APPLICATION DATASHEET

Contour

INSPECTION PROBLEM

Residential siding board has a wavy pattern on the front side. The production process must ensure that the contour of those waves consistently stays within a range. If the profile of the boards is not consistent, they will appear to be different colors when installed on the side of house and the consumer will not accept this patterned look.

There are no mechanical tools that quickly and easily analyze the contour. Tracing the contour with a stylus and then printing out the profile for comparison is too time-consuming. And other optical and visual methods are not reliable.

REQUIREMENTS

Measurements – The maximum height and maximum depth of the surface must be measured relative to the mean line through the surface contour. The maximum range of height and depth must also be identified as well as the average range.

Instrument – Various models of boards are produced at the same time on different production lines, so the instrument used to inspect the boards needs to be portable. Transporting a sample of the boards to a single inspection location would be cumbersome and time-consuming.

LASERGAUGE® SOLUTION

LASERGAUGE® SYSTEM

An HS703 sensor is used with a special accessory. Wheeled standoffs make it easy to move the sensor over the surface of the board and measurements can be taken as quickly as the trigger can be pulled. Depending on the width of the contour needed to establish a valid relative surface line and depending on the resolution required, either a 1.2" or 1.9" field-of-view is recommended.

AUTOMATIC MEASUREMENTS

An operator positions the laser stripe over the region of interest and releases the trigger. The surface within the field-of-view is analyzed and a mean surface line is calculated. Relative to this line, the maximum height and maximum depth of the contour is measured and displayed in the data table. The maximum range of variation, the average range and the standard deviation are also displayed in the data table.

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ADVANTAGES REALIZED

Immediate Data – Inspections can be done on the line, immediately after the production process. Out-of-tolerance events can be identified quickly and monitored to determine if corrective action is warranted.

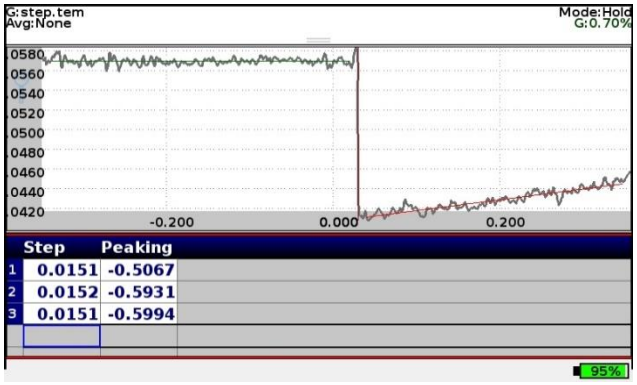
Saves Time – Inspections can be performed at different lines throughout the day; samples do not have to be transported to a single inspection station.

Documented Results – Measurements are repeatable and the results are traceable.

RELATED APPLICATIONS

HEIGHT

Many applications require the measurement of height of one feature or surface relative to another. This height difference is often called step or mismatch in panel fit-up or welding applications. The most important factor in measuring height is to determine the exact methodology to be used. In some instances, a line-fit of both surfaces is established and the perpendicular distance from the higher surface is used. Other applications demand different methodologies.



Sensor selection for a step measurement depends entirely on the range of height differences expected. A TS800 sensor with a 0.5" FOV may be necessary for expected ranges of 0.0" to 0.040", while a TS800 sensor with a 1.0" FOV may be required if the expected range is 0.0" to 1.0". A plotted view of the step is not necessary, but it helps to ensure that the feature is centered in sensor FOV. An LG7000 controller will provide this graphical feedback.

The surface profile can be captured and saved using either the LG5000 or LG7000 Controller. The scan file can be sent to a PC and plotted using any common spreadsheet application. Data files are saved on the controller automatically and can be retrieved/sent to a PC, opened and viewed with any number of common application programs.

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