

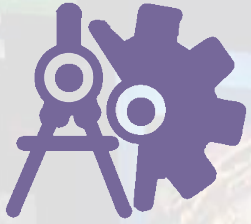
# CRYSTAL DISPLAY SYSTEMS LTD

A brief introduction and background to some of CDS's capabilities and services



- Custom monitor design
- Customised TFT LCD panels and interfacing solutions
- Bespoke cover glass manufacture
- Custom touch screen development
- Touch screen fitting service
- Optical Bonding
- Industrial Panel PC's (IPC) to the customers specification
- Logistics & Support / stockholding services
- Comprehensive in-house test and repair facilities
- Who are CDS?





## Custom monitor design

# CUSTOM MONITOR DESIGN



CDS has many years' experience in bespoke monitor design having designed for and supplied some of the world's most renowned brands and companies. We have worked on numerous projects for customers globally, delivering custom monitor designs and engineering solutions.

Our custom display solutions can be found across many applications and industries, including marine, aerospace, industrial, process control, manufacturing, broadcasting, healthcare and many more applications and market sectors. CDS's broad base of experiences putting forth top-quality displays across industries has given us a particular in-depth understanding of the display market and an understanding of the requirements unique to each sector and application.

The options are almost endless, but we have supplied our global customer base with monitors that included or need such specifics as, ultra-wide viewing angles, ultra-high bright, optical bonding, custom cover glass / cover-lens, specific inputs, specific power requirements, custom housing and materials, logo integration, specific touchscreen requirements, built in temperature sensor, light sensing capability to change screen brightness and other customer specific specifications.

We have even integrated the customers own proprietary PC or communications board to achieve a truly custom solution that exceeded customer expectations.

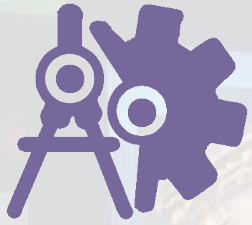
Whatever your requirement our design engineering and support teams can ensure the smooth running and delivery of your bespoke industrial specification and end product. [Contact](#) our team to discuss your project requirements.

### MORE INFORMATION ON

- [Custom monitor design](#)
- [Industrial Range of monitors](#)
- [High Bright outdoor monitors](#)



Email us to discuss CDS custom monitor design



## Custom interface design



## CUSTOM TFT & INTERFACE DESIGN

CDS provides a wide range of value-add products including A/D & D/D flat panel controller boards and interface cards including a full range of standard off the shelf display cards but also a bespoke interface and design service.

We can work from a simple sketch through to a controller board you wish to redesign but use that as the base design (e.g., keep the same mechanical dimensions) but change the number / type of inputs then our design team can work closely with you and your team to make your design a reality. It can include the number of inputs, the position of those connectors or other inputs such as RS232 and power etc.

CDS can take your board design from concept to mass production whilst keeping you in the loop throughout all phases of the design and production including drawing / design sign off, prototyping / samples and mass production.

One of our specialisms is offering replacement for obsolete or end of life products. It is not always easy to swap to a different solution. This takes many forms including;

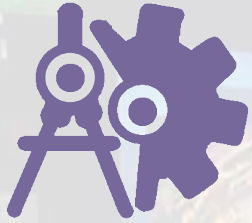
- Recently the market was hit when Mitsubishi pulled away from the TFT LCD market stopping all production. Although last buys were put into place, the global shortage of components delays these last time buy order. Mitsubishi were known for their HIREL products used in applications such as military and medical. CDS were able to offer a drop in compatible range (both electrically and mechanically) to help ensure up to 10 year continuity of supply.
- CDS are also able to rapidly develop and manufacture open frame chassis touch monitors where the existing supply chain is compromised. This will often involve prototyping within 2-3 weeks and matching signal protocols

### MORE INFORMATION ON

- [CDS Interface boards & kits](#)
- [Bespoke product design](#)
- [Industrial panel PC](#)



Email us to discuss CDS custom interface board development



## Bespoke cover glass



## BESPOKE COVER GLASS

**MOST DISPLAYS NEED A COVER GLASS OR LENS.** It's a simple term for a component that, by applying a little thought, can create a solution that stands out from the competition. It's all about an intelligent sleek and practical design and maximising the potential from every aspect of your user interface.

Putting a cover lens to work can deliver the functionality and performance you need within the typically tight constraints like power, cost, and time to market etc. The underlying role of the cover glass is to protect the front of the panel. It is required to prevent the delicate polariser on the front of the display being damaged by hazards such as misuse, moisture, contamination from finger grease or dirt, dust, and other particles in the atmosphere, as well as impact damage.

