RD510 IFU

Pinpointing pipe location is difficult without using the visual aids from the display to measure signal level. It can be difficult to discern slight variations in audio signal levels. Always adjust the sensitivity to maintain a mid-scale meter reading while locating. Typical location accuracy is plus or minus one pipe diameter. Always probe or expose the pipe to confirm the exact location before performing any excavation.

The best location results are obtained by beginning your tracing at least 5 meters from the location where the Pulsed Transmitter is connected. The signal levels are normally too strong in the area immediately surrounding the Pulsed Transmitter.

Once the pipe location is determined, it is possible to quickly trace the pipe along this heading and confirm any changes in location by periodically taking readings.

Please follow the steps below:

1. Ensure the screen is in its soft carry case.

2. Connect the neck strap to the case.

3. Connect the Acoustic sensor to the telescopic handle (twist to lock and unlock) and adjust accordingly.

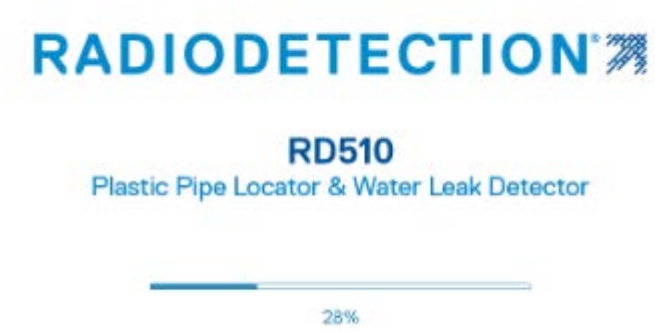
4. In case of soft surface operation, connect the soft ground adaptor and spikes for soft surfaces.

5. Connect the ground microphone sensor to the display unit.

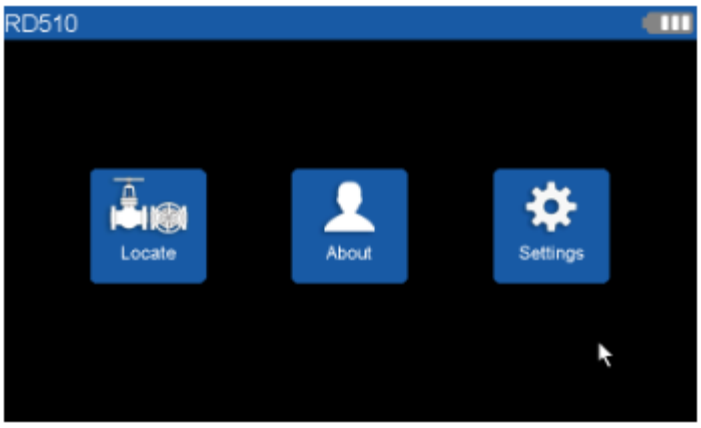
6. Connect the audio lead to the control unit and headphones.

7. Power ON the control unit – The boot screen will be shown momentarily on the display.

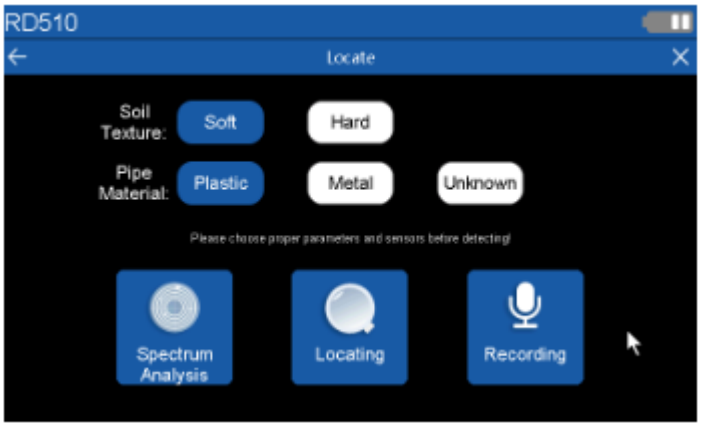
Press and hold



8. Select **Locate**



9. Set the Locate Parameters



Choose according to the Soil Texture and Pipe Material.

- **Soil Texture:** Soft or Hard
- **Pipe Material:** Plastic, Metal or Unknown

NOTE: The selected parameters cannot be modified after entering Spectrum Analysis or Locating mode.

Pulsed Water Transmitter

WARNING: This equipment must be used only by qualified and trained personnel

To locate and trace a pipe over long distances you must use the Pulsed Water Transmitter and Pulsed Water Valve connected your target pipe.

