Remote Underground Antenna 2m cable (for use when GSM signal is weak)	**AXG 904/2**
Remote Underground Antenna 5m cable (for use when GSM signal is weak)	**AXG 904/5**
Valve stem side mounting bracket	**AXG 985**