DATASHEET

4D SYSTEMS

TURNING TECHNOLOGY INTO ART

Arduino Display Module Pack

Featuring 4.3” Serial Display Module

uLCD-43-PT-AR

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Contents

1. Description

The 4D Systems Arduino Display Module Pack is made up of a 4D Systems Display Module (see below) specifically customised for the Arduino.

The Pack comes with the uLCD-43-PT Display module, which has Resistive Touch.

The Pack comprises of:

- Customised uLCD-43-PT Display Module
- 4D Arduino Adaptor Shield
- 5 way Female-Female Cable

The Arduino Display Module Pack enables an Arduino user to quickly connect the 4D Arduino Adaptor Shield to their Arduino, connect the 5 way cable between the Adaptor and the Display Module, and be connected in seconds to start programming their new 4D Systems Display.

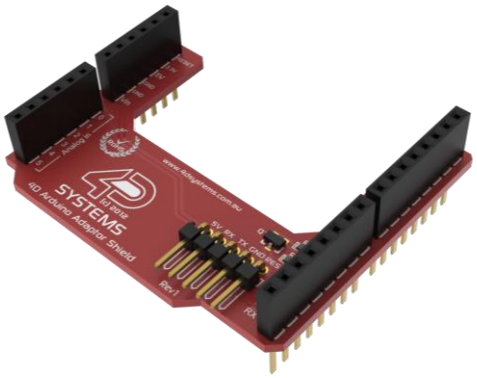
The uLCD-43-PT-AR has a comprehensive range of serial commands ready to be received from the Arduino, to draw primitives such as lines, rectangles, circles and text, to displaying images, playing sound and logging data to uSD card.

Communication to the Display Module is performed via the Arduino's serial port (RX and TX).

A single digital on the Arduino (D2) is utilised for an external reset for the display.

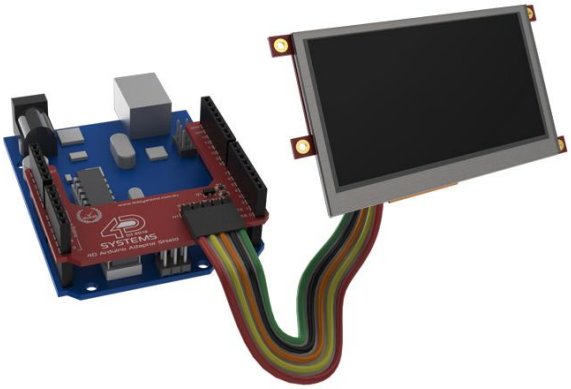
Power for the display is supplied from the Arduino's 5V bus. No external power is required for the Display Module as all power is supplied from the Arduino, via the Adaptor Shield.

For a detailed listing of the serial commands available, please refer to the Appendix section of this document.



4D Arduino Adaptor Shield

The uLCD-43 Display Module



The uLCD-43-PT-AR Pack connected together (Note: Arduino is not included in Pack)

2. Advanced Hardware Options

The display module uLCD-43-PT is a very capable and powerful piece of hardware, which can be reconfigured beyond the boundaries of the Arduino.

With the use of the 4D Systems Workshop4 IDE Software, the display module can be configured and programmed independently of the Arduino environment.

If a user wishes to investigate the capabilities of the uLCD-43 and reconfigure the display module, please refer to the Datasheet for the uLCD-43-PT, available from the 4D systems website, www.4dsystems.com.au.
The user can freely change back to the configuration the module was shipped in if desired, all via the Workshop4 IDE Software.

To take advantage of the 4D Systems Workshop4 Software, a 4D Programming Cable is required, which can be purchased from the 4D Systems website, or from a 4D Systems distributor.

3. Arduino Serial Library Functions

The following is a list of Arduino functions available to use with the 4D Systems Arduino Serial Library.

For detailed information on each of these functions, please refer to the Arduino Library itself available from the samples menu of the 4D Systems Workshop 4 Software or from the 4D Systems Github Repository. Please also refer to the product page and to the Application Notes, available from the 4D Systems website, www.4dsystems.com.au

Graphics Functions:

- gfx_Cls()
- gfx_ChangeColour(oldColour, newColour)
- gfx_Circle(x, y, radius, colour)
- gfx_CircleFilled(x, y, radius, colour)
- gfx_Line(x1, y1, x2, y2, colour)
- gfx_Rectangle(x1, y1, x2, y2, colour)
- gfx_RectangleFilled(x1, y1, x2, y2, colour)
- gfx_Polyline(n, vx, vy, colour)
- gfx_Polygon(n, vx, vy, colour)
- gfx_Triangle(x1, y1, x2, y2, x3, y3, colour)
- gfx_Orbit(angle, distance)
- gfx_PutPixel(x, y, colour)
- gfx_GetPixel(x, y)
- gfx_MoveTo(xpos, ypos)
- gfx_LineTo(xpos, ypos)
- gfx_SetClipRegion()
- gfx_Ellipse(x, y, xrad, yrad, colour)
- gfx_EllipseFilled(x, y, xrad, yrad, colour)
- gfx_Button(state, x, y, buttonColour, textColour, font, textWidth, textHeight, text)
- gfx_Panel(state, x, y, width, height, colour)
- gfx_Slider(mode, x1, y1, x2, y2, colour, scale, value)
- gfx_ScreenCopyPaste(xs, ys, xd, yd, width, height)
- gfx_TriangleFilled(x1, y1, x2, y2, x3, y3, colr)
- gfx_PolygonFilled(n, vx, vy, colr)
- gfx_Get(mode)
- gfx_ClipWindow(x1, y1, x2, y2)
- gfx_Set(function, value)

  gfx_Set shortcuts:

