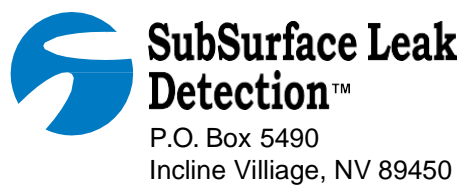




User Manual for ZCorr Digital Correlating Loggers





Contents

Chapter 1: Using this Guide	1
Chapter 2: ZCorr Equipment and Accessories	2
Chapter 3: Deploying ZCorr Equipment	3
ZCorr Digital Correlating Loggers	3
ZCorr Docking Station	4
Docking a DCL in the Docking Station	4
DCL Care and Cleaning	6
USB Cable Connection and Power	6
Chapter 4: Installing ZCorr Software	7
Chapter 5: Navigating ZCorr Software	8
ZCorr Digital Correlating Logger (DCL) Panel	9
Placing DCS Locations on the Map or Grid Panel	9
ZCorr Button Panel	10
Map/Grid Panel	11
Importing System Maps	12
ZCorr Map Navigation Panel	13
Deploying the ZCorr DCL Units	14
Retrieving the DCL Loggers	16
Analyzing DCL Data	17
Acoustic Analysis	20
Advanced Listening Analysis	25
Chapter 6: ZCorr Data Manager	28

Using this Guide

The information in this guide is organized into the following chapters:

ZCorr Advanced Digital Leak Detection System User Guide

Chapter 1	Using this Guide Breakdown of information included in this user guide.
Chapter 2	ZCorr Equipment A comprehensive equipment list
Chapter 3	Deploying ZCorr Equipment ZCorr start up information
Chapter 4	Installing the ZCorr Software Includes a software overview
Chapter 5	Navigating ZCorr Software Deploying, retrieving and analyzing ZCorr correlation studies
Chapter 6	ZCorr Data Manager Accessing Stored Data

ZCorr Equipment and Accessories

The ZCorr systems requires a laptop PC (not included in the complete ZCorr system) running on Windows 98, 2000, XP, Vista, Windows 7, 8, or 10 Operating System. A minimum of at least 64 MB of RAM and a Pentium processor are required.

Part Number	Description
ZCorr, 8 Loggers	Complete ZCorr system with 8 digital correlating loggers (DCLs) must order qty. 8 ZCR-021
ZCorr, 3 Loggers	Complete ZCorr system with three (3) digital correlating loggers (DCLs) must order qty. 3 ZCR-021
ZCR-021	ZCorr DCLs
ZCR-013	ZCorr Docking Station
ZCR-101	ZCorr Serial to USB Trade-In
ZCR-010	ZCorr DCL protective cover
MAG-0006-001	ZCorr magnet assembly
CBL-015	ZCorr data cable
No Number	Replacement battery in ZCorr DCL
PCB-020	ZCorr docking station board
CONP-003	Connector-SOV104
HDWOR-007	O-ring (replacement)
MTL-004	ZCorr can (metal enclosure)
MAP-001	Map integration: integrate community water system maps in ZCorr software
No Number	ZCorr Software (USB Thumb Drive)

The ZCorr Digital Leak Logger system includes the ZCorr Docking Station, ZCorr Digital Correlating Loggers (DCL), a USB cable and the ZCorr PC software.

ZCorr Digital Correlating Loggers

The ZCorr DCL is designed with a waterproof electrical data connector at the top of the unit that is protected during deployment with a screw-on protective metal cover (supplied with the system.) The screw-on metal cover is designed to protect the data connector from dirt and debris when attached to a water valve in an underground deployment. Each DCL meets IP68 standards (submersion to a depth of 60 feet [20 meters]). The DCL unit's base is tapped with a screw hole to accommodate the strong magnet supplied with each unit.



The ZCorr DCL is typically deployed in underground applications (for example, on an operating valve nut) but can be attached onto any water system fitting, including an exposed piece of pipe, hydrant, or valve. Tight attachment at the valve or fitting is absolutely essential for good quality correlations, and any loose dirt or rust scale must be cleaned off the valve nut.

Deploying ZCorr Equipment

~~ZCorr Docking Station~~

The ZCorr Docking Station is encased in a rugged, waterproof, airtight, crush-proof case. The Docking Station supports one to eight DCL units. Each DCL must be firmly docked in the station for deployment and retrieval (see Navigating ZCorr Software on page 8.)

Docking a DCL in the Docking Station

CAUTION – *Verify the number on the DCL label matches the number of the well the DCL will dock in (for example, DCL labeled numbered 1 must dock in the well numbered 1.)*

To dock a DCL in the ZCorr Docking Station

1. Orient the ZCorr Docking Station as shown.



2. Align the red line on the logger with the red square on the docking station.



3. Carefully insert the DCL into the well. The data connector on the logger connects with the data receptacle to enable deployment and retrieval programming.



WARNING – Be sure to insert the DCL data connector down into the Docking Station well. Do not force the DCL into the docking well. Do not twist the DCL in the Docking Station well. Forcing or twisting the DCL in the Docking Station well may damage the data connector of the DCL or the docking station receptacle.

To Remove a DCL from the Docking Station

1. Grasp the end of the DCL docked in a well.
2. Pull straight up until the DCL clears the well sides.
3. If deploying DCL, screw protective cover over the data connector end cap.



DCL Care and Cleaning

Before docking a DCL into the Docking Station or screwing on the protective data connector cover, remove any dirt or debris from the DCL. Debris may be removed using a brush, canned air or a lint-free cloth. If you experience a problem removing debris or docking DCLs in the Docking Station, contact technical support.