Pulsed Water Valves are connected to sprinkler heads, hose bibs, water meter bases, fire hydrants and clean-outs.

Pulsed Water Valves are supplied with Imperial or Metric fittings depending on your region. Use the connection kit provided to connect to your target pipe.

When using other fittings always check the pressure rating is adequate for your application.

Always flush any connection site until the water that flows are clear of all rust, silt, sealing compounds and foreign materials before connecting a Pulsed Transmitter Valve to the water line.

Always used the supplied filter washer to the inlet of the Pulsed Water Valve. Always check this filter for debries or damages. Replace the filter washer if screen is damaged in any way.

NOTE: Water pipes must be full and pressurized. Optimum pressure range is between 3 and 7 bar.

WARNING: Always verify that your Pulsed Water Valve maximum pressure is within the pressure of the target water pipe, by checking the colored heat shrink band on its lead:

- Yellow: 4 bar max
- Red: 10 bar max

CAUTION: Always use the Pressured Water Valve on external pipes. If used on an external tap which connect to a building internal pipe network always use the damper and never use this system for extended periods of time (30minutes maximum)

The steps to connect to a target pipe are always the same regardless of the nature of the pipe and its connection adaptors:

1. Ensure the Pulsed Water Transmitter is switched off and the Pulsed Water Valve (PWV) lead is disconnected.
2. Connect the Pulse Water Valve to your target pipe.

4 bar connection to a tap

10 bar connection to a tap

3. Position the waste hose pipe to ensure the water released is disposed properly.
4. Connect the Pulsed Water Valve lead to the Transmitter.
5. With the pulse water transmitter safely and correctly connected turn the Transmitter On by pressing the Power button

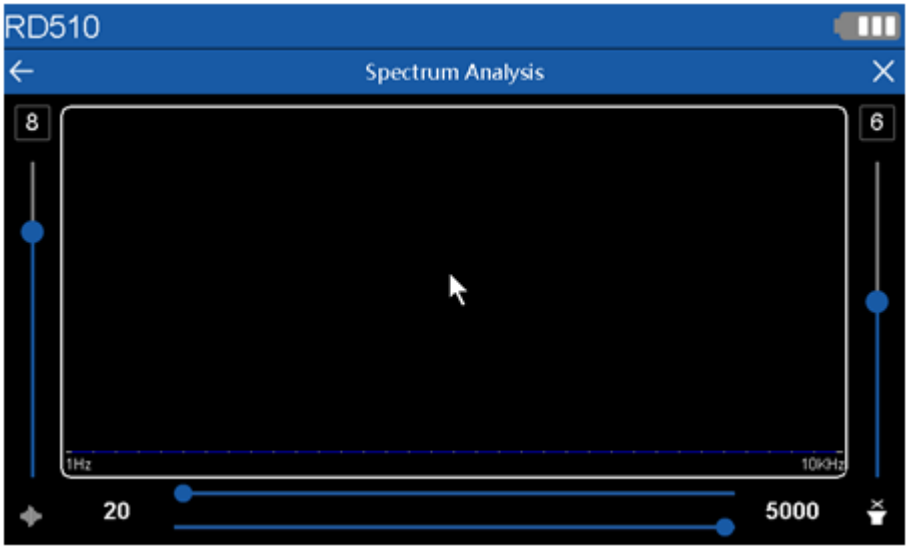
With the Pulsed Water Transmitter up and running now proceed locating and tracing the pipe

Spectrum Analysis Mode

This mode of operation allows the operator to place the acoustic sensor in proximity of the suspected direction of pipe location.

Enable the Acoustic Sensor input by a single press of the Sensor control button.

When the sensor is connected and enabled, this Screen provides a real time frequency analysis of the audio signal received.



There are 3 controls available:

Volume: Use this to control the sound level in your headphones.

WARNING: Excessive volume levels may cause hearing damage.

Gain: Use this to increase / decrease the sensitivity.

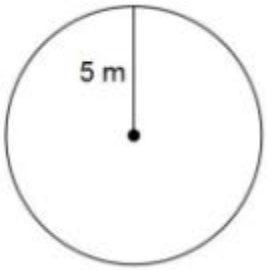
Band Pass Filter: use the low and high band frequencies to filter out unwanted noise.

The operator can place the ground microphone sensor in different locations to try and identify where the higher responses are, also using the headphones to listen for peak audio responses to identify the approximate pipe direction.

Within the Spectrum Analysis mode, you will be able to adjust the Gain and Band Pass filter to adjust any unwanted noise from your area of interest. The screen will display several bar graph responses consistent with the signal applied by the pulse water transmitter.

