



## **Display – Touch Screen – Front Glass Assemblies.** **Hygienic, robust, contrast-optimized.**

---

From one source. We customize your individual front assembly. You decide on the configuration level. From electronic components within the sub-assembly, the glass front, an assembly with front frame, support plate and clearly defined interfaces through to an integration in your system - everything is possible.

# Display – Touch Screen – Front Glass Assemblies.

## LCD displays – to your requirements

We choose LCD displays according to your specifications. We assemble LCD displays and glass touch sensor front panels to sub-assemblies. If desired, we also do the "optical bonding" between front glass and LCD panel.

## The latest touch technologies

Our systems are based on projective capacitive touch sensor technology.

Our customer-specific cover glasses are made of:

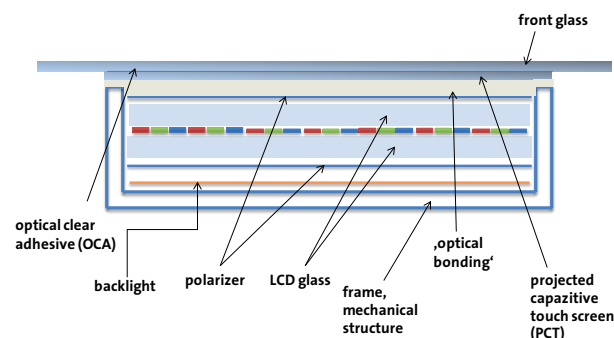
Soda-Lime-Glass	0.7 to 5 mm
Aluminosilicate glasses	From 0.55 to 2 mm

## Specifications

Structure	Touch foil on front glass (4.3" to 27") Glass touch on front glass (5.7" to 32")
Diagonals	4.3" to 32"
Input points	2 - 10 points (4.3" to 32") Multitouch (4.3" to 32")
	Palm rejection (4.3" to 15") Glove operability (4.3" to 32")
Cover glass thickness	Up to 4 mm for 4 - 10 input points 4 - 5 mm for one input point
Controller interface	USB/RS232C as Chip-on-PCB (4.3" to 32"), I <sup>2</sup> C/SPI/USB as Chip-on-Tail (4.3" to 12.1")

## Joining: Cover glass, touch sensor, frame & display

We are masters of various joining technologies, and together we will find the best product for your functionality.



[www.berlinerglas.com](http://www.berlinerglas.com)

Berliner Glas KG Herbert Kubatz GmbH & Co.

Weidenhalde 20, D-74523 Schwäbisch Hall, Phone +49 791 93295-0, Fax +49 791 93295-50, [techglas@berlinerglas.de](mailto:techglas@berlinerglas.de)

## Optical properties and haptic

Clean, hygienic and hard surfaces. Glass as a material always stands for the highest demands on excellent optical properties and the easiest of care. We can offer a number of processes including etching, hardening, printing and thin film coating to meet your individual requirements on your products as well as their function and design.

## Optical bonding

The contrast ratio describes the difference in brightness between a light and a dark spot of light on a display as a ratio of the two light intensities. If the contrast ratio drops to below 10:1 through reflections within the optical structure the legibility will suffer greatly (see table). Thanks to our optical bonding method, we ensure that there are hardly any reflections whatsoever from the TFT module so that this can be used in daylight.

### For HMI module consisting of a LCD and touch

contrast ratio without optical bonding	situation	contrast ratio with optical bonding
1000 : 1	darkroom	1000 : 1
4.7 : 1	office	71 : 1
2.5 : 1	outside, cloudy sky	30 : 1
1.6 : 1	indirect sunlight with shadows	12 : 1
1.4 : 1	direct sunlight with blue sky	8.4 : 1

## Integration in your system

**Frameless integration.** The front assembly is kept from the mechanics behind the glass by supports that are stuck to this.

**Insertion from the front.** The assembly is inserted into a frame structure with corresponding support surfaces from the front and held in place with two-sided adhesive tape. An additional seal is provided by a silicon joint between the glass and surrounding frame.

**Integration from the rear.** The glass assembly is joined to the front frame by a sealing strip and is held in place by mechanics.

