

# CRYSTAL DISPLAY SYSTEMS LTD

Small ~ Medium LCD capability



Display technologies

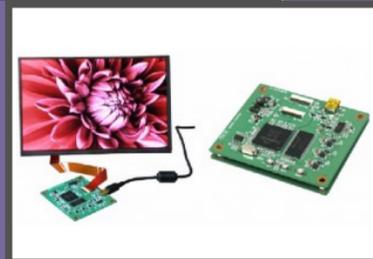
TFT modules



OLED solutions



Stretch displays



Monochrome modules



Custom designs

Embedded solutions



# CONTENTS

- *Crystal Display Systems - About us!*
- *Display Technologies*
- *DISPLAY COMPONENTS ~ Monochrome passive displays*
- *DISPLAY COMPONENTS ~ PMOLED*
- *DISPLAY COMPONENTS ~ TFT LCD*
- *DISPLAY COMPONENTS ~ TFT Bar (stretch) displays*
- *DISPLAY COMPONENTS ~ Sunlight viewable TFT displays*
- *DISPLAY COMPONENTS ~ Custom designs*
- *DISPLAY COMPONENTS ~ Embedded (smart) TFT displays*
- *Contact details*

# Crystal display systems - About us!

**The CDS Philosophy of business** – Industrial Displays from Crystal Display Systems the leading designer, distributor, value added reseller as well as the developer of custom monitors and customization of flat panel display solutions.

Established over 12 years ago, our expertise allows us to offer the best solutions to our clients and partners. We offer Industrial TFT LCDs, OLEDs embedded AIO, touch screens, and digital signage solutions.

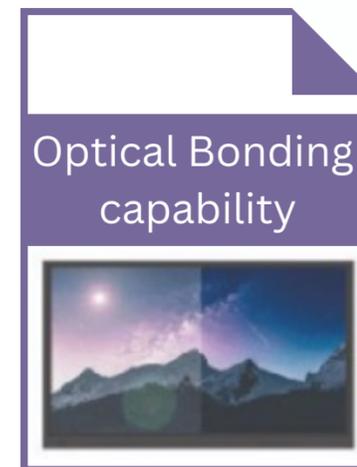
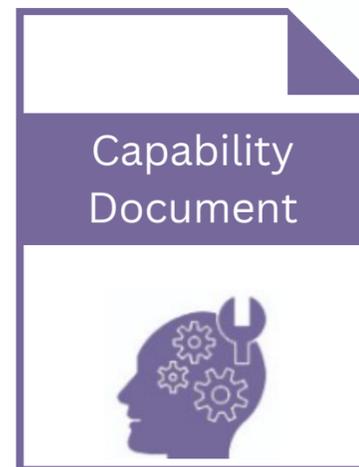
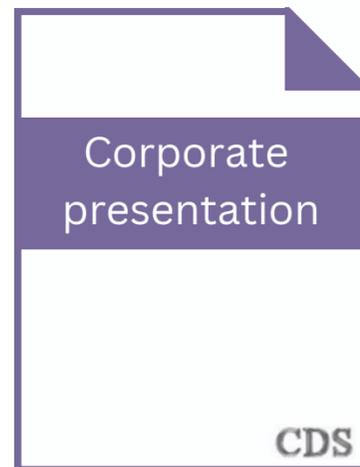
With the CDS philosophy of business we combine the latest industrial and retail displays and technology, engineering and manufacturing capabilities to optimise our integrated solutions.

If you have a requirement for any digital display products then please contact our Technical sales and support team to work closely with you on your specific project and requirements.

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## DOWNLOAD CENTRE

<https://crystal-display.com/cds-presentation-download/>



# Display technologies

## Monochrome LCD Displays



Our product line-up boasts a wide array of alphanumeric and graphic STN & FSTN LCD modules, incorporating cutting-edge COB/SMT and COG technologies.

Ranging from 2x8 to 4x40 displays, these modules cover industry-standard formats and even accommodate larger characters and extended temperature ranges.

