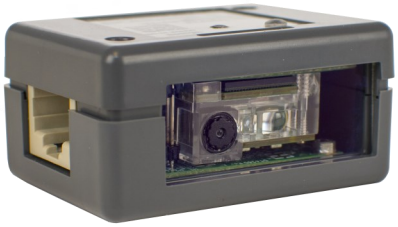
Embedded Scan Engine Success

Background

Diamond Technologies was approached by a lab instrumentation OEM manufacturer looking to improve one of their instruments used in tissue sample preparation. The instrument automatically processed and prepared cell samples, creating slides for diagnostic testing. The system mixed numerous reagents creating the need to track many materials in addition to the pathology cell samples.



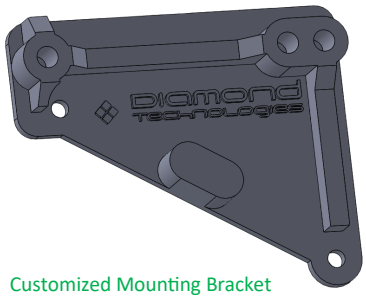
DE23 Embedded Scan Module

The lab instrumentation company wanted to swap out their current internal barcode reader that was used for sample identification and verification. Their current barcode reader was significantly cost prohibitive and nearing the end of its support life cycle.

The lab instrumentation company, however, had integrated both software and hardware into the their instrument to match this specific reader and they did not currently have the resources to go through the difficult task of redesigning mechanical, electrical, and software interfaces. The company needed a drop-in replacement that would allow them to switch to a new barcode scanner with improved performance, lower cost, and availability. They needed an enclosed reader for spill protection which matched the current electrical interface.

Solution

Diamond Technologies engineers went to work solving the lab instrumentation company's request by first analyzing the existing systems mechanical, software, and electrical interface and system operation.



Customized Mounting Bracket

In order to match mechanical constraints, Diamond Technologies reviewed CAD models and took detailed measurements of the existing scanning solution. Engineers at Diamond were then able to develop several 3D printed mounting brackets that would allow the Diamond DE23 scan engine to perfectly match existing mechanical mounting hardware. Diamond Engineers were also able to modify the DE23 firmware to match the existing scanner command interface. This allowed the Diamond DE23 embedded barcode scan module to execute and respond to commands from the lab instrument's host controller as if the old reader was still in place. In order to match electrical constraints, Diamond Engineers created a small adapter cable which tied into the lab instruments existing wiring.

With these changes, Diamond Technologies was able to provide the customer with a drop-in replacement that matched previous electrical, software, and mechanical constraints, resulting in zero need for machine redesign. This saved significant engineering time and costs.

Diamond Technologies' new DE23 embedded barcode scanner not only provided superior reading performance and reliability but also allowed the lab instrumentation company to reduce barcode scanner costs by over 50%, all without the need to redesign or change the existing machine.