Once the Gain and Band pass filters have been set up the operator can now place the acoustic sensor along suspected areas of where the pipe could be located.

If there is no indication of where the pipe direction a 360-degree sweep of the area is advisable, this sweep must be located at least 5m away from where the Pulse Water Transmitter is connected.



Using both the Audio output and the information from the Spectrum Analysis the operator can plot the approximate location of the pipe.

Locating Mode

For higher accuracy of the pipe, you can use the Locating function as an additional step after the Spectrum Analysis.

This can be used to narrow down the area marked as the likely location of the pipe.

In this mode you can take up to 16 different readings going from left to right across the suspected direction of the pipe.

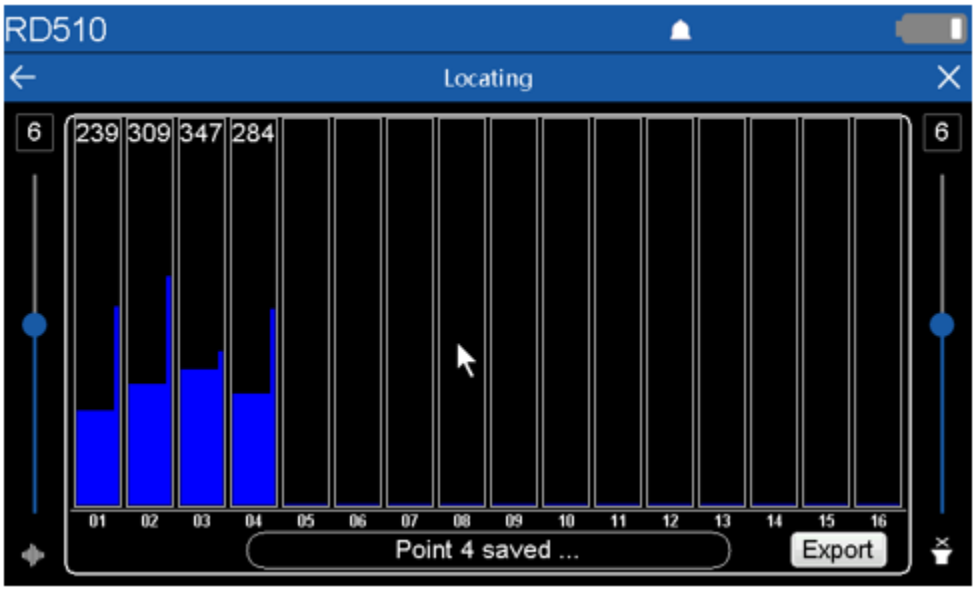
Once the pipe approximate location has been marked go into the Locating option on the unit, ensuring the ground microphone sensor is enabled.

Set the ground microphone to the left of a suspected pipe location about 1m away.

Click on column bar 01 to start and stop taking a measurement.

There are 2 columns:

A thick column which is the underground sound, the thin column on the right represents an instantaneous noise. Also, there is a number at the top of the column which starts off Red which is displaying the signal value.

