

ZONESCAN 820 - Technical Specifications & Operational Benefits:

Memory:

- Capable of storing and transmitting last 30 days of leakage analysis and leak value for each logger
- Capable of storing and transmitting last 10 days of noise level distribution and spread data (in dB) for each logger
- Database capable of showing unlimited number of historic noise level and spread data readings

Advanced Functionality:

- "Caution Leak" (red), "Possible Leak" (orange) and "No Leak" (green) visual indications at each logged point
- Individual Leakage probability (from 0-100%) given at each logged point
- Logger Serial Number, Logger Location (Valve Box and Street etc) provided at each logged point
- Voice notification and alarms (in all languages) for each logged point via loudspeaker
- Capable of performing a leak noise correlation for automatic, remote pinpointing of precise leak location
- Automatic multi-correlation providing precise leak positions between ALL loggers in the same project
- Remote listening to digitally recorded and transmitted leak noise from within the 'patrol vehicle'
- Geographical mapping of pipe network and distribution of logged points with auto colour coding of logger icons i.e. no leak (green), possible leak (orange), caution; probable leak (red)
- Indication of multiple leaks at each logged point
- Integration of GIS and/or GPS possible
- Unlimited number of logged points monitored simultaneously

Downloading and/or Programming:

- User interface via secure web server (ZoneScan Net), portable PC or ruggedized PDA
- All or individual loggers freely re-programmable remotely from patrol vehicle during leakage patrol or centralized via ALPHA GPRS System
- Digital integrated acoustic system
- Automatic and immediate transmission of all logged data from loggers once within range of patrol vehicle (advantage of each logger being a transceiver). Automatic daily remote data retrieval when using the ALPHA Fixed Network System
- Noise logger date and time automatically synchronized to patroller, PC, or secure web server during every patrol/communication
- Transmits AND receives (2-way communication via integrated transceiver units) for remote re-programming without the need to remove loggers from valve chamber

Communication:

- Wireless, from up to 250m from patrol vehicle. GPRS or WiFi with ALPHA Fixed Network Monitoring
- Automatic download of data once within patrol range, or at user programmable intervals (ALPHA)
- Automatic remote synchronization with PC, PDA or secure web server clock
- 2-way Communication with Loggers (for remote re-programming etc). No physical connection or 'docking station' is required.
- High Logger Output of 20mW and super sensitive receiver for improved communications.
- Ultra High Frequency (UHF) radio communication (two-way), 868, 915MHz or 954MHz for RF transmission over much greater distances
- Download all data automatically into Zonescan Windows™ Software to PC, PDA or ZoneScan Net (web server software)
- Bluetooth Connectivity

Dimensions & Physical:

- Logger measurements: 90 x 40mm. Smallest overall dimensions of any acoustic/correlating logger
- Logger weight: 310 grams (0.7lb). Lightest weight of any acoustic/correlating logger
- 80mm loop antenna is flexible in case of limited space in valve chamber, and also acts as a reinforced handle for easier logger positioning
- Internal battery life of 5 years under normal use
- Battery cell replaceable locally by trained agent – logger does not need to be returned to factory
- COMLink Transceiver measurements: 185 x 120 x 40mm
- COMLink Transceiver weight: 0.7kg (approx.)
- Magnetic Stub-Antenna (260mm in length) suitable for vehicle mount OR walking patrol
- Integrated rechargeable battery cell for COMLink patrol unit
- All interrogation can be performed remotely from patrol vehicle, or via ZoneScan Net secure web browser software programme - no physical connection to logger is required

Additional Zonescan System Benefits:

- Standard software package includes user selectable 'Full Professional' and simplified 'Wizard Assisted' versions
- Noise logger can be programmed by the user to operate daily for user programmable logging times and windows. Not restricted to factory set time of 2 hours between 02:00 and 04:00
- Can be programmed and downloaded with PC, rugged PDA, or ZoneScan Net web server programme
- Upgradeable (without removing loggers from valve chamber) to FULLY remote office based communication system, with up-to-date leakage data & alarm reports sent to ZoneScan Net, or direct to an office PC (or mobile phone) on a daily basis
- All ZoneScan software upgrades supplied free of charge for the life of the equipment

