pixxiLCD-39P4 Series



pixxiLCD-39P4

pixxiLCD-39P4CT

Datasheet

Revision 1.2

Copyright © 2025 4D Systems

Content may change at any time. Please refer to the resource centre for latest documentation.

Downloaded from Arrow.com.

Contents

1. Description 4
2. Features 5
3. Typical Applications 6
4. Hardware Overview 7
5. Hardware Interface - Pins 8
    5.1. Serial Ports - TTL Level 8
    5.2. General Purpose I/O 10
    5.3. I2C Interface 10
    5.4. System Pins 11
6. microSD / Flash Memory 12
7. Display Features 13
    7.1. PIXXI-44 Processor 13
    7.2. SD/SDHC Memory Cards 14
    7.3. FAT16 15
8. Display/Module Precautions 15
9. Hardware Tools 16
    9.1. 4D-UPA Programming Adaptor 16
    9.2. Interface Board 17
10. Programming Language 18
11. Workshop4 IDE 19
    11.1. PmmC Programming 20
12. Display Module Part Numbers 22
13. Starter Kit 22
14. Mechanical Details (Non-Touch and Capacitive Touch) 23
15. Schematic Details - REV 2.1 24
16. Specifications 25
17. Revision History 27

Downloaded from Arrow.com.

18. Legal Notice 28
18.1. Proprietary Information 28
18.2. Disclaimer of Warranties & Limitations of Liabilities 28

Downloaded from Arrow.com.

1. Description

The pixxiLCD-39 is part of the new and revolutionary pixxiLCD series of embedded graphics displays designed and manufactured by 4D Systems. Developed with a low total cost of ownership in mind, this 3.9" colour IPS TFT-LCD compact Intelligent Display module offers an array of functionality and options for any designer, integrator or user.

The 3.9" display is IPS, making it have very wide viewing angles.

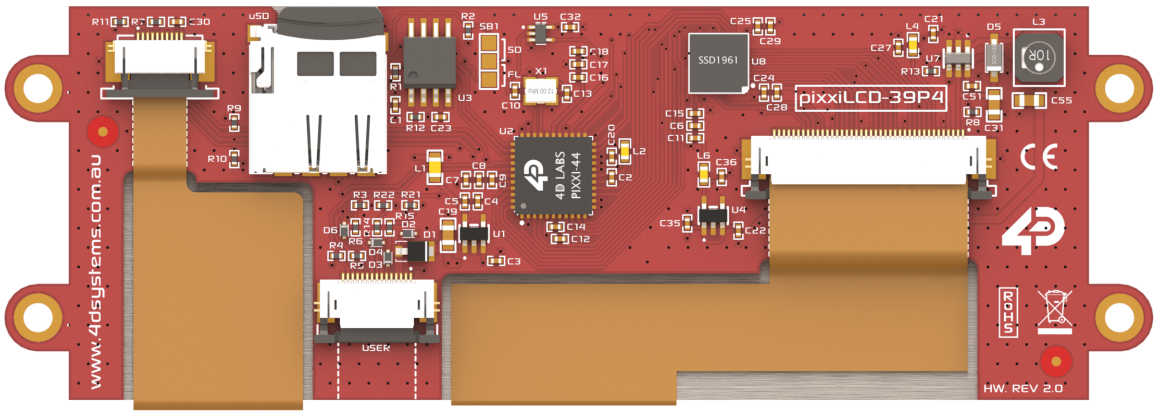
The pixxiLCD-39 is powered by the configurable PIXXI-44 graphics processor, allowing various functionalities such as touch detection, microSD or serial flash memory storage, and GPIO, along with multiple millisecond resolution timers, and UART and I2C communications.

The pixxiLCD-39 embedded graphics displays come in two variants:

- Non-touch (pixxiLCD-39P4)
- Capacitive touch (pixxiLCD-39P4CT w/o CLB)

The pixxiLCD embedded graphics displays are 100% compatible with the Workshop4 IDE, which provides users with a wealth of options for programming and controlling their system.

The pixxiLCD embedded graphics displays feature a standard 15-way, 0.5mm pitch ZIF Socket interface which carries the UART, I/O, I2C, power, and reset signals to/from the display.



The pixxiLCD-39P4CT

Downloaded from Arrow.com.

2. Features

- Powerful 3.9" Intelligent TFT IPS display module powered by PIXXI-44
- 480 x 128 Resolution, RGB 65K TFT Screen
- Capacitive Touch Panel (pixxiLCD-39P4CT)
- 32KB of Flash memory for user application code.
- 30KB of SRAM for user variables.
- Selectable 16MB Serial Flash memory chip for multimedia storage, data files, fonts, or for holding extra code functions (to expand the code storage of the processor)
- Selectable on-board push type micro-SD memory card connector for multimedia storage, data files, fonts and data logging purposes.
- 2 General Purpose I/O pins for user interfacing, also configurable as I2C.
- Master I2C port (maximum supported speed is fast I2C) for user application devices.
- UART port, Asynchronous hardware serial, with 300 to 2187500 baud, for interfacing to a Host or Slave device and device programming.
- DOS-compatible file access (FAT16 format) using uSD, as well as low-level access to card memory.
- Display full-colour images, animations, icons, and video clips.
- Supports all available Windows fonts.
- Free comprehensive Software Development Tools (Workshop4) provide drag-and-drop style and coding environments for rapid application development, upgradable to Workshop4 PRO for additional features.
- Standard 15-way, 0.5mm pitch ZIF Socket interface which carries the UART, I/O, I2C, power, and reset signals to/from the display.
- Single 5.0 Volt Supply (4.0V to 5.5V range).
- Display Dimensions:
    - pixxiLCD-39P4: 118.8 x 40.64 x 4.6 mm
    - pixxiLCD-39P4CT: 118.8 x 40.64 x 6 mm
- Weight:
    - pixxiLCD-39P4: ~ 41g
    - pixxiLCD-39P4CT: ~ 50g
- RoHS, REACH and CE compliant.
- PCB is UL 94V-0 Flammability Rated

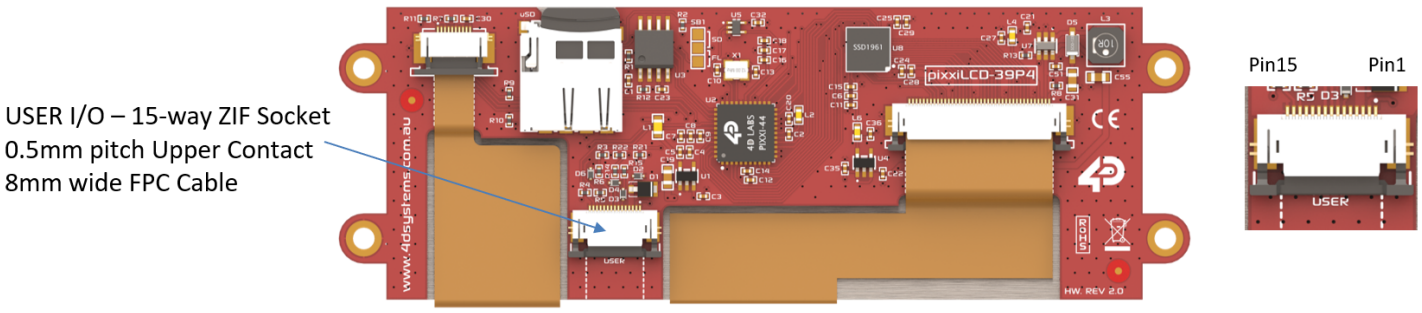
Downloaded from Arrow.com.

