4D SYSTEMS

MAKING HUMAN INTELLIGENCE SMARTER

Company and Technology Introduction

Welcome to **4D SYSTEMS.**

We are a global leader committed to providing world class and industry leading intelligent display solutions. Our products and solutions utilise the latest state-of-the-art OLED and LCD technologies with embedded custom graphics processors that deliver stand-alone functionality and eliminate low level development requirements. Combined with our comprehensive software tools, our modules provide unrivalled ease-of-use and time-to-market for developing virtually any application requiring a graphical user interface with or without touch functionality.

We specialise in design, development, and manufacturing of intelligent display solutions, for high-tech industries ranging from medical, industrial, automotive, and commercial use.

Established in 1990, our extensive experience allows us to transform concepts and ideas into cutting-edge hardware and software solutions. Our engineering team consists of highly skilled and creative electronics and software engineers who work in close partnership with world-class production facilities. With ISO:9001 and ISO:14001 certified manufacturing facilities, we focus on delivering the highest level of quality and customer experience.

Headquartered in Sydney, Australia with representative offices internationally, our solutions are available globally through our extensive worldwide distribution network.

We take great honour and pride in seeing our products saving lives through medical ventilators, cancer treatment and research, vitals monitoring and many other applications our customers have been able to achieve with our display solutions.

4D SYSTEMS started as an idea, which grew to become a global company that engineers real world solutions. We want to empower forward thinking engineers, designers, and organisations who, by using our products, also help solve real world problems and make a positive impact, one display solution at a time.

Sinan Aknar
Managing Director

OUR LOGO

The 4D SYSTEMS logo is a playful contrast between a 3D representation of a cube super-imposed with the 4th dimension:

4D, telling the world we think outside the square.

The diamond shape further represents our belief that human values are precious, and we embrace technology that aids in making human intelligence smarter.

With its digital-age font for the main logo, and italicised orientation of our tagline, it suggests our reaching out to the world and commitment to advancement.

OUR ETHOS

Fifteen years ago, 4D SYSTEMS entered the world stage promoting and selling its technology. Having navigated our way through uncertain times, a global financial crisis, and recently the COVID-19 pandemic, it is a testament to the resilience of our team and the 'never-give-up' attitude, that we find ourselves today firmly positioned as a global leader in embedded display solutions.

4D SYSTEMS has grown to build a reputable and solid foundation for itself. We have onboarded some of the worlds' biggest electronics component distributors, kept manufacturing in Australia when outsourcing overseas was the 'in thing' to do, upheld our passion for innovation, and continued to grow as we embark on new journeys that are ahead of us.

On the surface, 4D SYSTEMS may seem to be like other companies, however, 4D SYSTEMS is unlike most other companies for many reasons.

We stand for:

- Purpose over profits.
- Innovation over planned repetition.
- Collaboration over control.
- Networks over hierarchies.
- Environmental care over unchecked consumption.
- Humane capital over human resources.

This 4D Philosophy for Excellence is a continuing driving force that enables us to do what we stand for, mentioned above, with high standards: this is why we are passionate about empowering our customers, from engineers, companies and entrepreneurs to weekend hobbyists and students alike, who all use our technology that unleashes their creativity to solve problems and design solutions.

Not many companies can honestly speak of accomplishments of such goals beyond profit. We are not a for-profit company; we are a for-benefit enterprise. We don't just sell products; we help solve problems that make human intelligence smarter through our display solutions. None of this is possible without our entire team who continuously push boundaries of innovation, efficiency, and quality. 2020 saw unprecedented changes globally due to the COVID-19 pandemic, affecting businesses negatively throughout the world. But we persevered together and, in our pursuit to offer solutions, our display solutions helped build Portugal's emergency ventilators in amongst the shortest time-to-market period that helped save COVID-19 patients' lives. We had even chartered a private aircraft to deliver inventory to our warehouse to fulfil our commitments to deliver our finished products to customers. And these types of examples were not because we were focussing on just selling products, but because we are focussed on providing solutions.

As the world accelerates more into digital systems, there will be greater opportunities that also demand greater focus, innovation, and delivery of real-time solutions through our products that meet the 'new normal' of the future.

We are committed to excellence; we embrace change, and we thrive on being an active participant to offer the world disruptive innovation through display technology that makes human intelligence smarter.

OUR ETHOS

PURPOSE
from profit to

We utilise our resources & profits to generate solutions to problems.

INNOVATION
from planned repitition to

We solve problems through innovation that helps unleash creativity in all who use our products.

COLLABORATION
from control to

To be innovative, we openly include all those who will contribute to solutions.

NETWORKS
from hierarchies to

We involve others & develop a network with all who share our purpose.

ENVIRONMENTAL CARE
from unchecked consumption to

Our products are not just another consumable, but are solutions with a commitment to environmental care.

HUMANE CAPITAL
from human resources to

We recognise our staff who deliver innovative solutions to the world, not as resources but humans.

4D SYSTEMS
MAKING HUMAN INTELLIGENCE SMARTER

OUR CORPORATE STATEMENTS

PURPOSE

We help engineer solutions that unleash human creativity.

4D Systems believes in the importance of intuitive technology that helps solve human needs and problems. We passionately believe that technology cannot just be a tool that is autonomous of people, but rather exists to make our choices more efficient, smarter, and sustainable.

Amongst the most intuitive ways we interact with technology is through display and touch. We therefore design technology to shape the way humanity interacts with the world, and which makes complex computing stylish, simple, and smart - right at our fingertips.

MISSION

We empower forward-thinking engineers, designers, and organisations with the ability to achieve their objectives using our intelligent display solutions.

4D Systems provides commercially-ready embedded graphics display solutions for virtually any application. With ISO:9001-certified manufacturing facilities, we focus on delivering the highest level of quality and customer experience.
We recognise the growing importance of human-intuitive and intelligent technologies. We therefore offer technology that meets the needs of a diverse range of users, applications, and industries. Our mission to produce creative display solutions of the highest standards is backed by 4D Systems' commitment to greater environmental responsibility and a proactive responsiveness to human needs.

VISION

To be the primary interface provider for human interaction with smart technology.

Industry 3.0 witnessed the transformation of production from mechanical to computerised automation. Today, Industry 4.0 is taking automation to the next dimension with advances in computerised decision-making, increasingly interconnected devices, and artificial intelligence.

We are acutely aware of this transformative shift in technology and recognise that a connection to human endeavours needs to be preserved. The fourth dimension of the future is to continue to utilise technology that makes human intelligence smarter.

4D Systems is making human intelligence smarter today and into the future.

OUR CORPORATE STATEMENTS

VALUES

1. **Courage in Creativity –** Every light bulb moment comes from the audacity to dream of possibilities untold. Innovation is our passion, driven by a rigorous methodology in creating products and solutions for ourselves and others.

2. **Driven By Solutions –** Tailored, customised, and cost-effective solutions can only be developed when we dig deep and truly understand the objectives of our customers to solve problems and meet needs. We thrive on this passion to explore new options to meet a variety of needs as technology progresses.

3. **Human First –** For 15 years our team has forged its reputation as a global leader through relationships and understanding the people we work with. We treat our partners the way we would like to be treated, and we create products that are intuitively human. From all of us at 4D Systems, we believe this is the only way forward.

4. **Shared Performance Outcomes –** We believe in closely aligning our goals and sharing our achievements. These shared outcomes are between our staff, our engineers, and our customers. We are always determined to meet challenges together: from time-to-market, creative goals, quality benchmarks, to commercial objectives.

5. **Our Principles Do Not Bend –** As an ISO:9001-certified entity, we have a relentless focus on quality across everything we do. This is reflected not only in how we exceed our customers' expectations, but also through living and breathing our commitment to environmental responsibility and humane capital practices.

WHY CHOOSE 4D SYSTEMS?

We took some time to soul search and really understand what makes us different when it comes to intelligent display solutions. We spoke to customers, engineers, distributors and technical support staff to understand why people continue to pick 4D Systems.

BUILT FOR MASS PRODUCTION

Quantity does not drive us. Quality does!
Our display solutions are suitable for any number of modules without compromising on the standards of excellence we have set for ourselves.

