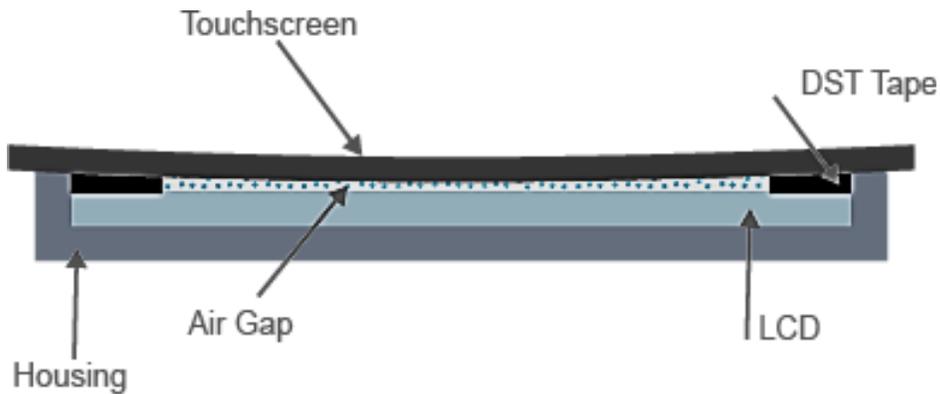
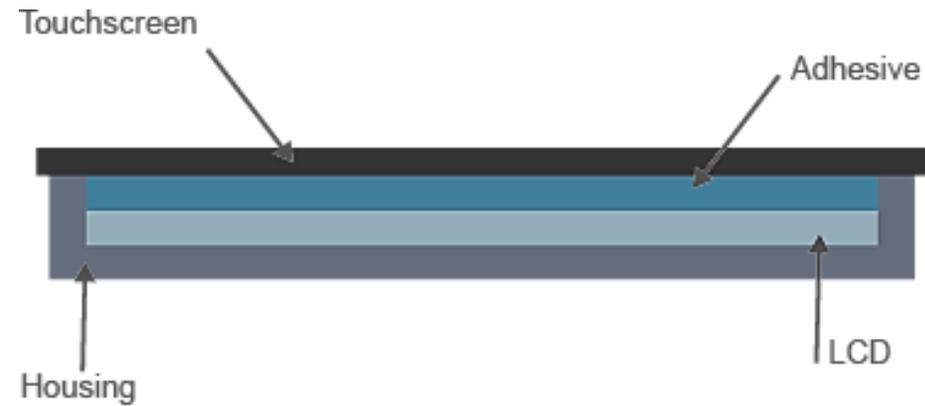


What Is Optical Bonding?

Optical bonding is the process of laminating cover glass or touchscreens to the LCD by filling the air gap between the touchscreens and LCD with silicone gel or highly transparent adhesive to increase the quality and performance of the device.



Traditional Air Bonding



Optical Bonding

Comparison of Bonding Technologies

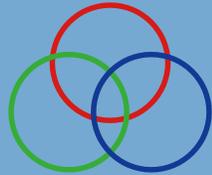
Item	Traditional Air-Gap Bonding	Dry Optical Bonding (for Digital Signage)	Wet Optical Bonding* (for Military)
Bonding Technology	Gasket	Dry optical clear adhesive bonding	Liquid optical clear adhesive bonding
Material	Acrylate/foam adhesive tape	Silicone containing or silicone-free adhesive films	UV curing liquid adhesive
Environment Light Reflection	Reflection at the air gap up to 12.6%	Without air gap, reflection only 4%	Without air gap, reflection only 4%
LCD Light Reflection	Reflection at the air gap up to 8.4%	Without air gap, reflection only 4%	Without air gap, reflection only 4%
TFT Module Selection	All	Module without metal frame	All
Applicable to Narrow-border	Not Applicable	Applicable	Applicable
Touch Experience	Parallax issue	More real, without parallax	More real, without parallax
Cost	Low cost	Affordable	Very high
Drawing			

Note*: Click here <https://www.impactdisplaysolutions.com/displays/custom-display-solutions> for additional info

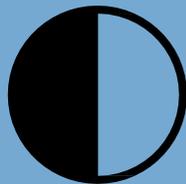
Benefits

Exceptional Visual Experience

By eliminating the reflections between LCD and touchscreen, the user will see remarkably vivid image with clarity, realistic color, brightness, and unprecedented detail with an ultra-wide viewing angle, even in bright sunlight or strong ambient light environment.