3. Typical Applications

- General purpose low-cost embedded graphics.
- Elevator control systems
- Point of sale terminals.
- Electronic gauges and metres.
- Test and measurement and general-purpose instrumentation.
- Industrial control and Robotics.
- Automotive system displays.
- GPS/Sat-Nav systems.
- Medical instruments and applications.
- Heart rate and Blood pressure monitors.
- Smart Home Automation display panels.
- Consumer appliance devices.
- Security and Access control panels.
- Air conditioner control panels.
- Lighting control panels.
- Vending machine panels.
- Power meter panels.
- Gaming equipment.
- And much more.

Downloaded from Arrow.com.

4. Hardware Overview



FPC Pinout

USER I/O – 15 way FPC

Pin	Symbol	I/O	Description
1	GND	P	Device Ground.
2	+3.3V	P	3.3V Output of the internal voltage regulator.
3	+5V	P	Device Positive Supply.
4	+5V	P	Device Positive Supply.
5	GND	P	Device Ground.
6	GND	P	Device Ground.
7	TX	O	Dedicated Asynchronous Serial Port Transmit pin, TX. This pin outputs 3.3V levels.
8	RX	I	Dedicated Asynchronous Serial Port Receive pin, RX. This pin is 5.0V tolerant.
9	RESET	I	Master Reset signal. This pin is 3.3V tolerant only. Active Low.
10	–	–	Not Connected
11	–	–	Not Connected
12	–	–	Not Connected
13	IO6/SDA	I/O	This pin is available as a General Purpose I/O pin. It can also be configured as an I2C Data In/Out pin, SDA1. This pin outputs 3.3V levels and is 5V tolerant only.
14	IO7/SCL	I/O	This pin is available as a General Purpose I/O pin. It can also be configured as an I2C clock output pin, SCL1. This pin outputs 3.3V levels and is 5V tolerant only.
15	GND	P	Device Ground.

Note

I = Input, **O** = Output, **P** = Power

Downloaded from Arrow.com.

5. Hardware Interface - Pins

This section describes the hardware interface pins of the pixxiLCD-39 embedded graphics displays.

The pixxiLCD-39 has the essential hardware peripherals configured for interfacing with other external devices — general-purpose digital input/output, UART, and I2C.

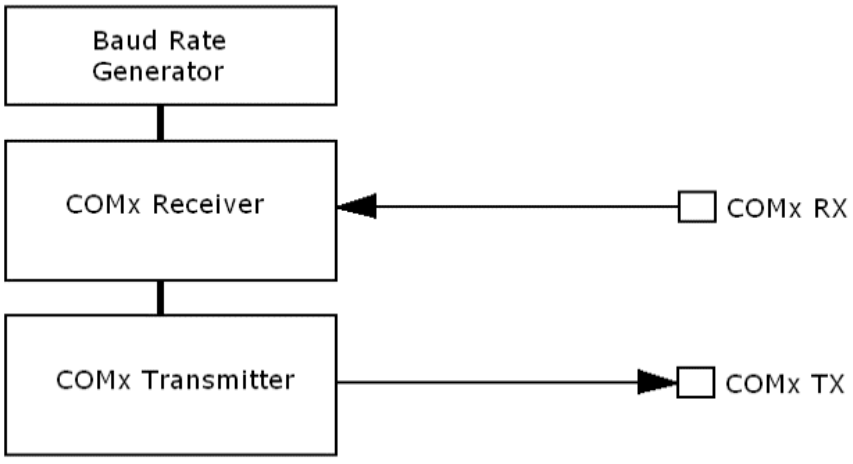
This section discusses the peripherals relevant only to the pixxiLCD embedded graphics displays. For complete information on the hardware peripherals of the PIXXI-44 graphics processor, refer to the PIXXI-44 graphics processor datasheet.

5.1. Serial Ports - TTL Level

The PIXXI-44 Processor has a single hardware asynchronous serial port (COM0), with fixed pins TX/RX. The PIXXI-44's serial port can be used to communicate with external serial devices and is also used for programming the PIXXI-44 itself.

The primary features are:

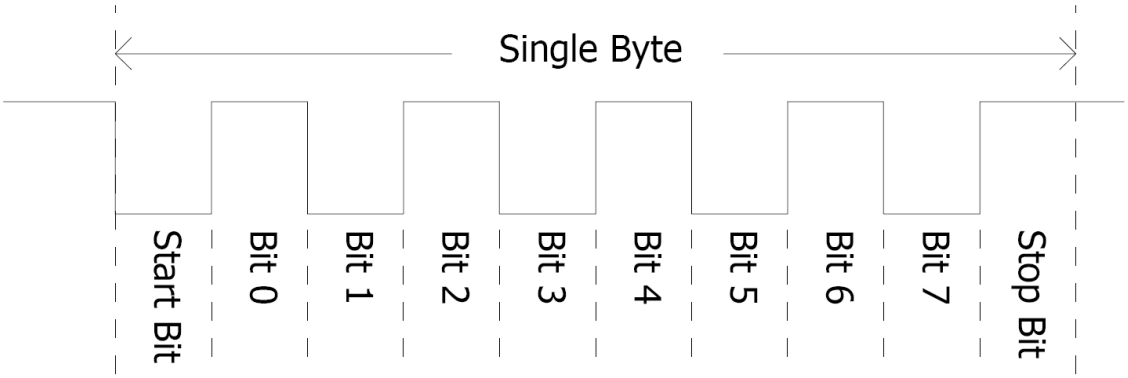
- Full-Duplex 8-bit data transmission and reception.
- Data format: 8 bits, No Parity, 1 Stop bit.
- Independent Baud rates from 300 baud up to 2187500 baud.
- Single byte transmits and receives a fully buffered service. The buffered service feature runs in the background capturing and buffering serial data without the user application having to constantly poll any of the serial ports. This frees up the application to service other tasks.



A single-byte serial transmission consists of the start bit, 8 bits of data followed by the stop bit. The start bit is always 0, while a stop bit is always 1. The LSB (Least Significant Bit, Bit 0) is sent out first following the start bit.