10+

PRODUCT LIFTIME

Our innovative solutions offer longer lifetime for our products, offering significant positive value to our customers & toward environmental sustainability.

HUMAN CENTRED DESIGN

We go beyond automation; we bring human choice to the centre through our interactive Graphic User Interface, helping make human intelligence smarter.

FAST-TIME-MARKET

We are an agile company that is commited to efficiency in our product design that aids swift integration into end-products ready for the market.

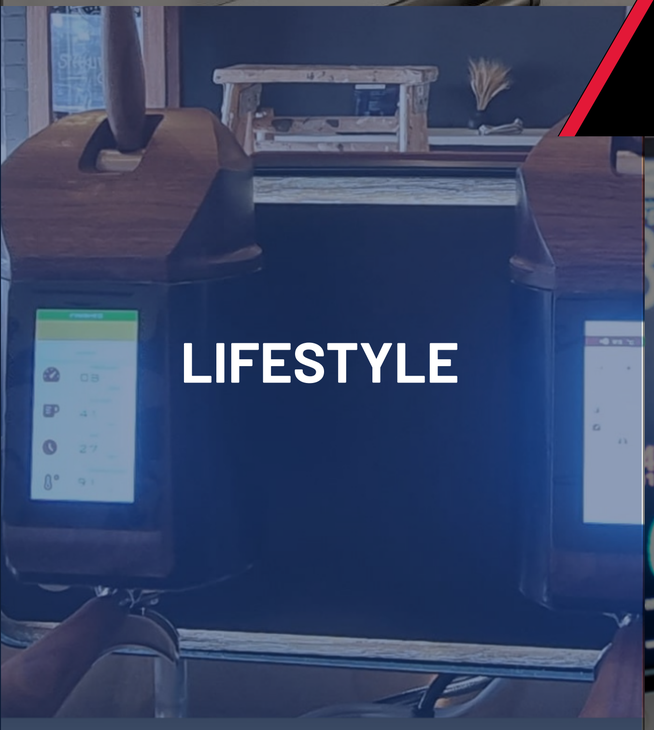
CERTIFIED ISO-9001:2015

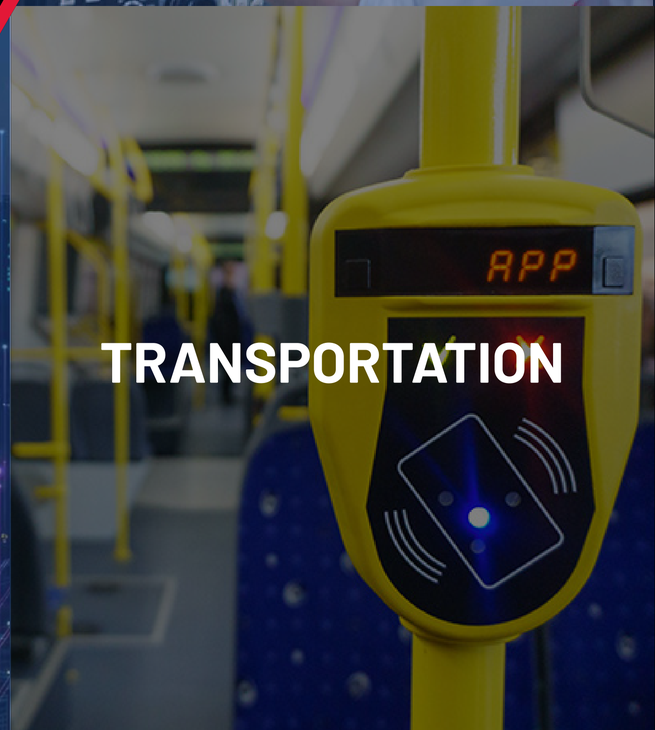
Our focus is to deliver the highest level of quality & consistency that our customers can rely on for design, production, delivery and support.

TECHNOLOGY

The 4D Technology Ecosystem of Intelligent Displays and Workshop4 Integrated Development Environment offer an unrivalled time to market solution from the initial prototyping all the way through to a finished product. We have the display solution for virtually any application requiring a graphics display, with or without touch. Our modules are used in a variety of applications from high value of applications from high value low-mix end products and mid-volume industrial applications, to high-volume mass-market applications. In addition to our off-the-shelf Intelligent Display Solutions, we are also often engaged in developing custom design solutions for our customers when required.

INDUSTRIES WE SERVE





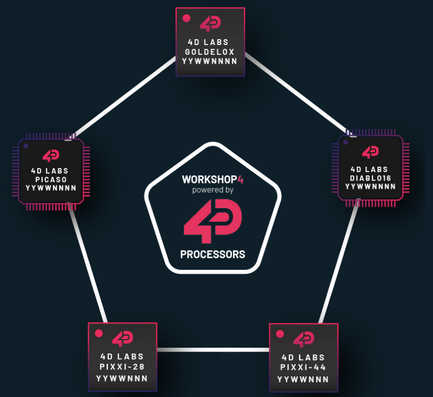
4D Systems Solutions

Intelligent Display Modules

- gen4-HMI Series
- pixxiLCD Series
- uLCD Series
- uOLED Series
- 4Discovery Suite`

4D LABS Graphics Controllers

- GOLDELOX
- PICASO
- DIABLO-16
- PIXXI-28
- PIXXI-44



Software Tools

- 4D Workshop4 IDE

Tailor-Made Solutions

- Custom or bespoke designs based on specific requirements
- TurnKey Solutions

TFT-LCD Displays

- TFT-LCD Displays Available without Intelligence
- Custom Display Request
- Various sizes from 0.5" to > 21"
- Custom Bezels & Decaling

Display Solutions for Open Source Platforms

- Arduino™
- Raspberry Pi™
- BeagleBoneBlack™

4D LABS
SEMICONDUCTORS

WORKSHOP4
powered by
PROCESSORS

GRAPHICS PROCESSORS

GOLDELOX

- Supports 80-Series 8 bit wide CPU interface
- OLED/LCD displays
- 10KB Flash Memory, 510Bytes RAM
- EVE uses ~1/10th of the code-space compared to most other processor implementations
- 1x Asynchronous hardware serial port
- Dedicated SPI to communicate with the micro-SD Card
- micro-SD/SDHC card support
- 2 x GPIOs
- 1 x 32-bit free-running System timer with 1ms resolution
- 4x 16-bit timers with 1ms resolution
- 128 High-Level Internal Functions

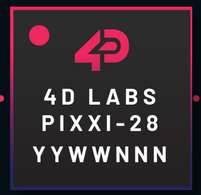
PICASO

- Supports 80-Series 16 bit wide CPU interface
- OLED/LCD displays
- 14KB Flash Memory, 14kKB RAM
- EVE uses ~1/10th of the code-Space compared to most other processor implementations
- 2x Asynchronous hardware serial port
- Dedicated SPI to communicate with the micro-SD Card
- micro-SD/SDHC card support
- DOS-compatible access (FAT16)
- Dedicated 16-bit PWM audio output to play WAV files
- 4-Wire Resistive Touch panel interface
- 12C Communication Bus
- 8 x 16-bit timers with 1ms resolution
- 243 High Internal Functions

DIABLO-16

- 6 banks of 32750 bytes of Flash
- memory for User Application Code and
- Data OLED/LCD displays
- 32Kb os SRAM purely for the User
- 16 General Purpose I/O pins for user interfacing, which include 4 configurable Analog Inputs
- The GPIO is variously configurable for alternative functions such as: 3x 12C channels available
- 1x dedicated for SD Card and 3x configurable SPI channels available
- 1x dedicated and 3x configurable TTL Serial comm ports available
- Up to 6GPIO for PWM (simple and Servo)
- Up to 10 GPIO for Pulse Output
- Up to 14 GPIO can be configured for Quadrature Encoder Inputs (2 channels)
- 4-Wire Resistive Touch panel interface
- 8 x 16-bit timers with 1ms resolution
- Low-cost OLED, LCD, and TFT display graphics user interface solution
- Available in a 64 pin TQFP 10mmx10mm package

