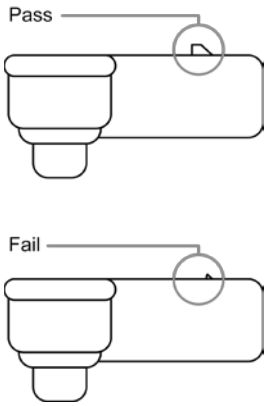
LMI TECHNOLOGIES

Gocator® | PIN CONNECTORS

THE APPLICATION

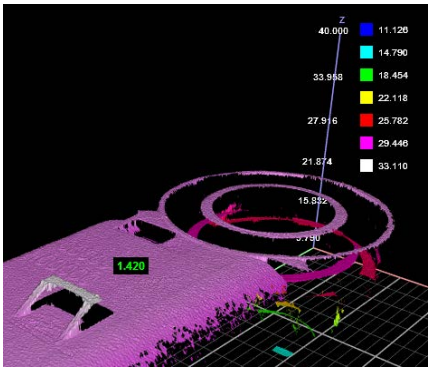
Getting the right quality control information can make the difference between a streamlined, cost-effective production line and one that is a money pit. For example, with certain types of connectors, a lock ensures that the connector doesn't disengage from its socket. A connector with a flawed or missing lock could disengage from its socket, with potentially serious results. Defective connectors have to be rejected on the production line. But without reliable, broad-coverage quality control information, defective connectors can easily be missed and passed on to distributors or customers. In the long run, the producer can suffer costly consequences.



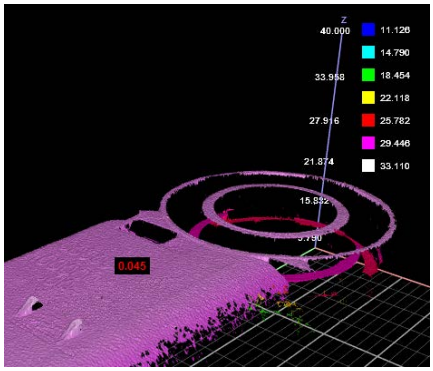
The best way to reliably detect the presence and the height of a lock is to use 3D scanning technologies. 3D scanning allows the precise measurement of a lock's height, so the part can be compared to stringent specifications and rejected if necessary.

The Gocator 2300 series of 3D sensors is ideal for the application because it can:

- Accommodate the varying heights of different parts as they travel along the conveyor.
- Calculate the lock's height, which is relative to another surface of the part.
- Measure the lock's height precisely and accurately, down to a few hundredths of a millimeter.
- Measure the lock's height at full production speeds.



Good part: lock height within tolerances



Defective part: lock missing

THE IMPLEMENTATION

A single Gocator is installed over a conveyor belt carrying pin connectors at production speed. The Gocator is connected to a Master network controller, which provides power, synchronization, encoder triggering, laser safety, and data.

The Gocator scans each part as it passes under the laser line. A position measurement tool gets the average height (the Z position) of a larger flat reference area on a part. A second position measurement tool gets the height of the lock. A third tool—a script tool containing simple, user-programmed C-based script language—calculates the difference between the two height values to get the actual height of the lock. If the difference is within a range representing acceptable variations, the script returns a pass result. If not, a fail result is generated, which can be used to control a PLC, for example, causing the part to be rejected on the production line.

Because the second measurement is anchored to the first—ensuring that its region of interest will move in relation to the first—an accurate measurement of the height of the feature can always be calculated, even if the height of the parts varies as they are scanned.

THE BENEFITS

Today, much quality control information is gathered manually, through visual inspection. But in a high speed production environment, such inspection can only be done on random samples, which means that it’s highly approximate. Alternatively, the production speed is simply lowered. In the competitive manufacturing market, companies need better solutions.

Using Gocator, on the other hand, means each and every connector can be inspected at production speeds, letting you know exactly how many parts are defective. Furthermore, Gocator is precise enough to enforce very narrow tolerances, even at these speeds.

The net result is considerable cost savings, as it’s easy to quickly catch and correct production issues before costs due to defective parts get out of control.

Knowledge is power, and knowing what your production line is doing puts you in power.