LCD5110_Basic

Arduino and chipKit library for Nokia 5110 compatible LCDs

Manual

PREFACE:

This library has been made to make it easy to use the basic functions of the Nokia 5110 LCD module on an Arduino or a chipKit.

Basic functionality of this library are based on the demo-code provided by ITead studio. You can find the latest version of the library at **http://www.henningkarlsen.com/electronics**

You can always find the latest version of the library at **http://electronics.henningkarlsen.com/**

If you make any modifications or improvements to the code, I would appreciate that you share the code with me so that I might include it in the next release. I can be contacted through **http://electronics.henningkarlsen.com/contact.php**.

For version information, please refer to **version.txt**.

Defined Literals:

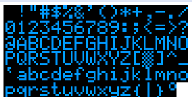
Alignment

For use with print(), printNumI() and printNumF()

```
  LEFT:  0
 RIGHT:  9999
CENTER:  9998
```

Included Fonts:

SmallFont



```
         Charactersize:  6x8 pixels
Number of characters:  95
```

MediumNumbers

- . /0 123456789

```
         Charactersize:  12x16 pixels
Number of characters:  13
```

BigNumbers

- . /0 123456789

```
         Charactersize:  14x24 pixels
Number of characters:  13
```

Functions:

LCD5110(SCK, MOSI, DC, RST, CS);	
The main class constructor.	
Parameters:	SCK: Pin for Clock signal MOSI: Pin for Data transfer DC: Pin for Register Select (Data/Command) RST: Pin for Reset CS: Pin for Chip Select
Usage:	`LCD5110 myGLCD(8, 9, 10, 11, 12); // Start an instance of the LCD5110 class`

InitLCD([contrast]);	
Initialize the LCD.	
Parameters:	contrast: **<optional>** Specify a value to use for contrast (0-127) Default is 70
Usage:	`myGLCD.initLCD(); // Initialize the display`
Notes:	This will reset and clear the display.

setContrast(contrast);	
Set the contrast of the LCD.	
Parameters:	contrast: Specify a value to use for contrast (0-127)
Usage:	`myGLCD.setContrast(70); // Sets the contrast to the default value of 70`

enableSleep();	
Put the display in Sleep Mode.	
Parameters:	None
Usage:	`myGLCD.enableSleep(); // Put the display into Sleep Mode`
Notes:	Entering Sleep Mode will not turn off the backlight as this is a hardware function.

disableSleep();	
Re-enable the display after it has been put in Sleep Mode.	
Parameters:	None
Usage:	`myGLCD.disableSleep(); // Wake the display after putting it into Sleep Mode`
Notes:	The display will automatically be cleared when Sleep Mode is disabled. Exiting Sleep Mode will not turn on the backlight as this is a hardware function.

clrScr();	
Clear the screen.	
Parameters:	None
Usage:	`myGLCD.clrScr(); // Clear the screen`

clrRow(row[, start_x[, end_x]]);	
Clear a part of, or a whole row.	
Parameters:	row: 8 pixel high row to clear (0-5) start_x: **<optional>** x-coordinate to start the clearing on (default = 0) end_x: **<optional>** x-coordinate to end the clearing on (default = 83)
Usage:	`myGLCD.clrRow(5, 42); // Clear the right half of the lower row`

invert(mode);	
Set inversion of the display on or off.	
Parameters:	mode: true - Invert the display false – Normal display
Usage:	`myGLCD.invert(true); // Set display inversion on`

print(st, x, y);

Print a string at the specified coordinates.
You can use the literals LEFT, CENTER and RIGHT as the x-coordinate to align the string on the screen.

Parameters:	st: the string to print x: x-coordinate of the upper, left corner of the first character y: y-coordinate of the upper, left corner of the first character
Usage:	myGLCD.print(“Hello World”,CENTER,0); // Print “Hello World” centered at the top of the screen
Notes:	The y-coordinate will be adjusted to be aligned with an 8 pixel high display row. In effect only 0, 8, 16, 24, 32 and 40 can be used as y-coordinates. The string can be either a char array or a String object

printNumI(num, x, y[, length[, filler]]);

Print an integer number at the specified coordinates.
You can use the literals LEFT, CENTER and RIGHT as the x-coordinate to align the string on the screen.

Parameters:	num: the value to print (-2,147,483,648 to 2,147,483,647) *INTEGERS ONLY* x: x-coordinate of the upper, left corner of the first digit/sign y: y-coordinate of the upper, left corner of the first digit/sign length: **<optional>** minimum number of digits/characters (including sign) to display filler: **<optional>** filler character to use to get the minimum length. The character will be inserted in front of the number, but after the sign. Default is ' ' (space).
Usage:	myGLCD.print(num,CENTER,0); // Print the value of “num” centered at the top of the screen
Notes:	The y-coordinate will be adjusted to be aligned with an 8 pixel high display row. In effect only 0, 8, 16, 24, 32 and 40 can be used as y-coordinates.

printNumF(num, dec, x, y[, divider[, length[, filler]]]);

Print a floating-point number at the specified coordinates.
You can use the literals LEFT, CENTER and RIGHT as the x-coordinate to align the string on the screen.
WARNING: Floating point numbers are not exact, and may yield strange results when compared. Use at your own discretion.

Parameters:	num: the value to print (*See note*) dec: digits in the fractional part (1-5) *0 is not supported. Use printNumI() instead.* x: x-coordinate of the upper, left corner of the first digit/sign y: y-coordinate of the upper, left corner of the first digit/sign divider: **<Optional>** Single character to use as decimal point. Default is '.' length: **<optional>** minimum number of digits/characters (including sign) to display filler: **<optional>** filler character to use to get the minimum length. The character will be inserted in front of the number, but after the sign. Default is ' ' (space).
Usage:	myGLCD.print(num, 3, CENTER,0); // Print the value of “num” with 3 fractional digits top centered
Notes:	Supported range depends on the number of fractional digits used. Approx range is +/- 2*(10^(9-dec)) The y-coordinate will be adjusted to be aligned with an 8 pixel high display row. In effect only 0, 8, 16, 24, 32 and 40 can be used as y-coordinates.

setFont(fontname);

Select font to use with print(), printNumI() and printNumF().

Parameters:	fontname: Name of the array containing the font you wish to use
Usage:	myGLCD.setFont(SmallFont); // Select the font called SmallFont
Notes:	You must declare the font-array as an external or include it in your sketch.

invertText(mode);

Select if text printed with print(), printNumI() and printNumF() should be inverted.

Parameters:	mode: true - Invert the text false – Normal text
Usage:	myGLCD.invertText(true); // Turn on inverted printing
Notes:	SetFont() will turn off inverted printing

drawBitmap (x, y, sx, sy, data);

Draw a bitmap on the screen.

Parameters:	x: x-coordinate of the upper, left corner of the bitmap y: y-coordinate of the upper, left corner of the bitmap sx: width of the bitmap in pixels sy: height of the bitmap in pixels data: array containing the bitmap-data
Usage:	myGLCD.drawBitmap(0, 0, 32, 32, bitmap); // Draw a 32x32 pixel bitmap in the upper left corner
Notes:	You can use the online-tool “*ImageConverter Mono*” to convert pictures into compatible arrays. The online-tool can be found on my website. Requires that you *#include <avr/pgmspace.h>* when using an Arduino other than Arduino Due.