Choosing from material options such as soda lime, chemical and heat strengthened, tempered, and toughened glass and PMMA, Polycarbonate or Optolite™ high scratch resistant plastics, the CDS team can identify the ideal solution. Our bespoke service also includes enhancement such as Anti-Glare (AG), Anti-Reflection (AR) and Anti-Smudge (AS) optical treatments.

Finally, our processing abilities include

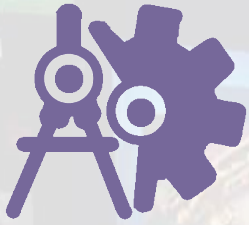
- Cutting
- Waterjet cutting
- Edging
- Grinding /polishing
- Drilling
- SICHEM / SETHERM
- Laminating

### MORE INFORMATION

- [PCAP Touch screens](#)
- [Industrial range of monitors](#)
- [Optical bonding](#)



Email us to discuss bespoke cover glass options



## Custom touch screen design



## CUSTOM TOUCH SCREEN DESIGN

CDS Designs and Manufactures a wide range of customised bespoke touchscreens and touch controllers. One of CDS's biggest strengths is rapid response prototyping for bespoke finished and open frame chassis monitors.

We have a wide range of standard touchscreens and displays but if one of these is not suitable, we will look at your specification and mechanical brief and engineer a solution to meet your requirements.

Whether it be a product which needs upgrading, or a new touchscreen design, CDS can design a custom touchscreen solution aiming to tick all your boxes. Whether it be high reliability applications such as marine, military or aerospace or an industrial application CDS has a touchscreen solution for you, including considering and managing long term availability

Two recent examples include firstly a 19" solution with a full bespoke touch glass. This thermally toughened glass has an oversized active area and a number of rear illuminated virtual touch buttons on the lower edge. This is achieved using the latest EETI EXC84H series of controller. The glass has an Anti glare surface finish with a polished camera window. The glass is shaped and rear printing with multiple colours including opaque windows for rear illumination.

Secondly, we developed two military grade IR touch bezels for a marine application. These IP65 front sealing and are built to the highest level including conformal coating on the internal PCB's

We also have a wide range of standard off the shelf designed monitors so please request this digital brochure which includes mechanical drawings etc.

### MORE INFORMATION

- [PCAP touch screens](#)
- [IR touch screens](#)
- [Optical bonding](#)



Email us to discuss bespoke touch screen design



## Touch screen fitting

# TOUCH SCREEN FITTING



CDS CAN FIT TOUCH SCREENS TO TFT LCD'S AND MONITORS - By using our UK facilities, it means our customers do not have to take the risk as we can fit the custom touch screen avoiding breakage, misalignment, or contamination.

Depending on the application and budget we can use our highly effective **strip bonding** method or **optical bonding** also.

**STRIP BONDING** is the application of a double-sided gasket around the edge of the display on its bezel. The touchscreen is then accurately positioned over the display in a clean environment using lamina flow cabinet to avoid contamination.

**OPTICAL BONDING** is the application of an optical clear compound between the complete display / touch sandwich. This compound has adhesive properties ensuring the components are held in position. Generally used for more HIREL applications such as outdoor kiosks, medical and military, optical bonding gives the highest quality solutions.

Both solutions of touchscreen fitting use high engineered jigs to ensure consistent positioning from touch screen to touch screen and from batch to batch.

Over the year we have tuned the process to optimize and reliability so our clients will have the comfort to know that if there is an issue, as CDS are providing an assembly solution, the problem falls with CDS. We have seen many issues where customers have misaligned, scratched the display / touch glass or even broken the touch glass or display which becomes an expensive mistake. The worst being where a client fitted over 200pcs of a touchscreen 180° in the wrong orientation. CDS can take this risk away for a small cost adder.

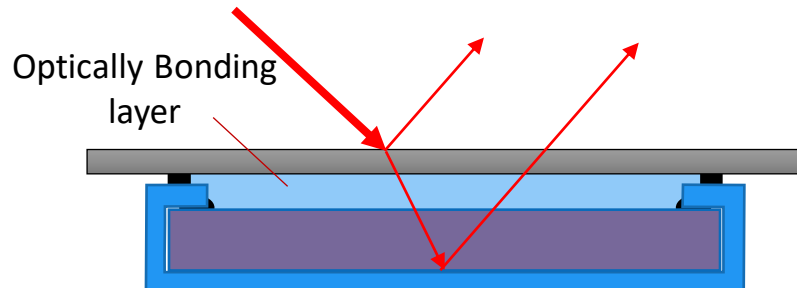
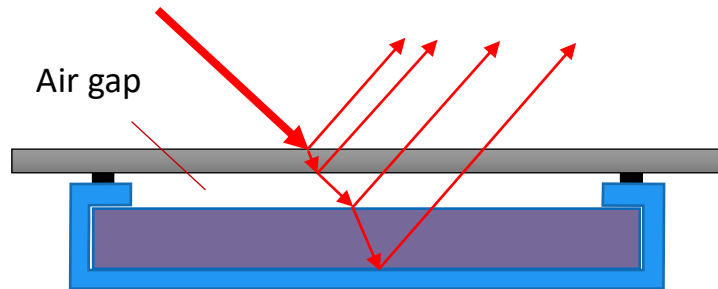
### MORE INFORMATION