They can be configured in reflective or LED-backlit options, with choices of transmissive positive or transmissive negative modes.

In the graphic series, we offer resolutions from 122 x 32 to 320 x 240 QVGA, with integrated ICs for easy interfacing and additional features like touch screens, polarizer options, and various LED backlight colours.

## Colour TFT Displays



Our industrial display line-up offers TN and IPS TFT screens ranging from 0.95" (120RGBx240 pixels) to 49.0" (3840RGBx2160).

It covers standard sizes, formats, and specifications, plus includes the extremely versatile bar, stretch, round, and square models.

The range also includes high-brightness for sunlight visibility, ultra-wide temperature (-30°C~+85°C) and ultra-wide viewing angle (85°/85°/85°/85°) versions.

Most sizes support capacitive (PCAP) and resistive touch options, with many sizes also having display interface options (MCU, SPI, MIPI, RGB, LVDS, HDMI, USB-C). This extensive collection suits diverse industrial needs.

## PMOLED Displays



The PMOLED display lineup offers monochrome, area colour, and full colour modules.

Monochrome and area colour options range from a petite 0.19" (128x96 pixels) to a substantial 5.5" (256x64 pixels), with various sizes in-between

The full colour range includes modules starting at 0.95" (96x64 pixels) and going up to 1.69" (160x128 pixels), with additional sizes and formats available.

PMOLED is an emissive technology, requiring no backlight and provides excellent optics with wide viewing angles, a 10,000:1 contrast ratio, rapid switching (<10µs), and an operating temperature range of -40°C to +85°C, making it ideal for industrial, medical, and automotive applications.

# DISPLAY COMPONENTS ~ Monochrome passive LCD



Link to website



CDS have a comprehensive range of monochrome character and graphic LCD.

Character modules from 2x8 through to 4x40 encompassing all the usual formats in between. The range also includes SPI, I<sup>2</sup>C and RS232 multi-interface options all with the industry standard footprint.

The extensive graphics LCD range has displays from 122 x 32 to 320 x 240 (QVGA) pixels and covers all the popular sizes and formats plus some uncommon ones.

The displays feature the latest COB/SMT and COG technologies and include on-board graphic LCD controllers for ease of interfacing, LED backlighting options, 4-Wire resistive touch options plus wide temperature operation versions available at no extra cost.

# DISPLAY COMPONENTS ~ PMOLED

OLED technology outperforms traditional LCDs in small graphic displays. Many applications are shifting from monochrome LCD and TFT LCD to OLEDs for their superior visibility, fast response times, and low power consumption. OLEDs come in various sizes, offer full RGB colour, monochrome options, and character displays in different colours, with compatibility for multiple interfaces.



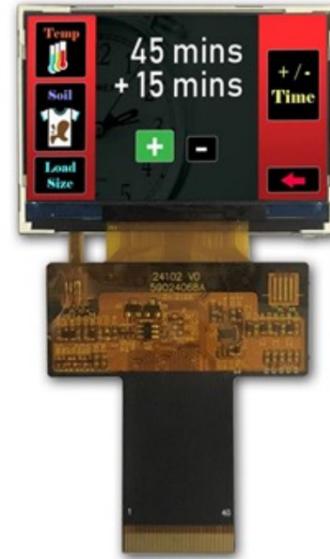
[Link to website](#)



## Features

- Extremely wide viewing angle of 175° on all axis.
- High contrast ratio of >10,000:1, High brightness (adjustable)
- Fast response times. Up to 10 times fast than LCD
- Long life, 60khrs typically (yellow up 200khrs)
- Low power consumption in comparison to LED backlight ~ ideal for battery applications
- Wide Operating temperature, -40°C ~ +85°C
- Lightweight and compact, typically 1.1mm ~ 2.5mm thick and weighing only 2.0g.
- Emissive technology (no backlight required)

# DISPLAY COMPONENTS ~ TFT LCD



Our industrial display line-up of TN and IPS TFT screens range from a very compact 0.95" with a resolution of (120RGBx240 pixels) to 49.0" (3840RGBx2160) TV panel size.

