

# APPLICATION NOTE AN003

## Color Panel Matching

## AUTOMATION

**INDUSTRY:** Lumber

**APPLICATION:** Automated color matching process for hard woods

### The Challenge

An innovative equipment manufacturer wanted to develop a machine to automate the color matching process for high quality solid wood panels. This machine would streamline the operation by eliminating the subjective nature of visual inspection while improving consistency and driving down operational costs.

Current processes generally involve inefficient, labor intensive and subjective manual inspection and sorting.

### The Solution

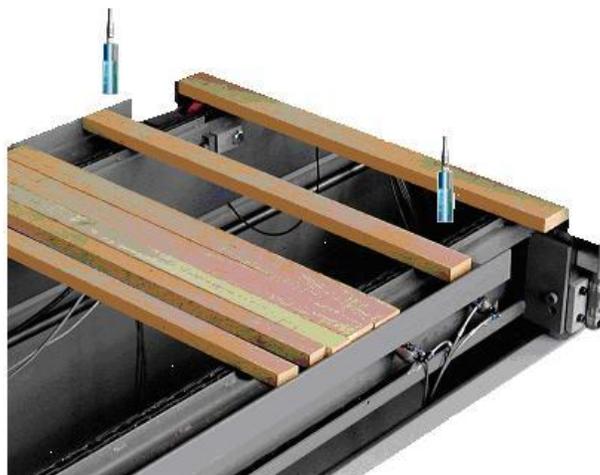
EMX industries, Inc has developed the ColorMax color sensor with analog and serial outputs, uniquely suited for integration into automated systems. The challenge presented by the inconsistencies in the wood due to the grain patterns and natural color variations was overcome by averaging readings over the width of the sample and use of a large, 25mm light spot. The ColorMax integrates the signal over the area illuminated by its light source while rejecting the influences of ambient light.



**ColorMax color sensor**

The illustration shows the sensor positioning on the equipment. A sensor is arranged to view each end of the wood. While the wood sample is moved through the ColorMax light spot, the acquisition and control system reads measurement data from the sensor via the serial link. This measurement data, in the form of % of full scale for each color component, red, green and blue, is then analyzed by the system to determine the color. Panels are then sorted and stacked for final gluing process. This innovative machine produces well matched panels in a fraction of the time and cost associated with manual, visual techniques.

The photo shows the ColorMax sensor. The sensor features a Windows™ Application program used to set up operating parameters, make adjustments and view measurements. The sensor serial output is provided by an RS232 or USB interface. Data transmission is initiated by an external trigger signal.



### Equipment Required

[CM1000-4FLEX25](#)

ColorMax, 4discrete outputs, RGB analog outputs and serial output



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