WARNING – Do not apply any type of lubricant to the data connectors!

USB Cable Connection and Power

The ZCorr Docking Station must be connected to a USB port on your computer using the USB cable provided with the system before DCL deployment or retrieval. The USB connection supplies power to the Docking Station. The green power LED on the Docking Station lights to indicate the system is powered on.

Installing ZCorr Software

The ZCorr systems requires a laptop PC (not included in the complete ZCorr system) running on Windows 98, 2000, XP, Vista, Windows 7, 8, or 10 Operating System. A minimum of at least 64 MB of RAM and a Pentium processor are required.

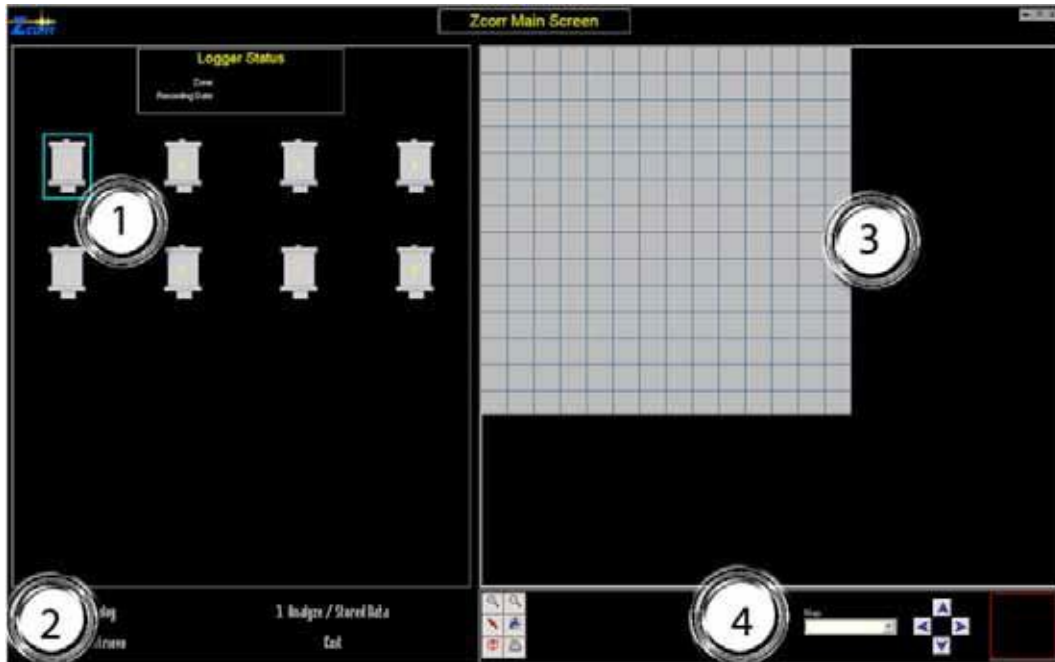
Insert the ZCorr Software CD into the CD-ROM drive of your computer or the ZCorr Software USB thumb drive in an available USB port and follow the prompts. If autorun is not enabled on your PC, open the CD or USB drive and double click on the zcorr.bat file. This batch file will first install the drivers necessary to communicate to the docking station by running the FTDI.exe program, a dos window may appear for a minute or so. Once the drivers are installed the batch file will run the setup.exe file which will install the ZCorr software. The dos window should disappear after the ZCorr setup is complete.

It is recommended that you reboot the PC once the software is installed.

Navigating ZCorr Software



Open the ZCorr Software by clicking on the ZCorr desktop icon. The main ZCorr window opens.

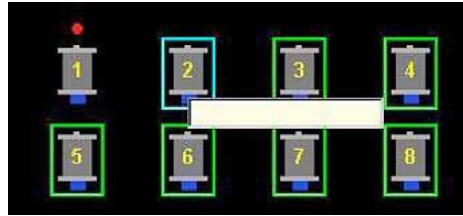


ZCorr Software Main Window

- | | |
|---|----------------------|
| 1 | Logger Panel |
| 2 | Button Panel |
| 3 | Map/Grid Panel |
| 4 | Map Navigation Panel |

ZCorr Digital Correlating Logger (DCL) Panel

The ZCorr Digital Correlating Logger (DCL) Panel shows DCLs docked in the Docking Station and ready for deployment.



The number of DCLs detected in the Docking Station are framed in green to indicate they are ready for deployment.


To enter DCL ID or Addresses and Map Locations

1. Click on the DCL icon on the DCL Panel. The DCL frame turns from green to blue and an address entry box appears.
2. Enter the DCL ID and/or address in the box (for example, 123 Main Street, Valve 123 or Hydrant 47). The ID/Address field allows entry of 40 characters.
3. Click on the DCL icon to enter a new address or ID or to modify existing information. If no information is entered, the DCL is referred to as Z1, Z2, etc.

Placing DCL Locations on the Map or Grid Panel

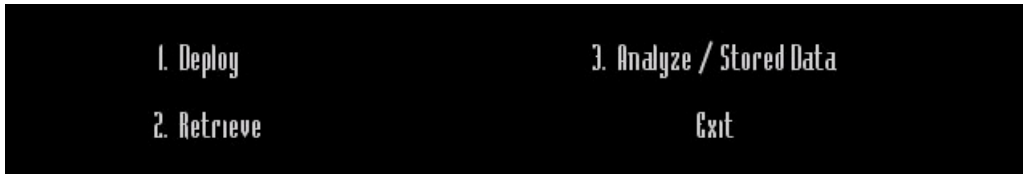
View the appropriate map by entering the map name in the map address box or move through maps with the navigation buttons. If a map is not available for your correlation area, place DCL locations on the Grid.

