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ZONESCAN NB-IoT
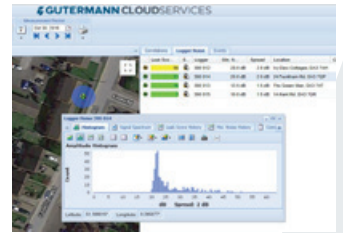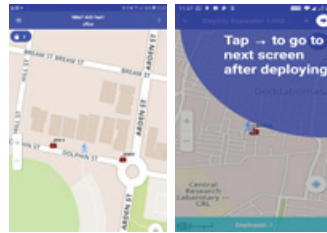## Correlating IoT Leak Logger

Correlating acoustic logger for permanent monitoring of water distribution mains using NB-IoT cellular technology to connect to the Gutermann Cloud.

ZONESCAN NB-IoT
Correlating IoT Leak Logger

NB-IoT data transmission from below the chamber lid directly to the cloud

ZONESCAN NB-IoT is the world's first water leak detecting noise logger based on Narrowband Internet of Things ("NB-IoT"), the new LTE-based cellular communication standard optimised for machine-to-machine data communication in smart cities.

NB-IoT significantly outperforms conventional 3G/4G communication standard for leak detection applications:

- Significantly lower power consumption (5-10x less) extending battery life; batteries can be replaced in the field, no need for factory returns
- Significantly improved coverage underground (deep coverage)
- Much lower communication costs

Automatically pinpointed leaks thanks to daily correlation

The recorded sound signal of every sensor is synchronised to enable the Gutermann Cloud software to automatically correlate the data between all neighbouring sensors and provide leak indications even where the individual loggers don't recognise the existence of a nearby leak.

The time-synchronised correlations will give you an exact location of the automatically identified leak. Correlated leaks that are outside of the measured pipe segment ("out-of-bracket correlations") are shown with an arrow indicating that the leak position is outside of the pipe correlated segment. This way, false interpretations can be avoided.

Easy installation using Android-based installation software

Installing (and subsequently moving) an NB-IoT logger has never been easier. The Android app ZONESCAN INSTALL will guide you through the process of logger activation and registration to the cellular network, including its exact geo-location. An antenna jig with USB port allows you to connect the logger to your Android device for direct access. Once deployed, a regular extended antenna is connected to the logger and attached magnetically underneath the lid.

Loggers are deployed in intervals of typically between 50 and 300 meters, depending on the deployment area and the pipe properties.

Industry-leading cloud software for leak analysis and result display

GUTERMANN CLOUD is a Google Maps™ and Street View™ based user interface which allows you to manage your entire leak detection infrastructure, import you own GIS data for correlation purposes, and to analyse and process leak alarms. Parameters such as recording times, alarm thresholds and many more can be changed anytime.

An event management tool facilitates an efficient work flow and the classification of your leak alarms and identified and fixed leak. Detailed leak reports can be generated manually, or they can be generated automatically and sent as PDF via email.

Technical Specifications

Enclosure/housing material:	100% stainless steel
Ingress protection:	IP68
Dimensions:	Length 107mm (4.2"), Ø 40mm (1.6")
Weight:	0.54 kg (1.2 lbs)
Temperature range:	-30°C to +70°C (-22°F to +158°F)
Communication:	Cellular (NB-IoT), various bands
SIM Card:	Nano, exchangeable
Battery:	Replaceable Li-SOCl2 cell size C
Battery life:	Typically, between 3 and 5 years, dependent on carrier specific properties and proximity to telecom masts
Antenna:	Extended antenna with magnetic antenna base and RSMA connector. In shallow chambers, a flexible stub antenna can be directly mounted on the logger

Cloud Software Features

✓ Browser-based cloud software with data hosted on secure servers of GUTERMANN's professional hosting partners

✓ Geospatial mapping of loggers and leaks (using Google Maps™ and Street View™ technology)

✓ Leak identification thanks to automatic daily correlation

✓ Unlimited data storage

✓ Ability to import network specific GIS and piping data in KML format

✓ Maintenance mode for real-time check-up of each piece of equipment

✓ Automatic calculation of leak probability

✓ Email alarm for immediate leak notification

✓ Event ticket management with work-flow support

✓ Advanced spectrum analysis for avoidance of false leak alarms created by constant mechanical and electrical noise sources

✓ Graphical display of all historical sound histograms, frequency spectra and correlation data to investigate difficult results

✓ Remote access possible from anywhere in the world – on demand by GUTERMANN specialists to assist in difficult leak investigation

✓ Automatic upgrades of cloud software, Android app and firmware

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