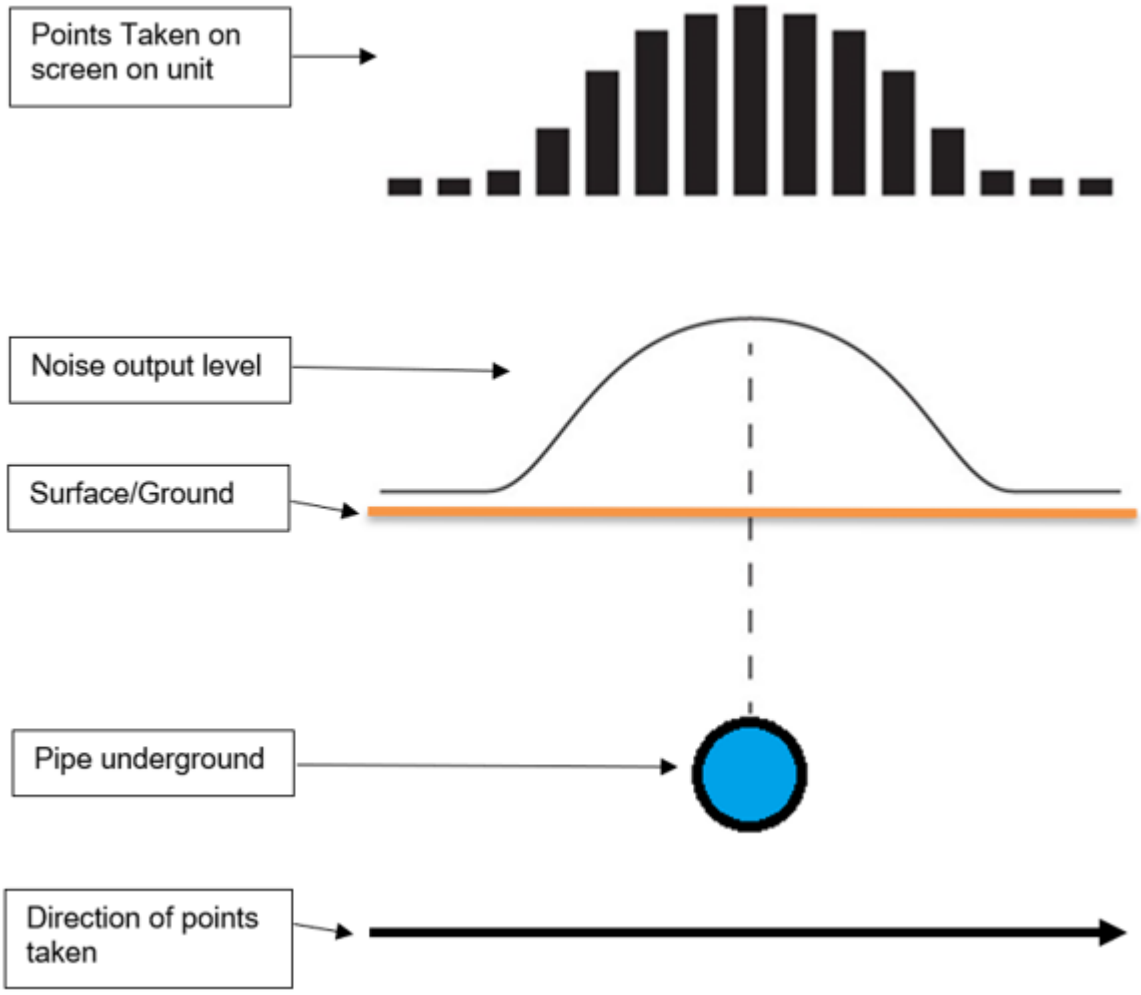


Wait for the average sound to stabilize represented by the thick column, this takes a few seconds. Once stabilized press the column again and the reading will be locked in, the signal value at the top of the column will change from RED to WHITE.

Move the Ground microphone sensor to the right, towards the target and repeat the process. Eventually going past the suspected target.

You will build up several bars like the above chart, the pipe will be under the highest thick column.

The objective is to take points before and after the suspected target to give a peak response when directly over the target.



RD510 Locating Mode - Pipe

Once this graph has been completed, you are able to export the image by pressing the Export button. This will save the image to the memory card. These images can be viewed when connecting the control unit to a PC.

The video below provides some simple steps you can follow for identifying a leaking water pipe.

https://support.radiodetection.com/hc/en-gb/articles/22876032652445-How-to-understand-if-a-water-pipe-is-leaking

A leak is best detected once a pipe location has been determined and without the Pulse Water Transmitter connected.

https://support.radiodetection.com/hc/en-gb/articles/21320211631005-Locating-a-Leak

Recording Audio and retrieving media files

Follow Anthony Caplin
Updated : 24 March 2025 at 12:47 **Created** : 3 September 2024 at 15:17

In this article

NOTE: The Recording feature only allows for the recording of audio and will require an SD Card inserted into the unit.

Recording Audio

1. Press Recording to start the audio recording Operation. Please note the Spectrum Analysis or Locate screens will not be displayed while recording please ensure the Gain, Band pass filter and volume are set correctly before recording.
2. Press Stop to stop recording
3. Press Refresh to update the File Browser

Managing your media Files

Connect to PC

1. With the RD510 display unit switched on, Connect the control unit to a PC using the supplied USB-C cable.
2. Press Connect PC.
3. Using your PC File Explorer, open the attached RD510 control unit.
4. Use your PC File Explorer to manage your audio recording files.
5. Navigate to the folder PicSave to manage your image files created using the Locating Mode screen.

Delete

You can delete audio files or images from the unit in the list of files in the File Browse section:

For audio files, highlight a wave file from the list and press Delete.

For image files, open the PicSave folder, select the image file and press Delete.

A confirmation window will appear confirming you wish to delete the file, select OK to delete the file or press cancel to not delete the file and go back.

Refresh

After recording an audio file, pressing Refresh will update the list of audio files in the Files Browse list