To place DCL Locations on the Map or Grid Panel

1.  Select the pick button from the Map Navigation panel.
2. Click on the appropriate DCL icon on the DCL Panel.
3. Click the location where the DCL will be deployed on the map or grid. A red dot appears on the map and above the DCL after placement.

ZCorr Button Panel

The Button Panel enables the ZCorr correlation and analyzing process. Select one of the action buttons by moving the mouse cursor over the desired button (word). The cursor changes to a finger and the word highlights. Click to begin the process.

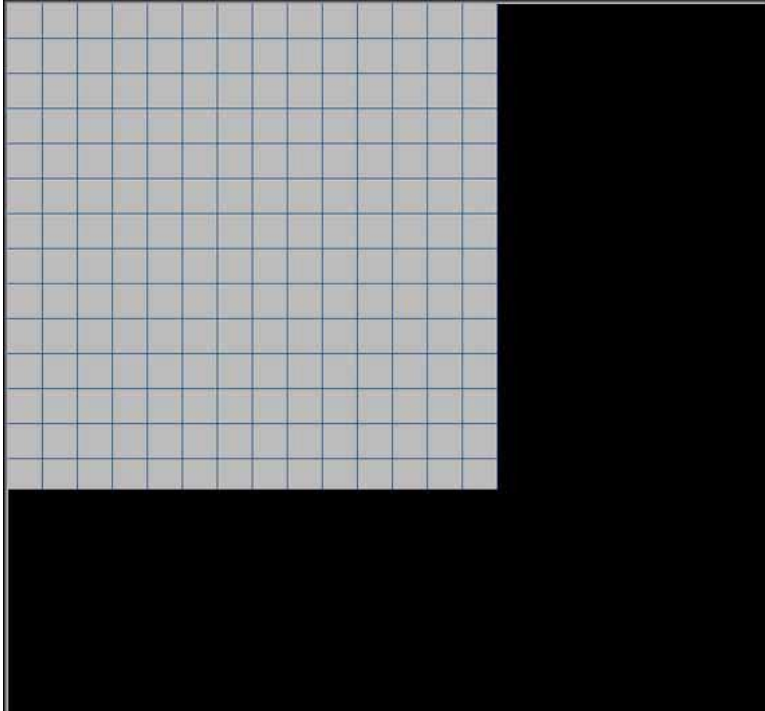


ZCorr Main Window Button Panel

1. Deploy	<p>Begins the DCL deployment process</p> <ul style="list-style-type: none"> • Connecting to the Docking Station • Programming the DCLs • Entering DCL ID/address information • Marking DCL locations on map/grid (optional) • After selecting Deploy, a work order may be printed for DCL field deployment.
2. Retrieve	<p>De-programs the DCL, downloading field data to the Docking Station for analysis</p>
3. Analyze/ Stored Data	<p>Analyze performs a leak noise correlation and listening analysis for all docked DCLs. Also provides the option to print a summary report of the analysis.</p> <p>Stored Data reviews or re-analyzes previously recorded ZCorr data</p>
Exit	<p>Click Exit to close ZCorr Software and return to your Windows desktop.</p>

Map/Grid Panel

The Map/Grid Panel displays a user-imported system map of the current deployment analysis or a grid if a map is not available. Users may place DCL icons on the map or grid to represent DCL deployment locations.




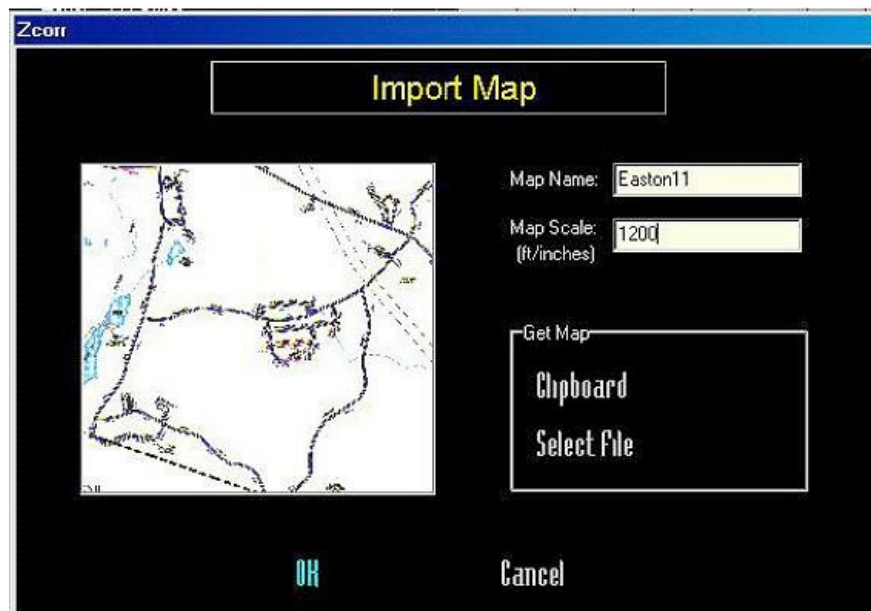
To place DCL Locations on the Map or Grid

- 1.** Click the pick tool.
- 2.** Click the DCL to be placed on the map from the DCL icons on the DCL Panel.
- 3.** Click the location on the map or grid to place the DCL. As long as the DCL is highlighted on the DCL panel, you may change the DCL location by clicking the desired location on the map or grid.