- [PCAP touch screens](#)
- [Optical bonding](#)
- [IP66 outdoor monitors](#)



Email us to discuss touch screen fitting

# Optical Bonding



Optical bonding is the addition of an optical gel between the front surface of an LCD and the touchscreen / cover glass. The selection process of the cover 'substrate' is as critical as the process itself.

At CDS we have the experience and knowledge to guide through the glass selection process where every requirement is treated as individual.

Traditionally, when a glass or touchscreen was fitted over the display they were 'strip bonded' together using the bezel of the display. This left an air gap (void) between the two layers.

This method is adequate for most applications due to its low cost and simplicity, but this void can be problematic for solutions which are used outdoors or in high ambient light. In these environments internal light reflections within the void often make a transmissive TFT LCD unreadable due to loss of contrast caused by these internal reflections.

By filling this void with an optically clear compound, these reflections are reduced, and readability massively increases. Used in conjunction with a high bright display this offers the optimum outdoor solution.

## FULL BENEFITS INCLUDE

- Increases contrast ratio in high ambient light conditions
- Bonding sizes up to 75"
- UV Protection
- Extended Temp range
- Reduces parallax
- Sunlight Readable
- Better Impact resistance
- No condensation
- No contamination
- Improves Clarity
- Better heat dissipation

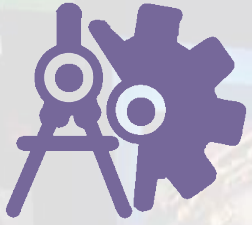
## MORE INFORMATION

- [Optical bonding](#)
- [PCAP touch screens](#)



Email us to discuss how optical bonding will benefit you

OPTICAL BONDING



## Bespoke Panel PC's

# INDUSTRIAL BESPOKE PANEL PCs



The CDS sales and technical support teams have many years' experience in custom Industrial computer and panel PC design having designed for and supplied some of the world's most renowned industrial brands and companies.

The team has designed many products for customers globally, delivering custom industrial PCs and panel PC solutions. Specialized tasks require customized computer solutions that are engineered to deliver reliable seamless integration with your processes. For marine, aerospace, defence, pharmaceutical and oil & gas industries, to name just a few, consumer-grade systems will not suffice.

The CDS custom-made industrial computers, and related equipment are suitable for a diverse group of clients in highly specialized industries. For example the CDS bespoke solutions can allow our customers to Integrate a high-performance, reliable and resistant Industrial PC on all the machines in the production line, and maintain an excellent level of operation in an industrial environment.

The Industrial PC designs from CDS and its partners help ensure excellent levels of continuous operation, but at the same time are equipped to withstand the "hostile" conditions of an industrial environment (for example IP65 frontal protection).

CDS offers total level of customization of its products, with the aim to provide customers with solutions tailored to your specific needs. Contact our team to discuss your Hi-Rel or related industrial PC or panel PC requirements.

### MORE INFORMATION

- [Industrial panel PCs](#)
- [ARM based systems](#)
- [Industrial tablets](#)



Email us to discuss your bespoke panel PC brief





## Logistics and Stockholding



## LOGISTICS & STOCKHOLDING

Being a global supplier of displays CDS has to offer a flexible practical service to meet its customers' varied requirements and specifications.

This includes our logistics and support services which can be a simple stockholding service or a regular monthly call off frame order that helps ensure our customer minimise their stockholding and costs whilst at the same time knowing they have local stock ready to be shipped should they require it. This also allows us to bring the produce over by Sea in 20ft / 40ft containers saving ever increasing transit costs. More importantly it also allows us to reduce our carbon footprint and follows the ISO14001 strategy.

The large stock holding means CDS is an integral part of our customers operations and true partner adding real value at the point of supply. These services can include Just In Time (JIT) shipping and call offs. We find that no two customers need the same stock holding strategy so we have an open mind to looking at solutions to 'tick all the boxes.

We partner with experienced freight forwarders and have dedicated staff tracking the shipments whilst in transit so we know exactly where our / your product is at any time.

We operate a transparent information flow. A number of our stocking customers will get monthly reports on quantities in production, quantities in transit and stock being held at the CDS warehouse. We don't believe in last minute surprises. Business is all about planning and we aim to take these headaches away from our customers.

