

Taking Control ...To A

HIGHER LEVEL

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“BinMaster will provide the most thorough and exact solutions to the challenges and opportunities presented by the customers we serve.”

SmartBob II Survives a Brutal Test In Coal-Burning Power Plant

It's a tough job, but someone's got to do it! The SmartBob II was up for the challenge. In August of 2000 an eighteen silo SmartBob II system was installed in the North Omaha Power Station, OPPD's oldest and largest generating plant in daily operation. The plant stands serenely on the west bank of the Missouri River in North Omaha.

The SmartBob II remotes are located below a conveyor belt that moves coal through huge units called trippers. The coal is



SmartBob II remotes are installed under a conveyor belt that sends coal into large storage bunkers that the units monitor



North Omaha Power Station on the west bank of the Missouri River in North Omaha

then sent into storage bunkers below the trippers and the coal inventory is accurately measured with the SmartBob II.

What made this application so difficult was dust, noise, vacuum from the dust control system, a thick concrete floor, and crossbeams that run horizontally throughout the bunkers.

“Since the 18 SmartBob II's were installed they

have provided us with accurate measurements without failure,” said Ralph Schneider, Electrical Coordinator at the North Station.

SmartBob II technology has done it all. Whether it's chunk coal in a coal-burning power plant or fine granular solids in a plastic processor's material storage silo, SmartBob II technology can handle it.

- .. Point Level Sensors
- .. Inventory Measurement
- .. Flow Detection
- .. Dust Detection
- .. Aeration & Vibration



Coal-Burning Power Plant from page 1



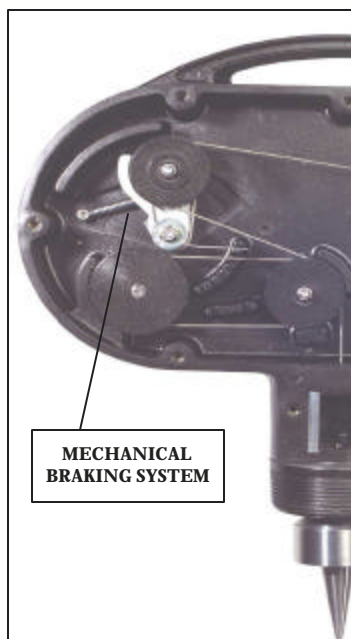
Top right: This is a picture of the room above the coal bunkers at OPPD. BinMaster SmartBob II remotes are located beneath the conveyor belts that send coal into the bunkers that the SmartBob II remotes measure.

Bottom Right: BinMaster Flow Detect 1000 sensors are mounted on feeders below the coal bunkers to assure there is a constant flow of coal into pulverizers below the feeders.

Left: Remote Start Units are used at OPPD to provide a simple interface between the SmartBob II remotes and a PLC system using an analog 4-20 mA current loop output. The RSU also provides a remote display and can be used to initiate a manual reading if necessary.

**THERE IS NOTHING
REMOVED LIKE
IT!**

SmartBob II Exclusive Braking System Keeps the Sensor Probe from Sliding or Sinking



Should the SmartBob II sensor probe ever slide down an angle of repose in an active vessel or sink in light material, a special mechanical brake on the back of a spring loaded idler arm will release and brake the slotted timing pulley, instantly stopping it. The timing pulley is what generates the pulses and when stopped, reverses the motor to retract the sensor probe.