Importing System Maps

To import a system map

1.  Click **Import Map** on the Map Navigation Panel to open the Import Map window.



2. Click **Clipboard** to paste an image saved to the clipboard or click **File** to browse to a previously saved map image file on your computer. ZCorr Software accepts .bmp or .jpg file formats.
3. After the selected map has loaded, enter the map scale into the Map Scale text box.
4. Click **OK**. The map displays in the Map/Grid Panel and the Thumbnail Map on the Map Navigation panel.

ZCorr Map Navigation Panel

The ZCorr Map Navigation Panel provides tools to increase or decrease map views, place DCLs on the ZCorr Panel Map or Grid, clear DCL Map or Grid locations, print work orders, name maps, move around your system map, and import maps into the ZCorr Software.



ZCorr Main Window Button Panel

Button	Description
1. Zoom	+ Enlarges or - decreases map display size
2. Pick	Places DCL locations on the map or grid. Click Pick . Select DCL on the DCL Panel and click on the map or grid to place the DCL location. As long as the DCL is selected on the DCL panel, you may change the DCL location by clicking anywhere on the map or grid.
3. Clear Map	Clears current map or grid of all DCL locations.
4. Import Map	Imports maps stored on the computer.
5. Print	Prints a work order.
6. Map	Enter the map name for any stored map or select an existing imported map from the drop-down list. After selecting a map, press the Enter key to display the map in the DCL Map/Grid Panel.
7. Map Navigation Tools	Provides the tools to move up, down, left, and right in the currently displayed map. Also displays the next map in any direction.
8. Map Thumbnail	Thumbnail of entire currently displayed Map/Grid Panel map.

Deploying the ZCorr DCL Units

Begin the ZCorr surveying process by deploying the ZCorr DCL units.

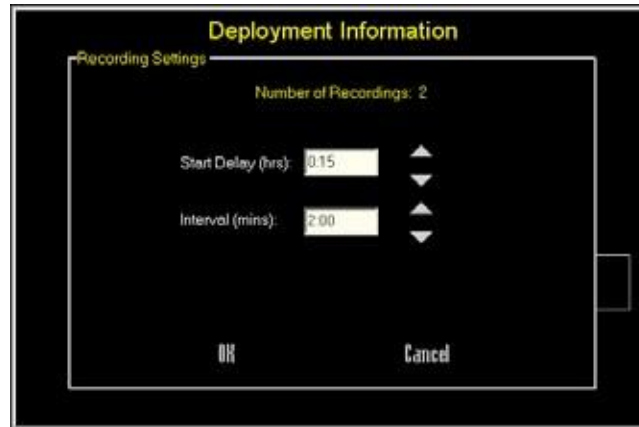
To deploy ZCorr DCL units

1. Connect the Docking Station to the PC using the supplied USB cable.
2. Click **Deploy** on the Button Panel. The Deployment Information window opens.

3. Enter a user name and zone in the appropriate text boxes if you wish.
4. If the date or time is incorrect, click **Change**. A calendar and clock appear to make changes to the displayed time and date.
5. Select a deployment mode:
Overnight Survey Mode: Pinpoint leaks in a zone overnight when water system usage is minimal. In the Overnight Survey Mode, the DCLs are programmed to take recordings during the quietest time of the night. Three recordings, each 60 seconds, are completed at a pre-selected starting time and at intervals of up to 4 hours.

The above deployment will instruct the DCLs to all turn ON for 60 seconds at exactly 3:00 AM, 3:15 AM and 3:30 AM. The three recordings will be finished at exactly 3:31 AM.

Short-Term Recording Mode: Used in special situations where an immediate recording is necessary. In the Short-Term Recording Mode, DCL units are programmed to take a reading after a short delay (pre-programmable for 1 to 30 minutes) from the time the OK button is clicked. Below two recordings are completed with an interval of 2 minutes after a delay of 15 minutes.



TIP – *Hold down the shift key while pressing the up or down arrow to force greater incremental time jumps.*

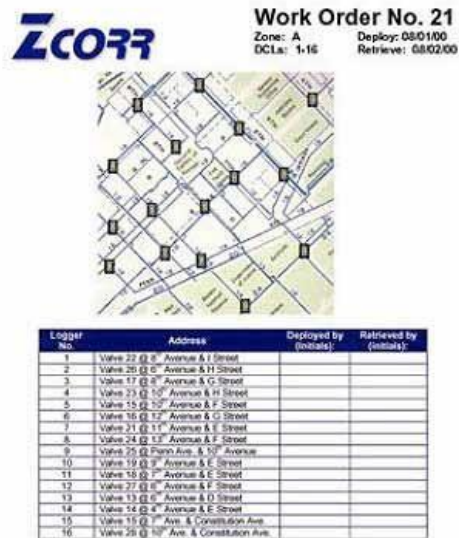
Test Recording Mode: Used in special situations when a functional ZCorr system test is necessary. A 5-second recording is completed after a 15-second delay.

6. Check **Keep Logger Information** to save all DCL information (pipe information and DCL map locations) with the saved file.

After the selected Deployment Mode is closed by clicking on OK, the ZCorr Software programs each DCL unit.

To print a Work Order

After Deploy programming is completed, click the Print Button on the Map Navigation Panel to print a work order.



The work order lists the locations and addresses of the locations where the DCL units will be deployed.