The extensive range covers standard sizes, formats, and specifications, plus includes the extremely versatile bar, stretch, round, and square models.

The range includes high-brightness for sunlight visibility, ultra-wide temperature (-30°C~+85°C) and ultra-wide viewing angle (85°/85°/85°/85°) versions.

Most sizes support capacitive (PCAP) and resistive touch options, with many sizes also having display interface options (MCU, SPI, MIPI, RGB, LVDS, HDMI, USB-C). This extensive collection suits diverse industrial needs.

[Link to website](#)



# DISPLAY COMPONENTS ~ TFT Bar (stretch) displays



We offer a comprehensive selection of "Bar Type," "Letterbox," or "Stretch TFT LCD display from a 2.5:1 aspect ratio 2.9-inch, 320(RGB) x 120 resolution panel to a 5:1 aspect ratio 24.0" 1920(RGB) x 360 resolution panel plus many more sizes and formats between these two ends of the spectrum.

These extremely versatile high-resolution displays are engineered to meet high specifications for industrial, automotive, and aerospace applications, delivering excellent optical performances for brightness (up to 1300cd/m<sup>2</sup>), ultra-wide viewing angles (170° left to right and 170° top to bottom) and high contrast ratios of 1200:1.

All models have one of the industry standard interfaces (MIPI, RGB, LVDS) plus some models come with a HDMI plug-and-play solution with touch for a quick and easy integration into your application.

Link to website



# DISPLAY COMPONENTS ~ Sunlight viewable TFT displays



Within our extensive TFT range we have many high brightness, full sunlight viewing options covering the standard sizes and formats plus displays from our bar (stretch) range.

Our transmissive TFT displays feature a high brightness LED backlight, typically between 800~2000cd/m<sup>2</sup>, our transreflective models generally have a low brightness LED backlight for night viewing only, but utilise ambient light during the day, making them ideal for low power applications.

High brightness PCAP touch options are also available with many having the touch optically bonded to the TFT panel eliminating the void between the display and touch thus reducing the number of reflective surfaces within the assembly. This creates a superior optical performance ensuring the display can be fully readable in all lighting conditions.

Link to website



# DISPLAY COMPONENTS ~ Custom designs

We offer custom LCD solutions to meet your specific needs. If a standard LCD won't fit your case or display requirements, we provide semi-custom or fully custom options. We can modify standard parts or create a unique display to match your design. Even a simple sketch can be the starting point, and our engineers will work with you to ensure your needs are met. We can also provide custom LED backlights. To ensure cost effective production there is a minimum order quantity (MOQ) based on size and complexity, this can be as little as 500 pieces



