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For electronics production industry

The SICK Pinspector Calls…

SICK has launched the Pinspector, a specialist 3D vision solution that brings new levels of repeatability and accuracy for high-speed precision inspection of connector pins and press-fitted pins in printed circuit board and electronics manufacturing applications.

The Pinspector delivers automated contactless measurement and validation before press fit to control insertion of pins and after press fit to validate the presence and height of pins, as well as reliably checking the x,y,z position of pins in the connector.

Combining SICK's well-proven Ranger E50 vision cameras, SICK laser profiling devices and specially-developed software, the Pinspector also identifies bent, wrong height, misaligned or damaged connector pins that could cause issues leading to costly failures.

The Pinspector reliably locates, inspects and measures the pins as a high resolution 3D image, and can measure multiple pin types on a single PCB for added versatility, time and cost saving in quality control. The contactless, vision measurement principle is low maintenance and has no effect on the pins.

Says Neil Sandhu, SICK's UK Product Manager for Imaging, Measurement and Ranging: "The beauty of the SICK Pinspector is that it is easy to set up and adapt to different PCB layouts. The system can be optimised and easily configured for applications that require either high-speed or high-accuracy inspection.

"The Pinspector is able to make up to several hundred contactless 3D inspections per second of the x,y,z positions of pins, with a repeatability of up to 99%. In the press-fit process, the Pinspector validates the positioning of the conductive rings and the respective pins to prevent pressing damage. After pressing, it measures the planarity of all the pins and the individual pin heights to flag any

assembly problem. It will also detect any missing or bent pins which could prevent effective assembly and subsequent operation.

“Pinspector is easily integrated into new or existing production lines to provide inspection of both mating or termination sides and can accommodate multiple shapes.

“The SICK Pinspector saves production costs by eliminating the expensive flaws that can creep into a critical process. It could prevent the need to discard, rework or replace damaged and expensive components resulting from one defective pin, or eliminate subsequent failure due to mechanical stress of a critical complete assembly, down the line.”

Two single-camera options of the SICK Pinspector are available for applications where pins are not occluded by other pins or connector walls, and a double camera version (E2) for where a clear view of each pin is more difficult to obtain.

The Pinspector D1 delivers up to 1000 scans per second for mid-speed situations, while the E1 delivers up to 10,000 scans per second for faster production lines. For occluded applications, the double camera E2 model scans at up to 10,000 scans per second.

The SICK Pinspector’s camera positioning and laser alignment have been trialled extensively with SICK customers in electronics applications. As a result, set-up time is minimised, aided by the easy – to-use teach-in for new PCB pin or connector layouts. The solutions offered are scalable for use with multiple SICK Ranger cameras if more capacity is required.

Operated fully autonomously by external control, speed and flexibility in communications is a vital aspect of the SICK Pinspector. The scanned object can be selected either via a user interface or the easily-configured communications protocol, and is supported by access to a library of PCBs, connectors and other objects. Communication interfaces include RS-422, Ethernet and IO-Link.

For more information about the SICK Pinspector and to set up a demonstration of the Pinspector mobile unit, please contact Andrea Hornby on 01727 831121 or email andrea.hornby@sick.co.uk.

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