

# *Optical non-contact analogue feed thickness detector.*



## ***Introduction.***

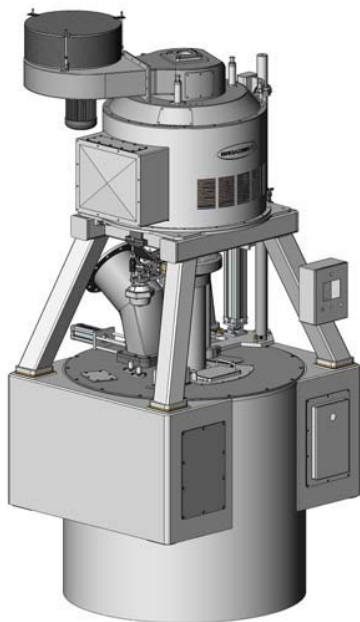
All batch centrifugals use a feed thickness detector to measure the massecuite level in the basket during feeding. Most feed thickness detectors in use today are simple mechanical switches which detect when the basket has been filled to a pre-set level. The new Broadbent optical non-contacting feed detector provides enhanced measuring capabilities and allows significant improvement in process control.

## ***Principle of operation.***

The feed detector uses a special analogue optical distance measuring device mounted through the centrifugal casing top. The device measures the distance from sensing device to the cake or massecuite surface. As the massecuite level increases in the basket the distance between the massecuite and the device decreases and the sensor provides an accurate analogue output proportional to the thickness in the basket.



In order to operate in the hostile environment of the centrifugal basket special mounting and cooling techniques are used. A small connection is provided to allow the sensing window to be cleaned with water periodically.



## ***Process benefits.***

In comparison with standard mechanical feed detectors the optical feed limiter provides a variety of process benefits including :

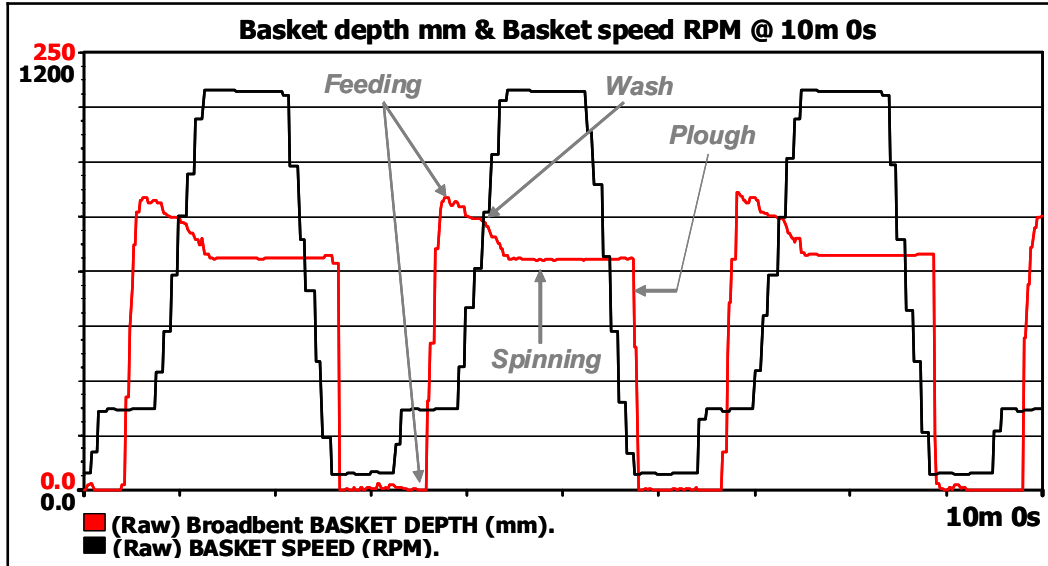
- Massecuite depth to be set remotely via DCS (no mechanical adjustment necessary).
- Monitoring of feed rate in real time and adjustment of feed valve to accommodate massecuite viscosity and head changes.
- Measurement of cake thickness reduction due to centrifugal force
- Measurement of cake thickness reduction due to washing - indication of over-washing
- Measurement of centrifuged sugar cake thickness prior to discharge.

**The design of the new feed limiter is protected by patents (eg 0310403.1 & 04252545.1).  
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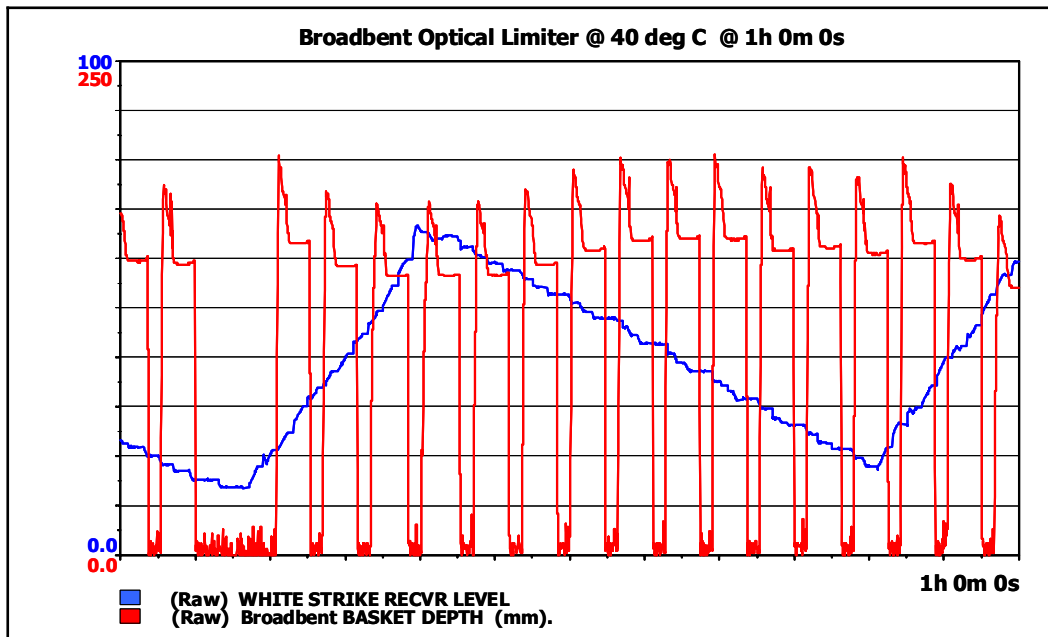
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## Examples of use from site trials.

Graph shows cake thickness (mm) and basket speed (RPM) over three cycles. The effects of feeding, purging, washing and ploughing are clearly visible.



Graph shows multiple cycles and level in the massecuite strike receiver.



## Contact details.

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