



LMI TECHNOLOGIES



Gocator® | WANE DIRECTION

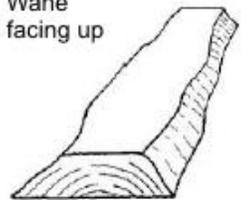
THE APPLICATION

Wood processing involves many steps, and realizing efficiency improvements in just one of those steps can help make a sawmill more efficient, and therefore more profitable. For example, after primary cutting, some boards will have a face with “wane” on one or both edges, that is, the outer curve of the log from which they were cut. Depending on the application, wane is reduced or removed later in processing. But excess wane can cause material handling issues when a board is transported wane down, especially in edger infeed systems: a wane-down board can have so much curve that it wobbles on the transport system. Relying on human operators to determine whether a board’s wane is facing down and then manually turning boards is slow and costly.

Gocator single point laser sensors, thanks to their unique profile mode and high speed processor, can combine individually captured range data points into a cross-section profile. Boards of varying widths can be easily accommodated without the need for a photocell to signal board entries and exits. This makes these sensors ideal for the application of detecting wane direction.

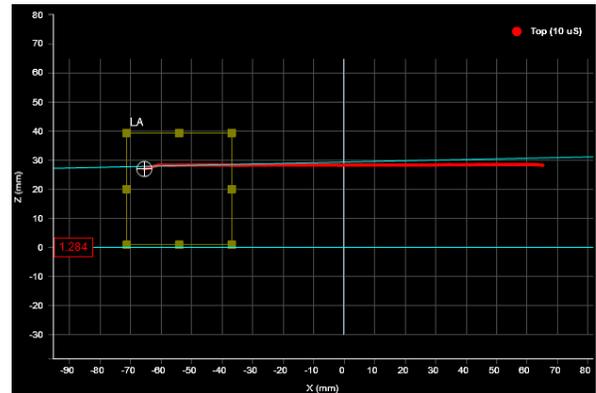


Wane facing up





Curve of upward-facing wane detected as larger angle: PASS.



Flat surface of board with downward-facing wane detected as small angle: FAIL (board flip triggered).

THE IMPLEMENTATION

A Gocator 1300 series single point laser sensor is mounted at an adequate clearance distance above boards coming from primary log breakdown on a transport system. The boards are scanned with the laser running across the width of the boards to create a profile.

The profile of a board whose wane faces up will have curves at each edge of the profile, and angle measurements placed on these curves return values considerably greater or less than zero. On the other hand, downward-facing wane—indicating a board that must be flipped—appears roughly flat, and angle measurements at the edges of the profile return very small values, close to zero degrees. These angle measurements are used to determine whether the wane is down or up, and therefore whether a trigger signal must be sent to a PLC to flip the board.

Because each angle measurement is anchored to a position tool that easily locates an edge of the board—for example, a leading edge angle is anchored to the leading edge—angle measurements are properly positioned every time, regardless of the width of the board.

THE BENEFITS

Today, some sawmills use precious manpower to detect wane direction, manually triggering board flips as necessary to make sure wane is facing up for the next step in processing. Using Gocator increases efficiency and reduces cost. Also, a single point laser sensor that can create profiles is a low-cost alternative to profile sensors.

Finally, because setup can be less complex—potentially, no need for photocells to trigger frame captures—setup is less costly.