Itron

Knowledge to Shape Your Future

Water Loss Management Solutions

MLOG Sensor Installation Guide

Identification
MLOG Sensor Installation Guide
12/14/2009 TDC-0803-002

Confidentiality Notice
The information contained herein is proprietary and confidential and is being provided subject to the condition that (i) it be held in confidence except to the extent required otherwise by law and (ii) it will be used only for the purposes described herein. Any third party that is given access to this information shall be similarly bound in writing.

Trademark Notice
Itron is a registered trademark of Itron, Inc.
All other product names and logos in this documentation are used for identification purposes only and may be trademarks or registered trademarks of their respective companies.

Suggestions
If you have comments or suggestions on how we may improve this documentation, send them to TechnicalCommunicationsManager@itron.com
If you have questions or comments about the software or hardware product, contact Itron Technical Support:

Contact
- Internet: www.itron.com
- E-mail: support@itron.com
- Phone: 1 800 635 8725

Patent Notice
US and foreign patents pending
Compliance Statement
This equipment has been tested and found to comply with the limits, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. Operation is subject to the following conditions:
- This device may not cause interference.
- This device must accept any interference that may cause undesired operation of the device.

Complies with IC: R.S.S.-210
Transportation Classification
The Federal Aviation Administration prohibits operating transmitters and receivers on all commercial aircraft. When powered, MLOG Sensors are considered operating transmitters and receivers and cannot be shipped by air. All product returns must be shipped by ground transportation.
Repairs and Modifications

Warning Attempts to repair this device by unauthorized personnel may subject the person to shock hazard if removal of protective covers is attempted. Unauthorized repair may void the warranty and/or maintenance contract with your company.

This unit cannot be modified and is not repairable. Modification of this device could cause non-compliance with FCC rules. Attempts to modify this device will void the warranty.

Warning Follow these procedures to avoid injury to yourself or others:

- The lithium battery may cause a fire or chemical burn if it is not disposed of properly.
- Do not recharge, disassemble, heat, or incinerate the lithium battery.
- Keep the lithium battery away from children.

Contents

Chapter 1 Before You Begin 5

How This Document is Organized 5
Related Documents 6
Installation Overview 6
MLOG Deployment Considerations 7
MLOG Sensor Time and Date 8
MLOG Sensor Installation Considerations 8

Chapter 2 Installing the MLOG Sensor 9

MLOG Sensor Accessories 10
Sensor ID 11
Pipe Preparation 11

Appendix A Submitting Corrected MLOG Locations 15

Appendix B Sensor Installation Information/Spreadsheet 17

Leak Sensor Installation Information 17

Index 19

Documentation Conventions

The following documentation conventions are used:

Caution A Caution warns the user that failure to follow the information could result in loss of data. Be sure to carefully read a Caution note and follow advice/instructions.

Warning A Warning alerts you of potential physical harm to the user or hardware. It is critical that you pay strict attention to Warning notes, read the information carefully, and follow the advice/ instructions.

Tip A Tip provides the user with extra hints to make a task easier to perform or a concept easier to understand.

Note A Note supplies generic information to the user. The information could be ignored and the user could continue with a task without suffering any adverse consequences.

CHAPTER 1

Before You Begin

This document describes the installation of MLOG Sensors intended for use in both indoor (basement) and outdoor (water meter pit) locations. Sensors mount on a water service pipe or a water meter yoke.

MLOG Leak Detection systems offer a low-cost, standalone intelligent network of sensors that analyze sound patterns in their environment to detect new, evolving and pre-existing leaks automatically. MLOG Sensors economically monitor entire water distribution systems effectively reducing water loss and increasing pipeline integrity. MLOG Sensors provide public water supply operators with a new approach to validate real (physical) water loss including annual volumes lost through all types of leaks, breaks and mains overflows, service reservoirs, and service connections, up to the point of customer metering.

MLOG Sensors facilitate drive-by applications and are read with the MLOG Controller. MLOG Sensors can be read during normal monthly meter data collection field visits or independently when an event generates a need for a data update.

Data from MLOG Sensor is uploaded to the mlogonline™ Network Leak Monitoring System. The mlogonline system provides an Internet portal for MLOG Sensor system data analysis and overall water system leak status to help reduce non-revenue water loss and optimize pipeline repair efforts.

