

Installation

How to Install the Well Sounder

The Well Sounder 2010 PRO is an extremely versatile piece of equipment that can be used in a number of different well configurations. Here are a few examples of various installations along with some tips to get the best readings possible.

Residential Wells with Sanitary Seals

Standard well caps like these are simple installations. Simply remove the vent cap and insert the probe. The probe fits perfectly in a standard 1/2 or 3/4 threaded pipe connection and gives a great tight seal.

Make sure that other openings are closed as much as possible.

Open Wells

This installation was not giving reliable readings. The problem is that the well is open at the top. To fix this installation it was necessary to close the openings around the tubes and wires. The openings can be blocked with nearly anything that prevents the air from easily moving in and out of the well. Cardboard, duct tape, or even rags stuffed into the holes can do the job.

A sounding tube could also be used in this situation. A length of 1/2" or 3/4" PE tubing could be fed into the well to below the low water line and left sticking out of the top of the well slightly for the well sounder. This would provide a stable and noise resistant path for the sound pulse.

Here the Well Sounder is being used on an oil well by Tokata Oil Recovery. Since their well had an open top they used duct tape to seal it off. Remember the Well Sounder works best with a good seal around the probe.



Wells With Pitless Adapters



The Well Watch and Well Sounder meters need access into the casing through the well cap. In regions that are prone to freezing the well is often outfitted with a pitless adapter and turtle cap. These wells can still be measured with our sonic meters by drilling a hole to fit at least a 1/2" pipe thread in the turtle cap. This will allow the tapered nozzle of the probes to sit firmly in place. If the well is outfitted with a spool type pitless adapter then a sounding tube will need to be utilized to get past the spool, otherwise the spool will create too much of a blockage to get a good reading of the water levels. The sounding tube needs to reach from the tip of the probe down to the access hole in the spool. The microphone tube of the Well Watch will also need to be extended the same distance. This will allow for accurate readings with either type of pitless adapter setup.

Sounding Tubes



Wells which do not allow reliable sonic sounding, such as those with large diameter casing (10" or greater), exposed screens or steps in casing diameter, can be measured using a sounding tube. A 3/4" or 1" PE or PVC tube extending into the water from the surface provides a good conduit for the sound pulse. Keep in mind that the tube must extend into the water and be continuous to where the probe can make a tight connection at the top. A tube which ends below the sanitary seal will not work unless the setup can provide an air tight connection between the tube and the probe.



Irrigation Wells

Irrigation wells like these can have multiple access ports. The first picture shows the well sounder installed into a port at the top of the well at the motor base. This well also has a diagonal 2" access tube which can also be used by the well sounder as shown in the second picture. The low frequency sound pulses generated by the well sounder have no trouble travelling around bends in the pipe. The one issue in this kind of installation is that there are multiple cavities created where the 2" tube meets the well casing. This results in a portion of the transmitted pulse bouncing back and forth in the 2" tube which will eventually die out after 10 to 20 bounces. Which means that if the water is less than 20 times the length of that tube, there may be interference between the two pulses.

Large diameter wells like this are disadvantaged for sonic sounding. Since the sound pulse has to fill the entire casing, the pulse ends up being weak and therefore potentially will not be detected by the well sounder in the presence of pump noise or other interference. A sounding tube may then be required to measure this well reliably while the pump is running.





Production Wells



shallow well. Water enters the well from a 640 acre tile drain system (a bunch of pipes) located under the ground. They are using the Well Watch to tell the level of the well so they know when to stop and start the engine. The engine will also throttle to maintain a certain level so it does not have to start and stop too often.

This well is a large diameter shallow well with a very loud pump which required the use of a sounding tube to get reliable measurements. Note in the photo that a 1" poly pipe was used as a sounding tube which was inserted into the well far enough that it would always be below the water level in the well and extended outside the well far enough that the well sounder could measure a water level up to the surface, less than the minimum measurement distance of the well sounder. The excess sounding tube can be seen in the photo coiled below the well watch unit.



Piezometers

This photo is an example of the Well Sounder being used on a piezometer. The Well Sounder makes taking measurements on these environmental monitoring wells quick and easy.

The inner tube in this piezometer is 1" PVC which does not seal tightly to the probe. It is necessary here to use a stepdown fitting to make a tight connection to the probe. A 1" PVC cap with a 3/4" hole drilled in the end makes a perfect adapter. The cap does not need to be glued to the pipe.