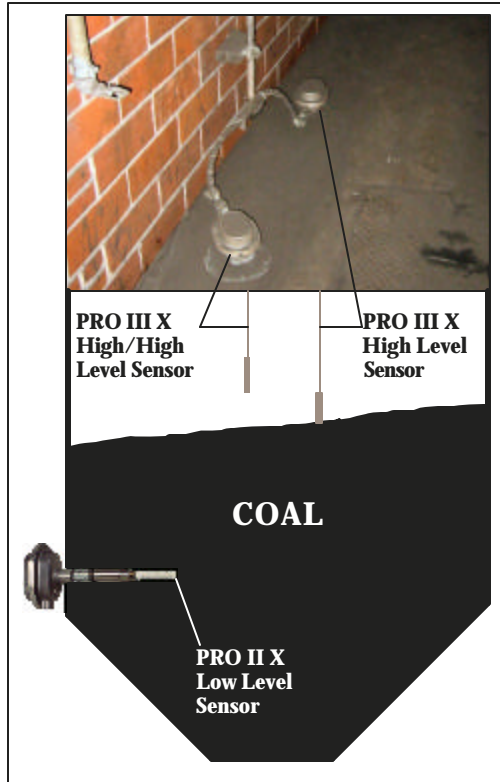
Competitive manufacturers of "Bob" type systems have not incorporated a braking system in their design. The presumption is their units are sensitive enough to stop when they reach and touch the material surface. The flaw in this design is that during a fill or load-out cycle material is constantly moving and the sensor probe may slide with the material. While the sensor probe is sliding (or sinking) there is enough weight pulling on the cable to turn the timing pulley and generate pulses. Since there are pulses, the motor continues to let out cable. This can cause inaccurate measurements or may bury the sensor probe in the material. The fact is this design has not eliminated the real problems that are inherent with most cable based systems. This exclusive feature is just one more reason why the SmartBob II is the very best cable-based system on the market.



Capacitance Sensors Provide Level Detection in Coal Application

The PRO III X capacitance sensor is used to alert the operator in the control room at the North Omaha Power Station when the coal bunker has reached a full level. A secondary high/high level sensor has been installed to automatically shut-down the tripper should the level ever go beyond the high level sensor. A flexible extension probe that will not bend or break was used in this application

Because of the excessive weight on the low level sensor a PRO II X capacitance probe with a special 4" stubby PRO-Shielded probe was used. The combination of the strong lag and the stubby shielded probe gives it the strength to hold up in this tough application. The PRO-Shield feature will guard against false indications from build-up on the probe or bridging between the sidewall and the probe.



POINT LEVEL



SOLIDS FLOW



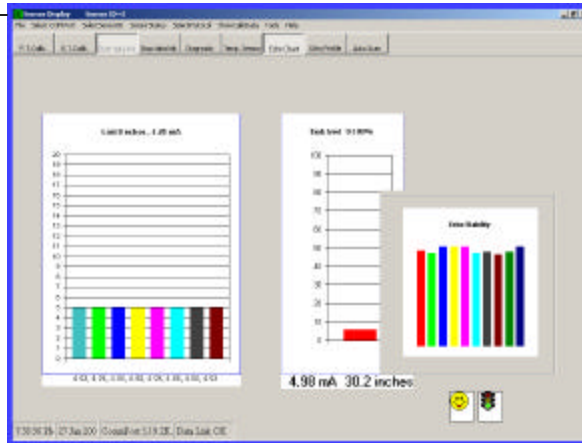
AERATION & VIBRATION



SmartSonic and SmartWave PC Software Program Provides Data logging and Complete Diagnostic Check



A single RS-485 data cable connects the PC running software with up to 128 SmartSonic and/or SmartWave transmitters



Built-in communication with a PC allows storage of the current output and temperature in a data logger. From 1 to 128 SmartSonic Ultrasonic transmitters or SmartWave pulse radar transmitters can be connected using RS-485 communication directly to a PC running the utility software. The PC software can provide a full diagnostic check including loss of echo, temperature sensor failure, noise error, and various other conditions. A user can also see on the computer screen the echo profiles and echo stability chart. Through PC communication, some parameters can be changed and fixed point calibrations can be completed. All SmartSonic and SmartWave transmitters come standard with RS-485 communication and 4 to 20 mA analog output.

DUST DETECTION



INVENTORY MEASUREMENT



Automating Your Inventory Management Is An Investment in Productivity, Efficiency, and Cost Savings

Automating your inventory management will significantly improve the accuracy of measuring silos manually, reduce non-productive tasks, and reduce overall costs. The immediate benefit is time savings because it eliminates the need for daily inspections. Operators can remotely collect data and determine where and when material is to be moved. This frees the operator and equipment for other important projects.

A dependable inventory management system from BinMaster improves plant operation and quality control by making more data available for decision making. Careful monitoring of your inventory enables you to:

- ◆ Replenish material at appropriate levels and avoid unnecessary cost and inefficiencies.
- ◆ Provide Higher accuracy in tracking overall inventory, usage, and costs can help you control unnecessary waste.
- ◆ Decreasing the need to perform manual procedures will reduce cost and the risk of injury.

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