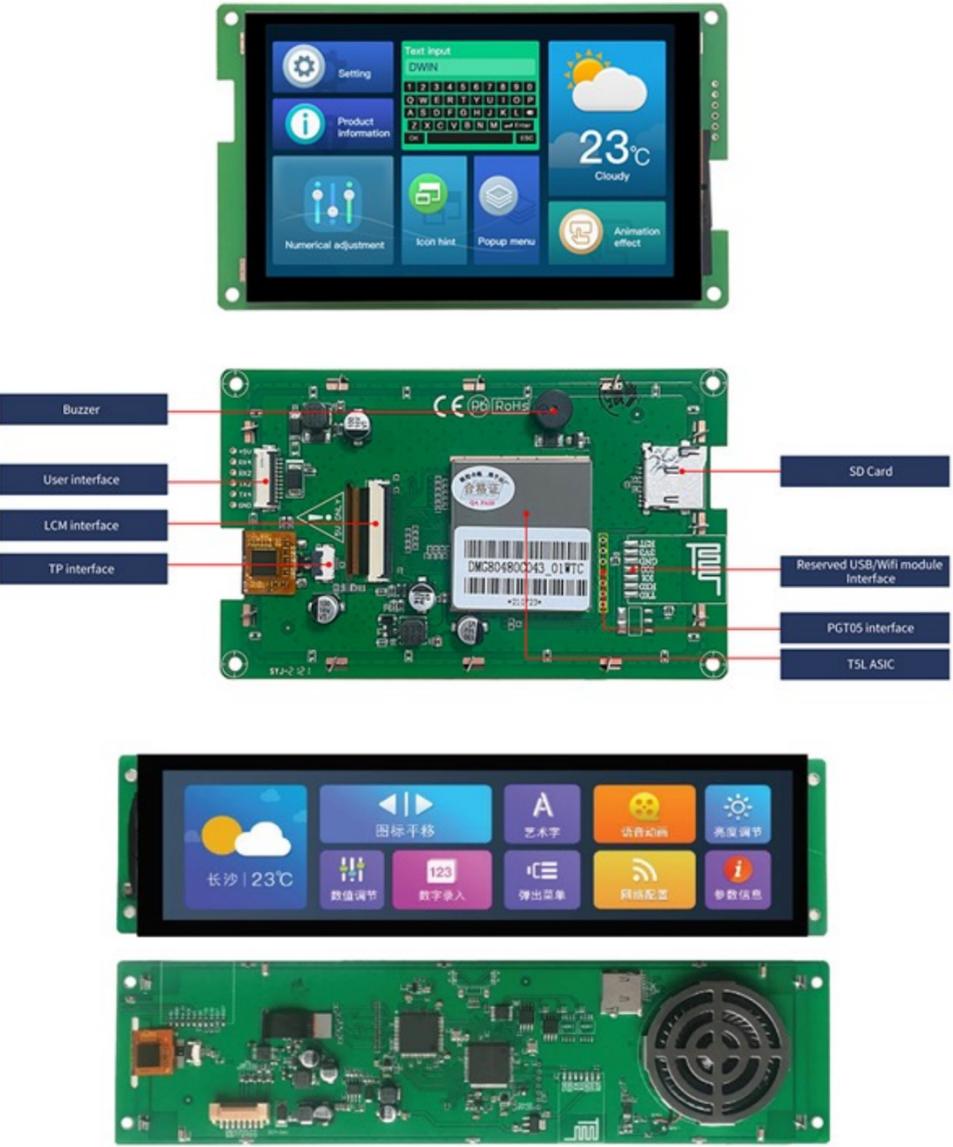
## Features

- TN/STN Panel or Modules
- Reflective/Transflective/Transmissive polarisers
- 3, 6, 9 & 12 o'clock viewing direction options
- FS-LCD Panels (Field Sequential LCD Panels)
- Multi-Colour or single colour LED backlights to suit
- Wide operating temperature options (-40~80°C)
- Pin or Elastomer connections
- Static or Multiplexed driving
- 5V or 3V input voltages

Link to website



# DISPLAY COMPONENTS ~ Embedded (smart) TFT displays



Designing a product with a colour TFT display and touch does not have to be complex. By using one of CDS's Smart Displays along with a simple but powerful software development architecture, designers can quickly develop their graphical user interface (GUI) including touch functionality using images, fonts and music files created in popular software. Your files can then be quickly and simply imported into the display's FLASH memory.

The extensive range has sizes from a 1.3" 240(RGB)x240 circular display through to a 21.5" 1920(RGB)x1080 full 2K HD resolution model and encompasses all the popular sizes and formats in-between. The heart or engine of the displays is a powerful T5L ASIC dual-core 8051 processor, communication to your peripheral devices is via an integrated serial interface providing RS232/TTL/RS485 and CAN connections.