Downloaded from Arrow.com.

The figure below shows a single-byte transmission timing diagram.



COM0 is the programming interface for User program downloads and PmmC programming. Once the compiled 4DGL application program (EVE byte-code) is downloaded and the user code starts executing, the serial port is then available to the user application.

TX pin (Serial Transmit COM0):

Dedicated Asynchronous Serial port COM0 transmit pin, TX. Connect this pin to the external serial device receiving (RX) signal. This pin outputs at 3.3V levels.

RX pin (Serial Receive COM0):

Dedicated Asynchronous Serial port COM0 receive pin, RX. Connect this pin to an external serial device transmit (TX) signal. This pin is 5.0V tolerant.

UART Pin	pixxiLCD FPC Pin
TX	7
RX	8

Note

Serial port outputs at the level of TTL 3.3V, however, are 5V tolerant, so can accept communications from 5V devices.

Downloaded from Arrow.com.

5.2. General Purpose I/O

The pixxiLCD-39 has two general-purpose input/output (GPIO) pins available. All are digitally capable.

The table below shows the allocation of the GPIO pins on the pixxiLCD flex interface.

GPIO Pin	pixxiLCD FPC Pin	Pin Name
IO6	13	IO6_PIN
IO7	14	IO7_PIN

GPIO pins IO6 and IO7 can be individually set as a digital input or output. The pin mode of all the pins at power-up or reset is input by default. When set as digital inputs, the pins are 3.3V tolerant. Digital GPIO pins can only source/sink 15 mA.

5.3. I2C Interface

The I2C peripheral operates up to 1 MHz, supporting standard mode, full speed, and fast mode.

The pixxiLCD-39 can only function as a Master in an I2C bus.

The following table illustrates which of the GPIO pins can be used for I2C communication.

GPIO Pin	pixxiLCD FPC Pin	I2C Pin Function
IO6	13	SDA
IO7	14	SCL

I2C clock output pin, SCL. Connect this pin to the SCL pin of an external I2C device.

I2C data input/output pin, SDA. Connect this pin to the SDA pin of an external I2C device.

Downloaded from Arrow.com.

5.4. System Pins

+5V (Device Supply Voltage):

Display supply voltage pin. This pin should be connected to a stable supply voltage in the range of 4.0 Volts to 5.5 Volts DC. The nominal operating voltage is 5.0 Volts.

+3.3V (Device Output Voltage):

3.3V Output of the internal voltage regulator. Limited to approximately 250mA, for external use.

GND (Module Ground):

Device ground pin. This pin must be connected to the system ground.

RESET (Module Master Reset):

Device Master Reset pin. An active low pulse of greater than 2 microseconds will reset the device. Only use open collector-type circuits to reset the device if an external reset is required. This pin is not driven low by any internal conditions.

Downloaded from Arrow.com.

6. microSD / Flash Memory

The pixxiLCD-39 display module has two memory devices available: microSD, and Flash Memory. The automatic hardware selection of the memory device being used is dictated by the presence of a microSD card inserted into the display module.

When using the uSD card as the memory device, simply insert the uSD card into the socket.

When using Flash Memory as the memory device, simply eject the uSD card or yet do not insert anything in the socket.

The presence of the uSD card triggers a card detect switch inside the uSD socket, which enables or disables the Flash Memory. Only one can be enabled at once due to sharing the same bus, so your project needs to be designed with either uSD or Flash in mind.

> **Note**
>
> The correct PmmC must be loaded in the display when choosing the memory device (**-u** for the ***SD memory*** and **-f** for the ***serial flash memory***).

The Flash Memory device is used for all multimedia file retrieval such as images, animations and movie clips, data files, and fonts, or for holding extra code functions (to expand the code storage of the processor)

The SD memory card can also be used as general-purpose storage for data logging applications (RAW and FAT16 format support).

Support is available for either an SD memory card (SD with up to 2GB or SDHC starting from 4GB and above) or the Serial Flash memory chip (16 MB).

The dedicated SPI port is clocked at 35 MHz

Downloaded from Arrow.com.

7. Display Features

The pixxiLCD embedded graphics displays are designed to accommodate most applications. Some of the main features of the module are listed below.

7.1. PIXXI-44 Processor

The module is designed around the PIXXI-44 Graphics Controller from 4D-Labs.



The pixxiLCD-39 embedded graphics display is designed around the PIXXI-44, a configurable graphics controller from 4D Systems.

The PIXXI-44 can be configured to interface with many popular TFT-LCD and OLED displays.

The PIXXI-44 features a configurable core and hardware layer, which allows it to support LCD modules with various SPI display drivers and touch interfaces. Supported display interfaces include 3-wire serial SPI, 4-wire serial SPI, MCU 8-bit and MCU 16-bit. Additionally, it has support for touch interfaces like the 4-wire resistive touch panel interface and capacitive touch panel interface through an I2C touch controller.

The pixxiLCD-39 embedded graphics display is configured to utilize the MCU 16-bit Display configuration of the PIXXI-44 graphics processor.

The table below lists the exact PIXXI-44 configuration mode used by each variant of the pixxiLCD-39.

pixxiLCD-39 Variant	PIXXI-44 Configuration
pixxiLCD-39P4	MCU 16-bit Display, Non-touch
pixxiLCD-39P4CT	MCU 16-bit Display, Capacitive Touch

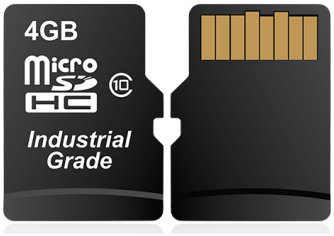
You can refer to the PIXXI-44 graphics processor datasheet.

Downloaded from Arrow.com.

7.2. SD/SDHC Memory Cards

The PIXXI-44 processor uses off-the-shelf standard SDHC/SD/microSD memory cards with up to 2GB capacity usable with FAT16 formatting. For any FAT file-related operations, before the memory card can be used it must first be formatted to FAT16. The formatting of the card can be done on any PC system with a card reader. Select the appropriate drive and choose the FAT16 (or just FAT in some systems) option when formatting. The card is now ready to be used in the PIXXI-44 based application.

The PIXXI-44 processor also supports high-capacity HC memory cards (4GB and above). The available capacity of SD-HC cards varies according to the way the card is partitioned and the commands used to access it.



The FAT partition is always first (if it exists) and can be up to the maximum size permitted by FAT16. Windows 7 will format FAT16 up to 4GB. Windows XP will format FAT16 up to 2GB and the Windows XP command prompt will format FAT16 up to 4GB.

RMPET, a 4D Systems Tool found in the Workshop4 IDE, is capable of repartitioning and formatting microSD cards to be the appropriate type and format for 4D Systems processors. This tool should be used for all cards.

