

## Batch “Make Up” Control for Food Processing Facilities



Food processing facilities that make products such as tomato paste, baby food, cake mixes, condiments, etc. use batch processes in their production facilities. That is, the operator will start with an empty vessel and add ingredients to make up the final product.

The operator needs to know how much of a given ingredient to add. This can easily be accomplished through the use of point level measurement switch(s) with control points at the fill point for each ingredient. Typically, this requires multiple sensor installations, one for each control point.

This type of application is more demanding than one might think. Firstly, due to the nature of the products being produced, the sensor must be of a sanitary design that is easily cleaned in place (CIP). Most of these products are viscous materials, prone to heavy coating which may cause



many technologies such as tuning forks and mechanical switches, to fail. The weight of many of these materials is liable to damage less robust technologies.

Also, most processes are agitated causing material to splash and coat extensively. If the switch fails to properly indicate material level, the result may be a ruined batch, possible overfilling requiring clean up, and costly downtime.

### Level Measurement Technologies

The following is an assessment of the most common point level technologies used for batch process control.

#### Floats

Floats should not be used for batch processes. The viscous, coating nature of the material will cause the float to jam or hang up, preventing the switch from indicating a control point. Although some floats claim to be of sanitary design, it is virtually impossible to clean floats in place. Also, multiple floats are required (one for each control point) increasing installation cost.

#### Tuning Forks and Vibrating Rods

These food batch processes will typically start with a relatively clean liquid such as water or milk, however, as additional ingredients are added, a viscous slurry is formed.

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The glutinous material coats heavily causing vibration type switches to fail. Heavily agitated slurries can damage the sensor causing failure. As with all single point control devices.

## Conductivity Switch

Conductivity switches have been used for batch process applications. Unfortunately, conductivity switches are notorious for false level indication due to material bridging between the active electrode and ground. With conductivity technology it is possible to install a number of sensing rods on one mounting for multiple control points. However, the close proximity of the rods only serves to exacerbate the bridging problem.

## RF Admittance MultiPoint Switch – The Best Choice!

Drexelbrook RF Admittance Multipoint II is the best solutions for batch process control. Only one sensing element is required mounted from the top of the vessel on a sanitary Tri-Clamp fitting. The 3A sanitary designed sensor is a steel rod with TFE or Kynar insulation and is designed for CIP processing. There are no moving parts to seize up or wear out.

RF Admittance Cote-Shield driven shield circuitry ignores even heavy coatings on the sensing element, thereby eliminating false alarms. The Multipoint II has three independent DPDT relays and control points can be set anywhere along the vertical sensing element. The Drexelbrook Multipoint II provides the best solution for batch process control applications.

## Benefits

- No Moving Parts
- 3A Designed sanitary sensing elements
- Designed to accommodate CIP (Clean In Place) requirements
- 3 control points on one vertical sensing element
- Cote-Shield circuitry eliminates false alarms due to coatings



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