GUTERMANN

ZONESCAN 850

Correlating Leak Noise Logger

# ZONESCAN 850

# Product Manual

Language: English

Version: 0.1

**Table of Contents**

# 1 Usage Instructions

Please read these operating instructions carefully and completely before using the equipment and software for the first time. They contain important information regarding safety, installation, and use. Keep these instructions in a safe place.

## 1.1 Symbols

| | |
|---|---|
|  | **Warning of dangerous situations that can cause injury and damage to the devices.** |
|  | **Warning of non-ionising electromagnetic radiation.** |
|  | **Important notes and tips. Follow these guidelines.** |
|  | **Never put in your household waste bin.** |

## 1.2 Safety

The operating and maintenance personnel must read the instructions carefully before using the equipment. Knowing all the information contained therein - in particular the warning and safety instructions - is needed for safe operation of the equipment, and to protect yourself and others against potential dangers. Ignoring the warning, safety and operating instructions can cause injury, damage, or a considerable shortening of the equipment lifetime. Do not make any changes or alterations to our products.

The ZONESCAN 850 Logger uses a Lithium primary cell. Do not charge or short-circuit the battery or cell and do not physically damage or expose it to heat, fire, or water. Follow the transport stipulations of the carrier (IATA-DGR, IMDG-Code, ADR, RID) when returning the logger to Gutermann. For questions about replacing the battery, please contact your Gutermann distributor.

To fulfill the standards for human exposure to radiofrequency electromagnetic fields, keep the logger at least 20 cm away from the body.

The logger has a strong magnet built into the bottom part. If you have an implantable cardioverter defibrillator (ICD) or a pacemaker, avoid close or prolonged contact with the logger and keep it at least 15 cm away from where your device is implanted.

The logger's metallic housing may heat up or cool down depending on the environment it is being used in. Please consider using protective gear before touching the logger in such environments, e.g. when it has been exposed to the sun for an extended amount of time or is being used in sub-zero temperatures.

Never open the device unless otherwise stated in this document, otherwise any warranty and conformity expires.

When using the software or the equipment, make sure you adhere to any applicable regulations, including traffic regulations.

## 1.3 Intended Use

The ZONESCAN 850 logger is intended for use by water suppliers to detect possible leaks in their water pipe networks. The logger is installed underground and attached to water pipes externally via the magnet in the bottom part of the logger. An internal microphone records sound from the water pipe. The resulting sound signal is recorded, stored, and can be retrieved via radio, using a Gutermann Commlink, and sent to the Gutermann ZONESCAN SMART app and Gutermann cloud service for analysis. The antenna required for the radio connection is attached to the logger directly or via cable and also intended to be installed below ground. See the section on Mechanical installation below for details.

ZONESCAN 850 products, hardware, software and accessories are exclusively intended for industrial use and exclusively intended for leak detection on water pipes of the public water supply. In particular, these products are not intended to be used on waste water and gas pipes. Gutermann is not liable for any damage caused by misuse, improper operation, and as a result of non-compliance with safety instructions and warnings.

# 2 Delivery Contents

The ZONESCAN 850 Logger set contains

- The ZONESCAN 850 logger itself
- An external antenna
- A tool to open the logger casing

# 3 Mechanical installation

Please refer to the ZONESCAN SMART manual for information on how to prepare and use the logger for measurements. The following is only about placing the device itself onto pipes and into chambers to ensure proper measurements and good reception.

## 3.1 Safety Precautions

You must ensure that there is adequate safety present when working at great heights, in deep chambers, or traffic situations.

Always thoroughly clean the logger and fittings according to local laws and regulations, to eliminate risk of contamination of drinking water.

Use protective gloves to prevent cuts from sharp edges.

## 3.2 Installing the ZONESCAN 850 Logger

The ZONESCAN 850 Logger connects to the water pipes externally through the magnet in the bottom part of the logger. Typically, it is placed on a metal connector between pipe segments, such as a shutter or other connecting element. Make sure you place the logger on a piece that is actually part of the pipe system, so it can pick up the sound within the pipes. Do not place it on other parts of the chamber that happen to be magnetic but are not directly connected to the pipes.

## 3.3 Directions for the External Antenna

Use the provided antenna. This device must be professionally installed, only the authorized/trained person can install this device.

Tighten connectors correctly to ensure good contact and sealing. No tools necessary – fingertight fastening is adequate.

The antenna has a magnetic foot for easy application to ferrous surfaces. Place the antenna as high as possible to ensure good radio connection.

Not using an antenna (not connecting anything to the RSMA connector) may potentially damage the equipment when it is powered on.

The ZONESCAN 850 Logger has to be used only with the antenna provided with the device. Please refer to sections 0 and **Error! Reference source not found.** for details on selecting the right antenna.