Note

1. An SPI Compatible SDHC/SD/microSD card MUST be used. PIXXI-44 along with other 4D Systems Processors requires SPI mode to communicate with the SD card. If a non-SPI compatible SD card is used, then the processor will not be able to mount the card.
2. Read disturbance is a well-known issue with flash memory devices, such as microSD cards, where reading data from a flash cell can cause the nearby cells in the same memory block to change over time. This issue can be prevented by using industrial-grade microSD cards with read disturb protection. Industrial-grade microSD cards have firmware that actively monitors the read operation and refreshes areas of memory that have high traffic and even move data around to prevent read disturb error from occurring. Furthermore, manufacturers may choose to implement read disturb protection on a specific part of the flash memory only, such that the beginning part of the memory might not be protected. The RMPET utility in Workshop4 is designed to create the first partition at an offset from the start of the microSD card to account for this situation. It is therefore recommended to always partition and format an industrial microSD card using the RMPET utility before using it with 4D Systems processors.

Downloaded from Arrow.com.

7.3. FAT16

All 4D Systems displays featuring 4D Systems processors use off-the-shelf standard/micro SDHC/SD memory cards (SPI Compatible Only) with up to 4GB capacity usable with FAT16 formatting.

For any FAT file-related operations, before the memory card can be used it must first be formatted correctly. Built into Workshop4 is a tool created by 4D, called RMPET. RMPET allows the User to easily partition and format microSD cards, to make their file system ready to be used with 4D Systems displays. The formatting of the card can be done on any PC system with a card reader.

The PIXXI-44 processor also supports high-capacity HC memory cards (4GB and above). The available capacity of SD-HC cards varies according to the way the card is partitioned and the commands used to access it.

The FAT16 file system can utilize a maximum capacity of 4GB. The FAT partition is always first (if it exists). Any space larger than 4GB will be RAW, and can still be utilized by your 4D Systems module, using different functions. Please refer to the Application Notes.

8. Display/Module Precautions

- Avoid having to display the same image/object on the screen for lengthy periods. This can cause a burn-in which is a common problem with all types of display technologies. Blank the screen after a while or dim it very low by adjusting the contrast. Better still; implement a screen saver feature.
- Moisture and water can damage the display. Moisture on the surface of a powered display should not cause any problems; however, if water is to enter the display either from the front or from the rear, and contact the electronics, it will damage. Wipe off any moisture gently or let the display dry before usage. If using this display module in an environment where it can get wet, ensure an appropriate enclosure is used.
- Dirt from fingerprint oil and fat can easily stain the surface of the display. Gently wipe off any stains with a soft lint-free cloth.
- The performance of the display will degrade under high temperatures and humidity. Avoid such conditions when storing.
- Do not tamper with the display flex cable or the components on the flex. This may affect the connection between the display and the driving circuitry and cause failure.
- Displays are susceptible to mechanical shock and any force exerted on the module may result in deformed zebra stripes, a cracked display cell and a broken backlight.
- Display modules have a finite life, which is typically dictated by the display itself, more specifically the backlight. The backlight contains LEDs, which fade over time. In the Specifications section is a figure for the typical life of the display, and the criteria are listed.

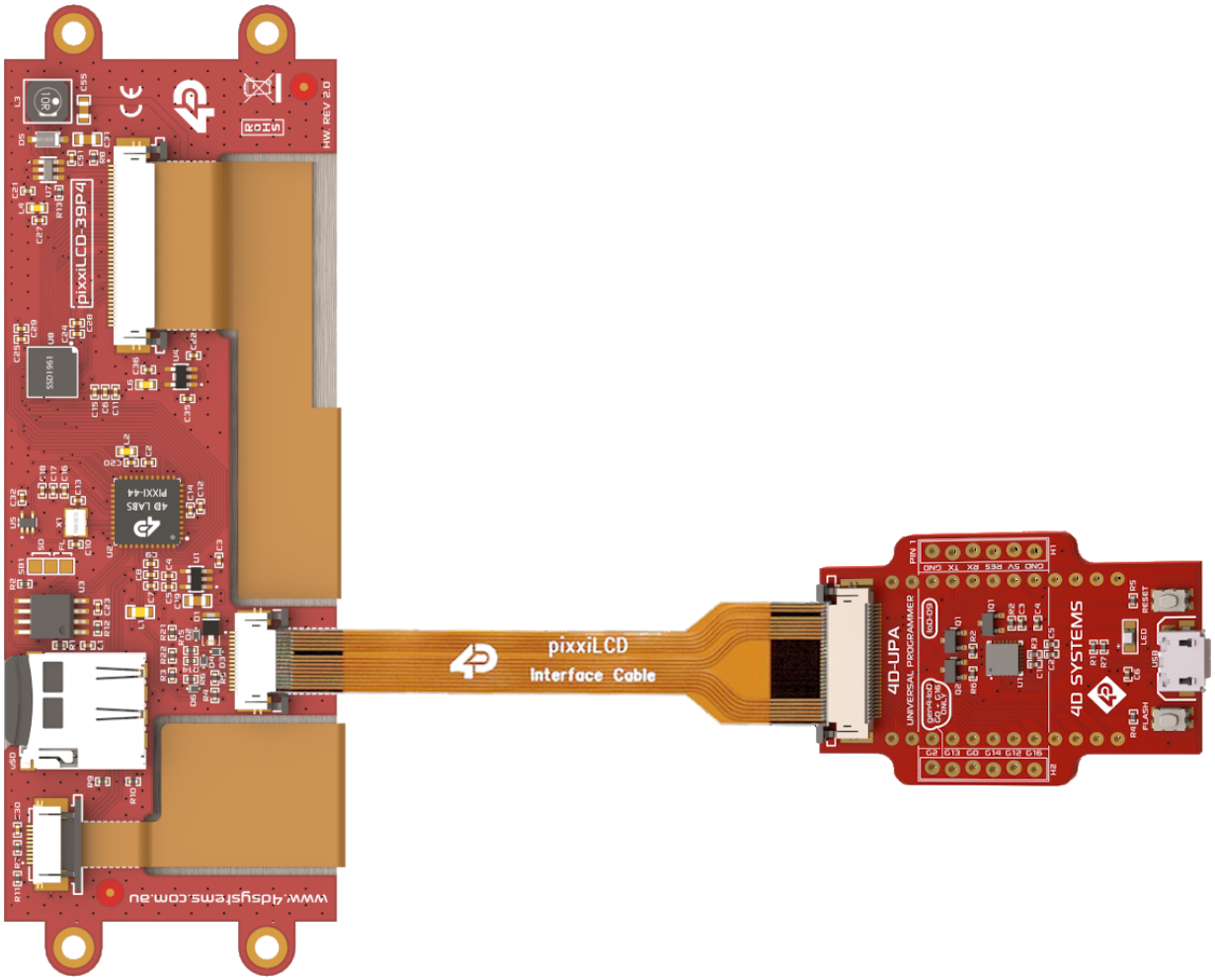
Downloaded from Arrow.com.

