

On Optical Bonding and Multi-touch Panels

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With touch panel solutions making their way into a wide variety of applications, system designers have seen the light – both literally and figuratively – when it comes to human interfaces with touch panel displays. One would expect that the next step would be a wider deployment of this intuitive and most compelling operator interface into embedded industrial applications, but many of these types of systems present environmental challenges. However, optically bonding a protective touch panel glass offers a solution to the environmental challenges present in the intended usage environments.

Of course, bonding a pane of rigid glass onto the display rules out older touch technologies like resistive touch panels which rely on an environmentally vulnerable flexible surface. And again, the huge success of projected capacitive touch screens clearly shows that users prefer the vibrancy of projected capacitive touch panels over resistive touch technology anyway.

Still, direct bonding is not a trivial matter for projected capacitive multi-touch enabled panels unless the bonding process is of sufficient sophistication and utmost quality. The optical clarity of the screen must be maintained or even enhanced. Only then will the interface provide a compelling user experience.

To achieve this sort of engaging yet rugged operator interface, the manufacturer of projected capacitive touch panels must approach the issue of optical bonding as a process and not as just the selection of another adhesive to deploy on the manufacturing line. High-quality direct bonding requires new technologies and new methods on the manufacturing floor along with sophisticated materials that have shown they can enhance the performance of the underlying display technology. Often, manufacturing personnel must be re-trained to make the most of an advanced direct bonding process.

These may seem like extreme measures, but the results are well worth it. For

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example, Ocular has licensed the Vertak™ bonding technology from DuPont™ Display Enhancements, Inc., – a leader in optical bonding for displays for more than 10 years – and we expect that the sunlight readability of our projected capacitive touch panels will increase by up to 400 percent while the ruggedness of our panels in terms of impact and scratch resistance will improve by at least 300 percent. Of course, our touch panels already support the industrial temperature range and are among the most durable and reliable in the industry.

Based on results of this sort, we expect that gesture-based and multi-touch user interfaces enabled by projected capacitive touch screens will proliferate quickly in a broad range of applications, including point-of-sale, medical and diagnostic systems, home and office automation, industrial controls and other types of embedded systems that require the ability to operate in challenging environmental conditions. Optically bonding touch panels to the display will be beneficial for all environments, due to the increased quality, clarity and readability.

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