Gutermann International

Unit A, First Floor, Deacons House, Bridge Road, Southampton, Hampshire SO31 8AZ UK

t: +44 (0)2380 408 830 f: +44 (0)2380 408 831

e: info@gutermann.eu www.gutermann.eu



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ZONESCAN 820

CORRELATING RADIO LOGGER



Product Overview

Deployed at regular intervals throughout the water pipeline network (attached to valves or fire hydrants via the integrated magnetic base), ZoneScan 'leak intelligence units' continuously monitor and analyse noise characteristics within the pipe network and can detect and identify the presence and location of a leak. Once ZoneScan has confirmed the presence of a leak, its precise position can be pinpointed between the two ZoneScan units. The data retrieved from each ZoneScan unit is automatically archived in the ZoneScan PC or server based software database, and can be used to provide detailed reports for repair teams, or a total historic analysis for future pipeline replacement policies. The leak data can also be integrated with GPS and GIS operating systems.

ZoneScan loggers "wake up" to take recordings at user programmable times and also when interrogated by the host software (via a PC, rugged PDA device or automated web browser programme). At all other times the loggers remain "asleep" to conserve the battery life. Based on typical operational patterns, ZoneScan loggers will operate continuously for 5 years before requiring battery replacement, which can be performed locally by an Authorized Distributor or Service Centre.

A Fully Programmable Acoustic Logger

ZoneScan loggers can be individually or collectively programmed to suit each and every different location and environment. The 'industry standard' setting of 02:00am to 04:00am at 3 second sampling is easily achieved or ZoneScan can offer user selectable and freely programmable logging window and sampling rate. These results are then presented in an easy to read format by the Windows based host software, or via a web browser (when used with ALPHA remote GPRS Comm. Links).

By utilising longer recording periods combined with rapid sampling, the ZoneScan equipped water leak Engineer eliminates the phenomenon of "ghost leaks" or "false positives", and avoids wasting considerable time attempting to pinpoint leaks that don't exist.

Drive-By / Vehicle Patrol:

Once in range of a ZoneScan logger, a patrol operator will receive automatic notification from the systems voice embedded host software, first identifying the unit, before announcing the presence or probability of a leak at that point in the water network. If audible confirmation of the leak noise is desired, the operator can, at any time, listen directly to the digitally transmitted leak noise from his vehicle without the need for any physical connection with the loggers.

Advanced Features:

GPS positioning & GIS integration

The ZoneScan is available with fast, simple & precise GPS plotting of each logger at time of deployment. Additionally, the data from the entire ZoneScan project (including full leak pinpointing) can be sent by GPRS, to be automatically integrated to a GIS or satellite mapping programme (such as 'Google Earth' or 'Yahoo Maps').

The Smallest, Robust & Highly Portable Logger

At only 90mm high, with a flexible carrying handle that



ZONESCAN 820 - Correlating Radio Logger Specifications Summary:

Casing:	Aluminium, with magnetic attachment
Sensor:	High sensitivity piezo-ceramic sensor
Noise threshold (sensitivity):	3 µg
Dimensions:	90 x 40 mm diameter (3.5 x 1.6" diameter)
Weight:	310 gr (0.7lb)
Protection:	IP68, fully submersible to 2m
Power:	Replaceable Lithium battery cell
Battery Life:	Typically 5 years (depending upon operation)
Memory:	10 days leak value for each logger (most recent) 30 days of leak analysis and histogram for each logger (most recent)
Temperature range:	-20 to +80 deg C (-4 to +176 deg F)
Radio Type:	Transceiver for interactive communication
Radio Output:	10mW or 20mW (13 dBm) options available

houses the aerial, and with an all round alloy casing, the ZoneScan logger is the smallest, lightest and most robust logger available. Other radio loggers that have either fixed plastic aerials or plastic housings, or both, are prone to operational damage e.g. when chamber covers are replaced and press down on the aerial, or when leak inspectors accidentally puncture the logger casing with listening sticks. Weighing less than 0.4kg each, ZoneScan loggers are easily transported and deployed by one engineer.