9. Hardware Tools

The following hardware tools are required for full control of the pixxiLCD-39 embedded graphics display.

9.1. 4D-UPA Programming Adaptor

The 4D-UPA Programming Adaptor is an essential hardware tool to program, customise and test the pixxiLCD display.



As shown, this connects to the pixxiLCD display through a 15-way-to-30-way cable.

The 4D-UPA is used to update the PmmC and to download compiled 4DGL code into the processor. It also serves as an interface for communicating serial data to the PC.

The 4D-UPA is a Universal programmer, and therefore, it may also be used for other 4D Systems products. Please refer to the 4D-UPA Datasheet for more information.

You can get the 4D-UPA from the 4D Systems website.

Using a non-4D programming interface could damage your processor, and **void your Warranty**.

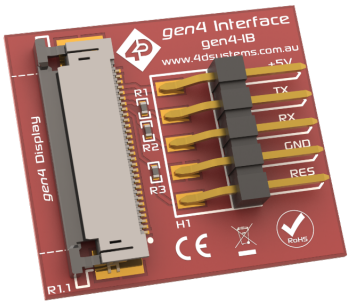
Downloaded from Arrow.com.

9.2. Interface Board

The Interface boards (gen4-IB) ship with each pixxiLCD Display Module unless otherwise stated and are used to aid in interfacing the serial UART to other devices such as a 4D Arduino Adaptor Shield, Serial Pi Adaptor, Breadboard, etc.

It does not break out all of the signals such as the GPIO, however, it provides the basics to allow communications with an external device using the Serial UART.

Simply connect the supplied 30-way end of the 15-30 way FPC cable into the ZIF connector on the Interface Board and the 15-way end into the PIXXI-LCD module. The 5-way header on the Interface Board is then available to connect your external device.



Alternatively, interfacing of the pixxiLCD display module can be done using a 15-way FPC directly to your product/ project, without utilising the 15-to-30 FPC or the Interface board supplied. This would be the most efficient solution for a final designed product.

Downloaded from Arrow.com.

10. Programming Language

The PIXXI-44 processor belongs to a family of processors powered by a highly optimised soft-core virtual engine called EVE (Extensible Virtual Engine). EVE was designed and created by 4D Systems in the early 2000s.

EVE is a proprietary, high-performance virtual machine with an extensive byte-code instruction set optimised to execute compiled 4DGL programs.

4DGL (4D Graphics Language) was specifically developed from the ground up for the EVE engine core. It is a high-level language that is easy to learn and simple to understand yet powerful enough to tackle many embedded graphics applications.

4DGL is a graphics-oriented language allowing rapid application development, and the syntax structure was designed using elements of popular languages such as C, Basic, Pascal and others.

Programmers familiar with these languages will feel right at home with 4DGL. It includes many familiar instructions such as `IF..ELSE..ENDIF, WHILE..WEND, REPEAT..UNTIL, GOSUB..ENDSUB, GOTO, PRINT` as well as some specialised instructions `SERIN, SEROUT, GFX_LINE, GFX_CIRCLE` and many more.

For detailed information about the 4DGL language, please refer to the following documents:

- 4DGL Programmers Reference Manual
- PIXXI Internal Functions Manual

To assist with the development of 4DGL applications, the Workshop4 IDE combines a full-featured editor, a compiler, a linker and a downloader into a single PC-based application. It's all you need to code, test and run your applications.

4DGL is available to be written in two of the four environments offered by the Workshop4 IDE, Designer and ViSi. The other two environments, Serial and ViSi-Genie do not directly use 4DGL by the User (Except in Workshop4 Pro, for ViSi-Genie), however, it is present in the background. Serial is an application that runs, and that is written in 4DGL. ViSi-Genie automatically generates 4DGL itself based on what is configured in the GUI.

Downloaded from Arrow.com.

11. Workshop4 IDE

Workshop4 is a comprehensive software IDE 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 complete 4DGL application code. All user application code is developed within the Workshop4 IDE.



The Workshop4 IDE supports multiple development environments for the user, to cater to different user requirements and skill levels.

- The **Designer** environment enables the user to write 4DGL code in its natural form to program the range of 4D Systems' intelligent displays.
- A visual programming experience, suitably called **ViSi**, enables drag-and-drop type placement of objects to assist with 4DGL code generation and allows the user to visualise how the display will look while being developed.
- An advanced environment called **ViSi-Genie** doesn't require any 4DGL coding at all, it is all done automatically for you. Simply lay the display out with the objects you want, set the events to drive them and the code is written for you automatically. This can be extended with additional features when a Workshop4 PRO license is purchased from the 4D Systems website. Extended Advanced features for Visi-Genie are available in the PRO version of WS4. Further details are explained under the Visi Genie section of the Workshop4 documentation.
- A **Serial** environment (aka SPE 'Serial Platform Environment') is also provided to transform the display module into a slave serial module, allowing the user to control the display from any host microcontroller or device with a serial port using predefined serial commands.

For more information regarding these environments, refer to the Workshop4 manuals.

The Workshop4 IDE is available from the 4D Systems website.

Downloaded from Arrow.com.

11.1. PmmC Programming

The PIXXI-44 processor is a custom graphics processor. All functionality including the high-level commands is built into the chip. This chip-level configuration is available as a PmmC (Personality-module-micro-Code) file, which can be likened to traditional Firmware.

A PmmC file contains all of the low-level micro-code information (analogy of that of a soft silicon) which defines the characteristics and functionality of the device. The ability of programming the device with a PmmC file provides an extremely flexible method of customizing as well as upgrading it with future enhancements.

The Display Driver is located inside the PmmC for PIXXI-44 and contains the initialisation and parameters associated with the particular display that is to be connected to the PIXXI-44 processor, along with product-specific settings and parameters which are required over and above what is found in the PmmC.

