



APPLICATION NOTE

Minerals & Mining

Monitoring a stockpile of coal powder

- Measuring heights of 30 meters and more
- Automated stock management in dust-laden atmospheres
- Overcome measuring issues on uneven product surfaces

1. Background

Coal mills grind coal into powder. The resulting product, called powdered coal or pulverized coal is used for electricity generation in thermal power plants. Conveyors transport the coal powder to open air stockpiles for storage.

2. Measurement requirements

The quantity of powder stored that way must be continuously monitored to ensure a smooth operation of the power plant. In the past, this was roughly estimated by eye but the customer was looking for an automated stock management with accurate measuring values to save time and money. Dumping coal from a conveyor generates a lot of fine dust and the distance between conveyor and product surface often exceeds 25 meters. This and the uneven product surface of stockpiles require special consideration when choosing the measuring device.

3. KROHNE solution

KROHNE delivered an OPTIWAVE 6300 C with a DN 150 PP Drop antenna and a G 1½ process connection to which the customer attached his DN 50 flange. Fitted on top of the conveyor, right next to where the product drops from the belt, this 2-wire contactless FMCW radar continuously measures the level of the stockpile and thereby calculates the product left in stock.



OPTIWAVE 6300 C fitted on conveyor

4. Customer benefits

The small beam angle of the DN 150 Drop antenna, combined with the great dynamic range of the FMCW radar technology ensures an accurate level measurement despite the important measuring height and the dust-laden atmosphere. Thanks to the specific algorithm used in its software, the device reliably measures the uneven product surface of the stockpile, making it ideal for solids' monitoring. The measured values are transmitted to a control room which allows for complete automation of stock management. Unlike traditional horn antennas, the shape and smooth surface of the innovative Drop antenna prevent from crust forming; purging systems become obsolete and maintenance is kept to a minimum. The fact that a 2-wire device needs less wiring, has an immediate impact on installation and operating costs. All this combined with the competitive price make the OPTIWAVE 6300 C a cost-effective and attractive solution for the customer.



24.668 m distance to the stockpile

5. Product used

OPTIWAVE 6300 C

- 2-wire 24...26 GHz non-contact FMCW radar, ideal for solid applications
- No more purging systems: the Drop antenna made of plain PP or PTFE minimizes product build-up and hence, maintenance
- Measuring heights up to 80 m;
- PACTWARE software supplied in full and free of charge
- Wizard driven setup
- Reduced installation cost : FMCW technology is not affected by angle of repose, making expensive aiming kits obsolete



OPTIWAVE 6300 C with DN 150 PP Drop antenna

Contact

Please visit our website for a current list of all KROHNE contacts and addresses.



www.krohne.com