ZONESCAN LIFT & SHIFT

RAPID 'LIFT & SHIFT' WITH GPS PLOTTING & AUTOMATIC CORRELATION

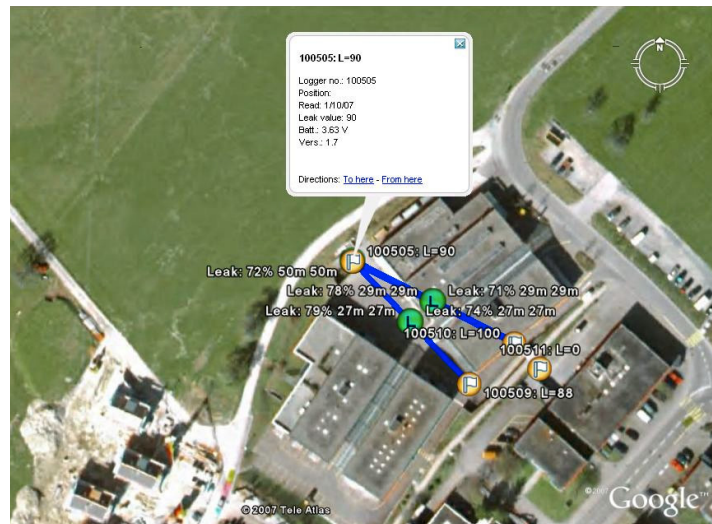


Deploy. Collect. Synchronize. Simple!

In addition to synchronization (and download) during 'Drive-By' (vehicle patrol), ZoneScan correlating radio loggers are also supplied ready for use as a rapid deploy, move and redeploy instrument (often referred to as 'lift & shift'), which is ideally suited to water utilities or contractors wishing to sweep vast areas of pipeline for leaks, without the need for skilled water loss Technicians or Engineers.

When used with a rapid 'Lift & Shift' Comms package, ZoneScan units offer the user the ability to simply scan each logger quickly at the point of deployment, and again upon collection, before moving the units to the next desired location. Synchronization and download of all ZoneScan loggers can quickly and easily be performed (via a ruggedized PDA) on route to the next deployment area. The operative then simply presses the 'send' icon on the PDA screen and the leak data will be sent to a nominated PC running the ZoneScan software.

The user friendly, Windows Mobile based ZoneScan Utility software offers full synchronization and download facility with just three simple keys which represent a normal working cycle - Deploy; Collect; Synchronize.



No on-site interrogation or reading of data is required, as the exact leak positions for each project are automatically presented at in the PC software of the Water Loss Manager or nominated PC user. The correlated (pinpointed) leak positions can be displayed automatically within any satellite mapping software running on the users PC.



ZONESCAN 820 - Repeater Specification Summary:

Casing:	Aluminium	Temperature range:	-20 to +80 deg C
Dimensions: diameter)	80 x 40 mm diameter (3.1 x 1.6")	Radio Type:	Transceiver for interactive communication
Weight:	192 gr	Radio Output:	20mW (13 dBm)
Protection:	IP68, fully submersible to 2m	Radio Sensitivity:	-106 dBm
Power:	Replaceable Lithium battery cell	Additional housing for mounting	
Battery Life:	Typically 5 years (depending upon operation)		