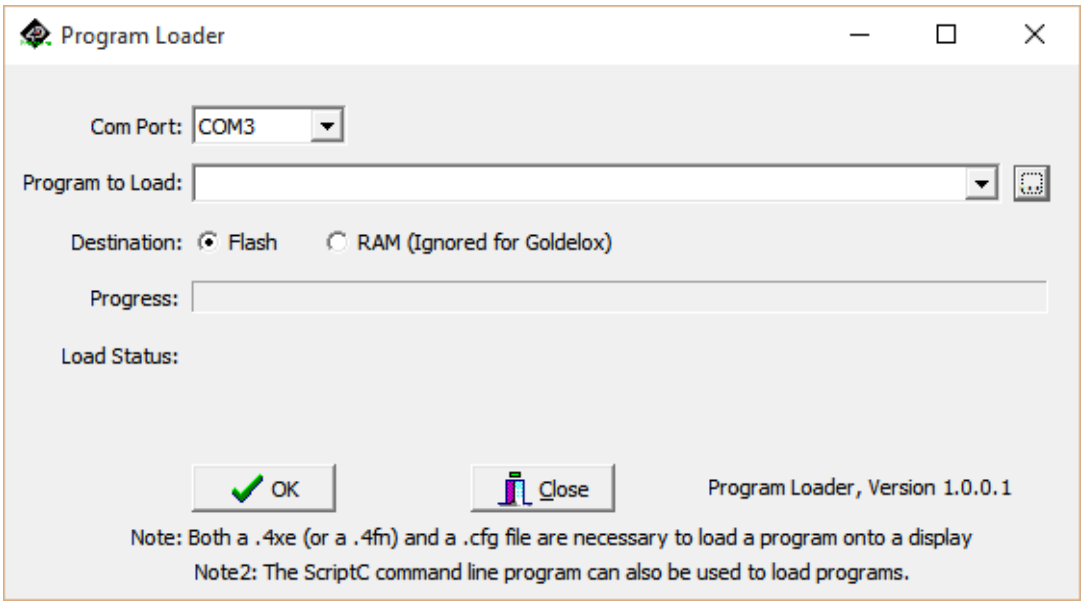
The PmmC file can only be programmed into the device with the aid of Workshop4, the 4D Systems IDE software, or its supporting tools.

Solutions, which remove the need to use Workshop4 to program the display, are available for commercial customers requiring batch programming or production line programming. These solutions are practical for production staff to minimize the chance of unwanted or unauthorised modifications on the production line.

Three solutions come with the Workshop4 IDE, which can be separated for production line computers if required, **ScriptC**, **PmmC Loader** and **Program Loader**.

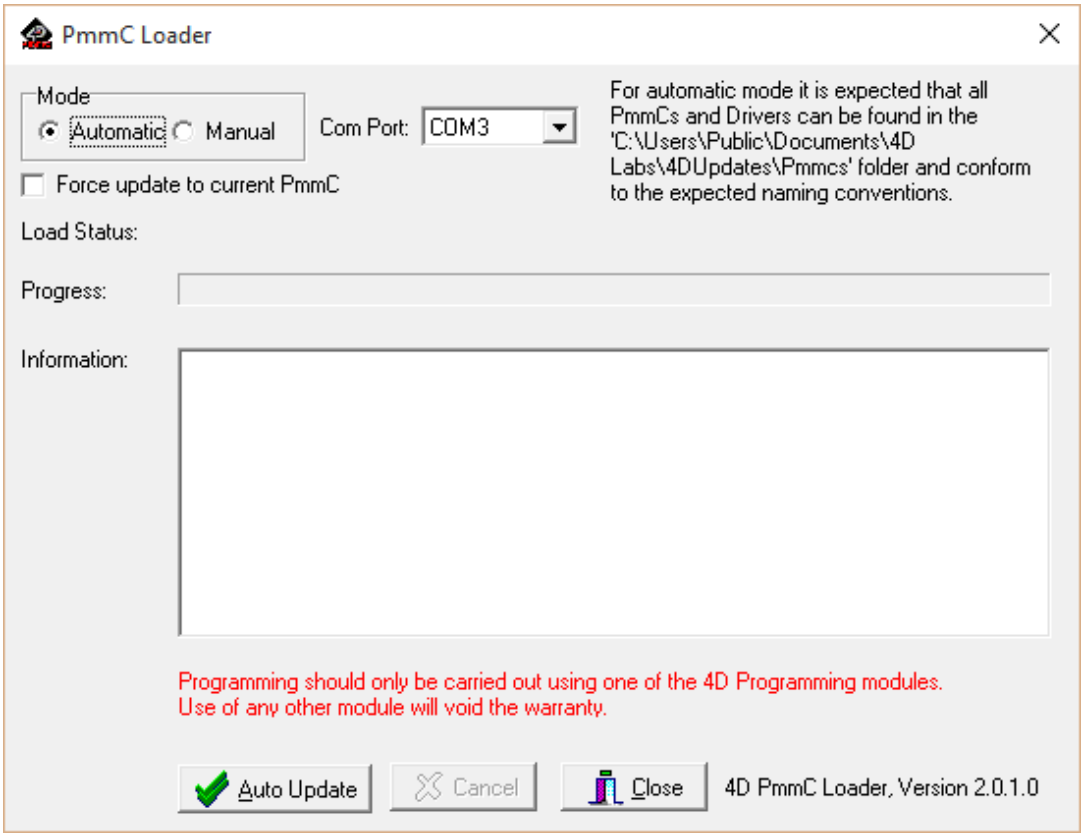
ScriptC is a command line interface that can be controlled from a Batch Script or similar, useful for repetitive loading or when controlled from an external application. Example scripts are provided, showing how to load PmmC, Display Drivers and Applications using a batch script.

Program Loader is a GUI interface designed to download Applications to either Flash or RAM, useful for testing or production loading, without the need for Workshop4 itself.



Downloaded from Arrow.com.

PmmC Loader is a GUI interface designed to download PmmC's and Drivers to 4D Systems Processors. It can automatically update existing PmmC's and Drivers present on a module, or manually change or force download to a blank processor or module, overwriting anything written in previously.



Please contact our Support Team for more information on what we can provide. Some solutions also exist for external processor-based loading, if there is a requirement for that. This solution is available under NDA. Using a non-4D programming interface could damage your module, and **void your Warranty**.

Downloaded from Arrow.com.

12. Display Module Part Numbers

The following is a breakdown of the part numbers and what they mean.

- pixxiLCD-39P4
- pixxiLCD-39P4CT

where:

pixxiLCD - pixxiLCD Display Range

39 - Display size (3.9")

P4 - PIXXI-44 Processor

CT - Capacitive Touch Panel

> **Note**
>
> A product without a CT in the part number is a non-touch variant.

13. Starter Kit

4D Systems highly recommends all first-time buyers of 4D Systems' displays, to purchase the Starter Kit when purchasing their first 4D Systems display solution.

The Starter Kit provides all the hardware that is required to get the User up and running.

Not all development environments and features will be needed by every User. However, purchasing the display solution in a Starter Kit allows you to take full advantage of all of the features of the 4D Systems Display Solution and try out each of the 4D Woskshop4 Environments before settling with the preferred feature set.