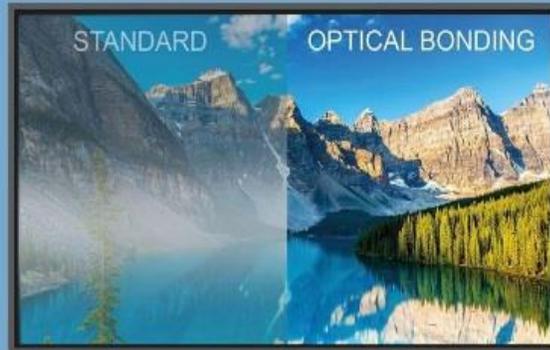


Improved Color
Saturation



Higher
Contrast

Fantastic colors, brightness, and
contrast right to the very edges

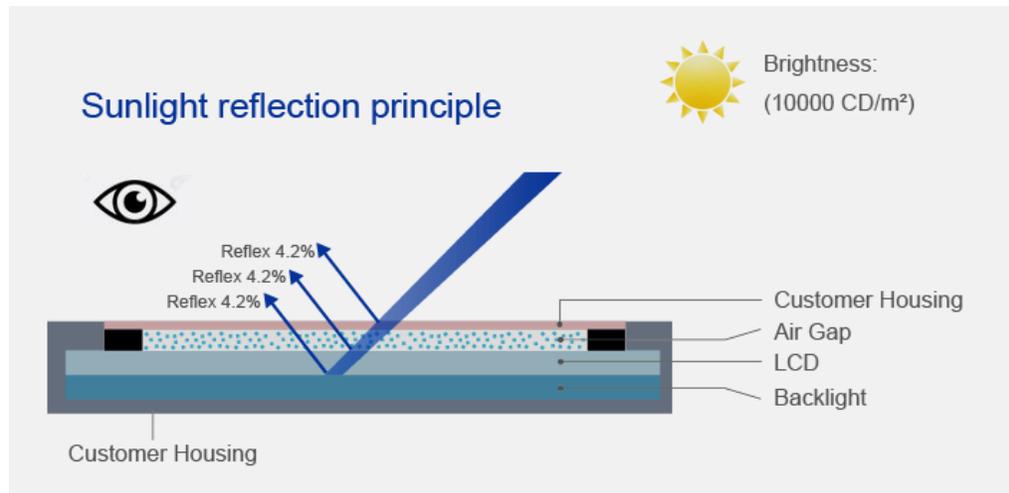


Improved
viewing experience

Benefits

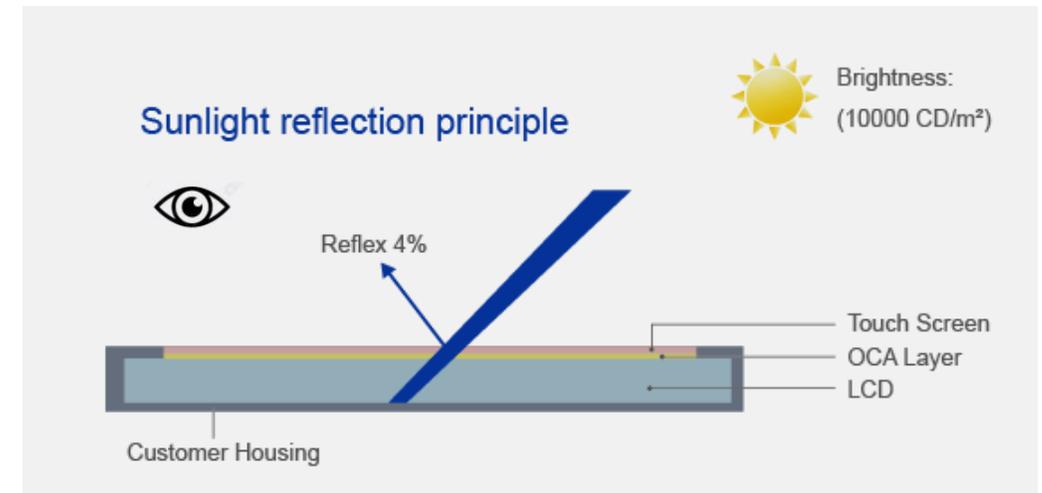
Reduction of Reflections

By filling up the air gap with highly transparent adhesive, optical bonding technology eliminates the internal reflection of the light from ambient light or sunlight. Therefore, more display light actually reaches the viewer's eyes.



Traditional Air Bonding
4.2+4.2+4.2=12.6%
Total reflection is approx. 12.6%

There are three reflective air bond surfaces by air layer: touchscreen vs. environment, touchscreen vs. air, LCD vs. air. The reflectivity of each surface is almost 4.2%.



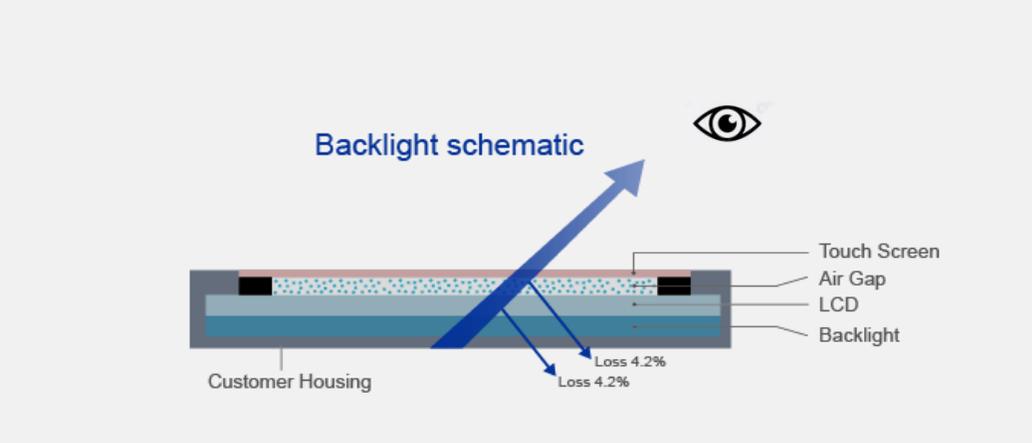
Optical Bonding
Total reflection only approx. 4%

Since the refractive index of the optical adhesive is the same as the touchscreen, both are 1.5, thus eliminating two reflective surfaces. Only about 4% of the light will get reflected.

