



Level



Pressure



Flow



Temperature



Liquid
Analysis



Registration



Systems
Components



Services



Solutions

FMU 90 and FDU 93 in Level Measurement in Pulp Slurry- Pulp/Paper

FMU 90 and FDU 93 ultrasonic system maintains level in vertical holding silos



Typical pulp and paper plant



FMU 90 transmitter with FDU93 ultrasonic sensor



Final product, partial board used in roof decking

Mixtures of wood chips and recovered sawdust are cleaned, dried and stored prior to being used by particle/chip board manufacturers.

Customer profile

A large pulp and paper manufacturer converts raw wood by-products into a mix which is sold to other industries. They supply the raw chip fines and sawdust to manufacturers across the United States that make chip board, fiber board and cardboard products used in consumer products, such as underlayment for roof decking.

Application description

A continuous level measurement is required in vertical holding silos of sawdust fines and small wood chips. The mixture is moist and clumpy, keeping dust to a minimum. As conveyors load mix into silos, excess moisture drains through bottom screens before further processing.

Prior capacitance instrumentation proved expensive and inaccurate due to product sticking to the probe and eventual erosion of the probe covering. This required frequent maintenance which slowed or stopped production.

Solution

Endress+Hauser recommended the use of non-contact continuous ultrasonic level sensor technology. With little or no dust in the silo, the FDU 93 sensor with an FMU 90 ultrasonic transmitter, was the ideal choice.

Measurement results

The ultrasonic system from Endress+Hauser was easy to configure and was the perfect choice in the customer's process. The unit tracks level precisely, and eliminated weekly cleaning and maintenance requirements.

Instrument description

The FDU90 series sensors have different measuring ranges depending on measured distance required. The measurement range for the FDU93 in solids is 50 feet; and in liquids, 85 feet. The material to be measured can range from water based non-foaming liquids to clumpy solids, almost slurry like to fine granular, grains or gravel like materials. Sensor ranges up to 230 feet (for solids only) are available.

The FMU90 is a micro-processor based transmitter which receives and processes incoming signals from one or two sensors. Up to 6 limit relays and 2 analog outputs are available in the panel or field mounted

transmitter. Simple menu-guided operation with a 6-line plain text display allows easy start-up and simple diagnosis. The transmitter can be mounted up to 100 feet away or up to 1000 feet with a junction box.

Measuring principle

The sensor transmits ultrasonic pulses in the direction of the product surface. Reflected pulses are received by the sensor and input to the transmitter. The FMU90 measures the time between pulse transmission and reception then calculates the distance from the sensor membrane to the product surface. A temperature sensor is integrated in the ultrasonic sensor to compensate for temperature dependent time-of-flight changes.

For more information, contact
Endress+Hauser, Inc.
317-535-7138
www.us.endress.com

ISO 9001:2000 Certified

USA

Endress+Hauser, Inc.
2350 Endress Place
Greenwood, IN 46143
Tel. 317-535-7138
Sales 888-ENDRESS
Service 800-642-8737
Fax 317-535-8498
inquiry@us.endress.com
www.us.endress.com

Canada

Endress+Hauser, Canada
1075 Sutton Drive
Burlington, ON L7L 5Z8
Tel. 905-681-9292
800-668-3199
Fax 905-681-9444
info@ca.endress.com
www.ca.endress.com

Mexico

Endress+Hauser México, S.A. de C.V.
Fernando Montes de Oca 21 Edificio A Piso 3
Fracc. Industrial San Nicolás
54030. Tlalnepantla de Baz
Estado de México
México
Tel. +52 55 5321 2080
Fax +52 55 5321 2099
eh.mexico@mx.endress.com
www.mx.endress