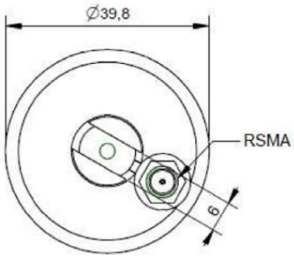
### 3.3.1 Recommendations for Placing the Antenna

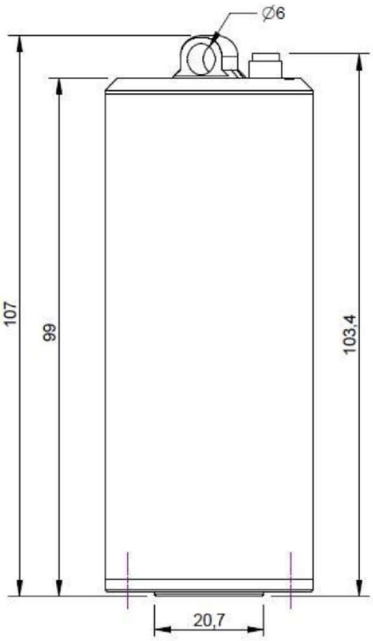
- Place the antenna as high as possible, i.e. close to ground level.
- Horizontally, make sure to keep a distance of several centimeters from metal surfaces such as the chamber walls.
- Place the antenna vertically (with the tip pointing upwards), preferably centred below the cover of the chamber. If the cover has a metal perimeter, keep a distance of a few centimeters from it.

# 4 Technical Data

The ZONESCAN 850 Logger can be identified by the ZONESCAN 850 label and the model name: ZS850-L21 for the EU, and ZS850-L22 for USA and Canada. The outer appearance of the two models is otherwise identical.

## 4.1 ZONESCAN 850 Logger




| Mechanical dimensions (all models) | | | |
|---|---|---|---|
| Diameter | 39.8 | | mm |
| Height | 108 | | mm |
| Weight | 500 | | g |
| Hook diameter | 6 | | mm |
| Connector | RSMA jack | | |
| **Battery (all models)** | | | |
| Type of cell | Primary cell (not rechargeable) | | |
| Chemistry | Li-SOCl2 | | |
| Cell size | C | | |
| Nominal Voltage | 3,67 | V | 0 mA |
| Nominal Capacity | 5,8 | Ah | |
| Max. continuous drain | 1,3 | A | |
| Pulse capability | 2 | A | |

| **ZS850 Logger operation (all models)** | | | | | |
|---|---|---|---|---|---|
| Parameters | Condition / Description | Min. | Typ. | Max. | Unit |
| Operative temperature | *Radio available, measurement available* | -30 | | +70 | °C |
| High temp. off trip point | *Stop logger operation due to high temperature* | +70 | +72 | +75 | °C |
| High temp. on trip point | *Restart logger after too high temperature* | +65 | +67 | +70 | °C |
| Low temp. off trip point | *Stop logger operation due to low temperature* | -35 | -33 | -30 | °C |
| Low temp. on trip point | *Restart logger after too low temperature* | -30 | -27 | -25 | °C |

The radio communication on the ZS850 Logger is a proprietary solution on the ISM band at either 858 or 915 MHz band and is communication compatible with Gutermann ZS820 Loggers.

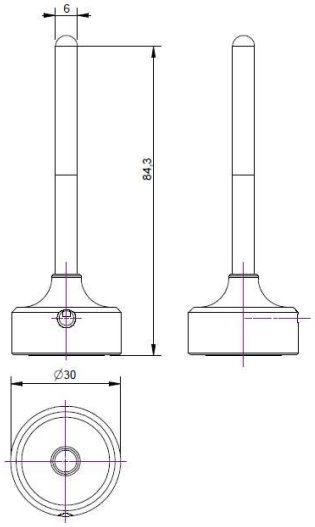
| **ZONESCAN 850 Logger** | | |
|---|---|---|
| Brand name | Model name | Radio region |
| ZONESCAN 850 LOGGER | ZS850-L21 | 1 (EU) |
| | ZS850-L22 | 2 (US & Canada) |

## 4.2 External Antenna

The ZONESCAN 850 Logger requires an external antenna to connect to the Gutermann Commlink. There are 3 antena types, the 3 antennas below can be used indiscitively in ZS850 Logger.