PIXXI-28



- Low-cost TFT-LCD and OLED display graphics user interface solution
- Support for TFT and OLED with 3-wire and 4-wire serial SPI and MCU 8-bit interfaces
- Support for 4-Wire Resistive Touch Panel interface and Capacitive Touch Panel interface
- Dedicated SPI interface for either SD memory card or Serial Flash memory chip
- 32KB of Flash memory for user application code
- 14KB of SRAM for user variables
- 7 General Purpose I/O pins for user interfacing
- 2x Analog Input channels
- 2x I2C ports
- 1x dedicated UART port
- 8 x 16-bit timers with 1 ms resolution
- -40°C to 85°C extended temp. range
- Available in a 28-pin QFN 6x6x0.9 mm package

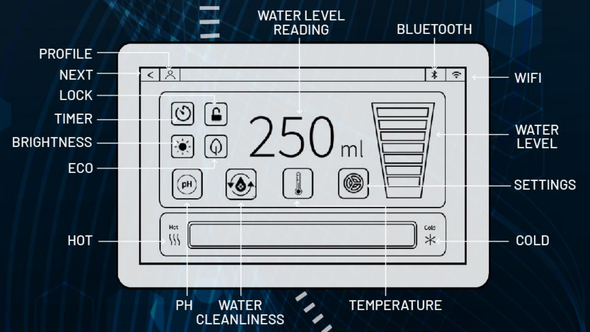
PIXXI-44

- Low-cost TFT-LCD and OLED display graphics user interface solution
- Support for TFT and OLED with 3-wire and 4-wire serial SPI and MCU 8-bit interfaces
- Support for 4-Wire Resistive Touch Panel interface and Capacitive Touch Panel interface
- Dedicated SPI interface for either SD memory card or Serial Flash memory chip
- 32KB of Flash memory for user application code
- 30KB of SRAM for user variables
- 19 General Purpose I/O pins for user interfacing
- 4x Analog Input channels
- 3x I2C ports
- 1x dedicated and 1x configurable UART ports
- 8 x 16-bit timers with 1 ms resolution
- -40°C to 85°C extended temp. range
- Available in a 44-pin QFN 8x8x0.9 mm package

4 GEN SERIES

gen4 Series

*Slim, intelligent, full colour **GEN4** display modules powered by 4D LABS DIABLO-16 processors*



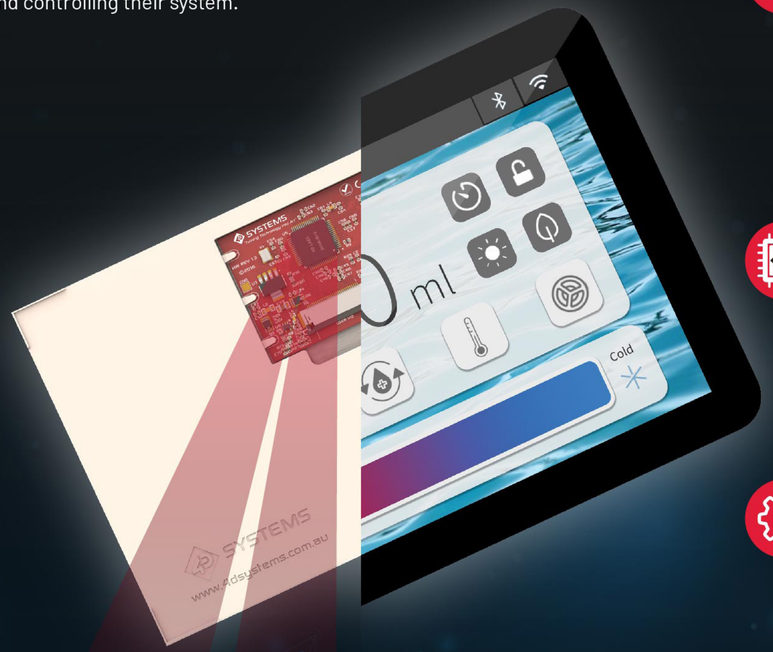
IDEA

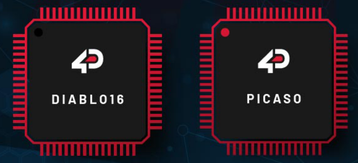
THE SOLUTION FOR EMBEDDED DISPLAYS & TOUCHSCREENS

The GEN4 series of display modules has been designed by 4D SYSTEMS to minimise the impact of display related circuitry and provide a platform suitable for integration into a product that will substantially benefit from an embedded display solution. Designed specifically for ease of integration and use, with careful consideration for space requirements and functionality, the GEN4 Series is 100% compatible with the Workshop4 IDE and its 4 different development environments, providing product designers and engineers with a wealth of options for programming and controlling their system.

PROCESSOR SPECIFICATIONS

	PICASO	DIABLO-16
DISPLAY SUPPORT	Supports OLED, LCD & TFT displays	
SD CARD SUPPORT	Micro-SD: up to 2GB SDHC: 4GB and above	
AUDIO SUPPORT	Audio support for wave files & complex sound generation with a dedicated 16-bit PWM audio output	
FILE ACCESS	DOS compatible file access (FAT16 format)	
MEMORY	Flash memory for user codes: 14KB SRAM for user variables: 14KB	Flash memory for user codes: 6 banks x 32KB SRAM for user variables: 32K
SPECIAL FEATURES	Built in high performance virtual processor core(EVE) optimised for 4DGL,the high-level 4DGraphics Language, using - 1/10 of the code -space compared to most other processor implementations	30 pin FPC connection for all signals, power & communications, including 16 general purpose I/O pins for user interfacing, which include 4 variously configrable analogue inputs for alternative functions.





DISPLAY SPECIFICATIONS

DISPLAY SIZE	2.4" - 7.0" Cover lens bezel available for display sizes from 3.2" and above
DISPLAY RESOLUTION	240 x 320; 480 x 272; 480 x 320; 800 x 480
DISPLAY BRIGHTNESS	150 - 1000 nits
DISPLAY TYPES	Resistive; Capacitive; non-touch
SUPPORTED PROCESSORS	PICASO & DIABLO-16 by 4D LABS
IDE	Fully supported by Workshop4 IDE
FONT AVAILABILITY	Supports Window fonts
MODULE CAPABILITY	Audio, full color images, animations, icons & video clips
IoT CAPABILITY	Yes, upon request
CUSTOM DESIGN CAPABILITY	Yes, upon request
RoHS COMPLIANCE	Yes
CE COMPLIANCE	Yes

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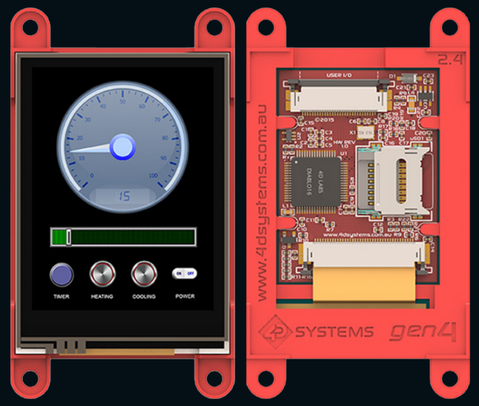
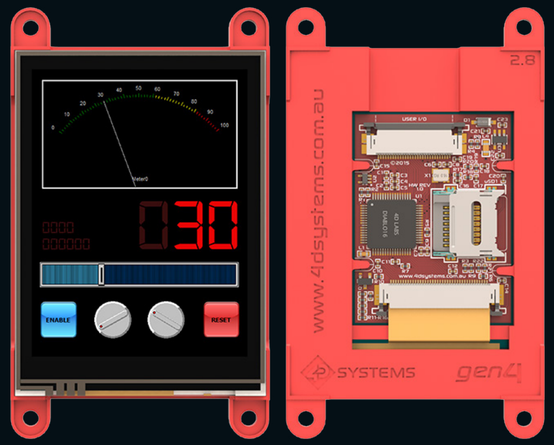
PICASO MODULES