Benefits

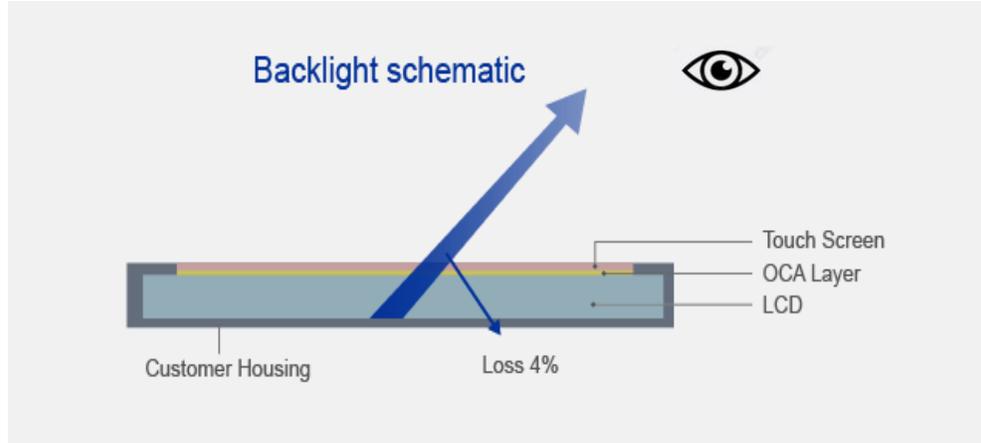
Increase Overall Brightness

By filling up the air gap with highly transparent adhesive, optical bonding technology eliminates internal reflections of the light from the backlight. Therefore, reducing reflected light loss increases display contrast and more display light actually reaches the viewer's eyes.



The Traditional Air Bonding

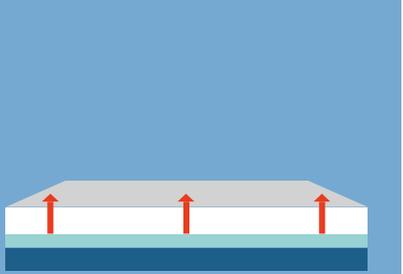
Backlight struggles reaching out to the surface



Optical Bonding

More backlight reaches out to the surface.

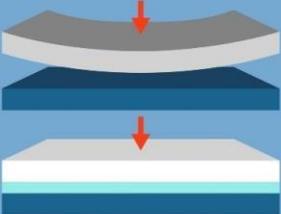
Benefits



The diagram shows a cross-section of a display assembly with three red arrows pointing upwards from the bottom layers, indicating heat being directed outwards.

Heat Dissipation

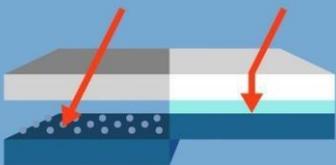
By filling the insulating air gap, heat can be directed to the outside.



The diagram shows a curved top layer being pushed down by a red arrow, and a bottom layer being pushed up by another red arrow, illustrating increased stability and impact resistance.

Greater Durability

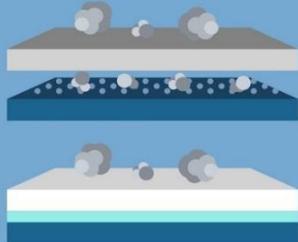
Increased stability and impact resistance increase up to 300%.



The diagram shows a cross-section of a display with two red arrows pointing to the touch sensor layer, illustrating the elimination of parallax.

Precise and Accurate Touches

By eliminating parallax, a better touch experience through optical bonding rather than air bonding.



The diagram shows a cross-section of a display with a top layer containing small grey particles (dust) and a bottom layer with a blue layer containing small white dots (moisture), illustrating the anti-moisture/dust properties.

Anti-Moisture/Dust

Resist to stains, dirt, dust, scratches, avoid condensation and gasification.



The diagram shows a cross-section of a display with a thin top layer and a feather placed on top of it, illustrating the reduced weight.

Reduced Display Weight

A thinner cover glass, decreases the device weight. Suitable for a slimmer design.

Applications



Self-service



Consumer Electronics



Interactive Displays



Kiosks



Pick-up Lockers

Two monitors are placed side-by-side on a blue rectangular pedestal. Both screens display a blue background with a central bright point and radiating lines, resembling a starburst or network diagram.

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