Retrieving the DCL Loggers

After the DCL units are deployed and recordings are all complete, retrieve the DCL units from their deployed locations. Clean any dirt and debris (see DCL Care and Cleaning on page 6) from the DCL units before re-docking them in the Docking Station in their respective wells.

To retrieve recorded data from deployed DCL units

1. Re-dock the DCL units in their corresponding Docking Station well (see ZCorr Digital Correlating Loggers on page 3.)
2. Re-connect the Docking Station to the system computer using the supplied USB cable.

CAUTION – The Docking Station must be re-connected to the same computer used previously in DCL unit programming and system deployment.

3. Click the **Retrieve** button on the ZCorr Button Panel of the main window. The Active Deployment window opens displaying all active deployments.

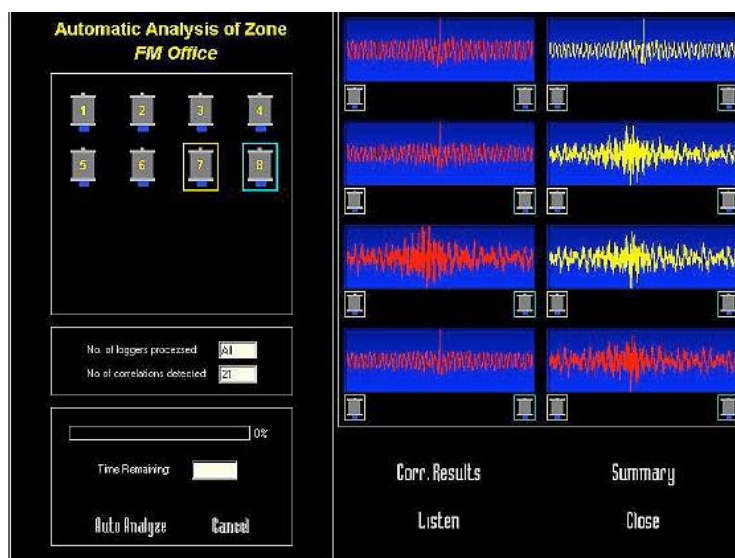


4. Select the deployment for the data download and click **OK**.

After the DCL unit data download is complete, the ZCorr software automatically moves to Automatic Analysis.

Analyzing DCL Data

Downloaded DCL data is automatically analyzed by the ZCorr software and the results are displayed on the Automatic Analysis window.



The above Automatic Analysis window shows an analysis from eight DCLs. In this case, the correlation analysis between every pair of DCL units show a total of 21 possible leak noise correlations were detected.

Each correlation displays in a thumbnail image. The thumbnails are ranked (top left to bottom right) by a correlation score ranging from 0 to 100. A score less than 20 means a leak is not likely. To see correlation scores, move the mouse cursor over the thumbnail and wait for the rating to display. Correlation scores are based on three components:

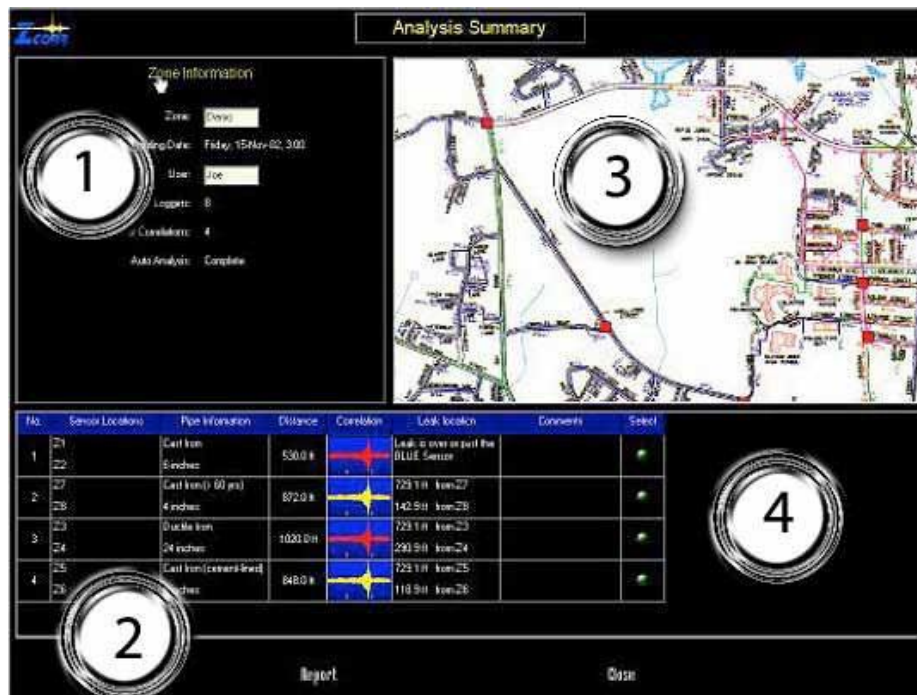
- The distance of the strongest correlation peak from the center of the correlation graph (0 ms time delay).
- The signal-to-noise ratio of the correlation peak (for example, the height of the peak above the background noise level).
- The consistency of the correlation peak through the recording periods.

To get a further analysis

- 1.** Highlight thumbnails by clicking on the thumbnail. Corresponding DCL units are framed in yellow (left) and blue (right). The yellow DCL is the anchor unit.
- 2.** Click the thumbnail (or click **Auto Analyze**) to open the Correlation Analysis window for further analysis of the downloaded data.

To view the Analysis Summary

Click **Summary** in the Automatic Analysis window to open the ZCorr Analysis Summary window and view a summary of all the correlations found in the current analysis.



