

## Optical Bonding Expertise

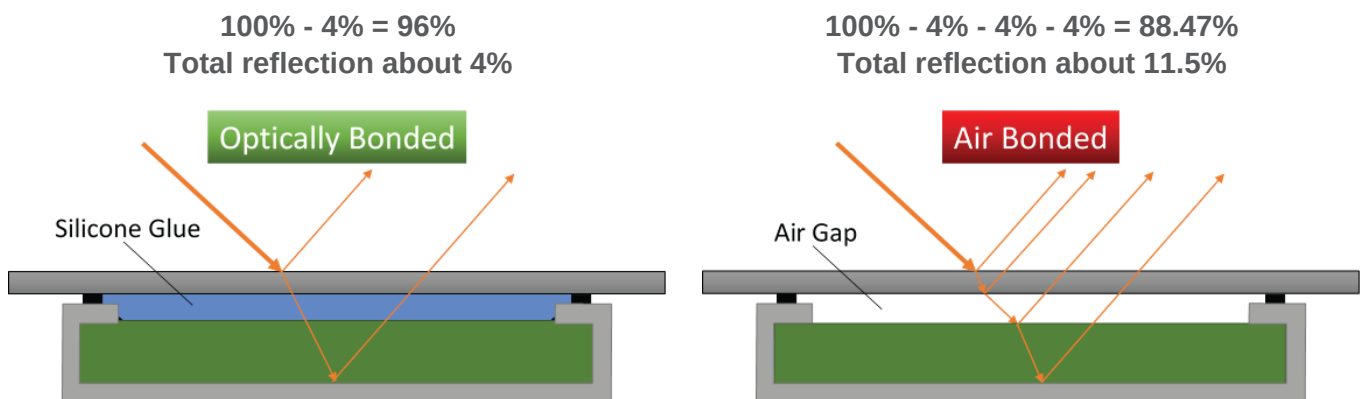
faytech is an expert in touch devices for industrial and retail applications. The focus of faytech is on providing great quality products, which can be easily customized in any way for a fair price. One very important part of faytech's unique selling point is the in-house optical bonding which is offered by faytech.

Optical bonding is the process of filling up the airgap between the Touch Panel and the LCD cell to increase the quality of the device. faytech uses silicone-based adhesive with the best properties available to date for this process. There are many advantages of touch devices which are optically bonded with silicone glue compared to the non-optically bonded versions.

### Advantages of Optical Bonding

- **Reduce the reflection**

Every time light enters a material with a different refraction index, about 4% of the light will get reflected, with the silicone glue in between, this refraction does not occur at this position. In general, optical bonding can potentially reduce reflections by about 65%.



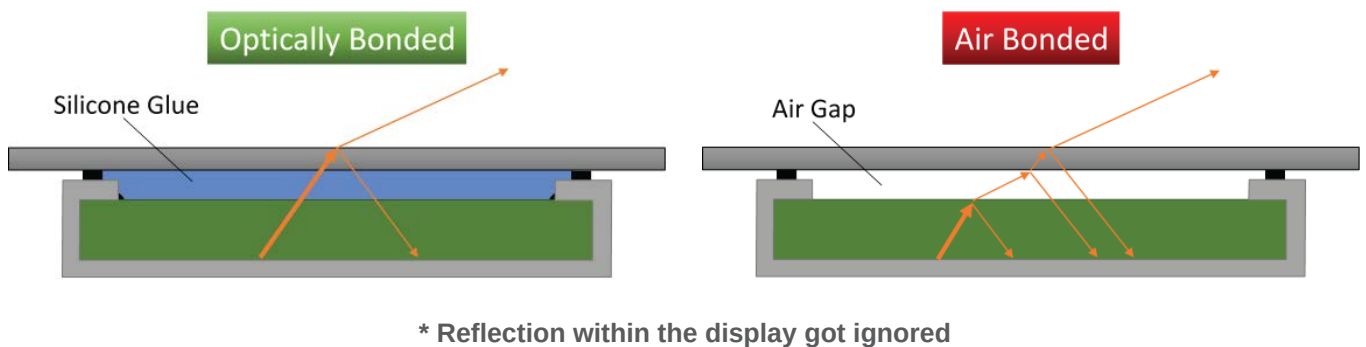
\* Reflection within the display got ignored

- **Increase the overall brightness**

Putting a cover glass on top of a display reduces the products brightness due to reflections of the light coming from the backlight as well as the glasses transmission (usually about 98%). With the optically bonded units, this reflection does not occur, thus increasing the brightness of the display by about 10%.

