



MONITORING AND CONTROL SOLUTIONS

# Installing the Aquacheck Soil Moisture Probe

## INSTALLATION OF THE PROBE

It is important to note that the fit between the probe and surrounding soil is of critical importance in obtaining accurate and representative soil moisture readings.

Various techniques to obtain a good fit are used depending on soil type, crop type and application. A customized installation auger is available on request and can be used for all soil types.

### Installation in sandy soils

For very sandy soils the best installation result or fit is obtained by first thoroughly wetting the profile or site. The standard hand-held auger is used to create a tight fit access hole.



Figure 1: Drilling a hole with the hand-held auger

On each extraction, the auger is emptied into a bucket. When the desired depth is reached, the probe can be lowered into the hole to test if the appropriate depth has been achieved.



Figure 2: Collecting sand from the augured hole

If the profile has been wetted sufficiently, the wall of the hole should remain in tacked and allow for easy access.

With some installations and after the probe has been lowered into the hole, there might be a thin cavity between the probe shaft and hole wall. In this case a little bit of sand is “washed” into the cavities together with water in order to ensure a tight fit



Figure 3: Wetting the profile

## Using the “Slurry Technique”

The use of the slurry technique is recommended for most soil types. In extreme clayey soils and specifically for installations in center pivots, it is however important to consider the impact of the subsequent “wetting front” when determining the readily available soil water limits.

The slurry technique for installation in most soils is recommended due to the sensitivity of capacitance-based probes in general for air gaps between the access tube and soil. When the slurry method is used in the correct way, there is very little chance for air gaps forming between the access tube and soil.



Figure 4: Pouring slurry from the augured hole back into the hole

A slightly oversized hole is drilled to the desired depth using the supplied auger. It is important to keep the auger as straight as possible. Try not to “ream” the access hole. The maximum space between the access tube and augured hole wall should not be more than 2 mm.



Figure 5: Increasing the viscosity of the slurry

The excess soil from the hole is poured into a bucket and mixed with the desired amount of water to make a good slurry mix. After the hole has been drilled to the desired depth, the slurry mix is poured back into the hole.

Sometimes, it is also beneficial if the auger is used to “enhance” the viscosity of the slurry by moving the auger several times up and down the slurry filled access hole

The probe is inserted into the hole and as the probe is pushed down to the correct depth, the excess slurry will be forced upward and eventually be pushed out. Remove the excess slurry from the service as it may influence penetration of irrigation and rainwater directly next to the probe.

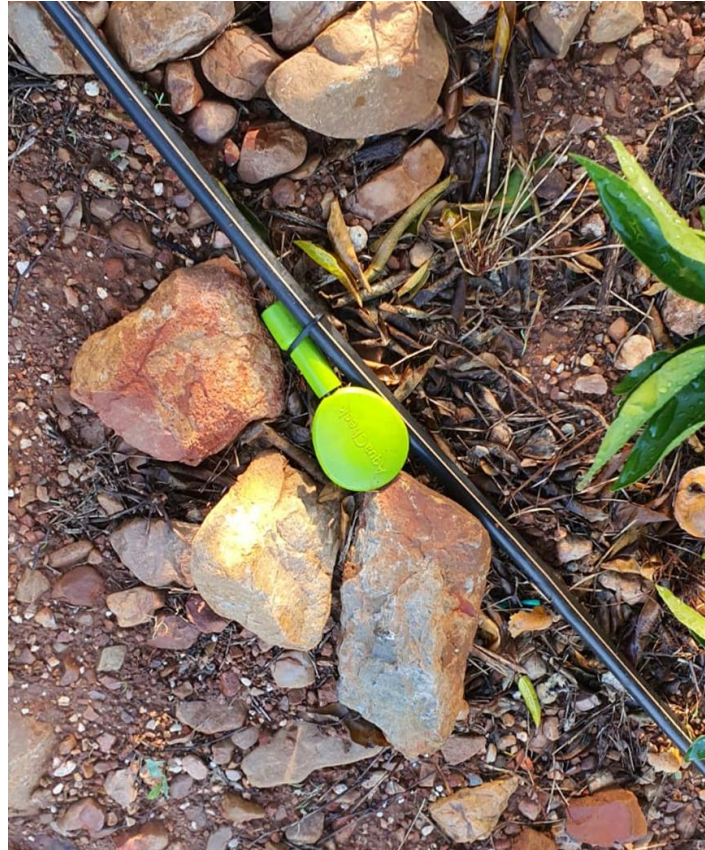


Figure 6: Increasing the viscosity of the slurry

## Installing the Logger

While the logger and connectors are IP67 rated, it should be cable-tied to a pole, above the irrigation level, and with the cable pointing towards the soil, reduce chances of water damage.



Figure 7: Logger installed with cable pointing down