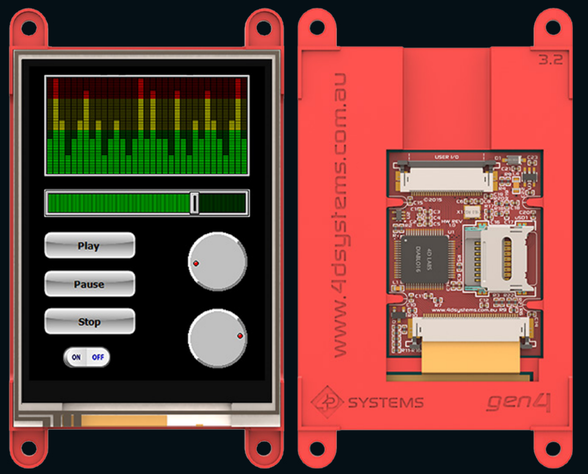
gen4-uLCD-24PT

- TFT LCD Display
- 2.4″ diagonal size
- 240x320 pixel resolution
- Resistive-touch



gen4-uLCD-28PT

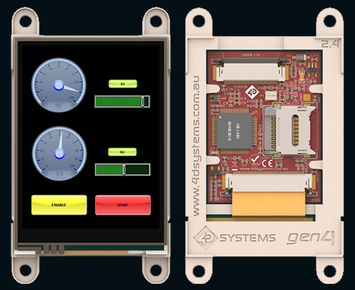
- TFT LCD Display
- 2.8″ diagonal size
- 240x320 pixel resolution
- Resistive-touch



gen4-uLCD-32PT

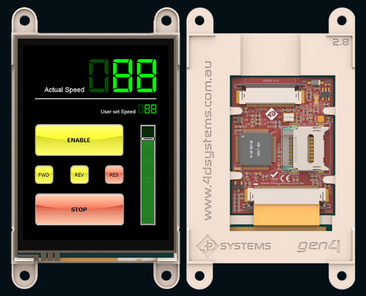
- TFT LCD Display
- 3.2″ diagonal size
- 240x320 pixel resolution
- Resistive-touch

DIABLO MODULES with Resistive Touch



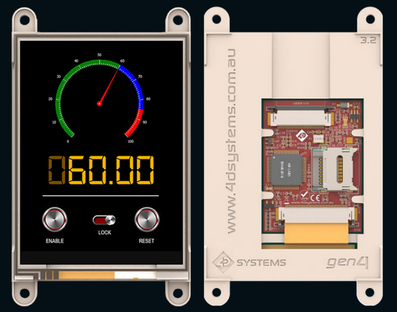
gen4-uLCD-24DT

- 2.4" SMART HMI Display
- 240 x 320 pixels
- Resistive Touch



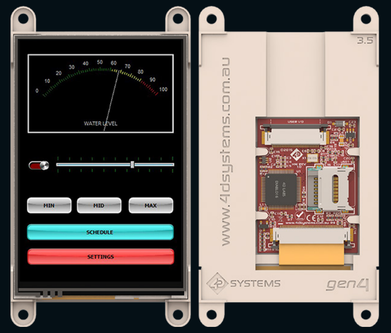
gen4-uLCD-28DT

- 2.8" SMART HMI Display
- 240 x 320 pixels
- Resistive-Touch



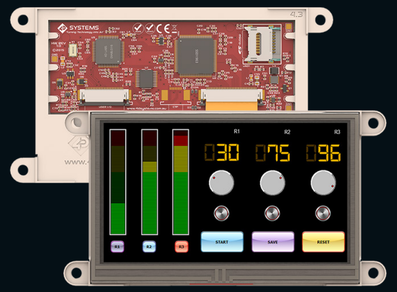
gen4-uLCD-32DT

- 3.2" SMART HMI Display
- 240 x 320 pixels
- Resistive Touch



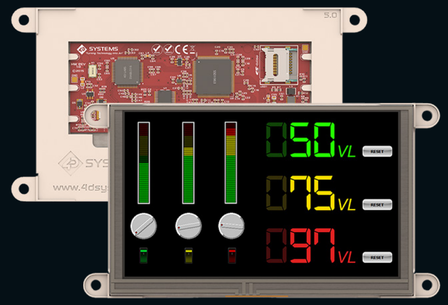
gen4-uLCD-35DT

- 3.5" SMART HMI Display
- 320x480 pixels
- Resistive Touch



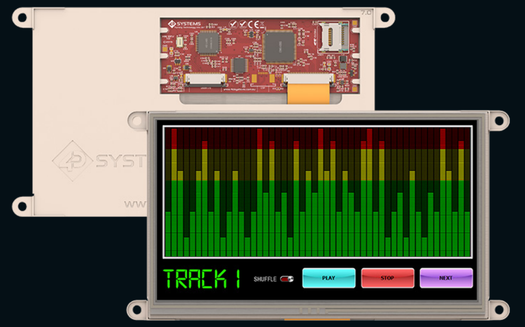
gen4-uLCD-43DT

- 4.3" SMART HMI Display
- 480x272 pixels
- Resistive-Touch



gen4-uLCD-50DT

- 5.0" SMART HMI Display
- 800x480 pixels
- Resistive Touch



gen4-uLCD-70DT

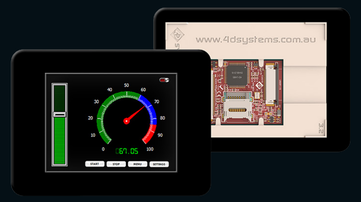
- 7.0" SMART HMI Display
- 800x480 pixels
- Resistive Touch

Available touch variations:

- Resistive-touch
- Non-touch*

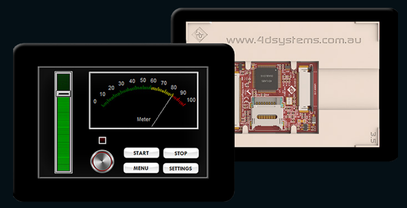
*non-touch part numbers do not include the "T"

DIABLO MODULES with Capacitive Touch



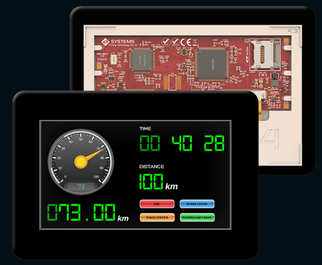
gen4-uLCD-32DCT-CLB

- 3.2" SMART HMI Display
- 240 x 320 pixels
- Capacitive-Touch, Cover Lens Bezel



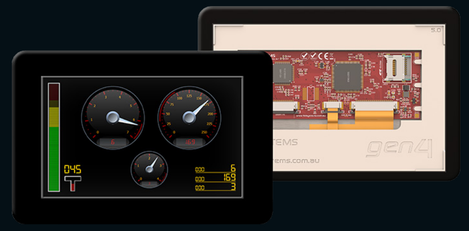
gen4-uLCD-35DCT-CLB

- 3.5" SMART HMI Display
- 320x480 pixels
- Capacitive-Touch w/ Cover Lens Bezel



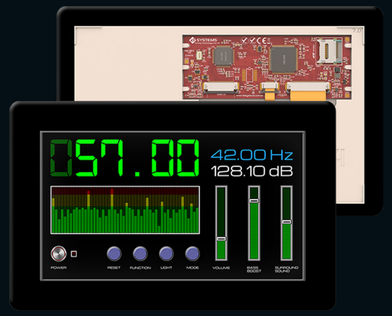
gen4-uLCD-43DCT-CLB

- 4.3" SMART HMI Display
- 480x272 pixels
- Capacitive-Touch with Bezel



gen4-uLCD-50DCT-CLB

- 5.0" SMART HMI Display
- 800x480 pixels
- Capacitive-Touch w/ Cover Lens Bezel



gen4-uLCD-70DCT-CLB

- 7.0" SMART HMI Display
- 800x480 pixels
- Capacitive Touch with Bezel

Available touch variations:

