



Specifications for ACT Soil Water Monitoring Probe

The ACT Soil Water Monitoring Probe (SWM-Probe) is a piezometric monitoring device that allows a treated wastewater dispersal field operator to remotely monitor soil water conditions within a dispersal area. State and EPA rules require that water be applied to non-saturated soils. The saturation level is regulated by depth. The SWM-Probe is installed into the soil profile and is set to a level where it monitors water saturation levels as free water. A magnetic reed-switch type float closes when water levels reach a preset depth below the soil surface or below a water emitting device such as subsurface drip irrigation tubing.

SEE ATTACHED ILLUSTRATIONS

The SWM-Probe is designed to be installed for extended periods of time without daily attention. The materials, design and installation methods are patterned after EPA and ASTM requirements for monitoring wells. The device consists of a PVC housing, commercially processed 0.040" saw cut well screen piping and a Whitman Control Corporation L40/L45 polypropylene magnetic float switch. Subsurface PVC components are solvent welded and the top cover is threaded for ease of removal. The magnetic float is hung in the upper cap and can move freely. It is suspended and centered in the 2" tube that is connected to the well screen located near the bottom of the probe. Free water moves into the probe via the saw-cut well screen. Water will continue to move into the probe parallel to the level of free water in the soil. Water will likewise move back into the soil as free water levels recede. The magnetic float switch closes and opens with the vertical movement of water within the probe. The switch does not require resetting once closed.

INSTALLATION

Probe installation is shown in the illustrations. The depth of the installation will depend on the unsaturated soil depth required by regulatory permit or other governing document.

The installation is done via an oversized hole that can be accomplished in one or two steps. The total depth is chosen based on where the float must be located. Install the 2" cap on the probe piping prior to insertion into the hole. Do not solvent weld the cap to the pipe. It must be removed prior to installing the head. It is recommended that the float not be located in the well screen portion of the probe. It should be located just above the well screen allowing the well screen to penetrate the saturated soil level freely. Course sand and fine gravel should be placed along the probe to approximately 2" above the well screen. A 2" layer of sand should then be placed above the sand/gravel mix and gently packed by hand or packed with water. Add additional sand until the minimum 2" above the sand/gravel layer is achieved. This layer of sand will act as a filter to prevent fines from entering the sand/gravel layer around the well screen. Following the filter sand install bentonite pellets around the probe up to the level where the probe head attaches to the 2" pipe or the white cap. Water should then be slowly poured into the