How This Document is Organized

Chapter	Description
1. Before You Begin	Product and User Guide overview
2. Installing the MLOG Sensor	Step-by-step instructions for MLOG Sensor installation
Appendix A: Correcting MLOG Sensor Locations	Correcting MLOG Sensor locations
Appendix B: Sensor Installation Information/Spreadsheet	MLOG Sensor Installation information

Related Documents

Document	Part Number
MLOG Controller Software Installation & User Guide Procedural information to install MLOG Controller Software and step-by-step instructions to upload data from your MLOG Controller to mlogonline Network Leak Monitoring System.	TDC-0793-XXX*
MLOG Controller User Guide Describes MLOG Controller components, data collection, and data upload to mlogonline.	TDC-0796-XXX*
mlogonline Network Leak Monitoring System User Guide Describes mlogonline use to monitor system leak status using MLOG Sensor data for analysis.	TDC-0792-XXX*

*The last three digits of documentation part numbers indicate the document revision level. The revision level is subject to change without notice.

Installation Overview

There are five important tasks in a successful MLOG Leak Detection system installation.

1. The utility determines the deployment area for the MLOG Sensors and sends a map of this area to Itron.
2. Itron marks optimal locations for the MLOG Sensors on the utility map and returns it to the utility along with installation sheets in electronic format (see Appendix B Sensor Installation Information on page 17).
3. The utility installs MLOG Sensors as close to the marked locations as possible, carefully enters installation data in the spreadsheet, and returns the spreadsheet to Itron.
4. Itron enters MLOG Sensor installation information into the utility's unique **mlogonline** site where anyone with security clearance can access leak detection reports.
5. After MLOG Sensor installation data is uploaded to the utility's **mlogonline** site, the utility verifies MLOG Sensor installation information. The utility Administrator corrects any errors in **mlogonline**. For help, contact Itron Support (see Appendix A Correcting MLOG Sensor Locations on page 15).

MLOG Deployment Considerations

MLOG water loss management systems provide an economical tool to detect leaks and take action to reduce non-revenue water losses and associated operational costs. Observe the following deployment considerations to ensure efficient installation and maximum system performance.

- **Water pipe material:** Metal, cement and plastic pipes are preferred. Metal pipes offer the best acoustic properties and allow 400 to 500 ft. spacing between devices. Pipelines composed of cement and plastic pipes allow 150 to 250 feet spacing.
- **Water pipe diameter:** Pipe size impacts MLOG Sensor spacing. Smaller pipes conduct sound better. Pipes greater than 8" in diameter limit spacing to 250 feet or less.
- **Average static pressure:** Pressure during the recording period affects system performance. Evening recordings are preferred. Pressures less than 60psi limit MLOG Sensor spacing to 250 feet or less.
- **Altitude:** Installed MLOG Sensor altitudes affect system performance through pressure. Downhill locations offer better unit performance.
- **Service density:** MLOG Leak Detection systems are affected by service density. Deployment is limited to 1 in 10 services. Service density is not changed by device spacing.
- **Service line span:** Service line connection length affects MLOG Sensor placement. Shorter lengths of service line from the MLOG Sensor to the water main offer optimum system performance.
- **Service line material:** Service line material has a minor impact on sound conduction (if service line is less than 1.25" diameter). Metal service pipes offer the best sound conduction.
- **Mounting location:** Itron recommends mounting the MLOG Sensor on the mains side of the water meter (rather than the service side) for best system performance.
- **MLOG RF propagation** Mount MLOG Sensors in locations with free space to support good radio communications. MLOG Sensors installed inside buildings perform best above ground level. When possible, mount Sensors away from road sounds and vibration. Avoid mounting in locations with metal meter pit lids.

MLOG Sensor Time and Date

The MLOG Sensor time and date are programmed with the MLOG Controller when the MLOG Sensor is read. The MLOG Controller is set with the time and date from the computer when the Controller syncs to the computer to download MLOG Sensor data or program parameters. Verify the system computer is set with the accurate date and time to ensure the MLOG system operates on the correct schedule. The MLOG Sensor collects data 12:30 a.m. to 4:00 a.m. to take advantage of the reduced noise environment.

Caution The MLOG Sensor system time and date are programmed from the MLOG Controller. Verify the system computer is set with the accurate time and date before syncing with the MLOG Controller.

Note The MLOG Sensor is available from 7 a.m. to 4 p.m. Monday through Friday (local time) for reads. It is NOT available on weekends.

MLOG Sensor Installation Considerations

The MLOG Sensor's design provides an economical, easy-to-use system for detecting water loss. The following installation considerations provide an optimum RF environment for MLOG Sensor communications.

Mount the MLOG Sensor:

- On a stable, supported location. Avoid mounting locations with flex, movement, or heavy vibration.
- In an area free from ground bonding points. If the MLOG Sensor must mount on a ground-bonded point, position the MLOG Sensor after the bonding point but before the meter.

  Caution Do not mount the MLOG Sensor before a ground bonding point.