Starter Kits typically include:

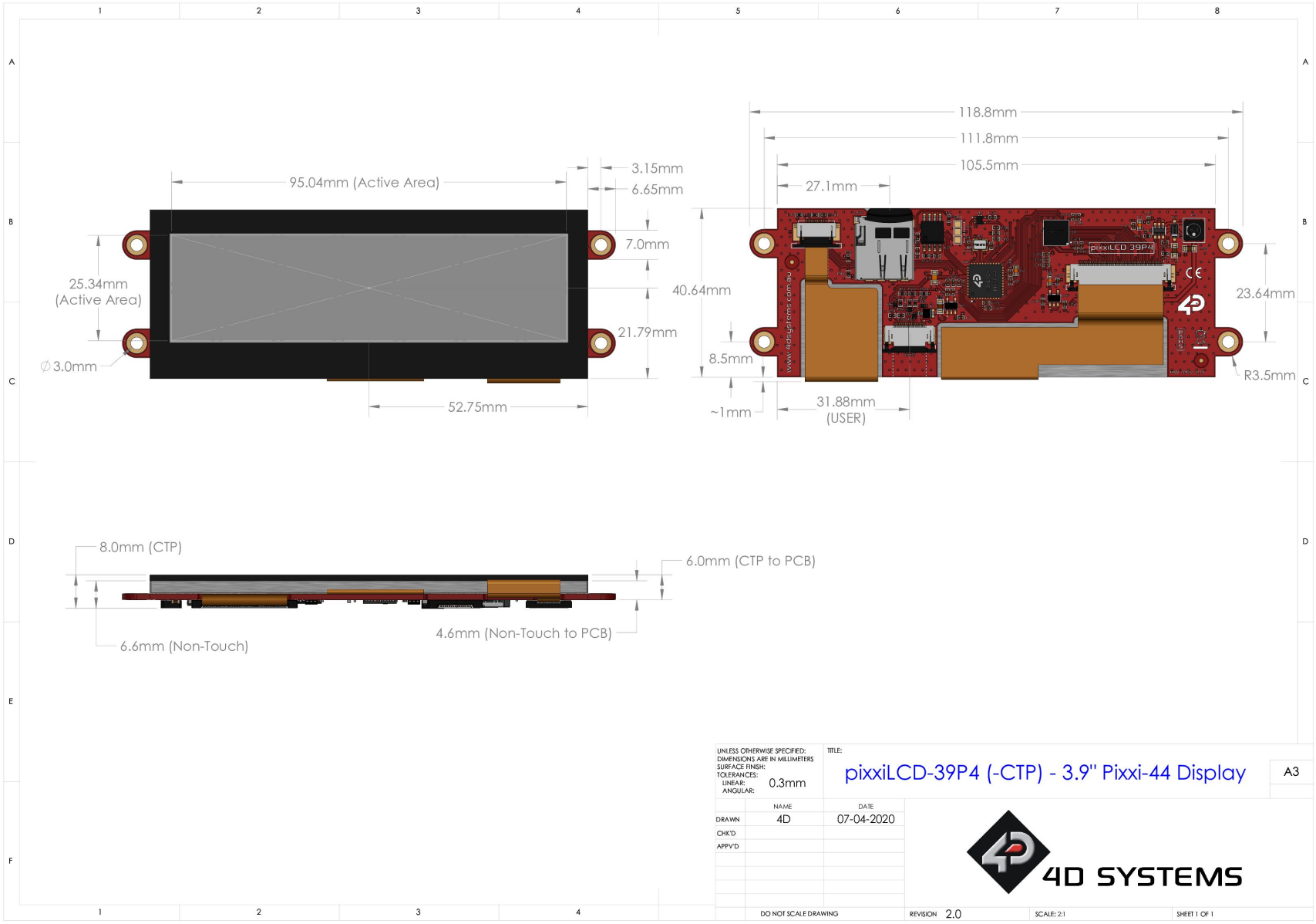
- pixxiLCD-39 Embedded Graphics Display
- 4D Universal Programming Adaptor (4D-UPA)
- 150mm 15-way-to-30-way FFC cable for connecting pixxiLCD-39 to the 4D-UPA or gen4-IB
- gen4 Interface Module (gen4-IB)
- 5-way Female-Female ribbon cable for easy connection to a host or breadboard via the gen4-IB
- 5-way Male-Male adaptor (for converting the Female-Female cable to be Male-Female)

Please refer to the 4D Systems website for the current components included in the Starter Kit.

Simply select the Starter Kit option when purchasing the chosen display module on the 4D Systems shopping cart, or from your local distributor.

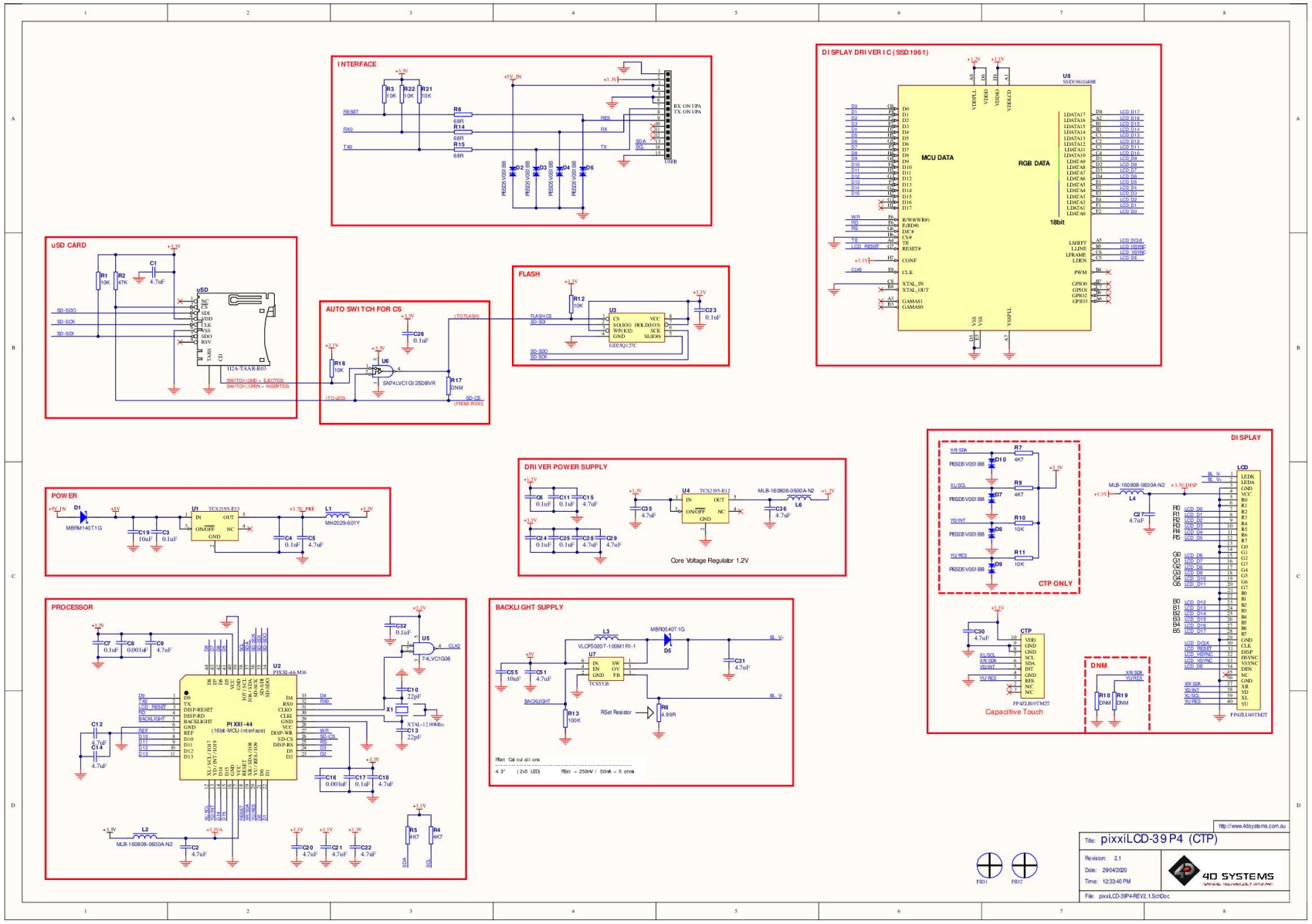
Downloaded from Arrow.com.

