

20x4 Character LCD User Manual

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Quick Start Guide

1. Turn off the Raspberry Pi and disconnect power.
2. Connect LCD to Raspberry Pi with supplied wires. See [pinout](#) for details.
3. Connect power to the raspberry Pi.
4. Install the software on the Raspberry Pi, see [details](#) below.
5. Inside a command prompt type **lcd.sh -help** followed by <Enter> to see a list of commands.
6. Run **lcd.sh -board_info** to see the board information.
7. Try writing to the LCD, **lcd.sh -row_write 1 "a b c"** or **lcd.sh -row_write 1 ""** to clear that row.

Software Install

1. Download the Raspberry Pi software from the product page(http://www.rpigear.com/lcd_20x4/), copy it to any folder on the Raspberry Pi.
2. Unzip the .zip file, for example ***sudo unzip lcd_linux_1.1.zip***
3. Go into the unzipped install directory, ***cd lcd_linux_1.1/install***
4. Make install.sh executable with ***sudo chmod 777 install.sh***
5. Run ***sudo ./install.sh -install***
6. Run ***lcd.sh -help*** to see a full list of commands
7. The .zip file and unzipped folder are not used any more, feel free to delete them.

Software Un-Install

1. Run ***sudo /opt/lcd/install.sh -uninstall***

Note :

The default software install consists of the files stored inside /opt/lcd folder as well as lcd.sh inside /usr/local/bin.

Firmware Update

1. Download the new firmware from website
2. unzip it, ***sudo unzip <file_name>***
3. run ***lcd.sh -fw_update <file_name>***

Firmware Recovery

If something like a power loss during a firmware update “bricked” the LCD module, follow the steps below to recover it.

1. Turn off power.
1. Press and hold push button at the back of the LCD while turning power back on. This will put the LCD into bootloader mode.
2. Wait until the Pi boots up
3. Make sure the LCD is in I2C mode, if not hold the push button to cycle modes.
4. Update firmware with ***lcd.sh -fw_update <file_name>***

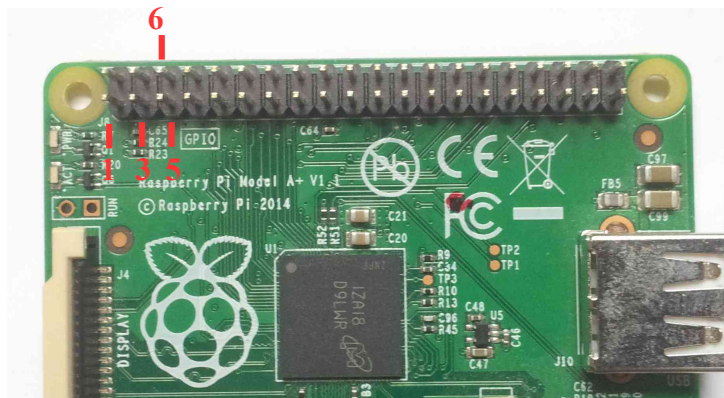
Selecting the communications interface

Press and hold the push button at the back of the LCD to cycle through the various communications modes.

Pinout

Press and hold the push button at the back of the LCD to cycle through the various communications modes.

Raspberry Pi Connections pinout	
LCD Pin	Pi Pin
GND	6
3.3V	1
I2C_SDA	3
I2C_SCL	5



Raspberry Pi Pinout

List of Commands

-help

Result : Prints a list of commands.

Example :

lcd.sh -help

-board_info

Result : Prints the board information.

Example :

lcd.sh -board_info

-row_write "data"

Result : Writes data to one of the rows of the LCD. String should be inside quotations.

Example : Write "a b c" to row 1

lcd.sh -row_write 1 "a b c"

Example : Clear row 1

lcd.sh -row_write 1 ""

-reset

Result : Reset the controller.

Example :

lcd.sh -reset

-backlight <val>

Result : Changes the backlight brightness. Val should be between 0 and 160.

Example : Turn off the backlight

lcd.sh -backlight 0

Example : Set full brightness

lcd.sh -backlight 160

-backlight_save

Result : Saves the backlight intensity to non volatile memory. Avoid saving often as it wears out the onboard flash.

Example :

lcd.sh -backlight_save

-contrast <val>

Result : Changes the contrast. Val should be between 0 and 160.

Example :

lcd.sh -contrast 100

-contrast_save

Result : Saves the contrast setting to non volatile memory. Avoid saving often as it wears out the onboard flash.

Example :

lcd.sh -contrast_save

-read_conf

Result : Reads the contents of the configuration file

Example :

lcd.sh -read_conf

-i2c_find

Result : Finds the LCD on the I2C bus, and updates I2C_ADDR variable inside the .conf file. This command is normally only used once when setting up the system for the first time.

Example :

lcd.sh -i2c_find

-i2c_change_addr <new_addr>

Result : Changes the I2C address, and updates I2C_ADDR variable inside the .conf file.

Example : Update i2c address to 0x25

lcd.sh -i2c_change_addr 25

-sw_rev

Result : Reads the Linux software revision

Example :

lcd.sh -sw_rev

-fw_update <file_name>

Result : Updates the firmware.

Note: There is also a firmware recovery procedure described in other parts of the user manual. The recovery procedure should be used for “bricked” devices.

Example :

lcd.sh -fw_update file.bin

www.rpigeear.com

Document Revisions

Rev 1.0 :

- Original

Rev 1.1:

- Added `-sw_rev` command that prints the software revision.
- Removed `-change_mode` command because the Linux software is now fixed to i2c.
- Added C examples based for the PIC16 microcontroller that show how to interface with the LCD using both the hardware i2c/spi/uart hardware modules as well as bit banging.
- Removed the SPI and UART pins from the pinout since it's now fixed to i2c.
- Removed FAQ section, will keep it on the webpage.