  - gfx_BGcolour(colour)
  - gfx_Clipping(mode)
  - gfx_TransparentColour(colour)
  - gfx_Transparency(mode)
  - gfx_FrameDelay(delay)
  - gfx_ScreenMode(delay)
  - gfx_OutlineColour(colour)
  - gfx_Contrast(value)
  - gfx_LinePattern(pattern)
  - gfx_BevelWidth(mode)
  - gfx_BevelShadow(value)

Touch Screen Functions:

- touch_DetectRegion(x1, y1, x2, y2)
- touch_Set(mode)
- touch_Get(mode)

Text and String Functions:

- charwidth('char')
- charheight('char')
- putstr(pointer)
- txt_Set(function, value)

  txt_Set shortcuts:
  - txt_FGcolour(colour)
  - txt_BGcolour(colour)
  - txt_FontID(id)
  - txt_Width(multiplier)
  - txt_Height(multiplier)
  - txt_Xgap(pixelcount)
  - txt_Ygap(pixelcount)
  - txt_Opacity(mode)
  - txt_Bold(mode)
  - txt_Italic(mode)
  - txt_Inverse(mode)
  - txt_Underlined(mode)
  - txt_Attributes(value)
  - txt_Wrap(value)

Image Control Functions:

- img_SetPosition(handle, index, xpos, ypos)
- img_Enable(handle, index)
- img_Disable(handle, index)
- img_Darken(handle, index)
- img_Lighten(handle, index)
- img_SetWord(handle, index, offset, word)
- img_GetWord(handle, index, offset)
- img_Show(handle, index)
- img_SetAttributes(handle, index, value)
- img_ClearAttributes(handle, index, value)
- img_Touched(handle, index)

Media Functions (SD/SDHC memory Card):

- media_Init()
- media_SetAdd(HIword, LOword)
- media_SetSector(HIword, LOword)
- media_RdSector(Destination_Address)
- media_WrSector(Source_Address)
- media_ReadByte()
- media_ReadWord()
- media_WriteByte(byte_val)
- media_WriteWord(word_val)
- media_Flush()
- media_Image(x, y)
- media_Video(x, y)
- media_VideoFrame(x, y, frameNumber)

Serial (UART) Communications Functions:

- setbaud(rate)

FAT16 File Functions:

- file_Error()
- file_Count(filename)
- file_Dir(filename)
- file_FindFirst(fname)
- file_FindNext()
- file_Exists(fname)
- file_Open(fname, mode)
- file_Close(handle)
- file_Read(destination, size, handle)
- file_Seek(handle, HiWord, LoWord)
- file_Index(handle, Hisize, Losize, recordnum)
- file_Tell(handle, &HiWord, &LoWord)
- file_Write(Source, size, handle)
- file_Size(handle, &HiWord, &LoWord)
- file_Image(x, y, handle)
- file_ScreenCapture(x, y, width, height, handle)
- file_PutC(char, handle)
- file_GetC(handle)
- file_PutW(word, handle)
- file_GetW(handle)
- file_PutS(source, handle)
- file_GetS(*String, size, handle)
- file_Erase(fname)
- file_Rewind(handle)
- file_LoadFunction(fname.4XE)
- file_Run(fname..4XE, arglistptr)
- file_Exec(fname..4XE, arglistptr)
- file_LoadImageControl(fname1, fname2, mode)
- file_Mount()
- file_Unmount()
- file_PlayWAV

Sound Control Functions:

- Snd_Volume(var)
- Snd_Pitch(pitch)
- Snd_BufSize(var)
- Snd_Stop()
- Snd_Pause()
- Snd_Continue()
- Snd_Playing()

Timer Functions:

- sys_Sleep(units)

4. Specifications and Ratings

RECOMMENDED OPERATING CONDITIONS					
Parameter	**Conditions**	**Min**	**Typ**	**Max**	**Units**
Supply Voltage (VCC)		4.5	--	5.5	V
Operating Temperature		-10	--	+70	°C

ORDERING INFORMATION
Order Code: uLCD-43-PT-AR
Package: Bagged 138mm x 100mm x 30mm box and 105mm x 65mm x 30mm box
Packaging: Modules sealed in antistatic foam padded 4D Systems Box's

5. Legal Notice

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