- To propagate good RF conditions. Avoid corner basement areas or locations behind appliances or machinery.
- In an area free from excessive mechanical noise (for example, near an HVAC or refrigerator).
- 1 - 3 inches below the pit lid (in pit installations). Mount away from the meter body or adjacent pipes.

CHAPTER 2

Installing the MLOG Sensor

Install the MLOG Sensor on the mains side of the water meter on the service line.

Required Equipment

See the Accessories table for optional mounting equipment.

- MLOG Sensor
- Direct Bury Mounting Kit

Caution MLOG Sensor installation requires Itron equipment and accessories. Repair costs and service charges relating to the use of non-compliant mounting hardware will be charged to the customer. Contact Itron Support for more information.

MLOG Sensor Accessories

MLOG Sensor Accessories

Accessory	Description	Itron Part Number
	Direct Bury Mounting Kit (MLOG 10 pack – 1” clamp/stud zinc) Includes: • (10) ½ - 1" clamp • (10) 1" threaded rod Minimum quantity 10 - order in increments of 10	CFG-1219-001
	MLOG 2” clamp/stud bronze Includes: • (10) 2" clamp Minimum quantity 10 - order in increments of 10	CFG-1219-002
	Threaded right-angle mounting rod (HWR ¼" 20 threaded right angle mount) Includes: • (10) 90-degree angle mounting rod • (10) nut Minimum quantity 10 - order in increments of 10	CFG-1219-004

Sensor ID

Unit ID

Each MLOG Sensor has an eight-digit ID. The last six digits of the eight-digit ID and location information are noted on the Sensor Installation Sheet after installation. The pictured MLOG Sensor shows an ID of 050205.

Caution MLOG Sensor ID numbers must be carefully entered on the installation spreadsheet. Incorrectly entered ID numbers will result in a system with failed communications.

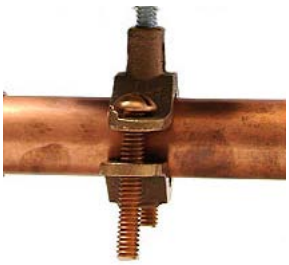
Pipe Preparation

Clean any dust or dirt from the pipe to facilitate direct contact with the brass stud or mounting clamp bolt on the MLOG Sensor.

To Install the MLOG Sensor

Caution MLOG Sensor installation requires Itron equipment and accessories. Repair costs and service charges relating to the use of non-compliant mounting hardware will be charged to the customer. Contact Itron Support for more information.

1. Place the clamp on the pipe and tighten clamp mounting screws until snug (to eliminate any rotation of the MLOG Sensor).



Caution For optimum communications, Itron recommends mounting the MLOG Logger in the upright position (antenna facing up). Use the optional 90-degree angle mounting rod for cramped pit locations or vertical pipes.

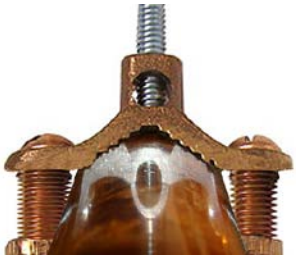
2. Screw one end of the rod into the threaded hole on the bottom of the MLOG Sensor.

3. Carefully screw the MLOG Sensor into the threaded hole on the top of the clamp.

4. If the 90-degree angle mounting rod is used, place the pipe clamp as shown (back clamp plate over the screw from the top down for stability) and tighten the screw in an alternating fashion.

5. Tighten the nut on the mounting rod securely against the pipe clamp to eliminate MLOG sensor rotation.

Caution Verify the threaded rod is in complete contact with the clamp mounted to the exterior of the pipeline surface.



To mount the MLOG Sensor on a Meter Insetter (meter horn)

1. Attach the MLOG mounting clamp to the Meter Insetter on the water intake side of the insetter. Tighten clamp mounting screws until snug (to eliminate any rotation of the MLOG Sensor).

2. Screw one end of the rod into the threaded hole on the bottom of the MLOG Sensor.

3. Carefully screw the MLOG Sensor into the threaded hole on the top of the clamp.

Caution Verify the threaded rod is in complete contact with the clamp mounted to the exterior of the pipeline surface.

APPENDIX A

Submitting Corrected MLOG Locations

Itron geocoding services find 95 to 98 percent of a system's addresses correctly. MLOG Leak Detection system users submit corrected addresses for questionable MLOG Leak Detection Sensor locations to their mlogonline System Administrator who corrects the device locations. Contact on page ii Itron Support for help in correcting an MLOG Sensor's location in the water system.

