

LM80 Laser Level and Position Transmitter Sugar Industry Application

Measurement made easy

The LM80 Laser level transmitter has been successfully applied to a Sugar refinery in the USA. The application involves measurement of a viscous, un-refined molasses used in the process of making sugar and is similar to another product called magma.



The measurements of molasses and magma offer several challenges to traditional level control products because the product is thick, very sticky and is constantly being stirred by large paddles. The paddles are typically 3 meters (10 feet) in diameter and rotate slowly (approximately 3 RPM) constantly mixing the product to keep it fluid. The temperature is in excess of 40°C (100 degrees F).

In this particular installation the tank was more u-shaped with an open top and a drive shaft that turns the mixing blades, which runs the length of the “pan”. The depth of the “pan” is approximately 4 meters (14 feet) and typically 7 to 10 meters (25 to 35 feet) long. To further complicate matters the structure is baffled every 1 to 2 meters (4 to 6 feet).

There is one area that contains a short chamber created by a baffle near the end of the “pan” (where the drives shaft passes through the wall to the outside) that is free from the paddle rotation, however the area is only about 60 centimeters (2 feet) wide at that point.



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The customer had tried unsuccessfully to mount an ultrasonic level transmitter above this narrow compartment but there was too much dispersion of the ultrasonic signal to allow a reliable reflection. The customer then tried a Radar level transmitter which was also unsuccessful.

This type of fluid is very dark brown or black but this has no measurable effect on the LM80 laser level transmitter performance. The LM80 was mounted three feet above the surface of the chamber and aimed down into the chamber. The results were excellent and the LM80 responded with the correct measurement.

This problem is generic to many sugar making processes. The next time you call on a sugar mill or refinery ask the production manager and maintenance superintendent if they need effective level control for their Magma and Molasses processes.

ABB Analytical Measurements Level Products

585 Charest Boulevard East, Suite 300
Quebec, (Quebec) G1K 9H4
Canada

Phone: +1 418 877-8111

1 800 858-3847 (North America)

Fax: +1 418 877-2834

E-Mail: laserscanner.support@ca.abb.com

www.abb.com/level

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