- Capacitive-touch
- Non-touch*

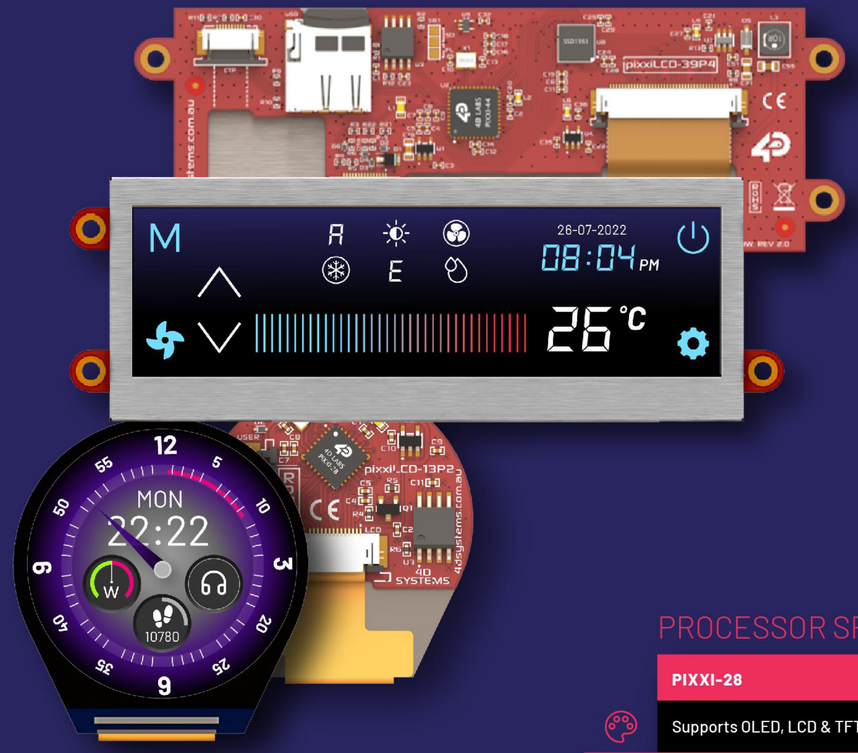
*non-touch part numbers do not include the "CT"

pixxiLCD SERIES

Full colour pixxiLCD display modules powered by 4D LABS pixxi processors: Low cost, fast time to market & revolutionary

The pixxiLCD display modules are a part of the new and revolutionary series designed and manufactured by 4D Systems. Developed with low total cost of ownership in mind, the compact intelligent display modules offer an array of functionalities and options for any designer, integrator or user wishing to add a full color HMI into their application.

The pixxiLCD modules are powered by the fully configurable PIXXI graphics processor from our own 4D LABS and are 100% compatible with the Workshop4 IDE, offering a wealth of options for the user to program and control their systems, which allow various functionalities such as touch detection, microSD or serial flash memory storage, GPIO, and ADC, along with multiple millisecond resolution timers, as well as UART and I2C communication.



QUICK GUIDE - pixxiLCD Series

SCREEN SIZE		RESOLUTIONS	TOUCH TYPE			PROCESSORS	
inches	mm		Non-Touch	Resistive	Capacitive	PIXXI-28	PIXXI-44
1.3	33.02	240 x 240	◆		◆	◆	
2.0	50.80	176 x 220	◆		◆	◆	
2.5	63.50	240 x 240	◆		◆		◆
3.9	99.06	480 x 128	◆		◆		◆

*Also available in Super Britght (SB), and Cover Lens Bezel (CLB) version.

DISPLAY SPECIFICATIONS

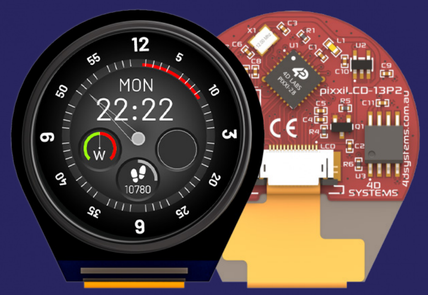
DISPLAY SIZE	1.3" to 3.9"
DISPLAY RESOLUTION	176x220; 240x240; 480x128
DISPLAY BRIGHTNESS	270 - 500 nits
DISPLAY TYPES	Non-touch, Capacitive, Capacitive with Bezel
SUPPORTED PROCESSORS	PIXXI-28 & PIXXI-44
IDE	Fully supported by **Workshop4 IDE**
FONT AVAILABILITY	Supports Window fonts
MODULE CAPABILITY	Full colour images, animations, icons & video clips
IoT CAPABILITY	Yes, upon request
CUSTOM DESIGN CAPABILITY	Yes, upon request
RoHS COMPLIANCE	Yes
CE COMPLIANCE	Yes, upon request

PROCESSOR SPECIFICATIONS

PIXXI-28	**PIXXI-44**
Supports OLED, LCD & TFT displays	
Micro-SD: up to 2GB SDHC: 4GB and above	
Audio support for wave files & complex sound generation with a dedicated 16-bit PWM audio output	
DOS compatible file access (FAT16 format)	
Flash memory for user codes: 32KB SRAM for user variables: 14KB	Flash memory for user codes: 32KB SRAM for user variables: 30KB
3 General Purpose I/O pins for user interfacing, 2 of which are configurable as analog inputs or as I2C. UART port, Asynchronous hardware serial, with 300 to 2187500 baud, for interfacing to a Host or Slave device.	2 General Purpose I/O pins for user interfacing, 2 of which are configurable as analog inputs or as I2C. Standard 15-way, 0.5mm pitch ZIF socket interface which carries the UART, I/O, I2C, power, and reset signals to/from the display.

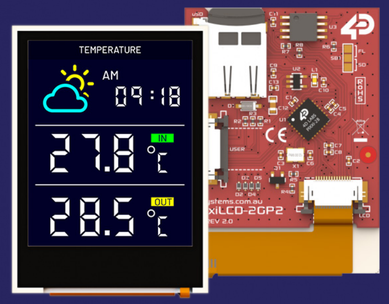
pixxiLCD SERIES

A unique offering of Intelligent Display Modules incorporating round and bar type full colour displays capable of running powerful applications.



pixxiLCD-13P2

- 1.3" SMART HMI Display
- 240 x 240 pixels (round)
- PIXXI-28 Processor
- Non-Touch

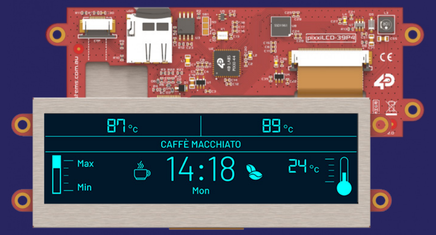


pixxiLCD-20P2

- 2.0" SMART HMI Display
- 176 x 220 pixels
- PIXXI-28 Processor
- Non-touch

pixxiLCD-25P4

- 2.5" SMART HMI IPS Display
- 240 x 240 pixels
- Non-touch
- PIXXI-44 Processor



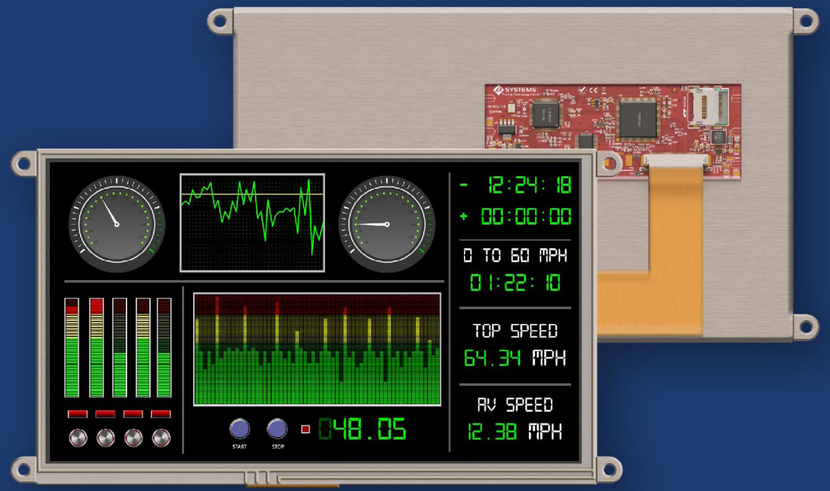
pixxiLCD-39P4

- 3.9" SMART HMI IPS Display
- 480 x 128 pixels
- Non-touch
- PIXXI-44 Processor

Each variant also available in Capacitive Touch

uLCD Series: Accelerate your product to market with our full colour Intelligent Display Modules

The uLCD series has a versatile selection of sizes - from 1.44" round to 9" HMI displays - with ease of integration and use, and with careful consideration for space requirements and functionality. As versatile is the varied selection from **4D LABS Goldelox**, **Diablo16** and **Picaso** processors, each offering feature-rich options that will drive your Graphics User Interface for a wide range of applications. All of these options are **100% compatible with our Workshop4 IDE** and its 4 different development environments, providing you with a wealth of options for programming and controlling your system.



