

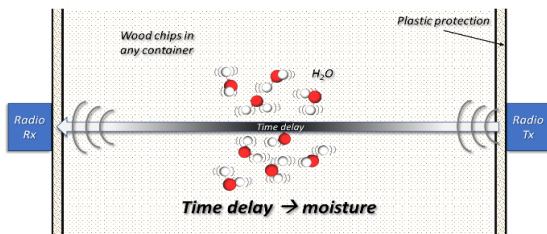
VELOX-CB1 Conveyor

Moisture content measurement in wood chips

VELOX moisture measurement

Velox is a family of in-house developed sensors for online moisture measurement in various types of materials, with a focus on mixed wood chips for heating, pulp production and similar applications.

A microwave signal is sent through the material and interacts with the dry material and water, enabling calculation of the moisture content of the material.



Metrology principle. Microwaves interacting with water

Online moisture measurement benefits

Biofuel for boilers

- Increased efficiency/ reduced fuel consumption
- Operation stability and reduced downtime
- Reduced emissions of NOx, CO and particles
- Enabling automation and digitalization

Wood chips for pulp production

- Known dry mass added to process
- Reduced usage of chemicals
- Improved process stability
- Improved pulp and paper quality

VELOX CB1

Velox CB1 is a product, developed and optimized specifically to measure the moisture content of a mixture of wood chips from tops and branches, bark, recycled wood and stem wood on conveyor belts in harsh environments. Surrounding the conveyor belt the system measures through virtually all material passing the sensor, continuously sending out current moisture level to controls systems, displays or other process data management systems.

Minimal Maintenance

The metrology system does not contain moving parts and operates without contact, which means that under normal operations there is no wear on the system.

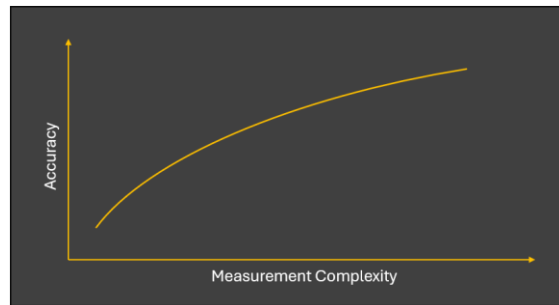
Calibration of the system is done during installation and initial period of service. After that there is no need for additional calibration under normal operation.

Software updates containing new functionality and improved performance are offered when available.

Together this provides for minimal need for maintenance during operation.

Measurement accuracy

While the system has high resolution and accuracy, actual performance is affected by local conditions such as installation factors, material mix and the distribution of the material across and along the conveyor belt. Typical accuracy is between 0.5 and 2 percentage points.



Technical data and information



Antenna: 2 pcs (16x16x16cm)
Control cabinet: 2 pcs (30x20x40cm)
Mounting frame: Custom made in painted steel
Antenna distance: 0.6 – 0.9 meters
Conveyor belt: Rubber, without steel reinforcement
Material quantity: Height: 5-50 cm, Width: >50 cm
Measurement frequency: ~15Hz (radio and laser)
Response time: Selectable 30s to 30 minute average
Radio technology: Ultra Wide Band (UWB).
Chip Height: Laser Distance Sensor
Temperature: Pyrometer
Accuracy: Typical $\sigma = 0.5 - 2$ percentage points
Data output: 4-20 mA, Modbus TCP/IP
Status-signal: 4.1 and 4.2 mA or relay
Electrical connection: 110-240VAC, 50-60Hz
Power consumption: Max 30W
Working temperature system: -30 ... +40 °C
Wood chip temperature: >0°. (Software-update for frozen wood is coming)
Internet: Ethernet, GSM (4G/LTE), WiFi
Remote Connection: VPN for diagnostics and updates
Enclosure: IP65, Aluminum and painted steel
CE Marking: Yes

Radarbolaget i Gävle AB. Over the past 20 years, Radarbolaget have developed industrial radio and radar metrology solutions. Radarbolaget today offer solutions in wood chip moisture measurement, radar-based distance measurement and UWB location tracking.

For more information contact Radarbolaget
Anders Ohlsson
Ph: +46 703 78 68 32
anders.ohlsson@radarbolaget.com
www.radarbolaget.com

Information in this brochure should be seen as a guide and overall description, not specification and is subject to change. For up-to-date information about solutions for your situation and needs, contact Radarbolaget