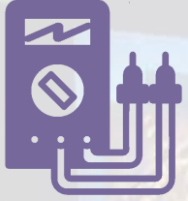
Please contact our support teams or your account manager to discuss opportunities and how we can better support you and your business.

### MORE INFORMATION

- [CDS Management team](#)
- [CDS Quality & Environmental](#)



Email us to discuss the CDS stocking services



## In-house test and repair



## IN-HOUSE TEST AND REPAIR

CDS has an in-house test / repair facility and experienced team that is on hand to meet your every requirement. This is essential to support your development, design and after sales service.

As an engineering focussed company, it is critical to support our client developments from initial concept of a new product through to the post production.

We have a full test and inspection facility which allows for a full suite of operations required to ensure a consistent and quality product is produced and maintained.

The CDS engineering support team carry out regular tests and checks of many products and with the in-house environmental chamber CDS can take testing including stress testing and reliability testing to the next level which few display companies can in fact execute.

This is just a part of the CDS philosophy of total customer support and supplier in action where facilities such as in-House **environmental chamber** and temperature testing for hi reliability applications is rare.

Our Lamina flow cabinets allows the CDS engineers to test / repair in a clean environment reducing the risk of contamination. Our / your products are important to CDS, so we ensure we have the correct tools and equipment to handle them.

It is also important to offer a full support service for our solutions through warranty and non-warranty returns. Where possible we will investigate and fault find down to component level and repair locally which massively reduces failure costs and time.

### MORE INFORMATION

- [Industrial panel PC's](#)
- [Medical market sector](#)
- [High Bright monitors](#)



Email us to discuss our in-house Repair & SLA services



## Who are CDS?



*Chris - Managing Director*



*Tony - Technical Director*



*Richard - Solutions Sales Manager*



*Natalie - Finance Manager*



*Ash - Internal Sales Manager*



*Meghan - Head of Marketing & Logistics*



*Reece - Warehouse Manager*



*Katie - Sales Support Executive*

## WHO ARE CDS?

Crystal Display Systems offers the widest range of standard off the shelf Display touchscreen and embedded computer / panel PC products as well as digital signage displays also. But when a standard off-the-shelf product is not what your business requires, Crystal Displays offers an excellent bespoke solution service to meet your needs.

These solutions and services include custom displays, monitors, touchscreens, stockholding / call off orders, global logistics services for international multi-plant deliveries, domestic logistics and support, plus custom cover glass and optically bonded products to name but a few. Most of the customisation is controlled in-house through our team of software, hardware and mechanical engineers.

By involving you as the client in the development stages and understanding your challenges and needs, we can devise the perfect technical / logistical solution to meet any adaptations and customised features that may be required.

On request we can offer a full bespoke service around TFT technology – from assembly of components to complete production of subsystems or finished products as well as frame order call offs and Just In Time (JIT) delivery solutions. You can benefit from our wide range of customer-specific developments and design engineering services with experienced engineers constructing and designing display systems according to your ideas, guidelines, and specification. On this basis CDS can design & supply prototypes to provide a cost effective one-stop-shop through to mass production of the developed systems.

As a private company where the stakeholders have an active presence in the daily running of the business which give the advantage of being quick and flexible. Having recently purchased a new build office / engineering / warehouse facility CDS are in a strong position for continued growth.

### MORE INFORMATION

- [Visit our Website](#)
- [Our management team](#)
- [CDS Client base](#)



Email us to discuss more about CDS products & services

# Custom monitor builder

We have direct links with OEM factories allowing rapid development, commercially competitive and have scalable production capability. From designing a replacement for a current product through to a complete design CDS has the resource available [“CLICK HERE TO SEE THE MONITOR BUILDER PAGE”](#)



## DEVELOPMENT

of new products through  
out R&D team

## AFTER SALES

Support for internal repairs  
and full technical backup

## BESPOKE

Touch monitor design

## LEADTIMES

For production excellent  
compared to other  
manufacturers

## RAPID

Sample production quicker  
than most local suppliers

Crystal Display Systems is a  
leading designer, distributor &  
value added reseller of flat panel  
display solutions. Our expertise  
allows us to  
offer the best solutions to our  
clients and partners. We offer  
Industrial TFT LCDs,  
Retail Displays, Translucent  
displays,  
Touch screens, videowalls  
& many  
other digital solutions

## EUROPEAN

design with Far Eastern  
pricing

## QUALITY

ISO9001 approved  
ISO 14001 approved

## GLOBAL

production with factories  
in CHINA / TAIWAN /  
SOUTH KOREA

## For More Information, Please Contact Our Main Office And Technical Support Team

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