ZCorr Analysis Summary Window

1 Zone Information Panel

2 Summary Button Panel

3 Map Panel

4 Summary Table

Zone Information Panel

The Zone Information Panel lists survey results and date, user and zone, and number of correlations found. User and Zone parameters may be edited.

Summary Button Panel

To view a Report

- Click **Report** to print a summary page.

To close the Summary Analysis window

- Click **Close** to close the Summary Analysis window.

Map Panel

The Map Panel displays the system map for this analysis.

Summary Table

The Summary Table ranks the correlations in order of significance. The Correlation Results window is opened by clicking on the thumbnail of the desired correlation in the table. Comments can be added by clicking in the Comments column. Click **Select** to choose the information printed when **Report** is clicked. Deselect buttons to eliminate that row's information in the printed report.

Acoustic Analysis

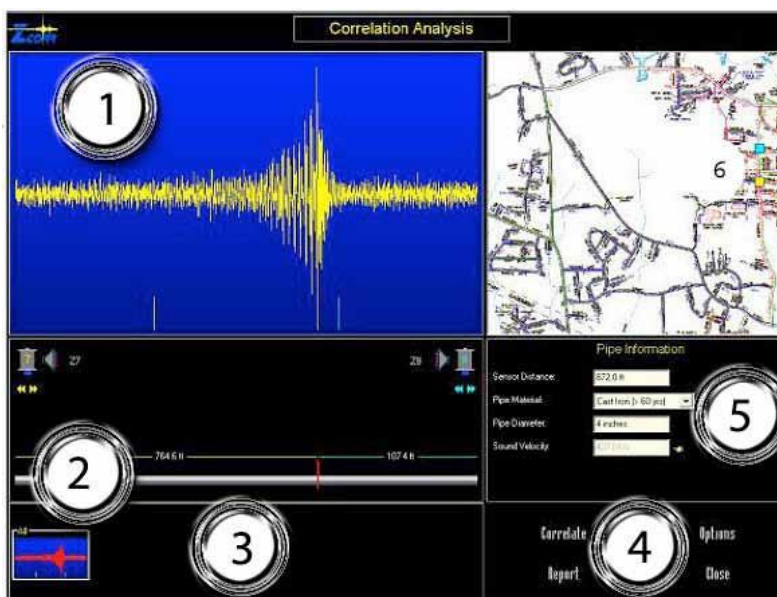
ZCorr software offers two powerful night-time acoustic analyses from the distribution system:

- Leak Noise Correlation Analysis (Correlation Analysis Window)
- Leak Sounds Listening Analysis (Zcorr Recorded Sounds Window)

Buttons to perform these two types of analysis are located on the Automatic Analysis window (see Analyzing DCL Data on page 17) with the labels Corr. Results and Listen.

Correlation Analysis Window

Click the analysis thumbnail or highlight the thumbnail and click **Corr. Results** on the Automatic Analysis window. The Correlation Analysis window opens.



ZCorr Correlation Analysis Window

1. Correlation Graphic	Shows correlation result between two DCL units.
2. Pipe Graphic	Shows the locations of the DCL units.
3. Individual Recordings Correlation Panel	Shows correlation thumbnails for every correlation between these two DCLs during the 3 recordings (overnight).
4. Correlation Button Panel	Correlation Analysis Button tools
5. Pipe Information Panel	Enter pipe information to pinpoint leak positions.
6. Map/Grid Panel	Displays system map or grid.

Correlation Graphic


The Correlation Graphic enlarges the thumbnail result from the analyzed data on the Automatic Analysis window for a better view of the possible leak (see Analyzing DCL Data on page 17.)

To perform Smart Listening



- Click the Smart Listening icon to listen to the recorded pipe sounds for 8 seconds from the quietest period during the nighttime recording.

To view a correlation from nearby DCL units

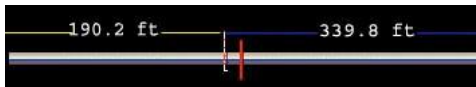
1.  Click the DCL Selector to view the correlation from nearby DCL units. The left (yellow) selector decreases the DCL number. The right (blue) selector increases the DCL number.
2. Click on the DCL icon to view a list of DCL addresses.

To repeat a Correlation Analysis

- To observe a correlation with every one-half second of data, click the Correlate button.

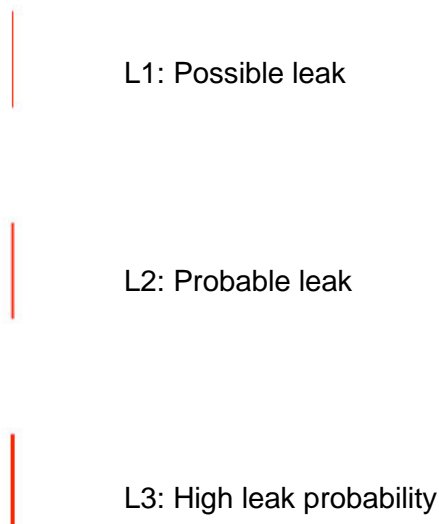
Pipe Graphic

The Pipe Graphic displays the distance between possible leaks and each DCL (shown as yellow and blue for easy reference to map locations).



