

EMWIJET LINE SCAN PRINT CHECK and OCR READING Overview

The main function of the **EMWIJET LINE SCAN PRINT CHECK** system is to monitor the print quality of inkjet arrays during the production of labels. The labels are typically produced in sheets with multiple inkjet heads mounted across the sheet.

During the production process the inkjet heads can be configured to print a narrow line across the lead edge of each sheet. This line is printed using all the available nozzles within the inkjet head. The quality of each of these lines is monitored by the system to ensure that it is consistent and has no discontinuity. If the system detects an error or if the print quality starts to degrade, it can raise an alarm condition to warn the operator and reject the sheet through the divert gate on conveyor.

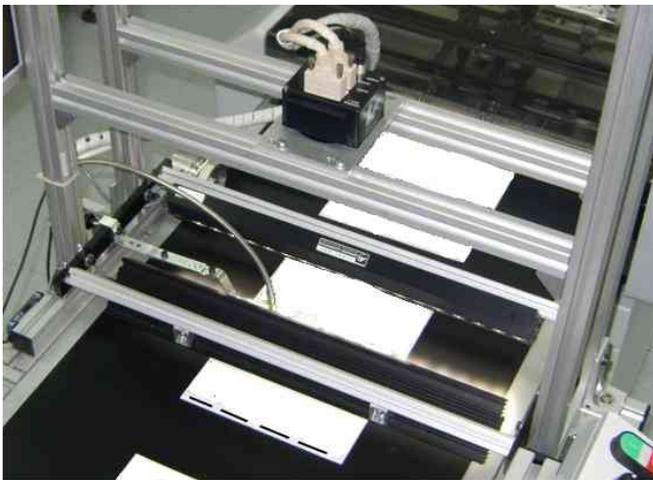
It is assumed that any error or degradation of quality in this line will result in a degradation or inferior quality of the printed data on the label. The cause of the error may be blocked or damaged inkjet nozzles, inkjet failure or low ink fluids.

The pass / fail limits can be set by the operator and saved in a job file. The system can save multiple job setups which can be recalled as required.

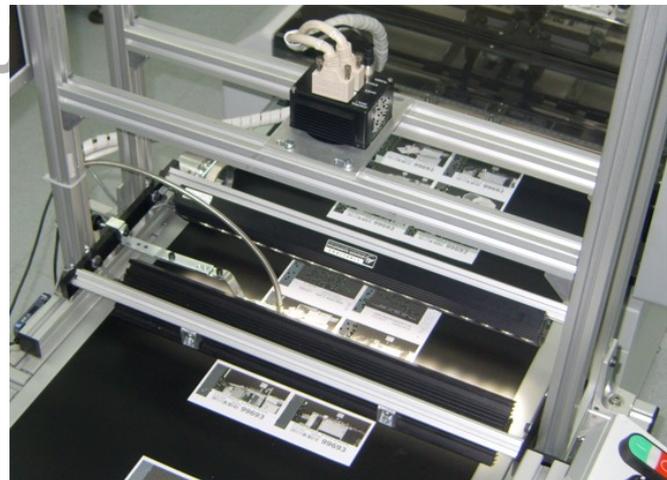
EMWIJET LINE SCAN PRINT CHECK uses Line Scan imaging technology.

A 6K resolution CCD Line Scan Camera features a single, high resolution, line array of pixels (6144x1). It relies entirely on the linear travel of the sheet or printed item under the line array in order to build up a high resolution, large format image at production speeds. An encoder mounted on the production machinery close to the piece is used to synchronise the acquisition of each line of pixels with the speed of the target as it moves past the camera. This results in a very high definition image that can then be evaluated by the inspection tool.

The system uses two LEDs array lines for lighting.



Sample of Print Quality Check with printed edge lines



Sample of Numbers Integrity Check in the first row

THE EMWIJET LINE SCAN OCR READING CONTROL SYSTEM

For OCR we mean optical camera reading, not OCR fonts. We can read any font respecting the limitation of space between digits, quality and distance from other printed items. The OCR reading software will “learn” the used fonts and digits.

Features:

System Stop function attached to the OCR reading. The reading will be performed in every code and either a misread character or a missing number will stop the system. The number of rows, columns and digits in every code can be easily setup to conform the job needs.

NOTE: Possibility of full sheet reading.

100% compatible with PrintCheck. PrintCheck will be a tool inside the new Advanced Software Program called MultiCam, so the system can work perfectly with OCR or be reverted to do only PrintCheck, if needed.

In other words, we can still check the continuous lines at the edge (as done in standard printing quality checking systems) and perform the OCR reading of the codes. An error in any of those would stop the system.

NOTE: Possibility of reverting to the line checking in case of operating or production need.

Outputs. The data read can be output to a LOG file.

NOTE: The different accessories and PC and connections eventually needed managing the generated log files are not included.

File Audit Integrity Tool. If the text file about to be printed with the codes is available, an extra control can be performed over the read codes checking them against the file so we can be sure every expected code was correctly printed.

NOTE: A database of the numbers only can be created and downloaded in the Camera PC in order to check the integrity.

Saving Images. Our product can save images of the different sheets. The user can customize this feature so, for instance, Every Image or only Failed Images will be saved, in which format, size and where would they be stored.

NOTE: Even if we can save images of all the sheet, we recommend to choose a part of the sheet, first rows of numbers of one number, to recognize the sheet quickly and easily.

Reports. Visually enhanced reports of the results can be displayed on the screen. It allows a fast understanding of the percentages of good and bad reads over a series of diagrams.

NOTE: Easy visual control of the integrity of the production.

OPTIONAL: SkewDetection Control system. The Skew detection control to verify that the sheet comes through the bed in the right angle will be installed as in previous systems, controlling the system stopping as well.

NOTE: Security of not having inclined numbers that will generate wrong reading from camera. Possibility of double checking the skewing of the sheet, first by the skew detector system, second by camera system. It will allow the control of sheets that were correctly fed from the feeder and had some deviation down the printing heads.

Recommendations:

Our system allows the setup of different jobs that differ in the number of lines, columns and number of codes and digits. So these parameters can be changed between jobs allowing more flexibility.

An accurate control system, easily to handle by the operators but robust and complete with the results, can be performed reading every code appearing in a row. So in our standard production test it is 15 codes (150 digits)

NOTES: The system can check 3.150 digits, corresponding to 315 numbers of 10 digits each, but the difficulties in setting up the camera system and the strict conditions every sheet must respect in production to give a positive result do not recommend the operative use of this option in production.

In alternative we recommend the control of the first edge row of numbers (for example: 15 numbers-150 digits), which allows the checking and give the total warranty about the quality of the rest of the numbers in the sheet.