DISPLAY SPECIFICATIONS

DISPLAY SIZE	1.44" - 9.0" Cover lens bezel available for display sizes from 3.2" and above
DISPLAY RESOLUTION	128 x 128; 240 x 320; 320 x 480; 480 x 272; 800 x 480
DISPLAY BRIGHTNESS	150 - 1000 nits
TOUCH TYPES	Resistive; Capacitive; Non-Touch
SUPPORTED PROCESSORS	GOLDELOX, PICASO, DIABLO-16 by 4D LABS
IDE	Fully supported by **Workshop4 IDE**
FONT AVAILABILITY	Supports Window fonts
MODULE CAPABILITY	Audio, full color images, animations, icons & video clips
IoT CAPABILITY	Yes, upon request
CUSTOM DESIGN CAPABILITY	Yes, upon request
RoHS COMPLIANCE	Yes
CE COMPLIANCE	Yes, upon request

QUICK GUIDE - uLCD Series

SCREEN SIZE		RESOLUTION	TOUCH TYPE			PROCESSOR			FOR ARDUINO*	FOR RASPBERRY PI*
inches	mm		Non-Touch	Resistive	Capacitive	GOLDELOX	PICASO	DIABLO16		
1.44	36.58	128 x 128	◆			◆			◆	
2.4	60.96	240x320		◆			◆		◆	◆
2.8	71.12			◆			◆		◆	◆
3.2	81.28			◆			◆		◆	◆
3.5	88.90	320x480		◆			◆		◆	◆
4.3	109.22	480x272	◆	◆	◆		◆	◆	◆	◆
7.0	177.80	800 x 480		◆				◆	◆	◆
9.0	228.60			◆	◆			◆	◆	◆

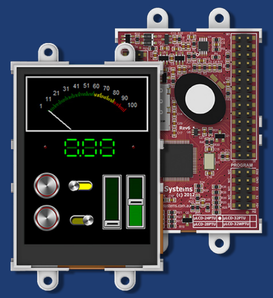
PROCESSOR SPECIFICATIONS

PICASO	DIABLO-16
Supports OLED, LCD & TFT displays	
Micro-SD: up to 2GB SDHC: 4GB and above	
Audio support for wave files & complex sound generation with a dedicated 16-bit PWM audio output	
DOS compatible file access (FAT16 format)	
Flash memory for user codes: 14KB SRAM for user variables: 14KB	Flash memory for user codes: 6 banks x 32KB SRAM for user variables: 32K
Built in extensive 4DGL graphics and system library functions; A 30 pin header for I/O expansion and future plug-in daughter boards; 2 x Asynchronous hardware serial ports (COM0, COM1), TTL interface, with 300 to 600K baud	30 pin FPC connection for all signals, power & communications, including 16 general purpose I/O pins for user interfacing, which include 4 variously configrable analogue inputs for alternative functions

uLCD Series: Accelerate your product to market with our full colour Intelligent Display Modules

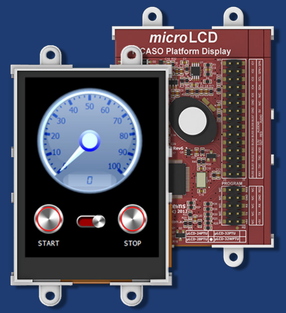
uLCD-144-G2

- 1.44" Intelligent TFT-LCD module
- 128 x 128 pixels
- GOLDELOX Graphics Controller



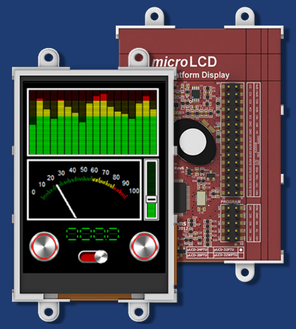
uLCD-24PTU

- 2.4" Intelligent TFT-LCD Module
- 240x320 pixels
- Resistive Touch, Picaso Processor



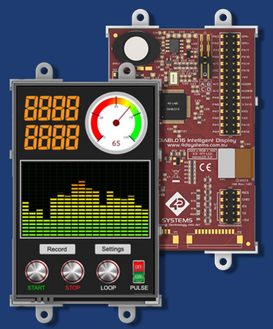
uLCD-28PTU

- 2.8" Intelligent TFT-LCD Module
- 240x320 pixels
- Resistive Touch, Picaso Processor



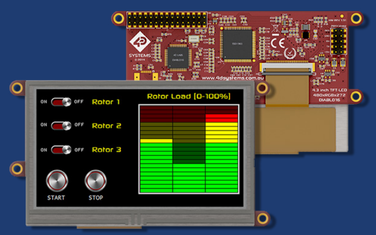
uLCD-32PTU

- 3.2" Intelligent TFT-LCD Module
- 240x320 pixels
- Resistive Touch, Picaso Processor



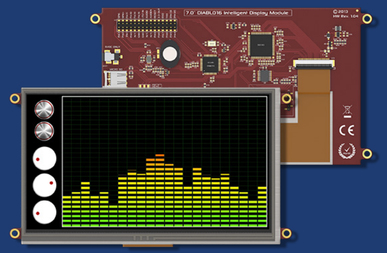
uLCD-35DT

- 3.5" Intelligent LCD
- 320x480 pixels
- Resistive Touch
- DIABLO16 Processor



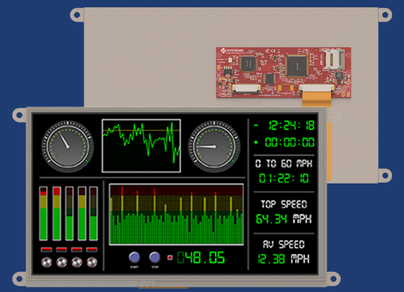
uLCD-43DT/DCT

- 4.3" Intelligent LCD
- 480x272 pixels
- Capacitive Touch, DIABLO16 Processor



uLCD-70DT

- 7.0" Intelligent LCD
- 800x480 pixels
- Resistive Touch with DIABLO16 Processor



uLCD-90DT/DCT

- 9.0" SMART HMI Display
- 800 x 480 pixels
- Diablo16 Processor
- Resistive Touch

uOLED SERIES

Compact and cost effective display module with the latest state of the art Passive Matrix OLED (PMOLED) technology with an embedded GOLDELOX graphics processor from 4D LABS offering one of the most flexible embedded graphics solutions available.

The **uOLED** of display modules are designed to work out of the box which ready to write your code in 4DGL (our high level 4D Graphics Language) using our **4DGL-Workshop4 IDE**, allowing the developer to write applications in a high level language, syntax similar to popular languages such as BASIC, C and Pascal. This will save a considerable amount of time (weeks even months) of development time on your next embedded graphics project.

uOLED modules are a compact and cost effective display module using the latest state of the art **Passive Matrix OLED (PMOLED)** technology with an embedded **GOLDELOX graphics processor from 4D LABS** that delivers 'stand-alone' functionality to any project.

Powerful graphics, text, image, animation and countless more features are built inside the GOLDELOX chip, offering one of the most flexible embedded graphics solutions available.

DISPLAY SPECIFICATIONS

DISPLAY SIZE	0.96" to 1.7"
DISPLAY RESOLUTION	96 x 84; 128 x 128; 160 x 128
DISPLAY BRIGHTNESS	270 - 500 nits
DISPLAY TYPES	Non-touch; PMOLED screen

SUPPORTED PROCESSORS	GOLDELOX
IDE	Fully supported by **Workshop4 IDE**
FONT AVAILABILITY	Supports Window fonts

MODULE CAPABILITY	Full colour images, animations, icons & video clips
IoT CAPABILITY	Yes, upon request
CUSTOM DESIGN CAPABILITY	Yes, upon request

RoHS COMPLIANCE	Yes
CE COMPLIANCE	Yes, upon request

PROCESSOR SPECIFICATIONS

GOLDELOX
Supports OLED, LCD & TFT displays
Micro-SD: Supports 64MB to 2GB micro-SD memory cards.
Audio support for wave files & complex sound generation with a dedicated 16-bit PWM audio output
DOS compatible file access (FAT16 format)
Flash memory for user codes: 10KB RAM for user variables: 510 bytes for user variables (255 x 16bit vars)
Powered by the 4D-Labs GOLDELOX graphics processor highly optimised for 4DGL, the high level 4D Graphics Language. Comprehensive set of built in high level 4DGL graphics functions and algorithms that can draw lines, circles, text, and much more.

