Silo Level Measurement

Industries such as plastic molding, food processing, and construction materials all rely on bulk materials. The ability to produce accurate, reliable, and repeatable level measurements is becoming increasingly important. Dimetix laser distance sensors, which measure accurately at longer distances on a wide variety of materials, including gravel, dirt, food materials, foam—virtually any opaque target material. Even in the case of semitransparent plastic resin pellets, enough light is reflected back to the sensor to obtain accurate, reliable measurements.

Challenge

Manufacturers utilizing bulk materials in bins, hoppers, or silos require accurate and reliable level detection to manage and process inventory and to minimize production delays. Industries such as plastic molding, food processing, and construction materials all rely on bulk materials. As these industries move ever closer to just in time (JIT) manufacturing, the ability to produce accurate, reliable, and repeatable level measurements is becoming increasingly important.

Laser distance sensors are needed to measure at a longer distance than ever before, using a non-contact method on a wide variety of materials.

Solutions

Dimetix laser distance sensors measure accurately up to 100 m to a natural target, without making contact with the materials being measured. Reliability and repeatability of laser measurements are also independent of color and material—surfaces consisting of white plastic pellets are measured as accurately as those composed of dry or wet gravel. Even in the case of semitransparent plastic resin pellets, enough light is reflected back to the sensor to obtain accurate, reliable measurement data.

Laser-View Technologies
Smart non-contact measurement solutions

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Key Application Notes

↪ Noncontact measurement, which is beneficial in any number of industries, but especially with sterile materials.

↪ Can be fixed with an air purge and a protective enclosure to help address maintenance issues and account for dust, airborne particles and other environmental factors.

↪ Point focused so diverse materials can all be measured in the same manner.

↪ Averaging and filtering functions help provide the ability to account for conformations and deformations in the bulk material surface.

↪ Networkable — possible to monitor all the structures in any given cluster and create a common, centralized system for monitoring an entire network of silos and silo clusters.
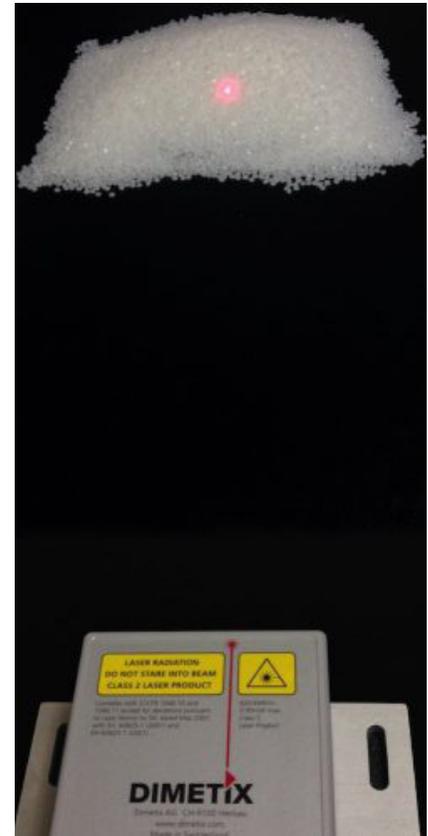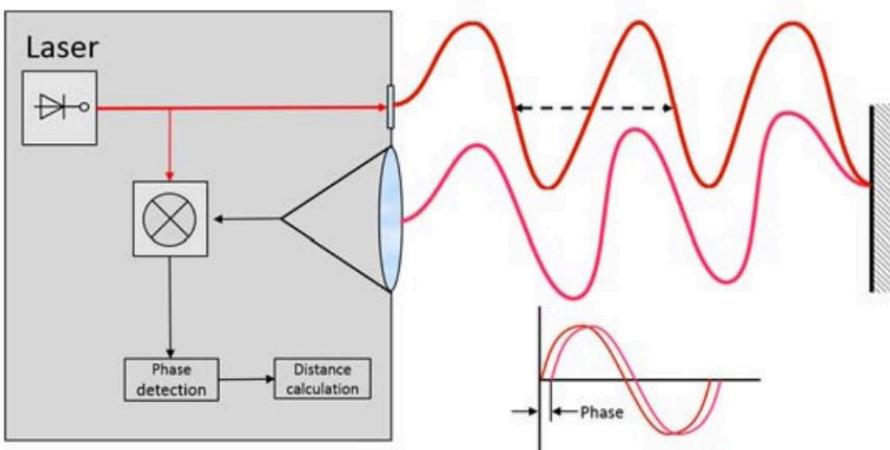
Technology

Dimetix laser distance sensors operate on a principle called phase shift. The laser signal is reflected directly back to the device. This technique provides high accuracy at a significantly lower cost than traditional laser triangulation, and is generally more accurate than simple time of flight methods. Since the transmit and receive signals come back straight to the device, the laser can be mounted in tight spaces, making retrofits simpler. The device is also capable of measuring with 1 mm accuracy, even up to 500 m. Dimetix lasers are able to measure up to 100 m using a natural target.

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