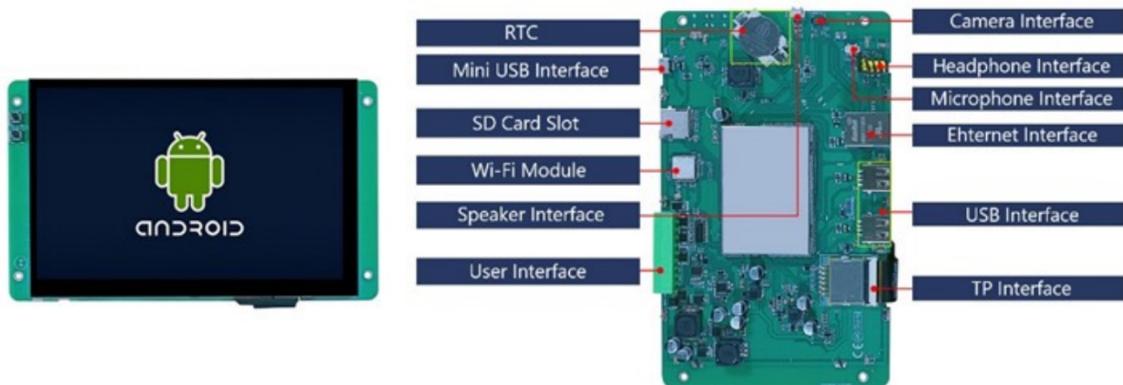
The majority of the displays feature IPS wide view technology and can be supplied with either PCAP or 4-Wire Resistive touch. The range has a standard operating temperature of -20°C~+70°C although for very harsh environments we can provide models with a working temperature range of -40°C~+85°C.

Link to website



# DISPLAY COMPONENTS ~ Embedded (smart) TFT displays

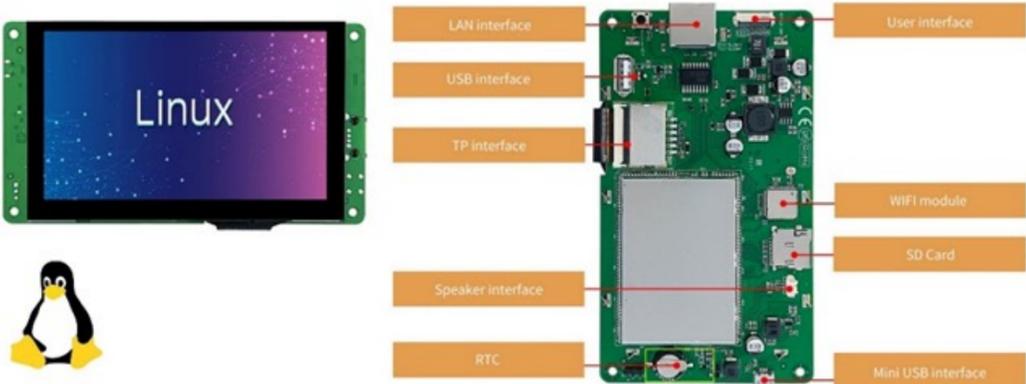
## Android Based Smart Display Modules



Our highly versatile Android based industrial Intelligent display modules provide a wealth of standard integrated features and functionality. These features coupled with the ability to configure and customize with standard 'off-the-shelf' Android apps or user developed APK files enable peripheral hardware to be simply and easily integrated into your design. Sizes from 5" 800(RGB)x480 to 15.6" 1920(RGB)x1080 with PCAP touch as standard.

As Android is an open-source operating system developers can easily change code to build a customized user Interface.

## Linux Based Smart Displays Modules



Our highly versatile Linux based industrial Intelligent display modules provide a wealth of standard integrated features and functionality. These features coupled with the ability to configure and customize with standard 'off-the-shelf' Linux apps or unique user developed apps enable peripheral hardware to be simply and easily integrated into your system. Sizes from 5" 800(RGB)x480 to 9.7" 1024(RGB)x768 with PCAP touch as standard.

As Linux is an open-source operating system developers can easily change code to build a customized user Interface. Linux offers a high level of security against viruses & malware as programme changes can only be made by the system administrator resulting in an extremely stable system.

Need any additional information?

Our team is always available to help you with pricing details, technical support, or any additional information you may need. Please don't hesitate to reach out.



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