QUICK GUIDE - uOLED Series

SCREEN SIZE		RESOLUTION	TOUCH TYPE			PROCESSORS	FOR ARDUINO
inches	mm		Non-Touch	Resistive	Capacitive	GOLDELOX	
0.96	24.38	96 x 64	◆			◆	◆
1.50	38.10	128 x 128	◆			◆	◆
1.7	43.18	160 x 128	◆			◆	◆

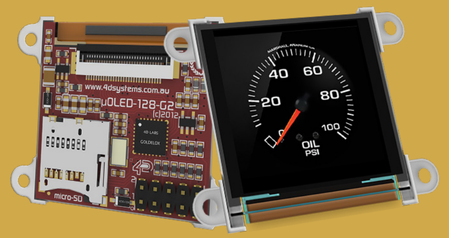
uOLED SERIES

Compact and cost effective display module with the latest state of the art **Passive Matrix OLED (PMOLED)** technology with an embedded **GOLDELOX graphics processor from 4D LABS** offering one of the most flexible embedded graphics solutions available.

GOLDELOX MODULES

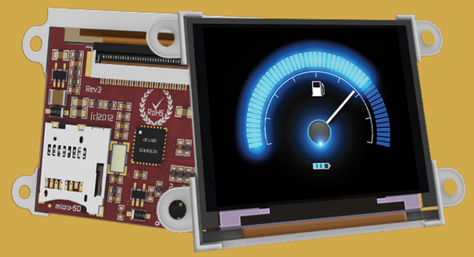
uOLED-96-G2

- PMOLED display
- 0.96" diagonal size
- 96x64 pixel resolution
- Non-touch



uOLED-128-G2

- PMOLED display
- 1.5" diagonal size
- 128x128 pixel resolution
- Non-touch



uOLED-160-G2

- PMOLED display
- 1.7" diagonal size
- 160x128 pixel resolution
- Non-touch

Software Tools

- Supports multiple development environments, to cater for different user requirements and skill level.
- Combines
  - » **Editor**
  - » **Compiler**
  - » **Linker**
  - » **Downloader**
  - » to develop complete 4DGL application code.
- All user application code is developed within the Workshop4 IDE.
- Available as a free download.

WORKSHOP4 IDE

*Develop, test & deploy your **G**raphical **U**ser **I**nterface using* **Workshop4 IDE** *for Microsoft Windows.*

WORKSHOP 4 - A COMPREHENSIVE SOFTWARE SOLUTION

WORKSHOP 4 is a comprehensive software IDE for Microsoft Windows that provides an integrated software development platform for all of the 4D family of processors and modules. The IDE combines the Editor, Compiler, Linker, and Downloader to develop the complete 4DGL application code.

DEVELOPMENT ENVIRONMENTS THAT SUITS ANY APPLICATION & USER LEVEL

WORKSHOP 4 includes 4 Development Environments to choose from, based on application requirements & user skill level.

DESIGNER

- Enables user to write 4DGL code to program display module
- 4DGL syntax very similar to C: no need to learn a new language
- 4DGL is optimized for GOLDELOX, PICASO, PIXXI and DIABLO Controllers

ViSi

- Aptly named, a visual programming experience as you develop the display
- Enables drag and drop of objects in a WYSIWYG editor
- Software generates 4DGL code for the graphics

ViSi-GENIE

- An advanced environment; no 4DGL coding Required
- Everything is automated
- Drag and drop objects on the display and define events
- Code written automatically

SERIAL

- Transforms the module into a serial slave
- Control the module from any host microcontroller with a serial port
- All serial protocols and documentation are provided

WORKSHOP4 PRO: make complex widget design, simple

Smart Knob

Smart Gauge

Smart Slider

KEY FEATURES

- Create complex widgets with up to 6 layers.
- Import graphics from virtually any of your favourite graphics software.
- Enhance your widget development by unlocking additional features to the ViSi-Genie environment, allowing you to add 4DGL code in that already-versatile environment.
- Seamlessly combine your design together to form functioning widgets inside the Workshop4 IDE.
- Create realistic gauges and instrumentation with little effort, saving development time & resources.
- Use **Genie Magic** & unleash all the power of 4DGL, which fully supports communications with Arduino & Raspberry Pi hosts

Combined with **4D SYSTEMS** intelligent display modules or **4D LABS** graphics processors, **WORKSHOP4** allows you to design, develop, test, and deploy your graphical user interface easily and quickly without having to worry about low level design or development.

4D LABS GOLDELOX YYWWNNNN

4D LABS PICASO YYWWNNNN

WORKSHOP4
powered by
PROCESSORS

4D LABS DIABL016 YYWWNNNN

4D LABS PIXXI-28 YYWWNNNN

4D LABS PIXXI-44 YYWWNNNN

WORKSHOP4's rich feature set and drag and-drop-style development approach enables engineers and designers to develop impressive interfaces or any embedded display solution and facilitates fast time to market.

HOTEL

OFFICE

RETROFIT

Your next building can be a

smartBUILDING

by

4D SYSTEMS

MAKING HUMAN INTELLIGENCE SMARTER

CERTIFIED ISO 9001 CERTIFIED

APARTMENT

RESIDENCE

INDUSTRIAL

PRODUCT COMPARISON OF THE 4DISCOVERY SUITE

		4Discovery-50	4Discovery-35	4Discovery-13
DISPLAY	Size:	5.0"	3.5"	1.3"
	Resolution:	480 x 854	480 x 320	240 x 240
	Type:	TFT Screen with Capacitive Touch Panel	TFT Screen with Resistive Touch Panel	TFT Screen with Capacitive Touch Panel
	Capability:	Full colour images, animations, icons & video clips	Full colour images, animations, icons & video clips	Full colour images, animations & icons
	Viewing angle:	Wide viewing angles from all directions	Check product datasheet for detailed guide	Wide viewing angles from all directions
INTERFACE	Processor:	DIABLO16 processor by 4D LABS	DIABLO16 processor by 4D LABS	PIXXI-28 processor by 4D LABS
	RS485 programmer:	Yes	Yes	Yes
	Workshop4 IDE:	Yes	Yes	Yes
	microSD connector:	Yes	Yes	No
	Flash memory:	Optional	Optional	Yes
IoT	WiFi:	Yes	No	Optional
	Bluetooth:	Yes	No	No
	Proximity sensor:	Yes	No	No
UTILITY	Custom design capability:	Yes	Limited	Yes
	FAT16 File Format Access :	Yes	Yes	No
	Windows fonts available:	Yes	Yes	Yes
MEASURE	Module dimensions:	76.2 x 139.4 x 24.8mm	74.0 x 117.0 x 21.7mm	60.1 x 60.1 x 16.0mm
	Weight:	130g	80g	31g
	Display viewing area:	62.56 x 110.53mm	48.96 x 73.44mm	32.0mm diameter round
COMPLIANCE	RoHS:	Yes	Yes	Yes
	CE[2]:	Yes	Yes	Yes
	Flammability:	UL 94V-0	PCB: UL 94V-0	UL 94V-0

5 KEY BENEFITS OF THE 4DISCOVERY FAMILY

1. Open Protocols

The 4Discovery family is an open protocol, as opposed to using patented closed protocols, allowing easy collaboration in building automation.

2. Power Over Ethernet Devices Connectivity

Built into the 4Discovery family is the capability to connect to POE enabled drivers via our RS485 serial cable, saving costs by enabling power and ethernet access through a single connectivity.

3. Quick Prototype Testing

The 4Discovery family is an open protocol, as opposed to using patented closed protocols, allowing easy collaboration in building automation.