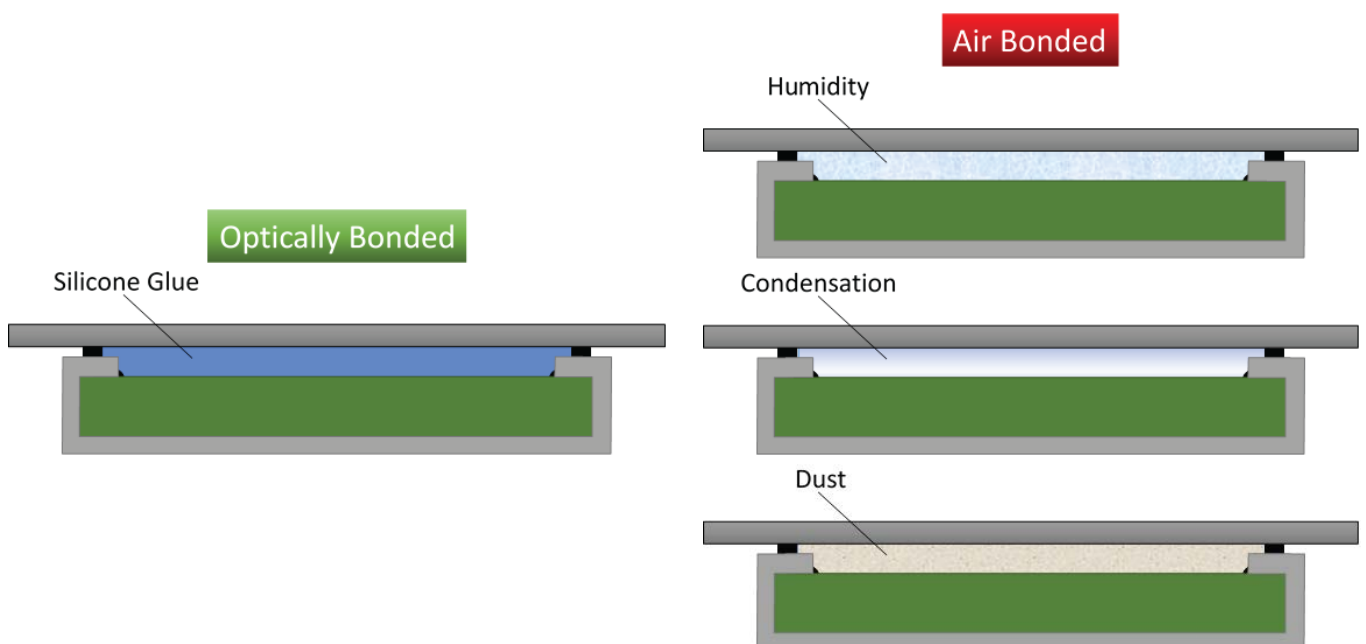
$$(100\% - 4\%) * 98\% = 94.08\%$$

$$(100\% - 4\% - 4\% - 4\%) * 98\% = 86.70\%$$



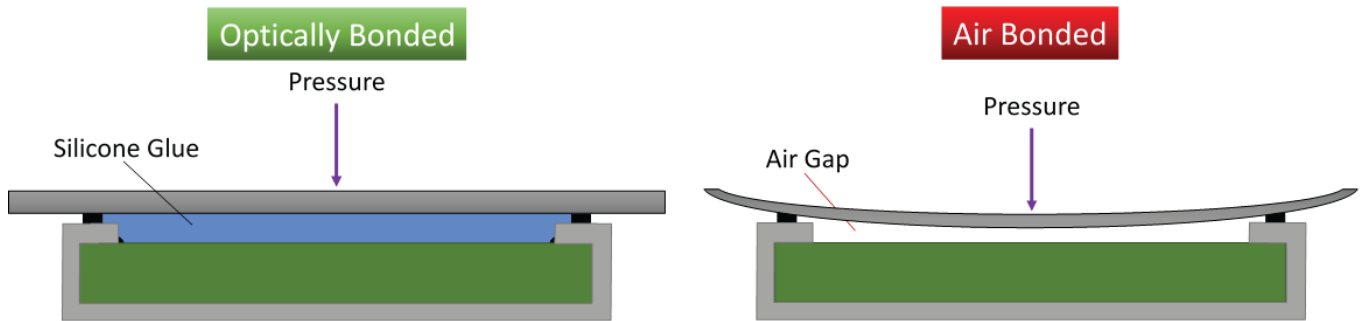
- **No fogging or dust within the display**

If a device is not optically bonded, there is always a small air gap between the touch panel and LCD panel. Within this gap condensation or humidity could occur due to deviations in temperature or air pressure, especially when the system is sealed and unable to circulate air. The same problem could occur with dust in the system for devices that do not require an airtight sealing. With optical bonding, this would not be possible, because the air gap is filled with the silicone glue.



• **Ruggedizing of the display**

Filling the air gap with silicone gives additional strength to environmental forces which otherwise could break the glass. At the same time the silicones elasticity is still able to absorb the shocks.



## faytech’s own Silicone Glue

faytech’s silicone-glue formula (**faytech-XA-1688**), has been specifically created for this optical bonding technology to deliver the best results. The **faytech-XA-1688** is a pourable, addition-curing silicone rubber that vulcanizes at room temperature to a very soft silicone gel with physical properties making it extremely suitable for optical bonding applications.

The glue passed several intensive environmental tests to meet national and international standards, as noted in the table below.

Test Item	Test Condition
High Temperature	MIL-STD-810-2003
Low Temperature	MIL-STD-810-2003
Constant Temperature & Humidity	IEC 60068-2-78-2012
Thermal Cycle	IEC 60068-2-14-2009
UV Resistance	G154-06
Mechanical Shock	TDS-US106
Vibration	TDS-US106