APPENDIX B

Sensor Installation Information/Spreadsheet

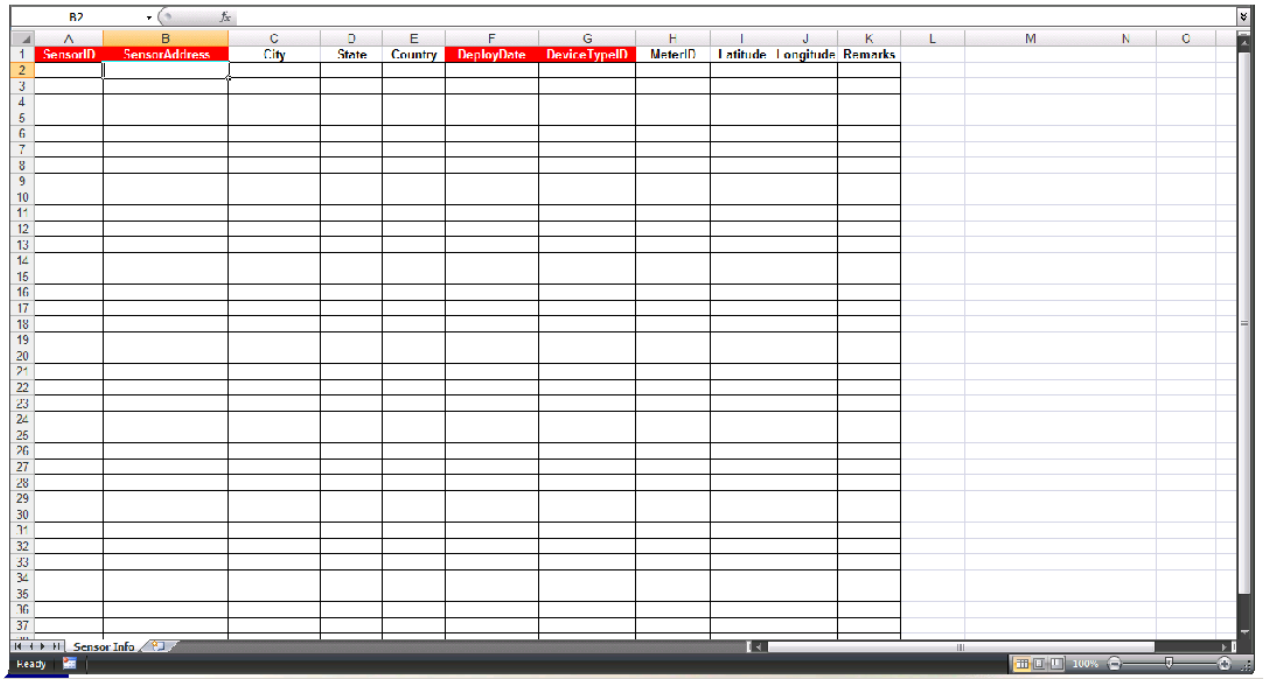
MLOG Sensor installation information is documented in an installation.csv file. The utility emails or sends the installation.csv or Excel file to Itron. After the file is received by Itron, the information is uploaded to your utility's unique **mlogonline™** Network Monitoring System. A sensor installation spreadsheet is available on the Itron Knowledge Center or from Itron Support.

Leak Sensor Installation Information

The following installation spreadsheet information is required to ensure quick deployment of your mlogonline Network Monitoring System.

Note Provide the installer's information in the event Itron support has questions concerning installation of your system's sensors.

- SensorID: Include only numbers after the "46" in the part number. These are the digits input in the mlogonline upload - *required field*.
- SensorAddress: The sensor's physical installation street address - *required field*.
- City: The sensor's city location - *required field*.
- State: The sensor's state location - *required field*.
- Country: The sensor's country location.
- DeployDate: The sensor's installation date - *required field*. If the deploy date is not supplied, this field will default to the date the sensor information is input in mlogonline.
- SensorTypeID: - *required field*:
    - 2 (Radio)
    - 4 (AMRv1)
    - 1 (AMRv2)
    - 3 (Leak Sensor)
- MeterID: The meter ID the sensor interfaces with.
- Latitude: The GPS Y coordinate.
- Longitude: The GPS X coordinate.
- Remarks: The installer may make comments that will be saved in the database.



Index

B

Before You Begin • 5

I

Installing the MLOG Sensor • 9

M

MLOG Deployment Considerations • 7
MLOG Sensor Accessories • 10
MLOG Sensor Installation Considerations • 8
MLOG Sensor Time and Date • 8

P

Pipe Preparation • 11

S

Sensor ID • 11
Sensor Installation Information/Spreadsheet • 17, 6
Submitting Corrected MLOG Locations • 6, 15

T

To Install the MLOG Sensor • 12