



Application Notes

Liquid/Solid Interface: Detecting Solids Through Liquid Solutions

Liquid/Solid interface measurement is actually the measurement of a bulk solid material under a liquid surface. Often it is necessary for cooling or washing the solid material. Sometimes the bulk solid is present due to settling. Other times it's a product that is used over time, such as salt in a salt brine maker.

Many liquid level transmitters can be used to determine the combined level, but cannot determine the solid level under the surface. Products such as continuous capacitance, can be used for liquid or bulk solid measurement, but cannot be used to determine the individual interfaces because there is no capacitive difference between the liquid, and a bulk material beneath the liquid.

If there is a maintained constant overall liquid level (usually some sort of overflow system) it would be possible to measure the weight difference as the bulk solid level changes under the liquid surface. However, this is also dependent on a significant difference in the weight of the bulk solid and the weight of water. These requirements significantly reduce the opportunities for this as a solution.

Bindicator® offers an applied solution for this type of application. One solution is the Pulse Point™ LP Series (Model LP-2000 only) with the vibratory fork which is a point level device that offers a unique Liquid/Solid interface option. The vibratory fork will ignore liquid and sense only the solids that are under the liquid surface. They can be mounted vertically and extended down to the required sensing point, or mounted horizontally at the required point.

Another solution for measuring levels in a liquid/solid application is the Yo-Yo®. The GP-4™ or Mark-4™ are the Bindicator Yo-Yo models which are a continuous level measuring device. The Yo-Yo devices must be equipped with either a stainless steel Bob weight or the PVC Jacketed Bob weight which are able to travel through the liquid to reach the solid level. We also recommend the use of monofilament cable to limit the amount of liquid that can be carried back up into the enclosure.

Measuring solid levels through a liquid surface is a unique application that may occur in applications such as the cooling process for plastics, settling tanks that may be used to capture valuable solids or dispose of hazardous solids; carbon/water processes may also benefit from being able to use this feature to cool carbon or control dust. As these are just a few examples of liquid/solid interface applications, application specialists are available to assist with questions and recommendations. Bindicator products were designed to handle unique Liquid/Solid level measuring applications.