Leak Probability

After the Correlation Analysis is complete, probable leaks are automatically pinpointed. Their locations are indicated by a red bar shown over (perpendicular) the pipe graphic. Leak probability is represented by the thickness of the red bar:



To complete a Manual Measurement

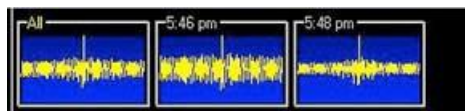
1. Pinpoint the location of other correlation peaks by moving the mouse cursor directly over the peak on the Correlation Graphic and double-clicking the left mouse button. The Manual Measurement (dashed line) bar appears over the pipe and the distance from the measured point to the yellow and blue DCL units displays.
2. Repeat this process as many times as desired if multiple correlation peaks are present.
3. Switch between manual and automatic measurements by clicking on the red or dashed bar to get distance readings.
4. To remove a manual measurement, click on the dashed bar and press the **ESC** key.

Individual Correlation Recordings

The number of thumbnail correlations depends upon the recording mode:

- Test Recording - 1 thumbnail
- Short-Term Recording - 3 thumbnails
- Overnight Recording - 4 thumbnails

The thumbnail labeled “All” represents the correlation result of the combined recording times. Other thumbnails at the right of “All” represent the correlations found at the individual recording times and are labeled with their recording times. If a leak is perfectly pinpointed, then the distances to the leak from both DCLs will be the same for all the recordings.



Pipe Information

Get pinpointed leak positions by entering three types of information in the Pipe Information Panel.

To enter Pipe Information for a pin-pointed leak position

1. Sensor Distance is determined by entering the distance between DCL units (as measured along the pipeline.)
2. Select the pipe material from the drop-down list. One list option is Multiple Pipe Sections for applications where there is more than one type of pipe material between DCL units. When entering multiple sections, use the DCL highlighted with the yellow rectangle as the anchor DCL. Enter section pipe material beginning with the anchor (yellow) DCL and ending with the blue DCL.
3. Enter the nominal (internal) diameter of the pipe (for example, enter 6 for an internal pipe diameter of 6 inches.)

CAUTION – Press the **ENTER** key after entering each type of pipe information. Failure to press the **ENTER** key will clear previously entered information.

Sound Velocity

After the pipe material and diameter are entered, the ZCorr software calculates the pipe's sound velocity and displays the sound velocity in the Pipe Information's Sound Velocity text box. Occasionally, it may be necessary to enter the Sound Velocity in the text box (for example, when the sound velocity was previously measured in a heavily corroded, old cast iron pipe or a heavily tuberculated iron pipe.)

To enter Sound Velocity in the text box

1. Enter the sound velocity by clicking the finger icon to the right of the Sound Velocity text box and entering the number in the text box. The manually entered number display in blue characters.
2. Press Enter to update the correlation graph.

Correlate Button Panel



Correlate

To re-analyze a recording

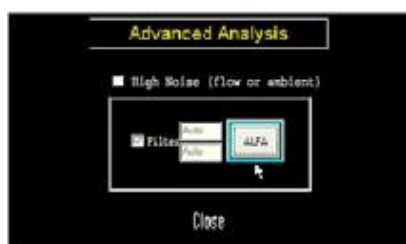
1. Click **Correlate** to re-analyze a recording. Correlations develop with every one-half second of data.
2. Click **Correlate** to re-analyze data if any parameters are changed (pipe size, sensor distance, pipe material, or filter settings).

Report

Click **Report** to print a report of this correlation analysis.

To set ZCorr software Advanced Analysis options

- Click **Options** to open the Advanced Analysis window and change filter settings.
- Click on the ALFA button to turn off Automatic Leak Frequency Analysis (ALFA) and to manually adjust filter settings. The user can manually adjust the HIGH and LOW filters, and the correlation can be re-done with only the sounds between these two filters.



To change Filter Settings in correlations using Advanced Analysis

- 1.** Clear the Filter check box to open dialog boxes and change the filter settings.
For metal pipes, use the following frequency settings:
200 - 2000 Hz
300 - 800 Hz
250 - 450 Hz
100 - 300 Hz
For plastic pipes, use the following frequency settings:
40 - 110 Hz
80 - 250 Hz
- 2.** Check the High noise (flow or ambient) checkbox in applications where there is high environmental noise during the recording times.

Leak Sounds Listening Analysis

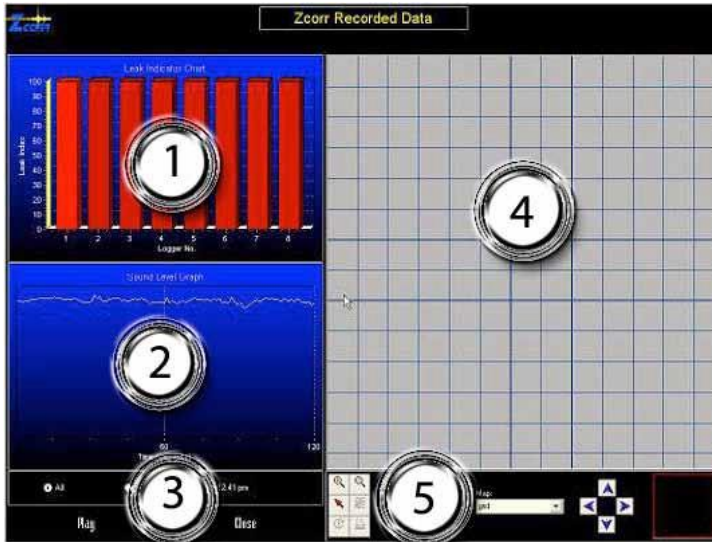
ZCorr software offers two powerful night time acoustic analysis types from the distribution system:

- Leak Noise Correlation Analysis (Correlation Analysis Window)
- Leak Sounds Listening Analysis (Zcorr Recorded Data Window)

Buttons to perform the two types of analysis are located on the Automatic Analysis window (see Analyzing DCL Data on page 17.)