14. Mechanical Details (Non-Touch and Capacitive Touch)



Downloaded from Arrow.com.

15. Schematic Details - REV 2.1



Downloaded from Arrow.com.

16. Specifications

Absolute Maximum Ratings	
Operating ambient temperature	-20°C to +70°C
Storage temperature	-30°C to +80°C
Voltage on VCC with respect to GND	-0.3V to 6.0V
Maximum current sunk/sourced by any pin	15.0mA

Note

Stresses above those listed here may cause permanent damage to the device. This is for stress rating only and functional operation of the device at those or any other conditions above those indicated in the recommended operation listings of this specification is not implied. Exposure to maximum rating conditions for extended periods may affect device reliability.

Recommended Operating Conditions

Parameter	Conditions	Min	Typ	Max	Units
Supply Voltage (VCC)	Stable external supply required	4.0	5.0	5.5	V
Processor voltage (VP)		—	3.3	—	V
Operating Temperature		-10	—	+60	°C
Input Low Voltage (VIL)	all pins	GND	—	0.2VP	V
Input High Voltage (VIH)	non 5V tolerant pins	0.8VP	—	3.3	V
Input High Voltage (VIH)	5V Tolerant Pins, RX pin	0.8VP	—	5.5	V
Reset Pulse	External Open Collector	2.0	—	—	µs
Operational Delay	Power-Up or External Reset	500	—	3000	ms

Global Characteristics Based on Operating Conditions

Parameter	Conditions	Min	Typ	Max	Units
Supply Current (ICC)	5V Supply — pixxiLCD-39P4	—	255	—	mA
Supply Current (ICC)	5V Supply — pixxiLCD-39P4CT	—	265	—	mA
Display Endurance	Hours of operation, measured to when the display is 50% original brightness	30000	—	—	H
CTP Display Hardness	Hardness of the CTP	—	6	—	H

Downloaded from Arrow.com.

LCD Display Information

Parameter	Conditions	Specification
Display Type		TFT IPS LCD
Display Size		3.9" Diagonal
Display Resolution		480x128 (Landscape View)
Display Brightness	5V Supply, pixxiLCD-25P4	500 cd/m2 (typical)
	5V Supply, pixxiLCD-25P4CT	475 cd/m2 (typical)
Display Contrast Ratio	Typical	500:1
Display Viewing Angles	Above Centre	80 Degrees
	Below Centre	80 Degrees
	Left of Centre	80 Degrees
	Right of Centre	80 Degrees
Display Viewing Direction		ALL (IPS Display)
Display Backlighting	White LED Backlighting	2x5 Parallel LED's
Pixel Pitch		0.198 x 0.198 mm (Square pixels)
Pixel Density	Number of pixels in 1 row in 25.4mm	128 DPI/PPI

Downloaded from Arrow.com.

17. Revision History

Hardware Revision

Revision Number	Date	Description
2.0	07/04/2020	Initial prototype
2.1	29/04/2020	- Minor PCB fixes and improvements - Addition of automatic Flash/uSD card hardware selection

Datasheet Revision

Revision Number	Date	Description
1.0	10/06/2020	Initial release version
1.1	06/12/2022	Modified datasheet for web-based documentation
1.2	14/03/2024	Updated formatting for resource centre redesign

Downloaded from Arrow.com.

18. Legal Notice

18.1. Proprietary Information

The information contained in this document is the property of 4D Systems Pty. Ltd. and may be the subject of patents pending or granted, and must not be copied or disclosed without prior written permission. 4D Systems endeavours to ensure that the information in this document is correct and fairly stated but does not accept liability for any error or omission. The development of 4D Systems products and services is continuous and published information may not be up to date. It is important to check the current position with 4D Systems. 4D Systems reserves the right to modify, update or makes changes to Specifications or written material without prior notice at any time.

All trademarks belong to their respective owners and are recognised and acknowledged.

18.2. Disclaimer of Warranties & Limitations of Liabilities

4D Systems makes no warranty, either expressed or implied with respect to any product, and specifically disclaims all other warranties, including, without limitation, warranties for merchantability, non-infringement and fitness for any particular purpose.

Information contained in this publication regarding device applications and the like is provided only for your convenience and may be superseded by updates. It is your responsibility to ensure that your application meets with your specifications.

Images and graphics used throughout this document are for illustrative purposes only. All images and graphics used are possible to be displayed on the 4D Systems range of products, however the quality may vary.

In no event shall 4D Systems be liable to the buyer or to any third party for any indirect, incidental, special, consequential, punitive or exemplary damages (including without limitation lost profits, lost savings, or loss of business opportunity) arising out of or relating to any product or service provided or to be provided by 4D Systems, or the use or inability to use the same, even if 4D Systems has been advised of the possibility of such damages.

4D Systems products are not fault tolerant nor designed, manufactured or intended for use or resale as on line control equipment in hazardous environments requiring fail - safe performance, such as in the operation of nuclear facilities, aircraft navigation or communication systems, air traffic control, direct life support machines or weapons systems in which the failure of the product could lead directly to death, personal injury or severe physical or environmental damage ('High Risk Activities'). 4D Systems and its suppliers specifically disclaim any expressed or implied warranty of fitness for High Risk Activities.

Use of 4D Systems' products and devices in 'High Risk Activities' and in any other application is entirely at the buyer's risk, and the buyer agrees to defend, indemnify and hold harmless 4D Systems from any and all damages, claims, suits, or expenses resulting from such use. No licenses are conveyed, implicitly or otherwise, under any 4D Systems intellectual property rights.

Downloaded from Arrow.com.