ZONESCAN ALPHA

GPRS BASED UNMANNED LEAK MONITORING

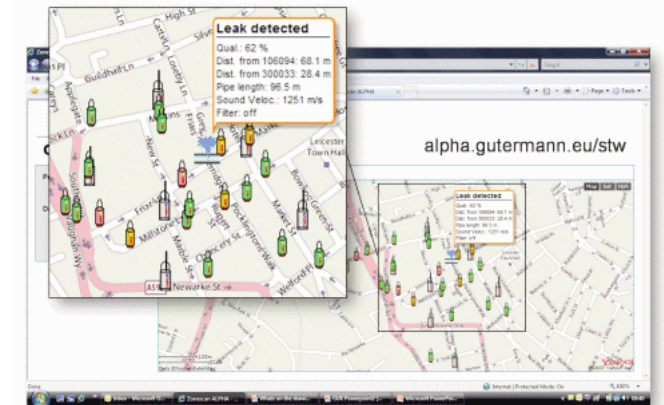
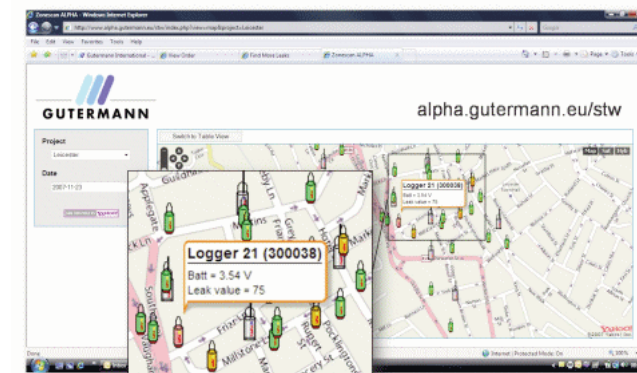


Automatic Leak Pinpointing Hydro Alarm (A.L.P.H.A.)

ALPHA provides the user with entirely remote, two-way communication with each and every ZoneScan logger from the comfort of his office, or any secure internet access point.

A permanently installed, unmanned leak monitoring system, which can be added as a modular upgrade to any network being monitored by standard ZoneScan correlating radio loggers.

- Modular upgrade, can simply be added to existing ZoneScan 820 loggers
- Converts 'drive-by' to fixed network monitoring
- Permanent Leak Monitoring
- Automatic Remote Leak Pinpointing
- More efficient use of leak detection & repair teams
- Combines Licence Free radio and GPRS communication



ALPHA in the field

To add the ALPHA and repeater modules, the operator does not need to make any physical connection or change to the ZoneScan 820 loggers which may already be deployed throughout the water distribution network.

For clients who prefer to access their data and leak reporting via the internet, we can offer a 'remote access' ALPHA module, with secure access (user name and password authorization levels). This enables leakage managers or contractors to access the specific leakage data from any point of internet access.

This system can be tailored to offer automatic leak pinpointing, with automatic correlation between neighboring Zonescan loggers. These precise leak points appear within the chosen mapping format ('Google Maps' or imported info the clients own GIS system).

Utilising Fixed Network AMR/AMI Data Carriers

Leak position data and alarms from ZoneScan can be integrated into a new or existing log range wireless AMR or AMI network, offering greater justification for CapEx planning, and incorporating a range of customizable management & diagnostic reports for active water loss control teams & water conservation strategies.

Purchasing the leak data, rather than the instruments

Gutermann offer the supply of weekly or monthly leak reports, delivered in a bespoke format (for example, including GPS mapped leak positions) for a single weekly or monthly fee which covers the provision of all equipment and supply, and all ongoing monitoring and reporting costs. The package and scope of equipment supplied is specifically tailored to the exact site and client requirements.

ZONESCAN 820 ALPHA - Module Specification Summary:

Casing:	Plastic, fibre-reinforced, ultraviolet resistance
Dimensions:	150 x 100 x 80 mm (425 x 100 x 80 mm with external antenna)
Weight:	1116 gr (920 gr without batteries)
Protection:	IP67
Power:	2 user replaceable Lithium battery cell
Temperature range:	-20 to +80 deg C
Radio Type:	Transceiver for interactive communication
Radio Output:	20mW (13 dBm)
Radio Sensitivity:	-106 dBm
Integrated GSM/GPRS/GPS modem or Ethernet with GPS receiver	