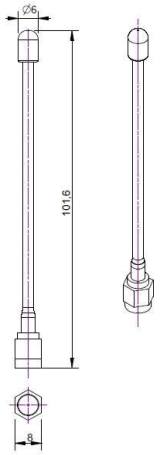
### 4.2.1 ANT-ROD-65

| **Product** | | | | |
|---|---|---|---|---|
| Antenna rod model name | ANT-ROD-65 | | | |
| Antenna base model name | ANT-BASE-06 | | | |
| **Mechanical** | | | | |
| Parameters | Value | | Units | Tolerance |
| Diameter | 30 | | mm | |
| Length | 87,3 | | mm | |
| Weight | 65 | | gr | ±2 |
| Connector | RSMA Plug | | | |
| Cable length | 0,6 meters | | | |
| **Parameters** | | | | |
| Parameters | Min | Typ | Max | Units |
| Operational temperature | -30 | | 70 | °C |
| Frequency | 868 | | 930 | MHz |
| Power RF | | | 3 | W |
| Impedance | | 50 | | Ω |
| Polarization | Linear; Vertical | | | |
| Peak gain | 0.94 dBi | | | |



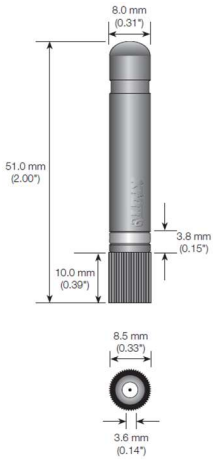

### 4.2.2 ANT-ZS-FLEX-65

| **Product** | | | | |
|---|---|---|---|---|
| Antenna rod model name | ANT-ZS-FLEX-65 | | | |
| **Mechanical** | | | | |
| Parameters | Value | | Units | Tolerance |
| Diameter | 10 | | mm | |
| Length | 102 | | mm | |
| Weight | 4,1 | | gr | ±0.5 |
| Connector | RSMA Plug | | | |
| **Parameters** | | | | |
| Parameters | Min | Typ | Max | Units |
| Operational temperature | -30 | | 70 | °C |
| Frequency | 868 | | 930 | MHz |
| Power RF | | | 3 | W |
| Impedance | | 50 | | Ω |
| Polarization | Linear; Vertical | | | |
| Peak gain | 0.34 dBi | | | |



### 4.2.3 ANT-ZS-STUB

| Product | | | | |
|---|---|---|---|---|
| Antenna rod model name | ANT-ZS-STUB | | | |
| **Mechanical** | | | | |
| Parameters | Value | | Units | Tolerance |
| Diameter | 8 | | mm | |
| Length | 51 | | mm | |
| Weight | 6 | | gr | ±0.5 |
| Connector | RSMA Plug | | | |
| **Parameters** | | | | |
| Parameters | Min | Typ | Max | Units |
| Operational temperature | -30 | | 70 | °C |
| Frequency | 868 | | 930 | MHz |
| Power RF | | | 3 | W |
| Impedance | | 50 | | Ω |
| Polarization | Linear; Vertical | | | |
| Peak gain | -0.31 dBi | | | |




## 4.3 Firmware Updates

The firmware of the ZONESCAN 850 Logger can be updated to fix issues and implement additional features. Firmware updates will usually be done over the radio connection via the Gutermann Commlink and initiated from the ZONESCAN SMART app.

In rare cases, such as changes in the underlying technology, technical reasons may require that the logger be sent back to the factory to perform the upgrade.

# 5 Storage and Transport

In order to avoid unwanted radio transmissions and prevent battery depletion, send the logger to sleep using the “Logger Sleep Mode” option available from the main menu of the ZONESCAN SMART app.

Alternatively, open the Logger chassis and remove the battery.

# 6 Disposal

Never put electrical appliances in a household waste bin. Always collect them separately and perform an environmentally friendly recycling. When disposing of electrical appliances always comply with national and regional waste disposal regulations. If an orderly disposal of our products is not possible, send the unit to us. We dispose of our products environmentally friendly. Address see below.

# 7 Imprint

Gutermann Technology GmbH
Gottlieb-Daimler-Str. 10
88214 Ravensburg, Germany

Tel: +49 751 3590 1682
Fax: +49 751 3590 1699
www.gutermann-water.com
info@gutermann-water.com

Subject to changes

# 8 US and North America Contact

Eric Galosi
Technical Director Americas
Gutermann, Inc.
36 South 27th Street
Camp Hill, PA 17011
phone 603.204.3232
eric.galosi@gutermann-water.com
www.gutermann-water.com

# 9 Conformity

This device complies with part 15 of the FCC Rules and contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:
1. This device may not cause harmful interference, and
2. This device must accept any interference, including interference that may cause undesired operation of the device.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :
1. L'appareil ne doit pas produire de brouillage;
2. L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.

Increase the separation between the equipment and receiver.

Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio/TV technician for help.

Please use this device only with the appropriate Gutermann antenna as described in section 4.2 above.

# 10 Important Information

Please draw your attention to all warnings and information in the manual and on the products. By using this product, you acknowledge that you are aware of and have read the warnings and information provided in the manual.

Always clean the sensors and mechanical accessories with a clean towel after use before stowing them away in the carry case.