4. Creative Aesthetics

The 4Discovery family provides a stylish product range that not only looks good but can also be customised to meet the architectural needs of the environment it is used in.

5. Exceptional Cost Control

The 4D SYSTEMS' hallmark for cost effectiveness is its modular design offerings for all of its solutions, eliminating start-up costs which severely affect cashflow and can hinder innovation.

Application Examples

- Measurement Devices and Instruments
- Handheld Devices and Instruments
- General purpose embedded graphics
- Industrial Control Devices
- Medical applications
- Home appliances
- Smart Home Automation
- Security and Access control systems
- And many more...

Air In Space

airinspace®

Application:

Air Purifiers for Hospitals

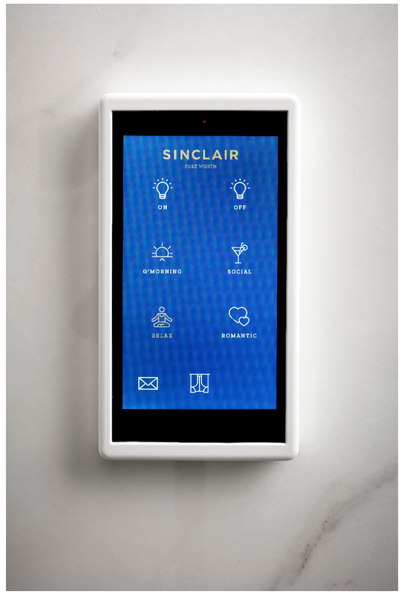
Product used:

uLCD-43DT - 4.3" Intelligent LCD Module with Resistive Touch

Link:

https://www.airinspace.com/en/produits/plasmair-guardian-en/

The Sinclair



Application:

Building Automation

SINCLAIR
FORT WORTH

Product used:

4Discovery-50 - 5.0" Intelligent LCD Module for Building and Machine Control

Link:

https://www.thesinclairhotel.com

Henlo Coffee

Application:

Industrial IoT Coffee Machine

Product used:

gen4-uLCD-43DCT-CLB &
pixxiLCD-13P2-CTP-CLB

Link:

https://henlo.coffee

CareTaker Medical

Application:

Wearable Patient Monitor

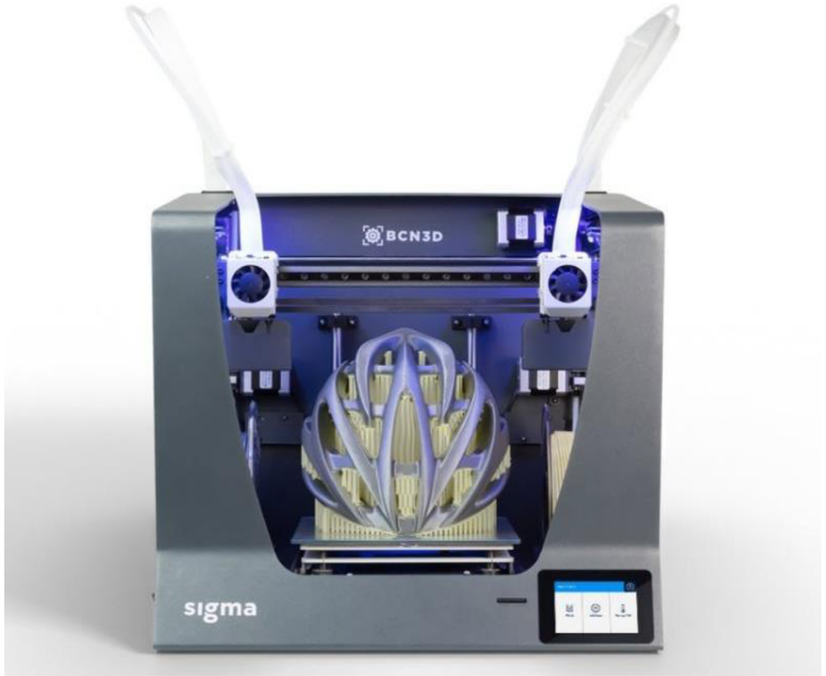
Product used:

2.4” IPS Display with Capacitive Touch and customised bezel and customer branding.

Link:

https://caretakermedical.net/caretaker-vital-signs-monitoring-2/

BCN3D Technologies – Sigma 3D Printer



Application:

3D Printer

Product used:

gen4-uLCD-35DCT-CLB - 3.5" Intelligent LCD-TFT display module with Capacitive Touch and Cover Glass

Link:

https://www.bcn3dtechnologies.com/en/catalog/bcn3d-sigma/

European Institute of Science – Turbo Reader

Application:

Point of Care Instrument (medical)

Product used:

uLCD-35DT – 3.5" Intelligent TFT-LCD display module with resistive touch

Link:

http://www.euris.org/#products

A Partnership Journey, from Concept to Delivery

ENQUIRY

Let's discuss about your project details, your challenges, and what success looks like. Whether it's rapid prototyping, or preparing for a commercial launch, we are here to understand all your customised display solution needs. This ensures we not only provide samples of modules and software, but also a level of advisory and experience that will help you set the foundation for success.

ONBOARD

Ready to go. We'll invest our energy in reviewing your design specifications and finding opportunities for improvement, special features and customisation. This means we can develop a pricing and timeline structure tailored to your commercial strategy, while setting you up for our best-in-breed Design & Build Process.

DESIGN

Our engineers kick off the prototype and put your product on track for fast and sustainable go-to-market delivery. We work closely with you supporting implementation, and providing ongoing advice as we shape things for rapid prototyping and deployment. Your team will have every opportunity to fully sample and test your product hardware and software capabilities.

BUILD

With our ISO-9001 certification, you can count on quality every step of the way across best practices, due diligence, and production facilities. We ensure that the manufacturing of your product meets the global standards of excellence. We pride ourselves on developing expert tools that are accessible and intuitive throughout the build process, meaning projects are finished on time and with greater possibilities.

DELIVER

Staying on track with your market delivery timeline, we're here to meet your commercial requirements. At this point your team will be very familiar with the display solution integration in your product, and we spare no detail in ensuring you are armed for launch through resources, guides, and engineers on stand by. Ultimately we are committed to a final output that enables an optimised end user experience, and we won't rest until we get there.

SUPPORT

Rest assured, as your product is deployed to market we are here for you to make sure you are getting the most out of your customised display solution. This means a process of continued improvement so that end users and your team are always able to push functionality to the limits. Continuous partnerships are a core tenet of our company culture, and for over 20 years have been a key component of our established reputation as a global leader in intelligent displays. As a lifetime partner, we guarantee our 4D Philosophy of Excellence.

Knowledge Resources

Resources

- 4D Systems Website: https://4dsystems.com.au/
- Corporate Profile https://4dsystems.com.au/mwdownloads/download/link/id/924
- Enterprise Solutions https://enterprise.4dsystems.com.au/
- 2023 Product Catalogue: Coming Soon.
- Case Studies: https://4dsystems.com.au/blog/projects
- News & Press: https://4dsystems.com.au/blog/

Technical Resources

- Intelligent Displays 101 (EPS): https://4dsystems.com.au/mwdownloads/download/link/id/923
- Application Notes: https://docs.4dsystems.com.au/app-notes
- Technical Support : https://helpdesk.4dsystems.com.au/hc/en-au/requests/new
- GitHub: https://github.com/4dsystems
- gen4-uLCD Series Product Brief: https://4dsystems.com.au/mwdownloads/download/link/id/914/
- WorkShop4 Product Brief: https://4dsystems.com.au/mwdownloads/download/link/id/915/

White Papers

- Build or Buy Whitepaper: https://4dsystems.com.au/mwdownloads/download/link/id/925
- Smart Buildings Whitepaper: https://4dsystems.com.au/mwdownloads/download/link/id/926/

Compliance

- Conflict Minerals Statement: https://4dsystems.com.au/mwdownloads/download/link/id/912/
- ISO 9001:2015: https://4dsystems.com.au/mwdownloads/download/link/id/921
- ISO 14001:2015: https://4dsystems.com.au/mwdownloads/download/link/id/922