

PRODUCT APPLICATION NOTE

SN0204

Industry: Pulp and Paper

Application: Horizontal Wood Chip Storage Level Monitoring

Optech Equipment: Sentinel 3100

Accessories: Articulating Bracket

Application Description: The customer required an effective method of monitoring the level of wet and dry wood chips in horizontal bins

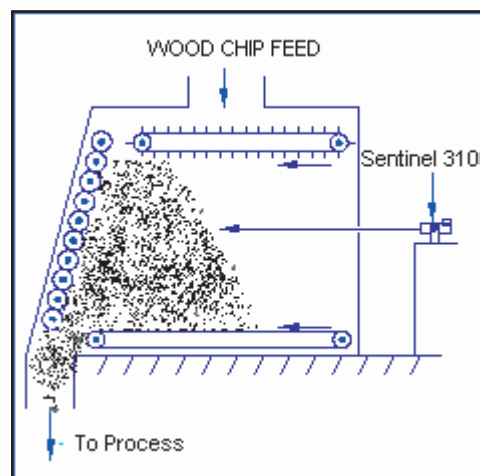
A large pulp and paper company stores and feeds wet wood chips to its process from a horizontal bin. The wood chips are dumped into the bin, then compacted towards the feed chute by the combined action of an upper and lower conveyor fitted with rake attachments.

In the past, individual optical sensors were placed along the length of the bin to provide a rough indication of level. These sensors were unreliable as they quickly plugged with wood chips and sawdust, requiring frequent cleaning and costly downtime. The wide beam divergence of both radar and ultrasonic sensors, combined with the tight geometry and location of the conveyor, made such sensors unsuitable for this application. Radar sensors are further hampered by the low dielectric of the wood chips, which absorb much of the microwave signal.

As a result, the laser-based Sentinel 3100 level monitor proved to be the most effective method for this application. The unit has an extremely narrow beam divergence, allowing it to be directed at a specific point in the pile and not be affected by any of the obstacles present in the bin. The unit was easily calibrated via a hand-held keypad and the analog output was routed to a programmable logic controller (PLC) and display terminal which controlled the feed of wood chips to the downstream process.

KEY ADVANTAGES OF LASER TECHNOLOGY IN LEVEL MEASUREMENT

- Measurements made to materials of varying dielectric properties
- Measurements unaffected by background noise
- Measurements made through a very narrow bin opening
- Short setup time with easy calibration
- Non-contact, reliable measurements



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