To access the ZCorr Recorded Data Window

- Click the **Listen** button. The ZCorr Recorded Data window opens showing a leak sounds listening analysis for sounds recorded at each DCL



ZCorr Leak Sounds Listening Analysis Window

- | | |
|---|----------------------|
| 1 | Leak Indicator Chart |
| 2 | Sound Level Graph |
| 3 | Button Panel |
| 4 | Map Panel |
| 5 | Map Navigation Panel |

Leak Indicator Chart

The Leak Indicator Chart displays the likelihood of an abnormal sound (leak) at each DCL. Bars are scaled from 1 to 100. A value of 25 or greater indicates a possible or probable leak sound. Bars with a value of 1 to 25 are colored green while bars with a value of 25 or greater are colored red. (Occasionally, a bar is green due to low sound levels but a correlation displays indicating a possible leak.) Bars that are lower than 5 are usually no leaks at all.

To access the Sound Level Graph

1. Click the **Play** button to play the sound recorded at the currently selected DCL.
The selected DCL in the Leak Indicator Chart is slightly brighter than the other DCLs.
2. Click another bar or DCL icon on the map/grid panel to hear another DCL recording.
Users can select an individual recording time or **All** to listen to all night time recordings for the desired DCL.
3. Click **Stop** to turn off the sound recording.



Button Panel

The Button Panel in the Leak Sounds Listening Analysis window includes a **Play** and **Close** option.

To listen to recorded DCL sounds

1. Position the mouse cursor over the word **Play** and click to listen to recorded DCL sounds.
2. Click **Close** to close the ZCorr Recorded Data window.

Map Panel

The Map Panel shows DCL locations on the map/grid. The currently selected DCL has a larger icon than other DCLs on the map/grid. The address (or Z number) of any DCL on the map may be seen by moving the cursor over the desired DCL. Navigate maps/grids using the Map Navigation Panel tools.

Map Navigation Panel

See ZCorr Map Navigation Panel on page 13.

ZCorr Data Manager

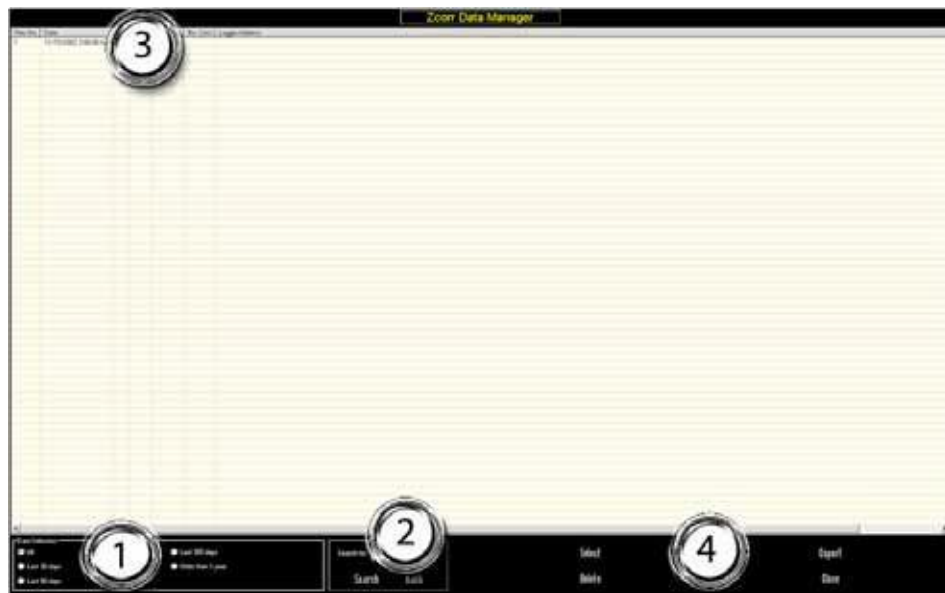
ZCorr Software automatically saves every recording in the ZCorr Data Manager database.

To save recordings in the ZCorr Data Manager database

1. Click the **Stored Data** button on the ZCorr main window to open the database.



2. The ZCorr Data Manager window opens



ZCorr Leak Sounds Listening Analysis Window

Description
1. Data Selection
2. Search
3. Sort
4. Database Functions: Select Delete Export Close

Data Selection

Users may view recordings based on their age. Selected time recordings are listed in the ZCorr Data Manager window:

- All: all data recordings are listed in the ZCorr Data Manager window
- Last 30 days: recordings for the last 30 days are listed in the ZCorr Data Manager window.
- Last 90 days: recordings for the last 90 days are listed in the ZCorr Data Manager window.
- Last 365 days: recordings for the last 365 days are listed in the ZCorr Data Manager window.
- Older than 1 year: recordings older than 1 year are listed in the ZCorr Data Manager window.

Search

Users may use the **Search** text box to enter a key word and initiate a search of all system recordings. Recordings may be reviewed and/or re-analyzed by double-clicking on the returned search results or by highlighting the listing in the Data Manager Window and clicking the **Select** button.

Sort

Users may sort the listing of recordings by clicking on the column headings.

Export

Click the Export button to export copies of the window's contents to a .CSV file.

Delete

Click the **Delete** button to delete highlighted or selected files. (ZCorr software makes a backup file before deletion at **c:>ZData>Backup\.**)

Close

Click the Close button to close the ZCorr Data Manager Window.